

PRESIDENT
ELECTRONICS EUROPE

CB TRANSCEIVER

MODEL : GEORGE

SIEGE SOCIAL / HEAD OFFICE-FRANCE

ROUTE de SETE - BP100
34540 BALARUC - Tel : 67.46.27.27
Telex : 490534F - Fax : 67.48.48.49

(UT557Z)

1. SPECIFICATIONS

MEASURING CONDITION :

- * DC Power Supply : 13.2V more than 10 A
- * Modulation Frequency : 1 KHz and 1.25 KHz (AM/FM) 400 Hz and 2500 Hz (SSB)
- * Measuring Frequency : 27.205 MHz
- * Ambient Temperature : 25°C ± 3°
- * Load Impedance : 50 Ω

TRANSMITTER PORTION

No.	ITEM	UNIT	AM	FM	SSB	
1	Frequency Tolerance	Hz	±600	±600	±600	
2	Carrier Power (Max. Position)	13.2 V	W	3.6~4.4	3.6~4.4	---
		10.8~15.8 V	W	3.5~4.4	3.5~4.4	---
3	Carrier Power (Min. Position)	10.8~15.8 V	W	0.5~1.5	0.5~1.5	---
4	PEP(2 Tone) 10 Wpep +10dB 2 signal 3rd IMD -25dB.	13.2 V	Wpep	---	---	10.2~13.2
		10.8~15.8 V	Wpep	---	---	10~13.2
5	Spurious and Harmonics	41~68 MHz 87.5~134 MHz 162~230 MHz 470~682 MH	dB	-86 Max	-86 Max	-86 Max
		Other Frequency	dB	-72 Max	-72 Max	-72 Max
6	Modulation Frequency Response 1 KHz 0 dB Reference.	450 Hz	dB	0~ -10	0~ -10	0~ -10
		2.5 KHz (AM/SSB) 2 KHz (FM)	dB	0~ -10	0~ -10	0~ -10
7	Unwanted Sideband 2.5 KHz 4 Wpep + 16 dB up single tone	dB	---	---	-40 Max	
8	Carrier Supression	dB	---	---	-40 Max	
9	Microphone Sensitivity AM 60% FM 1.2 KHz SSB 6 Wpep	mV	2 Max	2 Max	2 Max	
10	AMC ALC Range (AM : Ratio of level for 60 % and 100 Mod.) (Ratio of input for 9 Wpep and 14 Wpep)	dB	60 Min	---	60 Min	

TRANSMITTER PORTION

No.	ITEM		UNIT	AM	FM	SSB
11	Battery Drain	at No Modulation	mA	2600Max	2600Max	1500Max
		AM/FM Max Modulation SSB Max WPEP	mA	2600Max	2600Max	3000Max
12	AM : 60 % 1 KHz Hum & Noise FM : 1.2 KHz Dev OdB Ref		dB	30 Min	30 Min	----
13	SWR Indicator	1 : 1	--	1.5 Max	1.5 Max	---
		2 : 1	--	1.5-2.5	1.5-2.5	---
14	Modulation Distortion AM : 60 % 1 KHz FM : 1.2 KHz		%	7 Max	7 Max	----
15	Modulated Power 1 KHz 80 % Mod.		Less than 10 % down from Carrier Power			---
16	Adjacent Channel Power		μ W	400 μ W	400 μ W	20 μ W
	4 W 4 Wpep	AM/FM SSB				
17	Maximum FM Deviation 1 KHz 30 mW Mod.		KHz	---	1.7-2.1	---
18	Maximum Modulation 1 KHz 30 mV Mod.		%	85-99	---	---

MEASURING CONDITION:

- * Antenna Impedance : 50 Ω
- * Standard Ref. Mod. : 1 KHz 60 % Mod. (AM), 1 KHz \pm 1.2 KHz (Dev.) FM
: 1 KHz Audio out (SSB)
- * Standard Audio Output : 1 W
- * Standard Audio Load : 8 W
- * DC Power Supply Voltage : 13.2 V
- * 0 dB = 0.5 μ V = 1 μ V EMF
- * Ambient Temperature 25 \pm 3 $^{\circ}$ C

→ All Measuring with CCITT Filter

RECEIVER PORTION

No.	ITEM		UNIT	AM	FM	SSB
1	Sensitivity with CCITT Filter	Maximum	dB	10	---	10
		20 dB SINAD	dB	6	6	0
2	AGC Figure Merit 50 mV for 10 dB change in Audio Output		dB	70 Min	---	70 Min
3	Frequency Response 1 mV input 1 KHz Ref. 6 dB down	Lower	Hz	200-400	200-400	200-400
		Upper	Hz	2000-4000	2000-4000	2000-4000
4	Maximum Audio Output Power		W	2.5 Min	2.5 Min	2.5 Min

RECEIVER PORTION

No.	ITEM	UNIT	AM	FM	SSB	
5	Audio Output Power at 10 % THD	W	2.0 Min	2.0 Min	2.0 Min	
6	Audio Distortion at 1 W	%	7.0 Max	---	70 Max	
7	S/N Ratio at 1 mV input	AM 60 % FM 1.2 KHz 0 dB Ref.	dB	30 Min	30 Min	---
8	RF Gain Control Range	dB	40 Min	40 Min	40 Min	
9	Oscillator Dropout Voltage	V	9.5 Min	9.5 Min	9.5 Min	
10	Squelch Sensitivity at Threshold	dB	9 Max	9 Max	9 Max	
11	Squelch Sensitivity at Tight	dB	60-72	60-72	62-72	
12	S - Meter Sensitivity for "9" (No Modulation)	dB	34-46	34-46	34-46	
13	Adjacent Channel Selectivity ± 10 KHz 2 Signal Method	dB	60 Min	60 Min	60 Min	
14	Intermodulation Distortion 2 Signal Method	dB	60 Min	60 Min	60 Min	
15	Image Rejection Ratio Fo ± 2x 10.695 MHz and 455 KHz Fo ± 2x 10.6975	AM/FM SSB	dB	60 Min	60 Min	60 Min
16	IF Rejection 10.695 MHz and 455 KHz 10.6975 MHz or 10.6925 MHz	AM/FM SSB	dB	60 Min	60 Min	60 Min
17	1/2 IF Rejection Fo - 455 KHz x 1/2 Fo + 10.695 MHz	AM/FM AM/FM/SSB	dB	60 Min	60 Min	60 Min
18	Noise Blanker Performance	dB	6 Max	6 Max	6 Max	
19	ANL Loss (OdB uV ANT input)	dB	4 Max	---	---	
20	Clarifier Range	KHz	±1 ~ ±2	±1 ~ ±2	±1 ~ ±2	

RECEIVER PORTION

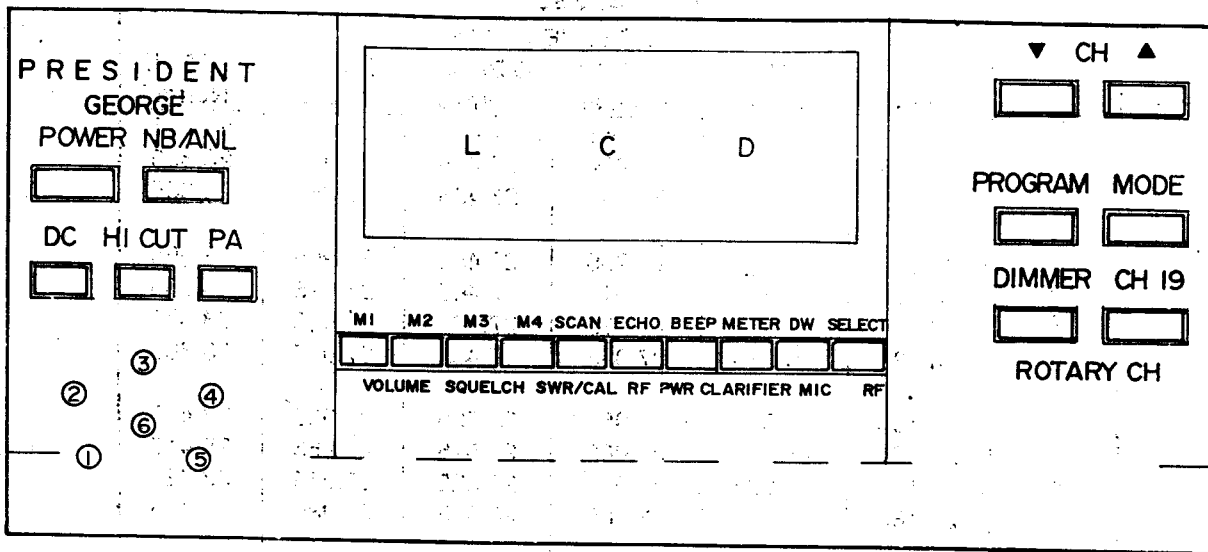
No.	ITEM	UNIT	AM	FM	SSB
21	Battery Drain at No Signal	mA	800 Max	800 Max	800 Max
22	Battery Drain at Maximum AF Power	mA	1300 Max	1300 Max	1300 Max
23	Battery Drain at Power OFF	mA	30 Max	30 Max	30 Max
24	Hi Cut Effect Ref. 1 KHz Hi Cut OFF = 0dB	1 KHz Hi Cut On	-1~ -7	-1~ -7	-1~ -7
			3 KHz Hi Cut On	-16~ -25	-16~ -25
25	Battery Drain at Power OFF	mA	33 Max	33 Max	33 Max
26	Ext. S - Meter Sensitivity (40 dB input 2.2K Resistive, No Mod)	Vdc	0.2~0.8	0.2~0.8	0.2~0.8

PA PORTION

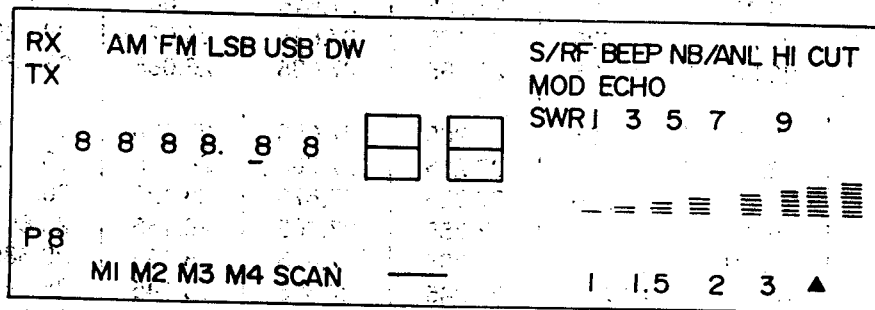
No.	ITEM	UNIT	AM	FM	SSB
1	Output Power at 10 % Distortion (Mic Vol. Max)	W	2.0 Min.		
2	Audio Distortion (Mic Vol. Max)	%	7 Max		

**INTERNAL OPTIONAL BAND A TO F
AM/FM/LSB/USB**

Channel	ANT. FREQUENCY (MHz)					
	A BAND Normal	B BAND Normal	C BAND Normal	D BAND Normal	E BAND Normal	F BAND Normal
1	26.065	26.515	26.965	27.415	27.865	28.315
2	26.075	26.525	26.975	27.425	27.875	28.325
3	26.085	26.535	26.985	27.435	27.885	28.335
4	26.105	26.555	27.005	27.455	27.905	28.355
5	26.115	26.565	27.015	27.465	27.915	28.365
6	26.125	26.575	27.025	27.475	27.925	28.375
7	26.135	26.585	27.035	27.485	27.935	28.385
8	26.155	26.605	27.055	27.505	27.955	28.405
9	26.165	26.615	27.065	27.515	27.965	28.415
10	26.175	26.625	27.075	27.525	27.975	28.425
11	26.185	26.635	27.085	27.535	27.985	28.435
12	26.205	26.655	27.105	27.555	28.005	28.455
13	26.215	26.665	27.115	27.565	28.015	28.465
14	26.225	26.675	27.125	27.575	28.025	28.475
15	26.235	26.685	27.135	27.585	28.035	28.485
16	26.255	26.705	27.155	27.605	28.055	28.505
17	26.265	26.715	27.765	27.615	28.065	28.515
18	26.275	26.725	27.175	27.625	28.075	28.525
19	26.285	26.735	27.185	27.635	28.085	28.535
20	26.305	26.755	27.205	27.655	28.105	28.555
21	26.315	26.765	27.215	27.665	28.115	28.565
22	26.325	26.775	27.225	27.675	28.125	28.575
23	26.355	26.805	27.255	27.705	28.155	28.605
24	26.335	26.785	27.235	27.685	28.135	28.585
25	26.345	26.795	27.245	27.695	28.145	28.595
26	26.365	26.815	27.265	27.715	28.165	28.615
27	26.375	26.825	27.275	27.725	28.175	28.625
28	26.385	26.835	27.285	27.735	28.185	28.635
29	26.395	26.845	27.295	27.745	28.195	28.645
30	26.405	26.855	27.305	27.755	28.205	28.655
31	26.415	26.865	27.315	27.765	28.215	28.665
32	26.425	26.875	27.325	27.775	28.225	28.675
33	26.435	26.885	27.335	27.785	28.235	28.685
34	26.445	26.895	27.345	27.795	28.245	28.695
35	26.455	26.905	27.355	27.805	28.255	28.705
36	26.465	26.915	27.365	27.815	28.265	28.715
37	26.475	26.925	27.375	27.825	28.275	28.725
38	26.485	26.935	27.385	27.835	28.285	28.735
39	26.495	26.945	27.395	27.845	28.295	28.745
40	26.505	26.955	27.405	27.855	28.305	28.755



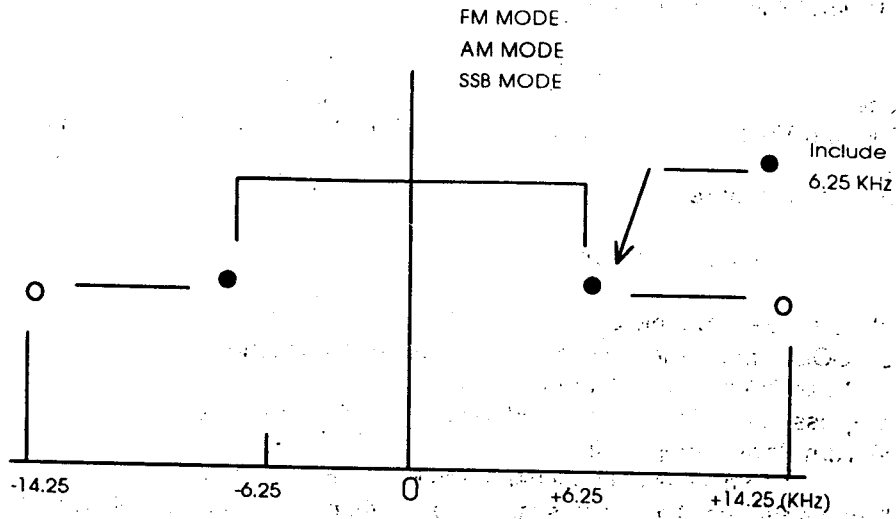
1) LCD



- | | |
|----------------------|--------------------------------|
| * " 8 8 8 8 " | Frequency Indication |
| * " 8 8 " | Channel indication |
| * " P 8 " | Program Indication (P1:-P4) |
| * " 8 " | Optional Band Indicator (A--F) |
| * " M1 M2 M3 M4 " | Memory |
| * " RX TX " | RX TX |
| * " AM FM LSB USB " | Mode Selection |
| * " DW " | Dual Watch |
| * " SCAN " | Scan Function |
| * " S/RF MOD.SWR ▲ " | Meter Selection |
| * " BEEP " | Beep Switch On |
| * " ECHO " | Echo Switch On |
| * " NB/ANL " | NB/ANL-Switch On |
| * " HI CUT " | Hi Cut Switch On |
| * " | S - Meter Indication 8 Levels |

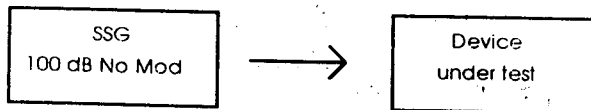
OCCUPIED BANDWIDTH

Total power is less 20 μ W at one side. (6.25 ~ 14.25 KHz)



HOWLING TEST

CONNECTION :



The device should be lied on the table made out of hard wood the speaker directed upward.

TEST METHOD:

1. Set D.U.T. for AM receive mode with volume control at full CW position and clarifier center.
2. Tune signal frequency to exact center frequency of the device under test.
3. Rotate clarifier plus or minus and check if howling is observed.

2. ALIGNMENT PROCEDURE

PLL CARRIER OSCILLATOR PORTION

1. TEST EQUIPMENT REQUIRED

* Power Supply : 13.2 V
* Oscilloscope

* DC Volt Meter
* Frequency counter

2. PREPARATION ALIGNMENT

* Clarifier	: Center	* PTT	: OFF(RX Mod)
* Mode	: AM	* Remove	: PB201
* RF Power Volume	: Clockwise	* VR205 and VR206	: Center

3. Alignment Procedure

* To Log in the Unit

- a) Turn Power Supply On
- b) "CODE" message will blink on the LCD for 10 Seconds.
- c) Press Program key, four (4) times
- d) Press Power Switch, channel/Frequency will be displayed.
- e) Turn Power Supply Off
 - * To access optional band A to F (example 12, 13)
- f) Press PA and Dim switch simultaneously then turn Power Supply On.
(Press PA and DIM switch until "CODE" message disappears.)
- g) Press M1 switch (light will turn Off) then repeat C to D.

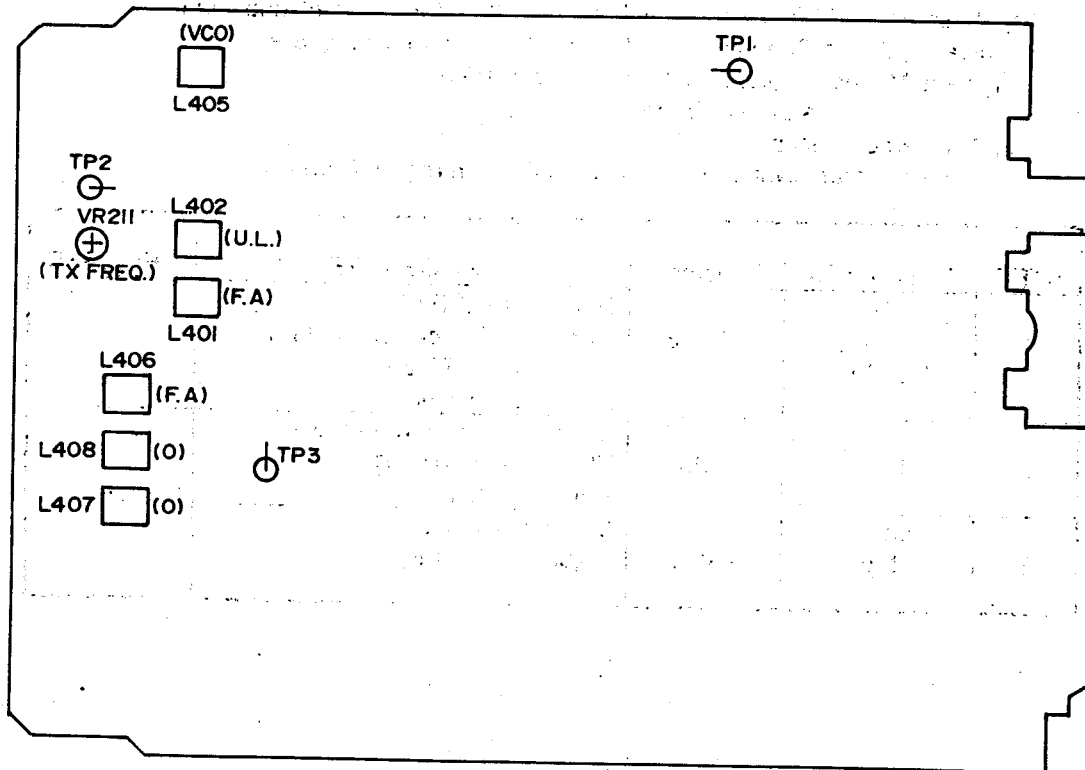
STEP	CONDITION	Adjustment	PROCEDURE	REMARKS
1	RX AM 40 c27.405 MHz	L405	Connect the DC Voltmeter to TP2 Adjust for 2.5 ± 0.1 V	
2	RX AM 1 c26.965 MHz	---	Same as Step 1 More than 2.0 V	
3	RX AM 20 c27.205 MHz	L401	Connect oscilloscope to TP1 Adjust for 37.900 MHz ± 20 Hz	/
4	RX FM 20 c27.205 MHz	CHECK	Same as Step 3 37.900 MHz ± 20 Hz Reading	
5	RX FM 20 c27.205 MHz	L402	Same as Step 3 Adjust for 37.8975 MHz ± 20Hz	
6	RX USB 20 c27.205 MHz	CHECK	Same as Step 3 37.9025 MHz ± 20 Hz Reading	

PLL CARRIER OSCILLATOR PORTION

STEP	CONDITION	Adjustment	PROCEDURE	REMARKS
7	TX USB 20 c27.405 MHz	VR211	Same as Step 3 Adjust for 37.9025 MHz \pm 20 Hz	
8	RX USB 20 c27.205 MHz	L408	Connect oscilloscope to TP3 Adjust for 10.6975 MHz \pm 20 Hz	
9	RX LSB 20 c27.205 MHz	L407	Same as Step 8 Adjust for 10.6924 MHz \pm 20 Hz	
10	TX AM 20 c27.205 MHz	L406	Same as Step 8 Adjust for 10.695 MHz \pm 20 MHz	
11	TX FM 20 c27.205 MHz	CHECK	Same as Step 8 10.695 MHz \pm 20 Hz Reading	
12	RX FM 20 c28.755 MHz	CHECK	Same as Step 1 Less than 4.2 V	
13	RX USB 20 c26.065 MHz	CHECK	Same as Step 1 More than 1.2 V	

N. B 1) After completing the above, apply Parrafin wax on L405 and L404.

LOCATION OF ADJUSTMENT (LOCAL)
PB-229 (TOP VIEW)



TRANSMITTER PORTION

1. TEST EQUIPMENT REQUIRED

- * DC Power Supply (13.2 V) more than 10 A
- * AF Oscillator 1 KHz, 400 Hz and 2500 Hz
- * RF VTVM
- * DC Current Meter
- * AF VTVM
- * Test Frequency : 27.205 MHz
- * RF Power Meter
- * FM Linear Detector
- * Dummy Load (50 ohm)
- * Oscilloscope

2. PREPARATION ALIGNMENT

- * VR 208 : Clockwise
- * VR 205 : Middle Position
- * VR 206 : Middle Position
- * VR 207 : Counterclockwise
- * VR 212 : Counterclockwise
- * VR 201, 202, 203 : Counterclockwise
- * Mic Gain Volume : Clockwise
- * Meter SW : RF
- * SWR/CAL Volume : Middle Position
- * RF Power Volume : Clockwise

3. Alignment Procedure

* To Log in the Unit

- a) Turn Power Supply On
- b) "CODE" message will blink on the LCD for 10 Seconds.
- c) Press Program key, four (4) times
- d) Press Power Switch, channel/Frequency will be displayed.
* To access optional band A to F
- e) Turn Power Supply Off
- f) Press PA and Dim switch simultaneously then turn Power Supply On.
(Press PA and DIM switch until "CODE" message disappears.)
- g) Press M1 switch (light will turn Off) then repeat C to D.
* To access standard band
- h) The same as step E and F
- i) Press Program switch (light will turn Off) then repeat C and D.

STEP	CONDITION	Adjustment	PROCEDURE	REMARKS
1	LSB 19 No Mod.	VR203	Remove the PB201 Connect a DC current meter (+) to TP 202 (-) to TP 203 Adjust for 330 mA	
2	Ditto	VR201	Connect a DC current meter (+) to TP 202 (-) to TP 201 Adjust for 85 mA	
3	Same as Step 1	VR202	Same as Step 2 Adjust for 170 mA	

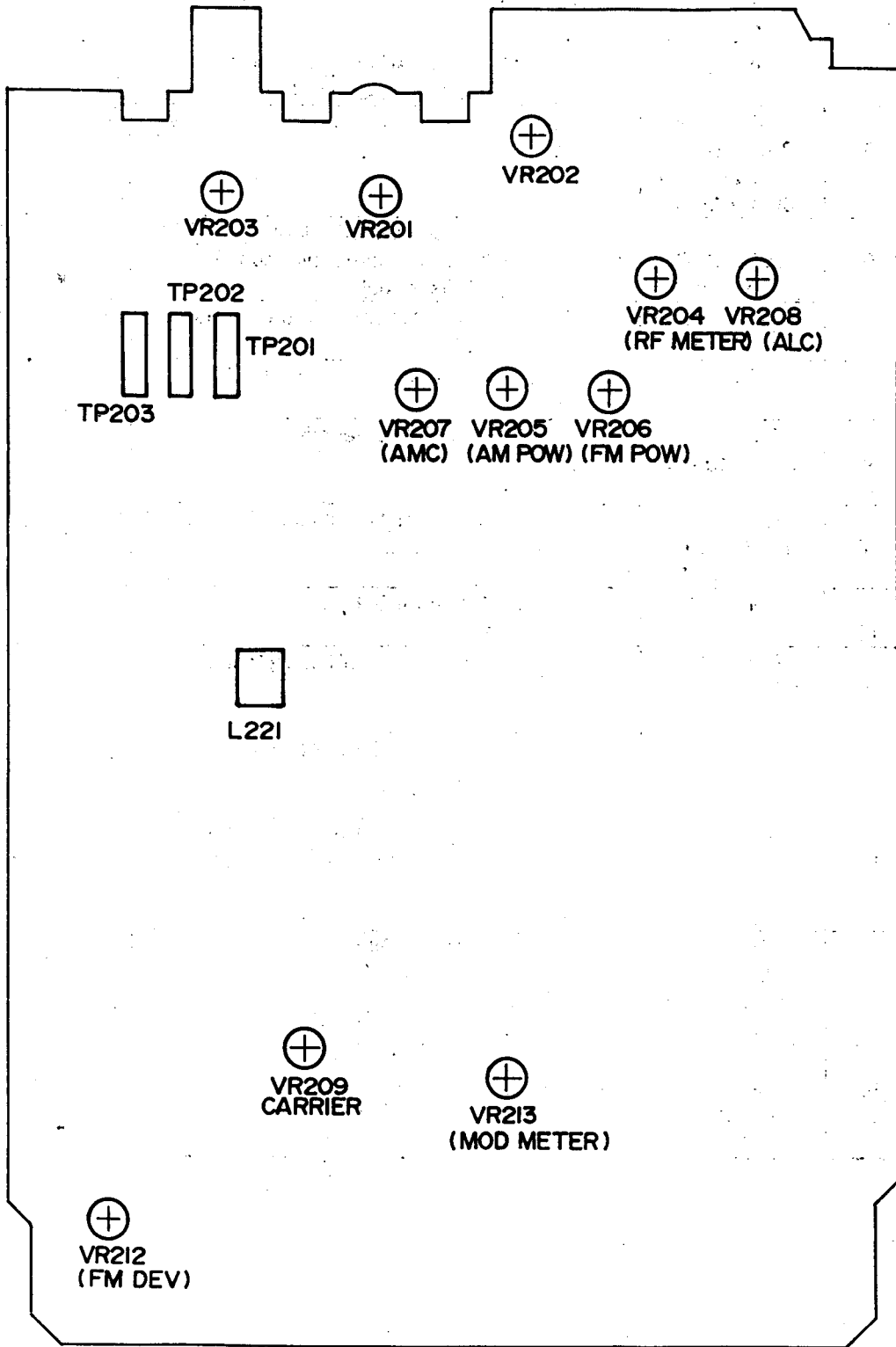
cont. TRANSMITTER PORTION

3. Alignment Procedure

STEP	CONDITION	Adjustment	PROCEDURE	REMARKS
4	LSB 19 Two - Tone 400 & 2500 Hz 1 mV Mod.	L221	Re-install the PB201 Adjust for maximum on the RF VTVM Set the AF oscillator, so that the output is less than 32v.	
5	LSB 19 Two - Tone 400 & 2500 Hz 30 mV Mod.	VR208	Adjust for 25V on the RF VTVM	
6	19 LSB / USB No Mod.	VR209	Adjust the carrier leakage at LSB & USB become minimum & almost equal.	
7	AM 19 No Mod.	VR205	Adjust for 3.9W on the Watts Meter.	
8	Ditto (RF Meter)	VR204	Adjust for RF Meter at "9" just light on.	
9	AM 19 1 KHz 30 mV Mod.	VR207	Adjust 90% negative.	
10	AM 19 1 KHz 3 mV Mod.	VR213	Adjust for Modulation Meter at "9" just light on.	
11	FM 19 No Mod.	---	Adjust for 3.9W on the Watts Meter.	
12	FM 19 1 KHz 30 mV Mod.		Adjust for ± 1.9 KHz Deviation	
13	AM 19 c27.185 MHz No Mod.	CHECK	More than 10 Watts for Watts Meter.	
14	AM 19 c27.185 MHz 1 KHz 30mV Mod.	CHECK	More than 10 Watts for Watts Meter and over 60% modulation.	
15	AM 19 f28.353 1 KHz 30 mV Mod.	CHECK	Same as Ditto	
16	AM 19 a26.285 1 KHz 30 mV Mod.	CHECK	Same as Ditto	

LOCATION OF ADJUSTMENT(TX)

PB-229 (TOP VIEW)



RECEIVER PORTION

1. TEST EQUIPMENT REQUIRED

- * SSG 27.205 MHz (1 KHz 60%, 1 KHz 1.2 KHz deviation, 50 ohm)
- * Oscilloscope
- * DC Power Supply (13.2 V) : SINAD Meter
- * Dummy Load (8 ohm) : CCITT

2. PREPARATION ALIGNMENT

- * NB/ANL : OFF
- * HI CUT : OFF
- * SQUELCH : CCW
- * Volume : Clockwise
- * RF Gain Volume : Clockwise
- * Clarifier : Center

3. Alignment Procedure

* To Log in the Unit

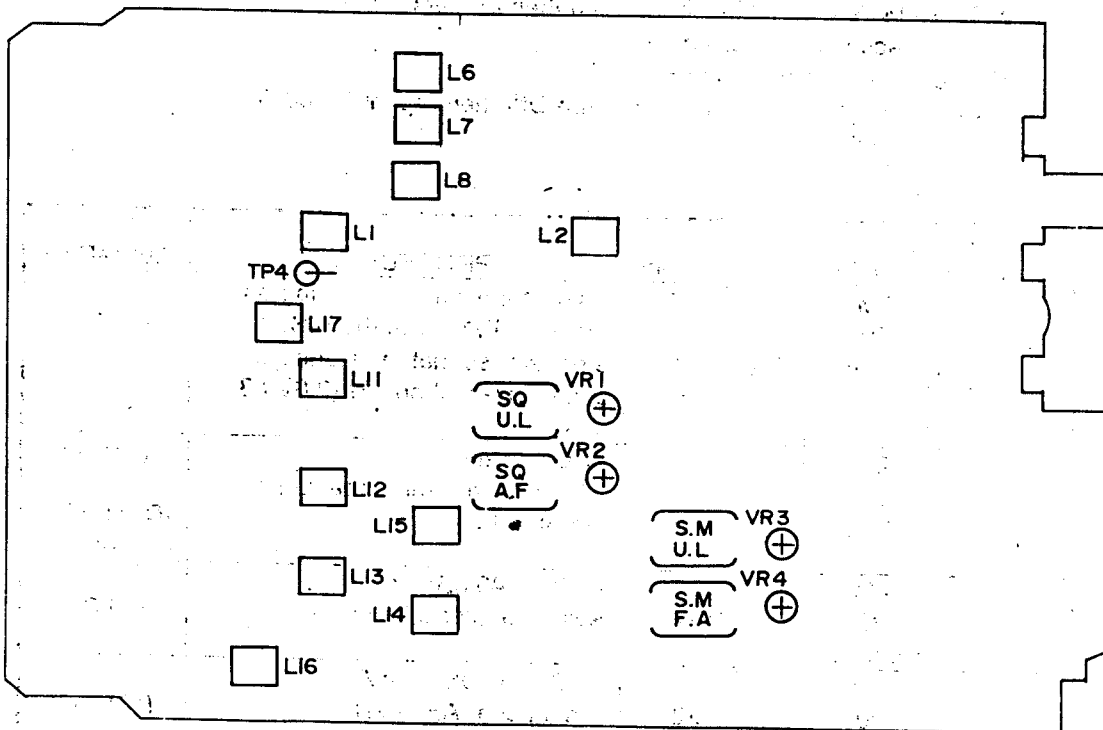
- a) Turn Power Supply On
- b) "CODE" message will blink on the LCD for 10 Seconds.
- c) Press Program key, four (4) times
- d) Press Power Switch, channel/Frequency will be displayed.
* To access optional band A to F
- e) Turn Power Supply Off
- f) Press PA and Dim switch simultaneously then turn Power Supply On.
(Press PA and DIM switch until "CODE" message disappears.)
- g) Press M1 switch (light will turn Off) then repeat C to D.
* To access standard band
- h) The same as step E and F
- i) Press Program switch (light will turn Off) then repeat C and D.

STEP	CONDITION	Adjustment	PROCEDURE	REMARKS
1	AM 20 (60% Mod.)	L17, L2, L6, L7, L11, L12, L13	Adjust for maximum reading on the AF VTVM. (Set the S.S.G. attenuator so that the standard output is less than 1W (2.8V / 8 ohm)	(AM S-9)
2	AM 20 (1.2 KH Dev.)	L16	SSG : 0dB Adjust for maximum reading on the AF VTVM	(FM AF out) (Discriminator)
3	AM 20 (No Mod.)	VR4	SSG : 40 dB (50μV) Adjust "9" just light on	(AM S-9)
4	AM 20 (No Mod.)	VR2	SSG : 66dB (1mV) Just appear AF Level	(AM SQ)

cont. RECEIVER PORTION
3. Alignment Procedure

STEP	CONDITION	Adjustment	PROCEDURE	REMARKS
5	USB (No Mod.)	L15, L14	Same as 1.	(SSB Sens)
6	Ditto	VR3	SSG : 40 dB (50 μ V) Adjust "9" Just light on.	(SSB S-9)
7	Ditto	VR1	SSG : 66 dB (1 mV) Just appear AF level	(SSB SQ)
8	Ditto	L1	Set oscilloscope to DC range and adjust to reach max. reading. Set the SSG 21CH & SSG level below 30 dB.	(NB ADJ)
9	AM 1 a26.065 MHz 60% Mod.	CHECK	SSG : 10 dB More than 20 dB SINAD.	Sens.
10	AM 40 f28.755 MHz 60% Mod.	CHECK	SSG : 10 dB More than 20 dB SINAD.	Sens.

LOCATION OF ADJUSTMENT (RX)
PB-229 (TOP VIEW)



3. SEMICONDUCTOR LEAD IDENTIFICATION

DIODES

RLS4148
RLS135



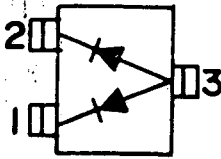
HSK120



HZK5C
HZK11B

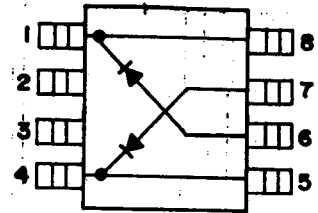


HSM88WA
1SS181



1. ANODE
2. ANODE
3. CATHODE

ND434G-E2

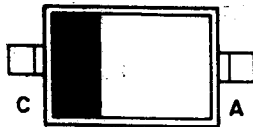


1. ANODE & CATHODE
2. NC
3. NC
4. ANODE & CATHODE
5. CATHODE
6. ANODE
7. ANODE
8. CATHODE

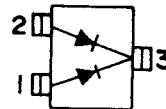
MA 728



1SV200-12

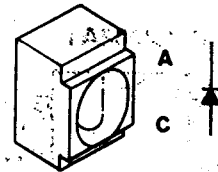


1SS184
KV1430
DAN235K



1. CATHODE
2. CATHODE
3. ANODE

CL140D-CD-T
CL140YG-X-T



A : ANODE
C : CATHODE

MC-301



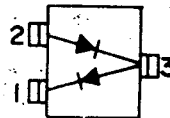
IN5401



IN4148



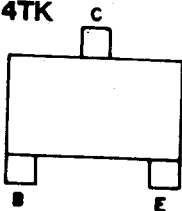
HSM88AS
1SS226
MA716



1. CATHODE 1
2. ANODE 2
3. ANODE 2 /
CATHODE 2

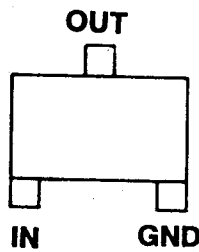
TRANSISTORS

2SC2812L
2SC2814
2SD1048
DTA114TK

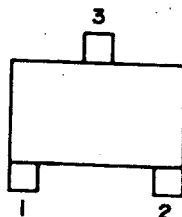


B : BASE
E : EMITTER
C : COLLECTOR

DTA144EK
DTA143XK
DTC114EK



2SK323



2SC3242A-E



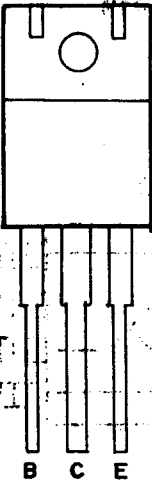
A : VOUT
B : GND
C : VIN

1. SOURCE
2. DRAIN
3. GATE

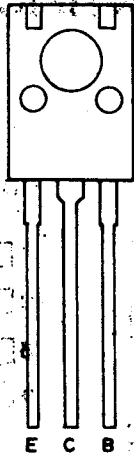
2SC1674-L



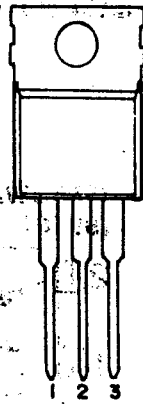
2SB1133



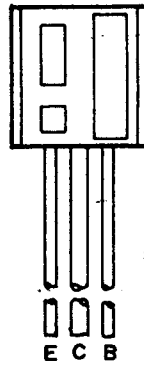
2SB1143



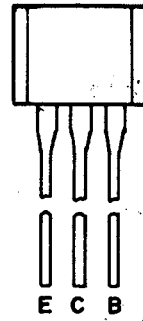
2SC1969B



2SC1973



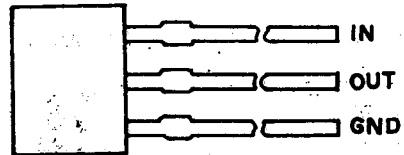
2SC1675-L



B: BASE
E: EMITTER
C: COLLECTOR

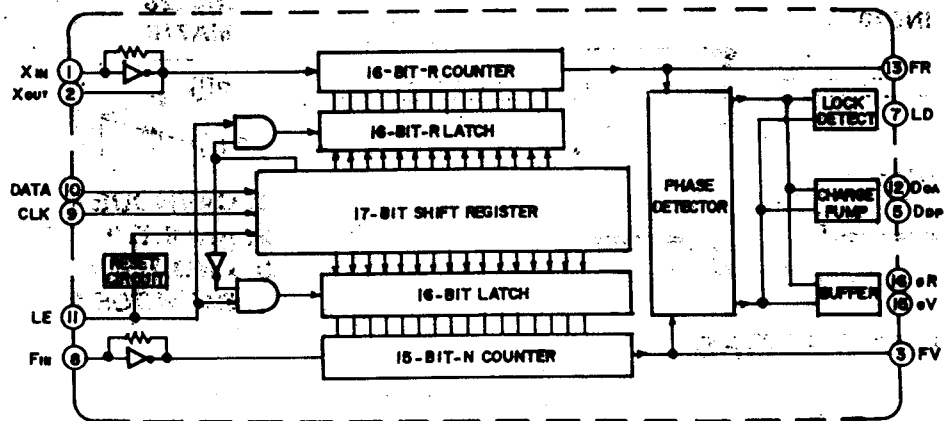
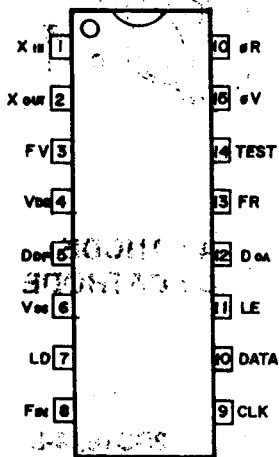
1: BASE
2: EMITTER
3: COLLECTOR
4: FIN(COLLECTOR)

2SD1667

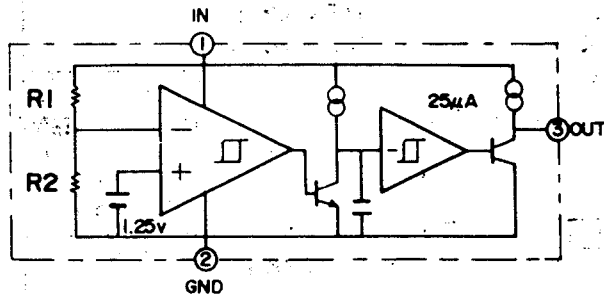
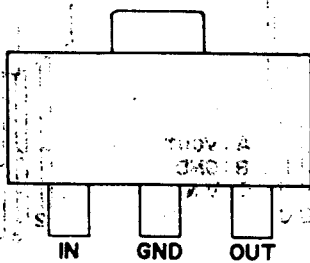


4. IC INTERNAL DIAGRAM

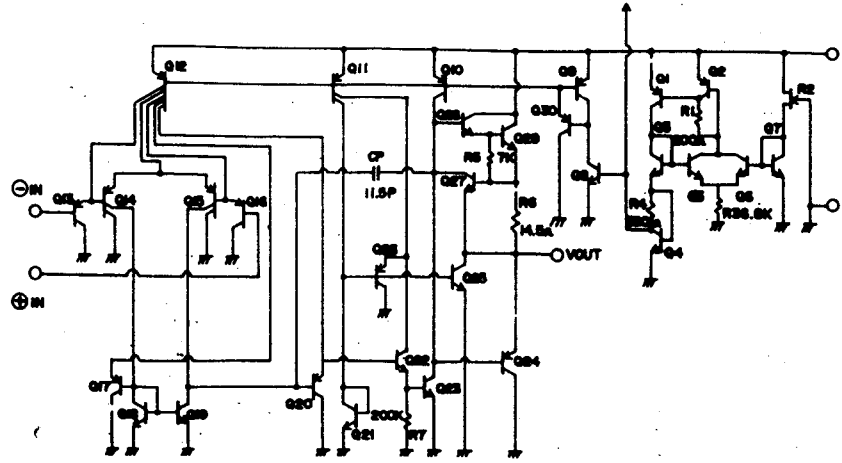
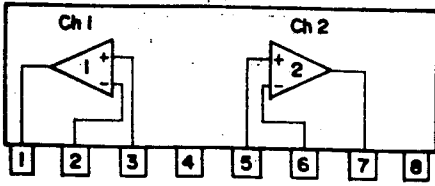
PLL2002A1



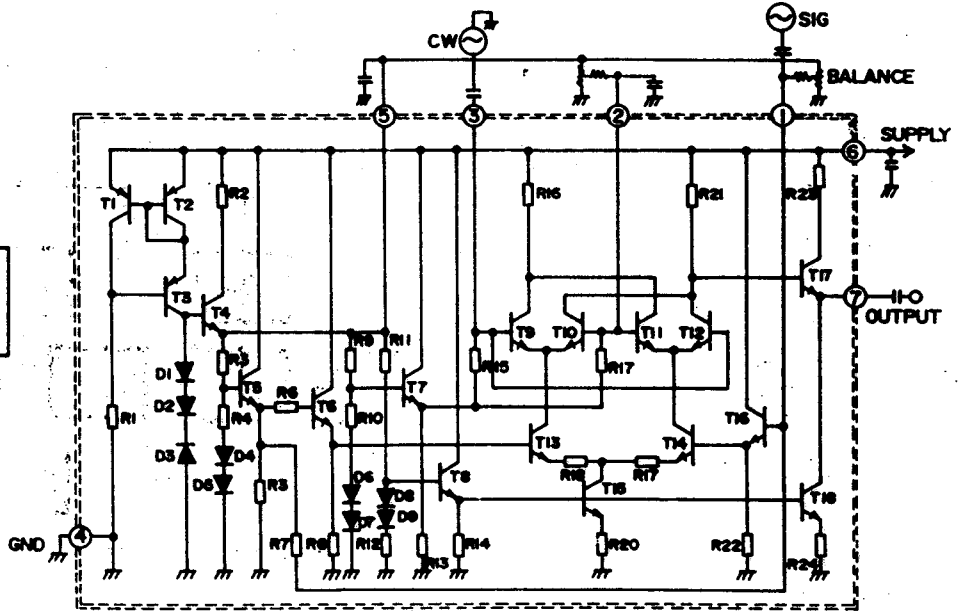
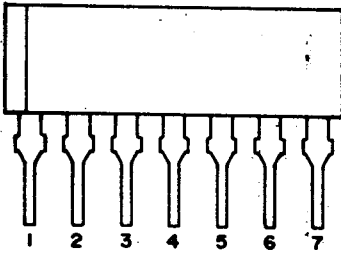
M51951AML



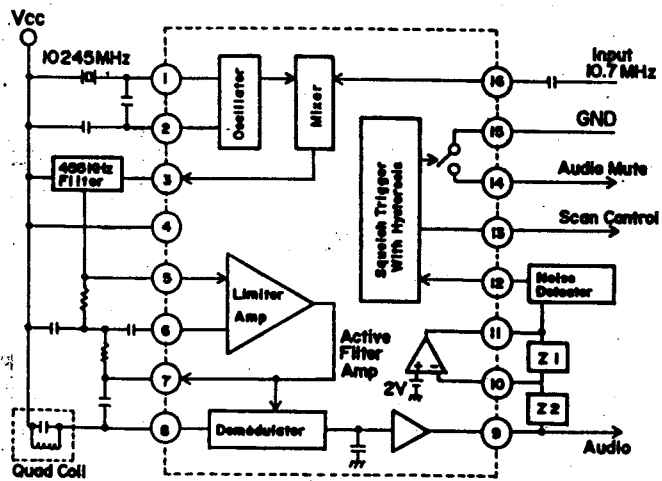
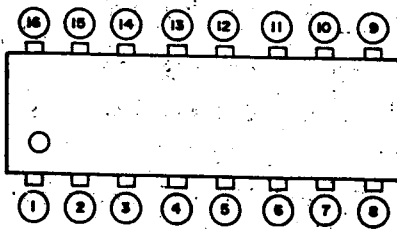
M5223L



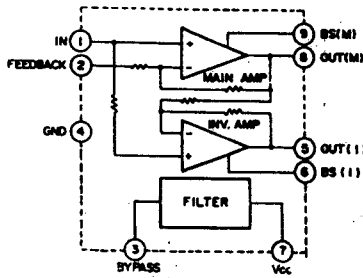
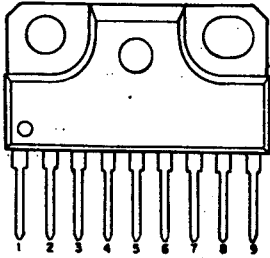
AN612



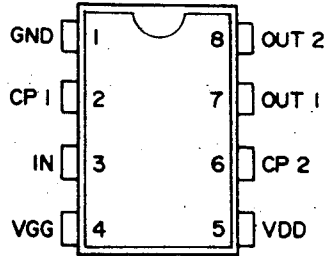
IR3NO6



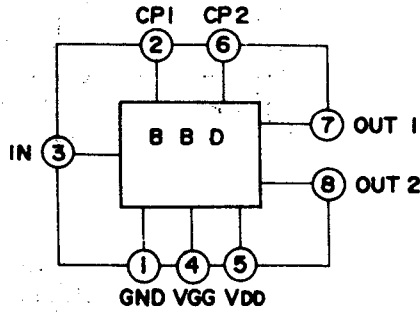
MB3735PS



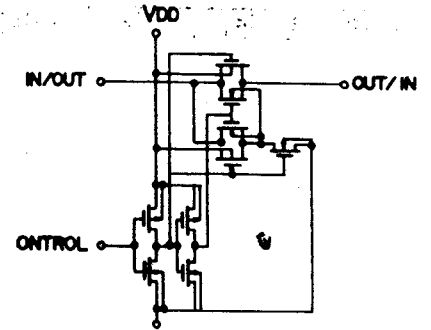
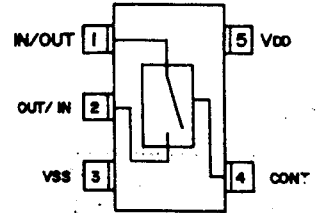
MN3207



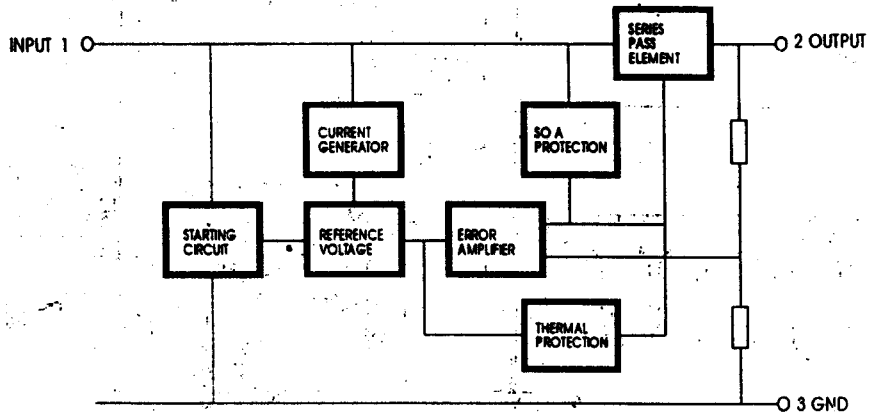
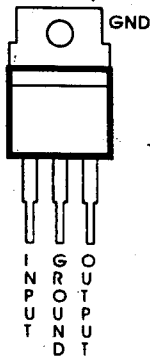
(TOP VIEW)



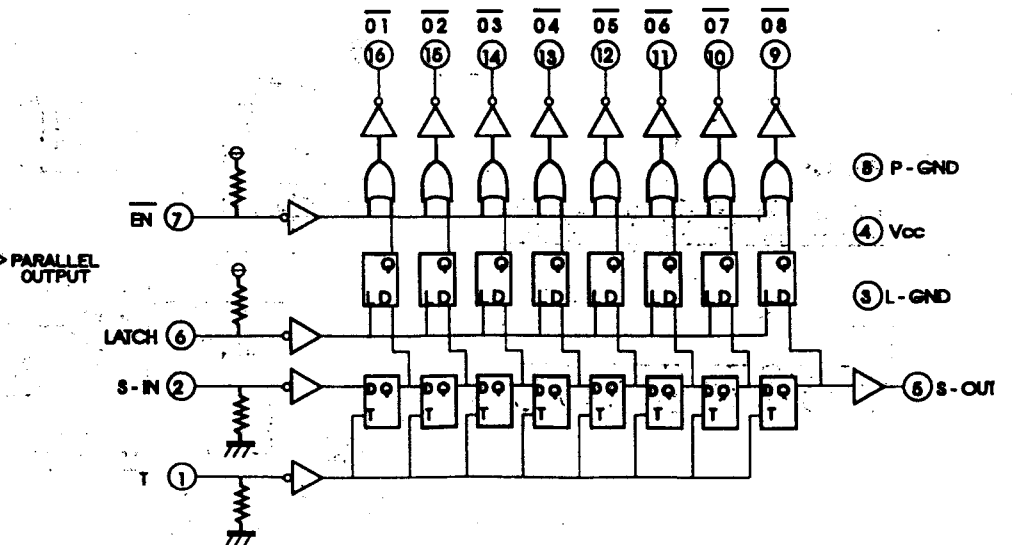
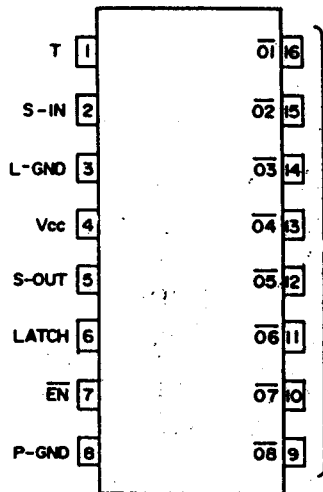
TC4S66F



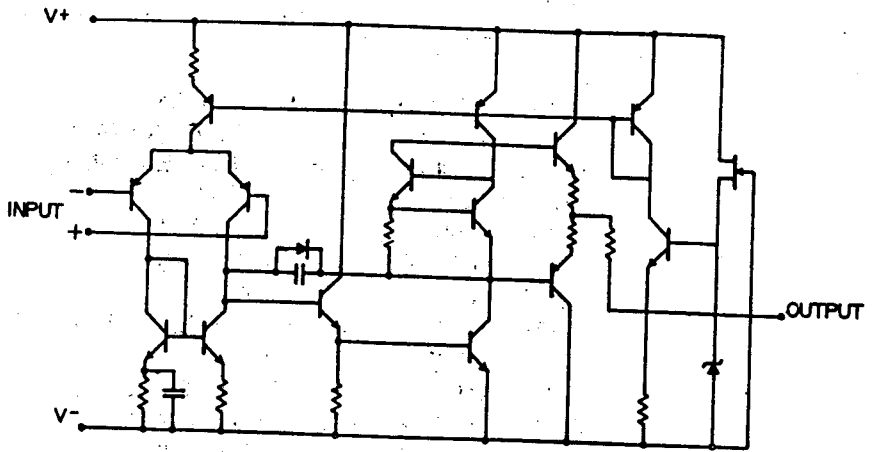
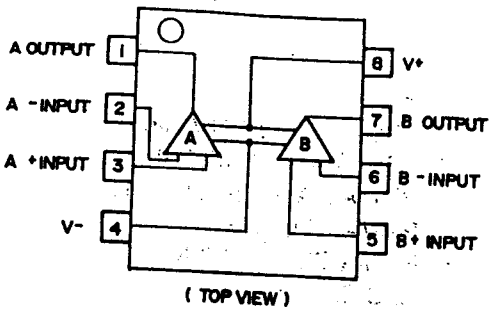
L7808CV



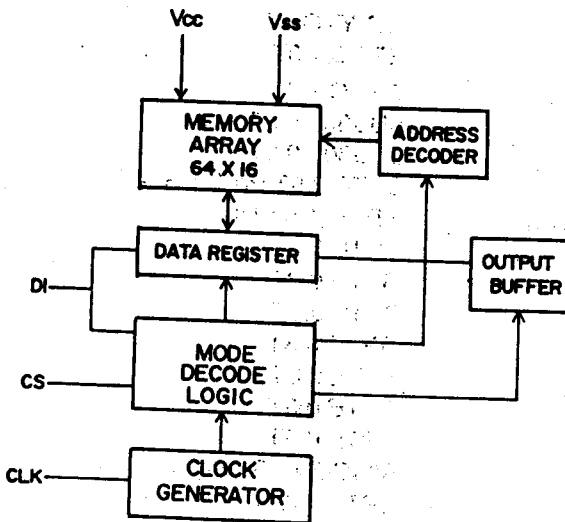
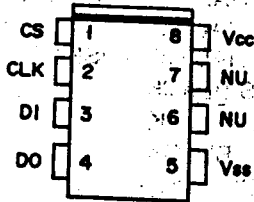
M54495FP



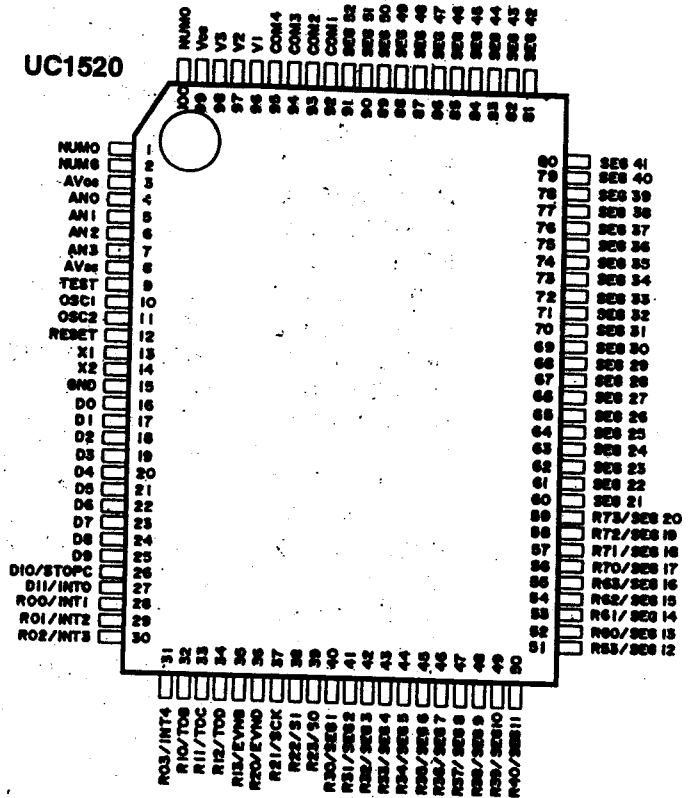
NJM4558D



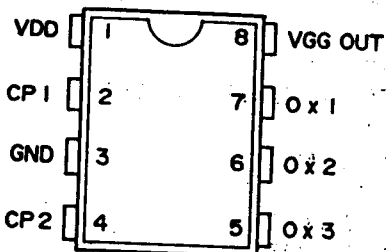
93C46T/SN



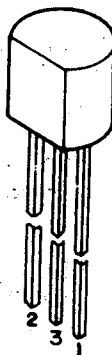
UC1520



MN3102

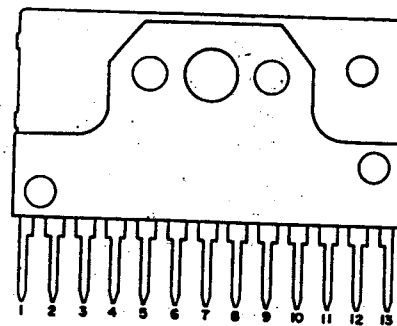


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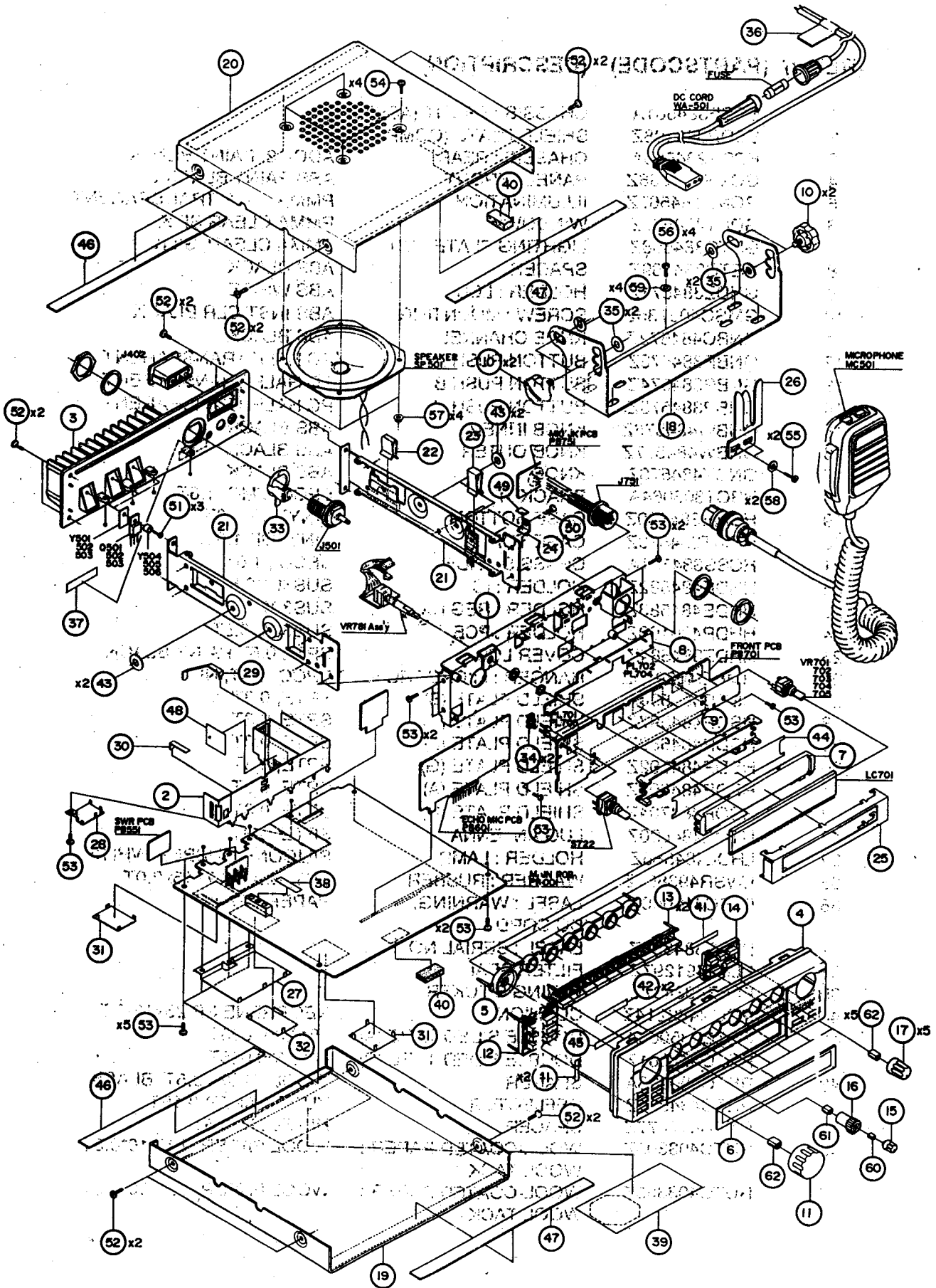


1. GND
2. IN
3. OUT

LA4485-T



6. EXPLODED VIEW & MECHANICAL PARTS LIST



MECHANICAL PARTS LIST

(REF #) (PARTCODE) (DESCRIPTION)

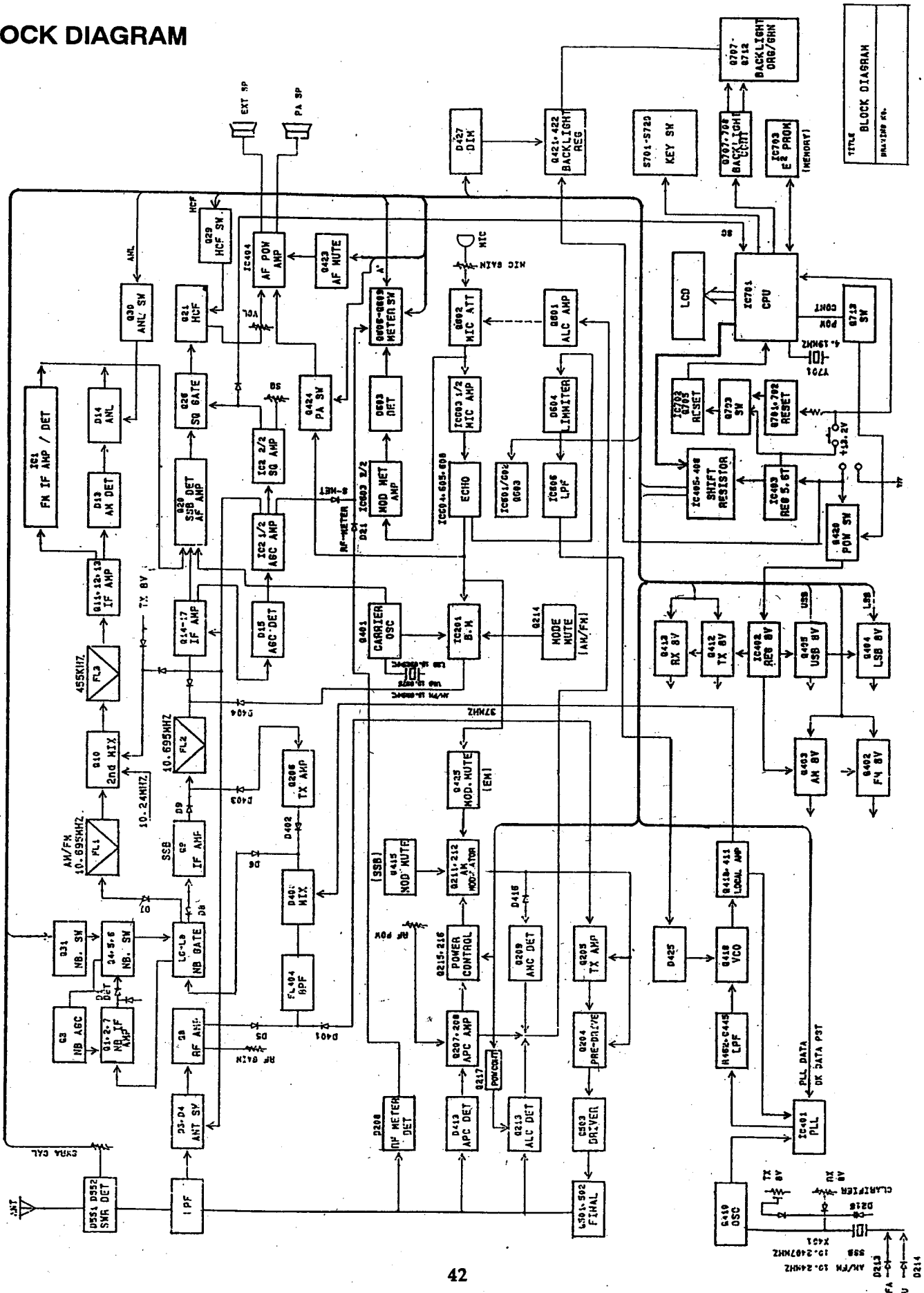
(REF #)	(PARTCODE)	(DESCRIPTION)	
1	ECSF384561A	CHASSIS : FRONT (ASS'Y)	
2	ESDP384598Z	SHIELD PLATE (COMP.)	
3	FCSR284565A	CHASSIS : REAR	ADC-12, PAINT BLACK
4	GCMF184566Z	PANEL : FRONT	ABS PAINT BLACK SILK
5	GCMZ384567Z	ILLUMINATION	PMMA HALF TRANSPARENT
6	GDPT484570Z	WINDOW	PMMA CLEAR SILK
7	GETC384568Z	LIGHTING PLATE LCD	PMMA CLEAR, SILK
8	GETC384569Z	SPACER	ABS BLACK
9	GHDZ384571Z	HOLDER : LCD	ABS WHITE
10	GMSC405736Z	SCREW : MOUNTING	ABS INST CLR BLACK
11	GNBC484572Z	KNOB CHANNEL	ABS BLACK
12	GNBP384573Z	BUTTON PUSH A	PC HALF TRANSPARENT
13	GNBP384574Z	BUTTON PUSH B	PC HALF TRANSPARENT
14	GNBP384575Z	BUTTON PUSH C	PC HALF TRANSPARENT
15	GNBW484576Z	KNOB INNER	ABS BLACK
16	GNBW484577Z	KNOB OUTER	ABS BLACK
17	GNBY484578Z	KNOB	ABS BLACK
18	HBCT306064A	BRACKET	SPCC, ZMC, 1.6T
19	HCBM384580Z	CASE BOTTOM	VINYTOP 1.0T
20	HCMT384579Z	CASE TOP	VINYTOP 1.0T
21	HCSS384581A	CHASSIS : SIDE	SECC, 1.0T
22	HHDE484582Z	HOLDER : IC	SUS301 0.5T
23	HHDE484583Z	HOLDER REG IC	SUS301 0.5T
24	HHDP430169Z	HOLDER : PCB	SUS304, 0.5T
25	HHDZ384584Z	COVER LCD	SPTTE 0.5T PAINT BLACK
26	HMHG402919Z	HANGER : MICROPHONE	SPCC, 1.0T, NI
27	HSDP484596Z	SHIELD PLATE (B)	SPTTE, 0.3T
28	HSDP484597Z	SHIELD PLATE (C)	SPTTE, 0.3T
29	HSDP484689Z	SHIELD PLATE (F)	SPTTE, 0.3T
30	HSDP484702Z	SHIELD PLATE (G)	SPTTE, 0.3T
31	HSDP484703Z	SHIELD PLATE (A)	SPTTE, 0.3T
32	HSDP484704Z	SHIELD PLATE (H)	SPTTE, 0.3T
33	HTML484690Z	LUG ANTENNA	SPTTE, 0.3T
34	LHDL484585Z	HOLDER : LAMP	SILICONE RUBBER WHITE
35	LWSR493891Z	WASHER : RUBBER	EPT, BLACK 7x15x2.0T
36	PLBC419000Z	LABEL : WARNING, DC CORD	PAPER, PRINT
37	PLBS384593Z	LABEL : SERIAL NO.	
38	PLBZ491297Z	FILTER SEAL	
39	PLBZ493437Z	WIRING STICKER	
40	RCUN482214Z	CUSHION	NEOPRENE SP 25x15x7T
41	RETC435080A	DOUBLE SIDED TAPE (A)	18*2.0*0.025T
42	RETC435081Z	DOUBLE SIDED TAPE (B)	44*2.5*0.025T
43	RETC490493A	SPACER	WOOL TACK, 0.5T, BLACK
44	RETC484586Z	REFLECTOR	YUPO PAPER 0.15T
45	RNTH417077Z	SPACER	HIMELON, 0.5T
46	RUTC403305Z	WOOL-COATED PAPER : WOOL TACK	WOOL PAPER, 100*10*0.3T
47	RUTC403865Z	WOOL-COATED PAPER : WOOL TACK	WOOL PAPER, 10*150*0.3T

(REF #)	(PARTSCODE)	(DESCRIPTION)	
48	RZEB415633Z	INSULATION PLATE	PVC, 0.3T
49	RZEB416158Z	INSULATION PLATE	MYLAR 0.1T
50	SSCW133006N	SCREW : FLAT HD +	M3x6 NI
51	SSCW192010N	SCREW : BIND HD +	M2x10 NI
52	SSCW193006B	SCREW : BIND HD +	M3x6 NI
53	SSCW193006N	SCREW : BIND HD +	M3x6 NI
54	SSCW193008B	SCREW : BIND HD +	M3x8 BNI
55	SSCW293508N	SCREW : TAPPING ROUND HD +	D3.5x8 NI
56	SSCW295010N	SCREW : TAPPING ROUND HD +	D5x10 NI
57	SSCW480030Z	NUT : FLANGE	M3 ZMC
58	SSCW530035N	WASHER : LOCK	D3.5 NI
59	SSCW540050N	WASHER : STAR	D5 NI
60	TSTD0200001	SPRING PLATE : KNOB	D3.5
61	TSTD0200002	SPRING PLATE : KNOB	D6
62	TSTD0200006	SPRING PLATE : KNOB	D6

(Ref. No. in this Mechanical Parts List corresponds with the no. in Exploded View)

7. TECHNICAL DRAWINGS

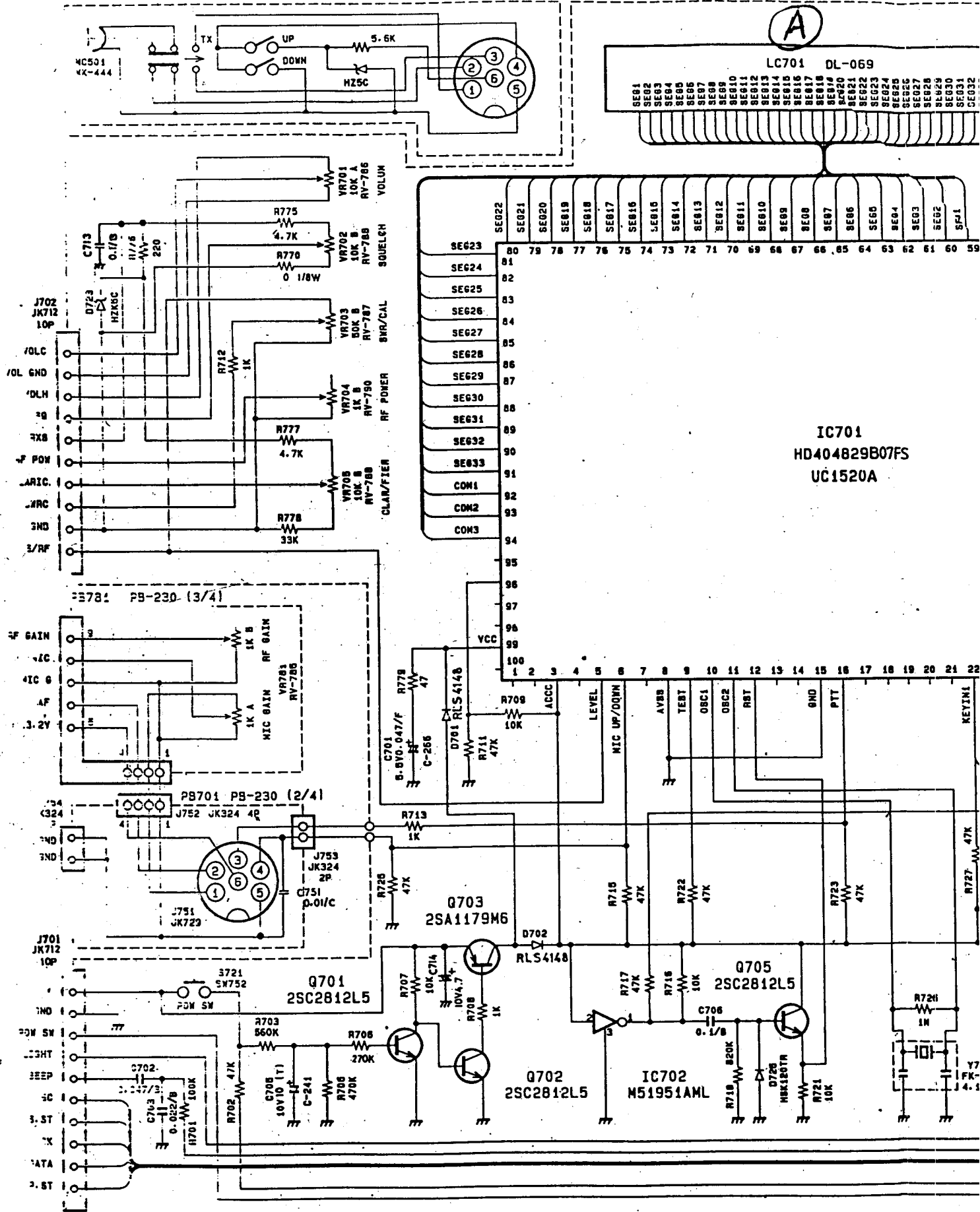
BLOCK DIAGRAM

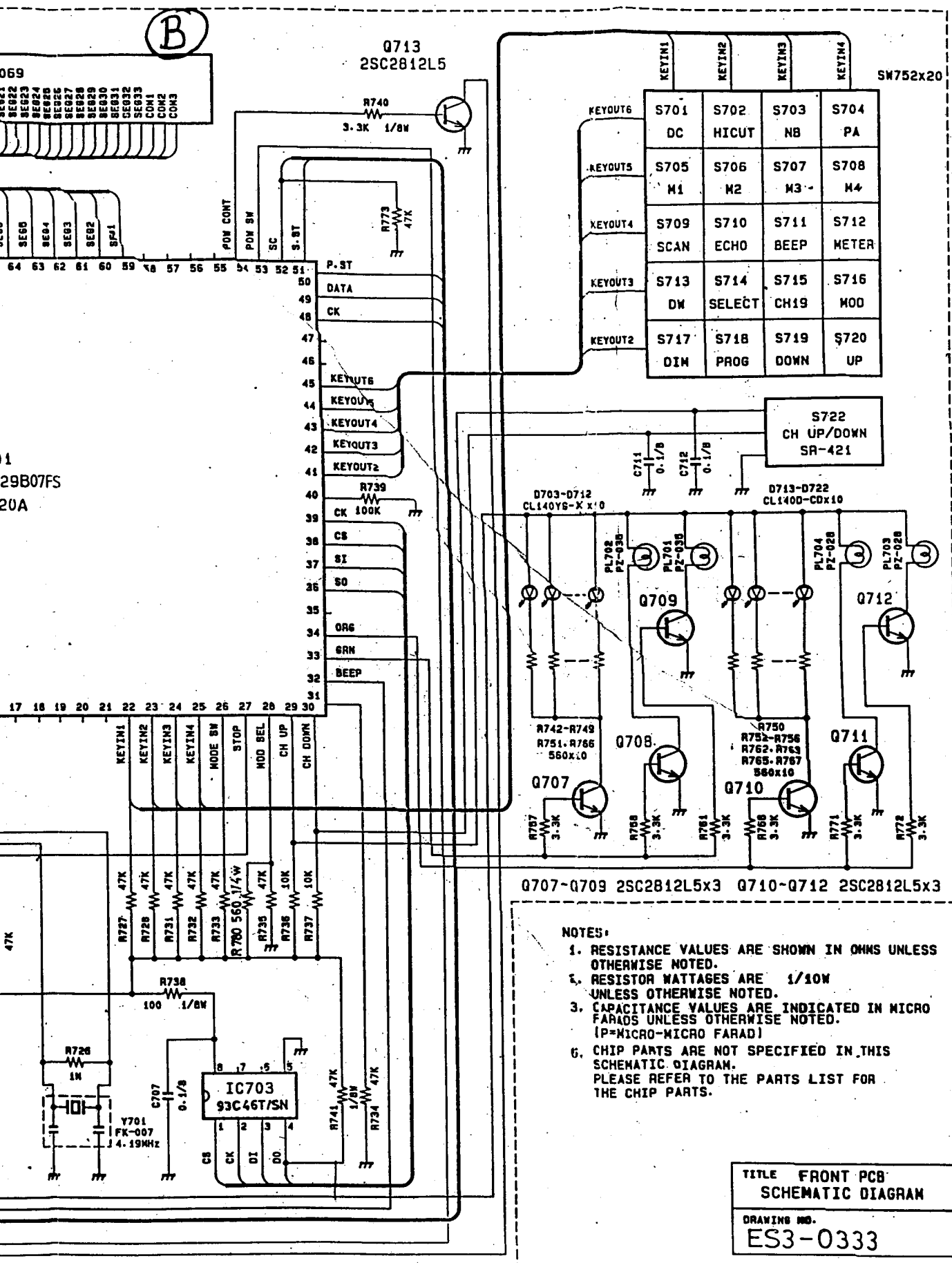


SCHEMATIC DIAGRAM

PB701 PB-230 (1/4)

(A)





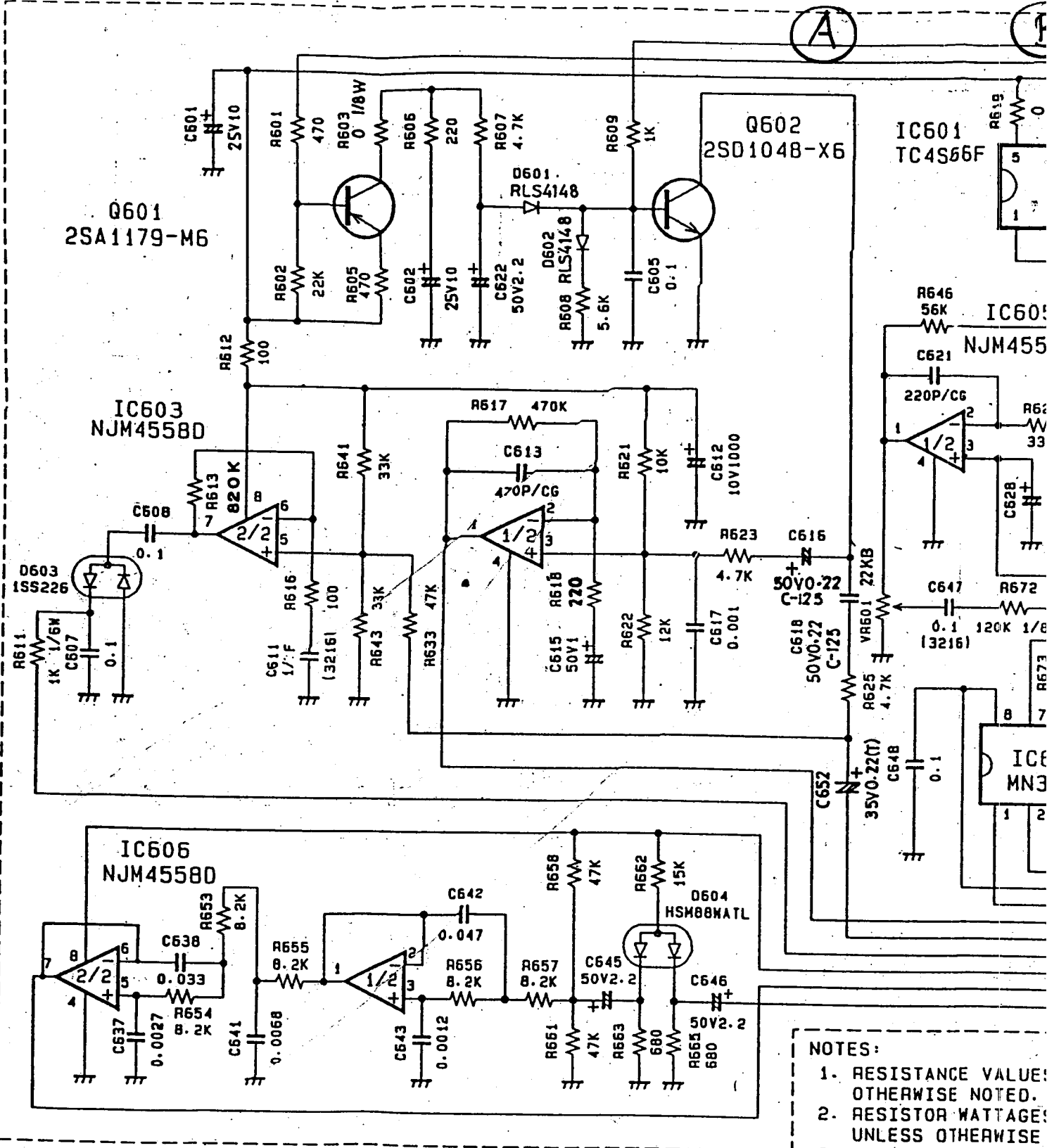
NOTES:

1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED.
2. RESISTOR WATTAGES ARE 1/10W UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P=MICRO-MICRO FARAD)
4. CHIP PARTS ARE NOT SPECIFIED IN THIS SCHEMATIC DIAGRAM. PLEASE REFER TO THE PARTS LIST FOR THE CHIP PARTS.

TITLE FRONT PCB
SCHEMATIC DIAGRAM

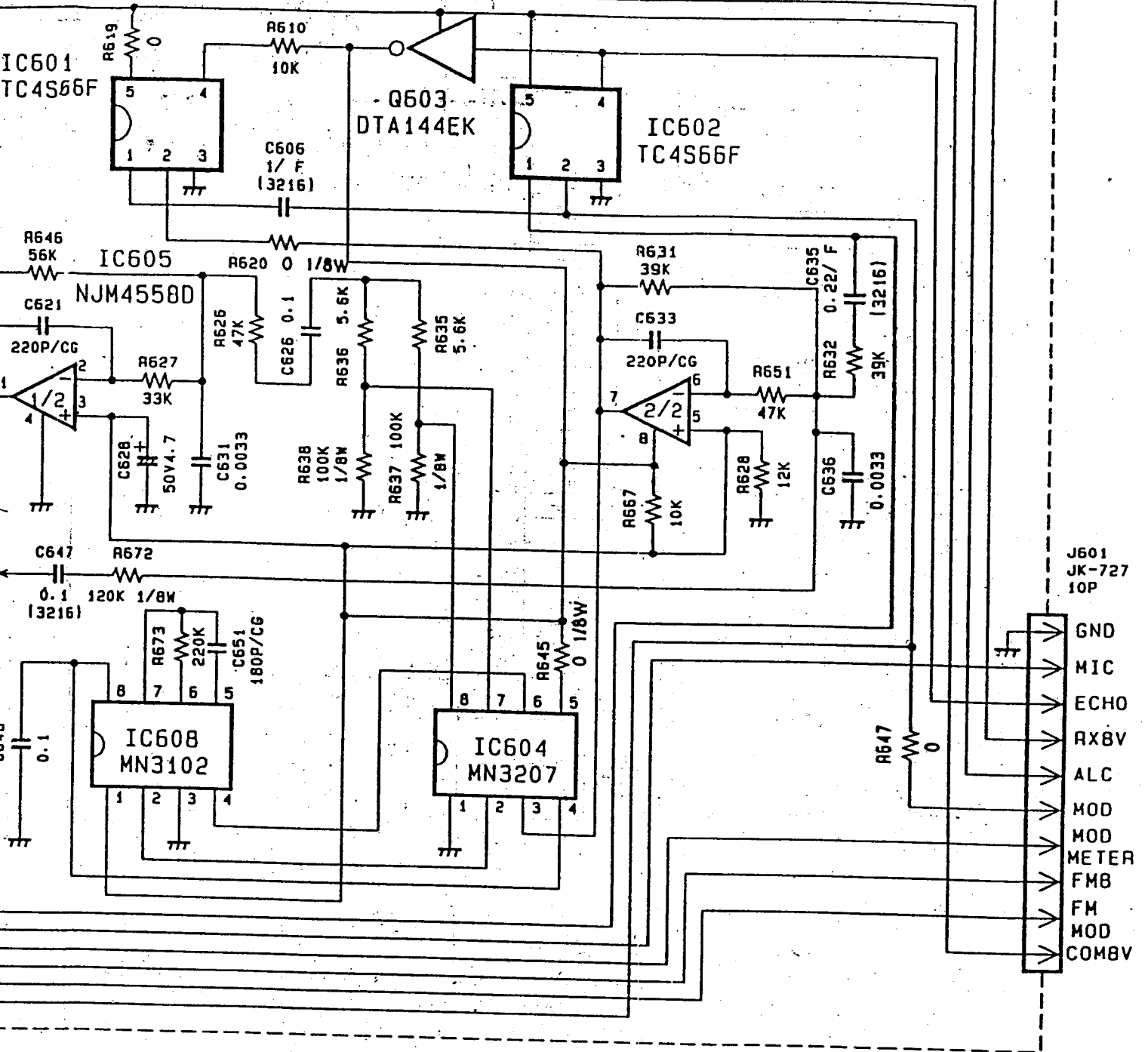
DRAWING NO.

ES3-0333



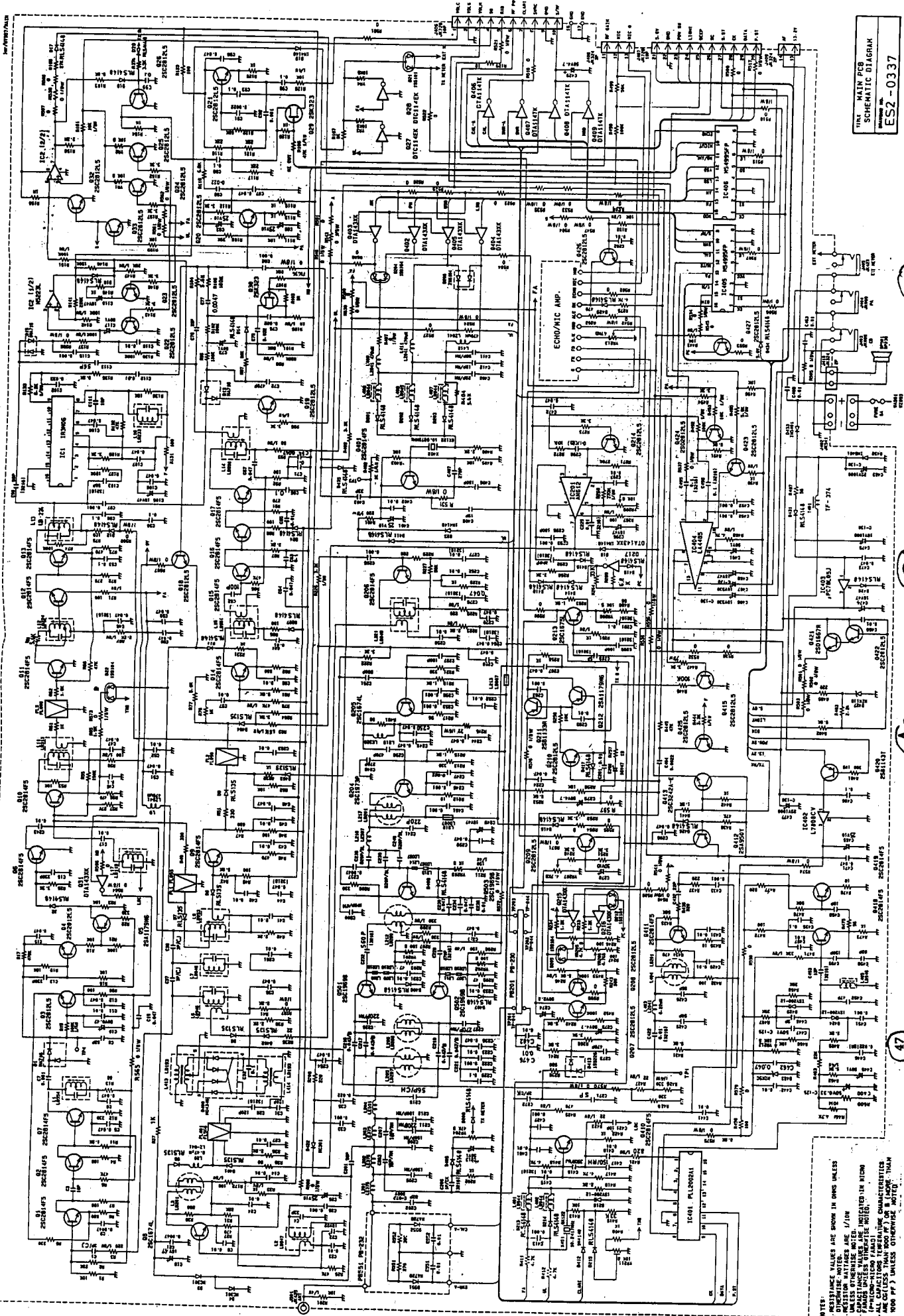
- NOTES:**
1. RESISTANCE VALUES UNLESS OTHERWISE NOTED.
 2. RESISTOR WATTAGES UNLESS OTHERWISE NOTED.
 3. CAPACITANCE VALUES UNLESS OTHERWISE NOTED (P=MICRO-MICRO FARADS UNLESS OTHERWISE NOTED).
 4. ALL CAPACITORS TOLERANCE ARE B UNLESS OTHERWISE NOTED.
 5. CHIP PARTS ARE NOTED IN THE SCHEMATIC DIAGRAM. PLEASE REFER TO THE CHIP PARTS.

(B)



RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED.
 CAPACITOR WATTAGES ARE 1/10W UNLESS OTHERWISE NOTED.
 CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED.
 CAPACITORS TEMPERATURE CHARACTERISTICS ARE C UNLESS OTHERWISE NOTED.
 PARTS ARE NOT SPECIFIED IN THIS SCHEMATIC DIAGRAM.
 PLEASE REFER TO THE PARTS LIST FOR CHIP PARTS.

TITLE ECHO MIC PCB SCHEMATIC DIAGRAM
 DRAWING NO. ES4-0334



THE MAIN PCB
SCHEMATIC DIAGRAM
REVISED BY
ES2-0337

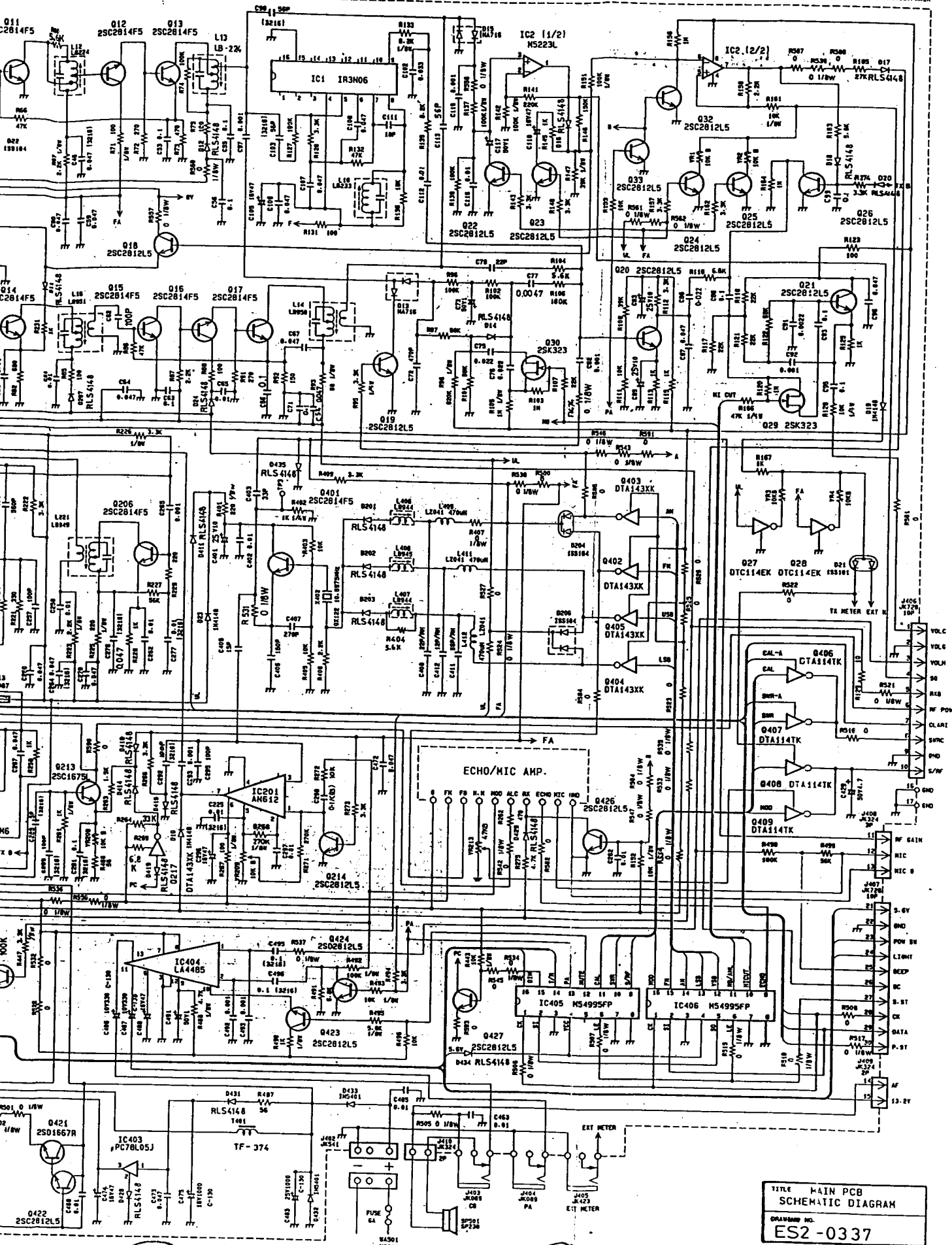
48

B

A

47

NOTES:
1-RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED.
2-DIMENSIONS ARE .1/16"
3-UNLESS OTHERWISE NOTED, DIMENSIONS ARE INDICATED IN INCHES.
4-ALL DIMENSIONS ARE UNLESS OTHERWISE NOTED.
5-ALL DIMENSIONS ARE UNLESS OTHERWISE NOTED.
6-ALL DIMENSIONS ARE UNLESS OTHERWISE NOTED.
7-ALL DIMENSIONS ARE UNLESS OTHERWISE NOTED.
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10-ALL DIMENSIONS ARE UNLESS OTHERWISE NOTED.



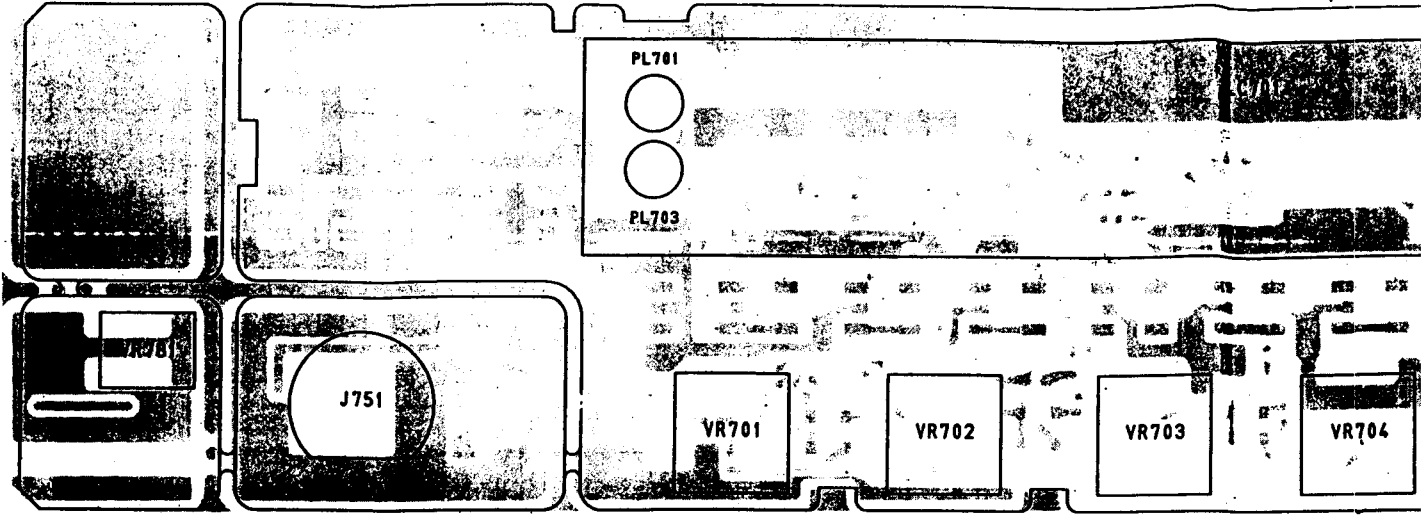
TITLE MAIN PCB
SCHEMATIC DIAGRAM
DRAWING NO.
ES2-0337

(B)

(48)

COMPONENT LAYOUT

PB701 PB-230AA (TOP VIEW)



VR701	RV-786 10K A
VR702	RV-788 10K B
VR703	RV-787 50K B
VR704	RV-790 1K B
VR705	RV-788 10K B

S722	SR-421

J751	JK-729

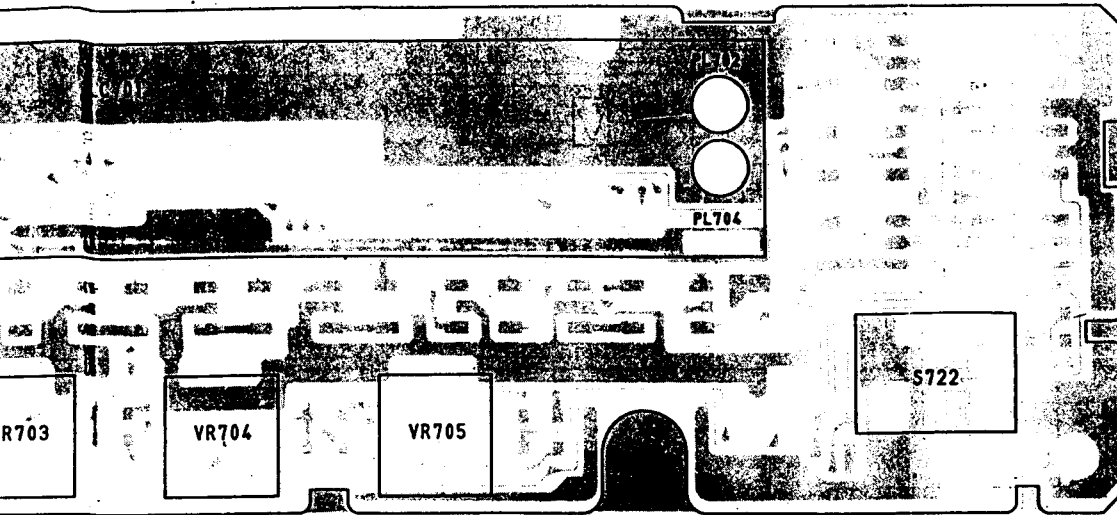
PL701	PZ-035
PL702	PZ-035
PL703	PZ-028
PL704	PZ-028

LC701	DL-069

VR701	RV-785 1KA/1KB

(A)

(B)



51	JK-729

781	RV-785 IKA/1KB

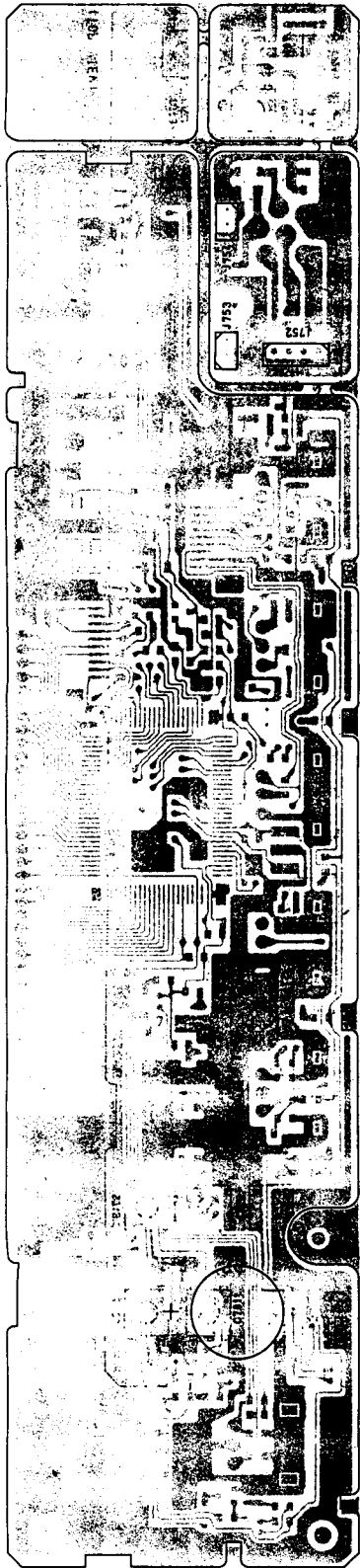
4

B

50

TITLE	FRONT PCB
	PARTS ASS'Y TOP VIEW
DRAWING NO.	EM2-0987

PB701 PB-230AA (BOTTOM VIEW)



C701	0.047F	C-266		
J752	JIC-32L	4P		
J753	JIC-32L	2P		
J754	JIC-32L	2P		

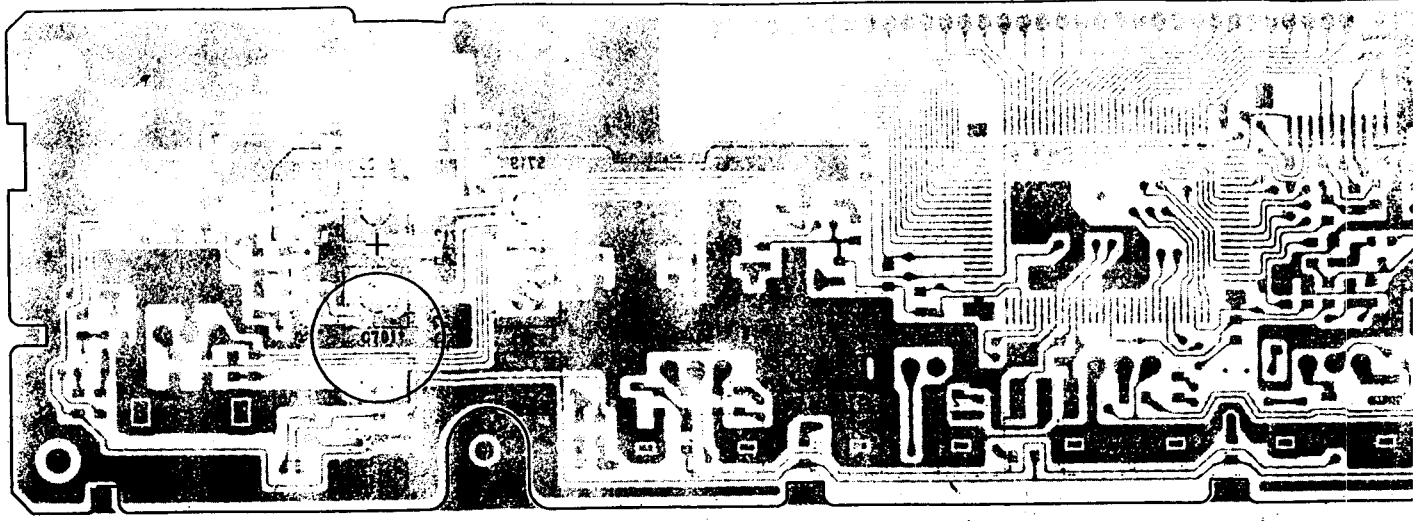
(B)

(A)

TITLE	FRONT PCB
PARTS ASSY	BOTTOM VIEW
DRAWING NO.	EM2-0989

54

53

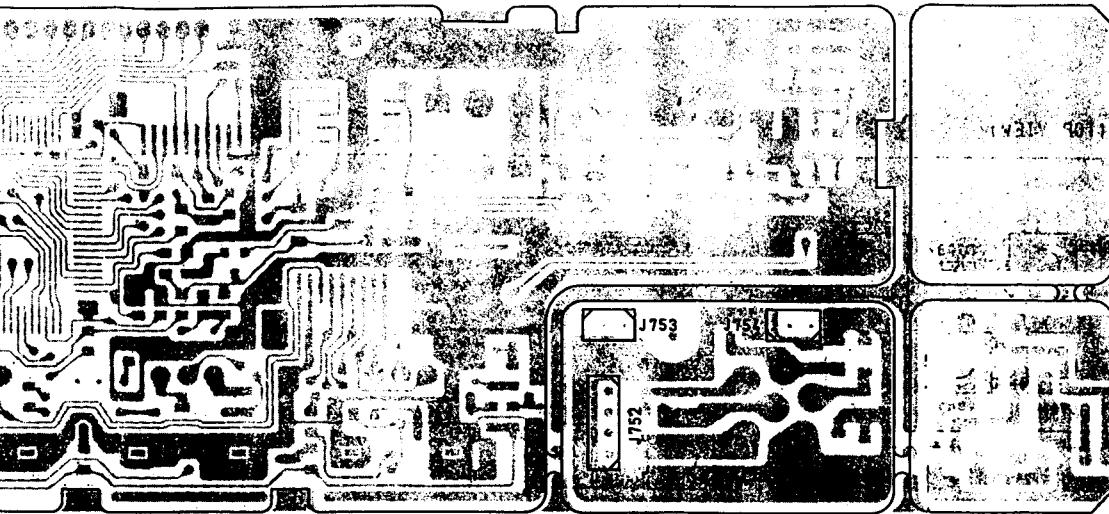


C701	0.047F	C-266

J752	JK-324	4P
J753	JK-324	2P
J754	JK-324	2P

(A)

(1)



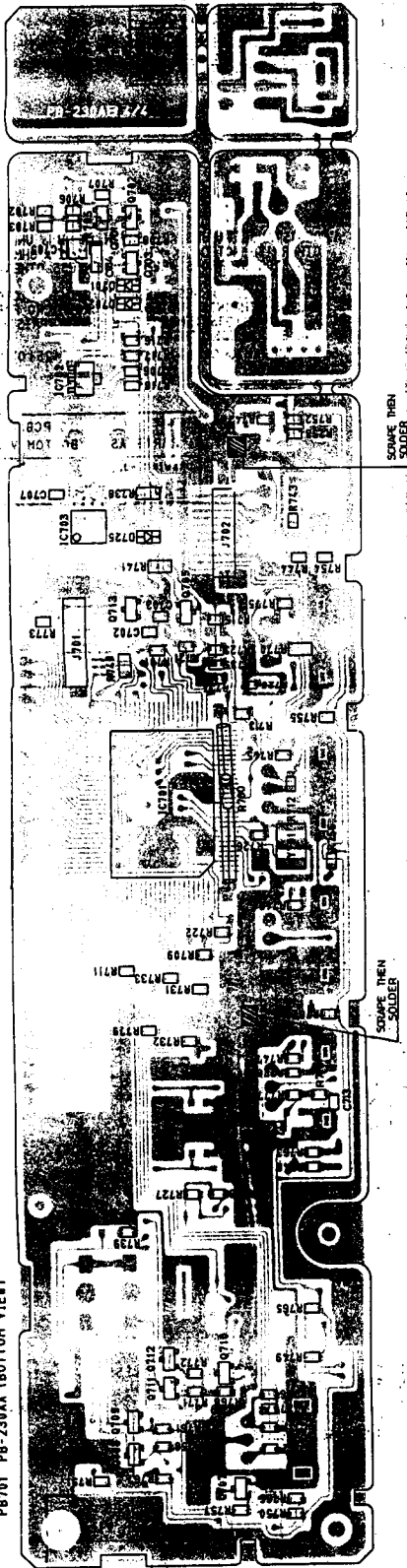
-324	4P
-324	2P
-324	2P

(B)

TITLE	FRONT PCB
	PARTS ASSEMBLY BOTTOM VIEW
DRAWING NO.	EM2-0989

(54)

PB701 PB-230AA (BOTTOM VIEW)



SCRAPE THEN SOLDER

SCRAPE THEN SOLDER

R780 VINYL TUBE
2.6 X 22mm

R701	100K	R746	500	C702	0.047	D701	MSL5418
R702	47K	R747	500	C703	0.022	D702	MSL5418
R703	500K	R748	500	C705	10V10 /TC284	D703	MZL5C
R704	470K	R749	500	C706	0.1	D705	MSL2201P
R705	200K	R750	500	C707	0.1	D707	
R706	10K	R751	500	C711	0.1	D711	
R707	10K	R752	500	C712	0.1/10	D712	
R708	10K	R753	500	C714	10V47 C-222	D714	
R709	47K	R754	500				
R710	47K	R755	500				
R711	47K	R756	500				
R712	1K	R757	3.3K				
R713	47K	R758	3.3K				
R714	47K	R759	3.3K				
R715	10K	R760	500 1/4W				
R716	47K						
R717	47K						
R718	820K						
R719	10K						
R720	47K						
R721	47K						
R722	47K						
R723	47K						
R724	47K						
R725	10K						
R726	10K						
R727	47K						
R728	47K						
R729	47K						
R730	47K						
R731	47K						
R732	47K						
R733	47K						
R734	47K						
R735	47K						
R736	10K						
R737	10K						
R738	10K						
R739	10K						
R740	500 1/4W						
R741	500K						
R742	500K						
R743	500K						
R744	500K						
R745	500K						

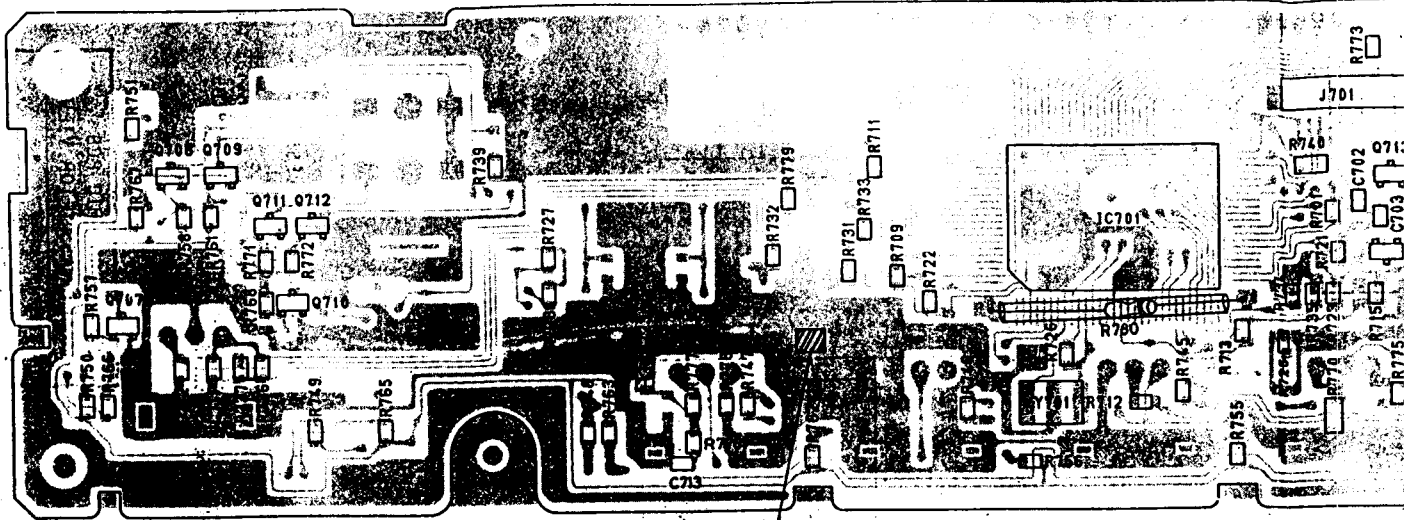
(B)

(A)

- NOTES: RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. AS MILIO OHM M=EEZ OTHERWISE
 2. RESISTOR WATTAGES ARE 1/10W UNLESS OTHERWISE NOTED
 3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED (P=PICO-HICRO FARAD)
 4. ALL CERAMIC CAPACITORS ARE TYPE C UNLESS OTHERWISE NOTED
 5. ALL CERAMIC CAPACITANCES ARE 121251 OTHERWISE NOTED.

TITLE FRONT VIEW
 PARTS ASSY BOTTOM VIEW
 DRAWING NO.
 EM2-0990

PB701 PB-230AA (BOTTOM VIEW)



SCRAPE THEN
SOLDER

R780 VINYL TUBE
Ø 2.6 X 22mm

R701	100K
R702	47K
R703	560K
R705	470K
R706	270K
R707	10K
R708	1K
R709	10K
R711	47K
R712	1K
R713	1K
R715	47K
R716	10K
R717	47K
R718	820K
R721	10K
R722	47K
R723	47K
R725	47K
R726	1M
R727	47K
R728	47K
R731	47K
R732	47K
R733	47K
R734	47K
R735	47K
R736	10K
R737	10K
R738	100 1/8W
R739	100K
R740	3.3K 1/8W
R741	47K 1/8W
R742	560
R743	560
R744	560
R745	560

R746	560
R747	560
R748	560
R749	560
R750	560
R751	560
R752	560
R753	560
R754	560
R755	560
R756	560
R757	3.3K
R758	3.3K
R761	3.3K
R762	560
R763	560
R765	560
R766	560
R767	560
R768	3.3K
R770	0 1/8W
R771	3.3K
R772	3.3K
R773	47K
R775	4.7K
R776	220
R777	4.7K
R778	33K
R779	47
R780	560 1/4W

C702	0.047
C703	0.022
C705	10V 10 / T C-241
C706	0.1
C707	0.1
C711	0.1
C712	0.1
C713	0.1/B
C714	10V 4.7 C-227

D701	RL54
D702	RL54
D723	HZK5
D725	HSK1

IC701	HD40 UC1
IC702	M519
IC703	93C4

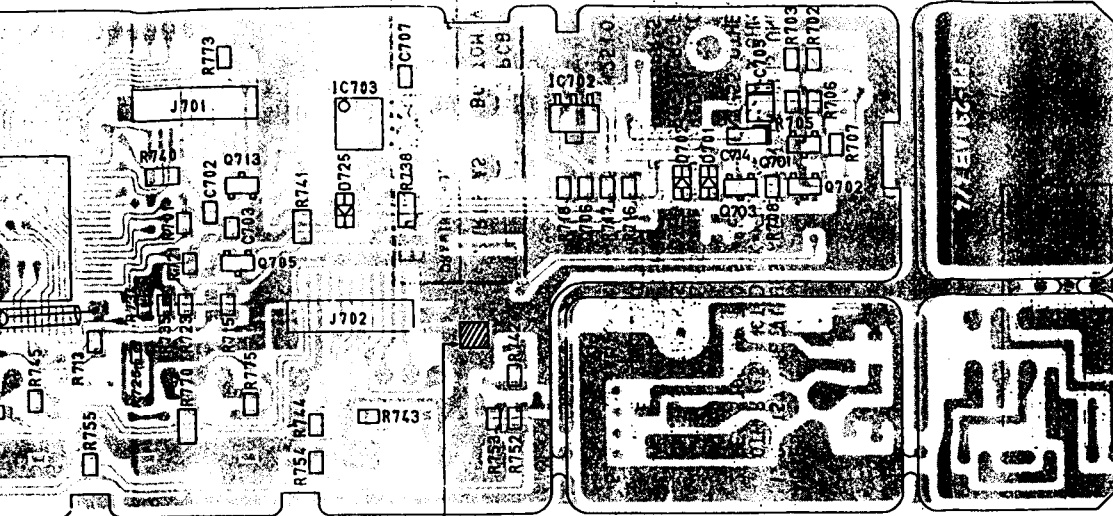
Q701	25C2812-L5
Q702	25C2812-L5
Q703	25A1179-M6
Q705	25C2812-L5
Q707	25C2812-L5
Q708	25C2812-L5
Q709	25C2812-L5
Q710	25C2812-L5
Q711	25C2812-L5
Q712	25C2812-L5
Q713	25C2812-L5

J701	JK-71
J702	JK-71

Y701	FK
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(A)

(B)



ENVL TUBE
2.6 X 22mm

0.047
0.022
10 / TC-241
0.1
0.1
0.1
0.1
0.1/B
4.7 C-227

D701	RLS4148
D702	RLS4148
D723	HZK5C
D725	HSK120TR

IC701	HD404825FP UC1520
IC702	MS1951AML
IC703	93C46

J701	JK-712 10P
J702	JK-712 10P

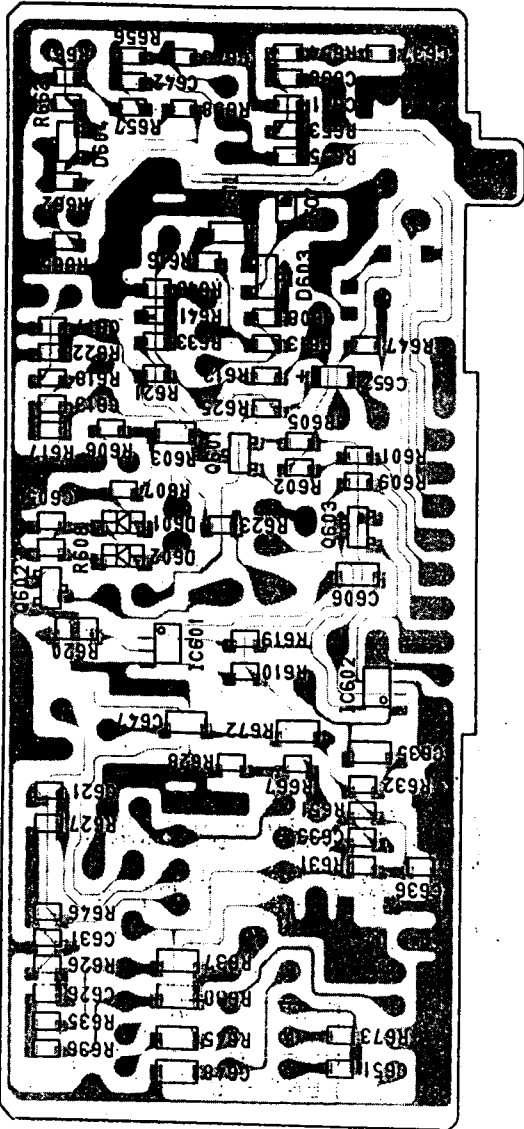
Y701	FK-007

(B)

- NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K-KILO OHM M-MEG OHM)
 2. RESISTOR WATTAGES ARE 1/10W UNLESS OTHERWISE NOTED.
 3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P-MICRO-MICRO FARAD)
 4. ALL CAPACITORS TEMPERATURE CHARACTERISTICS ARE B UNLESS OTHERWISE NOTED.
 5. ALL CERAMIC CAPACITANCES ARE (2125) OTHERWISE NOTED.

TITLE	FRONT PCB PARTS ASS'Y BOTTOM VIEW
DRAWING NO.	EM2-0990

PB501 PB-231AB (BOTTOM VIEW)



C605	0.1
C606	1/F (3216)
C607	0.1
C608	0.1
C611	1/F (3216)
C613	470P/CG
C617	0.001
C621	220P/CG
C626	0.1
C631	0.0033
C633	220P/CG
C635	0.22/F (3216)
C636	0.0033
C652	35V0.22(T) C-182

C637	0.0027
C638	0.033
C641	0.0068
C642	0.047
C643	0.0012
C644	0.1 (3216)
C648	0.1 (3216)
C651	180P/CG

IC601	TC4566F
IC602	TC4566F

R661	47K
R662	15K
R663	680
R665	680
R667	10K
R672	120K 1/8W
R673	220K

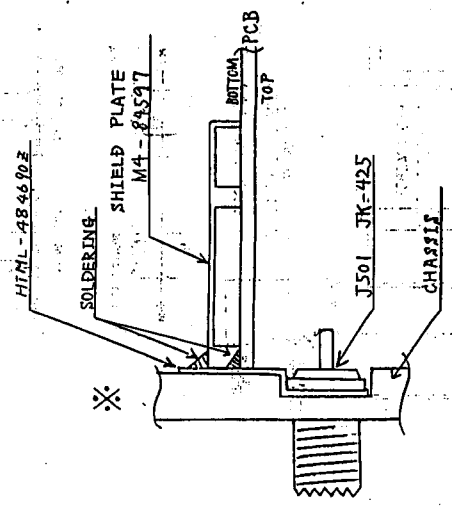
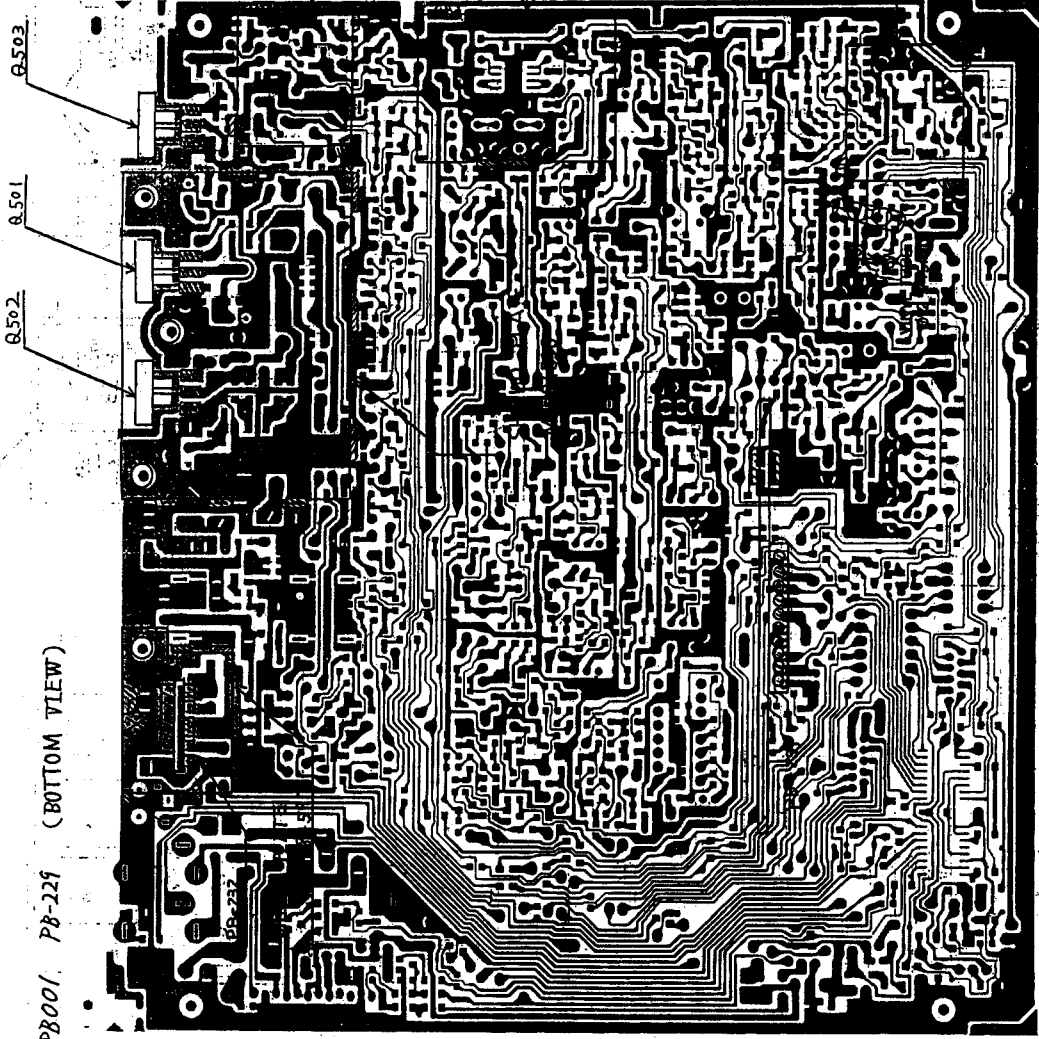
R627	33K
R628	12K
R631	39K
R632	39K
R633	47K
R635	5.6K
R636	5.6K
R637	100K 1/8W
R638	100K 1/8W
R641	33K
R643	33K
R645	0 1/8W
R646	56K
R647	0
R651	47K
R653	8.2K
R654	8.2K
R655	8.2K
R656	8.2K
R657	8.2K
R658	47K

F501	470
F502	22K
F503	0 1/8W
F504	470
F505	220
F507	4.7K
F508	5.6K
F509	1K
F510	10K
F512	100
F513	820K
F515	100
F517	470K
F518	220
F519	0
F520	0 1/8W
F521	10K
F522	12K
F523	4.7K
F525	4.7K
F526	47K

- NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K-KILO OHM, M-MEG OHM)
 2. RESISTOR RATINGS ARE 1/10W UNLESS OTHERWISE NOTED.
 3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P-MICRO-MICRO FARAD)
 4. ALL CAPACITORS-TEMPERATURE CHARACTERISTICS ARE B UNLESS OTHERWISE NOTED.
 5. ALL CERAMIC CAPACITANCES ARE (2125) OTHERWISE NOTE!

TITLE	ECHO MIC PCB
PARTS ASS'Y BOTTOM VIEW	
DRAWING NO.	EM4-0991

PB001, PB-229 (BOTTOM VIEW)



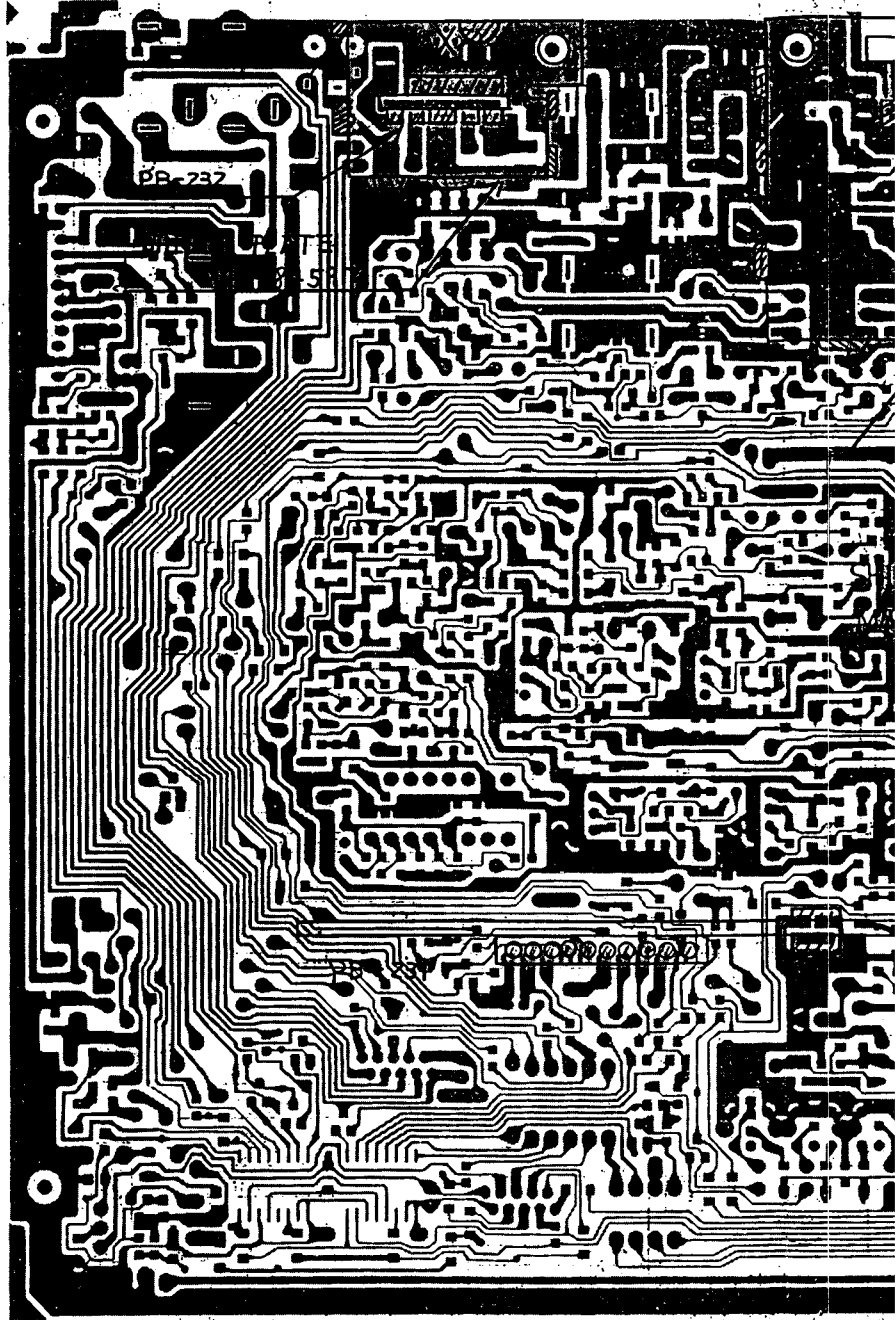
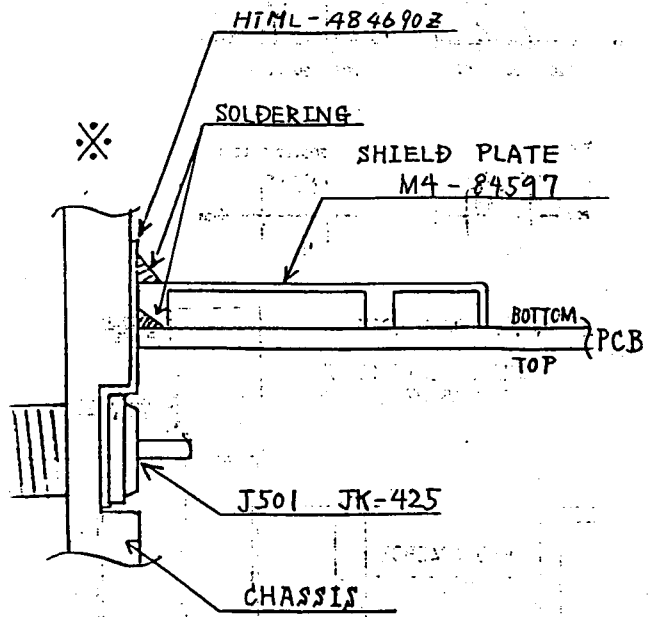
5 2 9 M 0 6 5 0 8 0 1 5 0

▨: SOLDERING

(A) (B)

TITLE	PARTS LAYOUT
	BOTTOM VIEW
EM3-0993	

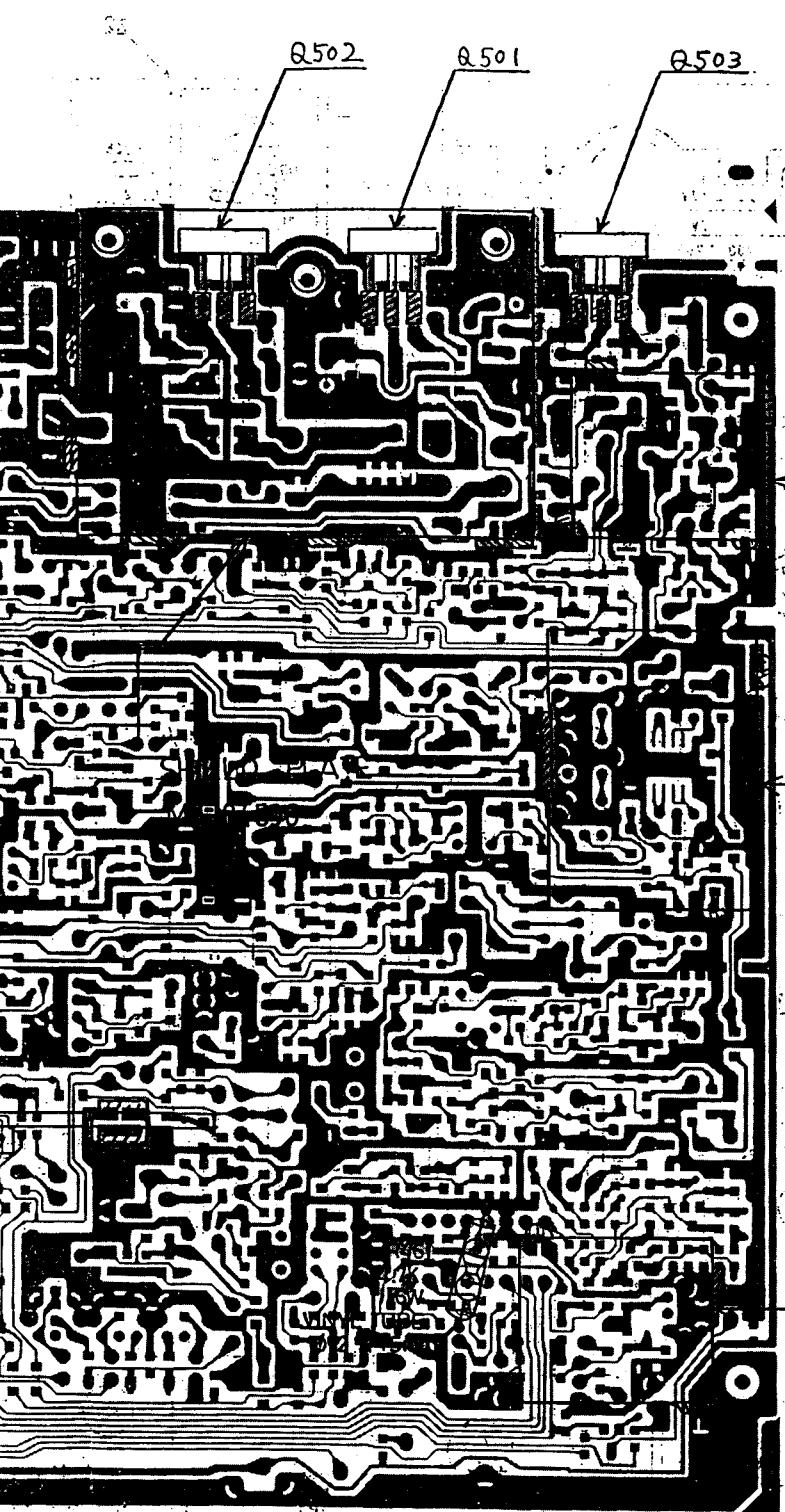
PB001, PB-229 (BOTTOM VIEW)



▨ : SOLDERING

(A)

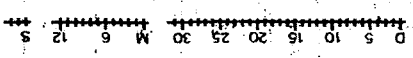
(B)



SHIELD PLATE
M4-84591

SHIELD PLATE
M4-84704

SHIELD PLATE
M4-84591



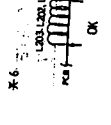
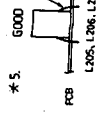
TITLE	PARTS LAYOUT
	BOTTOM VIEW
EM3-0993	

(B)

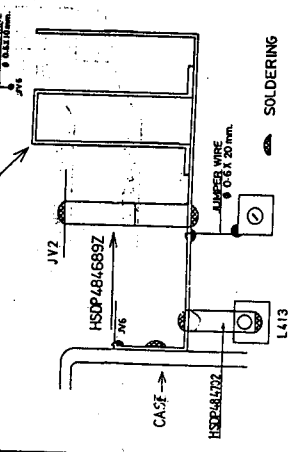
(60)

TITLE MAIN PCB 1/2
 PARTS ASSEMBLY TOP VIEW
 DRAWING NO. EM2-0998 1/2

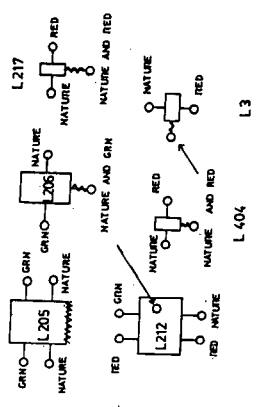
* CAUTION *



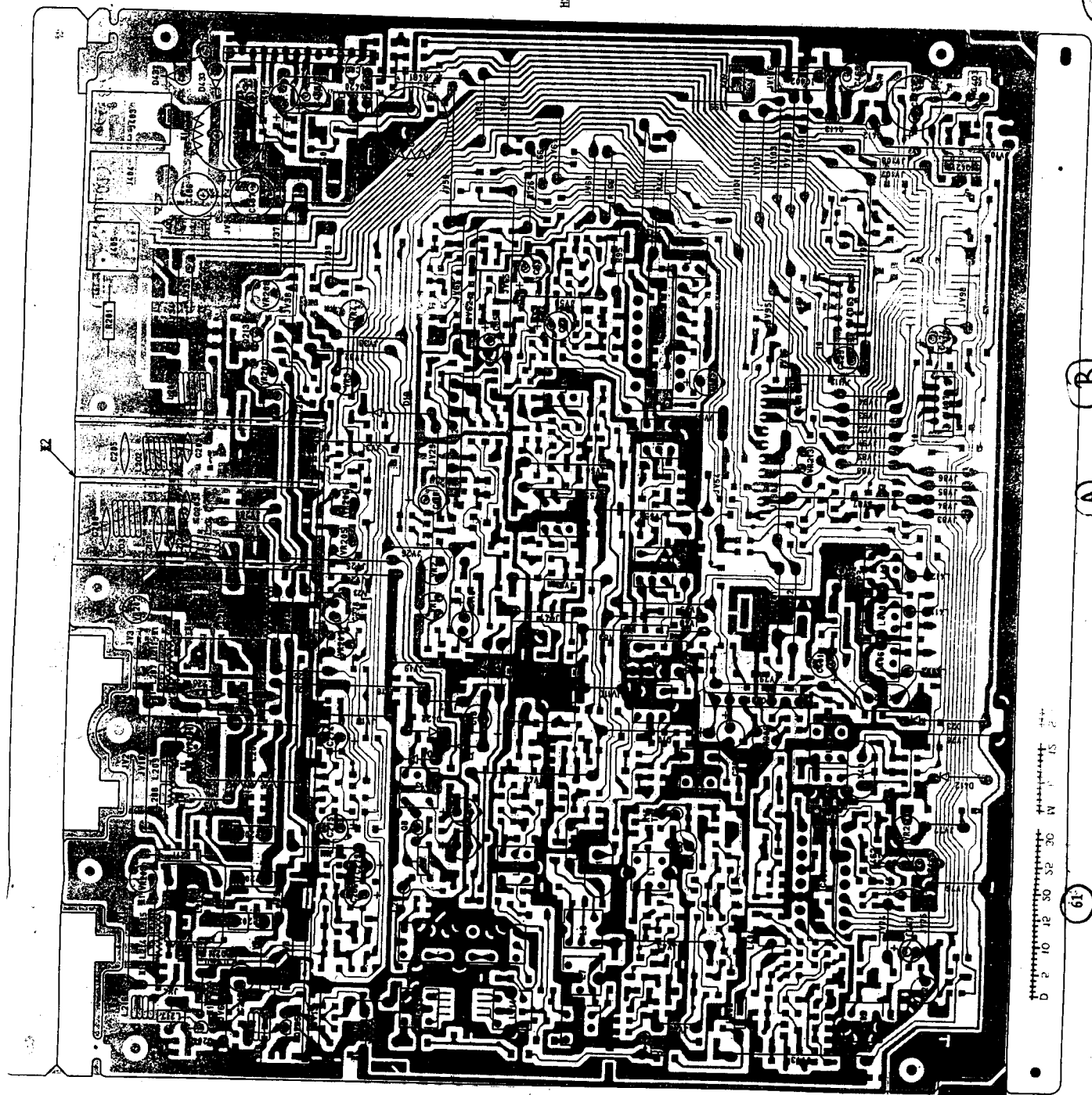
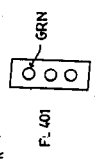
* 1. BOND LOCK
 * 2. SHIELD PLATE (COMP)
 ESP384598Z



* 3.



* 4.

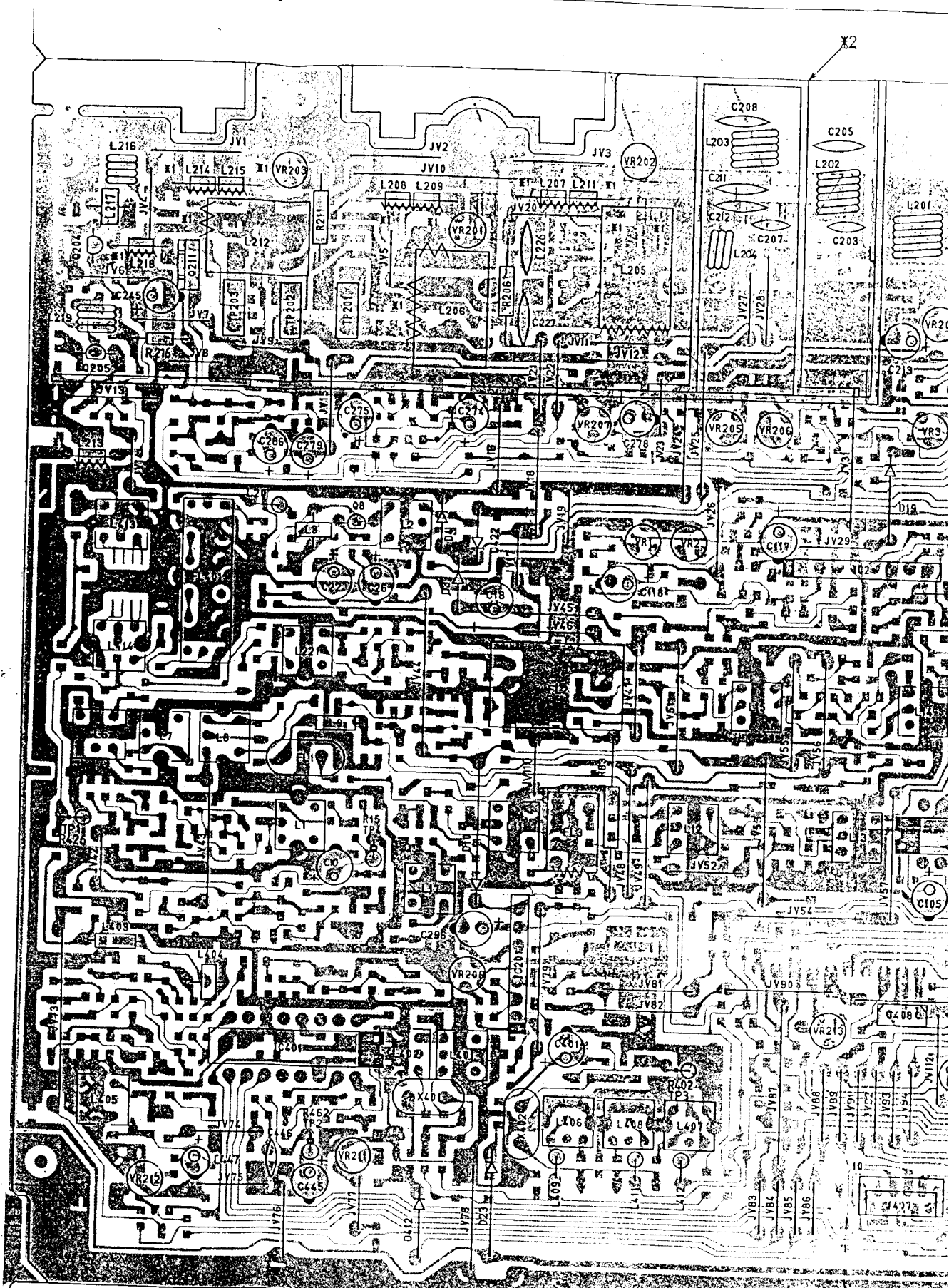


D P 10 12 S0 S2 30 W 1 IS 2

61

(A) (B)

62

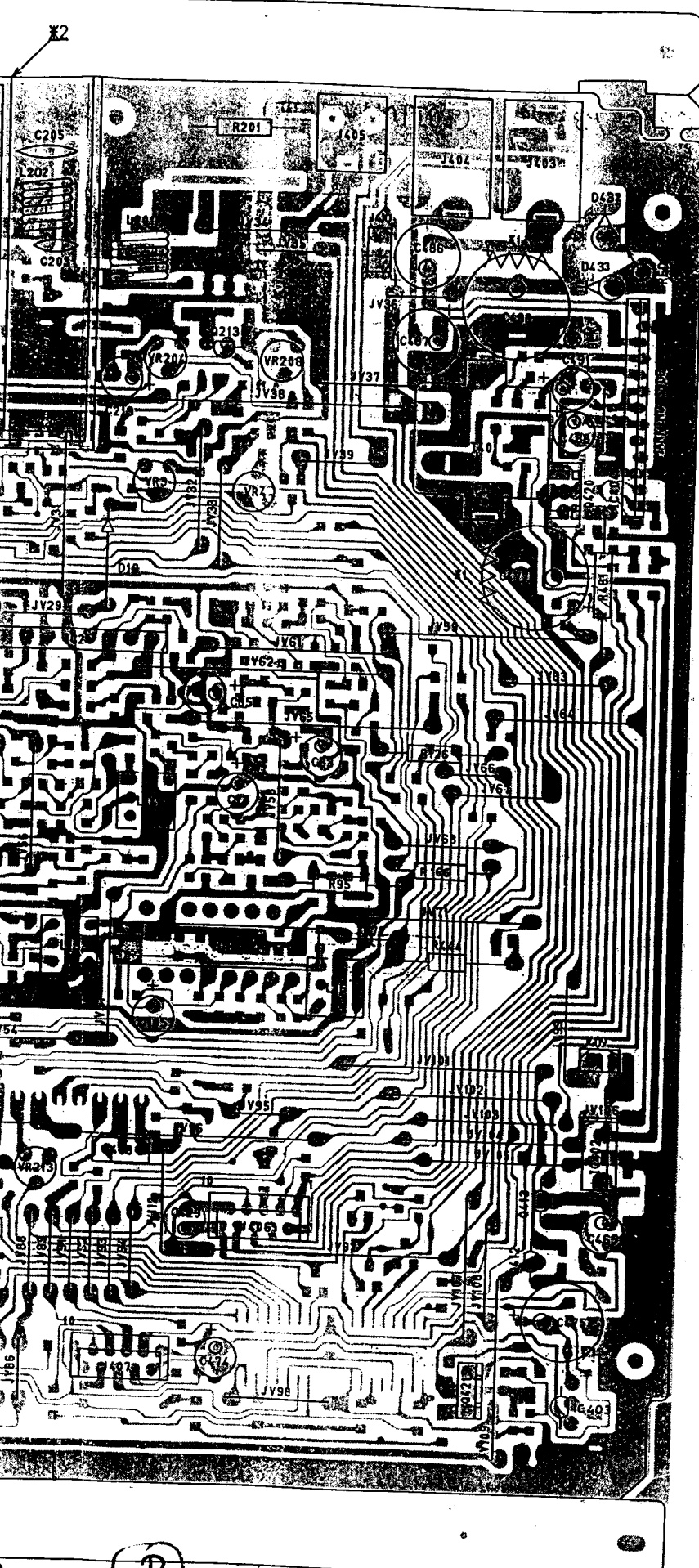


0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

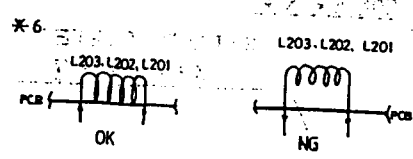
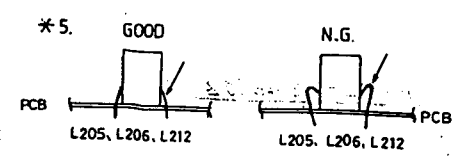
61

A

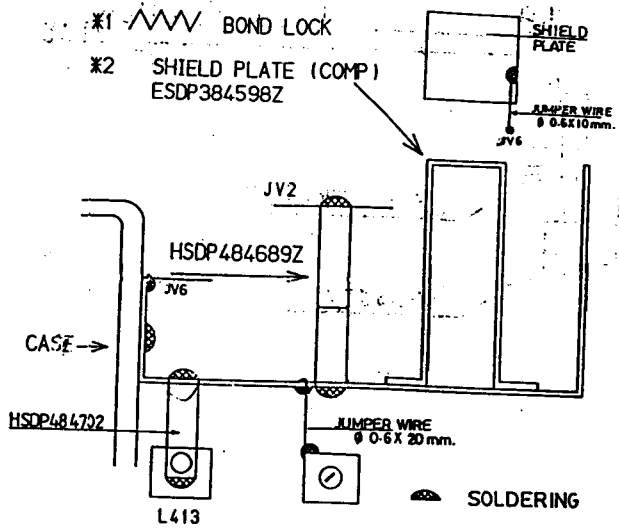
B



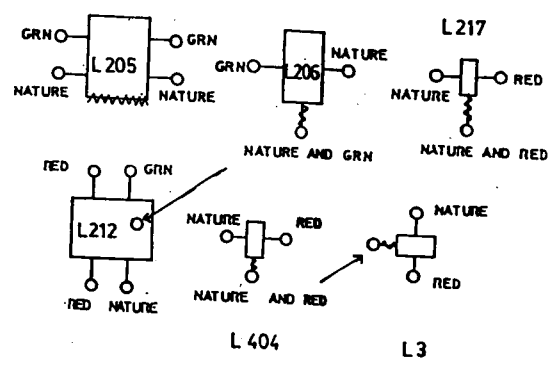
* CAUTION *



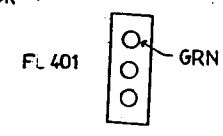
* 1 BOND LOCK
 * 2 SHIELD PLATE (COMP) ESDP384598Z



* 3



* 4



TITLE MAIN P. 3 1/2
 PARTS ASSEMBLY TOP VIEW
 DRAWING NO.
 EM2-09931/2

(B)

(62)

JV1	12.5
JV2	12.5
JV3	12.5
JV4	10.0
JV5	7.5
JV6	10.0
JV7	10.0
JV8	7.5
JV9	7.5
JV10	22.5
JV11	10.0
JV12	10.0
JV13	12.5
JV14	7.5
JV15	12.5
JV16	12.5
JV17	7.5
JV18	15.0
JV19	7.5
JV20	12.5
JV21	10.0
JV22	10.0
JV23	7.5
JV24	15.0
JV25	20.0
JV26	12.5
JV27	10.0
JV28	12.5
JV29	10.0
JV31	20.0
JV32	15.0
JV33	12.5
JV34	15.0
JV35	7.5
JV36	7.5
JV37	12.5
JV38	30.0
JV39	10.0
JV41	7.5
JV42	7.5
JV43	17.5
JV44	22.5
JV45	10.0
JV46	10.0
JV47	12.5
JV48	17.5
JV49	17.5
JV51	17.5
JV52	10.0
JV53	20.0
JV54	17.5
JV55	15.0
JV56	15.0
JV57	17.5
JV58	15.0
JV59	25.0
JV61	22.5
JV62	30.0
JV63	12.5
JV64	17.5
JV65	30.0
JV66	7.5
JV67	12.5
JV68	12.5
JV71	22.5
JV72	7.5
JV73	25.0
JV74	10.0
JV75	10.0
JV76	10.0
JV77	7.5
JV78	15.0
JV79	20.0

JV81	12.5
JV82	15.0
JV83	7.5
JV84	7.5
JV85	7.5
JV86	7.5
JV87	22.5
JV88	10.0
JV89	10.0
JV90	15.0
JV91	10.0
JV92	10.0
JV93	10.0
JV94	10.0
JV95	7.5
JV96	30.0
JV97	30.0
JV98	12.5
JV99	12.5
JV101	25.0
JV102	20.0
JV103	17.5
JV104	20.0
JV105	17.5
JV106	5.0
JV107	17.5
JV108	12.5
JV109	22.5
JV112	12.5

L1	LB-954
L2	LB-947
L3	LD-201
L6	LB-948
L7	LB-948
L8	LB-953
L9	470uH LZ-041
L11	LB-313
L12	LB-224
L13	LB-224
L14	LB-950
L15	LB-951
L16	LB-233
L17	LB-119
L20	0.47uH LZ-041
L201	LE-376 8VZT
L202	LE-376 8VZT
L203	LE-375 7VZT
L204	LE-501
L205	LD-287
L206	LD-288
L207	LD-218
L208	LD-218
L209	LD-218
L211	LD-218
L212	LD-289
L213	LD-087
L214	LD-087
L215	LD-087
L216	LE-507
L217	LD-201
L218	LD-087
L219	LE-328 5VZT
L221	LB-949
L222	LD-087
L401	LB-944
L402	LB-944
L403	0.22uH LZ-041
L404	LD-201
L405	LB-946
L406	LB-944
L407	LB-944
L408	LB-945
L409	470uH LZ-041
L411	470uH LZ-041
L412	470uH LZ-041
L413	LD-193
L414	LD-193

C10	50V0.47
C18	16V47
C22	16V22
C26	25V10
C73	50V1
C83	25V10
C85	25V10
C105	16V47
C117	50V1
C118	16V47
C209	18P/RH
C205	150P/RH
C207	18P/RH
C208	150P/RH
C211	220P/RH
C212	180P/RH
C243	50VF
C216	0.022/YF
C217	0.022/YF
C218	0.022/YF
C221	0.022/YF
C226	220P/RH
C227	270P/RH
C245	16V47
C274	50V2.2
C275	50V4.7
C278	50V10
C279	50V4.7
C286	16V47
C296	16V47
C401	25V10
C429	50V4.7
C445	50V1
C446	0.022/SR
C465	25V10
C474	16V47
C475	16V1000 C-130
C477	25V1000 C-130
C483	25V1000 C-130
C486	10V330 C-130
C487	10V330 C-130
C488	16V47
C491	50V1

VR1	10KB
VR2	10KB
VR3	10KB
VR4	10KB
VR201	100B
VR202	100B
VR203	1KB
VR204	47KB
VR205	4.7KB
VR206	4.7KB
VR207	4.7KB
VR208	10KB
VR209	10KB
VR211	10KB
VR212	10KB
VR213	47KB
VR15	100K
R83	15K
R85	3.3K
R126	10K
R166	47K
R201	10K
R206	150
R211	150
R402	1K
R426	390
R444	3.3K
R462	5.6K
R481	390 1W
Q8	25C1674L
Q204	25C1973P
Q205	25C1674L
Q211	25B1133R
Q213	25C1675L
Q412	25AP50Y
Q413	25G327AE
Q420	25B1143T
Q421	25D1667K

D3	HC301
D4	HC301
D10	1N4148
D19	1N4148
D23	1N4148
D412	1N4148
D422	HC301
D432	1N5401
D433	1N5401
J403	JK-089
J404	JK-089
J405	JK-423
J406	JK-728 10PIN
J407	JK-728 10PIN
J408	JK-324 3PIN
J409	JK-324 2PIN
J410	JK-324 2PIN
IC1	IR3N06
IC2	HS223L
IC201	AN612
IC401	PLL2062A1
IC402	L7808CV
IC403	JPC78L05J
IC404	LA4485

EMC-0125

(A)

D3	MC301
D4	MC301
D10	IN4148
D19	IN4148
D23	IN4148
D42	IN4148
D422	MC301
D432	IN5401
D433	IN5401

FL1	FL-055
FL2	FL-090
FL3	FL-066
FL401	FL-566

X401	10.2417MHz OX-122
X402	10.6975MHz OX-122

J403	JK-089
J404	JK-089
J405	JK-423
J406	JK-728 10PIN
J407	JK-728 10PIN
J408	JK-324 3PIN
J409	JK-324 2PIN
J410	JK-324 2PIN

TP201	TP-044
TP202	TP-044
TP203	TP-044

T401	TF-074
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IC1	IR3N06
IC2	MS223L
IC201	AN612
IC401	PLL2042A1
IC402	L7808CV
IC403	JPC78L5J
IC404	LA4485

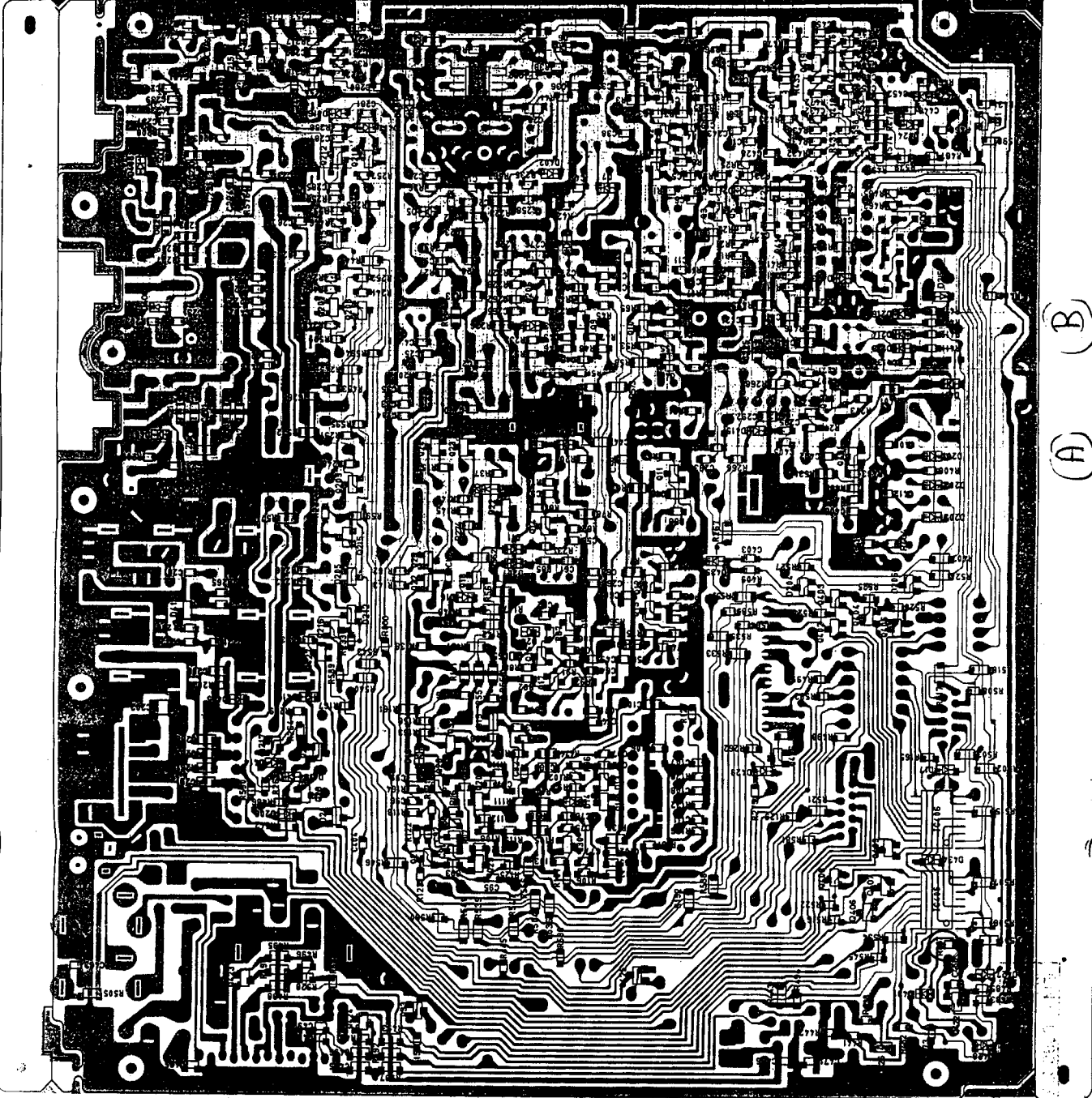
NOTE:
1. RESISTOR WATTAGES ARE 1/4W UNLESS OTHERWISE SPECIFIED.

(B)

TITLE	MAIN	PCB	2/2
PARTS	LI	TOP	VIEW
DRAWING NO.	EM2-098 2/2		

TITLE MAIN PCB 1/2
PARTS ASSEMBLY BOTTOM VIEW
DRAWING NO. EM2-0999 1/2

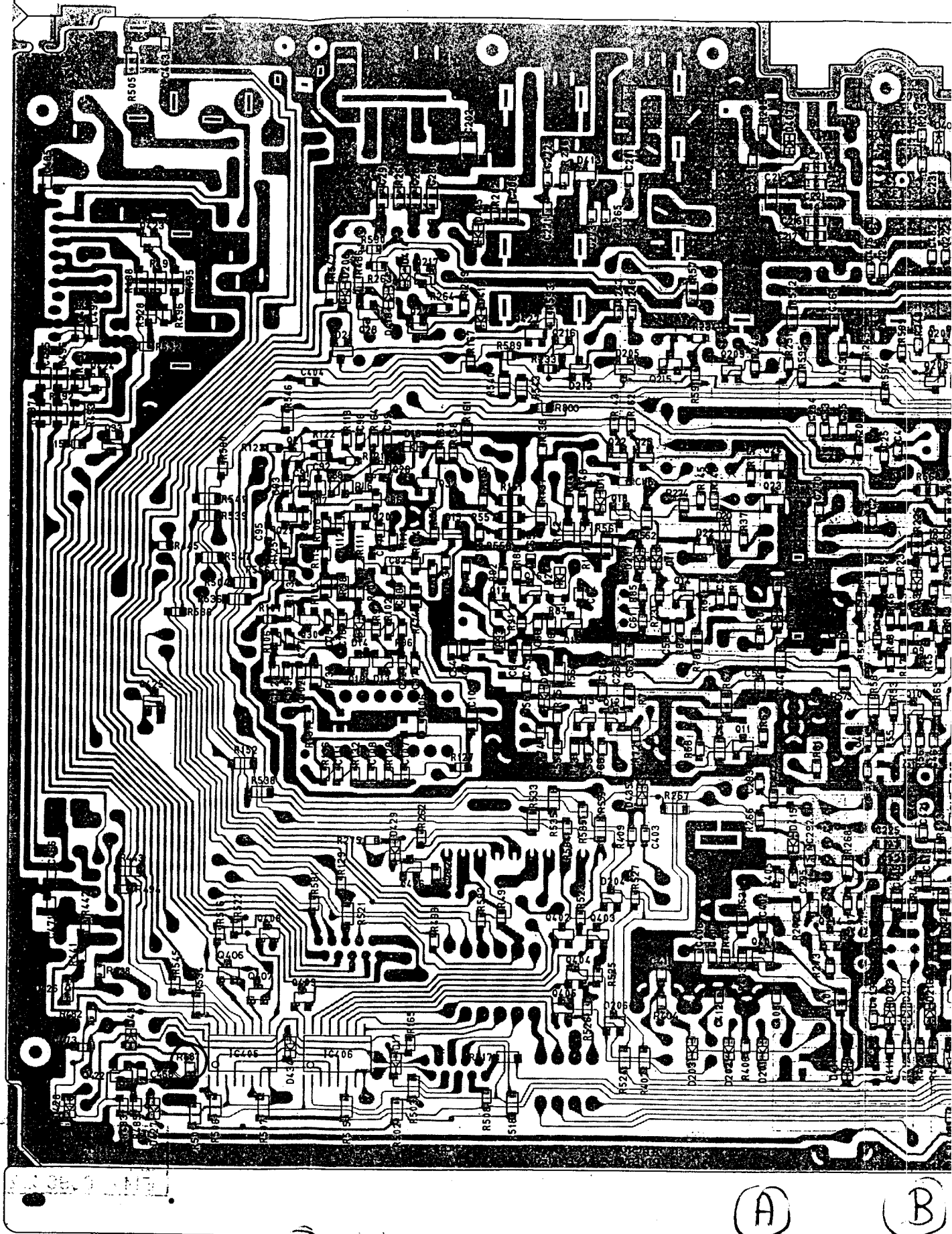
66



(A) (B)

65

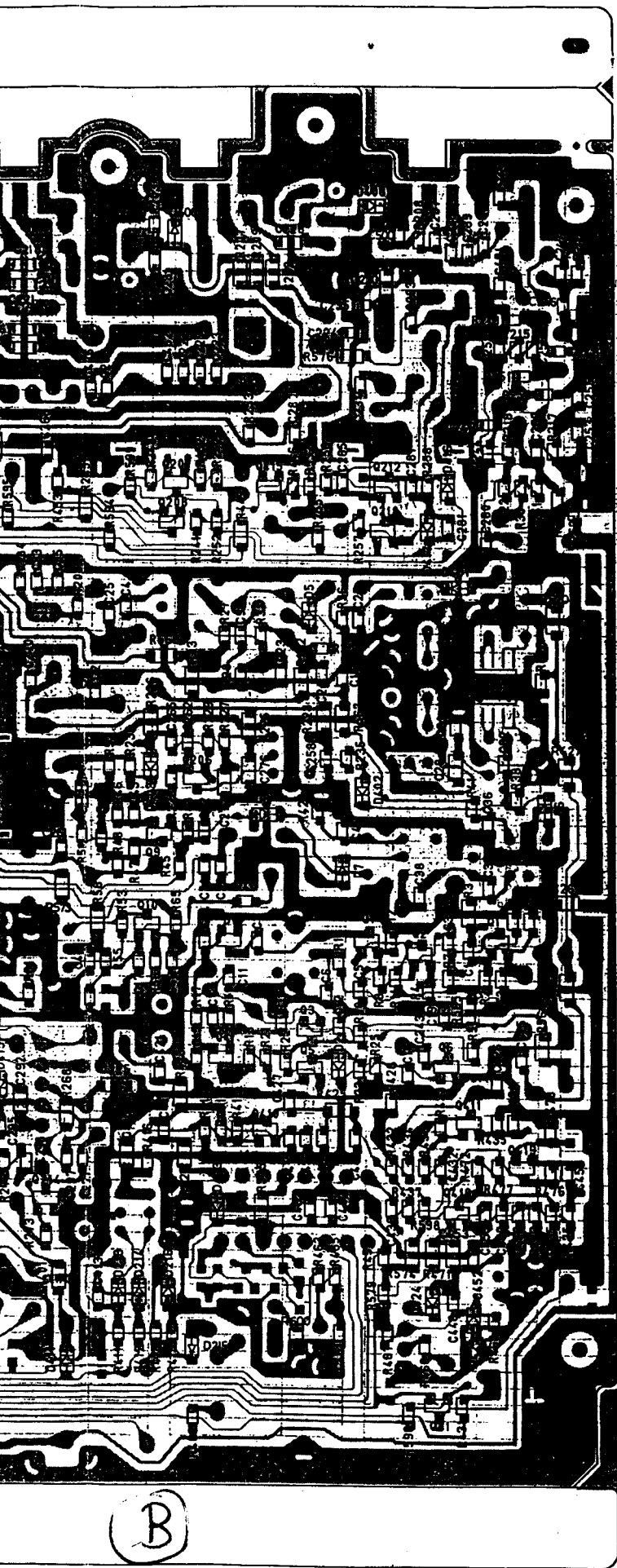
PB-229AB



38-9

(A)

(B)



REV	DATE	BY	CHKD
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TITLE	MAIN P 8	1/2
PARTS ASSEMBL	BOTTOM VIEW	
DRAWING NO.	EM2-09 9 1/2	

R1	10K
R2	22K
R3	220 1/8W
R4	100
R5	330
R6	680
R7	100
R8	47K
R11	1.5K
R12	330
R13	68
R16	10K
R17	470K
R18	10K
R19	10K
R21	100K
R22	330
R23	10K
R25	3.3K
R27	470
R28	47K
R30	560
R31	82K
R33	1K 1/8W
R35	68
R36	2.2K
R37	1K
R38	2.2K
R40	330
R41	2.2K
R42	2.2K
R43	6.8K
R45	100
R46	470
R47	680
R48	100
R51	330
R52	10K
R53	10K
R55	150K
R56	470
R57	27K
R58	100 1/8W
R61	1K
R62	1.0K
R65	1.5K
R66	47K
R67	2.2K 1/8W
R68	5.6K
R71	100 1/8W
R72	270
R73	470
R74	100K
R75	100
R76	1K
R77	5.6K
R78	47K 1/8W
R81	5.6K
R82	680
R85	100
R86	47K
R87	2.2K
R88	100
R90	100
R91	270
R92	150
R93	68 1/8W
R96	100K
R97	68K
R98	820K 1/8W
R101	68K
R102	100K
R103	1M
R104	5.6K

R10	1M 1/8W
R11	100K
R10	22K
R10	39K
R11	10K
R11	3.3K
R11	1K
R11	1K
R11	6.8K
R11	22K
R11	22K
R120	1M
R121	22K
R122	68K
R123	100
R125	1K
R127	100K
R128	3.3K
R129	10
R131	100
R132	47K
R133	8.2K 1/8W
R135	8.2K
R136	18K
R137	100K 1/8W
R138	100K
R141	220K
R142	100K 1/8W
R143	3.3K
R145	1K
R146	150K
R147	39K 1/8W
R148	3.3K
R151	100K 1/8W
R152	10K 1/8W
R153	10K
R156	1M
R157	3.3K
R158	2.2M
R161	10K 1/8W
R162	3.3K
R163	5.6K
R164	1M
R165	27K
R167	1K
R172	100 1/8W
R200	220
R202	1K
R203	47
R204	3.3K
R205	47
R207	330 1/8W
R209	330 1/8W
R208	330
R212	10
R213	330
R215	1.5K
R217	56
R218	1.5K
R221	330
R222	3.3K
R223	2.2K 1/8W
R225	220 1/8W
R226	3.3K 1/8W
R227	56K
R228	1K
R229	220
R231	1K
R232	1K
R233	1.2K
R234	1.2K
R235	22
R236	680
R241	3.3K

R242	5.6K
R243	560
R245	5.6K 1/8W
R246	100
R247	100
R248	3.3K
R251	3.3K
R252	3.3K
R253	5.6K
R255	18K
R256	10K
R257	15
R258	1K
R261	1K 1/8W
R262	470
R263	1.5K
R264	33K
R265	3.3K
R266	3.3K
R267	100 1/8W
R268	270K 1/8W
R269	6.8K
R271	270K
R272	10K
R273	3.3K
R275	4.7K
R401	220 1/8W
R403	10K
R405	10K
R406	2.2K
R407	0 1/8W
R408	1K
R409	3.3K
R411	4.7K
R412	4.7K
R413	10K
R415	33K
R416	2.2K
R417	4.7K
R418	4.7K
R421	820 1/8W
R422	1K
R423	22 1/8W
R425	470 1/8W
R427	22 1/8W
R428	330
R431	5.6K
R432	100
R433	56K
R434	470
R435	10
R436	220
R437	220
R438	47K
R441	1.5K
R442	1K
R443	10K 1/8W
R445	47K
R446	100K
R447	3.3K 1/8W
R451	68
R452	100K
R453	100K
R458	100
R463	22K
R465	2.2K
R466	10K
R467	39K
R468	39K
R471	33K 1/8W
R472	100

R473	1K
R475	56
R476	56K
R477	820
R478	10
R482	6.8K
R483	2.2K
R485	220
R486	56
R487	56
R488	4.7K 1/8W
R490	1K 1/8W
R491	6.8K
R492	100K 1/8W
R493	10K 1/8W
R494	0 1/8W
R495	5.6K 1/8W
R496	10K
R498	100K
R499	56K
R501	0 1/8W
R502	0
R503	0
R504	0
R505	0
R506	0
R507	0 1/8W
R508	0
R515	0 1/8W
R516	0
R517	0 1/8W
R518	0
R521	0
R522	0
R523	0
R524	0 1/8W
R525	0
R526	0
R527	0
R528	0
R531	0 1/8W
R532	0
R533	0 1/8W
R534	0
R535	0
R536	0
R537	0
R538	0
R539	0
R540	0
R541	0
R542	0
R543	0 1/8W
R545	0
R546	0 1/8W
R547	0 1/8W
R556	0
R557	0
R558	0
R559	0
R560	0
R561	0
R562	0
R564	0
R565	0
R567	0
R568	0
R570	0 1/8W
R571	0
R572	0
R573	0

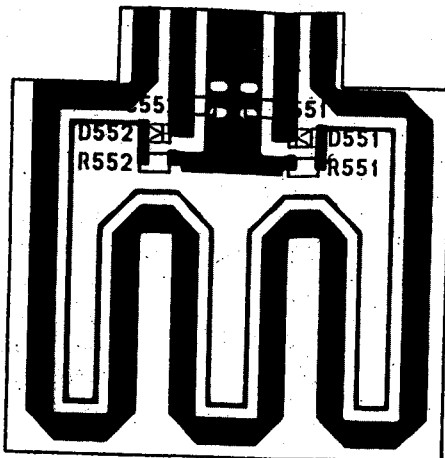
R574	0 1/8W
R575	0
R576	0 1/8W
R579	0
R581	0
R582	0
R584	0
R585	0
R586	0
R587	0
R589	0
R590	0
R591	0
R593	0
R594	0
R595	0
R596	0
R598	0
R599	0
R580	0
R597	0
R274	3.3K
R494	3.3K
R600	10M 1/8W
R800	0

C1	3P/CJ
C2	0.0047
C3	10P
C4	33P
C5	0.047
C6	0.047
C7	0.001
C8	82P
C9	0.01
C11	0.01
C12	0.047
C13	330P
C14	0.01
C15	0.047
C16	330P
C17	0.01
C19	0.047
C21	0.0047
C23	0.01
C24	0.01
C25	0.001
C27	0.01
C28	120P 132161
C31	150P
C32	0.1
C33	0.001
C35	0.022
C36	0.047
C37	3P/CJ
C38	3P/CJ
C41	0.01
C42	0.01
C43	0.01
C44	0.047 (32161)
C45	0.01
C46	0.1
C47	0.047
C48	0.047 (32161)
C49	0.047
C51	0.047
C52	0.01
C53	0.1
C54	0.047
C55	0.1
C56	0.1
C57	0.01
C58	0.047
C59	0.047
C60	0.047
C61	0.01
C62	100P
C63	0.1
C64	0.047
C65	0.01
C66	0.1
C67	0.047
C71	0.1
C72	470P
C75	0.022
C76	0.022
C77	0.0047
C78	22P
C82	0.001
C86	0.022
C87	0.047
C88	0.1
C91	0.0022
C92	0.001
C93	0.1
C95	0.1
C96	0.047
C97	0.001
C98	56P (32161)
C99	0.1
C102	0.033

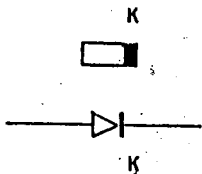
C103	5
C106	0
C107	0
C108	0
C111	1
C112	0
C113	5
C115	0
C116	0
C231	5
C232	8
C236	11
C222	0
C223	0
C274	0
C225	0
C226	4
C229	0
C230	0
C231	0
C232	5
C233	0
C234	0
C235	0
C236	0
C237	0
C238	8
C239	8
C240	8
C241	2
C243	0
C244	0
C246	0
C247	0
C248	2
C249	0
C250	0
C251	5
C252	0
C253	8
C255	0
C256	4
C257	11
C258	0
C259	0
C260	0
C261	0
C262	0
C263	0
C264	0
C265	0
C266	0
C270	0
C271	1
C272	2
C273	4
C276	0
C277	0
C280	0
C281	0
C282	0
C283	0
C285	0
C287	0
C288	5
C289	11
C291	0
C292	0
C293	0
C295	11
C297	0
C298	0
C402	0
C403	3
C404	0

A

PB551 PB-232AA
(BOTTOM VIEW)



NOTE :



NOTES:

1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K-KILO OHM, M-MEG OHM)
2. RESISTOR WATTAGES ARE 1/10W UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P=MICRO-MICRO FARAD)
4. ALL CAPACITORS TEMPERATURE CHARACTERISTICS ARE B UNLESS OTHERWISE NOTED.
5. ALL CERAMIC CAPACITANCES ARE (2125) UNLESS OTHERWISE NOTED.

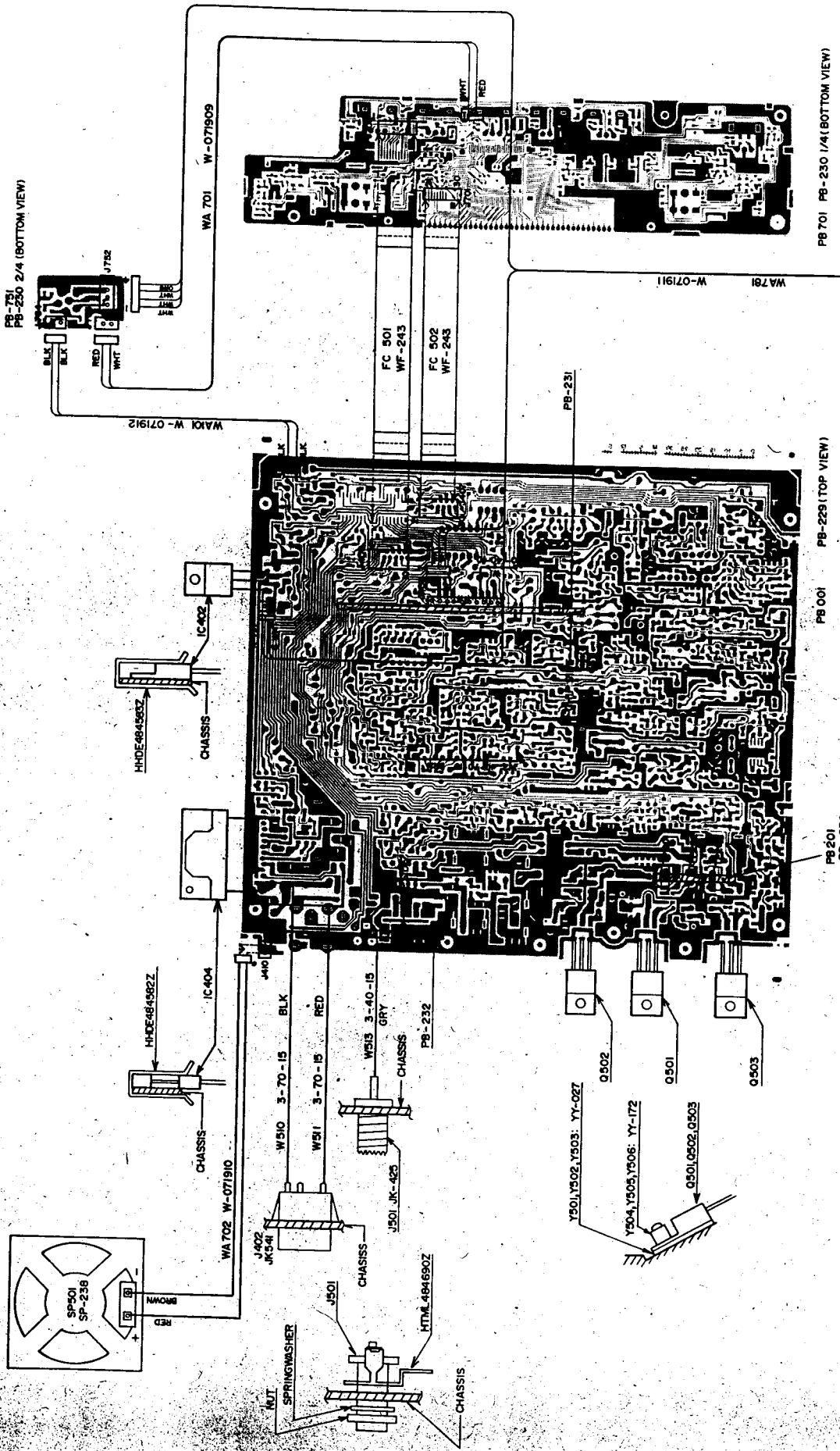
D551	MA728 - TX
D552	MA728 - TX
R551	270
R552	270
C551	0.01
C552	0.01

TITLE SWR PCB
PARTS ASS'Y BOTTOM VIEW

DRAWING NO.

EM4-0997

WIRING DIAGRAM



PB 701 PB-230 1/4 (BOTTOM VIEW)

PB 001 PB-229 (TOP VIEW)

PB 201 PB-230 4/4

TITLE	WIRING DIAGRAM
	EW2-0174

PB-230
PB-230 3/4 (TOP VIEW)