This receiver may be operated on either AC or DC, 105-125 volts, 50-60 cycles.

FM . . . . 88 to 108 MC.
AM . . . . 540 to 1700 KC.

Antenna Connections:

It is equipped with built-in AM and FM antennae so that in primary listening areas an outside antenna is not necessary. WHEN LISTENING TO FM BY USING THE BUILT-IN ANTENNA, KEEP THE ELECTRIC LINE CORD EXTENDED TO ITS FULL LENGTH.

For weak or distant stations there are provisions made in the rear for antenna connections. A terminal strip with two screw connections for the lead-in wires from the FM antenna, also a wire coming out the back of the receiver for an external AM antenna.

When using the built-in antenna on FM, the lug coming out between the two screw connections on the terminal strip in the rear, must be connected to the screw connection marked "ANT." When using an external FM antenna disconnect this wire and connect external antenna lead-in wires to the two screw connections.

Station Selector:

The knob on the extreme right hand side of the cabinet operates the tuning condenser on both AM and FM and simultaneously moves the indicating pointer. Ease and accuracy in tuning is made possible due to a reduction drive.

Band Switch:

The second knob from the right is the AM-FM band switch. This is a two position switch. When the switch is in the counterclockwise position, AM (Standard Broadcast) stations may be tuned in. When the switch is in the clockwise position, FM (Frequency Modulation) stations may be tuned in.

Volume Control and Power Switch:

The third knob from the right is the volume control and power switch. When the control is in the extreme counterclockwise position the power is "OFF." From this position, a slight clockwise rotation will turn the power "ON." By further rotation in this direction volume may be increased to any degree until the full output of the receiver is obtained.

Tone Switch:

The fourth knob from the right is the tone switch. For normal operation the switch should be clockwise. For increased bass response turn switch fully counterclockwise.

Notes:

Since this receiver has a loop-tenna on AM which has a directional effect, it may be necessary at times to turn the receiver for best reception. This set will operate properly only after the tubes are sufficiently heated. This may take two minutes after the power switch is turned "ON." If the receiver is being operated on DC (Direct Current) and no signals are heard after two minutes, reverse the line cord plug in the power outlet. Should noticeable hum be detected when operating on AC (Alternating Current), reverse the line cord plug in the power outlet.

Servicing
(For Use of Radio Technician):

Alignment of the receiver will, in most cases, be unnecessary unless an RF or IF transformer is replaced or the adjustment has been tampered with. The IF slugs are slotted for a small size fiber screwdriver. Do not put excessive pressure on the aligning tool or the threads in the coil-form will be stripped and adjustments will be impossible.

IF Alignment:

Set bandswitch to AM position. Connect the signal generator, modulated at 400 cycles, through a 0.01 Mfd condenser to the grid of the 12AT7 converter tube. Connect the low side of the generator through a 0.1 Mfd condenser to the receiver chassis. Adjust the signal generator to 455 KC. Tune primary and secondary slugs of T3 & T5, AM-IF Transformers, for maximum output.

For FM alignment set bandswitch to FM position and leave generator connected to the grid of the 12AT7 converter tube. Adjust generator to 10.7 MC. Connect 20,000 ohm per volt or VTVM meter as in note "1" of schematic diagram. Tune primary of T1, bottom slug, and both primary and secondary of T2 & T4 for maximum indication on meter. To align secondary of Ratio Detector Transformer connect meter as in note "2" of schematic diagram. Tune top slug through positive and negative indication and then slowly return until meter reads zero. This is in the center of the "S" curve.

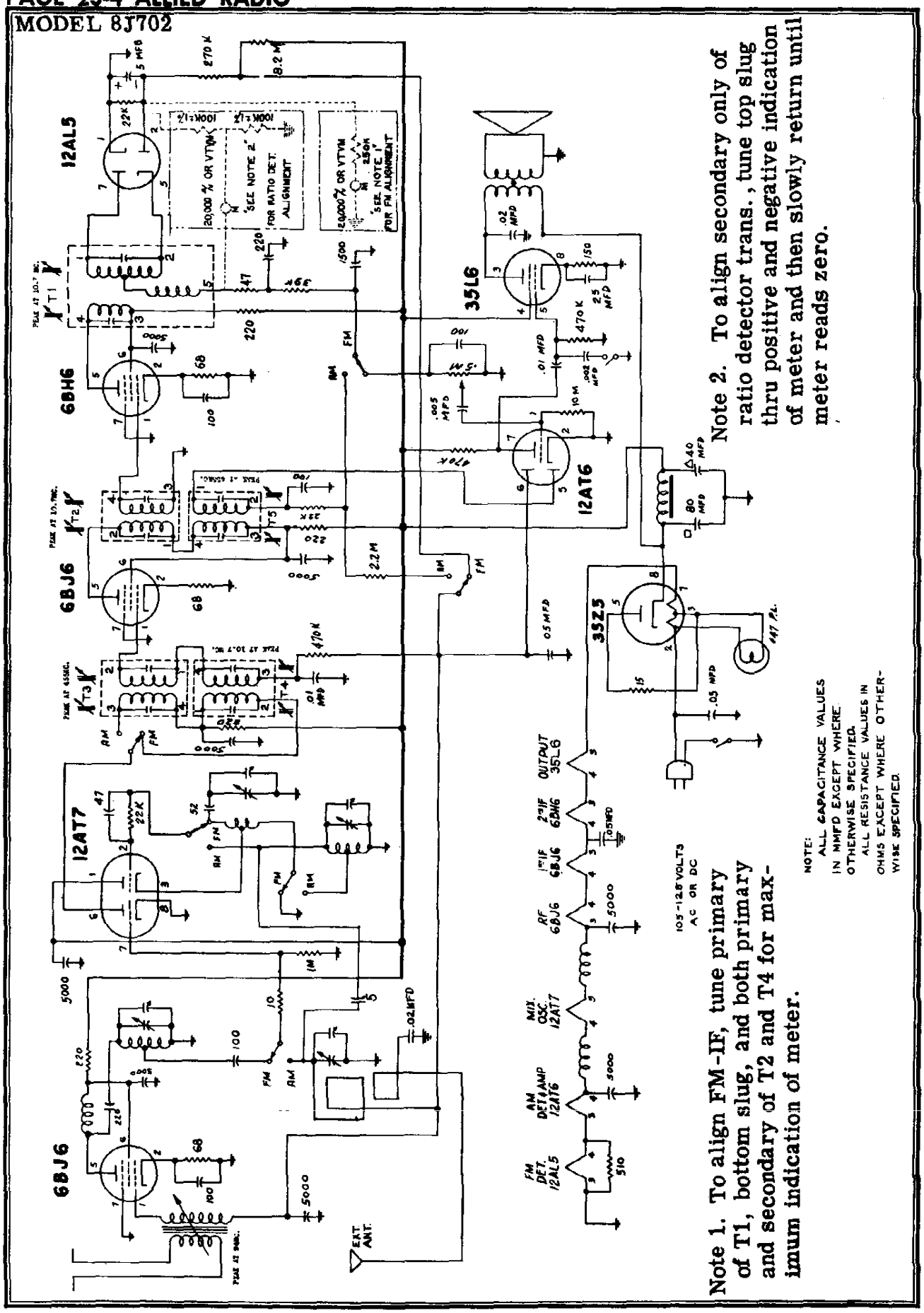
RF Alignment:

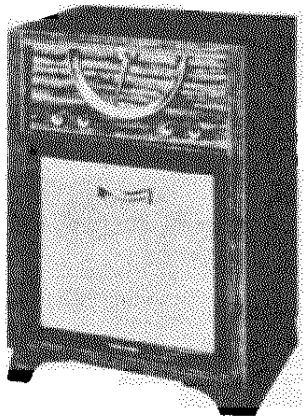
Set bandswitch to AM position. Connect signal generator, modulated at 400 cycles, to external antenna lead and to ground through a 0.1 Mfd condenser and adjust to 1700 KC. Set dial pointer to 1700 KC and tune signal for maximum output with oscillator trimmer. Next set generator to 1500 KC and tune in this signal on the receiver. Then adjust RF trimmer for maximum output.

Set bandswitch to FM position. Connect in series with each generator lead a carbon 150 ohm resistor and connect to rear antenna terminal board. Adjust generator and dial pointer to 108 MC. Peak oscillator trimmer for maximum signal output. Next set generator to 105 MC and tune in this signal on receiver. Then peak RF trimmer for maximum output. No adjustment is necessary at the low end because a special compensated fixed padder is used. Set the generator to 94 MC and tune the FM antenna coil for maximum.

In all the IF and RF adjustments it is important to keep the signal generator output as low as possible. It is extremely necessary in making the RF adjustments, that the fundamental oscillator signal be tuned in and not the image frequency. This can be checked by the use of a calibrated wavemeter.

MODEL 8J702


12AL5
6BH6
6BJ6
12AT7
6BJ6
3516
12AT6
3525
Note 2. To align secondary only of ratio detector trans., tune top slug thru positive and negative indication of meter and then slowly return until meter reads zero.
Note 1. To align FM-IF, tune primary of T1, bottom slug, and both primary and secondary of T2 and T4 for maximum indication of meter.
NOTE:
ALL CAPACITANCE VALUES IN MMFD EXCEPT WHERE OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES IN OHMS EXCEPT WHERE OTHERWISE SPECIFIED.
105-125 VOLTS AC OR DC
EXT. ANT.



GENERAL INFORMATION

TYPE - FM-AM Radio Phonograph Combination

TUNING RANGE - AM 535 to 1620 Kc AM IF - 455 Kc
FM 88 to 108 Mc FM IF - 10.7 Mc

TUBE COMPLEMENT - 6BA6 - FM-AM RF Amplifier
6BA7 - FM-AM Converter
6BA6 - FM-AM IF Amplifier
6BA6 - FM IF Amplifier
6AL5 - FM Ratio Detector
6AV6 - AM Det & 1st Audio Amp
6K6GT - Power Amplifier
5Y3GT - Rectifier

POWER SUPPLY - 117 volts, 60 cycles AC only; 85 watts, including phono motor

INSTALLATION & OPERATING INSTRUCTIONS

ANTENNAS

No outside antenna or ground is normally required for standard broadcast (AM) reception, as a loop antenna is located inside the cabinet. Antenna connections are shown in Figure 1. In locations where additional pick-up is desired, an external antenna may be connected to the clip marked "EXT BC ANT" on the loop antenna.

An FM antenna, built into the power cord, eliminates the need for an external FM antenna when the receiver is used in normal FM service areas, such as are found in and for a few miles around metropolitan areas. In "fringe" or weak signal areas, improved FM reception can be obtained by using an outside FM antenna. The external antenna should be connected through a 300 ohm twin transmission line to the 1st and 2nd screws on the terminal strip on the chassis, as in Figure 1. The link between the 2nd and 3rd screws should be opened. Orient the antenna to obtain maximum volume of the FM stations.

For best FM reception from the built-in power line cord antenna, it is important to stretch the cord to its full length. Changing the direction or position of the line cord, or reversing the plug in the wall outlet, will often improve reception from weak stations. Connect the link between the 2nd and 3rd screws on the terminal strip on the chassis when the built-in antenna is used.

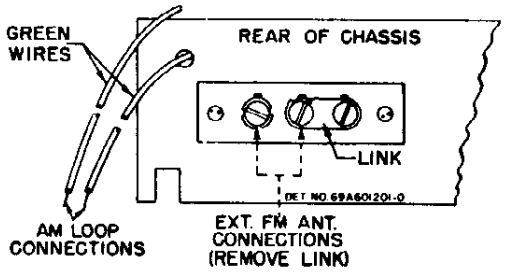


FIGURE 1. ANTENNA CONNECTIONS

CONTROLS

Refer to Figure 2 for the locations of the radio operating controls.

Power for both the radio and the record changer is controlled by the VOL-ON-OFF knob.

The phonograph motor will not operate, however, until the PHONO-TONE-RADIO knob is rotated also to "PHONO".

Tuning of FM stations should be done very carefully for best sound reproduction, not necessarily for the strongest volume received.

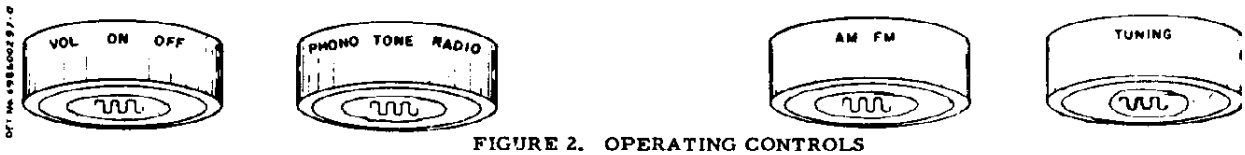


FIGURE 2. OPERATING CONTROLS