



Set using ISO screws

# STR-6046

*AEP Model*



**SONY®**  
**SERVICE MANUAL**

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## SECTION 1 TECHNICAL DESCRIPTION

### 1-1. TECHNICAL SPECIFICATIONS

Technical specifications for the STR-6046 are listed in Table 1-1.

**TABLE 1-1.  
STR-6046 TECHNICAL SPECIFICATIONS**

Fm-Tuner Section	
Frequency range:	87.5 to 108 MHz
Intermediate frequency:	10.7 MHz
Usable sensitivity:	1.8 $\mu$ V, IHF 1.4 $\mu$ V (S/N = 30 dB)
Signal-to-noise ratio:	68 dB, IHF
Capture ratio:	1.5 dB, IHF
Selectivity:	70 dB, IHF
Image rejection:	55 dB
I-f rejection:	90 dB
Spurious signal rejection:	78 dB
A-m suppression:	55 dB
Frequency response:	30 to 15,000 Hz $\pm 2^0$ dB
Antenna:	300 ohms balanced
Harmonic distortion:	Mono: 0.3% at 400 Hz Stereo: 0.8% at 400 Hz
Fm-stereo separation:	Greater than 35 dB at 400 Hz
19-kHz, 38-kHz suppression:	50 dB

A-m Tuner Section	
Frequency range:	530 to 1,605 kHz
Intermediate frequency:	455 kHz
Sensitivity:	48 dB/m, built-in ant. 30 $\mu$ V, external ant.
Signal-to-noise ratio:	50 dB
Image rejection:	56 dB at 1,000 kHz
I-f rejection:	40 dB at 1,000 kHz
Harmonic distortion:	0.8%

### Audio-Amplifier Section

Dynamic power output (IHF):	56 watts, both channels operating, 8 ohms, 0.5% THD						
Rated output: (1 kHz)	22 watts, per channel, both channels operating, 8 ohms						
Rated output: (40 Hz ~ 12.5 kHz)	20 watts, per channel, both channels operating, 8 ohms						
Power band width:	40 Hz ~ 20 kHz (IHF)						
Harmonic distortion:	Less than 0.8% at 1 kHz at rated output Less than 0.1% at 1 watt output						
Frequency response:	<table border="0" style="display: inline-table; vertical-align: middle;"> <tr> <td style="padding-right: 5px;">TAPE</td> <td rowspan="4" style="font-size: 2em; vertical-align: middle;">}</td> <td rowspan="4" style="padding-left: 10px;">30 Hz to 40 kHz (<math>\pm 3^0</math> dB)</td> </tr> <tr> <td>AUX</td> </tr> <tr> <td>MIC</td> </tr> <tr> <td>REC/PB</td> </tr> </table>	TAPE	}	30 Hz to 40 kHz ( $\pm 3^0$ dB)	AUX	MIC	REC/PB
TAPE	}	30 Hz to 40 kHz ( $\pm 3^0$ dB)					
AUX							
MIC							
REC/PB							
Input sensitivity and impedance: (with rated output)	PHONO: 2.5 mV, 47k ohms TAPE: 250 mV, 100k ohms AUX: 250 mV, 100k ohms MIC: 2 mV, 47k ohms REC/PB: 250 mV, 100k ohms						
Signal output:	REC OUT: 250 mV, 10 k ohms REC/PB: 30 mV, 82 k ohms						
Signal-to-noise ratio:	PHONO: greater than 60 dB MIC: greater than 60 dB AUX: greater than 70 dB TAPE: greater than 80 dB REC/PB: greater than 80 dB						
Tone controls:	BASS: $\pm 10$ dB at 100 Hz TREBLE: $\pm 10$ dB at 10 kHz						
Loudness:	6 dB up at 50 Hz 4 dB up at 10 kHz (VOLUME-control attenuation: 30 dB)						
Residual noise:	Less than 0.08 $\mu$ watts						

### General

Power consumption:	135 watts
Power requirements:	100, 120, 220, 240 V 50/60 Hz, ac
Dimensions:	17 $\frac{1}{8}$ " (width) $\times$ 5 $\frac{11}{16}$ " (height) $\times$ 13 $\frac{9}{16}$ " (depth) 434 mm (width) $\times$ 144 mm (height) $\times$ 345 mm (depth)
Net weight:	19 lb 14 oz (9 kg)
Shipping weight:	26 lb 8 oz (12 kg)

## 1-2. CIRCUIT ANALYSIS DIGEST

The following describes the functions of newly adapted circuit or complicated circuit which might help your repair work.

Since stages are listed by transistor reference designation, refer to the schematic diagram on page 27 to 28.

### Fm Mixer: Q102

Rf signals and local-oscillator voltage are heterodyned in the base-emitter junction of mixer to produce 10.7 MHz i-f output signal. Transformer IFT101, C107 and C108 form a high "C" pi-network bandpass filter, which passes the i-f output and provides a path to ground for the other heterodyne products and oscillator harmonics.

### Fm I-f Amplifiers: Q201 to Q205

The i-f amplifier stages consist of two pairs of direct-coupled amplifiers that provide essentially flat response. The selectivity of this section is determined by two-pairs of filters (CF201 and CF202) in the inter-stage-coupling path.

### STEREO Lamp Circuit: Q302, Q303

The STEREO lamp lights when an fm-stereo signal is received. The emitter of Q303 is connected to the base of Q302, which is normally cut off.

When a composite stereo signal is applied to the multiplex decoder, the 38-kHz pulses produced at the output of the frequency doubler yield a higher-average current flow through Q303. This forces Q302 into conduction, lighting STEREO lamp PL905.

### Multiplex Demodulator: L302, D303, D304, D305 and D306

L302 (switching transformer) and four diodes form a balanced bridge arrangement. This system has the advantage of cancelling residual rf components (38-kHz signal, some 19-kHz signal, and higher-order harmonics of these frequencies). Notice that the 38-kHz switching signal is transformer-coupled to the diode bridge to supply while a composite stereo signal is applied to the sampling drive for the demodulator center tap of the secondary winding of L302.

"L" and "R" components are developed at each side of the bridge as the result of demodulation, see Fig. 1-1.

In the monaural mode, diodes D303 and D304 are forward biased by supply voltage through R324, STEREO lamp, R321, R326 and R327 so these diodes merely act as small resistances. Under this condition, the monaural signal is applied to both "L" and "R" audio amplifiers.

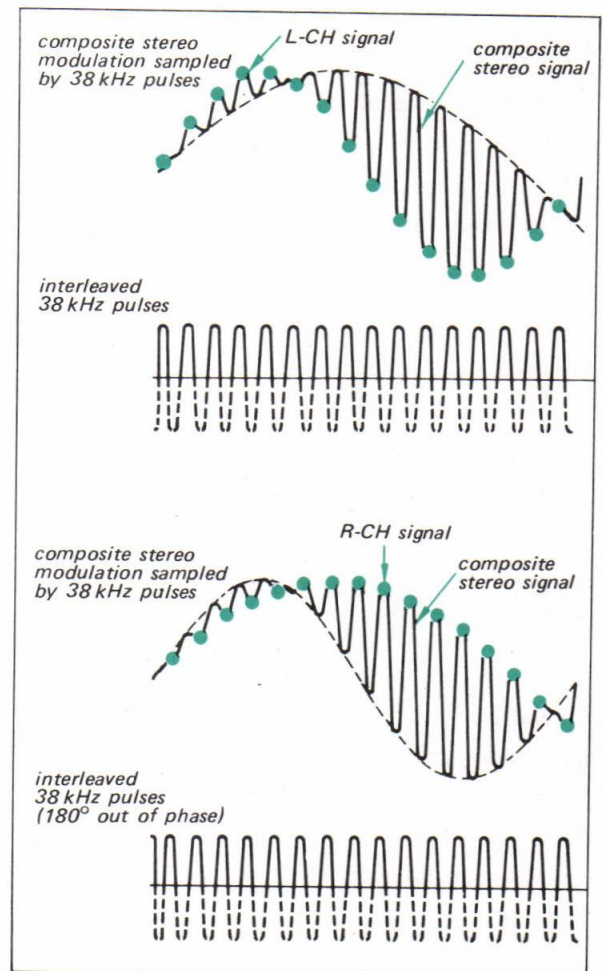


Fig. 1-1. Stereo demodulation operation

### A-m AGC: D402, Q403, Q401

There are two feedback loops ensuring proper agc operation. (See Fig. 1-2.) The a-m i-f signal is detected by D402 at the secondary winding of IFT402.

The output of the diode D402 is a positive dc voltage roughly proportional (not exactly due to agc action) to the carrier levels of input signal. This is fed to the base of Q403 through filter circuit consist of C426, R428 and C425, controlling bias current of Q403 thereby its emitter voltage.

Emitter voltage of Q403 is fed back to the base circuit of Q401 (mixer) through filter circuit R427, C422 and C421. Q401 acts as forward agc element by utilizing the relationship between transistor's current gain (hfe) and collector-emitter voltage (Vce) as illustrated in Fig. 1-3. Agc operates as follows:

When strong signal is received, current flow in Q401 and Q403 increases due to agc circuit.

Since relatively large resistor is inserted in the collector circuit of Q401, higher current flow causes decrease of collector-emitter voltage ( $V_{ce}$ ) thereby reducing its gain to maintain stable operation.

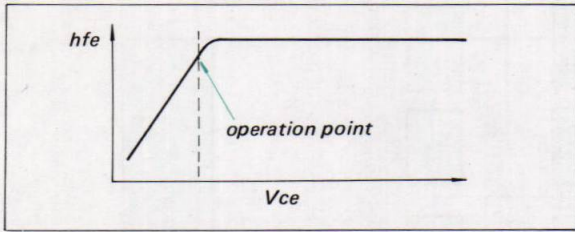


Fig. 1-3.  $h_{fe}$ - $V_{ce}$  relationship

**Audio Section**

**MIC Amplifier and Mixing Circuit: Q505, Q506**

Input signals applied to the MIC jack are fed to two-stage flat amplifier (mic amplifier) and amplified to the level required at the MIC LEVEL control. MIC LEVEL control (RV505) determines the signal level applied to the following volume control. Notice that the equalizer/preamplifier's output is mixed to the mic signals through R514 (20k).

**Tone Control Circuit: Q504**

Fig. 1-4 shows a partial schematic diagram of tone control circuit. This circuit is a modified negative-feedback type tone-control. Note that the output generated at the collector circuit of Q504 is fed back to the base circuit of Q504 through the treble and bass control circuit.

**Separation Adjustment Circuit: Q501, Q551, RT501**

The network that connects the emitters of Q501 and Q551 provides a form of negative feedback between left and right channels for fm stereo signals.

Any residual "R" signal in the "L" channel (which is about  $180^\circ$  out of phase) is cancelled out by the "R" channel. The same is true of residual "L" signal in the "R" channel. RT501 is therefore set for maximum separation.

**Dc Bias Power Supply: Q603 (power amplifier)**

Q603 is forced to conduct and operates as a small resistance providing the necessary forward bias on the two cascaded emitter-followers (complementary and power amplifier stages). R609 and R608 determines the impedance between the emitter and collector of Q603, and thereby determines the dc bias voltage for the following complementary circuit.

This circuit has the advantage of compensating a lack of idling current at high output power.

**Power Amplifier: Q606, Q607, D601, D602**

The output transistors Q606 and Q607 are cascaded supplying power to the speaker system.

Q606 supplies power to the load during the positive half cycle and Q607 operates during the negative half cycle. Output is coupled to the speakers through C608.

Notice that diodes D601 and D602 are paralleled across resistors, R616 and R617 to increase the output power which is restricted by R616 and R617 without reducing stability of power amplifier.

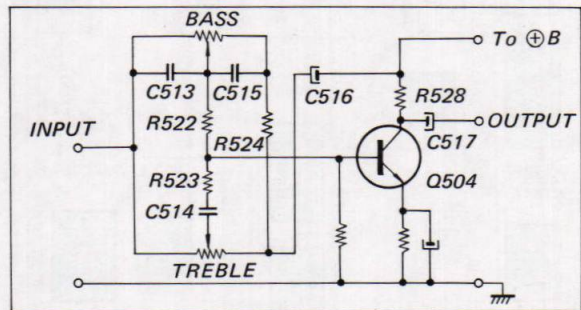


Fig. 1-4. Tone control circuit

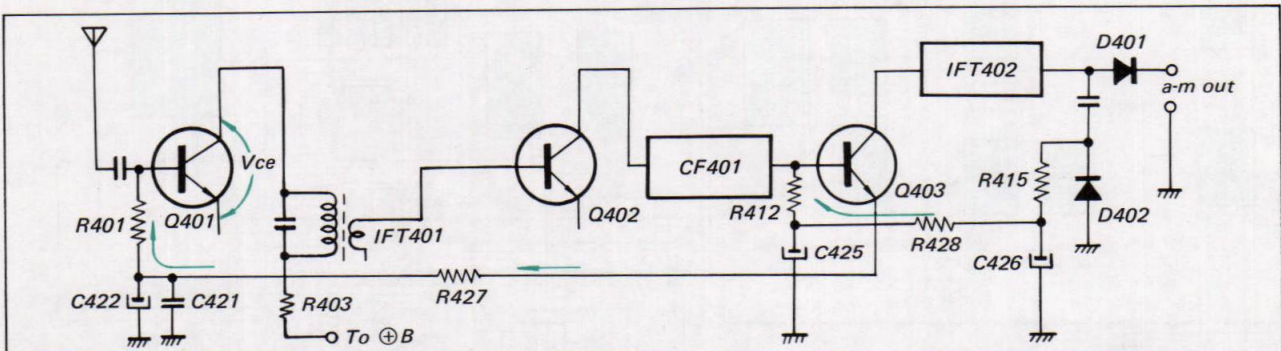
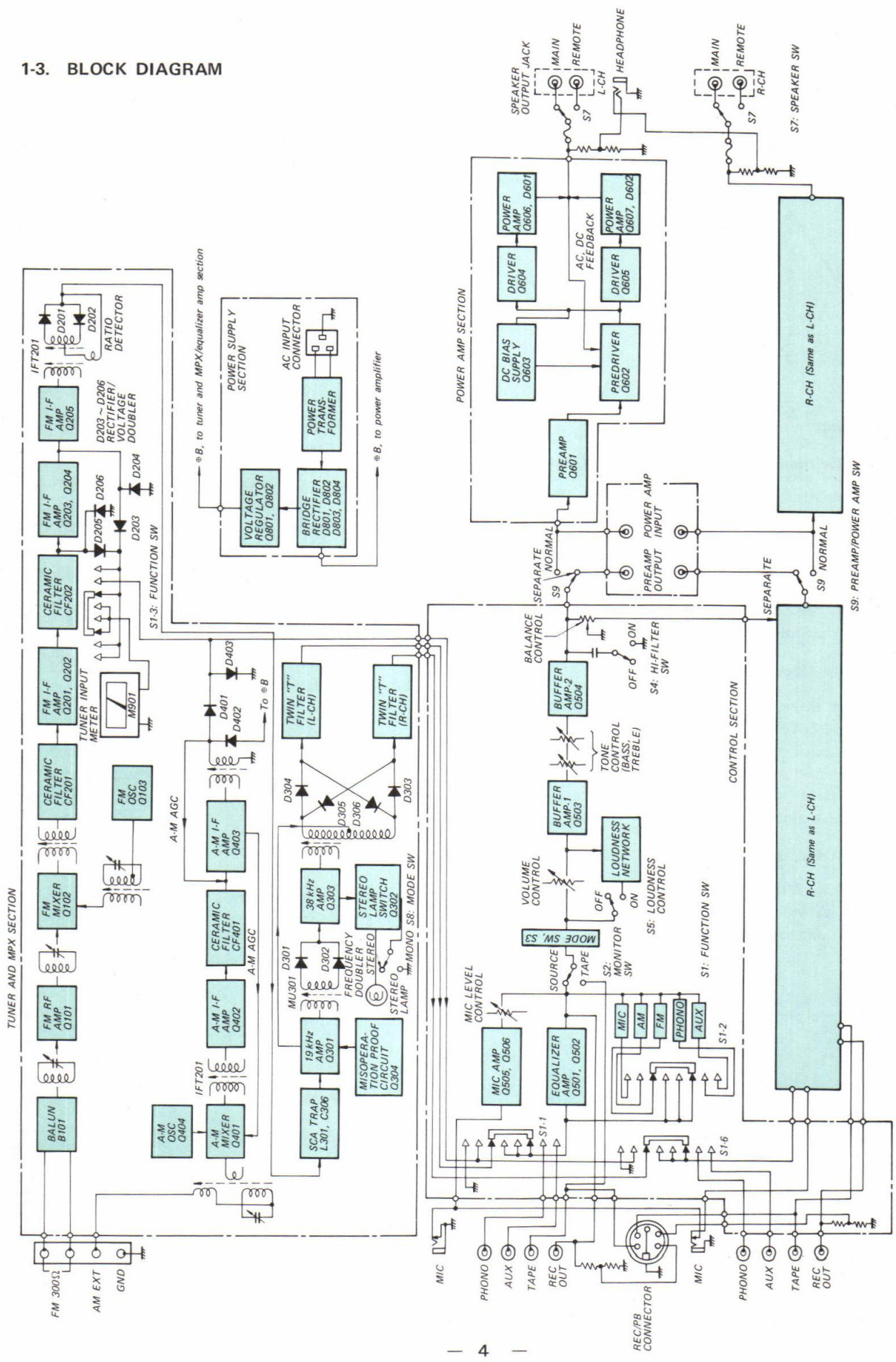


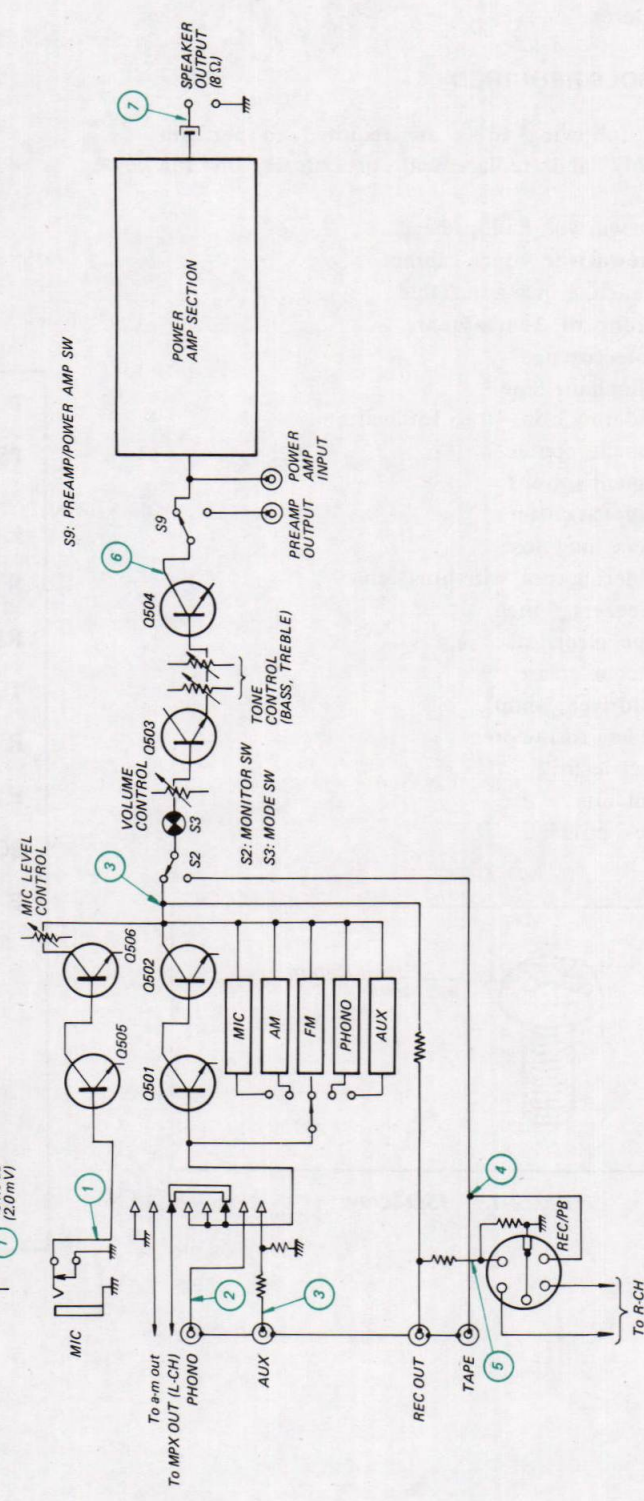
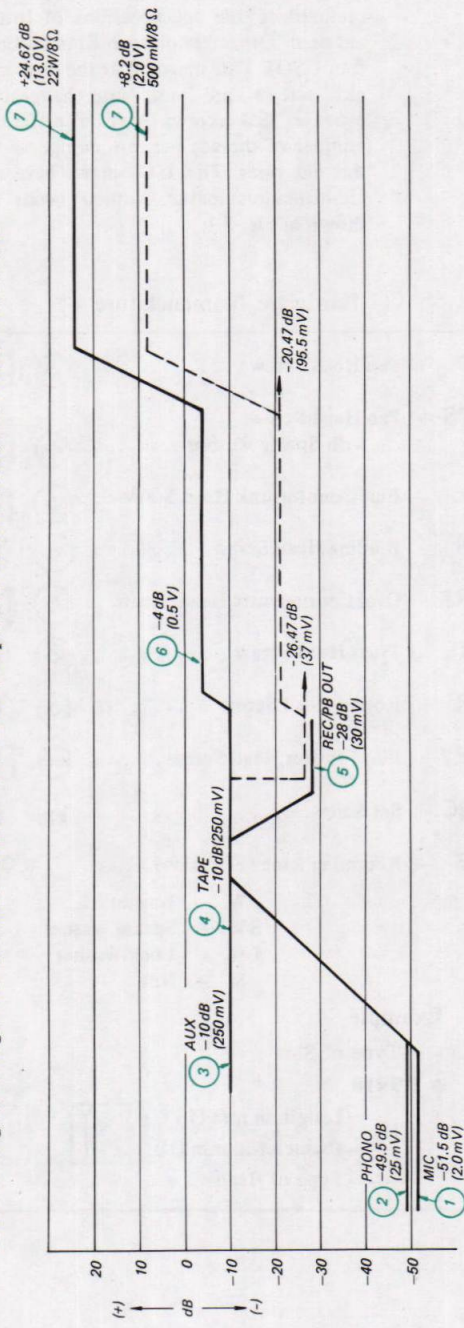
Fig. 1-2. Simplified agc circuit

1-3. BLOCK DIAGRAM



1-4. LEVEL DIAGRAM

Note: All signal voltages are measured with ac VTVM and expressed in dB referred to 1 kHz 0.775 volts.



## SECTION 2 DISASSEMBLY AND REPLACEMENT PROCEDURES

### WARNING

Unplug the ac power cord before starting any disassembly or replacement procedures.

### 2-1. TOOLS REQUIRED

The following tools are required to perform disassembly and replacement procedures on the STR-6046.

- Screwdriver, Phillips-head
- Screwdriver, 4-inch cabinet
- Wrench, 6-inch adjustable
- Cardboard, 3-inch-square
- Protective pad
- Cellophane tape
- Soldering iron, 40 to 150 watts
- Cement, contact
- Cement solvent
- Diagonal cutters
- Pliers, long-nose
- Soldering tool, wire-brush end
- Tweezers, 6-inch
- Tape, electrical
- Silicone grease
- Nutdriver, 3-mm
- Solder, rosin-core
- Electric drill
- Drill bits
- Prick punch

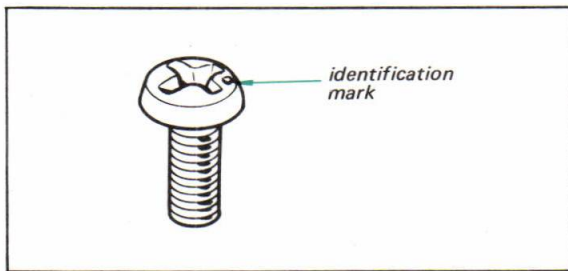


Fig. 2-1. ISO screw

### 2-2. HARDWARE IDENTIFICATION GUIDE

The following chart will help you to decipher the hardware codes given in this service manual.

**Note:** All screws in the STR-6046 are manufactured to the specifications of International Organization for Standardization (ISO). This means that the new and old screws are not interchangeable because ISO screws have a different number of threads per mm compared to the old ones. The ISO screws have an identification mark on their heads as shown in Fig. 2-1.

#### — Hardware Nomenclature —

<b>P</b>	Pan Head Screw		
<b>PS</b>	Pan Head Screw with Spring Washer		
<b>K</b>	Flat Countersunk Head Screw		
<b>B</b>	Binding Head Screw		
<b>RK</b>	Oval Countersunk Head Screw		
<b>T</b>	Truss Head Screw		
<b>R</b>	Round Head Screw		
<b>F</b>	Flat Fillister Head Screw		
<b>SC</b>	Set Screw		
<b>E</b>	Retaining Ring (E Washer)		

<b>W</b>	Washer
<b>SW</b>	Spring Washer
<b>LW</b>	Lock Washer
<b>N</b>	Nut

— Example —

⊕ P 3x10

- Type of Slot
- Length in mm (L)
- Diameter in mm (D)
- Type of Head



### 2-3. WOODEN CASE REMOVAL

1. Remove the six screws at the bottom of the wooden case as shown in Fig. 2-2.

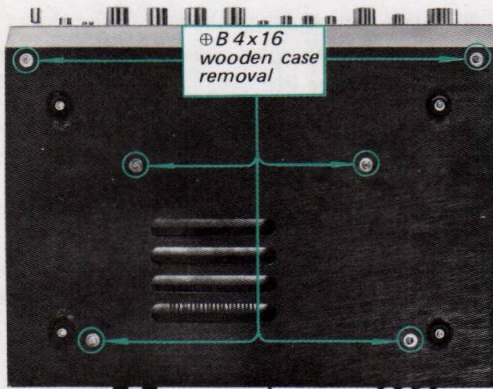


Fig. 2-2. Wooden case removal

### 2-4. FRONT PANEL AND DIAL GLASS REMOVAL

1. Remove the wooden case as described in Procedure 2-3.
2. Remove all the control knobs, except tuning knob by pulling them off.
3. Remove the tuning knob by loosening the two set screws.

4. Remove the three hex nuts securing FUNCTION switch and VOLUME, TREBLE controls to the control panel.

Place a piece of cardboard between the wrench and control panel to avoid marring the panel. See Fig. 2-3. This frees the control panel.

5. Remove the four screws securing the front panel to the front subchassis as shown in Fig. 2-4. This frees the front panel.

6. Remove the five screws securing the dial glass retainer from the back as shown in Fig. 2-5. This frees dial glass.

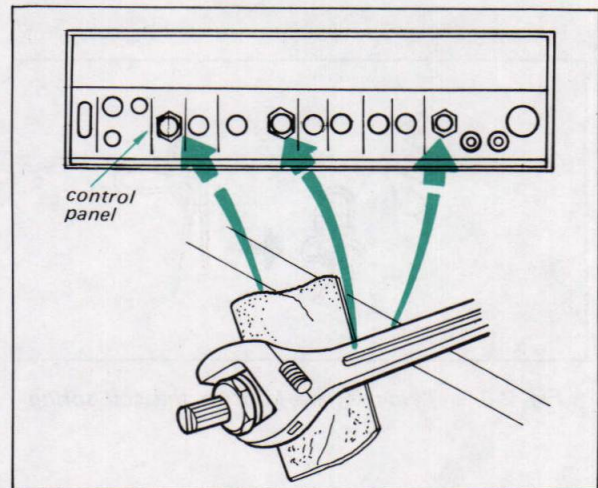


Fig. 2-3. Hex nut removal



Fig. 2-4. Front panel removal

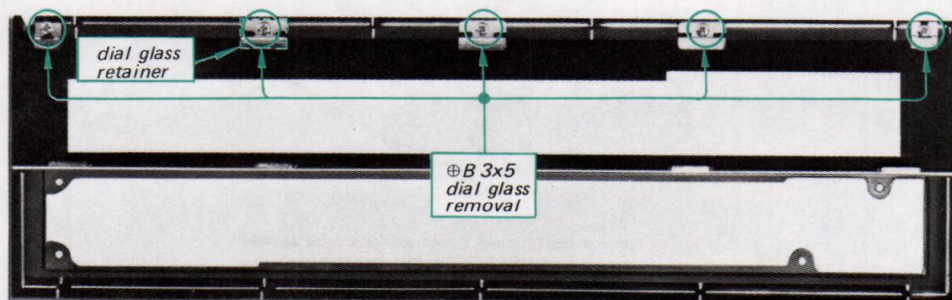


Fig. 2-5. Dial glass removal

## 2-5. DIAL CORD RESTRINGING

### Preparation

1. Remove the wooden case as described in Procedure 2-3.
2. Cut a 70-inch (1,700 mm) length of  $\frac{1}{64}$ -inch (0.3 mm) diameter dial cord.
3. Tie the end of the cord to a spring as shown in Fig. 2-6.
4. Rotate the tuning-capacitor drive drum fully counterclockwise (minimum capacitance position).

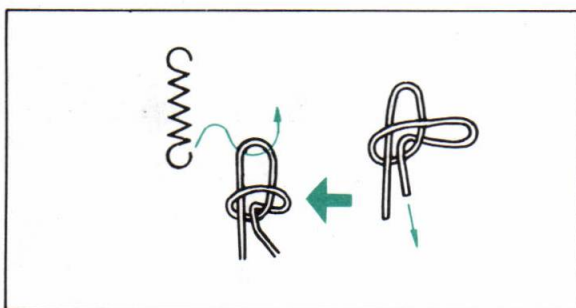


Fig. 2-6. Tying square knot in the coil spring

### Procedure

While referring to Fig. 2-7, proceed as follows:

1. Hook the spring to one hole of the drive drum, and then squeeze it as shown in Fig. 2-8.
2. Run the cord through the slot in the rim of the drum and wrap a clockwise turn in the inner side groove. See Fig. 2-9.
3. Run the cord over pulley "A", and then wrap two counterclockwise turns around the tuning shaft.
4. Run the cord over pulleys "B", "C" and "D" then wrap one clockwise turn around the drum from outer groove to inner groove as shown in Fig. 2-9.
5. Pass the doubled end of the cord through the eyelet (See Fig. 2-10), then hook it to the spring as shown in Fig. 2-11.
6. Tighten the cord, then squeeze the eyelet so that the spring is under tension. Make a knot in the cord end to keep it from slipping out of the eyelet. See Fig. 2-10.
7. After completing the dial cord stringing, make sure that the tuning system works properly. Apply a drop of contact cement to the finish point, and then follow the mechanical dial calibration.

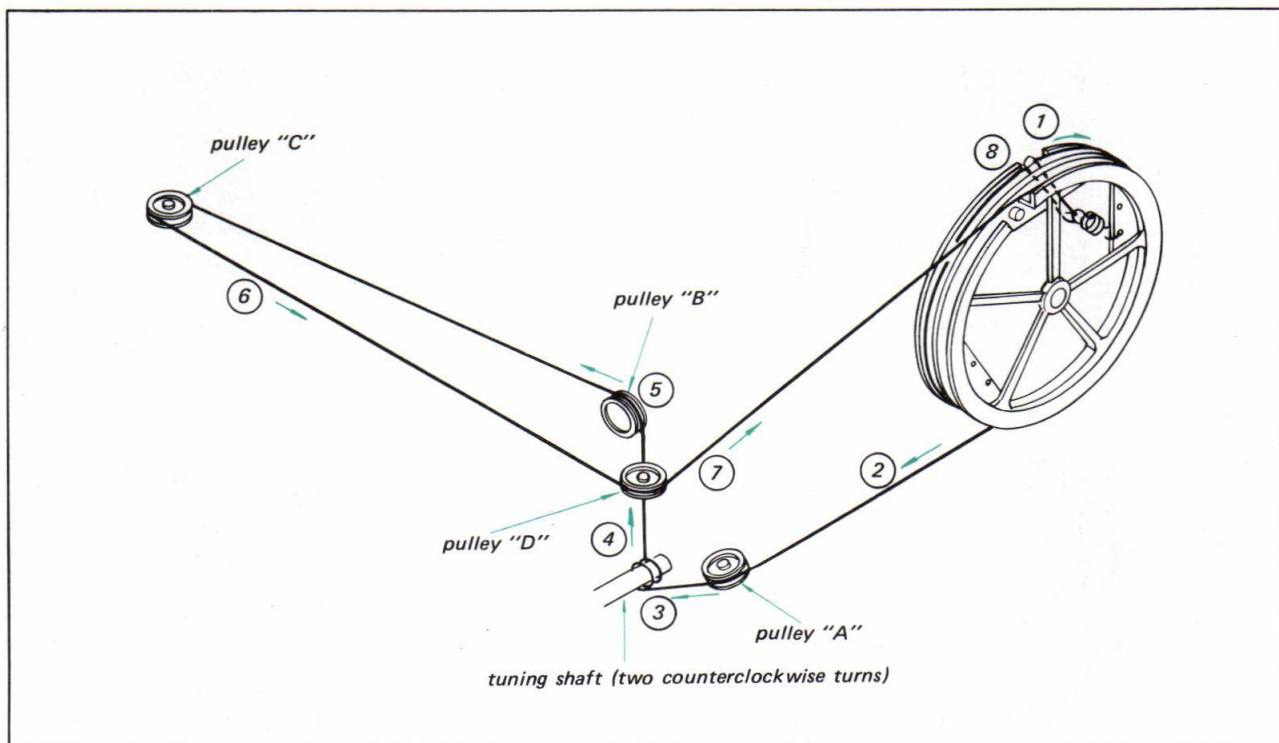


Fig. 2-7. Dial cord stringing

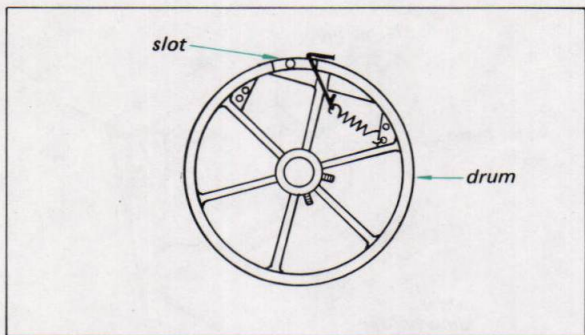


Fig. 2-8. Coil spring installation

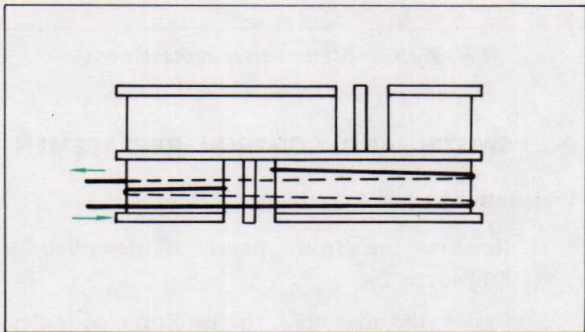


Fig. 2-9. Wrapping the dial cord

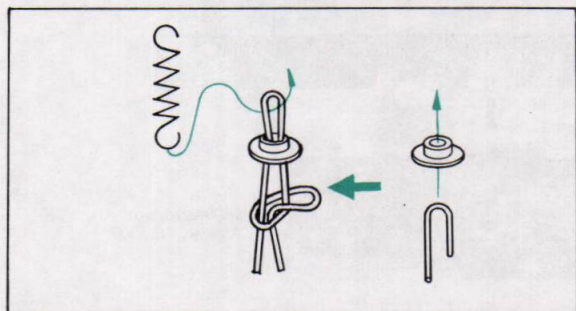


Fig. 2-10. Detail of dial cord finish

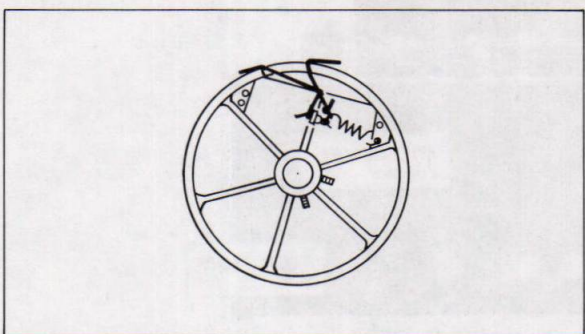


Fig. 2-11. End of dial cord stringing

## 2-6. MECHANICAL DIAL CALIBRATION

1. Put the dial pointer on the cord as shown in Fig. 2-12, and then tune the set to the local fm station. Move the dial pointer to the position where the pointer indicates the local station's carrier frequency. Apply a drop of contact cement to it.

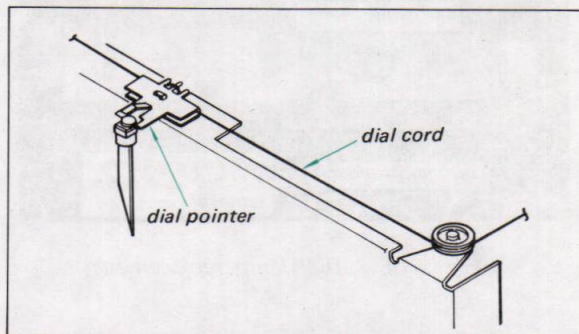


Fig. 2-12. Dial pointer installation

## 2-7. PILOT LAMP REPLACEMENT

### STEREO, AM, FM, PHONO, MIC and AUX Indicating Lamp

1. Apply a drop of cement solvent to the defective lamp end, and then wait a few seconds for the cement to dissolve.
2. Remove the cement by using a pair of tweezers and then pull out the defective lamp.
3. Unsolder the defective lamp leads from the printed circuit board, and then install a new lamp.
4. When installing a new lamp, fix it with a piece of cardboard and a drop of contact cement as illustrated in Fig. 2-13.

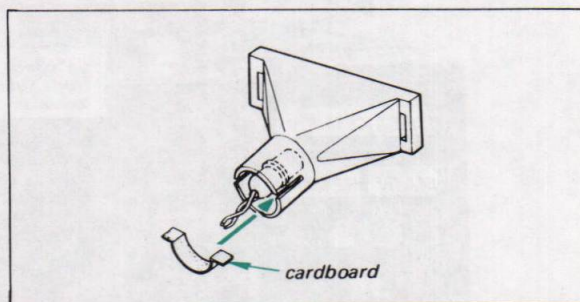


Fig. 2-13. FUNCTION indicating lamp installation

**Dial Lamp**

1. Remove the one self-tapping screw as illustrated in Fig. 2-14, and then install the replacement lamp.

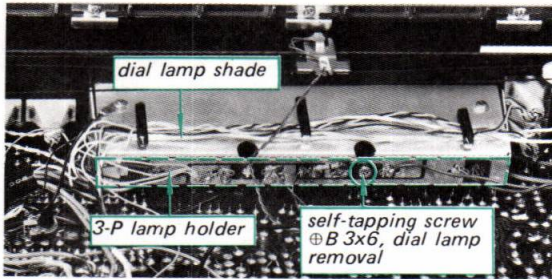


Fig. 2-14. Dial lamp replacement

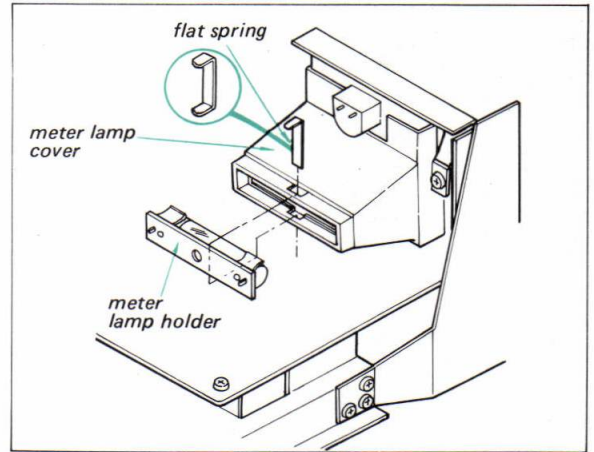


Fig. 2-15. Meter lamp replacement

**2-8. SWITCH AND CONTROL REPLACEMENT**

**Preparation**

1. Remove the front panel as described in Procedure 2-4.
2. Fasten the dial cord to the drum or pulleys with cellophane tape.

**Meter Lamp**

1. Remove the flat spring as illustrated in Fig. 2-15, and then install the replacement lamp.

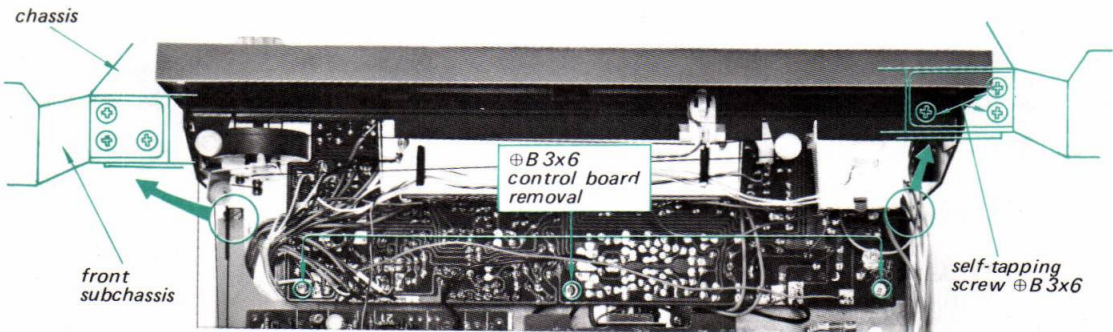


Fig. 2-16. Front subchassis removal (1)

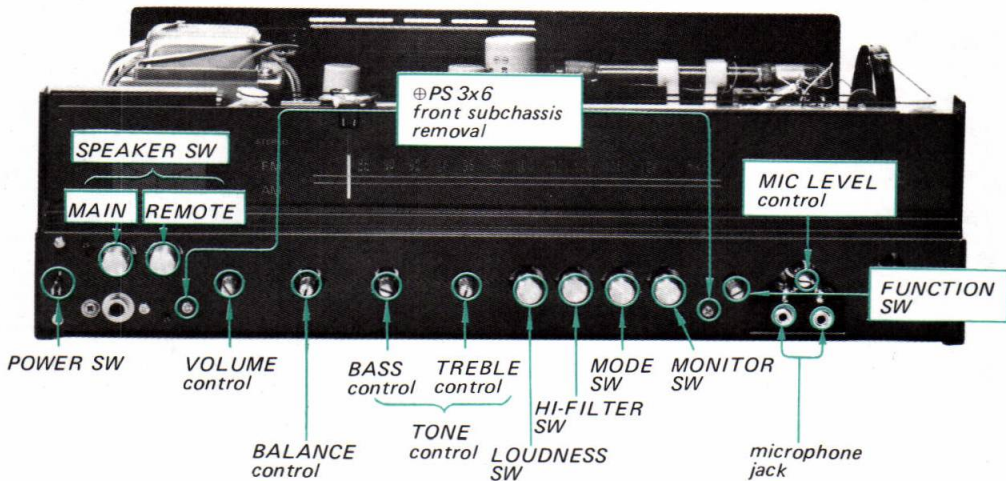


Fig. 2-17. Front subchassis removal (2)

### Procedure

1. Remove the three screws securing the control board to the chassis as shown in Fig. 2-16.
2. Remove the three self-tapping screws at each side of front subchassis securing it to the chassis as shown in Fig. 2-16.
3. Remove the two screws securing the front subchassis to the control bracket and two microphone jacks as shown in Fig. 2-17. This frees control board.
4. Remove the six hex nuts and six screws securing all the controls and switches to the control bracket as shown in Fig. 2-18.
5. Remove the three screws securing the control bracket to the control board as shown in Fig. 2-18. This frees control bracket.
6. With a soldering iron having a solder-sucking tip, clean the solder from each lug of the defective switches or controls and the printed circuit board.
7. Remove the defective component and then install the new one.

### 2-9. POWER TRANSISTOR REPLACEMENT

1. Remove the wooden case as described in Procedure 2-3.

2. Remove the two self-tapping screws securing heat sink bracket to the chassis as shown in Fig. 2-19. This frees power amplifier board.
3. Unsolder the leads of power transistor, and then install the new one.
4. When replacing the power transistor, apply a coating of a heat-transferring grease to both sides of the insulating mica washer. Any excess grease squeezed out when the mounting screws are tightened should be wiped off with a clean cloth. This prevents it from accumulating conductive dust particles that might eventually cause a short.

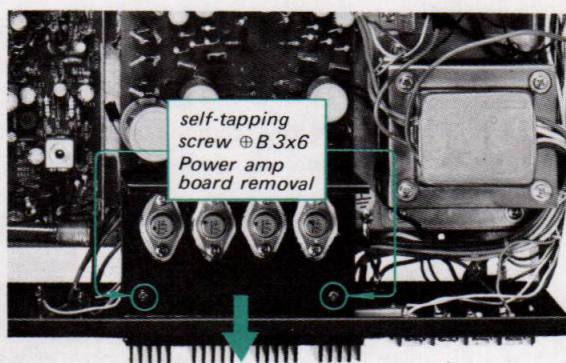


Fig. 2-19. Power amplifier board removal

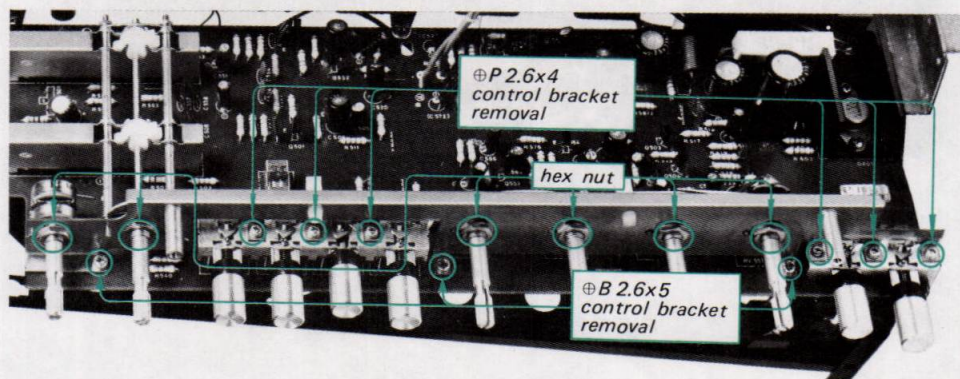


Fig. 2-18. Control bracket removal

## 2-10. REAR PANEL REMOVAL

1. Remove the power amplifier PCB as described in Procedure 2-9.
2. Remove the two self-tapping screws at each side of the rear panel securing it to the chassis as shown in Fig. 2-20.

## 2-11. REPLACEMENT OF COMPONENTS SECURED TO THE REAR PANEL BY RIVETS

1. Remove the rear panel as described in Procedure 2-10.
2. Bore out the rivets using a drill bit slightly larger in diameter than the rivet. See Fig. 2-21.
3. Punch out the remainder of the rivet with a nail set or prick punch.
4. Remove the defective component, and then install the new one.

5. Secure the new component with a suitable screw and nut, or repair rivet screw (Part Number 3-701-402).

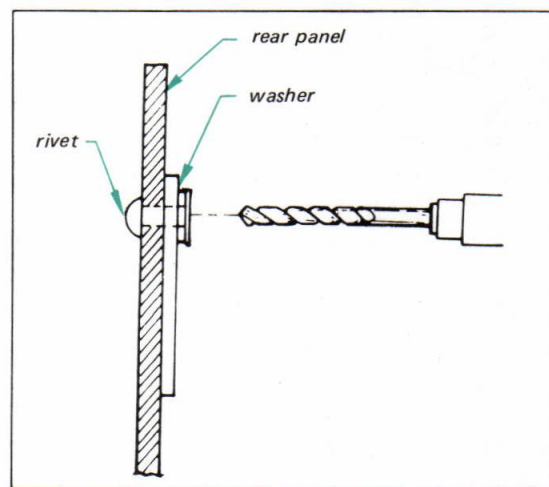


Fig. 2-21. Rivet removal

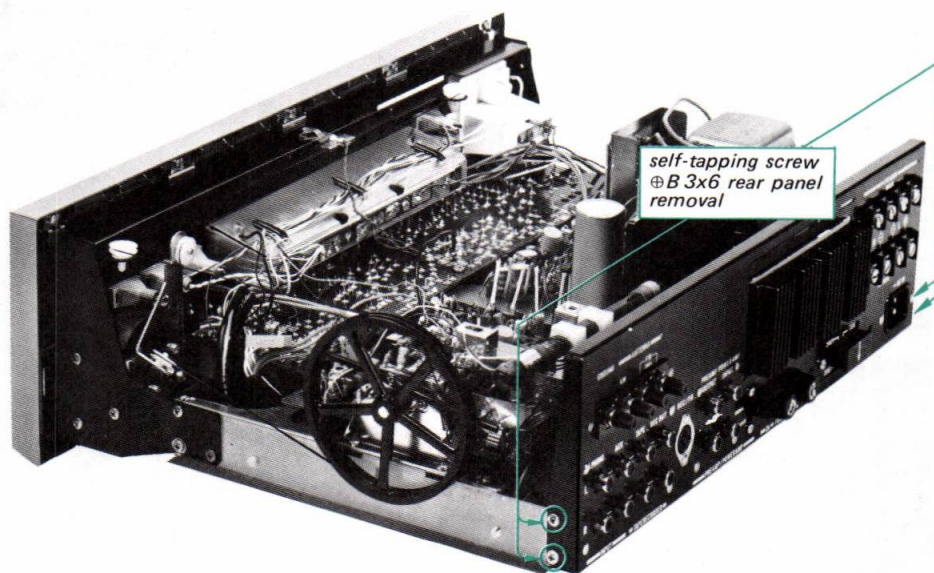
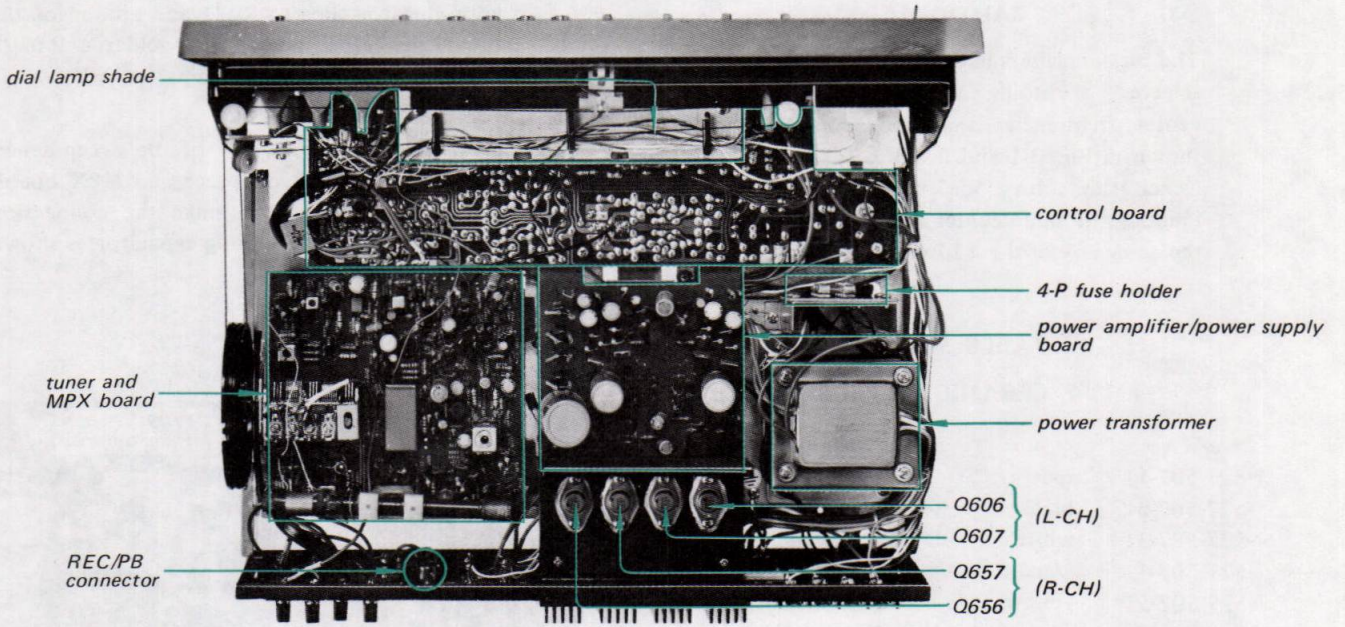


Fig. 2-20. Rear panel removal

2-12. CHASSIS LAYOUT



## SECTION 3 ALIGNMENT AND ADJUSTMENT PROCEDURES

### 3-1. FM I-F AND DISCRIMINATOR ALIGNMENT

#### CAUTION

The ceramic filters in the fm i-f circuit are selected according to their specified center frequencies and color coded as shown in Fig. 3-1 and listed in Table 3-1. Check the color code of the filters to identify the same center frequency when replacing any of these filters.

**TABLE 3-1.**  
**FM I-F CERAMIC FILTERS**

Part No.	Color	Specified Center Freq.
1-527-507-11	red	10.70 MHz
1-527-507-21	black	10.66 MHz
1-527-507-31	white	10.74 MHz
1-527-507-41	green	10.62 MHz
1-527-507-51	yellow	10.78 MHz

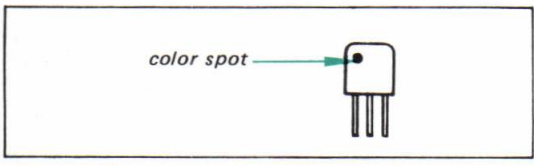


Fig. 3-1. Color dot on ceramic filter

**Note:** Two methods of i-f discriminator alignment are available, sweep generator alignment and signal generator alignment. You can use either of them. In either case, the local oscillator should be killed. To stop the local oscillator's operation, remove the shield cover over the local oscillator capacitor, if necessary, and then shunt the oscillator capacitor with a 0.02μF capacitor. See Fig. 3-2.

#### Sweep Generator Alignment

#### Test Equipment Required

1. 10.7 MHz sweep generator
2. Oscilloscope
3. Ceramic capacitor, 0.02μF
4. Alignment tools

#### Preparation

1. Connect the input cable of the oscilloscope with alligator clips to R221 and ground on the tuner and MPX board, and solder a 0.02μF capacitor across these clips, as shown in Fig. 3-3.
2. Connect the output cable of the sweep generator across CV102 on tuner and MPX board. Use alligator clips and make the connection through a 0.02μF coupling capacitor as shown in Fig. 3-4.

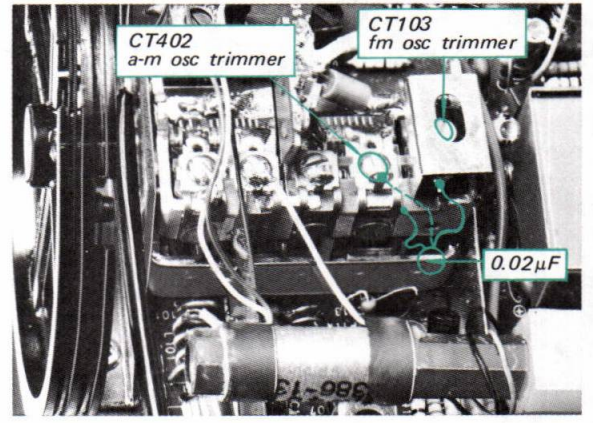


Fig. 3-2. Interruption of fm or a-m local oscillator

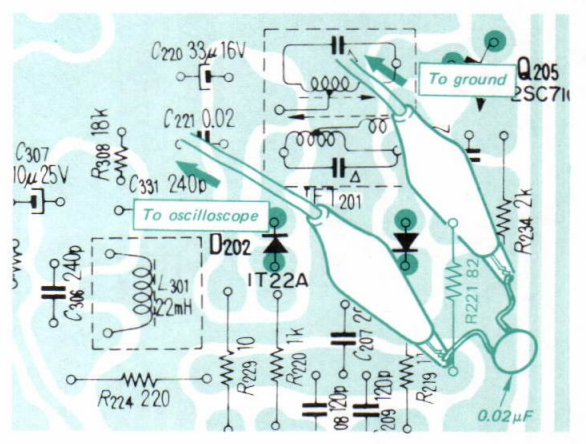


Fig. 3-3. Fm discriminator output connection



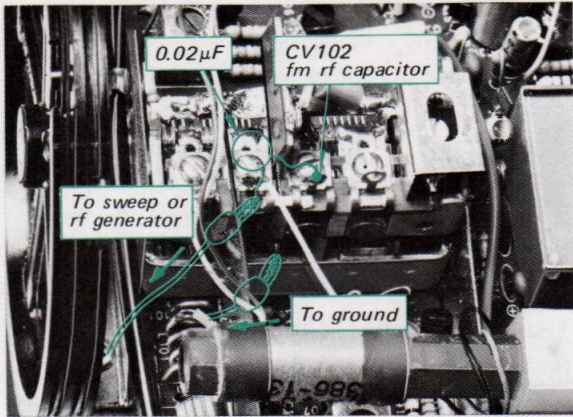


Fig. 3-4. 10.7 MHz signal injection

**Procedure**

1. With the equipment connected as shown in Fig. 3-5, set the sweep generator's controls as follows:
  - Center frequency . . . . Specified frequency of ceramic filter. See Table 3-1.
  - Sweep width . . . . . 1 MHz
2. Set the receiver's controls as follows:
  - FUNCTION switch . . . FM AUTO STEREO
  - VOLUME control . . . Minimum
3. Adjust the oscilloscope controls to provide a visible indication:
 

**Note:** Two or three traces will be observed on the oscilloscope as the center frequency of the sweep generator varies. The trace you are looking for has the largest amplitude. Once you get it, decrease the sweep generator output low enough to obtain rather noisy output.
4. Turn the top core (secondary side) of discriminator transformer IFT201 (see Fig. 3-10) with an alignment tool to obtain the "S" curve response, and equalize the positive and negative peaks of the "S" curve response, as shown in Fig. 3-6.

5. Adjust i-f transformer IFT101 (see Fig. 3-10) and primary side of discriminator transformer (IFT201 bottom core) to obtain a maximum-amplitude "S" curve response.

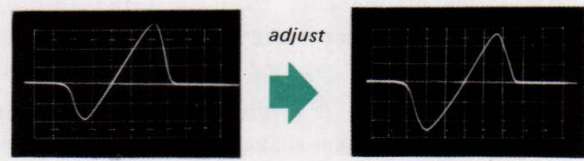


Fig. 3-6. "S" curve response

**Signal Generator Alignment**

**Test Equipment Required**

1. Standard signal generator which can generate a 10.7-MHz a-m/fm signal.
2. Oscilloscope
  - Vertical sensitivity . . . . 100mV/cm minimum
3. Alignment tools

**Preparation**

Same as described for the sweep generator method.

**Procedure**

1. With the equipment connected as shown in Fig. 3-7, set the signal-generator's controls as follows:
  - Frequency . . . . . Specified frequency of ceramic filter. See Table 3-1.
  - Modulation . . . . . Fm, 400 Hz, 100% (75 kHz)
  - Output level . . . . . 10,000μV (80 dB)
2. Set the receiver's controls as follows:
  - FUNCTION switch . . . FM AUTO STEREO
  - VOLUME control . . . Minimum

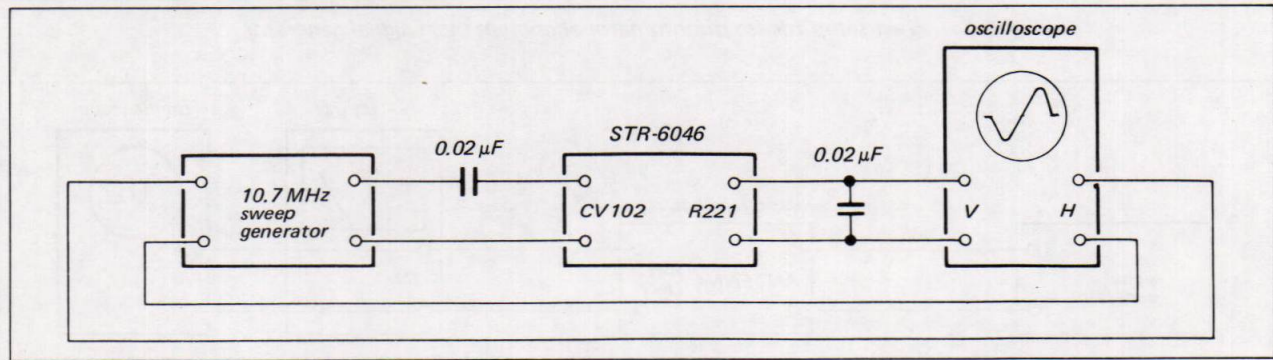


Fig. 3-5. Test setup for discriminator alignment by sweep generator

- Adjust the signal generator's frequency slightly to obtain a maximum output, and then change the signal generator's modulation to a-m, 400 Hz 30%.
- If the discriminator transformer IFT201 (see Fig. 3-10) is not aligned correctly, 400-Hz ripple will be observed as shown in Fig. 3-8.
- Turn the top core of discriminator transformer IFT201 with an alignment tool to obtain a minimum indication on the oscilloscope as shown in Fig. 3-8.



Fig. 3-8. Fm discriminator alignment output response

**Note:** Turn the core carefully and slowly because the output appearing on the oscilloscope jumps up and down when turning the core. This might cause difficulty in determining the point of minimum output.

Also, at both extreme positions of the top core, decreased output will be observed. The real null point should be obtained in the middle of the core thread length, and maximum output occurs at each side of the true null point.

- Change the signal generator's modulation to fm, 400 Hz 100% (75 kHz).

- Turn the core of fm IFT101 (see Fig. 3-10), and the primary side of discriminator transformer IFT201 to obtain the maximum output.

### 3-2. FM FREQUENCY COVERAGE AND TRACKING ALIGNMENT

**Note:** Before starting this alignment, the discriminator-transformer alignment should be performed.

#### Test Equipment Required

- Standard fm signal generator
- Ac VTVM
- Alignment tools

#### Preparation

- Connect the equipment as shown in Fig. 3-9.
- Set the receiver's controls as follows:

FUNCTION switch..... FM AUTO STEREO  
VOLUME control ..... Minimum

#### Generator Alignment

Follow the procedures given in Table 3-2 when performing this alignment with an fm signal generator.

#### Off-the-Air Alignment

Accurate dial calibration and a frequency-coverage test can also be performed by utilizing off-the-air local fm signals.

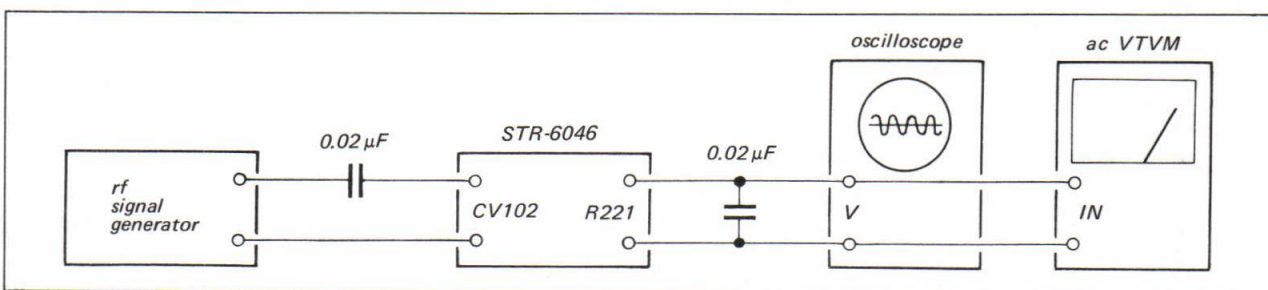


Fig. 3-7. Test setup for fm discriminator alignment by rf signal generator

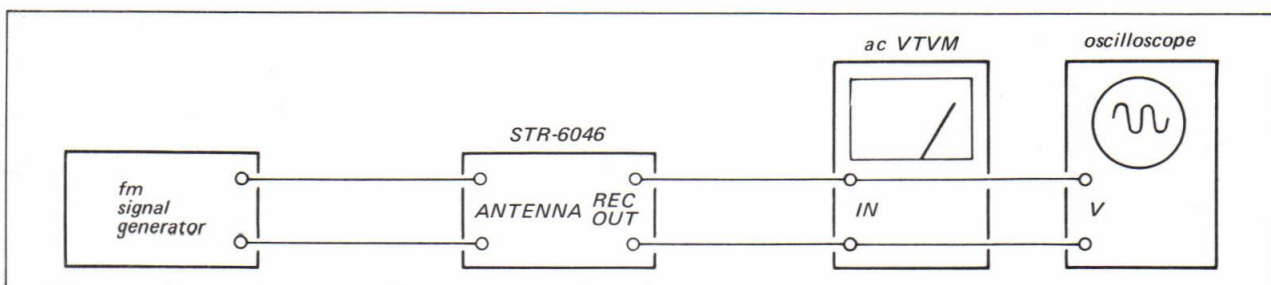


Fig. 3-9. Fm frequency coverage and tracking alignment test setup

TABLE 3-2. FM FREQUENCY COVERAGE AND TRACKING ALIGNMENT

FREQUENCY COVERAGE ALIGNMENT					
Step	Coupling Between Receiver and SSG	SSG Frequency and Output Level	Tuner Dial Indication	Adjust	Indication
1.	Direct coupling	87.5 MHz 400 Hz 100% mod. 10µV (20 dB)	lowest position	OSC coil L103 See Fig. 3-10	Maximum VTVM reading
2.	Same as above	108.4 MHz 400 Hz 100% mod. 10µV (20 dB)	highest position	OSC trimmer CT103 See Fig. 3-10	Same as above
TRACKING ALIGNMENT					
1.	Direct coupling	87.5 MHz 400 Hz 100% mod. 10µV (20 dB)	lowest position	Antenna coil L101 RF coil L102 See Fig. 3-10	Maximum VTVM reading
2.	Same as above	108.4 MHz 400 Hz 100% mod. 10µV (20 dB)	highest position	Antenna trimmer CT101 RF trimmer CT102 See Fig. 3-10	Same as above

Adjusting Parts Location

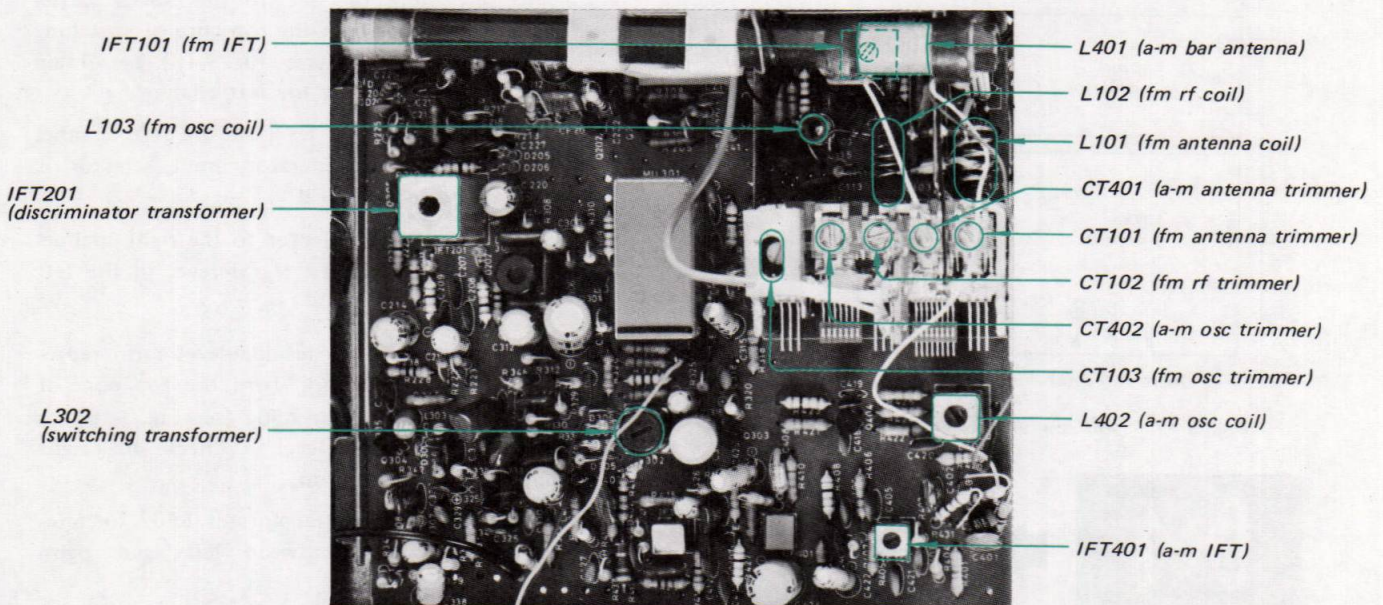


Fig. 3-10. Adjusting parts location

### 3-3. FM STEREO SEPARATION ADJUSTMENT

#### Test Equipment Required

1. MPX generator
2. Fm signal generator
3. Audio oscillator
4. Ac VTVM
5. Oscilloscope
6. Alignment tools

#### Preparation

Before starting the stereo-separation adjustment, check and adjust the phase between the 19-kHz pilot signal and the sub-channel signal in the MPX stereo generator as follows:

1. With the equipment connected as shown in Fig. 3-11, set the MPX and audio signal-generator's control as follows:
  - MAIN CHANNEL ..... OFF
  - SUB CHANNEL ..... ON
  - PILOT (19 kHz) ..... OFF
  - AUDIO OSCILLATOR
  - OUTPUT ..... 400 Hz,  
250 mV
2. Adjust the oscilloscope controls to obtain a visible indication. Be sure the scope's horizontal display switch is set for external input.
3. Turn the pilot-signal (19 kHz) phase control to obtain an in-phase and stable lissajous pattern as shown in Fig. 3-12.

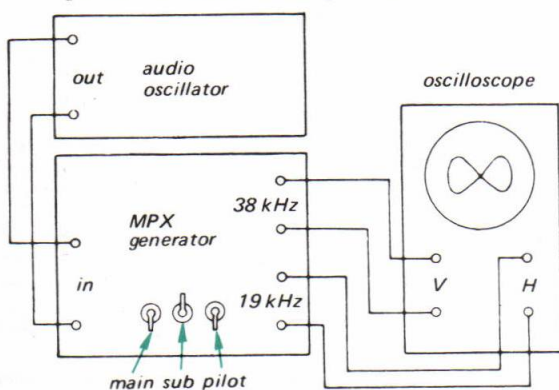


Fig. 3-11. MPX generator preadjustment

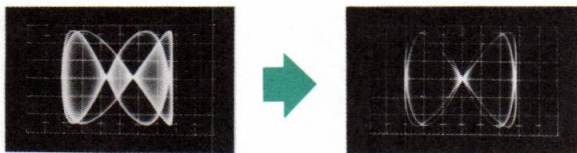


Fig. 3-12. Lissajous pattern

#### Procedure

1. Connect the equipment as shown in Fig. 3-13. Set the fm signal-generator's control as follows:
  - Carrier frequency ..... 98 MHz
  - Output level ..... 1,000 $\mu$ V (60 dB)
  - Modulation:
    - Main channel (400 Hz) .... 33.75 kHz (45%)
    - Sub channel (38 kHz) ..... 33.75 kHz (45%)
    - Pilot (19 kHz) ..... 7.5 kHz (10%)

The above mentioned modulation levels can be set as follows:

- (a) With the equipment connected as shown in Fig. 3-13 set the MPX stereo generator controls as follows:
    - MAIN CHANNEL ..... OFF
    - SUB CHANNEL ..... OFF
    - 19 kHz (PILOT) ..... ON
  - (b) Adjust the 19-kHz signal level to obtain a 7.5-kHz deviation on the FM SSG modulation indicator.
  - (c) Reset the MPX stereo-generator's control as follows:
    - MAIN CHANNEL ..... ON
    - SUB CHANNEL ..... OFF
    - 19 kHz (PILOT) ..... OFF
    - INPUT SELECTOR ..... L-CH
  - (d) Adjust the audio-oscillator output (400 Hz) to obtain a 33.75-kHz deviation on the FM S.S.G. modulation indicator.
  - (e) Set all controls to ON.
2. Precisely tune the set to the SSG's carrier frequency then turn the top core of switching transformer L302 (see Fig. 3-10) to obtain maximum output at the left channel.
  3. Record the output level of the left channel when the MPX generator input selector is set to the left channel.
  4. Switch the input selector to the right channel and read the residual signal level in the left channel.
  5. The output-level to residual-level ratio represents the separation. Turn the top core of switching transformer L302 (see Fig. 3-10) for minimum residual level. Check the right channel for separation.
  6. Readjust switching transformer L302 for minimum difference between left- and right-channel separation.

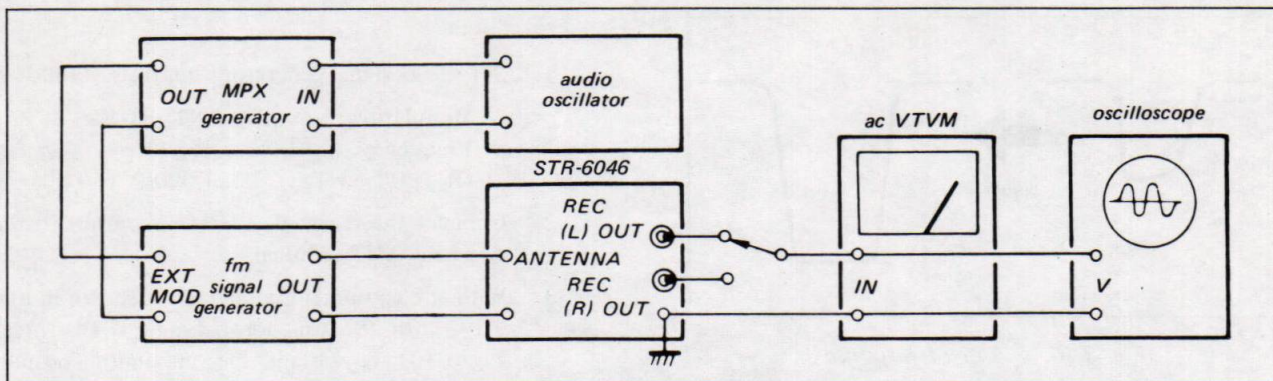


Fig. 3-13. Fm stereo separation adjustment test setup

### 3-4. A-M I-F STRIP ALIGNMENT

#### Preparation

Set the receiver's FUNCTION switch to AM.

**Note:** To perform this alignment, the local oscillator should be killed. To do this, shunt the local oscillator capacitor CV402 with a 0.02 $\mu$ F ceramic capacitor as shown in Fig. 3-2.

#### Sweep Generator Alignment

##### Test Equipment Required

1. Sweep generator, 455 kHz.
2. Oscilloscope
3. Alignment tools

##### Procedure

1. Connect the sweep generator's output directly to the AM EXT ANT terminal.
2. Connect the input cable of the oscilloscope with alligator clips to the connection point of R418 and R419 and ground on the tuner and MPX board as shown in Fig. 3-14.
3. Set the sweep generator's control as follows:  
Center frequency ..... 455 kHz

Sweep width ..... 25 kHz

Output ..... as low as possible

4. With the equipment connected as shown in Fig. 3-15, adjust the oscilloscope controls and generator output to provide a visible indication.
5. Turn the top core of a-m IFT401 (see Fig. 3-10) to obtain a maximum and symmetrical response as shown in Fig. 3-16.

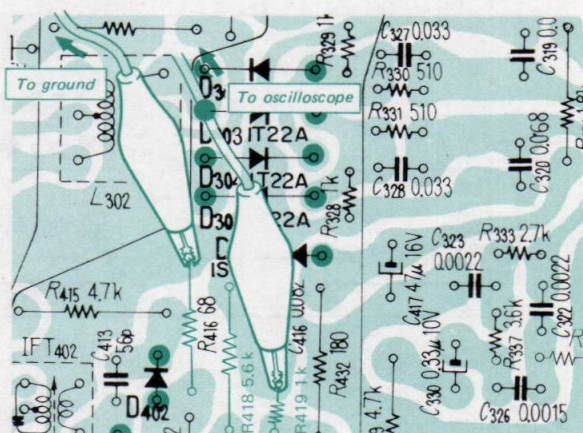


Fig. 3-14. A-m detector output connection

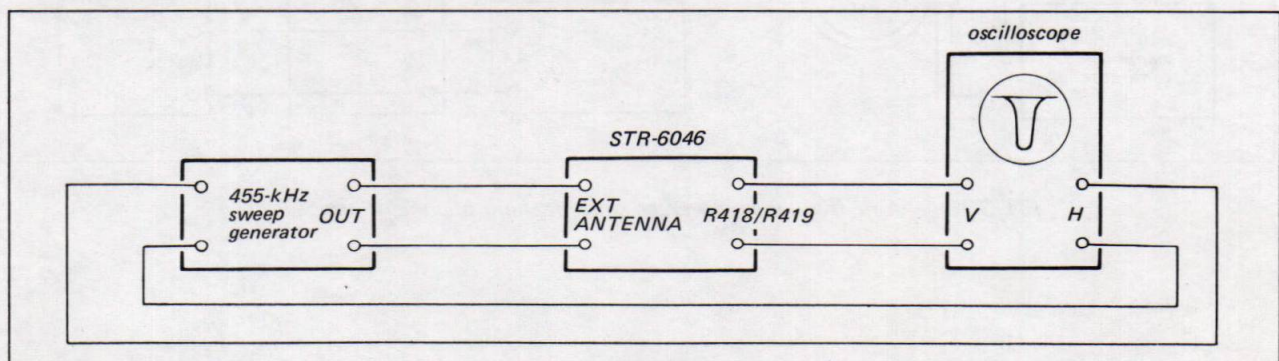


Fig. 3-15. A-m i-f alignment by sweep generator test setup

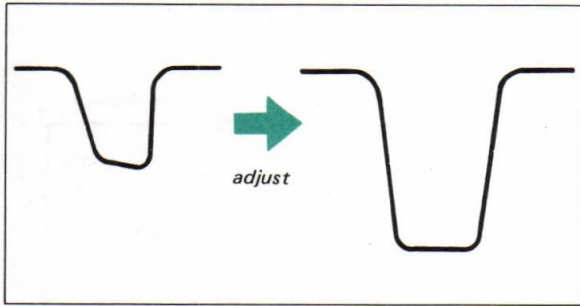


Fig. 3-16. A-m i-f response

**Rf Signal Generator Method**

**Test Equipment Required**

1. Signal generator, a-m modulation
2. Oscilloscope
3. Alignment tools

**Procedure**

1. Set the rf signal generator's controls as follows:  
 Modulation ..... INTERNAL  
 Frequency ..... 455 kHz  
 OUTPUT level ..... 1,000 $\mu$ V (60 dB)
2. Connect the rf signal-generator's output to the AM EXT ANT terminal.
3. With the equipment connected as shown in Fig. 3-17, turn the top core of a-m IFT401 (see Fig. 3-10) to obtain the maximum output.

**3-5. A-M FREQUENCY COVERAGE AND TRACKING ALIGNMENT**

**Preparation**

Set the receiver's FUNCTION switch to AM.

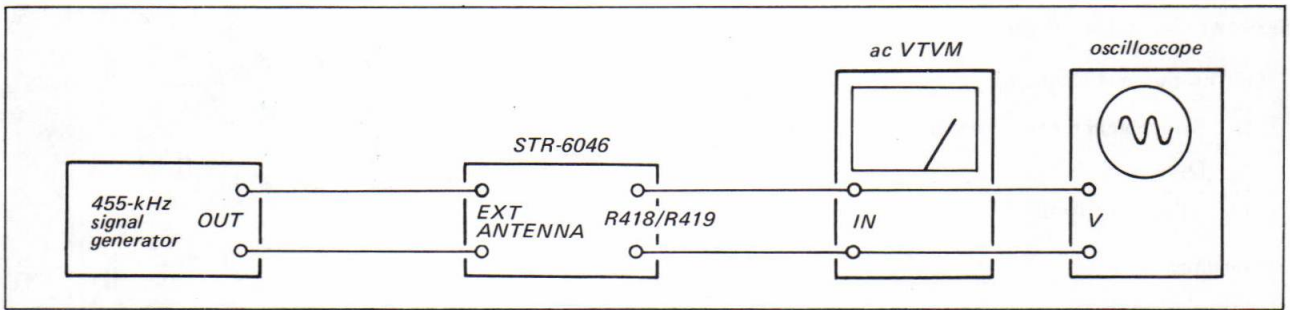


Fig. 3-17. Test setup for a-m i-f alignment by rf signal generator

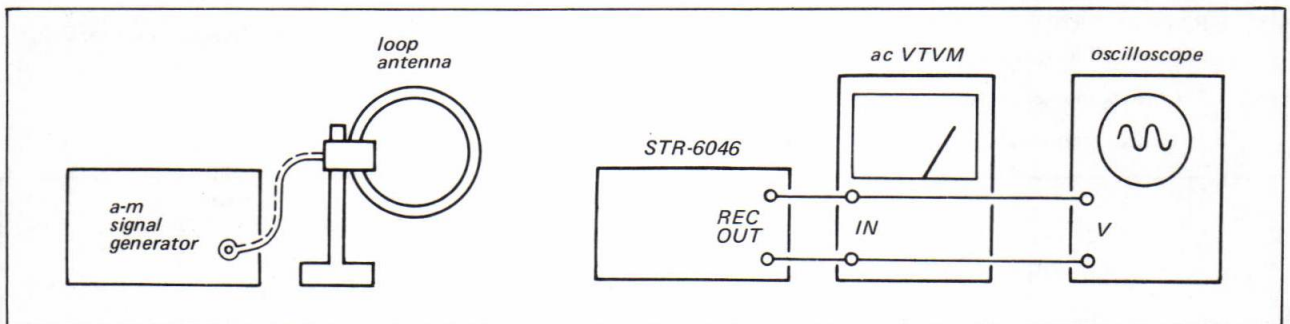


Fig. 3-18. A-m frequency coverage and tracking alignment test setup

**Signal Generator Method****Test Equipment Required**

1. Signal generator
2. Loop antenna
3. Ac VTVM

**Procedure**

With the equipment connected as shown in Fig. 3-18, follow the procedures given in Table 3-3 when performing this alignment with an a-m signal generator.

**Off-the-Air Signal Method**

Accurate dial calibration, and a frequency-coverage and tracking test can also be performed by utilizing off-the-air local a-m signals. However, before performing the following procedure, be sure that the dial is mechanically calibrated.

**TABLE 3-3. A-M FREQUENCY COVERAGE AND TRACKING ALIGNMENT**

FREQUENCY COVERAGE ALIGNMENT				
SSG Coupling	SSG Frequency and Output Level	Tuner Dial Indication	Adjust	Indication
Loop antenna	550 kHz 400 Hz 30% mod. 10,000 $\mu$ V (80 dB)	550 kHz	OSC coil L402 See Fig. 3-10	Maximum VTVM reading
Loop antenna	1,600 kHz Same as above	1,600 kHz	OSC trimmer CT402 See Fig. 3-10	Same as above
TRACKING ALIGNMENT				
Loop antenna	620 kHz 400 Hz 30% mod. Output level as low as possible	Tune to the SSG signal	Position of antenna coil L401 See Fig. 3-10	Maximum VTVM reading
Loop antenna	1,400 kHz Same as above	Tune to the SSG signal	Antenna trimmer CT401 See Fig. 3-10	Same as above

## SECTION 4 REPACKING

The STR-6046's original shipping carton and packing materials are the ideal containers for shipping the unit. However to secure the maximum protection,

the STR-6046 must be repacked in these materials precisely as before. The proper repacking procedures are shown in Fig. 4-1.

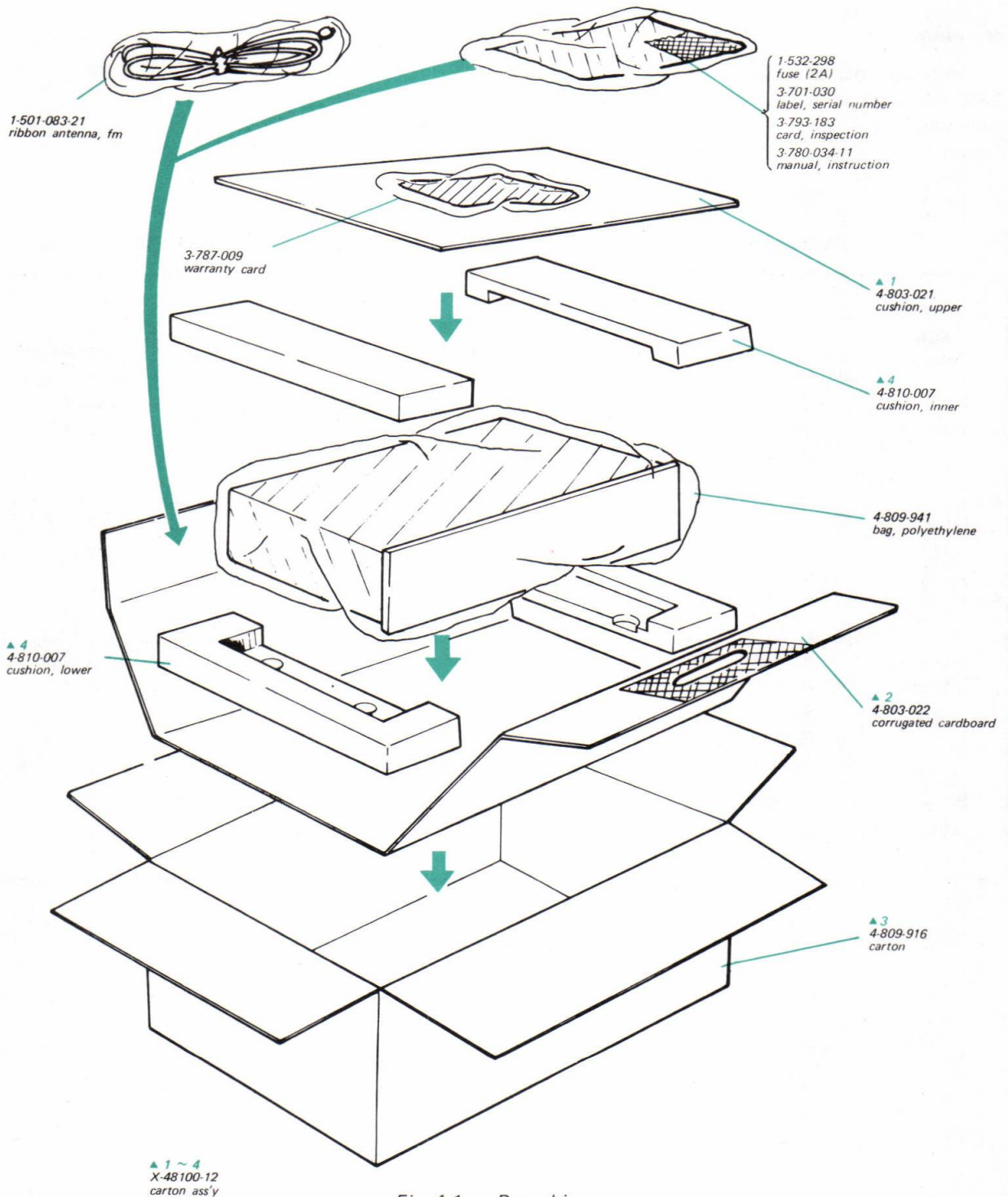
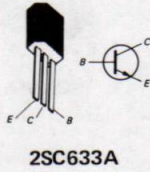
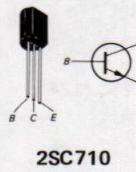
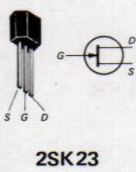
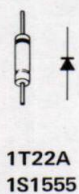
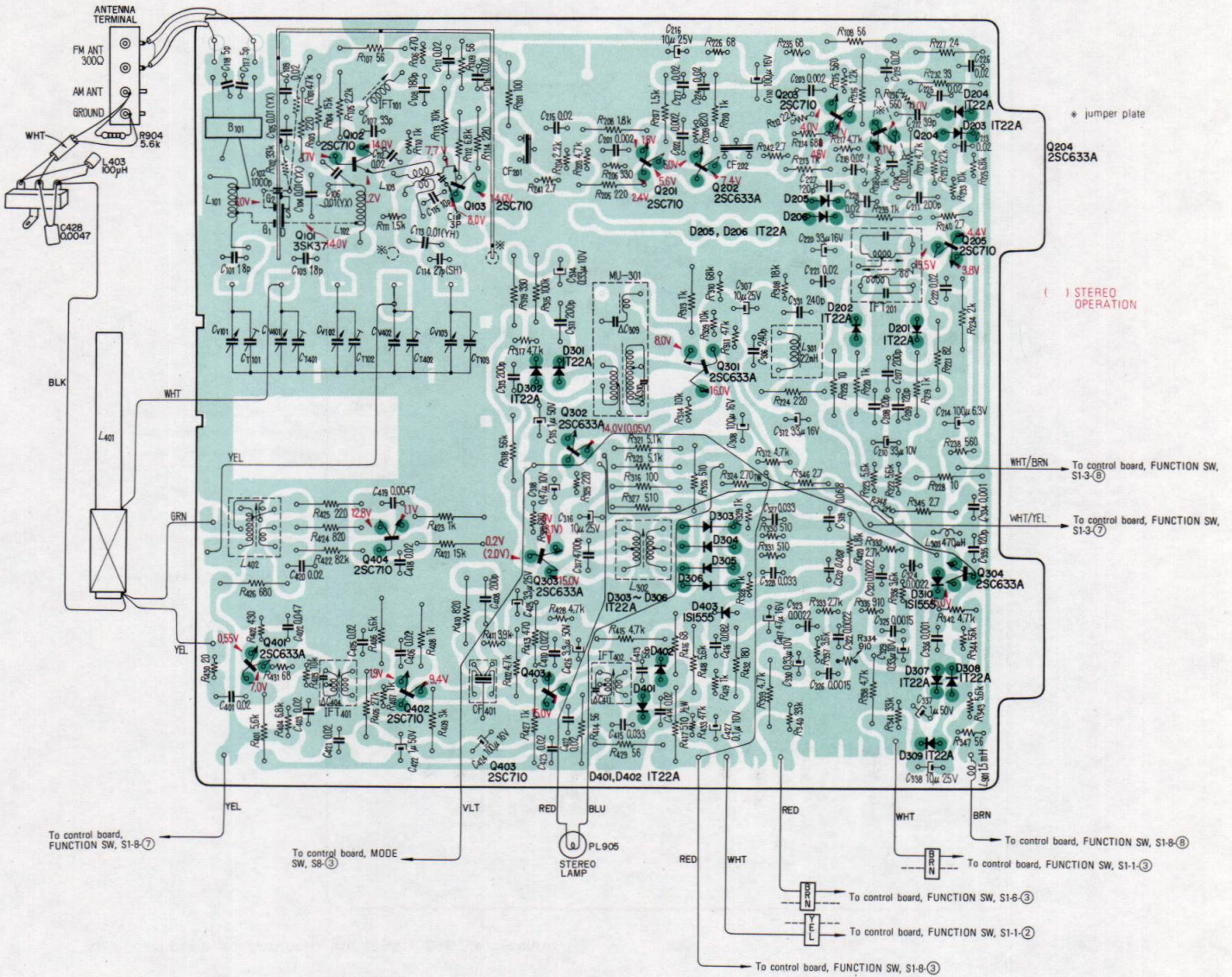


Fig. 4-1. Repacking



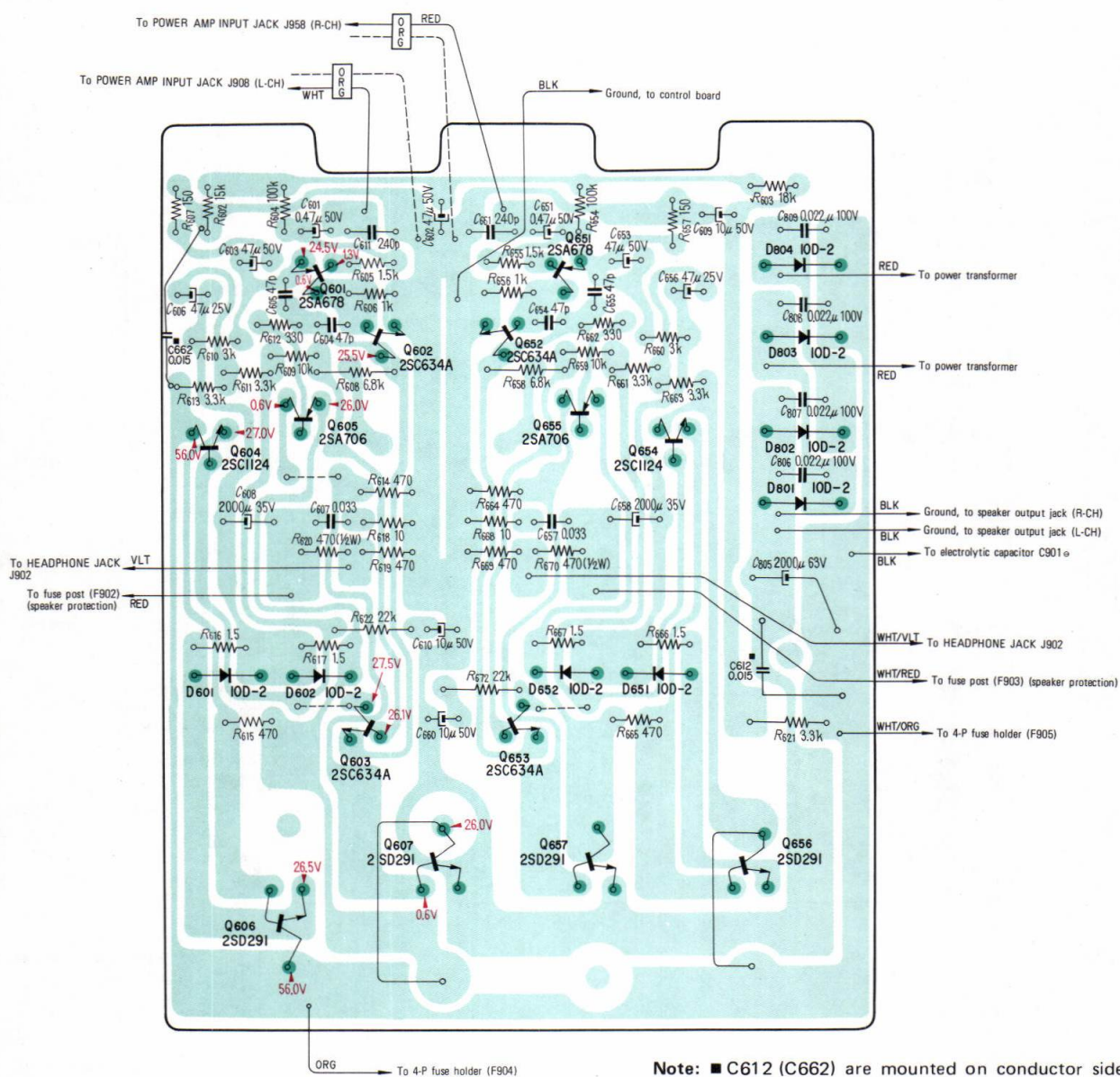
# SECTION 5 DIAGRAMS

## 5-1. MOUNTING DIAGRAM – A-m (Fm) Front End/I-f Amp/MPX Board – – Conductor Side –

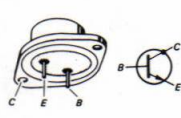


## 5-2. MOUNTING DIAGRAM – Power Amplifier/Power Supply Board –

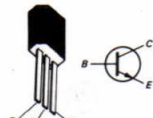
– Conductor Side –



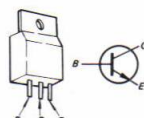
Note: ■ C612 (C662) are mounted on conductor side.



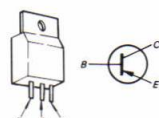
2SD291



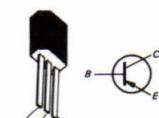
2SC634A



2SC1124



2SA706

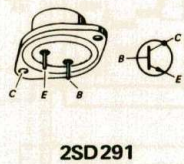
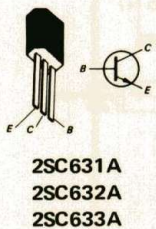
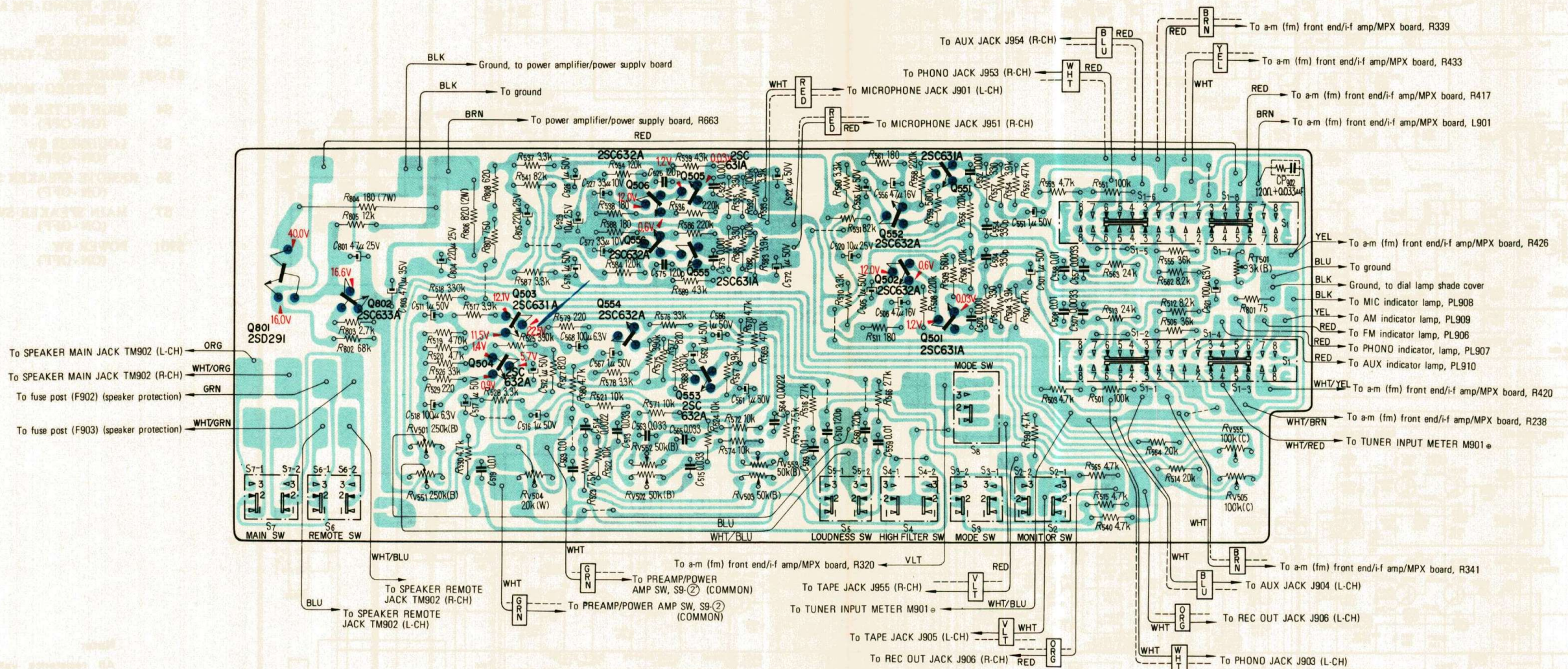


2SA678



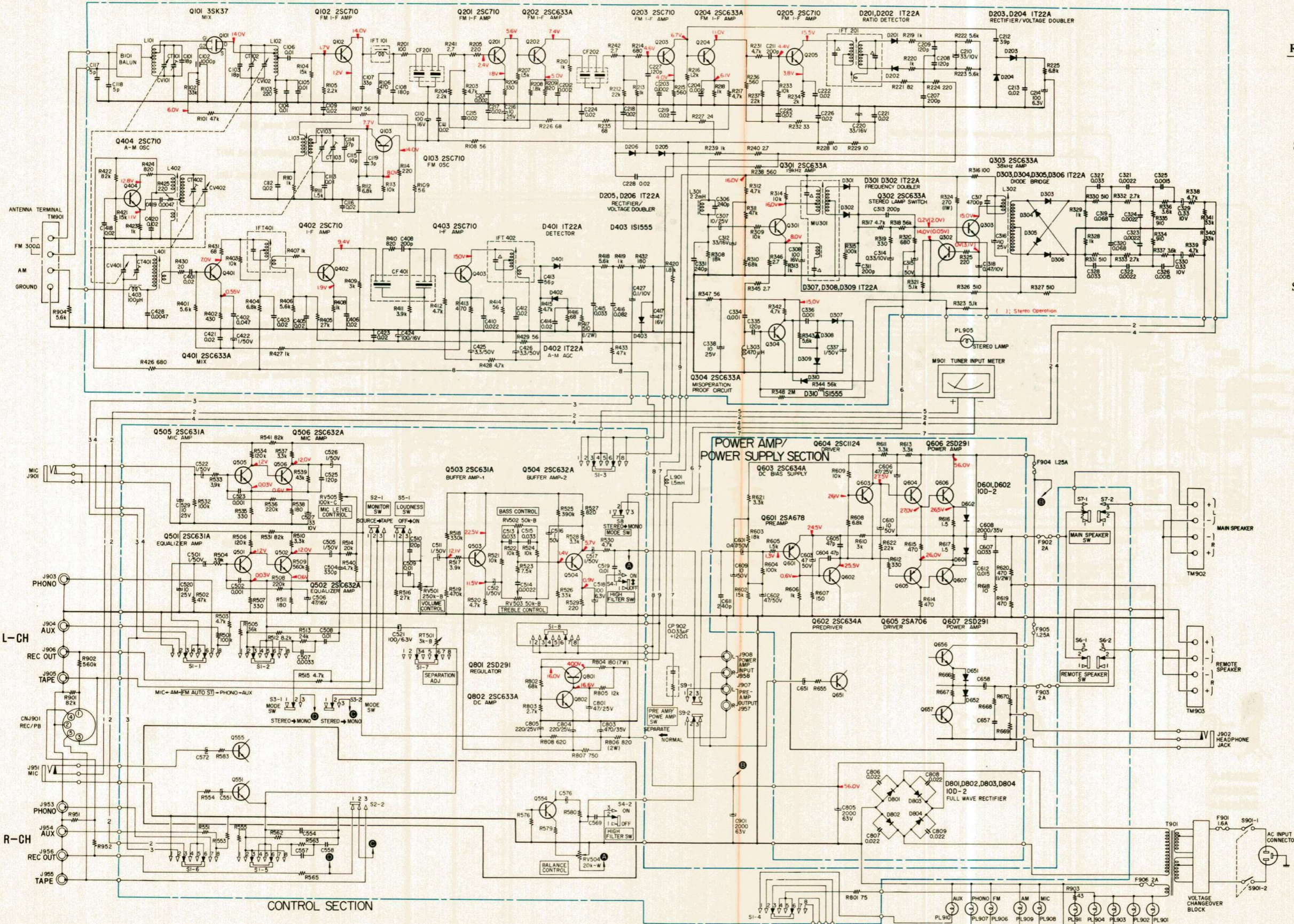
10D-2

5-3. MOUNTING DIAGRAM — Control Board —  
— Conductor Side —



5-4. SCHEMATIC DIAGRAM

TUNER AND MPX SECTION



Ref. No.	Description	Position
S1	FUNCTION SW (AUX - PHONO - FM AUTO STEREO - AM - MIC)	FM AUTO STEREO
S2	MONITOR SW (SOURCE - TAPE)	SOURCE
S3 (S8)	MODE SW (STEREO - MONO)	STEREO
S4	HIGH FILTER SW (ON - OFF)	OFF
S5	LOUDNESS SW (ON - OFF)	OFF
S6	REMOTE SPEAKER SW (ON - OFF)	OFF
S7	MAIN SPEAKER SW (ON - OFF)	OFF
S901	POWER SW (ON - OFF)	OFF

**Note:**  
 All resistance values are in ohms.  
 k = 1,000, M = 1,000 k  
 All capacitance values are in  $\mu F$   
 except as indicated with p, which means  $\mu\mu F$ .  
 All voltages represent an average value and should hold within  $\pm 10\%$ .  
 All voltages are dc measured with a VOM which has an input impedance of 20 k ohms/volt. No signal in.

**SONY**  
**STR-6046**

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## SECTION 6 EXPLODED VIEW

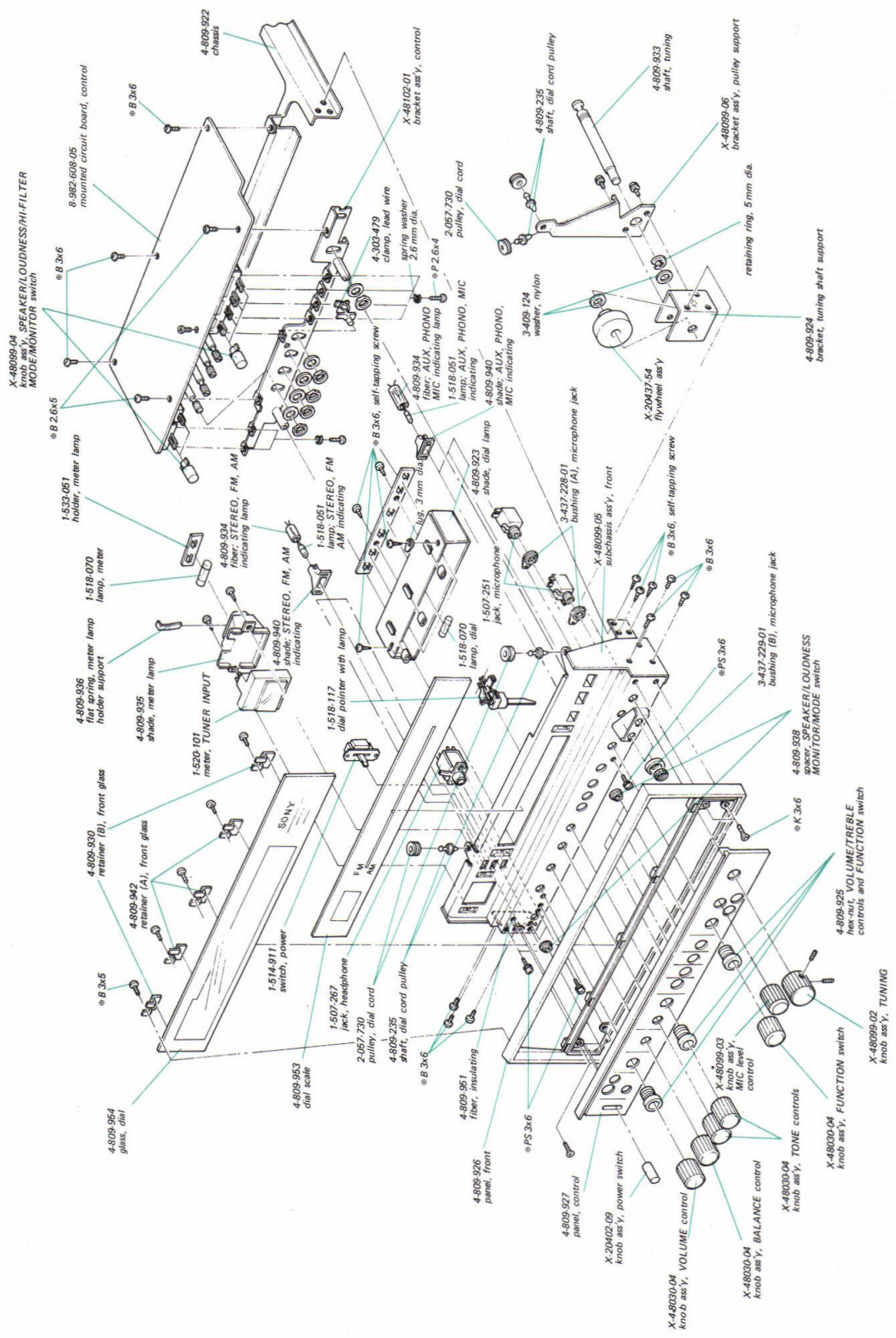
- (1) The following chart will help you to decipher the hardware codes given in the exploded view.

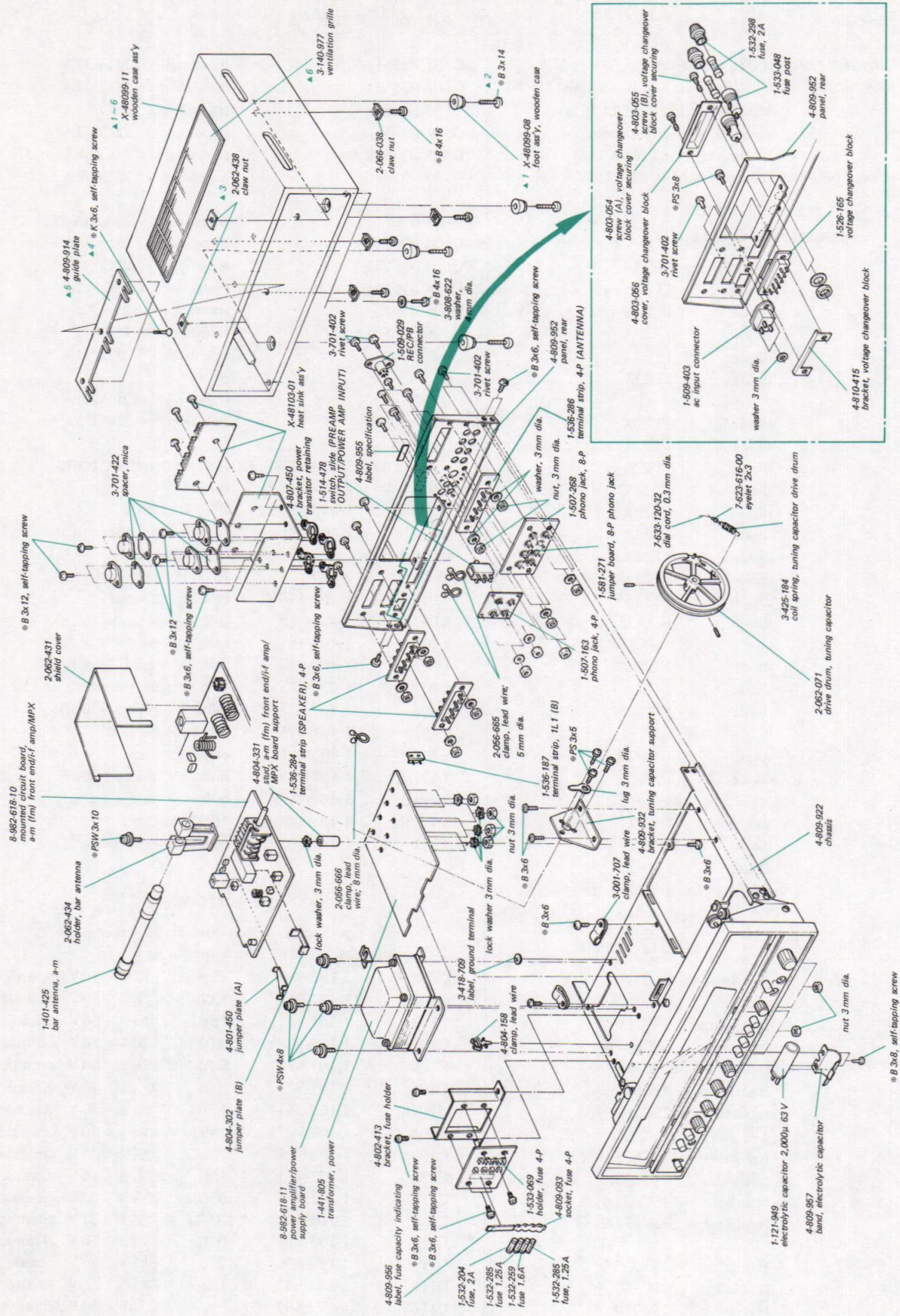
### – Hardware Nomenclature –

<p><b>P</b> – Pan Head Screw ..... </p> <p><b>PS</b> – Pan Head Screw with Spring Washer ..... </p> <p><b>K</b> – Flat Countersunk Head Screw ... </p> <p><b>B</b> – Binding Head Screw ..... </p> <p><b>RK</b> – Oval Countersunk Head Screw .. </p> <p><b>T</b> – Truss Head Screw ..... </p> <p><b>R</b> – Round Head Screw ..... </p> <p><b>F</b> – Flat Fillister Head Screw ..... </p>	<p><b>SC</b> – Set Screw ..... </p> <p><b>E</b> – Retaining Ring (E Washer) ..... </p> <p style="text-align: center;"> <b>W</b> – Washer  <b>SW</b> – Spring Washer  <b>LW</b> – Lock Washer  <b>N</b> – Nut         </p> <p>– Example –</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>⊕ P 3x10</p> <p>— Type of Slot</p> <p>— Length in mm (L)</p> <p>— Diameter in mm (D)</p> <p>— Type of Head</p> </div> </div>
--	--

- (2) To simplify the exploded view, the part numbers of normal screws, nuts, washers, and retaining rings are not expressed but summarized in the table below.

<u>Part No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Description</u>
7-621-259-25	screw, ⊕ P 2.6 × 4	7-682-548-01	screw, ⊕ B 3 × 8
7-621-771-34	screw, ⊕ B 2.6 × 5	7-682-549-13	screw, ⊕ B 3 × 10
7-623-108-17	washer, 3 mm dia.	7-682-565-01	screw, ⊕ B 4 × 16
7-623-207-21	washer, spring 2.6 mm dia.	7-682-646-01	screw, ⊕ PS 3 × 5
7-623-208-27	washer, spring 3 mm dia.	7-682-647-01	screw, ⊕ PS 3 × 6
7-623-408-01	washer, lock (external tooth) 3 mm dia.	7-682-648-01	screw, ⊕ PS 3 × 8
7-623-508-01	lug, 3 mm dia.	7-682-949-01	screw, ⊕ PSW 3 × 10
7-623-616-00	eyelet, 2 × 3	7-682-961-01	screw, ⊕ PSW 4 × 8
7-624-109-01	retaining ring, 5 mm dia.	7-684-013-01	nut, 3 mm dia.
7-682-145-01	screw, ⊕ P 3 × 4	7-684-023-00	nut, 3 mm dia.
7-682-247-01	screw, ⊕ K 3 × 6	7-685-245-21	screw, self-tapping ⊕ K 3 × 6
7-682-545-01	screw, ⊕ B 3 × 4	7-685-545-21	screw, self-tapping ⊕ B 3 × 6
7-682-546-01	screw, ⊕ B 3 × 5	7-685-546-21	screw, self-tapping ⊕ B 3 × 8
7-682-547-01	screw, ⊕ B 3 × 6	7-685-548-21	screw, self-tapping ⊕ B 3 × 12





Note: ▲ 1 ~ 6 Wooden case ass'y X-48099-11 includes all the parts marked ▲

## SECTION 7 ELECTRICAL PARTS LIST

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
<b>MOUNTED CIRCUIT BOARDS</b>					
8-982-618-10		a-m (fm) front end/i-f amp/ MPX board (TCB-014AW1A)	Q501 (Q551)		transistor 2SC631A
8-982-618-11		power amplifier/power supply circuit board (PCB-113)	Q502 (Q552)		transistor 2SC632A
8-982-608-05		control board (CCB-111)	Q503 (Q553)		transistor 2SC631A
			Q504 (Q554)		transistor 2SC632A
			Q505 (Q555)		transistor 2SC631A
			Q506 (Q556)		transistor 2SC632A
<b>SEMICONDUCTORS</b>					
D201		diode 1T22A	Q601 (Q651)		transistor 2SA678
D202		diode 1T22A	Q602 (Q652)		transistor 2SC634A
D203		diode 1T22A	Q603 (Q653)		transistor 2SC634A
D204		diode 1T22A	Q604 (Q654)		transistor 2SC1124
D205		diode 1T22A	Q605 (Q655)		transistor 2SA706
D206		diode 1T22A	Q606 (Q656)		transistor 2SD291
			Q607 (Q657)		transistor 2SD291
D301		diode 1T22A	Q801		transistor 2SD291
D302		diode 1T22A	Q802		transistor 2SC633A
D303		diode 1T22A	<b>TRANSFORMERS, COILS AND INDUCTORS</b>		
D304		diode 1T22A	B101	1-417-025	balun
D305		diode 1T22A	IFT101	1-403-556-21	IFT, 10.7 MHz
D306		diode 1T22A	IFT201	1-403-291	transformer, discriminator 10.7 MHz
D307		diode 1T22A	IFT401	1-403-152	IFT, 455 kHz
D308		diode 1T22A	IFT402	1-403-128	IFT, 455 kHz
D309		diode 1T22A	L101	1-401-476	coil, fm antenna
D310		diode 1S1555	L102	1-425-710	coil, fm rf
D401		diode 1T22A	L103	1-405-495	coil, fm osc.
D402		diode 1T22A	L301	1-407-418	coil, SCA trap 22 mH
D403		diode 1S1555	L302	1-425-683	transformer, switching 38 kHz
D601 (D651)		diode 10D-2	L303	1-407-177	inductor, micro 470 $\mu$ H
D602 (D652)		diode 10D-2	L401	1-401-425	bar antenna, a-m
D801		diode 10D-2	L402	1-405-391	coil, a-m osc.
D802		diode 10D-2	L403	1-407-169	inductor, micro 100 $\mu$ H
D803		diode 10D-2	L901	1-407-213	inductor, micro 1.5 mH
D804		diode 10D-2	MU301	1-425-548	MPX unit
Q101		FET 3SK37	T901	1-441-805	transformer, power
Q102		transistor 2SC710	<b>CAPACITORS</b>		
Q103		transistor 2SC710	All capacitance values are in $\mu$ F except as indicated with p, which means $\mu$ F.		
Q201		transistor 2SC710	C101	1-102-953	18p $\pm 5\%$ 50V ceramic
Q202		transistor 2SC633A	C102	1-102-217	1,000p $\pm 100\%$ 50V ceramic
Q203		transistor 2SC710	C103	1-102-953	18p $\pm 5\%$ 50V ceramic
Q204		transistor 2SC633A	C104	1-101-118	0.01 $\pm 20\%$ 50V ceramic
Q205		transistor 2SC710	C105	1-101-118	0.01 $\pm 20\%$ 50V ceramic
Q301		transistor 2SC633A	C106	1-101-923	0.01 $\pm 20\%$ 25V ceramic
Q302		transistor 2SC633A	C107	1-102-963	33p $\pm 5\%$ 50V ceramic
Q303		transistor 2SC633A	C108	1-102-982	180p $\pm 10\%$ 50V ceramic
Q304		transistor 2SC633A	C109	1-101-924	0.022 $\pm 20\%$ 25V ceramic
Q401		transistor 2SC633A	C110	1-121-415	100 $\pm 100\%$ 16V electrolytic
Q402		transistor 2SC710	C111	1-101-924	0.022 $\pm 20\%$ 25V ceramic
Q403		transistor 2SC710	C112	1-101-924	0.022 $\pm 20\%$ 25V ceramic
Q404		transistor 2SC710	C113	1-101-118	0.01 $\pm 20\%$ 50V ceramic
			C114	1-102-806	27p $\pm 5\%$ 50V ceramic
			C115	1-102-947	10p $\pm 5\%$ 50V ceramic
			C116	1-102-862	3p $\pm 0.25$ pF 50V ceramic
			C117	1-102-942	5p $\pm 0.5$ pF 50V ceramic



Ref. No.	Part No.	Description		Ref. No.	Part No.	Description	
C118	1-102-942	5 p	$\pm 0.5 \text{ pF}$	50 V ceramic	C330	1-127-021	0.33 $\pm 20\%$ 10V solid, aluminum
C119	1-102-862	3 p	$\pm 0.25 \text{ pF}$	50 V ceramic	C331	1-107-140	240 p $\pm 10\%$ 50V silvered mica
C201	1-101-919	0.0022	$\pm \frac{80}{20}\%$	25 V ceramic	C332		
C202	1-101-919	0.0022	$\pm \frac{80}{20}\%$	25 V ceramic	C333		
C203	1-101-919	0.0022	$\pm \frac{80}{20}\%$	25 V ceramic	C334	1-105-661-12	0.001 $\pm 10\%$ 50V mylar
C204	1-101-919	0.0022	$\pm \frac{80}{20}\%$	25 V ceramic	C335	1-101-340	120 p $\pm 10\%$ 50V ceramic
C205					C336	1-105-661-12	0.001 $\pm 10\%$ 50V mylar
C206					C337	1-121-391	1 $\pm \frac{150}{10}\%$ 50V electrolytic
C207	1-102-977	200 p	$\pm 5\%$	50 V ceramic	C338	1-121-398	10 $\pm \frac{100}{10}\%$ 25 V electrolytic
C208	1-101-340	120 p	$\pm 10\%$	50 V ceramic	C401	1-101-924	0.022 $\pm \frac{80}{20}\%$ 25 V ceramic
C209	1-101-340	120 p	$\pm 10\%$	50 V ceramic	C402	1-105-681-12	0.047 $\pm 10\%$ 50V mylar
C210	1-121-402	33	$\pm \frac{100}{10}\%$	10V electrolytic	C403	1-101-924	0.022 $\pm \frac{80}{20}\%$ 25 V ceramic
C211	1-102-977	200 p	$\pm 5\%$	50 V ceramic	C404		
C212	1-102-965	39 p	$\pm 5\%$	50 V ceramic	C405	1-101-924	0.022 $\pm \frac{80}{20}\%$ 25 V ceramic
C213	1-101-924	0.022	$\pm \frac{80}{20}\%$	25 V ceramic	C406	1-101-924	0.022 $\pm \frac{80}{20}\%$ 25 V ceramic
C214	1-121-413	100	$\pm \frac{100}{10}\%$	6.3V electrolytic	C407		
C215	1-101-924	0.022	$\pm \frac{80}{20}\%$	25 V ceramic	C408	1-103-708	200 p $\pm 5\%$ 50V styrol
C216	1-121-398	10	$\pm \frac{100}{10}\%$	25 V electrolytic	C409		
C217	1-101-924	0.022	$\pm \frac{80}{20}\%$	25 V ceramic	C410	1-105-677-12	0.022 $\pm 10\%$ 50V mylar
C218	1-101-924	0.022	$\pm \frac{80}{20}\%$	25 V ceramic	C411		
C219	1-101-924	0.022	$\pm \frac{80}{20}\%$	25 V ceramic	C412	1-101-924	0.022 $\pm \frac{80}{20}\%$ 25 V ceramic
C220	1-121-403	33	$\pm \frac{100}{10}\%$	16V electrolytic	C413	1-101-884	56 p $\pm 5\%$ 50V ceramic
C221	1-101-924	0.022	$\pm \frac{80}{20}\%$	25 V ceramic	C414	1-101-924	0.022 $\pm \frac{80}{20}\%$ 25 V ceramic
C222	1-101-924	0.022	$\pm \frac{80}{20}\%$	25 V ceramic	C415	1-105-679-12	0.033 $\pm 10\%$ 50V mylar
C223					C416	1-105-684-12	0.082 $\pm 10\%$ 50V mylar
C224	1-101-924	0.022	$\pm \frac{80}{20}\%$	25 V ceramic	C417	1-121-409	47 $\pm \frac{100}{10}\%$ 16V electrolytic
C225	1-101-924	0.022	$\pm \frac{80}{20}\%$	25 V ceramic	C418	1-101-924	0.022 $\pm \frac{80}{20}\%$ 25 V ceramic
C226	1-101-924	0.022	$\pm \frac{80}{20}\%$	25 V ceramic	C419	1-105-669-12	0.0047 $\pm 10\%$ 50V mylar
C227	1-101-340	120 p	$\pm 10\%$	50 V ceramic	C420	1-101-924	0.022 $\pm \frac{80}{20}\%$ 25 V ceramic
C228	1-101-924	0.022	$\pm \frac{80}{20}\%$	25 V ceramic	C421	1-101-924	0.022 $\pm \frac{80}{20}\%$ 25 V ceramic
C306	1-107-140	240 p	$\pm 10\%$	50V silvered mica	C422	1-121-391	1 $\pm \frac{150}{10}\%$ 50V electrolytic
C307	1-121-398	10	$\pm \frac{100}{10}\%$	25 V electrolytic	C423	1-101-924	0.022 $\pm \frac{80}{20}\%$ 25 V electrolytic
C308	1-121-415	100	$\pm \frac{100}{10}\%$	16 V electrolytic	C424	1-121-415	100 $\pm \frac{100}{10}\%$ 16V electrolytic
C309					C425	1-121-393	3.3 $\pm \frac{150}{10}\%$ 50V electrolytic
C310					C426	1-121-393	3.3 $\pm \frac{150}{10}\%$ 50V electrolytic
C311	1-102-977	200 p	$\pm 5\%$	50 V ceramic	C427	1-127-019	0.1 $\pm 20\%$ 10V solid, aluminum
C312	1-121-403	33	$\pm \frac{100}{10}\%$	16V electrolytic	C428	1-105-669-12	0.0047 $\pm 10\%$ 50V mylar
C313	1-102-977	200 p	$\pm 5\%$	50 V ceramic	C501 (C551)	1-121-391	1 $\pm \frac{150}{10}\%$ 50V electrolytic
C314	1-127-021	0.33	$\pm 20\%$	10V solid, aluminum	C502 (C552)	1-105-661-12	0.001 $\pm 10\%$ 50V mylar
C315	1-121-391	1	$\pm \frac{150}{10}\%$	50V electrolytic	C503 (C553)		
C316	1-121-398	10	$\pm \frac{100}{10}\%$	25V electrolytic	C504 (C554)	1-102-112	330 p $\pm 10\%$ 50V ceramic
C317	1-103-575	4,700 p	$\pm 5\%$	50V styrol	C505 (C555)	1-121-391	1 $\pm \frac{150}{10}\%$ 50V electrolytic
C318	1-127-022	0.47	$\pm 20\%$	10V solid, aluminum	C506 (C556)	1-121-409	47 $\pm \frac{100}{10}\%$ 16V electrolytic
C319	1-105-683-12	0.068	$\pm 10\%$	50V mylar	C507 (C557)	1-105-667-12	0.0033 $\pm 10\%$ 50V mylar
C320	1-105-683-12	0.068	$\pm 10\%$	50V mylar	C508 (C558)	1-105-673-12	0.01 $\pm 10\%$ 50V mylar
C321	1-105-665-12	0.0022	$\pm 10\%$	50V mylar	C509 (C559)	1-105-673-12	0.01 $\pm 10\%$ 50V mylar
C322	1-105-665-12	0.0022	$\pm 10\%$	50V mylar	C510 (C560)	1-102-816	120 p $\pm 5\%$ 50V ceramic
C323	1-105-665-12	0.0022	$\pm 10\%$	50V mylar	C511 (C561)	1-121-391	1 $\pm \frac{150}{10}\%$ 50V electrolytic
C324	1-105-665-12	0.0022	$\pm 10\%$	50V mylar	C512 (C562)	1-121-391	1 $\pm \frac{150}{10}\%$ 50V electrolytic
C325	1-105-663-12	0.0015	$\pm 10\%$	50V mylar	C513 (C563)	1-105-679-12	0.033 $\pm 10\%$ 50V mylar
C326	1-105-663-12	0.0015	$\pm 10\%$	50V mylar	C514 (C564)	1-105-665-12	0.0022 $\pm 10\%$ 50V mylar
C327	1-105-679-12	0.033	$\pm 10\%$	50V mylar	C515 (C565)	1-105-679-12	0.033 $\pm 10\%$ 50V mylar
C328	1-105-679-12	0.033	$\pm 10\%$	50V mylar	C516 (C566)	1-121-391	1 $\pm \frac{150}{10}\%$ 50V electrolytic
C329	1-127-021	0.33	$\pm 20\%$	10V solid, aluminum	C517 (C567)	1-121-391	1 $\pm \frac{150}{10}\%$ 50V electrolytic
					C518 (C568)	1-121-413	100 $\pm \frac{100}{10}\%$ 6.3V electrolytic

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>		
C519 (C569)	1-105-673-12	0.01	±10%	50V mylar
C520	1-121-398	10	±100%	25V electrolytic
C521	1-121-413	100	±100%	6.3V electrolytic
C522 (C572)	1-121-391	1	±50%	50V electrolytic
C523 (C573)	1-105-661-12	0.001	±10%	50V mylar
C524 (C574)				
C525 (C575)	1-102-816	120p	±5%	50V ceramic
C526 (C576)	1-121-391	1	±50%	50V electrolytic
C527 (C577)	1-121-402	33	±100%	10V electrolytic
C528				
C529	1-121-398	10	±100%	25V electrolytic
C601 (C651)	1-121-726	0.47	±50%	50V electrolytic
C602	1-121-411	47	±100%	50V electrolytic
C603 (C653)	1-121-411	47	±100%	50V electrolytic
C604 (C654)	1-101-880	47p	±5%	50V ceramic
C605 (C655)	1-101-880	47p	±5%	50V ceramic
C606 (C656)	1-121-410	47	±100%	25V electrolytic
C607 (C657)	1-105-679-12	0.033	±10%	50V mylar
C608 (C658)	1-121-984	2,000	±100%	35V electrolytic
C609	1-121-738	10	±100%	50V electrolytic
C610 (C660)	1-121-738	10	±100%	50V electrolytic
C611 (C661)	1-107-140	240p	±10%	50V silvered mica
C612 (C662)	1-105-715-12	0.015	±10%	100V mylar
C801	1-121-410	47	±100%	25V electrolytic
C802				
C803	1-121-361	470	±50%	35V electrolytic
C804	1-121-422	220	±100%	25V electrolytic
C805	1-121-946	2,000	±50%	63V electrolytic
C806	1-105-877-12	0.022	±20%	100V mylar
C807	1-105-877-12	0.022	±20%	100V mylar
C808	1-105-877-12	0.022	±20%	100V mylar
C809	1-105-877-12	0.022	±20%	100V mylar
C901	1-121-949	2,000	±50%	63V electrolytic

**RESISTORS**

All resistance values are in ohms, ±5%, ¼W and carbon type unless otherwise indicated.

R101	1-244-713	47k
R102	1-244-709	33k
R103	1-244-657	220
R104	1-244-701	15k
R105	1-244-681	2.2k
R106	1-242-665	470
R107	1-244-643	56
R108	1-244-643	56
R109	1-242-643	56
R110	1-242-673	1k
R111	1-242-677	1.5k
R112	1-244-693	6.8k
R113	1-244-697	10k
R114	1-244-657	220
R201	1-244-649	100
R202		
R203	1-242-689	4.7k
R204	1-242-681	2.2k

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	
R205	1-244-657	220	
R206	1-242-661	330	
R207	1-244-677	1.5k	
R208	1-244-679	1.8k	
R209	1-242-671	820	
R210	1-244-673	1k	
R211			
R212	1-242-705	22k	
R213	1-242-673	1k	
R214	1-242-669	680	
R215	1-242-667	560	
R216	1-244-675	1.2k	
R217	1-242-689	4.7k	
R218	1-242-673	1k	
R219	1-244-673	1k	
R220	1-244-673	1k	
R221	1-244-647	82	
R222	1-242-691	5.6k	
R223	1-242-691	5.6k	
R224	1-244-657	220	
R225	1-242-693	6.8k	
R226	1-242-645	68	
R227	1-244-634	24	
R228	1-244-625	10	
R229	1-244-625	10	
R230			
R231	1-244-689	4.7k	
R232	1-244-637	33	
R233	1-242-697	10k	
R234	1-244-680	2k	
R235	1-242-645	68	
R236	1-242-667	560	
R237	1-242-705	22k	
R238	1-242-667	560	
R239	1-244-673	1k	
R240	1-242-611	2.7	
R241	1-242-611	2.7	
R242	1-242-611	2.7	
R308	1-242-703	18k	
R309	1-242-697	10k	
R310	1-242-717	68k	
R311	1-242-713	47k	
R312	1-242-689	4.7k	
R313	1-244-673	1k	
R314	1-242-697	10k	
R315	1-244-721	100k	
R316	1-244-649	100	
R317	1-242-689	4.7k	
R318	1-244-715	56k	
R319	1-244-661	330	
R320	1-242-669	680	
R321	1-244-690	5.1k	
R322			
R323	1-244-690	5.1k	
R324	1-209-216	270	1W
R325	1-242-657	220	
R326	1-244-666	510	
R327	1-244-666	510	

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
R328	1-242-673	1 k	R505 (R555)	1-244-710	36 k
R329	1-242-673	1 k	R506 (R556)	1-244-723-09	120 k low-noise
R330	1-242-666	510	R507 (R557)	1-244-661	330
R331	1-242-666	510	R508 (R558)	1-244-729-09	220 k low-noise
R332	1-242-683	2.7 k	R509 (R559)	1-244-739-09	560 k low-noise
R333	1-242-683	2.7 k	R510 (R560)	1-244-685-09	3.3 k low-noise
R334	1-242-672	910	R511 (R561)	1-244-655	180
R335	1-242-672	910	R512 (R562)	1-244-695	8.2 k
R336	1-242-686	3.6 k	R513 (R563)	1-244-706	24 k
R337	1-242-686	3.6 k	R514 (R564)	1-244-704	20 k
R338	1-244-689	4.7 k	R515 (R565)	1-244-689	4.7 k
R339	1-244-689	4.7 k	R516 (R566)	1-244-707	27 k
R340	1-242-709	33 k	R517 (R567)	1-244-687	3.9 k
R341	1-242-709	33 k	R518 (R568)	1-244-733-09	330 k low-noise
R342	1-242-689	4.7 k	R519 (R569)	1-244-737-09	470 k low-noise
R343	1-242-691	5.6 k	R520 (R570)	1-244-689-09	4.7 k low-noise
R344	1-242-715	56 k	R521 (R571)	1-244-697	10 k
R345	1-244-611	2.7	R522 (R572)	1-244-697	10 k
R346	1-242-611	2.7	R523 (R573)	1-244-694	7.5 k
R347	1-242-643	56	R524 (R574)	1-244-697	10 k
R348	1-202-652	2M $\pm 5\%$ $\frac{1}{2}W$ composition	R525 (R575)	1-244-735-09	390 k low-noise
R401	1-244-691	5.6 k	R526 (R576)	1-244-709-09	33 k low-noise
R402	1-242-664	430	R527 (R577)	1-244-671	820
R403	1-242-697	10 k	R528 (R578)	1-244-685	3.3 k
R404	1-242-693	6.8 k	R529 (R579)	1-244-657	220
R405	1-244-707	27 k	R530 (R580)	1-244-689	4.7 k
R406	1-244-691	5.6 k	R531	1-244-719	82 k
R407	1-242-673	1 k	R532 (R582)	1-244-721	100 k
R408	1-244-673	1 k	R533 (R583)	1-244-687	3.9 k
R409	1-244-684	3 k	R534 (R584)	1-244-723-09	120 k low-noise
R410	1-244-671	820	R535 (R585)	1-244-661	330
R411	1-242-687	3.9 k	R536 (R586)	1-244-729-09	220 k low-noise
R412	1-244-689	4.7 k	R537 (R587)	1-244-685-09	3.3 k low-noise
R413	1-244-665	470	R538 (R588)	1-244-655	180
R414	1-244-643	56	R539 (R589)	1-244-712-09	43 k low-noise
R415	1-244-689	4.7 k	R540 (R590)	1-244-689	4.7 k
R416	1-244-645	68	R541	1-244-719	82 k
R417	1-202-566	510 $\pm 10\%$ $\frac{1}{2}W$ composition	R602	1-242-701	15 k
R418	1-244-691	5.6 k	R603	1-242-703	18 k
R419	1-242-673	1 k	R604 (R654)	1-242-721	100 k
R420	1-244-679	1.8 k	R605 (R655)	1-242-677	1.5 k
R421	1-244-701	15 k	R606 (R656)	1-242-673	1 k
R422	1-244-719	82 k	R607 (R657)	1-242-653	150
R423	1-244-673	1 k	R608 (R658)	1-244-693	6.8 k
R424	1-244-671	820	R609 (R659)	1-242-697	10 k
R425	1-244-657	220	R610 (R660)	1-242-684	3 k
R426	1-244-669	680	R611 (R661)	1-242-685	3.3 k
R427	1-244-673	1 k	R612 (R662)	1-242-661	330
R428	1-242-689	4.7 k	R613 (R663)	1-242-685	3.3 k
R429	1-244-643	56	R614 (R664)	1-242-665	470
R430	1-242-632	20	R615 (R665)	1-242-665	470
R431	1-242-645	68	R616 (R666)	1-242-605	1.5
R432	1-244-655	180	R617 (R667)	1-242-605	1.5
R501 (R551)	1-244-721	100 k	R618 (R668)	1-242-625	10
R502 (R552)	1-244-713	47 k	R619 (R669)	1-242-665	470
R503 (R553)	1-244-689	4.7 k	R620 (R670)	1-202-565	470 $\pm 10\%$ $\frac{1}{2}W$ composition
R504 (R554)	1-244-687	3.9 k	R621	1-244-685	3.3 k
			R622 (R672)	1-244-705	22 k

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
R801	1-244-646	75			
R802	1-244-717	68 k			
R803	1-244-683	2.7 k			
R804	1-217-128	180 ±10% 7W wire-wound			
R805	1-244-699	12 k			
R806	1-206-128	820 ±10% 2W metal-oxide			
R807	1-244-670	750			
R808	1-244-668	620			
R901 (R951)	1-244-719	82 k			
R902 (R952)	1-244-739	560 k			
R903	1-244-640	43			
R904	1-244-691	5.6 k			
RT501	1-221-320	3 k (B) semi-fixed			
RV501 (RV551)	1-222-543	250 k (B) variable (VOLUME control)			
RV502 (RV552)	1-222-544	50 k (B) variable (BASS control)			
RV503 (RV553)	1-222-544	50 k (B) variable (TREBLE control)			
RV504	1-222-545	20 k (W) variable (BALANCE control)			
RV505 (RV555)	1-222-542	100 k (C) variable (MIC LEVEL control)			
<b>SWITCHES</b>					
S1	1-514-905	switch, rotary/slide (FUNCTION)			
S2	1-514-908	(MONITOR)			
S3		switch, push: (MODE)			
S4		4-key (HIGH FILTER)			
S5		(LOUDNESS)			
S6		switch, push: (REMOTE SPEAKER,			
S7	2-key MAIN SPEAKER)				
S8	1-514-907	switch, slide (MODE)			
S9	1-514-478	switch, slide (PREAMP/ POWER AMP)			
S901	1-514-911	switch, lever (POWER)			
<b>FILTERS</b>					
	1-527-507-11	fm i-f, ceramic 10.70 MHz (red)			
	1-527-507-21	fm i-f, ceramic 10.66 MHz (black)			
CF201	1-527-507-31	fm i-f, ceramic 10.74 MHz (white)			
CF202	1-527-507-41	fm i-f, ceramic 10.62 MHz (green)			
	1-527-507-51	fm i-f, ceramic 10.78 MHz (yellow)			
CF401	1-403-153	filter, ceramic 455 kHz			
<b>PILOT LAMPS</b>					
PL901	1-518-070	lamp, METER: 8V/0.3A			
PL902	1-518-070	lamp, dial: 8V/0.3A			
PL903	1-518-070	lamp, dial: 8V/0.3A			
PL904	1-518-070	lamp, dial: 8V/0.3A			
PL905	1-518-051-22	lamp, STEREO: 4.5V/40 mA			
PL906	1-518-051-71	lamp, FM: 4.5V/40 mA			
PL907	1-518-051-26	lamp, PHONO: 4.5V/40 mA			
PL908	1-518-051-25	lamp, MIC: 4.5V/40 mA			
PL909	1-518-051-24	lamp, AM: 4.5V/40 mA			
PL910	1-518-051-14	lamp, AUX: 4.5V/40 mA			
PL911	1-518-117	pointer with lamp			
<b>MISCELLANEOUS</b>					
CP902	1-231-057	encapsulated component, 120 Ω + 0.033 μF			
	1-507-163	phono jack, 4-P			
J901, 951	1-507-251	jack, MICROPHONE			
J902	1-507-265	jack, HEADPHONE			
	1-507-268	phono jack, 8-P			
CNJ901	1-509-029	REC/PB connector			
	1-509-445	ac input connector			
	1-517-050	socket, dial lamp			
M901	1-520-101	meter, TUNER INPUT			
VS	1-526-165	voltage changeover block			
F901	1-532-259	fuse, 1.6 AT			
F902, 903	1-532-298	fuse, 2A			
F904, 905	1-532-285	fuse, 1.25 AT			
F906	1-532-204	fuse, 2A			
	1-533-048	fuse post			
	1-533-051	holder, stereo lamp			
	1-533-069	socket, fuse; 4-P			
	1-536-179	terminal strip, 1L1 (C)			
	1-536-248	terminal post			
	1-536-284	terminal strip, 4-P (SPEAKER)			
	1-536-286	terminal strip, 4-P (ANTENNA)			
	1-581-271	jumper board, 4-P phono jack			