Honeywell

LEVEL 6

HARDWARE

MSU9101/9102 MASS STORAGE UNIT INSTALLATION PROCEDURE

MSU9101/9102

MASS STORAGE UNIT

INSTALLATION PROCEDURE

Document No. 71010679-100 Order No. FX73, Rev. 0

This Manual provides Installation Procedures for Mass Storage Unit MSU9101/9102 with or without factory installed Expansion Drawer MSU9105/9106.

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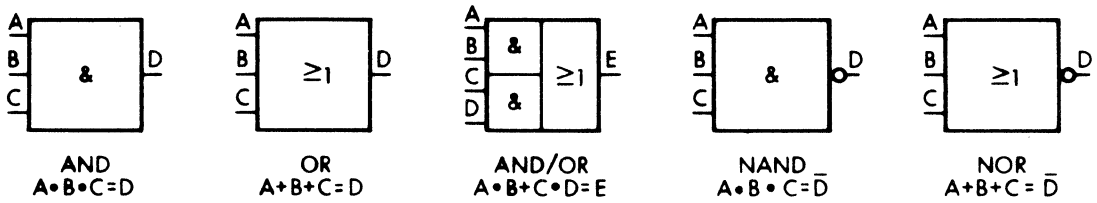

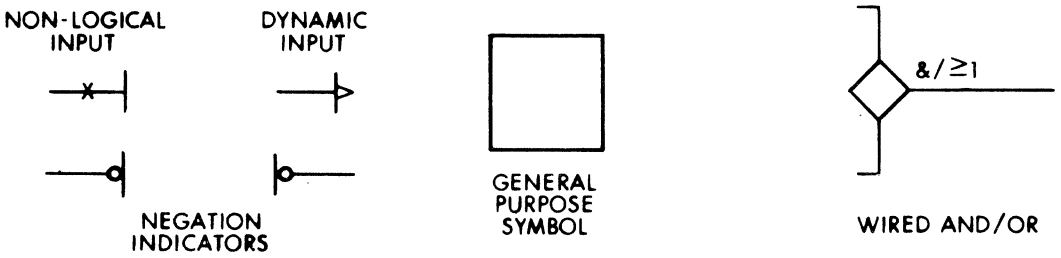

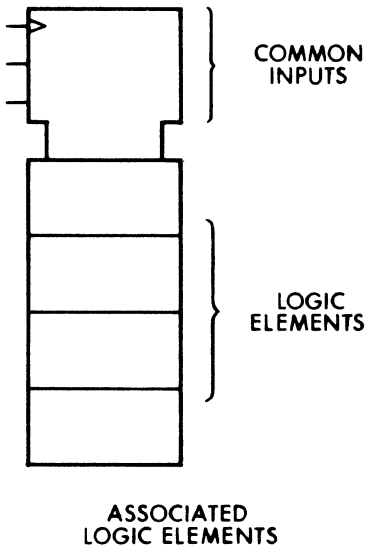

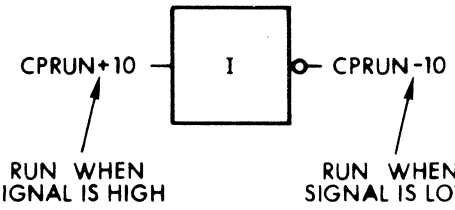

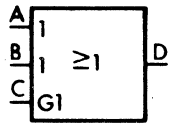

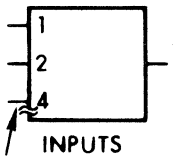

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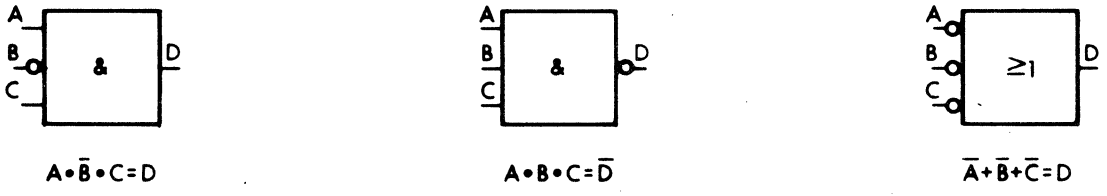


USE OF NEGATION INDICATOR

1
INTRODUCTION

The purpose of this manual is to supplement the Level 6 Models 3X, 4X, and 5X System Installation Manual (Order No. CB68) by providing the necessary procedures for the site installation of Mass Storage Unit MSU9101/9102. Also included in this manual are the necessary procedures for the site installation of MSU9101 with a factory installed MSU9105 expansion drawer (expansion drive) or an MSU9102 with a factory installed MSU9106 expansion drawer.

The MSU types are defined as follows:

MSU9101 - 37- or 33-megabyte mass storage unit in free-standing cabinet

MSU9102 - 75- or 67-megabyte mass storage unit in free-standing cabinet

MSU9105 - Expansion drawer for 37- or 33-megabyte mass storage unit

MSU9106 - Expansion drawer for 75- or 67-megabyte mass storage unit

NOTE

The procedure to be followed when an expansion drawer is to be installed in a mass storage unit cabinet on site is found in MSU9105/9106 Mass Storage Drawer Installation Procedure (Order No. FX75).

II
INSTALLATION

This section contains the unpacking procedures and the cabling and power-up procedures for Mass Storage Unit MSU9101/9102. Where differences in procedures exist, separate instructions are provided for a mass storage unit with factory installed Expansion Drawer MSU9105/9106 and a unit without an expansion drawer.

2.1 UNPACKING INSTRUCTIONS

The following subsections contain general instructions for unpacking the mass storage unit cabinet. These instructions apply regardless of whether the cabinet contains an expansion drawer. Separate instructions are also included for removing shipping hardware from a mass storage unit cabinet without an expansion drawer, as well as a cabinet with an expansion drawer installed.

2.1.1 General Unpacking Instructions

The unpacking instructions for the mass storage unit cabinet are as follows:

1. Remove all strapping, then remove wood frame by carefully prying upright wood corners away from mass storage unit cabinet and lifting wood off.

2. Remove polyethylene dust cover from mass storage unit cabinet.

3. Roll mass storage unit cabinet on its casters to suitable work area.

4. Open rear door assembly (see Figure 2-1) and remove the following items:

   a. Plastic bag containing manuals for mass storage unit.

   b. Plastic bag taped to inside of cabinet containing four leveling pads.

   c. Plastic bag containing one aluminum air filter.

5. Remove aluminum air filter from plastic bag and insert it into filter bracket located under base frame of mass storage unit cabinet as shown in Figure 2-1.

6. Remove four leveling pads from plastic bag. Install jam nut (if supplied) on each leveling pad and install a leveling pad at each corner of cabinet frame (see Figure 2-2) by raising corner of cabinet and threading leveling pad into weldnut on frame.

NOTE

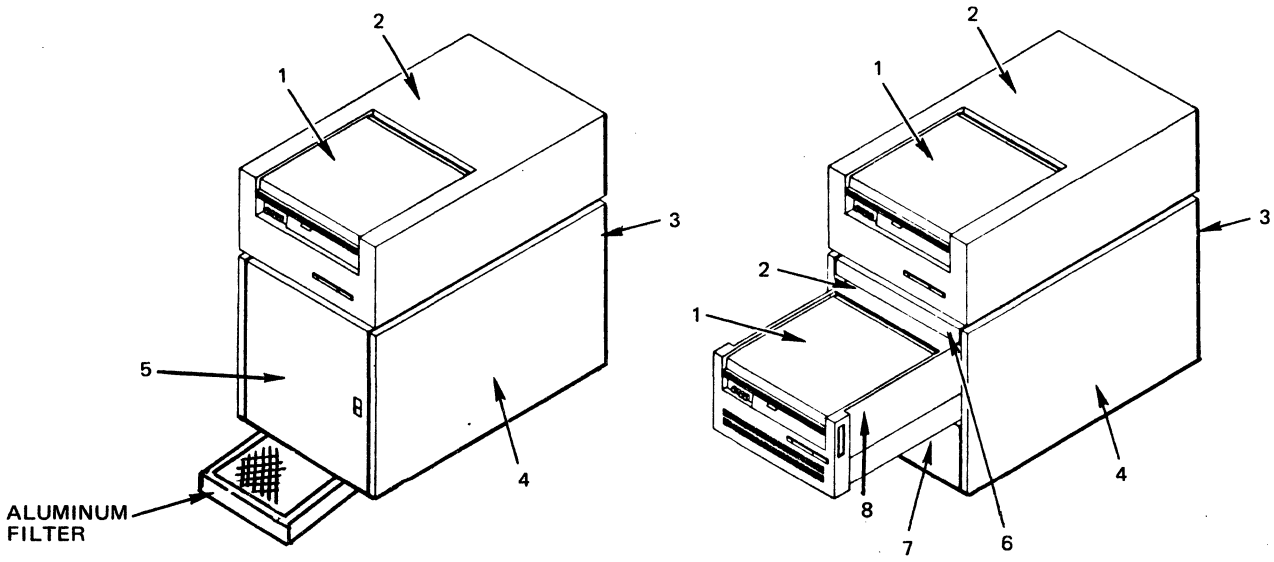
If the MSU9101/9102 is shipped with an expansion drawer, remove the shipping supports between the cabinet base and the drawer by following the procedures in steps 7 through 10, below, otherwise proceed to subsection 2.1.2.

7. From rear of cabinet, disengage the two shipping supports by forcing rear leg of each support forward and down through cabinet base cable opening (see Figure 2-3).

8. From front of cabinet, pull out expansion drawer to its extended position.

9. From rear of cabinet, carefully lift shipping supports out of cabinet. Also remove layers of cushioning material used with shipping supports.

10. Close the drawer.



MASS STORAGE UNIT CABINET

MASS STORAGE UNIT CABINET WITH EXPANSION DRAWER (EXPANSION DRIVE)

MASS STORAGE UNIT CABINET ASSEMBLY	
INDEX NUMBER	ASSEMBLY NAME
1	PACK ACCESS COVER
2	CASE ASSEMBLY
3	REAR DOOR ASSEMBLY
4	SIDE PANEL ASSEMBLY
5	FRONT DOOR ASSEMBLY
6	TOP FILLER PANEL
7	BOTTOM FILLER PANEL
8	DRAWER MOUNT CASE

Figure 2-1 Mass Storage Unit Cabinet Assembly

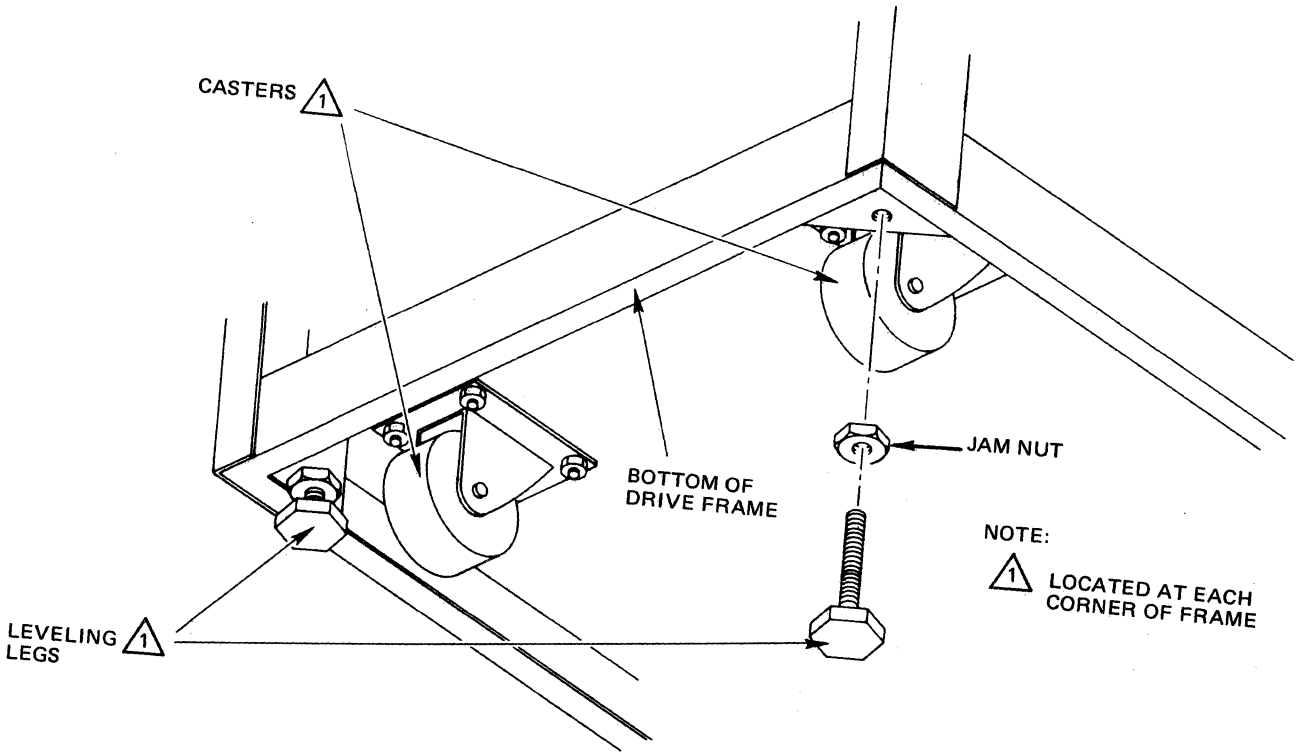
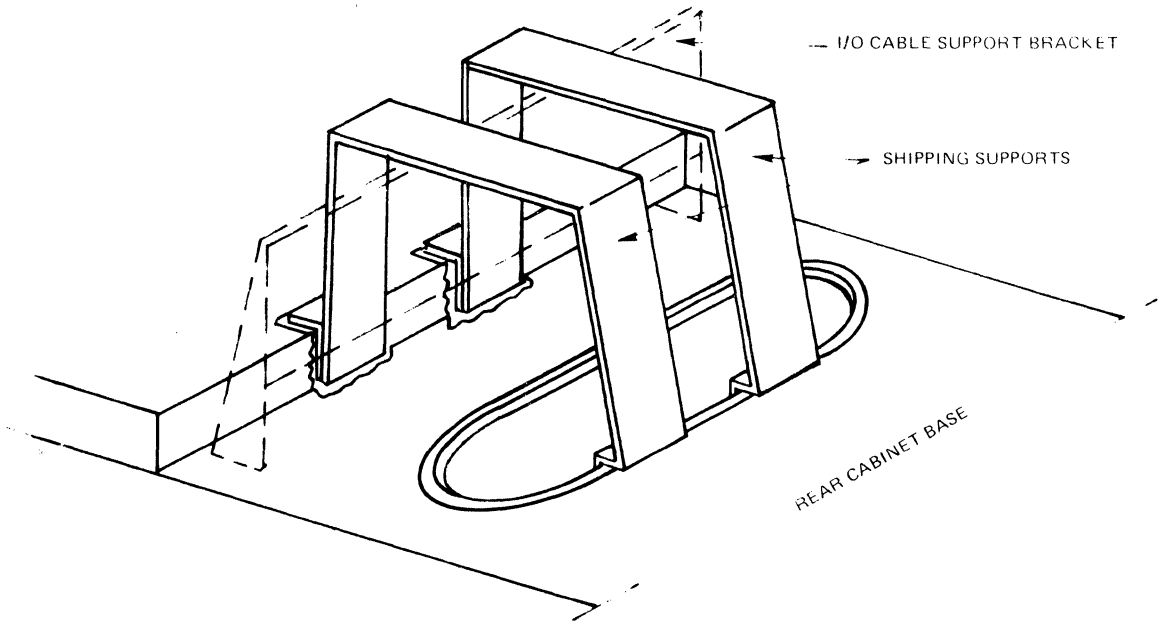


Figure 2-2 Leveling Pad Installation



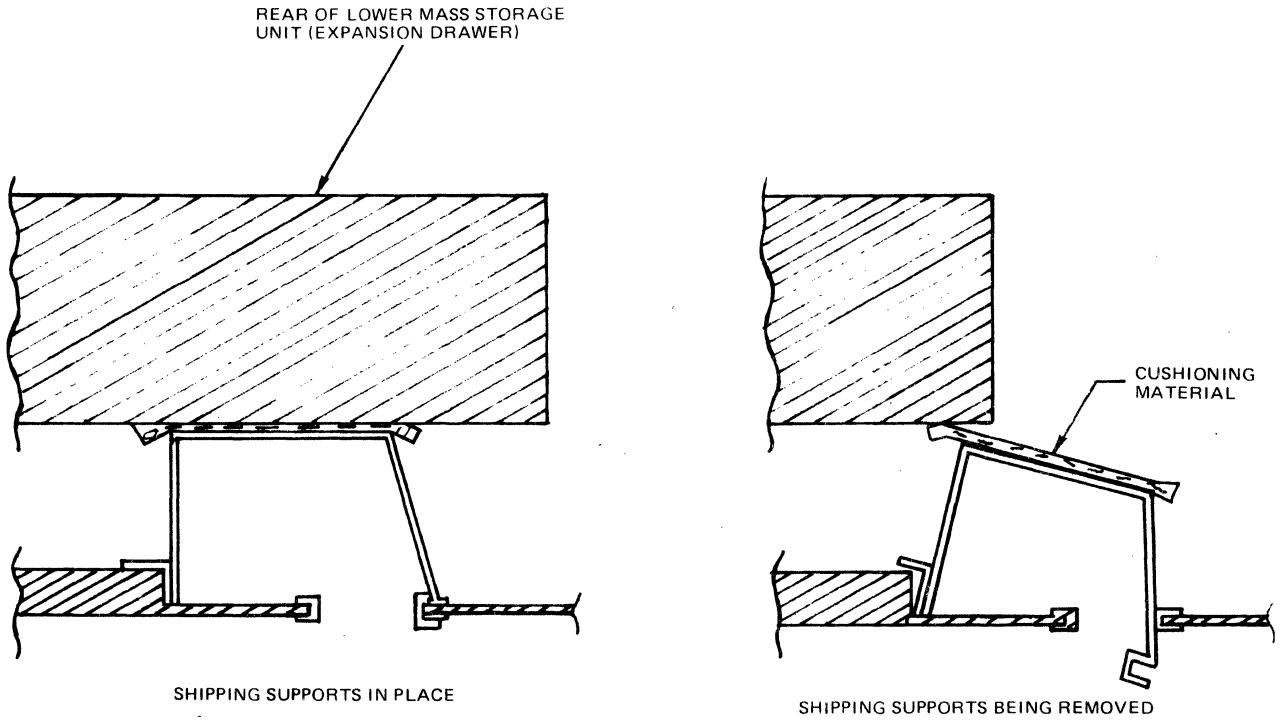


Figure 2-3 Removal of Shipping Supports

2.1.2 Removing Shipping Hardware from Mass Storage Unit Cabinet

To remove the shipping hardware from the mass storage unit cabinet proceed as follows:

1. Open rear door (see Figure 2-1) and, from rear of cabinet, raise top case assembly (i.e., upper mass storage unit) as follows:

   a. Place both hands under case assembly and release two 1/4-turn fasteners that secure case assembly to cabinet frame.

   b. Lift case assembly up from rear of cabinet and pivot it forward on case pivot pin until it rests on case support rod.

   c. Allow case assembly to drop back a few inches so that support rod drops down against stop. Leave case assembly resting on support rod.

2. Within upper mass storage unit, locate rail bracket assembly (see Figure 2-4). Remove taped down carriage locking pin and ring assembly (red tag attached) from SHIPPING LOCK hole and store in PIN STORAGE hole. Discard red tag and string.

3. From rear of upper mass storage unit, locate the rear deck holddown screw (i.e., center of three screws at rear deck casting) and associated spacer (red tag attached) (see Figure 2-5). Remove rear deck holddown screw and spacer and store them in threaded keeper hole at rear of deck casting. Discard red tag and string.

4. From right-hand side of cabinet, locate shock-lock bracket (red tag attached) near front of upper mass storage unit (see Figure 2-6). Loosen bottom screw and remove top screw. Pivot L-shaped shock-lock bracket 90 degrees to right and fasten bottom screw securely. Place top screw back into original tapped hole and fasten it securely. Discard red tag and string.

5. Perform the following inspection:

   a. Inspect mass storage unit for possible shipping damage. Any claim for shipping damage should be filed promptly with transporter involved. If claim is filed, save original shipping materials.

   b. Ensure that all logic cards are firmly seated in logic chassis and power supply.

   c. Ensure that control panel is firmly seated in shroud.

d. Ensure that all connectors are firmly seated.

e. Ensure that all cabling is intact and that there are no broken or damaged wires.

f. Remove from mass storage unit and cabinet any foreign material, particularly material that could cause electrical short.

g. Remove from actuator area any foreign material that could obstruct movement of carriage and heads.

6. Close cabinet case assembly (see Figure 2-1) of mass storage unit as follows:

   a. Push case assembly forward slightly, removing weight from support rod.

   b. Lift up on support rod until it clears stop, and then carefully lower case assembly to closed position.

7. Open pack access cover (see Figure 2-1) on mass storage unit, and remove orange plastic cover that protects spindle during shipment.

NOTE

A plastic bag containing the programmable insert keys (logic address plugs labeled 00 through 15) is taped to the orange plastic protective cover. Temporarily store these programmable insert keys. They will be installed later, as directed in subsection 2.6.

8. Remove all foreign material from pack area and from shroud area.

9. Close pack access cover.

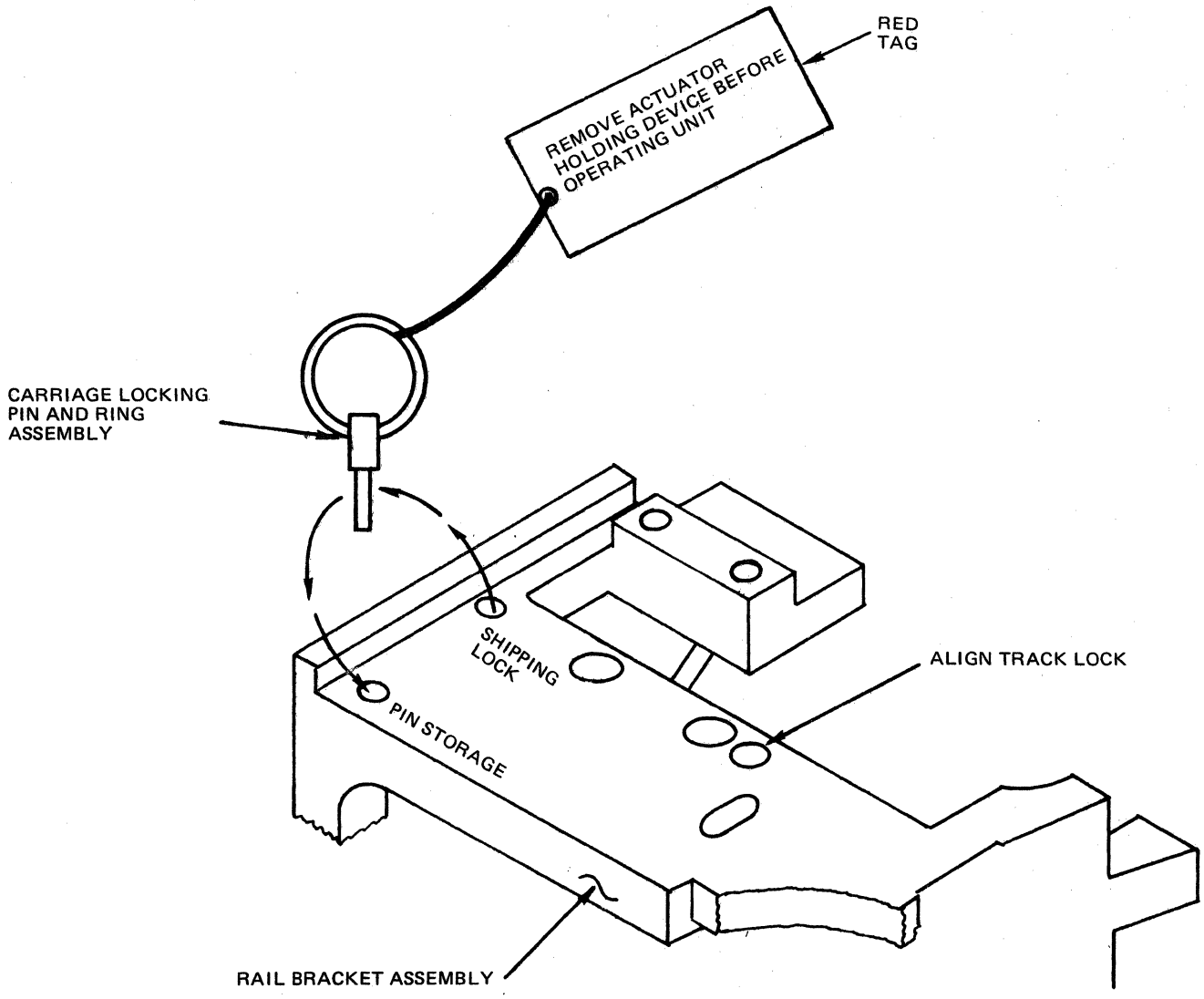


Figure 2-4 Removal of Carriage Locking Pin and Ring Assembly

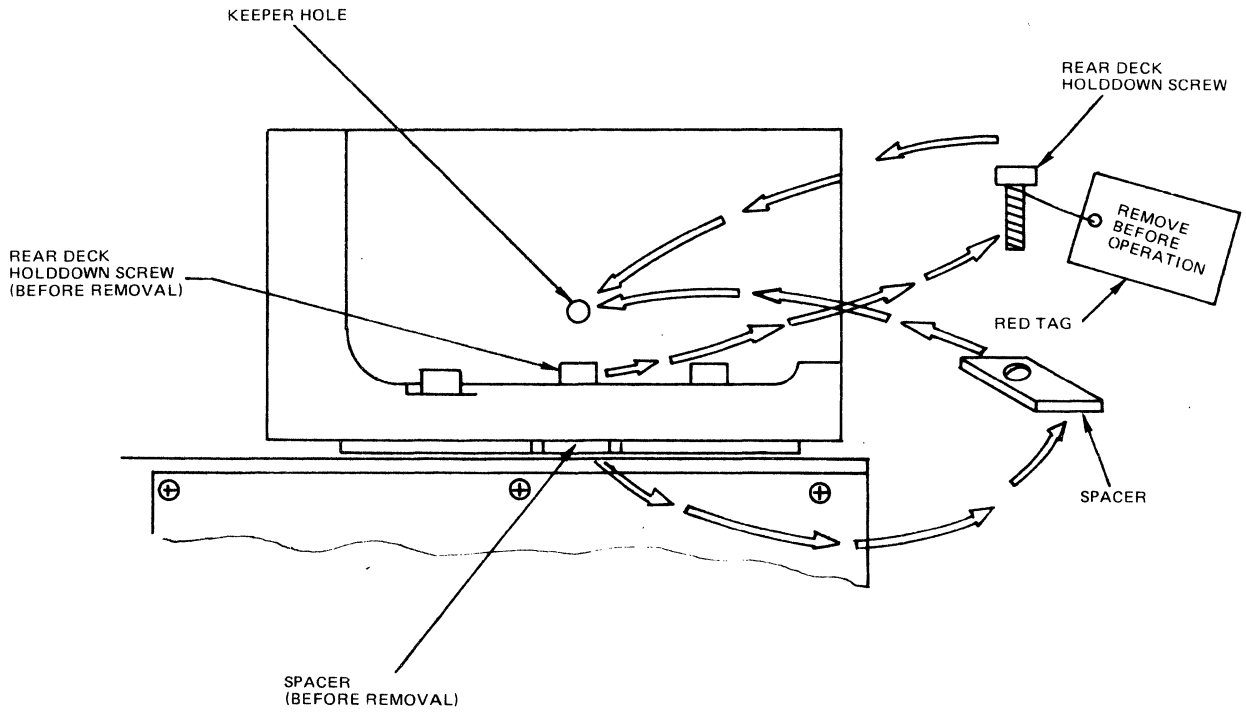


Figure 2-5 Removal of Rear Deck Holddown Screw and Spacer

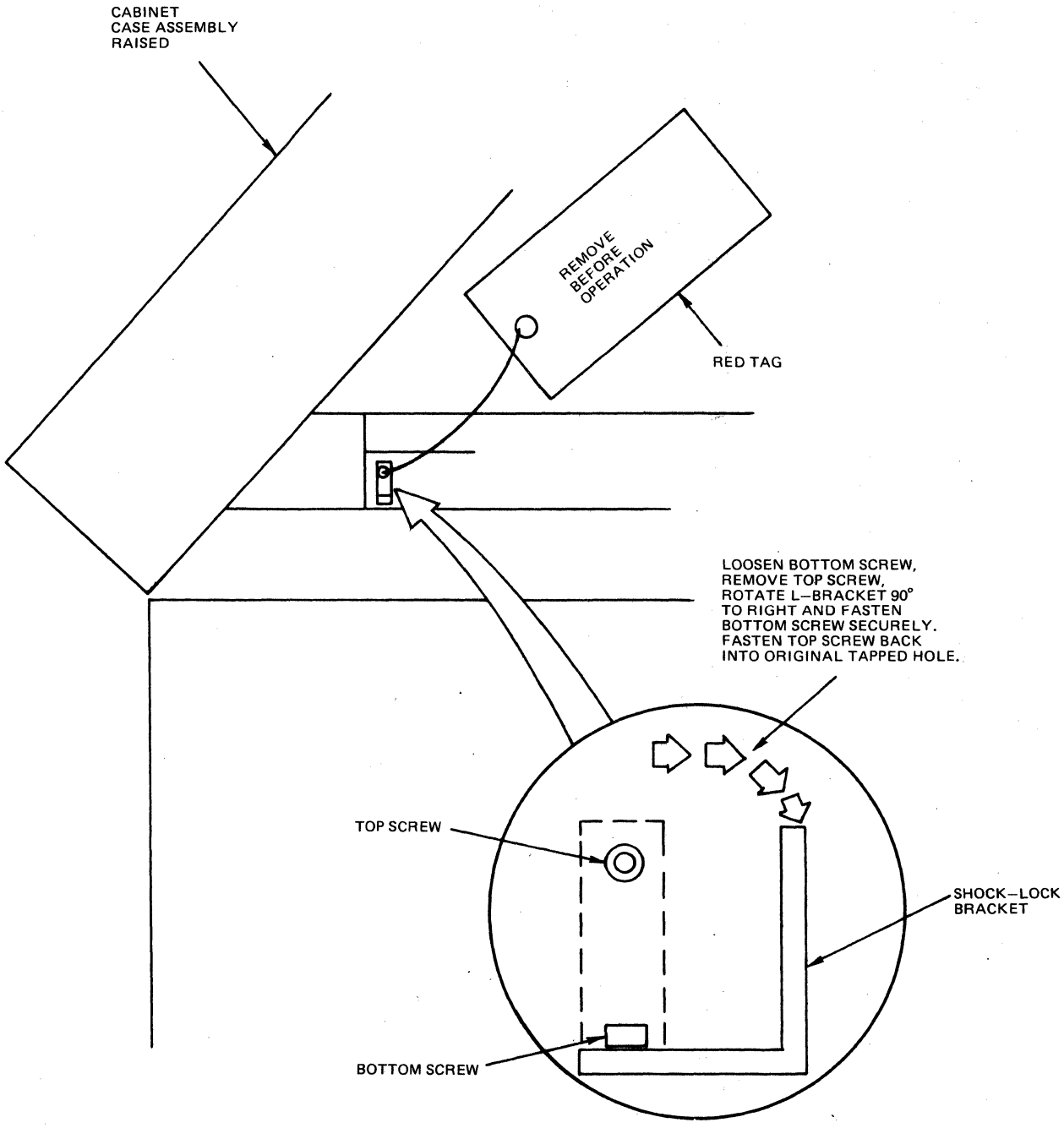


Figure 2-6 Removal of Shock-Lock Bracket

2.1.3 Removing Shipping Hardware from Expansion Drawer

If the mass storage unit cabinet contains a factory installed expansion drawer, perform the following operations. If the cabinet does not contain an expansion drawer, proceed to subsection 2.2.

1. Open mass storage unit expansion drawer to its fully extended position by pulling drawer out to first stop and pressing full extension releases on both sides of slide assemblies (see Figure 2-7) and pulling drawer to full extension.

2. Raise drawer mount case (see Figure 2-1) as follows:

   a. Press in on release catches located on the bottom outside corners of mount case at rear of drawer.

   b. While holding in release catches, lift up on top cover of drawer.

   c. When top cover of drawer has been raised a short distance, swing the hinged panel back away from storage module unit in order to clear rear of actuator assembly.

   d. Pivot top cover of drawer up until it rests against case support stops.

3. Within expansion drawer, locate rail bracket assembly (see Figure 2-4) and remove taped down carriage locking pin and ring assembly (red tag attached) from SHIPPING LOCK hole and store assembly in PIN STORAGE hole. Discard red tag and string.

4. From rear of expansion drawer, locate rear deck holddown screw (i.e., center of three screws at rear deck casting) and associated spacer (red tag attached) (see Figure 2-5). Remove rear deck holddown screw and spacer and store them in threaded keeper hole at rear of deck casting. Discard red tag and string.

5. From right-hand side of cabinet, locate shock-lock bracket (red tag attached) near front lower mass storage unit (see Figure 2-6). Loosen bottom screw and remove top screw. Pivot L-shaped shock-lock bracket 90 degrees to right and fasten bottom screw securely. Place top screw back into original tapped hole and fasten it securely. Discard red tag and string.

6. Perform the following inspection:

a. Inspect expansion drawer for possible shipping damage. Any claim for shipping damage should be filed promptly with transporter involved. If claim is filed, save original shipping materials.

b. Ensure that all logic cards are firmly seated in logic chassis and power supply.

c. Ensure that control panel is firmly seated in shroud.

d. Ensure that all connectors are firmly seated.

e. Ensure that all cabling is intact and that there are no broken or damaged wires.

f. Remove from expansion drawer any foreign material, particularly material that could cause electrical short.

g. Remove from actuator area any foreign material that could obstruct movement of carriage and heads.

7. Close drawer mount case (see Figure 2-1) for expansion drawer as follows:

a. Pivot drawer mount case down toward mass storage unit while lifting hinged panel out, in order to clear rear of actuator assembly.

b. With drawer mount case still raised slightly, push hinged panel into place against back and rear of lower mass storage unit.

CAUTION

Do not drop the drawer mount case assembly all the way down and then push in on the hinged panel. This will cause damage to the top cover release catches.

c. While holding in on hinged panel, push down on drawer mount case from top. Release catches should snap into place.

8. Open pack access cover (see Figure 2-1) on expansion drawer, and remove orange plastic cover that protects spindle during shipment.

NOTE

A plastic bag containing the programmable insert keys (logic address plugs labeled 00 through 15) is taped to the orange plastic protective cover. Temporarily store these programmable insert keys. They will be installed later, as directed in subsection 2.6.

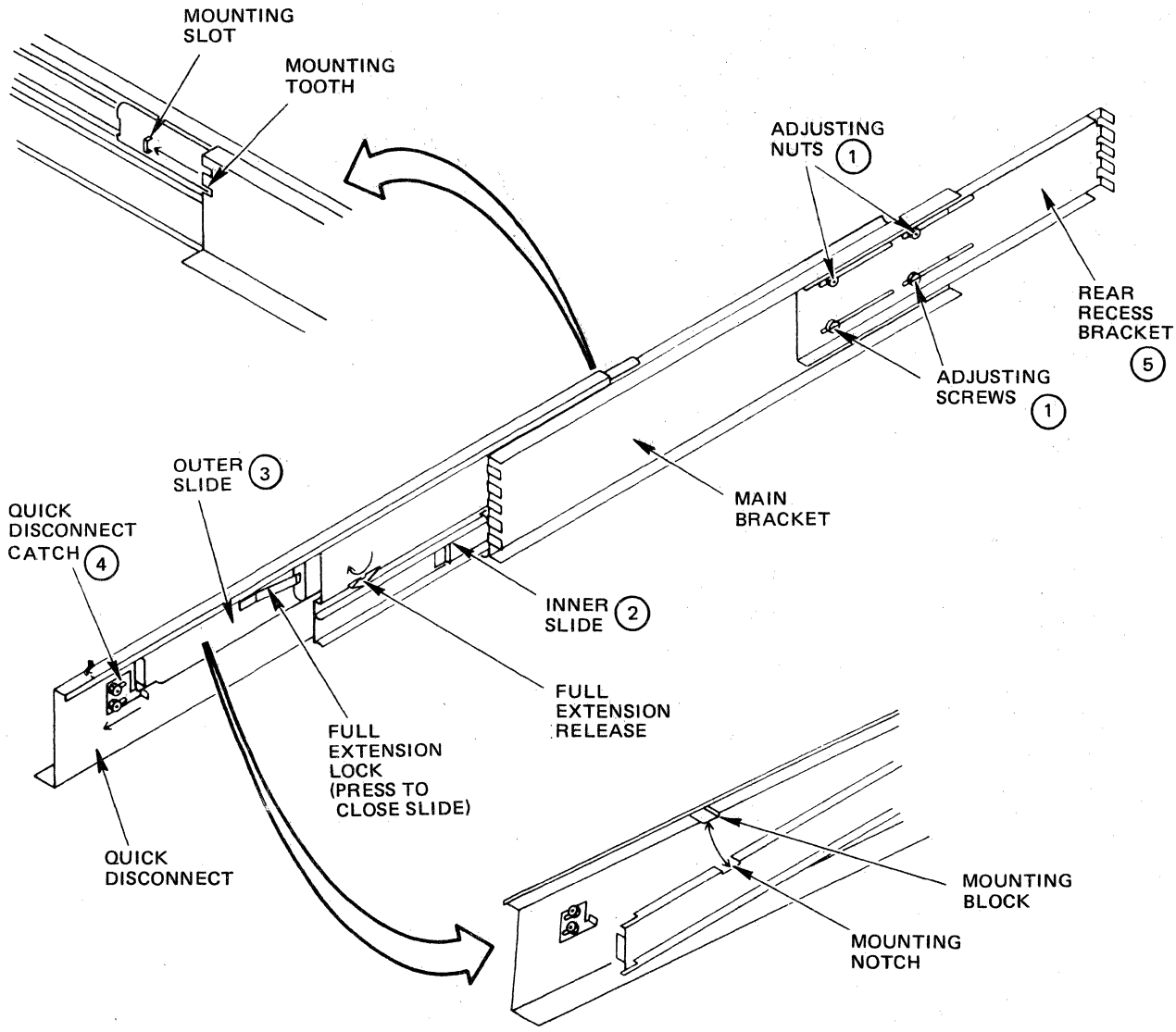
9. Remove all foreign materials from pack area and from shroud area.

CAUTION

Use only lint-free wipers and media cleaning solution when cleaning the pack area.

10. Close expansion drawer's pack access cover.

11. Close extended drawer by pressing in to release full extension locks (see Figure 2-7) and then slide mass storage unit drawer into cabinet until it locks into fully closed position.



NOTES:

(1) ALLOW REAR RECESS BRACKET ADJUSTMENT.

(2) LOCKS IN EXTENDED POSITION WHEN OUTER SLIDE IS FULLY EXTENDED.

(3) EXTENDED BY PRESSING FULL EXTENSION RELEASE. FULL EXTENSION LOCK SNAPS OUT WHEN THIS SLIDE IS FULLY EXTENDED.

(4) LOOSENING NUTS ALLOWS CATCH TO MOVE IN DIRECTION OF ARROW THUS ALLOWING QUICK DISCONNECT TO BE REMOVED.

(5) REAR RECESS BRACKET.

6 ASSEMBLY SHOWN IS FOR RIGHT SIDE OF CABINET.

Figure 2-7 Slide Assembly Parts Location

2.2 CABINET PLACEMENT

The placement and preparation procedure for the mass storage unit cabinet is as follows:

WARNING

To avoid bodily injury, ensure that all ac power on the system is off and disconnect the ac input power cords from the power source.

1. Roll mass storage unit cabinet in place according to site configuration layout.

2. Level cabinet as follows:

   a. Place mass storage unit cabinet in its assigned position.

   b. Turn the four leveling pads, located at each corner at base of cabinet's frame (shown in Figure 2-2) until they support weight of cabinet evenly.

   c. Adjust the four leveling pads until cabinet is aligned with adjacent system equipment.

   d. Place a level on top of cabinet, and adjust each leveling pad until unit is level within three angular degrees front to back and side to side.

   e. When mass storage unit is level in both directions, tighten jam nut (if supplied) against bottom of frame.

2.3 INSTALLATION OF MASS STORAGE CONTROLLER

If the Mass Storage Unit(s) is being installed as part of a Level 6 system upgrade program, it may be necessary to install a Mass Storage Controller (MSC9102) in the Level 6 system mainframe. The procedure for the installation of the MSC is given in subsection 6.5 of the Level 6 Model 3X, 4X, and 5X System Installation Manual (Order No. CB68).

The configuration rules pertaining to the installation of the MSC are found in subsection 2.6.3 of the System Installation Manual.

2.4 CABLING INSTRUCTIONS FOR TWO MASS STORAGE UNIT CABINETS

The cabling procedure for two mass storage unit cabinets (with no expansion drawers) is as follows:

NOTE

These procedures may also be used to install only one mass storage unit or a series of up to four units.

1. Set POWER switch on system control panel to off (down) position. Ensure that DC ON indicator on system control panel is extinguished.

2. Set PDU circuit breaker in standard Level 6 cabinet to OFF position.

WARNING

To avoid bodily injury, all ac power cords to the system must be disconnected.

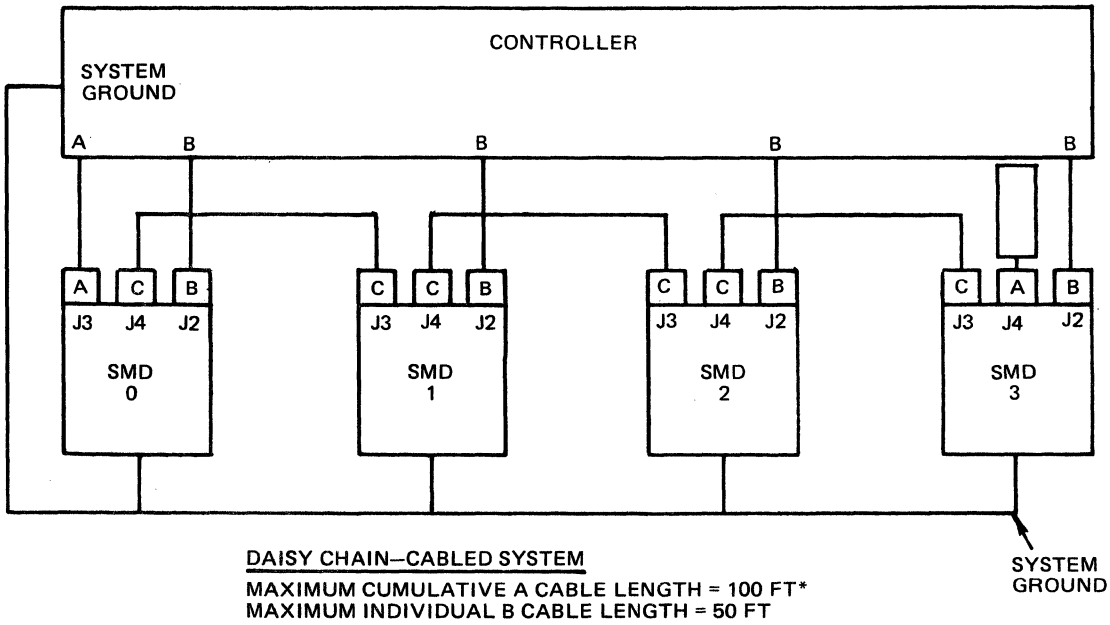
3. Open rear door assembly (see Figure 2-1) of each mass storage unit cabinet.

4. Locate ac power cord within each mass storage unit cabinet and route this cord down through cable opening in base of cabinet and out to rear of cabinet.

5. Locate interconnecting cables and ground cables packaged in separate shipping container.

NOTE

A logic diagram for cabling mass storage units is shown in Figure 2-8. A maximum of four units is allowed per controller board. The routing and connection points for the interconnecting cables and ground straps for this installation are shown in Figure 2-9, while Table 2-1 provides a list of the interconnecting cables and ground straps required.



*INCLUDES INTERNAL DRIVE CABLE C AND TERMINATOR

Figure 2-8 Logic Diagram for Cabling a Maximum of Four Mass Storage Units per Controller Board

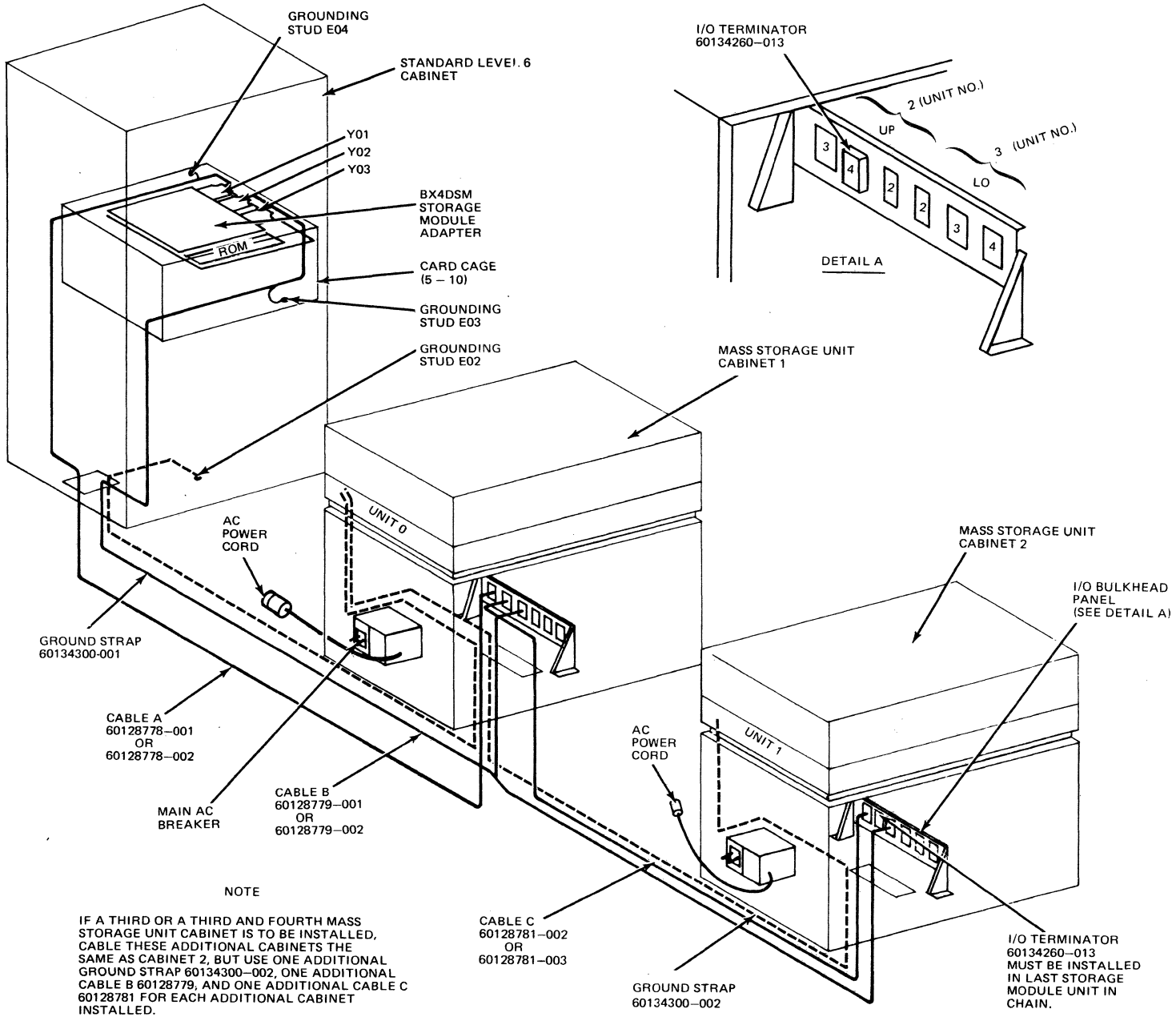


Figure 2-9 Cabling Installation for Two Mass Storage Unit Cabinets

Table 2-1 Listing of Interconnecting Cables and Ground Straps for Mass Storage Unit Cabinets (with no expansion drawers)

HONEYWELL PART NUMBER	CABLE CONNECTOR DESIGNATIONS		DESCRIPTION
	END A	END B	
60128778-001 (30 feet), or *60128778-002 (50 feet)	P3	P01	Cable A - runs from connector Y01 on adapter board BX4DMS to receptacle J3 on the I/O bulkhead panel in mass storage unit 0 (cabinet 1).
60128779-001 (30 feet), or 60128779-002 (45 feet)	P2 & P2 P2 & P2	P02 & P03 P02 & P03	Cable B - runs from connector Y02 or Y03 on adapter board BX4DMS to receptacle J2 on the I/O bulkhead panel in mass storage unit cabinets 1 and 2.
60128781-003 (10 feet), or 60128781-002 (6 feet)	P4 P4	P3 P3	Cable C - runs from receptacle J4 on the I/O bulkhead panel of mass storage unit cabinet 1 to receptacle J3 on the I/O bulkhead panel of mass storage unit cabinet 2.
NOTE The last mass storage unit cabled in a subsystem must have an I/O terminator plugged into J4 on the bulkhead panel. The part number for the I/O terminator is 60134260-013.			
60134300-001	E01 (01GD) Standard Cabinet	Unit 0 Grounding Stud	Ground strap (external type)
60134300-002	Unit 0 Grounding Stud	Unit 1 Grounding Stud	Ground strap (external type)

*60128778-002 is optional on configurations with one or two cabinets. Do not use this cable on configurations with three or four cabinets.

6. Open rear door of standard Level 6 cabinet.

7. Locate ground strap 60134300-001 and route it through cable entry area in base of standard Level 6 cabinet to grounding stud E02 located in base of cabinet, as shown in Figure 2-9. Fasten ground strap to cabinet grounding stud using the supplied hardware.

8. Locate cable A 60128778-001 or 60128778-002* and route Y01 paddle end of cable through cable entry area in base of standard Level 6 cabinet, up left-hand side (viewed from rear) of cabinet, and along the side of 5- or 10-card chassis to front of cabinet.

9. Locate ground wire 33 inches back from paddle board on cable A and connect this ground wire to grounding stud E04 on front left-hand side of 5- or 10-card chassis. Fasten ground wire to chassis ground stud using supplied hardware.

10. From front of standard Level 6 cabinet, connect cable A 60128778-001 or 60128778-002* paddle board to connector Y01 on storage module adapter board (BX4DSM).

11. Locate cable B 60128779-001 or 60128779-002 and route Y02 paddle end of cable through cable entry area in base of standard Level 6 cabinet, up right-hand side (viewed from rear) of cabinet, and along the side of 5- or 10-card chassis to front of cabinet.

12. Locate ground wire 33 inches back from paddle board on cable B and connect ground wire to grounding stud E03 on front right-hand side of 5- or 10-card chassis. Fasten ground wire to chassis ground stud E03 using supplied hardware.

13. From front of standard Level 6 cabinet, connect cable B 60128779-001 or 60128779-002 paddle board to connector Y03 on storage module adapter board (BX4DSM).

14. Locate ground strap 60134300-001 coming out of standard Level 6 cabinet and route ground cable to mass storage unit cabinet 1.

15. Route ground strap 60134300-001 into cable entry area at base of mass storage unit cabinet 1 and up to grounding stud (see Figure 2-10) located above internal ac power cord at rear of upper mass storage unit 0 (see Figure 2-9) and connect ground strap to grounding stud using supplied hardware.

*60128778-002 is optional on configurations with one or two cabinets. Do not use this cable on configurations with three or four cabinets.

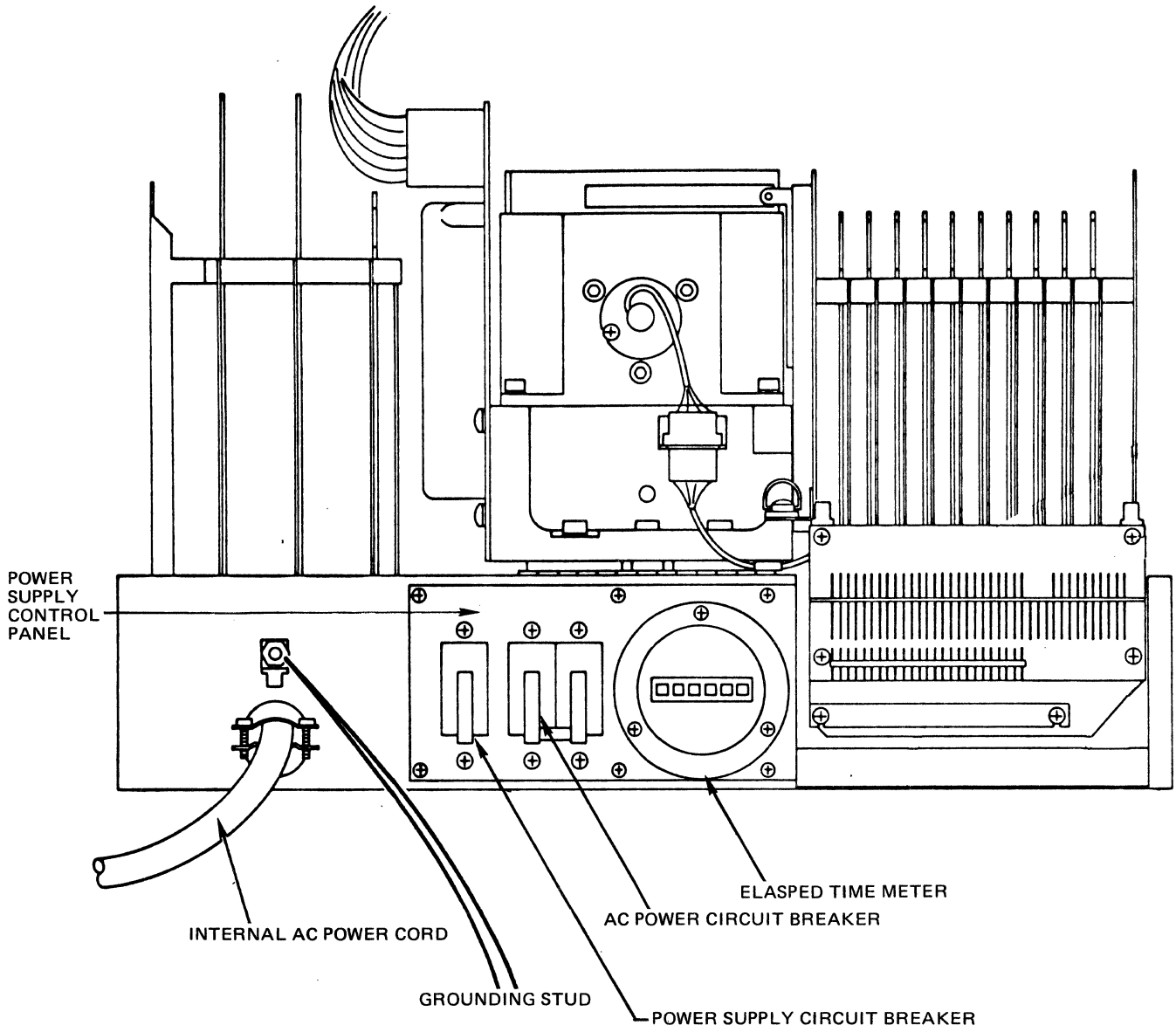


Figure 2-10 Rear View of a Mass Storage Unit

16. Locate ground strap 60134300-002 and route one end into cable entry area at base of mass storage unit cabinet 1, and up to grounding stud (see Figure 2-10) located above internal ac power cord at rear of upper mass storage unit 0 (see Figure 2-9).

17. Connect ground straps 60134300-001 and 60134300-002 to the grounding stud on upper mass storage unit 0, cabinet 1, using supplied hardware.

18. Locate other end of ground strap 60134300-002 and route it into cable entry area at base of mass storage unit cabinet 2, and up to grounding stud located above internal ac power cord (see Figure 2-10) at rear of upper mass storage unit 1 (see Figure 2-9).

19. Connect ground strap 60134300-002 to grounding stud on upper mass storage unit 1, cabinet 2, using supplied hardware.

20. Locate cable A 60128778-001 or 60128778-002 coming out of standard Level 6 cabinet, and route cable A into cable entry area at base of mass storage unit cabinet 1.

21. Locate bulkhead I/O panel at rear of mass storage unit cabinet 1 (see Figure 2-11).

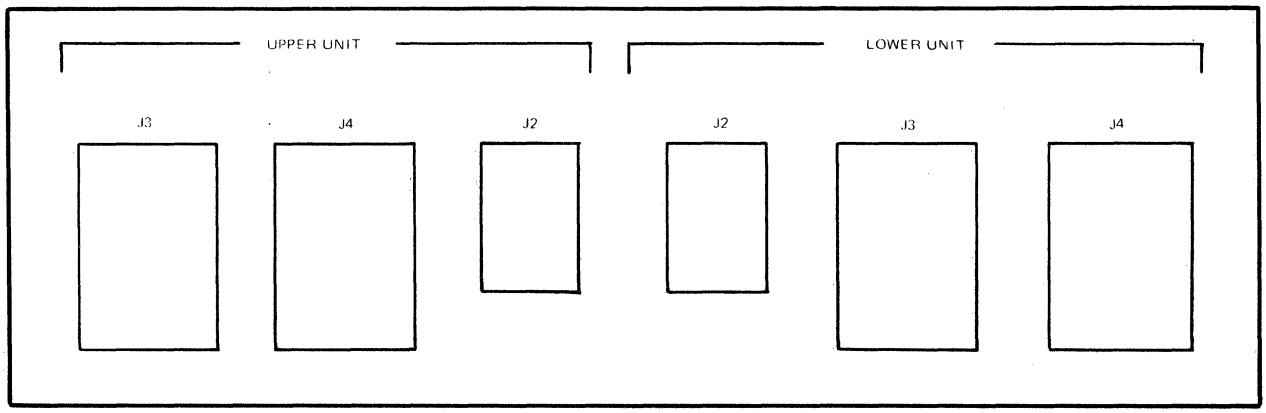


Figure 2-11 Bulkhead I/O Panel

CAUTION

Extreme care must be taken when attaching the cable bulkhead connectors to the I/O bulkhead receptacles and tightening the two jackscrews on each connector. Finger tighten each jackscrew or use a pocket-type screwdriver only. Do not use a larger screwdriver because it may easily break the jackscrews or the connector block.

22. Connect cable A 60128778-001 bulkhead connector to J3 on UPPER UNIT portion of I/O panel and finger tighten the two jackscrews on connector (see Figures 2-9 and 2-11), ensuring that mating connector bodies are fully seated together.

23. Locate cable B 60128779-001 coming out from standard Level 6 cabinet.

24. There are two bulkhead connectors on end of cable B 60128779-001. Route either cable B bulkhead connector into cable entry area at base of mass storage unit cabinet 1. Connect this bulkhead connector to receptacle J2 on UPPER UNIT portion of I/O panel (see Figure 2-11). Finger tighten the two jackscrews on bulkhead connector, ensuring that mating connector bodies are fully seated together.

25. Locate the other bulkhead connector on cable B 60128779-001 or 60128779-002 and route it into cable entry area at base of mass storage unit cabinet 2. Connect this bulkhead connector to receptacle J2 on UPPER UNIT portion of I/O panel (see Figure 2-11). Finger tighten the two jackscrews on bulkhead connector, ensuring that mating connector bodies are fully seated together.

26. Locate cable C 60128781-003 or 60128781-002 packaged in separate shipping container.

27. Route one end of cable C 60128781-002 or 60128781-003 into cable entry area at base of mass storage unit cabinet 1 and connect bulkhead connector to J4 on UPPER UNIT portion of I/O panel (see Figures 2-9 and 2-11). Finger tighten the two jackscrews on bulkhead connector, ensuring that mating connector bodies are fully seated together.

28. Route other end of cable C 60128781-002 or 60128781-003 into cable entry area at base of mass storage unit cabinet 2 and connect bulkhead connector to J3 on UPPER UNIT portion of I/O panel (see Figures 2-9 and 2-11). Finger tighten the two jackscrews on bulkhead connector, ensuring that mating connector bodies are fully seated together.

CAUTION

The last mass storage unit cabled in a subsystem must have an I/O terminator plugged into J4 on the bulkhead I/O panel portion for that unit. The part number for the I/O terminator is 60134260-013.

29. Locate I/O terminator (which looks like a bulkhead connector), part number 60134260-013, packaged in separate shipping container.

30. Within mass storage unit cabinet 2, connect I/O terminator 60134260-013 to J4 on UPPER UNIT portion of I/O panel (see Figures 2-9 and 2-11). Finger tighten the two jackscrews on bulkhead connector.

31. Cable clamp all cables installed as required, using hardware supplied.

32. Close system control panel on standard Level 6 cabinet.

33. Close rear door to standard Level 6 cabinet.

34. Ensure that each mass storage unit's main AC circuit breaker is in OFF position.

35. Close rear doors to mass storage unit cabinets.

36. Ensure that START switch on control panel of each mass storage unit is in OFF position.

NOTE

If a third (or a third and fourth) mass storage unit cabinet is to be installed, cable these additional cabinets in the same way as cabinet 2 (see Figure 2-9). However, use one additional ground strap 60134300-002, one additional cable B 60128779, and one additional cable C 60128781 for each additional cabinet installed.

2.5 CABLING INSTRUCTIONS FOR TWO MASS STORAGE UNIT CABINETS WITH ONE EXPANSION DRAWER PER CABINET

The cabling procedure for two mass storage unit cabinets with one expansion drawer installed in each cabinet is as follows:

NOTE

These procedures may also be used to install only one mass storage unit or a series of up to four units.

1. Set POWER switch on system control panel to off (down) position. Ensure that DC ON indicator on system control panel is extinguished.

2. Set PDU circuit breaker in standard Level 6 cabinet to OFF position.

WARNING

To avoid bodily injury, all ac power cords to the system must be disconnected.

3. Open rear door assembly (see Figure 2-1) of each mass storage unit cabinet.

4. Locate ac power cord within each mass storage unit cabinet and route this cord down through cable opening in base of cabinet and out to rear of cabinet.

5. Locate interconnecting cables and ground cables packaged in separate shipping container.

NOTE

A logic diagram for cabling mass storage units is shown in Figure 2-8. A maximum of four units is allocated per controller board. The routing and connection points for the interconnecting cables and ground straps for this installation are shown in Figure 2-12, while Table 2-2 provides a list of the interconnecting cables and ground straps required.

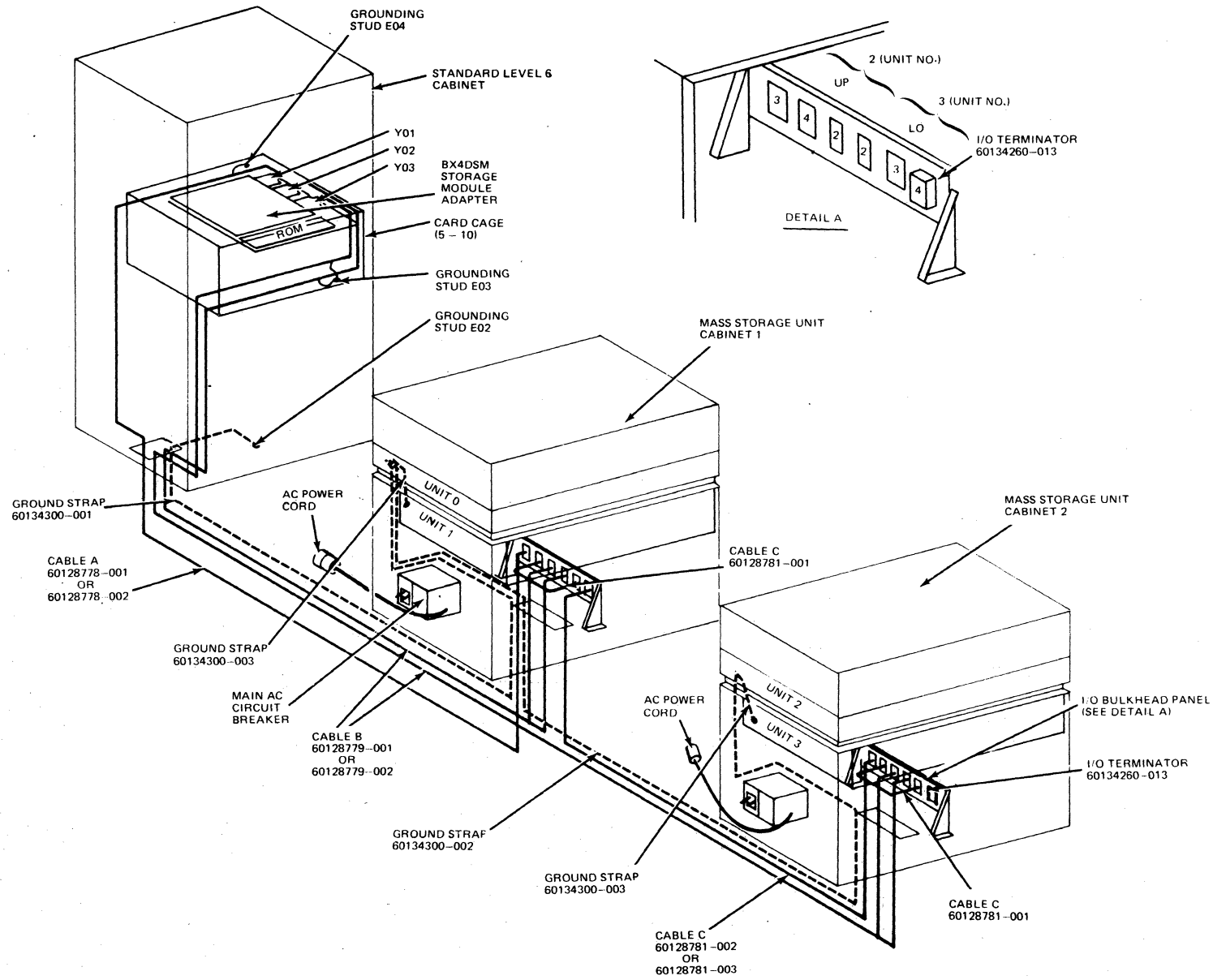


Figure 2-12 Cabling Installation for Two Mass Storage Unit Cabinets with One Expansion Drawer per Cabinet

Table 2-2 Listing of Interconnecting Cables and Ground Straps for Mass Storage Unit Cabinets with One Expansion Drawer per Cabinet (Sheet 1 of 2)

HONEYWELL PART NUMBER	CABLE CONNECTOR DESIGNATIONS		DESCRIPTION
	END A	END B	
60128778-001 (30 feet), or *60128778-002 (50 feet)	P3	P01	Cable A - runs from connector Y01 on adapter board BX4DMS to receptacle J3 on the I/O bulkhead panel in mass storage unit 0 (cabinet 1).
60128779-001 (30 feet), or 60128779-002 (45 feet)	P2 & P2 P2 & P2	P02 or P03 P02 or P03	Cable B - runs from connector Y02 or Y03 (or both) on adapter board BX4DMS to receptacle J2 on I/O bulkhead panel for mass storage units 0 and 1 (cabinet 1).
60128781-001 (3 feet)	P4	P3	Cable C - runs from receptacle J4 of mass storage unit 0 to receptacle J3 of mass storage unit 1.
60128781-003 (10 feet), or 60128781-002 (6 feet)	P4	P3	Cable C - runs from receptacle J4 of mass storage unit 1 to receptacle J3 of mass storage unit 2.
NOTE The last mass storage unit cabled in a subsystem must have an I/O terminator plugged into receptacle J4 on the I/O bulkhead panel. The I/O terminator's part number is 60134260-013.			
60134300-001	E01 (01GD) Standard Cabinet	Unit 0 Grounding Stud	Ground strap (external type)
60134300-002	Unit 0 Grounding Stud	Unit 2 Grounding Stud	Ground strap (external type)
60134300-003	Unit 0 Grounding Stud	Unit 1 Grounding Stud	Ground strap (internal type)

Table 2-2 Listing of Interconnecting Cables and Ground Straps for Mass Storage Unit Cabinets with One Expansion Drawer per Cabinet (Sheet 2 of 2)

HONEYWELL PART NUMBER	CABLE CONNECTOR DESIGNATIONS		DESCRIPTION
	END A	END B	
60134300-003	Unit 2 Grounding Stud	Unit 3 Grounding Stud	Ground Strap (Internal Type)

*60128778-002 is optional on configurations with one or two cabinets. Do not use this cable on configurations with three or four cabinets.

6. Open rear door of standard Level 6 cabinet.

7. Locate ground strap 60134300-001 and route it through cable entry area in base of standard Level 6 cabinet to grounding stud E02 located in base of cabinet, as shown in Figure 2-12. Fasten ground strap to cabinet ground stud using supplied hardware.

8. Locate cable A 60128778-001 or 60128778-002* and route Y01 paddle end of cable through cable entry area in base of standard Level 6 cabinet, up left-hand side (viewed from rear) of cabinet, and along the side of the 5- or 10-card chassis to front of cabinet.

9. Locate ground wire 33 inches back from paddle board on cable A and connect this ground wire to grounding stud E04 on front left-hand side of 5- or 10-card chassis. Fasten ground wire to chassis ground stud using supplied hardware.

10. From front of basic system cabinet, connect cable A 60128778-001 or 60128778-002 paddle board to connector Y01 on storage module adapter board (BX4DSM).

11. Locate two B cables 60128779-001 or 60128778-002 and route Y02 and Y03 paddle ends of cables through entry area in base of standard Level 6 cabinet, up right-hand side (viewed from rear) of cabinet, and along the side of 5- or 10-card chassis to front of cabinet.

12. Locate ground wire 33 inches back from paddle board on both B cables and connect these two ground wires to grounding stud E03 near front right-hand side of 5- or 10-card chassis. Fasten the two ground wires to chassis ground stud E03 using supplied hardware.

13. From front of standard Level 6 cabinet, connect the two B-cable 60128779-001 or 60128779-002 paddle boards to connectors Y02 and Y03 on storage module adapter board (BX4DSM).

14. Locate two ground straps 60134300-003 (one required per cabinet packaged in separate shipping container.

15. From rear of both mass storage unit cabinets, connect one end of ground strap 60134300-003 to the upper mass storage unit's grounding stud (see Figure 2-10) located above internal ac power cord at rear of unit (see Figure 2-12).

16. Connect other end of ground strap 60134300-003 to lower mass storage unit's grounding stud (see Figure 2-10), located above internal ac power cord at rear of unit (see Figure 2-12) and fasten with hardware supplied.

17. Locate ground strap 60134300-001, attached to standard Level 6 cabinet, and route this ground strap to mass storage unit cabinet 1.

18. Route ground strap 60134300-001 into cable entry area at base of mass storage unit cabinet 1 and up to grounding stud (see Figure 2-10) located above internal ac power cord at rear of upper mass storage unit 0 (see Figure 2-12) and connect grounding strap to grounding stud.

19. Locate ground strap 60134300-002 and route one end into cable entry area at base of mass storage unit cabinet 1 and up to grounding stud (see Figure 2-10) located above internal ac power cord at rear of upper mass storage unit 0 (see Figure 2-12).

20. Connect ground straps 60134300-001, 60134300-002 and 60134300-003 to ground stud on upper mass storage unit 0, cabinet 1, using hardware supplied.

21. Locate other end of ground strap 60134300-002 and route into cable entry area at base of mass storage unit cabinet 2, up to ground stud located above internal ac power cord (see Figure 2-10) at rear of upper mass storage unit 2 (see Figure 2-12).

22. Connect ground straps 60134300-002 and 60134300-003 to grounding stud on the upper mass storage unit 2, cabinet 2, using supplied hardware.

23. Locate cable A 60128778-001 coming from standard Level 6 cabinet, and route cable A into cable entry area at base of mass storage unit cabinet 1.

24. Locate I/O panel at rear of mass storage unit cabinet 1 (see Figure 2-11).

CAUTION

Extreme care must be taken when attaching the cable bulkhead connectors to the I/O bulkhead receptacles and tightening the two jackscrews on each connector. Finger tighten each jackscrew or use a pocket-type screwdriver only. Do not use a larger screwdriver because it may easily break the jackscrews or the connector block.

25. Connect cable A 60128778-001 bulkhead connector to J3 on UPPER UNIT portion of I/O panel and finger tighten the two jackscrews on connector (see Figures 2-11 and 2-12) ensuring that mating connector bodies are fully seated together.

26. Locate cable B 60128779-001 or 60128779-002 coming from standard Level 6 cabinet, and route cable B into cable entry area at base of mass storage unit cabinet 1.

27. There are two bulkhead connectors on this end of cable B. Connect one (either) bulkhead connector to J2 on UPPER UNIT portion of I/O panel, and connect the other bulkhead connector to J2 on LOWER UNIT portion of I/O panel (see Figures 2-11 and 2-12). Finger tighten the two jackscrews on each bulkhead connector, ensuring that mating connector bodies are fully seated together.

28. Locate a second cable B 60128779-001 or 60128779-002 coming from standard Level 6 cabinet, and route cable B into cable entry area at base of mass storage unit cabinet 2.

29. There are two bulkhead connectors on this end of cable B. Connect one (either) bulkhead connector to J2 on UPPER UNIT portion of I/O panel, and connect the other bulkhead connector to J2 on LOWER UNIT portion of I/O panel (see Figures 2-11 and 2-12). Finger tighten the two jackscrews on each bulkhead connector ensuring that mating connector bodies are fully seated together.

CAUTION

Use of a common screwdriver on the jackscrews can result in hardware damage.

30. Locate two C cables 60128781-001 (one required for each storage module cabinet) packaged in separate shipping container.

31. Within each mass storage unit cabinet, connect one end of cable C 60128781-001 to J4 on UPPER UNIT portion of I/O panel and connect other end of cable C to J3 on LOWER UNIT portion of I/O panel (see Figures 2-11 and 2-12). Finger tighten the two jackscrews on each bulkhead connector ensuring that mating connector bodies are fully seated together.

32. Locate one cable C 60128781-003 or 60128781-002 packaged in separate shipping container.

33. Route one end of cable C 60128781-003 or 60128781-002 into cable entry area at base of mass storage unit cabinet 1 and connect bulkhead connector to J4 on LOWER UNIT portion of I/O panel (see Figures 2-11 and 2-12). Finger tighten the two jackscrews on bulkhead connector ensuring that mating connector bodies are fully seated together.

34. Route other end of cable C 60128781-003 or 60128781-002 into cable entry area at base of mass storage unit cabinet 2 and connect bulkhead connector to J3 on UPPER UNIT portion of I/O panel (see Figures 2-11 and 2-12). Finger tighten the two jackscrews on bulkhead connector ensuring that mating connector bodies are fully seated together.

CAUTION

The last mass storage unit cabled in a subsystem must have an I/O terminator plugged into J4 on the bulkhead I/O panel portion for that unit. The part number for the I/O terminator is 60134260-013.

35. Locate I/O terminator (which looks like a bulkhead connector), part number 60134260-013, packaged in separate shipping container.

36. Within mass storage unit cabinet 2, connect I/O terminator 60134260-013 to J4 on LOWER UNIT portion of I/O panel (see Figures 2-11 and 2-12). Finger tighten the two jackscrews on bulkhead connector, ensuring that connector bodies are fully seated together.

37. Cable clamp all cables installed as required, using hardware supplied.

38. Close system control panel on standard Level 6 cabinet.

39. Close rear door to standard Level 6 cabinet.

40. Ensure that each mass storage unit's main ac circuit breaker is in OFF position.

41. Close rear doors to mass storage unit cabinets.

42. Ensure that START switch on control panel of each mass storage unit is in OFF position.

2.6 INSTALLATION OF PROGRAMMABLE INSERT KEYS

The installation of the programmable insert keys (logic address plugs) is as follows:

1. Determine logical address of each mass storage unit within system. Refer to MDC installation procedure, subsection 6.5 of Level 6 Installation Manual (Order No. CB68).

NOTE

The address can be set to any number from 0 to 15 by installing the proper programmable insert key. If no programmable insert key is installed, the address of the mass storage unit is automatically 15.

2. Select desired programmable insert key for each unit and insert key into proper unit's control panel as shown in Figure 2-13. Control panel for each mass storage unit is located on front of shroud, just below edge of pack access cover.

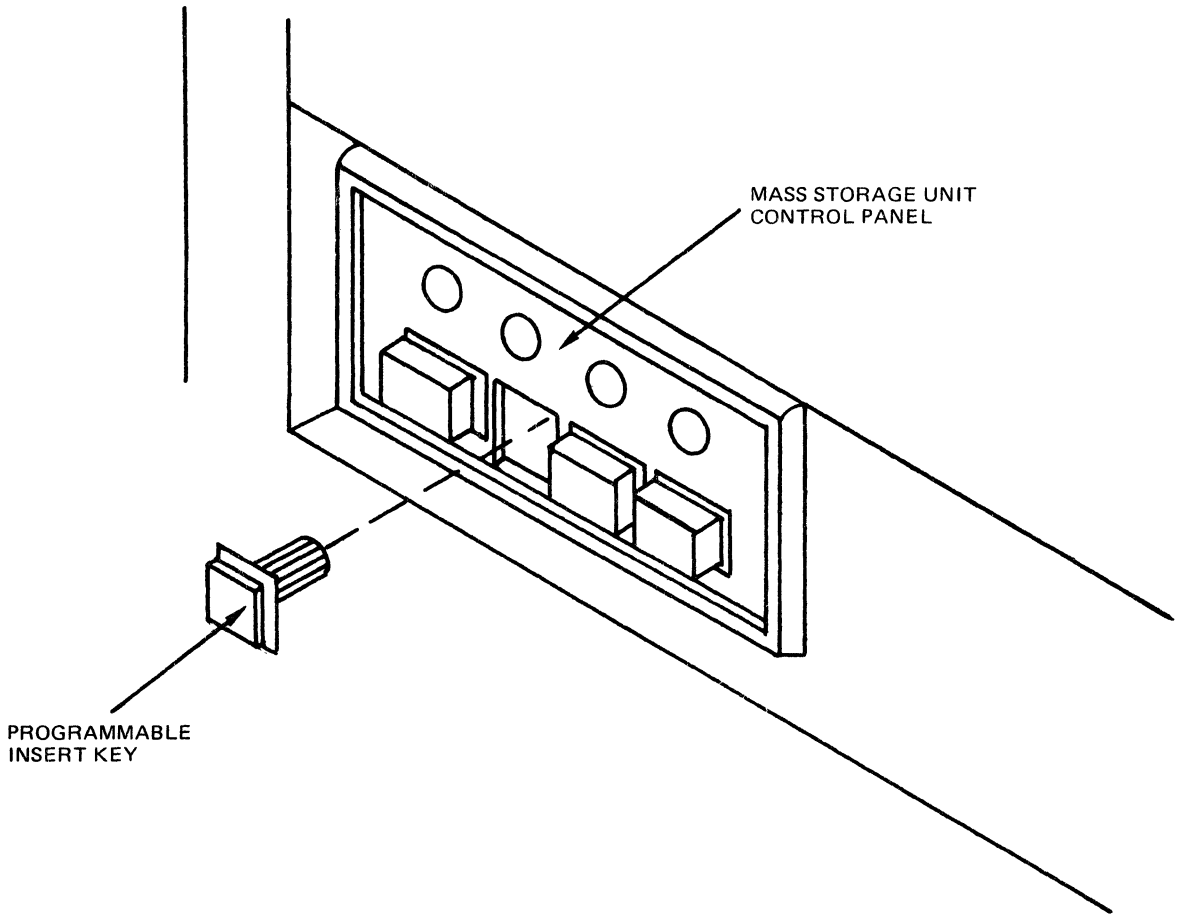


Figure 2-13 Installation of Programmable Insert Key

2.7 SETTING LOCAL/REMOTE SWITCH FOR POWER SEQUENCING CHECK

Power sequencing refers to the controller's ability to power up each mass storage unit within the system. In order for each mass storage unit to respond to power sequencing signals from the controller, a LOCAL/REMOTE toggle switch must be set to the REMOTE position within each unit. The procedure for ensuring that this switch is in the REMOTE position is as follows:

1. Ensure that all ac power to mass storage unit subsystem is off.

2. Open case assemblies or drawer mount cases (see Figure 2-1) on mass storage unit.

3. Locate logic chassis at rear left-hand side of mass storage unit, as shown in Figure 2-14.

NOTE

The LOCAL/REMOTE switch A10S1 is located on the Interlock and Speed Detector board, type 6SGV, in position A2A10 within the logic chassis.

4. Ensure LOCAL/REMOTE toggle switch is set to REMOTE position.

5. Close case assembly or drawer mount case on mass storage unit.

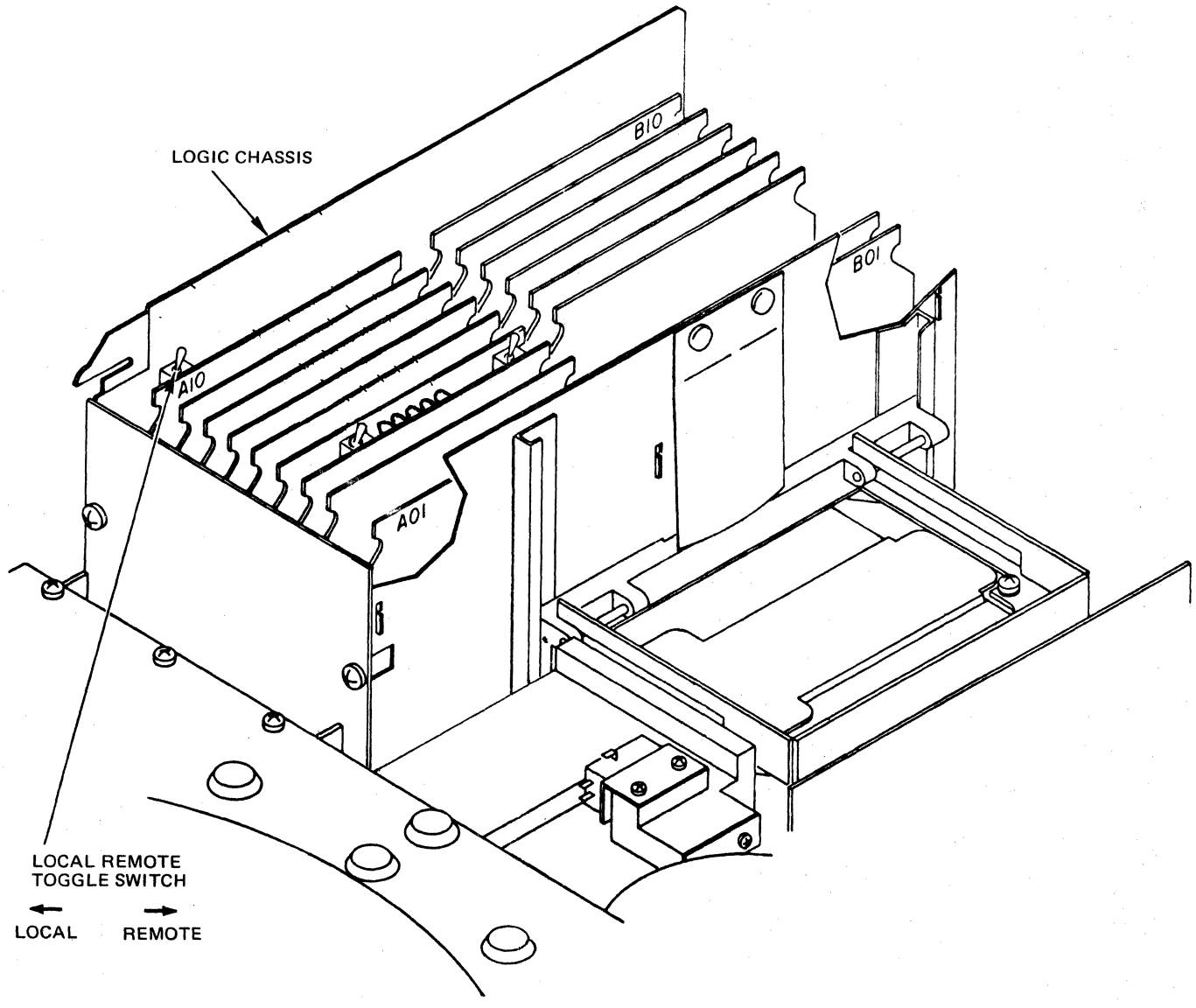


Figure 2-14 Location of LOCAL/REMOTE Toggle Switch

2.8 RECONNECTING SYSTEM TO AC POWER SOURCE

Reconnect the system components to the ac power source as follows:

WARNING

To avoid bodily injury, ensure that all POWER switches are in the OFF position prior to connecting the ac power cord for any mass storage unit to the ac power source.

1. Ensure that all system components' power switches and circuit breakers are in OFF position.

2. Reconnect all system components' ac power cords to ac power source.

3. Turn on all system circuit breakers.

NOTE

Each MSU has a main ac circuit breaker, a secondary ac circuit breaker per spindle, and a dc power supply circuit breaker as shown in Figure 2-10.

2.9 MASS STORAGE UNIT OPERATING PROCEDURE

The operating procedure for the mass storage unit is contained in the Mass Storage Unit Product Manual supplied with the shipment of each unit.

WARNING

To avoid possible bodily injury, do not open pack access cover while spindle is turning. Opening cover will retract heads, and stop spindle and pack in 30 seconds. Dropping foreign material or placing hands inside the pack area while the disc pack is spinning can be hazardous.

2.10 TEST AND VERIFICATION

For the test and verification procedure for mass storage units, refer to the Level 6 Models 3X, 4X, and 5X Test and Verification Operator's Guide, Document No. 71010207-100, Order No. AW94.

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