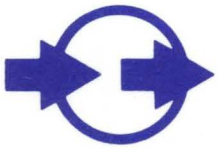
MODEL DC-231 DISC CONTROLLER

LOGIC MANUAL



western peripherals™

Division of WESPERCORP

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MODEL DC-231 DISC CONTROLLER

LOGIC MANUAL

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western peripherals
14321 MYFORD ROAD
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JULY, 1981

TABLE OF CONTENTS

* Earlier production version listed here for reference only.

HOW TO USE LOGIC MANUALS

Logic Manuals Contain:

- Schematics of all boards (for logic troubleshooting).
- Assembly drawings (for assembly identification and parts locating).
- Some manuals also contain: Special modifications, block diagrams, flowcharts, listings and other reference information.

Arrangement of Drawings:

- Drawings are generally arranged in numerical order except where other arrangements provide greater convenience. (See Table of Contents)

Table of Contents:

- Provides a listing of the drawings as they appear in the manual.

Functional Index (when used):

- Provides lists of drawings, grouping them as they are used in the system.
- Drawing numbers facilitate easy look-up (See Table of Contents).

Thumb Tabs (when used):

- Provides ready access to schematics.

NOTICE:

CHECK AT THE REAR OF THIS MANUAL FOR:

- Latest Drawing Changes
- Added Drawings
- Notes and Additional Information

03/15/82 BILL OF MATERIAL TOP LEVEL ASSEMBLY LIST PAGE 1

ASSEMBLY NO. P18CC0281 REVISION D1 DESC: PRST DC231 RMC2

SEQ	PART NUMBER	DESCRIPTION	CON QTY	HRS	SUB	REV	L	LOCATION	EFF DATE
C00	LSC	NO INVENTORY ITEM	24	.0					C3/02/81
0C1	P17017765	PROM DC231 RMC2 2C	1	.0	S	A		2C	C3/12/82
0C2	P17017773	PROM DC231 RMC2 3C	1	.0	S	A		3C	C3/12/82
003	P17017781	PROM DC231 RMC2 4C	1	.0	S	A		4C	C3/12/82
0C4	P17017799	PROM DC231 RMC2 5C	1	.0	S	A		5C	C3/12/82
0C5	P17017807	PROM DC231 RMC2 6C	1	.0	S	A		6C	C3/12/82
006	P17017815	PROM DC231 RMC2 7C	1	.0	S	A		7C	C3/12/82
0C7	P17017823	PROM DC231 RMC2 8C	1	.0	S	A		8C	C3/12/82
0C8	P17017831	PROM DC231 RMC2 8C-A	1	.0	S	A		8C-A	C3/12/82
009	P17017849	PROM DC231 RMC2 9C	1	.0	S	A		9C	C3/12/82
010	P17017856	PROM DC231 RMC2 10C	1	.0	S	A		10C	C3/12/82
011	P17017864	PROM DC231 RMC2 11C	1	.0	S	A		11C	C3/12/82
012	P17017872	PROM DC231 RMC2 12C	1	.0	S	A		12C	C3/12/82
013	P1701788C	PROM DC231 RMC2 13C	1	.0	S	A		13C	C3/12/82
014	P17017898	PROM DC231 RMC2 13C-A	1	.0	S	A		13C-A	C3/12/82
015	P17017906	PROM DC231 RMC2 14C	1	.0	S	A		14C	C3/12/82
016	P17017914	PROM DC231 RMC2 15C	1	.0	S	A		15C	C3/12/82
017	P17017922	PROM DC231 RMC2/RPC6 3D	1	.0	S	A		3D	C3/12/82
018	P1701793C	PROM DC231 RMC2 27G	1	.0	S	A		27G	C3/12/82
019	P17017948	PROM DC231 RMC2 28G	1	.0	S	B		28G	C3/12/82
020	P17017955	PROM DC231 RMC2 29G	1	.0	S	A		29G	C3/12/82
021	P17017963	PROM DC231 RMC2/RPC6 3F 82S1CC	1	.0	S	A		3F	C3/12/82
022	P17017971	PROM DC231 RMC2/RPC6 12F 27S19	1	.0	S	D		12F	C3/12/82
023	P17017989	PROM DC231 RMC2/RPC6 1E	1	.0	S	A		1E	C3/12/82
024	P17017997	PROM DC231 RMC2/RPC6 29B	1	.0	S	A		29B	C3/12/82

ASSEMBLY NO. P18CC0307 REVISION A1 DESC: PRST DC231 RPO6

SEQ	PART NUMBER	DESCRIPTION	CON QTY	HRS	SUB	REV	L	LOCATION	EFF DATE
000	LSC	NO INVENTORY ITEM	24	.0					07/27/81
001	P17017286	PROM DC231 RP06 2C	1	.0	S	A		2C	03/12/82
002	P17017294	PROM DC231 RP06 3C	1	.0	S	A		3C	03/12/82
003	P17017302	PROM DC231 RP06 4C	1	.0	S	A		4C	03/12/82
004	P1701731C	PROM DC231 RP06 5C	1	.0	S	A		5C	03/12/82
005	P17017328	PROM DC231 RP06 6C	1	.0	S	A		6C	03/12/82
006	P17017336	PROM DC231 RP06 7C	1	.0	S	A		7C	03/12/82
007	P17017344	PROM DC231 RP06 8C	1	.0	S	A		8C	03/12/82
008	P17017351	PROM DC231 RP06 8C-A	1	.0	S	A		8C-A	03/12/82
009	P17017369	PROM DC231 RP06 9C	1	.0	S	A		9C	03/12/82
010	P17017377	PROM DC231 RP06 10C	1	.0	S	A		10C	03/12/82
011	P17017385	PROM DC231 RP06 11C	1	.0	S	A		11C	03/12/82
012	P17017393	PROM DC231 RP06 12C	1	.0	S	A		12C	03/12/82
013	P17017401	PROM DC231 RP06 13C	1	.0	S	A		13C	03/12/82
014	P17017419	PROM DC231 RP06 13C-A	1	.0	S	A		13C-A	03/12/82
015	P17017427	PROM DC231 RP06 14C	1	.0	S	A		14C	03/12/82
016	P17017435	PROM DC231 RP06 15C	1	.0	S	A		15C	03/12/82
017	P17017922	PROM DC231 RM02/RP06 3D	1	.0	S	A		3D	03/12/82
018	P17017450	PROM DC231 RP06 27G	1	.0	S	A		27G	03/12/82
019	P17017468	PROM DC231 RP06 28G	1	.0	S	A		28G	03/12/82
020	P17017476	PROM DC231 RP06 29G	1	.0	S	A		29G	03/12/82
021	P17017963	PROM DC231 RM02/RP06 3F 82S1CC	1	.0	S	A		3F	03/12/82
022	P17017971	PROM DC231 RM02/RP06 12F 27S19	1	.0	S	D		12F	03/12/82
023	P17017989	PROM DC231 RM02/RP06 1E	1	.0	S	A		1E	03/12/82
024	P17017997	PROM DC231 RM02/RP06 29E	1	.0	S	A		29E	03/12/82

03/15/82 BILL OF MATERIAL TOP LEVEL ASSEMBLY LIST PAGE 1

ASSEMBLY NO. P18CC0323 REVISION C1 DESC: PRST DC231 RMC2 8C-675MB

SEQ	PART NUMBER	DESCRIPTION	CCN	QTY	HRS	SUB	REV	L	LOCATION	EFF DATE
CCC	LSC	NO INVENTORY ITEM		24	.0					C7/23/81
001	P1702C066	PROM DC231 RMC2 80-675MB 2C		1	.0	S	C		2C	C3/12/82
002	P17020074	PROM DC231 RMC2 80-675MB 3C		1	.0	S	C		3C	C3/12/82
003	P17020082	PROM DC231 RMC2 80-675MB 4C		1	.0	S	C		4C	C3/12/82
004	P1702C090	PROM DC231 RMC2 80-675MB 5C		1	.0	S	C		5C	C3/12/82
005	P1702C108	PROM DC231 RMC2 80-675MB 6C		1	.0	S	C		6C	C3/12/82
006	P1702C116	PROM DC231 RMC2 80-675MB 7C		1	.0	S	C		7C	C3/12/82
007	P1702C124	PROM DC231 RMC2 80-675MB 8C		1	.0	S	C		8C	C3/12/82
008	P1702C132	PROM DC231 RMC2 80-675MB 8C-A		1	.0	S	C		8C-A	C3/12/82
009	P1702C140	PROM DC231 RMC2 80-675MB 9C		1	.0	S	C		9C	C3/12/82
010	P1702C157	PROM DC231 RMC2 80-675MB 10C		1	.0	S	C		10C	C3/12/82
011	P17020165	PROM DC231 RMC2 80-675MB 11C		1	.0	S	C		11C	C3/12/82
012	P1702C173	PROM DC231 RMC2 80-675MB 12C		1	.0	S	C		12C	C3/12/82
013	P1702C181	PROM DC231 RMC2 80-675MB 13C		1	.0	S	C		13C	C3/12/82
014	P1702C199	PROM DC231 RMC2 80-675MB 13C-A		1	.0	S	C		13C-A	C3/12/82
015	P1702C207	PROM DC231 RMC2 80-675MB 14C		1	.0	S	C		14C	C3/12/82
016	P1702C215	PROM DC231 RMC2 80-675MB 15C		1	.0	S	C		15C	C3/12/82
017	P17017922	PROM DC231 RMC2/RPC6 3D		1	.0	S	A		3D	C3/12/82
018	P1701793C	PROM DC231 RMC2 27G		1	.0	S	A		27G	C3/12/82
019	P17017948	PROM DC231 RMC2 28G		1	.0	S	B		28G	C3/12/82
020	P17017955	PROM DC231 RMC2 29G		1	.0	S	A		29G	C3/12/82
021	P17017963	PROM DC231 RMC2/RPC6 3F 82S1CC		1	.0	S	A		3F	C3/12/82
022	P17017971	PROM DC231 RMC2/RPC6 12F 27S19		1	.0	S	D		12F	C3/12/82
023	P17017989	PROM DC231 RMC2/RPC6 1E		1	.0	S	A		1E	C3/12/82
024	P17017997	PROM DC231 RMC2/RPC6 29B		1	.0	S	A		29B	C3/12/82

ASSEMBLY NO. F18CC0331 REVISION A1 DESC: PRST DC231 RM02 (40-675 MB)

SEQ	PART NUMBER	DESCRIPTION	CCN	QTY	HRS	SUB	REV	L	LOCATION	EFF DATE
000	LSC	NO INVENTORY ITEM		24	.0					09/04/81
001	P17020306	PROM DC231 RM02 (40-675MB)		1	.0	S	A		2C	03/12/82
002	P17020314	PROM DC231 RM02 (40-675MB)		1	.0	S	A		3C	03/12/82
003	P17020322	PROM DC231 RM02 (40-675MB)		1	.0	S	A		4C	03/12/82
004	P17020330	PROM DC231 RM02 (40-675MB)		1	.0	S	A		5C	03/12/82
005	P17020348	PROM DC231 RM02 (40-675MB)		1	.0	S	A		6C	03/12/82
006	P17020355	PROM DC231 RM02 (40-675MB)		1	.0	S	A		7C	03/12/82
007	P17020363	PROM DC231 RM02 (40-675MB)		1	.0	S	A		8C	03/12/82
008	P17020371	PROM DC231 RM02 (40-675MB)		1	.0	S	A		8C-A	03/12/82
009	P17020389	PROM DC231 RM02 (40-675MB)		1	.0	S	A		9C	03/12/82
010	P17020397	PROM DC231 RM02 (40-675MB)		1	.0	S	A		10C	03/12/82
011	P17020405	PROM DC231 RM02 (40-675MB)		1	.0	S	A		11C	03/12/82
012	P17020413	PROM DC231 RM02 (40-675MB)		1	.0	S	A		12C	03/12/82
013	P17020421	PROM DC231 RM02 (40-675MB)		1	.0	S	A		13C	03/12/82
014	P17020439	PROM DC231 RM02 (40-675MB)		1	.0	S	A		13C-A	03/12/82
015	P17020447	PROM DC231 RM02 (40-675MB)		1	.0	S	A		14C	03/12/82
016	P17020454	PROM DC231 RM02 (40-675MB)		1	.0	S	A		15C	03/12/82
017	P17017922	PROM DC231 RM02/RP06 3D		1	.0	S	A		3D	03/12/82
018	P1701793C	PROM DC231 RM02 27G		1	.0	S	A		27G	03/12/82
019	P17017948	PROM DC231 RM02 28G		1	.0	S	B		28G	03/12/82
020	P17017955	PROM DC231 RM02 29G		1	.0	S	A		29G	03/12/82
021	P17017963	PROM DC231 RM02/RP06 3F 82S100		1	.0	S	A		3F	03/12/82
022	P17017971	PROM DC231 RM02/RP06 12F 27S19		1	.0	S	D		12F	03/12/82
023	P17017989	PROM DC231 RM02/RP06 1E		1	.0	S	A		1E	03/12/82
024	P17017997	PROM DC231 RM02/RP06 29B		1	.0	S	A		29B	03/12/82

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ASSEMBLY NO. P18CC0364 REVISION A1 DESC: PROM SET DC231A

SEQ	PART NUMBER	DESCRIPTION	CON QTY	HRS	SUB	REV	L	LOCATION	EFF DATE
000	LSC	NO INVENTORY ITEM	16	.0					01/20/82
001	P1702C629	PROM DC231A RM02 2C 27S35	1	.0	S	A		2C	03/12/82
002	P17020637	PROM DC231A RM02 3C 27S35	1	.0	S	A		3C	03/12/82
003	P17020645	PROM DC231A RM02 4C 27S35	1	.0	S	A		4C	03/12/82
004	P17020652	PROM DC231A RM02 5C 27S35	1	.0	S	A		5C	03/12/82
005	P1702C66C	PROM DC231A RM02 6C 27S35	1	.0	S	A		6C	03/12/82
006	P1702C678	PROM DC231A RM02 7C 27S35	1	.0	S	A		7C	03/12/82
007	P17020686	PROM DC231A RM02 8C 27S35	1	.0	S	A		8C	03/12/82
008	P1702C694	PROM DC231A RM02 8C-A 27S35	1	.0	S	A		9C	03/12/82
009	P17017922	PROM DC231 RM02/RPC6 3D	1	.0	S	A		3D	03/12/82
010	P17017930	PROM DC231 RM02 27G	1	.0	S	A		27G	03/12/82
011	P17017948	PROM DC231 RM02 28G	1	.0	S	B		28G	03/12/82
012	P17017955	PROM DC231 RM02 29G	1	.0	S	A		29G	03/12/82
013	P17017963	PROM DC231 RM02/RPC6 3F 82S1CC	1	.0	S	A		3F	03/12/82
014	P17017971	PROM DC231 RM02/RPC6 12F 27S19	1	.0	S	D		12F	03/12/82
015	P17017989	PROM DC231 RM02/RPC6 1E	1	.0	S	A		1E	03/12/82
016	P17017997	PROM DC231 RM02/RPC6 29B	1	.0	S	A		29B	03/12/82

03/15/82 BILL OF MATERIAL TOP LEVEL ASSEMBLY LIST PAGE 1

ASSEMBLY NO. P18CC0372 REVISION A1 DESC: PROM SET DC231 PRIAM

SEQ	PART NUMBER	DESCRIPTION	CCN	QTY	HRS	SUB	REV	L	LOCATION	EFF DATE
CC0	LSC	NO INVENTORY ITEM		24	.0					C1/2C/82
CC1	P1702C793	PROM DC231 PRIAM 2C 27S25		1	.0	S	A		2C	C3/12/82
0C2	P1702C801	PROM DC231 PRIAM 3C 27S25		1	.0	S	A		3C	C3/12/82
003	P1702C819	PROM DC231 PRIAM 4C 27S25		1	.0	S	A		4C	03/12/82
0C4	P17020827	PROM DC231 PRIAM 5C 27S25		1	.0	S	A		5C	C3/12/82
005	P17020835	PROM DC231 PRIAM 6C 27S25		1	.0	S	A		6C	C3/12/82
006	P17020843	PROM DC231 PRIAM 7C 27S25		1	.0	S	A		7C	C3/12/82
007	P1702085C	PROM DC231 PRIAM 8C 27S25		1	.0	S	A		8C	C3/12/82
0C8	P1702C868	PROM DC231 PRIAM 8C-A 27S25		1	.0	S	A		8C-A	C3/12/82
0C9	P1702C876	PROM DC231 PRIAM 9C 27S25		1	.0	S	A		9C	C3/12/82
010	P1702C884	PROM DC231 PRIAM 10C 27S25		1	.0	S	A		10C	C3/12/82
011	P1702C892	PROM DC231 PRIAM 11C 27S25		1	.0	S	A		11C	C3/12/82
012	P1702090C	PROM DC231 PRIAM 12C 27S25		1	.0	S	A		12C	C3/12/82
013	P1702C918	PROM DC231 PRIAM 13C 27S25		1	.0	S	A		13C	C3/12/82
014	P1702C926	PROM DC231 PRIAM 13C-A 27S25		1	.0	S	A		13C-A	C3/12/82
015	P1702C934	PROM DC231 PRIAM 14C 27S25		1	.0	S	A		14C	C3/12/82
016	P1702C942	PROM DC231 PRIAM 15C 27S25		1	.0	S	A		15C	C3/12/82
017	P17017922	PROM DC231 RMO2/RPO6 3D		1	.0	S	A		3D	C3/12/82
018	P1701793C	PROM DC231 RMO2 27G		1	.0	S	A		27G	C3/12/82
019	P17017948	PROM DC231 RMO2 28G		1	.0	S	B		28G	C3/12/82
020	P17017955	PROM DC231 RMO2 29G		1	.0	S	A		29G	C3/12/82
021	P17017963	PROM DC231 RMO2/RPO6 3F 82S1CO		1	.C	S	A		3F	C3/12/82
022	P17017971	PROM DC231 RMO2/RPO6 12F 27S19		1	.0	S	D		12F	C3/12/82
023	P17017989	PROM DC231 RMO2/RPO6 1E		1	.0	S	A		1E	C3/12/82
024	P17017997	PROM DC231 RMO2/RPO6 29B		1	.C	S	A		29B	C3/12/82

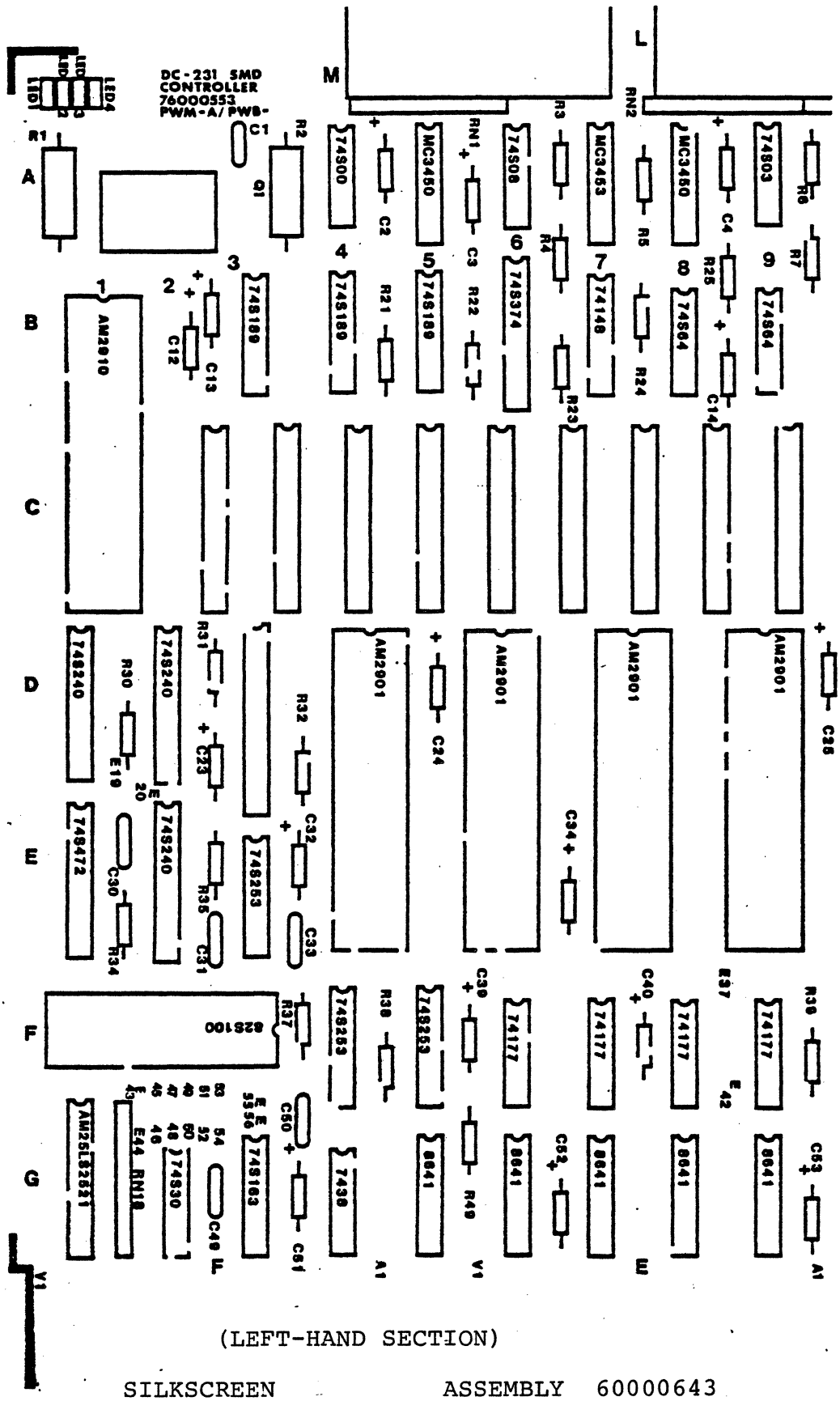
06/09/82 BILL OF MATERIAL TOP LEVEL ASSEMBLY LIST PAGE 1

ASSEMBLY NO. P18000497 REVISION A DESC: PRST DC231A (160/2-80)

SEQ	PART NUMBER	DESCRIPTION	CON QTY	HRS	SUB	REV	L	LOCATION	EFF DATE
000	LSC	NO INVENTORY ITEM	16	.0					06/08/82
001	P17021734	PROM DC231A (160/2-80) 2C	1	.0	S	A		2C	06/08/82
002	P17021742	PROM DC231A (160/2-80) 3C	1	.0	S	A		3C	06/08/82
003	P17021759	PROM DC231A (160/2-80) 4C	1	.0	S	A		4C	06/08/82
004	P17021767	PROM DC231A (160/2-80) 5C	1	.0	S	A		5C	06/08/82
005	P17021775	PROM DC231A (160/2-80) 6C	1	.0	S	A		6C	06/08/82
006	P17021783	PROM DC231A (160/2-80) 7C	1	.0	S	A		7C	06/08/82
007	P17021791	PROM DC231A (160/2-80) 8C	1	.0	S	A		8C	06/08/82
008	P17021809	PROM DC231A (160/2-80) 9C	1	.0	S	A		9C	06/08/82
009	P17017922	PROM DC231 RM02/RP06 3D	1	.0	S	A		3D	06/08/82
010	P17017930	PROM DC231 RM02 27G	1	.0	S	A		27G	06/08/82
011	P17017948	PROM DC231 RM02 28G	1	.0	S	B		28G	06/08/82
012	P17017955	PROM DC231 RM02 29G	1	.0	S	A		29G	06/08/82
013	P17017963	PROM DC231 RM02/RP06 3F 82S100	1	.0	S	A		3F	06/08/82
014	P17017971	PROM DC231 RM02/RP06 12F 27S19	1	.0	S	D		12F	06/08/82
015	P17017989	PROM DC231 RM02/RP06 1E	1	.0	S	A		1E	06/08/82
016	P17017997	PROM DC231 RM02/RP06 29B	1	.0	S	A		29B	06/08/82

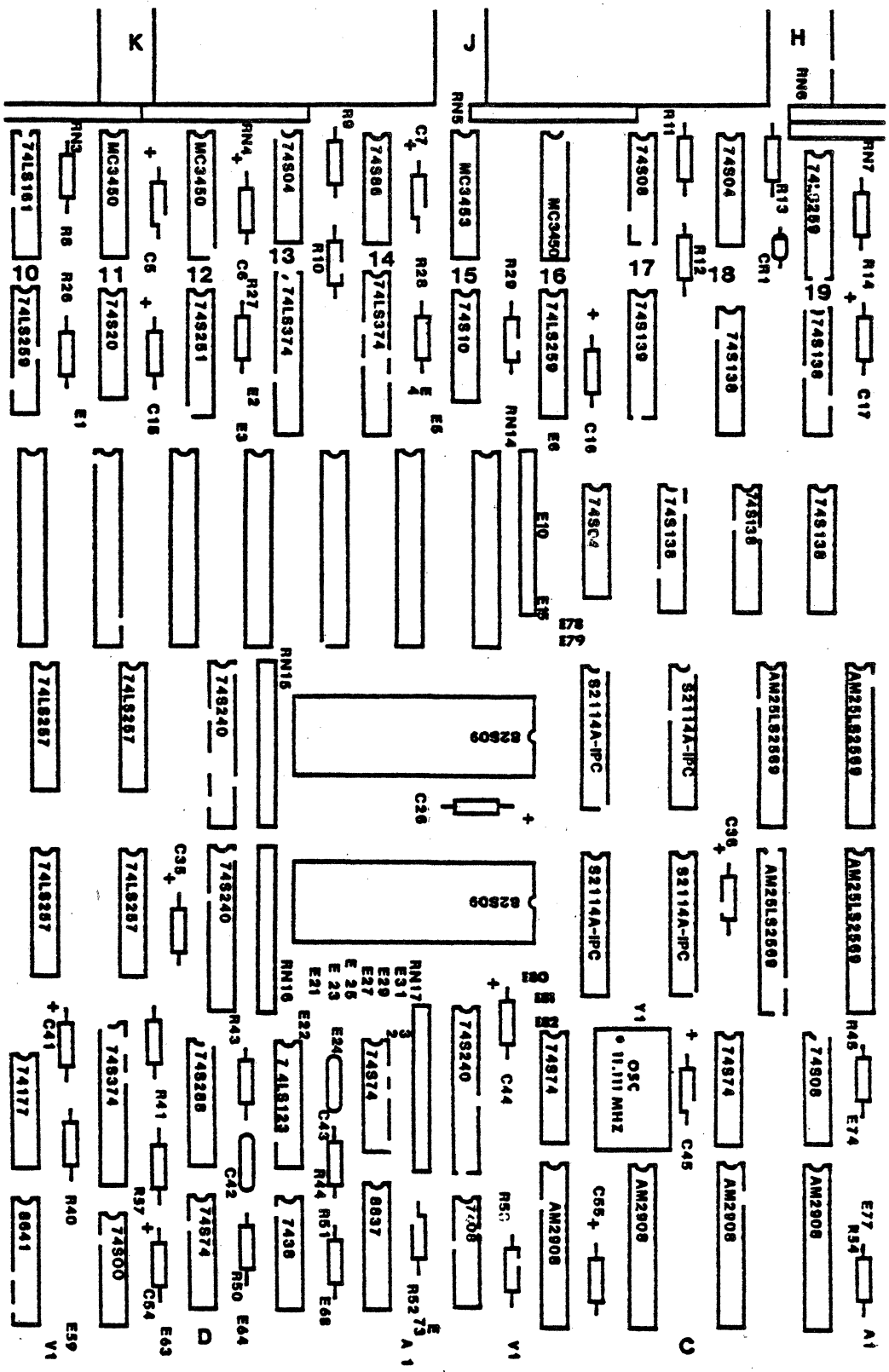
ASSEMBLY NO. P18000547 REVISION A DESC: PMST DC231A RP06

SEQ	PART NUMBER	DESCRIPTION	CON QTY	HRS	SUB	REV	L	LOCATION	EFF DATE
000	CD	NO INVENTORY ITEM	8	.0					09/29/82
001	P17022278	PROM DC231A LOC 5C RP06	1	.0		A		5C	09/29/82
002	P17022286	PROM DC231A LOC 6C RP06	1	.0		A		6C	09/29/82
003	P17022294	PROM DC231A LOC 7C RP06	1	.0		A		7C	09/29/82
004	P17022302	PROM DC231A LOC 8C RP06	1	.0		A		8C	09/29/82
005	P17022328	PROM DC231A LOC 4C RP06	1	.0		A		4C	09/29/82
006	P17022336	PROM DC231A LOC 3C RP06	1	.0		A		3C	09/29/82
007	P17022344	PROM DC231A LOC 2C RP06	1	.0		A		2C	09/29/82
008	P17022310	PROM DC231A LOC 9C RP06	1	.0		A		9C	09/29/82



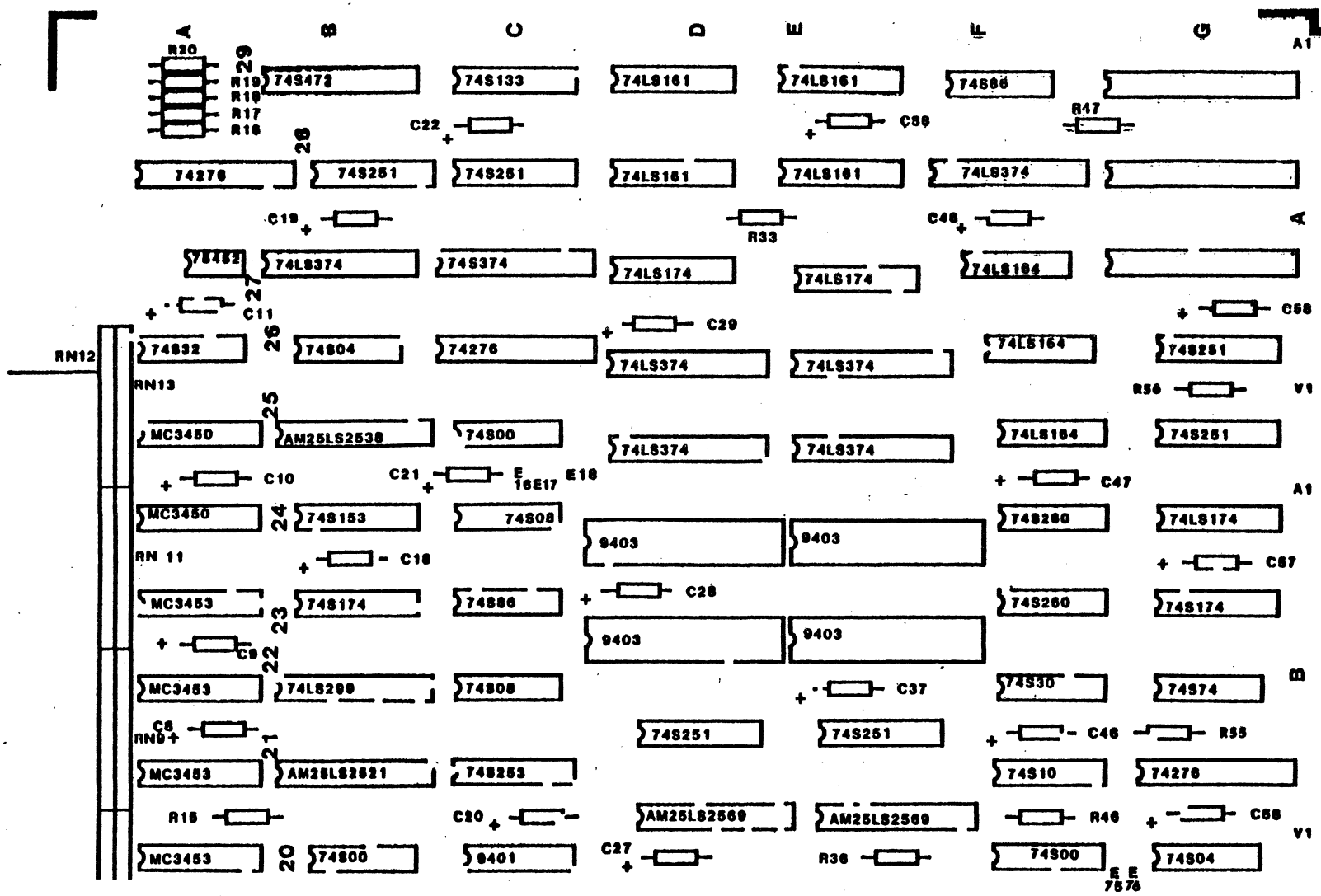
(LEFT-HAND SECTION)

SILKSCREEN ASSEMBLY 60000643



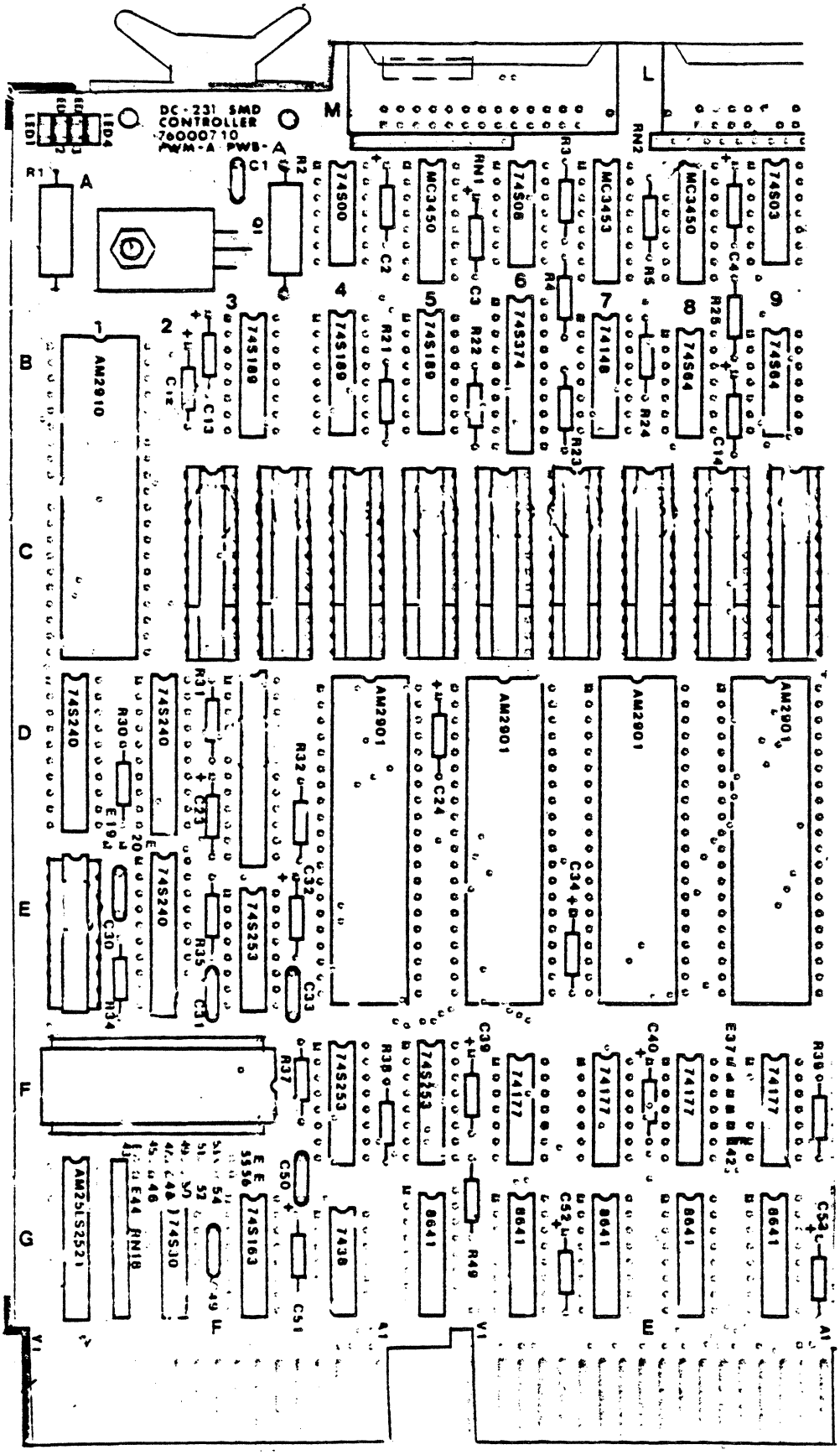
(CENTER SECTION)

SILKSCREEN ASSEMBLY 60000643



SILKSCREEN ASSEMBLY 60000643

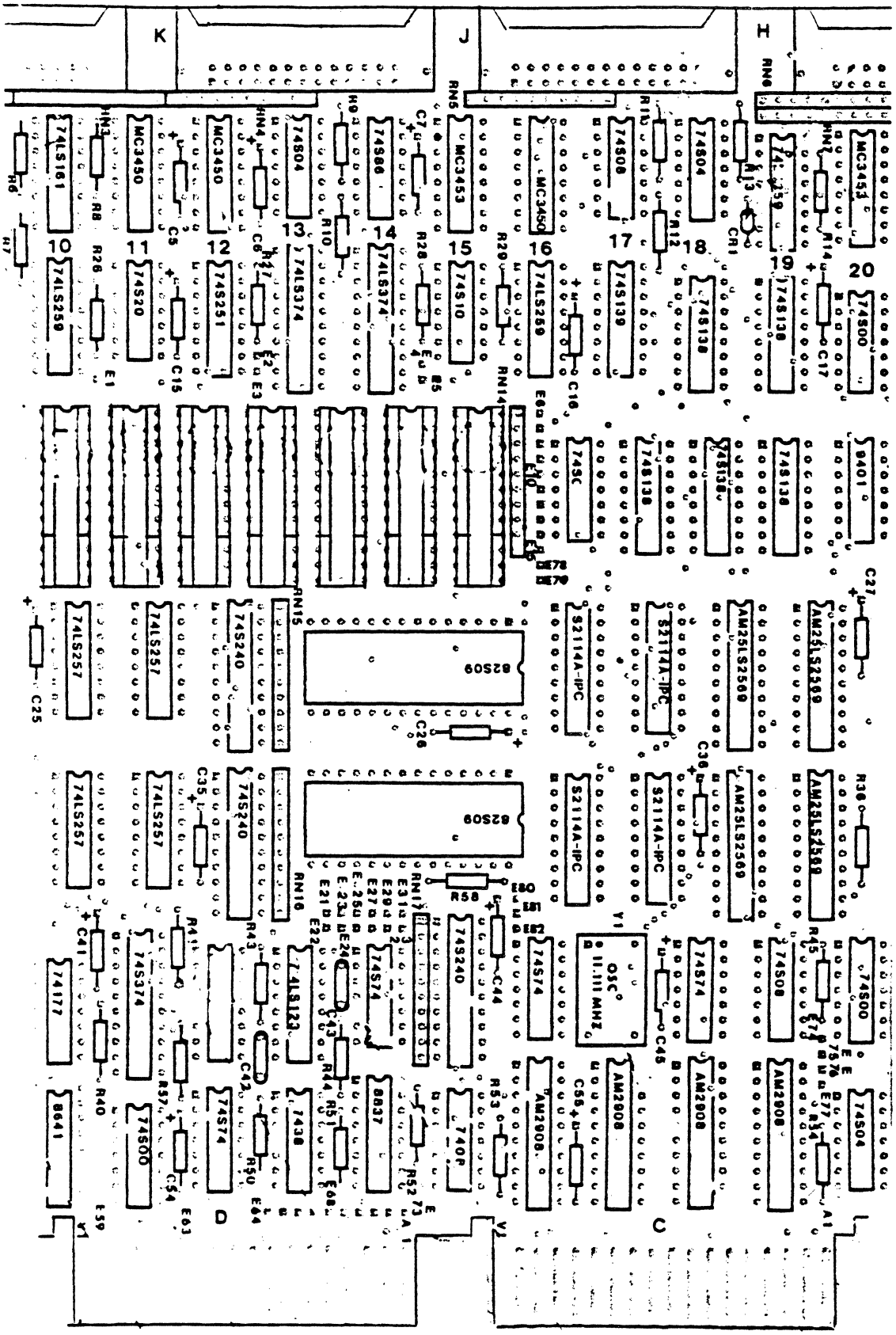
(RIGHT-HAND SECTION)



(LEFT-HAND SECTION)

ASSEMBLY DRAWING, DC231 SMD CONTROLLER 60000882

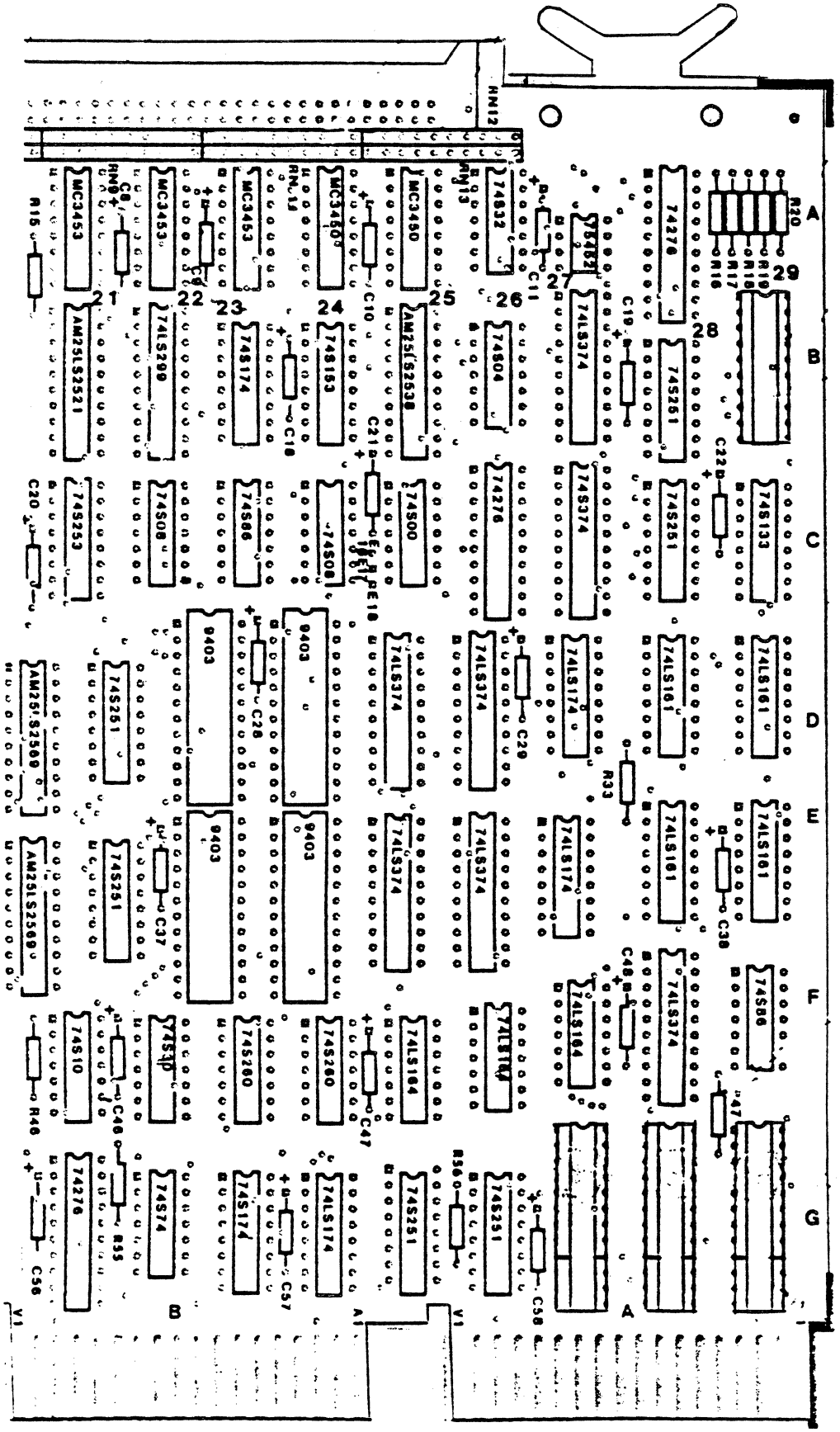
REF SCHEMATIC 75000794



(CENTER SECTION)

ASSEMBLY DRAWING, DC231 SMD CONTROLLER 60000882

REF SCHEMATIC 75000794

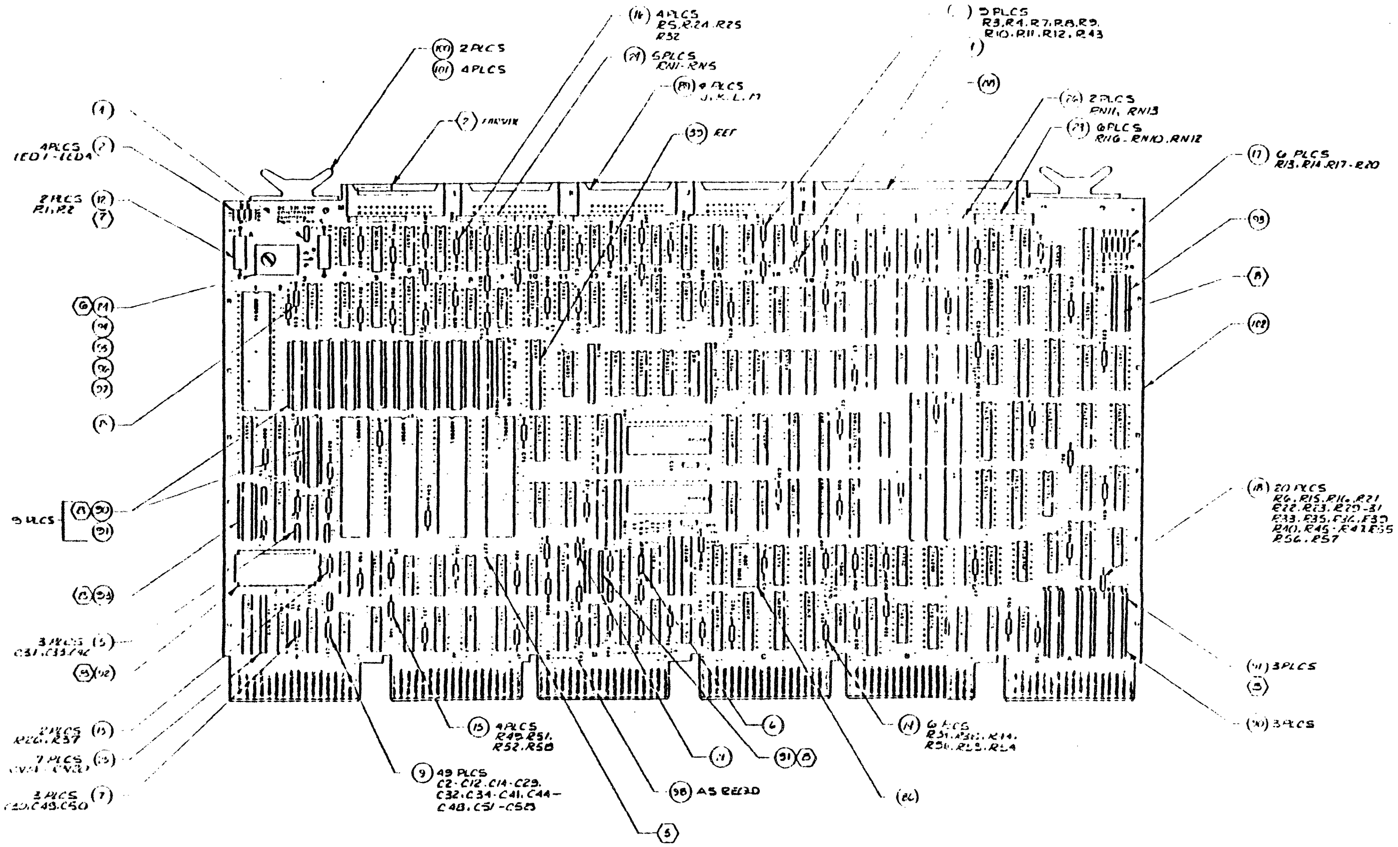


(RIGHT-HAND SECTION)

ASSEMBLY DRAWING, DC231 SMD CONTROLLER 60000882

REF SCHEMATIC 75000794

Zone	Ltr	Description	Date	Approved
	X	ENG. RELEASE	10/12/80	
	A	PROD RELEASE	11/20/80	
	B	ECO # 1011 CANCELLED	5/29/81	
	C	REVISED PER ECO # 1025	5/29/81	
	D	REVISED PER ECO # 1036	4/8/82	
	E	REVISED PER ECO # 1055	5/5/82	
	F	REVISED PER ECO # 1062	5/5/82	
	G	REVISED PER ECO # 1075	5-12-82	



NOTES: UNLESS OTHERWISE SPECIFIED.

1. FOR MATERIAL SEE B/M 60000265
2. MARK WITH ASSY NO AND LATEST REV LTR APPROX WHERE SHOWN
3. MAX HEIGHT OF COMPONENTS FROM SURFACE OF BOARD NOT TO EXCEED [illegible]
4. REF. SCHEMATIC 25000262
5. ADD JUMPER FROM [illegible] TO [illegible].
6. PLACE COATING OF THERMAL JOINT COMPOUND BETWEEN VOLTAGE REGULATOR & BOARD.
7. R1 & R2 TO BE SPACED .125 FROM BOARD.
8. SEE PROM SET P18000364 FOR LOCATIONS AND PROM PART NUMBERS.
9. E- TEST POINTS 2 THRU 5, 55 THRU 56, 57 THRU 59 ARE NOT USED.

REWORK ASSY AS FOLLOWS:

1. LIFT PIN 12 ON 15G
2. ADD JUMPER FROM 13G-12 TO 3F-13.
3. CONNECT THE OPEN SIDE OF R58 TO +5V, JUMPER R58 TO PIN 1 OF RN11.
4. REMOVE WIRE ON 3F-13.
5. REINSTALL WIRE ON 3F-5. TO 13G-12
6. LIFT PIN AT 15G-15.
7. ADD JUMPERS FROM 3F-6 TO 4A-9, 4A-9 TO 4A-10, 6A-11 TO 15G-15 (LIFTED PIN), 4A-8 TO 6A-12. 11G-4 TO 6A-13, R2-12 (EMPTY PAD-GND) TO 10C-7, 11B-19 TO 10C-2, 26G-2 TO 10C-1, 10C-5 TO 26G-1.
8. CUT ETCH AT 26G-1 COMP SIDE.
9. INSTALL A 74S86 (P1700151) ITEM 39 AT LOC 10C (EIGHT PIN 1 TO PIN 1 LOC 10C IS A 24 PIN SPARE.)

	QTY REQD	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION		

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± / DECIMALS .XX ± / .XXX ± / ANGLES ± /

MATERIAL

FINISH

DO NOT SCALE DRAWING

NEXT ASSY	USED ON
	231A

APPLICATION

CONTRACT NO

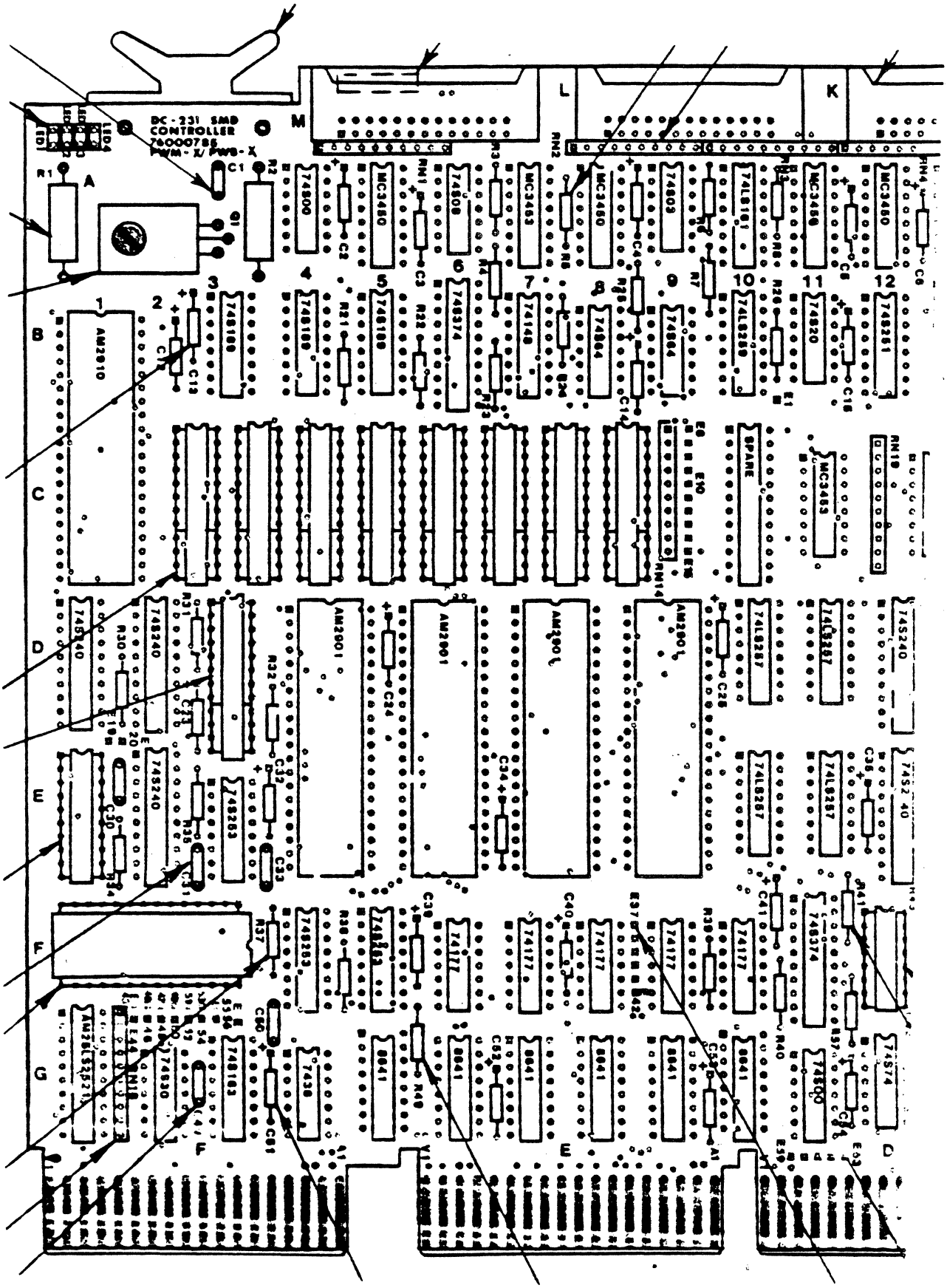
APPROVALS		DATE
DRAWN	C. B	10/12/81
CHECKED	HARRIS	3/8/81
	Rel	11-4-81

western peripherals
ANAHEIM, CALIFORNIA

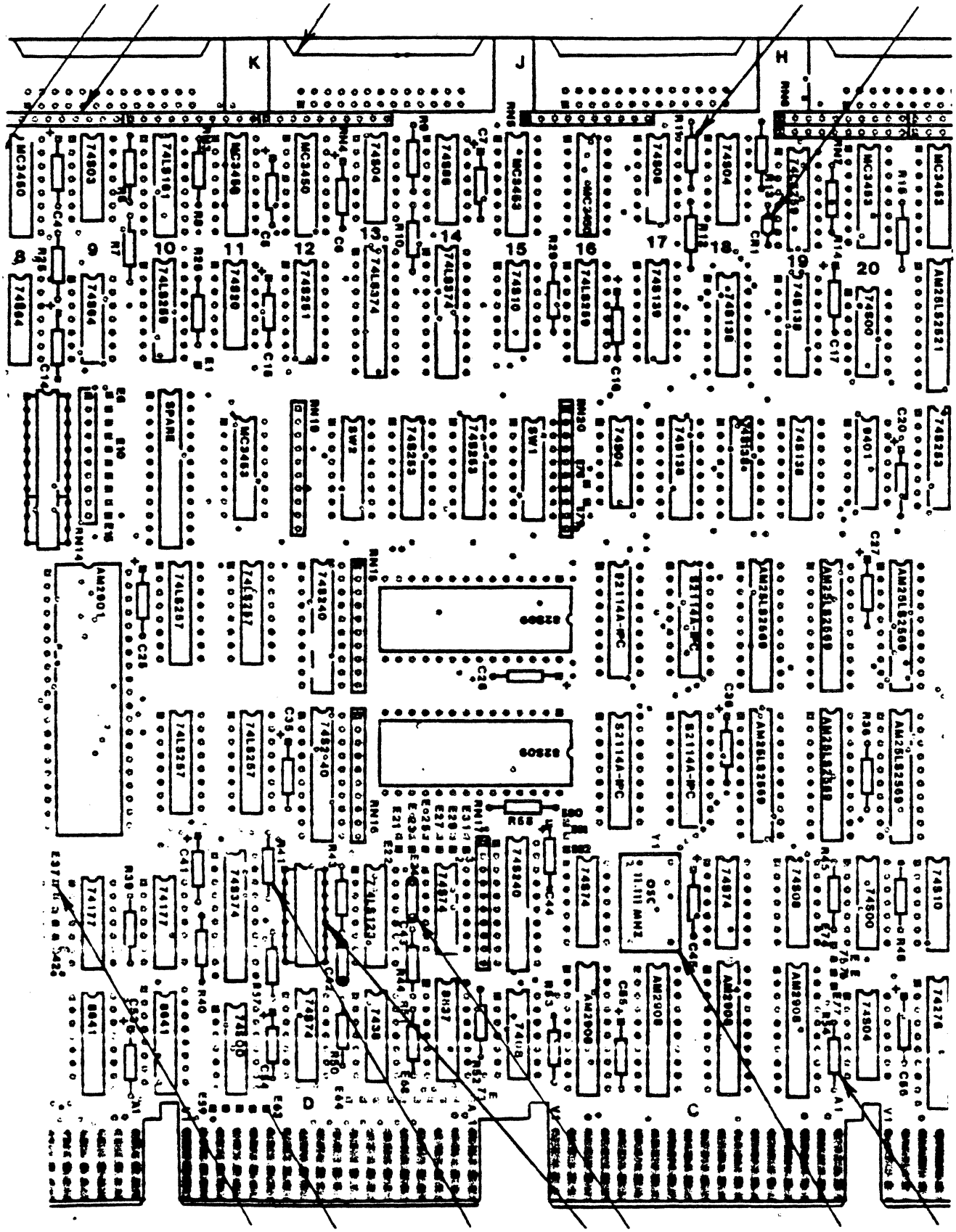
ASSEMBLY DRAWING – DC 231A SMD CONTROLLER

SIZE D | CODE IDENT NO | DRAWING NO 60000265

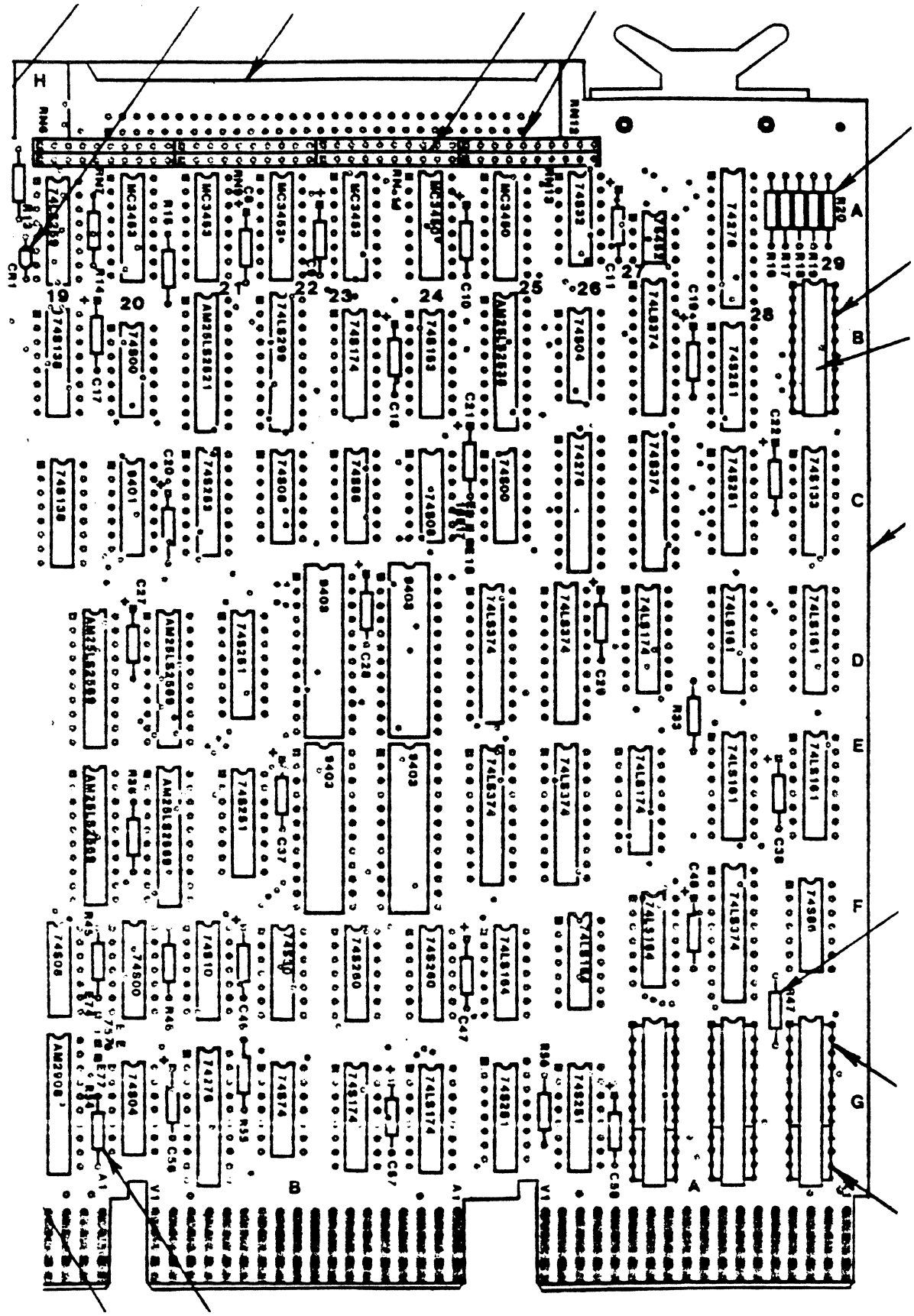
SCALE FULL | SHEET 1 OF 1



ASSEMBLY DRAWING DC-231A SMD CONTROLLER 60000965



ASSEMBLY DRAWING DC-231A SMD CONTROLLER 60000965



ASSEMBLY DRAWING DC-231A SMD CONTROLLER 60000965

HOW TO USE SCHEMATICS

Reference Numbering

*Circled numbers in the lower right-hand corner are used as page numbers for the schematic.
(Drawing sheet numbers may be disregarded)

*Signal sources and destinations are referenced to these page numbers. Example:

Source (from page 3): 3 - READ
Destination (to page 4 & 5): START - 4, 5

Block Diagrams

*Most block diagrams provide page reference numbers in each block which identify the schematic page where the logic may be found.

Signal Levels

*Normally, signals are true when high (+5V) and false when low (0V).

*Signals with bars ($\overline{\text{WRITE}}$) are true when low and false when high.

Off-Board Connectors

*Small boxes or diamonds are used to identify signals which exit the board. (Where the numbers are in the format BA2, CV1, DR2, etc. The first letter identifies the connector, The second digit identifies the pin of the connector, and the third digit idenfifies the side of the board where side one is the component side and side two is the solder side).

H			
TAG 1	1	31	TAG 1
TAG 2	2	32	TAG 2
TAG 3	3	33	TAG 3
DBIT 0	4	34	DBIT 0
DBIT 1	5	35	DBIT 1
DBIT 2	6	36	DBIT 2
DBIT 3	7	37	DBIT 3
DBIT 4	8	38	DBIT 4
DBIT 5	9	39	DBIT 5
DBIT 6	10	40	DBIT 6
DBIT 7	11	41	DBIT 7
DBIT 8	12	42	DBIT 8
DBIT 9	13	43	DBIT 9
OPEN CABLE DET.	14	44	OPEN CABLE DET.
FAULT	15	45	FAULT
SEEK ERROR	16	46	SEEK ERROR
ON CYLINDER	17	47	ON CYLINDER
INDEX MARK	18	48	INDEX MARK
UNIT READY	19	49	UNIT READY
	20	50	
BUSY	21	51	BUSY
UNIT SELECT TAG	22	52	UNIT SELECT TAG
UNIT SELECT 2^0	23	53	UNIT SELECT 2^0
UNIT SELECT 2^1	24	54	UNIT SELECT 2^1
SECTOR MARK	25	55	SECTOR MARK
UNIT SELECT 2^2	26	56	UNIT SELECT 2^2
UNIT SELECT 2^3	27	57	UNIT SELECT 2^3
WRITE PROTECT	28	58	WRITE PROTECT
POWER PICK	29	59	POWER HOLD
	30	60	

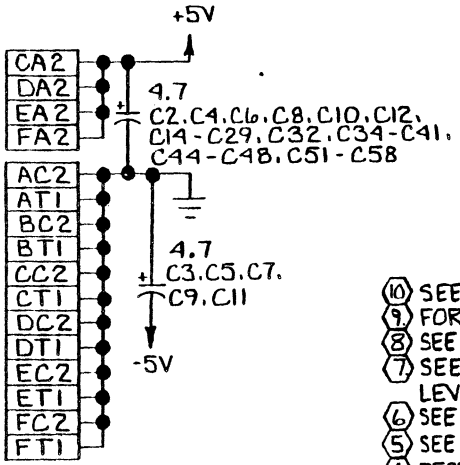
J			
GND	1	14	SERVO CLK 0
SERVO CLK 0	2	15	GND
READ DATA 0	3	16	READ DATA 0
GND	4	17	READ CLK 0
READ CLK 0	5	18	GND
WRT CLK 0	6	19	WRT CLK 0
GND	7	20	WRT DATA 0
WRT DATA 0	8	21	GND
UNIT SELD 0	9	22	UNIT SELD 0
SEEK END 0	10	23	SEEK END 0
GND	11	24	
	12	25	GND
	13	26	

K			
GND	1	14	SERVO CLK 1
SERVO CLK 1	2	15	GND
READ DATA 1	3	16	READ DATA 1
GND	4	17	READ CLK 1
READ CLK 1	5	18	GND
WRT CLK 1	6	19	WRT CLK 1
GND	7	20	WRT DATA 1
WRT DATA 1	8	21	GND
UNIT SELD 1	9	22	UNIT SELD 1
SEEK END 1	10	23	SEEK END 1
GND	11	24	
	12	25	GND
	13	26	

L			
GND	1	14	SERVO CLK 2
SERVO CLK 2	2	15	GND
READ DATA 2	3	16	READ DATA 2
GND	4	17	READ CLK 2
READ CLK 2	5	18	GND
WRT CLK 2	6	19	WRT CLK 2
GND	7	20	WRT DATA 2
WRT DATA 2	8	21	GND
UNIT SELD 2	9	22	UNIT SELD 2
SEEK END 2	10	23	SEEK END 2
GND	11	24	
	12	25	GND
	13	26	

M			
GND	1	14	SERVO CLK 3
SERVO CLK 3	2	15	GND
READ DATA 3	3	16	READ DATA 3
GND	4	17	READ CLK 3
READ CLK 3	5	18	GND
WRT CLK 3	6	19	WRT CLK 3
GND	7	20	WRT DATA 3
WRT DATA 3	8	21	GND
UNIT SELD 3	9	22	UNIT SELD 3
SEEK END 3	10	23	SEEK END 3
GND	11	24	
	12	25	GND
	13	26	

LAST DESIGNATION USED	
RESISTOR	R57
CAPACITOR	C58
LIGHT EMITTING DIODE	LED 4
RESISTOR NETWORK	RN18
OSCILLATOR	Y1
VOLTAGE REGULATOR	Q1
DIODE	CR1



REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	PROD. REL.	4-6-81	
B	REVISED PER E.C.O. 382	4-8-81	
C	REVISED PER E.C.O. [illegible]	10-2-81	
D	REV. PER ECO 5x1	10-2-81	
D1	RECORD CHG ONLY Pg. 81	10-20-81	
E	REVISED PER E.C.O. 1042	3-29-82	

(10) SEE DRIVE CAPACITY TABLE.
(9) FOR TEST ONLY.
(8) SEE INTERRUPT VECTOR TABLE.
(7) SEE INTERRUPT PRIORITY LEVEL TABLE.
(6) SEE WORDS PER NPR TABLE.
(5) SEE DEVICE ADDRESS TABLE.
(4) RESERVED FOR FUTURE USE.
3. REFERENCE ASSY. 60000643.
2. CAPACITOR VALUES ARE IN MICROFARADS.
1. RESISTANCE VALUES ARE IN OHMS.

NOTES: UNLESS OTHERWISE SPECIFIED

TOLERANCES UNLESS OTHERWISE SPECIFIED		
FRACTIONS	DEC.	ANGLES
±	±	±

APPROVALS	DATE
DRAWN C. Acada	1-21-81
CHECKED	

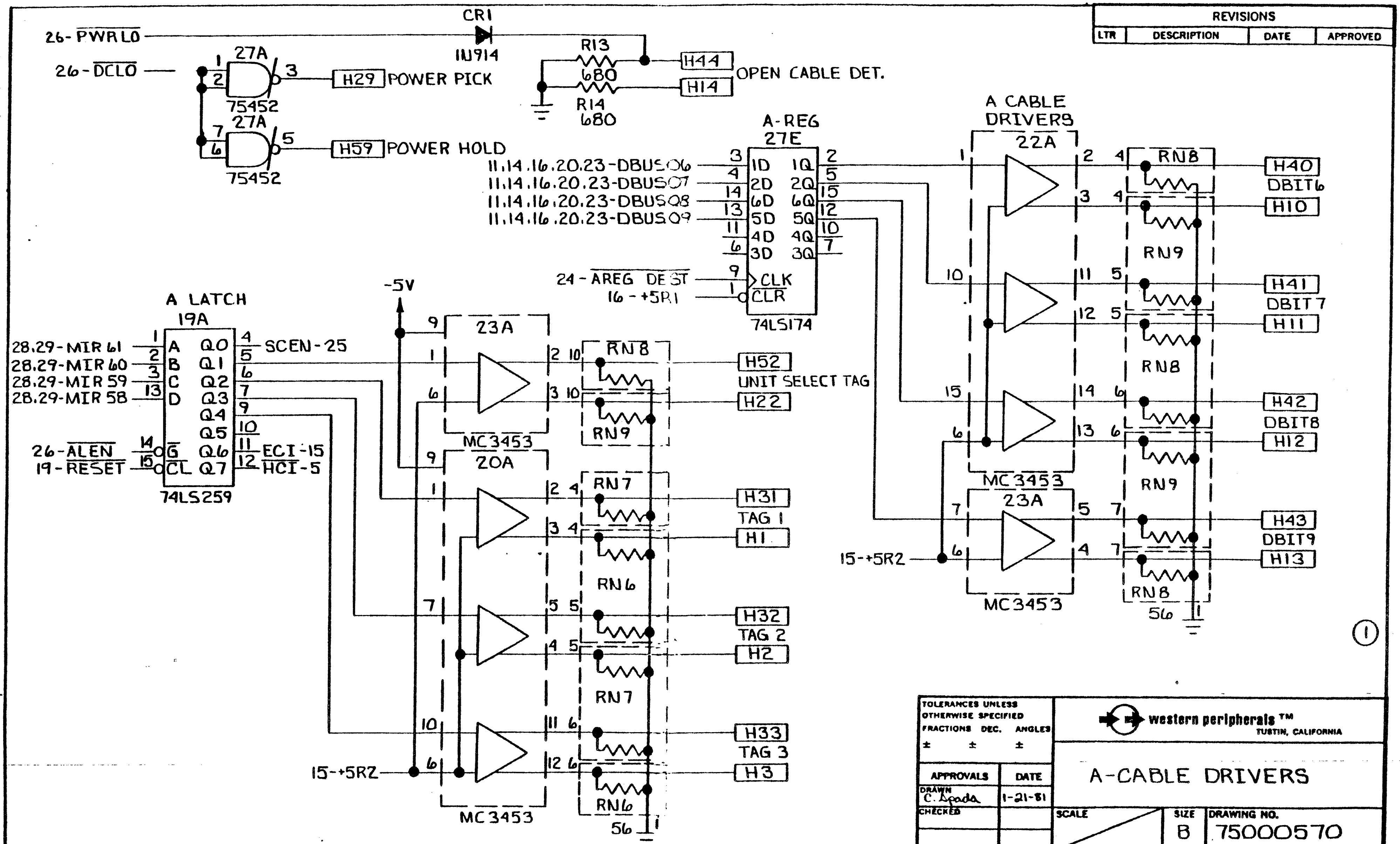
western peripherals™ TUSTIN, CALIFORNIA

SCHEMATIC
DC 231 SMD CONTROLLER

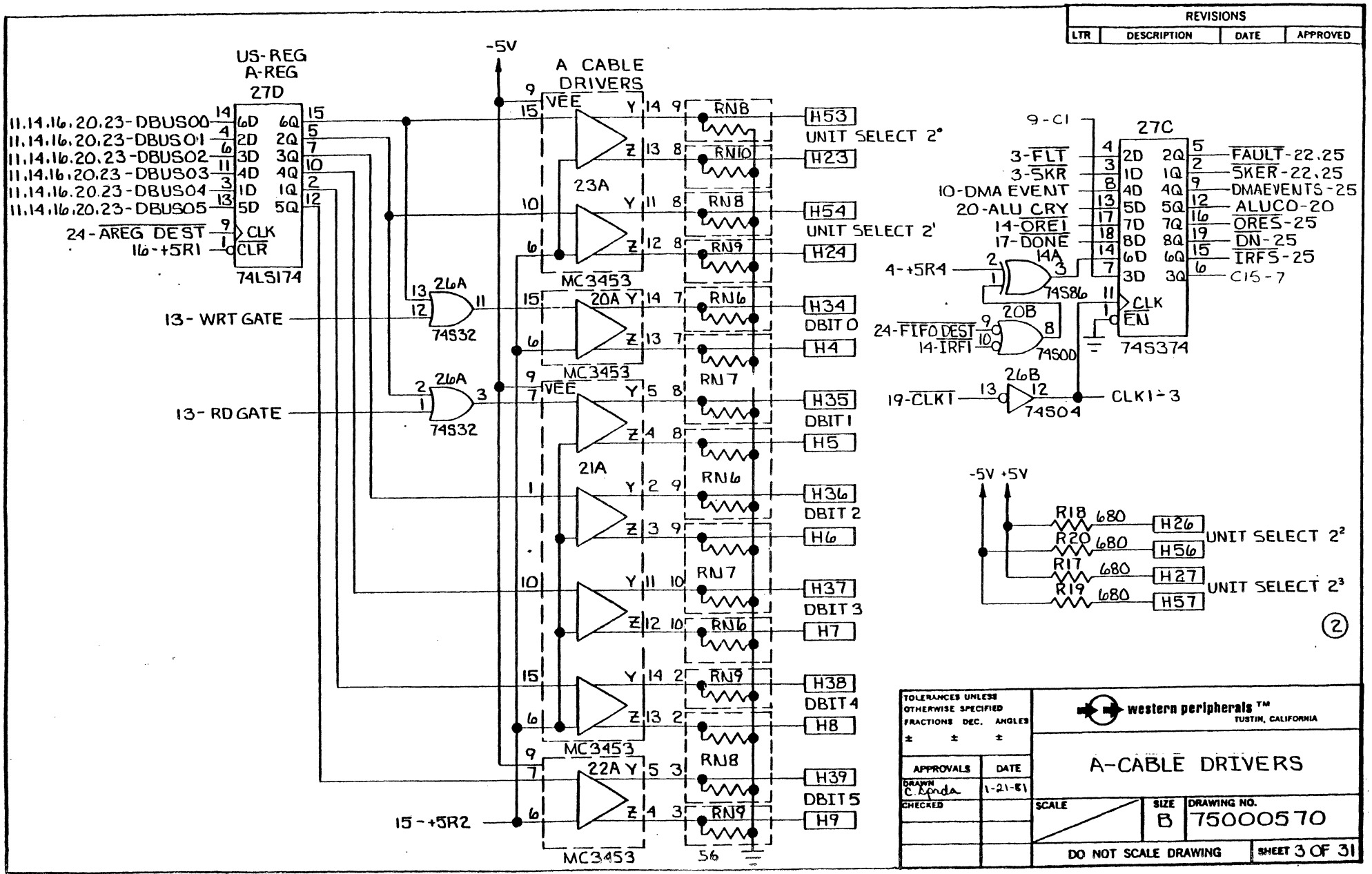
SCALE	SIZE	DRAWING NO.
	B	75000570

DO NOT SCALE DRAWING — SHEET 1 OF 31

50413


REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
26-PWRLO
CR1
1N914
26-DCLO
27A
75452
H29
POWER PICK
H59
POWER HOLD
R13
680
R14
680
H44
H14
OPEN CABLE DET.
A-REG
27E
11,14,16,20,23-DBUS06
11,14,16,20,23-DBUS07
11,14,16,20,23-DBUS08
11,14,16,20,23-DBUS09
1D 1Q
2D 2Q
6D 6Q
5D 5Q
4D 4Q
3D 3Q
24-AREG DEST
16-+5R1
CLK
CLR
74LS174
A CABLE
DRIVERS
22A
RN8
RN9
H40
DBIT6
H10
H41
DBIT7
H11
H42
DBIT8
H12
H43
DBIT9
H13
MC3453
23A
15-+5R2
56
A LATCH
19A
28,29-MIR61
28,29-MIR60
28,29-MIR59
28,29-MIR58
A B C D
Q0 Q1 Q2 Q3 Q4 Q5 Q6 Q7
SCEN-25
ECI-15
HCI-5
26-ALEN
19-RESET
G
CL
74LS259
-5V
23A
20A
MC3453
RN8
RN9
RN7
RN6
H52
UNIT SELECT TAG
H22
H31
TAG 1
H1
H32
TAG 2
H2
H33
TAG 3
H3
15-+5RZ
56
1

TOLERANCES UNLESS OTHERWISE SPECIFIED	western peripherals ™ TUSTIN, CALIFORNIA
FRACTIONS ± DEC. ± ANGLES ±	
APPROVALS / DATE	A-CABLE DRIVERS
DRAWN C. Spada / 1-21-81	
CHECKED	SCALE / SIZE B / DRAWING NO. 75000570
	DO NOT SCALE DRAWING / SHEET 2 OF 31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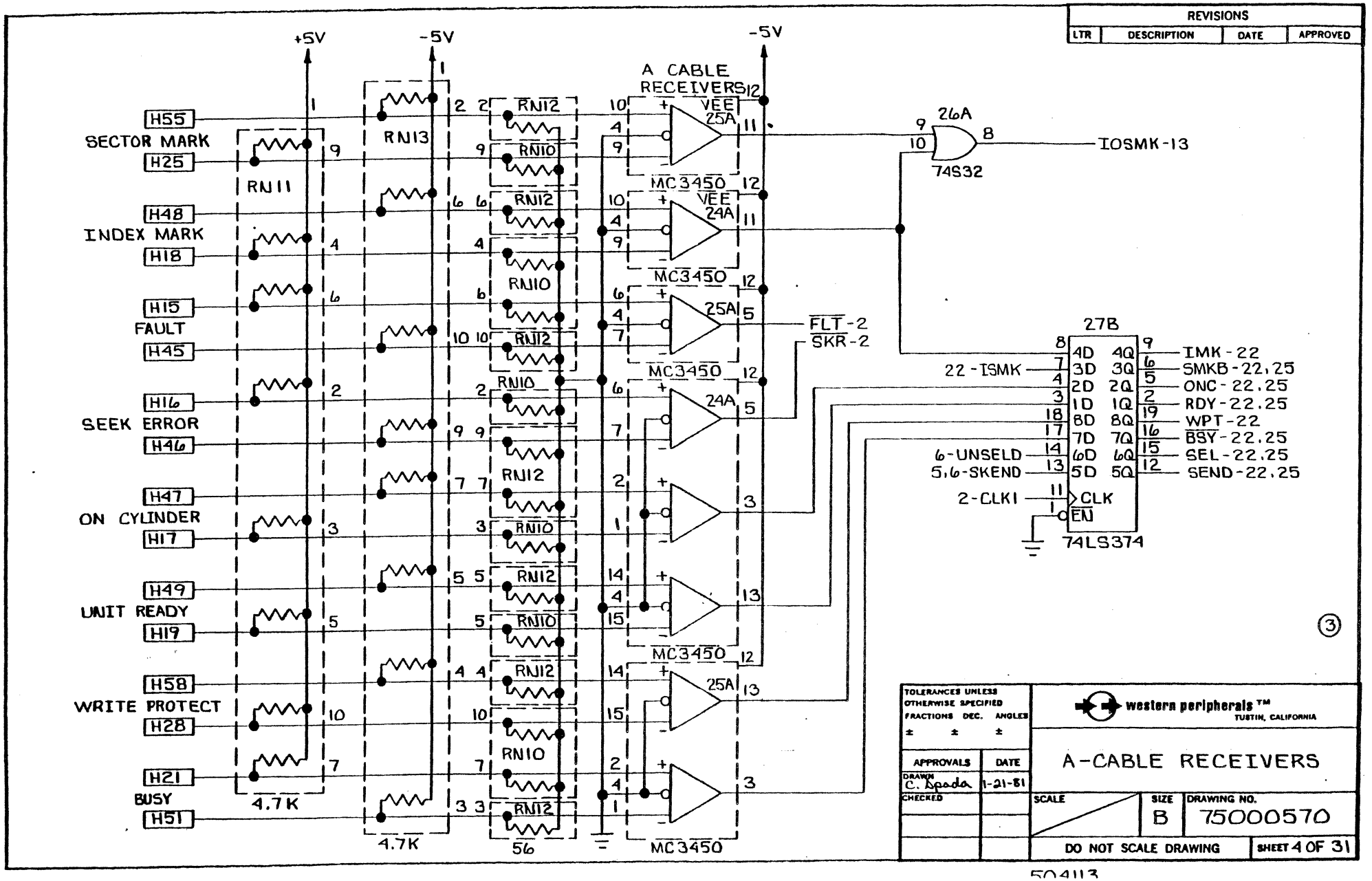
DESCRIPTION
DATE
APPROVED
US-REG
A-REG
27D
74LS174
11,14,16,20,23-DBUS00
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS02
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS04
11,14,16,20,23-DBUS05
24-AREG DEST
16-+5R1
-5V
A CABLE
DRIVERS
MC3453
23A
20A
21A
22A
26A
74S32
13-WRT GATE
13-RD GATE
15-+5R2
RN8
RN10
RN9
RN6
RN7
56
H53
UNIT SELECT 2°
H23
H54
UNIT SELECT 2'
H24
H34
DBIT 0
H4
H35
DBIT 1
H5
H36
DBIT 2
H6
H37
DBIT 3
H7
H38
DBIT 4
H8
H39
DBIT 5
H9
9-C1
27C
74S374
3-FLT
3-SKR
10-DMA EVENT
20-ALU CRY
14-OREI
17-DONE
4-+5R4
14A
74S86
20B
74S00
24-FIFO DEST
14-IRFI
26B
74S04
19-CLK1
CLK1÷3
FAULT-22,25
SKER-22,25
DMAEVENTS-25
ALUCO-20
ORES-25
DN-25
IRFS-25
C15-7
-5V +5V
R18 680
R20 680
R17 680
R19 680
H26
H56
H27
H57
UNIT SELECT 2²
UNIT SELECT 2³
②
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS
DATE
DRAWN C. Londa
1-21-81
CHECKED
western peripherals ™
TUSTIN, CALIFORNIA
A-CABLE DRIVERS
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 3 OF 31

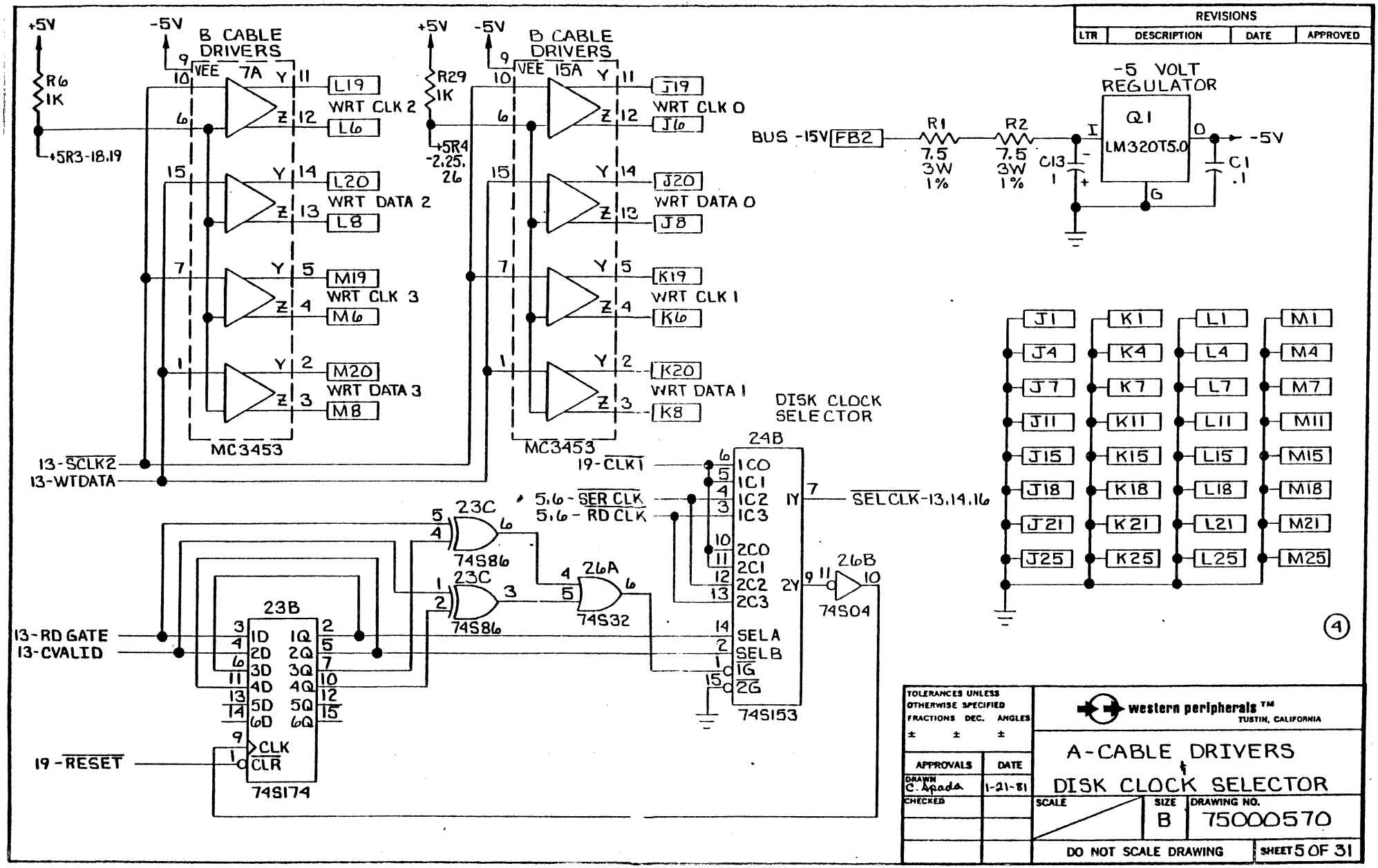
504113

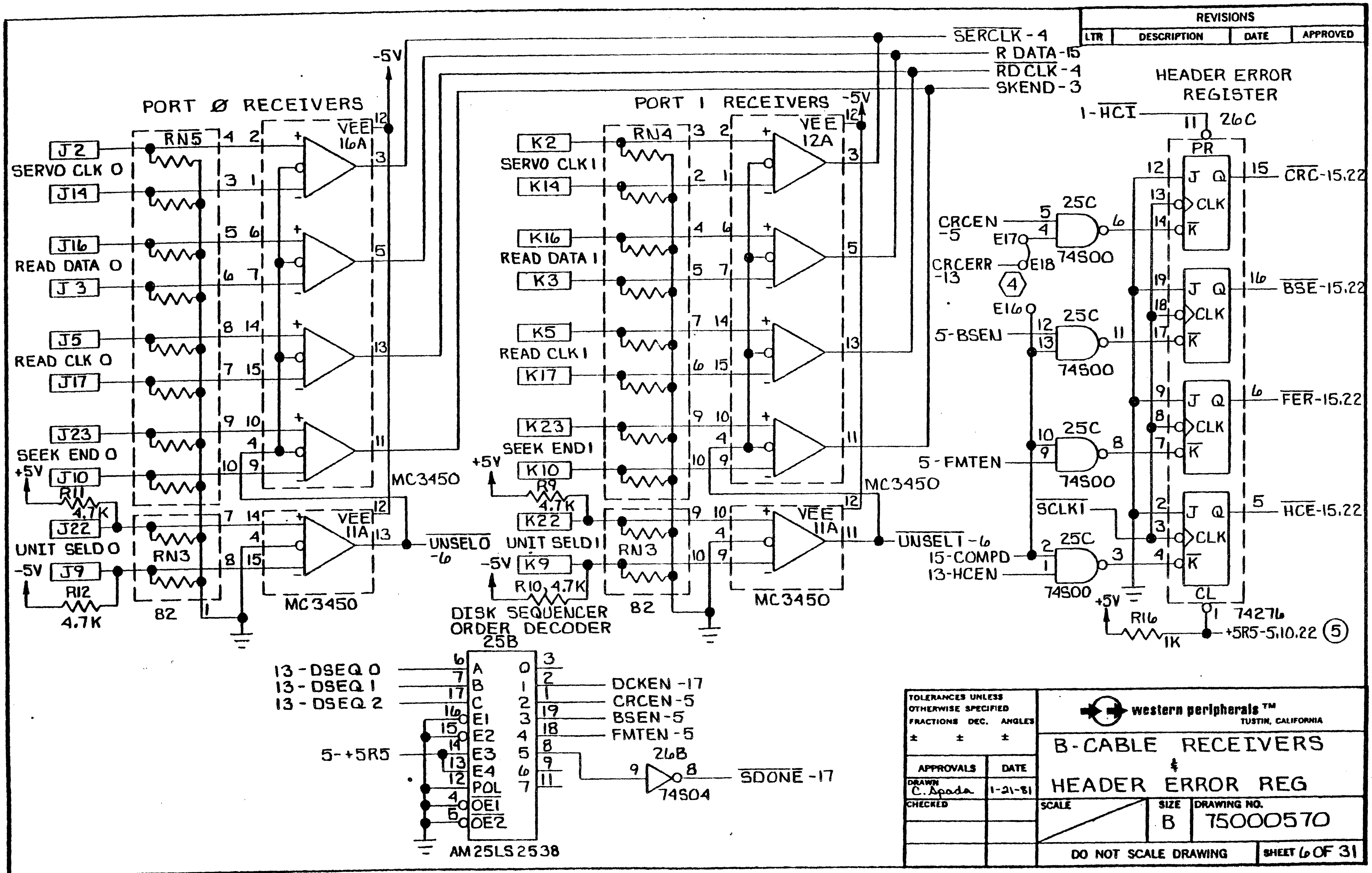


REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS DEC. ANGLES ± ± ±	western peripherals™ TUSTIN, CALIFORNIA	
APPROVALS / DRAWN C. Spada	DATE 1-21-81	A-CABLE RECEIVERS
CHECKED		SCALE / SIZE B / DRAWING NO. 7500570
		DO NOT SCALE DRAWING / SHEET 4 OF 31

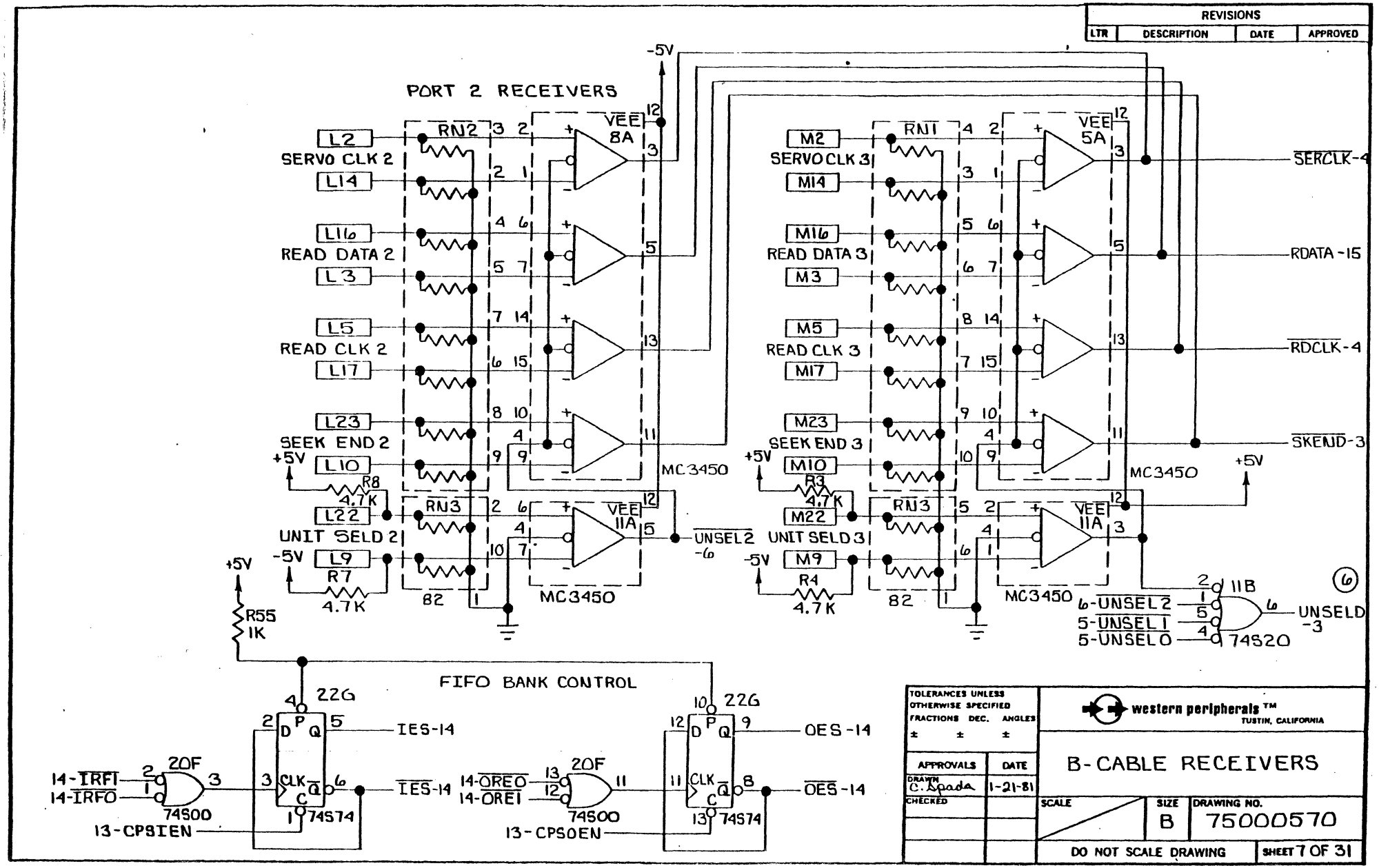
504113

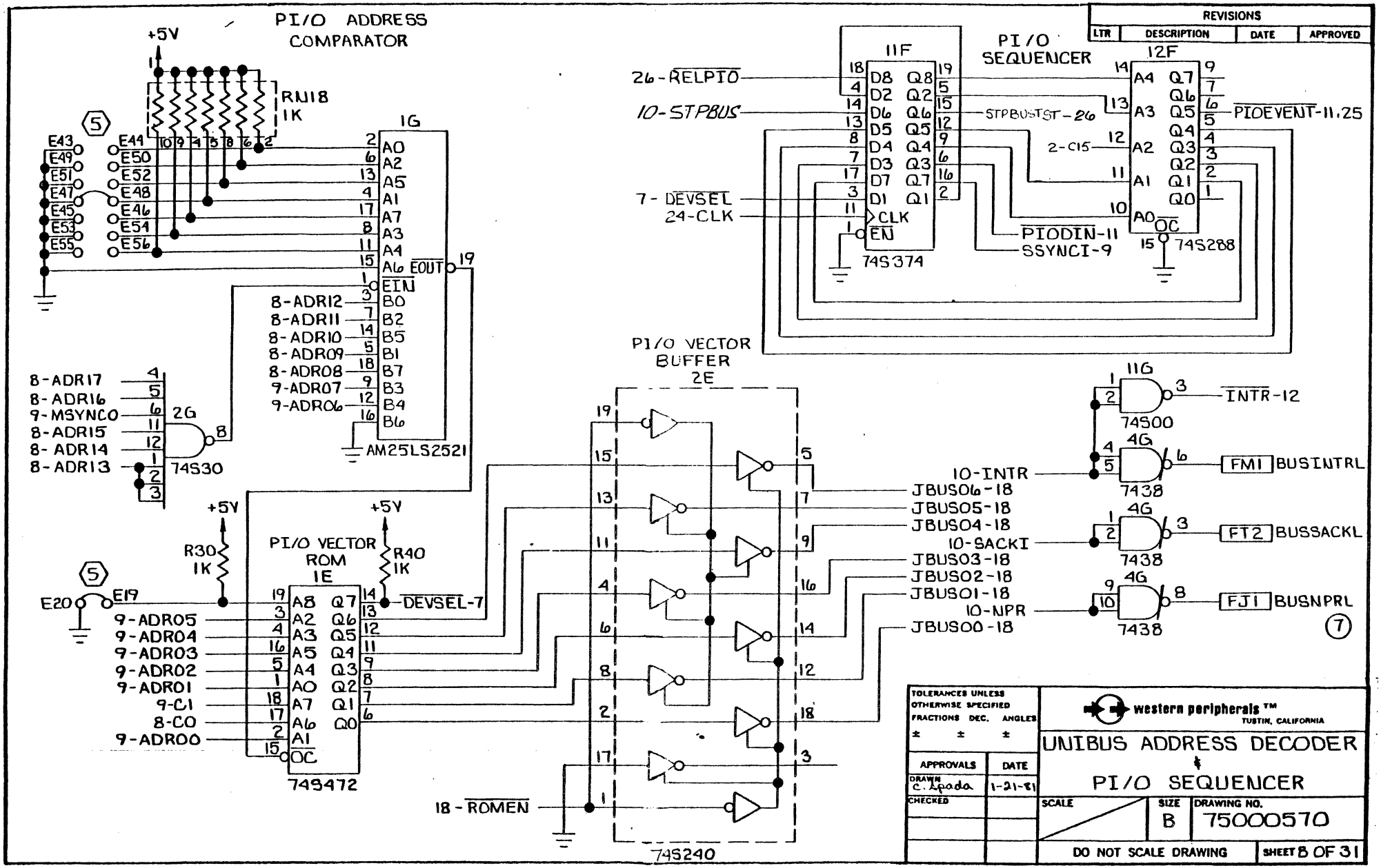

REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
+5V
-5V
B CABLE DRIVERS
MC3453
WRT CLK 2
WRT DATA 2
WRT CLK 3
WRT DATA 3
WRT CLK 0
WRT DATA 0
WRT CLK 1
WRT DATA 1
R6 1K
+5R3-18.19
R29 1K
+5R4 -2.25. 26
13-SCLK2
13-WTDATA
-5 VOLT REGULATOR
BUS -15V FB2
R1 7.5 3W 1%
R2 7.5 3W 1%
C13 1
Q1 LM320T5.0
C1 .1
-5V
DISK CLOCK SELECTOR
74S153
19-CLK1
5,6-SER CLK
5,6-RD CLK
SELCLK-13,14,16
74S86
74S32
74S04
13-RD GATE
13-CVALID
19-RESET
74S174
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN C. Ayala
1-21-81
CHECKED
western peripherals ™
TUSTIN, CALIFORNIA
A-CABLE DRIVERS & DISK CLOCK SELECTOR
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 5 OF 31

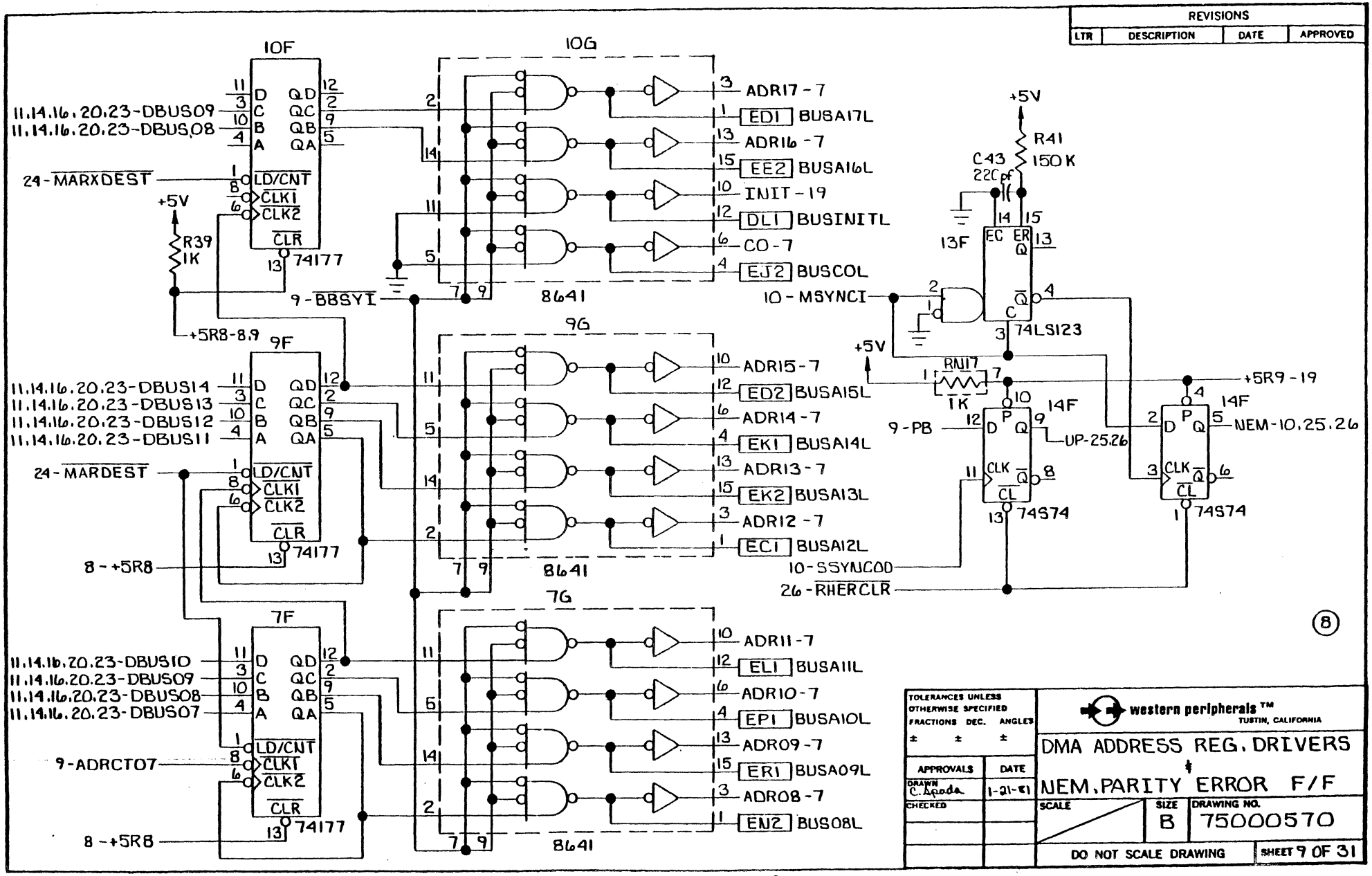


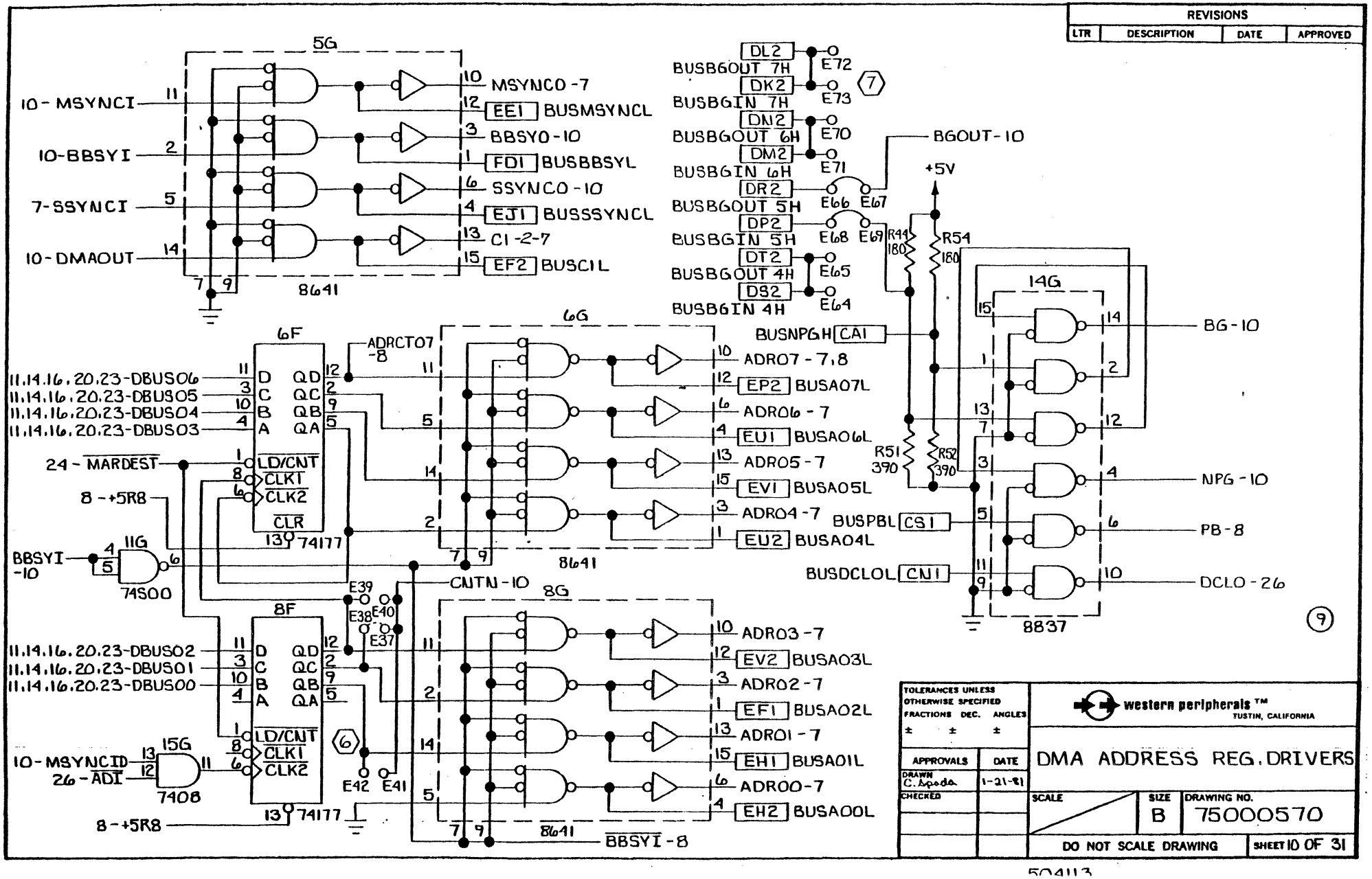
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
PORT Ø RECEIVERS
PORT 1 RECEIVERS
HEADER ERROR REGISTER
SERCLK - 4
R DATA-15
RD CLK-4
SKEND-3
-5V
VEE
16A
12A
11A
RN5
RN4
RN3
82
MC3450
SERVO CLK 0
READ DATA 0
READ CLK 0
SEEK END 0
UNIT SELD 0
SERVO CLK 1
READ DATA 1
READ CLK 1
SEEK END 1
UNIT SELD 1
J2
J14
J16
J3
J5
J17
J23
J10
J22
J9
K2
K14
K16
K3
K5
K17
K23
K10
K22
K9
+5V
R11 4.7K
R12 4.7K
R9 4.7K
R10 4.7K
UNSEL0 -6
UNSEL1 -6
1-HCI
26C
PR
CLK
CL
74276
CRC-15,22
BSE-15,22
FER-15,22
HCE-15,22
CRCEN -5
CRCERR -13
E17
E18
E16
25C
74S00
5-BSEN
5 - FMTEN
SCLK1
15-COMPD
13-HCEN
R16 1K
+5R5-5,10,22
DISK SEQUENCER ORDER DECODER
25B
13 - DSEQ 0
13 - DSEQ 1
13 - DSEQ 2
5- +5R5
A
B
C
E1
E2
E3
E4
POL
OE1
OE2
AM25LS2538
DCKEN -17
CRCEN -5
BSEN -5
FMTEN -5
26B
74S04
SDONE -17
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS
DATE
DRAWN C. Spada 1-21-81
CHECKED
western peripherals ™
TUSTIN, CALIFORNIA
B-CABLE RECEIVERS & HEADER ERROR REG
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 6 OF 31

504113


REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
PORT 2 RECEIVERS
-5V
L2
SERVO CLK 2
L14
L16
READ DATA 2
L3
L5
READ CLK 2
L17
L23
SEEK END 2
+5V
L10
R8
4.7K
L22
UNIT SELD 2
-5V
L9
R7
4.7K
RN2
RN3
82
VEE
8A
11A
MC3450
UNSEL2
-6
M2
SERVO CLK 3
M14
M16
READ DATA 3
M3
M5
READ CLK 3
M17
M23
SEEK END 3
M10
R3
4.7K
M22
UNIT SELD 3
M9
R4
4.7K
RN1
5A
SERCLK-4
RDATA-15
RDCLK-4
SKEND-3
+5V
R55
1K
FIFO BANK CONTROL
226
IES-14
OES-14
14-IRFI
14-IRFO
20F
74S00
74S74
13-CPSIEN
14-OREO
14-OREI
13-CPSOEN
11B
6-UNSEL2
5-UNSEL1
5-UNSEL0
74S20
UNSELD
-3
6
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS
DATE
DRAWN C. Rada 1-21-81
CHECKED
western peripherals ™
TUSTIN, CALIFORNIA
B-CABLE RECEIVERS
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 7 OF 31


PI/O ADDRESS COMPARATOR
+5V
RN18 1K
E43 E49 E51 E47 E45 E53 E55
E44 E50 E52 E48 E46 E54 E56
1G
AM25LS2521
8-ADR17
8-ADR16
9-MSYNCO
8-ADR15
8-ADR14
8-ADR13
2G
74S30
8-ADR12
8-ADR11
8-ADR10
8-ADR09
8-ADR08
9-ADR07
9-ADR06
PI/O VECTOR ROM 1E
74S472
R30 1K
R40 1K
E20 E19
9-ADR05
9-ADR04
9-ADR03
9-ADR02
9-ADR01
9-C1
8-C0
9-ADR00
DEVSEL-7
PI/O VECTOR BUFFER 2E
74S240
18-ROMEN
11F
74S374
26-RELPTO
10-STPBUS
7-DEVSEL
24-CLK
PI/O SEQUENCER
12F
74S288
STPBUSTST-26
2-C15
PIODIN-11
SSYNCI-9
PIOEVENT-11.25
10-INTR
JBUS06-18
JBUS05-18
JBUS04-18
10-SACKI
JBUS03-18
JBUS02-18
JBUS01-18
10-NPR
JBUS00-18
11G
74S00
INTR-12
4G
7438
FMI BUSINTRL
FT2 BUSSACKL
FJI BUSNPRL
REVISIONS
LTR DESCRIPTION DATE APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS DATE
DRAWN C. Ayala 1-21-81
CHECKED
western peripherals™
TUSTIN, CALIFORNIA
UNIBUS ADDRESS DECODER
PI/O SEQUENCER
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 8 OF 31


REVISIONS
LTR | DESCRIPTION | DATE | APPROVED
10F
11,14,16,20,23-DBUS09
11,14,16,20,23-DBUS08
24-MARXDEST
+5V
R39 1K
+5R8-8.9
LD/CNT
CLKI
CLK2
CLR
74177
9-BBSYI
10G
ADR17-7
EDI BUSAI7L
ADR16-7
EE2 BUSAI6L
INIT-19
DLI BUSINITL
CO-7
EJ2 BUSCOL
8641
9F
11,14,16,20,23-DBUS14
11,14,16,20,23-DBUS13
11,14,16,20,23-DBUS12
11,14,16,20,23-DBUS11
24-MARDEST
8-+5R8
9G
ADR15-7
ED2 BUSAI5L
ADR14-7
EK1 BUSAI4L
ADR13-7
EK2 BUSAI3L
ADR12-7
EC1 BUSAI2L
7F
11,14,16,20,23-DBUS10
11,14,16,20,23-DBUS09
11,14,16,20,23-DBUS08
11,14,16,20,23-DBUS07
9-ADRCT07
7G
ADR11-7
EL1 BUSAIIL
ADR10-7
EP1 BUSAIOL
ADR09-7
ER1 BUSA09L
ADR08-7
EN2 BUS08L
+5V
R41 150K
C43 220pf
13F
EC ER Q
74LS123
10-MSYNCI
RN17 1K
10-SSYNCOD
26-RHERCLR
9-PB
14F
UP-25,26
74S74
+5R9-19
NEM-10,25,26
8
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS | DATE
DRAWN C. Agoda | 1-21-81
CHECKED
western peripherals™
TUSTIN, CALIFORNIA
DMA ADDRESS REG. DRIVERS
NEM. PARITY ERROR F/F
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 9 OF 31


REVISIONS
LTR DESCRIPTION DATE APPROVED
5G
10-MSYNCI
10-BBSYI
7-SSYNCI
10-DMAOUT
MSYNCO-7
EE1 BUSMSYNCL
BBSYO-10
FD1 BUSBBSYL
SSYNCO-10
EJ1 BUSSSYNCL
CI-2-7
EF2 BUSCIL
8641
DL2 BUSB6OUT 7H E72
DK2 BUSB6IN 7H E73
DN2 BUSB6OUT 6H E70
DM2 BUSB6IN 6H E71
DR2 BUSB6OUT 5H E66 E67
DP2 BUSB6IN 5H E68 E69
DT2 BUSB6OUT 4H E65
DS2 BUSB6IN 4H E64
7
B6OUT-10
+5V
R44 180
R54 180
R51 390
R52 390
6F
6G
14G
ADRCTO7-8
11,14,16,20,23-DBUSO6
11,14,16,20,23-DBUSO5
11,14,16,20,23-DBUSO4
11,14,16,20,23-DBUSO3
24-MARDEST
8-+5R8
LD/CNT
CLK1
CLK2
CLR
74177
BUSNPGH CA1
ADRO7-7,8
EP2 BUSAO7L
ADRO6-7
EU1 BUSAO6L
ADRO5-7
EV1 BUSAO5L
ADRO4-7
EU2 BUSAO4L
BUSPBL CS1
BUSDCLOL CN1
BG-10
NPG-10
PB-8
DCLO-26
8837
9
BBSYI-10
11G
74S00
CNTN-10
E39 E38 E40 E37
8F
8G
11,14,16,20,23-DBUSO2
11,14,16,20,23-DBUSO1
11,14,16,20,23-DBUSO0
10-MSYNCID
26-ADI
15G
7408
6
E42 E41
ADRO3-7
EV2 BUSAO3L
ADRO2-7
EF1 BUSAO2L
ADRO1-7
EH1 BUSAO1L
ADRO0-7
EH2 BUSAO0L
BBSYI-8
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS DATE
DRAWN C. Ayoda 1-21-81
CHECKED
western peripherals TM
TUSTIN, CALIFORNIA
DMA ADDRESS REG. DRIVERS
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 10 OF 31
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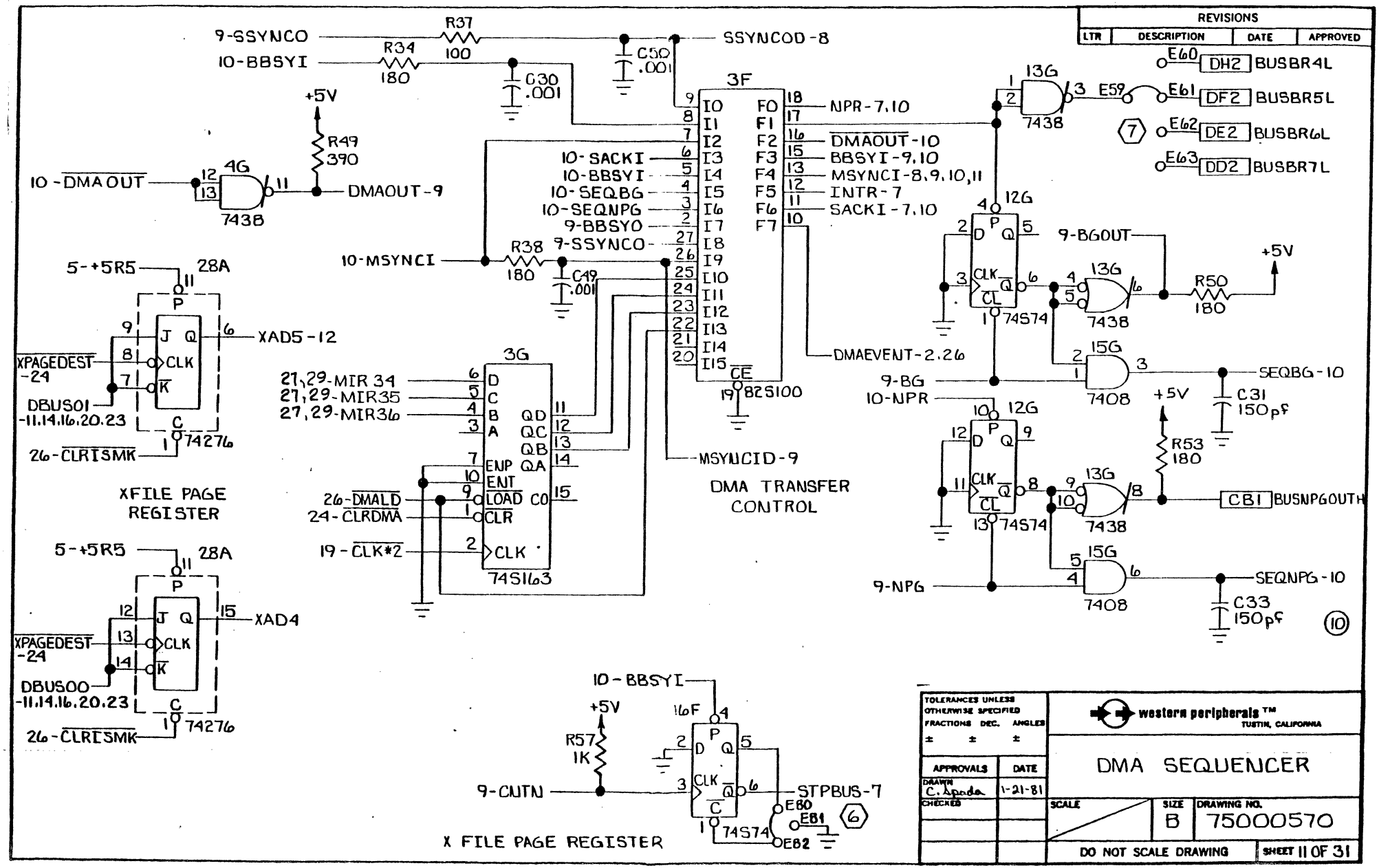
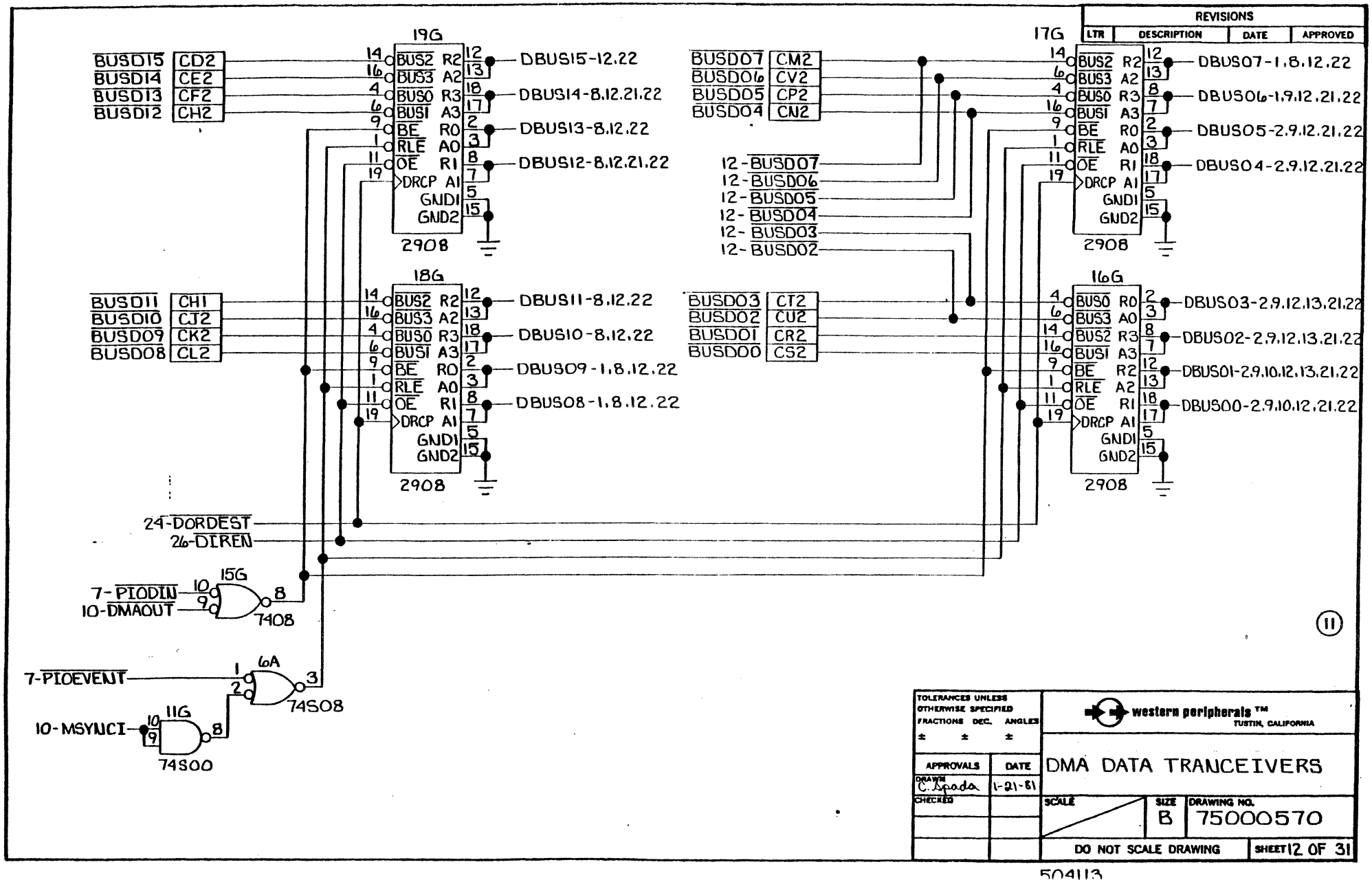

REVISIONS
LTR | DESCRIPTION | DATE | APPROVED
9-SSYNCO
10-BBSYI
R37 100
R34 180
C30 .001
C50 .001
SSYNCOD-8
+5V
R49 390
10-DMAOUT
4G
7438
DMAOUT-9
3F
10-SACKI
10-BBSYI
10-SEQBG
10-SEQNPG
9-BBSYO
9-SSYNCO
10-MSYNCI
R38 180
C49 .001
I0 I1 I2 I3 I4 I5 I6 I7 I8 I9 I10 I11 I12 I13 I14 I15
FO F1 F2 F3 F4 F5 F6 F7
NPR-7,10
DMAOUT-10
BBSYI-9,10
MSYNCI-8,9,10,11
INTR-7
SACKI-7,10
DMAEVENT-2,26
82S100
MSYNCID-9
5-+5R5
28A
XPAGEDEST -24
DBUS01 -11,14,16,20,23
26-CLRISMK
74276
XAD5-12
XFILE PAGE REGISTER
3G
27,29-MIR34
27,29-MIR35
27,29-MIR36
26-DMALD
24-CLRDMA
19-CLK*2
74S163
DMA TRANSFER CONTROL
DBUS00 -11,14,16,20,23
XAD4
9-CUTN
16F
R57 1K
STPBUS-7
74S74
X FILE PAGE REGISTER
13G
7438
E59
E60 DH2 BUSBR4L
E61 DF2 BUSBR5L
E62 DE2 BUSBR6L
E63 DD2 BUSBR7L
12G
9-BGOUT
R50 180
15G
7408
9-BG
10-NPR
SEQBG-10
C31 150pf
R53 180
CB1 BUSNPGOUTH
9-NPG
SEQNPG-10
C33 150pf
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS | DATE
DRAWN C. Aranda 1-21-81
CHECKED
western peripherals™ TUSTIN, CALIFORNIA
DMA SEQUENCER
SCALE | SIZE B | DRAWING NO. 75000570
DO NOT SCALE DRAWING | SHEET 11 OF 31



TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±

western peripherals™ TUSTIN, CALIFORNIA

APPROVALS	DATE
DRAWN C. Spada	1-21-81
CHECKED	

DMA DATA TRANCEIVERS

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DO NOT SCALE DRAWING | SHEET 12 OF 31

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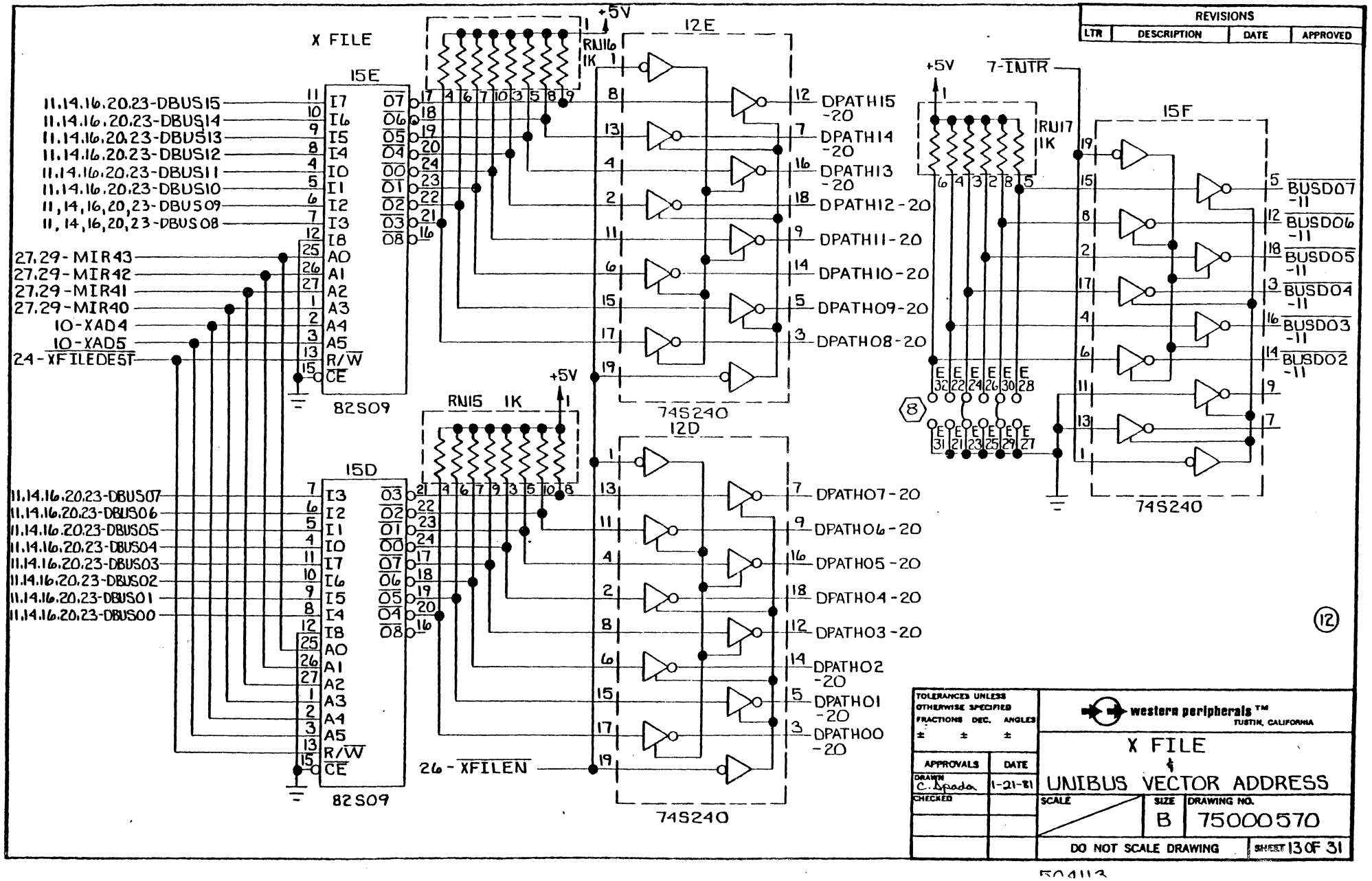
X FILE
15E
82S09
15D
82S09
RN116 1K
RN115 1K
RN117 1K
+5V
12E
12D
15F
74S240
74S240
74S240
11,14,16,20,23-DBUS15
11,14,16,20,23-DBUS14
11,14,16,20,23-DBUS13
11,14,16,20,23-DBUS12
11,14,16,20,23-DBUS11
11,14,16,20,23-DBUS10
11,14,16,20,23-DBUS09
11,14,16,20,23-DBUS08
11,14,16,20,23-DBUS07
11,14,16,20,23-DBUS06
11,14,16,20,23-DBUS05
11,14,16,20,23-DBUS04
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS02
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS00
27,29-MIR43
27,29-MIR42
27,29-MIR41
27,29-MIR40
10-XAD4
10-XAD5
24-XFILEDEST
26-XFILEN
7-INTR
DPATH15-20
DPATH14-20
DPATH13-20
DPATH12-20
DPATH11-20
DPATH10-20
DPATH09-20
DPATH08-20
DPATH07-20
DPATH06-20
DPATH05-20
DPATH04-20
DPATH03-20
DPATH02-20
DPATH01-20
DPATH00-20
BUSD07-11
BUSD06-11
BUSD05-11
BUSD04-11
BUSD03-11
BUSD02-11
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN
C. Ipada
1-21-81
CHECKED
western peripherals™
TUSTIN, CALIFORNIA
X FILE
UNIBUS VECTOR ADDRESS
SCALE
SIZE
B
DRAWING NO.
75000570
DO NOT SCALE DRAWING
SHEET 13 OF 31
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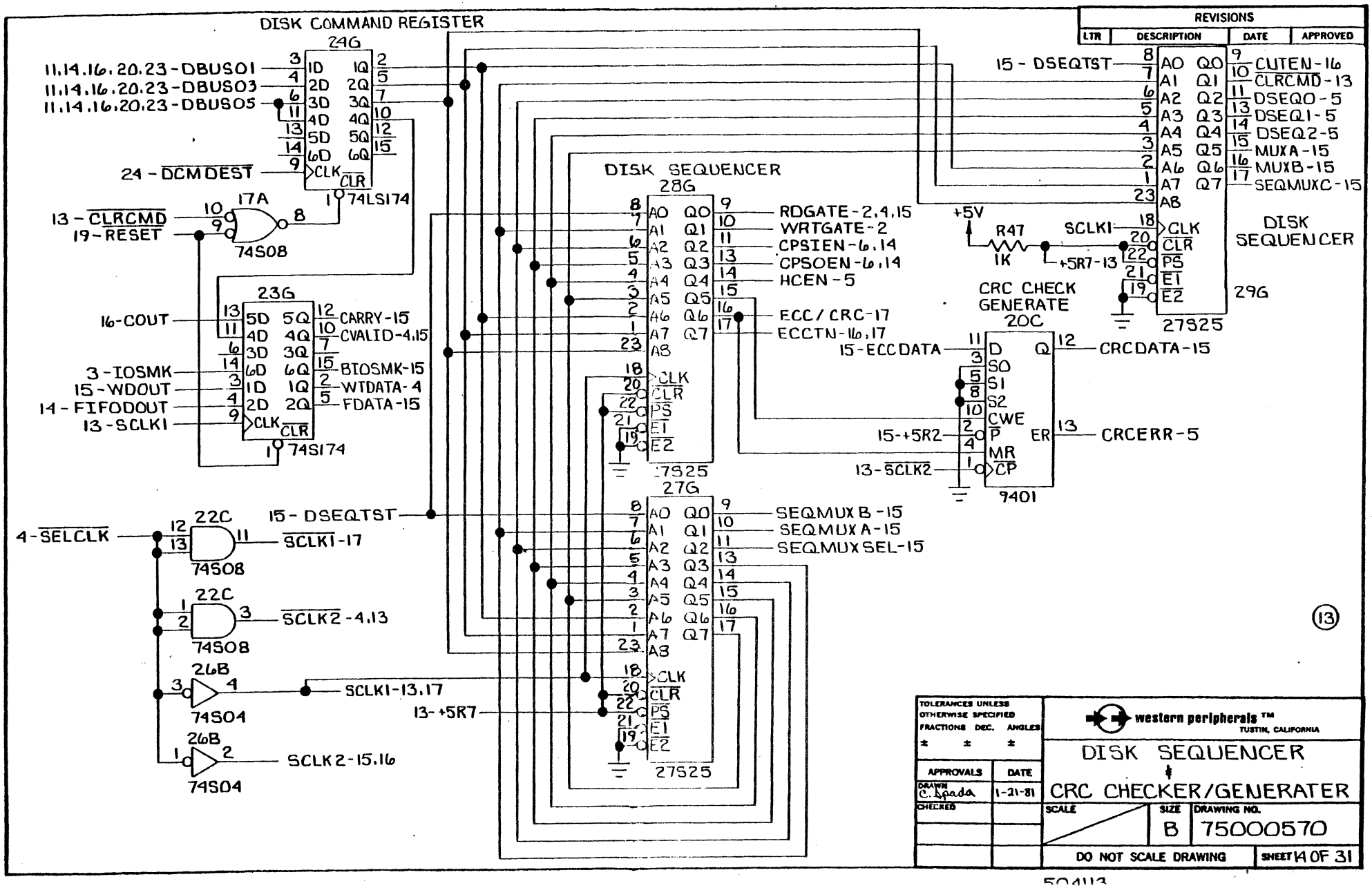
DISK COMMAND REGISTER
24G
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS05
24-DCMDEST
74LS174
13-CLRCMD
19-RESET
17A
74S08
23G
16-COUT
3-IOSMK
15-WDOUT
14-FIFODOUT
13-SCLK1
CARRY-15
CVALID-4,15
BIOSMK-15
WTDATA-4
FDATA-15
74S174
DISK SEQUENCER
28G
RDGATE-2,4,15
WRTGATE-2
CPSIEN-6,14
CPSOEN-6,14
HCEN-5
ECC/CRC-17
ECCTN-16,17
27S25
27G
SEQMUXB-15
SEQMUXA-15
SEQMUXSEL-15
15-DSEQTST
4-SELCLK
22C
74S08
SCLK1-17
SCLK2-4,13
26B
74S04
SCLK1-13,17
13-+5R7
SCLK2-15,16
15-DSEQTST
+5V
R47
1K
SCLK1
+5R7-13
CRC CHECK GENERATE
20C
15-ECCDATA
CRCDATA-15
15-+5R2
13-SCLK2
CRCERR-5
9401
CUTEN-16
CLRCMD-13
DSEQ0-5
DSEQ1-5
DSEQ2-5
MUXA-15
MUXB-15
SEQMUXC-15
DISK SEQUENCER
29G
27S25
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN C. Spada 1-21-81
CHECKED
western peripherals TM
TUSTIN, CALIFORNIA
DISK SEQUENCER
CRC CHECKER/GENERATER
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
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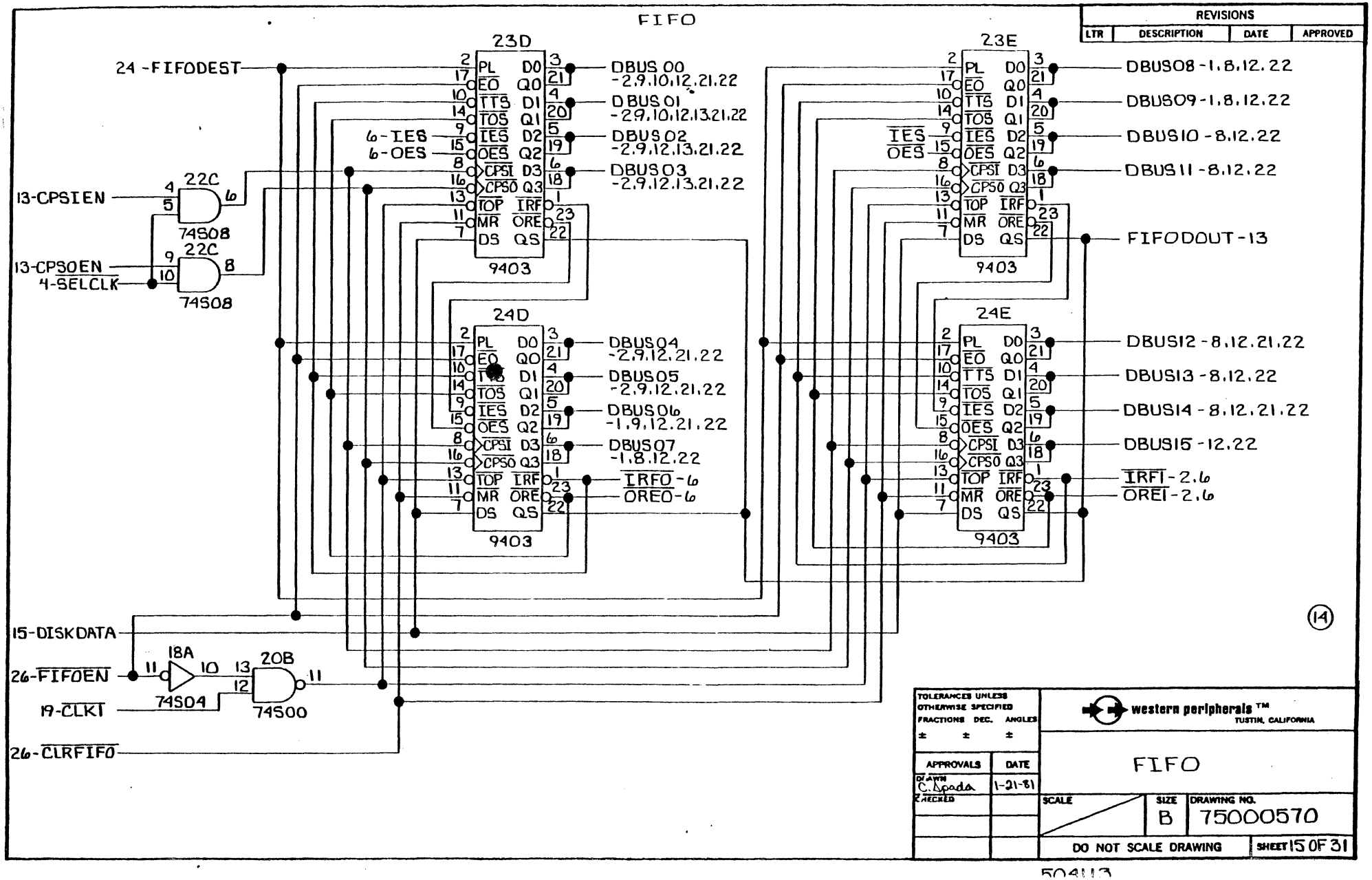
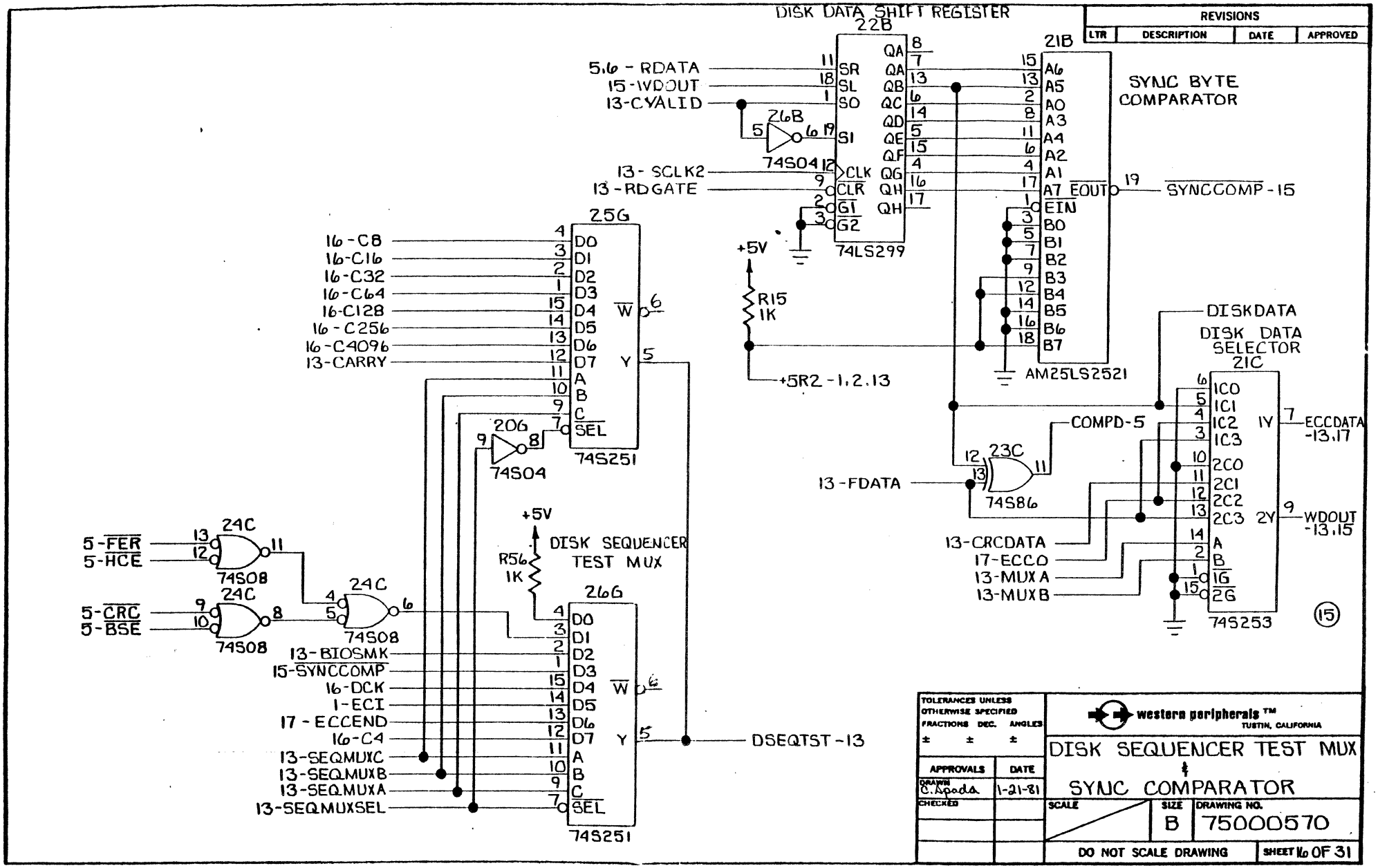
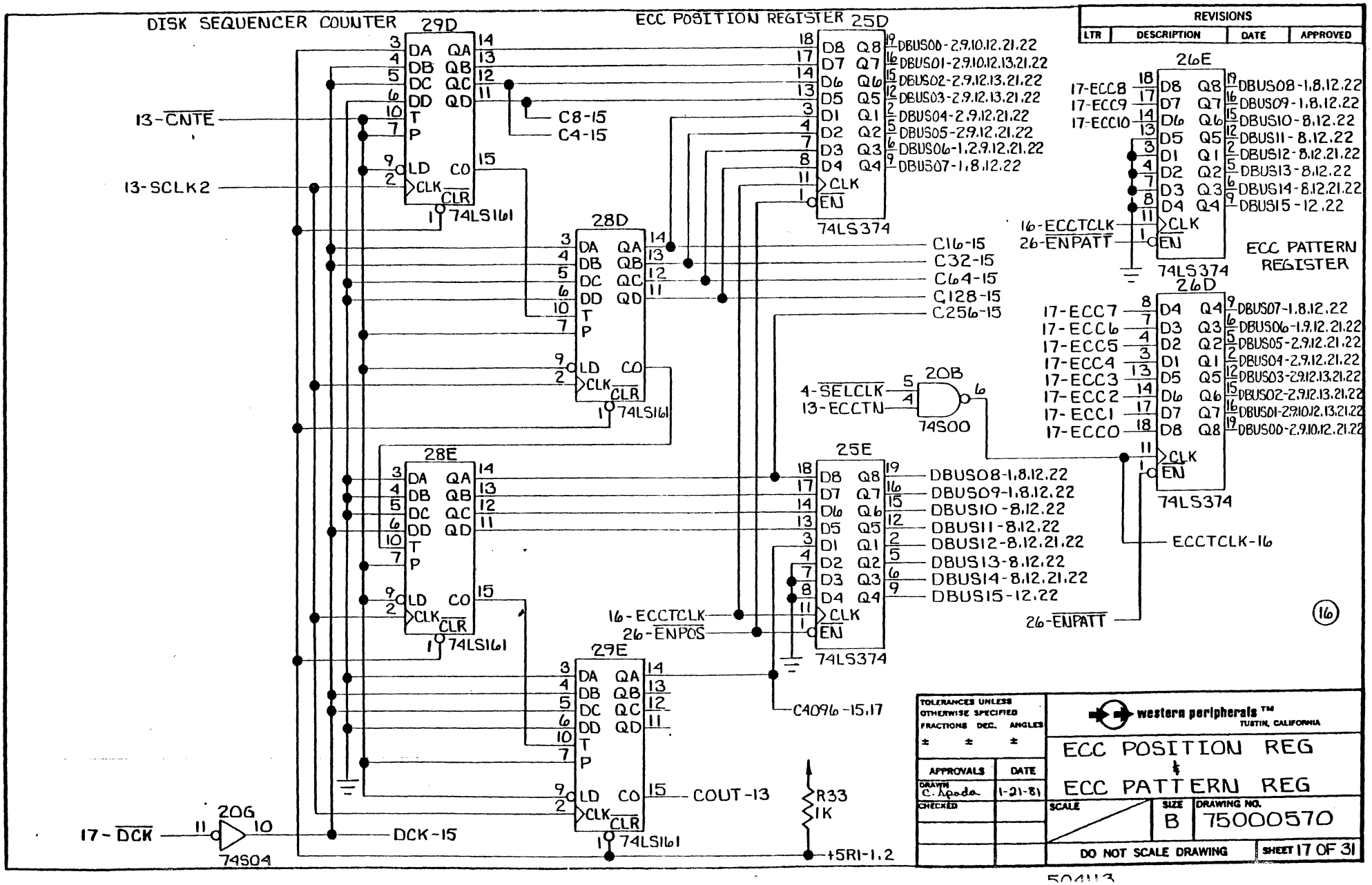
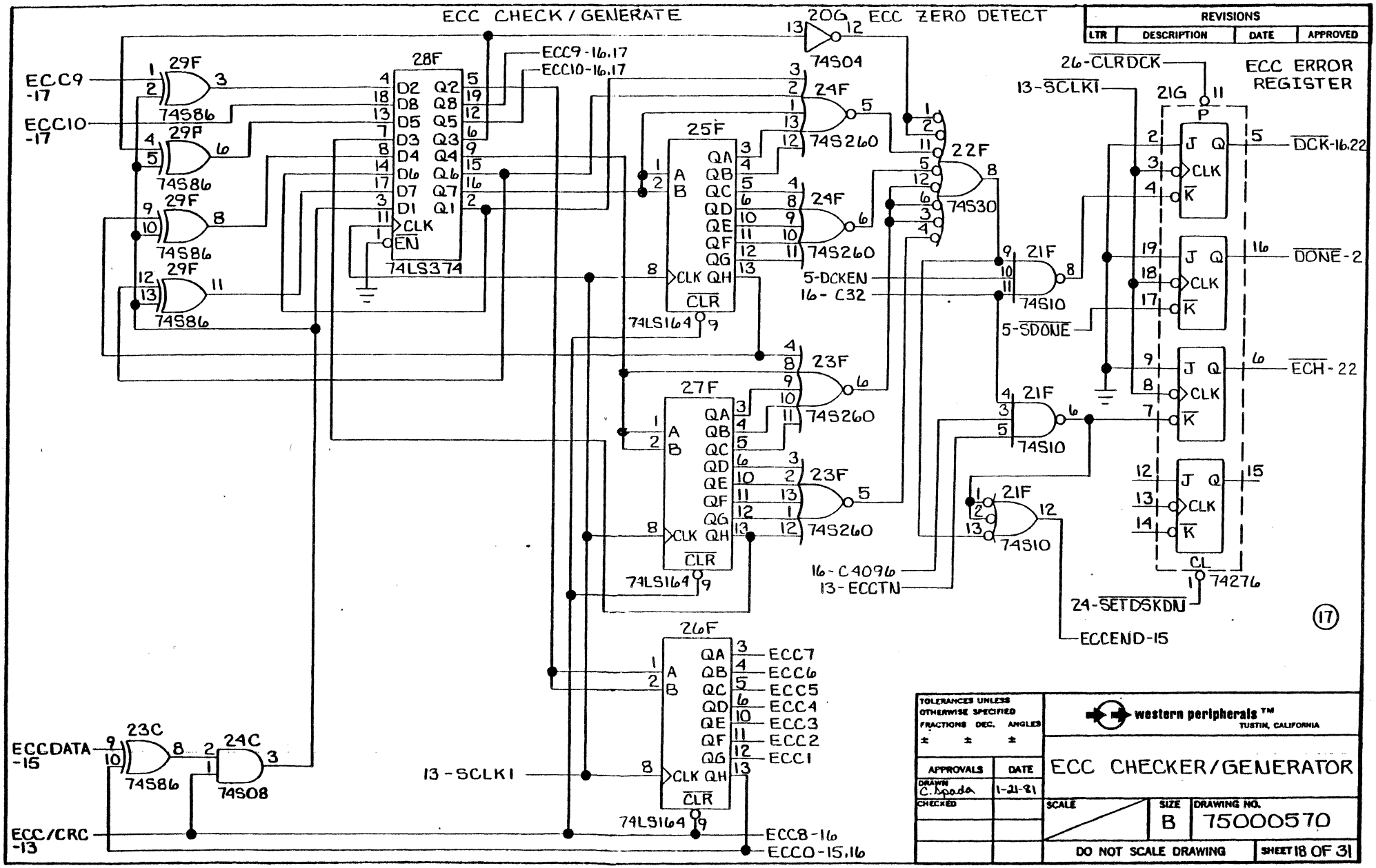

FIFO
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
23D
23E
24D
24E
9403
74S08
74S04
74S00
24 -FIFODEST
13-CPSIEN
13-CPSOEN
4-SELCLK
6-IES
6-OES
15-DISKDATA
26-FIFOEN
19-CLKT
26-CLRFIFO
DBUS00 -2,9,10,12,21,22
DBUS01 -2,9,10,12,13,21,22
DBUS02 -2,9,12,13,21,22
DBUS03 -2,9,12,13,21,22
DBUS04 -2,9,12,21,22
DBUS05 -2,9,12,21,22
DBUS06 -1,9,12,21,22
DBUS07 -1,8,12,22
IRFO-6
OREO-6
DBUS08 -1,8,12,22
DBUS09 -1,8,12,22
DBUS10 -8,12,22
DBUS11 -8,12,22
FIFODOUT-13
DBUS12 -8,12,21,22
DBUS13 -8,12,22
DBUS14 -8,12,21,22
DBUS15 -12,22
IRFI-2,6
OREI-2,6
14
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN C. Spada 1-21-81
CHECKED
western peripherals TM
TUSTIN, CALIFORNIA
FIFO
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 15 OF 31


DISK DATA SHIFT REGISTER
22B
74LS299
5,16 - RDATA
15-WDOUT
13-CYALID
13 - SCLK2
13 - RDGATE
26B
74S04
+5V
R15
1K
+5R2 - 1,2,13
21B
AM25LS2521
SYNC BYTE
COMPARATOR
SYNCCOMP - 15
DISKDATA
DISK DATA
SELECTOR
21C
74S253
COMPD-5
23C
74S86
13-FDATA
13-CRCDATA
17-ECCO
13-MUXA
13-MUXB
ECCDATA
-13,17
WDOUT
-13,15
25G
74S251
16-C8
16-C16
16-C32
16-C64
16-C128
16-C256
16-C4096
13-CARRY
20G
74S04
24C
74S08
5-FER
5-HCE
5-CRC
5-BSE
DISK SEQUENCER
TEST MUX
R56
1K
26G
74S251
13-BIOSMK
15-SYNCCOMP
16-DCK
1-ECI
17 - ECCEND
16-C4
13-SEQMUXC
13-SEQMUXB
13-SEQMUXA
13-SEQMUXSEL
DSEQTST-13
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS
DATE
DRAWN
C. Ayala
1-21-81
CHECKED
western peripherals ™
TUSTIN, CALIFORNIA
DISK SEQUENCER TEST MUX
&
SYNC COMPARATOR
SCALE
SIZE
B
DRAWING NO.
75000570
DO NOT SCALE DRAWING
SHEET No OF 31
504113


DISK SEQUENCER COUNTER
29D
ECC POSITION REGISTER 25D
REVISIONS
LTR DESCRIPTION DATE APPROVED
13-CNTE
13-SCLK2
74LS161
C8-15
C4-15
74LS374
DBUS00-2,9,10,12,21,22
DBUS01-2,9,10,12,13,21,22
DBUS02-2,9,12,13,21,22
DBUS03-2,9,12,13,21,22
DBUS04-2,9,12,21,22
DBUS05-2,9,12,21,22
DBUS06-1,2,9,12,21,22
DBUS07-1,8,12,22
28D
C16-15
C32-15
C64-15
C128-15
C256-15
26E
17-ECC8
17-ECC9
17-ECC10
DBUS08-1,8,12,22
DBUS09-1,8,12,22
DBUS10-8,12,22
DBUS11-8,12,22
DBUS12-8,12,21,22
DBUS13-8,12,22
DBUS14-8,12,21,22
DBUS15-12,22
16-ECCTCLK
26-ENPATT
ECC PATTERN REGISTER
26D
17-ECC7
17-ECC6
17-ECC5
17-ECC4
17-ECC3
17-ECC2
17-ECC1
17-ECC0
20B
4-SELCLK
13-ECCTN
74S00
25E
28E
29E
ECCTCLK-16
16-ECCTCLK
26-ENPOS
C4096-15,17
COUT-13
R33
1K
+5R1-1,2
17-DCK
20G
74S04
DCK-15
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS DATE
DRAWN C. Koda 1-21-81
CHECKED
western peripherals™
TUSTIN, CALIFORNIA
ECC POSITION REG
&
ECC PATTERN REG
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 17 OF 31


ECC CHECK / GENERATE
ECC ZERO DETECT
ECC ERROR REGISTER
REVISIONS
LTR DESCRIPTION DATE APPROVED
ECC9 -17
ECC10 -17
29F
74S86
28F
74LS374
ECC9-16,17
ECC10-16,17
20G
74S04
24F
74S260
25F
74LS164
5-DCKEN
16-C32
22F
74S30
21F
74S10
26-CLRDCK
13-SCLK1
21G
74276
DCK-16,22
DONE-2
ECH-22
5-SDONE
23F
27F
16-C4096
13-ECCTN
24-SETDSKDN
ECCEND-15
17
26F
ECC7
ECC6
ECC5
ECC4
ECC3
ECC2
ECC1
ECC8-16
ECC0-15,16
ECCDATA -15
23C
24C
74S08
ECC/CRC -13
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS DATE
DRAWN C. Rhoda 1-21-81
CHECKED
western peripherals TM
TUSTIN, CALIFORNIA
ECC CHECKER/GENERATOR
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 18 OF 31

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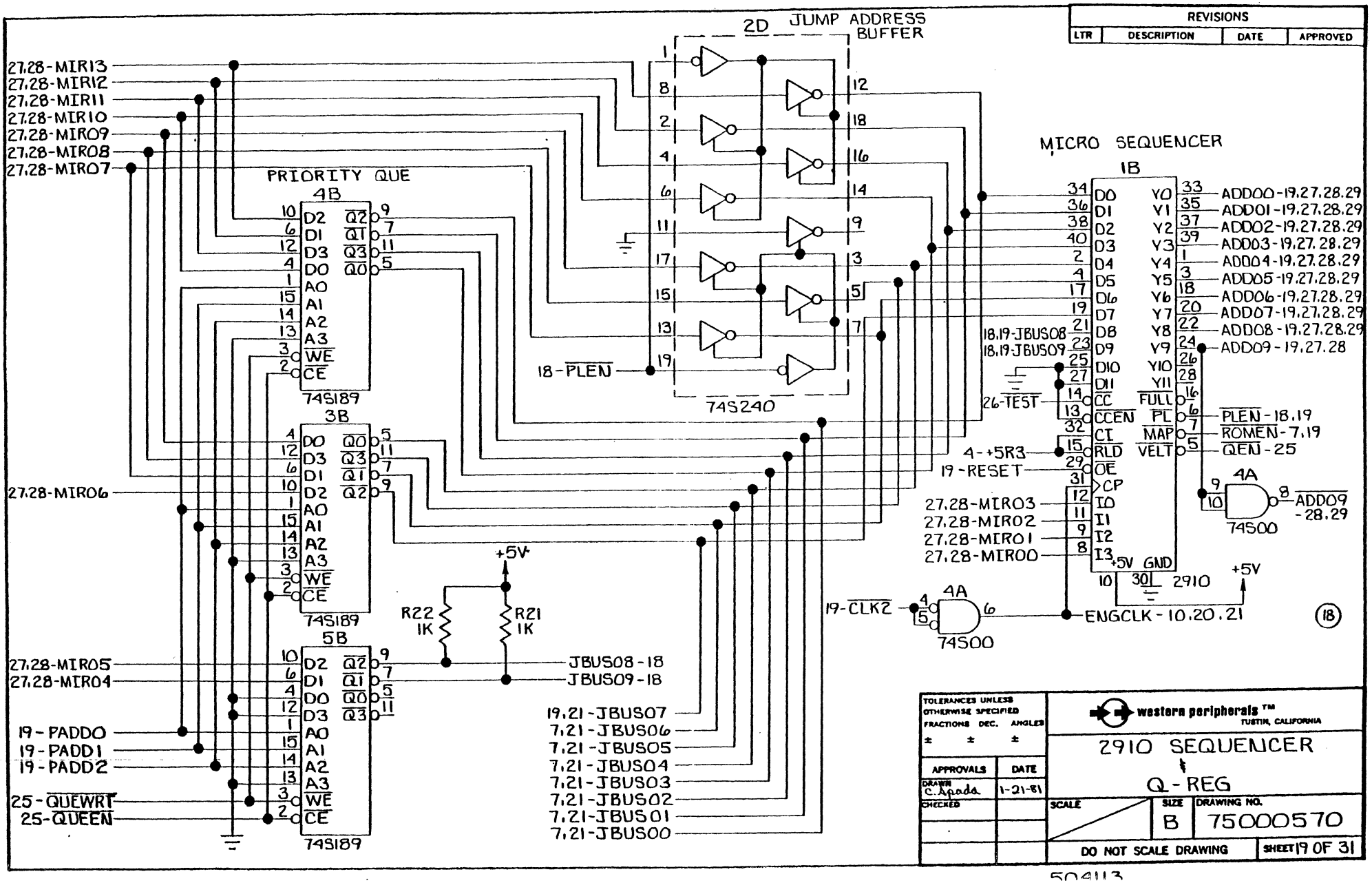
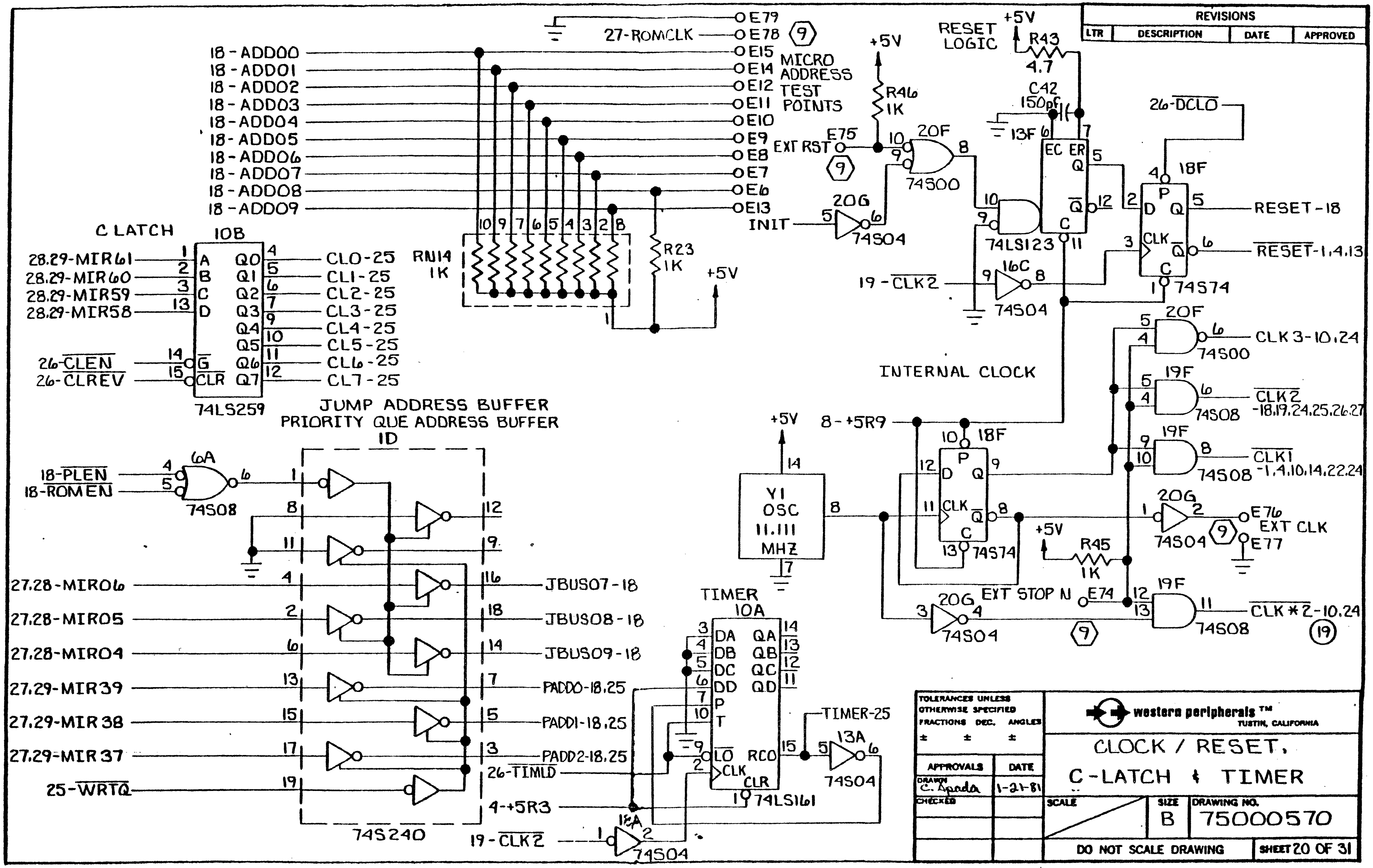
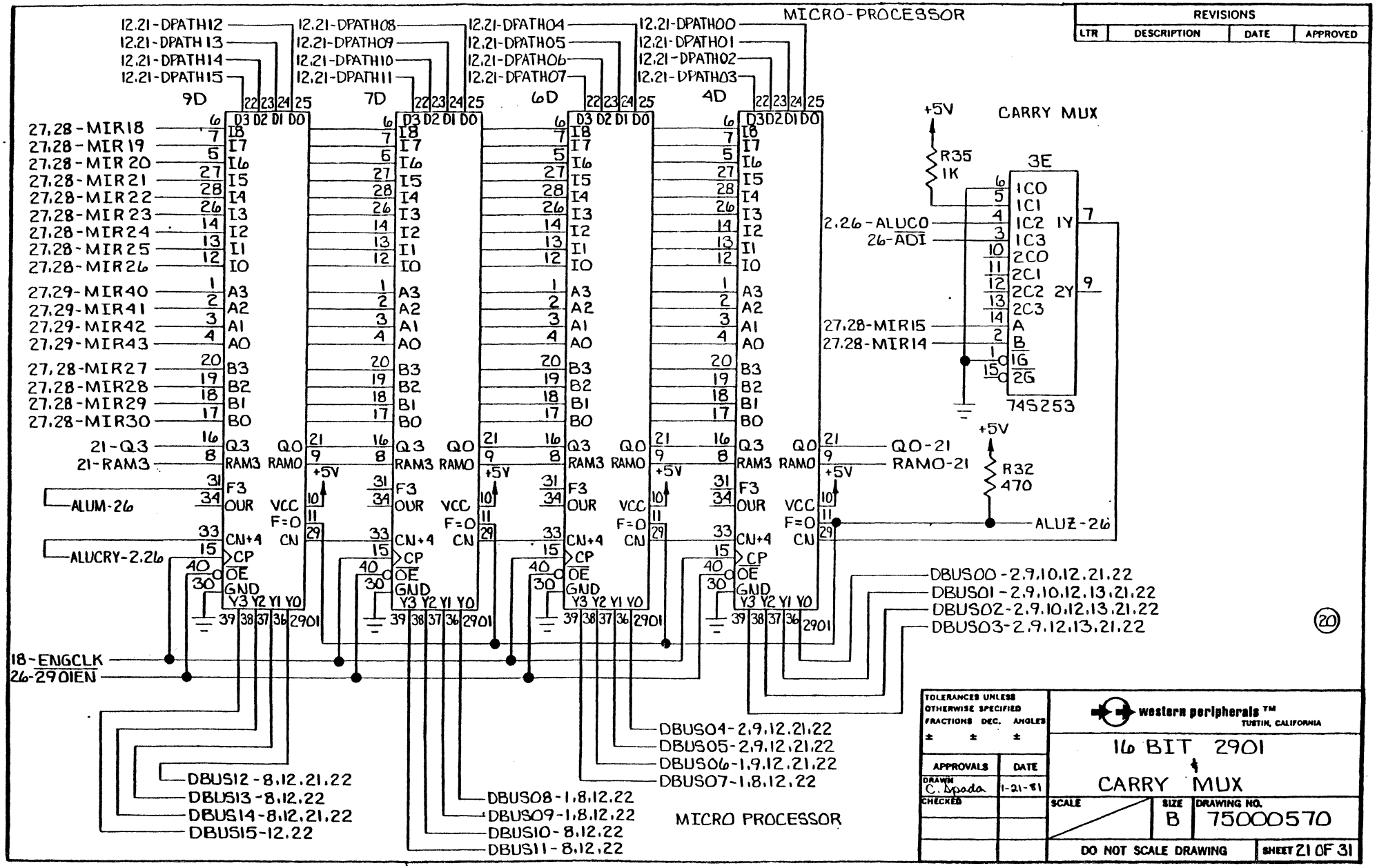
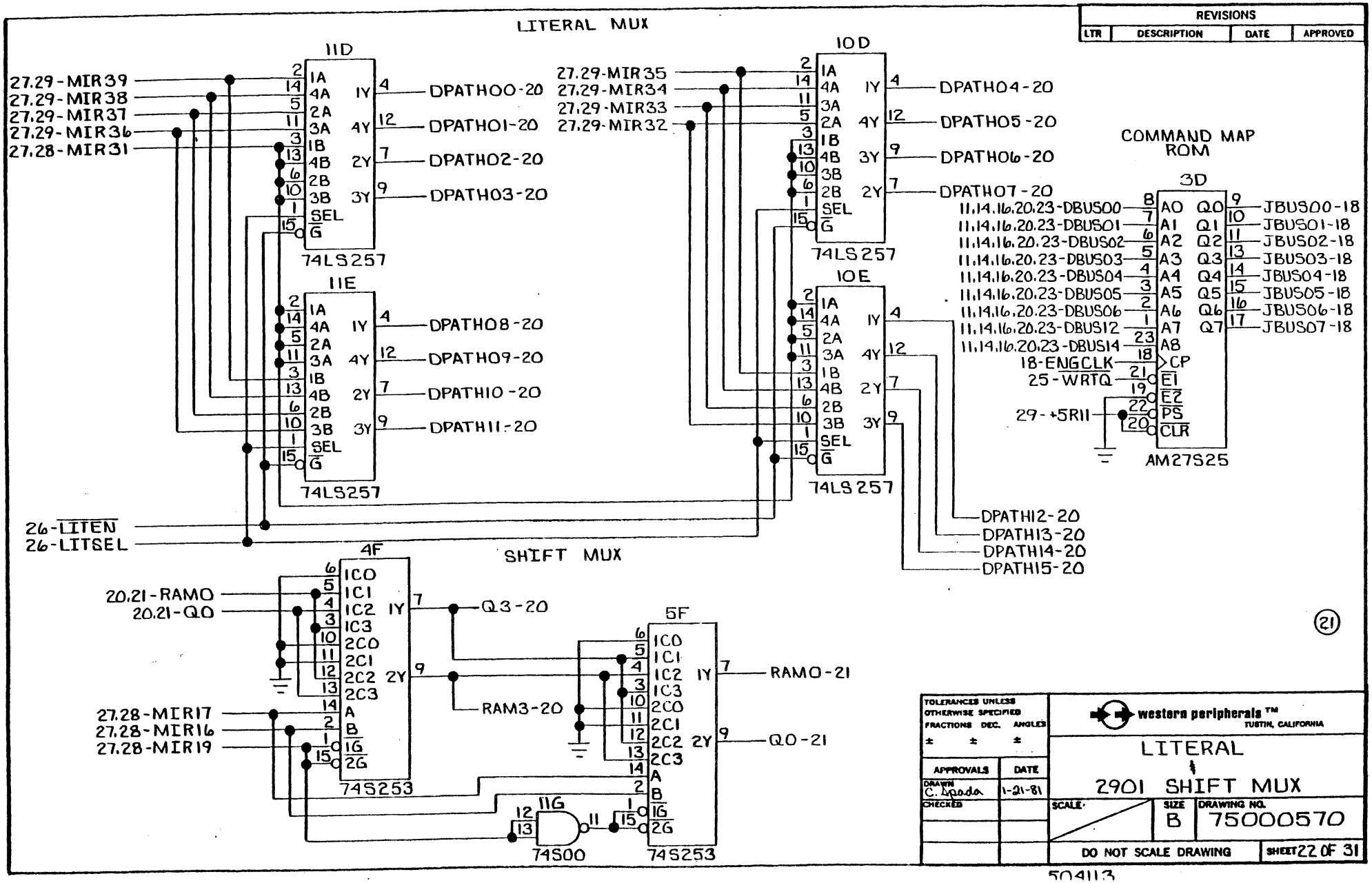

REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
2D JUMP ADDRESS BUFFER
74S240
PRIORITY QUE
4B
3B
5B
74S189
MICRO SEQUENCER
1B
2910
27,28-MIR13
27,28-MIR12
27,28-MIR11
27,28-MIR10
27,28-MIR09
27,28-MIR08
27,28-MIR07
27,28-MIR06
27,28-MIR05
27,28-MIR04
18-PLEN
18,19-JBUS08
18,19-JBUS09
26-TEST
4-+5R3
19-RESET
27,28-MIR03
27,28-MIR02
27,28-MIR01
27,28-MIR00
19-CLK2
ENGCLK-10,20,21
ADD00-19,27,28,29
ADD01-19,27,28,29
ADD02-19,27,28,29
ADD03-19,27,28,29
ADD04-19,27,28,29
ADD05-19,27,28,29
ADD06-19,27,28,29
ADD07-19,27,28,29
ADD08-19,27,28,29
ADD09-19,27,28
PLEN-18,19
ROMEN-7,19
QEN-25
ADD09-28,29
74S00
+5V
R22 1K
R21 1K
JBUS08-18
JBUS09-18
19-PADD0
19-PADD1
19-PADD2
25-QUEWRT
25-QUEEN
19,21-JBUS07
7,21-JBUS06
7,21-JBUS05
7,21-JBUS04
7,21-JBUS03
7,21-JBUS02
7,21-JBUS01
7,21-JBUS00
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN C. Agada
1-21-81
CHECKED
western peripherals ™
TUSTIN, CALIFORNIA
2910 SEQUENCER
Q-REG
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 19 OF 31
18

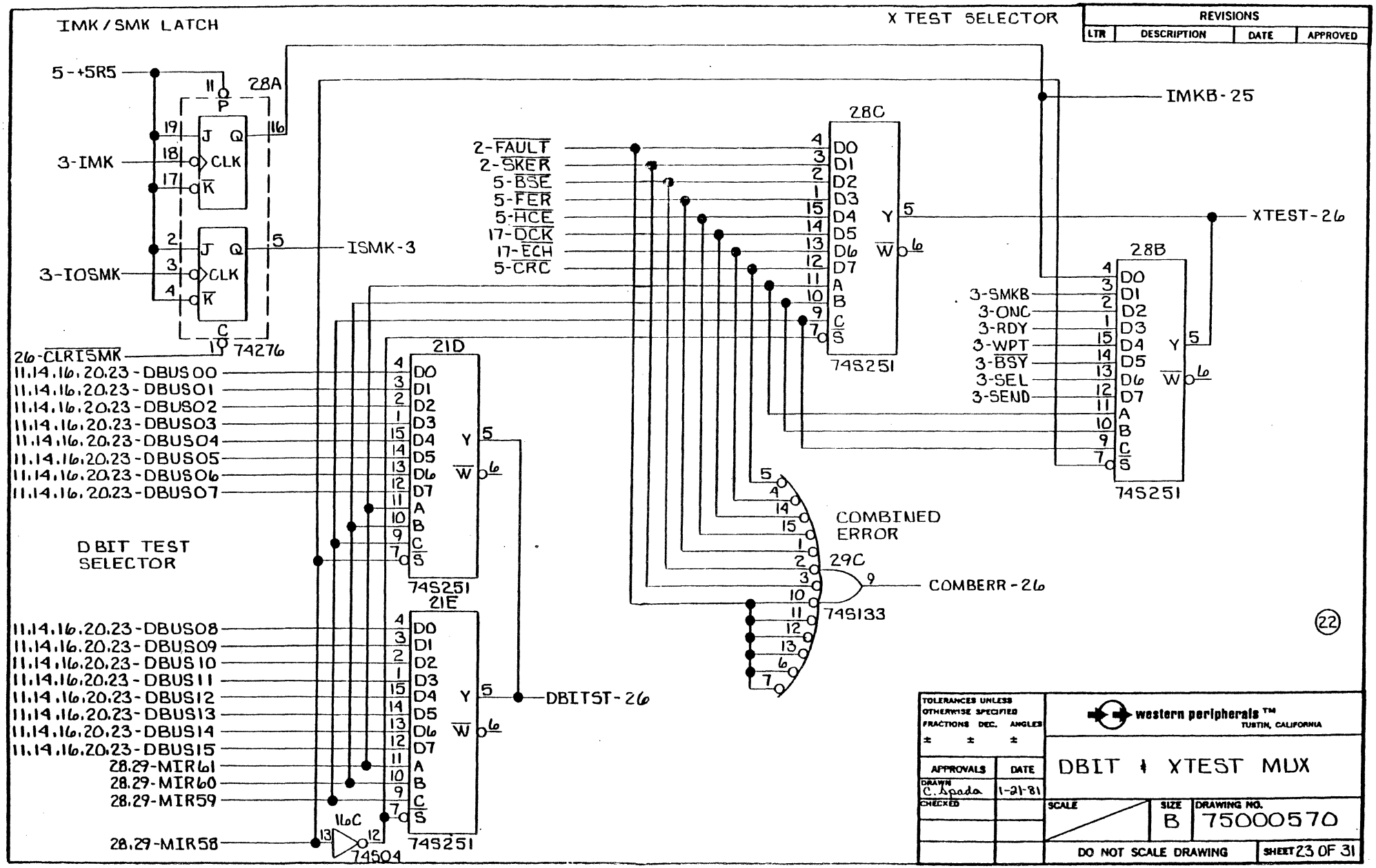

REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
27-ROMCLK
E79
E78
18-ADD00
18-ADD01
18-ADD02
18-ADD03
18-ADD04
18-ADD05
18-ADD06
18-ADD07
18-ADD08
18-ADD09
E15
E14
E12
E11
E10
E9
E8
E7
E6
E13
MICRO ADDRESS TEST POINTS
RN14 1K
R23 1K
+5V
EXT RST
E75
R46 1K
20F
74S00
INIT
20G
74S04
RESET LOGIC
R43 4.7
C42 150pf
13F
EC ER
74LS123
19-CLK2
16C
74S04
26-DCLO
18F
RESET-18
RESET-1,4,13
74S74
C LATCH
10B
28,29-MIR61
28,29-MIR60
28,29-MIR59
28,29-MIR58
26-CLEN
26-CLREV
CL0-25
CL1-25
CL2-25
CL3-25
CL4-25
CL5-25
CL6-25
CL7-25
74LS259
JUMP ADDRESS BUFFER
PRIORITY QUE ADDRESS BUFFER
1D
18-PLEN
18-ROMEN
6A
74S08
27,28-MIR06
27,28-MIR05
27,28-MIR04
27,29-MIR39
27,29-MIR38
27,29-MIR37
25-WRTQ
JBUS07-18
JBUS08-18
JBUS09-18
PADD0-18,25
PADD1-18,25
PADD2-18,25
26-TIMLD
4-+5R3
19-CLK2
18A
74S04
74S240
INTERNAL CLOCK
Y1 OSC 11.111 MHZ
8-+5R9
18F
74S74
20F
74S00
CLK3-10,24
19F
74S08
CLK2 -18,19,24,25,26,27
CLK1 -1,4,10,14,22,24
20G
74S04
E76 EXT CLK
E77
R45 1K
EXT STOP N
E74
CLK*2-10,24
TIMER
10A
74LS161
TIMER-25
13A
74S04
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS
DATE
DRAWN C. Spada
1-21-81
CHECKED
western peripherals ™ TUSTIN, CALIFORNIA
CLOCK / RESET, C-LATCH & TIMER
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 20 OF 31

504113


MICRO-PROCESSOR
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
12.21-DPATH12
12.21-DPATH13
12.21-DPATH14
12.21-DPATH15
12.21-DPATH08
12.21-DPATH09
12.21-DPATH10
12.21-DPATH11
12.21-DPATH04
12.21-DPATH05
12.21-DPATH06
12.21-DPATH07
12.21-DPATH00
12.21-DPATH01
12.21-DPATH02
12.21-DPATH03
9D
7D
6D
4D
27,28-MIR18
27,28-MIR19
27,28-MIR20
27,28-MIR21
27,28-MIR22
27,28-MIR23
27,28-MIR24
27,28-MIR25
27,28-MIR26
27,29-MIR40
27,29-MIR41
27,29-MIR42
27,29-MIR43
27,28-MIR27
27,28-MIR28
27,28-MIR29
27,28-MIR30
21-Q3
21-RAM3
ALUM-26
ALUCRY-2,26
18-ENGCLK
26-2901EN
2901
CARRY MUX
+5V
R35
1K
3E
2,26-ALUC0
26-ADI
27,28-MIR15
27,28-MIR14
74S253
R32
470
Q0-21
RAM0-21
ALUZ-26
DBUS00-2,9,10,12,21,22
DBUS01-2,9,10,12,13,21,22
DBUS02-2,9,10,12,13,21,22
DBUS03-2,9,12,13,21,22
DBUS04-2,9,12,21,22
DBUS05-2,9,12,21,22
DBUS06-1,9,12,21,22
DBUS07-1,8,12,22
DBUS08-1,8,12,22
DBUS09-1,8,12,22
DBUS10-8,12,22
DBUS11-8,12,22
DBUS12-8,12,21,22
DBUS13-8,12,22
DBUS14-8,12,21,22
DBUS15-12,22
MICRO PROCESSOR
20
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
western peripherals ™
TUSTIN, CALIFORNIA
16 BIT 2901
CARRY MUX
APPROVALS
DATE
DRAWN C. Ayala 1-21-81
CHECKED
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 21 OF 31

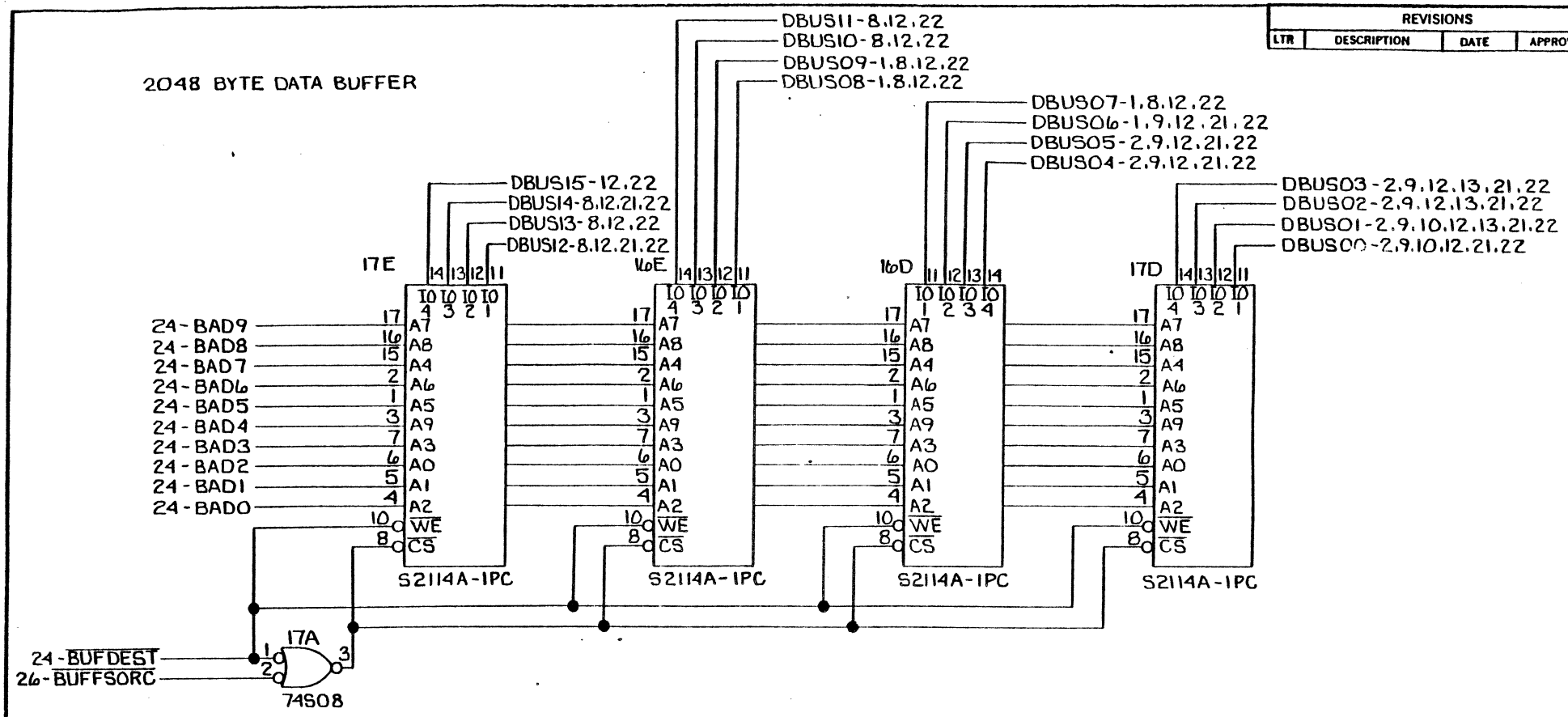
504113


LITERAL MUX
REVISIONS
LTR DESCRIPTION DATE APPROVED
11D
27.29-MIR39
27.29-MIR38
27.29-MIR37
27.29-MIR36
27.28-MIR31
DPATH00-20
DPATH01-20
DPATH02-20
DPATH03-20
74LS257
11E
DPATH08-20
DPATH09-20
DPATH10-20
DPATH11-20
74LS257
10D
27.29-MIR35
27.29-MIR34
27.29-MIR33
27.29-MIR32
DPATH04-20
DPATH05-20
DPATH06-20
DPATH07-20
74LS257
10E
DPATH12-20
DPATH13-20
DPATH14-20
DPATH15-20
74LS257
COMMAND MAP ROM
3D
11,14,16,20,23-DBUS00
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS02
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS04
11,14,16,20,23-DBUS05
11,14,16,20,23-DBUS06
11,14,16,20,23-DBUS12
11,14,16,20,23-DBUS14
18-ENGCLK
25-WRTQ
29-+5R11
JBUS00-18
JBUS01-18
JBUS02-18
JBUS03-18
JBUS04-18
JBUS05-18
JBUS06-18
JBUS07-18
AM27S25
26-LITEN
26-LITSEL
SHIFT MUX
4F
20,21-RAM0
20,21-Q0
Q3-20
RAM3-20
27.28-MIR17
27.28-MIR16
27.28-MIR19
74S253
5F
RAM0-21
Q0-21
74S00
74S253
21
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS DATE
DRAWN C. Lpada 1-21-81
CHECKED
western peripherals™ TUSTIN, CALIFORNIA
LITERAL
2901 SHIFT MUX
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 22 OF 31
504113


IMK / SMK LATCH
X TEST SELECTOR
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
5-+5R5
28A
74276
3-IMK
3-IOSMK
ISMK-3
26-CLRISMK
11,14,16,20,23-DBUS00
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS02
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS04
11,14,16,20,23-DBUS05
11,14,16,20,23-DBUS06
11,14,16,20,23-DBUS07
DBIT TEST SELECTOR
21D
74S251
11,14,16,20,23-DBUS08
11,14,16,20,23-DBUS09
11,14,16,20,23-DBUS10
11,14,16,20,23-DBUS11
11,14,16,20,23-DBUS12
11,14,16,20,23-DBUS13
11,14,16,20,23-DBUS14
11,14,16,20,23-DBUS15
28,29-MIR61
28,29-MIR60
28,29-MIR59
28,29-MIR58
21E
74S251
16C
74S04
DBITST-26
2-FAULT
2-SKER
5-BSE
5-FER
5-HCE
17-DCK
17-ECH
5-CRC
28C
74S251
IMKB-25
XTEST-26
28B
74S251
3-SMKB
3-ONC
3-RDY
3-WPT
3-BSY
3-SEL
3-SEND
COMBINED ERROR
29C
74S133
COMBERR-26
22
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN C. Spada 1-21-81
CHECKED
western peripherals TM
TUSTIN, CALIFORNIA
DBIT + XTEST MUX
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 23 OF 31

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

2048 BYTE DATA BUFFER



(23)

TOLERANCES UNLESS OTHERWISE SPECIFIED		
FRACTIONS	DEC.	ANGLES
±	±	±

APPROVALS	DATE
DRAWN C. Spada	1-21-81
CHECKED	

western peripherals ™ TUSTIN, CALIFORNIA

2048 BYTE BUFFER

SCALE	SIZE	DRAWING NO.
	B	75000570

DO NOT SCALE DRAWING — SHEET 24 OF 31

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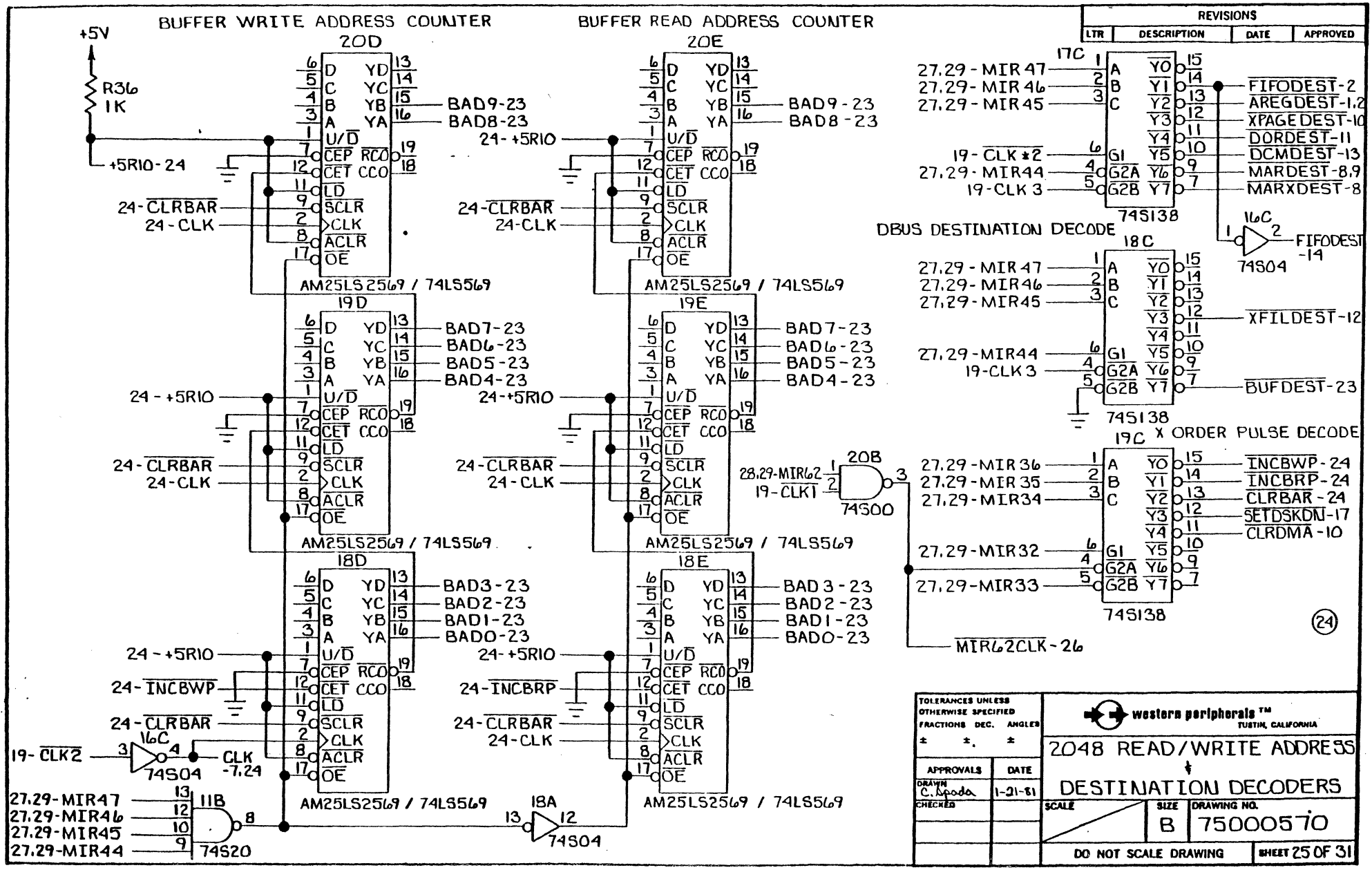
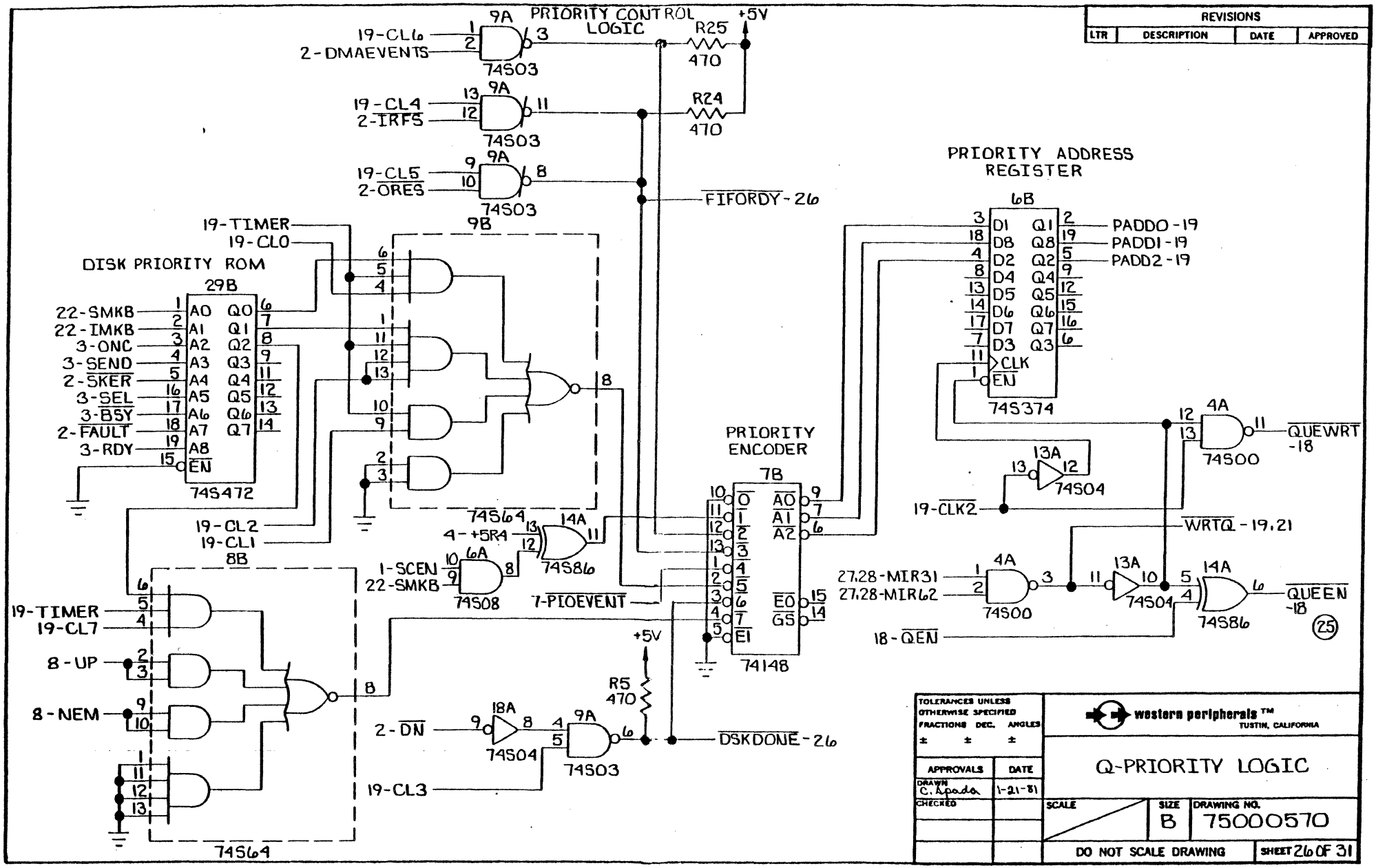
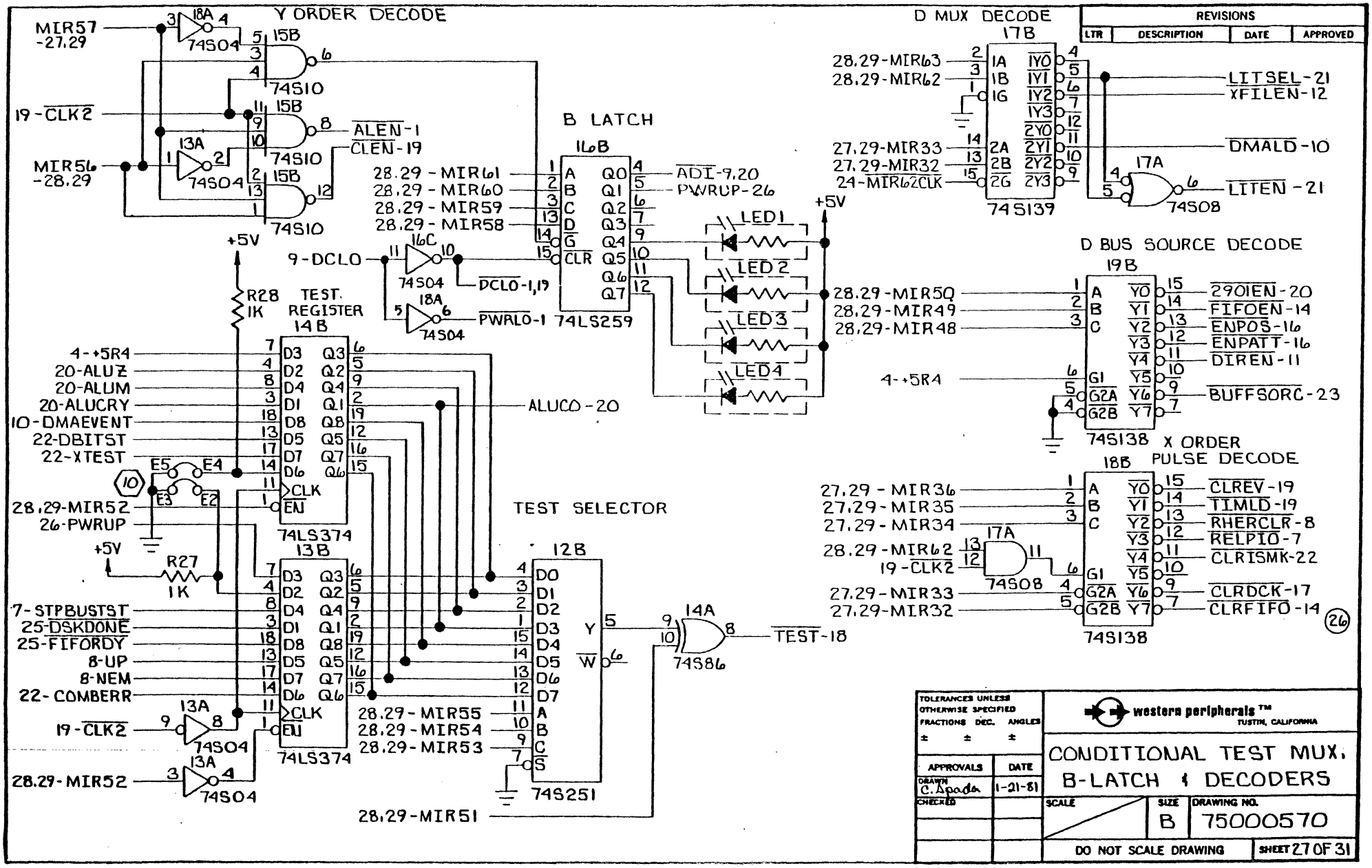
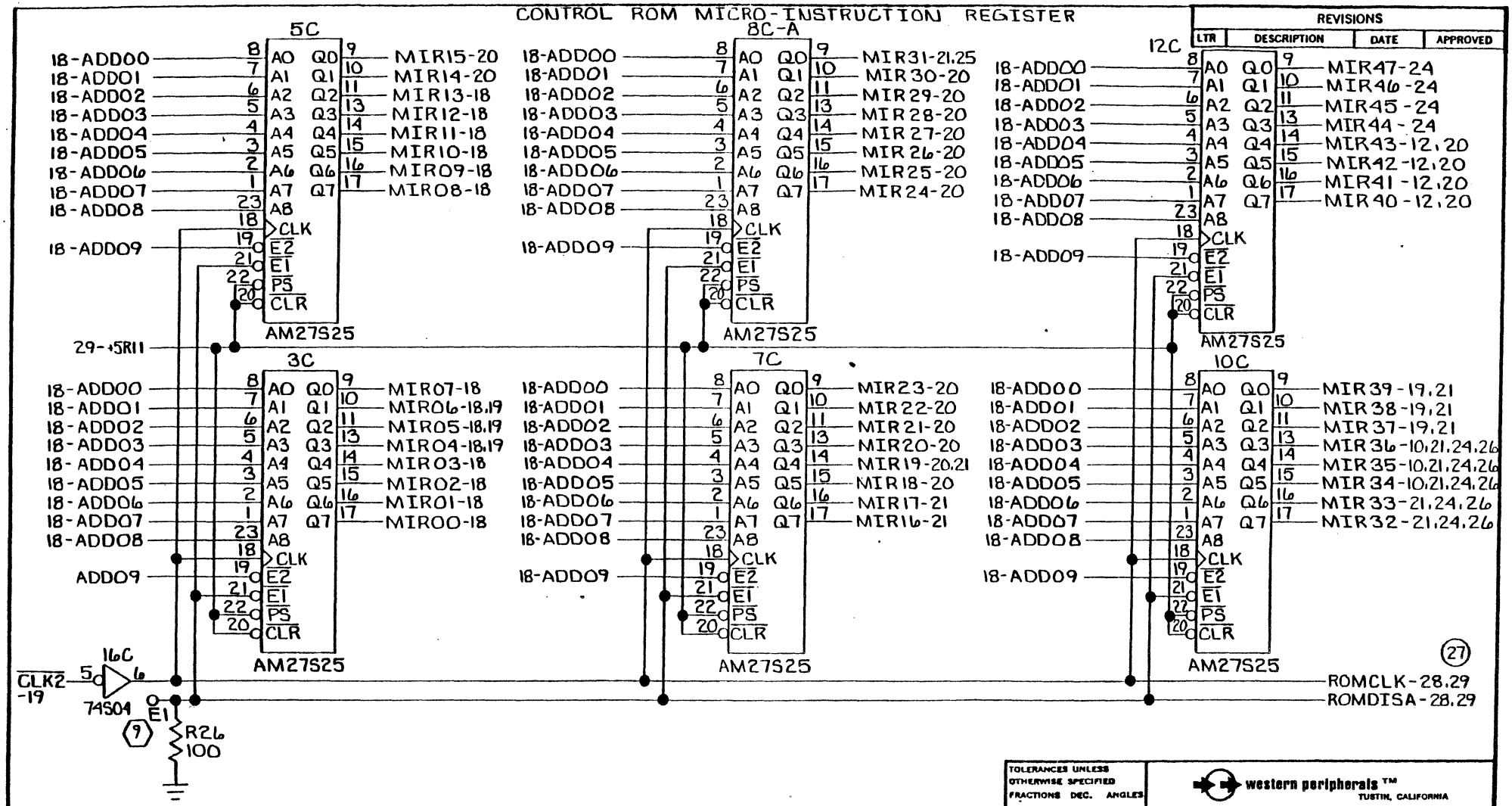

BUFFER WRITE ADDRESS COUNTER
BUFFER READ ADDRESS COUNTER
REVISIONS
LTR DESCRIPTION DATE APPROVED
+5V
R36 1K
+5R10-24
20D
20E
AM25LS2569 / 74LS569
BAD9-23
BAD8-23
BAD7-23
BAD6-23
BAD5-23
BAD4-23
BAD3-23
BAD2-23
BAD1-23
BAD0-23
24-+5R10
24-CLRBAR
24-CLK
19D
19E
18D
18E
24-INCBWP
24-INCBRP
19-CLK2
16C
74S04
CLK -7,24
11B
74S20
27,29-MIR47
27,29-MIR46
27,29-MIR45
27,29-MIR44
18A
17C
74S138
DBUS DESTINATION DECODE
FIFODEST-2
AREGDEST-1,2
XPAGEDEST-10
DORDEST-11
DCMDEST-13
MARDEST-8,9
MARXDEST-8
FIFODEST -14
18C
XFILDEST-12
BUFDEST-23
19C
X ORDER PULSE DECODE
INCBWP-24
INCBRP-24
CLRBAR-24
SETDSKDN-17
CLRDMA-10
20B
74S00
28,29-MIR62
19-CLK1
MIR62CLK-26
24
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS DATE
DRAWN C. Spada 1-21-81
CHECKED
western peripherals™ TUSTIN, CALIFORNIA
2048 READ/WRITE ADDRESS
DESTINATION DECODERS
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 25 OF 31
504113


PRIORITY CONTROL LOGIC
9A
19-CL6
2-DMAEVENTS
74S03
+5V
R25
470
19-CL4
2-IRFS
R24
470
19-CL5
2-ORES
FIFORDY-26
PRIORITY ADDRESS REGISTER
6B
PADD0-19
PADD1-19
PADD2-19
74S374
DISK PRIORITY ROM
29B
22-SMKB
22-IMKB
3-ONC
3-SEND
2-SKER
3-SEL
3-BSY
2-FAULT
3-RDY
74S472
19-TIMER
19-CL0
9B
74S64
19-CL2
19-CL1
8B
4-+5R4
1-SCEN
22-SMKB
74S08
1-PIOEVENT
PRIORITY ENCODER
7B
74148
QUEWRT-18
74S00
74S04
19-CLK2
WRTQ-19,21
27,28-MIR31
27,28-MIR62
18-QEN
QUEEN-18
74S86
19-TIMER
19-CL7
8-UP
8-NEM
74S64
2-DN
74S04
19-CL3
R5
470
DSKDONE-26
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN C. Apodaca 1-21-81
CHECKED
western peripherals™
TUSTIN, CALIFORNIA
Q-PRIORITY LOGIC
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 26 OF 31
25


Y ORDER DECODE
D MUX DECODE
B LATCH
D BUS SOURCE DECODE
TEST. REGISTER
TEST SELECTOR
X ORDER PULSE DECODE
MIR57 -27,29
MIR56 -28,29
19-CLK2
28,29-MIR63
28,29-MIR62
27,29-MIR33
27,29-MIR32
24-MIR62CLK
LITSEL-21
XFILEN-12
DMALD-10
LITEN-21
ALEN-1
CLEN-19
28,29-MIR61
28,29-MIR60
28,29-MIR59
28,29-MIR58
9-DCLO
DCLO-1,19
PWRLO-1
ADI-9,20
PWRUP-26
LED1
LED2
LED3
LED4
+5V
R28 1K
R27 1K
28,29-MIR50
28,29-MIR49
28,29-MIR48
4-+5R4
290IEN-20
FIFOEN-14
ENPOS-16
ENPATT-16
DIREN-11
BUFFSORC-23
4-+5R4
20-ALUZ
20-ALUM
20-ALUCRY
10-DMAEVENT
22-DBITST
22-XTEST
ALUCO-20
28,29-MIR52
26-PWRUP
7-STPBUSTST
25-DSKDONE
25-FIFORDY
8-UP
8-NEM
22-COMBERR
28,29-MIR55
28,29-MIR54
28,29-MIR53
28,29-MIR51
TEST-18
27,29-MIR36
27,29-MIR35
27,29-MIR34
28,29-MIR62
19-CLK2
27,29-MIR33
27,29-MIR32
CLREV-19
TIMLD-19
RHERCLR-8
RELPIO-7
CLRISMK-22
CLRDCK-17
CLRFIFO-14
74S04
74S10
74S08
74S139
74LS259
74LS374
74S251
74S86
74S138
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN C. Ayala 1-21-81
CHECKED
western peripherals™
TUSTIN, CALIFORNIA
CONDITIONAL TEST MUX, B-LATCH & DECODERS
SCALE
SIZE B
DRAWING NO. 75000570
DO NOT SCALE DRAWING
SHEET 27 OF 31
504113

CONTROL ROM MICRO-INSTRUCTION REGISTER



REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

TOLERANCES UNLESS OTHERWISE SPECIFIED	western peripherals ™ TUSTIN, CALIFORNIA
FRACTIONS DEC. ANGLES ± ± ±	MICRO INSTRUCTION PROM'S
APPROVALS / DATE	
DRAWN C. Spada 1-21-81	
CHECKED	SCALE / SIZE B / DRAWING NO. 75000570
DO NOT SCALE DRAWING	SHEET 28 OF 31

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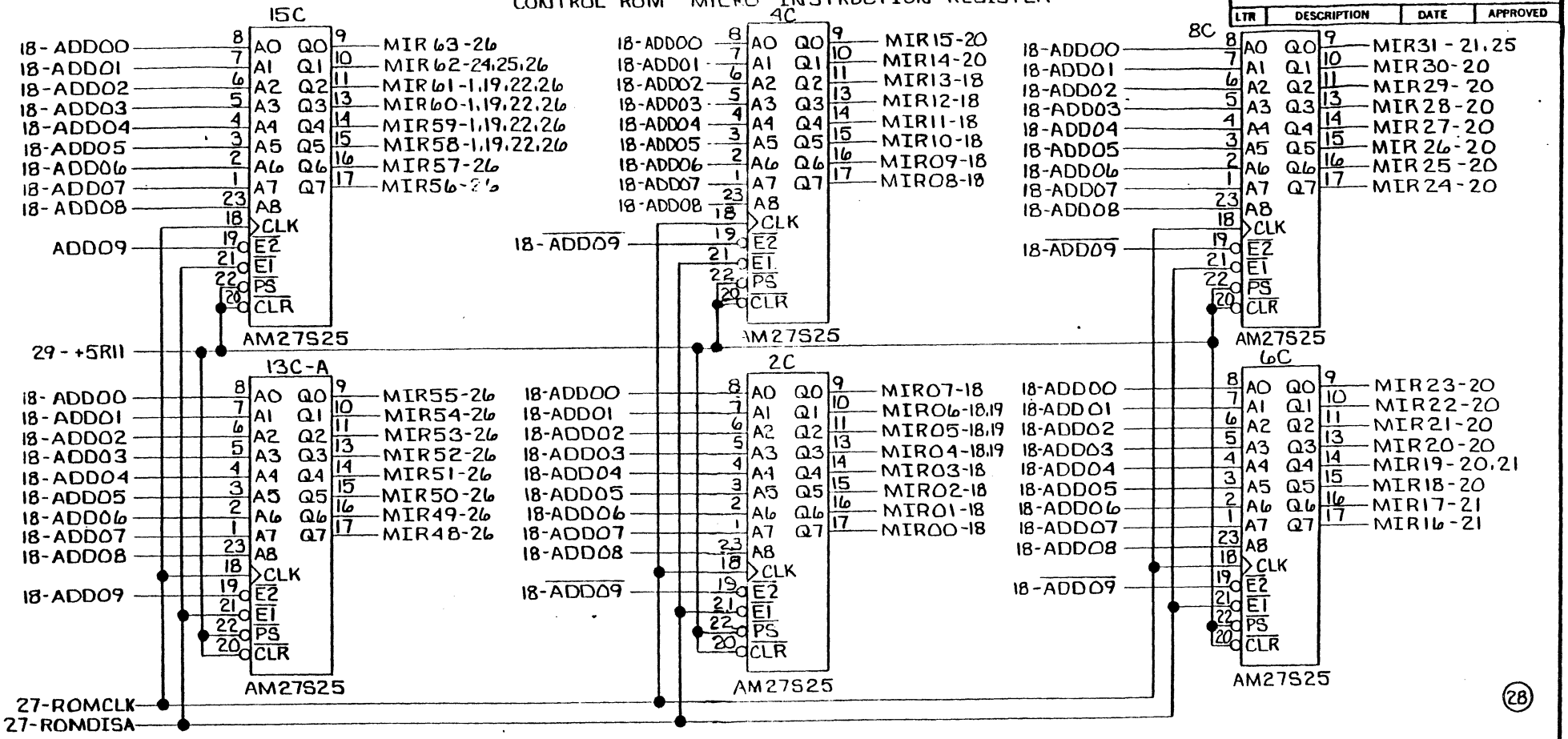
CONTROL ROM MICRO-INSTRUCTION REGISTER

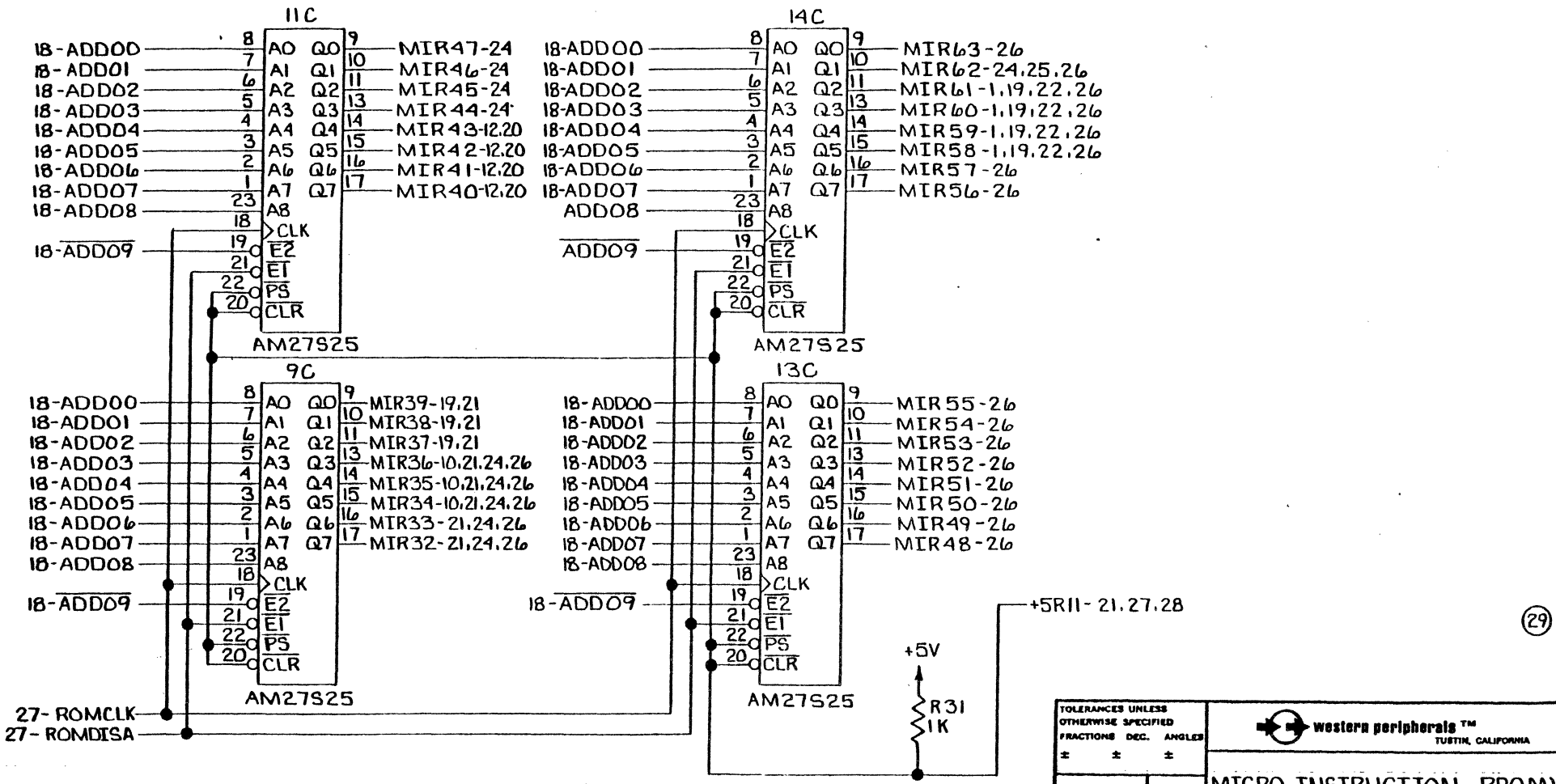


REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS DEC. ANGLES ± ± ±	western peripherals™ TUSTIN, CALIFORNIA
APPROVALS / DATE	MICRO INSTRUCTION PROM'S
DRAWN C. Espada 1-21-81	
CHECKED	SCALE / SIZE B / DRAWING NO. 75000570
DO NOT SCALE DRAWING	SHEET 29 OF 31

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

CONTROL ROM MICRO-INSTRUCTION REGISTER



(29)

TOLERANCES UNLESS OTHERWISE SPECIFIED		
FRACTIONS	DEC.	ANGLES
±	±	±

western peripherals ™ TUSTIN, CALIFORNIA

APPROVALS	DATE
DRAWN C. Acosta	1-21-81
CHECKED	

MICRO INSTRUCTION PROM'S

SCALE	SIZE	DRAWING NO.
	B	75000570

DO NOT SCALE DRAWING — SHEET 30 OF 31

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REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

(5) DEVICE ADDRESS
STD ADDR 776700$_8$

ADDR BIT	ADDR RANGE	E JUMPERS	STD ADDR	INSTALLED JUMPERS	
17	1		1		
16	1		1		
15	1		1		
14	1		1		
13	1		1		
12	0/1	43-44	1		
11	0/1	49-50	1		
10	0/1	51-52	1		
9	0/1	47-48	0	X	*
8	0/1	45-46	1		
7	0/1	53-54	1		
6	0/1	55-56	1		
5	0/1	19-20	0	X	*
4	0/1		X		
3	X		X		
2	X		X		
1	X		X		
0	X		X		

INSTALL JUMPERS FOR "0'S" IN DESIRED ADDR
* STANDARD CONFIGURATION IN ETCH.

(6) WORDS TRANSFERED PER NPR

MODE	JUMPERS	SECTORS TRANSFRD WITHOUT ROTATIONAL DELAY (NOM.) WRITE	READ
1 WORD	E81 - E82 (10)	14	14
2 WORDS	E41 - E42 (9)	38	38
4 WORDS *	E37 - E38 (9)	160	160
8 WORDS	E40 - E39 (9)	160	160
HOG (256)	NONE	160	160

REMOVE ALL OTHER JUMPERS EXCEPT THE ONE INDICATED
* STANDARD

(7) INTERRUPT PRIORITY LEVEL

BR4	BR5 *	BR6	BR7
E59 - E60	E59 - E61	E59 - E62	E59 - E63
E64 - E69	E68 - E69	E71 - E69	E73 - E69
E65 - E67	E66 - E67	E70 - E67	E72 - E67
E66 - E68	E64 - E65	E64 - E65	E64 - E65
E70 - E71	E70 - E71	E66 - E68	E66 - E68
E72 - E73	E72 - E73	E72 - E73	E70 - E71

* STANDARD CONFIGURATION IN ETCH

(8) INTERRUPT VECTOR
STD VECTOR 254$_8$

VCTR BIT	E JUMPERS	STD VCTR	INSTALLED JUMPERS	
7	27 - 28	1		
6	29 - 30	0	X	*
5	25 - 26	1		
4	23 - 24	0	X	*
3	21 - 22	1		
2	31 - 32	1		
1		0		
0		0		

INSTALL JUMPERS FOR "0'S" IN DESIRED VECTOR
* STANDARD CONFIGURATION IN ETCH

(10) DRIVE CAPACITY RM02

DRIVE SIZE	E JUMPERS	CUT ETCH BETWEEN
675 MB	E4 - E5	E2 - E3
80 MB *	E2 - E3 E4 - E5	
160 MB	E2 - E3	E4 - E5
300 MB	NONE	E2-E3 E4-E5

* STANDARD CONFIGURATION IN ETCH

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS DEC. ANGLES ± ± ±	western peripherals ™ TUSTIN, CALIFORNIA		
APPROVALS	DATE	SCHEMATIC DC231 SMD CONTROLLER	
DRAWN K Thiel	3-23-81		
CHECKED		SCALE	SIZE B — DRAWING NO. 75000570
		DO NOT SCALE DRAWING	SHEET 31 OF 31

504113

H			
TAG 1	1	31	TAG 1
TAG 2	2	32	TAG 2
TAG 3	3	33	TAG 3
DBIT 0	4	34	DBIT 0
DBIT 1	5	35	DBIT 1
DBIT 2	6	36	DBIT 2
DBIT 3	7	37	DBIT 3
DBIT 4	8	38	DBIT 4
DBIT 5	9	39	DBIT 5
DBIT 6	10	40	DBIT 6
DBIT 7	11	41	DBIT 7
DBIT 8	12	42	DBIT 8
DBIT 9	13	43	DBIT 9
OPEN CABLE DET.	14	44	OPEN CABLE DET.
FAULT	15	45	FAULT
SEEK ERROR	16	46	SEEK ERROR
ON CYLINDER	17	47	ON CYLINDER
INDEX MARK	18	48	INDEX MARK
UNIT READY	19	49	UNIT READY
	20	50	
BUSY	21	51	BUSY
UNIT SELECT TAG	22	52	UNIT SELECT TAG
UNIT SELECT 2^0	23	53	UNIT SELECT 2^0
UNIT SELECT 2^1	24	54	UNIT SELECT 2^1
SECTOR MARK	25	55	SECTOR MARK
UNIT SELECT 2^2	26	56	UNIT SELECT 2^2
UNIT SELECT 2^3	27	57	UNIT SELECT 2^3
WRITE PROTECT	28	58	WRITE PROTECT
POWER PICK	29	59	POWER HOLD
	30	60	

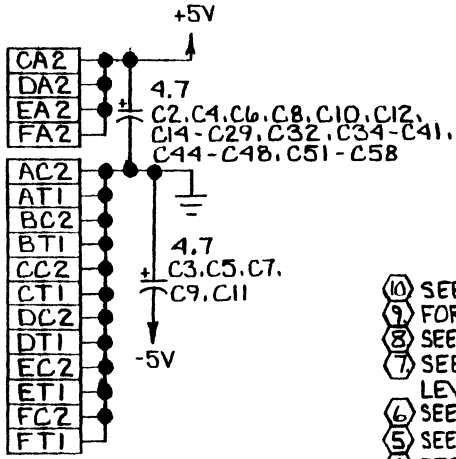
J			
GND	1	14	SERVO CLK 0
SERVO CLK 0	2	15	GND
READ DATA 0	3	16	READ DATA 0
GND	4	17	READ CLK 0
READ CLK 0	5	18	GND
WRT CLK 0	6	19	WRT CLK 0
GND	7	20	WRT DATA 0
WRT DATA 0	8	21	GND
UNIT SELD 0	9	22	UNIT SELD 0
SEEK END 0	10	23	SEEK END 0
GND	11	24	
	12	25	GND
	13	26	

K			
GND	1	14	SERVO CLK 1
SERVO CLK 1	2	15	GND
READ DATA 1	3	16	READ DATA 1
GND	4	17	READ CLK 1
READ CLK 1	5	18	GND
WRT CLK 1	6	19	WRT CLK 1
GND	7	20	WRT DATA 1
WRT DATA 1	8	21	GND
UNIT SELD 1	9	22	UNIT SELD 1
SEEK END 1	10	23	SEEK END 1
GND	11	24	
	12	25	GND
	13	26	

L			
GND	1	14	SERVO CLK 2
SERVO CLK 2	2	15	GND
READ DATA 2	3	16	READ DATA 2
GND	4	17	READ CLK 2
READ CLK 2	5	18	GND
WRT CLK 2	6	19	WRT CLK 2
GND	7	20	WRT DATA 2
WRT DATA 2	8	21	GND
UNIT SELD 2	9	22	UNIT SELD 2
SEEK END 2	10	23	SEEK END 2
GND	11	24	
	12	25	GND
	13	26	

M			
GND	1	14	SERVO CLK 3
SERVO CLK 3	2	15	GND
READ DATA 3	3	16	READ DATA 3
GND	4	17	READ CLK 3
READ CLK 3	5	18	GND
WRT CLK 3	6	19	WRT CLK 3
GND	7	20	WRT DATA 3
WRT DATA 3	8	21	GND
UNIT SELD 3	9	22	UNIT SELD 3
SEEK END 3	10	23	SEEK END 3
GND	11	24	
	12	25	GND
	13	26	

LAST DESIGNATION USED	
RESISTOR	R58
CAPACITOR	C58
LIGHT EMITTING DIODE	LED4
RESISTOR NETWORK	RN18
OSCILLATOR	Y1
VOLTAGE REGULATOR	Q1
DIODE	CR1

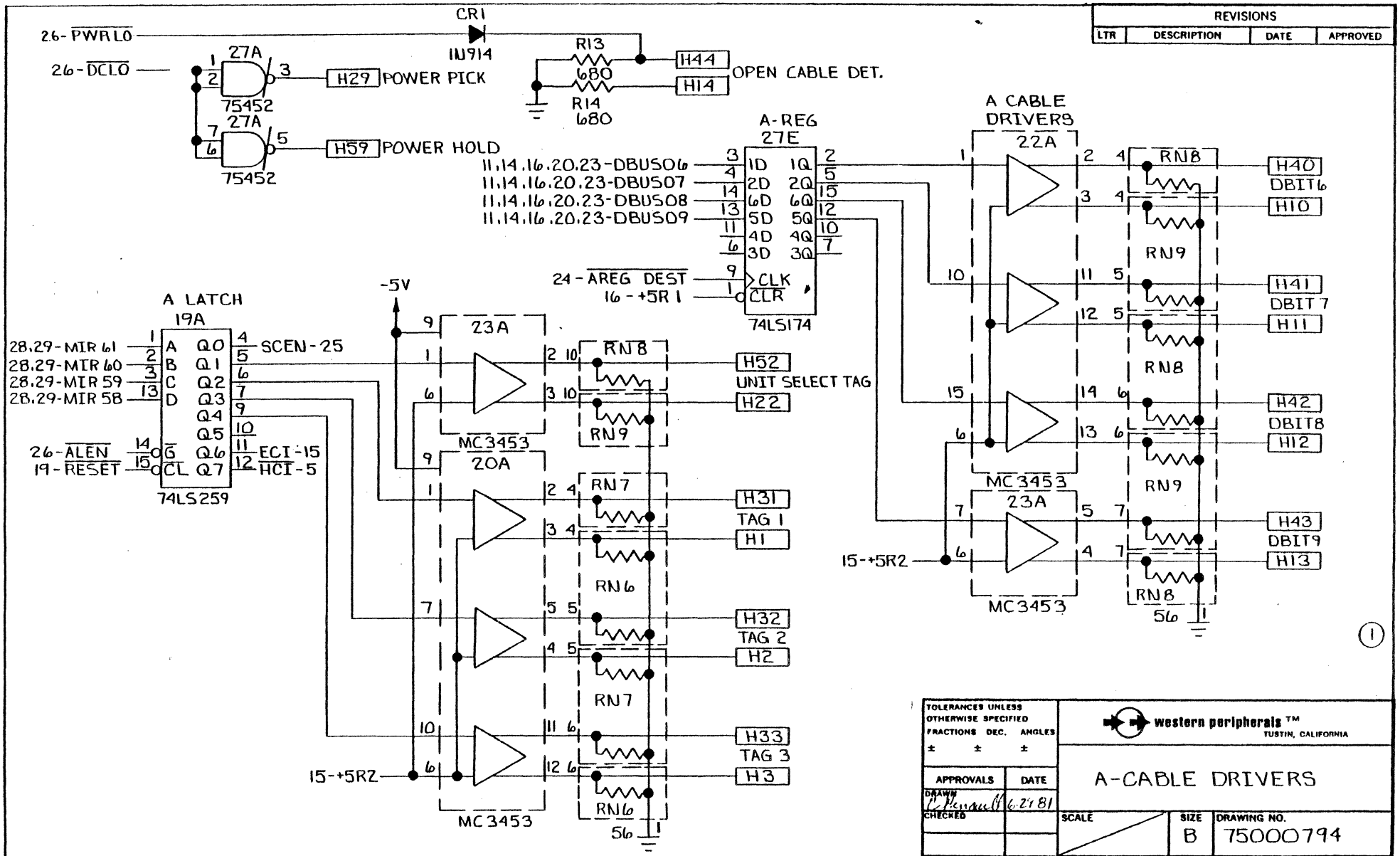


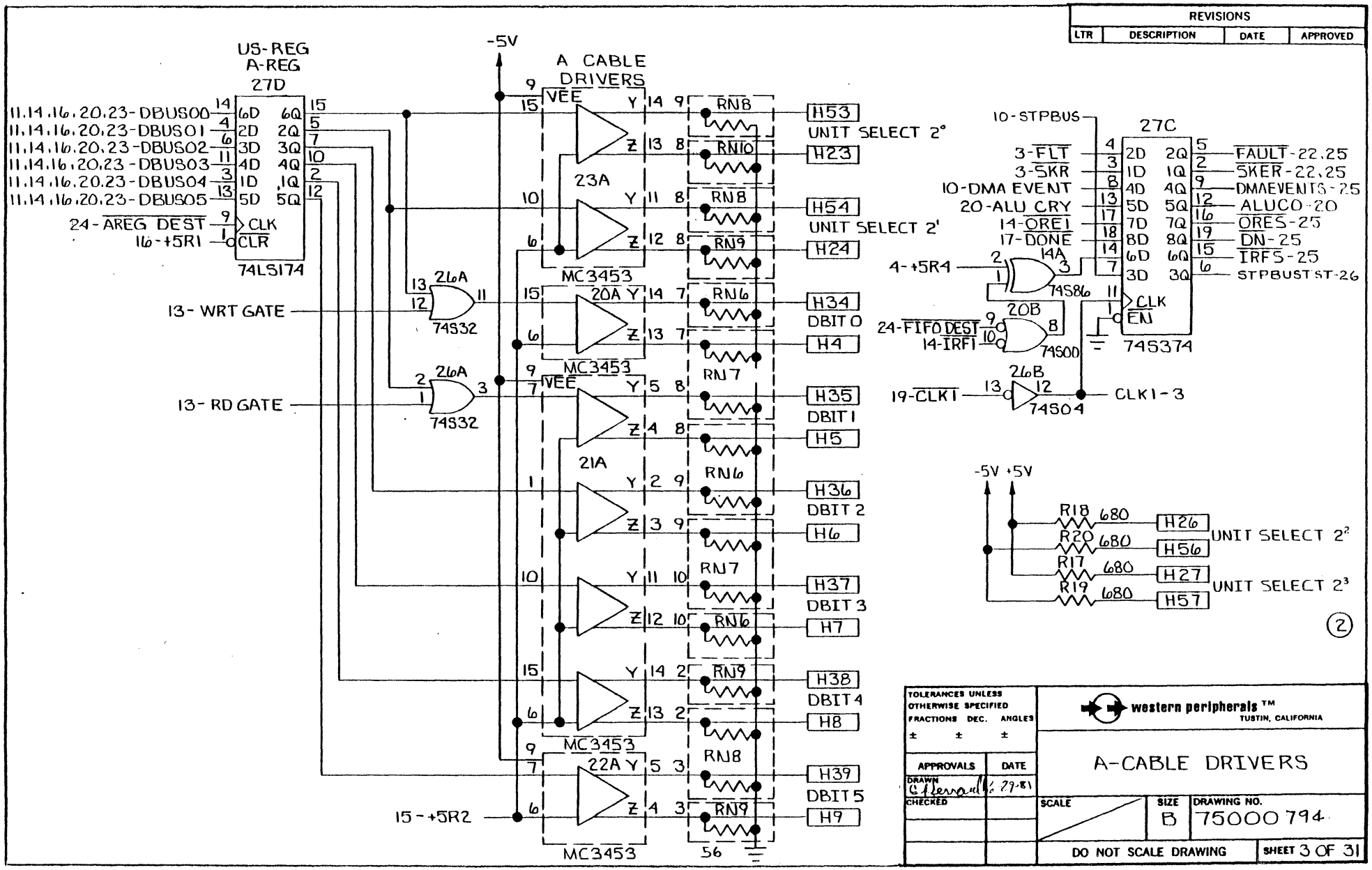
REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	PROD. REL.	7-14-81	
D	REV PER ECO 961	3-29-82	
C	ECO 1014 CANC.	3-29-82	
D	REV PER ECO 1025	3-29-82	

(10) SEE DRIVE CAPACITY TABLE.
(9) FOR TEST ONLY.
(8) SEE INTERRUPT VECTOR TABLE.
(7) SEE INTERRUPT PRIORITY LEVEL TABLE.
(6) SEE WORDS PER NPR TABLE.
(5) SEE DEVICE ADDRESS TABLE.
(4) RESERVED FOR FUTURE USE.
3. REFERENCE ASSY. 60000882
2. CAPACITOR VALUES ARE IN MICROFARADS.
1. RESISTANCE VALUES ARE IN OHMS.

NOTES: UNLESS OTHERWISE SPECIFIED

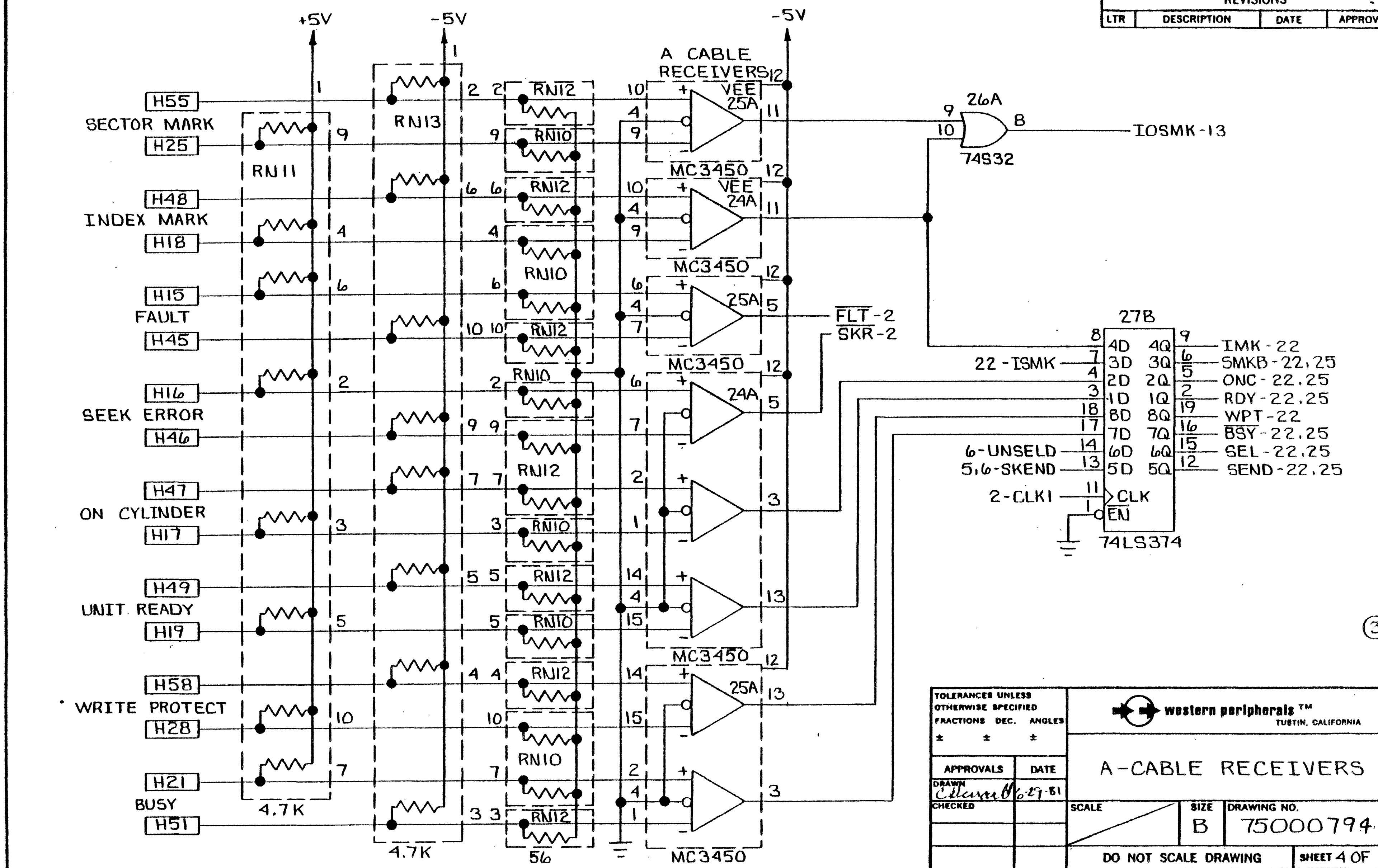
TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS ± DEC. ± ANGLES ±		western peripherals™ TUSTIN, CALIFORNIA	
APPROVALS	DATE	SCHEMATIC DC 231 SMD CONTROLLER	
DRAWN C. Parnell	6-29-81		
CHECKED	6-29-81	SCALE	SIZE B — DRAWING NO. 75000794
		DO NOT SCALE DRAWING	SHEET 1 OF 31


REVISIONS
LTR DESCRIPTION DATE APPROVED
26-PWRLO
CR1
1N914
R13
680
H44
OPEN CABLE DET.
R14
680
H14
26-DCLO
27A
75452
H29
POWER PICK
27A
75452
H59
POWER HOLD
A-REG
27E
11,14,16,20,23-DBUS06
11,14,16,20,23-DBUS07
11,14,16,20,23-DBUS08
11,14,16,20,23-DBUS09
24-AREG DEST
16-+5R1
74LS174
A CABLE DRIVERS
22A
RN8
RN9
H40
DBIT6
H10
H41
DBIT7
H11
H42
DBIT8
H12
H43
DBIT9
H13
MC3453
23A
15-+5R2
A LATCH
19A
28,29-MIR 61
28,29-MIR 60
28,29-MIR 59
28,29-MIR 58
SCEN-25
26-ALEN
19-RESET
ECI-15
HCI-5
74LS259
-5V
23A
MC3453
RN8
H52
UNIT SELECT TAG
H22
RN9
20A
RN7
H31
TAG 1
H1
RN6
H32
TAG 2
H2
RN7
H33
TAG 3
H3
RN6
56
15-+5R2
(1)
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS DATE
DRAWN 6-27-81
CHECKED
western peripherals TM
TUSTIN, CALIFORNIA
A-CABLE DRIVERS
SCALE
SIZE B
DRAWING NO. 75000794
DO NOT SCALE DRAWING
SHEET 2 OF 31
504113


REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
US-REG
A-REG
27D
74LS174
11,14,16,20,23-DBUS00
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS02
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS04
11,14,16,20,23-DBUS05
24-AREG DEST
16-+5R1
-5V
A CABLE
DRIVERS
MC3453
23A
20A
21A
22A
26A
74S32
13-WRT GATE
13-RD GATE
15-+5R2
RN8
RN10
RN9
RN6
RN7
56
H53
UNIT SELECT 2°
H23
H54
UNIT SELECT 2'
H24
H34
DBIT 0
H4
H35
DBIT 1
H5
H36
DBIT 2
H6
H37
DBIT 3
H7
H38
DBIT 4
H8
H39
DBIT 5
H9
10-STPBUS
27C
74S374
3-FLT
3-SKR
10-DMA EVENT
20-ALU CRY
14-ORE1
17-DONE
4-+5R4
14A
74S86
20B
24-FIFO DEST
14-IRF1
74S00
26B
19-CLK1
74S04
CLK1-3
FAULT-22,25
SKER-22,25
DMAEVENTS-25
ALUCO-20
ORES-25
DN-25
IRFS-25
STPBUSTST-26
-5V +5V
R18 680
R20 680
R17 680
R19 680
H26
H56
H27
H57
UNIT SELECT 2²
UNIT SELECT 2³
②
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS
DATE
DRAWN
CHECKED
western peripherals ™
TUSTIN, CALIFORNIA
A-CABLE DRIVERS
SCALE
SIZE
B
DRAWING NO.
75000794
DO NOT SCALE DRAWING
SHEET 3 OF 31

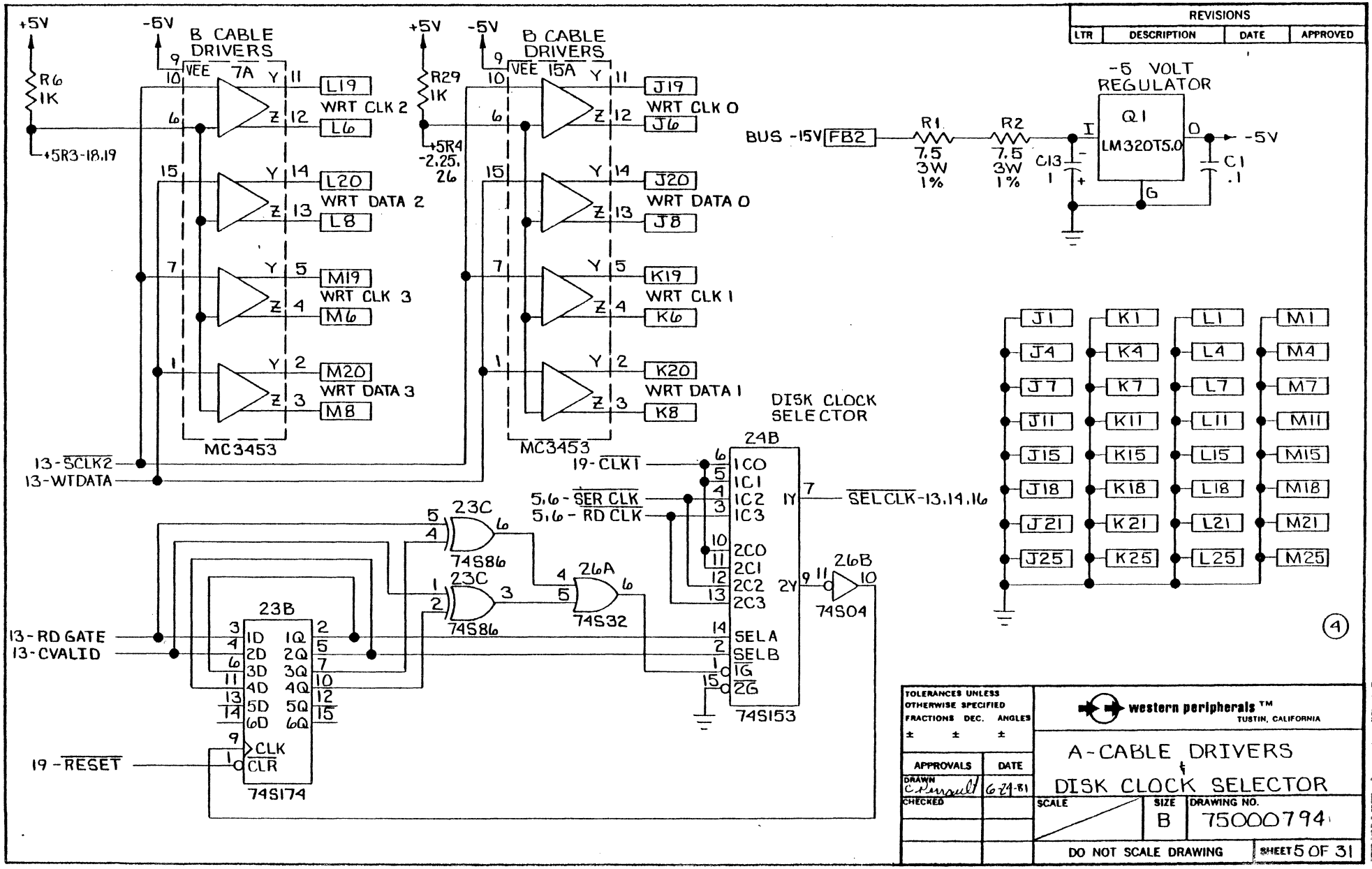
504113

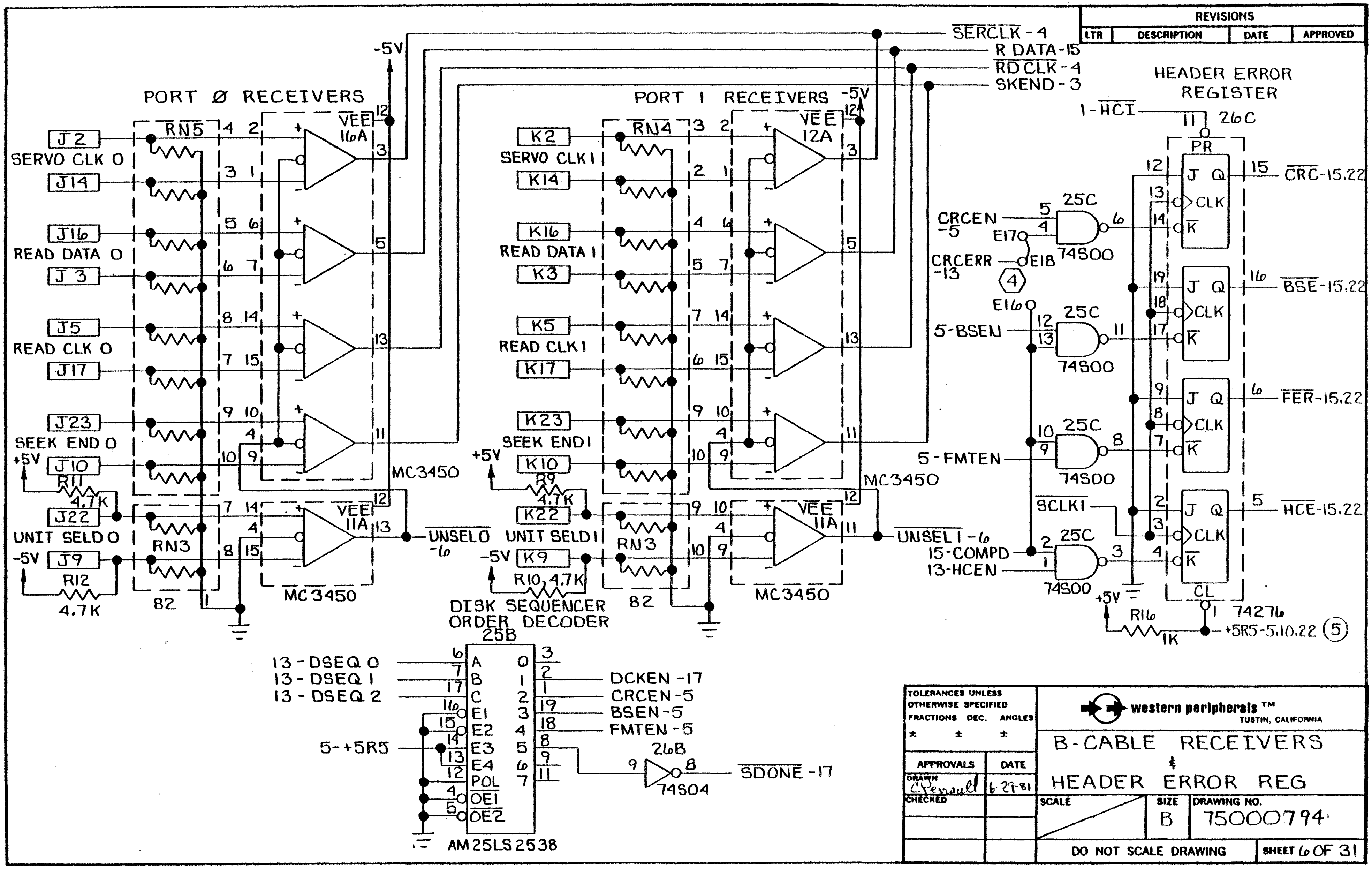
REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED



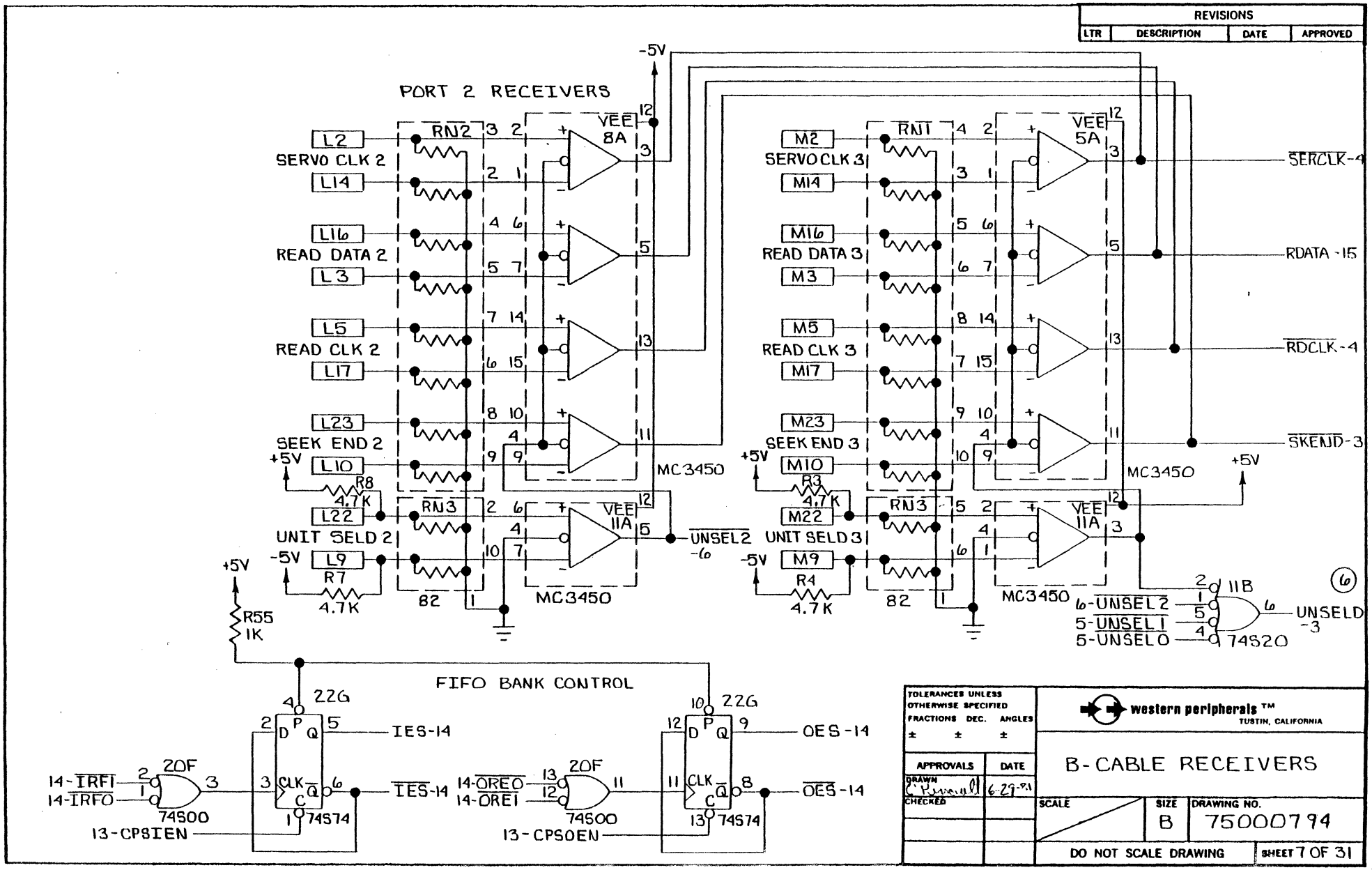
TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS ± DEC. ± ANGLES ±	western peripherals ™ TUSTIN, CALIFORNIA		
APPROVALS / DATE	A-CABLE RECEIVERS		
DRAWN [signature] 6-29-81			
CHECKED	SCALE	SIZE B	DRAWING NO. 75000794
	DO NOT SCALE DRAWING		SHEET 4 OF 31

504113

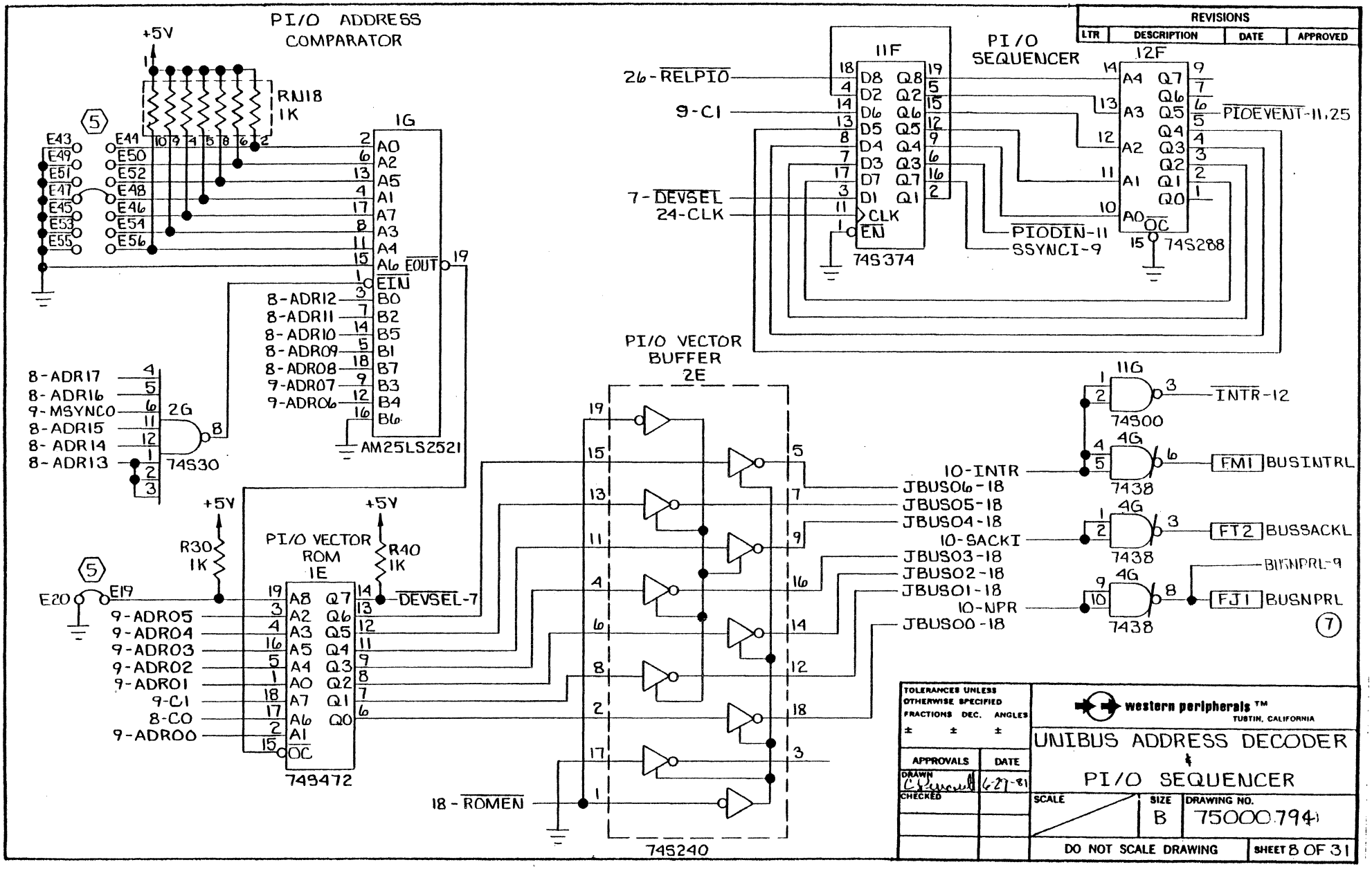

+5V
-5V
B CABLE DRIVERS
VEE 7A
VEE 15A
R6 1K
+5R3-18,19
R29 1K
+5R4 -2,25, 26
WRT CLK 2
WRT DATA 2
WRT CLK 3
WRT DATA 3
WRT CLK 0
WRT DATA 0
WRT CLK 1
WRT DATA 1
L19
L6
L20
L8
M19
M6
M20
M8
J19
J6
J20
J8
K19
K6
K20
K8
MC3453
13-SCLK2
13-WTDATA
-5 VOLT REGULATOR
BUS -15V FB2
R1 7.5 3W 1%
R2 7.5 3W 1%
C13 1
Q1 LM320T5.0
C1 .1
-5V
J1
J4
J7
J11
J15
J18
J21
J25
K1
K4
K7
K11
K15
K18
K21
K25
L1
L4
L7
L11
L15
L18
L21
L25
M1
M4
M7
M11
M15
M18
M21
M25
DISK CLOCK SELECTOR
24B
19-CLK1
5,6-SER CLK
5,6-RD CLK
SELCLK-13,14,16
74S153
23C
74S86
26A
74S32
26B
74S04
23B
13-RD GATE
13-CVALID
19-RESET
74S174
REVISIONS
LTR DESCRIPTION DATE APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS DATE
DRAWN 6-24-81
CHECKED
western peripherals TM
TUSTIN, CALIFORNIA
A-CABLE DRIVERS
DISK CLOCK SELECTOR
SCALE
SIZE B
DRAWING NO. 75000794
DO NOT SCALE DRAWING
SHEET 5 OF 31
504113


PORT Ø RECEIVERS
PORT 1 RECEIVERS
HEADER ERROR REGISTER
SERVO CLK 0
READ DATA 0
READ CLK 0
SEEK END 0
UNIT SELD 0
SERVO CLK 1
READ DATA 1
READ CLK 1
SEEK END 1
UNIT SELD 1
SERCLK - 4
R DATA - 15
RDCLK - 4
SKEND - 3
UNSEL0 -6
UNSEL1 - 6
MC3450
RN5
RN4
RN3
82
-5V
+5V
VEE
16A
12A
11A
R11 4.7K
R12 4.7K
R9 4.7K
R10 4.7K
DISK SEQUENCER ORDER DECODER
25B
13 - DSEQ 0
13 - DSEQ 1
13 - DSEQ 2
5 - +5R5
DCKEN - 17
CRCEN - 5
BSEN - 5
FMTEN - 5
SDONE - 17
26B
74S04
AM25LS2538
1 - HCI
26C
CRCEN -5
CRCERR -13
E16
E17
E18
5 - BSEN
5 - FMTEN
SCLK1
15 - COMPD
13 - HCEN
25C
74S00
CRC - 15,22
BSE - 15,22
FER - 15,22
HCE - 15,22
74276
R16 1K
+5R5 - 5,10,22
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS ± DEC. ± ANGLES ±
APPROVALS
DATE
DRAWN
6-27-81
CHECKED
western peripherals ™
TUSTIN, CALIFORNIA
B-CABLE RECEIVERS & HEADER ERROR REG
SCALE
SIZE B
DRAWING NO. 75000794
DO NOT SCALE DRAWING
SHEET 6 OF 31

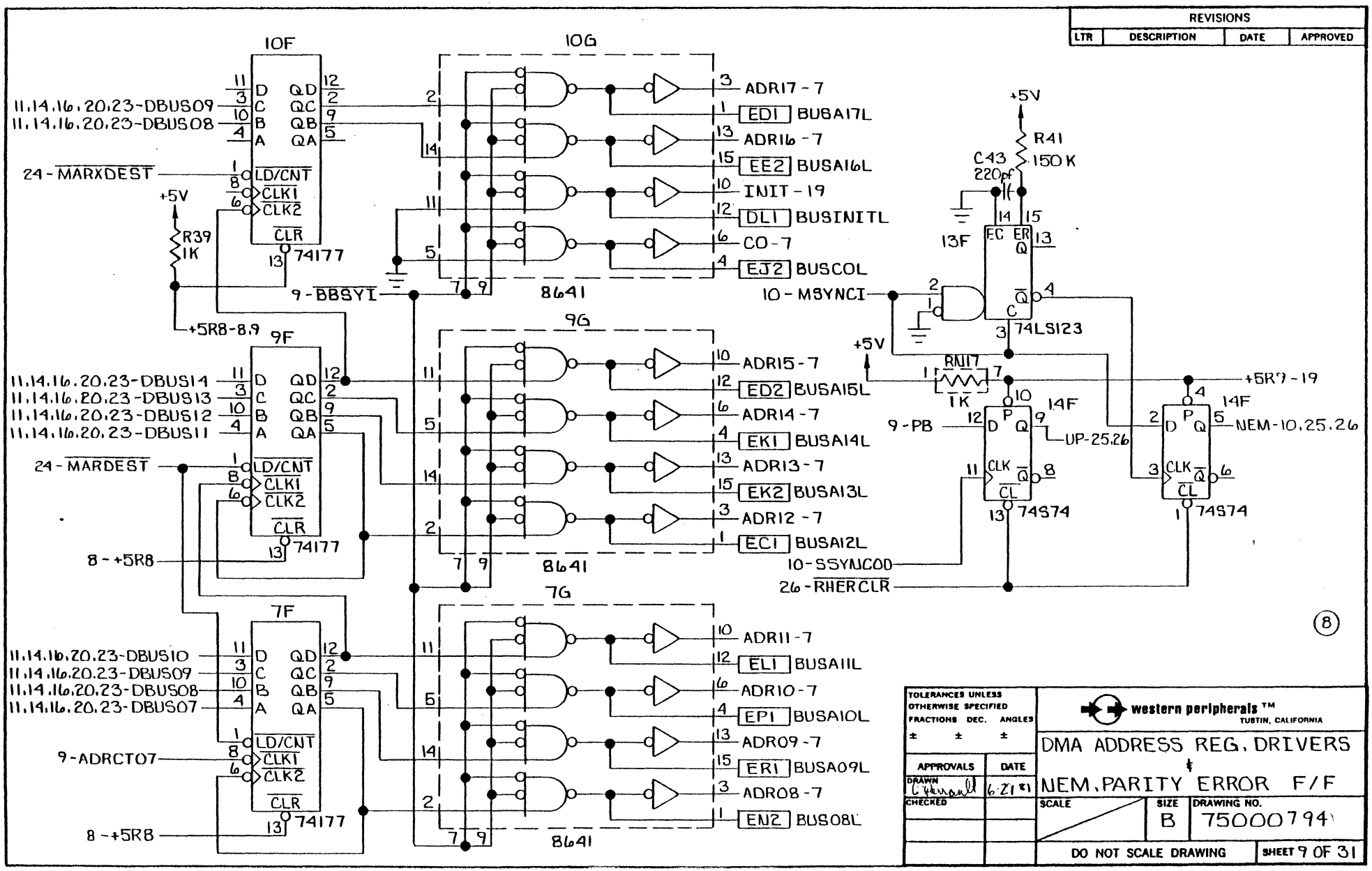
504113


REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
PORT 2 RECEIVERS
-5V
L2
SERVO CLK 2
L14
L16
READ DATA 2
L3
L5
READ CLK 2
L17
L23
SEEK END 2
L10
R8
4.7K
+5V
L22
UNIT SELD 2
L9
R7
4.7K
-5V
RN2
RN3
82
VEE
8A
11A
MC3450
UNSEL2
-6
M2
SERVO CLK 3
M14
M16
READ DATA 3
M3
M5
READ CLK 3
M17
M23
SEEK END 3
M10
R3
4.7K
M22
UNIT SELD 3
M9
R4
4.7K
RNJ
RN3
82
VEE
5A
11A
MC3450
SERCLK-4
RDATA-15
RDCLK-4
SKEWD-3
+5V
6-UNSEL2
5-UNSEL1
5-UNSEL0
11B
74S20
6
UNSELD
-3
R55
1K
FIFO BANK CONTROL
22G
IES-14
IES-14
14-IRFI
14-IRFO
20F
74S00
13-CPSIEN
74S74
22G
OES-14
OES-14
14-OREO
14-OREI
20F
74S00
13-CPSOEN
74S74
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS
DATE
DRAWN
CHECKED
6-29-91
western peripherals ™
TUSTIN, CALIFORNIA
B-CABLE RECEIVERS
SCALE
SIZE
B
DRAWING NO.
75000794
DO NOT SCALE DRAWING
SHEET 7 OF 31

504113


PI/O ADDRESS COMPARATOR
+5V
RN18
1K
E43
E49
E51
E47
E45
E53
E55
E44
E50
E52
E48
E46
E54
E56
1G
AM25LS2521
A0
A2
A5
A1
A7
A3
A4
A6
EIN
EOUT
B0
B2
B5
B1
B7
B3
B4
B6
8-ADR12
8-ADR11
8-ADR10
8-ADR09
8-ADR08
9-ADR07
9-ADR06
8-ADR17
8-ADR16
9-MSYNCO
8-ADR15
8-ADR14
8-ADR13
2G
74S30
PI/O VECTOR ROM
1E
74S472
R30
1K
R40
1K
DEVSEL-7
9-ADR05
9-ADR04
9-ADR03
9-ADR02
9-ADR01
9-CI
8-CO
9-ADR00
18-ROMEN
PI/O VECTOR BUFFER
2E
74S240
11F
74S374
D8 Q8
D2 Q2
D6 Q6
D5 Q5
D4 Q4
D3 Q3
D7 Q7
D1 Q1
CLK
EN
26-RELPIO
9-CI
7-DEVSEL
24-CLK
PIODIN-11
SSYNCI-9
PI/O SEQUENCER
12F
74S288
A4 Q7
Q6
A3 Q5
Q4
A2 Q3
Q2
A1 Q1
Q0
A0 OC
PIOEVENT-11,25
JBUS06-18
JBUS05-18
JBUS04-18
JBUS03-18
JBUS02-18
JBUS01-18
JBUS00-18
10-INTR
10-SACKI
10-NPR
11G
7438
INTR-12
4G
FMI BUSINTRL
FT2 BUSSACKL
FJI BUSNPRL
BUSNPRL-9
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN
CHECKED
6-27-81
western peripherals ™
TUSTIN, CALIFORNIA
UNIBUS ADDRESS DECODER
&
PI/O SEQUENCER
SCALE
SIZE
B
DRAWING NO.
75000.794
DO NOT SCALE DRAWING
SHEET 8 OF 31

504113


REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
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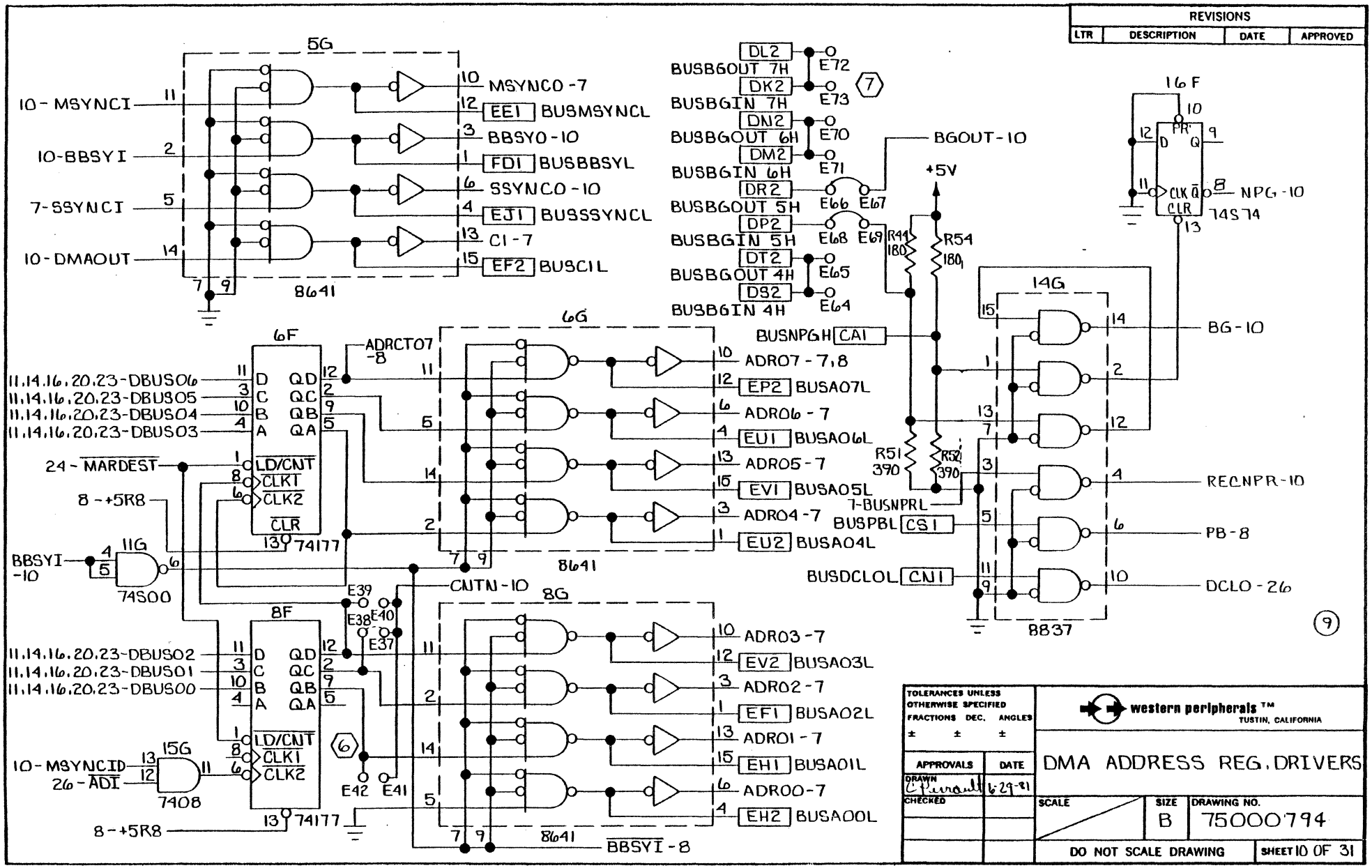
10G
9F
9G
7F
7G
74177
8641
74LS123
74S74
11,14,16,20,23-DBUS09
11,14,16,20,23-DBUS08
24-MARXDEST
+5V
R39
1K
+5R8-8,9
9-BBSYI
ADR17-7
EDI BUSA17L
ADR16-7
EE2 BUSA16L
INIT-19
DLI BUSINITL
CO-7
EJ2 BUSCOL
10-MSYNCI
R41
150K
C43
220pf
13F
14F
RN17
1K
+5R9-19
9-PB
UP-25,26
NEM-10,25,26
11,14,16,20,23-DBUS14
11,14,16,20,23-DBUS13
11,14,16,20,23-DBUS12
11,14,16,20,23-DBUS11
24-MARDEST
8-+5R8
ADR15-7
ED2 BUSA15L
ADR14-7
EK1 BUSA14L
ADR13-7
EK2 BUSA13L
ADR12-7
EC1 BUSA12L
10-SSYNCOD
26-RHERCLR
11,14,16,20,23-DBUS10
11,14,16,20,23-DBUS09
11,14,16,20,23-DBUS08
11,14,16,20,23-DBUS07
9-ADRCTO7
ADR11-7
EL1 BUSA11L
ADR10-7
EP1 BUSA10L
ADR09-7
ER1 BUSA09L
ADR08-7
EN2 BUSO8L
8
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN
CHECKED
6-21-81
western peripherals ™
TUSTIN, CALIFORNIA
DMA ADDRESS REG. DRIVERS
&
NEM, PARITY ERROR F/F
SCALE
SIZE
B
DRAWING NO.
75000794
DO NOT SCALE DRAWING
SHEET 9 OF 31

504113


REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
5G
10-MSYNCI
10-BBSYI
7-SSYNCI
10-DMAOUT
MSYNCO-7
BUSMSYNCL
BBSYO-10
BUSBBSYL
SSYNCO-10
BUSSSYNCL
CI-7
BUSCIL
8641
DL2
BUSBGOUT 7H
E72
DK2
BUSBGIN 7H
E73
DN2
BUSBGOUT 6H
E70
DM2
BUSBGIN 6H
E71
DR2
BUSBGOUT 5H
E66
E67
DP2
BUSBGIN 5H
E68
E69
DT2
BUSBGOUT 4H
E65
DS2
BUSBGIN 4H
E64
BGOUT-10
+5V
R41 180
R54 180
R51 390
R52 390
16F
74S74
NPG-10
14G
8837
BG-10
REQNPR-10
PB-8
DCLO-26
7-BUSNPRL
BUSPBL
CS1
BUSDCLOL
CN1
BUSNPGH
CA1
6G
ADRCTO7-8
ADRO7-7,8
EP2
BUSAO7L
ADRO6-7
EU1
BUSAO6L
ADRO5-7
EV1
BUSAO5L
ADRO4-7
EU2
BUSAO4L
8641
6F
11,14,16,20,23-DBUSO6
11,14,16,20,23-DBUSO5
11,14,16,20,23-DBUSO4
11,14,16,20,23-DBUSO3
24-MARDEST
8-+5R8
LD/CNT
CLK1
CLK2
CLR
74177
11G
74S00
BBSYI-10
CNTN-10
E39
E38
E40
E37
8G
ADRO3-7
EV2
BUSAO3L
ADRO2-7
EF1
BUSAO2L
ADRO1-7
EH1
BUSAO1L
ADRO0-7
EH2
BUSAO0L
8641
BBSYI-8
8F
11,14,16,20,23-DBUSO2
11,14,16,20,23-DBUSO1
11,14,16,20,23-DBUSO0
15G
10-MSYNCID
26-ADI
7408
E42
E41
8-+5R8
74177
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS
DATE
DRAWN
CHECKED
6-29-81
western peripherals ™
TUSTIN, CALIFORNIA
DMA ADDRESS REG. DRIVERS
SCALE
SIZE
B
DRAWING NO.
75000794
DO NOT SCALE DRAWING
SHEET 10 OF 31
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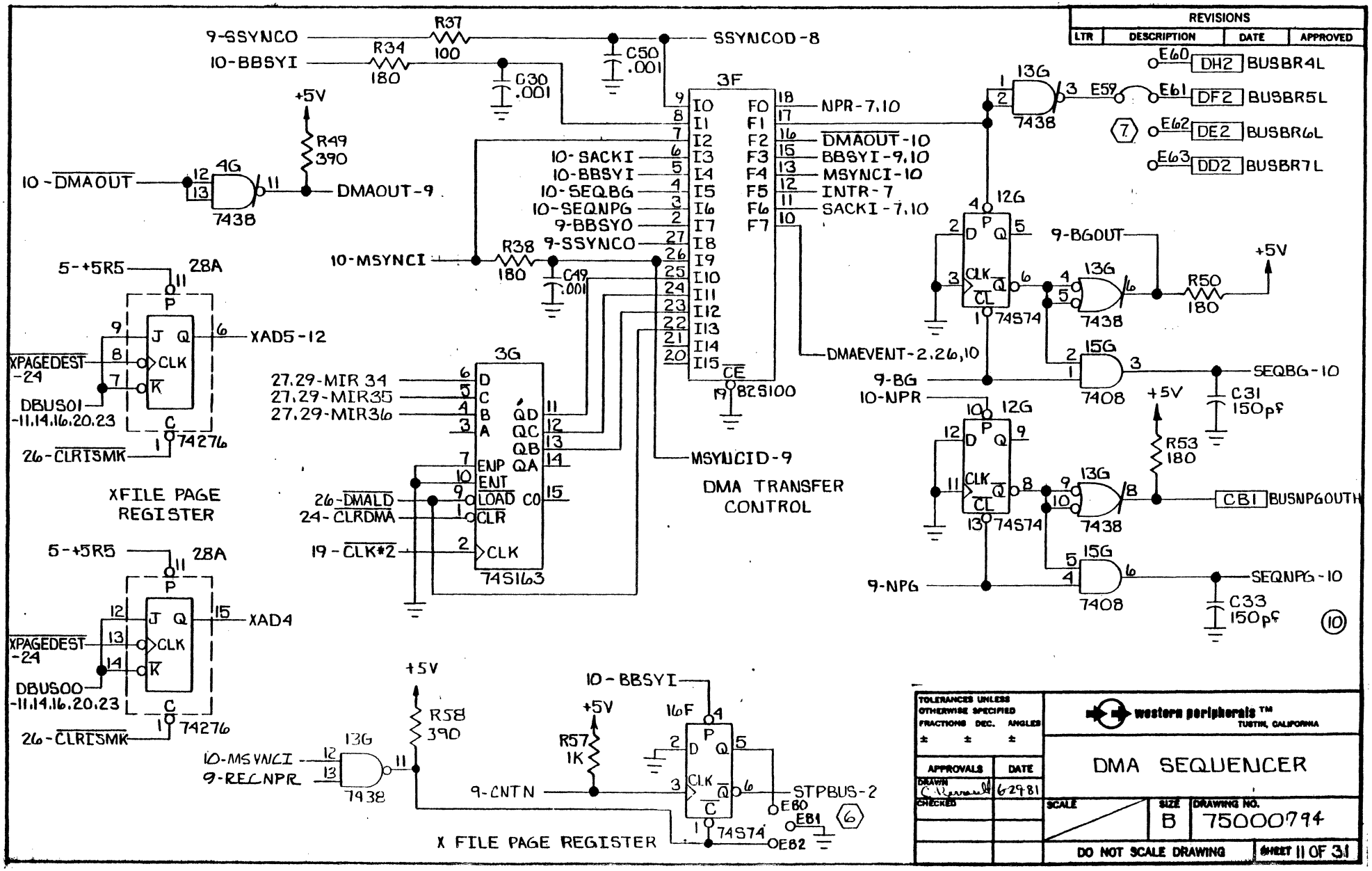
REVISIONS
LTR DESCRIPTION DATE APPROVED
9-SSYNCO
10-BBSYI
R37 100
R34 180
C30 .001
C50 .001
SSYNCOD-8
+5V
R49 390
10-DMAOUT
4G
7438
DMAOUT-9
3F
10-SACKI
10-BBSYI
10-SEQBG
10-SEQNPG
9-BBSYO
9-SSYNCO
10-MSYNCI
R38 180
C49 .001
I0 I1 I2 I3 I4 I5 I6 I7 I8 I9 I10 I11 I12 I13 I14 I15
FO F1 F2 F3 F4 F5 F6 F7
NPR-7,10
DMAOUT-10
BBSYI-9,10
MSYNCI-10
INTR-7
SACKI-7,10
DMAEVENT-2,26,10
CE
82S100
MSYNCID-9
DMA TRANSFER CONTROL
5-+5R5
28A
XPAGEDEST -24
DBUS01 -11,14,16,20,23
26-CLRISMK
74276
XAD5-12
XFILE PAGE REGISTER
3G
27,29-MIR34
27,29-MIR35
27,29-MIR36
26-DMALD
24-CLRDMA
19-CLK*2
ENP ENT LOAD CLR CLK
QD QC QB QA CO
74S163
13G
7438
9-BGOUT
+5V
R50 180
12G
74S74
15G
7408
9-BG
10-NPR
SEQBG-10
C31 150pf
R53 180
CB1 BUSNPGOUTH
9-NPG
SEQNPG-10
C33 150pf
10
E60 DH2 BUSBR4L
E61 DF2 BUSBR5L
E62 DE2 BUSBR6L
E63 DD2 BUSBR7L
7
XAD4
DBUS00 -11,14,16,20,23
10-BBSYI
R58 390
R57 1K
10-MSYNCI
9-RECNPR
9-CNTN
STPBUS-2
E80 E81 E82
6
X FILE PAGE REGISTER
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS DATE
DRAWN 6/29/81
CHECKED
western peripherals TUSTIN, CALIFORNIA
DMA SEQUENCER
SCALE
SIZE B
DRAWING NO. 75000794
DO NOT SCALE DRAWING
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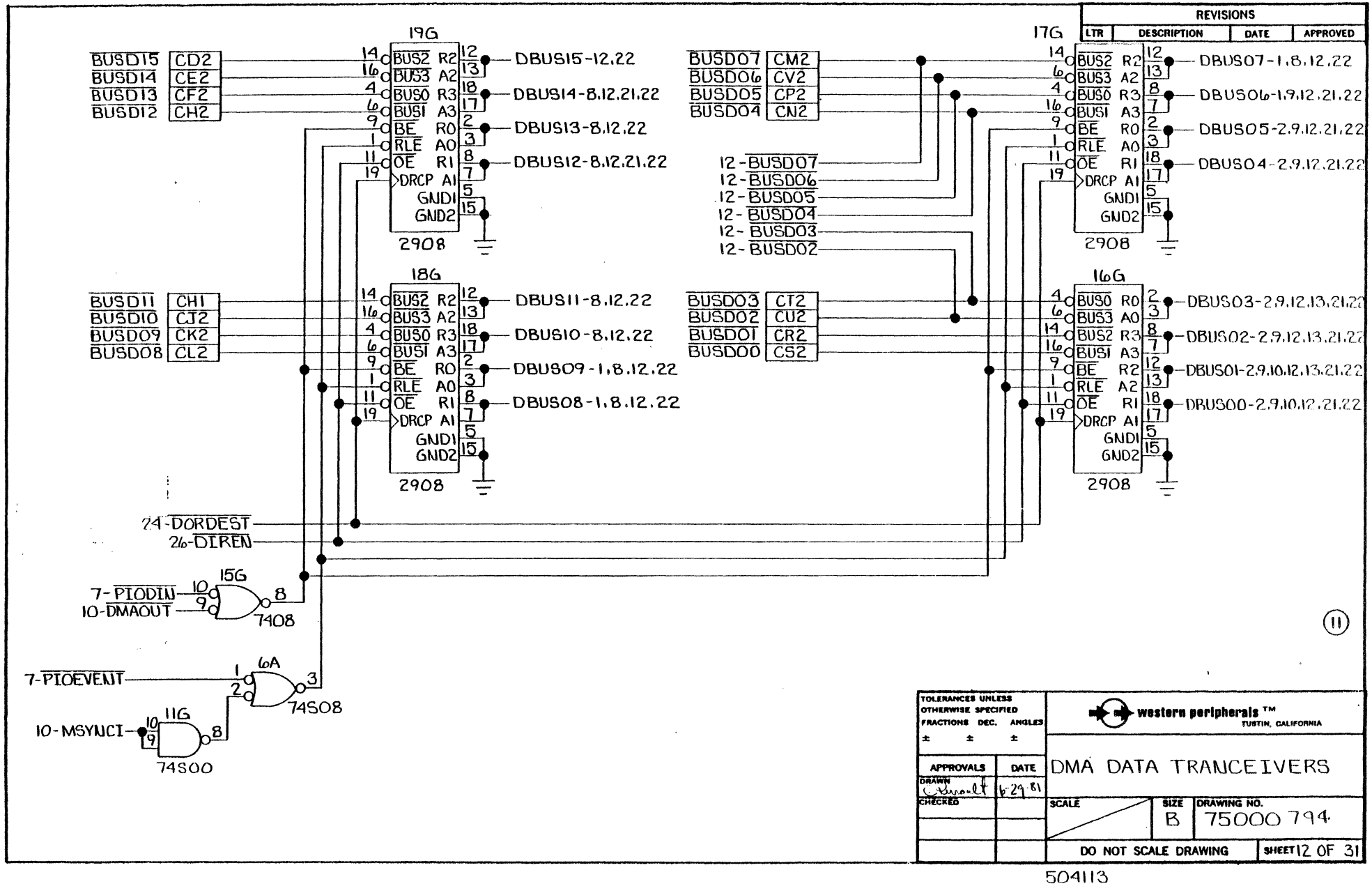
REVISIONS
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DESCRIPTION
DATE
APPROVED
19G
2908
BUSD15 CD2
BUSD14 CE2
BUSD13 CF2
BUSD12 CH2
DBUS15-12,22
DBUS14-8,12,21,22
DBUS13-8,12,22
DBUS12-8,12,21,22
17G
BUSD07 CM2
BUSD06 CV2
BUSD05 CP2
BUSD04 CN2
12-BUSD07
12-BUSD06
12-BUSD05
12-BUSD04
12-BUSD03
12-BUSD02
DBUS07-1,8,12,22
DBUS06-1,9,12,21,22
DBUS05-2,9,12,21,22
DBUS04-2,9,12,21,22
18G
BUSD11 CH1
BUSD10 CJ2
BUSD09 CK2
BUSD08 CL2
DBUS11-8,12,22
DBUS10-8,12,22
DBUS09-1,8,12,22
DBUS08-1,8,12,22
BUSD03 CT2
BUSD02 CU2
BUSD01 CR2
BUSD00 CS2
16G
DBUS03-2,9,12,13,21,22
DBUS02-2,9,12,13,21,22
DBUS01-2,9,10,12,13,21,22
DBUS00-2,9,10,12,21,22
24-DORDEST
26-DIREN
15G
7408
7-PIODIN
10-DMAOUT
6A
74S08
7-PIOEVENT
11G
74S00
10-MSYNCI
(11)
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN
6-29-81
CHECKED
western peripherals ™
TUSTIN, CALIFORNIA
DMA DATA TRANCEIVERS
SCALE
SIZE
B
DRAWING NO.
75000 794
DO NOT SCALE DRAWING
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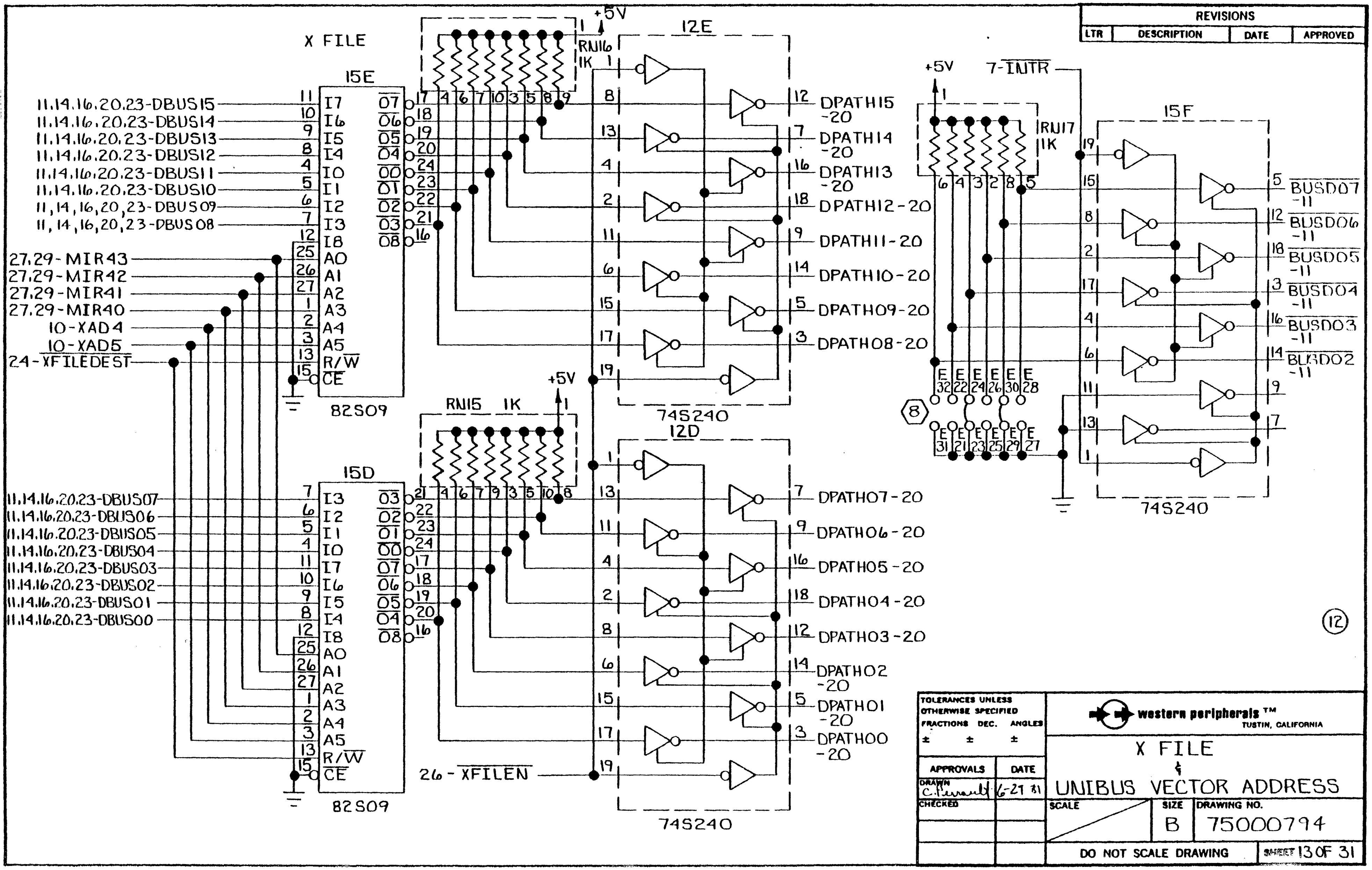
504113


X FILE
15E
82S09
11,14,16,20,23-DBUS15
11,14,16,20,23-DBUS14
11,14,16,20,23-DBUS13
11,14,16,20,23-DBUS12
11,14,16,20,23-DBUS11
11,14,16,20,23-DBUS10
11,14,16,20,23-DBUS09
11,14,16,20,23-DBUS08
27,29-MIR43
27,29-MIR42
27,29-MIR41
27,29-MIR40
10-XAD4
10-XAD5
24-XFILEDEST
I7 I6 I5 I4 I0 I1 I2 I3 I8 A0 A1 A2 A3 A4 A5 R/W CE
O7 O6 O5 O4 O0 O1 O2 O3 O8
+5V
RN16 1K
RN15 1K
12E
74S240
DPATH15-20
DPATH14-20
DPATH13-20
DPATH12-20
DPATH11-20
DPATH10-20
DPATH09-20
DPATH08-20
12D
74S240
DPATH07-20
DPATH06-20
DPATH05-20
DPATH04-20
DPATH03-20
DPATH02-20
DPATH01-20
DPATH00-20
15D
82S09
11,14,16,20,23-DBUS07
11,14,16,20,23-DBUS06
11,14,16,20,23-DBUS05
11,14,16,20,23-DBUS04
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS02
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS00
I3 I2 I1 I0 I7 I6 I5 I4 I8 A0 A1 A2 A3 A4 A5 R/W CE
O3 O2 O1 O0 O7 O6 O5 O4 O8
26-XFILEN
+5V
7-INTR
RN17 1K
E32 E22 E24 E26 E30 E28
E31 E21 E23 E25 E29 E27
8
15F
74S240
BUSD07-11
BUSD06-11
BUSD05-11
BUSD04-11
BUSD03-11
BUSD02-11
12
REVISIONS
LTR | DESCRIPTION | DATE | APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS ± DEC. ± ANGLES ±
APPROVALS | DATE
DRAWN C. Perrault 6-21-81
CHECKED
western peripherals ™ TUSTIN, CALIFORNIA
X FILE & UNIBUS VECTOR ADDRESS
SCALE
SIZE B
DRAWING NO. 75000794
DO NOT SCALE DRAWING
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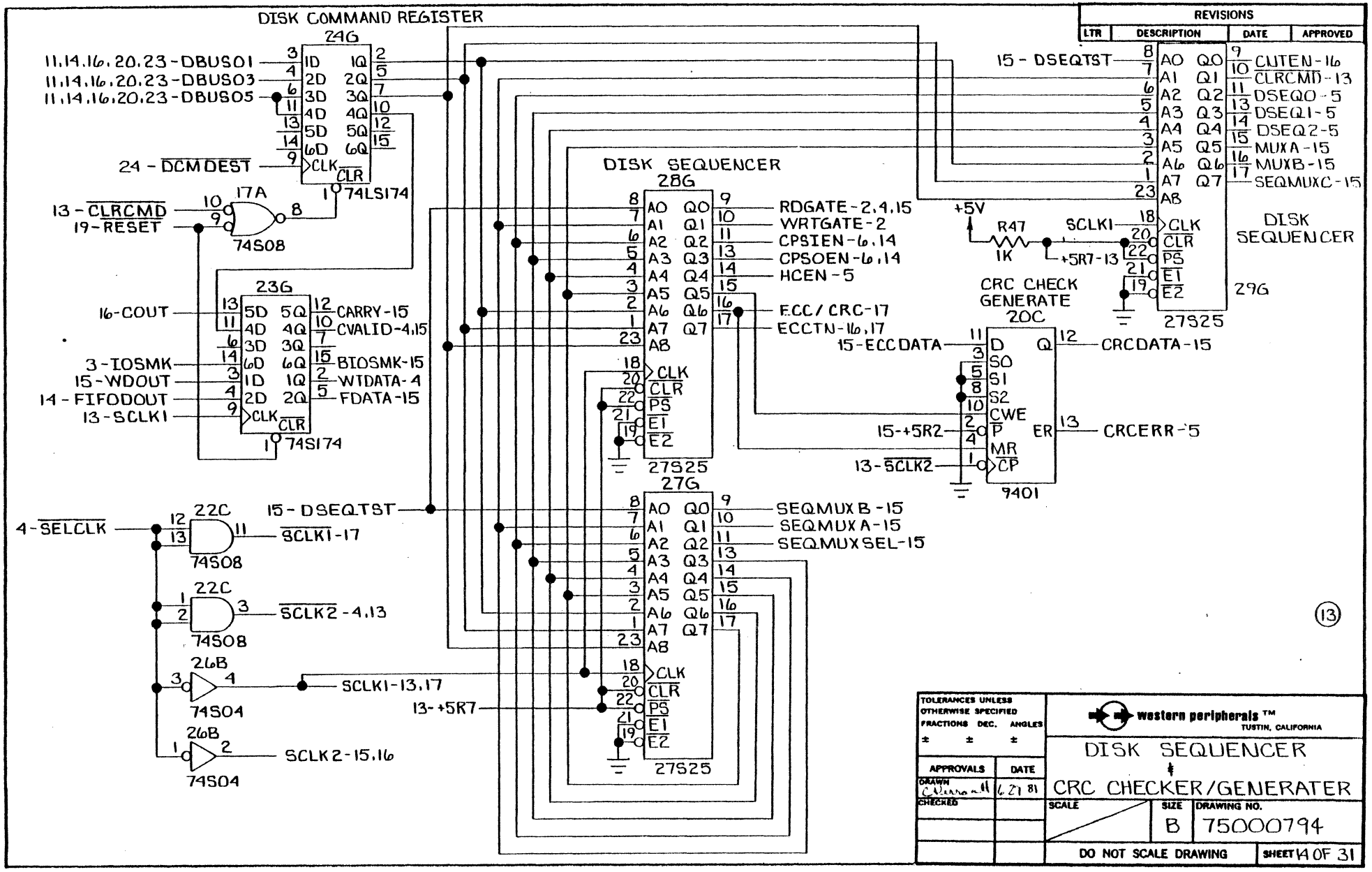
DISK COMMAND REGISTER
24G
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS05
24-DCMDEST
74LS174
17A
13-CLRCMD
19-RESET
74S08
23G
16-COUT
3-IOSMK
15-WDOUT
14-FIFODOUT
13-SCLK1
CARRY-15
CVALID-4,15
BIOSMK-15
WTDATA-4
FDATA-15
DISK SEQUENCER
28G
27S25
RDGATE-2,4,15
WRTGATE-2
CPSIEN-6,14
CPSOEN-6,14
HCEN-5
ECC/CRC-17
ECCTN-16,17
27G
15-DSEQTST
SEQMUXB-15
SEQMUXA-15
SEQMUXSEL-15
22C
4-SELCLK
SCLK1-17
SCLK2-4,13
26B
SCLK1-13,17
13-+5R7
SCLK2-15,16
74S04
15-DSEQTST
CUTEN-16
CLRCMD-13
DSEQ0-5
DSEQ1-5
DSEQ2-5
MUXA-15
MUXB-15
SEQMUXC-15
DISK SEQUENCER
29G
27S25
+5V
R47
1K
SCLK1
+5R7-13
CRC CHECK GENERATE
20C
15-ECCDATA
CRCDATA-15
15-+5R2
13-SCLK2
CRCERR-5
9401
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN
CHECKED
western peripherals ™
TUSTIN, CALIFORNIA
DISK SEQUENCER
CRC CHECKER/GENERATER
SCALE
SIZE
B
DRAWING NO.
75000794
DO NOT SCALE DRAWING
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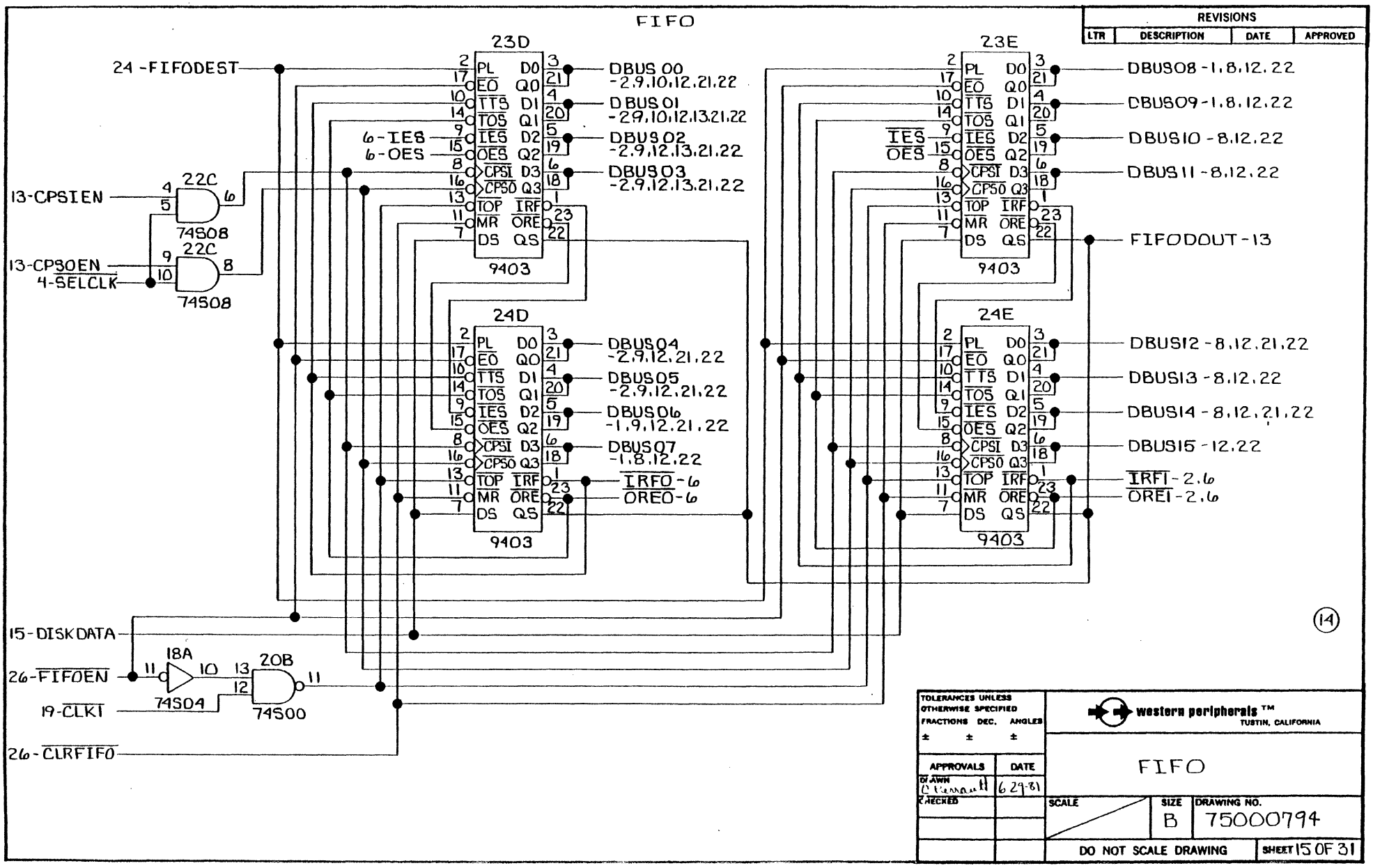
FIFO
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
23D
23E
24D
24E
9403
74S08
74S04
74S00
22C
18A
20B
24 -FIFODEST
13-CPSIEN
13-CPSOEN
4-SELCLK
6-IES
6-OES
15-DISKDATA
26-FIFOEN
19-CLK1
26-CLRFIFO
DBUS00 -2,9,10,12,21,22
DBUS01 -2,9,10,12,13,21,22
DBUS02 -2,9,12,13,21,22
DBUS03 -2,9,12,13,21,22
DBUS04 -2,9,12,21,22
DBUS05 -2,9,12,21,22
DBUS06 -1,9,12,21,22
DBUS07 -1,8,12,22
IRFO-6
OREO-6
DBUS08 -1,8,12,22
DBUS09 -1,8,12,22
DBUS10 -8,12,22
DBUS11 -8,12,22
FIFODOUT-13
DBUS12 -8,12,21,22
DBUS13 -8,12,22
DBUS14 -8,12,21,22
DBUS15 -12,22
IRFI-2,6
OREI-2,6
14
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
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TUSTIN, CALIFORNIA
FIFO
SCALE
SIZE
B
DRAWING NO.
75000794
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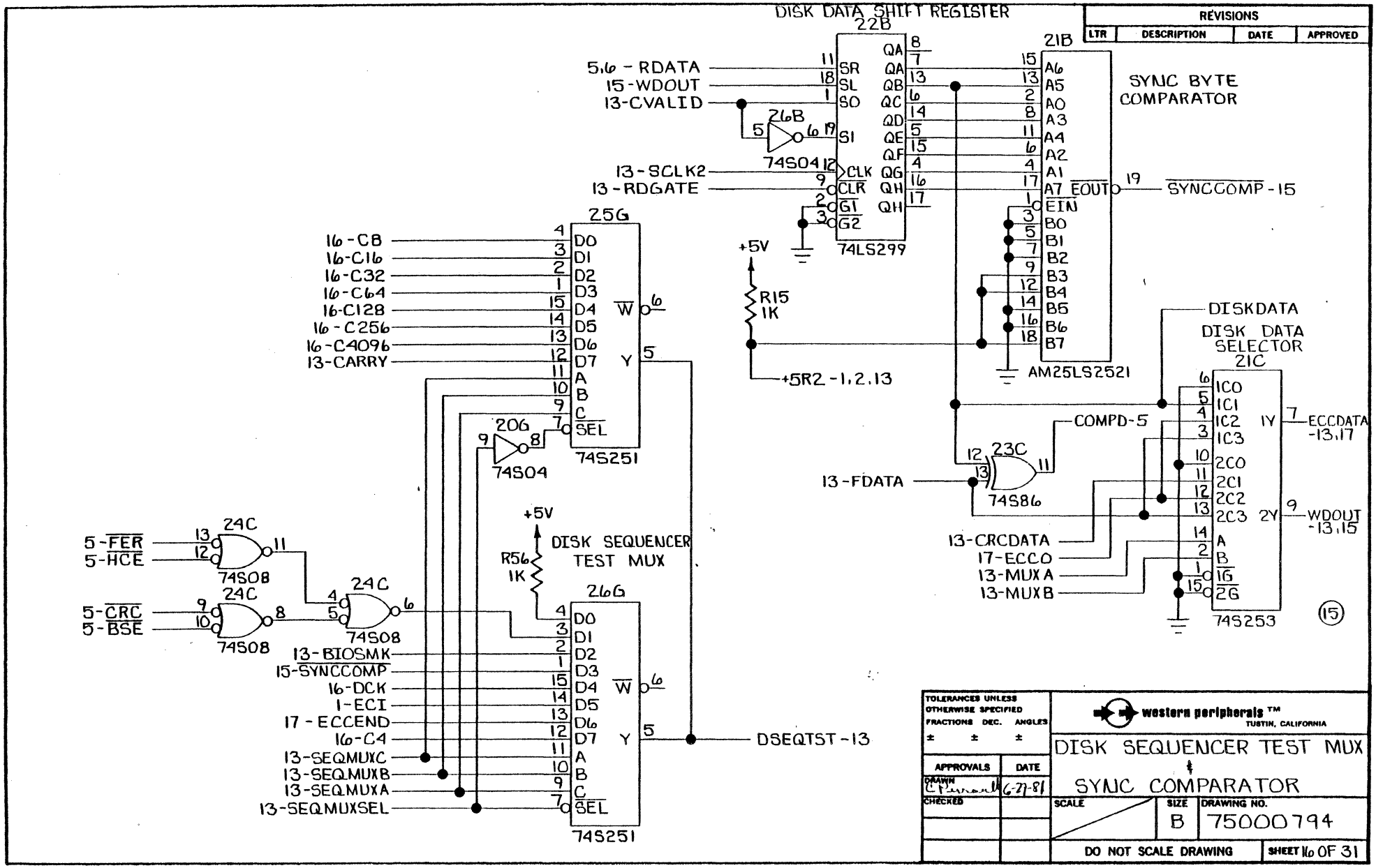
DISK DATA SHIFT REGISTER
22B
74LS299
5,6 - RDATA
15 - WDOUT
13 - CVALID
26B
74S04
13 - SCLK2
13 - RDGATE
+5V
R15
1K
+5R2 - 1,2,13
21B
AM25LS2521
SYNC BYTE
COMPARATOR
19
SYNCCOMP - 15
DISKDATA
DISK DATA
SELECTOR
21C
74S253
COMPD - 5
23C
74S86
13 - FDATA
ECCDATA
-13,17
WDOUT
-13,15
13 - CRCDATA
17 - ECCO
13 - MUXA
13 - MUXB
25G
74S251
16 - C8
16 - C16
16 - C32
16 - C64
16 - C128
16 - C256
16 - C4096
13 - CARRY
20G
74S04
24C
74S08
5 - FER
5 - HCE
5 - CRC
5 - BSE
+5V
R56
1K
DISK SEQUENCER
TEST MUX
26G
74S251
13 - BIOSMK
15 - SYNCCOMP
16 - DCK
1 - ECI
17 - ECCEND
16 - C4
13 - SEQMUXC
13 - SEQMUXB
13 - SEQMUXA
13 - SEQMUXSEL
DSEQTST - 13
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN
6-22-81
CHECKED
western peripherals ™
TUSTIN, CALIFORNIA
DISK SEQUENCER TEST MUX
&
SYNC COMPARATOR
SCALE
SIZE
B
DRAWING NO.
75000794
DO NOT SCALE DRAWING
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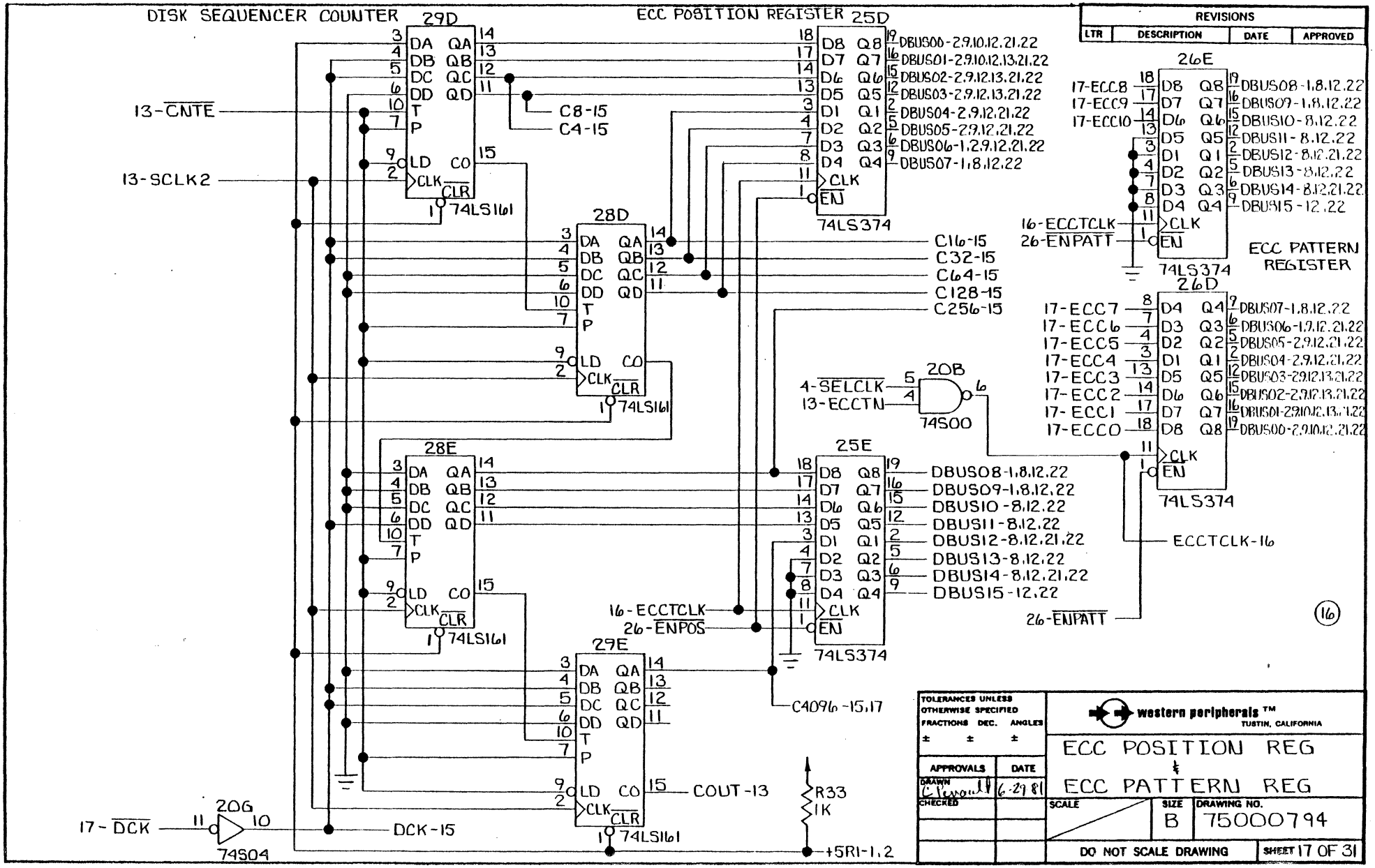
504113


DISK SEQUENCER COUNTER
ECC POSITION REGISTER 25D
29D
28D
28E
29E
25E
26E
26D
20B
20G
74LS161
74LS374
74S00
74S04
13-CNTE
13-SCLK2
C8-15
C4-15
C16-15
C32-15
C64-15
C128-15
C256-15
4-SELCLK
13-ECCTN
16-ECCTCLK
26-ENPOS
26-ENPATT
C4096-15,17
COUT-13
17-DCK
DCK-15
R33
1K
+5R1-1,2
ECC PATTERN REGISTER
ECCTCLK-16
DBUS00-2,9,10,12,21,22
DBUS01-2,9,10,12,13,21,22
DBUS02-2,9,12,13,21,22
DBUS03-2,9,12,13,21,22
DBUS04-2,9,12,21,22
DBUS05-2,9,12,21,22
DBUS06-1,2,9,12,21,22
DBUS07-1,8,12,22
DBUS08-1,8,12,22
DBUS09-1,8,12,22
DBUS10-8,12,22
DBUS11-8,12,22
DBUS12-8,12,21,22
DBUS13-8,12,22
DBUS14-8,12,21,22
DBUS15-12,22
17-ECC8
17-ECC9
17-ECC10
17-ECC7
17-ECC6
17-ECC5
17-ECC4
17-ECC3
17-ECC2
17-ECC1
17-ECC0
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN
CHECKED
western peripherals TM
TUSTIN, CALIFORNIA
ECC POSITION REG
&
ECC PATTERN REG
SCALE
SIZE
B
DRAWING NO.
75000794
DO NOT SCALE DRAWING
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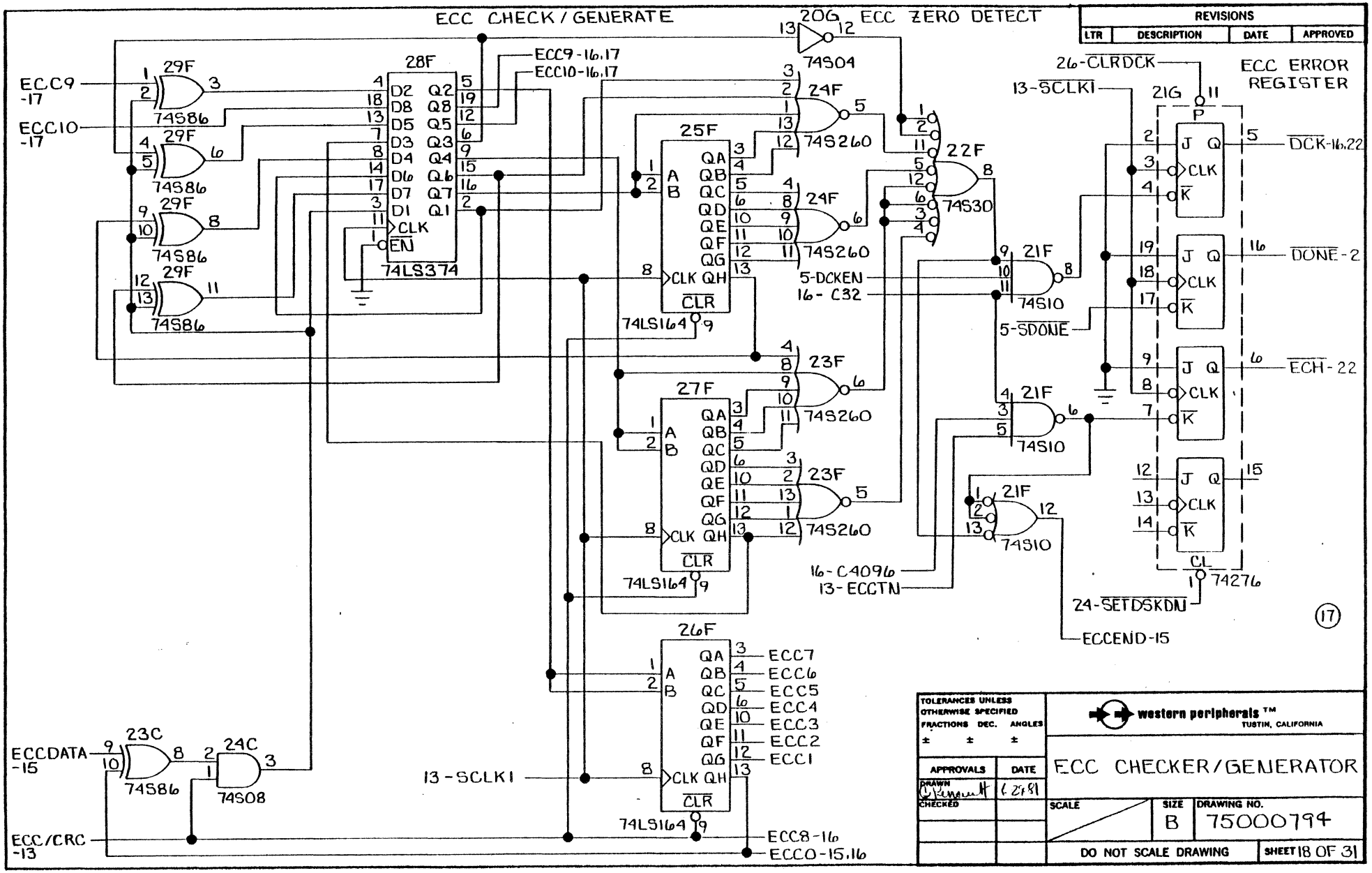
ECC CHECK / GENERATE
ECC ZERO DETECT
ECC ERROR REGISTER
REVISIONS
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ECC9 -17
ECC10 -17
ECCDATA -15
ECC/CRC -13
13-SCLK1
ECC9-16,17
ECC10-16,17
ECC8-16
ECC0-15,16
ECC7
ECC6
ECC5
ECC4
ECC3
ECC2
ECC1
5-DCKEN
16-C32
5-SDONE
16-C4096
13-ECCTN
26-CLRDCK
24-SETDSKDN
ECCEND-15
DCK-16,22
DONE-2
ECH-22
29F
28F
25F
24F
23F
27F
26F
22F
21F
21G
20G
23C
24C
74S86
74LS374
74S260
74S04
74S30
74S10
74S08
74LS164
74S276
western peripherals ™
TUSTIN, CALIFORNIA
ECC CHECKER/GENERATOR
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS DATE
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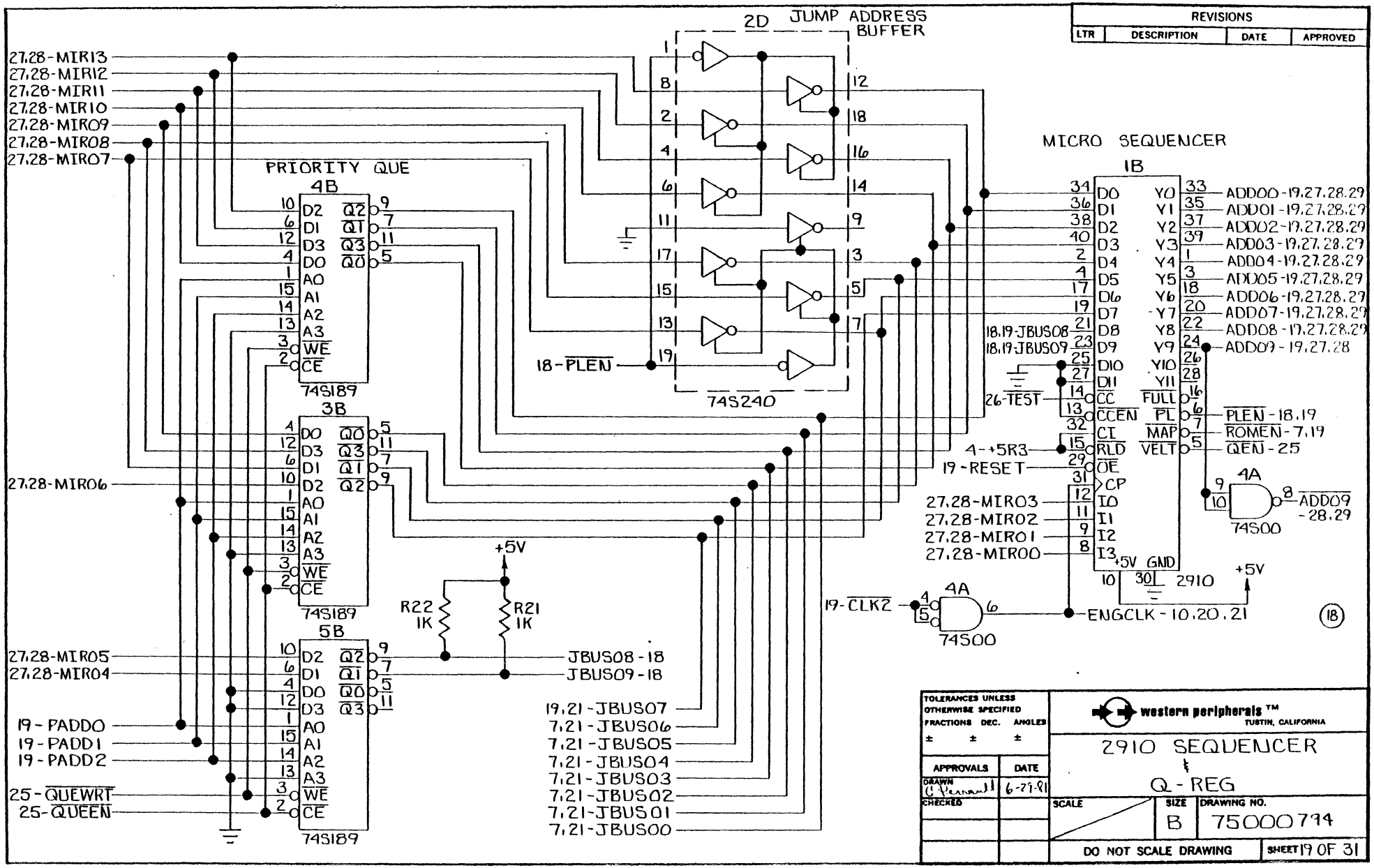
CHECKED
SCALE
SIZE B
DRAWING NO. 75000794
DO NOT SCALE DRAWING
SHEET 18 OF 31
504113


REVISIONS
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DATE
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2D JUMP ADDRESS BUFFER
74S240
PRIORITY QUE
4B
3B
5B
74S189
MICRO SEQUENCER
1B
2910
4A
74S00
R22 1K
R21 1K
+5V
GND
27.28-MIR13
27.28-MIR12
27.28-MIR11
27.28-MIR10
27.28-MIR09
27.28-MIR08
27.28-MIR07
27.28-MIR06
27.28-MIR05
27.28-MIR04
19-PADD0
19-PADD1
19-PADD2
25-QUEWRT
25-QUEEN
18-PLEN
JBUS08-18
JBUS09-18
19,21-JBUS07
7,21-JBUS06
7,21-JBUS05
7,21-JBUS04
7,21-JBUS03
7,21-JBUS02
7,21-JBUS01
7,21-JBUS00
18,19-JBUS08
18,19-JBUS09
26-TEST
4-+5R3
19-RESET
27.28-MIR03
27.28-MIR02
27.28-MIR01
27.28-MIR00
19-CLK2
ADD00-19,27,28,29
ADD01-19,27,28,29
ADD02-19,27,28,29
ADD03-19,27,28,29
ADD04-19,27,28,29
ADD05-19,27,28,29
ADD06-19,27,28,29
ADD07-19,27,28,29
ADD08-19,27,28,29
ADD09-19,27,28
PLEN-18,19
ROMEN-7,19
QEN-25
ADD09-28,29
ENGCLK-10,20,21
18
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS DATE
DRAWN 6-29-91
CHECKED
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TUSTIN, CALIFORNIA
2910 SEQUENCER
Q-REG
SCALE
SIZE B
DRAWING NO. 75000794
DO NOT SCALE DRAWING
SHEET 19 OF 31

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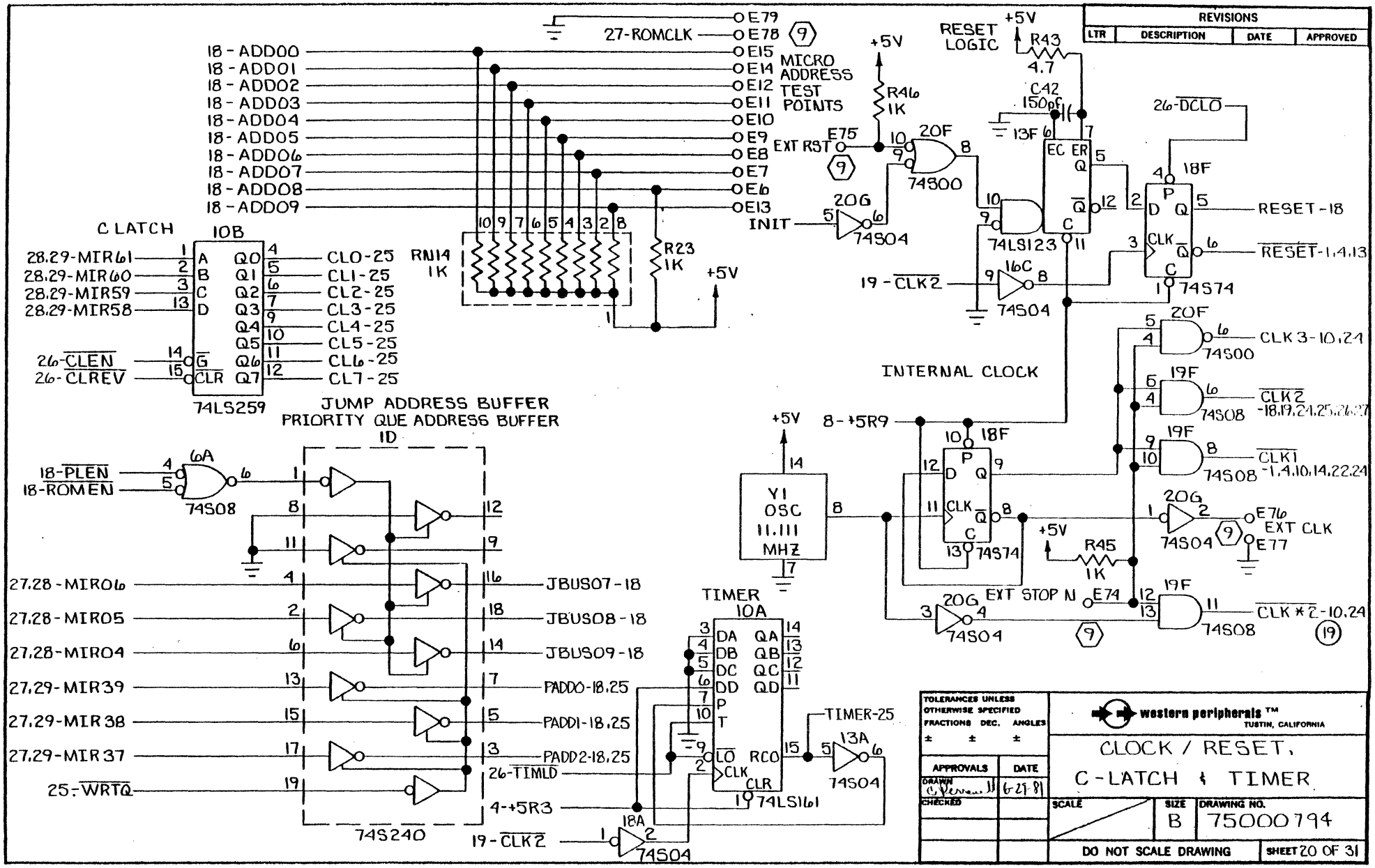
REVISIONS
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18-ADD00
18-ADD01
18-ADD02
18-ADD03
18-ADD04
18-ADD05
18-ADD06
18-ADD07
18-ADD08
18-ADD09
27-ROMCLK
E79
E78
E15
E14
E12
E11
E10
E9
E8
E7
E6
E13
MICRO ADDRESS TEST POINTS
RN14 1K
R23 1K
+5V
C LATCH
10B
28,29-MIR61
28,29-MIR60
28,29-MIR59
28,29-MIR58
26-CLEN
26-CLREV
CL0-25
CL1-25
CL2-25
CL3-25
CL4-25
CL5-25
CL6-25
CL7-25
74LS259
JUMP ADDRESS BUFFER
PRIORITY QUE ADDRESS BUFFER
1D
18-PLEN
18-ROMEN
6A
74S08
27,28-MIR06
27,28-MIR05
27,28-MIR04
27,29-MIR39
27,29-MIR38
27,29-MIR37
25-WRTQ
JBUS07-18
JBUS08-18
JBUS09-18
PADD0-18,25
PADD1-18,25
PADD2-18,25
26-TIMLD
4-+5R3
19-CLK2
74S240
TIMER
10A
TIMER-25
74LS161
18A
74S04
13A
74S04
EXT RST
E75
R46 1K
20F
74S00
INIT
20G
74S04
RESET LOGIC
R43 4.7
C42 150pf
74LS123
16C
74S04
26-DCLO
18F
74S74
RESET-18
RESET-1,4,13
INTERNAL CLOCK
8-+5R9
Y1 OSC 11.111 MHZ
18F
74S74
20F
74S00
CLK3-10,24
19F
74S08
CLK2 -18,19,24,25,26,27
CLK1 -1,4,10,14,22,24
20G
74S04
E76
EXT CLK
E77
R45 1K
EXT STOP N
E74
CLK*2-10,24
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS DATE
DRAWN 6-21-81
CHECKED
western peripherals TUSTIN, CALIFORNIA
CLOCK / RESET, C-LATCH & TIMER
SCALE
SIZE B
DRAWING NO. 75000794
DO NOT SCALE DRAWING
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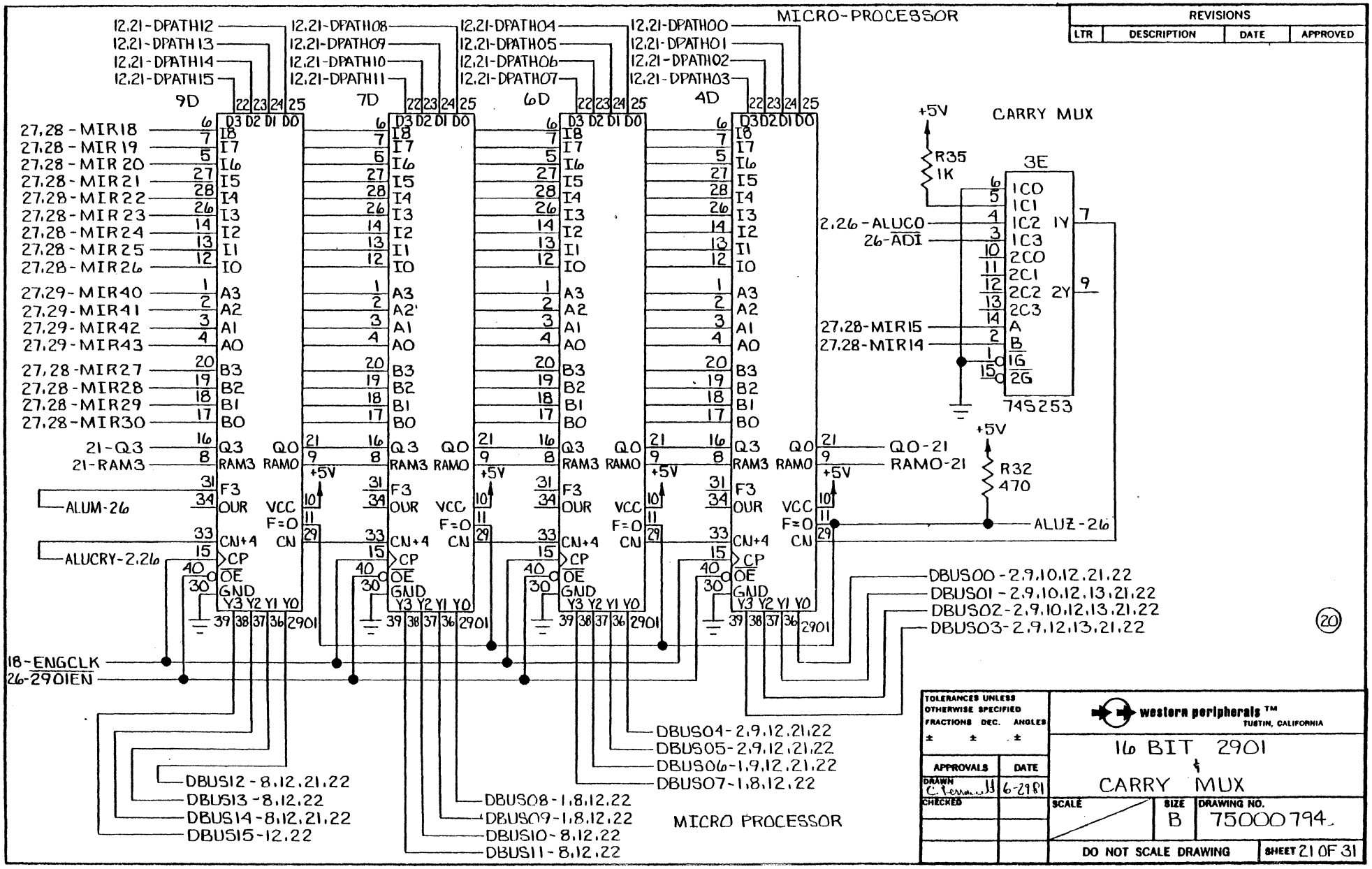
MICRO-PROCESSOR
REVISIONS
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DESCRIPTION
DATE
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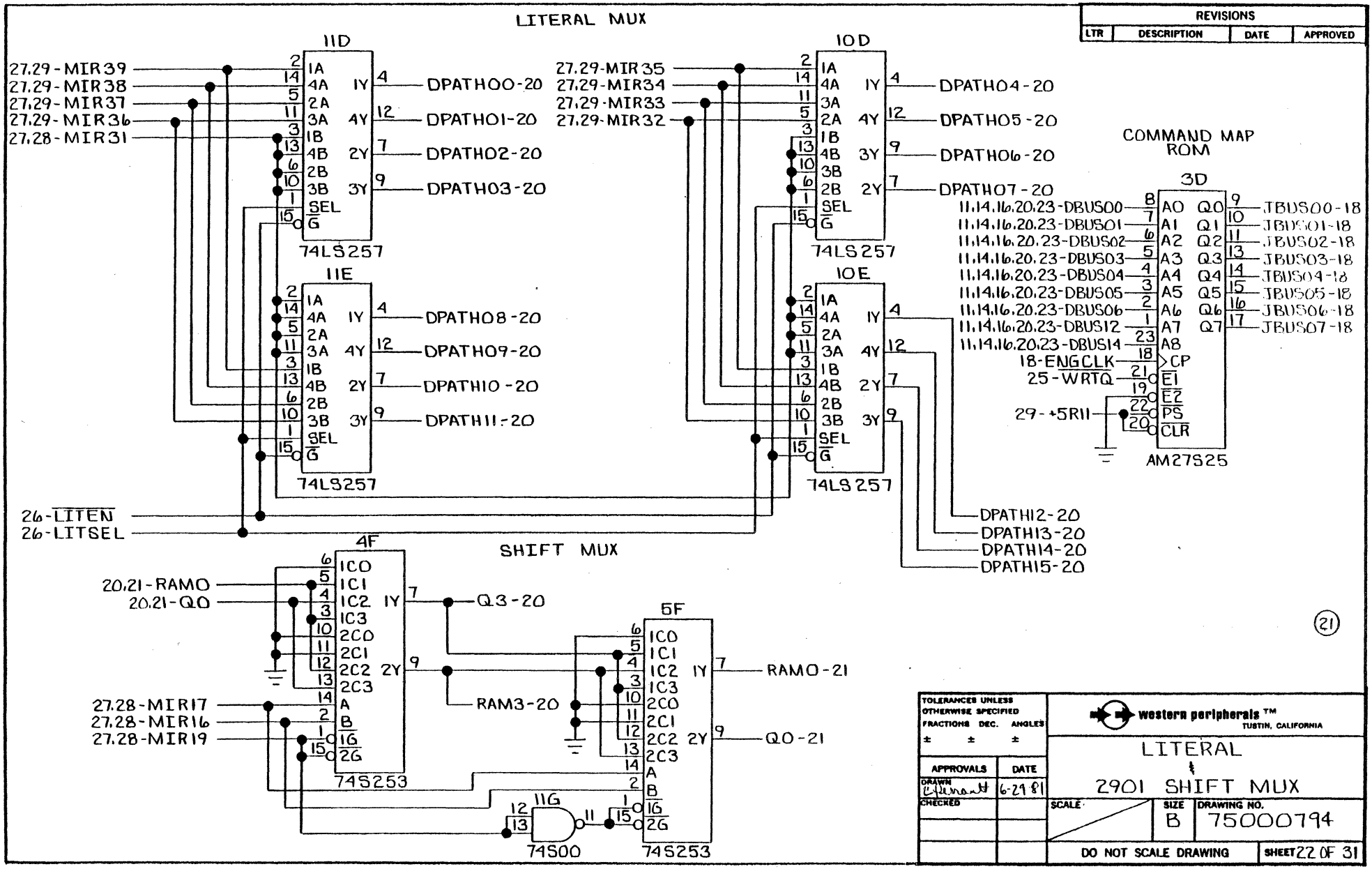
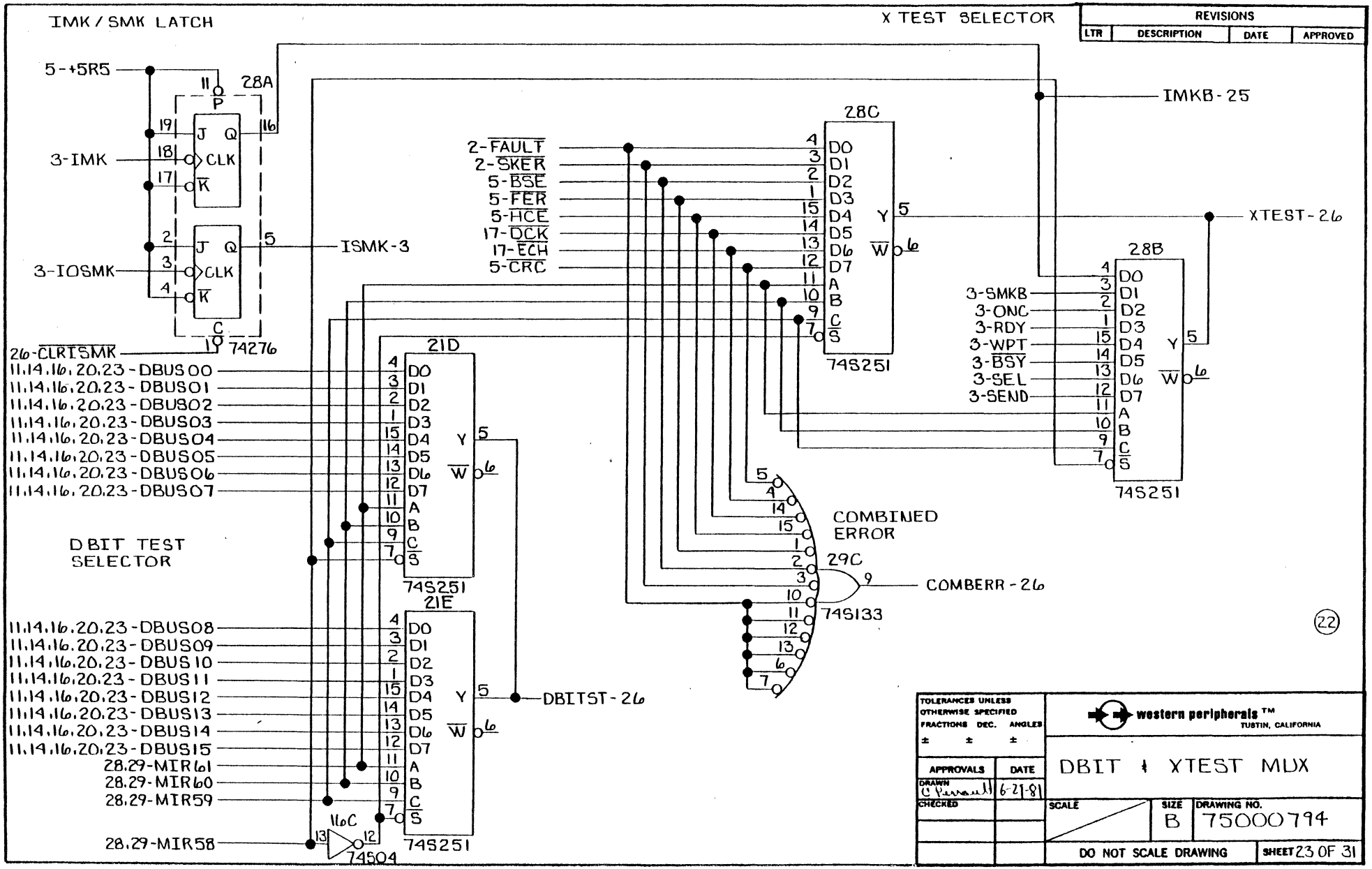
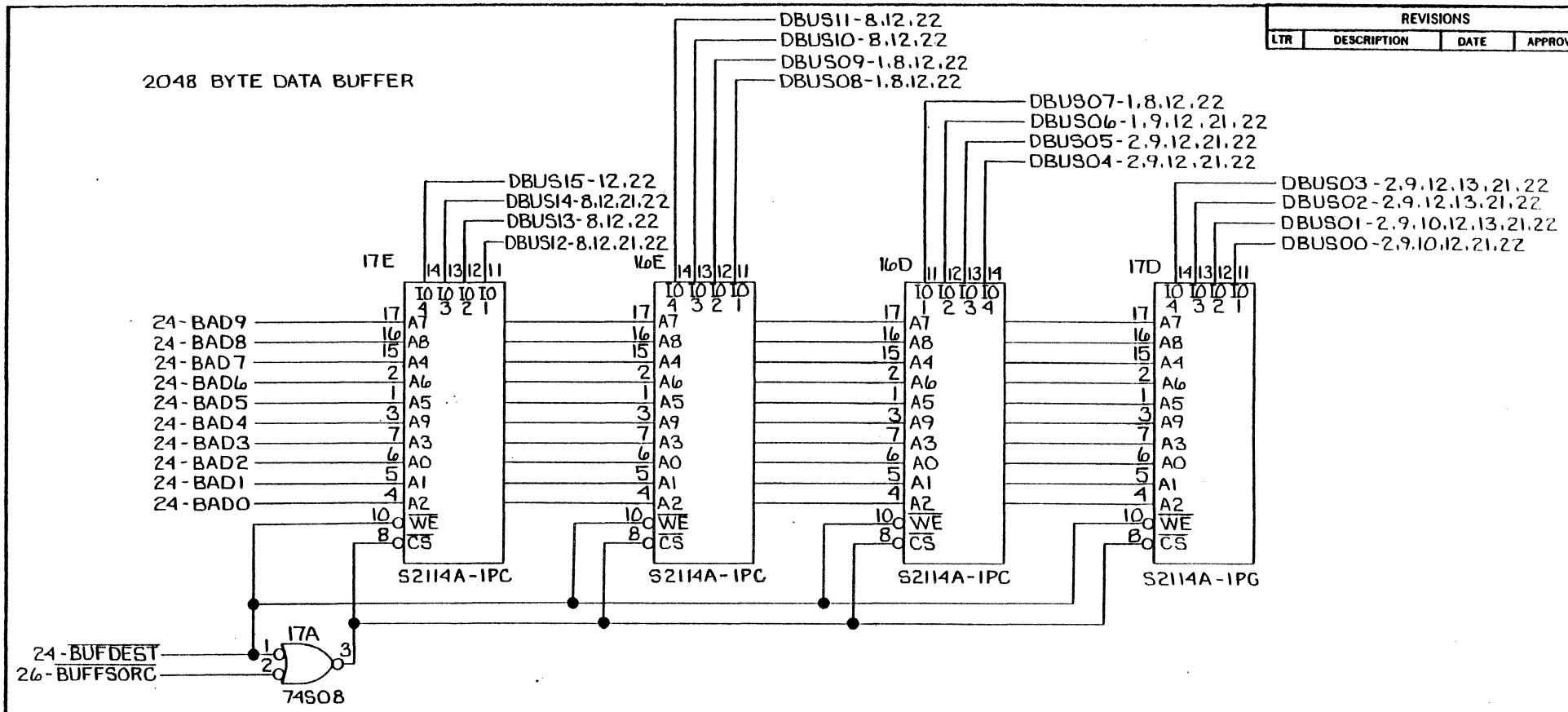
12,21-DPATH12
12,21-DPATH13
12,21-DPATH14
12,21-DPATH15
12,21-DPATH08
12,21-DPATH09
12,21-DPATH10
12,21-DPATH11
12,21-DPATH04
12,21-DPATH05
12,21-DPATH06
12,21-DPATH07
12,21-DPATH00
12,21-DPATH01
12,21-DPATH02
12,21-DPATH03
9D
7D
6D
4D
27,28-MIR18
27,28-MIR19
27,28-MIR20
27,28-MIR21
27,28-MIR22
27,28-MIR23
27,28-MIR24
27,28-MIR25
27,28-MIR26
27,29-MIR40
27,29-MIR41
27,29-MIR42
27,29-MIR43
27,28-MIR27
27,28-MIR28
27,28-MIR29
27,28-MIR30
21-Q3
21-RAM3
ALUM-26
ALUCRY-2,26
18-ENGCLK
26-2901EN
DBUS12-8,12,21,22
DBUS13-8,12,22
DBUS14-8,12,21,22
DBUS15-12,22
DBUS08-1,8,12,22
DBUS09-1,8,12,22
DBUS10-8,12,22
DBUS11-8,12,22
DBUS04-2,9,12,21,22
DBUS05-2,9,12,21,22
DBUS06-1,9,12,21,22
DBUS07-1,8,12,22
DBUS00-2,9,10,12,21,22
DBUS01-2,9,10,12,13,21,22
DBUS02-2,9,10,12,13,21,22
DBUS03-2,9,12,13,21,22
MICRO PROCESSOR
CARRY MUX
+5V
R35
1K
3E
2,26-ALUC0
26-ADI
27,28-MIR15
27,28-MIR14
74S253
R32
470
ALUZ-26
QO-21
RAMO-21
20
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN
CHECKED
6-2181
western peripherals TM
TUSTIN, CALIFORNIA
16 BIT 2901
CARRY MUX
SCALE
SIZE
B
DRAWING NO.
75000794
DO NOT SCALE DRAWING
SHEET 21 OF 31
504113


LITERAL MUX
REVISIONS
LTR DESCRIPTION DATE APPROVED
11D
10D
11E
10E
74LS257
27.29-MIR39
27.29-MIR38
27.29-MIR37
27.29-MIR36
27.28-MIR31
27.29-MIR35
27.29-MIR34
27.29-MIR33
27.29-MIR32
DPATH00-20
DPATH01-20
DPATH02-20
DPATH03-20
DPATH04-20
DPATH05-20
DPATH06-20
DPATH07-20
DPATH08-20
DPATH09-20
DPATH10-20
DPATH11-20
DPATH12-20
DPATH13-20
DPATH14-20
DPATH15-20
26-LITEN
26-LITSEL
COMMAND MAP ROM
3D
AM27S25
11,14,16,20,23-DBUS00
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS02
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS04
11,14,16,20,23-DBUS05
11,14,16,20,23-DBUS06
11,14,16,20,23-DBUS12
11,14,16,20,23-DBUS14
18-ENGCLK
25-WRTQ
29-+5R11
JBUS00-18
JBUS01-18
JBUS02-18
JBUS03-18
JBUS04-18
JBUS05-18
JBUS06-18
JBUS07-18
SHIFT MUX
4F
5F
74S253
74S00
20,21-RAM0
20,21-Q0
27,28-MIR17
27,28-MIR16
27,28-MIR19
Q3-20
RAM3-20
RAM0-21
Q0-21
21
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS DATE
DRAWN 6-29-81
CHECKED
western peripherals ™
TUSTIN, CALIFORNIA
LITERAL
2901 SHIFT MUX
SCALE
SIZE B
DRAWING NO. 750000794
DO NOT SCALE DRAWING
SHEET 22 OF 31
504113


IMK / SMK LATCH
X TEST SELECTOR
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
5-+5R5
28A
3-IMK
3-IOSMK
ISMK-3
26-CLRISMK
74276
IMKB-25
28C
2-FAULT
2-SKER
5-BSE
5-FER
5-HCE
17-DCK
17-ECH
5-CRC
74S251
XTEST-26
28B
3-SMKB
3-ONC
3-RDY
3-WPT
3-BSY
3-SEL
3-SEND
74S251
21D
11,14,16,20,23-DBUS00
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS02
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS04
11,14,16,20,23-DBUS05
11,14,16,20,23-DBUS06
11,14,16,20,23-DBUS07
74S251
DBIT TEST SELECTOR
COMBINED ERROR
29C
COMBERR-26
74S133
21E
11,14,16,20,23-DBUS08
11,14,16,20,23-DBUS09
11,14,16,20,23-DBUS10
11,14,16,20,23-DBUS11
11,14,16,20,23-DBUS12
11,14,16,20,23-DBUS13
11,14,16,20,23-DBUS14
11,14,16,20,23-DBUS15
28,29-MIR61
28,29-MIR60
28,29-MIR59
28,29-MIR58
11oC
74S04
74S251
DBITST-26
22
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS
DATE
DRAWN
6-21-81
CHECKED
western peripherals ™
TUSTIN, CALIFORNIA
DBIT & XTEST MUX
SCALE
SIZE
B
DRAWING NO.
75000794
DO NOT SCALE DRAWING
SHEET 23 OF 31
504113

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

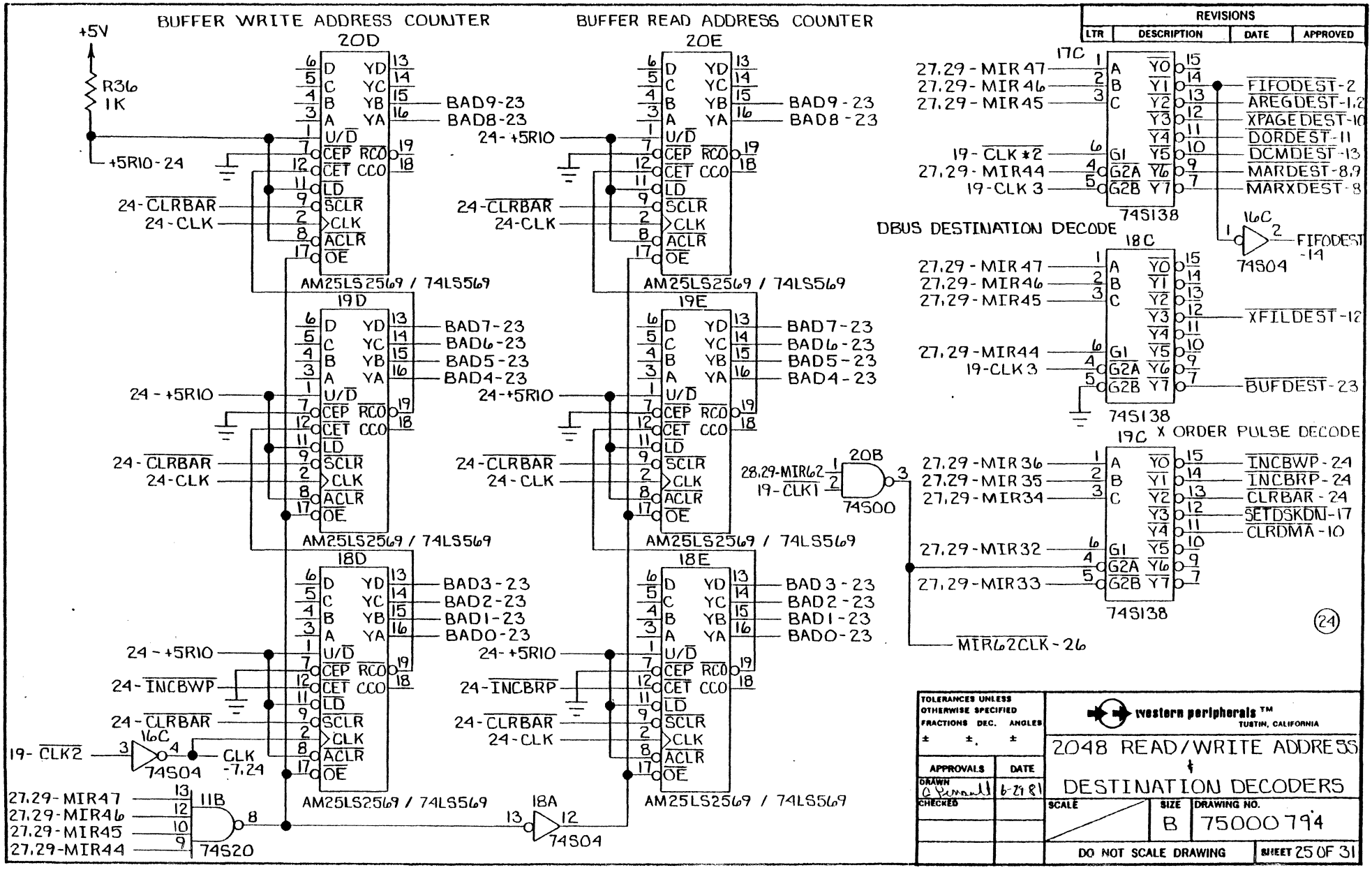
2048 BYTE DATA BUFFER



(23)

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS ± DEC. ± ANGLES ±		western peripherals ™ TUSTIN, CALIFORNIA	
APPROVALS	DATE	2048 BYTE BUFFER	
DRAWN C. Pinnell	6-29-81		
CHECKED		SCALE	SIZE B — DRAWING NO. 75000794
		DO NOT SCALE DRAWING	SHEET 24 OF 31

504113


BUFFER WRITE ADDRESS COUNTER
BUFFER READ ADDRESS COUNTER
+5V
R36
1K
+5R10-24
20D
20E
AM25LS2569 / 74LS569
BAD9-23
BAD8-23
BAD7-23
BAD6-23
BAD5-23
BAD4-23
BAD3-23
BAD2-23
BAD1-23
BAD0-23
24-+5R10
24-CLRBAR
24-CLK
19D
19E
18D
18E
24-INCBWP
24-INCBRP
19-CLK2
16C
74S04
CLK-7,24
27,29-MIR47
27,29-MIR46
27,29-MIR45
27,29-MIR44
11B
74S20
18A
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
17C
74S138
FIFODEST-2
AREGDEST-1,2
XPAGEDEST-10
DORDEST-11
DCMDEST-13
MARDEST-8,9
MARXDEST-8
DBUS DESTINATION DECODE
FIFODEST-14
18C
XFILDEST-12
BUFDEST-23
19C
X ORDER PULSE DECODE
INCBWP-24
INCBRP-24
CLRBAR-24
SETDSKDN-17
CLRDMA-10
20B
28,29-MIR62
19-CLK1
74S00
MIR62CLK-26
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN
CHECKED
western peripherals™
TUSTIN, CALIFORNIA
2048 READ/WRITE ADDRESS
DESTINATION DECODERS
SCALE
SIZE
B
DRAWING NO.
75000794
DO NOT SCALE DRAWING
SHEET 25 OF 31

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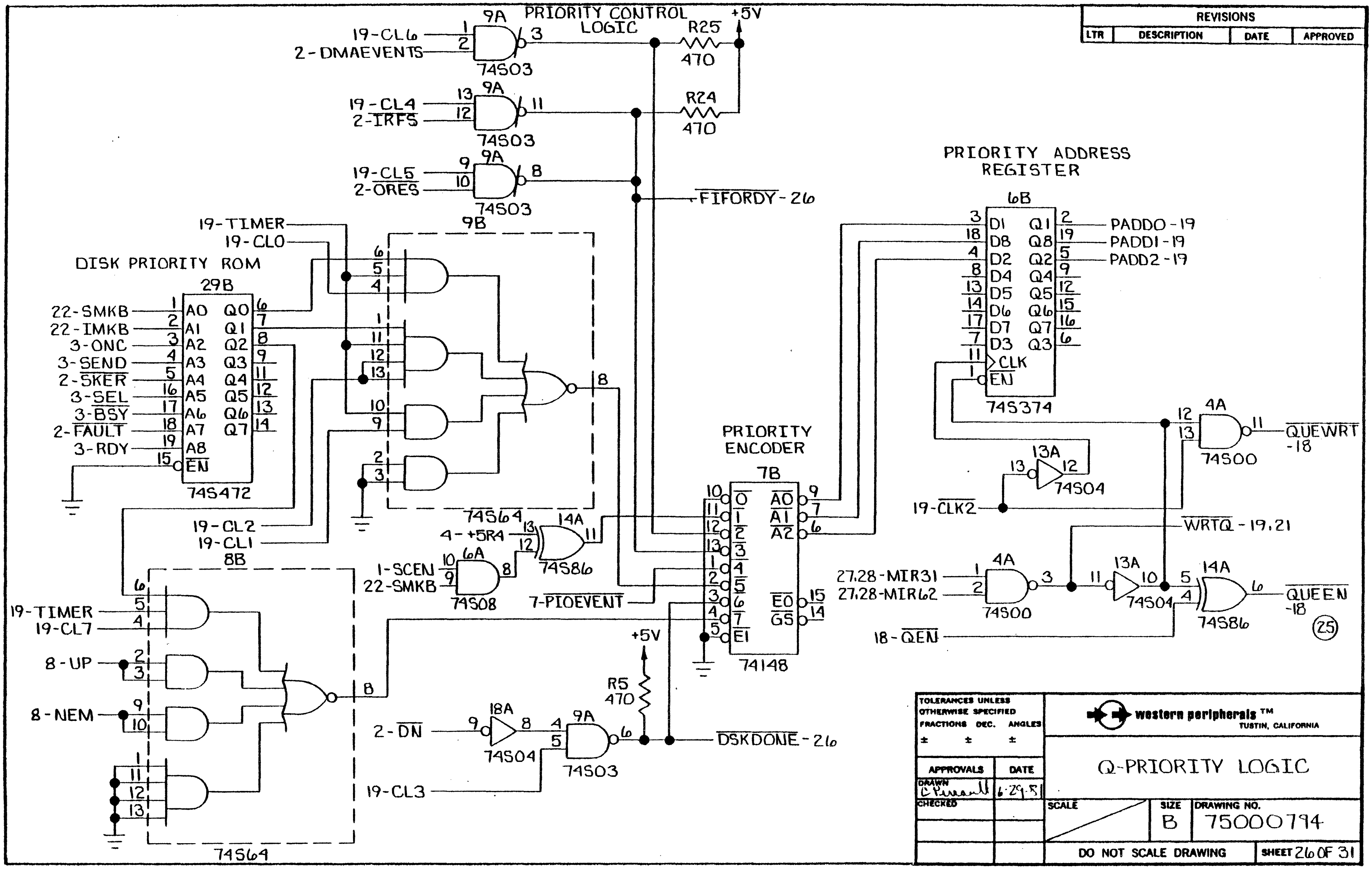
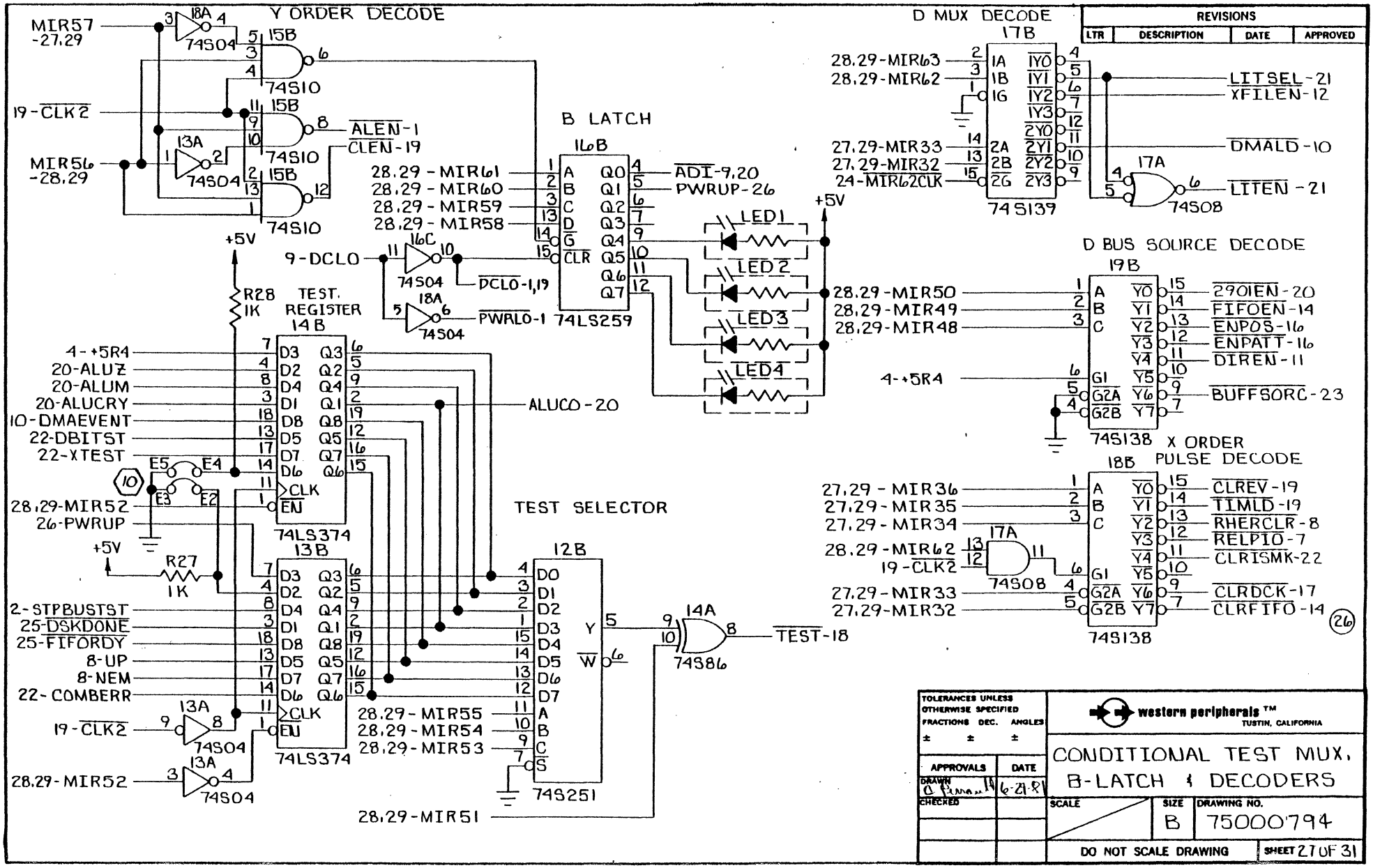
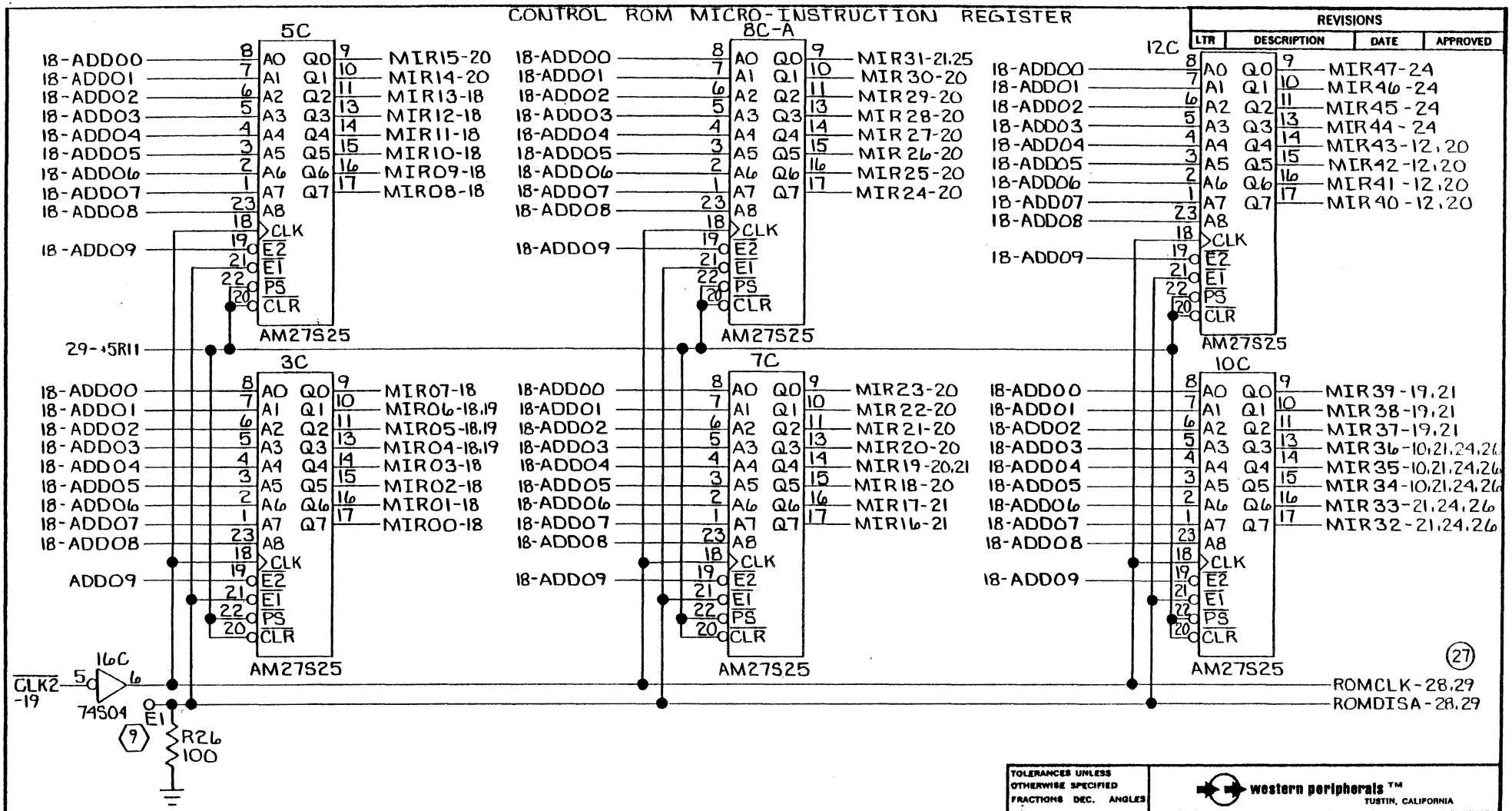

PRIORITY CONTROL LOGIC
19-CL6
2-DMAEVENTS
19-CL4
2-IRFS
19-CL5
2-ORES
9A
74S03
R25
R24
470
+5V
FIFORDY-26
PRIORITY ADDRESS REGISTER
6B
74S374
PADD0-19
PADD1-19
PADD2-19
19-TIMER
19-CL0
9B
DISK PRIORITY ROM
29B
74S472
22-SMKB
22-IMKB
3-ONC
3-SEND
2-SKER
3-SEL
3-BSY
2-FAULT
3-RDY
74S64
PRIORITY ENCODER
7B
74148
19-CL2
19-CL1
8B
4-+5R4
14A
74S86
1-SCEN
22-SMKB
6A
74S08
7-PIOEVENT
19-CLK2
13A
74S04
4A
74S00
QUEWRT -18
WRTQ-19,21
27,28-MIR31
27,28-MIR62
QUEEN -18
18-QEN
19-TIMER
19-CL7
8-UP
8-NEM
2-DN
18A
74S04
19-CL3
R5
470
DSKDONE-26
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS
DATE
DRAWN
6-29-81
CHECKED
western peripherals ™
TUSTIN, CALIFORNIA
Q-PRIORITY LOGIC
SCALE
SIZE
B
DRAWING NO.
75000794
DO NOT SCALE DRAWING
SHEET 26 OF 31

504113


Y ORDER DECODE
B LATCH
D MUX DECODE
D BUS SOURCE DECODE
TEST SELECTOR
X ORDER PULSE DECODE
TEST. REGISTER
MIR57 -27,29
MIR56 -28,29
19-CLK2
ALEN-1
CLEN-19
28,29-MIR61
28,29-MIR60
28,29-MIR59
28,29-MIR58
ADI-9,20
PWRUP-26
9-DCLO
DCLO-1,19
PWRLO-1
74S504
74S10
74LS259
74S139
74S08
74S138
74LS374
74S251
74S86
LED1
LED2
LED3
LED4
+5V
R28 1K
R27 1K
28,29-MIR63
28,29-MIR62
27,29-MIR33
27,29-MIR32
24-MIR62CLK
LITSEL-21
XFILEN-12
DMALD-10
LITEN-21
28,29-MIR50
28,29-MIR49
28,29-MIR48
4-+5R4
290IEN-20
FIFOEN-14
ENPOS-16
ENPATT-16
DIREN-11
BUFFSORC-23
27,29-MIR36
27,29-MIR35
27,29-MIR34
28,29-MIR62
19-CLK2
27,29-MIR33
27,29-MIR32
CLREV-19
TIMLD-19
RHERCLR-8
RELPIO-7
CLRISMK-22
CLRDCK-17
CLRFIFO-14
4-+5R4
20-ALUZ
20-ALUM
20-ALUCRY
10-DMAEVENT
22-DBITST
22-XTEST
28,29-MIR52
26-PWRUP
ALUCO-20
2-STPBUSTST
25-DSKDONE
25-FIFORDY
8-UP
8-NEM
22-COMBERR
28,29-MIR55
28,29-MIR54
28,29-MIR53
28,29-MIR51
TEST-18
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN
CHECKED
6-21-81
western peripherals TM
TUSTIN, CALIFORNIA
CONDITIONAL TEST MUX, B-LATCH & DECODERS
SCALE
SIZE
B
DRAWING NO.
75000794
DO NOT SCALE DRAWING
SHEET 27 OF 31
504113

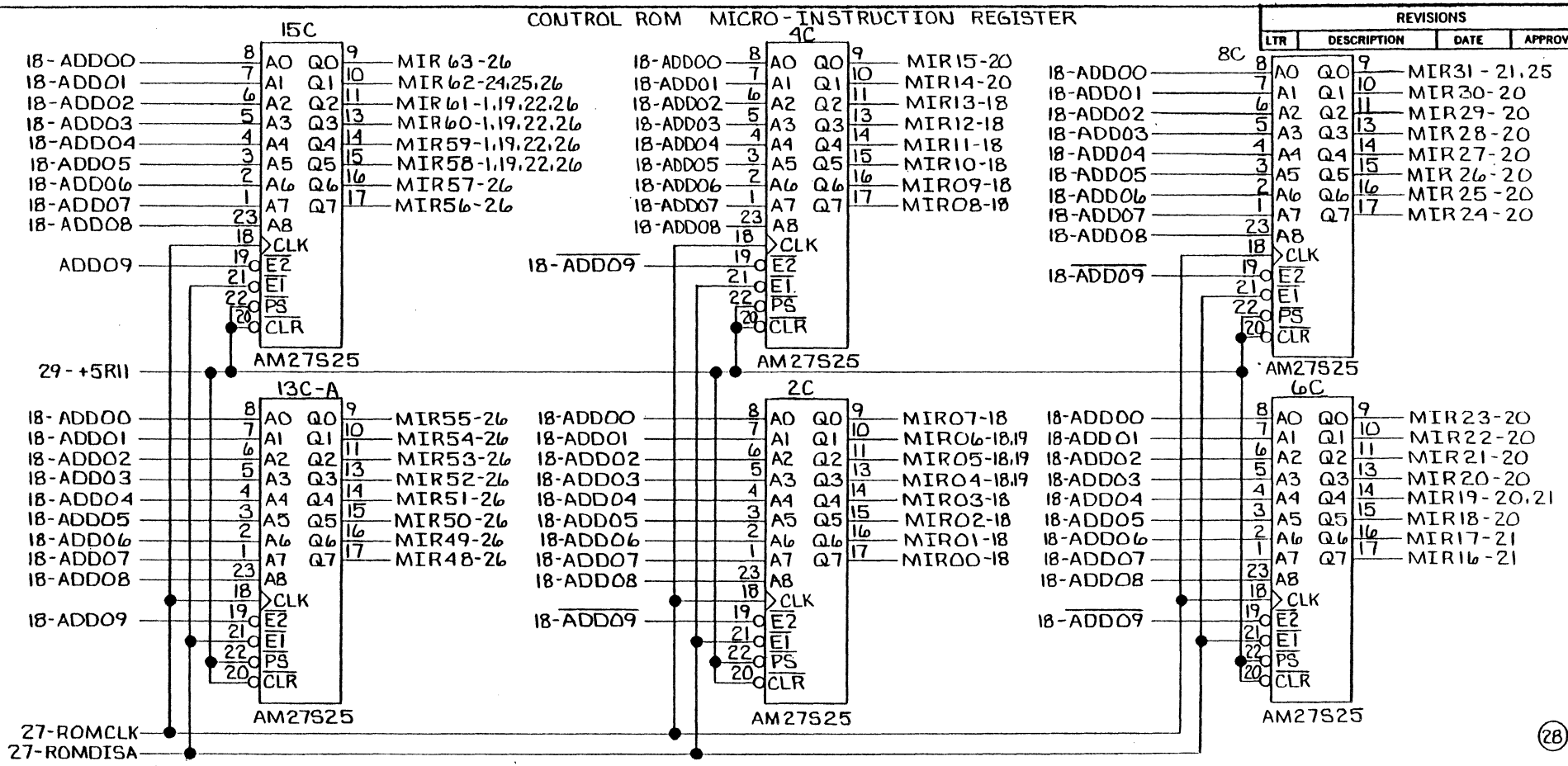
CONTROL ROM MICRO-INSTRUCTION REGISTER



REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

TOLERANCES UNLESS OTHERWISE SPECIFIED	western peripherals ™ TUSTIN, CALIFORNIA
FRACTIONS DEC. ANGLES ± ± ±	MICRO INSTRUCTION PROM'S
APPROVALS / DRAWN / CHECKED — DATE 6-29-81	SCALE — SIZE B — DRAWING NO. 75000794
DO NOT SCALE DRAWING	SHEET 28 OF 31

CONTROL ROM MICRO-INSTRUCTION REGISTER



REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

(28)

TOLERANCES UNLESS OTHERWISE SPECIFIED		
FRACTIONS	DEC.	ANGLES
±	±	±

APPROVALS	DATE
DRAWN C Pierce	6-2181
CHECKED	

western peripherals ™ TUSTIN, CALIFORNIA

MICRO INSTRUCTION PROM'S

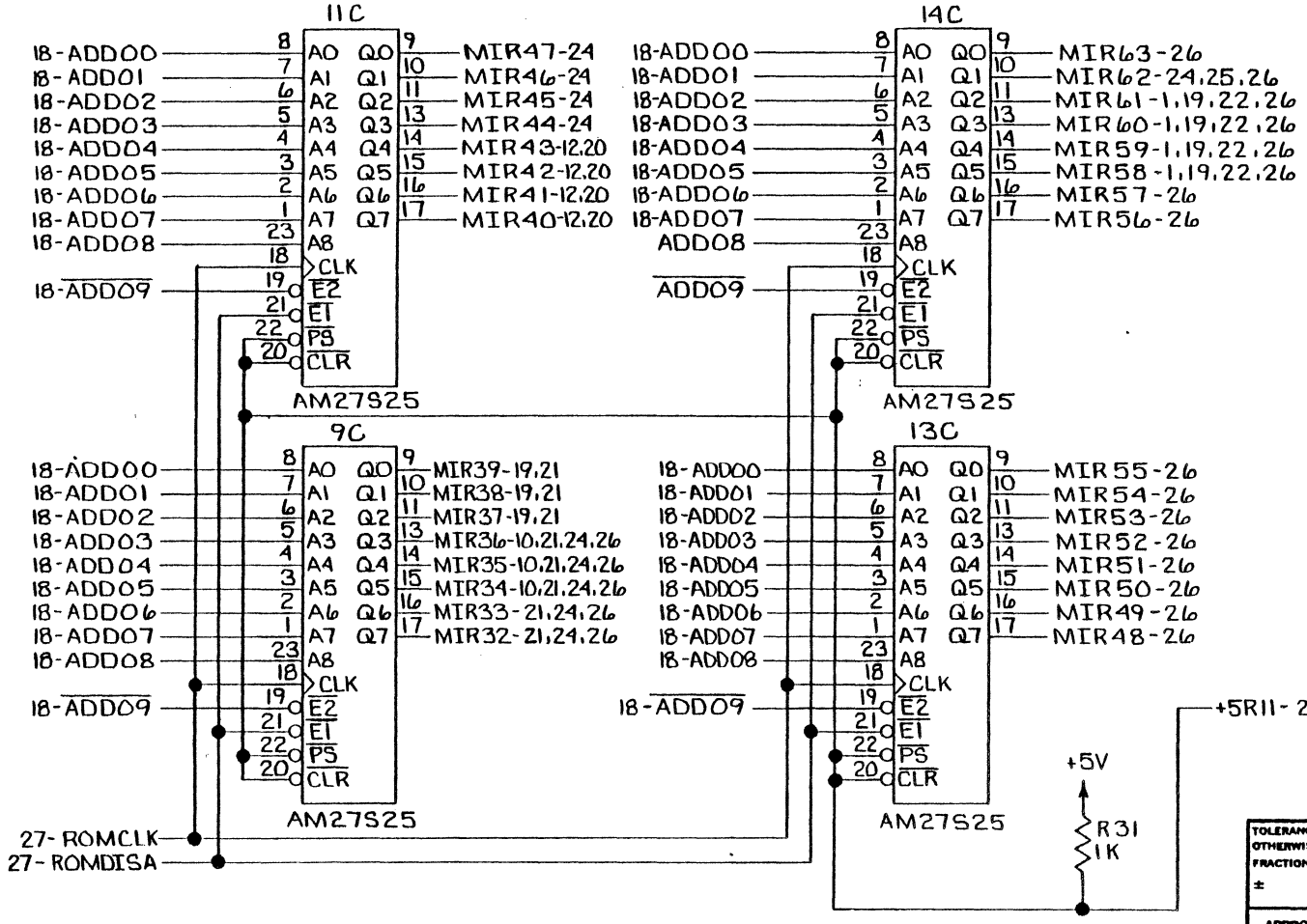
SCALE	SIZE	DRAWING NO.
	B	75000794

DO NOT SCALE DRAWING — SHEET 29 OF 31

504113

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

CONTROL ROM MICRO-INSTRUCTION REGISTER



(29)

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS DEC. ANGLES ± ± ±		western peripherals ™ TUSTIN, CALIFORNIA	
APPROVALS	DATE	MICRO INSTRUCTION PROM'S	
DRAWN C. Terrell	6-29-81		
CHECKED		SCALE	SIZE B — DRAWING NO. 75000794
		DO NOT SCALE DRAWING	SHEET 30 OF 31

504113

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

(5) DEVICE ADDRESS
STD ADDR 776700_8

ADDR BIT	ADDR RANGE	E JUMPERS	STD ADDR	INSTALLED JUMPERS	
17	1		1		
16	1		1		
15	1		1		
14	1		1		
13	1		1		
12	0/1	43-44	1		
11	0/1	49-50	1		
10	0/1	51-52	1		
9	0/1	47-48	0	X	*
8	0/1	45-46	1		
7	0/1	53-54	1		
6	0/1	55-56	1		
5	0/1	19-20	0	X	*
4	0/1		X		
3	X		X		
2	X		X		
1	X		X		
0	X		X		

INSTALL JUMPERS FOR "0'S" IN DESIRED ADDR
* STANDARD CONFIGURATION IN ETCH.

(6) WORDS TRANSFERED PER NPR

MODE	JUMPERS	SECTORS TRANSFRD WITHOUT ROTATIONAL DELAY (NOM.) WRITE	READ
1 WORD	E81 - E82	14	14
2 WORDS	E41 - E42	38	38
4 WORDS *	E31 - E38	160	160
8 WORDS	E40 - E39	160	160
HOG (256)	NONE	160	160

REMOVE ALL OTHER JUMPERS EXCEPT THE ONE INDICATED
* STANDARD

(7) INTERRUPT PRIORITY LEVEL

BR4	BR5 *	BR6	BR7
E59 - E60	E59 - E61	E59 - E62	E59 - E63
E64 - E69	E68 - E69	E71 - E69	E73 - E69
E65 - E67	E66 - E67	E70 - E67	E72 - E67
E66 - E68	E64 - E65	E64 - E65	E64 - E65
E70 - E71	E70 - E71	E66 - E68	E66 - E68
E72 - E73	E72 - E73	E72 - E73	E70 - E71

* STANDARD CONFIGURATION IN ETCH

(8) INTERRUPT VECTOR
STD VECTOR 254_8

VCTR BIT	E JUMPERS	STD VCTR	INSTALLED JUMPERS	
7	27 - 28	1		
6	29 - 30	0	X	*
5	25 - 26	1		
4	23 - 24	0	X	*
3	21 - 22	1		
2	31 - 32	1		
1		0		
0		0		

INSTALL JUMPERS FOR "0'S" IN DESIRED VECTOR
* STANDARD CONFIGURATION IN ETCH

(10) DRIVE CAPACITY RM02

DRIVE SIZE	E JUMPERS	CUT ETCH BETWEEN
675 MB	E2 - E3	E4 - E5
80 MB *	E2 - E3 E4 - E5	
160 MB	E4 - E5	E2 - E3
300 MB	NONE	E2-E3 E4-E5

* STANDARD CONFIGURATION IN ETCH

TOLERANCES UNLESS OTHERWISE SPECIFIED		
FRACTIONS	DEC.	ANGLES
±	±	±

APPROVALS	DATE
DRAWN	6-27-81
CHECKED	

western peripherals ™ TUSTIN, CALIFORNIA

SCHEMATIC
DC231 SMD CONTROLLER

SCALE	SIZE	DRAWING NO.
	B	75000794

DO NOT SCALE DRAWING — SHEET 31 OF 31

H			
TAG 1	1	31	TAG 1
TAG 2	2	32	TAG 2
TAG 3	3	33	TAG 3
DBIT 0	4	34	DBIT 0
DBIT 1	5	35	DBIT 1
DBIT 2	6	36	DBIT 2
DBIT 3	7	37	DBIT 3
DBIT 4	8	38	DBIT 4
DBIT 5	9	39	DBIT 5
DBIT 6	10	40	DBIT 6
DBIT 7	11	41	DBIT 7
DBIT 8	12	42	DBIT 8
DBIT 9	13	43	DBIT 9
OPEN CABLE DET.	14	44	OPEN CABLE DET.
FAULT	15	45	FAULT
SEEK ERROR	16	46	SEEK ERROR
ON CYLINDER	17	47	ON CYLINDER
INDEX MARK	18	48	INDEX MARK
UNIT READY	19	49	UNIT READY
	20	50	
BUSY	21	51	BUSY
UNIT SELECT TAG	22	52	UNIT SELECT TAG
UNIT SELECT 2^0	23	53	UNIT SELECT 2^0
UNIT SELECT 2^1	24	54	UNIT SELECT 2^1
SECTOR MARK	25	55	SECTOR MARK
UNIT SELECT 2^2	26	56	UNIT SELECT 2^2
UNIT SELECT 2^3	27	57	UNIT SELECT 2^3
WRITE PROTECT	28	58	WRITE PROTECT
POWER PICK	29	59	POWER HOLD
	30	60	DBIT 10

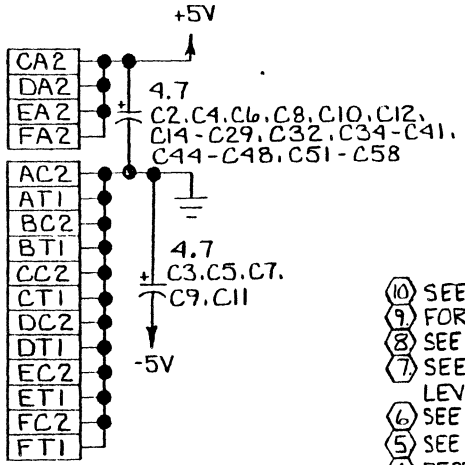
J			
GND	1	14	SERVO CLK 0
SERVO CLK 0	2	15	GND
READ DATA 0	3	16	READ DATA 0
GND	4	17	READ CLK 0
READ CLK 0	5	18	GND
WRT CLK 0	6	19	WRT CLK 0
GND	7	20	WRT DATA 0
WRT DATA 0	8	21	GND
UNIT SELD 0	9	22	UNIT SELD 0
SEEK END 0	10	23	SEEK END 0
GND	11	24	
	12	25	GND
	13	26	

K			
GND	1	14	SERVO CLK 1
SERVO CLK 1	2	15	GND
READ DATA 1	3	16	READ DATA 1
GND	4	17	READ CLK 1
READ CLK 1	5	18	GND
WRT CLK 1	6	19	WRT CLK 1
GND	7	20	WRT DATA 1
WRT DATA 1	8	21	GND
UNIT SELD 1	9	22	UNIT SELD 1
SEEK END 1	10	23	SEEK END 1
GND	11	24	
	12	25	GND
	13	26	

L			
GND	1	14	SERVO CLK 2
SERVO CLK 2	2	15	GND
READ DATA 2	3	16	READ DATA 2
GND	4	17	READ CLK 2
READ CLK 2	5	18	GND
WRT CLK 2	6	19	WRT CLK 2
GND	7	20	WRT DATA 2
WRT DATA 2	8	21	GND
UNIT SELD 2	9	22	UNIT SELD 2
SEEK END 2	10	23	SEEK END 2
GND	11	24	
	12	25	GND
	13	26	

M			
GND	1	14	SERVO CLK 3
SERVO CLK 3	2	15	GND
READ DATA 3	3	16	READ DATA 3
GND	4	17	READ CLK 3
READ CLK 3	5	18	GND
WRT CLK 3	6	19	WRT CLK 3
GND	7	20	WRT DATA 3
WRT DATA 3	8	21	GND
UNIT SELD 3	9	22	UNIT SELD 3
SEEK END 3	10	23	SEEK END 3
GND	11	24	
	12	25	GND
	13	26	

LAST DESIGNATION USED	
RESISTOR	R58
CAPACITOR	C58
LIGHT EMITTING DIODE	LED4
RESISTOR NETWORK	RN20
OSCILLATOR	Y1
VOLTAGE REGULATOR	Q1
DIODE	CR1



REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
X	ENG RELEASE	10-1-81	
A	[illegible]	[illegible]	
B	REV PER ECO 1025	3-29-82	
C	REV PER ECO 1036	4-8-82	
D	REV. PER ECO 1042	4-9-82	
E	REV. PER ECO 1053	5-5-82	

(10) SEE DRIVE CAPACITY TABLE.
(9) FOR TEST ONLY.
(8) SEE INTERRUPT VECTOR TABLE.
(7) SEE INTERRUPT PRIORITY LEVEL TABLE.
(6) SEE WORDS PER NPR TABLE.
(5) SEE DEVICE ADDRESS TABLE.
(4) RESERVED FOR FUTURE USE.
3. REFERENCE ASSY. 60000965
2. CAPACITOR VALUES ARE IN MICROFARADS.
1. RESISTANCE VALUES ARE IN OHMS.

NOTES: UNLESS OTHERWISE SPECIFIED

TOLERANCES UNLESS OTHERWISE SPECIFIED		
FRACTIONS	DEC.	ANGLES
±	±	±

APPROVALS	DATE
DRAWN C Ayala	10-12-81
CHECKED	

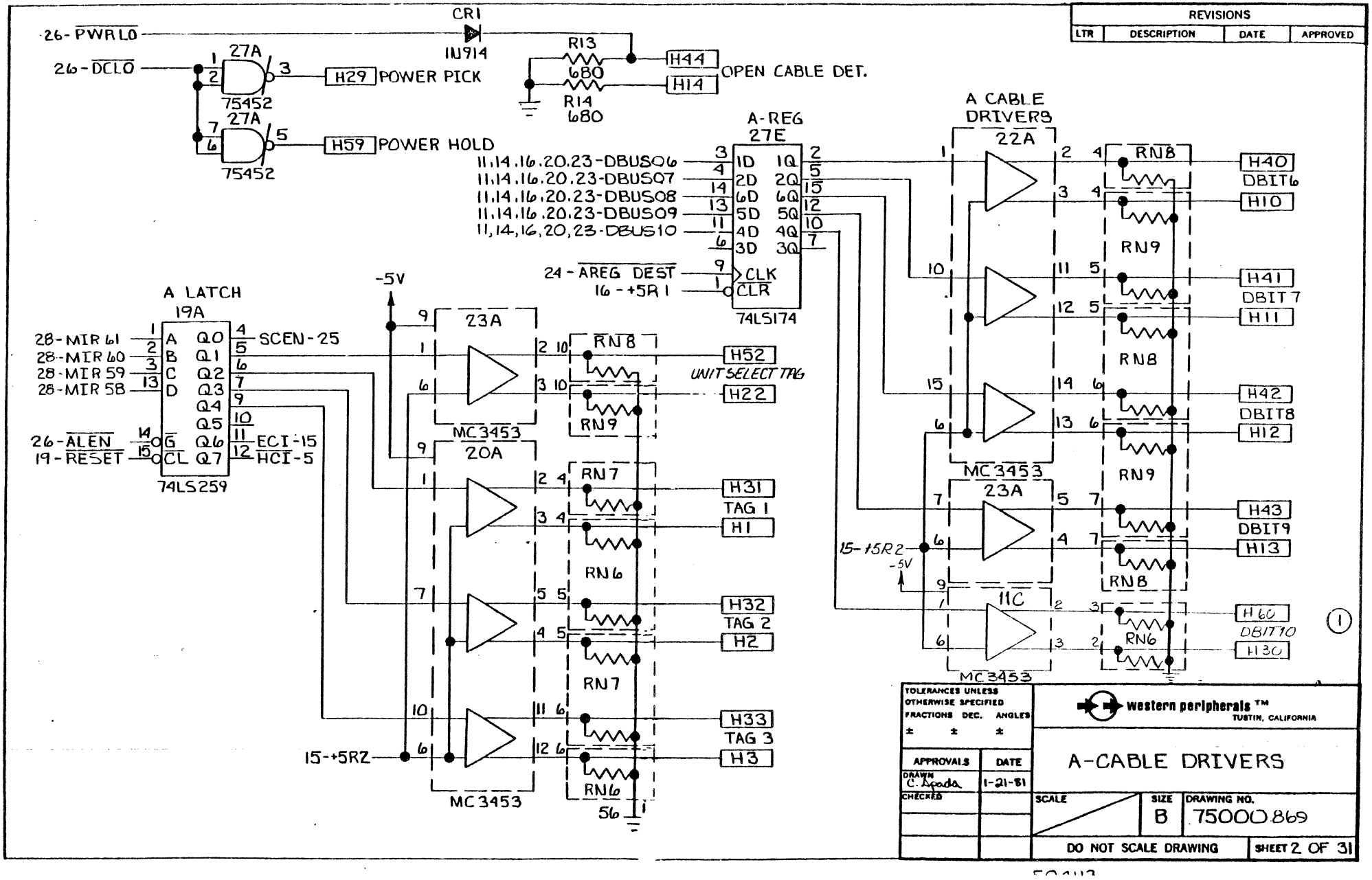
western peripherals™ TUSTIN, CALIFORNIA

SCHEMATIC
DC 231A SMD CONTROLLER

SCALE	SIZE	DRAWING NO.
	B	75000869

DO NOT SCALE DRAWING — SHEET 1 OF 31

50413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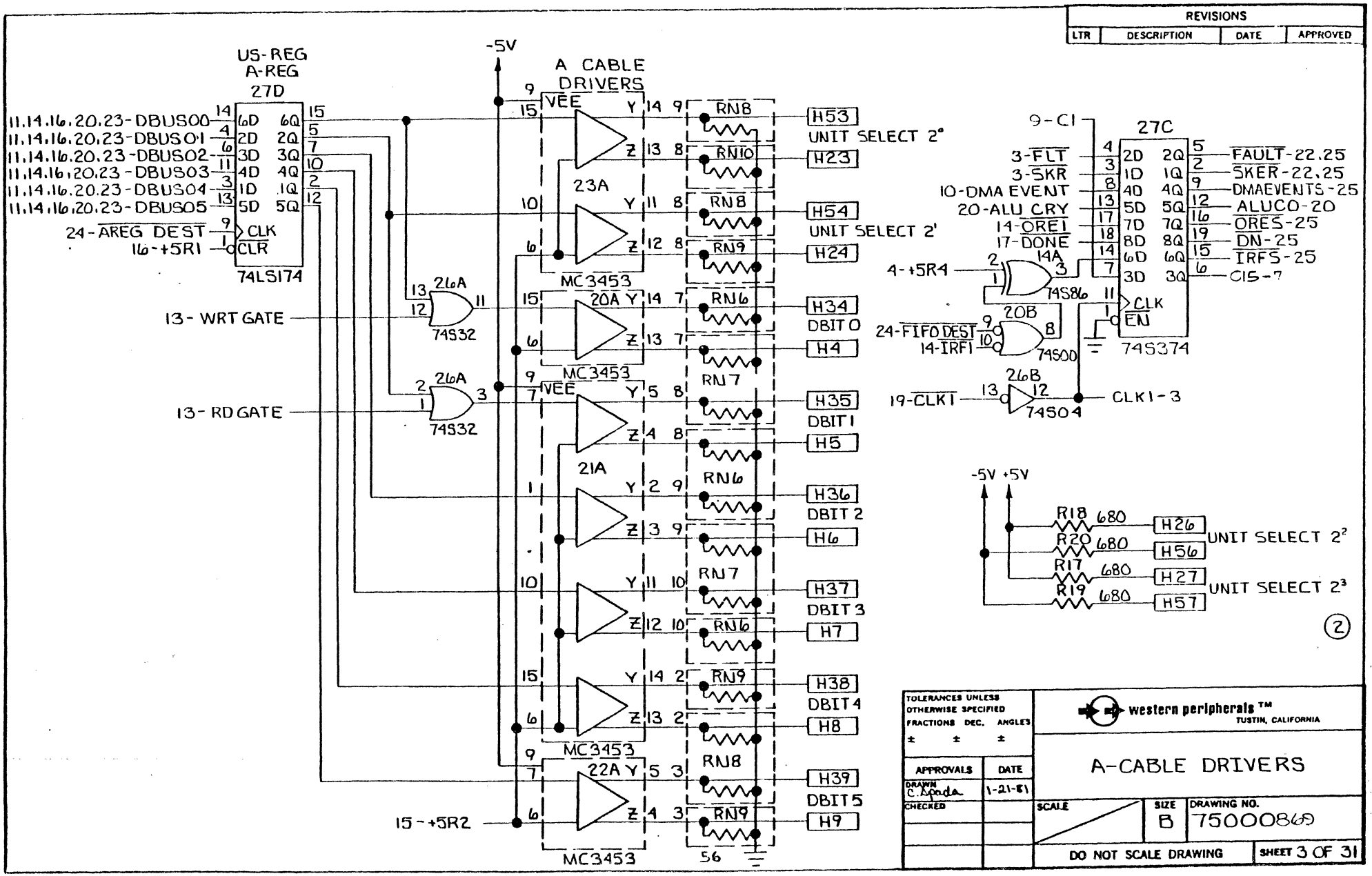
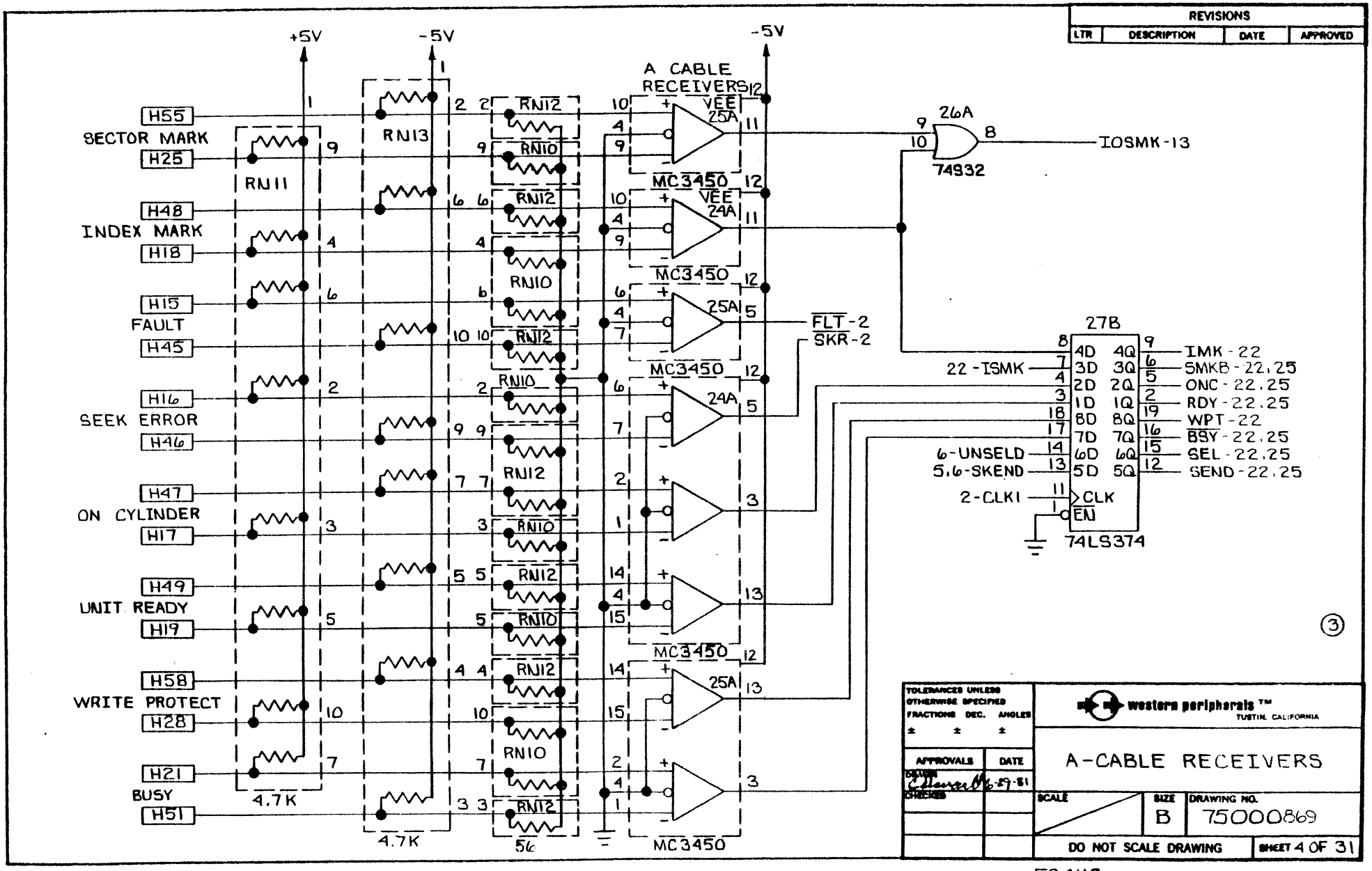
CR1
1N914
R13
680
R14
680
H44
H14
OPEN CABLE DET.
26-DCLO
27A
75452
H29
POWER PICK
H59
POWER HOLD
A-REG
27E
74LS174
11,14,16,20,23-DBUS06
11,14,16,20,23-DBUS07
11,14,16,20,23-DBUS08
11,14,16,20,23-DBUS09
11,14,16,20,23-DBUS10
24-AREG DEST
16-+5R1
A CABLE DRIVERS
22A
RN8
RN9
H40
DBIT6
H10
H41
DBIT7
H11
H42
DBIT8
H12
H43
DBIT9
H13
H60
DBIT10
H30
MC3453
23A
11C
15-15R2
-5V
A LATCH
19A
74LS259
28-MIR61
28-MIR60
28-MIR59
28-MIR58
26-ALEN
19-RESET
SCEN-25
ECI-15
HCI-5
-5V
MC3453
23A
20A
RN7
RN6
H52
UNIT SELECT TAG
H22
H31
TAG 1
H1
H32
TAG 2
H2
H33
TAG 3
H3
15-+5R2
56
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS DATE
DRAWN C. Spada 1-21-81
CHECKED
western peripherals TM
TUSTIN, CALIFORNIA
A-CABLE DRIVERS
SCALE
SIZE B
DRAWING NO. 75000869
DO NOT SCALE DRAWING
SHEET 2 OF 31


REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
US-REG
A-REG
27D
74LS174
-5V
A CABLE
DRIVERS
MC3453
11,14,16,20,23-DBUS00
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS02
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS04
11,14,16,20,23-DBUS05
24-AREG DEST
16-+5R1
13-WRT GATE
13-RD GATE
15-+5R2
74S32
74S04
RN8
RN10
RN9
RN6
RN7
56
H53
UNIT SELECT 2°
H23
H54
UNIT SELECT 2'
H24
H34
DBIT 0
H4
H35
DBIT 1
H5
H36
DBIT 2
H6
H37
DBIT 3
H7
H38
DBIT 4
H8
H39
DBIT 5
H9
9-C1
27C
74S374
3-FLT
3-SKR
10-DMA EVENT
20-ALU CRY
14-OREI
17-DONE
4-+5R4
74S86
20B
74S00
24-FIFO DEST
14-IRFI
19-CLK1
CLK1-3
FAULT-22,25
SKER-22,25
DMAEVENTS-25
ALUCO-20
ORES-25
DN-25
IRFS-25
C15-7
-5V +5V
R18 680
R20 680
R17 680
R19 680
H26
H56
H27
H57
UNIT SELECT 2²
UNIT SELECT 2³
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN C. Loada 1-21-81
CHECKED
western peripherals™
TUSTIN, CALIFORNIA
A-CABLE DRIVERS
SCALE
SIZE B
DRAWING NO. 75000869
DO NOT SCALE DRAWING
SHEET 3 OF 31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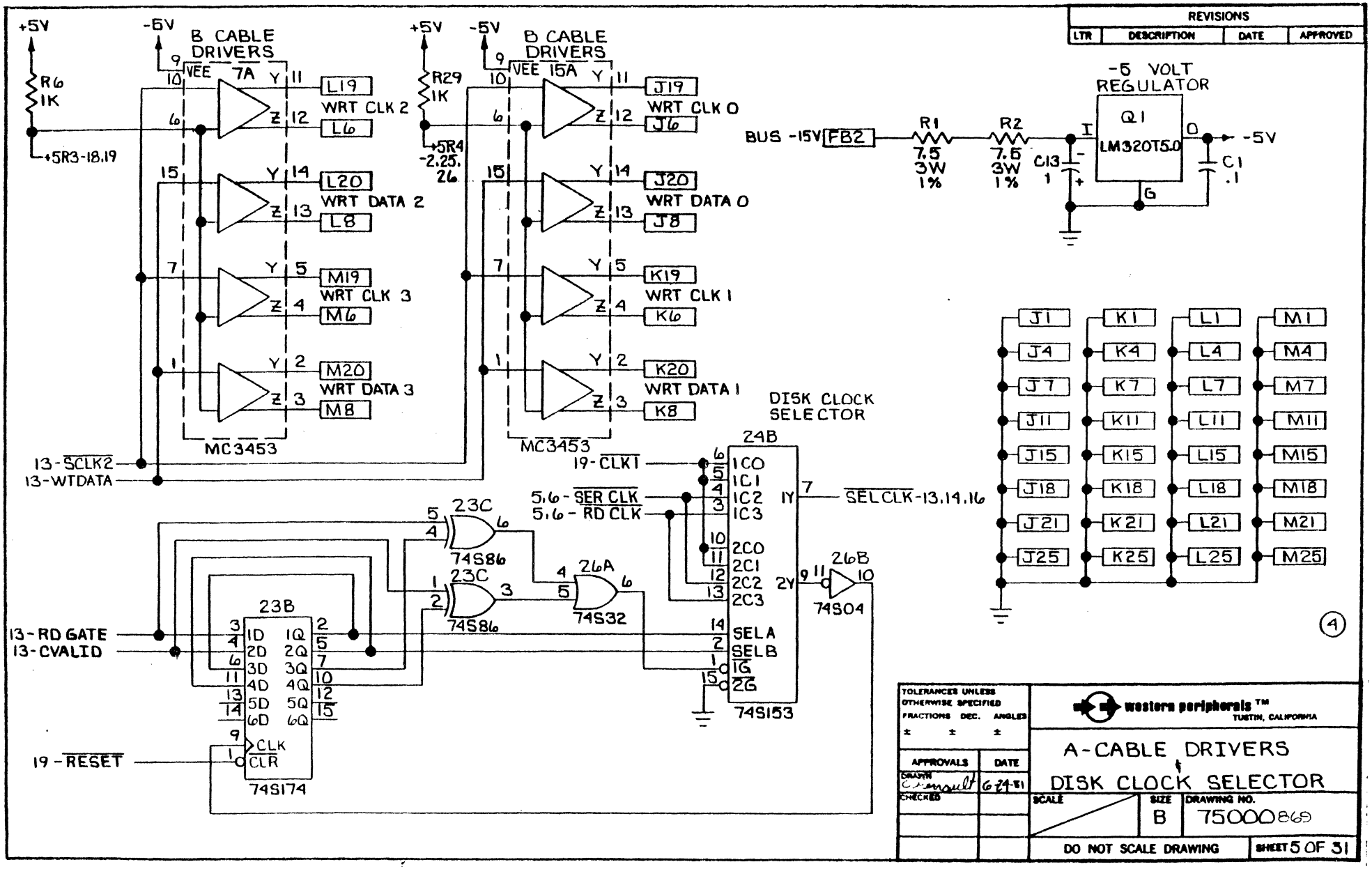
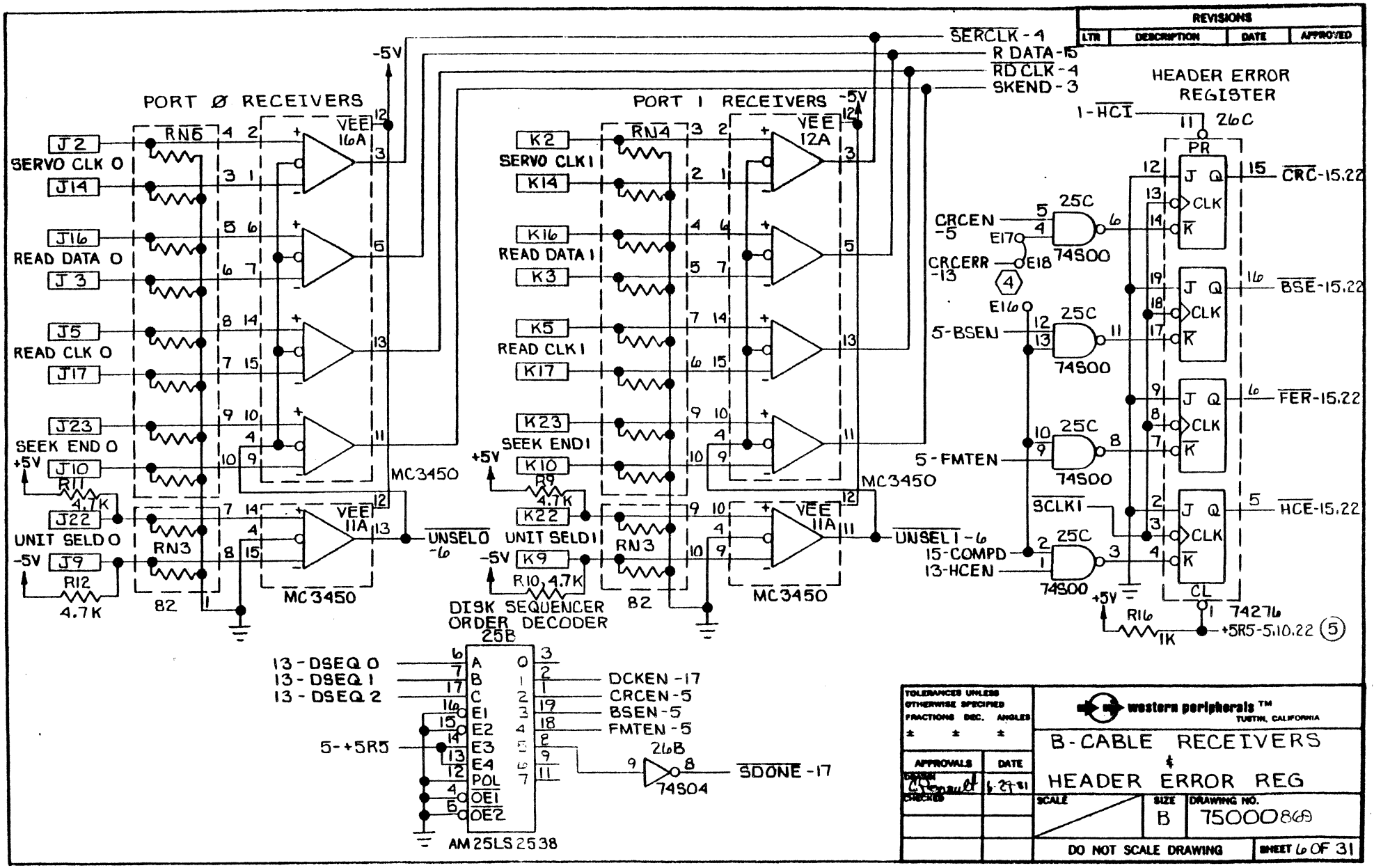
DESCRIPTION
DATE
APPROVED
+5V
-5V
-5V
A CABLE RECEIVERS
H55
SECTOR MARK
H25
RN11
H48
INDEX MARK
H18
H15
FAULT
H45
H16
SEEK ERROR
H46
H47
ON CYLINDER
H17
H49
UNIT READY
H19
H58
WRITE PROTECT
H28
H21
BUSY
H51
4.7K
RN13
4.7K
RN12
RN10
RN12
RN10
RN12
RN10
RN12
RN10
RN12
56
MC3450
VEE
25A
MC3450
VEE
24A
MC3450
25A
MC3450
24A
MC3450
25A
MC3450
26A
74932
IOSMK-13
FLT-2
SKR-2
27B
22-ISMK
6-UNSELD
5,6-SKEND
2-CLK1
4D 4Q
3D 3Q
2D 2Q
1D 1Q
8D 8Q
7D 7Q
6D 6Q
5D 5Q
CLK
EN
74LS374
IMK-22
SMKB-22,25
ONC-22,25
RDY-22,25
WPT-22
BSY-22,25
SEL-22,25
SEND-22,25
③
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS
DATE
DRAWN
CHECKED
western peripherals™
TUSTIN, CALIFORNIA
A-CABLE RECEIVERS
SCALE
SIZE
B
DRAWING NO.
75000869
DO NOT SCALE DRAWING
SHEET 4 OF 31
504113


REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
+5V
-5V
B CABLE DRIVERS
VEE 7A
VEE 15A
R6 1K
R29 1K
+5R3-18,19
+5R4 -2,25, 26
WRT CLK 2
WRT DATA 2
WRT CLK 3
WRT DATA 3
WRT CLK 0
WRT DATA 0
WRT CLK 1
WRT DATA 1
L19
L6
L20
L8
M19
M6
M20
M8
J19
J6
J20
J8
K19
K6
K20
K8
MC3453
MC3453
13-SCLK2
13-WTDATA
-5 VOLT REGULATOR
BUS -15V FB2
R1 7.5 3W 1%
R2 7.5 3W 1%
C13 1
Q1 LM320T5.0
C1 .1
-5V
DISK CLOCK SELECTOR
24B
19-CLK1
5,6-SER CLK
5,6-RD CLK
SELCLK-13,14,16
74S153
23C
74S86
23C
74S86
26A
74S32
26B
74S04
23B
74S174
13-RD GATE
13-CVALID
19-RESET
J1 J4 J7 J11 J15 J18 J21 J25
K1 K4 K7 K11 K15 K18 K21 K25
L1 L4 L7 L11 L15 L18 L21 L25
M1 M4 M7 M11 M15 M18 M21 M25
4
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS DATE
DRAWN 6-24-81
CHECKED
western peripherals TM
TUSTIN, CALIFORNIA
A-CABLE DRIVERS
DISK CLOCK SELECTOR
SCALE
SIZE B
DRAWING NO. 75000869
DO NOT SCALE DRAWING
SHEET 5 OF 31

504113



REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±

APPROVALS	DATE
DRAWN	6-29-81
CHECKED	

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B-CABLE RECEIVERS & HEADER ERROR REG

SCALE	SIZE	DRAWING NO.
	B	75000869

DO NOT SCALE DRAWING — SHEET 6 OF 31

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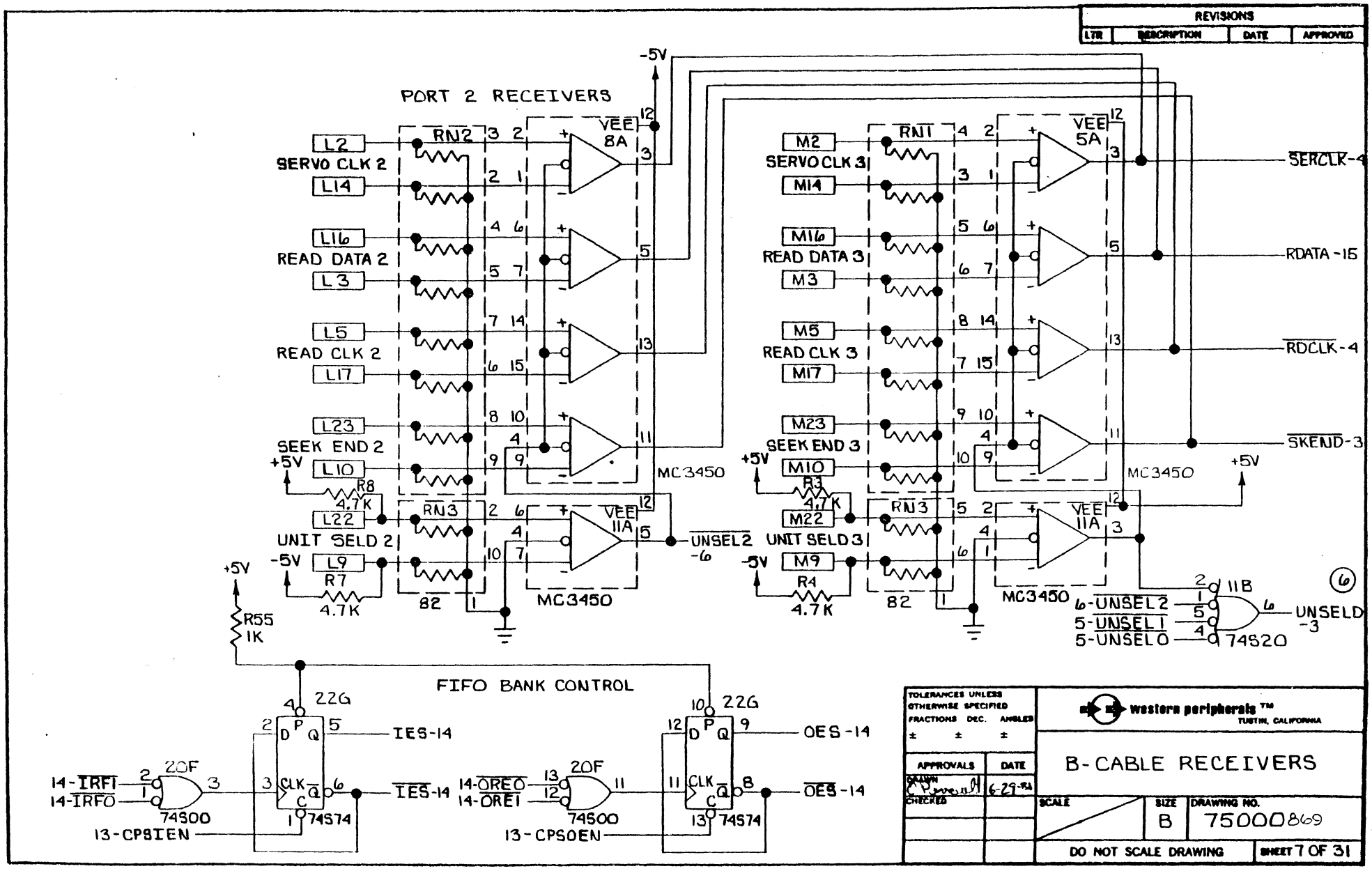
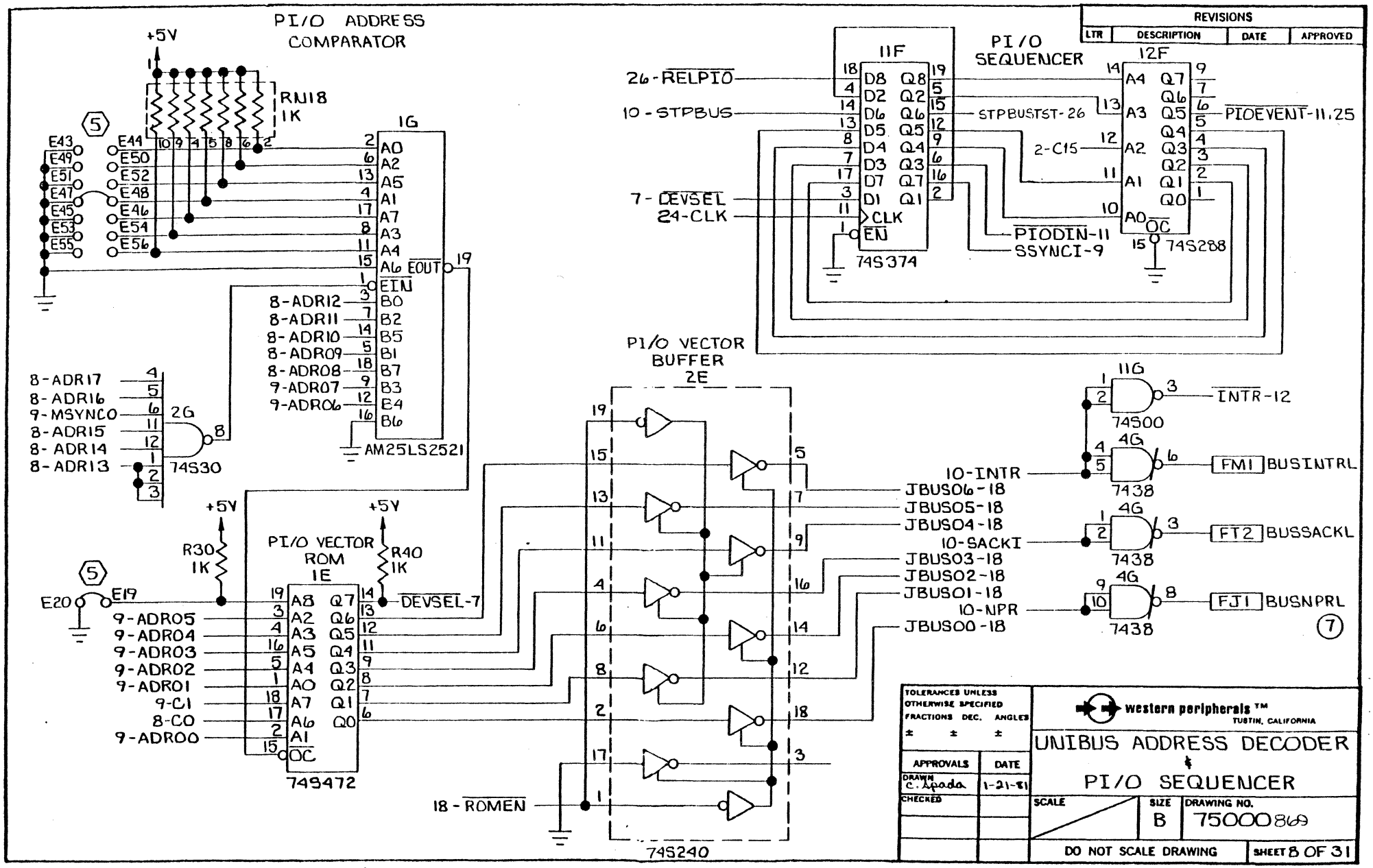

REVISIONS
LTR | DESCRIPTION | DATE | APPROVED
PORT 2 RECEIVERS
-5V
L2
SERVO CLK 2
L14
L16
READ DATA 2
L3
L5
READ CLK 2
L17
L23
SEEK END 2
L10
L22
UNIT SELD 2
L9
R7
4.7K
R8
4.7K
RN2
RN3
82
VEE
8A
11A
MC3450
UNSEL2
-6
+5V
R55
1K
M2
SERVO CLK 3
M14
M16
READ DATA 3
M3
M5
READ CLK 3
M17
M23
SEEK END 3
M10
M22
UNIT SELD 3
M9
R4
4.7K
R3
4.7K
RN1
RN3
82
VEE
5A
11A
MC3450
SERCLK-4
RDATA-15
RDCLK-4
SKEND-3
6-UNSEL2
5-UNSEL1
5-UNSEL0
11B
74S20
UNSELD
-3
6
FIFO BANK CONTROL
22G
IES-14
OES-14
14-IRFI
14-IRFO
20F
74S00
74S74
13-CPSIEN
14-OREO
14-OREI
13-CPSOEN
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN
CHECKED
6-29-84
western peripherals TM
TUSTIN, CALIFORNIA
B-CABLE RECEIVERS
SCALE
SIZE
B
DRAWING NO.
75000869
DO NOT SCALE DRAWING
SHEET 7 OF 31
504113


PI/O ADDRESS COMPARATOR
+5V
RN18 1K
E43 E49 E51 E47 E45 E53 E55
E44 E50 E52 E48 E46 E54 E56
1G
AM25LS2521
8-ADR12
8-ADR11
8-ADR10
8-ADR09
8-ADR08
9-ADR07
9-ADR06
EOUT
EIN
8-ADR17
8-ADR16
9-MSYNCO
8-ADR15
8-ADR14
8-ADR13
2G
74S30
PI/O VECTOR BUFFER 2E
74S240
PI/O VECTOR ROM 1E
74S472
R30 1K
R40 1K
DEVSEL-7
9-ADR05
9-ADR04
9-ADR03
9-ADR02
9-ADR01
9-C1
8-CO
9-ADR00
E19
E20
18-ROMEN
11F
74S374
26-RELPIO
10-STPBUS
7-DEVSEL
24-CLK
PI/O SEQUENCER
12F
74S288
STPBUSTST-26
2-C15
PIODIN-11
SSYNCI-9
PIOEVENT-11,25
10-INTR
JBUS06-18
JBUS05-18
JBUS04-18
10-SACKI
JBUS03-18
JBUS02-18
JBUS01-18
10-NPR
JBUS00-18
11G
74S00
INTR-12
4G
7438
FMI BUSINTRL
FT2 BUSSACKL
FJI BUSNPRL
REVISIONS
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TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS DATE
DRAWN C. Lopada 1-21-81
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western peripherals ™
TUSTIN, CALIFORNIA
UNIBUS ADDRESS DECODER & PI/O SEQUENCER
SCALE
SIZE B
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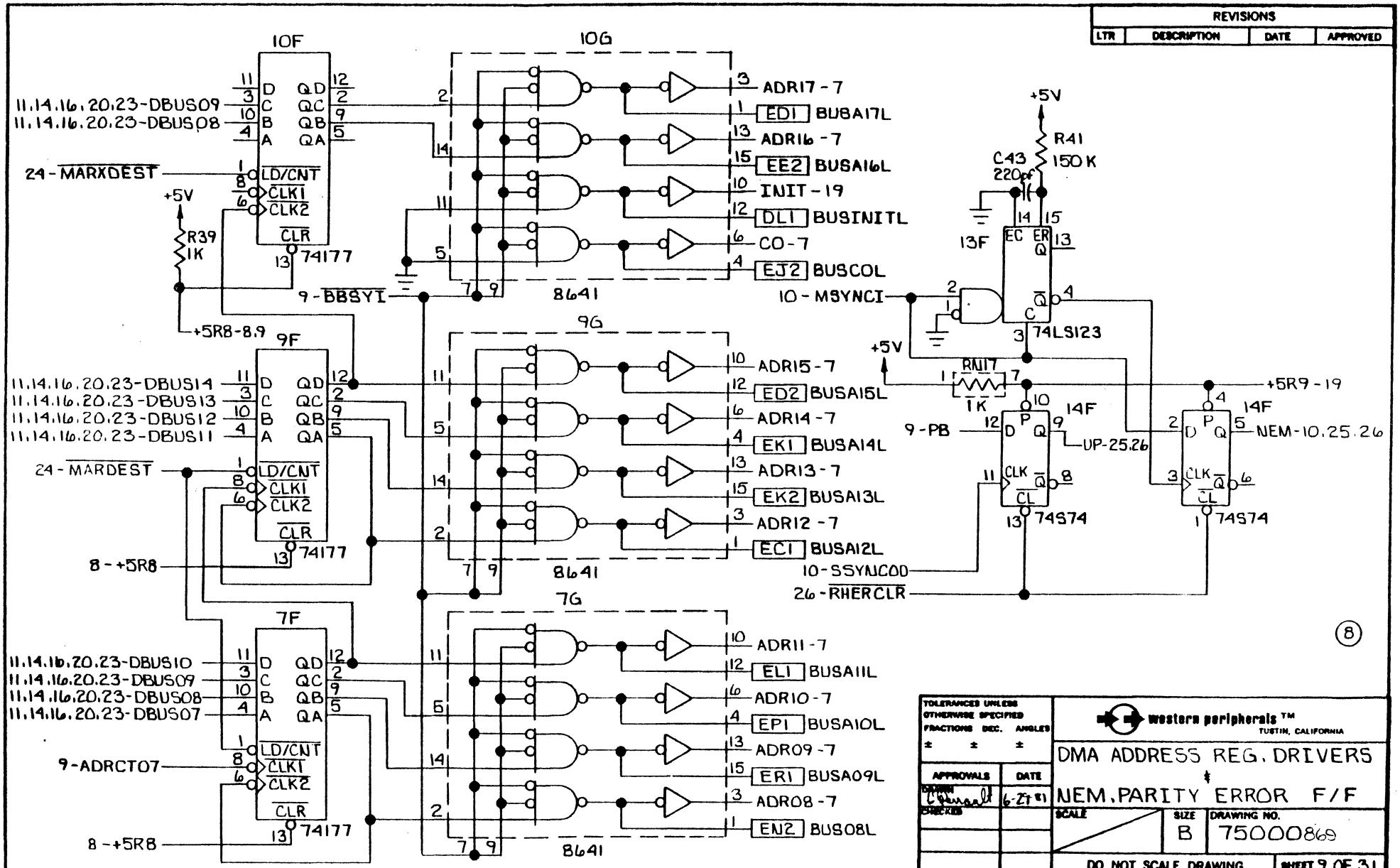
DO NOT SCALE DRAWING
SHEET 8 OF 31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10G
9F
9G
7F
7G
14F
13F
74177
74LS123
74S74
8641
11,14,16,20,23-DBUS09
11,14,16,20,23-DBUS08
24-MARXDEST
+5V
R39
1K
+5R8-8.9
9-BBSYI
ADR17-7
EDI BUSA17L
ADR16-7
EE2 BUSA16L
INIT-19
DLI BUSINITL
CO-7
EJ2 BUSCOL
10-MSYNCI
R41
150K
C43
220pf
RN17
1K
+5R9-19
9-PB
UP-25,26
NEM-10,25,26
11,14,16,20,23-DBUS14
11,14,16,20,23-DBUS13
11,14,16,20,23-DBUS12
11,14,16,20,23-DBUS11
24-MARDEST
8-+5R8
ADR15-7
ED2 BUSA15L
ADR14-7
EK1 BUSA14L
ADR13-7
EK2 BUSA13L
ADR12-7
EC1 BUSA12L
10-SSYNCOD
26-RHERCLR
11,14,16,20,23-DBUS10
11,14,16,20,23-DBUS09
11,14,16,20,23-DBUS08
11,14,16,20,23-DBUS07
9-ADRCT07
ADR11-7
EL1 BUSA11L
ADR10-7
EP1 BUSA10L
ADR09-7
ER1 BUSA09L
ADR08-7
EN2 BUSO8L
8
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TUSTIN, CALIFORNIA
DMA ADDRESS REG. DRIVERS
&
NEM. PARITY ERROR F/F
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
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6-27-81
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75000869
DO NOT SCALE DRAWING
SHEET 9 OF 31

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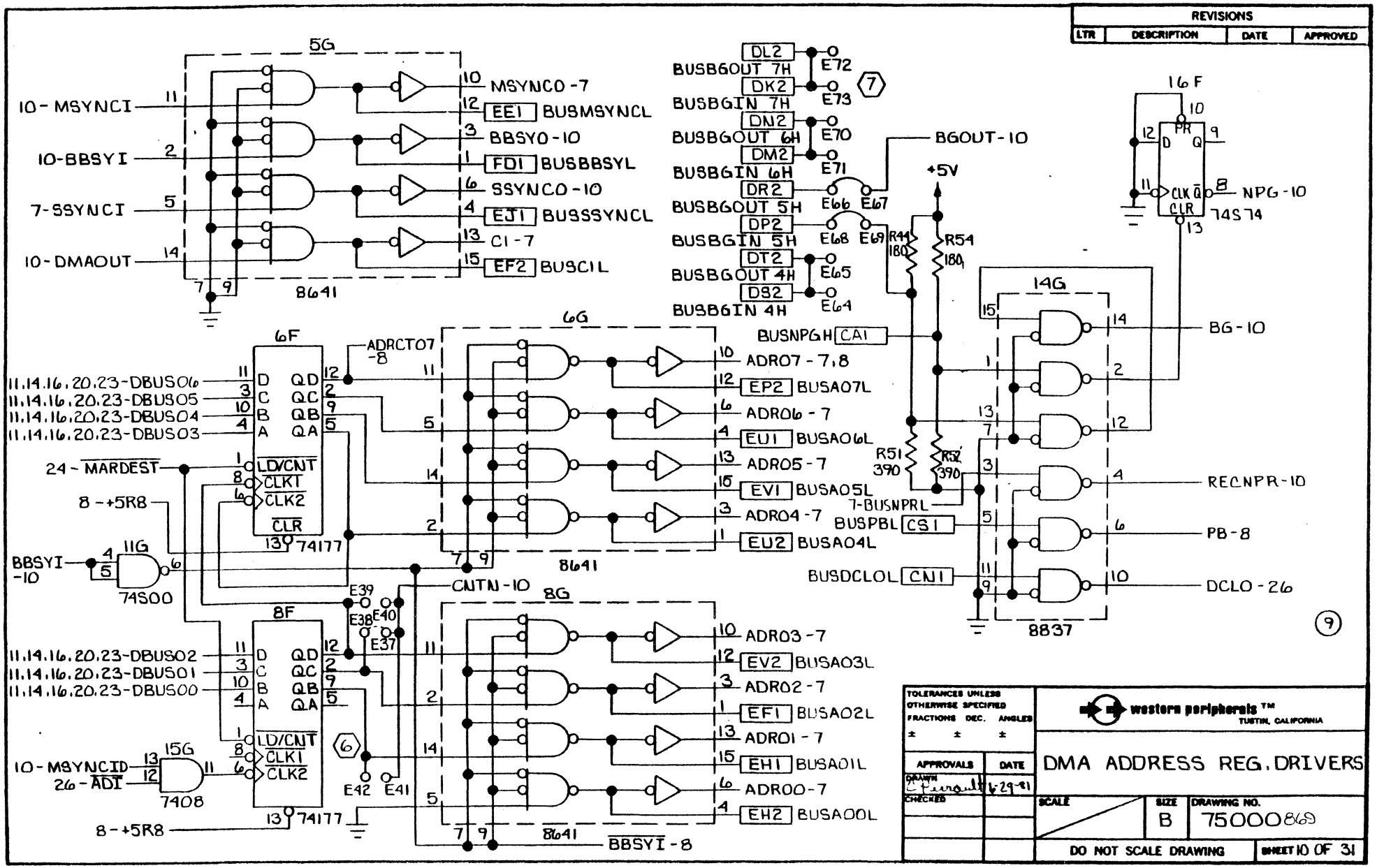
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10-MSYNCI
10-BBSYI
7-SSYNCI
10-DMAOUT
MSYNCO-7
BUSMSYNCL
BBSYO-10
BUSBBSYL
SSYNCO-10
BUSSSYNCL
CI-7
BUSCIL
8641
DL2
E72
BUSBGOUT 7H
DK2
E73
BUSBGIN 7H
DN2
E70
BUSBGOUT 6H
DM2
E71
BUSBGIN 6H
DR2
E66
E67
BUSBGOUT 5H
DP2
E68
E69
BUSBGIN 5H
DT2
E65
BUSBGOUT 4H
DS2
E64
BUSBGIN 4H
BGOUT-10
+5V
R41 180
R54 180
R51 390
R52 390
16F
74S74
NPG-10
14G
BG-10
RECNPR-10
PB-8
DCLO-26
8837
BUSNPGH
CA1
T-BUSNPRL
BUSPBL
CS1
BUSDCLOL
CN1
6F
6G
ADRCTO7-8
11,14,16,20,23-DBUS06
11,14,16,20,23-DBUS05
11,14,16,20,23-DBUS04
11,14,16,20,23-DBUS03
24-MARDEST
8-+5R8
BBSYI-10
11G
74S00
74177
ADR07-7,8
BUSA07L
ADR06-7
BUSA06L
ADR05-7
BUSA05L
ADR04-7
BUSA04L
CNTN-10
8F
8G
11,14,16,20,23-DBUS02
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS00
10-MSYNCID
26-ADI
15G
7408
E39
E38
E40
E37
E42
E41
ADR03-7
BUSA03L
ADR02-7
BUSA02L
ADR01-7
BUSA01L
ADR00-7
BUSA00L
BBSYI-8
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN
CHECKED
western peripherals TM
TUSTIN, CALIFORNIA
DMA ADDRESS REG. DRIVERS
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SIZE
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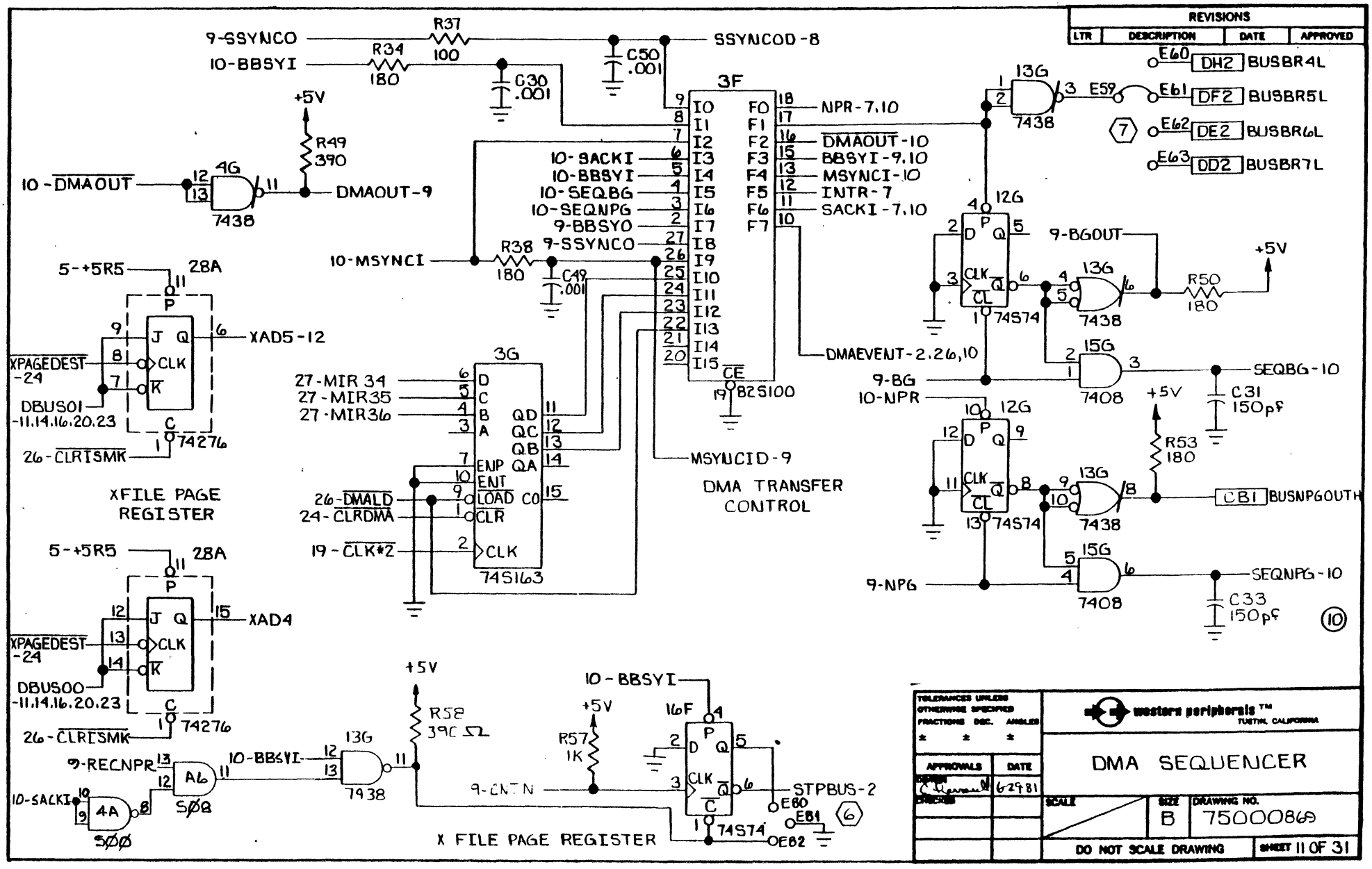
DRAWING NO.
75000868
DO NOT SCALE DRAWING
SHEET 10 OF 31
504113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9-SSYNCO
10-BBSYI
R37
R34
100
180
C30 .001
C50 .001
SSYNCOD-8
+5V
R49 390
10-DMAOUT
4G
7438
DMAOUT-9
3F
10-SACKI
10-BBSYI
10-SEQBG
10-SEQNPG
9-BBSYO
9-SSYNCO
10-MSYNCI
R38 180
C49 .001
I0 I1 I2 I3 I4 I5 I6 I7 I8 I9 I10 I11 I12 I13 I14 I15
FO F1 F2 F3 F4 F5 F6 F7
NPR-7,10
DMAOUT-10
BBSYI-9,10
MSYNCI-10
INTR-7
SACKI-7,10
DMAEVENT-2,26,10
CE
82S100
MSYNCID-9
DMA TRANSFER CONTROL
5-+5R5
28A
XAD5-12
XPAGEDEST -24
DBUS01 -11,14,16,20,23
26-CLRISMK
74276
XFILE PAGE REGISTER
3G
27-MIR34
27-MIR35
27-MIR36
26-DMALD
24-CLRDMA
19-CLK*2
ENP ENT LOAD CLR CLK
QD QC QB QA CO
74S163
5-+5R5
28A
XAD4
XPAGEDEST -24
DBUS00 -11,14,16,20,23
26-CLRISMK
74276
9-RECNPR
10-SACKI
4A
5Ø0
A6
5Ø8
10-BBSYI
13G
7438
+5V
R58 390Ω
9-CNTN
R57 1K
16F
74S74
STPBUS-2
E60
E61
E62
6
X FILE PAGE REGISTER
13G
7438
12G
74S74
9-BGOUT
R50 180
15G
7408
9-BG
10-NPR
SEQBG-10
C31 150pF
R53 180
CB1 BUSNPGOUTH
9-NPG
SEQNPG-10
C33 150pF
10
E60 DH2 BUSBR4L
E59 E61 DF2 BUSBR5L
7 E62 DE2 BUSBR6L
E63 DD2 BUSBR7L
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS DATE
62981
western peripherals™
TUSTIN, CALIFORNIA
DMA SEQUENCER
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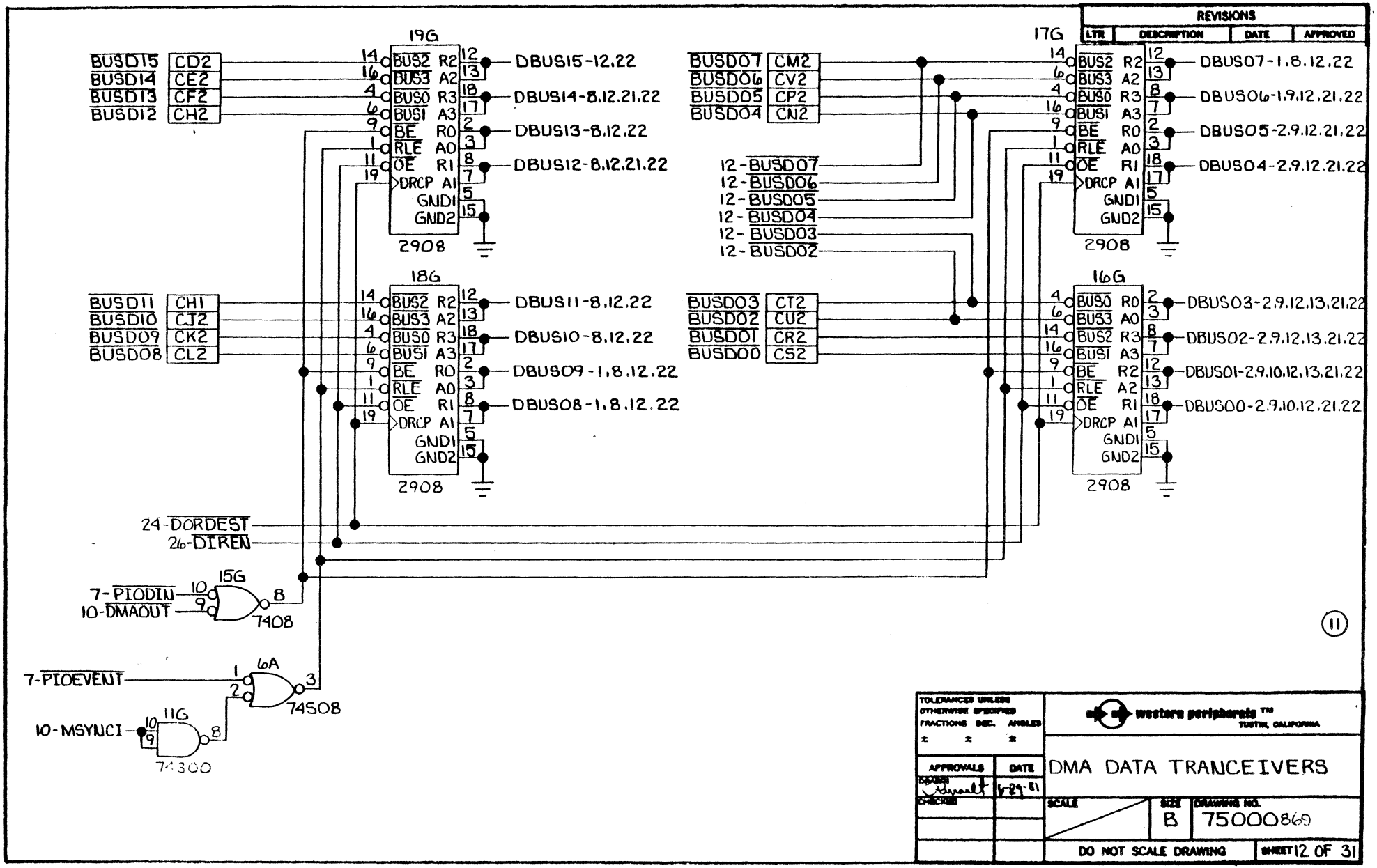
DO NOT SCALE DRAWING
SHEET 11 OF 31
504113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74S08
74S00
BUSD15 CD2
BUSD14 CE2
BUSD13 CF2
BUSD12 CH2
BUSD11 CH1
BUSD10 CJ2
BUSD09 CK2
BUSD08 CL2
BUSD07 CM2
BUSD06 CV2
BUSD05 CP2
BUSD04 CN2
BUSD03 CT2
BUSD02 CU2
BUSD01 CR2
BUSD00 CS2
DBUS15-12,22
DBUS14-8,12,21,22
DBUS13-8,12,22
DBUS12-8,12,21,22
DBUS11-8,12,22
DBUS10-8,12,22
DBUS09-1,8,12,22
DBUS08-1,8,12,22
DBUS07-1,8,12,22
DBUS06-1,9,12,21,22
DBUS05-2,9,12,21,22
DBUS04-2,9,12,21,22
DBUS03-2,9,12,13,21,22
DBUS02-2,9,12,13,21,22
DBUS01-2,9,10,12,13,21,22
DBUS00-2,9,10,12,21,22
12-BUSD07
12-BUSD06
12-BUSD05
12-BUSD04
12-BUSD03
12-BUSD02
24-DORDEST
26-DIREN
7-PIODIN
10-DMAOUT
7-PIOEVENT
10-MSYNCI
BUS2 R2
BUS3 A2
BUS0 R3
BUS1 A3
BE R0
RLE A0
OE R1
DRCP A1
GND1
GND2
BUS0 R0
BUS3 A0
BUS2 R3
BUS1 A3
BE R2
RLE A2
OE R1
DRCP A1
GND1
GND2
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
± ± ±
APPROVALS
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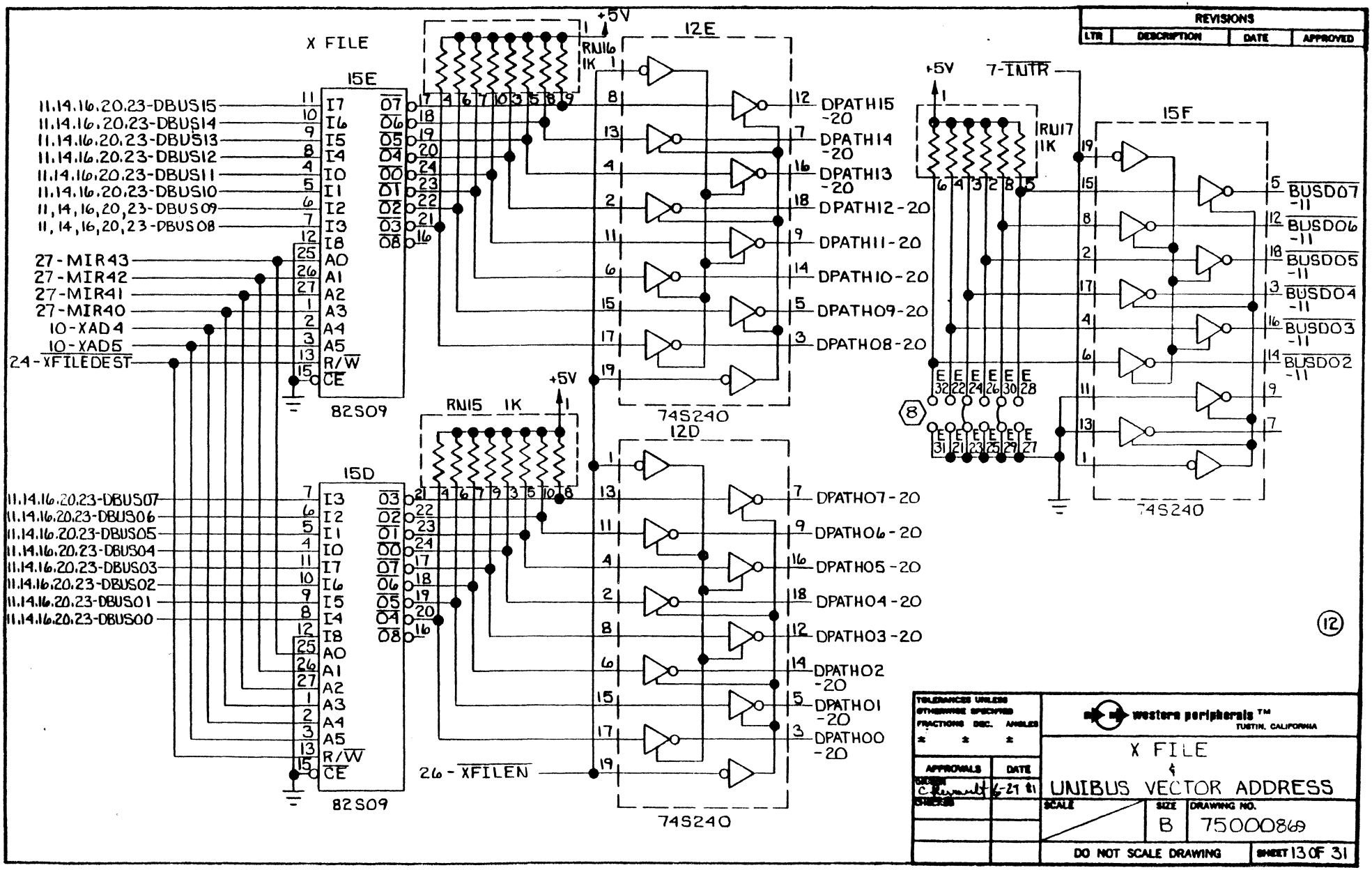
western peripherals ™
TUSTIN, CALIFORNIA
DMA DATA TRANCEIVERS
SCALE
SIZE
B
DRAWING NO.
75000869
DO NOT SCALE DRAWING
SHEET 12 OF 31
504113


X FILE
15E
82S09
15D
82S09
RN16 1K
RN15 1K
RN17 1K
+5V
12E
12D
15F
74S240
74S240
74S240
11,14,16,20,23-DBUS15
11,14,16,20,23-DBUS14
11,14,16,20,23-DBUS13
11,14,16,20,23-DBUS12
11,14,16,20,23-DBUS11
11,14,16,20,23-DBUS10
11,14,16,20,23-DBUS09
11,14,16,20,23-DBUS08
11,14,16,20,23-DBUS07
11,14,16,20,23-DBUS06
11,14,16,20,23-DBUS05
11,14,16,20,23-DBUS04
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS02
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS00
27-MIR43
27-MIR42
27-MIR41
27-MIR40
10-XAD4
10-XAD5
24-XFILEDEST
26-XFILEN
7-INTR
DPATH15 -20
DPATH14 -20
DPATH13 -20
DPATH12-20
DPATH11-20
DPATH10-20
DPATH09-20
DPATH08-20
DPATH07-20
DPATH06-20
DPATH05-20
DPATH04-20
DPATH03-20
DPATH02 -20
DPATH01 -20
DPATH00 -20
BUSD07 -11
BUSD06 -11
BUSD05 -11
BUSD04 -11
BUSD03 -11
BUSD02 -11
REVISIONS
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DESCRIPTION
DATE
APPROVED
western peripherals ™
TUSTIN, CALIFORNIA
X FILE
&
UNIBUS VECTOR ADDRESS
SIZE
B
DRAWING NO.
7500086
DO NOT SCALE DRAWING
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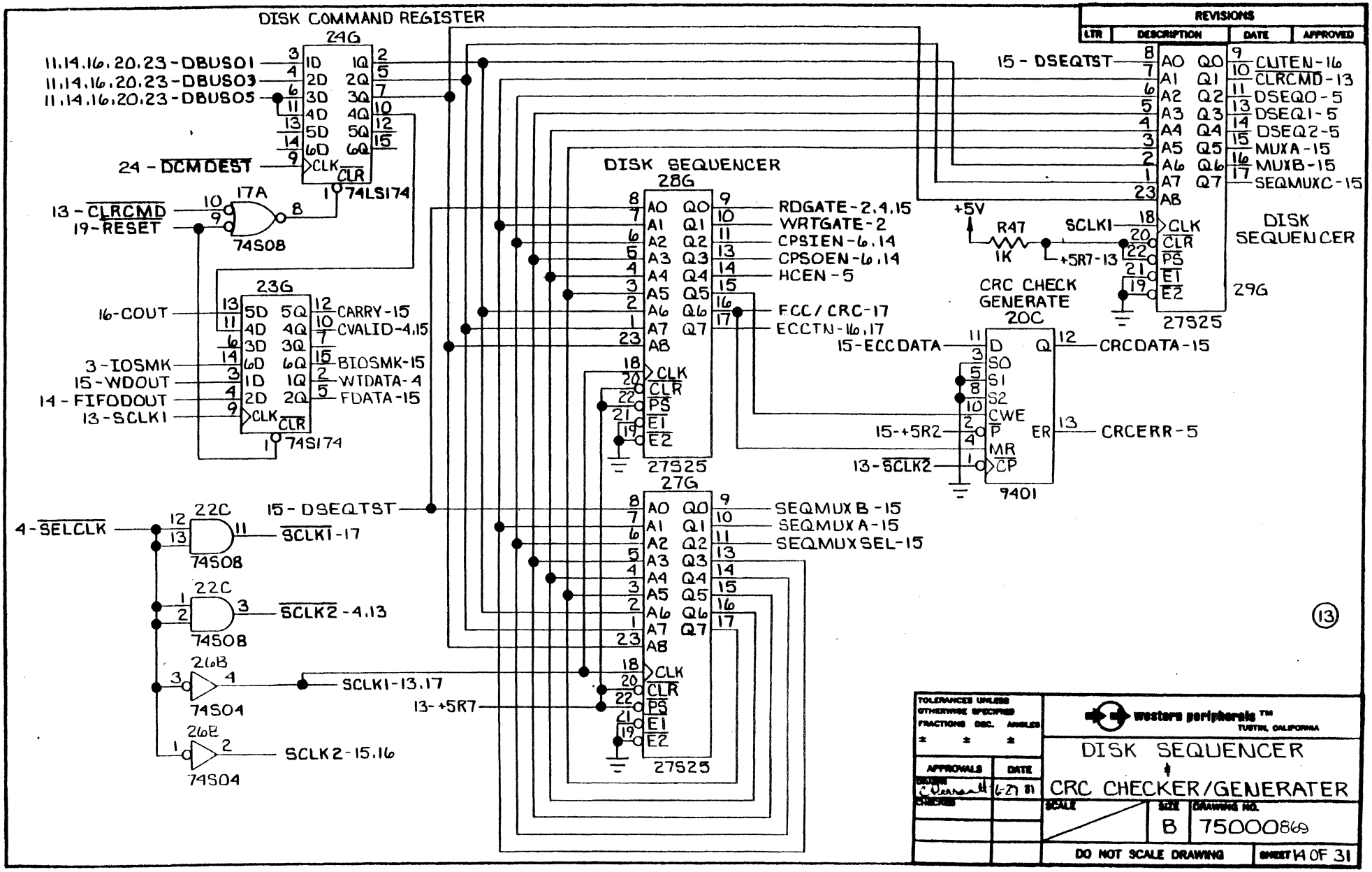
DISK COMMAND REGISTER
24G
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS05
24-DCMDEST
74LS174
13-CLRCMD
19-RESET
17A
74S08
23G
16-COUT
3-IOSMK
15-WDOUT
14-FIFODOUT
13-SCLK1
CARRY-15
CVALID-4,15
BIOSMK-15
WTDATA-4
FDATA-15
74S174
DISK SEQUENCER
28G
RDGATE-2,4,15
WRTGATE-2
CPSIEN-6,14
CPSOEN-6,14
HCEN-5
FCC/CRC-17
ECCTN-16,17
27S25
27G
SEQMUXB-15
SEQMUXA-15
SEQMUXSEL-15
15-DSEQTST
13-+5R7
22C
4-SELCLK
SCLK1-17
SCLK2-4,13
74S08
26B
SCLK1-13,17
SCLK2-15,16
74S04
15-DSEQTST
CLKEN-16
CLRCMD-13
DSEQ0-5
DSEQ1-5
DSEQ2-5
MUXA-15
MUXB-15
SEQMUXC-15
DISK SEQUENCER
29G
27S25
+5V
R47
1K
SCLK1
+5R7-13
CRC CHECK GENERATE
20C
15-ECCDATA
CRCDATA-15
15-+5R2
13-SCLK2
CRCERR-5
9401
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FRACTIONS DEC. ANGLES
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western peripherals TM
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DISK SEQUENCER
CRC CHECKER/GENERATER
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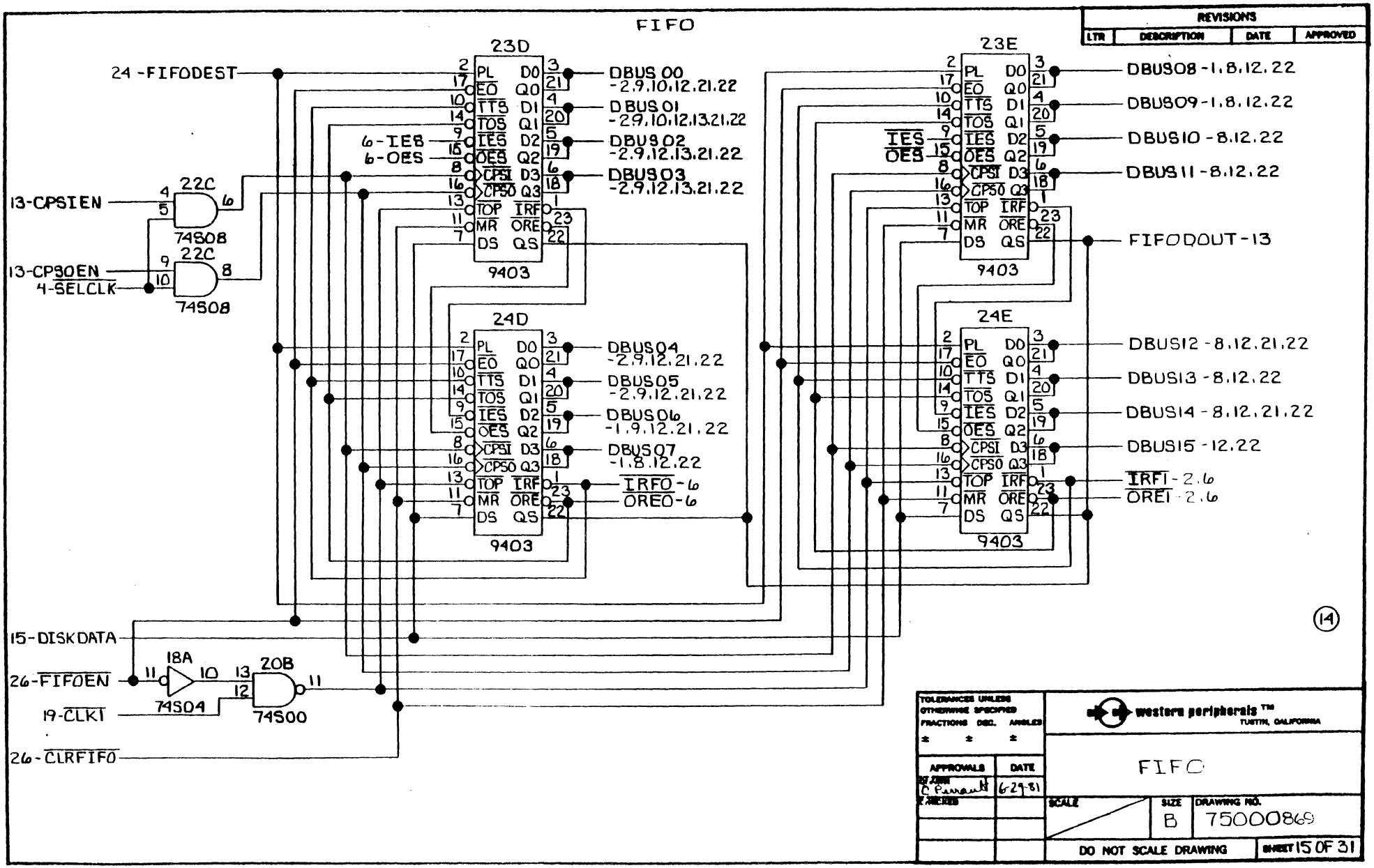
FIFO
REVISIONS
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DATE
APPROVED
23D
23E
24D
24E
9403
74S08
74S04
74S00
24 -FIFODEST
13-CPSIEN
13-CPS0EN
4-SELCLK
15-DISKDATA
26-FIFOEN
19-CLK1
26-CLRFIFO
6-IES
6-OES
DBUS00 -2.9.10.12.21.22
DBUS01 -2.9.10.12.13.21.22
DBUS02 -2.9.12.13.21.22
DBUS03 -2.9.12.13.21.22
DBUS04 -2.9.12.21.22
DBUS05 -2.9.12.21.22
DBUS06 -1.9.12.21.22
DBUS07 -1.8.12.22
IRFO-6
OREO-6
DBUS08 -1.8.12.22
DBUS09 -1.8.12.22
DBUS10 -8.12.22
DBUS11 -8.12.22
FIFODOUT-13
DBUS12 -8.12.21.22
DBUS13 -8.12.22
DBUS14 -8.12.21.22
DBUS15 -12.22
IRFI -2.6
OREI -2.6
14
western peripherals
TUSTIN, CALIFORNIA
FIFO
APPROVALS
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DRAWING NO.
75000869
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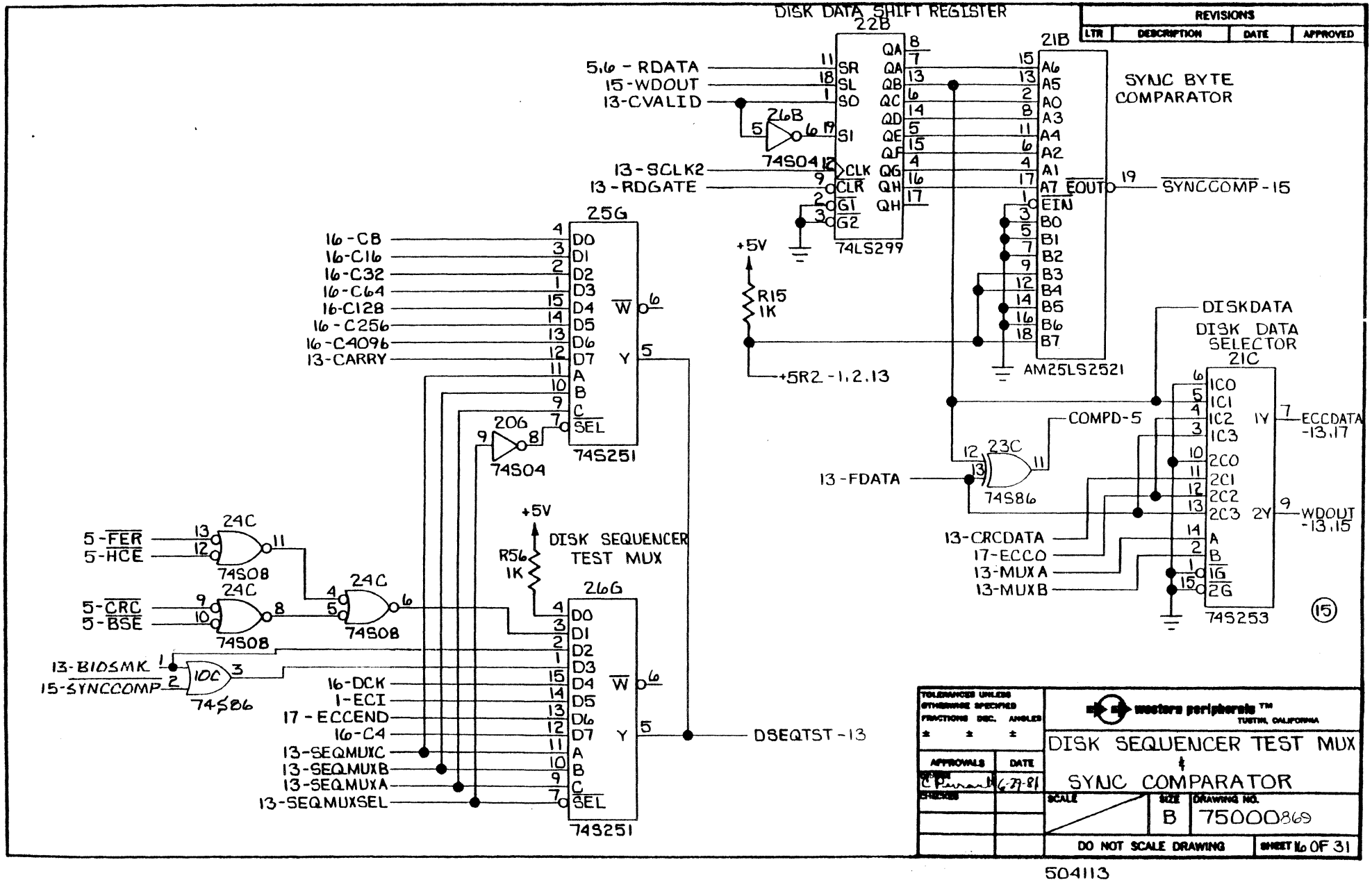
DISK DATA SHIFT REGISTER
22B
74LS299
5,16 - RDATA
15 - WDOUT
13 - CVALID
26B
74S04
13 - SCLK2
13 - RDGATE
+5V
R15
1K
+5R2 - 1,2,13
21B
AM25LS2521
SYNC BYTE
COMPARATOR
19
SYNCCOMP - 15
DISKDATA
DISK DATA
SELECTOR
21C
74S253
ECCDATA
-13,17
WDOUT
-13,15
COMPD-5
23C
74S86
13 - FDATA
13 - CRCDATA
17 - ECCO
13 - MUX A
13 - MUX B
25G
74S251
16 - CB
16 - C16
16 - C32
16 - C64
16 - C128
16 - C256
16 - C4096
13 - CARRY
20G
74S04
24C
74S08
5 - FER
5 - HCE
5 - CRC
5 - BSE
13 - BIOSMK
15 - SYNCCOMP
10C
74S86
DISK SEQUENCER
TEST MUX
R56
1K
26G
74S251
16 - DCK
1 - ECI
17 - ECCEND
16 - C4
13 - SEQMUXC
13 - SEQMUXB
13 - SEQMUXA
13 - SEQMUXSEL
DSEQTST - 13
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APPROVED
western peripherals
TUSTIN, CALIFORNIA
DISK SEQUENCER TEST MUX
&
SYNC COMPARATOR
SIZE
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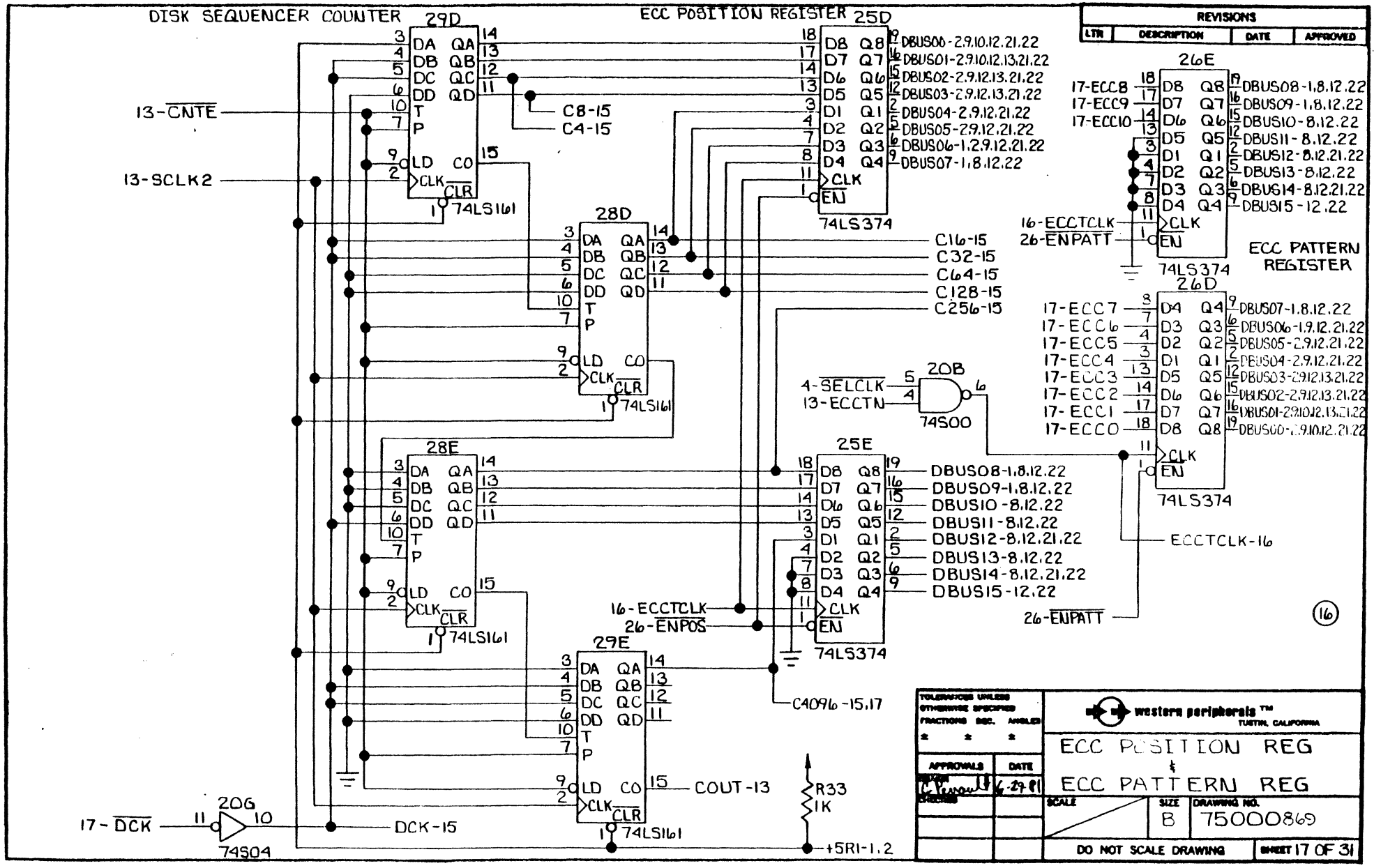
DISK SEQUENCER COUNTER
29D
ECC POSITION REGISTER
25D
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
13-CNTE
13-SCLK2
74LS161
C8-15
C4-15
74LS374
DBUS06-2,9,10,12,21,22
DBUS01-2,9,10,12,13,21,22
DBUS02-2,9,12,13,21,22
DBUS03-2,9,12,13,21,22
DBUS04-2,9,12,21,22
DBUS05-2,9,12,21,22
DBUS06-1,2,9,12,21,22
DBUS07-1,8,12,22
28D
C16-15
C32-15
C64-15
C128-15
C256-15
26E
17-ECC8
17-ECC9
17-ECC10
DBUS08-1,8,12,22
DBUS09-1,8,12,22
DBUS10-8,12,22
DBUS11-8,12,22
DBUS12-8,12,21,22
DBUS13-8,12,22
DBUS14-8,12,21,22
DBUS15-12,22
16-ECCTCLK
26-ENPATT
ECC PATTERN REGISTER
26D
17-ECC7
17-ECC6
17-ECC5
17-ECC4
17-ECC3
17-ECC2
17-ECC1
17-ECC0
DBUS07-1,8,12,22
DBUS06-1,9,12,21,22
DBUS05-2,9,12,21,22
DBUS04-2,9,12,21,22
DBUS03-2,9,12,13,21,22
DBUS02-2,9,12,13,21,22
DBUS01-2,9,10,12,13,21,22
DBUS00-2,9,10,12,21,22
20B
4-SELCLK
13-ECCTN
74S00
ECCTCLK-16
28E
25E
DBUS08-1,8,12,22
DBUS09-1,8,12,22
DBUS10-8,12,22
DBUS11-8,12,22
DBUS12-8,12,21,22
DBUS13-8,12,22
DBUS14-8,12,21,22
DBUS15-12,22
16-ECCTCLK
26-ENPOS
29E
C4096-15,17
COUT-13
R33
1K
+5R1-1,2
20G
17-DCK
74S04
DCK-15
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
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western peripherals ™
TUSTIN, CALIFORNIA
ECC POSITION REG
&
ECC PATTERN REG
SCALE
SIZE
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DRAWING NO.
75000869
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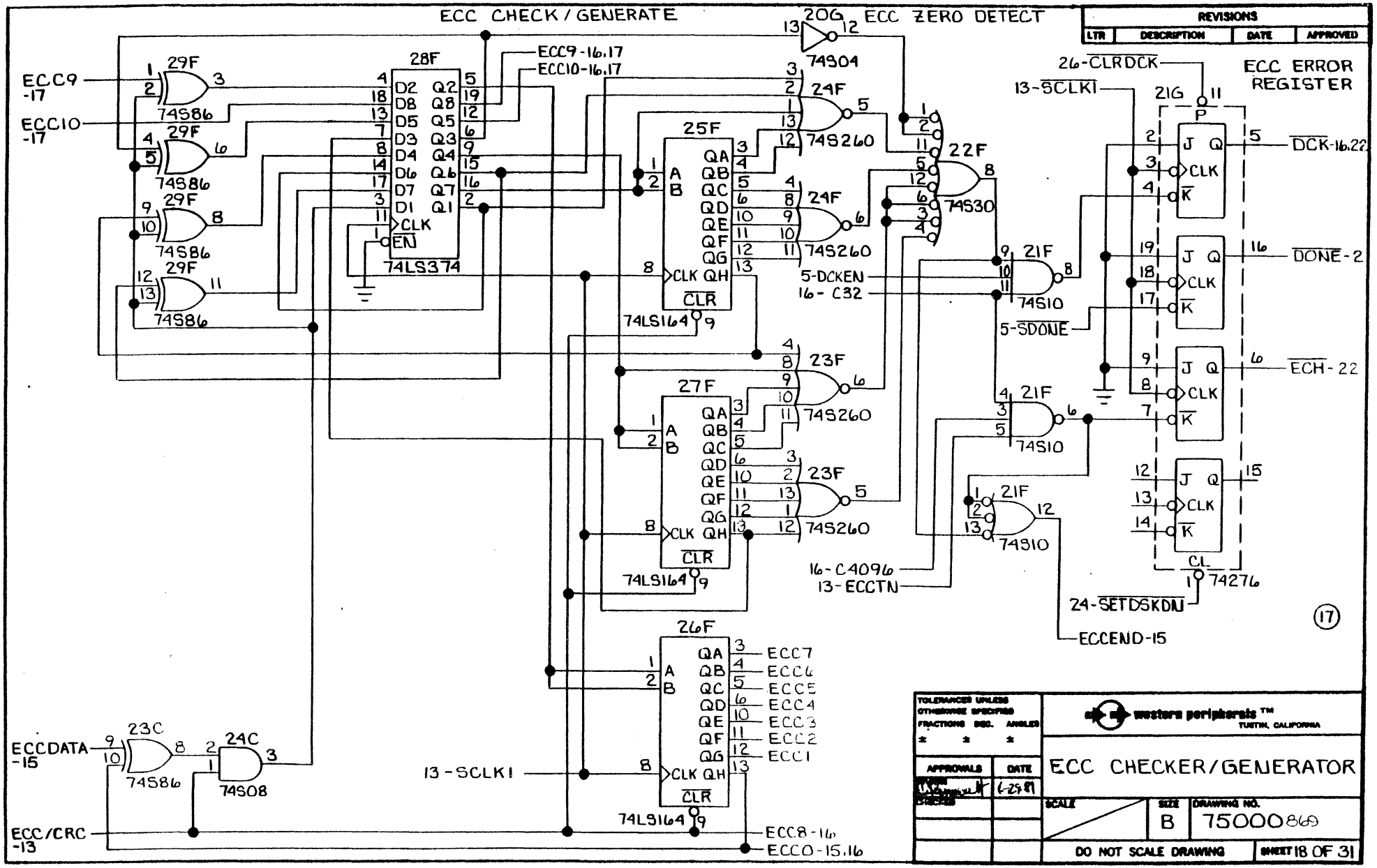
ECC CHECK / GENERATE
ECC ZERO DETECT
ECC ERROR REGISTER
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
ECC9 -17
ECC10 -17
ECC9-16,17
ECC10-16,17
29F
74S86
28F
74LS374
D2 Q2
D8 Q8
D5 Q5
D3 Q3
D4 Q4
D6 Q6
D7 Q7
D1 Q1
CLK
EN
25F
27F
26F
74LS164
QA QB QC QD QE QF QG
CLK QH
CLR
20G
74S04
24F
74S260
22F
74S30
23F
21F
74S10
5-DCKEN
16-C32
5-SDONE
16-C4096
13-ECCTN
26-CLRDCK
13-SCLK1
21G
74S76
J Q
CLK
K
DCK-16,22
DONE-2
ECH-22
CL
24-SETDSKDN
ECCEND-15
23C
24C
74S08
ECCDATA -15
ECC/CRC -13
ECC7
ECC6
ECC5
ECC4
ECC3
ECC2
ECC1
ECC8-16
ECC0-15,16
17
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
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western peripherals™
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ECC CHECKER/GENERATOR
SCALE
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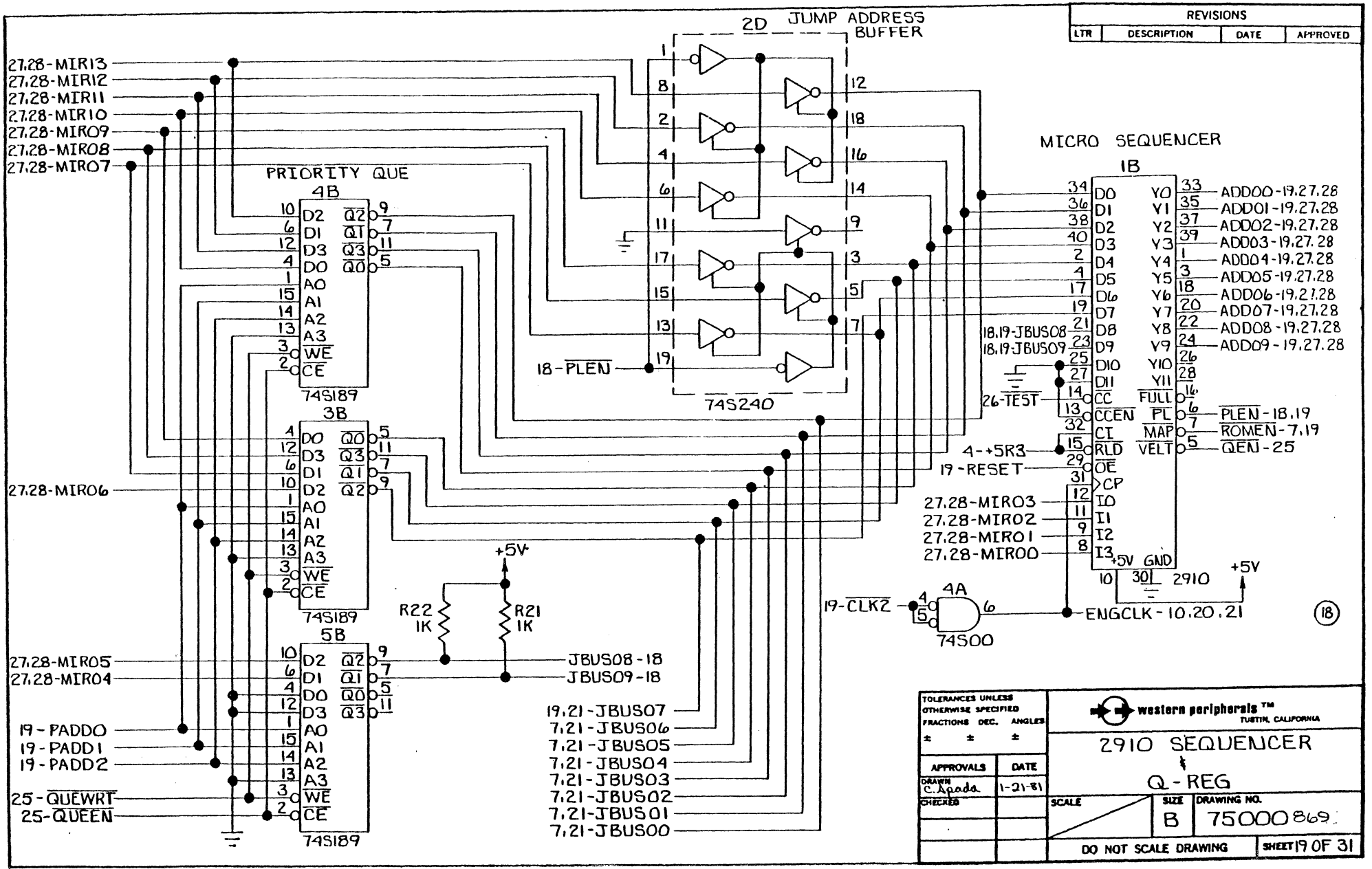
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
2D JUMP ADDRESS BUFFER
74S240
18-PLEN
27.28-MIR13
27.28-MIR12
27.28-MIR11
27.28-MIR10
27.28-MIR09
27.28-MIR08
27.28-MIR07
27.28-MIR06
27.28-MIR05
27.28-MIR04
PRIORITY QUE
4B
3B
5B
74S189
MICRO SEQUENCER
1B
2910
18,19-JBUS08
18,19-JBUS09
26-TEST
4-+5R3
19-RESET
27.28-MIR03
27.28-MIR02
27.28-MIR01
27.28-MIR00
+5V
GND
ADD00-19,27,28
ADD01-19,27,28
ADD02-19,27,28
ADD03-19,27,28
ADD04-19,27,28
ADD05-19,27,28
ADD06-19,27,28
ADD07-19,27,28
ADD08-19,27,28
ADD09-19,27,28
PLEN-18,19
ROMEN-7,19
QEN-25
ENGCLK-10,20,21
19-CLK2
4A
74S00
R22 1K
R21 1K
JBUS08-18
JBUS09-18
19,21-JBUS07
7,21-JBUS06
7,21-JBUS05
7,21-JBUS04
7,21-JBUS03
7,21-JBUS02
7,21-JBUS01
7,21-JBUS00
19-PADD0
19-PADD1
19-PADD2
25-QUEWRT
25-QUEEN
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
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2910 SEQUENCER
Q-REG
SCALE
SIZE B
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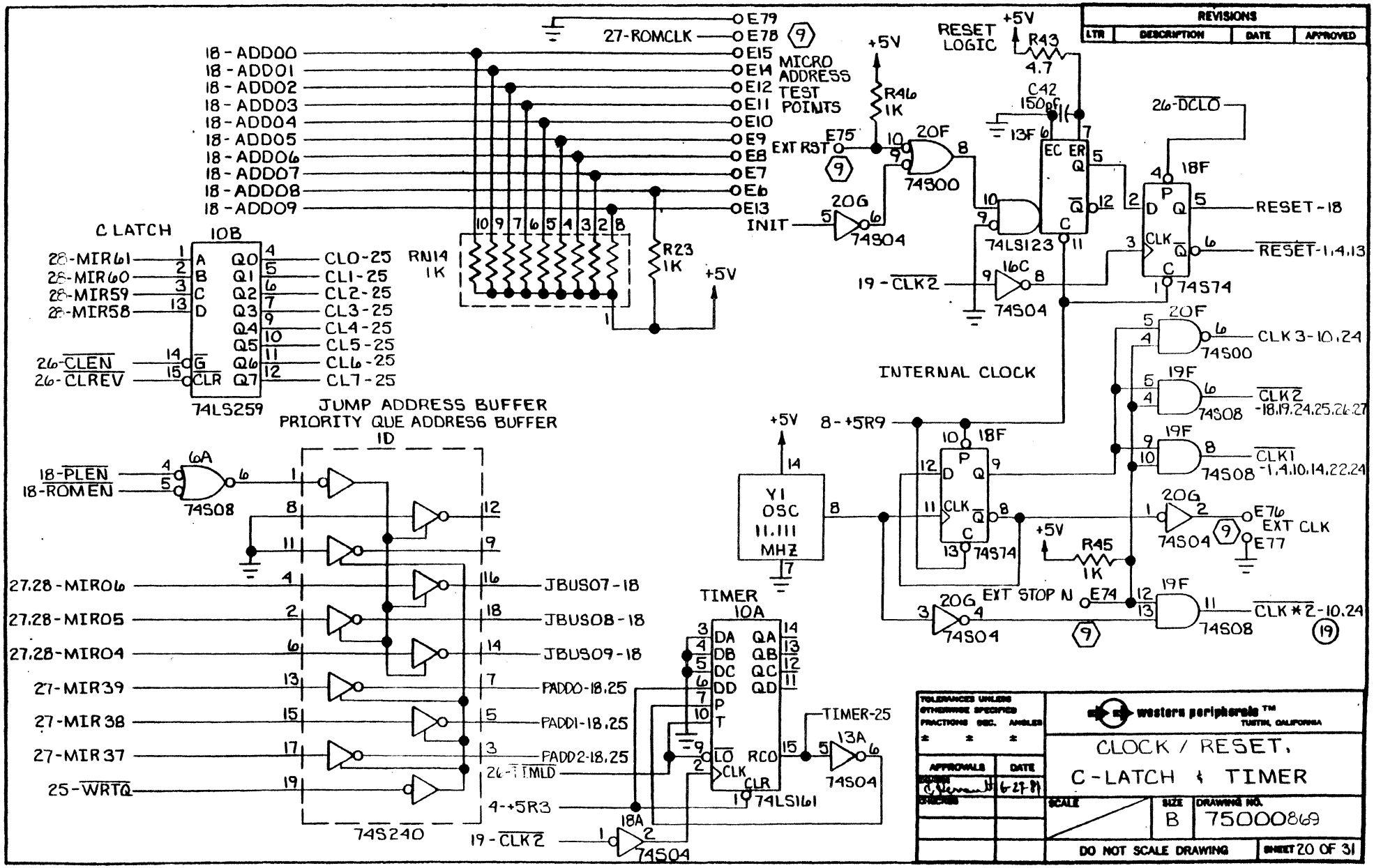
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
C LATCH
10B
74LS259
JUMP ADDRESS BUFFER
PRIORITY QUE ADDRESS BUFFER
1D
74S240
MICRO ADDRESS TEST POINTS
RESET LOGIC
INTERNAL CLOCK
Y1 OSC 11.111 MHZ
TIMER
10A
74LS161
EXT CLK
EXT STOP N
CLOCK / RESET, C-LATCH & TIMER
western peripherals
TUSTIN, CALIFORNIA
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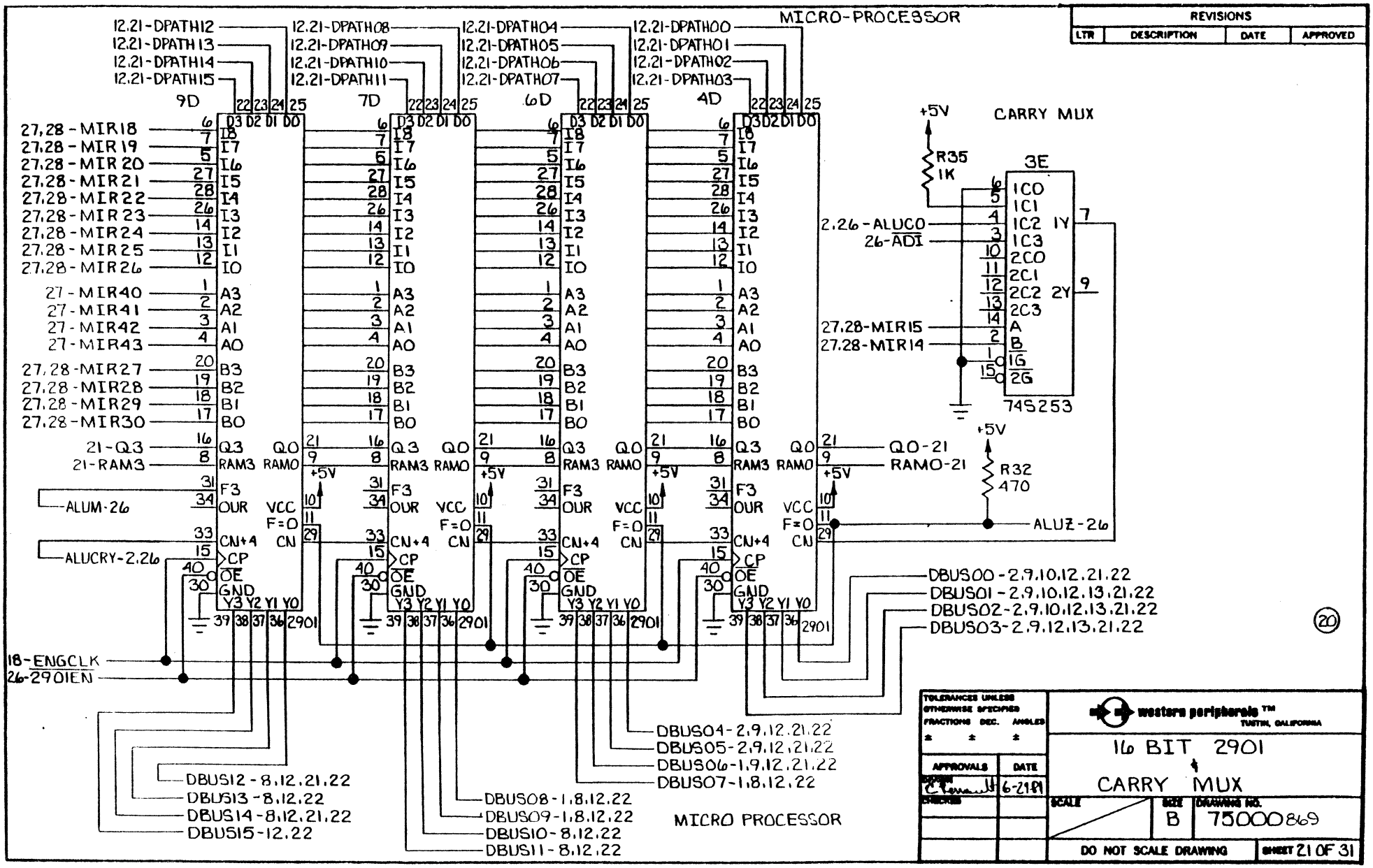
MICRO-PROCESSOR
REVISIONS
LTR
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DATE
APPROVED
12.21-DPATH12
12.21-DPATH13
12.21-DPATH14
12.21-DPATH15
12.21-DPATH08
12.21-DPATH09
12.21-DPATH10
12.21-DPATH11
12.21-DPATH04
12.21-DPATH05
12.21-DPATH06
12.21-DPATH07
12.21-DPATH00
12.21-DPATH01
12.21-DPATH02
12.21-DPATH03
9D
7D
6D
4D
D3 D2 D1 D0
27,28-MIR18
27,28-MIR19
27,28-MIR20
27,28-MIR21
27,28-MIR22
27,28-MIR23
27,28-MIR24
27,28-MIR25
27,28-MIR26
27-MIR40
27-MIR41
27-MIR42
27-MIR43
27,28-MIR27
27,28-MIR28
27,28-MIR29
27,28-MIR30
21-Q3
21-RAM3
ALUM-26
ALUCRY-2,26
18-ENGCLK
26-2901EN
I8 I7 I6 I5 I4 I3 I2 I1 I0
A3 A2 A1 A0
B3 B2 B1 B0
Q3 RAM3 F3 OUR CN+4 CP OE GND
Q0 RAM0 VCC F=0 CN
Y3 Y2 Y1 Y0
2901
+5V
CARRY MUX
R35
1K
3E
2,26-ALUC0
26-ADI
27,28-MIR15
27,28-MIR14
1C0 1C1 1C2 1C3 2C0 2C1 2C2 2C3 A B 1G 2G 1Y 2Y
74S253
R32
470
QO-21
RAM0-21
ALUZ-26
DBUS00-2,9,10,12,21,22
DBUS01-2,9,10,12,13,21,22
DBUS02-2,9,10,12,13,21,22
DBUS03-2,9,12,13,21,22
DBUS04-2,9,12,21,22
DBUS05-2,9,12,21,22
DBUS06-1,9,12,21,22
DBUS07-1,8,12,22
DBUS08-1,8,12,22
DBUS09-1,8,12,22
DBUS10-8,12,22
DBUS11-8,12,22
DBUS12-8,12,21,22
DBUS13-8,12,22
DBUS14-8,12,21,22
DBUS15-12,22
MICRO PROCESSOR
20
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
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western peripherals TM
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16 BIT 2901
CARRY MUX
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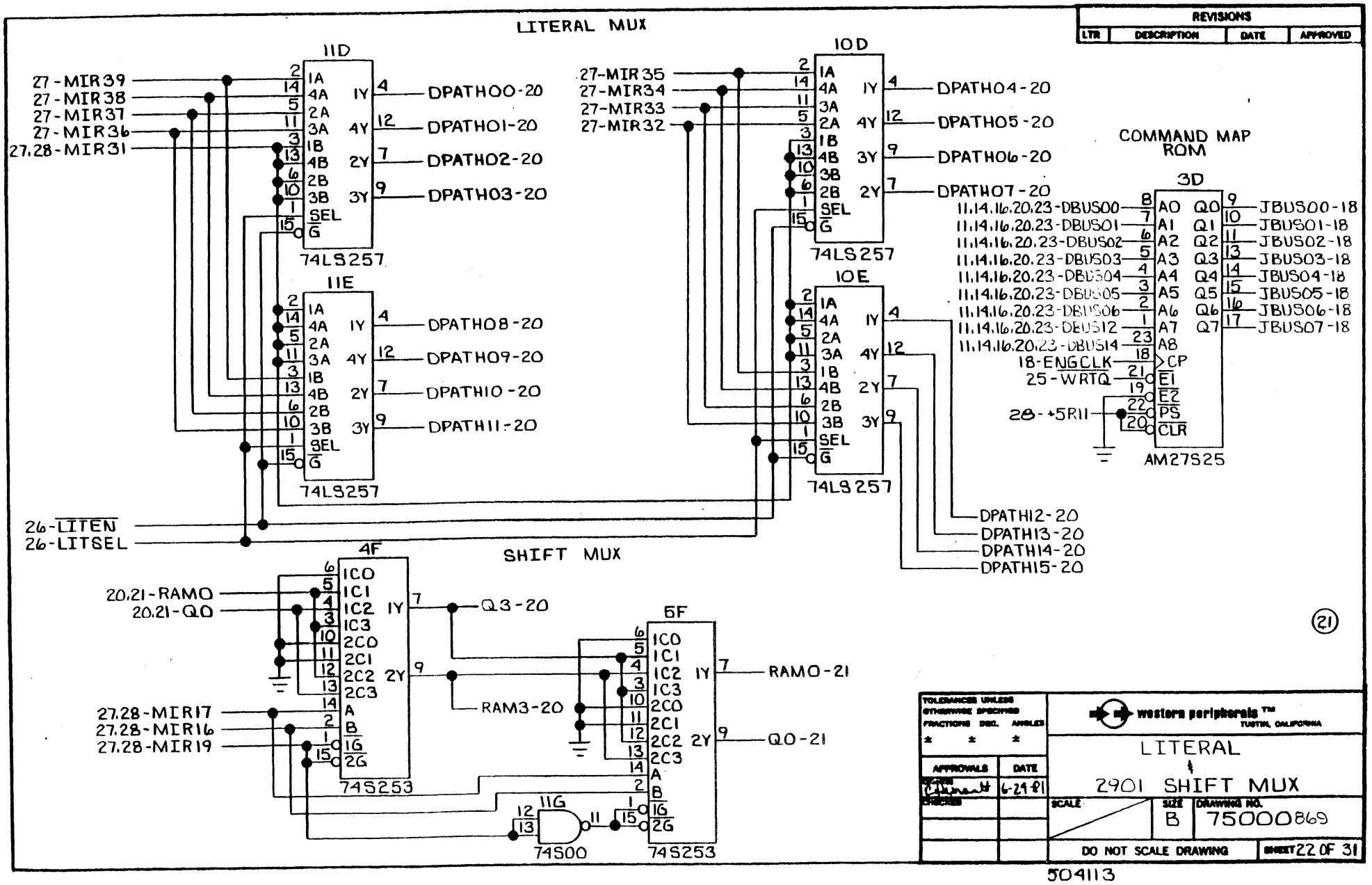
LITERAL MUX
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
11D
27-MIR39
27-MIR38
27-MIR37
27-MIR36
27,28-MIR31
DPATH00-20
DPATH01-20
DPATH02-20
DPATH03-20
74LS257
10D
27-MIR35
27-MIR34
27-MIR33
27-MIR32
DPATH04-20
DPATH05-20
DPATH06-20
DPATH07-20
74LS257
COMMAND MAP ROM
3D
11,14,16,20,23-DBUS00
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS02
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS04
11,14,16,20,23-DBUS05
11,14,16,20,23-DBUS06
11,14,16,20,23-DBUS12
11,14,16,20,23-DBUS14
18-ENGCLK
25-WRTQ
28-+5R11
JBUS00-18
JBUS01-18
JBUS02-18
JBUS03-18
JBUS04-18
JBUS05-18
JBUS06-18
JBUS07-18
AM27S25
11E
DPATH08-20
DPATH09-20
DPATH10-20
DPATH11-20
74LS257
10E
DPATH12-20
DPATH13-20
DPATH14-20
DPATH15-20
74LS257
26-LITEN
26-LITSEL
SHIFT MUX
4F
20,21-RAM0
20,21-Q0
Q3-20
RAM3-20
27,28-MIR17
27,28-MIR16
27,28-MIR19
74S253
6F
RAM0-21
Q0-21
74S253
11G
74S00
21
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
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western peripherals
TUSTIN, CALIFORNIA
LITERAL & 2901 SHIFT MUX
SCALE
SIZE
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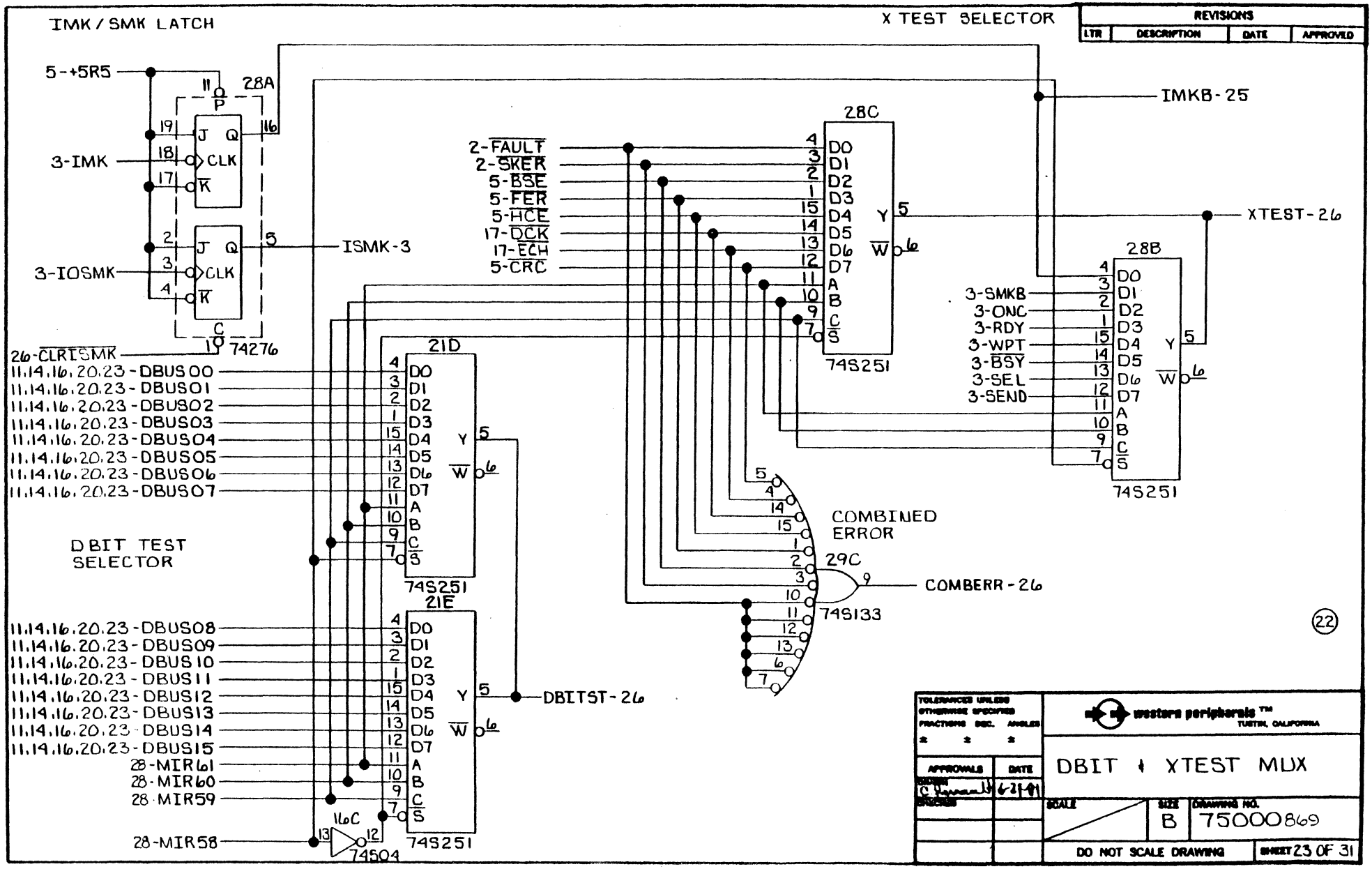
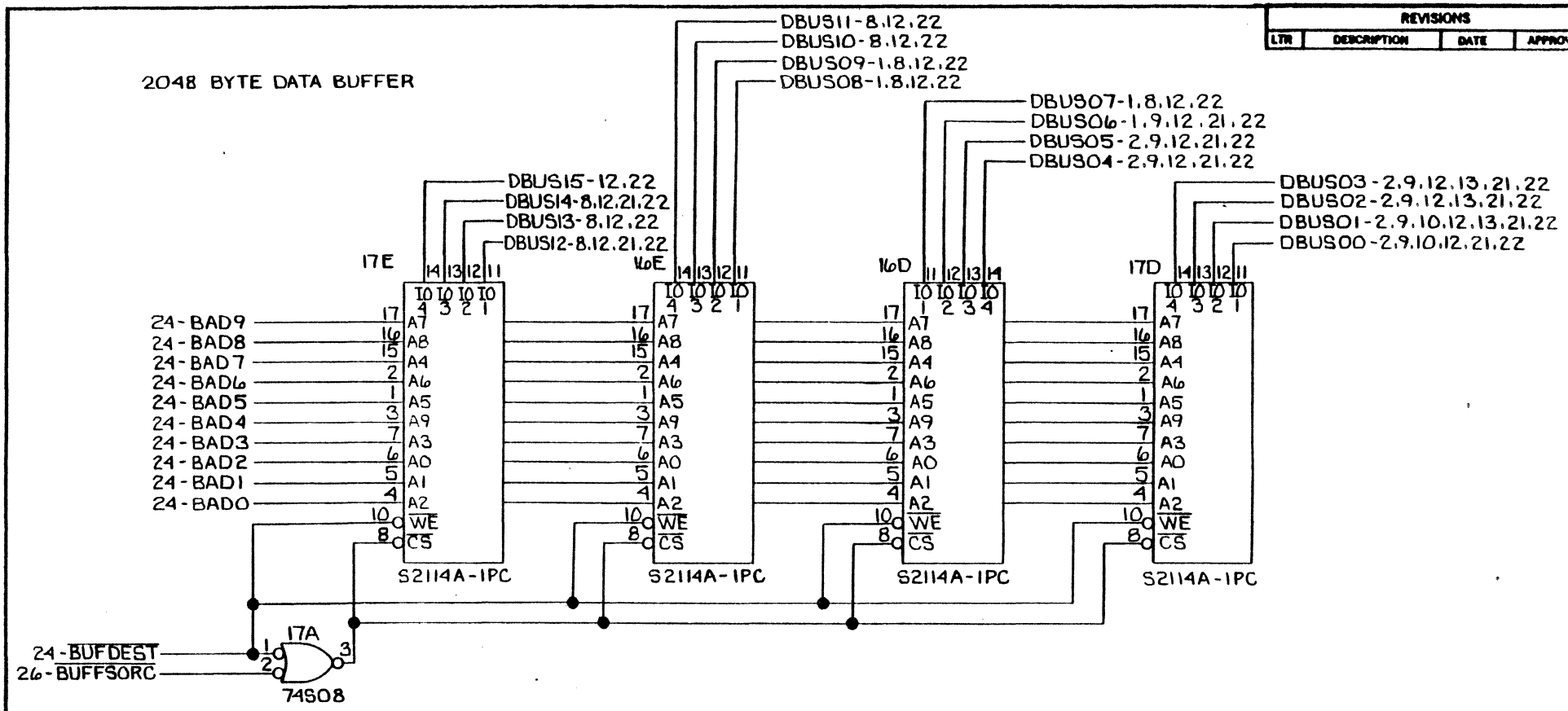

IMK / SMK LATCH
X TEST SELECTOR
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
5-+5R5
28A
3-IMK
3-IOSMK
ISMK-3
26-CLRISMK
74276
IMKB-25
28C
2-FAULT
2-SKER
5-BSE
5-FER
5-HCE
17-DCK
17-ECH
5-CRC
74S251
XTEST-26
28B
3-SMKB
3-ONC
3-RDY
3-WPT
3-BSY
3-SEL
3-SEND
74S251
21D
11,14,16,20,23-DBUS00
11,14,16,20,23-DBUS01
11,14,16,20,23-DBUS02
11,14,16,20,23-DBUS03
11,14,16,20,23-DBUS04
11,14,16,20,23-DBUS05
11,14,16,20,23-DBUS06
11,14,16,20,23-DBUS07
74S251
COMBINED ERROR
29C
74S133
COMBERR-26
DBIT TEST SELECTOR
21E
11,14,16,20,23-DBUS08
11,14,16,20,23-DBUS09
11,14,16,20,23-DBUS10
11,14,16,20,23-DBUS11
11,14,16,20,23-DBUS12
11,14,16,20,23-DBUS13
11,14,16,20,23-DBUS14
11,14,16,20,23-DBUS15
28-MIR61
28-MIR60
28-MIR59
28-MIR58
16C
74S04
74S251
DBITST-26
22
western peripherals ™
TUSTIN, CALIFORNIA
DBIT + XTEST MUX
SIZE
B
DRAWING NO.
75000869
DO NOT SCALE DRAWING
SHEET 23 OF 31
504113

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

2048 BYTE DATA BUFFER



(23)

TOLERANCES UNLESS OTHERWISE SPECIFIED		
FRACTIONS	DEC.	ANGLES
±	±	±

APPROVALS	DATE
DRAWN C. Turner	6-5-81
CHECKED	

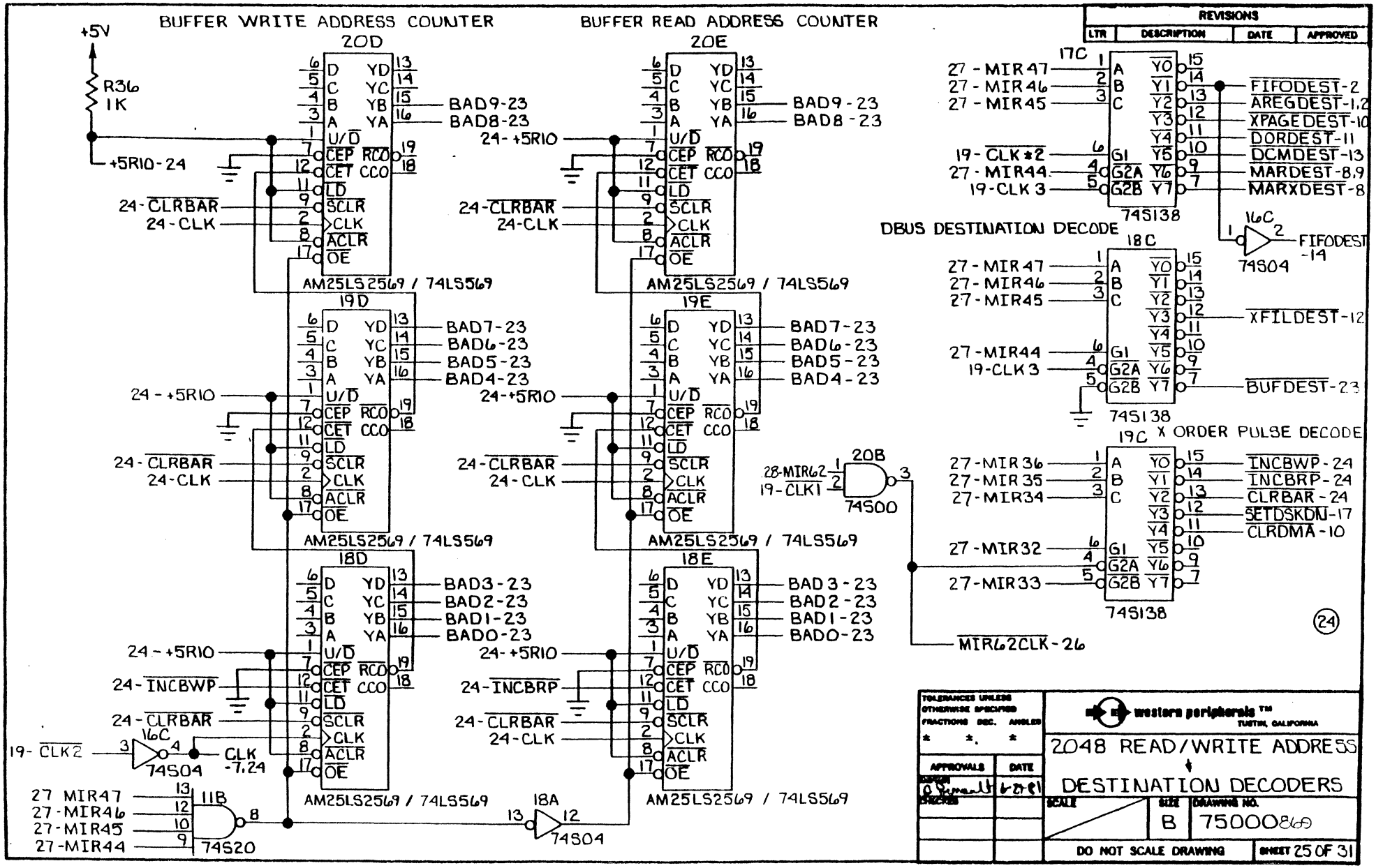
western peripherals™ TUSTIN, CALIFORNIA

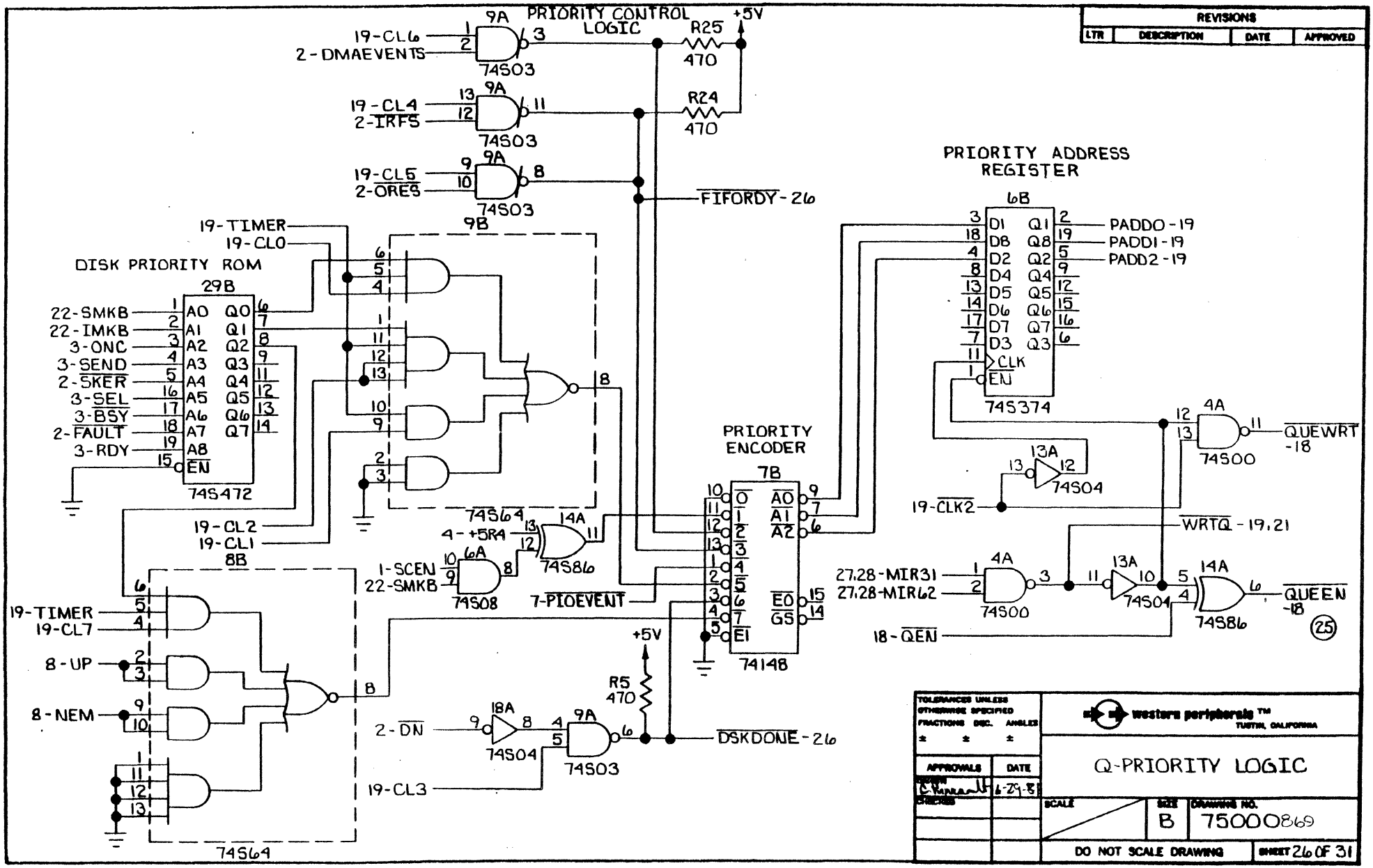
2048 BYTE BUFFER

SCALE	SIZE	DRAWING NO.
	B	75000869

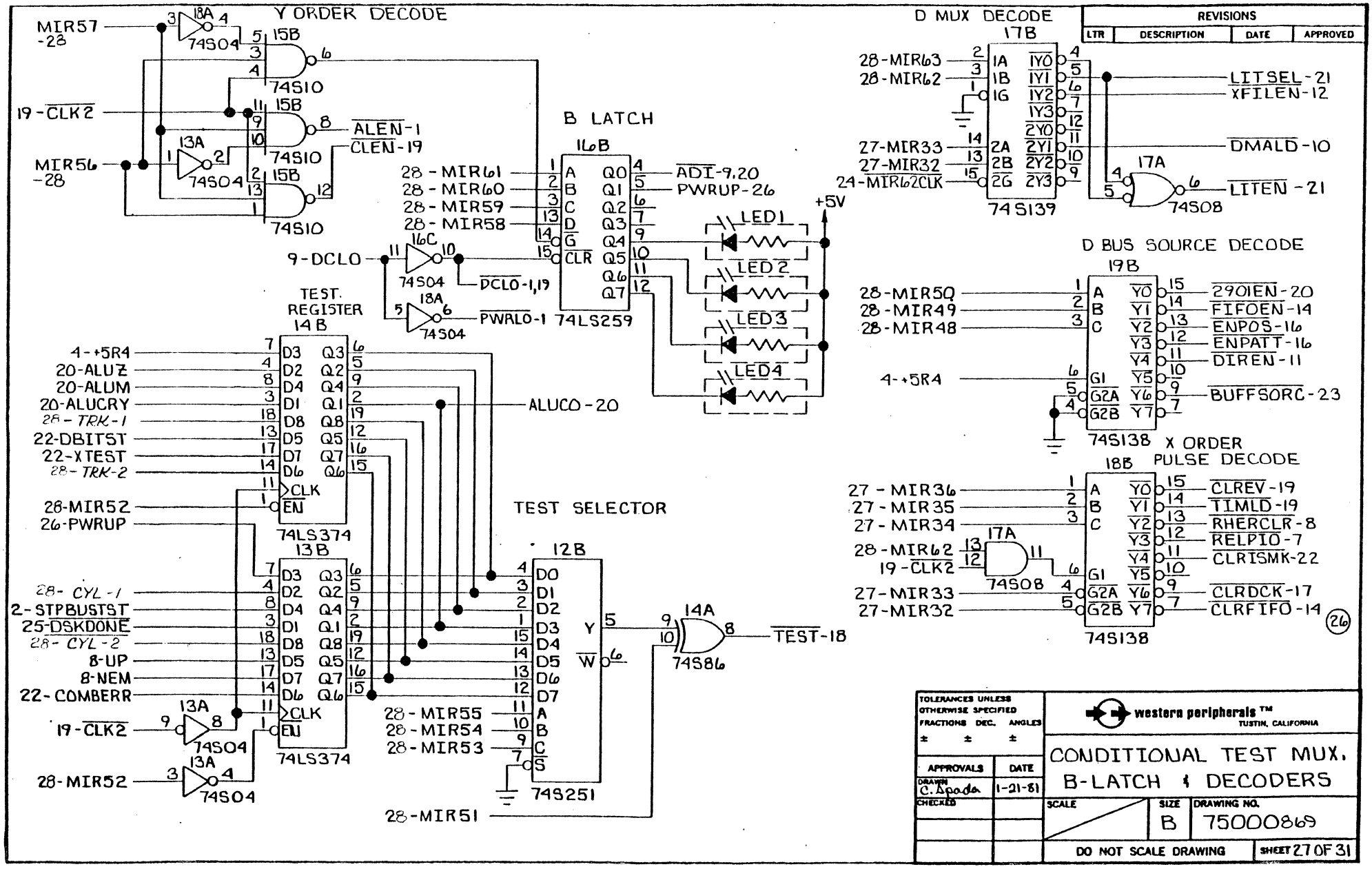
DO NOT SCALE DRAWING — SHEET 24 OF 31

504113

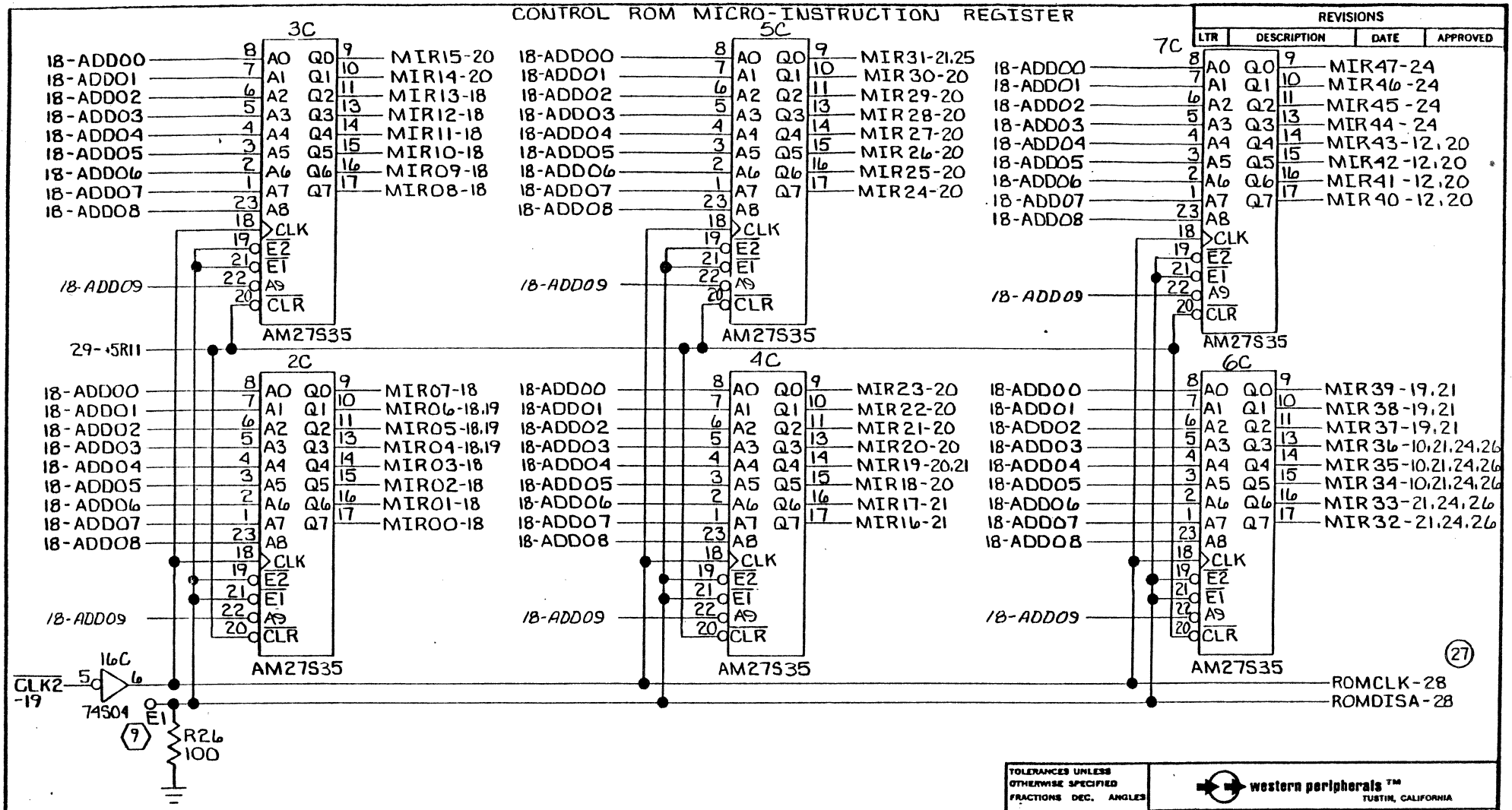

BUFFER WRITE ADDRESS COUNTER
BUFFER READ ADDRESS COUNTER
+5V
R36
1K
+5R10-24
20D
20E
BAD9-23
BAD8-23
BAD7-23
BAD6-23
BAD5-23
BAD4-23
BAD3-23
BAD2-23
BAD1-23
BADO-23
24-+5R10
24-CLRBAR
24-CLK
24-INCBWP
24-INCBRP
AM25LS2569 / 74LS569
19D
19E
18D
18E
16C
74S04
19-CLK2
CLK-7.24
27 MIR47
27-MIR46
27-MIR45
27-MIR44
11B
74S20
18A
20B
28-MIR62
19-CLK1
74S00
MIR62CLK-26
DBUS DESTINATION DECODE
17C
18C
74S138
27-MIR47
27-MIR46
27-MIR45
27-MIR44
19-CLK3
19-CLK*2
FIFODEST-2
AREGDEST-1,2
XPAGEDEST-10
DORDEST-11
DCMDEST-13
MARDEST-8,9
MARXDEST-8
FIFODEST-14
XFILDEST-12
BUFDEST-23
X ORDER PULSE DECODE
19C
27-MIR36
27-MIR35
27-MIR34
27-MIR32
27-MIR33
INCBWP-24
INCBRP-24
CLRBAR-24
SETDSKDN-17
CLRDMA-10
24
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
western peripherals TM
TUSTIN, CALIFORNIA
2048 READ/WRITE ADDRESS
DESTINATION DECODERS
SCALE
SIZE
B
DRAWING NO.
75000869
DO NOT SCALE DRAWING
SHEET 25 OF 31
504113


PRIORITY CONTROL LOGIC
9A
74S03
19-CL6
2-DMAEVENTS
19-CL4
2-IRFS
19-CL5
2-ORES
+5V
R25
R24
470
FIFORDY-26
PRIORITY ADDRESS REGISTER
6B
74S374
PADD0-19
PADD1-19
PADD2-19
DISK PRIORITY ROM
29B
74S472
22-SMKB
22-IMKB
3-ONC
3-SEND
2-SKER
3-SEL
3-BSY
2-FAULT
3-RDY
9B
74S64
19-TIMER
19-CL0
19-CL2
19-CL1
PRIORITY ENCODER
7B
74148
4-+5R4
1-SCEN
22-SMKB
7-PIOEVENT
74S08
74S86
14A
6A
8B
19-CL7
8-UP
8-NEM
R5
470
2-DN
18A
74S04
19-CL3
DSKDONE-26
13A
19-CLK2
4A
74S00
QUEWRT-18
WRTQ-19,21
27,28-MIR31
27,28-MIR62
QUEEN-18
18-QEN
25
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
western peripherals TM
TUSTIN, CALIFORNIA
Q-PRIORITY LOGIC
SCALE
SIZE
B
DRAWING NO.
75000869
DO NOT SCALE DRAWING
SHEET 26 OF 31

504113


Y ORDER DECODE
MIR57 -28
MIR56 -28
19-CLK2
74S04
74S10
ALEN-1
CLEN-19
B LATCH
16B
28-MIR61
28-MIR60
28-MIR59
28-MIR58
9-DCLO
DCLO-1,19
PWRUP-26
ADI-9,20
PWRLO-1
74LS259
LED1
LED2
LED3
LED4
+5V
TEST. REGISTER 14B
4-+5R4
20-ALUZ
20-ALUM
20-ALUCRY
28-TRK-1
22-DBITST
22-XTEST
28-TRK-2
28-MIR52
26-PWRUP
ALUCO-20
74LS374
13B
28-CYL-1
2-STPBUSTST
25-DSKDONE
28-CYL-2
8-UP
8-NEM
22-COMBERR
TEST SELECTOR
12B
28-MIR55
28-MIR54
28-MIR53
28-MIR51
74S251
14A
74S86
TEST-18
D MUX DECODE
17B
28-MIR63
28-MIR62
27-MIR33
27-MIR32
24-MIR62CLK
74S139
LITSEL-21
XFILEN-12
DMALD-10
LITEN-21
17A
74S08
D BUS SOURCE DECODE
19B
28-MIR50
28-MIR49
28-MIR48
4-+5R4
290IEN-20
FIFOEN-14
ENPOS-16
ENPATT-16
DIREN-11
BUFFSORC-23
74S138
X ORDER PULSE DECODE
18B
27-MIR36
27-MIR35
27-MIR34
CLREV-19
TIMLD-19
RHERCLR-8
RELPIO-7
CLRISMK-22
CLRDCK-17
CLRFIFO-14
26
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC. ANGLES
APPROVALS
DATE
DRAWN C. Ayala 1-21-81
CHECKED
western peripherals™ TUSTIN, CALIFORNIA
CONDITIONAL TEST MUX, B-LATCH & DECODERS
SCALE
SIZE B
DRAWING NO. 75000869
DO NOT SCALE DRAWING
SHEET 27 OF 31
504113

CONTROL ROM MICRO-INSTRUCTION REGISTER



REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

TOLERANCES UNLESS OTHERWISE SPECIFIED	
FRACTIONS DEC. ANGLES	
± ± ±	
APPROVALS	DATE
DRAWN C. Spada	1-21-81
CHECKED	

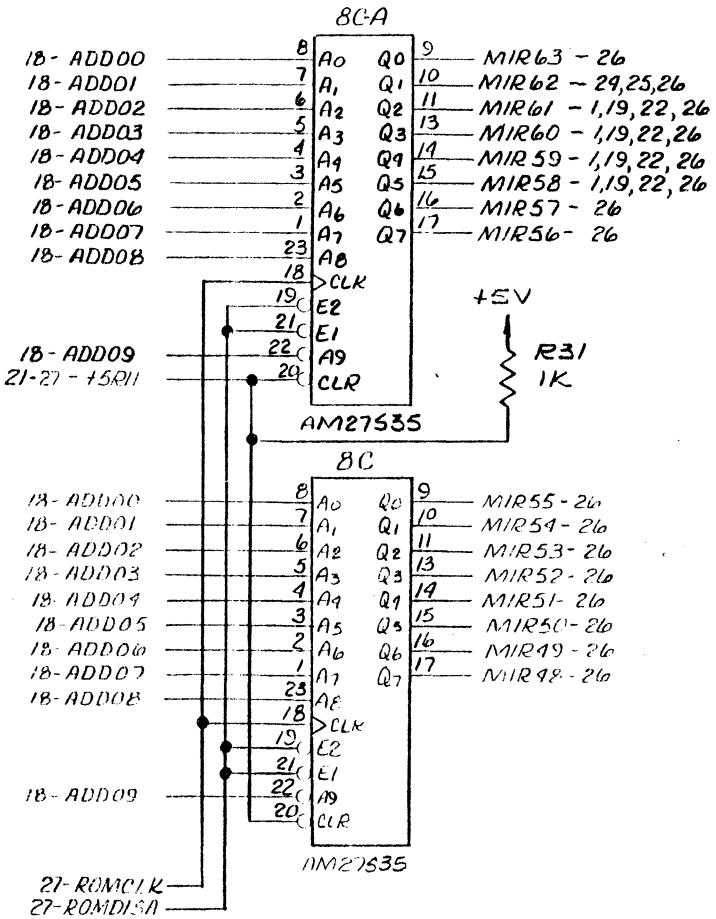
western peripherals ™ TUSTIN, CALIFORNIA

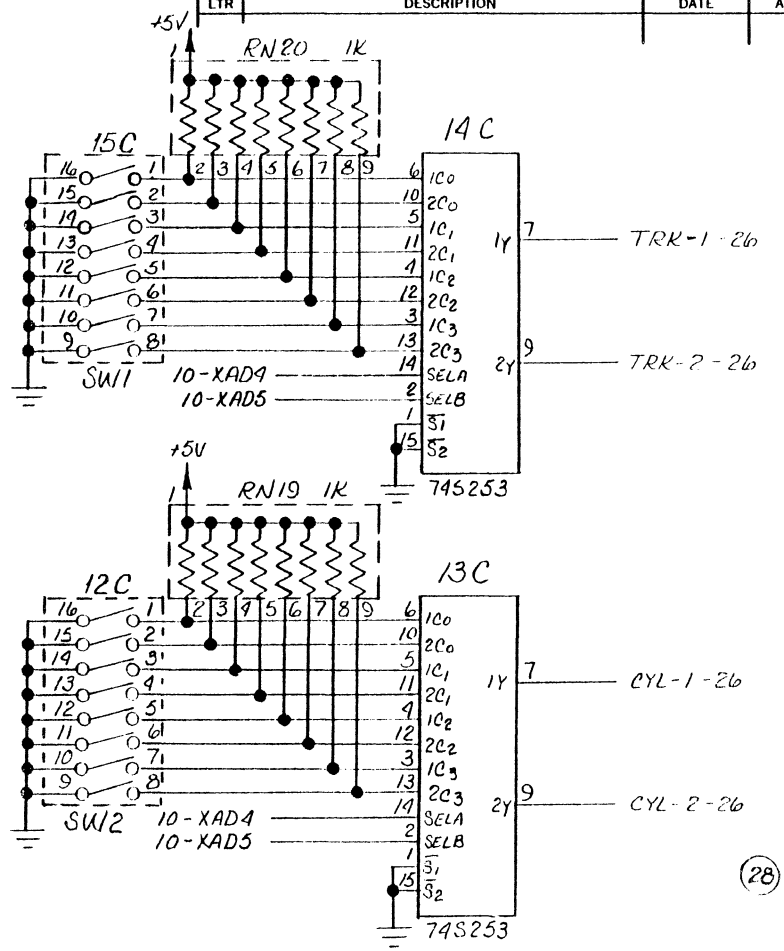
MICRO INSTRUCTION PROM'S

SCALE	SIZE	DRAWING NO.
	B	75000869

DO NOT SCALE DRAWING — SHEET 28 OF 31

504113





(28)

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC ANGLES
± ± ±

APPROVALS	DATE
DRAWN	
CHECKED	

western peripherals ™
TUSTIN, CALIFORNIA

MICRO INSTRUCTION PROMS

SCALE | SIZE B | DRAWING NO. 75000869

DO NOT SCALE DRAWING | SHEET 29 OF 31

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

TRACK

TRK-1	TRK-2	TRACKS
ON	ON	5
OFF	ON	10
ON	OFF	19
OFF	OFF	40

CYLINDER

CYL-1	CYL-2	CYL
ON	ON	411
OFF	ON	823
ON	OFF	893
OFF	OFF	1645

DRIVE

SW # 1	DRIVE #	TRACK
1	0	TRK-1
2	0	TRK-2
3	1	TRK-1
4	1	TRK-2
5	2	TRK-1
6	2	TRK-2
7	3	TRK-1
8	3	TRK-2

DRIVE

SW # 2	DRIVE #	CYL
1	0	CYL-1
2	0	CYL-2
3	1	CYL-1
4	1	CYL-2
5	2	CYL-1
6	2	CYL-2
7	3	CYL-1
8	3	CYL-2

TOLERANCES UNLESS OTHERWISE SPECIFIED		
FRACTIONS	DEC	ANGLES
±	±	±

APPROVALS	DATE
DRAWN	
CHECKED	

western peripherals ™
TUSTIN, CALIFORNIA

SCHEMATIC
DC 231A SMD CONTROLLER

SCALE	SIZE	DRAWING NO.
	B	75000869

DO NOT SCALE DRAWING — SHEET 30 OF 31

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

(5) DEVICE ADDRESS
STD ADDR 776700$_8$

ADDR BIT	ADDR RANGE	E JUMPERS	STD ADDR	INSTALLED JUMPERS	
17	1		1		
16	1		1		
15	1		1		
14	1		1		
13	1		1		
12	0/1	43-44	1		
11	0/1	49-50	1		
10	0/1	51-52	1		
9	0/1	47-48	0	X	*
8	0/1	45-46	1		
7	0/1	53-54	1		
6	0/1	55-56	1		
5	0/1	19-20	0	X	*
4	0/1		X		
3	X		X		
2	X		X		
1	X		X		
0	X		X		

INSTALL JUMPERS FOR "0'S" IN DESIRED ADDR
* STANDARD CONFIGURATION IN ETCH.

(6) WORDS TRANSFERED PER NPR

MODE	JUMPERS	SECTORS TRANSFRD WITHOUT ROTATIONAL DELAY (NOM.) WRITE	READ
1 WORD	E81 - E82	14	14
2 WORDS	E41 - E42	38	38
4 WORDS *	E31 - E38	160	160
8 WORDS	E40 - E39	160	160
HOG (256)	NONE	160	160

REMOVE ALL OTHER JUMPERS EXCEPT THE ONE INDICATED
* STANDARD

(7) INTERRUPT PRIORITY LEVEL

BR4	BR5 *	BR6	BR7
E59 - E60	E59 - E61	E59 - E62	E59 - E63
E64 - E69	E68 - E69	E71 - E69	E73 - E69
E65 - E67	E66 - E67	E70 - E67	E72 - E67
E66 - E68	E64 - E65	E64 - E65	E64 - E65
E70 - E71	E70 - E71	E66 - E68	E66 - E68
E72 - E73	E72 - E73	E72 - E73	E70 - E71

* STANDARD CONFIGURATION IN ETCH

(8) INTERRUPT VECTOR
STD VECTOR 254$_8$

VCTR BIT	E JUMPERS	STD VCTR	INSTALLED JUMPERS	
7	27 - 28	1		
6	29 - 30	0	X	*
5	25 - 26	1		
4	23 - 24	0	X	*
3	21 - 22	1		
2	31 - 32	1		
1		0		
0		0		

INSTALL JUMPERS FOR "0'S" IN DESIRED VECTOR
* STANDARD CONFIGURATION IN ETCH

(10) DRIVE CAPACITY RM02

DRIVE SIZE	E JUMPERS	CUT ETCH BETWEEN
40 MB	E4 - E5	E2 - E3
80 MB	E2 - E3 E4 - E5	
160 MB	E2 - E3	E4 - E5
300 MB	NONE	E2 - E3 E4 - E5

* STANDARD CONFIGURATION IN ETCH

TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS ± DEC. ± ANGLES ±

APPROVALS	DATE
DRAWN KW	3-23-81
CHECKED	

western peripherals™ TUSTIN, CALIFORNIA

SCHEMATIC
DC231A SMD CONTROLLER

SCALE | SIZE B | DRAWING NO. 75000869

DO NOT SCALE DRAWING | SHEET 31 OF 31

504113

REWORK INSTRUCTIONS

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	PROD. REL.	10·2·81	RM
A1	ADD RES. P/N TO C-5&6	11·17·81	RM

A. REMOVE THE FOLLOWING COMPONENTS:

1. 16A (MC3450)
2. RN5 (82Ω SIP)
3. CONN J (26 PIN 3M)

B. LIFT THE FOLLOWING I.C. PINS:

1. 14B-18
2. 13B-18
3. 15A-10
4. 15A-11
5. 15A-12

C. ADD THE FOLLOWING JUMPERS:

1. 27E-10 TO LIFTED I.C. PIN AT 15A-10
2. 27E-11 TO 26E-15
3. 15A-11 TO RN6-3
4. 15A-12 TO RN6-2
5. 1K RESISTOR (P/N P1400046T) FROM 14B-20 TO 14B-18
6. 1K RESISTOR (P/N P1400046T) FROM 13B-20 TO 13B-18
7. RN6-2 TO H30
8. RN6-3 TO H60

REF ASSY.: 60000882

NOV 17 1981

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS DEC. ANGLES ± / ± / ± /		western peripherals™ TUSTIN, CALIFORNIA	
APPROVALS	DATE	CONFIGURATION "BD" DC231 — BALL 160MB DR.	
DRAWN: WOOD	10·2·81		
CHECKED: Harris	11-10-81	SCALE ~	SIZE A
RM	11-10-81	DRAWING NO. 79000907	
		DO NOT SCALE DRAWING	SHEET 1 OF 1

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED	3-22-82	

PURPOSE:

This configuration provides the capability to run SMD drives consisting of 589 cylinders and 7 heads with a DC231A controller.

1. Rework DC231A Assembly P60000965 as follows:

   a. Replace PROM in Location 6C with PROM P17021437.

   b. Identify the assembly by marking "CONF A" on it using a contrasting ink.

MAR 26 1982

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS ± DEC. ± ANGLES ±		western peripherals ™ TUSTIN, CALIFORNIA	
APPROVALS	DATE	Modification Drawing - DC231A CONFIGURATION "A"	
DRAWN L. Crawford	3-22-82		
CHECKED		SCALE	SIZE A / DRAWING NO. P79001053
		DO NOT SCALE DRAWING	SHEET 1 of 1

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED	3-24-82	

PURPOSE:

This configuration provides the capability to run with RMØ5 configured SMD drives with a DC231A controller.

1. Rework DC231A Assembly P60000965 as follows:

   a. Replace PROM in Location 6C with PROM P17021452.

   b. Identify the assembly by marking "CONF B" on it using a contrasting ink.

MAR 26 1982

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS ± DEC. ± ANGLES ±		western peripherals ™ TUSTIN, CALIFORNIA		
APPROVALS	DATE	Modification Drawing - DC231A CONFIGURATION "B"		
DRAWN L. Crawford	3-22-82			
CHECKED		SCALE	SIZE A	DRAWING NO. P79001061
		DO NOT SCALE DRAWING		SHEET 1 of 1

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED	3-24-82	D. Sudman

PURPOSE:

This configuration provides the capability to run SMD drives consisting of 561 cylinders and 3 heads with a DC231A controller.

1. Rework DC231A Assembly P60000965 as follows:

   a. Replace PROM in Location 6C with PROM P17021478.

   b. Identify the assembly by marking "CONF C" on it using a contrasting ink.

MAR 2 6 1982

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS ± DEC. ± ANGLES ±		western peripherals ™ TUSTIN, CALIFORNIA	
APPROVALS	DATE	Modification Drawing - DC231A CONFIGURATION "C"	
DRAWN L. Crawford	3-22-82		
CHECKED		SCALE	SIZE A / DRAWING NO. P79001079
		DO NOT SCALE DRAWING	SHEET 1 of 1

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED	3-24-82	

PURPOSE:

This configuration provides the capability to run SMD drives consisting of 1124 cylinders and 30 heads with a DC231A controller.

1. Rework DC231A Assembly P60000965 as follows:

   a. Replace PROM in Location 6C with PROM P17021494.

   b. Identify the assembly by marking "CONF D" on it using a contrasting ink.

MAR 26 1982

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS ± DEC. ± ANGLES ±		western peripherals ™ TUSTIN, CALIFORNIA		
APPROVALS	DATE	Modification Drawing - DC231A CONFIGURATION "D"		
DRAWN L. Crawford	3-22-82			
CHECKED		SCALE	SIZE A	DRAWING NO. P79001087
		DO NOT SCALE DRAWING		SHEET 1 of 1

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED	3-24-82	

PURPOSE:

This configuration provides the capability to run SMD drives consisting of 1024 cylinders and 3 heads with a DC231A controller.

1. Rework DC231A Assembly P60000965 as follows:

   a. Replace PROM in Location 6C with PROM P17021510.

   b. Identify the assembly by marking "CONF E" on it using a contrasting ink.

MAR 26 1982

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS ± DEC. ± ANGLES ±		western peripherals ™ TUSTIN, CALIFORNIA	
APPROVALS	DATE	Modification Drawing - DC231A CONFIGURATION "E"	
DRAWN L. Crawford	3-27-82		
CHECKED		SCALE	SIZE A / DRAWING NO. P79001095
		DO NOT SCALE DRAWING	SHEET 1 of 1

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED	3-24-82	

PURPOSE:

This configuration provides the capability to run with RMØ5 configured SMD drives with a DC231 Controller.

1. Rework DC231 Assembly P60000882 as follows:

   a. Replace PROM in Location 9C with PROM P17021536.

   b. Identify the assembly by marking "CONF C" on it using a contrasting ink.

MAR 26 1982

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS ± DEC. ± ANGLES ±		western peripherals ™ TUSTIN, CALIFORNIA		
APPROVALS	DATE	Modification Drawing - DC231 CONFIGURATION "C"		
DRAWN L. Crawford	3-24-82			
CHECKED		SCALE	SIZE A	DRAWING NO. P79001152
		DO NOT SCALE DRAWING		SHEET 1 of 1

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED	6/30/82	DLS

PURPOSE:

This Configuration provides the capability to run a 160 MByte SMD Drive as two 80 MByte SMD Drives with a DC231A SMD Controller.

1. Rework DC231A Assembly P60000965 as follows:

   a. Replace PROMs in Location 2C through 9C with the following PROMs (PROM Set P18000497):

P17021734	2C
P17021742	3C
P17021759	4C
P17021767	5C
P17021775	6C
P17021783	7C
P17021791	8C
P17021809	9C

   b. Identify the assembly by marking "CONF H" on it using a contrasting ink.

JUL 19 1982

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS DEC. ANGLES ± ± ±		western peripherals ™ TUSTIN, CALIFORNIA		
APPROVALS	DATE	MODIFICATION DRAWING - DC231A CONFIGURATION "H"		
DRAWN L. Crawford	6/30/82			
CHECKED D. Seaman	6/30/82	SCALE	SIZE A	DRAWING NO. 79001327
		DO NOT SCALE DRAWING		SHEET 1 OF 1

06/30/82 BILL OF MATERIAL TOP LEVEL ASSEMBLY LIST PAGE 1

ASSEMBLY NO. P79001327 REVISION A DESC: MOD DC231A CONFIGURATION H

SEQ	PART NUMBER	DESCRIPTION	CON QTY	HRS	SUB	REV	L	LOCATION	EFF DATE
000	LSC	NO INVENTORY ITEM	1	.0					06/30/82
001	P13000497	PRST DC231A (160/2-8C)	1	.0	S				06/30/82

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED	8-9-82	

PURPOSE:

This configuration provides the capability to run SMD drives consisting of 815 cylinders and 19 heads with a DC231-A controller.

1. Rework DC231-A Assembly P60000965 as follows:

   a. Replace PROM in Location 6C with PROM P17022047.

   b. Identify the assembly by marking "CONF J" on it using a contrasting ink.

AUG 10 1982

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS ± DEC. ± ANGLES ±		western peripherals™ TUSTIN, CALIFORNIA	
APPROVALS	DATE	Modification Drawing - DC231-A CONFIGURATION "J"	
DRAWN	8/6/82		
CHECKED		SCALE	SIZE A / DRAWING NO. P79001384
		DO NOT SCALE DRAWING	SHEET

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED	9-30-82	

PURPOSE:

This configuration provides operation on RP06 Drives.

1. Rework DC231A, Assembly P60000965 as follows:

   a. Remove all PROMS at location 2C through 9C and install PROM set P18000547 at their respective locations.

   b. After rework, identify PCB Assembly as Configuration "M"

SEP 30 1982

TOLERANCES UNLESS OTHERWISE SPECIFIED		
FRACTIONS	DEC.	ANGLES
±	±	±

APPROVALS	DATE
DRAWN	9/30/82
CHECKED	9/30/82

WESPERLINE™
Division of WESPERCORP ANAHEIM, CALIFORNIA

Modification Drawing -
DC231A CONFIGURATION "M"

SCALE	SIZE	DRAWING NO.
	A	P79001483

DO NOT SCALE DRAWING | SHEET

NOTES

APPENDIX A

SMD CABLES

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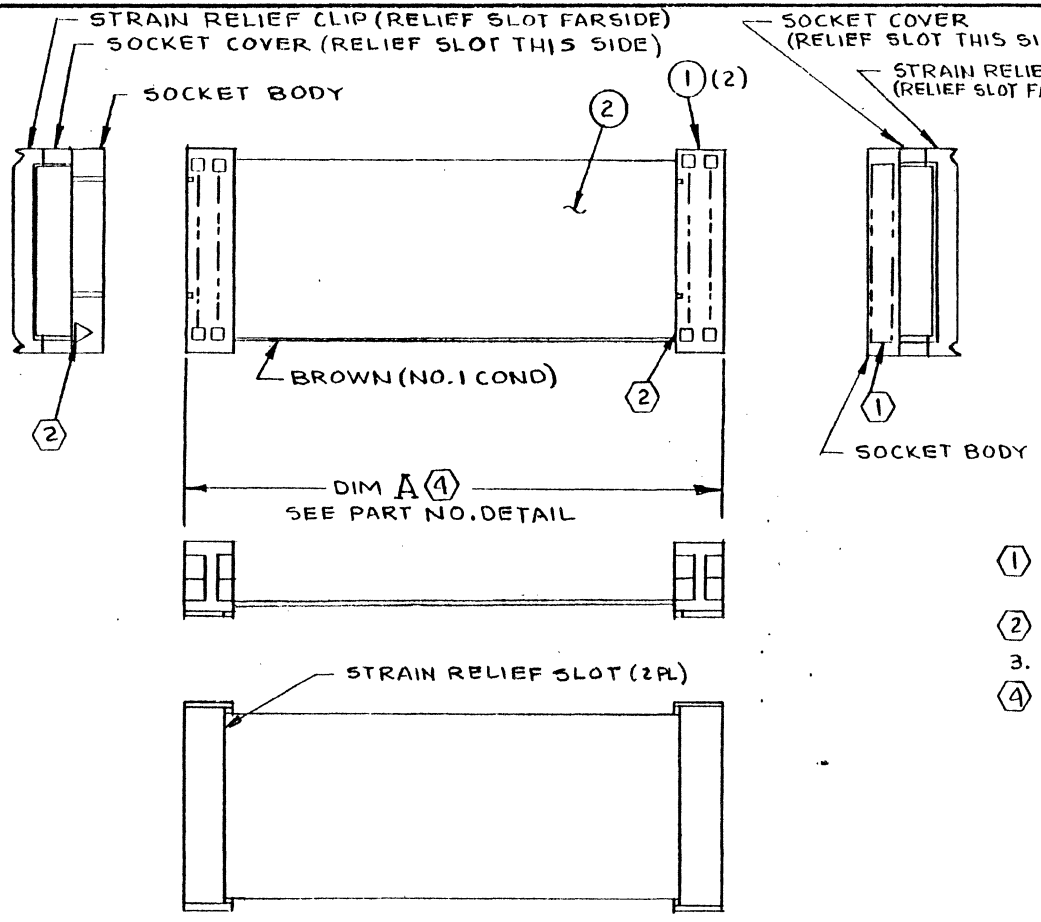


REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	REL FOR PRODUCTION 1-28-81	2-4-81	

NOTE: UNLESS OTHERWISE SPECIFIED:

(1) MARK PART NO, DASH NO. AND LATEST REV LTR WHERE SHOWN USING CONTRASTING INK (SEE PART NO. DETAIL).

(2) TRIANGLE INDICATES PIN NO. 1.

3. FOR MATERIAL SEE B/M 62000435

(4) DIM "A" PLUS CABLE REQUIRED TO CUT AT NEXT FLAT SECTION (UN-TWISTED AREA APPROX 20.00 CENT/CENT).

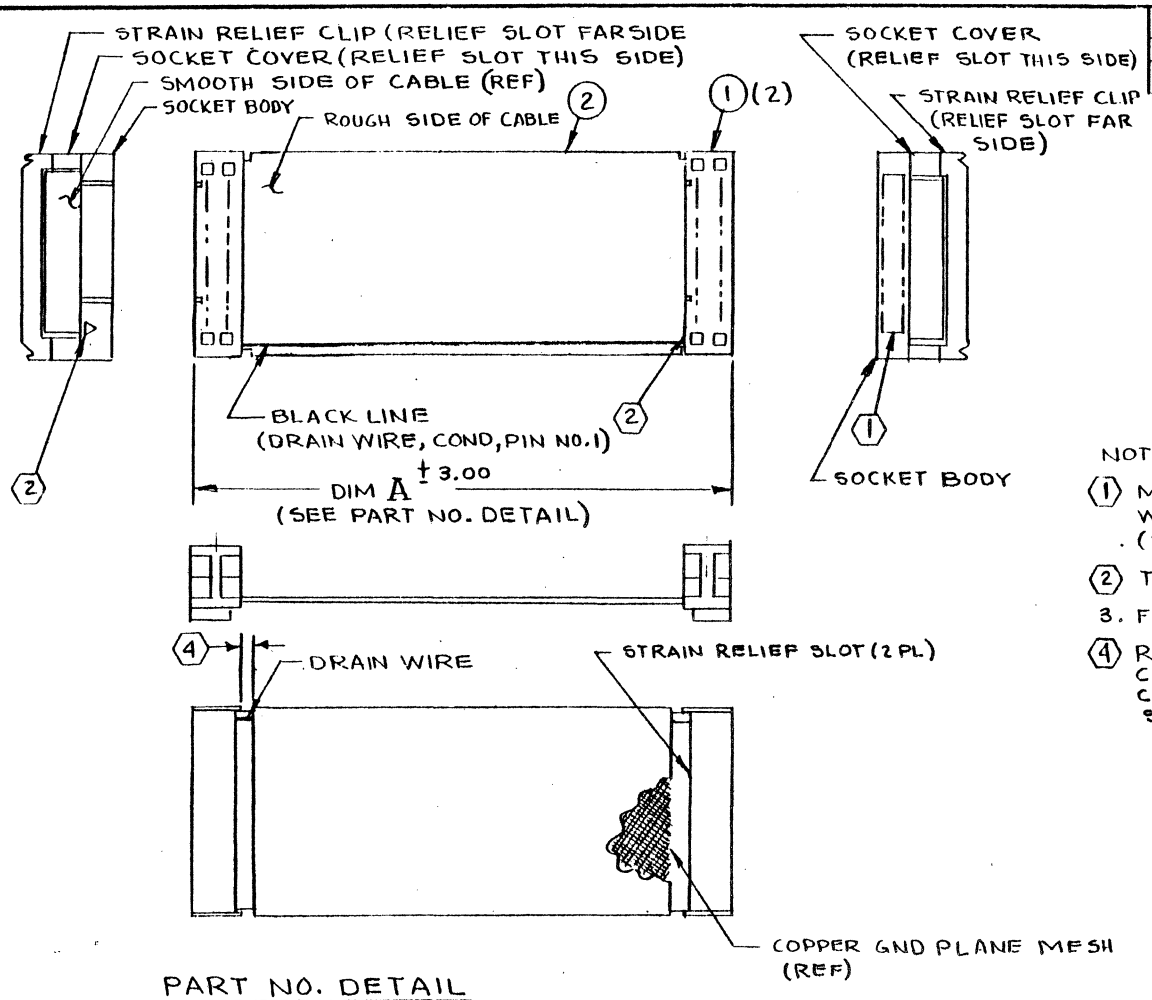
PART NO. DETAIL

62000435 – XX – X

- BASIC PART NUMBER
- DASH NUMBER IN FEET, REF DIM "A" 05 FOR 5 FT, 10 FOR 10 FT. ETC
- LATEST REV LTR

FEB 0 4 1981

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS ± / DEC ± / ANGLES ± /		western peripherals™ TUSTIN, CALIFORNIA	
APPROVALS	DATE	ASSY- CABLE, DC231 "A"	
DRAWN CORUM	1-28-81		
CHECKED HARRIS	2-3-81	SCALE NO SCALE	SIZE B / DRAWING NO. 62000435
		DO NOT SCALE DRAWING	SHEET 1 OF 1



REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	REL FOR PRODUCTION	2-4-81	

NOTE: UNLESS OTHERWISE SPECIFIED:

(1) MARK PART NO. DASH NO. AND LATEST REV LTR WHERE SHOWN USING CONTRASTING INK, (SEE PART NO. DETAIL).

(2) TRIANGLE INDICATES PIN NUMBER 1.

3. FOR MATERIAL SEE B/M 62000443

(4) RELIEVE GROUND PLANE MESH AND EXCESS CABLE WIDTH AS SHOWN FOR INSERTION INTO CONN, DIM TO BE FLUSH TO .050 MAX. FROM SURFACE OF CONN.

FEB 0 4 1981

PART NO. DETAIL

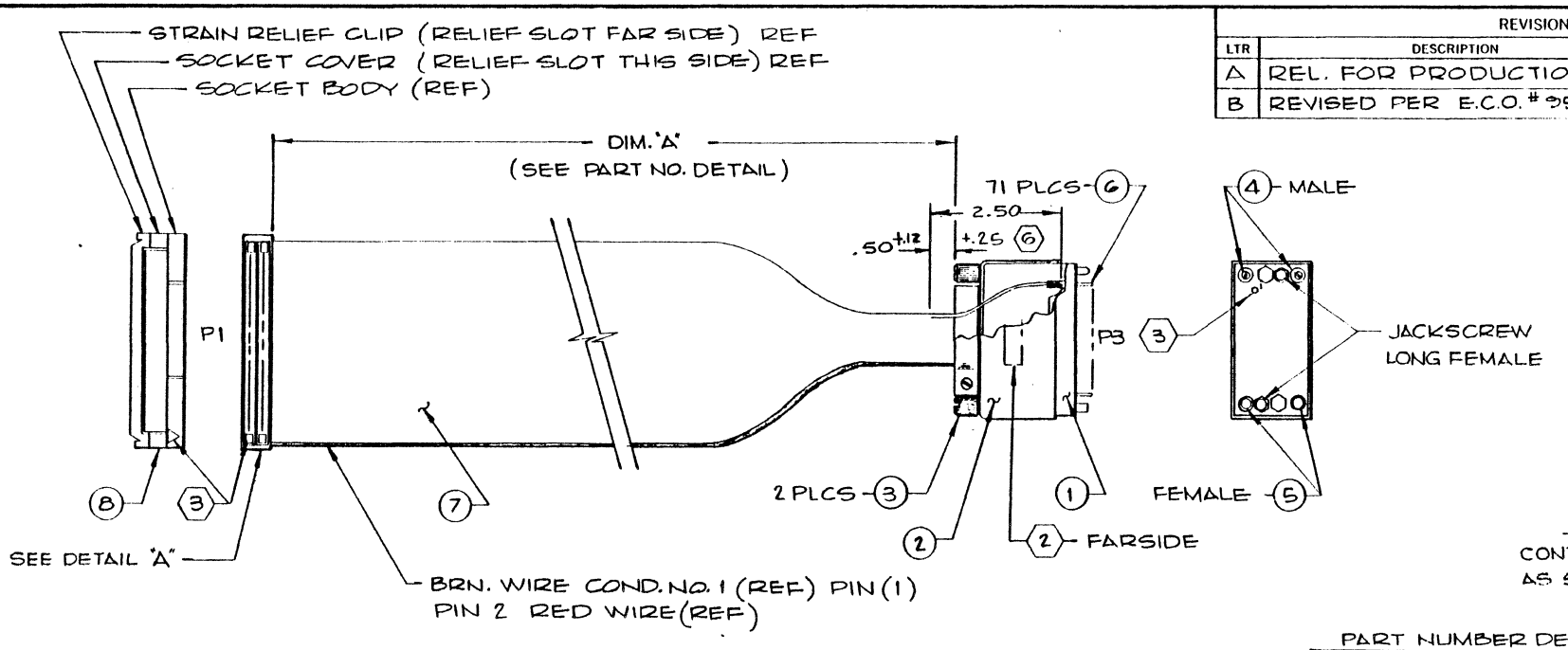
62000443 - XX - X

BASIC PART NUMBER

DASH NUMBER IN FEET, REF DIM "A", 05 FOR 5 FT; 10 FOR 10 FT, ETC

LATEST REV LTR

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS DEC ANGLES ± / .+ / ± /		western peripherals™ TUSTIN, CALIFORNIA	
APPROVALS	DATE	ASSY- CABLE, DC231 "B"	
DRAWN CORUM	1-28-81		
CHECKED HARRIS	2-5-81	SCALE NO SCALE	SIZE B / DRAWING NO. 62000443
		DO NOT SCALE DRAWING	SHEET 1 OF 1



REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	REL. FOR PRODUCTION	3-25-81	
B	REVISED PER E.C.O. # 955	7-9-81	

DETAIL A

CONTACT NUMBERING TO BE AS SHOWN ON P1

NOTES: UNLESS OTHERWISE SPECIFIED.

1. WIRE PER W/L G2000468.
2. MARK PART NO., DASH NO. AND LATEST REV. LTR. WHERE SHOWN USING PERMANENT CONTRASTING INK. (SEE PART NO. DETAIL.)
3. INDICATES PIN NO. 1
4. FOR MATL. SEE B/M G2000468.
5. TERMINATE CONNECTOR P1 IN FLAT SECTION OF CABLE.
6. SEPARATE WIRE 2.50 +.25 FROM END OF CABLE AT P3.

PART NUMBER DETAIL

G2000468 -XX-X

BASIC PART NUMBER

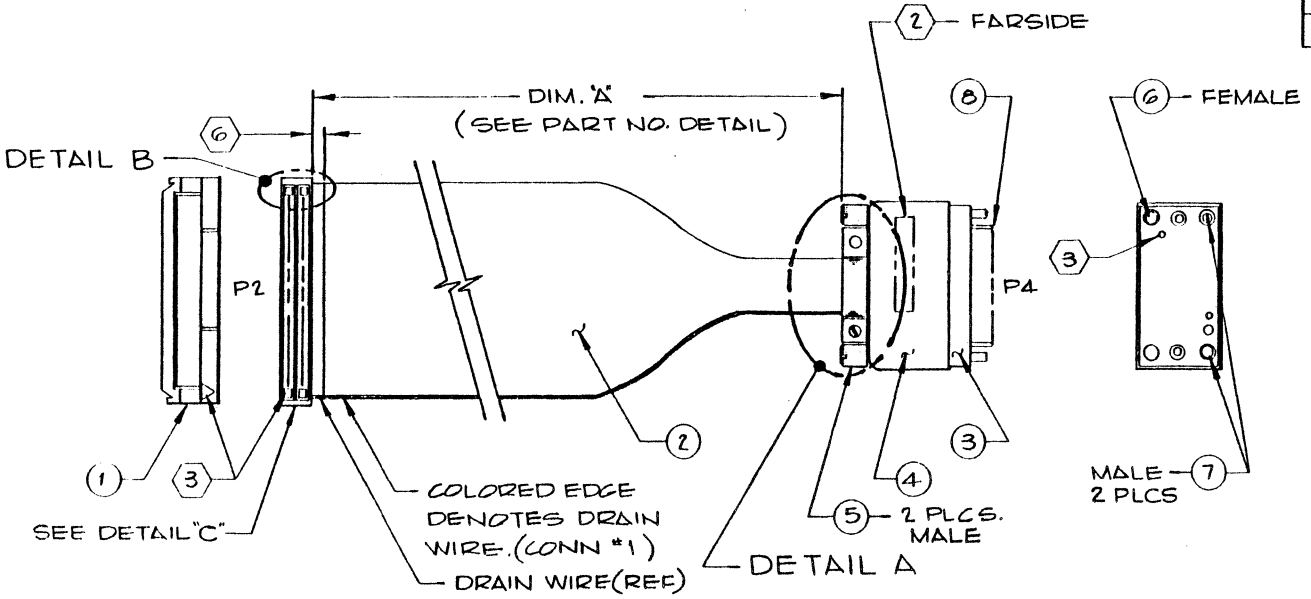
DASH NUMBER IN FEET, (REF DIM "A") 05 FOR 5FT, 10 FOR 10 FT, ETC.

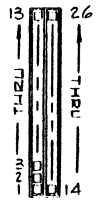
LATEST REV. LTR.

JUL 10 [illegible]

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS ± / DEC ± / ANGLES ± /		western peripherals ™ TUSTIN, CALIFORNIA		
APPROVALS	DATE	ASSY.- CABLE A DC231 / MEMOREX		
DRAWN G. WOOD	3-25-81			
CHECKED HARRIS	4-7-81	SCALE NO SCALE	SIZE B	DRAWING NO. PG2000468
	7-9-81	DO NOT SCALE DRAWING		SHEET 1 OF 1

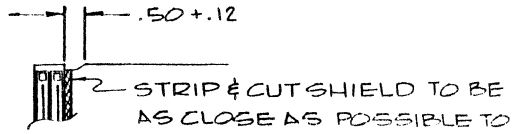
REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	REL. FOR PRODUCTION	3-30-81	
B	REVISED PER E.C.O. # 955	7-8-81	





DETAIL C

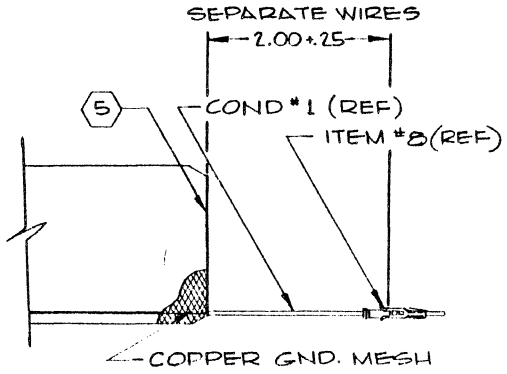
CONTACT NUMBERING TO BE AS SHOWN ON P2.



DETAIL B

NOTES: UNLESS OTHERWISE SPECIFIED.

1. WIRE PER W/L G2000476.
2. MARK PART NO., DASH NO., AND LATEST REV. LTR. WHERE SHOWN USING PERMANENT CONTRASTING INK. (SEE PART NO. DETAIL.)
3. INDICATES PIN NO. 1.
4. FOR MAT'L. SEE B/M G2000476.
5. SEPARATE & APPLY PINS TO CONDUCTORS, ALSO CUT & REMOVE WIRE GND. MESH APPROX 2.00 "(REF) FROM END OF CABLE.
6. RELIEVE GND. PLANE MESH .050 MAX. FROM SURFACE OF CONN. EXPOSING DRAIN WIRE, CONNECT DRAIN WIRE TO PIN. # 1.



DETAIL A
NO SCALE

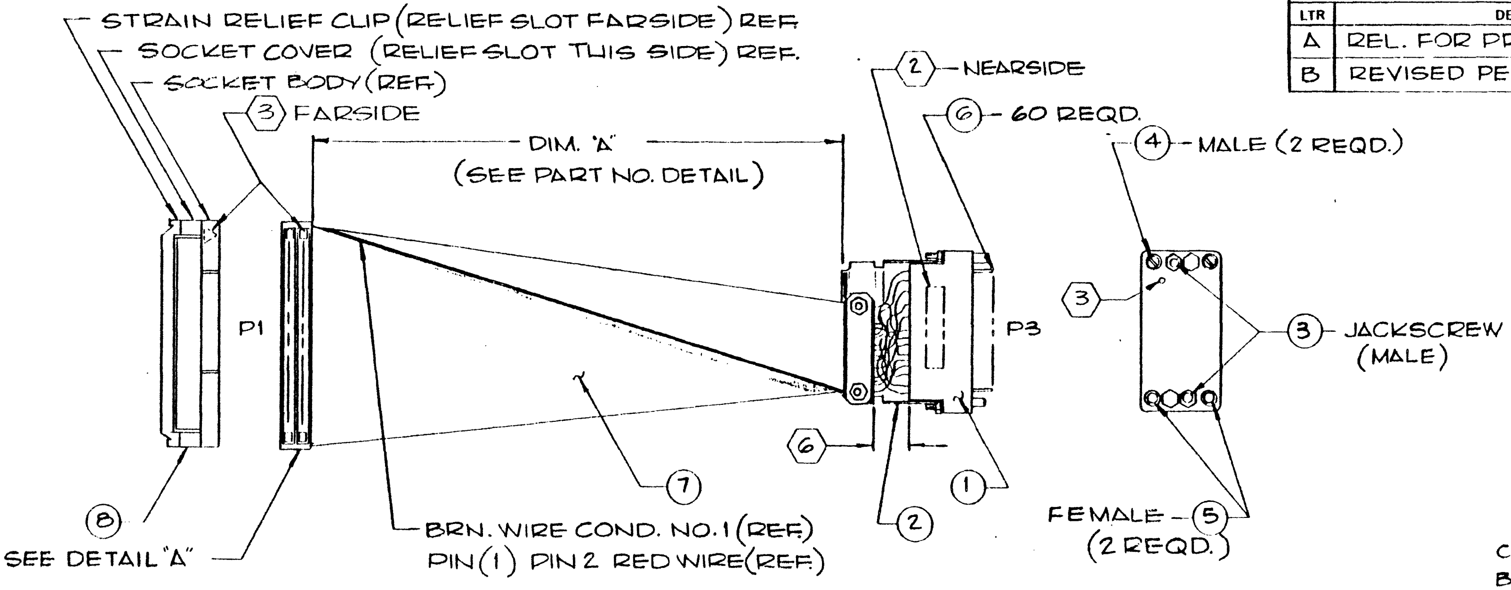
PART NUMBER DETAIL

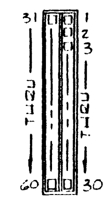
G2000476-XX-X

BASIC PART NUMBER
DASH NUMBER IN FEET, (REF DIM. "A") 05 FOR 5FT, 10 FOR 10FT ETC.
LATEST REV. LTR.

JUL 10 1981

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS DEC ANGLES ± / ± / ±/		western peripherals ™ TUSTIN, CALIFORNIA	
APPROVALS	DATE	ASSY. - CABLE P5 DC231/MEMOREX	
DRAWN G. WOOD	3-30-81		
CHECKED HARRIS	4-7-81	SCALE NO SCALE	SIZE B
	4-29-81	DRAWING NO. P62000476	
		DO NOT SCALE DRAWING	SHEET 1 OF 1





DETAIL A

CONTACT NUMBERING TO BE AS SHOWN ON P1.

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	REL. FOR PRODUCTION	4·17·81	RM
B	REVISED PER E.C.O. # 956	7·9·81	RM

NOTES: UNLESS OTHERWISE SPECIFIED.

1. WIRE PER W/L 62000492.
2. MARK PART NO., DASH NO. AND LATEST REV. LTR. WHERE SHOWN USING PERMANENT CONTRASTING INK. (SEE PART NO. DETAIL.)
3. INDICATES PIN NO. 1
4. FOR MAT'L. SEE B/M 62000492.
5. TERMINATE CONNECTOR P1 IN FLAT SECTION OF CABLE.
6. SEPARATE WIRE 2.00 ± .25 FROM END OF CABLE AT P3.

PART NUMBER DETAIL

62000492 - XX - X

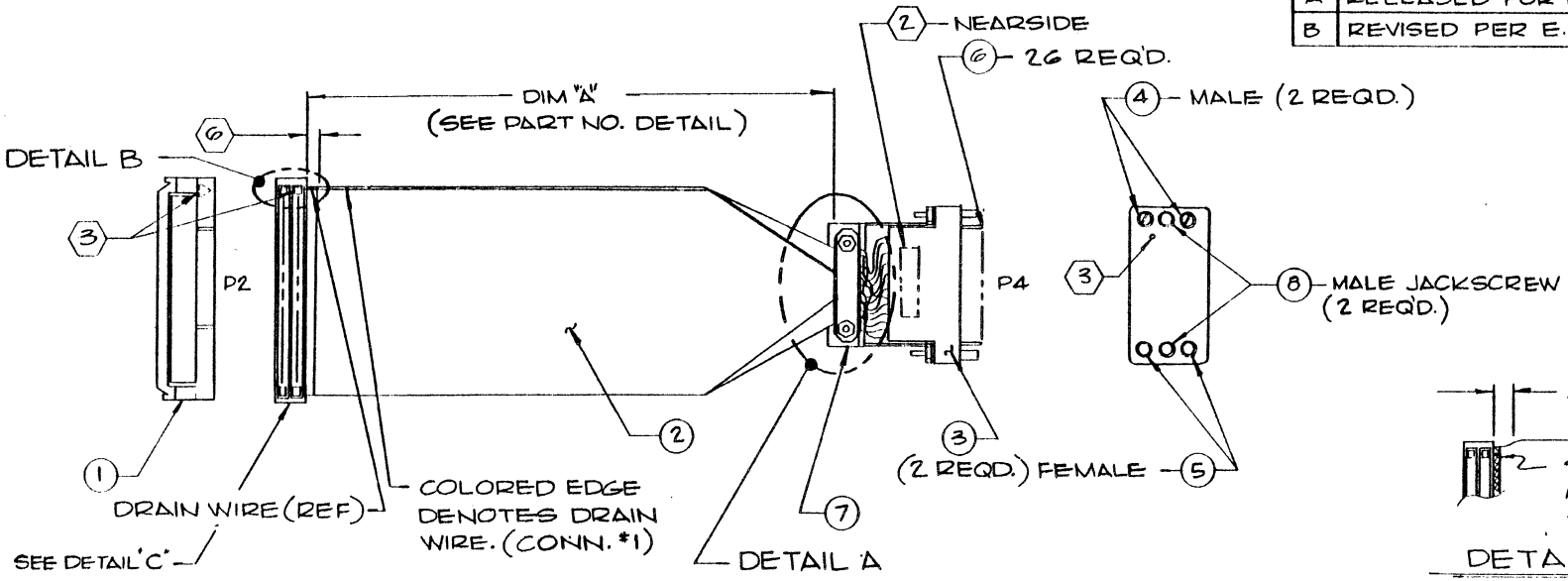
BASIC PART NUMBER
DASH NUMBER IN FEET, (REF. DIM. "A") 05 FOR 5 FT., 10 FOR 10 FT. ETC.
LATEST REV. LTR.

JUL 10 1981

TOLERANCES UNLESS OTHERWISE SPECIFIED		western peripherals ™ TUSTIN, CALIFORNIA		
FRACTIONS ± / DEC ± / ANGLES ± /		ASSY. - CABLE A [illegible] / CDC DRIVE		
APPROVALS	DATE			
DRAWN G. WOOD	4·17·81	SCALE NO SCALE	SIZE B	DRAWING NO. 62000492
CHECKED HARRIS	4·20·81			
RM	4·20·81	DO NOT SCALE DRAWING		SHEET 1 OF 1

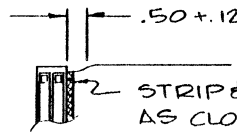
BISHOP GRAPHICS/ACCUPRESS REORDER NO. A-3589

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED FOR PRODUCTION	4-20-81	RM
B	REVISED PER E.C.O. #956	7-9-81	/ /



DETAIL C

CONTACT #'S TO BE AS SHOWN ON P2

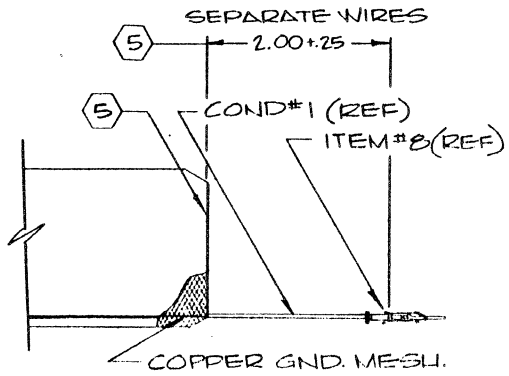


STRIP & CUT SHIELD TO BE AS CLOSE AS POSSIBLE TO THE CONNECTOR (REF.)

DETAIL B

NOTES: UNLESS OTHERWISE SPECIFIED.

1. WIRE PER W/L 62000500.
2. MARK PART NO., DASH NO., AND LATEST REV. LTR. WHERE SHOWN USING PERMANENT CONTRASTING INK. (SEE PART NO. DETAIL.)
3. INDICATES PIN NO. 1.
4. FOR MAT'L. SEE B/M 62000500.
5. SEPERATE & APPLY PINS TO CONDUCTORS, ALSO CUT & REMOVE WIRE GND. MESH APPROX. 2.00" (REF) FROM END OF CABLE.
6. RELIEVE GND. PLANE MESH .050 MAX. FROM SURFACE OF CONN. EXPOSING DRAIN WIRE, CONNECT DRAIN WIRE TO PIN #1.



DETAIL A
NO SCALE

PART NUMBER DETAIL

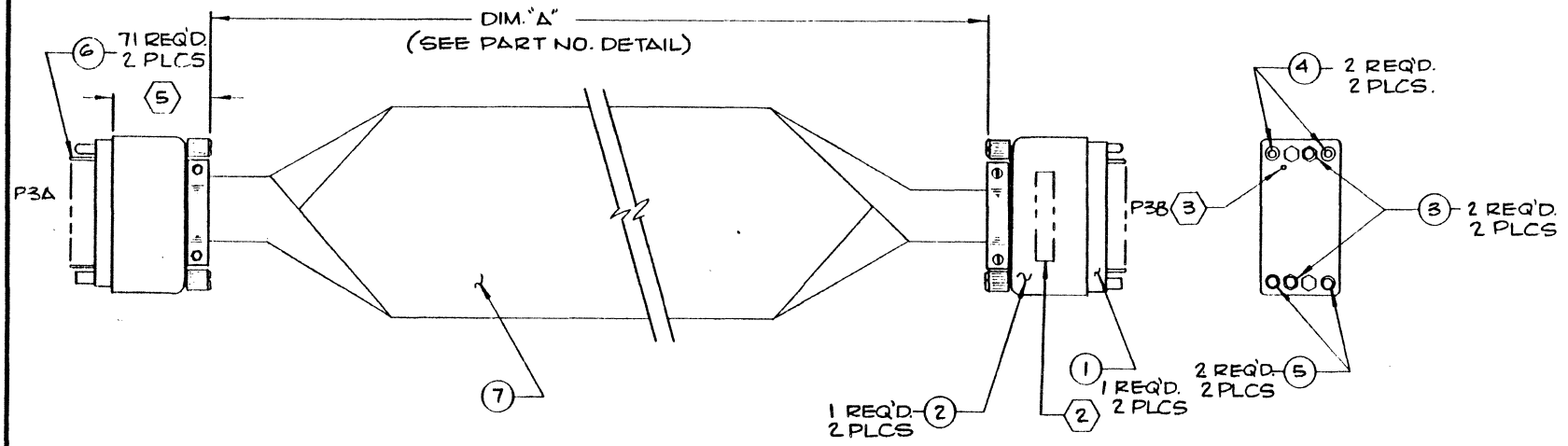
62000500 - XX - X

BASIC PART NUMBER
DASH NUMBER IN FEET (REF DIM "A") 05 FOR 5FT., 10 FOR 10FT., ETC.
LATEST REV. LTR.

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS DEC ANGLES ± / ± / ± /		western peripherals ™ TUSTIN, CALIFORNIA	
APPROVALS	DATE	ASSY. - CABLE B DC231 / CDC DRIVE	
DRAWN G.Wood	4-20-81		
CHECKED Harris	4-20-81	SCALE NO SCALE	SIZE B
RMI	4-20-81		DRAWING NO. 62000500
		DO NOT SCALE DRAWING	SHEET 1 OF 1

JUL 10 1981

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	REL. FOR PRODUCTION	7-9-81	



PART NUMBER DETAIL

62000534 - XX - X

BASIC PART NUMBER

DASH NO. IN FEET, (REF. DIM. "A") 05 FOR 5FT, 10 FOR 10 FT., ETC.

LATEST REV. LTR.

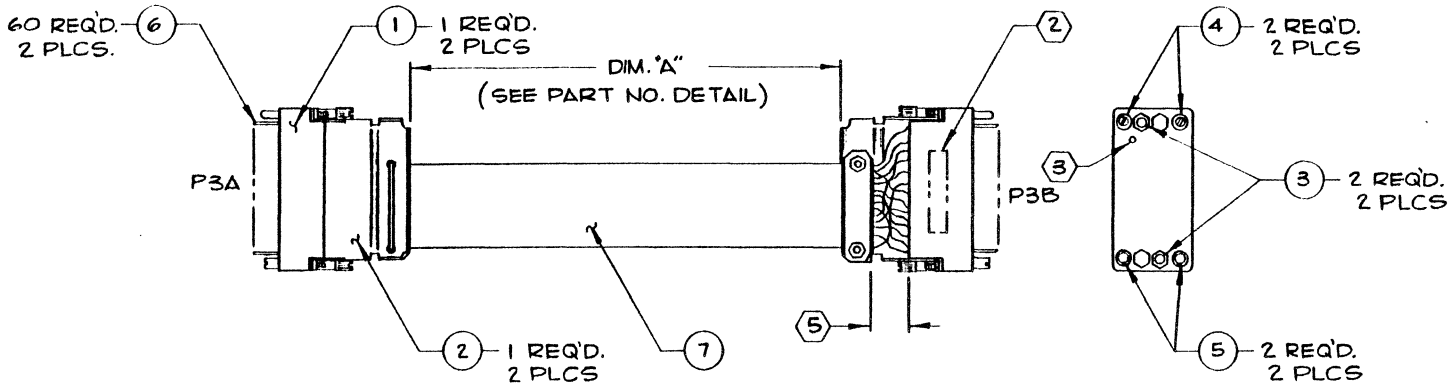
NOTES: UNLESS OTHERWISE SPECIFIED.

1. WIRE PER W/L 62000534.
2. MARK PART NO., DASH NO. AND LATEST REV. LTR. WHERE SHOWN USING PERMANENT CONTRASTING INK. (SEE PART NO. DETAIL)
3. INDICATES PIN NO. 1
4. FOR MAT'L. SEE B/M 62000534.
5. SEPARATE WIRE 2.50 +.25 FROM END OF CABLE AT P3A & P3B

JUL 14 1981

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS DEC ANGLES ± / ± / ± /		western peripherals ™ TUSTIN, CALIFORNIA		
APPROVALS	DATE	ASSY. - CABLE A DAISY CHAIN/MEMOREX		
DRAWN Wood	7-9-81			
CHECKED	7-15-81	SCALE	SIZE B	DRAWING NO. 62000534
		DO NOT SCALE DRAWING		SHEET 1 OF 1

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	REL. FOR PRODUCTION	7-9-81	



JUL 14 1981

NOTES: UNLESS OTHERWISE SPECIFIED.

1. WIRE PER WIRE LIST 62000542.
2. MARK PART NO., DASH NO. AND LATEST REV. LTR. WHERE SHOWN USING PERMANENT CONTRASTING INK (SEE PART NO. DETAIL)
3. INDICATES PIN NO. 1
4. FOR MATL SEE B/M 62000542.
5. SEPARATE WIRE 2.00 +.25 FROM ENDS OF CABLE AT P3A & P3B.

PART NUMBER DETAIL

62000542 - XX - X

BASIC PART NUMBER

DASH NUMBER IN FEET, (REF DIM. "A") 05 FOR 5 FT., 10 FOR 10 FT. ETC.

LATEST REV. LTR.

TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONS ± DEC ± ANGLES ±		western peripherals ™ TUSTIN, CALIFORNIA		
APPROVALS	DATE	ASSY. CABLE A DAISY CHAIN/CDC		
DRAWN G WOOD	7-9-81			
CHECKED	7-13-81	SCALE	SIZE B	DRAWING NO. 62000542
		DO NOT SCALE DRAWING		SHEET 1 OF 1