

# SHARP SERVICE MANUAL

PDSM680002-MZ



## Interface Unit **MZ-80 IO**

### **FEATURES**

- I/O extension device to connect bus-line signals being output from MZ-80K to peripheral units such as dot printer, floppy disk, colour display, etc.
- Up to 5 kinds of I/O card for peripheral units connectable. Parallel usage feasible.
- Consists of mother board and +5V switching regulator power source.
- Applicable also for control of other terminal devices by using universal I/O cards separately available.

# SPECIFICATIONS

## ■ General

Interface system	Parallel interface
Signal	TTL level
Usable interface card	Up to 5 sheets Printer interface card, Floppy Disk interface card, Colour display interface card, Universal interface card, etc.
Used IC's	SN74LS241N, SN74LS244N, SN74LS14N SN75451BP, SN75453BP
Reset	Power-on reset Reset pulse of more than 100 ms
Power consumption	45W
Rated voltage	AC 220V ±10%, 50Hz AC 240V ±10%, 50Hz (for UK)
Operating temperature	0 to 35°C
Storage temperature	-15 to 60°C
Dimensions	205mm(W) x 320mm(D) x 130mm(H)
Weight	5kg

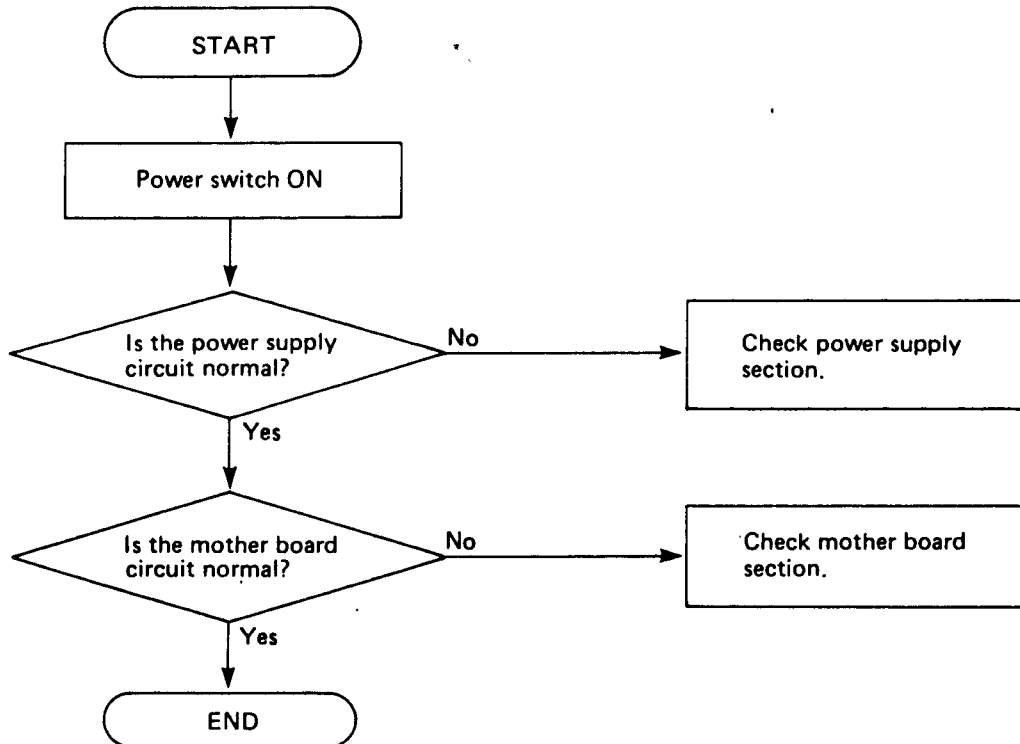
## ■ Mother Board Section

Buffer	Data Bus	SN74LS241N	2 pcs.
	Address Bus	SN74LS244N	2 pcs.
	Control Bus	SN74LS244N	1 pc.

## ■ Power Supply Section

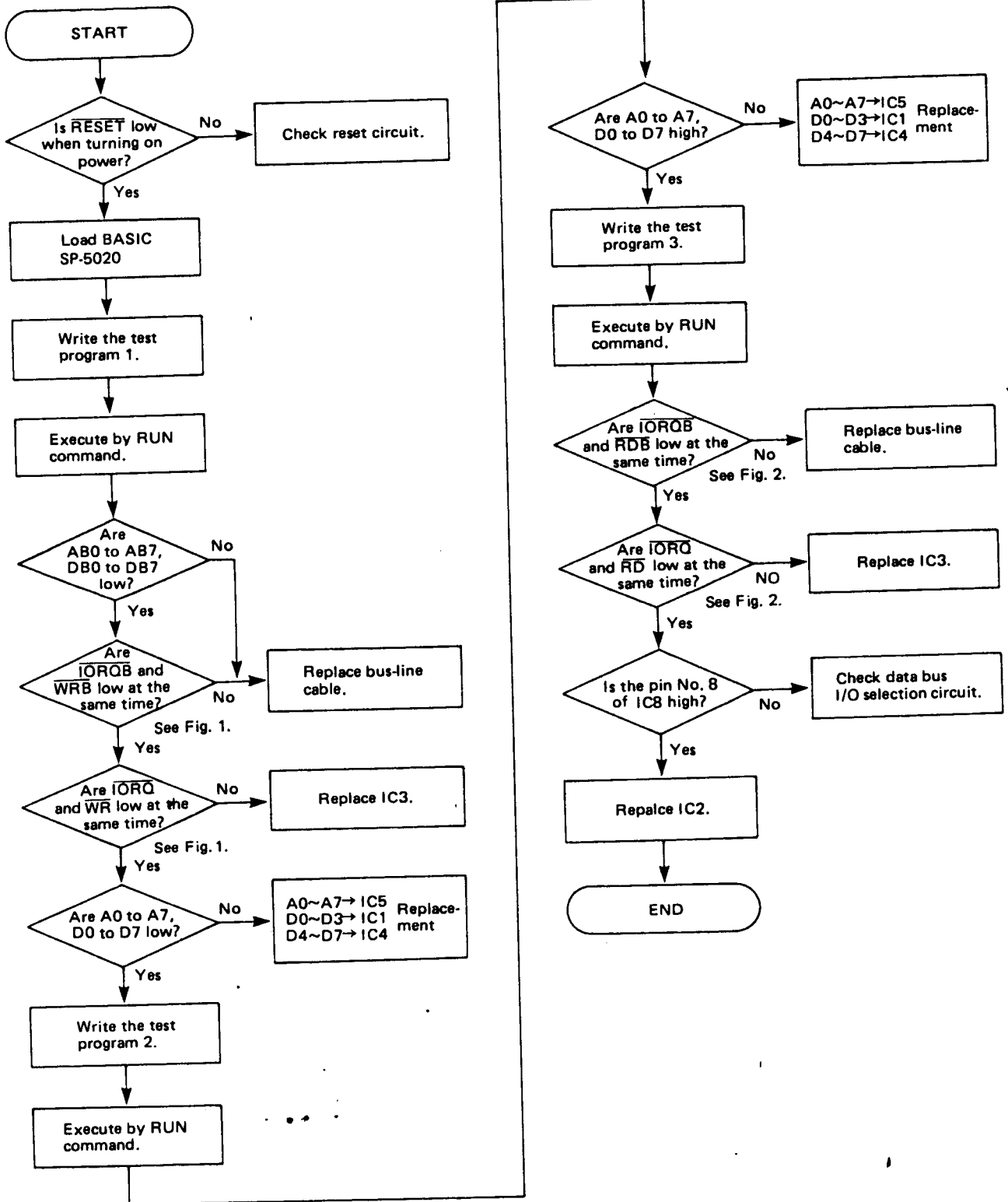
Input	AC 220V ±10%, 50Hz AC 240V ±10%, 50Hz (for UK)
Output	DC 5V, 5A max.

# TROUBLE SHOOTING GUIDE



# MOTHER BOARD SECTION

## ■ Repairing Procedure



**Test program 1**

```
10 A=0 : PO=0
20 OUT #PO,A
30 GOTO 20
```

**Test program 2**

```
10 A=255 : PO=239
20 OUT #PO,A
30 GOTO 20
```

**Test Program 3**

```
10 A=0 : PO=0
20 INP #PO,A
30 GOTO 20
```

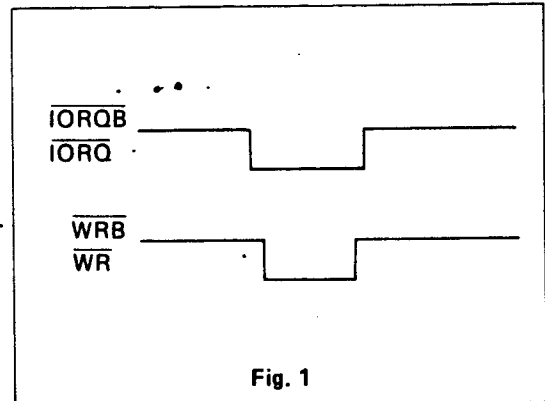


Fig. 1

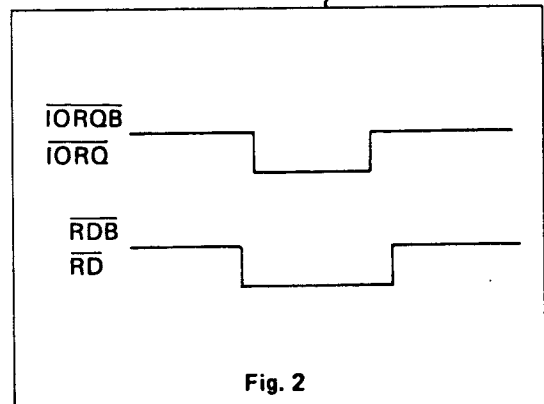


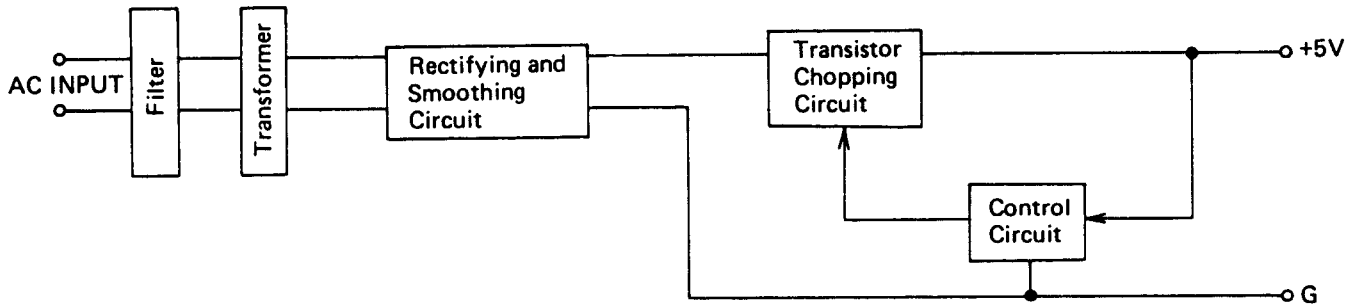
Fig. 2

■ **Checking methods of IC circuit**

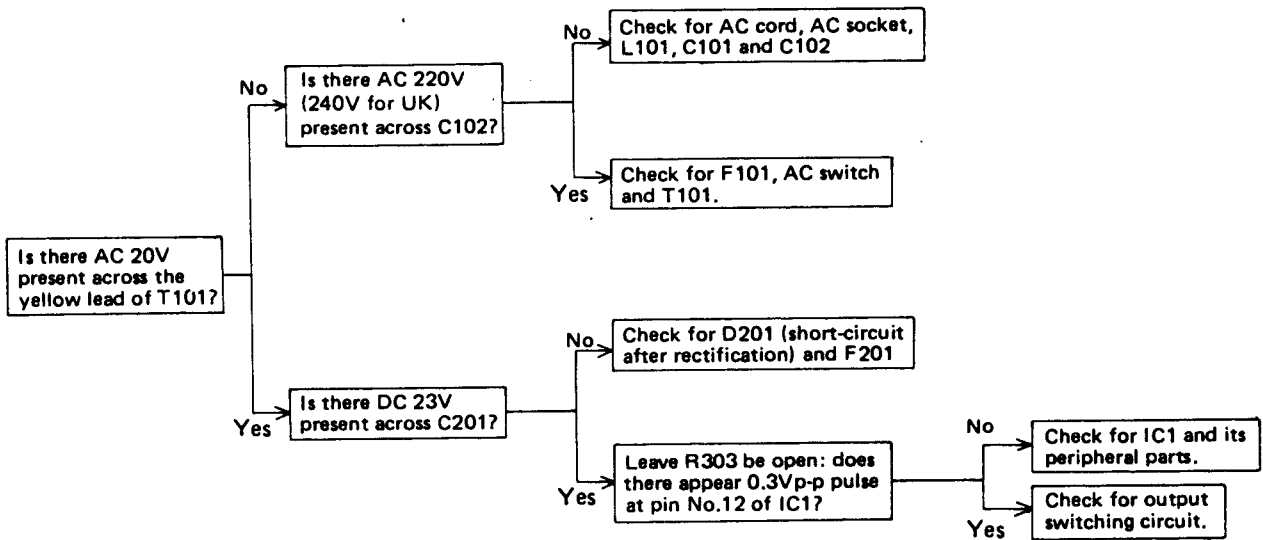
1. By touching IC insulating parts by fingers:
  - If they seem too hot by heat generation; IC is defective, or components are touching each other.
  - If a circuitry state is changed to another; Soldering is poor, or printed-wiring is erroneous.
2. By using a synchroscope:
  - If the relation between input and output of TTL IC is illogical, this means defective IC gate.
  - Check if the voltage level of TTL IC is as specified: High level; over 2.4, Low level; below 0.5V.

# POWER SUPPLY SECTION

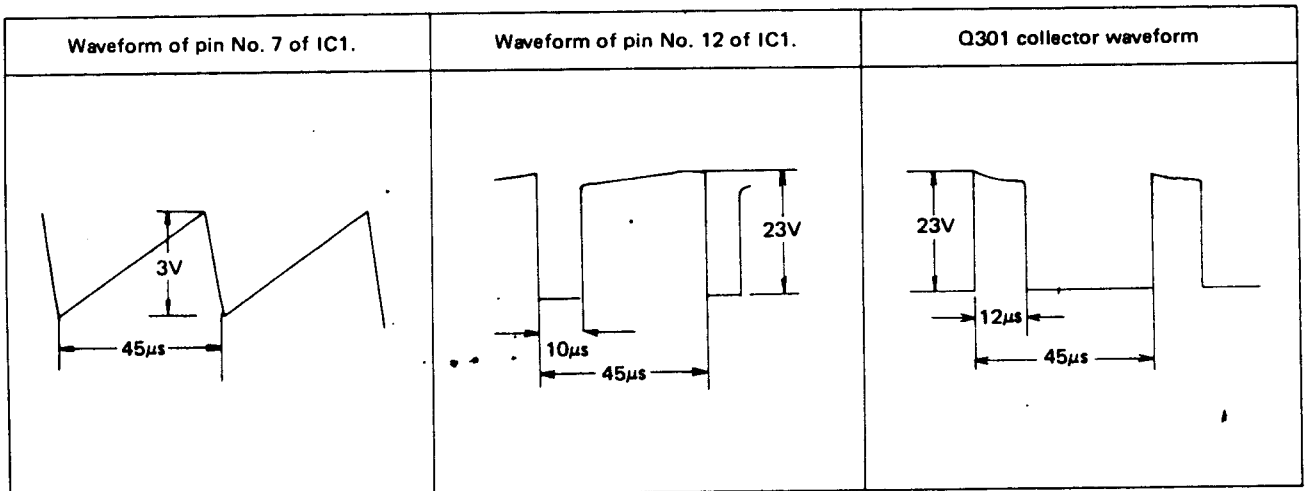
## ■ Block Diagram of Power Supply Section



## ■ Trouble Shooting Chart



## ■ Waveforms of Each Parts



The figures shown above are based on the condition that a 1A load is attached to the 5-voltage terminal.

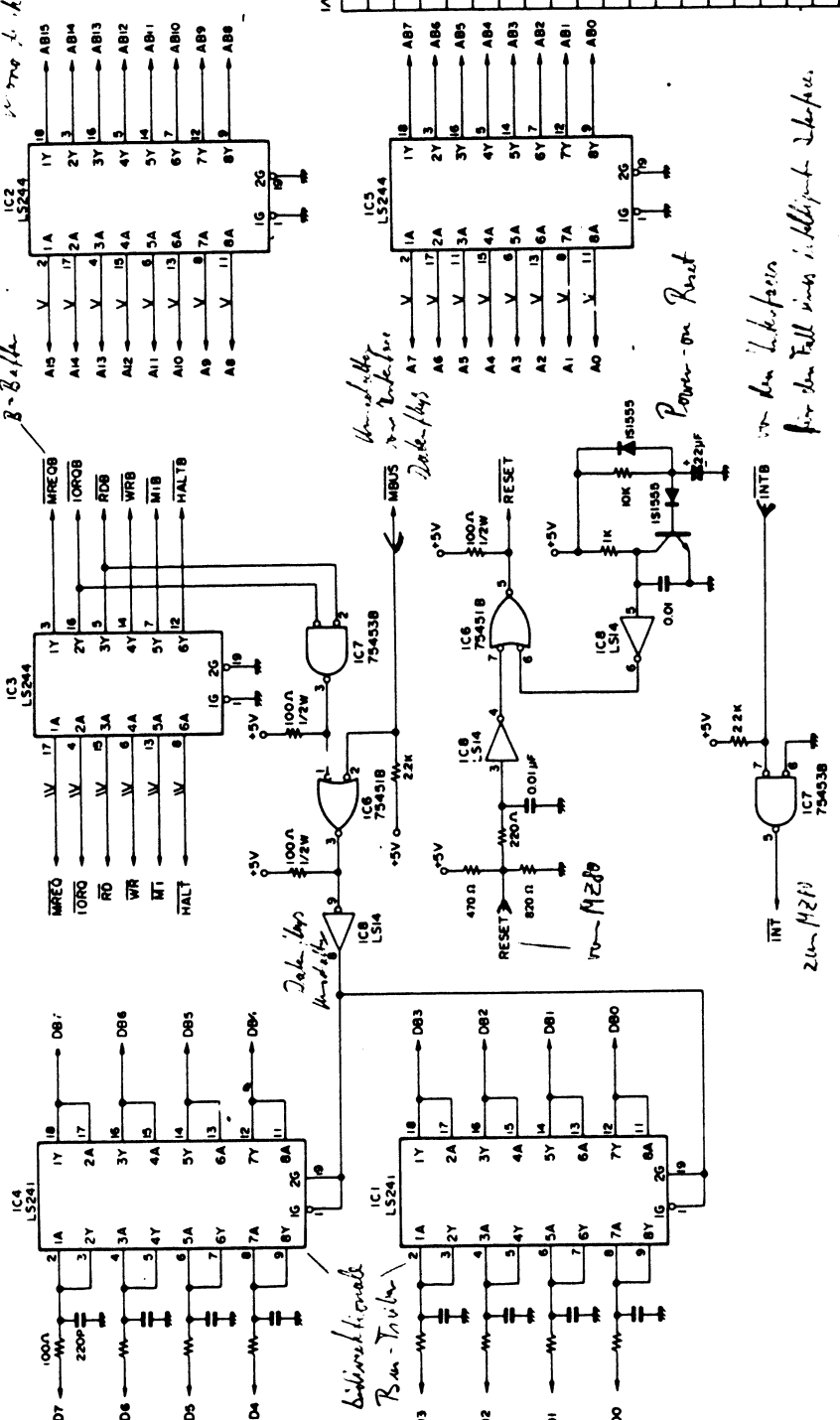
# CIRCUIT DIAGRAM AND PRINTED WIRING BOARD

## Mother Board Circuits

*Bus-Treiber 10, 15, 5 - Tri-state  
sowie 6. Adress*

*8-Bahn*

*16-Bahn Daten Bus  
sowie 2 Bus-Steuerleitungen*

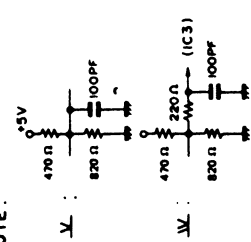


*bidirektional  
Bus-Treiber*

*Wahrheitstabelle  
von Datenbus  
Datei-Flags*

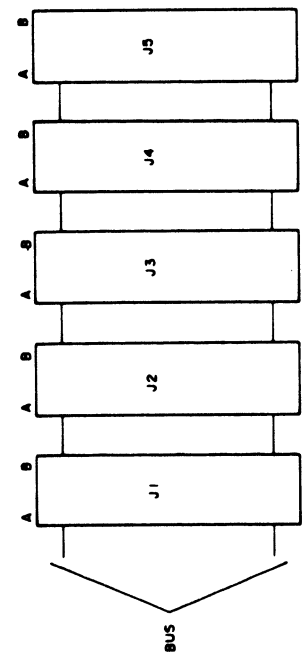
*Power-on Reset  
von den Datenbus  
für den Fall eines intelligenten Software*

NOTE:



I/O CONNECTOR DETAIL		A	
B	1	B	1
D87	2	AB7	2
D86	3	AB6	3
D85	4	AB5	4
D84	5	AB4	5
D83	6	AB3	6
D82	7	AB2	7
D81	8	AB1	8
D80	9	AB0	9
GND	10	GND	10
AB15	11	AB15	11
AB14	12	AB14	12
AB13	13	AB13	13
AB12	14	AB12	14
AB11	15	AB11	15
AB10	16	AB10	16
AB9	17	RESET	17
AB8	18	MBUS	18
AB7	19	INTB	19
AB6	20	GND	20
AB5	21	HALTB	21
AB4	22	MTB	22
AB3	23	WRB	23
AB2	24	ROB	24
AB1	25	TORB	25
AB0	26	MRECOB	26
+5V	27	+5V	27
+5V	28	+5V	28
GND	29	GND	29
GND	30	GND	30

A PART'S SIDE



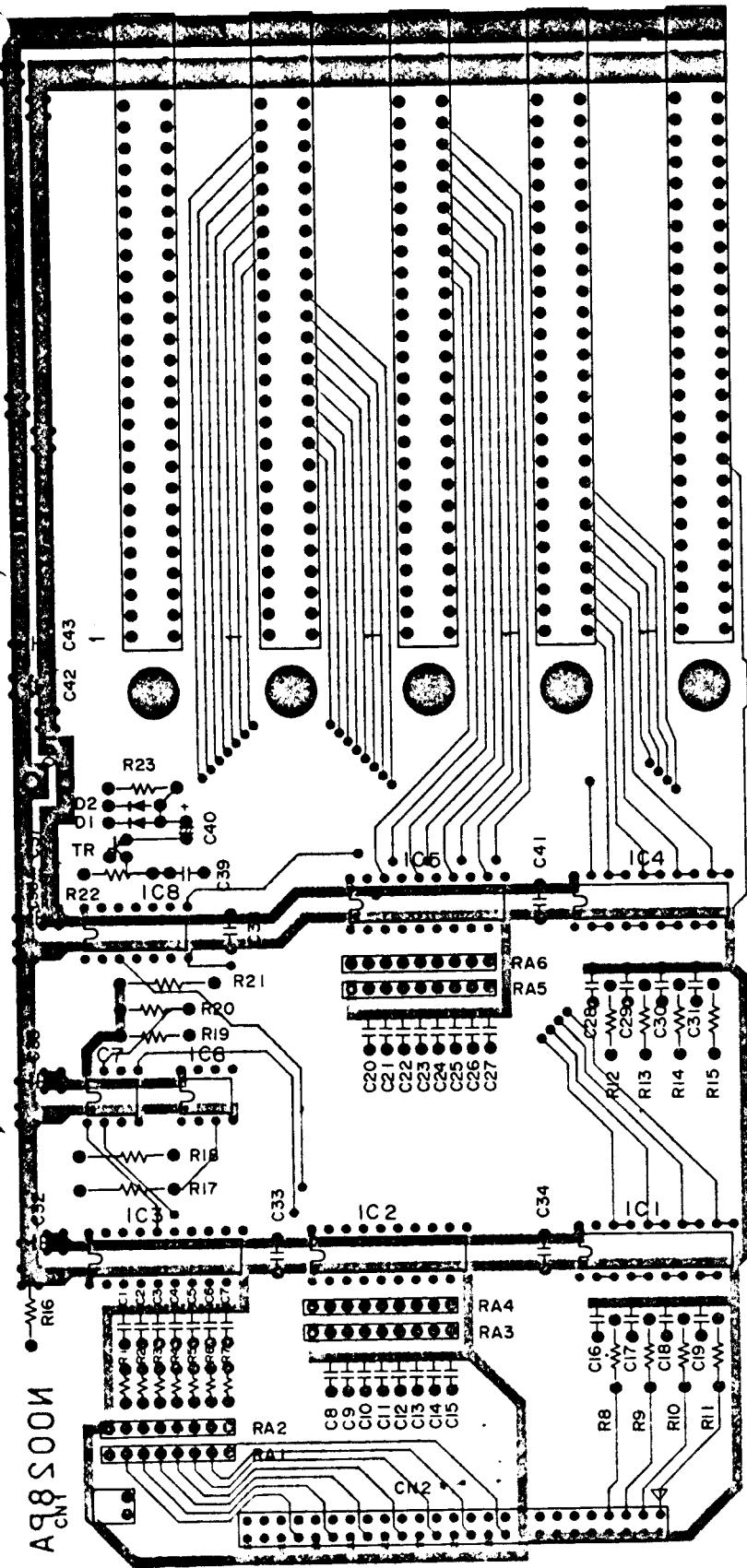
PERIPHERIAL I/O CONNECTOR

Mother Board Circuits

HOST SYSTEM - INTERFACE UNIT CONNECTOR	
A	B
A15	1 GND
A14	2 INT
A13	3 GND
A12	4 MRECOB
A11	5 GND
A10	6 TORQ
A9	7 GND
A8	8 RD
A7	9 GND
A6	10 WR
A5	11 GND
A4	12 MT
A3	13 GND
A2	14 HALT
A1	15 GND
A0	16 RESET
GND	17 GND
D7	18 GND
D6	19 GND
D5	20 GND
D4	21 GND
D3	22 GND
D2	23 GND
D1	24 GND
D0	25 GND

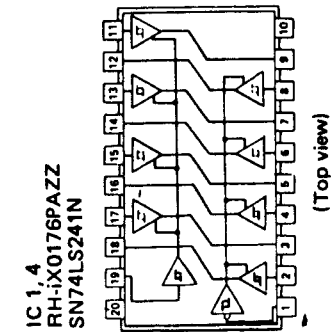
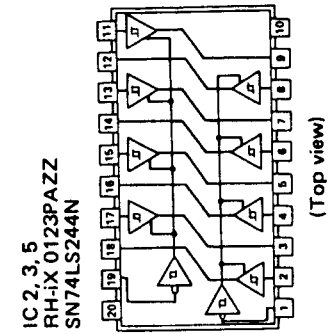
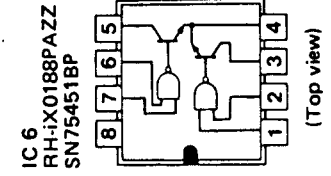
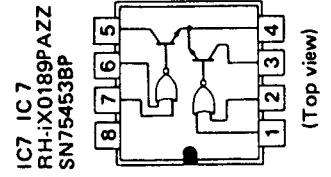
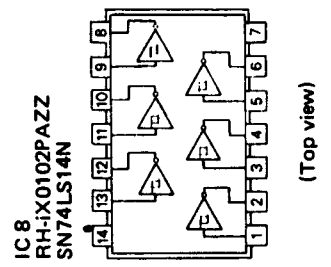
The circuit diagram subjects to change without prior notice.

■ Printed Wiring Board (Mother Board Section)

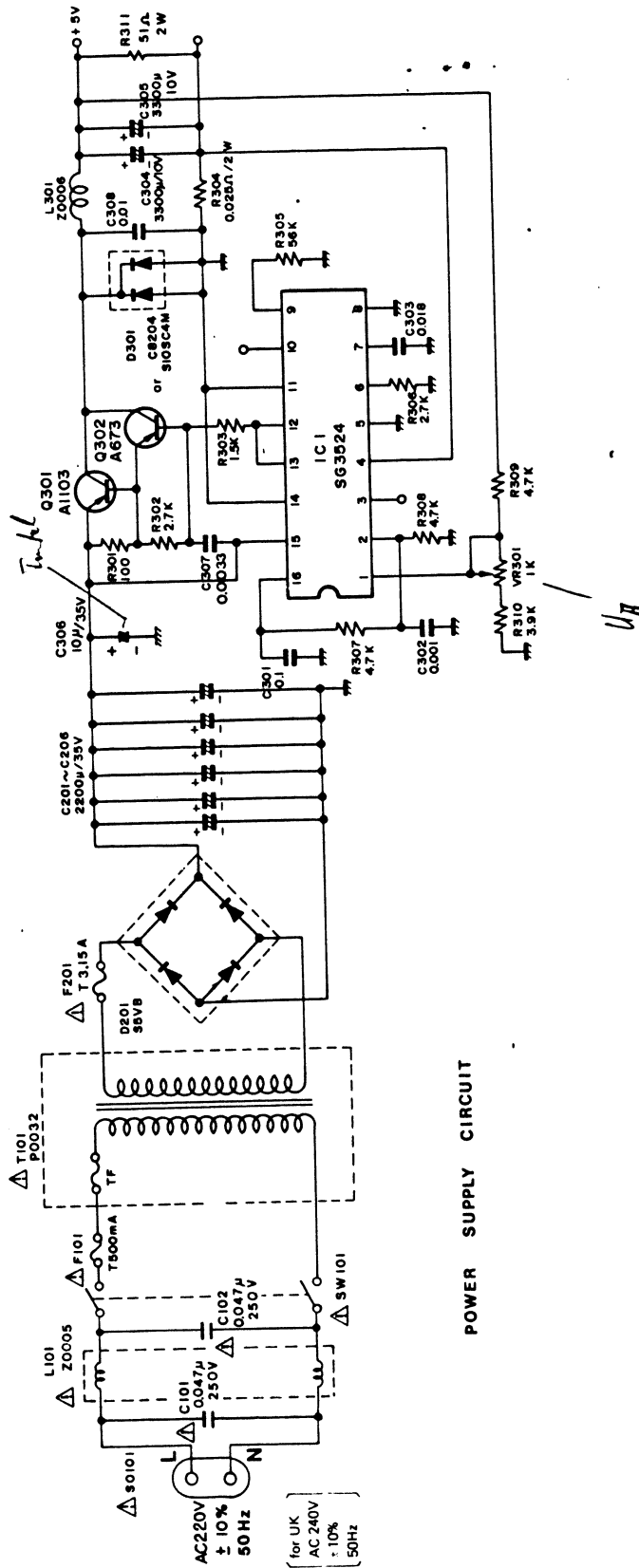


Perspective View

- Parts-fitted face
- Opposite side

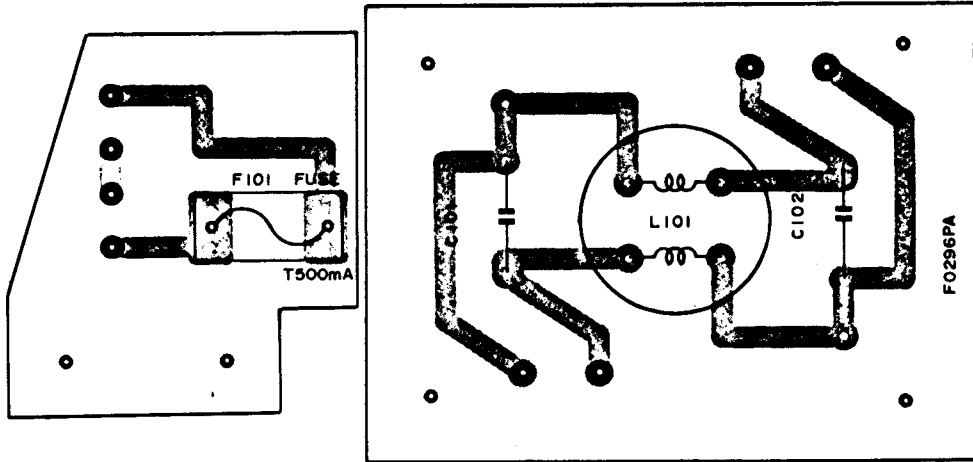


■ Power Supply Circuit

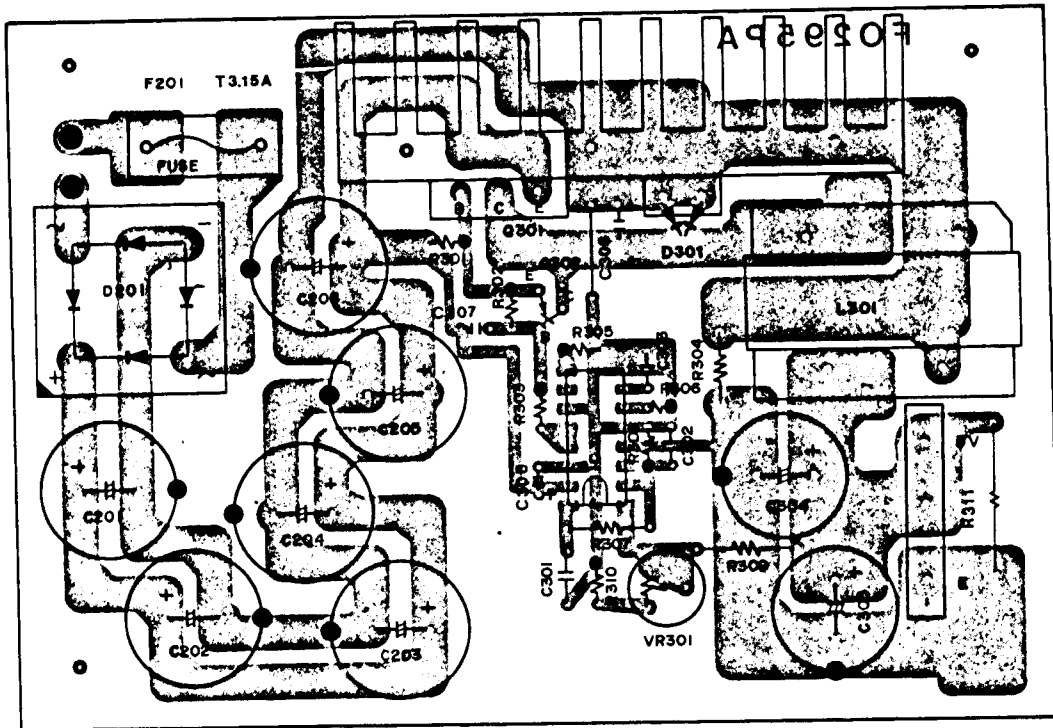


POWER SUPPLY CIRCUIT

■ Printed Wiring Board (Power Supply Section)

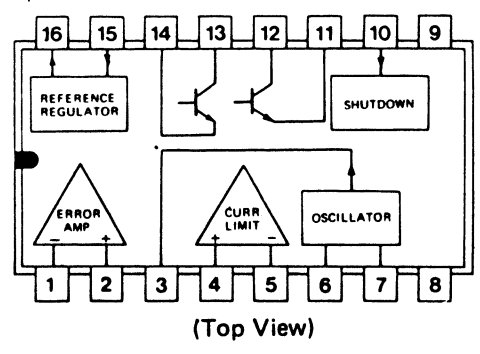
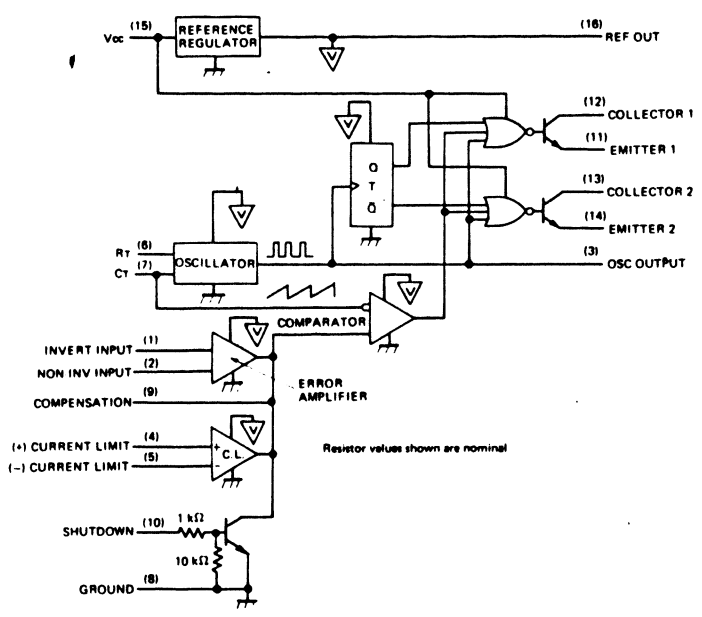


PRIMARY



SECONDARY

• IC 1. RH-iX0151PÄZZ SG3524



# REPLACEMENT PARTS LIST

## "HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NAME
2. REF. NO.
3. PART NO.
4. DESCRIPTION

NOTES Be sure to use regular parts for securing the safety and reliability of the set. Parts marked with "△" and parts cross hatched (in black) are especially important for maintaining the safety and protecting ability of the set. Be sure to replace them with parts of specified part number.

### MODEL MZ-8010

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
<b>*** MOTHER BOARD UNIT SECTION ***</b>				<b>CAPACITORS</b>			
	DPWB-0171PAZZ	Assembled Moter Board Unit (Not replacement item)	-	C1 } C6 } C8 } C15 } C20 }	VCCCPR1H3101J	100PF 50V Ceramic	AA
<b>INTEGRATED CIRCUIT</b>							
IC1 } IC4 }	RH-iX0176PAZZ	SN74LS241N	AS	C27 }			
IC2 } IC3 } IC5 }	RH-iX0123PASS	SN74LS244N	AS	C7 } C39 }	VCKZPU1HF103P	0.01MFD 50V Ceramic	AA
IC6 } IC7 } IC8 }	PH-iX0188PAZZ RH-iX0189PAZZ RH-iX0102PAZZ	SN75451BP SN75453BP SN74LS14N	AK AK AM	C16 } C19 } C28 }	VCCSPR1H6221J	220PF 50V Ceramic	AA
<b>TRANSISTORS AND DIODES</b>							
TR	VS2SC373G//1E	2SC373G	AC	C31 } C32 }			
D1 } D2 }	VHD1S1555//1A	1S1555	AB	C36 } C38 } C41 } C43 }	VCTYPU1BD104Z	0.1MFD 12V Ceramic	AB
<b>RESISTORS</b>							
RA1 } RA2 }	RR-KZ0052PAZZ RR-KZ0054PAZZ	Resistor Array 470 ohm x 7 Resistor Array 820 ohm x 7	AD AD	C37 } C42 }	VCSACU1AE336K VCSACU1AE226K	33MFD 10V Tantalum 22MFD 10V Tantalum	AF AE
RA3 } RA5 }	RR-KZ0055PAZZ	Resistor Array 820 ohm x 8	AD	C40 }			
RA4 } RA6 }	RR-KZ0053PAZZ	Resistor Array 470 ohm x 8	AD	<b>MISCELLANEOUS</b>			
R1 } R7 }	VRD-ST2EF221J	220 ohm 1/4W	AA	J1 } J5 }	QSÖCZ0015PAZZ	60-Pin Socket	AW
R8 } R15 }	VRD-ST2EF101J	100 ohm 1/4W	AA	CN1 } CN2 }	QPLGZ0028PAZZ DSÖCZ0003PAZZ	2-Pin Terminal for LED 50-Pin Socket with Flat cable	AC BQ
R16 } R17 }	VRD-ST2EF271J	270 ohm 1/4W	AA	1 }	DSÖCN0074PAZZ	3-Pin Socket with lead wire	AE
R18 } R21 }	VRD-ST2HF101J	100 ohm 1/2W	AA	<b>*** POWER SUPPLY UNIT SECTION ***</b>			
R19 } R20 }	VRD-ST2EF222J	2.2K ohm 1/4W	AA				
R22 } R23 }	VRD-ST2EF102J VRD-ST2EF103J	1K ohm 1/4W 10K ohm 1/4W	AA AA		DBÖXD0010PAZZ	Assembled Power supply Unit (Not replacement item)	-

# PARTS LIST

REF. VO.	PART NO.	DESCRIPTION	CODE
<b>INTEGRATED CIRCUIT</b>			
IC1	RH-IX0151PAZZ	Regulator SG3524	AT
<b>TRANSISTORS AND DIODES</b>			
Q301	VS2SA1103//-1	2SA1103	AK
Q302	VS2SA673-C/IE	2SA673	AD
D201	VHDS5VB10//-1	S5VB10	AL
D301	VHDESAC8204-1	ESAC82-004 or VHDS10SC4M/-1	AP
<b>RESISTOR</b>			
R301	VRD-SU2EF101J	100 ohm 1/4W	AA
R302	VRD-SU2EF272J	2.7K ohm 1/4W	AA
R306			
R303	VRD-SU2EF152J	1.5K ohm 1/4W	AA
R304	RR-FZ0001PAZZ	0.025 ohm 2W	AE
R305	VRD-SU2EF563J	56K ohm 1/4W	AA
R307	VRD-ST2EF472J	4.7K ohm 1/4W	AA
R309			
R308	VRD-SU2EF472J	4.7K ohm 1/4W	AA
R310	VRD-SU2EF392J	3.9K ohm 1/4W	AA
R311	VRS-PT3DB510J	51 ohm 2W	AB
VR301	RVR-M0010PAZZ	Variable Resistor 1K ohm	AC
<b>CAPACITORS</b>			
C101	RC-CZ0180 PAZZ	Line Capacitor PME271M547	AH
C102			
C201	VCEAAU1VM228M	2.200MFD 35V Aluminum	AG
C206			
C301	VCKYPU1NB104Z	0.1MFD 12V Ceramic	AB
C302	VCQYKU1HM102K	0.001MFD 50V Mylar	AB
C303	VCQYKU 1HM 183K	0.018MFD 50V Mylar	AB
C304	VCEAAU1AM338M	3.300MFD 10V Aluminum	AF
C305			
C306	VCSACU1VE106M	10MFD 35V Tantalum	AE
C307	VCQYKU1HM332K	0.0033MFD 50V Mylar	AB
C308	VCQYKU1HM103K	0.01MFD 50V Mylar	AB
<b>COILS AND TRANSFORMER</b>			
L101	RTRNZ0005 PAZZ	Filter Coil	AL
L301	RTRNZ0006PAZZ	Choke Coil	AR
T101	RTRNP0032PAZZ	Main Transformer	AS
<b>MISCELLANEOUS</b>			
F101	QFS-C0002PAZZ	Fuse Link T-500mA	AD
F201	QFS-C0004PAZZ	Fuse Link T-3.15A	AD
	QFSHA0001PAZZ	Fuse Holder	AA
S0101	OSQCA0001PAZZ	Appliance Inlet	AD
	QPNGN0303CEZZ	3-Pin Terminal for power supply	AB
2	PRDAR0020PAZZ	Radiation Plate	AQ
	PRDAR0022PAZZ	Radiation Plate (for Diode S5VB10)	AD
S1010	OSIV-F0015PAZZ	Mains Switch	AL
3	LANGK0271PAZZ	Inlet, Filter P.W.B. Fixing Angle	AG
4	LHLDF0016PAZZ	P.W.B. Holder	AA
5	LHLDW9003CEZZ	Cord Fixer HW-146	AA

REF. NO.	PART NO.	DESCRIPTION	CODE
*** OTHER SECTION ***			
<b>DIODES</b>			
6	RH-PX0033PAZZ	LED	AD
<b>MISCELLANEOUS</b>			
7	GCABC8030PASA	Cabinet	BA
8	GWAKP0003PASA	Front Frame	AV
9	PFTA-0003PASA	Cover	AQ
10	LCHSM0091PASA	Chassis	BD
11	DANG-0013PAZZ	Moter Board Fixing Angle	BD
12	PGUMS1006PAZZ	Rubber Bush	AE
13	GLEGR0001PAZZ	Foot	AB
	QACCK0050AFZZ	A.C. Cord	AQ
	QACCB0001PAZZ	A.C. Cord (for UK)	AQ
14	JBTN-0035PASA	Button	AE
15	LANGF0013PAZZ	Support Angle	AD
16	LANGQ0024PAZZ	Power Supply P.W.B. Fixing Angle	AS
17	PCUSG0005PAZZ	Cushion (A) 5 x 100 x t1.0	AA
18	PCUSG0006PAZZ	Cushion (B) 5 x 190 x t1.0	AB
	TSPCE0008PAZZ	Specification Panel	AE
	TSPCE0009PAZZ	Specification Panel (for UK)	AE
	TCAUE0002PAZZ	Caution Card for Lever	AB
19	PZETV0018PAZZ	Insulator	AB
20	PSPAK0003VAZZ	LED Specer	AA
21	DSOCN0013PAZZ	2-Pin Socket with Lead Wire	AE
22	QTANN0002PAZZ	Ground Terminal	AH
23	LANGQ0013PAZZ	A.C. Switch Fixing Angle	AB
24	LHLDF0010PAZZ	P.W.B. Holder	AF
	TINSE0008PAZZ	Instruction Manual	AR
	TLABH0002PAZZ	Label for A.C. Cord (for UK)	AC
	MLEVP0004PAZZ	Lever for I/O card	AD