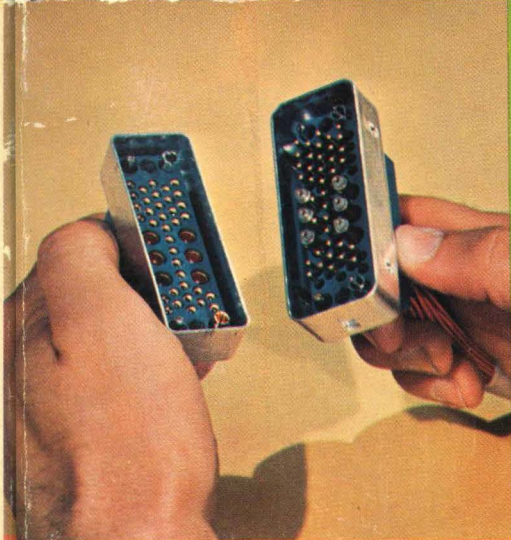
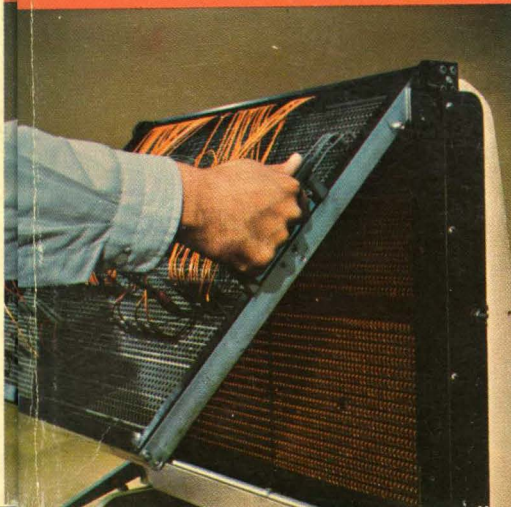


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TERMINAL and CONNECTOR HANDBOOK



OVER 25,000 ITEMS
FOR TERMINATING,
CONNECTING, SPLICING
AND PROGRAMMING
ELECTRICAL, ELECTRONIC
AND PNEUMATIC CIRCUITRY



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**TERMINAL and
CONNECTOR
HANDBOOK**



Prepared and Published by
AMERICAN PAMCOR, INC.
VALLEY FORGE, PA.

A subsidiary of AMP Incorporated

AMERICAN
PAMCOR
INC.

This handbook is intended as a reference source and working partner for anyone involved in wiring or interconnecting electrical devices of any kind. Section XI also describes a new concept and products for connecting tubing. We of American Pamcor, Inc., are presenting it to you in the hope that it will be useful in answering your day-to-day questions about terminals, splices, connectors, and other items you use in your work.

IMPORTANT NOTE: Several postage-paid reply cards are bound into the back of this handbook and we encourage you to use them for further information on these or other products and applications which may interest you.



TERMINAL and CONNECTOR HANDBOOK

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TRADEMARK NOTE—Various trademarks of AMP INCORPORATED are used throughout this book. Below is a listing of these marks:

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TABLE OF CONTENTS

The product portions of this Handbook are divided into sections and sub-sections for easy reference and identification.

	Page
SECTION I—Terminals and Splices	
Introduction	12
PIDG Terminals and Splices	13
PLASTI-GRIP Terminals and Splices	22
SOLISTRAND Terminals and Splices	27
DIAMOND GRIP Terminals and Splices	38
AMPOWER Terminals and Splices	44
Battery Terminals	49
SECTION II—Single and Multiple Circuit Connectors	
Introduction	52
MATE-N-LOK Connectors	53
AMP-LOK Connectors	57
AMPPEZ Connectors	59
“187” Modular FASTON Connectors	60
FASTIN-FASTON Connectors	61
TERMI-BLOK Connectors	63
SECTION III—Terminals and Splices for Special Applications	
Introduction	66
Taper Technique	67
FASTON Products	83
STRATO-THERM Terminals and Splices	88
TERMINYL Terminals and Splices	100
AMPLI-BOND Terminals	103
CERTI-SEAL Splices	106
TERMI-FOIL Terminals	107
SECTION IV—Pin and Socket Connectors	
Introduction	110
Series M	125
Series D, DD, DDE, W, WW	152
Series G	171
CH-AMP Subminiature Connectors	175
DUALATCH Connectors	176
AMPOWER Multiple Connectors	182
SECTION V—Coaxial and Shielded Wire Products	
Introduction	186
BNC Series Connectors	187
TNC Series Connectors	192
UHF Plug Connectors	195
“N” Series Connectors	197
COAXICLAMP Connectors	199

SECTION V—Coaxial and Shielded Wire Products (Cont.)

Threaded Series COAXICON Connectors	201
COAXICON Multiple Connectors	204
Miniature COAXICON Connectors	205
Standard COAXICON Connectors	214
Miniature COAXICON Sockets	223
Twin Standard COAXICON Connectors	224
Subminiature COAXICON Contacts	227
TERMASHIELD Ferrules and Splices	229

SECTION VI—Programming Products

Introduction	236
Card Programming	237
Patchcord Programming (Universal and Shielded)	242
Coaxial Programming	266
Matrix and Universal Pinboards	269
Stepping Switch Connectors	278

SECTION VII—Printed Circuit Products

Introduction	282
AMP-LEAF Connectors	283
AMP-BLADE Connectors	288
AMP-IN and AMP-EDGE Terminals	294
AMP-TAB Connectors	296
Reusable Component Test Receptacles	300
Test Probe Receptacles	301
Miniature Spring Sockets	303

SECTION VIII—Insulation and Bundling

Introduction	306
SPIRAP Spiral Plastic Tubing	307
AMPSULATION Tubing	310
AMPIP Post Insulation Pod	312

SECTION IX—Utility Products

Introduction	314
UTILI-TENSHUN Splices and Deadends	315
AMPACT Taps and Tools	318

SECTION X—Tooling

Introduction	322
SUPER-CHAMP II Hand Tool	323
CERTI-CRIMP and Pneumatic	324
Tapematic and Tapetriconic	326
Bantam Rota-Crimp Tool	328
Rota-Crimp Tool	329
AMP Straight Action Tool	330
VIZE-AN-AMMER Tool	332
DYNA-CRIMP Tool	333

SECTION XI—Special Products

AMP-FIT Tube Fittings	336
AMPILLUME Indicator Lights	339
Closed End Splices	342

SECTION XII—Reference and Index

Conversion Charts	346
Product Cross Reference Index	378

This handbook is your guide to the extensive and diversified line of quality A-MP products and tools available from American Pamcor for terminating, splicing, connecting and programming electronic or electrical circuitry. Section XI also describes a new concept for connecting tubing. This is the first such publication ever to include such a comprehensive listing of products in this highly specialized field.

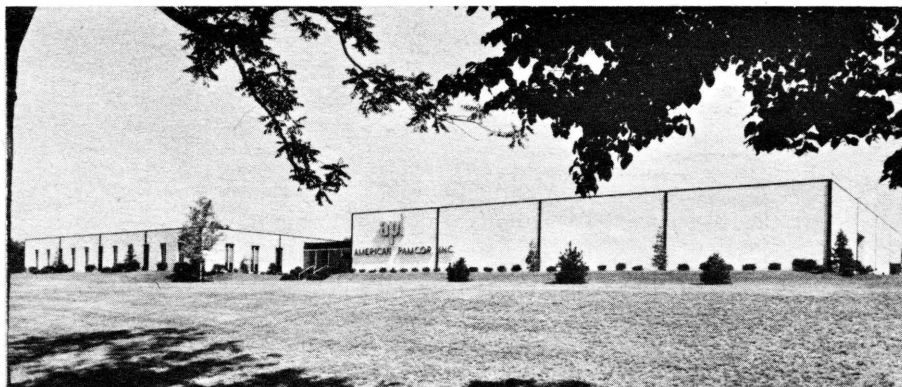
AMP Incorporated is a worldwide leading producer of solderless terminals, splices, multiple connectors and other wiring devices, and the application tooling to pressure-crimp these devices to electric wires. AMP also produces patchcord, pinboard and card programming systems, other electrical components and mechanical tube fittings. Over 25,000 variations in type and size are manufactured for the maintenance and repair of the products and equipment of almost all industries including aerospace, appliance and consumer goods, power utility, communications, control and

computers, transportation and military electronics fields.

The A-MP products listed in this handbook are available through American Pamcor, Inc. with headquarters in Valley Forge, Pennsylvania, a wholly owned sales and service subsidiary of AMP Incorporated. American Pamcor provides direct local sales and service through its extensive organization of sales specialists, district offices and warehouses strategically located throughout the United States and Puerto Rico. The total depth of services and full range of products available could not possibly be completely covered in this type of handbook. Many highly specialized products for specific industries or for uncommon applications, while available, have been omitted. This handbook should provide you with information on the bulk of your circuit terminating and connecting requirements. However, if you do not find the information you desire in this handbook, please contact your American Pamcor representative or nearest district office for more complete information.



AMP Incorporated worldwide administrative headquarters, located in Harrisburg, Pennsylvania.

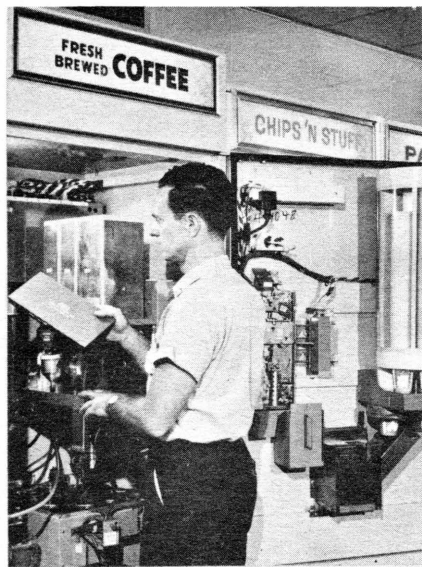


American Pamcor, Inc. national administrative headquarters, located in Valley Forge, Pennsylvania.

THE ART OF CONNECTING WIRES

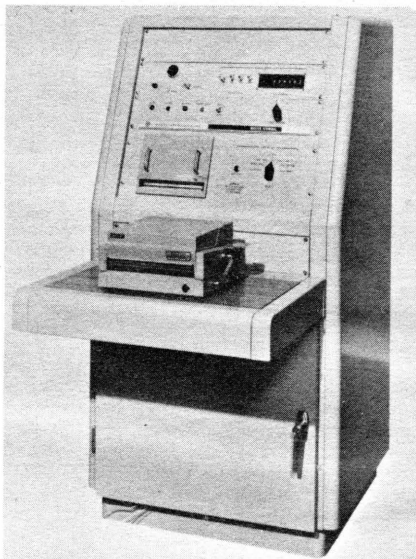
The theoretically perfect wire connection would not in any way alter the electrical or mechanical characteristics of the wire itself. In the history of electricity, precision circuit connections came about relatively late. For years, even as the complexity of equipment increased, the basic electrical connection still was accomplished by antiquated methods. The connection was often the weakest link in the integrity of the overall circuit.

AMP's entry into the field in 1941 changed the picture considerably. The advent of the A-MP patented solderless terminal and the introduction of AMP's controlled pressure-crimping technique made available for the first time electrical connections engineered to precise tolerances and designed to answer specific problems. Today, literally billions of A-MP products are to be found in every workaday scene.



American Pamcor, Inc. supplies a variety of products for the vast vending machine industry.

They're to be found wherever electricity serves business, industry and the home. They perform reliably in transportation, communications and in many other tasks, both common and complex. They are found throughout the free world as well as out of this world in orbiting satellites. The rapidly growing business machine industry, the four-wheeled world of Detroit, the manufacture of radio, television and mechanical servants to ease the home work load—all these utilize terminals, splices, general purpose connectors, pinboard programming, taper pin and many other connection devices especially developed to aid in over-all product design and assure reliable, long-time performance.

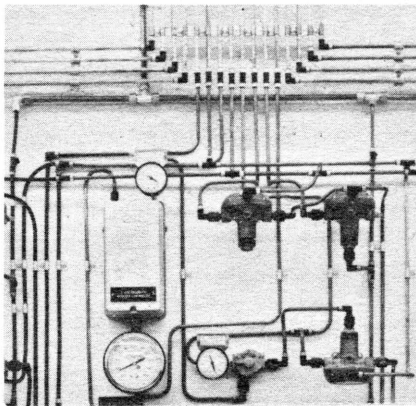


Master Terminal Data Transmission System of Municipal fire alarm box identification features A-MP Card Reader for use in automatic mode of operation

The AMP precision-crimp concept has also broadened its influence into the mechanical tube fitting field, serving the widespread petrochemical, continuous process and air operated instrumentation industries.

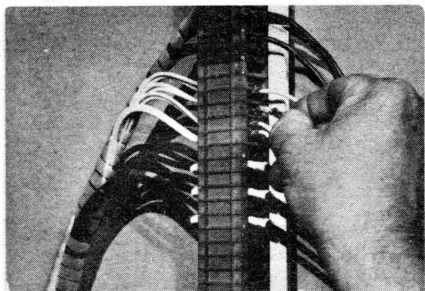
AMP ENGINEERING AND MANUFACTURING

AMP research, product development and quality control has always played a major part in AMP's basic corporate philosophy. This emphasis has been a continuing and expanding effort and represents an investment considerably higher than the norm in industry. Each



AMP-FIT Tube Fittings installed on a comfort control panel which controls heat, air conditioning and humidity

of AMP's product lines is developed to meet specific customer needs. This means that AMP



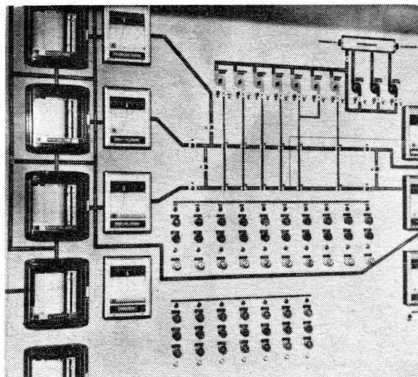
Termi-blok Terminals and cage assemblies allow for fast and interchangeable control wiring.

develops a thorough knowledge of the customer's problem as well as the capability to meet it with improved products and techniques. Today AMP has extended its original crimping concept into the design of more than 25,000 different types and sizes of products, each engineered to precise tolerances and developed to answer specific customer needs. Together with precision application tools these specialized devices are backed by over 6,600 patents issued or pending, worldwide.



AMPOWER Terminals make possible connections of high tensile strength for wires as large as 1000 MCM.

To maintain the highest possible quality levels, AMP has consistently followed a policy of continuous test activity and the maintenance of quality check points all along the line of manufacture. Quality checks are made from the receipt of raw materials on through to final pre-shipping inspections. Testing is accomplished with the finest equipped facilities of its kind in the industry. The result of this policy is quality and performance standards of higher levels than normally required in both commercial and military applications.



Water Treatment Plant Control Board features more than 200 AMPILLUME lights

To insure a ready supply of product, AMP maintains multi-manufacturing facilities in the United States, and Puerto Rico as well as nearly a dozen other countries throughout the world. These AMP manufacturing facilities include the latest automated equipment—tool production, precision plating, plastics molding, and die making facilities—providing complete in-house manufacturing capability. Each successive step in manufacturing is affected by a policy of total product assurance. The end product is the standard of excellence wherever it is used.

CUSTOMER SERVICE

American Pamcor's philosophy of sales and service is unique. Because of the scope of product line and importance of application knowledge, AMP products are sold through company employed, full-time representatives. Sales Specialists and engineers are available where products and/or application requirements are highly specialized to provide knowledgeable assistance in product selection and use. American Pamcor maintains an extensive network of strategically located district sales offices and warehouses to provide prompt local service.

For more complete information, contact your nearest AMERICAN PAMCOR office listed on the following page or use one of the handy post-paid reply cards in the back of this handbook.

— order A-MP products.

IMPORTANT—Here is how to: — obtain more information on A-MP products.

— arrange a demonstration of A-MP products.

1. Contact your local American Pamcor representative, or
2. Contact the nearest American Pamcor District Office (listed below), or
3. Fill out and return one of the postpaid reply cards at the back of this handbook.

ATLANTA

AMERICAN PAMCOR, INC.
2970 Peachtree Road, N.W., Suite 550
Atlanta, Georgia 30305
(404) 261-8712

BOSTON

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Bear Hill Office Tower
60 Hickory Drive
Waltham, Massachusetts 02154
(617) 893-0137

CHICAGO

AMERICAN PAMCOR, INC.
1050 Morse Ave.
Elk Grove Village, Ill. 60004
(312) 439-7800

CINCINNATI

AMERICAN PAMCOR, INC.
Carrousel Towers
8075 Reading Road
Cincinnati, Ohio 45237
(513) 821-6651

CLEVELAND

AMERICAN PAMCOR, INC.
20950 Center Ridge Road
Cleveland, Ohio 44116
(216) 333-0307

DALLAS

AMERICAN PAMCOR, INC.
2267 Vantage Street
Dallas, Texas 75207
(214) MEIrose 1-0850

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15800 West McNichols
Detroit, Michigan 48235
(313) 835-1210

HONOLULU

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Honolulu, Hawaii
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Houston, Texas 77006
(713) 522-1043

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AMERICAN PAMCOR, INC.
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3138 W. El Segundo Boulevard
Hawthorne, California 90250
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Portland, Oregon 97217
(503) 285-9841

PUERTO RICO

PAMCOR, INC.
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SAN FRANCISCO

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512 S. Airport Boulevard
S. San Francisco, California 94080
(415) 589-7722

ST. LOUIS

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Suite 214, 2510 Brentwood Boulevard
Brentwood, Missouri 63144
(314) 962-9090

TERMINALS and SPLICES

This section includes the following sub-sections:

Introduction
PIDG Terminals and Splices
PLASTI-GRIP Terminals and Splices
SOLISTRAND Terminals and Splices
DIAMOND GRIP Terminals and Splices
AMPOWER Terminals and Splices
Battery Terminals

I. TERMINALS AND SPLICES

INTRODUCTION

Electrical connections may be permanent, semi-permanent or temporary, depending on specific application requirements. Generally, terminals are used to make semi-permanent connections to screw type or stud terminations on electrical components. Splices are used to make permanent connections between two or more wires.

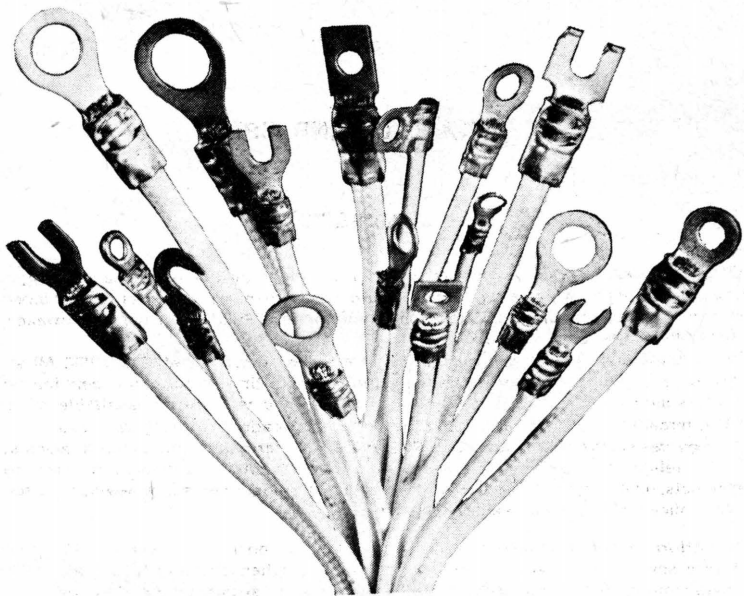
A-MP* Terminals and Splices are available for wire sizes from #26 AWG to 1000 MCM; they may be used with solid round or square, stranded, printed, and tinsel wire, or a combination of these; they can be supplied in hundreds of styles and sizes; and they are all available in loose pieces and a large percentage on tape, depending upon the application tooling to be used.

True economy results from the use of A-MP solderless terminals and splices because they are designed for reliability as well as for ease of installation. AMP's application tools are matched to the products, ensuring that precisely controlled crimping pressure is always exerted on each terminal or splice, even by an unskilled operator.

Optimum performance of a splice or termination depends on proper selection of products for the job. Here are some factors which should be considered when choosing terminals and splices for specific applications. For terminating or splicing solid or stranded wire that will be subject to vibration, SOLISTRAND* corrosion resistant Terminals and Splices are ideal. They are useful in motors, generators, transformers, switchgear and other equipment where combinations of wire are to be terminated. For applications requiring insulated terminals, such as barrier strips, power supplies, control circuits, PIDG* Terminals and Splices are recommended; wire size is identified clearly by both insulation color and dot coding. PLASTI-GRIP* products are economy versions of the PIDG line, and while they are not rated as highly, still surpass all U.L. and CSA requirements.

DIAMOND GRIP* Terminals and Splices provide insulation grip and high tensile strength in addition to maximum conductivity. They are reliable low-cost terminations approved for use where insulated devices are not required. **AMPOWER*** Terminals and Splices cover heavy-duty wire sizes up to 1,125 MCM and have double thick tongues for high strength and good electrical performance. You will find these products described in greater detail in this section. They are high quality products, precision engineered and manufactured by the largest producer of solderless electrical connection devices.

PRE-INSULATED DIAMOND GRIP TERMINALS AND SPLICES § PIDG



THE PIDG TERMINAL a pre-insulated terminal designed for complete and uniform reliability in the most difficult circuit environments. Each PIDG Terminal consists of a basic copper plated body, an extra wire support sleeve and an insulation sleeve. The color-coded insulation sleeve is permanently bonded to the wire support sleeve so that it cannot slip during the crimping operation. Bonding also insures uniform insulation thickness under crimping pressure, transmitting this pressure evenly to the center of the crimp area.

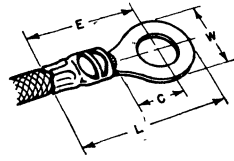
THE AMP MATED TOOL/TERMINAL CONCEPT. AMP compression crimping produces crimps for a given size wire and terminal that are precisely alike in appearance and performance. This is a calculated result made possible by designing the terminal and the crimping tool as precisely matched devices. The dies are precision-engineered from the finest hard-metal alloys. Crimping pressure is controlled by a ratchet device on the hand tool or a corresponding precalibration in the crimping jaws of A-MP automated crimping machines.

FEATURES

- Vinyl insulation is recommended for most applications because of moisture stability. Nylon sleeves are also available when needed.
- Terminal insulation is color-coded by wire range to eliminate errors during installation. For wire sizes 26-22, yellow; 24-20, natural (clear); 22-16, red; 16-14, blue; 12-10 and 16-14 H. D., yellow.
- The basic terminal is constructed of fine grade high conductivity copper. AMP's special plating process creates durable corrosion resistance to salt spray and most chemical fumes.
- Serrations inside barrel provide maximum contact and tensile strength after crimping.
- The specially designed copper sleeve, fitted over the terminal barrel, provides circumferential insulation support to the wire and allows the wire to be bent in any direction without fraying the wire's insulation or breaking the conductor.
- Bonded insulation assures a more uniform thickness and maintains high dielectric strength when crimped.
- Bell-shaped wire entry assures easy insertion of wire.

PRE-INSULATED DIAMOND GRIP TERMINALS AND SPLICES PIDG

RING TONGUE



26-22 AWG (Wire Range)

STUD SIZE	STUD CLEARANCE C (Minimum)	TONGUE DIMENSIONS			CATALOG NO.	
		TONGUE WIDTH W	E (Maximum)	L (Maximum)	VINYL	NYLON
					.082 MAX. INSULATION DIAMETER	.082 MAX. INSULATION DIAMETER
#0	.121	9/64	7/16	33/64	321013†	
#1	.121	9/64	7/16	33/64	320733†	323912†
or #2	.211	13/64	17/32	41/64	321015†	323913†
#2	.211	9/64	17/32	39/64	322433†	
#3 or 4	.211	13/64	17/32	41/64	321017†	323914†
#5	.211	13/64	17/32	41/64	321019†	323915†
or #6	.260	1/4	19/32	47/64	321020†	326875†
#6	5/16	13/64	5/8	47/64	321617	
#8	.260	1/4	19/32	47/64	321021†	323916†
#10	.260	1/4	19/32	47/64	321022†	324075†

24-20 AWG (Wire Range)

STUD SIZE	STUD CLEARANCE C (Minimum)	TONGUE DIMENSIONS			CATALOG NO.	
		TONGUE WIDTH W	E (Maximum)	L (Maximum)	NYLON	
					.100 MAX. INSULATION DIAMETER	.100 MAX. INSULATION DIAMETER
#1	1/8	.160	1/2	37/64	324992	
#2	1/8	.160	33/64	19/32	329636†	
#4	1/4	9/32	5/8	49/64	323985†	
#6	1/4	9/32	5/8	49/64	323986†	
#8	9/32	5/16	21/32	13/16	323989†	
#10	9/32	5/16	21/32	13/16	323990†	

22-16 AWG (Wire Range)

STUD SIZE	STUD CLEARANCE C (Minimum)	TONGUE DIMENSIONS			CATALOG NO.			
		TONGUE WIDTH W	E (Maximum)	L (Maximum)	VINYL		NYLON	
					.125 MAX. INSULATION DIAMETER	.140 MAX. INSULATION DIAMETER	.125 MAX. INSULATION DIAMETER	.140 MAX. INSULATION DIAMETER
#1 or #2	5/32 11/64	7/32 3/16	35/64 9/16	21/32 21/32	320135† 320440†	320773†	328657	
#3 or #4	5/32 11/64 5/16 1/4	7/32 3/16 .182 9/32	35/64 9/16 9/16 45/64 41/64	21/32 21/32 21/32 53/64 25/32	31878† 322410 323926†	31880† 320882† 322411† 323927†	320553† 323758	328878
#5 or #6	5/32 1/4 9/32 19/64	7/32 9/32 5/16 11/32	35/64 41/64 43/64 11/16	21/32 25/32 53/64 55/64	31879† 31882† 323008†	31881† 31885† 324526† 324525	36149† 36151†	36150†
#8	9/32 1/4 19/64	5/16 9/32 11/32	43/64 41/64 11/16	53/64 25/32 55/64	31888† 31883† 32834	31890† 31886† 32835	320551† 320554†	
#10	9/32 1/4 19/64	5/16 9/32 11/32	43/64 41/64 11/16	53/64 25/32 55/64	31889† 31884† 32836	31891† 31887† 32837	36153† 320552†	36154†
#12 or 1/4	7/16	15/32	53/64	1-1/16	31892†	31894†	320571†	
5/16	7/16 17/32	15/32 17/32	53/64 15/16	1-1/16 1-13/64	31893† 324123	31895†	320572†	
3/8	17/32 7/16	17/32 21/32	15/16 53/64	1-13/64 1-5/32	31896 321522	31897 321523	320573	
1/2	17/32	.713	59/64	1-9/32	328948		328975	

NOTE: † Indicates terminal is available in tape mounted form. See Tape Matic in Tooling Section.

RING TONGUE (Cont'd)

16-14 AWG (Wire Range)

STUD SIZE	TONGUE DIMENSIONS				CATALOG NO.			
	STUD CLEARANCE C (Minimum)	TONGUE WIDTH W	E (Maximum)	L (Maximum)	VINYL		NYLON	
					.150 MAX. INSULATION DIAMETER	.170 MAX. INSULATION DIAMETER	.150 MAX. INSULATION DIAMETER	.170 MAX. INSULATION DIAMETER
#1 or 2	11/64 11/64	1/4 .180	9/16 9/16	11/16 21/32		321008† 324993†		
#3 or #4	11/64 9/32	1/4 1/4	9/16 43/64	11/16 51/64	32439† 322412	32441† 322413	324159† 323676	328996
#5 or #6	11/64 9/32 1/4 9/32	1/4 11/32 5/16 11/32	9/16 43/64 41/64 43/64	11/16 51/64 27/32	32440† 27/32 327871 32850*	32442† 31901† 322234 32851*	320561† 36157†	320619† 36158†
#8	9/32 1/4 9/32	11/32 5/16 11/32	43/64 41/64 43/64	27/32 51/64 27/32	31899† 31900† 32854*	31902† 322236 32853*	320560†	320565†
#10	9/32 1/4 9/32	11/32 5/16 11/32	43/64 41/64 43/64	27/23 51/64 27/32	31900† 327900 32854*	31903† 322238 32855*	320574†	36160†
#12 or 1/4	7/16	15/32	53/64	1-1/16	31904†	31906†	320563†	321045
5/16	7/16	15/32	53/64	1-1/16	31905†	31907†	320575†	328998†
3/8	17/32 17/32	17/32 21/32	15/16 59/64	1-13/64 1-1/4	31908 322467	31909 322468	320564	328999
1/2	17/32	7/13	59/64	1-9/32	328949	328850	328976	328849

* Narrow throat

16-14 AWG (Wire Range) Heavy Duty (Use 12-10 Tooling)

STUD SIZE	TONGUE DIMENSIONS				CATALOG NO.			
	STUD CLEARANCE C (Minimum)	TONGUE WIDTH W	E (Maximum)	L (Maximum)	VINYL		NYLON	
					.230 MAX. INSULATION DIAMETER	.250 MAX. INSULATION DIAMETER	.275 MAX.** INSULATION DIAMETER	.230 MAX. INSULATION DIAMETER
#1 or 2	7/32	9/32	25/32	59/64	33733			
#3 or 4	7/32	9/32	25/32	59/64	33734		35602	
#5 or 6	7/32 9/32 7/16	9/32 11/32 9/32	51/64 55/64 1"	15/16 1-1/32 1-9/64	33735 33724 323956	35634 34592	35536 36280	320631
#8	9/32	11/32	55/64	1-1/32	33725	35106	35603	320627
#10	7/16 9/32 11/32	17/32 11/32 1/2	1-1/64 55/64 29/32	1-9/32 1-1/32 1-5/32	33643 33726 35682	34805	35363	2-33643-1 320630
#12 or 1/4	7/16 11/32	17/32 1/2	1" 59/64	1-17/64 1-11/64	33196 34974	34806	35362 35414	327743
5/16	7/16	17/32	1"	1-9/32		34810	35538	
3/8	7/16	17/32	1"	1-9/32	33645	34811	35537	
1/2	5/8 1"	3/4 1-1/4	1-13/64 1-37/64	1-37/64 2-13/64		35316 36203	321919 36485	
3/4	1"	1-1/4	1-37/64	2-13/64		322724	36961	

NOTE: Insulation of 16-14 Heavy Duty Terminals is coded Yellow.

12-10 AWG (Wire Range)

STUD SIZE	TONGUE DIMENSIONS				CATALOG NO.			
	STUD CLEARANCE C (Minimum)	TONGUE WIDTH W	E (Maximum)	L (Maximum)	VINYL		NYLON	
					.230 MAX. INSULATION DIAMETER	.250 MAX. INSULATION DIAMETER	.275 MAX.** INSULATION DIAMETER	.230 MAX. INSULATION DIAMETER
#3 or 4	7/32	9/32	51/64	15/16		35148†		
#5 or 6	.302 7/32 302	3/8 9/32 5/16	7/8 51/64 7/8	1-1/16 15/16 1-1/32	32542† 321500† 324912	35107† 35149†	35604† 324985†	320567† 320634†

** Special Sleeve—Add 3/64 to "E" & "L" Dimension.

NOTE: † Indicates terminal is available in tape mounted form. See Tape Matic in Tooling Section.

RING TONGUE (Cont'd)

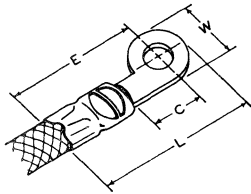
12-10 AWG (Wire Range)

STUD SIZE	TONGUE DIMENSIONS				CATALOG NO.			
	STUD CLEARANCE C (Minimum)	TONGUE WIDTH W	E (Maximum)	L (Maximum)	VINYL		NYLON	
					.230 MAX. INSULATION DIAMETER	.250 MAX. INSULATION DIAMETER	.275 MAX.* INSULATION DIAMETER	.230 MAX. INSULATION DIAMETER
#8	.302	3/8	7/8	1-1/16	32543†	35108†	35605†	320568†
	9/32	11/32	55/64	1-1/32	33443**			
	9/32	5/16	55/64	1-1/64	35787**			
	.302	5/16	7/8	1-1/32	324915			
#10	11/32	1/2	29/32	1-11/64				2-323762-1
	.302	3/8	7/8	1-1/16	32544†	35109†	35364†	36161†
	9/32	11/32	55/64	1-1/32	32883**			
	.302	5/16	7/8	1-1/32	324918			
#12 or 1/4	15/32	17/32	1-3/64	1-5/16	32545†	35110†	35345†	320569†
	11/32	1/2	59/64	1-11/64	45273		323763	
5/16	15/32	17/32	1-3/64	1-5/16	32546†	35111†	35346†	320576†
	11/32	1/2	29/32	1-5/32	324592			
3/8	17/32	19/32	1-7/64	1-13/32	32547	35112	35478	320577
	5/8	3/4	1-13/64	1-37/64		35150		
1/2	5/8	3/4	1-13/64	1-37/64		35151	35479	323784
	1"	1-1/4	1-9/16	2-13/64			322438	
3/4	1"	1-1/4	1-9/16	2-13/64			322437	

OFFSET RING TONGUE

22-16 AWG (Wire Range)

STUD SIZE	TONGUE DIMENSIONS				CATALOG NO.	
	STUD CLEARANCE C (Minimum)	TONGUE WIDTH W	E (Maximum)	L (Maximum)	VINYL	NYLON
					.125 MAX. INSULATION DIAMETER	.125 MAX. INSULATION DIAMETER
#6	5/16	3/8	45/64	57/64	323040	323039
#10	5/16	3/8	45/64	57/64	324012	324011



16-14 AWG (Wire Range)

STUD SIZE	TONGUE DIMENSIONS				CATALOG NO.	
	STUD CLEARANCE C (Minimum)	TONGUE WIDTH W	E (Maximum)	L (Maximum)	VINYL	NYLON
					.125 MAX. INSULATION DIAMETER	.125 MAX. INSULATION DIAMETER
#6	5/16	3/8	45/64	57/64	323768	323817
#10	5/16	3/8	45/64	57/64	323769	323818

RECTANGULAR TONGUE

26-22 AWG (Wire Range)

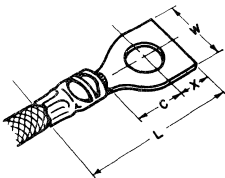
STUD SIZE	TONGUE DIMENSIONS				CATALOG NO.	
	STUD CLEARANCE C (Minimum)	TONGUE WIDTH W	TONGUE EXTENSION X	L Maximum	VINYL	NYLON
					.082 MAX. INSULATION DIAMETER	.082 MAX. INSULATION DIAMETER
#1 or 2	13/64	.165	7/64	5/8	321620	321206
	13/64	.182	.100	5/8		
#5 or 6	5/16	.277	3/16	53/64	329825	329825
	19/64	5/16	3/16	13/16	321023	321023
#8	19/64	5/16	3/16	53/64	322791	322791
#10	19/64	5/16	3/16	53/64	322792*	322792*

*With Nylon Insulation—#326874

*Special Sleeve—Add 3/64 to "E" & "L" Dimension.

**Narrow Throat

NOTE: † Indicates terminal is available in tape mounted form. See Tape Matic in Tooling Section.



22-16 AWG (Wire Range)

STUD SIZE	TONGUE DIMENSIONS				CATALOG NO.		
	STUD CLEARANCE C (Minimum)	TONGUE WIDTH W	TONGUE EXTENSION X	L (Maximum)	VINYL	NYLON	
					.125 MAX. INSULATION DIAMETER	.140 MAX. INSULATION DIAMETER	.140 MAX. INSULATION DIAMETER
#1 or 2	13/64	.182	.115	45/64	325148	324572	
#3 or 4	13/64	19/64	9/64	47/64	34841	322297	
	.198	7/32	9/64	47/64			
	.237	.237	.143	51/64			2-327968-1
#5 or 6	13/64	.277	5/32	49/64	329827		
	.465	.302	.227	1-7/64			2-327938-1
	.277	.277	.167	55/64			2-327950-1
	5/16	1/4	1/8	53/64	33475†	33476†	320629†*
	13/64	19/64	9/64	47/64	32453	32454	328941
	13/64	11/32	5/32	49/64	32465		
#8	7/32	5/16	5/32	49/64	33178	33179	
	9/32	5/16	13/64	7/8		321689	
	13/64	19/64	9/64	47/64		321284	
	9/32	27/64	3/16	55/64		320776	
#10	9/32	5/16	13/64	7/8		321443	
	3/8	3/8	5/16	1-5/64		321450	
	9/32	15/32	13/64	7/8	33166	33167	
	9/32	5/16	13/64	7/8		320209	

* .125 Max. Insulation Diameter

† Indicates terminal is available in tape mounted form. See Tape Matic in Tooling Section.

16-14 AWG (Wire Range)

STUD SIZE	TONGUE DIMENSIONS				CATALOG NO.		
	STUD CLEARANCE C (Minimum)	TONGUE WIDTH W	TONGUE EXTENSION X	L (Maximum)	VINYL	NYLON	
					.150 MAX. INSULATION DIAMETER	.170 MAX. INSULATION DIAMETER	.170 MAX. INSULATION DIAMETER
#3 or 4	.237	.237	.143	51/64		327970	2-327970-1
	17/64	7/32	7/64	25/32		33177	
	13/64	11/32	5/32	3/4	36235		
#5 or 6	.404	.237	.195	1-1/64		327964	
	.404	.237	.195	1-1/64			2-327958-1
	13/64	.277	5/32	3/4	329829		
	5/16	1/4	1/8	53/64	33172	33173	
	13/64	19/64	9/64	47/64	33168	33169	
	13/64	11/32	5/32	3/4		36238	
#8	.465	.302	.227	1-7/64		327940	2-327940-1
	.465	.302	.227	1-7/64			2-327946-1
	11/32	19/64	3/16	59/64		321283	
	19/64	1/4	1/8	53/64		35279	
	11/32	3/8	3/16	59/64	33174		
	13/64	11/32	5/32	3/4	36239	36240	
	9/32	5/16	1/4	59/64		321445	
	9/32	27/64	3/16	7/8		320774	
#10	7/16	3/8	21/64	1-5/32		321456	
	.621	25/64	.321	1-23/64		327934	
	13/64	11/32	5/32	3/4		36242	
	43/64	3/8	3/16	1-1/4		321075	

12-10 AWG (Wire Range)

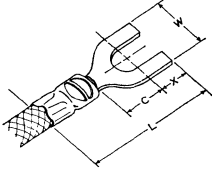
STUD SIZE	TONGUE DIMENSIONS				CATALOG NO.	
	STUD CLEARANCE C (Minimum)	TONGUE WIDTH W	TONGUE EXTENSION X	L (Maximum)	VINYL	NYLON
					.230 MAX. INSULATION DIAMETER	
#3 or 4	.404	.237	.195	1-3/16	327966	
	.237	.237	.143	63/64	327972	
#5 or 6	.302	1/4	3/16	1-1/16	329697	
	9/32	.277	9/64	1"	329831	
	7/32	19/64	9/64	15/64	34512	
	.302	.292	9/64	1"	324180	
#8	.465	.302	.227	1-19/64	2-327948-1*	
	9/32	5/16	1/4	1-7/64	321447	
	5/8	5/16	5/16	1-33/64	323210	
#10	15/32	3/8	17/64	1-5/16	321453	

*With Nylon Insulation

SLOTTED TONGUE SPADE

INSULATION MATERIAL: VINYL

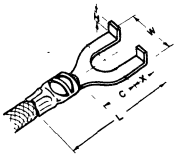
STUD SIZE	STUD CLEARANCE C (Minimum)	TONGUE WIDTH W	TONGUE EXTENSION X	L (Maximum)	MAXIMUM INSULATION DIAMETER	CATALOG NUMBER
26-22 AWG (Wire Range)						
#0	5/64	1/8	1/16	15/32	.082	322001
#3 or 4	.211	13/64	3/32	39/64	.082	321035†
22-16 AWG (Wire Range)						
#1 or 2	13/64	.182	.115	45/64	.140	323394
#3 or 4	5/32	7/32		41/64	.140	327717
#5 or #6	5/16	1/4	1/8	53/64	.140	34541†
	13/64	11/32	5/32	49/64	.125	32403
	13/64	11/32	5/32	49/64	.140	32404
	19/64	3/8	3/16	57/64	.125	32049†
	19/64	3/8	3/16	57/64	.140	32052†
	13/64	19/64	9/64	47/64	.125	34080†
#8	13/64	19/64	9/64	47/64	.140	326861†
	13/64	9/32	15/32	1-1/16	.125	321628
#10	19/64	3/8	3/16	57/64	.125	32050†
	19/64	3/8	3/16	57/64	.140	32053†
#10	5/16	3/8	3/16	57/64	.125	32051†
	5/16	3/8	3/16	57/64	.140	32054†
16-14 AWG (Wire Range)						
#5 or #6	5/16	.244	1/8	53/64	.170	328281
	5/16	3/8	3/16	57/64	.150	32055†
	5/16	3/8	3/16	57/64	.170	32058†
#6	13/64	19/64	9/64	47/64	.170	35559†
	5/16	3/8	3/16	57/64	.150	32056†
	5/16	3/8	3/16	57/64	.170	32059†
#8	13/64	19/64	9/64	47/64	.170	321233†
	3/8	5/16	1/4	1-1/64	.170	325199
	5/16	3/8	3/16	57/64	.150	32057†
#10	5/16	3/8	3/16	57/64	.170	32060†
	5/16	3/8	3/16	57/64	.170	32060†
12-10 AWG (Wire Range)						
#5 or 6	19/64	13/32	13/64	1-5/64	.230	32587
	19/64	13/32	13/64	1-1/8	.275	327716
#8	19/64	13/32	13/64	1-5/64	.230	32588
	19/64	13/32	13/64	1-1/8	.275	35539
	19/64	13/32	13/64	1-5/64	.250	35152
#10	19/64	13/32	13/64	1-5/64	.230	32589
	19/64	13/32	13/64	1-1/8	.275	321466



SLOTTED TONGUE FLANGED SPADE

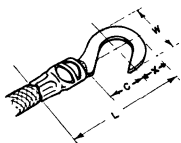
INSULATION MATERIAL: VINYL

STUD SIZE	"H"	STUD CLEARANCE C (MINIMUM)	TONGUE WIDTH W	TONGUE EXTENSION X	L (MAXIMUM)	MAXIMUM INSULATION DIAMETER	CATALOG NUMBER
26-22 AWG (Wire Range)							
#1 or 2	1/32	13/64	.182	7/64	41/64	.082	324597
22-16 AWG (Wire Range)							
#1 or 2	3/64	13/64	.182	.115	45/64	.140	324608†
#5 or 6	3/64	13/64	1/4	1/8	23/32	.125	322777†
	1/16	13/64	19/64	1/8	23/32	.125	32561†
	1/16	13/64	19/64	1/8	23/32	.140	32562†
#6	3/64	13/64	17/64	1/8	43/64	.140	322426
	1/16	1/4	27/64	11/64	13/16	.125	32497†
#8	1/16	1/4	27/64	11/64	13/16	.140	32498†
	1/16	1/4	27/64	11/64	13/16	.140	32498†
16-14 AWG (Wire Range)							
#5 or 6	3/64	13/64	19/64	1/8	23/32	.170	320861†
	3/64	13/64	19/64	1/8	23/32	.170	324567
#8	1/16	1/4	27/64	11/64	13/16	.150	33155
	1/16	1/4	27/64	11/64	13/16	.170	33156
	3/64	13/64	19/64	1/8	23/32	.170	320862†
#10	3/64	13/64	19/64	1/8	23/32	.170	320863†
12-10 AWG (Wire Range)							
#8	1/16	1/4	27/64	11/64	1	.230	32510
	1/16	1/4	27/64	11/64	1-3/64	.275	323849



NOTE: † Indicates terminal is available in tape mounted form. See Tape Matic in Tooling Section.

SLOTTED TONGUE HOOK



INSULATION MATERIAL: VINYL

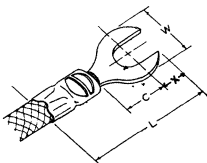
STUD SIZE	STUD CLEARANCE C (Minimum)	TONGUE WIDTH W	TONGUE EXTENSION X	L (Maximum)	MAXIMUM INSULATION DIAMETER	CATALOG NUMBER
22-16 AWG (Wire Range)						
#5 or 6	13/64	9/32	9/64	47/64	.125	34312
	13/64	9/32	9/64	47/64	.125	324842*
	13/64	9/32	9/64	47/64	.140	34313
#8	9/32	11/32	11/64	55/64	.125	32455†
	9/32	11/32	11/64	55/64	.140	32456†
16-14 AWG (Wire Range)						
#8	9/32	11/32	11/64	27/32	.170	320306†
#10	9/32	11/32	11/64	27/32	.170	35481†
12-10 AWG (Wire Range)						
#12 or 1/4	15/32	17/32	9/32	1-5/16	.230	321633*

† Indicates terminal is available in tape mounted form.

See Tape Matic in Tooling Section.

* Nylon Insulation

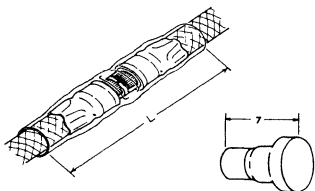
SLOTTED TONGUE RING



INSULATION MATERIAL: VINYL

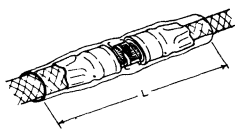
STUD SIZE	STUD CLEARANCE C (Minimum)	TONGUE WIDTH W	TONGUE EXTENSION X	L (Maximum)	MAXIMUM INSULATION DIAMETER	CATALOG NUMBER
26-22 AWG (Wire Range)						
#5 or 6	9/32	1/4	1/8	45/64	.082	323011
22-16 AWG (Wire Range)						
#5 or 6	9/32	5/16	9/64	13/16	.140	35216
#8	1/4	9/32	7/64	3/4	.140	36954
#12 or 1/4	7/16	15/32	13/64	1-1/64	.125	321808
16-14 AWG (Wire Range)						
#5 or 6	9/32	11/32	9/64	53/64	.170	34406
#8	9/32	11/32	9/64	13/16	.170	35440
#10	9/32	11/32	11/64	13/16	.150	328871
#12 or 1/4	7/16	15/32	3/16	1-1/64	.150	36217
12-10 AWG (Wire Range)						
#8	9/32	3/8	5/32	1-3/32	.275	321571
#10	9/32	3/8	3/16	1-1/64	.230	322736
	9/32	3/8	3/16	1-1/16	.275	321610
#12 or 1/4	15/32	17/32	17/64	1-17/64	.230	322218
	15/32	17/32	17/64	1-5/16	.275	321611

WINDOW SPLICES AND PLUGS



WIRE SIZE AWG	COLOR CODING	WIRE MAX. O. D.	L (MAX.)	SPLICE PART NO.	PLUG PART NO.	INSULATION MATERIAL
26-22	Yellow	.082	59/64	321029		Vinyl
26-22	Yellow	.082	27/32	323994		Nylon
24-20	Natural	.100	31/32	323975	324005	Nylon
22-16	Red	.125	1-1/4	320559	323287	Nylon
16-14	Blue	.150	1-1/4	320562	323288	Nylon
12-10	Yellow	.220	1-41/64	320570	323289	Nylon

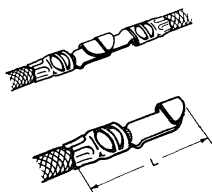
20
STEP DOWN WINDOW SPLICES



INSULATION MATERIAL: VINYL

WIRE RANGE AWG	COLOR CODING	INS. DIAMETER SMALL WIRE (MAX.)	LARGE WIRE (MAX.)	L (MAX.)	PART NO. WITH ADAPTER	ADAPTER NO.
22-18 to 16-14	Red	.125	.150	1-1/4	327583	327635
16-14 to 12-10	Blue	.170	.220	1-41/64	327638	327637
22-18 to 12-10	Red	.140	.220	1-41/64	327639	327636

KNIFE-DISCONNECT SPLICES



WIRE RANGE AWG	COLOR CODING	L (MAX.)	WIRE MAX. O. D.	PART NO.	INSULATION MATERIAL
22-16	Red	55/64	.125	32445†	Vinyl
			.140	32446†	Nylon
16-14	Blue	55/64	.150	32447†	Vinyl
			.170	32448†	Nylon
12-10	Yellow	1-1/4	.230	33197	Vinyl
			.250	35762	Nylon
			.230	320620	

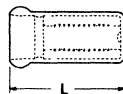
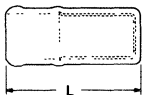
†Indicates terminal is available in tape mounted form.

SPARE WIRE CAPS

Spare wire caps with nylon insulating jackets are available in three types: **unstripped, unstripped moisture resistant and stripped**. All are attachable with A-MP matching hand-crimping tools.

FOR UNSTRIPPED WIRE

CATALOG NUMBER	INS. DIA. RANGE	LENGTH "L" MAX.	COLOR CODE	HAND TOOL
324484	.048 - .080	.515	White	46063
324485	.080 - .120	.515	Red	46063
324486	.120 - .150	.515	Blue	46063
324487	.150 - .220	.515	Yellow	46063



FOR UNSTRIPPED WIRE
(Moisture Resistant Type)

CATALOG NUMBER	INS. DIA. RANGE	LENGTH "L" MAX.	COLOR CODE	HAND TOOL
324693	.048 - .080	.515	White	46063
324694	.080 - .120	.515	Red	46063
324695	.120 - .150	.515	Blue	46063
324696	.150 - .220	.515	Yellow	46063

FOR STRIPPED WIRE (Meets MIL-T-7928 C and 25274 Class II Requirements)

CATALOG NUMBER	WIRE RANGE	MAX. INS. DIA.	LENGTH "L" MAX.	COLOR CODE	HAND TOOLS
328307	22-18	.124	.430	Red	47386 or 59250
328308	16-14	.149	.430	Blue	47387 "T"-Head
328309	12-10	.210	.475	Yellow	59239

TOOLING

All tools are specifically designed for A-MP Products and are precision machined for AMP's exclusive one-crimp termination of terminals or splices.

LONG HANDLE TOOL

Wire Range	No.
26-22	46121
22-16	47386
16-14	47387

SHORT HANDLE TOOL

Wire Range	No.
26-22	48518
24-20	47907

HEAVY HEAD TOOL

Wire Range	No.
12-10	59239-4
16-14 H. D.	
12-10	59287
16-14 H. D. .275 Exp.	

T-HEAD TOOL

Wire Range	No.
26-22	59275
24-20	
22-16	59250
16-14	
24-20	59300
22-16	

BENCH PRESS 69011

Wire Range	Head
26-22	45155
22-16	47498
16-14	47499

BENCH PRESS 69012

Wire Range	Head
12-10	47500

PNEUMATIC PRESS 69004

Wire Range	Dies
26-22	48438
22-16	47451
16-14	47452
12-10	47453
16-14 H. D.	

PNEUMATIC TOOL 46110

Wire Range	Dies
26-22	69344
24-20	69342
22-16	47806-2*
16-14	47807-1*

*NOTE: Max. Tongue width of terminals for use with these dies is 15/32 when used in Tool 46110. Flat Tongues only.

PNEUMATIC TOOL 69365

Wire Range	Dies
26-22	69344
24-20	69342
22-16	47806-2
16-14	47807-1
12-10	47808-4
16-14 H. D.	
12-10	47808-2
16-14 H. D. Lg. Exp.	

PNEUMATIC TOOL 69005

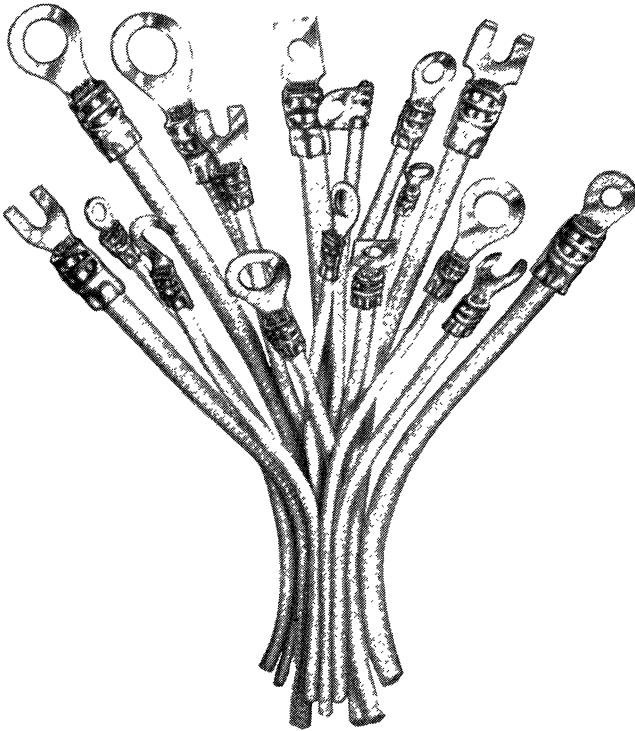
Wire Range	Head
26-22	47469
22-16	47516
16-14	47517

PNEUMATIC TOOL 69010

Wire Range	Head For
22-16	46282
16-14	46284
12-10	47518-1

See tooling section for additional information.

PLASTI-GRIP TERMINALS AND SPLICES §



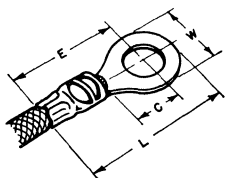
The PLASTI-GRIP brand line has been designed specifically to answer the need for inexpensive but fully insulated terminations. The terminal barrel and tongue are of one-piece construction made of high conductivity copper, electro tin plated for corrosion resistance. The inner circumference of the terminal barrel is serrated so that under crimping pressures the wire strands flow into these serrations, increasing the tensile strength and electrical conductivity. PLASTI-GRIP Terminals and Splices are pre-insulated with a sturdy plastic insulation sleeve.

Pre-insulation eliminates the need for expensive and time-consuming taping or sleeving.

FEATURES

- **PRE-INSULATION:** A specially cured, durable, plastic insulation sleeve of adequate thickness is used to withstand the pressure of crimping, and maintain high dielectric properties.
- **INSULATION SUPPORT:** The plastic insulation sleeve also supports the wire insulation at the base of the terminal, protecting the connection.
- **EASE OF INSTALLATION:** Terminals and splices can be installed easily in one simple crimping operation with a matching precision engineered tool.
- **CORROSION RESISTANCE:** The one-piece terminal body is made of high conductivity copper, electro-tinned for adequate corrosion resistance.
- **TENSILE STRENGTH:** Terminal barrels are internally serrated to grip the wire strands, assuring a connection of ample tensile strength when crimped.
- **CONDUCTIVITY:** Copper terminal barrels and the wire strands are control crimped to form a homogeneous mass of copper, providing a large internal contact area and absence of voids.
- **COLOR CODING:** Terminals and splices are color coded by wire sizes, as are their matching crimping tools.
- UL and CSA approval on wire size 22 through 10 AWG for both terminals and splices.

RING TONGUE



22-16 AWG (Wire Range)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	.120 Max. Insulation Dia.	.140 Max. Insulation Dia.
#1 or 2	5/32	7/32	35/64	23/32	32943†	34140†
#3 or 4	5/32	7/32	35/64	23/32	32944†	34141†
	1/4	9/32	41/64	25/32	32946†	34143†
#5 or 6	5/32	7/32	35/64	21/32	32945†	34142†
	1/4	9/32	41/64	25/32	32947†	34144†
	9/32	5/16	43/64	53/64	32950†	34147†
#8	9/32	5/16	43/64	53/64	32951†	34148†
	1/4	9/32	41/64	25/32	32948†	34145†
	19/64	11/32	11/16	55/64		324786
#10	9/32	5/16	43/64	53/64	32952†	34149†
	1/4	9/32	41/64	25/32	32949†	34146†
#12 or 1/4	27/64	15/32	53/64	1-1/16	32953†	34150†
5/16	27/64	15/32	53/64	1-1/16	32954†	34151†
3/8	17/32	17/32	15/16	1-13/64	32955	34152

16-14 AWG (Wire Range)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	.140 Max. Insulation Dia.	.170 Max. Insulation Dia.
#3 or 4	11/64	1/4	9/16	11/16	32956†	34157†
#5 or 6	11/64	1/4	9/16	11/16	32957†	34158†
	9/32	11/32	43/64	27/32	32958†	34159†
#8	9/32	11/32	43/64	27/32	32959†	34160†
	1/4	5/16	41/64	51/64		328527†
#10	9/32	11/32	43/64	27/32	32960†	34161†
	15/64	15/32	45/64	15/16		34954†
	9/32	3/8	43/64	55/64		329182
#12 or 1/4	7/16	15/32	53/64	1-1/16	32961†	34162†
5/16	7/16	15/32	53/64	1-1/16	32962†	34163†
	15/64	15/32	45/64	15/16		34956†
3/8	17/32	17/32	15/16	1-13/64	32963	34164

16-14 AWG HEAVY DUTY (Wire Range)

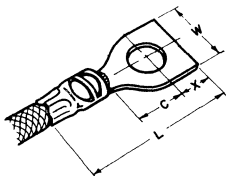
(Use 12-10 AWG Tooling)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	.200 Max. Insulation Dia.	.200 Max. Insulation Dia.
#3 or 4	7/32	9/32	13/16	61/64	34820†	34820†
#5 or 6	7/32	9/32	13/16	61/64	34821†	34821†
#8	9/32	11/32	7/8	1-3/64	34822†	34822†
	9/32	11/32	7/8	1-3/64		34823†
#10	9/32	11/32	7/8	1-3/64	34823†	34823†
	7/16	17/32	1-1/32	1-19/64	324059	324059
#12 or 1/4	7/16	17/32	1-1/32	1-19/64	34824	34824
	11/32	1/2	15/16	1-3/16	35349†	35349†
5/16	7/16	17/32	1-1/32	1-19/64	34825	34825
3/8	5/8	3/4	1-7/32	1-19/32	34826	34826
1/2	5/8	3/4	1-7/32	1-19/32	34827	34827

12-10 AWG (Wire Range)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	.200 Max. Insulation Dia.	.230 Max. Insulation Dia.	.250 Max. Insulation Dia.
#3 or 4	7/32	9/32	13/16	61/64			34835†
#5 or 6	19/64	3/8	57/64	1-3/32	32967†	34168†	
	7/32	9/32	13/16	61/64			34852†
#8	19/64	3/8	57/64	1-3/32	32968†	34169†	34853†
#10	19/64	3/8	57/64	1-3/32	32969†	34170†	34854†
	9/32	5/16	51/64	1-3/64		330518	
#12 or 1/4	15/32	17/32	1-1/16	1-21/64	32970†	34171†	34855†
5/16	15/32	17/32	1-1/16	1-21/64	32971†	34172†	34856†
3/8	17/32	19/32	1-1/8	1-27/64	32972	34173	
	5/8	3/4	1-7/32	1-19/32			34836
1/2	5/8	3/4	1-7/32	1-19/32			34837

RECTANGULAR TONGUE



22-16 AWG (Wire Range)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Ext. X	L (Max.)	.140 Max. Insulation Dia.
#5 or 6	7/32	21/64	5/32	49/64	324555

16-14 AWG (Wire Range)

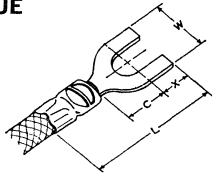
Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Extension X	L (Max.)	.140 Max. Insulation Dia.	.170 Max. Insulation Dia.
#3 or 4	9/32	7/32	7/64	25/32		34392
#5 or 6	5/16	1/4	1/8	53/64	34898†	

†Indicates terminal is available in tape mounted form
See Tape Matic in Tooling Section.

12-10 AWG (Wire Range)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Ext. X	L (Max.)	.230 Max. Insulation Dia.
#5 or 6	25/64	.237	13/64	1-7/32	331388†
#8	9/32	.416	1/4	1-1/8	324596
5/16	.320	5/16	1/4	1-11/64	329509

SLOTTED TONGUE SPADE



Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Ext. X	L (Max.)	Maximum Insulation Diameter	Catalog Number
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22-16 AWG (Wire Range)

#5 or #6	13/64	11/32	5/32	49/64	.115	32979 †
	13/64	11/32	5/32	49/64	.140	34153 †
	19/64	3/8	3/16	57/64	.115	32980 †
#8	19/64	3/8	3/16	57/64	.140	34154 †
	13/64	19/64	9/64	47/64	.115	327735 †
	13/64	19/64	9/64	47/64	.140	320685 †
#10	5/16	1/4	1/8	53/64	.140	327043 †
	19/64	3/8	3/16	57/64	.115	32981 †
	19/64	3/8	3/16	57/64	.140	34155 †
#10	19/64	3/8	3/16	57/64	.115	32982 †
	19/64	3/8	3/16	57/64	.140	34156 †

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Ext. X	L (Max.)	Maximum Insulation Diameter	Catalog Number
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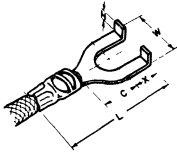
16-14 AWG (Wire Range)

#5 or #6	5/16	3/8	3/16	57/64	.140	32964 †
	5/16	3/8	3/16	57/64	.170	34165 †
#6	13/64	19/64	9/64	47/64	.140	322994 †
#8	5/16	3/8	3/16	57/64	.140	32965 †
	5/16	3/8	3/16	57/64	.170	34166 †
#10	5/16	3/8	3/16	57/64	.140	32966 †
	5/16	3/8	3/16	57/64	.170	34167 †

12-10 AWG (Wire Range)

#5 or #6	19/64	13/32	13/64	1-3/32	.200	32973 †
	19/64	13/32	13/64	1-3/32	.230	34174 †
#8	19/64	13/32	13/64	1-3/32	.200	32974 †
	19/64	13/32	13/64	1-3/32	.230	34175 †
	19/64	13/32	13/64	1-3/32	.250	34857 †
#10	19/64	13/32	13/64	1-3/32	.200	32975 †
	19/64	13/32	13/64	1-3/32	.230	34176 †

SLOTTED TONGUE FLANGED SPADE



Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Ext. X	L (Max.)	Maximum Insulation Diameter	Catalog Number
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22-16 AWG (Wire Range)

#5 or #6	13/64	19/64	1/8	23/32	.140	322249 †
#8	1/4	27/64	11/64	13/16	.140	324169 †

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Ext. X	L (Max.)	Maximum Insulation Diameter	Catalog Number
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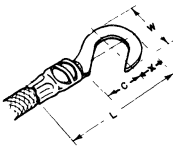
16-14 AWG (Wire Range)

#5 or #6	13/64	19/64	1/8	23/32	.170	324165 †
	13/64	21/64	1/8	23/32	.170	324570 †
#8	1/4	27/64	11/64	13/16	.170	324170 †

12-10 AWG (Wire Range)

#5 or #6	1/4	19/64	11/64	1-1/64	.230	324581
	1/4	21/64	11/64	1-1/64	.230	324591
#8	1/4	27/64	11/64	1-1/64	.230	324172

SLOTTED TONGUE HOOK



Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Ext. X	L (Max.)	Maximum Insulation Diameter	Catalog Number
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22-16 AWG (Wire Range)

#5 or #6	13/64	9/32	9/64	47/64	.140	34501
#8	9/32	11/32	11/64	55/64	.140	321699 †

16-14 AWG (Wire Range)

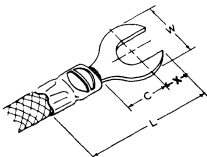
#8	9/32	11/32	11/64	27/32	.170	320263 †
#10	9/32	5/16	5/32	53/64	.170	324134 †

12-10 AWG (Wire Range)

#10	5/16	3/8	3/16	1-3/32	.250	324210 †
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†Indicates terminal is available in tape mounted form. See Tape Matic in Tooling Section.

SLOTTED TONGUE RING



Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Ext. X	L (Max.)	Maximum Insulation Diameter	Catalog Number
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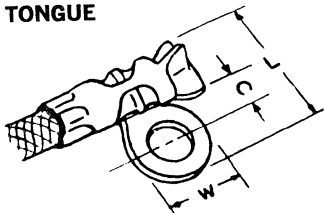
22-16 AWG (Wire Range)

#5 or #6	5/32	7/32	5/64	5/8	.115	34090
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12-10 AWG (Wire Range)

#8	9/32	3/8	3/16	1-1/16	.230	324791
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FLAG TONGUE



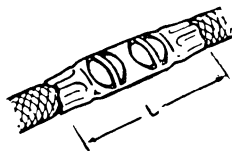
24, 22, 18HD, 18, 16HD, 16 (Wire Sizes)

FLAG TONGUE						
Stud Size	Wire Range	Specifications			Maximum Insulation Diameter	Catalog Number
		Stud Clearance C (Min.)	Tongue Width W	L (Max.)			Translucent Insulation
#10	22-16	17/64	1/2	47/64	.140	322303
	20-16 HD	17/64	1/2	49/64	.170	322306
#14	22-16	17/64	1/2	47/64	.140	322304
	20-16 HD	17/64	1/2	49/64	.170	322307
5/16	22-16	17/64	1/2	47/64	.140	322305
	20-16 HD	17/64	1/2	49/64	.170	322308

16, 14HD, 14, 12, 10 (Wire Sizes)

FLAG TONGUE						
Stud Size	Wire Range	Specifications			Maximum Insulation Diameter	Catalog Number
		Stud Clearance C (Min.)	Tongue Width W	L (Max.)			Translucent Insulation
#10	16-14	17/64	1/2	47/64	.170	322309
	16-14 HD	17/64	1/2	13/16	.230	322312
#14	16-14	17/64	1/2	47/64	.170	322310
	16-14 HD	17/64	1/2	13/16	.230	322313
5/16	16-14	17/64	1/2	47/64	.170	322311
#10	12-10	17/64	1/2	13/16	.230	322315
#14	12-10	17/64	1/2	13/16	.230	322316
5/16	12-10	17/64	1/2	13/16	.230	322317
#14	12-10	17/64	1/2	13/16	.310	322395

BUTT SPLICES



26-22 AWG (Wire Range)

L (Maximum)	.080 Max. Insulation Dia.
5/8	321026†

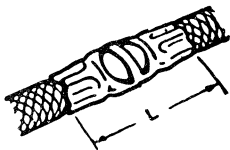
22-16 AWG (Wire Range)

L (Maximum)	.120 Max. Insulation Dia.	.140 Max. Insulation Dia.	.088 x .176 Oval Expansion
1	34067†		34203
1-1/64		34070†	

16-14 AWG (Wire Range)

L (Maximum)	.140 Max. Insulation Dia.	.170 Max. Insulation Dia.	.130 x .240 Oval Expansion
1	34068†		
1-1/64		34071†	
1-3/64			34204

PARALLEL SPLICES



22-16 AWG (Wire Range)

L (Maximum)	.120 Max. Insulation Dia.	.140 Max. Insulation Dia.	.088 x .176 Oval Expansion
49/64	34131	34132	34206

16-14 AWG (Wire Range)

L (Maximum)	.140 Max. Insulation Dia.	.170 Max. Insulation Dia.	.130 x .240 Oval Expansion
49/64	34133	34134	34207

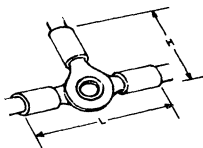
12-10 AWG (Wire Range)

L (Maximum)	.200 Max. Insulation Dia.	.230 Max. Insulation Dia.	.138 x .281 Oval Expansion
27/32	34135		
7/8		34136	34208

12-10 AWG (Wire Range)

L (Maximum)	.185 Max. Insulation Dia.	.230 Max. Insulation Dia.	.138 x .281 Oval Expansion
1-13/32	34069		
1-7/64		34072	34205

3-WAY CONNECTORS



Wire Range AWG	H (Maximum)	L (Maximum)	Maximum Insulation Diameter	Catalog Number
16-14	27/32	1-21/64	.140	34073
12-10	1-1/16	1-47/64	.200	34074

†Indicates terminal is available in tape mounted form. See Tape Matic in Tooling Section.

TOOLING

All tools are specifically designed for A-MP Products and are precision machined for AMP's exclusive one-crimp termination of terminals or splices.

LONG HANDLE TOOL

Type	Wire Range	No.
Terminals	22-16	47386
	16-14	47387
Butt Splices	26-22	46121
	22-16	45160
	16-14	45575-1
Parallel Splices	22-16	45449
	16-14	45450

HEAVY HEAD TOOL

Type	Wire Range	No.
Terminals	12-10	59239-4
	12-10	59489
Butt Splices	(Ins. Dia. .295 & .138 x .281 Oval)	59287-1
	12-10	59270
Parallel Splices	12-10	59270

T-HEAD TOOL

Type	Wire Range	No.
Terminals	22-16	59250
	16-14	59250

FLAG TOOL

Type	Wire Range	No.
Flag Terminals	24-18 H. D.	48045
	22-16	48045
	20-16 H. D.	48040
	16-14	48040
	16-14 H. D.	48049
	12-10	48049

PNEUMATIC TOOL 46110

Type	Wire Range	Dies
Terminals	22-16	47806-2
	16-14	47807-1

PNEUMATIC 69365

Type	Wire Range	Dies
Terminals	22-16	47806-2
	16-14	47807-1

PNEUMATIC TOOL 69005

Type	Wire Range	Heads
Terminals	22-16	47516
	16-14	47517
Butt Splices	22-16	45161
	16-14	45162
Parallel Splices	22-16	45451
	16-14	45452

BENCH PRESS TOOL 69011

Type	Wire Range	Heads
Terminals	22-16	47498
	16-14	47499

PNEUMATIC PRESS 69004

Type	Wire Range	Dies
Terminals	22-16	47451
	16-14	47452
	12-10	47453

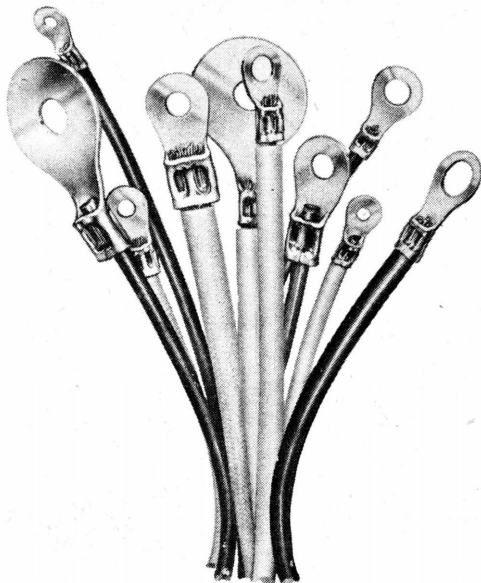
PNEUMATIC TOOL 69010

Type	Wire Range	Heads
Terminals	12-10	47518-1
Butt Splices	12-10	45163-1

BENCH PRESS TOOL 69012

Type	Wire Range	Heads
Terminals	12-10	47500-1

See tooling section for additional information.

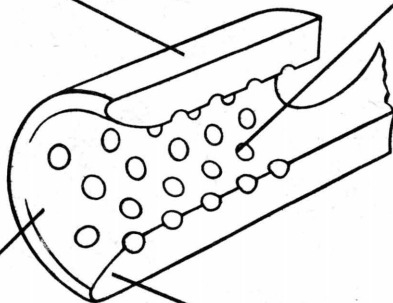


All SOLISTRAND terminations are designed to accommodate either a single conductor or a combination of conductors of stranded wire and irregularly shaped solid wire. Because of the tremendous and precisely controlled pressure of AMP's compression tooling, there's never any doubt about the reliability of the terminations. Versatile SOLISTRAND Terminals are now available in the Standard Line 22 thru 600 mcm plus heavy-duty type for terminating conductor sizes 8 through 1/0 AWG (Circular Mil Range to 119,500).

FEATURES

Barrel and tongue are fabricated of the finest electrolytic copper and electro-tinned for optimum electrical performance.

Inner surface either dimpled or serrated for optimum tensile strength and maximum electrical contact area after crimping.

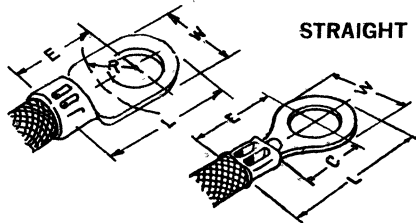


The barrel is completely closed and seam is brazed for uniform metal strength around the entire barrel area.

Bell mouth barrel eases insertion of different conductors.

Underwriters Laboratory and Canadian Standards Assn. approval on wire sizes 18 through 600 MCM for both terminals and splices.

STRAIGHT RING TONGUE



22-16 AWG (Circular Mil Range 509-3260)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#1	5/32	7/32	11/32	29/64	34383†
	5/32	7/32	11/32	29/64	34103†
#2	11/64	.182	23/64	29/64	322927†
	5/32	7/32	11/32	29/64	34104†
#3 or 4	1/4	9/32	7/16	37/64	34106†
	11/64	.182	23/64	29/64	34647†
	5/16	1/4	1/2	5/8	323096
	5/32	7/32	27/64	17/32	32989*†
	5/32	7/32	11/32	29/64	34105†
#5 or 6	1/4	9/32	7/16	37/64	34107†
	9/32	5/16	15/32	5/8	34110†
	19/64	11/32	31/64	21/32	323085
	5/32	7/32	29/64	35/64	34194*†
	15/64	9/32	1/2	21/32	33213*
#8	9/32	5/16	15/32	5/8	34111†
	1/4	9/32	7/16	37/64	34108†
	19/64	11/32	31/64	21/32	323086
	15/64	9/32	33/64	21/32	32990*
#10	9/32	5/16	15/32	5/8	34112†
	1/4	9/32	7/16	37/64	34109†
	19/64	11/32	31/64	21/32	323087
	9/32	5/16	35/64	45/64	33214*
#12 or 1/4	7/16	15/32	5/8	55/64	34113†
	27/64	15/32	23/32	15/16	33215*
5/16	7/16	15/32	39/64	55/64	34114†
	27/64	15/32	23/32	15/16	33452*
3/8	17/32	17/32	47/64	63/64	34115
	7/16	15/32	5/8	55/64	323080†
	17/32	17/32	53/64	1-5/64	33453*

16-14 AWG (Circular Mil Range 2050-5180)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#2	11/64	1/4	23/64	31/64	321626†
	11/64	.180	23/64	29/64	328377†
#3 or 4	11/64	1/4	23/64	31/64	34119†
	.172	1/4	7/16	9/16	32991*
#5 or 6	11/64	1/4	23/64	31/64	34120†
	9/32	11/32	15/32	41/64	34121†
	1/4	5/16	7/16	19/32	321684†
	1/4	5/16	33/64	43/64	33216*
#8	11/64	1/4	7/16	9/16	34197*
	9/32	11/32	15/32	41/64	34122†
	1/4	5/16	7/16	19/32	324955†
	1/4	5/16	33/64	43/64	32992*
#10	9/32	11/32	15/32	41/64	34123†
	9/32	3/8	15/32	21/32	35590
	1/4	5/16	33/64	43/64	3200931††
	9/32	11/32	35/64	47/64	33217*†
#12 or 1/4	7/16	15/32	5/8	55/64	34124†
	7/16	15/32	45/64	15/16	33218*
5/16	7/16	15/32	5/8	55/64	34125†
	7/16	15/32	45/64	15/16	33454*
3/8	17/32	17/32	47/64	63/64	34126
	17/32	17/32	13/16	1-5/64	33455*

*Long Barrel.

†Indicates terminal is available in tape mounted form. See Tape Matic in Tooling Section.

16-14 AWG HEAVY DUTY
(Circular Mil Range 2050-5180)**

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#5 or 6	9/32	11/32	35/64	23/32	322833†
#8	9/32	11/32	35/64	23/32	35432†
#10	9/32	11/32	35/64	23/32	34567†
	1/4††	1/2	39/64	55/64	35774†
#12 or 1/4	1/4††	1/2	39/64	55/64	35775†
5/16	1/4††	1/2	39/64	55/64	35776†
3/8	7/16	17/32	45/64	31/32	322832
	5/8	3/4	57/64	1-17/64	327732
1/2	5/8	3/4	57/64	1-17/64	321165
	1	1-1/4	1-17/64	1-57/64	320757
5/8	1	1-1/4	1-17/64	1-57/64	320758
3/4	1	1-1/4	1-17/64	1-57/64	320759

14-12 AWG (Circular Mil Range 3260-8230)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#3 or 4	1/4	27/64	17/32	47/64	34949
#5 or 6	.330	1/4	17/32	21/32	35684
	1/4††	27/64	17/32	11/16	34950
#8	1/4	27/64	17/32	47/64	34951
	1/4	5/16	17/32	11/16	321827
#10	1/4	27/64	17/32	47/64	34484
	1/4	5/16	17/32	11/16	321828
#12 or 1/4	1/4	27/64	17/32	47/64	34487
5/16	7/16	11/16	25/32	1-1/8	34485
3/8	7/16	11/16	25/32	1-1/8	34486

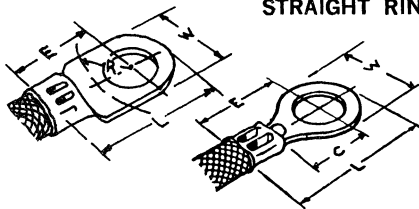
12-10 AWG (Circular Mil Range 5180-13100)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#3 or 4	7/32	9/32	31/64	5/8	322447†
#5 or 6	302	3/8	9/16	3/4	33456†
	7/32	9/32	31/64	5/8	35476†
#8	302	3/8	9/16	3/4	32994*
	9/32	5/16	35/64	45/64	322454
#10	302	3/8	9/16	3/4	33457†
	1/4††	1/2	39/64	55/64	35771†
	15/32	17/32	47/64	1	36451†
	11/32	3/8	5/8	13/16	31805†
#12 or 1/4	15/32	17/32	47/64	1	33459†
	1/4††	1/2	39/64	55/64	35772†
5/16	15/32	17/32	47/64	1	33459†
	1/4††	1/2	39/64	55/64	35773†
3/8	17/32	19/32	51/64	1-3/32	322457
	5/8	3/4	57/64	1-17/64	322242
1/2	5/8	3/4	57/64	1-17/64	322458†
	1	1-1/4	1-17/64	1-57/64	320763
5/8	1	1-1/4	1-17/64	1-57/64	320764
3/4	1	1-1/4	1-17/64	1-57/64	320765

**Use "12-10" Tooling.

††Dimension listed is maximum washer radius.

STRAIGHT RING TONGUE (Cont'd)



8 AWG (Circular Mil Range 13100-20800)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#8	23/64	13/32	3/4	61/64	324061
	23/64	15/32	45/64	15/16	32996
#10	23/64	15/32	45/64	15/16	33460
	17/32	19/32	7/8	1-11/64	321164
#12 or 1/4	23/64	13/32	3/4	61/64	31807
	23/64	15/32	45/64	15/16	33461
5/16	17/32	19/32	7/8	1-11/64	35247
	1	1-1/4	1-11/32	1-31/32	36498
3/8	13/32	9/16	51/64	1-5/64	31808
	17/32	19/32	7/8	1-11/64	33463
1/2	1	1-1/4	1-11/32	1-31/32	36499
	1	1-1/4	1-11/32	1-31/32	35666
5/8	1	1-1/4	1-11/32	1-31/32	35665
3/4	1	1-1/4	1-11/32	1-31/32	35666

8 Circular Mil Range 13100-20800 (Heavy Duty)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#10	41/64	.587	63/64	1-1/4	331414
1/4	41/64	.587	63/64	1-1/4	1-331414-0
5/16	41/64	.587	63/64	1-1/4	1-331414-1
3/8	41/64	.587	63/64	1-1/4	1-331414-2

6 AWG (Circular Mil Range 20800-33100)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#10	17/32	5/8	15/16	1-1/4	33464
	17/32	15/32	15/16	1-11/64	321298
#12 or 1/4	17/32	5/8	15/16	1-1/4	33465
	17/32	15/32	15/16	1-11/64	321598
5/16	17/32	5/8	15/16	1-1/4	33466
	1	1-1/4	1-13/32	2-1/32	36806
3/8	17/32	5/8	15/16	1-1/4	33467
	1	1-1/4	1-13/32	2-1/32	36807
7/16	17/32	5/8	15/16	1-1/4	320745
1/2	1	1-1/4	1-13/32	2-1/32	36808
	1	7/8	1-13/32	1-27/32	320344
5/8	1	1-1/4	1-13/32	2-1/32	36809
3/4	1	1-1/4	1-13/32	2-1/32	36810

6 Circular Mil Range 20800-33100 (Heavy Duty)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#10	17/32	1/2	15/16	1-3/16	2-330969-1
1/4	17/32	1/2	15/16	1-3/16	330969
1/4	11/16	5/8	1-1/64	1-27/64	331417
5/16	11/16	5/8	1-1/64	1-27/64	1-331417-0
3/8	11/16	5/8	1-1/64	1-27/64	1-331417-1

4 AWG (Circular Mil Range 33100-52600)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#10	33/64	21/32	63/64	1-5/16	33468
	7/16	1/2	61/64	1-13/64	33114
#12 or 1/4	33/64	21/32	63/64	1-5/16	33469
	7/16	1/2	61/64	1-13/64	31911
5/16	33/64	21/32	63/64	1-5/16	33470
	1	5/8	1-1/64	1-21/64	36814
3/8	17/2	21/32	63/64	1-5/16	33471
	1	1-1/4	1-15/32	2-3/32	36815
7/16	1	1-1/4	1-15/32	2-3/32	322704
	1/2	7/8	1-15/32	1-29/32	327175
5/8	1	1-1/4	1-15/32	2-3/32	35669
3/4	1	1-1/4	1-15/32	2-3/32	35670

4 Circular Mil Range 33100-52600 (Heavy Duty)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
1/4	33/64	1/2	63/64	1-15/64	330970
1/4	23/32	.679	1-13/64	1-35/64	331420
5/16	23/32	.679	1-13/64	1-35/64	1-331420-0
3/8	23/32	.679	1-13/64	1-35/64	1-331420-1

2 AWG (Circular Mil Range 52600-83700)

Stud Size	Washer Radius R (Max.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#12 or 1/4	17/32	7/8	1-7/32	1-21/32	320138
	17/32	5/8	1-7/32	1-17/32	320383
5/16	17/32	7/8	1-7/32	1-21/32	35183
	17/32	5/8	1-7/32	1-17/32	322870
3/8	17/32	7/8	1-7/32	1-21/32	35184
	17/32	5/8	1-7/32	1-17/32	321600
7/16	17/32	7/8	1-7/32	1-21/32	320741
1/2	17/32	7/8	1-7/32	1-21/32	35185
	17/32	13/16	1-7/32	1-5/8	321602
5/8	1-1/8	1-1/4	1-7/8	2-33/64	323291
5/8	1-1/8	1-1/4	1-7/8	2-33/64	320754
3/4	1-1/8	1-1/4	1-7/8	2-33/64	320755
7/8	1-1/8	1-1/4	1-7/8	2-33/64	320756

2 Circular Mil Range 52600-83700 (Heavy Duty)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
1/4	11/16	5/8	1-7/32	1-17/32	330971
1/4	25/32	.855	1-21/64	1-3/4	331423
3/8	25/32	.855	1-21/64	1-3/4	1-331423-0
1/2	25/32	.855	1-21/64	1-3/4	1-331423-1

††Dimension listed is maximum washer radius.

STRAIGHT RING TONGUE (Cont'd)

1/0 AWG (Circular Mil Range 83700-119500)

Stud Size	Washer Radius† R (Max.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#12 or 1/4	5/8	7/8	1-33/64	1-61/64	36915
	5/8	.807	1-33/64	1-59/64	321866
5/16	5/8	7/8	1-33/64	1-61/64	36916
	5/8	.807	1-33/64	1-59/64	321867
3/8	5/8	7/8	1-33/64	1-61/64	36917
	5/8	.807	1-33/64	1-59/64	321868
7/16	5/8	1-1/4	2-3/64	2-11/16	322829
	5/8	7/8	1-33/64	1-61/64	36918
1/2	5/8	7/8	1-33/64	1-61/64	36919
	1-1/8	1-1/4	2-3/64	2-11/16	322291
5/8	1-1/8	1-1/4	2-3/64	2-11/16	320744
3/4	1-1/8	1-1/4	2-3/64	2-11/16	320748
7/8	1-1/8	1-1/4	2-3/64	2-11/16	320736

4/0 AWG (Circular Mil Range 190000-231000)

Stud Size	Washer Radius† R (Max.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
5/16	1-5/64	1-1/8	1-63/64	2-35/64	321271
3/8	5/8	1-1/8	1-41/64	2-13/64	36932
	1-5/64	1-1/8	1-63/64	2-35/64	321162
7/16	5/8	1-1/16	1-41/64	2-3/16	321878
	5/8	1-1/8	1-41/64	2-13/64	36933
1/2	5/8	1-1/16	1-41/64	2-13/64	321879
	1-5/64	1-1/8	1-63/64	2-35/64	36934
5/8	5/8	1-1/16	1-41/64	2-3/16	321880
	1-5/64	1-1/4	2-7/64	2-47/64	322228
3/4	5/8	1-1/8	1-41/64	2-13/64	36935
	1-5/64	1-1/4	2-7/64	2-47/64	322228
7/8	5/8	1-1/8	1-41/64	2-13/64	36936
	1-5/64	1-1/4	2-7/64	2-47/64	321265

1/0 Circ. Mil Range 83700-119500 (Heavy Duty)

Stud Size	Washer Radius R (Max.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
1/4	45/64	.807	1-17/32	1-15/16	331880
3/8	45/64	.807	1-17/32	1-15/16	1-331880-0
1/2	45/64	.807	1-17/32	1-15/16	1-331880-1

250-300 AWG (Circular Mil Range 231-300 MCM)

Stud Size	Washer Radius† R (Max.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
1/4	5/8	1-13/32	1-31/32	2-11/16	322250
5/16	5/8	1-13/32	1-31/32	2-11/16	322251
3/8	5/8	1-13/32	1-31/32	2-11/16	322252
7/16	5/8	1-13/32	1-31/32	2-11/16	322253
1/2	5/8	1-13/32	1-31/32	2-11/16	322254
5/8	5/8	1-13/32	1-31/32	2-11/16	323050
3/4	1-13/64	1-13/32	2-35/64	3-17/64	323140
1	1-13/64	1-13/32	2-35/64	3-17/64	323034
	1-61/64	1-21/32	3-19/64	4-9/64	324080

2/0 AWG (Circular Mil Range 119500-150500)

Stud Size	Washer Radius† R (Max.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#12 or 1/4	5/8	.931	1-17/32	2	36921
	5/8	29/32	1-17/32	1-15/16	321869
5/16	5/8	.931	1-17/32	2	36922
	5/8	29/32	1-17/32	1-15/16	321870
3/8	5/8	.931	1-17/32	2	36923
	5/8	29/32	1-17/32	1-15/16	321871
7/16	5/8	.931	1-17/32	2	36924
	5/8	29/32	1-17/32	1-15/16	321872
1/2	5/8	.931	1-17/32	2	36925
	5/8	29/32	1-17/32	1-15/16	321873
5/8	1-1/8	1-1/4	2-3/64	2-43/64	322391
	1-1/8	1-1/4	2-3/64	2-43/64	322224
3/4	1-1/8	1-1/4	2-3/64	2-43/64	322225
7/8	1-1/8	1-1/4	2-3/64	2-43/64	322226

300-350 AWG (Circular Mil Range 300-380 MCM)

Stud Size	Washer Radius† R (Max.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
1/4	5/8	1-33/64	2-1/32	2-43/64	322255
5/16	5/8	1-33/64	2-1/32	2-43/64	322256
3/8	5/8	1-33/64	2-1/32	2-43/64	322257
	1-1/4	1-33/64	2-21/32	3-27/64	322763
7/16	5/8	1-33/64	2-1/32	2-43/64	322258
1/2	5/8	1-33/64	2-1/32	2-43/64	322259
	1-1/4	1-33/64	2-21/32	3-27/64	322764
5/8	1-1/4	1-33/64	2-21/32	3-27/64	324081
	5/8	1-33/64	2-1/32	2-43/64	324105
3/4	1-1/4	1-33/64	2-21/32	3-27/64	322428
1	1-1/4	1-33/64	2-21/32	3-27/64	322429

3/0 AWG (Circular Mil Range 150500-190000)

Stud Size	Washer Radius† R (Max.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
5/16	5/8	1-1/16	1-39/64	2-9/64	320266
	5/8	1	1-39/64	2-1/8	321874
3/8	5/8	1-1/16	1-39/64	2-9/64	36927
	5/8	1	1-39/64	2-1/8	321875
7/16	5/8	1-1/16	1-39/64	2-9/64	36928
	5/8	1	1-39/64	2-1/8	321876
1/2	5/8	1-1/16	1-39/64	2-9/64	36929
	5/8	1	1-39/64	2-1/8	321877
5/8	1-1/8	1-1/4	2-5/64	2-45/64	322222
	5/8	1-1/16	1-39/64	2-9/64	36930
3/4	1-1/8	1-1/4	2-5/64	2-45/64	322223
	5/8	1-1/16	1-39/64	2-9/64	36931
7/8	1-1/8	1-1/4	2-5/64	2-45/64	322221

400 AWG (Circular Mil Range 380-478 MCM)

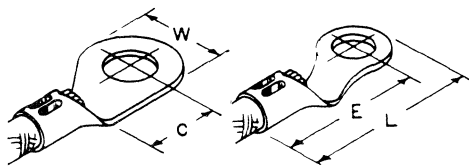
Stud Size	Washer Radius† R (Max.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
1/4	5/8	1-23/32	2-5/32	2-25/32	322260
	1-1/4	1-23/32	2-25/32	3-41/64	324029
5/16	5/8	1-23/32	2-5/32	2-25/32	322261
3/8	5/8	1-23/32	2-5/32	2-25/32	322262
7/16	5/8	1-23/32	2-5/32	2-25/32	322263
1/2	5/8	1-23/32	2-5/32	2-25/32	322264
	1-1/4	1-23/32	2-25/32	3-41/64	327882
5/8	5/8	1-23/32	2-5/32	2-25/32	324202
3/4	1-1/4	1-23/32	2-25/32	3-41/64	323222
1	1-1/4	1-23/32	2-25/32	3-41/64	322939

††Dimension listed is maximum washer radius

STRAIGHT RING TONGUE (Cont'd)**500-600 AWG (Circular Mil Range 478-600 MCM)**

Stud Size	Washer Radius† R (Max.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
1/4	3/4	1-63/64	2-27/64	3-3/16	322265
5/16	3/4	1-63/64	2-27/64	3-3/16	322266
3/8	3/4	1-63/64	2-27/64	3-3/16	322267
	1-1/2	1-63/64	3-11/64	4-11/64	322272
7/16	3/4	1-63/64	2-27/64	3-3/16	322268
1/2	3/4	1-63/64	2-27/64	3-3/16	322269
	1-1/2	1-63/64	3-11/64	4-11/64	322273
5/8	3/4	1-63/64	2-27/64	3-3/16	322270
3/4	1-1/2	1-63/64	3-11/64	4-11/64	322271
7/8	1-1/2	1-63/64	3-11/64	4-11/64	322272
1	1-1/2	1-63/64	3-11/64	4-11/64	322273

††Dimensions listed are maximum washer radius.

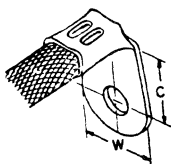
OFFSET RING TONGUE

Style I

Style II

14-12 AWG (Circular Mil Range 3260-8230)

Stud Size	Style	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#10	I	9/32	27/64	9/16	49/64	34488
	II	9/32	11/32	9/16	47/64	35685
#12 or 1/4	I	9/32	27/64	9/16	49/64	35686

BENT RING TONGUE (90°)**8 AWG (Circular Mil Range 13100-20800)**

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Catalog Number
#10	17/64	15/32	35743
	9/32	19/32	321118
#12 or 1/4	27/64	19/32	35277
5/16	29/64	19/32	323671
3/8	29/64	19/32	35720

6 AWG (Circular Mil Range 20800-33100)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Catalog Number
#10	25/64	5/8	36405
#12 or 1/4	25/64	5/8	35678
3/8	25/64	5/8	35681

4 AWG (Circular Mil Range 33100-52600)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Catalog Number
#10	3/8	21/32	320385
#12 or 1/4	3/8	21/32	35625
3/8	3/8	21/32	35721

2 AWG (Circular Mil Range 52600-83700)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Catalog Number
#12 or 1/4	1/2	7/8	324034
5/16	27/64	7/8	35508
3/8	27/64	7/8	35249

1/0 AWG (Circular Mil Range 83700-119500)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Catalog Number
#12 or 1/4	31/64	7/8	324022
	7/16	807	322905
5/16	31/64	7/8	321273
3/8	31/64	7/8	320131
	17/32	807	322906
1/2	17/32	7/8	322909

2/0 AWG (Circular Mil Range 119500-150500)

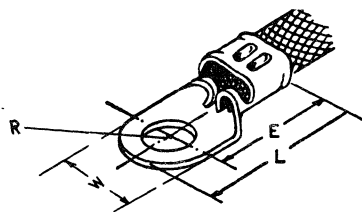
Stud Size	Stud Clearance C (Min.)	Tongue Width W	Catalog Number
3/8	1/2	931	36375
	17/32	29/32	322912
1/2	1/2	.931	36465
	17/32	29/32	322913

3/0 AWG (Circular Mil Range 150500-190000)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Catalog Number
5/16	15/32	1-1/16	320265
3/8	15/32	1-1/16	324035
	17/32	1	322917
1/2	9/16	1-1/16	322420
	17/32	1	322918

4/0 AWG (Circular Mil Range 190000-231000)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Catalog Number
5/16	3/4	1-1/8	321272
3/8	31/64	1-1/8	321265
	5/4	1-1/8	321124
	35/64	1-1/16	322921
1/2	3/4	1-1/8	321125
	35/64	1-1/16	322922

**1/0 AWG** (Circular Mil Range 83700-119500)

Stud Size	Washer Radius R (Max.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#12 or 1/4	5/8	7/8	1-33/64	1-61/64	320000
5/16	5/8	7/8	1-33/64	1-61/64	320001
3/8	5/8	7/8	1-33/64	1-61/64	320002
7/16	5/8	7/8	1-33/64	1-61/64	320003
1/2	5/8	7/8	1-33/64	1-61/64	320004

2/0 AWG (Circular Mil Range 119500-150500)

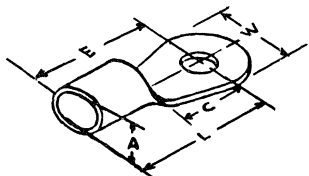
Stud Size	Washer Radius R (Max.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
#12 or 1/4	5/8	.931	1-17/32	2	320006
5/16	5/8	.931	1-17/32	2	320007
3/8	5/8	.931	1-17/32	2	320008
7/16	5/8	.931	1-17/32	2	320009
1/2	5/8	.931	1-17/32	2	320010

3/0 AWG (Circular Mil Range 150500-190000)

Stud Size	Washer Radius R (Max.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
3/8	5/8	1-1/16	1-39/64	2-9/64	320012
7/16	5/8	1-1/16	1-39/64	2-9/64	320013
1/2	5/8	1-1/16	1-39/64	2-9/64	320014
5/8	5/8	1-1/16	1-39/64	2-9/64	320015
3/4	5/8	1-1/16	1-39/64	2-9/64	320016

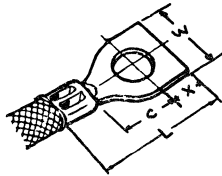
4/0 AWG (Circular Mil Range 190000-231000)

Stud Size	Washer Radius R (Max.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
3/8	5/8	1-1/8	1-41/64	2-13/64	320017
7/16	5/8	1-1/8	1-41/64	2-13/64	320018
1/2	5/8	1-1/8	1-41/64	2-13/64	320019
5/8	5/8	1-1/8	1-41/64	2-13/64	320020
3/4	5/8	1-1/8	1-41/64	2-13/64	320021

RING TONGUE (Ovalled Barrel)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	A	Catalog Number
8 AWG (Circular Mil Range 13100-20800)						
#10	23/64	15/32	45/64	15/16	.105	328414
#12 or 1/4	23/64	15/32	45/64	15/16	.152	323962
3/8	17/32	19/32	7/8	1-11/64	.152	320062
6 AWG (Circular Mil Range 20800-33100)						
#12 or 1/4	17/32	5/8	15/16	1-1/4	.189	323963
3/8	17/32	5/8	15/16	1-1/4	.189	320079
4 AWG (Circular Mil Range 33100-52600)						
#12 or 1/4	33/64	21/32	63/64	1-5/16	.246	323964
3/8	33/64	21/32	63/64	1-5/16	.246	320064
2 AWG (Circular Mil Range 52600-83700)						
3/8	17/32†	7/8	1-7/32	1-21/32	.270	320065
1/2	17/32†	7/8	1-7/32	1-21/32	.270	320270
2/0 AWG (Circular Mil Range 119500-150500)						
3/8	5/8†	.931	1-17/32	2	.436	320067

†Maximum washer radius.

RECTANGULAR TONGUE**22-16 AWG** (Circular Mil Range 509-3260)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Extension X	L (Max.)	Catalog Number
#1 or 2	1/4	.182	.115	9/16	323118†
#3 or 4	13/16	19/64	9/64	17/32	323102†
	1/4	.182	.115	9/16	323119†
#5 or 6	5/16	1/4	1/8	5/8	34262†
	13/64	19/64	9/64	17/32	34263
	13/64	11/32	5/32	35/64	34264†
	7/16	19/64	3/16	13/16	322942
	7/32	5/16	7/32	5/8	321538†
#8	9/32	5/16	13/64	43/64	323112
	.237	.237	.143	43/64	329637
	13/64	11/32	5/32	35/64	34505†
#10	9/32	5/16	13/64	43/64	321492
	3/8	3/8	5/16	7/8	321491†
	13/64	19/64	9/64	17/32	323101†
#12	9/32	15/32	13/64	43/64	34265
	13/64	11/32	5/32	35/64	34459
	682	3/8	3/16	1-1/16	322811
	9/32	3/8	13/64	43/64	323106

†Indicates terminal is available in tape mounted form. See Tape Matic in Tooling Section.

RECTANGULAR TONGUE (Cont'd)

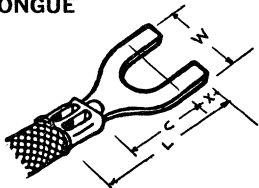
16-14 AWG (Circular Mil Range 2050-5180)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Extension X	L (Max.)	Catalog Number
#3 or 4	11/64	7/32	117	31/64	320813
	9/32	15/64	3/16	21/32	324883†
.128	3/16	15/64	117	1/2	320811
	5/16	244	1/8	5/8	34267
#5 or 6	13/64	19/64	9/64	17/32	34266†
	7/16	19/64	15/64	55/64	322944
	19/64	5/16	5/16	7/8	321834
	3/16	1/4	3/16	9/16	320815
#8	13/64	19/64	7/32	39/64	320809
	11/32	3/8	3/16	23/32	321495
	9/32	5/16	1/4	23/32	320817
	11/16	3/8	3/16	1-1/16	322812
	5/16	3/8	.271	49/64	321147
	7/16	3/8	21/64	61/64	321494
#10	9/32	5/16	1/4	51/64	328653
	11/16	3/8	3/16	1-1/16	34268
	9/32	5/16	1/4	23/32	320819
	5/16	3/8	271	49/64	321148
#12 or 1/4	27/64	3/8	3/8	1-5/64	3221833
	7/16	3/8	21/64	61/64	320821
#12 or 1/4	11/32	3/8	3/16	23/32	35243
	7/16	15/32	21/64	61/64	320807

12-10 AWG (Circular Mil Range 5180-13100)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Extension X	L (Max.)	Catalog Number
#3 or 4	15/32	15/32	21/64	1-1/16	321471
	9/32	15/64	3/16	47/64	324879†
#5 or 6	7/32	290	9/64	5/8	321499
	15/32	19/64	17/64	1	322946
#8	9/32	5/16	1/4	51/64	320825
	9/32	.416	1/4	25/32	324593
#10	9/32	5/16	1/4	51/64	321558
	9/32	19/64		47/64	33149
#12 or 1/4	15/32	15/32	21/64	1-1/16	320823

SLOTTED TONGUE SPADE



Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Extension X	L (Max.)	Catalog Number
22-16 AWG (Circular Mil Range 509-3260)					
#3 or 4	5/32	7/32	7/64	29/64	321463
	7/32	11/32	5/32	9/16	33713†
#5 or 6	13/64	11/32	5/32	5/8	32897*
	5/16	1/4	1/8	5/8	323127†
	19/64	3/8	3/16	45/64	34116†
	13/64	19/64	9/64	17/32	36195†
#8	13/64	11/32	5/32	5/8	32898*
	19/64	3/8	3/16	11/16	34117†
#10	13/64	11/32	5/32	5/8	32899*
	19/64	3/8	3/16	11/16	34118†

†Indicates terminal is available in tape mounted form. See Tape Matic in Tooling Section.
*Long Barrel.

Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Extension X	L (Max.)	Catalog Number
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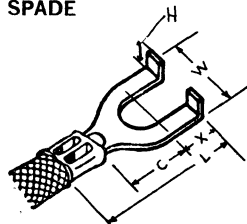
16-14 AWG (Circular Mil Range 2050-5180)

#5 or 6	5/16	3/8	3/16	11/16	34127†
	5/16	3/8	3/16	49/64	33477*
	13/64	19/64	9/64	17/32	322996†
	13/64	11/32	5/32	35/64	321686
#8	13/64	11/32	5/32	5/8	32903*
	13/64	19/64	9/64	17/32	328628†
	5/16	3/8	3/16	11/16	34128†
#8	13/64	11/32	5/32	5/8	32904*
	13/64	19/64	9/64	17/32	36880†
	5/16	3/8	3/16	49/64	32993*
#10	5/16	3/8	3/16	49/64	33219*
	5/16	3/8	3/16	11/16	34129†
	13/64	11/32	5/32	5/8	32905*

12-10 AWG (Circular Mil Range 5180-13100)

#5 or 6	19/64	13/32	13/64	49/64	33478†
	7/32	290	9/64	5/8	32245†
#6	19/64	19/64	9/16	1-1/8	322449
#8	19/64	13/32	13/64	49/64	32995†
	15/32	5/16	1/4	63/64	325196
#10	19/64	13/32	13/64	49/64	33479†
	19/64	3/8	13/64	49/64	35495
3/8	19/32	7/8	15/32	1-21/64	34860

SLOTTED TONGUE FLANGED SPADE



Stud Size	H	Stud Clearance C (Min.)	Tongue Width W	Tongue Extension X	L (Max.)	Catalog Number
22-16 AWG (Circular Mil Range 509-3260)						
#5 or 6	3/64	13/64	1/4	1/8	33/64	323136†
	3/64	13/64	19/64	1/8	33/64	320749†
#8	1/16	1/4	.416	11/64	39/64	323124†

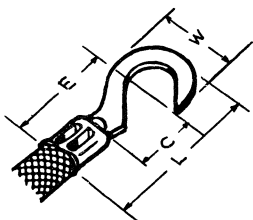
16-14 AWG (Circular Mil Range 2050-5180)

#5 or 6	3/64	13/64	.294	1/8	33/64	320855†
	3/64	13/64	.294	1/8	33/64	320856†
#8	1/16	1/4	.416	11/64	39/64	324171†
	3/64	13/64	.294	1/8	33/64	320857†

12-10 AWG (Circular Mil Range 5180-13100)

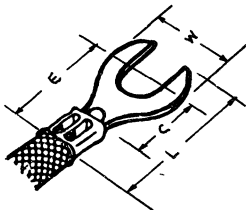
#5 or 6	1/16	1/4	5/16	11/64	11/16	324064†
	1/16	1/4	19/64	11/64	11/16	324578
#8	1/16	1/4	.416	11/64	11/16	323143
#10	1/16	1/4	.416	11/64	11/16	323144

SLOTTED TONGUE HOOK



Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
22-16 AWG (Circular Mil Range 509-3260)					
#5 or 6	5/32	7/32	11/32	29/64	322633
16-14 AWG (Circular Mil Range 2050-5180)					
#8	9/32	11/32	15/32	41/64	320257†
12-10 AWG (Circular Mil Range 5180-13100)					
#8	.302	3/8	9/16	3/4	321468
#12 or 1/4	15/32	17/32	47/64	1	321632

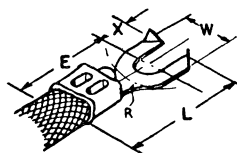
SLOTTED RING TONGUE



Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	Catalog Number
22-16 AWG (Circular Mil Range 509-3260)					
#3 or 4	11/64	.182	23/64	27/64	321288
#5 or 6	5/32	7/32	11/32	27/64	321289
#10	9/32	5/16	15/32	5/8	323760
16-14 AWG (Circular Mil Range 2050-5180)					
#5 or 6	11/64	1/4	23/64	15/32	322514
#8	9/32	11/32	15/32	39/64	36445
#10	9/32	11/32	15/32	39/64	321266
#12 or 1/4	7/16	15/32	5/8	13/16	321087†
12-10 AWG (Circular Mil Range 5180-13100)					
#5 or 6	9/32	3/8	35/64	23/32	322448
#8	9/32	3/8	35/64	23/32	322453
#10	9/32	3/8	35/64	45/64	322456
#12 or 1/4	15/32	17/32	47/64	31/32	35680
3/8	17/32	19/32	51/64	1-1/32	320222

† Indicates terminal is available in tape mounted form. See Tape Matic in Tooling Section.

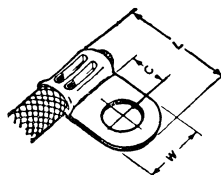
SLOTTED TONGUE ANGLE FLANGE



14-12 AWG (Circular Mil Range 3260-8230)

Stud Size	Washer Radius R (Max.)	Tongue Width W	Tongue Extension X	L (Max.)	Catalog Number
#10	1/4	27/64	7/32	3/4	34489
	1/4	3/8	7/32	3/4	35540

FLAG RING TONGUE



16-14 AWG (Circular Mil Range 2050-5180)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	L (Max.)	Catalog Number
#8	1/4	5/16	37/64	325069
#10	1/4	5/16	37/64	322819

12-10 AWG (Circular Mil Range 5180-13100)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	L (Max.)	Catalog Number
#5 or 6	9/32	3/8	45/64	36269
#8	9/32	3/8	45/64	36270
#10	9/32	3/8	45/64	36271
#12 or 1/4	9/32	3/8	45/64	36272

8 AWG (Circular Mil Range 13100-20800)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	L (Max.)	Catalog Number
#10	1/4	1/2	25/32	321051
	.378	1/2	29/32	321441
#12 or 1/4	.525	39/64	1-1/8	322727
	.525	39/64	1-1/8	321052

6 AWG (Circular Mil Range 20800-33100)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	L (Max.)	Catalog Number
≈#10	.371	1/2	31/32	321055
	1/4	1/2	27/32	323196
#12 or 1/4	.371	1/2	31/32	321576
5/16	.528	5/8	1-3/16	321056
3/8	.528	5/8	1-3/16	322204

FLAG RING TONGUE (Cont'd)

4 AWG (Circular Mil Range 33100-52600)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	L (Max.)	Catalog Number
#10	.373	35/64	1-1/16	321059
#12 or 1/4	.373	35/64	1-1/16	321275
5/16	17/32	11/16	1-9/32	321060
3/8	17/32	11/16	1-9/32	321121

2 AWG (Circular Mil Range 52600-83700)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	L (Max.)	Catalog Number
#10	.534	23/32	1-25/64	321063
#12 or 1/4	.534	23/32	1-25/64	321201
5/16	.534	23/32	1-25/64	321064
3/8	.534	23/32	1-25/64	321253
1/2	.534	23/32	1-25/64	321535

1/0 AWG (Circular Mil Range 83700-119500)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	L (Max.)	Catalog Number
#12 or 1/4	.666	7/8	1-47/64	322215
5/16	.666	7/8	1-47/64	321580
3/8	.666	7/8	1-47/64	321066
1/2	.666	7/8	1-47/64	321123

2/0 AWG (Circular Mil Range 119500-150500)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	L (Max.)	Catalog Number
5/16	43/64	.931	1-27/32	321582
3/8	43/64	.931	1-27/32	321584
1/2	43/64	.931	1-27/32	321255

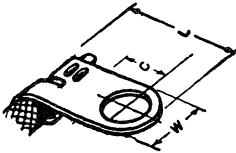
3/0 AWG (Circular Mil Range 150500-190000)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	L (Max.)	Catalog Number
3/8	.676	1-1/16	2	327887
1/2	.676	1-1/16	2	321257

4/0 AWG (Circular Mil Range 190000-231000)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	L (Max.)	Catalog Number
5/16	.681	1-1/8	29/64	321277
1/2	.681	1-1/8	29/64	321259

FLAG RING TONGUE (Insulation Support)



16-14 AWG (Circular Mil Range 2050-5180)

INSULATION SUPPORT (For .250 Maximum Insulation Diameter)

Stud Size	Stud Clearance C (Min.)	Tongue Width W	L (Max.)	Catalog Number	
				Left	Right
#10	31/64	9/16	1-1/32	36106	36110
#12 or 1/4	31/64	9/16	1-1/32	36107	36111
5/16	31/64	9/16	1-1/32	36108	36112
3/8	31/64	9/16	1-1/32	36109	36113

14-12 AWG (Circular Mil Range 3260-8230)

INSULATION SUPPORT (For 215 Maximum Insulation Diameter)

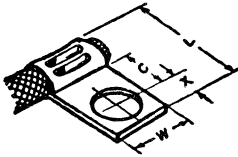
Stud Size	Stud Clearance C (Min.)	Tongue Width W	Overall Length L	Catalog Number	
				Left	Right
#5 or 6	13/32	3/8	55/64	35522	
#8	13/32	3/8	55/64	35526	35523
#10	13/32	3/8	55/64	35527	35524
#12 or 1/4	13/32	3/8	55/64	320060	320059

12-10 AWG (Circular Mil Range 5180-13100)

INSULATION SUPPORT (For 300 Maximum Insulation Diameter)

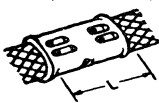
Stud Size	Stud Clearance C (Min.)	Tongue Width W	L (Max.)	Catalog Number	
				Left	Right
#10	31/64	9/16	1-7/64	36114	36118
#12 or 1/4	31/64	9/16	1-7/64	36115	36119
5/16	31/64	9/16	1-7/64	36116	36120
3/8	31/64	9/16	1-7/64	36117	36121

FLAG RECTANGULAR TONGUE



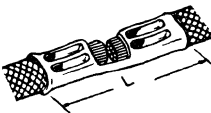
Stud Size	Stud Clearance C (Min.)	Tongue Width W	L (Max.)	Tongue Extension X	Catalog Number
16-14 AWG (Circular Mil Range 2050-5180)					
#5 or #6	21/64	3/8	27/32	1/4	36174
#8	21/64	3/8	27/32	1/4	36175
#10	21/64	3/8	27/32	1/4	36176
#12 or 1/4	21/64	3/8	27/32	1/4	36177
12-10 AWG (Circular Mil Range 5180-13100)					
#5 or 6	25/64	3/8	7/8	1/4	36178
#8	25/64	3/8	7/8	1/4	36179
#10	25/64	3/8	7/8	1/4	36180
#12 or 1/4	25/64	3/8	7/8	1/4	36181

BUTT SPLICES (Standard)



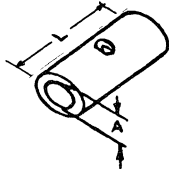
Wire Size AWG	Circular Mil Range	L (Maximum)	Catalog Number
22-16	509-3260	37/64	31818
16-14	2050-5180	37/64	31819
12-10	5180-13100	37/64	32151
8	13100-20800	53/64	34321
6	20800-33100	1-1/64	34322
4	33100-52600	1-9/64	34323
2	52600-83700	1-17/64	35189

BUTT SPLICES (Strap)



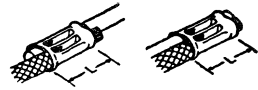
Wire Size AWG	Circular Mil Range	L (Maximum)	Catalog Number
26-22	202-810	25/64	321198
24-20	320-1290	1/2	324001

BUTT SPLICES (Oval)



Wire Size AWG	Circular Mil Range	L (Maximum)	A	Catalog Number
8	13100-20800	53/64	.152	320727

PARALLEL SPLICES (Standard)



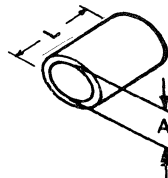
Wire Size AWG	Circular Mil Range	L (Maximum)	Catalog Number
22-16	509-3260	5/16	34130
16-14	2050-5180	5/16	34137
12-10	5180-13100	11/32	34138
8	13100-20800	3/8	34318
6	20800-33100	7/16	34319
4	33100-52600	17/32	34320
2	52600-83700	41/64	35187
1/0	83700-119500	47/64	36946
2/0	119500-150500	47/64	36948
3/0	150500-190000	3/4	36909
4/0	190000-231000	49/64	36951
250-300	231-300 MCM	1-1/16	322275
300-350	300-350 MCM	1-1/8	322276
400	380-478 MCM	1-1/4	322277
500-600	478-600 MCM	1-27/64	322278

BUTT SPLICES (With Sight Hole)



Wire Size AWG	Circular Mil Range	L (Maximum)	Catalog Number
22-16	509-3260	37/64	330367
16-14	2050-5180	37/64	330368
12-10	5180-13100	37/64	330369
8	13100-20800	53/64	36906
6	20800-33100	1-1/64	36886
4	33100-52600	1-9/64	320238
2	52600-83700	1-17/64	322246
1/0	83700-119500	1-27/64	36957
2/0	119500-150500	1-7/16	36958
3/0	150500-190000	1-15/32	36959
4/0	190000-231000	1-31/64	36960
250-300	231-300 MCM	2-3/32	322279
300-350	300-380 MCM	2-7/32	322280
400	380-478 MCM	2-15/32	322281
500-600	478-600 MCM	2-13/16	322282

PARALLEL SPLICES (Oval)



Wire Size AWG	Circular Mil Range	L (Maximum)	A	Catalog Number
8	13100-20800	3/8	.132	323271
6	20800-33100	7/16	.145	320063
4	33100-52600	17/32	.195	327927
2	52600-83700	41/64	.296	320790
1/0	83700-119500	47/64	.314	320791
2/0	119500-150500	47/64	.473	320066
4/0	190000-231000	49/64	.577	320148

PARALLEL SPLICES (With Wire Stop)



Wire Size AWG	Circular Mil Range	L (Maximum)	Catalog Number
2/0	119500-150500	47/64	36949
3/0	150500-190000	3/4	36950
4/0	190000-231000	49/64	36952

TOOLING

Wire Size	Hand Tool Long	Hand Tool Short	Hand Tool Heavy Head	Head For 69005 Pneu. Hand Tool	Head For 69010 Pneu. Hand Tool	Head For 69015 Pneu Hand Tool	Dies For Pneu. 69365 46110	Head For 69011 Amph-Press	Dies For Pneu. Press 69004
26-20	69363								
22-16	49935	49900		300454	300583		47812	38788	49312
16-14	49935	49900		300454	300583		47813	38792	49313
16-14 Flag	49975			37917					
14-12	49592			38328			47815		
14-12 Flag	49769								
12-10	49935	49900		300454	300583		47814*	38799	49249
12-10 Flag	49965			37896					
8			69355		38394	49956			49346
8 Flag			69354-1			48412			
6			59083**		38923	48172			
6 Flag						48413			
4						48173			
4 Flag						48414			
2						48174			
2 Flag						48415			
1/0						48183			
1/0 Flag						48416			

*Die for Stranded Copper Wire only

** Pipe Handles

CRIMPING HEADS AND DIES FOR TOOLS #69120-1 #69120-2 AND #69325 AND #69325-1

Wire Size	Head #69069	Head #69065		Head #69067 (Flag)		Head #69060 Die # includes Indenter & Nest
		Indenter	Nest	Indenter	Nest	
8	8 Through 2 Self Contained Dies	48355	48126	48505	48506	
6		48127	48128	48507	48508	
4		48127	48129	48507	48509	
2		48127	48130	48507	48510	
1/0		48131	48132	48511	48552	
2/0		48131	48133	48511	48805	
3/0		48131	48134	48511	48806	
4/0		48131	300430	48511	48807	
250-300 MCM					48816	
300-350 MCM					48817	
400 MCM					48818	
500-600 MCM					48819	

HEAVY DUTY TOOLING

**DIES FOR TOOLS 69325
69325-1 AND 69120-1 AND
69120-2 WITH HEAD
#69065 AND DIES FOR
TOOL #69020**

	Indenter	Nest
8	48127-1	48128-1
6	48127-1	48129-1
4	48127-1	48130-1
2	48131-1	48132-1
1/0	48131-1	48133-1

DYNA-CRIMP ACCESSORIES

69120 ACCESSORIES (Must be ordered separately)

HEADS AND DIES FOR HAND TOOLS 69020 AND 69062

Wire Size	Tool #69020		Tool #69062 Indenter and Nest included with tool
	Indenter	Nest	
8	48355	48126	69062
6	48127	48128	69062
4	48127	48129	69062
2	48127	48130	69062
1/0	48131	48132	
2/0	48131	48133	
3/0	48131	48134	
4/0	48131	300430	

Number	Description
59512-5	7' Handle Control and Hose Assembly
59512-6	15' Handle Control and Hose Assembly
59512-7	21' Handle Control and Hose Assembly
303775	7' Foot Switch Assembly (needs hose assembly)
303776	15' Foot Switch Assembly (needs hose assembly)
303777	21' Foot Switch Assembly (needs hose assembly)
306023-4	3' Hose Assembly
306023-1	7' Hose Assembly
306023-2	15' Hose Assembly
306023-3	21' Hose Assembly
59220	3-Way Multi-Directional Valve
59220-2	6-Way Multi-Directional Valve (Elec. Control)
59221	6-Way Multi-Directional Valve
59221-2	6-Way Multi-Directional Valve (Elec. Control)

47206
Crimping Head Coupling
needed with these hose assemblies

See tooling section for additional information.

DIAMOND GRIP TERMINALS AND SPLICES§

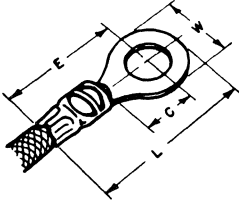


FEATURES

- Bell mouching assures easy wire insertion.
- The specially designed copper sleeve, fitted over the terminal barrel, provides circumferential insulation support to the wire and allows the wire to be bent in any direction, without fraying the wire's insulation or breaking the conductor.
- The inside of the terminal barrel is serrated so that under the crimping pressure wire strands "flow" into these serrations, making a connection of greater tensile strength and more intimate contact.
- Made from high conductivity copper of one-piece construction and electro-tinned for corrosion resistance against a wide variety of corrosive agents such as salt air, salt spray, chemical fumes, and harmful atmospheres.
- Each Diamond Grip terminal consists of two parts: (1) the basic copper barrel and tongue (2) the wire insulation support copper sleeve.

RING TONGUE

16-14 AWG (Wire Range)



TONGUE DIMENSIONS					Catalog No.	
Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	.150 Max. Insulation Dia.	.170 Max. Insulation Dia.
#3 or 4	11/64	1/4	33/64	41/64	32187†	32189†
	9/32	1/4	5/8	3/4	322416	322417
#5 or 6	11/64	1/4	33/64	41/64	32188†	32190†
	9/32	11/32	5/8	51/64	30991†	30926†
	19/64	11/32	41/64	13/16	32842†	32843†
#8	1/4	5/16	19/32	3/4		324528
	9/32	11/32	5/8	51/64	30992†	30927†
#10	19/64	11/32	41/64	13/16	32844†	32845†
	9/32	11/32	5/8	51/64	30993†	30928†
#12 or ¼	19/64	11/32	41/64	13/16	32846†	32847†
	7/16	15/32	25/32	1-1/64	31256†	31168†
5/16	7/16	15/32	25/32	1-1/64	31257†	31169†
	17/32	17/32	57/64	1-5/32	31470	31501
3/8	7/16	15/32	25/32	1-1/64	31258†	31170†
	17/32	21/32	7/8	1-13/64	322465	322466

26-22 AWG (Wire Range)

TONGUE DIMENSIONS					Cat. No.
Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	.082 Max. Insulation Dia.
#0	.121	9/64	25/64	15/32	31516†
#1 or 2	.121	9/64	25/64	15/32	31518†
	.211	13/64	31/64	19/32	33702†
#3 or 4	.211	13/64	31/64	19/32	31679†
#5 or 6	.211	13/64	31/64	19/32	31681†
	9/32	1/4	9/16	11/16	32861†
#8	5/16	13/64	19/32	11/16	321616†
	9/32	1/4	9/16	11/16	32862†
#10	9/32	1/4	9/16	11/16	32863†

16-14 AWG (Wire Range)

Heavy Duty (Use 12-10 Tooling)

DIMENSIONS					Cat. No.
Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	.230 Max. Insulation Dia.
#1 or 2	7/32	9/32	47/64	57/64	33730†
#3 or 4	7/32	9/32	47/64	57/64	33731†
	9/32	11/32	51/64	63/64	33719†
#5 or 6	7/32	9/32	47/64	57/64	33732†
	9/32	11/32	51/64	63/64	33720†
#8	9/32	11/32	51/64	63/64	33721†
#10	7/16	17/32	61/64	1-15/64	33640
	9/32	11/32	51/64	63/64	33722†
#12 or ¼	7/16	17/32	61/64	1-15/64	33639
5/16	7/16	17/32	61/64	1-15/64	33641
3/8	7/16	17/32	61/64	1-15/64	33642
1/2	5/8	3/4	1-9/64	1-17/32	328287

22-16 AWG (Wire Range)

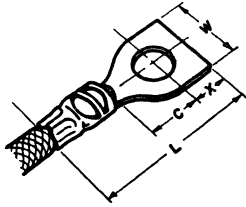
TONGUE DIMENSIONS					Catalog No.	
Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	.125 Max. Insulation Dia.	.140 Max. Insulation Dia.
#0						
#1 or 2	5/32	7/32	1/2	39/64	31093†	31390†
	11/64	.182	33/64	39/64	320678†	327899†
#3 or 4	5/32	7/32	1/2	39/64	31094†	31391†
	1/4	9/32	19/32	47/64	31267†	31394†
	5/16	1/4	21/32	25/32	322414	322415
	11/64	.182	33/64	39/64		327891†
#5 or 6	5/32	7/32	1/2	39/64	31096†	31393†
	1/4	9/32	19/32	47/64	31269†	31396†
	9/32	5/16	5/8	25/32	30995†	31159†
#8	19/64	11/32	41/64	13/16	32826	32827
	9/32	5/16	5/8	25/32	30996†	31160†
#10	19/64	9/32	19/32	47/64	31270†	31397†
	19/64	11/32	45/64	57/64	32834	32835
#12 or ¼	9/32	5/16	5/8	25/32	30997†	31161†
	1/4	9/32	19/32	47/64	31271†	31398†
	7/16	15/32	25/32	1-1/64	31249†	31400†
	19/64	11/32	41/64	13/16	32830	32831†
5/16	7/16	15/32	25/32	1-1/64	31251†	31176†
3/8	7/16	15/32	25/32	1-1/64	31252†	31177†
5/16	17/32	17/32	57/64	1-5/32	31469	31500
	7/16	15/32	25/32	1-1/64	31253†	31178†

12-10 AWG (Wire Range)

DIMENSIONS					Cat. No.
Stud Size	Stud Clearance C (Min.)	Tongue Width W	E (Max.)	L (Max.)	.230 Max. Insulation Dia.
#5 or 6	.302	3/8	53/64	1-1/64	31825†
	7/32	9/32	47/64	57/64	321501†
#8	.302	5/16	53/64	63/64	326889
	.302	3/8	53/64	1-1/64	31826†
#10	9/32	5/16	51/64	31/32	324523
	.302	3/8	53/64	1-1/64	31771†
#12 or ¼	15/32	17/32	1	1-1/4	32181†
	15/32	17/32	63/64	1-17/64	31772†
5/16	15/32	17/32	1	1-1/4	31827†
3/8	17/32	19/32	1-3/64	1-23/64	31828

†Indicates terminal is available in tape mounted form.
See Tape Matic in Tooling Section.

RECTANGULAR TONGUE



26-22 AWG (Wire Range)

DIMENSIONS					Cat. No.
Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Extension X	L (Max.)	.082 Max. Insulation Dia.
#1 or 2	13/64	.182	7/64	37/64	321824
	13/64	.165	7/64	37/64	321621
#5 or 6	5/16	5/16	3/16	25/32	31851
	5/16	1/4	3/16	25/32	327215
#8	5/16	5/16	3/16	25/32	324524
#10	5/16	5/16	3/16	25/32	324613

16-14 AWG (Wire Range)

DIMENSIONS					Catalog No.	
Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Extension X	L (Max.)	.150 Max. Insulation Dia.	.170 Max. Insulation Dia.
#3 or 4	9/32	.215	7/64	3/4	31692	31693
	13/64	11/32	5/32	45/64	36227	36228
	9/32	15/64	3/16	13/16		324885 †
#5 or 6	5/16	.244	1/8	25/32	31683	31684 †
	13/64	19/64	9/64	11/16	31814	31815 †
	13/64	11/32	5/32	45/64	36229	36230
	13/64	21/64	9/64	11/16		324564
	13/64	.290	5/32	45/64		324808
	11/32	.244	9/64	53/64		324816
#8	7/16	19/64	9/64	59/64		324832
	1/4	23/64	9/64	47/64		324873
	11/32	19/64	3/16	7/8	35472 †	35377
	11/32	3/8	3/16	7/8	31686 †	31687
	13/64	11/32	5/32	45/64	36231	36232
	9/32	5/16	1/4	7/8		321446
	9/32	.416	3/16	13/16		320845 †
	7/16	3/8	21/64	1-7/64		321457
	7/16	25/64	5/16	1-3/32		324824
	3/8	5/16	1/4	31/32		324840
#10	9/32	15/32	13/64	53/64	31846	31847
	13/64	11/32	5/32	45/64	36233	36234
	11/16	3/8	3/16	1-7/32		34590
	5/16	3/8	.271	15/16		324534

22-16 AWG (Wire Range)

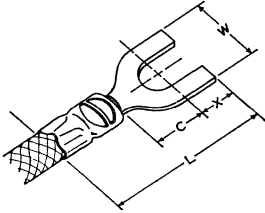
DIMENSIONS					Catalog No.	
Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Extension X	L (Max.)	.125 Max. Insulation Dia.	.140 Max. Insulation Dia.
#1 or 2	1/4	.182	.115	23/32		320871 †
	13/64	.182	.115	43/64		324574 †
	1/4	.200	.115	23/32	36192	
#3 or 4	13/64	19/64	9/64	11/16	32590 †	32591 †
	13/64	7/32	9/64	11/16	32549 †	32550 †
	1/4	.182	.115	23/32	322409 †	
	9/32	15/64	3/16	13/16	324889 †	
#5 or 6	5/16	1/4	1/8	25/32	32529 †	32530 †
	13/64	19/64	9/64	11/16	31666 †	31667 †
	13/64	11/32	5/32	23/32	31659 †	31660 †
	7/32	5/16	5/32	23/32	32406	32407
	7/32	21/64	5/32	23/32		324554
	7/32	.290	5/32	23/32		324804
	3/8	15/64	9/64	55/64		324812
9/32	23/64	9/64	49/64		324877	
#8	13/64	19/64	9/64	11/16	31759 †	31760 †
	7/16	19/64	3/16	31/32		320753
	9/32	.416	3/16	13/16		320844
	9/32	5/16	13/64	53/64		321444
#10	3/8	3/8	5/16	1-1/32		321451 †
	.434	25/64	5/16	1-3/32		324820
	9/32	15/32	13/64	53/64	33164	33165
	13/64	11/32	5/32	47/64	31822 †	31823 †
	9/32	3/8	13/64	53/64		34526
#10	9/32	.369	13/64	53/64	34574	
	11/16	3/8	3/16	1-7/32		320224

12-10 AWG (Wire Range)

DIMENSIONS					Cat. No.
Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Extension X	L (Max.)	.230 Max. Insulation Dia.
#3 or 4	9/32	15/64	3/16	1	324881 †
	7/32	.290	9/64	57/64	33427
#5 or 6	.320	.292	9/64	63/64	320869
	11/32	21/64	9/64	1-1/64	324585
	15/32	35/64	.141	1-9/64	324853
	15/32	.290	9/64	1-9/64	324861
#8	9/32	23/64	9/64	61/64	324869
	.302	1/4	3/16	1-1/64	33161 †
	.320	5/16	1/4	1-3/32	321448
	.330	.416	1/4	1-3/32	324595
	15/32	25/64	5/16	1-5/16	324857
	15/32	5/16	1/4	1-1/4	324865
#10	11/16	3/8	3/16	1-13/32	324793
	.320	5/16	1/4	1-3/32	322231
#10	15/32	3/8	17/64	1-17/64	321454

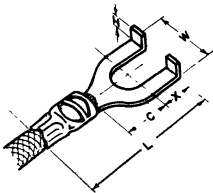
†Indicates terminal is available in tape mounted form. See Tape Matic in Tooling Section.

SLOTTED TONGUE SPADE



Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Ext. X	L (Max.)	Maximum Insulation Dia.	Catalog Number
26-22 AWG (Wire Range)						
#0	5/64 1/8	1/8 .135	1/16 1/16	27/64 15/32	.082 .082	32502 322696
#3 or 4	.211	13/64	.080	37/64	.082	34248†
22-16 AWG (Wire Range)						
#3 or 4	5/32	7/32	7/64	19/32	.125	321462
#5 or 6	5/16	1/4	1/8	25/32	.125	324183†
	5/16	1/4	1/8	25/32	.140	34519†
	7/32	11/32	5/32	23/32	.125	31656†
	7/32	11/32	5/32	23/32	.140	31657†
	5/16	3/8	3/16	27/32	.125	31637†
#8	5/16	3/8	3/16	27/32	.140	31640†
	13/64	19/64	9/64	11/16	.125	33766†
	13/64	19/64	9/64	11/16	.140	33799†
#10	5/16	3/8	3/16	27/32	.125	31638†
	5/16	3/8	3/16	27/32	.140	31641†
	19/64	11/32	11/64	13/16	.125	31381
#8	19/64	11/32	11/64	13/16	.140	31436
	5/16	3/8	3/16	27/32	.125	31639†
	5/16	3/8	3/16	27/32	.140	31642†
19/64	11/32	11/64	13/16	.125	320379	
16-14 AWG (Wire Range)						
#5 or 6	5/16	3/8	3/16	27/32	.150	31707†
	5/16	3/8	3/16	27/32	.170	31710†
	13/64	19/64	9/64	11/16	.150	33650†
	13/64	19/64	9/64	11/16	.170	33204†
	5/16	.244	1/8	25/32	.150	33222†
#8	13/64	11/32	5/32	45/64	.170	322294
	5/16	3/8	3/16	27/32	.150	31708†
	5/16	3/8	3/16	27/32	.170	31711†
#10	5/16	3/8	3/16	27/32	.150	31709†
	5/16	3/8	3/16	27/32	.170	31712†
12-10 AWG (Wire Range)						
#5 or 6	19/64	13/32	13/64	1-1/32	.230	31829†
	19/64	5/16	13/64	1-1/32	.230	326860
#8	19/64	13/32	13/64	1-1/32	.230	31830†
#10	19/64	13/32	13/64	1-1/32	.230	31831†

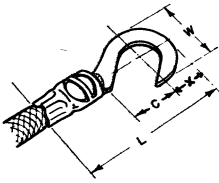
SLOTTED TONGUE FLANGED SPADE



Stud Size	H	Stud Clearance C (Min.)	Tongue Width W	Tongue Ext. X	L (Max.)	Maximum Insulation Dia.	Catalog Number
26-22 AWG (Wire Range)							
#2	1/32	13/64	.182	.110	19/32	.082	324598
22-16 AWG (Wire Range)							
#2	3/64	13/64	.182	.115	43/64	.140	324607†
#5 or 6	3/64	13/64	19/64	1/8	43/64	.125	32419†
	3/64	13/64	19/64	1/8	43/64	.140	32420†
	3/64	13/64	21/64	1/8	43/64	.140	324559†
#8	1/16	1/4	.416	11/64	49/64	.125	32495†
	1/16	1/4	.416	11/64	49/64	.140	32496†
16-14 AWG (Wire Range)							
#5 or 6	.047	13/64	.294	1/8	43/64	.170	320858†
	.049	13/64	21/64	1/8	43/64	.170	324569
#8	1/16	1/4	.416	11/64	49/64	.150	32414†
	1/16	1/4	.416	11/64	49/64	.170	32415†
	.047	13/64	.294	1/8	43/64	.170	320859†
#10	.047	13/64	.294	1/8	43/64	.170	320860†
12-10 AWG (Wire Range)							
#5 or 6	1/16	1/4	19/64	11/64	61/64	.230	324580
	1/16	1/4	21/64	11/64	61/64	.230	324590
#8	1/16	1/4	.416	11/64	61/64	.230	32421†
#10	1/16	1/4	.416	11/64	61/64	.230	322715

†Indicates terminal is available in tape mounted form. See Tape Matic in Tooling Section.

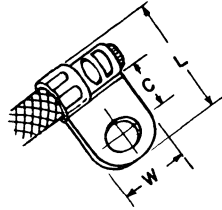
**SLOTTED TONGUE
HOOK**



Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Ext. X	L (Max.)	Maximum Insulation Dia.	Catalog Number
22-16 AWG (Wire Range)						
#5 or 6	5/32	7/32	7/64	39/64	.140	322641
#8	9/32	11/32	11/64	53/64	.125	31630 †
	9/32	11/32	11/64	53/64	.140	31629 †

16-14 AWG (Wire Range)						
#5 or 6	9/32	11/32	11/64	51/64	.150	321536
#8	9/32	11/32	11/64	51/64	.170	32515 †
#10	9/32	11/32	11/64	51/64	.170	33438 †

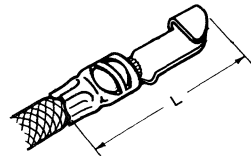
FLAG TONGUE



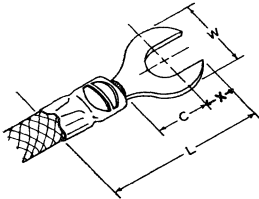
22-16-AWG (Wire Range)

DIMENSIONS					Cat. No.
Stud Size	Stud Clearance C (Min.)	Tongue Width W	L (Max.)	.125 Max. Insulation Dia.	
#5 or 6	5/32	21/64	33/64	.125	32065
#8	5/32	21/64	33/64	.125	32066
#10	5/32	21/64	33/64	.125	32067

KNIFE-DISCONNECT SPLICES



**SLOTTED TONGUE
RING**



Stud Size	Stud Clearance C (Min.)	Tongue Width W	Tongue Ext. X	L (Max.)	Maximum Insulation Dia.	Catalog Number
26-22 AWG (Wire Range)						
#5 or 6	9/32	1/4	3/32	21/32	.082	322110 †
	.211	13/64	5/64	9/16	.082	322212

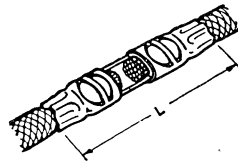
22-16 AWG (Wire Range)						
#5 or 6	9/32	5/16	.147	25/32	.125	31380
	9/32	5/16	.147	25/32	.140	324527
	1/4	9/32	.128	23/32	.125	34101
	1/4	9/32	.128	23/32	.140	34102
#8	1/4	9/32	7/64	45/64	.140	321543 †
#10	9/32	5/16	.120	3/4	.125	31382
#12 or 1/4	7/16	.469	.192	63/64	.140	323217 †

16-14 AWG (Wire Range)						
#5 or 6	11/64	1/4	.100	5/8	.170	35556
#8	9/32	11/32	9/64	49/64	.170	34521
	19/64	11/32	.130	49/64	.150	31438
	19/64	11/32	.130	49/64	.170	31437

12-10 AWG (Wire Range)						
#8	9/32	3/8	.167	31/32	.230	324790

Wire Range AWG	L (Maximum)	Maximum Insulation Diameter	Catalog Number
22-16	13/16	.125	31770 †
	13/16	.140	31777 †
16-14	13/16	.150	31943 †
	13/16	.170	31944 †
12-10	1-13/64	.230	31942

BUTT SPLICES



Wire Range AWG	L (Maximum)	Maximum Insulation Diameter	Catalog Number
26-22	21/32	.082	322949
22-16	27/32	.125	32477
	27/32	.140	32478
16-14	27/32	.150	32479
	27/32	.170	32480
12-10	1-1/4	.230	31834

† Indicates terminal is available in tape mounted form. See Tape Matic in Tooling Section.

TOOLING

Specifications indicate the tools and the wire range of terminals and splices which they crimp.

LONG HANDLE TOOL

Wire Range	Tool No.
22-16	49512
22-16 ▲	47110
16-14	49513

SHORT HANDLE TOOL

Wire Range	Tool No.
26-22	48070
26-22 ▲	48070-1
22-16	49915
16-14	49916

HEAVY HEAD TOOL

Wire Range	Tool No.
12-10	59054
12-10 ▲	59054-2

69005-60010 PNEUMATIC

Wire Range	69005* 69010 Head No
26-22	*49999
22-16	*38084
16-14	*38083
12-10	38675
12-10 ▲	38675-2

69365—PNEUMATIC

Wire Range	Die No
22-16	46250
16-14	46251
12-10	46252

46110—PNEUMATIC

Wire Range	Die No
22-16	46250*
16-14	46251*

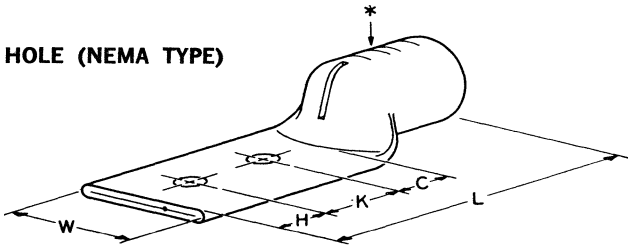
See tooling section for additional information.

*Max. Tongue Width of Terminals for use with these Dies is $\frac{1}{32}$ in tool 46110.

▲ for TEFLON**insulated wire.

AMPOWER TERMINALS AND SPLICES §

TWO STUD HOLE (NEMA TYPE)



The AMPOWER brand product line offers the greatest flexibility and reliability at a consistently lower cost, to make this line admirably suited to the power generation and distribution industry and to related original electrical equipment manufacturers. The most important features of this line are the double thickness of the terminal tongue, the accommodation of solid, stranded or combination of conductors and the wire size range, running as high as 1,125 MCM.

Specific applications include motors, generators, transformers, industrial controls, welders, and such electrical equipment subjected to continuous operation over long periods of time. For round or rectangular, solid or stranded copper conductors, or combination thereof, in a wire size range from #6 AWG to 1,125 MCM.

2 AWG TO 1000 MCM (Wire Size) (3/8" Hole, 1" Centers)

Part No.	Size	Range	I.D. Min.	L Max.	H Max.	C Min.	W Max.	Tongue Thk. Max.
326799	2		.372	2.59	.34	.50	.69	.09
326800	1/0		.468	2.94	.42	.62	.84	.10
326801	2/0		.523	3.08	.47	.62	.94	.11
326802	3/0		.586	3.24	.52	.62	1.05	.12
326803	4/0		.658	3.41	.58	.62	1.17	.13
326804	250	231-275	.700	3.53	.62	.62	1.26	.14
326805	300	275-325	.768	3.64	.63	.62	1.38	.15
326806	350	325-375	.829	3.74	.63	.62	1.49	.17
326807	400	375-450	.886	3.84	.63	.62	1.59	.18
326808	500	450-550	.991	3.99	.63	.62	1.78	.20
326809*	600	550-650	1.085	4.14	.63	.62	1.94	.22
326810*	700	650-750	1.172	4.28	.63	.62	2.10	.23
326811*	800	750-850	1.252	4.40	.63	.62	2.24	.25
326812*	900	850-950	1.328	4.53	.63	.62	2.37	.26
326813*	1000	950-1125	1.400	4.82	.63	.81	2.50	.28

* Two Crimps Necessary

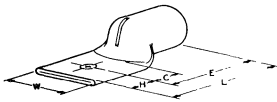
1/0 AWG TO 1000 MCM (Wire Size) (1/2" Hole, 1 3/4" Centers)

Part No.	Size	Range	I.D. Min.	L Max.	H Max.	C Min.	W Max.	Tongue Thk. Max.
327281	1/0		.468	3.69	.42	.62	.84	.10
327282	2/0		.523	3.83	.47	.62	.94	.11
327283	3/0		.586	3.99	.52	.62	1.05	.12
327284	4/0		.658	4.15	.58	.62	1.17	.13
327285	250	231-275	.700	4.28	.62	.62	1.26	.14
327286	300	275-325	.768	4.40	.63	.62	1.38	.15
327287	350	325-375	.829	4.49	.63	.62	1.49	.17
327288	400	375-450	.886	4.59	.63	.62	1.59	.18
327289	500	450-550	.991	4.75	.63	.62	1.78	.20
327290*	600	550-650	1.085	4.89	.63	.62	1.94	.22
327291*	700	650-750	1.172	5.03	.63	.62	2.10	.23
327292*	800	750-850	1.252	5.15	.63	.62	2.24	.25
327293*	900	850-950	1.328	5.28	.63	.62	2.37	.26
327294*	1000	950-1125	1.400	5.57	.63	.81	2.50	.28

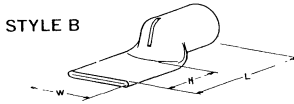
* Two Crimps Necessary.

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STANDARD TYPES



STYLE A



STYLE B



STYLE C

#6 AWG 20,800-33,100 CM (Wire Range)
(Tongue Thickness .07 Max./Barrel I.D. .213 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
328140		B	1.38	.67		.80*
328141	10	A	1.38	.67	.42	.32
328142	1/4	A	1.38	.67	.42	.32
328143	5/16	A	1.38	.67	.42	.32
328144	3/8	A	1.38	.67	.42	.32
328158	1/2	C	1.43	.77	.43	.38

#4 AWG 33,100-52,600 CM (Wire Range)
(Tongue Thickness .07 Max./Barrel I.D. .277 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
328160		B	1.38	.67		.80*
328161	10	A	1.38	.67	.42	.32
328162	1/4	A	1.38	.67	.42	.32
328163	5/16	A	1.38	.67	.42	.32
328164	3/8	A	1.38	.67	.42	.32
328178	1/2	C	1.43	.77	.43	.38

#2 AWG 52,600-83,700 CM (Wire Range)
(Tongue Thickness .09 Max./Barrel I.D. .372 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
325200		B	1.58	.69		.87*
325201	1/4	A	1.58	.69	.50	.34
325202	5/16	A	1.58	.69	.50	.34
325203	3/8	A	1.58	.69	.50	.34
325250	1/2	C	1.70	.78	.55	.41
325251	1/2	C	1.79	.78	.62	.42

1/0 AWG 83,700-119,500 CM (Wire Range)
(Tongue Thickness .10 Max./Barrel I.D. .468 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
325300		B	1.94	.84		1.07*
325301	1/4	A	1.94	.84	.62	.42
325302	5/16	A	1.94	.84	.62	.42
325303	3/8	A	1.94	.84	.62	.42
325304	7/16	A	1.94	.84	.62	.42
325305	1/2	A	1.94	.84	.62	.42
325306		B	3.69	.84		2.83*
325350	5/8	C	2.14	.97	.75	.50

*Tongue Length

2/0 AWG 119,500-150,000 CM (Wire Range)
(Tongue Thickness .11 Max./Barrel I.D. .523 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
325400		B	2.08	.94		1.12*
325401	1/4	A	2.08	.94	.62	.47
325402	5/16	A	2.08	.94	.62	.47
325403	3/8	A	2.08	.94	.62	.47
325404	7/16	A	2.08	.94	.62	.47
325405	1/2	A	2.08	.94	.62	.47
325406		B	3.76	.94		2.88*
325450	5/8	C	2.28	1.08	.75	.54

3/0 AWG 150,500-190,000 CM (Wire Range)
(Tongue Thickness .12 Max./Barrel I.D. .586 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
325500		B	2.23	1.05		1.18*
325501	1/4	A	2.23	1.05	.62	.52
325502	5/16	A	2.23	1.05	.62	.52
325503	3/8	A	2.23	1.05	.62	.52
325504	7/16	A	2.23	1.05	.62	.52
325505	1/2	A	2.23	1.05	.62	.52
325506		B	2.36	1.05		1.30*
325507	5/8	A	2.36	1.05	.75	.52
325508		B	3.98	1.05		2.93*

4/0 AWG 190,000-231,000 CM (Wire Range)
(Tongue Thickness .13 Max./Barrel I.D. .658 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
325600		B	2.40	1.17		1.24*
325601	1/4	A	2.40	1.17	.62	.58
325602	5/16	A	2.40	1.17	.62	.58
325603	3/8	A	2.40	1.17	.62	.58
325604	7/16	A	2.40	1.17	.62	.58
325605	1/2	A	2.40	1.17	.62	.58
325606		B	2.53	1.17		1.36*
325607	5/8	A	2.53	1.17	.75	.58
325608		B	2.71	1.17		1.55*
325609	3/4	A	2.71	1.17	.94	.58
325610		B	4.15	1.17		2.99*

250 MCM 231-275 MCM (Wire Range)
(Tongue Thickness .14 Max./Barrel I.D. .70 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
325700		B	2.53	1.26		1.28*
325701	1/4	A	2.53	1.26	.62	.62
325702	5/16	A	2.53	1.26	.62	.62
325703	3/8	A	2.53	1.26	.62	.62
325704	7/16	A	2.53	1.26	.62	.62
325705	1/2	A	2.53	1.26	.62	.62
325706		B	2.65	1.26		1.40*
325707	5/8	A	2.65	1.26	.75	.63
325708		B	2.84	1.26		1.59*
325709	3/4	A	2.84	1.26	.93	.63
325712		B	4.78	1.26		3.53*
325750	7/8	C	3.10	1.38	1.12	.70

STANDARD TYPES (Cont'd)**300 MCM 275-325 MCM (Wire Range)**

(Tongue Thickness .15 Max./Barrel I.D. .768 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
325800		B	2.64	1.38		1.29*
325801	1/4	A	2.64	1.38	.62	.63
325802	5/16	A	2.64	1.38	.62	.63
325803	3/8	A	2.64	1.38	.62	.63
325804	7/16	A	2.64	1.38	.62	.63
325805	1/2	A	2.64	1.38	.62	.63
325806		B	2.76	1.38		1.41*
325807	5/8	A	2.76	1.38	.75	.63
325808		B	2.95	1.38		1.60*
325809	3/4	A	2.95	1.38	.93	.63
325810		B	3.14	1.38		1.79*
325811	7/8	A	3.14	1.38	1.12	.63
325816		B	5.02	1.38		3.67*
325850	1"	C	3.41	1.50	1.25	.78

350 MCM 325-375 MCM (Wire Range)

(Tongue Thickness .17 Max./Barrel I.D. .829 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
325900		B	2.74	1.49		1.29*
325901	1/4	A	2.74	1.49	.62	.63
325902	5/16	A	2.74	1.49	.62	.63
325903	3/8	A	2.74	1.49	.62	.63
325904	7/16	A	2.74	1.49	.62	.63
325905	1/2	A	2.74	1.49	.62	.63
325906		B	2.86	1.49		1.41*
325907	5/8	A	2.86	1.49	.75	.63
325908		B	3.05	1.49		1.60*
325909	3/4	A	3.05	1.49	.93	.63
325910		B	3.24	1.49		1.79*
325911	7/8	A	3.24	1.49	1.12	.63
325912		B	3.49	1.49		2.04*
325913	1"	A	3.49	1.49	1.25	.76

400 MCM 375-450 MCM (Wire Range)

(Tongue Thickness .18 Max./Barrel I.D. .886 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
326000		B	2.84	1.59		1.29*
326001	1/4	A	2.84	1.59	.62	.63
326002	5/16	A	2.84	1.59	.62	.63
326003	3/8	A	2.84	1.59	.62	.63
326004	7/16	A	2.84	1.59	.62	.63
326005	1/2	A	2.84	1.59	.62	.63
326006		B	2.96	1.59		1.41*
326007	5/8	A	2.96	1.59	.75	.63
326008		B	3.15	1.59		1.60*
326009	3/4	A	3.15	1.59	.93	.63
326010		B	3.46	1.59		1.91*
326011	7/8	A	3.46	1.59	1.12	.76
326012		B	3.58	1.59		2.04*
326013	1"	A	3.58	1.59	1.25	.76
326016		B	4.83	1.59		3.28*

*Tongue Length

500 MCM 450-550 MCM (Wire Range)

(Tongue Thickness .20 Max./Barrel I.D. .991 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
326100		B	3.24	1.78		1.54*
326101	1/4	A	3.24	1.78	.75	.76
326102	5/16	A	3.24	1.78	.75	.76
326103	3/8	A	3.24	1.78	.75	.76
326104	7/16	A	3.24	1.78	.75	.76
326105	1/2	A	3.24	1.78	.75	.76
326106	5/8	A	3.24	1.78	.75	.76
326107		B	3.43	1.78		1.72*
326108	3/4	A	3.43	1.78	.93	.76
326109		B	3.61	1.78		1.91*
326110	7/8	A	3.61	1.78	1.12	.76
326111		B	3.74	1.78		2.04*
326112	1"	A	3.74	1.78	1.25	.76
326113		B	3.99	1.78		2.29*
326114	1-1/8	A	3.99	1.78	1.37	.88
326117		B	4.95	1.78		3.25*

600 MCM 550-650 MCM* (Wire Range)

(Tongue Thickness .22 Max./Barrel I.D. 1.085 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
326200		B	3.39	1.94		1.54*
326201	1/4	A	3.39	1.94	.75	.76
326202	5/16	A	3.39	1.94	.75	.76
326203	3/8	A	3.39	1.94	.75	.76
326204	7/16	A	3.39	1.94	.75	.76
326205	1/2	A	3.39	1.94	.75	.76
326206	5/8	A	3.39	1.94	.75	.76
326207		B	3.57	1.94		1.72*
326208	3/4	A	3.57	1.94	.93	.76
326209		B	3.76	1.94		1.91*
326210	7/8	A	3.76	1.94	1.12	.76
326211		B	4.01	1.94		2.16*
326212	1"	A	4.01	1.94	1.25	.88
326213		B	4.14	1.94		2.29*
326214	1-1/8	A	4.14	1.94	1.37	.88
326215		B	4.39	1.94		2.54*
326216	1-1/4	A	4.39	1.94	1.50	1.01
326217		B	5.10	1.94		3.25*

*NOTE! Two Crimps Necessary on All Above Items.

700 MCM 650-750 MCM* (Wire Range)

(Tongue Thickness .23 Max./Barrel I.D. 1.172 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
326300		B	3.52	2.10		1.54*
326301	1/4	A	3.52	2.10	.75	.76
326302	5/16	A	3.52	2.10	.75	.76
326303	3/8	A	3.52	2.10	.75	.76
326304	7/16	A	3.52	2.10	.75	.76
326305	1/2	A	3.52	2.10	.75	.76
326306	5/8	A	3.52	2.10	.75	.76
326307		B	3.71	2.10		1.72*
326308	3/4	A	3.71	2.10	.93	.76
326309		B	3.89	2.10		1.91*
326310	7/8	A	3.89	2.10	1.12	.76
326311		B	4.14	2.10		2.16*
326312	1"	A	4.14	2.10	1.25	.88
326313		B	4.27	2.10		2.29*
326314	1-1/8	A	4.27	2.10	1.37	.88
326315		B	4.52	2.10		2.54*
326316	1-1/4	A	4.52	2.10	1.50	1.01

*NOTE! Two Crimps Necessary on 600 and 700 MCM

STANDARD TYPES

800 MCM 750-850 MCM (Wire Range)

(Tongue Thickness .25 Max./Barrel I.D. 1.252 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
326400		B	3.65	2.24		1.54*
326401	1/4	A	3.65	2.24	.75	.76
326402	5/16	A	3.65	2.24	.75	.76
326403	3/8	A	3.65	2.24	.75	.76
326404	7/16	A	3.65	2.24	.75	.76
326405	1/2	A	3.65	2.24	.75	.76
326406	5/8	A	3.65	2.24	.75	.76
326407		B	3.83	2.24		1.72*
326408	3/4	A	3.83	2.24	.93	.76
326409		B	4.15	2.24		2.04*
326410	7/8	A	4.15	2.24	1.12	.88
326411		B	4.27	2.24		2.16*
326412	1"	A	4.27	2.24	1.25	.88
326413		B	4.40	2.24		2.29*
326414	1-1/8	A	4.40	2.24	1.37	.88
326415		B	4.65	2.24		2.54*
326416	1-1/4	A	4.65	2.24	1.50	1.01

NOTE! Two Crimps Necessary on All Above Items.

900 MCM 850-950 MCM (Wire Range)

(Tongue Thickness .26 Max./Barrel I.D. 1.328 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
326500		B	3.77	2.37		1.54*
326501	1/4	A	3.77	2.37	.75	.76
326502	5/16	A	3.77	2.37	.75	.76
326503	3/8	A	3.77	2.37	.75	.76
326504	7/16	A	3.77	2.37	.75	.76
326505	1/2	A	3.77	2.37	.75	.76
326506	5/8	A	3.77	2.37	.75	.76
326507		B	3.96	2.37		1.72*
326508	3/4	A	3.96	2.37	.93	.76
326509		B	4.27	2.37		2.04*
326510	7/8	A	4.27	2.37	1.12	.88
326511		B	4.39	2.37		2.16*
326512	1"	A	4.39	2.37	1.25	.88
326513		B	4.64	2.37		2.41*
326514	1-1/8	A	4.64	2.37	1.37	1.01
326515		B	4.77	2.37		2.54*
326516	1-1/4	A	4.77	2.37	1.50	1.01

NOTE! Two Crimps Necessary on All Above Items.

1000 MCM 950-1125 MCM (Wire Range)

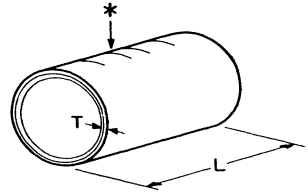
(Tongue Thickness .28 Max./Barrel I.D. 1.400 Min.)

Part No.	Stud Size	Style	L Max.	W Max.	C Min.	H Max.
326600		B	4.25	2.50		1.91*
326601	1/4	A	4.25	2.50	.93	.94
326602	5/16	A	4.25	2.50	.93	.94
326603	3/8	A	4.25	2.50	.93	.94
326604	7/16	A	4.25	2.50	.93	.94
326605	1/2	A	4.25	2.50	.93	.94
326606	5/8	A	4.25	2.50	.93	.94
326607	3/4	A	4.25	2.50	.93	.94
326608		B	4.43	2.50		2.10*
326609	7/8	A	4.43	2.50	1.12	.94
326610		B	4.56	2.50		2.22*
326611	1"	A	4.56	2.50	1.25	.94
326612		B	4.68	2.50		2.35*
326613	1-1/8	A	4.68	2.50	1.37	.94
326614		B	4.93	2.50		2.60*
326615	1-1/4	A	4.93	2.50	1.50	1.07

NOTE! Two Crimps Necessary on All Above Items.

*Tongue Length

PARALLEL SPLICE

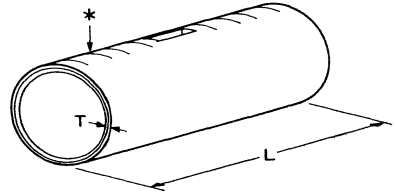


6 AWG TO 1000 MCM (Wire Range)

Part No.	Wire Size	T	I.D. Min.	"L" Max.
328184	6	.025	.213	.328
328186	4	.032	.277	.406
324442	2	.040	.372	.48
324443	1/0	.043	.468	.57
324444	2/0	.048	.523	.64
324445	3/0	.054	.586	.70
324446	4/0	.060	.658	.76
324447	250 MCM	.066	.700	.82
324448	300 MCM	.072	.768	.89
324449	350 MCM	.078	.829	.95
324450	400 MCM	.084	.886	1.01
324451	500 MCM	.093	.991	1.10
**324452	600 MCM	.102	1.085	1.20
**324453	700 MCM	.110	1.172	1.28
**324454	800 MCM	.119	1.252	1.35
**324455	900 MCM	.126	1.328	1.43
**324456	1000 MCM	.132	1.400	1.50

**Two Crimps Necessary.

BUTT SPLICE



6 AWG TO 1000 MCM (Wire Range)

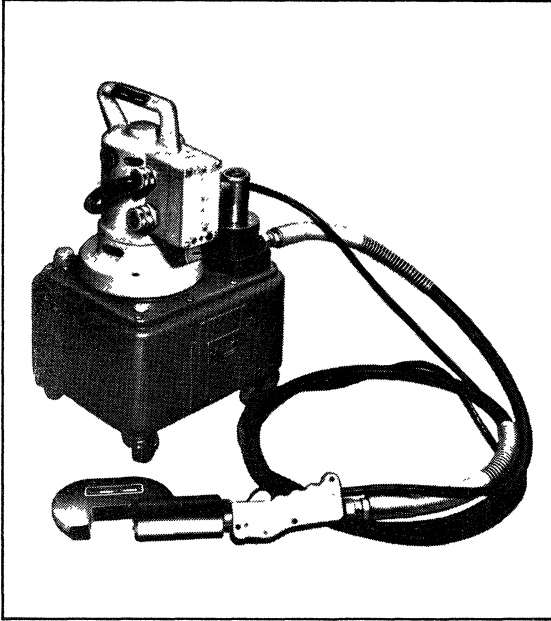
Part No.	Wire Size	T	I.D. Min.	"L" Max.
328180	6	.025	.213	.687
328182	4	.032	.277	.859
324457	2	.040	.372	1.04
324458	1/0	.043	.468	1.25
324459	2/0	.048	.523	1.37
324460	3/0	.054	.586	1.51
324461	4/0	.060	.658	1.65
324462	250 MCM	.066	.700	1.79
324463	300 MCM	.072	.768	1.92
324464	350 MCM	.078	.829	2.06
324465	400 MCM	.084	.886	2.20
324466	500 MCM	.093	.991	2.40
**324467	600 MCM	.102	1.085	2.60
**324468	700 MCM	.110	1.172	2.78
**324469	800 MCM	.119	1.252	2.95
**324470	900 MCM	.126	1.328	3.12
**324471	1000 MCM	.132	1.400	3.26

**Two Crimps Necessary—Each End.

TOOLING

DYNA-CRIMP tooling is an electrically operated, hydraulic tool that combines all of the best features of a portable hand tool with the ruggedness and precision of a bench mounted press. The tool is actuated by either a foot pedal or by a trigger in the handle.

DYNA-CRIMP TOOL HEAD AND DIES



Head	Wire Size	Single Position Dies	Dual Position Dies
69097	6		45254-2
	4		45257-2
	2	46521-2	46874-2
	1/0	46522-2	46875-2
	2/0	46523-2	46876-2
69099	6	69133-1	
	4	69134-1	
	2	46765-2	46883-2
	1/0	46766-2	46884-2
	2/0	46767-2	46885-2
	3/0	46749-2	46886-2
	4/0	46750-2	46887-2
	250 MCM	46751-2	46888-2
	300 MCM	46752-2	46889-2
	350 MCM	46753-2	46890-2
69082	400 MCM	46754-2	45100-2
	500 MCM	46755-2	45101-2
	600 MCM	46756-2	69490
	700 MCM	46757-2	45103
	800 MCM	46758-2	
	900 MCM	46759-2	
	1000 MCM	46760-2	

NOTE: Terminals and splices, wire sizes 600 MCM through 1000 MCM, require two crimps for optimum mechanical and electrical performance.

*69120 tool is the power unit only. Accessories to be ordered separately.

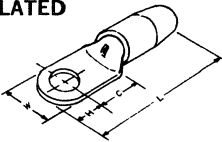
ACCESSORIES

Number	Description
47206	Crimping Head Coupling
59220	3-Way Multi-Directional Valve
59220-2	3-Way Multi-Directional Valve (Elec. Control)
59221	6-Way Multi-Directional Valve
59221-2	6-Way Multi-Directional Valve (Elec. Control)
59512-5	7' Handle Control and Hose Assembly
59512-6	15' Handle Control and Hose Assembly
59512-7	21' Handle Control and Hose Assembly

Number	Description
303775	7' Foot Switch Assembly
303776	15' Foot Switch Assembly
303777	21' Foot Switch Assembly
306023-4	3' Hose Assembly
306023-1	7' Hose Assembly
306023-2	15' Hose Assembly
306023-3	21' Hose Assembly

Dual position AMPPOWER Dies were developed for stub applications of AMPPOWER Parallel Splices. However, with the versatility of positioning they will function properly on AMPPOWER Terminals, Parallel and Butt Splices.

NYLON PRE-INSULATED AMPPOWER TYPE



#4 AWG 33,100-52,600 CM (Wire Range)

(Tongue Thickness .077 Max./Barrel I.D. .277 Min.)

Part No.	Stud Size	L Max.	W Max.	C Min.	H Max.	Max. Ins. Dia.
329995	10	1.78	.67	.42	.197	.370
329996	1/4	1.78	.67	.42	.265	.370
329997	5/16	1.78	.67	.42	.328	.370
329998	3/8	1.78	.67	.42	.390	.370

#2 AWG 52,600-83,700 CM (Wire Range)

(Tongue Thickness .089 Max./Barrel I.D. .372 Min.)

Part No.	Stud Size	L Max.	W Max.	C Min.	H Max.	Max. Ins. Dia.
329221	1/4	2.08	.69	.50	.265	.445
329222	5/16	2.08	.69	.50	.328	.445
329223	3/8	2.08	.69	.50	.390	.445

1/0 AWG 83,700-119,500 CM (Wire Range)

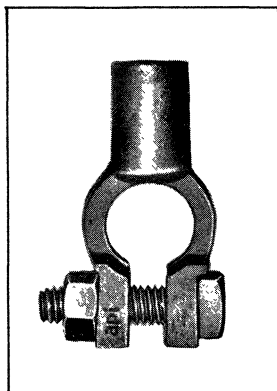
(Tongue Thickness .095 Max./Barrel I.D. .468 Min.)

Part No.	Stud Size	L Max.	W Max.	C Min.	H Max.	Max. Ins. Dia.
329228	1/4	2.65	.84	.62	.265	.551
329229	5/16	2.65	.84	.62	.328	.551
329230	3/8	2.65	.84	.62	.390	.551

Use Termynyl Tooling and Dies.

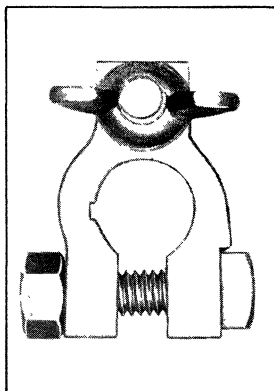
CABLE MAKER BATTERY TERMINALS

STRAIGHT TYPES



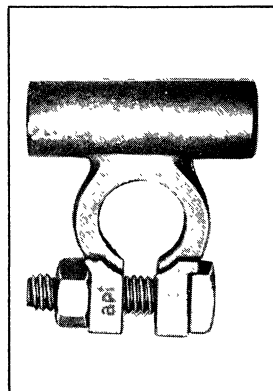
**FROM #6
THRU #4/0 AWG**

MARINE TYPES



**29257— $\frac{3}{8}$ " STUD
29104— $\frac{5}{16}$ " STUD**

FLAG TYPES



**FROM #6
THRU #4/0 AWG**

Cable Maker Battery Terminals may be used on either positive or negative battery post. The terminal is manufactured from a lead-plated highly conductive copper alloy and comes complete with nut and bolt. Cable Maker Battery Terminals are available in a wide range of wire sizes to fit automotive, truck and marine applications.

The two marine type battery terminals are either $\frac{5}{16}$ " or $\frac{3}{8}$ " stud for assured polarization.

See the Solistrand Terminals and Splices Section for the proper terminals to use in connecting the other end of the wire to ground, starter, solenoid, or other equipment.

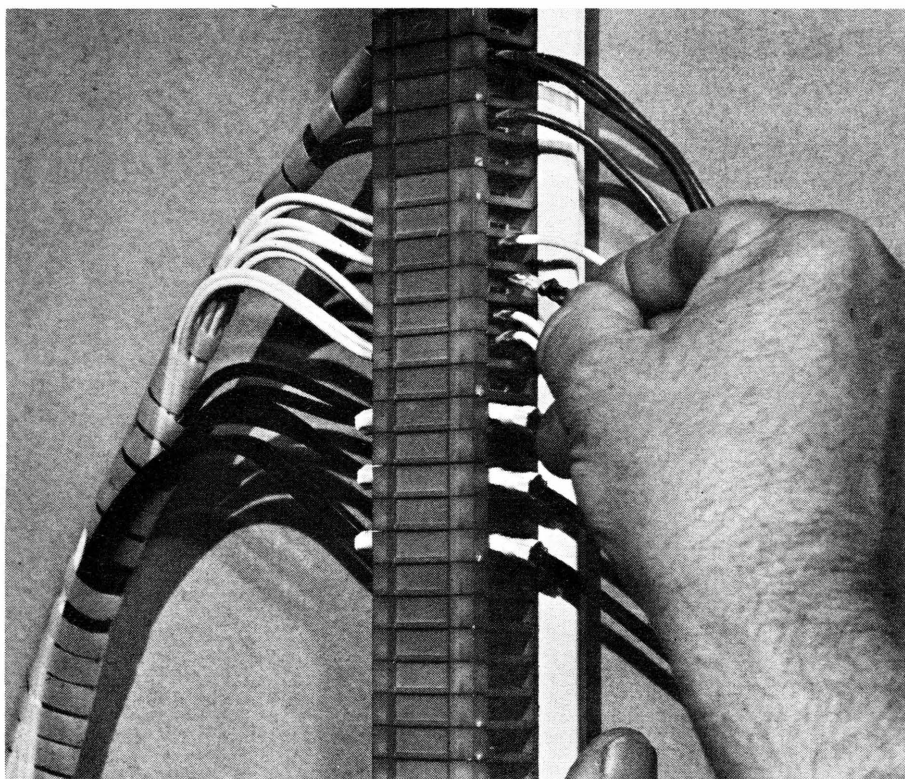
BATTERY TERMINAL SELECTION AND TOOLING CHART*

Wire Size AWG	Terminal Type	Terminal Number	Cable Diameter	Rota-Crimp Die Position (Tool #600850)	Bantam Die Position (Tool #601075)	Vize-an-ammer Die Position (Tool #47330)	Head Ass'y Part Number (Air Tool #69015)
#6	Flag Straight	29252	.187 to	J-H	4	4	600371
		29253	.218 Inclusive				
#4	Flag Straight	29250	.228 to	J-H	4	4	600371
		29251	.272 Inclusive				
#2—#1	Flag Straight	29248	.295 to	E-A	1/0	1/0	600372
		29249	.345 Inclusive				
#1—1/0	Flag Straight	29246	.370 to	E-A	1/0	1/0	600372
		29247	.384 Inclusive				
1/0—2/0	Flag Straight	29244	.416 to	E-A	1/0	1/0	600372
		29245	.432 Inclusive				
2/0—3/0	Flag Straight	29242	.467 to	A-C	—	—	600373
		29243	.477 Inclusive				
2/0— 3/0— 4/0	Flag Straight	29240	.490 to	A-C	—	—	600373
		29241	.536 Inclusive				

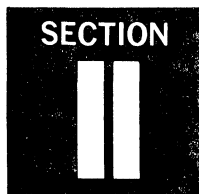
* See Tooling Section for additional information.



AMPOWER Terminals make possible connections of high tensile strength for wires as large as 1000 MCM in width



Termi-blok Terminals and cage assemblies allow for fast and interchangeable control wiring



SINGLE and MULTIPLE CIRCUIT CONNECTORS

This section includes the following sub-sections:

Introduction
MATE-N-LOK Connectors
AMP-LOK Connectors
AMPEEZ Connectors
"187" Modular FASTIN-FASTON Connectors
FASTIN-FASTON Connectors
TERMI-BLOK Connectors

II. SINGLE AND MULTIPLE CIRCUIT CONNECTORS

INTRODUCTION

Multiple circuit connectors are designed to be used wherever circuit wiring must be easily disconnected, and where it is desirable to group wires of the same size. They permit more convenient assembly, maintenance and servicing. General purpose multiple connectors answer industry's needs for grouping circuit terminations in commercial and consumer equipment. Each line enjoys wide acceptance in the industry for which it was designed; however, none has been restricted solely to the original use. The versatility recommends them for many different applications requiring reliable, low-cost, quickly assembled multiple connectors.

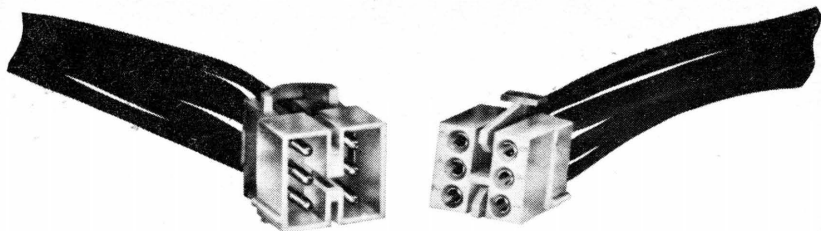
Three lines of A-MP general-purpose connectors trace their beginnings to a common design source — commercial appliance and automotive products. FASTIN-FASTON★ Connectors offer a low cost quick connect-disconnect in the appliance and automotive fields. AMPEEZ★ Connectors are available in a wide

choice of circuit configurations. They are a popular choice of major appliance manufacturers. AMP-LOK★ Connectors feature hermaphroditic contacts, which cuts inventory requirements in half, and an integrated self-locking design which requires no mounting hardware either for panel or free-hanging installation. These are ideal for use in television receivers, phonographs, juke boxes, and other electronic equipment where servicing ease is important.

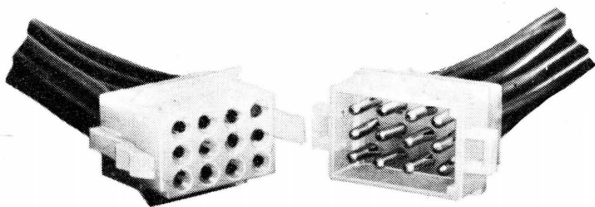
MATE-N-LOK★ pin and socket connectors with polarized nylon housings require no mounting hardware and are available in many configurations including space-saving motor mounts. Contacts carry up to 25 amps and may be gold-over-nickel plated for low-level circuits as well. They are recommended for quality installations on automotive and appliance products.

These multiple circuit connectors are described in greater detail in this section.

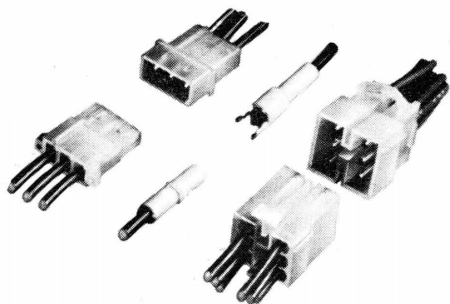
MATE-N-LOK* CONNECTORS§



MOTOR MOUNT



PANEL MOUNT



FREE-HANGING

A-MP* MATE-N-LOK connectors are crimped, snap-in connectors designed for applications requiring high current carrying capabilities and maximum resistance to shock, vibration, and other adverse conditions.

MATE-N-LOK connectors use low cost, pin and socket type contacts and are available in three types of housings; panel mount, motor mount (curved panel), and free-hanging. All three are available for wire size range #22-18 or #18-14 AWG.

GENERAL FEATURES

CONTACTS:

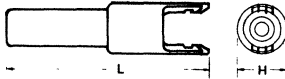
- Crimped with A-MP patented "F" crimp tooling . . . provides insulation support, greater tensile strength, vibration resistance and maximum conductivity.
- Precision crimping compresses wire and contact into uniform mass preventing oxide build-up.
- Contacts snap easily into housing by hand and are easily removed with aid of extraction tool.
- Carries up to 25 amperes.
- Locking lance is integral part of contact design.
- "Clean" design eliminates sharp projections which impede insertion or harm assembly personnel.
- Voltage—250 volts AC or DC—600 volts AC or DC with omission of adjacent pins.

HOUSINGS:

- Housing assembly stays together under severe vibration and shock.
- Egg crating design provides terminal protection and minimizes shock hazard.
- Installed without additional hardware.
- Built-in contact self-aligning feature assures positive mating.
- U.L. approved.
- External, molded ribs, simplify positioning of plug in cap.
- Matching circuit numbers on both plug and cap.
- Maximum operating temperature—105°C.
- Fully polarized nylon housings.

MATE-N-LOK FREE-HANGING CONNECTOR

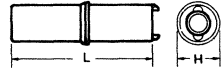
ONE CIRCUIT



Pin Housing Positive Lok

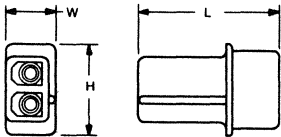


Pin Housing Detent Lok

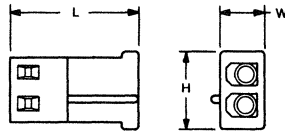


Socket Housing

TWO AND THREE CIRCUIT

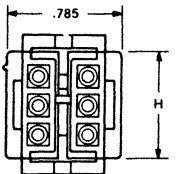


Pin Housing

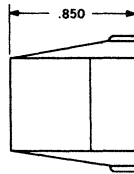
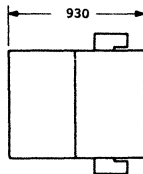


Socket Housing

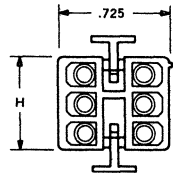
SIX, EIGHT AND TEN CIRCUIT



Pin Housing



Socket Housing



FREE-HANGING HOUSING MATERIAL: NYLON

Number of Circuits	Pin	Housing Part Number	"H"	"L"	"W"
1	Pin	1-480350-0	.300	1.200	—
	Pin*	1-480351-0	.300	1.240	—
	Socket	1-480349-0	.255	.870	—
2	Pin	1-480319-0	.610	.930	.330
	Socket	1-480318-0	.530	.860	.295
3	Pin	1-480305-0	.810	.930	.325
	Socket	1-480303-0	.825	.850	.310

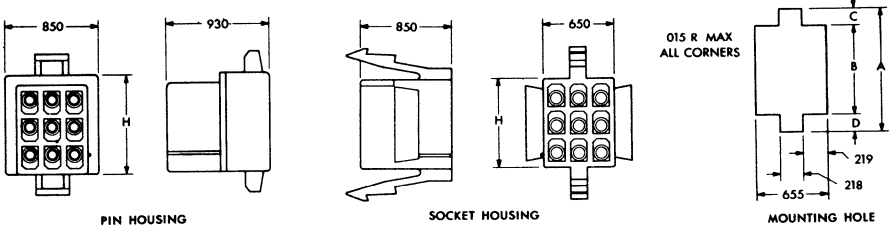
Number of Circuits	Pin	Housing Part Number	"H"	"L"	"W"
6	Pin	1-480340-0	.705	—	—
	Socket	1-480270-0	.610	—	—
8	Pin	1-480345-0	.900	—	—
	Socket	1-480283-0	.805	—	—
10	Pin	1-480339-0	1.095	—	—
	Socket	1-480285-0	1.000	—	—

*Positive Lock Housing.

MOUNTING INFORMATION

Two Circuit Housing may be mounted with Tinnerman clip #C-17050-017-4 which holds pin housing against panel. One Circuit Housing uses Tinnerman #C-12045-012.

MATE-N-LOK PANEL MOUNT CONNECTOR



PANEL MOUNT HOUSING MATERIAL: NYLON

Number of Circuits	Housing Part Number	H	Mounting	
			"A"	"B"
3	Pin 1-480305-0	.715	.920	.640/ .635
	Socket 1-480304-0	.630		
6	Pin 1-480276-0	.665	.850	.575/ .570
	Socket 1-480273-0	.565		
9	Pin 1-480277-0	.905	1.085	.815/ .810
	Socket 1-480274-0	.805		
12	Pin 1-480278-0	1.145	1.320	1.050/1.045
	Socket 1-480275-0	1.045		
15	Pin 1-480324-0	1.382	1.555	1.290/1.285
	Socket 1-480323-0	1.280		

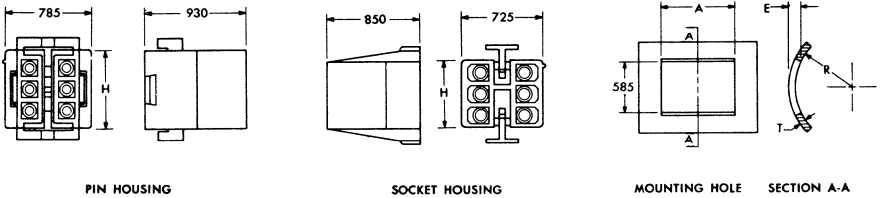
NOTE Both pin and socket housings will accept two .115" dia. (max.) insulation stacked.

NOTE 3 circuit mounting hole Change 655 to .275. .218 to .215

MOUNTING INFORMATION

1. Recommended panel thickness .025-.065 inches.
2. Both locking legs to be squeezed together and housing to be inserted "straight-in", as opposed to a rocking manner of insertion.
3. The panel must be punched so that the housing enters the panel in the same direction as the punch.
4. Dimensions "C" and "D" to be equal within .005 inches.

MATE-N-LOK MOTOR MOUNT CONNECTOR



Housings Project only .10" within the motor shell

MOTOR MOUNT HOUSING MATERIAL: NYLON

Number of Circuits	Housing Part Number	H	Mounting	
			"A"	"A"
6	Pin 1-480271-0	.705	.610	.715
	Socket 1-480270-0	.610		
8	Pin 1-480284-0	.900	.805	.910
	Socket 1-480283-0	.805		
10	Pin 1-480286-0	1.095	1.000	1.105
	Socket 1-480285-0	1.000		
12	Pin 1-480288-0	1.290	1.195	1.300
	Socket 1-480287-0	1.195		

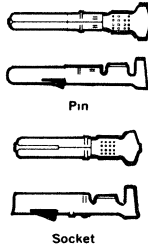
NOTE: Socket housing will accept two .115" dia. (max.) insulation stacked.

MOUNTING INFORMATION

1. Effective panel thickness "E" is .040-.100 inches and is dependent on "T" and "R".
2. Cap must be inserted in a rocking manner.
3. The panel must be punched so that the housing enters the panel in the same direction as the punch.

NOTE Motor mount housings may be used in flat panels.

**CONTACTS FOR PANEL MOUNT, MOTOR MOUNT, AND
FREE-HANGING CONNECTORS
(IDENTICAL CONTACTS ARE USED IN ALL CONNECTORS)**



Wire Size	Pin Part Number (.090 Dia.)	Socket Part Number	Insulation Range	Material and Finish	Hand Tool	69005 Pneumatic Head
Two #18 or One #18 and One #16	60497-1 60497-4	60496-1 60496-4	Two .115 MAX (Stacked)	Brass Tin Plated Phos. Bronze Tin Plated	90124	90143-1
#22 to #18	60511-1 60511-4	60510-1 60510-4	.060-.100	Brass Tin Plated Phos. Bronze Tin Plated	90123	90142-1
#18 to #14	60528-1 60528-4	60527-1 60527-4	.100-.130	Brass Tin Plated Phos. Bronze Tin Plated	90124	90143-1
Solder Tab	60780	60662		Brass Tin Plated		

EXTRACTION TOOL: #1-305183-1 for pin, #1-305183-2 for socket, or #465644-1 for both pins and sockets.

INSERTION TOOL: #91002 available for small wire and thin insulation leads.

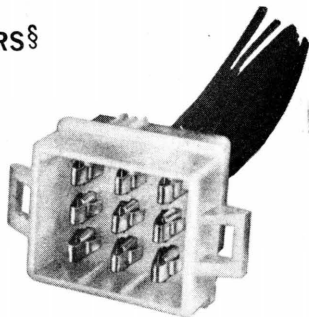
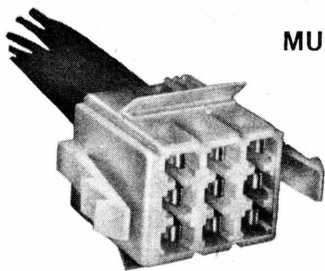
COMMONING TAB

NOTE: 60842-1 to be used to common any 3 adj. terminals. 60843-1 to common any 2 adjacent terminals in the following circuit cavity groups of panel mount housing 1, 2, 3, or 4, 5, 6, or 7, 8, 9, or 10, 11, 12, or 13, 14, 15. Both are tin plated brass.

RETENTION FORCE

—(with respect to mounting panel)—exceeds 100 lbs. for all housings
—(of termination in housing)—20 lbs. (min.)

AMP-LOK[®] MULTIPLE CONNECTORS[§]



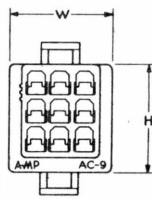
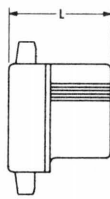
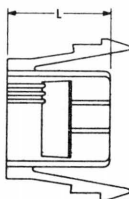
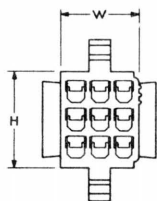
AMP-LOK multiple connectors provide a fast, reliable means of grouping circuits, plus ease of assembly and servicing. They eliminate the need for supplementary mounting devices in through-panel applications, and they can also be used as safe, free-hanging connectors. Snap-in mounting wings permit accommodation of panels .025" to .065" in thickness. Positive lock housings prevent loss of circuit continuity from sudden jars or extreme vibration forces.

For general purpose applications in such equipment as computers, X-ray machines, business machines, motors, transformers, regulators, traffic appliances, juke boxes, vending machines, etc., AMP-LOK connectors are ideal.

AMP-LOK FEATURES:

- Identical, self-cleaning crimp contacts, recessed for safety
- Anti-stress contact bridge for longer contact life through repeated connector engagements and disengagements
- Carries up to 17 amperes
- Snap-in assembly
- Locking lance prevents retraction of contact from housing
- Voltage—350 Volts DC
250 Volts AC
- Positive polarization; optional keying plug prevents mismatching in side by side mounting
- U.L. & C.S.A. approved nylon housing permits operation in temperatures up to 105°C.
- Choice of tin-plated brass or tin-plated phosphor bronze contact materials
- Wire ranges of #22-18 and #18-14 AWG
- Insulation support in complete wire range
- Choice of 6, 9 and 12 circuit configurations

AMP-LOK CONNECTOR SPECIFICATIONS



AMP-LOK HOUSINGS

Housing Material: Nylon

Accommodates Panel Thickness .025-.065

No. Contacts	Part Number	W	H	L	Max. Insul Diameter
6 Circuit	Plug 1-480262-0	.640	.560	.860	One .130 Wire or
	Cap 1-480263-0	.850	.670	.860	Two .115 Stacked
9 Circuit	Plug 1-480257-0	.645	.805	.860	One .130 Wire or
	Cap 1-480258-0	.850	.915	.860	Two .115 Stacked
12 Circuit	Plug 1-480264-0	.645	1.040	.860	One .130 Wire or
	Cap 1-480265-0	.850	1.150	.860	Two .115 Stacked

NOTE: (a) Blocks are available in nine (9) RETMA colors in addition to natural color as listed in the above table.

(b) Blocks are available with or without numerical and/or alphabetical circuit identification.

(c) 480101-I Nylon Keying Plug available.

(d) Also available in 3 or 4 circuit housing.

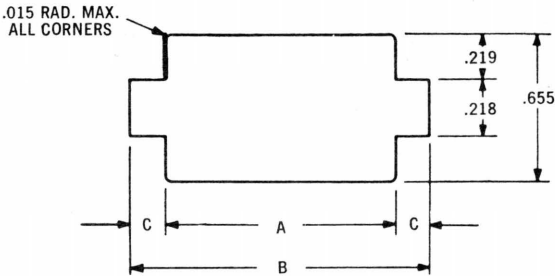
§Sub-section: © Copyright 1964 by AMP Incorporated. All International Rights Reserved.

AMP-LOK CONTACTS

Terminal	Wire	Max. Insul. Diameter	Material	Finish	Hand Tool*
42859-1	22-18	.100	Brass	Tin	90091
42859-2	22-18	.100	Phos. Bronze	Tin	90091
60016-1	18-14	One .130 Wire or Two .115 Stacked	Brass	Tin	90099
60016-2	18-14	One .130 Wire or Two .115 Stacked	Phos. Bronze	Tin	90099

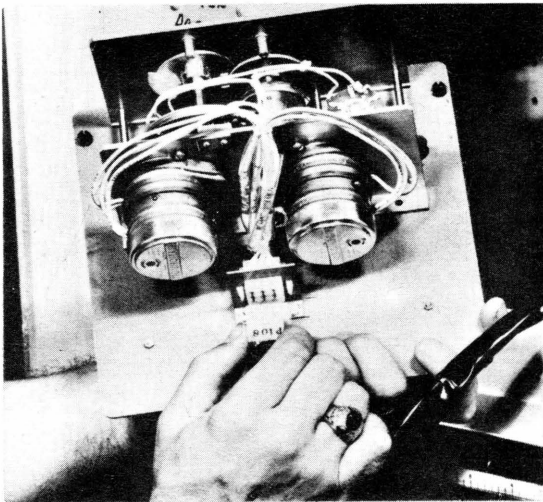
*Crimps wire barrel & insulation support in one cycle.

RECOMMENDED MOUNTING HOLES FOR AMP-LOK HOUSINGS (PLUGS)



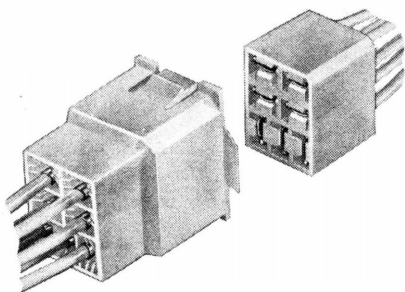
Plug	A	B
6 Circuit	.575	.850
9 Circuit	.810	1.085
12 Circuit	1.045	1.320

Recommended panel thickness .025-.065 inches.

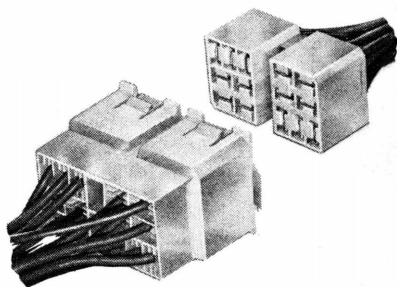


AMP-LOK Connector used on a recorder controller in an industrial plant

AMPEEZ*CONNECTORS §



7 CIRCUIT FREE HANGING
OR PANEL MOUNTED



14 CIRCUIT FREE HANGING
OR PANEL MOUNTED

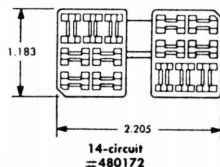
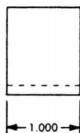
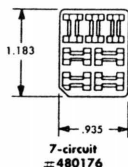
AMPEEZ Multiple Connectors are available in 7- and 14-circuit configurations. AMPEEZ connectors provide the means for a high concentration of circuits with an average extraction-insertion force of less than 5 pounds per circuit. The low insertion-extraction force coupled with an amperage capacity up to 25 amps makes possible not only easy assembly and maintenance but also a maximum flexibility of application.

FEATURES

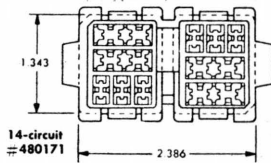
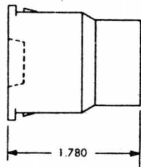
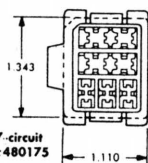
- **RECEPTACLE:** Wide area contact for maximum conductivity and reliability—exclusive Tab-Gap Lock prevents contact spread.
- **TAB:** Bevelled lead-in edge.
- **CONTACT MATERIALS:** Brass or tin-plated brass.
- **WIRE CRIMP AND INSULATION SUPPORT:** Serrated wire barrel—insulation support to protection the crimp against vibration and rough handling.
- **WIRE AND INSULATION SIZE RANGES:** #18-14 AWG/.120-.170" insulation.
- **HOUSING:** 7 and 14 circuit size housings are available in nylon. Polarization—self-mounting winged snap-in design—either panel mounted or free hanging—mount flush... project only .125" from panel front.

SPECIFICATIONS

RECEPTACLE HOUSING



TAB HOUSING



Cat. #42099 half-thickness tabs available for commoning two conductors into one cavity of the tab housing.

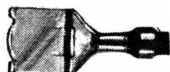
CONTACTS

RECEPTACLE

TAB

TOOLING

Wire Size Range
#18-14 AWG
Insulation Diameter
.120"-.170"

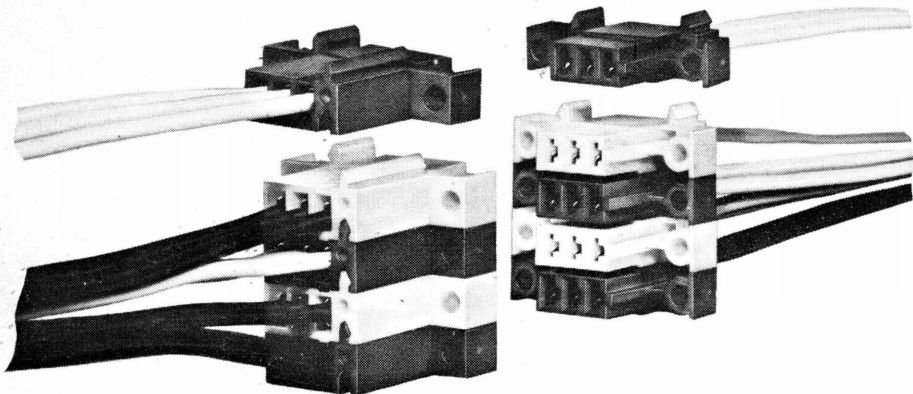


60086-1 Brass
60086-2 Tin Plated Brass

60087-1 Brass
60087-2 Tin Plated Brass

Terminal Number	Terminal Description	Hand Tool Number
42099	Half Thickness TAB	90011
60086-1 60086-2	Receptacle	90013
60087-1 60087-2	TAB	90011

FASTIN-FASTON[®] "187" MODULAR CONNECTOR[§]



Multiple circuit configurations are easily obtained by merely snapping together the number of individual 3-circuit connectors required. Connectors snap together at two points and are held secure against shock and vibration through a tongue and groove device molded in the housing. No additional hardware is necessary except for panel mounting accessories. Completed connectors can be installed

either through-panel or left free hanging. The nylon (105°C.) housings are available in ten colors for color coding. Connector halves are keyed and circuits are easily identified by relation to a molded-in raised rib.

The new "187" tabs and receptacles are held in the housing by a locking lance and are inserted in the connector halves by hand.

SPECIFICATIONS

DATA

Currents are as follows:

#20 AWG - 6 amperes, #18 AWG - 10 amperes,

#16 AWG - 15 amperes.

Voltage - 600 volts

Current Capacity 15 amps on 16 AWG.
produces 28°C. temp.
rise

Contact to housing retention . . . 20 lbs.

Wire size accommodation . . . 20-16 AWG

Insulation diameter range090-.130"

Housing material Nylon

Insertion force 6#/Circuit

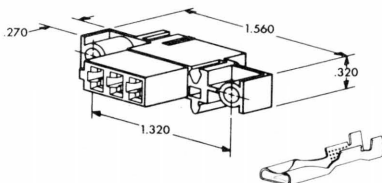
U. L. Approval

Maximum Operating Temp. - 105°C.

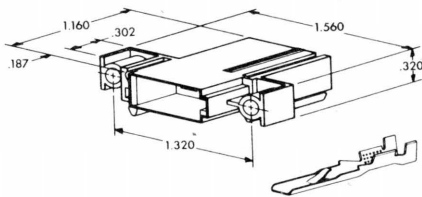
Color Code	Receptacle Housing	Tab Housing	Receptacle	Tab
White	1-480252-0	1-480251-0		
Brown	1-480252-1	1-480251-1		
Orange	1-480252-2	1-480251-2		
Yellow	1-480252-3	1-480251-3		
Green	1-480252-4	1-480251-4	60435-1*	60434-1*
Blue	1-480252-5	1-480251-5		
Violet	1-480252-6	1-480251-6		
Gray	1-480252-7	1-480251-7		
Black	1-480252-8	1-480251-8		
Red	1-480252-9	1-480251-9		

Panel cut out dimensions for mounting both housings are available upon request. Please request CP-23224.

*Not to be used with Standard Faston "187" Tabs and Receptacles.



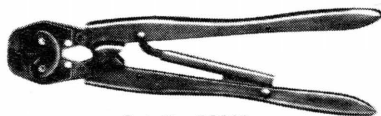
Receptacle



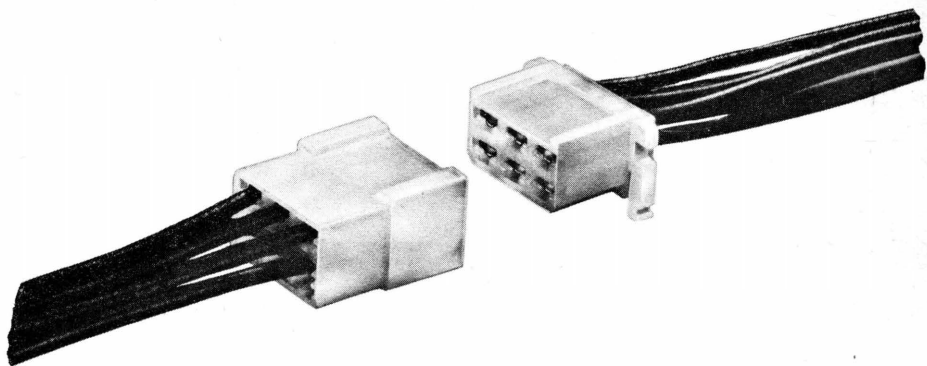
Tab

TOOLING

For Tabs and Receptacles



Cat. No. 90088



6-CIRCUIT CONNECTOR

Containing 1, 2 or 6 separate and fully insulated circuits, the FASTIN-FASTON Connector's advantage of quick connect/disconnect is especially adaptable for high production volume of assembly line methods.

FEATURES

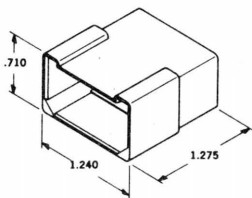
- **RECEPTACLES:** Serrated wire barrel—web and detent construction.
- **TABS:** Bevelled forward edge—locking lance—back-to-back tabs available for insertion in three bottom cavities to provide easy double lead-in capacity.
- **CONTACT MATERIALS AND PLATING FINISHES:** Standard unplated brass; tin and silver plated brass.
- **WIRE SIZE RANGE:** All housings #18 through #14 AWG. Some available for #22 through #10.
- **HOUSING:** Nylon 105°C maximum temperature.
- **BRIDGING SPRINGS:** Used to “common” tabs for applications requiring multiple leads.
- **COLOR IDENTIFICATION:** Available in both male and female housings—nine standard colors. Openings numbered for circuit identification.
- **CURRENT RATING:** Determined by temperature rise permissible in equipment.

SPECIFICATIONS

6 CIRCUIT FASTIN-FASTON HOUSINGS

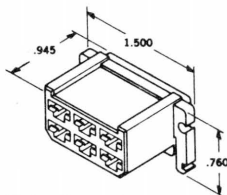
TAB HOUSING

Housing No.	Material
480004-5	Natural Nylon
480195-1 to 9	Nylon in 9 RETMA Colors



RECEPTACLE HOUSING

Housing No.	Material
480003-5	Natural Nylon
480194-B 1 to 9	Nylon in 9 RETMA Colors



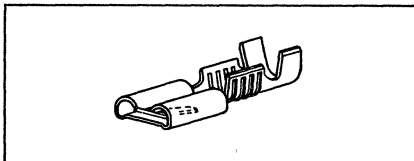
FASTIN-FASTON SINGLE AND DOUBLE CIRCUIT CONNECTORS



TABS AND RECEPTACLES

“250” SERIES FASTIN-FASTON RECEPTACLES FOR MULTIPLE CONNECTORS

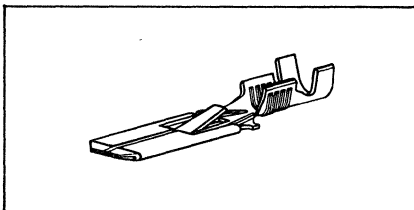
Terminal Number	Material & Finish	Wire Size	Insulation Diameter	Stock Thick.	Fits Tab
42100-1	Brass				
42100-2	Tin Plated Brass	18-14	.120/.160	.012	.032
42100-3	Silver Plated Brass				



“250” SERIES FASTIN-FASTON TABS FOR MULTIPLE CONNECTORS

(.032 Tab Thickness—mates with 42100 receptacle)

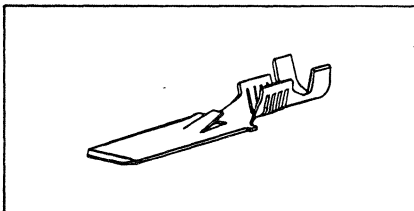
Terminal Number	Material & Finish	Wire Size	Insulation Diameter	Stock Thick.
42098-1	Brass			
42098-2	Tin Plated Brass	18-14	.120/.160	.016
42098-3	Silver Plated Brass			



“250” SERIES FASTIN-FASTON TABS FOR MULTIPLE CONNECTORS

(.016 Tab Thickness for back to back commoning—mates with 42100 receptacle)

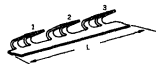
Terminal Number	Material & Finish	Wire Size	Insulation Diameter	Stock Thick.
42099-1	Brass			
42099-2	Tin Plated Brass	18-14	.120/.145	.016
42099-3	Silver Plated Brass			



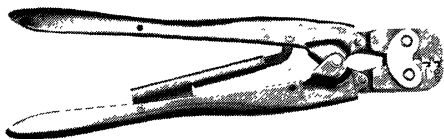
FASTIN-FASTON BRIDGING SPRINGS (Used in 6 Circuit Tab Housings)

Spring Number	Material	Contact Positions		
42135-1	Brass	1	2	3
42135-2	Tin Plated Brass	1	2	3
42136-1	Brass	1	2	
42136-2	Tin Plated Brass	1	2	
42137-1	Brass		2	3
42137-2	Tin Plated Brass		2	3
42138-1	Brass	1		3

Spring Number	Material	Contact Positions		
42138-2	Tin Plated Brass	1		3
42139-1	Brass	1		
42139-2	Tin Plated Brass	1		
42140-1	Brass		2	
42140-2	Tin Plated Brass		2	
42141-1	Brass			3
42141-2	Tin Plated Brass			3



TOOLING



Terminal		Hand Tool Number
Number	Description	
42100-1	Receptacle	46007
42100-2		
42100-3		
42098-1	TAB	90011
42098-2		
42098-3		
42099-1	Half Thickness TAB	90011
42099-2		
42099-3		

TERMI-BLOK★ CONNECTORS§

TERMI-BLOK connectors represent a totally new concept in terminal blocks. Two types—a top entry and a side entry version—are available. Both are highly reliable and represent an excellent replacement for the terminal boards and barrier boards now in general use in power distribution control circuits for the following reasons: (1) **TERMI-BLOK** connectors require **no tools** for circuit insertions and withdrawals; (2) they are **modular in design** to permit numerous variations in wiring logic and stack configurations; (3) both allow trimmer, more compact wiring, and provide **higher density** per unit of switchboard area. Both top and side entry types operate at 35 amperes continuous current or maximum wire temperature of 105° C.

TERMI-BLOK connectors consist of:

- A. **Tracks**—plain or insulated
- B. **Cage Assemblies** for 3-way common and 6-way common top entry, and 4-way common side entry.
- C. **End Barriers**
- D. **End Locks**
- E. **Tab Terminals** for #22-10 AWG wire size range

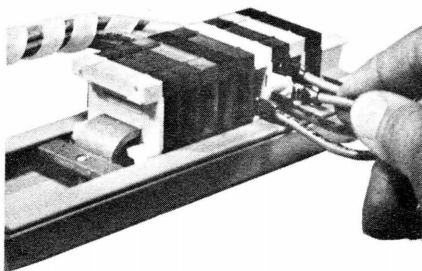
TEST DATA

CURRENT RATING:

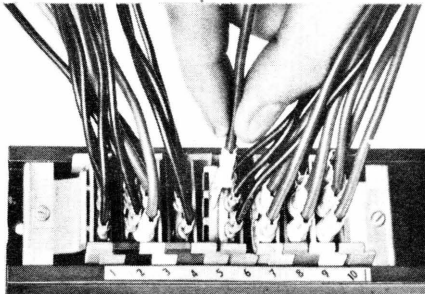
35 amps continuous current or
Maximum wire temperature of 105°C.

DIELECTRIC STRENGTH:

At sea level—1500 volts A.C.
Tested at 2200 volts according to Method
301 of Mil-Std-202.



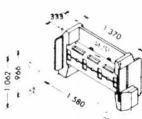
SIDE ENTRY—permits access from two directions (in a 180° plane), making it well suited for use in shallower panel boxes.



TOP ENTRY—available in two sizes: one size permits three circuits per lineal inch; the other permits four circuits per lineal inch.

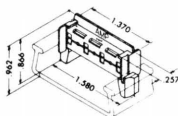
3-WAY CAGE ASSEMBLY

SERIES 3



PART NO. 1-582166-0 THRU -9
PART NO. 2-582166-9

SERIES 4

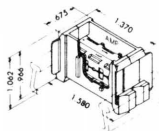


PART NO. 1-582161-0 THRU -9
PART NO. 2-582161-9

TOP ENTRY

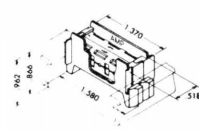
6-WAY CAGE ASSEMBLY

SERIES 3



PART NO. 1-582167-0 THRU -9
PART NO. 2-582167-9

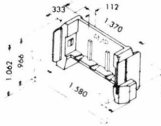
SERIES 4



PART NO. 1-582162-0 THRU -9
PART NO. 2-582162-9

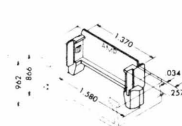
END BARRIERS

SERIES 3



PART NO. 1-582168-0 THRU -9
PART NO. 2-582168-9

SERIES 4

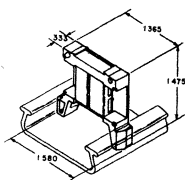


PART NO. 1-582163-0 THRU -9
PART NO. 2-582163-9

Suffix Part No.	Color	Suffix Part No.	Color
-0	Black	-5	Green
-1	Brown	-6	Blue
-2	Red	-7	Violet
-3	Orange	-8	Gray
-4	Yellow	-9	White

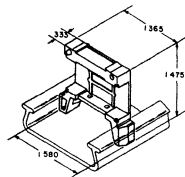
Prefix #2—indicates natural nylon
CAGE BARRIER MATERIAL—Nylon

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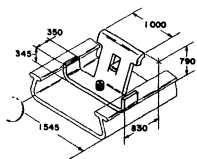
SIDE ENTRY**4-WAY CAGE
ASSEMBLY**

Shell No.	Color
1-380618-1	Black
1-380618-2	Brown
1-380618-3	Red
1-380618-4	Orange
1-380618-5	Yellow
1-380618-6	Green
1-380618-7	Blue
1-380618-8	Violet
1-380618-9	Gray
2-380618-0	White

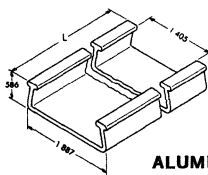
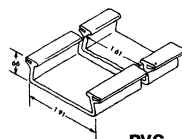
TERMINALS—Same as Top Entry

END BARRIER

Shell No.	Color
1-480259-1	Black
1-480259-2	Brown
1-480259-3	Red
1-480259-4	Orange
1-480259-5	Yellow
1-480259-6	Green
1-480259-7	Blue
1-480259-8	Violet
1-480259-9	Gray
2-480259-0	White

NOTE: 1-Colors Conform to R.E.T.M.A. Standards
CAGE BARRIER MATERIAL—Nylon**END LOCK ASSEMBLY**

PART NO. 1-380664-1

TRACK**ALUMINUM****PVC**PART NO. 1-582164-1 (No Insulation)
L-(Standard Length 6 ft.)

PVC Part No.	Color	PVC Part No.	Color
29508-1	Black	29508-6	Green
29508-3	Red	29508-7	Blue
29508-4	Orange	29508-9	Gray
29508-5	Yellow	29508-0	White

End Lock Assemblies and Track are common to both Top and Side Entry TERMI-BLOK Connectors.

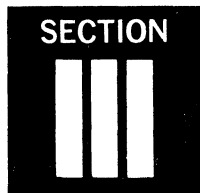
TERMINALS AND TOOLING

Wire Size	Ins. Color	Part No.	Part No.	Part No.	Tooling		
					T-Head Tool	Long Handle Tool	Heavy Head Tool
22-16	Red	66018-2	60533-1	66034-1	59250	47386	
16-14	Blue	66019-2	60525-1	66035-1	59250	47387	
12-10	Yellow	66020-2*	60526-1*	66036-1*			

Vinyl
Pidg
TerminalNylon
Pidg
TerminalPlasti-Grip
Terminal

*For use with top and side Entry Termi-Blok Connectors only.

All three types of tab terminals are applied with A-MP CERTI-CRIMP* hand tooling which consistently provides quick, easy, reliable terminations. Information concerning tape mounted tab terminals and application tooling for larger production requirements is available.



TERMINALS and SPLICES for SPECIAL APPLICATIONS

This section includes the following sub-sections:

Introduction
Taper Technique
FASTON Products
STRATO-THERM Terminals and Splices
TERMINYL Terminals and Splices
AMPLI-BOND Terminals
CERTI-SEAL Splices
TERMI-FOIL Terminals

III. SPECIAL TERMINALS

INTRODUCTION

Each of these products was designed to meet a special problem in electrical termination or connection. High temperatures, vibration, mechanical stresses, insulated termination of large wire, dense intercabinet interconnections, high altitude conditions, and quick connect/disconnect terminations are some of the conditions which can be met by using one or another of the products in this Section.

Most of these products meet the critical requirements of the aircraft and aerospace industry and are used in many of today's airplanes, as well as in missiles, space vehicles, and ground support equipment. They are all high-quality products designed and manufactured by AMP to provide excellent service, reliability, and simple application. Matched tooling was engineered to ensure equally high quality connections regardless of who applies these products or where they are used.

TAPER TECHNIQUE

TAPER Technique—Taper pins were designed in 1958 to give an electrical terminal approximately the same size as the wire to be used. Therefore they differ in size, shape and ultimate end-use just as the wires used differ. Taper products since 1958 all have the identical function of giving the most reliable number of connections in the closest spacing permitted by the wire diameters at an economical savings of approximately 30% lower than soldering. Toward this end we apply to the Taper Technique: (1) The Wedging Principle, (2) The Matched Terminal-Tool Concept, (3) The AMP Special Plating Technique.

The Wedging Principle—It is common knowledge that the wedging principle, originally used to fasten gears to shafts by driving the tapered members into correspondingly tapered openings in solid steel, forms an extremely tight self-locking connection. Applied to A-MP* Taper Products, this principle works with exceptional stability to form reliable connections even under severe stress conditions.

After much research and experimentation the AMP engineering staff agreed upon a 16 to 1 taper design which represents a .001" change in diameter for every .016" in length of the product usually a pin or tab. This is the accepted standard for taper pins and tabs that are not only self-locking but also self-cleaning. Both produce connections of excellent electrical and mechanical reliance.

Insertion tools of proved performance are used to apply a uniform pressure when inserting a taper pin into a tapered receptacle. So tight and uniformly secure is the fit that the variance per unit in pull-out force is extremely small. It is, in fact, well below the requirements of both military and commercial stipulations.

The Matched Terminal-Tool Technique—The second factor contributing to the reliability of A-MP Taper Products is compression crimping of wire leads to the barrels of taper pins, and receptacles. Here the basic concept consists of precise matching of the crimping tool and the pin or tab or receptacle terminal barrel. Every tool is accurately calibrated to produce the exact amount of pressure required to form terminations of optimum electrical conductivity, and tensile strength that nearly equals the strength of the conductor itself.

Toward this end, all hand and automatic crimping tools are equipped with dies made of finely tempered tool steel. These dies imprison the conductor within the terminal barrel and exert enough pressure to form what virtually amounts to a voidless "cold weld" type of termination. Since the dies in every crimping tool, whether hand-operated or automatic, are regulated so as to bottom fully before pressure can be released, each termination for a given size contact is identical. This applies with equal validity to performance characteristics as well as appearance, with all terminal connections high in vibration and corrosion resistance.

The proper hand tools are listed on the same line as the terminal. Solid taper pins may be tape-mounted and terminated either with a reel-mounted hand tool or reel-mounted bench type automatic machine. Detailed instruction sheets giving a complete job-breakdown are provided with each tool.

The AMP Special Plating Technique—A-MP Taper Pins and associated products are supplied with AMP standard gold over nickel plating. They are also available in silver plating or tin plating. Gold and Rhodium plating (generally over nickel) represent the ultimate standards in these directions. For economic and other valid reasons gold over nickel is most universally used on a wide variety of contacts for sensitive to critical applications. With its extremely low electrical resistance and correspondingly high resistance to corrosion, humidity and oxidation, gold applied with a precision technique over a sub-plating of nickel, has been found to be most practical and effective. Gold is recommended on all applications using 15 volts or lower.

Many of our experiments were devoted to the reduction of porosity, with the result that today porosity in AMP gold over nickel plating has reached negligible proportions. In a parallel effort to reach what might be termed as near-absolute control of plating application, our engineers have evolved an exclusive quality-control X-ray technique which measures plating thickness to a millionth of an inch. With this technique, we are able to meet all thickness specifications with unusual accuracy and to satisfy all other plating requirements regardless of the geometry of the product.

What has been said of the gold over nickel plating process is true to a relative degree, of silver plating, tin plating and to any special plating that may be called for from time to time. In each case the common denominator is the ultimate in the control of the application process. This assures that the third link in the chain of essentials is as reliable as the wedging insertion technique and the AMP precision method of matched terminal-tool crimping.

A-MP TAPER Products in Common Use—This is the industry's broadest line of Formed Taper Pins, Screw-Machined Taper Pins, Taper Contacts, Taper Pin Inserts, Taper Tab Receptacles, Taper Blocks, as well as other items and a number of variations of standard components.

TAPER PINS—Two General Types—A-MP Taper Pins are either formed from flat metal sheets of high-grade brass, electro-plated to prevent corrosion; or screw-machine processed from brass or phosphor bronze. The former is a high-production, high-application speed item; the latter a solid component suited to the needs of highly critical circuits. Both achieve the objectives for which they were designed, at lowest applied cost.

Parameters of pin and block selection are listed on the following page. Condensed product specification and published approvals on the blocks and pins follow at the end of the TAPER TECHNIQUE section.

MISCELLANEOUS INFORMATION

Insertions and extractions (recommendations)

Formed pins	approx. 10 insertions
Solid pins	approx. 10 insertions
TAYP-AIR (Solid)	approx. 15 insertions

Insertion, Force

- 12-14 pound trip force of Standard Insertion Tool for insertion into rigid materials.
- 22 pound trip force of Insertion Tool for insertion into resilient materials.
- 15-19 pound trip force of Insertion Tool for insertion into Patchboard Systems (PPS)

NOTE: One thrust with the proper Insertion Tool will correctly seat any AMP Taper Pin into the Tapered Receptacles of any AMP Block.

The tool and pin must be held perpendicular to the receptacle in the face of the block during insertion.

All the pins should be oriented in the same direction during insertion to assure sufficient space for removing the tool tip from the seated pin. Easiest pin insertion, pin extraction and tool removal are achieved with the pins inserted at a 45° angle to the edges of the block.

Insertion Tool Tips

380429-1 Standard Tip .250 O.D. with flat surfaces on each side to provide sufficient clearances. Used across the board for all pins and AWG sizes.

811013-1 Special Thin Tips .156 O.D. tapered on nose of tip. These are limited to .105 wire insul. O.D. Tips may be replaced in the field if the old tip can be screwed out of the shaft. Tools should be returned for repair if the tip cannot be unscrewed.

Tip breakage may be greatly reduced if the tip is screwed tightly in the shaft and the pin and tool are held perpendicular to the block during insertion. The tools are six sided to prevent their accidentally rolling off the bench and causing tip breakage.

Extraction Force

15 pounds minimum (3.75 of E.S. 8-3-4)

Current carrying limitations for taper products are as follows:

"53" Series Taper Pins—the pins are limited to the wire size used with each item. For your convenience we are listing the limitations of each wire size.

24 gage	4.5 amperes
22 gage	8 amperes
20 gage	11 amperes
18 gage	16 amperes
16 gage	22 amperes
14 gage	32 amperes
12 gage	41 amperes

The current carrying limitations of taper blocks are:

- "53" Series Taper Blocks with formed brass or beryllium copper contacts—22 amperes max.
- "53" Series Solid Nylon Taper Blocks with formed screw-machine inserts—22 amperes max.

CAUTION: These values are valid only if the nylon pins and nylon blocks are utilized in application where the block or pin temperature will not reach 105°C.

If many 16-gage wires are used in a block, the block temperature could exceed 105°C if the area were not properly ventilated.

Insulated Resistance—5000 megohms minimum.

"78" Series Taper Tab Receptacles current carrying capability.

24 gage	1.9 amperes
22 gage	3.1 amperes
20 gage	4.7 amperes

These values are based on tin, silver, or gold contacts used on 0.018 tabs.

PIN SELECTION is by AWG usage:

Determine the wire AWG and Insulation Diameter.

Locate the wire range in the left hand column.

Locate the proper insulation diameter range.

Locate the desired plating.

The taper pin number listed on that line is the desired terminal.

TOOL SELECTION:

Crimping tools—are listed on the same line as the terminal.

TAPETRONIC tooling—all solid (closed barrel) taper pins may be taped mounted.

Insertion Tool—Listed on same line as the terminal by a Code number.
Refer to Insertion Tool Chart.

NOTE: Resilient applications—any sealed connector where a spongy material is used would be considered as resilient.

Rigid applications—all AMP blocks would be considered as rigid applications.

In both types of applications the blocks would be properly backed-up during the insertion of the pins into the block.

EXTRACTION TOOL:

Standard Tool 380305-1 may be used on all applications where the wire mass allows you to get the tool into position.

Pistol Grip 91012-1 and 91012-2 are used when the mass of wires will not allow the use of the Standard Extraction Tool. Check catalog for selection of proper tool.

BLOCK SELECTION is based on:

1. Wire size used—53 Series, 28 to 16 AWG; 88 Series, 14-12 AWG
2. Pin type used
3. Receptacle center to center spacing
4. Plating
5. Insulation Resistance

Nylon	5000 megohm	800 volts
Diallyl	5000 megohm	1000 volts
Linear	5000 megohm	1000 volts

BLOCK SPACING—receptacle center to center spacing.

10, 20, 30 position	.160 spacing between receptacles
60 position	.182 spacing between receptacles
	.187 spacing between rows
60 position (Wide spacing)	.182 spacing between receptacles
(582631 & 582632)	.312 spacing between rows
12, 24, 36 and 48 position.	.240 spacing between receptacles
	.340 spacing between rows .

ELECTRICALLY: there should be a minimum of .050 inch spacing between the largest diameter at adjacent pins.

This diameter being the .100 dimension of the driving shoulder.

The .160 minimum spacing is determined:

.050 inch, ½ of driving shoulder of one pin

.050 inch, spacing between pins

.050 inch, ½ of driving shoulder of adjacent pin

.150 inch, absolute minimum C to C spacing.

MECHANICALLY: the diameter of the insertion tool tip could be the deciding factor. It might be possible to get PIDG into the smaller .160 spacing, but not with an insertion tool. The seating of the adjacent pins would have to be disturbed.

There are two basic insertion tool tips.

.250 inch diameter of standard tip 380429-1

.156 inch diameter of special tip 811013-1 (a)

- PHYSICALLY:** the insulation will be the deciding factor.
 Wire with .140 insulation (Max. on formed pins) is going to require wider spacing than smaller insulations.
 Recommended minimum spacing by insulation sizes:
 .160 spacing for insulations less than .080 diameter
 .200 spacing for insulation .080 to .140
 .200 spacing for all PIDG pins

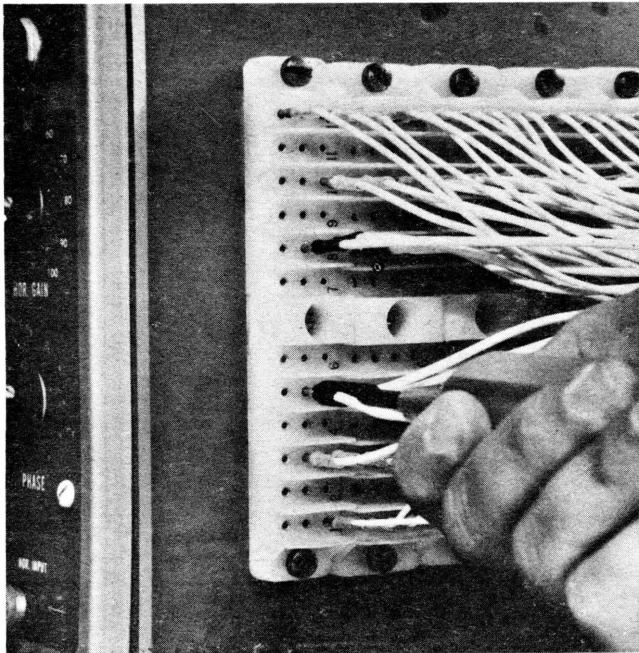
61 and 93 SERIES PINS

Formed Taper Pins with a $2\frac{1}{2}^\circ$ taper are listed further in this section, under the 61 Series and 93 Series along with the recommended crimping and insertion tooling. No block or receptacles are listed for these pins which are required for usage with built-in $2\frac{1}{2}^\circ$ receptacles found in computers and peripheral equipment.

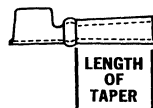
The $2\frac{1}{2}^\circ$ Pins vary from the AMP Standard $3\frac{1}{2}^\circ$ Taper Pins in these respects:

- Visually:** Does not have the driving shoulder between the pin section and the wire crimping barrel.
- Dimensionally:** Does have a larger distance measurement across the nose of the pin section.
- Mechanically:** Pins are inserted by driving on the back of the terminal (instead of on the driving shoulder)
- Compatibility:** They are not to be used in the $3\frac{1}{2}^\circ$ formed receptacles of the AMP Taper Pin Blocks.
- 61 Series** Wire range 24 to 14 AWG, Formed Pins only.
 Pin selection: AWG size, Insulation O.D., plating.
- 93 Series** Wire range 24 to 14 AWG, Formed pins only.
 Pin selection: 24 to 14 AWG size, Insulation O.D., plating.

IBM part #187243 is AMP part #66140-1 (24-20)
 This part number supersedes AMP part #42155-2 (24-20)
 IBM part #179007 is AMP part #66047-2 (24-14)
 This part number supersedes AMP part #42257-2 (24-14)



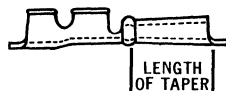
FORMED TAPER PINS & RECEPTACLES



"37" SERIES FORMED TAPER PIN RECEPTACLES

NON-INSULATION SUPPORT

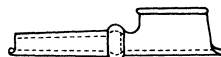
Receptacle Information				Tooling Information				
Wire Size	Catalog Number	Length of Taper	Overall Length	Finish	Hand Tool	69365 Tool Die Number	69319-1 Tool Die Number	Insertion Tool Code (a)
26-20	42529-1	.150	.315	Tin	47998	690045	690045	5
	42529-2			Silver				
	42529-3			Gold				
	42213-1	.200	.365	Tin	47998			5
	42213-2			Silver				
	42213-3			Gold				



INSULATION SUPPORT

Receptacle Information				Tooling Information					
Wire Size	Catalog Number	Insulation Dia. Range	Length of Taper	Overall Length	Finish	Hand Tool	69365 Tool Die Number	69319-1 Tool Die Number	Insertion Tool Code (a)
26-20	42471-1	.048-.071	.200	.485	Tin	90033	690029	690029	5
	42471-2				Silver				
	42471-3				Gold				

"53" SERIES FORMED TAPER PINS



NON-INSULATION SUPPORT

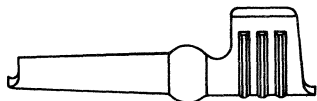
Pin Information				Tooling Information				
Wire Size	Catalog Number	Finish	Overall Length	Double Action Hand Tool	69365 Tool Die Number	69319-1 Tool Die Number	Insertion Tool Code (a)	
18-16	41653	Tin	.512	47093	690047	690047	3, 4, 11	
	41654	Silver						
	41655	Gold						

INSULATION SUPPORT

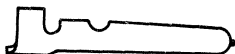
Pin Information				Tooling Information				
Wire Size	Catalog Number	Insulation Dia. Range	Finish	Overall Length	Hand Tool*	69365 Tool Die Number	69319-1-Tool Die Number	Insertion Tool Code (a)
24-22	41278	.040-.055	Tin	.490	48698	673514	673514	1, 2, 10
	41640		Silver					
	41646		Gold					
24-22	41647	.065-.080	Tin	.550	47042	673515	673515	3, 4, 11
	41648		Silver					
	41649		Gold					
20-18	42229-1	.060-.080	Tin	.617	47566	673528	673528	3, 4, 11
	42229-2		Silver					
	42229-3		Gold					
20-18	41650	.080-.100	Tin	.617	47043LH 90010SH	673507	673507	3, 4, 11
	41651		Silver					
	41652		Gold					
18-16	41656	.100-.140	Tin	.617	90024LH 47044SH	673516	673516	3, 4, 11
	41657		Silver					
	41658		Gold					

(a) Refer to tooling chart further in this section

*NOTE. LH—Long Handle Tool
SH—Short Handle Tool

"88" SERIES FORMED TAPER PINS**NON-INSULATION SUPPORT**

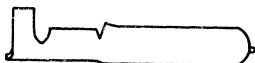
Pin Information				Tooling Information		
Wire Size	Catalog Number	Overall Length	Finish	Hand Tool	69365 Tool Die Number	Insertion Tool Code (a)
14-12	42107-2	.743	Tin	47689	690027	7, 8
	42107-3		Silver			
	42107-4		Gold			

"61" SERIES SPECIAL 2 1/2° FORMED TAPER PINS—I.B.M. TYPE**INSULATION SUPPORT**

Pin Information				Tooling Information		
Wire Size	Catalog Number	Insulation Dia. Range	Overall Length	Finish	Hand Tool*	Insertion Tool Code (a)
24-20	42155-2	.048-.071	.562	Tin	59530	14
	42155-3			Silver		
	42155-4			Gold		
	66140-1			Tin		
22-18	42031-1	.048-.071	.650	Tin	90078 LH 47450 SH	14
	42167-1	.050-.070	.562	Tin	47163	13
18-16	42147-2	.080-.120	.700	Tin	47044 SH 90024 LH	16

NON-INSULATION SUPPORT

Pin Information				Tooling Information		
Wire Size	Catalog Number	Overall Length	Finish	Hand Tool	Insertion Tool Code (a)	
22-16	41296	.562	Tin	18-16 46306 22-17 47357	13	

"93" SERIES SPECIAL 2 1/2° FORMED TAPER PINS**INSULATION SUPPORT**

Pin Information				Tooling Information		
Wire Size	Catalog Number	Insulation Dia. Range	Overall Length	Finish	Hand Tool	Insertion Tool Code (a)
24-20	42371-2	.048-.071	.610	Tin	47566	9
	42153-2		.627	Tin		14
	66047-2		.715	Tin	90092	14
	66047-3		.715	Gold**	90092	14
21-17	42307-2	.090-.115	.750	Tin	46412	13
Two 24 thru Two 20	42166-1	.045-.075	.750	Tin	46412	13

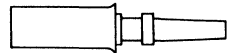
** .000075 Gold Over .0001 Copper

*NOTE: SH—Short Handle Tool
LH—Long Handle Tool

(a) Refer to tooling chart further in this section

SOLID TAPER PINS

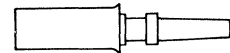
"37" SERIES SOLID TAPER PINS



◆ PRE-INSULATED

Pin Information					Tooling Information					
Wire Size	Catalog Number	Insulation Dia. Range	Nylon Insulation Color Code	Overall Length	Finish	Hand Tool*	69118-1 Amp-Tapematic Tool Die Number	69365 Tool Die Number	69319-1 Tool Die Number	Insertion Tool Code (a)
24-22	42883-1	.040-.080	Yellow	.665	Tin	46222-SH 90015-LH	45306	690004	690004	23, 24, 30
	42883-2				Silver					
	42883-3				Gold					

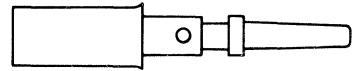
"53" SERIES SOLID TAPER PINS



◆ PRE-INSULATED

Pin Information					Tooling Information				
Wire Size	Catalog Number	Insulation Dia. Range	Nylon Insulation Color Code	Overall Length	Finish	Hand Tool*	69118-1 Amp-Tapematic Tool Die Number	69365 and 69319-1 Tool Die Number	Insertion Tool Code (a)
26	42927-1	.040-.080	Blue	695	Tin	46222-SH 90015-LH	45306	690004	23, 24, 30
	42927-2				Silver				
	42927-3				Gold				
24-22	42574-1	.040-.080	Yellow	695	Tin	46222-SH 90015-LH	45306	690004	23, 24, 30
	42574-2				Silver				
	42574-3				Gold				
20-18	42575-1	.060-.100	Natural	.715	Tin	46223-SH 90016-LH	45305		23, 24, 30
	42575-2				Silver				
	42575-3				Gold				
16	42637-1	.080-.115	Black	.715	Tin	46223-SH 90016-LH	45305		23, 24, 30
	42637-2				Silver				
	42637-3				Gold				

◆ PRE-INSULATED—SOLID ROUND NOSE PINS†



Pin Information				Tooling Information			
Wire Size	Catalog Number	Insulation Dia. Range	Nylon Insulation Color Code	Overall Length	Finish	Hand Tool	Insertion Tool Code (a)
24-22	66171-3	.040-.080	Yellow	.830	Gold	90153-1	23, 24, 30
20-18	66172-3	.060-.100	Natural	.890	Gold	90153-1	23, 24, 30
16	66173-3	.080-.115	Black	.890	Gold	90153-1	23, 24, 30

†Replaces (NASA) pins #66122, 66124 and 66162 Qualifies under MIL-T-7928 (ASG) Supplement #1 (7-7-61).

*NOTE: LH—Long Handle Tool
SH—Short Handle Tool

◆ PRE-INSULATED—SOLID (TAYP-AIR★) PINS



Pin Information					Tooling Information				
Wire Size	Catalog Number	Insulation Dia. Range	Nylon Insulation Color Code	Overall Length	Finish	T-Head Hand Tool	69118-1 Tapematic Tool Die Number	69365 and 69319-1 Tool Die Number	Insertion Tool Code (a)
24-22	42910-1	.040-.090	Yellow	.735	Tin	59480		690004	23, 24, 30
	42910-2				Silver				
	42910-3				Gold				
20-18	42911-1	.080-.115	Natural	.755	Tin	59480		690053	23, 24, 30
	42911-2				Silver				
	42911-3				Gold				
16	42912-1	.080-.115	Black	.755	Tin	59480		690053	23, 24, 30
	42912-2				Silver				
	42912-3				Gold				

◆ these pins may be tape mounted.

(a) Refer to Tooling Chart further in this section

◆ PRE-INSULATED—SOLID (PPS**) LONG SHOULDER PINS



Pin Information					Tooling Information				
Wire Size	Catag Number	Insulation Dia. Range	Nylon Insulation Color Code	Overall Length	Finish	Hand Tool*	69118-1 Tapematic Tool Die Number	69365 and 69319-1 Tool Die Number	Insertion Tool Code (a)
26	66059-1	.040-.080	Blue	.830	Tin	46222-SH 90015-LH	45306	690010	12
	66059-2				Silver				
	66059-3				Gold				
	66129-1	.080-.115	Black	.850	Tin	46223-SH 90016-LH	45305	690011	12
	66129-2				Silver				
	66129-3				Gold				
24-22	42633-1	.040-.080	Yellow	.830	Tin	46222-SH 90015-LH	45306	690010	12
	42633-2				Silver				
	42633-3	Gold	.080-.115	Black	.850	46223-SH 90016-LH	45305	690011	12
	66070-3	Gold							
20-18	42634-1	.060-.100	Natural	.850	Tin	46223-SH 90016-LH	45305	690011	12
	42634-2				Silver				
	42634-3				Gold				
16	42646-1	.080-.115	Black	.850	Tin	46223-SH 90016-LH	45305	690011	12
	42646-2				Silver				
	42646-3				Gold				

*NOTE: LH—Long Handle Tool
SH—Short Handle Tool

**For Patchcord Programming Systems only.

◆ These pins may be tape mounted.

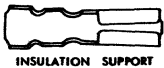
"78" SERIES FORMED TAPER TAB RECEPTACLES



NON-INSULATION SUPPORT

NON-INSULATION SUPPORT

Receptacle Information			Tooling Information		
Wire Size	Catalog Number	Overall Length	Finish	Hand Tool	Insertion Tool Code (a)
20-18	41631	.425	Tin	47216	9
	41758		Silver		
	41915		Gold		



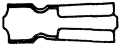
INSULATION SUPPORT

INSULATION SUPPORT

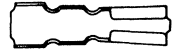
Receptacle Information					Tooling Information				
Wire Size	Catalog Number	Insulation Dia. Range	Overall Length	Finish	Double Action Hand Tool	Straight Action Hand Tool	69365 Tool Die Number	69319-1 Tool Die Number	Insertion Tool Code (a)
24-22	41355	.050	.500	Tin	48698	90072	690012	690012	5
	41643			Silver					
	41868			Gold					
	60015-1	.040-.060	.500	Tin	48698	90072			5
	60015-2			Silver					
	60015-3			Gold					
20-18	41629	.058-.085	.555	Tin	47043-LH 90010-SH		690013	690013	5
	41756			Silver					
	41913			Gold					
	41630	.085-.105	.555	Tin	47043-LH 90010-SH		690013	690013	5
	41757			Silver					
	41914			Gold					

NOTE: A polypropylene insulating sleeve #380594 is available for use with the "78" Series Receptacle.

(a) Refer to tooling chart further in this section.



NON-INSULATION SUPPORT



INSULATION SUPPORT

NON-INSULATION SUPPORT

Receptacle Information			Tooling Information		
Wire Size	Catalog Number	Overall Length	Finish	Hand Tool	Insertion Tool Code (a)
	41355		Tin		
24-20	41642	.422	Silver	46564	5
	60068-1		Gold		

INSULATION SUPPORT

Receptacle Information				Tooling Information		
Wire Size	Catalog Number	Insulation Dia. Range	Overall Length	Finish	Hand Tool	Insertion Tool Code (a)
24-20	42554-2			Tin		
	42554-3	.080-.120	.562	Gold	46564	9
24-22	60512-1	.040-.060	.562	Tin	46564	5
20-18	60513-1	.058-.085	.562	Tin	46564	9

(a) Refer to tooling chart further in this section

FINISH* SPECIFICATIONS

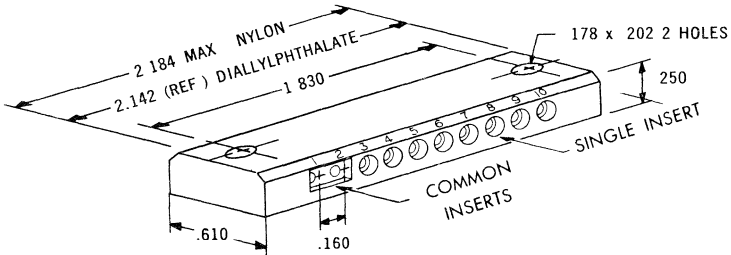
Tin	.0002"	of tin over brass/or phosphor bronze
Silver	.0002"	of silver over brass/or phosphor bronze
Gold	.00003"	of gold over .00005" of nickel over brass/or phosphor bronze

* Indicated in "Finish" column on tables of preceding tabular data.

AMP offers a wide variety of finishes for taper pins and pin receptacles.

TAPER BLOCKS

"53" SERIES HORIZONTAL IN-LINE TYPE (10, 20, 30 and 60 CAVITIES)



10 CAVITY CONNECTOR BLOCK (NYLON)

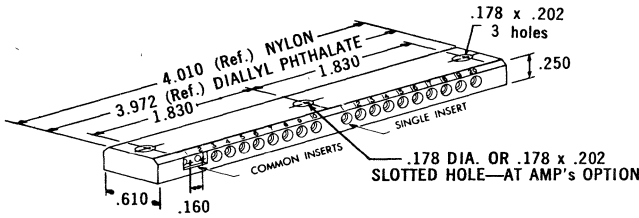
Configurations				Block Color
10 Singles*	5 (2 Common*)	10 Common*	2 (5 Common*)	
581424-1	581358-1	480112-1		Brown
581424-2	581358-2	480112-2		Red
581424-3	581358-3	480112-3		Orange
581424-4	581358-4	480112-4		Yellow
581424-5	581358-5	480112-5		Green
581424-6	581358-6	480112-6		Blue
581424-7	581358-7	480012-7		Violet
581424-9	581358-9	480012-8		Grey
480064-3	480064-6	480012-9	582044-3	Natural
581424-8	581358-8	480012-0		Black

10 CAVITY CONNECTOR BLOCK (DIALYL PHTHALATE)

3-582205-6	3-582206-6	3-582208-6	3-582207-6	Blue
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*Gold Plated Inserts

NOTE Other Platings and Configurations Available



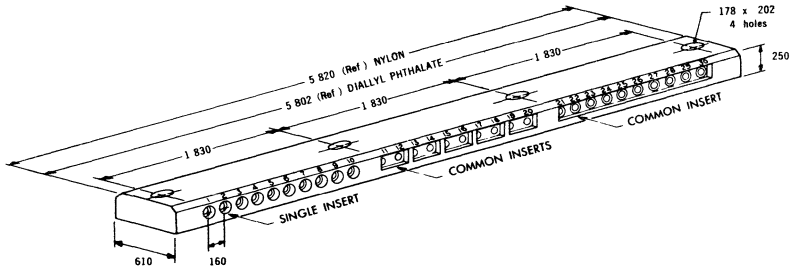
20 CAVITY CONNECTOR BLOCK (NYLON)

Configurations				Block Color
20 Singles*	10 (2 Common*)	20 Common*	2 (10 Common*)	
480076-1	480090-1	581423-1	480077-1	Brown
480076-2	480090-2	581423-2	480077-2	Red
480076-3	480090-3	581423-3	480077-3	Orange
480076-4	480090-4	581423-4	480077-4	Yellow
480076-5	480090-5	581423-5	480077-5	Green
480076-6	480090-6	581423-6	480077-6	Blue
480076-7	480090-7	581423-7	480077-7	Violet
480076-8	480090-9	581423-8	480077-8	Grey
480076-0	480065-6	581423-9	480077-9	Natural
480065-3				
480076-9	480090-8	581423-0	480077-0	Black

(DIALLYL PHTHALATE)

3-582234-6	3-582235-6	3-582238-6	3-582237-6	Blue
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“53” SERIES



30 CAVITY CONNECTOR BLOCK (NYLON)

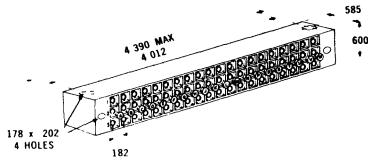
Configurations				Block Color
30 Singles*	15 (2 Common*)	30 Common*	3 (10 Common*)	
480107-1	480108-1		480109-1	Brown
480107-2	480108-2		480109-2	Red
480107-3	480108-3		480109-3	Orange
480107-4	480108-4		480109-4	Yellow
480107-5	480108-5		480109-5	Green
480107-6	480108-6		480109-6	Blue
480107-7	480108-7		480109-7	Violet
480107-8	480108-8		480109-8	Grey
480107-9	480108-9	582059-9	480109-9	Natural
480107-0	480108-0	582059-0	480109-0	Black

(DIALLYL PHTHALATE)

3-582244-6	3-582245-6	3-582248-6	3-582247-6	Blue
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*Gold Plated Inserts

NOTE: Other Platings and Configurations Available.



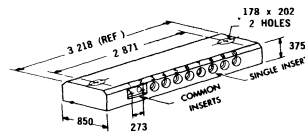
60 CAVITY CONNECTOR BLOCK (NYLON)

Configurations				Block Color
60 Singles*	20 (3 Common*)	60 Common*	3 (20 Common*)	
3-582415-1	3-582349-1	3-582217-1	3-582416-1	Brown
3-582415-2	3-582349-2	3-582217-2	3-582416-2	Red
3-582415-3	3-582349-3	3-582217-3	3-582416-3	Orange
3-582415-4	3-582349-4	3-582217-4	3-582416-4	Yellow
3-582415-5	3-582349-5	3-582217-5	3-582416-5	Green
3-582415-6	3-582349-6	3-582217-6	3-582416-6	Blue
3-582415-7	3-582349-7	3-582217-7	3-582416-7	Violet
3-582415-8	3-582349-8	3-582217-8	3-582416-8	Grey
581173-3	581342-3	3-582217-9	3-582150-9	Natural
3-582415-0	3-582349-0	3-582217-0	3-582416-0	Black

"88" SERIES

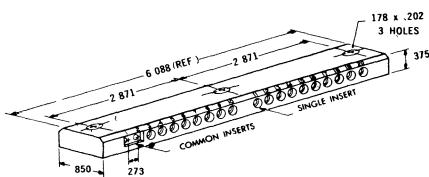
10 CAVITY CONNECTOR BLOCK (NYLON)

Configurations			Block Color
10 Singles*	5 (2 Common*)	10 Common*	
581348-1	3-582154-1	3-582155-1	Brown
581348-2	3-582154-2	3-582155-2	Red
581348-3	3-582154-3	3-582155-3	Orange
581348-4	3-582154-4	3-582155-4	Yellow
581348-5	3-582154-5	3-582155-5	Green
581348-6	3-582154-6	3-582155-6	Blue
581348-7	3-582154-7	3-582155-7	Violet
581348-8	3-582154-8	3-582155-8	Grey
581348-9	3-582154-9	3-582155-9	Natural
581348-0	3-582154-0	3-582155-0	Black



20 CAVITY CONNECTOR BLOCK (NYLON)

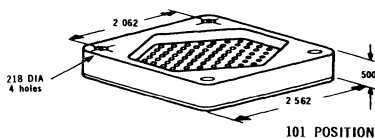
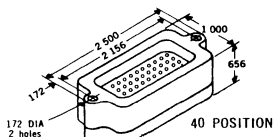
Configurations		Block Color
20 Singles*	10 (2 Common*)	
581351-1	3-582263-1	Brown
581351-2	3-582263-2	Red
581351-3	3-582263-3	Orange
581351-4	3-582263-4	Yellow
581351-5	3-582263-5	Green
581351-6	3-582263-6	Blue
581351-7	3-582263-7	Violet
581351-8	3-582263-8	Grey
581351-9	3-582263-9	Natural
581351-0	3-582263-0	Black



*Gold Plated Inserts

NOTE: Other Platings and Configurations available.

"53" SERIES COMMON CONNECTORS



40 POSITION COMMON CONNECTOR

Catalog Number	Material	Insert Plating	Remarks	Block Color																	
				Brown	Red	Orange	Yellow	Green	Blue	Violet	Grey	Natural	Black								
581194-1	Nylon	Gold	40 common																		x
581194-2	Nylon	Gold	40 common																		x
581194-3	Nylon	Gold	40 common																		x

101 POSITION COMMON CONNECTOR

Catalog Number	Material	Insert Plating	Remarks	Block Color																		
				Brown	Red	Orange	Yellow	Green	Blue	Violet	Grey	Natural	Black									
480031-1	Nylon	Gold	101 common																		x	
480031-2	Nylon	Gold	101 common																			x
480031-3	Nylon	Gold	101 common																			x

INSERTION TOOLS

TOOLING



STANDARD

PULL TEST

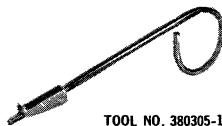
CAPTIVE

Code	Standard Part No.	Pull Test Part No.	Captive Part No.	Application*
3	380306-3	380310-3	380518-3	Receptacles in Rigid Material
4	380306-4	380310-4	380518-4	Receptacles in Resilient Material
5	380306-5	811167-1	380518-7	Receptacles onto Tabs and onto Pins
7	380306-7	380310-7		Receptacles in Resilient Material
8	380306-8	380310-8		Receptacles in Rigid Material
9	1-380306-0		380518-8	Receptacles onto Tabs
11		495882-2		Patchcord Programming Systems Only
12		495882-3		Patchcord Programming Systems Only
13	811034-1			Receptacles in Rigid Material
14	811034-2			Receptacles in Rigid Material
16	811034-4			Receptacles in Rigid Material
23	380430-1	380431-1	380518-5	Receptacles in Resilient Material
24	380430-2	380431-2	380518-6	Receptacles in Rigid Material
30			380564-6	Tapp-Air Pins

*Resilient material is a material such as Soft Rubber, Polyurethane, etc.
Rigid is Nylon, Dialyl Phthalate.

EXTRACTION TOOLS

380305-1 Used for extraction of "53" Series Taper Pins



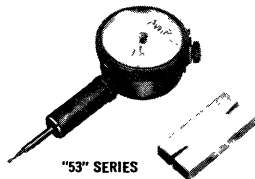
TOOL NO. 380305-1



REAMER



"88" SERIES GAUGE



"53" SERIES GAUGE KIT

REAMER AND GAUGE

Reamer Number	Used For	Gauge Number	Used For
9-378798	"53" Series Taper Pin Receptacles.	9-391476	"53" Series Taper Pin Receptacles.
9-378842	"88" Series Taper Pin Receptacles.	9-378427	"88" Series Taper Pin Receptacles.

TAPER PIN DATA SHEET

E.S. 8-3-4 printed here is a condensation of the Product Specification. The information contained in this report may be considered as representative of the complete AMP Taper Pin Product Line. Other applicable specifications listed here are available upon request.

AVAILABLE TAPER PIN SPECIFICATIONS

- S-100 Technical Report Performance tests of "78" Series Taper Tab Receptacles.
- E.S. 8-3-2 Product Spec.—Crimping Taper Pin #66140.
- E.S. 8-3-3 Product Spec.—PIDG Taper Pins #66171, 66172 and 66173.
- E.S. 8-3-4 Product Spec.—Taper Pins and Receptacle Blocks.
- E.S. 8-3-5 Product Spec.—Crimping Formed Taper Pins.
- E.S. 8-3-6 Product Spec.—Solid Uninsulated Taper Pin #66205 to 66211.
- #5307 P.E.I. Test Release—Vibration on PIDG Taper Pins.
- E.S. 8-3-7 Product Spec.—TAYP-AIR Taper Pins and Receptacle Blocks.

PRODUCT SPECIFICATION FOR PRE-INSULATED DIAMOND GRIP TAPER PINS AND TAPER PIN RECEPTACLE BLOCKS

1. SCOPE:

- 1.1 **Purpose**—This specification outlines the performance requirements for both the pre-insulated diamond grip taper pins and taper pin receptacle blocks as encountered in service.

2. APPLICABLE DOCUMENTS:

- 2.1 **References**—The following documents form a part of this specification to the extent specified herein. Where there is a difference between this specification and the referenced documents, this specification shall take precedence.

MIL-G-45204	Gold plating; Electro-deposited
MIL-M-20693A	Molding Plastic, Polyamide
MIL-W-16878D	Wire, Electrical, 600 Volt Copper
QQ-B-626	Brass, Leaded and Non-Leaded
QQ-S-365	Silver Plating, Electro-deposited
MIL-STD-202B	Test Methods for Electrical and Electronic Component Parts

3. REQUIREMENTS:

- 3.1 **Qualification**—The parts furnished under this specification shall be a product which has been subjected to and passed the tests specified herein.
- 3.2 **Design and Construction**—The pre-insulated diamond grip taper pin and the taper pin receptacle block shall be of the design as specified by the applicable product drawing. These products shall be of such construction so that when properly crimped and assembled the assembly will meet all the performance requirements of this specification.
- 3.3 **Materials**—Materials shall be as specified by the applicable drawing. However, when a substitute material is used it must meet all the performance requirements of this specification.

Formed	— Brass	TAYP-AIR	Bronze
Solid	— Brass	S.U.I.S.	Copper

- 3.4 **Finish**—The pre-insulated diamond grip taper pin and the molded in receptacle shall be plated as specified by the applicable product drawing.
Available: Tin Silver Gold
Note: Gold plating is recommended for applications with voltages of 15V or less.
- 3.5 **Current Rating**—The pre-insulated diamond grip taper pin and taper pin receptacle blocks shall have a maximum current rating as specified below.
- 3.5.1 **Pre-Insulated Diamond Grip Taper Pin**—The maximum current rating for an individual contact shall be 22.0 amperes unless otherwise controlled by wire size.
- 3.5.2 **Taper Pin Blocks**—The taper pin block shall have a current rating so as not to exceed a maximum operating temperature of 105°C.
- 3.6 **Operating Temperature**—This assembly shall have a maximum operating temperature of + 105°C and a minimum temperature of -55°C.
- 3.7 **Performance**
- 3.7.1 **Insulation Resistance**—When tested in accordance with method 302, Test Condition B of MIL-STD-202 the insulation resistance shall not be less than 5,000 megohms.

- 3.7.2 High Potential**—When tested in accordance with method 301 of MIL-STD-202, the assembly shall not show any evidence of flashover or breakdown when the voltage of 1500 VAC is applied.
- 3.7.3 Contact Resistance**—When tested in accordance with Method 307 of MIL-STD-202, except that alternating current may be used, the resistance at 25°C shall not exceed .002 ohms.
- 3.7.4 Vibration**—When tested in accordance with Method 204 of MIL-STD-202, continuity greater than one micro-second.
Upon completion of this test the assembly shall meet the requirements of 3.7.3.
- 3.7.5. Withdrawal Force**—Twenty percent of the Taper Pin contacts of each test, specimen shall have an applied force of 15 pounds for one minute applied to the test lead at a rate of approximately one inch of head travel per minute. No Taper Pin shall become dislodged.
- 3.7.6 Temperature Cycling**—When tested in accordance with Method 102 of MIL-STD-202, except that the temperature extremes shall be -55°C to $+105^{\circ}\text{C}$, the assembly shall show no evidence of physical damage.
- 3.7.7. Salt Spray**—When tested in accordance with Method 101, Condition B of MIL-STD-202, the assembly shall be capable of meeting the requirements of 3.7.3.
- 3.7.8 Shock**—When tested in accordance with Method 202 of MIL-STD-202, 50 gravity units shock force repeated in each of the referenced 90° axis positions. There shall be no evidence of mechanical failure of metallic or dielectric materials, nor loss of continuity greater than one microsecond.
- 3.7.9 Moisture Resistance**—When tested in accordance with Method 106 of MIL-STD-202 the insulation resistance shall not be less than 500 megohms and the high potential at sea level shall not be less than 800 RMS.

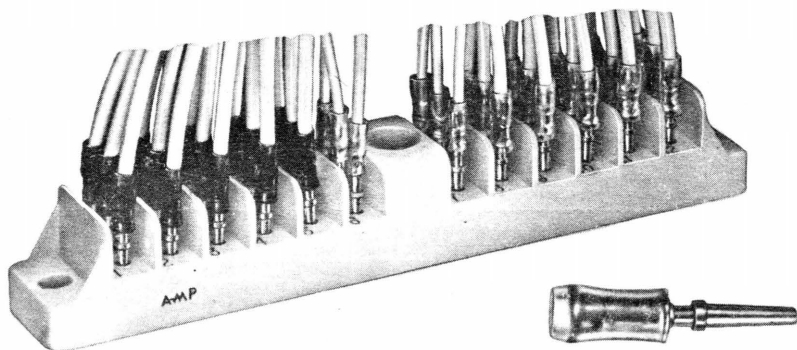
3.8 Workmanship—Taper Pin contacts and blocks shall meet the dimensional requirements as indicated on the appropriate product drawings.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Test Conditions—Unless otherwise specified here, tests and examinations required by this specification shall be made under any combination of conditions within the range below. Any specified condition shall not affect the other two ambient ranges.

Temperature:	20° to 30°C
Relative Humidity:	30 to 80 percent
Barometric Pressure:	24 to 31 inches of mercury

TAYP-AIR* PIN TECHNIQUE



The new TAYP-AIR Pin Technique makes possible extreme flexibility of design by permitting a high concentration of circuits in limited space. In addition to this facility for making possible considerable savings in weight and space, TAYP-AIR Pins and Blocks have demonstrated in both stringent testing and actual in-product use, high electrical and mechanical performance characteristics which are essential in such equipment as aircraft, missiles, computers and various control systems.

TAYP-AIR PINS

PIDG* Pins are of an elongated, tapered design for wedge fitting into the terminal blocks. The tapered form assures excellent contact and maximum retention values. The AMP Standard of gold over nickel plating is further assurance of long-lasting reliable connections by eliminating the possibility of oxidation creep. Pre-insulation of the pins prevents flash-over and possible shorting.

TAYP-AIR BLOCKS

The TAYP-AIR BLOCKS are made of nylon and contain metal inserts for receiving pins. These are also plated in matching AMP standard plating of gold over nickel.

Configurations of these pin positions are separated by nylon barrier strips especially designed to prevent arcing under extreme environmental conditions. The block are available in three sizes:

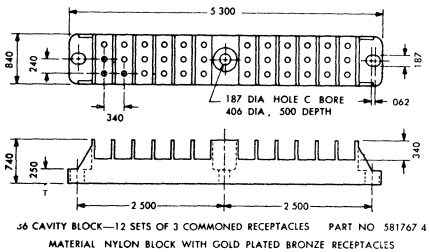
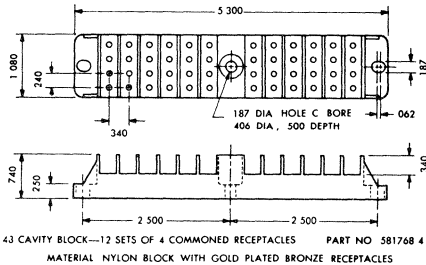
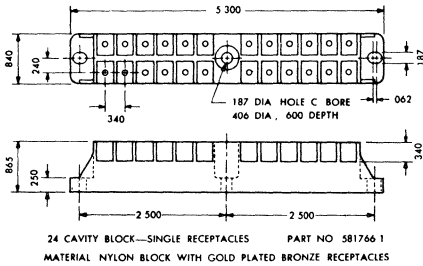
1. A feed-through block of 48-circuits.
2. A potted-back block with 12 configurations of 3-commomned circuits.
3. A potted-back block with 12 configurations of 4-commomned circuits.

SPECIFICATIONS

TAYP-AIR PINS

Catalog Number	Wire Size	Material
42910-1	24-22	Tin plated bronze
42910-2	24-22	Silver plated bronze
42910-3	24-22	Gold plated bronze
42911-1	20-18	Tin plated bronze
42911-2	20-18	Silver plated bronze

Catalog Number	Wire Size	Material
42911-3	20-18	Gold plated bronze
42912-1	16	Tin plated bronze
42912-2	16	Silver plated bronze
42912-3	16	Gold plated bronze



TAYP-AIR BLOCKS

Catalog Number	Description	Material
581766-1	24 Cavity Block Single Receptacles	Gold plated bronze
581767-4	36 Cavity Block 12-3 Commomned	Gold plated bronze
581768-4	48 Cavity Block 12-4 Commomned	Gold plated bronze

TOOLING

CRIMPING TOOL

Pins are crimped with a special "T"-Head* matching AMP hand tool. This tool will crimp all sizes of TAYP-AIR Pins.

INSERTION TOOL

Insertion tools include standard, pull test or the captive type (as illustrated). All of these tools are capable of inserting all sizes of TAYP-AIR Pins.

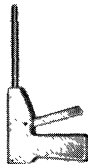
EXTRACTION TOOL

The extraction tool is a pistol type which acts on a lever principle; the squeeze of the trigger activates a downward thrust of force on the face of the block extracting the pin. The tool is equipped with a specially designed tip which permits random removal of pins from the block.



Catalog Number	Description	Wire Size
59480	"T"-Head Hand Tool for PIDG Taper Pin	24-16

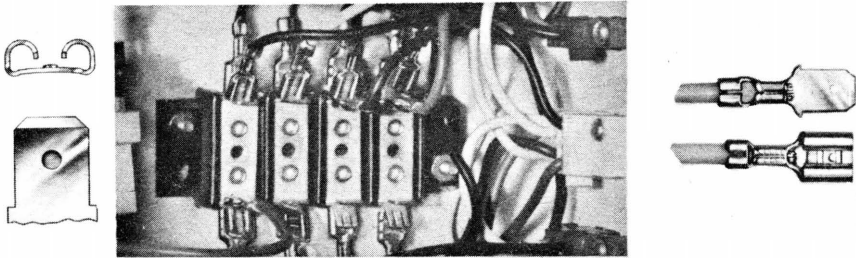
Catalog Number	Description	Wire Size
380430-2	Standard Type	24-16
380431-2	Pull Test Type	24-16
380518-6	Captive Type	24-16



Catalog Number	Description	Wire Size
380305-1	Standard Type	24-16
425261-1	Pistol Type	24-16

A-MP* FASTON* PRODUCTS[§]

TERMINAL TABS, RECEPTACLES, SPLICES AND CONNECTORS



The FASTON Terminal consists of two mating parts—the receptacle and the tab. Since corrosion and oxidation tend to affect performance by cutting down contact areas and increasing the operating temperatures of connections, maximum contact areas are incorporated in the design of FASTON receptacles and tabs. The design also includes a dimple-detent and web section which not only increases contact surfaces but also locks in the tab and receptacle at proper insertion depth for firm retention. Receptacles, available in both straight-on and flag type come in a variety of sizes and are designated, numerically, by the width of the mating tab. There are four series of straight-on and flag receptacles—"250", "205", "187", and "110".

FEATURES

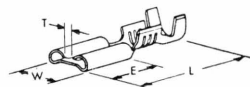
- Precise matching of terminals and tooling provides exceptional reliability.
- FASTON terminals available in brass or phosphor bronze, tin or silver plated.
- PIDG* FASTON terminals feature nylon or vinyl insulation permanently bonded to a copper support sleeve.
- FASTON receptacles mate with most conventional terminal tabs.
- Both insulated and uninsulated FASTON terminals are available in wire range of #22 through #10 AWG.
- Built-in locking lance retains FASTON-FASTON* contacts in nylon housings.



"110" Series Insulation Support Receptacles

Terminal Number	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	Fits Tab	W	L	E	T	Hand Crimping Tool
42067-1	24-22	.040/.060	.010	Pre-Tin Brass	.020	.150	.655	.250	.025	59528
42294-1	22-20	.120/.140	.010	Pre-Tin Brass	.025	.150	.650	.250	.020	47998††
42068-1	20-18	.060/.100	.010	Pre-Tin Brass	.020	.150	.655	.250	.025	47042

††No Insulation Support Crimp



"187" Series Insulation Support Receptacles

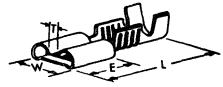
Terminal Number	Style	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	Fits Tab	W	L	E	T	Hand Crimping Tool
42452-2	A	20-16	.090/.130	.012	Tin Plated Brass	.020	.220	.605	.250	.040	47995



"205" Series Non-Insulation Support Receptacles

Terminal Number	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	Fits Tab	W	L	E	T	Hand Crimping Tool
42239-2	18-14		.016	Tin Plated Brass	.032	.255	.490	.250	.025	46386

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Insulation Support Receptacles

Terminal Number	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	Fits Tab	W	L	E	T	Hand Crimping Tool
42244-2	22-18	.085/.125	.016	Tin Plated Brass	.032	.250	.635	.250	.025	47995
42233-2	18-14	.130/.180	.016	Tin Plated Brass	.032	.250	.635	.250	.025	46011



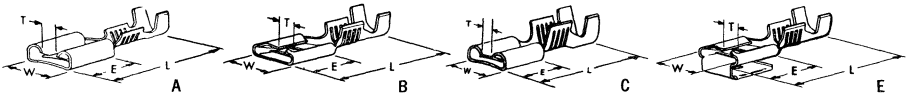
Pre-Insulated Receptacles

Terminal Number	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	Fits Tab	W	L	E	T	Hand Crimping Tool
42888-1	22-18	.135 Max.	.016	Tin Pl. Brass—Vinyl Sleeve	.020	.250	.775	.250	.025	90035
42747-2	16-14	.160 Max.	.016	Tin Pl. Brass—Vinyl Sleeve	.020	.255	.675	.250	.025	90009



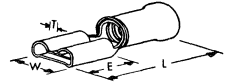
"250" Series Non-Insulation Support Receptacles (.250 x .032 tab fit)

Terminal Number	Style	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	W	L	E	T	Hand Crimping Tool
41194	A	18-14		.018	Tin Plated Brass	.300	.675	.305	.065	46386



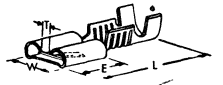
Insulation Support Faston Receptacles (.250 x .032 tab fit)

Terminal Number	Style	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	W	L	E	T	Hand Crimping Tool
41274	A	18-14	.120/.170	.018	Tin Plated Brass	.300	.770	.305	.065	48569
42692-2	B	18-14	.150/.210	.016	Tin Plated Brass	.300	.800	.305	.115	46007
42219-1	A	18-14	.120/.170	.016	Nickel Plated Steel	.300	.770	.305	.065	46007
41450	C	14-10	.150/.200	.018	Tin Plated Brass	.300	.795	.305	.065	47094
42741-2	E	18-14	.120/.170	.016	Tin Plated Brass	.300	.790	.305	.115	46007



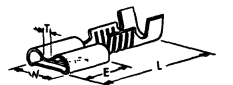
Pre-Insulated Receptacles (.250 x .032 tab fit)

Terminal Number	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	W	L	E	T	Hand Crimping Tool
42599-2	22-18	.135 Max.	.018	Tin Plated Brass—Vinyl Sleeve	.300	.815	.305	.065	90035-1
42332-2	16-14	.160 Max.	.018	Tin Plated Brass—Vinyl Sleeve	.300	.815	.305	.065	90009-1
42844-1	14-12	.250 Max.	.018	Tin Plated Brass—Vinyl Sleeve	.300	1.000	.305	.065	59239-4
160314-2	12-10	.250 Max.	.018	Tin Plated Brass—Vinyl Sleeve	.300	1.000	.305	.065	59239-4



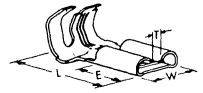
Insulation Support Receptacles—Single-In-Line Application

Terminal Number	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	Tab Thickness	W	L	E	T	Hand Crimping Tool
42281-2	18-14	.120/.160	.016	Tin Plated Brass	.032	.295	.770	.305	.080	90011



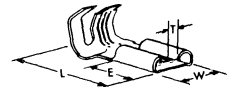
Insulation Support Receptacles—For 6 Circuit Application

Terminal Number	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	Fits Tab	W	L	E	T	Hand Crimping Tool
42100-2	18-14	.120/.160	.012	Tin Plated Brass	.032	.295	.770	.305	.035	90011



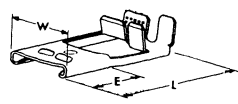
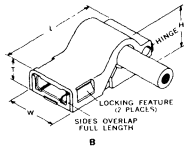
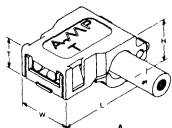
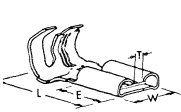
“187” Series Flag Receptacles

Terminal Number	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	Fits Tab	W	L	E	T	Hand Crimping Tool
42486-2	20-16	.110/.170	.012	Tin Plated Brass	.020	.220	.460	.250	.040	45019



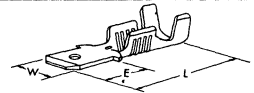
“205” Series Flag Receptacles

Terminal Number	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	Fits Tab	W	L	E	T	Hand Crimping Tool
42234-2	20-14	.110/.170	.016	Tin Plated Brass	.032	.250	.460	.250	.025	45019



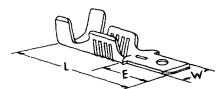
“250” Series Flag Receptacles (.250 x .032 tab fit)

Terminal Number	Style	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	W	L	E	T	Hand Crimping Tool
41532	A	18-12	.110/.210	.018	Tin Plated Brass	.300	.575	.305	.065	47417
42404-1	A	18-12	.110/.210	.018	Nickel Plated Steel	.300	.575	.305	.065	47417
60314-2	B	22-18	.090/.130	.016	Tin Plated Brass	.290	.550	.225	.190	90063
60290-2	B	18-14	.140	.016 Max.	Tin Plated Brass	.290	.550	.225	.190	90045



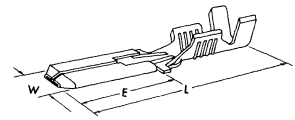
“187” Series Tab—Wire Crimp Type

Terminal Number	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	Tab Thickness	W	L	E	T	Hand Crimping Tool
42490-2	22-18	.080/.120	.020	Tin Plated Brass	.020	.187	.685	.250		46564
42489-2	18-14	.120/.150	.020	Tin Plated Brass	.020	.187	.685	.250		47094



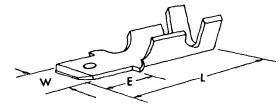
“205” Series Tab—Wire Crimp Type

Terminal Number	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	Tab Thickness	W	L	E	T	Hand Crimping Tool
42488-2	22-18	.080/.120	.020	Tin Plated Brass	.020	.205	.685	.250		46564
42487-2	18-14	.120/.150	.020	Tin Plated Brass	.020	.205	.685	.250		47995



“250” Series Tab—Wire Crimp Type

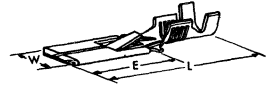
Terminal Number	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	Tab Thickness	W	L	E	T	Hand Crimping Tool
42475-2	22-18	.080/.120	.016	Tin Plated Brass	.032	.250	.835	.370		47995
42474-2	18-14	.110/.150	.016	Tin Plated Brass	.032	.250	.830	.370		46011



“205” Series Tab—Wire Crimp Type

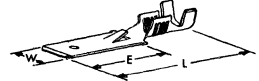
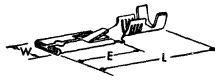
Catalog Number	Wire Range	Insulation Dia. Range	Stock Thickness	Material	“E”	Nominal “L”	“W”	Hand Crimping Tool
41412	18-14	.120/.170	.032	Tin Plated Brass	.312	.755	.250	*

NOTE: The “L” dimension denotes length of terminal after crimping. *No Double Action Hand Tool Available



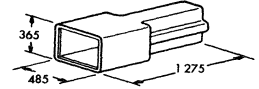
Tabs With Insulation Support (Mates with #42100 Receptacle)

Terminal Number	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	Tab Thickness	W	L	E	T	Hand Crimping Tool
42098-2	18-14	.120/.160	.016	Tin Plated Brass	.032	.250	1.125	.620		90011



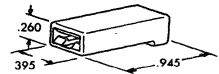
Tabs With Insulation Support (Mates With #42281 Receptacle)

Terminal Number	Style	Wire Size	Insulation Diameter	Stock Thickness	Material & Finish	Tab	W	L	E	Hand Crimping Tool
42460-2	A	18-14	.120/.160	.016	Tin Plated Brass	.032	.250	1.125	.620	90011
42580-2	B	18-14	.120/.145	.016	Tin Plated Brass	.016	.250	1.120	.620	90011



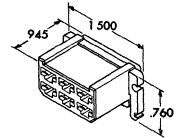
"250" Series Single Circuit Tab Housing

Housing Number	Material	W	H	L	Hand Crimping Tool
480053-5	Natural Nylon	.485	.365	1.275	—



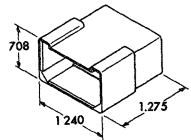
Single Circuit Receptacle Housing

Housing Number	Material	W	H	L	Hand Crimping Tool
480054-3	Natural Nylon	.395	.260	.945	—



"250" Series Six Circuit Molded Receptacle Housing

Housing Number	Material	W	H	L	Hand Crimping Tool
480003-5	Natural Nylon	1.500	.605	.945	—



Six Circuit Molded Tab Housing

Housing Number	Material	W	H	L	Hand Crimping Tool
480004-5	Natural Nylon	1.240	.708	1.275	—



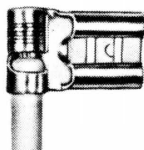
"250" Series Line Splice Connector

Number	Material & Finish	W	L	E	Hand Crimping Tool
1-321235-0	Plastic Tube over Brass Tab	.406	2.625	1.140	
1-321235-1	Plastic Tube over Tin Plated Brass Tab	.406	2.625	1.140	—

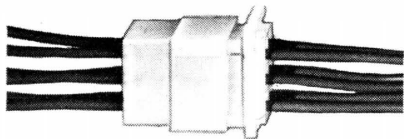
— No Tool Required

FASTON STRAIGHT RECEPTACLES**PIDG FASTON Receptacle****Uninsulated FASTON Receptacle**

Straight receptacles are made with or without insulation support. Insulation diameters of .090 to .265—the widest range offered in the industry—are accommodated by the insulation support receptacle. Over insertion of shoulderless tabs is prevented by tapering walls at the rear of the receptacle.

FASTON FLAG RECEPTACLES

The Flag Receptacle, extremely reliable under a steady load, is the only receptacle of its type which can be crimped to a center strip for bussing switches in the back-splash of ranges or in similar heavy-duty appliance applications. This receptacle design includes a lance-tab stop at its rear to avoid over insertion of shoulderless tabs.

FASTIN-FASTON* CONNECTORS

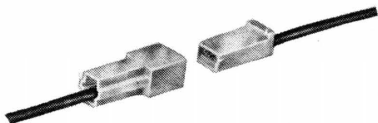
FASTIN-FASTON connectors are the multiple-connector version of the basic FASTON Terminal. Primarily used as a harness connector, it makes possible simultaneous and quick attachment of up to six separate circuits. The finished housing can be panel mounted or left free hanging and is ideally suited for such applications as electric ranges, washers, dryers and other appliances and automotive wiring. Receptacles and tabs, with the exception of small locking lances to help retention in housing, are identical to those in the FASTON Terminal. Nylon housings are oriented to assure proper attachment and are rated at up to 105°C to permit use of assembly in areas of relatively high temperatures.

FASTON TABS

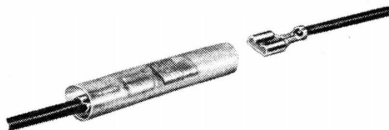
Tongue widths of tabs are available for the entire standard range—"250", "205", "187" and "110" series.

Tabs are available in double rows with centered stud holes. They can be shunted to any length and made either flat or with 45° and 90° bends. Weld type tabs and a full line of mating receptacles especially suited for such applications as headers on compressors and electric range heating elements are designed for automatic attachment.

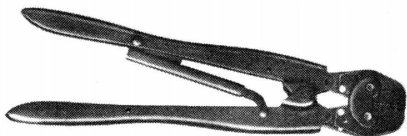
Tab designs also include a tab-on-wire unit which is especially suited for line splices and other special applications. The tab-on-wire includes insulation support and is available in AWG sizes #22 through #14.

FASTIN-FASTON SINGLE IN-LINE SPLICE

SINGLE IN-LINE SPLICE utilizes a tab-on-wire and mating receptacle contained in molded housings to provide insulation for the completed assembly.

LINE SPLICE CONNECTIONS

Line splices can be easily accomplished by attaching receptacles to two tabs contained end-to-end in a spring-locked plastic insulating sleeve.

TOOLING

An inexpensive, precision-engineered hand tool, the A-MP Centri-Crimp* tool, is ideal for repair on the line or in the field or for prototype applications.

STRATO-THERM TERMINALS AND SPLICES

HEAT: AN ADDED DIMENSION TO CIRCUIT REQUIREMENTS

Heat . . . extreme heat . . . searing temperatures up to 1200° F. This is one of the most challenging environments that electrical/electronic circuitry has ever entered.

If heat is an unavoidable dimension in your circuit design and production, this catalog is an important ally. In this AMP line of STRATO-THERM* terminals and splices, you'll find truly high temperature circuit hardware. You'll also find solutions to other, more familiar circuit problems such as vibration, corrosion, and flashover, when they occur at high temperatures.

Here, in fact, is the consistent reliability and quality control of AMP's world famous crimping method adapted to extreme thermal conditions. This catalog contains pertinent information on STRATO-THERM terminals and splices, application tooling, test data and physical characteristics.

SUMMARY OF TYPES

There are four distinct types of STRATO-THERM terminals and splices with which you can attack design or production problems for circuitry in elevated temperatures. The first has a maximum temperature rating of 650° F. The second, 1200° F. The third, with post insulation, and the fourth, with pre-insulation, have a maximum temperature rating of 550° F. A description of each of these general categories follows.

UNINSULATED TERMINALS AND SPLICES— 650° F. RANGE

Designed for a maximum operating temperature of 650° F., these terminals and splices are available with and without wire insulation support. Both types are manufactured from electrolytic copper, plated with nickel. In the insulation support type, the support sleeve is fabricated from nickel-silver alloy. Both types accommodate solid or stranded conductors in various combinations. Wire size range is listed in the tabular data section.

UNINSULATED TERMINALS AND SPLICES— 1200° F. RANGE

This line offers reliable operation in a temperature extreme of 1200° F. Pure nickel is used for the fabrication of both the wire insulation support and the non-insulation support types. The wire support sleeve of the first type is manufactured from nickel-silver alloy. Accommodating either solid or stranded

conductors in different combinations, these terminals and splices are made to cover a broad wire size range listed in the tabular data section.

POST-INSULATED TERMINALS, SPLICES AND CAPS— 550° F. RANGE

The temperature range of this line is unexcelled by any other insulated terminals and splices on the market; 550° F., for gold or nickel plating (500° F. for silver plating). This line includes three types of splices. The first is a butt splice which, like the terminals, accommodates solid and/or stranded conductors. The second is the new multiple wire, post-insulated moisture seal splice. They accommodate a host of wire combinations (see tabular data) and are available in butt and parallel configurations. They are completely sealed to deter corona at high altitudes when used with wire specified in the tabular data. The third is a multiple wire splice cap.

PRE-INSULATED TERMINALS, SPLICES AND SPARE WIRE CAPS— 550° F. RANGE

Designed for reliable performance up to 550° F., this line of ring-tongue terminals, butt splices and spare wire caps features a pre-insulation sleeve of TEFLON® insulation material. Gold or nickel plating is available. The terminal and splice barrel accommodates silver plated stranded wire conductors only. The spare wire caps are designed for unstripped wire.

TEST DATA FOR STRATO-THERM TERMINALS AND SPLICES

UNINSULATED TERMINALS AND SPLICES— 650° F.

These STRATO-THERM terminals were subjected to a test which was calculated to reveal actual performance under high temperature conditions. Samples were run through 200 cycles from room temperature to 750° F. The four conclusions listed below hold true, proportionately, for this line.

UNINSULATED TERMINALS AND SPLICES— 1200° F.

Although little guidance is presently available from military or commercial specifications for terminal and splice performance characteristics, conclusive proof was obtained over a five month period as follows:

- low thermo-electric potential
- excellent contact stability at recommended temperatures
- linear contact and crimp resistance in relation to temperature
- assured contact to provide excellent performance with respect to environmental oxidation resistance.

POST-INSULATED TERMINALS AND SPLICES —550° F.

This line in all wire sizes was tested under AMP Performance Spec. #GPS-500 for: ten-

sile strength, dielectric strength, immersion, sleeve secureness, vibration, corrosion and temperature cycling. Also included was a liquid oxygen test applied to discover its effect on appearance and dielectric strength. The wire used conforms to MIL-W-16878 Type E or MIL-W-7139. In all cases, and in all wire sizes, STRATO-THERM Post-Insulated terminals exceeded all requirements. TEFLON insulation proved itself to be the most satisfactory insulating material for these requirements up to 550° F.

The STRATO-THERM Post-Insulated splices, single and multiple wire type, were tested, in addition, for altitude performance, immersed in 5% NaCl at a simulated altitude of 60,000 feet for one hour, and at sea level pressure for fifteen minutes. After three such cycles, the insulation resistance of all samples was greater than 5,000 megohms.

PRE-INSULATED TERMINALS AND SPLICES —550° F.

Like the Post-Insulated line, this line was tested under the AMP GPS-500 specification. In all tests and in all wire sizes (MIL-W-16878 Type "E" and MIL-W-7139 type wire was used) the Pre-Insulated terminal or splice exceeded all requirements for applications up to 550° F.

SPECIFICATIONS

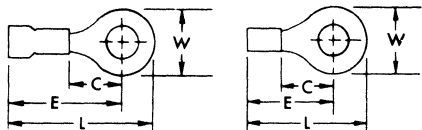
For the past several years, the Military has considered the possibility of a specification relative to high-temperature insulated terminals. Although considerable work has been done in this area, no specification has yet been released, and it appears that it will be quite some time before any such document is available.

However, these products may be used with the blessing of Bureau of Naval Weapons and the Air Force. Technical Manual (NAVY) NAVWEPS 01-1A-505, (USAF) T.O. 1-1A-14 covering. Installation Practices for Aircraft Electric and Electronic Wiring allows the use of these products.

UN-INSULATED TERMINALS—650° F.

Specifications, dimensions, catalog numbers and tooling numbers for the complete line of STRATO-THERM terminals, splices and caps are included in the following sections.

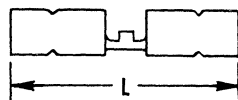
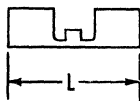
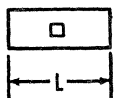
These tables are divided into the four product types: Uninsulated 650° F. terminals and splices, Uninsulated 1200° F. terminals and splices, Post-Insulated 550° F. terminals and splices and Pre-Insulated 550° F. terminals, splices and spare wire caps.



RING TONGUE Nickel Plated

Wire Size Range	Stud Size	TONGUE DIMENSIONS		INSULATION SUPPORT			NON-INSULATION SUPPORT			
		Stud Clearance "C" Min.	Tongue Width "W" Max.	"E" Max.	"L" Max.	CATALOG NUMBER For .115 Max.	"E" Max.	"L" Max.	Catalog Number	
22-16	2	5/32	7/32	1/2	39/64	322362	11/32	29/64	322795	
	4	5/32	7/32	1/2	39/64	322363	11/32	29/64	322796	
	6	1/4	9/32	19/32	47/64	323199	7/16	37/64	323219	
	6	5/32	7/32	1/2	39/64	323151	11/32	29/64	322797	
	8	1/4	9/32	19/32	47/64	323152	322365	7/16	37/64	322798
	10	1/4	9/32	19/32	47/64	323153	322366	7/16	37/64	322799
	1 4	7/16	15/32	25/32	1-1/64	323154	322367	5/8	55/64	322800
	5 16	7/16	15/32	25/32	1-1/64	323155	322368	5/8	55/64	322801
	3 8	17/32	17/32	57/64	1-5/32	323156	322369	47/64	63/64	322802
						For .105 to .150	For .140 to .195			
16-14	2	11/64	1/4	33/64	41/64	322370	23/64	31/64	322803	
	4	11/64	1/4	33/64	41/64	323157	322371	23/64	31/64	322804
	6	9/32	11/32	5/8	51/64	322373	15/32	41/64	322693	
	6	11/64	1/4	33/64	41/64	323158	322372	23/64	31/64	322805
	8	9/32	11/32	5/8	51/64	323160	322374	15/32	41/64	322694
	10	9/32	11/32	5/8	51/64	323161	322375	15/32	41/64	322695
	1 4	7/16	15/32	25/32	1-1/64	323162	322376	5/8	55/64	322733
	5 16	7/16	15/32	25/32	1-1/64	323163	322377	5/8	55/64	322734
	3 8	17/32	17/32	57/64	1-5/32	322378	47/64	63/64	322806	
						For .150 to .230				
12-10	6	302	3/8	27/32	1-1/64	323066	9/16	49/64	323060	
	8	302	3/8	27/32	1-1/64	323067	9/16	49/64	323061	
	10	302	3/8	27/32	1-1/64	323068	9/16	49/64	323062	
	1 4	15/32	17/32	63/64	1-17/64	323069	47/64	1 000	323063	
	5 16	15/32	17/32	63/64	1-17/64	323070	47/64	1 000	323064	
	3 8	17/32	19/32	1-3/64	1-23/64	323071	51/64	1-3/32	323065	
	10	23/64	13/32				3/4	61/64	323165	
8	1 4	23/64	15/32			45/64	15/16	323166		
	5 16	13/32	9/16			51/64	1-5/64	323167		
	3 8	17/32	19/32			7/8	1-11/64	323168		
6	10	17/32	15/32			15/16	1-11/64	323169		
	1 4	17/32	15/32			15/16	1-11/64	323170		
	5 16	17/32	5/8			15/16	1-1/4	323171		
	3 8	17/32	5/8			15/16	1-1/4	323172		
4	1 4	7/16	1/2			61/64	1-13/64	323173		
	5 16	1/2	5/8			1-1/64	1-21/64	323174		
	3 8	1/2	5/8			1-1/64	1-21/64	323175		
2	1 4	17/32	5/8			1-7/32	1-17/32	323176		
	3 8	17/32	5/8			1-7/32	1-17/32	323177		
	1 2	17/32	13/16			1-7/32	1-5/8	323178		
1/0	1 4	5/8	807			1-17/32	1-13/16	323179		
	3 8	5/8	807			1-17/32	1-13/16	323180		
	1 2	5/8	7/8			1-17/32	1-31/32	323181		

UN-INSULATED SPLICES—650° F.



STYLE—A
Non-Insul.
Support
Butt Splice

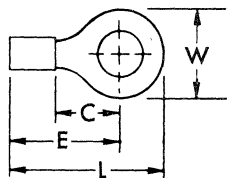
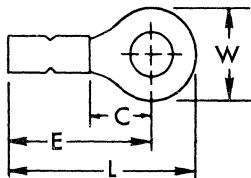
STYLE—B
Non-Insul.
Support
Parallel Splice

STYLE—C
Non-Insul.
Support
Butt Splice

STYLE—D
Insulation
Support
Butt Splice

WIRE SIZE RANGE 22-16			WIRE SIZE RANGE 16-14			WIRE SIZE RANGE 12-10		
Style	"L" Max.	Catalog Number Non-Insulation Support	Style	"L" Max.	Catalog Number Non-Insulation Support	Style	"L" Max.	Catalog Number Non-Insulation Support
A	37/64	323796	A	37/64	323795	A	37/64	323755
B	5/16	323030	B	19/64	323794	B	11/32	323754
C	19/32	322822	C	17/32	322824	C	45/64	323756
Style	"L" Max.	For .105 to .140 Ins. Dia.	Style	"L" Max.	For .140 to .195 Ins. Dia.	Style	"L" Max.	For .150 to .230 Ins. Dia.
D	27/32	322823	D	27/32	322825	D	1-1/4	323757

UN-INSULATED TERMINALS—1200° F.

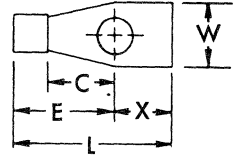
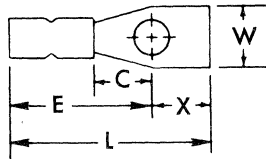


RING TONGUE

Wire Size Range	Stud Size	TONGUE DIMENSIONS		INSULATION SUPPORT			NON-INSULATION SUPPORT		
		Stud Clearance "C" Min.	Tongue Width "W" Max.	"E" Max.	"L" Max.	Catalog Number For .105 to .140 Ins. Dia.	"E" Max.	"L" Max.	Catalog Number
22-16	2	5/32	7/32	1/2	39/64	321886	11/32	29/64	321883
	4	5/32	7/32	1/2	39/64	321887	11/32	29/64	321884
	5	5/32	7/32	1/2	39/64	321888	11/32	29/64	321885
	6	1/4	9/32	19/32	47/64	321892	7/16	37/64	321889
	6	9/32	5/16	5/8	25/32	322873	15/32	5/8	322872
	8	1/4	9/32	19/32	47/64	321893	7/16	37/64	321890
	8	9/32	5/16	5/8	25/32	321897	15/32	5/8	321895
	10	1/4	9/32	19/32	47/64	321894	7/16	37/64	321891
	10	9/32	5/16	5/8	25/32	321898	15/32	5/8	321896
	1/4	7/16	15/32	25/32	1-1/64	322320	5/8	55/64	322318
	5/16	7/16	15/32	25/32	1-1/64	322321	5/8	55/64	322319

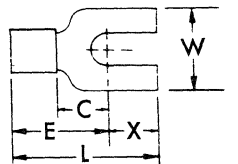
UN-INSULATED TERMINALS—1200° F. (Cont'd.)

Wire Size Range	Stud Size	TONGUE DIMENSIONS			INSULATION SUPPORT			NON-INSULATION SUPPORT		
		Stud Clearance "C" Min.	Tongue Width "W" Max.	Tongue Extension "X" Nom.	"E" Max.	"L" Max.	Catalog Number For .105 to .140 Ins. Dia.	"E" Max.	"L" Max.	Catalog Number
For .140 to .195										
16-14	2	11/64	1/4	17/32	41/64	322330	23/64	31/64	322327	
	4	11/64	1/4	17/32	41/64	322331	23/64	31/64	322328	
	6	11/64	1/4	17/32	41/64	322332	23/64	31/64	322329	
	6	9/32	11/32	5/8	51/64	322336	15/32	41/64	322333	
	8	9/32	11/32	5/8	51/64	322337	15/32	41/64	322334	
	10	9/32	11/32	5/8	51/64	322338	15/32	41/64	322335	
	1/4	7/16	15/32	25/32	1-1/4	322341	5/8	55/64	322339	
	5/16	7/16	15/32	25/32	1-1/4	322342	5/8	55/64	322340	
	3/8	35/64	17/32	57/64	1-5/32	322344	47/64	1 000	322343	
For .150 to .230										
12-10	6	9/32	3/8	51/64	63/64	323748	35/64	47/64	323059	
	8	9/32	3/8	51/64	63/64	323749	35/64	47/64	323745	
	10	9/32	3/8	51/64	63/64	323750	35/64	47/64	323680	
	1/4	15/32	17/32	63/64	1-17/64	323751	47/64	1 000	323683	
	5/16	15/32	17/32	63/64	1-1/4	323752	47/64	1.000	323746	
	3/8	17/32	19/32	1-3/64	1-23/64	323753	51/64	1-3/32	323747	
8	10	23/64	13/32				3/4	61/64	328822	
	1/4	23/64	15/32				45/64	15/16	328891	
6	1/4	17/32	15/32				15/16	1-11/64	1-323170-0	



RECTANGULAR TONGUE

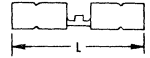
Wire Size Range	Stud Size	TONGUE DIMENSIONS			INSULATION SUPPORT			NON-INSULATION SUPPORT		
		Stud Clearance "C" Min.	Tongue Width "W" Max.	Tongue Extension "X" Nom.	"E" Max.	"L" Max.	Catalog Number For .140 to .195 Ins. Dia.	"E" Max.	"L" Max.	Catalog Number
16-14	4	9/32	.215	7/64	5/8	47/64	322349	15/32	37/64	322348
	6	5/16	.244	1/8	43/64	51/64	322352	1/2	5/8	322350
	8	5/16	.244	1/8	43/64	51/64	322353	1/2	5/8	322351
	8	11/32	19/64	9/64				17/32	43/64	322354
	10	9/32	15/32	13/64				15/32	43/64	322356
	10	9/32	5/16	1/4	5/8	57/64	322359	15/32	23/32	322358
1/4										



SLOTTED TONGUE

Wire Size Range	Stud Size	TONGUE DIMENSIONS			INSULATION SUPPORT			NON-INSULATION SUPPORT		
		Stud Clearance "C" Min.	Tongue Width "W" Max.	Tongue Extension "X" Nom.	"E" Max.	"L" Max.	Catalog Number For .140 to .195 Ins. Dia.	"E" Max.	"L" Max.	Catalog Number
16-14	8	5/16	3/8	3/16				1/2	11/16	323905

UN-INSULATED SPLICES—1200° F.



STYLE—A
Non-Insul.
Support
Butt Splice

STYLE—B
Non-Insul.
Support
Parallel Splice

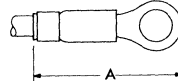
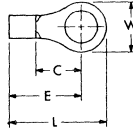
STYLE—C
Non-Insul.
Support
Butt Splice

STYLE—D
Insulation
Support
Butt Splice

WIRE SIZE RANGE 22-16			WIRE SIZE RANGE 16-14			WIRE SIZE RANGE 12-10		
Style	"L" Max.	Catalog Number Non-Insulation Support	Style	"L" Max.	Catalog Number Non-Insulation Support	Style	"L" Max.	Catalog Number Non-Insulation Support
C	17/32	323876	C	17/32	323878	A	37/64	323696
B	5/16	322326	B	5/16	322347	C	45/64	323698
						B	21/64	323672
Style	"L" Max.	For .105 to .140 Ins. Dia.	Style	"L" Max.	For .140 to .195 Ins. Dia.	Style	"L" Max.	For .150 to .230 Ins. Dia.
D	27/32	322325	D	27/32	322346	D	1-1/4	323699

POST-INSULATED TERMINALS—550° F.

550° F. GOLD PLATED—500° F. SILVER PLATED



RING TONGUE

APPLICABLE MIL SPEC FOR WIRE	Wire Size	Stud Size	TONGUE DIMS.			"L" Max.	After Crimped "A" Approx.	Wire Insul. O. D.	Sleeve Assy. Length Max. "B"	Catalog Number Gold Plated	Catalog Number Silver Plated	Ring Collar
			"C" Min.	"W" Min.	"E" Max.							
MIL-W-16878 NAS 703	26-24	4	.211	.203	.325	.450	.765	.040-.050	.437	2-324375-1	329750	YELLOW
		6	.281	.250	.419	.544	.843	.040-.050	.437	324375	2-329750-1	
		8	.281	.250	.419	.544	.843	.040-.050	.437	324376	2-329750-2	
		10	.281	.250	.419	.544	.843	.040-.050	.437	324377	2-329750-3	
—	26-24	4	.211	.203	.325	.450	.765	.060-.075	.437	2-324372-1	2-329750-4	YELLOW
		6	.281	.250	.419	.544	.843	.060-.075	.437	324372	2-329750-5	
		8	.281	.250	.419	.544	.843	.060-.075	.437	324373	2-329750-6	
		10	.281	.250	.419	.544	.843	.060-.075	.437	324374	2-329750-7	
MIL-W-16878 NAS 703	22-20	4	.250	.281	.434	.574	.900	.046-.063	.437	3-324261-1	2-324289-1	NATURAL
		6	.250	.281	.434	.574	.900	.046-.063	.437	324261	324287	
		8	.281	.312	.469	.625	.950	.046-.063	.437	2-324261-1	324288	
		10	.281	.312	.469	.625	.950	.046-.063	.437	2-324261-2	324289	
MIL-W-8777 MIL-W-7139	22-20	1/4	.437	.500	.625	.875	1.200	.046-.063	.437	2-324261-3	2-324289-2	NATURAL
		3/8	.437	.500	.625	.875	1.200	.046-.063	.437	2-324261-4	2-324289-3	
		4	.250	.281	.434	.574	.900	.080-.100	.437	3-324261-2	2-324292-1	
		6	.250	.281	.434	.574	.900	.080-.100	.437	2-324261-5	324290	
MIL-W-16878 NAS 703	18-16	8	.281	.312	.469	.625	.950	.080-.100	.437	2-324261-6	324291	RED
		10	.281	.312	.469	.625	.950	.080-.100	.437	2-324261-7	324292	
		1/4	.437	.500	.625	.875	1.200	.080-.100	.437	2-324261-8	2-324292-2	
		3/8	.437	.500	.625	.875	1.200	.080-.100	.437	2-324261-9	2-324292-3	
MIL-W-16878 NAS 703	18-16	4	.156	.218	.340	.449	.776	.064-.088	.500	2-329550-1	329749	RED
		6	.250	.281	.434	.574	.968	.064-.088	.500	329550	2-329749-1	
		8	.281	.312	.469	.625	1.000	.064-.088	.500	329551	2-329749-2	
		10	.281	.312	.469	.625	1.000	.064-.088	.500	329552	2-329749-3	
MIL-W-8777 MIL-W-7139	18-16	1/4	.437	.468	.625	.859	1.240	.064-.088	.500	329553	2-329749-4	RED
		3/8	.531	.531	.719	.984	1.370	.064-.088	.500	329554	2-329749-5	
		4	.156	.218	.340	.449	.745	.105-.130	.500	2-329555-1	2-329749-6	
		6	.250	.281	.434	.574	.968	.105-.130	.500	329555	2-329749-7	
MIL-W-8777 MIL-W-7139	18-16	8	.281	.312	.469	.625	1.000	.105-.130	.500	329556	2-329749-8	RED
		10	.281	.312	.469	.625	1.000	.105-.130	.500	329557	2-329749-9	
		1/4	.437	.468	.625	.859	1.240	.105-.130	.500	329558	3-329749-1	
		3/8	.531	.531	.719	.984	1.370	.105-.130	.500	329559	3-329749-2	

RING TONGUE (Cont'd.)

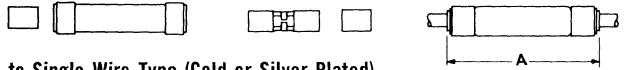
APPLICABLE MIL SPEC FOR WIRE	Wire Size	Stud Size	TONGUE DIMS.				After Crimped "A" Approx.	Wire Insul. O. D.	Sleeve Assy. Length Max. "B"	Catalog Number Gold Plated	Catalog Number Silver Plated	Ring Collar
			"C" Min.	"W" Min.	"E" Max.	"L" Max.						
MIL-W-16878 NAS 703	14	6	171	.250	.359	.484	.875	.087-.103	500	329560	329748	BLUE
		8	281	.343	.469	.640	1.062	.087-.103	500	329561	2-329748-1	
		10	.281	.343	.469	.640	1.062	.087-.103	500	329562	2-329748-2	
		1/4	437	468	621	.855	1.240	.087-.103	500	329563	2-329748-3	
		5/16	437	468	621	.855	1.240	.087-.103	500	2-329563-1	2-329748-4	
		3/8	.531	.531	.718	.984	1.370	.087-.103	500	329564	2-329748-5	
MIL-W-8777 MIL-W-7139	14	6	171	.250	.359	.484	.860	120-.150	500	329565	2-329748-6	BLUE
		8	281	.343	.469	.640	1.050	120-.150	500	329566	2-329748-7	
		10	281	.343	.469	.640	1.050	120-.150	500	329567	2-329748-8	
		1/4	437	468	621	.855	1.225	120-.150	500	329568	2-329748-9	
		5/16	437	468	621	.855	1.225	120-.150	500	2-329568-1	3-329748-1	
		3/8	.531	.531	.718	.984	1.355	120-.150	.500	329569	3-329748-2	
MIL-W-16878 NAS 703	12-10	6	.302	.375	.578	.765	1.230	106-.153	.671	329570	329747	YELLOW
		8	302	.375	.578	.765	1.230	106-.153	.671	329571	2-329747-1	
		10	302	.375	.578	.765	1.230	106-.153	.671	329572	2-329747-2	
		1/4	437	.531	.422	.687	1.440	106-.153	.671	329573	2-329747-3	
		5/16	468	.531	.463	.728	1.500	106-.153	.671	2-329573-1	2-329747-4	
		3/8	.531	.593	.495	.791	1.560	106-.153	.671	329574	2-329747-5	
MIL-W-8777 MIL-W-7139	12-10	6	.302	.375	.578	.765	1.230	160-.200	.671	329575	2-329747-6	YELLOW
		8	302	.375	.578	.765	1.230	160-.200	.671	329576	2-329747-7	
		10	302	.375	.578	.765	1.230	160-.200	.671	329577	2-329747-8	
		1/4	.437	.531	.422	.687	1.440	160-.200	.671	329578	2-329747-9	
		5/16	469	.531	.463	.728	1.500	160-.200	.671	2-329578-1	3-329747-1	
		3/8	.531	.593	.495	.791	1.560	160-.200	.671	329579	3-329747-2	
MIL-W-16878 NAS 703	8	10	.359	.468	.452	.686	1.575	215-.255	.880	329580	329746	RED
		1/4	.359	.468	.452	.686	1.575	215-.255	.880	329581	2-329746-1	
		5/16	.531	.593	.562	.858	1.810	215-.255	.880	2-329582-1	2-329746-2	
		3/8	.531	.593	.562	.858	1.810	215-.255	.880	329582	2-329746-3	
MIL-W-8777 MIL-W-7139	8	10	.359	.468	.452	.686	1.575	260-.300	.880	2-329582-2	2-329746-4	RED
		1/4	.359	.468	.452	.686	1.575	260-.300	.880	2-329582-3	2-329746-5	
		5/16	.531	.593	.562	.858	1.810	260-.300	.880	2-329582-4	2-329746-6	
		3/8	.531	.593	.562	.858	1.810	260-.300	.880	2-329582-5	2-329746-7	
—	6	10	.531	.468	.938	1.171	1.870	270-.310	1.030	329583	329745	BLUE
		1/4	.531	.468	.938	1.171	1.870	270-.310	1.030	329584	2-329745-1	
		5/16	.531	.625	.938	1.250	1.950	270-.310	1.030	2-329585-1	2-329745-2	
		3/8	.531	.625	.938	1.250	1.950	270-.310	1.030	329585	2-329745-3	
		10	.531	.468	.938	1.171	1.860	320-.370	1.030	2-329585-2	2-329745-4	
		1/4	.531	.468	.938	1.171	1.860	320-.370	1.030	2-329585-3	2-329745-5	
MIL-W-8777 MIL-W-7139	6	5/16	.531	.625	.938	1.250	1.930	320-.370	1.030	2-329585-4	2-329745-6	BLUE
		3/8	.531	.625	.938	1.250	1.930	320-.370	1.030	2-329585-5	2-329745-7	
		10	.515	.656	.984	1.312	2.136	330-.370	1.200	329586	329744	
		1/4	.437	.500	.953	1.203	1.970	330-.370	1.200	329587	2-329744-1	
—	4	5/16	.500	.625	1.016	1.328	2.090	330-.370	1.200	2-329588-1	2-329744-2	YELLOW
		3/8	.500	.625	1.016	1.328	2.090	330-.370	1.200	329588	2-329744-3	
		10	.515	.656	.984	1.312	2.126	380-.430	1.200	2-329588-2	2-329744-4	
		1/4	.437	.500	.953	1.203	1.960	380-.430	1.200	2-329588-3	2-329744-5	
MIL-W-8777 MIL-W-7139	4	5/16	.500	.625	1.016	1.328	2.080	380-.430	1.200	2-329588-4	2-329744-6	YELLOW
		3/8	.500	.625	1.016	1.328	2.080	380-.430	1.200	2-329588-5	2-329744-7	
		1/4	.531	.625	1.219	1.531	2.440	420-.460	1.375	329589	329743	
		3/8	.531	.625	1.219	1.531	2.440	420-.460	1.375	329590	2-329743-1	
MIL-W-8777 MIL-W-7139	2	1/2	.546	.875	1.219	1.656	2.569	420-.460	1.375	2-329590-1	2-329743-2	RED
		1/4	.531	.625	1.219	1.531	2.440	460-.510	1.375	2-329590-2	2-329743-3	
		3/8	.531	.625	1.219	1.531	2.440	460-.510	1.375	2-329590-3	2-329743-4	
		1/2	.546	.875	1.219	1.656	2.569	460-.510	1.375	2-329590-4	2-329743-5	
—	1/0	1/4	.578*	.875	1.531	1.968	3.110	510-.550	1.820	329591	329742	BLUE
		3/8	.578*	.875	1.531	1.968	3.110	510-.550	1.820	329592	2-329742-1	
		3/8	.578*	.875	1.531	1.968	3.110	510-.550	1.820	2-329592-1	2-329742-2	
MIL-W-8777 MIL-W-7139	1/0	1/2	.578*	.875	1.531	1.968	3.110	550-.610	1.820	2-329592-2	2-329742-3	BLUE
		1/4	.578*	.875	1.531	1.968	3.110	550-.610	1.820	2-329592-3	2-329742-4	
		1/2	.578*	.875	1.531	1.968	3.110	550-.610	1.820	2-329592-4	2-329742-5	

RING TONGUE (Cont'd.)

APPLICABLE MIL SPEC FOR WIRE	Wire Size	Stud Size	TONGUE DIMS.			"L" Max.	After Crimped "A" Approx.	Wire Insul. O. D.	Sleeve Assy. Length Max. "B"	Catalog Number Gold Plated	Catalog Number Silver Plated	Ring Collar
			"C" Min.	"W" Min.	"E" Max.							
—	2/0	5/16	.578*	.931	1.534	2 000	3 227	.570-.620	2 062	329715	329741	YELLOW
		3/8	.578*	.931	1.534	2 000	3 227	.570-.620	2 062	2-329715-1	2-329741-1	
		1/2	.578*	.931	1.534	2 000	3 227	.570-.620	2 062	2-329715-2	2-329741-2	
MIL-W-8777 MIL-W-7139	2/0	5/16	.578*	.931	1.534	2 000	3.196	.750-.820	2 062	2-329715-3	2-329741-3	YELLOW
		3/8	.578*	.931	1.534	2 000	3 196	.750-.820	2 062	2-329715-4	2-329741-4	
		1/2	.578*	.931	1.534	2 000	3 196	.750-.820	2 062	2-329715-5	2-329741-5	

*Ranges 1/0 and 2/0 this dimension is washer radius

**POST-INSULATED SPLICES—550° F.
550° F. GOLD PLATED—500° F. SILVER PLATED**



BUTT SPLICES—Single Wire to Single Wire Type (Gold or Silver Plated)

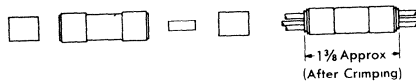
Wire Size	Wire Insul. O. D.	Catalog Number Gold Plated	Catalog Number Silver Plated	(After crimping) "A" Approx.	Ring Color
26-24	.040-.050*	324370	329763	15/16	Yellow
26-24	.060-.075	324371	329764	15/16	Yellow
22-20	.046-.063*	329645	328631	1-1/16	Natural
22-20	.080-.100**	329644	328565	61/64	Natural
18-16	.064-.088*	329647	328633	1-5/16	Red
18-16	.105-.130**	329646	328632	1-3/16	Red
14	.087-.103*	329649	328781	1-5/16	Blue
14	.120-.150**	329648	328780	1-3/16	Blue
12-10	.125-.153*	329651	328783	1-3/4	Yellow
12-10	.160-.200**	329650	328782	1-5/8	Yellow
8	.215-.255	329716	329756	1-59/64	Red
8	.260-.300**	329721	329762	1-7/8	Red
6	.280-.320	329717	329755	2-15/32	Blue
6	.320-.370**	329722	329761	2-13/32	Blue
4	.340-.380	329718	329754	2-27/32	Yellow
4	.380-.430**	329723	329760	2-25/32	Yellow
2	.420-.460	329719	329753	3-7/32	Red
2	.460-.510**	329724	329759	3-3/16	Red
1/0	.510-.550	329720	329752	3-11/16	Blue
1/0	.550-.610**	329725	329758	3-5/8	Blue
2/0	.570-.620	329704	329751	3-49/64	Yellow
2/0	.750-.820**	329705	329757	3-45/64	Yellow

Only those O D wire dimensions with asterisks have applicable MIL specs

*For MIL-W-16878, NAS 703 Wire—Use Splices with Smaller Wire Insul. O. D.

**For MIL-W-8777, MIL-W-7139 Wire—Use Splices with Larger Wire Insul. O. D.

POST-INSULATED MULTIPLE WIRE MOISTURE SEALED SPLICES—550° F. (NICKEL PLATED)



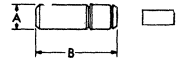
PARALLEL SPLICES—Multiple to Single and Multiple to Multiple

Wire Insul. O. D.	Bushing Color	Wire Combinations	Catalog Number	Inner Parallel Splice Wire Size
.048-.064	Red	1-#22 to 1-#22	2-330260-1	22-16
.048-.064	Red	1-#20 to 2-#20	2-329653-1	16-14
.048-.064	Red	2-#20 to 2-#20	2-330110-1	16-14
.048-.064	Red	2-#20 to 3-#20	2-330111-1	12-10
.048-.064	Red	3-#20 to 3-#20	2-330112-1	12-10
.048-.064	Red	1-#20 to 5-#20	2-330109-1	12-10
.048-.064 #22 060-.075 #20	Red Blue	2-#22 to 1-#20	330262	16-14

PARALLEL SPLICES—Multiple to Single and Multiple to Multiple (Cont'd.)

Wire Insul. O. D.	Bushing Color	Wire Combinations	Catalog Number	Inner Parallel Splice Wire Size
.048-.064 #22 .060-.075 #20	Red Blue	3-#22 to 2-#20	330261	12-10
.048-.064 #22 .060-.075 #20	Red Blue	4-#22 to 3-#20	330263	12-10
.048-.064 #22 .060-.075 #20	Red Blue	5-#22 to 3-#20	330264	12-10
.060-.075	Blue	1-#20 to 2-#20	2-330258-1	16-14
.060-.075	Blue	2-#20 to 2-#20	2-330259-1	12-10
.060-.075 #20 .078-.097 #18	Blue Yellow	4-#20 to 2-#18	330265	12-10
.078-.097	Yellow	1-#20 to 1-#20	2-329422-1	22-16
.078-.097	Yellow	1-#20 to 2-#20	2-328786-1	16-14
.078-.097	Yellow	2-#20 to 2-#20	2-329423-1	16-14
.078-.097	Yellow	2-#20 to 3-#20	2-329424-1	12-10
.078-.097	Yellow	1-#18 to 1-#18	2-329426-1	16-14
.078-.097	Yellow	1-#18 to 2-#18	2-328787-1	12-10
.078-.097	Yellow	2-#18 to 2-#18	2-329427-1	12-10
.078-.097	Yellow	3-#18 to 3-#18	2-329425-1	12-10
.097-.115	Natural	1-#20 to 1-#20	2-329365-1	22-16
.097-.115	Natural	1-#20 to 2-#20	2-329324-1	16-14
.097-.115	Natural	2-#20 to 2-#20	2-329366-1	16-14
.097-.115	Natural	2-#20 to 3-#20	2-329363-1	12-10
.097-.115	Natural	1-#18 to 1-#18	2-329367-1	16-14
.097-.115	Natural	1-#18 to 2-#18	2-329325-1	12-10
.097-.115	Natural	2-#18 to 2-#18	2-329368-1	12-10
.097-.115	Natural	3-#18 to 3-#18	2-329364-1	12-10
.097-.115 #16 .048-.064 #22	Natural Red	1-#16 to 3-#22	2-330257-1	12-10
.097-.115 #16 .085-.100 #18	Natural Black	1-#16 to 2-#18	2-329670-1	12-10
.097-.115 #16 .135-.150 #12	Natural Green	1-#16 to 1-#12	2-329672-1	12-10

For combinations not listed above contact AMP.

POST-INSULATED MULTIPLE WIRE SPLICE CAPS—550° F.**MULTIPLE WIRE SPLICE CAPS (Nickel Plated)**

Wire Size	Cap Catalog Number	"A" Max. Dia.	"B" Max. Length	Wire Max. Insul. O. D.	Color Code	Parallel Splice Number*
22-16	329685	.218	43/64	135	Red	322326
16-14	329686	.250	43/64	.160	Blue	322347
12-10	329687	.328	25/32	.210	Yellow	323672
8	329688	.406	29/32	.300	Red	2-34318-1

*Must be ordered separately.

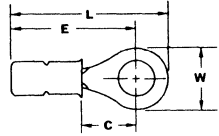
PRE-INSULATED SPARE WIRE CAPS—550° F.**SPARE WIRE CAPS (TEFLON) 550° F.**

Catalog Number	Wire Ins. O. D.	Color Ring	"L" Overall	Hand Tool Number
328854	.036-.043	Red and Green	29/64	69272-1
328855	.044-.051	Blue and Green	29/64	69272-1
328856	.052-.056	Yellow and Green	29/64	69272-1
328857	.056-.064	Brown and Green	29/64	69272-1
328858	.065-.074	Violet and Green	29/64	69272-1
328859	.075-.087	Black and Orange	29/64	69272-1
328860	.088-.110	Gray and Orange	29/64	69272-1
328861	.125-.138	Nickel and Nickel	29/64	69272-1
329638*	.111-.150	Brown	31/64	69260-1
329639*	.151-.205	Natural	31/64	69260-1



*One crimping ring only.

**PRE-INSULATED TERMINALS—550° F.
(GOLD OR NICKEL PLATED)**

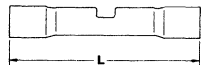


RING TONGUE

Wire Size	Stud Size	Color Code	Wire Insul. O.D.	"W"	"C" Min.	"E" Max.	"L" Max.	Catalog No. Gold Plated
26-24	4	Black	.032—082	.203	.211	.542	.646	332429†
	6	Black	.032—082	.250	.281	.612	.740	332430†
	8	Black	.032—082	.250	.281	.612	.740	1-332430-0†
	10	Black	.032—082	.250	.281	.612	.740	1-332430-1†
22-20	4	Green	.035—100	.281	.250	.632	.775	332433†
	6	Green	.035—100	.281	.250	.632	.775	1-332433-0†
	8	Green	.035—100	.312	.281	.663	.822	332434†
	10	Green	.035—100	.312	.281	.663	.822	1-332434-0†
	1/4	Green	.035—100	.500	.437	.819	1 072	332435
	5/16	Green	.035—100	.500	.437	.819	1 072	1-332435-1
18-16	3/8	Green	.035—100	.500	.437	.819	1 072	1-332435-0
	4	Orange	.055—135	.218	.156	.528	.640	332452†
	6	Orange	.055—135	.281	.250	.622	.765	332453†
	8	Orange	.055—135	.312	.281	.653	.812	332454†
	10	Orange	.055—135	.312	.281	.653	.812	1-332454-0†
	1/4	Orange	.055—135	.468	.437	.809	1 046	332455†
	5/16	Orange	.055—135	.468	.437	.809	1 046	1-332455-0†
14	3/8	Orange	.055—135	.531	.531	.903	1.171	332456
	4	White	.080—150	.150	.171	.559	.687	332438†
	6	White	.080—150	.250	.171	.559	.687	1-332438-0†
	8	White	.080—150	.343	.281	.664	.843	332439†
	10	White	.080—150	.343	.281	.664	.843	1-332439-0†
	1/4	White	.080—150	.468	.437	.924	1 161	332440†
	5/16	White	.080—150	.469	.437	.929	1 166	332441†
	3/8	White	.080—150	.531	.531	.919	1 187	332442
12-10	4	Black	.102—214	.281	.219	.769	.912	332445†
	6	Black	.102—214	.375	.302	.852	1 042	332446†
	8	Black	.102—214	.375	.302	.852	1 042	1-332446-0†
	10	Black	.102—214	.375	.302	.852	1 042	1-332446-1†
	1/4	Black	.102—214	.531	.437	.988	1 256	332447
	5/16	Black	.102—214	.531	.468	1 018	1 286	332448†
	3/8	Black	.102—214	.593	.531	1 083	1 382	332449

†Indicates terminal is available in tape mounted form.

**PRE-INSULATED SPLICES—550° F.
(GOLD PLATED)**



SINGLE WIRE TO SINGLE WIRE

Wire Size	Color Code	Wire Insul. O.D.	"L" Max.	Catalog Number Gold Plated
26-24	Black	.032—082	.870	332431
22-20	Green	.035—100	.978	332436
18-16	Orange	.055—135	1 255	332457
14	White	.080—150	1 255	332443
12-10	Black	.102—214	1.660	332450

TOOLING FOR A-MP STRATO-THERM TERMINALS AND SPLICES



Long Handle



Heavy Head



#69015



#69010

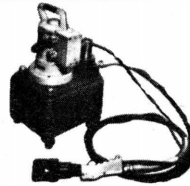


#69005

UN-INSULATED TERMINALS AND SPLICES (22-1/0 AWG)

Type of Product	Wire Size Range	Long Handle Tool	Heavy Head Tool #	Pneumatic Hand Tools			Dies For AMP-Tapetric Tool # 69370
				Heads For # 69005	Heads For # 69010	Heads For # 69015	
Un-Insulated Terminals and Splices with no insulation support 650° and 1200° F	22-16	46447		45133	46448		
	16-14	46447		45133	46448		
	12-10	46447		45133	46448		
	8		69355		38394	49956	
	6				38923	48172	
	4					48173	
	2					48174	
	1/0					48183	
Un-Insulated with insulation support 650° and 1200° F	22-16	46673		45159	45159		69481
	16-14	46988	59294	45132	45176		69428
	12-10		59461				
	8						

Type of Product	Wire Size	Power Unit* # 69120-1 (110V) # 69120-2 (220V) Crimping Head 69065	
		Indenter Die #	Nest Die #
		Un-Insulated Terminals and Splices 650° F	8	48355	48126
	6	48127	48128
	4	48127	48129
	2	48127	48130
	1/0	48131	48132



69065 HEAD

Accessories	
Part No.	Item
59512-5	7' Handle Assy.
59512-6	14' Handle Assy.
59512-7	21' Handle Assy.
303775	7' Foot Switch Control

*NOTE: Also available in #69020 hydraulic hand tool—uses same dies as #69065 head.
Hydraulic hand tool #69069 can be used for 8 through 2 AWG and has self-contained dies.

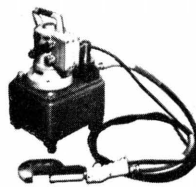


POST-INSULATED TERMINALS AND SPLICES (26-10 AWG)

Type of Product	Wire Size Range	Terminal or Splice Tool #	Post Insulation Ring Tool #
Post-Insulated Terminals and Splices 26-10 (550° F)	26-24	45730	45730
	22-20	46467	46467
	18-16	46468	46468
	14	46469	46469
	12-10	46470	46470

POST-INSULATED TERMINALS AND SPLICES (8-2/0 AWG)

Type of Product	Wire Size	Power Unit # 69120-1 (110V) # 69120-2 (220V) Crimping Head 69099	
		Term. and Splice Die No.*	Ins. Ring Die No.*
		Post-Insulated Terminals and Splices 550° F	8
	6	69217	69212-1
	4	69218	69213-1
	2	45433	69214-1
	1/0	45436	69215-1
	2/0	45439	69254-1



69099 HEAD

Accessories	
Part No.	Item
59512-5	7' Handle Assy.
59512-6	14' Handle Assy.
59512-7	21' Handle Assy.
303775	7' Foot Switch Control

*Die number includes indenter and nest.



Splicing Tool



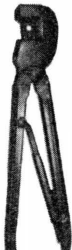
Insulation Tool

POST-INSULATED MULTIPLE WIRE MOISTURE SEALED SPLICES (22-10 AWG)

Type of Product	Wire Size Range	Splice Hand Tool #	Post-Insulation Ring Hand Tool #
Multiple Wire Splices (22-10)	22-16	46447	69322-1
	16-14	46447	69322-1
	12-10	46447	69322-1



Splicing Tool

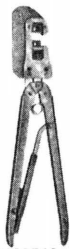


Insulation Tool

POST INSULATED MULTIPLE WIRE SPLICE CAPS (22-8 AWG)

Type of Product	Wire Size Range	Parallel Splice Hand Tool #	Post-Insulation Ring Hand Tool #
Post-Insulated Wire Caps	22-16	46447	69308-1
	16-14	46447	69309-1
	12-10	46447	69296-1
	8*	69355	69322-1
	8**	69355	59498

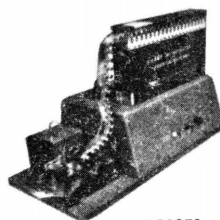
*Maximum insulation dia. .255 **Maximum insulation dia. .300



#69710



#69365



#69370

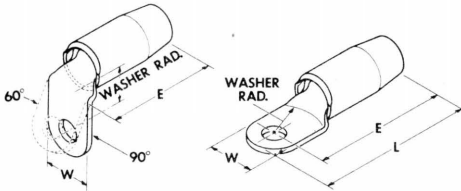
PRE-INSULATED TERMINALS AND SPLICES (26-10 AWG)

Type of Product	Wire Size Range	Dies For # 69710 and # 69365	Dies For # 69370
Pre-Insulated Terminals and Splices (550° Range)	26-24	69731	69736
	22-20	69732	69737
	18-16	69733	69738
	14-12	69734	69739
	10	69735	69740

*Heavy head hand tool for #10 AWG only

TERMINYL NYLON INSULATED § TERMINALS AND SPLICES FOR WIRE SIZES 8-4/0 AWG

The A-MP* TERMINYL brand product line including both terminals and splices has been designed to provide insulated terminals and splices for the larger wire sizes, many of which are used in airborne and ground support applications. Fully tested under the procedures stipulated by MIL-Spec. MIL-T-7928, TERMINYL terminals not only meet, but in most instances, exceed all requirements. TERMINYL terminals and splices have been designed and engineered to successfully withstand extreme vibration, shock and structural stress, temperatures to 250°F and other conditions which can adversely affect the critical circuit requirements in complex air and space flight equipment.

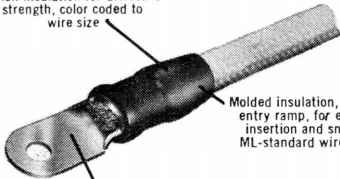


BENT TONGUE

RING TONGUE

TERMINAL

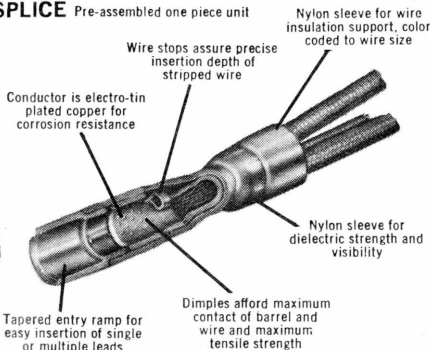
Nylon insulation for dielectric strength, color coded to wire size



Molded insulation, with tapered entry ramp, for ease of wire insertion and snug fit over ML-standard wire diameters

Electro-tin plated copper for corrosion resistance

SPLICE Pre-assembled one piece unit



RING TONGUE

Stud Size	Tongue Dimension		E-Max.	L-Max.	For .257 Max. Ins. Dia.
	Washer Rad.	W			
8 AWG (Color Code Red)					
#10	7/16	.431	1-3/16	1-13/32	324043
1/4	7/16	.478	1-3/16	1-7/16	324082
1/4	7/16	.431	1-9/64	1-13/32	324177
5/16	1/2	.587	1-1/4	1-35/64	324044
3/8	1/2	.587	1-1/4	1-35/64	324045

BENT TONGUE 90°

#10	5/16	.431	23/32		324101
6 AWG (Color Code Blue)					
#10	27/64	15/32	1-11/32	1-37/64	324046
1/4	33/64	1/2	1-7/16	1-45/64	324047
5/16	33/64	5/8	1-7/16	1-49/64	324048
3/8	33/64	5/8	1-7/16	1-49/64	324049
7/16	.514	5/8	1-7/16	1-49/64	328654

4 AWG (Color Code Yellow)

#10	17/32	35/64	1-17/32	1-13/16	324111
1/4	17/32	35/64	1-17/32	1-13/16	324050
5/16	17/32	.679	1-17/32	1-57/64	324051
3/8	17/32	.679	1-17/32	1-57/64	324052
1/2	17/32	11/16	1-17/32	1-57/64	324114

BENT TONGUE 90°

3/8	15/32	.679	31/32		324102
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2 AWG (Color Code Red)

1/4	37/64	1-1/16	1-23/32	2-3/64	324053
5/16	37/64	23/32	1-23/32	2-5/64	324112
3/8	37/64	.711	1-23/32	2-1/16	324054
1/2	37/64	55/64	1-23/32	2-9/64	324055

BENT TONGUE 60°

3/8	29/64	.711	1-3/16		324103
-----	-------	------	--------	--	--------

1/0 AWG (Color Code Blue)

1/4	5/8	13/16	2	2-13/32	324056
5/16	5/8	.807	2	2-13/32	324113*
3/8	5/8	13/16	2	2-13/32	324057
1/2	5/8	7/8	2	2-7/16	324058

BENT TONGUE 60°

3/8	15/32	.807	1-15/32		324104
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2/0 AWG (Color Code Yellow)

5/16	5/8	29/32	2-1/64	2-27/64	324083
3/8	5/8	29/32	2-1/64	2-27/64	324084
1/2	5/8	29/32	2-1/64	2-27/64	324085

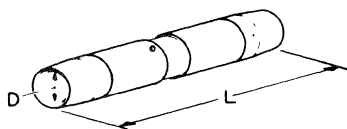
3/0 AWG (Color Code Red)

3/8	5/8	1-1/16	2-1/4	2-25/32	324185
1/2	5/8	1-1/16	2-1/4	2-25/32	324186

4/0 AWG (Color Code Blue)

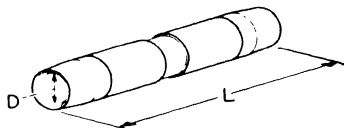
3/8	5/8	1-1/8	2-17/64	2-55/64	324187
1/2	5/8	1-1/8	2-17/64	2-55/64	324188
7/8	1-5/64	1-1/8	2-53/64	3-3/8	324189
5/8	1-5/64	1-1/4	2-53/64	3-3/8	329151

TERMINYL SPLICES WITH STEP-DOWN ADAPTORS



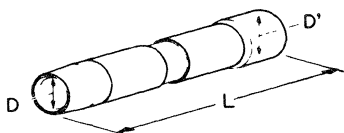
SINGLE TO SINGLE

Wire Size	Number	D Max.	L Max.	Color
8 to 16-14	328577	.255	2-1/32	Red
8 to 12-10	328569	.255	2-1/32	Red
6 to 8	328571	.310	2-15/64	Blue
4 to 8	328579	.370	2-3/4	Yellow
4 to 6	328573	.370	2-3/4	Yellow
2 to 4	328575	.445	3-3/64	Red
1/0 to 2	328581	.545	3-49/64	Blue



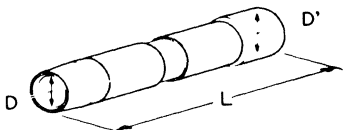
SINGLE TO SINGLE

Wire Size	Number	D Max.	L Max.	Color
8	324625	.255	2-1/32	Red
6	324660	.310	2-15/64	Blue
4	324622	.370	2-3/4	Yellow
2	324623	.445	3-3/64	Red
1/0	324666	.545	3-49/64	Blue
2/0	2-329111-1	.605	3-53/64	Yellow
3/0	2-329117-1	.675	3-53/64	Red
4/0	2-329123-1	.745	3-53/64	Blue



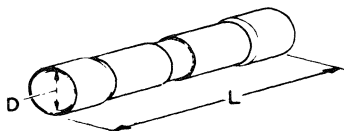
SINGLE TO MULTIPLE*

Wire Size	Number	D Max.	D' Max.	L Max.	Color
8	324658	.255	.335	2-1/8	Red
6	324621	.310	.415	2-21/64	Blue
4	324662	.370	.495	2-3/4	Yellow
2	324664	.445	.595	3-3/64	Red
1/0	324624	.545	.745	3-57/64	Blue
2/0	329111	.605	.845	3-15/16	Yellow
3/0	329117	.675	.995	3-15/16	Red
4/0	329123	.745	1.145	3-15/16	Blue



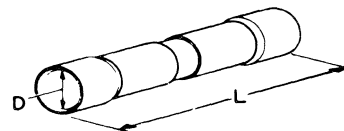
SINGLE TO MULTIPLE*

Wire Size	Number	D Max.	D' Max.	L Max.	Color
8 to 16-14	328542	.255	.335	2-1/8	Red
8 to 12-10	328538	.255	.335	2-1/8	Red
6 to 8	328539	.310	.415	2-21/64	Blue
4 to 8	328537	.370	.495	2-3/4	Yellow
4 to 6	328540	.370	.495	2-3/4	Yellow
2 to 4	328541	.445	.595	3-3/64	Red
1/0 to 2	328583	.545	.745	3-57/64	Blue



MULTIPLE TO MULTIPLE*

Wire Size	Number	D Max.	L Max.	Color
8 to 16-14	328578	.335	2-15/64	Red
8 to 12-10	328570	.335	2-15/64	Red
6 to 8	328572	.415	2-29/64	Blue
4 to 8	328580	.495	2-3/4	Yellow
4 to 6	328574	.495	2-3/4	Yellow
2 to 4	328576	.595	3-3/64	Red
1/0 to 2	328582	.745	4-1/64	Blue



MULTIPLE TO MULTIPLE*

Wire Size	Number	D Max.	L Max.	Color
8	324657	.335	2-15/64	Red
6	324659	.415	2-29/64	Blue
4	324661	.495	2-3/4	Yellow
2	324663	.595	3-3/64	Red
1/0	324665	.745	4-1/64	Blue
2/0	2-329111-2	.845	4-5/64	Yellow
3/0	2-329117-2	.995	4-5/64	Red
4/0	2-329123-2	1.145	4-5/64	Blue

NOTE: Use larger wire size tooling for step-down splices. AMP has collector ferrules recommended for ease in multiple wire insertion.

DYNA-CRIMP★ TOOLS

#69120-1 110 volts (power tool only) #69120-2 220 volts (power tool only)

FEATURES

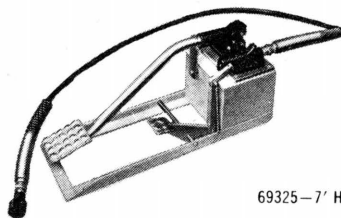
- Range 8 through 4/0 (with 69051 and 69066 head)
- Precision built
- Fast positive crimping action
- Controls—electrical control by trigger or foot switch. Power unit is connected to 110 V. AC power or 220 V. AC
- Maximum portability — Lightweight head
- and control handle provide remote control operation
- Crimping heads changed easily—heads can be speedily removed or installed on control handle
- Handle control—ram section of head can be closed to any desired position by pressure on trigger located on control handle. This enables operator to preposition terminal in dies before inserting wire and crimping.



DYNA-CRIMP TOOL

#69325

For intermittent service, or in locations where outside power sources are not available. This foot operated power unit is used with 69051 and 69066 heads and serves for complete wire range requirements.



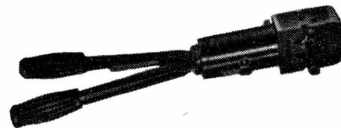
69325—7' Hose

69325-1—15' Hose

DYNA-CRIMP TOOL

#69061

Where compactness and lightweight portability are required. This hand-hydraulic tool crimps wire sizes #8 through #2 AWG.

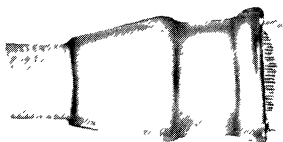
DIE INSERT
CHART

All heads listed at right can be used with the 69120-1 or 69120-2 DYNA-CRIMP Power Unit. Only those inserts listed under 69051 head assembly can be used in the 69061 hand hydraulic tool.

69120 ACCESSORIES
(Must be ordered separately)

NUMBER	DESCRIPTION
59512-5	7' Handle Control and Hose Assembly
59512-6	15' Handle Control and Hose Assembly
59512-7	21' Handle Control and Hose Assembly
303775	7' Foot Switch Assembly (needs hose assembly)
303776	15' Foot Switch Assembly (needs hose assembly)
303777	21' Foot Switch Assembly (needs hose assembly)
306023-4	3' Hose Assembly
306023-1	7' Hose Assembly
306023-2	15' Hose Assembly
306023-3	21' Hose Assembly
59220	3-Way Multi-Directional Valve
59220-2	3-Way Multi-Directional Valve (Elec. Control)
59221	6-Way Multi-Directional Valve
59221-2	6-Way Multi-Directional Valve (Elec. Control)
	47206 Crimping Head Coupling needed with these hose assemblies

Wire Size	Die Inserts For 69061 Tool and 69051 Head Assembly	Die Inserts For 69066 Head Assembly
8	47820	
6	47821	
4	47822	
2	47823	
1/0		47824
2/0		47825
3/0		47915
4/0		47918



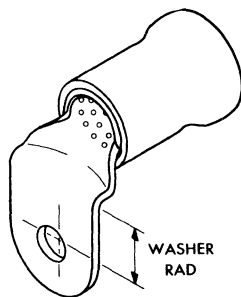
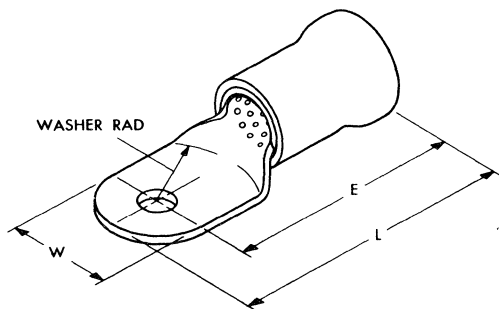
Designed to accommodate wire gauges 8 through 4/0, AMPLI-BOND terminals are the first large wire terminals to feature vinyl insulation bonded to the terminal sleeve. These items meet the requirements of MIL-T-7928, Class II.

This is a precision-engineered terminal offering the heavy-duty wire user uniformly high quality connections with permanent insulation support and complete protection against flash over. AMPLI-BOND terminals can be applied in a single effortless operation with the A-MP★ DYNA-CRIMP★ tool.

FEATURES

- Tongue is high conductivity copper, electro-tinned for corrosion resistance. Helical tongue design provides extra strength.
- Insulation is bonded to this copper sleeve . . . the secret of superior AMPLI-BOND terminal construction.
- Each AMPLI-BOND terminal body is individually brazed for ruggedness and deformation control during the crimping operation. Dimpling on inner barrel surface provides more contact area of wire to terminal and additional tensile strength.
- Color coding of terminal provides rapid identification, assures selection of proper terminal. For additional quality control, crimping die embosses wire size number on insulation.
- Vinyl insulation extends minimum distance beyond terminal barrel to prevent exposure of conductor during stress and vibration.
- Separate metal ring provides insulation support to dampen vibration and prevent sharp bends on conductor.

SPECIFICATIONS



8 AWG

Stud Size	Tongue Dimension		Ring Tongue		For .298 Max. Ins. Dia.	For .377 Max. Ins. Dia.	Bent Tongue	
	Washer Rad.	W.	E-Max.	L-Max.			Washer Rad.	For .298 Max. Ins. Dia.
#8	7/16	.478	1-11/32	1-37/64	322047	2-322047-1		
	7/16	.478	1-11/32	1-37/64	322048			
	1/2	.593	1-27/64	1-23/32	322002			
#10	7/16	.431	1-11/32	1-9/16	322128	322154	.318	322880
	7/16	.478	1-11/32	1-37/64	322049			
#12 or 1/4	1/2	.587	1-13/32	1-45/64	321669	327268		
	1/2	.587	1-13/32	1-45/64	322003			
5/16	1/2	.587	1-13/32	1-45/64	322004	328525	.380	322883
3/8	1/2	.587	1-13/32	1-45/64	322004		.474	322884
1/2	35/64	.875	1-13/32	1-27/32	328463	2-328463-1		

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6 AWG

Stud Size	Ring Tongue				Bent Tongue			
	Tongue Dimension		E-Max.	L-Max.	For .377 Max. Ins. Dia.	For .436 Max. Ins. Dia.	Washer Rad.	For .377 Max. Ins. Dia.
	Washer Rad.	W.						
#10	33/64	1/2	1-19/32	1-55/64	322050	329161	.317	322887
	33/64	5/8	1-19/32	1-29/32	322005			
	27/64	15/32	1-1/2	1-47/64	322153			
#12 or 1/4	33/64	1/2	1-19/32	1-27/32	322051	322155	.379	322888
	33/64	5/8	1-19/32	1-29/32	321670			
5/16	33/64	5/8	1-19/32	1-29/32	322006		.378	322891
3/8	33/64	5/8	1-19/32	1-29/32	322007	327892	.472	322892
7/16	33/64	5/8	1-19/32	1-29/32	322008			

4 AWG

Stud Size	Ring Tongue				Bent Tongue			
	Tongue Dimension		E-Max.	L-Max.	For .436 Max. Ins. Dia.	For .505 Max. Ins. Dia.	Washer Rad.	For .436 Max. Ins. Dia.
	Washer Rad.	W.						
#10	17/32	35/64	1-5/8	1-29/32	322052			
	17/32	.679	1-5/8	1-31/32	322009			
#12 or 1/4	17/32	35/64	1-5/8	1-29/32	322053	322156	.377	322894
	17/32	.679	1-5/8	1-31/32	321671			
5/16	17/32	.679	1-5/8	1-31/32	322010		.470	322897
3/8	17/32	.679	1-5/8	1-31/32	322011	322171	.470	322898
1/2	9/16	.679	1-5/8	1-31/32	328221			

2 AWG

Stud Size	Ring Tongue				Bent Tongue			
	Tongue Dimension		E-Max.	L-Max.	For .505 Max. Ins. Dia.	For .632 Max. Ins. Dia.	Washer Rad.	For .505 Max. Ins. Dia.
	Washer Rad.	W.						
#10	37/64	.711	1-41/64	1-63/64	322122			
#12 or 1/4	37/64	.711	1-45/64	2-1/16	322054			
	37/64	.855	1-23/32	2-9/64	321672			
	37/64	.675	1-45/64	2-3/64	322125			
5/16	37/64	.711	1-45/64	2-1/16	322074	326896	.465	322134
	37/64	.855	1-23/32	2-9/64	322013			
3/8	37/64	.711	1-45/64	2-1/16	322055	324190	.465	322902
	37/64	.855	1-23/32	2-9/64	322014			
7/16	37/64	.855	1-23/32	2-9/64	322015			
1/2	37/64	.855	1-23/32	2-9/64	322016	326897	.465	322904

1/0 AWG

Stud Size	Ring Tongue				Bent Tongue			
	Tongue Dimension		E-Max.	L-Max.	For .632 Max. Ins. Dia.	For .684 Max. Ins. Dia.	Washer Rad.	For .632 Max. Ins. Dia.
	Washer Rad.	W.						
#12 or 1/4	5/8	7/8	2-5/64	2-33/64	321673			
	5/8	.807	2-5/64	2-31/64	322085			
5/16	5/8	.807	2-5/64	2-31/64	322086	328526	.381	322907
	5/8	7/8	2-5/64	2-33/64	321674			
3/8	5/8	7/8	2-5/64	2-33/64	321675			
	5/8	.807	2-5/64	2-31/64	322087			
7/16	5/8	7/8	2-5/64	2-33/64	321676			
1/2	5/8	7/8	2-5/64	2-33/64	321677	324192	.475	322910
5/8	1-1/8	1-1/4	2-1/16	3-7/32		322174		

2/0 AWG

Stud Size	Ring Tongue				Bent Tongue			
	Tongue Dimension		E-Max.	L-Max.	For .684 Max. Ins. Dia.	For .737 Max. Ins. Dia.	Washer Rad.	For .684 Max. Ins. Dia.
	Washer Rad.	W.						
#12 or 1/4	5/8	29/32	2-7/64	2-1/2	322088			
5/16	5/8	.931	2-7/64	2-37/64	322056			
	5/8	29/32	2-7/64	2-1/2	322089	322159	376	322914
3/8	5/8	.931	2-7/64	2-37/64	322057	324193		
	5/8	29/32	2-7/64	2-1/2	322090		.470	322915
7/16	5/8	29/32	2-7/64	2-1/2	322091			
1/2	5/8	.931	2-7/64	2-37/64	322058	324194		
	5/8	29/32	2-7/64	2-1/2	322092		.470	322916
5/8	1-1/8	1-1/4	2-39/64	3-15/64	324100			

3/0 AWG

Stud Size	Ring Tongue				Bent Tongue			
	Tongue Dimension		E-Max.	L-Max.	For .737 Max. Ins. Dia.	For .799 Max. Ins. Dia.	Washer Rad.	For .737 Max. Ins. Dia.
	Washer Rad.	W.						
5/16	5/8	1	2-3/16	2-11/16	322093	3-322093-2		
3/8	5/8	1-1/16	2-3/16	2-23/32	322059			
	5/8	1	2-3/16	2-11/16	322094	322160	.465	322919
7/16	5/8	1	2-13/64	2-11/16	322095			
1/2	5/8	1-1/16	2-3/16	2-23/32	322060	324195		
	5/8	1	2-3/16	2-11/16	322096		.465	322920

4/0 AWG

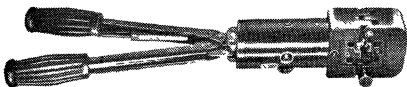
Stud Size	Ring Tongue				Bent Tongue			
	Tongue Dimension		E-Max.	L-Max.	For .799 Max. Ins. Dia.	For .950 Max. Ins. Dia.	Washer Rad.	For .799 Max. Ins. Dia.
	Washer Rad.	W.						
3/8	5/8	1-1/8	2-7/32	2-25/32	322061	324196		
	5/8	1-1/16	2-7/32	2-3/4	322097	322161	.475	322923
7/16	5/8	1-1/16	2-7/32	2-3/4	322098			
1/2	5/8	1-1/8	2-7/32	2-25/32	322062	324197		
	5/8	1-1/16	2-7/32	2-3/4	322099		.475	322924
5/8	5/8	1-1/8	2-7/32	2-25/32	327177			
7/8	1-5/64	1-1/4	2-11/16	3-5/16	322063		.882	322926

TOOLING

DIES FOR AMPLI-BOND HEADS

Wire Size	Dies for Head 69066*		Dies for Head 69051*
	Std. Exp.	Large Exp.	
8	48858	47236	48752
6	48859	47237	48753
4	48860	47238	48754
2	48861	47239	48755
1/0	48756	47378	
2/0	48757	47379	
3/0	48758	47380	
4/0	48759	47668	

*Head 69066 and 69051 can be used with tool 69325 or 69120. Only the dies used in head 69051 can be used with tool 69061.



DYNA-CRIMP UNIT

The DYNA-CRIMP tool is precision built for fast, positive crimping action through the full AMPLI-BOND terminal wire range. Remote control operation is facilitated by the light weight crimping head and control handle. Head and dies are available for use with this unit to crimp other A-MP terminals in wire ranges from 8 to IMM-CMA.

FOOT OPERATED POWER UNITS, P/N 69325 (7' hose), 69325-1 (15' hose)—Handle the complete AMPLI-BOND terminal range, are designed for intermittent service or locations where outside power sources are not available. Heads and dies are available for use in these units to crimp other A-MP terminals in wire ranges from 8 to IMM-CMA.

HAND HYDRAULIC TOOL, P/N 69061—Offers tooling for wire sizes 8 through 2 AWG where compactness and lightweight portability are mandatory.

NOTE: See General Tooling Section of this Handbook for Additional Information.

CERTI-SEAL SPLICE §



The CERTI-SEAL splice is the A-MP* nylon window splice for military, commercial, aircraft, and missile applications that seals out vapors and fluids when used with moisture resistant insulation, and imparts exceptional wire insulation support.

Metal rings at both ends of splice permanently crimped to wire insulation for a moisture tight seal . . . even at altitude and depth. The CERTI-SEAL splice is designed to fit more than 100 insulation diameters in MIL-Spec wires from #24 to #10 AWG, and is available in three types. Other variations are available in the post insulated moisture proof splices listed in the STRATOTHERM section.

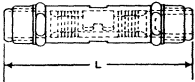
The first type is made with a nylon ring adapter within the wire entrance; the second, without nylon ring adapters, the third with a nylon ring adapter in one end only.

The CERTI-SEAL splice exceeds all A-MP product specifications as outlined in Standards Report #S-47, this includes corrosion resistance, vibration, tensile strength, immersion, altitude and high humidity test.

SPECIFICATIONS

For MIL-W-5086 Wire Type I and III.

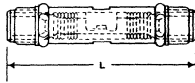
CERTI-SEAL splices with nylon wire insulation-diameter adapters



Wire Range	Catalog No.	Body Color	Ring Color	Insulation Dia.	L (Max.)	Hand Tool
24-20	324987	Natural	Green	.046-.062	63/64	46073
22-18	324988	Red	Green	.070-.100	1-5/32	46074
16-14	324989	Blue	Green	.073-.111	1-5/32	59282
12-10	324990	Yellow	Green	.130-.170	1-11/32	46120

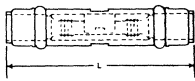
All adapters are colored green.

CERTI-SEAL splices without nylon wire insulation-diameter adapters



Wire Range	Catalog No.	Body Color	Ring Color	Insulation Dia.	L (Max.)	Hand Tool
24-20	324544	Natural	Tin Plated	.063-.100	63/64	46073
22-18	324548	Red	Tin Plated	.100-.130	1-5/32	46074
16-14	324549	Blue	Tin Plated	.112-.150	1-5/32	59282
12-10	324631	Yellow	Tin Plated	.171-.215	1-5/16	46120

CERTI-SEAL splices with nylon wire insulation-diameter adapter in one end



Wire Range	Catalog Number	Body Color	Ring Color	Insulation Diameter		L Max.	Hand Tool
				Adapter End	Other End		
24-20	324849	Natural	Green & Tin	.046-.062	.063-.100	63/64	46073
22-18	325110	Red	Green & Tin	.070-.100	.100-.130	1-5/32	46074
16-14	325178	Blue	Green & Tin	.073-.111	.112-.150	1-5/32	59282
12-10	325179	Yellow	Green & Tin	.130-.170	.171-.215	1-11/32	46120

All adapters are colored green.

TOOLING

Hand tooling features the A-MP CERTI-CRIMP* ratchet which assures that operator fully closes tool so that crimping dies in tool head fully "bottom". Locator feature in head assures that splice is properly oriented in tool.



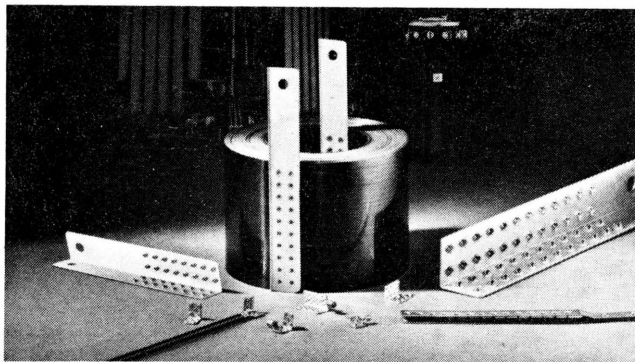
TOOLS #46073 and #46074



TOOLS #59282 and #46120

CERTI-SEAL Tools do not require wire insulation adjustment prior to crimping.

TERMI-FOIL* TERMINALS AND SPLICES §



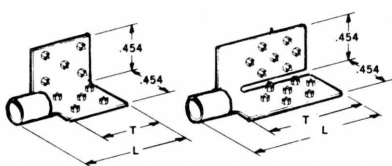
These new terminations now make it possible for the transformer manufacturer to use aluminum foil or strip instead of copper wire windings. TERMI-FOIL Terminals and Splices have a calculated number of precision-spaced lances that penetrate surface oxides and insulation and imbed themselves in the foil or strip when the two faces are clamped together. This results in an airtight and moisture-proof connection, with no need for surface preparation or time-consuming terminating equipment. Terminations thus made are reliable, light, economical, and quickly done. They dissipate heat efficiently and are mechanically strong. Tests in air and under oil show entirely satisfactory performance, in both elevated and sub-zero temperatures, during current cycling and overload conditions. There are two types of TERMI-FOIL terminals: wire-to-foil types (for wire sizes #16 to #10) and larger tab types (in lengths up to 15 inches) with provision for lead termination.

FEATURES

- Accommodates foil thicknesses from .001 in. to .060 in.
- Exceeds current carrying requirements
- For use in transformers, reactors, solenoids, relays, regulators, etc.
- No surface preparation necessary
- No noise injection in low-level audio circuits
- Available plain, tinned, or nickel-plated.
- Terminate or tap aluminum-foil wound coils
- Splice two or more pieces of foil or strip
- Apply to bare, anodized, or coated aluminum
- Both terminals and splices made of copper
- Can be applied in heating elements, alarm systems, electrostatic shields
- Lower applied cost

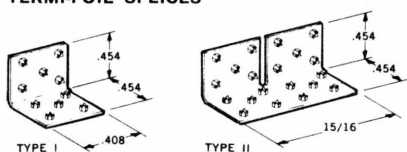
TERMI-FOIL TERMINALS

FOR .030 MAX. FOIL THICKNESS



Type	Wire Barrel Range	Material and Finish	Dimensions		Part Numbers
			T	L	
I	16-14	Nickel Plated Copper	.408	43/64	329860
	12-10		.408	25/32	329254
	12-10	Tin Plated Copper	.932	1-19/64	330003
II	12-10	Tin Plated Copper	2.111	2-31/64	330004
			2.635	3	330005
II	12-10	Tin Plated Copper	.710	1.046	330716

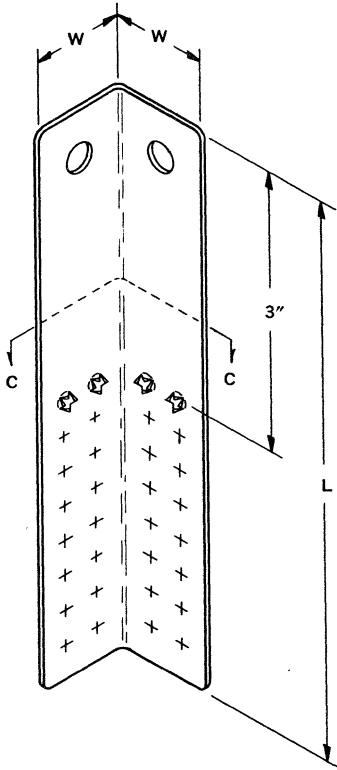
TERMI-FOIL SPLICES



FOR .030 MAX. FOIL THICKNESS

Wire Range	Material and Finish	Type	Part Numbers
Current Carrying Capacity equal to #12-10 AWG	Tin Plated Copper	I	329656
		II	329657

LARGE SIZE TERMI-FOIL TERMINALS



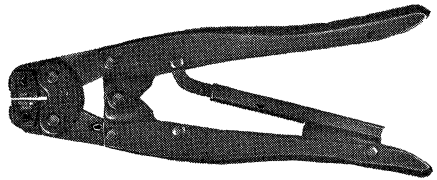
All Dimensions in Inches.

Foil Thickness Range	Material and Finish	Terminal CMA at C-C	Dimensions		Part Numbers				
			W	L					
.020 Max.	Tin Plated Copper	45,828	1"	6	329488				
				9	2-329488-1				
				12	2-329488-2				
				15	2-329488-3				
				6	2-329488-4*				
	Unplated Copper			9	3-329488-0*				
				12	2-329488-5*				
				6	2-329488-6				
				9	2-329488-7				
				12	2-329488-8				
.035 Max.	Tin Plated Copper	78,926	1"	15	2-329488-9				
				6	329489				
				9	2-329489-1				
				12	2-329489-2				
				15	2-329489-3				
	Unplated Copper			6	2-329489-4				
				9	2-329489-5				
				12	2-329489-6				
				15	2-329489-7				
				.045 Max.	Tin Plated Copper	143,212	1.250	6	329490
9	2-329490-1								
12	2-329490-2								
15	2-329490-3								
6	2-329490-4								
Unplated Copper	9	2-329490-5							
	12	2-329490-6							
	15	2-329490-7							
	.060 Max.	Tin Plated Copper	217,683		1.500			6	329491
								9	2-329491-1
12				2-329491-2					
15				2-329491-3					
12				2-329491-4*					
Unplated Copper		6		2-329491-5					
		9		2-329491-6					
		12		2-329491-7					
		15		2-329491-8					

*2-1/2" at end with Stud Hole unplated.

TERMINAL AND SPLICE TOOLING: Terminal Barrel—Use appropriate SOLISTRAND tools. Foil Crimp—Hand Tool #69288-1, Pneumatic Tool #69010, Hand Assembly #69263-1, Die Insert #69177-1.

Foil Crimp—Power Unit #69120. Head Assemblies #69082 or #69099. Request Die Insert Numbers



**SECTION
IV**

PIN and SOCKET CONNECTORS

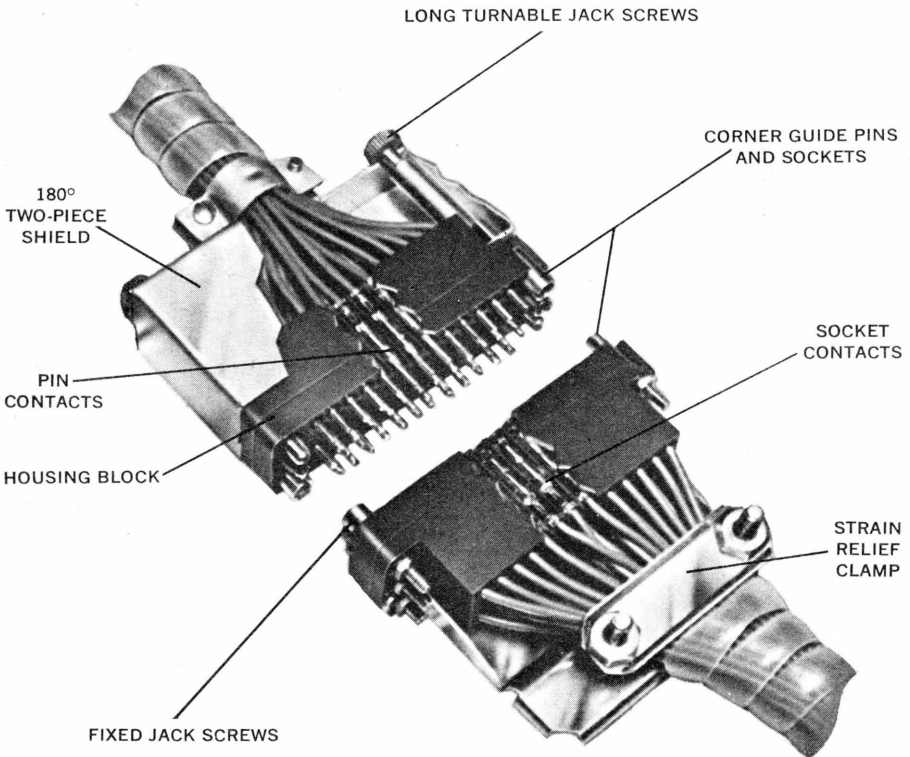
This section includes the following sub-sections:

Introduction
Series M
Series D, DD, DDE, W, WW
Series G
CH-AMP Subminiature Connectors
DUALATCH Connectors
AMPOWER Multiple Connectors

AMP-INCERT PIN AND SOCKET CONNECTORS§

AMP-INCERT Pin and Socket Connectors are available in many sizes and configurations that satisfy both military and commercial requirements, plus an unmatched variety of special designs to meet industry's new creative needs. The finest materials and quality control procedures are used to assure optimum electrical performance under the most gruelling shock, vibration and environmental conditions. The AMP-INCERT Pin and Socket Connectors feature "snap-in" design contacts and solderless termination of contact to wire through AMP's famous precision crimping technique.

- The standard AMP-INCERT Pin and Socket Connectors are available in two basic types:



"M" SERIES

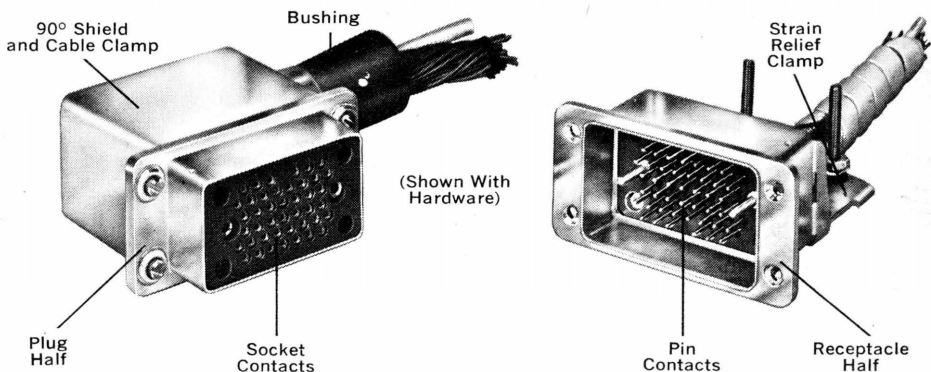
The Series "M" is available in housings with 14, 20, 21, 26, 34, 41, 50, 51, 75, 104, 104 center fastener and 160 positions. These housings are molded of either phenolic resins or diallyl phthalate. When fully assembled, the "M" Series Connectors have no metallic shell. These connectors, however, offer a complete line of shields (180° or 90° exit) and strain relief hardware. As a group they are general purpose connectors.

"D", "DD", "DDE", "W", AND "WW" SERIES

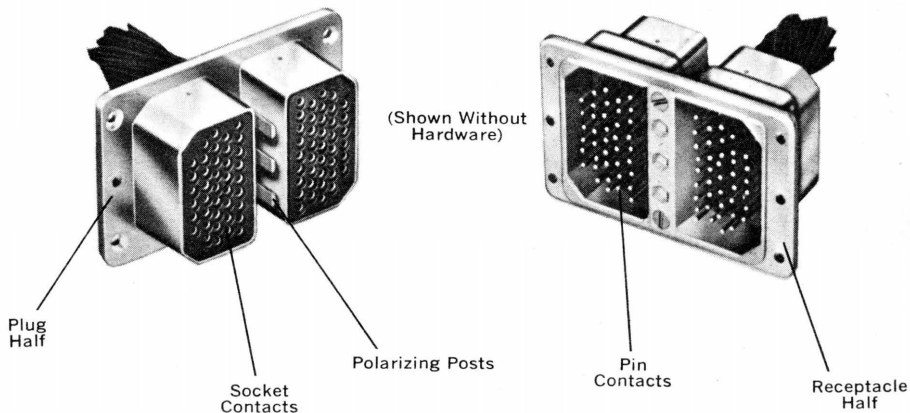
The "D" Series has housings with 45 and 78 positions, the "DD" Series with 90 and 156 positions, the "DDE" Series with 126 and 144 positions, the "W" Series with 26, 27, 40 and 45 positions, and the "WW" Series with 52, 80 and 90 positions. All Connectors in this grouping consist of pre-assembled die-cast aluminum shells with plastic inserts. The aluminum shells come in a variety of finishes including clear cadmium plate, olive drab cadmium plate and iridite. The plastic inserts are available in glass-reinforced diallyl phthalate (which conforms to MIL-M-14F, Type SDG-F) and polyurethane. All housings in each series have positive polarization and float space of pins and sockets helps prevent misalignment while the "D" Series incorporates floating bushings in addition to assure accurate alignment with the receptacle. Plug shell skirts help protect pins against plug-in damage and all inserts are alpha-numerically coded.

"DDE" Series Connectors are intended primarily for high-altitude, high-temperature applications. They are fully sealed against hazards encountered at temperatures ranging up to 275°F, altitudes to 100,000 feet, excessive vibration pressure to 30 psi, and other hostile environmental factors. "DDE" Series Connectors are similar in construction to the "D" Series and contain all the environmental hardware and seals needed for maximum protection of the contacts. Inserts are molded from an AMP-modified form of polyurethane; both plug and single lead grommets are included.

A TYPICAL SERIES "D" CONNECTOR



A TYPICAL SERIES "WW" CONNECTOR

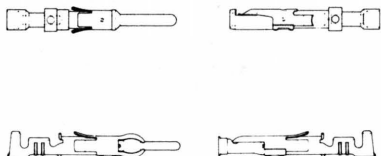


Matched accessories are available for all connectors in the "M", "D", "DD", "DDE", "W" and "WW" Series including Shields, cable clamps, strain relief clamps, polarizing guide pins, sockets and block configurations, keying pins, grommets, jack screws and mounting brackets.

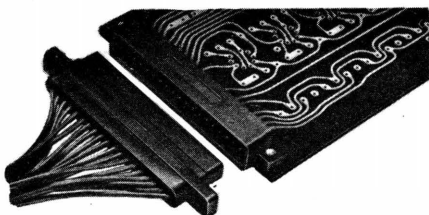
AMP has designed Type I, Type II, Type III, Type III(+), Type IV (miniature coaxicon), Type V and sub-miniature pin and socket contacts for use with Series "M", "D", "DD", "DDE", "W", and "WW" Connectors. Contact choice depends on the nature of application, installed cost and other modifying factors. Refer to the following pages for descriptive and ordering information on AMP's line of pin and socket contacts.

Standard AMP plating of gold over nickel is used on all contacts. Special finishes are available on request.

In addition to the standard pin and socket AMP-INCERT Connectors, a number of designs are available for special applications. These include:



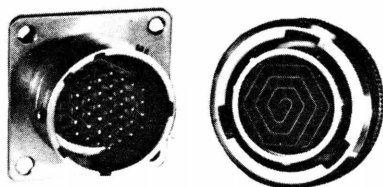
Break-Away Connectors



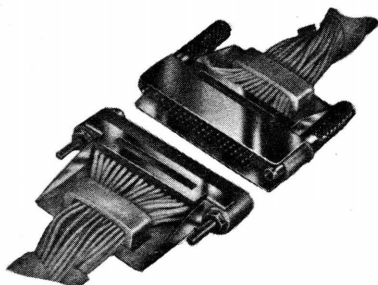
Edge Connectors for Printed Circuits



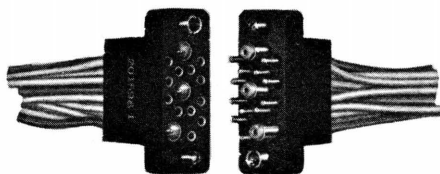
Tier-Block Connectors for Modular Stacking



Bayonet and Screw Coupled Cylindrical Connectors



Sub-Miniature Connectors



Coaxial and Pin and Socket Mixes

FEATURES

Shell and Insert Features:

- Positive polarization for correct coupling
- Floating bushings in plug mounting for proper alignment with receptacle
- Positive retention spring provides firm seating of contact in block
- Plug shell skirt assures correct alignment—protects pins against plug-in damage
- Float space of pins and sockets avoids misalignment and improper electrical contacts
- Corrosion resistant cadmium plated aluminum shells
- Alpha-numerically coded inserts—front and rear
- Chip- and crack-resistant diallyl phthalate, phenolic or polyurethane inserts

- Cavity design permits ease of insertion and extraction

Sealed Units—Provide the features listed plus:

- Plug grommets to seal cavities of inserts not in use
- Peripheral seal between shell and insert to aid in resistance to impact and environmental condition
- Fully mated face seal assures positive sealing between contact cavities
- Front end seal between mated shells to provide a peripheral seal
- Individual and family grommets to act as rear seal and to permit flexibility of wiring changes without damage to sealing qualities

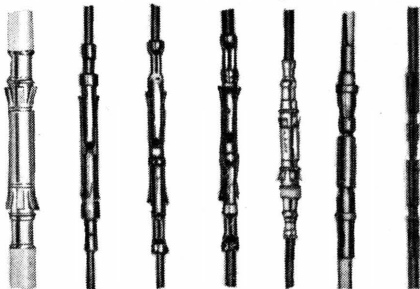
PROCEDURE FOR SELECTING A CONNECTOR

The AMP "M" Series line of pin and socket connectors are primarily composed of plastic blocks into which are inserted male and female contact members. Beyond the need for fastening the male and female blocks together, the choice of accessory hardware is optional. The AMP Series "D", "DD", "DDE", "W" and "WW" pin and socket connectors have metal shells and plastic inserts into which male and female contact members are set. The contacts, shell and insert units are basic; strain relief and other protective hardware are optional.

Selection of components for the connectors described in this section should be made in the following order:

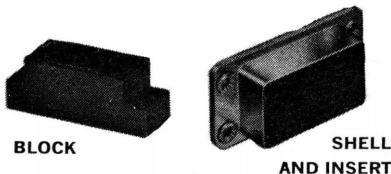
1. CONTACTS

There are seven contact types available: Type I, Type II, Type III, Type III(+), Type IV (miniature coaxicon) and Type V and sub-miniature coaxicon. Tabular data for these contacts is categorized by contact size (which indicates amperage rating), by wire size, plating, and insulation diameter. In some cases, #18 or #16 contacts are chosen for mechanical strength, while #20 will handle the current and provide no greater density.



2. HOUSINGS

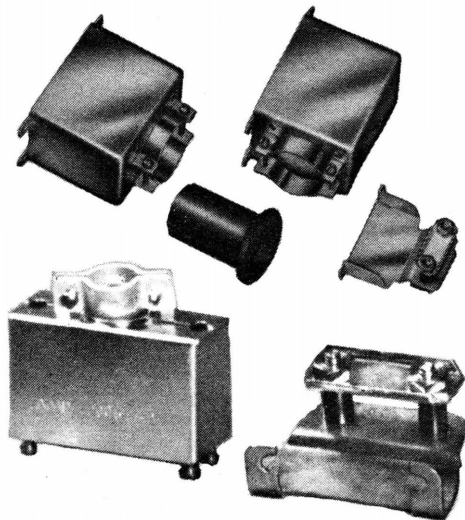
The housings are categorized by series groupings, by number of contact positions, and by plastic material (diallyl phthalate, phenolic or polyurethane).



3. FASTENING HARDWARE

In all applications it is recommended that the "M" Series Connectors be adequately fastened together. Devices such as turnable and fixed jack screws are available for this use. Consult the "M" Series blocks tabular data section for the proper fastening devices to use with the various block configurations.

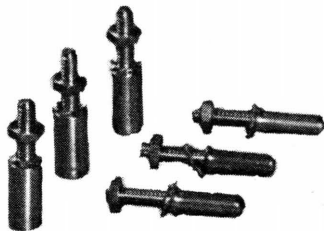
The Series "D", "DD", "DDE", "W" and "WW" Connectors are supplied with appropriate fastening devices already incorporated.



4. ACCESSORY HARDWARE

Shields and Cable Clamps—available in aluminum with finishes of anodized, iridite or cadmium plate, and in cadmium plated steel. Standard and long versions are available to provide pin protection. All have integral cable clamps to aid in grouping leads and resisting vibration.

Strain Relief Clamp—Basic lead-grouping device of cadmium plated or stainless steel to aid in resisting vibration.



Specifically for "M" Series Connectors:

Center and corner guide assemblies of cadmium plated brass, stainless steel, and cadmium plated steel to aid in correct mating of connector halves.

Fixed and turnable double-lead jack screws to hold connector halves firmly together and aid in guiding connectors to proper mating.

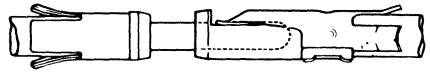
Premier or economy locking springs automatically lock connector halves in proper mating position.

CONTACT INFORMATION

AMP provides a variety of contacts for connectors with different basic functions. The contacts are available in sizes 20, 18, 16, and 10, and are generally used with equivalent or smaller wire gages. In addition, AMP offers connectors with mixtures of pin and socket and also coaxial contacts (29 position, 42 position and Series "C-PS"), and pin and socket with twin coaxial contacts (Series "W" 27 Position).

As a rule, the electrical resistance of pin and socket contacts is no greater than the resistance of an equal length of similar wire. When mated, low electrical resistance is assured by precisely engineered cantilever beam

Constant contact pressure

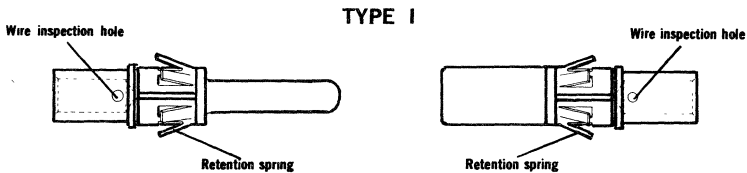


Low contact resistance

type springs in the socket. There is firm, uniform contact pressure even after repeated insertions and extractions. AMP's precisely controlled standard plating thicknesses of gold over nickel offer high resistance to oxidation, humidity and corrosion. Optimum performance is obtained by using the correct AMP contact with the correct AMP connector block.

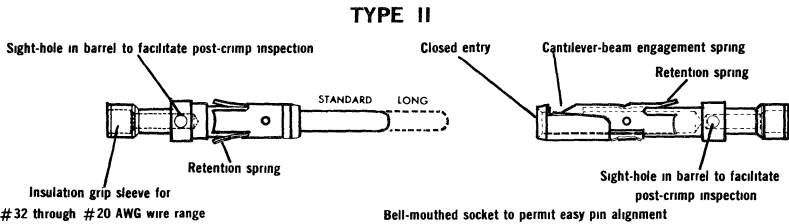
SOLID CONTACTS

The screw machine method is used in producing Type I, Type II and Type V contacts. The precisely controlled AMP crimp prevents distortion and/or overstressing when contacts are terminated. They are available in loose-piece form for use with hand crimping tools, or mounted on tape for use with bench mounted or portable power-crimping tools.



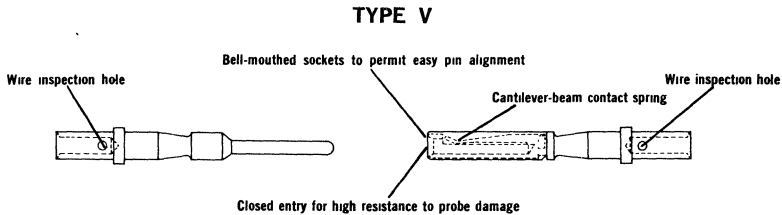
For D, DD Connectors

The Type I snap-in contact is of special value in critical circuit applications because of its low resistance factor. It incorporates independent cantilever-beam engagement springs which provide controlled contact pressures for maximum conductivity with minimum surface wear. Type I contact is available in size 10 for a wire range of #14 through #10 AWG.



For M, D, DD, W, WW Connectors

The Type II snap-in contact has a three-legged retention spring which provides firm seating in the connector block. A cantilever-beam contact spring insures uniform contact pressure. Available in contact sizes 20 and 16, for wire ranges of #32 through #14 AWG.



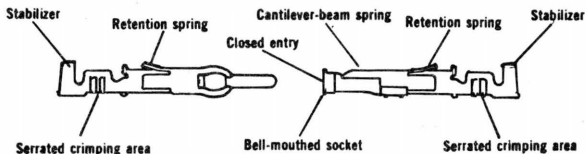
For DDE Connectors Only

The Type V contact is designed to MIL-C-26636 and is for use with the AMP "DDE" Connector only. Gold over nickel plating is standard, but other platings including rhodium are available. A cantilever-beam contact spring insures uniform contact pressure. Type V contacts are available in contact sizes 16 and 10 for wire range #24 through #10 AWG.

FORMED CONTACTS

AMP's Type III and III(+) contacts are precision engineered stamped and formed pin and socket contacts which offer the advantage of lower initial cost. Both types perform reliably in all applications using Series "M", "D", "DD", "W", and "WW" connectors.

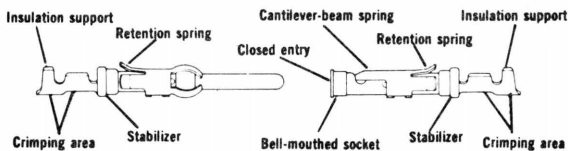
TYPE III



For M, D, DD, W and WW Connectors

Type III contacts feature a cantilever-beam contact spring that assures controlled contact pressures for minimum surface wear and optimum conductivity. The retention spring permits quick assemble and firm seating in the connector block. These contacts also feature bell-mouthed sockets and closed entry for correct pin alignment. Type III contacts are available in sizes 20, 18 and 16 in a wire range of #24 through #16 AWG.

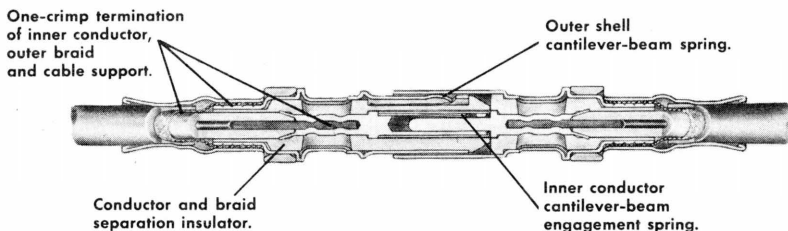
TYPE III(+)



For M, D, DD, W and WW Connectors

Type III(+) contacts are similar to the Type III, but with these additional advantages: the stabilizer is located closer to the contact's center to allow more float space for accurate alignment, and an insulation support is provided for additional mechanical strength. The Type III(+) contact is available in sizes 18 and 16 for use with wire range #26 through #16 AWG.

TYPE IV (MINIATURE COAXICON) CONTACTS



These coaxial contacts are used in "C-PS" Series, 29 position and 42 position Connectors in conjunction with the standard pins and sockets to achieve a "contact mix." They are designed to outlast more than 500 insertions and extractions, and permit simultaneous one-crimp terminations of center conductor, outer braid, and cable support. Dielectric material separates shells from male and female center contacts. Construction also features: closed entry, cantilever-beam engagement spring, special retention spring to provide firm seating and act as a shield for crimping ports, operating temperature from -55°C to $+88^{\circ}\text{C}$, operating voltage 1,000 V ac, flash-over voltage 1,900 V ac, availability in a wide range of cable sizes, and extremely reliable application with AMP precision crimping tools. See the COAXICON Section of this catalog for additional information on coaxial cable contacts.

TWIN STANDARD COAXICON

The AMP Twin COAXICON Contact is designed for use with the Series "W", 27 Position Connector in addition to the standard pins and sockets in order to achieve a "contact mix." As in other COAXICON products, the cable braid, insulation, and center conductors are crimped simultaneously with AMP tooling. The twin contacts include male or female inner conductor contacts separated from each other and from the outer shell by dielectric material. The inner female contacts are of closed entry design and feature cantilever springs which create a constant pressure when the inner contacts are engaged. Another cantilever spring in the male outer shell provides constant pressure between the shells when mated. See the COAXICON Section of this catalog for additional information on coaxial cable contacts.

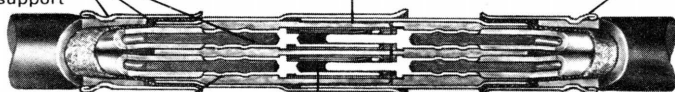
One-crimp termination of inner conductors, outer braid and cable support

Outer shell cantilever-beam spring.

Ferrule provides support for cable

Conductor and braid separation insulator

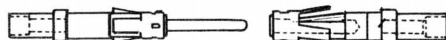
Inner conductor cantilever-beam engagement spring



Special configurations of "W" Series blocks are available for use with Twin Standard COAXICON contacts.

CONTACT SPECIFICATIONS

TYPE I



CONTACT SIZE 20—PIN DIAMETER .040 (Ampere Rating 7.5)

Conductor Size	Wire Range		Contact Assembly Number		Body Finish	Wire Strip Length	Ferrule Required	Crimping Tool				Extraction Tool	
	Insulation		Pin	Socket				Contact		Ferrule			
	Min. O.D.	Max. Comb. O.D.						69365 Air Gun Dies	69118 AMP-Tapematic* Tool Dies	Hand Tool	69365 Air Gun Dies		Hand Tool
26-24	.045	.059	*43341 **43605	*43340 **43606	.00005 Gold over .00003 Nickel	11/64	None	46700	45230	46791	None	None	305183-2
22-20	.058	.069	*43341 **43605	*43340 **43606				46568	45187	46576	None	None	
20-16	.085	1.08	*43342 **44028	*43334 **44013				327088	46561	45298	46560	46569		46637

Note: Use Insertion Tool #200893

CONTACT SIZE 18—PIN DIAMETER .048 (Ampere Rating 10.0)

Conductor Size	Wire Range		Contact Assembly Number		Body Finish	Wire Strip Length	Ferrule Required	Crimping Tool				Extraction Tool
	Insulation		Pin	Socket				Contact		Ferrule		
	Min. O.D.	Max. Comb. O.D.						69365 Air Gun Dies	Hand Tool	69365 Air Gun Dies	Hand Tool	
24-20	.044	.074	*200440-1	*200441-1	.00005 Gold over .00003 Nickel	9/32	None	45051	45052	None	None	305183-3
18-16	.062	.095	*200443-1	*200442-1				46698	90056	None	None	

CONTACT SIZE 10—PIN DIAMETER .125 (Ampere Rating 33.0)

Conductor Size	Wire Range		Contact Assembly Number		Body Finish	Wire Strip Length	Ferrule Required	Crimping Tool				Extraction Tool
	Insulation		Pin	Socket				Contact		Ferrule		
	Min. O.D.	Max. Comb. O.D.						69365 Air Gun Dies	Hand Tool	69365 Air Gun Dies	Hand Tool	
24-20			201863-1	201861-1	.00003 Gold over .00003 Nickel	17/64	None	None	90056	None	None	305183-6
18-16	No Insulation Support		201864-1	201862-1				46698	90056	None	None	
12			*43611	*43612				46699	None	None	None	
10					.00005 Gold over .00003 Nickel			46699				

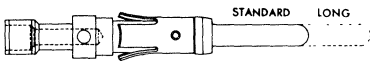
CONTACT SIZE 8—PIN DIAMETER .142 (Ampere Rating 46.0)

Conductor Size	Wire Range		Contact Assembly Number		Body Finish	Wire Strip Length	Ferrule Required	Crimping Tool				Extraction Tool
	Insulation		Pin	Socket				Contact		Ferrule		
	Min. O.D.	Max. Comb. O.D.						69365 Air Gun Dies	Hand Tool	69365 Air Gun Dies	Hand Tool	
10	No Insulation Support		201543-1	201544-1	.00005 Gold over .00003 Nickel	17/64	None	69194	90032	None	None	305183-7
8			*200415-1	*200416-1				45189	None	None	None	

*Gold Plated Retaining Spring and Sleeve Retainer.

**Nickel Plated Retaining Spring and Sleeve Retainer.

TYPE II



CONTACT SIZE 20—PIN DIAMETER .040 (Ampere Rating 7.5)

Wire Size Range	Pin Length	Contact Assembly Number		Body Finish*	Ins. Dia. Range	Wire Strip Length	Crimping Tool		Insertion Tool	Extraction Tool
		Pin	Socket				69100 Air Gun Dies	Hand Tool		
One 32** or 30	Standard	201625-1	201627-1		.030 to .048					
One 28, 26 or 24	Standard	201607-1	201609-1	00003 gold over 00003 nickel	.035 to .055	13/64	45097	45099	200893	305183
		201354-1	201353-1		.048 to .065					
One 24, 22 or 20	Standard	201582-1	201584-1		.040 to .062					
		200334-1	200331-1		.055 to .075					
One 18 or 16	Standard	201591-1	201589-1	No Insulation Support	1/4	45096	45098			

* Spring Plating—Nickel

**Not Available on Tape

CONTACT SIZE 16—PIN DIAMETER .062 (Ampere Rating 13.0)

Wire Size Range	Pin Length	Contact Assembly Number		Body Finish*	Ins. Dia. Range	Wire Strip Length	Crimping Tool		Insertion Tool	Extraction Tool
		Pin	Socket				69100 Air Gun Dies	Hand Tool		
One 32** or 30	Long	201555-1	201554-1		.030 to .048					
One 28, 26 or 24	Long	201334-1	201332-1	00003 gold over 00003 nickel	.048 to .065	13/64	45097	45099	200893	305183
	Long	201611-1	201613-1		.035 to .055					
	Standard	201649-1	201613-1		.035 to .055					
Long	201330-1	201328-1	.055 to .075							
One 24, 22 or 20	Long	201578-1	201580-1		.040 to .062					
	Standard	200679-1	201328-1		.055 to .075					
	Standard	201647-1	201580-1	.040 to .062						
One 18 or 16	Long	200336-1	200333-1	No Insulation Support	1/4	45096	45098			
	Standard	200681-1	200333-1							
One 14	Long	201570-1	201568-1							
	Standard	201645-1	201568-1							

*Spring Plating—Nickel

**Not Available on Tape

TYPE III



CONTACT SIZE 20—PIN DIAMETER .040 (Ampere Rating 7.5)

Wire Size Range	Contact Assembly Number		Body Finish	Ins. † Dia. Range	Wire Strip Length	Hand Tool	Extraction Tool
	Pin	Socket					
24-20	42974-1	42975-1	00063 Gold over 00005 Nickel*	100 Max	5/32	90003	305183
	42974-2	42975-2	Tin*				

CONTACT SIZE 18—PIN DIAMETER .056 (Ampere Rating 10)

Wire Size Range	Contact Assembly Number		Body Finish	Ins. † Dia. Range	Wire Strip Length	Hand Tool	Extraction Tool
	Pin	Socket					
24-20	42976-1	42977-1	00003 Gold over 00005 Nickel*	100 Max.	5/32	90003	305183
	42976-2	42977-2	Tin*				
18-16	42978-1	42979-1	.00003 Gold over .00005 Nickel*				
	42978-2	42979-2	Tin*				

TYPE III (Cont.)

CONTACT SIZE 16—PIN DIAMETER .062 (Ampere Rating 13)

Wire Size Range	Contact Assembly Number		Body Finish	Ins. Dia. Range	Wire Strip Length	Hand Tool	Extraction Tool
	Pin	Socket					
24-20	42980-1	42981-1	.00003 Gold over .00005 Nickel*	100 Max.	5/32	90012	305183
	42980-2	42981-2	Tin*				
18-16	42982-1	42983-1	.00003 Gold over .00005 Nickel*				
	42982-2	42983-2	Tin*				

†The barrel on Type III contacts is a stabilizing barrel and should not be construed to be solely for insulation support or grip
*Spring Finish—Nickel Flash.

TYPE III (+)



CONTACT SIZE 16—PIN DIAMETER .062 (Ampere Rating 13)

Wire Size Range	Contact Assembly Number		Body Finish	Ins. Dia. Range	Wire Strip Length	Hand Tool	Extraction Tool
	Pin	Socket					
26-24	66106-1	66108-1	.00003 Gold over .00005 Nickel*	.035- .055		90066	
	66106-2	66108-2	Tin*				
22-20	66102-1	66104-1	.00003 Gold over .00005 Nickel*	.045- .070	5/32	90066 or 90067	305183
	66102-2	66104-2	Tin*				
18-16	66098-1	66100-1	.00003 Gold over .00005 Nickel*	.080- .100		90067	
	66098-2	66100-2	Tin*				

CONTACT SIZE 18—PIN DIAMETER .056 (Ampere Rating 10)

Wire Size Range	Contact Assembly Number		Body Finish	Ins. Dia. Range	Wire Strip Length	Hand Tool	Extraction Tool
	Pin	Socket					
26-24	66188-1	66190-1	.00003 Gold over .00005 Nickel*	.035- .055		90066	
	66188-2	66190-2	Tin*				
22-20	66192-1	66194-1	.00003 Gold over .00005 Nickel*	.045- .070	5/32	90066 or 90067	305183
	66192-2	66194-2	Tin*				
18-16	66196-1	66198-1	.00003 Gold over .00005 Nickel*	.080- .100		90067	
	66196-2	66198-2	Tin*				

*Spring Finish—Nickel Flash.

TYPE V



CONTACT SIZE 20—PIN DIAMETER .040 (Ampere Rating 7.5)

Wire Size Range	Pin Length	Contact Assembly Number		Body Finish	Insulation		Wire Strip Length	Crimping Tool		Insertion Tool	Extraction Tool Cylindrical Connectors (Red Handle)
		Pin	Socket		Min. O.D.	Comb. O.D.		69100 Air Gun Dies	Hand Tool		
26-24	Standard	201264	201265	Mil. Plating	No Ins.	Crimp .075	13/64	45350	45349	200826-3	200823-3
					.045	.060		None	*45640		
24-20	Standard	200530	200531	Mil. Plating	No Ins.	Crimp .085	13/64	45350	45349	200826-3	200823-3
					.050	.065		None	*45640		

CONTACT SIZE 16—PIN DIAMETER .062 (Ampere Rating 13)

Wire Size Range	Pin Length	Contact Assembly Number		Body Finish	Wire Strip Length	Crimping Tool		Insertion Tool (Blue Handle)	Extraction Tool Cylindrical Connectors (Blue Handle)
		Pin	Socket			69100 Air Gun Dies	Hand Tool		
22-20	Special Long	200736	200734	00005 Gold over	1/4	45214	45141	200826-2	200823-2
				00003 Nickel			45734		
18-16	Standard**	200772	200771	Mil Plating		45214	45141		
20-16	Special Long	200735	200733	00005 Gold over 00003 Nickel		45214	45141		

CONTACT SIZE 12—PIN DIAMETER .093 (Ampere Rating 23)

Wire Size Range	Pin Length	Contact Assembly Number		Body Finish	Wire Strip Length	Crimping Tool		Insertion Tool (Yellow Handle)	Extraction Tool Cylindrical Connectors (Yellow Handle)
		Pin	Socket			69100 Air Gun Dies	Hand Tool		
14-12	Standard**	201274	201275	Mil Plating	1/4	45215	45142	200826-4	200823-2

CONTACT SIZE 10—PIN DIAMETER .125 (Ampere Rating 33)

Wire Size Range	Pin Length	Contact Assembly Number		Body Finish	Wire Strip Length	Crimping Tool		Insertion Tool (Yellow Handle)	Extraction Tool Cylindrical Connectors (Yellow Handle)
		Pin	Socket			69100 Air Gun Dies	Hand Tool		
14-12	Special Long	201523	201524	.00005 Gold over	1/4			200826-4	200823-4 Pin 69191-1 Socket
10	Special Long (to be applied with solder)	201525	201526	.00003 Nickel					

*Use where insulation grip is desired
 **Manufactured to MIL-C-26636 Spec
 Note: All contacts are crimpable in MS 3191 hand crimping tool

**M SERIES CONNECTORS
 BLOCK SPECIFICATIONS**

Number of Contacts	Block Will Accommodate These Variations of Contacts	Part No. For Phenolic	Part No. For Diallyl Phthalate	Mating Information
14	Type II Size 20 or Type II Size 16 (Short)	201297-1	201297-3	Pin Block
	Type III Size 20 or Type III, III(+)- Size 18	201298-1	201298-3	Socket Block
	Type II Size 16 (Long)	201298-1	201298-3	Pin or Socket Blocks (Must be ordered in pairs)*
	Type III, III(+)- Size 16	201355-1 (Mirror)	201355-3 (Mirror)	
20	Type II Size 20 or Type II Size 16 (Short)	200345-2	200345-4	Pin Block
	Type III Size 20 or Type III, III(+)- Size 18	200346-2	200346-4	Socket Block
	Type II Size 16	200346-2	200346-4	Pin or Socket Block (Must be ordered in pairs)*
	Type III, III(+)- Size 16	201356-1	201356-3	
21	Type II Size 20 or Type II Size 16 (Short)	201299-1	201299-3	Pin Block
	Type III Size 20 or Type III, III(+)- Size 18	201300-1	201300-3	Socket Block
26	Type II Size 20 or Type II Size 16 (Short)	200513-2	200513-3	Pin Block
	Type III Size 20 or Type III, III(+)- Size 18	200512-2	200512-3	Socket Block
	Type II Size 16 (Long)	200512-2	200512-3	Pin or Socket Block (Must be ordered in pairs)*
	Types III, III(+)- Size 16	201359-1	201359-3	

*These blocks are identical in dimension and configuration; HOWEVER, they MUST be ordered as a pair (top and bottom number in the column) because the contact holes are mirror image in the mating block. This permits (for example) tracing a contact hole position 8 of one block to the hole position 8 (mirror image) of the mating block.

DIMENSIONS

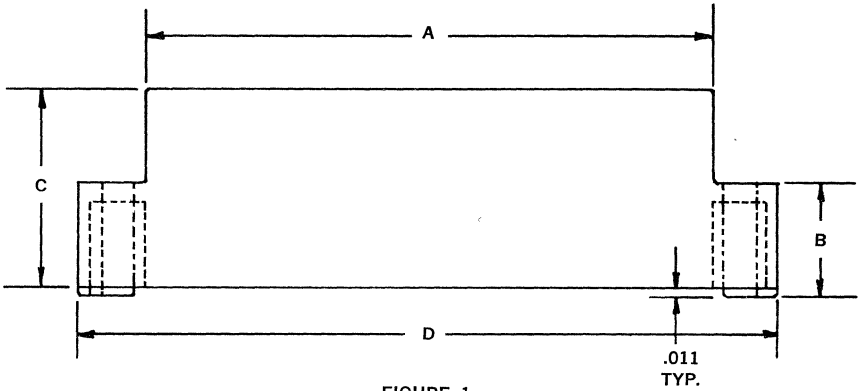


FIGURE 1

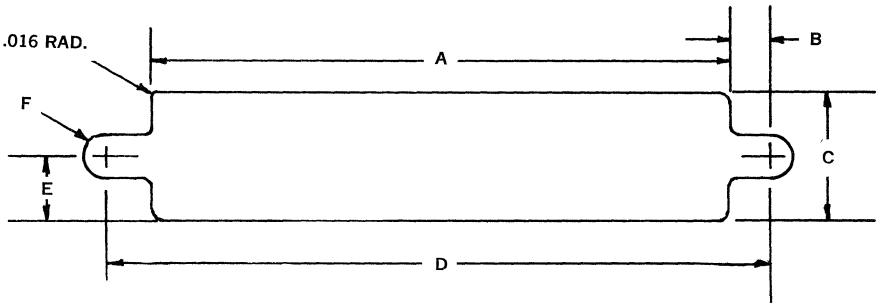


FIGURE 2

Number of Contacts	Dimensions For:	A	B	C	D	E	F
14	Pin Block Fig. 1	.797	.365	.757	1.250		
	Socket Block Fig. 1	.797	.365	.915	1.250		
	Suggested Panel Cutout Fig. 2	829	.054	.472	.937	.236	.130 Dia. 2 Holes
20	Pin Block Fig. 1	1.110	.365	.757	1.560		
	Socket Block Fig. 1	1.110	.365	.915	1.560		
	Suggested Panel Cutout Fig. 2	1.142	.054	.472	1.250	.236	.130 Dia. 2 Holes
21	Pin Block Fig. 1	1.735	.365	.757	2.250		
	Socket Block Fig. 1	1.735	.365	.915	2.250		
	Suggested Panel Cutout Fig. 2	1.766	.085	.406	1.937	.203	.130 Dia. 2 Holes
26	Pin Block Fig. 1	1.080	.365	.757	1.630		
	Socket Block Fig. 1	1.080	.365	.915	1.630		
	Suggested Panel Cutout Fig. 2	1.112	.100	.592	1.312	.296	.130 Dia. 2 Holes

Note: Dimensions given are for phenolic material only. Request dimension on diallyl phthalate.

Number of Contacts	Block Will Accommodate These Variations of Contacts	Part No. For Phenolic	Part No. For Diallyl Phthalate	Mating Information
34	Type II Size 20 or Type II Size 16 (Short)	200837-2	200837-3	Pin Block
	Type III Size 20 or Type III, III(+)-Size 18	200838-2	200838-3	Socket Block
	Type II Size 16 (Long)	200838-2	200838-3	Pin or Socket Block
	Type III, III(+)-Size 16	201357-1	201357-3	(Must be ordered in pairs)*
41	Type II Size 20 or Type II Size 16 (Short)	201301-1	201301-3	Pin Block
	Type III Size 20 or Type III, III(+)-Size 18	201302-1	201302-3	Socket Only
	Type II Size 16 (Long)	201302-1	201302-3	Pin or Socket Block
	Type III, III(+)-Size 16	202135-2	202135-4	(Must be ordered in pairs)*
50	Type II Size 20 or Type II Size 16 (Short)	200276-2	200276-4	Pin Block
	Type III Size 20 or Type III, III(+)-Size 18	200277-2	200277-4	Socket Block
	Type II Size 16 (Long)	200277-2	200277-4	Pin or Socket Block
	Type III, III(+)-Size 16	201358-1	201358-3	(Must be ordered in pairs)*

*These blocks are identical in dimension and configuration: HOWEVER, they MUST be ordered as a pair (top and bottom number in the column) because the contact holes are mirror image in the mating block. This permits (for example) tracing a contact hole position 8 of one block to the hole position 8 (mirror image) of the mating block.

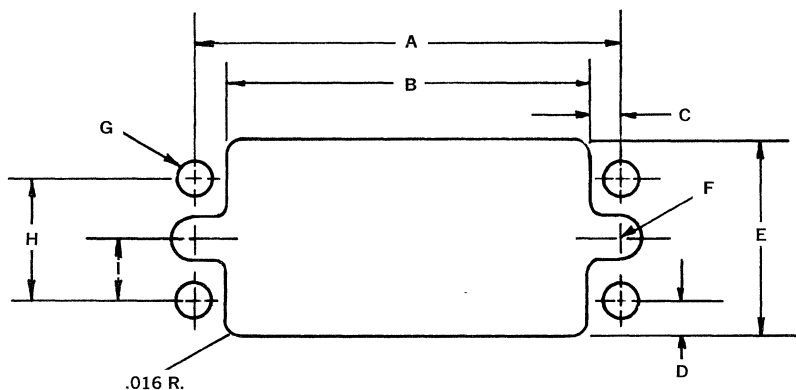


FIGURE 3

DIMENSIONS

Number of Contacts	Dimensions For:	A	B	C	D	E	F	G	H	I
34	Pin Block (Fig. 1)	1.409	.365	.757	2.000					
	Socket Block (Fig. 1)	1.409	.365	.915	2.000					
	Suggested Panel Cutout (Fig. 3)	1.687	1.450	.118	.161	.790	130 or 218 Dia 2 Holes	130 Dia. 4 Holes	.468	.234
41	Pin Block (Fig. 1)	2.151	.365	.757	2.687					
	Socket Block (Fig. 1)	2.151	.365	.915	2.687					
	Suggested Panel Cutout (Fig. 2)	2.200	.061	.550	2.322	.275	130 Dia 2 Holes			
50	Pin Block (Fig. 1)	1.983	.365	.757	2.593					
	Socket Block (Fig. 1)	1.983	.365	.915	2.593					
	Suggested Panel Cutout (Fig. 3)	2.281	2.025	.128	.161	.790	130 or 218 Dia 2 Holes	130 Dia. 4 Holes	.468	.234

Note: Dimensions given are for phenolic material only. Request dimension on diallyl phthalate.

Number of Contacts	Block Will Accommodate These Variations of Contacts	Part No. For Phenolic	Part No. For Diallyl Phthalate	Mating Information
75	Type II Size 20 or Type II Size 16 (Short)	201622-1	201622-3	Pin Block
	Type III Size 20 or Type III, III(+)	201311-1	201311-3	Socket Block
	Type II Size 16 (Long) Type III, III(+)	201311-1	201311-3	Pin or Socket Block (Must be ordered in pairs)*
104	Type II Size 20 or Type II Size 16 (Short)	201036-1	201036-2	Pin Block
	Type III Size 20 or Type III, III(+)	201037-1	201037-2	Socket Block
	Type II Size 16 (Long) Type III, III(+)	201037-1	201037-2	Pin or Socket Block
		201345-1	201345-2	Block (Must be ordered in pairs)*

Number of Contacts	Block Will Accommodate These Variations of Contacts	Fastener Type "A" Dimension (in Inches)	Part No. For Phenolic	Part No. For Diallyl Phthalate	Mating Information
104 Center Fastener	Type II Size 16 (Long) or Type III, III(+) Size 16	Slotted Hex A = 2½	201692-6	201692-5	Pin or Socket Block (Must be ordered in pairs)*
			201532-4	201532-2	
		Slotted Hex. A = 17/32	201692-2	201692-1	
			201532-4	201532-2	
		"T" Handle A = 2½	201692-4	201629-3	
		201532-4	201532-2		

Block Will Accommodate These Contact Variations	Phenolic	Diallyl Phthalate	Mating Information
Type II Size 16 (Long), Type III and III(+)	202799-2 202800-2	202799-1 202800-1	Plug Receptacle

Phenolic per MIL-M-14 Type CFG, Diallyl Phthalate per MIL-M-14 Type SDG-F

Plug or Receptacle will accept either Pin or Socket Contacts.

*These blocks are identical in dimension and configuration; HOWEVER, they MUST be ordered as a pair (top and bottom number in the column) because the contact holes are mirror image in the mating block. This permits (for example) tracing a contact hole position 8 of one block to the hole position 8 (mirror image) of the mating block.

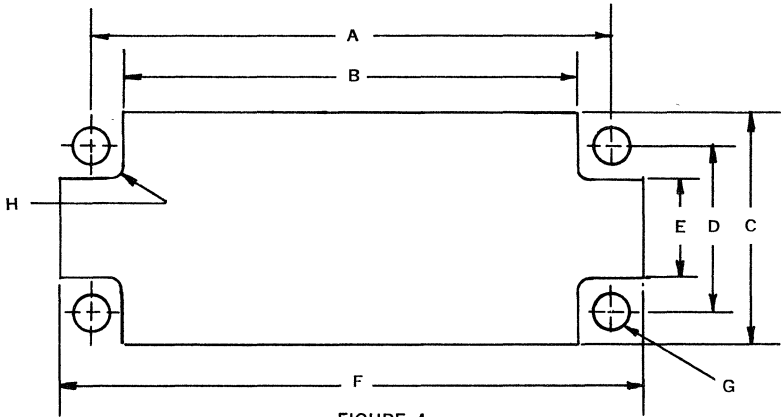


FIGURE 4
DIMENSIONS

Number of Contacts	Dimensions For:	A	B	C	D	E	F	G	H	I
75	Pin Block (Fig 1)	1.983	.365	.757	2.595					
	Socket Block (Fig 1)	1.983	.365	.915	2.595					
	Suggested Panel Cutout (Fig. 4)	2.281	2.025	1.156	766	.156	2.561	.156 Dia. 4 Holes	.016 Rad.	
104	Pin Block (Fig. 1)	2.110	.365	.757	2.750					
	Socket Block (Fig 1)	2.110	.365	.915	2.750					
	Suggested Panel Cutout (Fig 3)	2.385	2.165	.119	.343	1.580	.070 Rad. 2 Holes	.156 Dia 4 Holes	.875	.437

DIMENSIONS (Cont.)

Number of Contacts	Dimensions For:	A	B	C	D	E	F	G	H	I
104 Center Fastener	Pin or Socket Block (Fig. 5)	See Dimensions on Fig. 5 Below								
	Pin or Socket Block (Fig. 6)	See Dimensions on Fig. 6 Below								
	Suggested Panel Cutout (Fig. 4)	2.500	2.187	1.171	.812	.500	2.875	.143 Dia. 4 Holes	11/64 Rad. Typ.	
160 Center Fastener	Pin or Socket Block (Fig. 7)	See Dimensions on Fig. 7								
	Pin or Socket Block (Fig. 8)	See Dimensions on Fig. 8								
	Suggested Panel Cutout (Fig. 4)	2.374	2.095	1.867	1.174	.500	2.795	155 Dia. 4 Holes	125 Rad. Typ.	

Note: Dimensions given are for phenolic material only. Request dimension on diallyl phthalate.

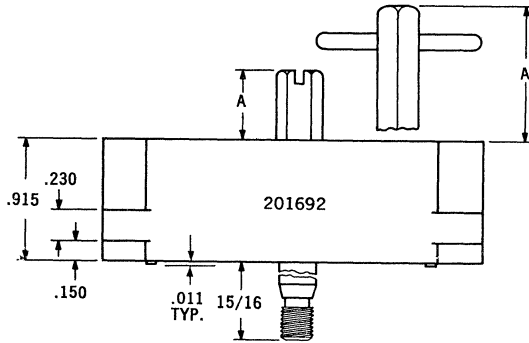


FIGURE 5

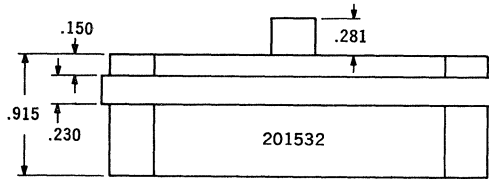


FIGURE 6

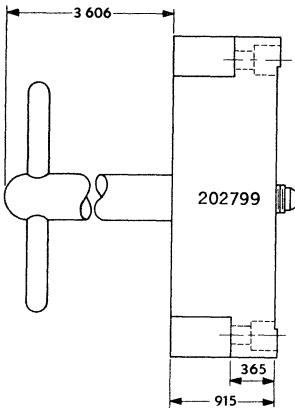


FIGURE 7

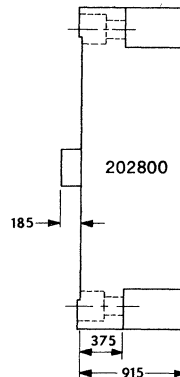
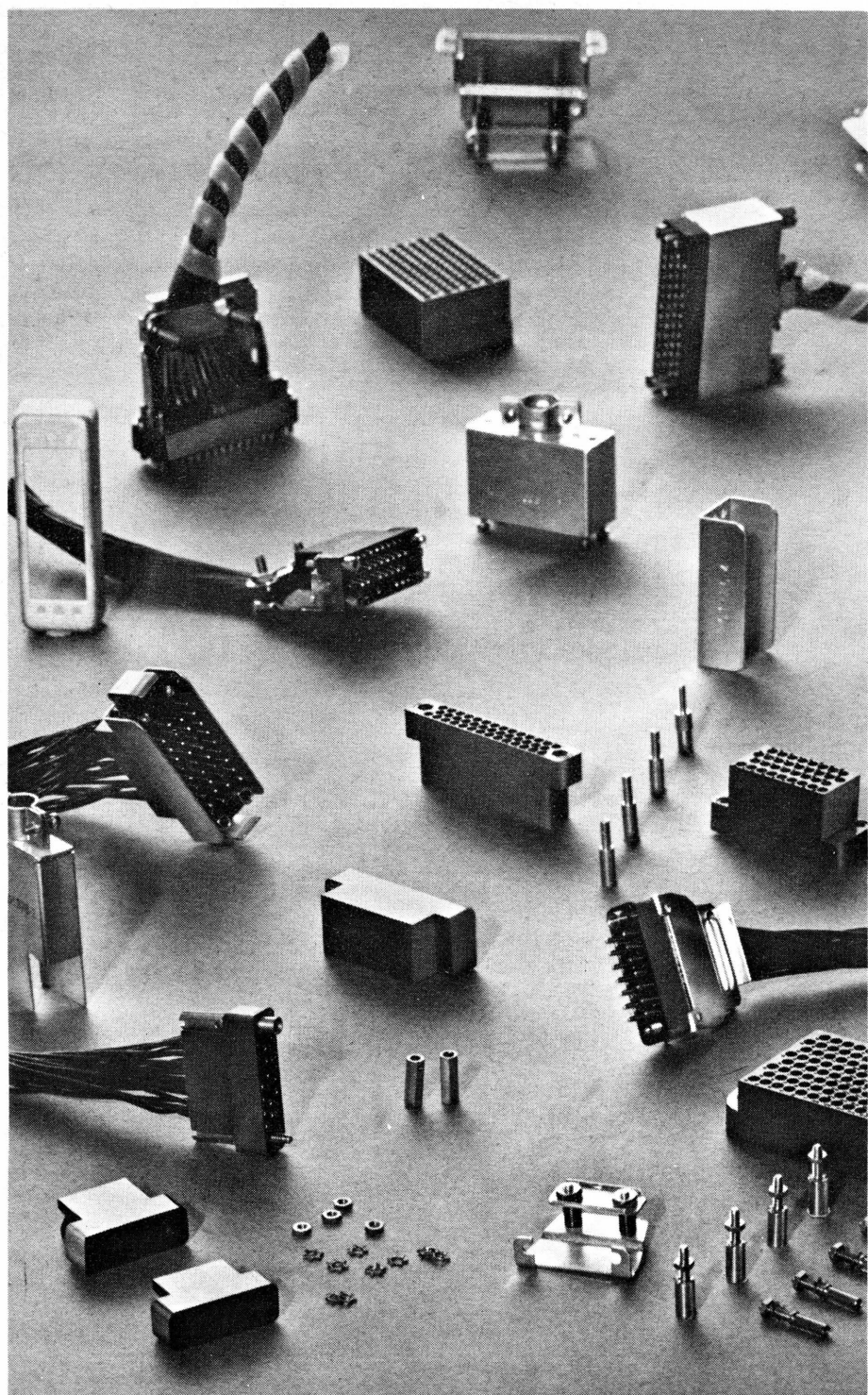


FIGURE 8



IMPORTANT CONSIDERATIONS IN THE SELECTION OF CONNECTORS

A connector should be considered as an extension of the wires it connects and, for all practical purposes, it should equal the reliability of the conductor itself.

By the same token, it should fully meet but not extravagantly exceed the performance requirements for a given application. This is vital not just to insure proper function, but also to the economics of the equipment for which it was designed.

With pin and socket connectors, there is a wide range of choice. Some of these connectors, such as the Series "M" for example, are not equipped with metal shells and such other environmental accessories as wire sealing grommets, peripheral seals between shell and insert, interfacial seals to assure positive sealing between contact cavities, etc. They are therefore not designed to withstand severe environmental abuses such as excessively high temperatures or altitudes. Despite this, some design engineers over-specify pin and socket connectors with unnecessary hardware or other protective devices for use in mild environments.

Another common tendency is to under-specify. This is caused by the tendency of some engineers (perhaps due to pressures for cost reduction) to expect too much in the way of rugged performance for a given connector. In such cases the need for shields, seals, strain relief clamps or some other environmental protection may be overlooked.

A third oversight might be classified as over-indulgence in quality! When this happens it may, as an example, result in the specification of more costly screw-machine processed contacts for applications where formed, mass-produced contacts, designed for high-speed automatic application, would satisfy performance requirements.

In selecting a connector, it should also be noted that confusing military specification with performance requirements is not an uncommon occurrence.

A good example is MIL-C-8384. The standards required under this particular specification apply only for rectangular-shaped connectors; yet connectors conforming to this military standard may vary greatly in size and performance due to diverse manufacturing methods, different plating materials and techniques, the use of accessories, and other contributing factors.

Perhaps the most serious omission in design planning is to delay the selection of a type or types of connectors until equipment design has been frozen or is very close to that stage. The tendency to do so, in some cases, is generally traceable to the fact that some design engineers tend to look upon a connector as an appendage to, rather than an integral part of, the equipment. This forces costly and time-consuming revisions of design or, in some cases, makes some compromise in the selection of the appropriate connector necessary.

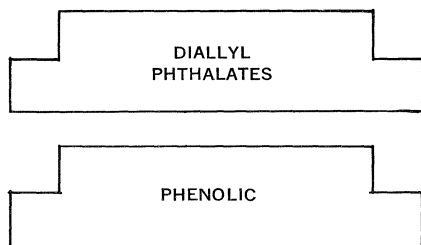
Special assembly problems—the use of too tight a harness or the presence of other unfavorable assembly conditions, for example—represent another variable. The use of untrained personnel might also be a source of difficulty. Finally, inadequate connector testing facilities in most manufacturing plants coupled with too little knowledge of correct test procedures produce results that are often damaging to both buyers and sellers. With AMP, in this particular area, every component is thoroughly tested in the AMP Testing Laboratory to insure reliable performance under recommended operating conditions.

All these variables in the selection and use of pin and socket connectors can be readily circumvented by consulting AMP within a reasonable time before equipment designs are frozen. This is the best procedure for obtaining the right type of connector in the required size or sizes and configurations for any specified project.

SERIES M PLASTIC BLOCK MATERIALS

The materials chosen for connector blocks have been tested for electrical, mechanical, thermal, and chemical resistance.

Of the many plastics available for this purpose—alkyds, epoxies, allyls, phenolics, and melamine formaldehydes, to name a few, were evaluated. The allyls (diallyl phthalates) and phenolics have been found most suitable for Series "M" connector blocks. Both are thermosetting materials that harden into permanent shapes when properly molded.



DIALLYL PHTHALATES reinforced by glass fiber are militarily approved for connectors, switches, potentiometers, resistors, and many other uses. They have all the mechanical and electrical properties needed to provide maximum protection for imbedded components and/or resistance to hostile environments. Among their numerous attributes, glass-filled diallyl phthalates have extremely high arc resistance and, conversely, very low dielectric loss. Excellent mechanical properties constitute another characteristic that makes them ideal for use in the "M" Series connector blocks. These materials maintain all these properties under high temperature and humidity conditions. In addition, they have extremely

low post-mold shrinkage which makes them first choice for close tolerance applications.

Chemically, diallyl phthalates are unaffected by most acids and alkalis.

PHENOLIC resins are formed through the reaction of phenol and formaldehyde. While lower in cost than many other thermosets, they are excellently suited to many uses. As a group, phenolic resins have good electrical characteristics. Cellulose filled phenolic is used extensively for the A-MP Series "M" connector blocks. They form strong, rigid, and dimensionally stable blocks. In addition, they are poor conductors of heat and are, even under extreme conditions, unaffected by oils, greases, alcohol, and a wide variety of solvents.

TEST DATA

PRODUCT SPECIFICATION

SERIES "M" CONNECTORS WITH TYPE II, TYPE III OR TYPE III(+) CONTACTS, PLUG AND RECEPTACLE, ELECTRICAL, RECTANGULAR TYPE

CONSTRUCTION:

INSERT MATERIAL—Insert materials conform to Type CFG, SDG or SDG-F of Specification MIL-M-14.

DISSIMILAR METALS — Where dissimilar metals are used in intimate contact with each other, protection against electrolysis and corrosion is provided.

FINISH—All metal exposed parts, other than electric contacts are made of a corrosion resistant material, cadmium plated in accordance with Type I, Class 3, of Specification QQ-P-416 or nickel plated per QQ-N-290.

CONTACT MATERIAL — Contacts are made from copper alloy material and plated as specified below unless otherwise stated.

Type II .00003 Gold over .00003 Nickel
Type III .00003 Gold over .00005 Nickel

CONTACT IDENTIFICATION — Contact positions are identified on both the mating and rear face of the insert. Identification is permanent for the life of the product.

MATING—Plugs and receptacles are capable of being mated and unmated by hand without the aid of special tools within the temperature range for these connectors.

OPERATING TEMPERATURE

Insert Material	Operating Temperature
Type CFG	—55°C. to +125°C.
Type SDG or SDG-F	—65°C. to +150°C.

ELECTRICAL CHARACTERISTICS — Contacts have a maximum current rating as shown in Table 1.

TABLE 1

Contact Size	Amperes
20	7.5
18	10.0
16	13.0

PERFORMANCE:

INSULATION RESISTANCE between the two closest contacts or between the accessories and closest contact:

TABLE 2

Type CFG	5,000 Megohms
Type SDG or SDG-F	50,000 Megohms

HIGH POTENTIAL—The connectors show no evidence of flashover when these voltages are applied between any contact and any other contact or accessory:

TABLE 3

Altitude	Type II Contacts Voltage AC RMS	Type III Contacts Voltage AC RMS
Sea Level	1,500	900
25,000	1,000	600
50,000	500	300

CONTACT RESISTANCE—The resistance of mated pairs of pins and sockets shall be such that ninety-six (96) percent of the values obtained do not exceed those listed in table 4.

TABLE 4
TYPE II CONTACTS

(Maximum Potential Drop in Millivolts)

Contact	Wire Size	Test Current (Amps)	Potential Drop at 25°C.	Potential Drop After Corrosion
20	24	3 0	20	25
20	22	5 0	20	25
20	20	7 5	20	25
16	18	10	20	25
16	16	13	20	25

TYPE III CONTACTS

(Maximum Potential Drop in Millivolts)

Contact	Wire Size	Test Current (Amps)	Potential Drop at 25°C.	Potential Drop After Durability
20	24	3 0	25	35
20	22	5 0	25	35
20	20	7 5	25	35
18	24	3 0	25	35
18	22	5 0	25	35
18	20	7 5	25	35
18	18	10 0	25	35
18	16	13 0	25	35
16	26	2 0	35	45
16	24	3 0	35	45
16	22	5 0	35	45
16	20	7 5	35	45
16	18	10 0	35	45
16	16	13 0	35	45

CONTACT ENGAGING AND SEPARATING FORCES—The force required to insert or withdraw a steel pin of minimum size exceeds the minimum values listed below:

TABLE 5
FORCE IN OUNCES ON STEEL PIN

Contact	Type II		Type III		Test Pin Engagement Length
	Min.	Max.	Min.	Max.	
20	1 oz.	12 oz.	1 oz.	16 oz.	200
18	—	—	2 oz.	16 oz.	200
16	3 5 oz.	16 oz.	3 5 oz.	16 oz.	400

TEMPERATURE CYCLING—The connectors are capable of being mated and unmated at the temperature specified below:

TABLE 6

Insert Material	Temperature
Type CFG	—55°C. to 125°C.
Type SDG or SDG-F	—65°C. to 150°C.

MOISTURE RESISTANCE—The insulation resistance at high humidity is not less than 1 megohm. Upon completion of testing and after the connector has been dried for 24 hours at room ambient temperature, the insulation resistance is not less than specified below:

TABLE 7

Insert Material	Insulation Resistance
Type CFG	100 Megohms ¹
Type SDG or SDG-F	5,000 Megohms

DURABILITY—The complete connector assemblies were subjected to 500 cycles of insertion and withdrawal at a rate not exceeding 600 cycles per hour in a manner similar to that which the connectors shall be subjected to in service. After 500 cycles, the plug and receptacle assemblies conformed to the specifications in tables 4 and 5.

SALT SPRAY—Exposure to salt laden atmosphere will not cause sufficient corrosion to interfere with mating or unmating the connector assembly.

VIBRATION—Complete mated connectors were vibrated in accordance with Test Condition A, Method 204 of Standard MIL-STD-202. All contacts were series wired and connected with 0.1 ampere flowing through the contacts. Plugs and receptacles were held together by the normal locking device. Wires were supported on a stationary frame not closer than 12 inches from the connectors. Interruption of continuity did not exceed 10 microseconds.

SHOCK—The connector assembly shows no evidence of mechanical failure of metallic or dielectric materials under these severe shock conditions: A mated plug and receptacle was subjected to a transient decelerating force produced by securing them to sufficient mass, and dropping the assembly through such a height that, when decelerated by resilient impact, a deceleration of 50 gravity units was obtained. The shock test was repeated in each of the referenced 90 degree axis positions. A shock testing device in accordance with Method 202A of Standard MIL-STD-202, revised for connector mounting, proved to be a satisfactory device for this test.

CONTACT RETENTION—The initial contact retention is a minimum of ten (10) pounds. After extracting the contacts using the applicable extraction tool ten (10) times, the contact locking device withstands an axial load of ten (10) pounds minimum.

HARDWARE SPECIFICATIONS

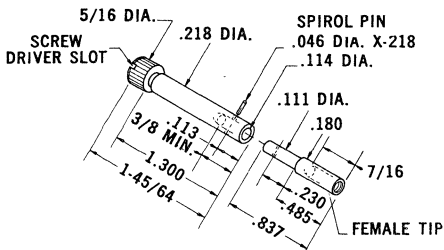
NUMBER OF POSITION IN BLOCK	NO MATING PARTS NEEDED FOR THESE ITEMS (EXCEPT FASTENING HARDWARE)												
	180° TWO PIECE SHIELD		180° ONE PIECE SHIELD		90° ONE PIECE SHIELD		LONG STRAIN RELIEF CLAMP	CLOSED END PIN HOOD (DRAWN)	OPEN END PIN HOOD	SHORT STRAIN RELIEF CLAMP	CENTER GUIDE ASSEMBLY		
	LONG	SHORT	LONG	SHORT	LONG	SHORT					PIN	SOCKET	
14			201378-2 CD PL STEEL	201360-2 CD PL STEEL	200477-2 CD PL STEEL	201467-2 CD PL STEEL				201363-2 AL ANOD	200686-1 CD PL STEEL	200389-2 STAIN STEEL	200390-2 STAIN STEEL
										201363-4 CD PL STEEL		200389-4 CD PL BRASS	200390-4 CD PL BRASS
20			201380-2 CD PL STEEL	201227-2 CD PL STEEL	200480-2 CD PL STEEL	201460-2 CD PL STEEL	201844-1 CD PL STEEL	201348-2 AL IRIDITE		201362-2 AL ANOD	201237-1 CD PL STEEL	200389-2 STAIN STEEL	200390-2 STAIN STEEL
										201362-4 CD PL STEEL		200389-4 CD PL BRASS	200390-4 CD PL BRASS
21						201303-2 CD PL STEEL					201765-1 CD PL STEEL	200389-2 STAIN STEEL	200390-2 STAIN STEEL
												200389-4 CD PL BRASS	200390-4 CD PL BRASS
26	201576-1 AL ANOD	200514-1 AL ANOD	201382-2 STEEL	201169-2 STEEL	200488-2 STEEL	201468-2 STEEL	201845-1 STEEL	201349-2 AL IRIDITE	201785-2* AL ANOD	201229-1 CD PL STEEL	200389-2 STAIN STEEL	200390-2 STAIN STEEL	
	201576-2 CD PL STEEL	200514-2 CD PL STEEL							201785-4 CD PL STEEL		200389-4 CD PL BRASS	200390-4 CD PL BRASS	
*Open end pin hood also available with mounting holes #202118-2 AL. IRIDITE, #202118-5 CD. PL. STEEL.													
34	201571-1 AL ANOD	200517-1 AL ANOD	201384-2 CD PL STEEL	201165-2 CD PL STEEL	200490-2 CD PL STEEL	201469-2 CD PL STEEL	201846-1 CD PL STEEL	201350-2 AL IRIDITE	201786-2* AL ANOD	201224-1 CD PL STEEL	200389-2 STAIN STEEL	200390-2 STAIN STEEL	
	201571-2 CD PL STEEL	200517-2 CD PL STEEL							201786-4 CD PL STEEL		200389-4 CD PL BRASS	200390-4 CD PL BRASS	
*Open end pin hood also available with mounting holes #202095-2 AL. IRIDITE, #202095-5 CD. PL. STEEL.													
41	202164-1 CD PL STEEL	202160-1 CD PL STEEL				201304-2 CD PL STEEL	201766-1 CD PL STEEL					200389-2 STAIN STEEL	200390-2 STAIN STEEL
	202383-1 CD PL STEEL	202383-2 CD PL STEEL										200389-4 CD PL BRASS	200390-4 CD PL BRASS
*Open end pin hood available with mounting holes #202165-3 AL. IRIDITE, #202165-5 CD. PL. STEEL. External Internal													
50	201443-1 AL ANOD	200532-1 AL ANOD	201386-2 STEEL	201173-2 STEEL	200492-2 STEEL	201470-2 CD PL STEEL	201847-1 CD PL STEEL	201390-2 AL IRIDITE	201317-2* AL ANOD	201182-1 CD PL STEEL	200389-2 STAIN STEEL	200390-2 STAIN STEEL	
		200532-2 CD PL STEEL						201390-5 CD PL STEEL	201317-4 CD PL STEEL		200389-4 CD PL BRASS	200390-4 CD PL BRASS	
*Open end pin hood also available with mounting holes #202096-2 AL. IRIDITE, #202096-5 CD. PL. STEEL.													
75		201342-1 CD PL ALUM						201368-4 CD PL STEEL		200730-1 CD PL STEEL	200389-2 STAIN STEEL	200390-2 STAIN STEEL	
								201368-2 AL IRIDITE			200389-4 CD PL BRASS	200390-4 CD PL BRASS	
*Open end pin hood available with mounting holes #202097-2 AL. IRIDITE, #202097-5 CD. PL. STEEL.													
104		201131-1 CD PL ALUM					201849-1 CD PL STEEL	201346-4 CD PL STEEL		201221-1 CD PL STEEL	200389-2 STAIN STEEL	200390-2 STAIN STEEL	
		201131-2 CD PL AL OLIVE DRAB						201346-2 AL IRIDITE			200389-4 CD PL BRASS	200390-4 CD PL BRASS	
104 CENTER FASTENER	45° TWO PIECE SHIELD & CABLE CLAMP SHORT	45° TWO PIECE SHIELD & CABLE CLAMP LONG	90° TWO PIECE SHIELD & CABLE CLAMP	PIN HOOD		GUIDE ASSEMBLY		GUIDE PIN					
	202110-1 CAD PLATED STEEL	202169-1 CAD PLATED STEEL	202395-1 CAD PLATED STEEL	202119-2 CAD PLATED STEEL	202173 STAINLESS STEEL	202174 STAINLESS STEEL	201540-1 STAINLESS STEEL	201540-2 CAD PLATED STEEL					

DESCRIPTION	PART NUMBER	MATERIAL
Corner Guide Assembly	Pin 201046-2	Stainless Steel
	Socket 201047-2	Stainless Steel
	Pin 201046-4	Cad Plated Brass
	Socket 201047-4	Cad Plated Brass
Strain Relief Clamp (for receptacle only)	Long 201849-1	Cad Plated Steel
	Short 201221-1	Cad Plated Steel
Shield and Cable Clamp—45° (for plug only)	202798-1	Cad Plated Steel

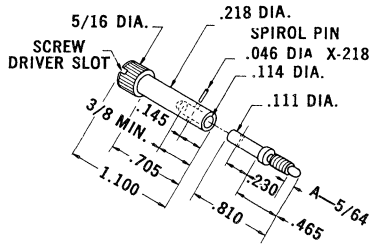
HARDWARE DIMENSIONAL DATA

(All Dimensions in inches)

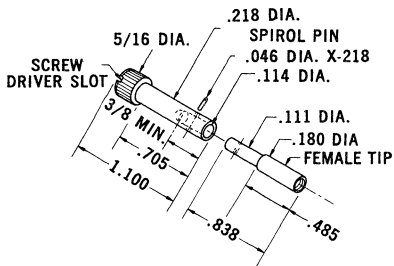
JACK SCREWS



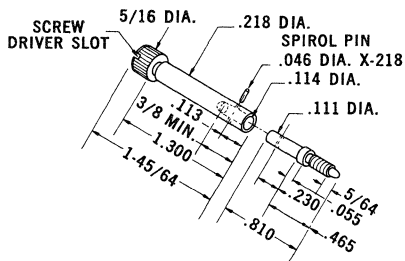
200867—LONG (TURNABLE) FEMALE



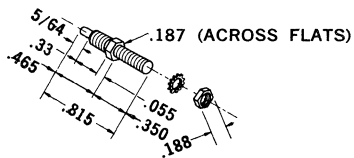
200868—SHORT (TURNABLE) MALE



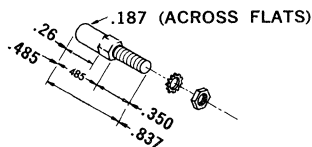
200870—SHORT (TURNABLE) FEMALE



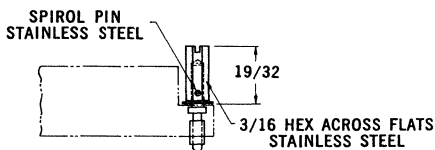
200871—LONG (TURNABLE) MALE



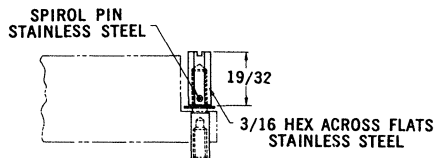
200874—MALE ASSEMBLY-FIXED



200875—FEMALE ASSEMBLY-FIXED

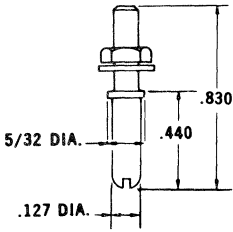


201388—SHORT-SHORT MALE (TURNABLE)

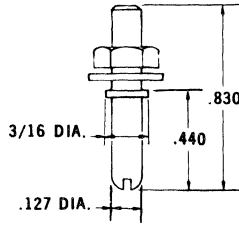


201389—SHORT-SHORT FEMALE (TURNABLE)

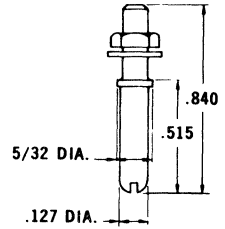
GUIDE PINS AND SOCKETS



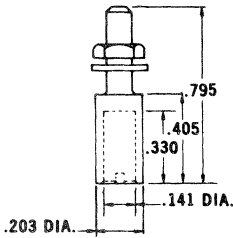
200833-
CORNER GUIDE PIN



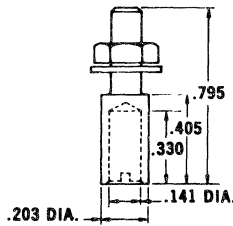
201046-
CORNER GUIDE PIN



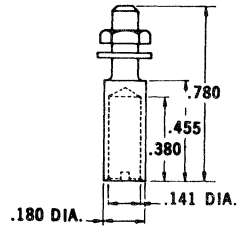
200389-
CENTER GUIDE PIN



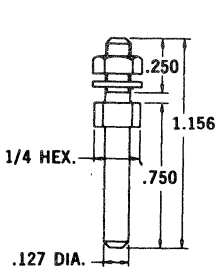
200835-
CORNER GUIDE SOCKET



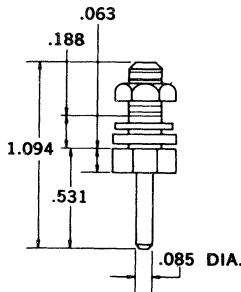
201047-
CORNER GUIDE SOCKET



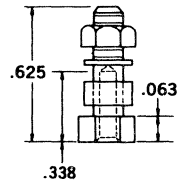
200390-
CENTER GUIDE SOCKET



201540-
GUIDE PIN

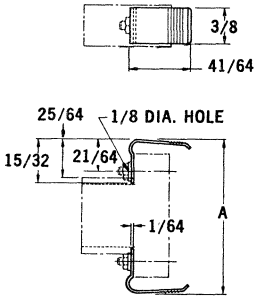


202173-
GUIDE ASSEMBLY—PIN



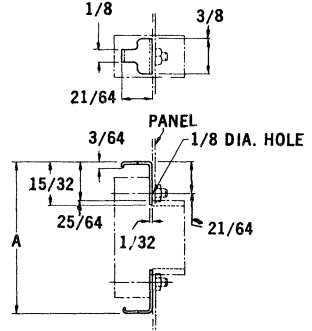
202174-
GUIDE ASSEMBLY—SOCKET

LOCKING SPRINGS SECURED WITH GUIDE PIN AND/OR SOCKET

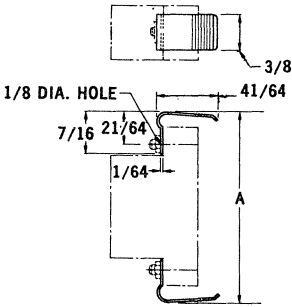


201921—14-20-41 POSITION
LOCKING SPRING

A — 1 19/32 FOR 14 POSITION
1 29/32 FOR 20 POSITION
2 31/32 FOR 41 POSITION

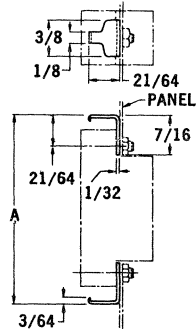


201922—14-20-41 POSITION
LOCKING SPRING CATCH

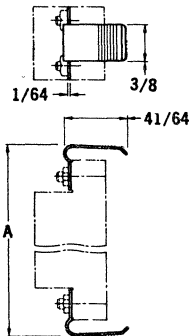


201923—21 & 26 POSITION
LOCKING SPRING

A — 2 19/32 FOR 21 POSITION
1 31/32 FOR 26 POSITION

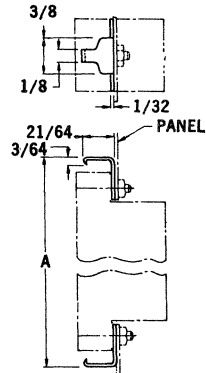


201924—21-26 POSITION
LOCKING SPRING CATCH



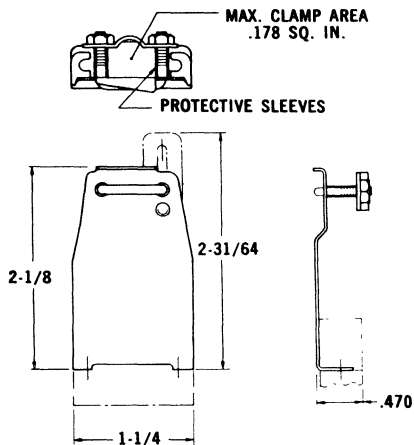
201925—34 & 50 POSITION
LOCKING SPRING

A — 2 11/32 FOR 34 POSITION
2 15/32 FOR 50 POSITION

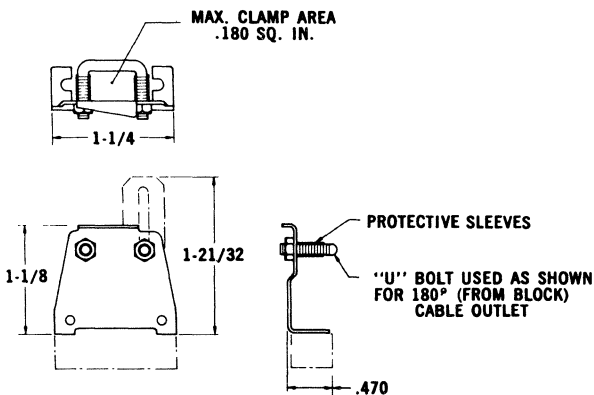


201926—34 & 50 POSITION
LOCKING SPRING CATCH

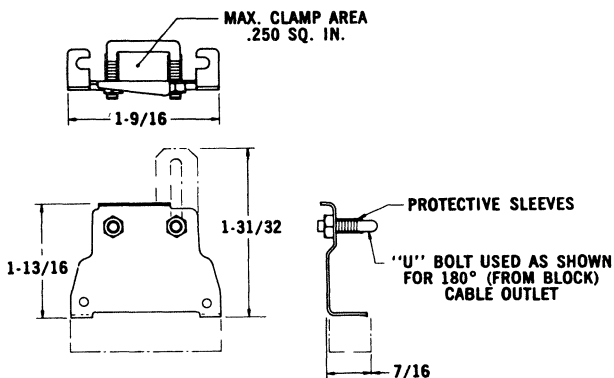
STRAIN RELIEF CLAMPS



201843—14 POSITION LONG

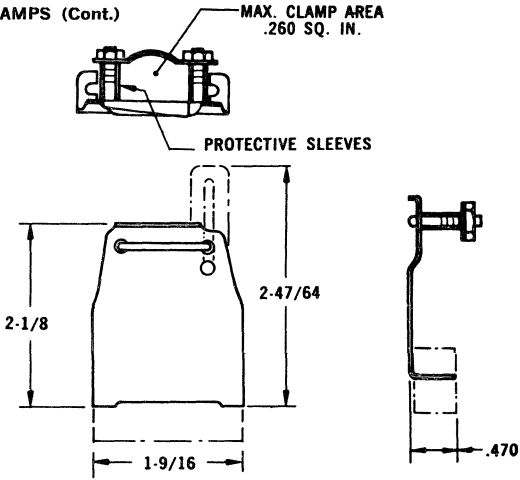


200686—14 POSITION SHORT

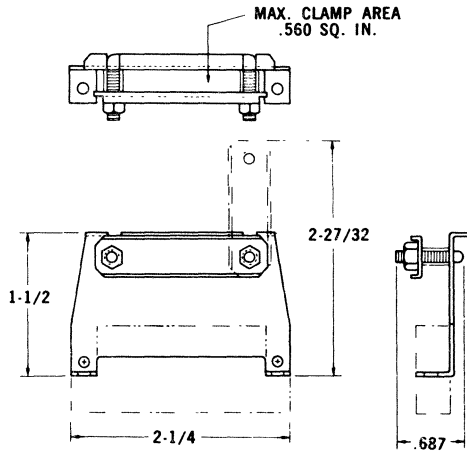


201237—20 POSITION SHORT

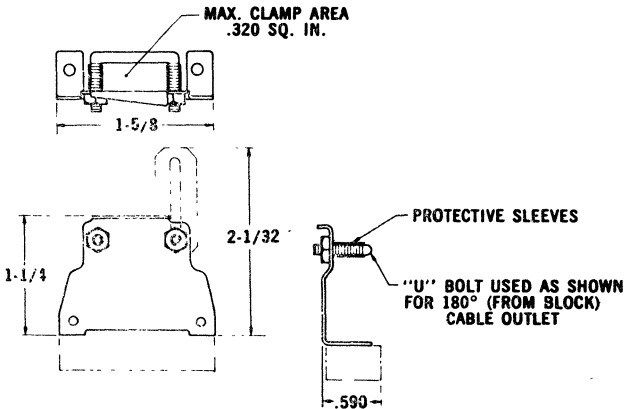
STRAIN RELIEF CLAMPS (Cont.)



201844—20 POSITION LONG

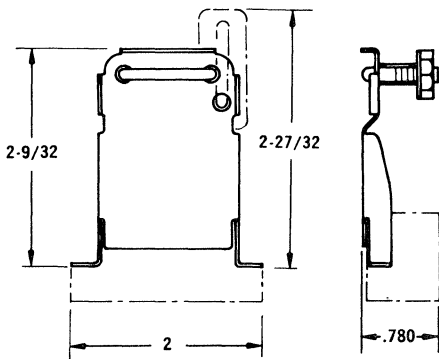
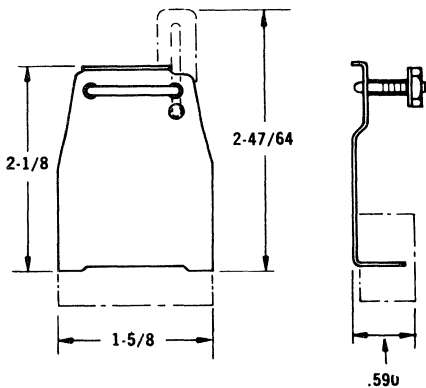
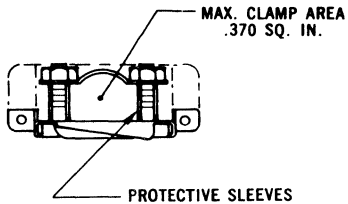
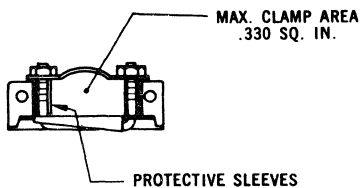


201765—21 POSITION SHORT



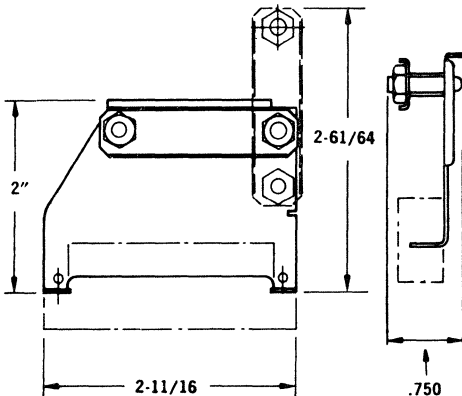
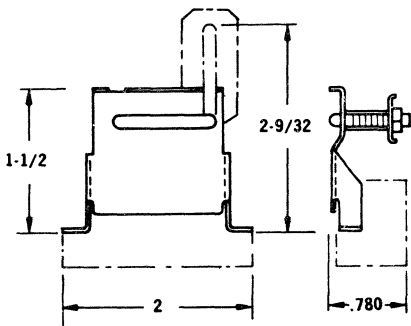
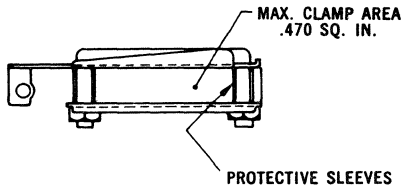
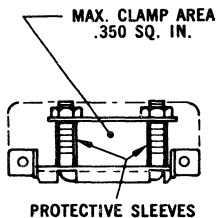
201229—26 POSITION SHORT

STRAIN RELIEF CLAMPS (Cont.)



201845—26 POSITION LONG

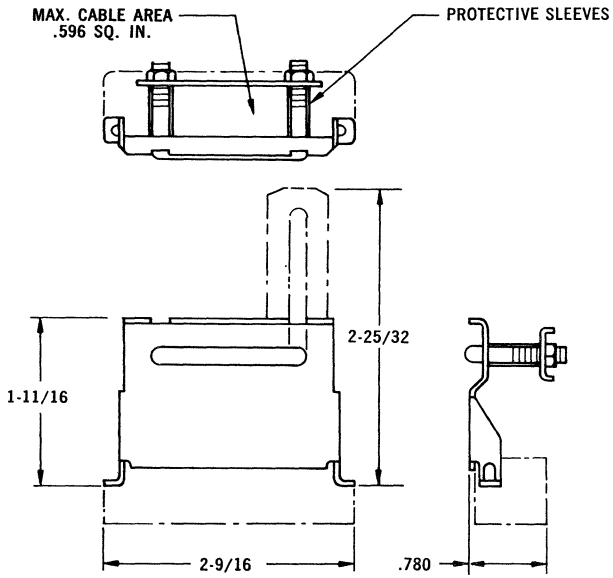
201846—34 POSITION LONG



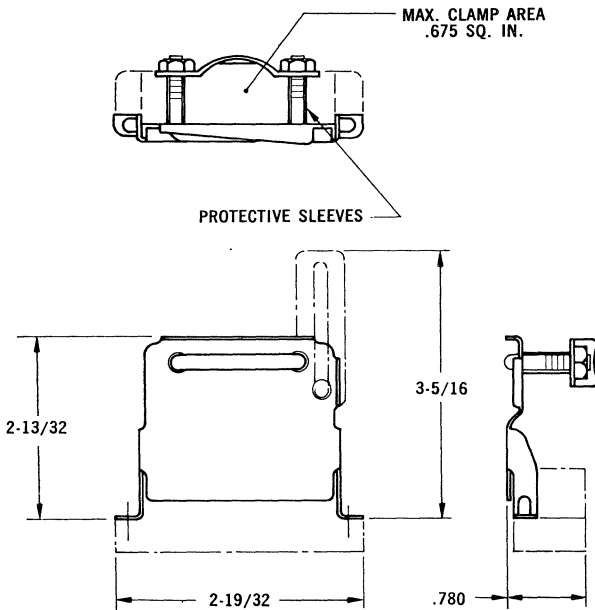
201224—34 POSITION SHORT

201766—41 POSITION

STRAIN RELIEF CLAMPS (Cont.)



201182—50 POSITION SHORT

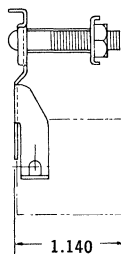
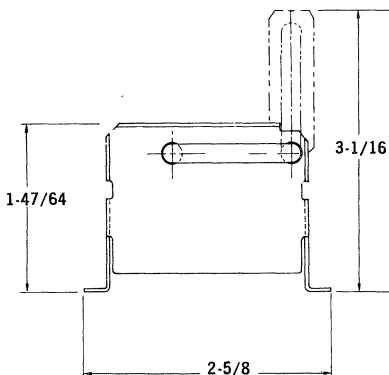
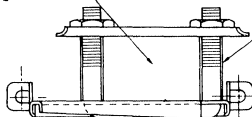


201847—50 POSITION LONG

STRAIN RELIEF CLAMPS (Cont.)

MAX. CABLE CLAMP
AREA .796 SQ. IN.

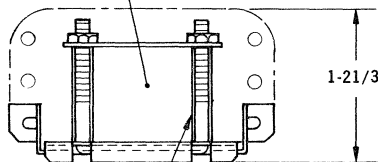
PROTECTIVE SLEEVES



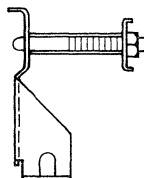
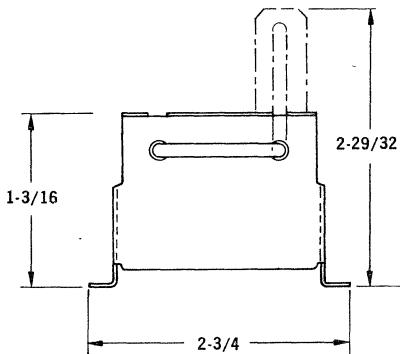
200730—75 POSITION SHORT

MAX. CLAMP AREA
1.125 SQ. IN.

1-21/32

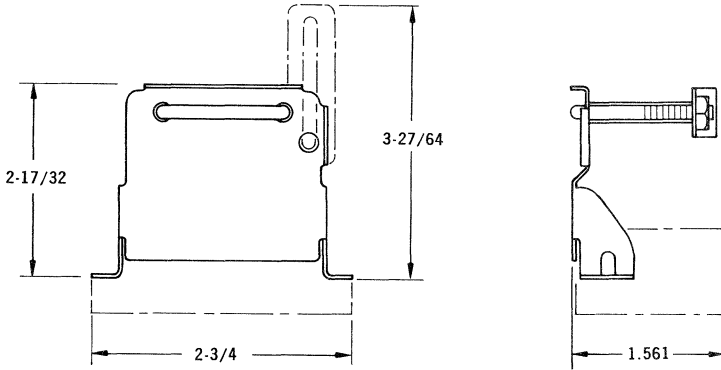
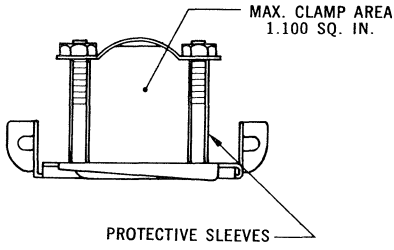


PROTECTIVE SLEEVES

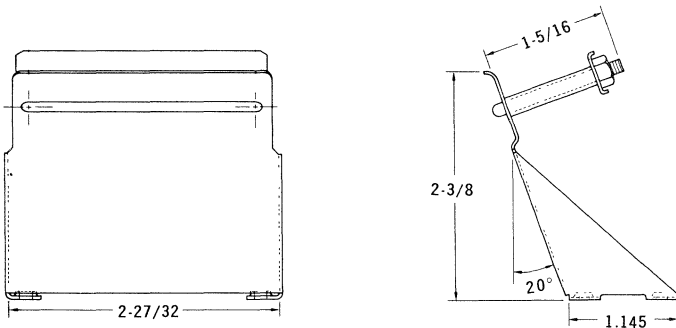


201221—104 POSITION SHORT

STRAIN RELIEF CLAMPS (Cont.)

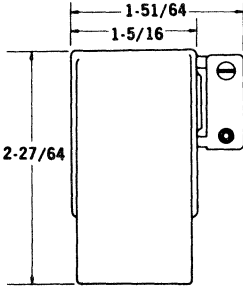


201849—104 POSITION LONG

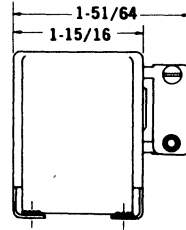
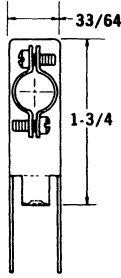


202193—104 POSITION CENTER FASTENER

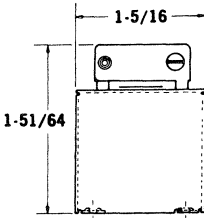
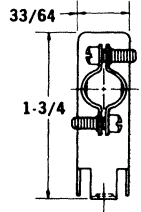
SHIELD AND CABLE CLAMPS



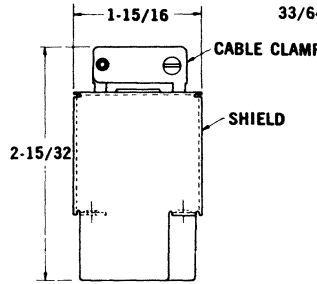
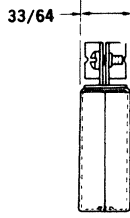
200477 -14 POSITION 90° LONG



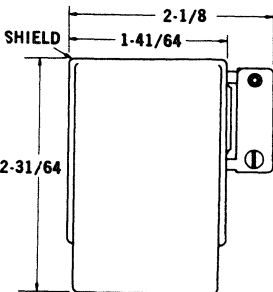
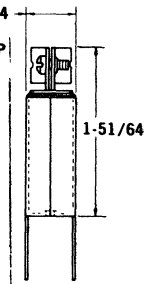
201467—14 POSITION 90° SHORT



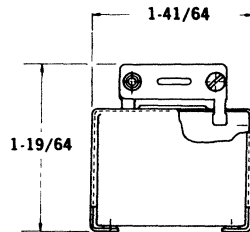
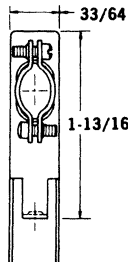
201360—14 POSITION 180° SHORT



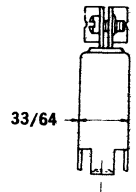
201378—14 POSITION 180° LONG



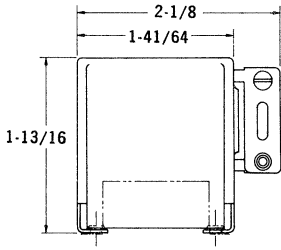
200480—20 POSITION 90° LONG



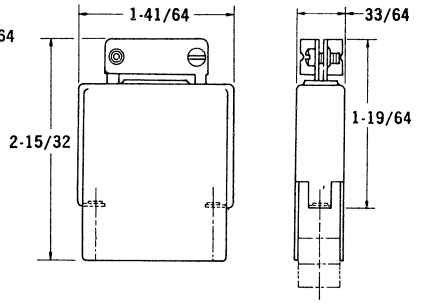
201227—20 POSITION 180° SHORT



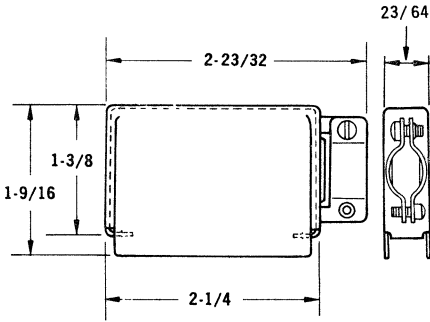
SHIELD AND CABLE CLAMPS (Cont.)



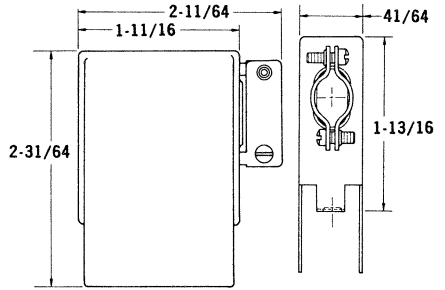
201460—20 POSITION
90° SHORT



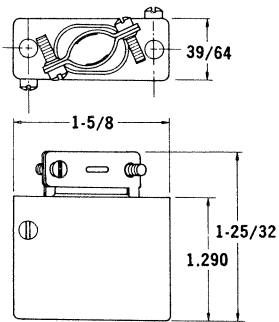
201380—20 POSITION
180° LONG



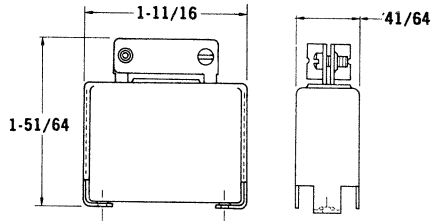
201303—21 POSITION
90° SHORT



200488—26 POSITION
90° LONG

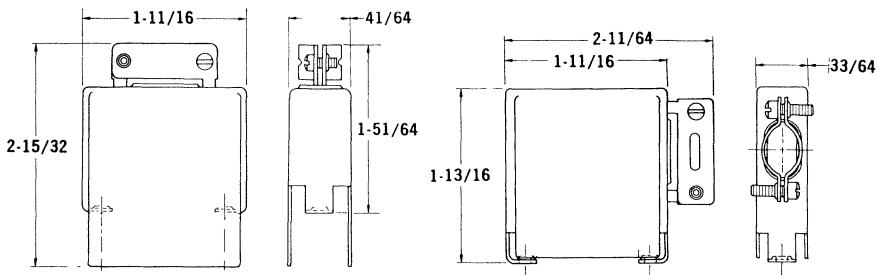
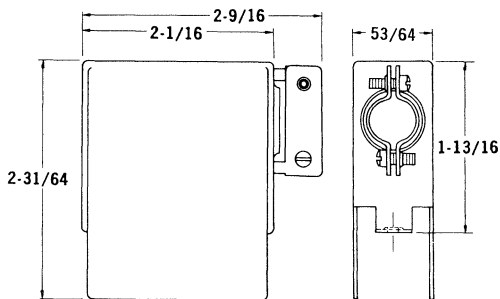
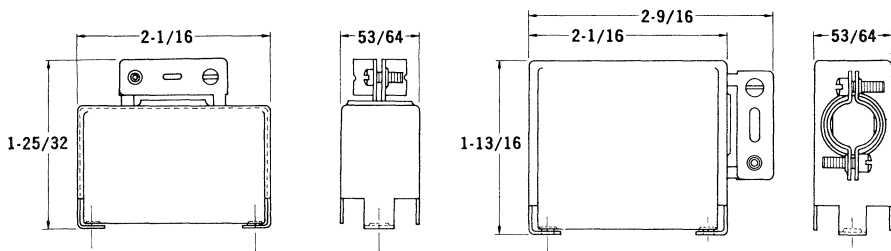


200514—26 POSITION
180° SHORT

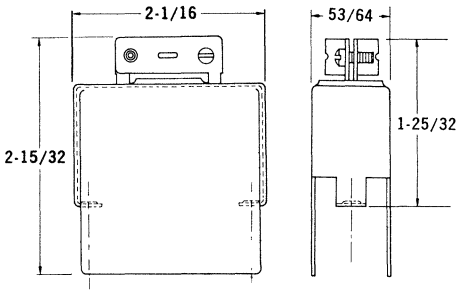


201169—26 POSITION
180° SHORT

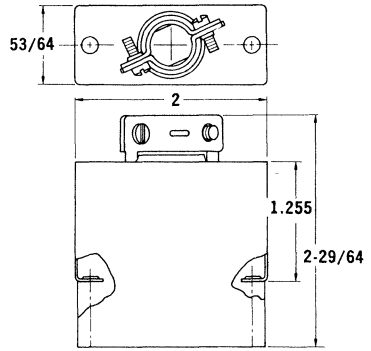
SHIELD AND CABLE CLAMPS (Cont.)

201382—26 POSITION
180° LONG201468—26 POSITION
90° SHORT200490—34 POSITION
90° LONG201165—34 POSITION
180° SHORT201469—34 POSITION
90° SHORT

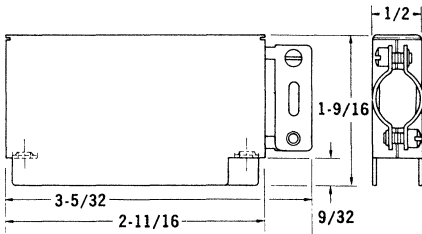
SHIELD AND CABLE CLAMPS (Cont.)



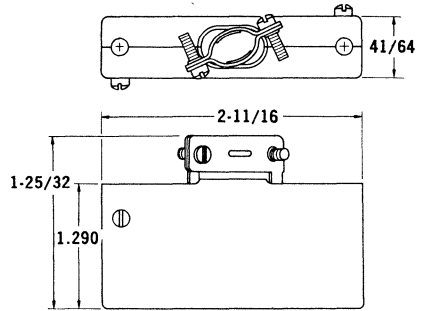
201384—34 POSITION
180° LONG



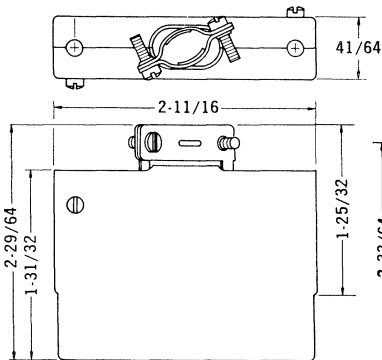
201571—34 POSITION
180° LONG



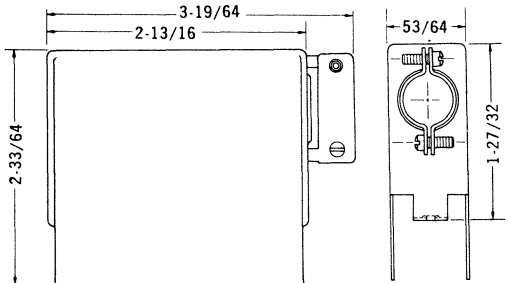
201486—41 POSITION
90° SHORT



202160—41 POSITION
180° SHORT

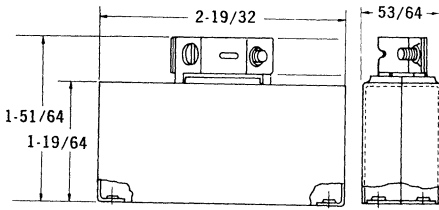


202164—41 POSITION
180° LONG

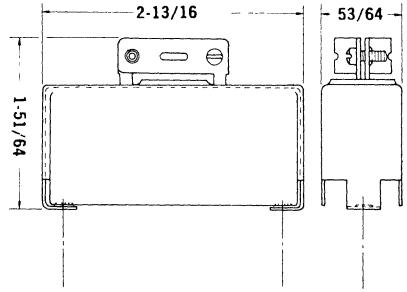


200492—50 POSITION
90° LONG

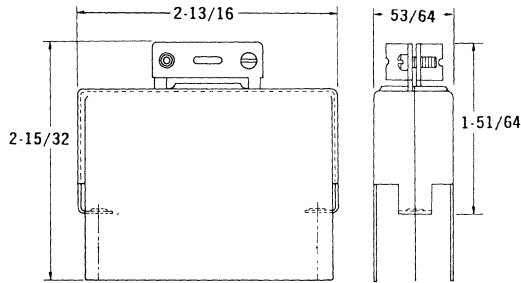
SHIELD AND CABLE CLAMPS (Cont.)



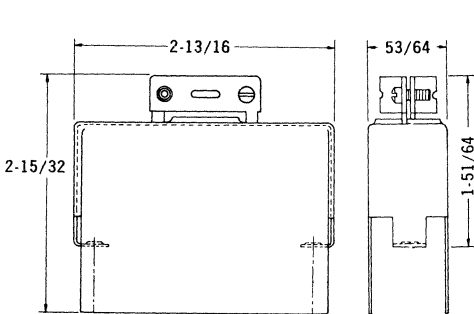
200532—50 POSITION
180° SHORT



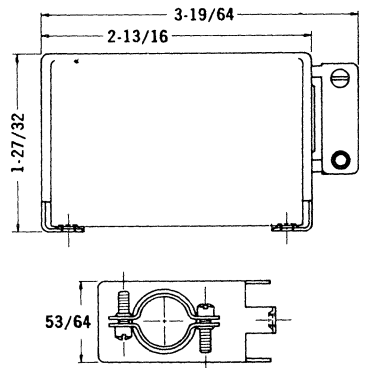
201173—50 POSITION
180° SHORT



201443—50 POSITION
180° LONG

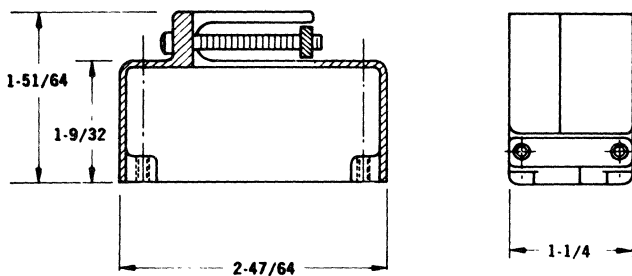


201386—50 POSITION
180° LONG

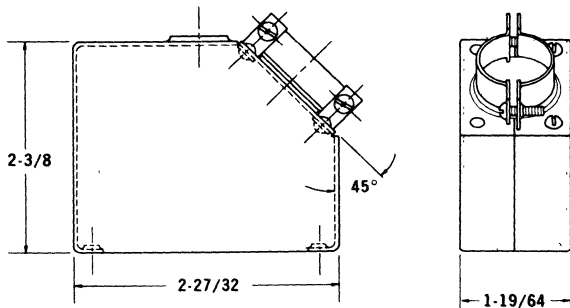


201470—50 POSITION
90° SHORT

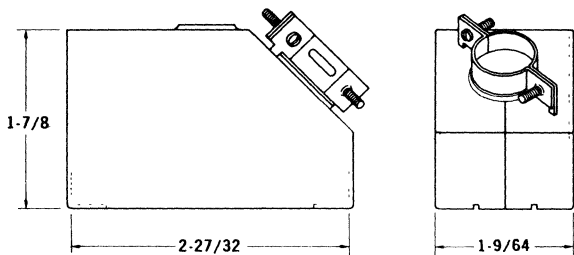
SHIELD AND CABLE CLAMPS (Cont.)



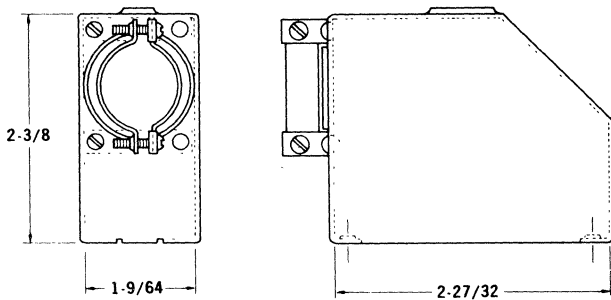
201342—75 POSITION
180° SHORT



202169-1—104 POSITION (CENTER FASTENER)
45° LONG

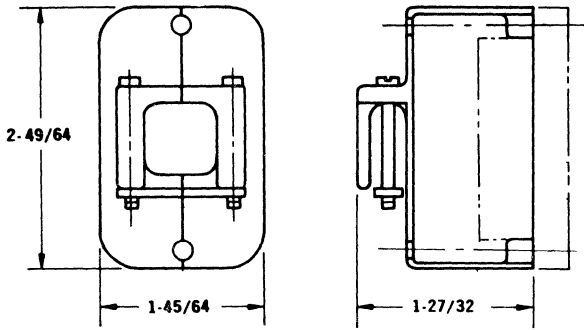


202110—104 POSITION (CENTER FASTENER)
45° SHORT



202395—104 POSITION (CENTER FASTENER)
90°

SHIELD AND CABLE CLAMPS (Cont.)



201131—104 POSITION
180° SHORT

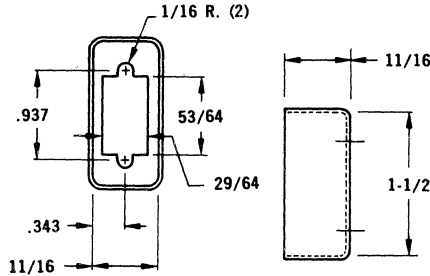
CABLE DIAMETER FOR "M" SERIES SHIELDS

The following are maximum diameters of rigid jacketed cable that can be accepted by the various shields:

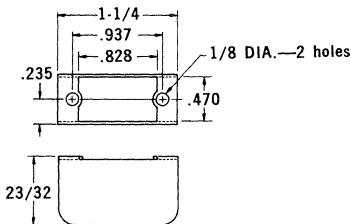
- 14 Position**
.390 max. dia.—all shields
- 20 Position**
.312 max. dia.—all shields
- 21 Position**
.343 max. dia.—all shields
- 26 Position**
200514—.580 max. dia.
All other shields .500 max. dia.

- 34 Position**
.625 max. dia.
- 41 Position**
201486—.437 dia. max.
All other shields .375 dia. max.
- 50 Position**
201443—.718 max. dia.
200532—.718 max. dia.
All other shields .625 max. dia.
- 75 Position**
.750 max. dia.—all shields
- 104 Position**
.750 max. dia.—all shields
- 104 Center Fastener**
202110—.700 max. dia.
All other shields 1.000 max. dia.

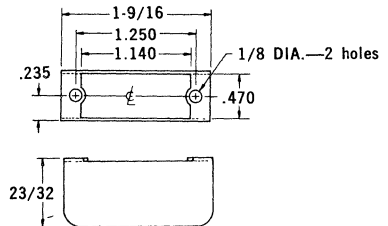
PIN HOODS



201347—14 POSITION EXTERNAL

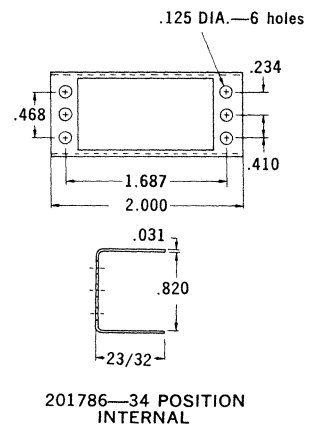
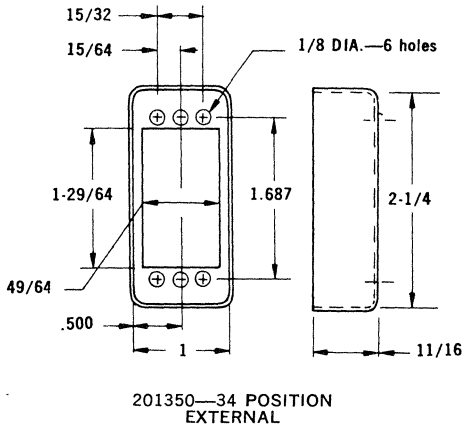
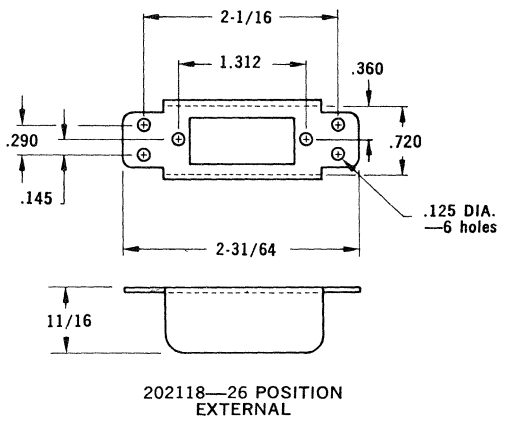
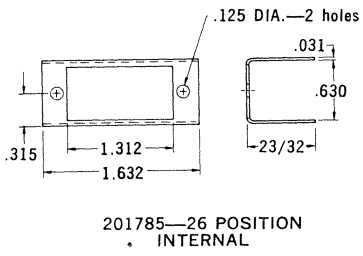
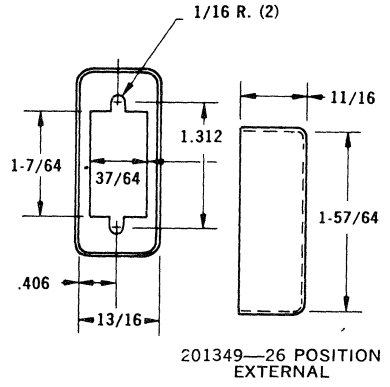
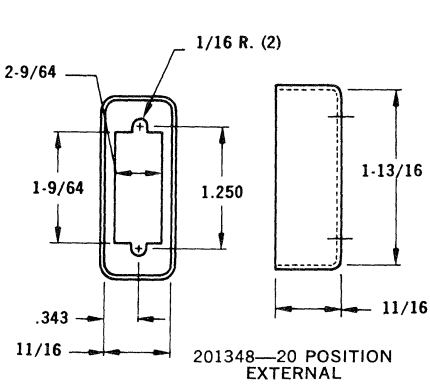


201363—
14 POSITION
PIN HOOD
INTERNAL

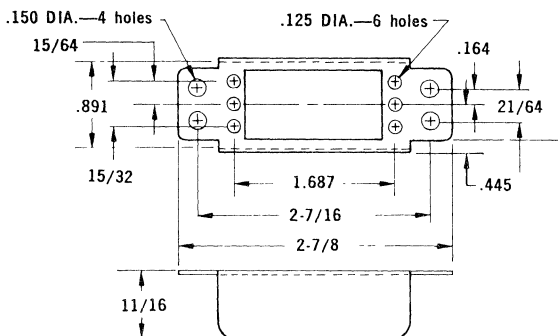
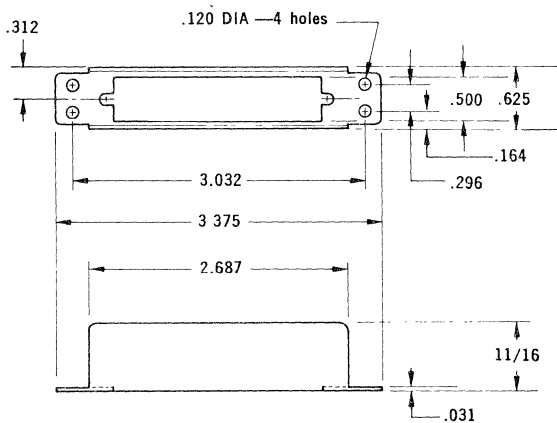
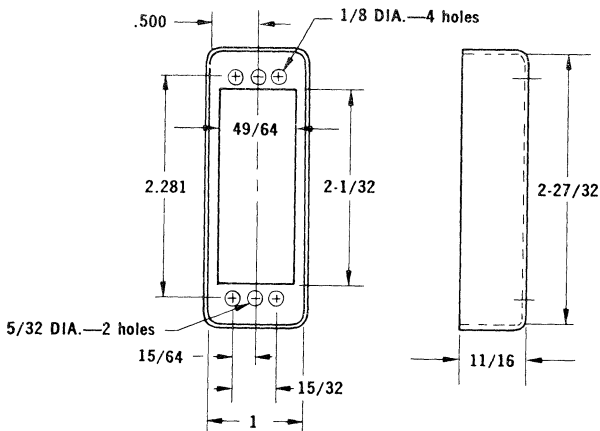


201362—
20 POSITION
INTERNAL

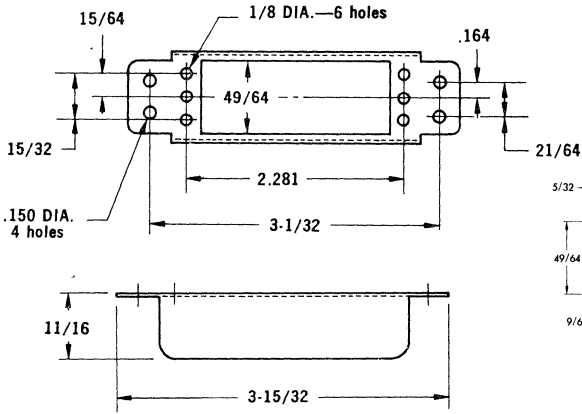
PIN HOODS (Cont.)



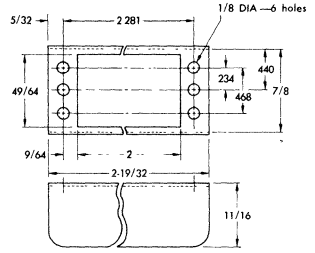
PIN HOODS (Cont.)

202095—34 POSITION
EXTERNAL202165-3—41 POSITION
EXTERNAL201390—50 POSITION
EXTERNAL

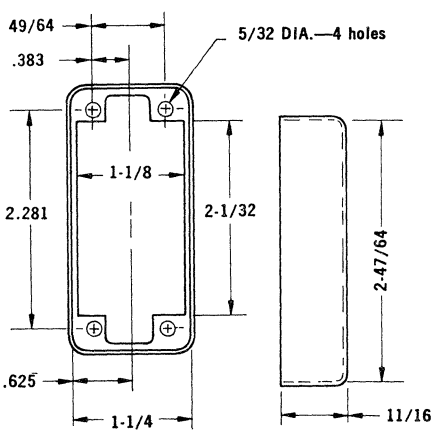
PIN HOODS (Cont.)



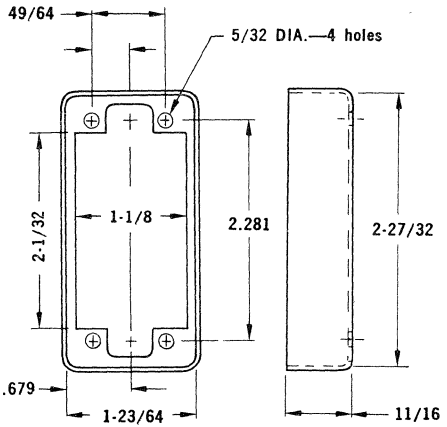
202096—50 POSITION EXTERNAL



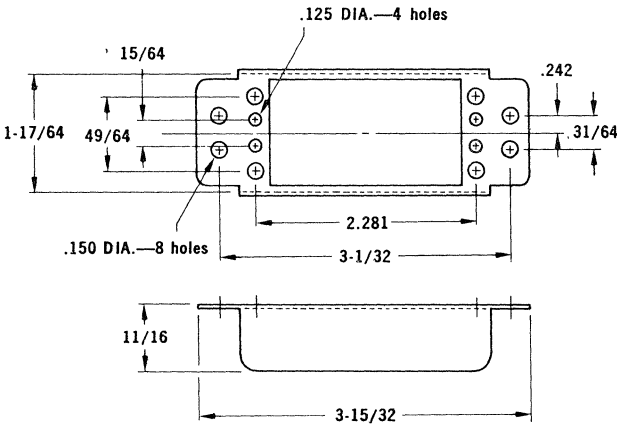
201317—50 POSITION INTERNAL



201369—75 POSITION INTERNAL

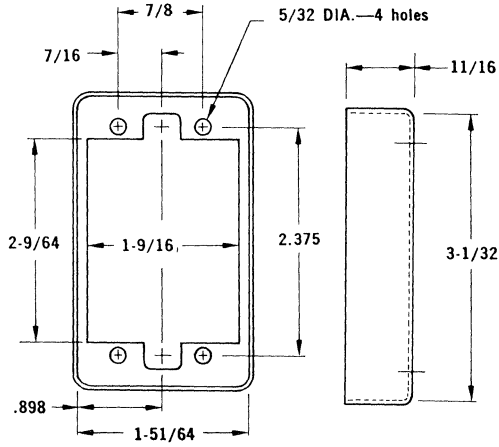


201368—75 POSITION EXTERNAL

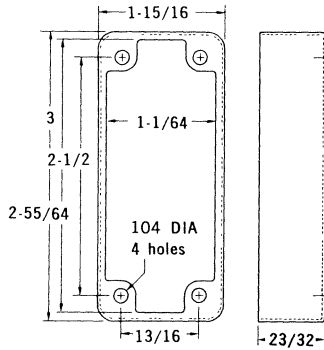


202097—75 POSITION EXTERNAL

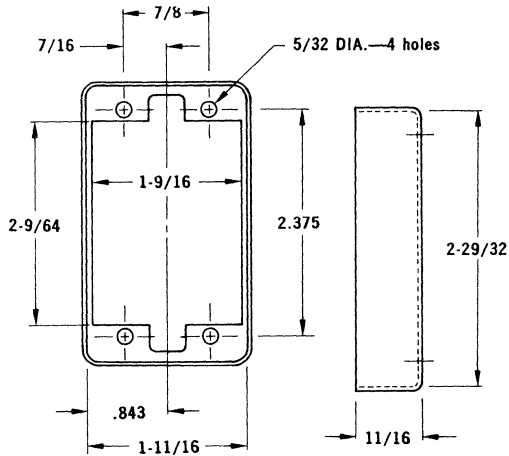
PIN HOODS (Cont.)



201346—104 POSITION
EXTERNAL



202119—104 POSITION
(CENTER FASTENER)



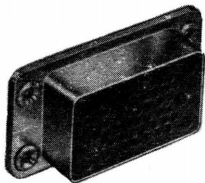
201364—104 POSITION
INTERNAL

INTRODUCTION

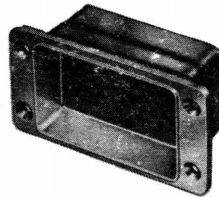
The "D", "DD", "DDE", "W" and "WW" connectors pictured and described in the following pages consist primarily of diallyl phthalate or polyurethane inserts encased, for optimum protection, in a cadmium plated metal shell; they are generally rack and panel or bulkhead mounted. All these connectors utilize one or more of several types of gold-over-nickel plated pin and socket contacts. Both the male and female contacts are fully enclosed within the connector for maximum protection. Optional hardware is available for strain relief and other special protection.

Double connector configurations in this series are indicated by paired letters, such as "DD" and "WW". The "DDE" is an environmental connector with grommets, seals and other specially protective components. For referencing convenience, this catalog includes a breakdown of all components for each connector type.

A TYPICAL SERIES "D" CONNECTOR

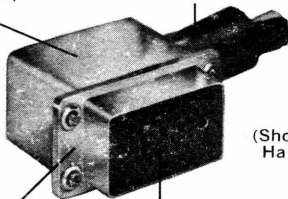


(Shown Without Hardware)



90° Shield and Cable Clamp

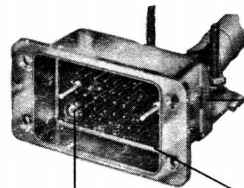
Bushing



(Shown With Hardware)

Plug Half

Socket Contacts

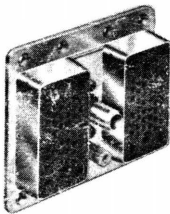


Strain Relief Clamp

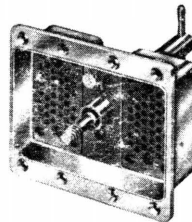
Pin Contacts

Receptacle Half

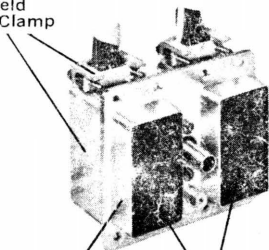
A TYPICAL SERIES "DD" CONNECTOR



(Shown Without Hardware)



90° Shield and Cable Clamp

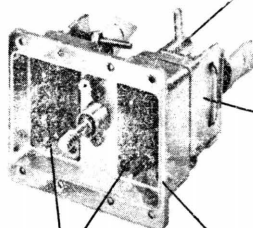


(Shown With Hardware)

Plug Half

Socket Contacts

DZUS or A-MP Fastener

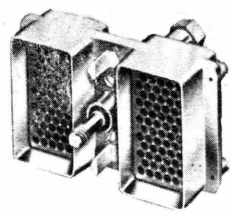
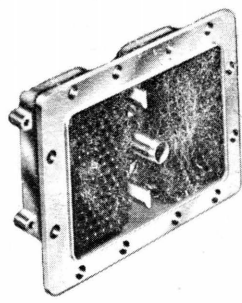


Strain Relief Clamp

Pin Contacts

Receptacle Half

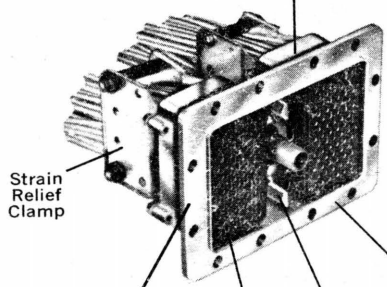
A TYPICAL SERIES "DDE" CONNECTOR



(Shown Without Hardware)

Rear Seals
(Not Shown)

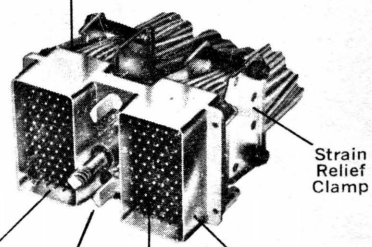
(Shown With Hardware)



Strain Relief Clamp

Receptacle Half

Socket Contacts



Strain Relief Clamp

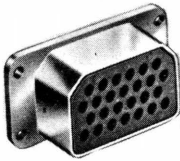
Plug Half

Pin Contacts

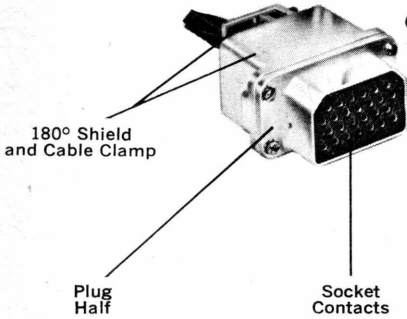
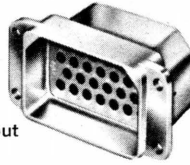
Inter Facial Seals

Polarizing Posts

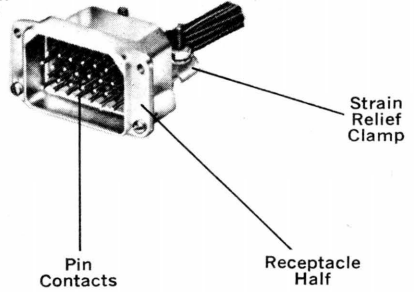
A TYPICAL SERIES "W" CONNECTOR



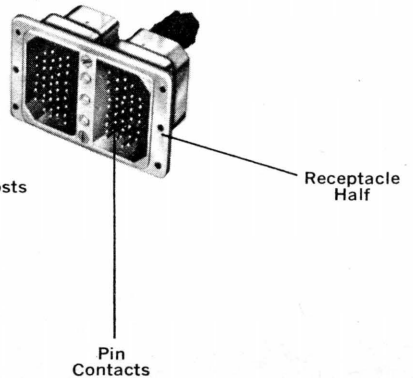
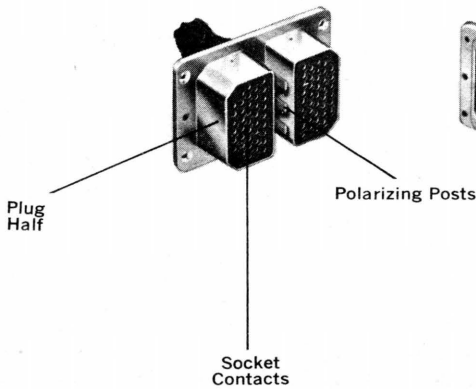
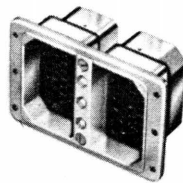
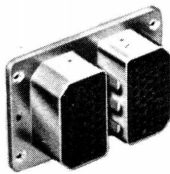
(Shown Without Hardware)



(Shown With Hardware)



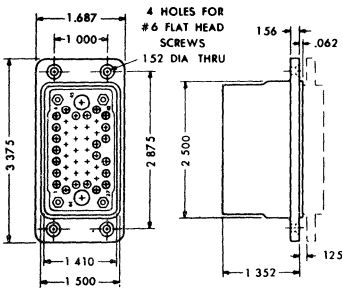
A TYPICAL SERIES "WW" CONNECTOR



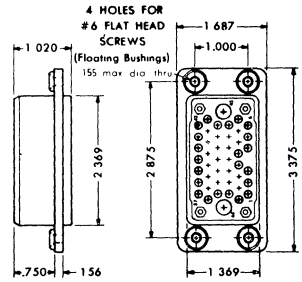
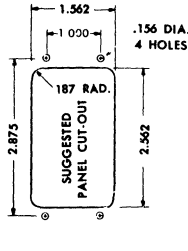
"D" SERIES CONNECTOR SPECIFICATIONS

COMPLETE CONNECTOR (LESS CONTACTS)

45

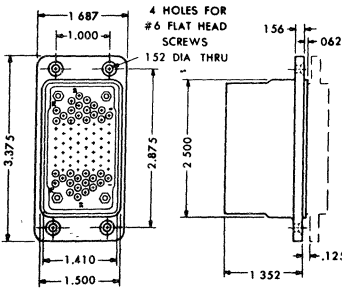


RECEPTACLE UNIT

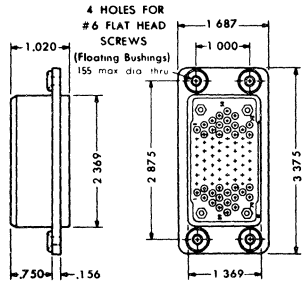
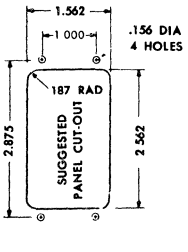


PLUG UNIT

78



RECEPTACLE UNIT



PLUG UNIT

No. of Contacts	Block Will Accommodate These Variations of Contacts	Recept.* Unit (Pins Only)	Plug Unit (Socket Only)	Shell Finish	Contact Block Numbering
45	2 Type I Size 10 and 43 Type II Size 16, 20 or Type III Size 16, 18, 20 or Type III(-) Size 16, 18, 20	201638-1	201637-1	Clear Cad. Plate	Raised Numbers
		201638-2	201637-2	Olive Drab Cad. Plate	
		201638-3	201637-3	Clear Cad. Plate	White Numbers
		201638-4	201637-4	Olive Drab Cad. Plate	

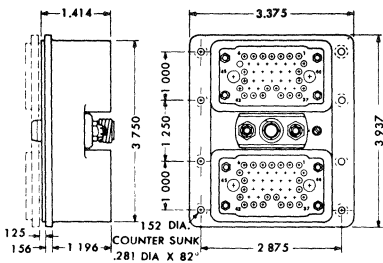
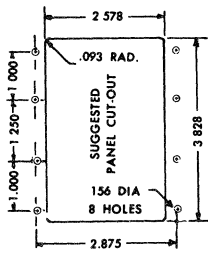
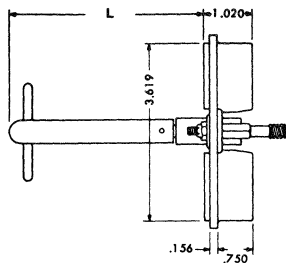
No. of Contacts	Block Will Accommodate These Variations of Contacts	Recept.* Unit (Pins Only)	Plug Unit (Socket Only)	Shell Finish	Contact Block Numbering
78	Type II Size 16, 20 or Type III Size 16, 18, 20 or Type III(-) Size 16, 18, 20	200383-1	200363-1	Clear Cad. Plate	Raised Numbers
		200383-2	200363-2	Olive Drab Cad. Plate	

*Guide Pins Included

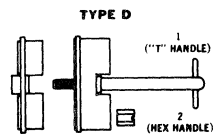
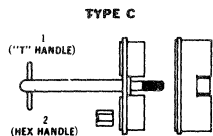
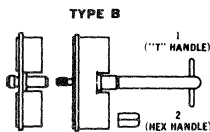
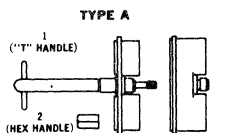
NOTE: Shell Material: Die Cast Aluminum • Contact Block Material: Diallyl Phthalate, Glass Filled, Per MIL-M-14F Type SDG-F. • Max. Operating Temp. 300° F.

"DD" SERIES CONNECTOR SPECIFICATIONS

COMPLETE CONNECTOR (LESS CONTACTS)



PLUG UNIT



DZUS FASTENERS

RECEPTACLE UNIT

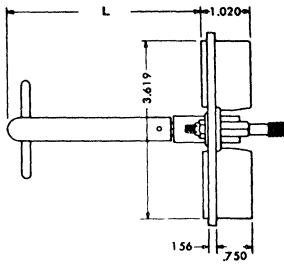
No. of Contacts	Type	Contact Block Numbering	Shell Finish	Plug Unit (For Sockets)	Recept. Unit (For Pins)	"L" Max.
A-1	Raised Numbers	Cad. Plate	Olive Drab Cad. Plate	201639-1	201640-1	3.967
		Cad. Plate	Olive Drab Cad. Plate	201639-2	201640-2	
	White Numbers	Cad. Plate	Olive Drab Cad. Plate	201639-5	201640-3	
		Cad. Plate	Olive Drab Cad. Plate	201639-6	201640-4	
A-2	Raised Numbers	Cad. Plate	Olive Drab Cad. Plate	201639-3	201640-1	1.406
		Cad. Plate	Olive Drab Cad. Plate	201639-4	201640-2	
	White Numbers	Cad. Plate	Olive Drab Cad. Plate	201639-7	201640-3	
		Cad. Plate	Olive Drab Cad. Plate	201639-8	201640-4	
B-1	Raised Numbers	Cad. Plate	Olive Drab Cad. Plate	201706-1	201707-1	3.625
		Cad. Plate	Olive Drab Cad. Plate	201706-2	201707-2	
	White Numbers	Cad. Plate	Olive Drab Cad. Plate	201706-3	201707-5	
		Cad. Plate	Olive Drab Cad. Plate	201706-4	201707-6	
B-2	Raised Numbers	Cad. Plate	Olive Drab Cad. Plate	201706-1	201707-3	1.094
		Cad. Plate	Olive Drab Cad. Plate	201706-2	201707-4	
	White Numbers	Cad. Plate	Olive Drab Cad. Plate	201706-3	201707-7	
		Cad. Plate	Olive Drab Cad. Plate	201706-4	201707-8	
A-MP FASTENERS						
C-1	Raised Numbers	Cad. Plate	Olive Drab Cad. Plate	201635-1	201636-1	3.484
		Cad. Plate	Olive Drab Cad. Plate	201635-2	201636-2	
	White Numbers	Cad. Plate	Olive Drab Cad. Plate	201635-5	201636-3	
		Cad. Plate	Olive Drab Cad. Plate	201635-6	201636-4	
C-2	Raised Numbers	Cad. Plate	Olive Drab Cad. Plate	201635-3	201636-1	.922
		Cad. Plate	Olive Drab Cad. Plate	201635-4	201636-2	
	White Numbers	Cad. Plate	Olive Drab Cad. Plate	201635-7	201636-3	
		Cad. Plate	Olive Drab Cad. Plate	201635-8	201636-4	
D-1	Raised Numbers	Cad. Plate	Olive Drab Cad. Plate	201704-1	201705-1	3.141
		Cad. Plate	Olive Drab Cad. Plate	201704-2	201705-2	
	White Numbers	Cad. Plate	Olive Drab Cad. Plate	201704-3	201705-5	
		Cad. Plate	Olive Drab Cad. Plate	201704-4	201705-6	
D-2	Raised Numbers	Cad. Plate	Olive Drab Cad. Plate	201704-1	201705-3	578
		Cad. Plate	Olive Drab Cad. Plate	201704-2	201705-4	
	White Numbers	Cad. Plate	Olive Drab Cad. Plate	201704-3	201705-7	
		Cad. Plate	Olive Drab Cad. Plate	201704-4	201705-8	

90
 4 Type I Sizes 10 and 86
 Type II Sizes 61, 20 or
 Type III, Sizes 16, 18, 20 or
 Type III(+)
 Sizes 16, 18, 20

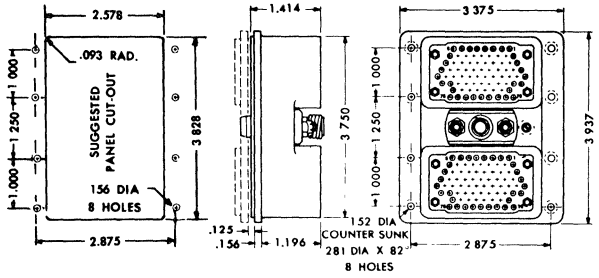
NOTE: Shell Material Die Cast Aluminum • Contact Block Material: Dialyl Phthalate, Glass Filled, Per MIL-M-14F Type SDG-F • Max Operating Temp. 300° F.

156

“DD” SERIES CONNECTOR SPECIFICATIONS
COMPLETE CONNECTOR (LESS CONTACTS)



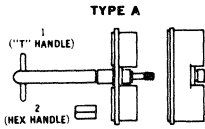
PLUG UNIT



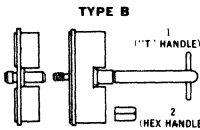
RECEPTACLE UNIT

DZUS FASTENERS

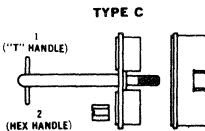
No. of Contacts	Type	Contact Block Numbering	Shell Finish	Plug Unit (For Sockets)	Recpt. Unit (For Pins)	“L” Max.
A-1	Raised Numbers	Cad. Plate	200891-1	200892-1	3.967	
		Olive Drab Cad. Plate	200891-2	200892-2		
	White Numbers	Cad. Plate	200891-5	200892-3		
		Olive Drab Cad. Plate	200891-6	200892-4		
A-2	Raised Numbers	Cad. Plate	200891-3	200892-1	1.406	
		Olive Drab Cad. Plate	200891-4	200892-2		
	White Numbers	Cad. Plate	200891-7	200892-3		
		Olive Drab Cad. Plate	200891-8	200892-4		
B-1	Raised Numbers	Cad. Plate	201283-1	201282-1	3.625	
		Olive Drab Cad. Plate	201283-2	201282-2		
	White Numbers	Cad. Plate	201283-3	201282-5		
		Olive Drab Cad. Plate	201283-4	201282-6		
B-2	Raised Numbers	Cad. Plate	201283-1	201282-3	1.094	
		Olive Drab Cad. Plate	201283-2	201282-4		
	White Numbers	Cad. Plate	201283-3	201282-7		
		Olive Drab Cad. Plate	201283-4	201282-8		



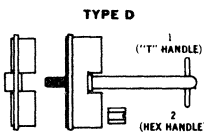
TYPE A



TYPE B



TYPE C



TYPE D

156
Type II
Sizes 16,
20 or
Type III,
Sizes 16,
18, 20 or
Type III(+)
Sizes 16,
18, 20

A-MP FASTENERS

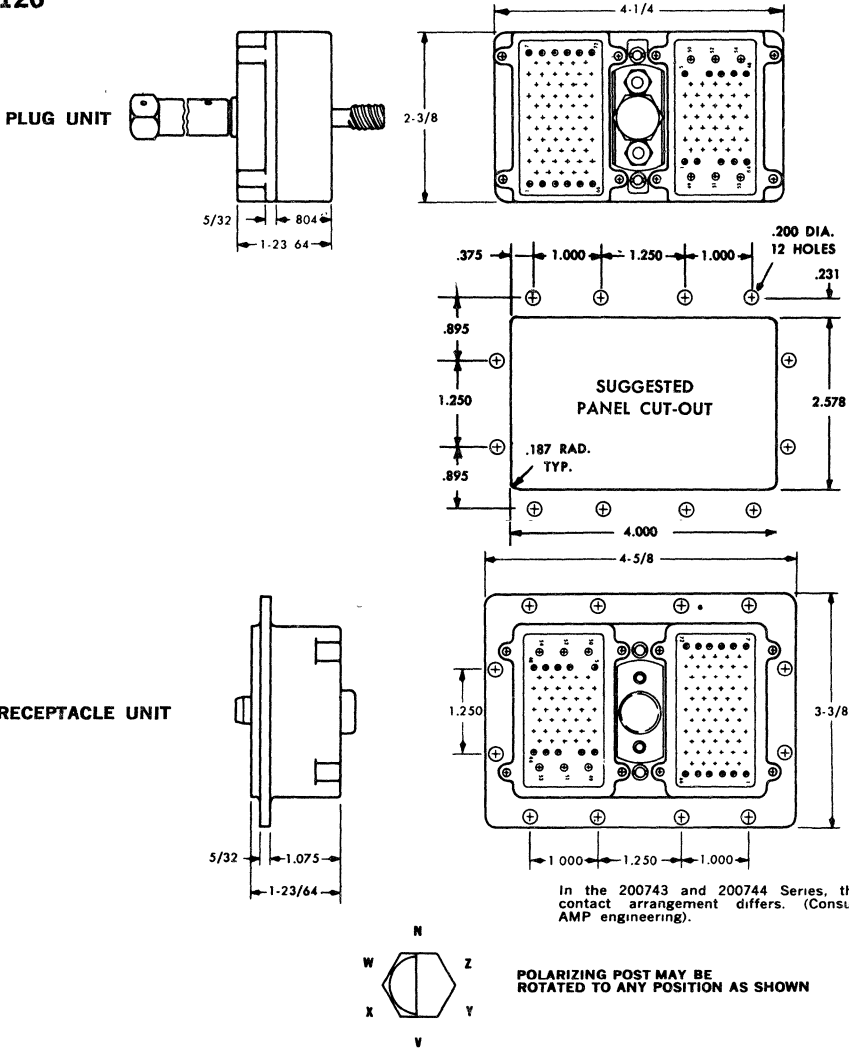
C-1	Raised Numbers	Cad. Plate	200585-1	200586-1	3.484
		Olive Drab Cad. Plate	200585-2	200586-2	
	White Numbers	Cad. Plate	200585-5	200586-3	
		Olive Drab Cad. Plate	200585-6	200586-4	
C-2	Raised Numbers	Cad. Plate	200585-3	200586-1	.922
		Olive Drab Cad. Plate	200585-4	200586-2	
	White Numbers	Cad. Plate	200585-7	200586-3	
		Olive Drab Cad. Plate	200585-8	200586-4	
D-1	Raised Numbers	Cad. Plate	201563-1	201564-1	3.141
		Olive Drab Cad. Plate	201563-2	201564-2	
	White Numbers	Cad. Plate	201563-3	201564-5	
		Olive Drab Cad. Plate	201563-4	201564-6	
D-2	Raised Numbers	Cad. Plate	201563-1	201564-3	.578
		Olive Drab Cad. Plate	201563-2	201565-5	
	White Numbers	Cad. Plate	201563-3	201564-7	
		Olive Drab Cad. Plate	201563-4	201564-8	

NOTE: Shell Material: Die Cast Aluminum • Contact Block Material: Diallyl Phthalate, Glass Filled, Per MIL-M-14F Type SDG-F. • Max. Operating Temp. 300° F.

"DDE" SERIES CONNECTOR SPECIFICATIONS

COMPLETE CONNECTOR (LESS CONTACTS)

126



Estimated Weight: .605 pounds (less contacts) for Plug Assembly and .597 pounds (less contacts) for Recept. Assembly.

No. of Contacts	Polarizing Post Position	Plug Unit (For Pins)	Plug Unit (For Socket)	Recept. Unit (For Pins)	Recept. Unit (For Socket)	Shell Material and Finish	Cable Clamp Number
126 6 Type V, Size 10 Contacts 120 Type V, Size 16 Contacts	N	200741-1	200743-1	200744-1	200742-1	Cad. Plate Aluminum	200732-1
	V	200741-2	200743-2	200744-2	200742-2	Cad. Plate Aluminum	200732-1
	W	200741-3	200743-3	200744-3	200742-3	Cad. Plate Aluminum	200732-1
	X	200741-4	200743-4	200744-4	200742-4	Cad. Plate Aluminum	200732-1
	Y	200741-5	200743-5	200744-5	200742-5	Cad. Plate Aluminum	200732-1
	Z	200741-6	200743-6	200744-6	200742-6	Cad. Plate Aluminum	200732-1

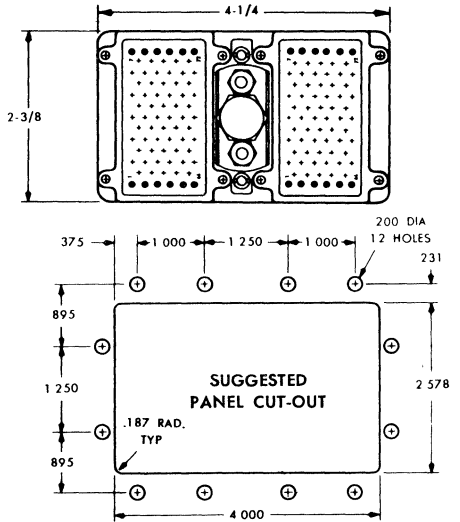
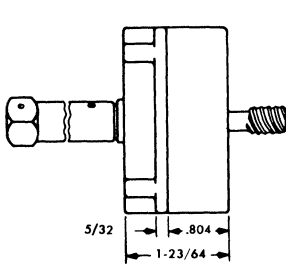
NOTE: Contact Block Material: Polyurethane, Seals: Polychloroprene.

"DDE" SERIES CONNECTOR SPECIFICATIONS

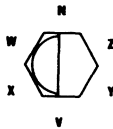
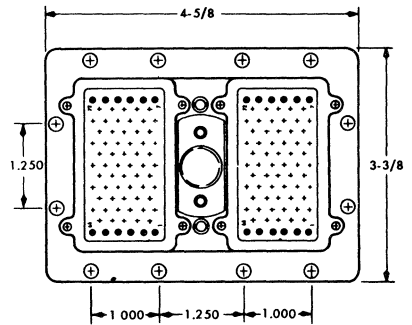
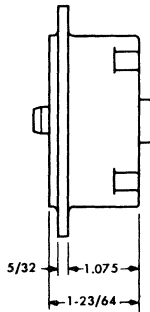
COMPLETE CONNECTOR (LESS CONTACTS)

144

PLUG UNIT



RECEPTACLE UNIT



POLARIZING POST MAY BE ROTATED TO ANY POSITION AS SHOWN

Estimated Weight: .605 pounds (less contacts) for Plug Assembly and .567 pounds (less contacts) for Recept. Assembly.

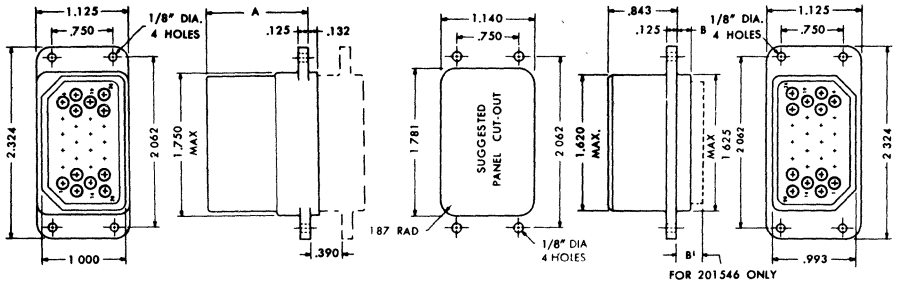
No. of Contacts	Polarizing Post Position	Plug Unit (For Pins)	Recept. Unit (For Socket)	Shell Material and Finish	Cable Clamp Number
144 Type V Size 16 Contacts	N	200739-1	200740-1	Cad. Plate Aluminum	200732-1
	V	200739-2	200740-2	Cad. Plate Aluminum	200732-1
	W	200739-3	200740-3	Cad. Plate Aluminum	200732-1
	X	200739-4	200740-4	Cad. Plate Aluminum	200732-1
	Y	200739-5	200740-5	Cad. Plate Aluminum	200732-1
	Z	200739-6	200740-6	Cad. Plate Aluminum	200732-1

NOTE: Contact Block Material: Polyurethane, Seals: Polychloroprene.

"W" SERIES CONNECTOR SPECIFICATIONS

COMPLETE CONNECTOR (LESS CONTACTS)

26

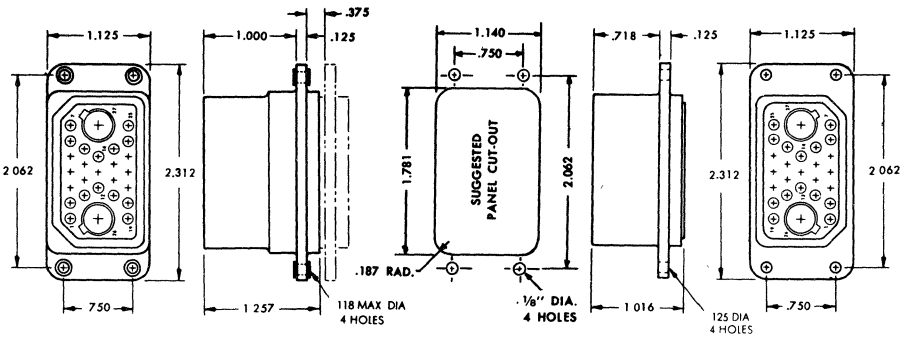


RECEPTACLE UNIT

PLUG UNIT

No. of Contacts	Recept. Unit (For Pins)	A	Plug Unit (For Sockets)	B	Recept. Unit (For Sockets)	A	Plug Unit (For Pins)	B ¹	Shell Finish
26	200482-1	1.125	200470-1	.127	201545-1	.783	201546-1	.327	Clear Cad. Plate
Type II, Sizes 16 and 20 Contacts;	200482-2	1.125	200470-2	.127	201545-2	.783	201546-2	.327	Olive Drab Cad. Plate
Type III, Sizes 16, 18 and 20 Contacts	200482-3	1.125	200470-3	.127					Iridite
Type III(+) Sizes 16 and 18 Contacts									

27*
(mixed)



RECEPTACLE UNIT

PLUG UNIT

No. of Contacts	Recept. Unit (For Pins)	A	Plug Unit (For Sockets)	B	Recept. Unit (For Sockets)	A	Plug Unit (For Pins)	B ¹	Shell Finish
27* (mixed)	202072-1		202073-1						Cad. Plate

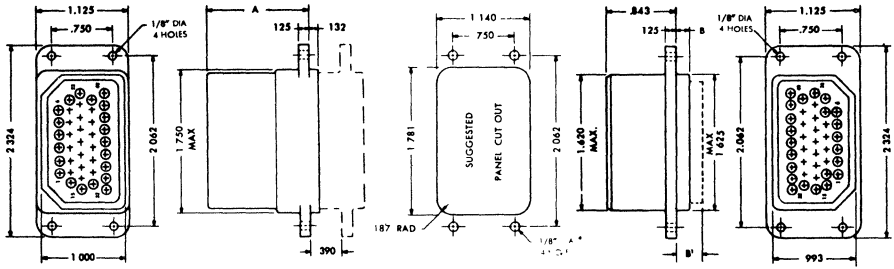
*Type II, III, or III(+) Pin Contacts and Two Twin Standard COAXICON Contacts.

NOTE: Shell Material: Die Cast Aluminum • Contact Block Material: Diallyl Phthalate, Per MIL-M-14F, Type SDG-F.

"W" SERIES CONNECTOR SPECIFICATIONS

COMPLETE CONNECTOR (LESS CONTACTS)

40

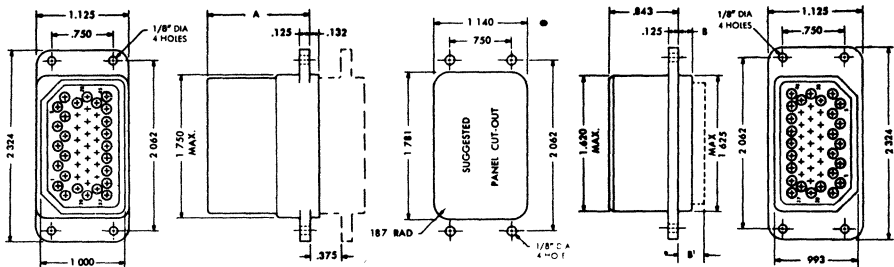


RECEPTACLE UNIT

PLUG UNIT

No. of Contacts	Recept. Unit (For Pins)	A	Plug Unit (For Sockets)	B	Recept. Unit (For Sockets)	A	Plug Unit (For Pins)	B ¹	Shell Finish
40									
Type II, Sizes 16 and 20 Contacts;	200486-1	1.125	200474-1	.127	201439-1	.783	201438-1	.327	Clear Cad. Plate
Type III, Sizes 16, 18 and 20 Contacts									
Type III(+) Sizes 16 and 18 Contacts	200486-2	1.125	200474-2	.127					Olive Drab Cad. Plate

45



RECEPTACLE UNIT

PLUG UNIT

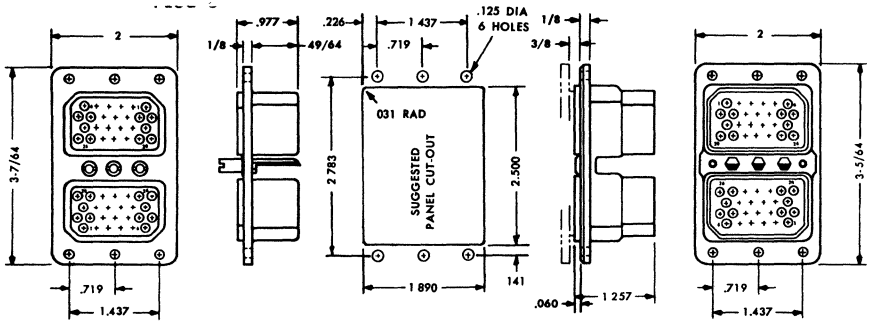
No. of Contacts	Recept. Unit (For Pins)	A	Plug Unit (For Sockets)	B	Recept. Unit (For Sockets)	A	Plug Unit (For Pins)	B ¹	Shell Finish
45									
Type II, Sizes 16 and 20 Contacts;	201745-1	1.125	201755-1	.127	201746-1	.783	201754-1	.360	Clear Cad. Plate
Type III, Sizes 16, 18 and 20 Contacts									
Type III(+) Sizes 16 and 18 Contacts	201745-2	1.125	201755-2	.127	201746-2	.783	201754-2	.360	Olive Drab Cad. Plate

NOTE: Shell Material: Die Cast Aluminum • Contact Block Material: Diallyl Phthalate, Per MIL-M-14F, Type SDG-F.

"WW" SERIES CONNECTOR PANEL SPECIFICATIONS

COMPLETE CONNECTOR (LESS CONTACTS)

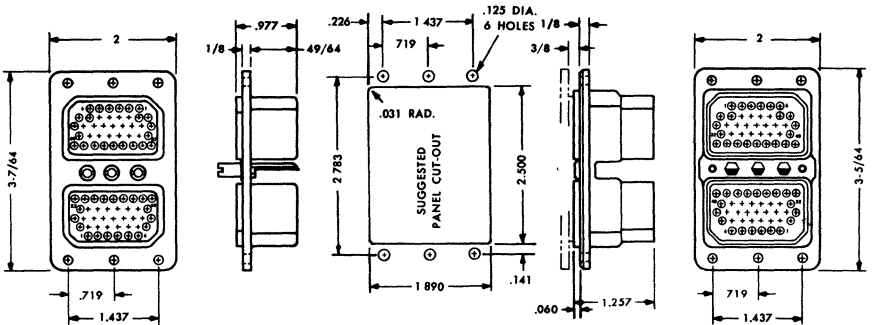
52



PLUG UNIT

RECEPTACLE UNIT

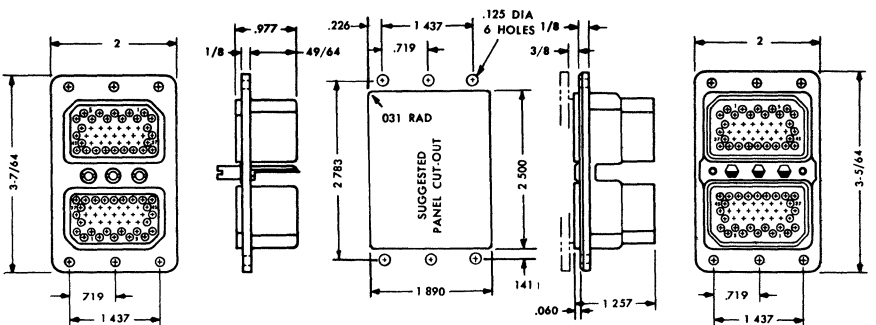
80



PLUG UNIT

RECEPTACLE UNIT

90



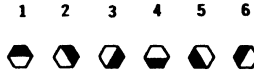
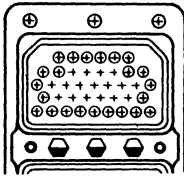
PLUG UNIT

RECEPTACLE UNIT

“WW” SERIES CONNECTOR SPECIFICATIONS

COMPLETE CONNECTOR (LESS CONTACTS)

POLARIZING KEY



DARKENED PORTION INDICATES THE LOCATION OF THE POSTS.
 WHEN ORDERING INDICATE DESIRED POSITION OF POSTS.
 EX: PART NUMBER 202171-1, POLARIZ-
 ING LEFT 1 CENTER 2 RIGHT 5

No. of Contacts	Plug Units (For Sockets)	Receptacle Units (For Pins)	Shell Finish
52 Type II, Sizes 16 and 20 Contacts; Type III, Sizes 16, 18 and 20 Contacts Type III(+) Sizes 16 and 18 Contacts	202583-1	202584-1	Clear Cad. Plate
	202583-2	202584-2	Olive Drab Cad. Plate

NOTE: Shell Material: Die Cast Aluminum • Insert Material: Diallyl Phthalate per MIL-M-14, Type SDG-F.

No. of Contacts	Plug Units (For Sockets)	Receptacle Units (For Pins)	Shell Finish
80 Type II, Sizes 16 and 20 Contacts; Type III, Sizes 16, 18 and 20 Contacts Type III(+) Sizes 16 and 18 Contacts	202172-1	202171-1	Clear Cad. Plate
	202172-2	202171-2	Olive Drab Cad. Plate

NOTE: Shell Material: Die Cast Aluminum • Insert Material: Diallyl Phthalate per MIL-M-14, Type SDG-F.

No. of Contacts	Plug Units (For Sockets)	Receptacle Units (For Pins)	Shell Finish
90 Type II, Sizes 16 and 20 Contacts; Type III, Sizes 16, 18 and 20 Contacts Type III(+) Sizes 16 and 18 Contacts	202585-1	202586-1	Clear Cad. Plate
	202585-2	202586-2	Olive Drab Cad. Plate

NOTE: Shell Material: Die Cast Aluminum • Insert Material: Diallyl Phthalate per MIL-M-14, Type SDG-F.

HARDWARE SPECIFICATIONS

STRAIN RELIEF CLAMPS—MATERIAL AND FINISH: STEEL, CADMIUM PLATED

Type	Cable Outlet	Part Numbers
D & DD (Plug & Receptacle)	90° or 180°	201738-1
DDE (Plug & Receptacle)	180°	200732-1
W (Plug & Receptacle)	90° or 180°	201557-1

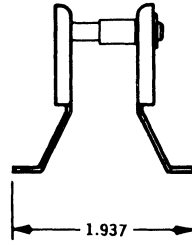
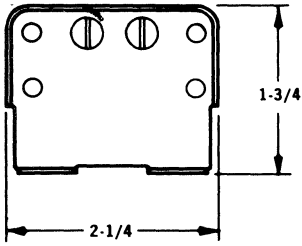
SHIELD AND CABLE CLAMPS DRAWN—MATERIAL AND FINISH: STEEL, CADMIUM PLATED

Type	Cable Bushings	Cable Outlet	Part Numbers	
			Four Mounting Holes .145 Dia.	Four Extruded And Tapped Mounting Holes For #6-32UNC-2B
D & DD (Plug)	Four-Neoprene For Cable Dias 1/4, 5/8, 3/4 & 15/16	180°	202154-1	202154-2
		90°	202155-1	202155-2
	None	180°	202156-1	202156-2
		90°	292157-1	202157-2
D (Receptacle)	Four-Neoprene For Cable Dias. 1/4, 5/8, 3/4 & 15/16	180°	202132-1	202132-2
		90°	202133-1	202133-2
	None	180°	202152-1	202152-2
		90°	202153-1	202153-2
DD (Receptacle)	Four-Neoprene For Cable Dias. 1/4, 5/8, 3/4 & 15/16	180°	202334-1	—
		90°	202336-1	—
	None	180°	202349-1	—
		90°	202350-1	—

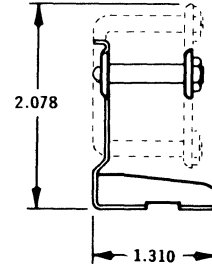
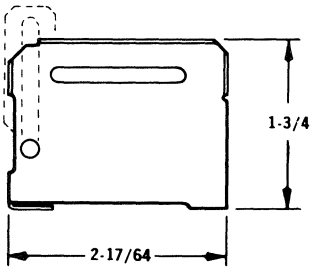
SHIELD AND CABLE CLAMPS DIE CAST—MATERIAL: ALUMINUM ALLOY

Type	Cable Outlet	Finish	Part Numbers
D & DD (plug & Receptacle)	90°	Cad. Plate	201070-1
		Olive Drab Cad. Plate	201070-2
W (Plug)	180°	Cad. Plate	201753-1
		Olive Drab Cad. Plate	201753-2

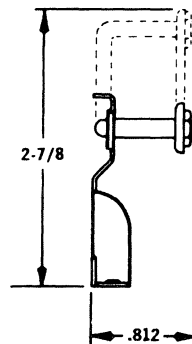
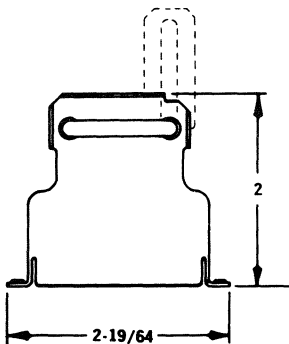
STRAIN RELIEF CLAMPS



DDE STRAIN RELIEF CLAMP 180°
200732

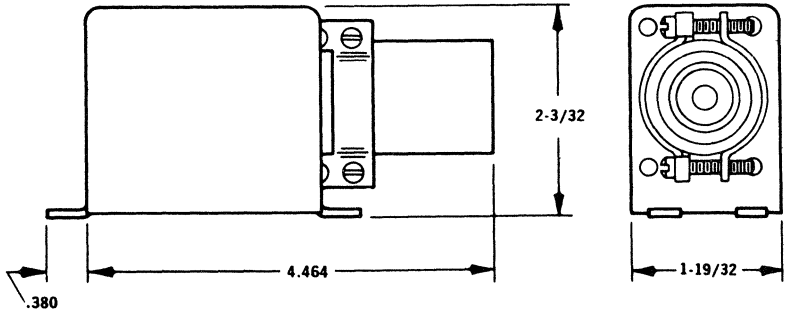


D AND DD STRAIN RELIEF CLAMP 90°
201738

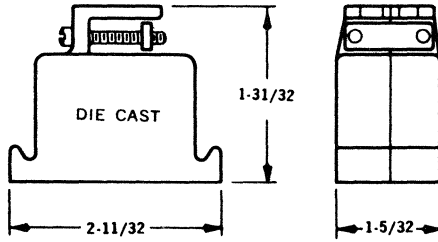


W STRAIN RELIEF CLAMP 90°
201557

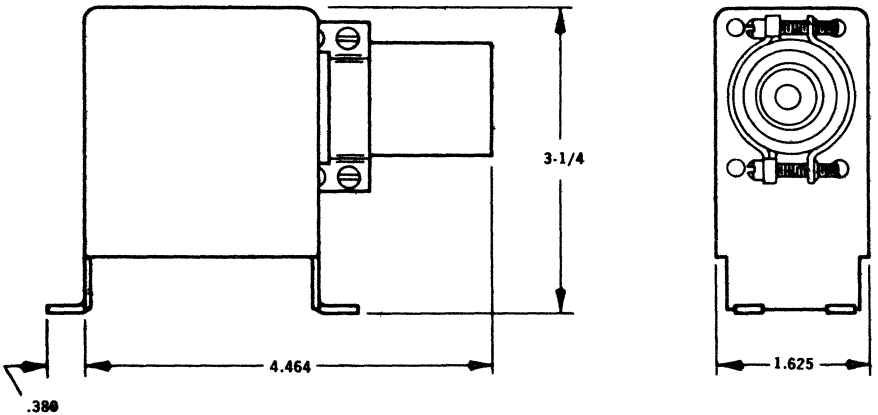
SHIELD & CABLE CLAMPS



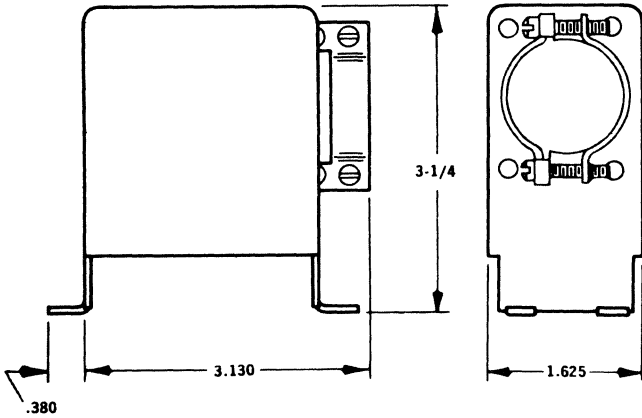
D AND DD SHIELD & CABLE CLAMP 90°
202155
WITH BUSHINGS



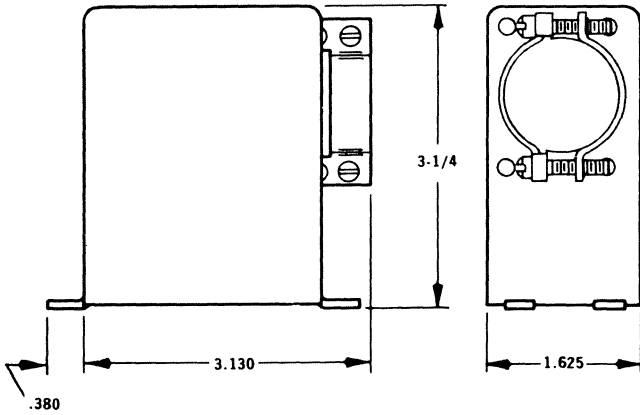
W SHIELD & CABLE CLAMP 180
201753



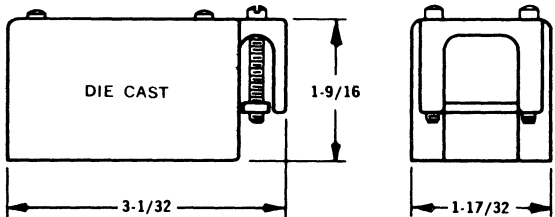
DD SHIELD & CABLE CLAMP 90°
202336
WITH BUSHINGS



DD SHIELD & CABLE CLAMP 90
202350

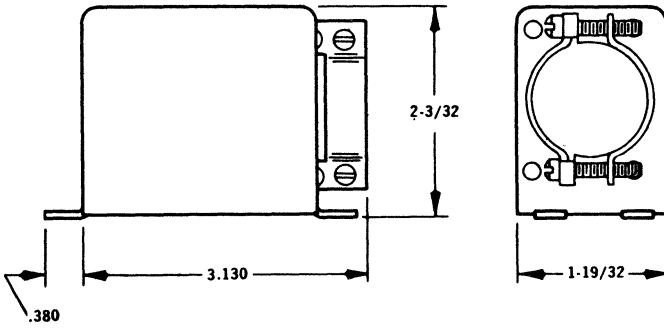


D SHIELD & CABLE CLAMP 90
202153

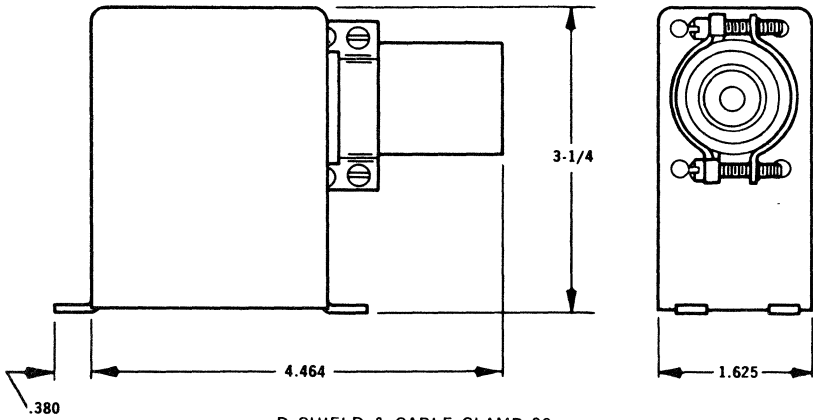


D AND DD SHIELD ASSEMBLY
201070

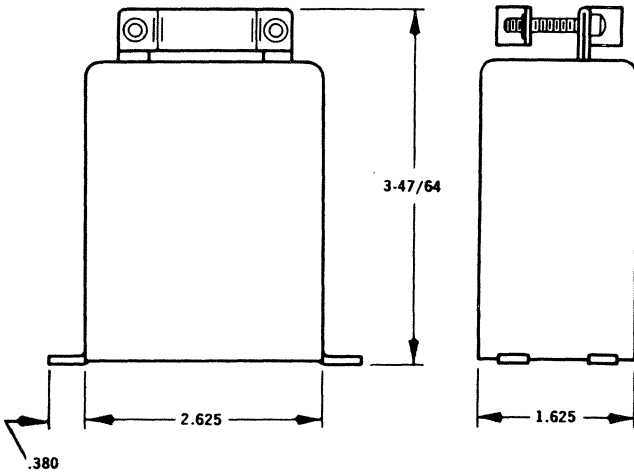
SHIELD AND CABLE CLAMPS (Cont.)



D AND DD SHIELD & CABLE CLAMP 90
202157

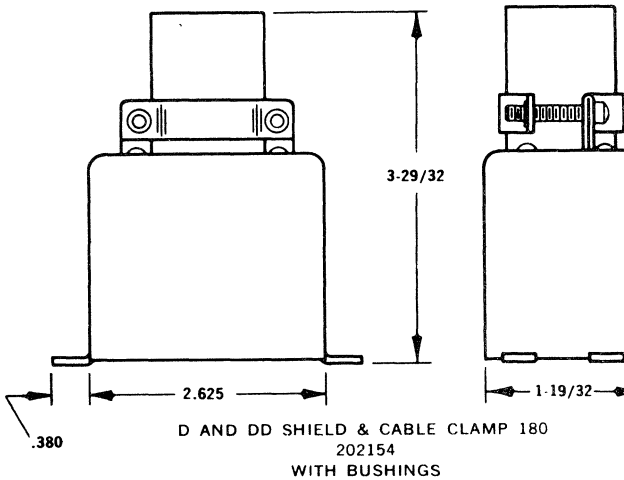
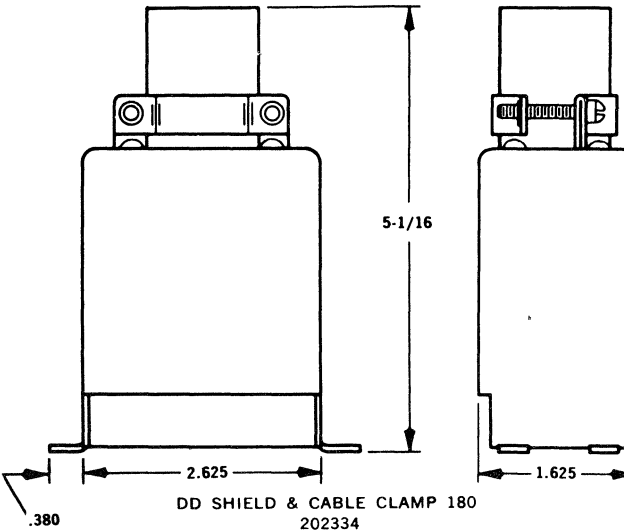
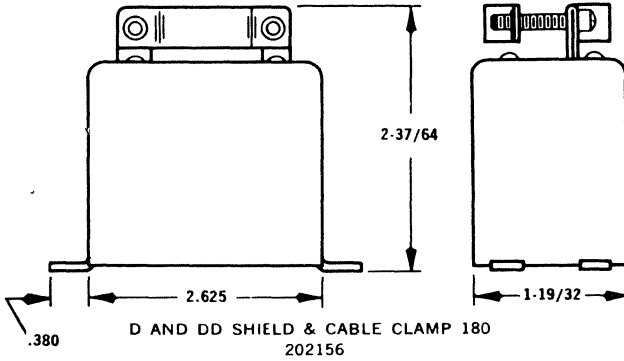


D SHIELD & CABLE CLAMP 90
202133
WITH BUSHINGS

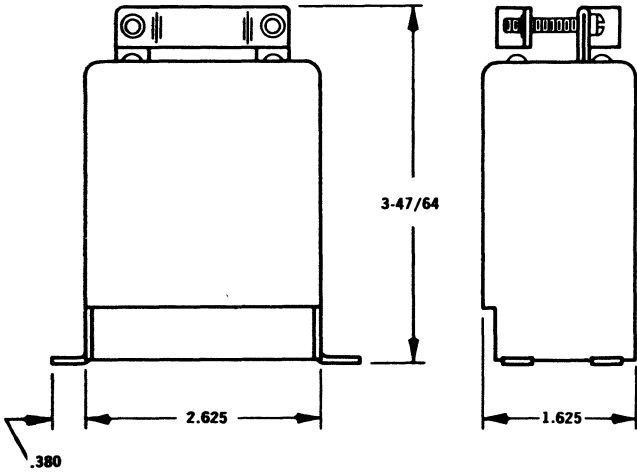


D SHIELD & CABLE CLAMP 180
202152

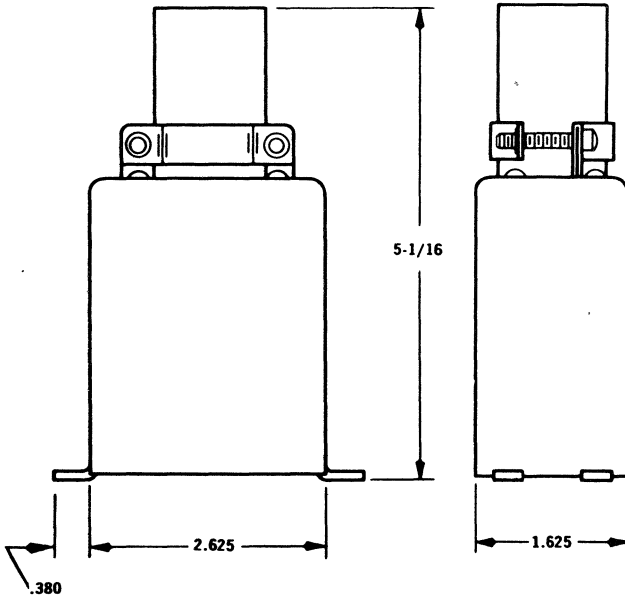
SHIELD AND CABLE CLAMPS (Cont.)



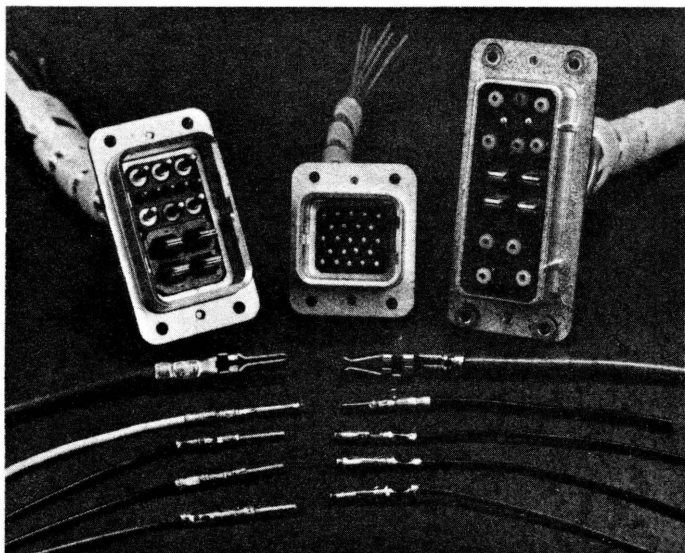
SHIELD AND CABLE CLAMPS (Cont.)



DD SHIELD & CABLE CLAMP 180°
202349



D SHIELD & CABLE CLAMP 180°
202132
WITH BUSHINGS



Versatile, yet practical is this completely new concept in connector design. The A-MP* Series "G" Connector provides unlimited combinations of signal, power or coaxial circuits in one basic connector style. No longer is it necessary to have separate connectors for each of these types of circuits. The Series "G" Connector allows you to package them together in any combination you need.

The Series "G" line is presently available in 1, 2 or 3 module connector assemblies. Each connector assembly consists of two parts; the module insert and the shell subassembly. The shell subassembly consists of the shell and retainer plate which provides easy drop-in assembly of modules. The shell and retainer are made of cast aluminum, are available with or without floating bushings and are polarized with keyways in the receptacle and matching keys on the plug. The module inserts are made of diallyl phthalate or general purpose phenolic. Each connector assembly can be provided with die cast aluminum shield with cable clamps. In addition to the shields, a strain relief clamp is available for the 3-module connector assembly.

A-MP Series "G" Modules are now available in six basic configurations:

- 4-position module—accepts Type XII power contacts only
- 4-position module — accepts Miniature COAXICON Contacts or Type I #12 power contacts
- 8-position module — accepts 8 Miniature COAXICON Contacts

- 11-position module — accepts 6-Type IV Coaxial Contacts or 6-Type I #12 power contacts plus 5-Type II, III or III(+)
regular pin and socket contacts
- 14-position module — accepts 2-Type XII power contacts and 12-Type II, III or III(+)
regular pin and socket contacts
- 23-position module — accepts 23-Type II, or III or III(+)
regular pin and socket contacts

CONTACTS

AMP also manufactures a complete line of subminiature COAXICON* contacts which will fit any regular Type II, III or III(+)
pin and socket contact cavity.

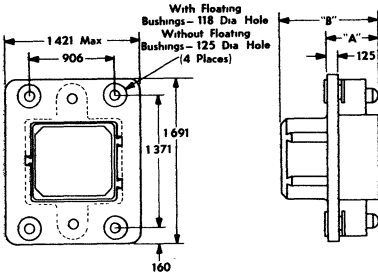
Type I #12 Contact—is used in the same cavity as the Miniature COAXICON Contact. This power contact will handle circuits up to 40 amps and is available in two contact sizes for wire ranges 14-12 and 18-16 respectively.

Type XII—is a completely new contact design intended for power circuits up to 35 amps. It comes in two contact sizes for wire ranges 8 through 10 and 12 through 14.

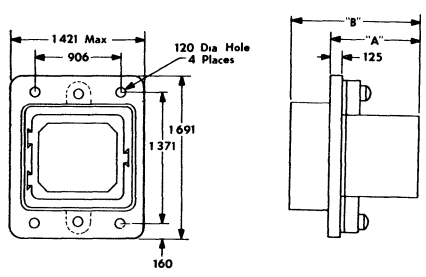
For information on other A-MP Contacts, request specific data sheet:

- Type II —Data Sheet No. 901-B
- Type III —Data Sheet No. 901-C
- Type III(+)—Data Sheet No. 937
- Type IV —Data Sheet No. 901-D
- Miniature COAXICON—Data Sheet No. 901-D
- Subminiature COAXICON Contact—Data Sheet No. 409-5

SERIES "G"1 SHELL SUBASSEMBLIES



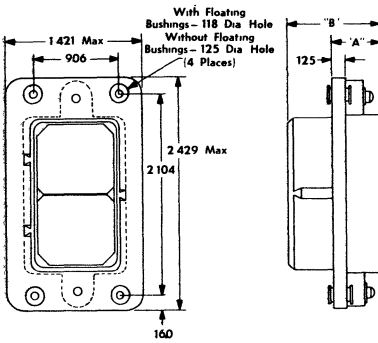
PLUG



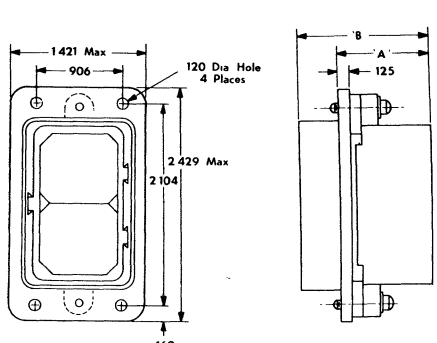
RECEPTACLE

Type	For Pin Modules			For Socket Modules		
	Part No.	A	B	Part No.	A	B
Receptacle	202279-3	1.001	1.509	202279-4	.595	1.103
Plug With Floating Bushings	202275-4	.886	1.416	202275-3	.480	1.010
Plug Without Floating Bushings	202786-2	.886	1.416	202786-1	.480	1.010

SERIES "G"2 SHELL SUBASSEMBLIES



PLUG

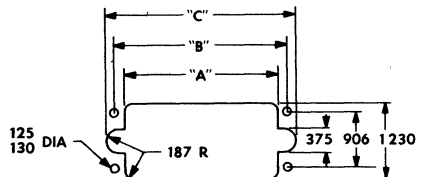


RECEPTACLE

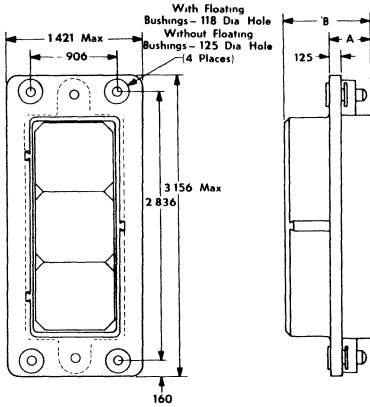
Type	For Pin Modules			For Socket Modules		
	Part No.	A	B	Part No.	A	B
Receptacle	202681-2	1.001	1.509	202681-3	.595	1.103
Plug With Floating Bushings	202680-3	.886	1.416	202680-2	.480	1.010
Plug Without Floating Bushings	202789-2	.886	1.416	202789-1	.480	1.010

SUGGESTED PANEL CUTOUT

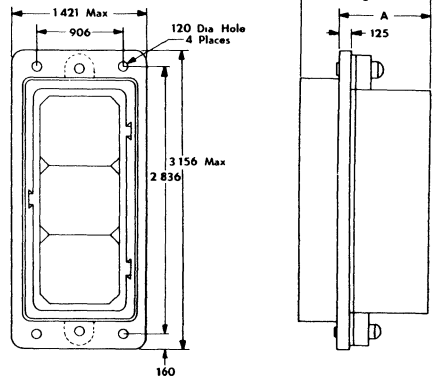
SUGGESTED PANEL CUTOUT			
Type	A	B	C
"G" 1	1.100	1.371	1.696
"G" 2	1.830	2.104	2.426
"G" 3	2.560	2.836	3.156



SERIES "G"3 SHELL SUBASSEMBLIES



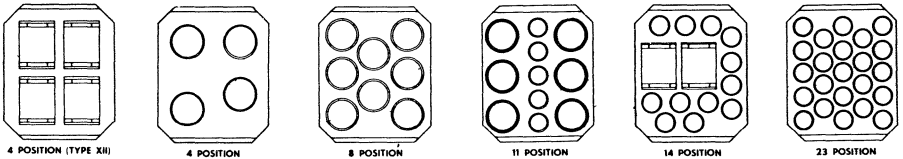
PLUG



RECEPTACLE

Type	For Pin Modules			For Socket Modules		
	Part No.	A	B	Part No.	A	B
Receptacle	202287-3	1.001	1 509	202287-4	.595	1.103
Plug With Floating Bushings	202283-4	.886	1.416	202283-3	.480	1.010
Plug Without Floating Bushings	202795-2	886	1.416	202795-1	.480	1.010

MODULES



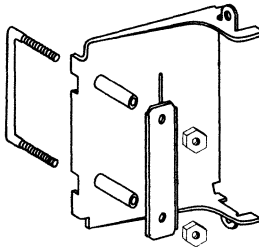
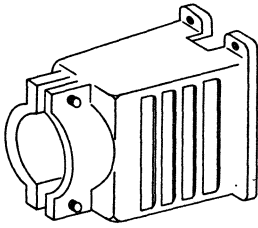
MODULES

No. of Contacts	Module Will Accommodate These Variations of Contacts	Material	Pin Module	Socket Module
4	Type XII	Phenolic	202624-2	202625-2
		Diallyl Phth	202624-4	202625-4
4	Miniature Coaxicon or Type I, Size 12	Phenolic	50215-1	50216-1
		Diallyl Phth	50215	50216
8	Miniature Coaxicon	Phenolic	50213	50214
		Diallyl Phth	50213-1	50214-1
11	6-Type IV or Type I, Size 12 and 5-Type II, Type III, Type III (+) or Subminiature Coaxicon Contacts	Phenolic	202648-4	202649-4
		Diallyl Phth.	202648-2	202649-2
14	2-Type XII and 12-Type II, Type III, Type III (+) or Subminiature Coaxicon Contacts	Phenolic	202759-2	202760-2
		Diallyl Phth	202759-4	202760-4
23	Type II, Type III, Type III (+) or Subminiature Coaxicon Contacts	Phenolic	202650-4	202651-4
		Diallyl Phth.	202650-2	202651-2

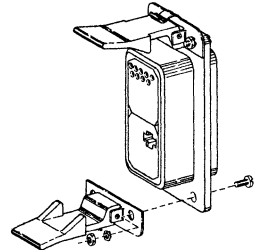
SHIELD AND CABLE CLAMPS

STRAIN RELIEF CLAMP

LOCKING LATCH ASSEMBLY



FOR "G" 3—PART NO 202567-1

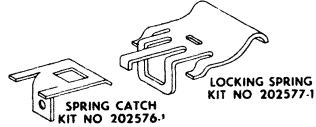


PART NO 202832
(2 Required)

SHIELD AND CABLE CLAMPS

Type	Cable Bushings	Part No.
"G" 1	Without	202305-4
	With	202617-1
"G" 2	Without	202617-2
	With	1-202301-1
"G" 3	Without	1-202301-0

LOCKING SPRING

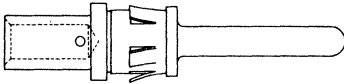


SPRING CATCH
KIT NO 202576-1

LOCKING SPRING
KIT NO 202577-1

CONTACTS

TYPE I—SIZE 12



PIN



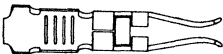
SOCKET

TYPE I, SIZE 12

Wire Size	Finish	Pin	Socket	Pneumatic Tool # 69365 Die Insert	Hand Tool
18-16	Gold	202421-1	202418-1	90122	90121
14-12	Gold	202422-1	202417-1		

Extraction Tool—#305183-8

TYPE XII



PIN

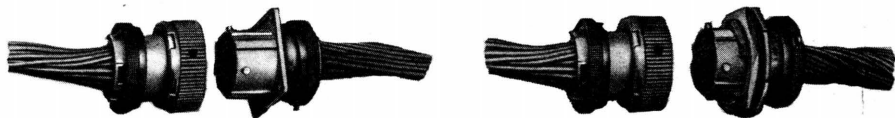


SOCKET

TYPE XII CONTACTS

Wire Size	Ins. Dia. Range	Finish	Standard		Grounding	Hi-Voltage (2.5 KV)	Pneumatic Tool # 69365 Die Inserts
			Pin	Socket	Pin	Pin	
14-12	.160 Max.	Tin	66255-1	66252-1	66256-1	66329-1	90145-1
		Gold	66255-2	66252-2	66256-2	66329-2	
10-8	.220 Max.	Tin	66253-1	66251-1	66254-1	66326-1	90140-1
		Gold	66253-2	66251-2	66254-2	66326-2	

MIL-C-38300 CH-AMP* CIRCULAR SUBMINIATURE CONNECTORS



SQUARE FLANGE

JAM NUT

All kits listed below include the basic connector, contacts, sealing plugs, insertion tool, dust cap, instruction sheet, and container. These connectors will accommodate #22 thru #24 AWG wire with an insulation range of .040 to .054 diameter.

Military Designation	AMP Kit No.	Description
M38300/3502-10	203340-2	Hand mating Plug—bayonet coupling—Shell size 14—37 pin contact positions
M38300/3552-10	203341-2	Hand mating Plug—bayonet coupling—Shell size 14—37 socket contact positions
M38300/3652-10	203344-2	Square Flange Receptacle—bayonet coupling—Shell size 14—37 pin contact positions
M38300/3602-10	203345-2	Square Flange Receptacle—bayonet coupling—Shell size 14—37 socket contact positions
M38300/3752-10	203348-2	Jam nut mt. Receptacle—bayonet coupling—Shell size 14—37 pin contact positions
M38300/3702-10	203349-2	Jam nut mt. Receptacle—bayonet coupling—Shell size 14—37 socket contact positions
M38300/3503-10	203360-2	Hand mating Plug—bayonet coupling—Shell size 16—58 pin contact positions
M38300/3553-10	203361-2	Hand mating Plug—bayonet coupling—Shell size 16—58 socket contact positions
M38300/3653-10	203364-2	Square flange Receptacle—bayonet coupling—Shell size 16—58 pin contact positions
M38300/3603-10	203365-2	Square flange Receptacle—bayonet coupling—Shell size 16—58 socket contact positions
M38300/3504-10	203380-2	Hand mating Plug—bayonet coupling—Shell size 18—85 pin contact positions
M38300/3554-10	203381-2	Hand mating Plug—bayonet coupling—Shell size 18—85 socket contact positions
M38300/3654-10	203384-2	Square flange Receptacle—bayonet coupling—Shell size 18—85 pin contact positions
M38300/3604-10	203385-2	Square flange Receptacle—bayonet coupling—Shell size 18—85 socket contact positions

MIL-C-26636 CONTACTS



Military Designation	AMP Part No.	Description
M26636/5	202572-2	Type X Pin Contact—.030 dia. pin—accommodates #22 thru #24 wire Plating: Gold over Nickel
M26636/6	203066-1	Type X Socket Contact—Accommodates #22 thru #24 wire Plating: Gold over Nickel

NOTE: Information on hardware, such as shield and cable clamps, is available upon request.

SHELL SIZE 10

Pin Population 16—Ins. Range .040-.054

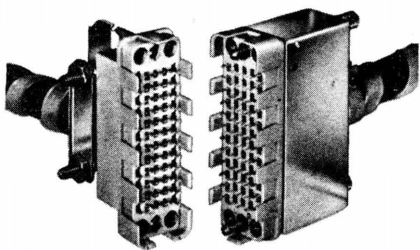
Description	Mounting	Keying	Part Number	
			Standard	Fluid Resist.
Plug w/Pin Insert	Bayonet Coupling	Normal	203100-1	203100-2
Plug w/Socket Insert	Bayonet Coupling	Normal	203101-1	203101-2
Receptacle w/Pin Insert	4 Hole Flange	Normal	203104-1	203104-2
Receptacle w/Pin Insert	Jam Nut	Normal	203108-1	203108-2
Receptacle w/Socket Insert	4 Hole Flange	Normal	203105-1	203105-2
Receptacle w/Socket Insert	Jam Nut	Normal	203109-1	203109-2

SHELL SIZE 12

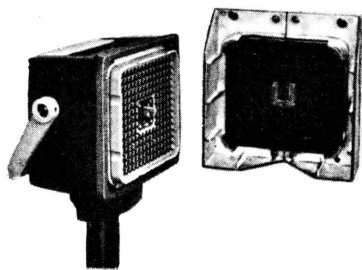
Pin Population 28—Ins. Range .040-.054

Description	Mounting	Keying	Part Number	
			Standard	Fluid Resist.
Plug w/Pin Insert	Bayonet Coupling	Normal	203120-1	203120-2
Plug w/Socket Insert	Bayonet Coupling	Normal	203121-1	203121-2
Receptacle w/Pin Insert	4 Hole Flange	Normal	203124-1	203124-2
Receptacle w/Pin Insert	Jam Nut	Normal	203128-1	203128-2
Receptacle w/Socket Insert	4 Hole Flange	Normal	203125-1	203125-2
Receptacle w/Socket Insert	Jam Nut	Normal	203129-1	203124-2

DUALATCH* CONNECTORS §



Typical Dualatch Connector (Miniature)



Typical Dualatch Connector (Standard)

Though they were designed primarily to meet the requirements of computers and data processing systems, DUALATCH connectors have been found ideal for use in many other types of equipment because of the distinct advantages they offer to both design and production engineers.

To the design engineer, they bring greater versatility because of their compactness, wide range of housing types, sizes and configurations. He also profits by increased confidence in their proper functioning because of the superior crimp and a contact design which provides positive wiping action.

To the production engineer, they provide a more simplified method of application. Since contacts are hermaphroditic, substantial economies are made at the outset in inventory requirements.

DUALATCH CONTACTS: The contacts used in all DUALATCH connectors are of crimp, snap-in, hermaphroditic design. Wiping action assures self-cleaning of the contact area, they incorporate two electrically operative arms which provide multiple contact surfaces for positive conductivity.

DUALATCH HOUSINGS: The housings are moulded from grey Polycarbonate, with other colors available on request. Each housing has permanently mounted, threaded bushings for mating with jack screws.

FEATURES

CONTACTS

- Base material of fine grain brass, 4 numbers hard.
- Gold over nickel plating.
- Multiple areas of contact for stable electrical continuity.
- AMP's patented crimp provides high resistance to corrosion, vibration and other adverse environmental factors.
- Insulation support crimp for added strength to the termination.
- Positive wiping action between the friction fitting contacts for intimate metal to metal contact.
- Hermaphroditic design allows substantial inventory economies.
- Snap-in assembly.

HOUSINGS

- Insertion and extraction of contacts which makes possible use as semi-permanent programming device.
- 70% less engagement/disengagement forces than conventional type connectors.
- Positive polarization of housings to prevent mismatching.
- Numerical coding front and rear for quick circuit identification.
- Maximum density of circuits in minimum space.
- 5 pounds minimum retention force of contacts in housing.
- Egg-crate housing construction for complete dielectric barrier between circuits on modular connectors.

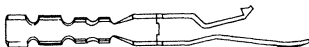
TYPICAL ELECTRICAL/MECHANICAL CHARACTERISTICS

CONTACT CURRENT RATING: 3 amperes, #24 wire. **VOLTAGE RATING:** 1,000 A.C., R.M.S. **RESISTANCE:** less than 10 milliohms through each connection under a current load of 50 milliamperes. **CONTACT LIFE:** tested for 2,000 cycles without wear-through of plating or loss in electrical performance. **CRIMP TENSILE STRENGTH:** 10 pounds minimum, #24 wire. **DIELECTRIC STRENGTH:** tested at 1,000 volts for 1 minute, no failures. **VIBRATION:** method 204, Condition B of MIL Standard 202B; no discontinuity or open circuits. **SHOCK:** method 202 of MIL Standard 202B; no open circuits.

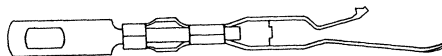
MINIATURE DUALATCH CONTACTS CRIMP TYPE

PERFORMANCE SPECIFICATIONS

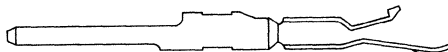
Current Rating 3 amperes, #24 wire	Durability 2,000 cycles
Voltage Rating 1,000 A.C., R.M.S.	Insertion-Removal Force, per contact . 0.2 lbs.
Resistance 4 milliohms at 50 milliamperes	Capacitance 1 mmf.
Crimp Tensile Strength 10 lbs. min., #24 wire	Contact Retention in cavity 5 lbs.



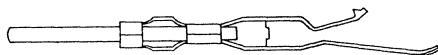
Wire Range	Ins. Dia. Range	Material	Plating	Catalog Number	Tooling	
					Hand	Extraction and Insertion
28-40	.040-.060	Brass	*Std. Gold/Nickel	66121-2	90071	91003-1
			Tin	66121-3		
			**Comm. Gold/Nickel	66121-5		
			*Std. Gold/Nickel	66061-2		
26-24	.040-.060	Brass	Tin	66061-3	90071 90039	91003-1
			**Comm. Gold/Nickel	66061-5		
24-20	.048-.071	Brass	*Std. Gold/Nickel	66134-2	90071	91003-1
			Tin	66134-3		
			**Comm. Gold/Nickel	66134-5		
			*Std. Gold/Nickel	66138-2		
18	.060-.080	Brass	Tin	66138-3	90100	91003-1
			**Comm. Gold/Nickel	66138-5		



Solder Tab Contact



One-Piece Post Contact ††



Wrap-Type Post Contact

CONTACT VARIATIONS

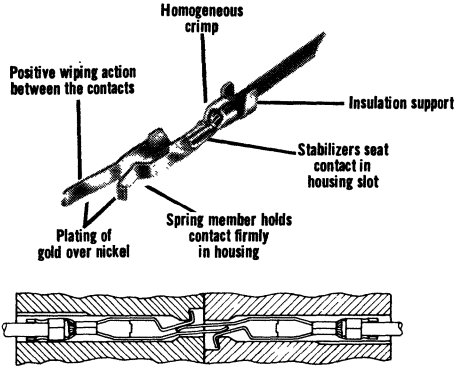
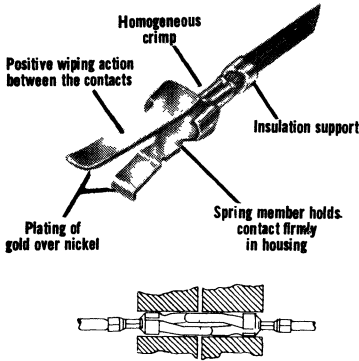
Catalog Number	Contact Plating	Description	Tab	
			Material	Plating
582467-1	*Std. Gold/Nickel	With Solder Tab	Brass	Gold/Nickel
582468-1	*Std. Gold/Nickel	With Wrap Type Tab		
582468-5	**Comm. Gold/Nickel	.540 Long		
582468-2	*Std. Gold/Nickel	With Wrap Type Tab	Phos. Bronze	Tin
582468-6	**Comm. Gold/Nickel	.640 Long		
582468-3	*Std. Gold/Nickel	With Wrap Type Tab		
582468-7	**Comm. Gold/Nickel	.790 Long		
582468-4	*Std. Gold/Nickel	With Wrap Type Tab		
582468-8	**Comm. Gold/Nickel	1.040 Long		

*Std. Gold — .00003 Gold over nickel.
 **Comm. Gold — .00002 Gold in critical areas, gold flash in other areas. All gold over nickel.

CONTACT CONFIGURATIONS

STANDARD TYPE

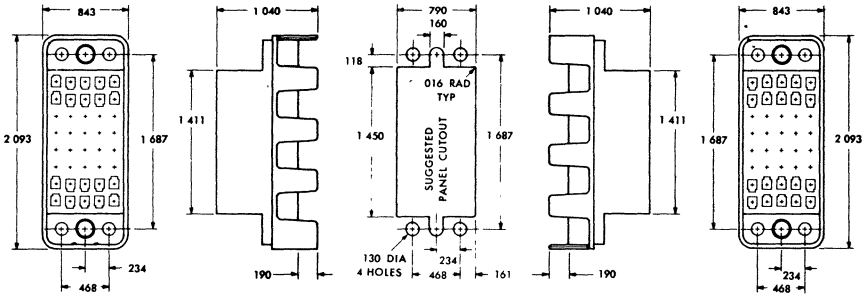
MINIATURE TYPE



*For use with 200 Position Cable Connector only.

HOUSINGS FOR MINIATURE CONTACTS

40 POSITION MINIATURE



HARDWARE

Description	Part Number	Material
2-piece shield	200532-1	Anodized aluminum
2-piece shield	200532-2	Cadmium plated steel
1-piece jackscrews—long for use with 2-piece shield	582360-3	Stainless steel
strain relief clamp	201182-1	Cadmium plated steel
1-piece jackscrews—short for use with strain relief clamp or no hardware	582463-1	Stainless steel
Spring Clips	201925-1—Locking spring	Nickel plated steel
	201926-1—Locking latch	Stainless steel
1-piece shield 180° for use with spring clip only	201173-2	Cadmium plated steel
1-piece shield 90° for use with spring clip only	201470-2	Cadmium plated steel

HARDWARE

Description	Male	Female	Material
Fixed jackscrews**	200874-1	200875-1	Stainless steel
	200874-2	200875-2	Cadmium plated steel
Turnable jackscrews**	200871-1	200867-1	Stainless steel
	200871-2	200867-2	Cadmium plated steel

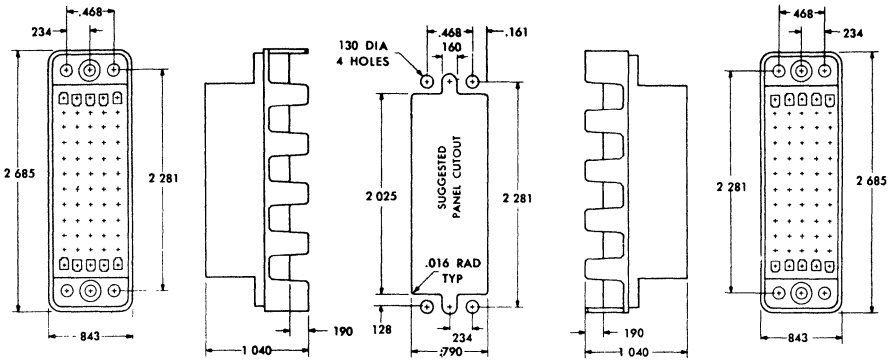
- * -1 Block with insert bushing for use with 1-piece jackscrews.
- ** -2 Block without insert bushing for use with Spring Clips, 2-piece jackscrews or special applications.
- *** Other colors can be supplied for special applications.

MATING HOUSING BLOCKS‡

Part Number	Material	Color
*582458-1 & 582459-1	Polycarbonate	Grey***
**582458-2 & 582459-2		

‡Male and Female Dualatch blocks have identical configurations. However, the cavity numbering is reversed to allow circuit identification when the blocks are mated.

60 POSITION MINIATURE



HARDWARE

Description	Part Number	Material
2-piece shield	200517-1	Anodized aluminum
2-piece shield	200517-2	Cadmium plated steel
1-piece jackscrews—long for use with 2-piece shield	582360-3	Stainless steel
strain relief clamp	201224-1	Cadmium plated steel
1-piece jackscrews—short for use with strain relief clamp or no hardware	582463-1	Stainless steel
Spring Clips	201925-1—Locking spring	Nickel plated steel
	201926-1—Locking latch	Stainless steel
1-piece shield 180° for use with spring clip only	201165-2	Cadmium plated steel
1-piece shield 90° for use with spring clip only	201469-2	Cadmium plated steel

HARDWARE

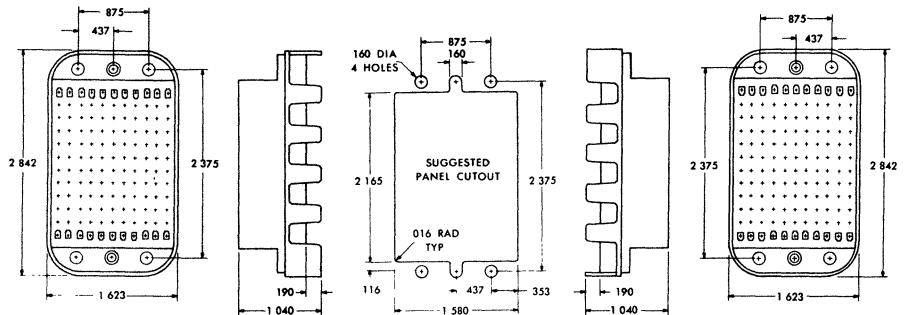
Description	Male	Female	Material
Fixed jackscrews**	200874-1	200875-1	Stainless steel
	200874-2	200875-2	Cadmium plated steel
Turnable jackscrews**	200871-1	200867-1	Stainless steel
	200871-2	200867-2	Cadmium plated steel

MATING HOUSING BLOCKS‡

Part Number	Material	Color
*582271-1 & 582272-1	Polycarbonate	Grey***
**582271-2 & 582272-2		

‡Male and Female Dualatch blocks have identical configurations. However, the cavity numbering is reversed to allow circuit identification when the blocks are mated.

132 POSITION MINIATURE



HARDWARE

Description	Part Number	Material
2-piece shield	201131-1	Cadmium plated aluminum
1-piece jackscrews—long for use with 2-Piece Shield	582360-3	Stainless steel
Strain relief clamp	201221-1	Cadmium plated steel
1-piece jackscrews—short for use with strain relief clamp or no hardware	582463-1	Stainless steel
Spring Clips	202251-1—Locking Spring	Stainless steel
	202252-2—Locking Latch	Nickel plated Steel

HARDWARE

Description	Male	Female	Material
Fixed jackscrews**	200874-1	200875-1	Stainless steel
	200874-2	200875-2	Cadmium plated steel
Turnable jackscrews**	200871-1	200867-1	Stainless steel
	200871-2	200867-2	Cadmium plated steel

* -1 Block with insert bushing for use with 1-piece jackscrews.

** -2 Block without insert bushing for use with Spring Clips, 2-piece jackscrews or special applications.

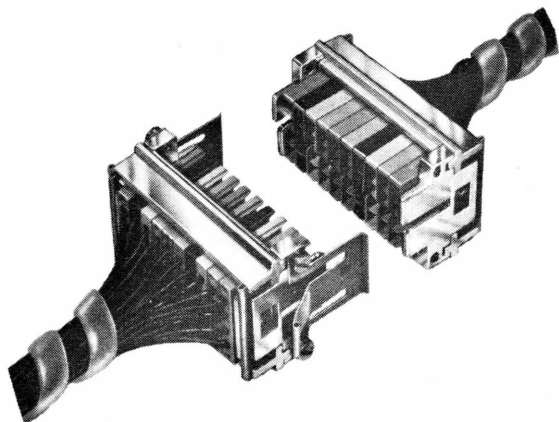
*** Other colors can be supplied for special applications.

MATING HOUSING BLOCKS†

Part Number	Material	Color
*582435-1 & 582436-1	Polycarbonate	Grey***
**582435-2 & 582436-2		

†Male and Female Dualatch blocks have identical configurations. However, the cavity numbering is reversed to allow circuit identification when the blocks are mated.

4 POSITION MODULAR MINIATURE

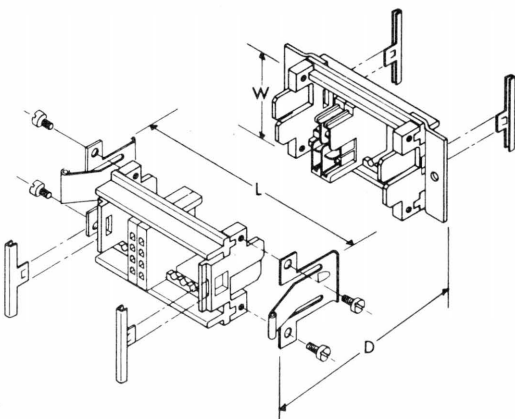


TYPICAL 10 MODULE ASSEMBLY

L = 2.208"

D (MATED) = 1.700"

W = 1.430"



4 POSITION MODULAR HOUSING BLOCKS†

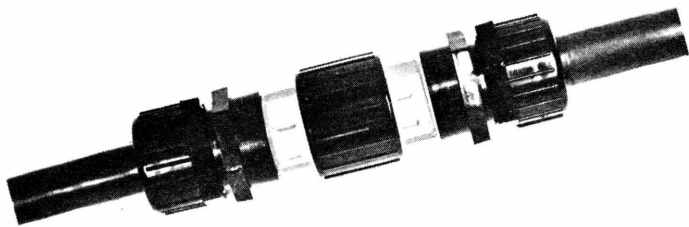
Part Number	Color
1-582396-1	Brown
1-582396-2	Red
1-582396-3	Orange
1-582396-4	Yellow
1-582396-5	Green
1-582396-6	Blue
1-582396-7	Violet
1-582396-8	Gray
1-582396-9	White
1-582396-0	Black
2-582396-1	Beige

†Block Material is Polycarbonate

HARDWARE (TRACK ASSEMBLY)

Part Number	Description	Material
582397-1	Modular Track	Aluminum
582399-1	Track Retaining Block	Cadmium Plated Zinc
582400-2	Retaining Clip	Nickel Plated Steel
582402-1	Spring Catch	Stainless Steel
582403-1	Mounting Bracket	Cadmium Plated Steel
7-21103-8	Screw	Stainless Steel

AMPOWER* MULTIPLE CONNECTOR §



The new AMPOWER multiple connector is a heavy-duty, waterproof connector designed for cable, motor, or box mounting. This fully polarized connector can carry up to six circuits: three for power, two for control, and one for ground; or it may be used with a ground and two power circuits or other combinations.

The AMPOWER multiple connector is ideal as a motor or similar load disconnect. A few turns of the coupling collar engages or disengages the pin and socket type contacts, which are designed to accept #10 thru #14 AWG stranded wire. The contact depths are staggered so that on mating of the housing the ground circuit is made first, then the power circuits, finally the control circuits. On separation, the control circuits open first,

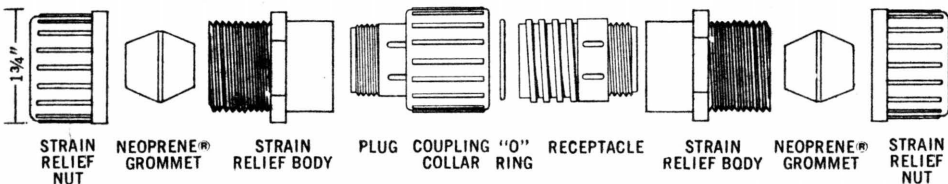
followed by the power circuits, then the ground circuit. Circuits are clearly identified on both the plug and the receptacle, i.e. center hole for ground, A and B for control, and 1, 2, and 3 for power. Motor rotation can be reversed, or other circuit changes made, by interchanging pins or sockets.

The AMPOWER multiple connector, has exceptional resistance to moisture and arcing. The plug and receptacle bodies are of moulded "ZYTEL"* nylon resins with internal barriers providing over 1½ inches of arc creepage and air spacing between contacts, because there is no metal except the contacts. The assembly has passed a 2200 v d.c. high pot. test and has withstood a one week energized underwater test with no significant change in leakage.

FEATURES:

- UL Component Approval.
- The "O" ring provides a water-tight seal between the male and female halves of the connector. The nylon strain relief with NEOPRENE® grommet provides water-tight connections on cable ends.
- Adaptable to all standard 1 inch conduit fittings.
- Vibration proof . . . assembly locks in closed position.
- Extremely small air and gas volume in the assembled connector.
- No tooling required to assemble housing components.
- Complete connector, including contacts, packaged in kit form.
- Can be used on fractional up to 20 H.P. motors.

SPECIFICATIONS



ASSEMBLED LENGTH 7¼"

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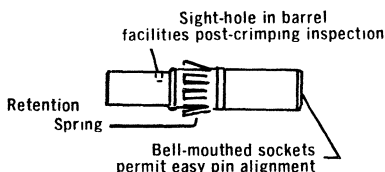
§Sub-section: © Copyright 1965 by AMP Incorporated. All International Rights Reserved.

TOOLING

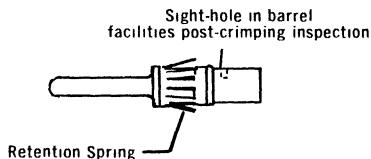


Contacts are applied with A-MP* Hand Crimping Tool No. 90151-1. Pneumatic tools are also available for larger production needs. These tools provide uniform crimping action by releasing only after the crimping dies have fully bottomed. Contacts are easily removed from the connector, using A-MP Extraction Tool No. 1-305183-3.

CONTACTS



The contacts used in the AMPPOWER multiple connector are Type 1 . . . crimp, snap-in, screw-machine processed contacts which satisfy the most stringent commercial and military specifications. Pre-assembly



tin plating of all contacts assures greater corrosion resistance. Contacts are also available gold plated, for special environments or requirements.

PLUG HALF (Socket Contact Half)

Part No.	Assembly	Color
202890-1	Plug Half, 3 Socket Contacts	Yellow
202890-2	Plug Half, 4 Socket Contacts	Yellow
202890-3	Plug Half, 5 Socket Contacts	Yellow
202890-4	Plug Half, 6 Socket Contacts	Yellow
202890-5	Plug Half, 3 Socket Contacts	Black
202890-6	Plug Half, 4 Socket Contacts	Black
202890-7	Plug Half, 5 Socket Contacts	Black
202890-8	Plug Half, 6 Socket Contacts	Black

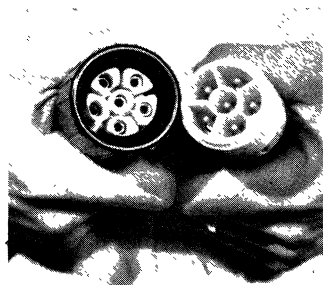
RECEPTACLE HALF

Part No.	Assembly	Color
202889-1	Receptacle Half, 3 Pin Contacts	Yellow
202889-2	Receptacle Half, 4 Pin Contacts	Yellow
202889-3	Receptacle Half, 5 Pin Contacts	Yellow
202889-4	Receptacle Half, 6 Pin Contacts	Yellow
202889-5	Receptacle Half, 3 Pin Contacts	Black
202889-6	Receptacle Half, 4 Pin Contacts	Black
202889-7	Receptacle Half, 5 Pin Contacts	Black
202889-8	Receptacle Half, 6 Pin Contacts	Black

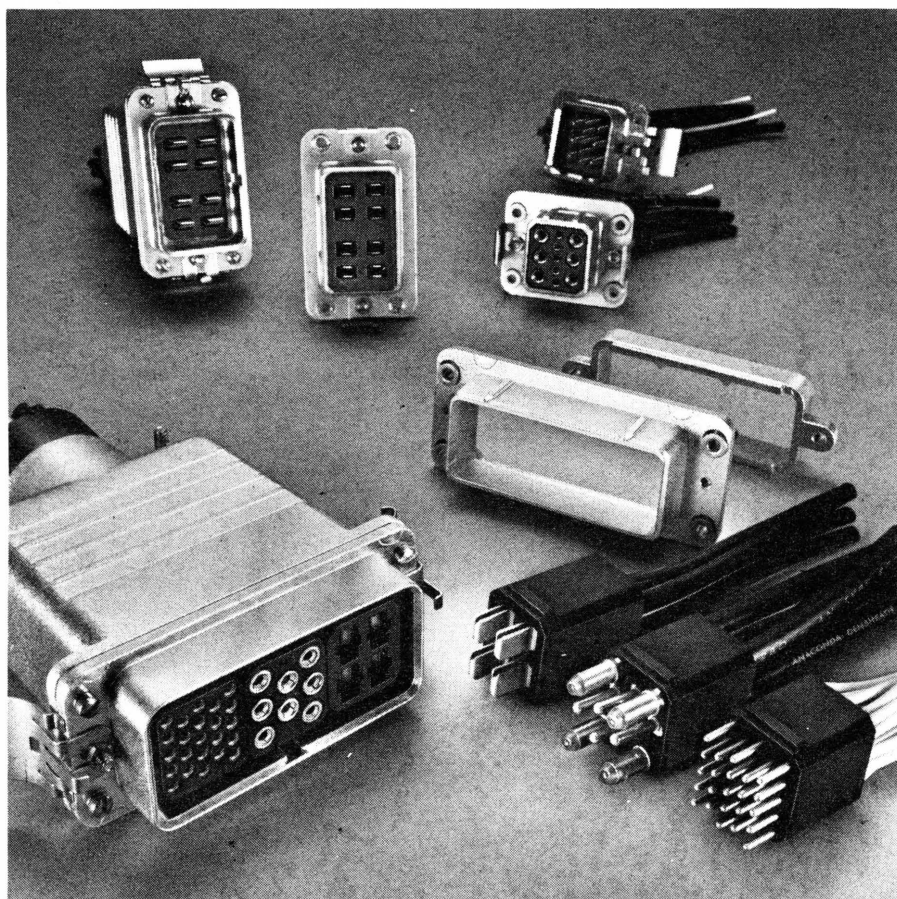
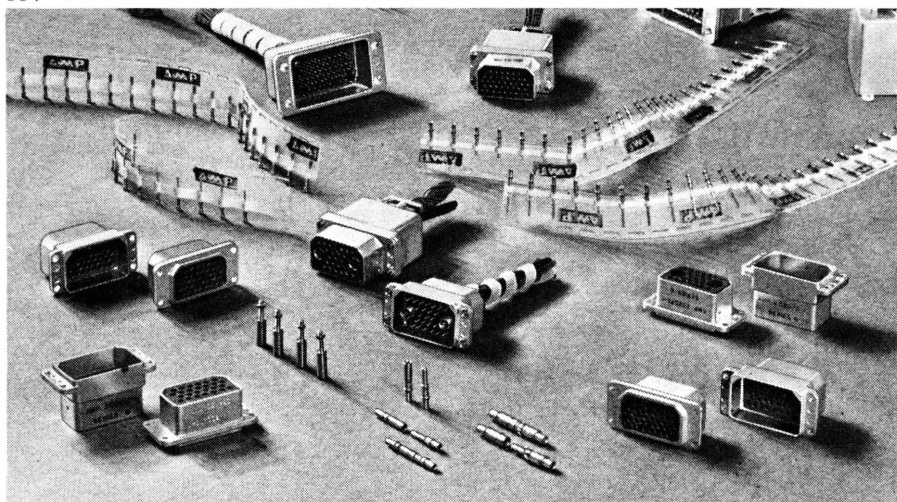
202895-1	Strain Relief Grommet	.593 $\begin{matrix} +.010 \\ -.000 \end{matrix}$
202895-2	Strain Relief Grommet	.718 $\begin{matrix} +.010 \\ -.000 \end{matrix}$
202895-3	Strain Relief Grommet	.843 $\begin{matrix} +.010 \\ -.000 \end{matrix}$
202895-4	Strain Relief Grommet	.969 $\begin{matrix} +.010 \\ -.000 \end{matrix}$
29397*	Receptacle Half End Cap	
29398*	Plug Half End Cap	

202896-1	Strain Relief Assembly	
202595-1	Potting Cup	
90151-1	Contact Crimping Tool	
1-305183-3	Extraction Tool	

*End cap protects exposed connector half during extended periods of disconnect



The AMPPOWER Multiple Connector can be disconnected under power without dangerous arcing, even in volatile environments.



COAXIAL and SHIELDED WIRE PRODUCTS

This section includes the following sub-sections:

Introduction
BNC Series Connectors
TNC Series Connectors
UHF Plug Connectors
“N” Series Connectors
COAXICLAMP Connectors
Threaded Series COAXICON Connectors
COAXICON Multiple Connectors
Miniature COAXICON Connectors
Standard COAXICON Connectors
Miniature COAXICON Sockets
Twin Standard COAXICON Connectors
Subminiature COAXICON Contacts
TERMASHIELD Ferrules and Splices

COAXICON CONNECTORS

Within this section you will find a complete line of connectors and splices for terminating coaxial and shielded cable. All feature Amp's solderless crimping technique for termination of inner conductor, outer shield, & cable support.

Coaxial cable, first introduced in the 1930's, is the most practical solution in the operation of radio frequency transmitters in the very-high and ultra-high frequency ranges. The earliest version, which has been improved and refined, is still basically unchanged. It consisted of a center conductor surrounded by a dielectric material covered by a braided outer conductor which, in turn, was protected by outside insulation. This arrangement offers minimum radiation with maximum flexibility. The spacing of the two conductors permits rf impedance to be accurately maintained and losses to be closely calculated.

All A-MP coaxial cable connectors are designed to provide concentric spacing between the outside diameter of the center contact, and the inside diameter of the outer sleeve or barrel of the connector shell. The spacing of these diameters and the dielectric between them determine the impedance of the connector. The cardinal point here is that A-MP coaxial cable connectors designed for rf use are internally proportioned to match the impedance values of any cable to which they are attached. This attention to design assures that A-MP coaxial cable connectors have minimum impedance discontinuities—an extremely important factor in circuits in which timing or phasing relationships are important. In radar applications, for example, impedance discontinuity can produce reflections that result in multiple echo readings and ranging errors.

Of the many sizes of coaxial cable now in use, ranging from $\frac{1}{8}$ " to 1" in outside diameters, the **flexible type** is, by its very nature and adaptability, most commonly used. It is ideal for interconnections in electronic systems and low power transmission lines.

There are several cable configurations that fulfill this definition, principally the true coaxial and the double shielded which is a slight modification.

Semi-flexible or **metal jacketed** cables are basic coaxial constructions using a metal jacket instead of a braid construction. This cable is constructed by forming a seamless metal tubing (aluminum or copper) tightly onto the cable dielectric. From a shielding and also attenuation standpoint, this configuration represents the ultimate in solid core designs. Most common application: antenna systems in short wave, broadcast, and communications equipment.

Special cable modifications include triaxial, dual, twin conductor and armored.

There are five main classifications of coaxial cable connectors, all of which are designed for use with flexible cable: (1) Large for use with cable of more than $\frac{1}{2}$ " diameter (RG17/U,

etc.); (2) Medium— $\frac{1}{4}$ " to $\frac{1}{2}$ " diameter (such as RG 8/U cable); (3) Small for RG 58/U type cable with $.125$ " to $.250$ " diameter; (4) Miniature with diameters of $.075$ " (RG 188/U category); (5) Subminiature for cable sizes with diameters of $.045$ " to $.080$ " (RG 196/U).

The BNC Connectors are fitted with a bayonet-lock coupling for quick connect and disconnect. They are a low-voltage, non-constant impedance type (except Series "E") designed for RG 58/U and RG 55/U cables. AMP has modified them for use with RG 59/U, RG 62/U, RG 142/U and many other cable sizes. They are recommended for application up to 10,000 megacycles when used with RG 55/U or RG 58/U cable. Maximum voltage may not exceed 500 volts.

The TNC series of connectors are a screw thread adaptation of the BNC series. The same cable sizes can be accommodated and they are intended for use to 10,000 megacycles at an operating voltage of 500 volts.

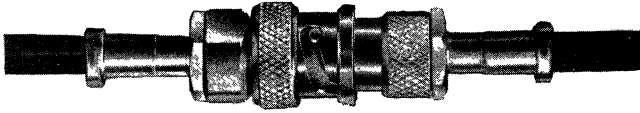
The N series connectors are threaded-coupling low-voltage constant-impedance (50 ohm) connectors available in weatherproof and non-weatherproof types. They are recommended for use to 10,000 megacycles, and 1500 volts peak, with the next larger coaxial cable range above the BNC—.330 to .500 O.D.

The threaded series COAXICON connectors are designed for 50 ohm nominal applications. Available in a variety of types in Standard, Twin, Miniature and Sub-miniature sizes, these connectors will accommodate a broad range of RG/U cable diameters. The receptacle half will accommodate panels from $\frac{1}{32}$ to $\frac{1}{4}$ inch. Full shielding is provided by the locknut and/or panel. A full line of adapters including right angles, "T", feed-throughs, etc. have been developed. And, by the use of various diameter cable entrance ends and intermatable internal contacts, mating of many sizes of dissimilar cable is possible.

Amp's Coaxicon contacts are available in standard, twin-standard, miniature, and sub-miniature sizes. These contacts are featured in our line of Multiple Coaxicon connectors. The connector housings are made of general purpose phenolic or glass filled diallyl phthalate. Special "T" and "Y" configurations are available.

In addition to these products we also have available many other coaxial connectors. Such as, single and twin UHF connector plugs for radio transmitter and receiver applications, a Coaxicon Twin connector plug for video cable, a miniature Coaxicon socket for printed circuit boards, Terma-Shield ferrules and splices for quick, economical termination or splicing of shielded wire, and last but not least the newly developed line of Coaxiclamp connectors and splices for semi-rigid coaxial cable. Each of these products is described and illustrated in this section, with associated tooling discussed in Section XI.

BNC SERIES COAXICON* CONNECTORS §



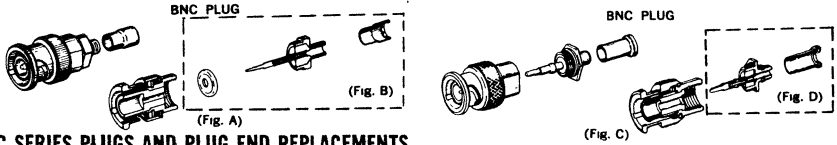
BNC SERIES COAXICON CONNECTORS, quick connect/disconnect, weather-proof connectors, are designed and tested in accordance with MIL-C-3608A, MIL-C-39012 and MIL-C-23329A. Inner conductor, outer braid and cable support are simultaneously joined to connector parts with one controlled stroke of the matching A-MP* crimping tool.

FEATURES:

- fast application—One crimping operation terminates inner conductor, outer braid and cable support
- no danger of heat damage to coaxial cable
- fully intermatable with comparable RG/U Series Connectors
- improved cable retention and insulation grip
- ease of inspection
- stabilized inner contacts
- less critical stripping dimensions than required for solder assemblies
- low VSWR
- reduced noise level
- simplified replacement in field
- simultaneous crimping designed and developed by AMP Engineering
- positive insulation grip with crimped braid ferrule
- light weight— $\frac{3}{4}$ ounce (cable plug and cable jack)

PERFORMANCE SPECIFICATIONS

Operating voltage:	1500 volts A.C., 1-minute
Operating temperature:	120°C to 155°C
Polypropylene	200°C
TEFLON®	50 ohms nominal
Impedance:	MIL-C-39012
Center Contact Resistance:	70 lbs. minimum—RG 58 c/u Cable
Minimum cable retention force:	MIL-STD-202, Method 103
Moisture resistance:	MIL-STD-202, Method 101
Salt spray:	MIL-STD-202, Method 202
Shock:	1.3 Max. to 10 Gc.
VSWR	



BNC SERIES PLUGS AND PLUG END REPLACEMENTS

RG/U Cable	Plug (See Fig. Noted)	Dielectric P—Polypropylene T—Teflon	Comparable UG/W Connector	Replacement Crimp End (See Fig. Noted)	Ferrule Color	Hand Tool No.	Die Insert No. For Pneumatic Tool 69363
58, 58A, 58B, 58C	2-329066-1 (A)	P	88	329779 (B)	Green	69140-1	69223-1
	2-329544-1 (A)	T	88	330178 (B)			
	2-329082-1 (A)	P	88C	329780 (B)			
	2-329444-1 (A)	T	88C	329913 (B)			
58C	330884 (C)	T	88E	2-330884-4 (D)	Natural-White	69376-1	69493
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	2-329064-1 (A)	P	260	329775 (B)	Natural-White	69141-1	69224-1
	2-329548-1 (A)	T	260	330179 (B)			
	2-329083-1 (A)	P	260B	329781 (B)			
	2-329445-1 (A)	T	260B	329914 (B)			
	331050 (A)	T	260D	2-331050-1 (B)			
161, 179, 187	2-329084-1 (A)	P	260B	330174 (B)	Orange	69245-1	69408
	2-329446-1 (A)	T	88C	330180 (B)			
	331053 (A)	T	260D	2-331053-1 (B)			
180, 180A, 195	2-329085-1 (A)	P	88C	330175 (B)	Brown-Stripe	69246-1	69423
	2-329447-1 (A)	T	88C	330181 (B)			
	331054 (A)	T	260D	2-331054-1 (B)			
55, 55A, 55B, 223	2-329082-2 (A)	P	88C	329919 (B)	Yellow w/ Black Stripe	69140-2	69424
	2-329444-2 (A)	T	88C	329925 (B)			
	2-330884-3 (C)	T	88E	2-330884-7 (D)			
	2-329083-2 (A)	P	260B	329922 (B)			
71, 71A, 71B	2-329445-2 (A)	T	260B	329928 (B)	Violet-Stripe	69141-2	69425
	331051 (A)	T	260D	2-331051-1 (B)			
	2-330058-1 (A)	P	88C	330221 (B)			
174, 188	2-330061-1 (A)	T	88C	330224 (B)	Orange	69245-2	69422
	331052 (A)	T	260D	2-331052-1 (B)			

TNC SERIES COAXICON* CONNECTORS ‡

A-MP* TNC Series Plugs are available with knurled or hex coupling nuts. The TNC Cable Jacks, Bulkhead Jacks and Panel Jacks are standard mounting types and mate with other TNC Series components. Crimp ends are designed specifically for appropriate cable sizes to permit maximum electrical performance and high reliability. One stroke crimping with A-MP tooling, both hand tools and power tools, simultaneously crimps the center conductor, braid and cable jacket. These connectors have been tested in accordance with requirements of MIL-C-3608A, MIL-C-23329A and MIL-C-39012.

FEATURES

- AMP's crimping technique reduces noise level
- Low application costs with time-saving, one-stroke crimping of inner conductor, outer braid and cable support
- Bell-mouth entry design facilitates easy insertion of cable center conductor
- Positive insulation grip with crimped braid ferrule
- No danger of heat damage to coaxial cable
- Complete intermatibility with comparable TNC series connectors
- Easy inspection
- Low VSWR
- Positive cable retention and insulation grip

PERFORMANCE SPECIFICATIONS

Operating voltage

2000 volts A.C. RMS (1 min.)

Operating Temperature (TEFLON†)

(-65°C to +200°C)

Impedance

50 ohms nominal

Center Contact Resistance

2.0 Milliohms/inch

Minimum Cable Retention Force

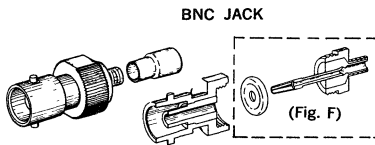
70 lbs.—RG 58 C/U Cable

Shock

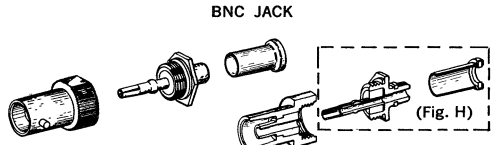
MIL-STD-202, Method 202

VSWR

1.3 Max. to 10 Gc.



(Fig. E)



(Fig. G)

Note: The dielectric material used in TNC Connectors is TEFLON*.

*Registered Trademark of E. I. duPont, Inc.

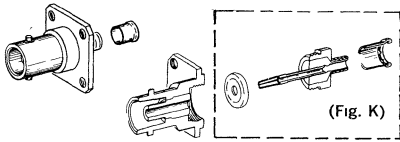
TNC SERIES PLUGS

RG/U Cable	Plug (See Figure Noted)	Comparable UG/U Connector	Replacement Crimp End (See Figure Noted)	Ferrule Color	Hand Tool No.	Die Insert No. For Pneumatic Tool 69365
58, 58A, 58B, 58C	330953 (D)	88E	1-330953-0 (F)	Natural White	69376-1	69493
	330886 (E)	88E	2-330886-4 (F)			
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	331100 (A)	260D	1-331100-0 (C)	Natural White	69141-1	69224-1
	331150 (B)	260D	1-331150-0 (C)			
	331153 (B)	260D	1-331103-0 (C)			
161, 179, 187	331103 (A)	260D	1-331153-0 (C)	Orange	69245-1	69408
	331104 (A)	260D	1-331104-0 (C)			
180, 180A, 195	331154 (B)	260D	1-331154-0 (C)	Brown Stripe	69246-1	69423
	331101 (A)	260D	1-331101-0 (C)			
71, 71A, 71B	331151 (B)	260D	1-331151-0 (C)	Violet Stripe	69141-2	69425
	331102 (A)	260D	1-331102-0 (C)			
174, 188	331152 (B)	260D	1-331152-0 (C)	Orange	69245-2	69422
	331105 (A)	260D	1-331105-0 (C)			
Amphenol #21-597	331155 (B)	260D	1-331155-0 (C)	Brown Stripe	69246-2	69423-1
	2-330953-1 (D)	88E	2-330953-4 (F)			
141, 141A	2-330886-1 (E)	88E	2-330886-5 (F)	Natural White	69376-1	69493
	2-330953-2 (D)	88E	2-330953-5 (F)			
142, 142A, 142B	2-330886-2 (E)	88E	2-330886-7 (F)	Yellow	69376	69493-1
	2-330953-3 (D)	88E	2-330953-6 (F)			
55, 55A, 55B, 223	2-330886-3 (E)	88E	2-330886-6 (F)	Yellow	69376	69493-1
	331108 (A)	260D	1-331108-0 (C)			
178, 196	331107 (A)	260D	1-331107-0 (C)	Red w/ Orange Stripe	69245-4	69471
122	331107 (A)	260D	1-331107-0 (C)	Natural White	69246-1	69423

BNC SERIES JACKS AND JACK CRIMP END REPLACEMENTS (Cont.)

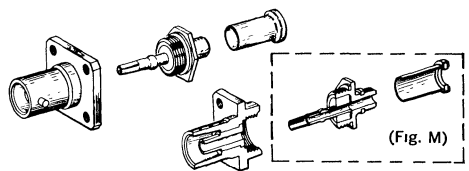
RG/U Cable	Jack (See Figure Noted)	Dielectric P—Polypropylene T—Teflon	Comparable UG/U Connector	Replacement Crimp End (See Figure Noted)	Ferrule Color	Hand Tool No.	Die Insert No. For Pneumatic Tool 69365
141, 141A	2-329065-3 (E)	P	89B	330489 (F)	Orange w/ Red Stripe	69331	69429
	2-329452-3 (E)	T	89B	330490 (F)			
	2-330885-1 (G)	T	89C	2-330885-5 (H)	Natural- White	69376-1	69493
142, 142A, 142B	2-329065-2 (E)	P	89B	329920 (F)	Yellow w/ Black Stripe	69331-1	69429-1
	2-329452-2 (E)	T	89B	329926 (F)			
	2-330885-2 (G)	T	89C	2-330885-6 (H)	Yellow	69376	69493-1
178, 196	330877 (E)	T	89B	1-330877-0 (F)	Red w/ Orange Stripe	69245-4	—
	330831 (E)	P	89B	1-330831-0 (F)			
122	330831 (E)	P	89B	1-330831-0 (F)	Natural- White	69246-1	69423
	331261 (E)	T	89B	1-331261-0 (F)			

BNC PANEL MOUNT JACK

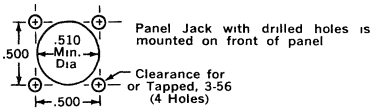


(Fig. J)

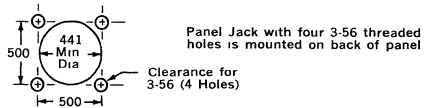
BNC PANEL MOUNT JACK



(Fig. L)



PANEL CUTOUT FOR JACKS WITH CLEARANCE HOLES



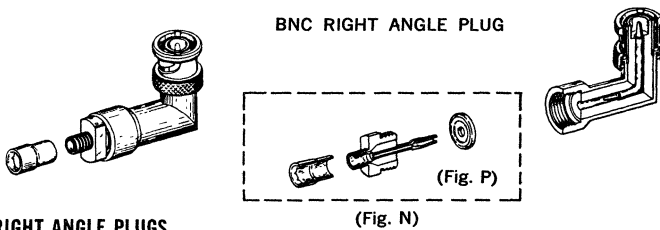
PANEL CUTOUT FOR JACKS WITH THREADED HOLES

BNC SERIES PANEL JACK MOUNTS

RG/U Cable	Panel Mount Jack (See Fig. Noted)	Mounting Provision	Dielectric P—Poly- propylene T—Teflon	Comparable UG/U Connector	Replacement Crimp End (See Fig. Noted)	Ferrule Color	Hand Tool No.	Die Insert No. For Pneumatic Tool 69365
58, 58A, 58B, 58C	330991 (J)	Clearance Holes	T	291A	2-330991-1 (K)	Green	69140-1	69223-1
	330996 (J)	Threaded Holes	T	291B	2-330996-1 (K)			
58C	331280 (L)	Threaded Holes	T	291C	1-331280-0 (M)	Natural- White	69376-1	69493
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	2-330726-1 (J)	Clearance Holes	T	262A/U	2-330726-2 (K)	Natural- White	69141-1	69224-1
	2-330787-1 (J)	Threaded Holes	T	262B/U	2-330787-3 (K)			
161, 179, 187	330992 (J)	Clearance Holes	T	262A/U	2-330992-1 (K)	Orange	69245-1	69408
	330997 (J)	Threaded Holes	T	262B/U	2-330997-1 (K)			
180, 180A, 195	330994 (J)	Clearance Holes	T	262A/U	2-330994-1 (K)	Brown- Stripe	69246-1	69423
	330999 (J)	Threaded Holes	T	262B/U	2-330999-1 (K)			
55, 55A, 55B, 223	331004 (J)	Clearance Holes	T	262A/U	2-331004-1 (K)	Yellow w/ Black Stripe	69140-2	69424
	331001 (J)	Threaded Holes	T	262B/U	2-331001-1 (K)			
	1-331280-3 (L)	Threaded Holes	T	262C	2-331280-6 (M)	Yellow	69376	69493-1
71, 71A, 71B	331480 (J)	Clearance Holes	T	262A	1-331480-0 (K)	Violet- Stripe	69141-2	67425
	331600 (J)	Threaded Holes	T	262C	1-331600-0 (K)			

BNC SERIES PANEL JACK MOUNTS (Cont.)

RG/U Cable	Panel Mount Jack (See Fig. Noted)	Mounting Provision	Dielectric P—Polypropylene T—Teflon	Comparable UG/U Connector	Replacement Crimp End (See Fig. Noted)	Ferrule Color	Hand Tool No.	Die Insert No. For Pneumatic Tool 69365
174, 188	330993 (J)	Clearance Holes	T	262A/U	2-330993-1 (K)	Orange	69245-2	69422
	330998 (J)	Threaded Holes	T	262B/U	2-330998-1 (K)			
Amphenol #21-597	330995 (J)	Clearance Holes	T	262A/U	2-330995-1 (K)	Brown-Stripe	69246-2	69423-1
	331000 (J)	Threaded Holes	T	262B/U	2-331000-1 (K)			
141, 141A	331006 (J)	Clearance Holes	T	262A/U	2-331006-1 (K)	Orange w/ Red Stripe	69331	69429
	331003 (J)	Threaded Holes	T	262B/U	2-331003-1 (K)			
	1-331280-1 (L)	Threaded Holes	T	262C	2-331280-4 (M)	Natural-White	69376-1	69493
142, 142A, 142B	331004 (J)	Clearance Holes	T	262A/U	2-331004-1 (K)	Yellow w/ Black Stripe	69331-1	69429-1
	331001 (J)	Threaded Holes	T	262B/U	2-331001-1 (K)			
	1-331280-2 (L)	Threaded Holes	T	262C	2-331280-5 (M)	Yellow	69376	69493-1

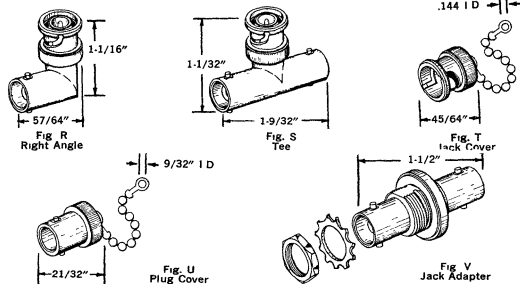


BNC RIGHT ANGLE PLUG

BNC SERIES RIGHT ANGLE PLUGS

RG/U Cable	Right Angle Plug (Fig. N)	Dielectric P—Polypropylene T—Teflon	Comparable UG/U Connector	Replacement Crimp End (Fig. P)	Ferrule Color	Hand Tool No.	Die Insert No. For Pneumatic Tool 69365
58, 58A, 58B, 58C	331175	T	913A/U	2-331175-1	Green	69140-1	69223-1
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	331176	T	913A/U	2-331176-1	Natural-White	69141-1	69224-1
161, 179, 187	331179	T	913A/U	2-331179-1	Orange	69245-1	69408
180, 180A, 195	331180	T	913A/U	2-331180-1	Brown Stripe	69246-1	69423
55, 55A, 55B, 223	331182	T	913A/U	2-331182-1	Yellow w/ Black Stripe	69140-2	69424
71, 71A, 71B	331177	T	913A/U	2-331177-1	Violet-Stripe	69141-2	69425
174, 188	331178	T	913A/U	2-331178-1	Orange	69245-2	69422
Amphenol #21-597	331181	T	913A/U	2-331181-1	Brown-Stripe	69246-2	69423-1
141, 141A	331183	T	913A/U	2-331183-1	Orange w/ Red Stripe	69331	69429
412, 142A, 142B	331182	T	913A/U	2-331182-1	Yellow w/ Black Stripe	69331-1	69429-1

Part Number	Description	Comparable UG/U Connector
329517	Right Angle Adapter (Fig. R)	306B
329518	Tee Adapter (Fig. S)	274B
330022	Jack Cover (Fig. T)	CW123A
330023	Plug Cover (Fig. U)	CW282
330024	Bulkhead Jack Adapter (Fig. V)	492D

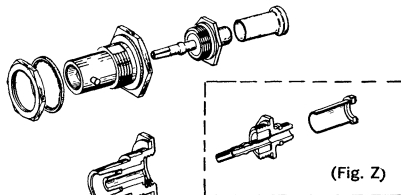
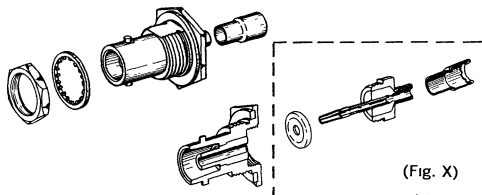


BNC SERIES BULKHEAD JACKS

RG/U Cable	Bulkhead Jack (See Fig. Noted)	Dielectric P—Polypropylene T—Teflon	Comparable UG/U Connector	Replacement Crimp End (See Fig. Noted)	Ferrule Color	Hand Tool No.	Die Insert No. For Pneumatic Tool 69365
58, 58A, 58B, 58C	2-329090-1 (W) 2-329456-1 (W)	P T	909A	329911 (X) 329917 (X)	Green	69140-1	69223-1
58C	331295 (Y)	T	909B	1-331295-0 (Z)	Natural-White	69376-1	69493
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	2-329091-1 (W) 2-329457-1 (W)	P T	910A	329912 (X) 329918 (X)	Natural-White	69141-1	69224-1
161, 179, 187	2-329092-1 (W) 2-329458-1 (W)	P T	909A 909A	330176 (X) 330186 (X)	Orange	69245-1	69408
180, 180A, 195	2-329093-1 (W) 2-329459-1 (W)	P T	909A	330177 (X) 330187 (X)	Brown-Stripe	69246-1	69423
55, 55A, 55B, 223	2-329090-2 (W) 2-329456-2 (W)	P T	909A	329921 (X) 329927 (X)	Yellow w/ Black Stripe	69140-2	69424
71, 71A, 71B	1-331295-1 (Y) 2-329091-2 (W) 2-329457-2 (W)	T P T	909B 910A	2-330885-7 (Z) 329924 (X) 329930 (X)	Yellow Violet-Stripe	69376 69141-2	69493-1 69425
174, 188	2-330060-1 (W) 2-330063-1 (W)	P T	909A	330223 (X) 330226 (X)	Orange	69245-2	69422
Amphenol #21-597	2-330002-1 (W) 2-330020-1 (W)	T P	909A	330191 (W) 330194 (W)	Brown-Stripe	69246-2	69423-1
141, 141A	2-339090-3 (W) 2-329456-3 (W)	P T	909A	330491 (W)	Orange w/ Red Stripe	69331	69429
	1-331295 (Y)	T	909B	330492 (X) 2-330885-5 (Z)	Natural-White	69376-1	69493
142, 142A 142B	2-329090-2 (W) 2-329456-2 (W)	P T	909A	329921 (X) 329927 (X)	Yellow w/ Black Stripe	69331-1	69429-1
	1-331295-2 (Y)	T	909B	2-330885-6 (Z)	Yellow	69376	69493-1
122	330833 (W) 331260 (W)	P T	909A	1-330833-0 (X) 1-331260-0 (X)	Natural-White	69246-1	69423

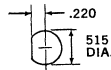
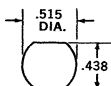
BNC BULKHEAD JACK

BNC BULKHEAD JACK



(Fig. W)

(Fig. Y)



PANEL CUTOUT FOR BULKHEAD JACKS

PANEL CUTOUT FOR BULKHEAD JACKS

TOOLING



A-MP compression crimps can be applied in limited applications by hand operated tools. Pneumatic tools are also available for larger production needs. These tools provide uniform crimping action by releasing the contact only after the crimping dies have fully bottomed.

TNC SERIES COAXICON* CONNECTORS §

A-MP* TNC Series Plugs are available with knurled or hex coupling nuts. The TNC Cable Jacks, Bulkhead Jacks and Panel Jacks are standard mounting types and mate with other TNC Series components. Crimp ends are designed specifically for appropriate cable sizes to permit maximum electrical performance and high reliability. One stroke crimping with A-MP tooling, both hand tools and power tools, simultaneously crimps the center conductor, braid and cable jacket. These connectors have been tested in accordance with requirements of MIL-C-3608A, MIL-C-23329A and MIL-C-39012.

FEATURES

- AMP's crimping technique reduces noise level
- Low application costs with time-saving, one-stroke crimping of inner conductor, outer braid and cable support
- Bell-mouth entry design facilitates easy insertion of cable center conductor
- Positive insulation grip with crimped braid ferrule
- No danger of heat damage to coaxial cable
- Complete intermatibility with comparable TNC series connectors
- Easy inspection
- Low VSWR
- Positive cable retention and insulation grip

PERFORMANCE SPECIFICATIONS

Operating voltage

2000 volts A.C. RMS (1 min.)

Operating Temperature (TEFLON†)
(-65°C to +200°C)

Impedance

50 ohms nominal

Center Contact Resistance

2.0 Milliohms/inch

Minimum Cable Retention Force

70 lbs.—RG 58 C/U Cable

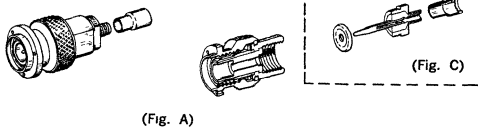
Shock

MIL-STD-202, Method 202

VSWR

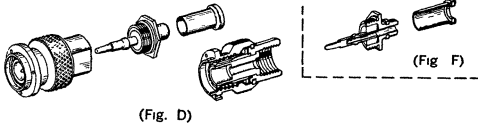
1.3 Max. to 10 Gc.

TNC PLUG (KNURLED BODY)



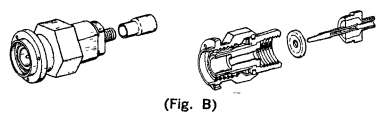
(Fig. A)

TNC PLUG (KNURLED BODY)



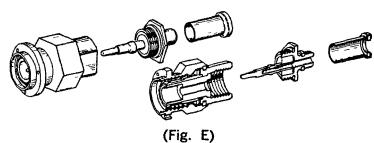
(Fig. D)

TNC PLUG (HEX BODY)



(Fig. B)

TNC PLUG (HEX BODY)



(Fig. E)

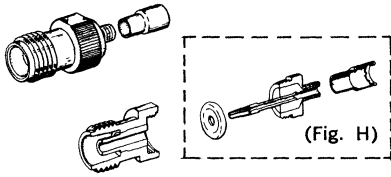
Note: The dielectric material used in TNC Connectors is TEFLON*.

TNC SERIES PLUGS

*Registered Trademark of E. I. duPont, Inc.

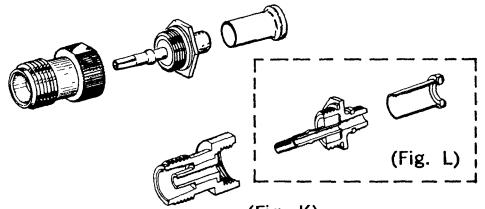
RG/U Cable	Plug (See Figure Noted)	Comparable UG/U Connector	Replacement Crimp End (See Figure Noted)	Ferrule Color	Hand Tool No.	Die Insert No. For Pneumatic Tool 69365
58, 58A, 58B, 58C	330953 (D)	88E	1-330953-0 (F)	Natural White	69376-1	69493
	330886 (E)	88E	2-330886-4 (F)			
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	331100 (A)	260D	1-331100-0 (C)	Natural White	69141-1	69224-1
	331150 (B)	260D	1-331150-0 (C)			
161, 179, 187	331153 (B)	260D	1-331103-0 (C)	Orange	69245-1	69408
	331103 (A)	260D	1-331153-0 (C)			
180, 180A, 195	331104 (A)	260D	1-331104-0 (C)	Brown Stripe	69246-1	69423
	331154 (B)	260D	1-331154-0 (C)			
/1, 71A, 71B	331101 (A)	260D	1-331101-0 (C)	Violet Stripe	69141-2	69425
	331151 (B)	260D	1-331151-0 (C)			
174, 188	331102 (A)	260D	1-331102-0 (C)	Orange	69245-2	69422
	331152 (B)	260D	1-331152-0 (C)			
Amphenol #21-597	331105 (A)	260D	1-331105-0 (C)	Brown Stripe	69246-2	69423-1
	331155 (B)	260D	1-331155-0 (C)			
141, 141A	2-330953-1 (D)	88E	2-330953-4 (F)	Natural White	69376-1	69493
	2-330886-1 (E)	88E	2-330886-5 (F)			
142, 142A, 142B	2-330953-2 (D)	88E	2-330953-5 (F)	Yellow	69376	69493-1
	2-330886-2 (E)	88E	2-330886-7 (F)			
55, 55A, 55B, 223	2-330953-3 (D)	88E	2-330953-6 (F)	Yellow	69376	69493-1
	2-330886-3 (E)	88E	2-330886-6 (F)			
178, 196	331108 (A)	260D	1-331108-0 (C)	Red w/ Orange Stripe	69245-4	69471
122	331107 (A)	260D	1-331107-0 (C)	Natural White	69246-1	69423

TNC JACK



(Fig. G)

TNC JACK

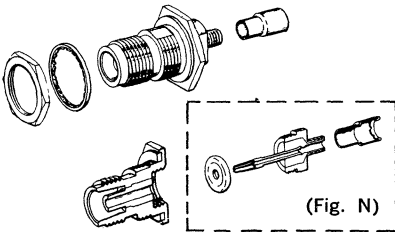


(Fig. K)

TNC SERIES JACKS

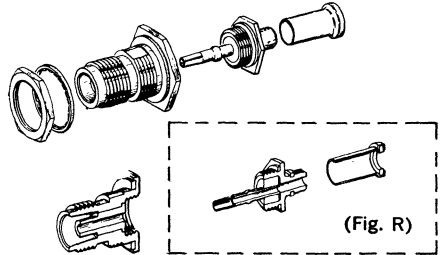
RG/U Cable	Jack (See Figure Noted)	Comparable UG/U Connector	Replacement Crimp End (See Figure Noted)	Ferrule Color	Hand Tool No.	Die Insert No. For Pneumatic Tool 69365
58, 58A, 58B, 58C	330887 (K)	89C	2-330887-4 (L)	Natural White	69376-1	69493
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	331125 (G)	261C	1-331125-0 (H)	Natural White	69141-1	69224-1
161, 179, 187	331128 (G)	261C	1-331128-0 (H)	Orange	69245-1	69408
180, 180A, 195	331129 (G)	261C	1-331129-0 (H)	Brown Stripe	69246-1	69423
71, 71A, 71B	331126 (G)	261C	1-331126-0 (H)	Violet Stripe	69141-2	69425
174, 188	331127 (G)	261C	1-331127-0 (H)	Orange	69245-2	69422
Amphenol #21-597	331130 (G)	261C	1-331130-0 (H)	Brown Stripe	69246-2	69423-1
141, 141A	2-330887-1 (K)	89C	2-330887-5 (L)	Natural	69376-1	69493
142, 142A, 142B	2-330887-2 (K)	89C	2-330887-6 (L)	Yellow	69376	69493-1
55, 55A, 55B, 223	2-330887-3 (K)	89C	2-330887-7 (L)	Yellow	69376	69493-1
178, 196	331132 (G)	261C	1-331132-0 (H)	Red w/ Orange Stripe	69245-4	69471
122	331131 (G)	261C	1-331131-0 (H)	Natural White	69246-1	69423

TNC BULKHEAD JACK



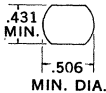
(Fig. M)

TNC BULKHEAD JACK



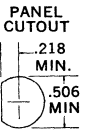
(Fig. P)

PANEL
CUTOUT

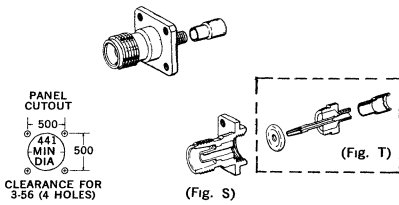


TNC SERIES BULKHEAD JACKS

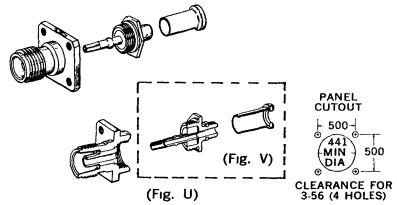
RG/U Cable	Bulkhead Jack (See Figure Noted)	Comparable UG/U Connector	Replacement Crimp End (See Figure Noted)	Ferrule Color	Hand Tool No.	Die Insert No. For Pneumatic Tool 69365
58, 58A, 58B, 58C	331325 (P)	909B	1-331325-0 (R)	Natural White	69376-1	69493
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	331235 (M)	910A	1-331235-0 (N)	Natural White	69141-1	69224-1
161, 179, 187	331238 (M)	910A	1-331238-0 (N)	Orange	69245-1	69408
180, 180A, 195	331239 (M)	910A	1-331239-0 (N)	Brown Stripe	69246-1	69423
71, 71A, 71B	331236 (M)	910A	1-331236-0 (N)	Violet Stripe	69141-2	69425
174, 188	331237 (M)	910A	1-331237-0 (N)	Orange	69245-2	69422
Amphenol #21-597	331240 (M)	910A	1-331240-0 (N)	Brown Stripe	69246-2	69423-1
141, 141A	1-331325-1 (P)	909B	1-331325-4 (R)	Natural White	69376-1	69493
142, 142A	1-331325-2 (P)	909B	1-331325-5 (R)	Yellow	69376	69493-1
55, 55A, 55B, 223	1-331325-3 (P)	909B	1-331325-6 (R)	Yellow	69376	69493-1
178, 196	331243 (M)	910A	1-331243-0 (N)	Red w/ Orange Stripe	69245-4	69471
122	331242 (M)	910A	1-331242-0 (N)	Natural White	69246-1	69423



TNC PANEL JACK
(Rear Panel Mount)



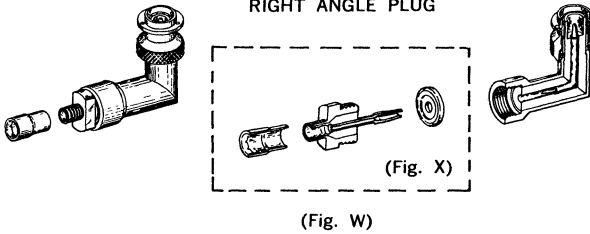
TNC PANEL JACK
(Rear Panel Mount)



TNC SERIES PANEL JACKS

RG/U Cable	Panel Jack (See Figure Noted)	Comparable UG/U Connector	Replacement Crimp End (See Figure Noted)	Ferrule Color	Hand Tool No.	Die Insert No. For Pneumatic Tool 69365
58, 58A, 58B, 58C	331310 (U)	291C	1-331310-0 (V)	Natural White	69376-1	69493
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	331220 (S)	262C	1-331220-0 (T)	Natural White	69141-1	69224-1
161, 179, 187	331223 (S)	262C	1-331223-0 (T)	Orange	69245-1	69408
180, 180A, 195	331224 (S)	262C	1-331224-0 (T)	Brown Stripe	69246-1	69423
71, 71A, 71B	331221 (S)	262C	1-331221-0 (T)	Violet Stripe	69141-2	69425
174, 188	331222 (S)	262C	1-331222-0 (T)	Orange	69245-2	69422
Amphenol #21-597	331225 (S)	262C	1-331225-0 (T)	Brown Stripe	69246-2	69423-1
141, 141A	2-331310-1 (U)	291C	1-331310-4 (V)	Natural White	69376-1	69493
142, 142A	1-331310-2 (U)	291C	1-331310-5 (V)	Yellow	69376	69493-1
55, 55A, 55B, 223	1-331310-3 (U)	291C	1-331310-6 (V)	Yellow	69376	69493-1
178, 196	331227 (S)	262C	1-331227-0 (T)	Red w/ Orange Stripe	69245-4	69471
122	331226 (S)	262C	1-331226-0 (T)	Natural White	69246-1	69423

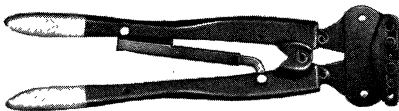
RIGHT ANGLE PLUG



TNC SERIES RIGHT ANGLE PLUG

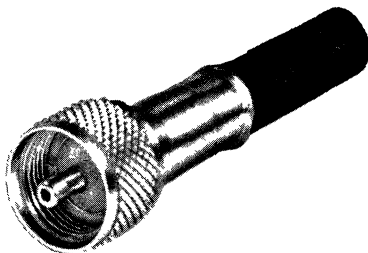
RG/U Cable	Right Angle Plug (See Figure W)	Comparable UG/U Connector	Replacement Crimp End (See Figure X)	Ferrule Color	Hand Tool No.	Die Insert No. For Pneumatic Tool 69365
59, 59A, 59B, 62, 62A 62B, 124, 140, 210	331864	913A	1-331864-0	Natural White	69141-1	69224-1
161, 179, 187	331865	913A	1-331863-0	Orange	69245-1	69408
180, 180A, 195	331865	913A	1-331865-0	Brown Stripe	69246-1	69423
71, 71A, 71B	331862	913A	1-331862-0	Violet Stripe	69141-2	69425
174, 188	331866	913A	1-331866-0	Orange	69245-2	69422
Amphenol #21-597	331867	913A	1-331867-0	Brown Stripe	69246-2	69423-1
178, 196	331869	913A	1-331869-0	Red w/ Orange Stripe	69245-4	69471
122	331868	913A	1-331868-0	Natural White	69246-1	69423

TOOLING



A-MP compression crimps can be applied in limited applications by hand operated tools. Pneumatic tools are also available for larger production needs. These tools provide uniform crimping action by releasing the contact only after the crimping dies have fully bottomed.

COAXICON* UHF SERIES CONNECTOR PLUG §



This ultra-high frequency coaxial connector is a non-constant impedance type plug operating at frequencies of up to 500 MC, and is suitable for use in circuits with a maximum voltage of 500 volts.

The A-MP* UHF plug is the only one for which a one-crimp, solderless type application tool is available. The precisely controlled one-stroke crimp is quickly completed with a new "bullseye," self-bottoming hand or bench-mounted pneumatic tool. In either case, the tool not only crimps the braid for high pull-out, but also simultaneously crimps the center conductor with a square crimp. The ferrule provides insulation support, a feature exclusive with AMP.

TEST DATA

The UHF COAXICON Connector plug operates in frequency bands from 25 mcs to 200 mcs. The VSWR of this plug mated with NT-49194/SO-239 receptacle with a UG 106/U hood on 50 ohm RG 213 U coaxial cable is recorded in the table below.

Test data on samples of A-MP UHF plugs at frequencies of 27 mcs to 200 mcs proved that the VSWR is exceptionally low. The following procedures were used:

1. 100 feet of RG 213/U cable was assembled to a type N adapter and connected to an impedance bridge. The far end of the cable was terminated into a 50-ohm load.

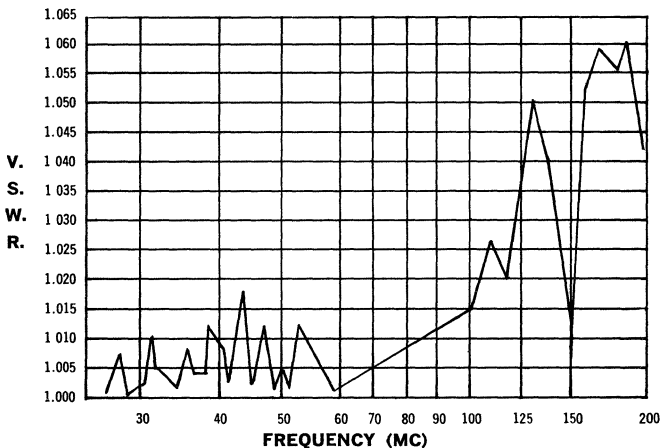
2. At each test frequency the input impedance (magnitude and phase angle) of the cable was measured and recorded.

3. A test connector pair was inserted in such a way that the phase difference between the adapter and the inserted connector pair was negligible. The reflections could therefore be assumed in phase.

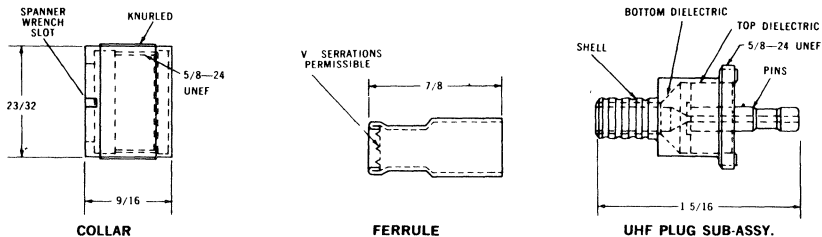
4. The total input impedance was measured and recorded.

5. Smith Chart plots were made and input VSWR of the connectors were obtained.

**AMP Crimpable UHF Plug
Mated with NT-49194/SO-239 with a UG 106/U Hood**



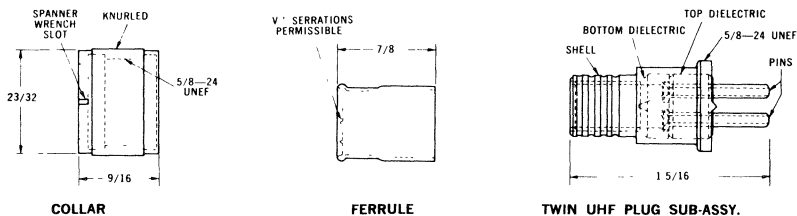
SINGLE CONNECTOR PLUG



TABULAR DATA

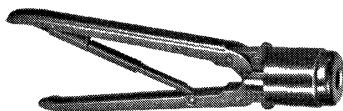
Cable	Part Number	Hand Tool	Spanner Wrench
RG 8, 8A, 213	330830	69453	
RG 11, 11A	2-330830-3	69453	
Western Electric 724	2-330830-2	69452	
Belden 8281			
RG 58, 58A, 58B, 58C	2-330830-4	69480	
RG 59, K38, IT&T Federal	2-330830-6	69482-1	69657
RG 114	2-330830-7	69483	
RG 214	2-330830-8	69499	
Belden T-4-50	2-330830-9	69453	
Belden 8213	3-330830-0	69453	
Belden 8214	3-330830-1	69453	

TWIN CONNECTOR PLUG



TABULAR DATA

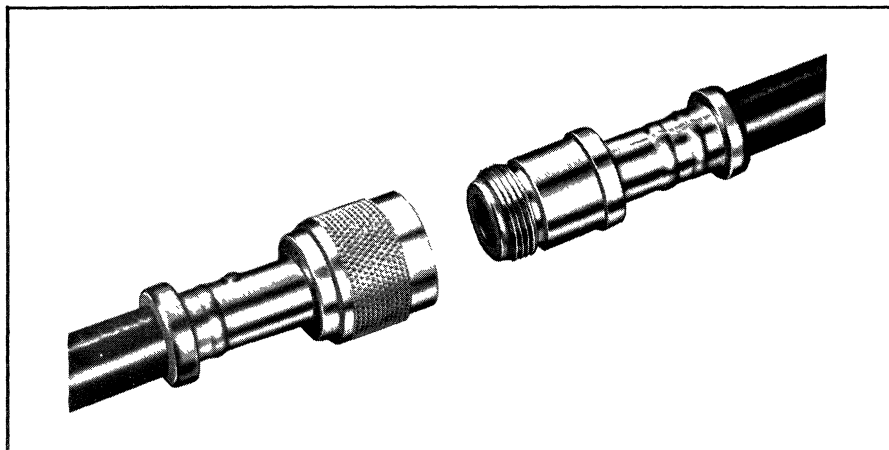
Cable	Part Number	Hand Tool	Spanner Wrench
RG 22A, RG 22B	331830	69453-1	69657



HAND TOOLS

Top-loading, as compared to side loading, hand tools have been developed for A-MP UHF COAXICON plugs.

N SERIES COAXICON* CONNECTORS



The A-MP "N" Series Connector is designed and tested in accordance with the requirements of MIL-C-39012. Fully interchangeable with comparable UG/U series connectors, the A-MP "N" Series connector features positive crimping of cable conductor, braid shield and protective sleeve with the same tool. In fact, only one hand tool is necessary to make all crimps in a given cable size, either single braided or double braided shields.

Built-in retention dimples maintain proper positioning of the cable dielectric and outer pin before and after crimping. Configurations presently available include plugs and jacks, panel jacks, and bulk-head jacks. This highly reliable, moisture resistant connector offers a wide range of coaxial connector features.

FEATURES

- Single tool crimps cable center conductor, braid shield, and protective sleeve
- One tool crimps all cables of a given size, both single and double braided shields (RG 8, 9, 213, 214)
- Low VSWR
- Reduced noise level because of AMP's solderless crimping technique
- No danger of heat damage to coaxial cable
- Built-in retention dimples maintain positioning of cable dielectric and outer pin
- High cable retention
- Ease of inspection

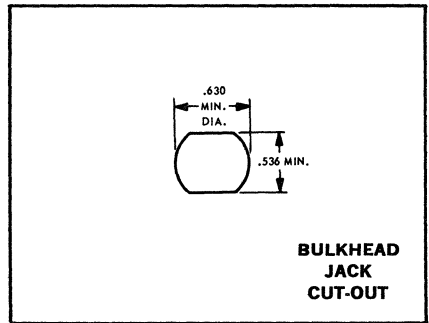
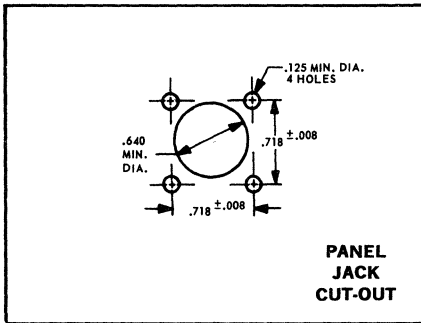
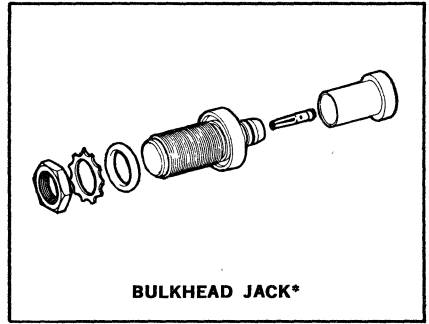
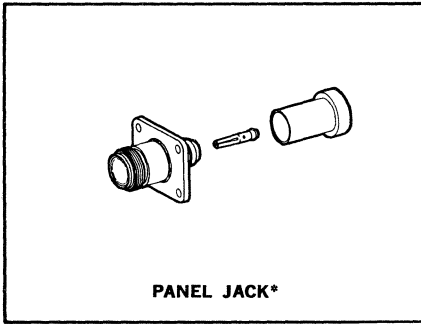
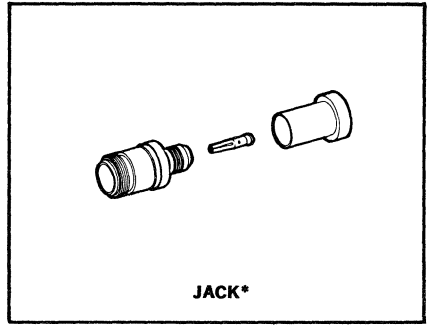
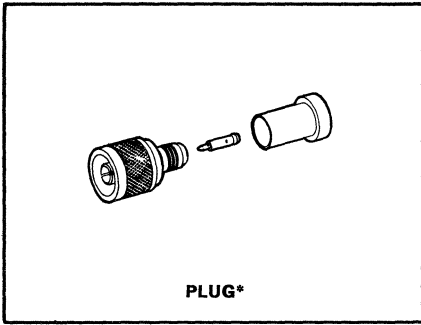
MATERIAL SPECIFICATIONS

Brass	.....QQ-B-626 A
Phosphor Bronze	....QQ-P-330
Copper	.....QQ-C-576 A
Beryllium Copper	..QQ-C-533
Teflon®	.....P-19468
Silicone Rubber	..MIL-R-5847 D
Silver Plating	.....QQ-S-365
Gold Plating	....MIL-G-45204

PERFORMANCE SPECIFICATIONS

Nominal Impedance	.....50 OHMS
Voltage Rating	.....1000 Volts RMS. A C
Dielectric with standing voltage	2000 Volts RMS. (Sea Level)
VSWR	1.35 Max from 0-10,000 MC. (Swept Frequency Method)
Cable Retention Force	.....100 pounds minimum
Moisture Resistance	.....MIL-Std.-202 B, Method 106 A
Salt Spray (Corrosion)	.....MIL-Std.-202 B, Method 101 A
Vibration	.....MIL-Std.-202 B, Method 201 A
Temp. Cycling	.....MIL-Std.-202 B, Method 102 A

SPECIFICATIONS

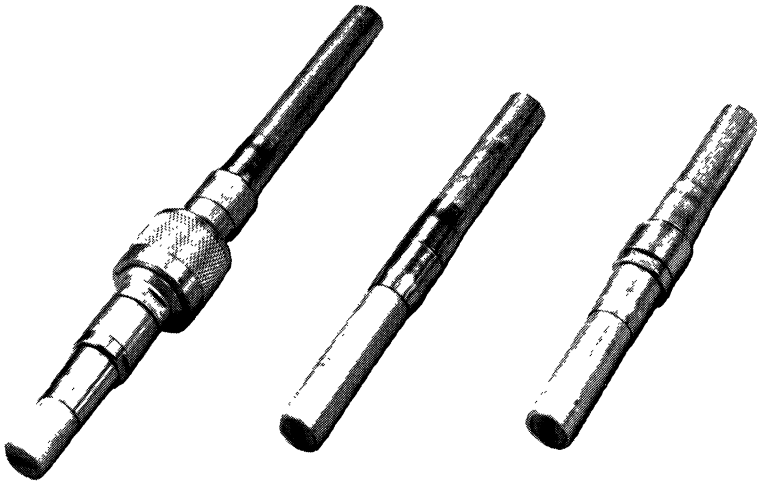


RG/U Cable Number	Connector Assembly				Crimping Tool
	Plug	Jack	Panel Jack	Bulkhead Jack	
RG8, 8A, 213	1-331985-0	1-331995-0	1-332000-0	1-332005-0	69646
RG9, 9A, 9B, 214	331985	331995	332000	332005	
RG58	1-332243-5	1-332263-5	1-332264-5	1-332262-5	69376-1
RG141	1-332243-3	1-332263-3	1-332264-3	1-332262-3	
RG55, 223	1-332243-1	1-332263-1	1-332264-1	1-332262-1	69376
RG142	332243	332263	332264	332262	

AMP Compression crimps are applied by hand operated CERTI-CRIMP* tools. These crimping tools provide uniform crimping action by releasing the connector only after the crimping dies have fully bottomed.

*Illustrations applicable for RG 8, 9, 213, & 214. Smaller sizes feature captive contacts, & simultaneous crimping of center conductor & braid.

COAXICLAMP CONNECTORS AND SPLICES FOR SEMI-RIGID 50 OHM FOAMFLEX† CABLE



A-MP* COAXICLAMP* Connectors have been designed to eliminate the major problems in semi-rigid coaxial cable terminations and connections. This family of coaxial connectors provides a substantial reduction in size and weight compared to other type semi-rigid cable connectors. VSWR performance of 1.15 to 1 or less from 0 to 10 GHz can be provided. Simplified tooling facilitates speed of assembly. Both halves of the connector can be attached in less than three minutes.

This highly improved connector should be used to minimize electrical reflections capable of creating serious VSWR problems. The COAXICLAMP connector avoids abrupt changes in the conductor diameters which normally cause high VSWR readings. Through careful designing, matching and compensating this termination method assures coaxial symmetry and provides maximum tensile strength. The attachment to the cable is such that the cable fails in tensile before the attachment fails, and the cable distorts permanently in torque external of the attachment. The attachment withstands standard cable bends adjacent to it.

The COAXICLAMP connectors described are intended for use with air dielectric, semi-flexible, low-loss, radiation-free coaxial cables as manufactured by Phelps Dodge Electronics, or equivalent cable offered by other manufacturers.

Similar to the connector, AMP also manufactures a COAXICLAMP Splice for $\frac{1}{4}$ " to $\frac{1}{2}$ " cable. This is the only permanent semi-rigid coaxial cable splice available today. Only slightly larger than the cable, the COAXICLAMP Permanent Splice has a VSWR reading of 1.15 to 1 and less from 0 to 10 GHz. The permanent splice offers the same high tensile strength and other quality features as the connector.

FEATURES

- Weatherproof
- Low VSWR
- High tensile strength
- Constant Impedance
- Faster assembly for lower applied cost
- High performance
- Reduction in weight and size

TOOLING

With simple tooling for the rapid and reproducible assembly of connectors on cable, an experienced user can completely terminate a connector in less than three minutes, a splice in less than five. Manual tooling is designed for use with cable sizes $\frac{1}{4}$ " and $\frac{3}{8}$ " O.D. Hydraulic power tooling is available for $\frac{1}{2}$ " O.D. cable.

*Trademark of AMP Incorporated

†Trademark of Phelps Dodge Electronic Products Corporation

SPECIFICATIONS

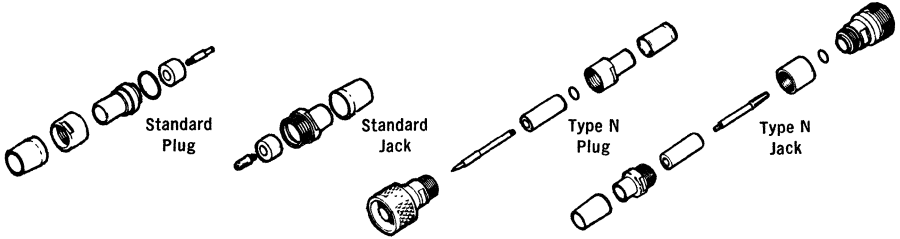
MECHANICAL

Bodies, Coupling Nut Brass (QQ-B-626) Silver Plate .00020 thick min.
 Loading Ring Beryllium Copper (QQ-C-416) Silver Plate .00020 thick min.
 Center Contacts . . . Beryllium Copper (QQ-C-530) Silver Plate .00020 thick min.
 Dielectric Teflon
 Minimum Cable Retention Force 1/4" 140 lbs. 3/8" 280 lbs. 1/2" 380 lbs.
 Operating Temperature -55°C to +85°C

ELECTRICAL

Impedance:
 50 ohms
 VSWR: 1.15: 1 to 10 GHz
 Breakdown: Meet maximum peak operating voltage

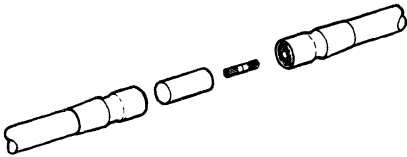
CONNECTORS



Cable Size	Coaxclamp		"N" Series		Tool No.	Applicator Kit No.
	Plug	Jack	Plug	Jack		
1/4"	332364	332365	332366	332367	69634	69678
3/8"	331711	331712	331718	331844	69622	69621
*1/2"	1-331200-0	1-331207-0	331719	331843	69467	69468
.390"	331837	331838	331840	331839	69622	69676

*Solid or tubular center conductor.

SPLICES

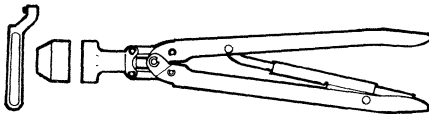


Cable Size	Permanent Splice	Tool No.	Applicator Kit No.
1/4"	331716	69634	69663
3/8"	331714	69634	69635
*1/2"	331713	69634	69658
.390"	50310	69634	--

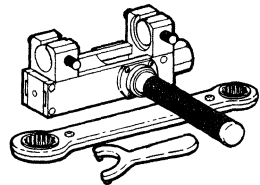
*Solid or tubular center conductor.

TOOLING

HAND TOOL #69622

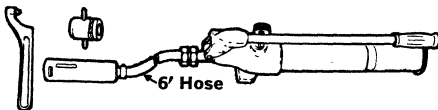


RATCHET TOOL #69634

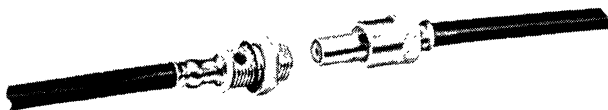


HYDRAULIC TOOL

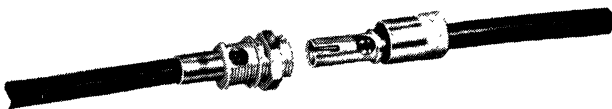
With Hose - #69467-1 Without Hose - #69467



THREADED SERIES COAXICON* CONNECTORS §



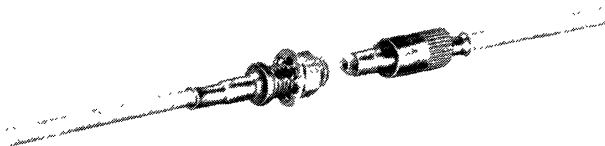
STANDARD



TWIN STANDARD



MINIATURE



SUB-MINIATURE

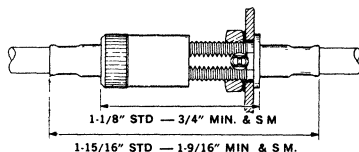
COAXICON threaded series connectors, in standard, twin standard, miniature and sub-miniature models accommodate a wide range of coaxial cables as indicated in the accompanying tabular data. Configurations presently available include the straight plugs and

receptacles, plus right angle and "T" adapters. The advanced design features of this new coaxial connector have been developed specifically for crimping techniques and incorporate a one-piece assembly of center contacts stabilized in a dielectric.

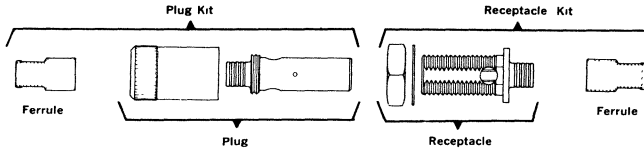
FEATURES:

- reduced noise level because of AMP's solderless crimping techniques.
- low application cost with time-saving, one-stroke crimping of inner conductor, outer braid and cable support.
- conductor and dielectric insertion facilitated by bell-mouth entry design in insulators and wire barrels.
- positive insulation grip with crimped braid ferrule.
- no danger of heat damage to coaxial cable.
- ease of inspection.
- stabilized inner contacts.
- low VSWR.
- improved cable retention and insulation grip.

MATED ASSEMBLY DIMENSIONS



COMPONENT PARTS AND PART NUMBERS



THREADED SERIES COAXICON CONNECTOR SELECTION CHART FOR RG/U CABLE

RG/U Cable No.	Plug No.	Plug Kit No.	Receptacle No.	Receptacle Kit No.	Use 2 Ferrules		Crimping Tool No.	Die Inserts For Pneumatic Tools 69264-4, 69319-1 & 69365
					Ferrule No.	Color		
141	329030 STD.	2-329030-4 STD.	329031 STD.	2-329031-4 STD.	330478	Orange with Red Stripe	45740	69220-1
55, 55A, 55B, 142, 223	329030 STD.	2-329030-2 STD.	329031 STD.	2-329031-2 STD.	329099	Yellow with Black Stripe	69248-1	69315-1
58, 58A, 58B, 58C,	329030 STD.	2-329030-1 STD.	329031 STD.	2-329041-1 STD.	328663	Green	45740	69220-1
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	329032 STD.	2-329032-1 STD.	329033 STD.	2-329033-1 STD.	329041	Natural-White	69126	69225-1
174, 188	329034 STD.	2-329034-1 STD.	329035 STD.	2-329035-1 STD.	328666	Orange	45638	69227-1
21-596, 21-598	329036 MIN.	2-329036-1 MIN.	329037 MIN.	2-329037-1 MIN.	329038	Red Stripe	45609	69226-1
	330311 MIN.*	2-330311-1 MIN.*	330312 MIN.*	2-330312-1 MIN.*	329038	Red Stripe	45609	69226-1
	329034 STD.	2-329034-1 STD.	329035 STD.	2-329035-1 STD.	328666	Orange	45638	69227-1
179A, 187	329036 MIN.	2-329036-1 MIN.	329037 MIN.	2-329037-1 MIN.	329038	Red Stripe	69142	69228-1
	330311 MIN.*	2-330311-1 MIN.*	330312 MIN.*	2-330312-1 MIN.*	329038	Red Stripe	69142	69228-1
180, 180A, 195, 21-597	329024 STD.	2-329024-1 STD.	329023 STD.	2-329023-1 STD.	328664	Yellow	45639	69222-1
180, 180A, 195	329047 MIN.	2-329047-1 MIN.	329048 MIN.	2-329048-1 MIN.	329049	Yellow Stripe	69143	69229-1
161, 178, 178A, 196	329036 MIN.	2-329036-2 MIN.	329037 MIN.	2-329037-2 MIN.	329067	Orange Stripe	69188-1	69372
	330311 MIN.*	2-330311-2 MIN.*	330312 MIN.*	2-330312-2 MIN.*	329067	Orange Stripe	69188-1	69372
178, 178A, 178B, 196	330640 S.M.**		330641 S.M.**			Red with Orange Stripe	69389	---

NOTE: In some cases, either the Standard or the Miniature Threaded Series may be used for a given wire size.

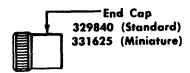
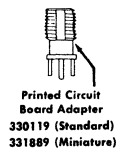
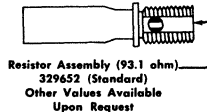
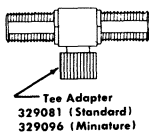
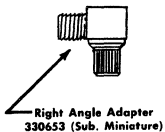
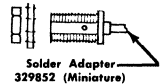
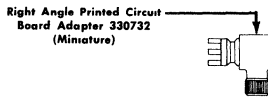
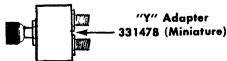
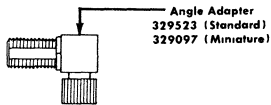
STD.—Refers to Standard Threaded Series; MIN.—Refers to Miniature Threaded Series;

S.M.—Refers to Sub-Miniature Threaded Series.

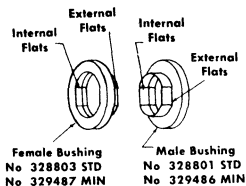
*These contacts contain TEFLON dielectric. All others contain polypropylene.

**Ferrule included with Sub-Miniature plug and receptacle.

ADAPTER PARTS AND PART NUMBERS

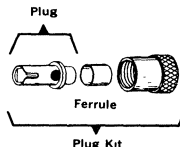
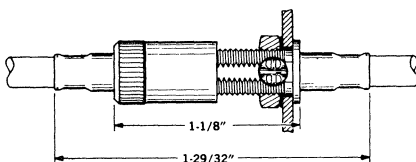
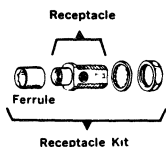


PANEL INSULATING BUSHING



NOTE: Bushings may be attached to Panels from 1/16" Min. to 1/8" Max. Thick.

TWIN CONDUCTOR TYPE



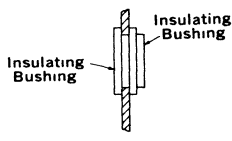
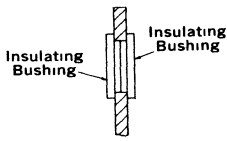
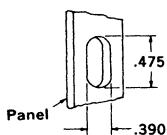
THREADED SERIES TWIN COAXICON CONNECTOR SELECTION CHART

Cable Size	Receptacle No.	Receptacle Kit No.	Plug No.	Plug Kit No.	Insulator Color Code	Ferrule No.	Color	Crimping Tool No	Die Insert For Pneumatic Tool 69365
RG 108/U & RG 108 A/U	329942	2-329942-1	329945	2-329945-1	Yellow				
RG 108 A/U (Modified Center Conductor)	329941	2-329941-1	329944	2-329944-1	White	329960	Red with Green Stripe	69311-1	69410
2-3932 (Microdot) 2-3934 (Microdot)	329940	2-329940-1	329943	2-329943-1	Red	330479	Green with Blue Stripe	69311-1	69410

PANEL INSULATING BUSHINGS



Panel Insulation Bushing 331025 (Two required)

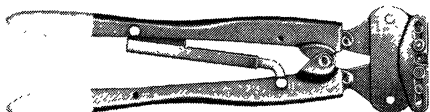


ADAPTER



Printed Circuit Board Adapter (Twin Standard) 330873

TOOLING



A-MP compression crimps can be applied in limited applications by hand operated tools. Pneumatic tools are also available for larger production needs. These tools provide uniform crimping action by releasing the contact only after the crimping dies have fully bottomed.

COAXICON* CONNECTORS

COAXICON PIN & SOCKET CONNECTORS

The A-MP* line of COAXICON Pin and Socket Connectors is primarily composed of plastic rectangular housings into which are inserted pin and socket members. Beyond the need for fastening the male and female blocks together, the choice of necessary hardware is optional.

Selection of components for a properly functioning connector should be made in the following order:

HOUSINGS

The housing is categorized by number of contact positions and by plastic material (phenolic or diallyl phthalate). Contacts protrude from the male housing whether pins or sockets are used. Therefore, pin hoods and shields and cable clamps with pin protection are only effective on the male housing. Contacts do not protrude from the female housing whether pins or sockets are used. The female housing is normally used as the panel-mounted half.

CONTACTS

The COAXICON Contact is a crimp, snap-in type, designed for high density, multiple circuit connector applications. It features the exclusive AMP one-crimp termination of inner conductor, outer braid and cable support. Special type retention spring provides firm seating into the connector block and acts as a shield over crimping ports. Wide range of cable sizes is accommodated by utilizing three sizes of outer shell termination ends and three sizes of inner contacts. Application is quickly and reliably accomplished through the use of CERTI-CRIMP* hand tools.

SPECIFICATIONS—Material: Phenolic, MIL-M-14F Type CFG; Diallyl Phthalate, MIL-M-14F Type SDG-F.

Performance: Test Voltage, 1000 Volts AC; Operating Temperature, Type CFG —55°C to +125°C, Type SDG-F —65°C to +150°C; Shock, MIL-STD 202B, Method 202A; Vibration, MIL-STD 202B, Method 201A; Contact Retention, 15 Pounds.

ACCESSORY HARDWARE

FASTENING HARDWARE. In all applications, whether panel or free hanging, it is recommended that the connector be adequately fastened together. Fastening devices such as turnable and fixed jack screws are available for this use.

SHIELD AND CABLE CLAMP. These are available in anodized aluminum or cadmium plated steel. All have integral cable clamps to aid in grouping leads and resisting vibration. Shields and cable clamps may be had with cable entrance of 180° or 90°. Before selecting a shield and cable clamp the combined cable O. D. must be calculated. The maximum clamp I. D. is given in the table.

Turnable jack screws cannot be used with a shield and cable clamp unless noted otherwise in the table.

The mounting holes on the shield and cable clamp are threaded for use with center guide pins, sockets or standard machine screws.

STRAIN RELIEF CLAMP. This is a basic lead-grouping device of cadmium plated steel which aids in resisting vibration. It may be used to clamp cables at either 180° or 90°. It is fastened to the housing by corner guide pins and/or sockets or by standard machine screws.

PIN HOOD. This covering is available in iridite aluminum, anodized aluminum or cadmium plated steel and is normally used on the male housing to protect the protruding contacts. It is fastened to the housing by corner or center guide pins and/or sockets or standard machine screws.

LOCKING SPRING AND CATCH. This is a spring action locking device which automatically locks connector halves in proper mating position. As a quick connect/disconnect fastener, it does not require the use of jack screws. The spring and catch are fastened to the housing with center guide pins and/or sockets.

KEYING PLUG. The Keying Plug is used in the male or female housing to provide keying and/or polarization. Use of the keying plug eliminates a contact position in the connector.

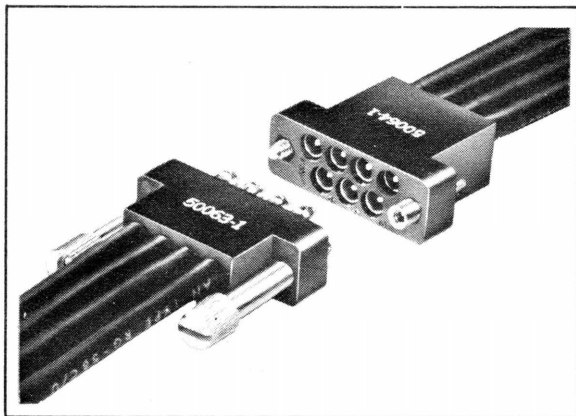
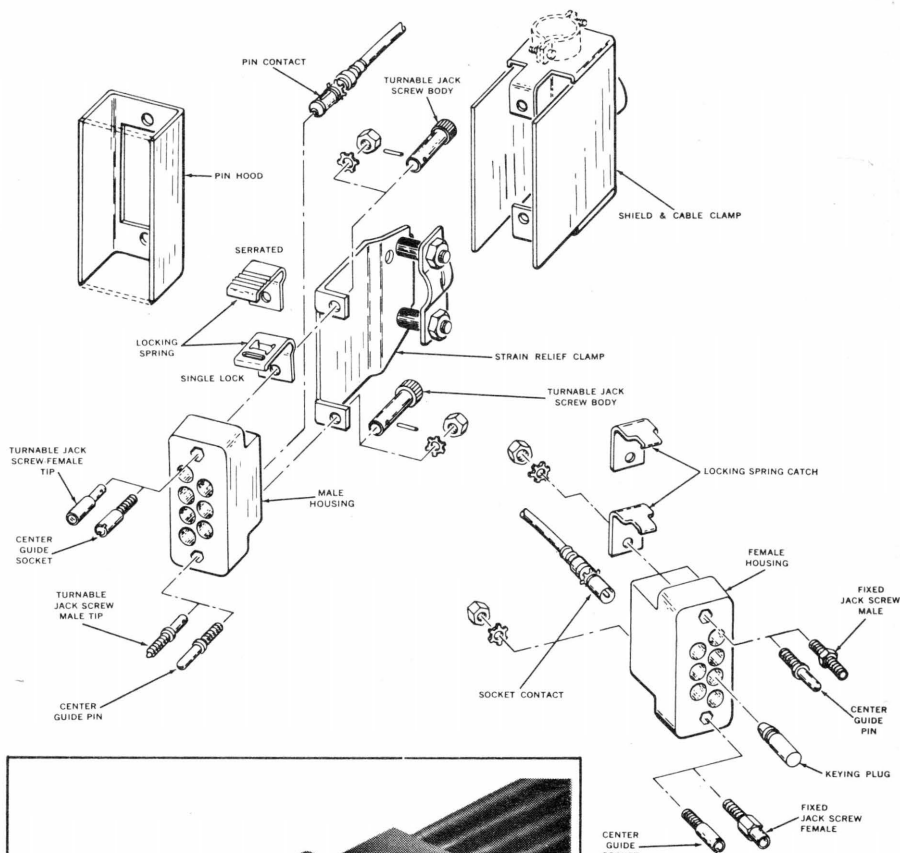
JACK SCREWS (Fixed and Turnable). These screws have a double-lead thread which holds connector halves firmly together. They also aid in guiding connector halves to proper mating. The most common application is a set of turnable jack screws on the male housing and a mating set of fixed jack screws on the female housing. Jack screws are not used with the locking spring and catch.

GUIDE PINS AND SOCKETS. Made of cadmium plated brass or stainless steel, these devices are used for polarization and alignment of the male and female housings. They also function as fasteners for other hardware.

MINIATURE COAXICON* CONNECTORS

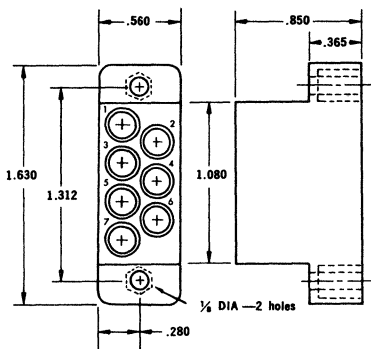
7 POSITION

HOUSING AND ACCESSORY HARDWARE

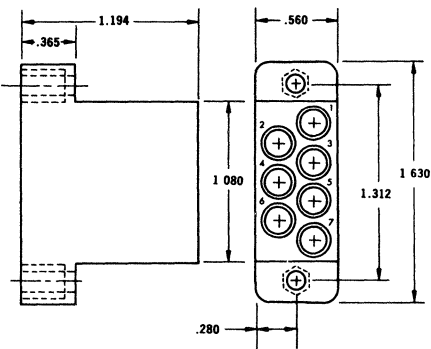


HOUSINGS

Male Housing Part Number	Female Housing Part Number	Material & Color
50063-1	50064-1	Phenolic Black
50063-2	50064-2	Diallyl Phthalate Blue



MALE HOUSING



FEMALE HOUSING

SHIELD AND CABLE CLAMPS

Shield Type	Pin Protection	Material and Finish	Max. Clamp I.D. "C"	To Be Used On	Part Number	Jack Screws Used
180° Two Piece	Without	Al. Anod.	13/32" Dia.	Male or Female Housing	200514-1	Long
	Without	Cd. Pl. Steel	13/32" Dia.	Male or Female Housing	200514-2	Long
180° One Piece	With	Cd. Pl. Steel	11/32" Dia.	Male or Female Housing	201382-2	None
	Without	Cd. Pl. Steel	11/32" Dia.	Male or Female Housing	201169-2	None
90° One Piece	With	Cd. Pl. Steel	11/32" Dia.	Male or Female Housing	200488-2	None
	Without	Cd. Pl. Steel	11/32" Dia.	Male or Female Housing	201468-2	None

PIN HOOD

Type	Material and Finish	Part Number
Closed End (Drawn)	Al. Iridite	201349-2
	Al. Anod.	201785-2
Open End	Cd. Pl. Steel	201785-4

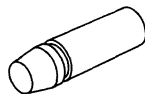
FIXED JACK SCREWS

Material	Part Numbers	
	Male	Female
Stain. Steel	200874-1	200875-1
Cd. Pl. Steel	200874-2	200875-2

LOCKING SPRING

Type	Locking Spring Sets		Locking Spring Catch Sets	
	Part Number	Material	Part Number	Material
Single Lock	201674-1*	Stain. Steel	201675-1*	Stain. Steel
Serrated	201923-1*	Nickel Pl. Spring Steel	201924-1*	Stain. Steel

*These Part Numbers are assemblies containing 2 each per package.



KEYING PLUG
329382

STRAIN RELIEF CLAMPS

Type	Material and Finish	Max. Clamp Dimension "C"	To Be Used On	Part Number
90° or 180°	Cd. Pl. Steel	13/32" x 23/32"	Male or Female Housing	201845-1
	Cd. Pl. Steel	13/32" x 23/32"	Male Housing	201229-1

TURNABLE JACK SCREWS

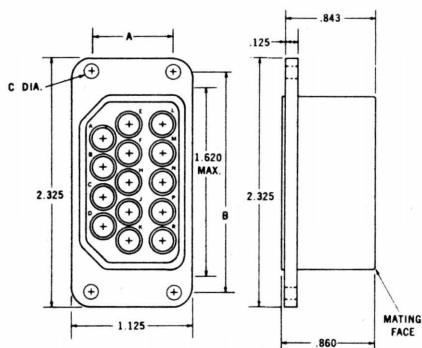
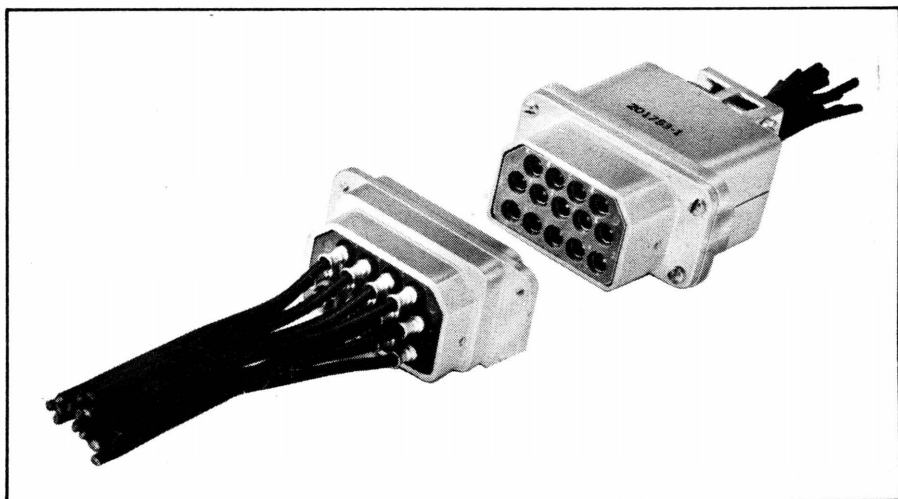
Type and Body Material	Tip Material	Part Number	
		Male	Female
Long (Cd. Pl. Brass)	Stain. Steel	202201-1	202200-1
	Stain. Steel	200871-1*	200867-1*
	Cd. Pl. Steel	200871-2*	200867-2*
Short (Cd. Pl. Brass)	Stain. Steel	200868-1	200870-1
	Cd. Pl. Steel	200868-2	200870-2
Short-Short (Stain. Steel)	Stain. Steel	201388-1*	201389-1*
	Cd. Pl. Steel	201388-2*	201389-2*

*Used for one 20 GA. Metal Thickness (Shield and cable clamp, strain relief clamp, or Pin Hood).

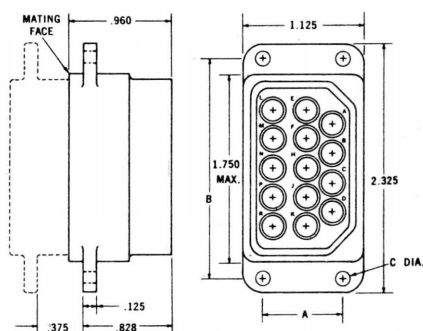
GUIDE PINS AND SOCKETS

Type	Material and Finish	Part Numbers	
		Pin	Socket
Center Guide Assembly	Stain. Steel	200389-2	200390-2
	Cd. Pl. Brass	200389-4	200390-4

14 POSITION



PLUG HOUSING ASSEMBLY



RECEPTACLE HOUSING ASSEMBLY

PLUG HOUSING ASSEMBLIES

Housing Part Number	Dimensions			Shell Material & Finish
	A	B	C	
201293-1	.750	2.062	.120	Cd. Pl. Alum.
201293-2				Cd. Pl. Alum.
201293-3	.680	2.025	.201	(Olive Drab)

RECEPTACLE HOUSING ASSEMBLIES

Housing Part Number	Dimensions			Shell Material & Finish
	A	B	C	
201294-1	.750	2.062	.120	Cd. Pl. Alum.
201294-2				Cd. Pl. Alum.
201294-3	.680	2.025	.138	(Olive Drab)

SHIELDS

Shield Complete	Material	Finish
201753-1	Alum.	Clear Cad. Plate
201753-2	Alum.	Olive Drab Cad. Plate

STRAIN RELIEF CLAMP

Part No.	Finish	Material
201557-1	Steel	Clear Cad. Plate

SPECIFICATIONS

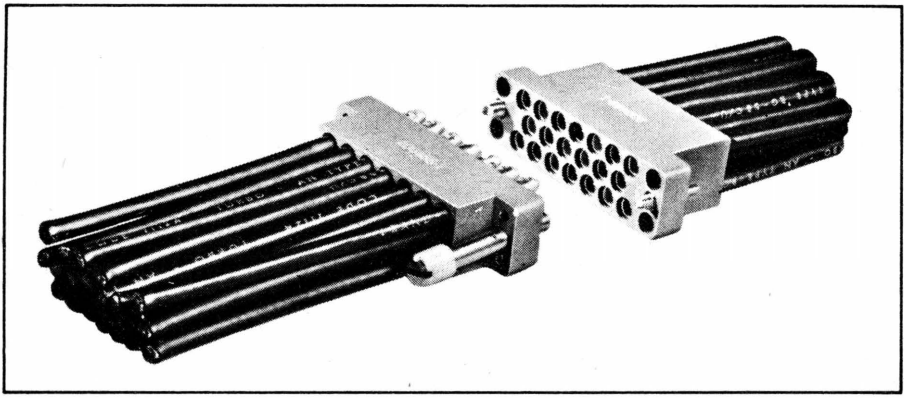
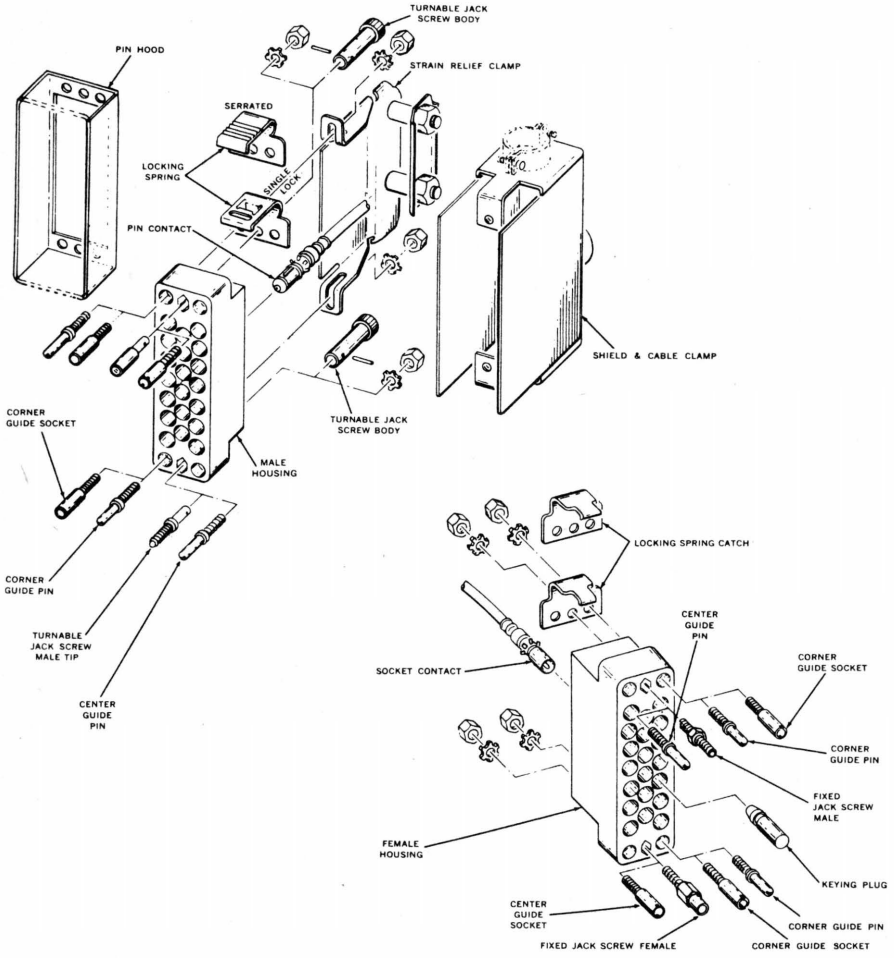
Housing Part Number	MIL Spec
201293-1 & 201294-1	QQ-P-416-A, Type I, Class I
201293-2&3 & 201294-2&3	QQ-P-416-A, Type II, Class I

Insert	
Glass filled Diallyl Phthalate	M-14F Type SDG



KEYING PLUG NO. 329382

20 POSITION HOUSINGS AND HARDWARE ACCESSORIES



HOUSINGS

Male Housing Part Number	Female Housing Part Number	Material & Color
200458-1	200459-1	Diallyl Phthalate Blue
200458-3	200459-3	Phenolic Black
200458-5	200459-5	Diallyl Phthalate Grey-Green

Both male and female housings accept Pin or Socket contacts.

SHIELD AND CABLE CLAMPS

Shield Type	Pin Protection	Material and Finish	Max. Clamp Dimension	To Be Used On	Part Number	Jack Screws Used
180° Two Piece	With	Al. Anod.	1/2" Dia.	Male Housing	201443-1	Long
	Without	Al. Anod.	1/2" Dia.	Male Housing	200532-1	Long
	Without	Cd. Pl. Steel	1/2" Dia.	Male Housing	200532-2	Long
	With	Cd. Pl. Steel	1/2" x 1-9/32"	Male or Female Housing	202199-1	Extra Long
180° One Piece	With	Cd. Pl. Steel Olive Drab	1/2" x 1-9/32"	Male or Female Housing	202199-2	Extra Long
	Without	Cd. Pl. Steel	9/16" Dia.	Male Housing	201386-2	None
90° One Piece	With	Cd. Pl. Steel	9/16" Dia.	Male Housing	201173-2	None
	Without	Cd. Pl. Steel	9/16" Dia.	Male Housing	200492-2	None
90° One Piece with Self-locking Nut	With	Cd. Pl. Steel	9/16" Dia.	Male Housing	200492-2	None
	Without	Cd. Pl. Steel	9/16" Dia.	Male Housing	201470-2	None

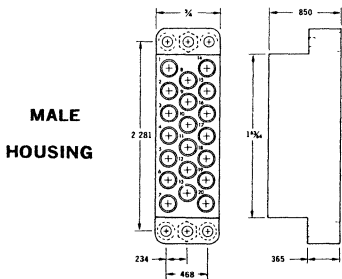
STRAIN RELIEF CLAMPS

Type	Material and Finish	Max. Clamp Dimension	To Be Used On	Part Number
90° or 180°	Cd. Pl. Steel	19/32" x 1-3/32"	Male or Female Housing	201182-1
	Cd. Pl. Steel	19/32" x 1-3/32"	Male or Female Housing	201847-1
90° or 180° with Self-locking Nut	Stainless Steel	19/32" x 1-3/32"	Male or Female Housing	201847-2
	Cd. Pl. Steel	15/32" x 1-3/32"	Male or Female Housing	201841-1

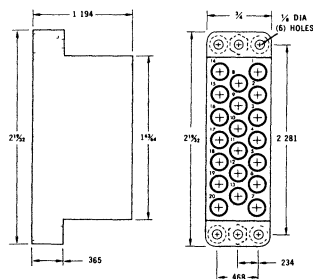
LOCKING SPRING

Type	Locking Spring Sets		Locking Spring Catch Sets	
	Part Number	Material	Part Number	Material
Single Lock	201676-1*	Stain. Steel	201677-1*	Stain. Steel
Serrated	201925-1*	Nickel Pl. Spring Steel	201926-1*	Stain. Steel

*These Part Numbers are assemblies containing 2 each per package.



MALE HOUSING



FEMALE HOUSING

GUIDE PINS AND SOCKETS

Type	Material and Finish	Part Numbers	
		Pin	Socket
Center Guide Assembly	Stain. Steel	200389-2	200390-2
	Cd. Pl. Brass	200389-4	200390-4
Corner Guide Assembly	Stain. Steel	200833-2	200835-2
	Cd. Pl. Brass	200833-4	200835-4

PIN HOOD

Type	Material and Finish	Part Number
Closed End (Drawn)	Al. Iridite	201390-2
	Cd. Pl. Steel	201390-5
Open End	Al. Anod.	201317-2
	Cd. Pl. Steel	201317-4

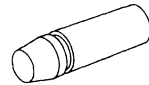
FIXED JACK SCREWS

Material	Part Numbers	
	Male	Female
Stain. Steel	200874-1	200875-1
Cd. Pl. Steel	200874-2	200875-2

TURNABLE JACK SCREWS

Type and Body Material	Tip Material	Part Number	
		Male	Female
Extra Long (Cd. Pl. Brass)	Stain. Steel	201911-1	201910-1
	Cd. Pl. Steel	201911*2	201910-2
	Stain. Steel	201911-3*	201910-3*
	Cd. Pl. Steel	201911-4*	201910-4*
Long (Cd. Pl. Brass)	Stain. Steel	202201-1	202200-1
	Stain. Steel	200871-1*	200867-1*
	Cd. Pl. Steel	200871-2*	200867-2*
Short (Cd. Pl. Brass)	Stain. Steel	200868-1	200870-1
	Cd. Pl. Steel	200868-2	200870-2
Short-Short (Stain. Steel)	Stain. Steel	201388-1*	201389-1*
	Cd. Pl. Steel	201388-2*	201389-2*

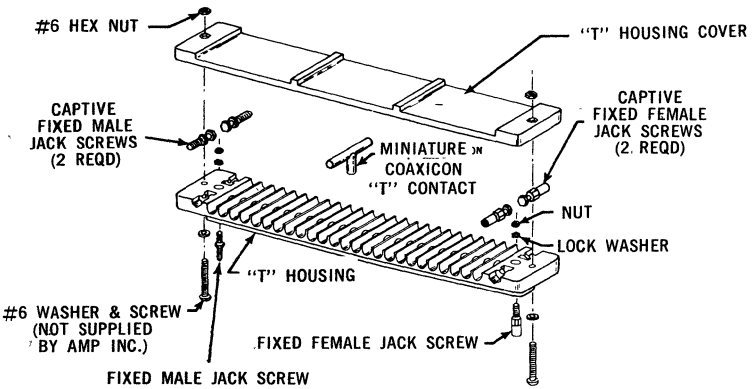
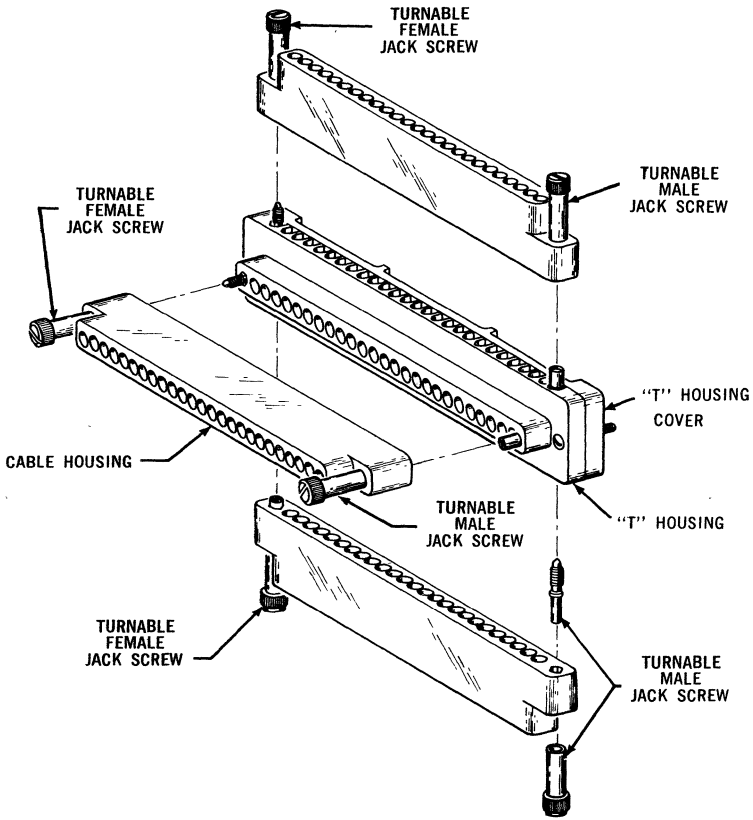
*Used for one 20 GA. Metal Thickness (Shield and cable clamp, strain relief clamp, or Pin Hood)

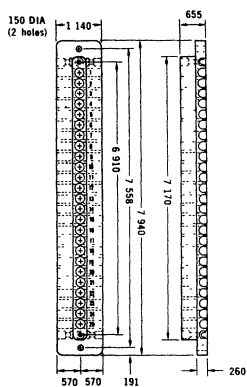


KEYING PLUG
329382

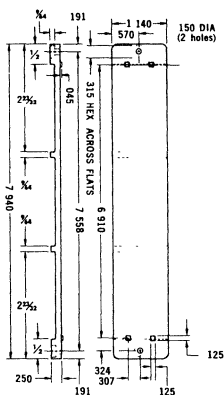
MINIATURE "T" CONNECTOR HOUSING ASSEMBLY & HARDWARE

25 POSITION

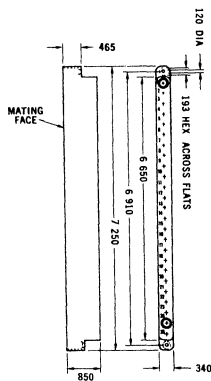




"T" HOUSING



"T" HOUSING COVER



CABLE HOUSING

HOUSING ASSEMBLIES

Part Number	Description	Material	No. Req'd
50156*	"T" Housing	Phenolic, Black	1
50157*	"T" Housing Cover		1
50158	Cable Housing		3
50147	"T" Contacts	Shell—Brass Contact—Brass Dielectric—Polypropylene	25

*Accommodates #6 hex nut, washer & screw not supplied by AMP.

FIXED JACK SCREWS

Material	Part Numbers		No. Req.
	Male	Female	
Stain. Steel	200874-1	200875-1	1 set

CAPTIVE JACK SCREWS

Material	Part Numbers		No. Req.
	Male	Female	
Stain. Steel	50159	50160	2 sets

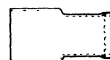
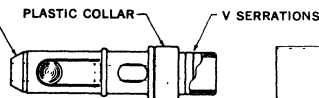
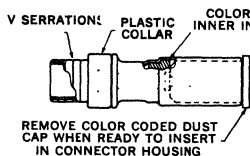
TURNABLE JACK SCREWS

Body Material	Tip Material	Part Numbers		No. Req.
		Male	Female	
Cd. Pl. Brass	Stain. Steel	200868-1	200870-1	3 sets
	Cd. Pl. Steel	200868-2	200870-2	

MINIATURE COAXICON CONTACT SPECIFICATIONS

Material	Specifications
Brass	QQ-B-613, QQ-B-626
Bronze	ASTM-B-140
Beryllium Copper	QQ-C-533, QQ-C-530
Copper	QQ-C-576
Polyethylene	LP-590B, MIL-T-3803
Polypropylene	General Purpose
Nylon	MIL-M-20693
Gold Plating	MIL-G-45204
Nickel Plating	QQ-N-290
Silver Plating	QQ-S-365

Condition	Performance
Test Voltage	1000 Volts AC
Operating Temperature	-55°C to +85°C
Impedance	50 Ohm nominal
Center Contact Resistance	1.5 Milliohm maximum at 1 ampere measured from one port hole in the socket to the port hole in the mated pin contact.
Minimum Cable Retention Force	50 Pounds Minimum—RG 58C/U Cable
Shock	Mil Std. 202, Method 202



FERRULE



RETENTION SPRING

REMOVE COLOR CODED DUST CAP WHEN READY TO INSERT IN CONNECTOR HOUSING

A-MP* MINIATURE COAXICON CONTACT SELECTION CHART FOR RG/U CABLE*

For RG/U Cable No.	Use Socket No.	Use Pin No.	Inner Insulator & Dust Cap Color†	Use 2 Ferrules***		Use Retention Springs No.	Use Crimping Tool No.	Tool Handle and Plastic Collar Color Code**	Die Insert No. For Tools Hand.-69264-4 Pneu.-69365 & 69319-1
				Part No.	Color Code				
55, 55A, 55B, 223, 141, 142	201146-4	201145-4	Orange	330478	Orange w/Red Stripe	201142-2	69248-4	Blue & Orange	69315-4
58, 58A, 58B, 58C	201146-4	201145-4	Orange	328663	Green	201142-2	45740-2	Blue	69220-2
161	201144-4	201143-4	White	328666	Orange	201142-2	69147-2	Grey	69230-1
174, 179A, 187 21-598	201144-1	201143-1	White	328666	Orange	201142-2	45638-2	White	69227-2
188	201144-5	201143-5	Green	328666	Orange	201142-2	45638-2	White	69227-2
178, 178A, 196	201512-1	201511-1	White	328667	Red w/ Orange Stripe	201142-2	69186-2	Brown	69373
180, 180A, 195, 21-597	201146-2	201145-2	White	328664	Yellow	201142-2	45639-2	Red	69222-2
141A, 142A, 142B	1-201146-3	1-201145-3	Brown	330478	Orange w/Red Stripe	201142-2	69248-4	Blue & Orange	69315-4

A-MP* MINIATURE COAXICON CONTACT SELECTION CHART FOR TWISTED PAIRS*

Wire Size	Insul. Dia.	Use Socket No.	Use Pin No.	Inner Insulator & Dust Cap Color†	Ferrule No. & Color***	Retention Spring No.	Crimping Tool No.	Tool Handle and Plastic Collar Color Code**	Die Insert No. For Tools Hand.-69264-4 Pneu.-69365 & 69319-1
No. 22 or No. 24 Solid or Stranded	.160 Max ††	50080-1	50079-1	Green	329029 Red	201142-2	45639-2	Red	69222-2

A-MP* MINIATURE COAXICON CONTACT SELECTION CHART FOR SHIELDED WIRE*

For Shielded Wire No.	Use Socket No.	Use Pin No.	Inner Insulator & Dust Cap Color†	Use 2 Ferrules***		Use 2 Retention Springs No.	Use Crimping Tool No.	Tool Handle and Plastic Collar Color Code**	Die Insert No. For Tools Hand.-69264-1 Pneu.-69365 & 69319-1
				Part No.	Color Code				
No. 26, MIL-W-16878, Type E & EE No. 24, MIL-W-16878, Type E & EE No. 22, MIL-W-16878 Type E No. 22, MIL-C-7078A, Type I No. 24, NAS 702, Class A & C No. 26, NAS 702, Class A & C No. 22, NAS 702, Class C	201144-2	201143-2	Green	328666	Orange	201142-2	69147-2	Grey	69230-1
No. 22, MIL-W-16878, Type EE No. 26, NAS 702, Class B No. 24, NAS 702, Class B	201146-3	201145-3	Green	328665	Black Stripe	201142-2	45639-2	Red	69222-2

*Wire other than that listed above may be used. Send sample wire and/or specifications for engineering recommendation.

**Match Plastic Collar and Tool Colors for application to cable. Inner Insulator Color Codes Wire Barrel of Center Contact, not tool.

***Ferrule color distinguishes item.

†The insulator and dust cap color code should be used with collar color code to readily identify any contacts that have been accidentally mixed. Dust cap color matches insulator.

††Two Wires combined.

A-MP* MINIATURE COAXICON CONTACT SELECTION CHART FOR SHIELDED WIRE* (Cont.)

For Shielded Wire No.	Use Socket No.	Use Pin No.	Inner Insulator & Dust Cap Color†	Use 2 Ferrules***		Use Retention Springs No.	Use Crimping Tool No.	Tool Handle and Plastic Collar Color Code**	Die Insert No. For Tools Hand-69264-4 Pneu.-69365 & 69319-1
				Part No.	Color Code				
No. 22, MIL-C-7078A, Type II No. 22, NAS 702, Class A	201144-3	201143-3	Orange	328666	Orange	201142-2	45638-2	White	69227-2
No. 22, NAS 702, Class B	201146-4	201145-4	Orange	328663	Green	201142-2	45740-2	Blue	69220-2
No. 22, MIL-C-7078A, Type I & II No. 2, Dielectric .075 O.D. No. 3, Dielectric .085 O.D.	201146-1	201145-1	Orange	328665	Black Stripe	201142-2	45639-2	Red	69222-2

SELECTION CHART FOR VARIOUS MANUFACTURERS' CABLES*

Center Cond. AWG Wire	Max. Dielect O. D.	Cable O. D.	Braid	Socket No.	Pin No	Inner Insulator & Dust Cap Color‡	Ferrule No. & Color***	Retention Spring No.	Crimping Tool No.	Tool Handle and Plastic Collar Color Code**	Die Insert No. For Tools Hand-69264-4 Pneu.-69365 & 69319-1
32-26	.129	.122-.137	Single	201146-6	201145-6	Natural (White)	330587 Orange (Blue Str.)	201142-2	69360-2	Orange	69440
32-26	.129	.187-.199	Single or Double	1-201146-1	1-201145-1	Natural (White)	328663 Green	201142-2	45740-2	Blue	69220-2
22-20	.129	.122-.137	Single	201146-7	201145-7	Orange	330587 Orange (Blue Str.)	201142-2	69360-2	Orange	69440

*Wire other than that listed above may be used. Send sample wire and/or specifications for engineering recommendation.

**Match Plastic Collar and Tool Colors for application to cable Inner Insulator Color Codes Wire Barrel of Center Contact, not tool.

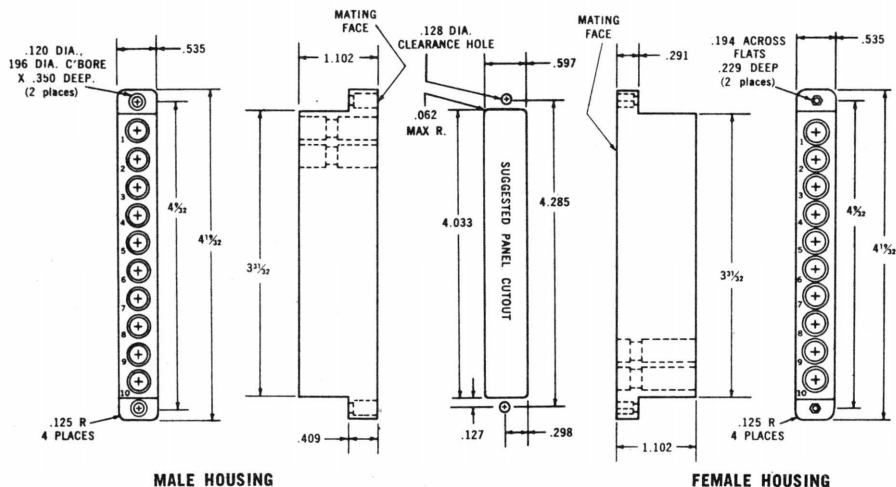
***Ferrule color distinguishes item.

‡The insulator and dust cap color code should be used with collar color code to readily identify any contacts that have been accidentally mixed. Dust cap color matches insulator.

††Two Wires combined.

STANDARD COAXICON* CONNECTORS

10 POSITION



Material	Part Numbers	
	Male Housing	Female Housing
Phenolic, Black (MIL-M-14F Type CFC)	329342	330064
Diallyl Phthalate, Blue (MIL-M-14F Type SDG-F)	2-329342-1	2-330064-1

HARDWARE

TURNABLE JACK SCREWS (Male housing only)

Type	Tip Material	Part Numbers	
		Male	Female
Short	Stain. Steel	200868-1	200870-1
	Cd. Plated Steel	200868-2	200870-2

FIXED JACK SCREWS (Female housing only)

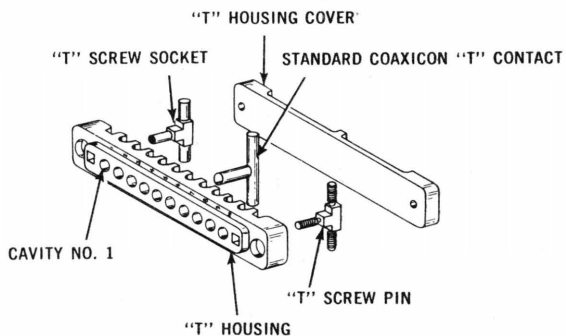
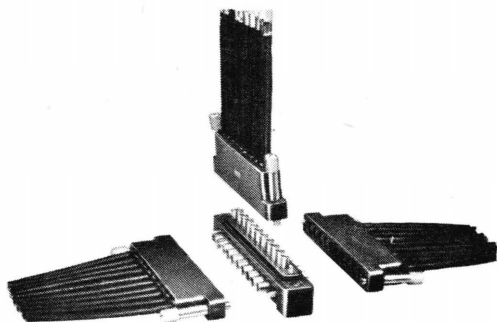
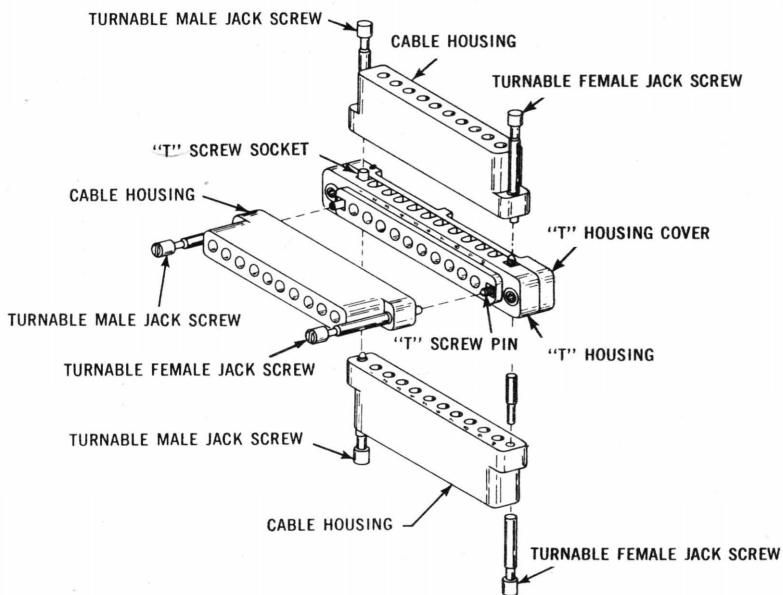
Material	Part Numbers	
	Male	Female
Stain. Steel	200874-1	200875-1
Cd. Plated Steel	200874-2	200875-2

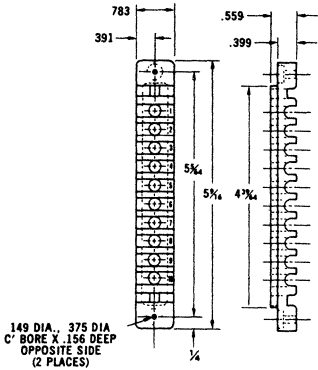
KEYING PLUG No. 329381

STANDARD "T" COAXICON* CONNECTORS

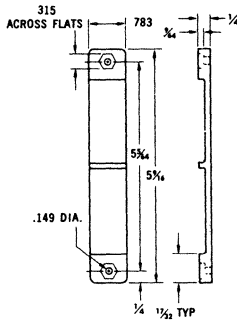
10 POSITION

HOUSING ASSEMBLY & HARDWARE

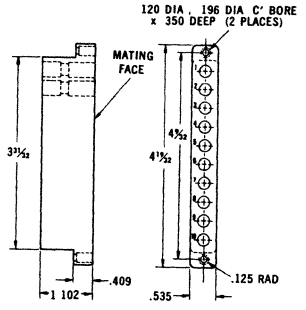




"T" HOUSING



"T" HOUSING COVER



CABLE HOUSING

HOUSING ASSEMBLIES

Part Number	Description	Material	Number Required
329340	"T" Housing*	Phenolic Black	1
329343	"T" Housing* Cover	Phenolic Black	1
329342	Cable Housing*	Phenolic Black	3
329349	"T" Contacts	Shell - Brass Contacts - Bronze Dielectric - Polyethylene	10
331376	"T" Contacts	Shell - Brass Contacts - Brass Dielectric - Polypropylene	10

*These items available as one assembly Part No. 329350.
 ‡Plating - Shell - .00005 gold over .0001 nickel.
 Contacts - .00003 gold over .00003 nickel.

TURNABLE JACKSCREWS

Body Material	Tip Material	Part Number		Required
		Male	Female	
Cd. Pl. Brass	St. Steel	201566-1	201565-1	3 sets

"T" CONTACTS

Body Material	Plating	Part No.	No. Required
Brass		329349	10
Brass	Gold over Nickel	331376	

"T" SCREW ASSEMBLIES*

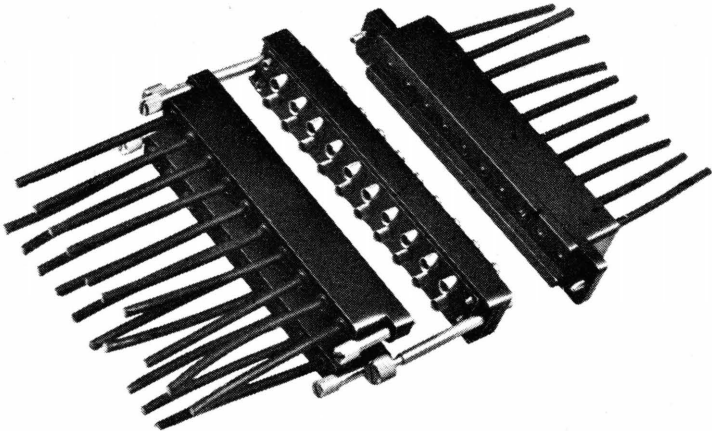
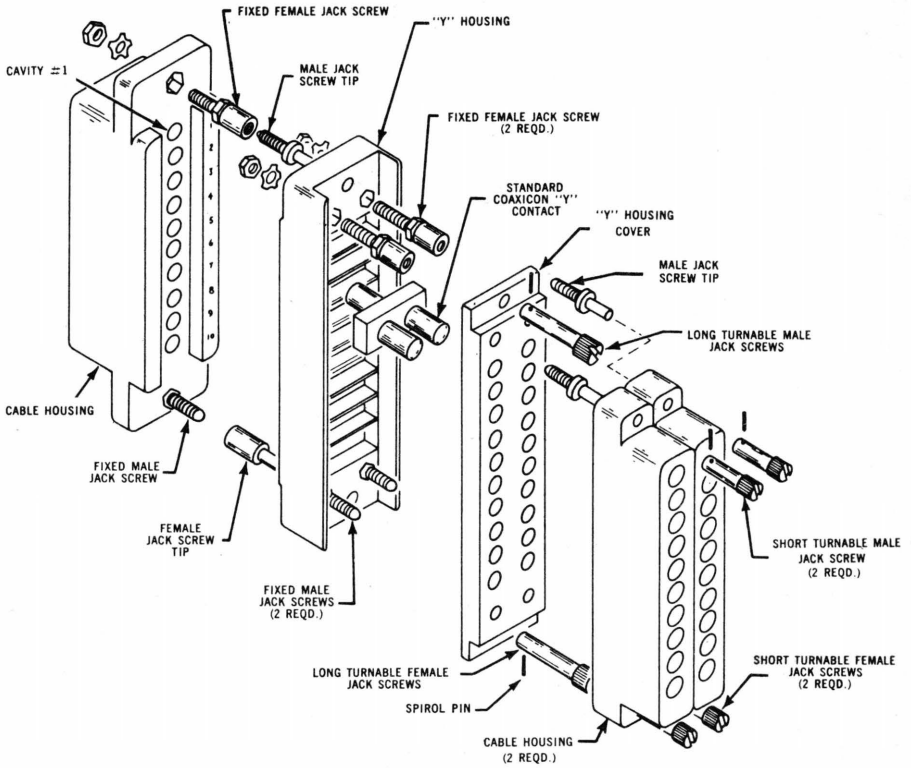
Description	Part Number	Finish	No. Required
"T" Screw Pin	329347	Stain. Steel	1
"T" Screw Socket	329348	Stain. Steel	1

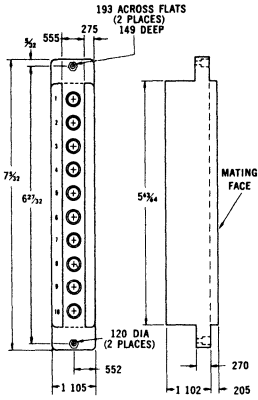
*Included in complete assembly Part No. 329350.

STANDARD "Y" COAXICON* CONNECTORS

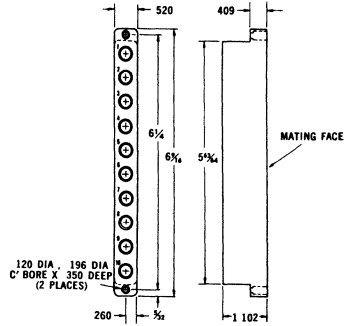
10 POSITION

HOUSING ASSEMBLY & HARDWARE

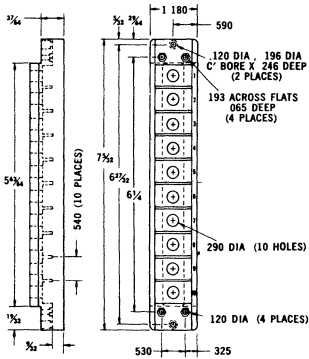




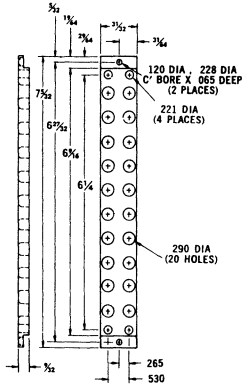
CABLE HOUSING (Machine Side)



CABLE HOUSING (Cable Side)—2 Req'd.



"Y" HOUSING



"Y" HOUSING COVER

HOUSING ASSEMBLIES

Item	Part Number	Material	Number Required
Cable Housing (machine side)	330026*		1
Cable Housing (cable side)	330027*	Black	2
"Y" Housing	330029*	Phenolic	1
"Y" Housing Cover	330028*		1
"Y" Contacts	330033	Shell-Brass Contacts-Bronze Dielectric-Polyethylene	10

*These four items (5 parts) are available as assembly No. 330025.

HARDWARE



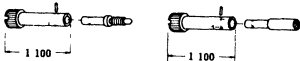
FIXED

FIXED JACK SCREWS

Material	Part Number		No. Required
	Male	Female	
Stain. Steel	200874-1	200875-1	3 sets



EXTRA LONG TURNABLE

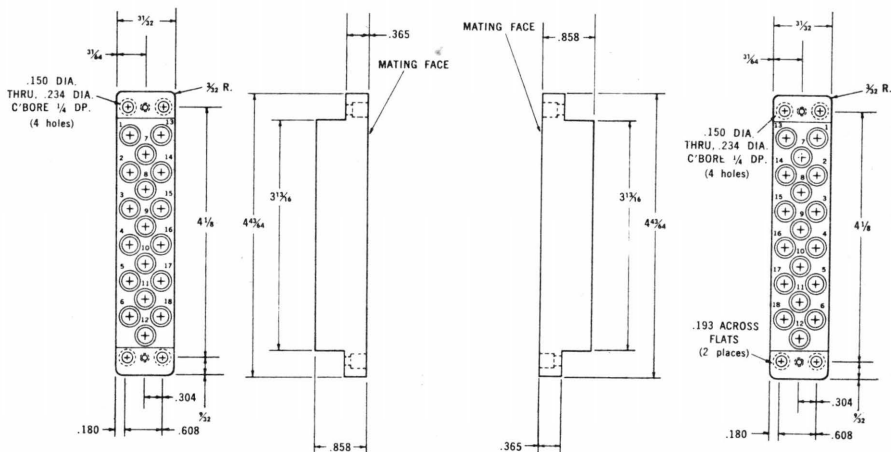
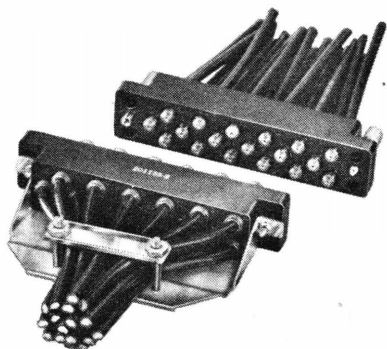


SHORT TURNABLE

TURNABLE JACK SCREWS

Type and Body Material	Tip Material	Part Numbers		No. Required
		Male	Female	
Extra Long (Cd. Pl. Brass)	Stain. Steel	201911-3	201910-3	1 set
Short (Cd. Pl. Brass)	Stain. Steel	200868-1	200870-1	2 sets

18 POSITION



MALE HOUSING

FEMALE HOUSING

HOUSINGS

Housing	Part Number	Material & Color
Male	201154-2	Phenolic
Female	201155-2	Black

HARDWARE

Strain Relief Clamp	Guide Pins	Guide Sockets
330712	200833 Corner	200835 Corner

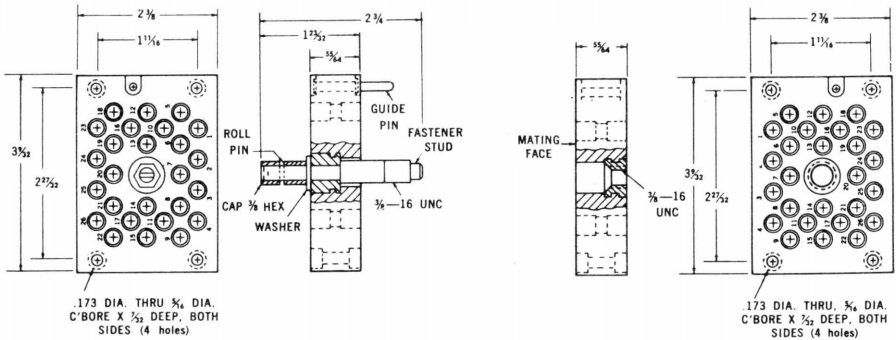
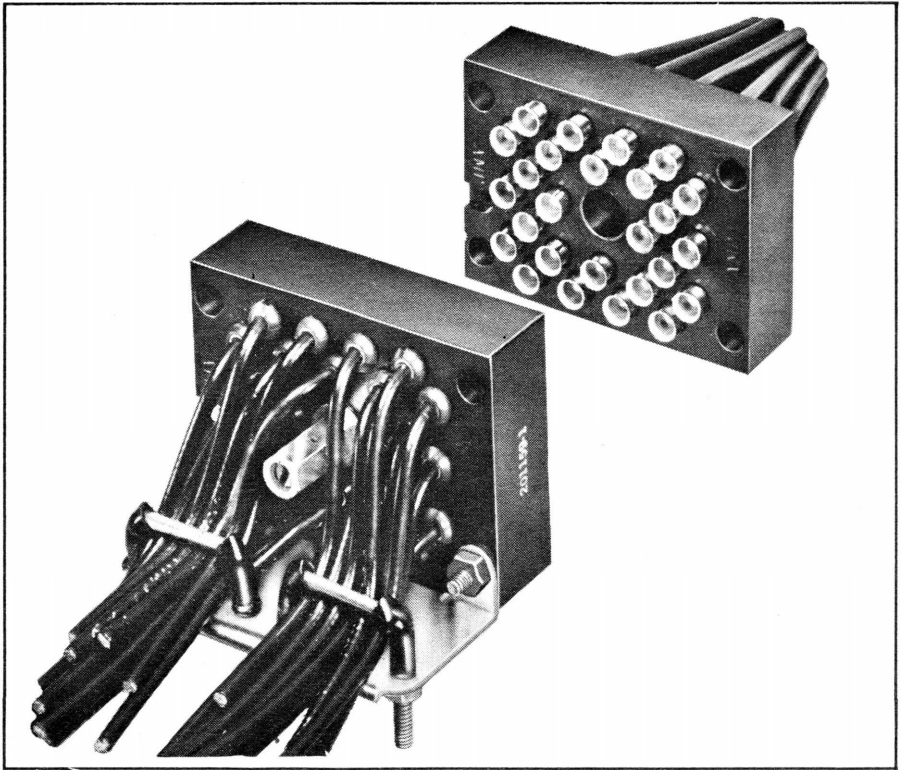
FIXED JACK SCREWS

Material	Part Numbers	
	Male	Female
Stain. Steel	200874-1	200875-1
Cd. Pl. Steel	200874-2	200875-2

TURNABLE JACK SCREWS

Type and Body Material	Tip Material	Part Number	
		Male	Female
Long (Cd. Pl. Brass)	Stain. Steel	200871-1*	200867-1*
	Cd. Pl. Steel	200871-2*	200867-2*
Short (Cd. Pl. Brass)	Stain. Steel	200868-1	200870-1
	Cd. Pl. Steel	200868-2	200870-2

26 POSITION



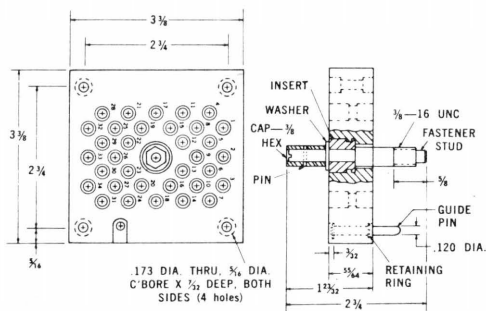
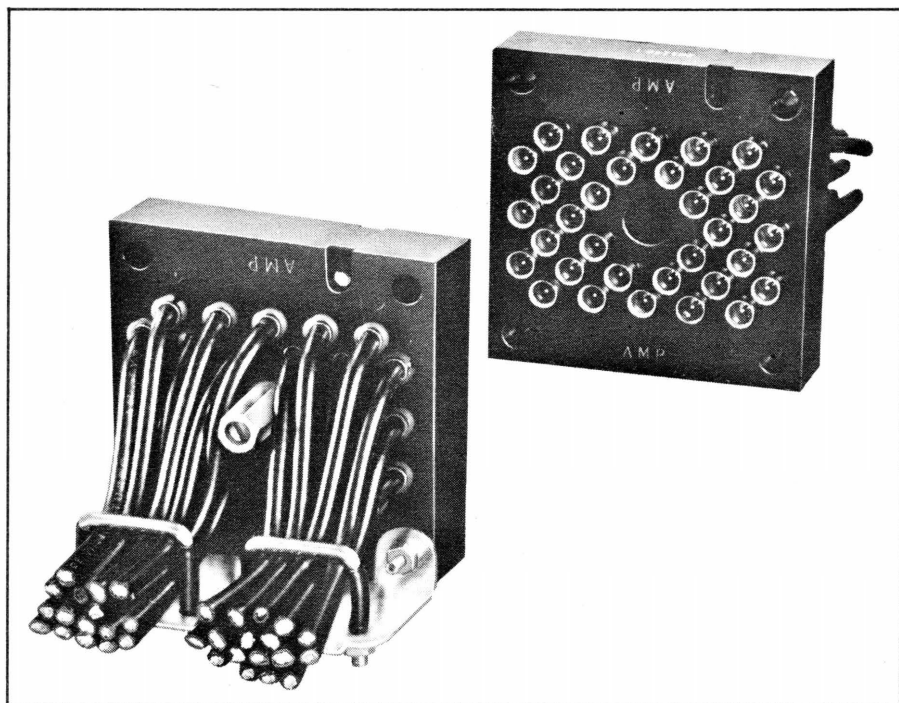
MALE HOUSING

FEMALE HOUSING

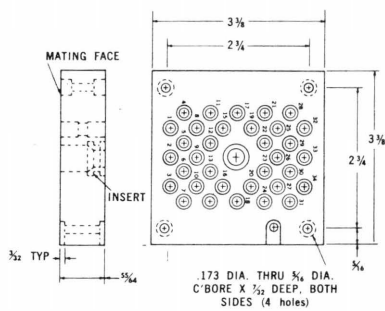
HOUSING ASSEMBLIES AND HARDWARE

Housing Part Number	Description	Housing Material	Strain Relief Clamp	Fastening Device
201158-1	Female Housing	Black Phenolic (MIL-M-14)	201323-1	Insert, Stainless St. Passivated
201159-1	Male Housing			Cd. Pl. Steel (QQ-P-416)
201159-2				Cd. Pl. Steel (QQ-P-416) Olive Drab (MIL-M-14)

34 POSITION



MALE HOUSING



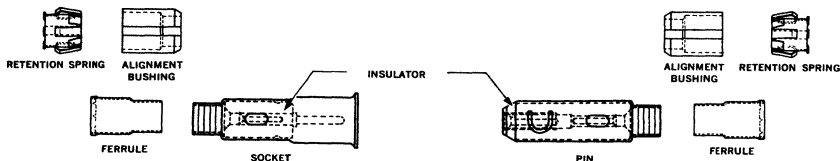
FEMALE HOUSING

HOUSING ASSEMBLIES AND HARDWARE

Housing Part Number	Description	Housing Material	Strain Relief Clamp	Fastening Device
201140-1	Female Housing	Black Phenolic (MIL-M-14)	201324-1	Insert, Stainless St. Passivated
201141-1	Male Housing			Cd. Pl. Steel (QQ-P-416)
201141-2	Housing			Cd. Pl. Steel (QQ-P-416) Olive Drab (MIL-M-14)

STANDARD COAXICON CONTACT

SPECIFICATIONS



NOTE: COAXICON Standard Contacts utilize color coding for identification during assembly. When used with RG/U cable, the inner insulator and the alignment bushing match the color of the crimping tool handle.

PERFORMANCE SPECIFICATIONS:

(These Values on RG58C/U Cables)

Test voltage	1500 volts RMS
Operating temperature	-55°C. to +85°C.
Impedance	Non-constant
Center contact resistance	1.5 milliohms
Minimum cable retention force	50 pounds
Shock	No physical damage or circuit interruption at 50G deceleration
VSWR	1.25:1 or less at 100 to 2000 mc

MATERIAL SPECIFICATIONS:

Brass	.....	QQ-B-613, QQ-B-626
Bronze	.....	ASTMB-140
Beryllium Copper	.....	QQ-C-553, QQ-C-530
Copper	.....	QQ-C-576
Polyethylene	.....	L-P590B, MIL-T-3803
Polypropylene	.....	General Purpose
Gold Plating	.....	MIL-G-45204
Nickel Plating	.....	QQ-N-290
Silver Plating	.....	QQ-S-365

STANDARD COAXICON CONTACT SELECTION CHART FOR RG/U WIRE

RG/U Cable No.	Socket No. & Insulator Color	Pin No. & Insulator Color	Ferrule No. & Color	Retention Spring No.	Alignment Bushing No. & Color Code	Hand Crimping Tool No.	Tool Handle Color Code	Die Insert No. For Tools Hand-69264-4 Pneu.-69365 & 69319-1
RG-71B	329004 Yellow	329005 Yellow	330016 Red w/ Blue Stripe	2-43332-1	329050 Yellow	69304-1	Yellow & Violet	69316-1
55, 55A, 55B, 141, 142, 223	329016 Blue	329017 Blue	330478 Orange w/ Red Stripe	2-43332-1	329052 Blue	45740-4	Blue & Orange	69220-4
141A, 142A, 142B	2-329016-4 Orange	2-329017-4 Orange	330478 Orange w/ Red Stripe	2-43332-1	2-329052-2 Orange	45740-4	Blue & Orange	69220-4
58, 58A, 58B, 58C	329016 Blue	329017 Blue	328663 Green	2-43332-1	329052 Blue	45740-4	Blue & Orange	69220-4
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	329004 Yellow	329005 Yellow	329006 Violet	2-43332-1	329050 Yellow	45634-2	Yellow	69221-1
180, 180A, 195, 21-597, 3723-JB2 Suprenant	329013 Red	329014 Red	328664 Yellow	2-43332-1	329051 Red	45639-4	Red	69222-4

STANDARD COAXICON CONTACT SELECTION CHART FOR TWISTED PAIRS

Wire No.	Socket No. & Insulator Color	Pin No. & Insulator Color	Ferrule No. & Color	Retention Spring No.	Alignment Bushing No. & Color Code	Hand Crimping Tool No.	Tool Handle Color Code	Die Insert No. For Tools Hand-69264-4 Pneu.-69365 & 69319-1
No. 24 Solid or Str. Copper	329069* White	329068* White	329029 Red	2-43332-1	329051 Red	45639-4	Red	69222-4
No. 22 Solid Copper	329932** White	329931** White	329029 Red	2-43332-1	329051 Red	45639-4	Red	69222-4

*These Assemblies have a Red Metal Bushing inside the Support Sleeve.

**These Assemblies have a Blue Metal Bushing inside the Support Sleeve.

STANDARD COAXICON CONTACT SELECTION CHART FOR BELDEN CABLE

Cable No.	Socket No. & Insulator Color	Pin No. & Insulator Color	Ferrule No. & Color	Retention Spring No.	Alignment Bushing No. & Color Code	Hand Crimping Tool No.	Tool Handle Color Code	Die Insert No. For Tools Hand-69264-4 Pneu.-69365 & 69319-1
Belden 8411	329046 White	329045 White	328664 Yellow	2-43332-1	329051 Red	45639-4	Red	69222-4

NOTE: Extraction Tool No. 305141-1

MINIATURE COAXICON[§] SOCKETS FOR PRINTED CIRCUIT BOARDS

The rapid trend toward miniaturization is currently causing a widespread change in product concepts. These miniature sockets, for example, are designed for use with 1/16" and 1/8" printed circuit boards having a 0.100" grid spacing. The low 3/16" high profile permits extremely compact packaging.

Miniature COAXICON Sockets, for use with any male miniature COAXICON contact, may be mounted near components or placed at the edge of the board.

Two types of contact retention features may be had for each board thickness: (1) a spring

type with minimum retention of 1 1/4 pounds; (2) a positive-lock type that releases only when the male contact is depressed for removal.

Four "V" shaped legs (which provide good fillet during dip solder operations), rigidly mount socket to the board. These legs are sharply pointed to allow easy entrance into the board, especially when eyelets are not used. They extend 0.050" through the printed board, but for breadboard use the 1/8" board contact may be used on a 1/16" board. In that event, the extra leg length can be utilized for hand-soldering wires or components to the leg.

FEATURES

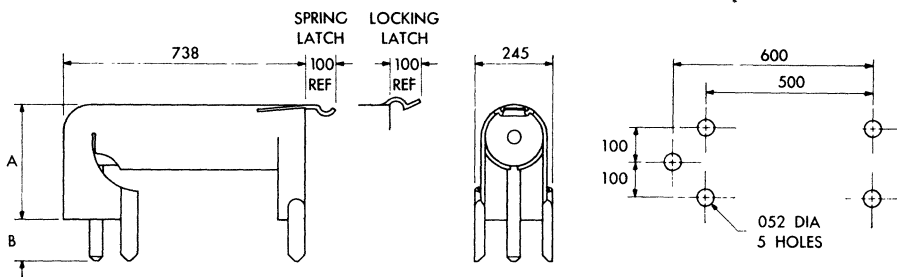
- Designed for 1/16" and 1/8" printed circuit boards.
- Usable with any male Miniature COAXICON Contact.
- Low profile allows extremely compact packaging.
- Choice of minimum 1 1/4 pound spring retention or positive-lock type with built-in release.
- Rigid mounting with four "V" shaped legs, with or without use of eyelets.
- Center conductor leads through fifth hole in each circuit.

MATERIAL SPECIFICATIONS

Brass	MIL-B-50
Polypropylene	General Purpose
Gold Plating	MIL-G-45204
Nickel Plating	QQN-290

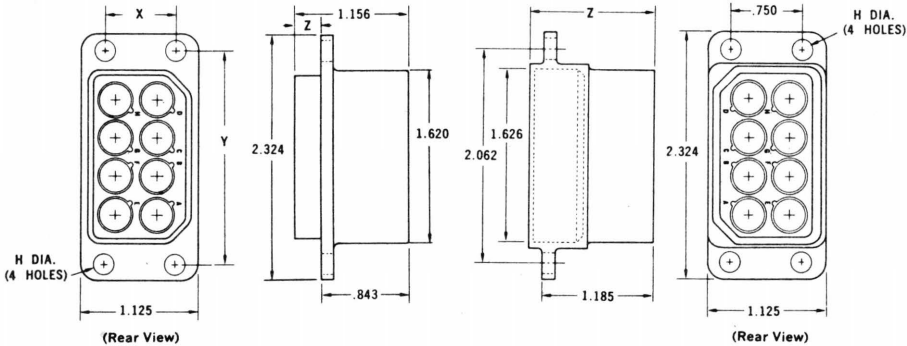
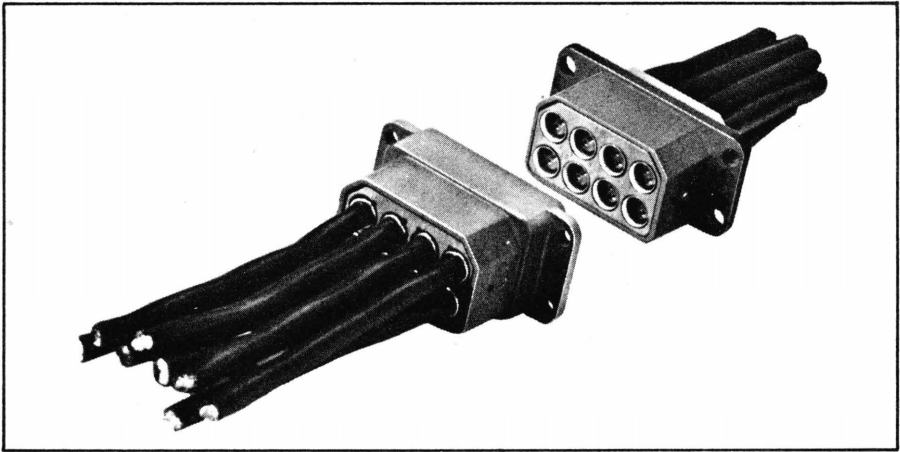
PERFORMANCE SPECIFICATIONS

Test voltage	1000 Volts, Minimum
Operating Temperature	Range
	-55° C to +85° C
Impedance	50 ohms nominal



Board Thickness	Latch Type	Part No.	B	A	Retention
1/16	Spring Latch	50084-1	.125	.357	1 1/4 lbs. minimum
	Locking Latch	50107-1			Positive lock
1/8	Spring Latch	50095-1	.187	.295	1 1/4 lbs. minimum
	Locking Latch	50105-1			Positive lock

TWIN STANDARD COAXICON CONNECTORS[§] 8 POSITION



PLUG HOUSING ASSEMBLY

RECEPTACLE HOUSING ASSEMBLY

HOUSING ASSEMBLIES

Part Number	Description	Material & Finish		Dimensions			
		Shell	Insert	X	Y	H	Z
330615	Plug Housing	Cd. Pl. Alum.	Diallyl Phthalate (Socket)	.684	2.025	.203	.127
1-220615-0		Olive Drab		.750	2.062	.125	.127
1-330615-1		Cd. Pl. Alum.	Diallyl Phthalate (Pin)	.750	2.062	.125	.300
330616	Receptacle Housing	Cd. Pl. Alum.	Diallyl Phthalate (Socket)			.140	1.125
1-330616-0		Olive Drab				.125	1.125
1-330616-1		Cd. Pl. Alum.	Diallyl Phthalate (Pin)			.125	.781

SHIELDS

Shield Complete	Material	Finish
201753-1	Alum.	Clear Cad. Plate
201753-2	Alum.	Olive Drab Cad. Plate

STRAIN RELIEF CLAMPS

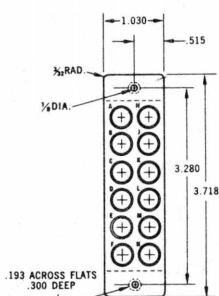
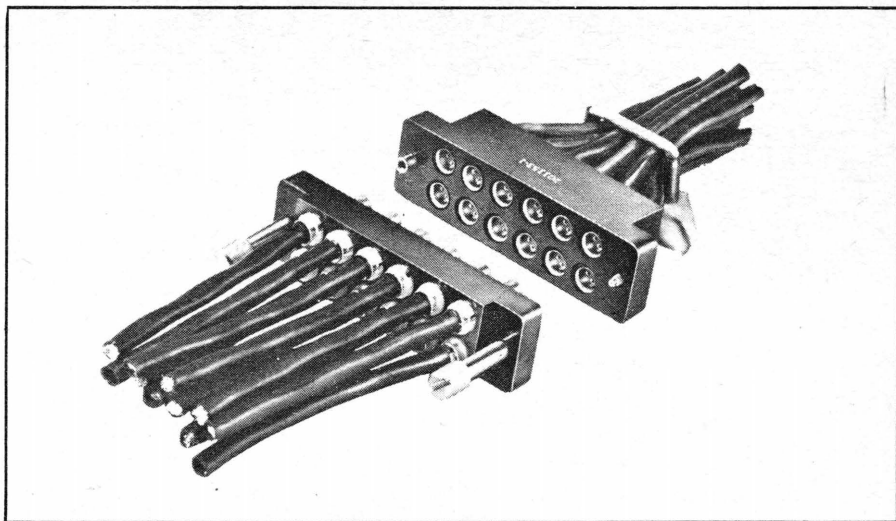
Part Number	Material	Finish
201557-1	Steel	Clear Cad. Plate

NOTE: Washers will be used to mount shields and strain relief clamps.

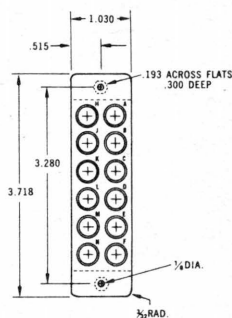
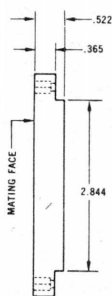
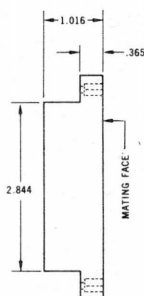
KEYING PLUG 330619

RETENTION CLIP 330617—Nylon per MIL-M-20693A, Type I

12 POSITION



FEMALE HOUSING



MALE HOUSING

HARDWARE

HOUSING ASSEMBLIES

Male Housing Part Number	Female Housing Part Number	Material & Color
201152-1	201153-1	Phenolic, Black
201152-2	201153-2	Diallyl Phthalate, Blue
201152-5	201153-5	Diallyl Phthalate, Red
201152-6	201153-6	Diallyl Phthalate, Black

STRAIN RELIEF CLAMPS

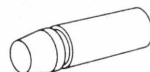
Type	Material and Finish	Max. Clamp Dimension	To Be Used On	Part Number
180°	Cd. Pl. Steel	19/32" x 1-3/32"	Male or Female Housing	50088-1
90°	Cd. Pl. Steel	3/4" x 13/16"	Male or Female Housing	329959
90°*	Cd. Pl. Steel		Male or Female Housing	330485

*Supplied with Lock Nuts on Cable Clamp Bolt.

TURNABLE JACK SCREWS

Type and Body Material	Tip Material	Part Numbers	
		Male	Female
Extra Long (Cd. Pl. Brass)	Stain. Steel	201911-1	201910-1
	Cd. Pl. Steel	201911-2	201910-2
Long (Cd. Pl. Brass)	Stain. Steel	200871-1*	200867-1*
	Cd. Pl. Steel	200871-2*	200867-2*
Short (Cd. Pl. Brass)	Stain. Steel	200868-1	200870-1
	Cd. Pl. Steel	200868-2	200870-2

*Used for one 20 GA. Metal Thickness strain relief clamp.

KEYING PLUG
330782

FIXED JACK SCREWS

Material	Part Numbers	
	Male	Female
Stain. Steel	200874-1	200875-1
Cd. Pl. Steel	200874-2	200875-2

TWIN STANDARD COAXICON CONTACT SPECIFICATIONS

TEST DATA

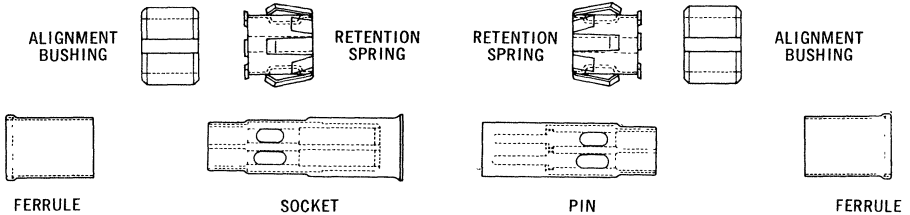
Contact Resistance 2.0 milliohms

Dielectric Strength:
 Between Inner Contacts Greater than 1000 Volts rms
 Between Inner Contact and Shell Greater than 1000 Volts rms

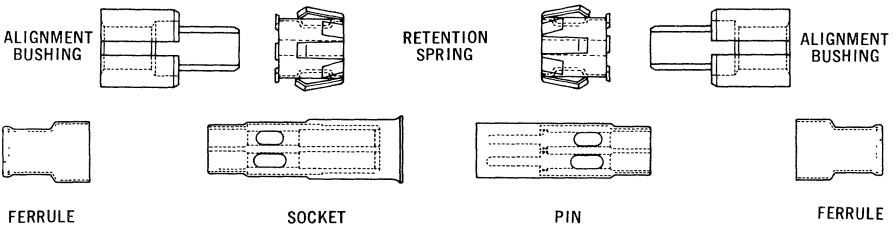
Insulation Resistance:
 Between Inner Contacts and Between Inner Contact and Shell 5000 megohms

Operating Temperature -55°C to +85°C

TWIN COAXICON CONTACT SELECTION CHART



Cable No.	Socket No.	Pin No.	Ferrule No. & Color	Retention Spring No.	Alignment Bushing Number & Color	Insulator Color Code	Hand Crimping Tool No.	Die Insert No. For Pneumatic Tool 69365
RG 108 A/U (Modified Center Conductor)	329010	329009	329041 Natural (White)	329042	329053 Natural (White)	Natural (White)	45707-2	69231-1
RG 108/U & RG 108 A/U	2-329010-1	2-329009-1	329041 Natural (White)	329042	329053 Natural (White)	Yellow	45707-2	69321-1



Cable No.	Socket No.	Pin No.	Ferrule No. & Color	Retention Spring No.	Alignment Bushing Number & Color	Insulator Color Code	Hand Crimping Tool No.	Die Insert No. For Pneumatic Tool 69365
2-3932 (Microdot) 2-3934 (Microdot)	329055	329054	329056 Red w/ Black Stripe	329042	330576 Yellow	Red	45707-2	69231-1
Belden-8451	329010	329009	329056 Red w/ Black Stripe	329042	330576 Yellow	Yellow	45707-4	69494

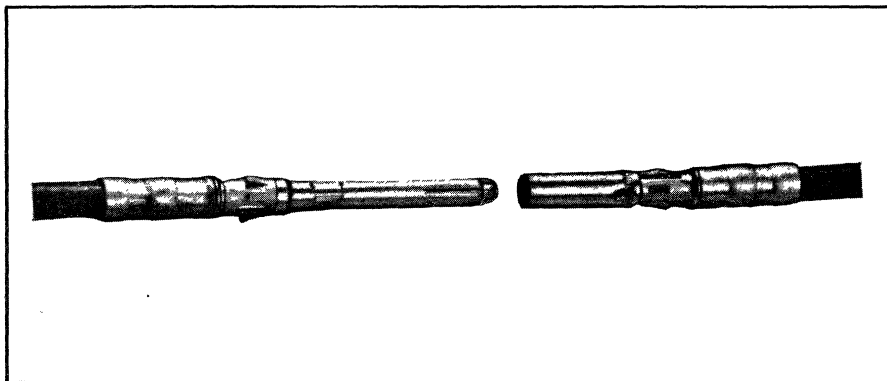
NOTE: Use Extraction Tool No. 305141-2 for all contacts.

TOOLING

Compression crimps can be applied in limited applications by A-MP hand operated tools. Pneumatic tools are also available for larger production needs. These tools provide uniform crimping action by releasing the contact only after the crimping dies have fully bottomed.



SUBMINIATURE COAXICON* CONTACTS§



AMP's new subminiature COAXICON contact is a crimp, snap-in contact, designed for high density, multiple circuit connector application. These subminiature coaxial contacts feature the exclusive one-crimp termination of inner conductor, outer braid and cable support. The design includes complete contact assembly with built in retention spring and a separate ferrule. IDEAL for mixing coaxial and pin and socket contacts in the same connector.

A-MP* subminiature coaxial contacts fit any connector cavity that will accept an A-MP pin or socket contact. This means you can now bring power and shielded signal circuits through the same connector . . . and in any combination. No longer is it necessary to have special housings with specific positions for coaxial contacts. Now you can select from a variety of connector configurations in a number of positions, with a choice of housing materials and hardware.

To assemble your connector here's all that you need to do:

1. Choose any A-MP Series "M", "D", "DD", "W" or "WW" connector housing which accepts #16 contacts Type II, III, III(+).
2. Crimp and snap in the subminiature COAXICON contacts.
3. If you are mixing your power and shielded signal circuits, crimp and snap in the pin and socket contacts.

Whether you mix or match the contacts in the connector, you not only get quick, easy assembly, but a uniform reliability that eliminates rejects.

FEATURES

- Less critical stripping dimensions
- Simultaneous one-crimp termination of center conductor, outer braid and cable support
- Improved cable retention and insulation grip
- No danger of heat damage to coaxial cable
- Faster assembly for lower installed cost
- Low VSWR
- Reduced noise level
- Inner contact stability
- Ease of inspection
- Contact assembly contains built-in retention spring
- Matches pin and socket contacts, Type II, III, III(+)

MATERIAL SPECIFICATIONS

Brass MIL-B-50

Tin Plating MIL-T-10727

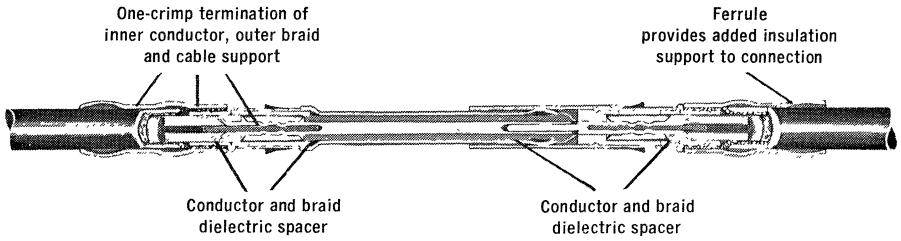
Beryllium Copper QQ-C-533

Gold Plating MIL-G-45204

Bronze ASTM-B-140

Polypropylene General Purpose

Copper Plating MIL-C-14550



Type and size of connectors available to accept the subminiature COAXICON Contacts:

- Series "M"—14, 20, 21, 26, 34, 41, 50, 75, and 104 positions.
(MSM blocks use short pins, MDM blocks use long pins*)
- Series "D"—45 and 78 positions. (Use short pins)
- Series "DD"—90 and 156 positions. (Use short pins)
- Series "W"—26, 40, and 45 positions. (Use short pins)

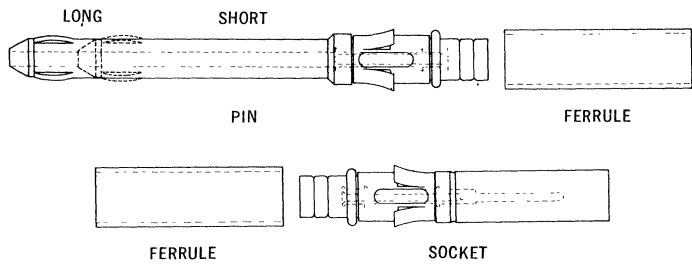
Series "WW"—52, 80 and 90 positions. (Use short pins)

*MSM designates a shallow block and accepts short pin contacts only. MDM designates a deep block and accepts long pin or socket contacts

PERFORMANCE SPECIFICATIONS

Test Voltage	500 Volts AC
Operating Temperature	-55°C to +85°C
Minimum Cable Retention Force	25 pounds min. RG 174/U

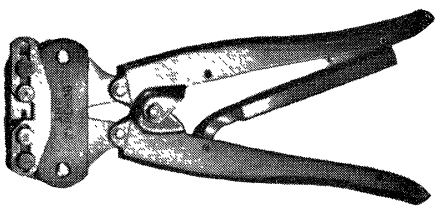
SPECIFICATIONS



RG/U Cable No.	Socket No.	Short Pin No.	Long Pin No.	Ferrule No.	Tool No.
174,188,316	1-331950-0	1-331951-0	1-331952-0	1-332056-0	69656
179,187	1-331950-0	1-331951-0	1-331952-0	1-332056-0	69656-1
178-196	331950	331951	331952	1-332057-0	69656-2
#26 AWG Shielded	331950	331951	331952	1-332057-0	69656-3

TOOLING

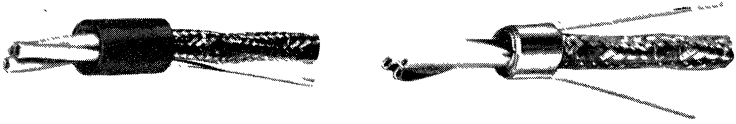
A-MP Compression Crimp tooling features a centering device which permits the tool to align the contact. Uniform crimping action is assured through precision control of the CERTI-CRIMP* ratchet device which only releases when crimping dies have fully bottomed. Extraction tool No. 305183.



*Trademark of AMP INCORPORATED

TERMASHIELD* FERRULES AND SPLICES[§]

FOR SHIELDED AND COAXIAL WIRE



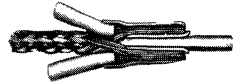
The TERMASHIELD Ferrule offers the fastest, most reliable method for attaching one or more ground taps to shielded wire and/or terminating the braid of shielded wire. Crimped with matching A-MP* tooling, assembly is fast and positive and the resulting ferrule is only slightly larger in outside diameter than the original wire O.D.

The TERMASHIELD ferrule line consists of a basic shielded wire ferrule with options for insulation or for environmental conditions:

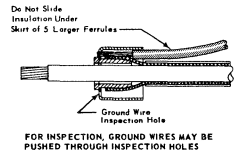
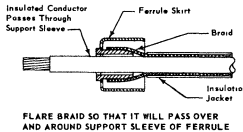
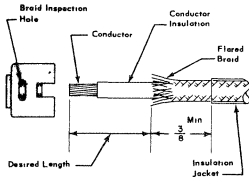
- Un-insulated ferrules (standard type)
- 650° heat resistant ferrules un-insulated
- Pre-insulated ferrules for printed circuits
- Post-insulated ferrules (standard type)
- 550° heat resistant ferrules post-insulated
- Pre-insulated ferrules (standard type)

STANDARD UN-INSULATED AND POST-INSULATED FERRULES

The basic un-insulated ferrule is attached with one stroke of the matching A-MP crimping tool. The outer ferrule body is color coded by insulation diameter range.

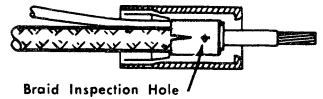
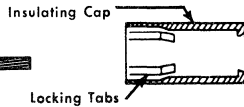
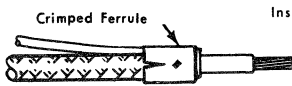


The post-insulated ferrule is the same as the basic un-insulated ferrule with the addition of a nylon insulating sleeve which is snapped in place over the ferrule after crimping. The nylon sleeve is color coded to match the ferrule.



FOR STRIPPING LENGTH OF GROUND LEAD REFER TO STRIPPING CHART

POST-INSULATED



Un-Insulated Ferrule Number	Primary Insul. Dia. Range	Post-Insulation Sleeve Nylon	Color Code	Die Insert No. For Tool 59500	Die Insert No. For Tool 69270-1	Die Insert No. For Tool 69365	Package Assembly No.*
327192	.025-.045	327768	Green	45061-2*	45061-2*	46610-2†	330297
323930	.045-.065	325009	Violet	45062-2*	45062-2*	47810-2†	330298
323931	.065-.085	325010	Tin	45063-2*	45063-2*	47816-2†	330228
323932	.085-.105	325011	Brown	45064-2*	45064-2*	47817-2†	330229
323933	.105-.125	325012	Orange	45065-2*	45065-2*	47818-2†	330230
323934	.125-.145	325013	Green	45066-2*	45066-2*	47819-2†	330231
327137	.145-.170	328224	Violet	45238-2		45316-2	330232
327138	.170-.195	328225	Tin	45239-2		45317-2	330293
327139	.195-.220	328226	Brown	45240-2		45318-2	330294
327140	.220-.245	328227	Orange	45241-2		45319-2	330295
327141	.245-.270	328228	Green	45158-2		45320-2	330296

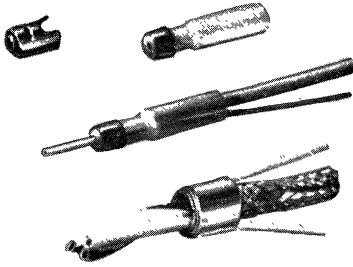
*These inserts may be used with either tool 47750, 59500, or 69270-1.

**Ferrule and Post-insulating sleeve are available in a package form catalogued under a single number. Packages conform to MIL-F-21608A ASG (Class II).

†These inserts may be used with either tool 69264-4, 69319-1 or 69365.

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HEAT RESISTANT FERRULES NON-INSULATED AND POST-INSULATED

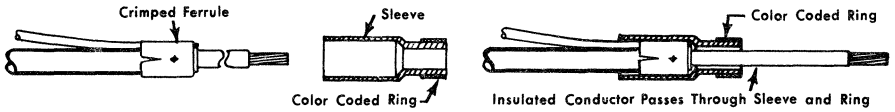


Heat resistance is provided by nickel plating over base metal. For temperatures up to 650°F, the un-insulated version is recommended.

Insulation for heat resistant post-insulated ferrules is provided by TEFLON† insulation sleeves which have a recommended application temperature (continuous) or 550°F.

Assembly procedure for heat resistant ferrules is basically the same as the standard ferrule. However the TEFLON† insulation sleeve is crimped to the finished assembly in the post-insulated version.

POST-INSULATED



FOR STRIPPING LENGTH OF GROUND LEAD REFER TO STRIPPING CHART

Heat Resistant Ferrule Number	Primary Insul. Dia. Range	Color Code	Die Insert No. For Tool 69500	Die Insert No. For Tool 69270-1	Die Insert No. For Tool 69365	Teflon† Post-Insulation Sleeve**
328051	.025-.045	White	45061-2*	45061-2*	46610-2†	328938
328052	.045-.065	Violet	45062-2*	45062-2*	47810-2†	2-328938-1
328053	.065-.085	Blue	45063-2*	45063-2*	47816-2†	2-328938-2
328054	.085-.105	Brown	45064-2*	45064-2*	47817-2†	2-328938-3
328055	.105-.125	Orange	45065-2*	45065-2*	47818-2†	2-328938-4
328056	.125-.145	Green	45066-2*	40066-2*	47819-2†	2-328938-5
328057	.140-.170	Violet	45238-2		45316-2	2-328938-6
328058	.170-.195	Blue	45239-2		45317-2	2-328938-7
328059	.195-.220	Brown	45240-2		45318-2	2-328938-8
328060	.220-.245	Orange	45241-2		45319-2	2-328938-9
328061	.245-.270	Green	45158-2		45320-2	3-328938-1

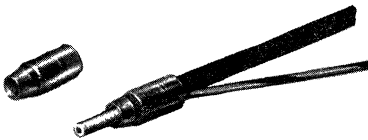
*These inserts may be used with either tool 47750, 59500, or 69270-1.

**The same dies that crimp the TERMASHIELD Ferrule also crimp the TEFLON† Insulating Sleeve Ring.

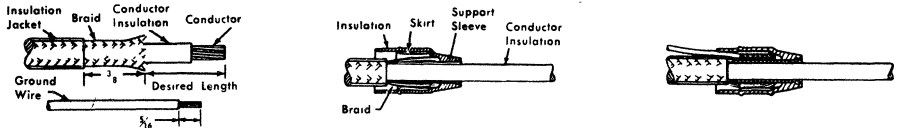
†These inserts may be used with either tool 69264-4, 69319-1 or 69365.

‡Trademark of Dupont.

PRE-INSULATED FERRULES



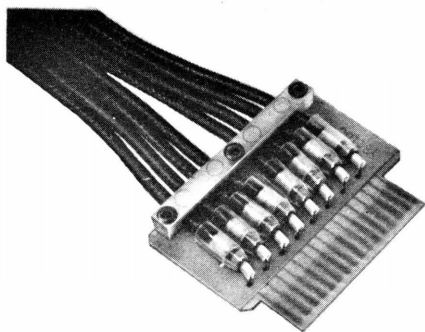
This ferrule is of one-piece construction and crimping is accomplished with one stroke of the matching tool. Another advantage is the transparency of the nylon insulation which permits easy inspection of the attachment of the conductor, ground wires and braid. The metal portion of this ferrule is color coded by insulation diameter range.



AMP Catalog No.	Color Code	Primary Insul. Dia. Range	Die Insert No. For Tool 59500	Die Insert No. For Tool 69270-1
329331	Violet	.045-.065	69204-1*	69204-1*
329332	Tin	.065-.085	69205-1*	69205-1*
329333	Brown	.085-.105	69206-1*	69206-1*

*These inserts may also be used in tool 47700.

PRE-INSULATED FERRULES FOR PRINTED CIRCUITS



This ferrule is of one-piece construction and includes, as an integral part, a shield connecting device. This is a pre-tinned tab which promotes positive solder connection of the ferrule to the board. The depth of the inserted braided shield is easily checked through an inspection port. Construction assures positive separation of conductor, shield and outer insulation. Assembly of this ferrule is identical to the pre-insulated ferrule, the only difference being in the stripping of the center conductor.

AMP Catalog No.	Primary Insul. Dia. Range	Die Insert No. For Tool 59500	Die Insert No. For Tool 69365
328436	.085-.105	45555-1	45556-1

MIL-F-21608A ASG (CLASS II EQUIVALENTS)

Government Designation	Manufacturer's Designation		
	Termashield Ferrules	Primary Insul. Dia. Range	Post-Insulated Sleeve **
MS25311-90	327192	.025-.045	327768
	323930	.045-.065	325009
MS25311-100	323930	.045-.065	325009
	323930	.045-.065	325009
MS25311-110	323930	.045-.065	325009
	323931	.065-.085	325010
MS25311-120	323931	.065-.085	325010
	323932	.085-.105	325011
MS25311-130	323932	.085-.105	325011
	323933	.105-.125	325012
MS25311-150	323932	.085-.105	325011
	323933	.105-.125	325012
	323934	.125-.145	325013

Government Designation	Manufacturer's Designation		
	Termashield Ferrules	Primary Insul. Dia. Range	Post-Insulated Sleeve **
MS25311-160	323933	.105-.125	325012
	323934	.125-.145	325013
MS25311-180	327137	.145-.170	328224
	323934	.125-.145	325013
MS25311-200	327137	.145-.170	328224
	327138	.170-.195	328225
MS25311-200	327137	.145-.170	328224
	327138	.170-.195	328225
	327139	.195-.220	328226

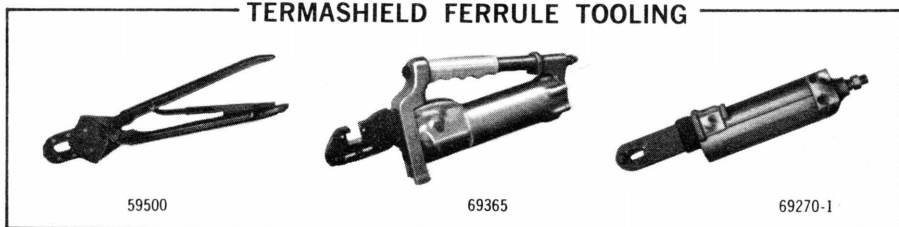
**Both Ferrule & Insulation sleeve must be used to meet Class II requirements.

GROUND WIRE STRIPPING CHART FOR STANDARD UN-INSULATED AND HEAT RESISTANT FERRULES

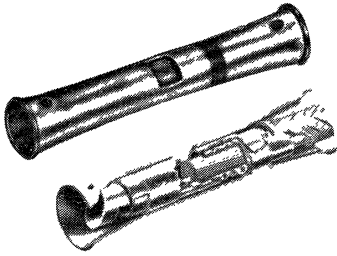
STRIP WIRE TO LENGTH SHOWN AT RIGHT	Un-Insulated Ferrule Number	Heat Resistant Ferrule Number	Recommended Ground Wire		Stripping Length X
			No. of Wires	Max. Insul. Dia.	
			327192	328051		One (1) No. 24 Two (2) No. 24 One (1) No. 22	.063 .055 .068	1/4 Min.
323930 Thru 323934	328052 Thru 328056	One (1) No. 20 One (1) No. 22 Two (2) No. 22	.078 .078 .068	1/4 Min.	
327137 Thru 327141	328057 Thru 328061	One (1) No. 18 One (1) No. 20 Two (2) No. 20 One (1) No. 22 Two (2) No. 22	No Limit On Insulation Diameter*	7/16 Min.	

*Do not slide insulation of ground wire under skirt on the five larger sizes.

TERMASHIELD FERRULE TOOLING

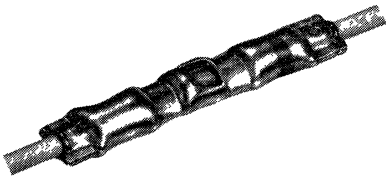


TERMASHIELD SPLICES

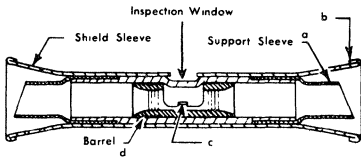


TERMASHIELD splices for single conductors are available in two forms; un-insulated, and post-insulated. The selection of any one of these is predicated by your requirements.

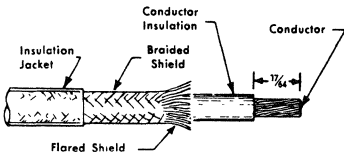
SINGLE CONDUCTOR SPLICES: UN-INSULATED



Attachment of the standard TERMASHIELD Splice is accomplished in an easy two step method. In two short operations, you have a firm splice between the conductors and between the shield braids, with positive insulation between them. To assure complete quality control, without error, each wire size is designated by color code bands on the barrel.



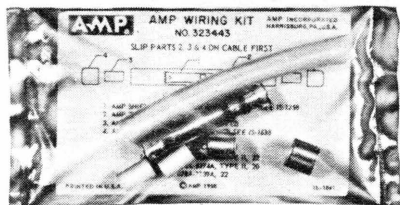
1. INSERTION OF CONDUCTOR: Cable is stripped to proper length and inserted in end of splice. The inner sleeve (a) slides **under** the braided shield while the outer sleeve (b) slides **over** the braided shield. The inspection window shows proper positioning of the conductor against the wire stops (c).



2. CRIMPING: Two crimps are performed simultaneously at each end of the splice with a single motion of the crimping tool. The inner barrel (d) crimps over the stripped portion of the conductor. The outer sleeve (b) crimps over the braided shield. This connection alternates layers of conductor members and insulation—and secures them in a permanent electrical and mechanical splice.

Wire Size Range	AMP Catalog Number	Max. Conductor Ins. Dia.	Color Code	Hand Tool
24-20	327628	.062	One White Band	59459
24-20	327630	.090	Two White Bands	59459
22-18	321837	.085	One Red Band	69352
22-18	321807	.115	Two Red Bands	69352
16-14	322721	.120	One Blue Band	59255
16-14	322722	.150	Two Blue Bands	59255

SINGLE CONDUCTOR SPLICES: POST-INSULATED



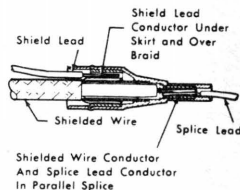
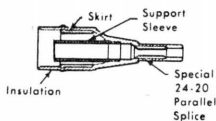
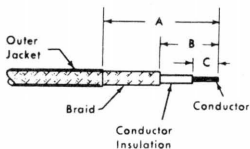
Attachment of this splice is accomplished in precisely the same two step method as outlined for the single, un-insulated type with **one very important exception: PRIOR TO ATTACHMENT OF THE SPLICE UNIT, BUSHINGS, SLEEVE AND CRIMPING RINGS ARE SLIPPED ONTO THE SHIELDED CABLE.** Sleeve slips over splice; bushings slide under sleeve; crimping rings slide over sleeve. Post insulation tool crimps rings on sleeving, to secure sleeve, ring and bushing to shielded braid.

Wire Size Range	Max. Jacket or Shield Dia.	Insulating Material	Kit Number	Termasplid Splice Hand Tool	Insulating Sleeve Die Inserts For Tool #69365	Insulating Sleeve Tool #69010	
						Head Number	Die Number
24-20	.092	Nylon	328323	59459		69306-1	69255-1
24-20	.092	TEFLON	328324	59459	46280		
24-20	.106	Nylon	328321	59459		69306-1	69255-1
24-20	.106	TEFLON	328322	59459	46280		
24-20	.127	TEFLON	329195	59459	46280		
22-18	.115	Nylon	328316	69352		69306-1	69255-1
22-18	.115	TEFLON	328317	69352	46280		
22-18	.127	Nylon	328294	69352		69306-1	69255-1
22-18	.127	TEFLON	328295	69352	46280		
22-18	.147	TEFLON	329196	69352	46280		
16-14	.131	Nylon	328318	59255		69306-1	69255-1
16-14	.131	TEFLON	328319	59255	46280		
16-14	.154	TEFLON	329200	59255	46280		
16-14	.161	Nylon	328284	59255		69306-1	69255-1
16-14	.161	TEFLON	328320	59255	46280		
16-14	.182	TEFLON	329198	59255	46280		

PRE-INSULATED TERMASPLICE* SPLICES

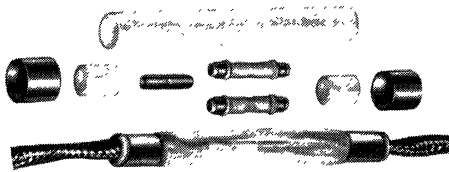


The Pre-insulated TERMASPLICE Splice provides a quick, convenient method of splicing the center conductor of coaxial cables to a conventional AWG wire (Range 475 to 1186 CMA) while simultaneously terminating the braid of the coaxial cable.



AMP Catalog No.	Color Code	Recommended for Use With Coaxial Cable	Primary Insul. Dia. Range	Hand Tool	Die Insert for #69365
330592	Green	RG-178/U RG-196/U	.025-.045	69366	69361
329413	Violet	RG-174/U RG-187/U	.045-.065	69241	69266
328812	Tin	RG-180/U RG-195/U	.085-.105	69156	69149

MULTIPLE CONDUCTOR SPLICES: POST-INSULATED



The multiple conductor TERMASHIELD Splice has a nylon or TEFLON insulation sleeve. Each set of conductors and the shield braid are positively and permanently spliced together, with positive insulation separating each conducting member.

MULTIPLE SPLICE USING CERTI-SEAL★ AND SOLISTRAND★ SPLICES

Kit Number	Conductor		Insul. Dia.	Ground Wire Size Range (Solistrand* Splice)	Certi-Seal Tool No.	Solistrand Tool No.	Insulating Sleeve Tool #69010		Ins. Sleeve Material	Max. Overall Ins. Dia.
	No.	Wire Size† Range					Head	Die Insert		
323454	2	24-20	.070-.097	16-14	46073	49935	69396-1	69255-1	Nylon	A .205 B .132
327248	$\frac{2}{1}$	22-16	.125	16-14	43786*	49935	69306-1	69255-1	Nylon	A .155
327249	3	24-20	.070-.097	16-14	46073	49935	69306-1	69255-1	Nylon	A .227
327250	$\frac{2}{1}$	24-20	.070-.097	16-14	46073	49935	69306-1	69255-1	Nylon	B .132 A .205

*Uses PIDG★ window splice in place of CERTI-SEAL Splice

†Wire Range of Conductor Splice

A—For 1 Hole Bushing
B—For 2 Hole Bushing

NOTE: Heavy Head Hand Tool 59498 Crimps all outer sleeve rings.

MULTIPLE SPLICE USING TERMASHIELD★ FERRULES

Kit Number	Conductor		Insul. Dia.	Ground Wire		Certi-Seal Tool No.	Dies For Termashield Ferrule Tool #59500	Insulating Sleeve Tool #69010		Ins. Sleeve Material	Max. Overall Ins. Dia.
	No.	Wire Size† Range		Size	Max. Insul. Dia.			Head	Die Insert		
328396	2	24-20	.070-.097	20 22	.078	46073	45065-2	69306-1	69255-1	Nylon	.250
328397	2	24-20	.070-.097	20 22	.078	46073	45065-2	69306-1	69255-1	Nylon	.275

†Wire Range of Conductor Splice.

HEAT RESISTANT MULTIPLE SPLICES (550°F)

Kit Number	Conductor		Insul. Dia.	Ground Wire Size Range (Solistrand* Splice)	Post-Insulated Splice Tooling	Heat Rest/Hi-Temp Splice Tooling	Insulated Sleeve Dies For Tool #69365	Ins. Sleeve Material	Max. Overall Ins. Dia.
	No.	Wire Size† Range							
328456	1	22-20	.046-.063	22-16	46467	46447	46280	TEFLON	A .097
328457	2	22-20	.046-.063	16-14	46467	46447	46280	TEFLON	A .160
328458	3	22-20	.046-.063	16-14	46467	46447	46280	TEFLON	A .160
328746	2	22-20	.046-.063	22-16	46467	46447	46280	TEFLON	A .130
328788	$\frac{2}{1}$	18-16	.064-.088	12-10	46468	49935	46276	TEFLON	B .092 A .092
329202	1	22-20	.080-.100	16-14	46467	46447	46280	TEFLON	A .150
329203	3	22-20	.080-.100	16-14	46467	46447	46280	TEFLON	A .208-.224 .235-.255
329204	1	22-20	.105-.130	16-14	46468	46447-46467	46280	TEFLON	A .135-.155 .165-.180

†Wire Range of Conductor Splice

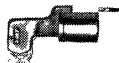
A—For 1 Hole Bushing
B—For 2 Hole Bushing

NOTE: See the appropriate Sections of this Handbook for information on the Solistrand, CERTI-SEAL, and PIDG Lines of Terminals and Splices.

TERMASHIELD SPLICES TOOLING



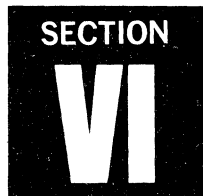
HAND TOOL



69000



69365



PROGRAMMING PRODUCTS

This section includes the following sub-sections:

Introduction
Card Programming
Patchcord Programming (Universal and Shielded)
Coaxial Programming
Matrix and Universal Pinboards
Stepping Switch Connectors

PROGRAMMING DEVICES

Basically, programming devices are manually operated switches that permit, through proper patchcord, pin or contact selection, nearly infinite switching combinations. Such devices may be used as simple or complex switches, or as large connectors interconnecting a main body of equipment to peripheral components.

Simplified Switching

Simplified switching is normally defined by the number of poles and throw positions required by a particular switching application. The following illustrates the use of A-MP* SYSCOM* patchcord programming systems in simple switching:

SWITCH TYPE	AMP SYSTEM SIZE	NO. FRONT BOARDS
816-pole single-throw	1632 Contacts	1
544-pole double-throw	1632 Contacts	2
408-pole triple-throw	1632 Contacts	3
816-pole triple-throw	3264 Contacts	3

Combinations of the above systems may be used and still be considered examples of simplified switching.

Patchcord programming systems can be used as large connectors. This function is particularly useful in interconnecting various sections of equipment. When using this system as a connector the rear bay is used as one half and the front board as the other half of the connector. Programming systems offer two distinct advantages over conventional multiple connectors:

1. Large number of contacts. Systems are available with 240 through 5304 contacts, as compared with connectors whose contact force and tolerance buildups restrict capacity.
2. Long contact life. Programming systems are designed for thousands of insertions and withdrawals, whereas pin and socket connectors need be designed for only 500 to satisfy military specifications.

Complex Switching

Programming devices are used quite often in electronic equipment that requires the patching of one signal many times on one front board. An example of this is in data acquisition systems where the signal is carried from transducers (strain gauges, accelerometers) to signal conditioning equipment (voltage and temperature references, amplifiers, etc.) to analog-to-digital converters to recording equipment.

Where one signal is patched many times, variable contact resistance can degrade it beyond usability. Chance of signal loss is also greater when many patches are used. In complex switching applications, therefore, consistently low contact resistance and reliability are critical, regardless of the type of programming device employed.

HOW PROGRAMMING DEVICES FUNCTION IN SWITCHING APPLICATIONS

In the programming of circuits for multi-use equipment, such as rolling mills, control systems, automatic test equipment, ground support equipment or teaching devices, circuit paths must be established in the shortest possible time to minimize labor and downtime costs. Consequently, the need for quick, reliable, flexible switching devices is critical in these applications.

The uses for programming devices are as broad as there are equipment applications for them. The range is, in fact, almost infinite, encompassing relatively simple applications like programming function generators for a design engineer to sophisticated data acquisition programs requiring thousands of switching operations. To meet these specialized needs, four basic types of programming devices have been created. All are represented in AMP's Programming Devices product line.

Types of Programming Devices Available

Although all programming devices perform the function of a large switch, mechanically they may be grouped into three categories: **patchcord systems**—universal, coaxial and shielded types—with fixed or removable front boards; **card systems** with tabular punch cards as the medium of control; and **pinboard systems**—Matrix and Universal types—with pins as the medium of control.

AMP IS THE ONE COMPLETE SOURCE OF PROGRAMMING DEVICES

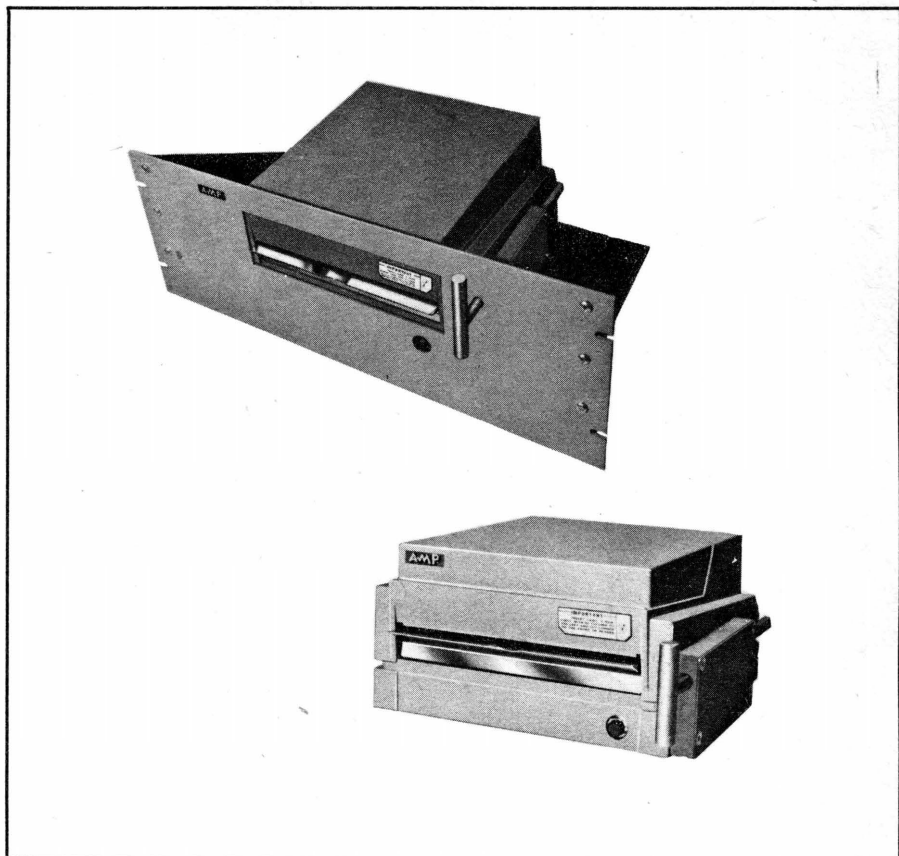
The growing use of programming systems in such diverse fields as automation on the assembly line, mixing processes in the food and chemical industries, and military and commercial data processing and analysis has directed our concentrated research and development toward the creation of an entire line of programming products, manual to completely automated devices. These are designed to cover every possible area and meet the most complex circuit switching requirements.

Programming Systems

Of all these devices, the various A-MP Patchcord Programming Systems have the most varied and complex uses. These are subdivided into the following classifications: I. Universal Systems (a) Panel Mount; (b) Rack Mount; (c) Anti-Vibration; (d) Airborne; and (e) Fixed Panels. II. Coaxial Systems (a) Panel Mount; and (b) Fixed Panels. III. Shielded Systems (a) Panel Mount; and (b) Fixed Panels.

Other A-MP Programming Devices are: IV. Card Programming Systems (a) Desk Top; and (b) Rack Mount. V. Pinboard Programming Systems (a) Matrix; and (b) Universal.

MANUAL CARD READERS§



The A-MP SYSCOM★ Card Reader consists of 960 single-pole, single-throw switches that may be commoned in innumerable ways with the use of standard pre-punched tabulating cards and are controlled by a single actuating handle.

The unit, available in desk top or rack mount versions, is lightweight, compact and easy to operate. With the insertion of the card and moving of the actuating handle to the "read" position, contact springs above the card pass through punched areas to the printed circuit card below to complete the desired circuits.

The reader serves as a multi-pole, multi-position switch which permits an unlimited number of programs to be processed with the substitution of one card for another.

When used for individual readout of data, the unit performs the same basic functions as high-speed card readers but permits the individual sorting and verification of cards.

The manual Card Reader provides the answers to unlimited numbers of applications which require that pre-punched holes in a standard tabulating card be translated into useful electrical information. Typical among such uses are—automated process control, test equipment programming, ground support equipment, teaching devices, data processing, instrumentation and a variety of input-output switching functions.

The A-MP Card Reader is available in either the desk top style for operation remote from the main body of equipment, or the rack mount version which fits in a standard 19" relay rack. The pre-wired Model 1042 is available only as a rack mount unit. Other models are available in either style.

FEATURES

• Double-Wiping Action

Reliable sensing is assured through a unique wiping action during actuation of the reader. This causes the contact springs to wipe along the contact pads, until the linkage arrangement travels just over-center, which reverses the wiping action slightly. This brings the contact spring to rest on a precleaned portion of the contact pad.

• Simultaneous Readout

When used for data processing applications, the A-MP Manual Card Reader offers simultaneous readout of all holes in any given card. No stepping mechanism is required, thus further assuring the reliability of the reader. Where a memory unit is involved, the data storage requirements are reduced as a result of all 960 bits being presented simultaneously.

• Electro-Mechanical Interlocks

Another important feature of the reader is its three electro-mechanical interlocks. These limit switches prevent false output which would be caused by incorrect card positioning. They also eliminate the danger of circuits being closed before all contacts are made. Two of these switches sense the card's position, while the third is closed by the card tray when it reaches "read" position.

• Reads Standard Tabulating Cards

Standard 80-column, 12-row tabulating cards are accepted and read by the A-MP Card Reader. Special scored cards used for on-the-spot programming are also accepted by the reader without modification.

OTHER FEATURES:

- AMP Gold over Nickel plating
 - Semi-Automatic card ejection
 - Diode isolation (Model 1043)
- **Housing**
The Lower Housing is made of cast aluminum to assure ample rigidity, with precision machining of the castings for proper location and inter-relationship of components. The Upper Housing serves as a protective cover, and is cast from a durable zinc alloy. Both upper and lower housings have a gray, fine wrinkle finish.

The Front Plate of the sliding Card Tray is chrome-plated zinc alloy, while the Actuating Handle is of machined aluminum.

• Operating Mechanism

The Actuating Handle is positioned at the side of the desk top housing and projects through the front panel of the rack mounted version for accessibility. In either case, pushing forward on the handle causes the Card Tray to move the tab card into the "read" position; pulling the handle will return the tray to its original loading position; and a slight additional pull will partially eject the card.

All parts of the operating mechanism are made of steel. Reliability and long, trouble-free service are assured through simplicity of design and precision manufacture.

• Diode Isolation

Diode isolation is provided by 1N462A diodes connected to each contact spring. Diode logic boards containing ten diodes, which are cemented to connectors, provide flexibility in reader design and maintainability. Printed circuitry does the commoning within the logic board, while short wire jumpers complete the circuit between each row of boards.

• Contact Springs

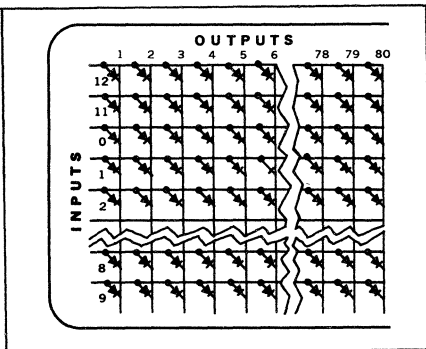
All Contact Springs are formed of fine-grain, full hard phosphor bronze and plated with .000060" gold over .000050" nickel. The double-wiping action and consistent contact pressure created by the contact design assure reliable hole sensing. The Contact Springs are retained within a diallyl phthalate block. In the Model 1041 the contact springs are bussed by an integral commoning strip.

• Spring Block Assembly— Printed Circuit Board

The three models in the 1040 series of the manual Card Reader contain 1040 independent gold over nickel plated Contact Springs which are precisely positioned in a rigid diallyl phthalate block. This fixed assembly is located above the sliding Card Tray. The top surface of the Card Tray is a Printed Circuit Board with a specific pattern of pads. When the reader is in the closed or "read" position the card being read is sandwiched between the Contact Springs in the Block Assembly and the Printed Circuit Board.

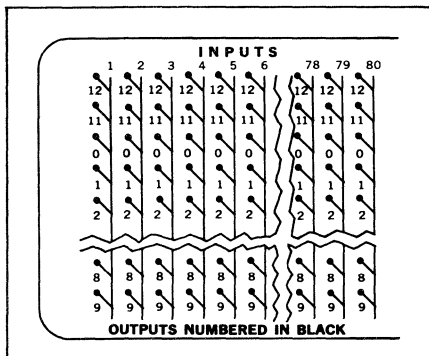
PRE-WIRED MODELS

MATRIX—MODEL #1041



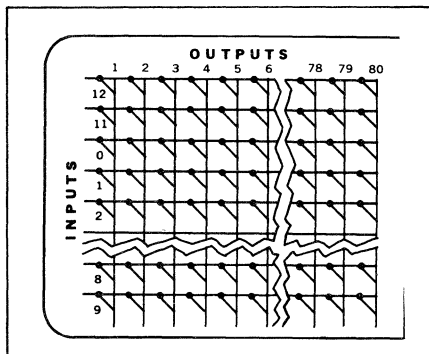
The Model 1041 is a matrix type with an 80-column, 12-row matrix configuration. Columns are provided by the 80 pads on the printed circuit board; rows are the contact springs, internally bussed in 12 rows of 80 springs each. The matrix arrangement provides for connecting any of 12 inputs to any of 80 outputs, any of 80 inputs to any 12 outputs, all inputs to one output, or any input to all outputs. Since this model does not offer complete isolation, holes punched in certain patterns create alternate circuit paths . . . sometimes unwanted. Where such alternate circuits are undesirable, the Model 1043 (Diode Matrix) is recommended.

All connections on the Model 1041 are made with A-MP 104-position "M" Series Pin and Socket Connectors with A-MP Type III (+) Contact Pins.

INDIVIDUAL POINT—MODEL #1042

The Model 1042 features 80 input columns with 960 individual outputs, or 960 individual points with 80 outputs. Each of the 80 inputs can be connected to any or all of the 12 outputs. The bussing of two input columns can increase this capability to 24 outputs per input; however, this arrangement limits the number of inputs available to 40.

Maximum flexibility is to be found in this model since its 80 inputs and 960 outputs can be bussed in any required logic pattern. Connections in this model can be accomplished with either ten 104-position "M" Series Pin and Socket Connectors or eight 132-position Miniature DUALATCH* Connectors.

DIODE MATRIX—MODEL #1043

Similar to the Model 1041 this unit offers diode isolation to eliminate alternate paths. Unwanted circuit interaction is prevented by the diodes which act as "one-way valves" from the contact springs to the output columns on the printed circuit board. The anodes of all eighty diodes in each row are bussed together.

The standard diode used in this model is the IN462A. Other diodes and bussing configurations are available on special order.

All connections in this unit are made with A-MP 104-position Series "M" connectors. Unless specified otherwise these are loaded with A-MP type III (+) contact pins.

SPECIAL MODELS

Because of its design flexibility, the A-MP Manual Card Reader can be provided in many variations within the basic housing. The printed circuit board can be adapted to many configurations to simplify electronic system wiring. Contact springs and diodes also may be bussed in a variety of ways. Special connectors or cables are available for unusual wiring requirements.

SPECIFICATIONS**Mechanical**

Component	Material	Finish or Plating
Lower Housing	Precision cast, machined aluminum	Fine wrinkle gray
Upper Housing	Die cast zinc alloy	Fine wrinkle gray
Actuating Handle	Machined Aluminum	
Front Plate	Die cast zinc alloy	Chrome plated
Spring Block	Diallyl phthalate	
Operating Mechanism	Precision machined steel	
Contact Springs	Full hard phosphor bronze	.000060 min. average gold over .000050 min. average nickel
Printed Circuit Board	G-10 glass epoxy	2 oz. copper plate, .000060 min. average gold over .00010 min. average nickel

Electrical

Performance	Model 1041	Model 1042	Model 1043
Capacitance between adjacent circuits	25 pf. max. at 1 megacycle	25 pf. max. at 1 megacycle	25 pf. max. at 1 megacycle
Maximum operating voltage	500 volts	500 volts	(see diode spec.)
Maximum operating current	250 ma.*	250 ma.*	(see diode spec.)
Contact resistance	20 milliohms at 50 ma.	20 milliohms at 50 ma.	(see diode spec.)
Insulation resistance	Greater than 10 ⁵ megohms	Greater than 10 ⁵ megohms	Greater than 10 ⁵ megohms
Voltage breakdown	1 kilovolt RMS AC	1 kilovolt RMS AC	1 kilovolt RMS AC
Interlock switches	10 amps at 125 volts	10 amps at 125 volts	10 amps at 125 volts

*The current rating is stated at 250 milliamperes, rather than 3 amperes per contact spring, as a safety measure to cover the cumulative effect on the Model 1041, and those wiring variations on the Model 1042 involving more than one input to an output.

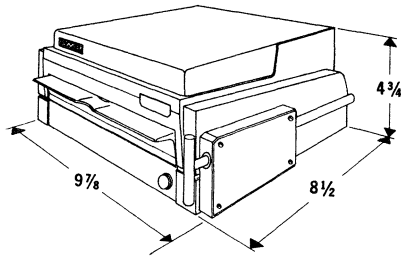


FIG. A

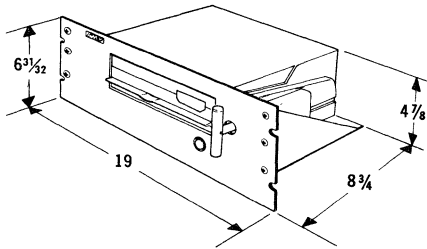


FIG. B

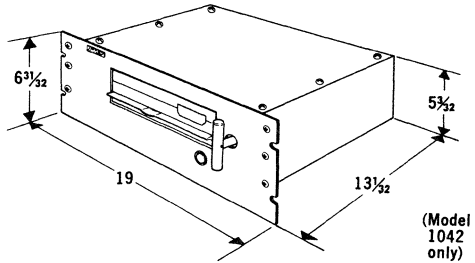


FIG. C

Desk Top Models (Fig. A)

Model	Type	Part No.	Connector		Wiring Kit No.
			Size	Quantity	
1041	12 x 80 (Matrix)	497951-1	104-pos. "M" Series center fastener	1	202412-2 or -3*
1042 (unwired)	80 x 960	497952-1	NONE	NONE	NONE†
1043	12 x 80 (Matrix Isolation with diodes)	497953-1	104-pos. "M" Series center fastener	1	202412-2 or -3*

Rack Mounted Models

Model	Type	Part No.	Connector		Wiring Kit No.
			Size	Quantity	
1041 (Fig. B)	12 x 80 (Matrix)	420475-1	104-pos. "M" Series center fastener	1	202412-2 or -3*
1042 (Fig. C) (Series "M" Connectors)	80 x 960	420093-1	104-pos. "M" Series center fastener	10	202412-2 or -3*
1042 (Fig. C) (Miniature DUALATCH* Connectors)	80 x 960	420093-2	14-pos. "M" Series	1	202448-1
1043 (Fig. B)	12 x 80 (Matrix Isolation with diodes)	420551-1	132-pos. Miniature DUALATCH	8	582817-3**
1043 (Fig. B)	12 x 80 (Matrix Isolation with diodes)	420551-1	104-pos "M" Series center fastener	1	202412-2 or -3*

NOTE: Diode models above use 1N462A diodes with cathode-to-spring orientation and anodes bussed.

*Standard model is equipped with 104-position Series "M" Connector Block #201532-2. To order UNSHIELDED Mating Connector Kit, specify AMP #202412-3 SHIELDED. #202412-2. The Model 1042 also employs one 14-position connector—specify AMP #202448-1. Hand crimping tool AMP #45099. Extraction tool AMP #305183

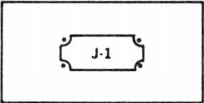
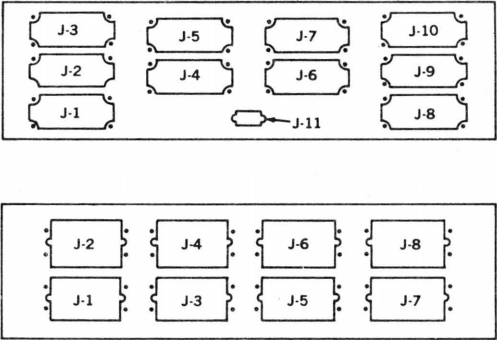
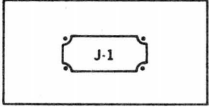
**Standard model is equipped with 132-position Miniature DUALATCH Connector Block #582435-1. To order mating Connector Kit, specify AMP #582817-3. Hand crimping tools AMP #90071 or #90100. Extraction tool AMP #91003.

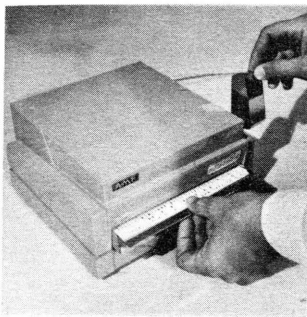
†Order A-MP 10-contact Live Pin Connectors—AMP #420589 to mate with desired contact barrels in any row. (Soldering to contact barrels is not recommended.) The dash number with the base number indicates the length of lead. AMP #420589-1, 12", -2, 24", -3, 36", -4, 40"; -5, 72", and -6, 96".

INSTALLATION WIRING

These illustrations show the connector housing for all three standard models, including the Miniature DUALATCH connector option for Model 1042. In every case, each connector block is identified by number and shown in its relative position in the connector housing.

IMPORTANT: The illustrations show the connector block identification as viewed from the mating side of the Card Reader connector housing.

<p>MODEL 1041 One (1)—104 Position "M" Series Connector</p>	
<p>MODEL 1042 (Rack Mount ONLY) Ten (10)—104 Position One (1)—14 Position "M" Series Connector OR (optional) Eight (8)—132 Position Miniature DUALATCH Connectors</p>	
<p>MODEL 1043 One (1)—104 Position "M" Series Connector</p>	

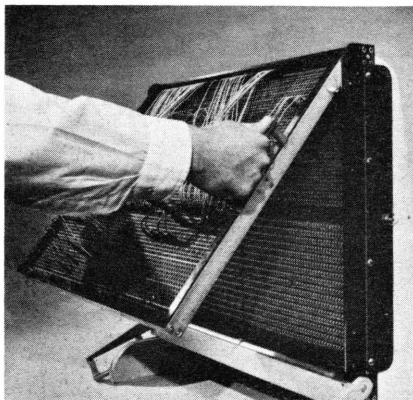


Standard punched cards program an almost infinite variety of functions through the use of AMP Card Readers.

UNIVERSAL AND SHIELDED PATCHCORD SYSTEMS

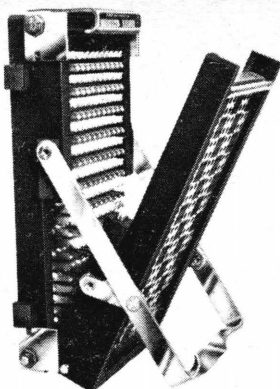
FOOT NOTE EXPLANATION:

- (1) Gold Plated Contact Springs.
- (2) Front face of Patchboard is silk screened with alpha-numeric 2x2 checkerboard legend.
- (3) Rear frame and spring assembly material is white nylon cells with every tenth row, both horizontally and vertically, colored per RETMA numbering system.
- (4) The difference between the number of contacts in the hole arrangement and the model number is the provision for incorporating the grounding contacts.
- (5) Systems are recommended only for Patchcord engagement as indicated.
- (6) Removable Universal Program Patchcords are recommended only for vertical engagement.
- (7) Aluminum Alloy frame.
- (8) Front face of fixed panels are not silk screened. Special screening or standard AMP alpha-numeric 2x2 checkerboard legend available upon request.
- (9) Gold Pin Finish.
- (10) Gold Tip Finish.
- (11) Gold Finish.
- (12) .00003 Gold Finish over .00005 Nickel.
- (13) LH = Long Handle Tool — SH = Short Handle Tool.
- (14) Extension for Pull Test Insertion Tool—Part No. 397989-1. Extraction Tool No. 380305-1.



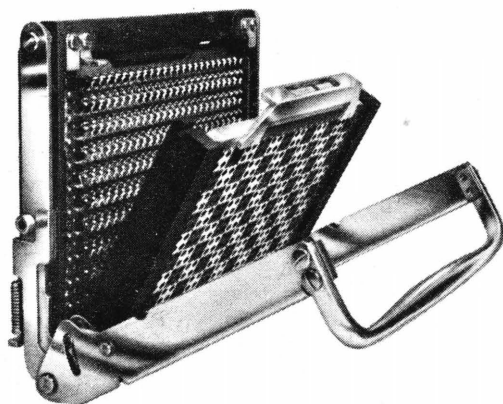
Easily removable patchboards are used for programming in industries as varying as food batch mixing and ground control for missiles and space shots.

PANEL MOUNT SYSTEMS



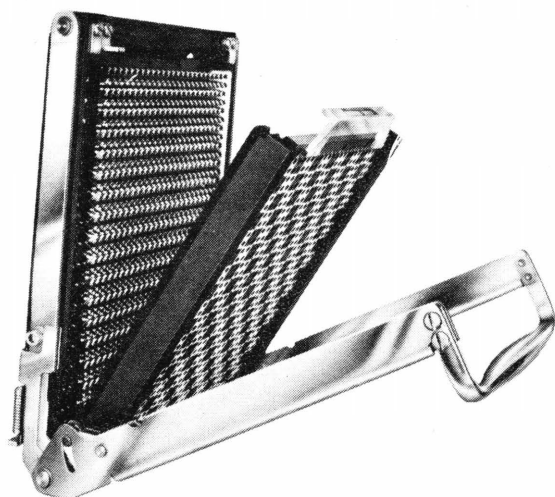
240 SYSTEM UNIVERSAL (hole arrangement 10 x 24)

REAR FRAME AND SPRING ASSEMBLY (1)				REMOVABLE PATCHBOARDS (6)					
Board Material	Catalog Number		Net Weight	Board Material	Catalog Number With "D" Holes For Nylon Sleeve Patchcords		Catalog Number With Round Holes For Twin Detent Patchcords		Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring			Unscreened	Standard Screen (2)	Unscreened	Standard Screen (2)	
Diallyl Phthalate	595069-4	695672-4	2 lb., 7 oz.	Diallyl Phthalate	395056-2	595368-2	695670-2	695670-4	5 oz.



480 SYSTEM UNIVERSAL (hole arrangement 24 x 20)

REAR FRAME AND SPRING ASSEMBLY (1)				REMOVABLE PATCHBOARDS (6)					
Board Material	Catalog Number		Net Weight	Board Material	Catalog Number With "D" Holes For Nylon Sleeve Patchcords		Catalog Number With Round Holes For Twin Detent Patchcords		Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring			Unscreened	Standard Screen (2)	Unscreened	Standard Screen (2)	
Diallyl Phthalate	695305-3	695675-4	4 lb.	Diallyl Phthalate	595350-2	595534-2	695673-2	695673-4	12 oz.

**816 SYSTEM UNIVERSAL** (hole arrangement 24 x 34)

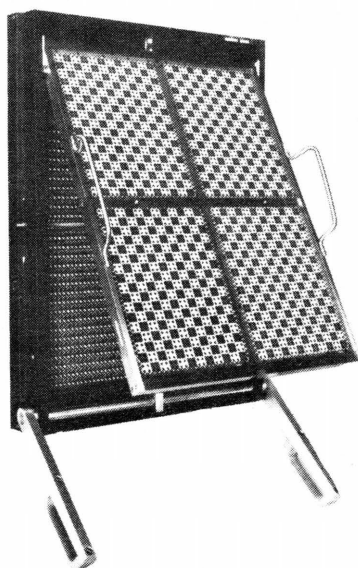
REAR FRAME AND SPRING ASSEMBLY (1)				REMOVABLE PATCHBOARDS (6)				Net Weight	
Board Material	Catalog Number		Net Weight	Board Material	Catalog Number With "D" Holes For Nylon Sleeve Patchcords		Catalog Number With Round Holes For Twin Detent Patchcords		
	For Taper Pin Wiring	For Lancelok Terminal Wiring			Unscreened	Standard Screen (2)	Unscreened		Standard Screen (2)
General Purpose Phenolic	695081-4	695678-2	7 lb.	General Purpose Phenolic	595005-1	595369-1	595902-1	595902-3	1 lb., 1 oz.
Diallyl Phthalate	695081-3	695678-4	6 lb., 15 oz.	Diallyl Phthalate	595005-2	595369-2	595902-2	595902-4	1 lb.

1224 SYSTEM UNIVERSAL (hole arrangement 36 x 34)

REAR FRAME AND SPRING ASSEMBLY (1)				REMOVABLE PATCHBOARDS (6)				Net Weight	
Board Material	Catalog Number		Net Weight	Board Material	Catalog Number With "D" Holes For Nylon Sleeve Patchcords		Catalog Number With Round Holes For Twin Detent Patchcords		
	For Taper Pin Wiring	For Lancelok Terminal Wiring			Unscreened	Standard Screen (2)	Unscreened		Standard Screen (2)
General Purpose Phenolic	695070-2	695681-2	14 lb., 4 oz.	General Purpose Phenolic	595109-1	695315-1	695679-1	695679-3	2 lb., 6 oz.
Diallyl Phthalate	695070-1	695681-4	14 lb., 2 oz.	Diallyl Phthalate	595109-2	695315-2	695679-2	695679-4	2 lb., 4 oz.

1632 SYSTEM UNIVERSAL (hole arrangement 48 x 34)

REAR FRAME AND SPRING ASSEMBLY (1)				REMOVABLE PATCHBOARDS (6)				Net Weight	
Board Material	Catalog Number		Net Weight	Board Material	Catalog Number With "D" Holes For Nylon Sleeve Patchcords		Catalog Number With Round Holes For Twin Detent Patchcords		
	For Taper Pin Wiring	For Lancelok Terminal Wiring			Unscreened	Standard Screen (2)	Unscreened		Standard Screen (2)
General Purpose Phenolic	695010-2	695684-2	17 lb., 12 oz.	General Purpose Phenolic	695009-1	695316-1	695682-1	695682-3	3 lb., 4 oz.
Diallyl Phthalate	695010-4	695684-4	17 lb., 8 oz.	Diallyl Phthalate	695009-2	695316-2	695682-2	695682-4	3 lb.



3264 SYSTEM UNIVERSAL (hole arrangement 48 x 68)

REAR FRAME AND SPRING ASSEMBLY (1)				REMOVABLE PATCHBOARDS (6)					
Board Material	Catalog Number		Net Weight	Board Material	Catalog Number With "D" Holes For Nylon Sleeve Patchcords		Catalog Number With Round Holes For Twin Detent Patchcords		Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring			Unscreened	Standard Screen (2)	Unscreened	Standard Screen (2)	
Diallyl Phthalate	695020-4	695657-4	24 lb., 3 oz.	Diallyl Phthalate	695017-2	695317-2	695415-2(7)	695415-4(7)	9 lb., 14 oz.

4896 SYSTEM UNIVERSAL (hole arrangement 48 x 102)

REAR FRAME AND SPRING ASSEMBLY (1)				REMOVABLE PATCHBOARDS (6)					
Board Material	Catalog Number		Net Weight	Board Material	Catalog Number With "D" Holes For Nylon Sleeve Patchcords		Catalog Number With Round Holes For Twin Detent Patchcords		Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring			Unscreened	Standard Screen (2)	Unscreened	Standard Screen (2)	
Diallyl Phthalate	695021-4	695689-4	53 lb., 2 oz.	Diallyl Phthalate	695019-2	695318-2	695416-2(7)	695416-4(7)	17 lb., 6 oz.

P111S SYSTEM—SHIELDED

No. of Contacts Hole Arrangement Mounting Position	REAR FRAME AND SPRING ASSEMBLY (1 & 3)			REMOVABLE PROGRAM PATCHBOARDS		
	Catalog Number		Net Weight	Material	Catalog Number	Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring				
112 (7 x 16 holes including 1 Ground Contact) (4) Vertical Engagement (5)	595122-2	397138-1	2 lbs., 12 oz.	White Nylon Cells Colored Nylon Cells	495076-1 495076-2	1 lb.

P367S SYSTEM—SHIELDED

No. of Contacts Hole Arrangement Mounting Position	REAR FRAME AND SPRING ASSEMBLY (1 & 3)		REMOVABLE PROGRAM PATCHBOARDS			
	Catalog Number		Net Weight	Material	Catalog Number	Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring				
368 (16 x 23 holes including 1 Ground Contact)(4) Vertical Engagement (5)	695110-2	397139-1	8 lb. 12 oz.	White Nylon Cells Colored Nylon Cells	595039-1 595039-2	3 lb.

P781S SYSTEM—SHIELDED

No. of Contacts Hole Arrangement Mounting Position	REAR FRAME AND SPRING ASSEMBLY (1 & 3)		REMOVABLE PROGRAM PATCHBOARDS			
	Catalog Number		Net Weight	Material	Catalog Number	Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring				
782 (34 x 23 holes including 1 Ground Contact)(4) Vertical Engagement (5)	695109-2	397140-1	20 lb. 4 oz.	White Nylon Cells Colored Nylon Cells	695040-1 695040-2	5 lb., 8 oz.

P1562S SYSTEMS—SHIELDED

No. of Contacts Hole Arrangement Mounting Position	REAR FRAME AND SPRING ASSEMBLY(1 & 3)		REMOVABLE PROGRAM PATCHBOARDS			
	Catalog Number		Net Weight	Material	Catalog Number	Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring				
1564 (34 x 46 holes including 2 Ground Contacts)(4) Vertical Engagement(5)	695108-2	397141-1	29 lb., 8 oz.	White Nylon Cells Colored Nylon Cells	695042-1 695042-2	14 lb., 4 oz.
1564 (34 x 46 holes including 2 Ground Contacts)(4) Horizontal Engagement(5)	695073-2	397142-1	29 lb., 8 oz.	White Nylon Cells Colored Nylon Cells	695069-1 695069-2	15 lb., 8 oz.

P2124S SYSTEM—SHIELDED

No. of Contacts Hole Arrangement Mounting Position	REAR FRAME AND SPRING ASSEMBLY(1 & 3)		REMOVABLE PROGRAM PATCHBOARDS			
	Catalog Number		Net Weight	Material	Catalog Number	Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring				
2128 (38 x 56 holes including 4 Ground Contacts)(4) Vertical Engagement(5)	695072-2	397143-1	42 lb., 8 oz.	White Nylon Cells Colored Nylon Cells	695062-1 695062-2	21 lb.

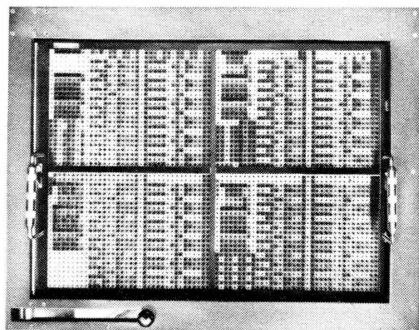
P2343S SYSTEM—SHIELDED

No. of Contacts Hole Arrangement Mounting Position	REAR FRAME AND SPRING ASSEMBLY(1 & 3)		REMOVABLE PROGRAM PATCHBOARDS			
	Catalog Number		Net Weight	Material	Catalog Number	Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring				
2346 (34 x 69 holes including 3 Ground Contacts)(4) Vertical Engagement(5)	695100-2	397144-1	66 lb., 12 oz.	White Nylon Cells Colored Nylon Cells	695044-1 595044-2	25 lb., 12 oz.

P3592S SYSTEM—SHIELDED

REAR FRAME & SPRING ASSEMBLY (1 & 3)			
No of Contacts Hole Arrangement Mounting Position	Catalog Number		Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring	
3600 (72 x 50 holes incl. 4 Ground Con- tacts and 4 Spacers) (4) Horizontal Engagement(5)	695035-1	397145-1	133 lb., 12 oz.

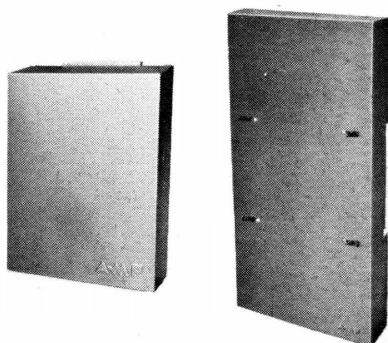
REMOVABLE PROGRAM PATCHCORDS		
Material	Catalog Number	Net Weight
White Nylon Cells	695028-1	33 lb., 4 oz.
Colored Nylon Cells	695028-2	



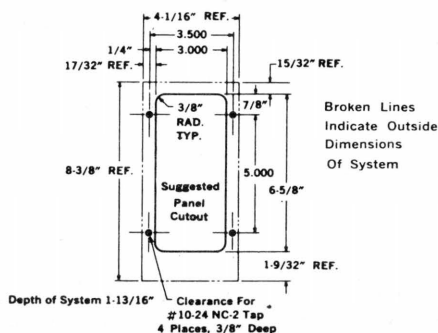
Dust Covers for Removable Program Patchboards

Material: Clear Anodized Aluminum

Type	System Model No.	Dust Cover Part No.	Inside Depth of Cover
Universal	P240	595100-2	1-1/4"
	P480	595757-1	2-3/16"
	P816	595298-1	2-3/16"
	P1224	695265-1	2-3/16"
	P1632	695210-1	2-3/16"
	P3264	695173-1	1-15/16"
Shielded	P4896	695253-1	3-1/2"
	P367S	595279-2	2-3/16"
	P781S	695272-1	2-5/32"
	P1562S	397063-1	2"
	P2343S	695777-1	3-17/32"
	P3592S	397398-1	4-15/32"

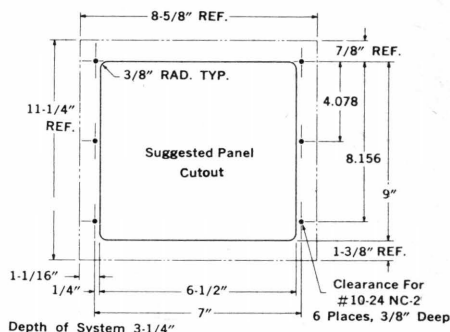


Mounting Dimensions for 240 and P111S Systems

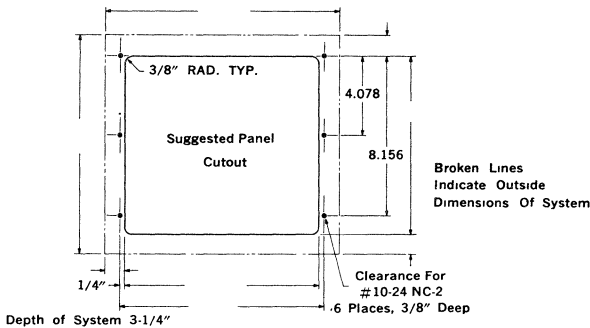


Tolerance: Decimals ±.005, Fractions ±1/64

Mounting Dimensions for 480 System



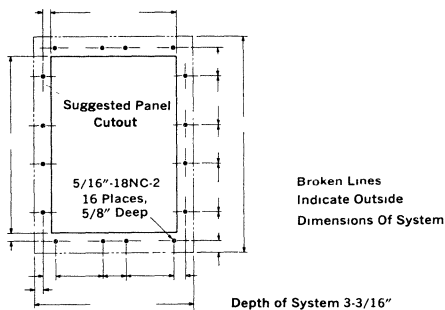
Mounting Dimensions for 816, 1224, 1632, P367S and P781S Systems



Type	System	A	B	C	D	E	F	G	J	H
Universal	816	8-5/8	9	7/8	1-3/8	6-1/2	7	1-1/16	11-1/4	6 Places 3/8 Deep
	1224	12-1/16	9-1/8	1-1/16	1-1/32	10	10-1/2	1-1/32	11-7/32	6 Places 3/8 Deep
	1632	15-3/8	9-1/8	1-1/16	1-1/4	13-5/16	13.812	1-1/32	11-7/16	6 Places 3/8 Deep
Shielded	P367S	8-5/8	9	7/8	1-3/8	6-1/2	7	1-1/16	11-1/4	6 Places 3/8 Deep
	P781S	15-3/8	9-1/8	1-1/8	1-1/8	13-5/16	13.812	1-1/32	11-3/8	6 Places 3/8 Deep

Tolerances: Decimals ± .005, Fractions ± 1/64

Mounting Dimensions for 3264, 4896, P1562S, P2343S and P2124S Systems



Universal

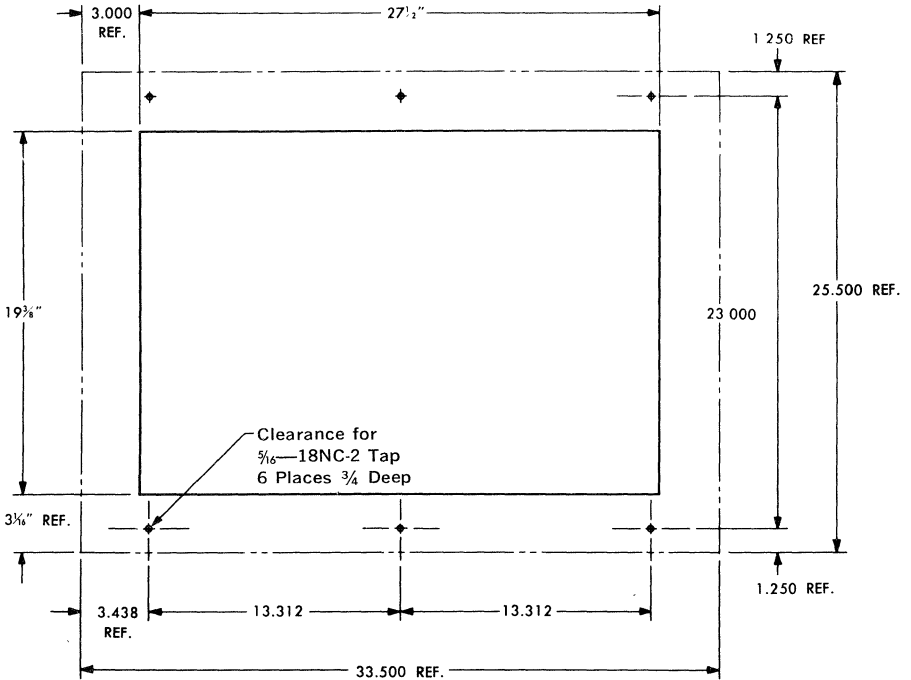
System	A	B	C	D	E	F	G	J	K	L	M	N	P	R	H
3264	13.250	22-1/8	2.968	5.000	4.000	1-3/32	16-3/8	1.125	5.000	2.375	7/8	27/32	18.250	11/16	1/4-20NC-2 16 Places 3/4 Deep
4896	13.187	32-3/16	1.406	8.937	9.187	1.156	17-13/16	1.625	5.000	2.375	1.093	1.250	27.275	1.218	5/16-18NC-2 16 Places 5/8 Deep

Shielded

P1562S	13.250	22-1/8	2.968	5.000	4.000	1.093	16-3/8	1.125	5.000	2.375	.875	27/32	18.250	11/16	1/4-20NC-2 16 Places 3/4 Deep
P2124S	13.187	32-3/16	1.406	8.937	9.187	1.156	17-13/16	1.625	5.000	2.375	1.093	1.250	27.375	1.218	5/16-18NC-2 16 Places 5/8 Deep
P2343S	18.250	16-1/2	1.125	5.000	2.375	.875	22-1/8	2.968	5.000	4.000	1.093	11/16	13.250	27/32	1/4-20NC-2 16 Places 3/4 Deep

Tolerances: Decimals ± .005, Fractions ± 1/64

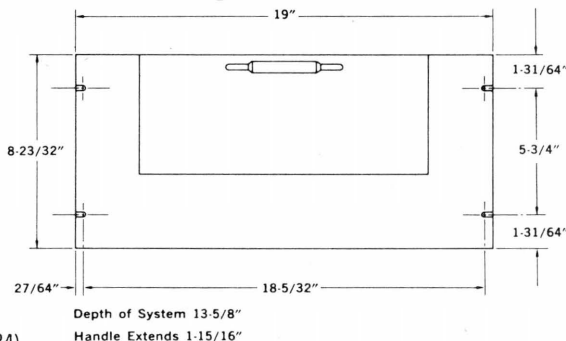
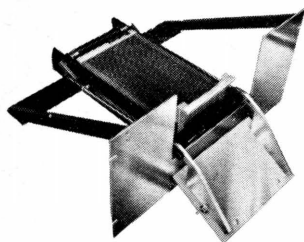
Mounting Dimensions for P3592S System



Tolerances: Decimals ± 0.005 , Fractions $\pm 1/64$

UNIVERSAL RACK MOUNT SYSTEMS

Mounting Dimensions for Universal Rack Mount Systems 680, 816, 1224, and 1632



680 SYSTEM (hole arrangement 20 x 34)

REAR FRAME AND SPRING ASSEMBLY(1)				REMOVABLE PATCHBOARDS					
Board Material	Catalog Number		Net Weight	Board Material	Catalog Number With "D" Holes For Nylon Sleeve Patchcords		Catalog Number With Round Holes For Twin Detent Patchcords		Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring			Unscreened	Standard Screen(2)	Unscreened	Standard Screen(2)	
General Purpose Phenolic	497149-2	497149-6	16 lb., 11 oz.	General Purpose Phenolic	497159-1	497159-3	497159-5	497159-7	1 lb., 7 oz.
Diallyl Phthalate	497149-4	497149-8	16 lb., 10 oz.	Diallyl Phthalate	497159-2	597159-4	497159-6	497159-8	1 lb., 6 oz.

816 SYSTEM (hole arrangement 24 x 34)

REAR FRAME AND SPRING ASSEMBLY(1)				REMOVABLE PATCHBOARDS					
Board Material	Catalog Number		Net Weight	Board Material	Catalog Number With "D" Holes For Nylon Sleeve Patchcords		Catalog Number With Round Holes For Twin Detent Patchcords		Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring			Unscreened	Standard Screen(2)	Unscreened	Standard Screen(2)	
General Purpose Phenolic	497129-2	497129-6	17 lb., 6 oz.	General Purpose Phenolic	497128-1	497128-3	497128-5	497128-7	1 lb., 12 oz.
Diallyl Phthalate	497129-4	497129-8	17 lb., 4 oz.	Diallyl Phthalate	497128-2	497128-4	497128-6	497128-8	1 lb., 10 oz.

1224 SYSTEM (hole arrangement 36 x 34)

REAR FRAME AND SPRING ASSEMBLY(1)				REMOVABLE PATCHBOARDS					
Board Material	Catalog Number		Net Weight	Board Material	Catalog Number With "D" Holes For Nylon Sleeve Patchcords		Catalog Number With Round Holes For Twin Detent Patchcords		Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring			Unscreened	Standard Screen(2)	Unscreened	Standard Screen(2)	
General Purpose Phenolic	497141-2	497141-6	20 lb., 2 oz.	General Purpose Phenolic	497142-1	497142-3	497142-5	497142-7	2 lb., 10 oz.
Diallyl Phthalate	497141-4	497141-8	19 lb., 5 oz.	Diallyl Phthalate	497142-2	497142-4	497142-6	497142-8	2 lb., 7 oz.

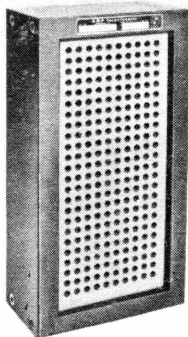
1632 SYSTEM (hole arrangement 48 x 34)

REAR FRAME AND SPRING ASSEMBLY(1)				REMOVABLE PATCHBOARDS					
Board Material	Catalog Number		Net Weight	Board Material	Catalog Number With "D" Holes For Nylon Sleeve Patchcords		Catalog Number With Round Holes For Twin Detent Patchcords		Net Weight
	For Taper Pin Wiring	For Lancelok Terminal Wiring			Unscreened	Standard Screen(2)	Unscreened	Standard Screen(2)	
General Purpose Phenolic	497095-2	497095-6	22 lb., 2 oz.	General Purpose Phenolic	497086-1	497086-3	497086-5	497086-7	3 lb., 5 oz.
Diallyl Phthalate	497095-4	497095-8	21 lb., 14 oz.	Diallyl Phthalate	497086-2	497086-4	497086-6	497086-8	3 lb., 1 oz.

UNIVERSAL FIXED PANELS

(NON-REMOVABLE PATCHBOARDS)

Accept Nylon Sleeve Patchcords



480 PANEL (24 x 20)

Board Material (1 & 8)	CATALOG NUMBER		Net Weight
	For Taper Pin Rear Wiring		
General Purpose Phenolic	595126-2		4 lb., 5 oz.
Diallyl Phthalate	595126-4		4 lb., 3 oz.

120 PANEL (10 x 12)

Board Material (1 & 8)	CATALOG NUMBER		Net Weight
	For Taper Pin Rear Wiring		
General Purpose Phenolic	495255-2		1 lb., 8 oz.
Diallyl Phthalate	495255-4		1 lb., 8 oz.

576 PANEL (24 x 24)

Board Material (1 & 8)	CATALOG NUMBER		Net Weight
	For Taper Pin Rear Wiring		
General Purpose Phenolic	595132-2		4 lb., 10 oz.
Diallyl Phthalate	595132-4		4 lb., 7 oz.

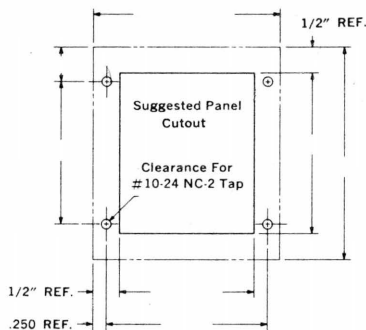
240 PANEL (10 x 24)

Board Material (1 & 8)	CATALOG NUMBER		Net Weight
	For Taper Pin Rear Wiring		
General Purpose Phenolic	595035-2		2 lb., 14 oz.
Diallyl Phthalate	595035-4		2 lb., 13 oz.

816 PANEL (24 x 34)

Board Material (1 & 8)	CATALOG NUMBER		Net Weight
	For Taper Pin Rear Wiring		
General Purpose Phenolic	595051-2		6 lb., 14 oz.
Diallyl Phthalate	595051-4		6 lb., 10 oz.

Mounting Dimensions for 120, 240, 480, 576, and 816 Universal Fixed Panels



Depth of System 2"
Broken Lines Indicate Outside
Dimensions Of System

No. of Contacts and Hole Arrangement	A	B	C	D	E	F	G	H
120 (10 x 12)	3-19/32	4-3/32	3-3/32	3.093	2-19/32	2.750	.671	4 Places 3/8 Deep
240 (10 x 24)	3-7/8	7-7/16	6-7/16	3.375	2-7/8	5.000	1.187	4 Places 1/2 Deep
480 (24 x 20)	7-1/2	6-1/2	5-1/2	7.000	6-1/2	5.000	3/4	4 Places 3/8 Deep
576 (24 x 24)	7-1/2	7-3/32	6-3/32	7.000	6-1/2	4.093	1-1/2	4 Places 2/8 Deep
816 (24 x 34)	7-1/2	10	9	7.000	6-1/2	6.000	2	4 Places 3/8 Deep

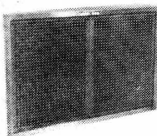
Tolerances: Decimals $\pm .005$, Fractions $\pm 1/64$

UNIVERSAL FIXED PANELS (Cont'd)

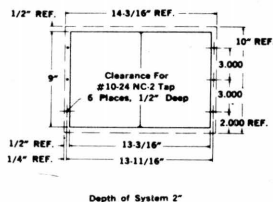
(NON-REMOVABLE PATCHBOARDS)

Accept Nylon Sleeve Patchcords

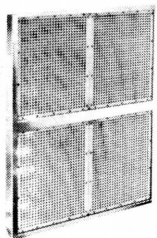
1632 PANEL (48 x 34)



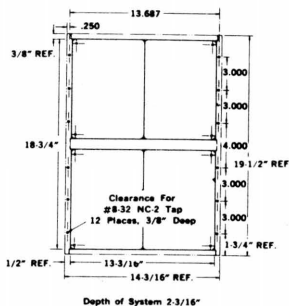
Board Material (1 & 8)	CATALOG NUMBER		Net Weight
	For Taper Pin Rear Wiring		
General Purpose Phenolic	695142-2		13 lb., 4 oz.
Diallyl Phthalate	695142-4		12 lb., 12 oz.



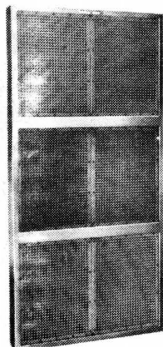
3264 PANEL (48 x 68)



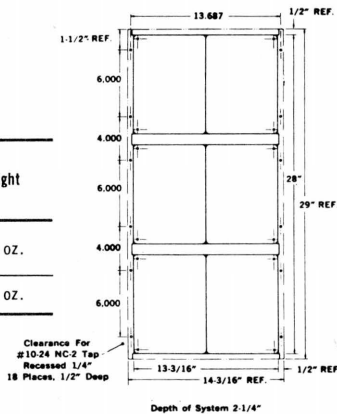
Board Material (1 & 8)	CATALOG NUMBER		Net Weight
	For Taper Pin Rear Wiring		
General Purpose Phenolic	421083-2		20 lb., 13 oz.
Diallyl Phthalate	421083-4		19 lb., 13 oz.



4896 PANEL (48 x 102)



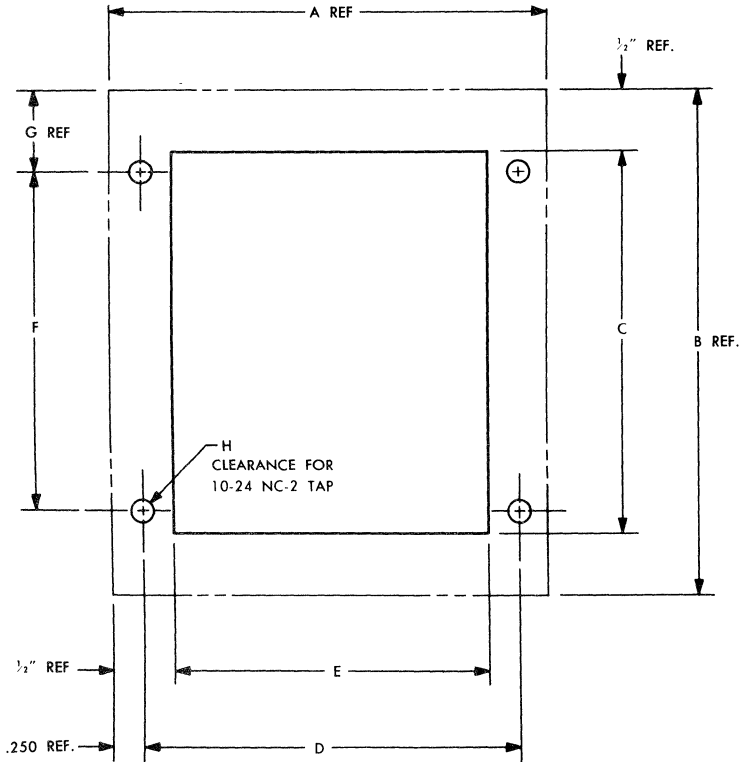
Board Material (1 & 8)	CATALOG NUMBER		Net Weight
	For Taper Pin Rear Wiring		
General Purpose Phenolic	421084-2		30 lb., 9 oz.
Diallyl Phthalate	421084-4		29 lb., 1 oz.



SHIELDED FIXED PANELS (non-removable patchboard)

No. of Contacts and Hole Arrangement	Model Number	Contact Spring Finish	Board Color (Material-Nylon)	Catalog Number For Taper Pin Wiring	Net Weight
25 (5x5)	P24PS	Gold	White	495556-1	1 lb.
			Colored	495556-2	
119 (7x17)	P118PS	Gold	White	595103-1	3 lb , 8 oz.
			Colored	595103-2	
391 (17x23)	P390PS	Gold	White	695061-1	8 lb , 4 oz
			Colored	695061-2	
576 (24x24)	P575PS	Gold	White	695413-1	10 lb , 8 oz.
			Colored	695413-2	

Mounting Dimensions for Shielded Fixed Panels

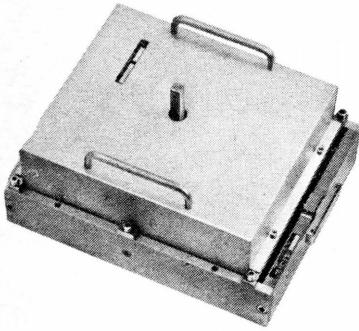


No. of Contacts and Hole Arrangement	A	B	C	D	E	F	G	H
25 (5x5)	2-11/16	2-11/16						4 Places 3/8 Deep
119 (7x17)	3-7/8	7-7/16	6-7/16	3.375	2-7/8	5.000	1.187	4 Places 1/2 Deep
391 (17x23)	7-1/2	10	9	7.000	6-1/2	6.000	2	4 Places 3/8 Deep
576 (24x24)	10-1/16	10-1/16	9-1/16	9.562	9-1/16		6	4 Places 1/2 Deep

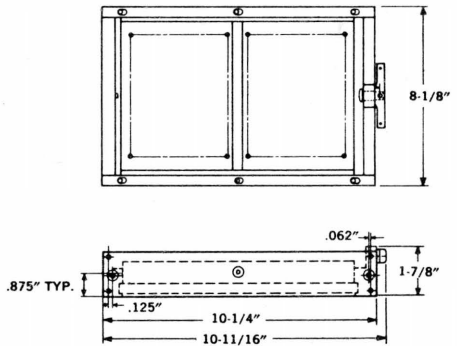
Tolerances Decimals ±.005, Fractions ±1/64

UNIVERSAL ANTI-VIBRATION SYSTEMS

Accept Twin Detent Patchcords



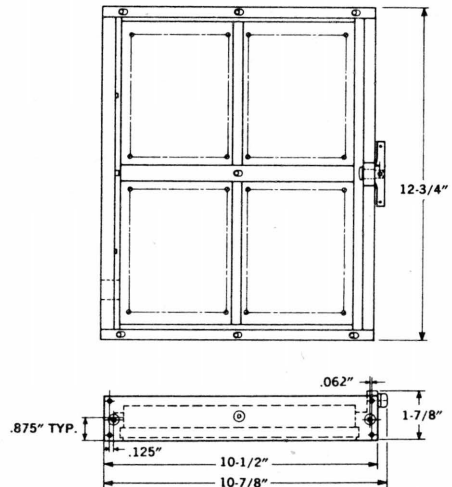
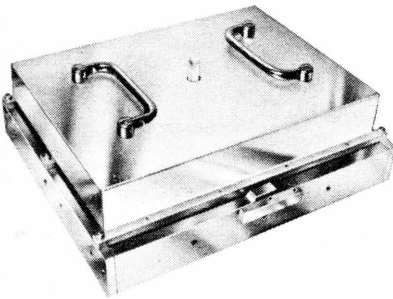
Mounting Dimensions for 806 System



806 SYSTEM (hole arrangement 31 x 26)

REAR FRAME AND SPRING ASSEMBLY ⁽¹⁾			REMOVABLE PATCHBOARDS			DUST COVER		
Board Material	Catalog Number For Lancelok Terminal Wiring	Net Weight	Board Material	Catalog Number	Net Weight	Catalog Number	Material & Finish	Net Weight
Diallyl Phthalate	421299-2	8 lb., 4 oz.	Diallyl Phthalate	421300-2	2 lb., 5 oz.	421301-1	Clear Anodized Aluminum	12-1/2 oz.

Mounting Dimensions for 1280 System

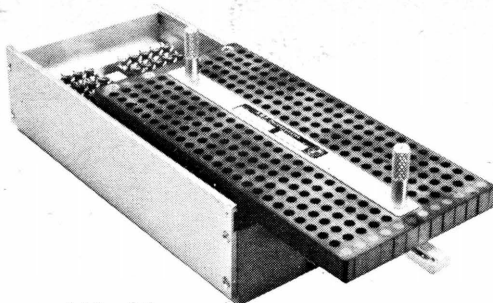


1280 SYSTEM (hole arrangement 32 x 40)

REAR FRAME AND SPRING ASSEMBLY ⁽¹⁾			REMOVABLE PATCHBOARDS			DUST COVER		
Board Material	Catalog Number For Lancelok Terminal Wiring	Net Weight	Board Material	Catalog Number	Net Weight	Catalog Number	Material & Finish	Net Weight
Diallyl Phthalate	421302-2	19 lb.	Diallyl Phthalate	421303-2	6 lb.	421304-1	Stainless Steel	2 lb.

UNIVERSAL AIRBORNE SYSTEMS

Accept Nylon Sleeve Patchcords



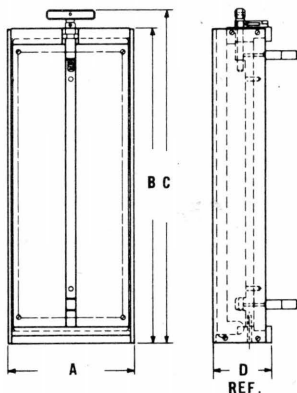
240 SYSTEM (hole arrangement 10 x 24)

REAR FRAME AND SPRING ASSEMBLY ⁽¹⁾			REMOVABLE PATCHBOARDS "D" HOLE FOR NYLON SLEEVE PATCHCORDS			DUST COVER	
Board Material	Catalog Number For Taper Pin Wiring	Net Weight	Board Material	Catalog Number	Net Weight	Catalog Number	Material & Finish
General Purpose Phenolic	595195-2	1 lb., 10 oz.	General Purpose Phenolic	595194-1	10 oz.	595179-1	Aluminum
Diallyl Phthalate	595195-4	1 lb., 10 oz.	Diallyl Phthalate	595194-2	10 oz.	595179-2	Aluminum

408 SYSTEM (hole arrangement 12 x 34)

REAR FRAME AND SPRING ASSEMBLY ⁽¹⁾			REMOVABLE PATCHBOARDS "D" HOLE FOR NYLON SLEEVE PATCHCORDS			DUST COVER	
Board Material	Catalog Number For Taper Pin Wiring	Net Weight	Board Material	Catalog Number	Net Weight	Catalog Number	Material & Finish
General Purpose Phenolic	420848-2	2 lb., 12 oz.	General Purpose Phenolic	420856-1	1 lb., 1 oz.		
Diallyl Phthalate	420848-4	2 lb., 12 oz.	Diallyl Phthalate	420856-2	1 lb., 1 oz.		

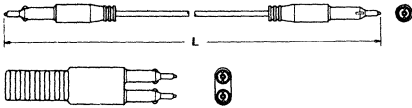
Mounting Dimensions for 240 and 480 Systems



Model and Hole Arrangement	A	B	C	D
240 System (10 x 24)	3-7/16"	7-9/32"	7-27/32"	1-13/16"
408 System (12 x 34)	3-15/16"	9-25/32"	10-11/32"	1-13/16"

UNIVERSAL TWIN DETENT PATCHCORDS

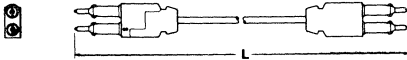
(For use with Round Hole Front Boards only)



FULLY MOLDED SHUNT

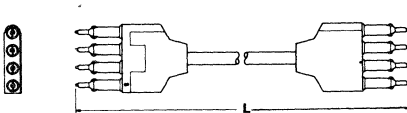
SINGLE CONDUCTOR PATCHCORDS (9)—PVC INSULATED

Length (L)	Catalog No. Manual Type	Catalog No. Semi-Permanent Type	Insulation Color Code
5"	695640-9	595903-9	Red
7"	695640-1	595903-1	Gray
9"	695640-2	595903-2	Blue
11"	695640-3	595903-3	Green
13"	695640-4	595903-4	Yellow
15"	695640-5	595903-5	Orange
19"	695640-6	595903-6	Black
27"	695640-7	595903-7	Brown
35"	695640-8	595903-8	Red
Fully Molded Shunt	397347-1	397348-1	



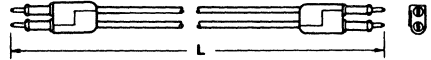
SINGLE CONDUCTOR PLUS SHIELD PATCHCORDS (9)—PVC INSULATED

Length (L)	Catalog No. Manual Type	Catalog No. Semi-Permanent Type	Insulation Color Code
7"	695644-1	695477-1	Gray
9"	695644-2	695477-2	Blue
11"	695644-3	695477-3	Green
13"	695644-4	695477-4	Yellow
15"	695644-5	695477-5	Orange
19"	695644-6	695477-6	Black
27"	695644-7	695477-7	Brown
35"	695644-8	695477-8	Red



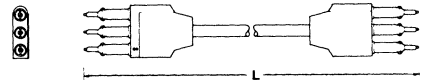
THREE CONDUCTOR PLUS SHIELD PATCHCORDS (9)—PVC INSULATED

Length (L)	Catalog No. Manual Type	Catalog No. Semi-Permanent Type	Insulation Color Code
9"	695641-1	595905-1	Black
11"	695641-2	595905-2	Black
13"	695641-3	595905-3	Black
15"	695641-4	595905-4	Black
19"	695641-5	595905-5	Black
24"	695641-6	595905-6	Black
27"	695641-7	595905-7	Black
40"	695641-8	595905-8	Black



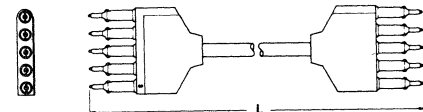
PATCHCORD DUAL CONDUCTOR (9)

Length (L)	Catalog No. Manual Type	Catalog No. Semi-Permanent Type	Insulation Color Code
7"	421100-1	421101-1	Gray & Blk
9"	421100-2	421101-2	Blue & Blk
11"	421100-3	421101-3	Green & Blk
13"	421100-4	421101-4	Yellow & Blk
15"	421100-5	421101-5	Orange & Blk
19"	421100-6	421101-6	White & Blk
27"	421100-7	421101-7	Brown & Blk
35"	421100-8	421101-8	Red & Blk



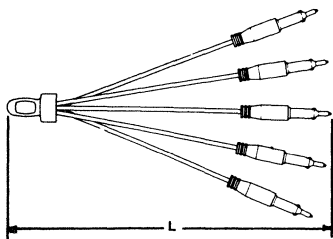
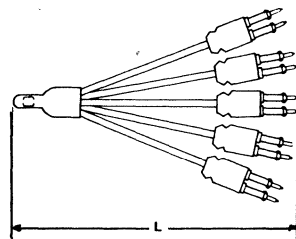
TWO CONDUCTOR PLUS SHIELD PATCHCORDS (9)—PVC INSULATED

Length (L)	Catalog No. Manual Type	Catalog No. Semi-Permanent Type	Insulation Color Code
7"	397351-1	397353-1	Black
9"	397351-2	397353-2	Black
11"	397351-3	397353-3	Black
13"	397351-4	397353-4	Black
15"	397351-5	397353-5	Black
19"	397351-6	397353-6	Black
27"	397351-7	397353-7	Black
35"	397351-8	397353-8	Black
45"	397351-9	397353-9	Black



FOUR CONDUCTOR PLUS SHIELD PATCHCORDS (9)—PVC INSULATED

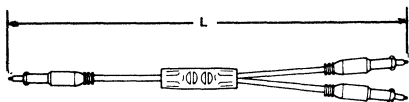
Length (L)	Catalog No. Manual Type	Catalog No. Semi-Permanent Type	Insulation Color Code
9"	397357-1	397359-1	Black
11"	397357-2	397359-2	Black
13"	397357-3	397359-3	Black
15"	397357-4	397359-4	Black
19"	397357-5	397359-5	Black
24"	397357-6	397359-6	Black
27"	397357-7	397359-7	Black
40"	397357-8	397359-8	Black

**SINGLE
CONDUCTOR
& SHIELD SQUIDS**

**SQUID
PATCHCORDS
PVC INSULATED**

SQUID PATCHCORDS (9)—PVC INSULATED

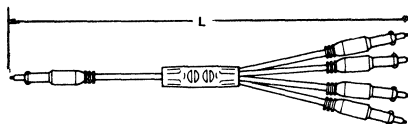
Length (L)	Pin Type	Catalog Numbers						Insulation Color Code
		3 Pin	4 Pin	5 Pin	6 Pin	7 Pin	8 Pin	
3"	Manual	695650-1	397361-1	397362-1	397363-1	397364-1	397365-1	Orange
	Semi-Perm.	695472-1	695769-1	397041-1	397366-1	397367-1	397368-1	
5"	Manual	695650-2	397361-2	397362-2	397363-2	397364-2	397365-2	Red
	Semi-Perm.	695472-2	695769-2	397041-2	397366-2	397367-2	397368-2	
7"	Manual	695650-3	397361-3	397362-3	397363-3	397364-3	397365-3	Gray
	Semi-Perm.	695472-3	695769-3	397041-3	397366-3	397367-3	397368-3	
9"	Manual	695650-4	397361-4	397362-4	397363-4	397364-4	397365-4	Blue
	Semi-Perm.	695472-4	695769-4	397041-4	397366-4	397367-4	397368-4	
11"	Manual	695650-5	397361-5	397362-5	397363-5	397364-5	397365-5	Green
	Semi-Perm.	695472-5	695769-5	397041-5	397366-5	397367-5	397368-5	

SINGLE CONDUCTOR & SHIELD SQUIDS (10)

Length (L)	Pin Type	Catalog Numbers						Insulation Color Code
		3 Legs	4 Legs	5 Legs	6 Legs	7 Legs	8 Legs	
7"	Semi-Perm.	497304-1	497305-1	497321-1	421106-1	497342-1	497340-1	Gray
	Manual	420929-1	421102-1	421103-1	421107-1	421104-1	421105-1	
9"	Semi-Perm.	497304-2	497305-2	497321-2	421106-2	497342-2	497340-2	Blue
	Manual	420929-2	421102-2	421103-2	421107-2	421104-2	421105-2	
11"	Semi-Perm.	497304-3	497305-3	497321-3	421106-3	497342-3	497340-3	Green
	Manual	420929-3	421102-3	421103-3	421107-3	421104-3	421105-3	
13"	Semi-Perm.	497304-4	497305-4	497321-4	421106-4	497342-4	497340-4	Yellow
	Manual	420929-4	421102-4	421103-4	421107-4	421104-4	421105-4	
15"	Semi-Perm.	497304-5	497305-5	497321-5	421106-5	497342-5	497340-5	Orange
	Manual	420929-5	421102-5	421103-5	421107-5	421104-5	421105-5	
19"	Semi-Perm.	497304-6	497305-6	497321-6	421106-6	497342-6	497340-6	Black
	Manual	420929-6	421102-6	421103-6	421107-6	421104-6	421105-6	
27"	Semi-Perm.	497304-7	497305-7	497321-7	421106-7	497342-7	497340-7	Brown
	Manual	420929-7	421102-7	421103-7	421107-7	421104-7	421105-7	


**"Y" PATCHCORD — 3 PIN COMMON
(Semi-Permanent)**

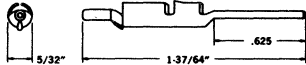
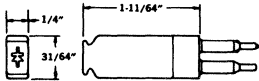
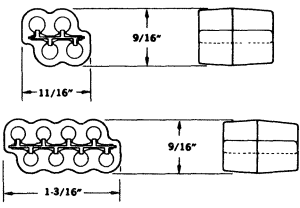
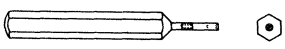
Length in Inches	Pin Finish	Part Number	Insulation Color
9"	Gold	397728-1	Blue
15"	Gold	397728-2	Orange


**"Y" PATCHCORD — 5 PIN COMMON
(Semi-Permanent)**

Length in Inches	Pin Finish	Part Number	Insulation Color
9"	Gold	397733-1	Blue
15"	Gold	397733-2	Orange

ACCESSORIES

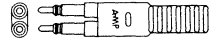
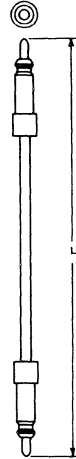
FOR TWIN DETENT PATCHCORDS

	Catalog No.	Finish									
<p>WRAP-TYPE POST ADAPTER For wrap-type connections.</p> 	497474-3	Gold Plated									
<p>DIODE PATCHCORD SHUNT (Semi-Permanent)</p> 	497477	Gold Plated									
<p>COMMONING BLOCK For electrical commoning of two or more patchtips</p> 	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">No. of Holes</th> <th style="text-align: center;">Catalog No.</th> <th style="text-align: center;">Finish</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">397806-1</td> <td style="text-align: center;">Gold Plated</td> </tr> <tr> <td style="text-align: center;">8</td> <td style="text-align: center;">397805-1</td> <td style="text-align: center;">Gold Plated</td> </tr> </tbody> </table>	No. of Holes	Catalog No.	Finish	4	397806-1	Gold Plated	8	397805-1	Gold Plated	
No. of Holes	Catalog No.	Finish									
4	397806-1	Gold Plated									
8	397805-1	Gold Plated									
<p>EXTRACTION TOOL & SPARE TIPS For semi-permanent Twin Detent patchtips (Tip included)</p> 	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Tip Length</th> <th style="text-align: center;">Catalog No.</th> <th style="text-align: center;">Tip No.</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">5/8"</td> <td style="text-align: center;">695880-1</td> <td style="text-align: center;">695879-1</td> </tr> <tr> <td style="text-align: center;">4"</td> <td style="text-align: center;">695880-2</td> <td style="text-align: center;">695879-2</td> </tr> </tbody> </table>	Tip Length	Catalog No.	Tip No.	5/8"	695880-1	695879-1	4"	695880-2	695879-2	
Tip Length	Catalog No.	Tip No.									
5/8"	695880-1	695879-1									
4"	695880-2	695879-2									

UNIVERSAL NYLON SLEEVE PATCHCORDS FOR USE WITH "D" HOLE FRONT BOARDS ONLY

SINGLE CONDUCTOR PATCHCORDS (9)

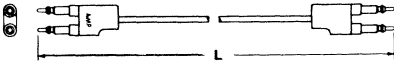
Length (L)	PVC Insulated Catalog No.	Insulation Color
3"	395633-1	Orange
5"	395223-2	Red
7"	395223-3	Gray
9"	395223-1	Blue
11"	395223-4	Green
13"	395223-5	Yellow
15"	395223-6	Orange
19"	395223-7	Black
27"	395223-8	Black
35"	395223-9	Red
Fully Molded Shunt	395481-2	Black
Loop Type Shunt	397298-1	Red



FULLY MOLDED SHUNT

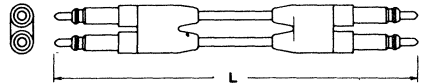


LOOP TYPE SHUNT



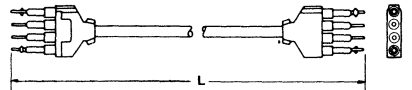
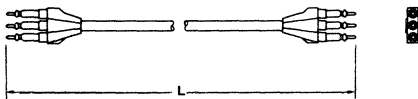
PATCHCORDS (1/4") SINGLE CONDUCTOR (9)—COAXIAL

Length (L)	PVC Insulated Catalog No.	Insulation Color
6"	395575-1	Brown
9"	395575-6	Red
12"	395575-2	Orange
15"	395575-7	Yellow
18"	395575-3	Green
21"	395575-8	Blue
24"	395575-4	Violet
36"	395575-5	Gray
45"	395575-9	White



DUAL CONDUCTOR PATCHCORDS (9)

Length (L)	PVC Insulated Catalog No.	Insulation Color
5"	495753-1	Red
7"	495753-2	Gray
9"	495753-3	Blue
11"	495753-4	Green
13"	495753-5	Yellow
15"	495753-6	Orange
19"	495753-7	Black
27"	495753-8	Black
35"	495753-9	Red

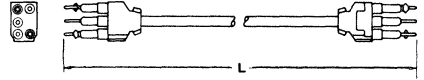
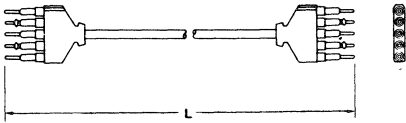


TWO CONDUCTOR PLUS SHIELD PATCHCORDS (10)

Length (L)	PVC Insulated Catalog No.	Insulation Color
7"	497598-1	Black
9"	497598-2	Black
11"	497598-3	Black
13"	497598-4	Black
15"	497598-5	Black
19"	497598-6	Black
27"	497598-7	Black
24"	497598-8	Black
45"	497598-9	Black

THREE CONDUCTOR PLUS SHIELD PATCHCORDS (10) (NON-POLARIZED)

Length (L)	PVC Insulated Catalog No.	Insulation Color
7"	495547-1	Black
9"	495547-2	Black
11"	495547-3	Black
13"	495547-4	Black
15"	495547-5	Black
19"	495547-6	Black
24"	495547-8	Black
27"	495547-7	Black
40"	495547-9	Black

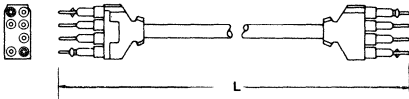


FOUR CONDUCTOR PLUS SHIELD PATCHCORDS (10)

Length (L)	PVC Insulated Catalog No.	Insulation Color
7"	397751-1	Black
9"	397751-2	Black
11"	397751-3	Black
13"	397751-4	Black
15"	397751-5	Black
19"	397751-6	Black
24"	397751-7	Black
27"	397751-8	Black
45"	397751-9	Black

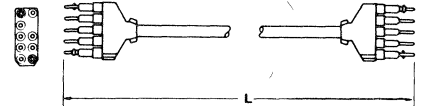
**FOUR CONDUCTOR PLUS SHIELD PATCHCORDS (10)
(DOMINO TYPE)**

Length (L)	PVC Insulated Catalog No.	Insulation Color
9"	495732-4	Black
13"	495732-5	Black
15"	495732-6	Black
19"	495732-1	Black
27"	495732-7	Black
36"	495732-8	Black
40"	495732-2	Black
45"	495732-9	Black
70"	495732-3	Black



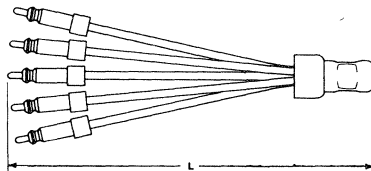
**SIX CONDUCTOR PLUS SHIELD PATCHCORDS (10)
(DOMINO TYPE)**

Length (L)	PVC Insulated Catalog No.	Insulation Color
9"	495733-4	Black
13"	495733-5	Black
15"	495733-6	Black
19"	495733-1	Black
27"	495733-7	Black
36"	495733-8	Black
40"	495733-2	Black
45"	495733-9	Black
70"	495733-3	Black



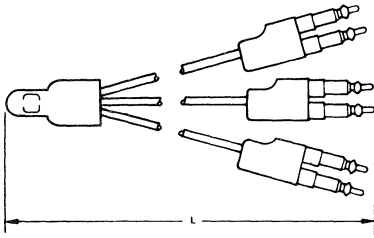
**EIGHT CONDUCTOR PLUS SHIELD (10)
(DOMINO TYPE)**

Length (L)	PVC Insulated Catalog No.	Insulation Color
12"	397679-1	Black
18"	397679-2	Black
24"	397679-3	Black
36"	397679-4	Black
48"	397679-5	Black



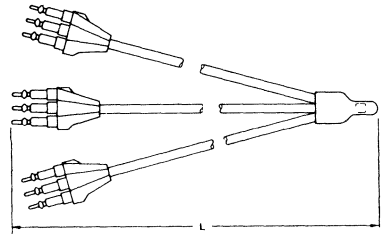
SQUID PATCHCORDS—(PVC INSULATED)—(10)

Length (L)	Catalog Number								Insulation Color
	3 Pin Common	4 Pin Common	5 Pin Common	6 Pin Common	7 Pin Common	8 Pin Common	9 Pin Common	10 Pin Common	
3"	495296-1	495297-1	495298-1	495299-1	495300-4	495301-4	495302-5	495303-4	Orange
5"	495296-6	495297-3	495298-3	495299-3	495300-5	495301-5	495302-4	495303-5	Red
7"	495296-5	495297-4	495298-4	495299-5	495300-1	495301-1	495302-1	495303-1	Gray
9"	495296-3	495297-2	495298-5	495299-4	495300-2	495301-2	495302-2	495303-2	Blue
11"	495296-2	495297-5	495298-2	495299-6	495300-3	495301-3	495302-3	495303-3	Green



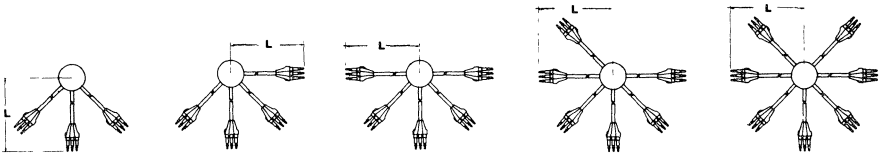
SINGLE CONDUCTOR PLUS SHIELD (10)—3 LEGS

Length (L)	Catalog No.	Insulation Color
11"	695786-1	Orange
16"	695786-2	Yellow



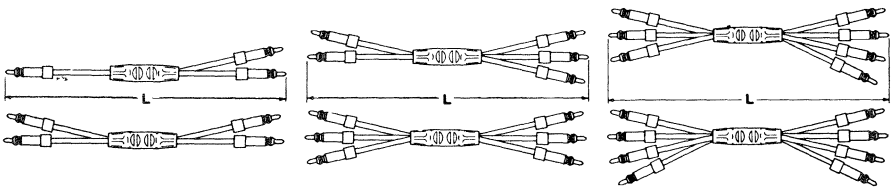
TWO CONDUCTOR PLUS SHIELD (10)—3 LEGS

Length (L)	Catalog No.	Insulation Color
7"	695793-1	Black
9"	695793-2	Black
11"	695793-3	Black
13"	695793-4	Black
16"	695793-5	Black
19"	695793-6	Black
27"	695793-7	Black
24"	695793-8	Black
45"	695793-9	Black



BALL SQUID TWO CONDUCTOR AND SHIELDED (10)

Length (L)	3 Legs	4 Legs	5 Legs	6 Legs	7 Legs	Color Of Ball
16"	497487-1	497488-1	497489-1	497490-1	497491-1	Orange
16"	497487-2	497488-2	497489-2	497490-2	497491-2	Yellow
16"	497487-3	497488-3	497489-3	497490-3	497491-3	Blue
16"	497487-4	497488-4	497489-4	497490-4	497491-4	Green
16"	497487-5	497488-5	497489-5	497490-5	497491-5	Red
27"	497487-6	497488-6	497489-6	497490-6	497491-6	Blue

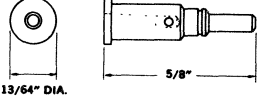
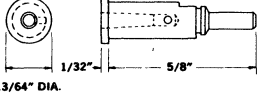
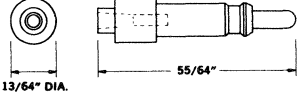
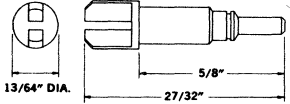
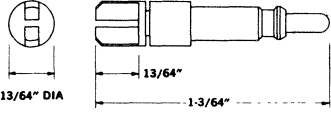
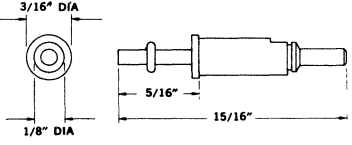
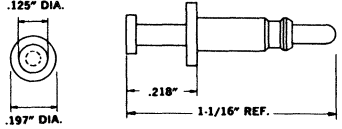
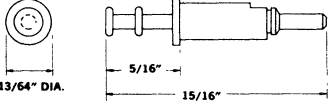


"Y" PATCHCORDS (10)—(PVC INSULATED)

Length (L)	Catalog Number						Insulation Color
	3 Pin Common	4 Pin Common	5 Pin Common	6 Pin Common	7 Pin Common	8 Pin Common	
7"	495396-1	495397-1	495398-1	495399-1	495400-1	495401-1	Grey
9"	495396-2	495397-2	495398-2	495399-2	495400-2	495401-2	Blue
11"	495396-3	495397-3	495398-3	495399-3	495400-3	495401-3	Green
13"	495396-4	495397-4	495398-4	495399-4	495400-4	495401-4	Yellow
15"	495396-5	495397-5	495398-5	495399-5	495400-5	495401-5	Orange
19"	495396-6	495397-6	495398-6	495399-6	495400-6	495401-6	Black
27"	495396-7	495397-7	495398-7	495399-7	495399-7	495401-7	Black

ACCESSORIES

FOR NYLON SLEEVE PATCHBOARDS

	Catalog No.	Finish
<p>UNINSULATED TAPER PIN ADAPTER ("C" Washer Retention) Accepts Series 53 Taper Pins</p>	 <p style="text-align: center;">13/64" DIA.</p>	<p>395511-2</p> <p>Gold Plated</p>
<p>UNINSULATED TAPER PIN ADAPTER (Non-Rotating "C" Washer Retention) Accepts Series 53 Taper Pin</p>	 <p style="text-align: center;">13/64" DIA.</p>	<p>395552-2</p> <p>Gold Plated</p>
<p>INSULATED TAPER PIN ADAPTER Accepts Series 53 Taper Pin (Can be post-patched)</p>	 <p style="text-align: center;">13/64" DIA.</p>	<p>395187-2</p> <p>Gold Plated</p>
<p>UNINSULATED EDGE CONNECTOR ADAPTER ("C" Washer Retention) For Soldered Connections Where Wrapping the Conductor is Impractical</p>	 <p style="text-align: center;">13/64" DIA.</p>	<p>395516-2</p> <p>Gold Plated</p>
<p>INSULATED EDGE CONNECTOR ADAPTER For Soldered Connections Where Wrapping the Conductor is Impractical (Can be post-patched)</p>	 <p style="text-align: center;">13/64" DIA.</p>	<p>395647-2</p> <p>Gold Plated</p>
<p>UNINSULATED TURRET LUG ADAPTER, SINGLE TURRET (Non-Rotating "C" Washer Retention) For Soldered Connections</p>	 <p style="text-align: center;">3/16" DIA</p> <p style="text-align: center;">1/8" DIA</p>	<p>395938-2</p> <p>Gold Plated</p>
<p>INSULATED TURRET LUG ADAPTER, SINGLE TURRET (Can be post-patched) For Soldered Connections</p>	 <p style="text-align: center;">.125" DIA.</p> <p style="text-align: center;">.197" DIA.</p>	<p>421111-2</p> <p>Gold Plated</p>
<p>UNINSULATED TURRET LUG ADAPTER, DOUBLE TURRET (Non-Rotating "C" Washer Retention) For Soldered Connections</p>	 <p style="text-align: center;">13/64" DIA.</p>	<p>395645-2</p> <p>Gold Plated</p>

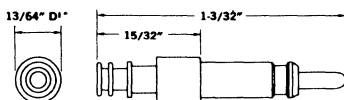
NOTE: "C" Washer No. 395544

Catalog No.

Finish

**INSULATED TAPER PIN
TURRET LUG ADAPTER**

(Can be post-patched)
For Soldered Connections or
Series 53 Taper Pin,
or Combination of Both

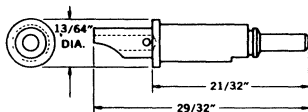


495839-2

Gold Plated

**UNINSULATED
SOLDER TUBE ADAPTER**

(Non-Rotating
"C" Washer Retention)
For Soldered Connection
with Larger Conductors

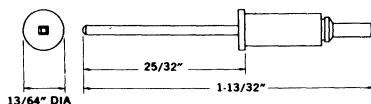


395809-2

Gold Plated

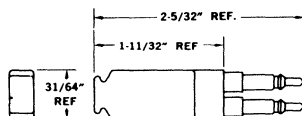
WRAP-TYPE POST ADAPTER

(Non-Rotating
"C" Washer Retention)
For wrap-type connections.



397550-2

Gold Plated

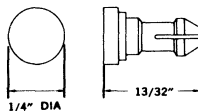
RESISTOR PLUG

595680

Gold Plated

MARKER PLUG

For temporary marking of patchcord
hole, aluminum marker plug is inserted in
contact hole in front board assembly.

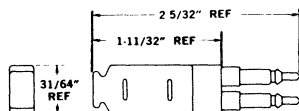


395348-1

White Top

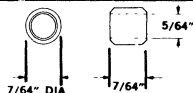
DIODE PLUG

Anode—White Sleeve
Cathode—Red Sleeve
Nylon Sleeves



595857-1

Gold Plated

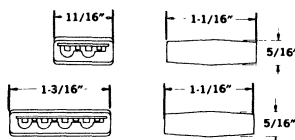
**BUSHING FOR
PERMANENT PATCHING**

395149-1

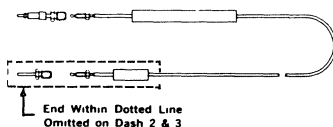
Red Nylon

COMMONING BLOCK

For Electrical Commoning
of Two or More Patchtips



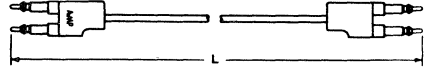
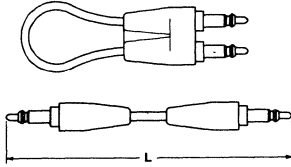
No. of Holes	Catalog No.	Finish
4	495894-1	Gold Plated
8	495895-1	Gold Plated

TEST PROBE ASSEMBLY

Catalog No.	Length	Color
397029-1	72"	Black
397029-2	48"	Black
397029-3	48"	Red
397029-4	48"	Black
397029-5	48"	Red

NOTE: "C" Washer No. 395544

COAXIAL PATCHCORDS FOR SHIELDED PATCHBOARDS

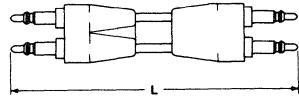
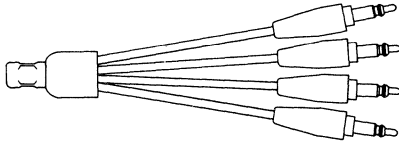


SINGLE CONDUCTOR COAXIAL PATCHCORDS (10)

Length (L)	Catalog No.	Insulation Color
6"	395221-1	Brown
9"	395221-6	Red
12"	395221-2	Orange
15"	395221-7	Yellow
18"	395221-3	Green
21"	395221-8	Blue
24"	395221-4	Violet
36"	395221-5	Grey
Shunt Coaxial	395219-2	Brown

DUAL TIP SINGLE CONDUCTOR COAXIAL PATCHCORDS (3/8") (10)

Length (L)	Catalog No.	Insulation Color
6"	395220-1	Brown
9"	395220-6	Red
12"	395220-2	Orange
15"	395220-7	Yellow
18"	395220-3	Green
21"	395220-8	Blue
24"	395220-4	Violet
36"	395220-5	Grey



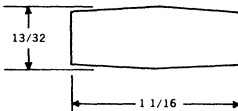
DUAL CONDUCTOR COAXIAL PATCHCORDS (10)

Length (L)	Catalog No.	Insulation Color
6"	395577-1	Brown
9"	395577-6	Red
12"	395577-2	Orange
15"	395577-7	Yellow
18"	395577-3	Green
21"	395577-8	Blue
24"	395577-4	Violet
36"	395577-5	Grey

COAXIAL SQUID PATCHCORDS—(GOLD CONTACT) (10)

Length (L)	Catalog Number						Insulation Color
	3 Pin Common	4 Pin Common	5 Pin Common	6 Pin Common	7 Pin Common	8 Pin Common	
6"	495364-1	495365-1	495366-1	495367-1	495368-1	495369-1	Brown
9"	495364-2	495365-2	495366-2	495367-2	495368-2	495369-2	Red
12"	495364-3	495365-3	495366-3	495 67-3	495368-3	495369-3	Orange
15"	495364-4	495365-4	495366-4	495367-4	495368-4	495369-4	Yellow
18"	495364-5	495365-5	495366-5	495367-5	495368-5	495369-5	Green
21"	495364-6	495365-6	495366-6	495367-6	495368-6	495369-6	Blue
24"	495364-7	495365-7	495366-7	495367-7	495368-7	495369-7	Violet
30"	495364-8	495365-8	495366-8	495367-8	495368-8	495369-8	White

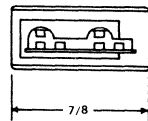
ACCESSORIES



COAXIAL COMMONING BLOCK

#495951-2

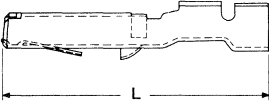
(4 Holes—Gold Finish)



INSTALLATION WIRING FOR UNIVERSAL AND SHIELDED PATCHBOARDS

IMPORTANT—The selection of rear board wiring (either LANCELOK terminals or taper pin terminals) must coincide with the selection of the rear boards. LANCELOK terminals will not mate with rear boards that accept taper pin terminals and vice versa. The correct part number is assurance against mis-mating.

UNINSULATED—FORMED (11)

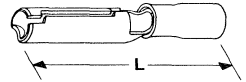


Wire Size	Catalog Number	Insulation Dia. Range	Overall Length (L)	Hand Tool	AMP-TAPEMATIC*	
					Tools 69359-2 69370 and 69332	Extraction Tool
					Die Number	
24-20	2-328969-1	.065-.080	.781	69323	69416	69261-1
	330371	.040-.065	.781	69323	69415	69261-1
18-16	329321	.100-.130	.812	69323	69418	69261-1
	330370	.075-.100	.812	69323	69417	69261-1

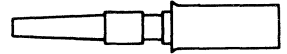
LANCELOK TERMINALS

PRE-INSULATED—FORMED (11)

Wire Size	Catalog Number	Insulation Dia. Range	Overall Length (L)	Hand Tool	AMP-TAPEMATIC	
					Tools 69118, 69290, 69359-2 69370 & 69332	Extraction Tool
					Die Number	
24-22	329317	.040-.080	.875	69256	69345	69261-1
20-18	329334	.060-.090	.875	69257	69346	69261-1
16	329335	.080-.110	.937	69258	69347	69261-1



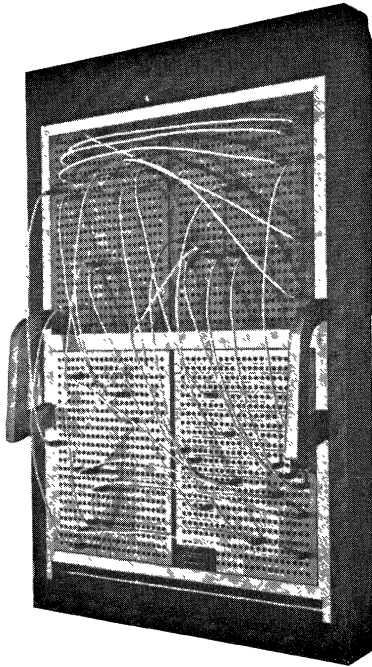
TAPER PINS



PRE-INSULATED—SOLID LONG SHOULDER PINS (12)

PIN INFORMATION					TOOLING INFORMATION			
Wire Size	Catalog Number	Insulation Dia. Range	Nylon Insulation Color Code	Overall Length	Double Action Hand Tool (13)	69118-1 AMP-TAPEMATIC Tool Die Number	69365 and 69319-1 Tool Die Number	Pull Test Insertion Tool (14)
26	66059-3	.040-.080	Blue	.830	46222-SH 90015-LH	45306	690010	497652-3
	66129-3	.080-.115	Black	.850	46223-SH 90016-LH	45305	690011	497652-3
24-22	42633-3	.040-.080	Yellow	.830	46222-SH 90015-LH	45306	690010	497652-3
	66070	.080-.115	Black	.850	46223-SH 90016-LH	45305	690011	497652-3
20-18	42634-3	.060-.100	Natural	.850	46223-SH 90016-LH	45305	690011	497652-3
16	42646-3	.080-.115	Black	.850	46223-SH 90016-LH	45305	690011	497652-3

COAXIAL PATCHCORD PROGRAMMING SYSTEMS§



The A-MP* Coaxial Programming System brings a new high in operational parameters to the diverse and versatile line of A-MP programming devices. The industry's trend toward higher frequencies and greater noise reduction in complex circuitry predicates an increased use of coaxial cable. Most sophisticated equipment has programming requirements, and therein lies the requisite for coaxial programming capabilities.

Developed for critical, low-level applications, the A-MP Coaxial Programming System eliminates the need to change a series of individual or multiple coaxial connectors, and reduces complex switching to the mere changing of a removable program patchboard.

Available in various sizes, the Coaxial Programming System is comprised of a rear-frame assembly and a removable patchboard. The rear-frame assembly consists of a lightweight metal frame, housing a molded board containing individual coaxial spring contacts. One-crimp coaxial contacts are used to connect the system with the internal wiring of the electronic equipment. A camming mechanism in the frame provides AMP's patented double-wiping action. This action removes foreign material from the surfaces of the rear-frame spring contacts and patchcord tips and assures reliable electrical contact. The molded removable front patchboard accepts coaxial patchcords available in various lengths.

FEATURES

- Individual coaxial contacts
- Three standard sizes: 506, 1012, 2024
- AMP gold over nickel plating
- Voltage standing wave ratio (VSWR)—1.2 maximum from DC to 100 megacycles
- Post patching capability
- Adjacent circuit cross talk—60db from DC to 100 megacycles
- Exclusive contact double wiping action
- Redundant contacts (center contact and shield)
- .375 x .270 contact spacing
- Molded boards—diallyl phthalate or proved equivalent

SPECIFICATIONS

FRONT BOARD ASSEMBLIES

MATERIALS

Patchboards are available in blue diallyl phthalate per MIL-M-14F, type S.D.G. Patchcord receptacles are made of steel per MIL-S-8143 with .00010" nickel over .000050" copper.

All aluminum parts are gold or black anodized per MIL-A-8265, Type 1. All stainless steel parts are passivated per MIL-F-14072-E300. All cold rolled steel parts have black oxide coating per MIL-C-13924, Class 1 with a supplementary treatment of aqualac #3.

TEMPERATURE RANGE: -40°F to $+176^{\circ}\text{F}$

Assemblies with or without standard silk screened yellow and natural colored checkerboard pattern and alpha-numeric legend are available. If non-standard checkerboard pattern and alpha-numeric legend are desired contact us for complete details.

Name Plates have nomenclature in accordance with MIL Std. #130.

REAR BAY ASSEMBLIES

MATERIALS

Patchboards are available in blue diallyl phthalate per MIL-M-14F, type S.D.G.

All aluminum parts are gold or black anodized per MIL-A-8625, type 1. All stainless steel parts are passivated per MIL-F-14072-E300. All cold rolled steel parts have black oxide coating per MIL-C-13924, class 1 with a supplementary treatment of aqualac #3.

Contact receptacles are made of fine grain $\frac{1}{2}$ hard beryllium copper per Federal Specifications QQ-C-533 with .000060" minimum gold over .00010" minimum nickel on contact surface per MIL-G-45204, type II, class 1.

TEMPERATURE RANGE: -40°F to $+176^{\circ}\text{F}$

ELECTRICAL CHARACTERISTICS

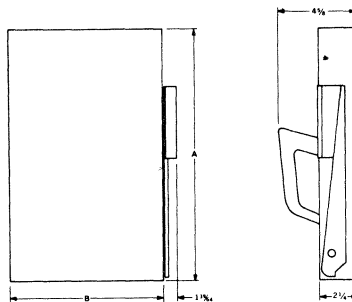
Each contact is individually shielded between center conductor and shield, the insulation resistance between center conductor and shield is 10^9 ohms minimum. Between adjacent contacts the resistance is 10^{12} ohms for diallyl phthalate boards.

V.S.W.R.—Maximum of 1.2 for frequencies up to 100 megacycles using RG-174/U cable. Cross-Talk—Maximum between adjacent circuits is -60db at frequencies up to 100 megacycles using RG-174/U cable.

Contact Resistance—Maximum between patchcord pin and spring contact at an ambient temperature of 68°F is 10 milliohms for gold over nickel plated spring contacts.

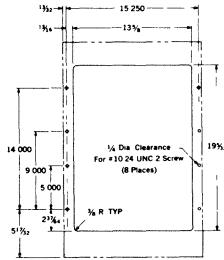
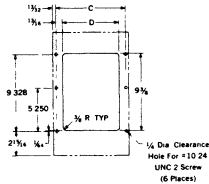
Current Rating—Maximum allowable continuous current is 1 ampere per contact spring in an ambient temperature of 68°F during non-switching conditions, that is, not during make and break of pin and contact.

REAR FRAME ASSEMBLIES AND REMOVABLE PATCHBOARDS



No. of Contacts and Hole Arrangement	Board Material	Rear Frame Assembly			Removable Patchboard			Dimensions	
		Catalog Numbers		Approx. Weight	Catalog Numbers		Approx. Weight	A	B
		Unscreened	Standard Screen		Unscreened	Standard Screen			
506 (22x23)	Diallyl Phthalate	422591-2	422591-4	14 lb.	422592-2	422592-4	4 lb., 6 oz.	15	9-13/64
1012 (44x23)		422629-2	422629-4	20 lb.	422630-2	422630-4	6 lb., 4 oz.	15	15-61/64
2024 (44x46)		422608-2	422608-4	32 lb.	422609-2	422609-4	12 lb.	24-13/16	15-61/64

SUGGESTED PANEL CUTOUT



506 SYSTEM—C=8.500
D=6 7/8

1012 SYSTEM—C=15.250
D=13 5/8

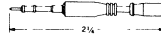
PATCHCORDS



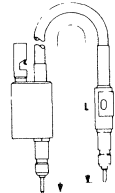
Length (L)	Insulation Color	Catalog Numbers Manual
6"	Brown	422410-1
9"	Red	422410-2
12"	Orange	422410-3
15"	Yellow	422410-4
18"	Green	422410-5
19"	Black	422410-9
21"	Blue	422410-6
24"	Violet	422410-7
36"	Gray	422410-8

2024 SYSTEM

SHORTING PLUG



CATALOG NO. 422671-1
Red Insulation



COMMING ADAPTER

Wire Color	Length	Catalog Number
Brown	6"	422639-1
Red	9"	422639-2
Orange	12"	422639-3
Yellow	15"	422639-4
Green	18"	422639-5
Blue	21"	422639-6
Violet	24"	422639-7
White	27"	422639-8

REAR BOARD TERMINALS



SELECTION CHART FOR COAXIAL CABLE

RG/U Cable Number	Inner Conductor		Jacket O.D.	Dielectric O.D. Max.	Kit* No.	Terminal No.	Ferrule No.	Tool No.
	AWG	Max. Dia.						
58, 58A, 58B, 58C	22-20	.0375	.187-.199	.119	422395-3	422397-1	421443-1	45740
174, 188	26-22	.029	.095-.110	.063	422392-2	422388-1	421427-1	45609
178, 178A, 196	32-26	.018	.072-.085	.063	422390-1	422386-1	421440-1	69147-2
179A, 187	32-26	.018	.095-.110	.063	422392-1	422386-1	421440-1	45638
180, 180A, 195	32-26	.018	.137-.155	.119	422394-1	422396-1	421442-1	45639

SELECTION CHART FOR VARIOUS MANUFACTURERS' CABLES

Inner Conductor	Jacket O.D.	Dielectric O.D. Max.	Kit* No.	Terminal No.	Ferrule No.	Tool No.	
							AWG	Max. Dia.
22-20	.0375	.095-.110	.063	422392-3	422389-1	421440-1	45638
		.122-.133	.119	422393-2	422397-1	421441-1	69360-2
		.137-.155	.119	422394-3	422397-1	421442-1	45639
26-22	.029	.072-.085	.063	422391-1	422387-1	421440-1	69147-2
		.137-.155	.119	422394-2	422398-1	421442-1	45639
		.187-.199	.119	422395-2	422398-1	421443-1	45740
32-26	.018	.122-.133	.119	422393-1	422396-1	421441-1	69360-2
		.187-.199	.119	422395-1	422396-1	421443-1	45740

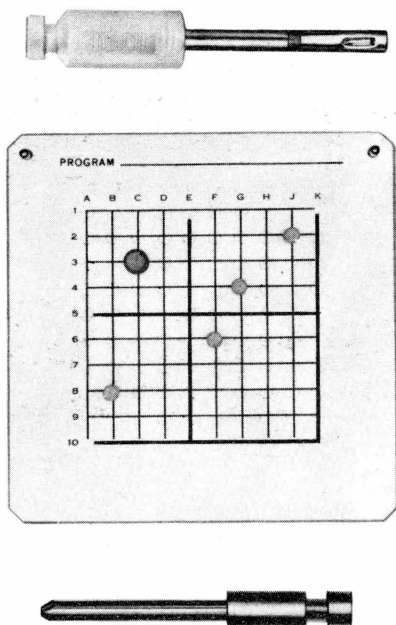
*Kit includes terminal, ferrule and shield clip.

TOOLING

A-MP Compression Crimp tooling features a centering device which permits the tool to align the contact. Uniform crimping action is assured through precision control of the CERTI-CRIMP* ratchet device which only releases when crimping dies have fully bottomed.



A-MP* MATRIX AND UNIVERSAL PINBOARDS §



INTRODUCTION TO PINBOARDS

Present day availability of programming devices cover the broad range from simple toggle switches to complex patchcord programming systems. Found in many types and sizes to satisfy the design and performance requirements of the equipments in which they are used, these types, nevertheless, indicated a need for a different manual programming method. More specifically, simplification was called for—an approach that would combine the ease of operation of the toggle switch with the flexibility of the patchcord system.

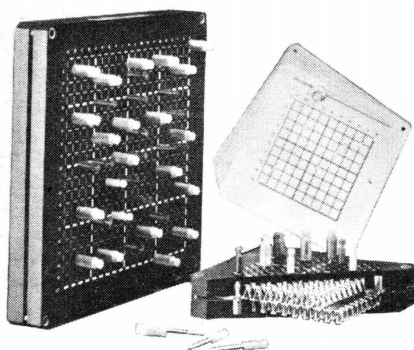
In this brochure, we introduce a method of programming which is extremely flexible without being complicated—Pinboard Programming. With this method, the programming operation is completed with the insertion or extraction of specially designed pins. Versatility of the device is then extended through the use of diode pins which prevent unwanted outputs and circuit interactions by limiting current flow in one direction.

Two basic SYSCOM* pinboard systems that complement each other are now available: (1) A-MP Matrix Pinboards, (2) A-MP Universal Pinboards. Both represent high programming speed as well as simplification. Both open the way to many programming possibilities that approach the flexibility of patchcord systems. Both yield greater density than most systems, and offer maximum convenience and reliability. And both cost considerably less than more involved systems.

Specifically, the A-MP Matrix Pinboard lends itself to matrix switch applications and other uses requiring the interposition of varied electronic components within the matrix. The A-MP Universal type pinboard, on the other hand, is recommended for non-matrix and non-component type applications, and is ideal for more complex switching functions.

The physical characteristics and performance data for each follow in proper sequence.

MATRIX PINBOARDS



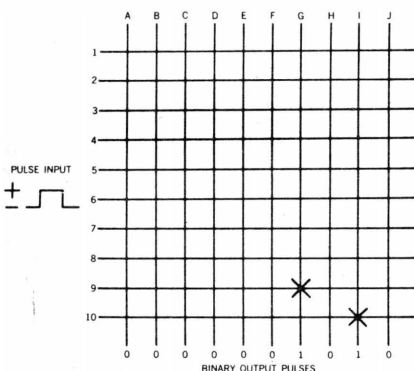
REPRESENTATIVE MATRIX PINBOARD APPLICATIONS

The application possibilities for A-MP Matrix Pinboards cover a wide area and include such diverse examples as:

- Digital Memories
- Sequencing Devices
- Communications Systems
- Data Processing Systems
- Automated Process Control
- Analog Function Generators
- Input-Output Switching
- Instrumentation
- Vending Machines
- Test Equipment Programming

The applications discussed below are typical examples of how Matrix Programming Systems reduce switching complexity and provide programming convenience that contributes greatly to increased reliability and cost-saving through reduced expenditures of time and effort.

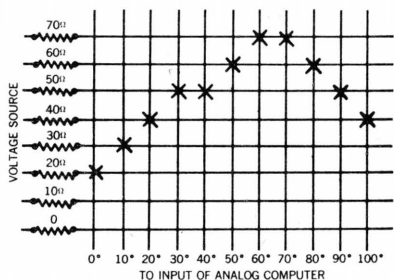
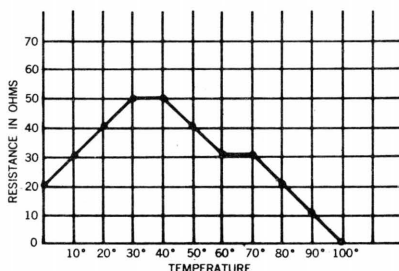
DIGITAL MEMORY



Where high-speed memory changes are not required, the A-MP Matrix Pinboard serves effectively as a simplified memory device in

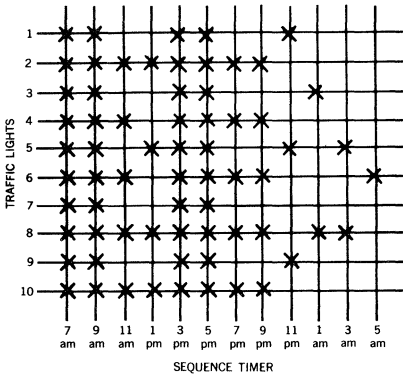
computers. The bit of binary information is expressed by the presence or absence of the pin installed in the board. The insertion of the pin causes current to flow and thus creates the pulse. As will be noted in the accompanying illustration, when the pin is inserted, the pulse appears at the output. Here two pins have been inserted to produce pulse outputs on lines "I" and "G". The presence of these two pulses corresponds to the binary number 1010 which is 10 in the decimal system. Any 10 digit binary number can thus be produced at the output of this pinboard.

FUNCTIONAL GENERATORS



Variations of the standard graph illustrated here can be duplicated by the use of a pinboard. The variable factors are represented by different values of resistors connected to one side of the pinboard; temperature factors are similarly represented on the other side of the pinboard. Connecting the resistors to the pinboard causes a specific voltage drop across each resistor. The voltage on each horizontal contact strip then differs, depending on the value of the resistor involved and the voltage developed. Insertion of the pins in the proper holes of the pinboard produces the effect of a specific level of resistance to the input of the analog computer. In scanning the vertical contact strips (0 to 100) the computer receives incremental voltage values that vary in exactly the same way as the original resistance graphic representation.

SEQUENCING

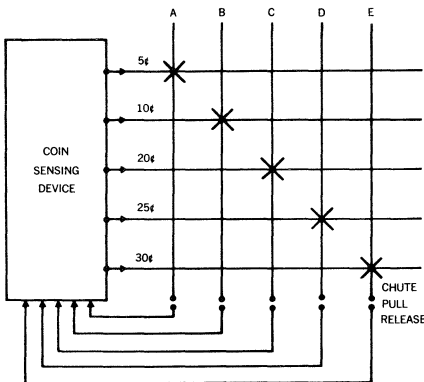


A-MP Matrix Pinboards provide an ideal sequential programming device for use with a scanner. Input data is connected to contact strips running in one direction of the pinboard; all other strips running in the other direction, are connected to the scanner. Scanning data obtained is determined by the pin position.

A good example of sequencing is the pinboard programming of traffic control devices. The accompanying illustration shows that the automatic operation of traffic lights is connected to the lines representing the horizontal contact strips of the pinboard.

Vertical strips are connected to a sequence timer (scanner) which operates at fixed intervals. The insertion of a pin at the cross points of traffic lights and time intervals, activates the light when the timer scans that position. The pinboard offers the flexibility needed to accommodate rush-hour or slack-period traffic by the mere addition or removal of pins.

AUTOMATIC VENDING MACHINE OPERATION



This illustration shows a typical pinboard application in automatic vending machines. It functions ideally in machines where the price range of items is subject to frequent change. In such cases, the coin sensing device produces a voltage on the pinboard horizontal contact strip corresponding to the amount of money made available. The presence of a pin at the intersection of the horizontal (money) and the vertical (item) strips allows the circuit to be completed when the chute release for that item is pulled. Then the product is dispensed. The circuit is completed only when the coin sensing voltage is present on the correct horizontal contact strip for the price of the item.

INPUT-OUTPUT SWITCHING

The A-MP Matrix Pinboard is perfectly suited to any application that demands simple input-output switching arrangements. By connecting inputs to the horizontal strips and outputs to the vertical contact strips, it is possible to connect any input to any output. It is also possible to connect all inputs to the one output or all output and inputs together. Diode pins are used to prevent circuit interactions.

Matrix Pinboards are also extremely useful for programming automated industrial processes. They can be used to perform many functions in automatic control systems. All variable functions in numerous processes can be programmed on a pinboard. Location of the pins determines the exact operations performed at any time interval.

A machine tool can be pinboard-programmed using pins to select various operating functions. When, for example, the electric motor driving the drill head is connected to a vertical bus on a pinboard, and the voltage required to produce various drill (motor) speeds are connected to horizontal bus strips, a particular drill speed can be selected by inserting a pin into the proper voltage hole. In like manner, coolant flow and many other tool operations can be easily controlled through the same procedure.

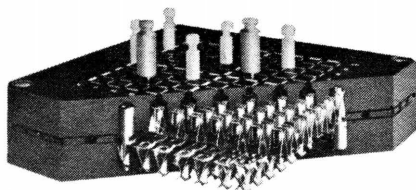
CONSTRUCTION

The basic Pinboard is a sandwich design made up of two honeycombed phenolic blocks. Continuous contact strips arranged on X and Y coordinates are separated by an insulating board, to prevent inadvertent shorting of the contact strips. Figure "A" is a cutaway view of a typical Matrix Pinboard. The X and Y contact strips are connected by inserting either a shorting or diode type pin into holes in the face of the board. All parts are precision made to provide a durable, rigidly constructed, smoothly finished product.

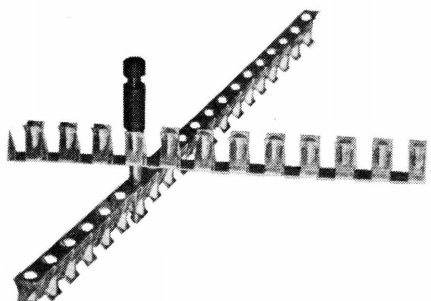
CONTACT STRIPS

The contact strips are made of fine-grain brass springs that provide excellent mechanical and electrical properties. The spring contacts are bifurcated, providing multiple areas of contact between contact springs and shorting or diode pins, to insure added reliability. Gold over nickel contact strips are recommended for applications where circuit voltages are less than

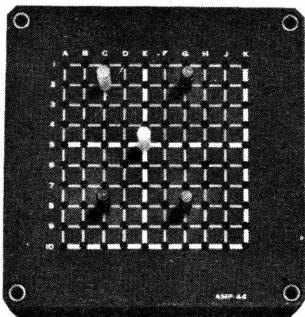
20 volts and where repeatable contact resistance is desired. Nickel-plated contact strips, also available, are suitable only for applications above 20 volts. The rounded opening or "funnel" design on each contact spring serves as a guide in inserting alignment of pins with the bottom contact springs, and prevents malfunction. Figure "B" shows the bus-spring construction.



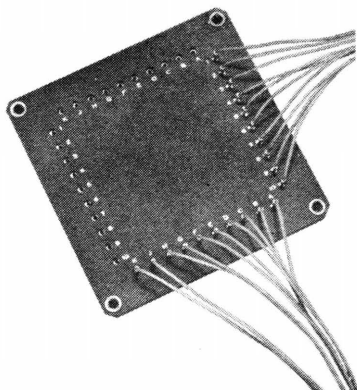
A—The circuit assembly of the A-MP Matrix Pinboard consists of bus-type continuous contact springs arranged on X and Y coordinates. The X and Y strips are separated by a perforated insulating board.



B—The pin makes contact inside the pinboard with both sets of contact strips. Any two circuits can be joined by inserting a pin where the contact strips cross. The exact position of the pin and contact strips is shown here with the board material removed.



C—Programming changes are conveniently made by changing pins on A-MP Matrix Pinboards. The unit shown here is a 10 x 10 pinboard which provides a total of 100 holes.



D—All connections to the vertical and horizontal contact strips of a pinboard are made with Series "53" Taper Pins as shown here. Two receptacles, one on each end of the board, are provided for each contact strip on standard sizes.

CIRCUIT IDENTIFICATION

The smooth front face of all A-MP Pinboards can be readily silk-screened with either standard or custom patterns for rapid identification of pin holes. The standard silk screening is enamel baked on, in temperature-controlled ovens, to insure maximum resistance to wear and chipping. **Letters of the standard screen designate the vertical contact strips located in the rear block whereas numbers identify the horizontal contact strips located in the front block.** See Figure "C" for standard pattern.

MOUNTING

The A-MP Matrix Pinboard can be either surface or recess mounted on panels and may be used singly or grouped to form a larger, modular type pinboard assembly. The hollow eyelets used to rivet the assembly together also provide mounting holes and accept #4 size screws. Jumpering between these individual modules is readily accomplished in that both ends of the X and Y coordinate contact strips are attached to taper pin receptacles. See tabular data section for mounting dimensions.

APPLICATION WIRING*

All input and output connections to the contact strips are made with A-MP "53" Series Taper Pins. Contained within the pinboard assembly are solid-barrel taper pin receptacles which accept these taper pins to provide a fast reliable method for connecting the pinboard assembly to its associated assembly. These connection points are located on the rear face of the pinboard as shown in Figure "D".

*Solder post terminals are available on special order.

COMPONENTS

FRONT AND REAR BOARDS

The front and rear boards of A-MP Matrix Pinboards are honeycombed boards made of thermal, moisture-stabilized phenolic in accordance with MIL-P-3115. The contact springs are contained within the honeycomb of the front and rear board. The insulating board separating X and Y coordinate contact strips is made of phenolic material in accordance with MIL-P-3115. The assembly is riveted together with recessed eyelets on each of the four corners.

PINS

As previously indicated, two types of pins are used with the Matrix Pinboard—a basic shorting pin and a component-carrying diode pin.

SHORTING PIN

This pin, made of brass, is available with gold over nickel plating or nickel plating. A nylon cap on the pin provides insulation for the pin and also serves as a handle. Color coding of the caps, with nine standard colors, provides easy identification of pinboard circuits. See Figure "E".

E



Color-coded shorting pin provides extra convenience in programming. The 1¼" gold-plated pins have a nylon grip to permit easy insertion and removal of the pins.

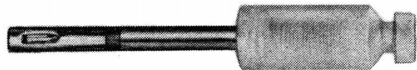
DIODE PIN

The diode pin, which is similar in construction, is made of brass with gold over nickel plating or, if desired, with nickel plating. The nylon jacket covers and insulates the diode and provides a firm grip for insertion and extraction. Jackets are available in nine standard colors to provide diode type and/or diode orientation information.

Diode pins are used on A-MP Matrix Pinboards to isolate circuits from each other. Because of the ability of the diode to block current flow in one direction while permitting uninterrupted flow in the other, these pins perform an important role. An example of this function would be circuits where one input feeds several outputs and where no interaction is permissible between individual output circuits.

F

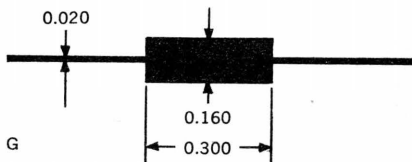
ELECTRODES



Diode pins have two electrodes (See Figure "F"). One lead of the diode is crimped to the cap of the pin which is insulated from the pin body. The other diode lead is crimped to the tip of the pin. The tip of the pin always contacts the vertical contact strip located in the rear board.

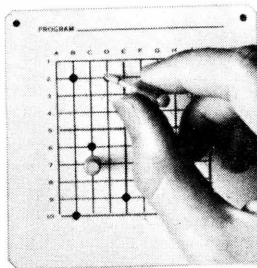
Diode pins connect two circuits together, but permit current to flow in one direction only. The two sections of the pin make separate

contact with the contact strips. A lead from the tip of the pin passes through the upper portion of the pin to make contact with the diode in the nylon grip of the pin. The diode is crimped to both pin contacts.



On special order, diode pins may be supplied with resistors, bulbs, or other components inserted in place of the diode. These components must fit within the envelope dimensions given in Figure "G".

PROGRAMMING AIDS



Programs can be set up in advance, changed in seconds and, with the help of templates, stored indefinitely for future use.

A template is a durable card on which is printed the board format. It has accurate die-cut partial hole perforations stamped in the card, with the locations of the perforations corresponding to the holes in the pinboard.

Any program can be set up by punching the desired holes in a template, using a pinboard pin, pencil or any similar instrument. Handling or flexing of the card will not disturb punched holes.

By using two guide pins for pinboard mounting, (see Figure "H") the pre-programmed templates can be accurately positioned on the face of the pinboard and quickly programmed by inserting shorting or diode type pins through the holes in the templates. Since the operator need not refer to the legend printed on templates, when inserting pins, semi-skilled operators can be employed. No knowledge is required of the programming function; operator is instructed simply to insert pins into all available holes.

Templates are available for all standard A-MP Matrix Pinboards. They are printed with a legend corresponding to that found directly on the face of the silk screened pinboards. Special size templates along with custom-designed legend imprints can be furnished as required.

FEATURES

- **Rugged construction:** Rigid thermal and moisture stabilized phenolic, conforming to MIL-P-3115 requirements, is used in both front and rear blocks.
- **Swaged Eyelets:** These eyelets securely clamp blocks together for added pinboard durability.
- **Gold- or Nickel-plated Contacts:** For all low-voltage applications, heavy gold over nickel is used to preclude oxide formations. Nickel plating is available for high-voltage applications.
- **"Funnel" Design Spring Contacts:** This feature provides ease of insertion and prevents misalignment and/or malfunction.
- **Bifurcated Spring Contacts:** Increased reliability assured with these four-point contacts.
- **Bus Contacts:** These minimize input and output connections.
- **Pins:** Both shorting and diode pins available.
- **Special Matrices Available:** Split matrices may be had for standard size pinboards.
- **Special Size Pinboards:** Available on special order — pinboards with up to 6,000 cross points.
- **Programming Aid:** Templates and guide pins.
- **Up to 400 cross points** on a single standard pinboard module.
- **Pinboards easily grouped** for added capacity.
- **All materials meet MIL specifications.**
- **Wide range of standard sizes.**
- **The ultimate in programming simplicity.**
- **Pin changing gives preferred programming convenience.**
- **Immediate access to any pin** for program changes.
- **High density switching.**
- **Highest reliability.**

MATERIALS

Contact Springs: Full-hard fine-grain brass, stress-relieved after forming. (Mounted on $\frac{1}{4}$ " spacing.)

Front and Rear Blocks: Thermal and moisture stabilized phenolic per MIL-P-3115 — black matte finish to provide excellent surface for silk screening.

Insulation Board: Phenolic per MIL-P-3115.

Eyelets: Nickel plated brass—accept #4 size screws for mounting.

Taper Pin Receptacles: Screw-machined brass.

Shorting Pins: copper alloy .094 dia. by $1\frac{1}{4}$ " long, including nylon insulation cap for optional color-coding on caps.

Diode Pins: Copper alloy .094 dia. by $1\frac{2}{4}$ " long including nylon insulating cap.

Contact Resistance: Gold contacts — 0.009 ohms (between bus springs when a shorting pin is inserted.)

Nickel contacts — 0.025 ohms (at 20 volts or greater — do not use at lower voltages.) These resistance values do not include the resistance of the bus springs, taper receptacles, etc.

Plating: Plating choice should be based on circuit operating voltages. Gold should always be used below 20 volts and where repeatable contact resistance is desired. Nickel plated contacts are suitable only for circuits where the open circuit voltage is greater.

Gold—0.00006" thick minimum average* hard gold over 0.0001" thick minimum average nickel on contact surfaces per MIL-G-45024. Type II Class 1.

Nickel—0.0003" thick minimum average* electro-deposited nickel per Federal Specification QQ-N-290, Class II.

*Minimum average denotes average of 5 measurements taken at cross section of contact surfaces. All samples will meet or exceed stated minimum average plating thickness.

ELECTRICAL CHARACTERISTICS

Hole Spacing: $\frac{1}{4}$ "

Maximum Operating Voltage* between intersection vertical and horizontal bus springs:
1500 volts DC
900 volts AC rms @ 60 cps

Maximum Operating Voltage* between adjacent vertical bus springs or adjacent horizontal bus springs:
1750 volts DC
1000 volts AC rms @ 60 cps

Capacitance: The capacitance between adjacent bus springs is a function of the spring length. For two adjacent bus springs spanning 10 holes (all on $\frac{1}{4}$ " centers) the capacity is approximately 9 pico-farads. This value can be extrapolated for other spring lengths.

The capacitance between intersecting bus springs is approximately 7 pico-farads in a 10 x 10 pinboard.

Capacitances were measured at 83°F. and 45% relative humidity as per MIL-STD-202B, Method 305 at 1 megacycle.

Insulation Resistance: Insulation resistance, measured at 90-95% relative humidity between adjacent bus springs, spanning 10 holes, is 10^8 ohms. All measurements per MIL-STD-202B, Method 302.

Current Rating: Maximum continuous current rating through a completed circuit is 5 amperes at 68°F. However, because of the cumulative or stack effect of having multiple high current circuits common to a single bus spring, the maximum current rating within a bus spring is also 5 amperes. This current is compatible with the A-MP series 53 Taper Pins.

*At sea-level pressure

TABULAR DATA

**A-MP MATRIX PINBOARDS
STANDARD SIZES**

No. of Holes and Hole Arrangement	Catalog No.	A	B	*C	*D	E
100—10x10	397066	3¾	3¾	3.000	3.000	
150—10x15	397081	5	3¾	3.000	4.250	
200—10x20	397392	6¾	3¾	3.000	5.500	
250—10x25	397330	7½	3¾	3.000	6.750	3.562
300—15x20	397391	6¾	5	4.250	5.500	
375—15x25	397070	7½	5	4.250	6.750	3.562
400—20x20	397075	6¾	6¾	5.500	5.500	

*Panel Cutout Dimension

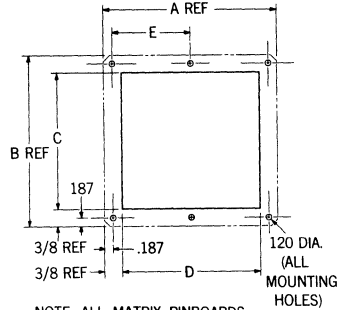
Size Vertical By Horizontal	Part Number	Plating	Alpha-Numeric Silk Screening Included	Programming Templates **
10 x 10	397066-1*	Gold	No	497177
	397066-2*	Nickel	No	
	397066-3	Gold	Yes	
	397066-4	Nickel	Yes	
10 x 15	397081-1*	Gold	No	497392
	397081-2*	Nickel	No	
	397081-3	Gold	Yes	
	397081-4	Nickel	Yes	
10 x 20	397392-1*	Gold	No	497397
	397392-2*	Nickel	No	
	397392-3	Gold	Yes	
	397392-4	Nickel	Yes	
10 x 25	397330-1*	Gold	No	497393
	397330-2*	Nickel	No	
	397330-3	Gold	Yes	
	397330-4	Nickel	Yes	
15 x 10	397081-1*	Gold	No	497398
	397081-2*	Nickel	No	
	397081-5	Gold	Yes	
	397081-6	Nickel	Yes	
15 x 20	397391-1*	Gold	No	497395
	397391-2*	Nickel	No	
	397391-3	Gold	Yes	
	397391-4	Nickel	Yes	
15 x 25	397070-1*	Gold	No	497311
	397070-2*	Nickel	No	
	397070-3	Gold	Yes	
	397070-4	Nickel	Yes	
20 x 10	397392-1*	Gold	No	497396
	397392-2*	Nickel	No	
	397392-5	Gold	Yes	
	397392-6	Nickel	Yes	
20 x 15	397391-1*	Gold	No	4974017
	397391-2*	Nickel	No	
	397391-3	Gold	Yes	
	397391-4	Nickel	Yes	
20 x 20	397075-1*	Gold	No	497394
	397075-2*	Nickel	No	
	397075-3	Gold	Yes	
	397075-4	Nickel	Yes	
25 x 10	397330-1*	Gold	No	497399
	397330-2*	Nickel	No	
	397330-5	Gold	Yes	
	397330-6	Nickel	Yes	
25 x 15	397070-1*	Gold	No	497400
	397070-2*	Nickel	No	
	397070-5	Gold	Yes	
	397070-6	Nickel	Yes	

*Custom Silk Screen Patterns may be applied to -1 and -2 of all sizes.

**One pair template guide pins required assembly part number 497519-1.

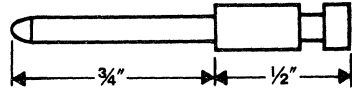
All boards without Alpha-numeric silk screening have the vertical spring strip running in the short direction, example on a 10 x 15 board there will be fifteen vertical spring strips, ten holes long.

Letters of the standard screen designate the vertical contact strips located in the rear block whereas numbers identify the horizontal contact strips located in the front block.



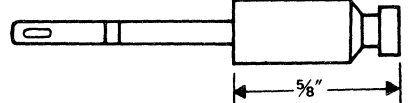
NOTE ALL MATRIX PINBOARDS ARE 7/8" DEEP.

SHORTING PIN PART NUMBERS



Gold	Cap Color	Nickel
397033-1	White	397395-1
397033-2	Red	397395-2
397033-3	Green	397395-3
397033-4	Yellow	397395-4
397033-5	Blue	397395-5
397033-6	Black	397395-6
397033-7	Violet	397395-7
397033-8	Gray	397395-8

STANDARD DIODE PIN



Other diodes or components may be used.

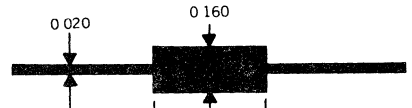
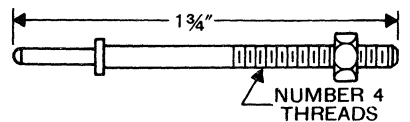


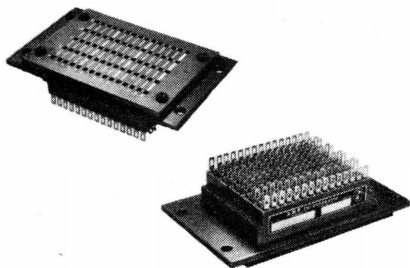
Fig. N—Diode pin drawing with dimensions and dimensions of maximum size component.

Part No.	Plating	Cap Color	Diode	Wired
497522-4	Nickel	Red	In 464	Anode to Tip
497522-3	Gold	Red	In 464	Anode to Tip
497522-2	Nickel	White	In 464	Cathode to Tip
497522-1	Gold	White	In 464	Cathode to Tip

GUIDE PIN



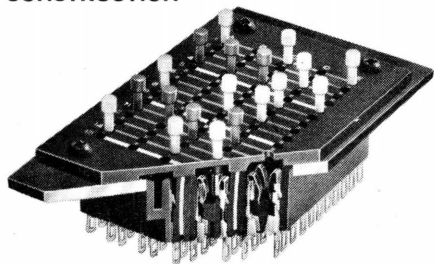
UNIVERSAL PINBOARDS



The A-MP Universal Pinboard, which complements the Matrix Pinboard, provides a capability for special—even unusual—programming requirements. It consists of a specified number of single-pole, single-throw, normally open switches. Each switch operates independently of all others.

Through the use of appropriate, permanent wiring installed by the user on the rear of the pinboard, circuit-commoning functions and special programming can be easily accomplished. Contact springs can be interconnected in any desired variation, and panels can be made with as many matrices as may be required, in a wide variety of sizes and grid arrangements. Standard sizes range from 15 x 5 (75 holes) to 15 x 40 (600 holes).

CONSTRUCTION



All materials used in A-MP Universal Pinboards meet required quality standards and conform to all applicable military specifications. Two leaf spring contacts, fully insulated from each other, are positioned in each pin hole of the pinboard housing. Mounting is either flush or surface, and modular construction permits a wide range of standard sizes.

MATERIALS

Spring Housing: glass-filled diallyl phthalate.

Front Plate: black-painted glass epoxy laminate.

Mounting Flange: black anodized aluminum alloy.

Contact Springs: phosphor bronze with solder tab receptacle for a maximum of two #18 wires plated with .00006" gold over .0001" nickel plate.

Shorting Pins: copper alloy .094 dia. by $\frac{2}{32}$ " long, including nylon insulation cap, minimum average .00006" gold over minimum average

.0001" nickel plating. Optional color coding on caps.

Silk Screening: standard alpha-numerical legend; special legends available to customer specifications.

Hole Spacing: horizontal, $\frac{3}{8}$ " centers; vertical, $\frac{1}{32}$ " centers.

FRONT PLATE

The face of the pinboard is machined from black-painted glass epoxy laminate and has pin holes drilled on $\frac{3}{8}$ " horizontal centers and $\frac{1}{32}$ " vertical centers. A black matte finish furnishes excellent contrast for circuit identification silk screening.

MOUNTING FLANGE

A black anodized aluminum mounting flange secured to the front plates is used for mounting or grouping the basic, 5 x 15, pinboard modules.



SHORTING PINS

Shorting pins made of copper alloy are supplied with gold over nickel plating. The nylon caps on these pins provide insulation for the pins and also serve as handles. Color coding of the caps in nine colors, makes easy identification of pinboards circuits possible.

CIRCUIT IDENTIFICATION

The standard alpha-numerical silk-screened legend is provided for rapid identification of pin holes. The silk screening is enamel baked on in a precision-controlled oven to insure maximum resistance to wear and chipping.

ELECTRICAL CHARACTERISTICS

Resistance: From spring through pin to mating spring—.007 ohms maximum.

Spring Life: Minimum of 5,000 pin insertions.

Spring Pressure: 30 ounces minimum.

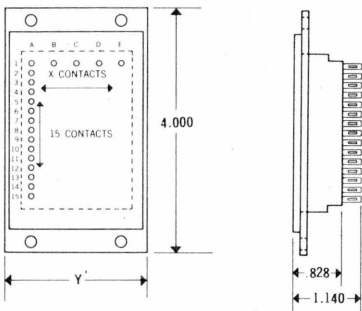
Voltage Rating: Between mating springs—850 volts dc at sea level.

Contact Current Rating: Maximum 3 amperes dc continuous—no make or break under load.

Insulation resistance: Between contacts at room temperature and ambient humidity—minimum 10^{12} ohms.

A-MP UNIVERSAL PINBOARD STANDARD SIZES*

PINBOARDS**



Size (Vertical By Horizontal)	Part Number	Y Dimension
600 Hole (15 x 40)	397540-2	18 $\frac{1}{8}$
525 Hole (15 x 35)	397540-3	15 $\frac{7}{8}$
450 Hole (15 x 30)	397540-4	13 $\frac{3}{8}$
375 Hole (15 x 25)	397540-5	11 $\frac{1}{8}$
300 Hole (15 x 20)	397540-6	9 $\frac{1}{8}$
255 Hole (15 x 15)	397540-7	6 $\frac{3}{8}$
150 Hole (15 x 10)	397540-8	4 $\frac{3}{8}$
75 Hole (15 x 5)	397540-9	2 $\frac{3}{8}$

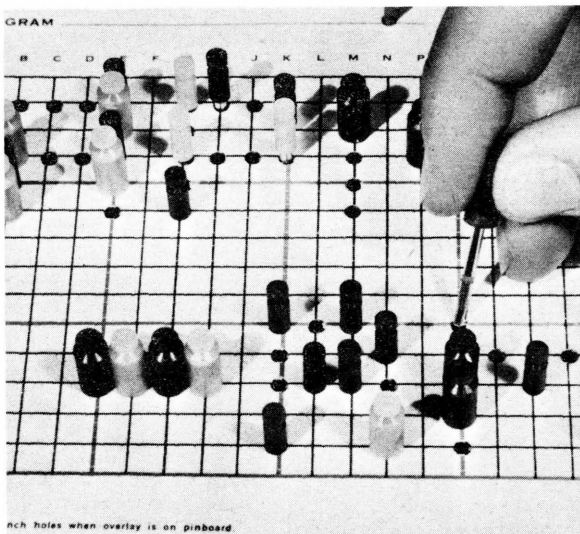
*All contacts and shoring pins are gold over nickel plated.

**Standard Alpha Numeric Silk Screening. For special Silk Screen patterns, a drawing must be sent with order specifying screening desired. See layout for dimensions. If NO screening is desired a note should be added to order specifying this.

PINS



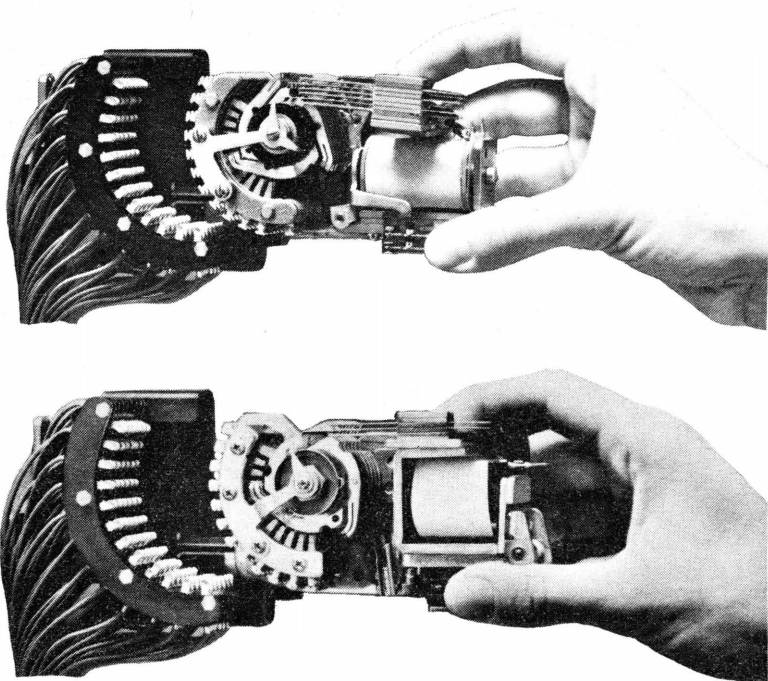
Part Number	Cap Color
495831-1	White
495831-2	Black
495831-3	Red
495831-4	Yellow
495831-5	Green
495831-6	Blue
495831-7	Violet
495831-8	Gray



hch holes when overlay is on pinboard.

AMP Pinboards accomplish intricate programming functions by the simple insertion of a pin.

A-MP* STEPPING SWITCH CONNECTOR§



Designed to reduce assembly and preventive maintenance time and costs, AMP's new stepping switch connector converts a standard stepping switch into a plug-in component. Now wiring for stepping switches can be made and tested on a harness board before assembly into equipment. Crimp-on, snap-in spring contact design facilitates assembly and wiring changes.

CONSTRUCTION

The connector is very similar in construction to the stepping switch itself. Each level of contact springs is held between laminations which are assembled into banks corresponding in thickness to the stepping switch. A guide bar, which mounts to the stepping switch using existing mounting holes, is used to maintain alignment during insertion or extraction of the stepping switch. The connector is mounted to the chassis, using either the Long Base Mounting Bracket, C. P. Clare RP 6226, Automatic Electric RS 44, or the Long Shelf Mounting Bracket C. P. Clare RP 8057, Automatic Electric RS 45. These brackets are available from the respective stepping switch manufacturers.

The level insulators of the connectors are color coded to correspond with that of the level insulators in the stepping switch itself: blue polycarbonate by C. P. Clare connectors, grey polycarbonate for Automatic Electric connectors.

FEATURES

- Plug-in versatility for stepping switches
- Connector harness can be pretested before assembly into equipment
- Semi-automatic crimping of contacts eases manufacturing of harness assembly
- Connector or stepping switch can be chassis mounted
- Crimp-on snap-in contacts permit easy insertion, modification, or removal of harness leads
- Simplifies preventive maintenance
- Reliability is assured by redundant contact areas
- Gold or tin plating available

SPECIFICATIONS

CONNECTOR PART NO.

No. of Levels	For C. P. Clare Type 211	For Automatic Electric Type 44
3	422211-3	422244-3
4	422211-4	422244-4
5	422211-5	422244-5
6	422211-6	422244-6
Type 88		
8	422211-8	422288-8
9	422211-9	422288-9
12	1-422211-2	1-422288-2

CONTACT SPRING

Loose Piece	
Part No.	Plating
421938-1	Tin Plated Brass
421938-2	Gold Plated Brass

PRODUCT SPECIFICATIONS

AUTOMATIC ELECTRIC

Minimum Breakdown
Voltage 1,200 VAC

Insulation Resistance .10¹¹ Ohms min. @
500 VDC
Current Rating . . . 3 amperes continuous

C. P. CLARE

Minimum Breakdown
Voltage 1,000 VAC
Insulation Resistance 10¹¹ Ohms min. @
500 VDC
Current Rating 3 amperes continuous

TOOLING

CRIMPING TOOL—#69642

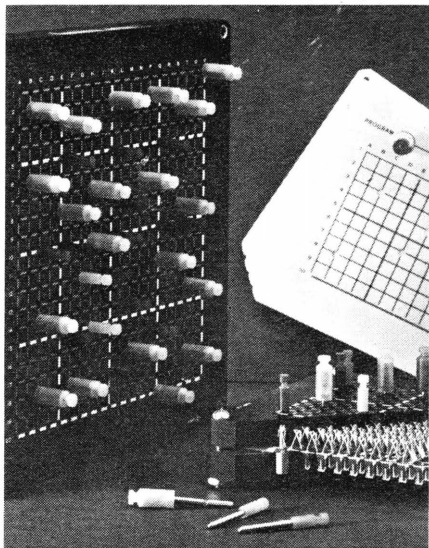
Stepping switch connector contacts are crimped with AMP's CERTI-CRIMP* Hand Tool which features positive bottoming of crimping dies.

EXTRACTION TOOL—#69643

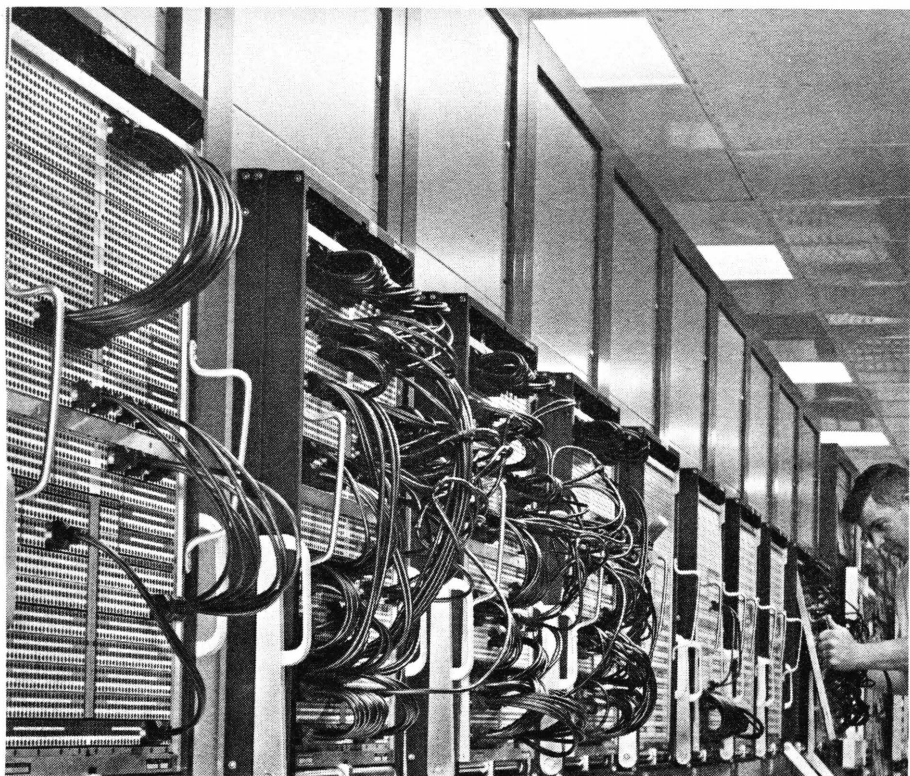
Easy contact extraction is provided by a specially designed A-MP Extraction Tool.



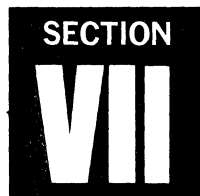
Master Terminal Data Transmission System of Municipal fire alarm box identification features A-MP Card Reader for use in automatic mode of operation



A-MP Pinboards can be programmed for a wide variety of functions with the simple insertion of shorting or diode pins.



Patchcord programming systems are used extensively in aerospace ground support equipment.



PRINTED CIRCUIT PRODUCTS

This section includes the following sub-sections:

Introduction
AMP-LEAF Connectors
AMP-BLADE Connectors
AMP-IN and AMP-EDGE Terminals
AMP-TAB Connectors
Reusable Component Test Receptacles
Test Probe Receptacles
Miniature Spring Sockets

VII. PRINTED CIRCUIT PRODUCTS

INTRODUCTION

In recent years, the race toward more and better miniaturization, without sacrifice of reliability, has been vastly intensified. It has been extended to new areas ranging from highly complex missile systems and classified weaponry to various commercial products.

Coincident with refinements in miniaturization techniques, it became mandatory to introduce new space-saving printed circuit board connectors and accessories with capabilities matching the reliability requirements of every type of application.

Throughout this process AMP has developed a wide variety of printed circuit connectors and associated products for use with printed circuits. Regardless of size, type and use or uses for which it is designed, all this A-MP equipment has one dominant characteristic: reliability.

This reliability is not just a tradition with AMP, it is a reality based on two basic procedures originated by AMP and developed to near perfection by our research and engineering teams: tooling that is matched to contacts and wire sizes; and AMP's special plating technique.

TOOLING IS MATCHED TO CONTACT AND WIRE SIZES

From its earliest days, AMP has advocated the mechanical and electrical superiority of this basic termination technique. The method consists of crimping contacts (regardless of type) to wire conductors under controlled pressure. With contact wire barrels and wire sizes matched to either hand or automatic crimping tools that fully "bottom" before crimping dies can be released, this method assures high-conductivity, nearly voidless terminations with tensile strength almost equal to that of the wire itself.

AMP SPECIAL PLATING TECHNIQUE

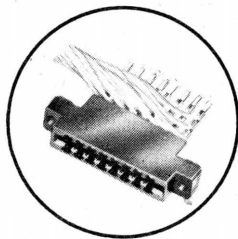
Unless otherwise specified, standard AMP plating for both the male and receptacle contacts in all printed circuit board connectors produced for sensitive applications is gold over a sub-plating of nickel. On the other hand, contacts intended for use in competitively priced appliances, radios, and other widely distributed commercial products where contaminating atmospheres and low level circuitry is not an important factor, attain a high measure of reliability with standard tin plating.

AMP Incorporated has experimented extensively with every facet of the plating process. We have found that gold plating and rhodium plating over a sub-plating of nickel are superior to that of any other, with rhodium representing the highest plating values. But, since rhodium is rare, costly, and abrasive (compared to gold) and since gold has extremely high resistance to corrosion, the latter metal is used generally over a subplating of nickel for most printed circuit applications. Experiments for reducing porosity combined with the other experimental work have resulted in a system of controls that produces gold over nickel plating with negligible porosity and improved surface smoothness. Another refinement is an exclusive X-ray measuring technique so accurate that it measures plating thicknesses to the millionth of an inch. These two factors—low porosity and fully controlled plating thickness—have been found to be ideally suited to printed circuit board connector contacts.

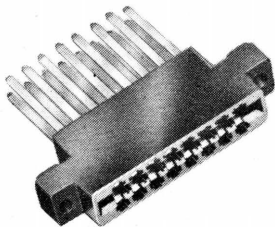
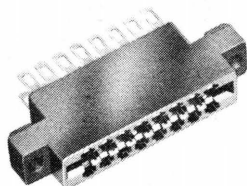
In the following pages of this section you will find descriptive and technical information about A-MP Printed Circuit connectors, test accessories, and other supplementary equipment.

AMP LEAF PRINTED CIRCUIT CONNECTORS§

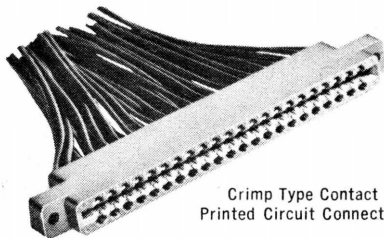
Post Type Printed Circuit Connector
with A-MP★ TERMI-POINT★ Terminals applied



Eyelet Type Printed Circuit
Connector



Post Type Printed
Circuit Connector



Crimp Type Contact
Printed Circuit Connector

These new one-piece printed circuit connectors provide low stable contact resistance to meet industry's most exacting requirements. AMP's long established gold over nickel plating eliminates base metal migration and assures that the contact area is virtually free of contaminating films. The Crimp Type Printed Circuit Connector is specifically designed for insertion of the Crimp Type AMP-LEAF Contact.

The Post Type Printed Circuit Connector is specifically designed to be wired with A-MP TERMI-POINT terminals and tools. This connector and post design also adapts itself to the wrap-type termination.

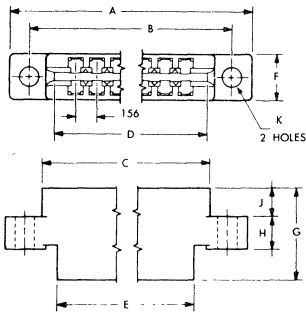
The Split Eyelet Type Printed Circuit Connector is designed to simplify solder bus wiring. The end of the contact is notched to permit wire to be easily snapped into place for soldering. Flanged construction provides maximum strength. Accepts up to two #18 AWG max. stranded or two #18 AWG max. solid wires.

The standard Eyelet-Type Printed Circuit Connector is made with solder eyelet contacts. The exposed portion of these contacts incorporates flanged sides for maximum contact strength. Accepts up to two #18 AWG max. stranded or two #16 AWG max. solid wires.

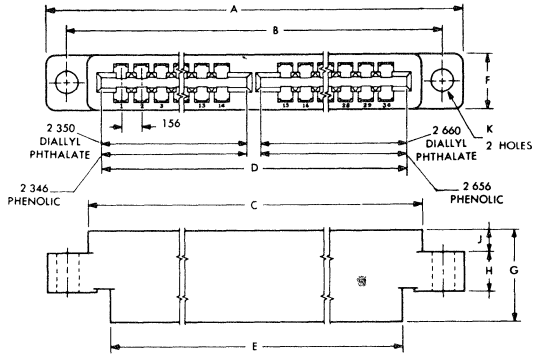
FEATURES

- Contacts spaced on .156" centers
- Block sizes available in 8, 15, 18, 22, 30 and 32 position
- Contacts located on one or both sides of block
- Phenolic or Diallyl Phthalate Blocks
- Closed card entry prevents overstraining of contacts
- Gold over nickel plating on "wear" portion of contacts on post types
- Crimp type contacts are phosphor bronze with gold over nickel plating
- Current carrying capacity of 5 amps
- .031" x .062", and .045" x .045" tin plated posts available for TERMI-POINT terminals or wrap type wiring
- Contacts designed with locking lance for easy replacement
- Posts available in four lengths
- Keying

AMP-LEAF HOUSINGS FOR CRIMP TYPE CONTACTS



Single Slot Housing



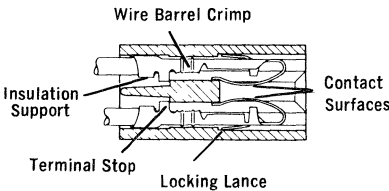
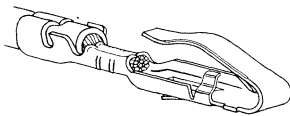
**Twin Slot Housing
(480146-2 and 480146-7 only)**

Housing Material: Diallyl Phthalate per MIL-M-14F, Type SDG-F or General Purpose Phenolic

No. of Dual Pos.	Housing Part Numbers	Housing Material	A	B	C	D	E	F	G	H	J	K	Board Thickness
8	582140-5	Phenolic	1.982	1.767	1.550	1.410	1.288	.340	.700	.250	.208	.125	.070-.055
	582140-2	Diallyl phthalate	1.985	1.770	1.552	1.412	1.290						
10	582963-2	Phenolic	2.407	2.157	1.886	1.722	1.598	.360	.700	.250	.206	.128	.070-.055
15	1-582147-5	Phenolic	3.182	2.854	2.621	2.506	2.376	.350	.700	.250	.216	.128	.070-.055
	1-582147-2	Diallyl phthalate	3.187	2.859	2.625	2.510	2.380						
15	480110-5	Phenolic	3.182	2.854	2.621	2.506	2.376	.350	.700	.250	.216	.187	.070-.055
	480110-2	Diallyl phthalate	3.187	2.859	2.625	2.510	2.380						
18	480133-5	Phenolic	3.650	3.400	3.088	2.948	2.843	.375	.700	.155	.251	.156	.070-.055
	480133-2	Diallyl phthalate	3.656	3.406	3.093	2.953	2.848						
18	1-582191-5	Phenolic	3.650	3.400	3.088	2.948	2.843	.375	.700	.155	.251	.120	.070-.055
	1-582191-2	Diallyl phthalate	3.656	3.406	3.093	2.953	2.848						
22	480142-3	Phenolic	4.274	4.025	3.754	3.591	3.466	.350	.700	.250	.206	.125	.070-.055
	480142-2	Diallyl phthalate	4.281	4.031	3.760	3.596	3.472						
22	582358-3	Phenolic	4.274	4.025	3.754	3.591	3.466	.350	.700	.250	.206	.150	.070-.055
	582358-2	Diallyl phthalate	4.281	4.031	3.760	3.596	3.472						
30	480146-7	Phenolic	5.944	5.621	5.304	5.101	4.992	.437	.700	.290	.165	.178	.070-.055
	480146-2	Diallyl phthalate	5.953	5.630	5.312	5.109	5.000						
32	582264-2*	Phenolic	6.365	5.928	5.292	5.132	5.072	.485	.700	.290	.165	.187	.104-.086
	582264-5*	Diallyl phthalate	6.375	5.937	5.300	5.140	5.080						

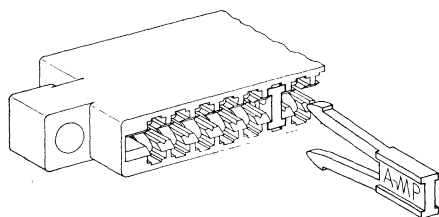
* Does Not Accommodate Inter Contact Keying Plug.

AMP-LEAF CONTACTS (CRIMP TYPE)



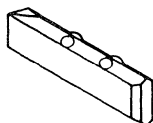
Contact No.	Wire Range	Insul. Range		Finish	Used With Housings
		Double Wire	Single Wire		
42702-3LP	26-22	—	.050-.064	Gold	
42717-3LP	22-18	.120-Max. Sum of Insul. Diameters		Gold	480110
					480133
					480142
60151-3LP	Two 18	—	—	Gold/Standard	480146
60151-4LP	Two 18	Two-.080 Dia. Each		—	1-582191
					582140
66067	Two 16 Max.	—		Gold	1-582147
					582358
60029-3LP	26-22	—	.050-.064	Gold	582963
60030-3LP	22-18	.120-Max. Sum of Insul. Diameters		Gold	480111
					582264
					(.104-.084 Board)

TOOLING

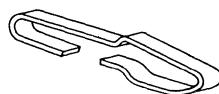


Keying Plug
(Keys on Foil Tab)

480143-1 for $\frac{1}{16}$ " Board Thickness
582756-1 for $\frac{3}{32}$ " Board Thickness



**Inter Contact
Key Plug**
582501-1



Retaining Spring

Material—Phosphor Bronze
#42973-1 Nickel Finish
#42973-2 Plain Finish
#42973-3 Gold Finish
Can not be used in 582140 housing

Commoning Clip

#66092-1 $\frac{1}{16}$ " Board Thickness
#66064-1 $\frac{3}{32}$ " Board Thickness

EXTRACTION TOOL

Part No.	Used With Housings	Extraction Tool Extensions
465195-1	480110	465275-1 5" Extension 465275-2 11" Extension
	582140	
	1-582147	
	480142	
	582358	
465195-2	582264	465275-2 11" Extension
	582963	
	480133	
465195-3	480146	465275-2 11" Extension
	1-582191	
465195-3	480111	

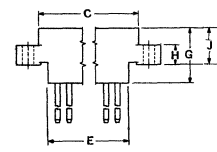
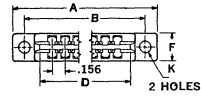
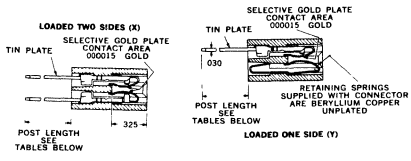
HAND TOOLING

Contact No. (Loose Piece)	Wire Range	Insulation Diameters	Hand Tool Number	Crimp Symbol
42702	One 26	.050-.064	90028	26-22
60029	One 24	.050-.064	90028	26-22
	One 22	.050-.064	90028	26-22
42717	One 22	.055-.080	90017	22-20
	Two 24	.120 Max. Sum.	90028	21-18
	One 20	.055-.080	90017	22-20
	One 20	.055-.080	90028	21-18
	One 20	.055-.080	90101	20
60030	Two 22	.120 Max. Sum.	90017	1-18 2-22
	Two 22	.120 Max. Sum.	90028	21-18
	One 18	.064-.080	90017	1-18 2-22
60151LP	One 18	.064-.080	90028	21-18
	Two 20	.160 Max. Sum.	90101	2-20
	Two 18	.160 Max. Sum.	90031	2-18

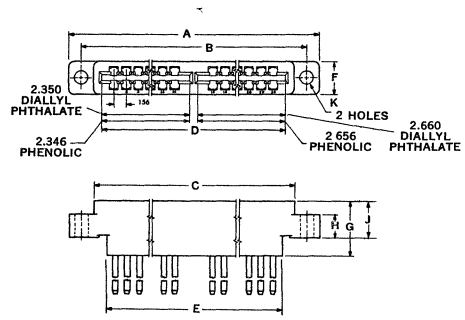
HOUSINGS WITH POST TYPE CONTACTS

Housings Loaded with .062 x .031 Posts (Board Thickness .055 - .070)

(All housing dimensions identical to .045 x .045 type as listed below)



8, 15, 18, and 22 position connectors



30 position connector

No. of Dual Positions	Length of Posts*	PART NUMBERS			
		Diallyl Phthalate Housing		Phenolic Housing	
		X	Y	X	Y
8	.960	582760-1	582760-5	582761-1	582761-5
	.760	582760-2	582760-6	582761-2	582761-6
	.560	582760-3	582760-7	582761-3	582761-7
	.360	582760-4	582760-8	582761-4	582761-8
15	.960	582762-1	582762-5	582763-1	582763-5
	.760	582762-2	582762-6	582763-2	582763-6
	.560	582762-3	582762-7	582763-3	582763-7
	.360	582762-4	582762-8	582763-4	582763-8
18	.960	582764-1	582764-5	582765-1	582765-5
	.760	582764-2	582764-6	582765-2	582765-6
	.560	582764-3	582764-7	582765-3	582765-7
	.360	582764-4	582764-8	582765-4	582765-8
22	.960	582766-1	582766-5	582767-1	582767-5
	.760	582766-2	582766-6	582767-2	582767-6
	.560	582766-3	582766-7	582767-3	582767-7
	.360	582766-4	582766-8	582767-4	582767-8
30†	.960	582768-1	582768-5	582769-1	582769-5
	.760	582768-2	582768-6	582769-2	582769-6
	.560	582768-3	582768-7	582769-3	582769-7
	.360	582768-4	582768-8	582769-4	582769-8

Housings Loaded with .045 x .045 Posts (Board Thickness .055 - .070)

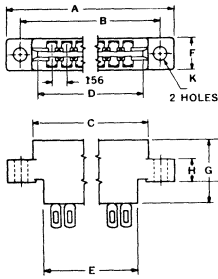
No. of Dual Positions	Length of Posts*	PART NUMBERS				A	B	C	D	E	F	G	H	J	K
		Diallyl Phthalate Housing		Phenolic Housing											
		X	Y	X	Y										
8	.960	582780-1	582780-5	582781-1	582781-5	1.985	1.770	1.552	1.412	1.290	.340	.700	.250	.458	.125
	.760	582780-2	582780-6	582781-2	582781-6										
	.560	582780-3	582780-7	582781-3	582781-7	1.982	1.767	1.550	1.410	1.288	.340	.700	.250	.458	.125
	.360	582780-4	582780-8	582781-4	582781-8										
15	.960	582782-1	582782-5	582783-1	582783-5	3.187	2.859	2.625	2.510	2.380	.350	.700	.250	.466	.128
	.760	582782-2	582782-6	582783-2	582783-6										
	.560	582782-3	582782-7	582783-3	582783-7	3.182	2.854	2.621	2.506	2.376	.350	.700	.250	.466	.128
	.360	582782-4	582782-8	582783-4	582783-8										
18	.960	582784-1	582784-5	582785-1	582785-5	3.656	3.406	3.093	2.953	2.848	.375	.700	.250	.406	.120
	.760	582784-2	582784-6	582785-2	582785-6										
	.560	582784-3	582784-7	582785-3	582785-7	3.650	3.400	3.088	2.951	2.843	.375	.700	.250	.406	.120
	.360	582784-4	582784-8	582785-4	582785-8										
22	.960	582786-1	582786-5	582787-1	582787-5	4.281	4.031	3.760	3.596	3.472	.350	.700	.250	.456	.125
	.760	582786-2	582786-6	582787-2	582787-6										
	.560	582786-3	582786-7	582787-3	582787-7	4.274	4.025	3.754	3.591	3.466	.350	.700	.250	.456	.125
	.360	582786-4	582786-8	582787-4	582787-8										
30†	.960	582788-1	582788-5	582789-1	582789-5	5.953	5.630	5.312	5.109	5.000	.437	.700	.290	.455	.178
	.760	582788-2	582788-6	582789-2	582789-6										
	.560	582788-3	582788-7	582789-3	582789-7	5.944	5.621	5.304	5.101	4.992	.437	.700	.290	.455	.178
	.360	582788-4	582788-8	582789-4	582789-8										

*Length of post denotes number of Termi-Point Clips accepted : .960-4, 760-3, 560-2, 360-1.

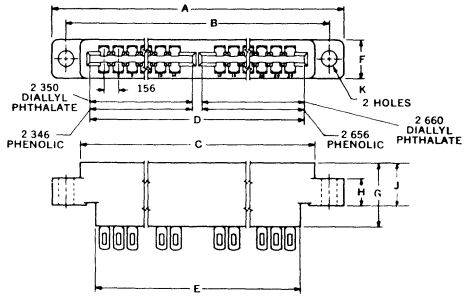
NOTE: Posts meet the requirements for wrap type or A-MP TERMI POINT Clip Application. Dimension of color section for Diallyl Phthalate only.

†30 Dual-position connector has additional dimensions as shown in drawing above.

HOUSINGS WITH EYELET TYPE CONTACTS



8, 15, 18, and 22 position connectors



30 position connector

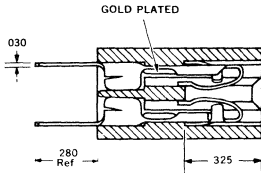


Fig. X

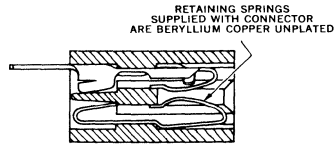


Fig. Y



Close-Up View of Standard Eyelet Type Contact
TYPE A



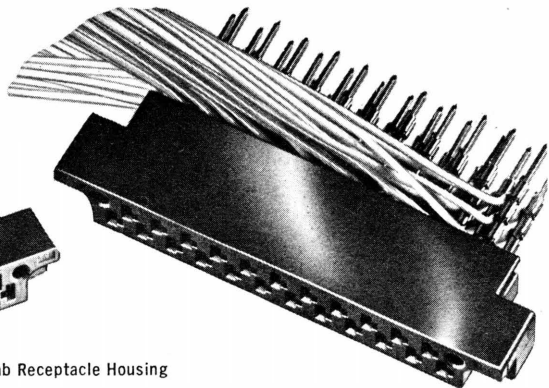
Close-Up View of Split-Eyelet Type Contact
TYPE B

No. of Dual Pos.	PART NUMBERS		Loading: One Side (Y) Two Sides (X)	Type	A	B	C	D	E	F	G	H	J	K	Board Thickness
	Diallyl Phthalate	Phenolic													
8	582770-1	582771-1	X	A	1.985	1.770	1.552	1.412	1.290	.340	.700	.250	.458	.125	.070-.055
	582770-2	582771-2	Y												
	582770-3	582771-3	X	B	1.982	1.767	1.550	1.410	1.288	.340	.700	.250	.458	.125	.070-.055
	582770-4	582771-4	Y												
15	582772-1	582773-1	X	A	3.187	2.859	2.625	2.510	2.380	.350	.700	.250	.466	.128	.070-.055
	582772-2	582773-2	Y												
	582772-3	582773-3	X	B	3.182	2.854	2.621	2.506	2.376	.350	.700	.250	.466	.128	.070-.055
	582772-4	582773-4	Y												
18	582774-1	582775-1	X	A	3.656	3.406	3.093	2.953	2.848	.375	.700	.250	.406	.120	.070-.055
	582774-2	582775-2	Y												
	582774-3	582775-3	X	B	3.650	3.400	3.088	2.951	2.843	.375	.700	.250	.406	.120	.070-.055
	582774-4	582775-4	Y												
22	582776-1	582777-1	X	A	4.281	4.031	3.760	3.596	3.472	.350	.700	.250	.456	.125	.070-.055
	582776-2	582777-2	Y												
	582776-3	582777-3	X	B	4.274	4.025	3.754	3.591	3.466	.350	.700	.250	.456	.125	.070-.055
	582776-4	582777-4	Y												
30†	582778-1	582779-1	X	A	5.953	5.630	5.312	5.109	5.000	.437	.700	.290	.455	.178	.070-.055
	582778-2	582779-2	Y												
	582778-3	582779-3	X	B	5.944	5.621	5.304	5.101	4.992	.437	.700	.290	.455	.178	.070-.055
	582778-4	582779-4	Y												

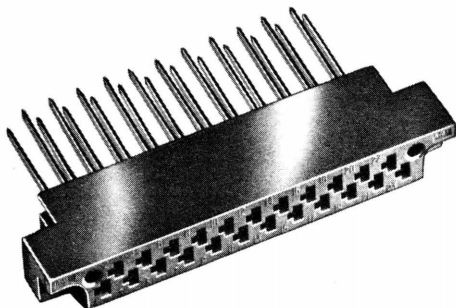
NOTE: Tab will accommodate a maximum of 2 #16 solid wires or a maximum of 2 #18 stranded wires. All contacts nickel base plate. Solder tabs gold flash all over with .000015" gold on contact areas only. All assemblies, except 8 position, loaded one side only will have an appropriate quantity of retaining springs. †30 Dual-position connector has additional dimensions as shown in drawing above.

AMP-BLADE* TWO PIECE§ PRINTED CIRCUIT CONNECTORS

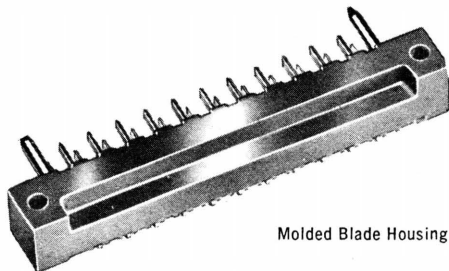
Post Type Printed Circuit Connector
with TERMI-POINT* Terminals applied



Solder Tab Receptacle Housing



Post Type Receptacle Housing



Molded Blade Housing

These new two-piece printed circuit connectors provide low stable contact resistance to meet industry's most exacting requirements. AMP's long established gold over nickel plating eliminates base metal migration and assures that the contact area is virtually free of contaminating films. Blade housings are available with or without mounting holes.

Crimp-Type contacts are available to facilitate wiring and to provide uniform, trouble free, connections. Contacts are applied with AMP Certi-Crimp tooling and are easily extracted. The Post Type Printed Circuit Connector is

specifically designed to be wired with A-MP TERMI-POINT terminals and tools. This connector and post design also adapts itself to the wrap-type termination.

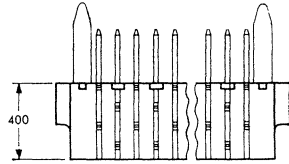
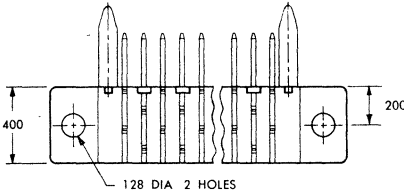
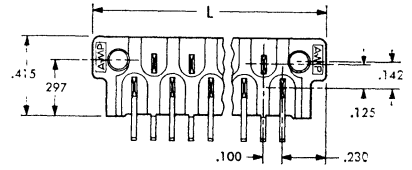
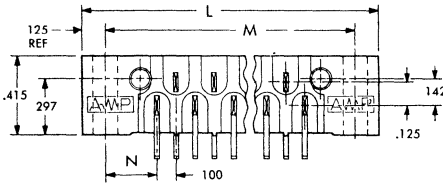
The split eyelet contacts are designed to simplify solder bus wiring. The end of the contact is notched to permit wire to be easily snapped into place for soldering. Each contact accepts up to two #18 AWG stranded or solid wires.

The standard eyelet contact accepts up to two #18 AWG stranded or two #16 AWG solid wires.

FEATURES

- Contacts spaced on .100 centers
- Block sizes available in 17, 23, 29, 35, 41, and 47 position
- Phenolic or Diallyl Phthalate Blocks
- Molded blade housings rigidly clinched to board, assure positive mating
- Gold over nickel over phosphor bronze on crimp and solder type contacts
- Gold over nickel on "wear" actions of Post type contacts.
- .031 x .062 tin plated posts for TERMI-POINT terminals or wrap-type wiring
- Posts available in four lengths
- Keying
- Contacts designed with locking lance for easy replacement

MOLDED BLADE HOUSINGS



TYPE A

Housing with Mounting Holes

TYPE B

Housing without Mounting Holes

Housing Material: Diallyl Phthalate per MIL-M-14F, Type SDG-F or General Purpose Phenolic.
Blade Contact Material: Gilding Metal. **Blade Contact Plating:** In Diallyl Phthalate housings—.000030 Gold over .000030 Nickel. In Phenolic housings—.000015 Gold over .000030 Nickel.

Type	No. of Positions	Housing Material	L (Max.)	M	N	For 1/16 Board Thickness	For 3/32 Board Thickness	For 1/8 Board Thickness
A	17	Phenolic	2 390	2 126	265	1-582390-1	2-582390-1	3-582390-1
		Diallyl Phthalate		2 130		3-582152-1	6-582152-1	9-582152-1
	23	Phenolic	2 990	2 726	265	1-582390-2	2-582390-2	3-582390-2
		Diallyl Phthalate		2 730		3-582152-2	6-582152-2	9-582152-2
	29	Phenolic	3 590	3 326	265	1-582390-3	2-582390-3	3-582390-3
		Diallyl Phthalate		3 330		3-582152-3	6-582152-3	9-582152-3
	35	Phenolic	4 190	3 926	265	1-582390-4	2-582390-4	3-582390-4
		Diallyl Phthalate		3 930		3-582152-4	6-582152-4	9-582152-4
	41	Phenolic	4 790	4 526	265	1-582390-5	2-582390-5	3-582390-5
		Diallyl Phthalate		4 530		3-582152-5	6-582152-5	9-582152-5
	47	Phenolic	5 623	5 359	381	1-582390-6	2-582390-6	3-582390-6
		Diallyl Phthalate		5 363		3-582308-1	6-582308-1	9-582308-1
B	17	Phenolic	2 070			4-582390-1	5-582390-1	6-582390-1
		Diallyl Phthalate				3-582152-6	6-582152-6	9-582152-6
	23	Phenolic	2 670			4-582390-2	5-582390-2	6-582390-2
		Diallyl Phthalate				3-582152-7	6-582152-7	9-582152-7
	29	Phenolic	3 270			4-582390-3	5-582390-3	6-582390-3
		Diallyl Phthalate				3-582152-8	6-582152-8	9-582152-8
	35	Phenolic	3 870			4-582390-4	5-582390-4	6-582390-4
		Diallyl Phthalate				3-582152-9	6-582152-9	9-582152-9
	41	Phenolic	4 470			4-582390-5	5-582390-5	6-582390-5
		Diallyl Phthalate				3-582152-0	6-582152-0	9-582152-0
	47	Phenolic	5 070			4-582390-6	5-582390-6	6-582390-6
		Diallyl Phthalate				3-582308-2	6-582308-2	9-582308-2

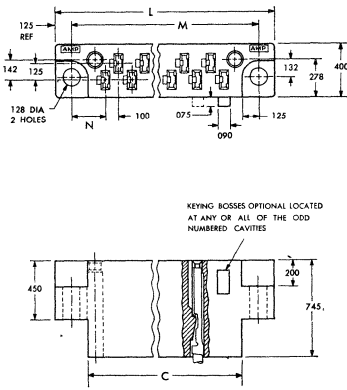
NOTE: Blade Contacts (gold plated) are molded into housing in predetermined positions to mate with receptacle housing. This assembly affixes to printed circuit board using cinching tools.

RECEPTACLE HOUSINGS FOR CRIMP TYPE, EYELET TYPE AND POST TYPE CONTACTS

Housing Material: Diallyl Phthalate per MIL-M-14F, Type SDG-F or General Purpose Phenolic.

No. of Positions	Part Number	Material	Dimensions			
			L (Max.)	M	N	C*
17	1-582389-1	Phenolic	2.390	2.126	.265	1.910
	3-582151-1	Diallyl Phthalate		2.130		
23	1-582389-2	Phenolic	2.990	2.726	.265	2.510
	3-582151-2	Diallyl Phthalate		2.730		
29	1-582389-3	Phenolic	3.590	3.326	.265	3.110
	3-582151-3	Diallyl Phthalate		3.330		
35	1-582389-4	Phenolic	4.190	3.926	.265	3.710
	3-582151-4	Diallyl Phthalate		3.930		
41	1-582389-5	Phenolic	4.790	4.526	.265	4.310
	3-582151-5	Diallyl Phthalate		4.530		
47	1-582389-6	Phenolic	5.623	5.359	.381	5.143
	3-582307-1	Diallyl Phthalate		5.363		

*Cut Out Dimension
(Receptacle contacts are inserted by optional selection into cavities in housing.)

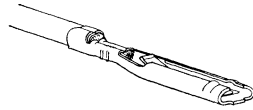


CRIMP TYPE CONTACTS

Receptacle Contact No. (Loose Piece Form)	Wire Range	Insulation Range
66005-2 LP	24-20	.040-.080
66009-2 LP	28-24	.030-.060
66021-2 LP	Two 20 or Two 22	Two .045 to Two .072
66021-2 LP	18	.067-.090
66027-2 LP	28-24	.078 SPEC.

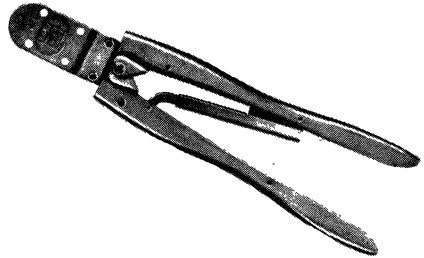
SNAP-IN RECEPTACLE CONTACTS

MATERIAL—Phosphorous Bronze
PLATING—.00003 Gold over .00003 Nickel



HAND CRIMPING TOOLS

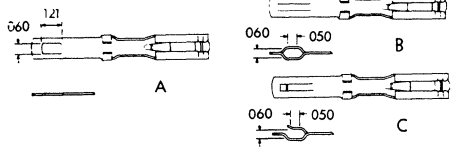
Hand Tool	Receptacle Contact No. (Loose Piece Form)	Wire Combinations
90083	66005-LP	One 24 or One 22 or One 20
	66005-LP	Two 24 or Two 22
59524	66005-LP	One 22 or One 20
	66009-LP	One 26 or One 24
59525	66021-LP	Two 22
	66021-LP	Two 20
90005	66021-LP	Two 20
	66021-LP	One 18 or One 20
59529	66027-LP	One 28 or One 26
90014	66021-LP	Two 22 or Three 22



EYELET TYPE CONTACTS

Material—Phosphor Bronze.
Plating—.000030 Gold over .000030 Nickel.

Receptacle Contact Number (Loose Piece Form)	Type	Maximum Extension Beyond Back Face of Block
66086-2	A	.390
66086-3	B	.375
66086-4	C	.375



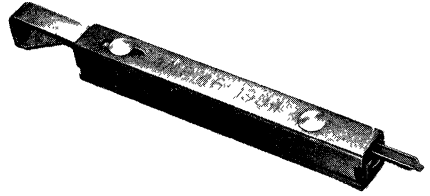
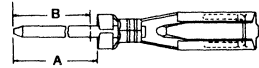
POST TYPE CONTACTS

.062 x .031 POST CONTACTS

Material—Phosphor Bronze per QQ-B-750

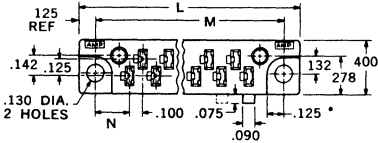
Dimensions		Part No.	Plating	
A	B*		Receptacle	Post
.410	.370	1-582261-1		
.640	.600	1-582261-2	.000030 Gold over	
.810	.770	1-582261-3	.000030 Nickel	
1.040	1.000	1-582261-4		Tin
.410	.370	582652-1		
.640	.600	582652-2	.000015 Gold over	
.810	.770	582652-3	.000030 Nickel	
1.040	1.000	582652-4		

*Extension from rear of Connector Block.

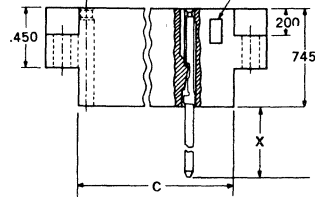


CONTACT EXTRACTION TOOL #465199-1

RECEPTACLE HOUSINGS LOADED WITH POST TYPE CONTACTS (.062 x .031 POST)



KEYING BOSSES OPTIONAL LOCATED AT ANY OR ALL OF THE ODD NUMBERED CAVITIES



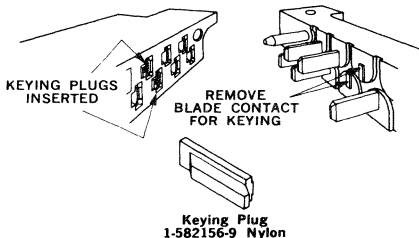
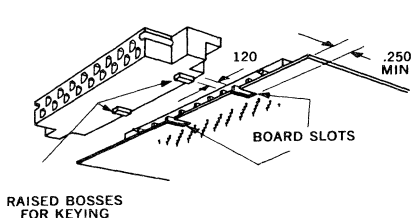
DIALLYL PHTHALATE

No. of Postions	Part Number	X	L	M	N	C*	No. of Termi-Point Clips
17	582828-1	1.000	2.390	2.130	.265	1.910	4
	582828-2	.770					3
	582828-3	.600					2
	582828-4	.370					1
23	582829-1	1.000	2.990	2.730	.265	2.510	4
	582829-2	.770					3
	582829-3	.600					2
	582829-4	.370					1
29	582830-1	1.000	3.590	3.330	.265	3.110	4
	582830-2	.770					3
	582830-3	.600					2
	582830-4	.370					1
35	582831-1	1.000	4.190	3.930	2.65	3.710	4
	582831-2	.770					3
	582831-3	.600					2
	582831-4	.370					1
41	582832-1	1.000	4.790	4.530	.265	4.310	4
	582832-2	.770					3
	582832-3	.600					2
	582832-4	.370					1
47	582819-1	1.000	5.623	5.363	.381	5.143	4
	582819-2	.770					3
	582819-3	.600					2
	582819-4	.370					1

No. of Positions	Part Number	X	L	M	N	C*	No. of Termi-Point Clips
17	582833-1	1.000					4
	582833-2	.770	2.390	2.126	.265	1.910	3
	582833-3	.600					2
	582833-4	.370					1
582834-1	1.000	4					
23	582834-2	.770	2.990	2.726	.265	2.510	3
	582834-3	.600					2
	582834-4	.370					1
	582835-1	1.000					4
29	582835-2	.770	3.590	3.326	.265	3.110	3
	582835-3	.600					2
	582835-4	.370					1
	582836-1	1.000					4
35	582836-2	.770	4.190	3.926	.265	3.710	3
	582836-3	.600					2
	582836-4	.370					1
	582837-1	1.000					4
41	582837-2	.770	4.790	4.526	.265	4.310	3
	582837-3	.600					2
	582837-4	.370					1
	582838-1	1.000					4
47	582838-2	.770	5.623	5.359	.381	5.143	3
	582838-3	.600					2
	582838-4	.370					1

*Cut out dimension for mounting.

KEYING INFORMATION

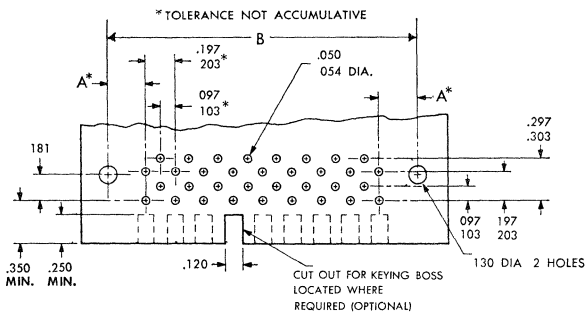


Method I—Polarization of connector halves is provided by permanent guide pins in blade contact housings. Keying can be provided by means of external bosses. Order by standard part number and specify which odd numbered positions should be provided with bosses on receptacle housing.

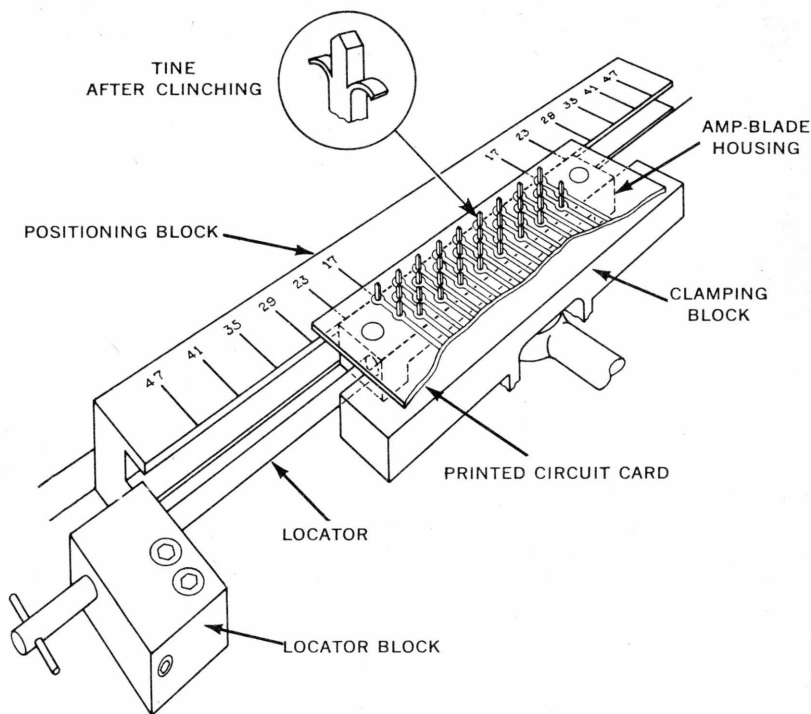
Method II—Insert keying plug into mating side of receptacle housing cavity. Remove corresponding blade contact in blade housing using tool No. 811145.

BOARD LAYOUT

No. of Positions	Dimensions	
	"A"	"B"
17	.265	2.130
23	.265	2.730
29	.265	3.330
35	.265	3.930
41	.265	4.530
47	.381	5.363



CLINCHING TOOL

**CLINCHING DIE SET****685075-2**

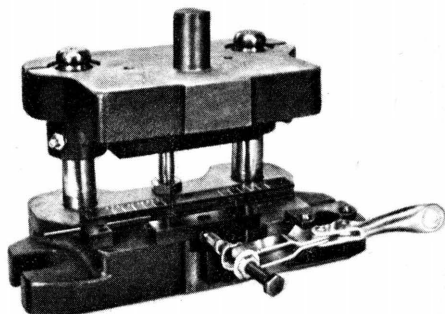
(Accepts All Sizes of Clinching Blade Assemblies)

Clinching Blade Assemblies

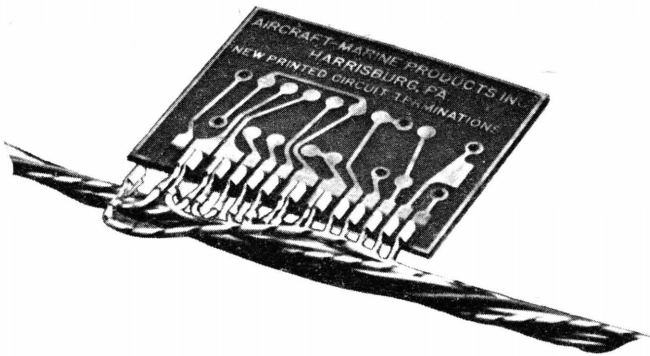
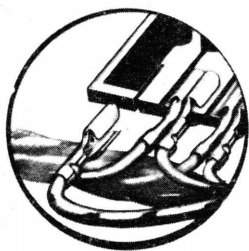
17 Position 451072-1
 23 Position 451072-2
 29 Position 451072-3
 35 Position 451072-4
 41 Position 451072-5
 47 Position 451072-6

BOLSTER PLATE**451028-1**

(Optional—Used as a Base "Build Up" if the Press
 Throat Exceeds 5½")



AMP-IN* AND AMP-EDGE* TERMINALS § FOR PRINTED CIRCUIT APPLICATIONS



AMP-EDGE TERMINALS

The AMP-EDGE terminal is a complete departure from the customary type of printed circuit board attachment. Employing a friction-fit principle, it is a quick connect/disconnect unit that fits into machined slots in your circuit boards.

FEATURES:

- Can be applied anywhere on perimeter of board
- Pre-cleans its own contact area through frictional fit wiping action
- Assures vibration and shock resistance due to firm detention in board and firm support to wire insulation
- Eliminates eyelets and plated-through holes on two sided boards
- Can be used back-to-back for commoning circuits
- Is completely aerated, eliminating moisture traps

AMP-IN TERMINALS

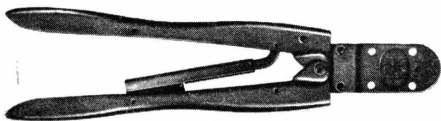
AMP-IN terminals are designed, primarily, to facilitate and speed the preparation of printed circuit leads prior to the solder dip process. Once inserted in the board, the pin tip spreads apart, enabling the pin to stand firmly until the solder dip application.

FEATURES:

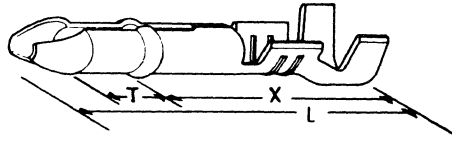
- Brings leads to boards in one assembly operation without need of automation equipment
- Eliminates danger of shorts from adjacent leads
- Self-retaining and self-aligning for positive solder dipping
- Affords excellent capillary flow of solder without danger of solder bridging
- Accommodates either solid or stranded leads
- Prevents solder wicking damage to stranded conductors
- Imparts firm support to wire insulation for long life vibration and shock resistance

HAND CRIMPING TOOLS

Designed for modest production runs, these hand crimping tools deliver the same degree of crimping uniformity afforded by the automatic crimping machines. A ratcheting device between the handles of the tool necessitates that complete "bottoming" of the crimping dies take place before the terminal is released from the tool. This prevents over-crimping or under-crimping and assures perfectly terminated connections.



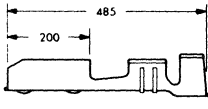
SPECIFICATIONS



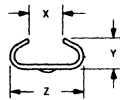
Stock Thickness .010

AMP-IN

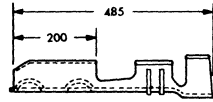
Terminal	Finish	L	X	Board Thick.	Board Hole Diameter	Wire Size	Insul. Range	Material	"T"	Hand Tool No.
42335-1	None	.545	.405	.062	.072"	22-20	.100 Max.	Brass	.0655 ± .0025	90077
42335-2	Tin	.545	.405	.062	.072"	22-20	.100 Max.	Brass	.0655 ± .0025	
42335-3	Tin Lead	.545	.405	.062	.072"	22-20	.100 Max.	Brass	.0655 ± .0025	
42335-4	Silver	.545	.405	.062	.072"	22-20	.100 Max.	Brass	.0655 ± .0025	
42658-1	None	.545	.377	.093	.072"	22-20	.100 Max.	Brass	.093 ± .002	
42658-2	Tin Plated	.545	.377	.093	.072"	22-20	.100 Max.	Brass	.093 ± .002	
42658-3	Tin Lead	.545	.377	.093	.072"	22-20	.100 Max.	Brass	.093 ± .002	



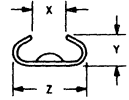
42263 1 GROUP



AMP-EDGE



42587 GROUP



Terminal	Finish	X	Y	Z	Board Thick.	Stock Thick.	Material	Wire Size	Insul. Range	Hand Tool No.
† 60602-2	Tin Plated	.033	.100	.123	.040	.012	Phos. Bronze	26-22	.040-.055	None
* 42469-1	None	.050	.080	.153	.062	.010	Brass	22-20	.075 Max.	48698
* 42469-2	Tin Plated	.050	.080	.153	.062	.010	Brass	22-20	.075 Max.	
* 42469-3	Silver Plated	.050	.080	.153	.062	.010	Brass	22-20	.075 Max.	
* 42469-4	None	.050	.080	.153	.062	.010	Ber. Cu.	22-20	.075 Max.	
* 42469-5	Tin Plated	.050	.080	.153	.062	.010	Ber. Cu.	22-20	.075 Max.	
* 42469-6	Gold Plated	.050	.080	.153	.062	.010	Brass	22-20	.075 Max.	
△ 42587-1	None	.050	.080	.153	.062	.010	Brass	22-20	.075 Max.	46190
△ 42587-2	Tin Plated	.050	.080	.153	.062	.010	Brass	22-20	.075 Max.	
△ 42587-3	Silver Plated	.050	.080	.153	.062	.010	Brass	22-20	.075 Max.	
△ 42587-4	None	.050	.080	.153	.062	.010	Ber. Cu.	22-20	.075 Max.	
△ 42587-5	Tin Plated	.050	.080	.153	.062	.010	Ber. Cu.	22-20	.075 Max.	
△ 42587-6	Tin Plated	.050	.080	.153	.062	.010	Phos. Bronze	22-20	.075 Max.	
△ 42587-7	Gold Plated	.050	.080	.153	.062	.010	Brass	22-20	.075 Max.	
△ 42588-1	None	.080	.075	.167	.093	.010	Brass	22-20	.075 Max.	
△ 42588-2	Tin Plated	.080	.075	.167	.093	.010	Brass	22-20	.075 Max.	
△ 60480-1	None	.080	.075	.167	.093	.010	Brass	22-20	.080-.100	
△ 60480-2	Tin Plated	.080	.075	.167	.093	.010	Brass	22-20	.080-.100	46412
△ 60002-1	None	.050	.080	.153	.062	.010	Brass	22-20	.080-.100	
△ 60002-2	Tin Plated	.050	.080	.153	.062	.010	Brass	22-20	.080-.100	
□ 60019-1	None	.050	.080	.153	.062	.010	Brass	22-20	.080-.100	
□ 60019-2	Tin Plated	.050	.080	.153	.062	.010	Brass	22-20	.080-.100	
○ 60069-1	None	.052	.088	.160	.062	.016	Brass	22-20	.080-.100	
○ 60069-2	Tin Plated	.052	.088	.160	.062	.016	Brass	22-20	.080-.100	
○ 60156-1	None	.052	.088	.160	.062	.016	Brass	20-18	.080-.100	
○ 60156-2	Tin Plated	.052	.088	.160	.062	.016	Brass	20-18	.080-.100	
⊗ 42263-1	None	.050	.080	.153	.062	.010	Brass	22-20	.075 Max.		48698
⊗ 42263-2	Tin Plated	.050	.080	.153	.062	.010	Brass	22-20	.075 Max.	
⊗ 42263-3	Silver Plated	.050	.080	.153	.062	.010	Brass	22-20	.075 Max.	
⊗ 42263-4	None	.050	.080	.153	.062	.010	Ber. Cu.	22-20	.075 Max.	
⊗ 42263-5	Tin Plated	.050	.080	.153	.062	.010	Ber. Cu.	22-20	.075 Max.	
⊗ 42263-6	Gold Plated	.050	.080	.153	.062	.010	Brass	22-20	.075 Max.	
⊗ 42263-7	Tin Plated	.050	.080	.153	.062	.010	Phos. Bronze	22-20	.075 Max.	
⊗ 42264-1	None	.080	.075	.167	.093	.010	Brass	22-20	.075 Max.	
⊗ 42264-2	Tin Plated	.080	.075	.167	.093	.010	Brass	22-20	.075 Max.	
⊗ 42264-3	Tin Plated	.080	.075	.167	.093	.010	Phos. Bronze	22-20	.075 Max.	

† (1) Dimple inside

* No Dimples

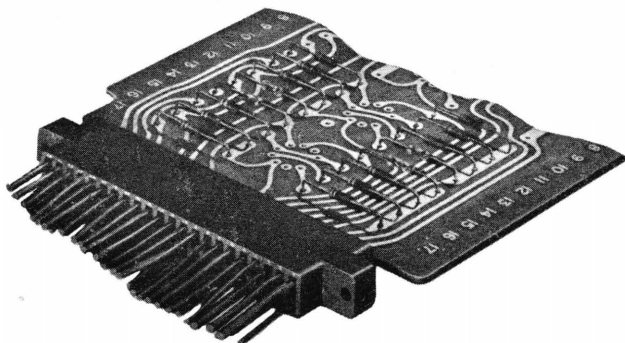
△ (2) Dimples inside receptacle (.020 high)

□ (2) Dimples inside (.010 high)

○ (2) Dimples inside (.015 high)

⊗ (2) Dimples outside (.010 high)

AMP-TAB PRINTED CIRCUIT CONNECTORS §



The AMP-TAB connector is a one-piece, printed circuit board edge connector. It features, among other things, insertion or extraction of terminals from the rear of the connector block while the printed circuit board is inserted in the connector.

The connector block contains pre-inserted contacts which mate in a firm wiping action with the pads of the printed board. The block material is glass-filled diallyl phthalate conforming to all applicable military specifications or is available in general purpose phenolic. A closed entry feature prevents the block from accepting oversize printed boards thereby preventing overstress of the spring contacts. The spring contact is made of phosphor bronze with gold over nickel plating, and has excellent resistance to corrosion and long life characteristics.

The connector block has the contact positions numbered front and rear in highly legible characters.

The tab terminals are inserted into the rear of the housing by hand—no insertion tooling is required. When inserted, each tab terminal is fully insulated from adjacent terminals within the connector block, eliminating the necessity for insulation sleeving. Tab terminals utilize the standard AMP "F" crimp with wire insulation support; wire size range is 26 through 18 AWG.

The AMP-TAB connector is primarily for two-sided boards and is available in two versions: the dual type contact; and the quad type contact. The dual commons the two rear wire terminals to **both** sides of the printed circuit board. The quad (with 4 rear-wire terminals) commons two rear wire terminals to the top of the board and two to the bottom; the board in this case is not commoned.

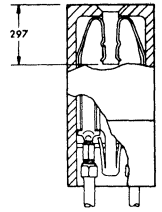
Extreme flexibility is available with center to center contact spacing of .100", .125", and .156", and connector block capacities of from 10 to 43 contact positions. Other features of flexibility are intercontact keying plugs and a simple terminal extraction tool.

FEATURES

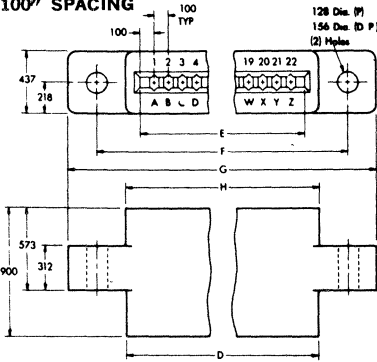
- Rear-entry of tab to connector contact.
- Gold over nickel plating on tab terminal and contact member.
- Cavity identification.
- Inter-contact keying plug and/or keying on contact centerline.
- Hand-insertion and simple tool extraction of tab terminals.
- Wire entry side has anti-flashover egg crating design.
- Glass-fiber filled diallyl phthalate conforms to MIL-M-14F, Type SDG-F, or general purpose phenolic connector block material.
- Contact material
 - .00003" gold over .00003" nickel plated phosphor bronze for diallyl phthalate blocks
 - .000015" gold over .00003" nickel plated phosphor bronze for phenolic blocks
- Compression crimped tab terminals with A-MP matched hand tooling.
- Positive mechanical retention of tabs.
- Contact spacing on .100, .125 and .156 inches.
- Tab terminals accommodate wire size ranges—18 AWG through 26 AWG.
- Built-in commoning of contact for dual or quad read-out and circuit redundancy.
- Diallyl phthalate connector dimensions and performance conform to MIL-C-21097.

DUAL (TWO TABS)

Accepts two tab terminals per position. These common top and bottom paths of the printed circuit board.



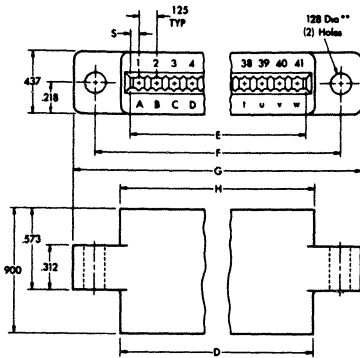
.100" SPACING



No. of Positions	Part Number*	E	F	G	H	D
10	582663-1 (P)	1.100	1.700	2.100	1.300	1.120
	582551-1 (DP)					
15	582665-1 (P)	1.600	2.200	2.600	1.800	1.620
	582553-1 (DP)					
18	582667-1 (P)	1.900	2.500	2.900	2.100	1.920
	582555-1 (DP)					
22	582669-1 (P)	2.300	2.900	3.300	2.500	2.320
	582557-1 (DP)					
31	582671-1 (P)	3.200	3.800	4.200	3.400	3.220
	582559-1 (DP)					
43	582673-1 (P)	4.400	5.000	5.400	4.600	4.420
	582561-1 (DP)					

* (P) = Phenolic. (DP) = Diallyl Phthalate.

.125" SPACING

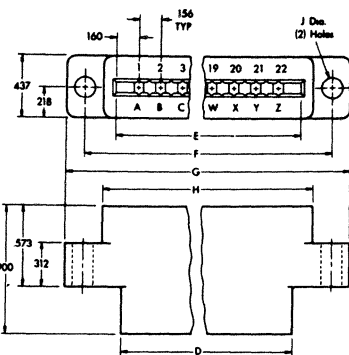


No. of Positions	Part Number*	E	F	G	H	D	S
10	582675-1 (P)	1.325	1.791	2.091	1.491	1.360	.100
	582563-1 (DP)						
15	582677-1 (P)	1.950	2.416	2.716	2.116	1.985	.100
	582565-1 (DP)						
18	582679-1 (P)	2.352	2.791	3.091	2.491	2.360	.100
	582567-1 (DP)						
22	582681-1 (P)	2.825	3.291	3.591	2.991	2.860	.100
	582569-1 (DP)						
31	582683-3 (P)	3.875	4.250	4.500	4.000	3.962	.062
	582509-1 (DP)						
41	582685-1 (P)	5.125	5.609	5.906	5.250	5.212	.062
	582512-1 (DP)						
43	582687-1 (P)	5.450	5.916	6.216	5.616	5.485	.100
	582571-1 (DP)						

* (P) = Phenolic. (DP) = Diallyl Phthalate.

**31 Position Phenolic—.150 Dia. 2 holes

.156" SPACING



No. of Positions	Part Number*	E	F	G	H	D	J Dia.
10	582689-1 (P)	1.724	2.158	2.408	1.888	1.616	.128†
	582573-1 (DP)						
15	582691-1 (P)	2.504	2.938	3.188	2.668	2.396	.128
	582575-1 (DP)						
18	582693-1 (P)	2.972	3.406	3.656	3.136	2.864	.128
	582577-1 (DP)						
22	582695-1 (P)	3.596	4.030	4.280	3.760	3.448	.128
	582508-1 (DP)						
30	582795-1 (P)	4.844	5.278	5.528	5.008	4.736	.128
	582697-1 (P)						
31	582579-1 (DP)	5.000	5.434	5.684	5.164	4.892	.128
	582699-1 (P)						
43	582581-1 (DP)	6.872	7.306	7.556	7.036	6.764	.128
	582581-1 (DP)						

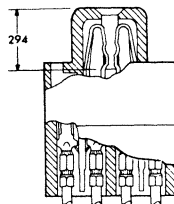
* (P) = Phenolic. (DP) = Diallyl Phthalate.

† Available with Floating Bushings. When ordering add suffix -2 to Basic Part Number.

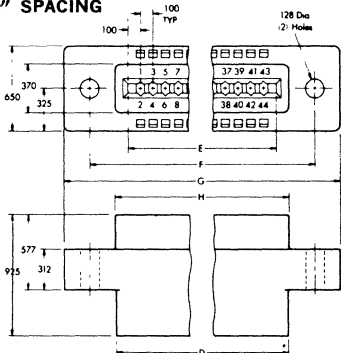
NOTE: Mounting hole sizes other than those indicated available upon request. 1/16" Board Thickness—.055" - .070"

298
QUAD (FOUR TABS)

Accepts four tab terminals per position. Two common to the top of the printed circuit board, two common to the bottom. Board paths are **not** commoned.



.100" SPACING

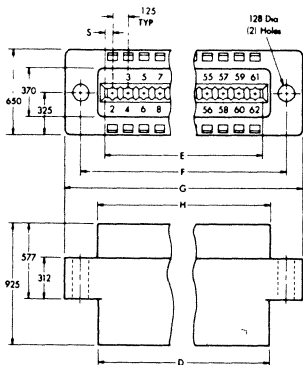


No. of Positions	Part Number*	E	F	G	H	D
10	582701-1 (P)	1.100	1.700	2.100	1.300	1.120
	582583-1 (DP)					
15	582703-1 (P)	1.600	2.200	2.600	1.800	1.620
	582585-1 (DP)					
18	582705-1 (P)	1.900	2.500	2.900	2.100	1.920
	582587-1 (DP)					
22	582707-1 (P)	2.300	2.900	3.300	2.500	2.320
	582589-1 (DP)					
31	582710-1† (P)	3.200	3.800	4.200	3.400	3.220
	582591-1 (DP)					
43	582712-1 (P)	4.400	5.000	5.400	4.600	4.420
	582593-1 (DP)					

* (P) = Phenolic. (DP) = Diallyl Phthalate.

† Available with Floating Bushings. When ordering add suffix -2 to Basic Part Number.

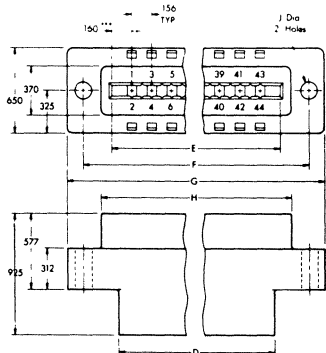
.125" SPACING



No. of Positions	Part Number*	E	F	G	H	D	S
10	582714-1 (P)	1.325	1.791	2.091	1.491	1.360	.100
	582595-1 (DP)						
15	582716-1 (P)	1.950	2.416	2.716	2.116	1.985	.100
	582597-1 (DP)						
18	582718-1 (P)	2.325	2.791	3.091	2.491	2.360	.100
	582599-1 (DP)						
22	582720-1 (P)	2.825	3.291	3.591	2.991	2.860	.100
	582601-1 (DP)						
31	582722-1 (P)	3.875	4.250	4.500	4.000	3.962	.062
	582603-1 (DP)						
41	582724-1 (P)	5.125	5.609	5.906	5.250	5.212	.062
	582605-1 (DP)						
43	582726-1 (P)	5.450	5.916	6.216	5.616	5.485	.100
	582607-1 (DP)						

* (P) = Phenolic. (DP) = Diallyl Phthalate.

.156" SPACING



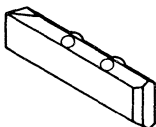
No. of Positions	Part Number*	E	F	G	H	D	J Dia.
10	582728-1 (P)	1.724	2.158	2.408	1.888	1.616	.128
	582609-1 (DP)						
15	582730-1 (P)	2.504	2.938	3.188	2.668	2.396	.128
	582611-1 (DP)						
18	582732-1 (P)	2.972	3.406	3.656	3.136	2.864	.128
	582732-3 (P)						
	582613-1 (DP)						
22	582734-1 (P)	3.596	4.030	4.280	3.760	3.488	.128
	582528-1 (DP)						
30	582797-1 (P)	4.844	5.278	5.528	5.008	4.736	.128
	582793-1 (DP)						
31	582736-1 (P)	5.000	5.434	5.684	5.164	4.892	.128
	582615-1 (DP)						
43	582738-1† (P)	6.872	7.306	7.556	7.036	6.764	.128
	582617-1 (DP)						

* (P) = Phenolic. (DP) = Diallyl Phthalate.

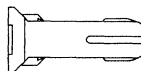
*** Except 18 position (Part No. 582732-3) is .150

† Available with Floating Bushings. When ordering add suffix -2 to Basic Part Number.

NOTE: Mounting hole sizes other than those indicated available upon request. 1/16" Board Thickness—.055" - .070"

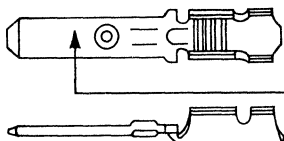


**Inter Contact
Keying Plug**
582501-1 (.125 & .156 centers)



Contact Keying Plug
582507-1
(.100, .125, & .156 centers)

TAB TERMINALS

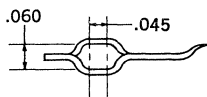
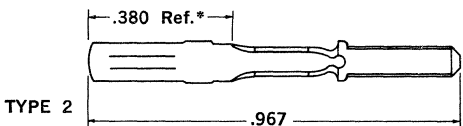
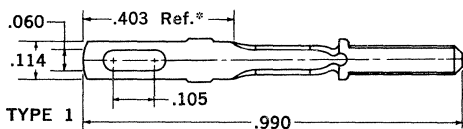


Tab Terminal Identification

- o — 66143-2
- X — 66144-2

Terminal No. (Strip Form)	Terminal No. (Loose Piece)	Wire Range	Insulation Range	Hand Tool	Extraction Tools
66143-2	66143-2LP	26-22	.035-.054	90090	91011-1 Dual
66144-2	66144-2LP	22-18	.054-.074		91017-1 Quad

SOLDER TAB TERMINALS



*Extension from rear of block

MATERIAL: Phosphor Bronze

Part No.	Type	Plating
582660-1	1	.000030 Gold over
582660-2	2	.000030 Nickel
582660-3	1	.000015 Gold over
582660-4	2	.000030 Nickel

TOOLING

Connector Size	Wire Size	Insul. Dia.	Terminal No.	Tool No.
.100, .125 & .156	26-22	.035-.054	66143LP	90090-2 90174-1
.100	22-20	.046-.062	66144LP	90174-1
.125 & .156	20-18	.054-.074	66144LP	90090-2



HAND TOOL

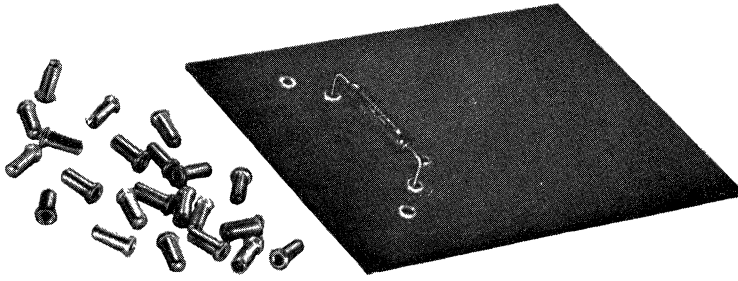


EXTRACTION TOOL

DUAL #91011-1

QUAD #91017-1

A-MP* REUSABLE COMPONENT TEST RECEPTACLES§



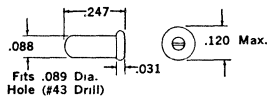
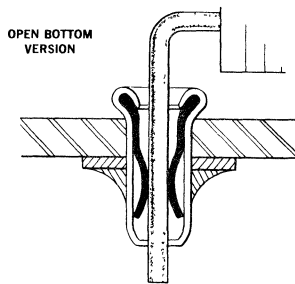
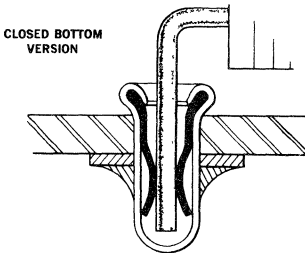
The A-MP Reusable Component Receptacles for testing printed circuit board components include a standard gold plated open and closed bottom version, as well as an economy closed bottom version. These receptacles extend the life of printed circuit boards and components and protect them from damage during "burning-in" and "bread boarding". The Reusable Component Receptacle eliminates individual soldering of each component lead into the circuit layout because only the Reusable Component Receptacle is soldered to the board. Testing is accomplished by hand insertion and extraction of component leads.

All three receptacles consist of a drawn copper cup, flared at one end to facilitate entry of a component lead. The flared end also limits the receptacles from continuing through the printed circuit board. A spring member of beryllium copper holds component leads in position and exerts a uniform pressure which maintains the retention and conductivity values necessary to assure true test readings.

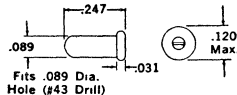
The standard, both open and closed bottom types, have gold plated cups. The economy version is tin-lead plated. The spring member remains the same in all receptacles—beryllium copper with gold over nickel plating.

A diameter of .089" is required for mounting the gold plated version. Whereas, a hole diameter of .090" is required for the economy version. Once installed, these receptacles accept component leads from .018" to .040" in diameter without being affected by repeated insertions and extractions over extended periods of time. Retention values are best maintained when the receptacle is used for repeated acceptances of the same size component lead, or larger diameters.

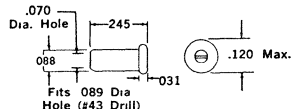
Receptacles may be used: (1) for prototype work in arranging components on printed circuit boards; (2) as a quick and reliable method in testing transistors, resistors, diodes, capacitors and components at the prototype level; (3) when selecting more effective and/or reliable components with different electrical values; (4) as a module connector by mounting receptacles in an array comparable with module leads of various configurations, thus providing a pluggable and removable method of mounting this type of circuit.



**PART No. 380598-1
GOLD PLATED**



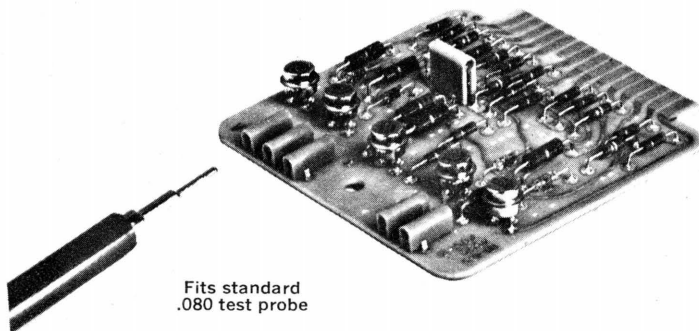
**PART No. 380598-2
TIN LEAD PLATED**



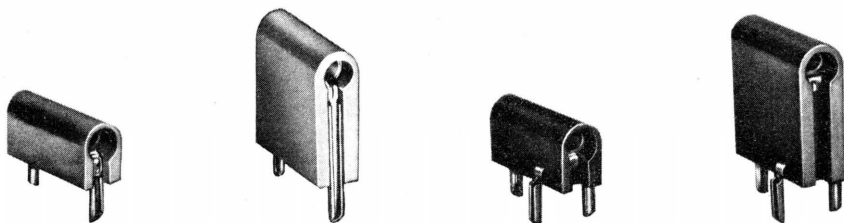
**PART No. 380635-1
GOLD PLATED**

TEST DATA—Average insertion forces up through 100 insertions—approximately 20 ounces.
Average withdrawal forces—2 ounces. Voltage drop 2.0 millivolts with 0.4 amperes.

A-MP* TEST PROBE RECEPTACLES § FOR PRINTED CIRCUIT BOARDS



Fits standard
.080 test probe



The AMP Incorporated line of test probe receptacles is designed with this specific motive: to permit low cost test probe of circuits on printed circuit boards, without interruption of operating currents, with precise reliability.

The A-MP* test probe receptacle is available with either two or three mounting legs. They are also available either in the standard height, or in a taller height (to permit probing at any position on the board where clearance to probe is necessary). The three-leg mount gives maximum stability. The two-leg mount yields maximum density.

The present line of test probe receptacles is designed for boards up to $\frac{1}{8}$ " thick. The legs mount in .052 diameter holes.

FEATURES:

- Leg mounts are "V" shaped, to promote solder wicking and consistent fillets.
- Housings available in 10 colors and natural.
- Receptacle is recessed in housing, to prevent shorting or flashover.
- Probe may be inserted in either end of test probe receptacle.

ELECTRICAL and MECHANICAL CHARACTERISTICS:

- Millivolt Drop 4 MV @ 4 AMPS.
- Insulation Resistance 10,000 Meg OHM.
- Corona Starting Voltage 1,000 volts @ sea level.
- Voltage breakdown 2,500 volts @ sea level (corrosion, moisture resistance, thermal shock, vibration, mechanical shock, insulation resistance tests in accordance MIL-STD-202).
- Housing of nylon is rated for 105°C.
- Retention value—16 ozs. with normal .080 probe.

**TABLE I
COLOR CODE**

Suffix Dash Number	Housing Color
-0	BLACK
-1	BROWN
-2	RED
-3	ORANGE
-4	YELLOW
-5	GREEN
-6	BLUE
-7	VIOLET
-8	GRAY
-9	WHITE

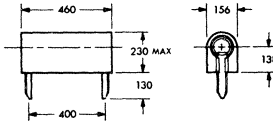
**TABLE II
COLOR CODE**

Suffix Dash Number	Housing Color
-0	NATURAL
-1	BROWN
-2	RED
-3	YELLOW
-4	GREEN
-5	ORANGE
-6	BLUE
-7	VIOLET
-8	GREY
-9	WHITE

SPECIFICATIONS

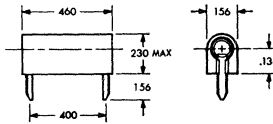
NOTE: MOUNTING HOLE FOR LEG: .052 DIAMETER

BI-LEG MOUNT



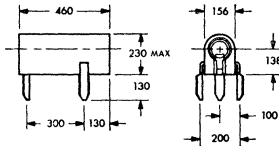
Plating on Probe Insert	Part Number With Prefix # (Suffix Dash Number Indicates Color Code Table I)
Gold	3-582118- (0 through 9) 6-582118-9 (Natural)

BI-LEG MOUNT



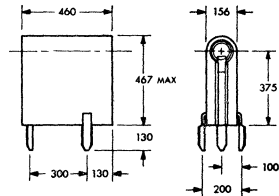
Plating on Probe Insert	Part Number With Prefix # (Suffix Dash Number Indicates Color Code Table II)
Gold	1-380606- (0 through 9) 2-380606-1 (Black)

TRI-LEG MOUNT



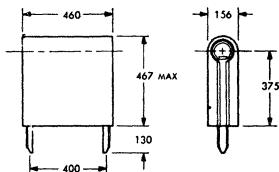
Plating on Probe Insert	Part Number With Prefix # (Suffix Dash Number Indicates Color Code Table I)
Gold	3-582119- (0 through 9) 6-582119-9 (Natural)

TRI-LEG MOUNT



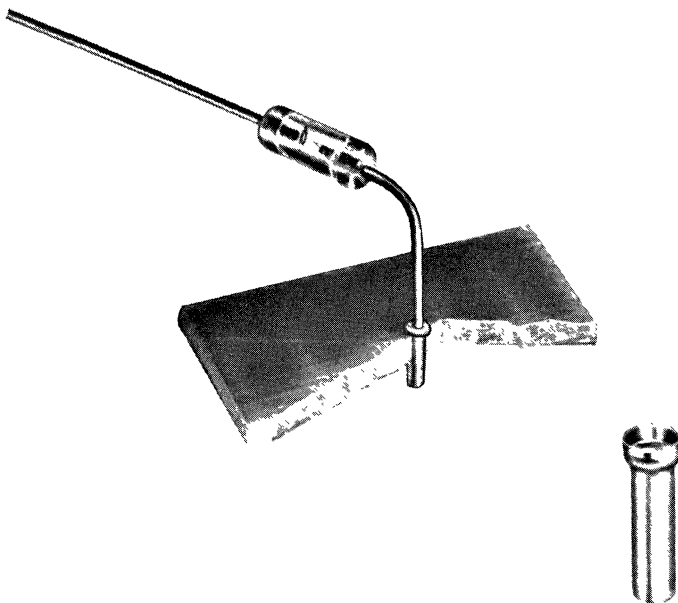
Plating on Probe insert	Part Number With Prefix # (Suffix Dash Number indicates Color Code Table I)
Gold	3-582120- (0 through 9) 6-582120-9 (Natural)

BI-LEG MOUNT



Plating on Probe Insert	Part Number With Prefix # (Suffix Dash Number Indicates Color Code Table I)
Gold	3-582340- (0 through 9) 6-582340-9 (Natural)

A-MP* MINIATURE SPRING SOCKET §



Socket (in circle) shown approx. 6 times actual size

The new A-MP Miniature Spring Socket adapts to a variety of wiring and packaging requirements utilizing printed circuit boards, as well as other electrical/electronic applications in which socket miniaturization is required.

The miniature spring socket can be utilized to accept single leads which include solid wire pins or component leads. Axial lead components as well as transistors can be mounted in these receptacles. By arranging the miniature sockets on a board in a specific pattern, they will act as a module receptacle for multiple lead type components. A "knockout" version of the socket is used so that the socket may be flow soldered without solder wicking into the contacts. By using this "knockout" type in a printed circuit board, boards may be interconnected by running a single pin through multiple boards. As a memory frame bussing connector, the sockets can be used either to plug into pins extending from memory frame either mounted in a header or with jumpers running from frame to frame. They may also be mounted in a memory frame then interconnected by wire to other frames.

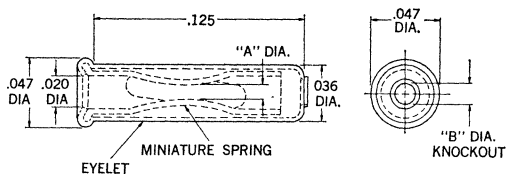
The A-MP miniature spring socket is manufactured from base material of beryllium copper and is available either unplated, tin, or gold plated in three pin or wire diameter ranges. The sockets have "knockouts" for flow soldering that are left in place to prevent the solder from wicking into the socket. The "knockouts" are removed after the socket is assembled in the eyelet.

In applications where the miniature spring is used without an eyelet, the flange is fused to a printed circuit board. In other applications, the flange may be replaced by a long tab, which is then fused or welded to sub-straight for interconnections.

FEATURES

- .060" spacing with eyelet and .050" spacing without eyelet
- Insertion forces tooled for high or low requirements
- High vibration resistance
- Elimination of heat sink and transistor pads
- Accepts 30-28, 27-26 and 25-24 AWG sizes
- Meets MIL-G-45204 Type II and MIL-T-10727 Type I

SPECIFICATIONS



Wire Size	Wire Dia.	Miniature Spring Socket Material & Finish	Eyelet Material & Finish	"A" Dia.	"B" Dia.	Catalog No.
30-28	.010-.0126	Beryllium Copper	Copper	.007	--	330808
		Tin Plated Beryllium Copper	Tin Plated Copper	.007	--	2-330808-1
		Gold Plated Beryllium Copper	Gold Plated Copper	.007	--	2-330808-2
30-28	.010-.0126	Beryllium Copper	Copper	.007	.021	2-330808-9
		Tin Plated Beryllium Copper	Tin Plated Copper	.007	.021	3-330808-1
		Gold Plated Beryllium Copper	Gold Plated Copper	.007	.021	3-330808-2
		Beryllium Copper	Copper	.010	--	2-330808-3
		Tin Plated Beryllium Copper	Tin Plated Copper	.010	--	2-330808-4
27-26	.0142-.0159	Gold Plated Beryllium Copper	Gold Plated Copper	.010	--	2-330808-5
		Beryllium Copper	Copper	.010	.021	3-330808-3
		Tin Plated Beryllium Copper	Tin Plated Copper	.010	.021	3-330808-4
		Gold Plated Beryllium Copper	Gold Plated Copper	.010	.021	3-330808-5
		Beryllium Copper	Copper	.014	--	2-330808-6
25-24	.0179-.0201	Tin Plated Beryllium Copper	Tin Plated Copper	.014	--	2-330808-7
		Gold Plated Beryllium Copper	Gold Plated Copper	.014	--	2-330808-8
		Beryllium Copper	Copper	.014	.021	3-330808-6
		Tin Plated Beryllium Copper	Tin Plated Copper	.014	.021	3-330808-7
25-24	.0179-.0201	Gold Plated Beryllium Copper	Gold Plated Copper	.014	.021	3-330808-8
		Beryllium Copper	Copper	.014	.021	3-330808-6

Blanks indicate no knockout.



INSULATION and BUNDLING

This section includes the following sub-sections:

Introduction
SPIRAP Spiral Plastic Tubing
AMPSULATION Tubing
AMPIP Post Insulation Pod

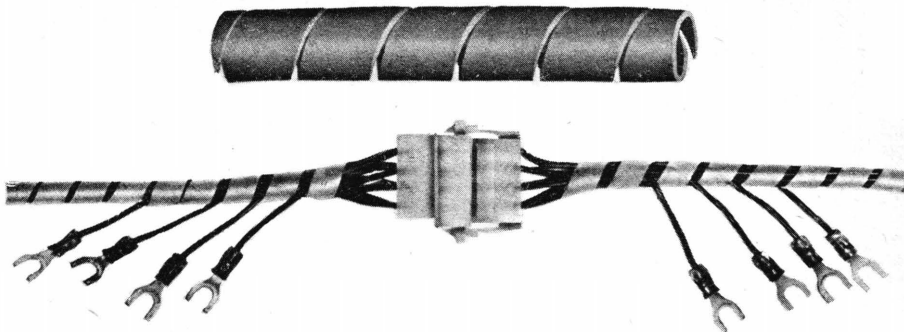
VIII. INSULATION AND BUNDLING

INTRODUCTION

The purpose of AMP's termination products, in addition to providing maximum conductivity, is to protect conductors from conditions which are detrimental to the circuit. With this end in view, AMP manufactures insulation and bundling products which provide a neat, compact appearance, inhibit the effects of vibration, abrasion, and provide electrical insulation.

The use of AMP insulating and bundling products in various colors allows wires, cables and terminations to be color-coded for easier identification. As with all other A-MP products, these have been tested and proved reliable in AMP's laboratories and in the field. They are quickly and easily applied.

SPIRAP* SPIRAL PLASTIC TUBING



BUNDLES AND PROTECTS WIRES, HOSES, TUBING, CABLES, ETC.

SPIRAP Spiral Plastic Tubing is a fast and economical way to bundle wires and harnesses. It is designed to protect wire insulation for the life of the circuit even under severe vibration. Colored SPIRAP tubing immediately identifies wire bundles, hoses and cables.

SPIRAP Spiral Plastic Tubing obtains its gripping ability from the memory of the plastic. When $\frac{1}{4}$ " diameter is wrapped around a $\frac{3}{4}$ " diameter wire bundle, the SPIRAP tubing tries to return to its original $\frac{1}{4}$ " diameter size, effectively gripping the wire bundle.

FEATURES:

- Reusable for repairs and modification.
- Makes neat, compact wire bundles.
- Take-offs can be made at any point.
- Will not hold cable rotting moisture.
- Color coded for ready circuit identification.
- Meets most Military and Commercial specifications.
- 3 sizes cover from $\frac{1}{16}$ " diameter to 4" diameter bundles.

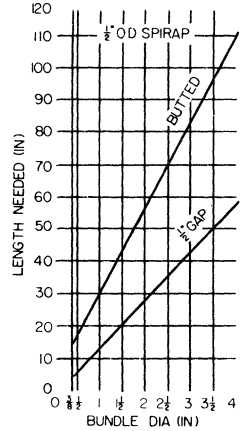
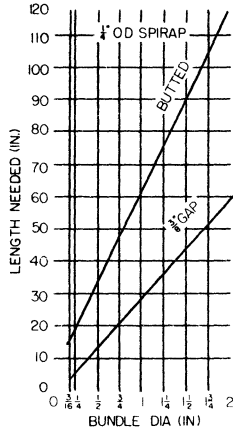
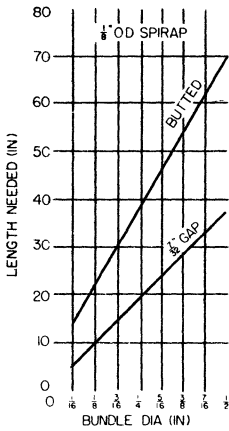
TEST DATA

Properties	ASTM Test	Unit	Natural Polyethylene	Outdoor Polyethylene	Flame Retardant Polyethylene	Natural Nylon	Outdoor Nylon	TFE TEFLON**
Max. Operating Temperature	AMP Test	°F	215	215	200	250 (3000 hrs.) 300 (600 hrs.)	200 (700 hrs.) 230 (100 hrs.)	500
Min. Operating Temperature	D746-51T	°F	-105	-105	-8	-148	-148	-450
Flammability	AMP Test	In./Min. on wire bundle	1.0	1.0	0 (Self-extinguishing)	0 (Self-extinguishing)	0 (Self-extinguishing)	0 (Non-flammable)
Abrasion Resistance	Taber*	mg. Loss/M cycles	22	20	27	15	3	7
Specific Gravity	D792-50	—	.92	.93	1.29	1.14	1.15	2.1
Tensile at 73°F.	D412-51T D638-52T	PSI	1800	2000	1500	— 10,000	— 10,000	— 3000
Water Absorption	D570-42	%	.01	.03	.02	1.5	1.5	.005
Effect of Organic Solvents	—	—	No appreciable effect below 130°F.	No appreciable effect below 130°F.	No appreciable effect below 130°F.	No Effect	No Effect	No Effect
Effect of Alkalies	—	—	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Effect of Acids	—	—	No Effect	No Effect	No Effect	Satisfactory with weak acids	Satisfactory with weak acids	No Effect
Weather Resistance	—	—	Poor 1 to 1½ yrs.	Excellent 15 to 20 yrs.	Poor 1 to 1½ yrs.	Poor 1 to 1½ yrs.	Excellent 15 to 20 yrs.	Excellent

*Taber Test measures amount of material removed. A lower number indicates a more abrasion resistant material.

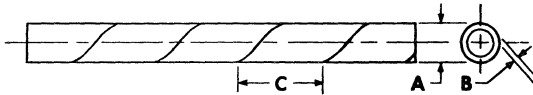
**TEFLON—duPont trademark.

LENGTH OF SPIRAP TUBING NEEDED FOR VARIOUS BUNDLE DIAMETERS



(CHARTS SHOW LENGTH NEEDED FOR EACH 12" LENTH OF BUNDLE)

SPIRAP is supplied in six materials. The principle differences in characteristics between materials are temperature range, flammability, and indoor or outdoor use.



NATURAL POLYETHYLENE

Part No.	Size	Ft./Box	"A"	"B"	"C"	Max. Bundle Range	Weight Lbs./M Ft.
500000-2	1/8"	100	.125±.010	.031±.006	.218±.015	1/16" to 1/2"	4
500000-3	1/8"	1000*	.125±.010	.031±.006	.218±.015	1/16" to 1/2"	4
500001-1	1/4"	50	.250±.015	.045±.010	.375±.015	3/16" to 2"	11-1/2
500001-2	1/4"	100	.250±.015	.045±.010	.375±.015	3/16" to 2"	11-1/2
500001-3	1/4"	1000*	.250±.015	.045±.010	.375±.015	3/16" to 2"	11-1/2
500002-1	1/2"	50	.500±.020	.062±.015	.500±.015	3/8" to 4"	35
500002-2	1/2"	100	.500±.020	.062±.015	.500±.015	3/8" to 4"	35
500002-3	1/2"	1000*	.500±.020	.062±.015	.500±.015	3/8" to 4"	35

FLAME RETARDANT POLYETHYLENE (WHITE)

500003-2	1/8"	100	.125±.010	.031±.006	.218±.015	1/16" to 1/2"	5-3/4
500003-3	1/8"	1000*	.125±.010	.031±.006	.218±.015	1/16" to 1/2"	5-3/4
500004-1	1/4"	50	.250±.015	.045±.010	.375±.015	3/16" to 2"	16-1/2
500004-2	1/4"	100	.250±.015	.045±.010	.375±.015	3/16" to 2"	16-1/2
500004-3	1/4"	1000*	.250±.015	.045±.010	.375±.015	3/16" to 2"	16-1/2
500005-1	1/2"	50	.500±.020	.062±.015	.500±.015	3/8" to 4"	49
500005-2	1/2"	100	.500±.020	.062±.015	.500±.015	3/8" to 4"	49
500005-3	1/2"	1000*	.500±.020	.062±.015	.500±.015	3/8" to 4"	49

NATURAL NYLON

†500013-2	1/8"	100	.125±.010	.015±.005	.218±.015	1/16" to 1/2"	2-1/2
†500013-3	1/8"	1000*	.125±.010	.015±.005	.218±.015	1/16" to 1/2"	2-1/2
†500015-1	1/4"	50	.250±.015	.023±.006	.375±.015	3/16" to 2"	8
†500015-2	1/4"	100	.250±.015	.023±.006	.375±.015	3/16" to 2"	8
†500015-3	1/4"	1000*	.250±.015	.023±.006	.375±.015	3/16" to 2"	8
†500017-1	1/2"	50	.500±.020	.032±.010	.500±.015	3/8" to 4"	23
†500017-2	1/2"	100	.500±.020	.032±.010	.500±.015	3/8" to 4"	23
†500017-3	1/2"	1000*	.500±.020	.032±.010	.500±.015	3/8" to 4"	23

TFE **TEFLON

†500023-2	1/8"	100	.125±.010	.020±.006	.218±.015	1/16" to 1/2"	6
†500024-1	1/4"	50	.250±.015	.030±.008	.375±.015	3/16" to 2"	19
†500024-2	1/4"	100	.250±.015	.030±.008	.375±.015	3/16" to 2"	19

OUTDOOR POLYETHYLENE (BLACK)

Part No.	Size	Ft./Box	"A"	"B"	"C"	Max. Bundle Range	Weight Lbs./M Ft.
500029-2	1/8"	100	.125±.010	.031±.006	.218±.015	1/16" to 1/2"	4
500029-3	1/8"	1000*	.125±.010	.031±.006	.218±.015	1/16" to 1/2"	4
500030-1	1/4"	50	.250±.015	.045±.010	.375±.015	3/16" to 2"	11-1/2
500030-2	1/4"	100	.250±.015	.045±.010	.375±.015	3/16" to 2"	11-1/2
500030-3	1/4"	1000*	.250±.015	.045±.010	.375±.015	3/16" to 2"	11-1/2
500031-1	1/2"	50	.500±.020	.062±.015	.500±.015	3/8" to 4"	35
500031-2	1/2"	100	.500±.020	.062±.015	.500±.015	3/8" to 4"	35
500031-3	1/2"	1000*	.500±.020	.062±.015	.500±.015	3/8" to 4"	35

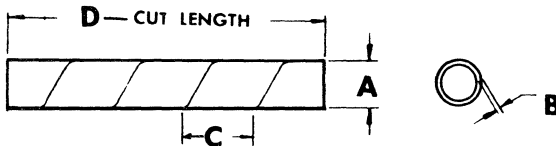
OUTDOOR NYLON (BLACK)

500035-2	1/8"	100	.125±.010	.015±.005	.218±.015	1/16" to 1/2"	2-1/2
500035-3	1/8"	1000*	.125±.010	.015±.005	.218±.015	1/16" to 1/2"	2-1/2
500036-1	1/4"	50	.250±.015	.023±.006	.375±.015	3/16" to 2"	8
500036-2	1/4"	100	.250±.015	.023±.006	.375±.015	3/16" to 2"	8
500036-3	1/4"	1000*	.250±.015	.023±.006	.375±.015	3/16" to 2"	8
500037-1	1/2"	50	.500±.020	.032±.010	.500±.015	3/8" to 4"	23
500037-2	1/2"	100	.500±.020	.032±.010	.500±.015	3/8" to 4"	23
500037-3	1/2"	1000*	.500±.020	.032±.010	.500±.015	3/8" to 4"	23

Nylon and **TEFLON SPIRAP available in colors. For part number—add Prefix: 2-Yellow, 3-Red, 4-Blue.

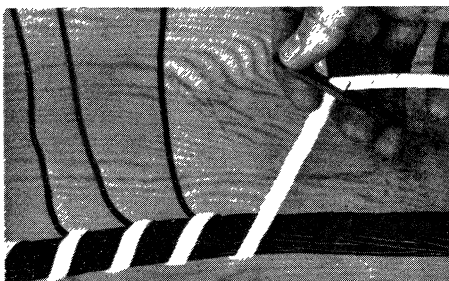
*Orders for 1000' reels will be filled with boxes of 50' and 100' lengths unless specifically ordered as an unbroken length.

**TEFLON—duPont Trademark.

**PRE-CUT SPIRAP TUBING**

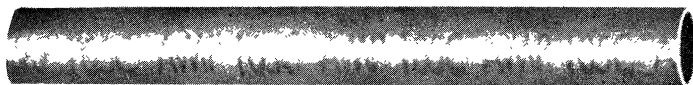
Cut Spirap	Part No.	D—Length Inches	A Dimension	B Dimension	C Dimension
1/8 Bk. Outdoor Poly.	29229—	3	.125	.031	.218
1/4 Bk. Outdoor Poly.	29230—	3	.250	.045	.375
1/2 Bk. Outdoor Poly.	29231—	3	.500	.062	.500
1/8 Natural Poly.	29232—	3	.125	.031	.218
1/4 Natural Poly.	29233—	3	.250	.045	.375
1/2 Natural Poly.	29234—	3	.500	.062	.500
1/8 Bk. Outdoor Poly.	29229—	6	.125	.031	.218
1/4 Bk. Outdoor Poly.	29230—	6	.250	.045	.375
1/2 Bk. Outdoor Poly.	29231—	6	.500	.062	.500
1/8 Natural Poly.	29232—	6	.125	.031	.218
1/4 Natural Poly.	29233—	6	.250	.045	.375
1/2 Natural Poly.	29234—	6	.500	.062	.500
1/8 Bk. Outdoor Poly.	29229—	8	.125	.031	.218
1/4 Bk. Outdoor Poly.	29230—	8	.250	.045	.375
1/2 Bk. Outdoor Poly.	29231—	8	.500	.062	.500
1/8 Natural Poly.	29232—	8	.125	.031	.218
1/4 Natural Poly.	29233—	8	.250	.045	.375
1/2 Natural Poly.	29234—	8	.500	.062	.500

Special Cut-Lengths Available.

**SPIRAP TOOLING****SPIRAP HAND TOOL**

The SPIRAP hand tool increases the speed of application and permits uniform wrapping along the bundle length. Slotted for 1/8", 1/4" and 1/2" SPIRAP.

AMPSULATION* TUBING § PRE-DILATED, HEAT SHRINKABLE PLASTIC INSULATION

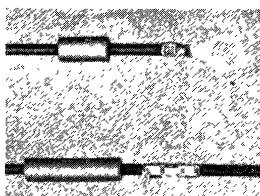


AMPSULATION tubing eliminates tape wrapping, potting, and other bothersome post-insulating techniques. It is made of predilated polyvinyl chloride which shrinks over circuit connectors when exposed to temperatures no higher than 250°F for thirty seconds or more. After shrinking, AMPSULATION tubing will

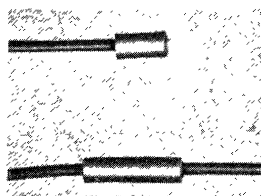
remain chemically stable in temperatures as high as 170°F.

AMPSULATION tubing is color coded (red, blue, yellow) to simplify identification of different diameter sizes. It is available in eight standard lengths ranging from 1¼" to 36".

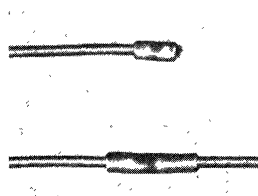
QUICKLY AND EASILY APPLIED—NO SPECIAL TOOLS REQUIRED



Pass wire through AMPSULATION tubing and crimp on the terminal or splice.



Slip AMPSULATION insulation tubing over the connection. Heat with a hot air gun or other heat source.

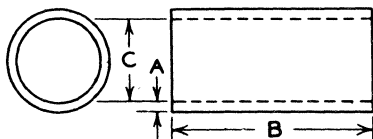


AMPSULATION tubing shrinks into position, providing long lasting, reliable protection.

FEATURES:

- Seven diameter sizes of tubing cover a wire insulation range from .078" through 1.125".
- Provides additional wire insulation support for vibration resistance.
- Only hot air guns or heat lamps are needed to shrink AMPSULATION tubing.
- AMPSULATION tubing retains plasticizer, so it does not become brittle.
- Provides positive insulation and dielectric strength.
- AMPSULATION tubing does not require preliminary preparation.

AMPSULATION* TUBING SPECIFICATIONS



WIRE INSULATION RANGE:

After and Before
SHRINKING

Part No.	Color	A	B	C Min.	C Max.
329767	BLACK	.035" †	1.093"	1.600"	1.600"
329768	BLACK	.055" †	1.625"	2.450"	2.450"
*329769	BLACK	.070" †	2.343"	3.700"	3.700"
*329770	BLACK	.082" †	3.718"	5.450"	5.450"

†Available in Random or Specific Cut Lengths. Contact District Sales Office or Salesman.

*Min. order 250 feet.

AMPSULATION* TUBING SPECIFICATIONS (cont'd)

Wire Insulation Range .078 Min. to .125 Max.*

Part No.	Color	A	B	C Min.
325128	YELLOW	.018	1-1/16"	.127
2-325128-6	YELLOW	.018	2"	.127
2-325128-1	YELLOW	.018	3"	.127
2-325128-2	YELLOW	.018	6"	.127
2-325128-3	YELLOW	.018	9"	.127
327216	YELLOW	.018	12"	.127
2-325128-4	YELLOW	.018	18"	.127
2-325128-5	YELLOW	.018	36"	.127

Wire Insulation Range .296 Min. to .468 Max.*

Part No.	Color	A	B	C Min.
325137	YELLOW	.022	1-3/32"	.490
2-325137-5	YELLOW	.022	2"	.490
328280	YELLOW	.022	3"	.490
2-325137-2	YELLOW	.022	6"	.490
2-325137-3	YELLOW	.022	9"	.490
327219	YELLOW	.022	12"	.490
2-325137-4	YELLOW	.022	18"	.490
2-325137-6	YELLOW	.022	36"	.490

Wire Insulation Range .109 Min. to .203 Max.*

Part No.	Color	A	B	C Min.
325131	RED	.018	1-3/32"	.213
2-325131-6	RED	.018	2"	.213
2-325131-2	RED	.018	3"	.213
2-325131-3	RED	.018	6"	.213
2-325131-4	RED	.018	9"	.213
327217	RED	.018	12"	.213
2-325131-5	RED	.018	18"	.213
2-325131-7	RED	.018	36"	.213

Wire Insulation Range .437 Min. to .625 Max.‡

Part No.	Color	A	B	C Min.
325140	RED	.030	1-1/2"	.640
2-325140-5	RED	.030	2"	.640
2-325140-1	RED	.030	3"	.640
2-325140-2	RED	.050	6"	.640
2-325140-3	RED	.030	9"	.640
328528	RED	.030	12"	.640
2-325140-4	RED	.030	18"	.640
2-325140-6	RED	.030	36"	.640

Wire Insulation Range .187 Min. to .312 Max.*

Part No.	Color	A	B	C Min.
325134	BLUE	.018	1-3/32"	.340
2-325134-5	BLUE	.018	2"	.340
328279	BLUE	.018	3"	.340
2-325134-2	BLUE	.018	6"	.340
2-325134-3	BLUE	.018	9"	.340
327218	BLUE	.018	12"	.340
2-325134-4	BLUE	.018	18"	.340
2-325134-6	BLUE	.018	36"	.340

Wire Insulation Range .562 Min. to .843 Max.‡

Part No.	Color	A	B	C Min.
325143	BLUE	.030	1-1/2"	.875
2-325143-4	BLUE	.030	2"	.875
328658	BLUE	.030	3"	.875
2-325143-1	BLUE	.030	6"	.875
2-325143-2	BLUE	.030	9"	.875
328529	BLUE	.030	12"	.875
2-325143-3	BLUE	.030	18"	.875
2-325143-5	BLUE	.030	36"	.875

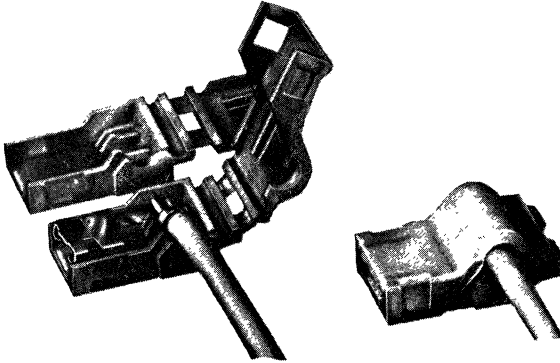
Wire Insulation Range .812 Min. to 1.125 Max.‡

Part No.	Color	A	B	C Min.
325146	YELLOW	.030	1-1/2"	1.187
2-325146-5	YELLOW	.030	2"	1.187
2-325146-1	YELLOW	.030	3"	1.187
2-325146-2	YELLOW	.030	6"	1.187
2-325146-3	YELLOW	.030	9"	1.187
328530	YELLOW	.030	12"	1.187
2-325146-4	YELLOW	.030	18"	1.187
2-325146-6	YELLOW	.030	36"	1.187

‡AMPSULATION tubing in these sizes will gain approximately 25% in length at maximum shrinkage.

*AMPSULATION tubing in these sizes will lose approximately 10% in length at maximum shrinkage.

AMPIP POST-INSULATION POD FOR .250 FASTON TERMINALS



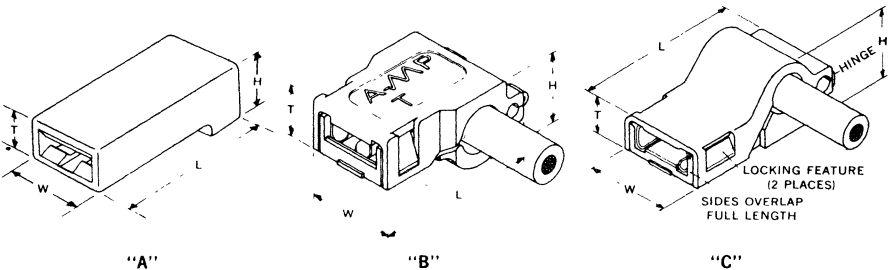
This all-nylon insulator provides a complete covering for A-MP★ FASTON terminals in size wire range 22 to 14 AWG with a .210" maximum insulation diameter.

The AMPIP Post-Insulation Pod snap-locks over the entire terminal and extends beyond the receptacle end to provide an extra margin of safety. It is easily removed, whenever required, for inspection or replacement.

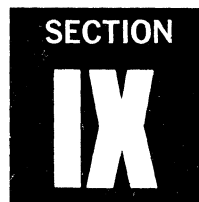
FEATURES

- U.L. Approved Nylon—maximum operating temperature 105°C, 300 Volts.
- No heat required, insulator snap-locks in place.
- Hand installed, no tool needed.
- Removable for inspection or replacement of terminals.
- Pod can be placed over present or new terminals.
- Insulation Receptacle has lead-in tab entry feature.
- Snug fitting insulator prevents accidental insertion of tab above or below FASTON receptacle.
- Prevents accidental damage to the terminal and/or wire during insertion.
- Covers terminal completely.

SPECIFICATIONS



Style	Part Number	Material	Insulation Dia.	L	T	W	H	Fits Terminal
Straight Type "A"	480054-3	Nylon	.140	.945	.260	.393	.320	42281-2
Flag Type "B"	1-480307-1	Nylon	.210	.787	.266	.448	.360	41531 41532
Flag Type "C"	1-480306-1	Nylon	.140	.692	.180	.460	.315	60290 60314



UTILITY PRODUCTS

This section includes the following sub-sections:

Introduction
UTILI-TENSHUN Splices and Deadends
AMPACT Taps and Tools

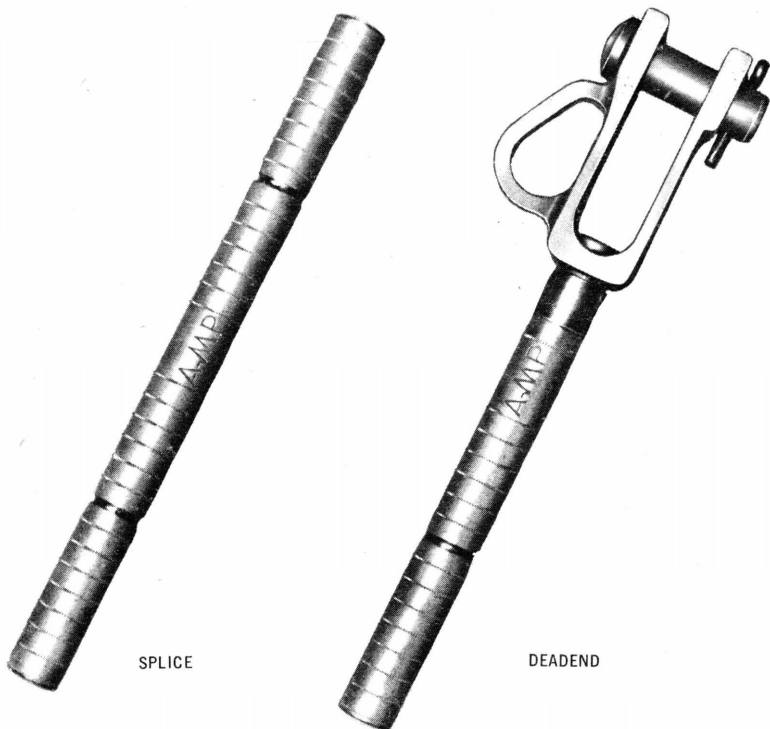
IX. UTILITY PRODUCTS

INTRODUCTION

In recent years, AMP has devoted much research and engineering know-how in developing a totally new family of products for the Power Utility Industry. AMP products represent the most advanced on the market and range from the compact, reliable UTILI-TENSHUN Splices for AAC, AAAC, and ACSR conductors to the revolutionary AMPACT Tap and Tool.

AMPACT products, the result of years of extensive laboratory and field testing, were designed to solve connector problems encountered throughout the industry. This revolutionary approach combines extreme reliability with safety and ease of application. These products eliminate the need for costly and cumbersome hydraulic and pneumatic tooling, replacing them with one miniature tool and two interchangeable heads. This tool can be used to apply connectors for Overhead and Underground applications, including: full tension splices, switchgear and substation connections, suspension clamps, hot line clamps, and others.

A-MP* UTIL-TENSHUN* SPLICES AND DEADENDS FOR ACSR, AAC, AND AAAC



SPLICE

DEADEND

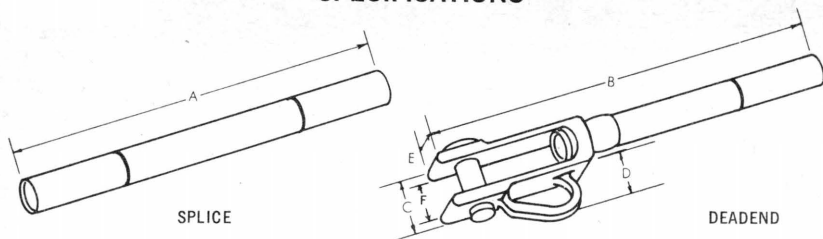
FULL TENSION SPLICES AND DEADENDS

A-MP UTIL-TENSHUN* splices and deadends are one-piece, full-tension compression connectors designed for the swift, reliable, and economical splicing and terminating of standard or compressed Aluminum Conductor Steel Reinforced (ACSR) standard or compressed All-Aluminum Conductor (AAC), and for both #6201 and #5005 All-Aluminum Alloy Conductor (AAAC) cables.

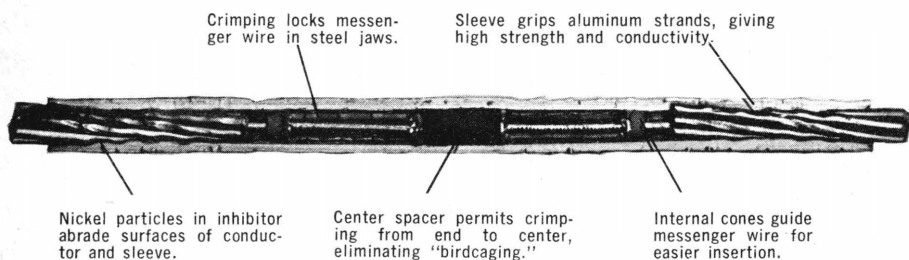
The splice is up to 50% smaller than conventional sleeves and requires fewer crimps while attaining full-tension performance. Deadends are of one-piece aluminum alloy and have a small silhouette, making them easier to insulate. The deadends exhibit the same full tension characteristic as the splices, and are crimped with the same dies in most available tooling as well as A-MP tooling. (Tool and die charts for competitive tooling are available from American Pamcor.)

Both splices and deadends are factory filled with an inhibitor compound which maintains its consistency and efficacy between -30°F and 400°F and provides three distinct advantages: pure nickel particles in the compound abrade and clean the aluminum, assuring good contact between wire and splice; the sealed-in compound keeps out moisture and corrosion-forming elements; and it eliminates separate inhibitor operations. Bell mouth sleeve ends make wire insertion easy and a center spacer in the splice allows crimping from ends to center without causing "birdcaging". Installation is simplified by special crimp marks on each sleeve, and by detailed instructions and die charts supplied on every deadend sleeve and on each splice bag.

SPECIFICATIONS



FOR ACSR (ALUMINUM CONDUCTOR STEEL REINFORCED)
 Either Standard or Compressed Stranding



WIRE		SPLICE		DEADEND					A-MP TOOLS & DIES*			
Size	Type	Part No.	Dimension A	Part No.	Dimensions B C D E F					Crimp Tool	A-MP Die Designation	No. Crimps Each End
#6	6/1	43655	5-1/2"	600900	7-1/4"	1-3/8"	1"	1"	3/4"	A-MP 601130	HA	6
#4	6/1-7/1	43657	6-1/2"	600901	7-3/4"	1-3/8"	1"	1"	3/4"	A-MP 601130	HA	8
#2	6/1-7/1	43659	7-9/16"	600902	8-1/4"	1-3/8"	1"	1"	3/4"	A-MP 601130	HA	10
#1/0	6/1	43600	8-5/8"	600903	8-7/8"	1-3/8"	1"	1"	3/4"	A-MP 601130	HB	11
#2/0	6/1	43601	10-1/8"	600904	9 3/4"	1-9/16"	1-1/8"	1"	25/32"	Hyd. Hand Tool	HC	6
#3/0	6/1	43602	10-7/8"	600905	9-7/8"	1-9/16"	1-1/8"	1-1/8"	25/32"	Hyd. Hand Tool	HD	7
#4/0	6/1	43603	12-9/16"	600906	10-1/2"	1-9/16"	1-1/8"	1-1/4"	25/32"	Hyd. Hand Tool	HE	8
266.8	18/1	600765	13-3/16"	600911	12-13/16"	2-1/4"	1-1/4"	1-1/2"	1-1/4"	Hyd. Hand Tool	HH	13
266.8	26/7	600766	13-3/16"	600912	12-13/16"	2-1/4"	1-1/4"	1-1/2"	1-1/4"	Hyd. Hand Tool	HH	13
#336.4	18/1	600280	13-3/16"	600907	12-13/16"	2-1/4"	1-1/4"	1-1/2"	1-1/4"	Hyd. Hand Tool	HH	13
#336.4	26/7	600281	13-3/16"	600908	12-31/16"	2-1/4"	1-1/4"	1-1/2"	1-1/4"	Hyd. Hand Tool	HH	13
397.5	18/1	600282	13-3/16"	600909	12-13/16"	2-1/4"	1-1/4"	1-1/2"	1-1/4"	Hyd. Hand Tool	HH	13
397.5	26/7	602069	13-3/16"	600910	12-13/16"	2-1/4"	1-1/4"	1-1/2"	1-1/4"	Hyd. Hand Tool	HJ	13

* A-MP Splices and Deadends can also be applied by A-MP dies with most available tooling. An extensive tool and die chart is available on request.

REA APPROVAL—A copy of the listing on A-MP UTILI-TENSHUN Splices and Deadends for ACSR by the Electrical Technical Standards Committee "A" of the Rural Electrification Administration, U. S. Department of Agriculture will be furnished upon request.

FOR AAC (ALL-ALUMINUM CONDUCTOR)
 Either Standard or Compressed Stranding
 and
FOR AAAC (ALL-ALUMINUM ALLOY CONDUCTOR)
 Both #6201 and #5005 Alloys

Thin, perforated liner of hard aluminum alloys. Center plug prevents over insertion of conductor.



Sleeve is factory-filled with a uniform coating of inhibitor compound.

Crimping compresses sleeve and wire into perforations in liner.

Compression forms projections which lock sleeve and wire together.

AAC

WIRE		SPLICE		DEADEND					A-MP TOOLS & DIES*			
Size	Type	Part No.	Dimension	Part No.	Dimensions					Crimp Tool	A-MP Die Designation	No. Crimps Each End
			A		B	C	D	E	F			
#6	7 Str.	601014	2-3/4"	600960	5-7/8"	1-3/8"	1"	1"	3/4"	A-MP 601130	HA	2
#4	7 Str.	601015	3-5/16"	600961	6-3/16"	1-3/8"	1"	1"	3/4"	A-MP 601130	HA	3
#2	7 Str.	601016	3-5/16"	600962	6-3/16"	1-3/8"	1"	1"	3/4"	A-MP 601130	HA	3
#1/0	7 Str.	601017	4-7/16"	600963	6-11/16"	1-3/8"	1"	1"	3/4"	A-MP 601130	HB	4
#2/0	7 Str.	601018	4-5/8"	600964	7"	1-9/16"	1-1/8"	1"	25/32"	Hyd. Hand Tool	HC	3
#3/0	7 Str.	601019	4-1/4"	600965	6-13/16"	1-9/16"	1-1/8"	1"	25/32"	Hyd. Hand Tool	HD	3
#4/0	7 Str.	601020	4-15/16"	600966	7-1/8"	1-9/16"	1-1/8"	1"	25/32"	Hyd. Hand Tool	HE	4
#266.8	7 Str.	601047	4-15/16"	600946	7-1/8"	1-9/16"	1-1/8"	1-1/4"	25/32"	Hyd. Hand Tool	HE	4
#336.4	19 Str. 37 Str.	601021	5-7/16"	600967	8-7/16"	2-1/4"	1-1/4"	1-1/2"	1-1/4"	Hyd. Hand Tool	HH	6
#397.5	19 Str.	601040	6-13/16"	600977	9-3/16"	2-1/4"	1-1/4"	1-1/2"	1-1/4"	Hyd. Hand Tool	HH	8
#477.0	19 Str.	601041	9-1/2"	601070	10-1/4"	2-1/4"	1-1/4"	1-1/2"	1-1/4"	Hyd. Hand Tool	HJ	10

*A-MP Splices and Deadends can also be applied by A-MP dies with most available tooling. An extensive tool and die chart is available on request. A-MP Wide Dies which reduce number of crimps, are available for 2/0 and Larger.)

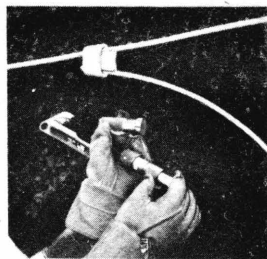
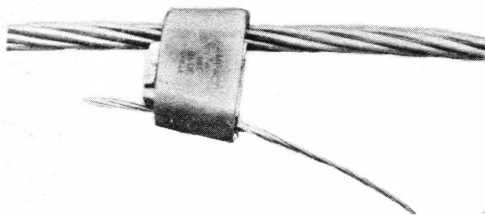
AAAC

WIRE		SPLICE		DEADEND					A-MP TOOLS & DIES*			
Size	Type	Part No.	Dimension	Part No.	Dimensions					Crimp Tool	A-MP Die Designation	No. Crimps Each End
			A		B	C	D	E	F			
#6	7 Str.	600348	4-7/16"	600968	6-11/16"	1-3/8"	1"	1"	3/4"	A-MP 601130	HA	4
#4	7 Str.	600349	4-15/16"	600969	6-15/16"	1-3/8"	1"	1"	3/4"	A-MP 601130	HA	5
#2	7 Str.	600350	5-1/2"	600970	7-1/4"	1-3/8"	1"	1"	3/4"	A-MP 601130	HA	6
#1/0	7 Str.	600351	7-5/8"	600971	8-5/16"	1-3/8"	1"	1"	3/4"	A-MP 601130	HB	10
#2/0	7 Str.	600352	8"	600972	8-11/16"	1-9/16"	1-1/8"	1"	25/32"	Hyd. Hand Tool	HC	6
#3/0	7 Str.	600353	7-7/16"	600973	8-3/8"	1-9/16"	1-1/8"	1-1/8"	25/32"	Hyd. Hand Tool	HD	6
#4/0	7 Str.	600354	7-3/4"	600974	8-9/16"	1-9/16"	1-1/8"	1-1/4"	25/32"	Hyd. Hand Tool	HE	7
#394.6	19 Str.	601035	10-3/4"	600975	11-9/16"	2-1/4"	1-1/4"	1-1/2"	1-1/4"	Hyd. Hand Tool	HH	12

* A-MP Splices and Deadends can also be applied by A-MP dies with most available tooling. An extensive tool and die chart is available on request.

REA APPROVAL—A copy of the listing on A-MP UTILI-TENSUN splices and deadends for AAAC by the Electrical Technical Standards Committee "A" of the Rural Electrification Administration, U. S. Department of Agriculture will be furnished upon request.

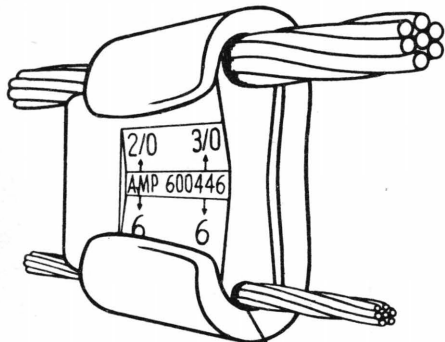
AMPACT* TAP AND CARTRIDGE POWERED TOOL



The AMPACT tap consists of a spring "C" member and wedge of special aluminum alloys installed on the line at high velocity. It provides a secure connection for all solid, stranded or compressed conductor combinations, including ACSR, ACAR, AAC, AAAC and Copper or Copperweld. Wire combinations are plainly indicated on the tap and easy to understand.

The tap wedge is driven at about 100 feet per second between the conductors, forcing them outwards inside the "C" Spring, at the same time scrubbing the wires clean. The alloy and heat treatment of the "C" Spring has been designed to sustain perpetual pressure on the conductors regardless of temperature changes, overloads, vibration, corrosion and/or creep. There have been no connector failures after five years of extensive field use and testing.

Line crews find it easy to install the tap correctly. The tap can be quickly and simply removed for operational changes, with negligible effect on the conductor.



Factory pre-loaded inhibitor contains nickel particles for assured wire cleaning.

TAP ASSEMBLY

	Tap Assembly No.	Wire Combinations
SMALL WIRE RANGE TAPS	600525	1/0 to 2
	600528	2 to 4 or 1/0 to 6
	600529	2 to 2 or 1/0 to 4
	600530	6 to 6 or 4 to 6
	600531	4 to 4 or 2 to 6
	600532	8 to 8
	600533	1/0 to 8
	600534	2 to 8
	600535	6 to 8 or 4 to 8
	MEDIUM WIRE RANGE TAPS	600403	1/0 to 1/0 or 2/0 to 2
600411		2/0 to 2/0 or 3/0 to 1/0 or 4/0 to 2
600446		3/0 to 6 or 2/0 to 6
600447		3/0 to 4 or 2/0 to 4
600448		3/0 to 2 or 2/0 to 1/0
600455		4/0 to 6
600456		4/0 to 4
600458		3/0 to 2/0 or 4/0 to 1/0
600459		3/0 to 3/0 or 4/0 to 2/0
600465		4/0 to 3/0
600466		4/0 to 4/0
602046-1		266.8 to 6
602046-2		266.8 to 4
602046-3		266.8 to 2
602046-4		266.8 to 1/0
602046-5		266.8 to 2/0
602046-6		266.8 to 3/0
602046-7		266.8 to 4/0
602046-9		266.8 to 266.8
LARGE WIRE RANGE TAPS	602014	336.4 to 6
	602013	336.4 to 4
	602000	336.4 to 2
	602001	336.4 to 1/0
	602002	336.4 to 2/0
	602003	336.4 to 3/0
	602004	336.4 to 4/0
	602006	336.4 to 266.8, 336.4 to 4/0
	602007	336.4 to 266.8, 336.4 to 336.4
	1-602031-0	477.0 to 6, 397.5 to 6
	602031-9	477.0 to 4, 397.5 to 4
	602031-8	477.0 to 2, 397.5 to 2
	602031-7	477.0 to 1/0, 397.5 to 1/0
	602031-6	477.0 to 2/0, 397.5 to 2/0
	602031-5	477.0 to 3/0, 397.5 to 3/0
	602031-4	477.0 to 4/0, 397.5 to 4/0
	602031-3	477.0 to 266.8, 379.5 to 266.8
	602031-2	477.0 to 336.4, 397.5 to 336.4
602031	477.0 to 477.0, 477.0 to 397.5, 397.5 to 397.5	

AMPACT TAP SELECTION CHART

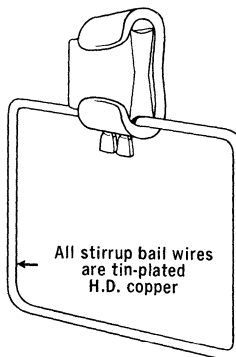
Stranded Wire Combinations	Tap Part Number	Stranded Wire Combinations	Tap Part Number	Stranded Wire Combinations	Tap Part Number	Stranded Wire Combinations	Tap Part Number
477.0 - 477.0	602031	266.8 - 2/0	602046-5	2/0 - 477.0	602031-6	2 - 2/0	600403
477.0 - 336.4	602031-2	266.8 - 1/0	602046-4	2/0 - 336.4	602002	2 - 1/0	600525
477.0 - 266.8	602031-3	266.8 - 2	602046-3	2/0 - 266.8	602046-5	2 - 2	600529
477.0 - 4/0	602031-4	266.8 - 4	602046-2	2/0 - 4/0	600459	2 - 4	600528
477.0 - 3/0	602031-5	266.8 - 6	602046-1	2/0 - 3/0	600458	2 - 6	600531
477.0 - 2/0	602031-6	4/0 - 477.0	602031-4	2/0 - 2/0	600411	4 - 477.0	602031-9
477.0 - 1/0	602031-7	4/0 - 336.4	602004	2/0 - 1/0	600448	4 - 336.4	602013
477.0 - 2	602031-8	4/0 - 266.8	602046-7	2/0 - 2	600403	4 - 266.8	602046-2
477.0 - 4	602031-9	4/0 - 4/0	600466	2/0 - 4	600447	4 - 4/0	600456
477.0 - 6	1-602031-9	4/0 - 3/0	600465	2/0 - 6	600446	4 - 3/0	600447
336.4 - 477.0	602031-2	4/0 - 2/0	600459	1/0 - 477.0	602031-7	4 - 2/0	600447
336.4 - 336.4	602007	4/0 - 1/0	600458	1/0 - 336.4	602001	4 - 1/0	600529
336.4 - 266.8	602006	4/0 - 2	600411	1/0 - 266.8	602046-4	4 - 2	600528
336.4 - 4/0	602004	4/0 - 4	600456	1/0 - 4/0	600458	4 - 4	600531
336.4 - 3/0	602003	4/0 - 6	600455	1/0 - 3/0	600411	4 - 6	600530
336.4 - 2/0	602002	3/0 - 477.0	602031-5	1/0 - 2/0	600448	6 - 477.0	1-602031-0
336.4 - 1/0	602001	3/0 - 336.4	602003	1/0 - 1/0	600403	6 - 336.4	602014
336.4 - 2	602000	3/0 - 266.8	602046-6	1/0 - 2	600525	6 - 266.8	602046-1
336.4 - 4	602013	3/0 - 4/0	600465	1/0 - 4	600529	6 - 4/0	600455
336.4 - 6	602014	3/0 - 3/0	600459	1/0 - 6	600528	6 - 3/0	600446
266.8 - 477.0	602031-2	3/0 - 2/0	600458	2 - 477.0	602031-8	6 - 2/0	600446
266.8 - 336.4	602006	3/0 - 1/0	600411	2 - 336.4	602000	6 - 1/0	600528
266.8 - 266.8	602046-9	3/0 - 2	600448	2 - 266.8	602046-3	6 - 3	600531
266.8 - 4/0	602046-7	3/0 - 4	600447	2 - 4/0	600411	6 - 4	600530
266.8 - 3/0	602046-6	3/0 - 6	600446	2 - 3/0	600448	6 - 6	600530

For more complete selection information, including solid wire combinations, consult AMPACT Tap and Tool wire chart GP1931.

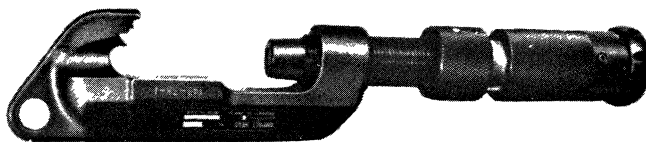
	Stirrup Assembly No.	Wire Combinations
SMALL WIRE RANGE	600580	#6 through wire
	600581	#2 or #4 through wire
MEDIUM WIRE RANGE	600464	#1/0 or #2/0 through wire
	600468	#2/0 or #3/0 through wire
	600469	#3/0 or #4/0 through wire
	600463	266.8 through wire
LARGE WIRE RANGE	600474	336.4 through wire
	602047	477.0 or 397.5 through wire

Use Red Cartridge No. 69338-2 with all Small Taps & Stirrups. Use Blue Cartridge No. 69338-1 with all Medium Taps & Stirrups. Use Yellow Cartridge No. 69338-4 with all Large Taps & Stirrups.

STIRRUP ASSEMBLY



THE AMPACT TOOL



The miniature sized AMPACT tool is a major advance in handtool application of compression-type connectors. Because it is a **self-powered** tool, it minimizes arm movements and exposure for the lineman—a long standing complaint against conventional hand tooling. Connector pressure on the conductor cannot vary with extreme environmental conditions or changes.

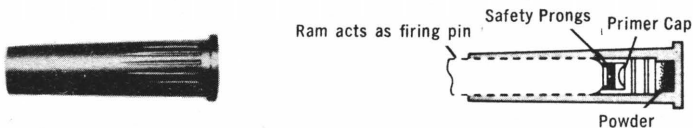
The basic power unit and two heads apply all AMPACT connectors through 55615 mcm on AAC without adjustments or dies, driving the wedge into place at approximately 100 feet per second, and locking it at the end of its travel so it cannot be vibrated loose. A separate clip enables the tap to be removed from the line without damage and without any tool modifications whatsoever.

The AMPACT chamber and ram are made of stainless steel. This is a safe tool to use; no projectile is involved. Action cannot be started until after the tool is clamped in position, and all action is contained **inside** the tool frame.

AMPACT Tool #69437 weighs only 4½ lbs. and consists of the AMPACT Power Unit (#69612) and Small Head (#47667-7) for applying small and medium range taps and stirrups.

AMPACT Tool #69611 weighs only 8 lbs. and consists of the AMPACT Power Unit (#69612) and Large Head (#69633) for applying large range taps and stirrups.

THE AMPACT CARTRIDGE

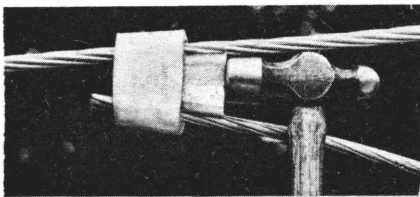


The AMPACT cartridge is unique in concept and safety features. It is molded of rugged polyethylene plastic, colored to indicate the powder loading; red for small AMPACT taps, blue for medium, and yellow for large. The cartridge is weatherproof and is completely unaffected by exposure to rain or extreme cold. Cartridges are precision loaded to provide uniform pressure in the tool.

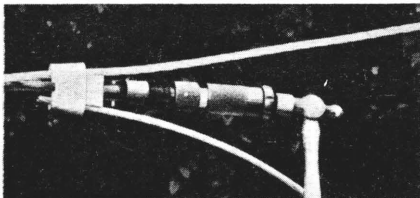
The primer cap is buried in the plastic wadding, safe **inside** the cartridge. Its molded "safety prongs" protect it from accidental discharge until these prongs are deliberately collapsed, by screwing the tool tight against the wedge, to prepare the tool for firing. The wadding never leaves the cartridge after firing; it completely seals the ignited gases and noise inside until released by the operator.

APPLICATION

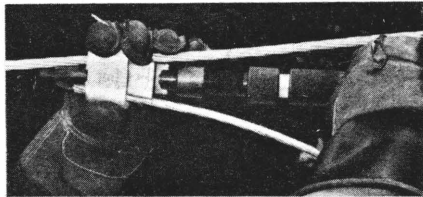
In addition to being compact and light, the AMPACT tool is applied parallel and close to the through conductor, with no handle to open and close in dense pole clutter.



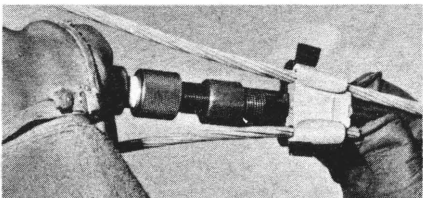
The "C" Spring is hung on the through wire. Wedge and tap wire are inserted finger tight. A light blow on the wedge makes the connection temporarily self-supporting.



The end of the tool is hit sharply with hammer to actuate cartridge. Without recoil or noise, the AMPACT tap connection is made. The tool remains secure until the operator releases it.



The tool is loaded with a cartridge, positioned over the wedge and "C" member, and screwed tightly against the wedge . . . at this point tap and tool are self-supporting.



Tap removal is easy—does not damage wire—a special clip is used on tap—no tool modification whatsoever is required.

Accessories such as a Hot Stick Adapter Kit, Tap Covers, Take-off Clips and an Accessory Bag are available.

TOOLING

This section includes the following sub-sections:

Introduction
SUPER-CHAMP II Hand Tool
CERTI-CRIMP and Pneumatic
Tapematic and Tapetronic
Bantam Rota-Crimp Tool
Rota-Crimp Tool
AMP Straight Action Tool
VIZE-AN-AMMER Tool
DYNA-CRIMP Tool

X. TOOLING

INTRODUCTION

All A-MP solderless terminations trace their reliability to precision engineered tools and products which are matched in order to create a connection of superior quality and highest performance. This precision is to be found both in hand tools with a controlled crimp and in automatic tools, whose crimping dies are so precisely designed that they assure uniform and controlled terminations each and every time.

If you were to crimp a \$100 terminal in a \$1 tool, the results would not justify the cost of the product; conversely, if you were to crimp an inexpensive, low-quality terminal in a \$1,000 tool, the results would be no better than could be obtained with less expensive tooling. If you use **matched terminals and tooling**, your results are optimum-performance, high-reliability connections time after time with few or no rejects—even after thousands of crimps.

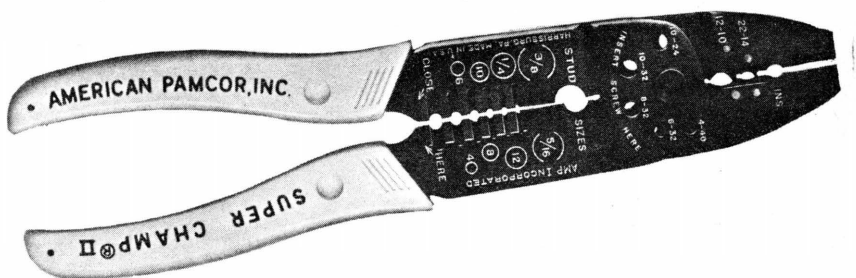
AMP's controlled crimp is maintained by the patented CERTI-CRIMP* ratchet and die stop in hand tools, and by precision bottoming dies in all power tools which prevents undercrimping or overcrimping and nullify inconsistencies in operator skills. The result of this controlled crimping process is a homogeneous blending of the terminal barrel and conductor, providing corrosion resistance, and tensile strength nearly equal to that of the wire itself.

To achieve this homogeneous blending three things must be considered: conductivity or electrical value, tensile or mechanical value and percent reduction of wire barrel. Through extensive designs and experiment it has been proven that in most terminations the optimum point is approximately 15-25% reduction of the wire barrel and wire where the electrical and mechanical components have their simultaneous maximum value. To maintain this maximum value it is necessary to limit the wire size range of a specific terminal and tooling die rather than sacrifice performance for a greater range of wire sizes.

TOOLING FEATURES

1. **INSTRUCTIONS:** All tools shipped with instruction sheets.
2. **CERTI-CRIMP RACHET:** Assures full crimping cycle.
3. **DIE STOPS:** Prevent over crimping..
4. **POLISHED DIES:** Prevent insulation damage and plating breaks which expose base metal.
5. **ADJUSTABLE INSULATION CRIMP:** Provides correct insulation crimp for various insulation diameters.
6. **LOCATOR:** Correctly locates terminal or splice in die.
7. **STAMPED WIRE IDENTIFICATION:** Reminder to place a specific terminal or splice in correct die or hand tool.
8. **COLOR CODING:** Another reminder on insulated terminals or splices to use correct die or hand tool.
9. **DOT CODING:** Inspector's assurance that correct tooling was used.

SUPER CHAMP* II HAND TOOL



MODEL NO. 29400

A general purpose electrician's tool for crimping insulated terminals and splices—cutting wire—stripping wire—cutting bolts—crimping 7 mm ignition and distributor terminals. This versatile, multi-purpose hand tool is indispensable both in the shop and out on a job site. Every function of the SUPER CHAMP II hand tool has been precision engineered to professional standards and is clearly marked for accurate application. A special feature of the SUPER CHAMP II tool is the terminal locator which positions the barrel to ensure proper location of the crimp. The terminal locator should be rotated away from the dies when crimping splices.

FEATURES

- Precision crimps insulated terminals and splices onto #22 to #10 AWG wire.
- "Pre-loaded" wire cutter provides positive cutting of stranded or solid wire sizes #22 to #10 AWG . . . blade and anvil design maintains sharpness.
- Cuts five different sizes of bolts, 10-24, 10-32, 8-32, 6-32, 4-40, without damaging threads or leaving burrs.
- Insulation crimp compresses a broad area for maximum wire insulation support.
- Strips wire sizes #22 through #10 AWG quickly and easily . . . stripping gage on back of tool shows proper length for wire size used.
- Terminal locator ensures proper position of terminal barrel when crimping conductor.
- Man-sized, insulated handles are contoured for comfort and made of high impact plastic.



Ring Terminal



Hook Terminal



Shur-Plug*
Terminal



Flanged Spade
Terminal



Ignition
Terminals



Wire Support



Butt Splice

The SUPER CHAMP II Hand Tool applies these, and many other, high quality A-MP* Terminals and Splices

Description	Part No.	Wire Size	Stud Size
Ring Terminal	31903	16-14	10
Hook Terminal	320306	16-14	8
Shur-Plug* Terminal	324225	16-14	--
Flanged Spade Terminal	320862	16-14	8
Spark Plug and Distributor Cap Ignition Terminal	332416	7 MM	--
Wire Support for Spark Plug Terminal*	50639-1	7 MM	--
Butt Splice	324138	22-16	--
	328427	16-14	--
	329939	12-10	--

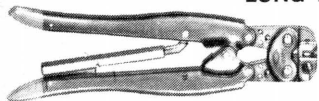
* Wire support bends ignition cable 90°. No crimp required. Use with 332416.

MANUAL AND PNEUMATIC TOOLS

CERTI-CRIMP* HAND TOOLS

AMP's controlled crimp is maintained by the patented CERTI-CRIMP* ratchet and die stop which prevent undercrimping or overcrimping and which nullify inconsistencies in operator skills. The result of this controlled crimping process is a homogeneous blending of the terminal barrel and conductor, providing corrosion resistance, and tensile strength nearly equal to that of the wire itself.

LONG AND SHORT HANDLE TOOLS



SHORT HANDLE TOOL



LONG HANDLE TOOL

Feature CERTI-CRIMP ratchet to prevent over- or under-crimping. Double pivots provide proper crimping pressures with minimum effort. Color-coded terminal insulations correspond with the handles. Wire sizes: #26 and #10 AWG.

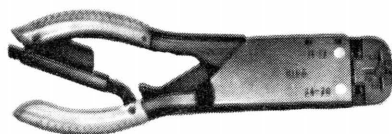
HEAVY HEAD TOOL



HEAVY HEAD TOOL

Heavy duty precision tool handles terminals and splices in wire sizes #16-14. (Heavy Duty) to 6 AWG. It offers the same basic quality control features as other A-MP Tools, including CERTI-CRIMP ratchet and color-coded handle.

T-HEAD TOOL



T-HEAD TOOL

The recommended tool for manual application of many A-MP terminals and splices. Four insulation grip settings accommodate today's smaller insulated wires. Three models for wire sizes #26-22, 24-20, 22-16, and 16-14 AWG. Each tool features CERTI-CRIMP ratchet and two pairs of crimping dies for convenience in production. Quick "take-up lever" permits rapid loading of terminals. Locators and wire stops position terminals and splices during crimping. Color-coded crimping jaws and handles match-mate products to aid in quality control of production wiring.

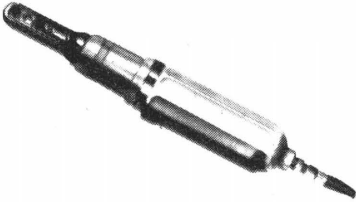
AMPLI-PRESS* BENCH PRESS (Foot operated)



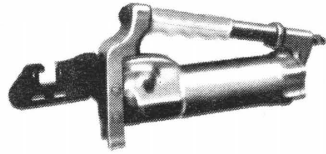
69011-69012
AMPLI-PRESS
BENCH PRESS

AMPLI-PRESS Bench Press designed for those who desire a bench-mounted mechanical tool. Die jaws are operated by a foot pedal, releasing operator's hands from crimping operation. Accommodates interchangeable heads to crimp terminals in wire sizes from #26 through 6 AWG.

A-MP pneumatic hand and bench tools operate from standard 85 to 100 psi air supplies. The pneumatic hand tools offer the flexibility and portability of manually operated hand tools with increased production and operator ease. Precision dies automatically bottom during the crimping cycle to assure a uniform and positive crimp every time. Crimping speeds vary with operator skill and the type of wire and terminal being applied. The pneumatic bench press is a convenient tool where portability is not required. All A-MP pneumatic tools feature interchangeable crimping dies for increased flexibility and service. The range of wire sizes that can be crimped with these tools is #26 through #1/0 AWG.



46110 HAND TOOL



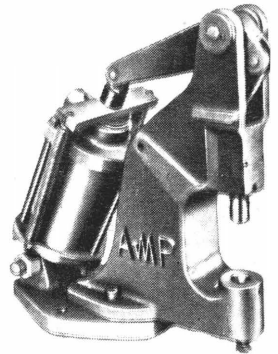
69365 HAND TOOL



69005-69010 HAND TOOLS

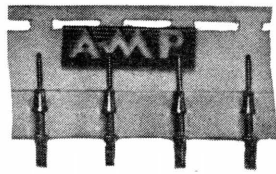
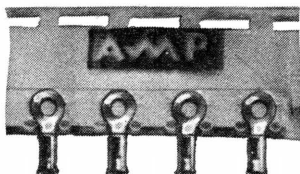
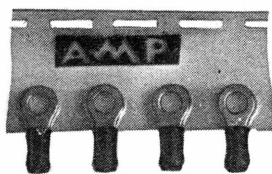


69015 HAND TOOL



69004 PRESS

AMP-TAPEMATIC* AND AMP-TAPETRONIC*§ APPLICATION TOOLING



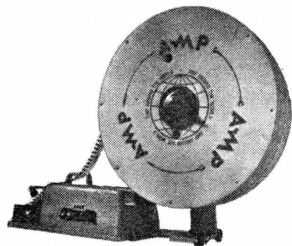
AMP-TAPEMATIC application tooling is specifically designed to fit those production levels which lie beyond the capacity of hand crimping tools used on single piece terminals.

The tools are light weight and can be easily carried to the job providing extreme flexibility for "on the spot" production. The AMP-TAPEMATIC hand tool is especially suited for use in hard to reach areas. The bench mounted pneumatic or electrically operated tools feature automatic sensing tripping devices or foot pedal control.

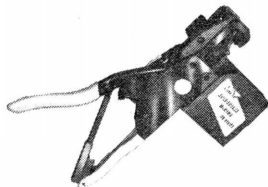
The use of tape eliminates time-consuming handling of single-piece terminals, possible errors in terminal selection and waste.

69370—AMP-TAPETRONIC Pneumatic Bench Machine

- Wire size range 26-10
- Magazine capacity 1,000 terminals
- Automatic sensing and foot switch operation
- Portable—28 pounds
- Undercrimp indicator light
- Rapid die change
- Safety switch for automatic operation

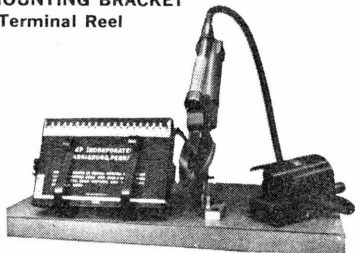


69484—MOUNTING BRACKET
For 5000 Terminal Reel



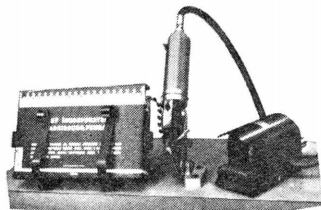
69290-1—HAND TOOL (manual)

- Wire size range 26-14
- Magazine capacity 50 to 100 terminals
- Ideal for small production and areas where power is inconvenient or not available.



69359-2—PNEUMATIC BENCH TOOL

- Wire size range 26-10
- Magazine capacity 1,000 terminals
- Foot operated
- Can be removed from mount for hand use with 45448-1 box holder

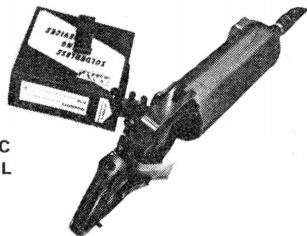


69118-2—PNEUMATIC HAND TOOL (bench mounted)

- Wire size range 26-14
- Magazine capacity 1,000 terminals
- Foot or hand operated
- Can be removed from mount for hand use with 45448-1 box holder

69118-1— PNEUMATIC HAND TOOL (portable)

- Wire size range 26-14
- Magazine capacity 100 terminals
- Weight—5 pounds
- Length—15 inches



		Dies Catalog Number For A-MP* Tooling				
Terminal Types	Wire Size Range	Tool Nos	Tool No	Tool Nos	Tool No	Tool Nos
		69118-1 & 2	69290-1	69353-2	69332	69332 69370 W/Auto Trip
PIDG* (Pre-Insulated) Terminals and Splices	26-22	69343	69343	69343	69343	69343-1
	24-20	69341	69341	69341	69341	69351
	22-16	45185-7	45185-7	45185-7	45185-7	45185-6
	16-14	45225-6	45225-6	45225-6	45225-6	45225-6
	12-10			45228-5	45228-5	45228-4
PIDG (Pre-Insulated) Taper Pins	26	45306	45306	45306	45306	
	24-22	45306	45306	45306	45306	
	20-18	45305	45305	45305	45305	
	16	45305	45305	45305	45305	
	24-22	69180-1	69180-1	69180-1		
DIAMOND GRIP* Taper Pins	20-18	69185-1	69185-1	69185-1		
	16	69185-1	69185-1	69185-1		
	26	90044-1	90044-1	90044-1	90044-1	
Solid Taper Pins	24-22	90044-1	90044-1	90044-1	90044-1	
	20-18	90125	90125	90125	90125	
	16	90125	90125	90125	90125	
SOLISTRAND* Terminals and Splices	22-16	45495	45495	45495	45495	45495
	16-14	45489	45489	45489	45489	45489
	12-10			69461	69461	69461
PIDG (Pre-Insulated) FASTON* Terminals	22-18			90070-1	90070-2	
	16-14			90196-1	90196-2	
PIDG (Pre-Insulated) LANCELOK* Terminals	24-22	69345	69345	69345	69345	
	20-18	69346	69346	69346	69346	
	16	69347	69347	69347	69347	
"F" Crimp LANCELOK Terminals	Ins. Dia Range					
	040-065	24-20		69415	69415	
	065-080	24-20		69416	69416	
	075-100	18-16		69417	69417	
	100-125	18-16		69418	69418	
PIDG (Pre-Insulated) Spare Wire Caps	22-18	69265-1	69265-1	69265-1	69265-1	
	16-14	69259-1	69259-1	69259-1	69259-1	
	048-080*	69250-1	69250-1	69250-1	69250-1	
	080-120*	69251-1	69251-1	69251-1	69251-1	
	120-150*	69252-1	69252-1	69252-1	69252-1	
	150-223*	69253-1	69253-1	69253-1	69253-1	
DIAMOND GRIP Terminals and Splices	26-22	45594-1	45594-1	45594-1	45594-1	
	22-16	45492-3	45492-3	45492-3	45492-3	45492-2
	16-14	45595-1	45595-1	45595-1	45595-1	45595-2
	16-14 "W" ‡					69428
	12-10					45596-2
Type I Pin and Socket	26-24	45230	45230			
	22-20	45187	45187			
	21-16	45298	45298			
Type II Pin and Socket	28-24	90103	90103	90103	90103	
	24-20	90103	90103	90103	90103	
	22-18	90080	90080	90080	90080	
	18-16	90080	90080	90080	90080	
	14	90080	90080	90080	90080	
Type V Pin and Socket	26-24	90104	90104	90104	90104	
	24-20 with insulation support	90104	90104	90104	90104	
	24-20 without insulation support	90081	90081	90081	90081	
	20-16	90081	90081	90081	90081	

Other terminals also available on tape

*Insulation diameter range ‡Special for heat resistance and high temperature terminations

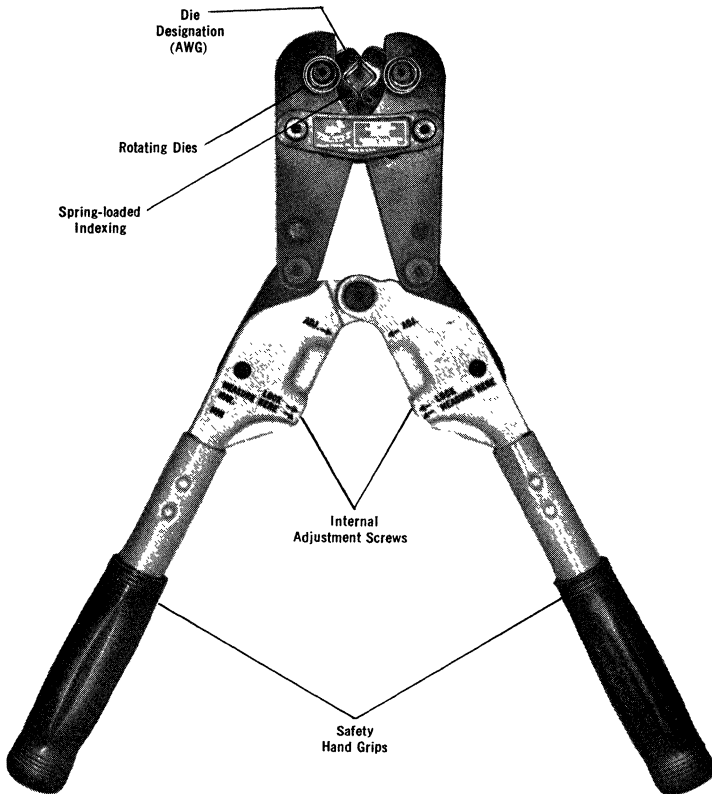
BANTAM ROTA-CRIMP* TOOL

For applying SOLISTRAND* terminals, splices, and CABLE MAKER* battery terminals.

MODEL NO. 601075

THE BANTAM ROTA-CRIMP tool is "five-tools-in-one" for crimping a wide range of uninsulated terminals and splices onto wire sizes #8 thru 1/0 AWG. Dies remain in tool while they are, released, rotated into one of five positions, and locked in place, by hand. This unique flexibility is accomplished by use of an exclusive spring-loaded indexing mechanism.

THE BANTAM ROTA-CRIMP tool is compact, rugged and easy to handle. It is ideal for applying SOLISTRAND* terminals and splices and CABLE MAKER* battery terminals.



FEATURES

- Dies easily rotate to five different sizes (8, 6, 4, 2 and 1/0 AWG).
- AWG numbers stamped on dies make it easy to match dies to wire size.
- Construction is lightweight, yet rugged for long life and reliable service.
- Weight: 4 lbs. 14 ozs.
- Material: High strength alloy steel.
- Tool bottoms with an audible "click" when terminal is properly crimped.
- Safety hand grips give operator a surer, more positive hold.
- Handle adjustment screws enable operator to compensate for normal die wear. Internal location of screws prevents accidental movement common to externally adjusted tools.

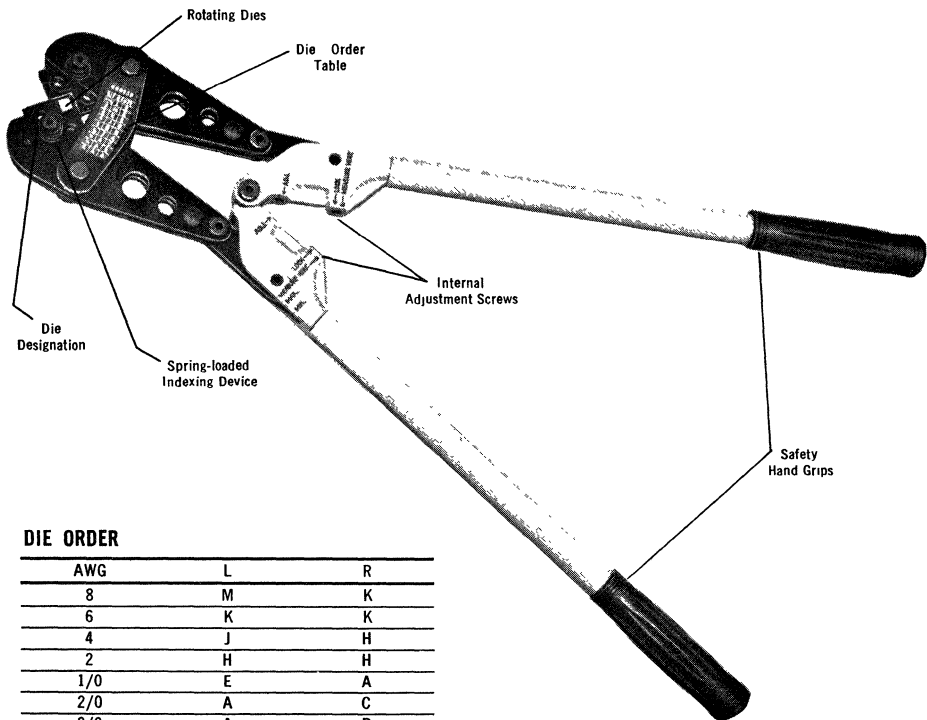
ROTA-CRIMP* TOOL

For applying SOLISTRAND* terminals, splices, and CABLE MAKER* battery terminals.

MODEL NO. 600850

The ROTA-CRIMP tool is "eight-tools-in-one" . . . for applying uninsulated, solderless terminals and splices. It has self-contained rotating dies which make the ROTA-CRIMP tool, the only tool needed to crimp terminals or splices onto wire sizes #8, #6, #4, #2, #1/0, #2/0, #3/0, and #4/0 AWG.

The self-contained dies are quickly positioned, by depressing the spring-loaded indexing mechanism and individually rotating the dies, in either direction, to the position indicated on the Die Order table located on the side of the tool.



DIE ORDER

AWG	L	R
8	M	K
6	K	K
4	J	H
2	H	H
1/0	E	A
2/0	A	C
3/0	A	B
4/0	A	A

Die Order table clearly designates proper die arrangement for wire size being used.

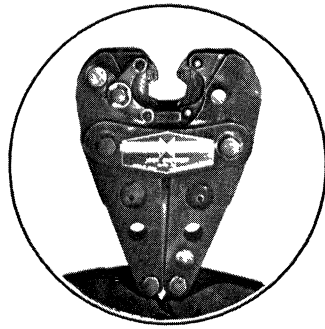
FEATURES

- Dies easily rotate to eight different wire sizes.
- Correct matching of dies is made easy by a table on the side of the tool.
- Construction is lightweight, yet rugged for long life and reliable service.
Weight: 7.2 lbs.
Length: 25".
Material: High strength alloy steel.
- Tool clicks when terminal is properly crimped.
- Safety hand grips give operator a surer, more positive hold.
- Handle adjustment screws enable operator to compensate for normal die wear. Internal location of screws prevents accidental movement common to externally adjusted tools.

A-MP* STRAIGHT ACTION CRIMPING TOOL



MODEL NO. 601130



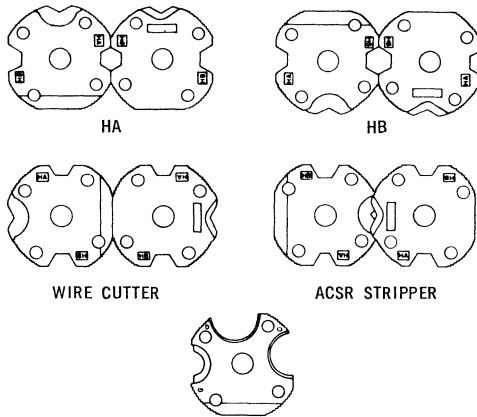
The A-MP Straight Action tool is a multi-purpose hand tool combining the light weight and mechanical advantage of a scissor action tool with the straight-line die movement usually found in more expensive hydraulic tooling. This straight-line movement of the crimping dies results in maximum strength of splicing, extended tool life, reduced splice bowing, and improved mechanical operation at start of crimp.

The A-MP Straight Action tool has self-contained, rotating die sets which permit any "mix" of dies, wire cutters and/or wire strippers. Many multi-position die sets are available. These sets provide a choice of dies for crimping many makes of splices, taps, stirrups and service entrance sleeves onto AAC wire in sizes #6 through #4/0 AWG, AAAC wire in sizes #6 through #2/0 AWG and ACSR wire in sizes #6 through #1/0 AWG.

The A-MP Straight Action tool features a captive quick-release pin which frees dies so that they can be positioned or interchanged by hand, even with gloves, thereby eliminating the need for additional tools. Recessed handle adjustment screws enable the operator to compensate for normal die wear yet prevent accidental adjustment. The handles are formed from durable, light-weight fiber glass with high dielectric strength and low moisture absorption. Dry molybdenum di-sulfide lubrication reduces friction and increases tool life. The standard die set (601168) crimps 12 different AMP UTILI-TENSHUN* splices and 12 different AMP UTILI-TENSHUN deadends. This set also cuts ACSR, AAAC, and AAC wire and strips #4 through #1/0 ACSR wire.

A-MP STRAIGHT ACTION TOOL . . . THE ALL PURPOSE UTILITY TOOL

DIE ARRANGEMENT SCHEMATIC (601168)



SPECIAL DIE ARRANGEMENT
("O", "D", "G", & Cutter)

A-MP UTILI-TENSHUN★ SPLICES AND DEADENDS (For use with Standard Die Set 601168)

Wire Size	Die Index	Splices		
		ACSR	AAAC	AAC
#6	HA	43655	600348	601014
#4	HA	43657	600349	601015
#2	HA	43659	600350	601016
#1/0	HB	43600	600351	601017

Wire Size	Die Index	Deadends		
		ACSR	AAAC	AAC
#6	HA	600900	600968*	600960
#4	HA	600901	600969	600961
#2	HA	600902	600970	600962
#1/0	HB	600903	600971	600963

NOTES: Standard die set has a wire cutting position and a position for stripping #4 thru #1/0 ACSR wire.

DIE SETS FOR A-MP STRAIGHT ACTION TOOL

The following catalogued die sets indicate the flexibility and variety available. Other die sets can be custom made to your specifications.

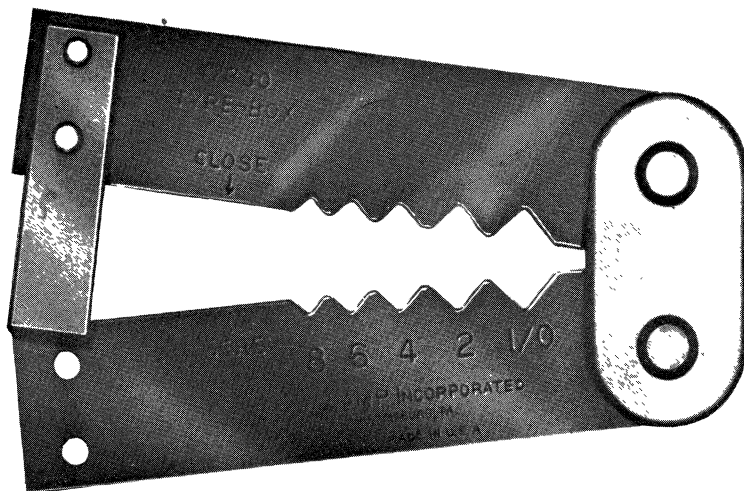
Die Set No.	Wire Stripper	Wire Cutter	A-MP Dies					Hydro 13/16" Hex	"O" Tap	"D" Tap	5/8" "G" Weather-Head	"E" Die	"J" Die	"M" Die	"T" Die	"P" Die	"X" Die
			HA	HB	AHC	AHD	AHE										
601168	✓	✓	✓	✓													
601169	✓		✓	✓			✓										
601170	✓		✓	✓				✓									
601171			✓	✓				✓	✓								
601172								✓	✓			✓				✓	
601173		✓						✓	✓	✓							
601174			✓									✓				✓	
601175											✓	✓	✓	✓		✓	
601176			✓					✓	✓	✓							
601177	✓		✓	✓								✓				✓	
601178												✓	✓			✓	
601179	✓		✓	✓													
601180			✓	✓				✓		✓							
601181	✓		✓	✓	✓												
601182	✓		✓	✓		✓											
601183			✓	✓													
601184						✓	✓	✓	✓								
601185						✓	✓	✓	✓								
601186			✓	✓		✓											

NOTE: All tools requiring 3/0, 4/0 or 13/16 notches have a special indexing plate without wire stop. Die sets with AHD and AHE notches are for AAC only. Die sets with AHC notch is for AAC and AAAC only.

VIZE-AN-AMMER* CRIMPING TOOL

MODEL NO. 47330

The VIZE-AN-AMMER tool is a reliable and inexpensive method for applying heavy-duty, box-type crimps to SOLISTRAND* terminals and splices and CABLE MAKER* battery terminals in wire sizes 8 thru 1/0 AWG.



FEATURES

- Inexpensive, simplified application of terminals
- AWG wire size markings clearly stamped on both sides of tool
- Shock-resistant tool steel . . . withstands repeated applications
- Operator can use vise or hammer to bottom tool
- Lightweight (1 lb., 12 ozs.), easy to handle in shop or at a remote location
- Crimps five different wire sizes (8, 6, 4, 2, and 1/0 AWG)

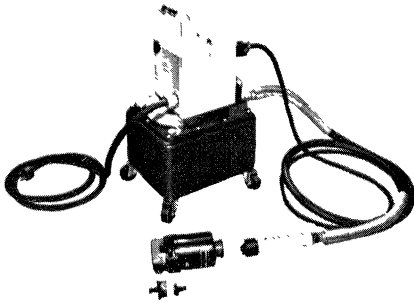
USE THESE POPULAR TERMINALS AND SPLICES WITH THE VIZE-AN-AMMER TOOL

SOLISTRAND TERMINALS AND SPLICES						CABLE MAKER BATTERY TERMINALS			
AWG	3/8 Stud Terminal	5/16 Stud Terminal	1/2 Stud Terminal	Butt Splice	Parallel Splice	Wire Size	Terminal Number	Cable Diameter	VIZE-AN-AMMER Die Position
8	33463	33462	35664	34321	34318	#6 Flag Straight	29252 29253	.187 to .218 Inclusive	4
6	33467	33466	320334	34322	34319	#4 Flag Straight	29250 29251	.228 to .272 Inclusive	4
4	33471	33470	35668	34323	34320	#2-#1 Flag Straight	29248 29249	.295 to .345 Inclusive	1/0
2	321600	322870	321602	35189	35187	#1-#1/0 Flag Straight	29246 29247	.370 to .384 Inclusive	1/0
1/0	321868	321867	36919	36957	36946	#1/0-#2/0 Flag Straight	29244 29245	.416 to .432 Inclusive	1/0

All other standard wire and stud sizes available.

DYNA-CRIMP★ HYDRAULIC TOOLS

#69120-1 110 volts (power tool only) #69120-2 220 volts (power tool only)



FEATURES

- Range 8 through 1000 MCM
- Precision built
- Fast positive crimping action
- Controls—electrical control by trigger or foot switch. Power unit is connected to 110 V. AC power or 220 V. AC
- Maximum portability — Lightweight head and control handle provide remote control operation
- Crimping heads changed easily—heads can be speedily removed or installed on control handle
- Handle control—ram section of head can be closed to any desired position by pressure on trigger located on control handle. This enables operator to preposition terminal in dies before inserting wire and crimping.

69120 ACCESSORIES (Must be ordered separately)

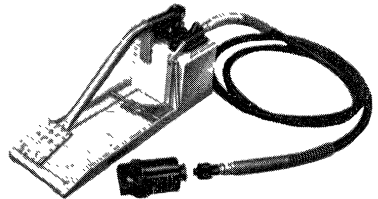
NUMBER	DESCRIPTION
59512-5	7' Handle Control and Hose Assembly
59512-6	15' Handle Control and Hose Assembly
59512-7	21' Handle Control and Hose Assembly
303775	7' Foot Switch Assembly (needs hose assembly)
303776	15' Foot Switch Assembly (needs hose assembly)
303777	21' Foot Switch Assembly (needs hose assembly)
306023-4	3' Hose Assembly
306023-1	7' Hose Assembly
306023-2	15' Hose Assembly
306023-3	21' Hose Assembly
59220	3-Way Multi-Directional Valve
59220-2	3-Way Multi-Directional Valve (Elec. Control)
59221	6-Way Multi-Directional Valve
59221-2	6-Way Multi-Directional Valve (Elec. Control)

47206 Crimping
Head Coupling
needed with these
hose assemblies

DYNA-CRIMP FOOT TOOL

#69325

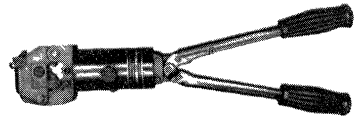
For intermittent service, or in locations where outside power sources are not available. This foot operated power unit is also used for wire range 8 through 1000 MCM.



DYNA-CRIMP HAND TOOLS

#69061 AND 69062

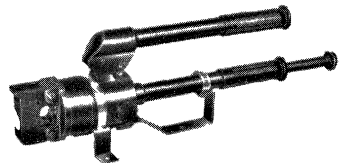
Where compactness and lightweight portability are required. These hand-hydraulic tools crimp wire sizes #8 through #2 AWG.



DYNA-CRIMP HAND TOOL

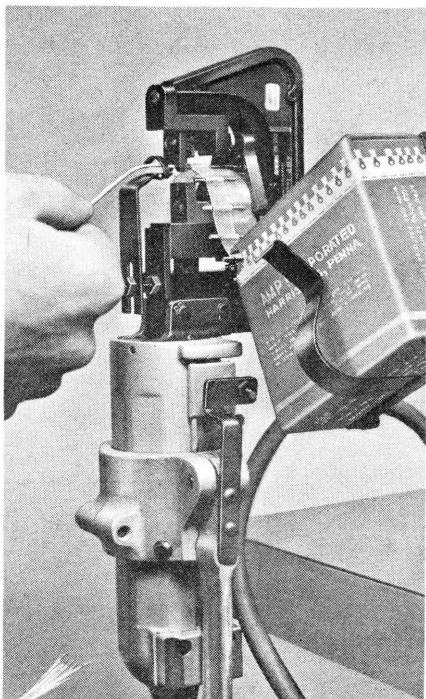
69020

For wire size 8 through 4/0.





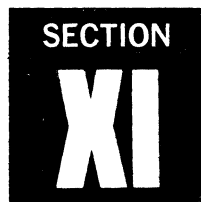
A wide variety of AMP Certi-Crimp hand tools affords convenience of use and uniform control of crimping in the smaller wire sizes.



Pneumatic operation of crimping cycle and terminals or contacts fed in tape mounted reels allows fast termination rates in wire ranges up to #10 AWG.



Large wires up to 1000 MCM can be securely crimped in the hydraulically powered A-AMP DYNA-CRIMP tools.



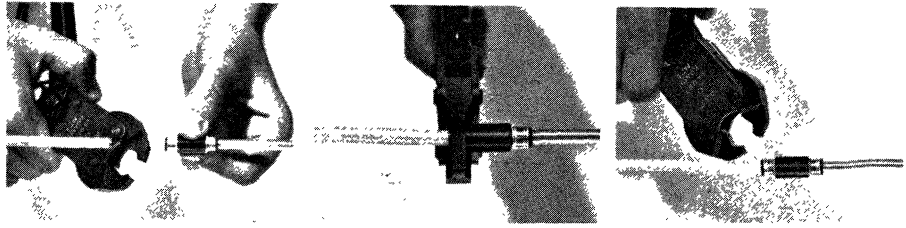
SPECIAL PRODUCTS

This section includes the following sub-sections:

AMP-FIT Tube Fittings
AMPILLUME Indicator Lights
Closed End Splices

AMP-FIT TUBE FITTINGS

FOR 1/4" AND 3/8" PNEUMATIC TUBING










Today pneumatic circuitry is being used as the control link of more sophisticated processes and systems. This demands new standards of consistent, controlled reliability in all circuitry components—especially tube fittings. AMP-FIT tube fittings are designed to meet these standards by utilizing a precise controlled crimp-on installation technique. This eliminates many problems associated with the torch or wrench methods of installation and adds a greater degree of versatility!











A new dimension in versatility

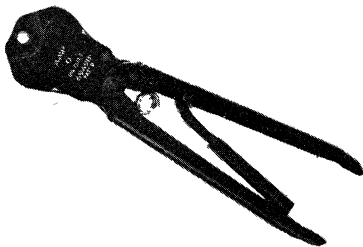
The AMP-FIT fitting is the one fitting that can be reliably used with all types of tubing material! Join plastic to copper—copper to aluminum or plastic to aluminum—dissimilar tubing materials are insulated from one another by the neutral fitting. In addition to crimp-on fittings, the AMP-FIT tube fitting line also includes threaded adapters to maintain complete versatility in integrating with other components.

Precision installation

Simple and fast as 1-2-3! Drop inserts in tubing—place tubing into one piece fitting and crimp over metal band. No critical tubing preparation required—no cross threading, no cocked ferrules, no over-torquing—no bad tube seating. Because the applicator tool controls the make-up reliability—every fitting is consistently precision sealed!

ITEM	CATALOG NUMBER				
	Stainless Steel Compression Bands		Aluminum Compression Bands		
	For 1/4" Tubing	For 3/8" Tubing	For 1/4" Tubing	For 3/8" Tubing	
	COUPLING	332268	332273	331683	332154
	ELBOW	332269	332274	331684	332152
	TEE	332270	332275	331685	332153
	LONG ELBOW	332271	—	331890	—
	DEAD END	332272	332276	331946	332151
	ANGLE VALVE	332277	332485	331948	332483
	GLOBE VALVE	332278	332486	331949	332484

ITEM		Description	Catalog Number	
	MALE ADAPTER	1/4" Fitting to 1/4" Pipe Thread 1/4" Fitting to 1/2" Pipe Thread 3/8" Fitting to 1/4" Pipe Thread 3/8" Fitting to 3/8" Pipe Thread	331887 1-331887-0 332487 1-332487-0	
	FEMALE ADAPTER	1/4" Fitting to 1/4" Pipe Thread 1/4" Fitting to 1/2" Pipe Thread 3/8" Fitting to 1/4" Pipe Thread 3/8" Fitting to 3/8" Pipe Thread	331888 1-331888-0 332488 1-332488-0	
	REDUCER	3/8" Fitting to 1/4" Tubing 3/8" Fitting to 5/16" Tubing 1/4" Fitting to 3/16" Tubing 1/4" Fitting to 1/8" Tubing	332155 332490 332491 332526	
	MALE CONNECTOR	1/4" Tubing to 1/4" Pipe Thread 1/4" Tubing to 1/2" Pipe Thread 3/8" Tubing to 1/4" Pipe Thread 3/8" Tubing to 3/8" Pipe Thread	1-331887-1 1-331887-2 332363 1-332363-0	
	FEMALE CONNECTOR	1/4" Tubing to 1/4" Pipe Thread 1/4" Tubing to 1/2" Pipe Thread 3/8" Tubing to 1/4" Pipe Thread 3/8" Tubing to 3/8" Pipe Thread	1-331888-1 1-331888-2 332311 1-332311-0	
	BULKHEAD UNION	1/4" Tubing to 1/4" Tubing 3/8" Tubing to 3/8" Tubing	331947 332489	
	UNION	1/4" Tubing to 1/4" Tubing	332501	
	MALE ELBOW	1/4" Tubing to 1/4" Pipe Thread 1/4" Tubing to 1/2" Pipe Thread 3/8" Tubing to 1/4" Pipe Thread 3/8" Tubing to 3/8" Pipe Thread	332146 332147 332418 332419	
	FEMALE ELBOW	1/4" Tubing to 1/4" Pipe Thread 1/4" Tubing to 1/2" Pipe Thread 3/8" Tubing to 1/4" Pipe Thread 3/8" Tubing to 3/8" Pipe Thread	332148 332149 332421 332422	
TUBING INSERTS		ITEM	Catalog Number	
			For 1/4" Tubing	For 3/8" Tubing
		FOR PLASTIC TUBING	331672	332280
		FOR ALUMINUM TUBING	331673	332281
		FOR SOFT COPPER TUBING	332279	332282
		FOR TYGON TUBING	1-331672-1	—

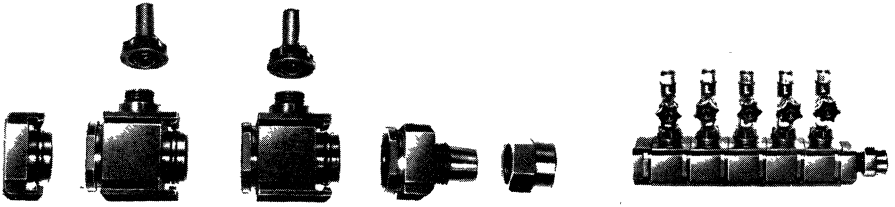


Tooling

The AMP-FIT applicator is a precision tool designed to apply correct crimping pressure through a patented 360° crimp. Once crimping pressure is started, the applicator will not re-open until the fitting is perfectly crimped. Over or under crimping is impossible and consistent reliability is assured.

Catalog Number	
For 1/4" Tubing 69498	For 3/8" Tubing 69671

AMP-FIT MODULAR MANIFOLDS





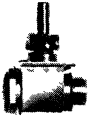




AMP-FIT modular manifolds of inert nylon are lightweight, compact, easy to handle and offer greater freedom in manifold design. A customized distribution system can be assembled, expanded, disconnected or modified using these unique "building block" components without special tools or skills.

Functional flexibility is attained with a minimal number of individual components and all manifold blocks are compatible with standard AMP-FIT crimp fittings through special outlet adapters. All outlets feature quick disconnectability and 360° rotation without loss of pressure integrity.

AMP-FIT Modular Manifolds fulfill the long-standing requirement for economical, rapidly assembled systems of pneumatic distribution.

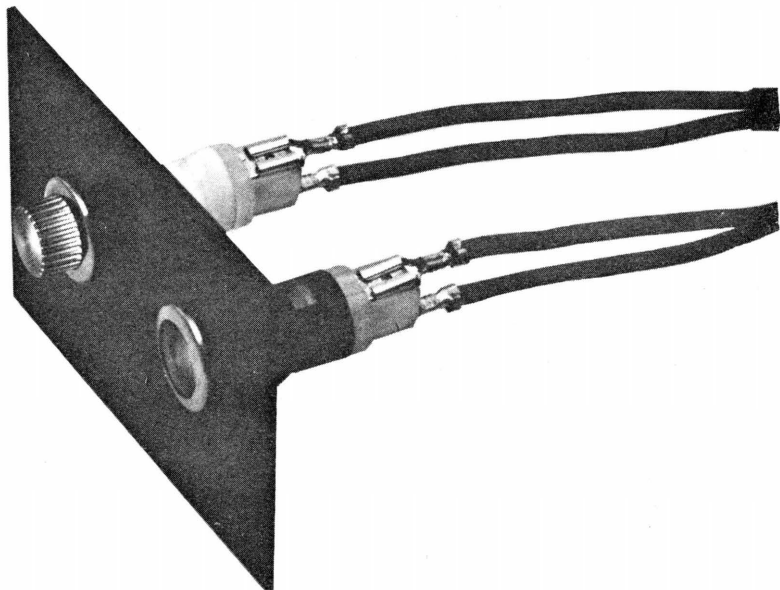
Simple, no-tool assembly

AMP-FIT manifold components inter-connect rapidly and easily by hand with a quarter turn that locks each unit in the position determined by the user. The flange of one block engages a lip on the other and a Buna O-ring provides a high integrity seal within the connection. Combinations of blocks and spacers can be arranged in line or in 180° opposition with outlet centers as close as one inch. A special PVC track provides a convenient mounting arrangement for the assembled manifolds.

ITEM	Description	Catalog Number
	CAP Manifold Male Cap	332157
	CAP Manifold Female Cap	332159
	BLOCK Manifold Block, 1/4" Outlet	332160
	INLET Manifold Inlet, Female 3/8" Manifold Inlet, Female 1/2"	332162 332494
	INLET Manifold Inlet, Male 3/8" Manifold Inlet, Male 1/2"	332165 332495
	SPACER Manifold Spacer	332497
EXTRUDED PVC TRACK Standard length 24 inches		For mounting manifold assemblies 332512

AMPILLUME* §

NEON AND INCANDESCENT INDICATOR LIGHTS



AMPILLUME neon and incandescent lights represent a major advance in pilot light design for use in test equipment, transportation, control-panel, inter-com systems, computers, vending machines, electrical appliances, radios, record players, ground support equipment, battery powered emergency systems, and other equipment.

FEATURES

- Fits standard .519"/.514" diameter hole in .062"/.032" thick material.
- No mounting hardware is required on panel —fins on AMPILLUME housing securely lock lights into position.
- Lenses made of shock resistant nylon are highly resistant to etching by fats and detergents.
- Extremely thin surface coloring allows better light diffusion through the natural core. True color values are accurately transmitted in uniform, non-directional illumination.
- Raised or "top hat" lenses are held in place with a stainless steel bezel.
- Flush lenses are available with or without decorative stainless steel bezel.
- Natural, red, orange, amber and yellow colors are standard for neon.
- Incandescent type permits use of standard colors, plus blue, green and purple.
- Neon bulbs have a normal life expectancy of 25,000 hours.
- Incandescent lamps last up to 50,000 hours depending upon environmental conditions.

SPECIFICATIONS

Catalog Number	Voltage Rating	"A" Dia.	Bulb Type	Method of Termination	Lens Type	Remarks
380608	250	.625	Neon	.187 Tabs	Flush	With bezel
380607	125		Neon	.187 Tabs	Flush	With bezel
1-380671	24		Incandescent	.187 Tabs	Flush	With bezel
1-380639	12		Incandescent	.187 Tabs	Flush	With bezel
1-380640	6.3	.600	Incandescent	.187 Tabs	Flush	With bezel
380615	250		Neon	.187 Tabs	Flush	Without bezel
380614	125		Neon	.187 Tabs	Flush	Without bezel
1-380667	24		Incandescent	.187 Tabs	Flush	Without bezel
1-380638	12	.625	Incandescent	.187 Tabs	Flush	Without bezel
1-380641	6.3		Incandescent	.187 Tabs	Flush	Without bezel
380628	250		Neon	.187 Tabs	Raised	With bezel
380627	125		Neon	.187 Tabs	Raised	With bezel
1-380672	24	.625	Incandescent	.187 Tabs	Raised	With bezel
1-380643	12		Incandescent	.187 Tabs	Raised	With bezel
1-380642	6.3		Incandescent	.187 Tabs	Raised	With bezel

COLOR CODING OF LENS

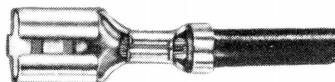
Color	For Neon Bulb Specify	For Incandescent Bulb Specify
Natural	-1 after catalog number	-1 after catalog number
Red	-2 after catalog number	-2 after catalog number
Orange	-3 after catalog number	-3 after catalog number
Amber	-4 after catalog number	-4 after catalog number
Yellow	-5 after catalog number	-5 after catalog number
Green	-6 after catalog number	-6 after catalog number
Blue	-7 after catalog number	-7 after catalog number
Purple	-8 after catalog number	-8 after catalog number

NOTE: All Housings Nylon.

APPROVAL—UL file No. E-33731 and assignment numbers 62N1477 and 62N3137.

APPLICATION WIRING—Order AMP part No. 1-380690-1 for leads 6" long of 20 AWG wire, pre-terminated with .187" FASTON receptacles to mate with AMPILLUME tabs. Pre-terminated leads are available only when ordered with AMPILLUME lights. .187" FASTON receptacles, AMP catalog No. 42452-2, are also available to be applied with hand crimping tool No. 90180-1.

STAMPED NUMBERS—Lenses are available on special order with hot stamped, black filled numbers.



FASTON* TERMINAL

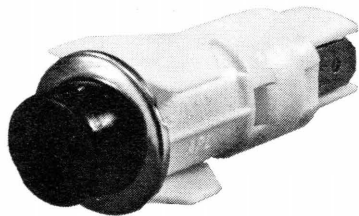
MOUNTING—Self-mounting on panel thicknesses of .032" to .062". Used with Tinnerman clip (C-867-017) on panels .063" to .500" in thickness.

MOUNTING HOLES—Bulbs snap securely into a .519" to .514" diameter hole.

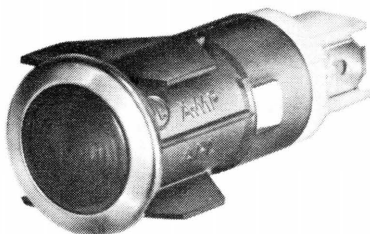
TERMINATION—.187" tab, .020" thick.

VOLTAGE—250V and 125V AC, 6.3V, 12V and 24V DC.

LIFE EXPECTANCY—Approximately 25,000 hours for 250V and 125V neon bulbs; 50,000 hours depending upon environmental conditions for 12V and 6.3V incandescent bulbs; and 3,000 hours for 24V incandescent bulbs.

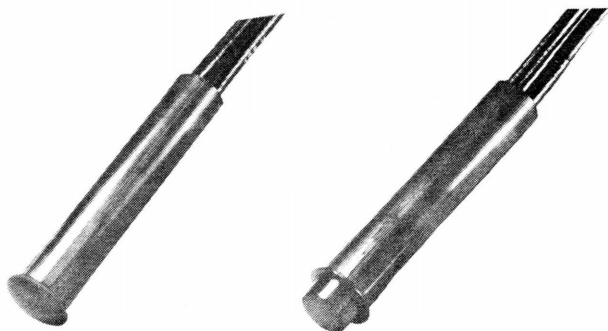


RAISED LENS



FLUSH LENS

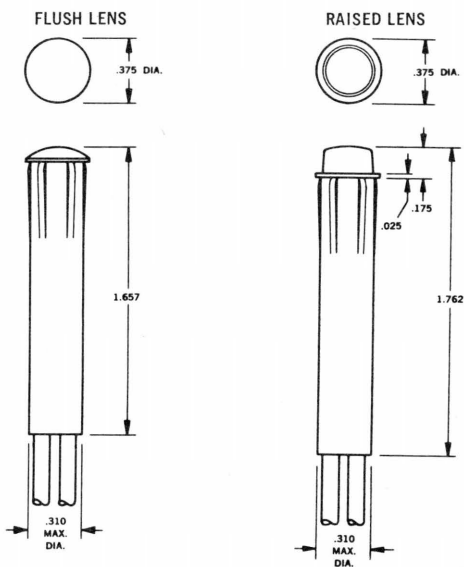
AMPILLUME[®] INDICATOR LIGHT (312 Series)



FEATURES

- Self-mounting in .032" to .062" thick panel material
- Miniature design—fits .312" to .317" diameter mounting hole
- Unique wedge-fit design — no mounting hardware necessary
- Integral 6" leads
- Easy front panel extraction
- Long-life neon lamp—rated at 25,000 hours
- Uniform dispersion of light
- Available with 125 or 250 volt neon lamps
- Two lens styles—flush and raised
- Currently available in natural or red color
- #18 AWG stranded wire leads with 105°C thermoplastic insulation
- U.L. Approved

SPECIFICATIONS

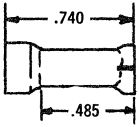


Catalog No.	Voltage Rating	Lens Type	Lens Color
1-380711-1	250	Flush	Natural
1-380711-2	250	Flush	Red
1-380711-3	250	Raised	Natural
1-380711-4	250	Raised	Red

Catalog No.	Voltage Rating	Lens Type	Lens Color
1-380700-8	125	Flush	Natural
1-380700-9	125	Flush	Red
2-380700-0	125	Raised	Natural
2-380700-1	215	Raised	Red

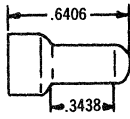
A-MP* CLOSED END SPLICES

1



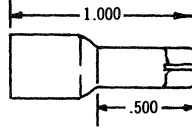
36964
PURPLE BOMB-TAIL* SPLICE

2



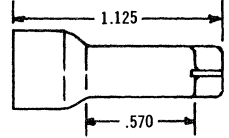
35115
NYLON CLOSED END SPLICE

3



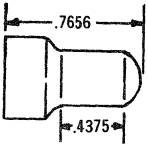
328890
TRANSLUCENT BOMB-TAIL SPLICE

4



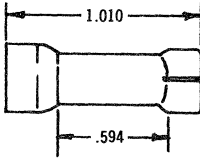
329251
TRANSLUCENT BOMB-TAIL SPLICE

5



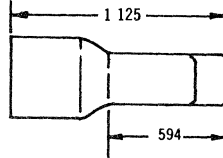
35653
TRANSLUCENT SPLICE

6



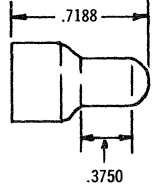
36965
PURPLE BOMB-TAIL SPLICE

7



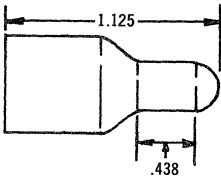
321519
PURPLE BOMB-TAIL SPLICE

8



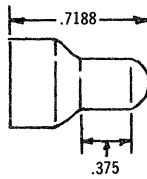
324067
TRANSLUCENT SPLICE

9



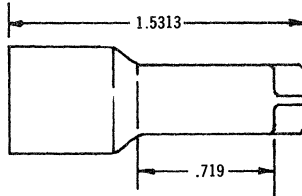
324222
TRANSLUCENT SPLICE

10



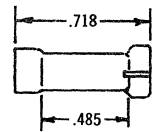
328400
TRANSLUCENT SPLICE

11



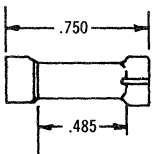
320788
GREEN BOMB-TAIL SPLICE

12



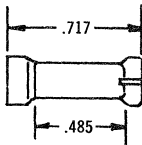
34306
BLUE BOMB-TAIL SPLICE

13



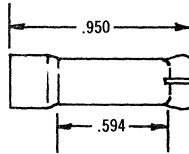
34349
BLUE BOMB-TAIL SPLICE

14



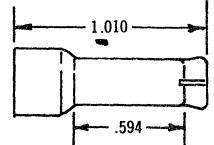
34864
BLUE BOMB-TAIL SPLICE

15



34308
YELLOW BOMB-TAIL SPLICE

16



34865
YELLOW BOMB-TAIL SPLICE

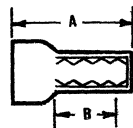
SPECIFICATIONS

	Catalog Number	Wire Size	Insulation Material	Type ‡	Approval		Approved Wire Range	Wire Combination Chart	Splice Material
					UL	CSA			
1	36964	22-14	Vinyl	VS	x	x	18-16 Max. Ins. Dia. .187	IS 1394	Copper Tin plated
2	35115	22-14	Nylon	ECN	x	x	18-16 Max. Ins. Dia. 250	IS 1271	Copper Tin plated
3	328890	18-16	Vinyl	ECV	x	x	18-16 Max. Ins. Dia. .265	IS 1395	Steel Tin plated
4	329251	18-12	Vinyl	ECV	x	x	18-12 Max. Ins. Dia. .350	IS 1479	Copper Unplated
5	35653	18-10	Nylon	ECN	x	x	18-10 Max. Ins. Dia. .370	IS 1021	Copper Tin plated
6	36965	18-10	Vinyl	VS	x	x	18-10 Max. Ins. Dia. 312	IS 1029	Copper Tin plated
7	321519	18-10	Vinyl	ECV	x	x	18-10 Max. Ins. Dia. 360	IS 1002A	Copper Tin plated
8	324067	18-10	Nylon	EC	x	x	18-10 Max. Ins. Dia. 370	IS 1003	Steel Tin plated
9	324222	18-10	Nylon	ECN	x	x	18-10 Max. Ins. Dia. .500	IS 1021	Copper Tin plated
10	328400	18-10	Nylon	EC	x	—	18-10 Max. Ins. Dia. .370	IS 1003	Copper Unplated
11	320788	18-8	Vinyl	ECV	x	x	18-8 Max. Ins. Dia. .500	IS 1008	Copper Tin plated
12	34306	16-14	Vinyl	VS	x	x	18-16 Max. Ins. Dia. 170	IS 1396	Copper Tin plated
13	34349	16-14	Vinyl	VS	x	x	18-16 Max. Ins. Dia. Oval 130 x .240	IS 1396	Copper Tin plated
14	34864	16-14	Vinyl	VS	x	x	18-16 Max. Ins. Dia. 200	IS 1396	Copper Tin plated
15	34308	12-10	Vinyl	VC	x	x	18-10 Max. Ins. Dia. .230	IS 1397	Copper Tin plated
16	34865	12-10	Vinyl	VS	x	x	18-10 Max. Ins. Dia. 300	IS 1397	Copper Tin plated

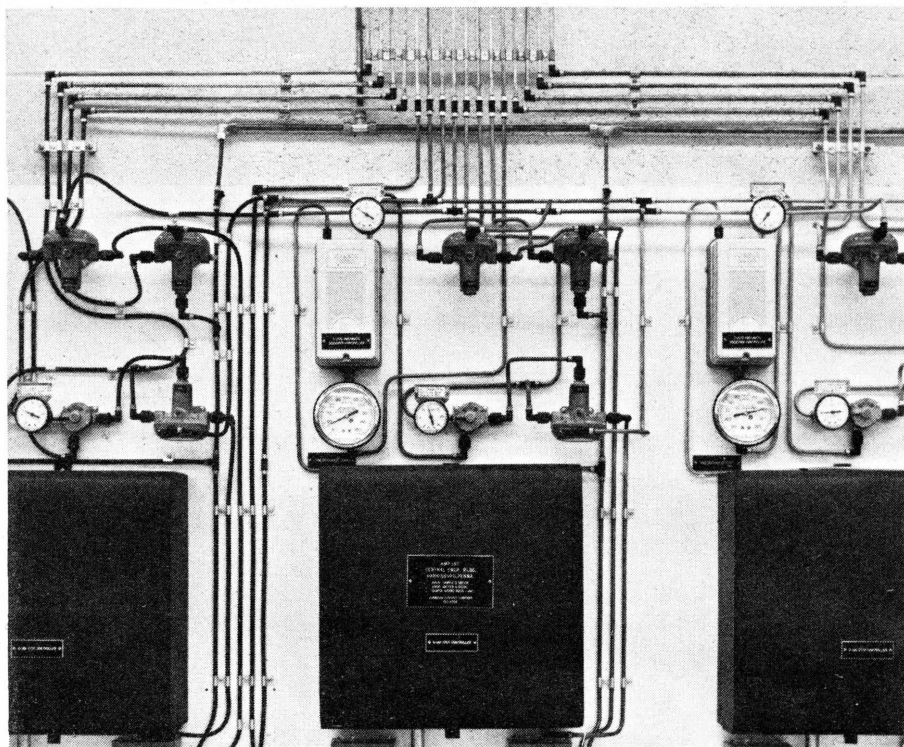
‡VOLTAGE AND TEMPERATURE RATING CODE: ECN: 300V, 105°C; EC: 600-1000V, 105°C VS: 300V, 90°C; ECV: 600-1000V, 90°C

CRIMPING TOOLS

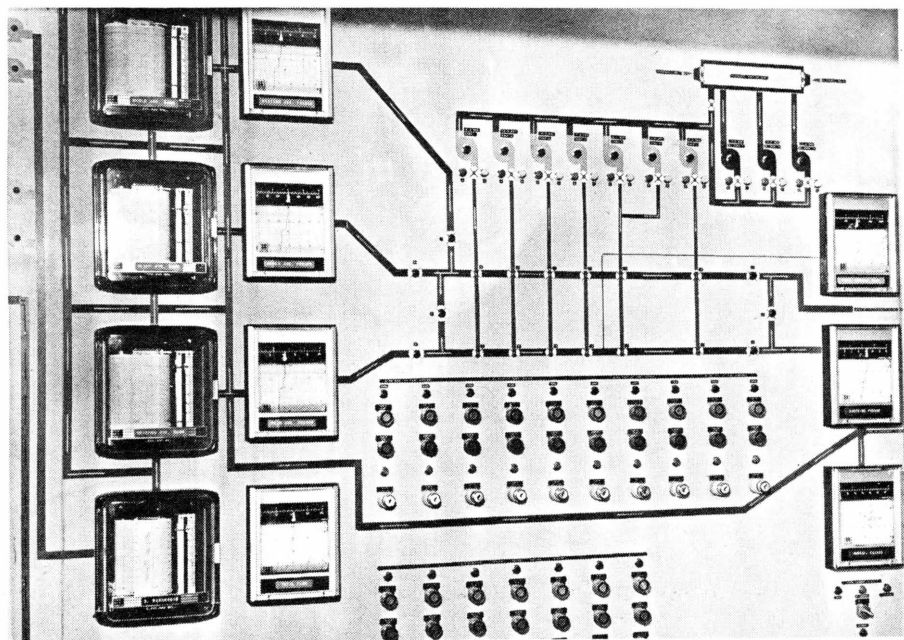
Item	Hand Tool	Pneumatic Head For 69005 Tool	Pneumatic Head For 69010 Tool	Die Assembly For 69365 & 46110 Tools
1	45216 48087 48208	45217	—	45218
2	45216 48208	45217	—	45218
3	69145 (Straight Action)	69238-1 (Head) 69239 (Dies)	—	69303-2
4	46866	—	46516	46702-1 47811
5	45219 48208	37836	45220	45221
6	45219 48208	37836	45220	45221
7	45219 48208	37836	45220	45221
8	46866	—	46516	47811
9	45219 48208	37836	45220	45221
10	46866	—	46516	47811 46702-1
11	69335	—	69244	—
12	45329 45330	—	—	—
13	45329	45328	—	—
14	45329	45328	—	—
15	45324 59499-1	45323	45325	—
16	45324 59499-1	45323	45325	—



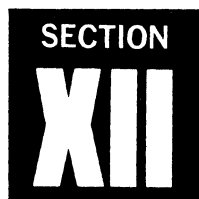
Item	A (Max.)	B (Max.)
1	.740	.485
2	.6406	.3438
3	1.000	.500
4	1.125	.570
5	.7656	.4375
6	1.010	.594
7	1.125	.594
8	.7188	.3750
9	1.125	.438
10	1.188	.375
11	1.5313	.719
12	.718	.485
13	.750	.485
14	.717	.485
15	.950	.594
16	1.010	.594



AMP-FIT Tube Fittings installed on a comfort control panel which controls heat, air conditioning and humidity



Water Treatment Plant Control Board features more than 200 AMPILLUME lights



REFERENCE and INDEX

This section includes the following sub-sections:

Conversion Charts
Product Cross Reference Index

CONVENIENT TABLES FOR . . .

1. Converting Wire Gage to Inches of Diameter and Circular Mil Area and
2. Selecting Proper Size A-MP Terminals or Connectors

Use to Convert Wire Gage to Inches of Diameter, and CMA

To read mils direct, move decimal point three places to the right.

AWG	Dia. Inches	CMA	AWG	Dia. Inches	CMA
4/0	.460	212,000	19	.036	1,290
3/0	.410	168,000	20	.032	1,020
2/0	.365	133,000	21	.0285	810
1/0	.325	106,000	22	.0253	642
1	.289	83,700	23	.0226	509
2	.258	66,400	24	.0201	404
3	.229	52,600	25	.0179	320
4	.204	41,700	26	.0159	254
5	.182	33,100	27	.0142	202
6	.162	26,300	28	.0126	160
7	.144	20,800	29	.0113	127
8	.128	16,500	30	.0100	101
9	.114	13,100	31	.0089	79.7
10	.102	10,400	32	.0080	63.2
11	.091	8,230	33	.0071	50.1
12	.081	6,530	34	.0063	39.8
13	.072	5,180	35	.0056	31.5
14	.064	4,110	36	.0050	25.0
15	.057	3,260	37	.0045	19.8
16	.051	2,580	38	.0040	15.7
17	.045	2,050	39	.0035	12.5
18	.040	1,620	40	.0031	9.9

AMP TERMINAL AND CONNECTOR RANGE CHART

Use to Select the Proper Size Terminal or Connector

Terminal Connector Size	CMA Range	Terminal Connector Size	CMA Range
26-22	202- 810	6	20,800- 33,100
24-18 H.D.	320- 2,050	4	33,100- 52,600
22-16	509- 3,260	2	52,600- 83,700
22-14	509- 5,180	1/0	83,700-119,500
20-16 H.D.	810- 3,260	2/0	119,500-150,500
16-14	2,050- 5,180	3/0	150,500-190,000
16-14 H.D.	2,050- 5,180	4/0	190,000-231,000
16-10	2,050-13,100	231-300 MCM	231,000-300,000
14-12	3,260- 8,230	301-380 MCM	301,000-380,000
12-10	5,180-13,100	381-478 MCM	381,000-478,000
8	13,100-20,800	479-600 MCM	479,000-600,000

COPPER DATA

Resistivity and Density
(Based on National Bureau of Standards)

The international annealed-copper standard of 100% conductivity (NBS Circular No. 31), based on the international Ohm, is as follows at 20 C:

Resistance of a uniform, annealed copper wire one square millimeter in cross section, and one meter long = 1/58 ohm = 0.017241 ohm. Density = 8.89 grams per cubic centimeter. These values also can be expressed as:

- 0.017241 ohm (meter, mm²)
- 10.371 ohms per foot for one circular mil cross section
- 1.7241 microhm per centimeter cube
- 0.67879 microhm per inch cube
- 0.15328 ohm per meter for weight of one gram
- 875.20 ohms per mile for weight of one pound.

TEMPERATURE COEFFICIENT OF RESISTANCE

The temperature coefficient of resistance at constant mass and free expansion of standard annealed copper of 100% conductivity is per degree centigrade, 0.00393 at 20 C or 0.00385 at 25 C.

Resistance values of copper wire of 100% conductivity given in tables at 25 C may be corrected for any temperature by means of the following equation:

$$R_t = R_{25} [1 + 0.00385 (t - 25)]$$

Where R_t = resistance in ohms at temperature t

R_{25} = resistance in ohms at 25 C

t = temperature of wire in degrees C

BREAKING LOADS OF COPPER WIRE

Diam. in.	Size AWG	Breaking *Hard-drawn (Min.)	Load, Lb. †Annealed (Max.)	Diam. in.	Size AWG	Breaking *Hard-drawn (Min.)	Load, Lb. †Annealed (Max.)
0.4600	0000	8140	5980	0.1285	8	826	480
0.4069	000	6720	4750	0.1144	9	661	380
0.3648	00	5520	3760	0.1019	10	529	314
0.3249	0	4520	2980	0.0907	11	423	249
0.2893	1	3690	2430	0.0808	12	337	197
0.2576	2	3000	1930	0.0720	13	268	156
0.2294	3	2440	1530	0.0641	14	213	124
0.2043	4	1970	1210	0.0571	15	170	98
0.1819	5	1590	962	0.0508	16	135	78
0.1620	6	1280	762	0.0453	17	107	62
0.1443	7	1030	605	0.0403	18	85	49

* Based on ASTM B1-53T

† Based on ASTM B3-53T

DECIMAL EQUIVALENTS

Fractional Inches	Dec- imal Milli- Inches meters	Fractional Inches	Dec- imal Milli- Inches meters
1/64.....	.0156	33/64.....	.5156
1/32.....	.0313		.5118....13
	.0394.... 1	17/32.....	.5313
3/64.....	.0469	35/64.....	.5469
	1/16..... .0625		.5512....14
5/64.....	.0781	9/16.....	.5625
	.0787.... 2	37/64.....	.5781
3/32.....	.0938		.5905....15
7/64.....	.1094	19/32.....	.5938
	.1181.... 3	39/64.....	.6094
1/8.....	.1250	5/8.....	.6250
9/64.....	.1406		.6299....16
5/32.....	.1563	41/64.....	.6406
	.1575.... 4	21/32.....	.6563
11/64.....	.1719		.6693....17
	3/16..... .1875	43/64.....	.6719
	.1968.... 5	11/16.....	.6875
13/64.....	.2031	45/64.....	.7031
7/32.....	.2188		.7087....18
15/64.....	.2344	23/32.....	.7188
	.2362.... 6	47/64.....	.7344
1/4.....	.2500		.7480....19
17/64.....	.2656	3/4.....	.7500
	.2756.... 7	49/64.....	.7656
9/32.....	.2813	25/32.....	.7813
19/64.....	.2969		.7874....20
	5/16..... .3125	51/64.....	.7969
	.3150.... 8	13/16.....	.8125
21/64.....	.3281		.8268....21
11/32.....	.3438	53/64.....	.8281
	.3543.... 9	27/32.....	.8438
23/64.....	.3594	55/64.....	.8594
	3/8..... .3750		.8661....22
25/64.....	.3906	7/8.....	.8750
	.3937....10	57/64.....	.8906
13/32.....	.4063		.9055....23
27/64.....	.4219	29/32.....	.9063
	.4331....11	59/64.....	.9219
7/16.....	.4375	15/16.....	.9375
29/64.....	.4531		.9449....24
15/32.....	.4688	61/64.....	.9531
	.4724....12	31/32.....	.9688
31/64.....	.4844		.9842....25
	1/2..... .5000	63/64.....	.9844

CONVERSION TABLES

<p>1 inch = 25.4 mm. 1 mm. = 0.03937 in. 1 foot = 30.48 cm. 1 meter = 39.37 in. 1 mile = 1.609 km. 1 km. = 0.6214 mile</p> <p>1 sq. in. = 6.4516 sq. cm. 1 sq. cm. = 0.155 sq. in. 1 sq. ft. = 929.03 sq. cm.</p> <p>1 cu. in. = 16.39 cu. cm. 1 cu. ft. = 1728 cu. in. 1 cu. ft. = 7.4805 U.S. gal. 1 U.S. gal. = 0.1337 cu. ft. 1 liter = 61.0 cu. in. 1 liter = 1.0567 U.S. qt.</p>	<p>1 in. of water = 0.0361 lb. per sq. in. = 0.0735 in. of mercury 1 ft. of water = 0.4332 lb. per sq. in. = 0.8824 in. of mercury</p> <p>1 in. of mercury = 0.4912 lb. per sq. in. = 13.58 in. of water = 1.131 ft. of water 1 cm. of mercury = 0.1934 lb. per sq. in.</p> <p>1 atmosphere = 14.696 lb. per sq. in. = 33.95 ft. of water = 760 mm. of mercury</p> <p>1 lb. per sq. in. = 27.71 in. of water = 2.309 ft. of water = 2.04 in. of mercury = 0.06804 atmosphere</p>
<p>1 hp. = 746 watts = 33,000 ft. lb./min. = 2,544 btu./hr.</p> <p>1 hp.-hr. = 0.746 kw.-hrs. = 1,980,000 ft. lbs. = 2,545 btu. = 273,740 kg. meters</p> <p>1 ft. lb. = 1,356 joules = 0.13826 kg. meters</p> <p>1 watt = 1 joule/sec. = 3.413 btu./hr. = 44.22 ft. lbs./min.</p>	<p>1 kw. = 1,000 watts = 1.34 hp. = 44,240 ft. lbs./min. = 56.9 btu./min.</p> <p>1 kw. hr. = 1,000 watt hrs. = 1.34 hp. hrs. = 2,654,200 ft. lbs. = 3,413 btu. = 3,600,000 joules</p> <p>1 btu. = 1052 watt sec. = 778 ft. lbs.</p> <p>1 joule = 1 watt sec. = 0.73756 ft. lbs.</p>
MISCELLANEOUS	
<p>1 mile = 1760 yds. = 5,280 ft. 1 fathom = 6 feet 1 sq. mile = 640 acres 1 acre = 208.7 ft. x 208.7 ft. 1 cord wood = 4 x 4 x 8 ft. 1 bushel = 4 pecks = 32 qts. 1 cir. in. = 1,000,000 cir. mils</p>	<p>1 cu. ft. = 1728 cu. in. 1 gal. = 4 qts. 1 score = 20 units 1 ream = 480 sheets 1 gross = 144 units 1 hand = 4 inches 1 ounce = 437.5 grains</p>

RULES AND FORMULAS

For Calculating Spur Gears (Full-Depth Teeth)	
Dimension Wanted	Formula
Circular Pitch (CP)	$CP = \frac{PD \times 3.1416}{N}$ $CP = \frac{3.1416}{DP}$
Diametral Pitch (DP)	$DP = \frac{3.1416}{CP}$ $DP = \frac{N}{PD}$
Pitch Diameter (PD)	$PD = \frac{N}{DP}$ $PD = \frac{N \times CP}{3.1416}$
Outside Diameter (OD)	$OD = \frac{N + 2}{DP}$ $OD = \frac{(N + 2) CP}{3.1416}$
Number of Teeth (N)	$N = PD \times DP$ $N = \frac{PD \times 3.1416}{CP}$


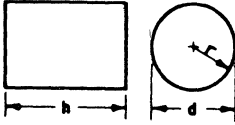

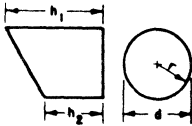
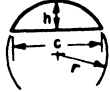
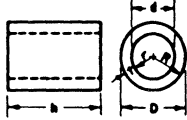
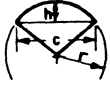
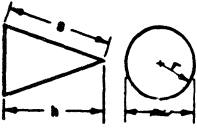

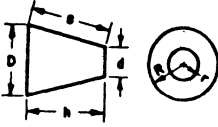
General Formulas for the Strength of Materials

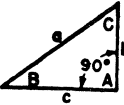
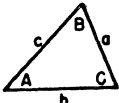


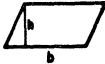





<i>For tension and compression:</i>	<i>For shear:</i>	<i>For bending:</i>	<i>For torsions (Circular sections)</i>
$P = A \times S; e = \frac{Pl}{AE}$	$P = A \times S$	$Mb = \frac{Sl}{y} = SZ$	$Mt = \frac{Slp}{y} = SZp$
<p>Note: The permissible working stress for shear and torsion may be assumed as equal to about four-fifths the permissible stress in tension.</p>			
<p>A = area of cross-section in square inches. E = modulus of elasticity. I = moment of inertia of section (about an axis passing through the center of gravity). Ip = polar moment of inertia of section. Mb = maximum bending moment, in inch-pounds. Mt = torsional moment, in inch-pounds.</p>	<p>P = total stress in pounds. y = distance from center of gravity to most remote fiber. S = permissible working stress in pounds per square inch. Z = section modulus for bending Zp = section modulus for torsion. e = elongation or shortening, in inches. l = length in inches.</p>		

Temperature Conversion	
$\text{Degrees F} = \frac{\text{Degrees C} \times 9}{5} + 32$	$\text{Degrees C} = \frac{(\text{Degrees F} - 32)}{9} \times 5$

Ohm's Law			
$I = \frac{E}{R}$	$R = \frac{E}{I}$	$E = RI$	$W = EI = I^2R = \frac{E^2}{R}$
E = Volts	R = Ohms	I = Amps	W = Watts

Values for Functions of π		
$\pi = 3.141592653$	$\pi^2 = 31.0062767$	$\frac{1}{\pi^2} = 0.1013212$
$\pi^3 = 9.8696044$	$\frac{1}{\pi} = 0.3183099$	$\frac{1}{\pi^3} = 0.0322515$
$\sqrt{\pi} = 1.7724539$	$\frac{\pi}{180} = 0.0174533$	
$\sqrt{\frac{1}{\pi}} = 0.5641896$	$\frac{180}{\pi} = 57.2957795$	

<p>Cube</p>  <p>$V = s^3$ $s = \sqrt[3]{V}$</p>	<p>Cylinder</p>  <p>$V = \pi r^2 h = 0.7854 d^2 h$ $S = 6.2832 r h = \pi d h$</p>
<p>Sphere</p>  <p>$V = \frac{4\pi r^3}{3} = \frac{\pi d^3}{6}$ $A = 4\pi r^2 = \pi d^2$ $r = 0.6204 \sqrt[3]{V}$</p>	<p>Portion of Cylinder</p>  <p>$V = 1.5708 r^2 (h_1 + h_2)$ $S = \pi r (h_1 + h_2)$</p>
<p>Spherical Segment</p>  <p>$V = \pi h^2 \left(r - \frac{h}{3} \right) = \pi h \left(\frac{c^2}{8} + \frac{h^2}{6} \right)$ $A = 2 \pi r h = \pi \left(\frac{c^2}{4} + h^2 \right)$ $c = 2 \sqrt{h(2r - h)} \quad r = \frac{c^2 + 4h^2}{8h}$</p>	<p>Hollow Cylinder</p>  <p>$V = \pi h (R^2 - r^2) = 0.7854 h (D^2 - d^2)$ $= \pi h t (2R - t) = \pi h t (D - t)$ $= \pi h t (2r + t) = \pi h t (d + t)$ $= \pi h t (R + r) = 1.5708 h t (D + d)$</p>
<p>Spherical Sector</p>  <p>$V = \frac{2 \pi r^2 h}{3}$ $A = \pi r (2h + \frac{1}{2} c)$ $c = 2 \sqrt{h(2r - h)}$</p>	<p>Cone</p>  <p>$V = 1.0472 r^2 h = 0.2618 d^2 h$ $A = \pi r \sqrt{r^2 + h^2} = \pi r s$ $s = \sqrt{r^2 + h^2}$</p>
<p>Torus</p>  <p>$V = 2 \pi^2 R r^2 = \frac{\pi^2}{4} D d^2$ $A = 4 \pi^2 R r = \pi^2 D d$</p>	<p>Frustum of Cone</p>  <p>$V = 1.0472 h (R^2 + Rr + r^2)$ $A = \pi s (R + r)$ $s = \sqrt{(R - r)^2 + h^2}$</p>

Solution of Right-angled Triangles			
	Sides and Angles Known	Formulas for Sides and Angles to be Found	
	Sides a and b . . .	$c = \sqrt{a^2 - b^2}$	$\sin B = \frac{b}{a}$ $C = 90^\circ - B$
	Sides b and c . . .	$a = \sqrt{b^2 + c^2}$	$\tan B = \frac{b}{c}$ $C = 90^\circ - B$
	Side a; angle B . . .	$b = a \sin B$	$c = a \cos B$ $C = 90^\circ - B$
	Side b; angle B . . .	$a = \frac{b}{\sin B}$	$c = b \cot B$ $C = 90^\circ - B$
	Side b; angle C . . .	$a = \frac{b}{\cos C}$	$c = b \tan C$ $B = 90^\circ - C$
Solution of Oblique-angled Triangles			
	One side and two angles known. a, A, B	$b = \frac{a \sin B}{\sin A}$ $c = \frac{a \sin C}{\sin A} = \frac{a \sin (A+B)}{\sin A}$ Area = $\frac{a b \sin C}{2}$	
	Two sides and angle between them known. a, b, C	$\tan A = \frac{a \sin C}{b - a \cos C}$ $c = \frac{a \sin C}{\sin A}$ Area = $\frac{a b \sin C}{2}$	
	Two sides and angle opposite one side known. a, b, A	$\sin B = \frac{b \sin A}{a}$ $c = \frac{a \sin C}{\sin A}$ Area = $\frac{a b \sin C}{2}$	
	Three sides known. a, b, c Note: $C = 180 - (A+B)$	$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$ $\sin B = \frac{b \sin A}{a}$ Area = $\frac{a b \sin C}{2}$	
			
Area of Plane Figures			
Trapezoid 	Triangle 	Area = $\frac{bh}{2}$ $s = \frac{a + b + c}{2}$ Area = $\sqrt{s(s-a)(s-b)(s-c)}$	
Parallelogram 	Ellipse 	Area = $\pi ab = 3.1416 ab$. Approximate formula for perimeter $P = 3.1416 \sqrt{2(a^2 + b^2)}$	
Trapezium 	Reg. Hex. $A = 2.598 s^2 = 3.464 r^2$ $R = s = 1.155 r$ $r = 0.866 s = 0.866 R$ 		
Circle 	Segment 		
Area = πr^2 Cir. = $2 \pi r$	$c = 2 \sqrt{h(2r-h)}$ $h = r - \frac{1}{2} \sqrt{4r^2 - c^2}$ $r = \frac{c^2 + 4h^2}{8h}$ $\alpha = \frac{57.296 l}{r}$ $A = \frac{1}{2} [rl - c(r-h)] = 0.01745 \alpha r^2$		

**COMPARATIVE PHYSICAL AND MECHANICAL
Properties of Metals
(Approx.)**

	Tensile Strength 1000 lbs. per sq. in.	Yield Point 1000 lbs. per sq. in.	Shear Strength 1000 lbs. per sq. in.	Brinell Hardness	Elongation in 2" %	Modulus of Elasticity 1,000,000 lb./sq. in.	Coefficient of Thermal Expansion per °F. at 68° F.	Density lbs. per cu. in.
Aluminum	15— 50	10— 30	12	25—100	5—20	10	.0000130	.095—.106
Brass	50— 60	20— 45	38	50— 80	25—65	15	.0000114	.305
Bronze	40— 60	10— 55	40	55—100	5—40	15	.0000101	.320
Copper	35— 50	10— 50	...	45—100	20—50	16	.0000097	.323
Iron, Cast	15— 35	6— 20	24	100—300	.....	16	.0000056	.253—.260
Iron, Wrought	40— 50	20— 40	40	100	.....	20	.0000066	.260—.269
Lead	1.8— 3.3	.....	...	4	.....	2	.0000162	.411
Magnesium	15— 40	15— 35	18	33— 78	5—15	6.5	.0000145	.063—.067
Nickel	70— 85	40— 80	...	85—125	5—40	30	.0000073	.327
Nickel Silver	60— 80	20— 75	...	.....	5—40	18	.0000083	.314
Phos. Bronze	50— 80	15— 70	...	125—240	5—50	16	.0000099	.320
Zinc	5— 15	4— 10	30	80—100	7—10	..	.0000152	.238—.242
Steel, Carbon	75—120	60—100	75	150—250	20—30	28	.0000065	.283
Steel, Alloy	125—200	75—150	110	200—300	15—45	29	.0000080	.283
Stainless Steel	100—250	85—200	125	150—400	15—55	28	.0000095	.290

PROPERTIES OF MATERIALS

Metals		Melting Point °F	Coef. of Exp. Per °F	Electrical Conductivity o/o Copper	Lb. Cu. Inch
Element	Symbol				
Aluminum	Al	1215	.0000133	64.9	.098
Antimony	Sb	1167	.00000627	4.42	.239
Beryllium	Be	2345	.0000068	9.32	.066
Bismuth	Bi	520	.00000747	1.50	.354
Cadmium	Cd	610	.00000166	22.7	.313
Chromium	Cr	2822	.0000045	13.2	.258
Cobalt	Co	2714	.00000671	17.8	.322
Copper	Cu	1981	.0000091	100.	.323
Gold	Au	1945	.0000080	71.2	.697
Iron	Fe	2795	.0000066	17.6	.284
Lead	Pb	621	.0000164	8.35	.409
Magnesium	Mg	1204	.0000143	38.7	.063
Mercury	Hg	—38	—	1.80	.489
Molybdenum	Mo	4748	.00000305	36.1	.368
Nickel	Ni	2646	.0000076	25.0	.322
Platinum	Pl	3224	.0000043	17.5	.774
Selenium	Sa	428	.0000206	14.4	.174
Silver	Ag	1761	.0000105	106.	.380
Tellurium	To	846	.0000093	—	.224
Tin	Sn	450	.0000124	15.0	.264
Tungsten	W	6098	.0000022	31.5	.698
Venadium	V	3110	—	6.63	.205
Zinc	Zn	787	.0000219	29.1	.258

(Continued)

PROPERTIES OF MATERIALS

Liquids	Lb./Gal.	Others	Lb. Cu. In.
Acetone	6.6	Asbestos-Lbr.	.060
Alcohol (100%)	6.8	Concrete	.069-.087
Ammonia	7.4	Cork	.009
Benzene	6.4	Felt (Medium)	.014
Benzol	7.4	Fibre	.045
Carbon Tetrachloride	13.3	Glass	.074
Castor Oil	8.1	Leather	.034
Gasoline	6.1	Micarta	.050
Glue Liquid	10.7	Paper-Hard	.035
Hydrochloric Acid	9.4	Kraft	.025
Inerton	12.9	Porcelain	.037
Kerosene	6.7	Rubber-Soft	.054
Lard Oil	7.7	Slate	.101
Linseed Oil	7.8	Tar-Pitch	.036
Machine Oil	7.5	Dry Air at 72° F	.0000432
Paints	10.3-13.5	Lumber	
Shellac	7.5	Ash	.027
Sodium Silicate	12.0	Chestnut	.022
Sulphuric Acid	15.3	Hemlock	.014
Tung Oil	7.8	Hickory	.029
Turpentine	7.3	Maple	.025
Varnish-Ins	7.0	Oak	.023
Water	8.34	Pine (White)	.018

WEIGHTS OF MATERIALS

Materials	Lb. per Cu. Ft.	Sp. gr. H ₂ O = 1
Aluminum, cast	160	2.56
Aluminum, wrought	169	2.71
Antimony	415	6.62
Asbestos Board	74.91	1.2
Balsa	6.9	.11
Benzene	56.1	.90
Bismuth	606	9.7
Brass, cast	527	8.44
Brass, wire	542	8.70
Bronze	544	8.73
Constanion	554	8.9
Copper	554	8.89
Copper, cast	530	8.5
Cork	14.16	.22-.26
Ether, Sulphuric	45.9	.736
German Silver	518	8.3
Glass	149-187	2.4-3
Gold	1206	19.3
Granite	156-187	2.5-3
Iron, cast	443	7.1
Iron, wrought	486	7.8
Lead, wire	708	11.35
Magnalium	126	2
Magnesium	—	1.74
Mercury, fluid	846	13.56
Molybdenum	640	10.2
Naphtha	53	.85
Nickel, cast	550	8.8
Nitric Acid	76.2	1.22
Oak	38-56	.60-90
Oil, linseed	58.8	.942
Oil, Turpentine	54.2	.87
Paper	43-72	.7-1 15
Petroleum	54.8	.88
Phosphor Bronze	549	8.8
Platinum	1330	21.4
Silver	655	10.5
Steel	489	7.8
Sulphuric Acid (Conc.)	114.9	1.84
Tin	454.60	7.3
Tungsten	1173	18.8
Walnut	40.44	.64-.70
Water, pure	62.4	1.000
White Pine (seas)	31	.5
Zinc, sheet	449	7.2

A-MP TERMINAL STUD SIZE TABLE

Stud Size	Stud Diameter Inch	Stud-Hole Diameter* Inch
#0	.060	.067
#1	.073	.093
#2	.086	
#3	.099	.119
#4	.112	
#5	.125	.145
#6	.138	
#8	.164	.171
#10	.190	.197
#12	.216	.223
#14	.242	.250
¼"	.250	17/64
5/16"	.312	21/64
3/8"	.375	25/64
7/16"	.437	29/64
½"	.500	33/64
5/8"	.625	21/32
¾"	.750	29/32
7/8"	.875	29/32
1"	1.000	1 1/32

*Stud hole tolerance $\pm .003''$ on decimal dimensions and $\pm .005''$ on fractional dimensions.

TO CONVERT	INTO	MULTIPLY BY
A		
Abcoulomb	Statcoulombs	2.998×10^{10}
Acre	Sq. chain (Gunters)	10
Acre	Rods	160
Acre	Square links (Gunters)	1×10^5
Acre	Hectare or sq. hectometer	.4047
acres	sq feet	43,560.0
acres	sq meters	4,047.
acres	sq miles	1.562×10^{-3}
acres	sq yards	4,840.
acre-feet	cu feet	43,560.0
acre-feet	gallons	3.259×10^5
amperes/sq cm	amps/sq in.	6.452
amperes/sq cm	amps/sq meter	10^4
amperes/sq in.	amps/sq cm	0.1550
amperes/sq in.	amps/sq meter	1,550.0
amperes/sq meter	amps/sq cm	10^{-4}
amperes/sq meter	amps/sq in.	6.452×10^{-4}
ampere-hours	coulombs	3,600.0
ampere-hours	faradays	0.03731
ampere-turns	gilberts	1.257
ampere-turns/cm	amp-turns/in.	2.540
ampere-turns/cm	amp-turns/meter	100.0
ampere-turns/cm	gilberts/cm	1.257
ampere-turns/in.	amp-turns/cm	0.3937
ampere-turns/in.	arnp-turns/meter	39.37
ampere-turns/in.	gilberts/cm	0.4950
ampere-turns/meter	amp/turns/cm	0.01
ampere-turns/meter	amp-turns/in.	0.0254
ampere-turns/meter	gilberts/cm	0.01257
Angstrom unit	Inch	3937×10^{-9}
Angstrom unit	Meter	1×10^{-10}
Angstrom unit	Micron or (μ)	1×10^{-4}
Are	Acre (US)	.02471
Ares	sq. yards	119.60
ares	acres	0.02471
ares	sq meters	100.0
Astronomical Unit	Kilometers	1.495×10^8
Atmospheres	Ton/sq. inch	.007348
atmospheres	cms of mercury	76.0
atmospheres	ft of water (at 4°C)	33.90
atmospheres	in. of mercury (at 0°C)	29.92
atmospheres	kgs/sq cm	1.0333
atmospheres	kgs/sq meter	10,332.
atmospheres	pounds/sq in.	14.70
atmospheres	tons/sq ft	1.058
B		
Barrels (U.S., dry)	cu. inches	7056.
Barrels (U.S., dry)	quarts (dry)	105.0
Barrels (U.S., liquid)	gallons	31.5
barrels (oil)	gallons (oil)	42.0
bars	atmospheres	0.9869
bars	dynes/sq cm	10^4
bars	kgs/sq meter	1.020×10^4
bars	pounds/sq ft	2,089.
bars	pounds/sq in.	14.50
Baryl	Dyne/sq. cm.	1.000
Bolt (US Cloth)	Meters	36.576
BTU	Liter-Atmosphere	10.409

TO CONVERT	INTO	MULTIPLY BY
Btu	ergs	1.0550×10^{10}
Btu	foot-lbs	778.3
Btu	gram-calories	252.0
Btu	horsepower-hrs	3.931×10^{-4}
Btu	joules	1,054.8
Btu	kilogram-calories	0.2520
Btu	kilogram-meters	107.5
Btu	kilowatt-hrs	2.928×10^{-4}
Btu/hr	foot-pounds/sec	0.2162
Btu/hr	gram-cal/sec	0.0700
Btu/hr	horsepower	3.929×10^{-4}
Btu/hr	watts	0.2931
Btu/min	foot-lbs/sec	12.96
Btu/min	horsepower	0.02356
Btu/min	kilowatts	0.01757
Btu/min	watts	17.57
Btu/sq ft/min	watts/sq in.	0.1221
Bucket (Br. dry)	Cubic Cm.	1.818×10^4
bushels	cu ft	1.2445
bushels	cu in.	2,150.4
bushels	cu meters	0.03524
bushels	liters	35.24
bushels	pecks	4.0
bushels	pints (dry)	64.0
bushels	quarts (dry)	32.0

C

Calories, gram (mean)	B.T.U. (mean)	3.9685×10^{-3}
Candle/sq. cm	Lamberts	3.142
Candle/sq. inch	Lamberts	.4870
centares (centiares)	sq meters	1.0
Centigrade	Fahrenheit	$(C^\circ \times 9/5) + 32$
centigrams	grams	0.01
Centiliter	Ounce fluid (US)	.3382
Centiliter	Cubic inch	.6103
Centiliter	drams	2.705
centiliters	liters	0.01
centimeters	feet	3.281×10^{-2}
centimeters	inches	0.3937
centimeters	kilometers	10^{-5}
centimeters	meters	0.01
centimeters	miles	6.214×10^{-4}
centimeters	millimeters	10.0
centimeters	mils	393.7
centimeters	yards	1.094×10^{-2}
centimeter-dynes	cm-grams	1.020×10^{-3}
centimeter-dynes	meter-kgs	1.020×10^{-8}
centimeter-dynes	pound-feet	7.376×10^{-8}
centimeter-grams	cm-dynes	980.7
centimeter-grams	meter-kgs	10^{-5}
centimeter-grams	pound-feet	7.233×10^{-5}
centimeters of mercury	atmospheres	0.01316
centimeters of mercury	feet of water	0.4461
centimeters of mercury	kgs/sq meter	136.0
centimeters of mercury	pounds/sq ft	27.85
centimeters of mercury	pounds/sq in.	0.1934
centimeters/sec	feet/min	1.9685
centimeters/sec	feet/sec	0.03281
centimeters/sec	kilometers/hr	0.036
centimeters/sec	knots	0.0194
centimeters/sec	meters/min	0.6
centimeters/sec	miles/hr	0.02237
centimeters/sec	miles/min	3.728×10^{-4}

TO CONVERT	INTO	MULTIPLY BY
centimeters/sec/sec	feet/sec/sec	0.03281
centimeters/sec/sec	kms/hr/sec	0.036
centimeters/sec/sec	meters/sec/sec	0.01
centimeters/sec/sec	miles/hr/sec	0.02237
Chain	Inches	792.00
Chain	meters	20.12
Chains (surveyors' or Gunter's)	yards	22.00
circular mils	sq cms	5.067×10^{-4}
circular mils	sq mils	0.7854
Circumference	Radians	6.283
circular mils	sq inches	7.854×10^{-7}
Cords	cord feet	8
Cord feet	cu. feet	16
Coulomb	Statcoulombs	2.998×10^9
coulombs	faradays	1.036×10^{-5}
coulombs/sq cm	coulombs/sq in.	64.52
coulombs/sq cm	coulombs/sq meter	10^4
coulombs/sq in.	coulombs/sq cm	0.1550
coulombs/sq in.	coulombs/sq meter	1,550.
coulombs/sq meter	coulombs/sq cm	10^{-4}
coulombs/sq meter	coulombs/sq in.	6.452×10^{-4}
cubic centimeters	cu feet	3.531×10^{-3}
cubic centimeters	cu inches	0.06102
cubic centimeters	cu meters	10^{-4}
cubic centimeters	cu yards	1.308×10^{-4}
cubic centimeters	gallons (U. S. liq.)	2.642×10^{-4}
cubic centimeters	liters	0.001
cubic centimeters	pints (U.S. liq.)	2.113×10^{-3}
cubic centimeters	quarts (U.S. liq.)	1.057×10^{-3}
cubic feet	bushels (dry)	0.8036
cubic feet	cu cms	28,320.0
cubic feet	cu inches	1,728.0
cubic feet	cu meters	0.02832
cubic feet	cu yards	0.03704
cubic feet	gallons (U.S. liq.)	7.48052
cubic feet	liters	28.32
cubic feet	pints (U.S. liq.)	59.84
cubic feet	quarts (U.S. liq.)	29.92
cubic feet/min	cu cms/sec	472.0
cubic feet/min	gallons/sec	0.1247
cubic feet/min	liters/sec	0.4720
cubic feet/min	pounds of water/min	62.43
cubic feet/sec	million gals/day	0.646317
cubic feet/sec	gallons/min	448.831
cubic inches	cu cms	16.39
cubic inches	cu feet	5.787×10^{-4}
cubic inches	cu meters	1.639×10^{-5}
cubic inches	cu yards	2.143×10^{-5}
cubic inches	gallons(U.S. liq.)	4.329×10^{-3}
cubic inches	liters	0.01639
cubic inches	mil-feet	1.061×10^5
cubic inches	pints (U.S. liq.)	0.03463
cubic inches	quarts (U.S. liq.)	0.01732
cubic meters	bushels (dry)	28.38
cubic meters	cu cms	10^6
cubic meters	cu feet	35.31
cubic meters	cu inches	61,023.0
cubic meters	cu yards	1.308
cubic meters	gallons (U.S. liq.)	264.2
cubic meters	liters	1,000.0
cubic meters	pints (U.S. liq.)	2,113.0

TO CONVERT	INTO	MULTIPLY BY
cubic meters	quarts (U.S. liq.)	1,057.
cubic yards	cu cms	7.646 x 10 ⁵
cubic yards	cu feet	27.0
cubic yards	cu inches	46,656.0
cubic yards	cu meters	0.7646
cubic yards	gallons (U.S. liq.)	202.0
cubic yards	liters	764.6
cubic yards	pints (U.S. liq.)	1,615.9
cubic yards	quarts (U.S. liq.)	807.9
cubic yards/min	cubic ft/sec	0.45
cubic yards/min	gallons/sec	3.367
cubic yards/min	liters/sec	12.74

D

Dalton	Gram	1.650 x 10 ⁻²⁴
days	seconds	86,400.0
decigrams	grams	0.1
deciliters	liters	0.1
decimeters	meters	0.1
degrees (angle)	quadrants	0.01111
degrees (angle)	radians	0.01745
degrees (angle)	seconds	3,600.0
degrees/sec	radians/sec	0.01745
degrees/sec	revolutions/min	0.1667
degrees/sec	revolutions/sec	2.778 x 10 ⁻³
dekagrams	grams	10.0
dekaliters	liters	10.0
dekameters	meters	10.0
Drams (apothecaries' or troy)	ounces (avoirdupois)	0.1371429
Drams (apothecaries' or troy)	ounces (troy)	0.125
Drams (U.S., fluid or apoth.)	cubic cm.	3.6967
drams	grams	1.7718
drams	grains	27.3437
drams	ounces	0.0625
Dyne/cm	Erg/sq. millimeter	.01
Dyne/sq. cm.	Atmospheres	9.869 x 10 ⁻⁷
Dyne/sq. cm.	Inch of Mercury at 0°C	2.953 x 10 ⁻⁵
Dyne/sq. cm.	Inch of Water at 4°C	4.015 x 10 ⁻⁴
dynes	grams	1.020 x 10 ⁻³
dynes	joules/cm	10 ⁻⁷
dynes	joules/meter (newtons)	10 ⁻⁵
dynes	kilograms	1.020 x 10 ⁻⁶
dynes	poundals	7.233 x 10 ⁻⁵
dynes	pounds	2.248 x 10 ⁻⁶
dynes/sq cm	bars	10 ⁻⁶

E

Ell	Cm.	114.30
Ell	Inches	45
Em, Pica	Inch	.167
Em, Pica	Cm.	.4233
Erg/sec	Dyne — cm/sec	1.000
ergs	Btu	9.480 x 10 ⁻¹¹
ergs	dyne-centimeters	1.0
ergs	foot-pounds	7.367 x 10 ⁻⁸
ergs	gram-calories	0.2389 x 10 ⁻⁷
ergs	gram-cms	1.020 x 10 ⁻³
ergs	horsepower-hrs	3.7250 x 10 ⁻¹⁴

TO CONVERT	INTO	MULTIPLY BY
ergs	joules	10^{-7}
ergs	kg-calories	2.389×10^{-11}
ergs	kg-meters	1.020×10^{-8}
ergs	kilowatt-hrs	0.2778×10^{-12}
ergs	watt-hours	0.2778×10^{-10}
ergs/sec	Btu/min	$5,688 \times 10^{-9}$
ergs/sec	ft-lbs/min	4.427×10^{-6}
ergs/sec	ft-lbs/sec	7.3756×10^{-8}
ergs/sec	horsepower	1.341×10^{-10}
ergs/sec	kg-calories/min	1.433×10^{-9}
ergs/sec	kilowatts	10^{-10}
F		
farads	microfarads	10^6
Faraday/sec	Ampere (absolute)	9.6500×10^4
faradays	ampere-hours	26.80
faradays	coulombs	9.649×10^4
Fathom	Meter	1.828804
fathoms	feet	6.0
feet	centimeters	30.48
feet	kilometers	3.048×10^{-4}
feet	meters	0.3048
feet	miles (naut.)	1.645×10^{-4}
feet	miles (stat.)	1.894×10^{-4}
feet	millimeters	304.8
feet	mils	1.2×10^4
feet of water	atmospheres	0.02950
feet of water	in. of mercury	0.8826
feet of water	kgs/sq cm	0.03048
feet of water	kgs/sq meter	304.8
feet of water	pounds/sq ft	62.43
feet of water	pounds/sq in.	0.4335
feet/min	cms/sec	0.5080
feet/min	feet/sec	0.01667
feet/min	kms/hr	0.01829
feet/min	meters/min	0.3048
feet/min	miles/hr	0.01136
feet/sec	cms/sec	30.48
feet/sec	kms/hr	1.097
feet/sec	knots	0.5921
feet/sec	meters/min	18.29
feet/sec	miles/hr	0.6818
feet/sec	miles/min	0.01136
feet/sec/sec	cms/sec/sec	30.48
feet/sec/sec	kms/hr/sec	1.097
feet/sec/sec	meters/sec/sec	0.3048
feet/sec/sec	miles/hr/sec	0.6818
feet/100 feet	per cent grade	1.0
Foot — candle	Lumen/sq. meter	10.764
foot-pounds	Btu	1.286×10^{-3}
foot-pounds	ergs	1.356×10^7
foot-pounds	gram-calories	0.3238
foot-pounds	hp-hrs	5.050×10^{-7}
foot-pounds	joules	1.356
foot-pounds	kg-calories	3.24×10^{-4}
foot-pounds	kg-meters	0.1383
foot-pounds	kilowatt-hrs	3.766×10^{-7}
foot-pounds/min	Btu/min	1.286×10^{-3}
foot-pounds/min	foot-pounds/sec	0.01667
foot-pounds/min	horsepower	3.030×10^{-5}
foot-pounds/min	kg-calories/min	3.24×10^{-4}

TO CONVERT	INTO	MULTIPLY BY
foot-pounds/min	kilowatts	2.260×10^{-5}
foot-pounds/sec	Btu/hr	4.6263
foot-pounds/sec	Btu/min	0.07717
foot-pounds/sec	horsepower	1.818×10^{-3}
foot-pounds/sec	kg-calories/min	0.01945
Foot-pounds/sec	kilowatts	1.356×10^{-3}
Furlongs	miles (U.S.)	0.125
furlongs	rods	40.0
furlongs	feet	660.0

G

gallons	cu cms	3,785.0
gallons	cu feet	0.1337
gallons	cu inches	231.0
gallons	cu meters	3.785×10^{-3}
gallons	cu yards	4.951×10^{-3}
gallons	liters	3.785
gallons (liq. Br. Imp.)	gallons (U.S. liq.)	1.20095
gallons (U.S.)	gallons (Imp.)	0.83267
gallons of water	pounds of water	8.3453
gallons/min	cu ft/sec	2.228×10^{-3}
gallons/min	liters/sec	0.06308
gallons/min	cu ft/hr	8.0208
gausses	lines/sq in.	6.452
gausses	webers/sq cm	10^{-8}
gausses	webers/sq in.	6.452×10^{-8}
gausses	webers/sq meter	10^{-4}
gilberts	ampere-turns	0.7958
gilberts/cm	amp-turns/cm	0.7958
gilberts/cm	amp-turns/in	2.021
gilberts/cm	amp-turns/meter	79.58
Gills (British)	cubic cm.	142.07
gills	liters	0.1183
gills	pints (liq.)	0.25
Grade	Radian	.01571
Grains	drams (avoirdupois)	0.03657143
grains (troy)	grains (avdp)	1.0
grains (troy)	grams	0.06480
grains (troy)	ounces (avdp)	2.0833×10^{-3}
grains (troy)	pennyweight (troy)	0.04167
grains/U.S. gal	parts/million	17.118
grains/U.S. gal	pounds/million gal	142.86
grains/Imp. gal	parts/million	14.286
grams	dynes	980.7
grams	grains	15.43
grams	joules/cm	9.807×10^{-5}
grams	joules/meter (newtons)	9.807×10^{-3}
grams	kilograms	0.001
grams	milligrams	1,000.
grams	ounces (avdp)	0.03527
grams	ounces (troy)	0.03215
grams	poundals	0.07093
grams	pounds	2.205×10^{-3}
grams/cm	pounds/inch	5.600×10^{-3}
grams/cu cm	pounds/cu ft	62.43
grams/cu cm	pounds/cu in	0.03613
grams/cu cm	pounds/mil-foot	3.405×10^{-7}
grams/liter	grains/gal	58.417
grams/liter	pounds/1,000 gal	8.345
grams/liter	pounds/cu ft	0.062427

TO CONVERT	INTO	MULTIPLY BY
grams/liter	parts/million	1,000.0
grams/sq cm	pounds/sq ft	2.0481
gram-calories	Btu	3.9683×10^{-3}
gram-calories	ergs	4.1868×10^7
gram-calories	foot-pounds	3.0880
gram-calories	horsepower-hrs	1.5596×10^{-6}
gram-calories	kilowatt-hrs	1.1630×10^{-6}
gram-calories	watt-hrs	1.1630×10^{-3}
gram-calories/sec	Btu/hr	14.286
gram-centimeters	Btu	9.297×10^{-8}
gram-centimeters	ergs	980.7
gram-centimeters	joules	9.807×10^{-5}
gram-centimeters	kg-cal	2.343×10^{-8}
gram-centimeters	kg-meters	10^{-5}

H

Hand	Cm.	10.16
hectares	acres	2.471
hectares	sq feet	1.076×10^5
hectograms	grams	100.0
hectoliters	liters	100.0
hectometers	meters	100.0
hectowatts	watts	100.0
henries	millihenries	1,000.0
Hogsheads (British)	cubic ft.	10.114
Hogsheads (U.S.)	cubic ft.	8.42184
Hogsheads (U.S.)	gallons (U.S.)	63
horsepower	Btu/min	42.44
horsepower	foot-lbs/min	33,000.
horsepower	foot-lbs/sec	550.0
horsepower (metric) (542.5 ft lb/sec)	horsepower (550 ft lb/sec)	0.9863
horsepower (550 ft lb/sec)	horsepower (metric) (542.5 ft lb/sec)	1.014
horsepower	kg-calories/min	10.68
horsepower	kilowatts	0.7457
horsepower	watts	745.7
horsepower (boiler)	Btu/hr	33,479
horsepower (boiler)	kilowatts	9.803
horsepower-hrs	Btu	2,547.
horsepower-hrs	ergs	2.6845×10^{13}
horsepower-hrs	foot-lbs	1.98×10^6
horsepower-hrs	gram-calories	641,190.
horsepower-hrs	joules	2.684×10^6
horsepower-hrs	kg-calories	641.1
horsepower-hrs	kg-meters	2.737×10^5
horsepower-hrs	kilowatt-hrs	0.7457
hours	days	4.167×10^{-2}
hours	weeks	5.952×10^{-3}
Hundredweights (long)	pounds	112
Hundredweights (long)	tons (long)	0.05
Hundredweights (short)	ounces (avoirdupois)	1600
Hundredweights (short)	pounds	100
Hundredweights (short)	tons (metric)	0.0453592
Hundredweights (short)	tons (long)	0.0446429

I

inches	centimeters	2.540
inches	meters	2.540×10^{-2}
inches	miles	1.578×10^{-5}
inches	millimeters	25.40

TO CONVERT	INTO	MULTIPLY BY
inches	mils	1,000.0
inches	yards	2.778×10^{-2}
inches of mercury	atmospheres	0.03342
inches of mercury	feet of water	1.133
inches of mercury	kgs/sq cm	0.03453
inches of mercury	kgs/sq meter	345.3
inches of mercury	pounds/sq ft	70.73
inches of mercury	pounds/sq in.	0.4912
inches of water (at 4°C)	atmospheres	2.458×10^{-3}
inches of water (at 4°C)	inches of mercury	0.07355
inches of water (at 4°C)	kgs/sq cm	2.540×10^{-3}
inches of water (at 4°C)	ounces/sq in.	0.5781
inches of water (at 4°C)	pounds/sq ft	5.204
inches of water (at 4°C)	pounds/sq in.	0.03613
International Ampere	Ampere (absolute)	.9998
International Volt	Volts (absolute)	1.0003
International volt	Joules (absolute)	1.593×10^{-19}
International volt	Joules	9.654×10^4
J		
joules	Btu	9.480×10^{-4}
joules	ergs	10^7
joules	foot-pounds	0.7376
joules	kg-calories	2.389×10^{-4}
joules	kg-meters	0.1020
joules	watt-hrs	2.778×10^{-4}
joules/cm	grams	1.020×10^4
joules/cm	dynes	10^7
joules/cm	joules/meter (newtons)	100.0
joules/cm	poundals	723.3
joules/cm	pounds	22.48
K		
kilograms	dynes	980,665.
kilograms	grams	1,000.0
kilograms	joules/cm	0.09807
kilograms	joules/meter (newtons)	9.807
kilograms	poundals	70.93
kilograms	pounds	2.205
kilograms	tons (long)	9.842×10^{-4}
kilograms	tons (short)	1.102×10^{-3}
kilograms/cu meter	grams/cu cm	0.001
kilograms/cu meter	pounds/cu ft	0.06243
kilograms/cu meter	pounds/cu in.	3.613×10^{-5}
kilograms/cu meter	pounds/mil-foot	3.405×10^{-10}
kilograms/meter	pounds/ft	0.6720
Kilogram/sq. cm.	Dynes	980,665
kilograms/sq cm	atmospheres	0.9678
kilograms/sq cm	feet of water	32.81
kilograms/sq cm	inches of mercury	28.96
kilograms/sq cm	pounds/sq ft	2,048.
kilograms/sq cm	pounds/sq in.	14.22
kilograms/sq meter	atmospheres	9.678×10^{-5}
kilograms/sq meter	bars	98.07×10^{-4}
kilograms/sq meter	feet of water	3.281×10^{-3}
kilograms/sq meter	inches of mercury	2.896×10^{-3}
kilograms/sq meter	pounds/sq ft	0.2048
kilograms/sq meter	pounds/sq in.	1.422×10^{-3}
kilograms/sq mm	kgs/sq meter	10^6

TO CONVERT	INTO	MULTIPLY BY
kilogram-calories	Btu	3.968
kilogram-calories	foot-pounds	3,088.
kilogram-calories	hp-hrs	1.560×10^{-3}
kilogram-calories	joules	4,186.
kilogram-calories	kg-meters	426.9
kilogram-calories	kilojoules	4.186
kilogram-calories	kilowatt-hrs	1.163×10^{-3}
kilogram meters	Btu	9.294×10^{-3}
kilogram meters	ergs	9.804×10^7
kilogram meters	foot-pounds	7.233
kilogram meters	joules	9.804
kilogram meters	kg-calories	2.342×10^{-3}
kilogram meters	kilowatt-hrs	2.723×10^{-6}
kilolines	maxwells	1,000.0
kiloliters	liters	1,000.0
kilometers	centimeters	10^5
kilometers	feet	3,281.
kilometers	inches	3.937×10^4
kilometers	meters	1,000.0
kilometers	miles	0.6214
kilometers	millimeters	10^6
kilometers	yards	1,094.
kilometers/hr	cms/sec	27.78
kilometers/hr	feet/min	54.68
kilometers/hr	feet/sec	0.9113
kilometers/hr	knots	0.5396
kilometers/hr	meters/min	16.67
kilometers/hr	miles/hr	0.6214
kilometers/hr/sec	cms/sec/sec	27.78
kilometers/hr/sec	ft/sec/sec	0.9113
kilometers/hr/sec	meters/sec/sec	0.2778
kilometers/hr/sec	miles/hr/sec	0.6214
kilowatts	Btu/min	56.92
kilowatts	foot-lbs/min	4.426×10^4
kilowatts	foot-lbs/sec	737.6
kilowatts	horsepower	1.341
kilowatts	kg-calories/min	14.34
kilowatts	watts	1,000.0
kilowatt-hrs	Btu	3,413.
kilowatt-hrs	ergs	3.600×10^{13}
kilowatt-hrs	foot-lbs	2.655×10^6
kilowatt-hrs	gram-calories	859,850.
kilowatt-hrs	horsepower-hrs	1.341
kilowatt-hrs	joules	3.6×10^6
kilowatt-hrs	kg-calories	859.85
kilowatt-hrs	kg-meters	3.671×10^5
kilowatt-hrs	pounds of water evaporated from and at 212° F.	3.53
kilowatt-hrs	pounds of water raised from 62° to 212° F.	22.75
knots	feet/hr	6,080.
knots	kilometers/hr	1.8532
knots	nautical miles/hr	1.0
knots	statute miles/hr	1.151
knots	yards/hr	2,027.
knots	feet/sec	1.689

TO CONVERT	INTO	MULTIPLY BY
L		
league	miles (approx.)	3.0
Light year	Miles	5.9×10^{12}
Light year	Kilometers	9.46091×10^{13}
lines/sq cm	gausses	1.0
lines/sq in.	gausses	0.1550
lines/sq in.	webers/sq cm	1.550×10^{-9}
lines/sq in.	webers/sq in.	10^{-8}
lines/sq in.	webers/sq meter	1.550×10^{-5}
links (engineer's)	inches	12.0
links (surveyor's)	inches	7.92
liters	bushels (U.S. dry)	0.02838
liters	cu cm	1,000.0
liters	cu feet	0.03531
liters	cu inches	61.02
liters	cu meters	0.001
liters	cu yards	1.308×10^{-3}
liters	gallons (U.S. liq.)	0.2642
liters	pints (U.S. liq.)	2.113
liters	quarts (U.S. liq.)	1.057
liters/min	cu ft/sec	5.886×10^{-4}
liters/min	gals/sec	4.403×10^{-3}
lumens/sq ft	foot-candles	1.0
Lumen	Spherical candle power	.07958
Lumen	Watt	.001496
Lumen/sq. ft.	Lumen/sq. meter	10.76
lux	foot-candles	0.0929
M		
maxwells	kilolines	0.001
maxwells	webers	10^{-8}
megalines	maxwells	10^6
megohms	microhms	10^{12}
megohms	ohms	10^6
meters	centimeters	100.0
meters	feet	3.281
meters	inches	39.37
meters	kilometers	0.001
meters	miles (naut.)	5.396×10^{-4}
meters	miles (stat.)	6.214×10^{-4}
meters	millimeters	1,000.0
meters	yards	1.094
meters	varas	1.179
meters/min	cms/sec	1.667
meters/min	feet/min	3.281
meters/min	feet/sec	0.05468
meters/min	kms/hr	0.06
meters/min	knots	0.03238
meters/min	miles/hr	0.03728
meters/sec	feet/min	196.8
meters/sec	feet/sec	3.281
meters/sec	kilometers/hr	3.6
meters/sec	kilometers/min	0.06
meters/sec	miles/hr	2.237
meters/sec	miles/min	0.03728
meters/sec/sec	cms/sec/sec	100.0
meters/sec/sec	ft/sec/sec	3.281
meters/sec/sec	kms/hr/sec	3.6
meters/sec/sec	miles/hr/sec	2.237
meter-kilograms	cm-dynes	9.807×10^7
meter-kilograms	cm-grams	10^5

TO CONVERT	INTO	MULTIPLY BY
meter-kilograms	pound-feet	7.233
microfarad	farads	10^{-6}
micrograms	grams	10^{-6}
microhms	megohms	10^{-12}
microhms	ohms	10^{-6}
microliters	liters	10^{-6}
Microns	meters	1×10^{-6}
miles (naut.)	feet	6,076.103
miles (naut.)	kilometers	1.852
miles (naut.)	meters	1,852
miles (naut.)	miles (statute)	1.1508
miles (naut.)	yards	2,025.4
miles (statute)	centimeters	1.609×10^5
miles (statute)	feet	5,280.
miles (statute)	inches	6.336×10^4
miles (statute)	kilometers	1.609
miles (statute)	meters	1,609.
miles (statute)	miles (naut.)	0.86897
miles (statute)	yards	1,760.
miles/hr	cms/sec	44.70
miles/hr	feet/min	88.
miles/hr	feet/sec	1.467
miles/hr	kms/hr	1.609
miles/hr	kms/min	0.02682
miles/hr	knots	0.8684
miles/hr	meters/min	26.82
miles/hr	miles/min	0.1667
miles/hr/sec	cms/sec/sec	44.70
miles/hr/sec	feet/sec/sec	1.467
miles/hr/sec	kms/hr/sec	1.609
miles/hr/sec	meters/sec/sec	0.4470
miles/min	cms/sec	2,682.
miles/min	feet/sec	88.
miles/min	kms/min	1.609
miles/min	miles (naut.)/min	0.8684
miles/min	miles/hr	60.0
mil-feet	cu inches	9.425×10^{-4}
milliers	kilograms	1,000.
Millimicrons	meters	1×10^{-9}
Milligrams	grains	0.01543236
milligrams	grams	0.001
milligrams/liter	parts/million	1.0
millihenries	henries	0.001
milliliters	liters	0.001
millimeters	centimeters	0.1
millimeters	feet	3.281×10^{-3}
millimeters	inches	0.03937
millimeters	kilometers	10^{-6}
millimeters	meters	0.001
millimeters	miles	6.214×10^{-7}
millimeters	mils	39.37
millimeters	yards	1.094×10^{-3}
million gals/day	cu ft/sec	1.54723
mils	centimeters	2.540×10^{-3}
mils	feet	8.333×10^{-5}
mils	inches	0.001
mils	kilometers	2.540×10^{-9}
mils	yards	2.778×10^{-5}
miner's inches	cu ft/min	1.5
Minims (British)	cubic cm.	0.059192
Minims (U.S., fluid)	cubic cm.	0.061612
minutes (angles)	degrees	0.01667

TO CONVERT	INTO	MULTIPLY BY
minutes (angles)	quadrants	1.852×10^{-4}
minutes (angles)	radians	2.909×10^{-4}
minutes (angles)	seconds	60.0
myriagrams	kilograms	10.0
myriameters	kilometers	10.0
myriawatts	kilowatts	10.0
N		
nepers	decibels	8.686
Newton	Dynes	1×10^5
O		
OHM (International)	OHM (absolute)	1.0005
ohms	megohms	10^{-6}
ohms	microhms	10^6
ounces	drams	16.0
ounces	grains	437.5
ounces	grams	28.349527
ounces	pounds	0.0625
ounces	ounces (troy)	0.9115
ounces	tons (long)	2.790×10^{-5}
ounces	tons (metric)	2.835×10^{-5}
ounces (fluid)	cu inches	1.805
ounces (fluid)	liters	0.02957
ounces (troy)	grains	480.0
ounces (troy)	grams	31.103481
ounces (troy)	ounces (avdp.)	1.09714
ounces (troy)	pennyweights (troy)	20.0
ounces (troy)	pounds (troy)	0.08333
Ounce/sq. inch	Dynes/sq. cm.	4309
ounces/sq in.	pounds/sq in.	0.0625
P		
Parsec	Miles	19×10^{12}
Parsec	Kilometers	3.084×10^{13}
parts/million	grains/U.S. gal	0.0584
parts/million	grains/Imp. gal	0.07016
parts/million	pounds/million gal	8.345
Pecks (British)	cubic inches	554.6
Pecks (British)	liters	9.091901
Pecks (U.S.)	bushels	0.25
Pecks (U.S.)	cubic inches	537.605
Pecks (U.S.)	liters	8.809582
Pecks (U.S.)	quarts (dry)	8
pennyweights (troy)	grains	24.0
pennyweights (troy)	ounces (troy)	0.05
pennyweights (troy)	grams	1.55517
pennyweights (troy)	pounds (troy)	4.1667×10^{-3}
pints (dry)	cu inches	33.60
pints (liq.)	cu cms.	473.2
pints (liq.)	cu feet	0.01671
pints (liq.)	cu inches	28.87
pints (liq.)	cu meters	4.732×10^{-4}
pints (liq.)	cu yards	6.189×10^{-4}
pints (liq.)	gallons	0.125
pints (liq.)	liters	0.4732
pints (liq.)	quarts (liq.)	0.5
Planck's quantum	Erg - second	6.624×10^{-27}
Poise	Gram/cm. sec.	1.00
Pounds (avoirdupois)	ounces (troy)	14.5833

TO CONVERT	INTO	MULTIPLY BY
poundals	dynes	13,826.
poundals	grams	14.10
poundals	joules/cm	1.383×10^{-3}
poundals	joules/meter (newtons)	0.1383
poundals	kilograms	0.01410
poundals	pounds	0.03108
pounds	drams	256.
pounds	dynes	44.4823×10^4
pounds	grains	7,000.
pounds	grams	453.5924
pounds	joules/cm	0.04448
pounds	joules/meter (newtons)	4.448
pounds	kilograms	0.4536
pounds	ounces	16.0
pounds	ounces (troy)	14.5833
pounds	poundals	32.17
pounds	pounds (troy)	1.21528
pounds	tons (short)	0.0005
pounds (troy)	grains	5,760.
pounds (troy)	grams	373.24177
pounds (troy)	ounces (avdp.)	13.1657
pounds (troy)	ounces (troy)	12.0
pounds (troy)	pennyweights (troy)	240.0
pounds (troy)	pounds (avdp.)	0.822857
pounds (troy)	tons (long)	3.6735×10^{-4}
pounds (troy)	tons (metric)	3.7324×10^{-4}
pounds (troy)	tons (short)	4.1143×10^{-4}
pounds of water	cu feet	0.01602
pounds of water	cu inches	27.68
pounds of water	gallons	0.1198
pounds of water/min	cu ft/sec	2.670×10^{-4}
pound-feet	cm-dynes	1.356×10^7
pound-feet	cm-grams	13,825.
pound-feet	meter-kgs	0.1383
pounds/cu ft	grams/cu cm	0.01602
pounds/cu ft	kgs/cu meter	16.02
pounds/cu ft	pounds/cu in.	5.787×10^{-4}
pounds/cu ft	pounds/mil-foot	5.456×10^{-9}
pounds/cu in.	gms/cu cm	27.68
pounds/cu in.	kgs/cu meter	2.768×10^4
pounds/cu in.	pounds/cu ft	1,728.
pounds/cu in.	pounds/mil-foot	9.425×10^{-6}
pounds/ft	kgs/meter	1.488
pounds/in.	gms/cm	178.6
pounds/mil-foot	gms/cu cm	2.306×10^4
pounds/sq ft	atmospheres	4.725×10^{-4}
pounds/sq ft	feet of water	0.01602
pounds/sq ft	inches of mercury	0.01414
pounds/sq ft	kgs/sq meter	4.882
pounds/sq ft	pounds/sq in.	6.944×10^{-3}
pounds/sq in.	atmospheres	0.06804
pounds/sq in.	feet of water	2.307
pounds/sq in.	inches of mercury	2.036
pounds/sq in.	kgs/sq meter	703.1
pounds/sq in.	pounds/sq ft	144.0

Q

quadrants (angle)	degrees	90.0
quadrants (angle)	minutes	5,400.0
quadrants (angle)	radians	1.571
quadrants (angle)	seconds	3.24×10^5

TO CONVERT	INTO	MULTIPLY BY
quarts (dry)	cu inches	67.20
quarts (liq.)	cu cms	946.4
quarts (liq.)	cu feet	0.03342
quarts (liq.)	cu inches	57.75
quarts (liq.)	cu meters	9.464×10^{-4}
quarts (liq.)	cu yards	1.238×10^{-3}
quarts (liq.)	gallons	0.25
quarts (liq.)	liters	0.9463
R		
radians	degrees	57.30
radians	minutes	3,438.
radians	quadrants	0.6366
radians	seconds	2.063×10^5
radians/sec	degrees/sec	57.30
radians/sec	revolutions/min	9.549
radians/sec	revolutions/sec	0.1592
radians/sec/sec	revs/min/min	573.0
radians/sec/sec	revs/min/sec	9.549
radians/sec/sec	revs/sec/sec	0.1592
revolutions	degrees	360.0
revolutions	quadrants	4.0
revolutions	radians	6.283
revolutions/min	degrees/sec	6.0
revolutions/min	radians/sec	0.1047
revolutions/min	revs/sec	0.01667
revolutions/min/min	radians/sec/sec	1.745×10^{-3}
revolutions/min/min	revs/min/sec	0.01667
revolutions/min/min	revs/sec/sec	2.778×10^{-4}
revolutions/sec	degrees/sec	360.0
revolutions/sec	radians/sec	6.283
revolutions/sec	revs/min	60.0
revolutions/sec	radians/sec/sec	6.283
revolutions/sec/sec	revs/min/min	3,600.0
revolutions/sec/sec	revs/min/sec	60.0
Rod	Chain (Gunthers)	.25
Rod	Meters	5.029
Rods (Surveyors' meas.)	yards	5.5
rods	feet	16.5
S		
Scruples	grains	20
seconds (angle)	degrees	2.778×10^{-4}
seconds (angle)	minutes	0.01667
seconds (angle)	quadrants	3.087×10^{-4}
seconds (angle)	radians	4.848×10^{-4}
Slug	Kilogram	14.59
Slug	Pounds	32.17
Sphere	Steradians	12.57
square centimeters	circular mils	1.973×10^5
square centimeters	sq feet	1.076×10^{-3}
square centimeters	sq inches	0.1550
square centimeters	sq meters	0.0001
square centimeters	sq miles	3.861×10^{-11}
square centimeters	sq millimeters	100.0
square centimeters	sq yards	1.196×10^{-4}
square foot	acres	2.296×10^{-3}
square foot	circular mils	1.833×10^8
square foot	sq cms	929.0
square foot	sq inches	144.0

TO CONVERT	INTO	MULTIPLY BY
square feet	sq meters	0.09290
square feet	sq miles	3.587×10^{-8}
square feet	sq millimeters	9.290×10^4
square feet	sq yards	0.1111
square inches	circular mils	1.273×10^6
square inches	sq cms	6.452
square inches	sq feet	6.944×10^{-3}
square inches	sq millimeters	645.2
square inches	sq mils	10^4
square inches	sq yards	7.716×10^{-4}
square kilometers	acres	247.1
square kilometers	sq cms	10^{10}
square kilometers	sq ft	10.76×10^4
square kilometers	sq inches	1.550×10^9
square kilometers	sq meters	10^6
square kilometers	sq miles	0.3861
square kilometers	sq yards	1.196×10^6
square meters	acres	2.471×10^{-4}
square meters	sq cms	10^4
square meters	sq feet	10.76
square meters	sq inches	1,550.
square meters	sq miles	3.861×10^{-7}
square meters	sq millimeters	10^6
square meters	sq yards	1.196
square miles	acres	640.0
square miles	sq feet	27.88×10^4
square miles	sq kms	2.590
square miles	sq meters	2.590×10^6
square miles	sq yards	3.098×10^6
square millimeters	circular mils	1,973.
square millimeters	sq cms	0.01
square millimeters	sq feet	1.076×10^{-5}
square millimeters	sq inches	1.550×10^{-3}
square mils	circular mils	1.273
square mils	sq cms	6.452×10^{-6}
square mils	sq inches	10^{-6}
square yards	acres	2.066×10^{-4}
square yards	sq cms	8,361.
square yards	sq feet	9.0
square yards	sq inches	1,296.
square yards	sq meters	0.8361
square yards	sq miles	3.228×10^{-7}
square yards	sq millimeters	8.361×10^5

T

temperature (°C) + 273	absolute temperature (°C)	1.0
temperature (°C) + 17.78	temperature (°F)	1.8
temperature (°F) + 460	absolute temperature (°F)	1.0
temperature (°F) - 32	temperature (°C)	5/9
tons (long)	kilograms	1,016.
tons (long)	pounds	2,240.
tons (long)	tons (short)	1.120
tons (metric)	kilograms	1,000.
tons (metric)	pounds	2,205.
tons (short)	kilograms	907.1848
tons (short)	ounces	32,000.
tons (short)	ounces (troy)	29,166.66
tons (short)	pounds	2,000.

TO CONVERT	INTO	MULTIPLY BY
tons (short)	pounds (troy)	2,430.56
tons (short)	tons (long)	0.89287
tons (short)	tons (metric)	0.9078
tons (short)/sq ft	kgs/sq meter	9,765.
tons (short)/sq ft	pounds/sq in.	2,000.
tons of water/24 hrs	pounds of water/hr	83.333
tons of water/24 hrs	gallons/min	0.16643
tons of water/24 hrs	cu ft/hr	1.3349
V		
Volt/inch	Volt/cm.	.39370
Volt (absolute)	Statvolts	.003336
W		
watts	Btu/hr	3.413
watts	Btu/min	0.05688
watts	ergs/sec	10^7
watts	foot-lbs/min	44.27
watts	foot-lbs/sec	0.7378
watts	horsepower	1.341×10^{-3}
watts	horsepower (metric)	1.360×10^{-3}
watts	kg-calories/min	0.01433
watts	kilowatts	0.001
Watts (Abs.)	B.T.U. (mean)/min.	0.056884
Watts (Abs.)	joules/sec.	1
watt-hours	Btu	3.413
watt-hours	ergs	3.60×10^{10}
watt-hours	foot-pounds	2,656.
watt-hours	gram-calories	859.85
watt-hours	horsepower-hrs	1.341×10^{-3}
watt-hours	kilogram-calories	0.8598
watt-hours	kilogram-meters	367.2
watt-hours	kilowatt-hrs	0.001
Watt (International)	Watt (absolute)	1.0002
webers	maxwells	10^8
webers	kilolines	10^3
webers/sq in.	gausses	1.550×10^7
webers/sq in.	lines/sq in.	10^8
webers/sq in.	webers/sq cm	0.1550
webers/sq in.	webers/sq meter	1,550.
webers/sq meter	gausses	10^4
webers/sq meter	lines/sq in.	6.452×10^4
webers/sq meter	webers/sq cm	10^{-4}
webers/sq meter	webers/sq in.	6.452×10^{-4}
Y		
yards	centimeters	91.44
yards	kilometers	9.144×10^{-4}
yards	meters	0.9144
yards	miles (naut.)	4.937×10^{-4}
yards	miles (stat.)	5.682×10^{-4}
yards	millimeters	914.4

INDEX

BUNDLING	Page
Spiral Tubing	307
CARD READERS	
See Programming Devices, Section VI	236
COAXIAL PRODUCTS	
Military Types	187, 192, 195, 199
Other Types, See Section V	186
Proprietary Types	201, 204, 211, 222, 223, 226, 227
Shielded Wire Types	229
COMMONING BLOCKS	
Taper	75
TERMI-BLOKS	63
CONNECTORS	
Blocks	63, 75, 110
Contacts	56, 114, 174, 177, 284
Circular / Cylindrical	175
Hardware	113, 128, 130, 164, 174, 178, 206
Modular	60, 63, 75, 112, 180, 338
Multiple, Commercial	52, 110, 204, 283
Multiple, Military and Industrial	110, 204, 283
Pin and Socket, Commercial	53, 110
Pin and Socket, Military	110, 204
Pneumatic	336
Power Utility	315, 318
Receptacles	83
Rectangular, Military Type	110, 204
Single	54-62
Tube	336
DEAD ENDS	
Power Utility	315
DISCONNECTS	
Knife	20, 42
Pneumatic	336
See Connectors, Sections II, III, IV and V	52, 66, 110, 186
FERRULES	
See Shielded Wire Products	229
FITTINGS	
Pneumatic	336
Tube	336
See Coaxial Products, Section V	186
HARDWARE	
TERMI-BLOK	63, 75
See Connectors, Section IV	110
INSULATION	
Boots	312
Spare Wire Caps	20, 96
Tubing, Heat Shrinkable	310
LACING	
Spiral Tubing	307
LIGHTS	
Incandescent	339
Indicator	339
Neon	339
Pilot	339
Signal	339
Warning	339
LUGS	
See Terminals, Sections I, III and IX	12, 66, 314

SPLICES	Page
Coaxiclamp	199
Heat Resistant Insulated	95, 96
Heat Resistant Un-insulated	91
High Temperature Un-insulated	93
Insulated, Small	19, 25, 95, 96, 97, 106, 342
Insulated, Large	100
Moisture Seal	106
Pneumatic Tubing	336
Power Utility	314
Splice Insulated Sealed	106
Step Down	20, 101
"T" Splice (3-way)	25
Un-insulated, Large	36, 37, 47, 315
Un-insulated, Small	36, 37, 42, 47, 91, 93
 STIRRUPS	
Power Utility	319
 SWITCHING DEVICES	
See Programming Devices, Section VI	236
 TAPS	
Power Utility	314, 318
 TERMINALS	
Battery	49
Bonding Clips	107
Closed End Connectors	96, 342
Crimp Type, See Sections I and III	12, 66
Foil Wound Products	107
Grounding Clips	107
Heat Resistant Insulated	93, 94, 97
Heat Resistant Un-insulated	90
High Temperature Un-insulated	91, 92
Insulated, Large	48, 100, 103
Insulated, Small	14-19, 23-25, 64, 73, 84, 93, 97
Power Utility	314
Pneumatic Tubing	336
Receptacles	83-85
Solderless, See Sections I, III and IX	12, 66, 314
Tab Receptacles	74, 75
Tabs	64, 85, 86
Tape Fed	326
Terminal Block	63, 75-79
Transformer Taps	107
Tube	44
Un-insulated, Large	29-32, 35, 36, 47, 49
Un-insulated, Small	28-36, 39-42, 45, 71, 72, 83-86, 90-92
Wire Nuts Crimp Type	342
See Sections I, III and IX	12, 66, 314
 TAPER TECHNIQUE	
	67
 TERMINAL BLOCKS	
	63, 75-79
 TERMINAL BOARD	
	63, 75-79
 TOOLING	
Auto Feed	326
Hand, See Section X	322
Hydraulic	333
Pneumatic	325, 326
Power Utility	318, 330
Tube Fittings	337
 TUBE FITTINGS	
Pneumatic	336
 VALVES	
Pneumatic	336

NOTES

NOTES

NOTES

— order A-MP products.

IMPORTANT—Here is how to: — obtain more information on A-MP products.

— arrange a demonstration of A-MP products.

1. Contact your local American Pamcor representative, or
2. Contact the nearest American Pamcor District Office (listed below), or
3. Fill out and return one of the postpaid reply cards at the back of this handbook.

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