

SHARP

OUTSTANDING RECEPTION THE WORLD OVER

SERVICE MANUAL

CB-800



REVISED EDITION

23 Channel
CB Transceiver

MODEL CB-800

"WARNING"

It is unlawful for the user to make any replacement or substitution of parts, adjustments or to service the transmitter by any one other than a person holding a commercial 1st or 2nd class radio operator's license. Any change in the circuitry that would change or violate the technical regulations or type acceptance is prohibited.

SPECIFICATIONS

Transmitter section

Collector power input 5W (maximum)
Frequency range 27MHz Citizens Band
Channels 23 chs. Crystal controlled
Synthesizer
Type of crystal HC-18U $\pm 0.005\%$ tolerance
(at $-22^{\circ}\text{F} \sim +140^{\circ}\text{F}$)
Transmitter modulation ... 100% (maximum)
Modulation limiter Yields high average modulation at
average voice levels
Antenna matching Nominal 50 ohms
Carrier deviation Not greater than $\pm 800\text{Hz}$
nominal on (exceeds F.C.C.,
D.O.C., etc. requirements)
Harmonic suppression Exceeds 50dB

Receiver section

Audio power output 3 Watts maximum power output
Sensitivity $0.7\mu\text{V/m}$ for 10dB S + N/N ratio
at 30% at 1000Hz modulation
Channels 23 chs. Crystal controlled
Synthesizer
Type of crystal HC-18U $\pm 0.005\%$ tolerance
(at $-22^{\circ}\text{F} \sim +140^{\circ}\text{F}$)
Selectivity 6dB down at $\pm 3\text{kHz}$;
50dB down at $\pm 10\text{kHz}$.
Intermediate frequency.... 1st-IF: 11.275MHz,
2nd-IF: 455kHz

Circuit type..... Dual conversion superheterodyne:
crystal frequency synthesizer
provides 23 crystal controlled
transmit and receive channels.
Delta tuning of $\pm 1.0\text{kHz}$ on each
channels plus ceramic filter.
Auxiliary circuits Automatic noise limiter (ANL),
Variable squelch,
Public Address System (P.A.)

General

Power source DC 12.0V Nominal (DC 10.8 to 15.6V)
negative or positive ground
Antenna 50 ohm external antenna for car or base
operation
Speaker 3-1/8"
P.D.S. 8-ohm Imp.
Microphone Press talk dynamic microphone
(500 ohm)
Accessories Microphone hanger
Mobile mounting bracket
Mounting screws
Microphone with plug and cord.
Power supply cord with fuse holder and
socket.
Spare fuse (2.3A)
Dimensions 2-1/4"(H) \times 5-3/4"(W) \times 7-7/8"(D)
Weight 3.6 lbs. with microphone
Cabinet..... Metal body with plastic front

SHARP ELECTRONICS CORPORATION

Executive Office:

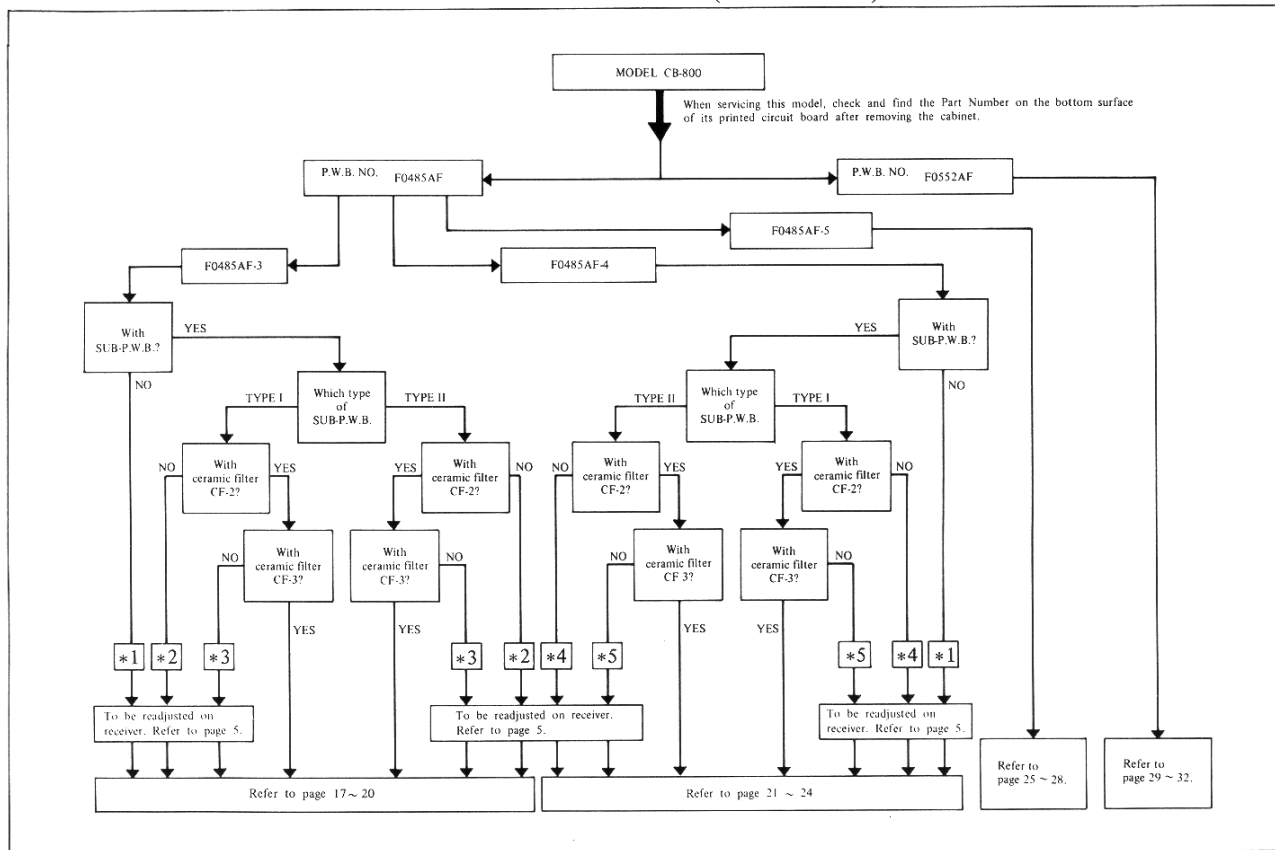
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INDEX TO CONTENT

1) BLOCK DIAGRAM	3
2) GENERAL DESCRIPTION	4
3) SYNTHESIZER CRYSTAL COMBINATION TABLE	4
4) ALIGNMENT (RECEIVER)	5
(TRANSMITTER).	6
5) TROUBLE SHOOTING GUIDE	8

6) CHANNEL SELECTOR SWITCH/CHANNEL INDICATOR (LED).	12
7) EQUIVALENT CIRCUIT OF INTEGRATED CIRCUIT.	13
8) SEMICONDUCTORS BASING/MICROPHONE CIRCUIT.	15
9) CHANNEL INDICATOR (LED) CIRCUIT.	16
10) SCHEMATIC DIAGRAM/WIRING SIDE BOARD (Refer to below)	



11) TECHNICAL INFORMATION
(NOISE REDUCTION).....38

12) HOW TO SET THE TRANSISTOR Q305.....	39
13) REPLACEMENT PARTS LIST	40

NOTES:

- *1. Refer the original schematic diagram and wiring side board of service manual which is previous published. It is occasionally necessary to improve some performance such as intermodulation or ignition noises by the case of customer's request.
In this case the improvement shall be made refering to the manual from page 33 to page 38. After these improvement, it is necessary to readjustment on Receiver section.
- *2. In case of modification by adding two filters; CF-2 and CF-3, the reference note is shown on NOTE-1) of page 20. This time the readjustment of Receiver section is required.
- *3. In case of modification by adding one ceramic filter; CF-3, the reference note is shown on NOTE-2), page 20. This time the readjustment of Receiver section is required.
- *4. In case of adding ceramic filter CF-2 and CF-3, the reference note is shown on NOTE-1), page 24. This time the readjustment of Receiver section is required.
- *5. In case of adding ceramic filter CF-3, the reference note is shown on NOTE-2), page 24. This time the readjustment of Receiver section is required.

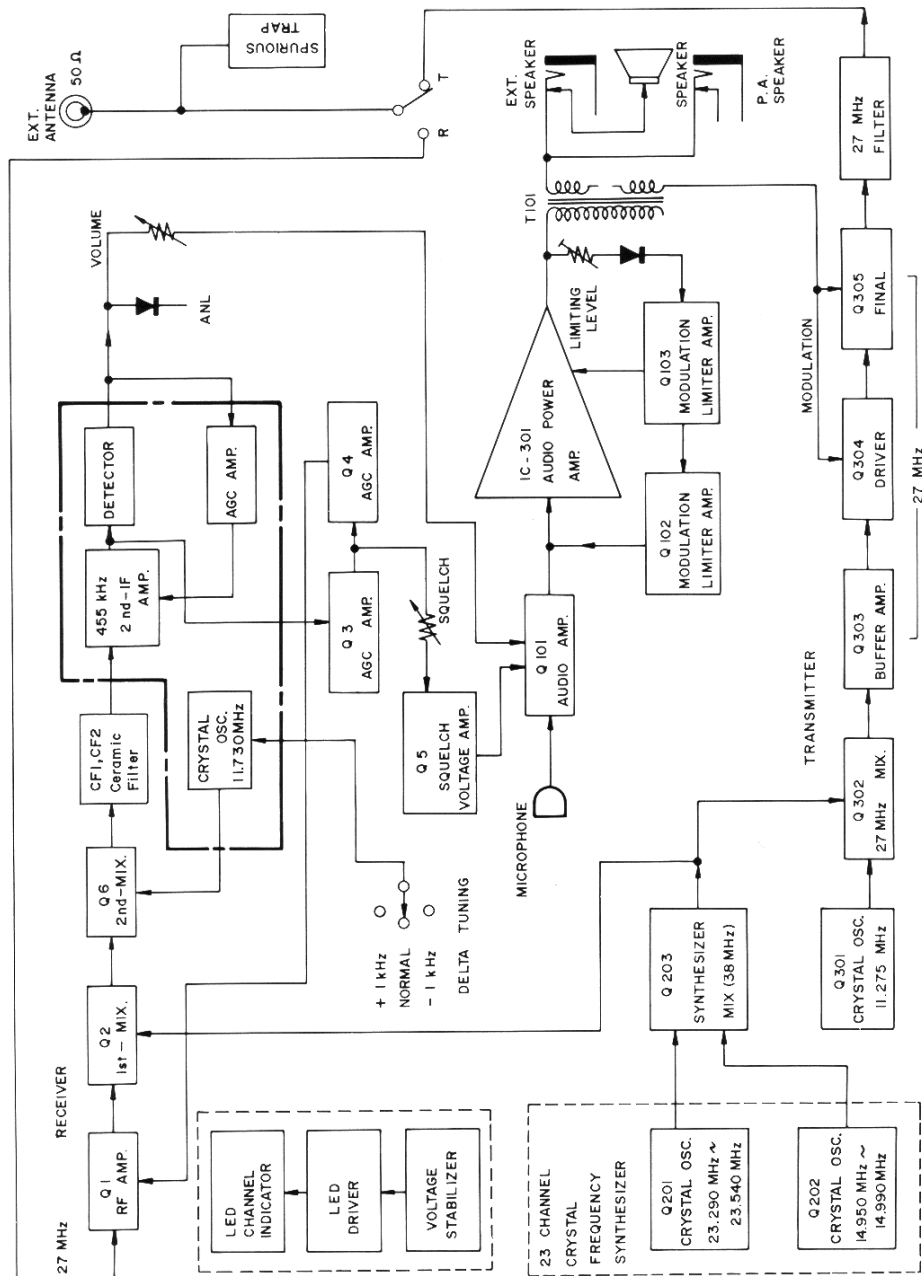
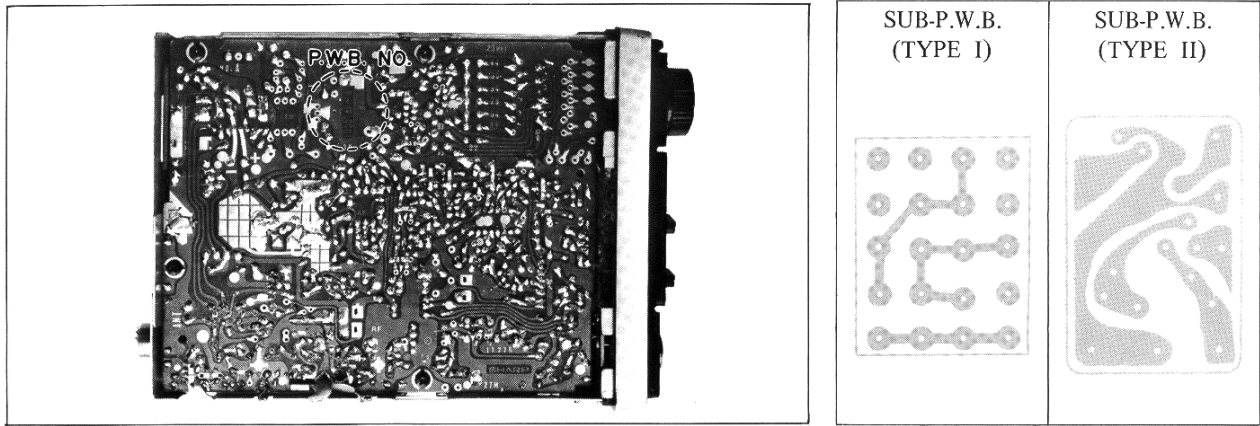


Figure 1 BLOCK DIAGRAM

GENERAL DESCRIPTION (Refer to Figure 1)

RECEIVER SECTION

An input signal sent from the antenna is applied to the 1st-mixer of transistor Q2 via the RF amplifier of transistor Q1, and an oscillator signal sent from transistor Q203 is also applied to the 1st-mixer of transistor Q2. In this stage the above-mentioned input signal is converted to 1st-IF signal of 11.275 MHz.

The 1st-IF signal (11.275 MHz) is applied to the 2nd-mixer of transistor Q6 via the transformers T3 and T4 to be converted to 2nd-IF signal of 455 kHz. The 2nd-IF signal is applied to the pin ⑦ of IC-1 via the transformer T5 and ceramic filters CF1 and CF2. (The 2nd-IF signal is amplified between the pin ⑦ and pin ⑧ of IC-1 and it is also detected between the pin ⑫ and pin ⑪).

The detected output signal developed at the pin ⑪ of IC-1 is further applied to IC-301 consisting of drive circuit and power amplifier via audio amplifier of transistor Q101.

TRANSMITTER SECTION

The audio signal from the microphone is applied through the audio amplifier Q101 and the output IC-301 to the final stage Q305 and the drive stage Q304.

The carrier signal synthesized in the oscillator Q201, Q202, Q301 and mixer Q203, Q302 is supplied to the final amplifier Q305 where it is modulated with the audio signal and applied to the antenna for transmission.

SYNTHESIZER CRYSTAL COMBINATION TABLE

Frequency of Transmitter

[A] group + [B] group – 11.275 MHz

1st Local Oscillator Frequency of Receiver

[A] group + [B] group

2nd Local Oscillator Frequency of Receiver

Delta Tuning Center Frequency 11.730 MHz

Delta Tuning + Center Frequency + 1.0 kHz

Delta Tuning – Center Frequency – 1.0 kHz

Channel	[A] Group	[B] Group	[A] + [B]	[A] + [B] – 11.275 MHz
1	23.290 MHz	14.950(MHz)	38.240(MHz)	26.965(MHz)
2	"	14.960	38.250	26.975
3	"	14.970	38.260	26.985
4	"	14.990	38.280	27.005
5	23.340 MHz	14.950	38.290	27.015
6	"	14.960	38.300	27.025
7	"	14.970	38.310	27.035
8	"	14.990	38.330	27.055
9	23.390 MHz	14.950	38.340	27.065
10	"	14.960	38.350	27.075
11	"	14.970	38.360	27.085
12	"	14.990	38.380	27.105
13	23.440 MHz	14.950	38.390	27.115
14	"	14.960	38.400	27.125
15	"	14.970	38.410	27.135
16	"	14.990	38.430	27.155
17	23.490 MHz	14.950	38.440	27.165
18	"	14.960	38.450	27.175
19	"	14.970	38.460	27.185
20	"	14.990	38.480	27.205
21	23.540 MHz	14.950	38.490	27.215
22	"	14.960	38.500	27.225
23	"	14.990	38.530	27.255

ALIGNMENT

EQUIPMENT REQUIRED

Signal Generator:	400kHz to 500kHz and 25MHz to 30MHz band 1000Hz mod. AM
DC Milliammeter:	0 to 500mA DC with π -network, RF filter
Audio Outputmeter:	0 to 5000mW, with 8 ohm dummy load
RF V.T.V.M.:	0 to 100MHz, 0 to 800mV
RF Outputmeter:	0 to 5W at 27MHz, 50 ohm
DC Voltmeter:	0 to 3/15V DC
Synchroscope:	0 to 30MHz
Audio Signal Generator:	1kHz (sine wave)
AC V.T.V.M.:	0 to 100mV (1kHz)
Frequency Counter:	0 to 40MHz
Field Strength Meter:	25MHz to 30MHz band, 52MHz to 56MHz band, 79MHz to 83MHz band

RECEIVER ALIGNMENT

Should it become necessary at any time to check the receiver alignment of this set proceed as follows:

- 1) Connect a 50 ohm signal generator to the external antenna socket.
- 2) The power supply should be 13.8V DC.
1. Synthesizer Alignment
 - 1) Connect the frequency counter to test point 1 (TP1) through the capacitor 5PF.
 - 2) Adjust the channel selector switch of the set to channel 3.
 - 3) Adjust the oscillator coil T201 so that the frequency counter reads 14.970MHz. At this time stop 23MHz oscillation by short-circuiting the secondary side of 23MHz oscillator coil L201.
 - 4) Next, set the channel selector switch to channel 13.
 - 5) Adjust the oscillator coil L201 so that the frequency counter reads 23.440MHz. At this time stop 14MHz oscillation by short-circuiting the secondary side of 14MHz oscillator coil T201.
 - 6) Disconnect the frequency counter from TP1 after completion of adjustment.
 - 7) Connect the RF V.T.V.M. and frequency counter to test point 2 (TP2).
 - 8) Adjust the 38MHz filter coil T202 so that RF voltage reaches its maximum (550 to 700mV).
2. Second Local Oscillator Alignment
 - 1) Connect the frequency counter to the test point 4 (TP4) through the 5PF capacitor.
 - 2) Adjust the second oscillator coil (T6) so that the frequency on TP4 is just 11.730MHz (150 ~ 250mV).
3. First IF and Second IF Alignment
 - 1) Connect the audio output meter across the speaker voice coil lugs.
 - 2) Set the signal generator to 11.275MHz modulated 30% at 1000Hz, and connect it to the base of Q2 1st mixer transistor through the dummy (0.01MFD).
 - 3) The ground lead of the generator should be connected to the ground of external antenna socket.
 - 4) Adjust the 1st IF transformer T4 and T3 and 2nd IF transformer T5 for maximum indication on the audio output meter.
4. RF Alignment
 - 1) Connect the audio output meter across the speaker voice coil lugs.
 - 2) Set the signal generator to 27.105MHz, modulated 30% at 1000Hz, and connect it to the external antenna socket.
 - 3) Set the channel selector switch to the position CHANNEL 12.
 - 4) Adjust RF coil T2 and antenna coil T1 for maximum indication on the audio output meter.
5. After these adjustments repeat steps 2,3 and 4 until the best results are obtained.

TRANSMITTER ALIGNMENT

Should it become necessary at any time to check the transmitter alignment of this set, proceed as follows:

- 1) Connect DC milliammeter through RF filter (27MHz) to test point (A) and (B).
- 2) The power supply should be 13.8V DC.
- 3) Connect a 50 ohm RF wattmeter to the external antenna socket.
- 4) Before adjusting the surface of core should be identical with the top of the bobbin.
1. Oscillator (11.275MHz) Alignment
 - 1) Connect the frequency counter to the test point 2 (TP2) through the 5PF capacitor.
 - 2) Adjust the 11.275MHz oscillator coil T301 so that the frequency on the TP2 is just 11.275MHz. (0.8 ~ 1.5V) (then the channel selector switch is blank position.)
 - 3) After adjustment, leave frequency counter and set the channel selector switch "13" position.
2. Mixer Alignment

Adjust the 27MHz filter coil (T302) so that the driver current is at maximum.
3. Buffer Amplifier Alignment

Adjust the buffer coil (T303) so that the driver current is at maximum.
4. Driver Alignment

Adjust the driver coil (T304) so that the driver current is at the dip point.
5. Matching Alignment

Adjust the matching coil (L302) so that the collector current should be 370mA.
6. π -Filter Alignment

Adjust the π -filter coil (L303) to obtain the maximum RF output.
7. After these adjustments repeat steps 3, 4, 5 and 6 until the best results are obtained.
8. Trap Coil Alignment
 - 1) Set the field strength meter to about 54MHz, and connect it to the external antenna socket through the dummy.
 - 2) Adjust the trap coil L305 so that the 2nd harmonic spurious response (54MHz) is at minimum.
 - 3) Set the field strength meter to about 81MHz, and connect it to the external antenna socket through the dummy.
 - 4) Adjust the trap coil L304 so that the 3rd harmonic spurious response (81MHz) is at minimum.
9. Modulation Alignment
 - 1) Connect a dummy resistor (50 ohm, 5W) across the external antenna socket.
 - 2) Connect a loop (1 ~ 2 turn) across the synchroscope and allow the loop to come near the dummy resistor.
 - 3) Connect the audio signal generator (1000Hz, 6mV) to the microphone socket.
 - 4) Depress the PRESS-TO-TALK switch on the microphone and adjust the variable resistor (R112) so that the wave form on the synchroscope becomes as illustrated in Figure ②.

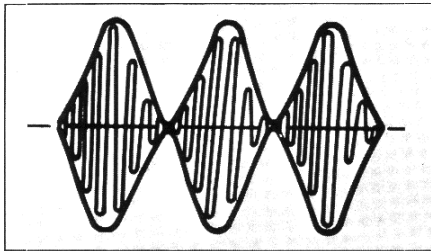


Figure ②

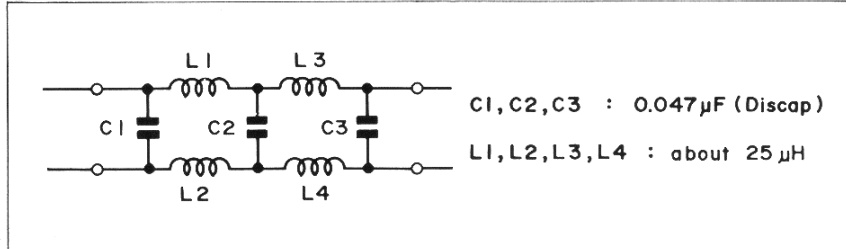


Figure 3 RF FILTER

SIGNAL/RF POWER METER ADJUSTMENT

1. Signal meter
 - 1) Adjust the channel selector switch of the set to channel 13.
 - 2) Connect the signal generator to external antenna socket directly.
 - 3) Adjust the attenuator of signal generator to approx. 0dB, and oscillation frequency of signal generator to 27.115MHz for tuning to frequency of the set. Next, adjust the attenuator of signal generator to 40dB. In this case rotate volume control counter-clockwise until sound volume reaches appropriate level, if AF output is large.
 - 4) Adjust variable resistor (R19) so that the meter reads S9.
2. RF Power Meter
 - 1) Connect the RF wattmeter (5W, 50 ohms) to external antenna socket.
 - 2) Depress the PRESS-TO-TALK switch of microphone to allow transmission, and make sure transmitted power reaches 3 watts or so.
 - 3) Adjust variable resistor (R27) so that the meter reads 3 in RF graduation.

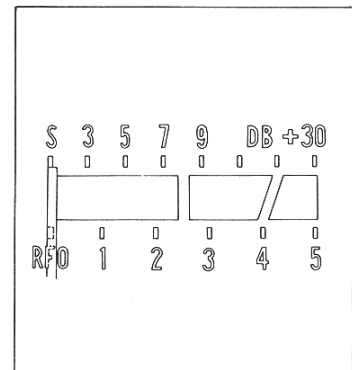
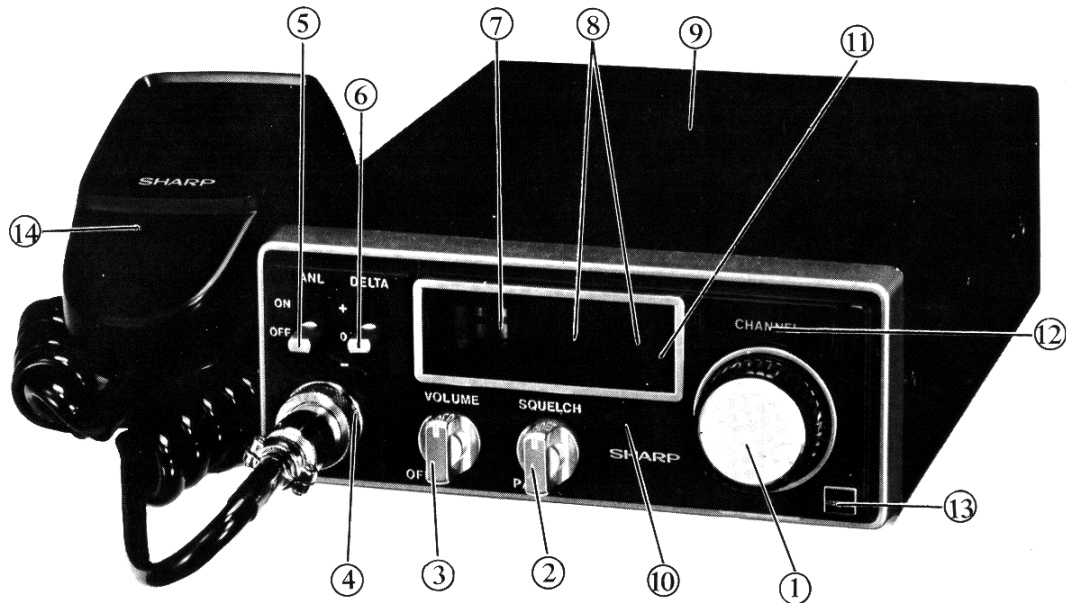


Figure 4 S/RF POWER METER (ME601)

FRONT PARTS LAYOUT



- | | |
|---|---|
| ① Channel Selector Knob (JKNBN0299AFSA) | ⑨ Cabinet (GCAB-3016AFSA) |
| ② Squelch/P.A. Switch knob (JKNBN0300AFSA) | ⑩ Front Panel (GWAKP1057AFSA) |
| ③ Off-On/Volume Knob (JKNBN0300AFSA) | ⑪ Decoration Plate, Channel Indicator (HDECQ0051AFSA) |
| ④ Microphone Socket (QSOCZ2456AFZZ) | ⑫ Channel Indication Metal (HINDM1079AFSA) |
| ⑤ A.N.L. Switch Knob (JKNBM0219AFSA) | ⑬ "SHARP" Emblem (HINDM1080AFSA) |
| ⑥ Delta Fine Tuning Switch Knob (JKNBM0219AFSA) | ⑭ Microphone Assembly (RMICD0205AFZZ) |
| ⑦ S/RF Power Meter (RMTRE0057AFZZ) | |
| ⑧ Channel Indicator, LED (VHPGL-8R04/-1) | |

Figure 5 FRONT PARTS LAYOUT

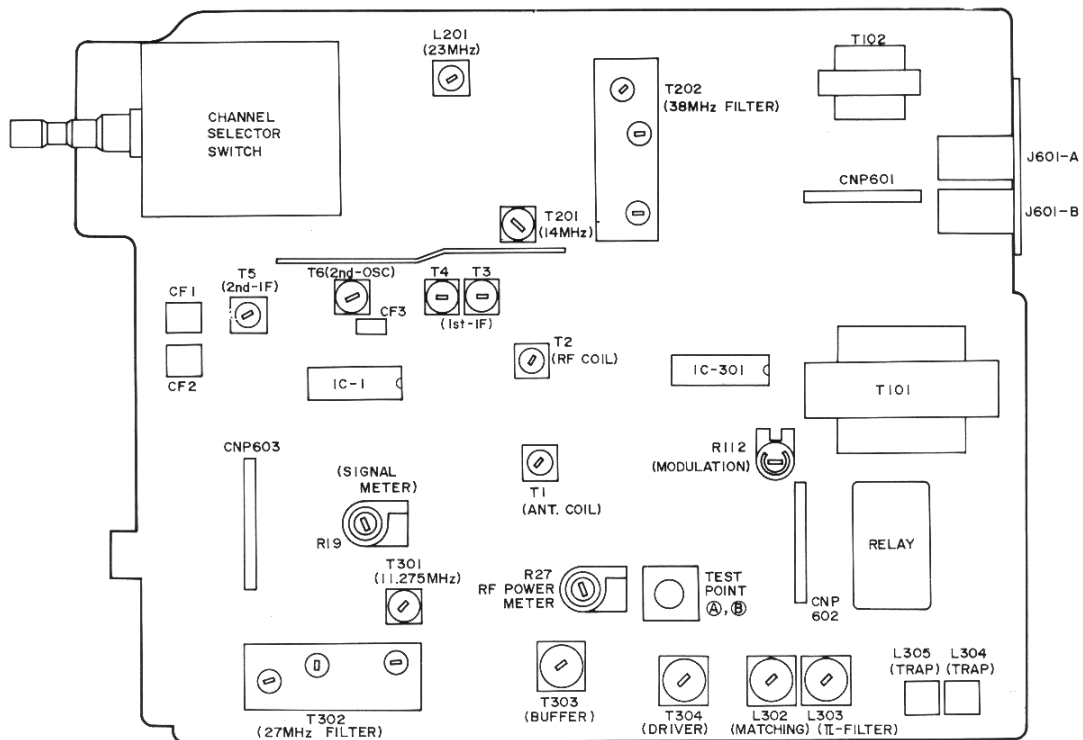


Figure 6 ALIGNMENT POINTS (P.W.B. NO. F0552AF)

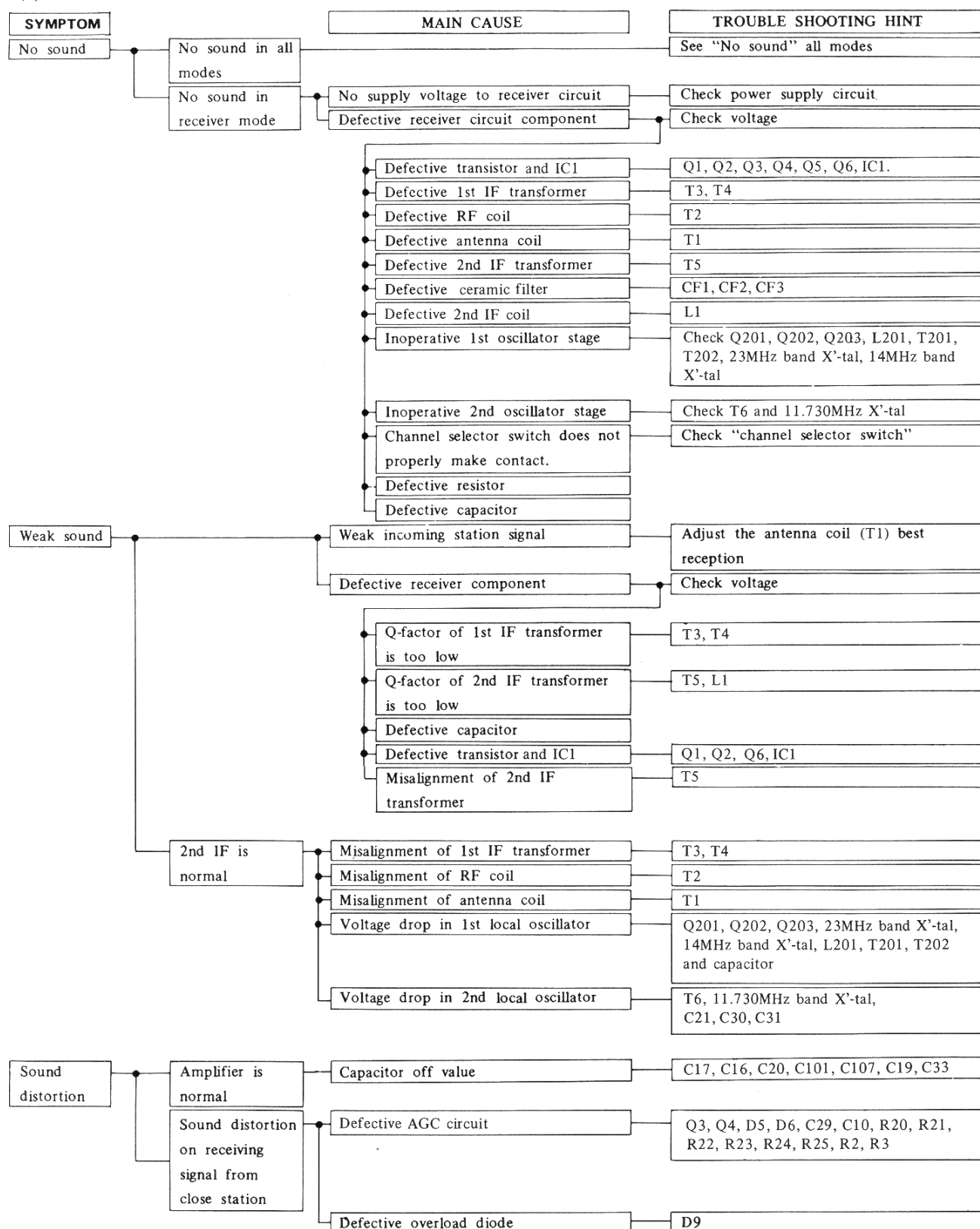
TROUBLE SHOOTING GUIDE (1)

(1) ALL OPERATIONAL MODES

SYMPTOM	MAIN CAUSE	TROUBLE SHOOTING HINT
No sound	Power supply is normal	Broken or shorted speaker cord, cross-over network or voice coil.
	No power, LED is off.	Check speaker cord and voice coil.
		Defective power switch
		Check power switch (SW1)
		Defective choke transformer
		Check choke transformer (T102)
		Defective fuse
		Check fuse (F1)
		Defective capacitor
		C120, C121, C122, C119, C116
	LED is on, but no sound	Defective power supply circuit
		Check voltage
Weak sound		Defective audio amplifier
		Check voltage
		Defective transistor and IC301
		Q101, Q102, Q103, IC301
		Defective capacitor
		C101~C118, C123, C124, C125, C126
		Defective transformer
		T101
		Defective squelch circuit
		Check voltage
		Defective transistor
		Q5
Sound distortion		Defective squelch volume
		R28
		Defective zener diode
		D3
		Defective capacitor
Noise		C28, C27, C25, C10
		Check power switch (SW1)
		Defective power supply circuit
		Check and compare voltages of each transistor and IC301
		Defective audio amplifier circuit
Control has no effect		Capacitor off value, leaky or shorted
		Weak transistor and IC301
		Q101, IC301
		Defective speaker
		Replace speaker
Resonant speaker		Insufficient voltage of power circuit
		Check voltage
		Defective audio amplifier circuit
		Weak transistor and IC301
		Q101, IC301
Volume noise		Defective speaker
		Replace speaker
		Defective volume control circuit
		R101, C20, C101
		Defective R101 or circuit
Squelch control		Defective R28 or squelch circuit

TROUBLE SHOOTING GUIDE (2)

(2) RECEIVER SECTION

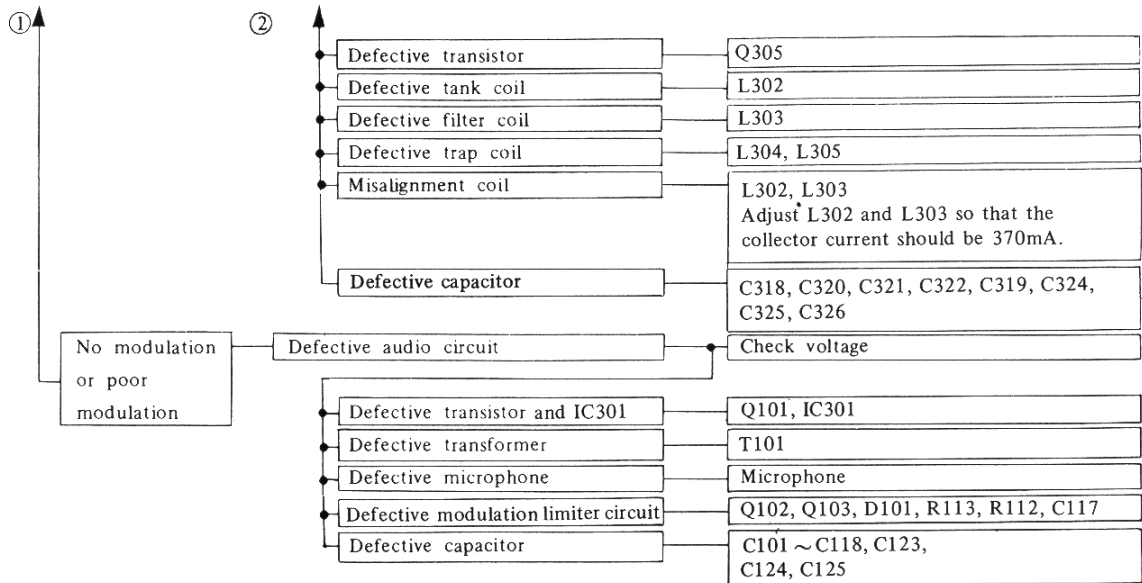


TROUBLE SHOOTING GUIDE (3)

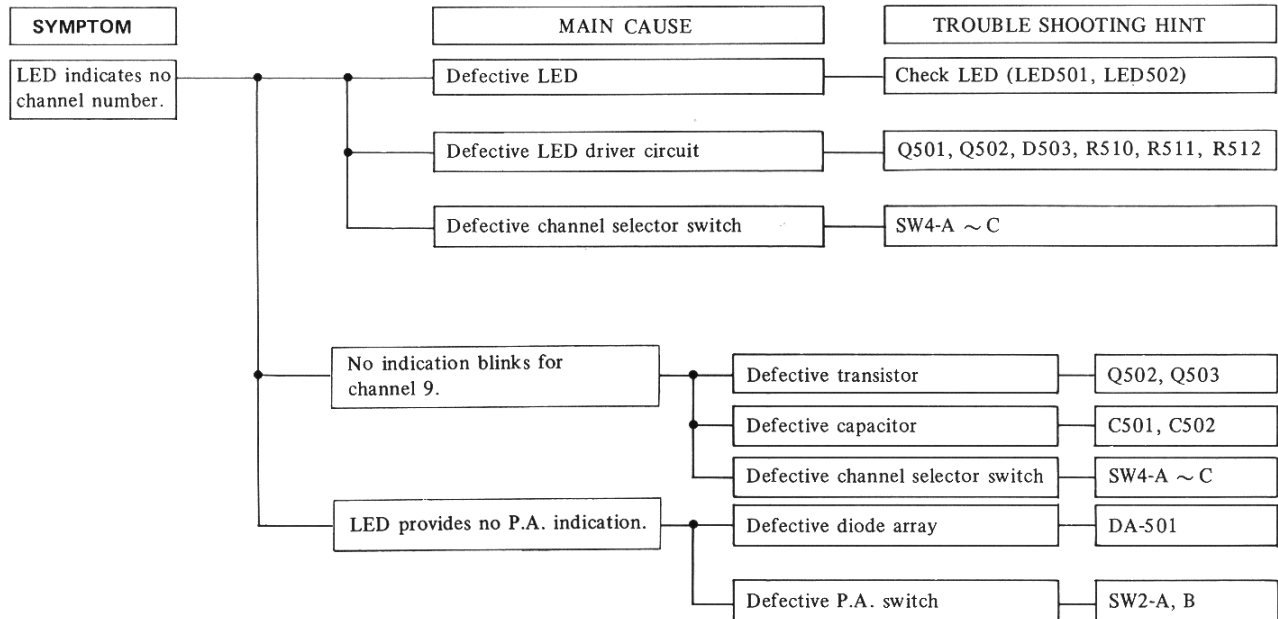
(3) TRANSMITTER SECTION

SYMPTOM	MAIN CAUSE	TROUBLE SHOOTING HINT
Does not transmit	Defective R/T selector switch (Relay)	Check R/T selector switch SW6-A ~ D
	Does not oscillate 23MHz	Check voltage
	Defective channel selector switch	SW4-A ~ C
	Defective X'-tal	X'-tal 23.290MHz, 23.340MHz, 23.390MHz 23.440MHz, 23.490MHz, 23.540MHz
	Defective FET transistor	Q201
	Misalignment of 23MHz oscillator coil	L201
	Defective capacitor	C201, C203, C207
	Does not oscillate 14MHz	Check voltage
	Defective channel selector switch	SW4-A ~ C
	Defective X'-tal	X'-tal 14.950MHz, 14.960MHz, 14.970MHz, 14.990MHz
	Defective FET transistor	Q202
	Misalignment of 14MHz oscillator coil	T201
	Defective capacitor	C204, C206, C208
	Does not produce 38MHz	Check voltage
	Defective transistor	Q203
	Defective filter	T202
	Defective capacitor	
①	Does not oscillate 11.275MHz	Check voltage
	Defective FET transistor	Q301
	Defective X'-tal	11.275MHz X'-tal
	Defective capacitor	C301, C302, C304
	Does not produce 27MHz	Check voltage
	Defective transistor	Q302, Q303
	Defective 27MHz filter	T302
	Defective buffer coil	T303
	Defective capacitor	C305, C308, C309, C310, C311, C312, C313
	Does not operate driving stage	Check collector current (test point ㉓) with current meter (DC 150mA)
		Check voltage
	Defective transistor	Q304
	Defective driver coil	T304
	Misalignment coil	T304 (Current should be minimum)
	Defective capacitor	C314, C315, C316, C317, C411
②	Does not operate RF output stage	Check collector current (test point ㉔) with current meter (DC 500mA)
		Check voltage

TROUBLE SHOOTING GUIDE (4)



(4) CHANNEL INDICATOR



Connection table of channel selector switch (SW4-C) for each channel.

3rd(SW4-C) CHANNEL	a	b	c	d	e	f	g	9	10	20
1		⊙	○							
2	⊙	⊙		○	○		⊙			
3	⊙	⊙	○	○			⊙			
4		⊙	○			⊙	⊙			
5	⊙		○	○		⊙	⊙			
6			○	○	○	⊙	⊙			
7	⊙	⊙	○							
8	⊙	⊙	○	○	○	⊙	⊙			
9	⊙	⊙	○			⊙	⊙	○		
10	⊙	⊙	○	○	○	⊙			○	
11		⊙	○						○	
12	⊙	⊙		○	○		⊙		○	
13	⊙	⊙	○	○			⊙		○	
14		⊙	○			⊙	⊙		○	
15	⊙		○	○		⊙	⊙		○	
16			○	○	○	⊙	⊙		○	
17	⊙	⊙	○						○	
18	⊙	⊙	○	○	○	⊙	⊙		○	
19	⊙	⊙	○			⊙	⊙		○	
20	⊙	⊙	○	○	○	⊙				○
21		⊙	○							○
22	⊙	⊙		○	○		⊙			○
23	⊙	⊙	○	○			⊙			○
24										

NOTES:

1. Terminal marked circle connected with terminal C5.
2. Terminal marked double-circle connected with terminal C6.

QSW-R0125AFZZ

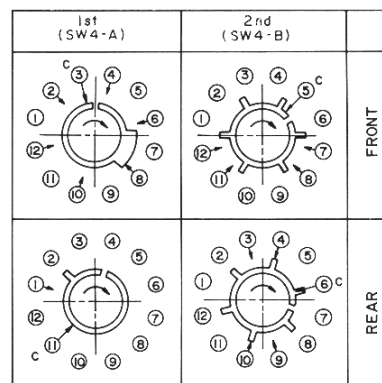
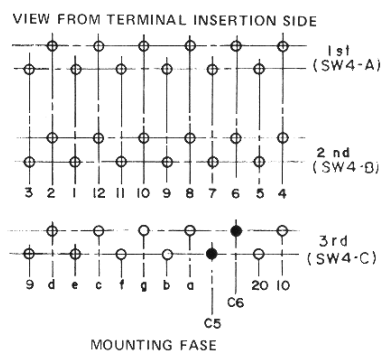
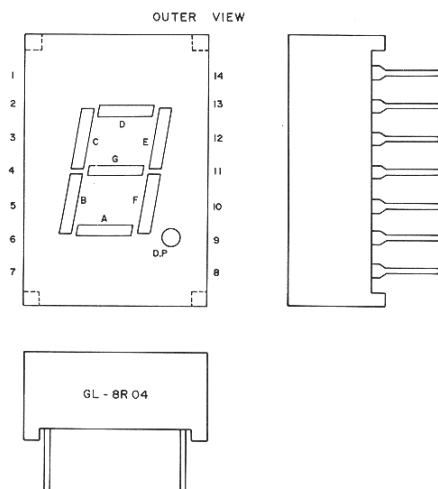


Figure 7 CHANNEL SELECTOR SWITCH

VHPGL-8R04/-1



Terminals Connection Diagram

PIN	FUNCTION	PIN	FUNCTION
1	Anode D	14	Cathode
2	Anode C	13	Anode E
3	Cathode	12	No Pin
4	No Pin	11	Anode G
5	No Pin	10	Anode F
6	No Pin	9	Anode D.P
7	Anode B	8	Anode A

Figure 8 CHANNEL INDICATOR (LED)

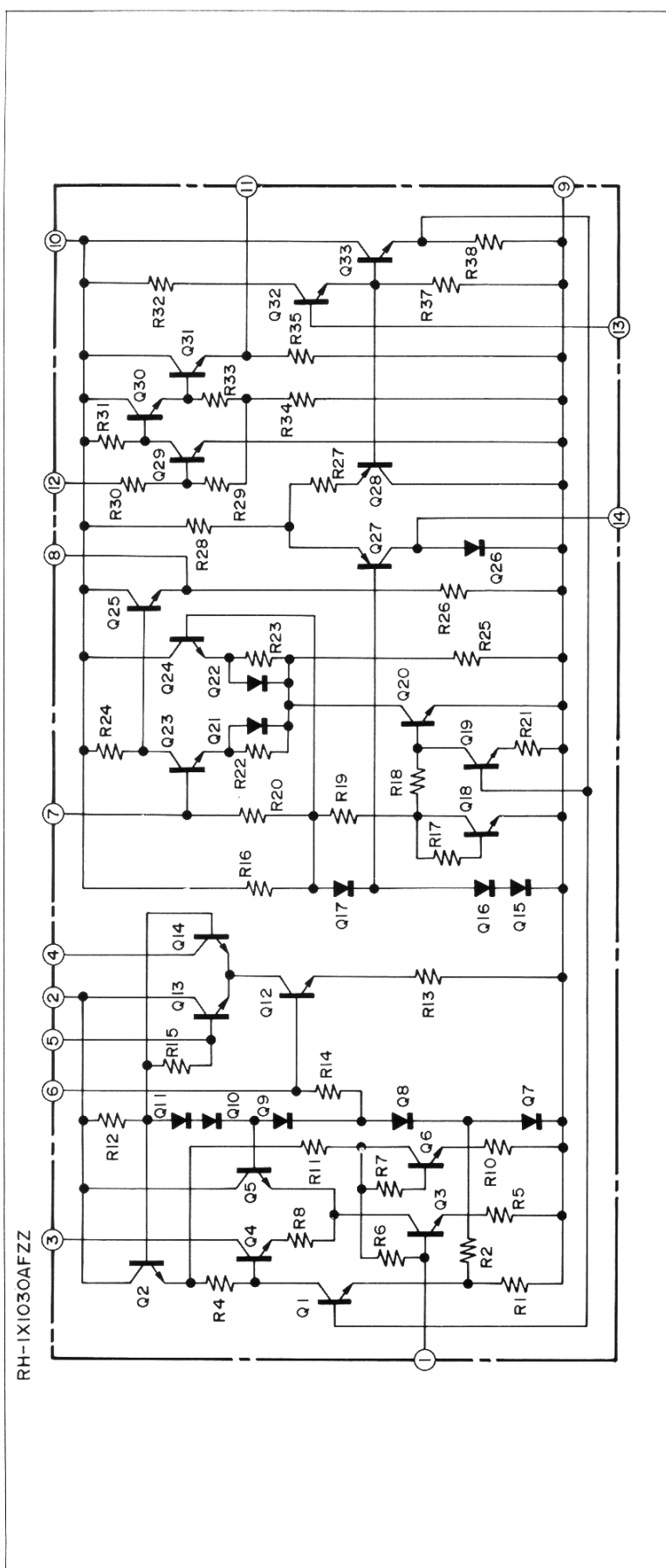


Figure 9 EQUIVALENT CIRCUIT OF IC1

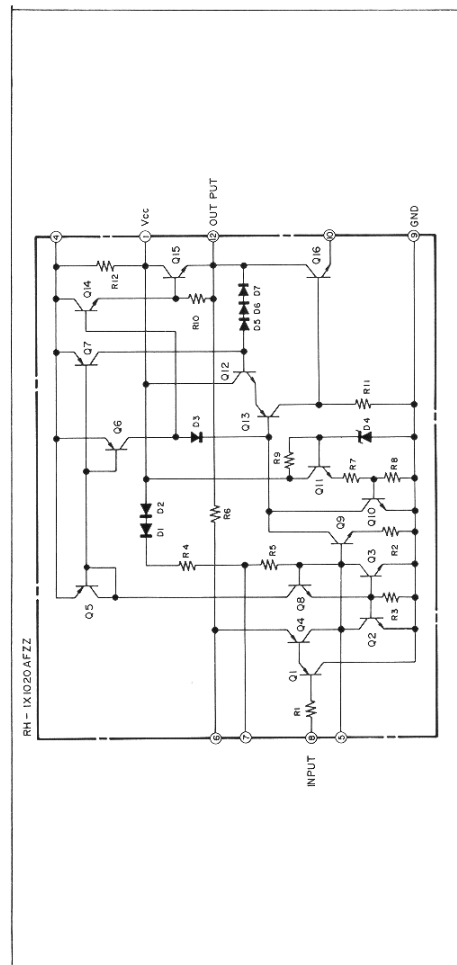


Figure 10 EQUIVALENT CIRCUIT OF IC301

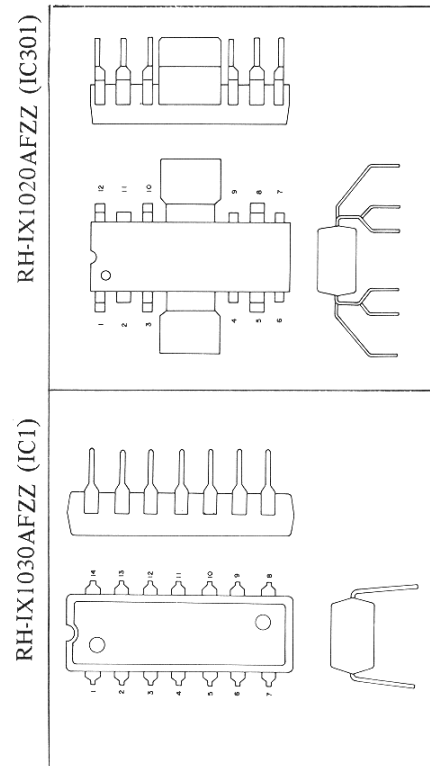


Figure 11 IC BASING

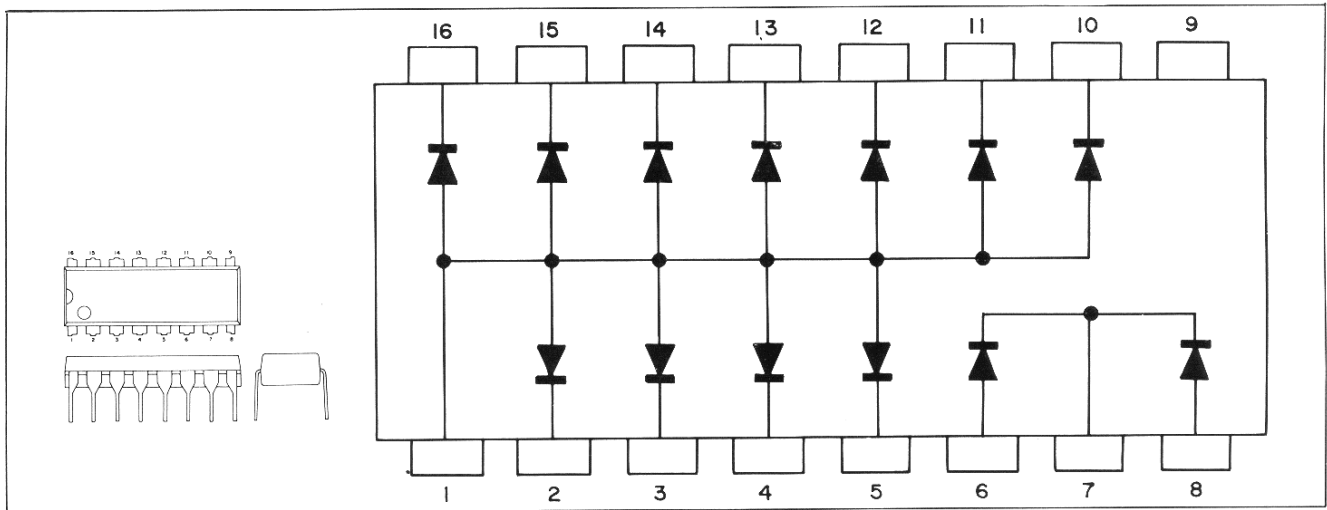


Figure 12 DIODE ARRAY (DA501)

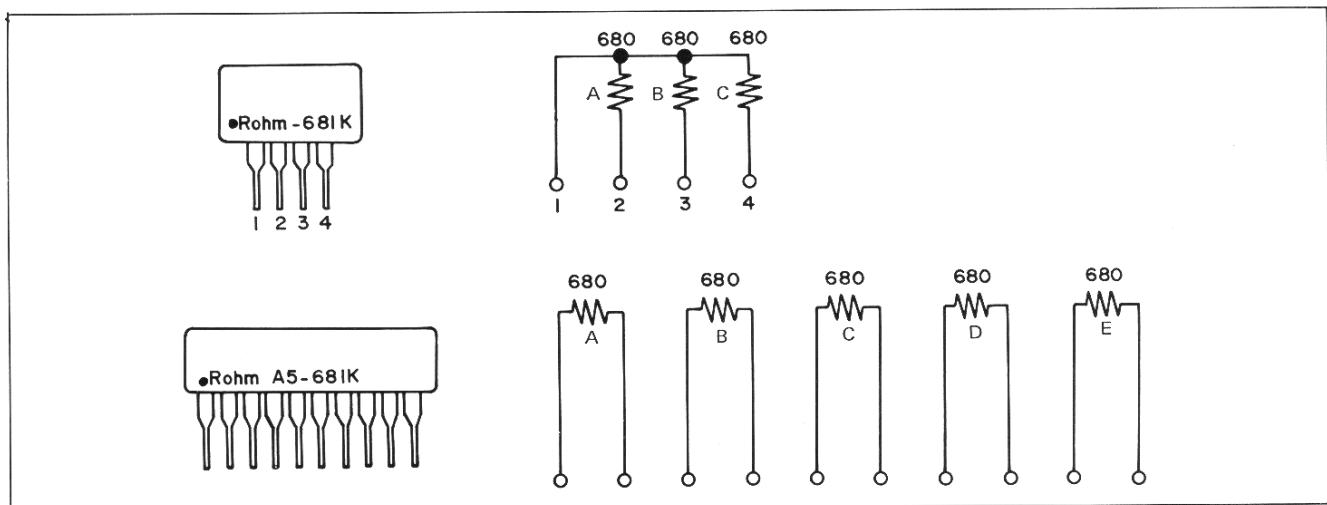


Figure 13 RESISTOR ARRAY

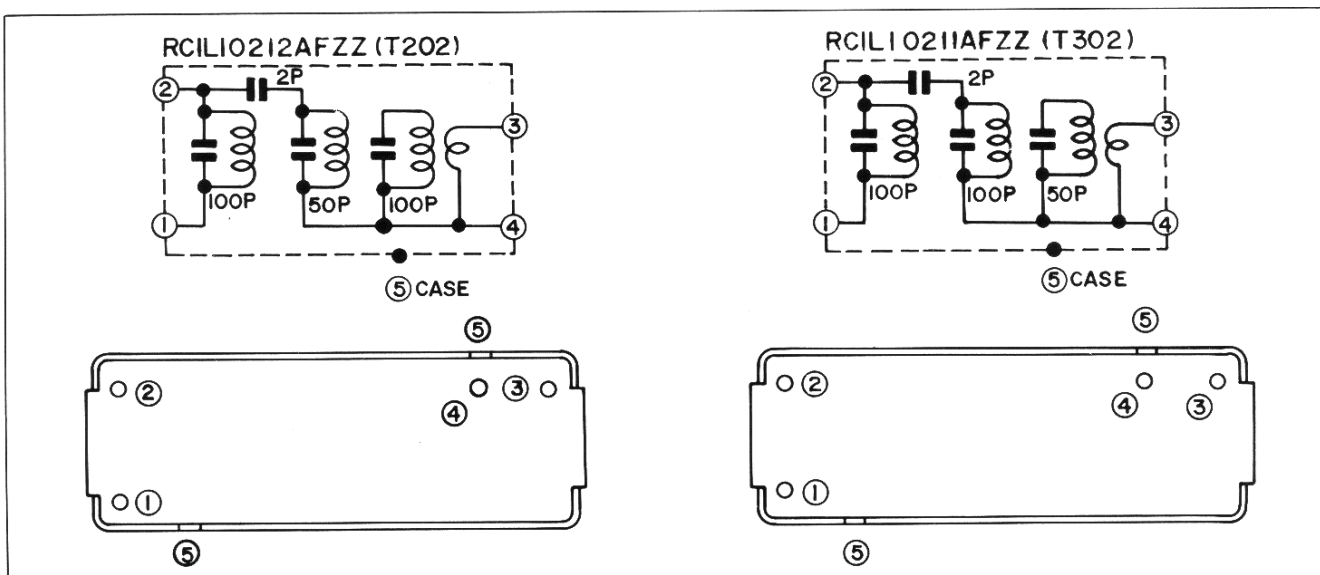


Figure 14 TRANSFORMERS (T202 and T302) BASING

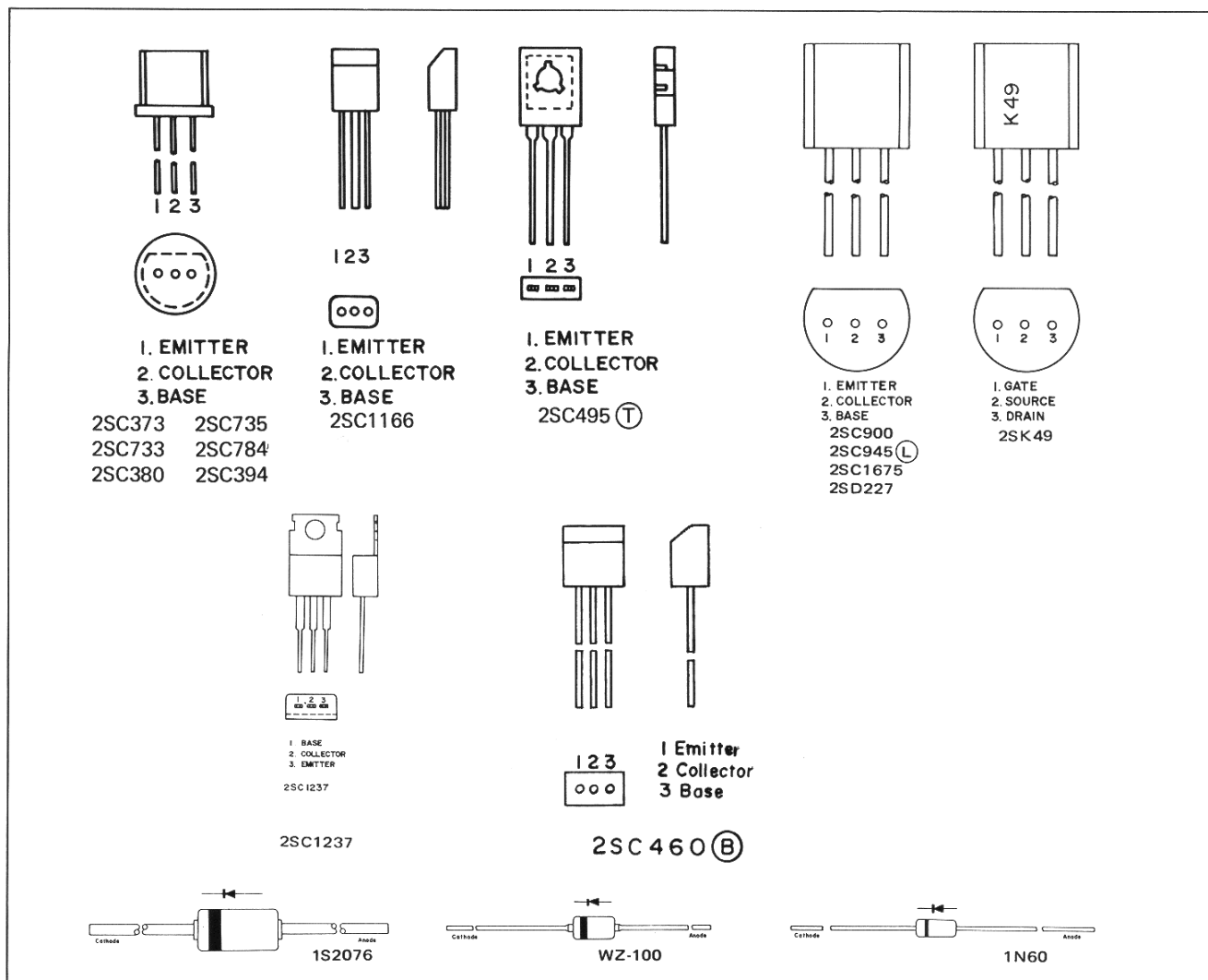


Figure 15 SEMICONDUCTORS BASING

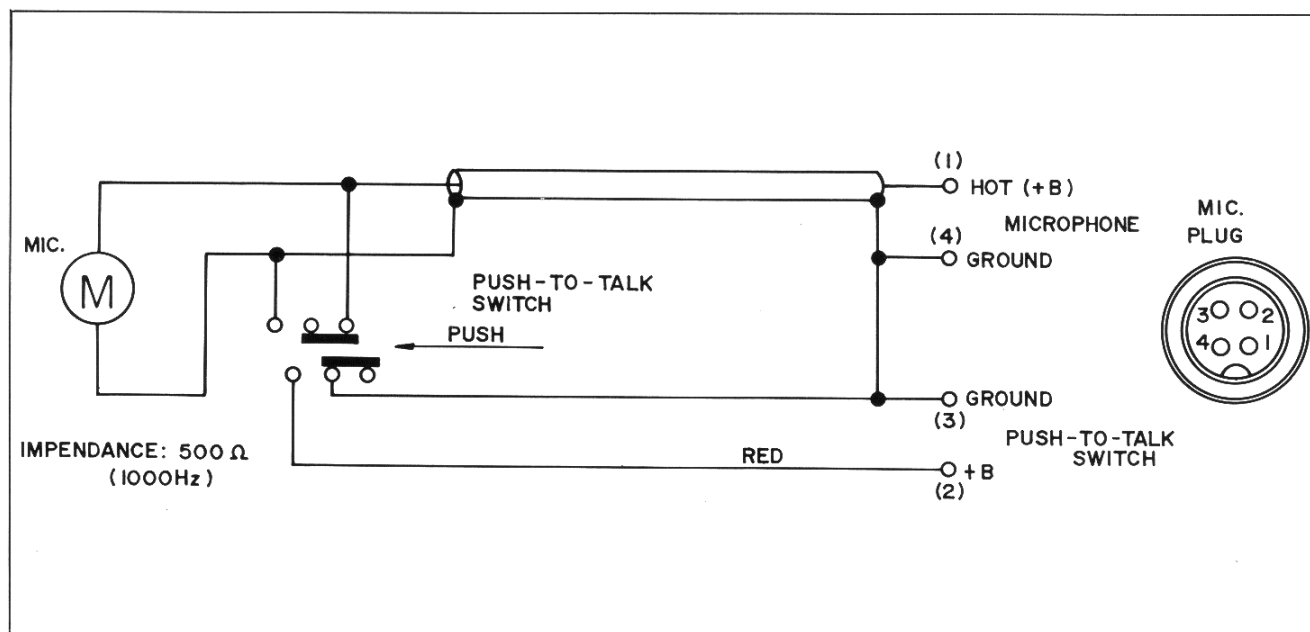
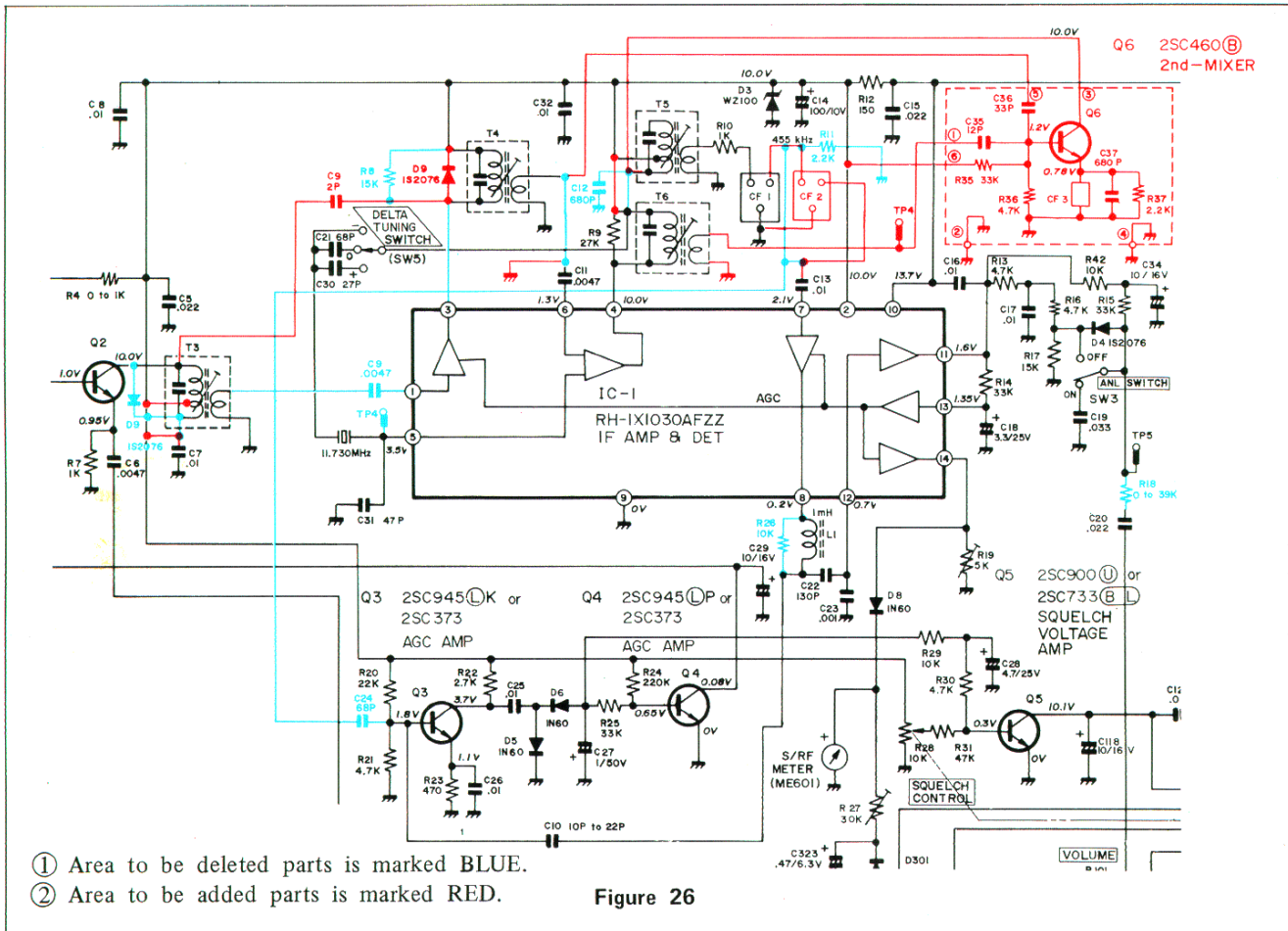


Figure 16 MICROPHONE CIRCUIT

If some customer requires the improvement concerning intermodulation (for example; cross talking, other channel interference, cross modulation, blocking appears, etc.), the following modification decreases that interference.



PARTS TO BE DELETED

REF. NO.	PART NO.
D9	VHD1S2076//-1
C9	VCKYPU1HB472M
C11	VCKYPU1HB472M
C12	VCCSPU1HL681J
C24	VCCSPU1HL680J
R8	VRD-SU2EY153K
R11	VRD-ST2EY222K
R18	VRD-ST2EY103K
R26	VRD-SU2EY103K
TP4 (Test Point)	QLUGP0105AGZZ

PARTS TO BE ADDED

REF. NO.	PART NO.	DESCRIPTION
	DUNTZ0258AF01	SUB-P.W.B. Assembly
	QPWBF0542AFZZ	Printed Wiring Board, SUB
Q6	VS2SC460-B/-1	Transistor, 2nd-Mixer (2SC460 (B))
CF-3	RFILA0001AFZZ	Ceramic Filter, 455kHz
C35	VCCSPU1HL120J	12PF, 50V, $\pm 5\%$, Ceramic
C36	VCCSPU1HL330J	33PF, 50V, $\pm 5\%$, Ceramic
C37	VCCSPU1HL681J	680PF, 50V, $\pm 5\%$, Ceramic
R35	VRD-SU2EY333K	33K ohm, 1/4W, $\pm 10\%$, Carbon
R36	VRD-SU2EY472K	4.7K ohm, 1/4W, $\pm 10\%$, Carbon
R37	VRD-SU2EY222K	2.2K ohm, 1/4W, $\pm 10\%$, Carbon
CF-2	RFILA0050AFZZ	Ceramic Filter, 2nd-IF, 455kHz
D9	VHD1S2076//-1	Diode, Overload
C9	VCCSPU1HL2R0C	2PF, 50V, ± 0.25 PF, Ceramic
C11	VCKYPU1HB472M	.0047MFD, 50V, $\pm 20\%$, Ceramic
C128	VCQYKU1HM333M	.033MFD, 50V, $\pm 20\%$, Mylar

Ⓐ DELETING PARTS/PRINTED CIRCUIT PATTERN TO BE CUT

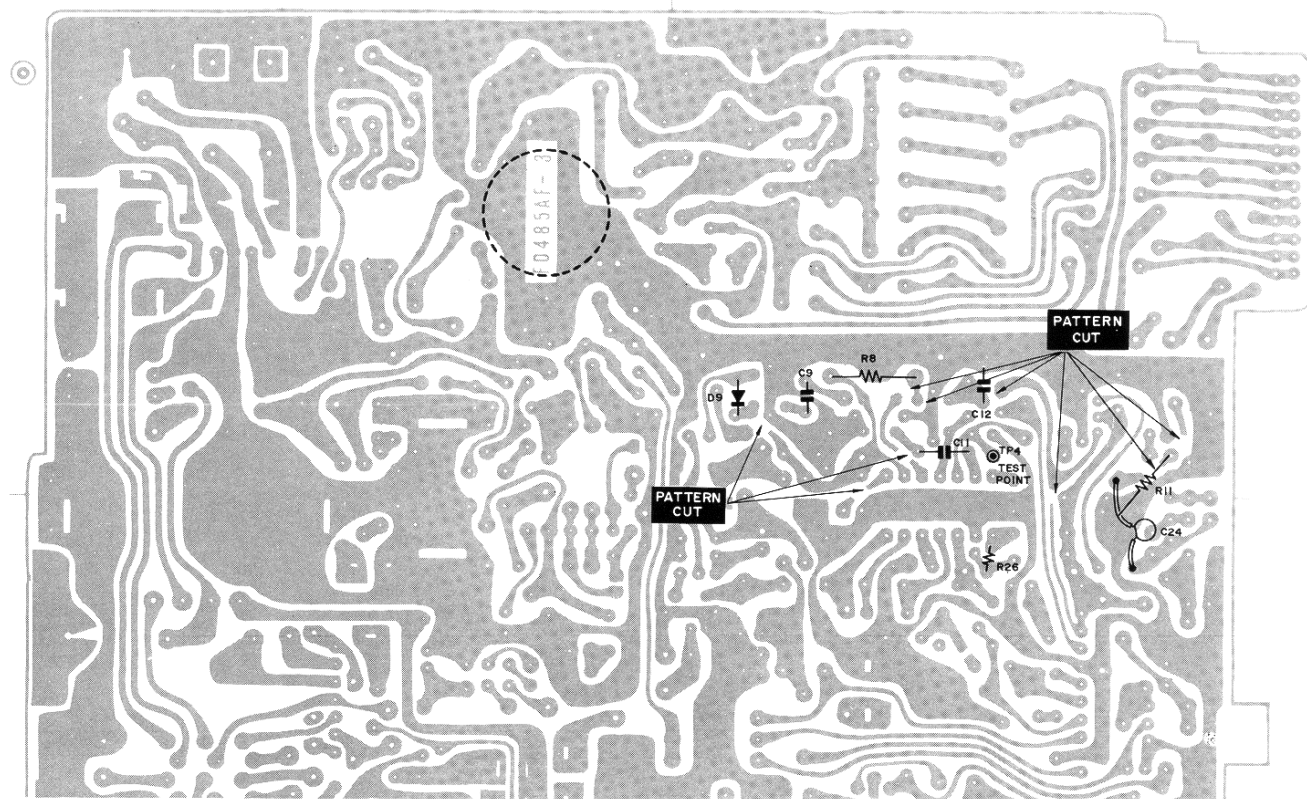


Figure 27

Ⓑ ADDING PARTS/CONNECTION ON P.W.B.

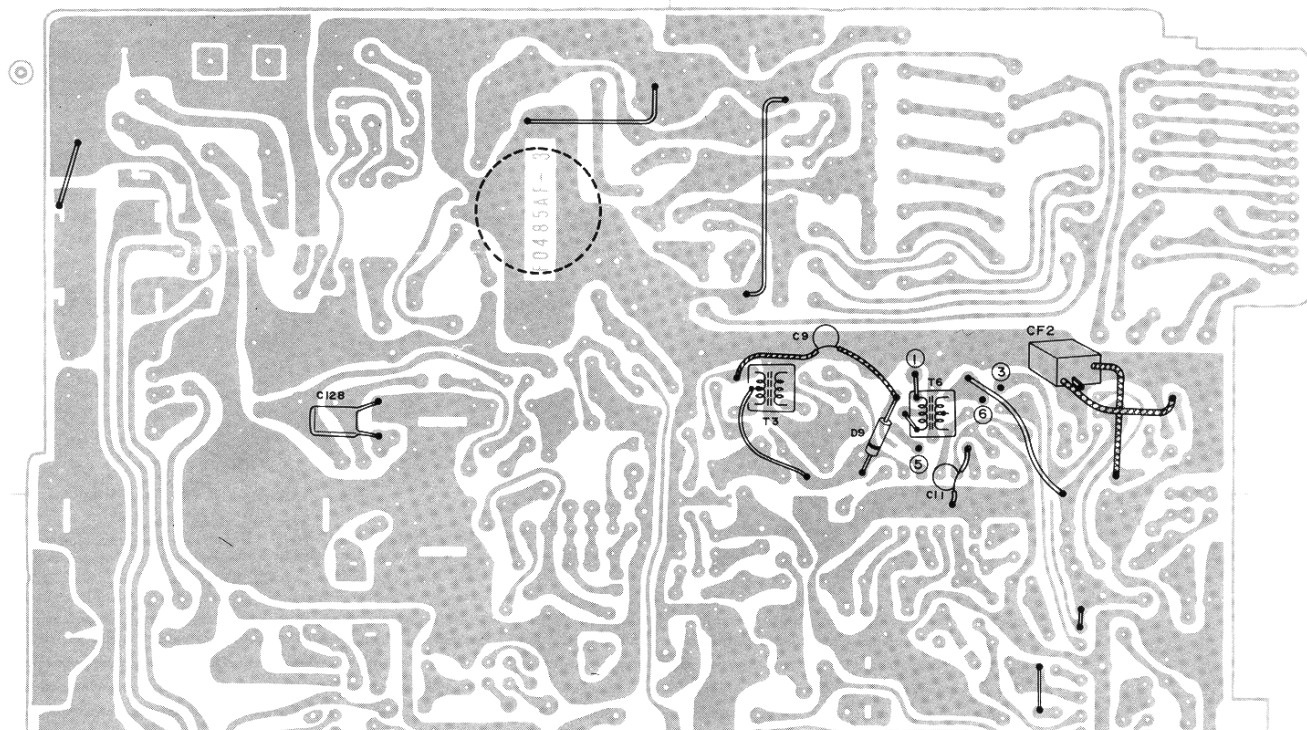


Figure 28

© CONNECTION OF SUB-P.W.B.

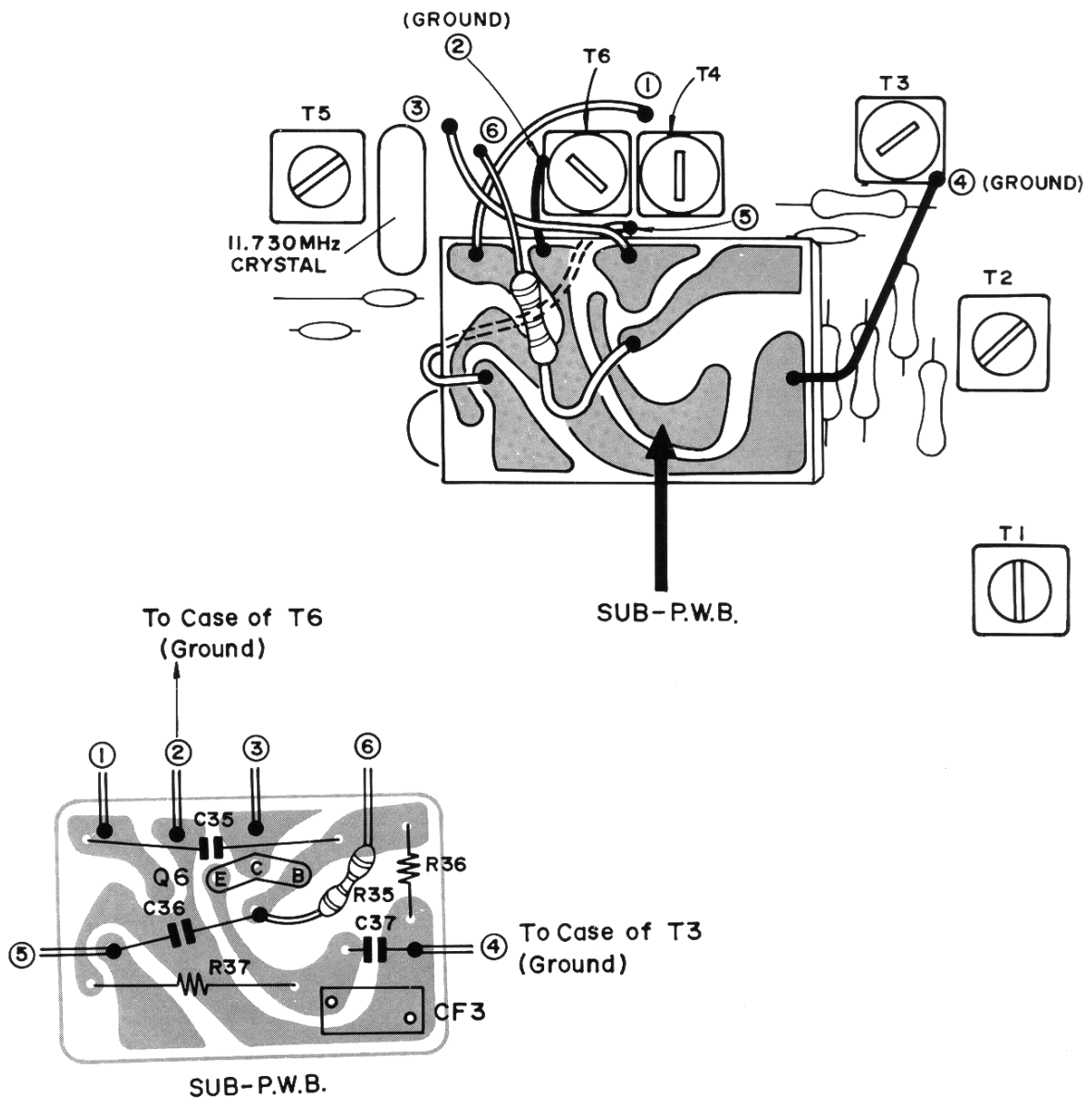


Figure 29

Ⓐ DELETING PARTS/PRINTED CIRCUIT PATTERN TO BE CUT

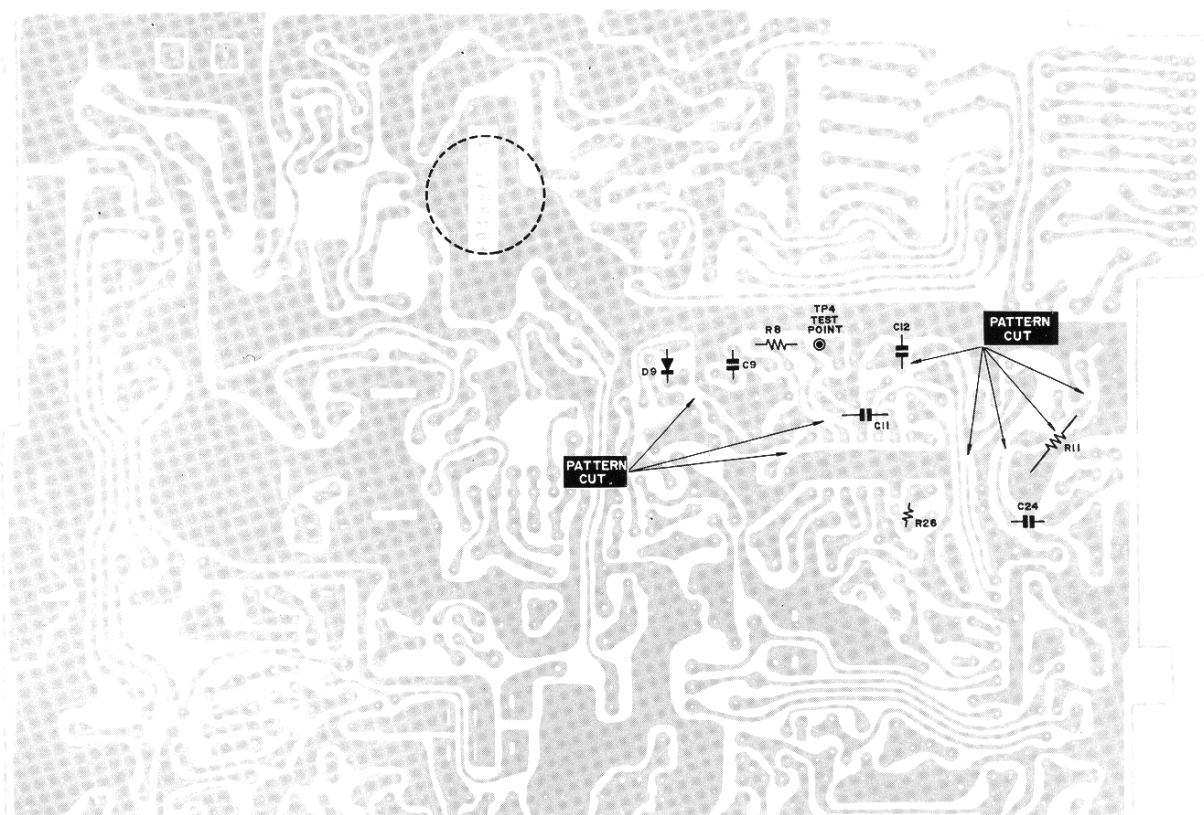


Figure 30

Ⓑ ADDING PARTS/CONNECTION ON P.W.B.

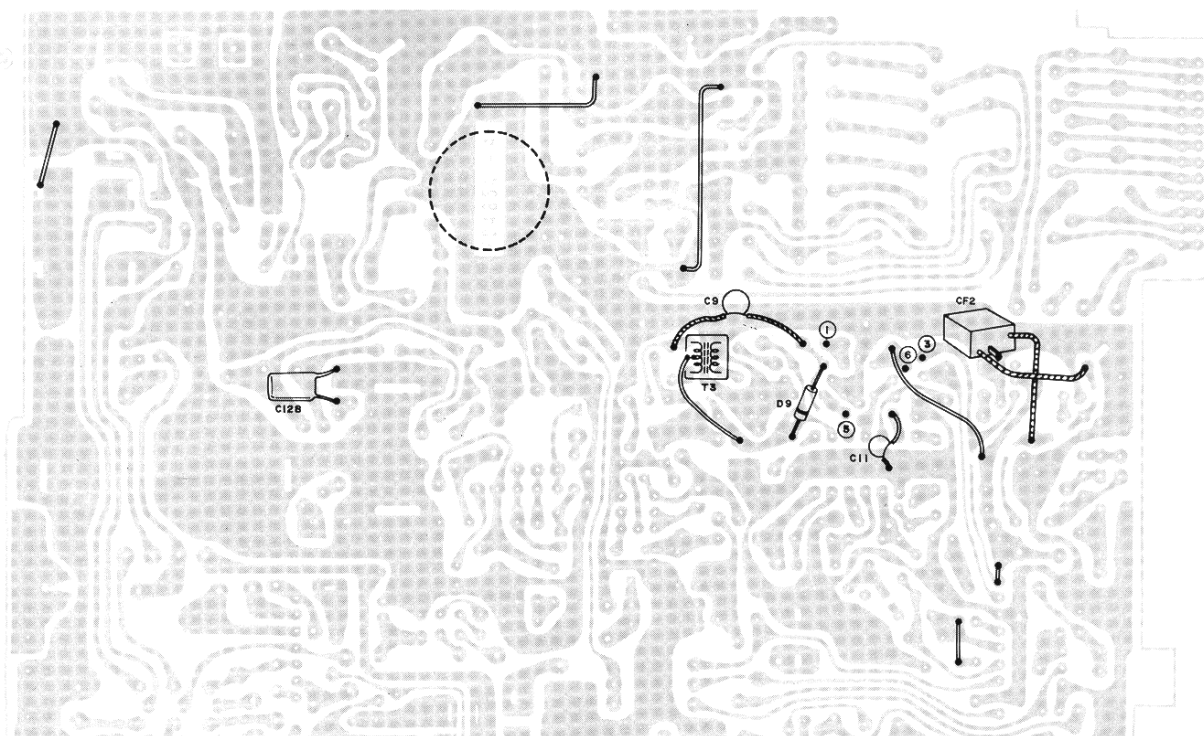


Figure 31

© CONNECTION OF SUB-P.W.B.

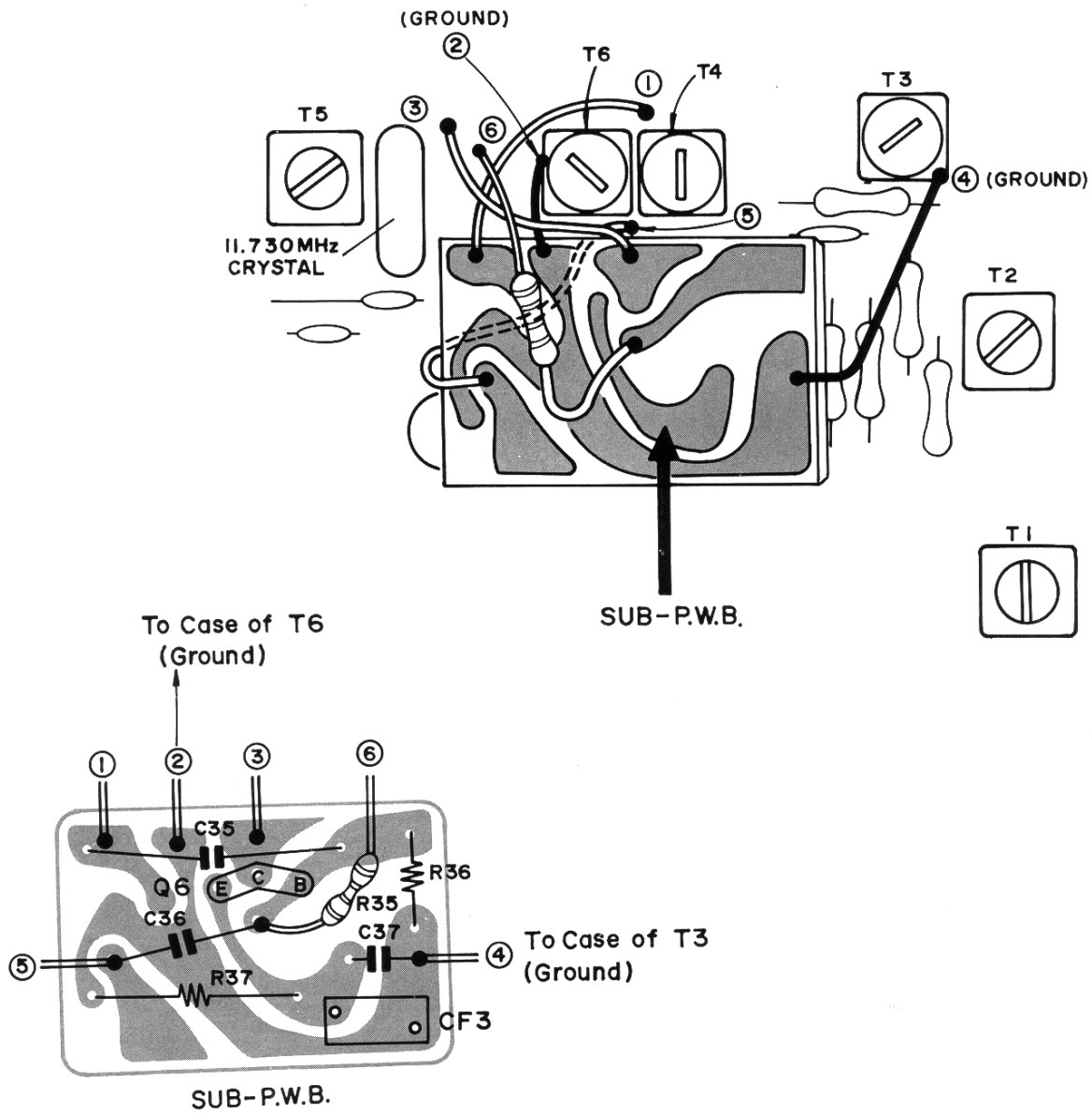


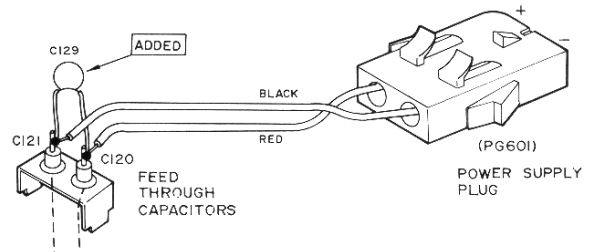
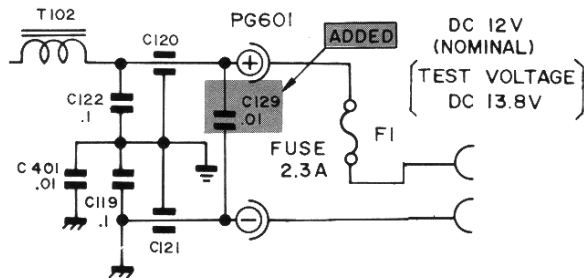
Figure 32

TECHNICAL INFORMATION

The improvement of ignition noise characteristics for CB units depending on Car Category, modification shall be made by change of circuit as follows.

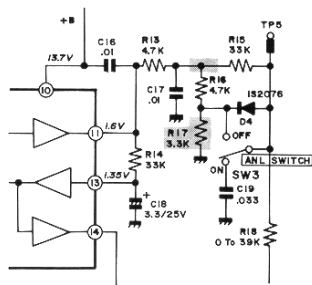
For P.W.B. NO. F0485AF-3 and -4

- (A) Addition of the capacitor C129 (VCKZPU1HF103Z) (for reduction of noise from power supply cable)

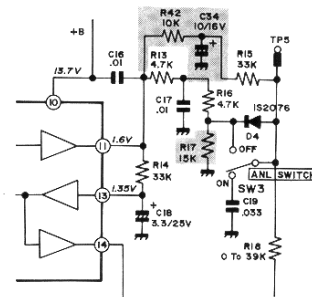


- (B) Change of the ANL circuit
(for reduction noises from Antenna)

ORIGINAL

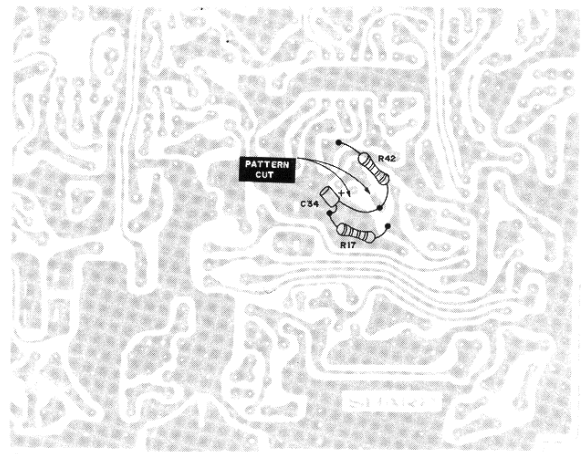


MODIFIED



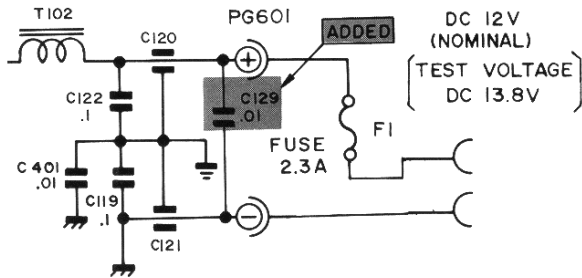
PARTS LIST

REF. NO.	PARTS TO BE DELETED PART NO.	PARTS TO BE ADDED PART NO.
R17	VRD-SU2EY332K	VRD-ST2EY153K
R42	_____	VRD-ST2EY103K
C34	_____	VCEAAU1CW106Y

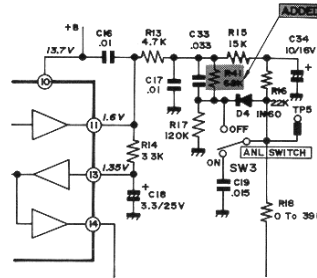


For P.W.B. NO. F0485AF-5 and F0552AF

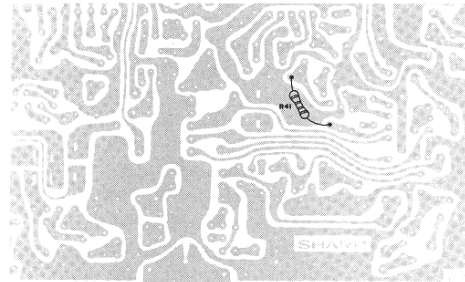
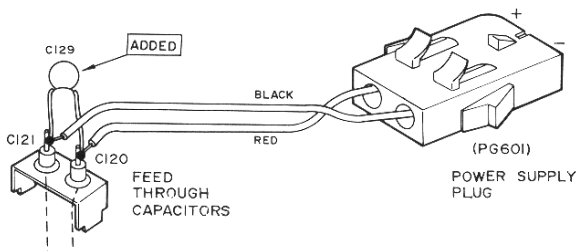
- (A) Addition of the capacitor C129 (VCKZPU1HF103Z)
(for reduction of noise from power supply cable)



- (B) Change of the ANL circuit
(for reduction noises from Antenna)

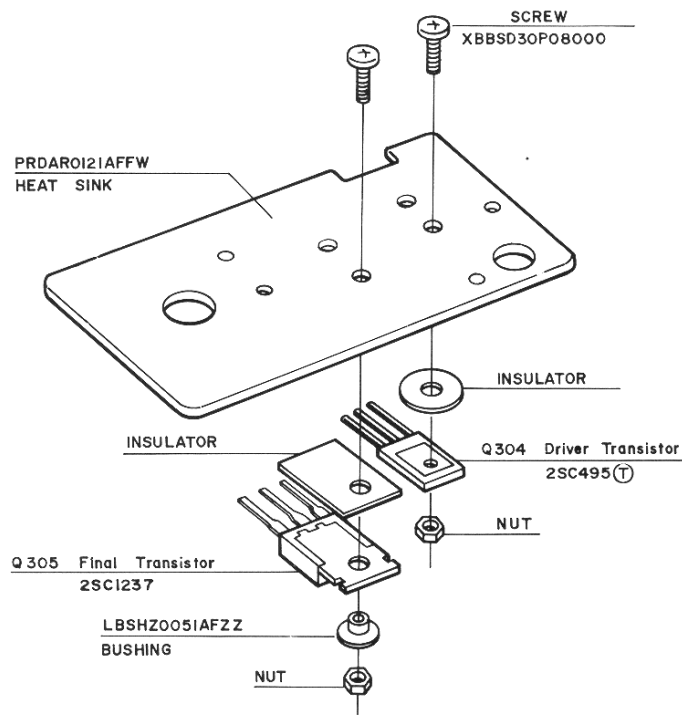


Addition of a resistor R41. (VRD-ST2EY683K)



HOW TO SET THE TRANSISTOR Q305

For P.W.B. NO. F0485AF-3, -4 and -5



For P.W.B. NO. F0552AF

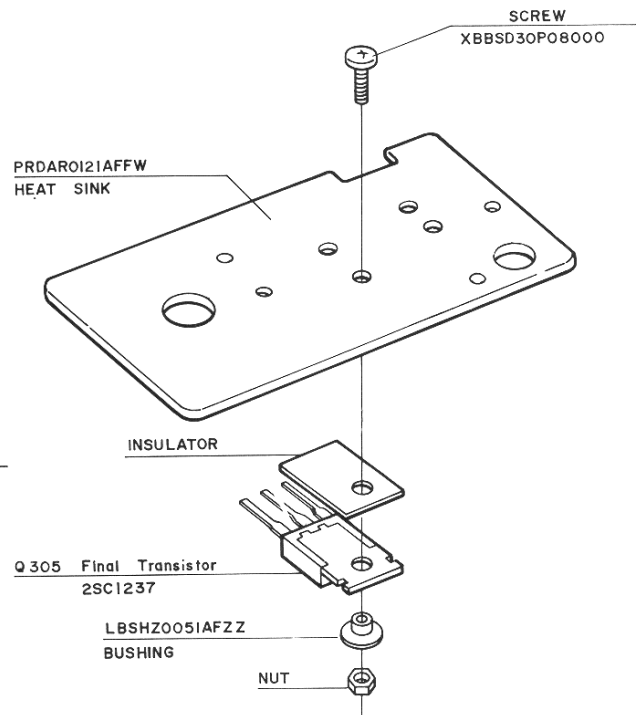


Figure 33 HOW TO SET THE TRANSISTOR Q305

REPLACEMENT PARTS LIST

“HOW TO ORDER REPLACEMENT PARTS”

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

- | | |
|-----------------|----------------|
| 1. MODEL NUMBER | 2. REF. NO. |
| 3. PART NO. | 4. DESCRIPTION |

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
INTEGRATED CIRCUITS			D4	VHD1S2076//-1 or VHD1N60////-1	ANL (Automatic Noise Limiter) (1S2076 or 1N60)
IC1	RH-IX1030AFZZ	2nd-IF Amplifier and Detector	D5	VHD1S2076//-1	AGC Detector (1N60)
IC301	RH-IX1020AFZZ	Driver and Audio Amplifier	D6	VHD1N60////-1	AGC Detector (1N60)
TRANSISTORS			D7	VHD1S1885//-1	Static Protector (1S2076)
Q1	VS2SC1675M/-1 or VS2SC784-R/1F	RF Amplifier (2SC1675 (M) or 2SC784 (R))	D8	VHD1N60////-1	S (Signal) Meter (1N60)
Q2	VS2SC1675M/-1 or VS2SC394-Y/-1	1st-mixer (2SC1675 (M) or 2SC394 (Y))	D9	VHD1S2076//-1	Overload (1S2076)
Q3	VS2SC945LK/-1 or VS2SC373-G/-1	AGC Amplifier (2SC945 (L) K or 2SC373)	D9	VHD1N60////-1	Overload (1N60)
Q4	VS2SC945LP/-1 or VS2SC373-G/-1	AGC Amplifier (2SC945 (L) P or 2SC373)	D101	VHD1N60////-1	Modulation Detector (1N60)
Q5	VS2SC900-U/-1 or VS2SC733-B/-1	Squelch Voltage Amplifier (2SC900 (U) or 2SC733 (BL))	D102	VHD1S1885//-1	Circuit Protector (1S1885)
Q6	VS2SC460-B/-1	2nd-mixer (2SC460 (B))	D301	VHD1N60////-1 or VHD1S2076//-1	RF Power Meter (1N60 or 1S2076)
Q101	VS2SC945LP/-1	AF Amplifier (2SC945 (L) P)	D501	VHD1S2076//-1	Detector, LED Indication (1S2076)
Q102	VS2SD227-V/-1 or VS2SC735-Y/-1	Modulation Limiter Amplifier (2SD227 (V) or 2SC735 (Y))	DA501	RH-IX1031AFZZ	Diode Array, LED Indication
Q103	VS2SC945LP/-1 or VS2SC373-G/-1	Modulation Limiter Amplifier (2SC945 (L) P or 2SC373)	*LED501	VHPGL-8R04/-1	Light Emitting Diode, Channel Indicator, 8 Segment
Q201	VS2SK49-F//-1	Synthesizer, FET, Crystal (23 MHz) Oscillator (2SK49 (F))	*LED502	VHPGL-8R04/-1	Light Emitting Diode, Channel Indicator, 8 Segment
Q202	VS2SK49-F//-1	Synthesizer, FET, Crystal (14MHz) Oscillator (2SK49 (F))	* Replace only with matched pairs.		
Q203	VS2SC945LP/-1 or VS2SC394-Y/-1	Synthesizer, Mixer (38MHz) (2SC945 (L) P or 2SC394 (Y))	CERAMIC FILTER		
Q301	VS2SK49-F//-1	Transmitter, FET, Crystal (11.275MHz) Oscillator (2SK49 (F))	CF1	RFILA0050AFZZ or RFILA0052AFZZ	455kHz, 2nd-IF
Q302	VS2SC945LP/-1 or VS2SC735-Y/-1	Transmitter, 27MHz Mixer (2SC945 (L) P or 2SC735 (Y))	CF2	RFILA0050AFZZ or RFILA0052AFZZ	455kHz, 2nd-IF
Q303	VS2SC1166-Y/-1 or VS2SC1166-O-1	Transmitter, Buffer Amplifier (2SC1166 (Y) or (O))	CF3	RFILA0001AFZZ	455kHz
Q304	VS2SC495-T/-1	Transmitter, Driver (2SC495 (T))	COILS		
Q305	VS2SC1237-1F	Transmitter, Final (2SC1237)	L1	RCILZ0014AGZZ	2nd-IF, 1mH
Q501	VS2SA738-C/-1	LED Regulator (2SA738 (C))	L101	RCILC0023AFZZ	AF Choke
Q502	VS2SC945LP/-1 or VS2SC373-G/-1	Multivibrator, LED (2SC945 (L) P or 2SC373)	L201	RCILA0377AFZZ	Synthesizer, 23MHz Oscillator
Q503	VS2SC945LP/-1 or VS2SC373-G/-1	Multivibrator, LED (2SC945 (L) P or 2SC373)	L202	RCILC0024AFZZ	OSC Choke
DIODES			L301	RCILC0011AFZZ	RF Choke
D1	VHD1S2076//-1	Static Protector (1S2076)	L302	RCILR0135AFZZ	Transmitter, Matching
D2	VHD1S2076//-1	Static Protector (1S2076)	L303	RCILR0055AFZZ	Transmitter, π -Filter
D3	VHEWZ-100/1F	Zener Diode, Voltage Regulator (10V \pm 0.5V)	L304	RCILC0055AFZZ	Trap, 81MHz
			L305	RCILC0055AFZZ	Trap, 54MHz
			TRANSFORMERS		
			T1	RCILA0377AFZZ	Antenna
			T2	RCILR0304AFZZ	RF
			T3	RCILI0210AFZZ	1st-IF (11.275MHz)
			T4	RCILI0210AFZZ	1st-IF (11.275MHz)
			T5	RCILI0154AFZZ	2nd-IF (455kHz)

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
T6	RCIL10210AFZZ	2nd Local Oscillator (11.730MHz)	C101	VCQYKU1HM333M	.033MFD, 50V, ±20%, Mylar
T101	RTRNM0050AFZZ	Output and Modulation	C102	VCQYKU1HM102M	.001MFD, 50V, ±20%, Mylar
T102	RTRNC0003AFZZ	Power Choke	C104	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar
T201	RCILB0378AFZZ	Synthesizer, 14MHz Oscillator	C106	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar
T202	RCIL10212AFZZ	Synthesizer, 38MHz Filter	C107	VCQYKU1HM222M	.0022MFD, 50V, ±20%, Mylar
T301	RCILB0378AFZZ	Transmitter, 11.275MHz Oscillator	C108	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar
T302	RCIL10211AFZZ	Transmitter, 27MHz Filter	C109	VCQYKU1HM222M	.0022MFD, 50V, ±20%, Mylar
T303	RCILB0221AFZZ	Transmitter, Buffer	C119	VCKZPU1HF104Z	.1MFD
T304	RCILR0037AFZZ	Transmitter, Driver	C120, C121	RC-KZ1006AFZZ or RC-KZ1009AFZZ	Feed Through Capacitors with Bracket
CRYSTALS			C122	VCKZPU1HF104Z	.1MFD
	RCRSB0005AFZZ	14.950MHz	C123	VCKZPU1HF103Z	.01MFD
	RCRSB0006AFZZ	14.960MHz	C124	VCKZPU1HF103Z	.01MFD
	RCRSB0007AFZZ	14.970MHz	C125	VCKYPU1HB222M	.0022MFD, 50V, ±20%, Ceramic
	RCRSB0008AFZZ	14.990MHz	C126	VCKZPU1HF103Z	.01MFD
	RCRSB0009AFZZ	23.290MHz	C127	VCKZPU1HF103Z	.01MFD
	RCRSB0010AFZZ	23.340MHz	C128	VCQYKU1HM333M	.033MFD, 50V, ±20%, Mylar
	RCRSB0011AFZZ	23.390MHz	C129	VCKZPU1HF103Z	.01MFD
	RCRSB0012AFZZ	23.440MHz	C201	VCCSPU1HL120J	12PF, 50V, ±5%, Ceramic
	RCRSB0013AFZZ	23.490MHz	C203	VCKZPU1HF103Z	.01MFD
	RCRSB0014AFZZ	23.540MHz	C204	VCCSPU1HL180J	18PF, 50V, ±5%, Ceramic
	RCRSB0015AFZZ	11.275MHz	C206	VCKZPU1HF103Z	.01MFD
	RCRSB0016AFZZ	11.730MHz	C207	VCCSPU1HL100F	10PF, 50V, ±1PF, Ceramic
CAPACITORS			C208	VCCSPU1HL180J	18PF, 50V, ±5%, Ceramic
(Unless otherwise specified capacitors are 50V, +80 –20%, Ceramic Type.)			C209	VCKZPU1HF103Z	.01MFD
C1	VCKZPU1HF103Z	.01MFD	C210	VCKZPU1HF103Z	.01MFD
C2	VCKZPU1HF103Z	.01MFD	C212	VCKZPU1HF103Z	.01MFD
C3	VCKZPU1HF103Z	.01MFD	C301	VCCSPU1HL560J	56PF, 50V, ±5%, Ceramic
C4	VCKZPU1HF103Z	.01MFD	C301	VCCSPU1HL680J	68PF, 50V, ±5%, Ceramic
C5	VCKZPU1HF223Z	.022MFD	C302	VCKZPU1HF103Z	.01MFD
C6	VCKYPU1HB472M	.0047MFD, 50V, ±20%, Ceramic	C304	VCCSPU1HL330J	33PF, 50V, ±5%, Ceramic
C7	VCKZPU1HF103Z	.01MFD	C305	VCCSPU1HL101J	100PF, 50V, ±5%, Ceramic
C8	VCKZPU1HF103Z	.01MFD	C308	VCKZPU1HF103Z	.01MFD
C9	VCCSPU1HL2R0C	2PF, 50V, ±0.25PF, Ceramic	C309	VCKZPU1HF103Z	.01MFD
C10	VCCSPU1HL100F	10PF, 50V, ±1PF, Ceramic	C310	VCKZPU1HF103Z	.01MFD
C10	VCCSPU1HL220J	22PF, 50V, ±5%, Ceramic	C311	VCCSPU1HL180J	18PF, 50V, ±5%, Ceramic
C11	VCKYPU1HB472M	.0047MFD, 50V, ±20%, Ceramic	C312	VCKZPU1HF103Z	.01MFD
C13	VCKZPU1HF103Z	.01MFD	C313	VCKZPU1HF103Z	.01MFD
C15	VCKZPU1HF223Z	.022MFD	C314	VCCSPU1HL221J	220PF, 50V, ±5%, Ceramic
C16	VCKZPU1HF103Z	.01MFD	C315	VCCSPU1HL331J	330PF, 50V, ±5%, Ceramic
C17	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar	C315	VCCSPU1HL471J	470PF, 50V, ±5%, Ceramic
C19	VCQYKU1HM333M	.033MFD, 50V, ±20%, Mylar	C316	VCCSPU1HL220J	22PF, 50V, ±5%, Ceramic
C19	VCQYKU1HM153M	.015MFD, 50V, ±20%, Mylar	C316	VCCSPU1HL390J	39PF, 50V, ±5%, Ceramic
C20	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar	C317	VCKYPU1SD103Z	.01MFD (Z5T), 30V, +80 –20%, Ceramic
C21	VCCSPU1HL680J	68PF, 50V, ±5%, Ceramic	C318	VCCSPU1HL511J	510PF, 50V, ±5%, Ceramic
C22	VCCSPU1HL121J	120PF, 50V, ±5%, Ceramic	C319	VCKYPU1SD103Z	.01MFD (Z5T), 30V, +80 –20%, Ceramic
C22	VCCSPU1HL131J	130PF, 50V, ±5%, Ceramic	C320	VCKYPU1SD103Z	.01MFD (Z5T), 30V, +80 –20%, Ceramic
C23	VCKYPU1HB102M	.001MFD, 50V, ±20%, Ceramic	C321	VCCSPU1HL181J	180PF, 50V, ±5%, Ceramic
C25	VCKZPU1HF103Z	.01MFD	C321	VCCSPU1HL221J	220PF, 50V, ±5%, Ceramic
C26	VCKZPU1HF103Z	.01MFD	C322	VCCSPU1HL680J	68PF, 50V, ±5%, Ceramic
C30	VCCSPU1HL270J	27PF, 50V, ±5%, Ceramic	C324	VCCSPU1HL220J	22PF, 50V, ±5%, Ceramic
C31	VCCSPU1HL470J	47PF, 50V, ±5%, Ceramic	C325	VCCSPU1HL680J	68PF, 50V, ±5%, Ceramic
C32	VCKZPU1HF103Z	.01MFD	C326	VCKZPU1HF103Z	.01MFD
C33	VCQYKU1HM333M	.033MFD, 50V, ±20%, Mylar	C328	VCCSPU1HL100F	10PF, 50V, ±1PF, Ceramic
C35	VCCSPU1HL120J	12PF, 50V, ±5%, Ceramic	C401	VCKZPU1HF103Z	.01MFD
C36	VCCSPU1HL330J	33PF, 50V, ±5%, Ceramic	C402	VCKYPU1SD103Z	.01MFD (Z5T), 30V, +80 –20%, Ceramic
C37	VCCSPU1HL681J	680PF, 50V, ±5%, Ceramic	C403	VCKYPU1SD103Z	.01MFD (Z5T), 30V, +80 –20%, Ceramic
C38	VCCSPU1HL330J	33PF, 50V, ±5%, Ceramic	C404	VCKZPU1HF103Z	.01MFD
C39	VCCSPU1HL101J	100PF, 50V, ±5%, Ceramic	C405	VCKZPU1HF103Z	.01MFD
			C406	VCKZPU1HF103Z	.01MFD

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
C407	VCKZPU1HF103Z	.01MFD	R21	VRD-ST2EE223J	22K ohm
C408	VCKZPU1HF103Z	.01MFD	R22	VRD-ST2EE272J	2.7K ohm
C409	VCKZPU1HF103Z	.01MFD	R23	VRD-ST2EE471J	470 ohm
C410	VCKYPU1SD103Z	.01MFD (Z5T), 30V, +80 -20%, Ceramic	R24	VRD-ST2EE224J	220K ohm
C411	VCKYPU1SD103Z	.01MFD (Z5T), 30V, +80 -20%, Ceramic	R25	VRD-ST2EE333J	33K ohm
C412	VCKZPU1HF103Z	.01MFD	R27	RVR-M0010AFZZ	30K (B) ohm, Pot., RF Power Meter Adjust
C412	VCKYPU1SD103Z	.01MFD (Z5T), 30V, +80 -20%, Ceramic	R28/ SW2-A, B	RVR-B0131AFZZ	10K (B) ohm, Squelch/P.A. Switch
ELECTROLYTIC CAPACITORS			R29	VRD-ST2EE103J	10K ohm
C14	VCEAAU1AW107Y	100MFD, 10V, +50 -10%	R30	VRD-ST2EE472J	4.7K ohm
C18	VCEAAU1EW335Y	3.3MFD, 25V, +50 -10%	R31	VRD-ST2EE473J	47K ohm
C27	VCEAAU1HW105Y	1MFD, 50V, +50 -10%	R35	VRD-SU2EY333K	33K ohm, 1/4W, ±10%, Carbon
C28	VCEAAU1EW475Y	4.7MFD, 25V, +50 -10%	R36	VRD-SU2EY472K	4.7K ohm, 1/4W, ±10%, Carbon
C29	VCEAAU1CW106Y	10MFD, 16V, +50 -10%	R37	VRD-SU2EY222K	2.2K ohm, 1/4W, ±10%, Carbon
C34	VCEAAU1CW106Y	10MFD, 16V, +50 -10%	R38	VRD-ST2EY222K	2.2K ohm, 1/4W, ±10%, Carbon
C103	VCEAAU1EW475Y	4.7MFD, 25V, +50 -10%	R39	VRD-ST2EE473J	47K ohm
C105	VCEAAU1CW106Y	10MFD, 16V, +50 -10%	R41	VRD-ST2EY683K	68K ohm, 1/4W, ±10%, Carbon
C110	VCEAAU1CW476Y	47MFD, 16V, +50 -10%	R42	VRD-ST2EY103K	10K ohm, 1/4W, ±10%, Carbon
C111	VCEAAU1AW336Y	33MFD, 10V, +50 -10%	R98	VRD-ST2HA470K	47 ohm, 1/2W, ±10%, Carbon
C112	VCEALU1HW104M	.1MFD, 50V, ±20%	R101/ SW1	RVR-D0103AFZZ	5K (D) ohm, Off-On/Volume Control
C113	VCEAAU1CW476Y	47MFD, 16V, +50 -10%	R102	VRD-ST2EE331J	330 ohm
C114	VCEALU1HW104M	.1MFD, 50V, ±20%	R104	VRD-ST2EE154J	150K ohm
C115	VCEAAU1AW477Y	470MFD, 10V, +50 -10%	R105	VRD-ST2EE153J	15K ohm
C116	VCEAAU1CW108Y	1000MFD, 16V, +50 -10%	R106	VRD-ST2EE102J	1K ohm
C117	VCEAAU1EW335Y	3.3MFD, 25V, +50 -10%	R107	VRD-ST2EE103J	10K ohm
C118	VCEAAU1CW106Y	10MFD, 16V, +50 -10%	R108	VRD-ST2EE331J	330 ohm
C126	VCEAAU1HW105Y	1MFD, 50V, +50 -10%	R109	VRD-ST2EE222J	2.2K ohm
C215	VCEAAU1CW476Y	47MFD, 16V, +50 -10%	R110	VRD-ST2EE333J	33K ohm
C323	VCAAKU0XA474M	.47MFD, 6.3V, ±20%, Aluminum	R111	VRD-ST2EE2R2J	2.2 ohm
C501	VCEAAU1EW335Y	3.3MFD, 25V, +50 -10%	R112	RVR-M0116AFZZ	1K (B) ohm, Modulation Level Adjust
C502	VCEAAU1EW335Y	3.3MFD, 25V, +50 -10%	R113	VRD-ST2EE103J	10K ohm
RESISTORS			R114	VRD-SU2EY222K	2.2K ohm, 1/4W, ±10%, Carbon
(Unless otherwise specified resistors are 1/4W, ±5%, Carbon Type.)			R115	VRD-ST2EE220J	22 ohm
R1	VRD-ST2EE562J	5.6K ohm	R201	VRD-ST2EE105J	1 Meg ohm
R2	VRD-ST2EE152J	1.5K ohm	R202	VRD-ST2EE105J	1 Meg ohm
R3	VRD-ST2EE102J	1K ohm	R203	VRD-ST2EE223J	22K ohm
R4	VRD-ST2EE102J	1K ohm	R204	VRD-ST2EE472J	4.7K ohm
R5	VRD-ST2EE333J	33K ohm	R205	VRD-ST2EE331J	330 ohm
R6	VRD-ST2EE472J	4.7K ohm	R206	VRD-ST2EE470J	47 ohm
R7	VRD-ST2EE102J	1K ohm	R207	VRD-SU2EY102K	1K ohm, 1/4W, ±10%, Carbon
R9	VRD-SU2EY153K	15K ohm, 1/4W, ±10%, Carbon	R301	VRD-ST2EE105J	1 Meg ohm
R9	VRD-SU2EY273K	27K ohm, 1/4W, ±10%, Carbon	R302	VRD-SU2EY102K	1K ohm, 1/4W, ±10%, Carbon
R10	VRD-ST2EE102J	1K ohm	R304	VRD-ST2EE223J	22K ohm
R12	VRD-SU2EY151K	150 ohm, 1/4W, ±10%, Carbon	R305	VRD-ST2EE102J	1K ohm
R13	VRD-SU2EY472K	4.7K ohm, 1/4W, ±10%, Carbon	R306	VRD-ST2EE101J	100 ohm
R14	VRD-SU2EY333K	33K ohm, 1/4W, ±10%, Carbon	R307	VRD-ST2EE470J	47 ohm
R15	VRD-SU2EY333K	33K ohm, 1/4W, ±10%, Carbon	R308	VRD-ST2EE223J	22K ohm
R15	VRD-SU2EY153K	15K ohm, 1/4W, ±10%, Carbon	R309	VRD-ST2EE332J	3.3K ohm
R16	VRD-SU2EY472K	4.7K ohm, 1/4W, ±10%, Carbon	R310	VRD-ST2EE101J	100 ohm
R16	VRD-ST2EY223K	22K ohm, 1/4W, ±10%, Carbon	R311	VRD-ST2EE101J	100 ohm
R17	VRD-SU2EY332K	3.3K ohm, 1/4W, ±10%, Carbon	R312	VRD-SU2EY680K	68 ohm, 1/4W, ±10%, Carbon
R17	VRD-ST2EY153K	15K ohm, 1/4W, ±10%, Carbon	R314	VRD-ST2HA471J	470 ohm, 1/2W, ±5%, Carbon
R17	VRD-SU2EY124K	120K ohm, 1/4W, ±10%, Carbon	R315	VRD-ST2EE332J	3.3K ohm
R18	VRD-ST2EY103K	10K ohm, 1/4W, ±10%, Carbon	R316	VRD-ST2EE682J	6.8K ohm
R19	RVR-M0119AFZZ	5K (B) ohm, Pot., S (Signal) Meter Adjust	R318	VRD-ST2HA470K	47 ohm, 1/2W, ±10%, Carbon
R20	VRD-ST2EE223J	22K ohm	R501	VRD-ST2EE222J	2.2K ohm
R20	VRD-ST2EE224J	220K ohm	R502	VRD-ST2EE102J	1K ohm
R21	VRD-ST2EE472J	4.7K ohm	R503	VRD-ST2EE154J	150K ohm
			R504	VRD-ST2EE102J	1K ohm
			R505	VRD-ST2EE154J	150K ohm
			R506	VRD-ST2EE681J	680 ohm
			R508	VRS-PT3DB560K	56 ohm, 2W, ±10%, Oxide Film

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
R510-A ~E	RMPTC0001AFZZ	Resistor Array, 680 ohm x 5		QPWBF0542AFZZ	Printed Wiring Board, Sub
R511-A ~E	RMPTC0001AFZZ	Resistor Array, 680 ohm x 5		QPWBF0552AFZZ	Printed Wiring Board, Main
R512-A ~C	RMPTC0002AFZZ	Resistor Array, 680 ohm x 3		QPWBE0066AFZZ	Printed Wiring Board, Channel Indication (LED)
				QPWBF0487AFZZ	Printed Wiring Board, Volume Control
			CNS601 -A ~ E	QCNW-0138AFZZ	Connection Cord with Socket Assembly
			CNS602	QCNW-0143AFZZ	Connection Cord with Socket, Speaker
			CNS603	QCNW-0140AFZZ	Connection Cord with Socket, Microphone
			CNP601	QCNCM0806SGZZ	Plug, 8 Pin
			CNP602	QCNCM0806SGZZ	Plug, 8 Pin
			CNP603	QCNCM0902AGZZ	Plug, 9 Pin
			CNP604	QCNCM097HAFZZ	Plug, 8 Pin
			CNP605	QCNCM098KAFZZ	Plug, 10 Pin
			SO601	QSOCZ2453AFZZ	Socket, External Antenna, 50 ohms
			SO602	QSOCZ2456AFZZ	Socket, Microphone
			PG601	QSOCZ2454AFZZ	Plug, Power Supply
			PG602	QPLGZ1250AFZZ	Plug, Connecting, P.W. Board
			(A), (B)	QSOCE0401AFZZ	Socket, Test Point
				QPLGE0403AGZZ	Plug, Test Point
				QFSHJ9052AFZZ	Power Supply Cord with Fuse Holder and Socket
			SW1/ R101	RVR-D0103AFZZ	Off-On/Volume (5K ohm) Control
			SW2-A, B/R28	RVR-B0131AFZZ	P.A. Switch/Squelch (10K ohm)
			SW3	QSW-B0028AGZZ	Switch, ANL
			SW4-A ~C	QSW-R0125AFZZ	Switch, Channel Selector
			SW5	QSW-B0003AFZZ	Switch, Delta Fine Tuning
			SW6-A ~D/ RY101	RRLYZ0007AFZZ	Relay with Receiver/Transmitter Switch
			C120, C121	RC-KZ1006AFZZ or RC-KZ1009AFZZ	Feed Through Capacitors with Bracket
			PL1	RLMPM0058AFZZ	Lamp, Meter Illumination (14V, 80mA)
			ME601	RMTRE0057AFZZ	Meter, S/RF Power
				RMICD0205AFZZ	Microphone Assembly (with Press-to-talk Switch)
				XBBSC30W08000	Screw (3φ x 8 mm), Plus and Minus
				XNESD50-40000	Nut (5φ)
				XWHSD30-05000	Washer (3φ)
				XWHSD50-05000	Washer (5φ)
				XWSSJ50-13000	Spring Washer (5φ)
			SP601	VSP0080P-208A	Speaker, 8 ohms
			F1	QFS-A232AAFNA	Fuse, 2.3A
MISCELLANEOUS					
	GCAB-3016AFSA	Cabinet			
	GWAKP1057AFSA	Front Panel			
	HDECQ0051AFSA	Decoration Plate, Channel Indicator			
	HINDM1079AFSA	Indication Metal, Channel			
	HINDM1080AFSA	Emblem, SHARP			
	JKNBN0299AFSA	Knob, Channel Selector			
	JKNBN0300AFSA	Knob, Off-On/Volume and Squelch/P.A. Switch			
	JKNBM0219AFSA	Knob, A.N.L. Switch and Delta Fine Tuning Switch			
	JHNDM1052AFFW	Mobile Mounting Bracket			
	LX-WZ3017CEFN	Washer, P.W. Board			
	LBSHZ0051AFZZ	Bushing, Transistor Q305			
	LCHSM0236AFFW	Chassis, Main			
	LCHSZ0050AFZZ	Chassis, Front			
	LX-NZ0052AFFD	Nut, Front Chassis			
	LANGS0053AFFW	Bracket, Speaker			
	LX-BZ0021AGFD	Bolt (5φ x 8 mm)			
	LX-BZ0053AFFD	Bolt (5φ x 10 mm)			
	PGUMM0002AF00	Rubber Washer, Mounting Bracket			
	PHAG-8001AFFC	Hanger, Microphone			
	PMLT-0114AFZZ	Sponge, Speaker			
	PCOVP8151AF00	Cover, A.N.L. and Delta Fine Tuning Switches			
	PCOVM3050AFFW	Hole Cover, Rear Chassis			
	PFLT-0132AF00	Felt, Front Panel			
	PRDAR0121AFFW	Heat Sink, Transistor Q304 and Q305			
	PRDAR0006SGFW	Heat Sink, Transistor Q501			
	PRDAR0122AFFW	Heat Sink, IC301			
	PGUMM0028AG00	Spacer, Meter Lamp, Rubber			
	PCAPH0001AGZZ	Cap, A.N.L. Switch			
	PRDAR0129AFFW	Heat Sink, Transistor Q304			
	PSLDM3117AFFW	Shield Plate			
	PZETF0121AFZZ	Insulator, Speaker Bracket			
J601-A, B	QJAKB0050AFZZ	Jack, External Speaker (J601-A) and P.A. Speaker (J601-B)			
	QPWBF0485AFZZ	Printed Wiring Board, Main			