

# **Preface**

### The reader

This catalogue is intended for all ND personnel involved in requisitioning parts for maintenance purposes on the ND-100 Compact series.

### The manual

The catalogue is divided into two sections: Illustrated Parts List and Cross Reference List.

### **Illustrated Parts List:**

This list is divided into five columns as follows:

- Reference designation: The reference designation refers to the figures where the parts are shown. The first part of the number (before the hyphen) indicates which assembly the parts belong to.
- Item name description: This column provides the descriptive name and main characteristics of the part. The basic name is entered first, followed by subname(s) or colloquial name(s). Colloquial name(s) and description(s) are placed within brackets.
- Article number: This column contains the ND article numbers. These should be used when ordering spare parts.
- Quantity: This column indicates how many times the described part appears within the assembly.
- Status: The letter S in this column indicates that the part will often be needed, and should be kept in stock if possible. The letter R indicates that the part is repairable, and should not be discarded.

### **Cross Reference List**

This list provides a reference between ND article numbers and reference designations. It is sorted by article number in descending order.

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AC	Alternating Current	Mb	Megabyte (octal)
ASSY	Assembly	MM	Millimeter
BW	Backwiring	MMS	Memory Management System
CCA	Circuit Card Assembly (see PCB)	MOS	Metal Oxide Semiconductor
CONN	Connector	OP	Operator
CTRL	Control	PCB	Printed Circuit Board
CPU	Central Processing Unit	POZI	Pozidrive
CYL	Cylinder	PROM	Programmable Read Only Memory
DC	Direct Current	PS	Power Supply
DISTR	Distribution	RAM	Random Access Memory
ECC	Error Correction Code	SMD	Storage Module Drive
<b>EXCL</b>	Exclusive	SUPA	Supadrive
FL	Floppy	TF	Thread Forming
HD	Head	QTY	Quantity
HEX	Hexagonal	w/	With
Kb	Kilobyte (octal)		
M	Meter		

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# **Safety Precautions**

The following safety precautions must be obeyed at all times to avoid personal injury and damage to the equipment.

### 1.

Learn how to apply mouth-to-mouth resuscitation, external cardiac massage and other techniques for treatment of electrical shock.



2.

Do not work on any equipment until you have attended the ND "Hardware Maintenance and Operation" course, and have studied this manual and all relevant reference manuals.

3.

Do not work alone when servicing live equipment. If you are the only serviceman on the site, arrange for a second person to be present.

4.

Always leave the equipment in a **safe** condition with **all** covers and panels in place. Use a warning notice to advise that the equipment is under repair.

### 5.

Obey the instructions in the boxed paragraphs marked WARNING! and CAUTION! throughout this manual and the reference manuals. WARNING! is used when there is a risk of personal injury. CAUTION! is used when there is a risk of damage to the equipment.

## **WARNING!**

The equipment operates from a 115V or 220V mains supply at currents that can cause

## **DEATH ON CONTACT!**

Get familiar with the mains supply wiring and take extreme care when working near places where the mains volltage is exposed. When disassembling a unit, first disconnect it from the mains supply and discharge it. When reassembling, make sure that all ground connections are made and that all covers/panels are in place before reconnecting the supply.

### **WARNING!**

Remove your wristwatch and all jewellery, including gold rings, before starting to work on the equipment. Rings heat up very rapidly if shorted across a high current supply, and can cause severe burns.



### **WARNING!**-

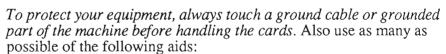
Do not wear any loose clothing (such as a necktie) which can get caught in moving machinery. Long hair my present a similar hazard.

### Caution! -

**Power supplies:** To avoid shorting local power supplies, be sure to keep all conductive objects (e.g. tools and aluminium foil) away from contacts and busbars.

Removing printed cards: Always use an insulated card extractor when removing cards from live equipment. Note that some cards must not be removed when the system is on.

Electrostatic discharge: Electronic components may be damaged if subjected to electrostatic discharge through contact with fingers or electrostatically charged objects. The danger is particularly high for MOS circuits in a dry environment, but the risk is considerable, even with other components and in other climates.



- antistatic spray
- grounded handcuffs (**not** when servicing live equipment)
- conductive tabletops and floormats
- ionized airblower
- protective pouches for spare components

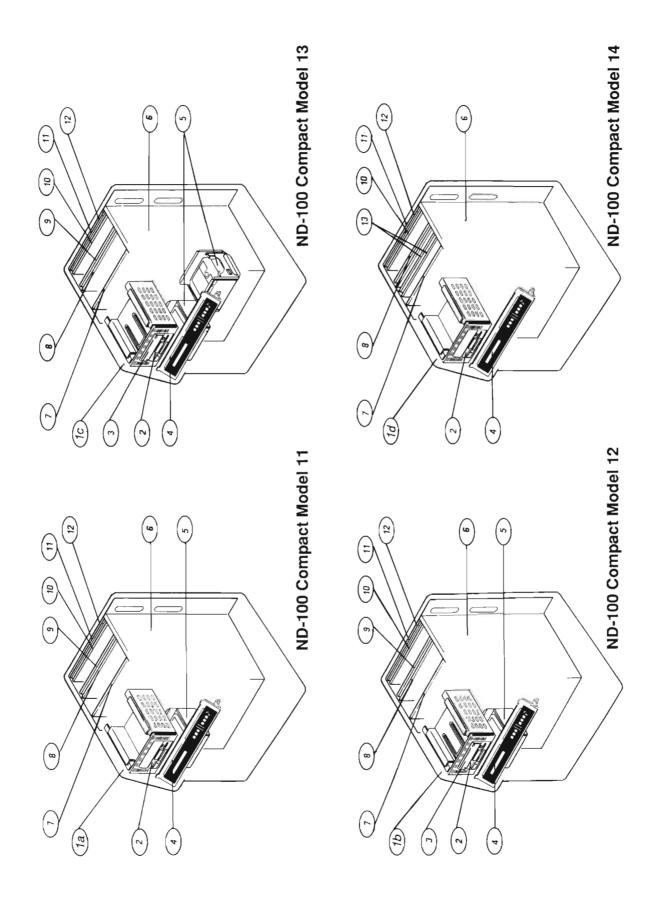
**Disk pack damage:** If you suspect disk pack damage, do not move the disk pack to another drive, as a faulty disk pack will ruin the read/write heads. For the same reason, do not insert another disk pack in the suspect drive, as the new disk pack may then be damaged as well.

Overheating: Inspect and service the electric ventilation equipment regularly, to avoid computer downtime due to ventilation failure. Never place objects on or near ventilation grills.



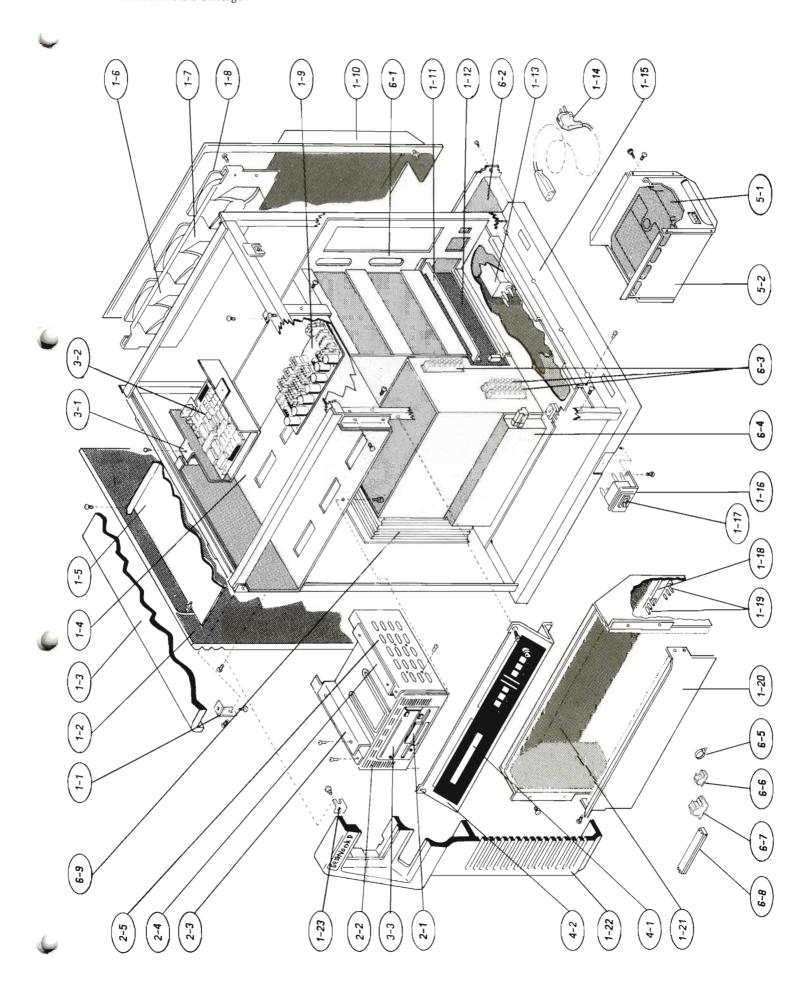
# **Illustrated Parts List**

Ref. desig.	Specify this when ordering Item name - description	Article number	Qty	Ref. desig.	Specify this when ordering Item name - description	Article number	Qty
	Main Parts, Compact Model 11	003291	<del>, -</del>		Main Parts, Compact Model 13	003293	-
4	ND-100 COMPACT MOD 11 CABINET	106570	ζ	25	ND-100 COMPACT MOD 13 CABINET	106572	-
2 .	FLOPPY DISK DRIVE 5 25"	103161		5	FLOPPY DISK DRIVE 5.25"	103161	
1 4	OPERATOR PANEL W/DISPLAY	100941		· m	STREAMER 5.25"	106270	-
2	DISK MICROPOLIS 1325 74.5 MB	106280	<b>-</b>	4	OPERATOR PANEL W/DISPLAY	100941	-
9	CARD CRATE ND-100 COMPACT	100930	<b>-</b>	5	DISK MICROPOLIS 1325 74.5 MB	106280	2
7	1 MB MEMORY	103700	-	9	CARD CRATE ND-100 COMPACT	100930	-
80	FLOPPY/STREAMER INTERFACE 5.25"	103170	-	7	1 MB MEMORY	103700	-
6	DISK CONTROLLER, FIXED WINCHESTER	106310	<b>-</b>	8	FLOPPY/STREAMER INTERFACE 5.25"	103170	<b>~</b>
10	MEMORY MANAGEMENT SYSTEM II, EXCLUSIVE CACHE	•	~	6	DISK CONTROLLER, FIXED WINCHESTER	106310	-
11	ND-100 STANDARD CPU 48-BIT CX			10	MEMORY MANAGEMENT SYSTEM II, EXCLUSIVE CACHE	E 100311	-
12	PROM KIT (2 KB PROM ND-100)	100361	<b>~</b>	11	ND-100 STANDARD CPU 48-BIT CX	101000	<b>-</b>
				12	PROM KIT (2 KB PROM ND-100)	100361	-
	Main Parts, Compact Model 12	003292	-		Main Parts, Compact Model 14	003294	_
1b	ND-100 COMPACT MOD 12 CABINET	106571	<b>-</b>	1đ	ND-100 COMPACT MOD 14 CABINET	106573	<b>-</b> -
2	FLOPPY DISK DRIVE 5.25"	103161	-	2	FLOPPY DISK DRIVE 5.25"	103410	
3	STREAMER 5.25"	106270	-	4	OPERATOR PANEL W/DISPLAY	100941	-
4	OPERATOR PANEL W/DISPLAY	100941		9	CARD CRATE ND-100 COMPACT	100930	-
22	DISK MICROPOLIS 1325 74.5 MB	106280	<b>—</b>	7	1 MB MEMORÝ	103700	-
9	CARD CRATE ND-100 COMPACT	100930	-	œ	FLOPPY/STREAMER INTERFACE 5.25"	103170	-
7	1 MB MEMORY	103700	<b>-</b>	6	DISK CONTROLLER, FIXED WINCHESTER	106310	
80	FLOPPY/STREAMER INTERFACE 5.25"	103170	-	10	MEMORY MANAGEMENT SYSTEM II, EXCLUSIVE CACHE	_	
6	DISK CONTROLLER, FIXED WINCHESTER	•	-	11	ND-100 STANDARD CPU 48-BIT CX	101000	
10	MEMORY MANAGEMENT SYSTEM II, EXCLUSIVE CACHE	100311	-	12	PROM KIT (2 KB PROM ND-100)	100361	-
<del>-</del> :	ND-100 STANDARD CPU 48-BIT CX	-	<b></b> •	13	SMD DISK INTERFACE 15 MHZ	106320	-
7	PROM KIT (Z KB PROM NI)-100)	100361	_				



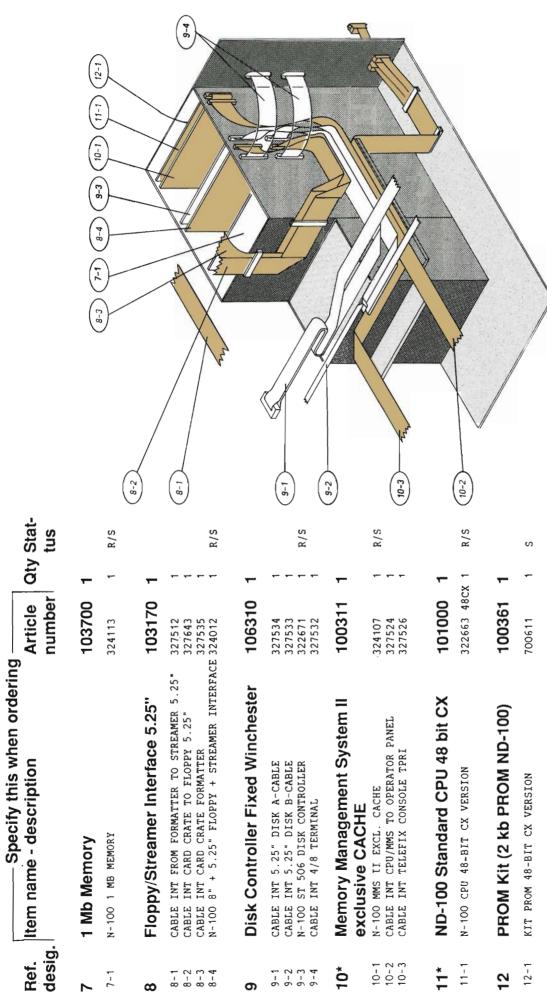
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Ref. desig.	Specify this when ordering Item name - description	Article number	Qty Stat- tus	Ref. desig.	Specify this when ordering Item name - description	Article number	Qty	Oty Stat- tus
<del></del>	Cabinet	106571	-	ო	Streamer 5.25"	106270	_	R/S
1 - 2 - 1 - 4 - 4	BRACKET, PANEL (TOP) PANEL, CABINET (LEFT/RIGHT) PANEL, CABINET (TOP) DRIVE RACK	519571 509048 509049 519567	<b>∀</b> ← ← ←	3-1 3-2 3-3	BRACKET FOR FORMATTER BOARD FORMATTER BOARD FOR STREAMER 5.25" STREAMER 5.25"	519635 528045 528043		R/S
1-5	COVER	519846		4	Operator Panel w/ Display	100941	-	
1-7	FAN UMIT (TOP) FAN PAPST FAN PAPST GUARD (TOP)	522194 510007 510006	- w ⊷	4-1	OPERATOR PANEL W/DISPLAY BRACKET FOR OPERATOR PANEL	323163 519555		R/S
1-9	PCB 1851 BB AC/DC DISTR. PANEL, CABINET (REAR)	32 <b>4</b> 581 509050		ſΩ	Disk Micropolis 1325 74.4 Mb	106280	-	S/S
1-11	RAIL 5V PCB 6036 BB BACKWIRING	519601 324409		1-2	5.25" DISK HOUSING	519565		)
1-13	MAINS FILTER FS 2235-6-06 CONNECTOR OTTO 4260B/3020 CABLE	503318		7-5	DISK MICKOPOLIS 1325 74.5 MB	525034	-	
1-15 1-16	SOCKET BRACKET, CIRCUIT BREAKER	5090 <b>4</b> 7 519562		ဖ	Card Crate ND-100 Compact	100930	_	
1-17	CIRCUIT BREAKER	518939		6-1	CARD CRATE FAN UNIT (UNDER CARD CRATE)	505012 322797		
1-18	PLUG BRACKET	519564	<b>←</b> (	6-3	RAIL POWER/CARD CRATE	509154		,
1-20	IERMINAL BOARD SOUSS/3B NR FRONT PLATE AIR INLET	519568	1	6-5	10	518262	- 20	n
1-21	AIR INLET	519569		6-7	CLIP 27 3/3 S CLIP 27 500 S	5182/2 518278	6 9	
1-22	PANEL, CABINET (FRONT) BRACKET, PANEL (FRONT)	509046 519570	4 7	6-9	RC-CLAMP 3 M 3486-3 POWER EMSP-445 220V (110V : 511018 AM)	517362 511016	14	R/S
7	Floppy Disk Drive 5.25"	103161	1 R/S					Illustrat
2-1		529022 519630	1 2	NOTE	EI			ed Pari
2-3 2- <b>4</b>	BRACKET LEFT, 5.25 DRIVE BRACKET RIGHT, 5.25 DRIVE	519631 519632	2	The	The part (dummy front) marked with an asterisk (*) is used instead of flouro/streamer in the second drive housing	(*) is		is Cata
2-5	DRIVE HOUSING, 5,25" DRIVE DUMMY FRONT	519629 528044	2			e nousmig.		logue



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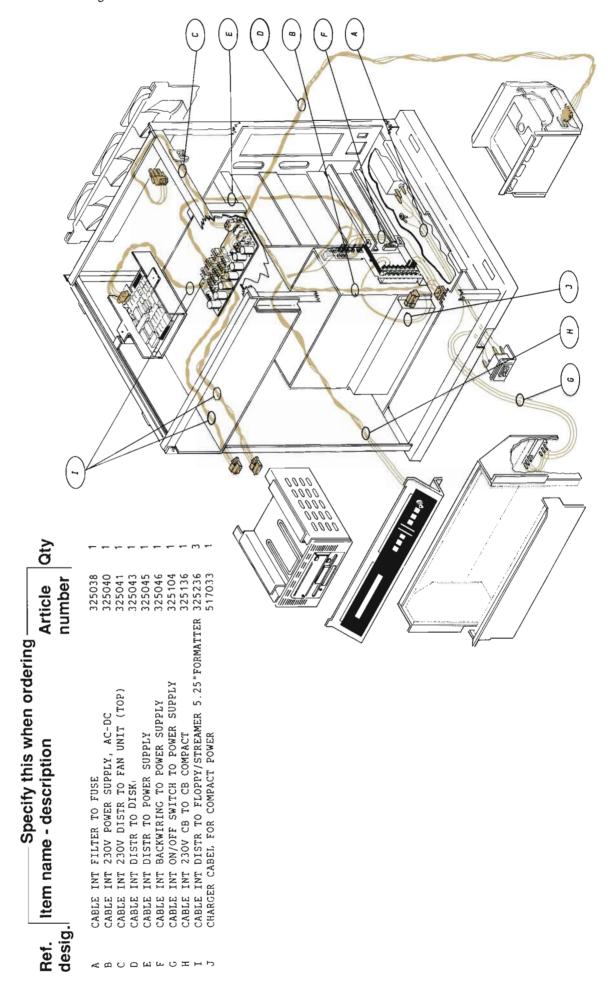
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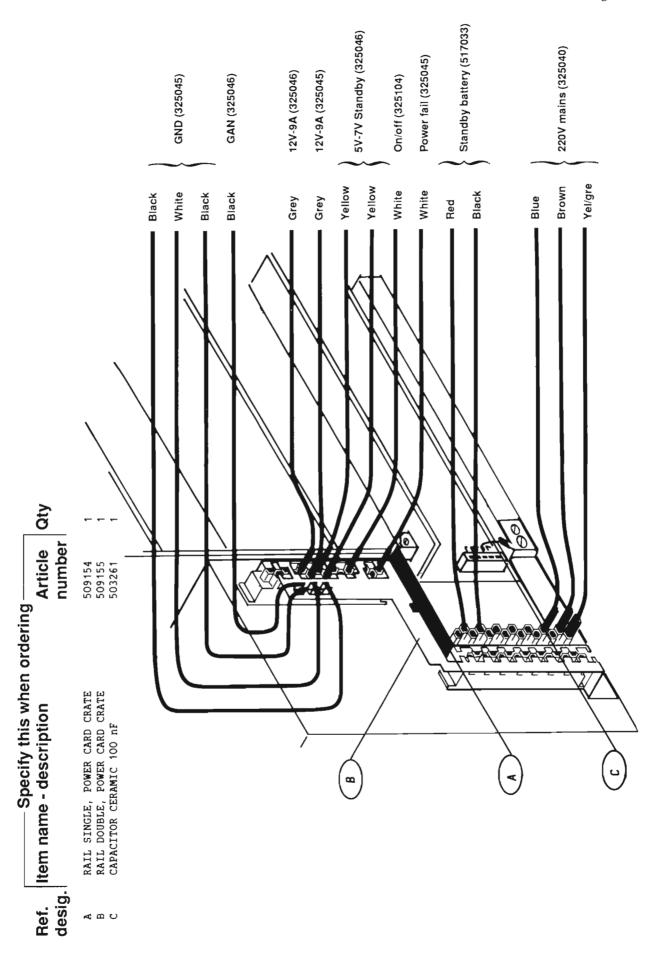
In the ND-110 Compact version, the two cards (ND-100 CPU and MMS marked with an asterisk (\*) are replaced by the ND-110 CX CPU& MMS (324530). The new card must be put in the "old" MMS's location.

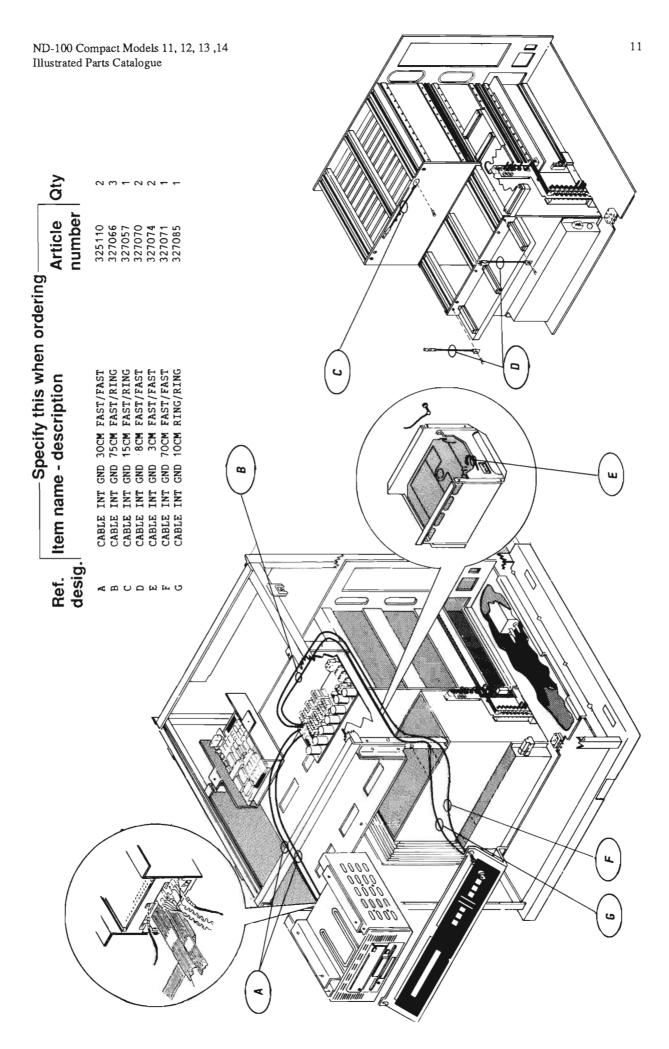
-NOTE!

Cables, Rails, Capacitor, Screws

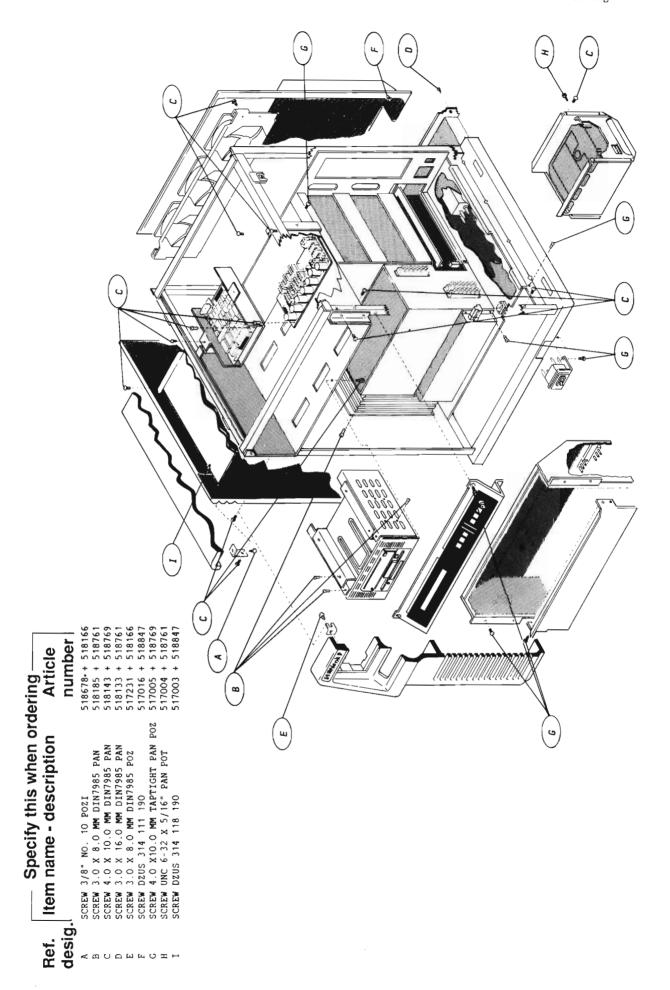


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Cross Beforence List	+		TAM DADCT	<b>u</b>	5 1 0 0 0 7
	_			1-7	510005
				- 6	21000
	:	00200	FAN PAPSI GUARD (UNDER CARDCRATE)	2-1	510003
	=	00.00		9-1	35775
5.25" DISK HOUSING		519565	FAN UNIT (UNDER CARDCRATE)	7-2	322797
AIR INLET	1-20	519569	DISK DRIVE	2-1	529022
BATTERY EBU-13, 1 AMPERE/HOUR	7-1	511017	FLOPPY DISK DRIVE 5.25"	2	103161
BRACKET FOR FORMATTER, STREAMER 5.25"	3-2	519635		<b>6</b> 0	103170
BRACKET FOR OPERATOR PANEL	4-2	519555	FORMATTER BOARD FOR STREAMER 5.25"	3-3	528045
BRACKET LEFT, 5.25" DRIVE	2-3	519631	FRONT PANEL FOR 5.25" FLOPPY	2-2	519630
BRACKET RIGHT, 5.25" ORIVE	2-4	519632	FRONT PLATE AIR INLET	1-19	519568
BRACKET, CIRCUIT BREAKER	1-15	519562	KIT PROM 48 BIT CX VERSION	13-1	700611
BRACKET, PANEL (FRONT)	1-22	519570	MAINS FILTER FS 2235-6-06	1-12	503318
BRACKET, PANEL (TOP)	1-1	519571	MEMORY MANAGEMENT SYSTEM II, EXCLUSIVE CACHE	6	100311
CABLE INT 230V CB TO CB COMPACT	1-26	325136	N-100 CPU 48 BIT CX VERSION	12-1	322663 48CX
CABLE INT 230V DISTR TO FAN UNIT (TOP)	1-23	325041	N-100 ST 506 DISK CONTROLLER	10-3	322671
CABLE INT 230V POWER SUPPLY, AC-OC	7-13	325040	N-100 1 MB MEMORY	11-1	324113
INT	10-4	327532	N-100 MMS II EXCL. CACHE	9 - 1	324107
CABLE INT 5.25" DISK A-CABLE	10-1	327534	N-100 8" + 5.25" FLOPPY + STREAMER INTERFACE	9 - 4	324012
CABLE INT 5.25" DISK B-CABLE	10-2	327533	ND-100 COMPACT MOD 11 CABINET	- -	106570
INI	7-12	325039	ND-100 COMPACT MOD 12 CABINET	1 0	106571
CABLE INT BACKWIRING TO POWER SUPPLY		325046	ND-100 COMPACT MOD 13 CABINET	10	106572
CABLE INT CARD CRATE FORMATTER	8-3	327535	ND-100 COMPACT MOD 14 CABINET	14	106573
CABLE INT CARD CRATE TO FLOPPY 5.25"	8-2	327643	NO-100 STANDARD CPU 48 BIT CX	12	101000
INT CPU/MMS TO OPERATOR PANEL	9-5	327524	PANEL	1-1	323163
·INI	3-6	325236		4	100941
I N		325043	CABINET	1-21	203046
INI		325045	CABINET	1-2	509048
INT FILTER TO FUSE	1-25	325038	CABINET	1 - 9	509050
CABLE INT FROM FORMATTER TO STREAMER 5.25"	9-1	327512	PANEL, CABINET (TOP)	1-3	8,0808
CABLE INT GND, 15CM RING/RING	1-24	327068	1851	1-8	324581
CABLE INT ON/OFF SWITCH TO POWER SUPPLY	<b>6</b> - 3	325104	PCB 6036 BB BACKWIRING	1-11	324409
CABLE INT TELEFIX CONSOLE TPRI	9-3	327526		1-17	519564
CARD CRATE	7-1	505012	220V	7-9	511016
CARD CRATE NO-100 COMPACT		100930		13	100361
		517033		1-10	519601
	1-16	518939	AMP 3	7 - 8	517362
CLIP ZT 375 S	9-2	518272	3.0 X 16.0 MM DIN798	٥	518133
CLIP ZT 500 S	1 - 1	518278		an I	518185
COMPACI MODEL 11		003291	3.0 X 8.0 MM DIN 985	ш	517231
COMPACT MODEL 12		003292	3/8" NO. 10 POZI	∢ '	518678
		003293	4.0 X 10.0 MM DIN 1985 PAN	o	518143
COMPACT MODEL 14		003294	4.0 X10.0 MM	9	517005
CONNECTOR OTTO 4260B/3020 CABLE	1-13	518892	DZNS	u.	517016
CONNECTOR, HART 09060152811 15P	7-3	518037		ı	517003
COVER	1-5	519846	116	I	517004
DISK CONTROLLER, FIXED WINCHESTER	0,	106310	SMD DISK INTERFACE 15 MHZ	9	106320
DISK MICROPOLIS 1325 74.5 MB	, ,	106280		1-14	20005
DISK MICROPOLIS 1325 74.5 MB	2-5	525034	STRAP PANDUIT SST 1.5 MM 12 CM	7 - 5	518262
	2-5	519629	5.25	ص	106270
DRIVE RACK	<b>7-1</b>	519567	5.25"	3-1	528043
DUMMY FRONT	2 - 6	528044	TERMINAL BOARD 8006V/3B KR	1-18	517012

