AMSTRAD

PC1512
PERSONAL COMPUTER
PC-MM
MONOCHROME MONITOR
PC-CM
COLOUR MONITOR

SERVICE MANUAL

CONTENTS

TECHNICAL SPECIFICATION

512K system unit with all circuitry on a single motherboard.
8MHz 8086 processor.
Memory expandable on motherboard to 640K.
Integral colour graphics adaptor with special 16 colour hi-res mode.
Three full-size compatible expansion slots with power available in the standard unit to supply a hard disc and controller.
Choice of one or two 360K 5¼" floppy discs or one floppy with a 10 or 20 megabyte hard disc drive.
HARD DISC VERSIONS ARE SUPPLIED WITH AN EXTRA FLOPPY DISC AND MANUAL WITH BACKUP, RESTORE AND FORMAT UTILITIES.
Motherboard includes an RS232c serial and parallel interface with standard connectors.
Loudspeaker with volume control.
Battery-backed real time clock and configuratioon RAM.
Socket for 8087 maths co-processor.
Connector for light pen.

Complete with Colour Monitor or Monochrome (Grey Level) Monitor.
The standard built-in colour adaptor provides all the following modes.
Medium resolution Alpha; 16 colours, 40x45 characters.
High resolution Alpha; 16 colours, 80x25 characters.
Medium resolution Graphics; 2 colour, Three 4-colour pallettes, 320x200 pixels.
High resolution Graphics; 2 colour, 640x200 pixels.
+Special high-res Graphics; 16 colours, 640x200 pixels.

Full size QWERTY keyboard.
Illuminated Numlock and Capslock.
Keyboard joystock port.
Extra DEL→ and ENTER keys.

Two button Mouse with
Dedicated port on system unit.
Microsoft compatible MOUSE, COM plus special text operation.

DIMENSIONS (all in mm)
PC1512SD System unit 372(w) x 384(d) x 135(h) 6.05Kg
PC1512DD System unit 372(w) x 384(d) x 135(h) 7.75Kg
Keyboard Unit inc feet 465(w) x 160(d) x 58(h) 1.175Kg
PC-MM Monochrome Monitor 350(w) x 300(d) x 315(h) 7.43Kg
PC-CM Colour Monitor 372(w) x 365(d) x 330(h) 11.6Kg

SAFETY TEST

All monitors are safety tested to the following specifications.

1). Flash Test
Test at 3kV between the live and neutral of the mains lead joined together and and ALL accessible metal points on the exterior of the set.

2). Insulation Resistance Test
Test between the live and neutral of the mains lead joined together and ALL accessible metal points on the exterior of the set to show a resistance of at least 4Mohm.

If after servicing there is any doubt about continued electrical safety the above tests should be carried out.

AMSTRAD plc
BRENTWOOD HOUSE, 169 KINGS ROAD, BRENTWOOD, ESSEX CM14 4EF.
TELEPHONE: 0277 230222. TELEX: 995417 AMSELE G.

NOTE

THE FLOW CHARTS ARE FOR INFORMATION ONLY AND FOR WARRANTY PURPOSES ANY FAULTY DRIVE MECHANISM MUST BE RETURNED TO AMSTRAD FOR REPLACEMENT. SERVICE AGENTS SHOULD NOT ATTEMPT TO REPAIR THE MECHANISM.

SERVICE AGENTS SHOULD NOTE THAT THE HARD DISC UNITS ARE THE MOST SOPHISTICATED MECHANISMS AND SHOULD NEVER BE OPENED IN A NORMAL ENVIRONMENT. IF ANY ATTEMPTS ARE MADE TO OPEN THE HARD DISC UNIT THE GUARANTEE IS THEN INVALIDATED AND AMSTRAD TAKES NO RESPONSIBILITY TO EXCHANGE THE DRIVE.

YOU SHOULD NOTE FURTHER THAT THERE ARE TWO TYPES OF HARD DISC UNITS IN USE i.e. XEBEC AND TANDON. WHEN ORDERING THE REPLACEMENT UNITS MAKE SURE THAT THE PART NO. IS EITHER 171663/X FOR XEBEC DRIVE OR 171663/T FOR TANDON DRIVE. THIS INFORMATION APPLIES ONLY TO THE 20MB DRIVES.

AMSTRAD RESERVES THE RIGHT TO AMMEND THE CIRCUIT OR CHANGE THE COMPONENTS WITHOUT PRIOR WARNING.

USE RP4 DIAGNOSTICS EXPANSION CARD OR DIAGNOSTIC DISC FOR FAULT FINDINGS.

FD-3 SERVICE INFORMATION

1. Introduction

   This section is for the maintenance of DFC222A.

1-1 General

   The floppy disk drive is a high precision equipment and requires the following jigs, tools, measuring instruments, and adjustments when repairing or changing parts.

2. Special Jigs, Tools and Measuring Instruments

2-1 List of Special Jigs and Tools

   CE diskette
   Blank diskette
   Test pin connector
   Alignment adjusting jig
   O track adjusting jig

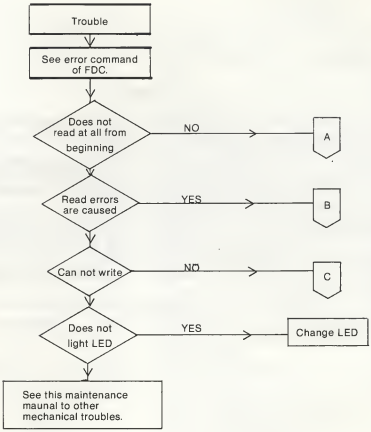
2-2 List of Measuring Instruments

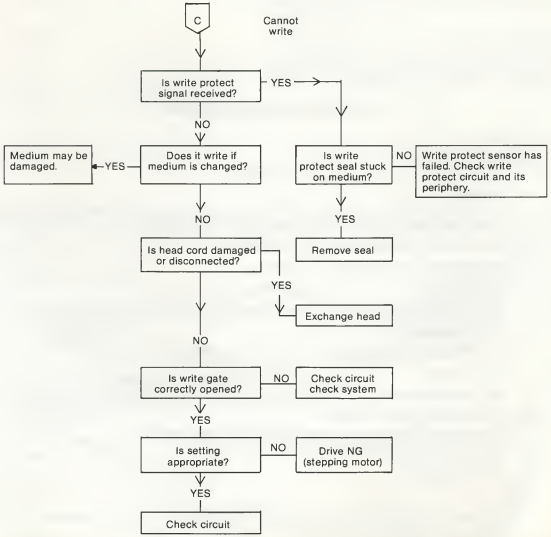
   Oscilloscope
   Brikon
   Frequency counter

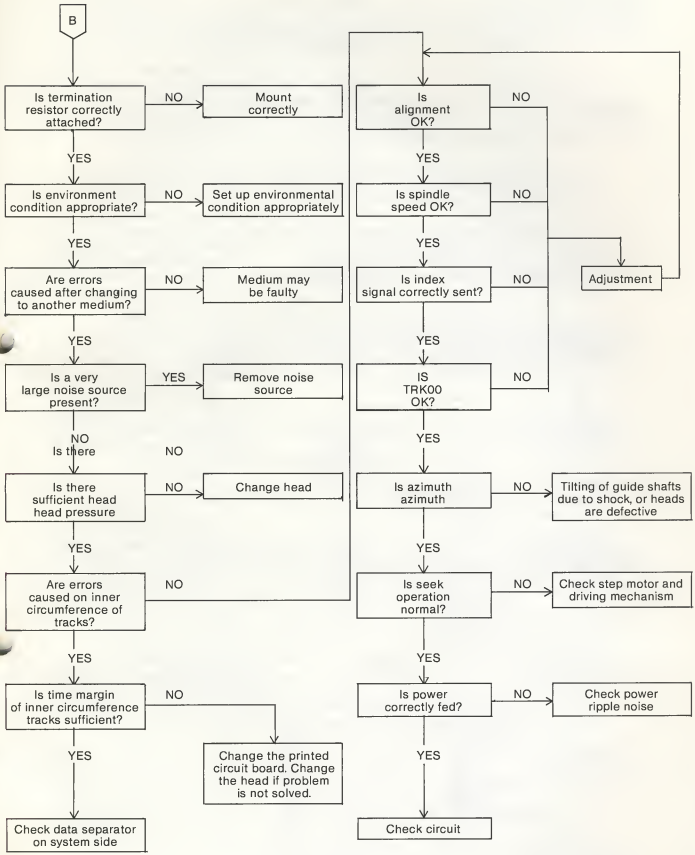
2-3 CE Diskette (Alignment Diskette)

   This diskette is used for the following adjustments and inspection.

   (1) R/W head radial position
   (2) R/W head azimuth
   (3) Index position

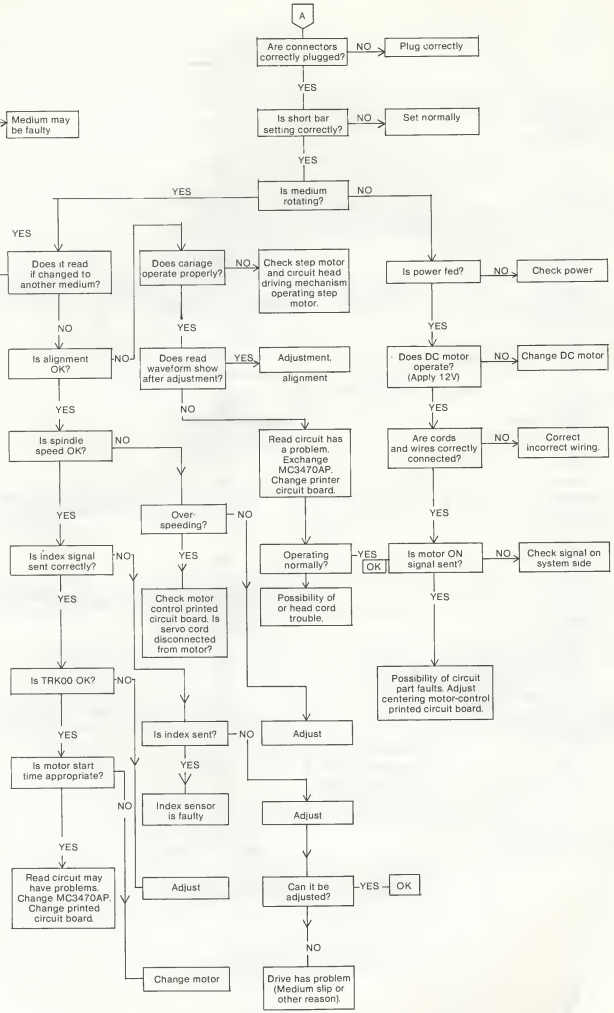

Trouble
See error command of FDC.
Does not read at all from beginning
NO
A
Read errors are caused
YES
B
Can not write
NO
C
Does not light LED
YES
Change LED
See this maintenance maunal to other mechanical troubles.


C
Cannot write
Is write protect signal received?
YES
NO
Medium may be damaged.
YES
Does it write if medium is changed?
Is write protect seal stuck on medium?
NO
Write protect sensor has failed. Check write protect circuit and its periphery.
NO
YES
Is head cord damaged or disconnected?
Remove seal
YES
Exchange head
NO
Is write gate correctly opened?
NO
Check circuit check system
YES
Is setting appropriate?
NO
Drive NG (stepping motor)
YES
Check circuit



(Read errors are caused)

FD-3 FLOWCHART



3. Diagnosis Procedure

3-1 General

Errors caused by an incorrect operating procedure, erroneous programming, damaged diskette, and soft errors caused by dirty air, random electric noise, and other external factors are often considered to be drive failures or incorrect adjustments. Check that errors are repetitively produced with the first diskette and that similar errors are also produced with other diskettes, unless obvious assembly trouble and damage are found in visual inspection.

3-2 Soft Error Detection and Correction

Soft errors are generally caused by the following.

(1) Dirty air between the R/W head and disk. Normally, this dirt is cleaned by the liner in the diskette.

(2) Random electrical noise less than several microseconds.

(3) Delicate track misalignment and writing timing misalignment that are not detected during writing may cause soft errors during reading.

(4) Improper ground of the drive or host system power supply.

(5) Improper motor speed.

The following actions are required on the control side to recover the foregoing soft errors.

(1) Reread the track ten times or until data recovers.

(2) Access the head to an adjacent track in the same direction as the track if the error is not recovered by Step 1. Then return the head to the previous track.

(3) Repeat Step 1.

(4) Errors that cannot be recovered after taking these steps cannot be recovered.

3-3 Write Error

Operate READ-AFTER-WRITE if an error occurs during the write operation.
If the error cannot be recovered after operating READ-AFTER-WRITE more than four times, operate READ-AFTER-WRITE on another track to determine whether the diskette or drive is responsible for the error. Change the diskette and repeat these steps if the same error remains. If the error still remains, the drive has some fault and if the error is erased, the diskette is defective and should be discarded.

3-4 Read Error

Most errors are soft errors. Data can be recovered by following the error recovery steps (3-2).

3-5 Seek Error

(1) Trouble with the stepping motor or stepping motor drive circuit.

(2) Carriage trouble.

Seek error is recovered by system soft. There are two recovering ways.

(1) Recalibrate

(2) Detect ID field

3-6 Compatibility Error

In some cases, data written by one drive cannot be read by another drive. This is dur mainly to the following reasons:

The check points are listed below.

(1) Improper head alignment — 5-2

(2) The head output is low — 5-6

(3) Motor speed irregularity — 5-1

(4) Check if the recommended sector format is set up.

3-7 List of Test Points (see figure 3-7)

Test Point	Signal Name
TP1	AMP OUT +
TP2	AMP OUT −
TP3	GND
TP4	STEP
TP5	READ DATA
TP6	INDEX
TP7	WRITE PROTECT
TP8	TRACK 0
TP9	GND

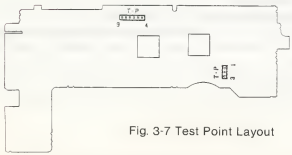


Fig. 3-7 Test Point Layout

4. Parts Exchange

4-1 Printed Circuit Board Exchange (See Figure 4-1)

4-1-1 Printed Circuit Board Removal

a) Expand the two shield board pins and cord holder pin.

b) Unfasten the three fix screws and remove the shield board.

c) Disconnect the connectors (head, stepping motor, spindle motor, track sensor, index sensor, and write protect sensor).

d) Unfasten the three printed circuit board fix screws.

e) Moves the head to inner about 10mm.

f) Lift the rear edge of the printed circuit board and pull it back.

4-1-2 Printed Circuit Board Mounting and Adjustment

a) Tilt the printed circuit board as if to lower the front edge, insert the front LED into the LED insertion hole on the front plate, then lower the rear edge.

b) Fix the printed circuit board with three screws.

c) Secure the shield board with three fix screws.

d) Reconnect the disconnected connectors (head, stepping motor, spindle motor, 0 track sensor, index sensor, and write protect sensor).

e) Bend the two shield board pins and fix the head cable.

f) Check the spindle speed (5-1), radial track (5-2), 0 track sensor (5-3), azimuth (5-4), index burst time (5-5), level (5-6), resolution (5-7), symmetry (5-8) and write protect sensor (5-9) after mounting.

Note: Insert the head cord under the shield board and fix at the same routing as before exchange.

Fig. 4-1 Printed Circuit Board Removal

4-2 Lever Exchange (See Figure 4-2)

4-2-1 Lever Removal

a) Set the lever horizontally.

b) Unfasten the fix screw of the lever.

c) Pull the lever forward.

4-2-2 Lever Mounting

a) Place the wide part of the lever cam on the hub side and check that the lever shaft hole can be seen from above. (Hub open state).

b) Set the lever horizontally and insert from the front.

c) Secure the lever with a screw.

4-3 Front Plate Exchange (See Figure 4-3).

4-3-1 Front Plate Removal

a) Remove the lever as described in 4-2-1.

b) Unfasten the two front plate fix screws.

c) Pull the front plate forward.

4-3-2 Front Plate Mounting

a) Insert the front plate from the front.

b) Secure the front plate with two screws.

Mount the lever as described in 4-2-2.

4-4 Eject Assembly Exchange (See Figure 4-4)

4-4-1 Eject Assembly Removal.

a) Make the lever vertical (clamp state).

b) Remove the printed circuit board as described in 4-1-1.

c) Insert protection paper (high quality white paper approximately 10 x 30 mm) between the heads to protect them.

d) Unfasten the two Eject Assembly fix screws.

e) Lift the top head (approximately 2 - 3 mm), and remove the Eject Assembly.

4-4-2 Eject Assembly Mounting and Adjustment.

a) Lift the top head and insert the Eject Assembly under the Head Arm.

b) Adjust the position of eject assembly that the ejector lock when the diskette is inserted and the diskette is ejected when the lever is operated and secure the eject assembly with two screws.

c) Remove the protection paper.

d) Mount the printed circuit board as described in 4-1-2.

4-5 Lever Frame Assembly Exchange (See Figure 4-5)

4-5-1 Lever Frame Assembly Removal

a) Remove the printed circuit board as described in 4-1-1.

b) Remove the lever as described in 4-2-1.

c) Remove the front plate as described in 4-3-1.

d) Remove the eject assembly as described in 4-4-1.

e) Unfasten the four lever frame assembly fix screws.

f) Lift the lever frame assembly slightly making sure that the top head is not raised, and remove the slidinh to the left.

4-5-2 Lever Frame Assembly Mounting and Adjustment.

a) Lift the top head slightly and slide the pad mounting part of the lever frame assembly under the top head.

b) Secure the lever frame assembly with four screws.

c) Mount the eject assembly as described in 4-4-2.

d) Mount the front plate as described in 4-3-2.

e) Mount the lever as described in 4-2-2.

f) Unfasten the two screws of hub shaft holder and centre by moving the hub up and down several times and secure the two screws.

g) Mount the printed circuit board ad described in 4-1-2.

h) After mounting, adjust the index burst time. (Refer to 5-5).

4-6 Stepping Motor Assembly Exchange (See Figure 4-6)

4-6-1 Stepping Motor Assembly Removal

a) Remove the printed circuit board as described in 4-1-1.

b) Unfasten the head assembly metal belt fix screw.

c) Unfasten the stepping motor belt fix screw and remove the keep plate.

d) Unfasten the two stepping motor assembly fix screws.

e) Lift the stepping motor assembly upward, then slide it to the left to remove from the metal belt.

f) Disconnect the stepping motor assembly cord from the hook.

4-6-2 Stepping Motor Assembly Mounting Adjustment

a) Keep the metal belt in the loop form, insert the stepping motor assembly, mount the metal belt and keep plate with screws.

b) Align the oval hole of the stepping motor mounting plate with the guide pin and mount the stepping motor assembly with two screws.
Temporary tightening of screws are required.

c) Pull the tip of the metal belt and mount the metal belt on the tip of the head assembly with a screw.

d) Move the head assembly back and forth and check that the metal belt is not twisted. If twisted, slightly loosen the metal belt fix screws on the stepping motor assembly and head assembly, and move the head assembly back and forth several times.
Fasten the screws tightly.

e) Place the stepping motor assembly cord on the hook.

f) Mount the printed circuit board as described in 4-1-2.

g) Adjust the radial track after mounting. (Refer to 5-2).

Caution: Do not reuse the metal belt removed from the head assembly.

4-7 Head Assembly Exchange (See Figure 4-7)

4-7-1 Head Assembly Removal

a) Remove the printed circuit board as described in 4-1-1.

b) Remove the lever as described in 4-2-1.

c) Remove the front plate as described in 4-3-1.

d) Remove the eject assembly as described in 4-4-1.

e) Remove the lever framne assembly as described in 4-5-1.

f) Remove the stepping motor assembly as described in 4-6-1.

g) Unfasten the PCB post fix screws and remove the PCB post.

h) Unfasten the two screws fastening the guide shaft keepers A and B and remove keepers A and B.

i) Lift the guide shaft rear edge and remove the guide shafts in a backward direction, individually. Be careful not to damage guide shafts or mix the right and left shafts.

j) Carefully remove the head assembly.

4-7-2 Head Assembly Mounting and Adjustment

a) Fit the two guide shafts in the head assembly without mixing the right and left, and mount in the housing while holding the guide shaft.

b) Secure guide shaft keepers A and B using four screws.

c) Secure the PCB post using screws.
d) Mount the stepping motor assembly as described in 4-6-2.
e) Mount the lever frame assembly as described in 4-5-2.
f) Mount the eject assembly as described in 4-4-2.
g) Mount the front plate as described in 4-3-2.
h) Mount the lever as described in 4-2-2.
i) Place the printed circuit board as described in 4-1-2.
j) Adjust the radial track (5-2) and index burst time (5-5), and check the 0 track sensor (5-3), azimuth (5-4), level (5-6), resolution (5-7) and symmetry (5-8) after mounting.

4-8 Spindle Motor Assembly Exchange (See Figure 4-8)

4-8-1 Spindle Motor Assembly Removal
a) Remove the printed circuit board as described in 4-1-1.
b) Remove the lever as described in 4-2-1.
c) Remove the front plate as described in 4-3-1.
d) Remove the eject assembly as described in 4-4-1.
e) Remove the lever frame assembly as described in 4-5-1.
f) Unfasten the four spindle motor fixing screws (three screws on top and one screw on the bottom).
g) Remove the spindle motor in a downward direction. Be careful not to damage the top surfaces of the spindle.

4-8-2 Spindle Motor Assembly Mounting Adjustment
a) Secure the spindle motor with four screws. Align the W/P LED approximately the centre of the housing hole.
b) Mount the lever frame assembly as described in 4-5-2.
c) Mount the eject assembly as described in 4-4-2.
d) Mount the front plate as described in 4-3-2.
e) Mount the lever as described in 4-2-2.
f) Place the printed circuit board as described in 4-1-2.
g) Adjust the spindle speed (5-1), radial track (5-2), 0 track sensor (5-3) and index burst time (5-5) and check the azimuth (5-4), level (5-6), resolution (5-7), symmetry (5-8) and write protect sensor (5-9) after mounting.

4-9 0 Track Sensor Assembly Exchange (See Figure 4-9)

4-9-1 0 Track Sensor Assembly Removal
a) Remove the printed circuit board as described in 4-1-1.
b) Unfasten the 0 track sensor assembly fix screw.
c) Remove the 0 track sensor assembly.

4-9-2 0 Track Sensor Assembly Mounting and Adjustment.
a) Mount the 0 track sensor assembly with screws.
Temporary tightening of screws is required.
b) Place the printed circuit board as described in 4-1-2.
c) Adjust the 0 track sensor after mounting. (Refer to 5-3).

4-10 Metal Belt Exchange (See Figure 4-10)

4101 Metal Removal
a) Remove the printed circuit board as described in 4-1-1.
b) Remove the lever as described in 4-2-1.
c) Remove the front plate as described in 4-3-1.
d) Remove the eject assembly as described in 4-4-1.
e) Remove the lever frame assembly as described in 4-5-1.
f) Remove the stepping motor assembly as described in 4-6-1.
g) Remove the head assembly as described in 4-7-1.
h) Unfasten the metal belt fix screws and remove the metal belt from the head assembly.

4102 Metal Belt Mounting and Adjustment
a) Mount the metal belt on the head assembly using screws. (Be careful of the metal belt direction).
b) Mount the head assembly as described in 4-7-2.
c) Mount the stepping motor assembly as described in 4-6-2.
d) Mount the lever frame assembly as described in 4-5-2
e) Mount the eject assembly as described in 4-4-2.
f) Mount the front plate as described in 4-3-2.
g) Mount the lever as described in 4-2-2.
h) Mount the printed circuit board as described in 4-1-2.
i) Adjust the radial track (refer to 5-2), index burst time (5-5), and 0 track sensor (5-3) after mounting.

5. Adjustments and Checks

5-1 Spindle Speed Adjustment

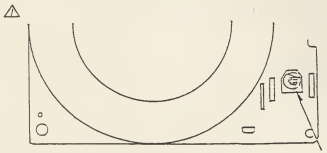
a) Insert and clamp a blank diskette by rotating the motor.

b) Stop on 0 track.

c) Connect the frequency counter to TP6.

d) Rotate the speed adjusting variable resistor on the spindle-motor printed circuit board and adjust so that the counter shows 200 ±2 ms.

If the spindle-motor is not an adjusting variable resistor type, check the counter shows 200 ±2 ms only and adjusting is unnecessary.



5-2 Radial Track Adjustment

a) Insert a CE diskette.

b) Move the head to Track 16 and check the cat's-eye waveforms of the top and bottom heads.

c) Adjust as follows if one of the top or bottom heads is not more than 75% in an amplitude ratio of two waveforms.

d) Slightly loosen the fix screws of the stepping motor assembly and move the stepping motor assembly back and forth to adjust the amplitudes. The amplitudes of two waveforms should be nearly the same. Then tighten the rear screw.

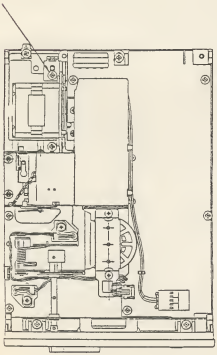
e) Check the cat's-eye waveforms of the top and bottom heads.

f) Repeat from d) if adjustment fails.

Measuring Conditions

Channel 1-TP1 (10mV/div) MODE--ADD

Channel 2-TP2 (10mV/div) Sweep-20ms/div



Head Reading Output Signal (TP1-TP2)

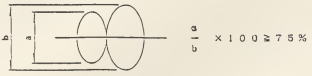


Fig. 5-2

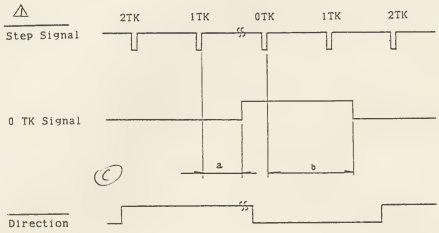
5-3 0 Track Sensor Adjustment

a) INsert a CE diskette.

b) Continuously seek between 0 and 2 Tracks at the minimum access time between tracks of DFC222A specifications.

c) Adjust the 0 track sensor assembly so that the step signal and 0 track one are always on the timing as shown in Figure 5-3.
Then secure with a screw.

Measuring Conditions
Channel 1-TP4 (0.2V/div) MODE--DUAL
Channel 2-TP8 (0.2V/div) Sweep-10ms/div



5-4 Azimuth Check

a) Insert a CE diskette.

b) Move the head to Track 34 and check that the azimuth waveforms of the top and bottom heads are as described in Figure 5-4.

c) Exchange the head assembly if the azimuth of one of the top and bottom heads is not as shown in Figure 5-4.

Measuring Conditions
Channel 1-TP1 (10mV/div) MODE--ADD
Channel 2-TP2 (10mV/div) Sweep-1ms/div
Trigger---TP6

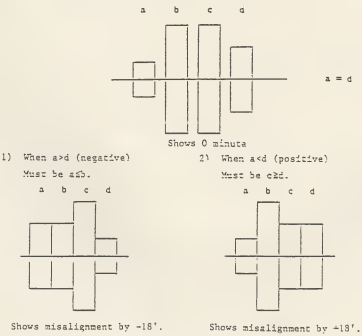


Fig. 5-4

5-5 Index Burst Time Adjustment

a) Insert a CE diskette.

b) Move the head to Track 34 and check the index burst times of top and bottom heads. Adjust as follows if the timing of one of the top or bottom heads is not as shown in Figure 5-3.

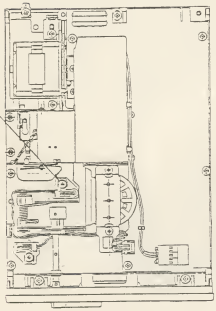
c) Move the index sensor assembly back and forth by slightly loosening the index sensor assembly fix screws to adjust the index burst time.

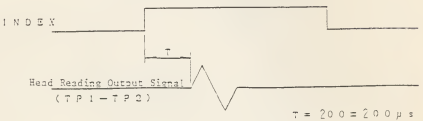
d) Check the index burst times of the top and bottom heads.

e) Repeat from c) if adjustment has been unsuccessful.

Measuring Conditions

Channel 1-TP1 (10mV/div) MODE--ADD
Channel 2-TP2 (10mV/div) Sweep-0.1ms/div
Trigger-- Edge Connector J2 - 8 pin. Slope (-)





5-6 Level Check

a) Insert a blank diskette.

b) Move the head to Track 39 and write 2F by the top and bottom heads.

c) Check that the average output level of the top and bottom heads is more than 270mV. Perform the following if the output level is below the required standard.

d) Insert another blank diskette and reconfirm.

e) Check the spindle speed as described in 5-1.

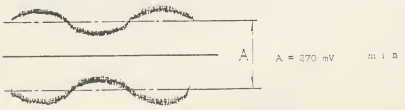
f) Change the oscilloscope to the CHOP mode and check the TP1 and TP2 outputs. Exchange the printed circuit board if one output is small or missing, even if the probes are normal.

g) Exchange the head assembly if no problems are encountered in d), e), and f) above.

Measuring Conditions

Channel 1-TP1 (10mV/div) MODE--ADD
Channel 2-TP2 (10mV/div) Sweep-20ms/div
Trigger---TP6

Head Reading Out Signal (TP1-TP2)



5-7 Resolution Check

a) Insert a blank diskette.

b) Move the head to Track 39, write 1F and 2F by the top and bottom heads, then measure the average output level.

c) The resolution is higher than 55%, and calculations shall be as follows:
2F output (mV)/1F output (mV) x 100>55%

Measuring Conditions

Channel 1-TP1 (10mV/div) MODE--ADD
Channel 2-TP2 (10mV/div) Sweep-20ms/div
Trigger---TP6

$$\text{Resolution} = \frac{\text{2F average output level}}{\text{1F average output level}}$$

95% or less with TK0
55% or more with TK39

5-8 Symmetry Check

a) Insert a blank diskette.

b) Move the head to track 0 and write 1F by the top and bottom heads.

Measuring Conditions

Channel 1-TP5 (0.1V/div) MODE--CH1
Trigger---INT.CH1 Sweep-0.5ms/div
Slope(+)

T = 400 ns or less

(If you have individual spec, this item obey your spec.)

5-9 Write Protect Sensor Check

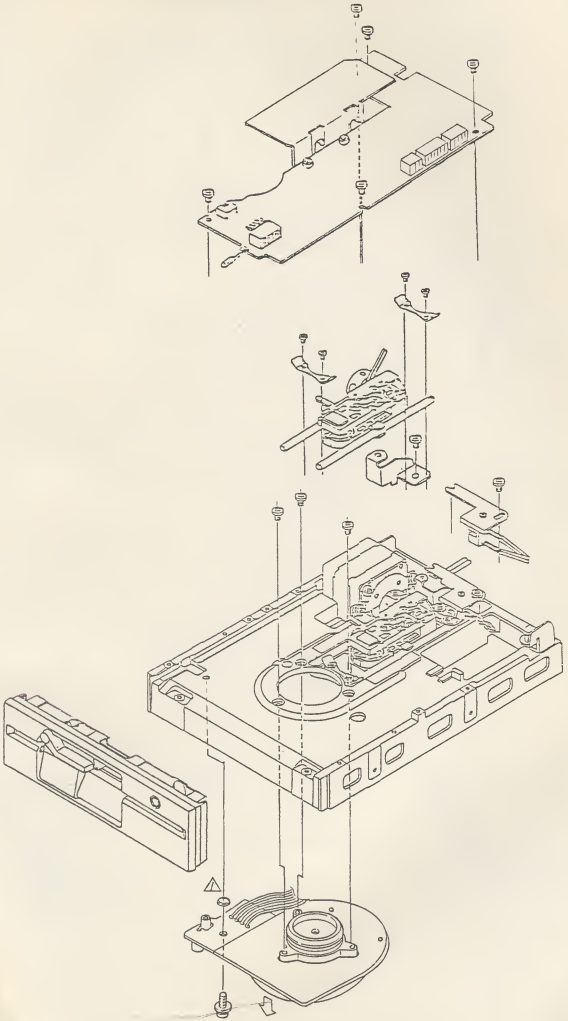
Load and unload a diskette and check that write protect sensing is definitely made using Brikon.

5-10 Head Cleaning

Check for excessive dust or oxidised magnetic iron powders on the load pad using such a dentist's mirror. Clean the heads using a cloth that produces no flues or an applicator dipped in 91% isopropyl alcohol. Clean the heads carefully and remove accumulated dust and oxidised magnetic iron powders. Wipe the head using a cloth that produces no flues.

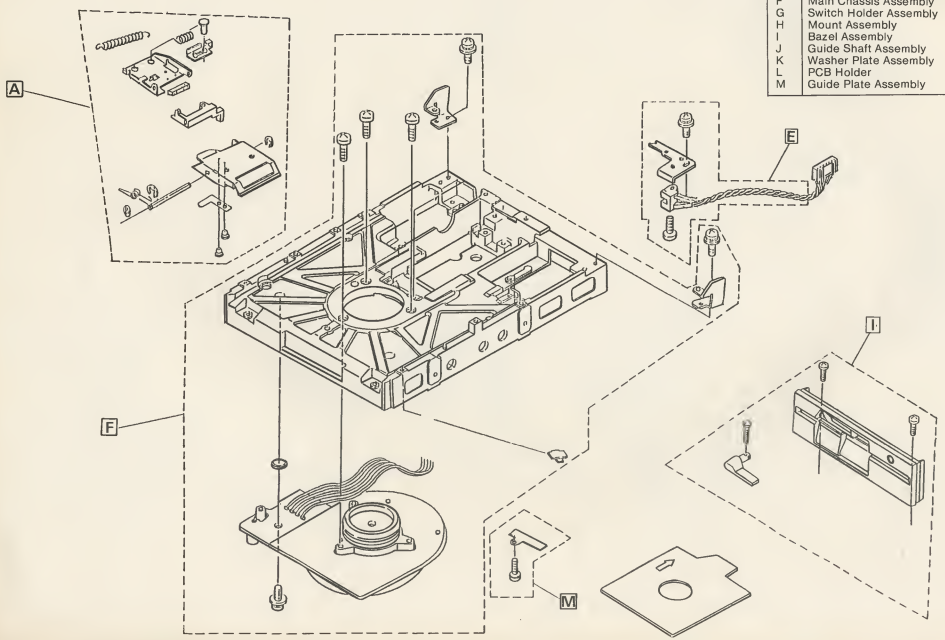
FD-3 EXPLODED VIEW

THIS DRAWING REFERS TO ALL THOSE DESCRIBED IN THE TEXT

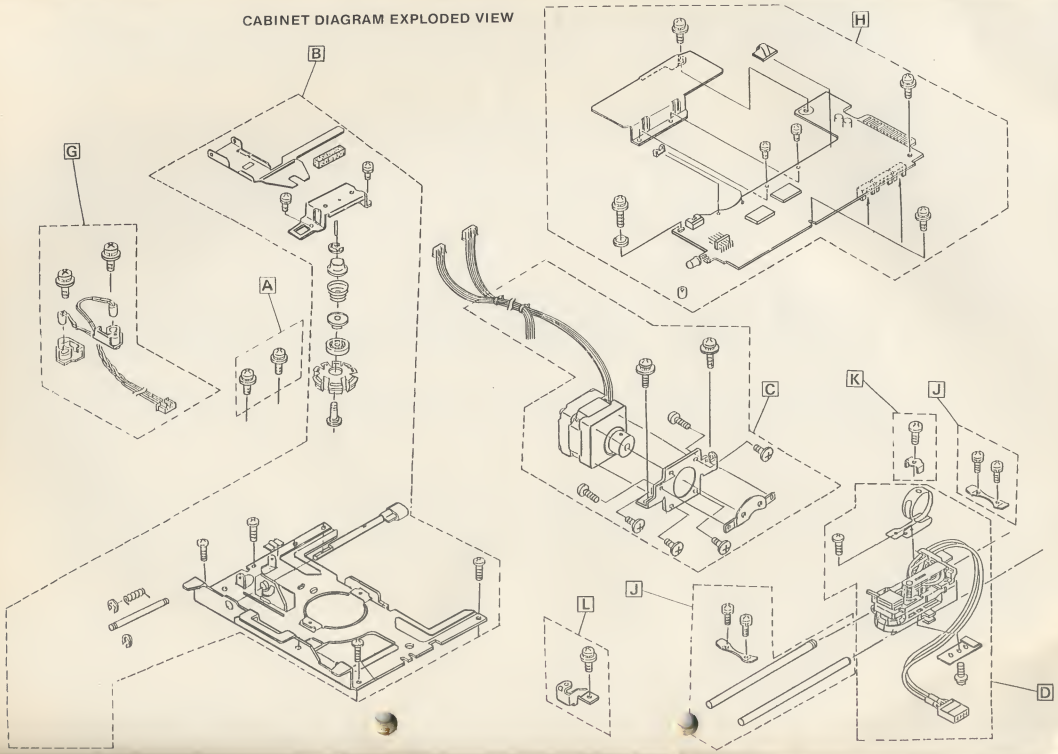


FLOPPY DISC SUBASSEMBLIES PARTS LIST

Sym	Description	Part No.
A	Eject Assembly	171676
B	Lever Frame Assembly	171677
C	Stepper Assembly	171678
D	Head Assembly (A)	171679
E	TRack "0" Sensor Assembly	171680
F	Main Chassis Assembly	171681
G	Switch Holder Assembly	171682
H	Mount Assembly	171683
I	Bazel Assembly	171684
J	Guide Shaft Assembly	171685
K	Washer Plate Assembly	171686
L	PCB Holder	171687
M	Guide Plate Assembly	171688



CABINET DIAGRAM EXPLODED VIEW



ELECTRICAL PARTS LIST

Decription	Circuit Reference	Part No.
Metal Oxide Resistors		
0.22ohm/½W	R544, 545	171584
0.22ohm/1W	R547-550	171585
0.33ohm/2W	R504	171072
1ohm/1W	R415	171069
47ohm/1W	R520	171586
56ohm/1W	R541	171587
56ohm/2W	R511	171588
100ohm/1W	R407	171589
470ohm/1W	R428	171590
1kohm/1W	R506	170406
2.2kohm/1W	R513	171591
4.7kohm/2W	R802	171076
22kohm/3W	R512	171592
82kohm/1W	R509	171593
Fuse Resistors		
1ohm/½W	R427	171594
10ohm/¼W	R516	809256
22ohm/½W	R426	171595
39ohm/¼W	R406	171596
1kohm/¼W	R515	171597
Cement Resistors		
5.6ohm/5W	R501	1422133
Ceramic Capacitors		
680pF	C540	1400213
2000pF/4kV	C539	170430
0.0015uF/500V	C524	171598
0.0022uF/2kV	C502-504	1400223
0.0056uF/500V	C516, 520, 527	171599
0.01uF/1kV	C508	171600
Electrolytic Capacitors		
10uF/25V	C427	171601
10uF/160V	C429	171602
150uF/400V	C505	171603
220uF/35V	C435	20055
330uF/35V	C517	171604
470uF/16V	C522	1400248
1000uF/10V	C425	171605
1000uF/16V	C530	1400158
1000uF/25V	C521	171606
3300uF/16V	C529	171607
3300uF/35V	C525	171608
Metal Polycarbonate Capacitors		
0.1uF/250V	C428	171609
Metal Plastic Capacitors		
0.1uF/250V AC	C501	171610
Variable Resistors		
VR201	Volume Rotary Gang 500ohm-10kohm	171611
VR204	VRSF 500ohm	171612
VR401	VRSF 500ohm	171613
VR402	VR Rotary 30kohm	171614
VR403	VRSF 10kohm	171615
VR404	VRSF 2kohm	171616
VR405	VRSF 100kohm	171617
VR501	VRSF 5KO	171618
VR502-505, 507	VRSF 1kohm	171619
Switch		
SW501	Power On/Off Switch	171511

Circuit Reference	Description	Part No.
Coils & Transformers		
L201	Core Tridal L201	171557
L401	Coil Linearity	171558
L402	Coil Inductor	171559
L501	Coil Line Filter AC	171502
L502	Coil	171560
L503	Coil	171504
L506	Coil Core Tridal	171620
L801	Filter Line	171561
T401	Trans Horizontal Drive	171562
T501	Transformer Switching	171563
FB401	Flyback Transformer	171564
P.C. Boards		
	PCB001 MM0018A	171565
	PCB002 MS0053A	171566
Jack		
	Socket CRT	171567
Miscellaneous		
CD201	Cord DIN	171568
CD402	Cord Jumper	171569
CD403	Cord Jumper	171
CD404	Cord Jumper	171
CD502	Cord DIN	171571
CD801	Cord Connector	171572
DY401	DY	171573
TH401	Thermistor	171574
V801	Tube, Cathode Ray 340AXBWDN	171575
Fuse	Fuse 3.15A(T)	171621
	PC-CM	
I.C.'s		
IC101	I.C. OEC9001	1771477
IC102	I.C. TC74HC02P	171622
IC401	I.C. UPC1378H	170444
IC402	LA7820	1400368
IC501	STK7356	
IC502	L78M12	190062
IC503	L78MO5	190063
IC601	STK7358	171479
IC602	BA6993	171480
IC603	LA6324	170112
IC604	BA707	171481
ICP501, 502	ICP-N75	171075
ICP503	PFR-315-F003	171
ICP601	ICP-N50	1715
Transistors		
Q101-103, 105-113, 401, 601, 602, 610-612, 616, 618, 801-803	2SC1815	170447
Q401, 402, 603, 606, 607, 613, 617	2SA1015	170453
Q403	2SD1426	171484
Q404	2SC2271	170449
Q604, 605	TLP580	171485
Q608, 609, 615	2SD1207-T	170451
Q614	2SB1134R	171486
Q804-806	2SC3789	171487

Reference	Description	Part No.
Resistors		
5.6ohm Fuse	R181	
1kohm	R189-194	10061
Resistor Network		
NR101	4.7kohm x 7	171666
NR102	1kohm x 5	171667
NR103	2.2kohm x 6	171668
NR104	2.2kohm x 5	171669
NR105	4.7kohm x 8	171670
NR801	1.kohm x 10	171671
Ceramic Capacitors		
47pF NPO	C805, 806	171672
0.1uF	C504-506, 802, 803	171058
TC101	Trimmer 200pF Ceramic	171371
Electrolytic Capacitors		
47uF/16V	C801	20027
Crystals		
X101	Crystal HC49U.843M	171372
X102	Ceramic Oscillator	171373
X103	Crystal DSVT30032K	171374
X104	Crystal HC18RW24.0	171375
X105	Crystal HC18RW28.636	171376
X801	Ceramic Oscillator KBR-6.0M	171377
Coils		
Inductor Coil	L101, 102	171404
Jacks & Connectors		
14 Pin DIL	J101, 102	170120
8 Pin DIL	J103-120	170119
20 Pin DIL	J121, 122	170121
9 Pin D SKT	J801	171408
Mate N Lock	CD101	171673
Mate N Lock	CD104	171674
Socket D Sub	CE101-103	171675
DIN Cord 6 Way	CD801	171420
Semiconductors		
Description	Reference No.	Part No.
Diodes		
DS442X-BT	D101-104, 501, 502, 801	1422117
TLS134A LED	D503	171403
IC's		
MC1488P	IC101	171378
MC1489AP	IC102, 103	171379
TC7406P	IC104	171380
DN74LS373	IC105, 122	170108
INS8250N	IC106	171381
DN74LS240P	IC107, 117	171382
DN74LS244	IC108, 115, 121, 124	171383
MBL8259A-2P	IC109	171384
DN74LS125P	IC110	171385
SED9420CAC	IC111	171034
UPD765AC-2	IC112	40018
DN74LS174P	IC113	171387
UPD8253C-5	IC114	171388
DN74LS14P	IC116	171389
AMS40040	IC118	171391
MBL8086-2P	IC120	171392
DN74LS245P	IC123	171393
AMS40039	IC125	171577
AMS40041	IC126	171394
AMS40045	IC127	171395
TC74HCUD4P	IC128	40008/A
AMS40043	IC129	171396
UPD8237AC-5	IC130	171397
UPD4126C-15	IC131, 133	171398
AMS40044	IC132	171578
MC146818P	IC134	171399
MN41256-15	IC135-152	171400
LA4140	IC401	170111
AMS40042	IC801	171401
TC74HC14P	IC802	171033

Description	Circuit Reference	Part No.
Transistors		
2SC1815Y	Q101, 102, 105	170447
2SA1015Y	Q103, 104, 106, 107	170453
KTC2120	Q108-113	170113
Switches		
SW801	Switch Key Board	171409
Variable Resistors		
VR401	Volume Control CPU Unit	171579
PCB Assy's		
PCB101	CPU PCB MC0032B	171410
PCB102	LED PCB MC0033B Part of PCB101	
PCB801	Keyboard PCB MK002A	171412

PC-MM

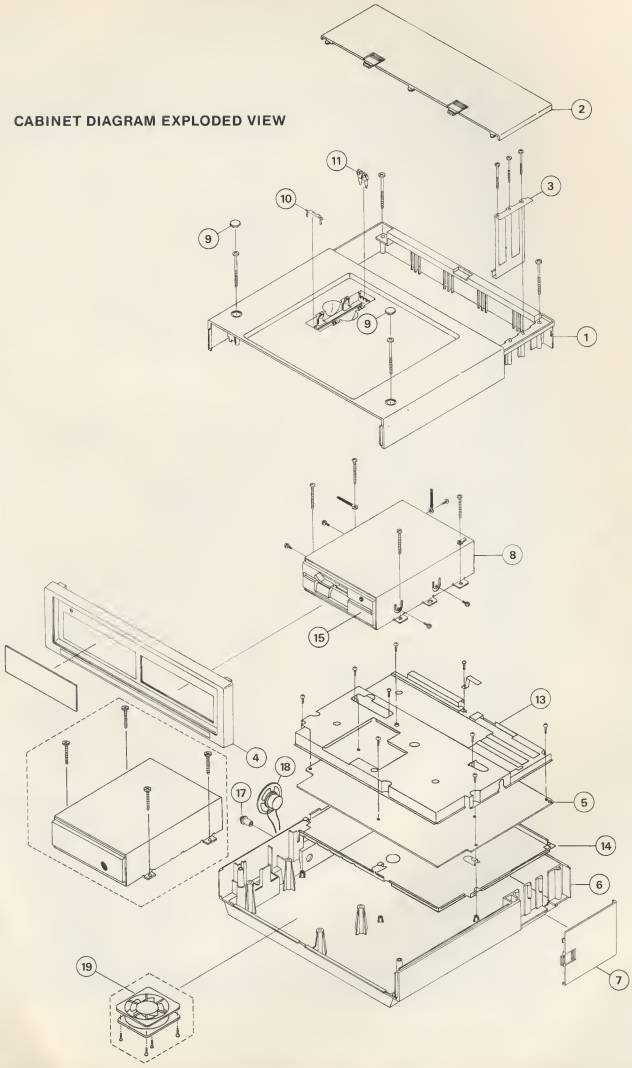
Intergrated Circuits		
IC201	TC74HC04	40008/A
IC401	AN5753	151040
IC402	UPC1031H2	171546
IC501	STK7356	171478
IC502	BA6993	171480
IC503	LA6324	170112
IC504	BA707	171481
ICP501, 502	ICP-N50	171547
Transistors		
Q201-203, 205, 401, 506, 511, 512	2SC1815	170114
Q204, 520	2SA1015	170453
Q402	2SD1159	170623
Q501, 502, 514, 518, 519	2SC536	150350
Q503, 507, 508, 517	2SA608	920113
Q504, 505	TLP580	171548
Q507	2SC2229	170624
Q509, 510, 516	2SD1207	170451
Q513, 515	2SB1134R	171486
Q801	2SC2229	170624
Diodes		
D207	D.Z. MTZ5. 1BT-77	1422112
D208, 401, 402, 410, 512, 513, 517, 521, 524, 525	D. ISS231T-77	171582
D403	C. 11E2TA1 Diode Silicon	171549
D404, 405, 407	D.10ELS4 Diode Rectifier	171550
D406	D.11E1TA1 Diode Silicon	171551
D408	D.Z. GZA6.2Y Diode Zener	171552
D409	D.KDS1555 Diode Silicon	800222
D501-504	D.20E10FA13	171048
D505	D.Z. GZB18B	171553
D506	D.DFC15L-KC5	171491
D507	D.Z. GZB9.1B	171493
D508-510	D.DFH10G-KB4	171492
D511, 526, 527	D.Z. GZA18YBT	171554
D514	D.30DF2	171555
D515	DSF 10B	171556
D516	D.F5KQ60	171496
D517	D.F10PO4Q	171497
D520, 801	D.DS442X-BT	1422117
D522	D.Z. MTZ5.1BT	1422112
D523	D.Z. MTZ5.6BT	171499
D528-531	D.KDS1555	810332
Carbon Film Resistors		
330ohm/¼W	R572	10044
470ohm/¼W	R571	10048
10kohm/¼W	R573	10085
75ohm/½W	R238-243	151583

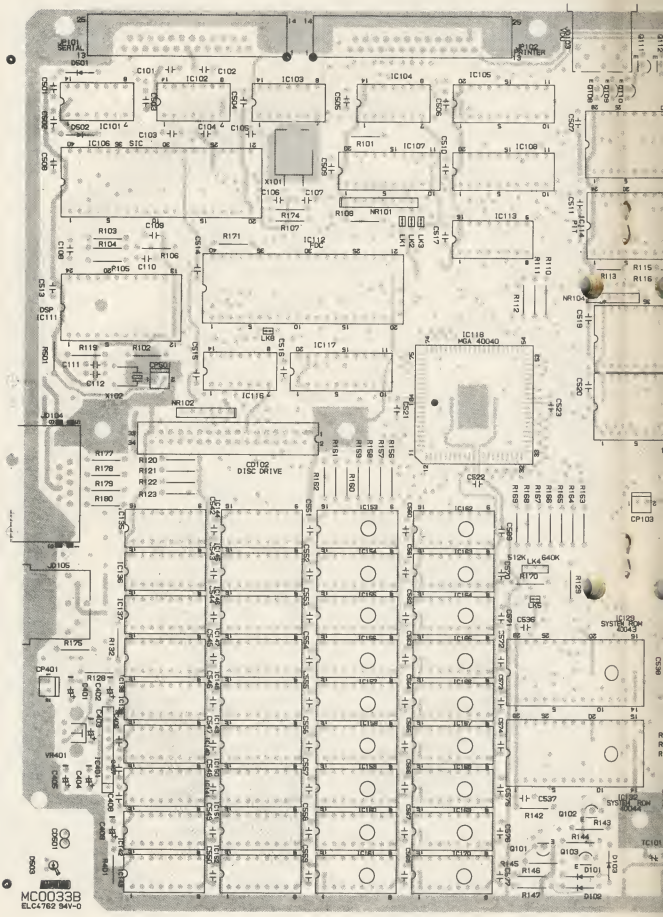
ELECTRICAL PARTS LIST

Circuit Reference	Description	Part No.
Diodes		
D101-105	MTZ6.8BT-77	171488
D106-115, 401-405, 407-409, 505, 608, 609, 613, 616-620	ISS132T-77	171489
D406, 412, 413, 610	DFD05G	171490
D410	D.Z.MTZ11BT	171623
D411	C.BB4-FC	1422116
D501-504	20E10FFA13	170848
D506, 603	DFC15L-KC5	171491
D507, 509, 604-606	DFH10G-KB4	171492
D508, 602	GZB9.1B	171493
D510	30DF6-FC	171494
D511	SR-2M	1400122
D601	GZB18B	171495
D607	GZA18Y	171624
D611	F5KQ60	171496
D612	F10PO4Q	171497
D614	MTZ5.1BT-77	171498
D615	MTZ5.6BT-77	171499
Carbon Film Resistors		
75ohm	R154-158	10029
Metal Oxide Resistors		
0.22ohm/⅓W	R641-646	171625
0.33ohm/2W	R604	171072
1ohm/3W	R502	171077
4.7ohm/3W	R438	171626
15ohm/2W	R511	171627
47ohm/1W	R624	171628
56ohm/1W	R737	171629
68ohm/2W	R512	171630
100ohm/2W	R507, 612	171631
1kohm/1W	R610	170406
2.2kohm/1W	R613	171632
3.3kohm/1W	R504	171633
3.9kohm/1W	R503	170407
4.7kohm/2W	R434	171634
5.6kohm/2W	R805-807	171635
22kohm/3W	R609	171636
33kohm/2W	R508	171637
82kohm/1W	R607	171638
Fuse Resistors		
0.82ohm/1W	R442	1422141
1ohm/½W	R443	171639
8.2ohm/¼W	R437	170404
10ohm/¼W	R510, 616	809256
100ohm/¼W	R412	171640
100ohm/½W	R444	1400183
470ohm/½W	R509	171641
1kohm/¼W	R614	171642
Cement Resistors		
5.6ohm/5W	R501, 601	1422138
Ceramic Capacitors		
100pF	C442	1422144
470pF/2kV	C429	1400224
820pF/2kV	C523	171643
0.001uF/2kV	C801	1422147
0.0015uF/500V	C620	171644
0.0015uF/2kV	C511, 514, 807	171645
0.0022uF/2kV	C502, 604	1400223
0.0056uF/500V	C612, 617	171646

Description	Circuit Reference	Part No.
Polyester Capacitors		
0.1uF/100V	C404	1400237
Electrolytic Capacitors		
1uF/250V	C440	171647
10uF/100V	C509	171648
22uF/250V	C436	171649
150uF/400V	C506, 601	171650
220uF/160V	C515	171651
330uF/25V	C613	171652
470uF/35V	C516	171653
1000uF/16V	C623	1422158
1000uF/35V	C437	1522159
2200uF/35V	C408	1422160
3300uF/16V	C621, 622	171654
3300uF/35V	C618	171655
Metal Polypropylene Capacitors		
0.0082uF/1.6kV	C430	171656
0.82MF/200V	C433	171657
Metal Plastic Capacitors		
0.1uF/250V AC	C501	171
Coils & Transformers		
L401	Coil Linearity	171500
L402	Coil RX-9P-472K	171501
L501	Coil Line Filter AC PLA1022C	171502
L502	Coil Degauss	171503
L601	Coil	171504
L801-804	Coil ELO606RA-101K	171505
T401	Trans, Horizontal Drive	171506
T501	Tranformer, Switching	171507
T601	Transformer, Switching	171508
FB401	Transformer Flyback	171509
Switches		
SW401	Switch Slide	171510
SW501	Switch Push	171511
P.C. Boards		
PCB001	PCB MM0019A Monitor Main	171512
PCB002	PCB MS0054A CRT Socket/ Colour Drive	171513
Jacks		
J801	Socket, CRT	171514
JC801	Socket Cover CRT	171
Miscellaneous		
CD101	Cord DIN 14 Pin	171519
CD601	Cord DIN 8 Pin	171522
F501	Fuse S506 3.15A(T)	171531
TH501	Degauss Element	171533
V801	Tube, Cathode Ray M34EAQ10X-AT1460/90	171534
ICP501, 502	ICP-N75	171057
ICP503	PRF-315-F003	171483
ICP601	ICP-N50	171547
Variable Resistors		
VR101, 103	VRSF 1KOhm	171691
VR102	VR Rotary 500ohm-500ohm	171692
VR104	VRSF 2KOhm	171616
VR401	VR Rotary 200Kohm	171693
VR402	VRSF 5Kohm	171694
VR403	VRSF 5Kohm	171695
VR404	VRSF 500ohm	171612
VR601	VRSF 5Kohm	171618
VR602-604, 606	VRSF 1Kohm	171619
VR801	VRSF 5Kohm Red	171696
VR802	VRSF 5Kohm Green	171697
VR803	VRSF 5Kohm Blue	171698
VR804	VRSF 500ohm Red	171699
VR805	VRSF 500ohm Blue	171700

CABINET DIAGRAM EXPLODED VIEW




MC0033B
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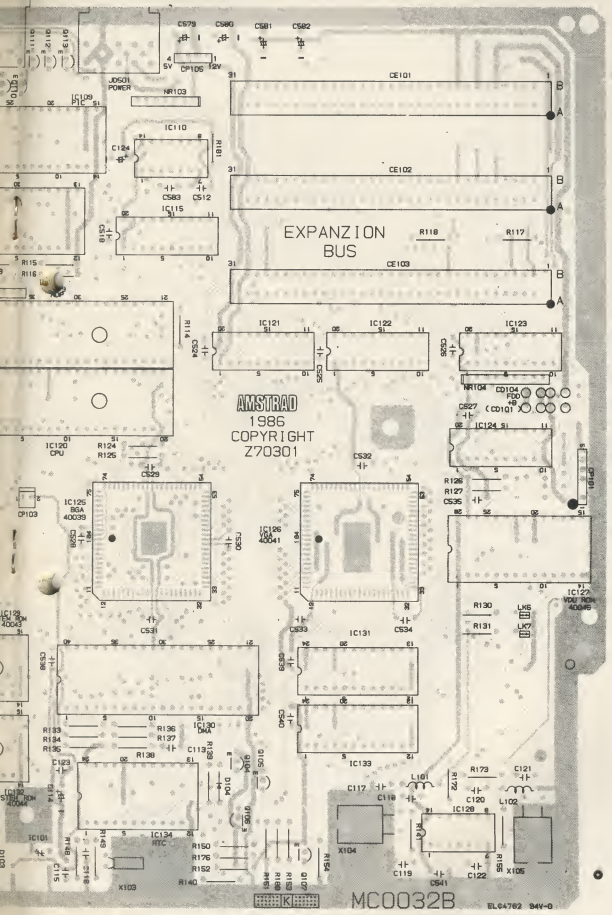
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BUS
AMSTRAD
1986
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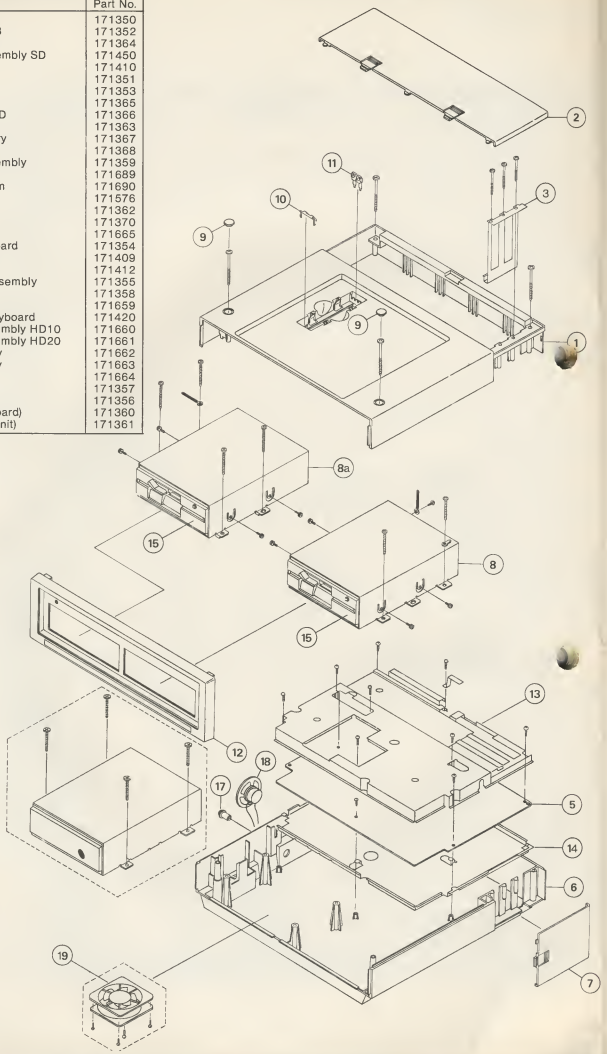
Z70301
MC0032B
EL04762 94V-0

CABINET PARTS LIST

Ref.	Description	Part No.
1	Cabinet Top	171350
2	Lid Expansion PCB	171352
3	Plate Earth CPU	171364
4	Cabinet Front Assembly SD	171450
5	CPU PCB	171410
6	Cabinet Bottom	171351
7	Lid Jack	171353
8	Frame FDD SD	171365
8a	Frame FDD A IN DD	171366
9	Screw Cap	171363
10	Plate Spring Battery	171367
11	Terminal Battery	171368
12	Cabinet Front Assembly	171359
13	Plate Shield Top	171689
14	Plate Shield Bottom	171690
15	F.D. Drive (A&B)	171576
17	Knob Volume	171362
18	Speaker	171370
19	Fan HD Unit	171665
21	Top Cabinet Keyboard	171354
22	Switch Key Board	171409
23	Keyboard PCB	171412
24	Cabinet Bottom Assembly	171355
25	Stand Keyboard	171358
26	Washer	171659
27	Cord 6 Pin DIN/Keyboard	171420
	Cabinet Front Assembly HD10	171664
	Cabinet Front Assembly HD20	171661
	HD10 Kit Assembly	171662
	HD20 Kit Assembly	171663
	Mouse MS-2	171664
	Leg Rubber	171357
	Leg Rubber	171356
	Plate Brand (Keyboard)	171360
	Plate Brand (C.P. Unit)	171361

EXPLODED VIEW C.P. UNIT



HARD DISC INSTALLATION INSTRUCTIONS

Applies to both ten and twenty megabyte versions.

1. Turn on machine.

2. Insert disc 1 (the red disc) and press a key.

3. Type fdisk (RETURN)

4. At each prompt press the RETURN key (another three times).

5. The A> will now appear so now type format c:/s (RETURN).

6. Now push the Y key (RETURN).

7. The hard disc will now begin to format, if you have a 10Mb machine then it will count up to 305 cylinders. If you have a 20Mb machine then 610 cylinders will be counted.

8. Once this is done, take out disc 1 and insert disc 5 (the maroon disc).

9. Now type config (RETURN). This procedure will copy all five discs (order 5,1,2,3,4) onto the hard disc. Once finished the screen will show some information about the size of the disc and the number of files and directories present.

10. To now use the hard disc remove the floppy disc from the driveand store in a safe place with the other four discs then restart the computer by pushing Alt Ctrl and Del.

11. After a short while the AMSTRAD PC info will come up and tell you when the machine was last used and then after a little longer the screen will clear and will display this message,

F1=DOSPLUS.SYS
F2=DOS.SYS

Select operating system:

If you choose F1 then DOS Plus and Gem will be booted, or if you press F2 then MS-DOS will be booted.

ALIGNMENT INSTRUCTIONS FOR PC-CM

Equipment required: Digital Multimeter; Dummy Load; 0.82ohm/30W, D.B.O.Scope; Odometer (Teal Time Meter), Diagnostic Disc/Tool.

Step	FUNCTION	SIGNAL IN	SIGNAL OUT	METHOD	REMARKS
1.	To Set +5V.	Power supply	Test Point A	Adjust VR604 to read 5.10V ±0.02V.	1) Refer to Fig 1. 2) Prevent short circuit when pulling the PCB forward.
2.	To Set +12V.	Power supply.	Test Point B.	Adjust VR603 to read 12.15V ±0.02V.	1) Refer to Fig. 1. 2) Prevent short circuit when pulling the PCB forward.
3.	To Set -5V.	Power supply.	Test Point C.	Adjust VR601 to read 5V ±0.05V.	1) Refer to Fig. 1. 2) Prevent short circuit when pulling the PCB forward
4	To set -12V	Power supply.	Test point D.	Adjust VR602 to read 12.0V ±0.05V.	1) Refer to Fig. 1. 2) Prevent short circuit when pulling the PCB forward
5.	To set protect adjustment.	Power supply.	Pin 11 of 14 Pin DIN Plug.	Adjust VR606 to read 4.5A on the ammeter in series with dummy load.	1) Refer to Fig. 1. 2) Prevent short circuit when pulling the PCB forward.
6.	V. Size setting.	Load diagnostics in PC1512.	Monitor screen.	Adjust VR404 so the border is 12mm ±3mm all around.	Set optimum Brightness & Contrast setting.
7.	Sub Brightness Control.	Load Diagnostics in PC1512.	Monitor Screen.	Set VR102-2 to max. adjustment VR101 so the grey level wave form is 27% when initial white level is 100% against black scope O802 collector.	1) Refer to Fig. 2
8.	Sub Contrast Control.	Load Diagnostics in PC1512	Monitor Screen	Select Colour Bar Chart. Set Bright Control to VR102-2 max. and VR102-1 to min. Adjust VR103 to set proper intensity level.	
9.	Sub H. Hold Control.	From IC402 Pin 4.	Scope Pin 4 of IC402.	Set VR403 to Mid position. Adjust VR402 to read Frequency 15.625kHz.	

NOTE

It is very important to observ the isolated power supply area. Any measurements within the power supply circuit should be carried with reference to top point of C505 in order to keep the chopper circuit oscillating.

MAJOR COMPONENTS LOCATION GUIDE

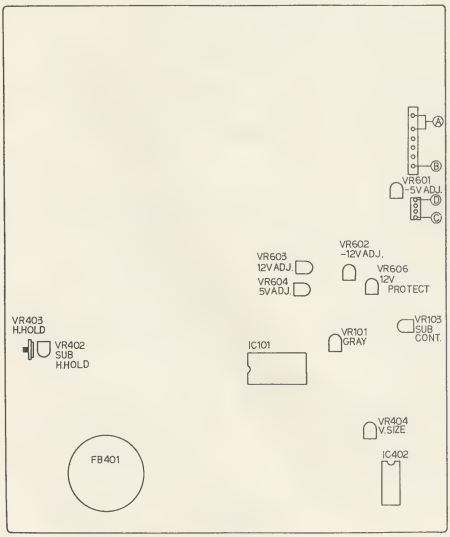


Fig. 1.

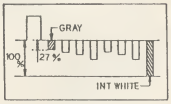


Fig. 2.

ALIGNMENT INSTRUCTIONS FOR PC-MM

Equipment required: Digital Multimeter; Dummy Load; 0.82ohm/30W D.B.O.Scope; Diagnostic Disc/Tool.

Step	FUNCTION	SIGNAL IN	SIGNAL OUT	METHOD	REMARKS
1.	To Set +5V.	Power Supply.	Test Point A.	Adjust VR505 to read 5.10V ±0.02V.	1) Refer to Fig. 3. 2) Prevent short circuit when pulling the PCB forward.
2.	To set +12V	Power Supply	Test Point B.	Adjust VR504 to read 12.15V ±0.02V.	1) Refer to Fig. 3. 2) Prevent short circuit when pulling the PCB forward.
3.	To Set -5V.	Power Supply.	Test Point C.	Adjust VR501 to read 5V ±0.05V.	1) Refer to Fig. 3. 2) Prevent short circuit when pulling the PCB forward.
4.	To Set -12V.	Power Supply.	Test Point D.	Adjust VR502 to read 12.0V ±0.05V.	1) Refer to Fig. 3. 2) Prevent short circuit when pulling the PCB forward.
5.	To set protect adjustment.	Power Supply.	Pin 11 of 14 Pin DIN Plug.	Adjust VR507 to read 4.5A on the ammeter in series with dummy load.	1) Refer to Fig. 3. 2) Prevent short circuit when pulling the PCB forward.
6.	To set +12V for monitor.	Power Supply.	Test Point B.	Adjust VR503 to read 12.0V ±0.05V.	1) Refer to Fig. 3. 2) Prevent short circuit when pulling the PCB forward.
7.	Centering the Screen.	Screen On.	Observe Screen.	Adjust DY and 4 Pole Magnets to get 12mm ±3mm Border.	1) Refer to Fig. 3.
8.	V. Size Cont.	Screen On	Observe Screen.	Adjust VR403 to get Circle.	1) Refer to Fig. 4
9.	V. Linearity Adjustment.	Screen On	Observe Screen.	Adjust VR404 to get E-F Equal.	1) Refer to Fig. 4
10.	Cut Off Adjustment.	Screen On	Observe Screen.	Set VR201-1/2 to max. adjustment VR405 so the black on the screen will not be bright.	1) Refer to Fig. 5
11.	Sub Contrast adjustment.	Screen On.	Observe Screen.	Set VR201-2 to max. and VR201-1 to min. Adjust VR203 so Y-4 is slightly bright.	1) Refer to Fig. 5.

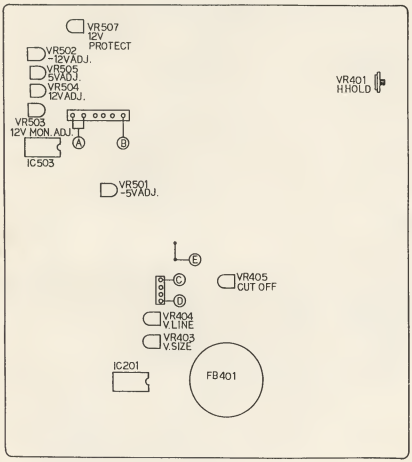


Fig. 3.

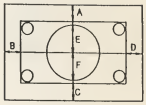


Fig. 4.

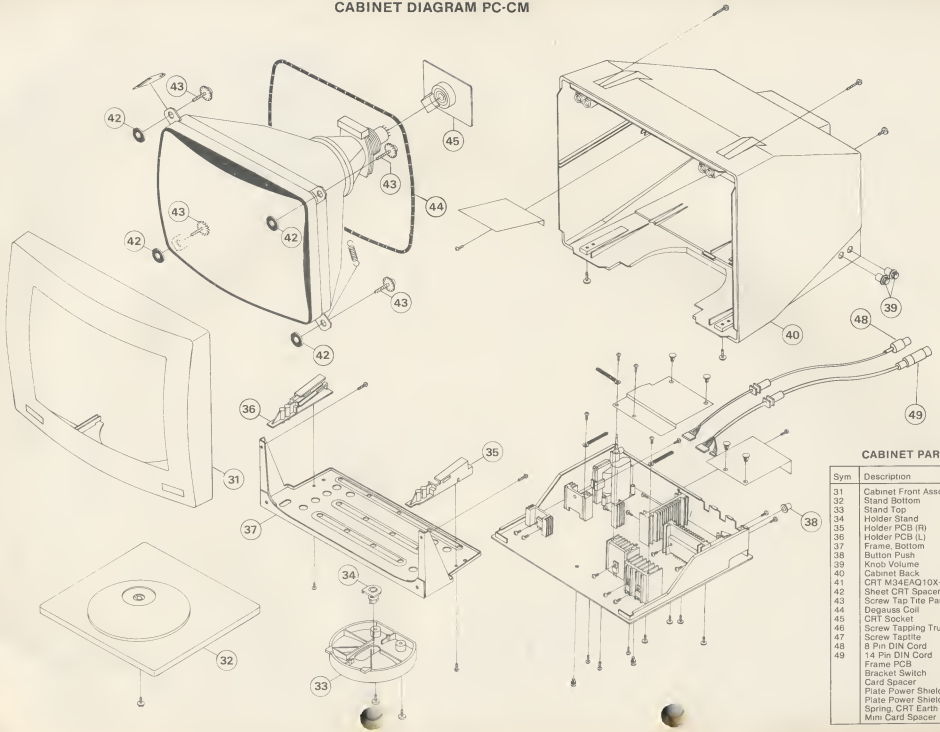
Fig. 5.

ALIGNMENT INSTRUCTIONS FOR PC1512

Equipment required: Digital Multimeter; Dummy Load; 0.82ohm/30W, D.B.O.Scope; Diagnostic Disc/Tool.

Step	FUNCTION	SIGNAL IN	SIGNAL OUT	METHOD	REMARKS
1.	Set RTC	X-103	Connect Odometer to Pin 21 IC134.	Set Odometer to 0.2sec/Day. Adjust it to read 0.00 with TC101.	Do this adjustment only if the real timeclock chip is changed

CABINET DIAGRAM PC-CM



CABINET PARTS LIST PC-CM

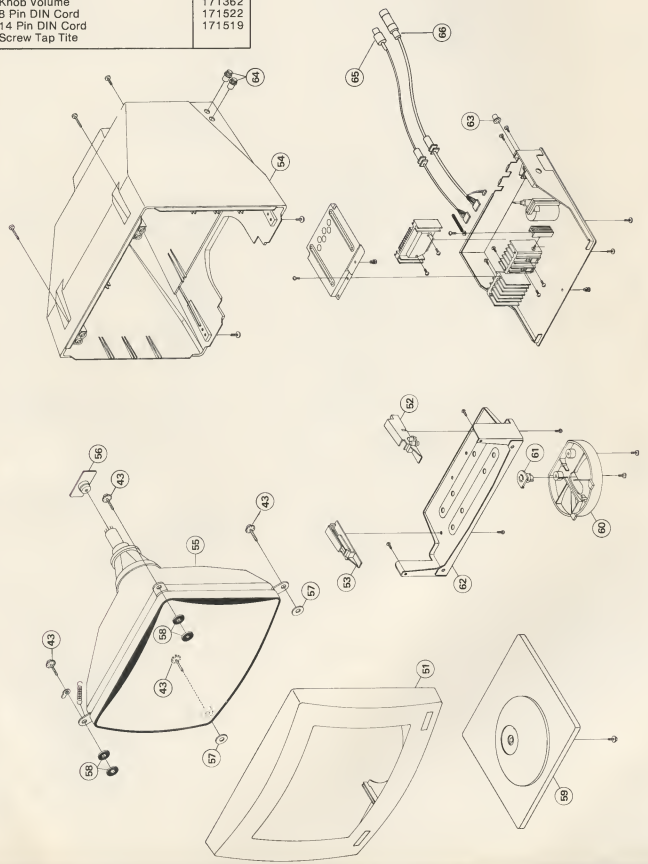
Sym	Description	Part No.
31	Cabinet Front Assembly	171460
32	Stand Bottom	171461
33	Stand Top	171463
34	Holder Stand	171462
35	Holder PCB (R)	171466
36	Holder PCB (L)	171465
37	Frame, Bottom	171464
38	Button Push	171469
39	Knob Volume	171382
40	Cabinet Back	171474
41	CRT M34EAQ10X-AT1460/90	171534
42	Sheet CRT Spacer	
43	Screw Tap Tite Pan GW22	
44	Degauss Coil	171503
45	CRT Socket	171514
46	Screw Tapping Truss	
47	Screw Taptite	
48	8 Pin DIN Cord	171519
49	14 Pin DIN Cord	171522
	Frame PCB	171467
	Bracket Switch	171468
	Card Spacer	171471
	Plate Power Shield (A)	171472
	Plate Power Shield (B)	171473
	Spring, CRT Earth	171475
	Mmi Card Spacer	171476

CABINET DIAGRAM PC-MM

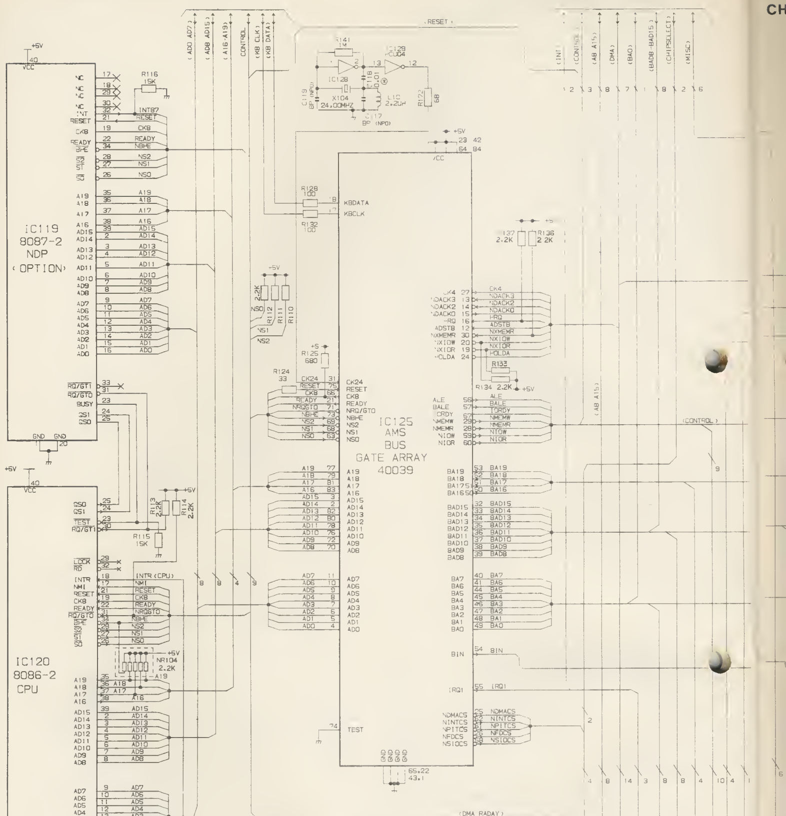
CABINET PARTS LIST PC-MM

Sym	Description	Part No.
51	Front Cabinet Assembly	171540
52	Holder PCB (R)	171542
53	Holder PCB (L)	171541
54	Cabinet Back	171545
55	CRT 340AXBWDN	171575
56	CRT Socket	171567
57	Metal Washer	171580
58	CRT Spacer	171581
59	Stand Bottom	171461
60	Stand Top & Spacer	171463
61	Holder Stand	171462
62	Frame, Bottom	171543
63	Button Push	171469
64	Knob Volume	171362
65	8 Pin DIN Cord	171522
66	14 Pin DIN Cord	171519
43	Screw Tap Tite	

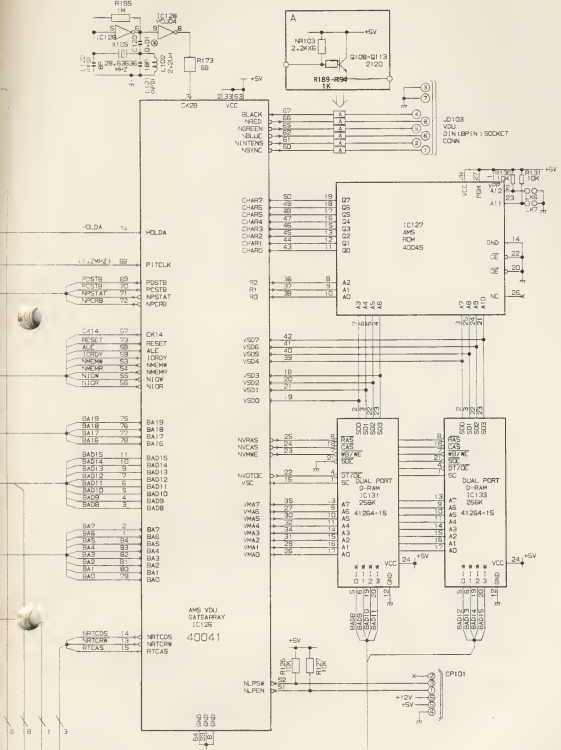
CABINET DIAGRAM PC-MM



CH


IC119
8087-2
NDP
(OPTION)
IC120
8086-2
CPU
IC125
AMS
BUS
GATE ARRAY
40039
R116 15K
R113 2.2K
R114 2.2K
R115 15K
NR104 2.2K
R141 1M
IC129
IC128
X104 24.00MHZ
L10 2.2uH
R122 68
R128 100
R132 100
R125 680
R124 33
R137 2.2K
R136 2.2K
R133
R134 2.2K
KBDATA
KBCLK
TEST
(RESET)
(DMA RADAY)
(INTR)
(CONTROL)
(ADO AD7)
(AD8 AD15)
(A16-A19)
CONTROL
(KB CLK)
(KB DATA)
(DMA READY)
(CHIP SELECT)
(A8 A15)
(DMA)
(INT)
(BA0 BA7)
(BAD8-BAD15)
(A16 A19)
(CONTROL)
(PRINTER)
(RTCLK)
(MISC)

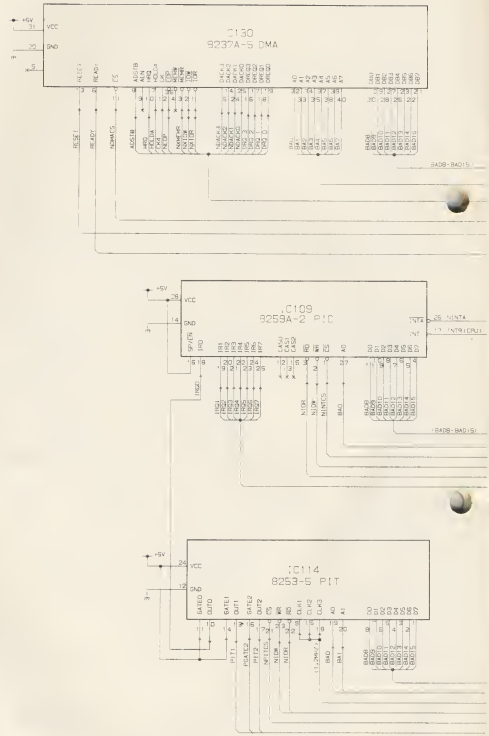
CHASSIS SCHEMATIC DIAGRAM



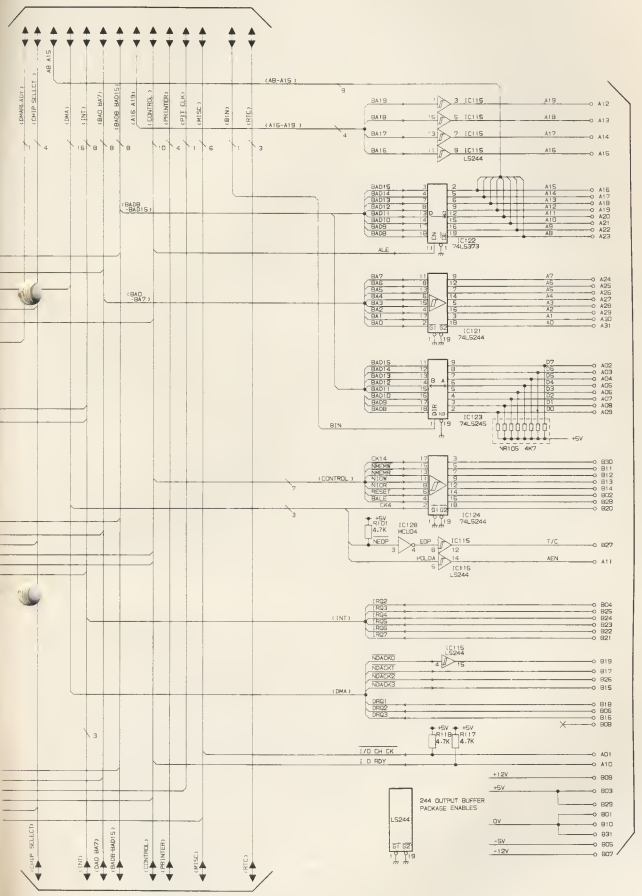
CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY USE ONES DESCRIBED ON PARTS LIST ONLY.

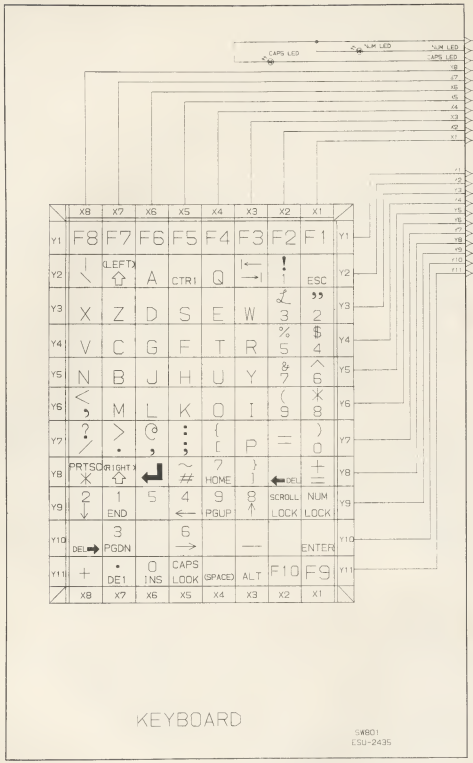
ATTENTION LES PIECES REPEREES PAR UN ⚠ ETANT DANGEREUSES AU POINT DE VUE SECURITE N'UTILISER QUE CELLES DECRITES DANS LA NOMENCLATURE DES PIECES.

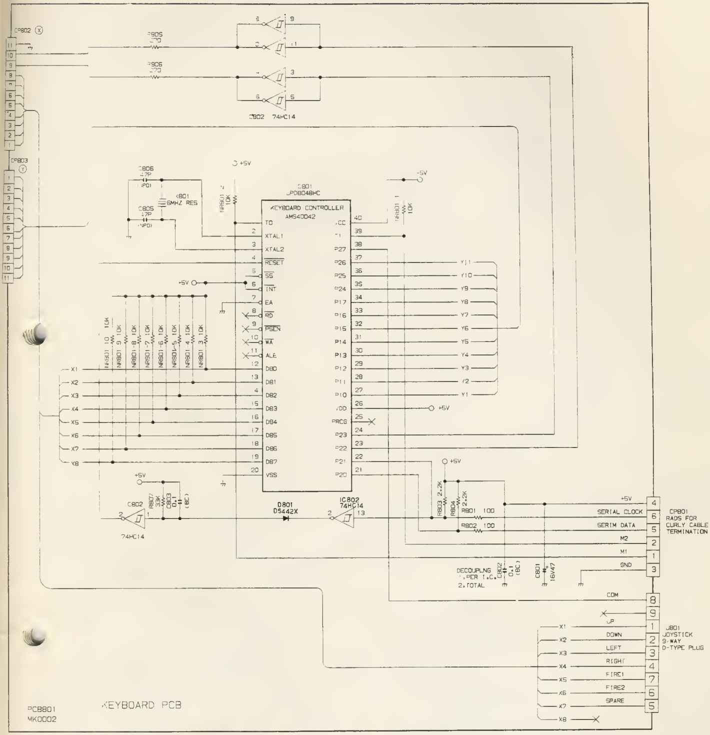
NOTE THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.


C130
8237A-5 DMA
C109
8259A-2 PIC
C114
8253-5 PIT
+5V
VCC
GND
BA08-BA015

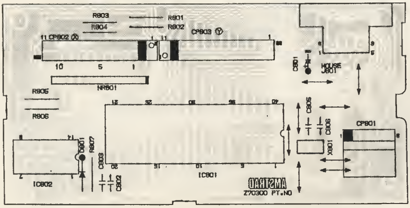
CHASSIS SCHEMATIC DIAGRAM




CAPS LED
NUM LED
X8 X7 X6 X5 X4 X3 X2 X1
Y1 F8 F7 F6 F5 F4 F3 F2 F1
Y2 (LEFT) A CTRL Q ESC
Y3 X Z D S E W 2
Y4 V C G F T R 4
Y5 N B J H U Y 6
Y6 M L K O I 9 8
Y7 P 0
Y8 PRTSC (RIGHT) HOME DEL
Y9 2 1 END 5 4 9 PGUP 8 SCROLL LOCK NUM LOCK
Y10 DEL PGDN 3 6 ENTER
Y11 + DEL 0 INS CAPS LOCK (SPACE) ALT F10 F9
KEYBOARD
SWBD1
ESU-2435

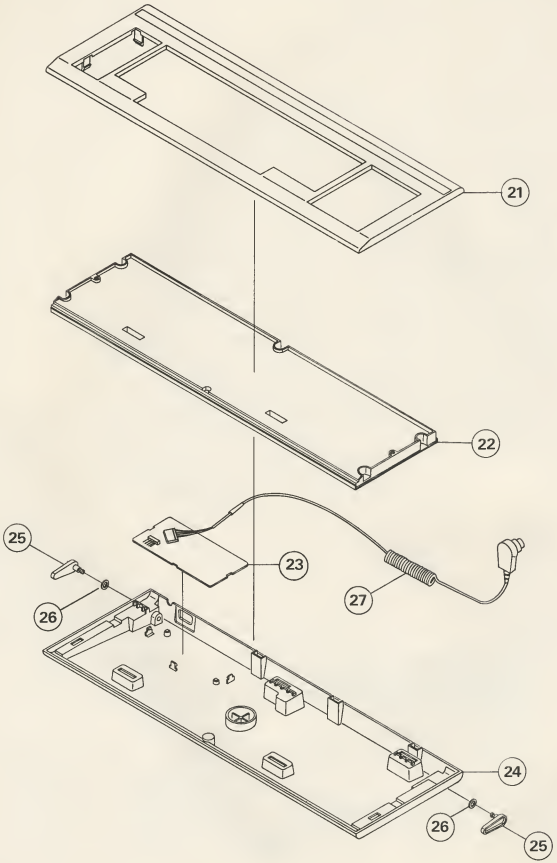


CP802 (X)
R805 270
R806 270
IC802 74HC14
CP803 (Y)
C806 47P (NPO)
C805 47P (NPO)
X801 6MHZ RES
+5V
NR801 2 10K
NR801 1 10K
IC801 UPD8048HC
KEYBOARD CONTROLLER AMS40042
T0
XTAL1
XTAL2
RESET
SS
INT
EA
RD
PSEN
WR
ALE
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
VSS
VCC
T1
P27
P26
P25
P24
P17
P16
P15
P14
P13
P12
P11
P10
VDD
PROG
P23
P22
P21
P20
Y11
Y10
Y9
Y8
Y7
Y6
Y5
Y4
Y3
Y2
Y1
X1
X2
X3
X4
X5
X6
X7
X8
NR801 10 10K
NR801 9 10K
NR801 8 10K
NR801 7 10K
NR801 6 10K
NR801 5 10K
NR801 4 10K
NR801 3 10K
R807 33K
C803 0.1 (BC)
74HC14
D801 DS442X
IC802 74HC14
R803 2.2K
R804 2.2K
R801 100
R802 100
SERIAL CLOCK
SERIAL DATA
M2
M1
GND
CP801 PADS FOR CURLY CABLE TERMINATION
DECOUPLING 1 PER I.C. 2 TOTAL
C802 0.1 (BC)
C801 16V47
COM
UP
DOWN
LEFT
RIGHT
FIRE1
FIRE2
SPARE
J801 JOYSTICK 9-WAY D-TYPE PLUG
PCB801 MK0002
KEYBOARD PCB



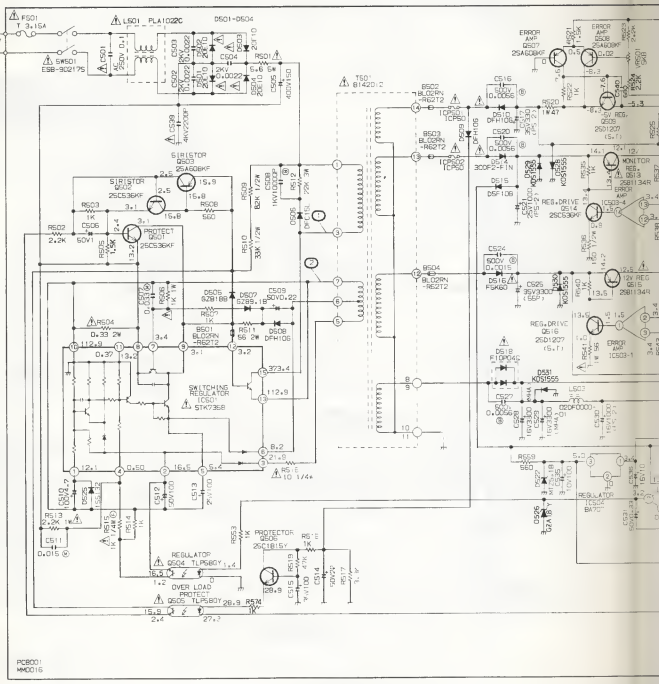
R803
R804
R801
R802
CP802 (X)
CP803 (Y)
C801
MOUSE J801
NR801
R805
R806
C805
C806
CP801
X801
IC802
D801
R807
C803
C802
IC801
AMSTRAD
Z70300 PT.NO

KEYBOARD EXPLODED DIAGRAM



1. 450V P-P

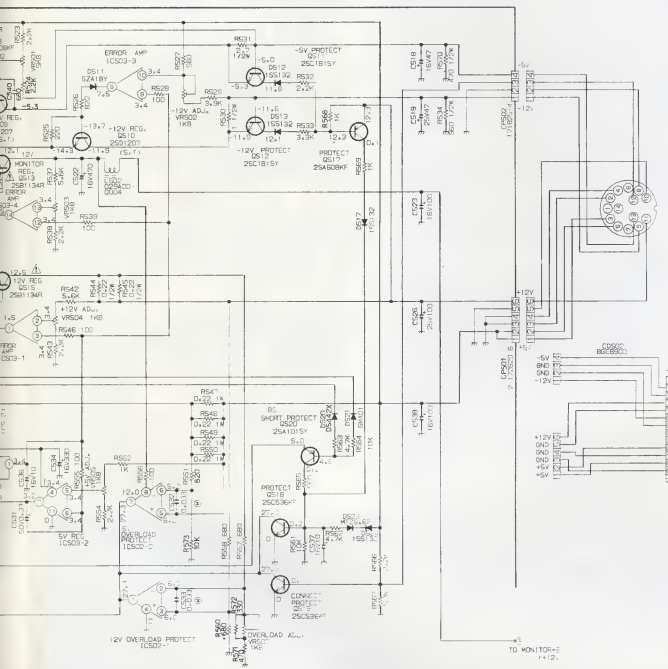
2. 0.6V P-P



CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY USE ONES DESCRIBED ON PARTS-LIST ONLY.

ATTENTION LES PIÈCES REPAREE DANGEREUSES EN PO N UTILISER QUE CE DANS LA NOMENCLAT

ATIC DIAGRAM PC-MM



ECES REPAREES PAR UN ⚠ ETANT
UELLES AU POINT DE VUE SECURITE
LISER QUE CELLES DECRITES
LA NOMENCLATURE DES PIECES.

NOTE THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
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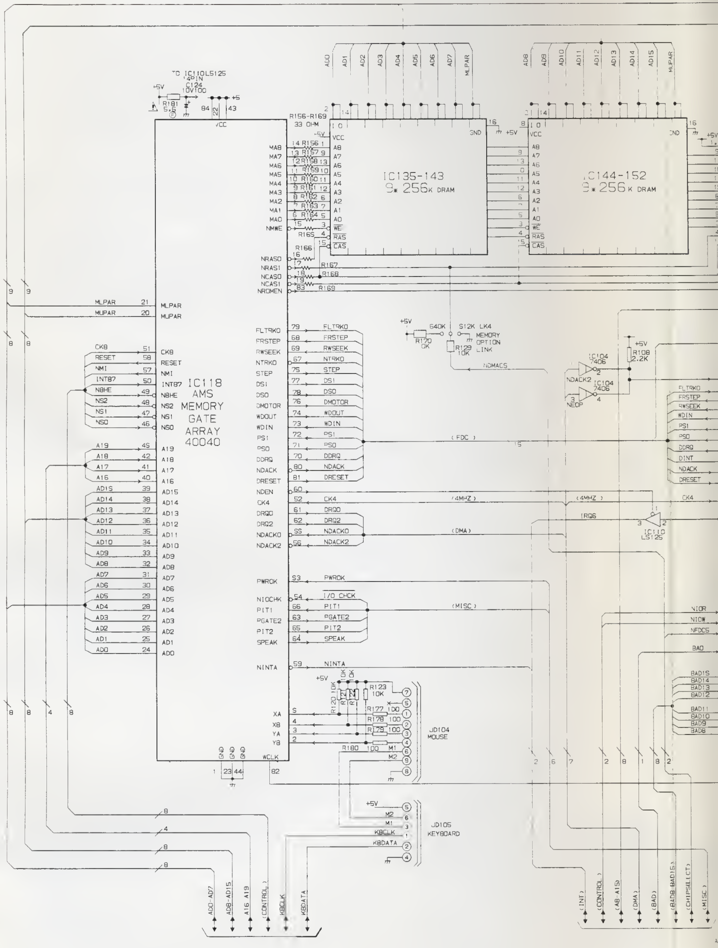
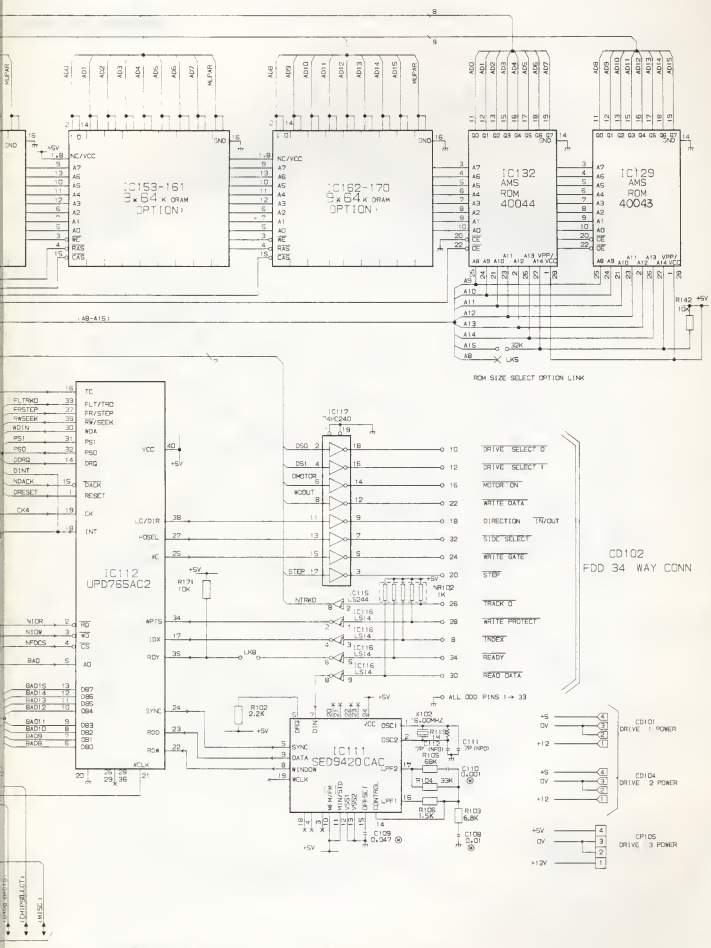

IC118
AMS
MEMORY
GATE
ARRAY
40040
IC135-143
9* 256K DRAM
IC144-152
9* 256K DRAM
R156-R169
33 OHM
TO IC110LS125
14PIN
C124
10V100
R181
5.6
S12K LK4
MEMORY
OPTION
LINK
R170
OK
R129
10K
NDMACS
IC104
7406
NDACK2
NEOP
R108
2.2K
(FDC)
(4MHZ)
(DMA)
(MISC)
IRQ6
IC110
LS125
R123
10K
JD104
MOUSE
JD105
KEYBOARD
AD0-AD7
AD8-AD15
A16 A19
(CONTROL)
KBCLK
KBDATA
(INT)
(CONTROL)
(A8-A15)
(DMA)
(BAD)
(BAD8 BAD15)
(CHIPSELECT)
(MISC)

HEMATIC DIAGRAM



ATTENTION LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SCURITE N UTILISER QUE CELLES DCRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY USE ONES DESCRIBED ON PARTS LIST ONLY.

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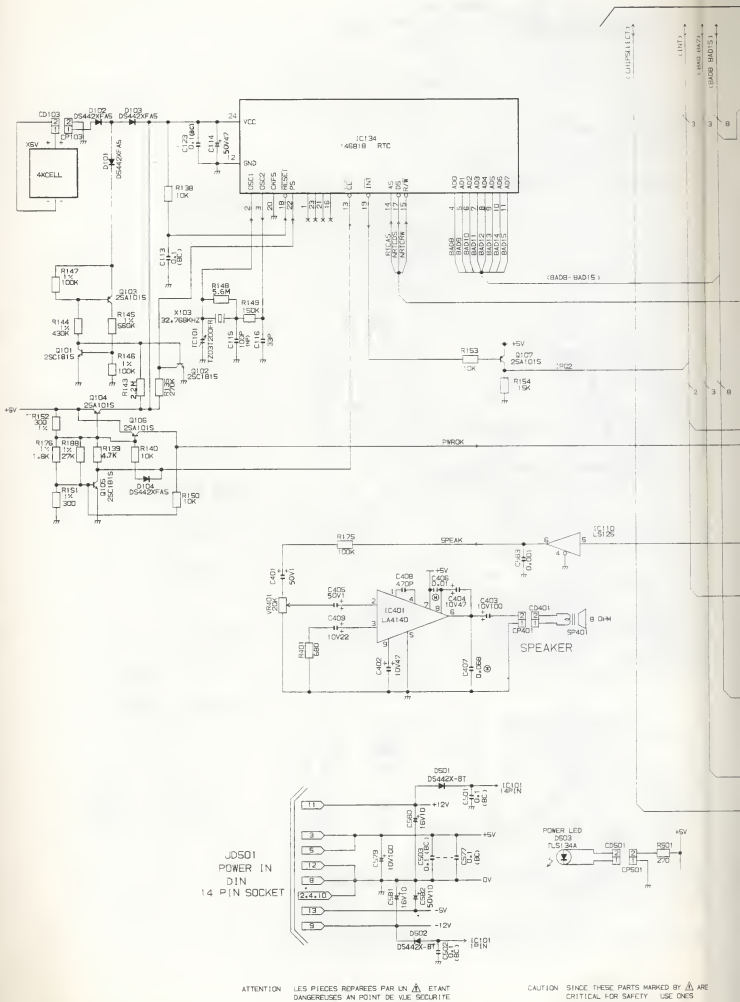
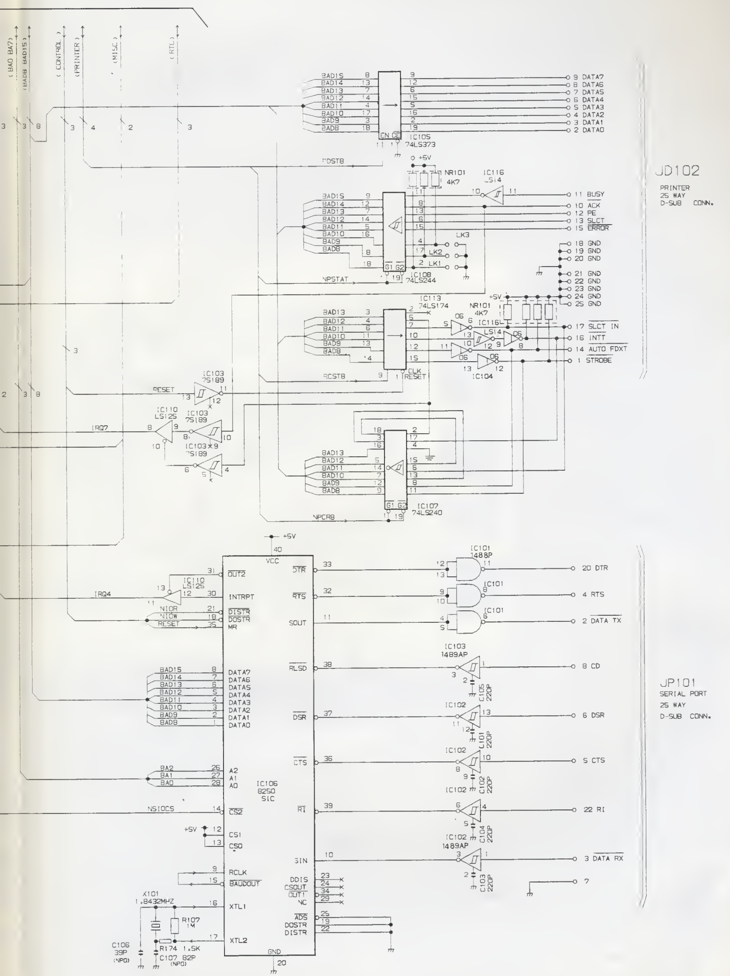
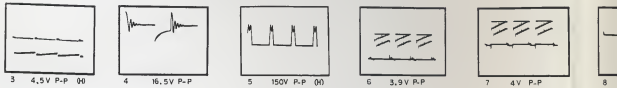


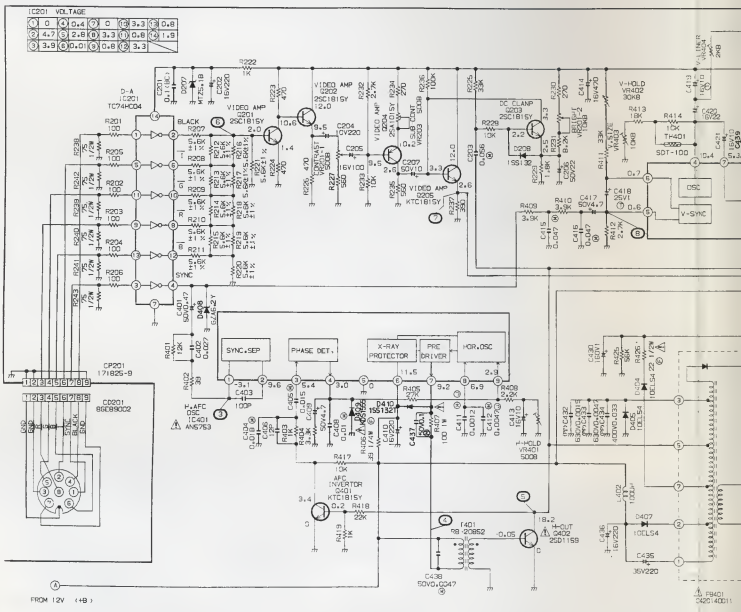
ATTENTION LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLES DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY USE ONES DESCRIBED ON PARTS LIST ONLY.



NOTE THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.





CAUTION SINCE THOSE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY USE ONES DESCRIBED ON PARTS LIST ONLY.

ATTENTION LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AU POINT DE VUE SECURITE N'UTILISER QUE CELLES DECRITES DANS LA NOMENCLATURE DES PIECES.

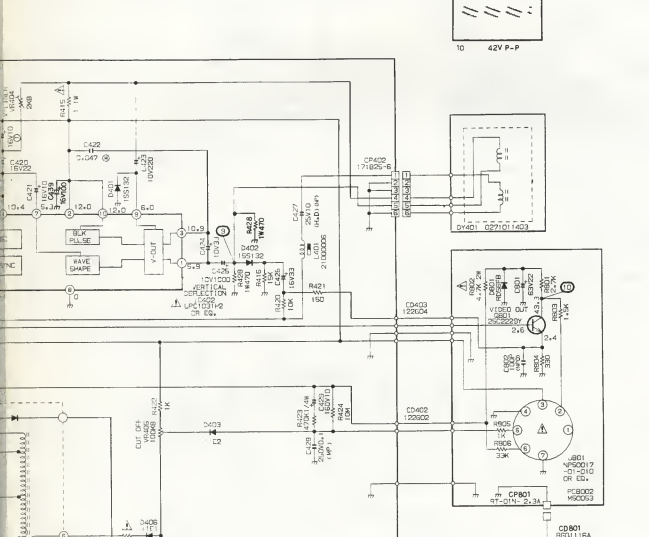
NOTE THIS SCHEMA OF PRINTING

IAGRAM PC-MM MONITOR

8 4.1 V P-P (V)

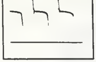
9 12 V P-P (V)

10 42V P-P

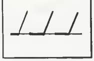


THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

M214 1-4821

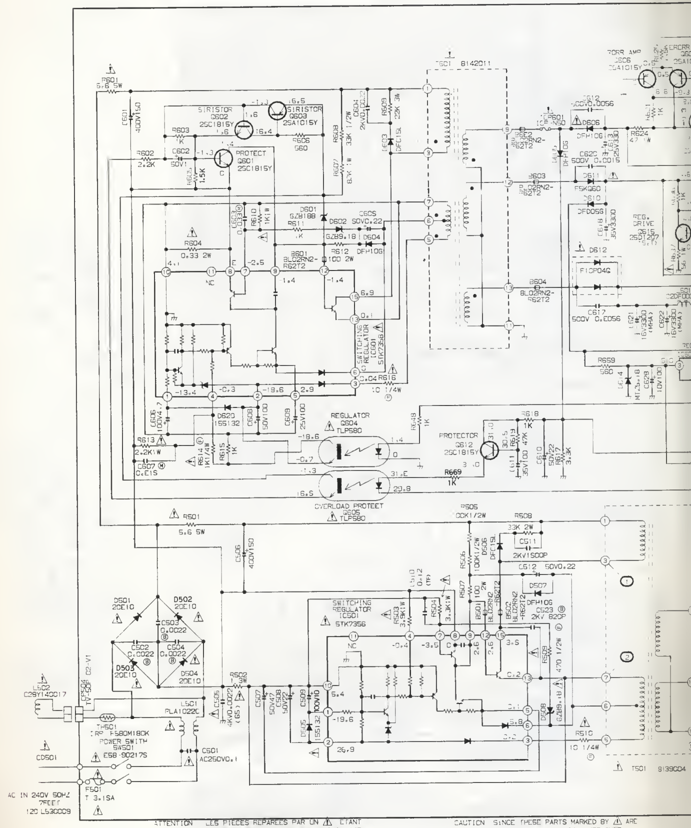


1. 620V P-P



2 0.7V P-P

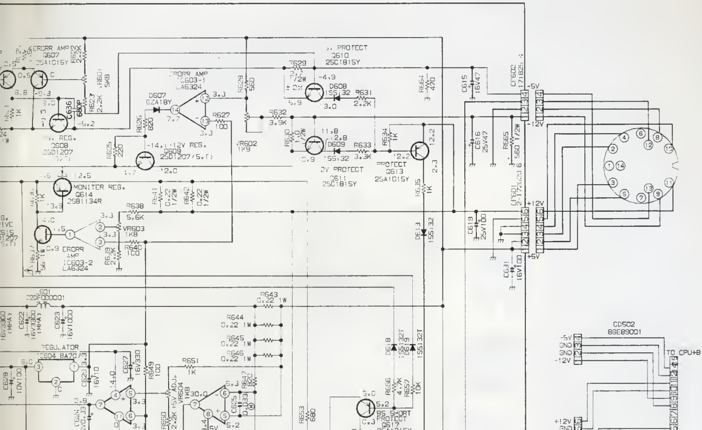
3. 23V P-P.



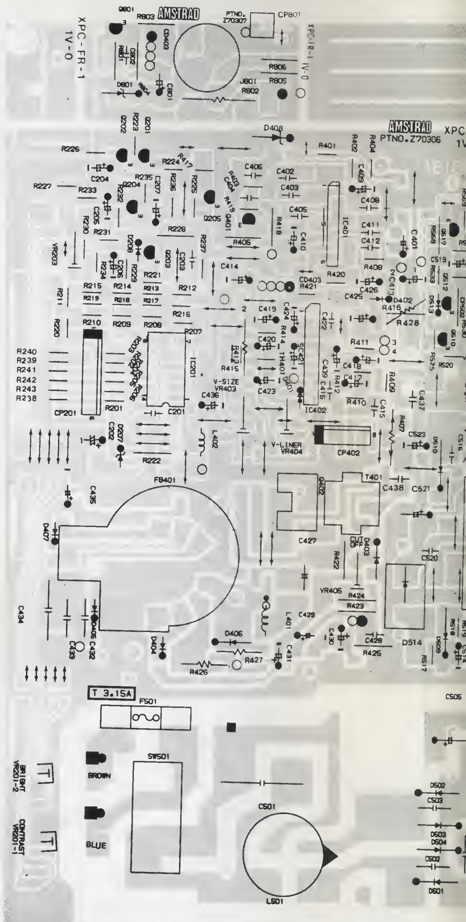
ATTENTION LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLES DECRITES DANS LA NOMENCLATURE DES PIECES.

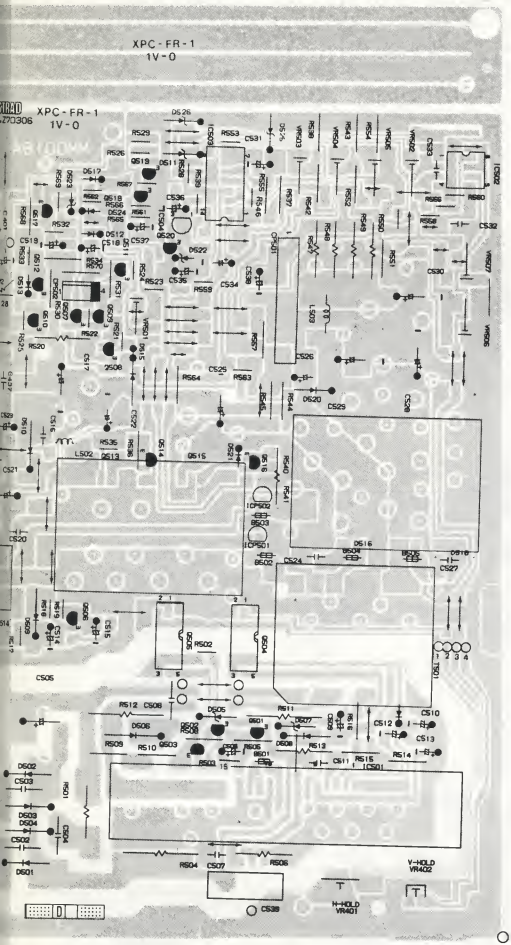
CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY USE ONES DESCRIBED ON PARTS LIST ONLY.

TIC DIAGRAM PC-CM POWER SUPPLY

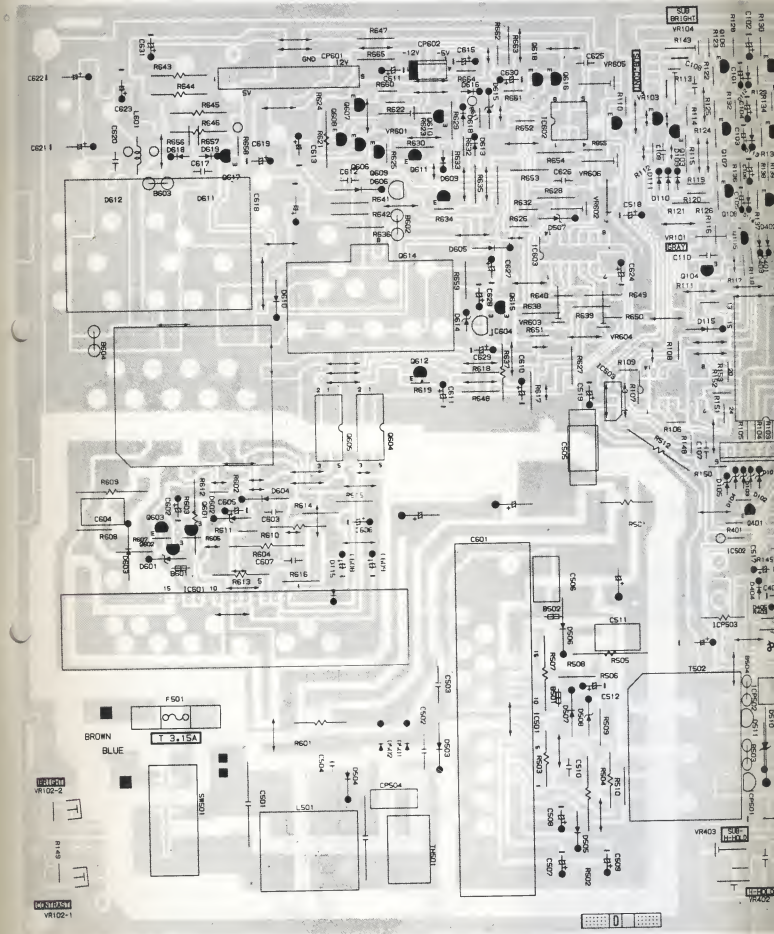


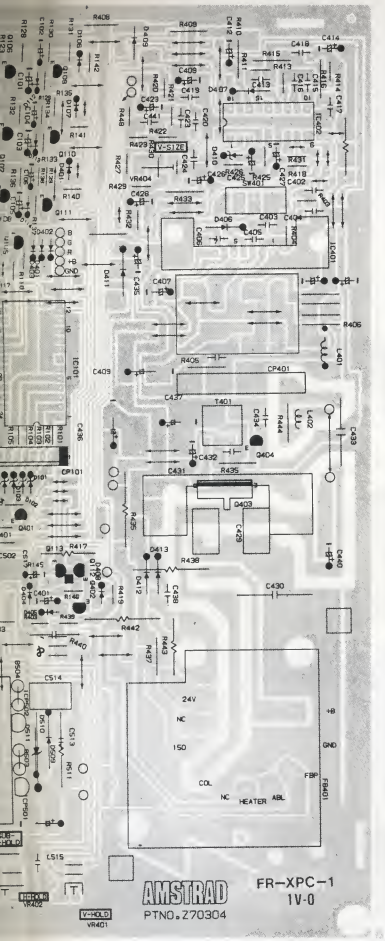
NOTE THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

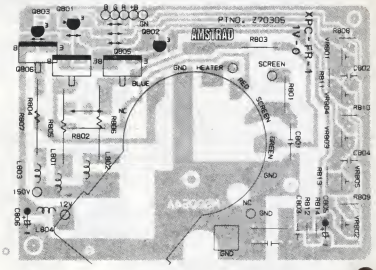

AMSTRAD
XPC-FR-1
1V-0
PTNO.
Z70307
CP801
AMSTRAD
PTNO.Z70306
XPC
1V
FB401
T401
CP201
IC201
IC401
IC402
CP402
V-SIZE
VR403
V-LINER
VR404
VR405
CUT OFF
T 3.15A
F501
SW501
BROWN
BLUE
BRIGHT
VR201-2
CONTRAST
VR201-1
C501
L501
D514
C505


XPC-FR-1
1V-0
XPC-FR-1
1V-0
V-HOLD
VR402
H-HOLD
VR401

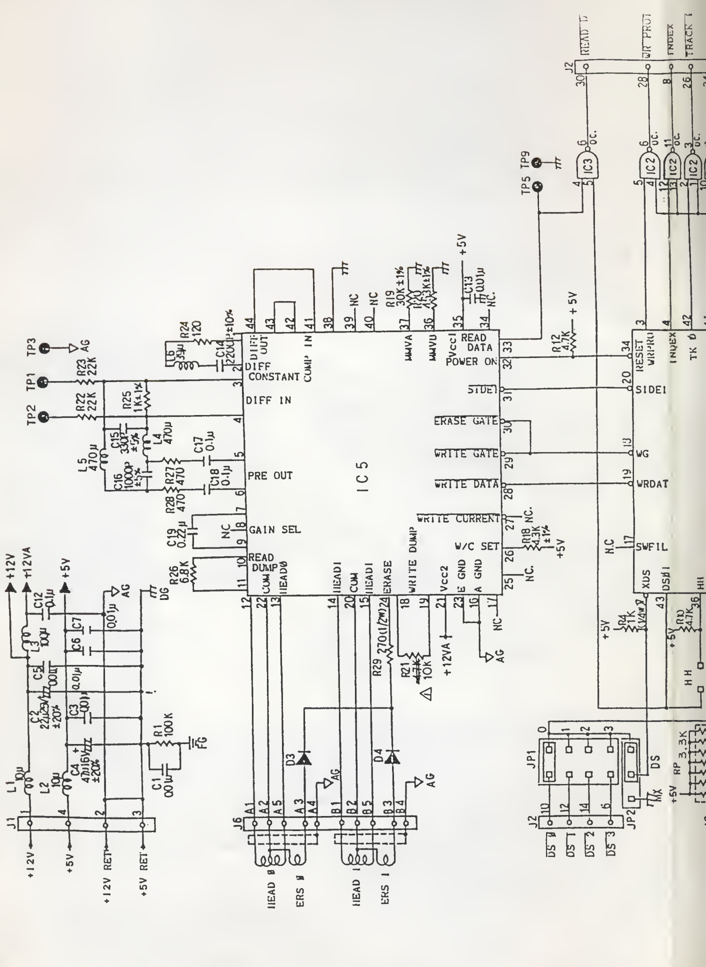
PC-CM MAIN P.C.B. COMPONENT LAYOUT

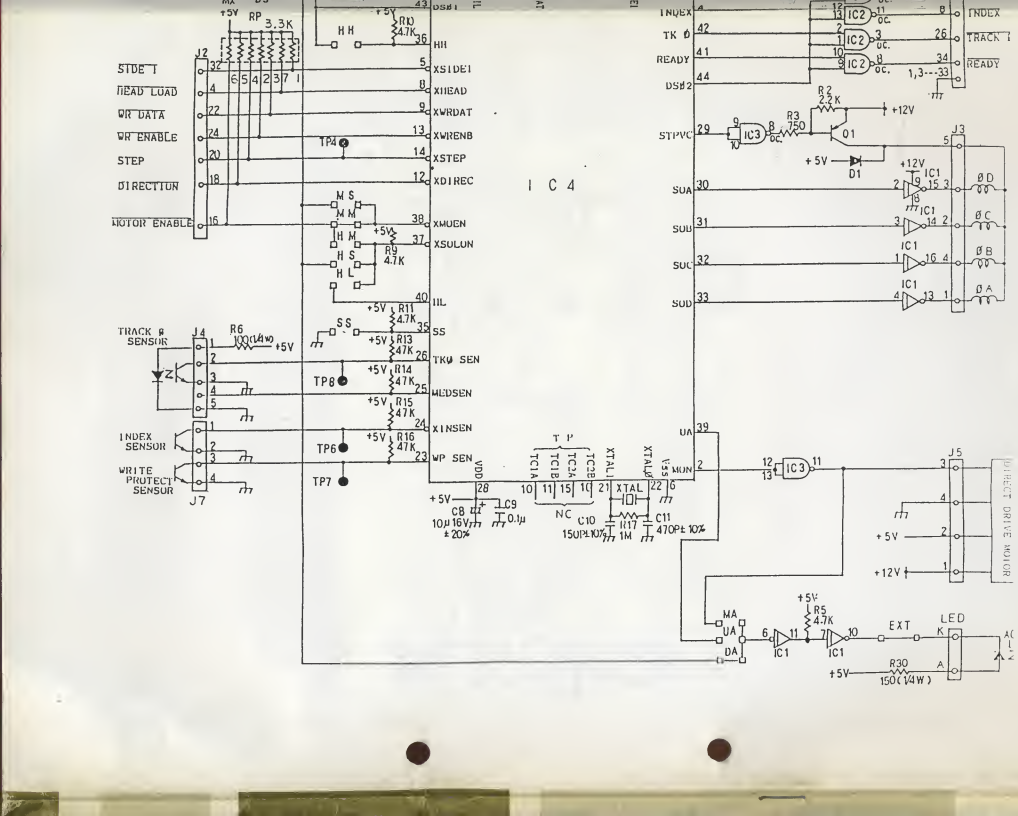






CRT P.C.B. COLOUR MONITOR


IC 5
DIFF IN
PRE OUT
GAIN SEL
READ DUMP
DIFF CONSTANT
COMP IN
READ DATA
POWER ON
SIDE1
ERASE GATE
WRITE GATE
WRITE DATA
WRITE CURRENT
W/C SET
WRITE DUMP
ERASE
E GND
A GND
Vcc1
Vcc2
RESET
INDEX
SIDE1
WG
WRDAT
SWFIL
XDS
HEAD 0
ERS 0
HEAD 1
ERS 1
+12V
+5V
+12V RET
+5V RET
+12VA
AG
DG
FG
TP1
TP2
TP3
TP5
TP9
J1
J2
J6
JP1
JP2
DS
L1
L2
L3
L4
L5
L6
C1
C2
C3
C4
C5
C6
C7
C12
R1 100K
R12 4.7K
R19 30K±1%
R22 22K
R23 22K
R24 120
R25 1K±1%
R26 6.8K
R27 470
R28 470
R29 270(1/2W)
D3
D4
IC2
IC3
NC


I C 4
RP
3.3K
J2
SIDE 1
HEAD LOAD
WR DATA
WR ENABLE
STEP
DIRECTION
MOTOR ENABLE
TP4
TP8
TP6
TP7
J7
TRACK 0 SENSOR
INDEX SENSOR
WRITE PROTECT SENSOR
J4
R6
100(1/4W)
+5V
HH
HM
HS
HL
SS
MM
MS
ML
R10 4.7K
R11 4.7K
R12 4.7K
R13 4.7K
R14 4.7K
R15 4.7K
R16 4.7K
R9 4.7K
XSIDE1
XHEAD
XWRDAT
XWRENB
XSTEP
XDIREC
XMOEN
XSOLON
XIL
XSS
TK0 SEN
WRDSEN
XINSEN
WP SEN
INDEX
TK 0
READY
DSK2
STPVC
SOA
SOB
SOC
SOD
IC2
IC3
Q1
D1
R2 2.2K
R3 750
+12V
J3
ØD
ØC
ØB
ØA
UA
MON
VDD
VSS
XTAL
TC1A
TC1B
TC2A
TC2B
C8 10µ 16V ± 20%
C9 0.1µ
NC
C10 150PF 10%
R17 1M
C11 470PF 10%
J5
MOTOR DRIVE
MA
DA
R5 4.7K
EXT
LED
R30 150(1/4W)