TM-2421/ TM-2021

MAINTENANCE MANUAL

Maintenance-TM-2421-series-v.1.a-93.11.16

Ambulatory Blood Pressure Monitoring System

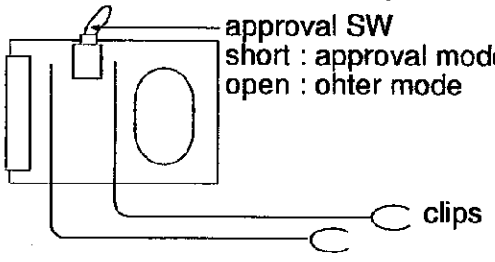
TM-2421 Meter/ Recorder
TM-2021 Printer

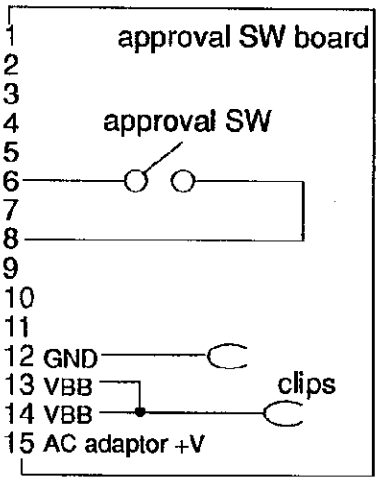
A&D Company, Limited

Contents

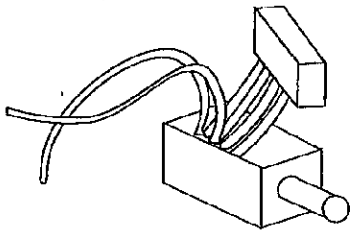
Tools List

DC 5V power source ----------1 unit
Approval switch board ----------1 piece





Solenoid valve ----------1 piece

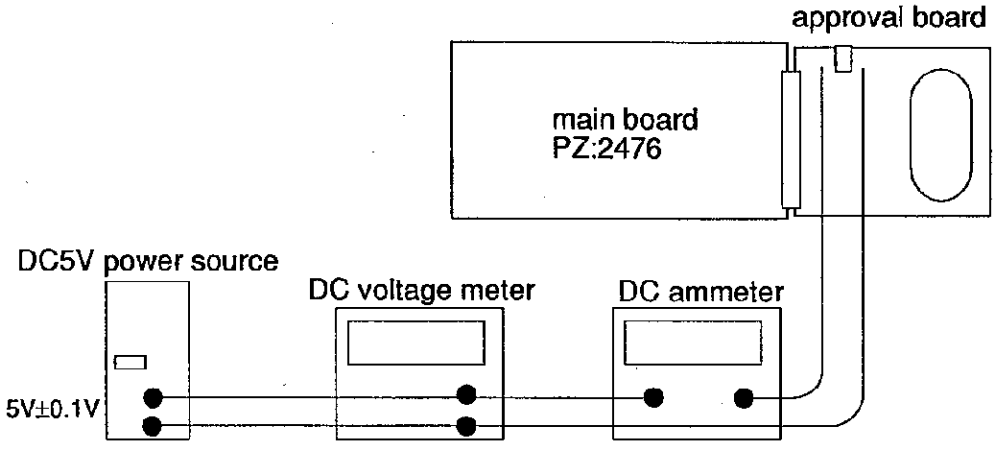


Multimeter	1 unit	DC10V ~ 1mV range, DC 50mA ~ 500μA range, AC 10mV 60Hz
Pressure selector	1 unit	50±0.3mmHg, 150±0.3mmHg, 280±0.3mmHg
Manometer	1 unit	0 ~ 300mmHg / 1mmHg
AC adapter cable	1 piece	
Forceps or valvecable	1 piece	
Air connector aliment for sensor leakcable	1 piece	
Normal air connector aliment	1 piece	
500cc tank	1 piece	
TM-2021	1 set	
PC-9801U2	1 set	
Program for communication check	1 set	

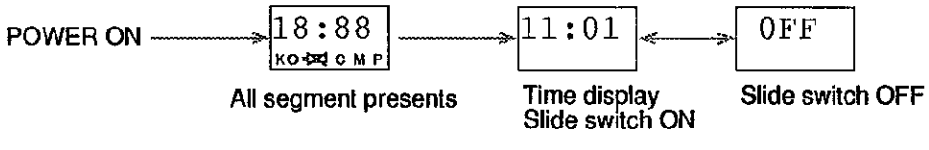
Initial Operations and Power Consumption

Caution: When handling with the board, since there are locations where high voltage is generated, take sufficient care during operations.

Step1 Connect the approval board to main board.
Step2 Set up as shown in the figure below.



Step3 Set the approval switch to other mode(open 6 - 8 pin).
Step4 Set the range of the ammeter to maximum. (Since a large current will flow when the power is turned ON, set the range to maximum to protect the ammeter.)
Step5 Turn the power from the power source ON.
Step6 Check that the buzzer sounds at start up and the LCD display appears as shown below.



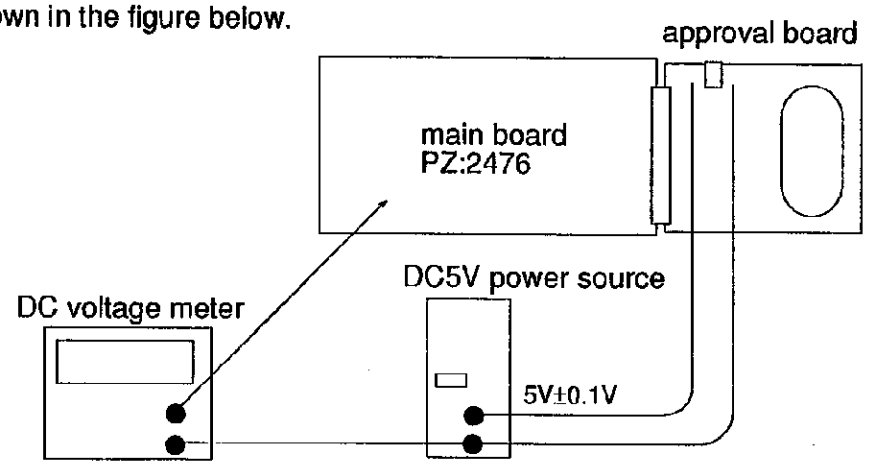
When the slide switch of the TM-2421 is ON, only the time display will be shown. When the switch is OFF, the time display and OFF display will alternate.
Step7 Confirm that the same operation occurs as in 5) above when RESETSW(SW97) of the main board is pressed.

Step8 Set the range of the ammeter so that 500μA can be measured.
Step9 Read the Standby current value at the OFF display.
Specification : 500μA or less. (Since the current value will change, find the average value.)
Step10 Set the approval switch to approval mode(short 6 - 8 pin).
Step12 When 0 appears on the LCD display and the current value is stable, measure the Operation current.
Specification : 50mA or less.

Step13 Turn the power OFF.

Voltage Check and Adjustment

Step1 Set up as shown in the figure below.



Step2 Set the approval switch to approval mode. (short 6 - 8 pin)

Step3 Turn the power source ON.

Step4 Measure the voltage between TP1 and GND (Power for OPAMP).
Specification : 10.0 V ~ 11.5V

Step6 Measure the voltage between TP5 and GND (1/2 power voltage).
Specification : 2.5±0.1V

Step7 Adjust the voltage between TP2 and GND (reference voltage) using VR82.
Specification : 4.090V ~ 4.100V

Step8 Measure the voltage between TP6 and GND (Standard microphone voltage for K sound).
Specification : 1.7V ~ 2.3V

Step9 Measure the voltage between TP7 and GND (Standard microphone voltage for noise).
Specification: 1.7V ~ 2.3V

Step10 Measure and adjust the voltage using VR83 between TP3 and GND so that the voltage is the same as that between TP4 and GND (standard value).
Specification : Standard value (standard value)±2.0mV

The TP4 value will be altered due to adjust the TP3 voltage, so make this adjustment several times.

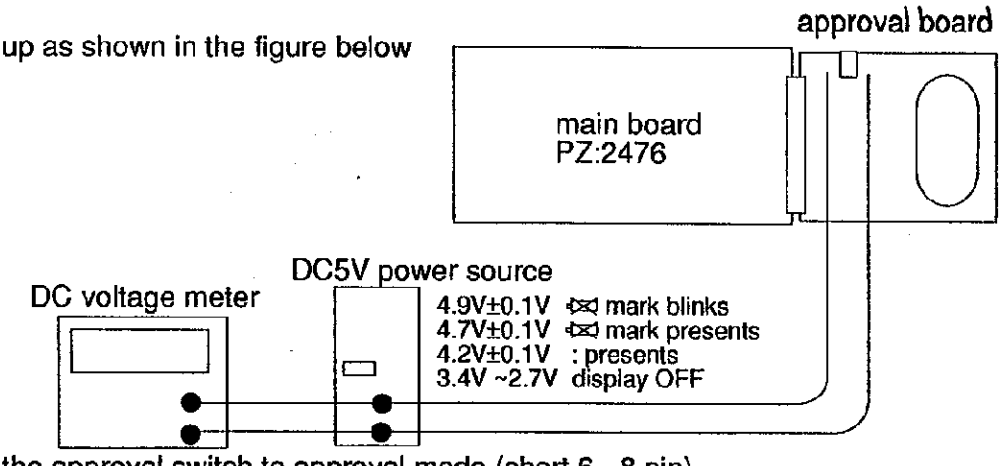
Step11 Set the approval switch to ohter mode(open 6 - 8 pin) and press the reset button (SW97) on the main board.

Step12 measure the voltage between the + side of C49 and GND when the reset occurs and the time display appears .
Specification : 3.12V ~ 3.28V

Step13 Turn the power source OFF.

Operation Check concerning to the Battery Voltage

Step1 Set up as shown in the figure below



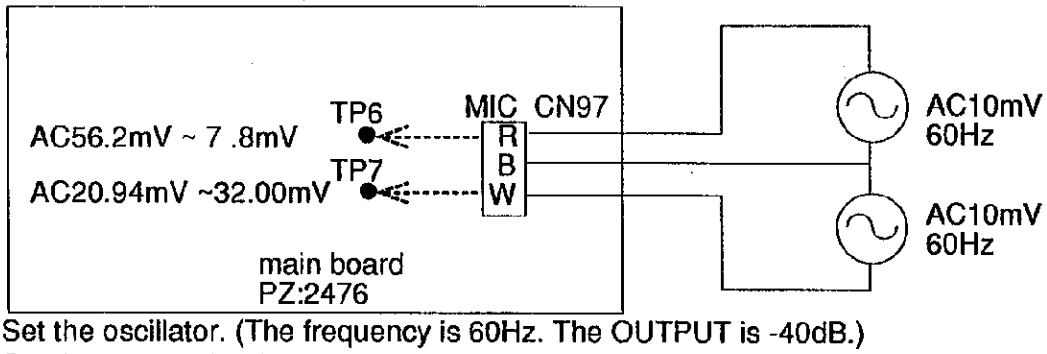
Step2 Set the approval switch to approval mode (short 6 - 8 pin).
Step3 Turn the power source on that set the voltage to 5V±0.1V
Step4 Confirm the ✉ mark is blinking at the 4.9V±0.1V while the voltage decrease, after 0 appears on the LCD display. (Using for Software version from 1 to c1)
Step5 Confirm the ✉ mark display at the 4.7V±0.1V while the voltage decrease.
Step6 Confirm the : mark display at the 4.7V±0.1V while the voltage decrease.
Step7 Confirm the LCD display is OFF about the 3.4V ~ 2.7V while the voltage decrease.

When the values observed do not meet the specifications in the above, again adjust the standard voltage check between TP2 and GND (reference power).

Step8 Turn the power source OFF.

Gain Voltage Check

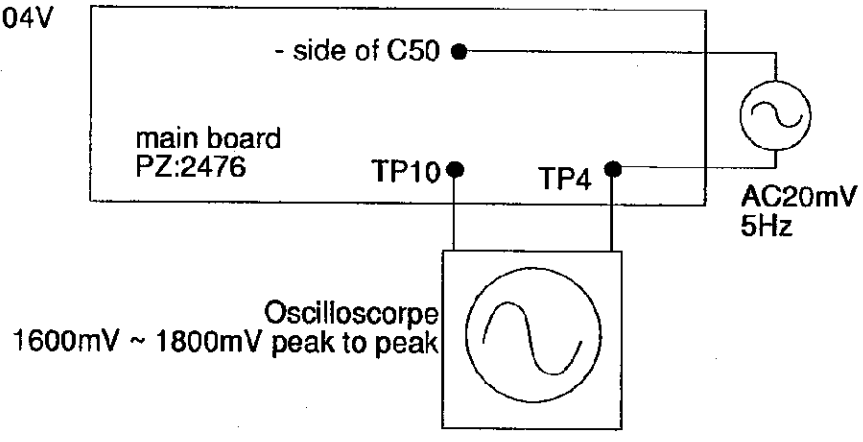
Step1 Wire as shown in the figure below.



Step2 Set the oscillator. (The frequency is 60Hz. The OUTPUT is -40dB.)
Step3 Set the approval switch to approval mode(short 6~8pin).
Step4 Turn the 5V±0.1V power source ON.
Step5 Measure the voltage between TP6 and GND (Microphone output voltage for K sound).
Specification: AC 56.2 - 70.8mV
Step6 Measure the voltage between TP7 and GND (Microphone output voltage for noise).
Specification: AC 20.94 - 32.00mV
Step7 Turn the power OFF.

Pressure sensor Circuit Gain

Step1 Set the output of the OSC and oscilloscope.
5Hz
-40dB = 0.04V



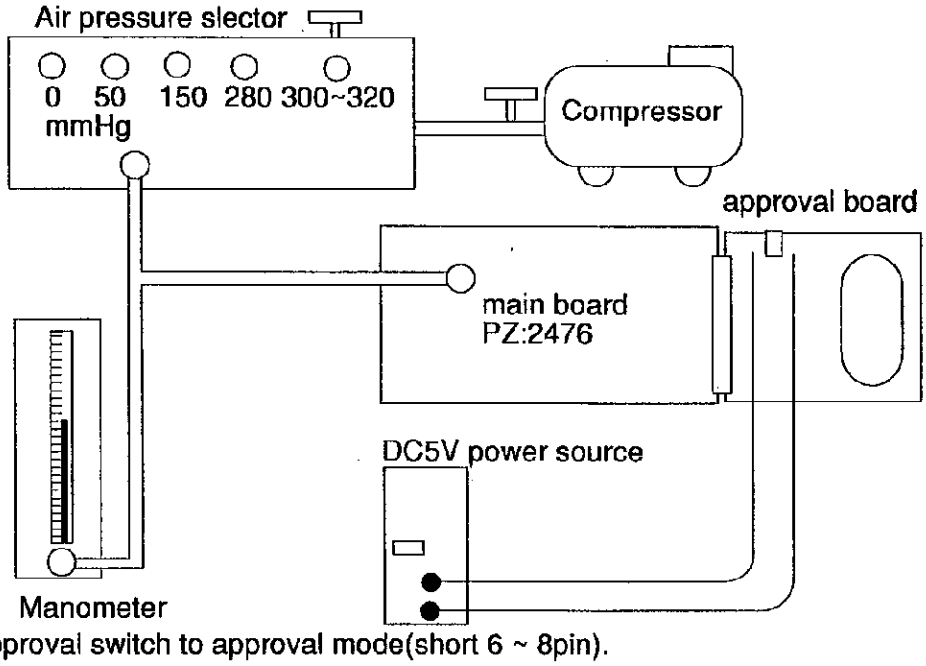
Step2 Turn the TM-2421 power source ON and set to approval mode.
Step3 Confirm the output of TP10 - TP4(G) using the oscilloscope.
Specification: Vpp = 1600 mV ~ 1800mV
Step4 Turn the power source OFF.

Charging Circuit

Step1 Set the approval switch to other mode
Step2 Connect the AC adapter and confirm that the "Peee" sounds and the "c" mark lights. Measure the current at this time using the ammeter of the DC power source. (Wait about 10 seconds and take the current value while the "c" mark is lit.)
Specification: 0.3A ~ 1.5A
Step3 Turn the DC power source OFF.

Pressure Accuracy Adjustment

Step1 Set up as shown in the figure below.



Step2 Set the approval switch to approval mode(short 6 ~ 8pin).

Step3 Turn the 5V ±0.1V power source ON.

Step4 Adjust the manometer to read 0mmHg ±0.3mmHg when there is no pressure.

Step5 Spefication of the pressure selector is below. Adjust each pressure and conform them.

50mmHg :	50mmHg	±0.3mmHg
150mmHg :	150mmHg	±0.3mmHg
280mmHg :	280mmHg	±0.3mmHg

Step6 Confirm that the TM-2421 display reads zero.

Step7 Turn the 280mmHg of the pressure selector ON and adjust TM-2421 display using VR81 so that it reads 280mmHg ±1mmHg.

Step8 Turn the 280mmHg of the pressure selector OFF, set the approval switch to other mode(open 6 ~8pin) once so that the manometer value reaches 0mmHg ±0.3mmHg, then again set the approval switch to approval mode(short 6 ~ 8pin).

Step9 Turn the 280mmHg of the pressure selector ON and confirm that the TM-2421 display reads 280mmHg ±1mmHg. When the value is not within the specification, repeat the process starting from step6 above.

Step10 Turn the 280mmHg of the pressure selector OFF.

Step11 Turn the 150mmHg of the pressure selector ON and confirm that the TM-2421 display reads 150mmHg ±1mmHg. When the value is not within the specification, repeat the process starting from step6 above.

Step12 Turn the 150mmHg of the pressure selector OFF.

Step13 Turn the 50mmHg of the pressure selector ON and confirm that the TM-2421 display reads 50mmHg±1mmHg. When the value is not within the specification, repeat the process starting from step6 above.

Step14 Turn the 50mmHg of the pressure selector OFF.

Step15 Once the manometer value reaches 0mmHg ±0.3mmHg, set the approval switch to other mode(open 6 ~8pin) then set it back to approval mode(short 6 ~ 8pin).

The TM-2421 automatically performs an AUTO ZERO when the mode is set to approval mode from other mode. Therefore, be sure to carry out steps8 and step15 above. Also, if the TM-2421 display is abnormal when the mode is set to approval mode from other mode, set again.

Step16 Again confirm that each pressure of the TM-2421 conforms to those below.

50mmHg : 50mmHg ±0.3mmHg
150mmHg : 150mmHg ±0.3mmHg
280mmHg : 280mmHg ±0.3mmHg

Step17 Turn the 300mmHg of the pressure selector ON.

Step18 As the pressure selector increases the pressure past 300mmHg, confirm that a flashing 320 appears on the LCD display when 320mmHg or above is reached.

Step19 Turn the 300mmHg of the pressure selector OFF.

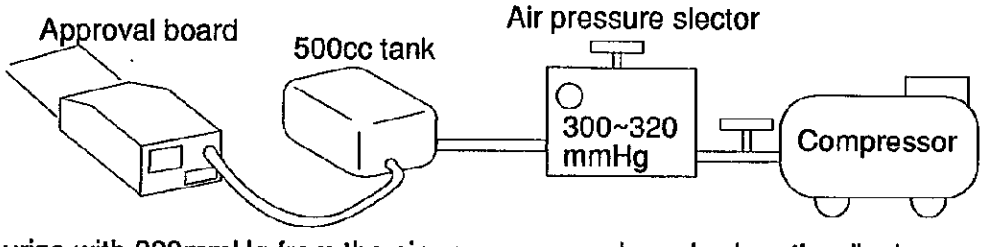
Step20 Remove the TM-2421 from pressure adjustment set.

Step21 Perform machine assembly.

Air Leak Check

Step1 Set the approval switch to approval mode.

Step2 Connect the Air tank .



Step3 Pressurize with 300mmHg from the air pressure supply and, when the display shows 300 ±1mmHg, shut off using forceps or a valve .

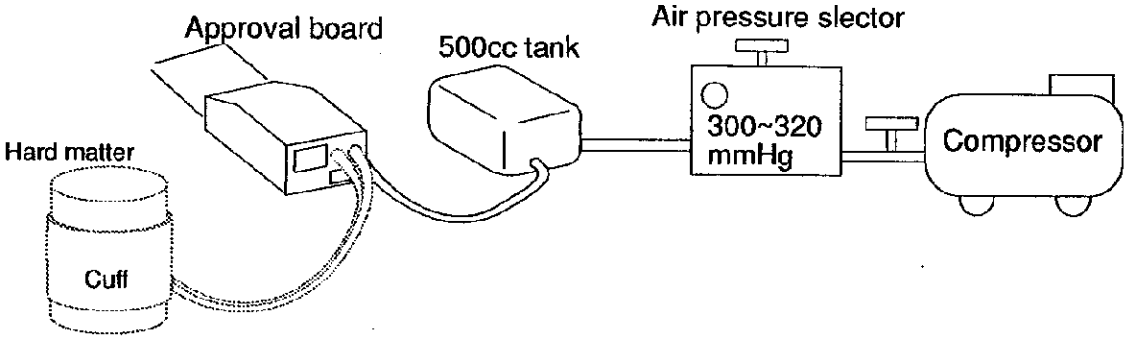
Step4 Let sit for 3 minutes after shut off, check that the air leak value during the time is within 3mmHg.

Constant Exhaust Speed

Step1 Set the approval switch to approval mode.

Step2 Turn the automatic measurement switch ON.

Step3 Attach the 500cc tank to the TM-2421 using the normal air connector.
(It can use the cuff rolling to hard matter instead of the air tank.)



Step4 Press the event start button and continue pressing the button until the display reaches 200mmHg.

Step5 When the display reaches 200mmHg, release the event start button and confirm the rate of constant exhaust speed is 4mmHg ±1mmHg when the pressure is 160 - 150mmHg.

Rapid Exhaust Operation

Step1 Press the event start button and continue pressing the button until the display reaches 320mmHg.

Step2 Confirm that rapid exhaust operation begins when the displayed pressure reaches 320mmHg.
(When rapidly exhaust operates, depending on the machine, "320" may remain on the display or the display may go out at "316". However, as long as the rapid exhaust operation occurs, the machine is OK.)

Step3 Remove the approval board

Normal Measurement

Step1 Connect the TM-2421 with the TM-2021.
Step2 Press the measurement interval setting key (TM-2021).
Step3 Press the selection key and set the display to "2 OFF" (TM-2021).
Step4 Press the △ key and set the display to "2 1" (TM-2021).
Step5 Press the register key and wait for pressurization to start (TM-2021).
Step6 Once pressurization starts, press the red (start, stop) switch (TM-2421).
Step7 Press the blood pressure measurement key (TM-2021).
Step8 Press the register key (TM-2021).
Step9 Begin pressurization and blood pressure measurement.
Step10 When measurement is complete, print and confirm that measurement was done.
Step11 Turn the automatic measurement change switch OFF (TM-2421).
Step13 Remove the TM-2021.

PZ:2454 PARTS LIST

CIRCUIT SYMBOL	PARTS NAME	DESCRIPTION	Q'TY
	PC:2454A	PRINTED CIRUCIT BOARD	1
C41,46	CC:0.1U25V-C	CERAMIC CAPACITOR 0.1μF2.5V	2
C42,47	CC:0.01U-C	CERAMIC CAPACITOR 0.01μF	2
C43	CC:0.047U-C	CERAMIC CAPACITOR 0.047μF	1
C44	CC:0.0047U-C	CERAMIC CAPACITOR 0.0047μF	1
C45	CK:SRA10VB220	ELECTROLYTIC CAPACITOR 220μF 10V	1
CN70	KO:618-15-110	CONNECTOR CABLE	1
CN71	JD:230-14-30	CONNECTOR	1
D61,63,66～69	DI:1SS226-C	DIODE	6
D64	DZ:RD3.9MB-C	ZENNER DIODE	1
D65	DZ:HZS3CLL	ZENNER DIODE	1
DSW1	SD:KHS08	DIP SWITCH	1
IC1	UC:M37410S6-303	CPU	1
IC2	UC:LB1256M	PRINTER DRIVER IC	1
IC3	UC:4001BF	CMOS IC	1
IC4	UC:82C51	COMMUNICATION INTERFACE IC /USART	1
LCD	ED:LTP6A8041A	DISPLAY PANEL	1
Q81,82,83	QT:C2712Y-C	TRANSISITOR (SMD)	3
Q84	QT:A1162Y-C	TRANSISITOR (SMD)	1
R10	RC:1/10W154J	RESISTOR 150KΩ 1/10W	1
R11	RC:1/10W472J	RESISTOR 472Ω 1/10W	1
R1～4,14～22,30	RC:1/10W224J	RESISTOR 220KΩ 1/10W	4
R27	RC:1/10W100J	RESISTOR 10Ω 1/10W	1
R31	RC:1/10W104J	RESISTOR 100KΩ 1/10W	1
R5	RC:1/10W222J	RESISTOR 2.2KΩ 1/10W	1
R6	RC:1/10W105J	RESISTOR 1MΩ 1/10W	1
R7	RC:1/10W335K	RESISTOR 335KΩ 1/10W	1
R8,13	RC:1/10W103J	RESISTOR 10KΩ 1/10W	7
R9～12	RC:1/10W223J	RESISTOR 22KΩ 1/10W	2
SW1～10	SP:0602-01-020	SWITCH	10
VR30	RV:RH04A1AS4J	POTENTIMETER 47KΩ	1
X91	XT:CST2.45MGW	CRISTAL 2.4MHz	1
X92	ET:EFB-AA40D101	SPEAKER	1

PZ:2258 PARTS LIST

CIRCUIT SYMBOL	PARTS NAME	DESCRIPTION	Q'TY
	PC:2258C	PRINTED CIRCUIT BOARD	1
C47, C48, C49, C50	CK:SRA16VB-10	CAPACITOR 10μF	4
CN73	JA:DE-95A-N	DUSB CONNECTOR	1
CN74	JI:1-163740-4	F PIN	1
CN74	JT:W-P9815	CONNECTOR	1
CN74	PC:2260A	PRINTED CIRCUIT BOARD	1
CN75	JE:1781-01-510	ADAPTOR JACK	1
IC 5	UC:4024BF	CMOS IC	1
IC 6	UC:MAX232CWE	RS232C DRIVER/RECEIVER	1
IC 7	UC:HC153F	CMOS IC	1
R30, R32	RC:1/10W224J	RESISTOR 220KΩ 1/10W	2
R31	RC:H5S133RJ	RESISTOR (SMD)33Ω	1

PZ:2476 PARTS RIST

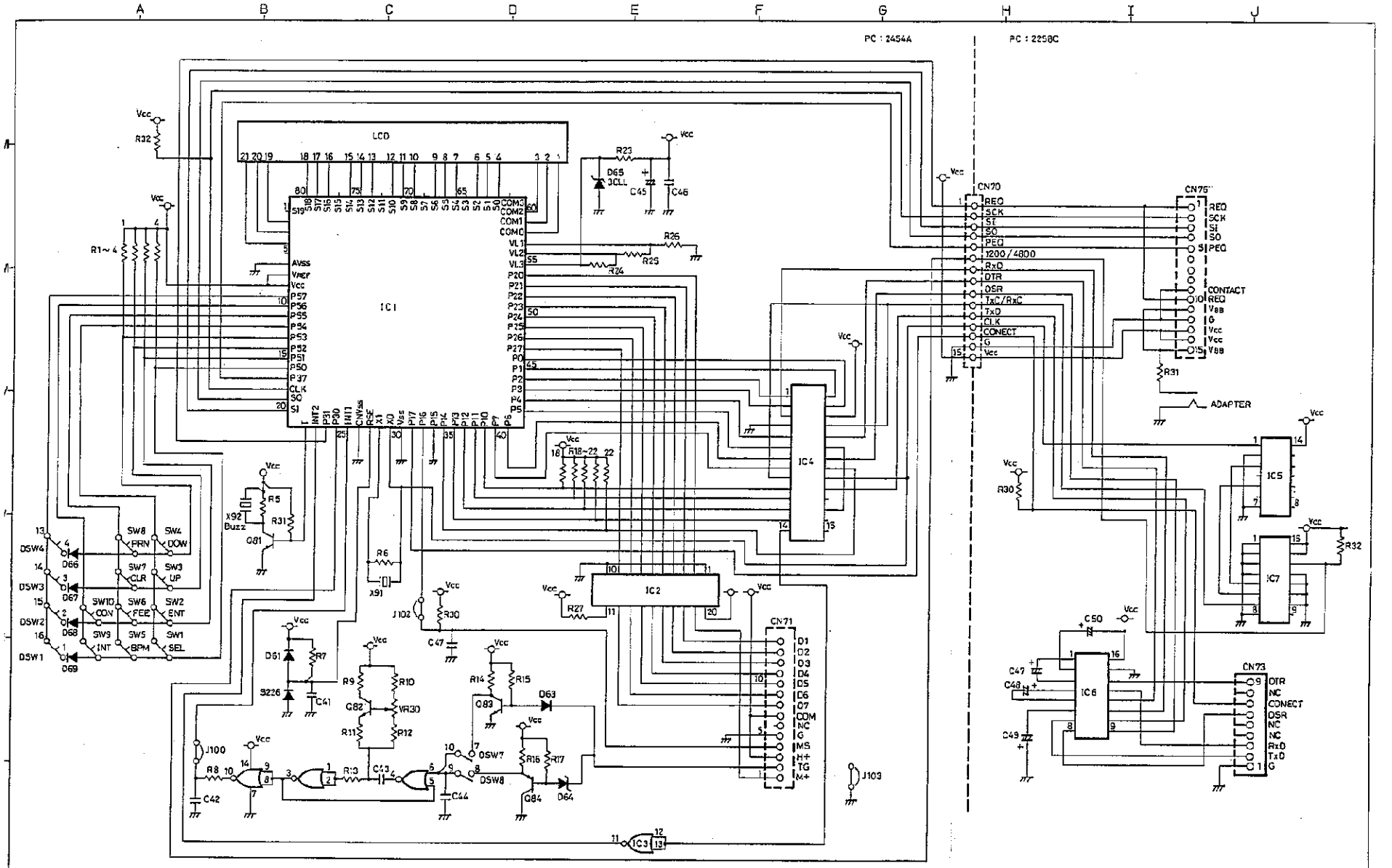
CIRCUIT SYMBOL	PARTS NAME	DESCRIPTION	Q'TY
C56, C57, C59, C60	CC:C70A2E104KR	CAPACITOR 100μF	4
C28, 38, 39	CC:0.0033U-C	CAPACITOR 0.0033μF	5
C35	CC:0.01U-C	CAPACITOR 0.01 μF	1
C43, 44, 52	CC:0.047U-C	CAPACITOR 0.047 μF	3
C34	CC:0.068U-C	CAPACITOR 0.068 μF	1
C22～25, 29, 36, 37, 41, 42, 45～48, 53～55, 58, 101～113	CC:0.1U25V-C	CAPACITOR 0.1μF 25V	30
C20	CC:15P-C	CAPACITOR 15PF	1
C21	CC:30P-C	CAPACITOR 30PF	1
C27, 40	CK:SRA16VB-47	CAPACITOR 47μF 16V	2
C26, 49	CK:SRA16VB100	CAPACITOR 100μF 16V	2
C30～33	CT:1C100-C	CAPACITOR 10μF 16V	4
C51	CT:1C220-C	CAPACITOR 22μF 16V	1
C50	CT:1C4R7-C	CAPACITOR 4.7μF 16V	1
D51, 56, 58	DI:1SS226-C	DIODE	3
D59	DI:1SS306	DIODE	1
D52	DZ:HZ53CLL	ZENER DIODE	1
D54	DZ:RD10MB-C	ZENER DIODE	1
LCD	ED:LTP2J8011A	LCD DISPLAY	1
X92	ET:EFB-AA40D101	EFB-AA46D101 MDB	1
S97	ET:P-1880-401G	PRESSURE SENSOR	1
ADAPTOR	JE:1781-01-510	ADAPTOR JACK	1
CN97	JI:3P-S125T3-E	PIN HEADER	1
CN98	JI:5P-S125L3-E	PIN HEADER	1
CN99	JT:W-D2515R-1	CONNECTOR	1
L1, 2	LL:FL74332J	TRANSFORMER	2
T93	LL:MP-LC-8U	TRANSFORMER	1
	PC:2476B	PRINTED CIRUCIT BOARD	1
Q77	QT:A1162Y-C	TRANSISTOR	1
Q71, 74, 80, 83	QT:A1314B-C	TRANSISTOR	4
Q70, 75, 76, 78, 79, 81, 82, 84, 85	QT:C2712BL-C	TRANSISTOR	9
Q86, 87	QT:C3075LB	TRANSISTOR	2
R45	RC:1/10W100J	RESISTOR 10Ω 1/10W	1
R18	RC:1/10W1001F	RESISTOR 1KΩ 1/10W	1
R20, 21, 26, 27	RC:1/10W1002F	RESISTOR 10KΩ 1/10W	4
R71～77	RC:1/10W101J	RESISTOR 10KΩ 1/10W	7
R37, 42, 43, 82	RC:1/10W103J	RESISTOR 10KΩ 1/10W	4
R1～3, 15, 31, 56, 62, 70, 78, 79, 81, 83, 84, 87, 88, 94	RC:1/10W104J	RESISTOR 100KΩ 1/10W	16
R46, 66	RC:1/10W105J	RESISTOR 1MΩ 1/10W	2
R65	RC:1/10W106J	RESISTOR 10MΩ 1/10W	1
R29	RC:1/10W124J	RESISTOR 120KΩ 1/10W	1
R33, 35, 41	RC:1/10W221J	RESISTOR 220Ω 1/10W	3
R25, 50, 51, 86	RC:1/10W2213F	RESISTOR 220KΩ 1/10W	4
R30, 38, 49, 80	RC:1/10W222J	RESISTOR 2.2KΩ 1/10W	4
R4, 16, 53～55, 57, 59～61, 63, 92, 93, 97	RC:1/10W223J	RESISTOR 22KΩ 1/10W	13
R5～8, 12～14, 64, 98	RC:1/10W224J	RESISTOR 220KΩ 1/10W	9
R10	RC:1/10W274J	RESISTOR 270KΩ 1/10W	1
R24	RC:1/10W332F	RESISTOR 3.3KΩ 1/10W	1
R22, 23	RC:1/10W3322F	RESISTOR 33.2KΩ 1/10W	2

PZ:2476 PARTS RIST

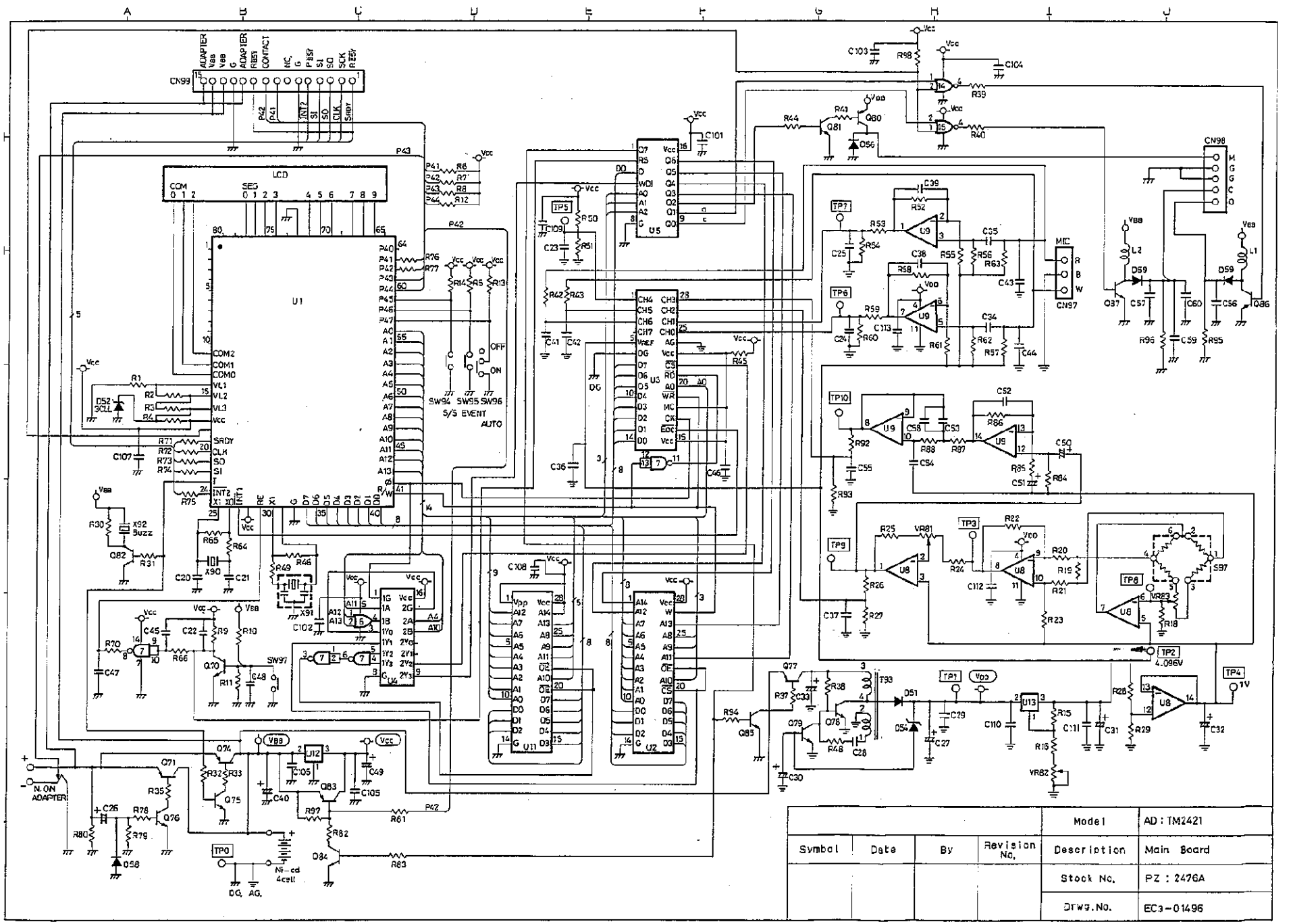
CIRCUIT SYMBOL	PARTS NAME	DESCRIPTION	Q'TY
R9,52,58	RC:1/10W334J	RESISTOR 330KΩ 1/10W	3
R78	RC:1/10W364J	RESISTOR 360KΩ 1/10W	1
R48,39,40	RC:1/10W470J	RESISTOR 47Ω 1/10W	3
R85	RC:1/10W472J	RESISTOR 4.7KΩ 1/10W	1
R32,44	RC:1/10W473J	RESISTOR 47KΩ 1/10W	2
R11	RC:1/10W563J	RESISTOR 56KΩ 1/10W	1
R95+	RC:1/8W106M	RESISTOR 10MΩ 1/8W	1
R95-	RC:1/8W206M	RESISTOR 10MΩ 1/8W	1
VR83	RV:RH04A1AJ2J	POTENTIOMETER 220Ω	1
VR81,82	RV:RH04A1A14J	POTENTIOMETER 22KΩ	2
SW94,95	SP:SKHHLM	SWITCH	2
SW97	SP:SKHUAC	SWITCH	1
SW96	SS:SLHB22	SWITCH	1
U8,9	UA:C324B	OP AMP	2
U7	UC:HC00F	CMOS IC	1
U4	UC:HC139F	CMOS CMOS IC	1
U1	UC:M50930-7002B	CPU	1
U5	UC:4099BF	CMOS IC	1
U14,15	UC:7S02F	CMOS IC	2
U6	UC:7S32F	CMOS IC	1
U3	UF:D7004C	A/D CONVERTER	1
U11	UN:M5M27C256-15	MEMORY	1
U2	UN:M5M5256-12L	MEMORY	1
U12,13	UR:RH5RA32AA-C	VOLTAGE REGULATOR	2
X91	XT:C4SA-4M-M00	CRYSTAL 4.0MHz	1
X90	XT:9102	CRYSTAL 32.768KHz	1

ACCESSORIES

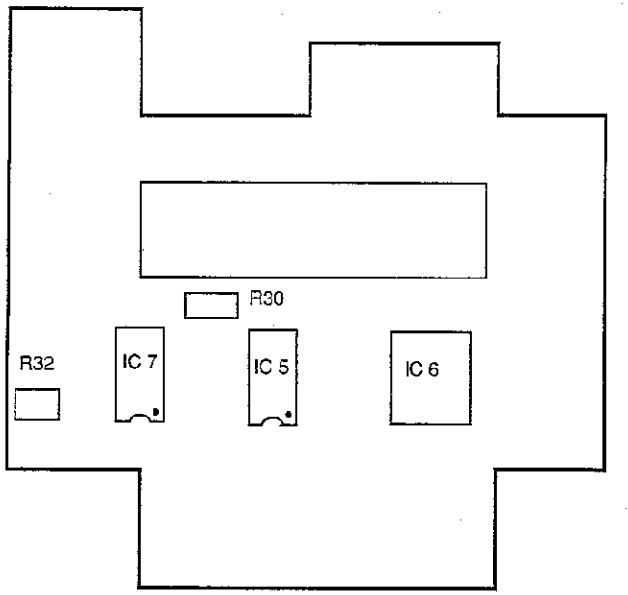
PARTS NAME	DESCRIPTION	Q'TY
00:B45654A	MIKE HOLDING TAPE	1
00:U30963	SHOLDER HOLDER	1
00:U44189	WEST BELT	1
13:A37409	CUFF CAVER	2
TB:144	AC ADAPTOR	1
WP:PP-133	ACTIVITY RECORD SHEET	1

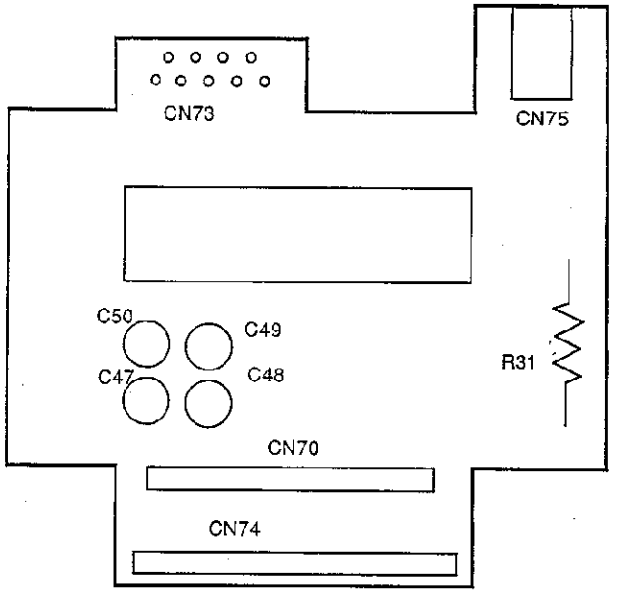


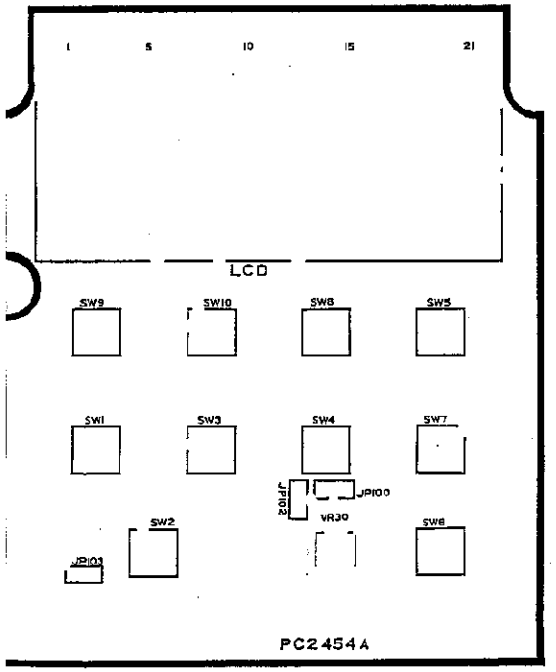
				Model	AD : TM2021
Symbol	Date	By	Revision No.	Description	Main/Interface Board
				Stock No.	PZ : 2454A/2258
				Drwg.No.	EC3 – 01482

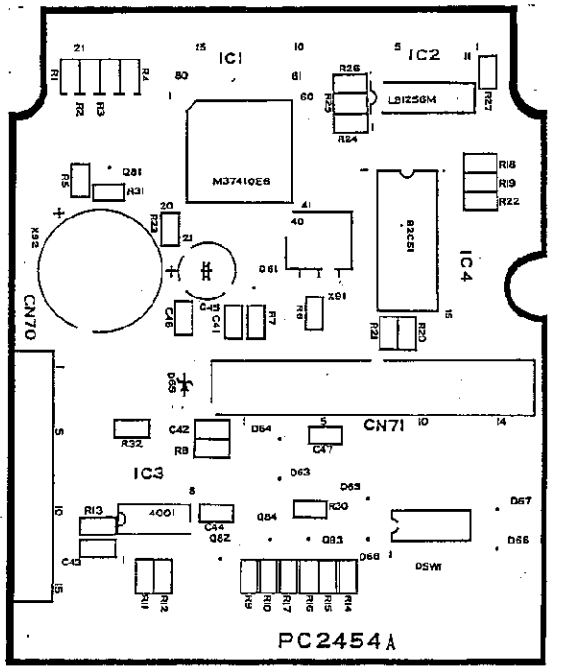


Symbol	Date	By	Revision No.	Model	AD : TM2421
				Description	Main Board
				Stock No.	PZ : 2476A
				Drwg. No.	EC3-01496

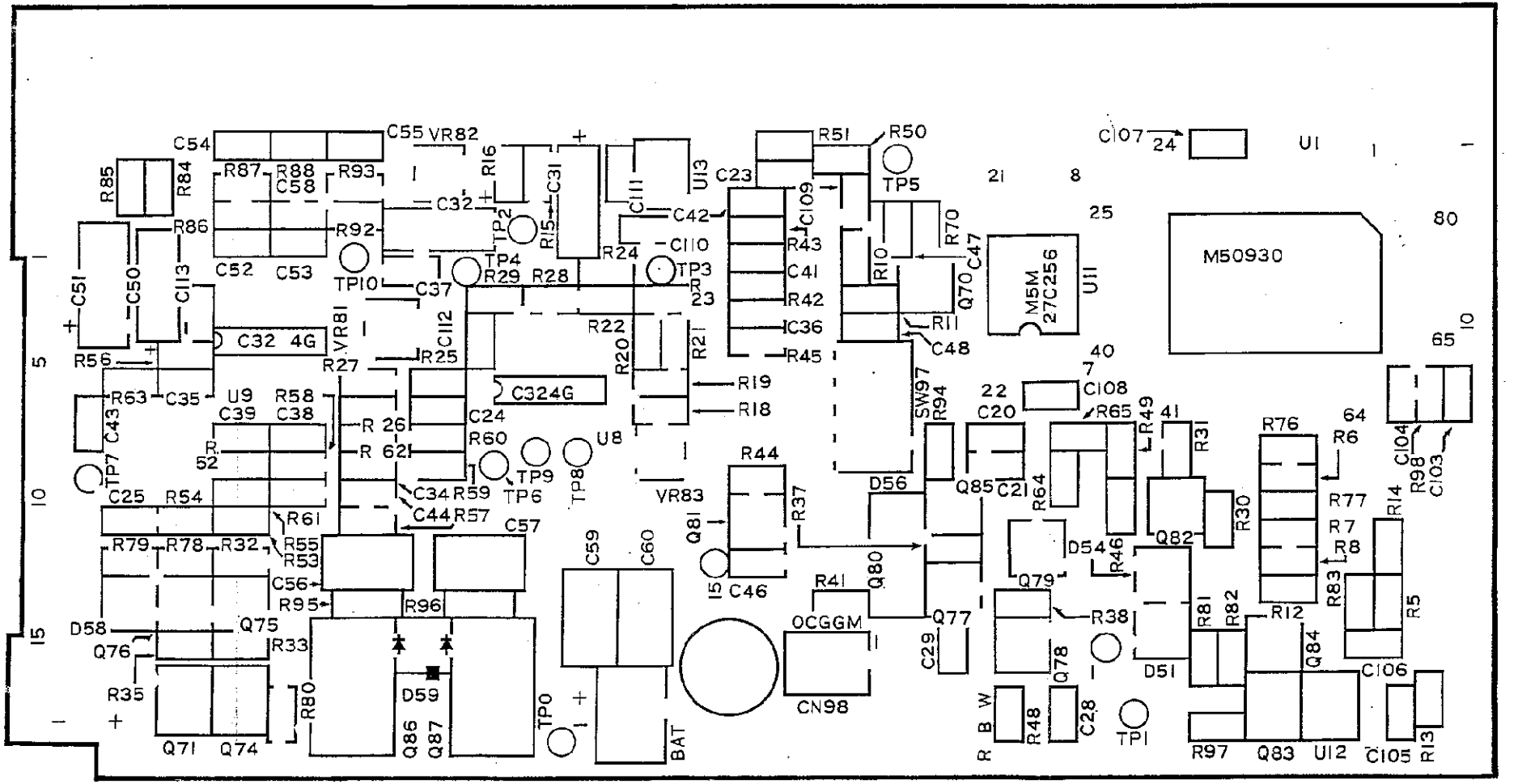




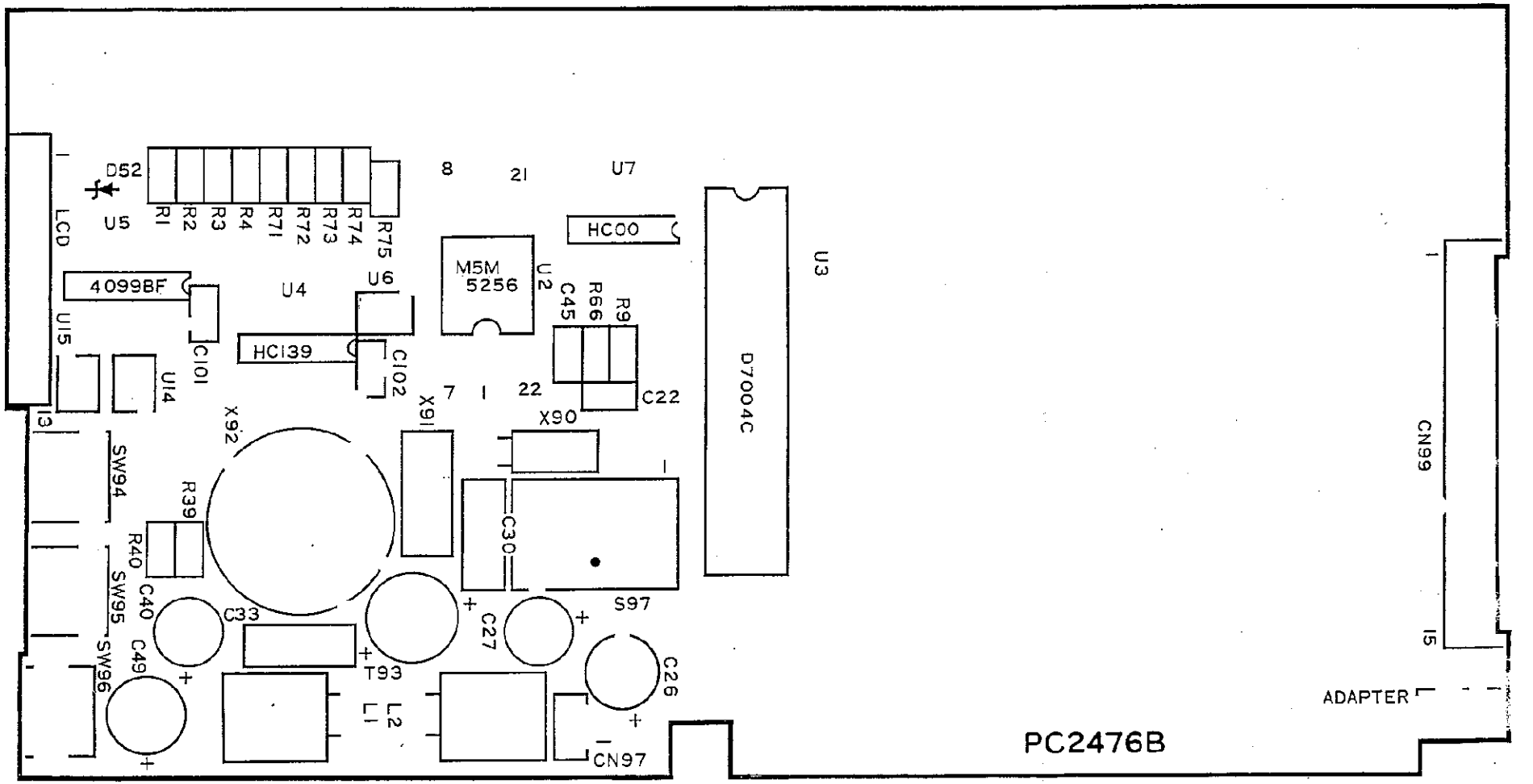




PCB Assembly				Model	AD:TM2021
Symbol	Date	By	Revision No.	Description	Main/Interface Board
				Stock No.	PZ:2454A/2258
				Drwg. No.	EC3-01482



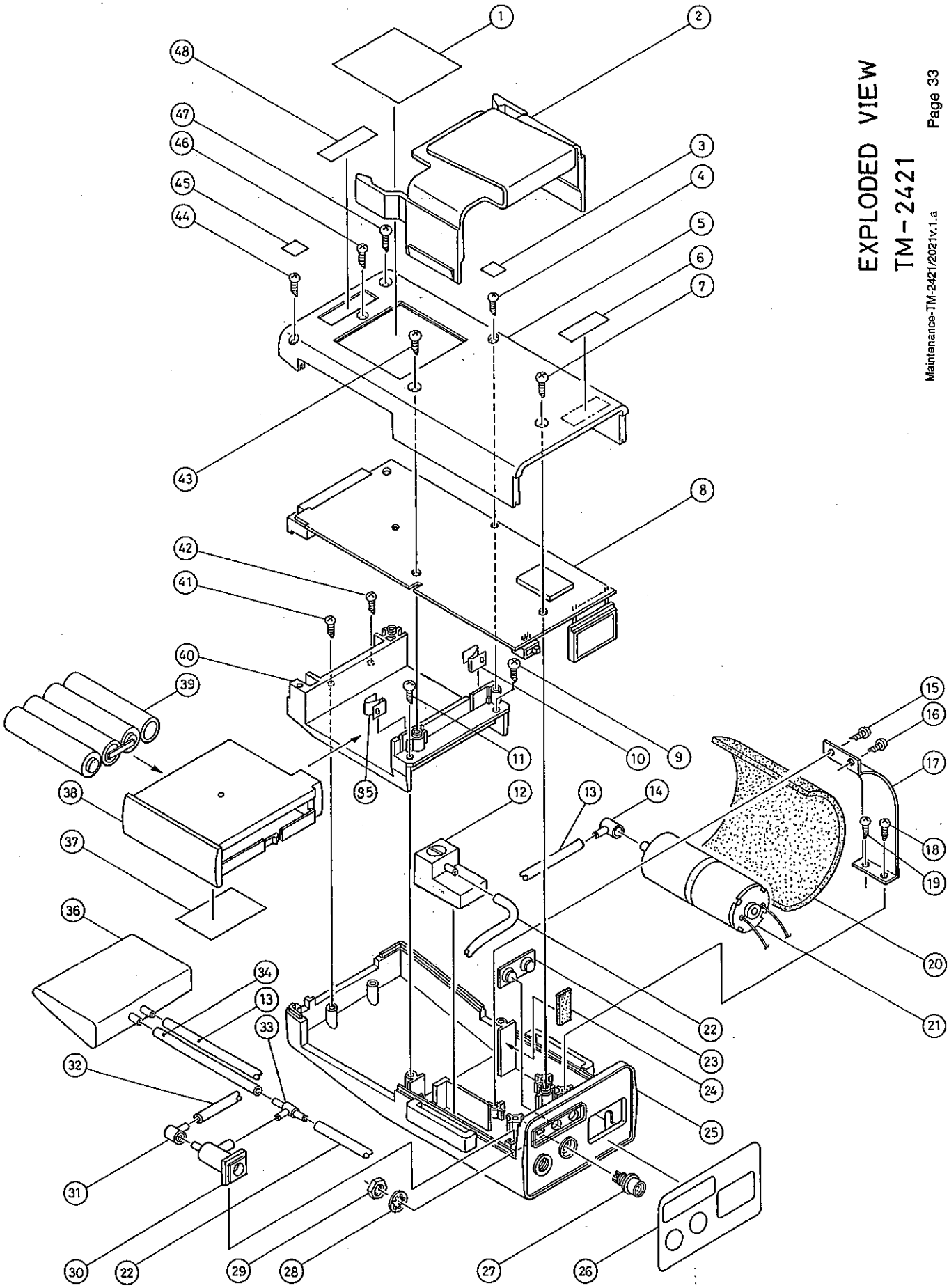
PCB Assembly				Model	AD:TM2421
Symbol	Date	By	Revision No.	Description	Main Board
				Stock No.	PZ:2476
				Drwg. No.	EC3-01496



PCB Assembly				Model	AD:TM2421
Symbol	Date	By	Revision No.	Description	Main Board
				Stock No.	PZ:2476
				Drwg. No.	EC3-01496

EXPLODED VIEW

SYMBOL	PARTS NAME	DESCRIPTION	Q'TY
1	08:B47654	SPEC. LABEL	1
2	07:U20367A	HOLDER	1
3	08:B48071	SCREW SHEEL	1
4		PAN HEAD TAPPING SCREW M3×8	1
5	07:U20364C	RECORDER LOWER CASE	1
6	08:B44073	VERSION SHEEL	1
7		PAN HEAD TAPPING SCREW M3×8	1
8	7PZ:2476B	MAIN BOARD	1
9		BINDING HEAD TAPPING SCREW M2×6	1
10	04:U44151A	BATTERY TERMINAL	1
11		BINDING HEAD TAPPING SCREW M2×6	1
12	PA:TM2421-E	ELECTORO MAGNETIC EXHAUST AIR VALVE	1
13	06:T101-070	SILICONE TUBE	1
14	06:U43242A	L PUMP CONNECTOR	1
15		BINDING HEAD TAPPING SCREW M2×4	1
16		BINDING HEAD TAPPING SCREW M2×4	1
17	04:U43850	PUMP SETTER	1
18		BINDING HEAD TAPPING SCREW M2×4	1
19		BINDING HEAD TAPPING SCREW M2×4	1
20	06:U46175A	PUMP RAPPING CUSHION	1
21	ET:P05Q01	ROLLING PUMP	1
22	06:T101-070	SILICONE TUBE	1
23	06:U43857	SWITCH RUBBER	1
24	06:U46176A	PUMP ATTCHMENT CUSHION	1
25	07:U20363D	RECORDER UPPER CASE	1
26	08:B47377	FRONT NAME PLATE FOR ENGLISH	1
26	08:B47378	FRONT NAME PLATE FOR JAPANESE	1
27	KO:882	MIKE CABLE	1
28		WASHER FOR KO:882	1
29		NUT FOR KO:882	1
30	06:U43855	AIR SOCKET	1
31	06:U46354	L CONNECTOR	1
32	06:T101-050	SILICONE TUBE	1
33	07:U41096	T CUFF TUBE CONNECTOR	1
34	06:T101-050	SILICONE TUBE	1
35	04:U44057A	BATTERY TERMINAL	1
36	07:U44055	AIR TANK	1
37	08:U46287	BATTERY LABEL	1
38	07:B30098	BATTERY BOX	1
39	EB:4N600AA-701	NiCd BATTERY	1
40	07:U30834C	AIR TANK SUPPORT	1
41		BINDING HEAD TAPPING SCREW M2×6	1
42		BINDING HEAD TAPPING SCREW M2×6	1
43		PAN HEAD TAPPING SCREW M3×8	1
44		PAN HEAD TAPPING SCREW M3×8	1
45	08:B48071	SCREW SHEEL	1
46		PAN HEAD TAPPING SCREW M3×8	1
47		PAN HEAD TAPPING SCREW M3×8	1
48		SERIAL NUMBER SHEET	1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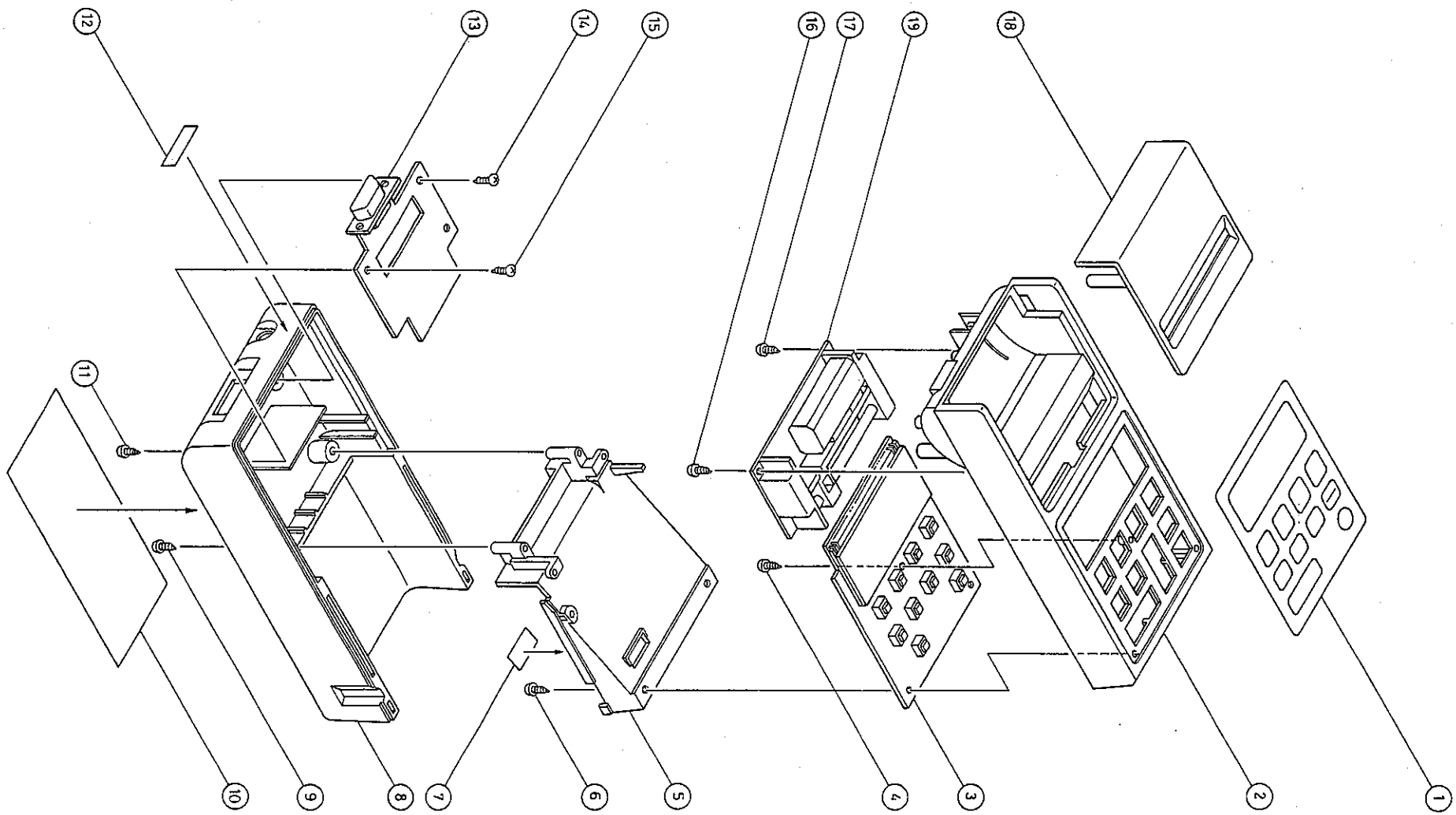
EXPODED VIEW

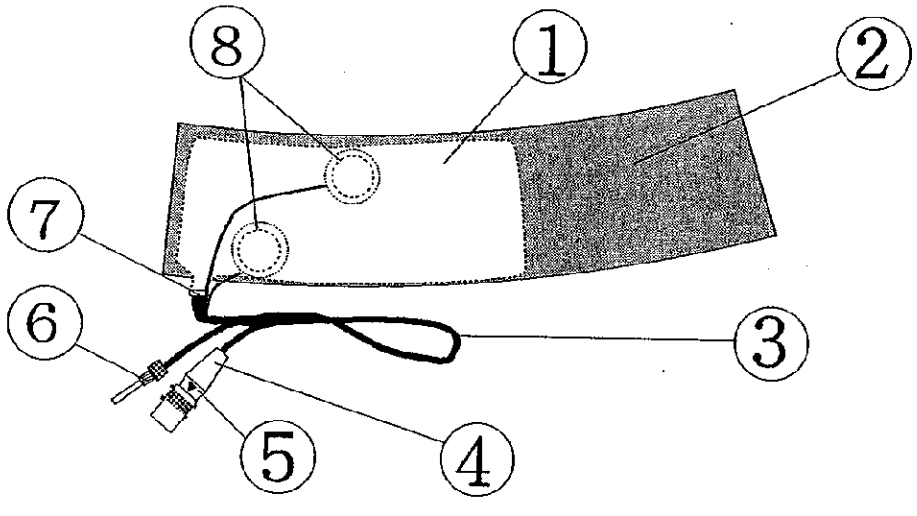
SYMBOL	PARTS NAME	DESCRIPTION	Q'TY
1	08:B47612	KEY SHEET FOR JAPANESE	1
1	08:B47669	KEY SHEET FOR ENGLISH	1
2	07:U10156C	PRINTER UPPER CASE	1
3	PZ:2454A	TM-2021 MAIN BOARD	1
4		PAN HEAD TAPPING SCREW M2×4	1
5	07:U20366C	SEPARATOR	1
6		PAN HEAD TAPPING SCREW M2×6	1
7	08:B46465	INTERNAL SHEEL	1
8	07:U20365C	PRINTER LOWER CASE	1
9		BINDING HEAD TAPPING SCREW M2×6	1
10	08:B47653	MANUAL SHEET FOR JAPANESE	1
10	08:B47652	MANUAL SHEET FOR ENGLISH	1
11		BINDING HEAD TAPPING SCREW M2×6	1
12	08:B44073	VERSION SHEEL	1
13	PZ:2258	TM-2020 INTERFACE BOARD	1
14		BINDING HEAD TAPPING SCREW M2.3×8	1
15		BINDING HEAD TAPPING SCREW M2.3×8	1
16		BINDING HEAD TAPPING SCREW M2×6	1
17		BINDING HEAD TAPPING SCREW M2×6	1
18	07:U30832	PAPER CUTTER	1
19	10:U48427	THERMAL PRINT PAPER	1



EXPLODED VIEW
TM-2021

EXPLODED VIEW

SYMBOL	PARTS NAME	DESCRIPTION	Q'TY
1	06:U32065	BRADER	1
2	13:A37406	CUFF	1
3	KO:776	MIC CABLE	1
4	JM:110-0301-2	CUFF PLUG	1
5	08:B47195	MIKE CONNECTOR SHEEL	1
6	09:B47356	AIR CONNECTOR	1
7	05:U44162A	CUFF TUBE CONNECTOR	1
8	08:U46361	MIKE LAVEL	2



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