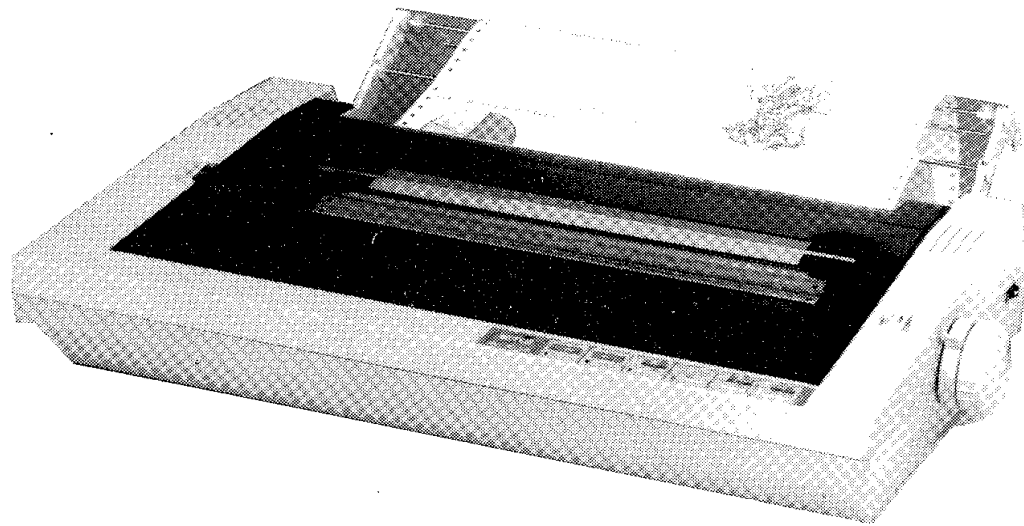


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TECHNICAL SPECIFICATION

Print System	: Impact Dot Matrix
Print Head	: 24 pin Print Head
Print Speeds	: Draft Mode -up to 288CPS (12cpi) -up to 240CPS (10cpi) NLQ Mode -up to 96 CPS (12cpi) -up to 80 CPS (10cpi)
Print Direction	: Uni-and Bi-Directional (selectable)
Print Line Length	: 13.6 inch max
Emulation	: Epson LQ and IBM Proprinter
Character Sets	: 96 Character ASCII and Italics (Epson LQ) IBM Character Sets 1 and 2 (inc. Graphics) 11 International Character Sets Downloadable Character Capability
Character Size	: 2.1mm(w) x 2.55mm(h)
Character Spacing & Columns Per Line	: Standard (Pica) - 10CPI/136CPL Mini (Elite) - 12CPI/163CPL Condensed Standard - 17CPI/236CPL Condensed Mini - 20CPI/272CPL Proportional - Variable/Variable Double Width Standard - 5CPI/68CPI Double Width Mini - 6CPI/81CPL Double Width Condensed - 8.5CPI/115CPL Double Width Proportional - Variable/Variable
Print Attributes	: Super/Subscript, Double Strike, Italics, Bold, Underline, Double Width.
Graphics Features	: Bit Image Graphics (24 pin and 8 pin mode) Single, Double, High Speed Double, Triple and Quadruple Density.
Graphics Resolution	: 240(H)x216(V) dots per inch max (IBM Mode) 240(H)x180(V) dots per inch max (Epson Mode)
Line Feed Speed	: 0.83IPS
Line Spacing	: 1/6 inch, 1/8 inch, 7/72 inch. n/60 inch programmable, n/180 inch programmable, n/72 inch programmable, n/216 inch programmable.
Paper Feed	: Friction or Inbuilt Belt Pull Tractors
Paper Width	: 4.5 to 15 inches Fanfold (Tractor) 4 to 15 inches Cut Sheet or Roll (Friction)
Number of Copies	: Original Plus Two
Interface	: Dual Interface Centronics Parallel (7 or 8 bit) RS232C Serial - Baud Rates 150, 200, 300, 600, 1200, 2400, 4800, 9600 bits per second
Buffer Size	: 8 kilobytes
Power Requirements	: 220-240 Volts AC 50Hz
Physical Dimensions	: 24in(w) x 15in (d) x 5in (h) (615 x 375 x 133mm)
Weight	: 7.5Kg

In keeping with our policy of continually improving our service and the technical quality of our products, we reserve the right to change component types, manufacturers, sources of supply or technical specification at any time.

SAFETY TEST

PLEASE NOTE: When any work is completed on this unit, correct safety tests must be carried out to ensure continued electrical safety.

PLEASE NOTE: All parts shown with the part number prefix  are Safety Items and must be replaced with similar items having an identical safety specification.

All of these items may be purchased direct from AMSTRAD PLC.

Serial Port DIP switch functions

BAUD RATE SELECTION (serial I/F only)

BAUD RATE	DS3-1	DS3-2	DS3-3
9600 bps	OFF	OFF	OFF*
4800 bps	OFF	OFF	ON
2400 bps	OFF	ON	OFF
1200 bps	OFF	ON	ON
600 bps	ON	OFF	OFF
300 bps	ON	OFF	ON
200 bps	ON	ON	OFF
150 bps	ON	ON	ON

PARITY SELECTION

PARITY	DS3-4	DS3-5
NO PARITY	OFF	OFF*
NO PARITY	ON	OFF
ODD PARITY	OFF	ON
EVEN PARITY	ON	ON

DATA LENGTH SELECTION

DATA LENGTH	DS3-6
8 bit	OFF*
7 bit	ON

I/F AND PROTOCOL SELECTION

I/F & PROTOCOL	DS3-7	DS3-8
Parallel	OFF	OFF*
Serial(XON/XOFF)	OFF	ON
RTS (Ready/Busy)	ON	OFF
Serial (ETX/ACK)	ON	ON

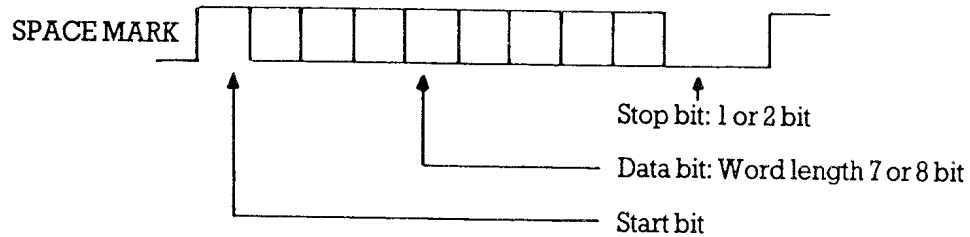
* Default setting of all Serial Port DIP switches is OFF.

Serial Interface

PIN	DESIGNATION	I/O	DESCRIPTION
1	FG	OUT	Frame Ground
2	SD	OUT	Send data This is a signal line to transmit serial data from the printer. This will be Mark when there is no data to transmit.
3	RD	IN	Receive Data This is a signal line to transmit serial data to the printer. This must be Mark when there is no data to transmit.
4	RTS	OUT	Request To Send This will be Space when data can be received, Mark when data cannot be received.
5	CTS	IN	Clear To Send This must be normally Space to allow the printer to send data. If this line is Mark status, no data will be transmitted from the printer.
6	DSR	IN	Data Set Ready This must be normally Space to allow the printer to receive data. If this line is Mark status, the printer will ignore the receiving data.
7	SG	-	Signal Ground
8	CD	IN	Carrier Detect This must be normally Space to allow the printer to transmit data. This is normally ignored (or not used). If this line is Mark status, no data will be transmitted from the printer and receiving data will be ignored.
14	FAULT	OUT	This signal will turn to Mark when the printer is DESELECT status.
20	DTR	OUT	Data Terminal Ready. This will be Space when the printer is selected, Mark when deselected.

Note: "Space" level is +12v
"Mark" level is -12v

Signal Timing of Serial Interface



DIP switch functions

Chapter 2 described how to adjust DIP switches DS1-1-7 to select default character set and also how to adjust DS1-1, DS1-2, DS1-3 to select the required international characters. The following table indicates the functions of the remaining DS1 and DS2 DIP switches (for DS3 see Serial Port DIP switches):

SWITCH	FUNCTION	OFF	ON
DS1-1	International characters	See chapter 2	See chapter 2
DS1-2	International characters	See chapter 2	See chapter 2
DS1-3	International characters	See chapter 2	See chapter 2
DS1-4	Page length	11 inch	12 inch
DS1-5	Default skip perforation	Disable	Enable
DS1-6	Alarm bleeper	Enable	Disable
DS1-7	Print mode	Standard	LQ
DS1-8	SLCT IN signal	Not sent	Automatically sent
DS2-1	Paper out sensor	Enable	Disable
DS2-2	CR function	CR only	CR and LF
DS2-3	Zero character	Unslashed	Slashed
DS2-4	Reserved		
DS2-5	Character set	Epson	IBM
DS2-6	Unused		
DS2-7	Auto loading	Enable	Disable
DS2-8	Reserved		

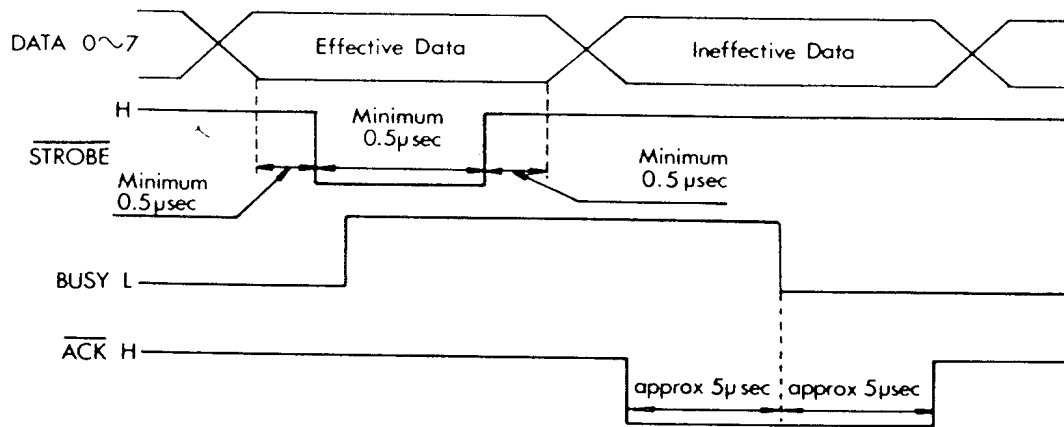
REMEMBER: Always switch the printer *off* before adjusting the DIP switches.

Parallel Interface

PIN	DESIGNATION	I/O	DESCRIPTION
1	<u>STROBE</u>	IN	Taking pin low enables receiving of DATA 0 to DATA 7. Minimum necessary pulse width is 0.5 μ S.
2	DATA 0 (LSB)	IN	8-bit data signal. Taking pin high or low corresponds to 1 and 0 respectively.
3	DATA 1		
4	DATA 2		
5	DATA 3		
6	DATA 4		
7	DATA 5		
8	DATA 6		
9	DATA 7 (MSB)		
10	<u>ACKNOWLEDGE</u>	OUT	Active low output pulse generated when data entry and processing are completed. After this signal, subsequent data will be accepted. This signal is also generated when changing from off line to on line.
11	BUSY	OUT	Output high under any of the following conditions: a. Going off line. b. Paper feed or printing operation. c. When a control code is received.
12	PE	OUT	Output high when paper is out. (When on line, paper out is sensed after executing the paper feed command. When off line, paper out is always sensed.)
13	SELECT	OUT	On line and off line correspond to high and low respectively. When off line, DATA 0 to DATA 7 cannot be received.
14	<u>AFD</u>		Taking pin low generates line feed.
15	NC		
16	0V		
17	CHASSIS GND		
18	+5V		+5V (50mA max) power supply output.
19	GND		Signal ground.
20	GND		Signal ground.
21	GND		Signal ground.

PIN	DESIGNATION	I/O	DESCRIPTION
22	GND		Signal ground.
23	GND		Signal ground.
24	GND		Signal ground.
24	GND		Signal ground.
26	GND		Signal ground.
27	GND		Signal ground.
28	GND		Signal ground.
29	GND		Signal ground.
30	GND		Signal ground.
31	INPUT PRIME	IN	Taking pin low initialises printer. Minimum necessary pulse width is 100 μ S.
32	FAULT	OUT	Output low when off line.
33	GND		
34	NC		
35	+5V	OUT	
36	SLCT IN	IN	Taking pin low or high sets printer on line or off line respectively (when the printer is not in error condition).

Signal timing of Parallel Interface



DATA input waveform

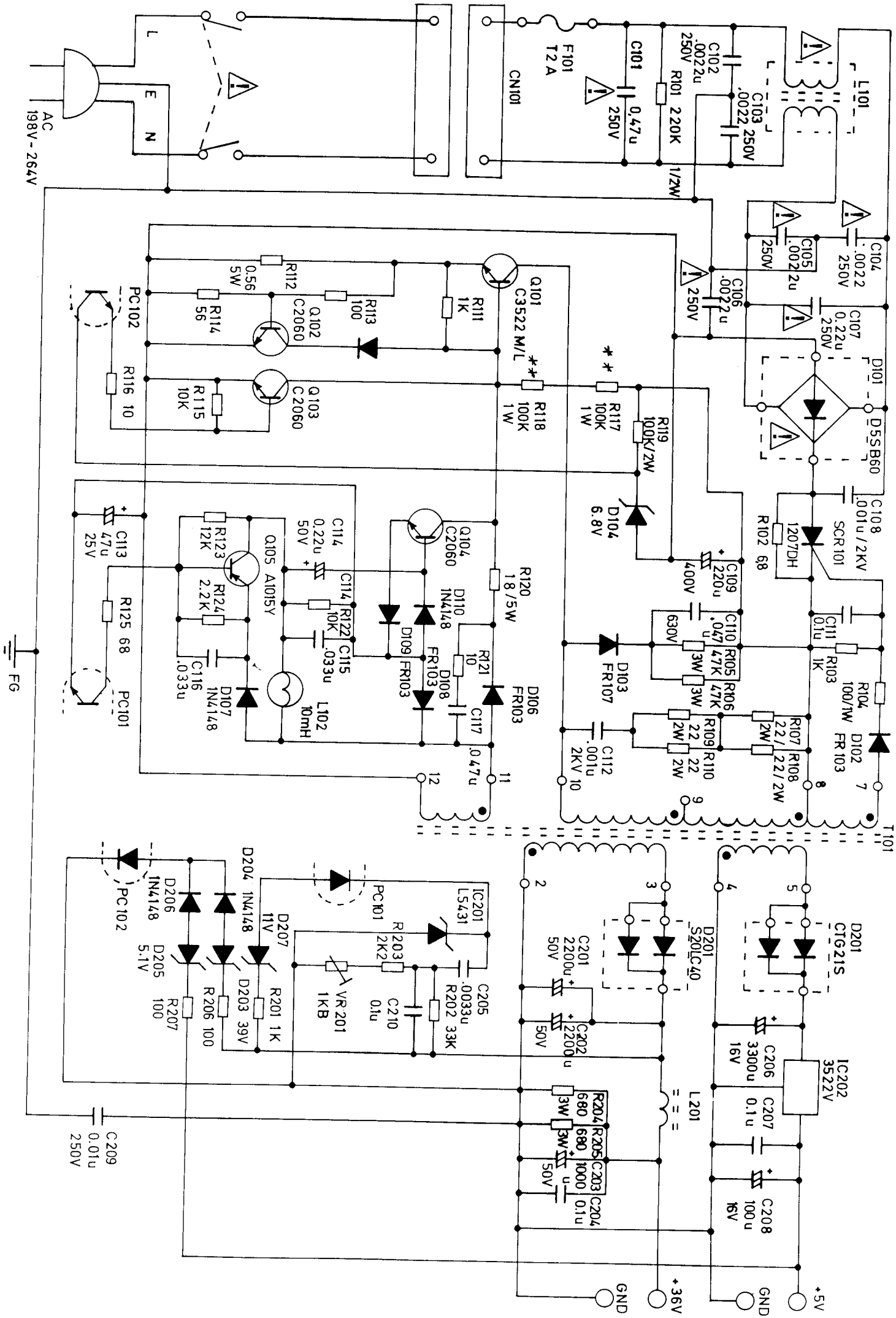
COUNTRY	DS1-1	DS1-2	DS1-3
USA	OFF	OFF	OFF
France	OFF	OFF	ON
Germany	OFF	ON	OFF
Uk	OFF	ON	ON
Denmark	ON	OFF	OFF
Sweden	ON	OFF	ON
Italy	ON	ON	OFF
Spain	ON	ON	ON

ELECTRICAL PARTS LIST

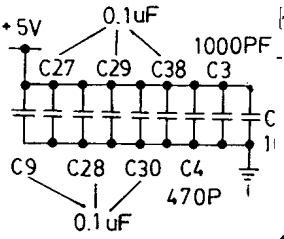
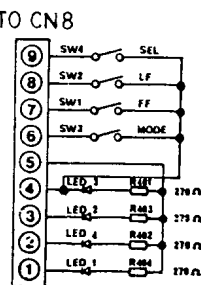
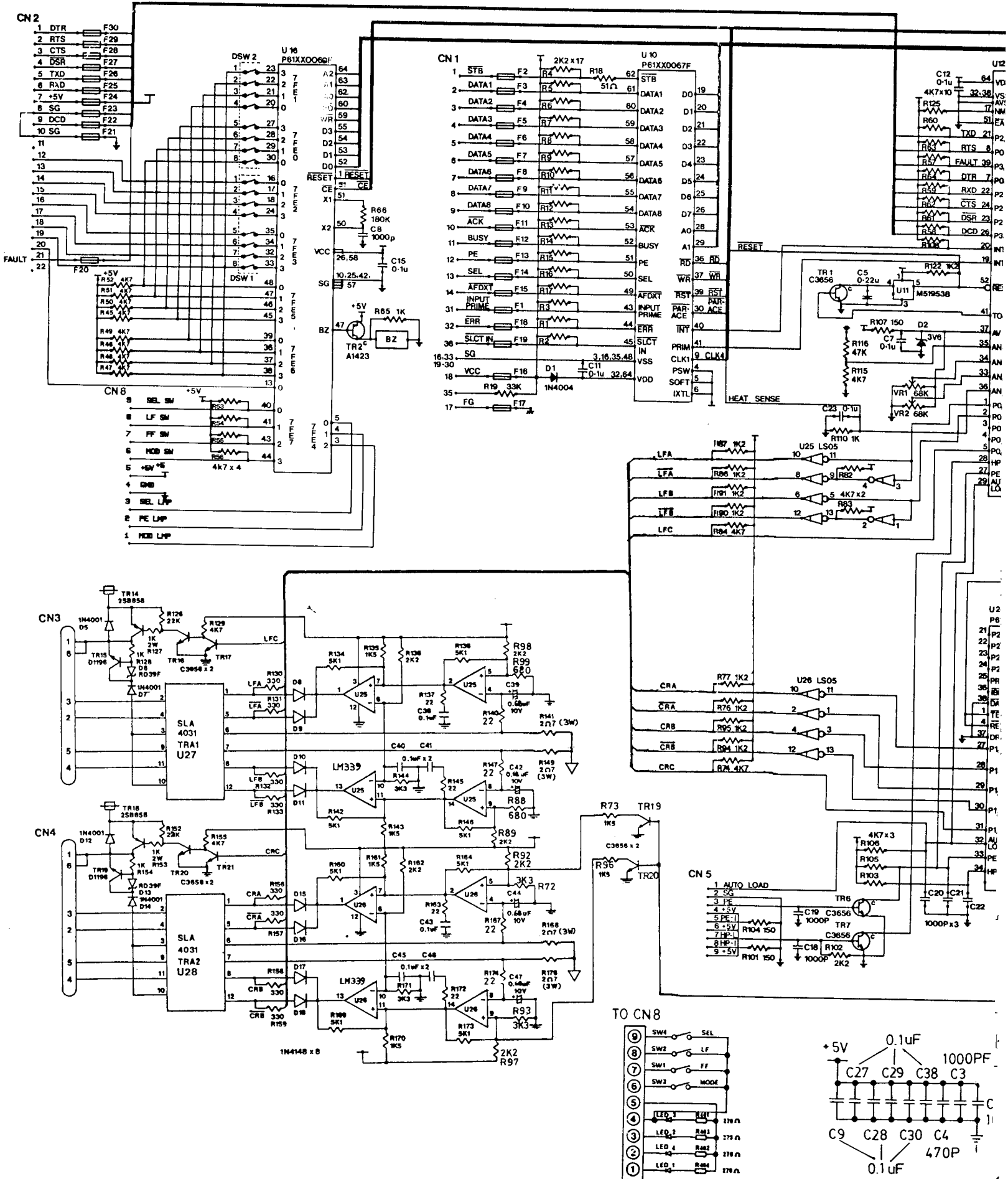
Circ. Ref.	Description	Part No.
IC's		
U1	IC SYS. Rom1	192486
U2	IC SYS. Rom2	192487
U3,13-15	IC UPD42832-12 RAM	192003
U4	IC Character Generation ROM	192008
U5	IC 74LS245	192005
U6,7	IC 74LS139	190722
U8	IC 74LS08	192291
U9	IC Z70932 Gate Array Memo Cont	192294
U10	IC Z70931 Gate Array Inp Cont	192011
U11	IC M51953	192292
U12	IC UPD78310 CPU	192296
U16	IC Z70930 Gate Array Pin Cont	192010
U17-22	QAR FT6764Mx3 Transistor Array	192297
U23	IC Z70933 Gate Array Head Cont	192293
U25,26	IC 74LS05	192290
U27,28	IC STK6982H	192014
IC301	IC SN75188	192288
IC302	IC SN75189	192289
Transistors		
TR1,4,6,7,19, 20,301	TR 2SC3656	192000
TR2	TR 2SA1423	190907
TR3	TR 2SA673	192283
TR8,11	TR 2SB647	192489
TR9,12	TR 2SD1196	192286
TR10,13	TR 2SC1890	192490
TR302	TR 8550	192284
Diodes		
D1	D 1N4004	190716
D2	DZ 3.6V 1/2W HZ4A2	192278
D8,9	DZ 39V 1W RD39FBI	192280
D301-308,310, 311	D 1N4148	190715
D309	DZ 12V 1/2W	192279
PE,PO	LED Red TLR211	190926
Mode,SEL	LED Green TLG211	190927
Coils		
T301	T Osc Coil FCC172 Ferrite	192298
Miscellaneous		
SW	Mains Power On/Off Switch	190920
SW1-4	Dip Switch 8 Way	190737
X1,2	Ceramic Resonator 12MHz	192314
BZ	Piezo Buzzer	192319
VR1,2	VRSF 68kΩ	190928

Description.	Circuit Reference	Part No.
Resistors		
22Ω	R137, 140, 145, 147	192491
33Ω	R305	192492
51Ω	R18	192493
150Ω	R101, 104, 107	10036
270Ω	R304, 401-404	10042
330Ω	R130-133	10044
390Ω	R139, 148	10046
470Ω	R67, 80	10048
1kΩ	R65, 110, 121, 128	10061
1.2kΩ	R20-31, 33-44, 76-79, 86, 87, 90, 91, 94, 95, 122	10063
1.3kΩ	R88, 99	192494
1.5kΩ	R135, 143	10065
2.2kΩ	R1-17, 68, 70, 89, 92, 98	10069
3.3kΩ	R72, 93, 144	10070
4.7kΩ	R32, 45-64, 74, 82-84, 103, 105, 106, 108, 109, 115, 125, 129, 301, 302	10077
5.1kΩ	R134, 138, 142, 146	192495
6.8kΩ	R303	10081
7.5kΩ	R136	192496
10kΩ	R69, 71, 123, 124	10085
22kΩ	R126	10093
33kΩ	R19	10097
39kΩ	R75, 81, 85, 100	10099
47kΩ	R116	10101
51kΩ	R18	192497
180kΩ	R66	10115
0.5Ω/3W	R113, 114, 119, 120	192498
3.3Ω/3W	R141, 149	192499
1kΩ/3W	R127	192500
Ceramic Capacitors		
470pF	C4, 304-307	192331
100pF	C6, 25	24016
1000pF	C3, 8, 18-22	151645
0.01μF	C301, 303	810312
0.02μF	C302, 308	21027
Monolythic Capacitors		
0.1μF	C7, 9-12, 15, 23, 24, 26-38	192332
Electrolytic Capacitors		
0.22μF/50V	C5	152546
0.68μF/50V	C39, 42	192334
100μF/16V	C310, 311	20028
470μF/16V	C309	1400248
4700μF/50V	C1,2	192336
Multilayer Capacitors		
0.1μF	C38, 40, 41	192337

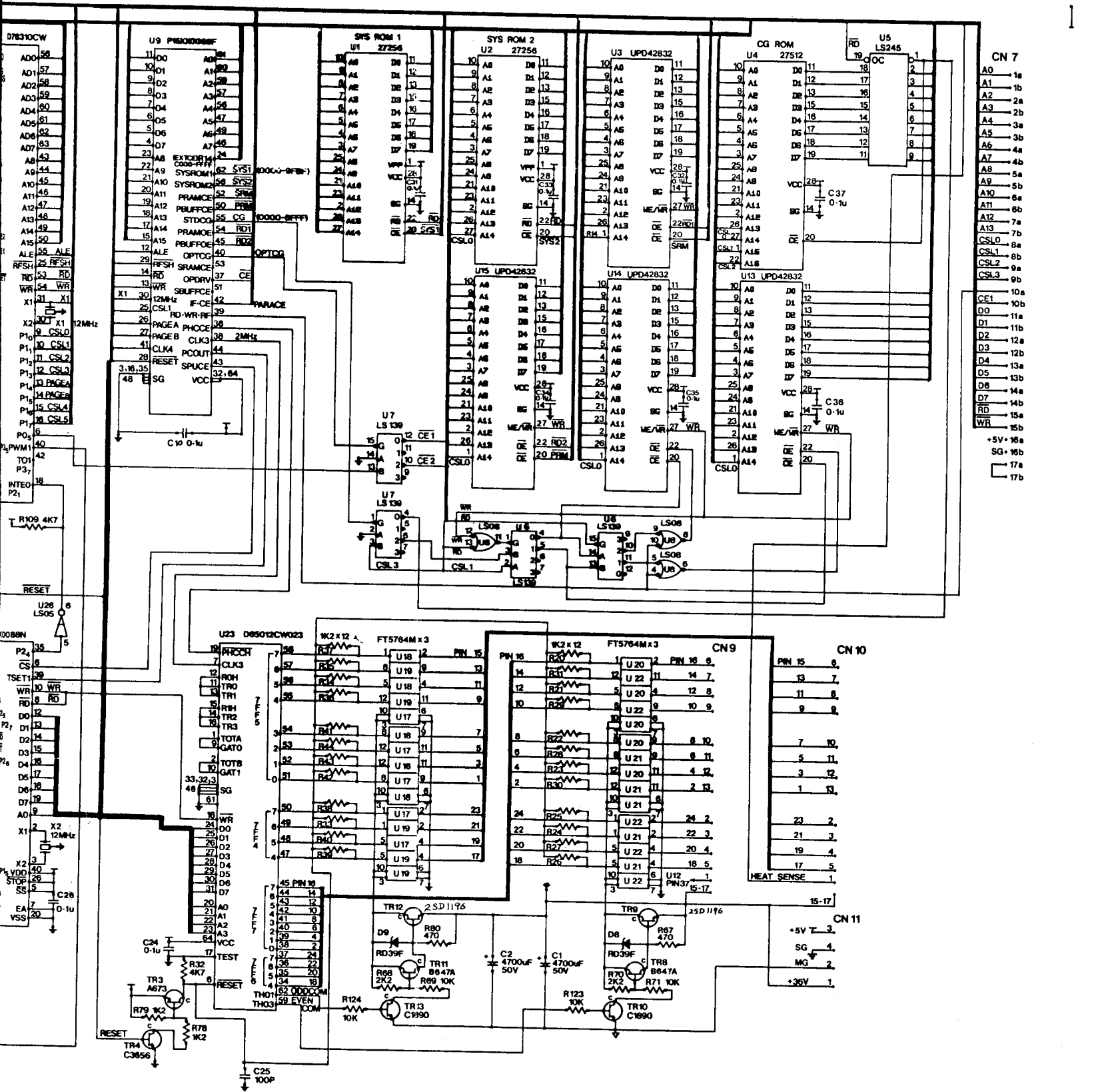
POWER SUPPLY CIRCUIT DIAGRAM

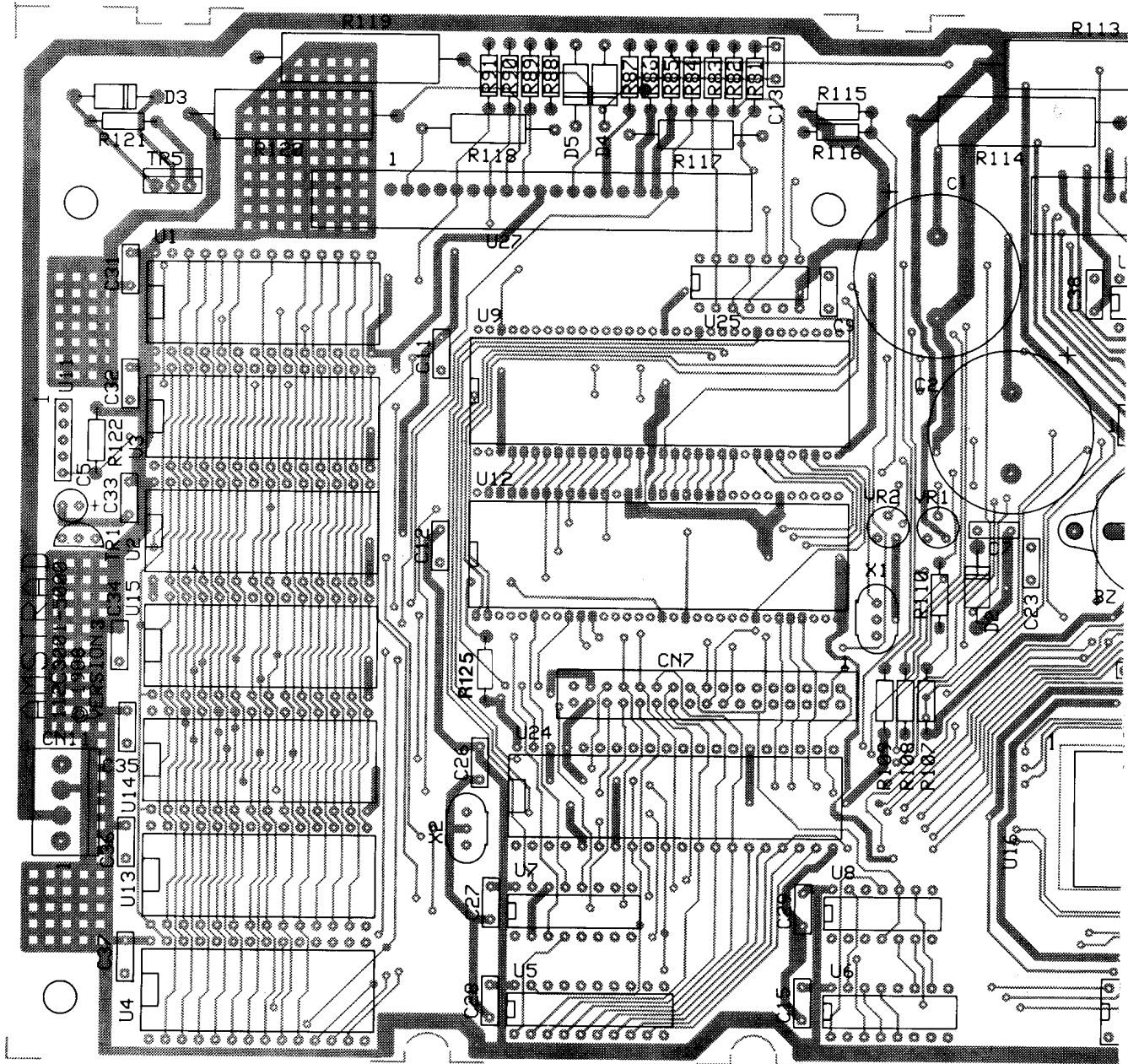


MAIN CIRCUIT

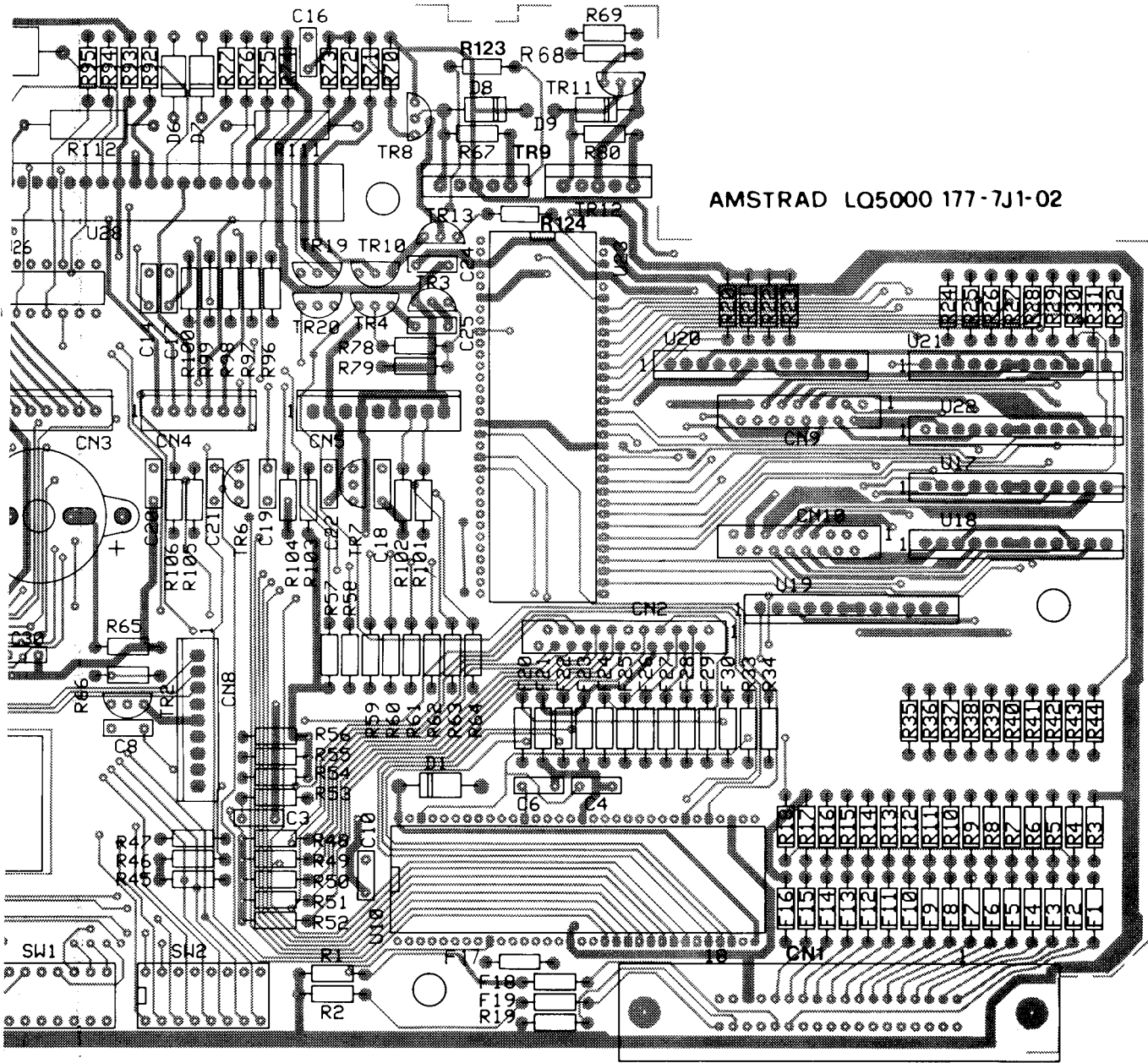


DIAGRAM



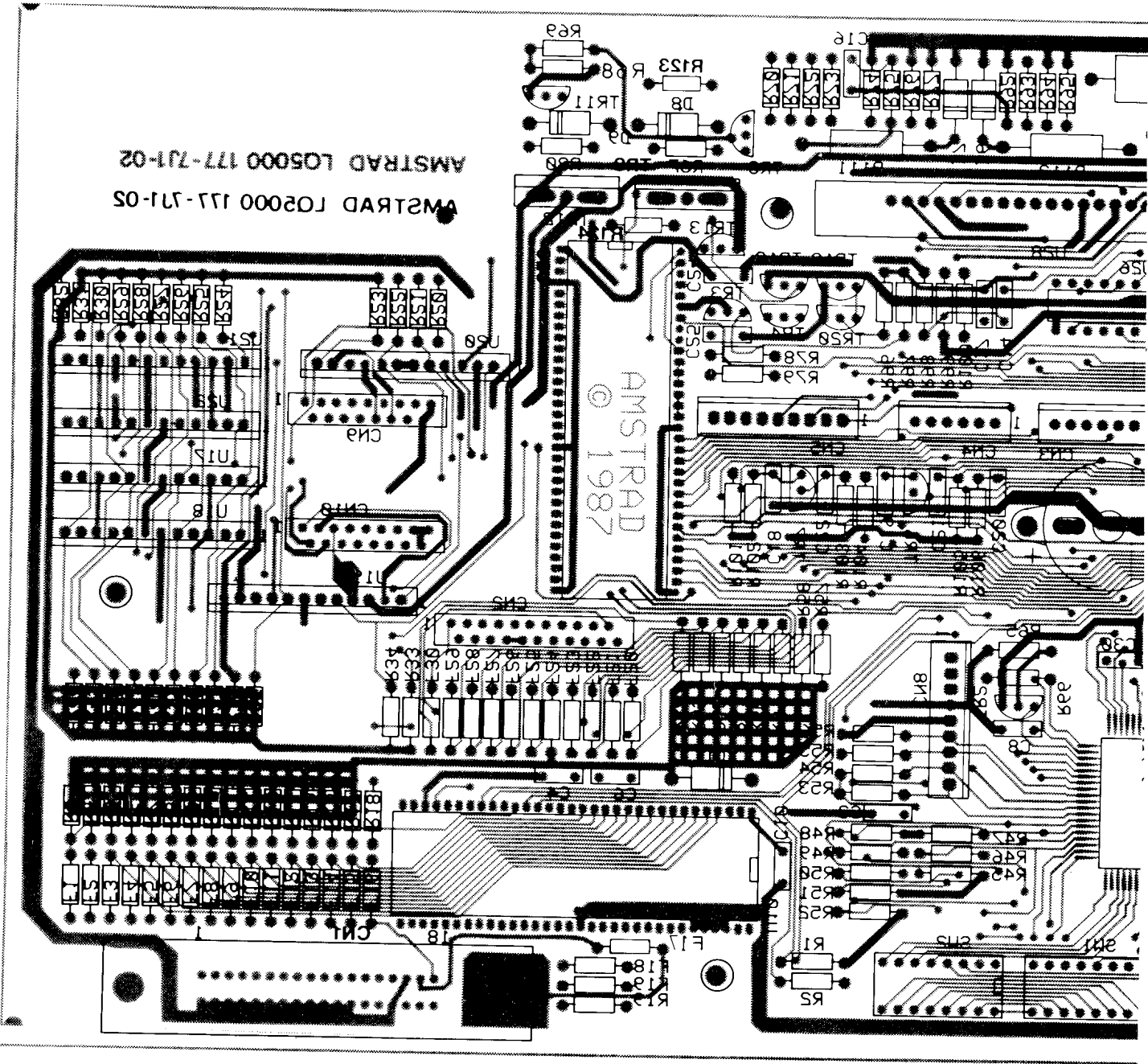


COMPONENT LAYOUT



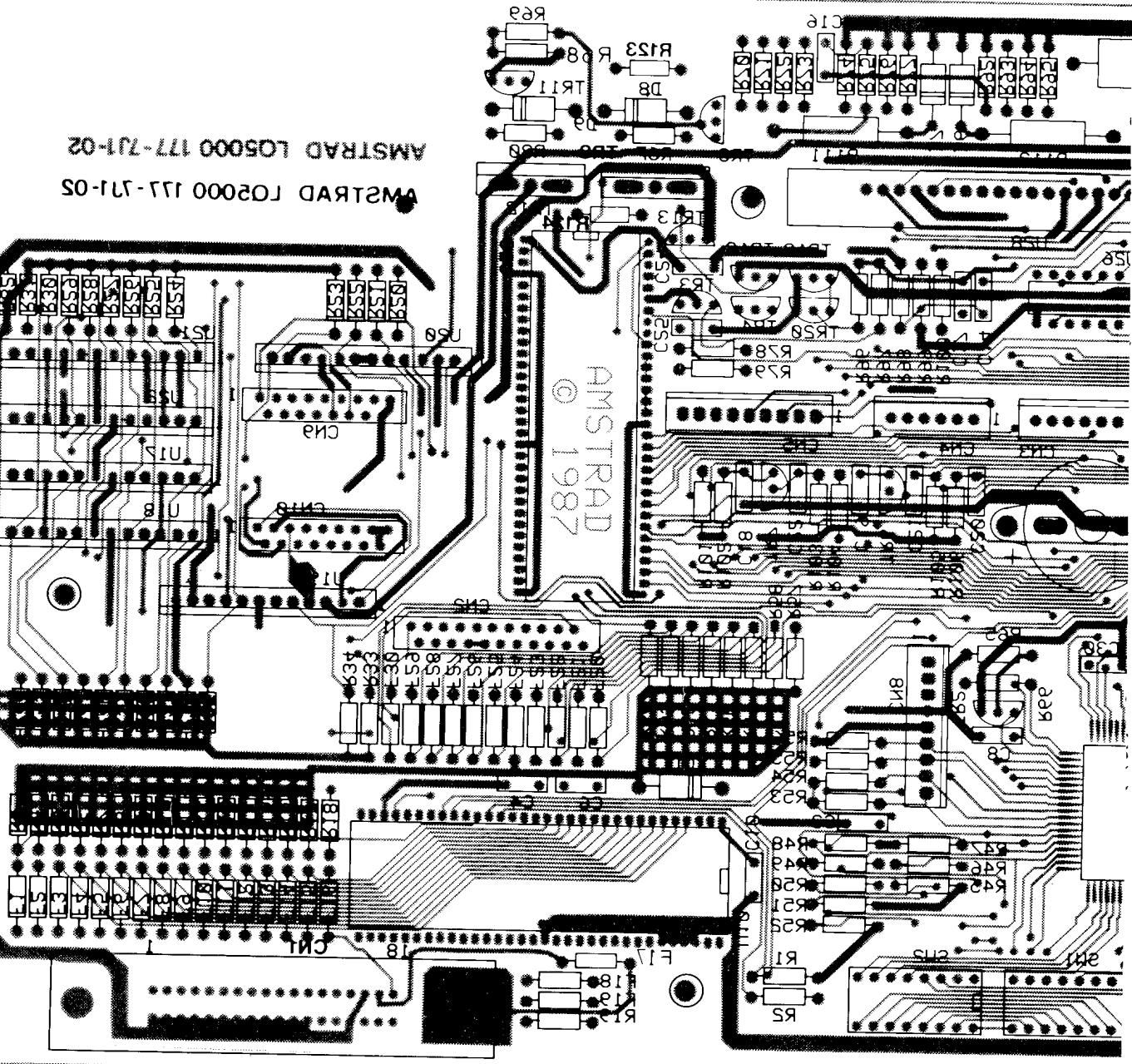
AMSTRAD LQ5000 177-7J1-02

LQ5000-AA5175/2
COMPONENT SIDE
SCALE 2:1

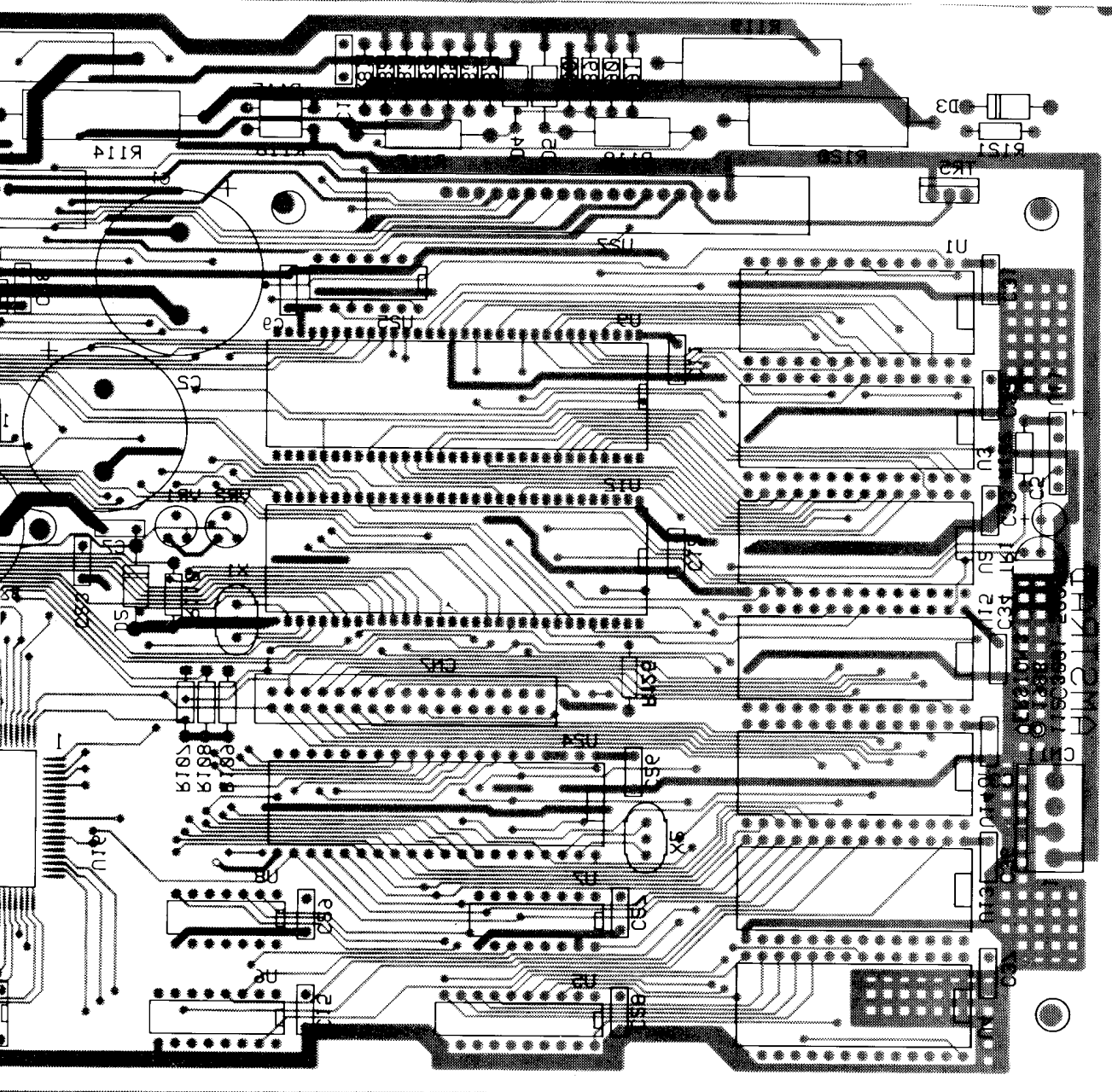


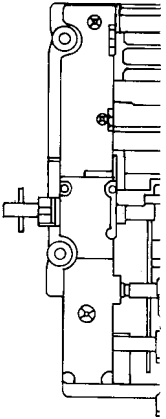
AMSTRAD L05000 177-71-05
AMSTRAD L05000 177-71-02

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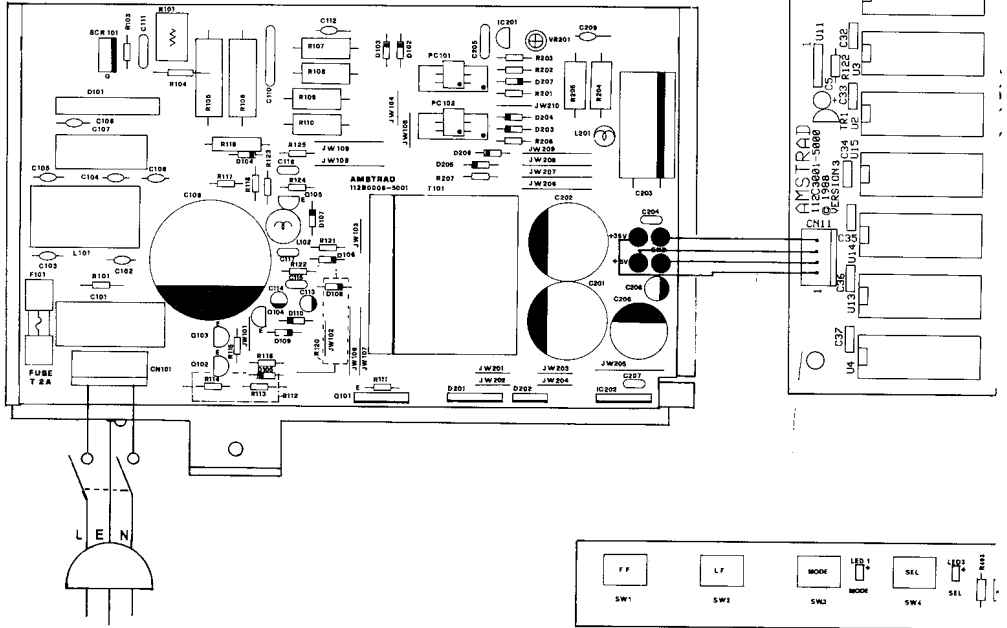


RACK SIDE

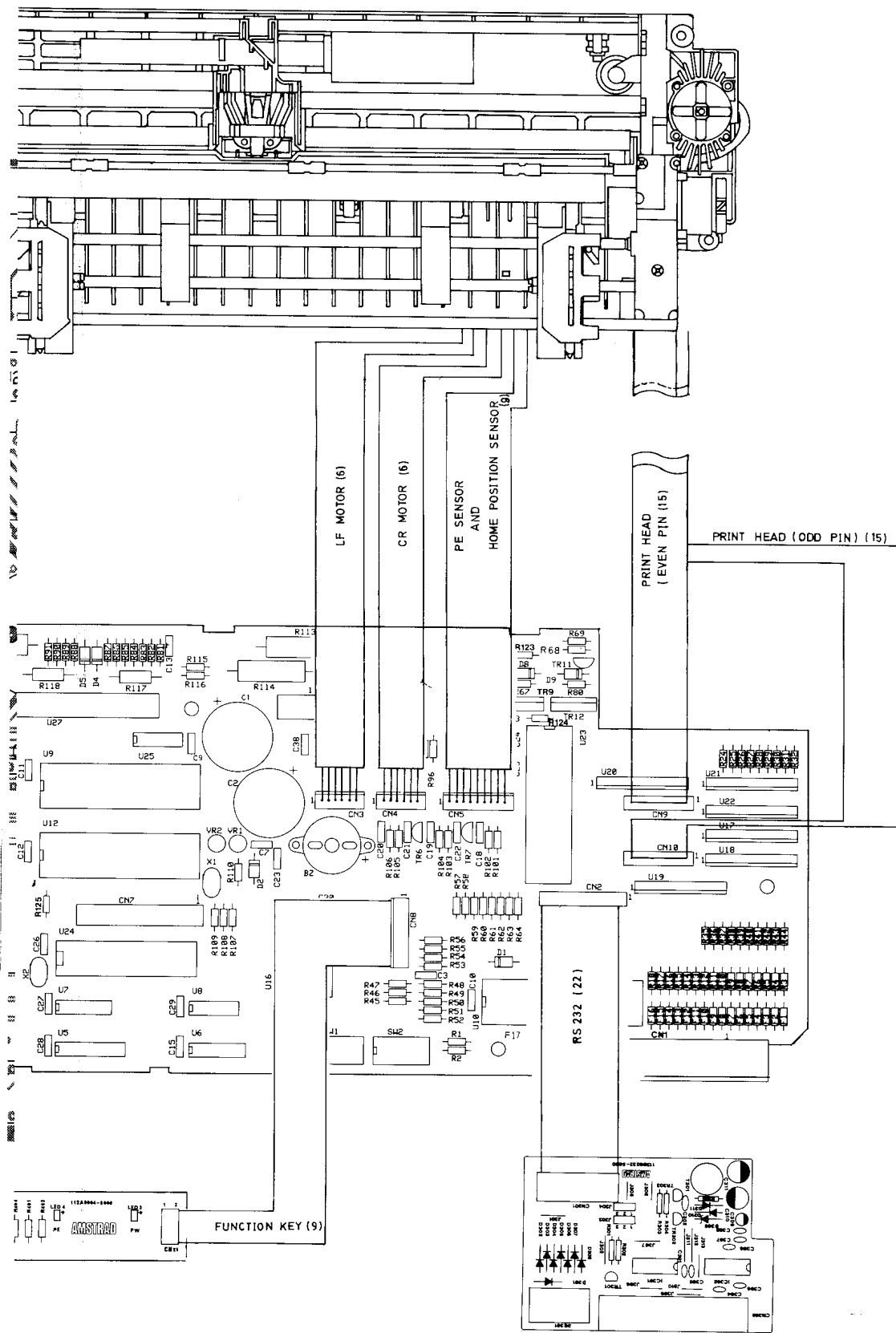




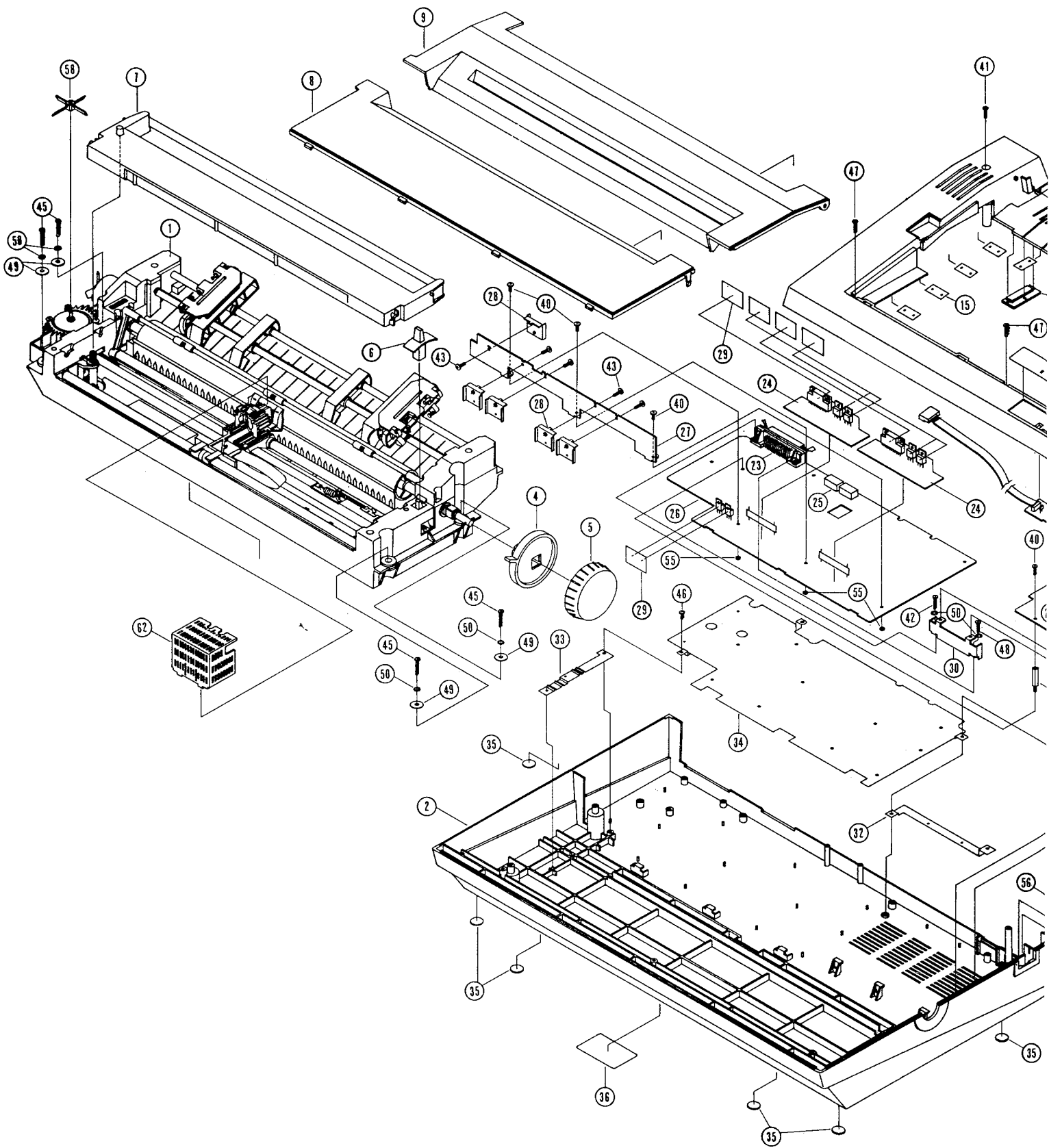
POWER SUPPLY UNIT

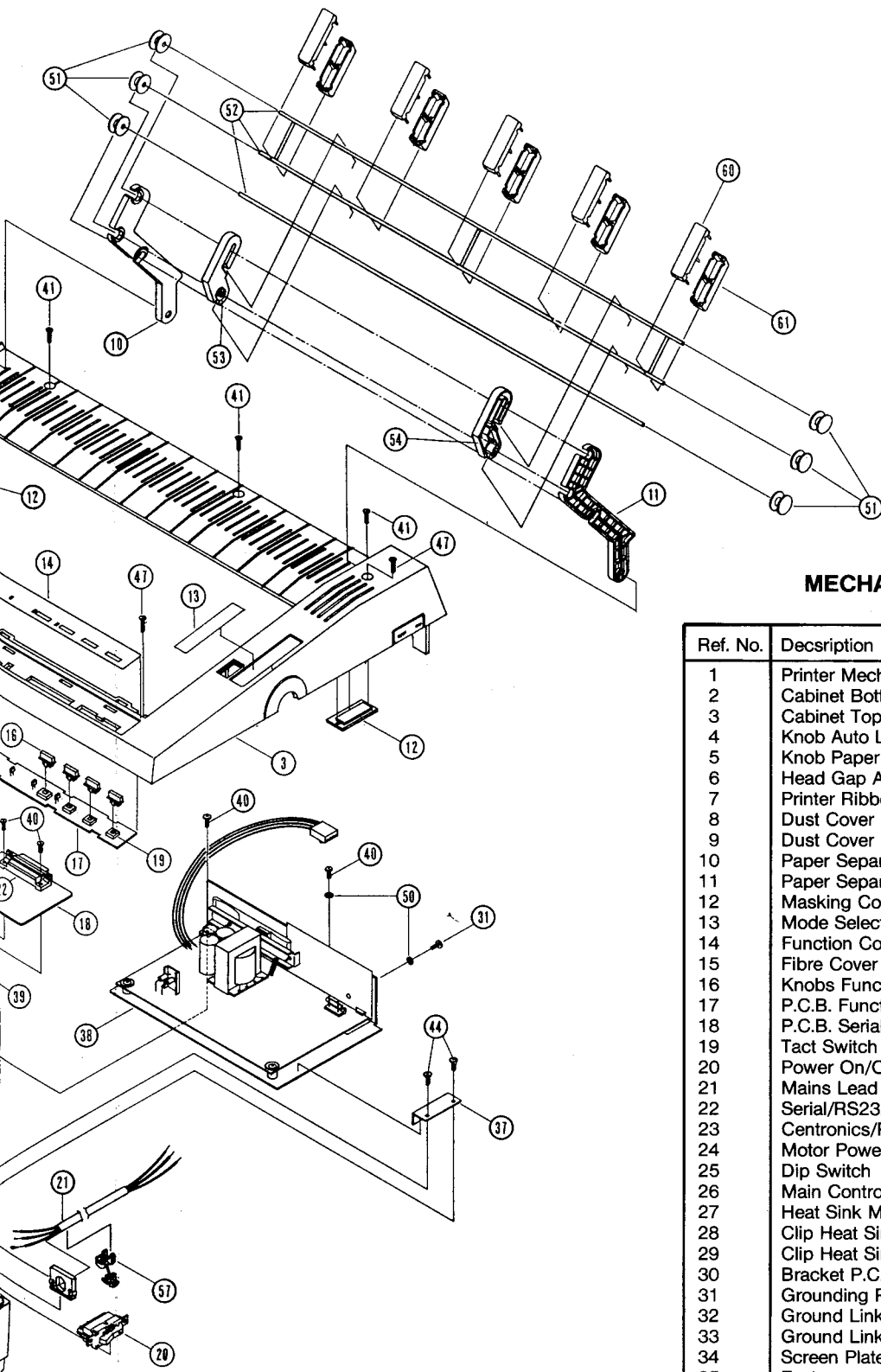


DIAGRAM



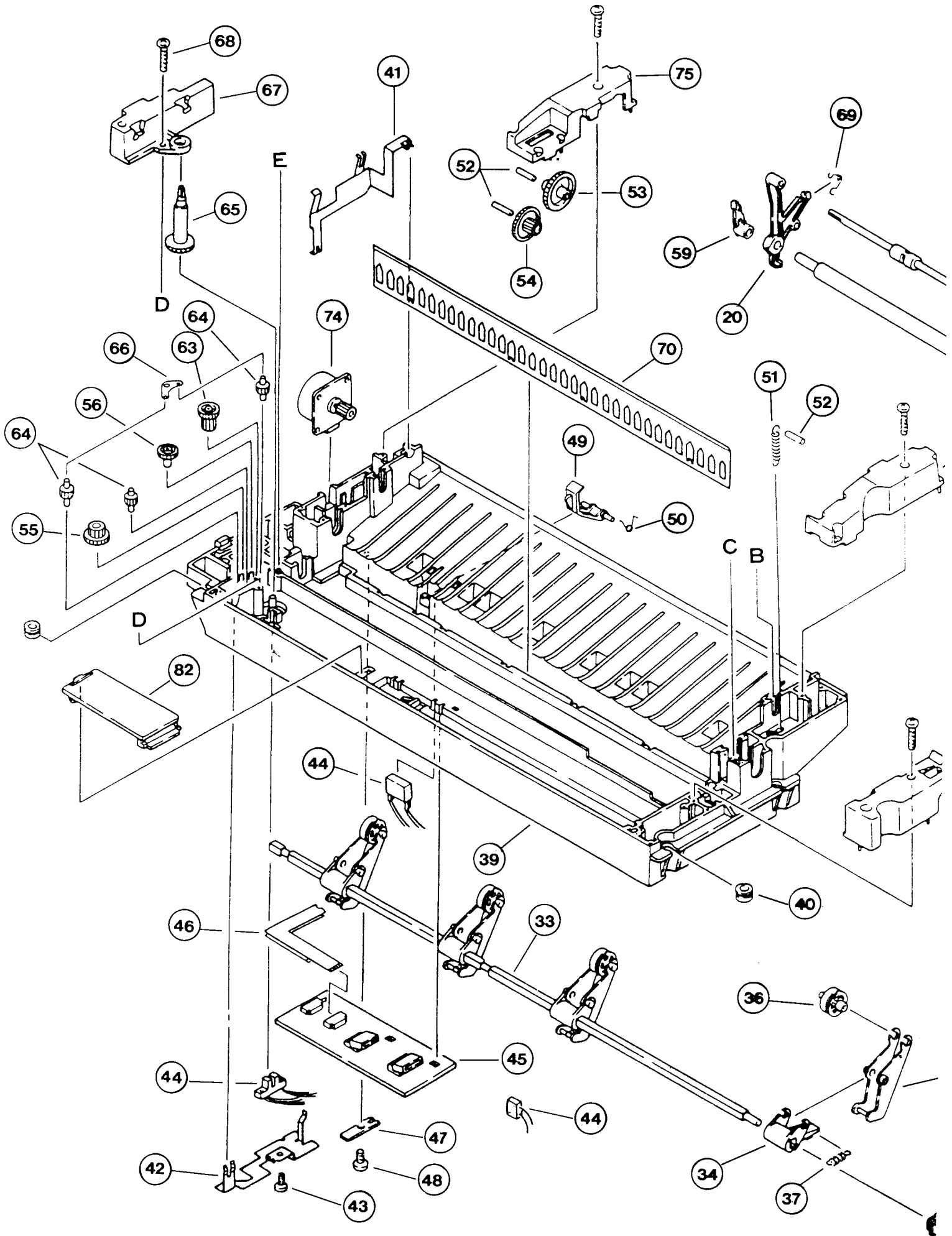
MECHANISM EXPLODED VIEW



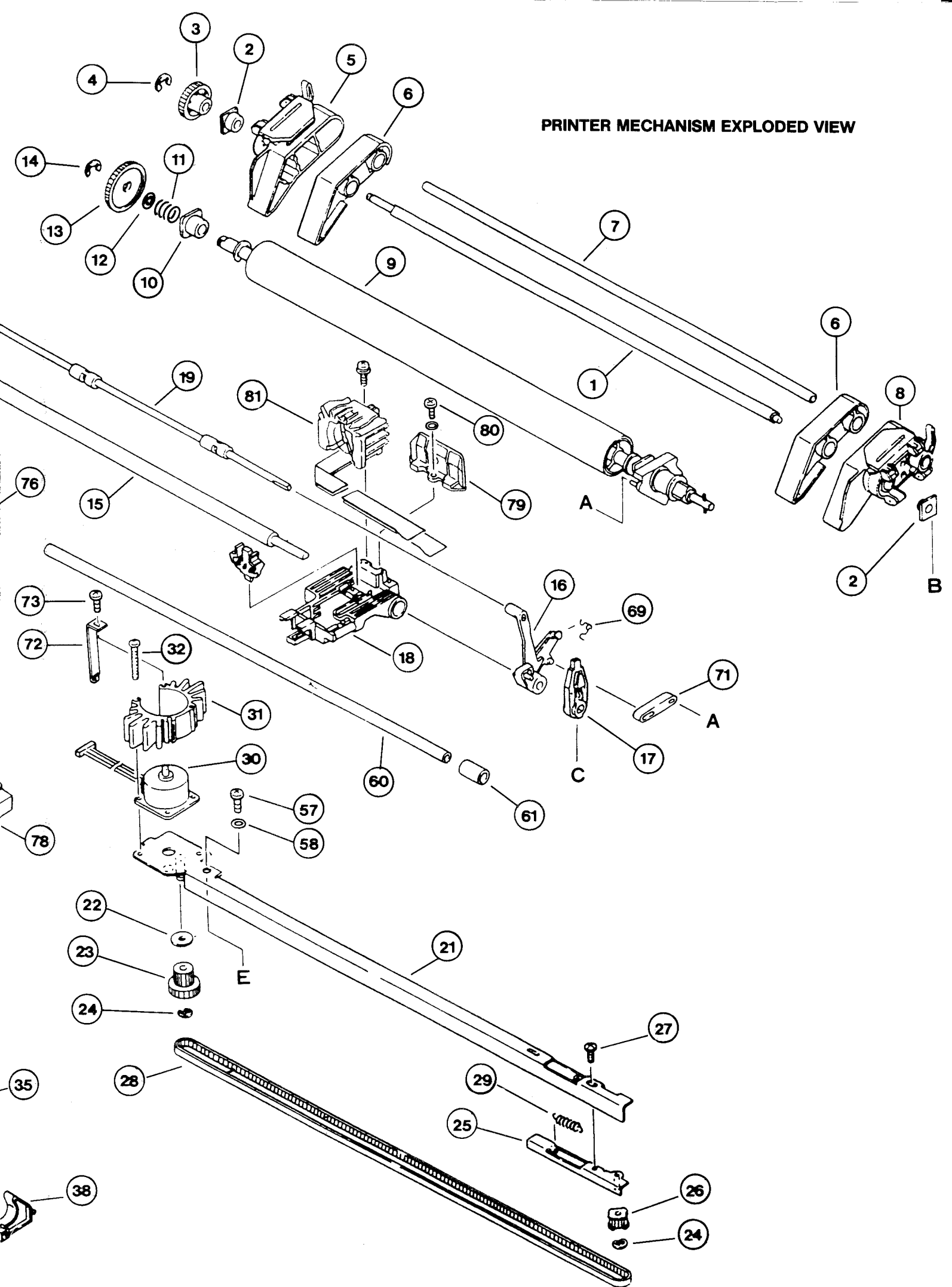


MECHANISM PARTS LIST

Ref. No.	Description	Part No.
1	Printer Mechanism	192318
2	Cabinet Bottom	192358
3	Cabinet Top	192359
4	Knob Auto Loading	192376
5	Knob Paper Advance	192375
6	Head Gap Adj. Knob	192379
7	Printer Ribbon (not a spare part)	
8	Dust Cover Lower	192357
9	Dust Cover Upper	192356
10	Paper Separator Arm (L)	192366
11	Paper Separator Arm (R)	192367
12	Masking Cover	
13	Mode Select Inlay	192385
14	Function Control Inlay	192384
15	Fibre Cover	
16	Knobs Function	192377
17	P.C.B. Function	192488
18	P.C.B. Serial Port RS232	192316
19	Tact Switch	190921
20	Power On/Off Switch	190920
21	Mains Lead	
22	Serial/RS232 Connector	
23	Centronics/Parallel Connector	192303
24	Motor Power Drive Regulator	
25	Dip Switch	190737
26	Main Controller P.C.B.	192154
27	Heat Sink Motor Driver P.C.B.	
28	Clip Heat Sink (L)	
29	Clip Heat Sink (R)	
30	Bracket P.C.B. Mount	
31	Grounding Plate	
32	Ground Link (A)	
33	Ground Link (B)	
34	Screen Plate	
35	Feet	192386
36	Rating Label	
37	Mounting Clip	
38	Switching Power Supply P.C.B. Assy	192317
39	Spacer	
51	Bushing Paper Guide Rod Support	
52	Paper Guide Rod	
53	Mid Paper Guide (L)	192378
54	Mid Paper Guide (R)	192380
55	Nut M3 x 3	
56	Mains Lead Stopper	
57	Mains Cable Restraint	
58	C.R. Motor Fan	
60	Paper Guide Top	192363
61	Paper Guide Bottom	192364
62	Heat Sink Insulator (R)	
63	Heat Sink Insulator (L)	
64	Bracket P.C.B. Support	
65	Cover Printer Head	192355



PRINTER MECHANISM EXPLODED VIEW

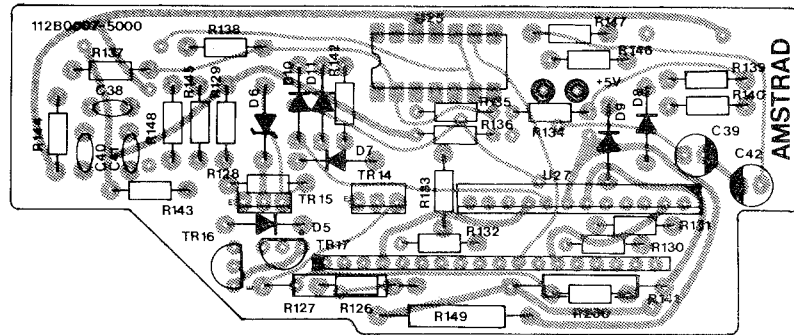


PRINTER MECHANISM PARTS LIST

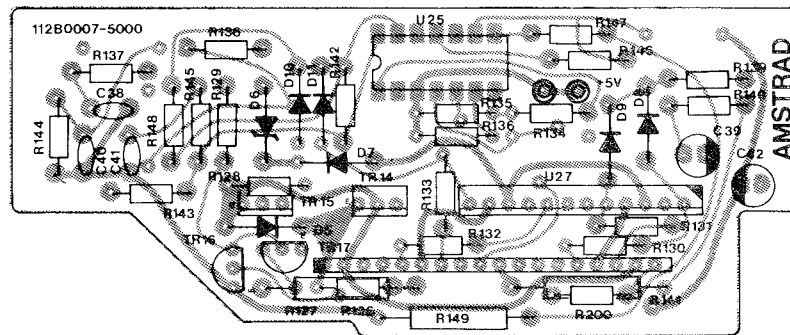
Ref. No.	Description	Part No.
1	Tractor Shaft	192411
2	Tractor Bearing	192412
3	Tractor Gear	192413
4	E Ring E-5	192414
5	Tractor Housing (L)	192415
6	Paper Guide (R)	192416
7	Guide Shaft	192417
8	Tractor Housing (R)	192418
9	Set Platen	192419
10	Platen Bearing	192420
11	LF Spring	192421
12	Ploy Slider	192422
13	Platen Gear	192423
14	E Ring E-8	192424
15	Carriage Shaft	192425
16	Bail Bar Arm (R)	192426
17	Set Gap Lever	192427
18	Set Carriage (B)	192428
19	Set Bail Shaft	192429
20	Bail Arm (L)	192430
21	Set Carriage Bracket (A)	192431
22	Set Collar	192432
23	Carriage Gear	192433
24	E Ring E-2	192434
25	Set Carriage Bracket (B)	192435
26	Carriage Pulley	192436
27	Tapping Screw M3 x L6	
28	Belt	192437
29	Spring	192438
30	Set Carriage Return Motor	192439
31	Carriage Heat Sink	
32	Screw M3 x L30	
33	Release Shaft	192440
34	Pressure Roller Arm	192441
35	Pressure Roller Lever	192442
36	Set Pressure Roller	192443
37	Spring	192444
38	Arm	192445
39	Set Frame	192446
40	Rubber Foot	192447
41	PG Plate (A)	192448

Ref. No.	Description	Part No.
42	PG Plate (B)	192449
43	Screw M3 x L16	
44	Set Sensor Harness	192450
45	Set Connect P.C.B. A	192451
46	Sumi Card	192452
47	Holder	192453
48	Screw M3 x L10	
49	PE Lever	192454
50	PE Spring	192455
51	Release Lever Spring	192456
52	Gear Shaft	192457
53	LF Gear (A)	192458
54	LF Gear (B)	192459
55	RF Gear (A)	192460
56	RF Gear (B)	192461
57	Screw	
58	Set Collar	
59	Carriage Sleeve (L)	192462
60	Carriage Sub Shaft	192463
61	Carriage Braking	192464
62	Lock Piece	192465
63	RF Gear C	192466
64	Switch Gear	192467
65	RF Gear D	192468
66	RF Plate	192469
67	Carriage Cover (L)	192470
68	Screw M3 x L16	
69	Bail Arm Spring	192472
70	Paper Press	192473
71	Release Link	192474
72	Heat Sink Holder	192475
73	Tapping Screw M4 x 14	
74	Set LF Motor	192477
75	Washer	192478
76	Tractor Cover (L)	192479
77	Tractor Cover (R)	192480
78	Carriage Cover (R)	192481
79	Paper Mask	192482
80	Tapping Screw	192483
81	Printer Head	192484
82	P.C.B. Holder	192485

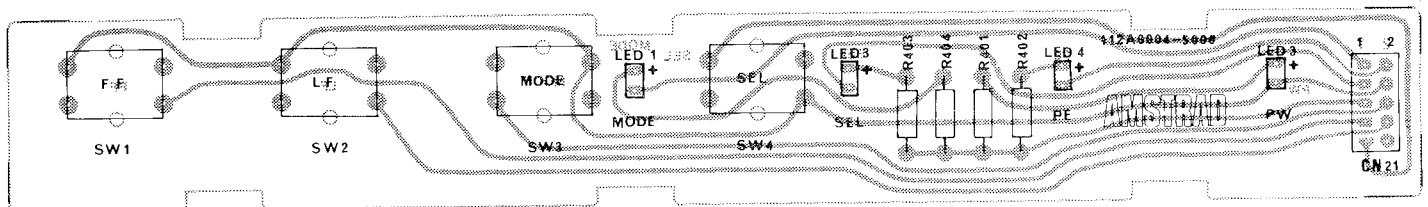
P.C.B. COMPONENT SIDE



P.C.B. SOLDERING SIDE



DI KEY PANEL P.C.B.



AMSTRAD PLC
BRENTWOOD HOUSE, 169 KINGS ROAD, BRENTWOOD, ESSEX CM14 4EF.
Telephone: 0277 230222. Telex: 995417 AMSELE G.