

REALISTIC[®]

Service Manual

21-1543

TRC-454

C.B. 40-CHANNEL, HANDSET BASE/MOBILE TRANSCEIVER

Catalog Number: 21-1543



INFORMATION ONLY



CUSTOM MANUFACTURED FOR RADIO SHACK  A DIVISION OF TANDY CORPORATION

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SPECIFICATIONS

GENERAL SPECIFICATIONS

| | |
|--------------------------------------|---|
| Transmitter | PLL frequency synthesizer, amplitude modulation |
| Receiver | PLL frequency synthesizer, double heterodyne system |
| Communicating frequencies | CB, 40 channels |
| Operating voltage | 100-130 V AC/11-16 V DC (positive or negative ground) |
| Transmitter/Receiver switching | Electronic |
| Channel selection | Channel scanning circuitry with LED channel indicator |

STANDARD TEST CONDITIONS

| | |
|--------------------------|-----------------------|
| Supply voltage | 13.8 V DC or 120 V AC |
| Modulation | 1 kHz, 30% |
| Audio output power | 500 mW |
| Audio output load | 8 ohms |

Antenna impedance 50 ohms (non-inductive load)
 Measurement channel CH. 19
 Ambient conditions
 Temperature 25°C ± 5°C
 Humidity 50% to 70%

RECEIVER SPECIFICATIONS

| MEASUREMENT ITEMS | NOMINAL | LIMIT |
|---|----------------|--------------------|
| 1. Max. Sensitivity | 0.3 μ V | 0.5 μ V |
| 2. Sensitivity for 10 dB S/N | 0.5 μ V | 1.0 μ V |
| 3. Squelch Sensitivity at THD | 0.5 μ V | 1.0 μ V |
| 4. Squelch Sensitivity at Tight | 1 mV | 500 – 2000 μ V |
| 5. AGC Figure of Merit (RF input 50 mV, AF – 10 dB) | 86 dB | 80 dB |
| 6. Overload AGC Characteristics from 50 mV to 1 V | | +6 dB, –2 dB |
| 7. Overall Audio Fidelity | | |
| Upper Frequency 2500 Hz | –6 dB | –6 ± 3 dB |
| Lower Frequency 450 Hz | –6 dB | –6 ± 3 dB |
| 8. Adjacent Channel Selectivity at ±10 kHz | 70 dB | 60 dB |
| 9. Max. Audio Output Power | 5.0 W | 4.0 W |
| 10. Audio Output Power at 10% THD | 4.0 W | 3.0 W |
| 11. THD at 500 mW Output | | |
| RF input 1 mV, 30% Mod. | 2% | 4% |
| 50% Mod. | 4% | 6% |
| 80% Mod. | 6% | 8% |
| 12. S/N Ratio at 1 mV Input | 40 dB | 35 dB |
| 13. Image Rejection Ratio (1st IF/2nd IF) | 76/60 dB | 60/50 dB |
| 14. ½ IF Rejection Ratio (2nd IF) | 70 dB | 60 dB |
| 15. IF Rejection Ratio (1st IF/2nd IF) | 70/110 dB | 60/100 dB |
| 16. Spurious Rejection Ratio | 70 dB | 60 dB |
| 17. Skirt Rejection at 20 kHz Single Signal | 80 dB | 70 dB |
| 18. Cross Modulation | 60 dB | 50 dB |
| 19. Desensitivity at 1 μ V/10 μ V/100 μ V/1000 μ V desired 20 kHz away, 3 dB desens. | 70/64/62/60 dB | 60/57/55/50 dB |
| 20. RF Control Range at S/N 10 dB Sens. level | 30 dB | 24 dB |
| 21. S Meter Sensitivity at "S9" | 100 μ V | 50 – 200 μ V |
| 22. Delta Tune Frequency +/- | 1 kHz | 1.3 kHz |
| 23. Oscillator Drop-out Voltage | 10.5 V | 11.0 V |
| 24. Current Drain at No Signal (DC/AC) | 350/170 mA | 450/250 mA |
| at Max. Output Power (DC/AC) | 900/250 mA | 1200/350 mA |
| 25. Mic Output for 500 mW Audio Standard Output | 0.5 mW | 0.2 – 1.0 mW |

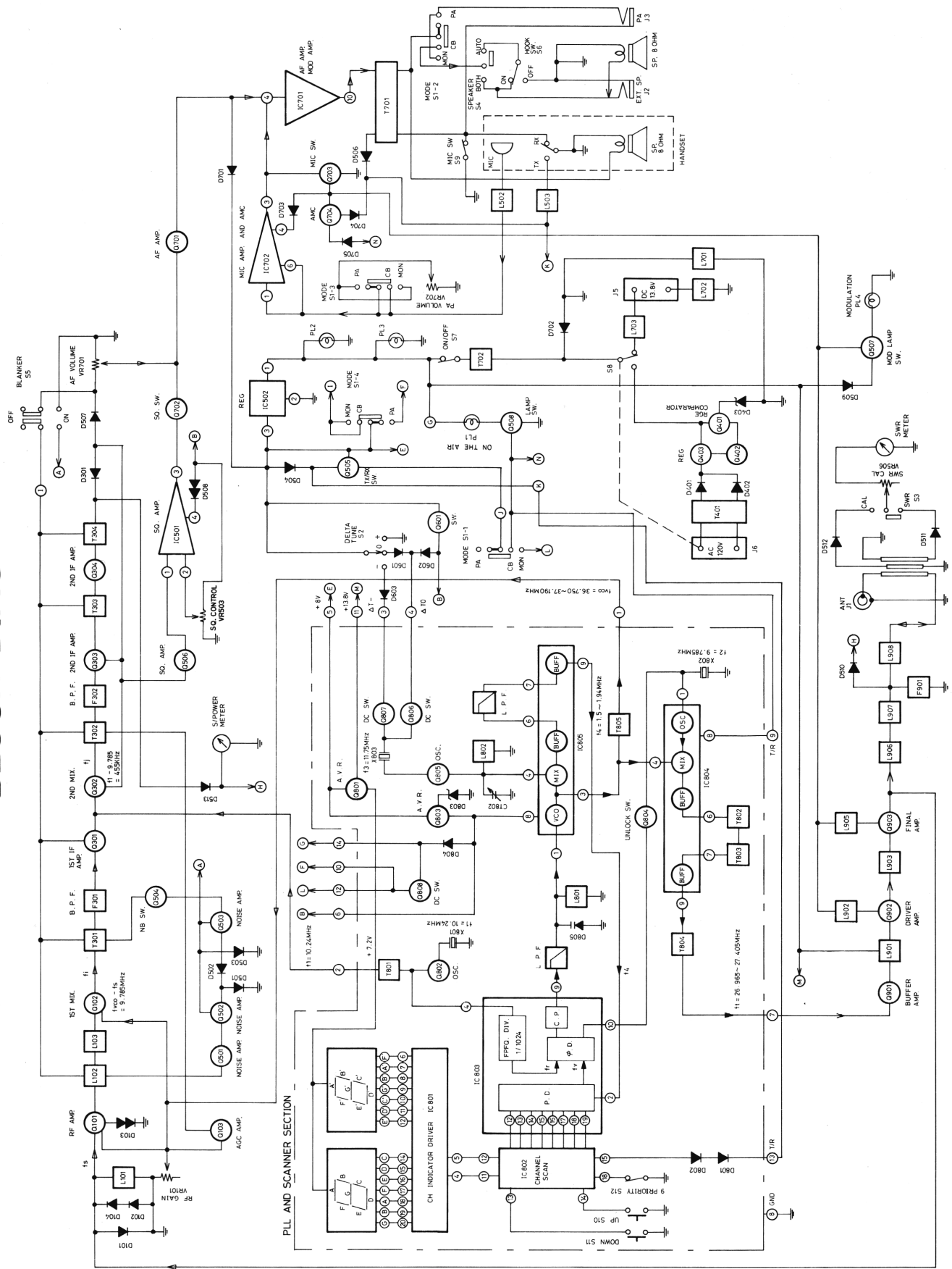
TRANSMITTER SPECIFICATIONS

| MEASUREMENT ITEMS | NOMINAL | LIMIT |
|--|-------------|-----------------|
| 1. Frequency Tolerance (5 min. after power on) | | ± 1350 Hz |
| 2. Carrier Power, No Modulation (DC/AC) | 4.0 W | 3.6 – 4.4 W |
| 3. Modulation Attack Time | 20 mSec. | 25 mSec. |
| 4. Modulation Release Time | 250 mSec. | 100 – 500 mSec. |
| 5. Modulation Distortion at 1 kHz, 80% Mod. | 3.0% | 8.0% |
| 6. Spurious Emission 2nd/3rd/4th/5th/6th/7th/8th 9th/10th | | 60 dB |
| 7. Modulation Capability Pos./Neg. | 95% | 80% |
| 8. Current Drain at No Mod. (DC/AC) | 1100/300 mA | 1400/400 mA |
| at 80% Mod. (DC/AC) | 1600/400 mA | 1800/500 mA |
| 9. Modulation Frequency Response (1 kHz, 0 dB Ref.) | | |
| Lower at 450 Hz | –6 dB | –6 ± 3 dB |
| Upper at 2.5 kHz | –6 dB | –6 ± 3 dB |
| 10. Carrier Power Uniformity, Ch. to Ch. at No Mod. | 0.2 W | 0.5 W |
| 11. Microphone Sensitivity for 50% Mod. | 0.5 mV | 1.0 mV |
| 12. AMC Range between 50 and 100% | 56 dB | 50 dB |
| 13. Occupied Bandwidth +/- 5.0 kHz | | 25 dB |
| 7.5 kHz | | 25 dB |
| 10.0 kHz | | 35 dB |
| 12.5 kHz | | 35 dB |
| 15.0 kHz | | 35 dB |
| 17.5 kHz | | 35 dB |
| 20.0 kHz | | 35 dB |
| 22.5 kHz | | 59 dB |

PUBLIC ADDRESS SPECIFICATIONS

| MEASUREMENT ITEMS | NOMINAL | LIMIT |
|---|---------|---------|
| 1. Max. Output Power at 10 mV AF input (DC/AC) | 5.0 W | 4.0 W |
| 2. 10% THD Output Power (DC/AC) | 4.0 W | 3.5 W |
| 3. Microphone Sensitivity for 4 W PA Output Power at 1 kHz | 5 mV | 10 mV |
| 4. Frequency Response at –6 dB Down | | |
| Lower | 300 Hz | 450 Hz |
| Upper | 2700 Hz | 2500 Hz |
| 5. Current Drain at Max. Power (DC/AC) | 1.0 A | 1.3 A |

BLOCK DIAGRAM



CIRCUIT DESCRIPTION

A PLL frequency synthesizer system is used in this transceiver. This system allows you to select any of 40 channels from 26.965 to 27.405 MHz using only three crystals.

PHASE-LOCKED-LOOP FREQUENCY SYNTHESIZER LOGIC (look at the BLOCK DIAGRAM)

A standard frequency (f_1) is generated by X801 crystal; this is divided by the FREQUENCY DIVIDER (FREQ. DIV.) and another reference frequency (f_r) will be produced at the output of the FREQUENCY DIVIDER.

The FREQUENCY DIVIDER is set up for

$$F = \frac{1}{2} \times \frac{1}{512} = \frac{1}{1024} \text{ (Fixed)}$$

Reference Frequency

$$f_r = 10.240 \text{ MHz} \times F$$

$$\text{I.E. } f_r = 10.240 \text{ MHz} \times 1/1024 \\ = 10 \text{ kHz}$$

The VOLTAGE CONTROLLED OSCILLATOR (VCO) frequency (f_{vco}) is mixed in MIXER (MIX) of IC805 with the Local Oscillator Frequency (f_3) derived from crystal X803 (11.750 MHz) and Q805 which is an oscillator/tripler. This frequency is processed to the LOW-PASS FILTER (L.P.F. which is connected between (6) and (7) of IC805) and a new frequency (f_4) results at the output (9) of IC803.

$$f_4 = f_{vco} - f_3 \times 3 \quad (\text{shown in Chart-1})$$

Eg. Channel 20

$$f_4 = 36.990 \text{ MHz} - 11.750 \text{ MHz} \times 3 \\ = 36.990 \text{ MHz} - 35.250 \text{ MHz} \\ = 1.74 \text{ MHz}$$

The heterodyning frequency (f_4) is fed to the PROGRAMMABLE DIVIDER (P.D.). The PROGRAMMABLE DIVIDER divides the heterodyning frequency (f_4) to 10 kHz by varying the factor "Np" from 150 to 194. Np is controlled by the channel scan IC IC802 which is connected to pins (14) thru (19) of IC801.

$$\text{Variable Frequency } f_v = f_4/N_p$$

PROGRAMMABLE DIVIDER determines Np

$$N_p = 150 \text{ to } 194 \quad (\text{shown in Chart-1})$$

Eg. Channel 20

$$N_p = 174 \\ f_v = 1.74 \text{ MHz}/174 = 10 \text{ kHz}$$

This is how the frequency increments are generated. Now to the PLL.

" f_r " and " f_v " are compared in the PHASE DETECTOR (ϕ .D.), which generates a D.C. voltage proportional to the phase difference between f_r and f_v ; this appears at the output terminal of the CHARGE PUMP (C.P.) (Pin (9) of IC803). This D.C. voltage is applied to VCO of IC805 through the LOW-PASS FILTER (L.P.F.), and thus the VCO frequency (f_{vco}) is controlled by this D.C. voltage (the variable capacitance diode D805 changes capacitance in proportion to the reverse bias applied). The PHASE DETECTOR will continuously produce a voltage as long as any phase difference is present.

If there is no phase difference, the PLL circuit will be "locked" (f_{vco}) as follows;

$$f_r = f_v$$

$$f_1 \times F = f_4/N_p$$

$$f_1 \times F = (f_{vco} - f_3 \times 3)/N_p$$

$$f_{vco} = (f_1 \times F \times N_p) + 3f_3 \quad (\text{shown in Chart-1})$$

Eg. Channel 20

$$f_{vco} = (10.240 \text{ MHz} \times 1/1024 \times 174) + 3 \times 11.750 \text{ MHz} \\ = 10 \text{ kHz} \times 174 + 35.250 \text{ MHz} \\ = 36.990 \text{ MHz}$$

TRANSMITTER (again, look at the BLOCK DIAGRAM)

The VCO frequency (f_{vco}) is added to the MIXER of IC804 and is converted to (f_t) by mixing with the local oscillator frequency (f_2) of crystal controlled oscillator of IC804 as follows;

$$\begin{aligned}\text{Transmitter frequency } f_t &= f_{vco} - f_2 \\ &= f_{vco} - 9.785 \text{ MHz (shown in Chart-1)}\end{aligned}$$

Eg. Channel 20

$$\begin{aligned}f_t &= 36.990 \text{ MHz} - 9.785 \text{ MHz} \\ &= 27.205 \text{ MHz}\end{aligned}$$

f_t is processed to the final RF amplifier (Q903) through T802, T803, T804, Q901, L901, Q902 and L903. The DRIVER (Q902) and the final RF amplifier (Q903) are modulated by IC701 through T701. **IC702 functions as the Automatic Modulation Control (AMC).** The microphone input signal is added to Pin (1) of IC702 through the attenuator and is amplified. As a part of this signal is rectified in IC702, the impedance at Pin (6) of IC702 varies in proportion to the input signal level. If an over-modulated microphone input signal is applied to IC702, the input impedance of IC702 will drop. Therefore the modulation capability does not exceed 100 percent.

Over modulation control with variation of power supply voltage:

The power supply voltage is applied to Pin (8) of IC702. The threshold level of rectifier circuit of IC702 changes in proportion to the power supply voltage. Therefore the modulation capability does not exceed 100 percent. The AMC response (Transient) is determined by C711 and R714 at Pin (4) of IC702.

A special inhibit circuit is used in this transceiver to prevent any undesired signal from being transmitted.

Instant Stop circuit: If there is a phase difference between (f_r) and (f_v) in the PHASE DETECTOR, the unlock DC voltage (which is proportional to the phase difference is generated from Pin (10) of IC803) is applied to the base of Q804. Therefore the oscillator of IC804 will not work. In receive mode, as the D.C. voltage (+8.0 V) is applied to the base of Q505, Q505 will be turned "OFF" and the supply voltage to Pin (8) of IC804 will be removed. Therefore the oscillator of IC804 will not work.

Any spurious radiation near 27 MHz is reduced or eliminated by IC804, IC805, L802, Band-Pass Filter (T802, T803, T804), L901 and L903. Also, any harmonic content of the Transmitter's RF output is reduced or eliminated by L901 thru L908, and F901.

RECEIVER (as shown in BLOCK DIAGRAM)

The incoming signals (f_s) are amplified by the RF amplifier (Q101) and converted to the 1st I.F. (f_i) by the 1ST MIXER (Q102), using (f_{vco}) as the local oscillator signal, as follows:

$$\begin{aligned}\text{1st I.F. } f_i &= f_{vco} - f_s \\ &= 9.785 \text{ MHz}\end{aligned}$$

Eg. Channel 20

$$\begin{aligned}f_i &= 36.990 \text{ MHz} - 27.205 \text{ MHz} \\ &= 9.785 \text{ MHz}\end{aligned}$$

As the standard frequency (f_1) derived from X801 is added to the 2ND MIXER (Q302), the 1st I.F. (f_i) is converted to the 2nd I.F. (f_j) as follows;

$$\begin{aligned}\text{2nd I.F. } f_j &= f_1 - f_i \\ &= 455 \text{ kHz} \\ f_j &= 10.240 \text{ MHz} - 9.785 \text{ MHz} \\ &= 455 \text{ kHz}\end{aligned}$$

The second I.F. is applied through T302, F302, T303, amplified by Q303 and Q304 and applied to T304. The output signal of the DETECTOR (D301) is amplified by the AF amplifier (Q701 and IC701) through the network of the Automatic Noise Limiter circuit and the audio signal is processed to the speaker.

The Transceiver also has a DELTA TUNE circuit. In Receive mode, the local oscillator frequency (f_3) derived from X803 [crystal controlled oscillator (Q805)] can be varied from plus to zero to minus by switching transistor Q807 or Q806. The transceiver also incorporates a NOISE BLANKER circuit, which is composed of Q501, Q502, D501, D502, D503, Q503 and Q504 (to reduce impulse-type interference).

Chart-1

| Channel | Np | f4 | fvco | ft |
|---------|-----|----------|------------|------------|
| 1 | 150 | 1.50 MHz | 36.750 MHz | 26.965 MHz |
| 2 | 151 | 1.51 | 36.760 | 26.975 |
| 3 | 152 | 1.52 | 36.770 | 26.985 |
| 4 | 154 | 1.54 | 36.790 | 27.005 |
| 5 | 155 | 1.55 | 36.800 | 27.015 |
| 6 | 156 | 1.56 | 36.810 | 27.025 |
| 7 | 157 | 1.57 | 36.820 | 27.035 |
| 8 | 159 | 1.59 | 36.840 | 27.055 |
| 9 | 160 | 1.60 | 36.850 | 27.065 |
| 10 | 161 | 1.61 | 36.860 | 27.075 |
| 11 | 162 | 1.62 | 36.870 | 27.085 |
| 12 | 164 | 1.64 | 36.890 | 27.105 |
| 13 | 165 | 1.65 | 36.900 | 27.115 |
| 14 | 166 | 1.66 | 36.910 | 27.125 |
| 15 | 167 | 1.67 | 36.920 | 27.135 |
| 16 | 169 | 1.69 | 36.940 | 27.155 |
| 17 | 170 | 1.70 | 36.950 | 27.165 |
| 18 | 171 | 1.71 | 36.960 | 27.175 |
| 19 | 172 | 1.72 | 36.970 | 27.185 |
| 20 | 174 | 1.74 | 36.990 | 27.205 |
| 21 | 175 | 1.75 | 37.000 | 27.215 |
| 22 | 176 | 1.76 | 37.010 | 27.225 |
| 23 | 179 | 1.79 | 37.040 | 27.255 |
| 24 | 177 | 1.77 | 37.020 | 27.235 |
| 25 | 178 | 1.78 | 37.030 | 27.245 |
| 26 | 180 | 1.80 | 37.050 | 27.265 |
| 27 | 181 | 1.81 | 37.060 | 27.275 |
| 28 | 182 | 1.82 | 37.070 | 27.285 |
| 29 | 183 | 1.83 | 37.080 | 27.295 |
| 30 | 184 | 1.84 | 37.090 | 27.305 |
| 31 | 185 | 1.85 | 37.100 | 27.315 |
| 32 | 186 | 1.86 | 37.110 | 27.325 |
| 33 | 187 | 1.87 | 37.120 | 27.335 |
| 34 | 188 | 1.88 | 37.130 | 27.345 |
| 35 | 189 | 1.89 | 37.140 | 27.355 |
| 36 | 190 | 1.90 | 37.150 | 27.365 |
| 37 | 191 | 1.91 | 37.160 | 27.375 |
| 38 | 192 | 1.92 | 37.170 | 27.385 |
| 39 | 193 | 1.93 | 37.180 | 27.395 |
| 40 | 194 | 1.94 | 37.190 | 27.405 |

| | |
|---|--------|
| F | 1/1024 |
|---|--------|

Np: a factor of PROGRAMMABLE COUNTER

ft: Transmitter Frequency

f4: Heterodyning Frequency

F: a factor of FREQUENCY DIVIDER

fvco: VCO Frequency

Chart-2

(SWITCH DATA)

| CH | $\bar{D}1$ | $\bar{D}2$ | $\bar{D}3$ | $\bar{D}4$ | $\bar{D}5$ | $\bar{D}6$ |
|----|------------|------------|------------|------------|------------|------------|
| 1 | ○ | ○ | | | ○ | |
| 2 | | | ○ | | ○ | |
| 3 | ○ | | ○ | | ○ | |
| 4 | ○ | ○ | ○ | | ○ | |
| 5 | | | | ○ | ○ | |
| 6 | ○ | | | ○ | ○ | |
| 7 | | ○ | | ○ | ○ | |
| 8 | | | ○ | ○ | ○ | |
| 9 | ○ | | ○ | ○ | ○ | |
| 10 | | ○ | ○ | ○ | ○ | |
| 11 | ○ | ○ | ○ | ○ | ○ | |
| 12 | ○ | | | | | ○ |
| 13 | | ○ | | | | ○ |
| 14 | ○ | ○ | | | | ○ |
| 15 | | | ○ | | | ○ |
| 16 | | ○ | ○ | | | ○ |
| 17 | ○ | ○ | ○ | | | ○ |
| 18 | | | | ○ | | ○ |
| 19 | ○ | | | ○ | | ○ |
| 20 | ○ | ○ | | ○ | | ○ |
| 21 | | | ○ | ○ | | ○ |
| 22 | ○ | | ○ | ○ | | ○ |
| 23 | | | | | ○ | ○ |
| 24 | | ○ | ○ | ○ | | ○ |
| 25 | ○ | ○ | ○ | ○ | | ○ |
| 26 | ○ | | | | ○ | ○ |
| 27 | | ○ | | | ○ | ○ |
| 28 | ○ | ○ | | | ○ | ○ |
| 29 | | | ○ | | ○ | ○ |
| 30 | ○ | | ○ | | ○ | ○ |
| 31 | | ○ | ○ | | ○ | ○ |
| 32 | ○ | ○ | ○ | | ○ | ○ |
| 33 | | | | ○ | ○ | ○ |
| 34 | ○ | | | ○ | ○ | ○ |
| 35 | | ○ | | ○ | ○ | ○ |
| 36 | ○ | ○ | | ○ | ○ | ○ |
| 37 | | | ○ | ○ | ○ | ○ |
| 38 | ○ | | ○ | ○ | ○ | ○ |
| 39 | | ○ | ○ | ○ | ○ | ○ |
| 40 | ○ | ○ | ○ | ○ | ○ | ○ |

Note:

○ Mark : Closed

Blank : Open

Off-Set : 131

DISASSEMBLY INSTRUCTIONS

Refer to Figures 1 thru 3.

1. Remove 4 Knobs (81) and (82) .
2. Remove Special Nut (85) and Washer which comes with SWR CALibration Control.
3. Remove 8 screws (shown in Figure 2) on Cabinet bottom.
4. Remove 3 Stud Nuts (92) and Pan Head Tapping Screw (121) on Chassis assembly.
5. Pull out Chassis assembly from Cabinet top.

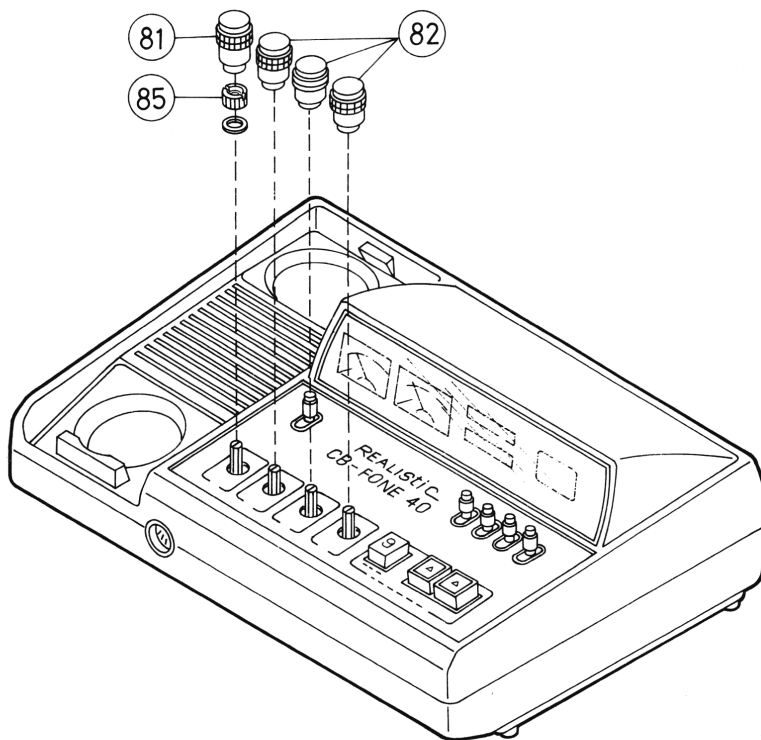


Figure 1

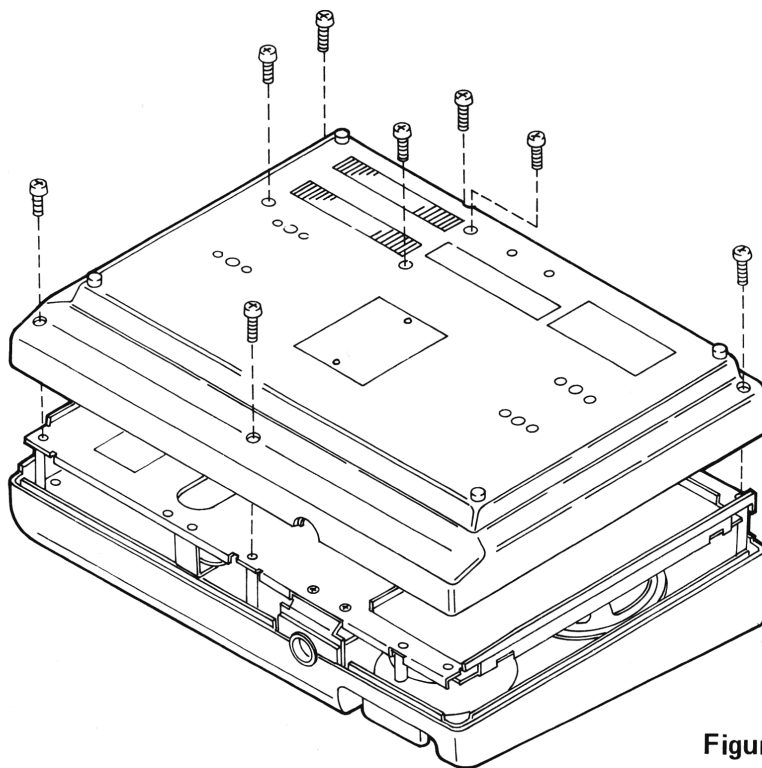


Figure 2

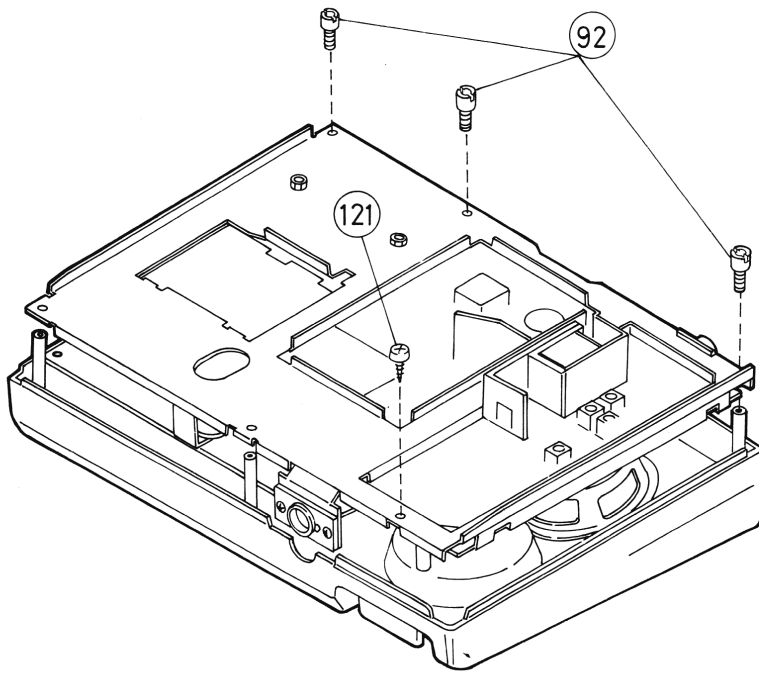


Figure 3

ALIGNMENT INSTRUCTIONS

PLL SECTION

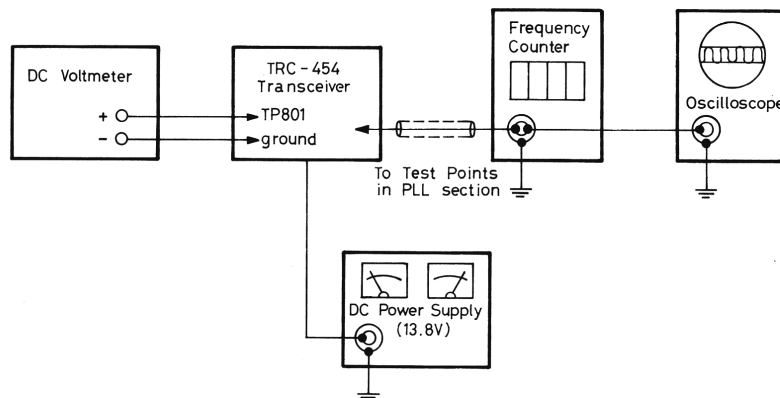
Test Equipment Required

1. Frequency Counter
2. Oscilloscope (50 MHz)
3. DC Voltmeter (5 volt, high impedance)
4. DC Power Supply (13.8 volt/2 amp.)

Notes

1. This transceiver meets all requirements of F.C.C. Rules and Regulations, Part 95. Only those persons properly licensed by the F.C.C. are permitted to repair or adjust any malfunctioning unit found to be transmitting illegally. (Refer to F.C.C. Rules and Regulations, Part 95, Sub part D, Section 95.)
Work on Canadian models must conform to D.O.C. standards.
2. Allow test equipment and set at least 15 minutes to warm up before starting the alignment.
3. A non-metallic alignment tool must be used for all alignment.
4. Connection of test equipment is shown in PLL SECTION TEST EQUIPMENT SET-UP DIAGRAM.

PLL SECTION TEST EQUIPMENT SET-UP DIAGRAM



Alignment Procedure

| STEP | TRANSCIVER CONDITION | CONNECT | ADJUST | ADJUST FOR |
|------|--|--|----------------------|--|
| 1 | Channel: 19 DELTA TUNE: 0 Receive mode | DC Voltmeter to TP801 and ground. | L801 | 2.5 ± 0.05 V reading on DC Voltmeter. |
| 2 | Same as STEP 1 | Oscilloscope to TP805 and ground. | T805 | Max. amplitude. (Normal: 350 mV p-p) |
| 3 | Same as STEP 1 | Same as STEP 1 | L801 | Recheck the voltage on STEP 1. Repeat STEP 1 and STEP 2 as necessary to obtain 2.5 ± 0.05 V reading. |
| 4 | Same as STEP 1 | Frequency Counter to TP805 and ground. | CT801 | 37.970 MHz display on Frequency Counter. |
| 5 | Same as STEP 1 | Oscilloscope to TP802 and ground. | L802 | Max. amplitude. (Normal: 3 V p-p) |
| 6 | Same as STEP 1 | Oscilloscope to TP803 and ground. | T801 | Max. amplitude. (Normal: 700 – 800 mV p-p) |
| 7 | Channel: 19 Transmit mode | Oscilloscope to TP804 and ground. | T802 T803 T804 | Max. amplitude. (Normal: 700 mV p-p) |

TRANSMITTER SECTION

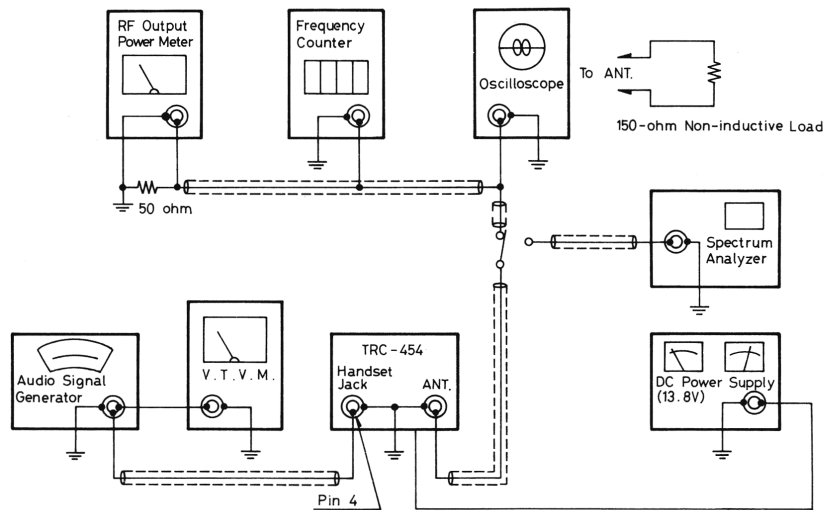
Test Equipment Required

1. RF Output Power Meter
2. 50 ohm Dummy Load (non-inductive)
3. Frequency Counter
4. Oscilloscope (50 MHz)
5. Audio Signal Generator
6. 150-ohm Non-inductive Load
7. DC Power Supply (13.8 volt/2 amp.)
8. V.T.V.M.
9. Field Strength Meter or Spectrum Analyzer

Notes

1. This transceiver meets all requirements of F.C.C. Rules and Regulations, Part 95. Only those persons properly licensed by the F.C.C. are permitted to repair or adjust any malfunctioning unit found to be transmitting illegally. (Refer to F.C.C. Rules and Regulations, Part 95, Sub part D, Section 95.)
Work on Canadian models must conform to D.O.C. standards.
2. Allow test equipment and set at least 15 minutes to warm up before starting the alignment.
3. An RF output power meter or 50 ohm dummy load must be connected to the antenna connector.
4. A non-metallic alignment tool must be used for all alignment.
5. Connection of test equipment is shown in TRANSMITTER TEST EQUIPMENT SET-UP DIAGRAM.

TRANSMITTER TEST-EQUIPMENT SET-UP DIAGRAM



Alignment Procedure

| STEP | TRANSCIVER CONDITION | CONNECT | ADJUST | ADJUST FOR |
|------|---|---|--------------|---|
| 1 | TX mode No modulation Channel: 19 MODE: CB | RF Output Power Meter and Oscilloscope to ANTenna Coax Connector. | L907 L908 | 27 MHz CARRIER ALIGNMENT Preset the cores of L907 and L908 as follows. L907: To the top of its bobbin L908: 2 turns upward from the top of its bobbin |
| | | | L901 L903 | Max. RF output. |
| 2 | Same as STEP 1 | Same as STEP 1 | L903 | 3.8 W RF output reading, turning L903 core clockwise. |
| 3 | TX mode MODE: CB METER: CAL to SWR Channel: 19 | 150-ohm non-inductive load to ANTenna Connector. | VR505 | SWR ADJUSTMENT Set METER switch to "CAL". Adjust SWR CAL control so the SWR Meter's pointer is at the "CAL" mark. Set METER switch to "SWR". Adjust VR505 for "3" reading on SWR Meter. |
| 4 | Same as STEP 1 | Same as STEP 1 | VR504 | RF METER ADJUSTMENT 3.8 – 4.0 W reading on the built-in RF Meter. Check to be sure this reading corresponds to the reading obtained on RF Power Meter connected to the ANT connector. Be sure to make adjustments within the limitations required by FCC/DOC. |

| STEP | TRANSCEIVER CONDITION | CONNECT | ADJUST | ADJUST FOR |
|------|---|--|--------|--|
| 5 | TX mode Modulated Channel: 19 MODE: CB | Audio Signal Generator to Pin 4 (hot) and Pin 1 (ground) of Handset Jack. RF Output Power Meter and Oscilloscope to ANTenna Connector. | VR703 | AMC ADJUSTMENT More than 90% modulation on minus and less than 100% modulation on plus, with 500 mV 1000 Hz input from Audio Signal Generator. |
| 6 | Same as STEP 1 | Field Strength Meter or Spectrum Analyzer to ANTenna Connector. | F901 | SPURIOUS ADJUSTMENT Min. 54 MHz output. |

RECEIVER SECTION

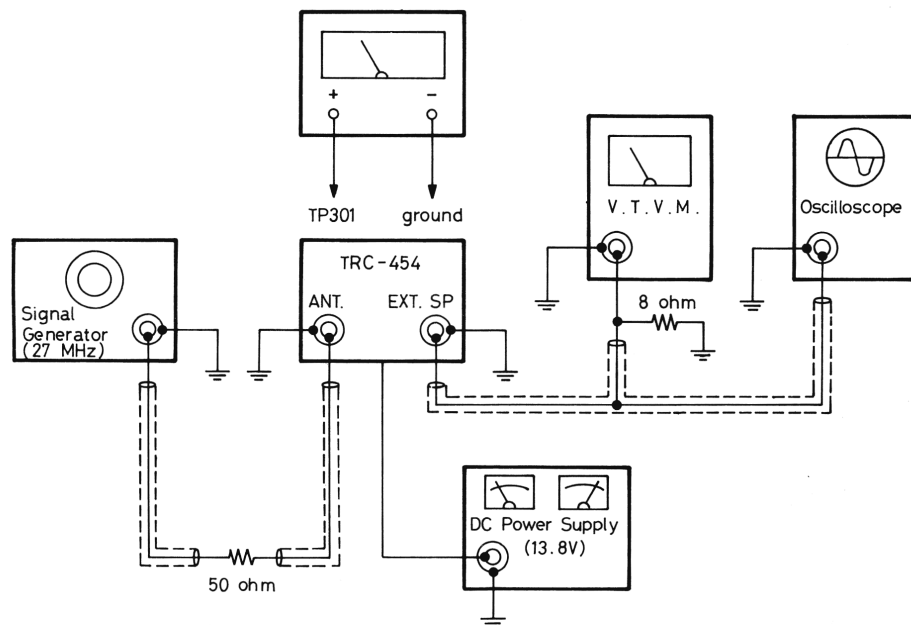
Test Equipment Required

1. Signal Generator (27 MHz band, 50 ohm output impedance, 1000 Hz, 30% modulation)
2. V.T.V.M.
3. Oscilloscope
4. 8 ohm Dummy Load
5. DC Voltmeter (5 V)
6. DC Power Supply (13.8 Volt/2 amp.)

Notes

1. Allow test equipment and set at least 15 minutes to warm up before starting the alignment.
2. Signal input must be kept as low as possible to avoid overload and clipping. (Use highest possible sensitivity for output indication).
3. Output level of test set should be kept under 2 volts.
4. A non-metallic tool must be used for all alignment.
5. Connection of test equipment is shown in RECEIVER TEST EQUIPMENT SET-UP DIAGRAM.

RECEIVER TEST EQUIPMENT SET-UP DIAGRAM



Alignment Procedure

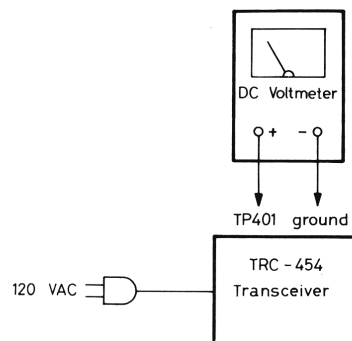
| STEP | CONNECT SG | PRESET TRANSCEIVER TO | CONNECT OUTPUT METER | ADJUST | ADJUST FOR |
|------|--|---|---|--|--|
| 1 | No signal input | RX mode | DC Voltmeter to TP301 | VR301 | AGC VOLTAGE ADJUSTMENT 1.38 – 1.40 reading. |
| 2 | To ANTenna Coax Connector Freq.: 27.185 MHz | RX mode SQUELCH: Min Channel: 19 RF GAIN: Max. DELTA TUNE: 0 BLANKER: OUT MODE: CB | V.T.V.M. and Oscilloscope to EXT. SP JACK (J2). | T304 T303 T302 T301 L101 L102 L103 | SENSITIVITY ALIGNMENT Max. reading on V.T.V.M. |
| 3 | Same as STEP 2 | Same as STEP 2 | Same as STEP 2 | VR102 | Max. reading on V.T.V.M., reducing signal input from S.G. |
| 4 | Same as STEP 2 100 μ V signal input | Same as STEP 2 | Same as STEP 2 | VR501 | S METER ADJUSTMENT "S9" reading on S meter. |
| 5 | Same as STEP 2 | RX mode SQUELCH: Max. Channel: 19 RF GAIN: Max. DELTA TUNE: 0 BLANKER: OUT MODE: CB | Same as STEP 2 | VR502 | SQUELCH ADJUSTMENT Squelch open with 1 mV signal input. |

AC-DC CONVERTER SECTION

Test Equipment Required

1. DC Voltmeter (20 volt)

AC-DC CONVERTER TEST EQUIPMENT SET-UP DIAGRAM



Alignment Procedure

| STEP | TRANSCEIVER CONDITION | CONNECT | ADJUST | ADJUST FOR |
|------|-----------------------|-----------------------------------|--------|-----------------|
| 1 | RX mode | DC Voltmeter to TP401 and ground. | VR401 | 13.8 V reading. |

TROUBLESHOOTING

RECEIVER SECTION

- (1) Pilot lamp does not light when power switch is turned on.

AC OPERATION:

- Check AC voltage at T401 secondary.
- Check the collector and emitter voltages of Q403.
- Check if S8 in AC 120V JACK is functioning normally.

DC OPERATION:

- Check that power is connected with correct polarity.
 - Check the fuse (3A).
 - Check if power supply circuit is shorted. Is Diode D702 shorted?
 - Check if power circuit is open due to improper wire connection.
- (2) No sound (noise) from speaker.
- Check if MODE Switch is in "CB" position.
 - Try increasing Volume and setting Squelch to "open" position. Can you hear noise?
 - With Handset out of the cradle, SPEAKER Switch set to AUTO or BOTH, are both the built-in and Handset speakers dead?
 - Check if Handset switching is operating correctly.
 - Check with an external speaker.
 - If an external speaker works normally, check the built-in speaker leads. Also, check other leads.
 - Check to be sure the audio circuit is functioning. If you touch the terminals of VOLUME control with your finger, you should hear noise. Thus, you know the audio circuit is functioning.
 - Check the terminal voltages at ④ and ⑩ of IC701.
 - Check the voltage at C726.
 - Check if T701 is shorted or open.
 - Check to be sure S1-2, S4, S6 and J2 are functioning normally.
 - Check the terminal voltages of Q701.
 - Check the base voltage of Q702. It must be "low".
 - Check that Squelch circuit is operating normally.
 - With unit set to CH. 18, check for presence of oscillation at TP805(36.960 MHz) and TP803(10.24 MHz) with a Frequency Counter and Oscilloscope. If so, check that all oscillations are strong enough. (Normal values are shown on schematic.)
 - Check components in PLL SECTION.

- (3) Delta Tune switch does not operate normally.

- Connect Voltmeter between the common terminal of Delta Tune switch and ground, and switch Delta Tune switch to -, 0 and +. Does the voltage vary?
- Check the collector voltage of Q601. It should be "low".
- Check the terminal voltages of Q806 and Q807. They should be as follows.
 $\Delta 0$: "high" voltage at the base of Q806
"low" voltage at the base of Q807
 $\Delta -$: "high" voltage at the base of Q807
"low" voltage at the base of Q806

- (4) BLANKER does not operate normally.

- Check the wiring of BLANKER (S5).
- With BLANKER Switch set to "IN", check the terminal voltages of Q501, Q502, Q503 and Q504.

- (5) S meter does not operate normally.

- Check VR501.
- See if output from D513 is proportional to incoming signal.
- Check if C507 is shorted.

TRANSMITTER SECTION

- (1) No output

- Make sure MODE Switch is set to "CB".
- Make sure Handset plug is inserted correctly.
- Check if Handset switching is operating correctly.
- Try replacing Handset.
- If receiver section is operating normally, check for presence of oscillation at Pin ② of IC804 (9.785 MHz) with a Frequency Counter and Oscilloscope. If so, check that the oscillation is strong enough. (Normal value: 1.1 Vp-p)
- Check the terminal voltages of IC804, Q901, Q902 and Q903.

- (2) POWER meter does not operate normally.

- Check VR504.
- Check Diode D510.
- Check C518 and C524.

- (3) No modulation (MODULATION light does not light.)

- Check wiring of Handset Jack.
- Check if S1-3 is functioning normally.
- Check the terminal voltages of IC702.
- Check the base voltage of Q703. It should be "low".

- e. Check if the collector voltage of Q704 is normal value.

NEITHER RECEIVE NOR TRANSMIT

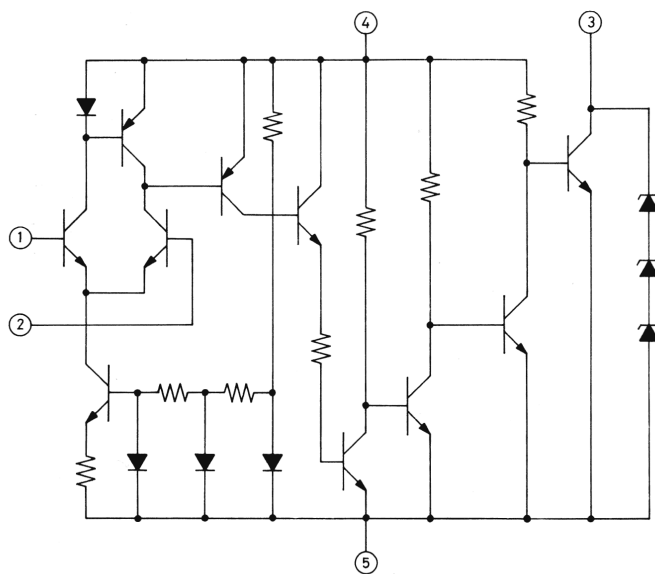
- a. Check for the presence of oscillation at TP805 (36.750 – 37.190 MHz) with a Frequency Counter and Oscilloscope. If so, is it strong enough? (Normal value: 0.18 Vp-p)
- b. Check for the presence of oscillation at TP803 (10.24 MHz) with a Frequency Counter and Oscilloscope. If so, is it strong enough? (Normal value: 0.7 Vp-p)
- c. Check Handset circuit.

SCANNER SECTION

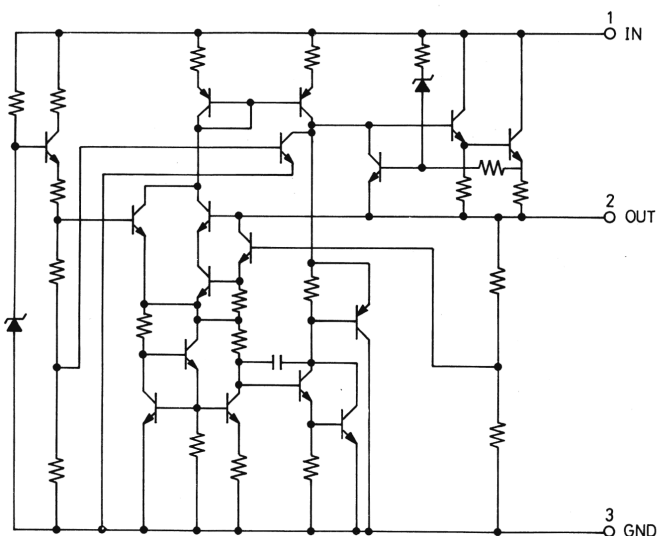
- (1) Doesn't scan
 - a. Check if the oscillation at Pin (19) of IC802 is stopped.
 - b. Check if the voltage at Pin (15) of IC802 is "high".
 - c. Check UP/DOWN Switch itself.
 - d. Check if the PLL circuit is operating normally.
 - e. Check if Q808 is "off".
 - f. Check if the voltage at Pin (18) of IC802 is always "high".
- (2) Channel Indicator doesn't display a operating channel.
 - a. Check if pulse signals come out at Pins (11) and (12) of IC802. They will be added to Pins (4) and (5) of IC801.
- (3) Channel Indicator doesn't display "PA".
 - a. In PA mode, check if the voltage at Pin (10) of IC802 is "low".
 - b. Check if S1-4 is operating normally.
- (4) Channel Indicator doesn't display "PA" in Monitor mode.
 - a. Check if S1-1 is operating normally.

IC INTERNAL CIRCUIT

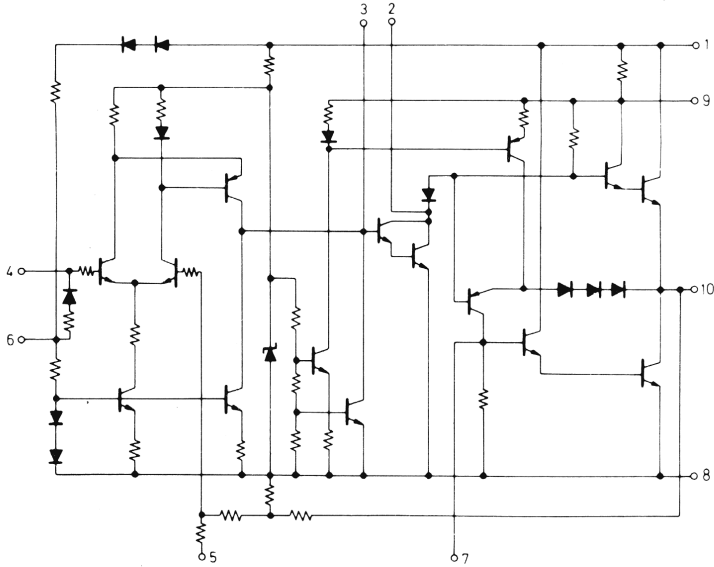
IC501 M51202



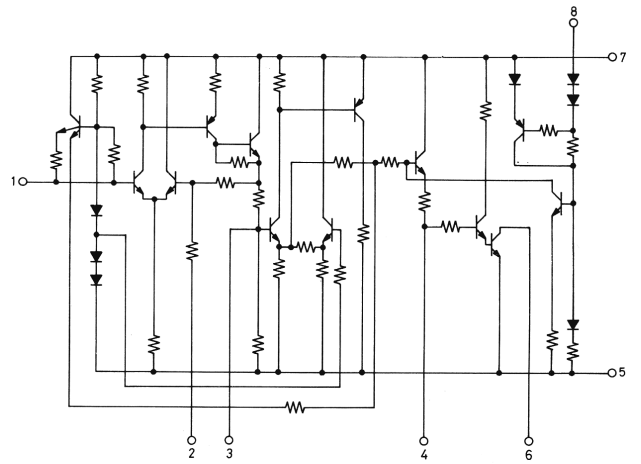
IC502 μ PC14308H



IC701 μ PC1156H

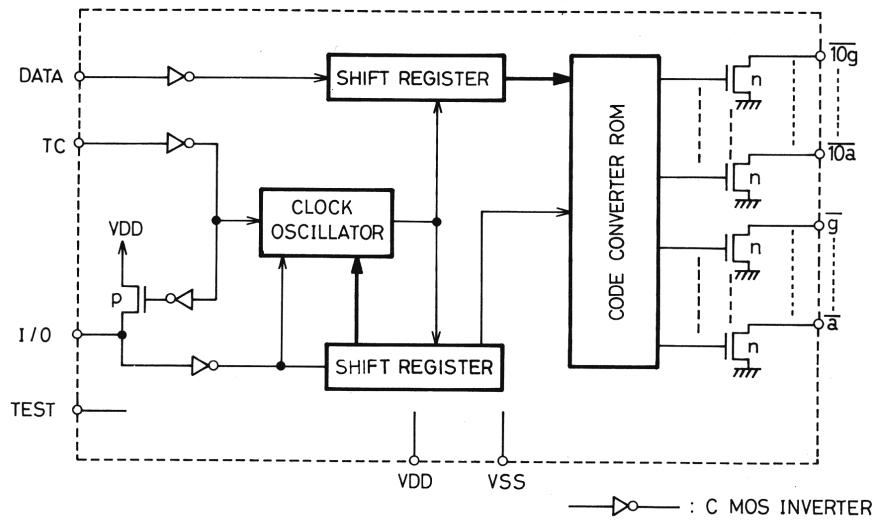


IC702 μ PC1170



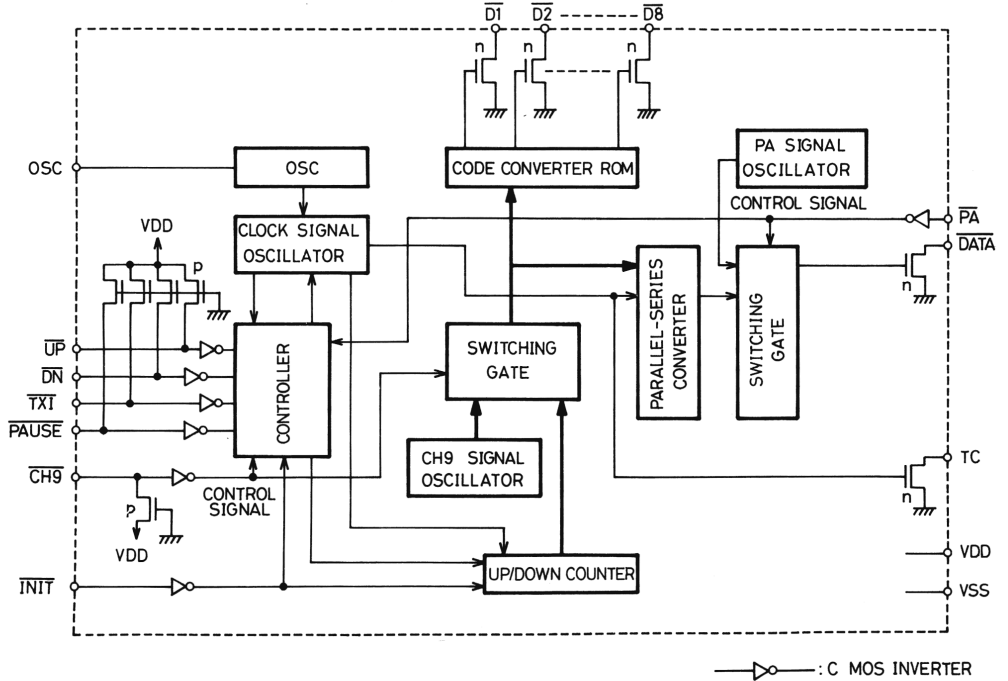
IC801 LC7191

| PIN | ABBR. | DESIGNATION | |
|-----|-------|-----------------------|--------|
| 1 | I/O | INPUT/OUTPUT TERMINAL | |
| 2 | VDD | + SUPPLY VOLTAGE | |
| 3 | TEST | TEST TERMINAL | |
| 4 | TC | TIMING CONTROL | |
| 5 | DATA | DATA INPUT | |
| 6 | f | LED TERMINAL | |
| 7 | a | | |
| 8 | b | | |
| 9 | g | | |
| 10 | c | | |
| 11 | d | | |
| 12 | e | LED TERMINAL | |
| 13 | VSS | | GROUND |
| 14 | 10c | | |
| 15 | 10d | | |
| 16 | 10e | | |
| 17 | 10f | | |
| 18 | 10a | | |
| 19 | 10b | | |
| 20 | 10g | | |



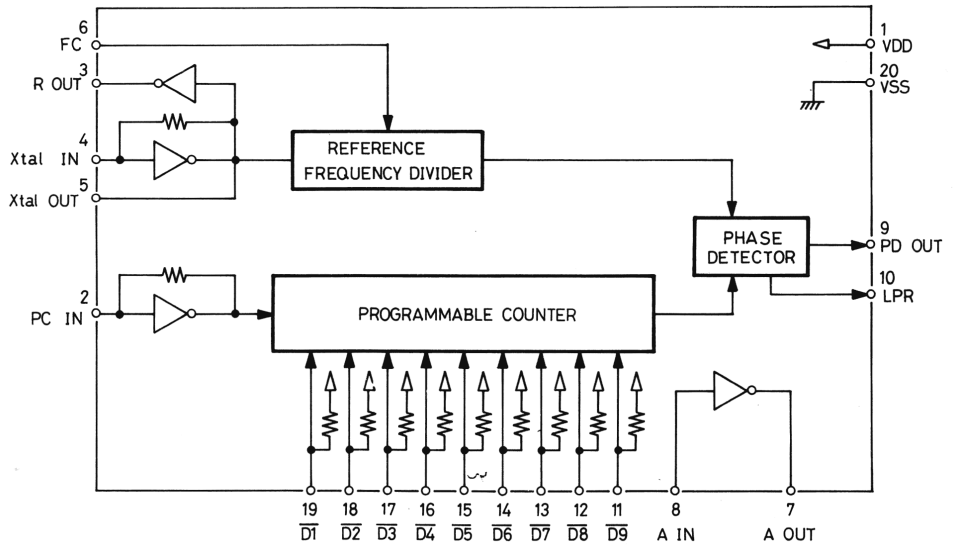
IC802 LC7199

| PIN | ABBR. | DESIGNATION |
|-----|-------|---------------------|
| 1 | VSS | GROUND |
| 2 | D1 | PROGRAM OUTPUT |
| 3 | D2 | |
| 4 | D3 | |
| 5 | D4 | |
| 6 | D5 | |
| 7 | D6 | |
| 8 | D7 | |
| 9 | D8 | |
| 10 | PA | PA SWITCH |
| 11 | DATA | DATA OUTPUT |
| 12 | TC | TIMING CONTROL |
| 13 | DN | DOWN SWITCH |
| 14 | UP | UP SWITCH |
| 15 | TXI | TRANSMITTER INHIBIT |
| 16 | PAUSE | PAUSE SWITCH |
| 17 | VDD | + SUPPLY VOLTAGE |
| 18 | CH9 | CH9 SWITCH |
| 19 | OSC | OSC TERMINAL |
| 20 | INIT | INITIAL SET |

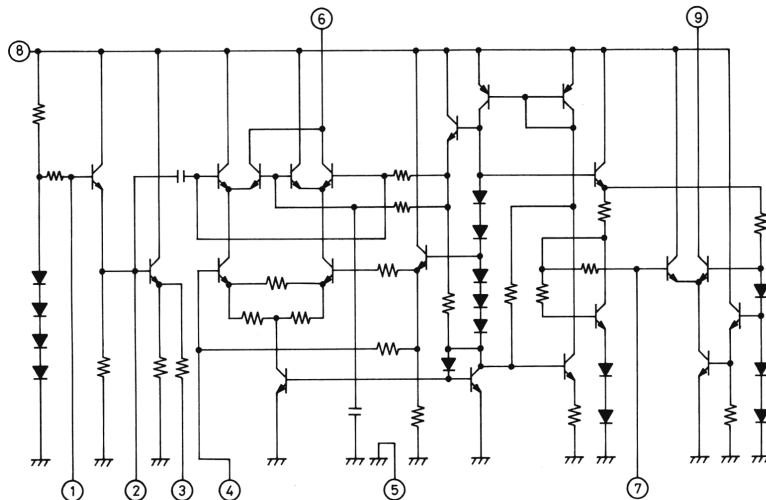


IC803 LC7110

| PIN | ABBR. | DESIGNATION |
|-----|----------|----------------------------|
| 1 | VDD | + SUPPLY VOLTAGE |
| 2 | PC IN | PROGRAMMABLE COUNTER INPUT |
| 3 | R OUT | REFERENCE FREQUENCY OUTPUT |
| 4 | Xtal IN | CRYSTAL ELEMENT INPUT |
| 5 | Xtal OUT | |
| 6 | FC | FREQUENCY CHOICE |
| 7 | A OUT | ACTIVE FILTER AMP. OUTPUT |
| 8 | A IN | ACTIVE FILTER AMP. INPUT |
| 9 | PD OUT | PHASE DETECTOR OUTPUT |
| 10 | LPR | LOCK MONITOR |
| 11 | D9 | PROGRAM INPUT |
| 12 | D8 | |
| 13 | D7 | |
| 14 | D6 | |
| 15 | D5 | |
| 16 | D4 | |
| 17 | D3 | |
| 18 | D2 | |
| 19 | D1 | |
| 20 | VSS | GROUND |



IC804 IC805 AN103



VOLTAGE CHARTS

1. Power supply voltage = 13.8 VDC/120 VAC
2. All voltages are measured under following conditions.

| | |
|-----------------------------|---------------|
| No signal input | DELTA TUNE: 0 |
| SQUELCH: Min. (unsquelched) | VOLUME: Min. |
| RF GAIN: Max. | Channel: 19 |
| BLANKER: IN | |
3. Measured with V.T.V.M.

TRANSISTORS

| | RX (V) | TX (V) | |
|------|--------|--------|-------|
| Q101 | G1 | 1.54 | 1.13 |
| | G2 | 2.52 | 0.07 |
| | S | 1.54 | 1.13 |
| | D | 7.03 | 7.98 |
| Q102 | G1 | 1.71 | 0.55 |
| | G2 | 2.16 | 0 |
| | S | 2.18 | 1.13 |
| | D | 7.51 | 7.98 |
| Q103 | B | 2.80 | 0.06 |
| | C | 6.81 | 7.46 |
| | E | 0 | 0 |
| Q301 | G | 0 | 0 |
| | S | 0.38 | 0.39 |
| | D | 4.90 | 4.90 |
| Q302 | B | 1.36 | 0.50 |
| | C | 7.05 | 7.74 |
| | E | 0.77 | 0 |
| Q303 | B | 1.37 | 0.51 |
| | C | 7.35 | 8.00 |
| | E | 0.68 | 0 |
| Q304 | B | 1.25 | 0.18 |
| | C | 7.66 | 8.00 |
| | E | 0.54 | 0 |
| Q401 | B | 8.00 | 8.00 |
| | C | 15.00 | 15.00 |
| | E | 7.20 | 7.20 |
| Q402 | B | 15.00 | 15.00 |
| | C | 21.50 | 19.00 |
| | E | 14.50 | 14.50 |
| Q403 | B | 14.50 | 14.50 |
| | C | 21.50 | 19.00 |
| | E | 14.00 | 14.00 |
| Q501 | B | 0.69 | 0.67 |
| | C | 3.41 | 3.35 |
| | E | 0 | 0 |

| | RX (V) | TX (V) | |
|------|--------|------------|-------|
| Q502 | B | 0.69 | 0.67 |
| | C | 3.36 | 3.35 |
| | E | 0 | 0 |
| Q503 | B | 6.71 | 6.80 |
| | C | 0.05 | 0 |
| | E | 7.24 | 7.22 |
| Q504 | B | 0.04 | 0 |
| | C | 0 | 0 |
| | E | 0 | 0 |
| Q505 | B | 7.99 | 7.27 |
| | C | 0 | 7.84 |
| | E | 8.01 | 8.00 |
| Q506 | B | 1.09(0.75) | 0.50 |
| | C | 3.24(5.34) | 0.72 |
| | E | 0.44(0.15) | 0 |
| Q507 | B | 13.80 | 12.16 |
| | C | 0 | 0.04 |
| | E | 13.17 | 12.73 |
| Q508 | B | 0 | 0.80 |
| | C | 13.66 | 0.18 |
| | E | 0 | 0 |
| Q601 | B | 0.68 | 0.39 |
| | C | 0.05 | 4.80 |
| | E | 0 | 0 |
| Q701 | B | 0.87 | 0.12 |
| | C | 5.95 | 0.76 |
| | E | 0.31 | 0 |
| Q702 | B | 0.02 | 0.73 |
| | C | 0 | 0 |
| | E | 0 | 0 |
| Q703 | B | 0.70 | 0.28 |
| | C | 0 | 0 |
| | E | 0 | 0 |
| Q704 | B | 13.73 | 12.68 |
| | C | 0.43 | 0.17 |
| | E | 4.54 | 7.56 |

| | RX (V) | TX (V) |
|--------|--------|--------|
| Q801 B | 7.74 | 7.73 |
| Q801 C | 12.49 | 12.24 |
| Q801 E | 7.11 | 7.10 |
| Q802 B | 3.75 | 3.70 |
| Q802 C | 5.40 | 5.39 |
| Q802 E | 3.19 | 3.18 |
| Q803 B | 7.47 | 7.49 |
| Q803 C | 8.02 | 7.99 |
| Q803 E | 6.78 | 6.82 |
| Q804 B | 0.08 | 0.08 |
| Q804 C | 0 | 1.23 |
| Q804 E | 0 | 0 |
| Q805 B | 1.51 | 1.50 |
| Q805 C | 3.62 | 3.60 |
| Q805 E | 0.97 | 0.95 |
| Q806 B | 0.69 | 0.68 |
| Q806 C | 0.01 | 0 |
| Q806 E | 0 | 0 |
| Q807 B | 0 | 0 |
| Q807 C | 0.02 | 0 |
| Q807 E | 0 | 0 |
| Q808 B | 0 | 0 |
| Q808 C | 12.33 | 12.11 |
| Q808 E | 0 | 0 |
| Q901 B | 1.84 | 1.80 |
| Q901 C | 13.67 | 13.63 |
| Q901 E | 1.20 | 1.23 |
| Q902 B | — | 0.10 |
| Q902 C | — | 12.00 |
| Q902 E | — | 0 |
| Q903 B | — | 0.43 |
| Q903 C | — | 12.00 |
| Q903 E | — | 0 |

Note: Values in parentheses are measured with SQUELCH set to Max. (Squelch "open") with 1 mV signal input.

IC501

| Pin No. | RX (V) | TX (V) |
|---------|-------------|--------|
| 1 | 2.36 (3.95) | 0.53 |
| 2 | 1.96 (3.87) | 1.99 |
| 3 | 0.02 (0.02) | 3.70 |
| 4 | 5.42 (5.47) | 5.50 |
| 5 | 0(0) | 0 |

Note: Values in parentheses are measured with SQUELCH set to Max. (Squelch "open") with 1 mV signal input.

IC502

| Pin No. | RX (V) | TX (V) |
|---------|--------|--------|
| 1 | 13.73 | 13.48 |
| 2 | 0 | 0 |
| 3 | 8.01 | 8.00 |

IC701

| Pin No. | RX (V) | TX (V) |
|---------|--------|--------|
| 1 | 13.66 | 13.42 |
| 2 | 7.26 | 7.16 |
| 3 | 1.38 | 1.37 |
| 4 | 3.41 | 3.36 |
| 5 | 3.45 | 3.39 |
| 6 | 4.00 | 3.96 |
| 7 | 1.29 | 1.30 |
| 8 | 0 | 0 |
| 9 | 12.71 | 12.46 |
| 10 | 6.72 | 6.61 |

IC702

| Pin No. | RX (V) | TX (V) |
|---------|--------|--------|
| 1 | 2.00 | 2.03 |
| 2 | 2.00 | 2.03 |
| 3 | 1.35 | 1.37 |
| 4 | 1.20 | 0.15 |
| 5 | 0 | 0 |
| 6 | 0 | 0 |
| 7 | 7.52 | 7.52 |
| 8 | 12.29 | 12.07 |

IC801

| Pin No. | RX (V) | TX (V) |
|---------|--------|--------|
| 1 | 6.80 | 6.80 |
| 2 | 6.80 | 6.80 |
| 3 | 0 | 0 |
| 4 | 0.25 | 0.25 |
| 5 | 0.25 | 0.25 |
| 6 | 0.14 | 0.14 |
| 7 | 0.15 | 0.15 |
| 8 | 0.14 | 0.14 |
| 9 | 0.15 | 0.15 |
| 10 | 0.15 | 0.15 |
| 11 | 0.14 | 0.14 |
| 12 | 5.77 | 5.76 |
| 13 | 0 | 0 |
| 14 | 0.13 | 0.12 |
| 15 | 5.73 | 5.72 |
| 16 | 0.12 | 0.12 |
| 17 | 5.73 | 5.72 |
| 18 | 5.75 | 5.74 |
| 19 | 0.12 | 0.12 |
| 20 | 5.68 | 5.67 |

IC803

| Pin No. | RX (V) | TX (V) |
|---------|--------|--------|
| 1 | 6.83 | 6.83 |
| 2 | 3.19 | 3.19 |
| 3 | 3.70 | 3.70 |
| 4 | 3.06 | 3.06 |
| 5 | 3.67 | 3.67 |
| 6 | 6.83 | 6.83 |
| 7 | 2.50 | 2.45 |
| 8 | 3.50 | 3.45 |
| 9 | 3.50 | 3.45 |
| 10 | 0.08 | 0.08 |
| 11 | 6.77 | 6.77 |
| 12 | 0.08 | 0.08 |
| 13 | 6.76 | 6.77 |
| 14 | 0.05 | 0.08 |
| 15 | 6.77 | 6.77 |
| 16 | 0.08 | 0.07 |
| 17 | 6.77 | 6.77 |
| 18 | 6.77 | 6.77 |
| 19 | 0.06 | 0.06 |
| 20 | 0 | 0 |

IC802

| Pin No. | RX (V) | TX (V) |
|---------|--------|--------|
| 1 | 0 | 0 |
| 2 | 0.06 | 0.06 |
| 3 | 6.75 | 6.75 |
| 4 | 6.75 | 6.75 |
| 5 | 0.07 | 0.07 |
| 6 | 6.75 | 6.74 |
| 7 | 0.07 | 0.08 |
| 8 | 6.74 | 6.74 |
| 9 | 0.08 | 0.08 |
| 10 | 6.80 | 6.80 |
| 11 | 0.25 | 0.25 |
| 12 | 0.25 | 0.25 |
| 13 | 6.80 | 6.80 |
| 14 | 6.80 | 6.80 |
| 15 | 6.80 | 1.11 |
| 16 | 6.80 | 6.80 |
| 17 | 6.80 | 6.80 |
| 18 | 6.80 | 6.80 |
| 19 | 4.93 | 4.93 |
| 20 | 6.36 | 6.36 |

IC804

| Pin No. | RX (V) | TX (V) |
|---------|--------|--------|
| 1 | 0 | 1.24 |
| 2 | 0 | 0.68 |
| 3 | 0 | 0.29 |
| 4 | 0 | 2.70 |
| 5 | 0 | 0 |
| 6 | 0 | 5.18 |
| 7 | 0 | 2.15 |
| 8 | 0 | 5.19 |
| 9 | 0 | 5.19 |

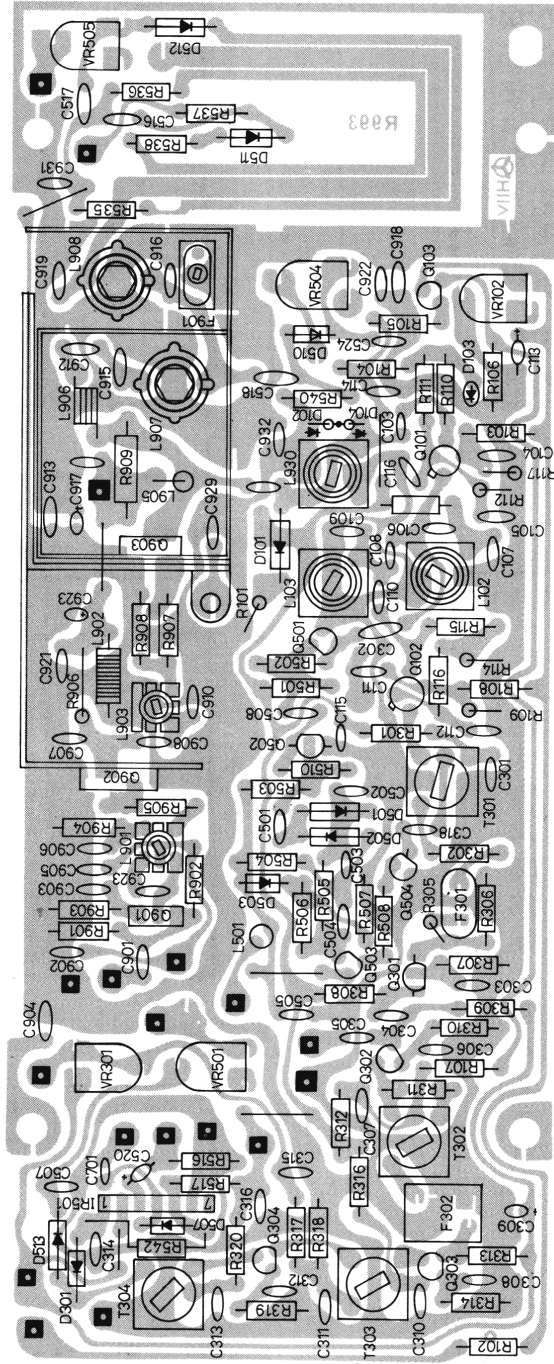
IC805

| Pin No. | RX (V) | TX (V) |
|---------|--------|--------|
| 1 | 2.59 | 2.57 |
| 2 | 1.87 | 1.87 |
| 3 | 1.62 | 1.63 |
| 4 | 2.67 | 2.67 |
| 5 | 0 | 0 |
| 6 | 4.86 | 4.86 |
| 7 | 2.12 | 2.13 |
| 8 | 6.83 | 6.83 |
| 9 | 3.75 | 3.74 |

Note: In CB mode

Pin 13/14 when down/up button released

Pin 18 at CH9 priority off



PARTS LIST

Note: Capacitor values of 0.04 μ F may use a 0.039 μ F. Values of 0.002 μ F may use a 0.0022 μ F.

| Symbol No. | Description | RS Part No. | Mfr's Part No. |
|-------------------|---|-------------|----------------|
| CAPACITORS | | | |
| C101 | 22 pF \pm 5% 50V N220 Ceramic | | R-CKD220J |
| C103 | 12 pF \pm 5% 50V N220 Ceramic | | R-CKD120J |
| C104 | 0.001 μ F \pm 20% 50V YP Ceramic | | R-CKD102M |
| C105 | 0.001 μ F \pm 20% 50V YP Ceramic | | R-CKD102M |
| C106 | 82 pF \pm 5% 50V N220 Ceramic | | R-CKD820J |
| C107 | 0.0022 μ F \pm 20% 50V YP Cermaic | | R-CKD222M |
| C108 | 1.5 pF \pm 0.25 pF 50V SL Ceramic | | R-CKD0150C |
| C109 | 25 pF \pm 5% 50V N220 Ceramic | | R-CKD250J |
| C110 | 390 pF \pm 5% 50V SL Ceramic | | R-CKD391J |
| C111 | 0.001 μ F \pm 20% 50V YP Ceramic | | R-CKD102M |
| C112 | 0.01 μ F +80%–20% 25V YZ Ceramic | | R-CKD103Z |
| C113 | 10 μ F 10V Tantalum Electrolytic | | CT10106 |
| C114 | 0.01 μ F +80%–20% 25V YZ Ceramic | | R-CKD103Z |
| C115 | 0.01 μ F +80%–20% 25V YZ Ceramic | | R-CKD103Z |
| C116 | 0.0022 μ F \pm 20% 50V YP Ceramic | | R-CKD222M |
| C301 | 0.01 μ F +80%–20% 25V YZ Ceramic | | R-CKD103Z |
| C302 | 5 pF \pm 0.25 pF 50V SL Ceramic | | R-CKD050C |
| C303 | 0.01 μ F +80%–20% 25V YZ Ceramic | | R-CKD103Z |
| C304 | 0.0022 μ F \pm 20% 50V YP Ceramic | | R-CKD222M |
| C305 | 25 pF \pm 5% 50V SL Ceramic | | R-CKD250J |
| C306 | 0.039 μ F \pm 20% 50V Mylar | | R-CQS393M |
| C307 | 0.039 μ F +80%–20% 25V YZ Ceramic | | R-CKD393Z |
| C308 | 0.039 μ F \pm 20% 50V Mylar | | R-CQS393M |
| C309 | 4.7 μ F 10V Tantalum Electrolytic | | CT10475 |
| C310 | 0.033 μ F \pm 20% 50V Mylar | | R-CQS333M |
| C311 | 0.039 μ F +80%–20% 25V YZ Ceramic | | R-CKD393Z |
| C312 | 0.039 μ F \pm 20% 50V Mylar | | R-CQS393M |
| C313 | 0.039 μ F \pm 20% 50V Mylar | | R-CQS393M |
| C314 | 0.01 μ F \pm 20% 50V Mylar | | R-CQS103M |
| C315 | 0.039 μ F +80%–20% 25V YZ Ceramic | | R-CKD393Z |
| C316 | 0.039 μ F +80%–20% 25V YZ Ceramic | | R-CKD393Z |
| C317 | 0.039 μ F +80%–20% 25V YZ Ceramic | | R-CKD393Z |
| C318 | 0.001 μ F \pm 20% 50V YP Ceramic | | R-CKD102M |
| C401 | 0.001 μ F +100%–20% 150VAC AL Ceramic | | R-CKD102Q |
| C402 | 0.001 μ F +100%–20% 150VAC AL Ceramic | | R-CKD102Q |
| C403 | 2200 μ F 35V Electrolytic | | CE35228 |
| C404 | 47 μ F 25V Electrolytic | | CE25476 |
| C405 | 0.047 μ F \pm 20% 50V YZ Ceramic | | R-CKD473M |
| C406 | 0.047 μ F \pm 20% 50V YZ Ceramic | | R-CKD473M |
| C407 | 0.01 μ F \pm 20% 50V YP Ceramic | | R-CKD103M |

| Symbol No. | Description | | | | RS Part No. | Mfr's Part No. |
|-------------------|---------------------|-----------------|----|--------------------------|-------------|----------------|
| CAPACITORS | | | | | | |
| C501 | 220 pF ± 5% | 50V | SL | Ceramic | | R-CKD221J |
| C502 | 0.0033 μF ± 20% | 50V | YP | Ceramic | | R-CKD332M |
| C503 | 50 pF ± 5% | 50V | SL | Ceramic | | R-CKD500J |
| C504 | 0.01 μF + 80%—20% | 25V | YZ | Ceramic | | R-CKD103Z |
| C505 | 0.039 μF + 80%—20% | 25V | YZ | Ceramic | | R-CKD393Z |
| C506 | 3.3 μF | 10V | | Electrolytic | | CE10335 |
| C507 | 0.039 μF ± 20% | 50V | | Mylar | | R-CQS393M |
| C508 | 0.0022 μF ± 20% | 50V | YP | Ceramic | | R-CKD222M |
| C509 | 100 μF | 10V | | Electrolytic | | CE10107 |
| C510 | 10 μF | 16V | | Electrolytic | | CE16106 |
| C513 | 33 μF | 10V | | Electrolytic | | CE10336 |
| C514 | 33 μF | 10V | | Electrolytic | | CE10336 |
| C515 | 1 μF | 50V | | Electrolytic | | CE50105 |
| C516 | 0.0047 μF + 80%—20% | 25V | YZ | Ceramic | | R-CKD472Z |
| C517 | 0.0047 μF + 80%—20% | 25V | YZ | Ceramic | | R-CKD472Z |
| C518 | 3 pF ± 0.25 pF | 50V | SL | Ceramic | | R-CKD030C |
| C520 | 1 μF | 25V | | Tantalum Electrolytic | | CT25105 |
| C521 | 0.0022 μF ± 20% | 50V | YP | Ceramic | | R-CKD222M |
| | | ONLY FOR U.S.A. | | | | |
| | 0.01 μF ± 20% | 50V | YP | Ceramic | | R-CKD103M |
| | | ONLY FOR CANADA | | | | |
| C522 | 1 μF | 35V | | Tantalum Electrolytic | | CT35105 |
| C523 | 0.0047 μF ± 20% | 50V | YP | Ceramic | | R-CKD472M |
| C524 | 0.01 μF + 80%—20% | 25V | YZ | Ceramic | | R-CKD103Z |
| C701 | 0.0068 μF ± 20% | 50V | | Mylar | | R-CKD682M |
| C702 | 0.001 μF ± 20% | 50V | YP | Ceramic | | R-CKD102M |
| C703 | 0.0047 μF ± 20% | 50V | YP | Ceramic | | R-CKD472M |
| C704 | 0.0047 μF ± 20% | 50V | | Mylar | | R-CQS472M |
| C705 | 33 μF | 6.3V | | Electrolytic | | CE063336 |
| C706 | 33 μF | 10V | | Electrolytic | | CE10336 |
| C707 | 0.039 μF ± 20% | 50V | | Mylar | | R-CQS393M |
| C708 | 0.0022 μF ± 20% | 50V | YP | Ceramic | | R-CKD222M |
| C709 | 0.01 μF ± 20% | 50V | | Mylar | | R-CQS103M |
| C710 | 0.0047 μF ± 20% | 50V | YP | Ceramic | | R-CKD472M |
| C711 | 10 μF | 10V | | Tantalum Electrolytic | | CT10106 |
| C712 | 33 μF | 10V | | Electrolytic | | CE10336 |
| C713 | 33 μF | 10V | | Electrolytic | | CE10336 |
| C714 | 0.0047 μF ± 20% | 50V | YP | Ceramic | | R-CKD472M |
| C715 | 0.33 μF | 35V | | Tantalum Electrolytic | | CT35334 |
| C716 | 0.022 μF ± 20% | 50V | | Mylar | | R-CQS223M |
| C717 | 0.0022 μF ± 20% | 50V | YP | Ceramic | | R-CKD222M |

| Symbol No. | Description | | | RS Part No. | Mfr's Part No. |
|-------------------|--------------------------|-----------------|-----------------------|-------------|----------------|
| CAPACITORS | | | | | |
| C719 | 4.7 μ F | 10V | Tantalum Electrolytic | | CT10475 |
| C720 | 33 μ F | 6.3V | Electrolytic | | CE063336 |
| C721 | 82 pF \pm 5% | 50V SL | Ceramic | | R-CKD820J |
| C722 | 0.039 μ F \pm 20% | 50V | Mylar | | R-CQS393M |
| C723 | 100 pF \pm 5% | 50V SL | Ceramic | | R-CKD101J |
| C724 | 0.22 μ F \pm 20% | 50V | Mylar | | R-CQS224M |
| C725 | 47 μ F | 16V | Electrolytic | | CE16476 |
| C726 | 220 μ F | 16V SPL | Electrolytic | | CE16227 |
| C727 | 1000 μ F | 16V | Electrolytic | | CE16108 |
| C728 | 0.047 μ F +80%–20% | 50V YZ | Ceramic | | R-CKD473Z |
| C729 | 0.047 μ F +80%–20% | 50V YZ | Ceramic | | R-CKD473Z |
| C730 | 0.01 μ F \pm 20% | 50V | Mylar | | R-CQS103M |
| C731 | 0.001 μ F \pm 20% | 50V YP | Ceramic | | R-CKD102M |
| | | ONLY FOR U.S.A. | | | |
| | 0.0047 μ F \pm 20% | 50V YP | Ceramic | | R-CKD472M |
| | | ONLY FOR CANADA | | | |
| C732 | 0.0047 μ F \pm 20% | 50V YP | Ceramic | | R-CKD472M |
| C733 | 0.0047 μ F \pm 20% | 50V YP | Ceramic | | R-CKD472M |
| C734 | 10 μ F | 10V | Electrolytic | | CE10106 |
| C735 | 0.039 μ F +80%–20% | 25V YZ | Ceramic | | R-CKD393Z |
| C736 | 0.0047 μ F \pm 20% | 50V YP | Ceramic | | R-CKD472M |
| C737 | 0.0047 μ F \pm 20% | 50V YP | Ceramic | | R-CKD472M |
| C738 | 1 μ F | 50V | Tantalum Electrolytic | | CT50105 |
| C740 | 0.0022 μ F \pm 20% | 50V YP | Ceramic | | R-CKD222M |
| C741 | 0.0022 μ F \pm 20% | 50V YP | Ceramic | | R-CKD222M |
| | | ONLY FOR CANADA | | | |
| C801 | 100 μ F | 10V | Electrolytic | | CE10107 |
| C802 | 0.039 μ F +80%–20% | 25V YZ | Ceramic | | R-CKD393Z |
| C803 | 120 pF \pm 5% | 50V SL | Ceramic | | R-CKD121J |
| C804 | 390 pF \pm 5% | 50V SL | Ceramic | | R-CKD391J |
| C805 | 0.039 μ F +80%–20% | 25V YZ | Ceramic | | R-CKD393Z |
| C806 | 10 pF \pm 5% | 50V SL | Ceramic | | R-CKD100J |
| C807 | 390 pF \pm 5% | 50V SL | Ceramic | | R-CKD391J |
| C808 | 120 pF \pm 5% | 50V SL | Ceramic | | R-CKD121J |
| C809 | 100 pF \pm 5% | 50V SL | Ceramic | | R-CKD101J |
| C810 | 27 pF \pm 5% | 50V SL | Ceramic | | R-CKD270J |
| C811 | 47 pF \pm 5% | 50V N220 | Ceramic | | R-CKD470J |
| C812 | 0.01 μ F +80%–20% | 25V YZ | Ceramic | | R-CKD103Z |
| C813 | 0.039 μ F +80%–20% | 25V YZ | Ceramic | | R-CKD393Z |
| C814 | 150 pF \pm 5% | 50V N220 | Ceramic | | R-CKD151J |
| C815 | 3 pF \pm 0.25 pF | 50V SL | Ceramic | | R-CKD030C |
| C816 | 100 pF \pm 5% | 50V N220 | Ceramic | | R-CKD101J |
| C817 | 82 pF \pm 5% | 50V N220 | Ceramic | | R-CKD820J |
| C818 | 470 pF \pm 5% | 50V SL | Ceramic | | R-CKD471J |

| Symbol No. | Description | | | | RS Part No. | Mfr's Part No. |
|-------------------|--------------------------|-----|------|-----------------|-------------|----------------|
| CAPACITORS | | | | | | |
| C819 | 100 μ F | 10V | | Electrolytic | | CE10107 |
| C820 | 100 μ F | 10V | | Electrolytic | | CE10107 |
| C821 | 0.039 μ F + 80%–20% | 25V | YZ | Ceramic | | R-CKD393Z |
| C823 | 200 pF \pm 5% | 50V | SL | Ceramic | | R-CKD201J |
| C824 | 22 pF \pm 5% | 50V | N220 | Ceramic | | R-CKD220J |
| C825 | 50 pF \pm 5% | 50V | SL | Ceramic | | R-CKD500J |
| C826 | 30 pF \pm 5% | 50V | N220 | Ceramic | | R-CKD300J |
| C827 | 0.0047 μ F + 80%–20% | 25V | YZ | Ceramic | | R-CKD472Z |
| C828 | 82 pF \pm 5% | 50V | SL | Ceramic | | R-CKD820J |
| C829 | 0.0047 μ F + 80%–20% | 25V | YZ | Ceramic | | R-CKD472Z |
| C830 | 0.068 μ F \pm 20% | 50V | | Mylar | | R-CQS683M |
| C831 | 0.022 μ F \pm 20% | 50V | | Mylar | | R-CQS223M |
| C832 | 0.068 μ F \pm 20% | 50V | | Mylar | | R-CQS683M |
| C833 | 82 pF \pm 5% | 50V | SL | Ceramic | | R-CKD820J |
| C834 | 100 pF \pm 5% | 50V | SL | Ceramic | | R-CKD101J |
| C835 | 1 μ F | 25V | | Tantalum | | CT25105 |
| | | | | Electrolytic | | |
| C836 | 0.47 μ F | 35V | | Tantalum | | CT35474 |
| | | | | Electrolytic | | |
| C837 | 0.33 μ F | 35V | | Tantalum | | CT35334 |
| | | | | Electrolytic | | |
| C838 | 33 pF \pm 5% | 50V | N220 | Ceramic | | R-CKD330J |
| C839 | 47 pF \pm 5% | 50V | N220 | Ceramic | | R-CKD470J |
| C840 | 150 pF \pm 5% | 50V | N220 | Ceramic | | R-CKD151J |
| C841 | 35 pF \pm 5% | 50V | N220 | Ceramic | | R-CKD350J |
| C842 | 15 pF \pm 5% | 50V | SL | Ceramic | | R-CKD150J |
| C843 | 22 pF \pm 5% | 50V | SL | Ceramic | | R-CKD220J |
| C844 | 15 pF \pm 5% | 50V | SL | Ceramic | | R-CKD150J |
| C845 | 82 pF \pm 5% | 50V | SL | Ceramic | | R-CKD820J |
| C846 | 47 pF \pm 5% | 50V | SL | Ceramic | | R-CKD470J |
| C847 | 0.01 μ F + 80%–20% | 25V | YZ | Ceramic | | R-CKD103Z |
| C848 | 0.039 μ F + 80%–20% | 25V | YZ | Ceramic | | R-CKD393Z |
| C849 | 82 pF \pm 5% | 50V | SL | Ceramic | | R-CKD820J |
| C850 | 47 pF \pm 5% | 50V | SL | Ceramic | | R-CKD470J |
| C851 | 100 pF \pm 5% | 50V | N220 | Ceramic | | R-CKD101J |
| C852 | 0.0022 μ F \pm 20% | 50V | YP | Ceramic | | R-CKD222M |
| C853 | 0.0022 μ F \pm 20% | 50V | YP | Ceramic | | R-CKD222M |
| C854 | 0.0047 μ F \pm 20% | 50V | YP | Ceramic | | R-CKD472M |
| C855 | 0.0022 μ F \pm 20% | 50V | YP | Ceramic | | R-CKD222M |
| C856 | 0.0022 μ F \pm 20% | 50V | YP | Ceramic | | R-CKD222M |
| | | | | ONLY FOR U.S.A. | | |
| | 0.039 μ F + 80%–20% | 25V | YZ | Ceramic | | R-CKD393Z |
| | | | | ONLY FOR CANADA | | |
| C857 | 0.039 μ F + 80%–20% | 25V | YZ | Ceramic | | R-CKD393Z |
| | | | | ONLY FOR CANADA | | |
| C901 | 220 pF \pm 5% | 50V | SL | Ceramic | | R-CKD221J |

| Symbol No. | Description | RS Part No. | Mfr's Part No. |
|-------------------|---|-------------|----------------|
| CAPACITORS | | | |
| C902 | 0.01 μ F +80%—20% 25V YZ Ceramic | | R-CKD103Z |
| C903 | 0.0047 μ F \pm 20% 50V YP Ceramic | | R-CKD472M |
| C904 | 0.01 μ F \pm 20% 50V YP Ceramic | | R-CKD103M |
| C905 | 0.0022 μ F \pm 20% 50V YP Ceramic | | R-CKD222M |
| C906 | 0.0022 μ F \pm 20% 50V YP Ceramic | | R-CKD222M |
| C907 | 82 pF \pm 5% 50V SL Ceramic | | R-CKD820J |
| C908 | 82 pF \pm 5% 50V N220 Ceramic | | R-CKD820J |
| C910 | 150 pF \pm 5% 50V N220 Ceramic | | R-CKD151J |
| C911 | 0.01 μ F +80%—20% 25V YZ Ceramic | | R-CKD103Z |
| C912 | 0.0022 μ F \pm 20% 50V YP Ceramic | | R-CKD222M |
| C913 | 0.01 μ F \pm 20% 50V YP Ceramic | | R-CKD103M |
| C915 | 330 pF \pm 5% 50V SL Ceramic | | R-CKD331J |
| C916 | 270 pF \pm 5% 50V SL Ceramic | | R-CKD271J |
| C917 | 0.33 μ F 35V Tantalum Electrolytic | | CT35334 |
| C918 | 0.01 μ F \pm 20% 50V YP Ceramic | | R-CKD103M |
| C919 | 150 pF \pm 5% 50V SL Ceramic | | R-CKD151J |
| C920 | 10 pF \pm 5% 50V SL Ceramic | | R-CKD100J |
| C921 | 0.0047 μ F \pm 20% 50V YP Ceramic | | R-CKD472Z |
| C922 | 0.01 μ F +80%—20% 25V YZ Ceramic | | R-CKD103Z |
| C923 | 47 pF \pm 5% 50V N220 Ceramic | | R-CKD470J |
| C925 | 0.01 μ F \pm 20% 50V Mylar | | R-CQS103M |
| C927 | 0.001 μ F \pm 20% 50V YP Ceramic | | R-CKD102M |
| C928 | 0.0022 μ F \pm 20% 50V YP Ceramic | | R-CKD222M |
| C929 | 0.0047 μ F \pm 20% 50V YP Ceramic | | R-CKD472M |
| C930 | 0.0022 μ F \pm 20% 50V YP Ceramic | | R-CKD222M |
| C931 | 0.0022 μ F \pm 20% 50V YP Ceramic | | R-CKD222M |
| C932 | 0.01 μ F +80%—20% 25V YZ Ceramic | | R-CKD103Z |
| C933 | 2.2 μ F 50V Tantalum Electrolytic | | CT50225 |

| Symbol No. | Ref. No. | Description | RS Part No. | Mfr's Part No. |
|----------------|----------|----------------------------------|-------------|--------------------|
| DIODES | | | | |
| D101 | | Diode 1S188 FM A | DX-0551 | 1S188FMA |
| D102 | | Diode 1S1588 or 1SS53 | DX-0273 | 1S1588 or 1SS53 |
| D103 | | Diode VD1220 | DX-0697 | VD1220 |
| D104 | | Diode 1S1588 | DX-0273 | 1S1588 |
| D301 | | Diode 1S1588 | DX-0273 | 1S1588 |
| D401 | | Diode DS-130 B | | DS-130B |
| D402 | | Diode DS-130 B | | DS-130B |
| D403 | | Diode XZ-070 | | XZ-070 |
| D501 | | Diode 1S188 FM A | DX-0551 | 1S188FMA |
| D502 | | Diode 1S188 FM A | DX-0551 | 1S188FMA |
| D503 | | Diode 1S1555 | DX-0270 | 1S1555 |
| D504 | | Diode ITT73 N | DX-1008 | ITT73N |
| D506 | | Diode DS-130 E | DX-0099 | DS-130E |
| D507 | | Diode 1S1588 | DX-0273 | 1S1588 |
| D508 | | Diode VD1220 | DX-0697 | VD1220 |
| D509 | | Diode 1SS53 | DX-0322 | 1SS53 |
| D510 | | Diode 1S1588 | DX-0273 | 1S1588 |
| D511 | | Diode 1S188 FM A | DX-0551 | 1S188FMA |
| D512 | | Diode 1S188 FM A | DX-0551 | 1S188FMA |
| D513 | | Diode 1S188 FM A | DX-0551 | 1S188FMA |
| D601 | | Diode 1SS53 | DX-0322 | 1SS53 |
| D602 | | Diode 1SS53 | DX-0322 | 1SS53 |
| D603 | | Diode 1S1588 or 1SS53 | DX-0273 | 1S1588 or 1SS53 |
| D701 | | Diode 1S1588 or 1SS53 | DX-0273 | 1S1588 or 1SS53 |
| D702 | | Diode DS-130 E | DX-0099 | DS-130E |
| D703 | | Diode 1S1588 or 1SS53 | DX-0273 | 1S1588 or 1SS53 |
| D704 | | Diode 1S1587 | | 1S1587 |
| D705 | | Diode 1S1588 or 1SS53 | DX-0273 | 1S1588 or 1SS53 |
| D801 | | Diode 1S1588 or 1SS53 | DX-0273 | 1S1588 or 1SS53 |
| D802 | | Diode 1S1588 or 1SS53 | DX-0273 | 1S1588 or 1SS53 |
| D803 | | Diode XZ-076 | DX-1013 | XZ-076 |
| D804 | | Diode 1S1588 or 1SS53 | DX-0273 | 1S1588 or 1SS53 |
| D805 | | Diode SVC201 | DX-1007 | SVC201 |
| | ① | LED SL-1291-05 Channel Indicator | L-0849 | 4-515R001 |
| FILTERS | | | | |
| F301 | | HF Filter 9.785 MHz | C-0856 | 4-253R922 |

| Symbol No. | Ref. No. | Description | RS Part No. | Mfr's Part No. |
|----------------------------|----------|--|-------------|-----------------------------|
| FILTERS | | | | |
| F302 | | HF Filter 455 kHz | C-0857 | 4-253R920 |
| F901 | | HF Filter 54 MHz | C-0778 | 4-253R919 |
| FERRITE BEADS | | | | |
| FB801 | | Ferrite Bead Black | HB-4845 | 123-2-471R104 |
| FB802 | | Ferrite Bead Blue | HB-7077 | 123-2-471R105 |
| INTEGRATED CIRCUITS | | | | |
| IC501 | ② | IC M51202 MITSUBISHI | MX-3059 | M51202 |
| IC502 | | IC μ PC14308H NEC | MX-3452 | μ PC14308H |
| IC701 | | IC μ PC1156H NEC including Mica Sheet | MX-3372 | μ PC1156H |
| IC702 | | IC μ PC1170 NEC | MX-3450 | μ PC1170 |
| IC801 | | IC LC7191 TOKYO-SANYO | MX-3446 | LC7191 |
| IC802 | | IC LC7199 TOKYO-SANYO | MX-3056 | LC7199 |
| IC803 | | IC LC7110 TOKYO-SANYO | MX-3057 | LC7110 |
| IC804 | | IC AN103 O MATSUSHITA | MX-3058 | AN1030 |
| IC805 | | IC AN103 O MATSUSHITA | MX-3058 | AN1030 |
| RESISTOR NETWORKS | | | | |
| IR501 | | Resistor Network | RX-0034 | 4-221R80610 or 4-221R806 |
| IR801 | | Resistor Network 680 ohm x 7 | RX-0049 | 4-221R809 |
| IR802 | | Resistor Network 680 ohm x 7 | RX-0049 | 4-221R809 |
| JACKS | | | | |
| J1 | ③ | ANTenna Connector | J-0917 | 4-235R844 |
| J2/3 | ④ | EXTernal SPeaker Jack/PA Speaker Jack | J-0916 | 4-235R829 |
| J4 | ⑤ | Handset Jack 5-PIN DIN Lock Type | J-6503 | 4-235R843 |
| J5 | ⑥ | DC 12V Jack 3-PIN | J-6276 | 4-235R817 |
| J6 | ⑦ | AC 120V Jack including Cover | J-0918 | 4-235R247A |
| COILS | | | | |
| L101 | | ANT Coil 27 MHz | CA-3379 | 4-257R815 |
| L102 | | RF Coil 27 MHz | CA-4498 | 4-259R828 |
| L103 | | ANT Coil 27 MHz | CA-3379 | 4-257R815 |
| L501 | | Choke Coil 8.2 μ H | CB-2373 | 4-253R702 |
| L502 | | Choke Coil 0.95 μ H | CB-2372 | 4-253R719 |
| L503 | | Choke Coil 0.95 μ H | CB-2372 | 4-253R719 |
| L701 | | Choke Coil | CB-2307 | 4-253R713 |
| L702 | | Choke Coil | CB-2307 | 4-253R713 |
| L703 | | Choke Coil | CB-2307 | 4-253R713 |
| L801 | | OSC Coil 37 MHz | CA-4899 | 4-258R827 |
| L802 | | RF Coil 35.25 MHz | CA-4874 | 4-259R877 |
| L901 | | RF Coil 27 MHz | CA-3715 | 4-259R865 |
| L902 | | Choke Coil | CB-2263 | 4-253R709 |

| Symbol No. | Ref. No. | Description | RS Part No. | Mfr's Part No. |
|--------------------|----------|---------------------------------------|-------------|----------------|
| COILS | | | | |
| L903 | | RF Coil 27 MHz | CA-4777 | 4-259R891 |
| L905 | | Choke Coil | CB-2263 | 4-253R709 |
| L906 | | Choke Coil | CA-3793 | 4-253R715 |
| L907 | | RF Coil 27 MHz | | 4-259R80810 |
| L908 | | RF Coil 27 MHz | | 4-259R80710 |
| PLUGS | | | | |
| PG1 | | Plug 5-pin for interconnecting wiring | J-6517 | 4-236R81873 |
| PG2 | | Plug 8-pin for interconnecting wiring | | 4-236R82073A |
| PG3 | | Plug 5-pin for interconnecting wiring | | 4-236R81874A |
| PG4 | | Plug 4-pin for interconnecting wiring | J-6527 | 4-236R82600 |
| PG5 | | Plug 6-pin for interconnecting wiring | J-6518 | 4-236R81973 |
| PG6 | | Plug 8-pin for interconnecting wiring | J-6528 | 4-236R82072 |
| PG7 | | Plug 7-pin for interconnecting wiring | J-6520 | 4-236R824 |
| PG8 | | Plug 9-pin for interconnecting wiring | J-6521 | 4-236R825 |
| LAMPS | | | | |
| PL1 | ⑧ | Lamp 14 V/50 mA ON THE AIR | L-0851 | 4-612R81172 |
| PL2 | ⑨ | Lamp 14 V/80 mA S/RF Meter | L-0852 | 4-612R81972 |
| PL3 | ⑩ | Lamp 14 V/80 mA SWR Meter | L-0859 | 4-612R81971 |
| PL4 | ⑪ | Lamp 9 V/35 mA MODULATION | L-0850 | 4-612R81872 |
| TRANSISTORS | | | | |
| Q101 | | FET 3SK59 GR1 TOSHIBA or | | 3SK59GR1 or |
| | | 3SK59 GR2 TOSHIBA | | 3SK59GR2 |
| Q102 | | FET 3SK59 GR2 TOSHIBA | | 3SK59GR2 |
| Q103 | | Transistor 2SA733 Q NEC or | | 2SA733Q or |
| | | 2SA495 Y TOSHIBA | | 2SA495Y |
| Q301 | | FET 2SK19 Y TOSHIBA | | 2SK19Y |
| Q302 | | Transistor 2SC930 D TOKYO-SANYO | | 2SC930D |
| Q303 | | Transistor 2SC930 D TOKYO-SANYO | | 2SC930D |
| Q304 | | Transistor 2SC930 D TOKYO-SANYO | | 2SC930D |
| Q401 | | Transistor 2SC372 O TOSHIBA | | 2SC372O |
| Q402 | | Transistor 2SC1173 O TOSHIBA | | 2SC1173O |
| Q403 | ⑫ | Transistor 2SD234 O TOSHIBA | | 2SD234O |
| Q501 | | Transistor 2SC536 E TOKYO-SANYO or | | 2SC536E or |
| | | BC408 A PHILLIPS or | | BC408A or |
| | | JE9014 B-E NEC | | JE9014B-E |
| Q502 | | Transistor 2SC536 E TOKYO-SANYO or | | 2SC536E or |
| | | BC408 A PHILLIPS or | | BC408A or |
| | | JE9014 B-E NEC | | JE9014B-E |
| Q503 | | Transistor 2SA733 Q NEC or | | 2SA733Q or |
| | | 2SA495 Y TOSHIBA | | 2SA495Y |
| Q504 | | Transistor 2SC930 D TOKYO-SANYO or | | 2SC930D or |
| | | ED1502 E PHILLIPS | | ED1502E |

| Symbol No. | Ref. No. | Description | RS Part No. | Mfr's Part No. |
|--------------------|----------|--|--|------------------------------------|
| TRANSISTORS | | | | |
| Q505 | | Transistor 2SA733 Q 2SA495 Y | NEC or TOSHIBA | 2SA733Q or 2SA495Y |
| Q506 | | Transistor 2SC536 E | TOKYO-SANYO | 2SC536E |
| Q507 | | Transistor 2SA952 L | NEC | 2SA952L |
| Q508 | | Transistor 2SC536 E 2SC372 Y BC408 A | TOKYO-SANYO or TOSHIBA or PHILLIPS | 2SC536E or 2SC372Y or BC408A |
| Q601 | | Transistor 2SC536 E 2SC372 Y BC408 A | TOKYO-SANYO or TOSHIBA or PHILLIPS | 2SC536E or 2SC372Y or BC408A |
| Q701 | | Transistor 2SC536 E | TOKYO-SANYO | 2SC536E |
| Q702 | | Transistor 2SC536 E 2SC372 Y BC408 A | TOKYO-SANYO or TOSHIBA or PHILLIPS | 2SC536E or 2SC372Y or BC408A |
| Q703 | | Transistor 2SC536 E 2SC372 Y | TOKYO-SANYO or TOSHIBA | 2SC536E or 2SC372Y |
| Q704 | | Transistor 2SA733 Q | NEC | 2SA733Q |
| Q801 | | Transistor 2SC1173 O | TOSHIBA | 2SC1173O |
| Q802 | | Transistor 2SC930 D | TOKYO-SANYO | 2SC930D |
| Q803 | | Transistor 2SC509 O | TOSHIBA | 2SC509O |
| Q804 | | Transistor 2SC536 E 2SC372 Y BC408 A | TOKYO-SANYO or TOSHIBA or PHILLIPS | 2SC536E or 2SC372Y or BC408A |
| Q805 | | Transistor 2SC930 D | TOKYO-SANYO | 2SC930D |
| Q806 | | Transistor 2SC536 E 2SC372 Y BC408 B | TOKYO-SANYO or TOSHIBA or PHILLIPS | 2SC536E or 2SC372Y or BC408B |
| Q807 | | Transistor 2SC536 E 2SC372 Y BC408 A | TOKYO-SANYO or TOSHIBA or PHILLIPS | 2SC536E or 2SC372Y or BC408A |
| Q808 | | Transistor 2SC536 E 2SC372 Y BC408 A | TOKYO-SANYO or TOSHIBA or PHILLIPS | 2SC536E or 2SC372Y or BC408A |
| Q901 | | Transistor 2SC1166 | TOSHIBA | 2SC1166 |
| Q902 | ⑬ | Transistor 2SC1957 | NEC | 2SC1957 |
| Q903 | ⑭ | Transistor 2SC1909 | NEC | 2SC1909 |

| Symbol No. | Description | | | | | RS Part No. | Mfr's Part No. |
|------------------|-------------|-------|----|-----------------|--|-------------|----------------|
| RESISTORS | | | | | | | |
| R101 | 100 ohm | ± 5% | ¼W | Carbon | | R-R101JB | |
| R102 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB | |
| R103 | 10K ohm | ± 5% | ¼W | Carbon | | R-R103JB | |
| R104 | 1.5K ohm | ± 5% | ¼W | Carbon | | R-R152JB | |
| R105 | 470 ohm | ± 5% | ¼W | Carbon | | R-R471JB | |
| R106 | 27K ohm | ± 5% | ¼W | Carbon | | R-R273JB | |
| R107 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB | |
| R108 | 6.8K ohm | ± 5% | ¼W | Carbon | | R-R682JB | |
| R109 | 22K ohm | ± 5% | ¼W | Carbon | | R-R223JB | |
| R110 | 100K ohm | ± 5% | ¼W | Carbon | | R-R104JB | |
| R111 | 82 ohm | ± 5% | ¼W | Carbon | | R-R820JB | |
| R112 | 680 ohm | ± 5% | ¼W | Carbon | | R-R681JB | |
| R113 | 220 ohm | ± 5% | ¼W | Carbon | | R-R221JB | |
| R114 | 820 ohm | ± 5% | ¼W | Carbon | | R-R821JB | |
| R115 | 68K ohm | ± 5% | ¼W | Carbon | | R-R683JB | |
| R116 | 220 ohm | ± 5% | ¼W | Carbon | | R-R221JB | |
| R117 | 100K ohm | ± 5% | ¼W | Carbon | | R-R104JB | |
| R301 | 220 ohm | ± 5% | ¼W | Carbon | | R-R221JB | |
| R302 | 150 ohm | ± 5% | ¼W | Carbon | | R-R151JB | |
| R305 | 220 ohm | ± 5% | ¼W | Carbon | | R-R221JB | |
| R306 | 1.5K ohm | ± 5% | ¼W | Carbon | | R-R152JB | |
| R307 | 150 ohm | ± 5% | ¼W | Carbon | | R-R151JB | |
| R308 | 1.2K ohm | ± 5% | ¼W | Carbon | | R-R122JB | |
| R309 | 3.3K ohm | ± 5% | ¼W | Carbon | | R-R332JB | |
| R310 | 820 ohm | ± 5% | ¼W | Carbon | | R-R821JB | |
| R311 | 10K ohm | ± 5% | ¼W | Carbon | | R-R103JB | |
| R312 | 820 ohm | ± 5% | ¼W | Carbon | | R-R821JB | |
| R313 | 1.5K ohm | ± 5% | ¼W | Carbon | | R-R152JB | |
| R314 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB | |
| R316 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB | |
| R317 | 18K ohm | ± 5% | ¼W | Carbon | | R-R183JB | |
| R318 | 4.7K ohm | ± 5% | ¼W | Carbon | | R-R472JB | |
| R319 | 330 ohm | ± 5% | ¼W | Carbon | | R-R331JB | |
| R320 | 220 ohm | ± 5% | ¼W | Carbon | | R-R221JB | |
| R401 | 2.7M ohm | ± 10% | ½W | Solid | | R-R275KC | |
| R402 | 1.8K ohm | ± 10% | ½W | Carbon or Solid | | R-R182KC | |
| R403 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB | |
| R404 | 390 ohm | ± 5% | ¼W | Carbon | | R-R391JB | |
| R406 | 560 ohm | ± 5% | ¼W | Carbon | | R-R561JB | |
| R501 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB | |
| R502 | 100K ohm | ± 5% | ¼W | Carbon | | R-R104JB | |
| R503 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB | |
| R504 | 120K ohm | ± 5% | ¼W | Carbon | | R-R124JB | |
| R505 | 560K ohm | ± 5% | ¼W | Carbon | | R-R564JB | |

| Symbol No. | Description | | | | RS Part No. | Mfr's Part No. |
|------------------|-------------|-------|----|-----------------|-------------|----------------|
| RESISTORS | | | | | | |
| R506 | 820K ohm | ± 5% | ¼W | Carbon | | R-R824JB |
| R507 | 4.7K ohm | ± 5% | ¼W | Carbon | | R-R472JB |
| R508 | 27K ohm | ± 5% | ¼W | Carbon | | R-R273JB |
| R509 | 120 ohm | ± 5% | ¼W | Carbon | | R-R121JB |
| R510 | 100K ohm | ± 5% | ¼W | Carbon | | R-R104JB |
| R513 | 15K ohm | ± 5% | ¼W | Carbon | | R-R153JB |
| R514 | 15K ohm | ± 5% | ¼W | Carbon | | R-R153JB |
| R515 | 390 ohm | ± 10% | ½W | Carbon or Solid | | R-R391KC |
| R516 | 12K ohm | ± 5% | ¼W | Carbon | | R-R123JB |
| R517 | 330K ohm | ± 5% | ¼W | Carbon | | R-R334JB |
| R519 | 470 ohm | ± 5% | ¼W | Carbon | | R-R471JB |
| R520 | 3.3K ohm | ± 5% | ¼W | Carbon | | R-R332JB |
| R521 | 12K ohm | ± 5% | ¼W | Carbon | | R-R123JB |
| R522 | 47K ohm | ± 5% | ¼W | Carbon | | R-R473JB |
| R523 | 10K ohm | ± 5% | ¼W | Carbon | | R-R103JB |
| R524 | 47K ohm | ± 5% | ¼W | Carbon | | R-R473JB |
| R526 | 100K ohm | ± 5% | ¼W | Carbon | | R-R104JB |
| R527 | 47K ohm | ± 5% | ¼W | Carbon | | R-R473JB |
| R528 | 4.7M ohm | ± 5% | ¼W | Carbon | | R-R475JB |
| R529 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB |
| R530 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB |
| R531 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB |
| R533 | 4.7K ohm | ± 5% | ¼W | Carbon | | R-R472JB |
| R534 | 10K ohm | ± 5% | ¼W | Carbon | | R-R103JB |
| R535 | 120 ohm | ± 5% | ¼W | Carbon | | R-R121JB |
| R536 | 120 ohm | ± 5% | ¼W | Carbon | | R-R121JB |
| R537 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB |
| R538 | 470 ohm | ± 5% | ¼W | Carbon | | R-R471JB |
| R540 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB |
| R541 | 8.2K ohm | ± 5% | ¼W | Carbon | | R-R822JB |
| R542 | 270K ohm | ± 5% | ¼W | Carbon | | R-R274JB |
| R601 | 3.3K ohm | ± 5% | ¼W | Carbon | | R-R332JB |
| R602 | 33K ohm | ± 5% | ¼W | Carbon | | R-R333JB |
| R603 | 33K ohm | ± 5% | ¼W | Carbon | | R-R333JB |
| R604 | 6.8K ohm | ± 5% | ¼W | Carbon | | R-R682JB |
| R702 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB |
| R703 | 150K ohm | ± 5% | ¼W | Carbon | | R-R154JB |
| R704 | 2.2K ohm | ± 5% | ¼W | Carbon | | R-R222JB |
| R705 | 2.2K ohm | ± 5% | ¼W | Carbon | | R-R222JB |
| R706 | 390 ohm | ± 5% | ¼W | Carbon | | R-R391JB |
| R707 | 47 ohm | ± 5% | ¼W | Carbon | | R-R470JB |
| R708 | 27K ohm | ± 5% | ¼W | Carbon | | R-R273JB |
| R709 | 4.7K ohm | ± 5% | ¼W | Carbon | | R-R472JB |
| R710 | 2.2K ohm | ± 5% | ¼W | Carbon | | R-R222JB |
| R711 | 12K ohm | ± 5% | ¼W | Carbon | | R-R123JB |

| Symbol No. | Description | | | | RS Part No. | Mfr's Part No. |
|------------------|-------------|------|----|------------------|-------------|----------------|
| RESISTORS | | | | | | |
| R712 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB |
| R713 | 180 ohm | ± 5% | ¼W | Carbon | | R-R181JB |
| R714 | 68K ohm | ± 5% | ¼W | Carbon | | R-R683JB |
| R715 | 3.9K ohm | ± 5% | ¼W | Carbon | | R-R392JB |
| R716 | 2.7K ohm | ± 5% | ¼W | Carbon | | R-R272JB |
| R717 | 2.7K ohm | ± 5% | ¼W | Carbon | | R-R272JB |
| R718 | 3.9K ohm | ± 5% | ¼W | Carbon | | R-R392JB |
| R719 | 6.8K ohm | ± 5% | ¼W | Carbon | | R-R682JB |
| R720 | 6.8K ohm | ± 5% | ¼W | Carbon | | R-R682JB |
| R721 | 1.5K ohm | ± 5% | ¼W | Carbon | | R-R152JB |
| R722 | 56 ohm | ±10% | 2W | Metal Oxide Film | | R-RM560KE |
| R723 | 470 ohm | ±10% | ½W | Carbon or Solid | | R-R471KC |
| R724 | 56 ohm | ±10% | 2W | Metal Oxide Film | | R-RM560KE |
| R725 | 56 ohm | ±10% | 2W | Metal Oxide Film | | R-RM560KE |
| R726 | 8.2 ohm | ±10% | 2W | Metal Oxide Film | | R-RM0820KE |
| R727 | 270K ohm | ± 5% | ¼W | Carbon | | R-R274JB |
| R728 | 4.7K ohm | ± 5% | ¼W | Carbon | | R-R472JB |
| R729 | 100 ohm | ± 5% | ¼W | Carbon | | R-R101JB |
| R730 | 2.2K ohm | ± 5% | ¼W | Carbon | | R-R222JB |
| R731 | 1.2K ohm | ± 5% | ¼W | Carbon | | R-R122JB |
| R732 | 10K ohm | ± 5% | ¼W | Carbon | | R-R103JB |
| R733 | 2.7K ohm | ± 5% | ¼W | Carbon | | R-R272JB |
| R801 | 680 ohm | ± 5% | ¼W | Carbon | | R-R681JB |
| R802 | 150K ohm | ± 5% | ¼W | Carbon | | R-R154JB |
| R803 | 2.7K ohm | ± 5% | ¼W | Carbon | | R-R272JB |
| R804 | 3.3K ohm | ± 5% | ¼W | Carbon | | R-R332JB |
| R805 | 10K ohm | ± 5% | ¼W | Carbon | | R-R103JB |
| R806 | 100 ohm | ± 5% | ¼W | Carbon | | R-R101JB |
| R807 | 33K ohm | ± 5% | ¼W | Carbon | | R-R333JB |
| R808 | 33K ohm | ± 5% | ¼W | Carbon | | R-R333JB |
| R809 | 330 ohm | ± 5% | ¼W | Carbon | | R-R331JB |
| R810 | 3.9K ohm | ± 5% | ¼W | Carbon | | R-R392JB |
| R811 | 10K ohm | ± 5% | ¼W | Carbon | | R-R103JB |
| R812 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB |
| R813 | 6.8K ohm | ± 5% | ¼W | Carbon | | R-R682JB |
| R814 | 8.2K ohm | ± 5% | ¼W | Carbon | | R-R822JB |
| R815 | 5.6K ohm | ± 5% | ¼W | Carbon | | R-R562JB |
| R816 | 5.6K ohm | ± 5% | ¼W | Carbon | | R-R562JB |
| R817 | 180K ohm | ± 5% | ¼W | Carbon | | R-R184JB |
| R818 | 10K ohm | ± 5% | ¼W | Carbon | | R-R103JB |
| R819 | 10K ohm | ± 5% | ¼W | Carbon | | R-R103JB |
| R820 | 680K ohm | ± 5% | ¼W | Carbon | | R-R684JB |
| R821 | 100K ohm | ± 5% | ¼W | Carbon | | R-R104JB |
| R822 | 15K ohm | ± 5% | ¼W | Carbon | | R-R153JB |
| R823 | 1K ohm | ± 5% | ¼W | Carbon | | R-R102JB |
| R824 | 5.6K ohm | ± 5% | ¼W | Carbon | | R-R562JB |

| Symbol No. | Description | | | | | RS Part No. | Mfr's Part No. |
|------------------|-------------|-----|------|----|-----------------|-------------|----------------|
| RESISTORS | | | | | | | |
| R825 | 560 | ohm | ± 5% | ¼W | Carbon | | R-R561JB |
| R826 | 47 | ohm | ± 5% | ¼W | Carbon | | R-R470JB |
| R827 | 2.2K | ohm | ± 5% | ¼W | Carbon | | R-R222JB |
| R828 | 560 | ohm | ± 5% | ¼W | Carbon | | R-R561JB |
| R829 | 560 | ohm | ± 5% | ¼W | Carbon | | R-R561JB |
| R830 | 1K | ohm | ± 5% | ¼W | Carbon | | R-R102JB |
| R831 | 22 | ohm | ±10% | ½W | Carbon or Solid | | R-R220KC |
| R832 | 4.7K | ohm | ± 5% | ¼W | Carbon | | R-R472JB |
| R833 | 270 | ohm | ± 5% | ¼W | Carbon | | R-R271JB |
| R901 | 1.8K | ohm | ± 5% | ¼W | Carbon | | R-R182JB |
| R902 | 10K | ohm | ± 5% | ¼W | Carbon | | R-R103JB |
| R903 | 68 | ohm | ± 5% | ¼W | Carbon | | R-R680JB |
| R904 | 68 | ohm | ± 5% | ¼W | Carbon | | R-R680JB |
| R905 | 4.7 | ohm | ± 5% | ¼W | Carbon | | R-R0470JB |
| R906 | 270 | ohm | ± 5% | ½W | Carbon or Solid | | R-R271JC |
| R907 | 1.5 | ohm | ± 5% | ¼W | Carbon | | R-R0150JB |
| R908 | 39 | ohm | ± 5% | ¼W | Carbon | | R-R390JB |
| R909 | 820 | ohm | ±10% | ½W | Carbon or Solid | | R-R821KC |
| R910 | 100K | ohm | ± 5% | ½W | Carbon or Solid | | R-R104JC |

| Symbol No. | Ref. No. | Description | RS Part No. | Mfr's Part No. |
|---------------------------|----------|------------------------|--|---------------------------------|
| SWITCHES | | | | |
| S1 | ⑮ | Special Switch | MODE | S-5046 4-231R962 |
| S2 | ⑯ | Special Switch | DELTA TUNE | S-5047 4-231R960 |
| S3 | ⑰ | Special Switch | METER | S-5048 4-231R961 |
| S4 | ⑱ | Special Switch | SPEAKERS | S-5048 4-231R961 |
| S5 | ⑲ | Special Switch | BLANKER | S-5048 4-231R961 |
| S6 | ⑳ | Micro Switch | Hook Switch | S-8158 4-231R952 |
| S10 | ㉑ | Push Switch | ▽ (DOWN) | S-7344 4-231R829 |
| S11 | ㉒ | Push Switch | △ (UP) | S-7344 4-231R829 |
| S12 | ㉓ | Push Switch | 9 PRIORITY | S-7345 4-231R830 |
| SOCKETS | | | | |
| SO1 | | Socket | 5-pin for interconnecting wiring | J-6522 4-235R84200 |
| SO2 | | Socket | 8-pin for interconnecting wiring | J-6498 4-235R84278 |
| SO3 | | Socket | 5-pin for interconnecting wiring | J-6522 4-235R84200 |
| SO4 | | Socket | 4-pin for interconnecting wiring | J-6524 4-235R84274 |
| SO5 | | Socket | 6-pin for interconnecting wiring | J-6523 4-235R84276 |
| SO6 | | Socket | 8-pin for interconnecting wiring | J-6498 4-235R84278 |
| SO7 | | Socket | 7-pin for interconnecting wiring | J-6525 4-235R850 |
| SO8 | | Socket | 9-pin for interconnecting wiring | J-6526 4-235R851 |
| TRANSFORMERS | | | | |
| T301 | | IFT | 9.785 MHz | 4-256R75330 |
| T302 | | IFT | 455 kHz | 4-256R75430 |
| T303 | | IFT | 455 kHz | 4-256R70330 |
| T304 | | IFT | 455 kHz | 4-256R73430 |
| T401 | ㉔ | Power Transformer | 120 V ONLY FOR U.S.A. 126 V ONLY FOR CANADA | TA-0650 4-251R811A 4-251R817 |
| T701 | ㉔ | Output/Modulation | | TD-0167 4-254R813 |
| T702 | | Choke Coil | | CB-2306 4-255R810 |
| T801 | | RF Coil | 10.24 MHz | CA-4900 4-259R872 |
| T802 | | RF Coil | 27 MHz | CA-4774 4-259R886 |
| T803 | | RF Coil | 27 MHz | CA-4874 4-259R877 |
| T804 | | RF Coil | 27 MHz | CA-4874 4-259R877 |
| T805 | | OSC Coil | 37 MHz | 4-258R823A |
| VARIABLE RESISTORS | | | | |
| VR101 | ㉕ | Variable Resistor | 10KB RF GAIN | P-0813 4-222R567 |
| VR102 | | Semi-variable Resistor | 5KB | P-6387 4-222R79574 |
| VR301 | | Semi-variable Resistor | 100KB | 4-222R79578 |
| VR401 | | Semi-variable Resistor | 300B | 4-222R784 |
| VR501 | | Semi-variable Resistor | 10KB | P-6470 4-222R79575 |
| VR502 | | Semi-variable Resistor | 100KB | P-6386 4-222R79578 |
| VR503 | ㉖ | Variable Resistor | 100KB SQUELCH | P-0815 4-222R565 |
| VR504 | | Semi-variable Resistor | 50KB | P-6388 4-222R79577 |

| Symbol No. | Ref. No. | Description | RS Part No. | Mfr's Part No. |
|---------------------------|----------|---|-------------|----------------|
| VARIABLE RESISTORS | | | | |
| VR505 | | Semi-variable Resistor 20KB | | 4-222R79576 |
| VR506 | (27) | Variable Resistor 20KB SWR CAL | P-0814 | 4-222R566 |
| VR701/702/ S7 | (28) | Variable Resistor with Switch 50KD: AF Volume 10KD: PA Volume | P-1839 | 4-222R568 |
| VR703 | | Semi-variable Resistor 10KB | P-6470 | 4-222R79575 |
| CRYSTALS | | | | |
| X801 | | Crystal 10.24 MHz HC-18U type | MX-2307 | 4-225R838 |
| X802 | | Crystal 9.785 MHz HC-18U type | MX-2306 | 4-225R836 |
| X803 | | Crystal 11.75 MHz HC-18U type | MX-2335 | 4-225R841 |
| HANDSET ASSEMBLY | | | | |
| | (29) | Handset assembly, consisting of following: | Z-3831 | 4-153R80805 |
| | (30) | Handle | | 176-2-171R101 |
| | (31) | Cover | | 176-2-135R129 |
| | (32) | Cover, for Mouthpiece | | 176-2-133R106 |
| | (33) | Cover, for Handset Speaker | | 176-2-133R107 |
| | (34) | Push-To-Talk Bar | | 176-2-161R125 |
| | (35) | Lever, for Push-To-Talk Bar | | 176-2-254R120 |
| | (36) | Bracket, for Push-To-Talk Bar | | 176-2-210R119 |
| | (37) | Spring Wire | | 176-2-482R108 |
| | (38) | Fiber Sheet | | 176-2-246R106A |
| | (39) | Rubber Cushion, for Mouthpiece | | 176-2-445R134A |
| | (40) | Rubber Cushion, for Handset Speaker, small piece | | 176-2-445R108A |
| | (41) | Rubber Cushion, for Handset Speaker, large piece | | 176-2-445R110A |
| | (42) | Lug, for holding wires | HB-0821 | 123-2-472R006 |
| | (43) | Microphone | | 4-153R808 |
| | (44) | Speaker | | 4-151R802 |
| | (45) | Special Switch | | 4-231R956 |
| | (46) | Cord assembly | | 4-243R40402 |
| | (47) | Net | | 176-2-244R117 |
| | (48) | Pan Head Tapping Screw, 3 x 6mm, for Handset Cord Mtg. | | R-Y113006B |
| | (49) | Pan Head Tapping Screw, 3 x 8mm, for Cover Mtg. | | R-Y113008B |
| | (50) | Pan Head Tapping Screw, 3 x 8mm, for Bracket Mtg. | | R-Y113008B |
| | (51) | Pan Head Tapping Screw, 3 x 4mm, for Fiber Sheet Mtg. | | R-Y113004B |
| | (52) | Hexagon Nut, 2.6mm, for Special Switch Mtg. | | R-Y23260001 |
| | (53) | Pan Head Screw, 2.6 x 8mm, for Special Switch Mtg. | | R-Y012608 |

| Symbol No. | Ref. No. | Description | RS Part No. | Mfr's Part No. |
|-------------------------------|----------|---|-------------|-----------------|
| HANDSET ASSEMBLY | | | | |
| | ⑤③ | Pan Head Screw, 2 x 8mm, for Lever Mtg. | | R-Y012008 |
| | ⑤④ | Spring Washer, 2mm, for Lever Mtg. | | R-Y332000 |
| OTHER ELECTRICAL PARTS | | | | |
| CT801 TH501 | | Trimmer 30 pF | C-0724 | 4-224R157 |
| | | Thermistor SDT-1000 | T-1200 | SDT-1000 |
| | ⑤⑤ | Speaker 77mm ϕ , 8-ohm | S-4598 | 4-151R811 |
| | ⑤⑥ | S/RF Meter | M-0348 | 4-511R803 |
| | ⑤⑦ | SWR Meter | M-0366 | 4-511R815 |
| | | Power Cord assembly, for AC, ONLY FOR U.S.A., UL approved | W-1937 | 4-243R21101 |
| | | Power Cord assembly, for AC, ONLY FOR CANADA, CSA approved | | 4-243R403A |
| | | Power Cord assembly, for DC | W-1970 | 4-243R21202 |
| | ⑤⑧ | Bushing B-type, for Q403, Q903 and IC701 Mtg. | HB-6080 | R-Y61B |
| | | Terminal, for wiring | | 176-2-382R125A |
| | | Through-Hole Pin | | 176-2-382R132 |
| | ⑤⑨ | Mica Sheet, 1S-313B type, for Q403 Mtg. | | R-Y621S-313B |
| | ⑥⑩ | Silicon Rubber Sheet, for Q902 and Q903 Mtg. | | 176-2-246R108 |
| | ⑥① | Lug, for capacitor wiring | | 123-2-472R004 |
| | | Terminal, for binding AC leads | | 141-2-382T071 |
| | ⑥② | Junction Terminal | | 176-2-382R134 |
| CABINET | | | | |
| | ⑥③ | Cabinet top assembly | Z-3832 | 176-0-111R157 |
| | | — Cabinet top, including Insert Nuts | | 176-2-111R152 |
| | | — Decoration Plate | | 176-2-143R190A |
| | | — Net, for Speaker cover | | 176-2-244R119 |
| | ⑥④ | Cabinet bottom assembly, ONLY FOR U.S.A. | Z-3833 | 176-0-126R148 |
| | | — Cabinet bottom | | 176-2-126R152 |
| | | — Rating Plate | | 176-2-141R17211 |
| | | — Serial Number Plate | | 176-2-142R125 |
| | | — Rivet, for Rating Plate and Serial Number Plate Mtg. | | 176-2-467R106 |
| | | — Bracket, for floor Mtg. | | 176-2-310R189 |
| | | — Rivet, for Bracket Mtg. | | 176-2-467R005 |
| | ⑥④ | Cabinet bottom assembly, ONLY FOR CANADA | | 176-0-126R14810 |
| | | — Cabinet bottom | | 176-2-126R152 |
| | | — Rating Plate | | 176-2-141R17218 |
| | | — Serial Number Plate | | 176-2-142R125 |
| | | — Rivet, for Rating Plate and Serial Number Plate Mtg. | | 176-2-467R106 |

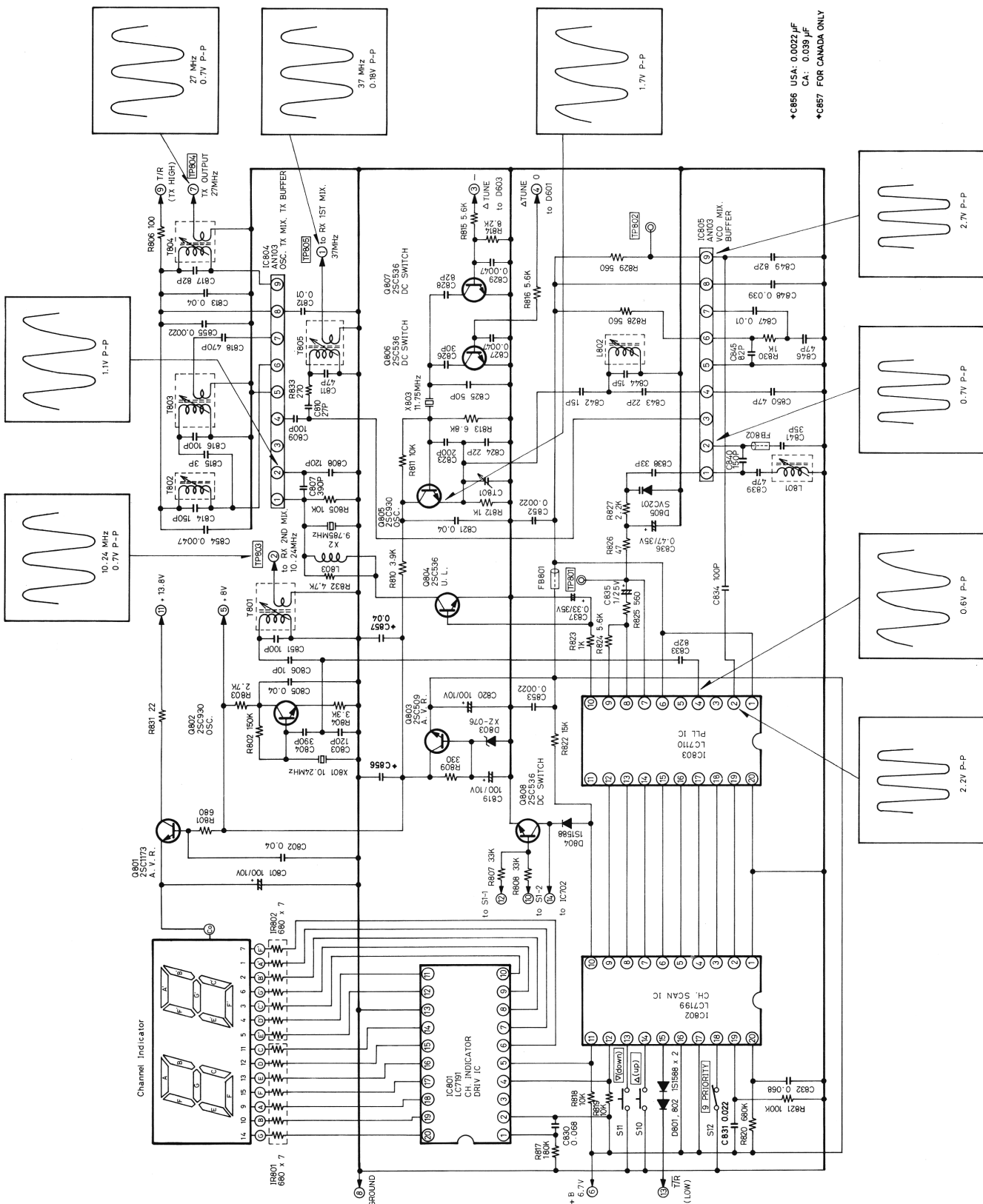
| Symbol No. | Ref. No. | Description | RS Part No. | Mfr's Part No. |
|----------------|----------|---|-------------|-----------------|
| CABINET | | | | |
| | | ↑ Bracket, for floor Mtg. | | 176-2-310R189 |
| | | └ Rivet, for Bracket Mtg. | | 176-2-467R005 |
| | ⑥5 | Clear Window | HB-7078 | 176-2-131R106 |
| | ⑥6 | ┌ Sub-chassis assembly, for indicators | | 176-0-464R104 |
| | | └ Sub-chassis | | 176-2-464R124 |
| | | └ Window, "ON THE AIR" | HB-6334 | 176-2-132R116 |
| | | └ Window, "MODULATION" | HB-6335 | 176-2-132R11601 |
| | ⑥7 | Reflector, for "ON THE AIR" and "MODULATION" lamps | HB-7079 | 176-2-329R106 |
| | ⑥8 | Plastic Cushion, for meter Mtg. | HB-6336 | 176-2-446R107 |
| | ⑥9 | Rubber Cushion, for lamp Mtg. | HB-7080 | 123-2-445R014 |
| | ⑦0 | Handset Holder, rear | HB-7081 | 176-2-254R12501 |
| | ⑦1 | Handset Holder, front | HB-7082 | 176-2-210R147 |
| | ⑦2 | Bracket, for Speaker holder | HB-7083 | 176-2-310R264 |
| | ⑦3 | Clamp, for Handset Holder and Micro Switch Mtg. | HB-7084 | 176-2-310R262 |
| | ⑦4 | Shaft, for Handset Holder Mtg. | | 176-2-253R113 |
| | ⑦5 | Spring Coil, for Handset Holder Mtg. | | 176-2-481R133A |
| | ⑦6 | Stopper, for Hook Switch | HB-7085 | 176-2-310R263 |
| | ⑦7 | Spring Coil, for Hook Switch | RB-6035 | 176-2-481R136 |
| | ⑦8 | Push Button, PRIORITY Push-Button | K-2790 | 176-2-161R140 |
| | ⑦9 | Push Button, Channel Scan Push-Buttons | K-2791 | 176-2-161R141 |
| | ⑧0 | Push Button, Hook Switch | K-2792 | 176-2-161R142 |
| | ⑧1 | Rotary Knob assembly, SQUELCH, RF GAIN and SWR CALibration Controls | K-2793 | 176-0-163R144 |
| | ⑧2 | Rotary Knob assembly, VOLUME with On/OFF switch | K-2794 | 176-0-163R145 |
| | ⑧3 | Fiber Sheet, 23φ x 0.3mm, on Speaker | | R-Y652303 |
| | ⑧4 | Lug, for holding Speaker leads | | 141-2-472T01201 |
| | | Fixer, for holding wires | | 141-2-464T087 |
| | ⑧5 | Special Nut, for VR506 Mtg. | | 176-2-415R102B |
| CHASSIS | | | | |
| | ⑧6 | Sub-chassis, right side, for Main P.C. Board Mtg. | | 176-2-312R104 |
| | ⑧7 | Sub-chassis, left side, for Main P.C. Board Mtg. | | 176-2-312R105 |
| | ⑧8 | Sub-chassis, rear side, for Main P.C. Board Mtg. | | 176-2-312R106 |
| | ⑧9 | Bracket, for holding C403 | HB-7086 | 176-2-310R250 |
| | ⑨0 | Spacer, between ANTenna Connector and Main Chassis | HB-7087 | 176-2-352R118 |
| | ⑨1 | Bracket, for Handset Jack Mtg. | HB-7088 | 176-2-310R248 |
| | ⑨2 | Stud Nut, for Main Chassis Mtg. | HB-7089 | 176-2-417R108 |
| | ⑨3 | Bracket, for VOLUME On/OFF switch Mtg. | HB-7090 | 176-2-310R249 |
| | ⑨4 | Heat Sink, for Q403 | HH-0251 | 176-2-368R149 |

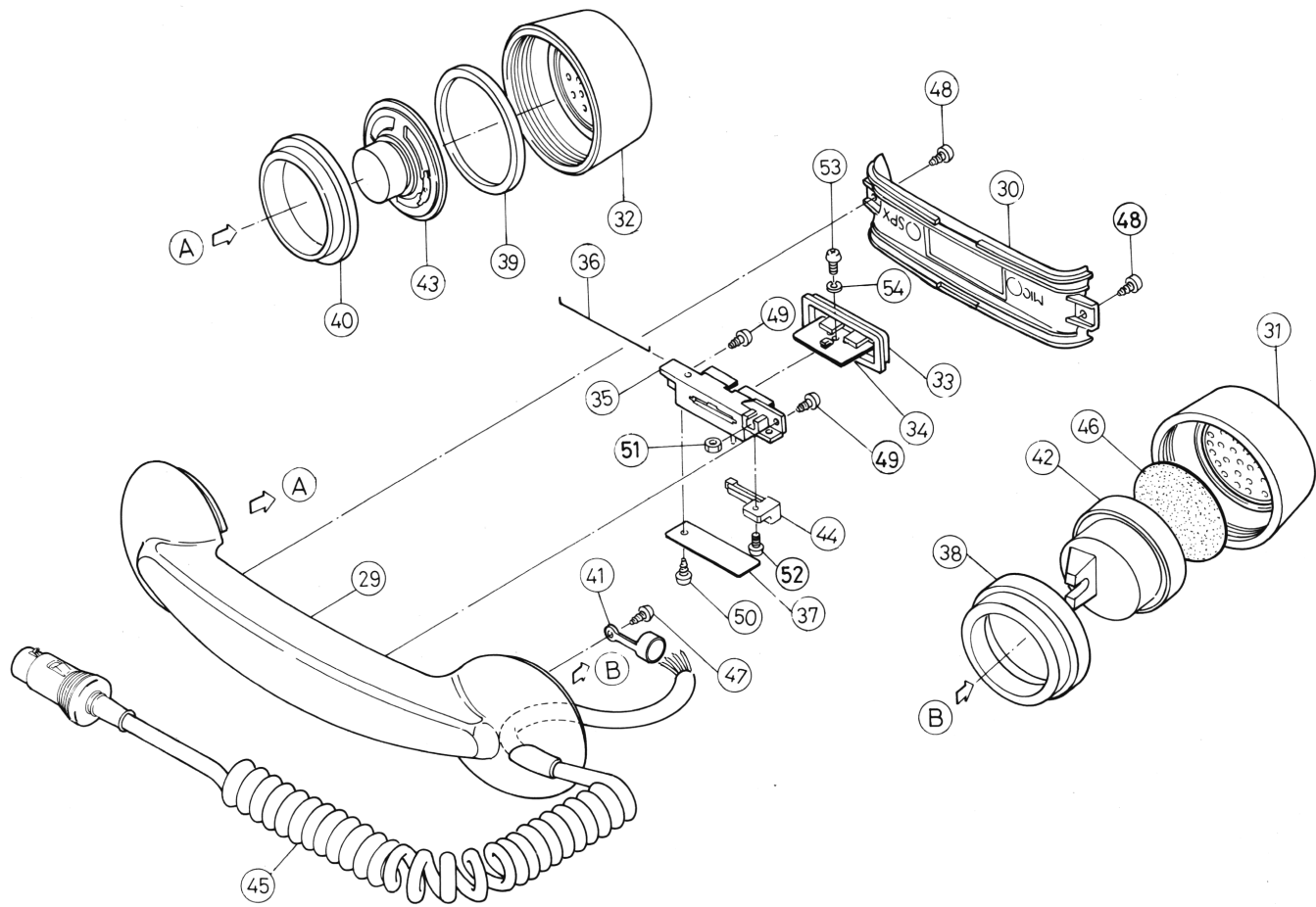
| Symbol No. | Ref. No. | Description | RS Part No. | Mfr's Part No. |
|------------------|----------|--|-------------|-----------------|
| CHASSIS | | | | |
| | ⑨5 | Knob, for Special Switches | K-2795 | 176-2-162R109 |
| | ⑨6 | Sub-chassis, for Special Switches Mtg. | | 176-2-310R261 |
| | ⑨7 | Heat Sink, for IC701 | HH-0252 | 176-2-368R13101 |
| | ⑨8 | Plate Nut, for IC701 Mtg. | HB-7091 | 176-2-411R103 |
| | ⑨9 | Bracket, for AC 120V Jack Mtg. | HB-6345 | 176-2-210R115 |
| | ⑩0 | Terminal, with ANTenna Connector | J-4528 | 176-2-382R11901 |
| | | Spacer, for MODE Switch | HB-7092 | 176-2-210R148 |
| | | Spacer, for METER, DELTA TUNE, BLANKER and SPEAKERS Switches | HB-7093 | 176-2-210R149 |
| | ⑩1 | Heat Sink, for Q902 | HH-0253 | 176-2-368R152 |
| | ⑩2 | Heat Sink assembly, for Q903 | | 176-0-368R105 |
| | | Heat Sink | HH-0254 | 176-2-368R153 |
| | | Shield Plate, for TX section | | 176-2-322R147 |
| | | Lug, for capacitor wiring | | 123-2-472R004 |
| | | Toothed Lock Washer, 2.6mm | | R-Y342600 |
| | | Rivet | | 176-2-467R102 |
| | ⑩3 | Bracket, for Handset Jack Mtg. | HB-7094 | 176-2-210R146 |
| | ⑩4 | Lug, for holding T401 leads | | 123-2-472R006 |
| | ⑩5 | Mask, for Push-Buttons | | 176-2-135R179A |
| | ⑩6 | Mask, for DELTA TUNE, BLANKER, SPEAKERS and MODE Switches | HB-7097 | 176-2-135R177 |
| | ⑩7 | Mask, for METER Switch | HB-7098 | 176-2-135R180 |
| | ⑩8 | Shield Plate assembly, for PLL section | | 176-0-322R108 |
| | | Shield Plate | | 176-2-322R149 |
| | | Fiber Sheet, 66 x 45.5 x 0.3mm | | R-Y656645503 |
| | | Shield Case, for PLL section | | 176-2-322R148 |
| | | Shield Cover, for PLL section | | 176-2-135R182 |
| | ⑩9 | Bracket, for T401 Mtg. | | 176-2-310R290 |
| | ⑩0 | Bracket, for Shield Plate (176-2-322R147) Mtg. | | 176-2-310R292 |
| | ⑩1 | TX/RX P.C. BOARD ASSEMBLY | X-7590 | 4-226R99301 |
| | ⑩2 | AC-DC CONVERTER P.C. BOARD ASSEMBLY | X-7591 | 4-226R99401 |
| FASTENERS | | | | |
| | ⑩3 | Washer Head Tapping Screw, 3 x 8mm, for Sub-chassis (176-2-422R105) Mtg. | | R-Y813008B |
| | ⑩4 | Hexagon Nut, 3mm, for LED Channel Indicator Mtg. | | R-Y23300001 |
| | ⑩5 | Pan Head Tapping Screw, 3 x 6mm, for Clamp Mtg. | | R-Y113006B |
| | ⑩6 | Pan Head Tapping Screw, 3 x 6mm, for Stopper Mtg. | | R-Y113006B |
| | ⑩7 | Pan Head Tapping Screw, 3 x 8mm, for Speaker Mtg. | | R-Y113008B |

| Symbol No. | Ref. No. | Description | RS Part No. | Mfr's Part No. |
|------------------|----------|--|-------------|----------------|
| FASTENERS | | | | |
| | (118) | Pan Head Screw, 2 x 10mm, for Micro Switch Mtg. | | R-Y012010 |
| | (119) | Plain Washer, 2mm, for Micro Switch Mtg. | | R-Y312000 |
| | (120) | Pan Head Tapping Screw, 3 x 6mm, for Handset Holder (Fixed) Mtg. | | R-Y113006B |
| | (121) | Pan Head Tapping Screw, 3 x 10mm, for Main Chassis Mtg. | | R-Y113010B |
| | (122) | Pan Head Screw, 3 x 8mm, for Cabinet bottom Mtg. | | R-Y013008 |
| | (123) | Pan Head Screw, 3 x 8mm, for Main Chassis Mtg. | | R-Y013008 |
| | (124) | Pan Head Thread Rolling Screw, 3 x 6mm, for Sub-chassis Mtg. | | R-Y583006 |
| | (125) | Pan Head Thread Rolling Screw, 3 x 6mm, for DC 12V Jack Mtg. | | R-Y583006 |
| | (126) | Pan Head Screw, 2.6 x 12mm, for AC 120V Jack Mtg. | | R-Y012612 |
| | (127) | Pan Head Thread Rolling Screw, 3 x 6mm, for TX/RX P.C. Board Mtg. | | R-Y583006 |
| | (128) | Toothed Lock Washer, 3mm, for TX/RX P.C. Board Mtg. | | R-Y34300002 |
| | (129) | Pan Head Screw, 3 x 8mm, for Q902 Heat Sink and Q903 Heat Sink | | R-Y013008 |
| | (130) | Pan Head Screw, 3 x 10mm, for Q903 Mtg. | | R-Y013010 |
| | (131) | Plain Washer, 3mm, for Q903 Mtg. | | R-Y323000 |
| | (132) | Hexagon Nut, 3mm, for Q903 Mtg. | | R-Y23300001 |
| | (133) | Pan Head Screw, 3 x 10mm, for Q902 Mtg. | | R-Y013010 |
| | (134) | Hexagon Nut, 3mm, for Q902 Mtg. | | R-Y23300001 |
| | (135) | Pan Head Screw, 3 x 6mm, for Heat Sink and Main Chassis | | R-Y013006 |
| | (136) | Pan Head Screw, 4 x 10mm, for T401 Mtg. | | R-Y014010 |
| | (137) | Spring Washer, 4mm, for T401 Mtg. | | R-Y334000 |
| | (138) | Pan Head Thread Rolling Screw, 3 x 6mm, for Q403 Heat Sink and P.C. Board | | R-Y583006 |
| | (139) | Pan Head Thread Rolling Screw, 3 x 6mm, for Q403 Heat Sink and Chassis | | R-Y583006 |
| | (140) | Pan Head Screw with Plain and Spring Washers, 3 x 10mm, for Q403 Mtg. | | R-Y793010 |
| | (141) | Hexagon Nut, 3mm, for Q403 Mtg. | | R-Y23300001 |
| | (142) | Flat Head Screw, 2.6 x 4mm, for Handset Jack Mtg. | | R-Y022604 |
| | (143) | Pan Head Screw, 3 x 4mm, for Bracket Mtg. | | R-Y013004 |
| | (144) | Flat Head Screw, 3 x 6mm, for Bracket (176-2-210R146) Mtg. | | R-Y023006 |
| | (145) | Pan Head Screw, 3 x 4mm, for Bracket (176-2-310R249) Mtg. | | R-Y013004 |

| Symbol No. | Ref. No. | Description | RS Part No. | Mfr's Part No. |
|------------------|----------|---|-------------|----------------|
| FASTENERS | | | | |
| | ①46 | Pan Head Screw with Toothed Lock Washer, 3 x 6mm, for Main P.C. Board Mtg. | | R-Y663006 |
| | ①47 | Pan Head Thread Rolling Screw, 3 x 6mm, for IC701 Head Sink and Chassis | | R-Y583006 |
| | ①48 | Pan Head Screw with Plain and Spring Washers, 3 x 8mm, for IC701 Mtg. | | R-Y793008 |
| | ①49 | Flat Head Screw, 2.6 x 6mm, for IC701 Heat Sink and P.C. Board | | R-Y022606 |
| | ①50 | Pan Head Screw, 3 x 4mm, for Sub-chassis (176-2-310R261) Mtg. | | R-Y013004 |
| | ①51 | Flat Head Screw, 2.6 x 4mm, for Special Switch Mtg. | | R-Y022604 |
| | ①52 | External "E" Ring, 2mm, for Handset Holder Mtg. | | R-Y352000 |
| | ①53 | Flat Head Screw, 2.6 x 6mm, for Heat Sink and TX/RX P.C. Board | | R-Y022606 |

SCHEMATIC DIAGRAM (PLL AND SCANNER SECTION)





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