

KENWOOD

SERVICE MANUAL

Model T-599S

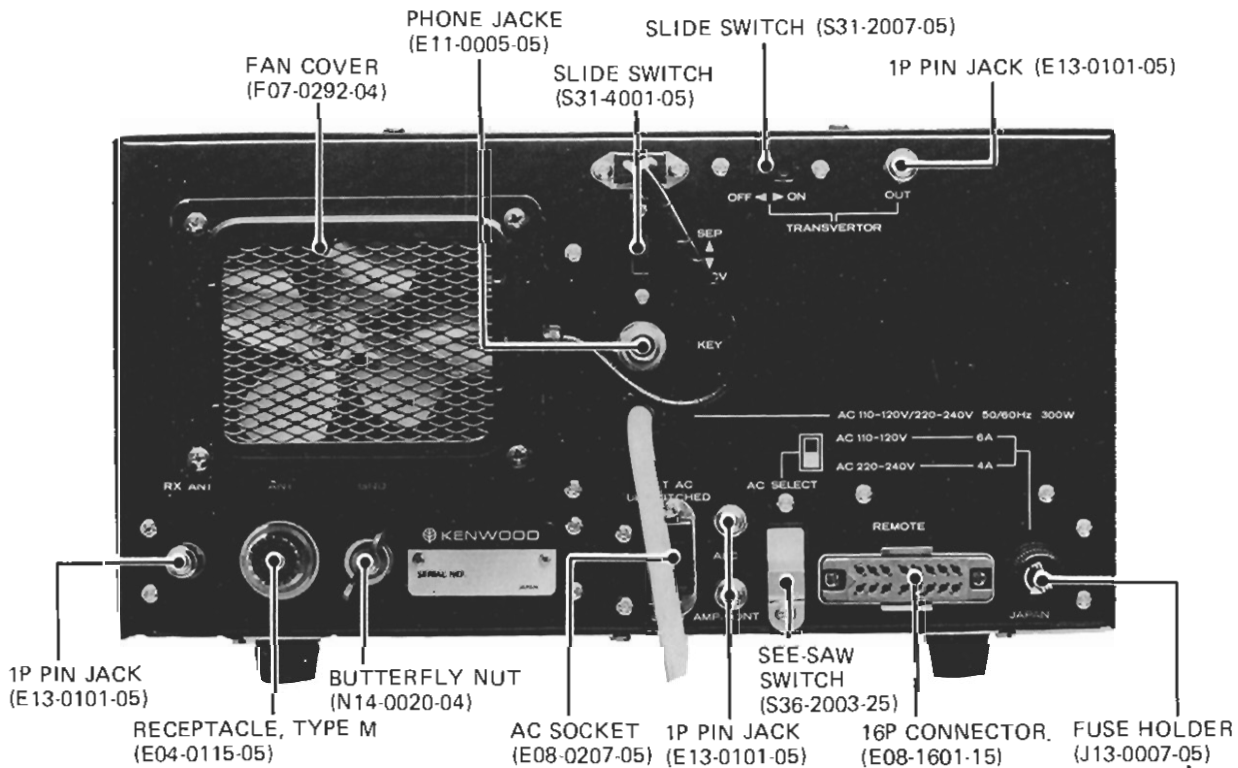
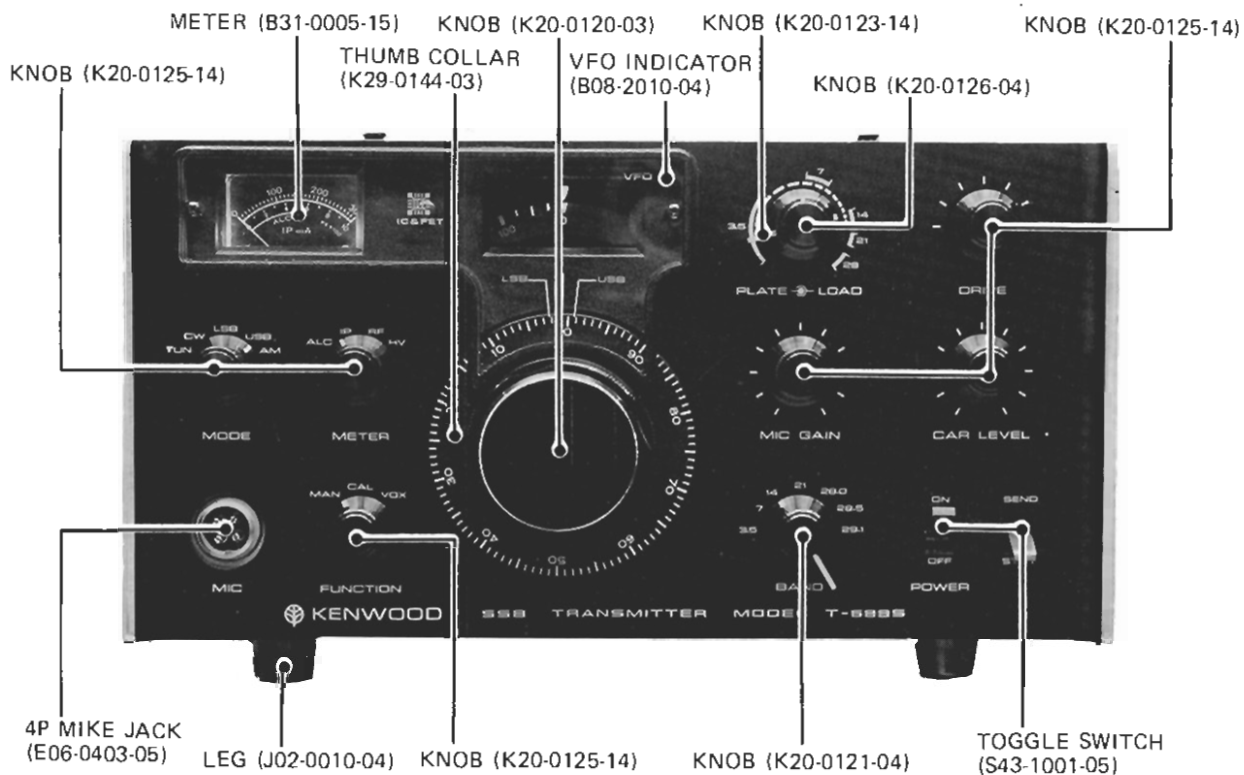


ALL BAND SSB TRANSMITTER

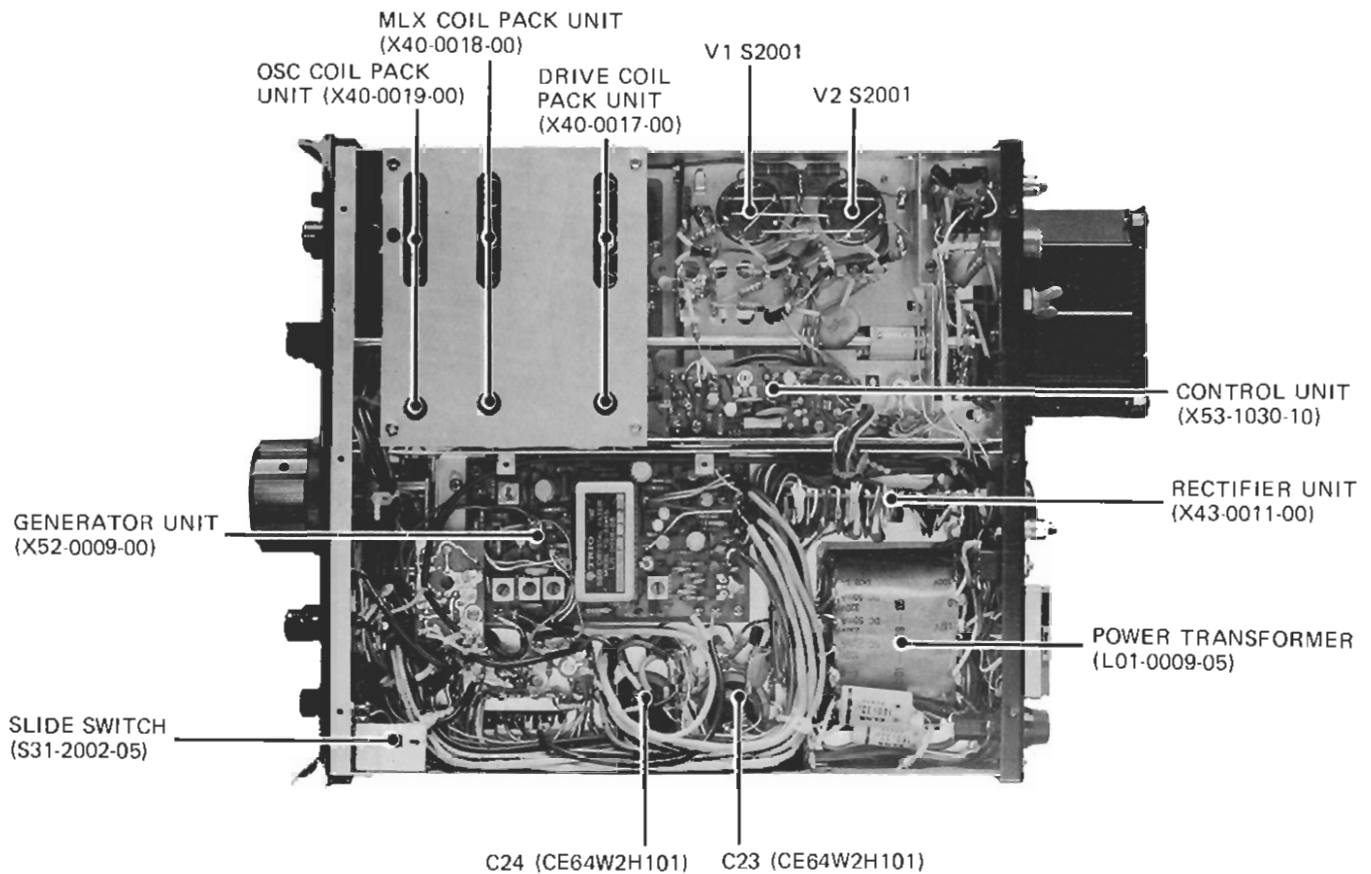
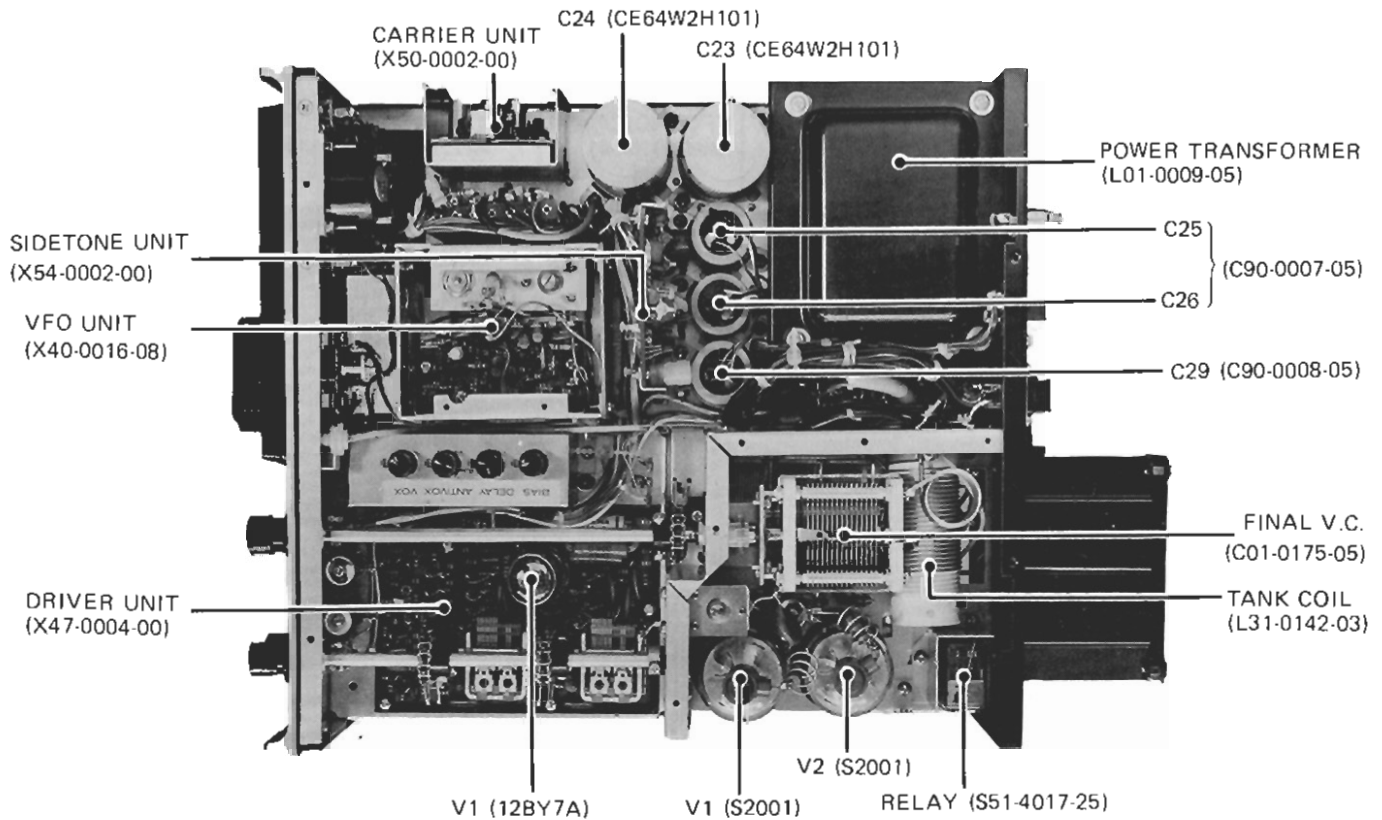
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EXTERNAL VIEW



PARTS ALIGNMENT



TROUBLESHOOTING

1. Trouble-shooting information given below will become more meaningful if you refer to ADJUSTMENTS information in pages 7-11, with the circuit diagrams at your elbow.
2. Check for possible causes, not just in any sequence but in the sequence of listing.
3. To check r-f voltages, use a vacuum-tube voltmeter or, alternatively, a detector-tester combination like the one shown on the right.

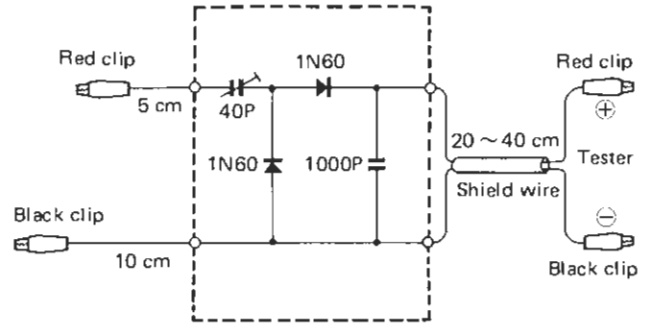


Fig. 1

| Symptom | Service points | Possible causes | What to do for remedy |
|---|--|--|--|
| 1. No power supply. | <ol style="list-style-type: none"> 1) Fuse 2) Power on-off switch 3) AC cord | <ul style="list-style-type: none"> o Blown fuse. o Defective switch. o Open-circuit near the plug. | <ul style="list-style-type: none"> o Refer to Symptom 2. o Check for circuit continuity. o Check for circuit continuity. |
| 2. Fuse blows off too easily. | <ol style="list-style-type: none"> 1) Rectifier unit (X43-0011-00) 2) Final stage tube | <ul style="list-style-type: none"> o D1 ~ D4 (VO8J) shorted. o S2001 electrode being touched. | <ul style="list-style-type: none"> o Disconnect HV850 (X43-0011-00) terminal and check for continuity. o Check for continuity between pins 1, 4 or 6 and plate. Replace as necessary. |
| 3. (A) No CW output. <div style="text-align: center;">All bands</div> | Read I _p (plate current): <ol style="list-style-type: none"> 1) I_p normal or nearly normal. 2) I_p is zero. 3) Only base current is noted. | <ul style="list-style-type: none"> o Loading coil or its adjacent part is touching the chassis. o Defective contact of relay (RL). o Defective Q1, 2SC857 Q2 or 2SC856 in control unit (X53-1030-10). o No voltage on plate or screen of S2001. o Defective Q1, 3KS22 (in drive unit X47-0004-00), Q2 or 2SC535. o No carrier oscillation (X50-0002-00) o No oscillation of VFO unit (X40-0016-08). o Q5 or Q6 is defective or T3 ~ T5 are off adjustment in generator unit (X52-0009-00). o Coil not tuned, or defective crystal. o Loading coil and its adjacent part is touching the chassis. | <ul style="list-style-type: none"> o Investigate and repair. o Check for continuity; replace as necessary. o Check for continuity; replace as necessary. o Check voltage. o Check for continuity, or replace. o If Q2 or 2SC535 is suspected, check its voltage or oscillating voltage. (Oscillating voltage is to be checked with vacuum-tube voltmeter at G2 of Q1.) o Check voltage at various parts of carrier unit (X50-0002-00), particularly the r-f voltage at OUT terminal on top of the unit. o Check r-f voltage at O terminal of VFO unit. o Check voltage or adjust. |
| <div style="text-align: center;">Specific band</div> | <ol style="list-style-type: none"> 1) No heterodyning oscillation. 2) Final stage | <ul style="list-style-type: none"> o VR1 out of adjustment (regulated voltage too low). o Deteriorated 12BY7A or S2001. o Deteriorated Q2 or 2SC535 in drive unit (X47-0004-00). o TC2 off adjustment. o Deteriorated Q1, 3SK22 or Q3, 2SC460. | <ul style="list-style-type: none"> o Tune coil, or replace crystal. o Investigate and repair. |
| (B) Not enough CW output. <div style="text-align: center;">All bands</div> | <ol style="list-style-type: none"> 1) AVR unit (X43-0010-00) 2) Drive unit or final tube 3) Heterodyning oscillation (low output) 4) VFO (low VFO output) | <ul style="list-style-type: none"> o VR1 out of adjustment (regulated voltage too low). o Deteriorated 12BY7A or S2001. o Deteriorated Q2 or 2SC535 in drive unit (X47-0004-00). o TC2 off adjustment. o Deteriorated Q1, 3SK22 or Q3, 2SC460. | <ul style="list-style-type: none"> o Adjust VR1, and restore OUT voltage to normal 9 volts. o Replace. o Check oscillation voltage. o Adjust o Check voltage, and replace as necessary. |

| Symptom | Service points | Possible causes | What to do for remedy |
|---|---|--|---|
| 3.5 ~ 14M band 21 ~ 28M band | 5) Generator unit (X52-0009-00). 6) Final stage 1) Final stage 2) Coil unit 1) Drive unit or final tube 2) Final stage 3) Coil unit | <ul style="list-style-type: none"> ○ Defective crystal filter. ○ Deteriorated Q4, TA7045M or Q5, 3SK22. ○ Loading coil or its adjacent part is touching the chassis. ○ Loading coil or its adjacent part is touching the chassis. ○ Mixer or drive coil is off adjustment. ○ Deteriorated 12BY7A or S2001. ○ Loading coil or its adjacent part is touching the chassis. ○ Ruptured C3, C4 or C7 ~ C9. ○ Loading coil or its adjacent part is touching the chassis. ○ Ruptured C3, C4 or C7 ~ C9. | <ul style="list-style-type: none"> ○ Level check. Replace as necessary. ○ Check voltage. Replace as necessary. ○ Investigate and repair. ⊗ Investigate and repair. ○ Adjust. ○ Replace. ○ Investigate and repair. ⊗ Replace. ⊗ Investigate and repair. ○ Replace. |
| 4. No SSB output | 1) Microphone side 2) Generator unit (X52-0009-00) 3) Carrier oscillator unit (X50-0002-00) | <ul style="list-style-type: none"> ○ Open in lead wire, near its plug. ○ Defective Q1, 2SC871 or Q2, Q3, 2SC733. ○ Defective X2 or X3 | <ul style="list-style-type: none"> ○ Inspect and repair. ○ Check voltage. ○ Check OUT voltage. |
| 5. Distortion in sound output. SSB AM | 1) Drive knob 2) Abnormal oscillation 2) Abnormal oscillation ○ AM SET | <ul style="list-style-type: none"> ○ Knob not properly set. ○ Ruptured C3, C4 or C7 ~ C9 in final stage circuit. ○ VR3 out of adjustment. | <ul style="list-style-type: none"> ○ Set CW for maximum ALC deflection ○ Check by CW. ○ Adjust. |
| 6. No ALC deflection. | 1) Carrier level 2) Insufficient drive | <ul style="list-style-type: none"> ○ Improper carrier level. ○ Refer to Symptom 3 "No CW output." | <ul style="list-style-type: none"> ○ Set in correct position by CW. ○ |
| 7. Ip meter pointer deflects too much or too little. | ○ Final stage circuit | <ul style="list-style-type: none"> ○ Ohmic value of R4 or R5 has changed. ○ Ohmic value of R6 has changed. | <ul style="list-style-type: none"> ○ Replace. ⊗ Replace. |
| 8. When transceiving: Not enough output. Frequency deviation in transmitting and receiving. | 1) Heterodyne oscillator circuit 2) VFO output of R-599. 1) Carrier oscillation 2) RIT zero point off adjustment | <ul style="list-style-type: none"> ○ Deteriorated Q3, or 2SC460 in drive unit (X47-0004-00). ○ TC2 off adjustment. ○ Frequency deviation at R-599 or T-599. ○ VR2 off adjustment in AVR unit (X43-0010-00). | <ul style="list-style-type: none"> ⊗ Replace. ⊗ Adjust. ○ Check and adjust. ○ Adjust. |

ADJUSTMENT

1. CARRIER LEVEL and R-F METER SENSITIVITY

(1) Purpose

To set the carrier level (CW and AM) and the r-f meter sensitivity.

(2) Instrument to be used

Power meter (at least 100 watts in measuring capacity)

(3) Adjusting procedure

1) Connect power meter to ANT terminal.

2) Set controls as follows:

| Knob | Position |
|------------|------------|
| MODE | CW |
| BAND | 14 MHz |
| VFO (dial) | 175 |
| DRIVE | 12 o'clock |
| METER | I_p |

3) Turn SEND/STBY switch to SEND position and quickly read I_p dip.

Adjust DRIVE, PLATE and LOAD knobs to obtain maximum power.

4) Turn METER switch to ALC, and adjust CAR LEVEL (VR2) to deflect the meter pointer to the highest position.

NOTE 1.

Tuning should be completed in the shortest time possible. Slow tuning may damage S2001 if the final stage happens to be working wild.

NOTE 2.

If I_p of 150 mA or more is present, adjustment should be carried out turning power supply on and off, ON for one minute and OFF for 30 seconds.

- 5) Turn METER switch to RF position, and adjust RF LEVEL VR (VR4, 10 kilohms) to obtain a 200 mA indication on the meter.
- 6) Turn BAND switch to 28.5 MHz position, MODE switch to AM position. Adjust AM SET VR (VR3, 500 kilohms) to obtain a 12 watts indication on the power meter. If this indication will not show up, set VR2 (5 kilohms) CAR LEVEL VR in maximum position, and re-adjust VR3.
- 7) Turn BAND switch to 3.5 MHz position, and set VFO dial to 30. Adjust DRIVE, PLATE and LOAD knobs and make sure a power of at least 80 watts is available: do not disturb CAR LEVEL VR.
- 8) Similarly make sure 80 watts is available at 7.050 MHz, and 70 watts at 28.3 MHz, 28.8 MHz and 29.1 MHz, respectively.

2. BM (BALANCED MODULATOR) and CARRIER position (Refer to Fig. 2, 3)

(1) Purpose

To balance the balanced mixer and to adjust the carrier position.

(2) Instruments to be used

- 1) Power meter (at least 100 watts in measuring capacity)
- 2) R-F vacuum-tube voltmeter
- 3) A-F generator
- 4) A-F vacuum-tube generator

(3) Adjusting procedure

1) Connect power meter and r-f vacuum-tube voltmeter (maximum range) to ANT terminal.

2) Turn MODE switch to CW and, with the frequency set at 14.175 MHz, adjust knobs to read maximum power on the power meter.

3) Next, move MODE switch to LSB, and adjust the carrier balancing VR (VR1, 100 ohms) on top of generator unit (X52-0009-00) to minimize the vacuum-tube voltmeter indication.

4) With the vacuum-tube voltmeter set in the maximum range, apply the signal of A-F generator (5 mV, 1500 Hz) to AF1 terminal of the generator unit. Adjust MIC GAIN to obtain 50 watts output.

5) Switch A-F generator signal to 400 Hz and 2600 Hz. Make a fine adjustment of TC3 (on the carrier unit, X50-0002-00) in such a way that the difference in output for these two frequencies will be not greater than 5 watts.

6) Turn MODE switch to USB, and switch A-F signal to 400 Hz and 2600 Hz. Carry out a fine adjustment on TC2 (on the same carrier unit) in such a way that the difference in output for these two frequencies will be not greater than 5 watts.

7) Disconnect A-F generator from AF1 terminal, and turn MIC GAIN knob counterclockwise as far as it will turn.

8) Again turn MODE switch to LSB, and adjust VR1 and TC1 on top of generator unit (X52-0009-00) to minimize the indication of R-F vacuum-tube voltmeter.

9) Move MODE switch to USB and, as R-F vacuum-tube voltmeter indication rises, adjust VR1 and TC1 on the generator unit to bring meter indication to one and the same lowest possible point for both USB and LSB. Let "A" stand for this meter indication.

If the indication of R-F vacuum-tube voltmeter should fall when the switch is so turned from LSB to USB, let "A" stand for the indication obtained for LSB.

10) Set R-F vacuum-tube voltmeter in the highest range.

- 11) Apply 5-mV 1500-Hz A-F signal to MIC terminal (on front panel). Check to be sure that a power of at least 80 watts is available with this signal coming in through MIC terminal. Let "B" stand for what R-F vacuum-tube voltmeter indicates at this time.
- 12) Make sure that the difference between "A" and "B" is not less than 40 dB.

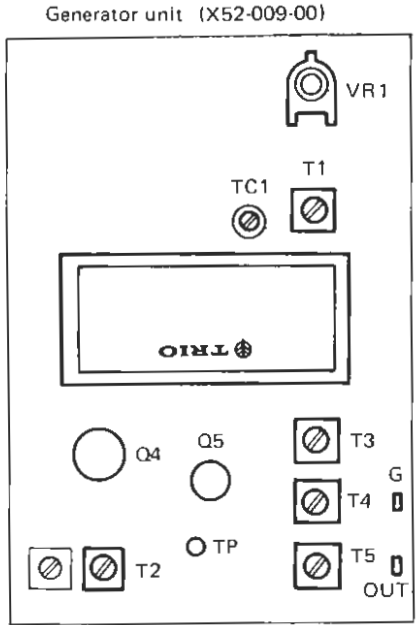


Fig. 2

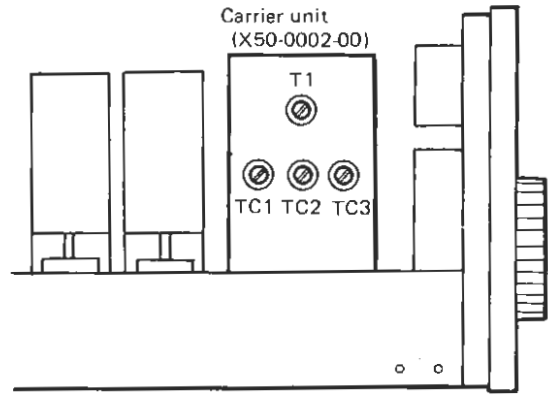


Fig. 3

3. VFO adjustment (X40-0016-08)

- (1) Purpose
To set the VFO output voltage and to adjust the oscillating frequency.
- (2) Instruments required
 - 1) R-F vacuum-tube voltmeter
 - 2) Frequency counter
- (3) Adjusting procedure (Refer to Fig. 5.)
 - 1) Connect R-F vacuum-tube voltmeter and frequency counter to OUT terminal of VFO unit (X40-0016-08), as shown in Fig. 4.
 - 2) Adjust TC2 to obtain output voltage of 1 volt.
 - 3) Turn VFO dial, indexing it to "0" graduation. Check to be sure the oscillating frequency is 5.5 MHz. If the oscillator is found to be operating off this frequency value, set it right by adjusting TC1.
 - 4) Turn VFO dial to "600" and check to be sure the oscillator is working at 4.9 MHz: if not, set it right by adjusting L1.
 - 5) Repeat the steps 3) and 4) twice or thrice.

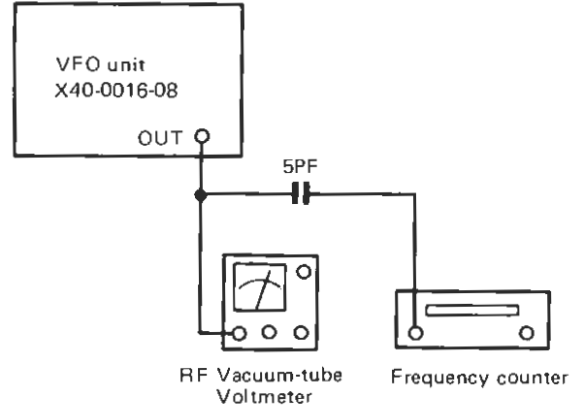


Fig. 4

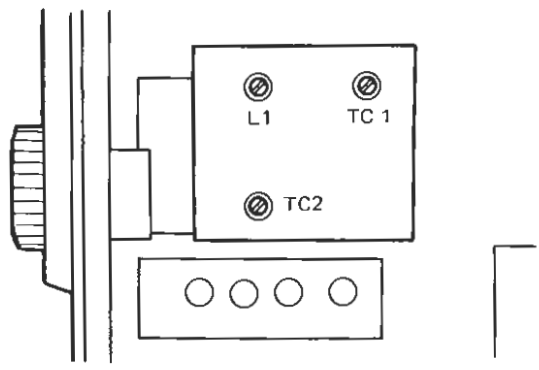


Fig. 5

4. HETERODYNE OSCILLATOR adjustment

(1) Purpose

To make sure that the heterodyning crystal is working properly, producing the desired frequency.

(2) Instrument to be used

R-F vacuum-tube voltmeter

(3) Adjusting procedure (Refer to Fig. 6)

- 1) Connect R-F vacuum-tube voltmeter to MD terminal, which is located on the driver unit (X47-0004-00).
- 2) Set BAND switch to 3.5 MHz.
- 3) Move SEND/STBY switch into SEND position.
- 4) Adjust in such a way that the oscillator output will be 0.5 dB below the maximum value, with the core of the 3.5-MHz oscillator coil sticking out.
- 5) Similarly adjust the oscillator coil for each of 7, 14, 21 and 28.5 MHz bands.
- 6) Make sure oscillation is normal for 28.0 and 29.1 MHz bands. If oscillation is not available or if too much a difference in level is noted, adjust the 28.5-MHz oscillator coil in such a way that the output will remain the same for 28, 28.5 and 29.1 MHz bands.

- 2) Set DRIVE knob in 12 o'clock position, making sure that there is no positional offset on either side of this knob. Accurately setting it in 12 o'clock position is important.

3) Position controls as follows:

| Knob | Position |
|-----------|-----------|
| MODE | TUN or CW |
| FUNCTION | MAN |
| METER | ALC |
| SEND/STBY | SEND |

- 4) Set BAND switch to 3.5-MHz position, and index VFO dial to "250". Adjust MIX coil pack unit (X40-0018-00) and driver coil pack unit (X40-0017-00) to maximize R-F vacuum-tube voltmeter indication.
- 5) As soon as ALC meter pointer starts deflecting, disconnect R-F voltmeter. As in step 4) above, adjust the two coil pack units (MIX and DRIVER) to maximize ALC meter indication.
- 6) Repeat the foregoing procedure for each of 28.5, 21, 14 and 7 MHz bands, adjusting the coil pack units each time.

VFO dial is to be positioned as follows:

| Frequency | Graduation |
|-----------|------------|
| 28.5 MHz | 300 |
| 21 MHz | 225 |
| 14 MHz | 175 |
| 7 MHz | 150 |

5. Adjustment of SECOND MIXER and DRIVE PLATE COIL

(1) Purpose

To tune the coil for each band.

(2) Instrument required

R-F vacuum-tube voltmeter

(3) Adjusting procedure (Refer to Fig. 6)

- 1) Connect vacuum-tube voltmeter to the grid (Pin No. 5) of S2001 through a 1-pF capacitor.

NOTE:

Carry out this adjustment in the following sequence: 3.5; 28.5; 21; 14; and 7 MHz.

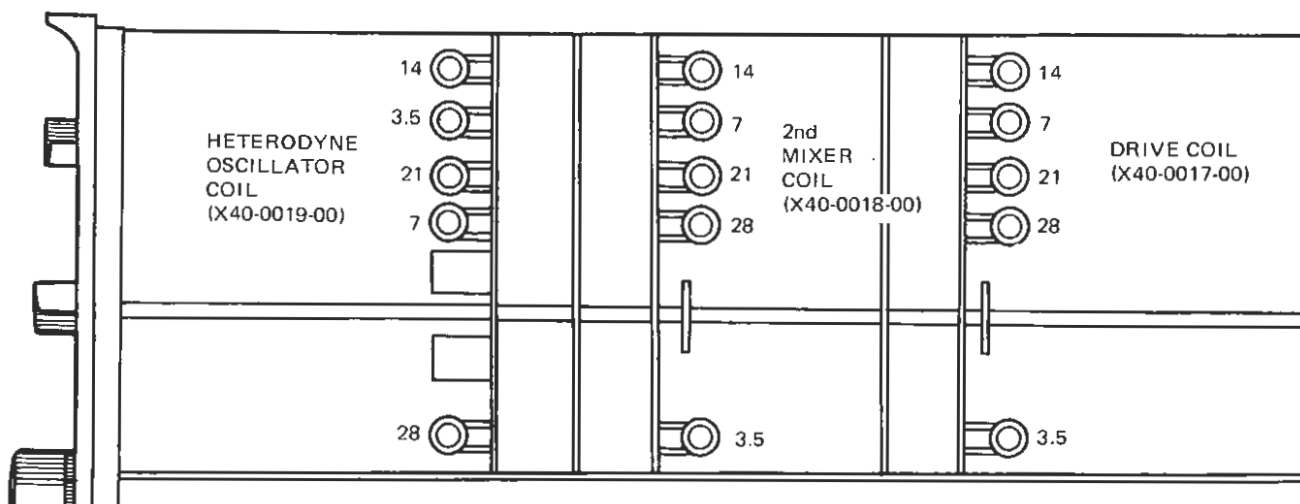


Fig. 6

6. BPF adjustment

(1) Purpose

To secure the prescribed bandwidth by adjusting the band-pass filter (BPF).

(2) Instruments required

- 1) Sweep generator (producing markers for 8.295, 8.595 and 8.895 MHz, respectively)
- 2) BPF detector (see Fig. 7)
- 3) Oscilloscope

(3) Adjusting procedure

- 1) Connect the output terminal of sweep generator to TP terminal on generator unit (X52-0009-00).
- 2) Connect the detector to OUT terminal of generator unit, and connect the oscilloscope to the output terminal of the detector.
- 3) Adjust T3, T4 and T5 to obtain the characteristic curve shown in Fig. 8.

7. MIC GAIN adjustment

(1) Purpose

To set MIC GAIN (VR1).

(2) Instruments required

- 1) A-F generator
- 2) A-F vacuum-tube voltmeter

(3) Adjusting procedure

- 1) Turn on TRANSVERTOR located on the rear panel.
- 2) Turn MODE switch to LSB or USB.
- 3) Apply, 5-mV 1500-Hz to MIC terminal (front panel) from A-F generator.
- 4) Move SEND/STBY switch to SEND position. Connect A-F vacuum-tube voltmeter to AF6 terminal on generator unit (X52-0009-00). Adjust MIC GAIN to obtain a 0.3-V indication on A-F voltmeter.

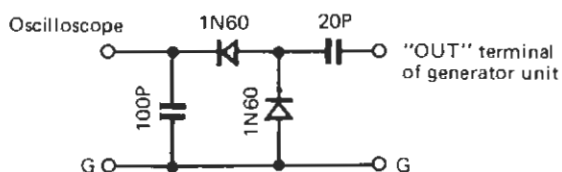


Fig. 7

8. FINAL BIAS adjustment

(1) Purpose

To establish final base current.

(2) Instrument required

(No instrument is needed for this adjustment.)

(3) Adjusting procedure

- 1) Turn MODE switch to LSB or USB.
- 2) Set DRIVE knob in 9 o'clock position.
- 3) Set BAND switch to 14 MHz, turn off TRANSVERTOR, and move SEND/STBY switch into SEND position.
- 4) Turn METER switch to I_p position. Adjust BIAS VR (VR5, 50 kilohms) to obtain an I_p of 60 mA.
- 5) Turn PLATE knob to observe the I_p value indicated. Make sure this indication does not vary as PLATE knob is turned.
- 6) Turn SEND/STBY switch back to STBY.

9. Neutralizing adjustment

(1) Purpose

To stabilize the action of S2001 in the final stage.

(2) Instruments required

- 1) Power meter
- 2) R-F vacuum-tube voltmeter

(3) Adjusting procedure

- 1) Turn MODE switch to CW, BAND switch to 21 MHz position, and the dial to "225".
- 2) Move SEND/STBY switch into SEND position, and adjust the respective knobs to obtain maximized power output.
- 3) Under this condition, turn on TRANSVERTOR switch on rear panel. This will shut off the screen voltage of S2001.
- 4) Connect R-F vacuum-tube voltmeter to ANT terminal. Adjust the neutralizing variable capacitor TC1 (located in the final shielded box) to minimize R-F voltmeter indication.
- 5) Bring back SEND/STBY switch to STBY, and disconnect R-F voltmeter from ANT terminal. Turn off TRANSVERTOR switch.
- 6) Again move SEND/STBY switch into SEND position and check to be sure the same maximized output power is available.

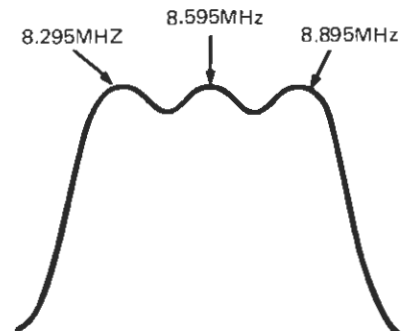


Fig. 8

10. SIDE TONE adjustment

(1) Purpose

To set the output level of side tone and to verify semi-break-in action.

(2) Instruments required

- 1) Power meter (not less than 100 watts in capacity)
- 2) A-F vacuum-tube voltmeter
- 3) Oscilloscope
- 4) 50-kilohm resistor
- 5) Key

(3) Adjusting procedure

- 1) Connect the power meter to ANT terminal, and connect A-F voltmeter, oscilloscope and 50-kilohm dummy to pins 15 and 16 of REMOTE terminals.
- 2) Turn MODE switch to CW, BAND switch to 14 MHz position, and the dial to "175". Adjust respective knobs to obtain a maximum output power reading on the meter.
- 3) Insert the key into KEY jack. Make sure this insertion reduces R-F output to zero.
- 4) After checking to be sure that pushing in the key restores R-F output to the original power level, make sure that the side tone A-F output is 1 volt ± 2 dB.
- 5) Move SEND/STBY switch back to STBY position, and turn FUNCTION switch to VOX. Push in the key to be sure that this results in a semi-break-in keying.

11. VOX action adjustment

(1) Purpose

To set VOX circuit gain and time constant.

(2) Instruments required

- 1) A-F generator
- 2) A-F vacuum-tube voltmeter
- 3) Clock (with a second hand)

(3) Adjusting procedure

- 1) Turn on TRANSVERTOR switch.
- 2) Move FUNCTION switch to VOX position.
- 3) Connect A-F generator to MIC terminal, and adjust its output to 5 mV at 1500 Hz. With this A-F signal coming in, adjust VOX GAIN (located on top face of the chassis) to trip the relay.
- 4) With the relay having been so tripped, remove the A-F signal. Check to be sure that, shortly afterward, the relay resets itself. Set this delay time, that is, VOX holding time to the specification value by adjusting DELAY (located on top face of the chassis).
- 5) Move FUNCTION switch back to MAN position.

12. Voltage check

(1) Purpose

To obtain proper voltage from the power source and AVR unit.

(2) Instrument required

Voltmeter or tester

(3) Check voltage at the following points:

(Refer to circuit diagrams.)

| Check point | Voltage | |
|-------------|--------------|----------------|
| A | DC 930 volts | ± 50 volts |
| B | DC 330 volts | ± 20 volts |
| C | DC 240 volts | ± 20 volts |
| D | DC 15 volts | ± 1 volt |
| E | DC 9 volts | ± 0.2 volt |
| F | DC -95 volts | ± 20 volt |
| G | AC 6.3 volts | ± 0.5 volt |
| RIT | DC 5.8 volts | |

NOTE

If the voltage at check point E is off ± 0.2 volt of 9 volts, bring this voltage into the tolerance by adjusting VR1 (500 ohms) located on the AVR unit (X43-0001-00). RIT voltage can be similarly set right by adjusting VR2 (10 kilohms) on the same AVR unit.

PARTS LIST

■ PARTS LIST OF T-599S

| Circuit No. | Parts No. | Description | Remarks |
|---------------------------|--------------|--------------------|--------------------|
| CAPACITOR | | | |
| C1 | CM93F2H101J | Mica | 100pF ±5% |
| C2 | CK45E2H102P | Ceramic | 0.001μF +100%, -0% |
| C3, 4, 7, 8 | CK45F1E403Z | Ceramic | 0.04μF +80%, -20% |
| C9 | CK45E2H103P | Ceramic | 0.01μF +100%, -0% |
| C11 | C90-0127-05 | Ceramic | 1000pF ±10% |
| C13, 14 | C90-0125-05 | Ceramic | 4700pF +100%, -0% |
| C15 | CM93F2H151J | Mica | 150pF ±5% |
| C16 | CM93F2H821J | Mica | 820pF ±5% |
| C17, 19 | CK45E2H103P | Ceramic | 0.01μF +100%, -0% |
| C20, 21 | CK45F1E403Z | Ceramic | 0.04μF +80%, -20% |
| C22 | CK45E2H103P | Ceramic | 0.01μF +100%, -0% |
| C23, 24 | CE64W2H101 | Electrolytic block | 220μF x2 500WV |
| C25, 26 | C90-0007-05 | Electrolytic block | 22μF 350WV |
| C27, 28 | CE02W2C330 | Electrolytic | 33μF 160WV |
| C29 | C90-0008-05 | Electrolytic | 1000μF x2 25WV |
| C30, 31 | CK45F1E403Z | Ceramic | 0.04μF +80%, -20% |
| C32 ~ 35 | C90-0125-05 | Ceramic | 4700pF +100%, -0% |
| C36, 37 | CE04W1E100 | Electrolytic | 10μF 25WV |
| C38 | CK45E2H103P | Ceramic | 0.01μF +100%, -0% |
| C39 | CM93D2H150J | Mica | 15pF ±5% |
| C41, 42 | CK45F1E103Z | Ceramic | 0.01μF +80%, -20% |
| C43, 44 | CM93D1H330JZ | Mica | 33pF ±5% |
| C45 | CK45E2H103P | Ceramic | 0.01μF +100%, -0% |
| RESISTOR | | | |
| R1 | PD14BY2E393J | Carbon | 39kΩ ±5% 1/4W |
| R2 | PD14BY2E681J | Carbon | 680Ω ±5% 1/4W |
| R3 | PD14BY2E472J | Carbon | 4.7kΩ ±5% 1/4W |
| R4, 5 | RC05GF3A100J | Carbon | 10Ω ±5% 1W |
| R6 | PD14BY2E272J | Carbon | 2.7kΩ ±5% 1/4W |
| R7 | PD14BY2E104J | Carbon | 100kΩ ±5% 1/4W |
| RB | PD14BY2E102J | Carbon | 1kΩ ±5% 1/4W |
| R9 | RN14AB3D103J | Metal film | 10kΩ ±5% 2W |
| R10 ~ 12 | PD14BY2H684J | Carbon | 680kΩ ±5% 1/2W |
| R13 | PD14BY2E104J | Carbon | 100kΩ ±5% 1/4W |
| R14 | PD14BY2E474J | Carbon | 470kΩ ±5% 1/4W |
| R15 | PD14BY2E103J | Carbon | 10kΩ ±5% 1/4W |
| R16, 17 | RC05GF2H474K | Carbon | 470kΩ ±10% 1/2W |
| R18 | R92-0050-05 | Metal film | 15kΩ ±5% 7.5W |
| R19 | R92-0049-05 | Metal film | 10kΩ ±5% 7.5W |
| R21 | PD14BY2E272J | Carbon | 2.7kΩ ±5% 1/4W |
| R22 | PD14BY2E101J | Carbon | 100Ω ±5% 1/4W |
| R23 | PD14BY2E103J | Carbon | 10kΩ ±5% 1/4W |
| R24 | PD14BY2E224J | Carbon | 220kΩ ±5% 1/4W |
| R25 | RN26B3U471J | Metal film | 470Ω ±5% 7.5W |
| TUBE/SEMICONDUCTOR | | | |
| V1, 2 | | S2001 | |
| D1 | | 1N60 | |
| D2 | | V06E | |
| D3 | | YZ-140 | |
| D4 | | 1N60 | |
| POTENTIOMETER | | | |
| VR1 | R01-301B-05 | Potentiometer | 10kΩ (A) MIC |
| VR2 | R01-2007-05 | Potentiometer | 5kΩ (B) CAR |
| VR3 | R12-7008-05 | PC trimmer | 500kΩ (B) |
| VR4 | R12-3011-05 | PC trimmer | 10kΩ (A) |
| VR5 | R01-4019-05 | Potentiometer | 50kΩ (B) BIAS |
| VR6 | R01-0038-05 | Potentiometer | 300Ω (B) ANTIVOX |
| VR7 | R01-4019-05 | Potentiometer | 50kΩ (B) VOX |
| VR8 | R01-6007-05 | Potentiometer | 250kΩ (B) DELAY |

| Circuit No. | Parts No. | Description | Remarks |
|---------------------------|-------------|-------------------------------------|---------|
| VARIABLE CAPACITOR | | | |
| — | C01-0084-05 | Variable capacitor (LOAD) | |
| — | C01-0175-05 | Variable capacitor (FINAL) | |
| — | C03-0002-05 | Variable capacitor (Neutralization) | |
| MISCELLANEOUS | | | |
| — | A01-0192-02 | Case | |
| — | A10-0022-32 | Main chassis | |
| — | A11-0004-12 | RF chassis | |
| — | A20-0641-03 | Panel | |
| — | A22-0123-03 | Sub panel | |
| — | A23-0392-03 | Rear panel | |
| — | A40-0106-02 | Bottom plate | |
| — | B07-0007-14 | Indicator x2 | |
| — | B07-0098-03 | Dial escutcheon | |
| — | B08-2010-04 | Indicator | |
| — | B19-0015-04 | Filter (for meter) | |
| — | B19-0139-04 | Acrylboard | |
| — | B20-0267-04 | Dial board | |
| — | B30-0015-15 | Pilot lamp x3 | |
| — | B30-0057-05 | Pilot lamp | |
| — | B31-0005-15 | Meter | |
| — | B40-0425-04 | Name plate | |
| — | B42-0009-04 | Passed sticker | |
| — | B42-0287-04 | Caution sticker (HIGH VOLTAGE) | |
| — | B42-0239-04 | Name plate of adjustment (bottom) | |
| — | B42-0382-04 | Name plate of volume | |
| — | B50-0965-00 | Operating manual | |
| — | D13-0032-03 | Sprocket x4 | |
| — | D13-0036-04 | Gear A | |
| — | D13-0037-04 | Gear B | |
| — | D16-0024-04 | Chain assembly A x2 (DRIVE) | |
| — | D16-0025-04 | Chain assembly B (LOAD) | |
| — | D21-0026-04 | Drive shaft | |
| — | D21-0031-04 | Rotary shaft | |
| — | D21-0298-04 | Final shaft | |
| — | D21-0299-04 | Final pipe shaft | |
| — | D22-0002-04 | Shaft coupling | |
| — | D23-0048-04 | Bearing x4 | |
| — | D23-0061-04 | Bearing | |
| — | D32-0018-04 | Shaft stopper x3 | |
| — | D32-0064-04 | Shaft stopper | |
| — | D32-0065-04 | Stopper | |
| — | E01-0801-05 | US socket x2 | |
| — | E03-0301-05 | Plug | |
| — | E04-0115-05 | Receptacle, type-M | |
| — | E06-0403-05 | 4P mike jack | |
| — | E07-0403-05 | 4P mike plug | |
| — | E08-0204-05 | 2P jack | |
| — | E08-0207-05 | AC socket | |
| — | E08-1601-15 | 16P connector (jack) | |
| — | E09-1601-05 | 16P connector (plug) x2 | |
| — | E11-0005-05 | Phone jack | |
| — | E13-0101-05 | 1P pin jack x4 | |
| — | E14-0101-05 | 1P pin plug x4 | |
| — | E22-0207-05 | Lug board x8 | |
| — | E22-0306-05 | Lug board | |
| — | E22-0405-05 | Lug board x9 | |
| — | E22-0603-05 | Lug board | |
| — | E90-0004-15 | Plate cap x2 | |

| Circuit No. | Parts No. | Description | Remarks |
|-------------|-------------|--|---------|
| -- | F05-4022-05 | Fuse | |
| -- | F05-6021-05 | Fuse | |
| -- | F07-0288-03 | Final cover | |
| -- | F10-0027-04 | Shield plate (A) (DRIVE) | |
| -- | F10-0028-04 | Coil pack shield plate | |
| -- | F10-0029-04 | Relay shield plate | |
| -- | F10-0052-04 | Shield plate (B) (DRIVE) | |
| -- | F10-0305-04 | Rotary shield plate | |
| -- | F11-0172-03 | Final shield case | |
| -- | F14-0002-04 | Shading plate | |
| -- | F31-0090-04 | Reinforcement | |
| -- | G03-0006-04 | Spring | |
| -- | H01-0930-04 | Carton case (Inside) | |
| -- | H03-0225-04 | Carton case (Outside) | |
| -- | H10-0849-02 | Polystyrene formed fixture | |
| -- | H10-0850-04 | Polystyrene formed fixture | |
| -- | H10-0851-04 | Protection board | |
| -- | H20-0359-04 | Protection cover | |
| -- | H25-0016-00 | Polyethylene bag | |
| -- | H25-0036-00 | Polyethylene bag | |
| -- | H25-0078-00 | Instruction bag | |
| -- | J02-0005-04 | Sub leg x2 | |
| -- | J02-0010-04 | Leg x4 | |
| -- | J11-0020-05 | Cramper (16P connector) | |
| -- | J13-0002-05 | Fuse holder (Pilot lamp) x3 | |
| -- | J13-0007-05 | Fuse holder | |
| -- | J20-0008-14 | VFO stopper | |
| -- | J20-0244-04 | Line filter | |
| -- | J21-0047-04 | PC board mounting hardware x2 | |
| -- | J21-0066-04 | VOX mounting hardware | |
| -- | J21-0072-04 | Switch mounting hardware | |
| -- | J21-1059-04 | Variable capacitor mounting hardware (A) | |
| -- | J21-1060-04 | Variable capacitor mounting hardware (B) | |
| -- | J21-1061-04 | Variable resistor mounting hardware | |
| -- | J21-1062-04 | Meter mounting hardware | |
| -- | J32-0021-04 | Boss | |
| -- | J32-0029-04 | Screw, with hexagon hole x3 | |
| -- | J32-0122-04 | Screw, with hexagon hole | |
| -- | J41-0024-00 | Cord bushing | |
| -- | J59-0001-05 | Grommet x2 | |
| -- | J59-0002-05 | Plunger | |
| -- | J61-0018-05 | Beaded band x7 | |
| -- | K20-0125-14 | Knob x6 | |
| -- | K20-0123-14 | Knob | |
| -- | K20-0121-04 | Knob | |
| -- | K20-0126-04 | Knob | |
| -- | K20-0120-04 | Knob (MAIN) | |
| -- | K23-0057-04 | Rubber | |
| -- | K29-0144-03 | Thumb collar | |
| -- | L01-0009-05 | Power transformer | |
| -- | L15-0002-15 | Choke coil | |
| -- | L31-0038-05 | Output coil (B) | |
| -- | L31-0142-03 | Output coil (A) | |
| -- | L33-0032-05 | Choke coil | |
| -- | L33-0048-05 | Choke coil | |
| -- | L33-0098-05 | Ferri-inductor x4 | |
| -- | L33-0104-05 | Ferri-inductor x4 | |
| -- | L33-0161-05 | Line filter | |
| -- | L33-0010-05 | Parasitic suppressor coil | |
| -- | L39-0030-04 | Parasitic suppressor coil x2 | |

| Circuit No. | Parts No. | Description | Remarks |
|-------------|-------------|---------------------------|---------|
| - | S10-1002-05 | Rotary switch (FINAL) | |
| - | S29-1006-05 | Rotary switch (METER) | |
| - | S29-2001-05 | Rotary switch (FUNCTION) | |
| - | S29-3002-05 | Rotary switch (MODE) | |
| - | S43-1001-05 | Toggle switch (power) x 2 | |
| - | S31-2002-05 | Slide switch (MIC) | |
| - | S31-2007-05 | Slide switch (TRVTR) | |
| - | S31-4001-05 | Slide switch (TRCV) | |
| - | S36-2003-25 | See-saw switch | |
| - | S51-4017-25 | Relay | |
| - | X40-0016-08 | VFO UNIT | |
| - | X40-0017-00 | DRIVE COIL PACK UNIT | |
| - | X40-0018-00 | MIX COIL PACK UNIT | |
| - | X40-0019-00 | OSC COIL PACK UNIT | |
| - | X40-1040-00 | AVR-SIDETONE ASSY | |
| - | X43-0011-00 | RECTIFIER UNIT | |
| - | X47-0004-00 | DRIVER UNIT | |
| - | X50-0002-00 | CARRIER UNIT | |
| - | X51-1070-10 | VFO FILTER UNIT | |
| - | X52-0009-00 | GENERATOR UNIT | |
| - | X53-1030-10 | CONTROL UNIT | |
| - | X54-0001-00 | VOX UNIT | |
| - | X54-1090-10 | FAN UNIT | |

■ PARTS LISTS OF X40-0017-00 (DRIVE COIL PACK UNIT)

| Circuit No. | Parts No. | Description | Remarks |
|----------------------|--------------|----------------|-------------------|
| CAPACITOR | | | |
| C1 | CM93D2H100J | Mica | 10pF ±5% |
| C2 | CM93D2H330J | Mica | 33pF ±5% |
| C3 | CM93D2H151J | Mica | 150pF ±5% |
| C4 | CM93D2H330J | Mica | 33pF ±5% |
| C5, 6 | CK45E2H103P | Ceramic | 0.01μF +100%, -0% |
| RESISTOR | | | |
| R1, 2 | PD148Y2E151J | Carbon | 150Ω ±5% 1/4W |
| MISCELLANEOUS | | | |
| L1 | L31-0031-04 | Tuning coil | 3.5 MHz |
| L2 | L31-0032-04 | Tuning coil | 7MHz |
| L3 | L31-0033-04 | Tuning coil | 14 MHz |
| L4 | L31-0034-04 | Tuning coil | 21 MHz |
| L5 | L31-0209-04 | Tuning coil | 28 MHz |
| L6 | L33-0097-05 | Ferri-inductor | |
| - | J25-0049-04 | PC board | |
| S1-1, 1-2 | S29-1052-05 | Rotary wafer | |

■ PARTS LISTS OF X40-0018-00 (MIX COIL PACK UNIT)

| Circuit No. | Parts No. | Description | Remarks |
|------------------|-------------|-------------|-------------------|
| CAPACITOR | | | |
| C1 | CM93D2H220J | Mica | 22pF ±5% |
| C2 | CM93D2H330J | Mica | 33pF ±5% |
| C3 | CM93D2H151J | Mica | 150pF ±5% |
| C4 | CM93D2H330J | Mica | 33pF ±5% |
| C5, 6 | CK45E2H103P | Ceramic | 0.01μF +100%, -0% |

| Circuit No. | Parts No. | Description | Remarks |
|----------------------|-------------|---------------------|---------|
| MISCELLANEOUS | | | |
| L1 | L31-0036-04 | Tuning coil 3.5 MHz | |
| L2 | L31-0032-04 | Tuning coil 7 MHz | |
| L3 | L31-0033-04 | Tuning coil 14MHz | |
| L4 | L31-0034-04 | Tuning coil 21 MHz | |
| L5 | L31-0209-04 | Tuning coil 28 MHz | |
| L6 | L33-0095-05 | Ferri-inductor | |
| S2~1,2~2 | S29-1052-05 | Rotary wafer | |
| - | J25-0050-04 | PC board | |

■ PARTS LISTS OF X40-0019-00 (OSC COIL PACK UNIT)

| Circuit No. | Parts No. | Description | Remarks |
|----------------------|--------------|-------------------------------|---------|
| CAPACITOR | | | |
| C1 | CM93D2H121J | Mica 120pF ±5% | |
| C2 | CM93D2H680J | Mica 68pF ±5% | |
| C3 | CM93D2H560J | Mica 56pF ±5% | |
| C4 | CM93D2H100J | Mica 10pF ±5% | |
| C5 ~ 7 | CK94YG1E403Z | Ceramic 0.04μF +80%, -20% | |
| RESISTOR | | | |
| R1 | PD14BY2E102J | Carbon 1kΩ ±5% 1/4W | |
| MISCELLANEOUS | | | |
| L1, 2 | L31-0032-04 | Oscillator coil (3.5, 7 MHz) | |
| L3 | L31-0033-04 | Oscillator coil 14 MHz | |
| L4 | L32-0011-04 | Oscillator coil 21 MHz | |
| L5a, b | L32-0138-15 | Oscillator coil 28 MHz (A) | |
| L6 | L32-0012-04 | Oscillator coil 28 MHz (B) | |
| X1 | L77-0141-05 | Crystal oscillator 12.395 MHz | |
| X2 | L77-0142-05 | Crystal oscillator 15.895 MHz | |
| X3 | L77-0143-05 | Crystal oscillator 22.895 MHz | |
| X4 | L77-0144-05 | Crystal oscillator 29.895 MHz | |
| X5 | L77-0145-05 | Crystal oscillator 36.895 MHz | |
| X6 | L77-0146-15 | Crystal oscillator 37.395 MHz | |
| X7 | L77-0147-05 | Crystal oscillator 37.995 MHz | |
| S3 ~ 1,3 ~ 2 | S29-1005-05 | Rotary wafer | |
| - | J25-0051-04 | PC board | |

■ PARTS LISTS OF X43-0011-00 (RECTIFIER UNIT)

| Circuit No. | Parts No. | Description | Remarks |
|------------------|--------------|---------------------------|---------|
| CAPACITOR | | | |
| C1 ~ 7 | CK94YZ2H103P | Ceramic 0.01μF +100%, -0% | |
| RESISTOR | | | |
| R1 ~ 4 | RC05GF2H474K | Carbon 470kΩ ±10% 1/2W | |
| R5, 6 | RN14AB3D471J | Metal film 470Ω ±5% 2W | |
| R7 | RC05GF2H102K | Carbon 1kΩ ±10% 1/2W | |

| Circuit No. | Parts No. | Description | Remarks |
|----------------------|-------------|-------------|---------|
| SEMICONDUCTOR | | | |
| D1 ~ 6 | | V08J | |
| D7 | | V06E | |
| D8 | | S1B02-01B | |
| MISCELLANEOUS | | | |
| — | J25-0055-04 | PC board | |

■ PARTS LISTS OF X47-0004-00 (DRIVER UNIT)

| Circuit No. | Parts No. | Description | Remarks |
|---------------------------|---------------|--------------------|-----------------------------|
| CAPACITOR | | | |
| C1,2 | CK94 YG1E403Z | Ceramic | 0.04 μ F +80%, -20% |
| C3 | CM93D2H330J | Mica | 33pF \pm 5% |
| C4 | CM93D2H070J | Mica | 7pF \pm 5% |
| C5, 6 | CK94 YG1E403Z | Ceramic | 0.04 μ F +80%, -20% |
| C7 | CK94 YG1E103Z | Ceramic | 0.01 μ F +80%, -20% |
| C8 | CK94 YG1E403Z | Ceramic | 0.04 μ F +80%, -20% |
| C9 | CM93D2H050J | Mica | 5pF \pm 5% |
| C10, 11 | CK45E2H103P | Ceramic | 0.01 μ F +100%, -0% |
| C12 | CM93D2H471J | Mica | 470pF \pm 5% |
| C13 | CK94 YY2H472M | Ceramic | 0.0047 μ F \pm 20% |
| C14 | CK94 YG1E403Z | Ceramic | 0.04 μ F +80%, -20% |
| C15 ~ 17 | CK45E2H103P | Ceramic | 0.01 μ F +100%, -0% |
| C18 | CE02W2W010 | Electrolytic | 1 μ F 450WV |
| C19 | CK45E2H103P | Ceramic | 0.01 μ F +100%, -0% |
| C20, 21 | CK94 YY2H102M | Ceramic | 0.001 μ F \pm 20% |
| C22,23 | CM93D2H561J | Mica | 560pF \pm 5% |
| C24, 25 | CK94 YG1E403Z | Ceramic | 0.04 μ F +80%, -20% |
| RESISTOR | | | |
| R1 | PD14CY2E472J | Carbon | 4.7k Ω \pm 5% 1/4W |
| R2 | PD14CY2E223J | Carbon | 22k Ω \pm 5% 1/4W |
| R3 | PD14CY2E102J | Carbon | 1k Ω \pm 5% 1/4W |
| R4 | PD14CY2E331J | Carbon | 330 Ω \pm 5% 1/4W |
| R5 | PD14CY2E682J | Carbon | 6.8k Ω \pm 5% 1/4W |
| R6 | PD14CY2E333J | Carbon | 33k Ω \pm 5% 1/4W |
| R7 | PD14CY2E104J | Carbon | 100k Ω \pm 5% 1/4W |
| R8 | PD14CY2E471J | Carbon | 470 Ω \pm 5% 1/4W |
| R9 | PD14CY2E104J | Carbon | 100k Ω \pm 5% 1/4W |
| R10 | PD14BY2E104J | Carbon | 100k Ω \pm 5% 1/4W |
| R11 | PD148Y2E151J | Carbon | 150 Ω \pm 5% 1/4W |
| R12 | RN14A83F393J | Metal film | 39k Ω \pm 5% 3W |
| R13 | RN14A83F153J | Metal film | 15k Ω \pm 5% 3W |
| R14 | PD14CY2E820J | Carbon | 82 Ω \pm 5% 1/4W |
| R15 | PD14BY2E102J | Carbon | 1k Ω \pm 5% 1/4W |
| SEMICONDUCTOR/TUBE | | | |
| Q1 | | 3SK22(GR) | |
| Q2 | | 2SC535 (A) | |
| Q3 | | 2SC460 (B) | |
| D1 | | 1S1555 | |
| V1 | | 12BY7A | |
| MISCELLANEOUS | | | |
| VC1, 2 | C01-0127-05 | Variable capacitor | |
| — | D15-0013-14 | Pulley x2 | |
| — | E06-0406-05 | Transistor socket | |

| Circuit No. | Parts No. | Description | Remarks |
|-------------|-------------|--------------------|---------|
| - | E10-1902-05 | 9P MT mould socket | |
| - | F10-0022-14 | Shield plate | |
| - | F11-0020-05 | 9P MT shield case | |

■ PARTS LISTS OF X50-0002-00 (CARRIER UNIT)

| Circuit No. | Parts No. | Description | Remarks |
|----------------------|--------------|---------------------------------|---------------|
| CAPACITOR | | | |
| C1 | CK94YG1E102Z | Ceramic 0.001 μ F | +80%, -20% |
| C2 | CM93D2H220J | Mica 22pF | \pm 5% |
| C3 | CK94YG1E102Z | Ceramic 0.001 μ F | +80%, -20% |
| C4 | CM93D2H220J | Mica 22pF | \pm 5% |
| C5 | CK94YG1E102Z | Ceramic 0.001 μ F | +80%, -20% |
| C6 | CM93D2H220J | Mica 22pF | \pm 5% |
| C7 | CK94YG1E102Z | Ceramic 0.001 μ F | +80%, -20% |
| C8 | CK94YX1H471K | Ceramic 470pF | \pm 10% |
| C9 | CC94TH1H221J | Ceramic 220pF | \pm 5% |
| C10 | CC94SL1H101K | Ceramic 100pF | \pm 10% |
| C11 | CM93D2H100J | Mica 10pF | \pm 5% |
| C12 | CK94YG1E403Z | Ceramic 0.04 μ F | +80%, -20% |
| C13 | CM93D2H220J | Mica 22pF | \pm 5% |
| C14 | CK94YG1E103Z | Ceramic 0.01 μ F | +80%, -20% |
| RESISTOR | | | |
| R1 ~ 4 | PD14BY2E103J | Carbon 10k Ω | \pm 5% 1/4W |
| R5 | PD14BY2E333J | Carbon 33k Ω | \pm 5% 1/4W |
| R6 | PD14BY2E682J | Carbon 6.8k Ω | \pm 5% 1/4W |
| R7 | PD14BY2E102J | Carbon 1k Ω | \pm 5% 1/4W |
| R8 | PD14BY2E683J | Carbon 68k Ω | \pm 5% 1/4W |
| R9 | PD14BY2E101J | Carbon 100 Ω | \pm 5% 1/4W |
| SEMICONDUCTOR | | | |
| Q1, 2 | | 2SC460 | |
| D1 ~ 4 | | 1S1555 | |
| MISCELLANEOUS | | | |
| TC1 ~ 3 | C05-0013-15 | PC trimmer | |
| - | F10-0012-04 | Shield plate | |
| - | F11-0015-04 | Shield box | |
| T1 | L32-0003-05 | Oscillator coil | |
| L1 ~ 6 | L33-0104-05 | Ferri-inductor | |
| X1 | L77-0123-05 | Crystal oscillator (3395.0 kHz) | |
| X2 | L77-0122-05 | Crystal oscillator (3396.5 kHz) | |
| X3 | L77-0120-05 | Crystal oscillator (3393.5 kHz) | |
| - | J25-0029-04 | PC board | |

■ PARTS LIST OF X51-1070-10 (VFO FILTER UNIT)

| Circuit No. | Parts No. | Description | Remarks |
|------------------|--------------|------------------|----------|
| CAPACITOR | | | |
| C1 | CC45SL1H151J | Ceramic 150pF | \pm 5% |
| C2 | CC45SL1H330J | Ceramic 33pF | \pm 5% |
| C3, 4 | CC45SL1H331J | Ceramic 330pF | \pm 5% |

| Circuit No. | Parts No. | Description | | | Remarks |
|-------------|--------------|-------------|-------|-----|---------|
| C5,6 | CC45SL1H101J | Ceramic | 100pF | ±5% | |
| COIL | | | | | |
| T1 | L31-0251-05 | Filter coil | | | |
| T2 | L31-0252-05 | Filter coil | | | |
| T3 | L31-0284-05 | Filter coil | | | |
| - | J25-0841-04 | PC board | | | |

■ PARTS LISTS OF X52-0009-00 (GENERATOR UNIT)

| Circuit No. | Parts No. | Description | | | Remarks |
|------------------|--------------|-----------------|---------|------------|---------|
| CAPACITOR | | | | | |
| C1, 2 | CC94SL1H101K | Ceramic | 100pF | ±10% | |
| C3 | CE04W1H010 | PC electrolytic | 1μF | | 50WV |
| C4 | CE04W1C4R7 | PC electrolytic | 4.7μF | | 16WV |
| C5 | CK94YG1E103Z | Ceramic | 0.01μF | +80%, -20% | |
| C6 | CE04W1H010 | PC electrolytic | 1μF | | 50WV |
| C7 | CK94YG1E103Z | Ceramic | 0.01μF | +80%, -20% | |
| C8 | CE04W1H010 | PC electrolytic | 1μF | | 50WV |
| C9 | CE04W0F470 | PC electrolytic | 47μF | | 3.15WV |
| C10 | CE04W1C100 | PC electrolytic | 10μF | | 16WV |
| C11 | CE04W1C101 | PC electrolytic | 100μF | | 16WV |
| C12 ~ 15 | CK94YG1E103Z | Ceramic | 0.01μF | +80%, -20% | |
| C16 | CM93D2H470JZ | Mica | 47pF | ±5% | |
| C17, 19 | CM93D2H330JZ | Mica | 33pF | ±5% | |
| C20 | CK94YG1E403Z | Ceramic | 0.04μF | +80%, -20% | |
| C21 | CM93D2H221JZ | Mica | 220pF | ±5% | |
| C22 ~ 24 | CK94YG1E102Z | Ceramic | 0.001μF | +80%, -20% | |
| C25 | CK94YG1E403Z | Ceramic | 0.04μF | +80%, -20% | |
| C26, 27 | CK94YG1E102Z | Ceramic | 0.001μF | +80%, -20% | |
| C26, 29 | CM93D2H101JZ | Mica | 100pF | ±5% | |
| C30 | CM93D2H820JZ | Mica | 82pF | ±5% | |
| C31 | CK94YG1E103Z | Ceramic | 0.01μF | +80%, -20% | |
| RESISTOR | | | | | |
| R1 | PD14BY2E102J | Carbon | 1kΩ | ±5% | 1/4W |
| R2 | PD14BY2E104J | Carbon | 100kΩ | ±5% | 1/4W |
| R3 | PD14BY2E223J | Carbon | 22kΩ | ±5% | 1/4W |
| R4 | PD14BY2E562J | Carbon | 5.6kΩ | ±5% | 1/4W |
| R5 | PD14BY2E102J | Carbon | 1kΩ | ±5% | 1/4W |
| R6 | PD14BY2E101J | Carbon | 100Ω | ±5% | 1/4W |
| R7 | PD14BY2E223J | Carbon | 22kΩ | ±5% | 1/4W |
| R8 | PD14BY2E102J | Carbon | 1kΩ | ±5% | 1/4W |
| R9 | PD14BY2E223J | Carbon | 22kΩ | ±5% | 1/4W |
| R10 | PD14BY2E154J | Carbon | 150kΩ | ±5% | 1/4W |
| R11 | PD14BY2E102J | Carbon | 1kΩ | ±5% | 1/4W |
| R12 | PD14BY2E221J | Carbon | 220Ω | ±5% | 1/4W |
| R13 | PD14BY2E471J | Carbon | 470Ω | ±5% | 1/4W |
| R14 | PD14BY2E153J | Carbon | 15kΩ | ±5% | 1/4W |
| R15 | PD14BY2E103J | Carbon | 10kΩ | ±5% | 1/4W |
| R16, 17 | PD14BY2E221J | Carbon | 220Ω | ±5% | 1/4W |
| R18, 19 | PD14BY2E472J | Carbon | 4.7kΩ | ±5% | 1/4W |
| R20 | PD14BY2E474J | Carbon | 470kΩ | ±5% | 1/4W |
| R21 | PD14BY2E272J | Carbon | 2.7kΩ | ±5% | 1/4W |
| R22 | PD14BY2E153J | Carbon | 15kΩ | ±5% | 1/4W |
| R23 | PD14BY2E223J | Carbon | 22kΩ | ±5% | 1/4W |
| R24 | PD14BY2E473J | Carbon | 47kΩ | ±5% | 1/4W |
| R25 | PD14BY2E562J | Carbon | 5.6kΩ | ±5% | 1/4W |
| R26 | PD14BY2E104J | Carbon | 100kΩ | ±5% | 1/4W |
| R27 | PD14BY2E334J | Carbon | 330kΩ | ±5% | 1/4W |

| Circuit No. | Parts No. | Description | Remarks |
|----------------------|--------------|------------------------------------|---------|
| R28 | PD14BY2E102J | Carbon 1k Ω \pm 5% 1/4W | |
| R29 | PD14BY2E331J | Carbon 330 Ω \pm 5% 1/4W | |
| R30 | PD14BY2E102J | Carbon 1k Ω \pm 5% 1/4W | |
| R31 | PD14BY2E104J | Carbon 100k Ω \pm 5% 1/4W | |
| R32, 33 | PD14BY2E153J | Carbon 15k Ω \pm 5% 1/4W | |
| SEMICONDUCTOR | | | |
| Q1 | | 2SC871 (E) | |
| Q2, 3 | | 2SC733 (Y) (GR) | |
| Q4 | | TA7045M | |
| Q5 | | 3SK22 (GR) | |
| Q6 | | 2SA495 (Y) | |
| Q7 | | 2SC460 (B) | |
| D1 ~4 | | 1N60 | |
| COIL | | | |
| T1 | L30-0021-05 | IFT | |
| T2 | L30-0012-05 | IFT | |
| T3 | L30-0241-05 | IFT (B.P.F) | |
| T4 | L30-0242-05 | IFT | |
| T5 | L30-0241-05 | IFT | |
| L1 ~3 | L33-0104-05 | Ferri-inductor | |
| X-F | L71-0018-05 | Crystal filter | |
| MISCELLANEOUS | | | |
| TC1 | C05-0015-15 | Ceramic trimmer | |
| VR1 | R12-0054-05 | PC trimmer | |

■ PARTS LISTS OF X53-1030-10 (CONTROL UNIT)

| Circuit No. | Parts No. | Description | Remarks |
|----------------------|--------------|--------------------------------------|---------|
| CAPACITOR | | | |
| C1 | C90-0154-05 | Polyester film 0.22 μ F 250WV | |
| C2 | CE04W1HR47 | Electrolytic 0.47 μ F 50WV | |
| C3 | CK45F1E403Z | Ceramic 0.04 μ F +80%, -20% | |
| C4 | CK45F1E472Z | Ceramic 0.0047 μ F +80%, -20% | |
| C5, 6 | CQ93M1H104K | Polyester film 0.1 μ F \pm 10% | |
| C7 | CK45E2H103P | Ceramic 0.01 μ F +100%, -0% | |
| RESISTOR | | | |
| R1 | PD14CY2E473J | Carbon 47k Ω \pm 5% 1/4W | |
| R2 | PD14CY2E104J | Carbon 100k Ω \pm 5% 1/4W | |
| R3 | PD14CY2E102J | Carbon 1k Ω \pm 5% 1/4W | |
| R4 | PD14CY2E103J | Carbon 10k Ω \pm 5% 1/4W | |
| R5 | PD14CY2E153J | Carbon 15k Ω \pm 5% 1/4W | |
| R6 | PD14CY2E103J | Carbon 10k Ω \pm 5% 1/4W | |
| R7 | PD14CY2E102J | Carbon 1k Ω \pm 5% 1/4W | |
| R8 | PD14CY2E473J | Carbon 47k Ω \pm 5% 1/4W | |
| R9 | PD14CY2E393J | Carbon 39k Ω \pm 5% 1/4W | |
| R10 | PD14CY2E682J | Carbon 6.8k Ω \pm 5% 1/4W | |
| R11 | PD14CY2E473J | Carbon 47k Ω \pm 5% 1/4W | |
| R12 | PD14CY2E682J | Carbon 6.8k Ω \pm 5% 1/4W | |
| R13 | PD14CY2E104J | Carbon 100k Ω \pm 5% 1/4W | |
| R14 | RC05GF2H680J | Carbon 68 Ω \pm 5% 1/2W | |
| R15 | PD14CY2E103J | Carbon 10k Ω \pm 5% 1/4W | |
| SEMICONDUCTOR | | | |
| Q1 | | 2SC857 | |
| Q2 | | 2SC856 | |
| Q3 | | 2SC735 (Y) | |
| D1, 2 | | S-1.5-01 | |
| D3 | | MZ1004 | |

| POTENTIOMETER | | | |
|---------------|-------------|--------------------------|--|
| VR1 | R12-4015-05 | PC trimmer potentiometer | |
| MISCELLANEOUS | | | |
| - | J25-0840-04 | PC board | |

■ PARTS LISTS OF X54-0001-00 (VOX UNIT)

| Circuit No. | Parts No. | Description | | | | Remarks |
|---------------|--------------|--|----------------|------------|--------|---------|
| CAPACITOR | | | | | | |
| C1 | CK94YG1E103Z | Ceramic | 0.01 μ F | +80%, -20% | | |
| C2 | CE04W0F470 | Electrolytic | 47 μ F | | 3.15WV | |
| C3 | CK94YG1E403Z | Ceramic | 0.04 μ F | +80%, -20% | | |
| C4 | CK94YG1E203Z | Ceramic | 0.02 μ F | +80%, -20% | | |
| C5 | CE04W1H3R3 | Electrolytic | 3.3 μ F | | 50WV | |
| C6 | CE04W1H010 | Electrolytic | 1 μ F | | 50WV | |
| C7 | CK94YY1H472M | Ceramic | 0.0047 μ F | \pm 20% | | |
| C8 | CK94YG1E403Z | Ceramic | 0.04 μ F | +80%, -20% | | |
| C9, 10 | CE04W1H3R3 | Electrolytic | 3.3 μ F | | 50WV | |
| RESISTOR | | | | | | |
| R1 | PD14CY2E104J | Carbon | 100k Ω | \pm 5% | 1/4W | |
| R2 | PD14CY2E223J | Carbon | 22k Ω | \pm 5% | 1/4W | |
| R3 | PD14CY2E334J | Carbon | 330k Ω | \pm 5% | 1/4W | |
| R4 | PD14CY2E472J | Carbon | 4.7k Ω | \pm 5% | 1/4W | |
| R5 | PD14CY2E334J | Carbon | 330k Ω | \pm 5% | 1/4W | |
| R6 | PD14CY2E563J | Carbon | 56k Ω | \pm 5% | 1/4W | |
| R7 | PD14CY2E562J | Carbon | 5.6k Ω | \pm 5% | 1/4W | |
| R8 | PD14CY2E102J | Carbon | 1k Ω | \pm 5% | 1/4W | |
| R9 | PD14CY2E222J | Carbon | 2.2k Ω | \pm 5% | 1/4W | |
| R10 | PD14CY2E102J | Carbon | 1k Ω | \pm 5% | 1/4W | |
| R11 | PD14CY2E103J | Carbon | 10k Ω | \pm 5% | 1/4W | |
| R12 | PD14CY2E153J | Carbon | 15k Ω | \pm 5% | 1/4W | |
| R13, 14 | PD14CY2E472J | Carbon | 4.7k Ω | \pm 5% | 1/4W | |
| R15 | PD14CY2E471J | Carbon | 470 Ω | \pm 5% | 1/4W | |
| R16 | PD14CY2E100J | Carbon | 10 Ω | \pm 5% | 1/4W | |
| R17 | PD14CY2E473J | Carbon | 47k Ω | \pm 5% | 1/4W | |
| SEMICONDUCTOR | | | | | | |
| Q1 ~ 4 | | 2SC373 | | | | |
| Q5 | | 2SA562Y | | | | |
| Q6, 7 | | 2SC373 | | | | |
| Q8 | | 2SA562Y | | | | |
| D1 ~ 4 | | 1N60 | | | | |
| D5 | | S-1.5-01 | | | | |
| D6 ~ 8 | | 1N60 | | | | |
| MISCELLANEOUS | | | | | | |
| T1 | L13-0001-05 | Input transformer (500 Ω : 20k Ω) | | | | |
| - | J25-0037-04 | PC board | | | | |

■ PARTS LISTS OF X54-0002-00 (SIDETONE UNIT)

| Circuit No. | Parts No. | Description | Remarks |
|----------------------|--------------|--------------------------|-----------------------------|
| CAPACITOR | | | |
| C1 | CK94YG1E203Z | Ceramic | 0.02 μ F +80%, -20% |
| C2 | CE04W1C100 | Electrolytic | 10 μ F 16WV |
| C3, 4 | CQ93M1H123K | Mylar | 0.012 μ F \pm 10% |
| C5 | CK94YG1E203Z | Ceramic | 0.02 μ F +80%, -20% |
| C6, 7 | CQ93M1H123K | Mylar | 0.012 μ F \pm 10% |
| C8,9 | CE04W1HR47 | Electrolytic | 0.47 μ F 50WV |
| C10 | CK94YG1E103Z | Ceramic | 0.01 μ F +80%, -20% |
| C11 | CE04W1C100 | Electrolytic | 10 μ F 16WV |
| C12 | CE04W1C101 | Electrolytic | 100 μ F 16WV |
| C13 | CK94YG1E103Z | Ceramic | 0.01 μ F +80%, -20% |
| RESISTOR | | | |
| R1 | PD14BY2E153J | Carbon | 15k Ω \pm 5% 1/4W |
| R2 | PD14BY2E224J | Carbon | 220k Ω \pm 5% 1/4W |
| R3 | PD14BY2E223J | Carbon | 22k Ω \pm 5% 1/4W |
| R4 | PD14BY2E103J | Carbon | 10k Ω \pm 5% 1/4W |
| R5 | PD14BY2E102J | Carbon | 1k Ω \pm 5% 1/4W |
| R6 | PD14BY2E103J | Carbon | 10k Ω \pm 5% 1/4W |
| R7 ~ 9 | PD14BY2E224J | Carbon | 220k Ω \pm 5% 1/4W |
| R10 ~ 12 | PD14BY2E103J | Carbon | 10k Ω \pm 5% 1/4W |
| R13 | PD14BY2E392J | Carbon | 3.9k Ω \pm 5% 1/4W |
| R14 | PD14BY2E102J | Carbon | 1k Ω \pm 5% 1/4W |
| R15 | PD14BY2E151J | Carbon | 150 Ω \pm 5% 1/4W |
| R16 | PD14BY2E101J | Carbon | 100 Ω \pm 5% 1/4W |
| R17 | PD14BY2E153J | Carbon | 15k Ω \pm 5% 1/4W |
| R18, 19 | RC05GF2H2R2K | Carbon | 2.2 Ω \pm 10% 1/2W |
| SEMICONDUCTOR | | | |
| Q1 | | 2SC733 (Y), (GR) | |
| Q2 | | 2SC734 (Y) | |
| Q3 | | 2SC735 (Y) | |
| Q4 | | 2SA562 (Y) | |
| D1 | | 1S1555 | |
| MISCELLANEOUS | | | |
| VR1 | R12-3003-05 | PC trimmer potentiometer | |
| - | J25-0054-04 | PC board | |

■ PARTS LIST OF X54-1090-10 (FAN UNIT)

| Circuit No. | Parts No. | Description | Remarks |
|-------------|-------------|-----------------------------|---------|
| - | E09-0204-05 | 2P Plug | |
| - | F07-0292-04 | Fan cover | |
| - | F09-0022-05 | Fan | |
| - | J21-1070-04 | Fan mounting hardware | |
| - | J32-0117-04 | Screw, with hexagon hole x2 | |
| - | J41-0006-00 | Cord bushing | |
| - | T40-0012-05 | Fan motor | |

■ PARTS LIST OF X43-0010-00 (AVR UNIT)

| Circuit No. | Parts No. | Description | | | | Remarks |
|----------------------|--------------|--------------|------------------|----------|------|---------|
| CAPACITOR | | | | | | |
| C1 | CE04W1C101 | Electrolytic | 100 μ F | 16WV | | |
| RESISTOR | | | | | | |
| R1 | PD14BY2E103J | Carbon | 10k Ω | \pm 5% | 1/4W | |
| R2 | PD14BY2E683J | Carbon | 68k Ω | \pm 5% | 1/4W | |
| R3 | PD14BY2E331J | Carbon | 330 Ω | \pm 5% | 1/4W | |
| R4 | PD14BY2E471J | Carbon | 470 Ω | \pm 5% | 1/4W | |
| R5 | PD14BY2E102J | Carbon | 1k Ω | \pm 5% | 1/4W | |
| R6 | PD14BY2E182J | Carbon | 1.8k Ω | \pm 5% | 1/4W | |
| R7 | PD14BY2E272J | Carbon | 2.7k Ω | \pm 5% | 1/4W | |
| R8 | PD14BY2E222J | Carbon | 2.2k Ω | \pm 5% | 1/4W | |
| R9 | PD14BY2E471J | Carbon | 470 Ω | \pm 5% | 1/4W | |
| R10 | PD14BY2E392J | Carbon | 3.9k Ω | \pm 5% | 1/4W | |
| R11 | PD14BY2E102J | Carbon | 1k Ω | \pm 5% | 1/4W | |
| SEMICONDUCTOR | | | | | | |
| Q1 | | 2SA606 (L) | | | | |
| Q2 ~4 | | 2SC372 | | | | |
| D1 | | WZ-061 | | | | |
| MISCELLANEOUS | | | | | | |
| VR1 | R12-0031-05 | PC trimmer | 500 Ω (B) | | | |
| VR2 | R12-3003-05 | PC trimmer | 10k Ω (B) | | | |
| — | J25-0028-04 | PC board | | | | |

■ PARTS LISTS OF X40-0016-08 (VFO UNIT)

| Circuit No. | Parts No. | Description | | | | Remarks |
|------------------|-----------------|-------------|---------------|-------------|------|------------------------------|
| CAPACITOR | | | | | | |
| C1 | CC94PG1H470J | Ceramic | 47pF | \pm 5% | | (Adjustment) (Adjustment) |
| C2, 3 | CC94LG1H150J | Ceramic | 15pF | \pm 5% | | |
| C3 | CC94PG1H150J | Ceramic | 15pF | \pm 5% | | |
| C3 | CC94CG1H150J | Ceramic | 15pF | \pm 5% | | |
| C4 | CC94SG1H070J | Ceramic | 7pF | \pm 5% | | |
| C5 | CC94LG1H470J | Ceramic | 47pF | \pm 5% | | |
| C6 | CC94LG1H220J | Ceramic | 22pF | \pm 5% | | |
| C7, 8 | CM93F2A151J(DM) | Mica | 150pF | \pm 5% | | |
| C9 | CM93D1H030D(Z) | Mica | 3pF | \pm 0.5pF | | |
| C10 | CK94YG1E203Z | Ceramic | 0.02 μ F | +80%, -20% | | |
| C11, 12 | CK94YG1E403Z | Ceramic | 0.04 μ F | +80%, -20% | | |
| C13 | CK94YG1E203Z | Ceramic | 0.02 μ F | +80%, -20% | | |
| C14 | CC45SL1H330J | Ceramic | 33pF | \pm 5% | | |
| C15 | CC94SL1H050D | Ceramic | 5pF | \pm 0.5pF | | |
| C16 | CC94SL1H100D | Ceramic | 10pF | \pm 0.5pF | | |
| C17 | CC94SL1H050D | Ceramic | 5pF | \pm 0.5pF | | |
| C18 | CK94YG1E103Z | Ceramic | 0.01 μ F | +80%, -20% | | |
| C19 | CK94YG1E403Z | Ceramic | 0.04 μ F | +80%, -20% | | |
| C20 | CC94CG1H100J | Ceramic | 10pF | \pm 5% | | |
| RESISTOR | | | | | | |
| R1 | PD14BY2E274J | Carbon | 270k Ω | \pm 5% | 1/4W | |
| R2 | PD14BY2E101J | Carbon | 100 Ω | \pm 5% | 1/4W | |
| R3, 4 | PD14BY2E105J | Carbon | 1M Ω | \pm 5% | 1/4W | |
| R5 | PD14BY2E331J | Carbon | 330 Ω | \pm 5% | 1/4W | |
| R6 | PD14BY2E333J | Carbon | 33k Ω | \pm 5% | 1/4W | |
| R7 | PD14BY2E473J | Carbon | 47k Ω | \pm 5% | 1/4W | |
| R8 | PD14BY2E102J | Carbon | 1k Ω | \pm 5% | 1/4W | |
| R9 | PD14BY2E101J | Carbon | 100 Ω | \pm 5% | 1/4W | |

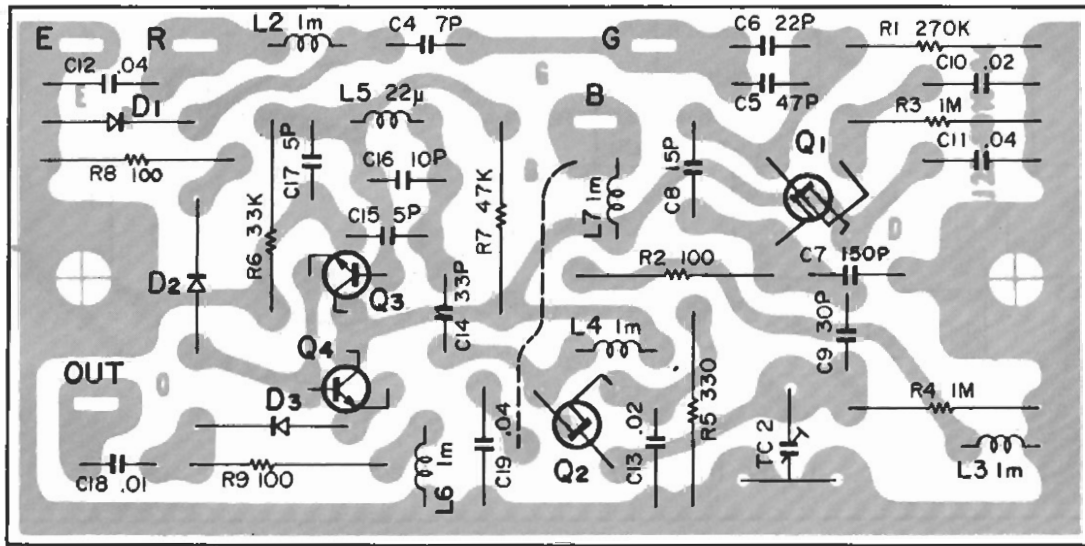
| SEMICONDUCTOR | | | |
|-------------------|-------------|--------------------------------------|--|
| Q1 Q2 Q3, 4 | | 3SK22 (Y) 2SK19 (Y) 2SC460 (B) | |
| D1 D2, 3 | | SD111 1N60 | |
| MISCELLANEOUS | | | |
| — | B42-0010-04 | Name plate | |
| — | C01-0001-25 | Variable capacitor | |
| — | C03-0001-05 | Variable capacitor | |
| — | C03-0001-05 | Variable capacitor | |
| TC2 | C05-0013-15 | PC trimmer | |
| — | D40-0161-05 | VFO gear mechanism | |
| — | D22-0011-05 | Shaft coupling | |
| — | E22-0207-05 | Lug board | |
| — | E23-0014-04 | Terminal | |
| — | F11-0004-23 | VFO Box (A) | |
| — | F11-0005-04 | VFO Box (B) | |
| — | F11-0007-14 | VFO Box (D) | |
| — | F11-0008-04 | VFO Box (E) | |
| — | F11-0010-04 | VFO Box (G) | |
| — | F11-0011-04 | VFO Box (H) | |
| — | F11-0012-04 | VFO Box (I) | |
| — | F11-0121-14 | VFO Box (C) | |
| — | F11-0175-05 | VFO Box (F) | |
| — | J25-0019-04 | PC Board | |
| L1 | L32-0098-05 | Oscillator coil | |
| L2 ~ 4 | L33-0104-05 | Ferri-inductor | |
| L5 | L33-0091-05 | Ferri-inductor | |
| L6, 7 | L33-0104-05 | Ferri-inductor | |

■ PARTS LIST OF X40-1040-00 (AVR – SIDETONE UNIT)

| Circuit No. | Parts No. | Description | Remarks |
|-------------|----------------------------|--|---------|
| | J21-0067-04 J21-0068-04 | PC board mounting hardware (A) PC board mounting hardware (B) | |
| | X43-0010-00 X54-0002-00 | AVR UNIT SIDETONE UNIT | |

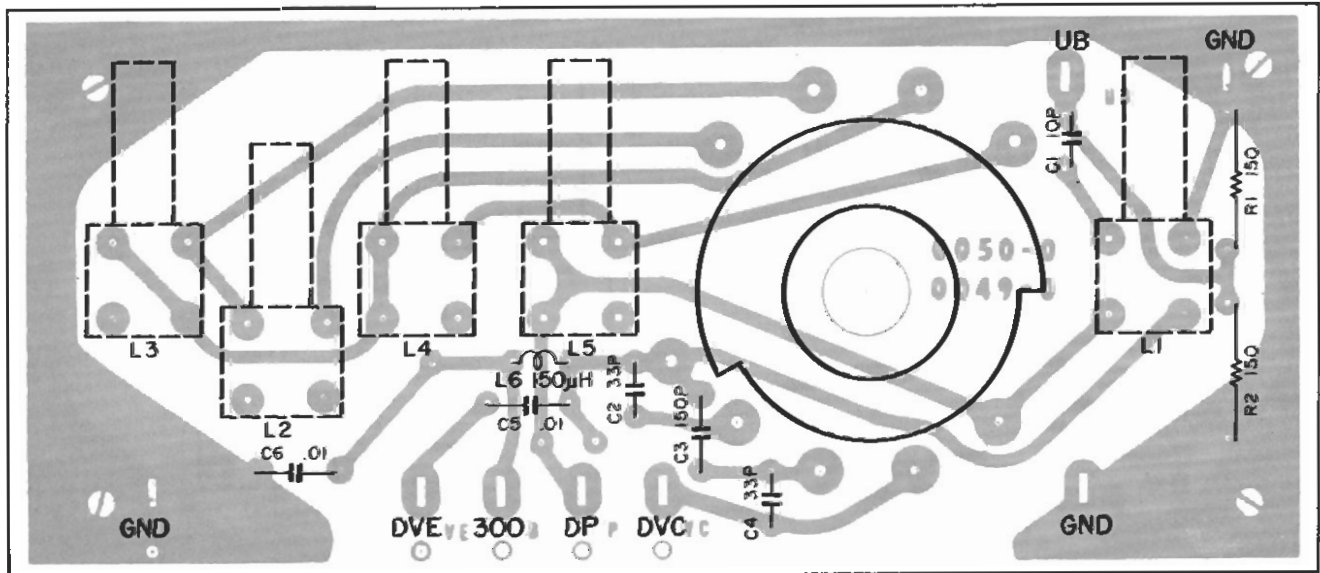
PC BOARD

■ PC BOARD OF X40-0016-08 (VFO UNIT)

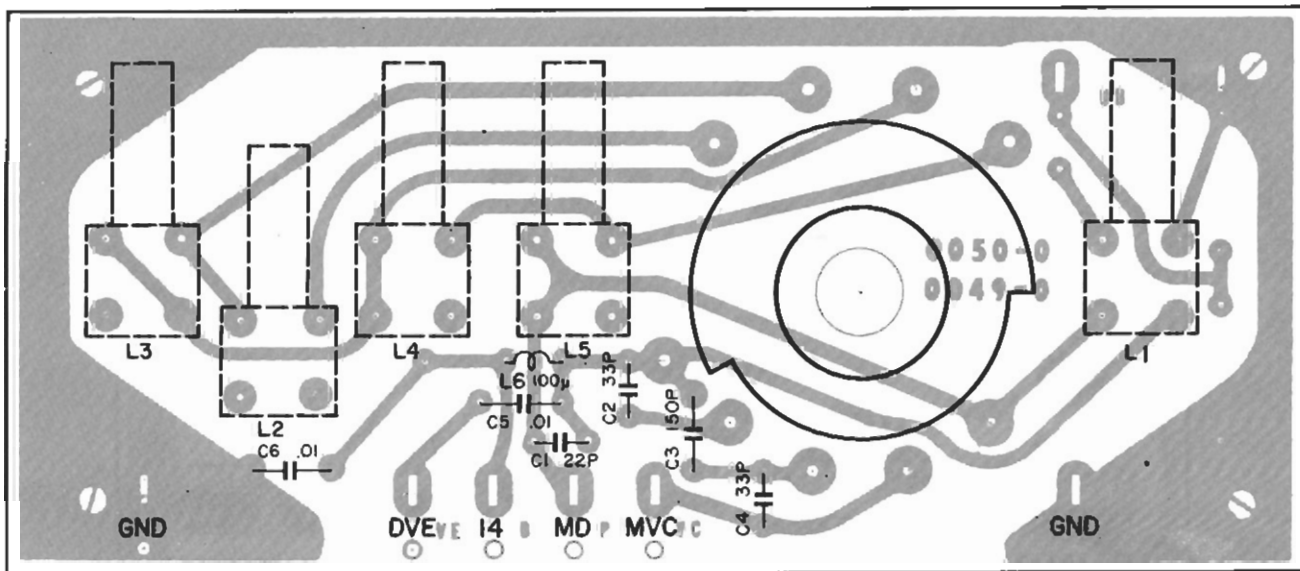


Q1: 3SK22(Y), Q2: 2SK19(Y), Q3,4: 2SC460(B), D1: SK111, D2,3: 1N60

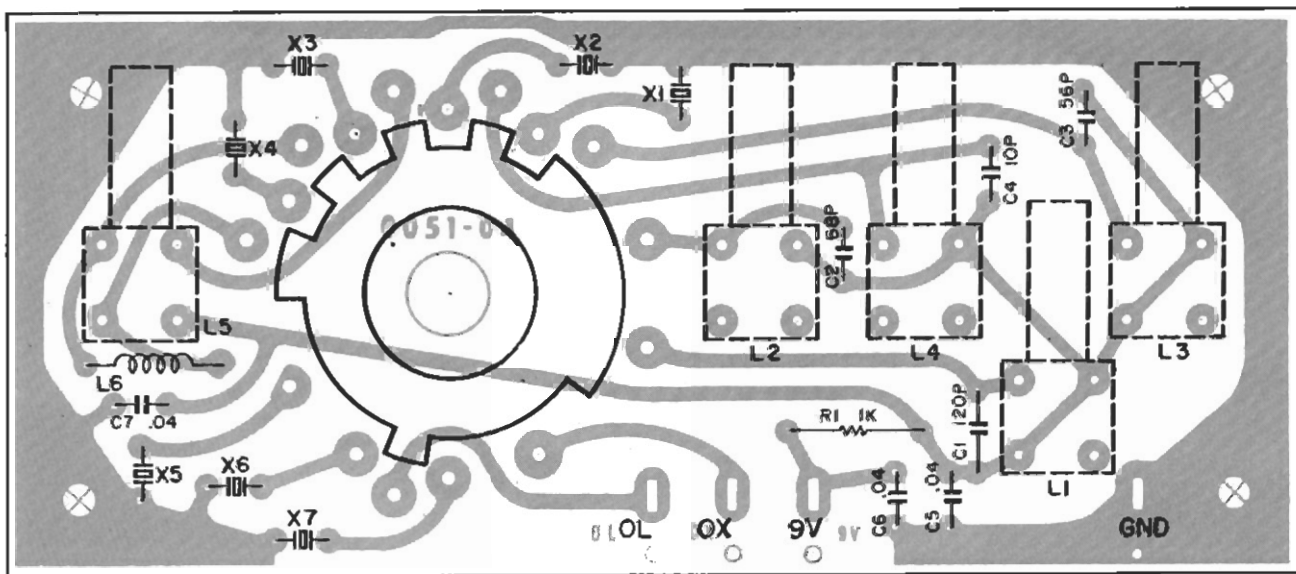
■ PC BOARD OF X40-0017-00 (DRIVE COIL PACK UNIT)



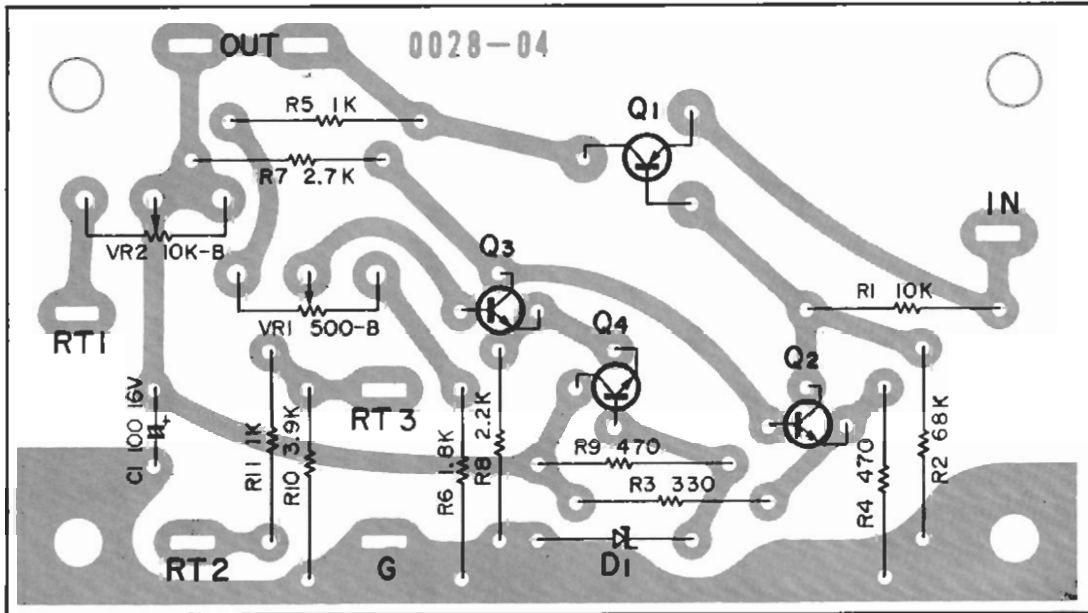
■ PC BOARD OF X40-0018-00 (MIX COIL PACK UNIT)



■ PC BOARD OF X40-0019-00 (OSC COIL PACK UNIT)

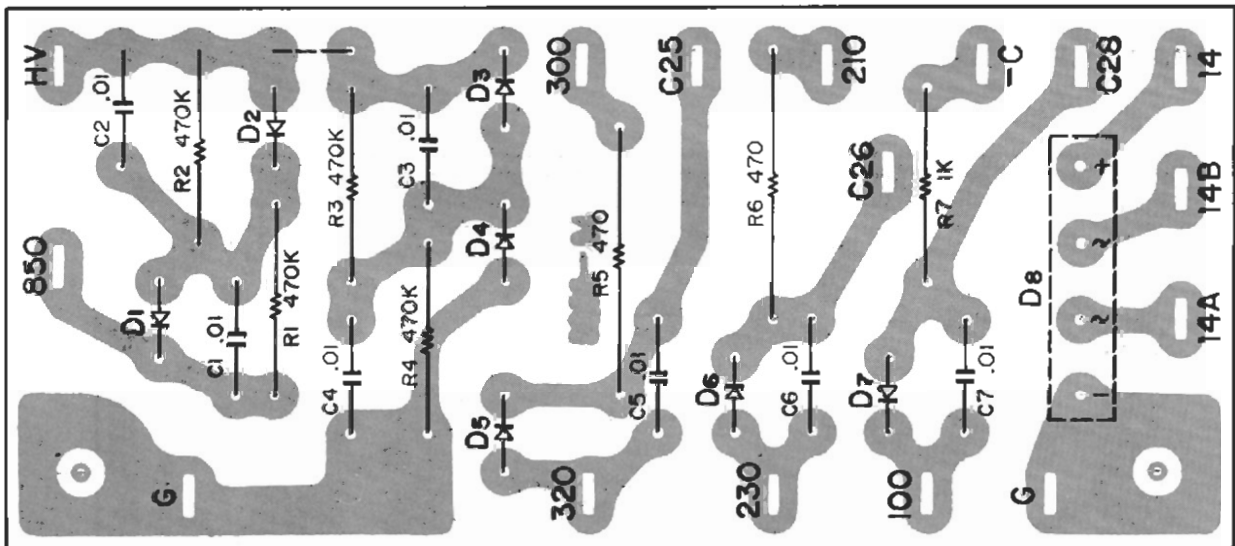


■ PC BOARD OF X43-0010-00 (AVR UNIT)



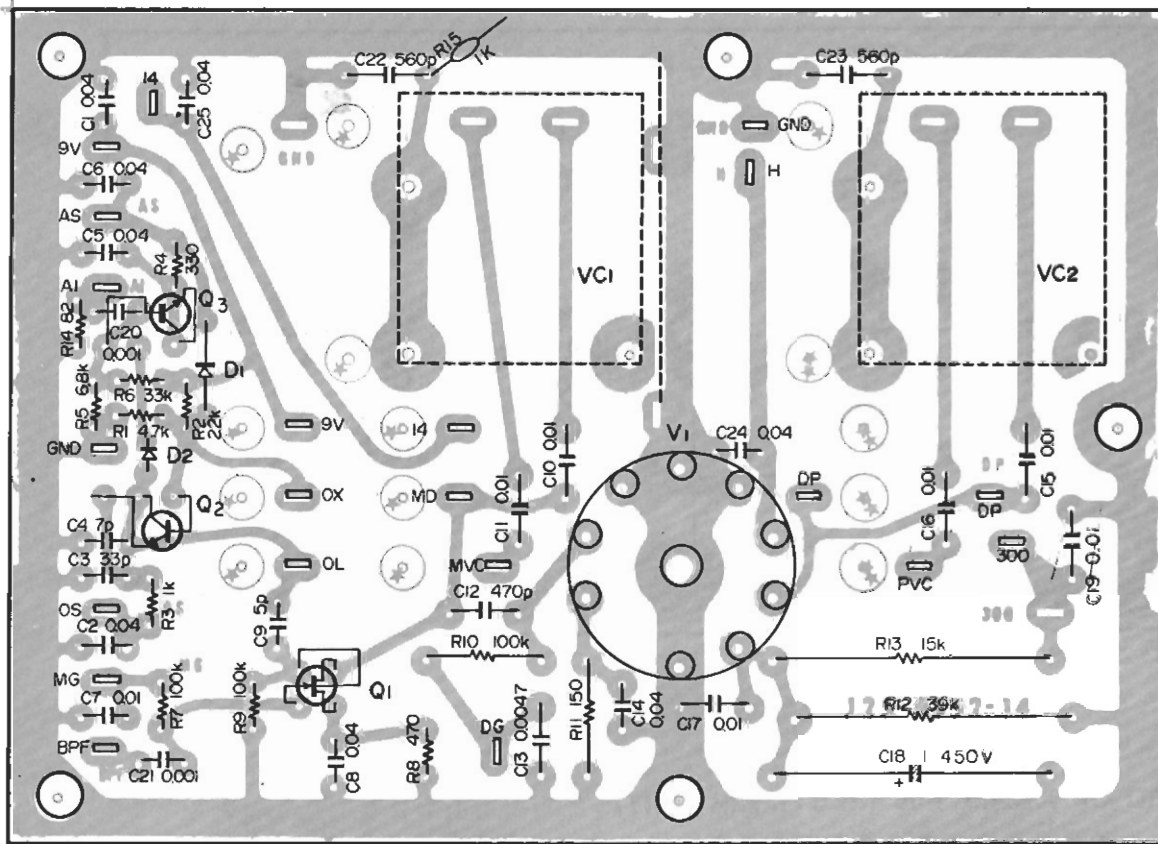
Q1: 2SA606(L), Q2 ~ 4: 2SC372, D1: RD6AM

■ PC BOARD OF X43-0011-00 (RECTIFIER UNIT)



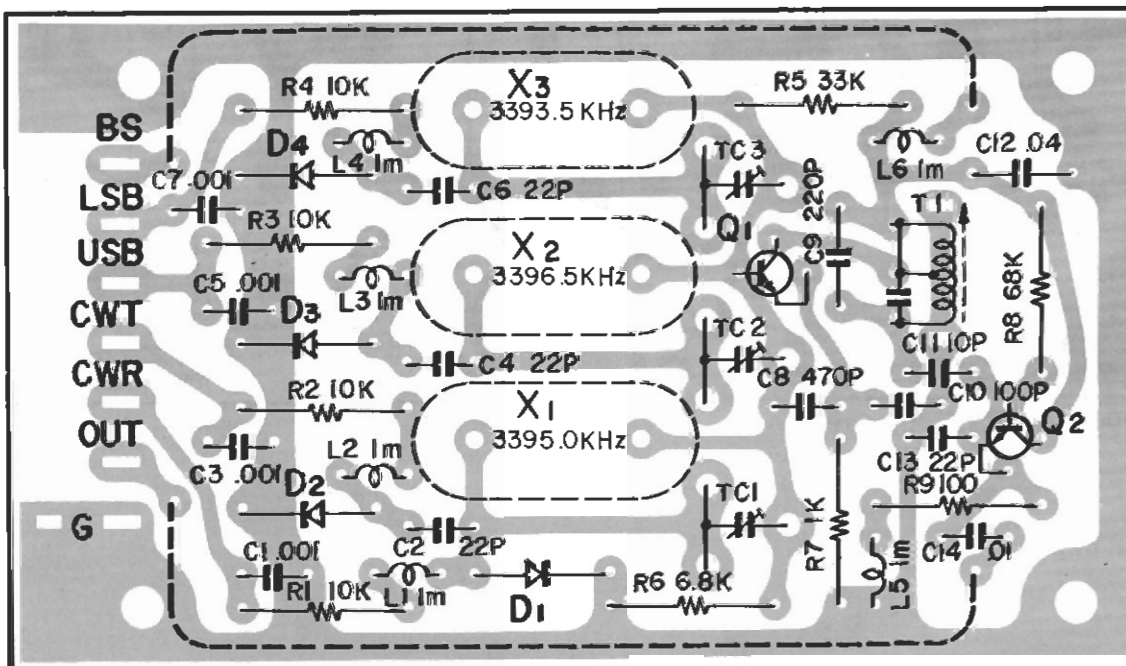
D1 ~ 6: V08J D7: V06E D8: S1B02-01B

■ PC BOARD OF X47-0004-00 (DRIVER UNIT)



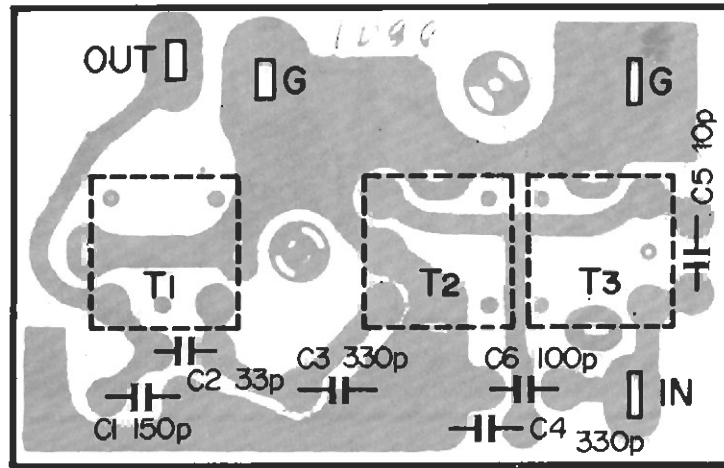
D1, 2: 1S1555 Q1: 3SK22(GR) Q2: 2SC535 (A) Q3: 2SC460 (B) V1: 12BY7A

■ PC BOARD OF X50-0002-00 (CARRIER UNIT)

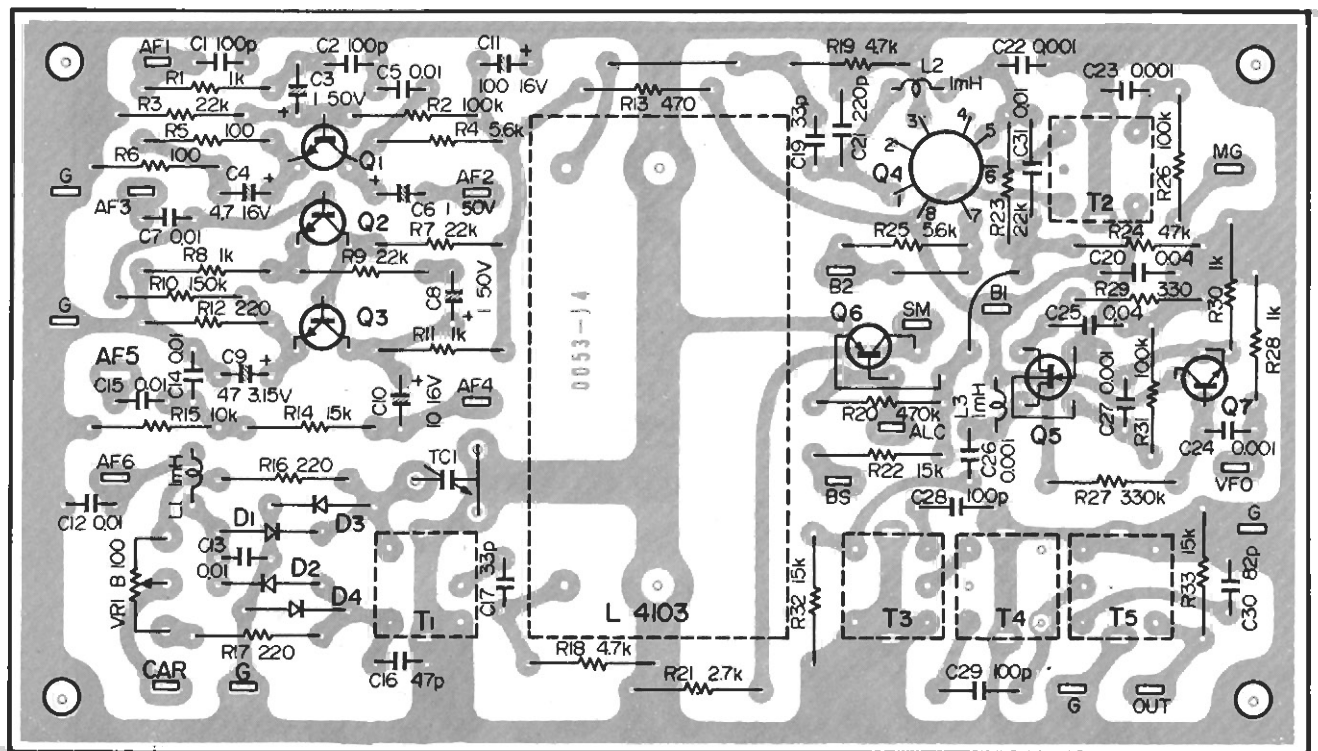


D1 ~ 4 1S1555, Q1, 2 2SC460(B)

■ PC BOARD OF X51-1070-10 (VFO FILTER UNIT)

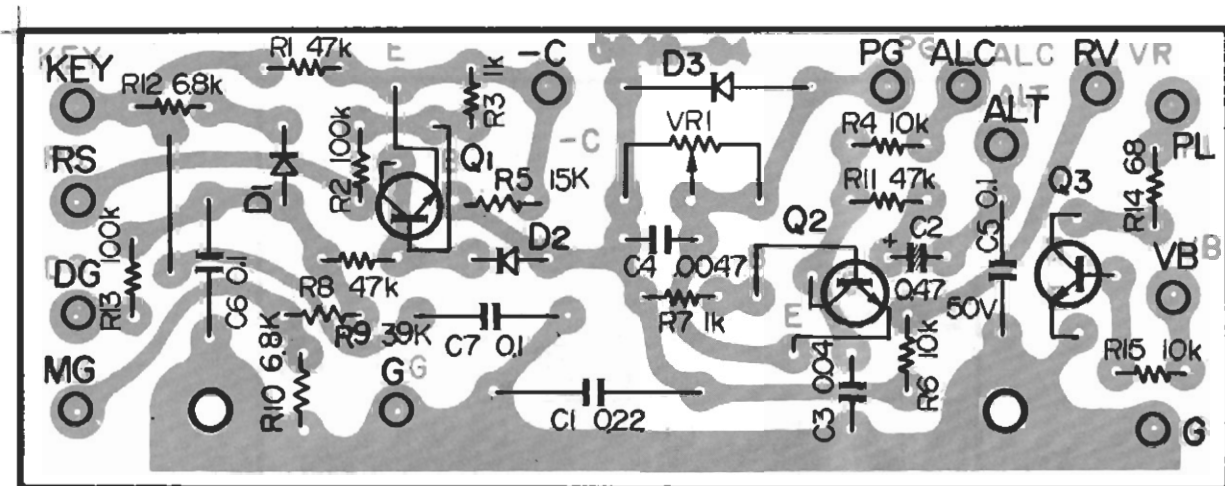


■ PC BOARD OF X52-0009-00 (GENERATOR UNIT)



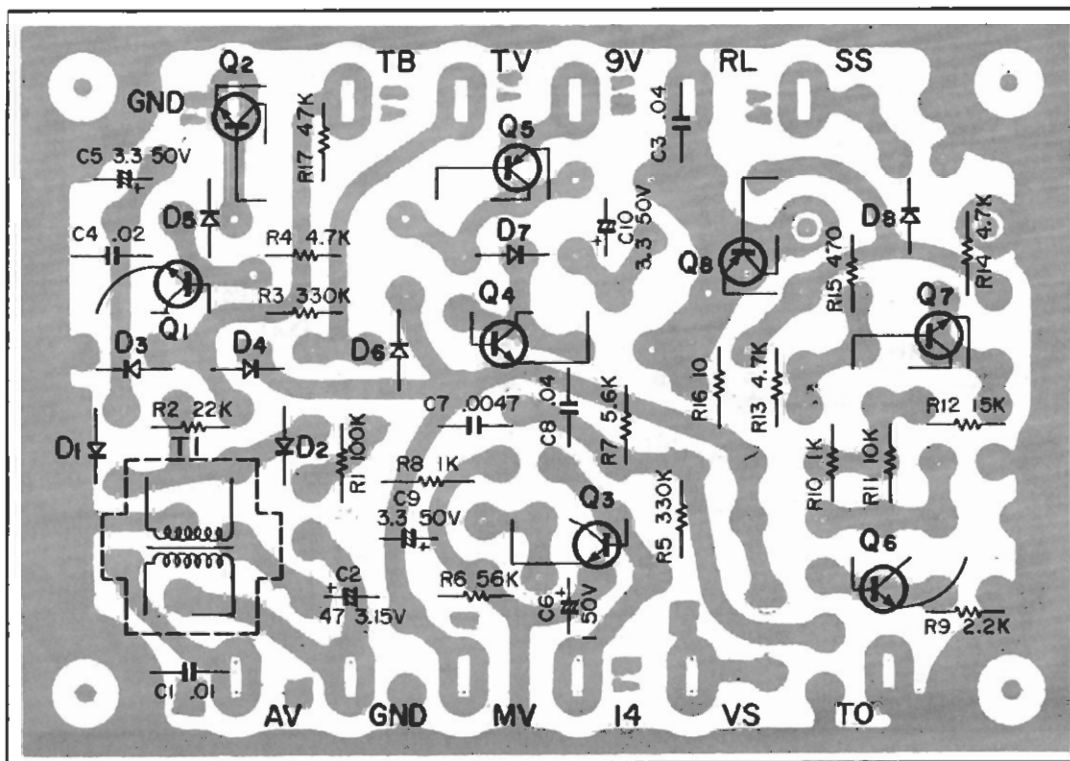
D1 ~ D4: 1N60 Q1: 2SC871 Q2,3: 2SC733Y.GR Q4: TA7045M Q5: 3SK22 GR Q6: 2SA495Y
 Q7: 2SC460B

■ PC BOARD OF X53-1030-10 (CONTROL UNIT)



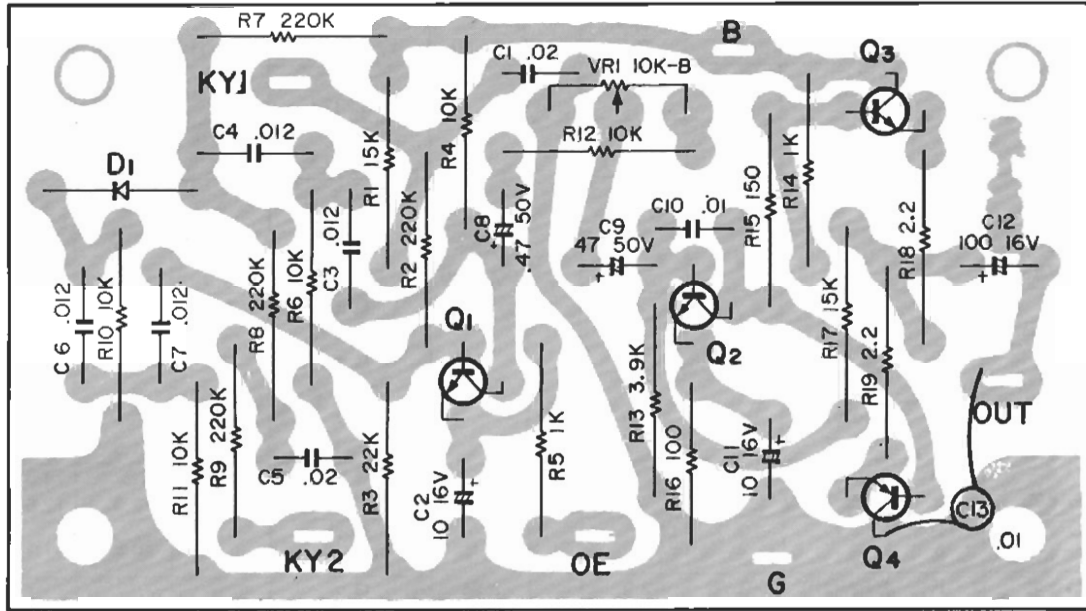
D1, 2: S-1.5-01 D3: MZ-1004 Q1: 2SC857 Q2: 2SC856 Q3: 2SC735(Y)

■ PC BOARD OF X54-0001-00 (VOX UNIT)



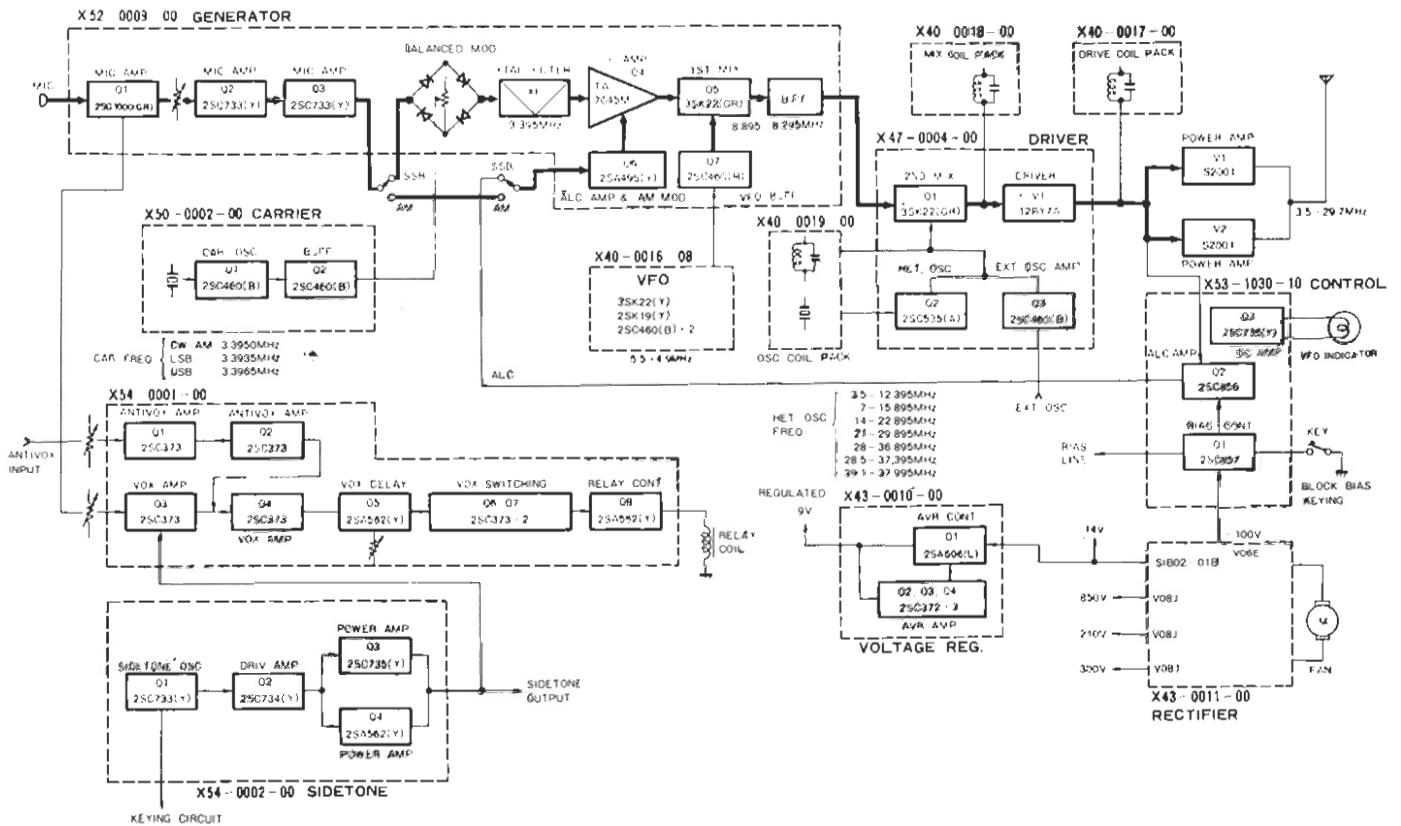
Q1 ~ 4, 6, 7: 2SC373, Q5, 8: 2SA562(Y) D1~4, 6~8: 1N60, D5: 2-1.5-01

■ PC BOARD OF X54-0002-00 (SIDETONE UNIT)



Q1: 2SC733(Y) or (GR), Q2: 2SC734(Y), Q3: 2SC735(Y), Q4: 2SA562(Y), D1: 1S1555

■ BLOCK DIAGRAM



T-599S Block Diagram

BATTERY CHART

TABLE 2

(A)

| Unit No. | Transistor | (Note1) | E | B | C |
|-------------|----------------|-------------|-------------------------------|--------------|-------------------|
| X50-0002-00 | Q 1 2SC460 | | 0.85 | 1.4 | 9.0 |
| | Q 2 2SC460 | | 1.55 | 2.2 | 9.0 |
| X52-0009-00 | Q 1 2SC1000 | | 1.2 | 1.9 | 4.5 |
| | Q 2 2SC733 | | 0.35 | 0.9 | 2.1 |
| | Q 3 2SC733 | | 1.50 | 2.1 | 3.8 |
| | Q 4 TA7045M | | Refer to next page "C" table. | | |
| | Q 5 3SK22 | R S | (Note2)0 0.95 | -4.8 0 | -2.0 0 |
| | Q 6 2SA495 | S | 6.8 (Note3)2.2 | 6.2 1.5 | 0 |
| | Q 7 2SC460 | R S | 2.7 3.1 | 3.3 3.8 | 14.5 13.5 |
| X47-0004-00 | Q 1 3SK22 | R S | (Note2)0 0.75 | -3.75 0 | -2.8 -0.5 |
| | Q 2 2SC535 | SEP TRCV | 1.7 0 | 1.25 0.2 | 7.5 8.0 |
| | Q 3 2SC460 | SEP TRCV | 2.7 0.87 | 1.55 1.48 | 7.5 8.0 |
| | V 1 12BY7A | | Refer to next page "C" table. | | |
| X53-1030-10 | Q 1 2SC857 | R S | -94 -95 | -94 -95 | -94 0 |
| | Q 2 2SC856 | R S | -94 -50 | -94 -50 | 6.3 (Note3)1.5 |
| | Q 3 2SC735 | ON OFF | 0 | 0.74 0 | 0.09 14.5 |

| Unit No. | Transistor | (Note1) | E | B | C |
|-------------|---------------|---------|--------------|--------------|--------------|
| X54-0001-00 | Q 1 2SC373 | R A | 0 | 0.65 0.6 | 0.13 0.65 |
| | Q 2 2SC373 | R A | 0 | 0.23 0.67 | 0 0 |
| | Q 3 2SC373 | | 0.6 | 1.2 | 6.1 |
| | Q 4 2SC373 | R V | 0 | 0 0.25 | 8.5 0.65 |
| | Q 5 2SA562 | R V | 8.5 0.65 | 8.5 0.65 | 0 |
| | Q 6 2SC373 | R V | 5.4 4.5 | 6.0 0.65 | 6.3 8.6 |
| | Q 7 2SC373 | R V | 5.4 4.5 | 3.8 5.2 | 14.5 11.7 |
| | Q 8 2SA562 | R V | 14.5 13.3 | 14.5 12.5 | 0 13.2 |
| X54-0002-00 | Q 1 2SC733 | | 0.55 | 1.10 | 8.9 |
| | Q 2 2SC734 | | 0.68 | 1.33 | 6.3 |
| | Q 3 2SC735 | | 7.0 | 7.6 | 14.5 |
| | Q 4 2SA562 | | 7.0 | 6.3 | 0 |
| X43-0010-00 | Q 1 2SA606 | | 14.5 | 13.8 | 9.0 |
| | Q 2 2SC372 | | 5.3 | 5.9 | 13.8 |
| | Q 3 2SC372 | | 5.5 | 5.7 | 5.9 |
| | Q 3 2SC372 | | 5.5 | 6.15 | 9.0 |

(B)

| Unit No. | Terminal | (Note1) | Voltage | |
|-------------|-------------|-------------|---------------------|------|
| X52-0009-00 | AF5 | (Note4) | 1.4 | |
| | AF6 | (Note5) | 0.4 | |
| | CAR | | [1.0] | |
| | MG | R S | -7.0 0 | |
| | B1 | R S | 14.5 13.5 | |
| | B2 | R S | 0 13.5 | |
| | SM | | 0 | |
| | ALC | R S | 6.2 (Note3)1.5 | |
| | BS | | 9.0 | |
| | VFO | | [1.0] | |
| | OUT | R S | [0] (Note6)[0.5] | |
| | X50-0002-00 | BS | | 9.0 |
| | | LSB | | -0.4 |
| | | USB | | -0.7 |
| CWT | | R S | 14.5 13.5 | |
| X40-0016-08 | OUT | | [1.0] | |
| | R | | 5.4 | |
| | B | | 9.0 | |
| X47-0004-00 | OUT | | [1.0] | |
| | 14 | R S | 14.5 13.5 | |
| | 9 | | 9.0 | |
| X47-0004-00 | AS | SEP TRCV | 3.0 0 | |

| Unit No. | Terminal | (Note1) | Voltage | |
|-------------|-------------|--------------|--------------|--------------|
| X53-1030-10 | VR | R S | -37 -20 | |
| | X54-0001-00 | SS | R V | 14.8 12.0 |
| RL | | R V | 0 13.2 | |
| 9V | | | 9.0 | |
| TV | | (Note8) | 8.5 | |
| TB | | R V | 8.5 0.65 | |
| TO | | R V | 8.5 0.65 | |
| VS | | R V | 3.8 5.2 | |
| 14 | | R V | 14.8 14.0 | |
| X54-0002-00 | | KY1 | K C | 13.6 12.8 |
| | | KY2 | K C | -60 0 |
| | OE | K (Note9) | 0 1.6 | |
| | B | K C | 14.5 13.5 | |
| X43-0010-00 | IN | R S | 14.5 13.5 | |
| | OUT | | 9.0 | |
| | RT1 | | 5.4 | |

| Unit No. | Terminal | (Note1) | Voltage | |
|-------------|-------------|-------------|-------------------|------------|
| X47-0004-00 | OS | SEP TRCV | 0 0.17 | |
| | MG | R S | -7.1 0 | |
| | OX | SEP TRCV | 1.25 0.5 | |
| | OL | | 7.5 | |
| | MD | R S | 14.5 13.5 | |
| | MVC | (Note7) | 14.5 | |
| | DG | R S | -46.0 0 | |
| | H | | (6.3) | |
| | DP | R | 318 | |
| | 300 | R S | 318 290 | |
| | DVC | (Note7) | 330 | |
| | X53-1030-10 | MG | R S | -7.0 0 |
| | | DG | R S | -46.0 0 |
| | | RS | R S | 0 -94 |
| KEY | | R C | 0 -60 | |
| -C | | | -94 | |
| PG | | R S | -94 -50 | |
| ALC | | R S | 6.2 (Note3)2.1 | |

| Unit No. | Terminal | (Note1) |
|-------------|----------|---------|
| X43-0011-00 | HV | R S |
| | 850 | R S |
| | 300 | R S |
| | C25 | R S |
| | 210 | R S |
| | C26 | R S |
| | -C | R S |
| | C28 | R S |
| | 14 | R S |
| | 14B | R S |
| | 14A | R S |
| | 100 | R S |
| | 230 | R S |
| | 320 | R S |

- Note 1 R: Under stand-by condition.
S: Under maximum CW transmitting output.
SEP: SEP ◀▶ TRCV switch at SEP Position.
TRCV: SEP ◀▶ TRCV switch at TRCV Position.
A: ANTI-VOX input Signal with 0.5 V input.
V: VOX and CW side tone Operate.
K: CW operation with Stand-by Key inserted.
C: CW operation with Key downed.
ON: VFO on
OFF: VFO off
- Note 2 Read E, B and C as S, G1 and G2 respectively.
D is same as 14 V Supply line.

- * Measurement is made using a vacuum tube voltmeter. The value shows the voltage
The value in () denotes the AC voltage and that in [] the RF voltage.

- Note 3 Approx. 5.5 V
Note 4 MODE Switch
Note 5 MODE Switch
O at Position ()
Note 6 Value varies d
Note 7 3.5 MHz band
Note 8 DELAY VR co
wise position.
Note 9 Operations oth

| (Note 4) | Voltage |
|----------|---------|
| R | (338) |
| S | (310) |
| R | 910 |
| S | 815 |
| R | 315 |
| S | 290 |
| R | 335 |
| S | 315 |
| R | 235 |
| S | 215 |
| R | 242 |
| S | 228 |
| R | -94 |
| S | -97 |
| R | -102 |
| S | -100 |
| R | 14.8 |
| S | 14.0 |
| R | (6.8) |
| S | (6.6) |
| R | (5.7) |
| S | (5.5) |
| R | (75) |
| S | (72) |
| R | (187) |
| S | (178) |
| R | (260) |
| S | (255) |

(C)

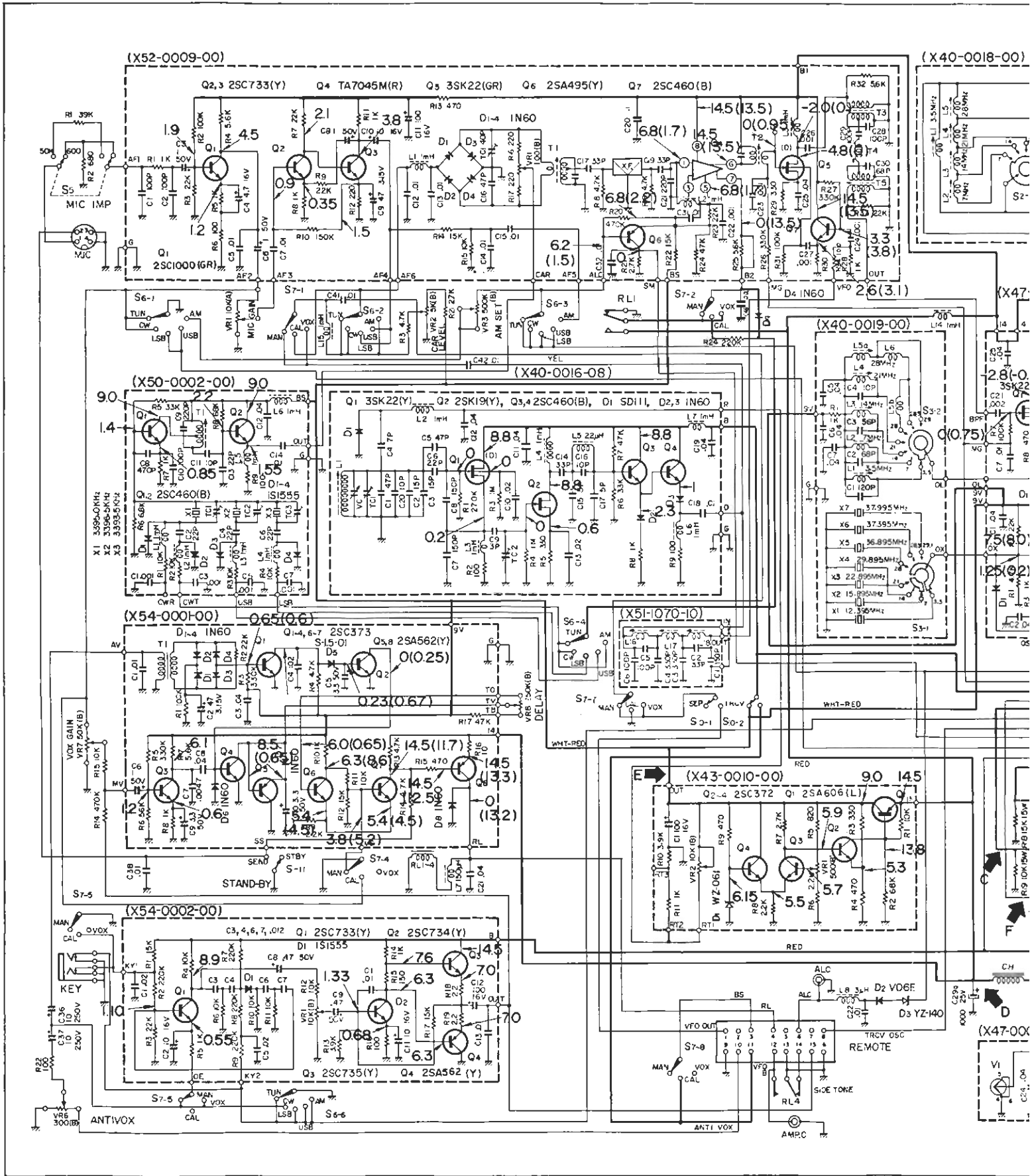
| Pin | (Note 1) | Q 4 TA7045M | V 1 12BY7A | V 1 S2001 | V 2 S2001 |
|-----|----------|----------------|---------------|--------------|--------------|
| 1 | R | 6.8 | 0 | 0 | 0 |
| | S | (Note 3) 1.7 | 2.6 | 1.1 | 1.1 |
| 2 | R | | -46 | (6.3) | (6.3) |
| | S | | 0 | | |
| 3 | R | 0 | 0 | 235 | 235 |
| | S | | | 215 | 215 |
| 4 | R | | 0 | 0 | 0 |
| | S | | | 1.1 | 1.1 |
| 5 | R | 6.8 | 0 | -94 | -94 |
| | S | (Note 3) 1.7 | | -50 | -50 |

| Pin | (Note 1) | Q 4 TA7045M | V 1 12BY7A | V 1 S2001 | V 2 S2001 |
|-----|----------|----------------|---------------|--------------|--------------|
| 6 | R | 14.5 | (6.3) | 0 | 0 |
| | S | 13.5 | | 1.1 | 1.1 |
| 7 | R | 0 | 318 | 0 | 0 |
| | S | 13.5 | 290 | | |
| 8 | R | 14.5 | 200 | 0 | 0 |
| | S | 13.5 | 150 | | |
| 9 | R | | 0 | | |
| | S | | | | |
| P | R | | | 910 | 910 |
| | S | | | 815 | 815 |

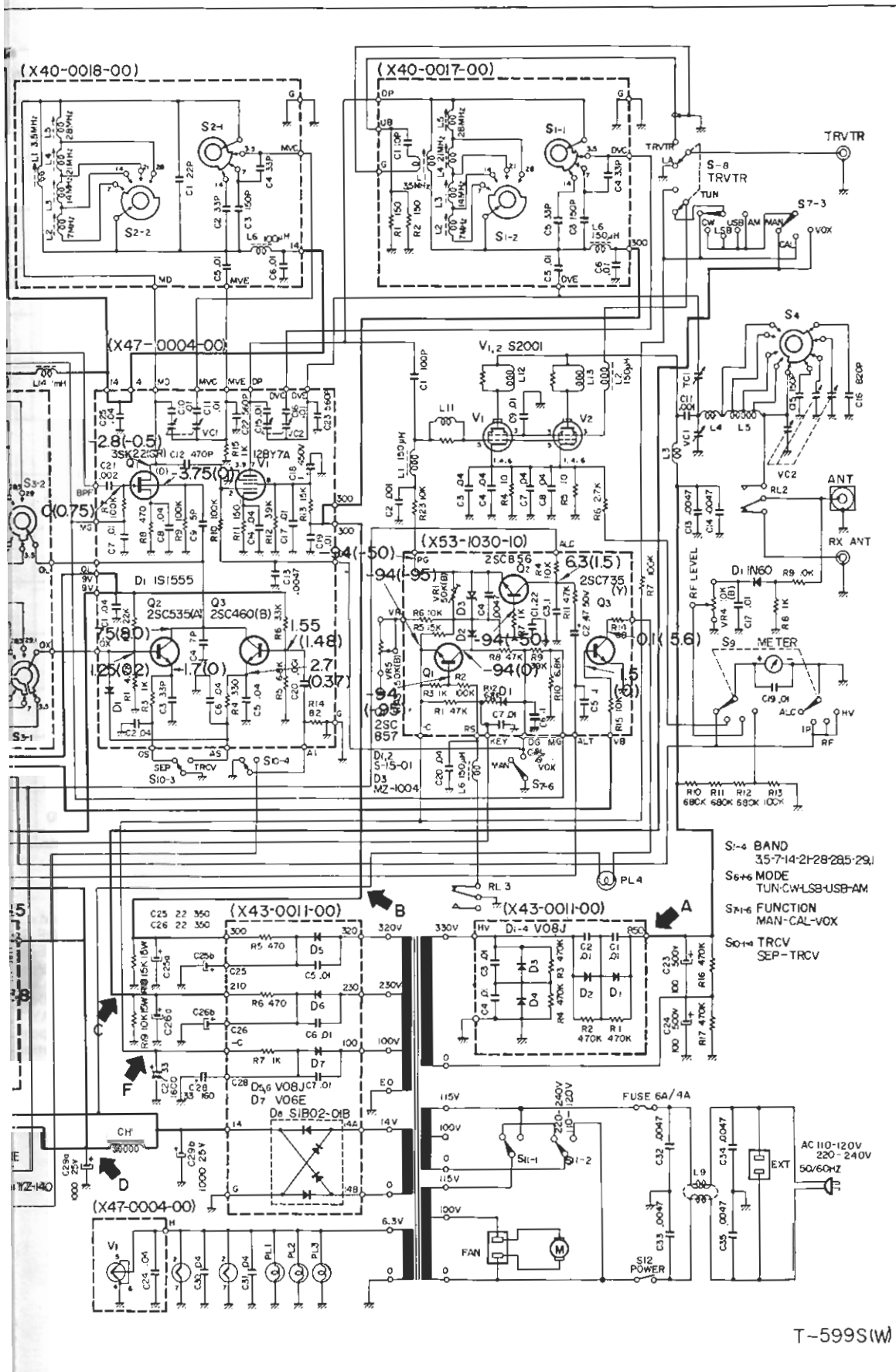
x. 5.5 V if meter set at ALC range does not deflect.
 E Switch set at AM. O at positions other than AM.
 E Switch set at Position TUN, CW and AM.
 Position other than TUN, CW and AM.
 varies depending on how ALC circuit functions.
 Hz band. O for the band other than 3.5 MHz band.
 Y VR control placed in the extreme counterclock-
 position.
 tions other than CW operation.

g voltage to the chassis.

SCHEMATIC DIAGRA



DIAGRAM



T-599S(W)

SPECIFICATION

| | | | | |
|--|---|--------------|---|-----------|
| TRANSMITTING FREQUENCY RANGE | 3.5 MHz band | 3.50 | ~ | 4.00 MHz |
| | 7.0 MHz band | 7.00 | ~ | 7.30 MHz |
| | 14.0 MHz band | 14.00 | ~ | 14.35 MHz |
| | 21.0 MHz band | 21.00 | ~ | 21.45 MHz |
| | 28.0 MHz band | 28.00 | ~ | 28.50 MHz |
| | 28.5 MHz band | 28.50 | ~ | 29.10 MHz |
| | 29.1 MHz band | 29.10 | ~ | 29.70 MHz |
| TYPE OF EMISSION | SSB (A3J), CW (A1) and AM (A3) | | | |
| RATED INPUT TO FINAL STAGE | SSB, CW | 3.5 ~ 21 MHz | | 160W |
| | | 28 MHz | | 140W |
| | AM | 3.5 ~ 21 MHz | | 80W |
| | | 28 MHz | | 60W |
| CARRIER SUPPRESSION | 40 dB or more | | | |
| UNWANTED SIDEBAND SUPPRESSION | 40 dB or more | | | |
| HARMONICS RADIATION | -40 dB or less (under CW operation) | | | |
| OUTPUT IMPEDANCE | 50 ~ 75 Ω | | | |
| MICROPHONE INPUT IMPEDANCE | 600 and 50 k Ω , as selected by a selector switch | | | |
| MODULATION SYSTEM | Balanced modulation for SSB and low power modulation for AM | | | |
| SSB GENERATION SYSTEM | Filter system | | | |
| TRANSMITTING FREQUENCY CHARACTERISTIC | 400 ~ 2600 Hz/-6 dB | | | |
| KEYING | Block bias keying | | | |
| FREQUENCY STABILITY | Within ± 2 kHz from one minute after switching on the set to 60 minutes and later within 100 Hz per 30 minutes. | | | |
| TUBES AND SEMICONDUCTORS EMPLOYED | 3 vacuum tubes, 4 FET, 1 IC, 30 transistors, 34 diodes, 3 zener diodes & 1 varicap. | | | |
| POWER CONSUMPTION | 350 W max. | | | |
| DIMENSIONS | 10-5/8" W x 5-1/2" H x 12-3/16" D (inches) 270 W x 140 H x 310 D (mm) | | | |
| WEIGHT | 12.5 kg (27 lbs.) | | | |



Manufactured by TRIO ELECTRONICS, INC., Tokyo, Japan