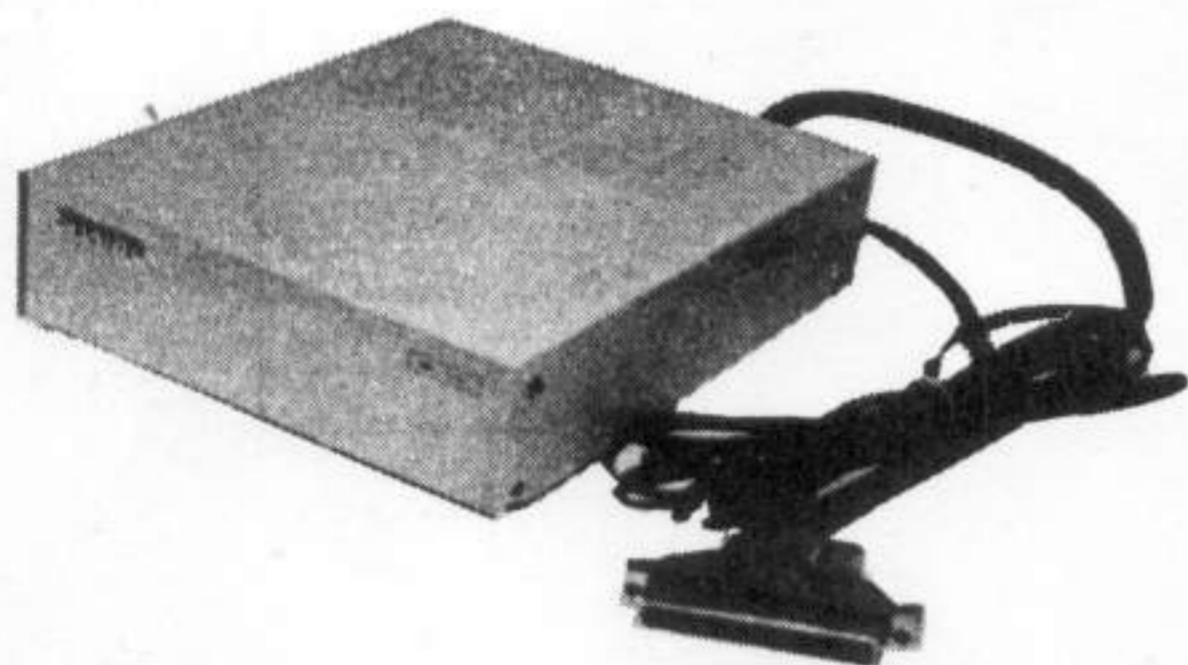


SHARP SERVICE MANUAL

CODE: 00ZMZ1U06//E



Expansion Box

MODEL MZ-1U06

FOR MODEL MZ-700

INDEX

1. Specification
2. Block diagram
3. Connector pin configuration
4. System schematics
5. Power supply
6. Troubleshooting
7. Circuit diagram and parts layout
8. Actual wiring diagram
9. Parts guide & list

1. MZ-1U06 specifications

1-1. General specification

Connector signal configuration	See the wiring diagram for detail of the bus line connection cable and the interfaing connector signal line connections.
Signal level	TTL compatible
I/O specification	The specification of IC used shall be the input and output electrical characteristics. The following ICs are used: SN74LS00, SN74LS04, SN74LS10, SN74LS14, SN74LS22, SN74LS30, SN74LS42, SN74LS244, SN74LS245
Automatic reset circuit	A reset pulse of more than 3 ms is issued at power on.
Operating temperature	0 to +50°C
Storage temperature	-15 to +70°C
Supply voltage	230 VAC $\begin{matrix} +34 \\ -32 \end{matrix}$ V, 50/60 Hz
Physical di dimensions	224.4 mm(W) x 264 mm(D) x 68 mm(H)

1-2. Mother board specification

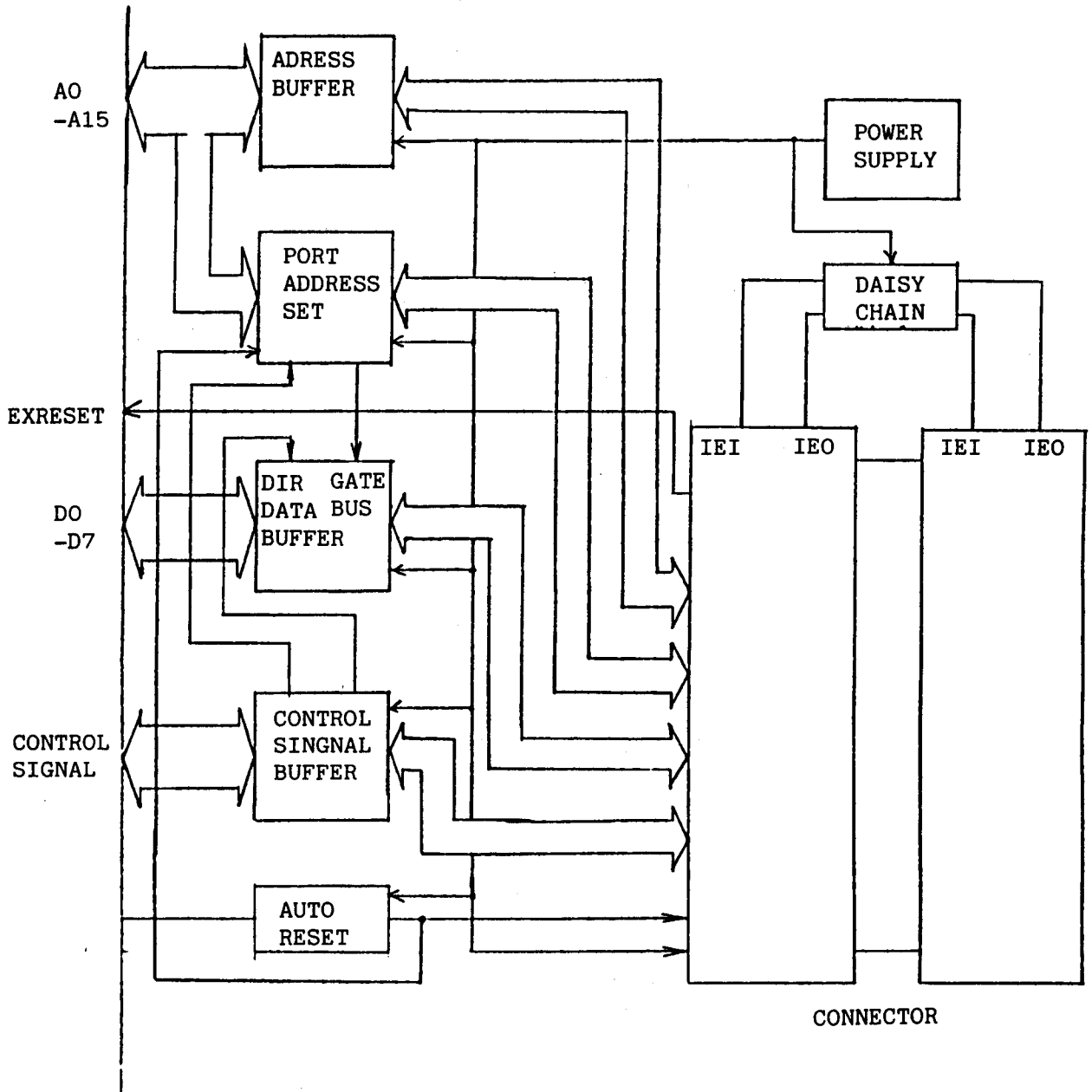
Buffer circuit $\left\{ \begin{array}{l} \text{Data bus (SN74LS245 x 1)} \\ \text{Address bus (SN74LS244 x 2)} \\ \text{Control bus (SN74LS244)} \end{array} \right.$

1-3. Power supply specification

Input voltage: 230 VAC $\begin{matrix} +34 \\ -32 \end{matrix}$ V, 50/60 Hz

Output voltage: 5 VDC, 2.0 A

2. Block diagram



3. Connector pin configuration

CN1

Parts side	Pin No.	Back side
Ø 0	1	G N Ø
Ø 1	2	G N Ø
Ø 2	3	G N Ø
Ø 3	4	G N Ø
Ø 4	5	G N Ø
Ø 5	6	G N Ø
Ø 6	7	G N Ø
Ø 7	8	G N Ø
BUS Ø	9	G N Ø
A 0	10	RESET
A 1	11	EXRESET
A 2	12	HALT
A 3	13	G N Ø
A 4	14	M 1
A 5	15	EXWAIT
A 6	16	W R
A 7	17	G N Ø
A 8	18	R Ø
A 9	19	G N Ø
A 10	20	IØRQ
A 11	21	G N Ø
A 12	22	MREQ
A 13	23	G N Ø
A 14	24	I N T
A 15	25	

CN2

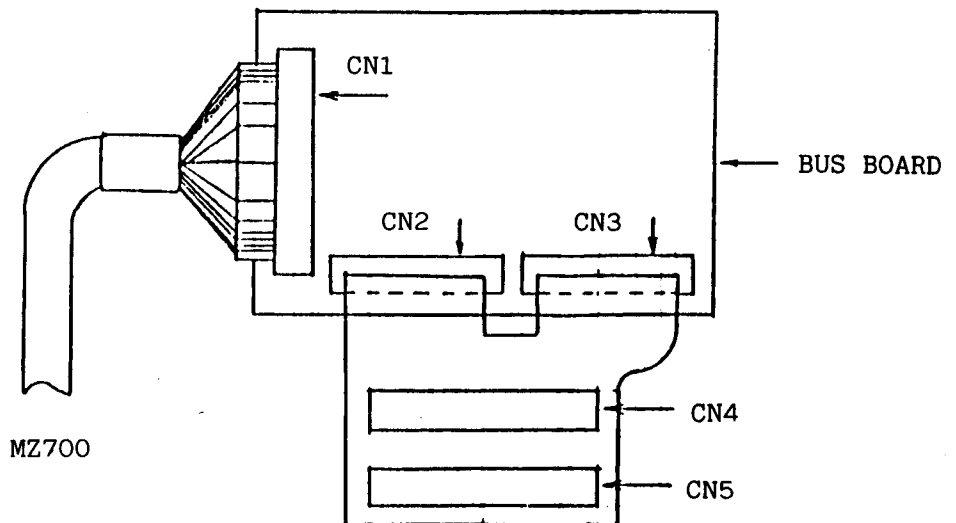
Pin No.	Back side
1	VCC
2	VCC
3	D 2 B
4	D 3 B
5	D 1 B
6	D 4 B
7	D 0 B
8	D 5 B
9	G N D
10	D 6 B
11	A 15 B
12	D 7 B
13	A 14 B
14	BUS Ø B
15	A 13 B
16	M 1 B
17	A 12 B
18	W R B
19	A 11 B
20	R Ø B
21	A 10 B
22	IØRQB

CN3

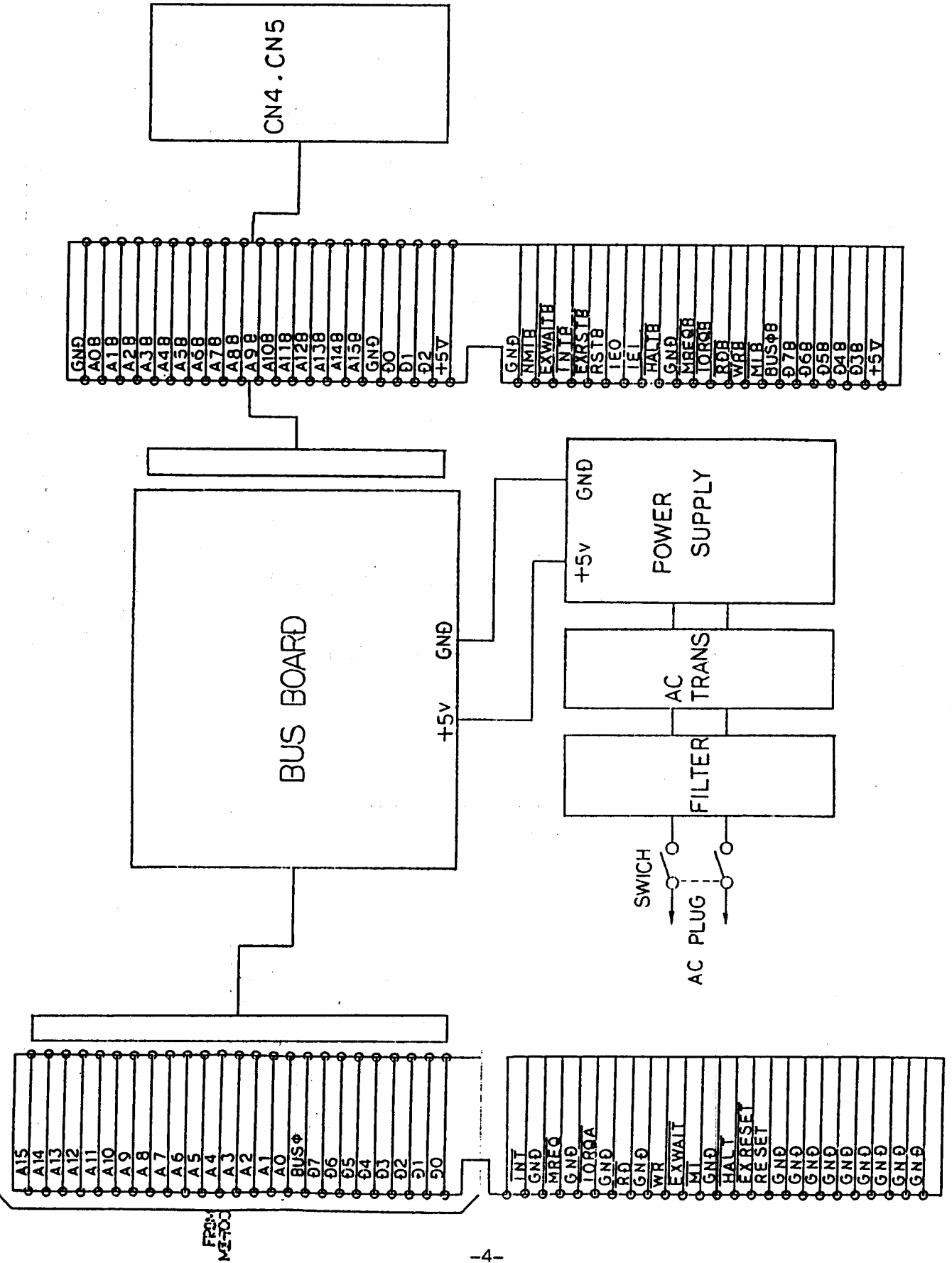
Pin No.	Back side
1	A 9 B
2	MREQB
3	A 8 B
4	G N Ø
5	A 7 B
6	HALTB
7	A 6 B
8	
9	I E I
10	A 5 B
11	
12	A 4 B
13	R S I B
14	A 3 B
15	EXRSTB
16	A 2 B
17	I N T B
18	A 1 B
19	EXWAITB
20	A 0 B
21	G N Ø
22	G N Ø

CN4 AND 5

Parts side	pin No.	back side
VCC	1	VCC
Ø 2 B	2	Ø 3 B
Ø 1 B	3	Ø 4 B
Ø 0 B	4	Ø 5 B
G N Ø	5	Ø 6 B
A 15 B	6	Ø 7 B
A 14 B	7	BUS Ø B
A 13 B	8	M 1 B
A 12 B	9	W R B
A 11 B	10	R Ø B
A 10 B	11	IØRQB
A 9 B	12	MREQB
A 8 B	13	G N Ø
A 7 B	14	HALTB
A 6 B	15	I E I
A 5 B	16	I E Ø
A 4 B	17	R S T B
A 3 B	18	EXRSTB
A 2 B	19	I N T B
A 1 B	20	EXWAITB
A 0 B	21	
G N D	22	G N Ø

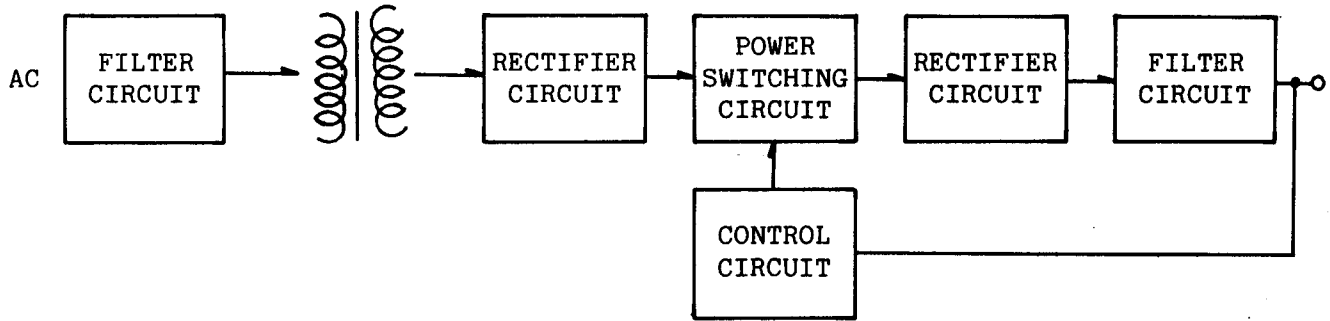


4. System boloc diagram

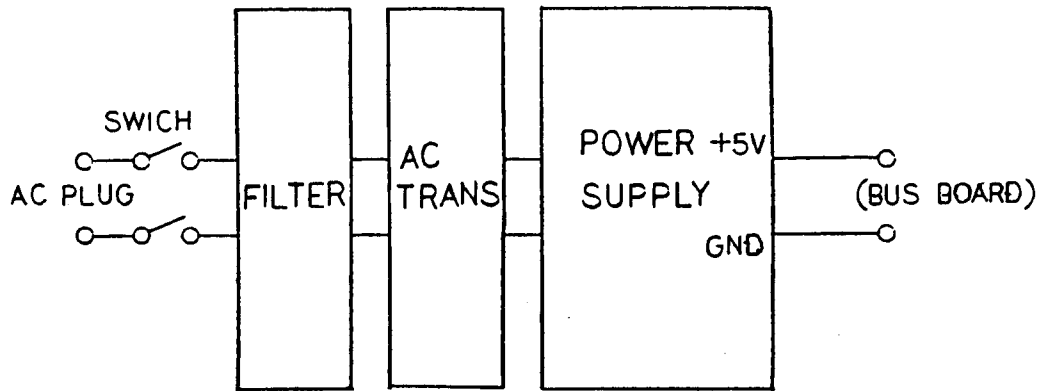


5. Power supply circuit

5-1. Power supply block diagram



5-2. Power supply section wiring



5-3. Troubleshooting the power supply unit

5-3-1. Possible phenomena

In order to know the exact point of the trouble, put power on and check the output voltage that;

1. it is at the given rating of 5V,
2. no voltage at all (0V),
3. it is about 1 to 4V only,
4. it rises to 15V, or,
5. irregular increase in output ripple.

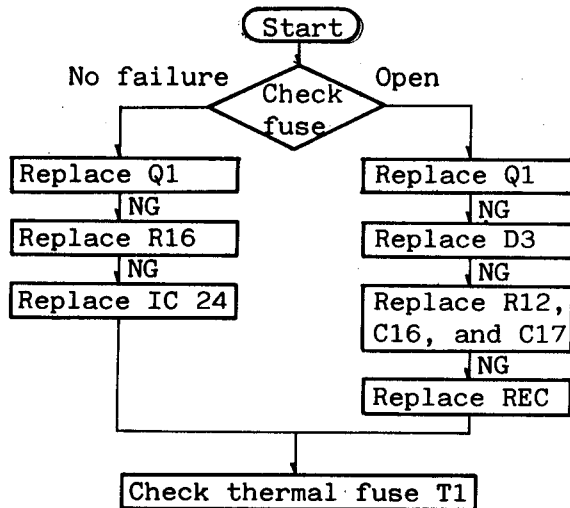
See the description below for each of phenomena above.

5-3-2. Tracking the trouble location

1. When it is at the given rating of 5V

If a voltage drop occurs with the Bus Board in connection, though the normal condition is seen when a 2.5A load (2 ohms, 20W ceramic resistor or electronic load device) is connected to the power supply, it is because that the circuit load is higher than 3A and more. In this case, check the Bus Board and the circuits connected to it.

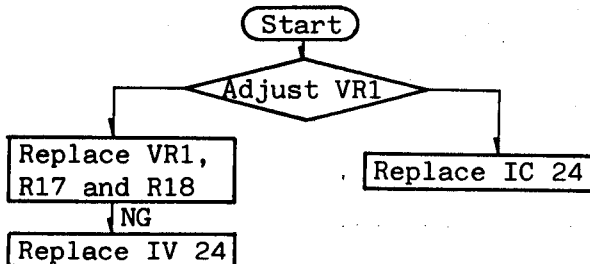
2. When no output voltage is seen (0V)



- 1) Open fuse F1
- 2) Defective Q1
- 3) Defective R16
- 4) Defective IC 24
- 5) Defective thermal fuse T1

Replace the above components in reference with the figure to check the defective component.

3. When the output is 1 to 4.5V



Replace component in reference with the figure to check the defective item.

4. It rises to 15V

Replace Q1 with the new one when this conditions is encountered because Q1 is shorted in this case. If it remains the same after the replacement, remove the cause that makes Q1 destructed and replace the following component in the given order to check the item causing the trouble.

R11 and R12.....if still stays the same.....D3, C17, and R13.....if still stays the same.....then IC 24.

5. Irregular increase seen in the output ripple

Replace C17 as it might have been fatigued.

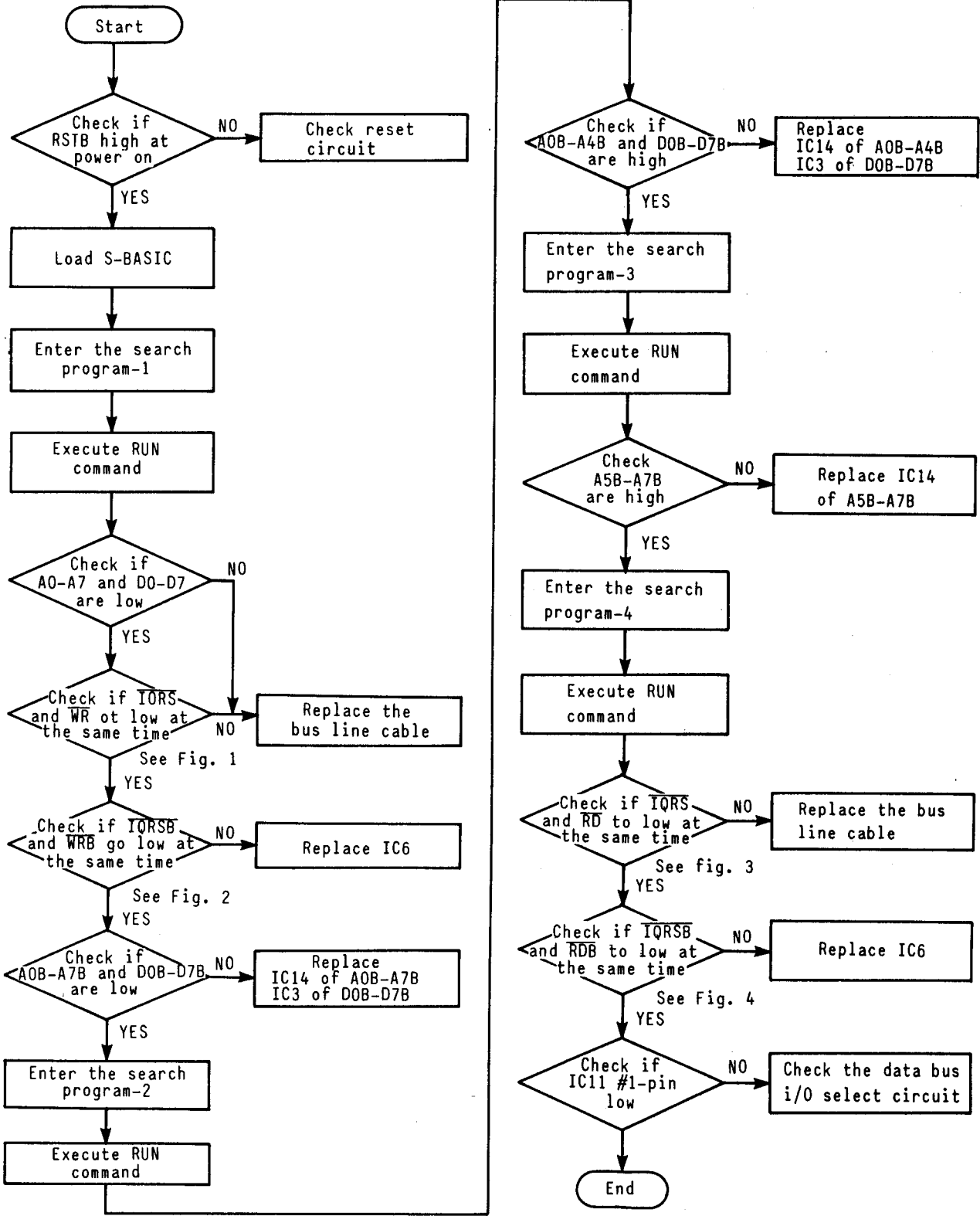
5-4. Tools required for the tests

- 1) Oscilloscope
- 2) Voltmeter or multimeter (digital multimeter is preferable)
- 3) A 5V, 2.5A load like the electronic load device or 2 ohms resistor of more than 20W.

6. Trouble shooting

Mother Board section

6-1. Troubleshooting procedure



Search program-1

C000	3E
C001	00
C002	D3
C003	00
C004	C3
C005	02
C006	C0

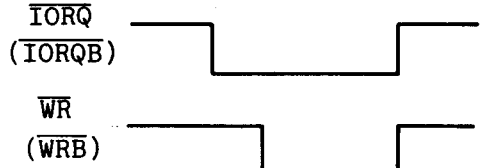
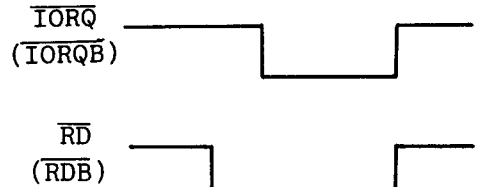


Fig. 1 (Fig. 2)

Search program-2

C000	3E
C001	FF
C002	D3
C003	31
C004	C3
C005	02
C006	C0



Search program-3

C000	3E
C001	FF
C002	D3
C003	FE
C004	C3
C005	02
C006	C0

Search program-4

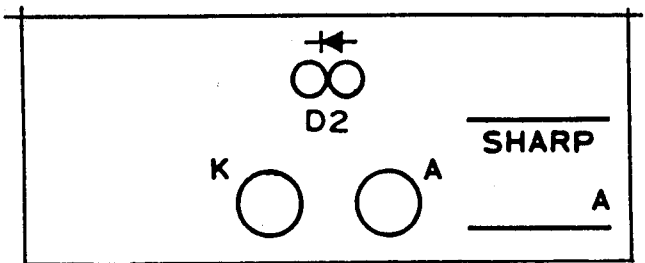
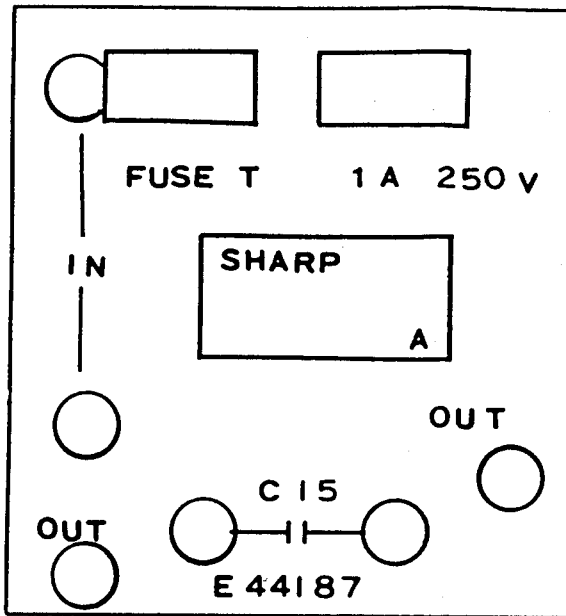
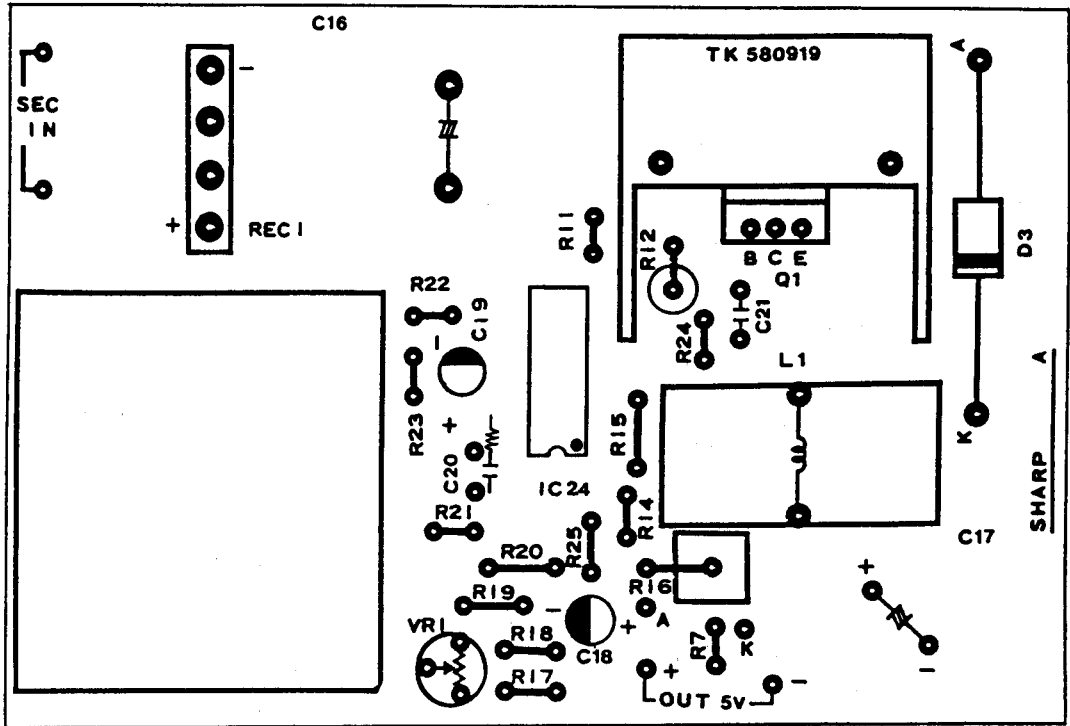
C000	3E
C001	00
C002	DB
C003	00
C004	C3
C005	02
C006	C0

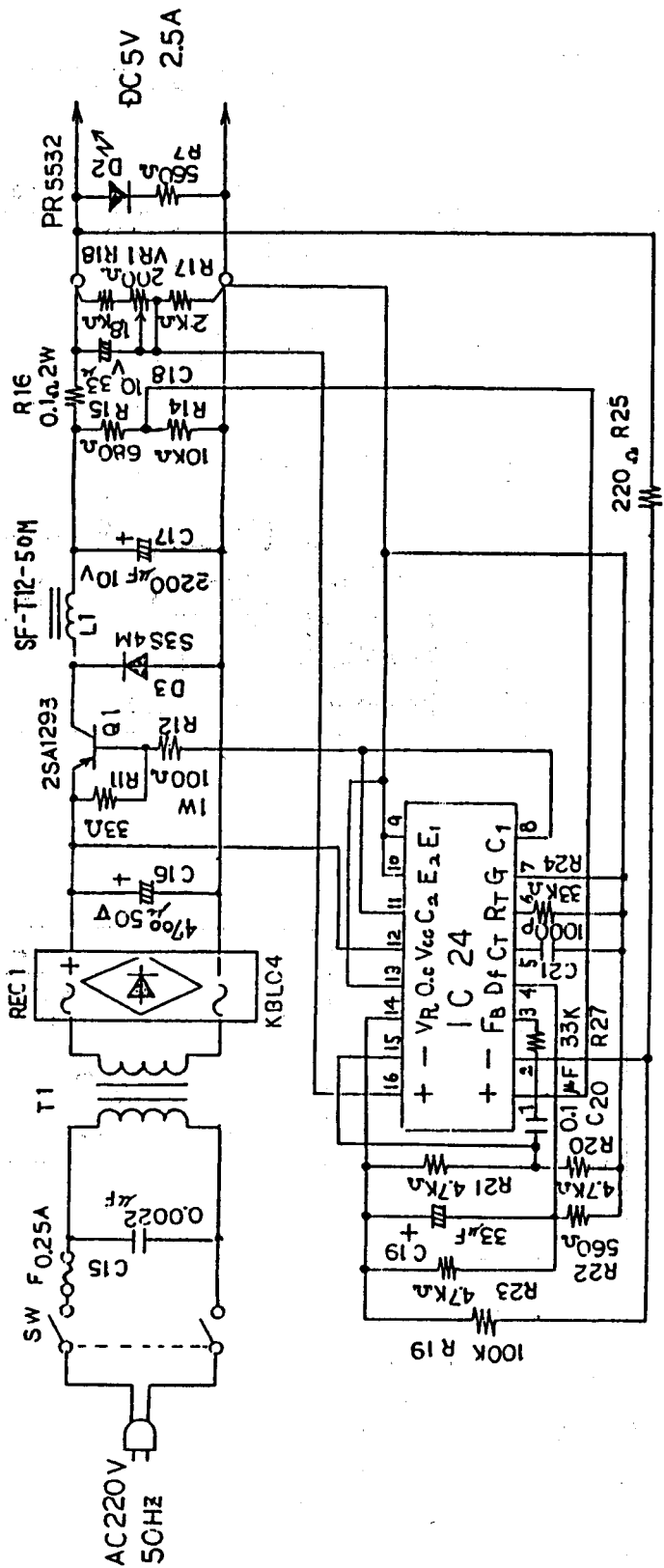
6-2. IC circuit check method

- 1) Press the IC insulator with your fingertip and check the following:
 - *see if too hot-----IC gate defect or short in the circuit.
 - *see if any condition changes-----improper soldering or printed wire.
- 2) Check the following defects using the oscilloscope;
 - *TTL IC logic does not match-----IC gate failure
 - *see if the TTL IC voltage is within the TTL level.

NOTE: TTL high level: 2.5V or more
TTL low level: 0.5V or less

7. Circuit diagram and parts layout





SHARP

05
-
-|
C9

57
-|
C8

C6
-|
C7

05
-|
C10

05
-|
C11

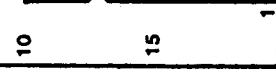
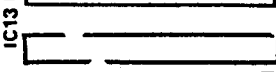
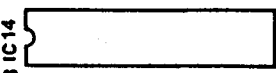
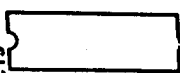
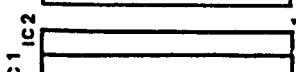
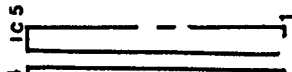
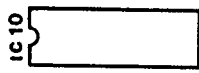
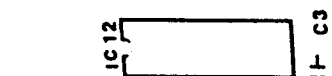
05
-|
C12

05
-|
C13

05
-|
C14

05
-|
C15

05
-|
C16



C3

IC19

IC18

IC11

IC12

IC16

IC15

IC14

IC13

IC10

IC9

IC8

IC7

IC6

IC5

IC4

IC3

IC2

IC1

IC19

IC18

IC16

IC15

IC14

IC13

IC12

IC11

IC10

IC9

IC8

IC7

IC6

IC5

IC4

IC3

IC2

IC1

IC19

IC18

IC16

IC15

IC14

IC13

IC12

IC11

IC10

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IC8

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IC15

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IC11

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IC9

IC8

IC7

IC6

IC5

IC4

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IC2

IC1

IC19

IC18

IC16

IC15

IC14

IC13

IC12

IC11

IC10

IC9

IC8

IC7

IC6

IC5

IC4

IC3

IC2

IC1

IC19

IC18

IC16

IC15

IC14

IC13

IC12

IC11

IC10

IC9

IC8

IC7

IC6

IC5

IC4

IC3

IC2

IC1

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IC5

IC4

IC3

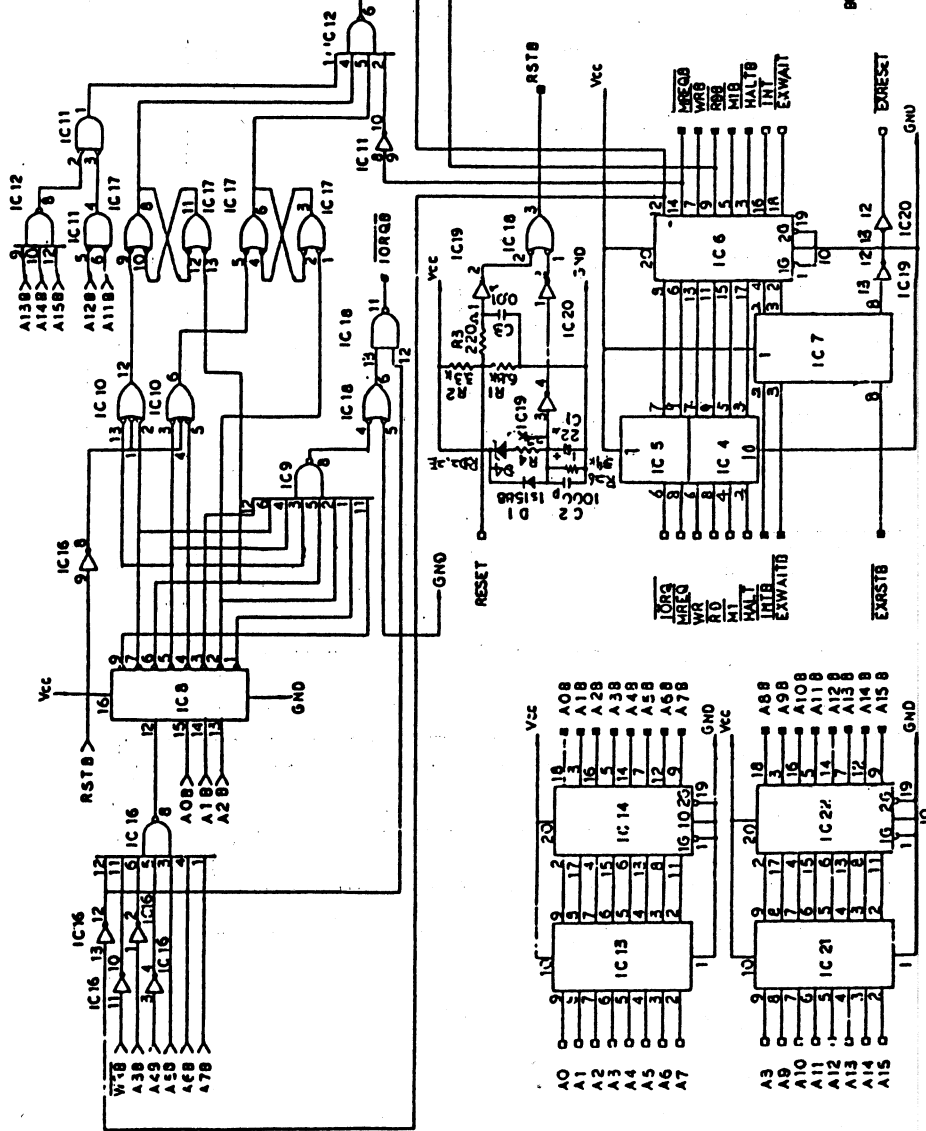
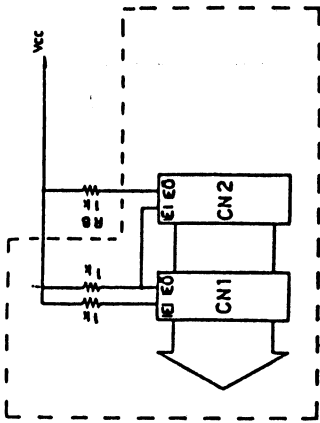
IC2

IC1

IC19

IC18

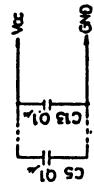
IC16



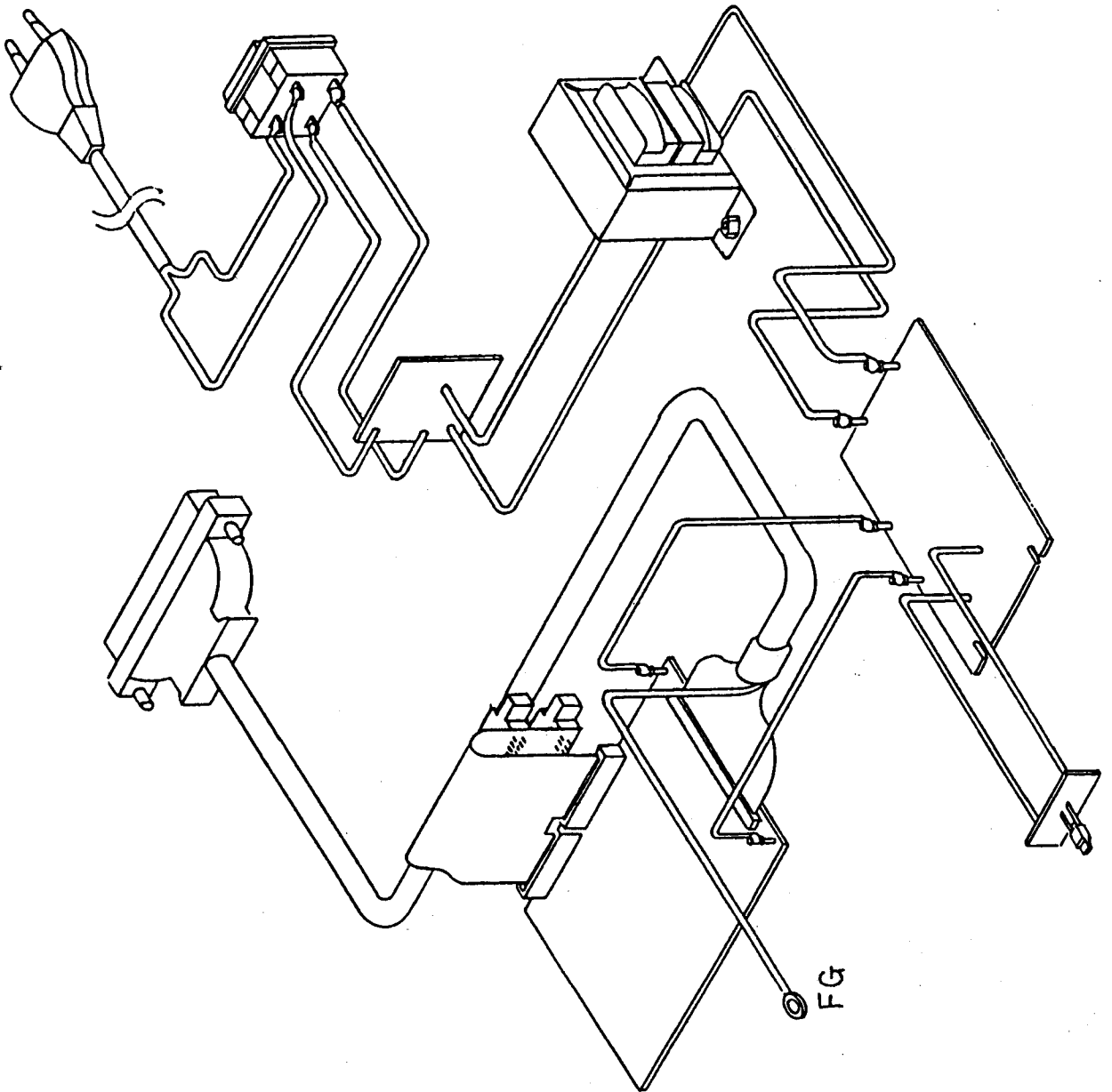
IC NO	1	2	3	4	5	6	7	8
#	74H-770	74H-770	LS245	74H-760	74H-760	LS244	Z0A1/80R0A22J	LS42

IC NO	9	10	11	12	13	14	15
#	LS30	LS10	LS02	LS22	74H-750	LS244	LS30

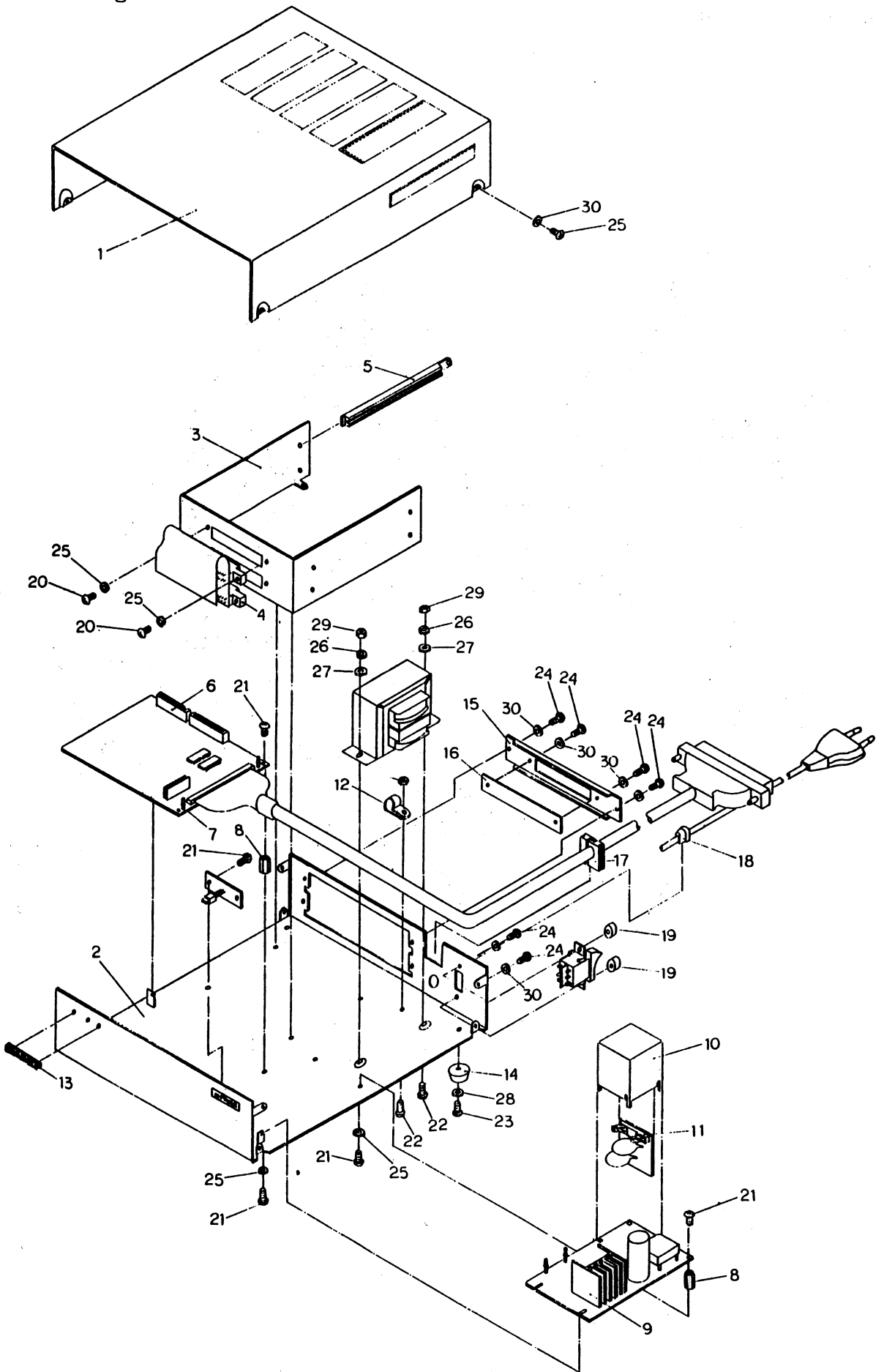
IC NO	16	17	18	19	20	21	22	24
#	LS04	LS00	LS00	LS14	LS04	74H-750	LS244	HE3759



8. Actual wiring diagram



9. Parts guide & list



1 Electronics parts

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	0CF95-1351-A/	AN	N	C	Coil [L1]
2	0CF95-0401-A/	BC	N	B	Power transformer [T1]
3	0CF95-2202-C/	AP	N	B	Rectifire [REC1]
4	VRD-ST2EY221J	AA		C	Resistor [R3]
5	VRD-ST2EY102J	AA		C	Resistor [R8]
6	VRD-ST2EY332J	AA		C	Resistor [R2,R6]
7	VRD-ST2EY682J	AA		C	Resistor [R1,R5]
8	VRD-ST2EY223J	AA		C	Resistor [R4]
9	VRD-ST2EY330J	AA		C	Resistor [R11]
10	VRD-ST2EY103J	AA		C	Resistor [R14]
11	VRD-ST2EY221J	AA		C	Resistor [R25]
12	VRD-ST2EY561J	AA		C	Resistor [R7,R22]
13	VRD-ST2EY681J	AA		C	Resistor [R15]
14	VRD-ST2EY182J	AA		C	Resistor [R18]
15	VRD-ST2EY202J	AA		C	Resistor [R17]
16	VRD-ST2EY472J	AA		C	Resistor [R20,R21,R23]
17	VRD-ST2EY333J	AA		C	Resistor [R24]
18	VRD-ST2EY104J	AA		C	Resistor [R19]
19	VRS-PT3AB101J	AB		C	Metal oxide resistor [R12]
20	0CF95-3101-A/	AE	N	C	Cement resistor [R16]
21	0CF95-3251-A/	AC	N	C	Variable resistor [VR1]
22	0CF95-2001-A/	AL	N	B	Transistor [Q1]
23	0CF95-2301-A/	AP	N	B	Diode [D3]
24	VHDDS1588L2-1	AB		B	Diode [D1]
25	0CF95-2302-A/	AC	N	B	Diode [D4]
26	0CF95-2619-0/	AU	N	C	Capacitor [C16]
27	0CF95-2609-M/	AQ	N	C	Capacitor [C17]
28	0CF95-2808-T/	AC	N	C	Capacitor [C1]
29	0CF95-2609-A/	AC	N	C	Capacitor [C19]
30	0CF95-2701-A/	AB	N	C	Polyester capacitor [C21]
31	0CF95-2807-C/	AD	N	C	Capacitor [C15]
32	0CF95-2809-M/	AB	N	C	Capacitor [C2]
33	0CF95-2615-G/	AA	N	C	Capacitor [C3]
34	0CF95-2810-U/	AB	N	C	Capacitor [C4]
35	0CF95-2811-D/	AC	N	C	Capacitor [C5~C13,C20]
36	0AE30276973/	AN	N	B	IC [IC24]
37	VHISN74LS00-1	AE		B	IC [IC17,IC18]
38	VHISN74LS02-1	AE		B	IC [IC11]
39	VHISN74LS04-1	AE		B	IC [IC16,IC20]
40	VHISN74LS10-1	AE		B	IC [IC10]
41	VHISN74LS14-1	AM		B	IC [IC19]
42	VHISN74LS22-1	AG		B	IC [IC12]
43	VHISN74LS30-1	AE		B	IC [IC9,IC15]
44	VHISN74LS244N	AS		B	IC [IC6,IC14,IC22]
45	VHISN74LS245N	AR		B	IC [IC3]
46	VHISN74LS42-1	AM		B	IC [IC8]
47	0CF95-1902-A/	AT	N	B	IC [IC13,IC21]
48	0CF95-1902-B/	AR	N	B	IC [IC4,IC5]
49	0CF95-1902-C/	AP	N	B	IC [IC1,IC2]
50	0CF95-1902-D/	AE	N	B	IC [IC7]
51	0CF95-2401-A/	AE	N	B	LED [D2]
52	0CF95-4502-A/	AG	N	A	Fuse for UK [FURS]
53	0CF95-4502-B/	AF	N	A	Fuse for 220V [FURS]
54	0CF95-4506-A/	AR	N	B	[SW]
54	0CF95-3903-A/	AP	N	C	AC cord for UK
54	0CF95-4504-A/	AQ	N	C	AC cord for 220V
55	0CF95-4505-A/	BS	N	C	I/O Cable
56	0CF95-4105-A/	AV	N	C	Flexible board

