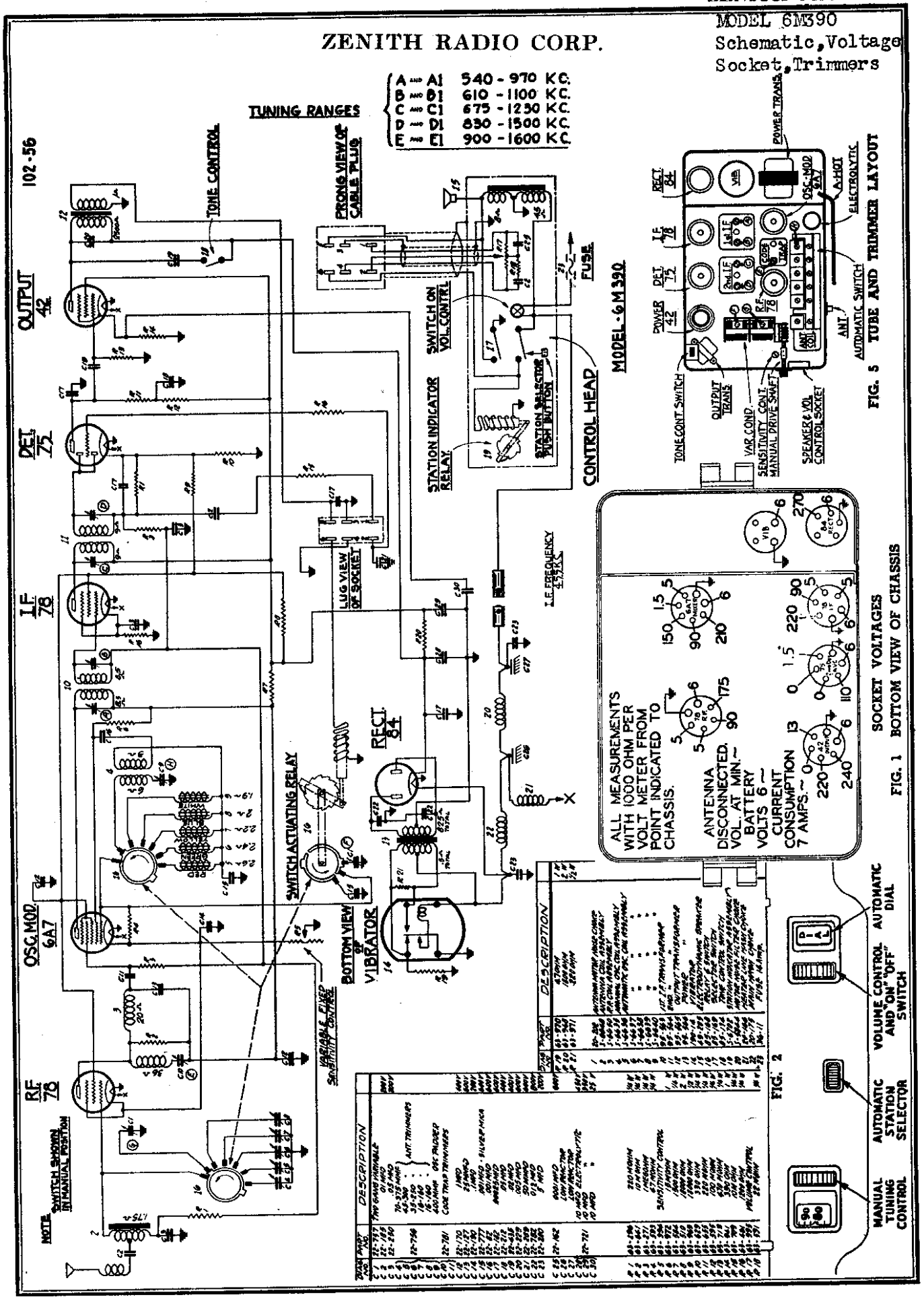
ZENITH RADIO CORP.

MODEL 6M390
Schematic, Voltage
Socket, Trimmers



MODEL 6M390
Alignment, Trimmers
Tuner Data

ZENITH RADIO CORP.

NOTE: This receiver is equipped with a fixed-variable sensitivity control located on the chassis base below the tuning control shaft of the variable condenser. (See Fig. 5.) The control can be adjusted with a screw driver either from above or below the chassis, and is set at the factory to a position which gives a sensitivity of 10 microvolts at 1 watt output. In practice it is found advisable to hold the receiver to this level as any higher sensitivity might result in increased motor noise or excessive background noise. Unless laboratory equipment capable of accurately measuring the input and output of the receiver is available, it is not advisable to alter this setting.

MANUAL DIAL ADJUSTMENT: The manual control dial must be aligned with the receiver for correct calibration. To do this, turn the manual tuning knob in one direction as far as it will go. Now do the same in the opposite direction. Then tune in a station of known frequency, and note if the dial reading corresponds. If the frequency reading is not correct, hold the tuning knob firmly and move the dial drum with your fingers through the bezel to the correct frequency reading of the station being received.

AUTOMATIC DIAL SYNCHRONIZATION: Before setting the station adjusting screws for automatic tuning, it may be necessary to synchronize the automatic dial to the receiver which is done as follows: Turn on the receiver, and try to tune in a station with the manual tuning control. If no station can be picked up, push the automatic station selector button until a position is found where stations can be tuned in manually. Remove the automatic dial assembly by pulling out from the rear and turn the station indicator drum downward until the word "Dial" appears in the opening. The adjusting screws in the receiver can now be resonated for the stations shown around the automatic dial as the automatic button is operated. It is very important that these adjusting screws be set on a weak signal from the station so that the circuit may be sharply tuned. A very short piece of wire used as an antenna will hold down the signal strength. Always be sure the antenna characteristics are similar to actual car conditions. A 38 mmfd. condenser from antenna to ground will provide the necessary input capacity.

AUTOMATIC TUNING ADJUSTMENTS: 1. Turn the receiver on and allow it to operate until thoroughly heated. Loosen the screws holding the cover plate over the automatic adjustments, and slide it upward exposing the adjusting screws and recording strip. This plate is on the front of the receiver. (See Fig. 4.)

2. Push the automatic station selector button until the word "Dial" is at the automatic dial window. Tune in manually the station whose call letters are in the No. 1 position on the dial (the lowest frequency station—see Fig. 3) and note the program so that it can be identified. Push the automatic station selector button once, and this station's call letters will appear at the automatic window.

3. With a small screw driver, turn the station setting screw A (see Fig. 4) in the upper row to the right or left until that station is tuned in accurately. Now adjust the corresponding screw A1 in the lower row until maximum volume is obtained. Make these adjustments very carefully as it is quite easy to pass the resonant point due to the unusual selectivity of the receiver.

4. Press the automatic station selector button until "Dial" again is at the automatic window and tune in manually the station whose call letters are in the No. 2 position (the next higher frequency) on the automatic dial. Press the automatic station selector button twice to bring the No. 2 station's call letters in view, and adjust B and B1 screws to this station. Repeat this procedure until each of the five pairs of adjusting screws have been carefully set to their respective stations. It is necessary that the setting of the adjusting screws be repeated in the order given to be sure that they are properly set for maximum performance.

IMPORTANT: Unless certain dummy antenna capacities are employed with either the signal generator or in making adjustments on stations, the receiver will not respond properly. The values provided in the Zenith dummy antenna unit shown in Fig. 6 are identical with the conditions in the Ford car, and if adjusted accordingly the instrument will operate properly when reinstalled in the automobile. The Zenith dummy antenna S6740 is especially priced at 25c net to service stations, and should be purchased for use in servicing Zenith built Ford receivers.

If the station setup on the automatic tuning dial should appear in the wrong position, the dial can easily be re-synchronized to the receiver as explained under "Dial Synchronization." If it is necessary to examine the automatic dial mechanism or change call letters it may easily be removed from the speaker housing by pressing the spring catch directly beneath the assembly and pulling out from the rear.

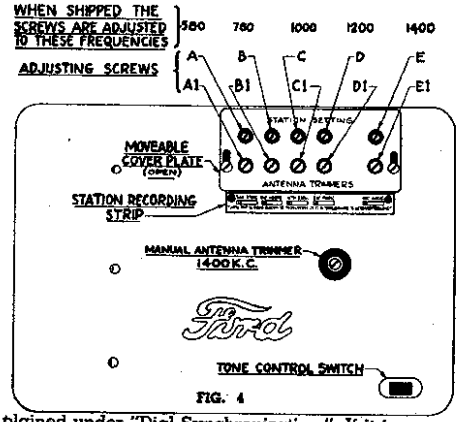


FIG. 4

If difficulty is experienced in setting the adjusting screws for the desired station, first turn the antenna trimmer screw down tight, and then adjust the station setting screw (oscillator) to the station, and follow with a readjustment of the antenna trimmer screw for resonance.

ALIGNMENT: I. F. Connect signal generator set at 455 K. C. through .1 mfd. condenser direct to 6A7 grid cap. Adjust I. F. trimmers A, B, C, D, (Fig. 5) to resonance. This should be done with the volume control of the receiver on full, and the generator signal reduced to a weak level.

Wave Trap: Remove signal generator lead from 6A7 grid, and attach to 78 R. F. tube grid. Using the same signal frequency of 455 K. C. carefully adjust the wave trap trimmer E for minimum response with a strong generator signal.

R. F. Press the automatic button to where the "Dial" position shows, or until the set can be tuned manually. Now rotate the manual tuning control until the condenser plates are completely out of mesh. Remove the generator lead from the 78 R. F. tube and connect it direct through a Zenith dummy antenna unit (Zenith part No. S6740) to the antenna socket on the receiver. Set the signal generator to 1580 K. C., and adjust the oscillator trimmer F on the gang condenser to resonance. Reset the signal generator to 1400 K. C. turn the dial until the signal is heard and adjust the gang condenser trimmer G to maximum response. Reset the signal generator to 600 K. C., and again turn the manual dial until the signal is heard. Rock the condenser gang slightly while adjusting padder H to maximum response at this point.

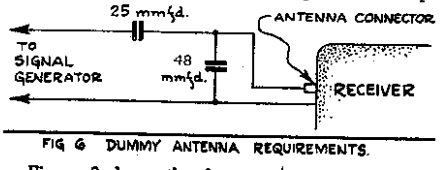


FIG 6 DUMMY ANTENNA REQUIREMENTS.

Figure 6 shows the dummy antenna requirements necessary where the special Zenith dummy connector S6740 is not available.

ELECTRICAL SPECS: Rotomatic Tuning—Provides a means of selecting either manual or any one of five pre-selected stations using a single push-button. The automatically controlled circuits consist essentially of permeability tuned inductances in the oscillator circuit and mica type trimmers in the detector stage. Switching is accomplished electrically by coincidental solenoid operation of band-switch type segments.

Sensitivity—10 microvolts at 1 watt output. Tuning range 540—1580 K.C. Power output—3 watts measured at voice coil. Speaker—8" dynamic. I.F.—455 K.C. Automatic—Five positions and "Dial."

Tube complement—78 R.F., 6A7 mixer, 78 I.F., 75 2nd det. and audio, 42 output, 84 rectifier. Current Consumption—7 amp. at 6 volts.

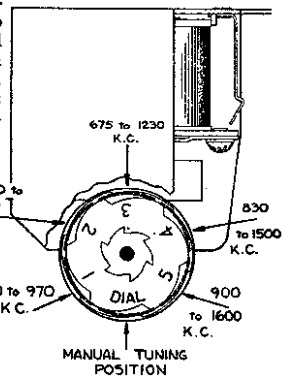


FIG. 3