YK-A1CKA-01

Barclays Branch Controller

Maintenance Guide (MK II)

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INTRODUCTION

An internal diagnostic in the Barclays branch controller tests the controller modules at power-up or initialization. The diagnostic checks the position of the keyswitch on the front panel, and modifies the test sequence as follows:

NORMAL

The diagnostic runs one complete pass of the test sequence and then boots from the system disk. External loopback tests are not performed, so the loopback connectors are not used. Front panel toggle-switches are disabled.

TEST

External loopback tests are performed, so loopback connectors must be installed on all communications connectors. The diagnostic will cycle continuously. Boot will not occur until the keyswitch is moved from the TEST position. Front panel toggle-switches are enabled.

AUX

This keyswitch position is used to select a quick boot. Only basic CPU functions and the first 32K-words of memory are tested. This limited test takes about one minute. The disk drives are then tried in the order below. The system is booted from the first drive which has media loaded.

1. RX50 0 (logical drive 1)
2. RX50 1 (logical drive 2)
3. RD51 (logical drive 0)

Front panel toggle-switches are disabled.

TESTING THE SYSTEM

CAUTION
At all times, remove any RX50 diskettes before switching the power ON or OFF.

Check that the mains power switch is ON. The switch is located at the back of the controller, and access can be gained from the right-hand side. Before starting the diagnostic, check that the POWER OK and 12V LEDs on the front console panel are ON, and that the fans are running. If either LEDs or fans are not working, refer to Section 2. If everything is working correctly you can continue.

To start the diagnostic ensure that the keyswitch is in the NORMAL position, then press the initialisation switch. This switch is just above the mains ON/OFF switch.

Check that the six diagnostic LEDs are flashing the alternating pattern shown in Table 1 (LED Test). This proves that all the LEDs are working. The test lasts about 10 seconds and indicates that the diagnostic is running. After this the LEDs flash the mark and firmware revision code for five seconds (see Appendix B). The RUN LED should be on. The diagnostic tests each field-replaceable unit (FRU) in turn, and displays a code on the six LEDs that indicates the FRU under test. If an FRU has failed, the RUN LED goes off, leaving the FRU code displayed on the six LEDs.

See Table 1 for display codes, to find out which FRU has failed and where removal/replacement is described.

A successful test (RUN LED on, six LEDs off) should take about five minutes. If the diagnostics are successful, move the keyswitch to the test position, fit loopback connectors on the distribution panel (see Figure 1 for loopback layout), and insert two scratch diskettes in the RX50. Press the initialization button and run the test for one complete pass. Swap the KMV11 loopback connectors and then repeat the test. Thus each KMV11 connector is tested with both types of loopback.

If the diagnostics run one error-free pass with each loopback, the unit should be serviceable. If there is an error, replace the indicated FRU and test the branch controller again.

Put the keyswitch back to NORMAL.

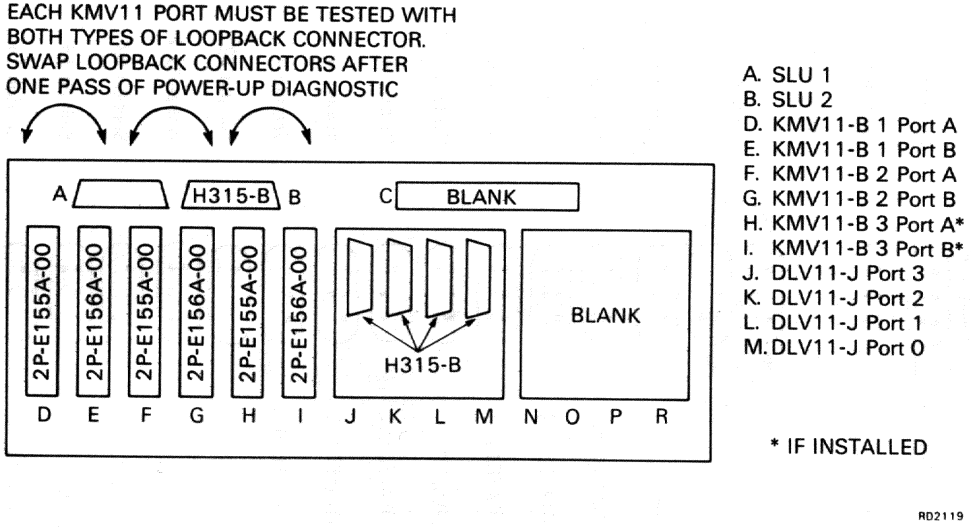


Figure 1 Loopback Layout

Table 1 Display Code

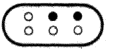
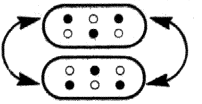
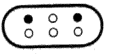
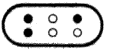
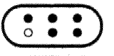
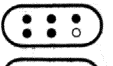
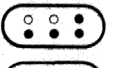
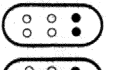
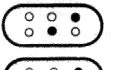
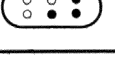
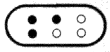
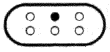
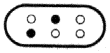
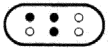
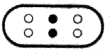
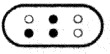
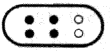
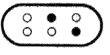
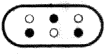
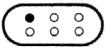
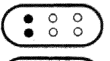
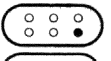
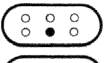
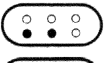
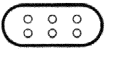
Unit Under Test	Display Layout	Change FRU (See below)
Power Up		Section 4
KDF11-BA/CPU.1		Section 4
Self Check		Section 4
DRV11		Section 11
LED Test		Section 3
MSV11-PL		Section 5
Double Addressing		Section 5
KDF11-BA/CPU.2		Section 4
KDF11-BA/EIS		Section 4
KDF11-BA/LTC		Section 4
KDF11-BA/SLU.1		Section 4
KDF11-BA/SLU.2		Section 4
KDF11-BA/MMU		Section 4
RQDX1		Section 12
		Appendix B
RD51 (drive)		Section 13
RD51 Disk		Section 13
RX50 (drive 1)		Section 14
RX50 (drive 2)		Section 14
RX50 (diskette 1)		N/A
RX50 (diskette 2)		N/A

Table 1 Display Code (Cont)

Unit Under Test	Display Layout	Change FRU (See below)
KMV11-B.1		Section 6
KMV11-B.1 (Channel A)		Section 6
KMV11-B.1 (Channel B)		Section 6
KMV11-B.2		Section 7
KMV11-B.2 (Channel A)		Section 7
KMV11-B.2 (Channel B)		Section 7
KMV11-B.3		Section 8
KMV11-B.3 (Channel A)		Section 8
KMV11-B.3 (Channel B)		Section 8
DLV11-J.1		Section 9
DLV11-J.2		Section 10
RD51 Boot		N/A
RX50 No.1 Boot		N/A
RX50 No.2 Boot		N/A
System Running		N/A

● = LED lit
○ = LED unlit

DIAGNOSTIC INDICATION UNDER APPLICATION SOFTWARE

Under Barclays software, when the controller is functioning normally, the six LEDs continuously flash, all ON for five seconds and then all OFF for five seconds.

If a hardware error occurs, one or more of the diagnostic LEDs will stay on, while the rest keep flashing. The RUN LED will stay ON. The LEDs have the following meanings.

L1 ON – KMV11 failure
L2 ON – One or more KMV11 lines failed
L3 ON – One or more back office terminals failed
L4 ON – Line to computer-center failed
L5 ON – RD52 failed
L6 ON – Invalid, should not occur

For an applications software error the LEDs will stop flashing and a steady code will be displayed. If this is the case, Barclays Support Services at Radbroke Hall should be informed. LEDs are laid out as follows.

L4	L5	L6
○	○	○
○	○	○
L1	L2	L3

SECTION 1

ACCESS TO THE FIELD-REPLACEABLE UNITS (FRUs)

CAUTION
Before switching the power OFF, remove any diskettes from the RX50s.

WARNING
Switch off power before removing or replacing modules or cables

Table 2 lists the FRUs and the sequence of removing the covers for access. Following the table is a description of how to remove the covers.

Table 2 Access to FRUs

FRU	Dress Plate	Rear Panel	Top Cover	Front Panel Chassis
PCBs/Cables	1	2		
Logic Box	1	3	2	
H7861 PSU	1		2	3
Power Controller	1		2	
Disk Drives	1		2	3
240V Fan	1		2	3
Gould +12V PSU	1		2	3
Distribution PCB	1		2	3
Disk Subsystem Cables	1		2	3

DLV11 and KMV11 cables are dressed against the rear panel. Appendix A shows how the rear-panel cable-loom is assembled.

Cover Removal (See Table 2)

DRESS PLATE

Remove the rear dress plate by lifting it up and pulling to the rear.

TOP COVER

Undo the two quarter-turn fasteners at the top, rear corners of the top cover. Grip the handles and slide back the cover. Then lift up the cover and remove it.

REAR PANEL

Remove the two crosshead screws at the left-hand corners of the rear panel. Loosen the two screws at the right-hand corners. Push the panel slightly to the left and then pull gently to the rear.

FRONT PANEL CHASSIS

This is a removable subchassis which carries the disk drives and the auxiliary (Gould) PSU.

Undo the four quarter-turn fasteners on the front panel. TAKING CARE NOT TO DAMAGE THE CABLES AT FRONT OR REAR, pull the front-panel chassis forward.

CAUTION

Make sure that the front-panel chassis is supported whenever it is withdrawn.

Do not touch the head positioner flag (Figure 36) or the drive may be damaged.

Cover Replacement

To replace the covers, reverse the above procedures.

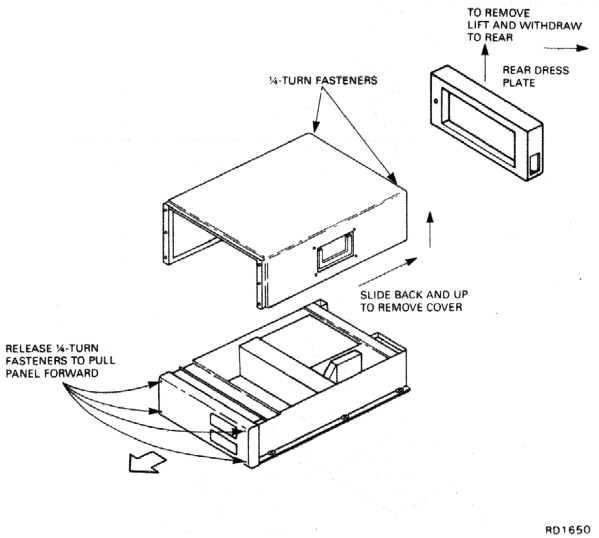


Figure 2 Gaining Access to the FRUs

SECTION 2

POWER CHECKS

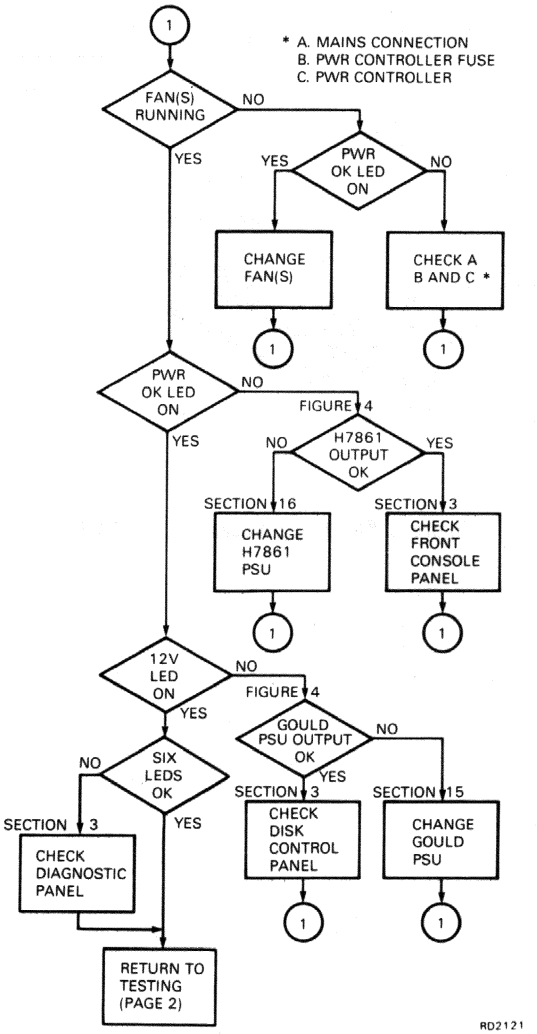


Figure 3 Power Check Flowchart

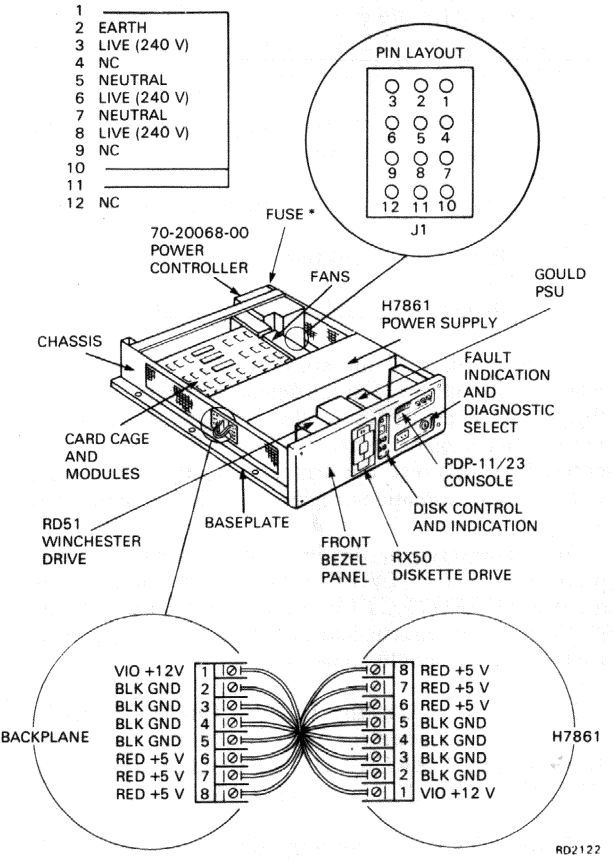


Figure 4 Voltage Location Diagram

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* Always replace with the correct fuse type:
DEC P/N 2K-1952A-00 (LITTLEFUSE 326005)

SECTION 3

FRONT CONSOLE, DIAGNOSTIC AND DISK CONTROL PANELS

Before changing any of the front panels, check that all associated cables are properly connected. If the PWR OK, RUN, or 12V LEDs are not working, you should replace the associated panel as follows.

1. Remove the four screws holding the bezel to the front panel chassis.

2. Disconnect the cables from the front panels.

3. Replace the defective front panel.

4. Reinstall the cables and the bezel.

If one or more of the six diagnostic LEDs are not working, disconnect J1 at the diagnostic panel. Switch on the power. All six LEDs should come ON. If they do not, replace the diagnostic panel. If the LEDs are working correctly in this test, but are permanently ON or OFF under working conditions, replace the DRV11 cable/PCB.

After connecting up the disk control panel, switch the power ON. The +12V LED should come on. To check the WRITE PROTECT LEDs for the removable disks, put a write-protected diskette into each drive. The corresponding LEDs 1 and 2 should come on.

For the fixed disk, the WRITE PROTECT LEDs should come on when the WRITE PROTECT buttons are pressed in. The READY LEDs should be on when the ONLINE/OFFLINE buttons are released.

If everything is working correctly return to Section 2.

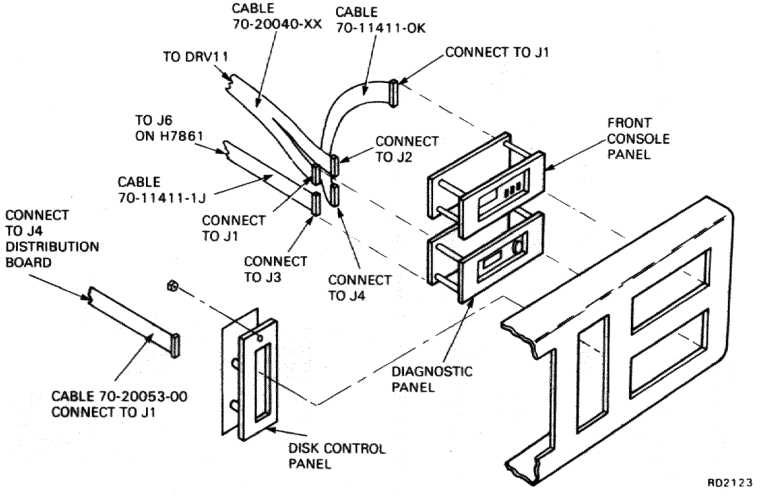


Figure 5 Front Panel Cable Layout

SECTION 4

KDF11-BA (M8189)

If the unit fails with the keyswitch at NORMAL, change the PCB. If the unit fails with the keyswitch at TEST, change the cables/PCB.

1. See Section 1 for cover removal
2. Remove cable connections (see Figures 7 and 8)
3. Remove PCB
4. Check new PCB jumper/switch positions (see Figure 6)
5. Check PROMs in new PCB are:

in E126	23-388E4-00 (Even byte)
in E127	23-389E4-00 (Odd byte)

6. Fit new PCB and reconnect the cables
7. Refer to Section 1 for cover replacement.

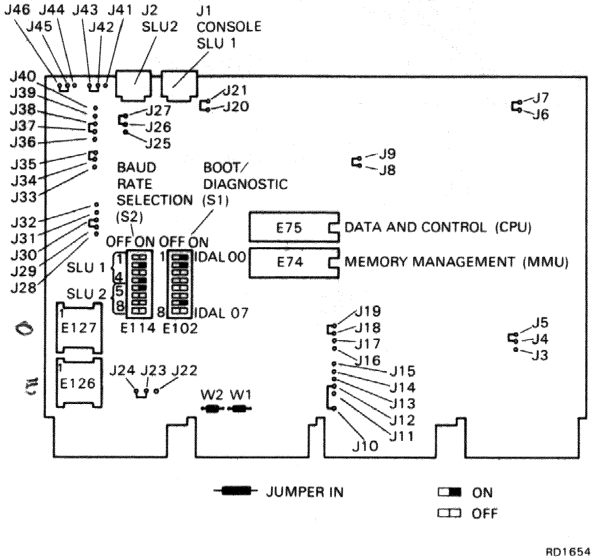


Figure 6 Jumper and Switch Locations

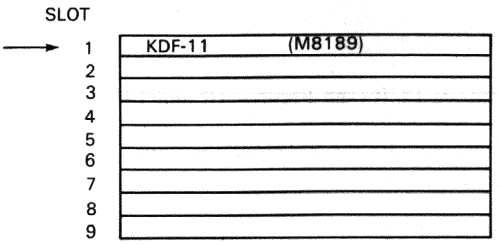


Figure 7 Backplane Position

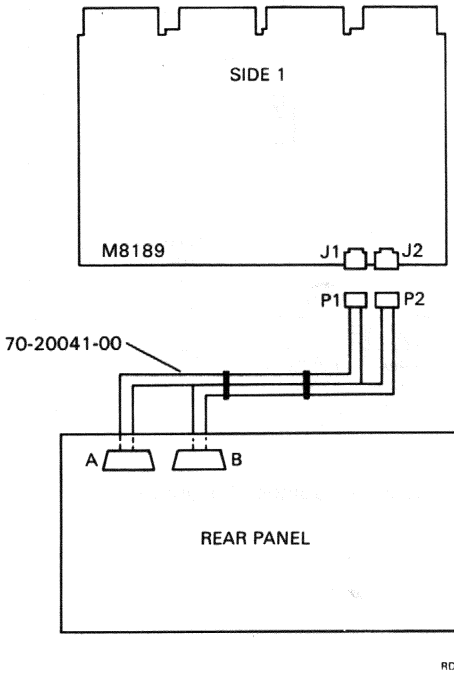


Figure 8 Cable Connections

SECTION 5

MSV11-PL (M8067)

Follow the step-by-step guide below:

1. See Section 1 for cover removal
2. Remove PCB (see Figures 10 and 11)
3. Check new PCB for jumper positions (see Figure 9)
4. Fit new PCB
5. See Section 1 for cover replacement.

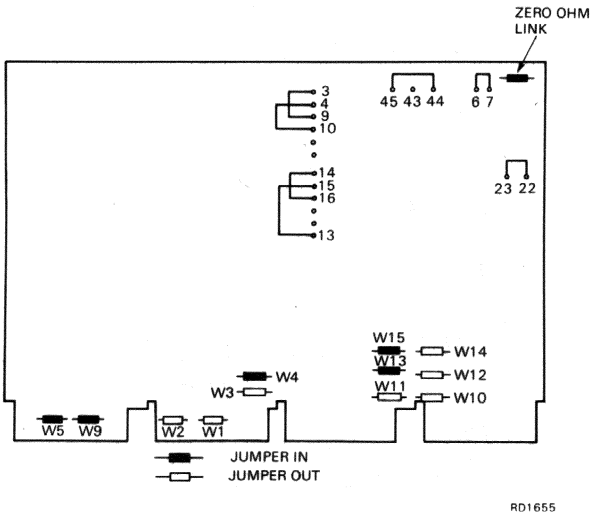


Figure 9 Jumper Locations

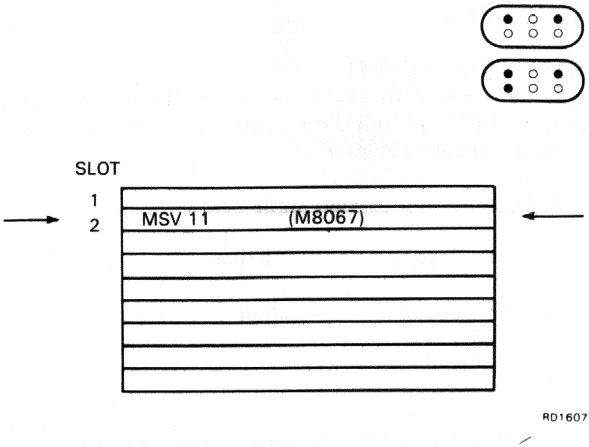


Figure 10 Backplane Position

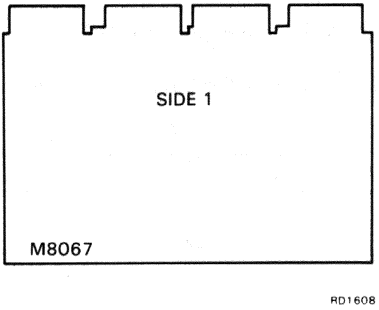


Figure 11 Module Arrangement

SECTION 6

KMV11-B.1 (M7501)

If unit fails with keyswitch in NORMAL position, change PCB. If unit fails with keyswitch in TEST position, change cables/PCB.

Follow the step-by-step guide below:

1. See Section 1 for cover removal
2. Remove cable connections (see Figures 13 and 14)
3. Remove PCB
4. Check new PCB for jumper/switch positions (see Figure 12)
5. Fit new PCB
6. Fit cable connections to PCB
7. See Section 1 for cover replacement.

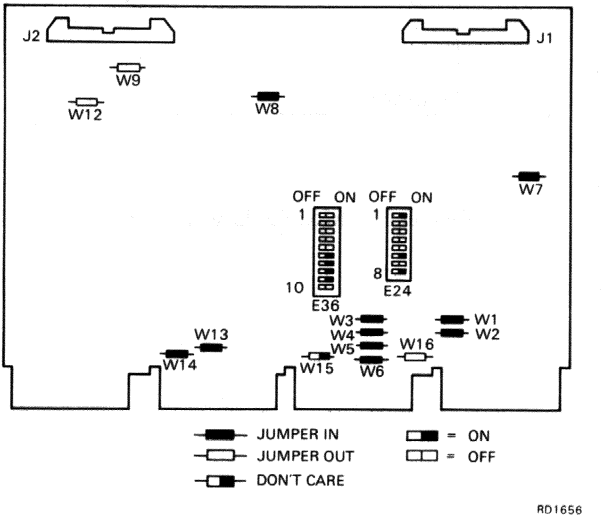


Figure 12 Jumper and Switch Locations

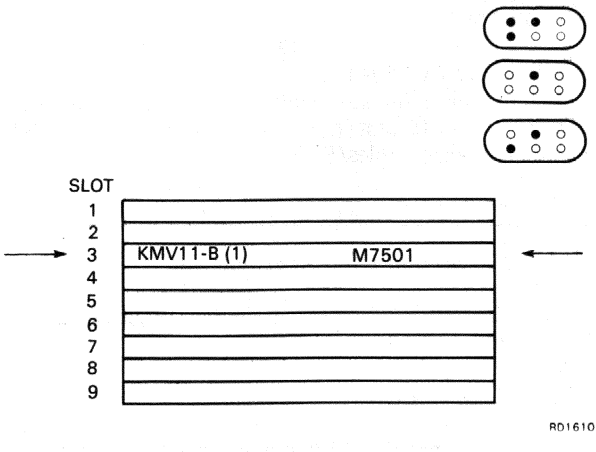


Figure 13 Backplane Position

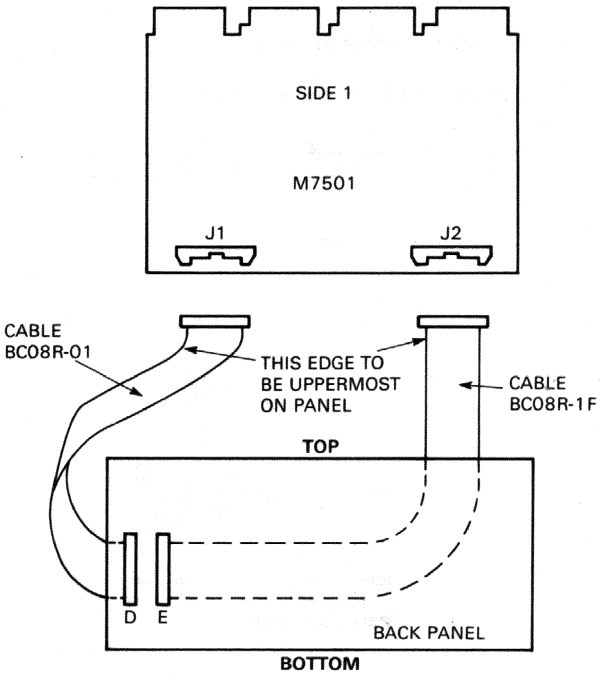


Figure 14 Cable Connections

SECTION 7

KMV11-B.2 (M7501)

If unit fails with keyswitch in NORMAL position, change PCB. If unit fails with keyswitch in TEST position, change cables/PCB.

Follow the step-by-step guide below:

1. See Section 1 for cover removal
2. Remove cable connections (see Figures 16 and 17)
3. Remove PCB
4. Check new PCB for jumper/switch positions (see Figure 15)
5. Fit new PCB
6. Fit cable connections to PCB
7. See Section 1 for cover replacement.

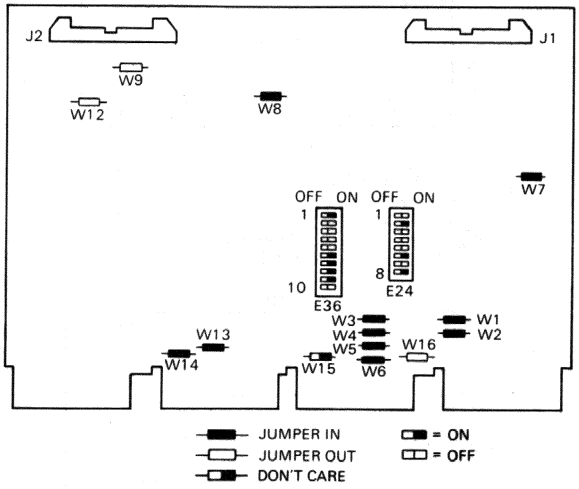


Figure 15 Jumper and Switch Locations

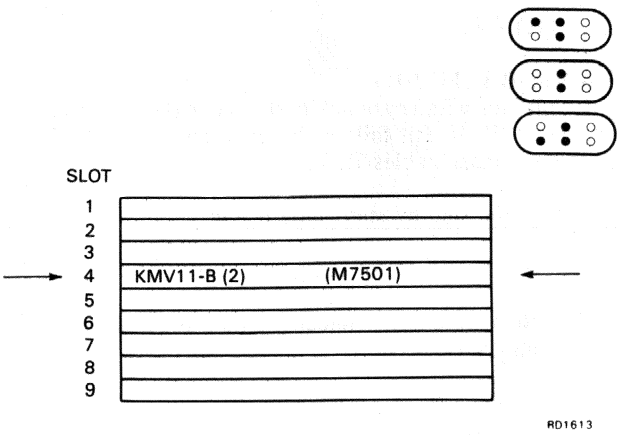


Figure 16 Backplane Position

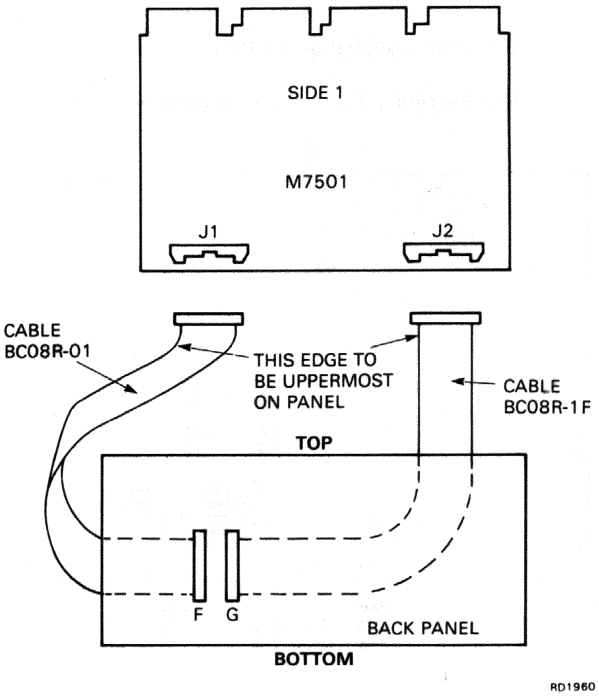


Figure 17 Cable Connections

SECTION 8

KMV11-B.3 (M7501)

If unit fails with keyswitch in the NORMAL position, change PCB. If unit fails with keyswitch in the TEST position, change cables/PCB.

Follow the step-by-step guide below:

1. See Section 1 for cover removal
2. Remove cable connections (see Figures 19 and 20)
3. Remove PCB
4. Check new PCB for jumper/switch positions (see Figure 18)
5. Fit new PCB
6. Fit cable connections to PCB
7. See Section 1 for cover replacement.

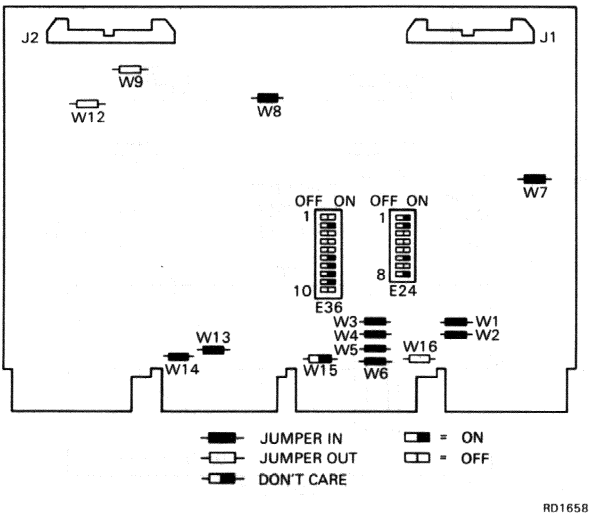


Figure 18 Jumper and Switch locations

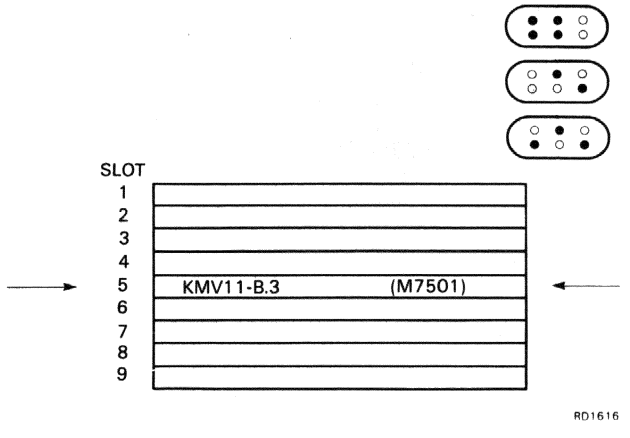


Figure 19 Backplane Position if Installed

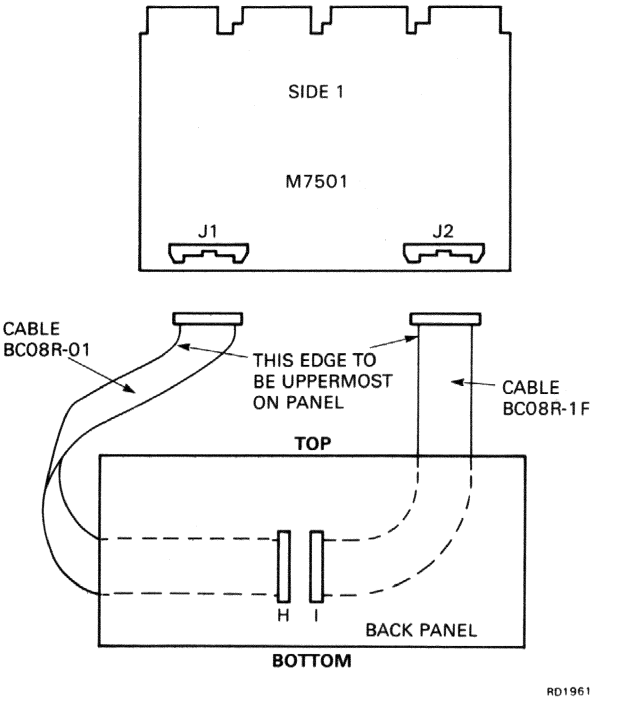


Figure 20 Cable Connections

SECTION 9

DLV11-J.1 (M8043)

If unit fails with keyswitch in NORMAL position, change PCB. If unit fails with keyswitch in TEST position, change cables/PCB.

Follow the step-by-step guide below:

1. See Section 1 for cover removal
2. Remove cable connections (see Figures 22 and 23)
3. Remove PCB
4. Check new PCB for jumper/switch positions (see Figure 21)
5. Fit new PCB
6. Fit cable connections to PCB
7. See Section 1 for cover replacement.

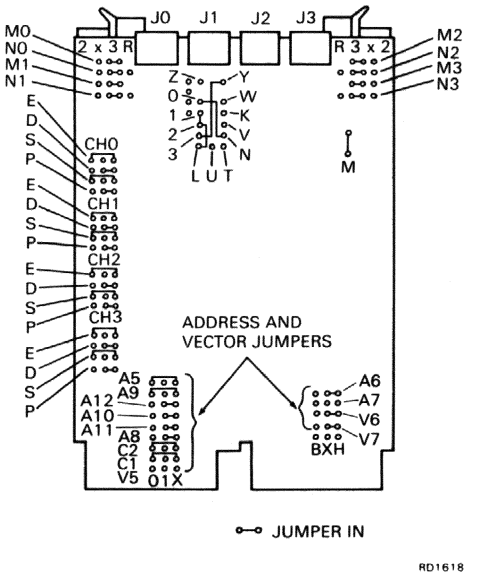
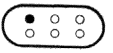


Figure 21 Jumper Locations



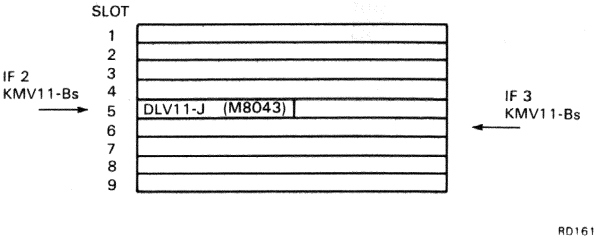


Figure 22 Backplane Position

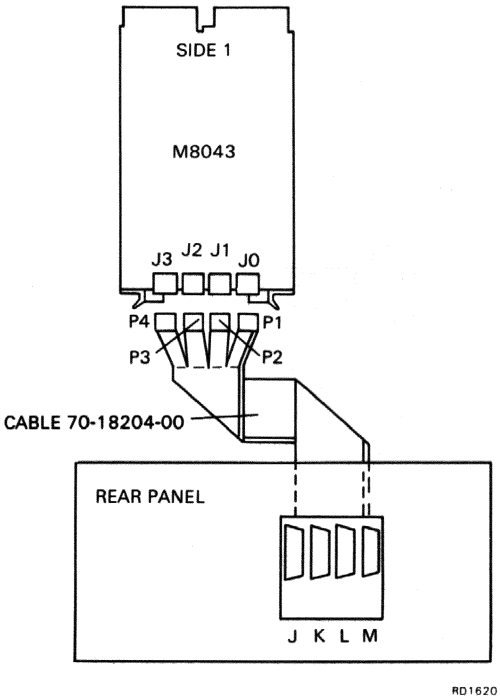


Figure 23 Cable Connections

SECTION 10

DLV11-J.2 (M8043)

If unit fails with keyswitch in NORMAL position, change PCB. If unit fails with keyswitch in TEST position, change cables/PCB.

Follow the step-by-step guide below:

1. See Section 1 for cover removal
2. Remove cable connections (see Figures 25 and 26)
3. Remove PCB
4. Check new PCB for jumper/switch positions (see Figure 24)
5. Fit new PCB
6. Fit cable connections to PCB
7. See Section 1 for cover replacement.

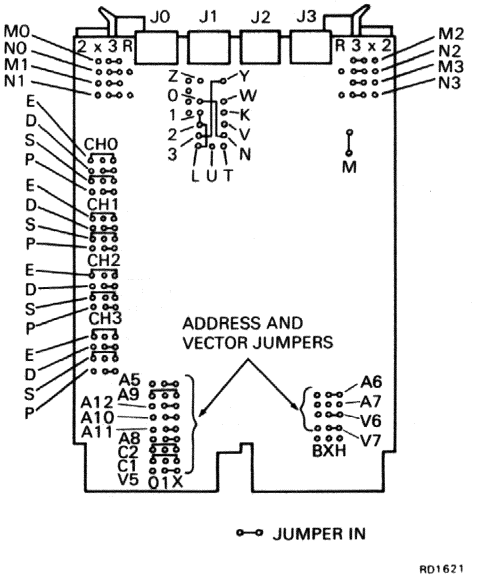
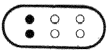


Figure 24 Jumper Location



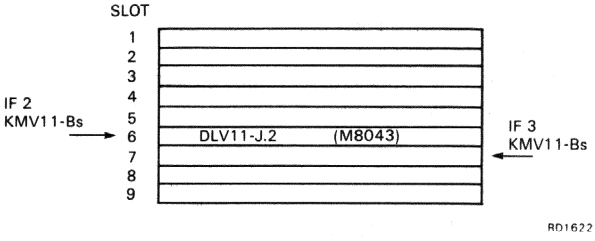


Figure 25 Backplane Position

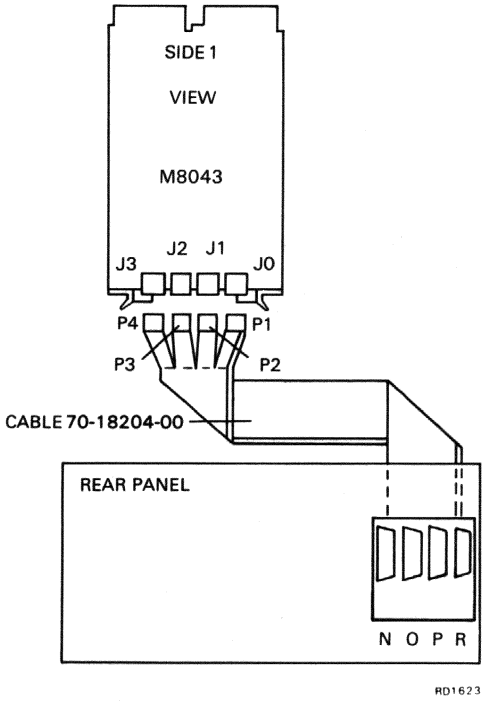


Figure 26 Cable Connections

SECTION 11

DRV11 (M7941)

Follow the step-by-step guide below:

1. See Section 1 for cover removal
2. Remove cable connections (see Figures 28 and 29)
3. Remove PCB
4. Check new PCB for jumper/switch positions (see Figure 27)
5. Fit new PCB
6. Fit cable connections to PCB
7. See Section 1 for cover replacement.

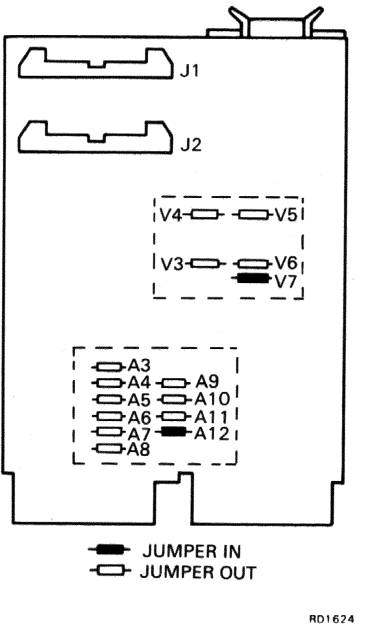
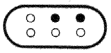


Figure 27 Jumper Locations



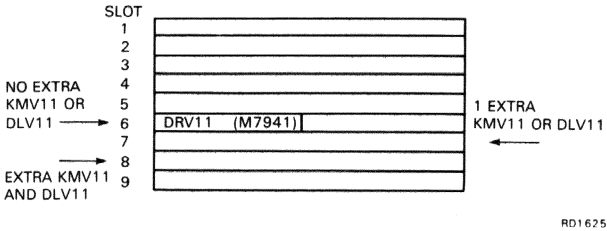


Figure 28 Backplane Position

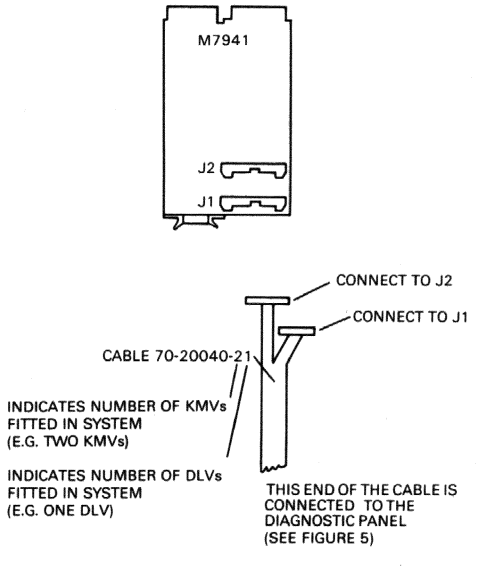


Figure 29 Cable Connections

SECTION 12

RQDX1 (M8639-YA)

Follow the step-by-step guide below:

1. See Section 1 for cover removal
2. Remove cable connections from PCB (see Figures 31, 32, 33 and 34)
3. Remove PCB
4. Check new PCB jumper/switch positions (see Figure 30)
5. Fit new PCB
6. Fit cable connections to PCB
7. See Section 1 for cover replacement.

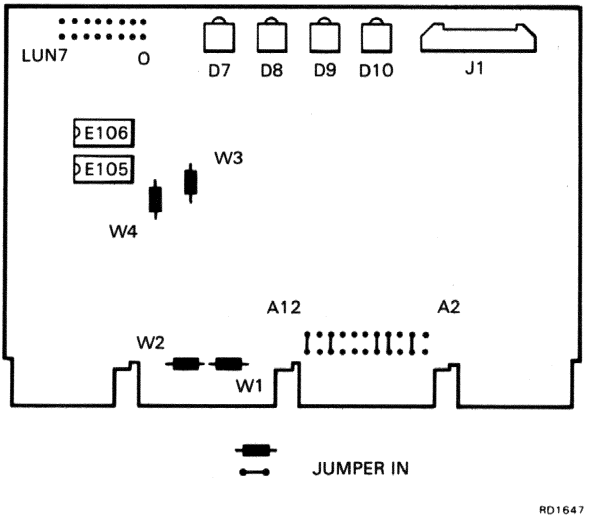
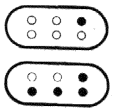


Figure 30 Jumper Locations



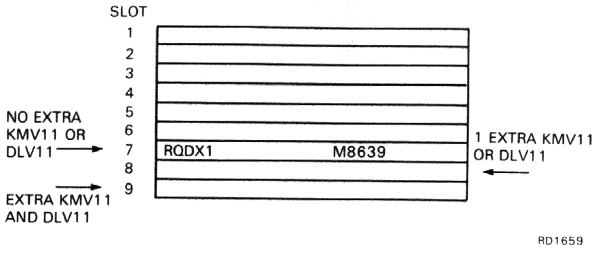


Figure 31 Backplane Position

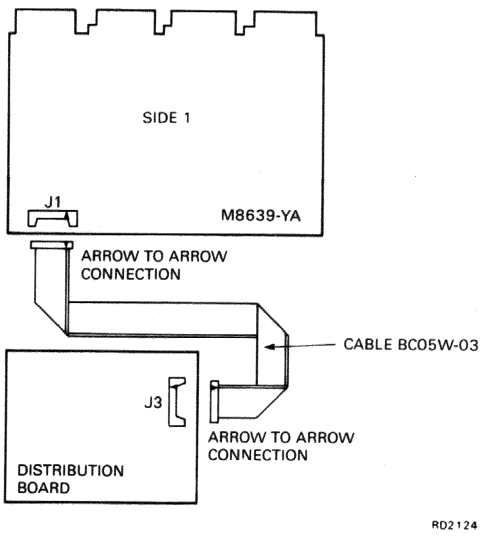


Figure 32 Cable Connections

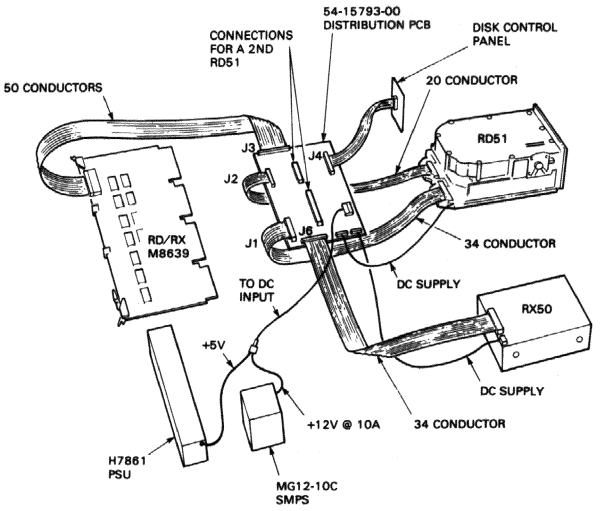


Figure 33 Disk Subsystem Connections

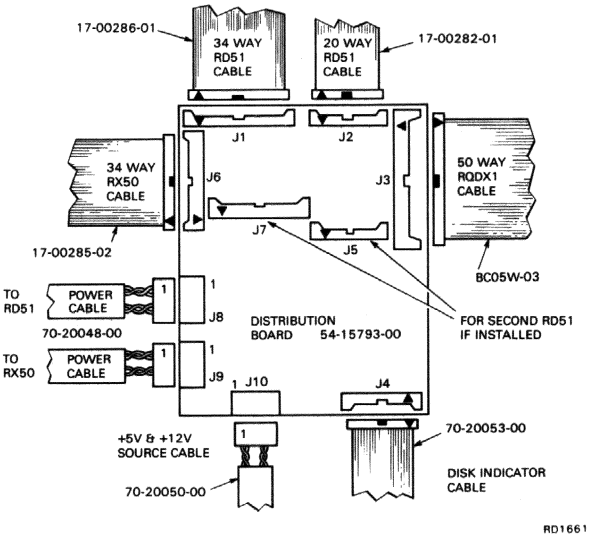


Figure 34 Connections to the Distribution PCB

SECTION 13

RD51 DRIVE AND READ/WRITE PCB

NOTE
The RD51 has to be pre-formatted for use with RQDX1.

CAUTION
DO NOT TOUCH THE HEAD POSITIONER FLAG (Figure 36) OR THE DRIVE MAY BE DAMAGED

To replace the read/write PCB, ignore step 9 below. To replace the complete drive, ignore steps 6, 7, and 8.

1. See Section 1 for cover removal
2. Remove all three cables from the RD51
3. Note the physical position of the RD51 in relation to the RX50. This will help you to re-install the drive.
4. Remove the crosshead screw B (Figure 38), and the two mounting screws underneath the front panel chassis. Lift out the RD51.
5. Remove the mounting bracket (crosshead screw A). See the above CAUTION.
6. To remove the read/write PCB (see Figure 37), Remove the four screws and release J6, J7, J8, P4 and P5. Do not lose the metal guard on P5.
7. Check the configuration of the shunt pack on the new PCB (Figure 39).
8. Replace the read/write PCB.
9. Replacement drives are delivered with a skid plate (Figure 38) attached. Remove the skid plate and transfer it to the defective drive. Transfer the mounting bracket (screw A, finger-tight) to the new drive. Check that the shunt pack is configured as in Figure 39.

10. Using the two mounting screws (underneath), remount the drive in the front-panel chassis. **The head positioner flag should be on top.**

11. Connect the mounting bracket (screw B) to the chassis, then tighten screw A.

12. Replace the cables.

    NOTE

    If you have installed a replacement RD51, you will have to install customer software (see Appendix C).

13. See Section 1 for cover replacement. Figure 35 shows RD51 connections to the distribution PCB.

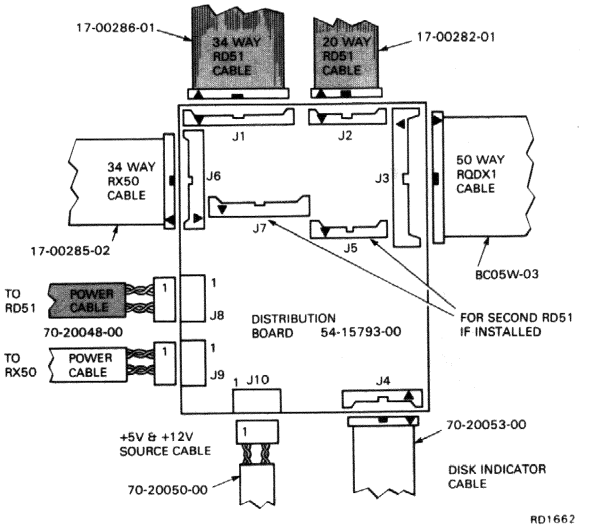


Figure 35 RD51 Connections to the Distribution PCB

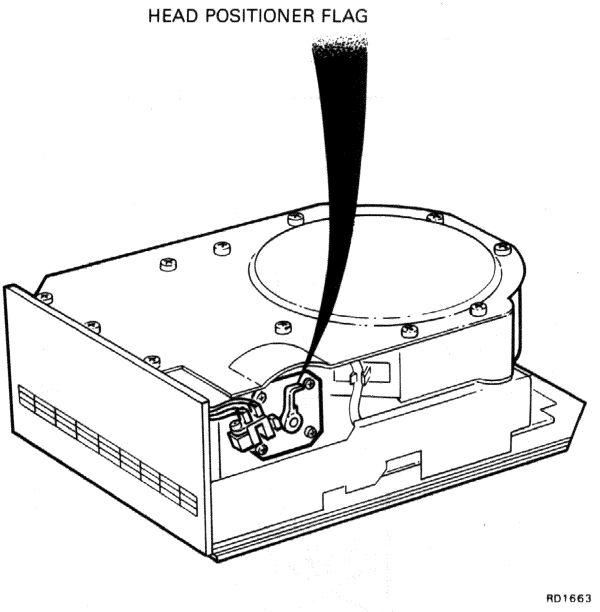


Figure 36 Head Positioner

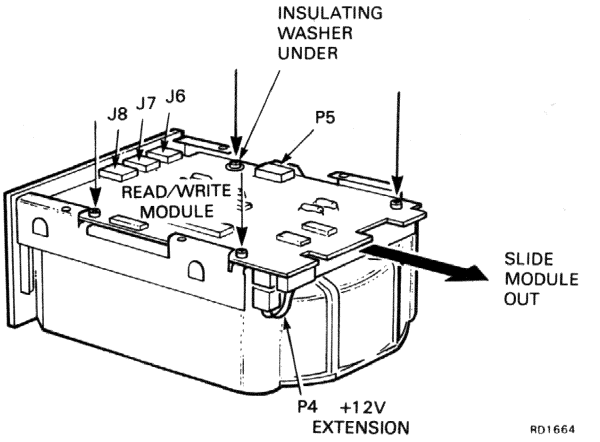


Figure 37 Read/Write PCB

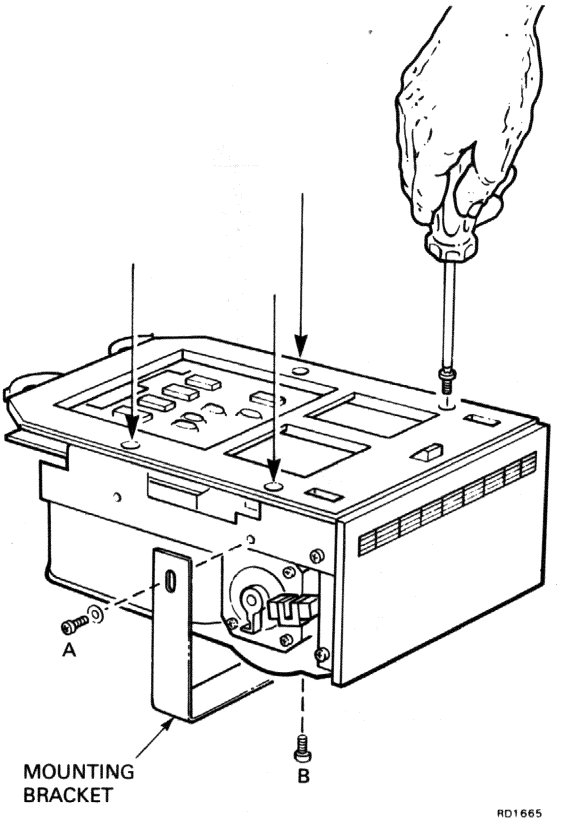
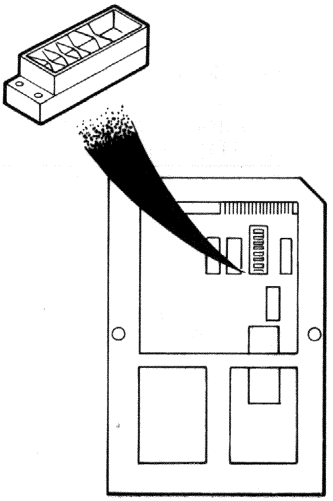


Figure 38 RD51 Skid Plate Removal



PIN NUMBERS	PIN CONNECTION
1 TO 16	NOT USED *
2 TO 15	IN
3 TO 14	IN
4 TO 13	IN
5 TO 12	OUT
6 TO 11	IN
7 TO 10	OUT
8 TO 9	OUT

* THE 14-PIN DIP JUMPER PACK IS INSTALLED IN A 16-PIN SOCKET. THE PACK IS OFFSET TOWARDS THE CONTACT PINS ON THE READ/WRITE PRINTED CIRCUIT BOARD. IF THE DIP SHUNT (JUMPERS) NEEDS TO BE REPLACED, A NEW DIP SHUNT CAN BE ORDERED (PART NUMBER 29-24115).

RD1666

Figure 39 Read/Write PCB Shunt Configuration

SECTION 14

RX50

1. See Section 1 for cover removal.

2. **Taking care not to touch the head positioner flag of the RD51 (see previous CAUTION),** remove the three cables from the RD51.

3. Remove the two crosshead mounting screws at the base of the RX50.

4. Slide the RX50 back slightly, and remove cables from the RX50. Remove the drive through the cut-out in the front panel.

5. Remove the four crosshead screws holding the skidplate (Figure 40) to the replacement drive. Then remove the skid plate and swap the box cover. (RX50s in Barclays systems have extra air-holes drilled in the cover).

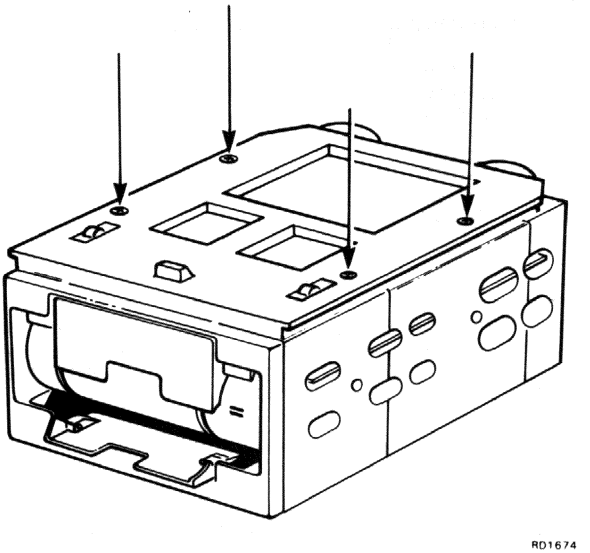
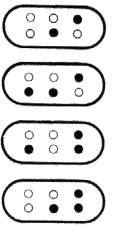


Figure 40 RX50 Skidplate Removal



6. Slide the replacement drive through the cut-out in the front panel. Reconnect the RX50 cables.

7. Position the drive flush with the front panel (the two LEDs should be at the top), and replace the two mounting screws.

8. Reconnect all cables previously removed.

9. See Section 1 for cover replacement

Figure 41 shows RX50 connections to the distribution PCB.

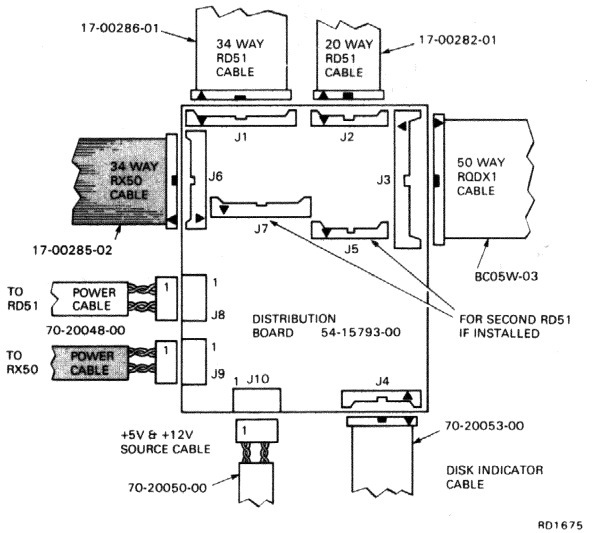


Figure 41 RX50 Connections to the Distribution PCB

SECTION 15

GOULD PSU

CAUTION
Before switching the power OFF, remove any diskettes from the RX50s.

Do not touch the head positioner flag (Figure 36) or the drive may be damaged.

WARNING
Switch off power before removing or replacing modules or cables.

1. See Section 1 for access to the GOULD PSU.
2. Remove the four screws connecting the bezel to the front panel chassis.
3. Disconnect J1, J2, J3, and the fast-on connector from the diagnostics panel, and J3 and J4 from the distribution PCB.
4. Remove the bezel.
5. Disconnect the 240 V ac input and 12 V dc output from the GOULD PSU.
6. Remove the four screws holding the AUX PSU to the front panel chassis.
7. Remove the two screws holding the distribution PCB bracket to the AUX PSU.
8. Install the replacement AUX PSU (reverse the removal procedure in steps 2 to 7.)
9. Replace the covers (see Section 1).

SECTION 16

H7861 PSU

1. See Section 1 for access to the H7861.
2. Disconnect J3 at the diagnostic panel.
3. Disconnect the 70-20047-00 cable from the power controller.
4. Slacken the eight screws of the H7861 dc power connection (see Figure 4).
5. Remove the two screws on top of the H7861 and undo the spring-loaded latches at the front.
6. Lift out the H7861.
7. Transfer the 70-20047-00 cable to the replacement H7861.
8. Install the replacement H7861 (reverse the procedure in steps 2 to 6).
9. Replace the covers (see Section 1).

APPENDIX A

BARCLAYS CONTROLLER CABLE ROUTING

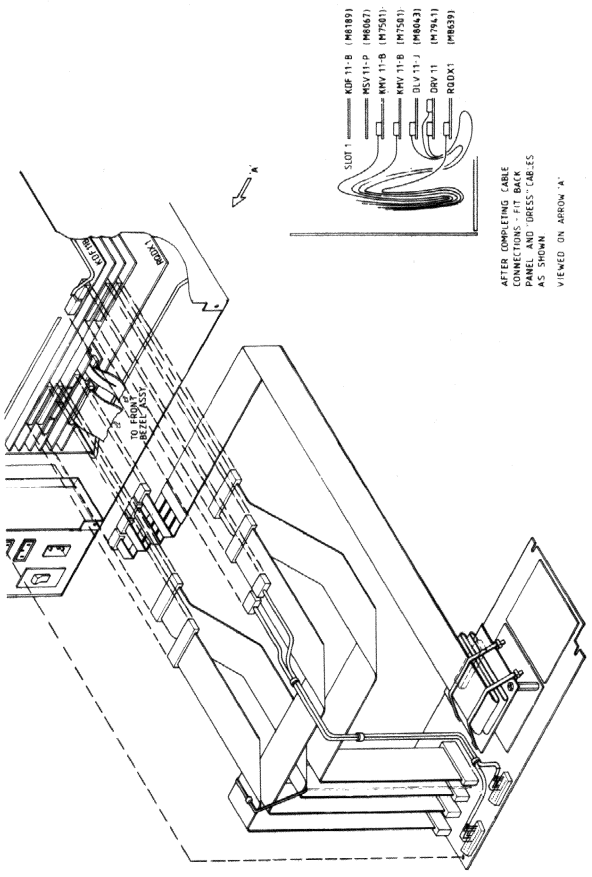


Figure A-1 Cable Detail

APPENDIX B

MARK AND FIRMWARE REVISION CODES

To make it easier to recognize a controller and its firmware, diagnostic LED sequences, from the MKII update onward, will include codes to identify the mark and the firmware revision. During the code which follows the flashing pattern, LEDs L1 L2 L3 and L4 L5 L6 display octal codes with the meanings given in Table B-1. An example of the code for a MKII controller with version 2 firmware is given below the table.

Table B-1 Mark and Revision Codes

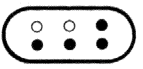
Decimal Value	1	2	4
Mark	L4	L5	L6
Revision	L1	L2	L3

Example of Mark and Revision Codes

Decimal Value	1	2	4	
Mark	○	●	○	= 2
Revision	○	●	○	= 2

● = LED on, ○ = LED off.

A MKII branch controller with version 2 (or later) firmware, is compatible with upgraded RQDX1 disk controllers (M8639-YA) only. If a non-upgraded RQDX1 (M8639) is installed, it will fail the power-up/initialisation diagnostic. The following code will be displayed on the diagnostics LEDs.



In this case, you must replace the M8639 with an M8639-YA. See Section 12 for removal and replacement instructions.

APPENDIX C

LOADING BARCLAYS SOFTWARE

CAUTION
Make sure there are no diskettes in the RX50s when you switch the controller on.

Table C-1 Customer Software Diskettes in Load Sequence

Diskette Marked	Contains	Held By Barclays	Held by FS
INISYS + SWCOPY	Master loader program	NO	YES
Disk1	Customer software	NO	YES
Disk2	Customer software	NO	YES
. .	. .	. .	. .
Diskn	Customer software	NO	YES
Additional Information	Front office terminal and other software	MAYBE*	MAYBE*
(Branch name)	Branch commissioning and configuration information	YES	NO

* The Additional Information diskette is used as a temporary method of updating the software package. Barclays branches that do not have front office terminals connected will not have the Additional Information diskette. If the bank does have this diskette, the bank version must be used. If the bank does NOT have this diskette but FS does, the FS version must be used.

It is the responsibility of the DIGITAL Field Service engineer to ask for the Additional Information and Branch Commissioning diskettes. It is the responsibility of the Barclays machine room supervisor to provide them upon request.

Prerequisites for Loading Software

- The branch controller is switched on and the HALT switch is up.
- The branch controller and the RD52 have passed the power-up/initialization diagnostic test.

Procedure for Loading Software

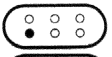
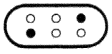
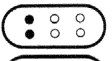
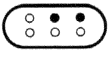
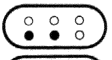
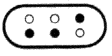
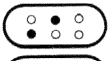
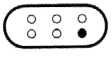
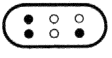
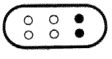
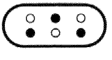
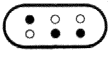
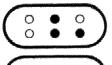
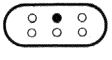
1. Put the keyswitch to AUX.
2. Insert the INISYS & SWCOPY (Master Loader) diskette into any RX50. This diskette must remain in the drive until the contents of all the diskettes have been loaded.
3. Press the INT button and wait for the controller to boot from the RX50.
4. See Table C-2 for LED codes that control the loading of software. Load the Customer Software diskettes (Disk1 to Diskn) into the other RX50. The LED codes of Table C-2 will tell you when to load each software diskette.
5. When Diskn has been read, a 'Load Complete' code will be displayed. Remove Diskn.
6. The LED code will tell you to load the Additional Software diskette or the Branch Commissioning diskette. Load them in that order if you have both.
7. When the appropriate 'load complete' code is displayed, remove all diskettes from the RX50s and press the INT button.
8. Put the keyswitch to NORMAL.

After boot, if the branch controller is functioning normally, the six diagnostic LEDs will continuously flash, all ON for five seconds and then all OFF for five seconds.

If the controller halts on RD52 boot, or if the indicated fault is not DIGITAL's responsibility, contact Barclays Support Services at Radbroke Hall, Knutsford. Tel 0565-3888 ext 2127.

See Page 6 for diagnostic codes displayed when the controller is running under Barclays software.

Table C-2 LED Codes for Software Load

Code		Meaning
		Load the first software disk (Disk1).
		The disk is loaded out of sequence or is defective. Load the correct disk.
		Disk reading.
		Software error. The load procedure has been aborted.
	†	Load the next sequence disk.
		The disk is loaded out of sequence, Remove this disk and replace it with the correct one.
	†	Load complete. Remove Diskn.
		Load the Additional Software disk or the Branch Commissioning disk.
		The disk now reading is an Additional Software disk.
		The disk loaded is out of sequence or is defective. Load the correct Additional Software or Branch Commissioning disk.
	†	Additional Software load complete. Remove the Additional Software disk.
		The disk now reading is a Branch Commissioning disk.
		Branch Commissioning disk load complete.
		Both Additional Software and Branch Commissioning disk loads complete. Remove all disks from the RX50s.

○ = LED OFF ● = LED ON † = Relevant RX50 LED ON

APPENDIX D

LIST OF FIELD-REPLACEABLE UNITS

Part No.	Description
MODULES:	
DLV11-J	M8043 (*)
DRV11	M7941 (*,***)
KDF11-BA	M8189 (*)
KMV11-B	M7501 (*,***)
MSV11-PL	M8067-LA (*,***)
RQDX1	M8639-YA (***)
PERIPHERALS:	
RD51-A	
RX50-AA (***)	
CABLES:	
BC08R-01	12-inch KMV11 cable (*,***)
BC08R-1F	18-inch KMV11 cable (*,***)
BC05W-03	36-inch RQDX1 cable
17-00209-01	Mains power cord (*,***)
17-00282-01	20-way RD51 data cable (***)
17-00285-02	34-way RX50 signal cable (***)
17-00286-01	34-way RD51 signal cable (***)
70-11411-1J	3M H7861 signal cable (***)
70-11411-0K	3M backplane cable (*,***)
70-17971-00	DC harness (*,***)
70-20040-21	Cable from DRV11 to diagnostic panel (*)
70-20041-00	Cable from KDF11 to rear panel (*)
70-20047-00	AC power harness
70-20048-00	Disk power cable (***)
70-20049-00	+5 V supply cable
70-20050-00	+5 V and +12 V cable to distribution PCB
70-20051-00	Supply cable to fan and Gould PSU
70-20053-00	Cable for disk control panel
70-20064-00	Modem thick cable (***)
70-20070-00	Loopback connector (***)
70-20084-00	Modem thin cable (***)
70-20069-00	Loopback connector (***)

(*) Items are common to Barclays branch controller MKI
(***) Items are common to Barclays branch controller MKIII

LIST OF FIELD-REPLACEABLE UNITS (Cont)

Part No.	Description
SELF-TEST BOOT ROMS:	
23-388E4-00	Even Byte
23-389E4-00	Odd Byte
POWER SUPPLIES:	
H7861	BA11-S: +5 V, +12 V (*,***)
2K-1936A-00	Gould M612-10C
2K-1952A-00	Mains fuse (***)
DISTRIBUTION PCB ASSEMBLY:	
54-15793-00	Distribution PCB
54-12985-00	Console panel PCB (PDP-11/03) (*)
70-20039-01	Diagnostic control panel assembly (*)
54-15794-00	Disk control panel PCB
FANS:	
12-20267-01	Fan assembly, BA11-S (*,***)
2K-1632A-00	Fan: 250 V, 50 ft^3/min. Torin