Title:

RC8201

GENERAL INFORMATION

Keywords: RC8201, DSC 801, DSA 802, DSM 8xx, Disc Storage Channel,

Disc Storage Controller, Disc Storage Adapter.

Abstract: This manual contains general information on the RC8201

Disc Storage Channel.

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1.   GENERAL DESCRIPTION.

The RC8201 Disc Storage Channel connects the RC8230/33 and RC8244-47 to the RC8000 System. It consists of the DSA 802 Disc Storage Adapter and the DSC 801 Disc Storage Controller both placed in the controller chassis. Up to 4 disc drives may be linked to the system via the disc channel.

Standard features are seek overlap capability, channel program control, error detection and correction, and automatic positioning check.

2. SPECIFICATIONS.

2.1 Performance Specifications.

Disc drive media and recording specifications are as follows:

Media	RC 8230	8231	8232	8233	8244	8245	8246	8247
Recording surfaces	1	2	2	3	5	5	19	19
Tracks/inch.	300	300	300	300	192	384	192	384
Track spacing, 10^{-3} inch.	3.3	3.3	3.3	3.3	5.2	2.6	5.2	2.6
Disc diameter, inches	14	14	14	14	14	14	14	14
usable tracks	640	1280	688	1328	2055	4115	7809	15637
Tracks with heads per track	0	0	48	48	0	0	0	0
Recording								
Bit density bit/inch	6125	6125	6125	6125	6038	6038	6038	6038
Rate MhZ	9.67	9.67	9.67	9.67	9.67	9.67	9.67	9.67
Mode	MFM	MFM	MFM	MFM	MFM	MFM	MFM	MFM
Heads: Read/write	2	4	2+48	4+48	5	5	19	19
Servo (positioning)	1	1	1	1	1	1	1	1
Read/write width 10^{-3} inch.	2.3	2.3	2.3	2.3	4.0	2.0	4.0	2.0

All RC8000 drives are divided into 21 sectors and drive capacity
is as follows:

Drive	RC8230	8231	8232	8233
Bytes/drive	10.321.920	20.643.840	11.076.064	21.397.984
Fixed head	0	0	774.144	744.144
Bytes/cylinder	32.256	64.512	64.512	64.512
Bytes/track	16.128	16.128	16.128	16.128
Bytes/segment	768	768	768	768
bit/byte	8	8	8	8

Drive	RC8244	8245	8246	8247
Bytes/drive	33.143.040	66.366.720	125.943.552	252.193.536
Fixed head	0	0	0	0
Bytes/cylinder	80.640	80.640	306.432	306.432
Bytes/track	16.128	16.128	16.128	16.128
Bytes/segment	768	768	768	768
Bit/byte	8	8	8	8

Access time	RC8230/33	RC8244/45	RC8246/47
Disc Rotation	3600 revolutions per minute		
Average Latency	8.33 ms (half rotation)		
Maximum head position time			
1 track seek	10 ms	7 ms	10 ms
Average seek	40 –	30 –	30 –
Outer to inner track seek	65 –	55 –	55 –

2.2 Electrical Specifications.

Power requirement

| DSA | 5V, 8.5 A from controller chassis |
| DSC | 5V, 9   A from controller chassis. |

2.3 Environmental Specifications.

Ambient Temperature   16 - 32° C (60 - 90° F)

Relative Humidity   20 - 80% (no condensation)

Heat Dissipation   included in CPU figures.

2.4 Physical Specifications.

Mounting :   2 slots in Controller Chassis.

Weight :   5 kg (10 lbs).

3.   IDENTIFICATION OF ITEMS.   3.

The list below describes all single items belonging to the RC8201
Disc Storage Channel.

Item	Reference Number	Description
1	DSC 801	Controller
2	DSA 802	Adapter
3	CBL 361	Internal A-cable
4	CBL 362	Internal Bus out.
5	CBL 363	Internal Bus in.
6	CBL 364	Internal B-cable.
7	DAT 340	Separate doc. items
8	DDM 073	Device Manual

Items belonging to each RC8230/33 connected to the RC8201 :

1	DSM 813/816	Fixed disc drive
2	CBL 829	A-cable, 10 feet.
3	CBL 832	B-cable, 10 feet.
4	DDA 801	Disc Drive Accessories.

Items belonging to each RC8244/47 connected to the RC8201 :

1	DSM 809/812	Disc Storage Module
2	CBL 830 [1]	A-cable, 15 feet.
3	CBL 833	B-cable, 40 feet.
4	PDP 801 [2]	Power Distribution Panel
5	CBL 142 [2]	Power Cable, 12 M
6	CBL 318 [3]	Ground cabel, 5 M

1) First drive connected to the system has CBL 831 (40 feet).
2) Only first and forth drive has these items.
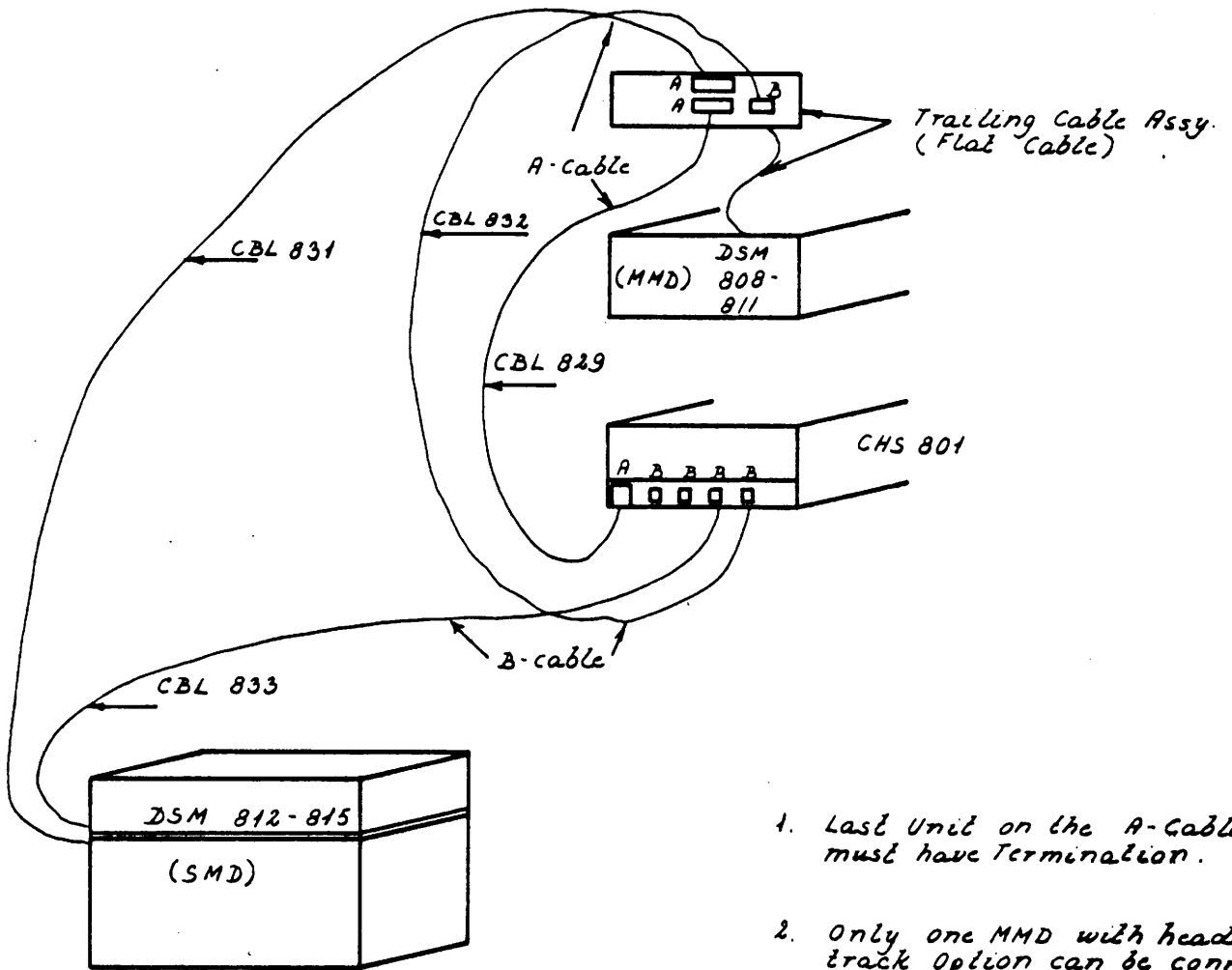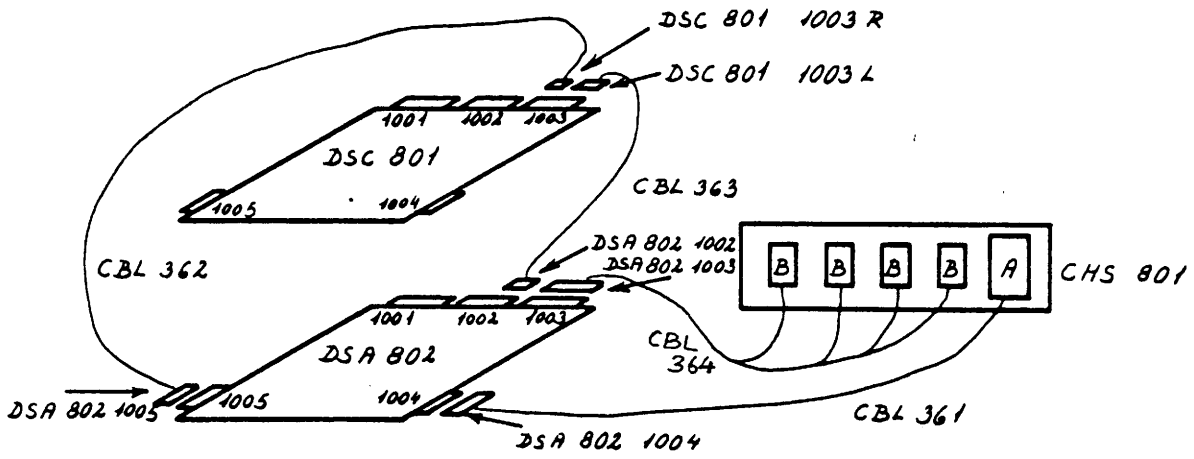3) First drive connected to the system has CBL 091 (12 M).

4.   INSTALLATION.

4.1   Installation of DSC 801 and DSA 802 in the CHS 801 Controller Chassis.

The DSA 802 can be installed in any of the 5 slots in controller chasses. The DSC 801, however, must always be placed as the first unit on the RC8000 bus. This means that the DSC 801 must be placed in the upper slot, unless the DSA 802 or another DSC 801 is placed in the upper slot. In that case the DSC must be placed in the second slot.

Connection of cables is shown on the next page.

1)   Lift the power supply box, thereby gaining access to the CHS 801 motherboard.

2)   Insert the DSA 802 and DSC 801 in selected positions.

3)   Mount the Berg-connector part of CBL 802 on the mother-board, CBL 811 on the right side of 1003 connector (rear view of the CHS) in the position where the DSC 801 is placed.

4)   Mount the CBL 363 with one Berg-connector on the mother-board CBL 811 on the left side of the 1003 connector (rear view of the CHS) in the position where the DSC 801 is placed. Mount the other Berg-connector of CBL 363 on the motherboard CBL 811 on the left side of 1002 connector (rear view of CHS) in the position where the DSA 802 is placed. See signal cable interconnection diagram.

DSC 801   1003 R
DSC 801   1003 L
1001 1002 1003
DSC 801
1005   1004
CBL 363
DSA 802 1002
DSA 802 1003
CBL 362
1001 1002 1003
DSA 802
CBL 364
DSA 802 1005   1005   1004
CHS 801
B B B B A
DSA 802 1004
CBL 361

Trailing Cable Assy.
(Flat Cable)
A · Cable
CBL 832
CBL 831
DSM
(MMD) 808-
811
CBL 829
CHS 801
A B B B B
B · cable
CBL 833
DSM 812 - 815
(SMD)

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1. Last Unit on the A-Cable Chain
   must have Termination.

2. Only one MMD with head per
   track Option can be connected
   to the Chain.

3. All Drives must have Read
   PLO Board installed.

4. The System Shown has one MMD
   and one SHD. With more SMD's
   A-cables between them are CBL 830
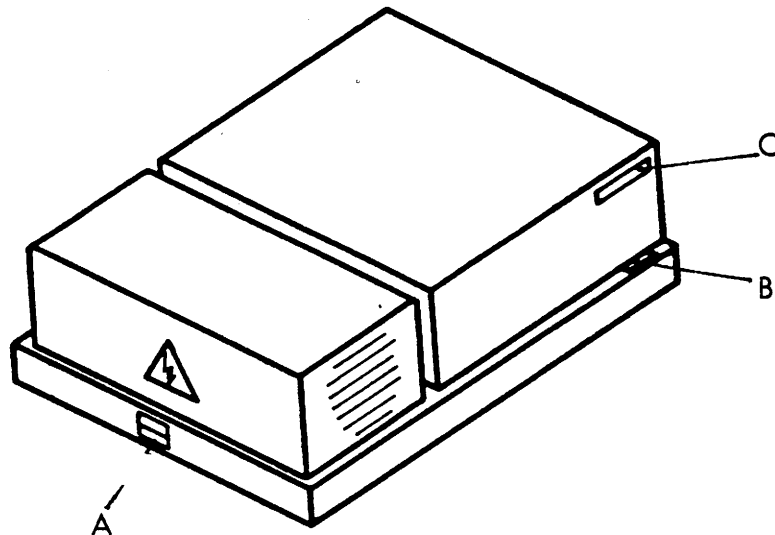   instead of CBL 831.

DSA 802   Signal Cable Interconnections

R 12484

5)   Remove the bottom of the CHS 801 by loosening the two
        screws on the front and pull it free of the slides.
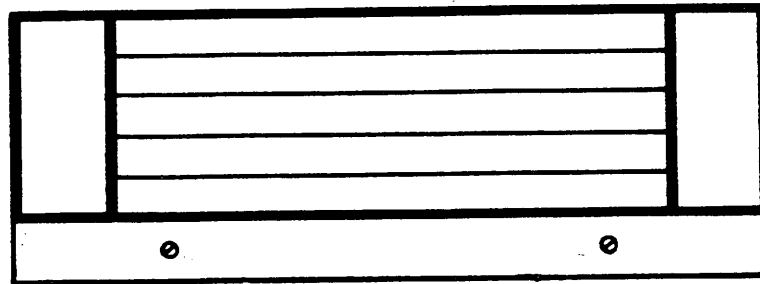
Front view of the CHS 801.

6)   Mount the edge connector part of CBL 362 to the
        DSA 802 connector 1005 (C) by leading the cable
        through the hole (B) in the chassis.

Rear and side view of CHS 801

7)   Mount the bracket with the B-cable connectors of
        CBL 364 at the back of the chassis (A). The Berg-
        connector of the CBL 364 is to be mounted on the
        motherboard CBL 811 on the 1002 connector in the
        position where the DSA 802 is placed.

8) CBL 361 (internal A-cable) is to be mounted with bracket at the back of the chassis, and edge connector at the DSA 802 connector 1004.

9) Finally reinstall the bottom of the CHS 801 and fasten the 2 screws on the front.
Lower the power supply to normal position.
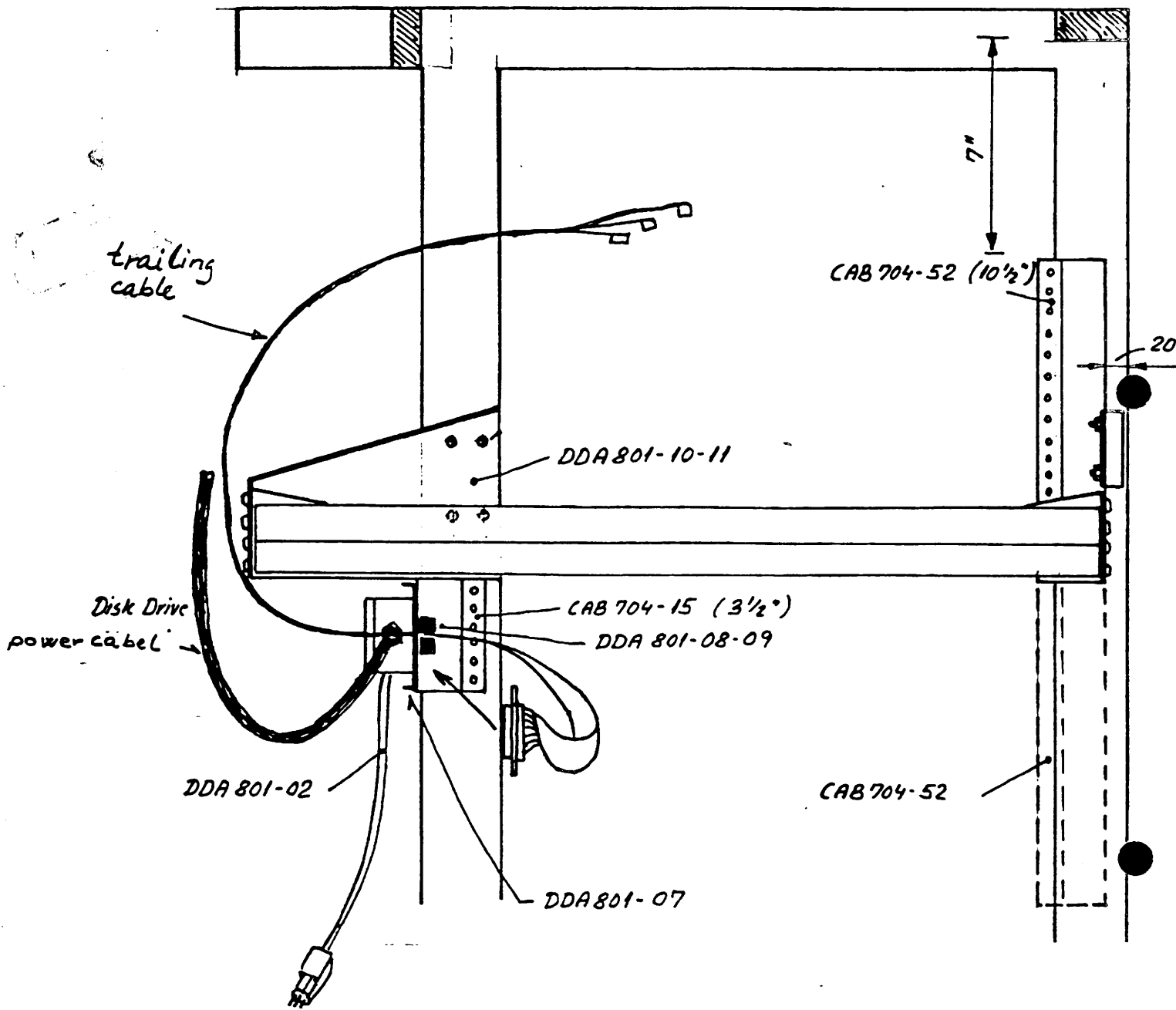
4.2 <u>Installation of Disc Drives.</u> 4.2

For installation and initial checkout of the disc drives refer to the CDC manuals 83322820 section 1 for mini modules, and 83311100 section 1 for storage modules.

The mini modules (fixed disc drives) must be rack mounted. This is shown in the figure next page.

NOTE: The mini module weighs 45 kg (100 lbs) and therefore a counter-weight must be mounted on the back of the cabinet (the following figure).
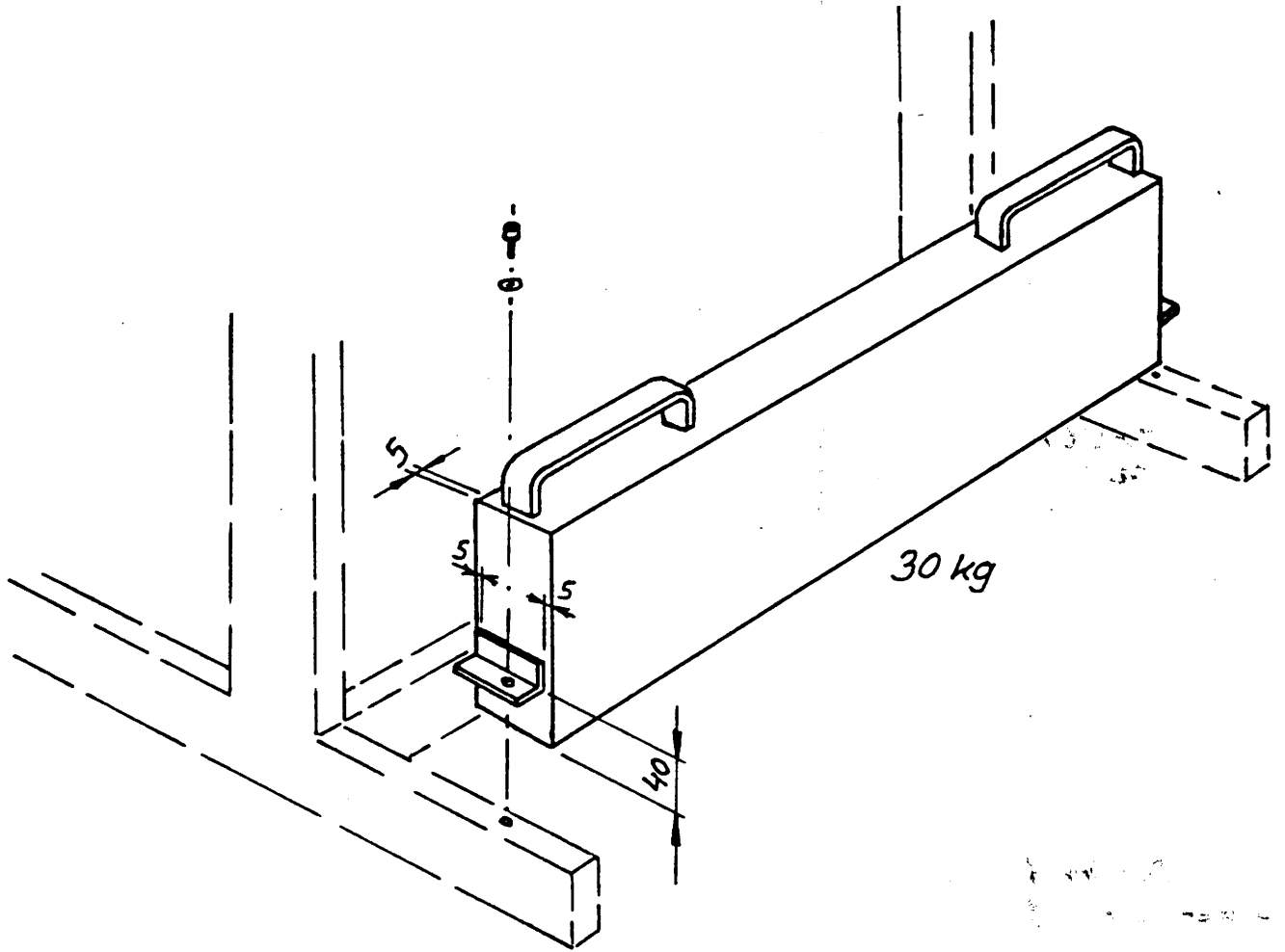
Interconnections of the disc drives and controller chassis is shown on the signal interconnection diagram.

Note that the disc storage channel can only handle one drive with fix head option on the chain. If more than one is to be connected the fix head switch in the drive must be set to 0 (location C4, switch 1, position 'on').

trailing
cable

CAB 704-52 (10½")

7"

20

DDA 801-10-11

Disk Drive
power cable

CAB 704-15 (3½")
DDA 801-08-09

DDA 801-02

CAB 704-52

DDA 801-07

RC 8230/33

Mounting of disc drive, power cable and
trailing cable assembly.
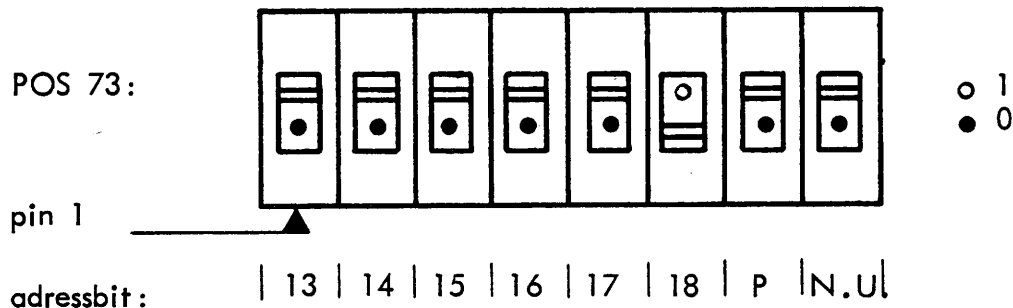
30 kg

5

5

5

40

RC 8230/33

Mounting of counter weight.

4.3   Switches.

Device Address.

The device-address-switches in position 73 on DSC 801 are set according to the following rules:

POS 73:

pin 1

adressbit: | 13 | 14 | 15 | 16 | 17 | 18 | P |N.U|

The switches 13 to 18 are set according to the device-address. Switch P is set to maintain an odd number of ones (white dots). Switch N.U. is not used, nor is it counted for switch P setting.

Sector Switches.

The Disc Drives must have the correct sector number selection. 32 Sectors if it is connected to the 3600 system and 21 sectors if it is connected to the 8000 system.

The MMD has in location A03 a series of 12 dip switches that is used to select the number of sectors.

System	Sectors	Switches											
		0	1	2	3	4	5	6	7	8	9	10	11
3600	32	0	0	+	+	+	0	+	0	0	+	+	+
8000	21	0	0	0	0	0	0	0	+	+	0	+	+

The SMD has a sector plug on the back of the card cage. This plug must have the following connections:

System	Sectors	Connections
3600	32	1A - 3A - 8B - 9B - 15B - 14A and 2A - 2B - 3B - 5A - 8A - 9A - 13A - 14B
8000	21	1A - 3B - 8A - 9A - 15B - 9B - 13A - 14B - 14A and 3A - 2A - 2B - 5A - 8B

Power Sequence.

The DSA contains possibility for power sequencing. Set the switch in the drive 'local/remote' to remote. If more than one drive is connected to the DSA, they will start up in sequence.

Disc Capacity.

The minimodules contain sets of switches to select the capacity of the disc. Refer to the drive manual diagrams for information. As the channel, however, can only handle one drive with fix head option, only one drive on the chain can have fix head switch to 1 (C4, switch 1, 'off' for fix head).
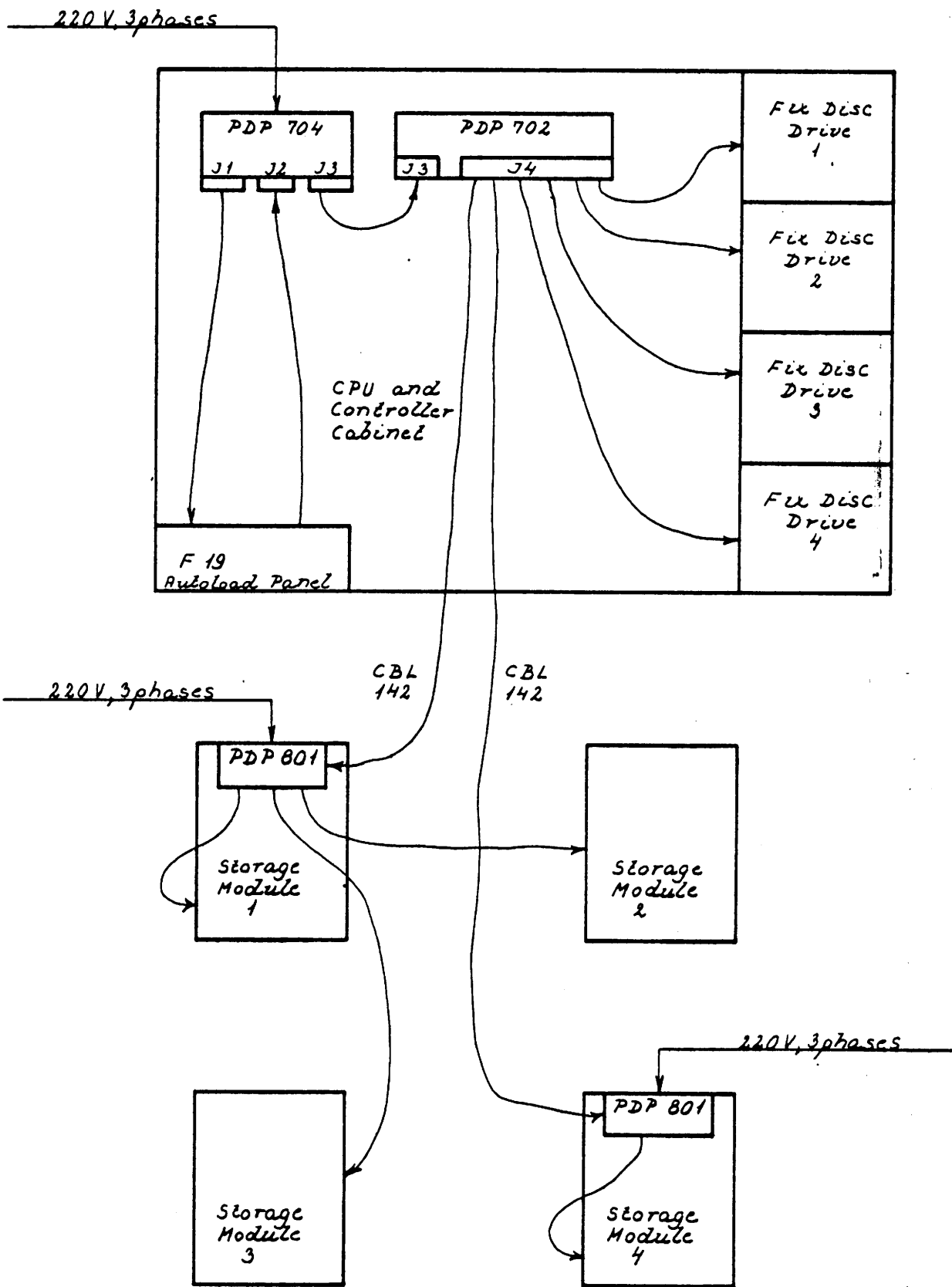
5.   CHECK OUT PROCEDURES.

On installation and after repair the following test must be carried out.

1.   If you have SMD's on the system put a scratch kit on the disc you want to test.

          If you have MMD's on the system it is necessary to dump the contents of the discs before you start the test, if they contain important information.

2.   Load the RC8000 Testprogram System Tape RCSL: 30M 140.

3.   Run the Disc test at least 6 hours with all covers closed and max. allowable room temperature (32°C).

220 V, 3 phases

PDP 704
J1 J2 J3

PDP 702
J3 J4

Fix Disc Drive 1

Fix Disc Drive 2

Fix Disc Drive 3

Fix Disc Drive 4

CPU and Controller Cabinet

F 19 Autoload Panel

CBL 142

CBL 142

220 V, 3 phases

PDP 801

Storage Module 1

Storage Module 2

220 V, 3 phases

PDP 801

Storage Module 3

Storage Module 4

1. The Diagram shows 4 Fix discs and 4 Storage Modules. The Channel can only handle 4 Drives in all, but in any combination.

2. PDP 801 is substituted with PDP 802 if it is placed in a RC 8246 or 47.

3. All Drives must be connected with Groundcables (CBL 091 and CBL 318).

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DSA 702/802   Power Interconnection Diagram

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