PASSENGER CAR RADIOS

987730 - 987727 - 987724
TRUCK—987187
AUTRONIC EYE—987833

FOR

1 9 5 8

FOREWORD

The information in this service and shop manual covers a general description of Chevrolet Radios and Autronic Eye for 1958 and thorough data on operations, specifications and procedures for testing and servicing Chevrolet Radios and Autronic Eye.

CHEVROLET MOTOR DIVISION
GENERAL MOTORS CORPORATION
DETROIT 2, MICHIGAN

Litho in U.S.A.
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INDEX

INDEX

CHEVROLET RADIO WARRANTY
ALL MODELS

All Chevrolet radios, antennas, rear seat speaker and radio parts are covered by the standard manufacturers (RMA) warranty of 90 days or 4000 miles and Chevrolet's extended warranty. For complete detail of policy, warranty and procedure, refer to manual titled "Service Department Policies and Procedures". Each Chevrolet dealer has received a copy of the manual. Only Chevrolet dealers can make application for warranty on form GSD-17 showing the radio identification letters and numbers in the body of the application and handling in the usual manner.

The 1958-987730 Wonder Bar and 987727 Push Button radios can be used on the 1958 Corvettes and all service information, procedures and parts lists are identical except for the knobs and engine shielding. Dealers can order Corvette radios under the following part numbers:

987857 Wonder Bar radio, antenna, and engine shielding for standard carburetor engine.

987858 Wonder Bar radio, antenna and engine shielding for fuel injection engine.

987859 Push Button radio, antenna and engine shielding for standard carburetor engine.

987860 Push Button radio, antenna and engine shielding for fuel injection engine.

CHEVROLET WONDER BAR RADIO
FOR ALL PASSENGER CARS AND CORVETTE
987730

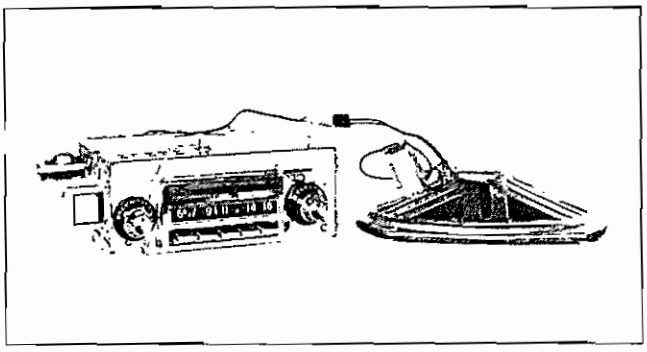


Figure 1

This radio is a superheterodyne, signal seeking, automobile radio designed for installation in 1958 Chevrolet passenger cars. The radio contains five low voltage tubes and one "HI POWER" transistor, and is comparable to any eight tube, signal seeking radio in performance. It consists of a radio receiver unit and a speaker unit. This type of design is advantageous for both installation and service, as all component parts of the radio are easily accessible for quick efficient replacement, when service is required. Using an external speaker affords the advantage of having a large speaker in a limited space. The speaker is coupled to the instrument panel by a special gasket, thereby using the instrument panel for unusually good tone reproduction.

ELECTRICAL DESCRIPTION

The circuit used in this receiver is the superheterodyne type that uses no regeneration. The tuning circuits are of the permeability type and are tuned by varying iron cores in and out of the antenna, radio frequency and oscillator coils like pistons.

The Intermediate frequency stages are tuned by means of two iron cores in each transformer and are adjusted with an insulated screwdriver from the top and bottom of the transformer. Both the first (input) and second I.F. (output) transformers are tuned by this method. See Figure 2.

The Antenna circuit is capacity coupled to the antenna by means of an adjustable antenna trimmer condenser to take care of normal variations in antenna and antenna coil capacity. The antenna condenser is located on the side of the radio case and is adjustable by means of a small insulated screwdriver. This permits the receiver to be adjusted to the antenna for maximum sensitivity and performance.

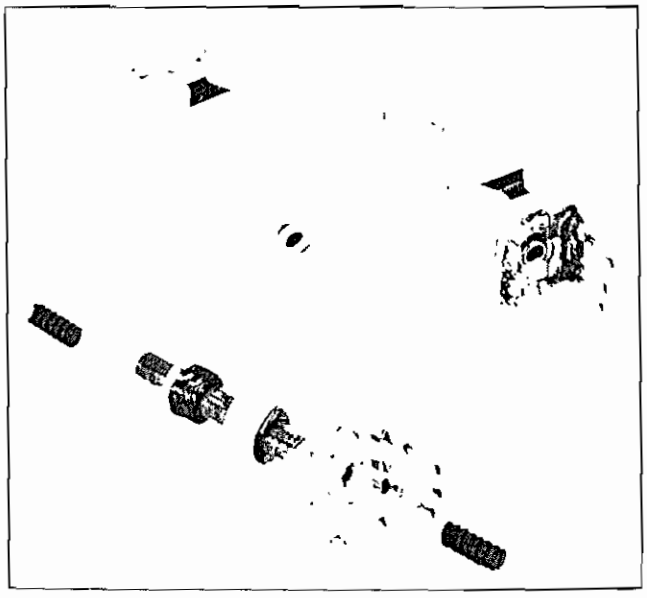


Figure 2

The automatic volume control is of the delayed signal type and is very capable of maintaining

a constant level of volume at all times. Very high frequency filter chokes are used in the radio frequency grid circuit to discriminate against ignition interference in the receiver.

TUBE AND TRANSISTOR COMPLEMENT AND FUNCTION

12DZ6	Radio Frequency Amplifier
12AD6	Oscillator-Modulator
12EA6	Intermediate Frequency Amplifier
12DV8	Detector - First Audio Amplifier
12AL8	Trigger
2N278	Audio Output Transistor

GENERAL INFORMATION

Tuning Range - 540 - 1615 Kilocycles
Intermediate Frequency - 262 Kilocycles
Maximum Power Output - 6 Watts
Undistorted Power Output - 4.5 Watts
Currency Drain - 3 Amp.
)eaker - Alnico & Permanent Magnet Type 6 x 9 inch Elliptical
Voice Coil Impedance - 4 Ohms at 400 cycles
Fuse Protection - 7.5 Amp.
All circuits use printed circuit boards

AUTOMATIC TUNING

An outstanding feature of this radio is the Signal Seeker tuner. In addition to manual tuning, the radio can be tuned automatically using the station selector bar in conjunction with the sensitivity control to obtain all available stations or only the stronger stations. The tuner also includes five push buttons which can be pre-set to automatically select favorite stations.

PROCEDURE FOR SETTING PUSH BUTTONS

Turn on the receiver and allow for warm up.

1. Pull push button slightly to the left and out as far as it will go.
2. Tune in desired station with manual tuning knob.

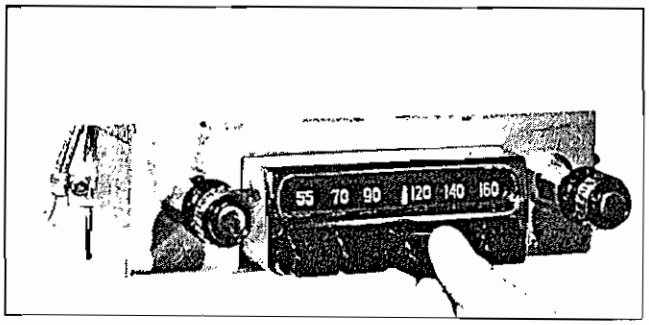


Figure 3

3. Depress push button in all the way.
4. Tune off station and depress push button to check accuracy, if incorrect repeat as indicated above.

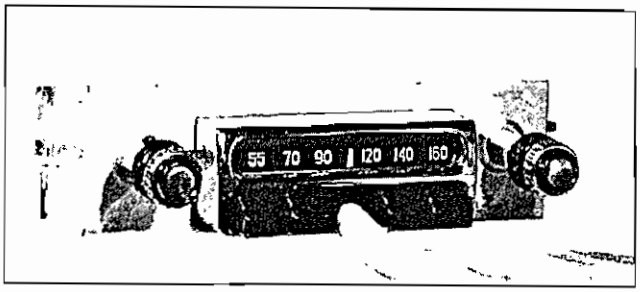


Figure 4

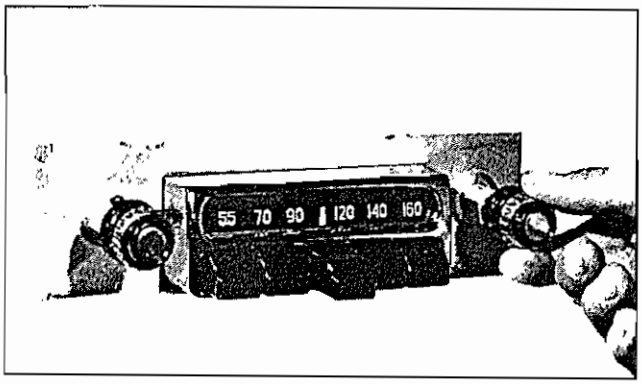


Figure 5

PROCEDURE FOR CHECKING AND SERVICING ALL RADIOS

RECEIVER COMPLETELY DEAD

Check antenna for short or open circuit.

Check for a blown fuse, blown fuse is caused by one of the following:

1. Short in 12 volt circuit of radio. It will be necessary to remove radio from car and check the 12 volt circuit hash condensers, and chokes in radio.
2. Solenoid remaining energized.

NOISY OPERATING RADIOS

The noise can be caused by one or more of the following:

1. TIRE STATIC is caused by friction between the tires and pavement, and is almost a continuous roar while car is in motion, and does not vary appreciably with car speed. The intensity of the noise is greater on a dry

sunshiny day, and not so noticeable on humid or rainy days. To eliminate this type noise be sure that the front wheel static collectors have been installed, being sure that they are free of grease and are making good contact to front wheel spindle. If the static still persists, install tire static powder in all five tires.

2. NOISY ANTENNA can be located by turning on the radio receiver, tuning in a station and by tapping the antenna with a screwdriver handle. If noisy, a crashing sound will be heard in the radio each time you tap the antenna. The antenna lead-in can also cause noise in the radio if the shield is broken or unsoldered from the ends, or if the lead-in wire in cable is loose or broken. This can be checked by shaking the antenna lead-in cable. If you can cause a crash in the radio while shaking lead-in, replace lead in.

3. MOTOR INTERFERENCE in Chevrolet radios is usually caused by poor grounds when installing the antenna or receiver. Check to make sure all required suppression material has been installed and that all grounds are free of paint, grease, or rust and are tight.

4. GENERATOR INTERFERENCE is a whining noise similar to a siren, and increases or decreases with speed of the engine. Install or replace generator condenser.

5. NOISY RADIO TUBES can be located by turning on the radio and tuning in a station; then remove the tube inspection plate, and with a small screwdriver, using the handle end, tap only each of the vacuum type tubes lightly. If noisy, it will cause a crashing noise in the radio as you tap the tube. Replace tube or tubes. If the foregoing does not eliminate the noise, it will be necessary to remove the radio from the car and hook up radio on service bench to a 12 volt power supply and 12 volt battery in series and heavy leads to the radio set. Automatic tuner will not operate properly on power supply alone.

6. WEAK - NO VOLUME usually is caused by three things: weak tubes, weak vibrator, or antenna being partially grounded by moisture in the antenna lead-in.

CONDENSED MECHANICAL OPERATION OF ELECTRICAL TUNER 987730 - RADIO

The Wonder Bar tuner is an electronic and mechanical device incorporated into a conventional auto radio so that tuning in stations is accomplished automatically. By depressing the "Wonder Bar", the tuner begins its sweeping cycle and will continue until a signal triggers the electrical section -- stopping the mechanical movement. When the tuner reaches the high frequency end of the dial, the action of two solenoids will return the tuner to the low frequency end and recock the mechanism for another seeking cycle - see Figure 6. The signal strength of the stations selected by the tuner is determined by the manual setting of the sensitivity switch. In the maximum position, the tuner will stop on all listenable stations -- the minimum position will stop on only the strong local stations. The control is only used in the circuit under automatic

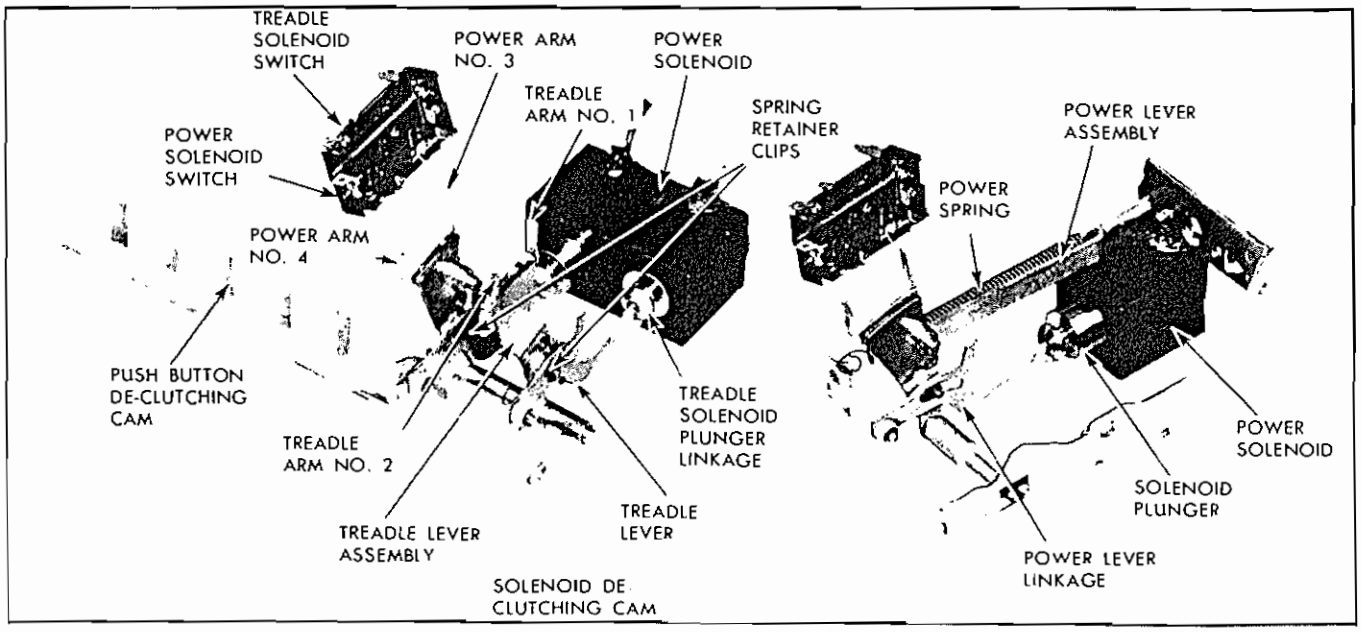


Figure 6

tuning conditions. The tuner also incorporates five mechanical lock-up type push buttons used in Chevrolet push button sets the last few years. By depressing a push button, a declutching action disengages the manual tuning control and the signal-seeking mechanism. The buttons are set to the stations as described on Page 2. When one of the buttons is depressed, the treadle bar moves the tuning cores to the station selected when button was set originally. The push buttons operate independently of the signal-seeker mechanism.

THEORY OF OPERATION

The following information on the Wonder Bar tuner covers in general terms the mechanics and electronics involved in the tuner to assist in an approach to trouble-shooting failures.

MECHANICAL OPERATION

The power to cause the sweeping cycle is created by a power spring; and the rate of dissipation of energy from the spring is controlled by a governor. After the tuner sweeps to the high frequency end of the dial, the return of the tuning cores and dial pointer back to the low frequency end of the dial is accomplished by the use of a limit switch to energize the treadle solenoid. The limit switch is actuated by the two switch arms and the treadle lever assembly as shown in Figure 6. Contact Arm No. 1 closes the switch to energize the treadle solenoid -- Contact Arm No. 2 opens the switch and de-energizes the treadle solenoid. A dash pot damper helps absorb shock when the treadle is returned to low frequency end of the dial.

The sweeping action is stopped and started by the relay arm. When the relay is de-energized, the arm engages the gear train governor and prevents any movement of the gears. Energizing of the relay removes the relay arm, and the gear train is free to govern the sweeping action.

The power solenoid is operated independently to restretch the power spring. The power solenoid is energized by another limit switch which is operated by the power lever assembly as shown in Figure 6. The No. 3 Contact Arm closes the switch to energize the power solenoid. Contact Arm No. 4 opens the switch, de-energizing the solenoid. The power spring is used in motivating the rack-worm and treadle bar along with the tuning cores.

GEAR TRAIN GOVERNOR

Figure 7 shows a top view of the rack-worm unit, the power spring and its linkage to the rack-worm unit, and the gear train. When the relay arm is removed from the gear train governor, the rack is moved by power supplied by the power spring. The speed is regulated by the governor which is shown in Figure 7. This is a centrifugal friction type of governor, in that as the speed increases, the two blades fly out against the housing, slowing the speed of rotation. When the rack-worm unit is pulled in the reverse direction, in order to stretch the power spring, the ratchet and pawl allows slippage as shown in Figure 8. This prevents the gear train from turning in the reverse direction during the power spring stretching cycle. When a signal is received, the relay arm obstucts the gear train, and the rack-worm movement ceases.

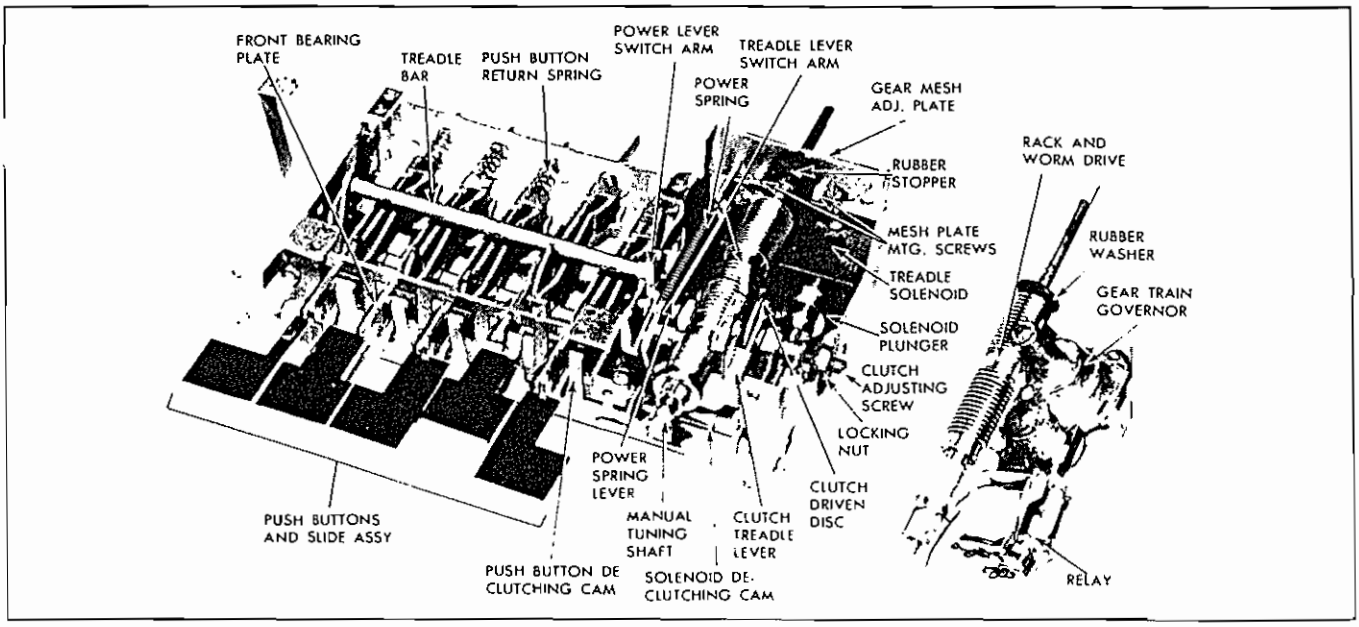


Figure 7

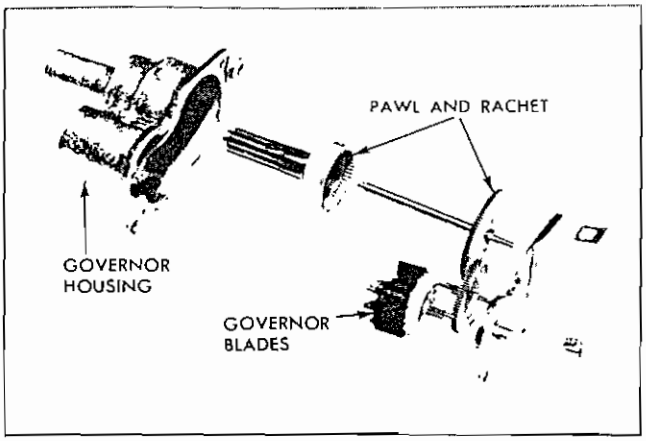


Figure 8

MANUAL TUNING

Manual tuning is accomplished by turning the manual control shaft which turns the worm gear - the worm is meshed with the combination drive and anti-backlash gear. The torque is transferred through the clutch coupling to the treadle, which moves the core bar. Figure 9 shows that turning the control clockwise moves the cores out of the coils. Because of the rack action, the gear train acts as a brake and prevents movement of the rack-worm unit in the forward direction but still permits rotational movement. This is the reason for the two independent solenoids. If a signal should stop the tuner near the high frequency end of the dial, and the treadle should be returned to the low end, either by manual or push button operation, the power spring will have little energy left and must be recocked before the treadle reaches the high end on a sweep cycle. This is done without changing the position of the treadle.

CLUTCHING OPERATIONS

When the power solenoid energizes, the position of the treadle must not be disturbed. Also, when the treadle solenoid energizes, the rack-worm unit and power spring should not be moved. The same is true if a push button is depressed.

Therefore, when either solenoid is energized, or a push button is depressed, the treadle is free to rotate. This is accomplished by the clutch lever and roller cam shown in Figure 10. When a push button is depressed, the clutch faces are pulled apart by the action on the clutch lever. When

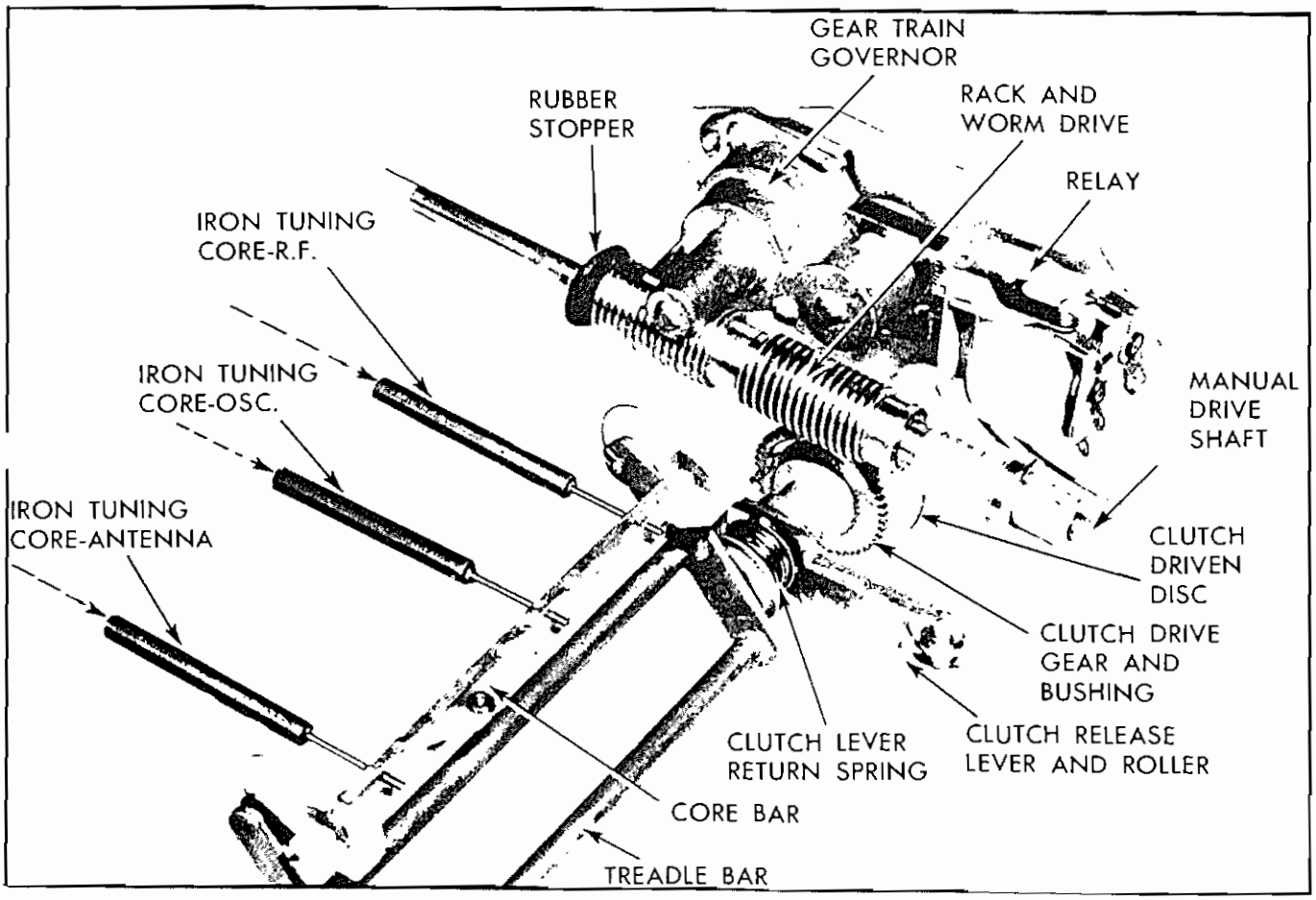


Figure 9

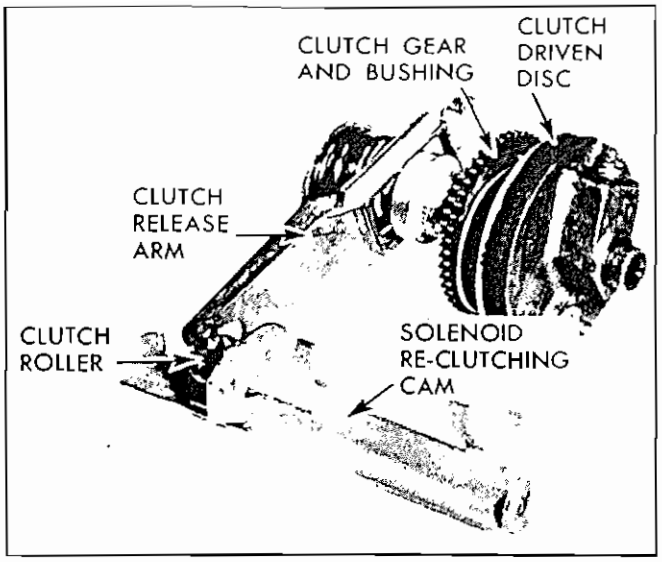


Figure 10

either solenoid is energized, the clutch lever is ngaged by the linkage to each solenoid plunger .nd the clutch faces are separated, permitting the treadle to be free. This permits the power spring to be stretched without disturbing the treadle and allows the treadle to turn without affecting the position of the power spring.

WONDER BAR OPERATION

When the Wonder Bar is depressed, a mechanical finger closes the station selector switch which energizes the relay -- the switch will remain closed as long as the bar is held depressed.

When depressing a push button, the declutching lever opens the clutch disc faces, disengaging the manual worm gear from the treadle.

The cam of the push button slide assembly contacts the treadle bar and moves the bar to station set on the button.

After the push button has returned to its normal position, the clutch faces are brought together so that manual or signal-seeking tuning can be operated.

CONDENSED ELECTRICAL OPERATION OF ELECTRONIC TUNER USED ON WONDER BAR RADIO 987730

The purpose of the electrical components associated with the tuner is to control the relay so the operator may start the tuner sweeping cycle by merely depressing a station selector bar

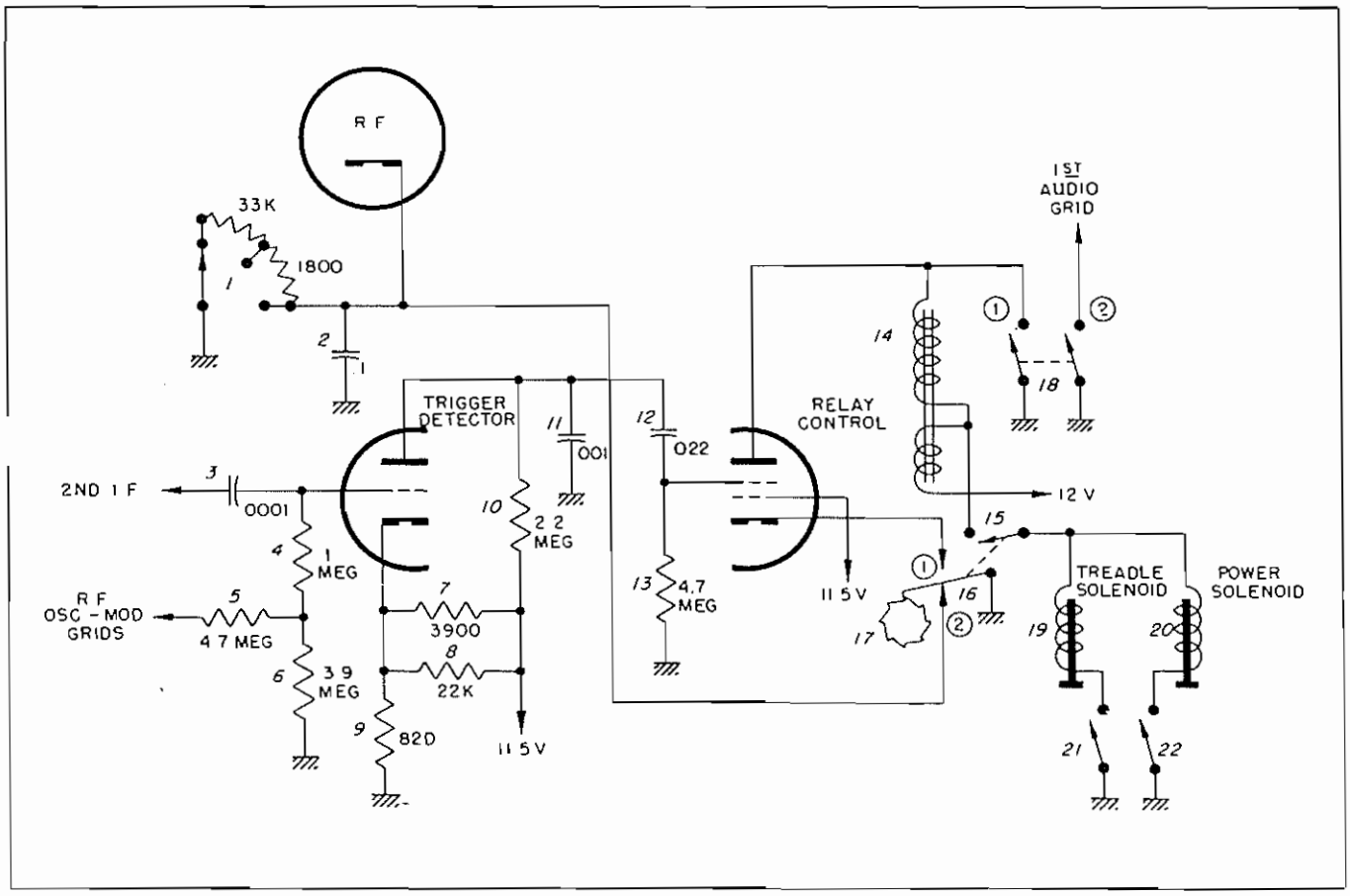


Figure 11

switch so that the sweeping operation will continue until a signal is received. At that time, it is the function of this circuit to accurately tune to the frequency of the selected station. It also provides the necessary conditions to keep the tuner on the station until a change is desired. Illustration numbers shown in Figure 11 refer only to the simplified schematic diagram and in no way refer to any service parts list.

ELECTRICAL OPERATION CYCLE

1. To start the tuner, the station selector bar is momentarily depressed actuating the station selector switch No. 18 which energizes the relay.

   A. Contact No. 2 of the station selector switch closes first, grounding the grid of the first audio amplifier stage, and muting the radio before contact No. 1 closes.

   B. Contact No. 1 closes and completes a circuit from ground through the station selector switch (18) and relay (14) to the 12 volt supply.

   C. The current through this circuit energizes the relay (14) and removes the relay arm from the stopping disc (17) - thus starting the tuner, and opening contact No. 2 and closing contact No. 1 on the relay switch (16).

2. To keep the tuner seeking after the station selector bar is released, the relay is held energized by a holding circuit.

   A. Since contact No. 2 of the relay switch is now open, the path to ground for the cathode of the RF amplifier tube must be through the sensitivity control (1) so the sensitivity of the radio can be controlled during the sweeping operation.

   B. Relay switch contact No. 1 is grounded completing the cathode circuit of the relay control section. Completing this circuit allows plate current to flow in the relay control section which is sufficient to keep the relay energized and the tuner seeking.

3. To stop the tuner on station, the relay is de-energized by an electronic triggering circuit actuated by an incoming signal.

   A. The incoming signal develops a voltage in the primary and secondary of the 2nd I.F. transformer.

   B. The I.F. signal voltage in the secondary of the 2nd I.F. transformer is coupled through the condenser (3) to the grid of the trigger detector section of the 12AL8 tube. This signal voltage is developed across the resistors (4) and (6).

   C. The trigger detector section functions as a plate detector. The IF voltage appears on the grid and the tube conducts. The IF component is removed in the plate circuit by the .001 condenser (11).

   D. The plate current flow in the trigger detector section develops a biasing voltage across the 4.7 Meg. grid resistor (13), making the grid more negative than the cathode. This causes the plate current in the relay control section to stop.

   E. Stopping the current flow de-energizes the relay (14) and the relay arm engages the stopping disc (17), stopping the tuner on station, opening contact No. 1, and ground contact No. 2 of the relay switch (16).

4. To hold the tuner on the new station until another station is desired, the relay is held de-energized until the starting circuit is again actuated by the operator.

   A. With relay switch contact No. 1 open, the relay control section cathode is not grounded. Therefore, this section cannot conduct until the relay is again energized, grounding contact No. 1.

   B. Relay switch contact No. 2 is grounded which grounds the RF amplifier cathode, and returns the radio to normal sensitivity.

THE TRIGGER DETECTION CIRCUIT

The purpose of the trigger detector circuit is to take the input signal voltages of various amplitudes and trigger the relay tube so that the accuracy will be the same on all stations regardless of the signal strength. The grid of the plate detector (trigger-detector) is tied into the AVC line. A portion of the AVC voltage is used to vary the bias on the plate detector in proportion to the strength of the incoming signal. With a strong incoming signal, the bias voltage is high and triggering doesn't take place until the tuner gets very near the resonant frequency of the station providing the incoming signal. At this point the IF signal is great enough to overcome the bias and the plate detector is caused to conduct, stopping the tuner. Likewise on a weak incoming signal, the AVC voltage is small and the

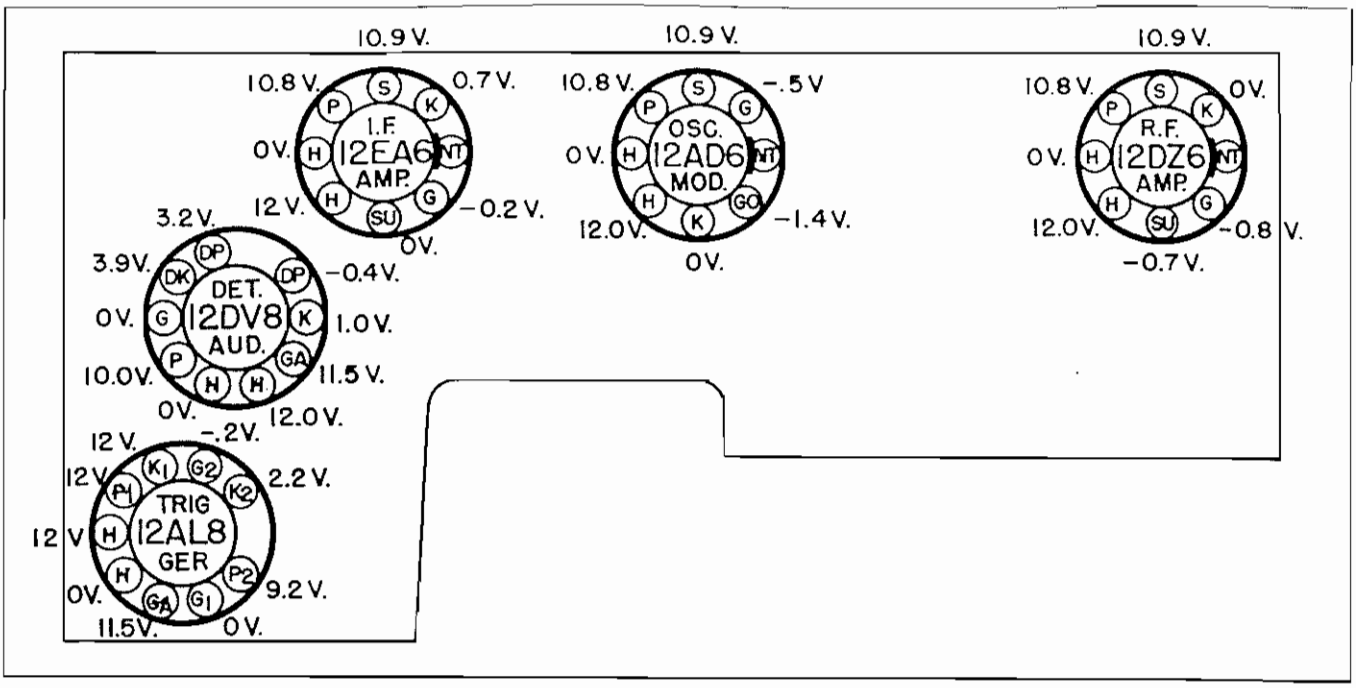


Figure 12

bias on the plate detector is small, therefore a smaller amount of IF signal will stop the tuner at a point very close to the peak of the incoming signal. In other words, the AVC voltage raises and lowers the threshold over which the IF signal has to climb in order to stop the tuner. The circuit is so designed that the IF signal voltage is high enough to overcome the bias and stop the tuner only when the tuner has reached the station frequency.

SENSITIVITY CONTROL

The sensitivity control (1) is a step switch with resistors of various values between each step. The control is inserted into the cathode circuit of the RF amplifier during the tuning sweep when contact No. 2 of the relay switch (16) is open. It the means by which the operator controls the number of stations on which the tuner will stop.

ELECTRICAL OPERATION OF SOLENOIDS

Two 12 volt solenoids, the treadle solenoid (19) and the power solenoid (20) are a mechanical function, but the switches (21 & 22) are part of the electrical circuit. The treadle solenoid (19) pulls the pointer from the high end of the dial to the low end. The solenoid is energized whenever the dial reaches the high frequency limit if relay (14) is energized closing switch (15). This means that the solenoids will energize only during automatic seeking action and not on manual.

The power solenoid is energized when switch (22) is closed and when power spring de-energizes.

PROCEDURE FOR CHECKING THE VOLTAGES OF 987730 RADIO

It will be necessary to remove the top and bottom covers of the radio case to check the voltages. Connect the radio on the service bench to a 12 volt power supply unit, and place a 7.5 ampere fuse between the radio and the power supply unit. It is important that you have 12 volts at the spark plate of the radio, or the voltage readings will be correspondingly lower.

NOTE: All voltage readings have been taken with a vacuum tube voltmeter, with the meter set to permit reading DC voltages of 5 to 20 volts in magnitude. Ground one lead of the voltmeter to the radio chassis and with the other lead, check all tube heater pins, No's 3 or 4, should show a voltage of 12 volts. If incorrect, or no voltages, check or replace the following.

1. Check or replace the "ON and OFF" switch, item 80C on circuit diagram.
2. Check or replace spark plate, Item 34, and condenser, Item 35, on circuit diagram and parts layout.
3. Check or replace heater choke, Item 9 on circuit diagram and parts layout.

Next, check the transistor collector element marked "C" of the 2N278 output transistor, should read 1.2 volts DC. If high or no voltage, check or replace.

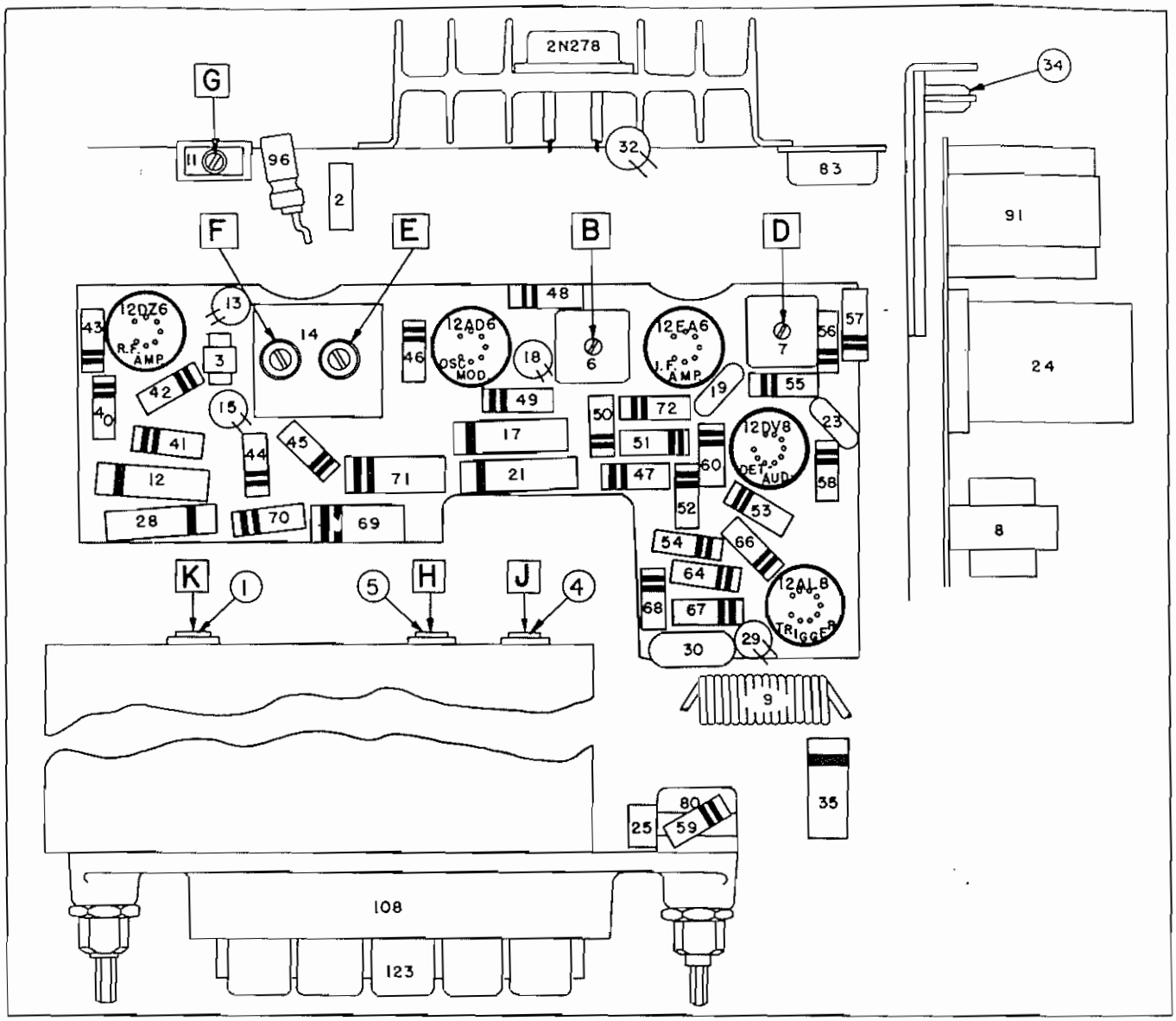


Figure 13

1. Check or replace output transformer, Item 92 on the circuit diagram and parts layout.

2. Check or replace speaker, Item 87 on the circuit diagram and parts layout.

3. Check connectors between the radio receiver unit and the speaker unit.

Next check the resistance of the base element of the transistor marked B of the 2N278 to ground with the radio turned off. Make this check with a meter on the RX1 scale. The resistance should be between 2 and 15 ohms.

If incorrect, or zero, check or replace:

1. Check or replace the input transformer, Item 91 on the circuit diagram and parts layout.

2. Check or replace condensers, Item 32A and 33 on the circuit diagram.

3. Check or replace resistors, Items 70 and 71, and potentiometer, Item 83 on the circuit diagram and parts layout.

Next check the resistance to ground of the transistor emitter element, marked "B" with the radio turned off. Set the ohmmeter on the RX1 scale. The resistance should be between 1 and 4 ohms. If incorrect or zero, check or replace:

1. Check or replace condenser, Item 32B on the circuit diagram and parts layout.
2. Check or replace resistor, Item 69 on the circuit diagram and parts layout.

Now, with the radio turned off, check the resistance between the collector element, marked "C",

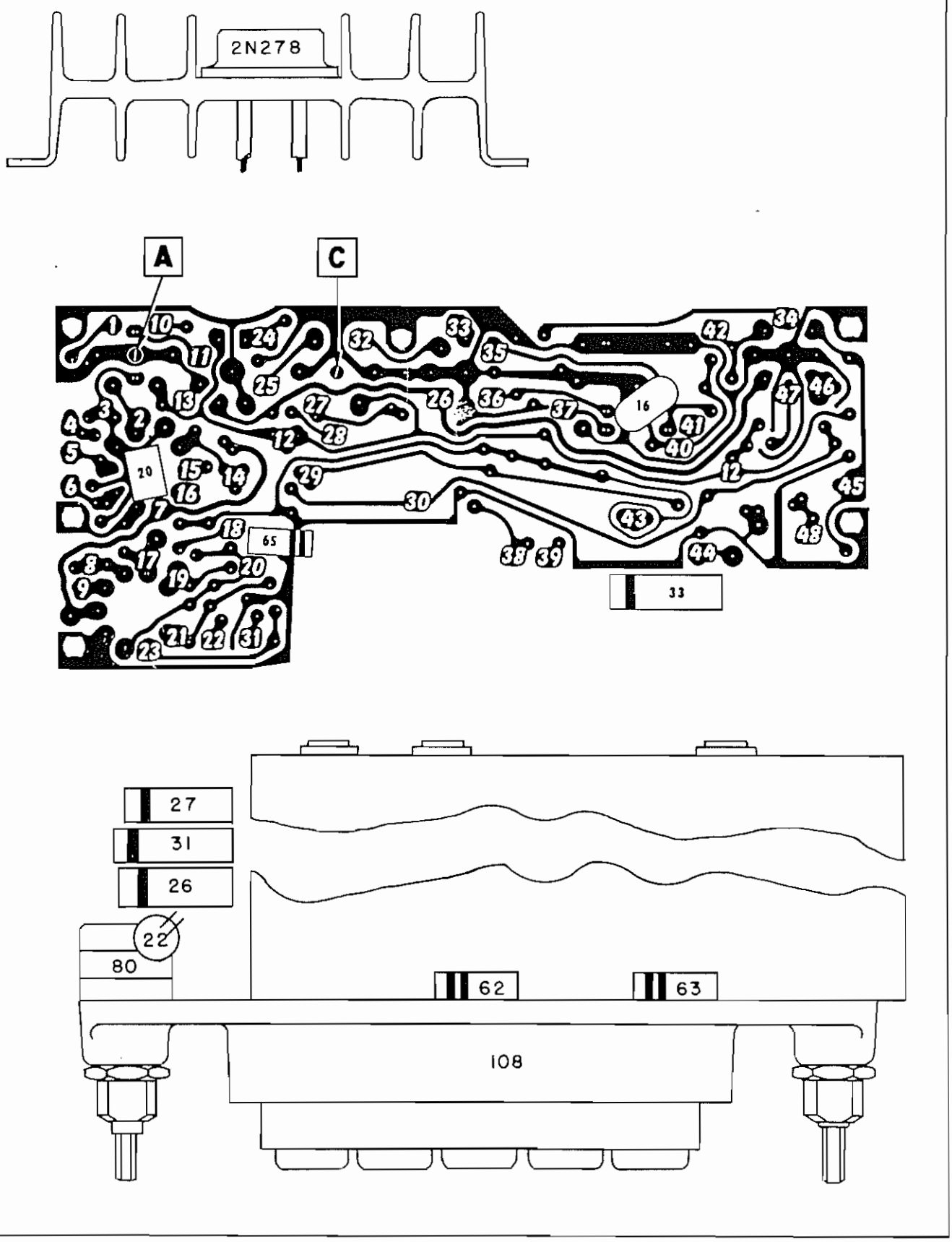


Figure 14 PARTS LAYOUT - TOP VIEW - 987730 - RADIO

and the emitter element, marked "E" of the 2N278. If less than 1 ohm, replace the transistor.

Next check tube pin No. 6 marked "P" on the 12DV8, should read between 9 and 11 volts DC. If incorrect or no voltage:

1. Check or replace input transformer, Item 91 on the circuit diagram and parts layout.

2. Check or replace condenser, Item 31 on the circuit diagram and parts layout.

3. Check or replace electrolytic condenser, Items 24B and 24C on the circuit diagram and 24 on the parts layout.

4. Check or replace resistors 69, 70, 71, 72 and 83 on the circuit diagram and parts layout.

Next check the voltage on pin No. 1 marked K on the 12DV8, should be between .5 and 1.5 volts. If incorrect or no voltage:

1. Check or replace resistor, Item 60.

Next check pin No. 5 on the 12EA6 intermediate frequency amplifier, should read 10.8 volts. If incorrect or no voltage:

1. Check or replace the intermediate frequency transformer, Item 7 on the circuit diagram and parts layout.

Next check tube pin No. 5 marked "P" of the 12AD6, should read 10.8 volts. If incorrect or no voltage:

1. Check or replace the first intermediate frequency transformer, Item 6 on the circuit diagram and parts layout.

Next check pin No. 6 marked "S" on the 12AD6, should read 10.9 volts. If incorrect or no voltage:

1. Check or replace the oscillator coil, Item 5 on the circuit diagram and parts layout.

Next check tube pin No. 5 marked "P" on the 12DZ6 radio frequency amplifier, should read 10.8 volts DC. if incorrect or no voltage:

1. Check or replace the oscillator coil, Item 5 on the circuit diagram and parts layout.

2. Check or replace choke, Item 3 on the circuit diagram and parts layout.

PROCEDURE FOR SIGNAL TRACING 987730 RADIO

Turn on signal generator and set in audio position to obtain a 400 cycle audio signal. Ground one lead of signal generator to radio chassis.

NOTE: To protect signal generator from DC voltage, place .1 mfd. condenser in signal generator lead between the signal generator and the end of the test lead.

Adjust signal generator volume about 3/4 open to obtain a strong signal. Remove the 12DV8 tube, with signal generator lead touch tube pin No. 6 marked "P" of the 12DV8 socket. If no signal, check or replace:

1. Check or replace speaker, Item 87 on the circuit diagram and parts layout.

2. Check or replace the output transformer, Item 92 on the circuit diagram and parts layout.

3. Check or replace the input transformer, Item 91 on the circuit diagram and parts layout.

4. Check or replace condenser, Item 31 on the circuit diagram and parts layout.

5. Check or replace 2N278 transistor in the output stage.

Replace the 12DV8 tube in socket and touch tube pin No. 7 marked "G" of the 12DV8 tube socket. If no signal:

1. Check or replace the 12DV8 tube or tube socket.

2. Check or replace resistors, Items 59 and 60, and potentiometer 80A on the circuit diagram.

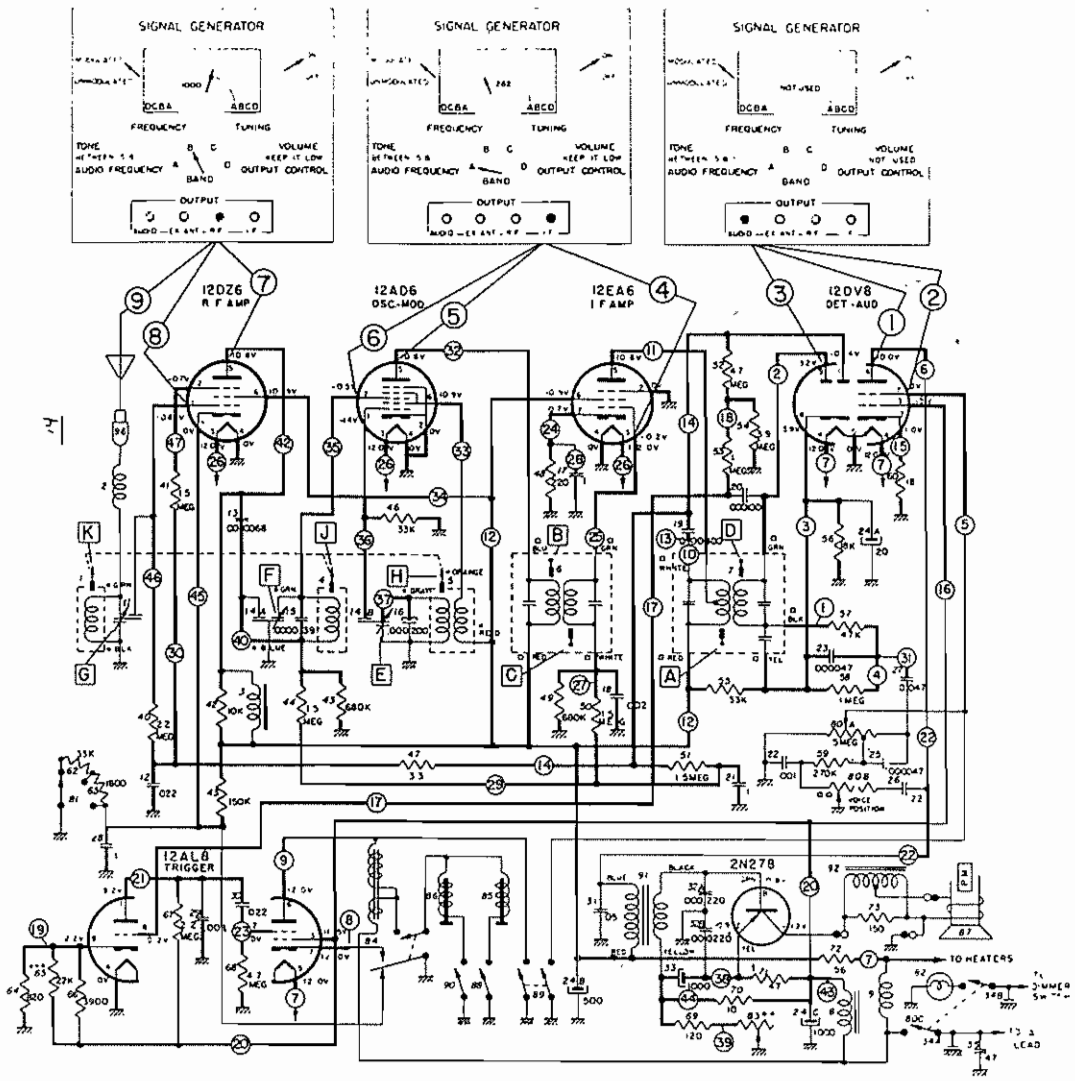
3. Check or replace condensers, Items 22 and 25 on the circuit diagram and parts layout.

Next turn the volume control on the radio to the maximum position and touch each of the tube pins No. 1 and No. 9 marked "DP" of the 12DV8. Signal should be heard at one of these pins. If no signal:

1. Check or replace the 12DV8 tube.

2. Check or replace the intermediate frequency transformer, Item 7 on the circuit diagram and parts layout.

3. Check or replace the volume control, Item 80A on the circuit diagram.



POINT SIGNAL STOPS - CHECK OR REPLACE ITEMS LISTED	
No signal at point 1 - Check or replace items 31 - 87 - 91 - 92 - 2N278	No signal at point 5 - Check or replace item 6
No signal at point 2 - Check or replace items 22 - 25 - 59 - 60 - 80A - 12DV8 tube or socket	No signal at point 6 - Check or replace 12AD6 tube or socket
No signal at point 3 - Check or replace items 7 - 22 - 23 - 25 - 26 - 55 - 57 - 58 - 59 - 80A - 12DV8 tube or socket	No signal at point 7 - Check or replace items 4 - 5 - 13 - 14A - 14B - 15 - 16
No signal at point 4 - Check or replace items 7 - 48 - 12EA6 tube or socket	No signal at point 8 - Check or replace items 40 - 41 - 12DZ6 tube or socket
	No signal at point 9 - Check or replace items 1 - 2 - 11

Figure 15 SIGNAL TRACING PROCEDURE - 987730 - RADIO

4. Check or replace condensers, Items 22, 23, 25 and 26 on the circuit diagram and parts layout.

5. Check or replace resistors, Items 55, 56, 57, 58 and 59 on the circuit diagram and parts layout.

Change the signal generator from audio position to generate an intermediate frequency signal; set signal generator to 262 kilocycles, leaving the .1 mfd. condenser in the signal generator lead to protect the signal generator from DC voltage. Keep the signal generator grounded to the radio chassis.

Next touch tube pin No. 1 marked 6 of the 12EA6 intermediate frequency amplifier. If no signal:

1. Check or replace the 12EA6 tube.

2. Check or replace the IF transformer, Item 7 on the circuit diagram and parts layout.

3. Check or replace the resistor, Item 48 on the circuit diagram and parts layout.

Next touch tube pin No. 5 marked "P" on the 12AD6. If no signal, check or replace:

1. Check or replace the IF transformer, Item 6 on the parts layout and circuit diagram.

Next touch pin No. 7 marked "G" on the 12AD6. If no signal:

1. Check or replace the 12AD6.

Change the signal generator from intermediate frequency setting to a radio frequency signal. Remove the .1 mfd. condenser from the lead of the signal generator. Place a .000082 mfd. condenser in the signal generator lead between the signal generator and the end of the test lead. Set signal generator to 1000 kilocycles and tune the radio receiver to 1000 kilocycles, 10 on the dial scale.

Next touch the tube pin No. 5 marked "P" on the 12DZ6 radio frequency amplifier tube. If no signal, check or replace:

1. Check or replace radio frequency coil, Item 4 on the circuit diagram and parts layout.

2. Check or replace oscillator coil, Item 5 on the circuit diagram and parts layout.

3. Check or replace condensers, Items 13, 14A, 14B, 15 and 16 on circuit diagram and parts layout.

Next touch tube pin No. 1 marked "G" on 12DZ6. If no signal:

1. Check or replace 12DZ6 tube.

2. Check or replace resistors, Items 40 and 41 on the circuit diagram and parts layout.

Next touch antenna terminal at antenna socket. If no signal:

1. Check or replace antenna coil, Item 1 on iircuit diagram and parts layout.

2. Check or replace antenna choke, Item 2 on circuit diagram and parts layout.

3. Check or replace antenna trimmer condenser, Item 11 on circuit diagram and parts layout.

This completes the entire checking procedure for the receiver, and if the procedure has been followed as outlined, the failure will have been located. After the failure has been repaired, the receiver will operate, but should now be aligned for proper performance. This alignment is part of the service operation when repairing radios.

PROCEDURE FOR ALIGNMENT OF 987730 RADIO

All receivers are properly aligned at the factory and should require no further adjustments, except adjusting the receiver to the antenna when installation is made, unless the adjustments have been tampered with, or new coils, intermediate frequency transformers or tuning cores have been installed.

To properly align the receiver, it will be necessary to have a voltmeter and signal generator.

NOTE: If any one of the tuning coils or cores have been replaced, see "Capacity and Inductance Alignment Procedure" before proceeding with alignment of the receiver. If only the adjustments have been tampered with or an intermediate frequency transformer has been replaced, proceed with the alignment as follows:

1. Connect both leads of a voltmeter across the voice of the speaker. Set the voltmeter in the AC range position on a scale to read 2 volts.

2. Turn on signal generator and set adjustments to obtain a 262 kilocycle signal. Connect one lead of signal generator to radio chassis for ground through 0.1 mfd. condenser. Attach

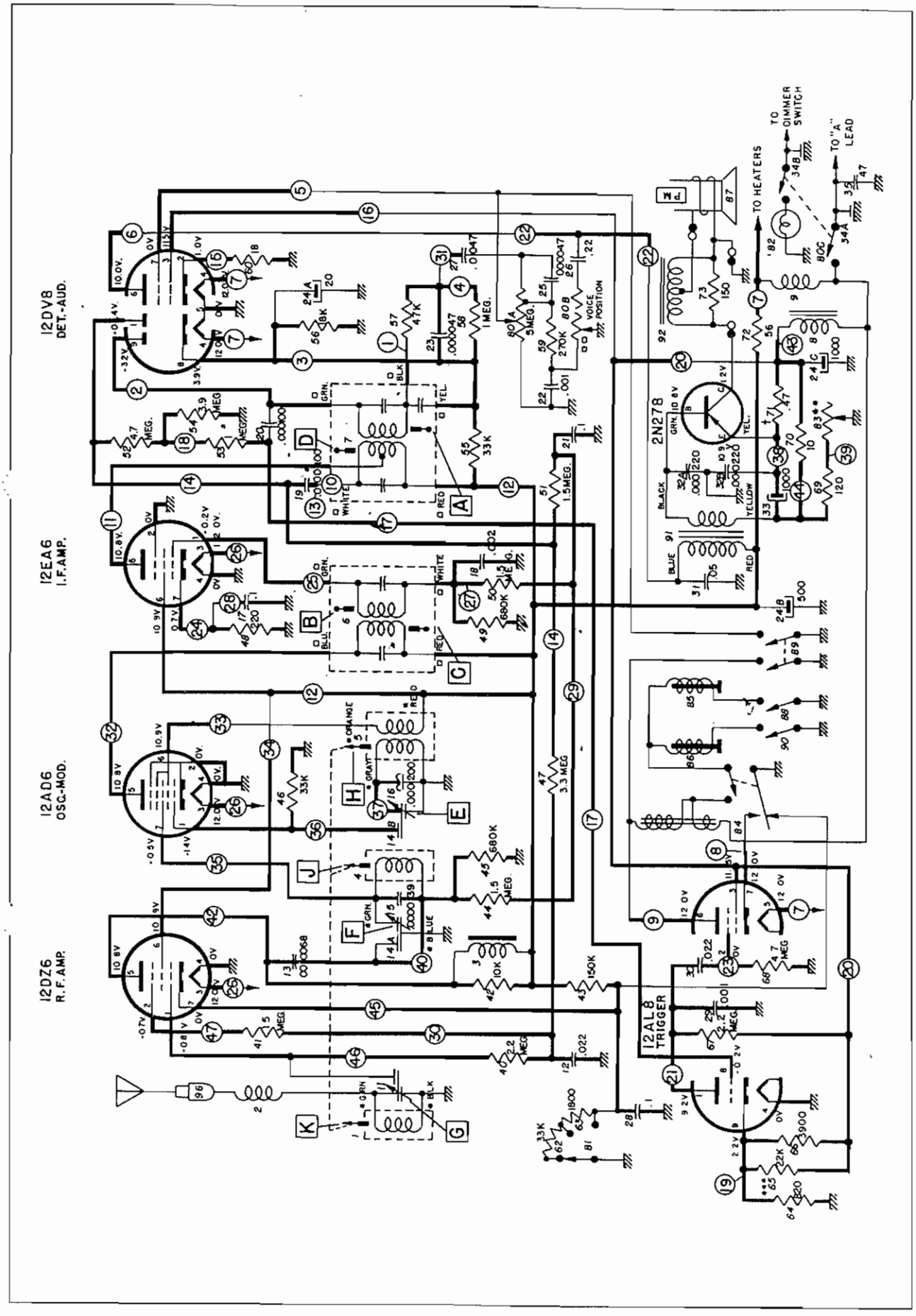


Figure 16 CIRCUIT DIAGRAM - 987730 - RADIO

the other lead of signal generator to tube pin No. 7 marked "G" on 12AD6 tube.

3. Adjust signal generator volume control so that the voltmeter will read less than 2 volts.

   NOTE: Radio receiver volume control must be turned to the maximum position so that the automatic volume control circuit will not affect the alignment of the receiver.

4. Adjust in sequence cores "A, B, and C", as shown in circuit diagram and parts layout for maximum meter reading. Adjust trimmer "D" for minimum meter reading. Keep the signal generator volume turned down so that during adjustments the meter doesn't read more than 2 volts. This will result in a better alignment of the receiver.

5. Next change signal generator setting to obtain a radio frequency signal and tune signal generator to exactly 1615 kilocycles. Place a .000082 mfd. condenser to antenna connector and attach signal generator lead. Tune the radio receiver to the "Stop" on the 1600 kilocycle end of the dial. Keep the signal generator volume control adjusted so that output meter reads at about half scale.

6. Adjust trimmers "E, F, and G", on circuit diagram and parts layout, in sequence for maximum readings on output meter. Repeat for maximum meter readings.

7. Tune the signal generator and radio receiver to exactly 1615 kilocycles and repeat adjustments of trimmers "F and G" ONLY for maximum output meter readings.

8. After the receiver has been installed in the car, turn on receiver and tune in a weak station near 1000 kilocycles, with the radio volume control turned to maximum position and the antenna extended to full height. Readjust trimmer "G" ONLY for maximum volume.

CAPACITY AND INDUCTANCE ALIGNMENT PROCEDURE FOR 987730 RADIO

This alignment procedure is to be used only when any of the following parts have been replaced in the radio; antenna coil, radio frequency coil, oscillator coil, or any of the tuning cores.

The intermediate frequency alignment at 262 kilocycles is the same as outlined in "Alignment Procedure" operations 1 through 4. After completing the intermediate frequency alignment, proceed as follows:

1. Connect signal generator lead to a .000082 mfd. condenser and connect to antenna terminal of antenna socket. Mechanically align iron core "H" on circuit diagram and parts layout to measure 1 and 5/8 inches in coil forms from rear mounting edge of coil as shown in figure 16.

2. With signal generator adjusted to exactly 1615 kilocycles, adjust trimmers "E, F, and G" on circuit diagram and parts layout in sequence for maximum output meter reading.

3. Tune signal generator to exactly 600 kilocycles and tune radio receiver to "Stop" on the low end of the dial. Adjust output meter to about half scale, then adjust iron cores "J and K" on circuit diagram and parts layout in sequence for maximum output meter reading.

4. Tune signal generator and radio receiver to 600 kilocycles and readjust iron cores "J and K" ONLY, for maximum output meter reading. Repeat the adjustment for maximum meter reading.

5. Reset signal generator to exactly 1615 kilocycles and tune radio receiver to stop on 1600 kilocycles end of the dial. Then readjust trimmers "F and G" ONLY, until no further increase in output meter reading can be obtained.

6. After the radio receiver has been installed in the car, turn on the receiver and tune in a weak station near 1000 kilocycles, with radio volume turned to maximum position and antenna extended to full height. Readjust trimmer "G" only, for maximum volume.

PROCEDURE FOR MECHANICAL ADJUSTMENT - 987730 TUNER

POINTER CALIBRATION: Connect a signal generator lead to the antenna connector of the radio and ground the other lead to radio chassis. Tune signal generator to 1000 kilocycles, manually tune radio to signal and, if pointer is out of adjustment, bend adjusting ear, see Figure 32, so that dial pointer is on 10 on the dial glass.

BACKLASH GEAR: Remove mesh adjusting plate, see Figure 20, disengage worm from flat gears, turn flat gear that is free clockwise (looking from righthand end of tuner) until the springs are completely compressed, then back off four teeth and reassemble unit.

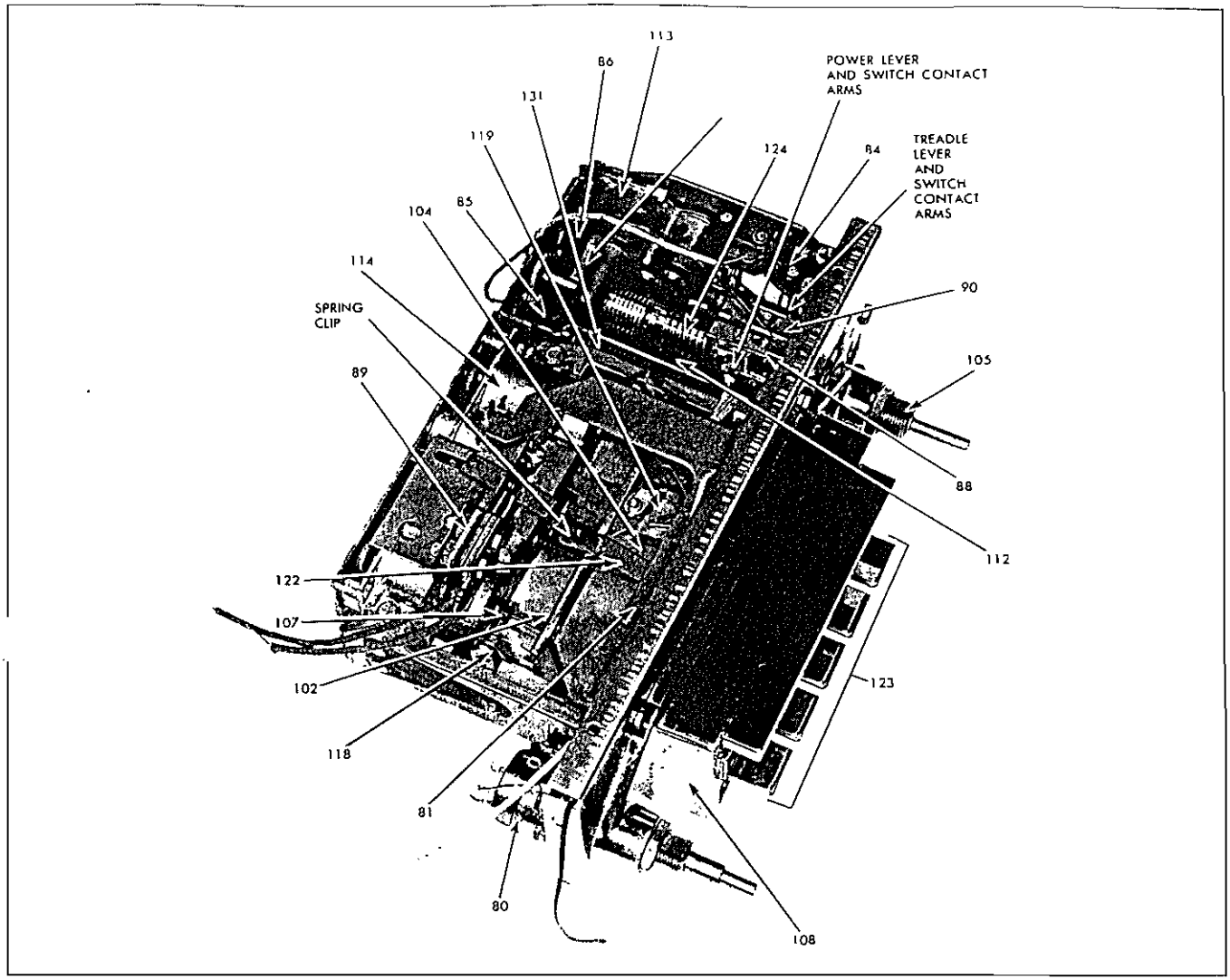


Figure 17 BOTTOM VIEW - TUNER - 987730 - RADIO

WORM GEAR: Remove gear train and relay plate assembly. Loosen the locking nut, see Figure 7, and position flat gears directly under the worm gear by adjusting the treadle pivot, adsting screw, and then loosen mesh adjusting plate screws.

Insert screw driver in the adjustment slot and run worm down to flat gears for snug fit so that the manual tuning shaft can be turned freely without a knob on the shaft.

Now turn screw driver counter clockwise, lifting the worm gear until it is easily turned to both ends of the dial without a knob on tuning shaft. Then tighten mesh adjusting plate screws.

GEAR TRAIN: Anytime the gear train is removed or the mesh adjusting plate is adjusted, it will be necessary to adjust the gear train mesh.

Loosen the two gear train mounting screws, slip a .080 inch feeler gauge between the gear train gauge plate, on governor housing, see Figure 20, and the rack and worm gear and tighten mounting screws. Check tuner operation. If tuner does not start when "Wonder Bar" is depressed, check relay arm -- it should be lifting and clearing the gear train governor teeth when tuning bar is depressed.

RELAY ARM: With radio hooked-up to power supply and antenna disconnected, loosen relay mounting screws and position relay arm to just clear the teeth of the gear train. Tuner should be seeking during entire adjustment. Tighten relay mounting screws. Be sure relay arm drops into the gear teeth of the gear train stopping the seeking when radio is turned off.

CLUTCH: If clutch slips when manually tuned, tune radio to the low frequency end of dial (55), loosen locking nut and position the treadle arm midway between coil housing and the frame arm by adjusting the treadle shaft pivot adjusting screw.

Now tune radio to high frequency end of dial (1600) and loosen slab-head set screw on clutch driven disc which is on the underside of tuner. Then position the flat gears directly below the worm gear by sliding the clutch along its shaft and tighten slab-head set screw.

Check declutching cam. Clutch roller should fit snugly against declutching cam ear. If not, bend cam ear until roller is securely in position.

Loosen the treadle pivot adjusting screw until the clutch completely slips while turning the manual tuning shaft. Now tighten treadle pivot adjusting screw until there is no clutch slippage, and tighten the pivot adjusting screw lock nut. If procedure is not followed, treadle arm can be moved too far and will bind on coil housing.

TREADLE RETURN SWITCH: The treadle return switch will require adjustment when the tuner fails to sweep the entire dial travel -- 55 to 1600 kilocycles.

Set signal generator to 540 kilocycles and hook lead from signal generator into antenna socket of radio and ground other lead to radio chassis. Adjust the low frequency treadle lever arm No. 1 as shown in Figure 6 by bending until tuner will stop on the signal after the switch is opened and the treadle solenoid de-energized. To adjust the high frequency end of dial (1600), set signal generator to 1600 kilocycles leaving generator hooked to antenna socket and adjust high frequency lever arm No. 2 until the tuner will stop on 1600 kilocycles before the treadle return switch is closed.

POWER RETURN SWITCH: The power solenoid switch is adjustable so that full travel of rack and worm gear can be obtained and fully stretch the power spring. To adjust, tune radio to high frequency end of dial (1600), then lift the relay arm up to clear the governor gear teeth. This will permit the gear train to run until the rack and worm gear has reached the limit of its travel.

Manually pull the rack and worm gear back about one-half inch and repeat foregoing paragraph. Adjust the power lever arm No. 3 so that it will close the switch and energize the power solenoid just before the rack and worm gear reaches the limit of travel. Repeat several times to be certain switch closes each time.

Depress a push button in far enough to release the clutch and manually pull the rack and worm gear back until it strikes rubber stopper on back of shaft. Lever arm No. 4 is to be adjusted so that it will open the switch to de-energize the solenoid just before the rack and worm strikes the rubber stopper.

PROCEDURE FOR PARTS REPLACEMENT 987730 TUNER

REPLACE TREADLE OR POWER SWITCH: Remove the two mounting screws on the switches and separate the switches where hooked together. Unsolder the connecting wires to defective switch -- replace switch and reverse procedure to install new switch.

REPLACE RELAY: Remove the two screws holding the right-hand wrap around next to the relay. This procedure is for sets using the spin-tight screws only. Sets with slotted-head screws can be changed without removing the relay and governor plate. Remove the two relay mounting screws and unsolder the relay wires (see Figures 7 and 20). Reverse procedure to install new relay.

REPLACE STATION SELECTOR SWITCH: Remove both the large and small printed circuit board mounting screws and move the boards out of the way. In most cases, this can be done without unsoldering any of the wires. Then remove the two switch mounting screws and unsolder wires to the switch (see Figure 20). Reverse procedure to install new switch.

REPLACE GEAR TRAIN: Remove the two screws holding the right-hand wrap around located next to the relay.

Remove the two relay mounting screws and move the relay out of the chassis without unsoldering wires so that gear train may be slipped past the relay (see Figures 7 and 9).

Remove the two mounting screws of the gear train and slip the gear train out between the printed circuit board and the treadle and power switches. Reverse procedure to install new gear train.

REPLACE STATION SELECTOR BAR AND SENSITIVITY CONTROL: Remove the four screws holding the dial escutcheon to chassis and remove escutcheon. Remove the mounting screws holding both the large and small printed circuit boards to the chassis and move boards out of the way -- in most cases can be done without unsoldering any wires.

Remove the two mounting screws holding the station selector bar and sensitivity control switch which is one unit. Remove the station selector switch arm out of the notch in which it operates. No force should be used or parts bent to remove the switch arm.

Remove unit by moving it towards the back of the set and up out of the chassis.

Reverse procedure to install new station selector bar and sensitivity control.

REPLACE SOLENOIDS: Remove the two right-hand wrap around screws. Remove both the large and small printed circuit board mounting screws and move the boards out of the way -- in most cases can be done without unsoldering any of the wires.

Remove the mounting screw holding the trimmer condenser to the chassis and move out of the way without unsoldering the wires.

Remove the two mounting screws on solenoid to be replaced and move the wrap around as far as possible from the rear of the solenoids (see Figures 6 and 7).

Bring the solenoid up through the top side of the radio where the circuit boards were mounted and unsolder the wires from the solenoid. Replace ith new solenoid and solder the wires back to the proper terminals.

To reinstall the new solenoid, the plunger must first be attached to the solenoid plunger linkage and positioned so that the solenoid opening and plunger guide rod line-up, then slide solenoid into place and replace the two solenoid mounting screws.

Reverse procedure to reinstall balance of parts removed.

REPLACE DIAL POINTER: Remove the four mounting screws holding the dial escutcheon to the radio chassis and remove escutcheon. Remove the spring holding the pointer arm (see Figure 20) and move the dial pointer to the low frequency (55) end of the dial so pointer linkage can be lifted out of the guide slot in which it rides (see Figure 20).

Reverse procedure to install new dial pointer.

REPLACE TUNING COILS: Remove both the large and small printed circuit board mounting screws and move the boards out of the way -- in most cases, can be done without unsoldering any of the wires. Remove the two screws holding the right wrap around on the clutch side of radio. Remove mounting screw holding trimmer condenser to chassis and move out of the way without unsoldering wires.

Remove the three mounting screws holding the tuning coil strip and remove the wrap around as far as possible from the coil strip.

Remove coils from coil housing and up past circuit boards (see Figure 35). Replace defective coil on coil strip and place coil strip back on coil housing (see Figure 20). Reverse procedure to reinstall balance of parts removed.

REPLACE CLUTCH: Remove both the large and small printed circuit board mounting screws and move the boards out of the way -- in most cases, can be done without unsoldering any wires.

Remove the relay as outlined in caption "Replace Relay". Then remove the two screws holding the treadle and power return switches and move out of the way without unsoldering the wires.

Remove the escutcheon four mounting screws and remove the escutcheon. Remove the station selector switch, gear train, station selector bar and sensitivity control as previously outlined.

Remove the three screws holding the tuner frame to the front plate of the radio. Remove two small springs connected between the solenoid linkage and the front plate of radio.

Move the front plate away from tuner so the rack and worm can be lifted out to the front of the tuner. It may be necessary to remove the collar or spring clip on the end of the rack and worm shaft (see Figure 7).

Remove the mounting screw holding the antenna trimmer and lift the entire tuner assembly out of the chassis. Remove the four screws holding the coil housing (see Figure 35) and lift the coil housing back out of the way.

Remove the de-clutching cam (see Figure 6) by removing the spring clip on the right-hand end of the cam and then pry the left-hand end out of the frame. Lift out cam assembly. Care must be used not to bend the cam assembly. Remove the front bearing plate and push button slide assembly (see Figure 7).

Remove the treadle shaft adjusting screw and lock nut and then pry the clutch lever arm out and toward the front of the tuner. This will release the clutch spring and allow the entire treadle shaft to be moved upward.

Remove the spring retainer clips on the power and treadle lever assemblies (see Figure 6). Remove the power spring and clutch disc linkage arms. Lift the treadle shaft out so clutch disc can be removed and replaced with new one.

Reverse procedure to reinstall the removed parts.

Clutch clearance must be adjusted after the tuner has been reassembled. Follow instructions outlined under "Clutch Adjustment".

REPLACE PUSH BUTTON SLIDES: The push buttons, slide assemblies and front bearing plate are serviced and replaced as a unit. To replace, follow same instructions as outlined for replacing clutch to paragraph which indicates -- remove front bearing plate and remove push button slide assembly.

Reverse the procedure to reassemble parts removed.

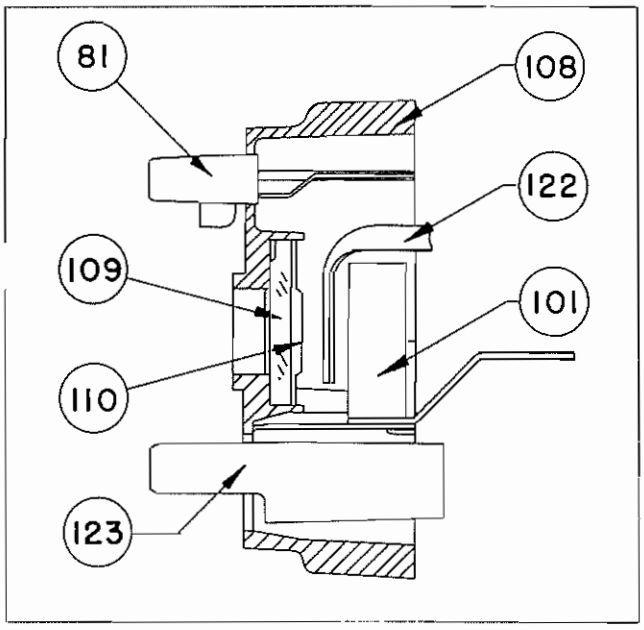


Figure 18 ESCUTCHEON - 987730 - RADIO

SERVICE PARTS LIST
987730 RADIO

NOTE: All Chevrolet radio service parts are available to dealers through General Motors Parts Division Warehouses. Orders for radio parts requirements to be placed with warehouse in the usual manner.

Illus. No.	Service Part No.	Description
		COILS
1	1221138	Antenna, tuning
2	7255738	Antenna Series Choke
3	7269684	Choke, R.F. plate
4	1221138	R.F. tuning
5	1221150	Oscillator, tuning
6	1220990	1st I.F. Assy.
7	1221124	2nd I.F. Assy.
8	7271321	Choke, Input Filter
9	1217846	Choke, hash
		CONDENSERS
11	7268558	Antenna trimmer
12	7271603	.022 Mfd., 200 Volt, Tubular
13	7268897	.000068 Mfd., 500 Volt, Ceramic
14	7268828	Dual Trimmer
14A		R.F. Section
14B		Oscillator Section
15	1217736	.000039 Mfd., 500 Volt, Ceramic
16	7270129	.000200 Mfd., Temperature Compensating
17	7238789	.1 Mfd., 200 Volt, Tubular
18	7265426	.002 Mfd., 500 Volt, Ceramic
19	1219498	.000100 Mfd., Mica, ± 5%
20	1219498	.000100 Mfd., Molded Mica, ± 5%
21	7238789	.1 Mfd., 200 Volt, Tubular
22	7271421	.001 Mfd., Ceramic
23	7271344	.000047 Mfd., 300 Volt, Mica
24	7269719	Electrolytic
24A		20 Mfd., 16 Volt
24B		500 Mfd., 16 Volt
24C		1000 Mfd., 16 Volt
25	7271344	.000047 Mfd., Molded Mica
26	7271555	.22 Mfd., 200 Volt, Tubular
27	7271556	.0047 Mfd., 200 Volt, Tubular
28	7238789	.1 Mfd., 200 Volt, Tubular
29	7271421	.001 Mfd., 500 Volt, Ceramic
30	7271603	.022 Mfd., 200 Volt, Tubular
31	7268397	.05 Mfd., 200 Volt, Tubular
32	7270375	.000220 Mfd., Ceramic
	7270375	.000220 Mfd., Ceramic
33	7271557	.001 Mfd., 1 Volt, Electrolytic
34	1220885	Spark Plug
35	7269780	.47 Mfd., 50 Volt, Tubular
		RESISTORS
40	1214563	2.2 Megohm, 1/2 Watt ± 5%
41	1219492	1.5 Megohm, 1/2 Watt
42	*1213252	10,000 Ohms, 1/2 Watt
43	*1213272	150,000 Ohms, 1/2 Watt
44	1219492	1.5 Megohm, 1/2 Watt ± 5%
45	*1213488	680,000 Ohms, 1/2 Watt
46	*1213845	33,000 Ohms, 1/2 Watt
47	1214564	3.3 Megohm, 1/2 Watt, ± 5%
48	*7237835	220 Ohms, 1/2 Watt
49	*1213488	680,000 Ohms, 1/2 Watt
50	*1219492	1.5 Megohm, 1/2 Watt ± 5%
51	*1219492	1.5 Megohm, 1/2 Watt ± 5%
52	1221136	4.7 Megohm, 1/2 Watt ± 5%
53	1220169	1.0 Megohm, 1/2 Watt ± 5%
54	7271627	3.9 Megohm, 1/2 Watt ± 5%
55	1213845	33,000 Ohms, 1/2 Watt ± 5%
56	7271632	18,000 Ohms, 1/2 Watt ± 5%

Illus. No.	Service Part No.	Description
57	1214553	47,000 Ohms, 1/2 Watt
58	1220169	1 Megohm, 1/2 Watt ± 5%
59	*1214556	270,000 Ohms, 1/2 Watt
60	*1215944	18 Ohms, 1/2 Watt
62)	Use	33,000 Ohms, 1/2 Watt
63)	7271431	1800 Ohms, 1/2 Watt
64	7266231	820 Ohms, 1/2 Watt ± 5%
65	1214550	22,000 Ohms, 1/2 Watt
66	7266280	3900 Ohms, 1/2 Watt, ± 5%
67	1214563	2.2 Megohm, 1/2 Watt
68	1221136	4.7 Megohm, 1/2 Watt
69	7271576	120 Ohms, 5 Watt
70	1215107	10 Ohms, 1/2 Watt
71	7270608	.47 Ohms, Fuse Resistor
72	*1214540	56 Ohms, 1/2 Watt
73	1213220	150 Ohms, 1 Watt

TUBES AND TRANSISTORS

	1221028	2N278 Transistor
	1221126	12DZ6 Tube
	1220987	12AD6 Tube
	1221127	12EA6 Tube
	1221128	12DV8 Tube
	1221129	12AL8 Tube

MISCELLANEOUS ELECTRICAL

80	1221125	Control, volume, tone and switch
80A		Volume
80B		Tone
80C		Switch
81	7271431	Control, sensitivity Station Selector
82	456985	Lamp, dial light #1891
83	7269637	Potentiometer, transistor emitter
84	7270545	Relay, tuning operating
85	7268040	Solenoid, power
86	7268050	Solenoid, treadle
87	7270531	Speaker, 6 x 9'' PM
88	7268030	Switch, power solenoid
89	7269872	Switch, station selector
90	7268030	Switch, treadle solenoid
91	7271434	Transformer, input
92	7271448	Transformer, output

MECHANICAL PARTS

95	7270538	Dial Light Assy.
	1221130	Radiator, transistor heat
96	7239475	Socket, antenna
	7268815	Socket, 7 pin miniature tube
	7268822	Socket, 9 pin miniature tube
	7269078	Tube Shield

Illus. No.	Service Part No.	Description

TUNER

101	7270468	Backplate, pointer
102	7268626	Bar, core guide
103	1221131	Bearing Pkg., clutch operating
104	1221122	Bell Crank Pkg., pointer
105	7270476	Bushing, manual drive shaft
106	7271180	Cone, clutch, driven
107	7268687	Core, tuning, powdered iron
108	7270461	Escutcheon Assy.
109	7270397	Dial, calibrated
110	7270463	Backplate, dial
111	7271157	Finger Bar, declutching
112	7271389	Gear, clutch anti-backlash
113	7270700	Governor, gear train, tuning
114	7271429	Housing, for tuning coils Dash Pot Assy.
	*7271505	Sleeve Powdered Iron
115	1221120	Lever Pkg., clutch operating
116	1220970	Lever, power solenoid
117	1220971	Lever, treadle solenoid
118	7268978	Link, connecting core bar
119	7270245	Link, pointer calibration adjustment
120	7268689	Plunger, power solenoid
121	7268689	Plunger, treadle solenoid
122	7270456	Pointer Assy., dial
123	1221132	Pushbutton, front bearing plate and slides (set of 5 buttons)
124	1221133	Shaft and Gear, clutch gear drive
125	1220977	Spring, clutch
126	7268072	Spring, connecting link
127	7268717	Spring, finger bar return
128	7268610	Spring, pointer calibration link
129	1220975	Spring Pkg., pushbutton slide return (set of 5 springs)
130	7268009	Spring, power solenoid return
131	7268017	Spring, power
132	7268009	Spring, treadle solenoid return
133	7270014	Treadle Bar Assy., welded

INSTALLATION PARTS

1917580	Condenser, generator
1917580	Condenser, voltage regulator
1929070	Condenser, ignition coil
7271641	Ground strap
7271671	Ground strap
455107	Fuse, 7 1/2 ampere
494786	Static Collector, front wheel
7270291	Escutcheon, plastic, volume and tone
7270290	Escutcheon, plastic, selector
7270287	Escutcheon, chrome, control
7270288	Knob, wing

Illus. No.	Service Part No.	Description
	7270289	Knob, dummy
	1990894	Knob, control
		HARDWARE
	*7270013	Set Screw
	*7271382	Hex Nut
	7258565	Grommet, RF and antenna coil
	7258564	Grommet, Oscillator coil
	7270045	Spring, pivot-pointer
	7235969	Hex Nut, 1/2 - 28
	7267983	Washer, spring grip

The following parts are used on 987730 radio when installed on Corvette

Illus. No.	Service Part No.	Description
	7270428	Speaker, 6 x 9 PM
	7271448	Transformer, Output
	7270420	Bracket, Mounting
	7270568	Condenser, Light Switch
	7270422	Escutcheon, Volume
	7270421	Escutcheon, Selector
	7268744	Knob, Wing
	1990864	Knob, volume Control
	1990863	Knob, Manual Control

* Not Serviced

CHEVROLET DELUXE PUSH BUTTON RADIO MODEL 987727

This radio is a superheterodyne automobile radio designed for installation in the 1958 Chevrolet passenger cars. The radio contains 5 low voltage tubes and one "HI POWER" transistor and is comparable to any seven tube radio in performance. It consists of a radio receiver unit and a 6" x 9" speaker unit. This type of design is advantageous for both installation and service, as all component parts of the radio are easily accessible for quick efficient replacement when service is required. Using an external speaker affords the advantage of having a large speaker in a limited space. The speaker is coupled to the instrument panel by a special gasket, thereby using the instrument panel for unusually good tone reproduction.

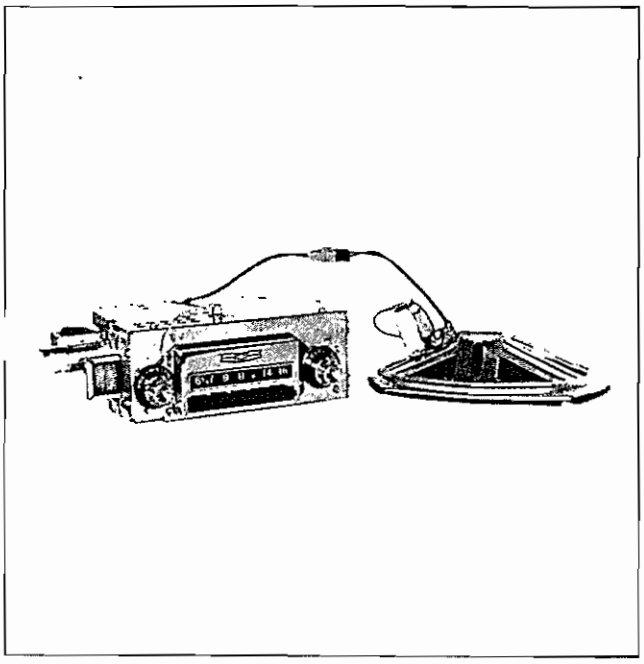


Figure 19

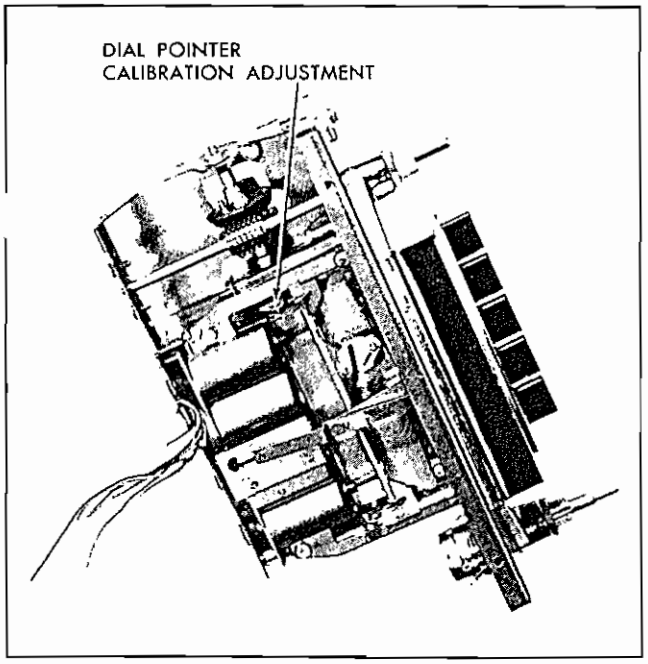


Figure 20

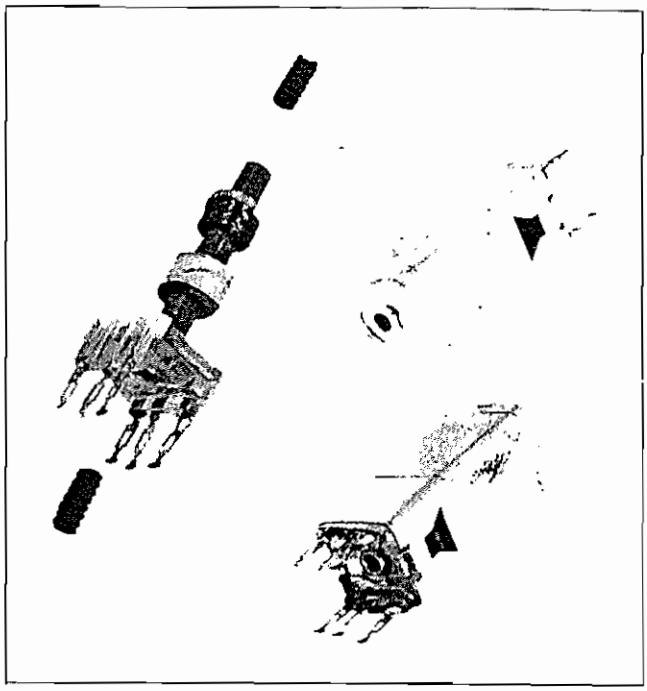


Figure 21

ELECTRICAL DESCRIPTION

The circuit used in this receiver is the superhetrodyne type that uses no regeneration. The tuning circuits are of the permeability type and are tuned by varying iron cores in and out of the antenna, radio frequency and oscillator coils like pistons, as shown in Figure 20.

The intermediate frequency stages are tuned by means of 2 iron cores in each transformer as shown in Figure 21 and are adjusted with an insulated screwdriver from the top and bottom of the transformer. Both the first (input) and second IF (output) transformers are tuned by this method.

The antenna circuit is capacity coupled to the antenna by means of an adjustable antenna trimmer condenser to take care of normal variations in antenna and antenna coil capacity. The antenna condenser is located on the bottom of the radio case and is adjusted by means of a small insulated screwdriver. This permits the receiver to be adjusted to any of the Chevrolet antennas for maximum sensitivity and performance.

TUBE AND TRANSISTOR COMPLEMENT AND FUNCTION

12BL6	Radio frequency amplifier tube
12AD6	Oscillator - modulator tube
12AF6	Intermediate frequency amplifier tube
12F8	Detector and first audio tube
12K5	Audio amplifier tube
2N278	Audio output "Hi-Power" transistor

GENERAL INFORMATION

Tuning Range 540-1615 kilocycles
Intermediate frequency - 262 kilocycles
Maximum power output - 6.0 watts
Undistorted power output - 4.5 watts
Current Drain 2.1 amps at 12 volts
Speaker - Alnico V permanent magnet type - size 6" x 9", elliptical type
Voice coil impedance 4 ohms at 400 cycles
Fuse protection 7.5 amperes at 25 volts
All circuits use printed circuit boards

PUSH BUTTON TUNING

An outstanding feature of the 987727 radio is the new mechanical tuner. A simplified method of setting the push buttons has been developed. These buttons can be set easily by anyone without tools, as shown in Figures 23, 24 and 25. With this type of completely mechanical push button tuning, no dial cords or pulleys are used, thus assuring trouble-free operation and constant calibration of the radio stations on the push buttons at all times.

PROCEDURE FOR SETTING PUSH BUTTONS

Turn on the receiver for ten minutes or longer to allow circuits to stabilize.

1. Pull push button slightly to the left and out as far as it will go, see Figure 22.

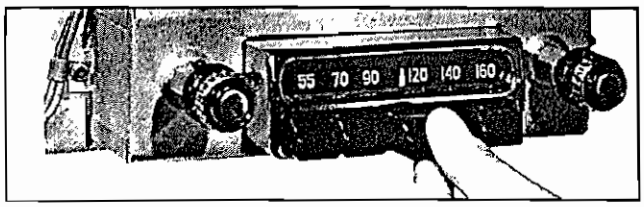


Figure 22

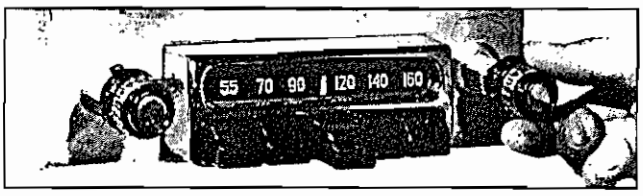


Figure 23

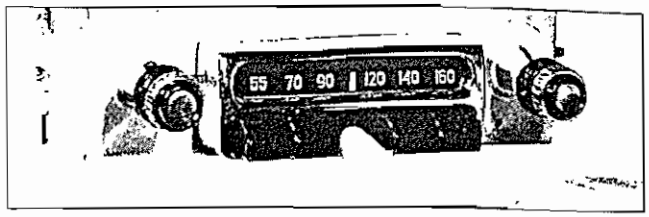


Figure 24

2. Tune in station desired with manual tuning knob to clearest point, see Figure 23.

3. Push button in firmly to end of travel, see Figure 24. Repeat same procedure for remaining four push buttons.

GENERAL INFORMATION ON THE PRINTED CIRCUITS OF THE 987727 RADIO

All stages of the 1958 Chevrolet push button radio used printed circuit boards, the latest method used in wiring electronic products. The printed circuits reduce all possibilities of shorted or broken wires and loose connections that the wired sets were subject to.

The servicing of printed circuits is not difficult but a few precautions must be observed when trouble develops in the component parts mounted to the printed circuit board and repairs or replacements are made.

In the servicing of the printed circuit portion of the radio, EXCESSIVE HEAT applied to any of the soldered terminals can cause the printed circuit to lift from the circuit board which results in the necessity of replacing the entire printed circuit board. A 25 to 50 Watt soldering iron is recommended for work on the printed circuit board. Care should be taken not to place the soldering iron tip directly on the printed circuit board. The iron should be placed on the lead or terminal being soldered to the printed circuit which will allow the heat and solder to flow down the lead or terminal to the printed circuit.

When removing or replacing component parts mounted on the printed circuit board, it is important that the heat be applied to the wire lead or terminal and not directly to the printed circuit. A small wire brush is most helpful in the removing operation. Care should be exercised not to crack or break the circuit board as any break in the board will necessitate replacement of the circuit board.

The printed circuit has an insulating and sealing coat placed over the entire board after the circuits are put in place on the board, and for any

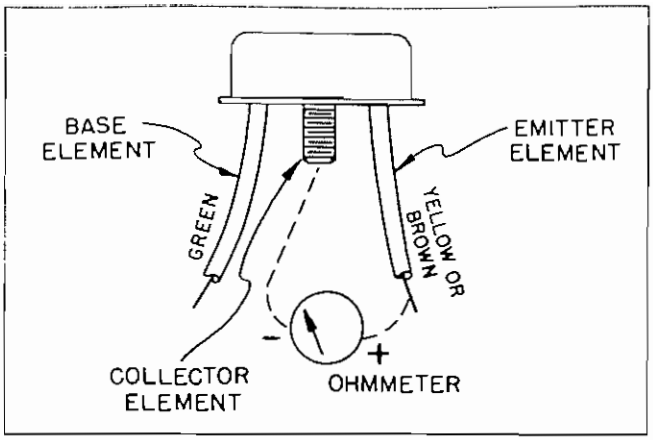


Figure 25

soldering that is required on the printed strips, the insulation must be scraped off-NOT BURNED OFF with a soldering iron as it will also burn the printed strip. If a portion of the circuit on the board is broken, it can be repaired by scraping [illegible] the insulating coating and soldering a piece of [illegible]re across the break.

Resistance and voltage reading should be made at the soldered point on the circuit board. After any soldering operation has been performed, make sure to remove any loose particles of solder from the printed circuit board. Circuit boards which have been burned, damaged or broken are not subject to warranty.

CONDENSED MECHANICAL OPERATION OF THE SHORT STROKE PUSH BUTTON TUNER 987727 RADIO

The short stroke push button tuner is a mechanism used to tune the radio by means of five mechanical push buttons or manual tuning. The push button can be set to any five favorite most listened to local stations for quick, easy tuning by the operator.

The tuning of stations is accomplished by a permeability tuner which is accomplished by the three iron tuning cores moving in and out of the antenna, radio frequency and oscillator coils as shown in Figure 20.

When manually tuned, the manual tuning knob turns a shaft which has a worm gear which turns at a slower speed than the shaft -- so when manually tuning, it will not pass over the stations. The worm turns an anti-backlash set of gears which operates through a clutch to the treadle bar shaft and rotates the treadle bar.

When the treadle bar is rotated, it moves the core bar which, in turn, moves the iron tuning cores in and out of the tuning coils.

The worm gear acts as a positive brake holding the tuning cores on station on the rough roads and eliminates any mechanical drift of the tuner. The worm gear can only be moved by turning the tuning knob.

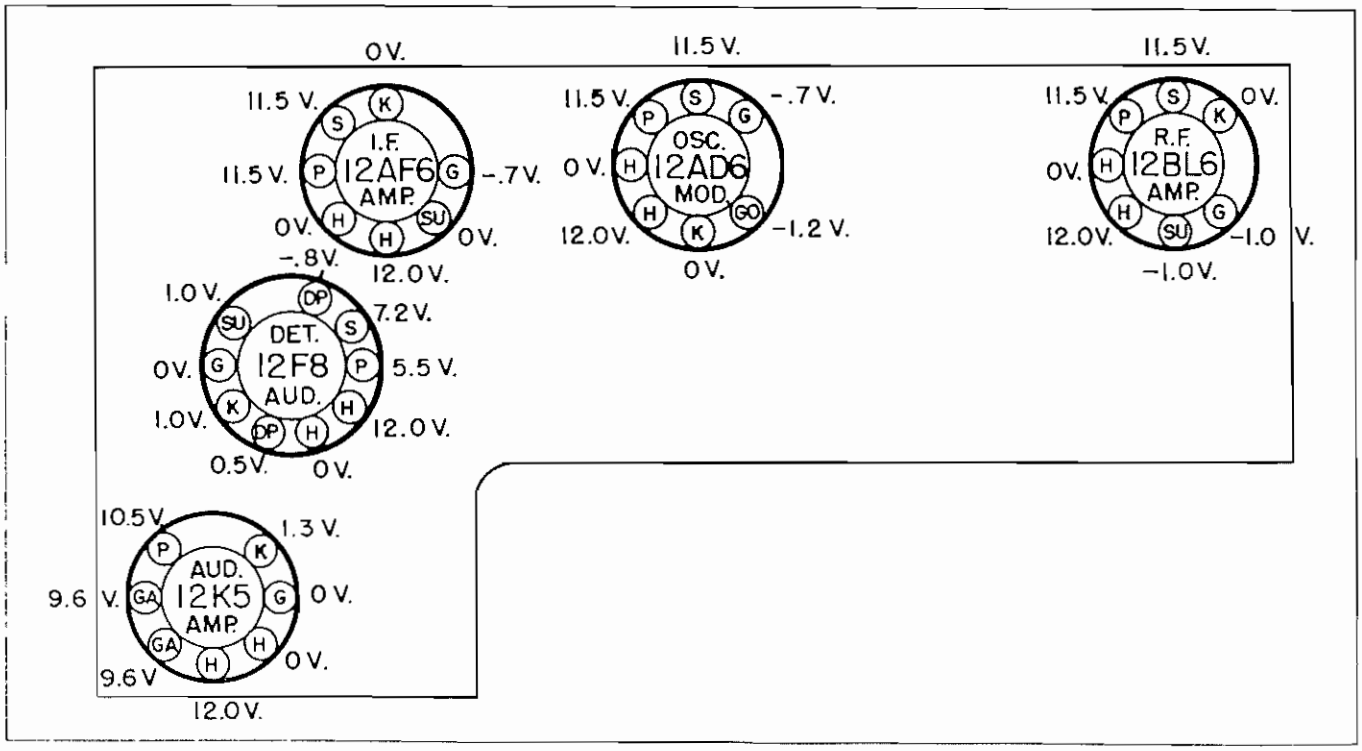


Figure 26 VOLTAGE CHART - POWER AND AUDIO UNIT - 987727 - RADIO

Push button tuning is accomplished by pushing the button into the set. As the button is pushed into the set, it moves the de-clutching cam which opens the clutch disc and disconnects the treadle bar from the worm gear. As the button moves into the set farther, the station selector cam in the push button assembly contacts the treadle bar and moves the treadle and core bars to the station which was tuned to the push button. The push button when released is returned to its normal position by push button return spring as shown in Figure 7.

PROCEDURE FOR CHECKING AND SERVICING ALL RADIOS

RECEIVER COMPLETELY DEAD:

Check antenna for short or open circuit.

Check for blown fuse; the one thing that can blow fuse in this set is a short in the 12 volt circuit.

NOISY OPERATING RADIOS:

The noise can be caused by one or more of the following:

1. TIRE STATIC is caused by friction between tires and pavement, and is an almost continuous roar while car is in motion, and does not vary appreciably with car speed. The intensity of the noise is greater on a dry sunshiny day, and not so noticeable on humid or rainy days. To eliminate this type noise be sure that the front wheel static collectors have been installed, being sure that they are free of grease and are making good contact to front wheel spindle. If the Static still persists, install tire static powder in all five tires.

2. NOISY ANTENNAS can be located by turning on the radio receiver, tuning in a station, and by tapping the antenna rod with a screwdriver handle. If noisy, a crashing sound will be heard in the radio each time you tap the antenna rod. If noisy, replace antenna rod assembly. The antenna lead-in can also cause noise in the radio if the shield is broken or unsoldered from the ends, or if the lead-in wire in cable is loose or broken. This can be checked by shaking the antenna lead-in cable. If you can cause a crash in the radio while shaking lead-in, replace lead-in.

3. MOTOR INTERFERENCE in Chevrolet radios is usually caused by poor grounds when installing the antenna or receiver, or not using all the supression material and ground straps furnished with the receiver. Check to make sure all required supression material has been installed and that all grounds are free of paint, grease or rust and are tight.

4. GENERATOR INTERFERENCE is a whinning noise similar to a siren, and increases or decreases with speed of the engine. Install or replace generator condenser.

5. NOISY RADIO TUBES, vacuum type only, can be located by turning on the radio and tuning in a station; then remove the tube inspection plate, and with a small screwdriver, using the handle end, tap only each of the vacuum tubes lightly. If noisy, it will cause a crashing noise in the radio as you tap the tube. Replace tube or tubes. If the foregoing does not eliminate the noise, it will be necessary to remove the radio from the car and hook up radio on service bench to a 12 volt power supply.

6. WEAK - NO VOLUME usually is caused by one of two things; weak tubes, or antenna being partially grounded by water or moisture in the base housing of antenna.

PROCEDURE FOR CHECKING TRANSISTORS

To check the 2N278 used in the 987727 radio a different procedure is used than that employed in checking vacuum type tubes. Transistors cannot be checked on a tube checker.

In radios using vacuum tubes it is the practice to check and replace defective tubes before doing anything else to the radio, and this still holds true for the vacuum tubes in these receivers.

As transistors cannot be checked on a tube tester and have virtually no failures, they should not be checked until the voltage and signal tracing procedures have been completed. If these procedures indicate the transistors to be defective, the transistor can be checked as follows:

NOTE: Transistor base terminal must not be shorted to ground under any circumstances as it will burn out the transistor.

Unsolder and disconnect the emitter and base leads from terminals in the circuit.

1. Place an ohmmeter on RXI scale and "zero" the meter. Connect meter between the emitter lead and the collector post, see Figure 25, leaving the base open. The positive lead of the ohmmeter should be connected to the emitter, and the negative lead to the collector. To determine which lead is positive, check

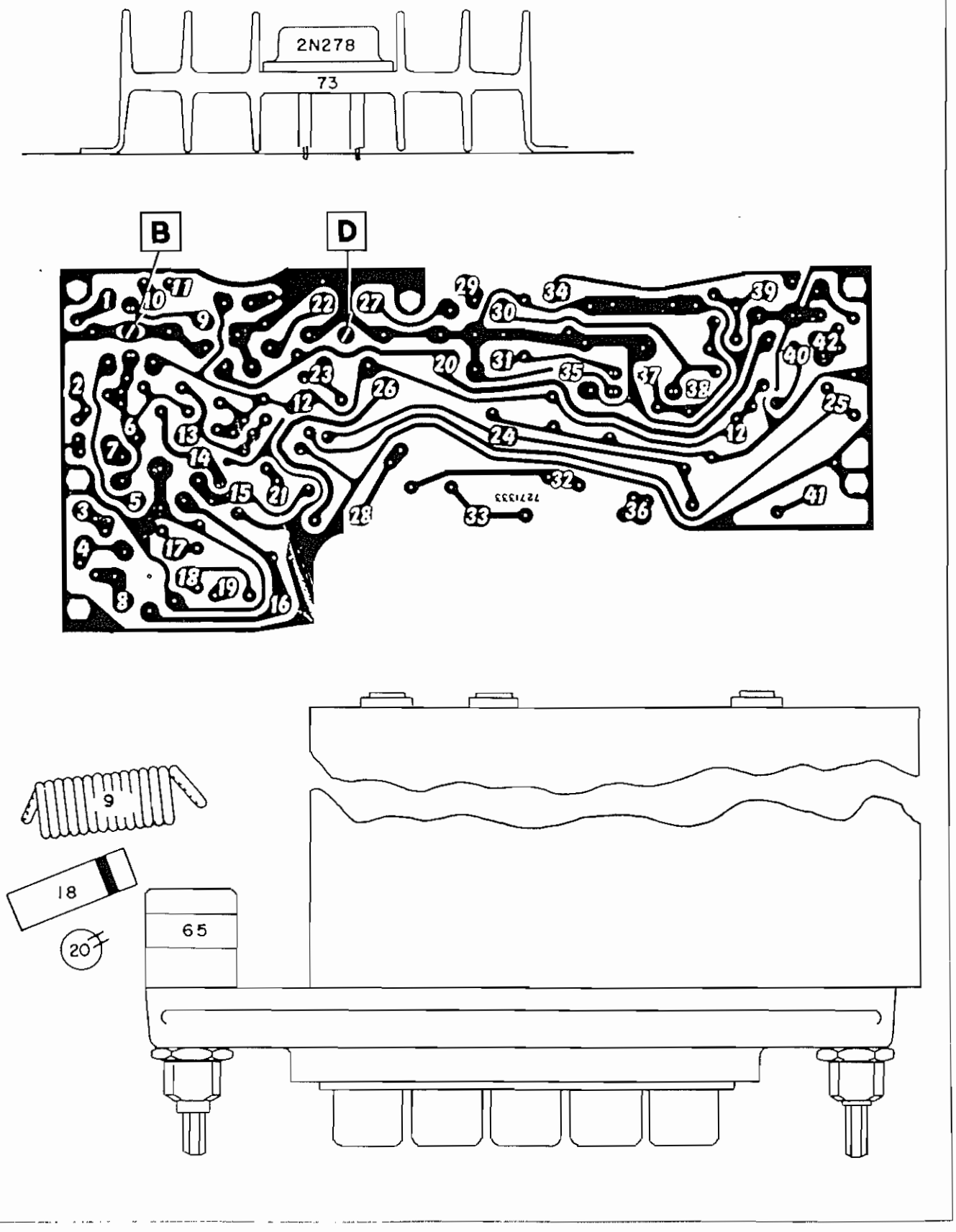


Figure 27 PARTS LAYOUT - BOTTOM VIEW - 987727 - RADIO

with a separate voltmeter. On some ohmmeters, the common ground lead may actually be connected to a positive battery in the meter. The resistance should measure between 20 and 3000 ohms.

2. With the ohmmeter still connected between emitter and collector, touch the green base lead to first the collector post and then the yellow emitter lead. In one position of the green base lead, the meter reading should drop to a low value.

If the resistance in operation No. 1 does not fall within limits, or in operation No. 2, the meter does not move as the green base lead is touched to the collector stud or emitter lead, the transistor is defective and should be replaced.

MOTORBOATING TRANSISTORS - 2N278: Transistors which measure in the area of the low limit of 20 ohms on the RXI scale of the ohmmeter may have a tendency to motorboat in the circuit. The reading of 20 ohms is an average value. Units which measure slightly less or more than 20 ohms should be considered good unless they produce abnormal symptoms in the circuit, such as hum or motorboating. This is true for those measuring 10 - 20 ohms. Units measuring less than 10 ohms on the RXI scale are shorted and should be replaced.

Transistors will not burn out only when the base terminal is shorted by a soldering iron, screwdriver to ground, shorting across circuits and operating the radio without the proper fuse protection in "A" lead. BURNED OUT TRANSISTORS are not subject to warranty and are not to be returned on L & MR'S for credit. Do not turn radio on without speaker plugged into radio.

PROCEDURE FOR CHECKING THE VOLTAGE OF 987727 RADIO

It will be necessary to remove the top and bottom covers of the radio case to check the voltages. Hook up the radio on the service bench to a "12" volt power supply unit and have a 7.5 ampere fuse between the radio and power supply unit. It is important that you have 12 volts at the spark plate of the radio, or the voltage readings will be correspondingly lower.

NOTE: All voltage readings have been taken with a vacuum tube voltmeter, set the meter to permit reading DC voltages of 5 to 20 volts magnitude. Ground one lead of the voltmeter to the radio chassis and with the other lead check all tube pins, No's 3 or 4 which show a voltage reading of 11.9 volts on the voltage chart. If incorrect or no voltages, check or replace the following:

1. Check or replace the "ON and OFF" switch, item 65C on circuit diagram.

2. Check or replace spark plate, item 31 and capacitor, Item 30, on circuit diagram and parts layout.

3. Check or replace choke, item 9 on circuit diagram and parts layout.

Next, check the transistor collector element marked "C" of the 2N278 output transistor which should read 0.8 volts D.C. If high or no voltage, check or replace:

1. Check or replace output transformer, item 70 on the circuit diagram and the parts layout.

2. Check or replace speaker, item 68 on the circuit diagram and the parts layout.

3. Check connector, item 71 for ground to chassis.

Next check the resistance of the base element of the transistor marked B of the 2N278 to ground with the radio turned off. Make this check with a meter on the RXI ohm scale. The resistance should be between 2 and 15 ohms. If incorrect or zero, check or replace:

1. Check or replace the input transformer, item 69 on the circuit diagram and parts layout.

2. Check or replace condenser, item 29A on the circuit diagram and parts layout.

3. Check or replace resistors, items 56 and 57 potentiometer, item 67 on the circuit diagram and parts layout.

Next check the resistance to ground of the transistor emitter element, marked E with the radio turned off. Set the ohmmeter on the RXI scale. The resistance should be between 1 and 4 ohms. If incorrect or zero, check or replace:

1. Check or replace condenser, item 29B on the circuit diagram and parts layout.

2. Check or replace resistor, item 54 on the circuit diagram and the parts layout.

Next, with the radio turned off, check the resistance between the collector element marked "C" and the emitter element marked "E" of the 2N278. If less than 1 ohm, the transistor may be shorted. Disconnect the emitter lead and check the resistance again, if still less than 1 ohm, replace the transistor.

Next check tube pin No. 7 marked "P" on the 12K5 which should read between 9 and 11 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace input transformer, item 69 on the circuit diagram and the parts layout.

2. Check or replace Condenser, item 28 on the circuit diagram and the parts layout.

3. Check or replace electrolytic condenser, items 27A and 27B on the circuit diagram and 27 on the parts layout.

4. Check or replace resistor, item 55 in the circuit diagram and the parts layout.

Next check pin No. 1 marked "K" on the 12K5 which should read between 1.0 and 1.5 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace resistor, item 52 on the circuit diagram and parts layout.

Next check tube pin No. 3 marked "P" on the 12F8 which should read 5.5 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace condenser, item 22 on the circuit diagram and 22 on the parts layout.

2. Check or replace resistor, item 50 on the circuit diagram and on the parts layout.

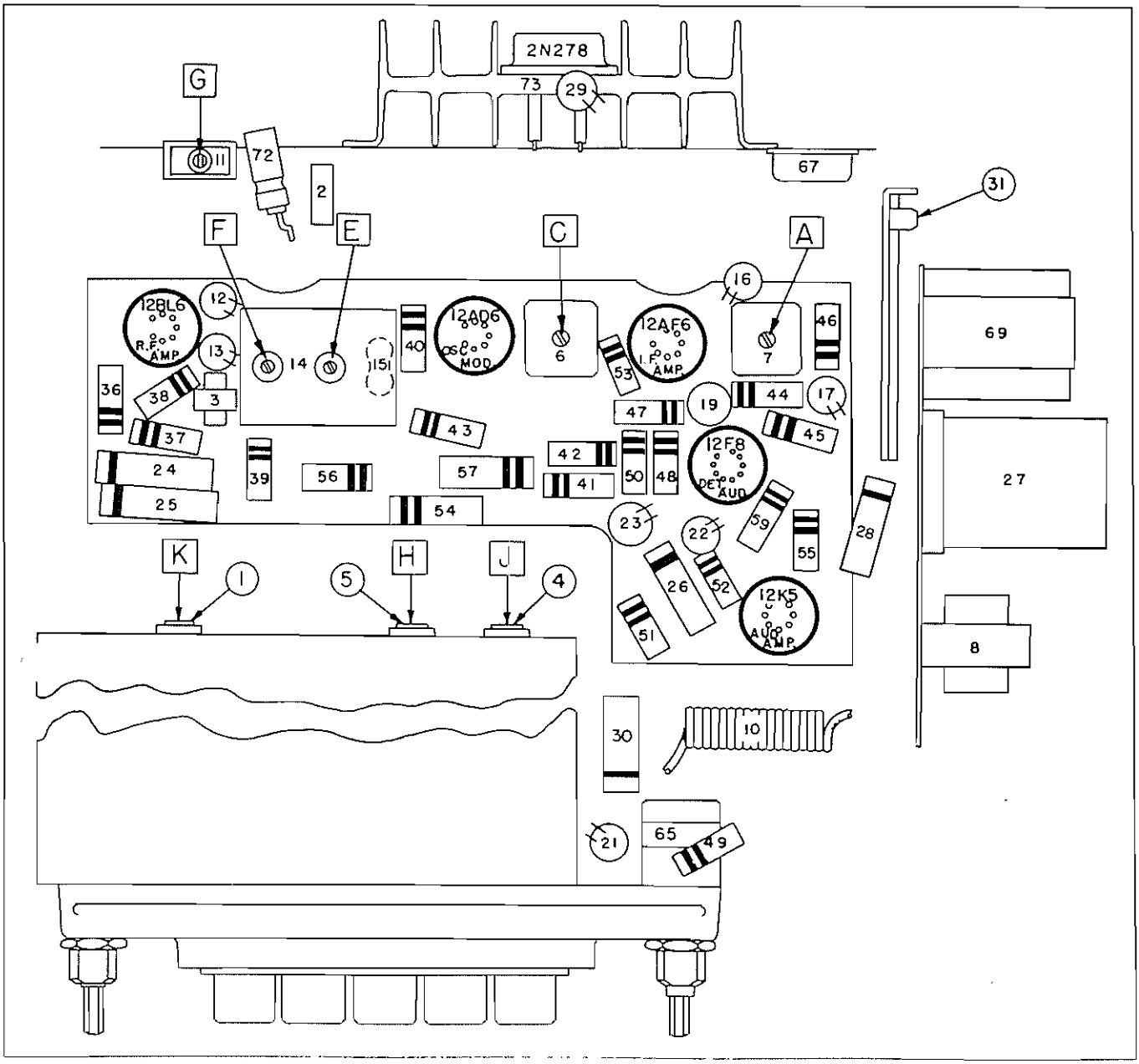


Figure 28 PARTS LAYOUT - TOP VIEW - 987727 - RADIO

Next check tube pin No. 7 marked K on the 12F8, which should read 1.0 volt D.C. If incorrect or no voltage, check or replace:

1. Check or replace resistor, item 47 on the circuit diagram and the parts layout.

Next check tube pin 5 marked "P" on the 12AF6 Intermediate Frequency Amplifier, which should read 11.5 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace intermediate frequency transformer; item 7 on the circuit diagram and parts layout.

Next check tube pin No. 6 marked "S" on the 12AF6 which should read 11.5 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace electrolytic condenser, items 27A and 27B on the circuit diagram and 27 on the parts layout.

2. Check or replace resistor, item 53 on circuit diagram and parts layout.

Next check tube pin No. 5 marked "P" on the 12AD6 which should read 11.5 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace intermediate frequency transformer, item 6 on the circuit diagram and parts layout.

Next check tube pin No. 6 marked "S" on the 12AD6 which should read 11.5 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace oscillator coil item 5 on the circuit diagram and the parts layout.

Next check tube pin No. 5 marked "P" on the 12BL6 radio frequency amplifier which should read 11.5 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace resistor, item 38 on the circuit diagram and the parts layout.

2. Check or replace choke, item 3 on the circuit diagram and the parts layout.

Next check tube pin No. 6 marked "S" on the 12AF6, which should read 11.5 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace electrolytic condenser, items 27A and 27B on the circuit diagram and 27 on the parts layout.

2. Check or replace resistor, item 53 on the circuit diagram and parts layout.

PROCEDURE FOR SIGNAL TRACING 987727 RADIO

Turn on signal generator and set in audio position to obtain a 400 cycle audio signal. Ground one lead of signal generator to radio chassis.

NOTE: To protect signal generator from D.C. voltage place .1 mfd. condenser in signal generator lead between the signal generator and the end of the test lead. Adjust signal generator volume about 3/4 open to obtain a strong signal.

Remove the 12K5 tube, with signal generator lead touch tube pin No. 7 marked "P" of the 12K5 socket.

If no signal, check or replace:

1. Check or replace speaker, item 68 on the circuit diagram and the parts layout.

2. Check or replace the output transformer, item 70 on the circuit diagram and the parts layout.

3. Check or replace input transformer, item 69 on the circuit diagram and parts layout.

4. Check or replace condenser, item 28 on the circuit diagram and parts layout.

5. Check or replace 2N278 transistor in the output stage.

Replace the 12K5 tube in socket and next touch tube pin No. 2 marked "G" of the 12K5 tube socket. If no signal, check or replace:

1. Check or replace the 12K5 tube or tube socket.

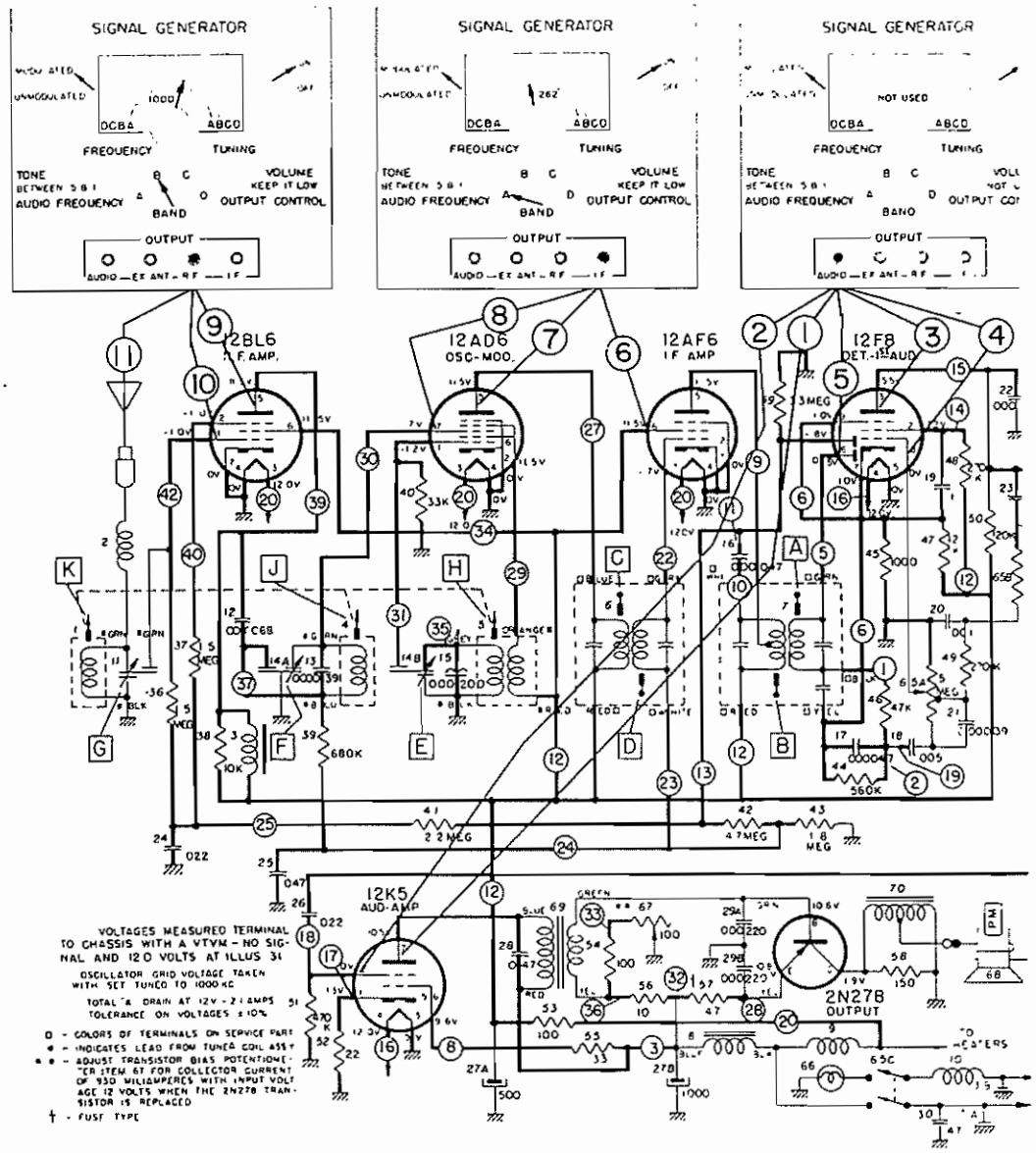
2. Check or replace resistor, items 54, 55, 56 and 57 on the circuit diagram and parts layout.

Next touch tube pin No. 3 marked "P" of the 12F8, if no signal, check or replace:

1. Check or replace condensers 22, 23 and 26 of the circuit diagram and the parts layout.

2. Check or replace potentiometer, item 65B on the circuit diagram and 65 on the parts layout.

Next touch tube pin No. 8 marked "G" on the 12F8, if no signal, check or replace:



POINT SIGNAL STOPS - CHECK OR REPLACE ITEMS LISTED

No signal at Point 1 - Check or replace items 28 - 68 - 69 - 70 - 2N278	No signal at Point 6 - Check or replace items 7 - 12AF6 tube or socket.
No signal at Point 2 - Check or replace items 54 - 55 - 56 - 57 - 12K5 tube or socket.	No signal at Point 7 - Check or replace item 6.
No signal at Point 3 - Check or replace items 22 - 23 - 26 - 65B	No signal at Point 8 - Check or replace items 14A - 40 - 12AD6 tube or socket
No signal at Point 4 - Check or replace items 23 - 44 - 45 - 46 - 47 - 48 - 49 - 50 - 65A - 12F8 tube or socket.	No signal at Point 9 - Check or replace items 4 - 5 - 12 - 13 - 14A - 14B - 15.
No signal at Point 5 - Check or replace items 17 - 18 - 23 - 24 - 25 - 65A - 12F8 tube or socket.	No signal at Point 10 - Check or replace items 37 - 12BL6 tube or socket.
	No signal at Point 11 - Check or replace items 1 - 2 - 3 - 11.

Figure 29 SIGNAL TRACING PROCEDURE - 987727 - RADIO

1. Check or replace the 12F8 tube.

2. Check or replace condenser, item 23 on the circuit diagram and the parts layout.

3. Check or replace potentiometer item 65A on the circuit diagram and 65 on the parts layout.

4. Check or replace resistors, items 44, 45, 46, 47, 48, 49 and 50 on the circuit diagram and parts layout.

Next turn the volume control on the radio to a maximum position and touch each of the tube pins Numbers 1 and 6 marked "DP" on the 12F8. Signal should be heard at one of these pins. If no signal, check or replace:

1. Check or replace the 12F8 tube.

2. Check or replace volume control, item 65A on the circuit diagram and 65 on the parts list.

3. Check or replace condensers, items 17, 18, 23, 24, and 25 on circuit diagram and parts list.

Change signal generator from audio position to generate an intermediate frequency signal; set signal generator to 262 kilocycles, leaving the .1 mfd. condenser in the signal generator lead to protect signal generator from DC voltage. Keep signal generator grounded to the radio chassis.

Next touch tube pin No. 1 marked "G" on the 12AF6 intermediate frequency amplifier. If no signal, check or replace:

1. Check or replace the 12AF6.

2. Check or replace I.F. transformer, item 7 on circuit diagram and parts layout.

Next touch tube pin No. 5 marked "P" on 12AD6; if no signal, check or replace:

1. Check or replace I.F. transformer, item 6 on circuit diagram and parts layout.

Next touch tube pin No. 7 marked "G" on the 12AD6 if no signal, check or replace:

1. Check or replace the 12AD6.

2. Check or replace resistor, item 40 on circuit diagram and parts layout.

3. Check or replace condenser, item 14A on circuit diagram and 14 on parts layout.

Change signal generator from intermediate frequency setting to radio frequency signal. Remove the .1 mfd. condenser from the lead of the signal generator. Place a .000082 mfd. condenser in signal generator lead between the signal generator and the test lead. Set signal generator to 1000 kilocycles and tune radio receiver to 1000 kilocycles (10 on dial scale).

Next touch tube pin No. 5 marked "P" on 12BL6 radio frequency amplifier tube. If no signal, check or replace:

1. Check or replace radio frequency coil, item 4 on circuit diagram and parts layout.

2. Check or replace oscillator coil, item 5 on circuit diagram and parts layout.

3. Check or replace condensers, items 12, 13, 14A, 14B, and 15 on circuit diagram and parts layout.

Next touch tube pin No. 1 marked "G" on 12BL6, if no signal, check or replace:

1. Check or replace 12BL6 tube.

2. Check or replace resistor, item 37 on circuit diagram and parts layout.

Next touch antenna terminal at antenna socket, if no signal, check or replace:

1. Check or replace antenna coil, item 1 on circuit diagram and parts layout.

2. Check or replace chokes, items 2 and 3 on the circuit diagram and parts layout.

3. Check or replace condenser, item 11 on circuit diagram and parts layout.

This completes the entire checking procedure of the receiver, and if the procedure has been followed as outlined, the failure will have been located. After repairing failure, receiver will operate and should be aligned for proper performance as follows and which is part of the service operation when repairing radios.

PROCEDURE FOR ALIGNMENT OF 987727 RADIO

All receivers are properly aligned at the factory and should require no further adjustments, except adjusting the receiver to the antenna when installation is made unless the adjustments have been tampered with, or new coils, intermediate frequency transformers or tuning cores have been installed.

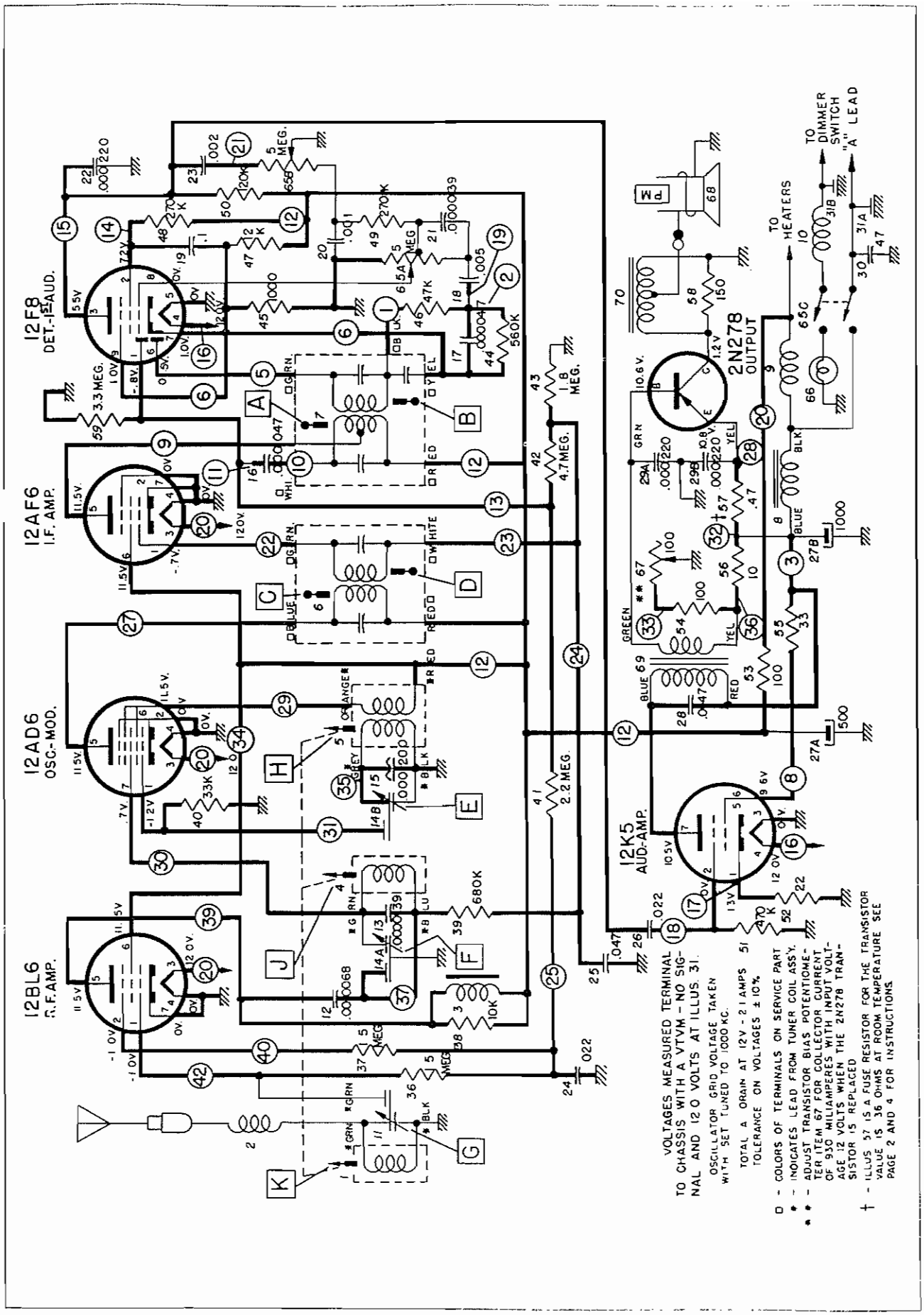


Figure 30 CIRCUIT DIAGRAM - 987727 - RADIO

To properly align the receiver, it will be necessary to have an output meter and signal generator.

NOTE: If any one of the tuning coils or cores have been replaced, see "Capacity and Inductance Alignment Procedure" before proceeding with alignment of the receiver. If only the adjustments have been tampered with or an intermediate frequency transformer, has been replaced, proceed with the alignment as follows:

1. First hook up an output meter to the radio receiver. Any volt meter which will read "A.C." can be used. Set the volt meter in the 30 volt "A.C." range position, and ground one lead of meter to radio chassis. Place the other lead from volt meter to the speaker terminal of the speaker to which the "green" lead of the audio output transformer is connected, speaker is item 68 and audio transformer item 70 on circuit diagram and parts layout.

2. Turn on signal generator and set adjustments to obtain a 262 kilocycle signal. Connect one lead of signal generator to radio chassis for ground. Attach the other lead of signal generator to tube pin No. 7 marked "G" on 12AD6 tube.

3. Adjust signal generator volume control so that the volt meter will read about half scale.

   NOTE: Radio receiver volume control must be turned to the maximum position so that the automatic volume control circuit will not affect the alignment of the receiver.

4. Adjust in sequence cores "A, B, C, and D" as shown on circuit diagram and parts layout for maximum meter reading. Repeat adjustments to get maximum meter readings. Keep the signal generator volume turned down so that during adjustments the meter does not read more than half scale. This will result in a better alignment of the receiver.

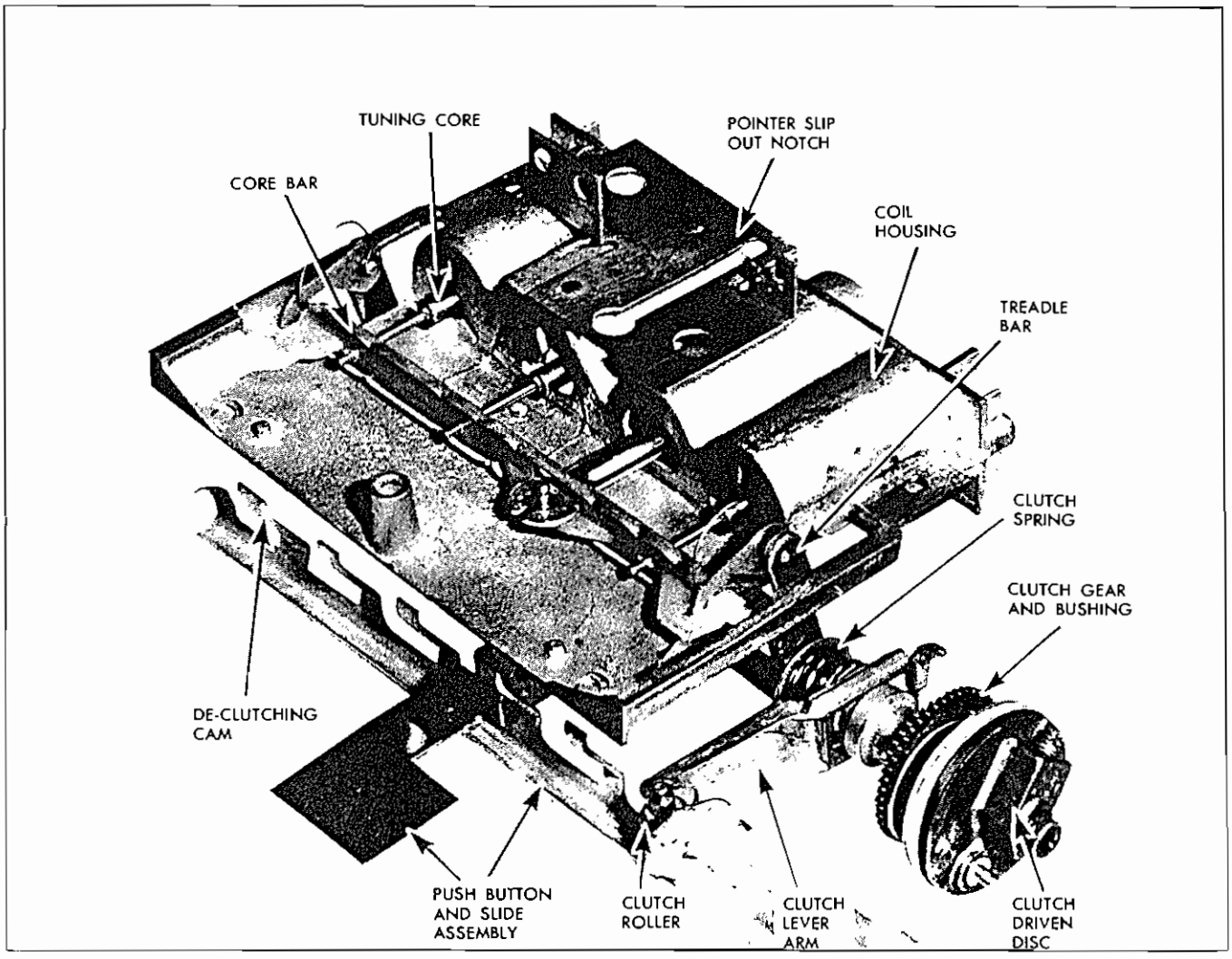


Figure 31

5. Next change signal generator setting to obtain a radio frequency signal and tune signal generator to exactly 1615 kilocycles. Place a .000082 mfd. condenser to antenna connector and attach signal generator lead. Tune the radio receiver to the "Stop" on the 1600 kilocycle end of the dial. Keep the signal generator volume control adjusted so that output meter reads at about half scale.

6. Adjust trimmers "E, F, and G", on circuit diagram and parts layout, in sequence for maximum readings on output meter. Repeat for maximum meter readings.

7. Tune the signal generator and radio receiver to exactly 1615 kilocycles and repeat adjustments of trimmers "F and G" ONLY for maximum output meter readings.

8. After the receiver has been installed in the car, turn on receiver and tune in a weak station near 1000 kilocycles with the radio volume control turned to maximum position and the antenna extended to full height. Readjust trimmer "G" ONLY for maximum volume.

CAPACITY AND INDUCTANCE ALIGNMENT PROCEDURE FOR 987727 RADIO

This alignment procedure is to be used only when any of the following parts have been replaced in the radio; antenna coil, radio frequency coil, oscillator coil, or any of the tuning cores.

The intermediate frequency alignment at 262 kilocycles is the same as outlined in "Alignment Procedure" operations 1 through 4. After completing the intermediate frequency alignment proceed as follows:

1. Connect signal generator lead to a .000082 mfd. condenser and connect to antenna terminal of antenna socket. Mechanically align iron core "H", on circuit diagram and parts layout, to measure 1-5/8" in coil forms from rear mounting edge of coil.

2. Tune signal generator to exactly 1615 kilocycles and tune radio receiver to "Stop" on the 1600 kilocycle end of the dial. Adjust output meter to about half scale, then adjust iron cores "J and K" on circuit diagram and parts layout in sequence for maximum output meter reading.

3. With signal generator still adjusted to exactly 1615 kilocycles, adjust trimmers "E, F, and G" on circuit diagram and parts layout in sequence for maximum output meter reading.

4. Tune signal generator and radio receiver to 1000 kilocycles and readjust iron cores "J and K" ONLY, for maximum output meter reading. Repeat the adjustment for maximum meter reading.

5. Reset signal generator to exactly 1615 kilocycles and tune radio receiver to stop on 1600 kilocycle end of the dial. Then readjust trimmers "F and G" ONLY, until no further increase in output meter reading can be obtained.

6. After the radio receiver has been installed in the car, turn on the receiver and tune in a weak station near 1000 kilocycles, with radio volume turned to maximum position and antenna extended to full height. Readjust trimmer "G" ONLY, for maximum volume.

MECHANICAL ADJUSTMENT TUNER - 987727

POINTER CALIBRATION: Connect a signal generator lead to the antenna connector of the radio and ground the other lead to radio chassis. Tune signal generator to 1000 kilocycles, manually tune radio to signal and if pointer is out of adjustment, bend adjusting ear, see Figure 35, so dial pointer is on 10 on the dial glass.

BACK LASH GEAR: Remove mesh adjusting plate, see Figure 35. Disengage worm from flat gears, turn flat gear that is free clockwise (looking from right-hand end of tuner) until the springs are completely compressed, then back off four teeth and reassemble unit.

WORM GEAR: Loosen the locking nut, see Figure 35, and position flat gears directly under the worm gear by adjusting the treadle pivot adjusting screw. Then loosen mesh adjusting plate screws.

Insert screw driver in the adjusting slot and run worm down to flat gears for snug fit so that the manual tuning shaft can be turned freely without a knob on the shaft. Now turn screw driver counter clockwise, lifting the worm gear until it is easily tuned to both ends of the dial without a knob on the tuning shaft. Then tighten mesh adjusting plate screws.

CLUTCH: If clutch slips when manually tuned, tune radio to the low frequency end of dial (55). Loosen locking nut and position the treadle arm midway between coil housing and the frame arm by adjusting the treadle shaft pivot adjusting screw. Now tune radio to high frequency end of dial (1600) and loosen slab-head set screw on clutch driven disc which is on the underside of tuner. Then position the flat gears directly below the worm gear by sliding the clutch along its shaft and tighten slab-head screw.

Check de-clutching cam. Clutch roller should fit snugly against de-clutching cam ear. If not, bend

cam ear until roller is securely in position. Loosen the clutch completely slips while turning the manual tuning shaft. Now tighten treadle pivot adjusting screw until there is no clutch slippage and tighten the pivot adjusting screw lock nut. If procedure is not followed, treadle arm can be moved too far and will bind on coil housing.

PROCEDURE FOR PART REPLACEMENT 987727 RADIO

REPLACE DIAL POINTER: Remove the four mounting screws holding the dial escutcheon to the chassis and remove escutcheon. Remove the spring holding the pointer arm, see Figure 32 and move the dial pointer to the low frequency (55) end of the dial so the pointer linkage can be lifted out of the guide slot in which it rides, see Figure 32.

REPLACE TUNING COILS: Remove the printed circuit board mounting screws and move the board out of the way -- in most cases, it can be done without unsoldering any of the wires.

Remove the two screws holding the right wrap around on the clutch side of set. Remove mounting screw holding trimmer condenser to chassis and move out of the way without unsoldering wires. Remove the three mounting screws holding the tuning coil strip and remove the wrap around as far as possible from the coil strip. Remove coils from housing and up past circuit boards, see Figure 32. Replace defective coil on coil strip and place coil strip back on coil housing, see Figure 32. Reverse procedure to reinstall balance of parts removed.

REPLACE CLUTCH: Remove the printed circuit board mounting screws and move board out of the way. In most cases, it can be done without unsoldering any wires. Remove the escutcheon four mounting screws and remove the escutcheon.

Remove the three screws holding the tuner frame to the front plate of the radio. Move the plate away from tuner so the rack and worm can be lifted out to the front of the tuner. It may be necessary to remove the collar or spring clip on the end of the rack and worm shaft, see Figure 32.

Remove the mounting screw holding the Antenna trimmer and lift the entire tuner assembly out of the chassis.

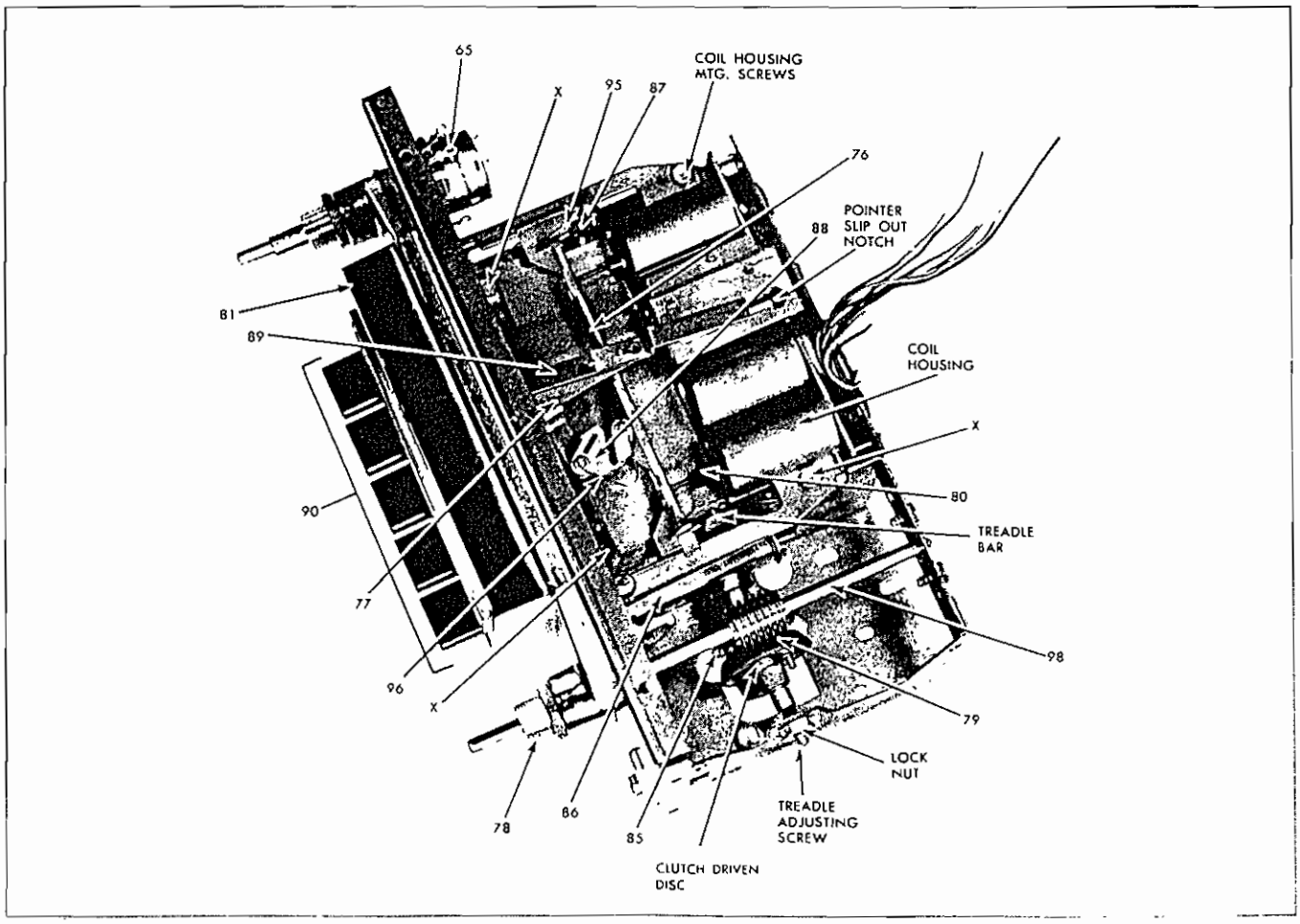


Figure 32 TUNER - TOPVIEW - 987727 - RADIO

Remove the four screws holding the coil housing, see Figure 32 and lift the coil housing back out of the way.

Remove the de-clutching cam, see Figure 32, by removing the spring clip on the right-hand end of the cam, and then pry the left-hand end out of the frame. Lift out cam assembly. Care must be used not to bend cam assembly.

Remove the front bearing plate and push button slide assembly, see Figure 7.

Remove the treadle shaft adjusting screw and lock nut and then pry the clutch lever arm out and towards the front of the tuner. This will release the clutch spring and allow the entire treadle shaft to be moved upward.

Lift the treadle shaft out so clutch disc can be removed and replaced with new one.

Reverse procedure to install the removed parts.

Clutch clearance must be adjusted after the tuner has been reassembled. Follow instructions outlined under "Clutch Adjustment".

REPLACE PUSH BUTTON SLIDES: The push button slide assemblies and front bearing plate are serviced and replaced as a unit. To replace, follow same instructions as outlined for replacing clutch to paragraph which indicates "remove front bearing plate and remove push button slide assembly". Reverse the procedure to reassemble parts removed.

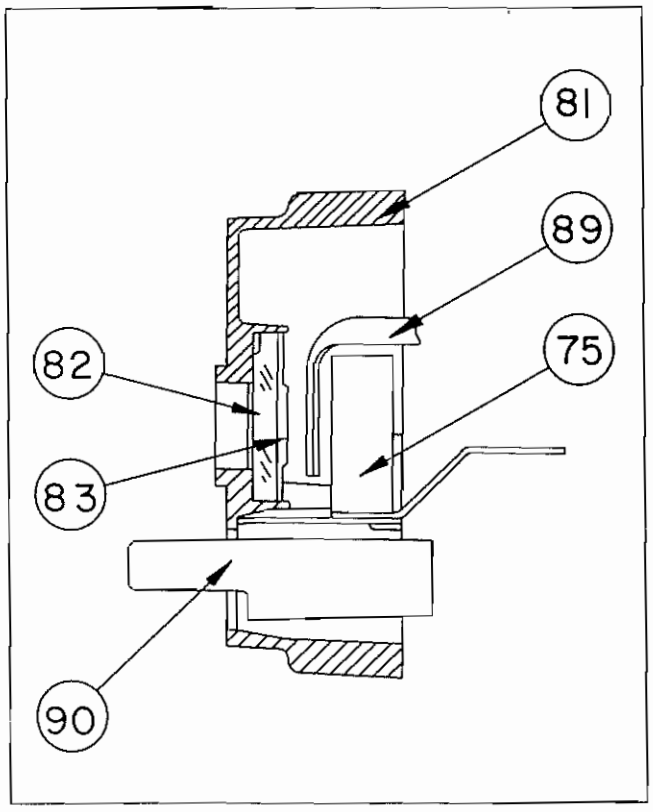


Figure 33 ESCUTCHEON - END VIEW - 987727 - RADIO

SERVICE PARTS LIST
987727 RADIO

NOTE: All Chevrolet radio service parts are available to dealers through General Motors Parts Division Warehouses. Orders for radio parts requirements to be placed with warehouse in the usual manner.

Illus. No.	Service Part No.	Description
		COILS
1	1221138	Coil, tuning, antenna
2	7255738	Antenna Series Choke
3	7269684	Choke, R.F. plate
4	1221138	Coil, tuning, R.F.
5	1221151	Coil, tuning, oscillator
6	1221015	1st I.F. Coil Assy.
7	1221021	2nd I.F. Coil Assy.
8	7271321	Input Choke
9	1217846	Choke, filament hash
10	1217846	Choke, dial light hash
		CONDENSERS
11	7268558	Antenna Trimmer
12	7268897	.000068 Mfd., Ceramic
13	1217736	.000039 Mfd., Ceramic
14	7268828	Dual Trimmer
14A		R.F. Section
14B		Oscillator Section
15	7270129	.000200 Mfd., Temperature Compensating
16	7233313	.000047 Mfd., Ceramic
17	7233313	.000047 Mfd., Ceramic
18	7230767	.005 Mfd., 600 Volt, Tubular
19	7269714	.1 Mfd., 50 Volt Tubular (Vertical Mtg.)
20	7271421	.001 Mfd., 500 Volt, Ceramic
21	1217736	.000039 Mfd., Ceramic
22	7270375	.000220 Mfd., 500 Volt, Ceramic
23	*7265426	.002 Mfd., 500 Volt, Ceramic
24	7271603	.002 Mfd., 200 Volt, Tubular
25	7267554	.047 Mfd., 200 Volt, Tubular
26	7271603	.022 Mfd., 200 Volt, Tubular
27	7270417	Electrolytic
27A		500 Mfd., 16 Volt
27B		1000 Mfd., 16 Volt
28	7267554	.047 Mfd., 200 Volt, Tubular
29	7270375)	.000220 Mfd., 500 Volt, Ceramic
	7370375)	.000220 Mfd., 500 Volt, Ceramic
30	7269780	.47 Mfd., 50 Volt, Tubular
31	1220885	Spark Plate

Illus. No.	Service Part No.	Description
		RESISTORS
36	1219492	1.5 Megohms, 1/2 Watt ± 5%
37	1219492	1.5 Megohms, 1/2 Watt
38	*1213252	10,000 Ohms, 1/2 Watt
39	*1213488	680,000 Ohms, 1/2 Watt
40	*1213845	33,000 Ohms, 1/2 Watt
41	1214563	2.2 Megohms, 1/2 Watt
42	1221136	4.7 Megohms, 1/2 Watt ± 5%
43	*1214562	1.8 Megohms, 1/2 Watt
44	*1214560	560,000 Ohms, 1/2 Watt
45	1220176	1000 Ohms, 1/2 Watt ± 5%
46	1214553	47,000 Ohms, 1/2 Watt
47	*1213254	12,000 Ohms, 1/2 Watt
48	*1214556	270,000 Ohms, 1/2 Watt
49	*1214556	270,000 Ohms, 1/2 Watt
50	1213271	120,000 Ohms, 1/2 Watt
51	1214559	470,000 Ohms, 1/2 Watt
52	*1214537	22 Ohms, 1/2 Watt
53	*1213217	100 Ohms, 1/2 Watt
54	*1220381	100 Ohms, 2 Watt
55	*1214538	33 Ohms, 1/2 Watt
56	1215107	10 Ohms, 1/2 Watt
57	7270608	.47 Ohms, 2 Watt (Fuse Resistor)
58	*1211005	150 Ohms, 1 Watt (Used with speaker)
59	1214564	3.3 Megohm, 1/2 Watt
		TUBES AND TRANSISTORS
	1221028	2N278 transistor
	1221117	12BL6
	1220986	12AF6
	1220987	12AD6
	1220988	12F8
	1220989	12K5
		MISCELLANEOUS ELECTRICAL
65	1221118	Control, volume, tone and switch
65A		Volume
65B		Tone
65C		Switch
66	456985	Lamp, dial light #1891
67	7269637	Potentiometer, transistor emitter
68	7270531	Speaker, 6 x 9" PM
69	7269877	Transformer, input
70	7270627	Transformer, output
		MECHANICAL CHASSIS
72	7239475	Socket, antenna connector
73	1221119	Radiator, transistor heat
	7268815	Socket, tube, 7 pin miniature
	7268815	Socket, tube, 7 pin miniature
	7268822	Socket, tube, 9 pin miniature (printed circuit)
	7269078	Shield, tube, 12AD6
74	7270537	Socket, dial light
	1867675	Tip Jack
		TUNER
75	7270468	Backplate, pointer
76	7268626	Bar, guide for tuning cores
77	1221122	Bell Crank Pkg., pointer
78	7270476	Bushing, manual drive Shaft
79	7271181	Cone, clutch, driven
80	7268687	Core, tuning, powdered iron
81	7270475	Escutcheon Assy.
82	*7270397	Dial, calibrated
83	*7270463	Backplate, dial
84	7271157	Finger Bar, de-clutching
85	7271383	Gear, clutch anti-backlash
86	1221120	Lever Pkg., clutch operating
	*7270006	Roller, clutch operating lever
87	7268078	Link, connecting, core bar
88	7270245	Link, pointer calibration adjustment
89	7270456	Pointer Assy., dial
90	1221121	Pushbuttons, Front Bearing Plate and slides (set of 5 buttons)
91	*7271505	Sleeve, powdered iron
92	1221149	Spring Pkg., clutch operating
93	1220975	Spring Pkg., pushbutton slide return (set of 5 springs)
94	7268717	Spring, finger bar return
95	7268072	Spring, connecting link
96	7268610	Spring, pointer calibration link
97	7270344	Spring, manual drive shaft retainer
98	7270520	Worm and Shaft, clutch gear drive
		INSTALLATION
	1917580	Condenser, generator
	1917580	Condenser, voltage regulator
	1929070	Condenser, ignition coil
	7271641	Strap, ground
	7271671	Strap, ground
	148511	Fuse, 4 ampere, AGC type
	494786	Static Collector, front wheel
	7270291	Escutcheon, tone (plastic)
	7270290	Escutcheon, selector (plastic)
	7270287	Escutcheon, control (chrome)
	7270288	Knob, tone control
	7270289	Knob, dummy
	1990894	Knob, control

Illus. No.	Service Part No.	Description
		HARDWARE
	*7268723	Screw, set, treadle
	*120614	Nut, hex
	7258565	Grommet, antenna and R.F. coils
	7258564	Grommet, oscillator coil
	7270045	Spring, pivot, pointer arm
	7235969	Nut, hex, 1/2 x 28

The following parts are used on 987727 when installed on Corvette.

Illus. No.	Service Part No.	Description
	7270428	Speaker, 6 x 9 PM
	7271448	Transformer, Output
	7270420	Bracket, Mounting
	7270568	Condenser, Light Switch
	7270422	Escutcheon, Volume
	7270421	Escutcheon, Selector
	7268744	Knob, Wing
	1990864	Knob, Volume Control
	1990863	Knob, Manual Control

* Not Serviced

CUSTOM DELUXE RADIO MANUAL TUNING 987724

This radio is a 6 tube (including rectifier) superheterodyne automobile receiver designed expressly for 1958 Chevrolet passenger car installation. The radio consists of a radio receiver unit with an external speaker. This type of design is advantageous for both installation and

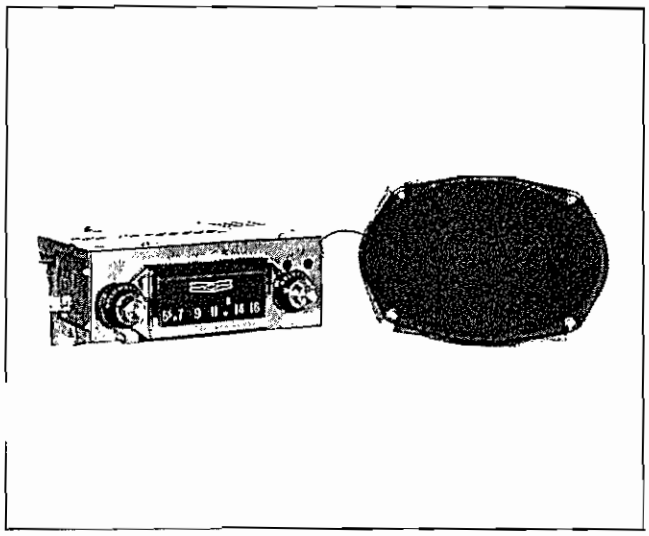


Figure 34

service as all component parts of the receiver are readily accessible for quick efficient replacement when service is required. Using an external type speaker affords the advantage of having a larger type speaker in a limited space area. The speaker is coupled to the instrument panel by a special type gasket, thereby using the entire instrument panel for unusually good tone reproduction.

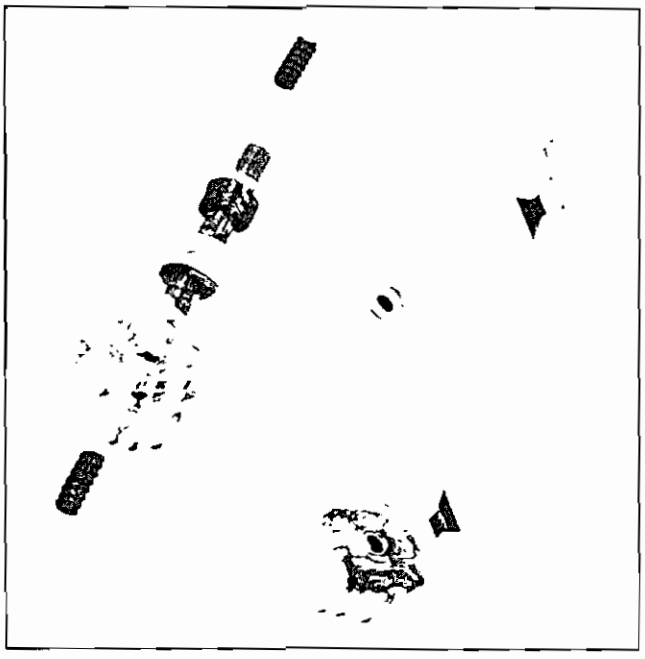


Figure 35

ELECTRICAL DESCRIPTION

The circuit used in this receiver is the superheterodyne type that uses no regeneration. The tuning circuits are of the permeability type and are tuned by varying the iron cores in and out of the antenna, radio frequency and oscillator coils like pistons. The intermediate frequency stages are tuned by means of two iron cores in each transformer and are adjusted with an insulated screw driver from the bottom and top of each transformer; both the first (input) and second (output) intermediate frequency transformers are tuned by this method. See Figure 35.

The antenna circuit is capacity coupled to the antenna by means of an adjustable antenna trimmer condenser to take care of normal variations in antenna and antenna coil capacity. The antenna condenser is adjustable by means of a small screw driver and is located at the lower front on the right side of the radio case.

The automatic volume control is of the delayed signal type and is very capable of maintaining a constant level of volume at all times. Very high frequency filter chokes are used in the radio frequency grid circuit to discriminate against ignition interference in the receiver, thus eliminating the use of spark plug and distributor suppressors.

The vibrator is the full wave non-synchronous type using an OZ4 rectifier tube and will operate on either a negative or positive battery ground.

TUBE COMPLEMENT AND FUNCTION

12BA6	Radio frequency amplifier
12BE6	Oscillator - modulator
12BA6	Intermediate frequency amplifier
12AV6	Detector - Automatic volume control and first audio
12V6GT	Audio output
OZ4	Cold cathode rectifier

GENERAL INFORMATION

Tuning range 540 - 1615 Kilocycles
Intermediate frequency - 262 Kilocycles
Maximum power output 4.5 watts
Undistorted power output 2.5 watts
Current drain 2.5 amperes at 12 volts
Speaker-Alnico V permanent magnet type 6 x 9 inch
Voice coil impedance 4 ohms at 400 cycles
Fuse protection 7.5 amperes 25 volt
All circuits use a printed circuit board

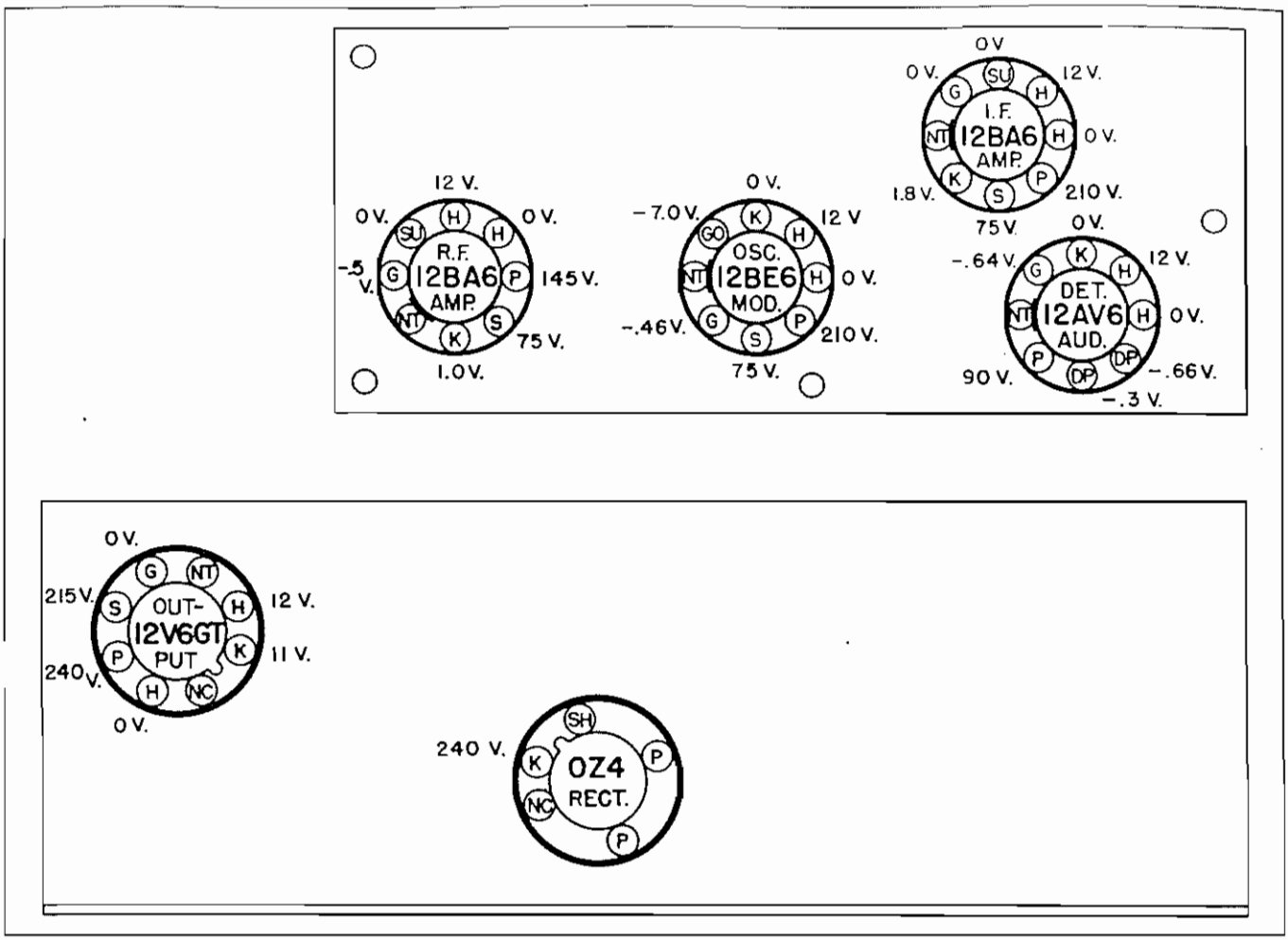


Figure 36 VOLTAGE CHART - 987724 - RADIO

PROCEDURE FOR CHECKING THE VOLTAGES OF 987724 RADIO

Hook up radio on the service bench to a "12" volt power supply unit. It is important that you have 12 volts at the spark plate of the radio, or the voltage readings will be correspondingly lower. All voltage readings haye been taken with V.T.V.M. Set the volt-ohm meter in the "60" volt position to read "D.C." voltage. Ground one lead of volt meter to radio chassis and with other lead check all tube pins which show a voltage reading of 12 volts on the voltage chart as shown in figure 36. If incorrect or no voltage, check or replace the following:

1. Check or replace "On and Off" switch, item 51C on circuit diagram and 51 on parts layout.

2. Check or replace condensers, items 23 and 25 on circuit diagram and parts layout.

3. Check or replace chokes, items 7 and 8 on circuit diagram and parts layout.

Next check will be the "A.C." voltage on secondary winding of the power transformer. Set the volt-ohm meter in the "600" volt position to read "A.C." voltage. Check the tube pins No's. 3 and 5 marked "P" on the OZ4 tube. Each pin should read 235 to 245 volts "A.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace condensers, items 25, 26 and 27 on circuit diagram and parts layout.

2. Check or replace choke, item 8 on circuit diagram and parts layout.

3. Check or replace power transformer, item 54 on circuit diagram and parts layout.

4. Check or replace resistor, item 45 on circuit diagram and parts layout.

5. Check or replace vibrator, item 56 on circuit diagram and parts layout.

Next set volt-ohm meter in the "300" volt position to read "D.C." voltages. Check tube pin

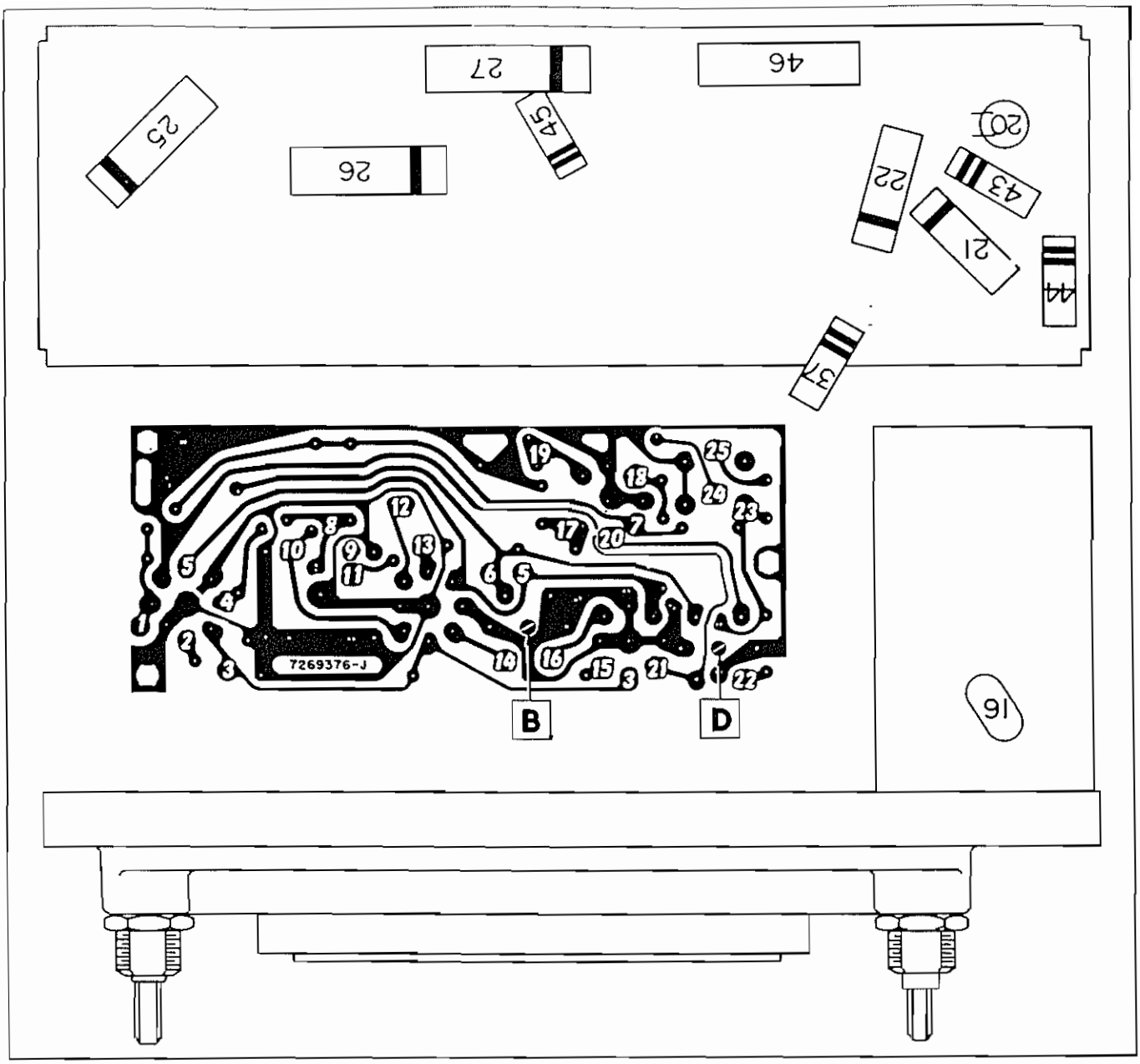


Figure 37 PARTS LAYOUT - BOTTOM VIEW - 987724 - RADIO

No. 3 marked "K" on OZ4 tube, which should read 235 to 245 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace OZ4 tube.

2. Check or replace OZ4 tube socket.

Next check the tube pin No. 3 marked "P" on 12V6GT tube, which should read 230 to 240 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace electrolytic condenser, item 28A on circuit diagram and 28 parts layout.

2. Check or replace audio transformer, item 55 on circuit diagram and parts layout.

3. Check or replace condenser, item 22 on circuit diagram and parts layout.

Next check the tube pin No. 4 marked "S" on 12V6GT tube, which should read 205 to 215 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace electrolytic condenser, item 28B on circuit diagram and 28 on parts layout.

2. Check or replace resistor, item 46 on circuit diagram and parts layout.

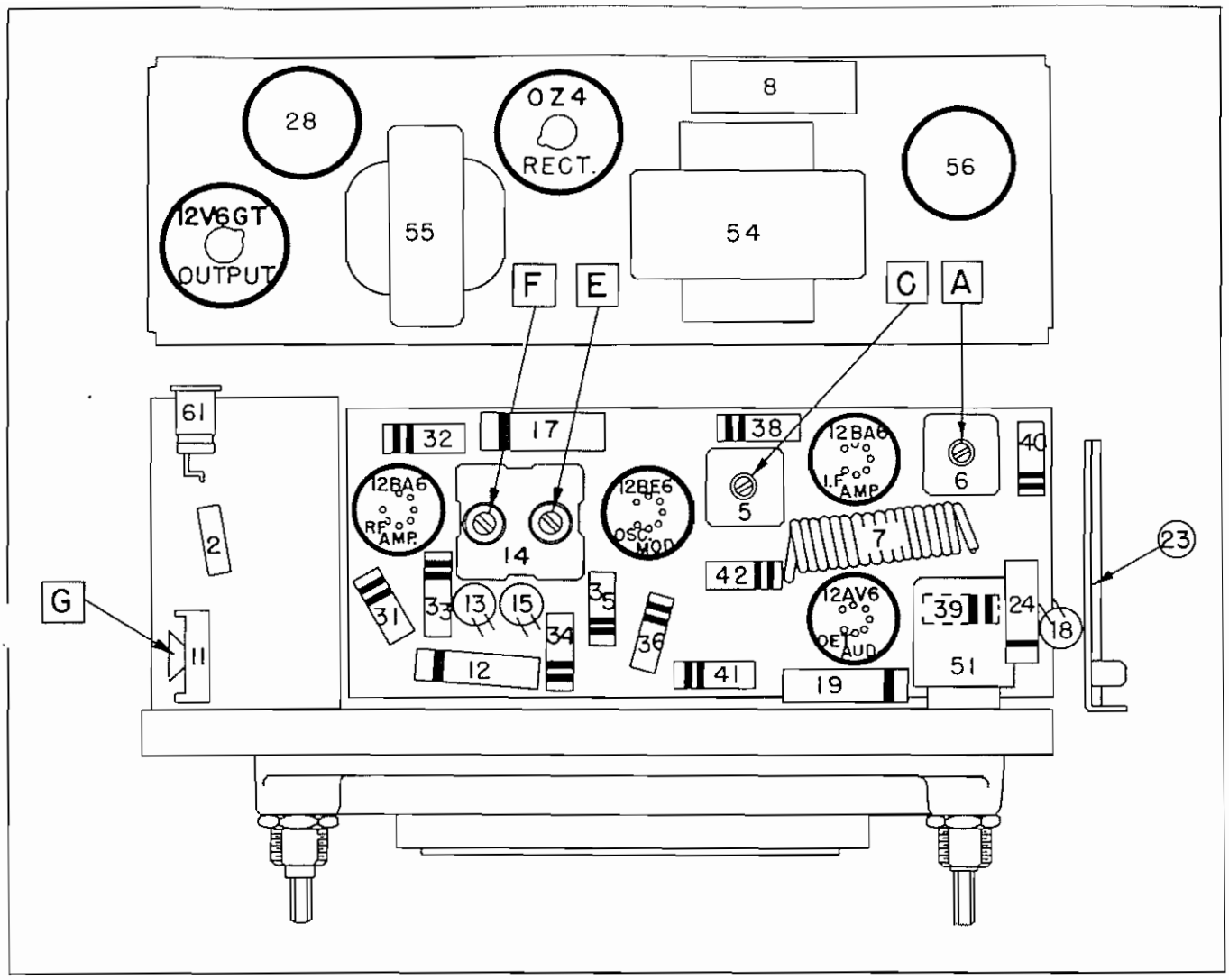


Figure 38 PARTS LAYOUT - TOP VIEW - 987724 - RADIO

Next check the tube pin No. 8 marked "K" on 12V6GT tube, which should read 8 to 12 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace resistor, item 44 on circuit diagram and parts layout.

2. Check or replace condenser, item 22 on circuit diagram and parts layout.

Next check tube pin No. 7 marked "P" on 12AV6 tube, which should read 85 to 95 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace condenser, item 21 on circuit diagram and parts layout.

2. Check or replace resistor, item 42 on circuit diagram and parts layout.

Next check the tube pin No. 5 marked "P" on 12BA6 intermediate frequency amplifier tube, which should read 205 to 215 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace intermediate frequency transformer, item 6 on circuit diagram and parts layout.

Next check the tube pin No. 6 marked "S" on 12BA6 intermediate frequency tube, which should read 70 to 80 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace resistor, item 37 on circuit diagram and parts layout.

2. Check or replace condenser, item 17 on circuit diagram and parts layout.

Next check the tube pin No. 5 marked "P" on 12BE6 tube, which should read 205 to 220 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace intermediate frequency transformer, item 5 on circuit diagram and parts layout.

Next check the tube pin No. 6 marked "S" on 12BE6 tube which should read 70 to 80 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace resistor, item 37 on circuit diagram and parts layout.

2. Check or replace condenser, item 17 on circuit diagram and parts layout.

Next check the tube pin No. 5 marked "P" on 12BA6 radio frequency tube, which should read 140 to 150 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace condenser, item 13 on circuit diagram and parts layout.

2. Check or replace resistor, item 33 on circuit diagram and parts layout.

Next check the tube pin No. 6 marked "S" on 12BA6 radio frequency tube, which should read 70 to 80 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace resistor, item 37 on circuit diagram and parts layout.

2. Check or replace condenser, item 17 on circuit diagram and parts layout.

We have now checked the tubes, vibrator and voltages. If these are correct and radio does not play, the trouble will be in the grid circuit of the radio. To continue, it will be necessary to check the grid circuit by means of signal tracing.

PROCEDURE FOR SIGNAL TRACING RADIO 987724

Turn on signal generator and set in audio position to obtain a 400 cycle audio signal. Ground one lead of signal generator to radio chassis.

NOTE: To protect the signal generator from "D.C." voltage, place a .05 mfd. condenser in signal generator lead between the signal generator and the end of the test lead. Adjust signal generator volume about 3/4 open to obtain a strong signal.

With signal generator lead touch tube pin No. 3 marked "P" on the 12V6GT tube. If no signal, check or replace the following:

1. Check or replace condenser, item 22 on circuit diagram and parts layout.

2. Check or replace audio output transformer, item 55 on circuit diagram and parts layout.

3. Check or replace speaker, item 53 on circuit diagram and parts layout.

Next touch tube pin No. 5 marked "G" on 12V6GT tube. If no signal, check or replace the following:

1. Check or replace 12V6GT tube.

2. Check or replace 12V6GT tube socket.

Next touch tube pin No. 7 marked "P" on 12AV6 tube. If no signal, check or replace the following:

1. Check or replace condensers, items 21 and 19 on circuit diagram and parts layout.

2. Check or replace resistor, item 43 on circuit diagram and parts layout.

3. Check or replace tone control, item 51B on circuit diagram and 51 on parts layout.

Next touch tube pin No. 1 marked "G" on 12AV6 tube. If no signal, check or replace the following:

1. Check or replace 12AV6 tube.

2. Check or replace 12AV6 tube socket.

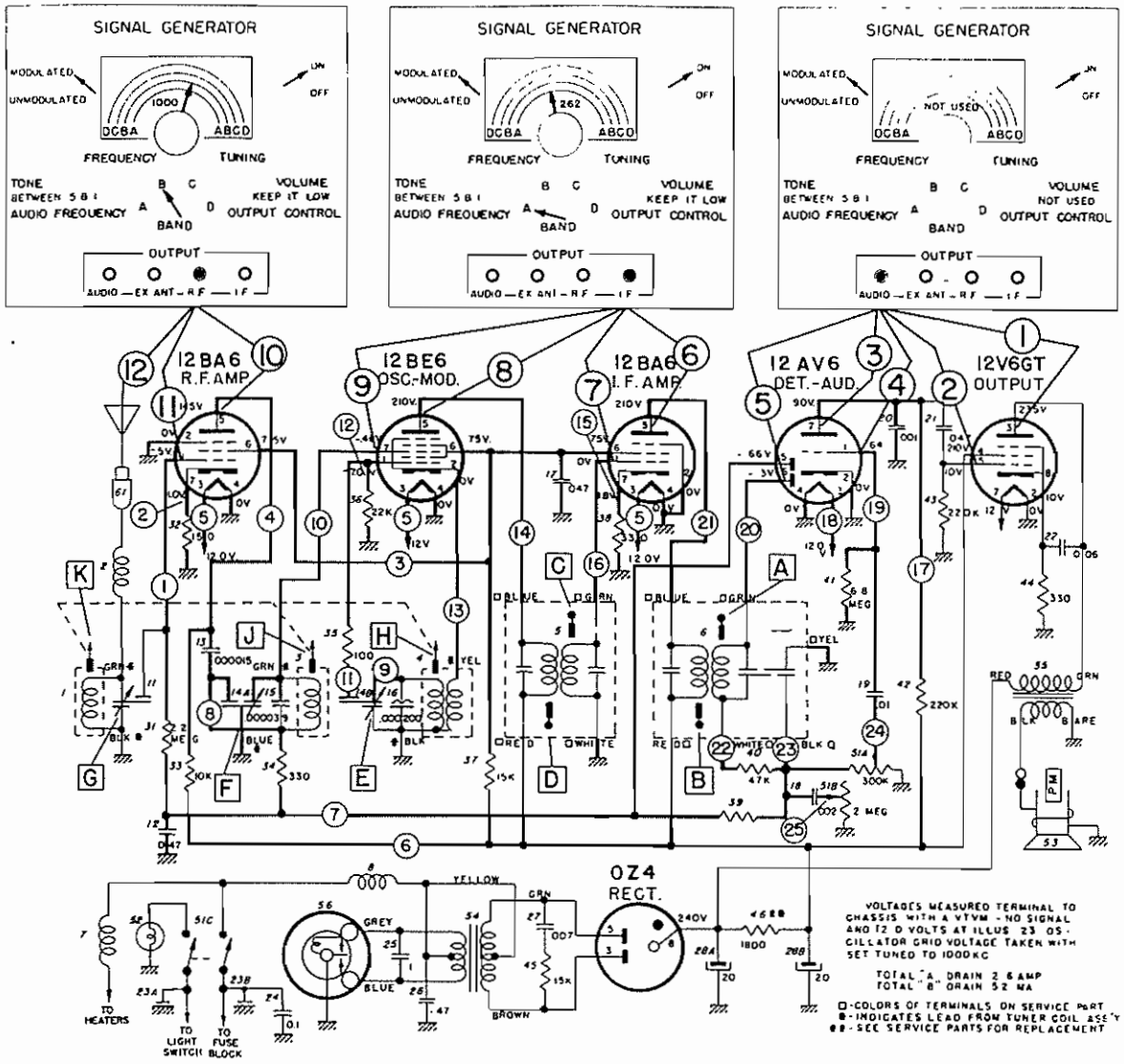
Next touch tube pins No's. 5 and 6 marked "DP" on the 12AV6 tube. If no signal, check or replace the following:

1. Check or replace 12AV6 tube.
2. Check or replace 12AV6 tube socket.

Now change signal generator from audio position to generate an intermediate frequency signal. Set signal generator to 262 kilocycles, leaving .05 mfd. condenser in signal generator lead to protect the signal generator from "D.C." voltage. Keep signal generator grounded to radio chassis.

Next touch tube pin No. 5 marked "P" on 12BA6 intermediate frequency amplifier tube. If no signal, check or replace the following:

1. Check or replace intermediate frequency transformer, item 6 on circuit diagram and parts layout.



POINT SIGNAL STOPS - CHECK OR REPLACE ITEMS LISTED

No signal at Point 1 - Check or replace items 22 - 53 - 55	No signal at Point 7 - Check or replace items 12BA6 tube or socket - 38
No signal at Point 2 - Check or replace items 12V6GT or socket.	No signal at Point 8 - Check or replace item 5
No signal at Point 3 - Check or replace items 19 - 21 - 43 - 51B	No signal at Point 9 - Check or replace item 12BE6 tube or socket
No signal at Point 4 - Check or replace items 12AV6 tube or socket	No signal at Point 10 - Check or replace items 3 - 4 - 13 - 14A - 14B - 16 - 34 - 35 - 39
No signal at Point 5 - Check or replace item 12AV6 tube or socket	No signal at Point 11 - Check or replace items 12BA6 tube or socket - 32
No signal at Point 6 - Check or replace items 6 - 19 - 40 - 41 - 51A	No signal at Point 12 - Check or replace items 1 - 2 - 11 - 12

Figure 39 SIGNAL TRACING PROCEDURE-- 987724 - RADIO

2. Check or replace resistors, items 40 and 41 on circuit diagram and parts layout.

3. Check or replace condenser, item 19 on circuit diagram and parts layout.

4. Check or replace volume control assembly, item 51A on circuit diagram and parts layout.

Next touch tube pin No. 7 marked "G" on 12BA6 intermediate frequency amplifier tube. If no signal, check or replace the following:

1. Check or replace 12BA6 tube.

2. Check or replace 12BA6 tube socket.

3. Check or replace resistor, item 38 on circuit diagram and parts layout.

Next touch tube pin No. 5 marked "P" on 12BE6 ıbe. If no signal, check or replace the following:

1. Check or replace intermediate frequency transformer, item 5 on circuit diagram and parts layout.

Next touch tube pin No. 7 marked "G" on 12BE6 tube. If no signal, check or replace the following:

1. Check or replace 12BE6 tube.

2. Check or replace 12BE6 tube socket.

Next change signal generator from intermediate frequency setting to radio frequency signal, leaving the .05 mfd. condenser in lead to protect signal generator from "D.C." voltage. Set signal generator to 1000 kilocycles and tune radio receiver to 1000 kilocycles (10 on dial scale).

Next touch tube pin No. 5 marked "P" on 12BA6 radio frequency amplifier tube. If no signal, check or replace the following:

1. Check or replace radio frequency coil, item 3 on circuit diagram and parts layout.

2. Check or replace oscillator coil, item 4 on circuit diagram and parts layout.

3. Check or replace condensers, items 13, 14A, 14B and 16 on circuit diagram and parts layout.

4. Check or replace resistors, items 34, 35 and 39 on circuit diagram and parts layout.

Next touch tube pin No. 1 marked "G" on 12BA6 radio frequency tube. If no signal, check or replace the following:

1. Check or replace 12BA6 tube.

2. Check or replace 12BA6 tube socket.

3. Check or replace resistor, item 32 on circuit diagram and parts layout.

Next touch antenna terminal at antenna socket. If no signal, check or replace the following:

1. Check or replace antenna coil, item 1 on circuit diagram and parts layout.

2. Check or replace condensers, items 11 and 12 on circuit diagram and parts layout.

3. Check or replace choke, item 2 on circuit diagram and parts layout.

This completes the entire checking procedure of the receiver, and if the procedure has been followed as outlined, the failure will have been located. After repairing failure, receiver will operate and should now be aligned for proper performance as follows and which is part of the service operation when repairing radios.

PROCEDURE FOR ALIGNMENT OF 987724 RADIO

All receivers are properly aligned at the factory and should require no further adjustments, except adjusting the receiver to the antenna when installation is made, unless the adjustments have been tampered with, or new coils, intermediate frequency transformers, or tuning cores have been installed.

To properly align the receiver, it will be necessary to have an output meter and signal generator.

NOTE: If any one of the tuning coils or cores have been replaced, see "Capacity and Inductance Alignment Procedure" before proceeding with alignment of the receiver. If only the adjustments have been tampered with or an intermediate frequency transformer has been replaced, proceed with the alignment as follows:

1. First hook up an output meter to the radio receiver. Any volt meter which will read "A.C." can be used. Set the volt meter in the "30" volt "A.C." range position and ground one lead of meter to radio chassis. Place the other lead from the volt meter to the speaker

terminal of the speaker to which the "green" lead of the audio output transformer is connected, speaker is item 53 and audio transformer item 55 on circuit diagram and parts layout.

2. Turn on signal generator and set adjustments to obtain a 262 kilocycle signal. Connect one lead of signal generator to radio chassis for ground. Attach the other lead from the signal generator to the tube pin No. 7 marked "G" on 12BE6 tube.

3. Adjust signal generator volume control so that the volt meter will read at about half scale.

   NOTE: Radio receiver volume control must be turned to the maximum position, so that the automatic volume control circuit of the radio will not affect the alignment of the receiver.

4. Adjust in sequence cores "A, B, C and D", as shown on circuit diagram and parts layout, for maximum meter reading. Repeat adjustments to get maximum meter reading. Keep the signal generator volume turned down so that during adjustments the meter does not read more than half scale. This will result in a better alignment of the receiver.

5. Next change signal generator setting to obtain a readio frequency signal and tune signal generator to exactly 1615 kilocycles. Connect a .000075 mfd. condenser to antenna connector and attach signal generator lead. Tune radio receiver to the "stop" on the 1600 kilocycle end of the dial. Keep the signal generator volume control adjusted so that output meter reads at about half scale.

6. Adjust trimmers "E, F and G" on circuit diagram and parts layout in sequence for maximum readings on output meter. Repeat for maximum meter readings.

7. Tune the signal generator and radio receiver to exactly 1000 kilocycles and repeat adjustments of trimmers "F and G" ONLY for maximum readings.

8. After the receiver has been installed in the car, turn on receiver and tune in a weak station near 1000 kilocycles, with radio volume control turned to maximum position and the antenna extended to full height. Readjust trimmer "G" ONLY for maximum volume.

CAPACITY AND INDUCTANCE ALIGNMENT PROCEDURE FOR 987724 RADIO

This alignment procedure is to be used only when any of the following parts have been replaced in the radio; antenna coil, radio frequency coil, oscillator coil or any of the tuning cores.

The intermediate frequency alignment at 262 kilocycles is the same as outlined in "Alignment Procedure" operations 1 through 4. After completing the intermediate frequency alignment, proceed as follows:

1. Connect signal generator lead to a .000075 mfd. condenser and connect to antenna terminal of antenna socket. Tune signal generator to exactly 1615 kilocycles, and tune radio receiver to "stop" on the 1600 kilocycle end of the dial.

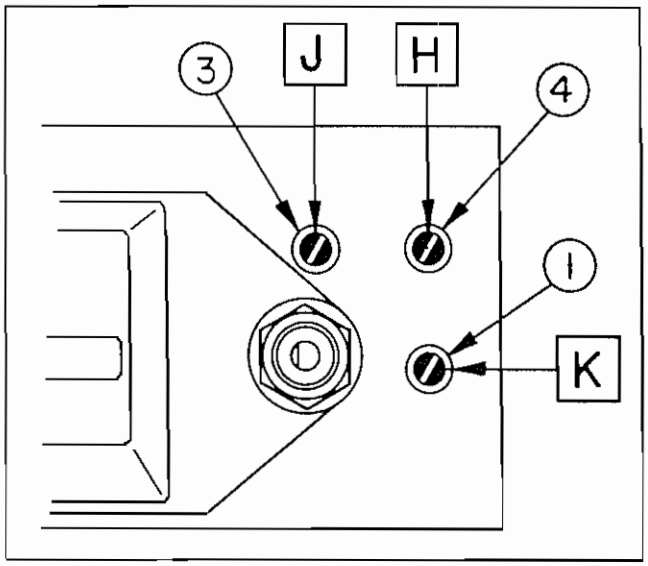


Figure 40

2. Adjust output meter to about half scale, and then adjust trimmers "E, F and G" on circuit diagram and parts layout in sequence for maximum meter readings.

3. Next tune signal generator and radio receiver to exactly 600 kilocycles, 6 on radio dial, and adjust iron cores "H, J and K" for maximum readings on output meter.

   NOTE: The iron cores are slotted so that adjustments can be made with a small insulated screw driver that fits loosely in the coil forms.

4. Repeat alignment procedure at 1615 and 600 kilocycles until the maximum readings have been attained.

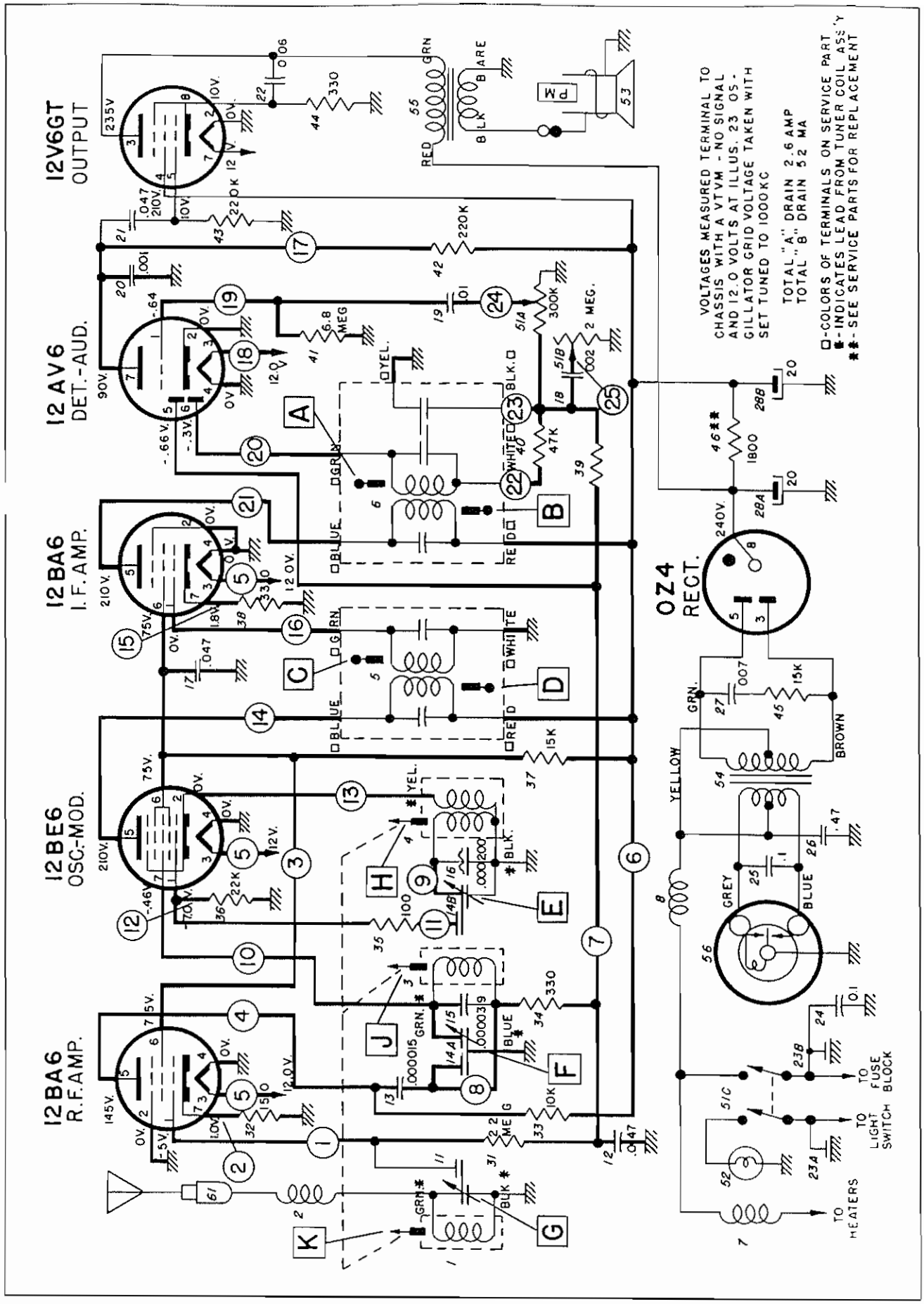


Figure 41 CIRCUIT DIAGRAM - 987724 - RADIO

5. After the receiver has been installed in the car, turn on the receiver and tune in a weak station near 1000 kilocycles, with radio volume turned to maximum position and antenna extended to full height. Readjust trimmer "G" only for maximum volume.

SERVICE PARTS LIST
987724 RADIO

NOTE: All Chevrolet radio service parts are available to dealers through General Motors Parts Division Warehouses. Orders for radio parts requirements to be placed with warehouse in the usual manner.

Illus. No.	Service Part No.	Description
		ELECTRICAL PARTS
		COILS
1	1221138	Antenna - Tuning
2	7255738	Choke, antenna series
3	1221138	R. F. tuning
4	1221151	Oscillator
5	1220990	1st I.F. Coil
6	1220992	2nd I.F. Coil
7	1217846	Choke, hash
8	7269252	Choke, power transformer
		CONDENSERS
11	7270434	Antenna trimmer
12	7267554	.047 Mfd., 200 Volt, Tubular
13	7238891	.000015 Mfd., Mica
14	7268828	Dual Trimmer
14A		R.F. Section
14B		Oscillator Section
15	1217736	.000039 Mfd., Ceramic
16	7270129	.000200 Mfd., Temperature Compensating
17	7268397	.047 Mfd., 400 Volt, Tubular
18	7265426	.002 Mfd., 500 Volt, Ceramic
19	7237957	.01 Mfd., 400 Volt, Tubular
20	7271421	.001 Mfd., 500 Volt, Ceramic

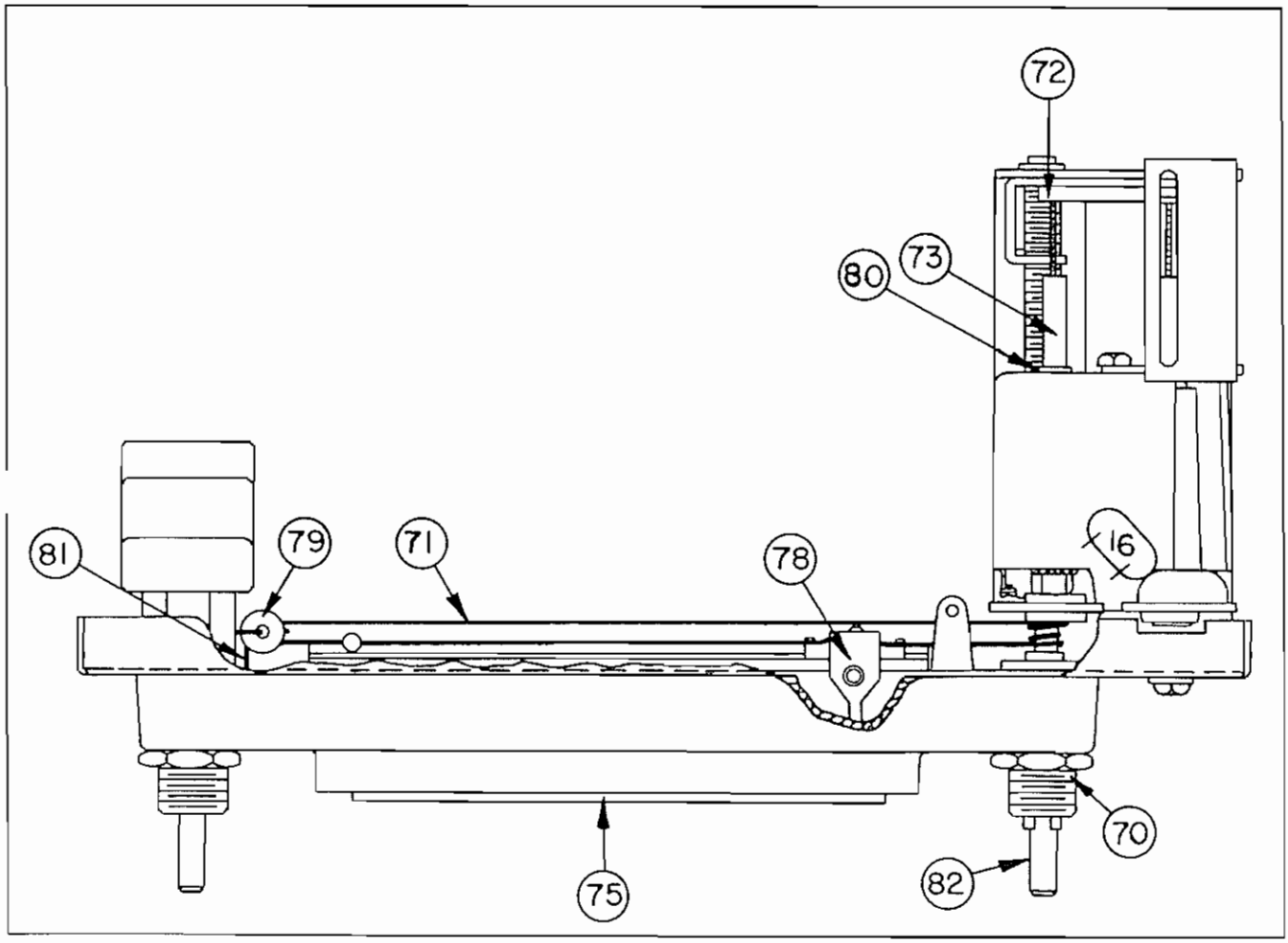


Figure 42 TUNER AND DIAL CORD VIEW - 987724 - RADIO

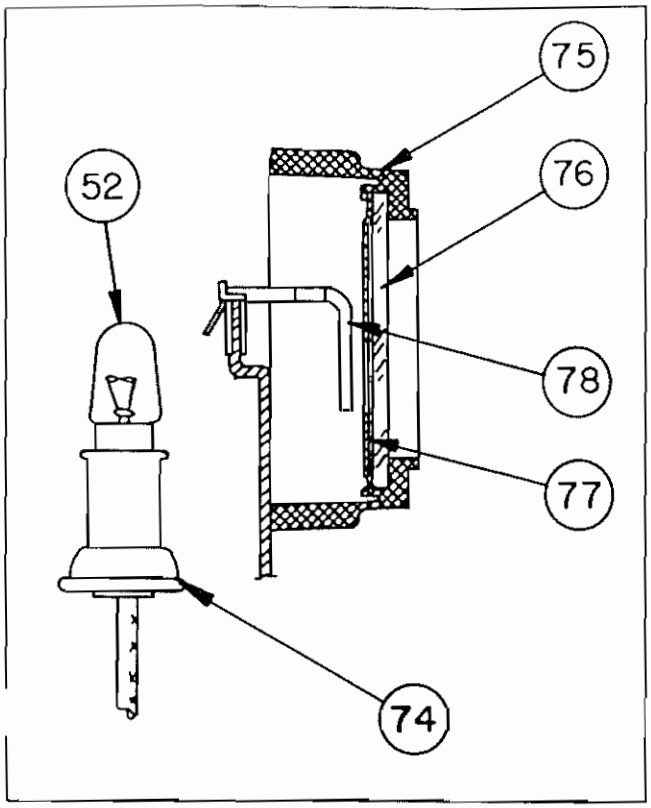


Figure 43 ESCUTCHEON - 987724 - RADIO

Illus. No.	Service Part No.	Description
21	7268397	.047 Mfd., 400 Volt, Tubular
22	1219084	.006 Mfd., 800 Volt, Tubular
23	1220885	Spark Plate
24	7238789	.1 Mfd., 200 Volt, Tubular
25	7238789	.1 Mfd., 200 Volt, Tubular
26	7257906	.47 Mfd., 100 Volt, Tubular
27	1220153	.007 Mfd., 1600 Volt, Buffer
28	7262905	Electrolytic
28A		20 Mfd., 400 Volt
28B		20 Mfd., 400 Volt
		RESISTORS
31	1214563	2.2 Megohm, 1/2 Watt
32	1213220	150 Ohm, 1/2 Watt
33	1211085	10,000 Ohms, 1 Watt
34	1214557	330,000 Ohms, 1/2 Watt
35	1213217	100 Ohm, 1/2 Watt
36	1214550	22,000 Ohms, 1/2 Watt
37	7233653	15,000 Ohms, 2 Watts
38	1213224	330 Ohms, 1/2 Watt
39	1220169	1 Megohm, 1/2 Watt ± 5%
40	1214553	47,000 Ohms, 1/2 Watt
41	1215563	6.8 Megohm, 1/2 Watt
42	1214555	220,000 Ohms, 1/2 Watt
43	1214555	220,000 Ohms, 1/2 Watt
44	7233773	330 Ohms, 1 Watt
45	7237595	15,000 Ohms, 1 Watt
46	7242844)	2700 Ohms, 2 Watt
	7240918)	5600 Ohms, 1 Watt
		TUBES
	1220823	12BA6
	1220822	12BE6
	1220824	12AV6
	1220828	12V6GT
	1220817	OZ4
		MISCELLANEOUS ELECTRICAL
51	1221113	Control, volume, tone and switch
51A		Volume
51B		Tone
51C		Switch
52	456985	Lamp, dial light #1891
53	7269884	Speaker, 6 x 9 PM
54	7265604	Transformer, vibrator power
55	1219833	Transformer, output
56	7268575	Vibrator, 12 volt, 3 prong
		MECHANICAL PARTS
61	1221114	Socket, antenna
	7268815	Socket, 7 pin miniature tube
	7263109	Socket, vibrator
	7236279	Socket, octal tube
		TUNER
70	7270449	Bushing, manual drive shaft
71	1219143	Cord, dial
72	7269230	Core Guide Bar Assy
73	7268687	Core, tuning
74	7269254	Dial light assembly
75	7270439	Escutcheon
76		Dial
77		Dial Backplate
78	7270447	Pointer Assy.
79	7263593	Pulley, dial cord
80	*7271505	Sleeve, powdered iron
81	7269229	Spring, dial cord
82	1221115	Tuning shaft
		INSTALLATION PARTS
	1917580	Condenser, gnerator
	1917580	Condenser, voltage regulator
	1929070	Condenser, ignition coil
	7271641	Ground Strap
	7271671	Ground Strap
	455107	Fuse, 7 1/2 amperes
	7270291	Escutcheon, plastic, volume and tone

Illus. No.	Service Part No.	Description
	7270290	Escutcheon, plastic, selector
	7270287	Escutcheon, chrome, control
	7270288	Knob, wing
	7270289	Knob, dummy
	1990894	Knob, control
	494786	Static collector, front wheel

Illus. No.	Service Part No.	Description
		HARDWARE
	7258564	Grommet, oscillator coil
	7258564	Grommet, antenna and R. F. coil
	7235969	Hex Nut, 1/2 - 28

* Not Serviced

CUSTOM DELUXE TRUCK RADIO MANUAL TUNING - 987187

This radio is a 6 tube (including rectifier) superheterodyne truck receiver designed expressly for 1958 Chevrolet truck installation. The radio consists of a radio receiver unit with an external

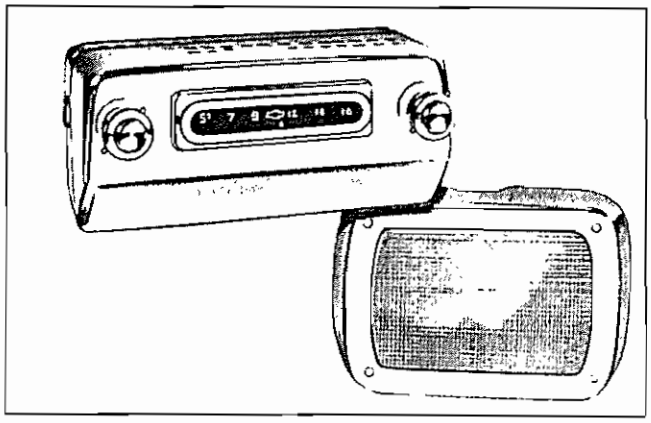


Figure 44

roof type speaker. This type of design is advantageous for both installation and service as all component parts of the receiver are readily accessible for quick efficient replacement when service is required. Using an external roof type speaker affords the advantage of placing the sound in the best listenable area in the cab.

ELECTRICAL DESCRIPTION

The circuit used in this receiver is the superheterodyne type that uses no regeration. The

Figure 45

tuning circuit are of the permeability type and are tuned by varying the iron cores in and out of the antenna, radio frequency and oscillator coils like pistons. The intermediate frequency stages are tuned by means of two iron cores in each transformer and are adjusted with an insulated screw driver from the bottom and top of each transformer and are adjusted with an insulated screw driver from the bottom and top of each transformer; both the first (input) and second (output) intermediate frequency transformers are tuner by this method, see Figure 45.

The antenna circuit is capacity coupled to the antenna by means of an adjustable antenna trimmer condenser to take care of normal variations in antenna and antenna coil capacity. The antenna condenser is adjustable by means of a small screw driver and is located at the rear of the radio case.

The automatic volume control is capable of maintaining a constant level of volume at all times. Very high frequency filter chokes are used in the radio frequency grid circuit to discriminate against ignition interference in the receiver, thus eliminating the use of spark plug and distributor suppressors.

The vibrator is the full wave non-synchronous type using an OZ4 rectifier tube and will operate on either a negative or positive battery ground.

TUBE COMPLEMENT AND FUNCTION

12BA6	Radio frequency amplifier
12BE6	Oscillator - modulator
12BA6	Intermediate frequency amplifier
12AV6	Detector - Automatic volume control and first audio
12V6GT	Audio output
OZ4	Cold cathode rectifier

GENERAL INFORMATION

Tuning range 540 - 1615 Kilocycles
Intermediate frequency 262 Kilocycles
Maximum power output 4.5 watts
Undistorted power output 2.5 watts
Current drain 2.5 amperes at 12 volts
Speaker-Alnico V permanent magnet roof type 5 x 7 inch
Voice coil impedance 4 ohms at 400 cycles
Fuse protection 7.5 amperes 25 volt

PROCEDURE FOR CHECKING THE VOLTAGES OF 987187 RADIO

Hook up radio on the service bench to a "12" volt power supply unit. It is important that you

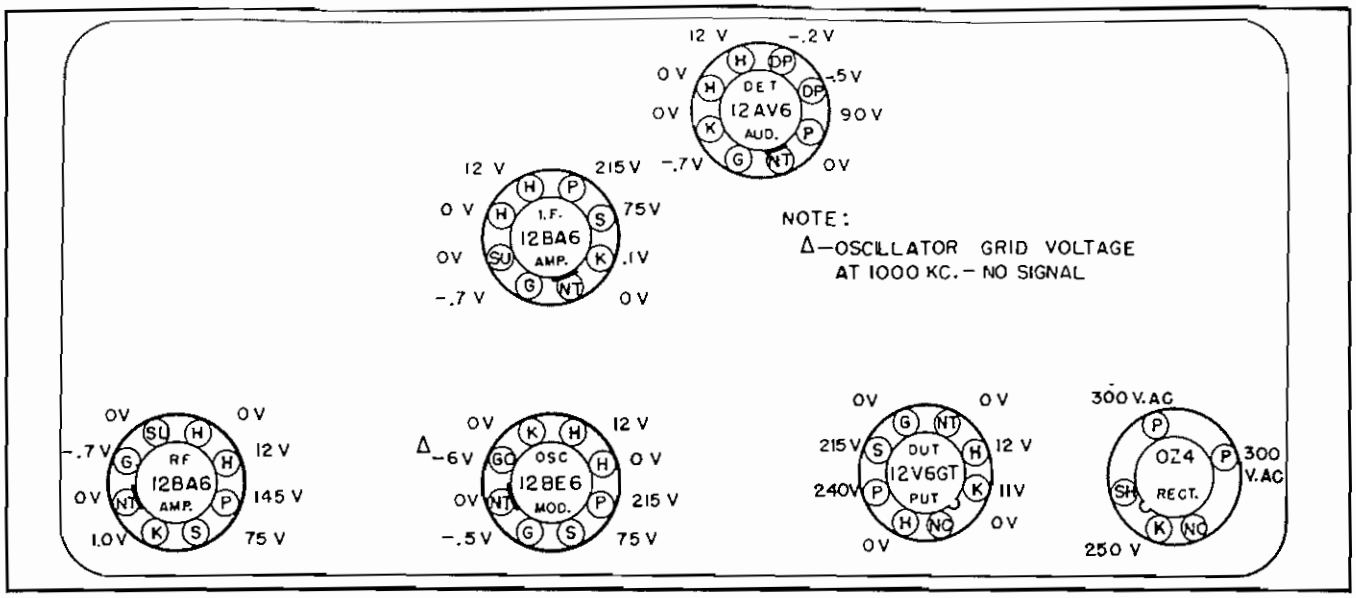


Figure 46 VOLTAGE CHART - 987187 - RADIO

have 12 volts at the spark plate of the radio, or oltage readings will be correspondingly lower. All voltage readings have been taken with V.T.V.M. Set the volt-ohm meter in the "60" volt position to read "D.C." voltage. Ground one lead of volt meter to radio chassis and with other lead check all tube pins marked "H" which show a voltage reading on the voltage chart as shown in figure 46. If incorrect or no voltage, check or replace the following:

1. Check or replace "On and Off" switch, item 51C on circuit diagram and 51 on parts layout.
2. Check or replace condensers, items 23 and 24 on circuit diagram and parts layout.
3. Check or replace choke, item 8 on circuit diagram and parts layout.

Next check will be the "A.C." voltage on secondary winding of the power transformer. Set the volt-ohm meter in the "600" volt position to read "A.C." voltage. Check the tube pins marked "P" on the OZ4 tube. Each pin should read 295 to 305 volts "A.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace condensers, items 24 and 27 on circuit diagram and parts layout.
2. Check or replace choke, item 8 on circuit diagram and parts layout.

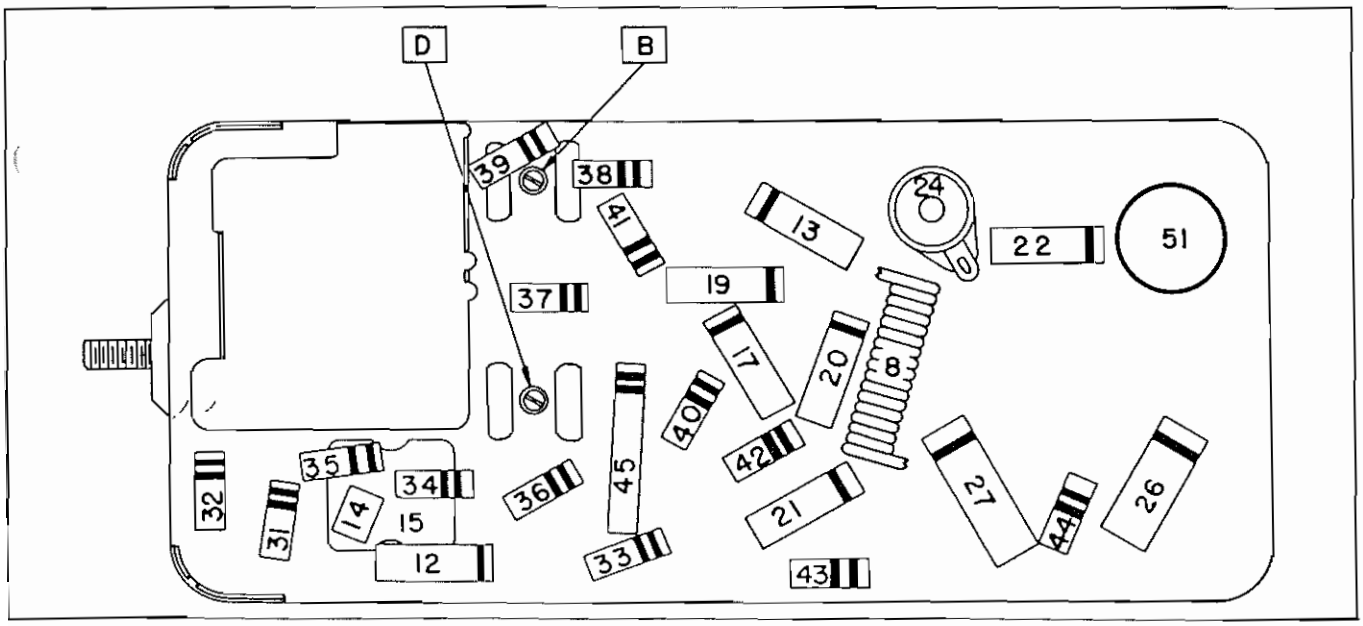


Figure 47 PARTS LAYOUT - BOTTOM VIEW - 987187 - RADIO

3. Check or replace power transformer, item 55 on circuit diagram and parts layout.

4. Check or replace resistor, item 44 on circuit diagram and parts layout.

5. Check or replace vibrator, item 56 on circuit diagram and parts layout.

Next check the tube pin marked "S" on 12V6GT tube, which should read 210 to 220 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace electrolytic condenser, item 18B on circuit diagram and 18 on parts layout.

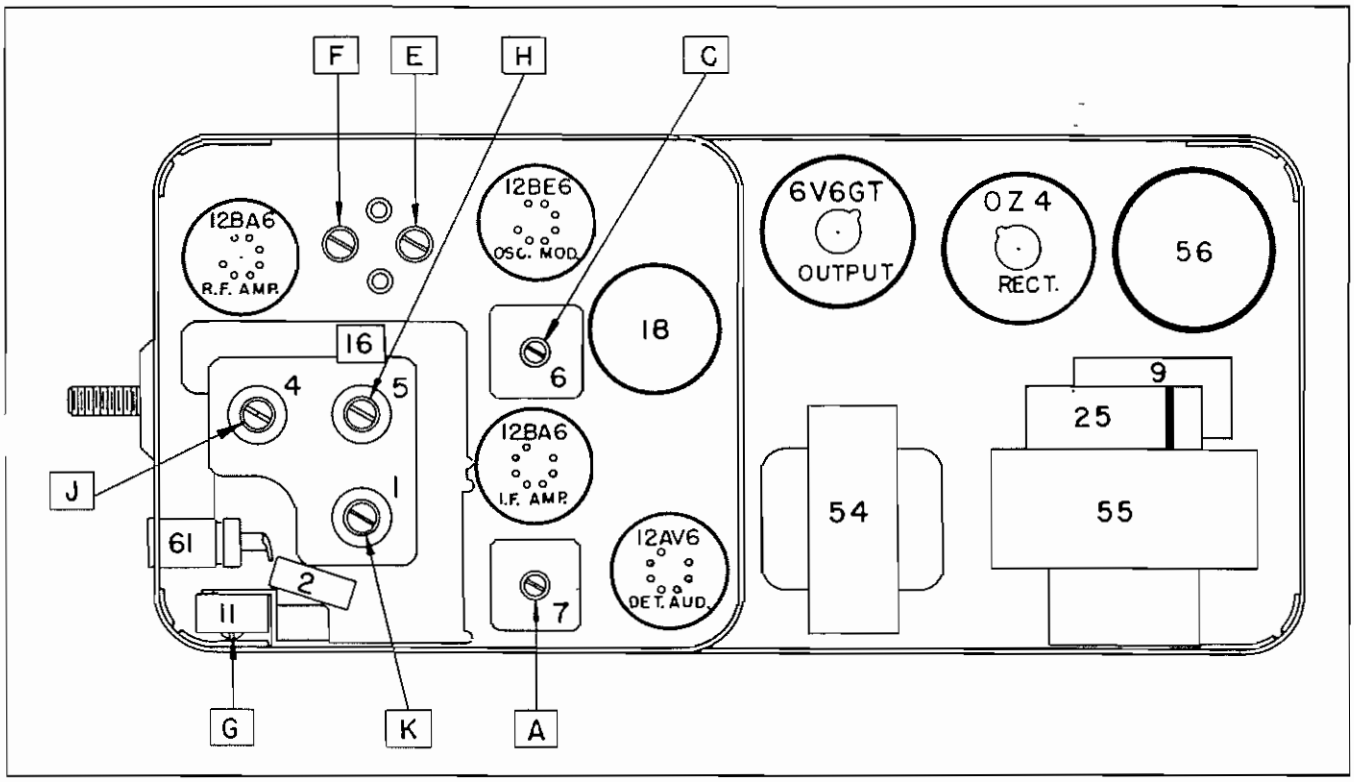


Figure 48 PARTS LAYOUT - TOP VIEW - 987187 - RADIO

Next set volt-ohm meter in the "300" volt position to read "D.C." voltages. Check tube pin marked "K" on OZ4 tube, which should read 245 to 255 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace OZ4 tube.

2. Check or replace OZ4 tube socket.

Next check the tube pin marked "P" on 12V6GT tube, which should read 230 to 240 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace electrolytic condenser, item 18A on circuit diagram and 18 parts layout.

2. Check or replace audio transformer, item 54 on circuit diagram and parts layout.

3. Check or replace condenser, item 21 on circuit diagram and parts layout.

2. Check or replace resistor, item 45 on circuit diagram and parts layout.

Next check the tube pin marked "K" on 12V6GT tube, which should read 10 to 15 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace resistor, item 43 on circuit diagram and parts layout.

2. Check or replace condenser, item 21 on circuit diagram and parts layout.

Next check tube pin marked "P" on 12AV6 tube, which should read 85 to 95 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace condenser, item 17 on circuit diagram and parts layout.

2. Check or replace resistor, item 40 on circuit diagram and parts layout.

Next check the tube pin marked "P" on 12BA6 intermediate frequency amplifier tube, which should read 205 to 220 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace intermediate frequency transformer, item 7 on circuit diagram and parts layout.

Next check the tube pin marked "S" on 12BA6 intermediate frequency tube, which should read 70 to 80 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace resistor, item 33 on circuit diagram and parts layout.

2. Check or replace condenser, item 12 on circuit diagram and parts layout.

Next check the tube pin marked "P" on 12BE6 tube, which should read 205 to 220 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace intermediate frequency transformer, item 6 on circuit diagram and parts layout.

Next check the tube pin marked "S" on 12BE6 tube, which should read 70 to 80 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace resistor item 33 on circuit diagram and parts layout.

2. Check or replace condenser, item 12 on circuit diagram and parts layout.

Next check the tube pin marked "P" on 12BA6 radio frequency tube, which should read 140 to 150 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace condenser, item 14 on circuit diagram and parts layout.

2. Check or replace resistor, item 34 on circuit diagram and parts layout.

Next check the tube pin marked "S" on 12BA6 radio frequency tube, which should read 70 to 80 volts "D.C.". If incorrect or no voltage, check or replace the following:

1. Check or replace resistor, item 33 on circuit diagram and parts layout.

2. Check or replace condenser, item 12 on circuit diagram and parts layout.

We have now checked the tubes, vibrator and voltages. If these are correct and radio does not play, the trouble will be in the grid circuit of the radio. To continue, it will be necessary to check the grid circuit by means of signal tracing.

PROCEDURE FOR SIGNAL TRACING RADIO 987187

Turn on signal generator and set in audio position to obtain a 400 cycle audio signal. Ground one lead of signal generator to radio chassis.

NOTE: To protect the signal generator from "D.C." voltage, place a .05 mfd. condenser in signal generator lead between the signal generator and the end of the test lead. Adjust signal generator volume about 3/4 open to obtain a strong signal.

With signal generator lead touch tube pin marked "P" on the 12V6GT tube. If no signal, check or replace the following:

1. Check or replace condenser, item 21 on circuit diagram and parts layout.

2. Check or replace audio transformer, item 54 on circuit diagram and parts layout.

3. Check or replace speaker, item 53 on circuit diagram and parts layout.

Next touch tube pin marked "G" on 12V6GT tube. If no signal, check or replace the following:

1. Check or replace 12V6GT tube.

2. Check or replace 12V6GT tube socket.

3. Check or replace condenser, item 20 on circuit diagram and parts layout.

Next touch tube pin marked "P" on 12AV6 tube. If no signal, check or replace the following:

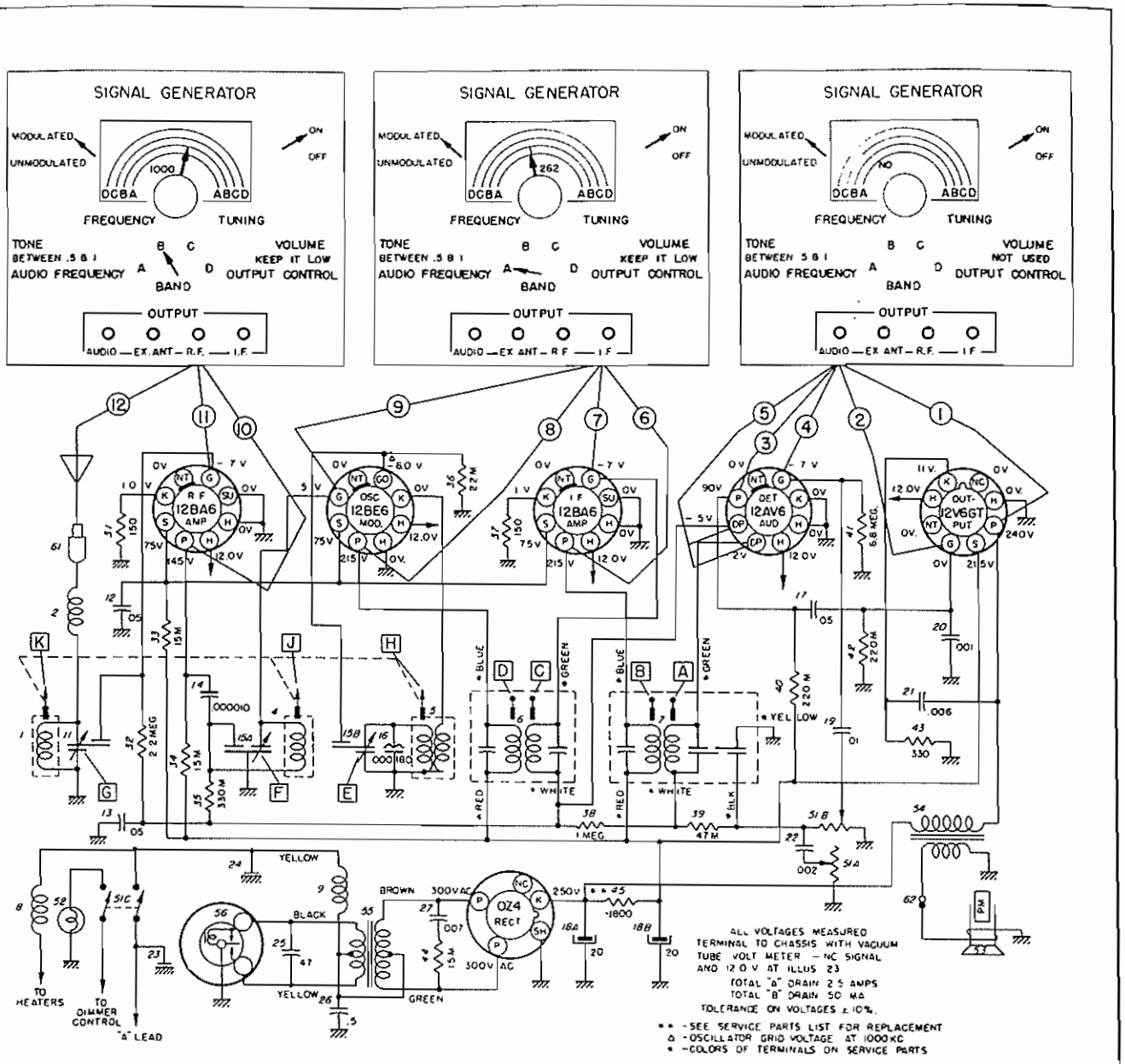
1. Check or replace condenser, item 17 on circuit diagram and parts layout.

2. Check or replace resistors, items 40 and 42 on circuit diagram and parts layout.

Next touch tube pin marked "G" on 12AV6 tube. If no signal, check or replace the following:

1. Check or replace 12AV6 tube.

2. Check or replace 12AV6 tube socket.



POINT SIGNAL STOPS - CHECK OR REPLACE ITEMS LISTED

No signal at point 1 - check or replace - items 21-53-54.	No signal at point 7 - check or replace - 12BA6 tube or tube socket.
No signal at point 2 - check or replace - 12V6GT tube or tube socket - item 20.	No signal at point 8 - check or replace - item 6.
No signal at point 3 - check or replace - items 17-40-42.	No signal at point 9 - check or replace - 12BE6 tube or tube socket.
No signal at point 4 - check or replace - 12AV6 tube or tube socket.	No signal at point 10 - check or replace - items 4-5-14A-14B-15A-15B-16-35-38.
No signal at point 5 - check or replace - 12AV6 tube or tube socket - item 19.	No signal at point 11 - check or replace - 12BA6 tube or tube socket.
No signal at point 6 - check or replace - items 7-19-39-41-51B.	No signal at point 12 - check or replace - items 1-2-3-11-13

Figure 49 SIGNAL TRACING PROCEDURE - 987187 - RADIO

Next touch tube pins marked "DP" on the 12AV6 tube. If no signal, check or replace the following:

1. Check or replace 12AV6 tube.
2. Check or replace 12AV6 tube socket.
3. Check or replace condenser, item 19 on circuit diagram and parts layout.

Now change signal generator from audio position to generate an intermediate frequency signal. Set signal generator to 262 kilocycles, leaving .05 mfd. condenser in signal generator lead to protect the signal generator from "D.C." voltage. Keep signal generator grounded to radio chassis.

Next touch tube pin marked "P" on 12BA6 intermediate frequency amplifier tube. If no signal, check or replace the following:

1. Check or replace intermediate frequency transformer, item 7 on circuit diagram and parts layout.
2. Check or replace resistors, items 39 and 41 on circuit diagram and parts layout.
3. Check or replace condenser, item 19 on circuit diagram and parts layout.
4. Check or replace volume control assembly, item 51B on circuit diagram and parts layout.

Next touch tube pin marked "G" on 12BA6 intermediate frequency amplifier tube. If no signal, check or replace the following:

1. Check or replace 12BA6 tube.
2. Check or replace 12BA6 tube socket.
3. Check or replace resistor, item 37 on circuit diagram and parts layout.

Next touch tube pin marked "P" on 12BE6 tube. If no signal, check or replace the following:

1. Check or replace intermediate frequency transformer, item 6 on circuit diagram and parts layout.

Next touch tube pin marked "G" on 12BE6 tube. If no signal, check or replace the following:

1. Check or replace 12BE6 tube.
2. Check or replace 12BE6 tube socket.

Next change signal generator from intermediate frequency setting to radio frequency signal, leaving the .05 mfd. condenser in lead to protect signal generator from "D.C." voltage. Set signal generator to 1000 kilocycles and tune radio receiver to 1000 kilocycles (10 on dial scale).

Next touch tube pin marked "P" on 12BA6 radio frequency amplifier tube. If no signal, check or replace the following:

1. Check or replace radio frequency coil, item 4 on circuit diagram and parts layout.
2. Check or replace oscillator coil, item 5 on circuit diagram and parts layout.
3. Check or replace condensers, items 14A, 14B, 15A, 15B and 16 on circuit diagram and parts layout.
4. Check or replace resistors, items 35 and 38 on circuit diagram and parts layout.

Next touch tube pin marked "G" on 12BA6 radio frequency tube. If no signal, check or replace the following:

1. Check or replace 12BA6 tube.
2. Check or replace 12BA6 tube socket.
3. Check or replace resistor, itsm 31 on circuit diagram and parts layout.

Next touch antenna terminal at antenna socket. If no signal, check or replace the following:

1. Check or replace antenna coil, item 1 on circuit diagram and parts layout.
2. Check or replace condensers, items 11 and 13 on circuit diagram and parts layout.
3. Check or replace chokes, items 2 and 3 on circuit diagram and parts layout.

This completes the entire checking procedure of the receiver, and if the procedure has been followed as outlined, the failure will have been located. After repairing failure, receiver will operate and should now be aligned for proper performance as follows, and which is part of the service operation when repairing radios.

PROCEDURE FOR ALIGNMENT OF 987187 RADIO

All receivers are properly aligned at the factory and should require no further adjustments, except adjusting the receiver to the antenna when

installation is made, unless the adjustments have been tampered with, or new coils, intermediate frequency transformers, or tuning cores have been installed.

To properly align the receiver it will be necessary to have an output meter and signal generator.

NOTE: If any one of the tuning coils or cores have been replaced, see "Capacity and Inductance Alignment Procedure" before proceeding with alignment of the receiver. If only the adjustments have been tampered with or an intermediate frequency transformer has been replaced, proceed with the alignment as follows:

1. First hook up an output meter to the radio receiver. Any volt meter which will read "A.C." can be used. Set the volt meter in the 30 volt "A.C." range position and ground one lead of meter to radio chassis. Place the other lead from the volt meter to the speaker terminal of the speaker to which the "green" lead of the audio output transformer is connected, speaker is item 53 and audio transformer item 54 on circuit diagram and parts layout.

2. Turn on signal generator and set adjustments to obtain a 262 kilocycle signal. Connect one lead of signal generator to radio chassis for ground. Attach the other lead from the signal generator to the tube pin marked "G" on 12BE6 tube.

3. Adjust signal generator volume control so that the volt meter will read at about half scale.

   NOTE: Radio receiver volume control must be turned to the maximum position, so that the automatic volume control circuit of the radio will not affect the alignment of the receiver.

4. Adjust in sequence trimmers "A, B, C and D", as shown on circuit diagram and parts layout, for maximum meter reading. Repeat adjustments to get maximum meter reading. Keep the signal generator volume turned down so that during adjustments the meter does not read more than half scale. This will result in a better alignment of the receiver.

5. Next change signal generator setting to obtain a radio frequency signal and tune signal generator to exactly 1615 kilocycles. Connect a .000082 mfd. condenser to antenna connector and attach signal generator lead. Tune radio receiver to the "stop" on the 1600 kilocycle end of the dial. Keep the signal generator volume control adjusted so that output meter reads at about half scale.

6. Adjust trimmers "E, F and G" on circuit diagram and parts layout in sequence for maximum readings on output meter. Repeat for maximum meter readings.

7. Tune the signal generator and radio receiver to exactly 1000 kilocycles and repeat adjustments of trimmers "F and G" ONLY for maximum readings.

8. After the receiver has been installed in the truck, turn on receiver and tune in a weak station near 1000 kilocycles, with radio volume control turned to maximum position and the antenna extended to full height. Readjust trimmer "G" ONLY for maximum volume.

CAPACITY AND INDUCTANCE ALIGNMENT PROCEDURE FOR 987187 RADIO

This alignment procedure is to be used only when any of the following parts have been replaced in the radio; antenna coil, radio frequency coil, oscillator coil or any of the tuning cores.

The intermediate frequency alignment at 262 kilocycles is the same as outlined in "Alignment Procedure" operations 1 through 4. After completing the intermediate frequency alignment, proceed as follows:

1. Connect signal generator lead to a .000075 mfd. condenser and connect to antenna terminal of antenna socket. Tune signal generator to exactly 1615 kilocycles, and tune radio receiver to "stop" on the 1600 kilocycle end of the dial.

2. Adjust output meter to about half scale, and then adjust trimmers "E, F and G" on circuit diagram and parts layout in sequence for maximum meter readings.

3. Next tune signal generator and radio receiver to exactly 1000 kilocycles (10 on radio dial) and adjust iron cores "H, J and K" for maximum readings on output meter.

   NOTE: The iron cores are slotted so that adjustments can be made with a small insulated screw driver that fits loosely in the coil forms.

4. Repeat alignment procedure at 1615 and 1000 kilocycles until the maximum readings have been attained.

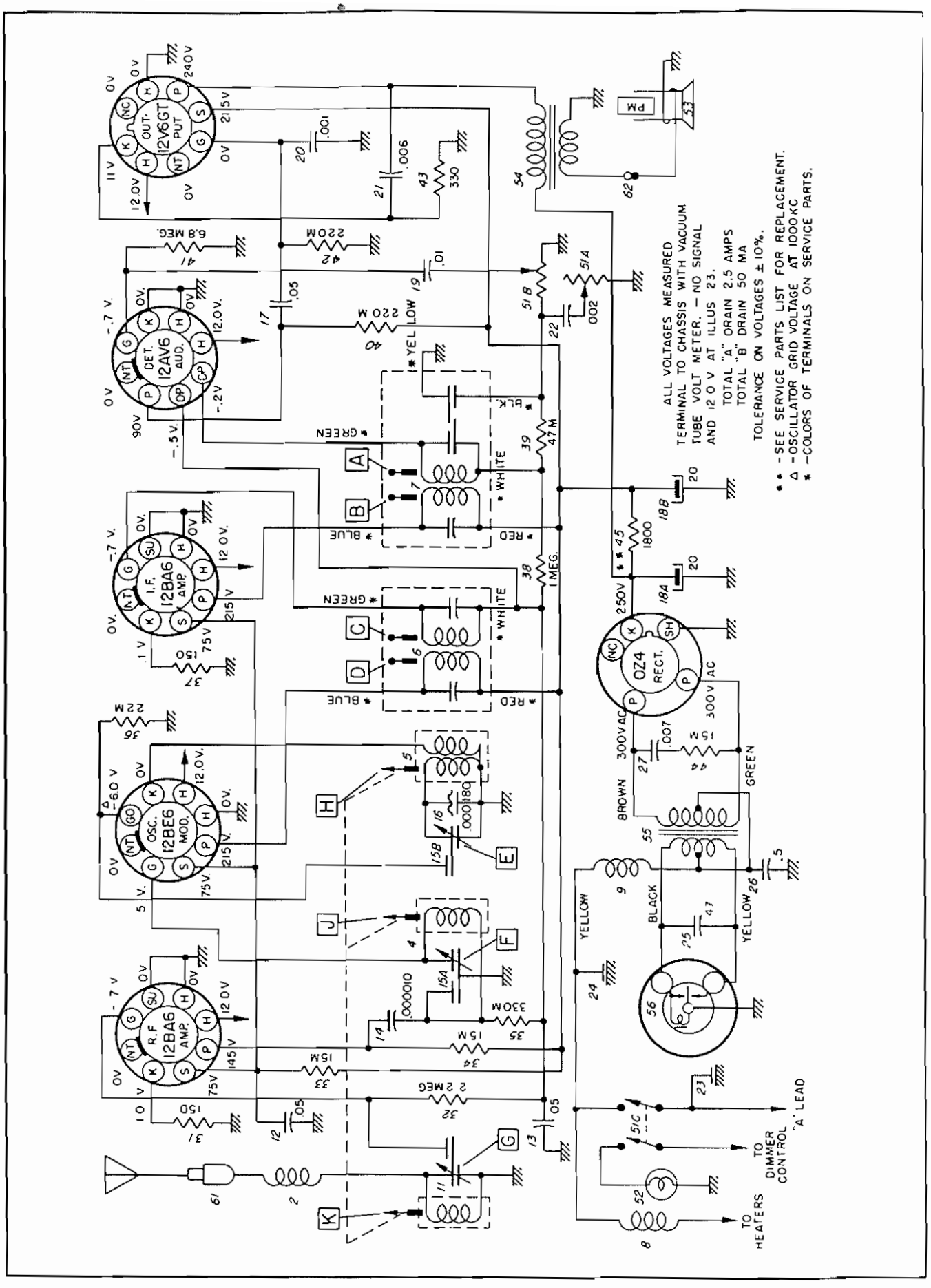


Figure 50 CIRCUIT DIAGRAM - 987187 - RADIO

5. After the receiver has been installed in the truck, turn on the receiver and tune in a weak station near 1400 kilocycles, with radio volume turned to maximum position and antenna extended to full height. Readjust trimmer "G" only for maximum volume.

SERVICE PARTS LIST
987187 RADIO

NOTE: All Chevrolet radio service parts are available to dealers through General Motors Parts Division Warehouses. Orders for radio parts requirements to be placed with warehouse in the usual manner.

Illus. No.	Service Part No.	Description
		COILS
1	7258914	Antenna
2	7255738	Antenna Series Choke
3		Antenna Spark Choke
4	7258914	RF
5	7265234	Oscillator
6	1218725	1st IF
7	1218726	2nd 1F
8	1217846	Hash Choke
		CONDENSERS
11	7265202	Antenna trimmer capacitor
12	7230592	.05 mfd. 400 V. tubular
13	7230592	.05 mfd. 200 V. tubular
14	7265811	Dual condenser .000015-39 mfd.
14A		.000015 mfd. molded mica
14B		.000039 mfd. disc ceramic
15	7242454	Dual trimmer
15A		R.F. section
15B		Osc. section
16	7257424	.00180 mfd. compensating
17	1208600	.01 mfd. 500 V. disc ceramic
18	7262905	Electrolytic
18A		20 mfd. 400 V.
18B		20 mfd. 400 V.
19	1208600	.01 mfd. 600 V. tubular, disc. ceramic
20	7265426	.002 mfd. 600 V. tubular, disc ceramic
21	1219084	.006 mfd. 800 V. tubular, disc ceramic

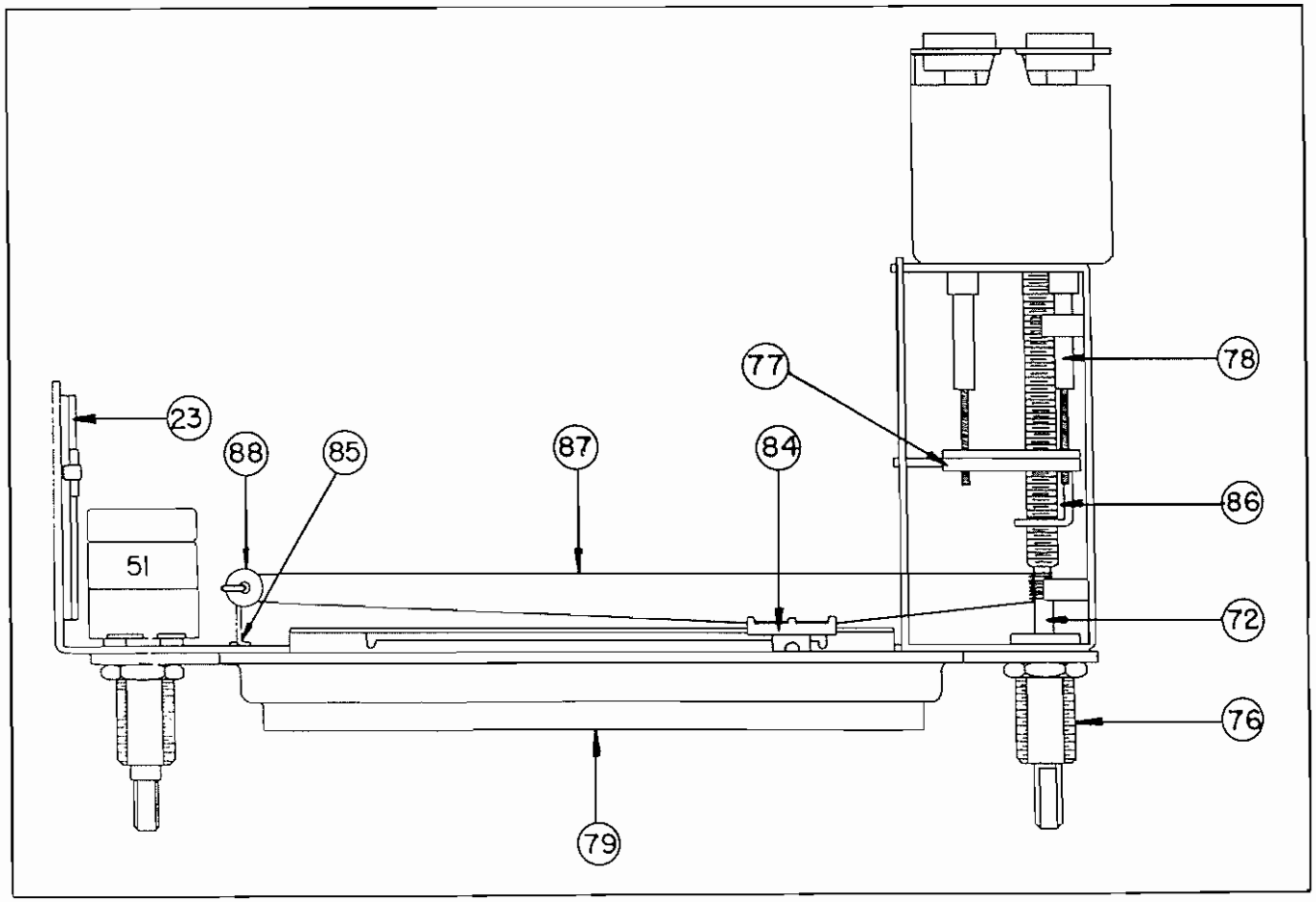


Figure 51 TUNER AND DIAL CORD VIEW - 987187 - RADIO

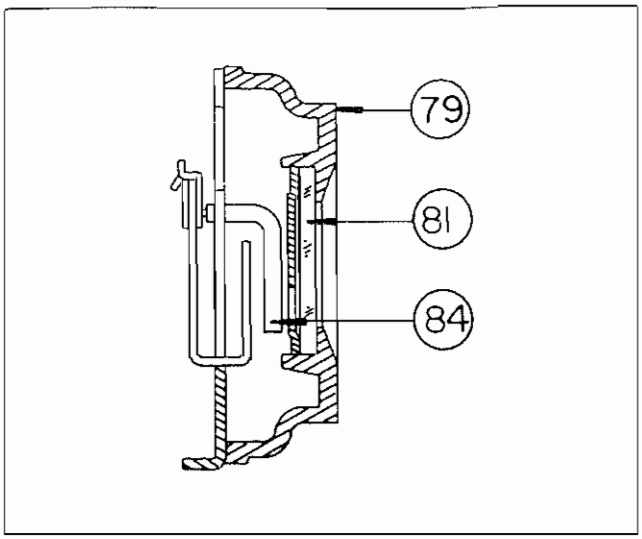


Figure 52 ESCUTCHEON - 987187 - RADIO

Illus. No.	Service Part No.	Description
22	7237836	.002 mfd. disc ceramic
23	1220308	Spark plate assembly
23A		Dial light section
23B		"A" lead section
24	1217848	Chassis plate capacitor
27	1215191	.008 mfd. 1600 V. tubular
		RESISTORS
31	*1213217	100 ohms 1/2 W. insulated
32	1214563	2.2 megohms 1/2 W. insulated
33	7233653	15,000 ohms 2W. insulated
34	7237595	15,000 ohms 1W. insulated
35	1214557	330,000 ohms 1/2 W. insulated
36	1214550	22,000 ohms 1/2 W. insulated
37	1213220	150 ohms 1/2 W. insulated
38	1220169	1 megohm 1/2 W. insulated
39	1214553	47,000 ohms 1/2 W. insulated
40	*1214555	220,000 ohms 1/2 W. insulated
41	1215563	6.8 meg 1/2 W. insulated
42	*1214555	220,000 ohms 1/2 W. insulated
43	7233773	330 ohms 1W. insulated
44	7237595	15,000 ohms 1W. insulated
45	*1214573	1800 ohms 2W wire wound (use 7242844 and 7240918 2700 ohms 2 W. and 5600 ohms 1W. in parallel)
46	1216152	820 ohms 1W. insulated
		TUBES
	1220823	12BA6
	1220822	12BE6
	1220824	12AV6
	1220828	12V6GT
	1220817	OZ4

Illus. No.	Service Part No.	Description
		MISCELLANEOUS
51	7266193	Control, volume, tone and switch
51A		Tone control
51B		Volume control
51C		Switch
52	273157	Lamp, dial type 57
53	7265780	Speaker, 5 x 7"
54	1219833	Transformer, output
55	1220867	Transformer, power
56	7268575	Vibrator
		MECHANICAL PARTS
61	7239475	Socket, antenna
	7258073	Socket, 7 pin miniature
	7236279	Socket, octal tube
	7263109	Socket, vibrator
	*1220670	Socket, dial light
		TUNER
72	1220815	Tuning shaft assy.
	*7257400	Spring, washer
	*7258783	"C" washer
76	7266192	Bushing, manual drive shaft
77	7265194	Core bar assembly
78	1220355	Core, iron tuning
79	7266198	Escutcheon assembly
81		Dial glass (part of escutcheon assembly)
84	7265195	Pointer assembly
85	7265275	Spring, dial cord drive
86	7262922	Spring, manual drive
87	1219143	Cord, dial 100 ft. roll - cut to length needed.
88	7263593	Pulley, dial cord drive
		INSTALLATION PARTS
	1917580	Condenser, generator
	1929070	Condenser, ignition coil
	1917580	Condenser, voltage regulator
	455640	Fuse
	7265768	Knob assembly, control
	7265770	Knob, dummy
	7265769	Knob, tone control
	7265125	Radio support bracket
	494786	Collector, static

* Not Serviced

CHEVROLET AUTRONIC-EYE TRANSISTOR POWERED AUTOMATIC HEADLAMP CONTROL GENERAL DESCRIPTION

The Autronic-Eye is an electronic device that automatically switches the headlamps between the upper and lower beams in response to light from an approaching car. It consists of four separate units: Phototube Unit, Amplifier Unit, Power Relay and combination dimmer-override type Foot Switch, (see figure 53.)

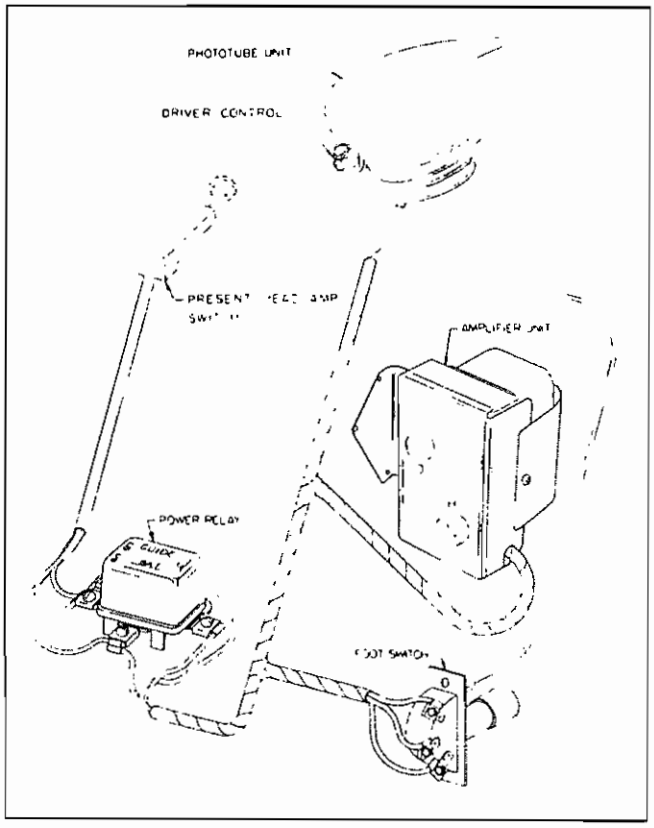


Figure 53

The Phototube Unit is mounted on the top left side of the instrument panel. It is an optical device equipped with a lens which picks up light from an approaching car and focuses it through a filter and mask to a phototube. The phototube converts the light into an electrical signal which is suppled to the Amplifier Unit. The sensitivity of the Phototube Unit is adjusted to accommodate the clear or tinted windshield. A driver sensitivity control located at the rear of the Unit provides the driver a limited amount of sensitivity adjustment.

The Amplifier Unit, mounted in the left front door post behind the kick panel, supplies voltage to the Phototube Unit and operates the Power Relay to switch the headlamps to lower beam in response to a signal from the Phototube Unit.

The Power Relay, mounted in the engine compartment, is a heavy duty relay with special alloy contacts for switching the headlamps between upper and lower beams.

The Foot Switch is a special dimmer-override type. "Automatic" or "Lower Beam" control of the headlamps is provided by ratcheting the switch. The headlamps are controlled automatically only in the "Automatic" position of the switch. The other position provides the lower beam only.

The override section of the Foot Switch functions only when the switch is in "Automatic" position. A slight pressure on top of the switch provides upper beam, regardless of light on the Phototube Unit. This arrangement permits signaling if desired and provides a simple test for the "Automatic" position of the Foot Switch.

FUNCTIONAL OPERATION

In the "Automatic" position of the Foot Switch, the "Autronic-Eye" provides complete automatic switching of the headlamp beams.

When a car approaches within proper distance, light from its headlamps striking the Phototube Unit causes the "Autronic-Eye" to switch the headlamps to lower beam. At this time, if the approaching car's headlamps were on upper beam, the driver would normally switch to lower beam which would greatly reduce the amount of light striking the Phototube Unit. The "Autronic-Eye" is designed to maintain its vehicle headlamps on a lower beam even with this reduction in light. When light is removed from the Phototube Unit, the "Autronic-Eye" returns the headlamps to upper beam.

If the approaching vehicle fails to switch to lower beam, the override section of the Foot Switch may be operated to provide an upper beam for signaling purposes.

Street lights and extraneous lights encountered in the city are sufficient to cause the "Autronic-Eye" to maintain its vehicle headlamps on lower beam.

The "Autronic-Eye" is disconnected from its vehicle headlamps in the "Lower Beam" position of the Foot Switch; however, the "Autronic-Eye" is not turned off. It continues to function as long as the headlamps are turned on, and is ready at all times to provide automatic control whenever the Foot Switch is returned to "Automatic" position.

A sensitivity control knob "Driver Control" is located at the rear of the Phototube Unit. This control gives the driver of the car a certain amount of control over sensitivity. A detent position (knob pointer up) is provided for normal sensitivity. Rotating clockwise increases sensitivity and allows the "Autronic-Eye" to switch to lower beam when an approaching car is farther away than normal. Rotating counter-clockwise from the detent position decreases sensitivity.

PRELIMINARY CHECKS BEFORE BEFORE ADJUSTMENT

The "Autronic-Eye" is adjusted at the factory and should hold its adjustment over a long period of time. There may be occasions when the adjustment is questioned. Like any other electrical device, loose or incorrect wire connections or even a misunderstanding of the operation of the unit may lead one to believe that an adjustment is necessary. The following troubles may be reported:

(a) Headlamps switch to the lower beam when an approaching car is too far away.

(b) Headlamps switch to the lower beam when an approaching car is too close or will not switch to the lower beam at all.

(c) Headlamps will not return to the upper beam when no car or other lights are ahead.

(d) Headlamps return to upper beam when the approaching car switches to lower beam.

(e) Headlamps switch rapidly back and forth between upper and lower beam.

While the above complaints may be corrected by simple aiming and sensitivity adjustments, in most cases, a few preliminary tests should be made to determine if the diffuculty is more serious thar can be corrected by simple adjustment. With car in a lighted area, check as described below:

1. Pull the light switch knob to full "On" position. After a few seconds warm-up time, the lights should remain on the lower beam, regardless of the position of the Foot Switch.

2. Depress the override section of the Foot Switch. The headlamps should change to upper

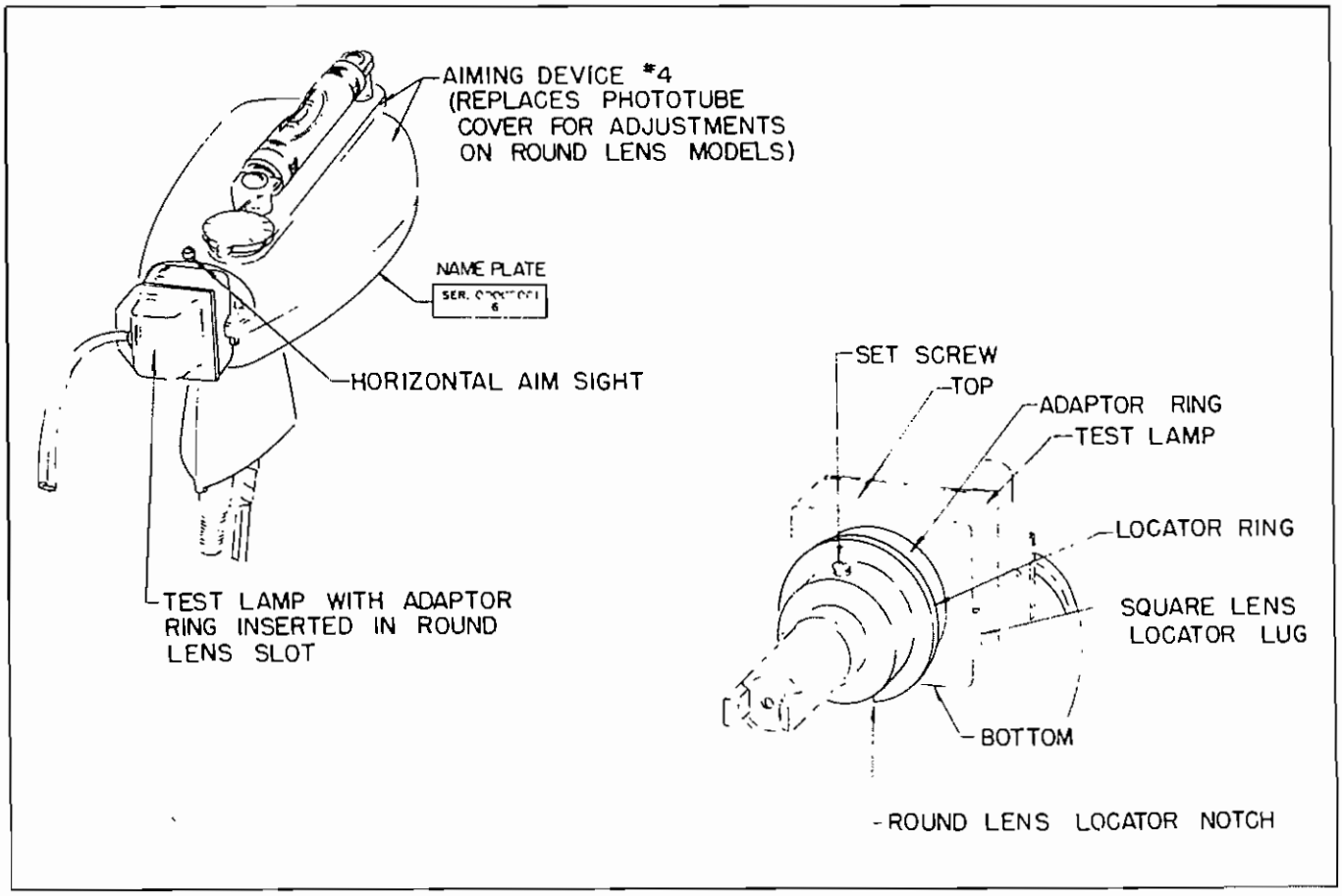


Figure 54

beam if the Foot Switch is in the "Automatic" position. If not, ratchet the Foot Switch and again depress the override section. The lights should now change to the upper beam. When the override section of the Foot Switch is released, the headlamps should return to lower beam.

3. Cover the Phototube Unit with a black cloth. If the Foot Switch is in "Automatic" position, the headlamps should switch to upper beam. When the cloth is removed, the headlamps should switch back to lower beam.

If the lights do not operate as described in Steps 1, 2, and 3, refer to "Minor Service Corrections on Car".

If the headlamps operate as explained in the above steps, the device should operate correctly with the proper aiming and sensitivity adjustment.

ADJUSTMENT

Sensitivity and aiming adjustments are made by using Adaptor Ring and Aiming Device No. 4 in conjunction with either the Guide "Autronic-Eye" tester, Model AE-2 manufactured by Sun Electric Corporation, or Model 10 manufactured by Kent-Moore Organizations, Inc. Use the following instructions for aiming and sensitivity adjustments:

ADAPTOR RING AND AIMING DEVICE NO. 4

The correct aim and sensitivity adjustments cannot be obtained without the use of this adaptor ring and aiming device. Install the adaptor ring as shown in figure 54.

The Aiming Device No. 4 consists of a special Phototube Unit cover with the leveling device mounted on it. To install, remove the regular cover and lens from the Phototube Unit. Either remove or pull out the Driver Control knot at rear of the Phototube Unit to clear the Aiming Device No. 4. Install test lamp in base by inserting the locator ring in the lens slot. The lens locator in the Phototube Unit base must fit in the locator ring notch at the bottom. Replace the regular cover with Aiming Device No. 4. Replace screws and tighten securely, see figure 54.

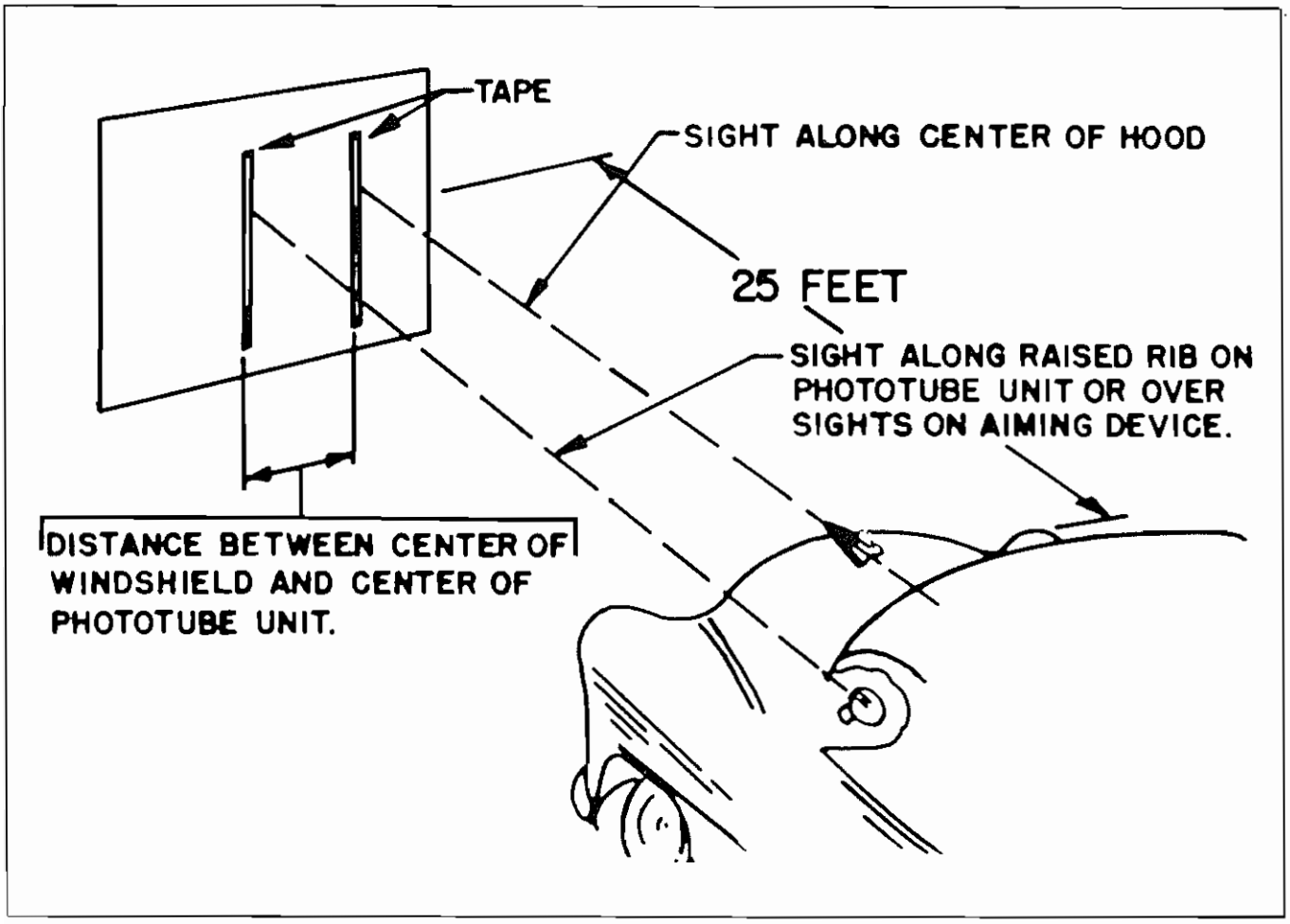


Figure 55

CAUTION: The Aiming Device No. 4 contains a special plastic filter. This filter should be kept free of dust and foreign particles. If the filter is damaged, the aiming device must be returned to the tester manufacturer for repair. THIS FILTER DOES NOT REPLACE THE AMBER FILTER IN THE PHOTOTUBE UNIT WHICH MUST BE LEFT IN PLACE.

The centerline of the Phototube Unit must be aimed parallel to the horizontal centerline of the car. Unsatisfactory operation on curved highways will result if horizontal aim is incorrect. As shown in Fig. 55, the horizontal aim should be checked as follows:

1. Locate car approximately 25 feet from a vertical wall or screen.

2. Sight down the car hood and place a piece of tape on the wall at hood height to represent car centerline.

3. Measure distance between centerline of Phototube Unit and center of car windshield. Place a second piece of tape on the wall this distance to the left of the car centerline.

4. One of the following two procedures may now be used:

   (a) Sight along raised rib on Phototube Unit -- should point at line established on wall to left of the car centerline.

   (b) Replace cover of Phototube Unit with Aiming Device No. 4. Sight over top of two sights located on the centerline of the aiming device -- should point at line established on wall to left of the car centerline.

5. If horizontal aim is incorrect, loosen the clevis retaining screw in the side of the bracket, rotate Phototube Unit on the bracket until aim is correct. Tighten clevis retaining screw securely after adjustment.

PHOTOTUBE UNIT VERTICAL AIMING PROCEDURE

Proper performance of the "Autronic-Eye" also requires that the Phototube Unit be accurately aimed vertically. If the unit is aimed too low, back reflections from its own headlamps will cause the "Autronic-Eye" to hold the headlamps on low beam. However, the unit must be aimed as low as possible to provide maximum tolerance for car loading.

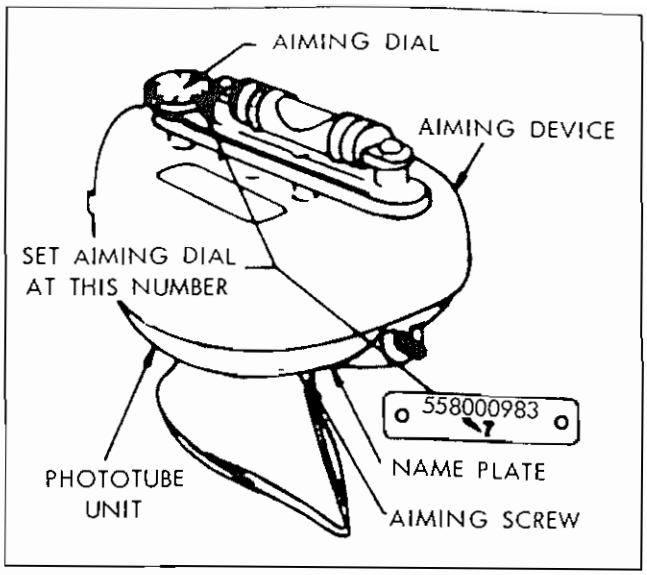


Figure 56

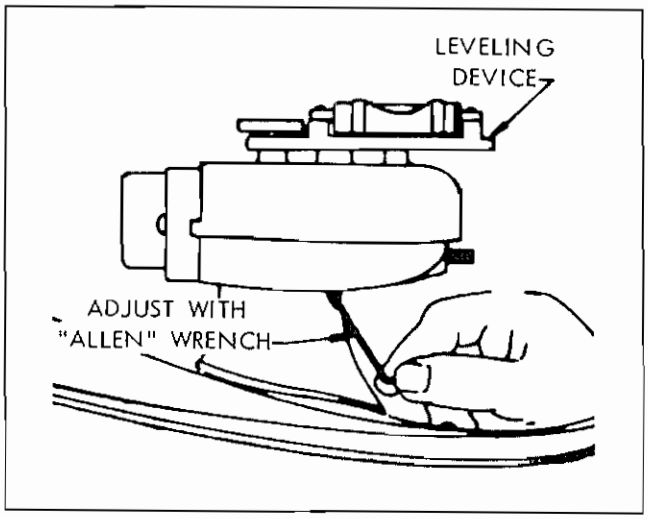


Figure 57

NOTE: Due to normal settling of front and rear springs, it is recommended that the aiming procedure, outlined below, should be made with the 2000 mile inspection.

1. Phototube Unit vertical aiming should be done with the car unloaded, trunk empty except for spare tire, gas tank at least half full, and with tires at correct pressure.
2. Locate car on a level floor (level within 1/4" fore and aft of car).
3. Rock car sideways to equalize springs.
4. Install Aiming Device No. 4 as shown in figure 56.
5. Observe number stamped on name plate on bottom side of the Phototube Unit, see figure 56. Adjust aiming dial until corresponding number is under pointer.

6. Use Allen wrench located inside tester cover and adjust vertical aiming screw until bubble is centered in the level, see figure 57.

HOLD SENSITIVITY TEST
PROCEDURE ON CAR
(Using either Sun Tester Model AE-2 or Kent-Moore Model 10)

CAUTION: The "Autronic-Eye" develops 1200 volts D.C. Turn headlamps off before removing cover from Phototube Unit. Hold sensitivity must be properly adjusted before adjusting Dim sensitivity.

1. Install tester lamp and Aiming Device No. 4 according to instructions.

2. Place driver control in detent position. (Knob pointer up)

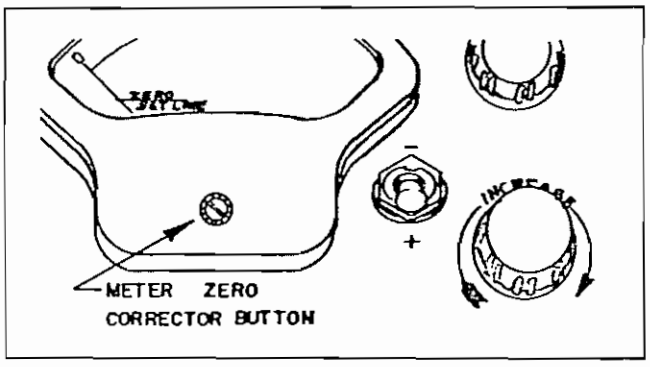


Figure 58

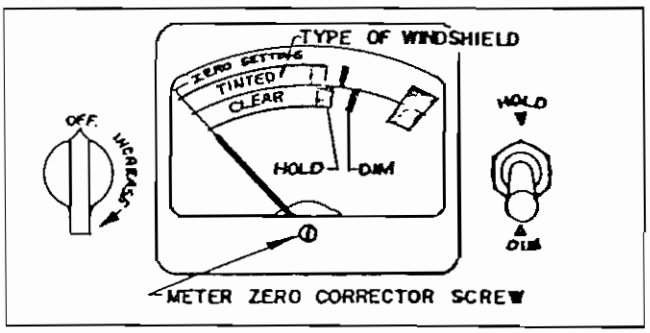


Figure 59

3. Start engine and operate at fast idle while making adjustments.

4. Turn headlamps on and wait at least five minutes for Amplifier Unit to stablilize. Set Foot Switch to "Automatic" position.

5. With tester turned off, turn zero corrector on face of meter until pointer is on zero set line, see figures 58 and 59.

6. Turn intensity rheostat of tester counter-clockwise.

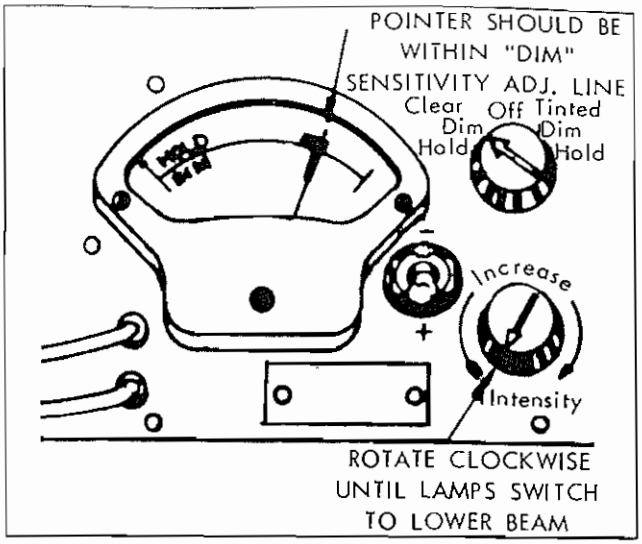


Figure 60

7. When using Sun Tester, insert tester connector into cigar lighter receptacle. Kent-Moore Tester contains its own power supply.

8. Turn Selector or Dim-Hold switch to "Dim" position.

   NOTE: Sun Tester provides a Selector Switch for setting meter to proper setting for clear or tinted windshields. Kent-Moore Tester provides a meter scales for clear or tinted windshields.

9. Turn Intensity Rheostat all the way clockwise to obtain a lower beam. Note: If lights do not switch to lower beam, the Amplifier Dim control (See Hold Sensitivity Adjustment, Step 1) must be turned completely clockwise and then re-adjusted after Hold adjustment is correct.

10. Turn Selector or Dim-Hold switch to HOLD position.

11. Slowly turn Intensity Rheostat counter-clockwise just to the point where headlamps switch to upper beam. The meter pointer should now read in the Green Hold Sensitivity Adjustment Bar on the meter scale, see figures 60 and 61. If not, proceed with adjustment procedure which follows:

HOLD SENSITIVITY ADJUSTMENT

1. The Hold and Dim sensitivity controls are slotted for screwdriver adjustment and are available through holes (H) and (D) in the bottom cover of the Amplifier Unit, see figure 62.

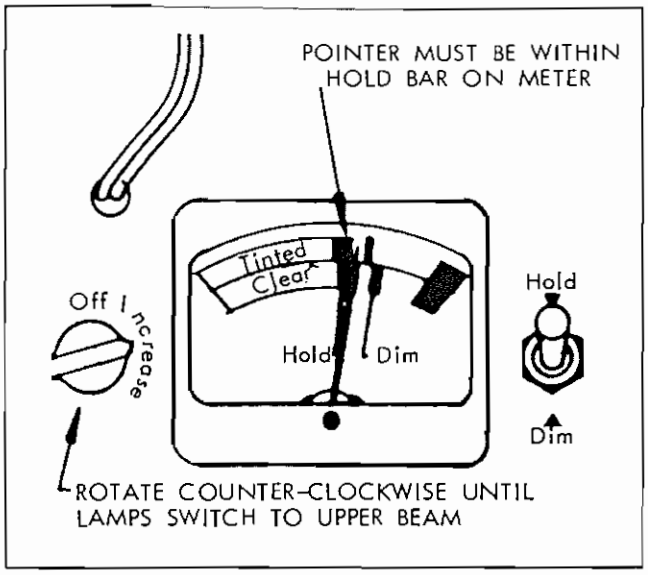


Figure 61

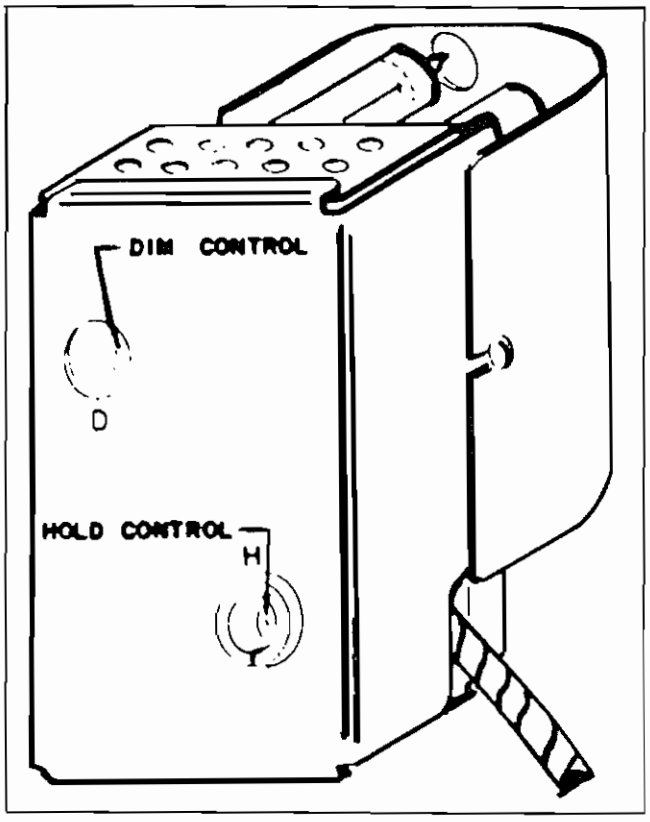


Figure 62

2. Rotate the Amplifier Hold control completely clockwise.

3. Rotate tester Intensity Rheostat all the way clockwise.

4. Turn Selector or Dim-Hold switch momentarily to Dim position to switch lights to lower beam then switch back to Hold position.

5. Adjust tester Intensity Rheostat until meter pointer is at right-hand edge of Green Hold Sensitivity Bar, see figures 60 and 61.

6. Turn Amplifier Hold control slowly counter-clockwise just to the point where headlamps switch to upper beam.

7. Recheck sensitivity as shown in steps 9 through 11 under Hold Sensitivity Test Procedure on Car.

DIM SENSITIVITY TEST PROCEDURE ON CAR
DIM SENSITIVITY TEST PROCEDURE O
DIM SENSITIVITY SHOULD NOT BE ADJUSTED UNTIL AFTER "HOLD" SENSITIVITY IS PROPERLY ADJUSTED

1. Rotate tester intensity rheostat completely counterclockwise.

2. Turn Selector Switch off or Dim-Hold switch to Hold position and then back to Dim position. Headlamps should be on upper beam.

3. Turn tester Intensity Rheostat clockwise slowly just to point where headlamps switch to lower beam. The meter pointer should now be in the Black Dim Sensitivity Adjustment Line, see figures 63 and 64. If not, proceed to Step 4.

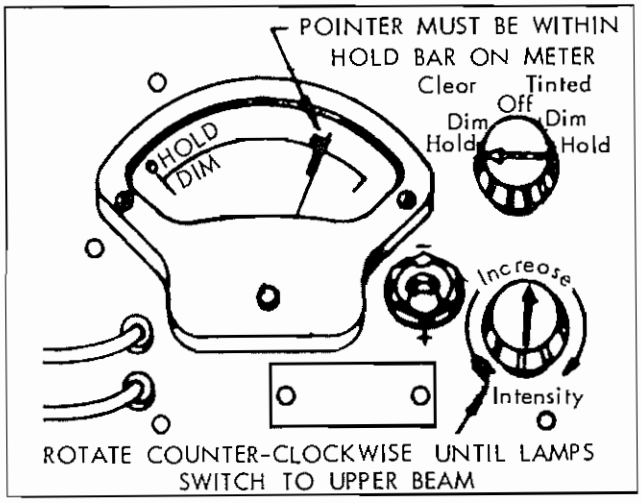


Figure 63

DIM SENSITIVITY ADJUSTMENT ON CAR

1. Rotate amplifier Dim control completely counterclockwise.

2. Momentarily turn tester off then back to Dim position to obtain upper beam.

3. Adjust tester Intensity Rheostat until meter pointer reads in the right-hand edge of the Black Dim Sensitivity Adjustment Line.

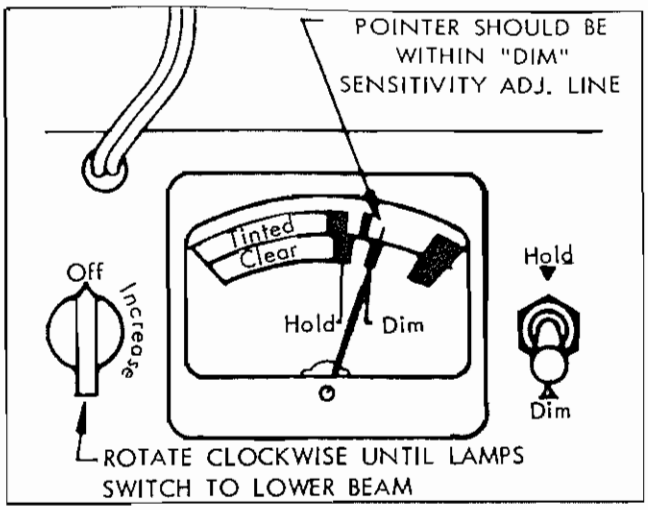


Figure 64

4. Slowly rotate amplifier Dim control clockwise just to the point where headlamps switch to lower beam. Do not go beyond this setting.

5. Recheck sensitivity as shown in Steps 1 through 3 under Dim Sensitivity Test Procedure on Car. If sensitivity is not correct, repeat adjustment procedure.

6. If adjustment is correct, turn off headlamps and disconnect tester from cigar lighter receptacle (Sun Tester only) or turn Kent-Moore tester off.

7. Remove tester and Aiming Device No. 4 from the Phototube Unit. Replace lens cover and screws.

MINOR SERVICE CORRECTIONS ON CAR

The "Autronic-Eye" develops 1200 volts D.C. CAUTION: HEADLAMPS SHOULD BE TURNED OFF before any connections are tightened, made or broken. The battery ground strap must be disconnected before removing or tightening the Phototube Unit.

1. Check car battery voltage. It must be above 11 volts for unit to function.

2. Check to see that all external connections are tight and properly made. Be sure to inspect plug-in connections behind kick panel.

3. Remove Amplifier Unit and disassemble the combination cover and bracket.

4. Ground amplifier chassis to car body by means of a jumper wire.

5. Turn on headlamps and after at least 30 seconds warm-up time, inspect for filament glow in the rectifier tube (smallest) and the amplifier tube (tallest). The ballast tube (largest in diameter) may or may not glow but should get hot.

6. Replace one tube at a time, including the phototube with a known good Guide replacement tube.

7. If necessary to replace a tube, the sensitivity must be rechecked.

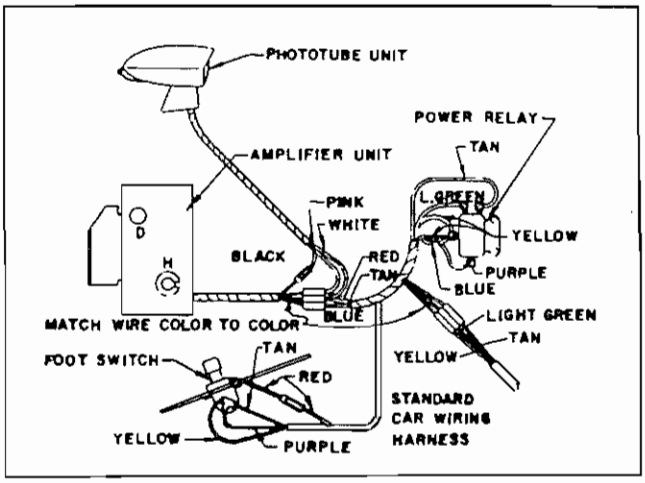


Figure 65

TROUBLE DIAGNOSIS ON CAR

The following series of tests should be made to isolate the trouble to either the Foot Switch, Power Relay or the electronic circuit:

(a) Disconnect the blue wire from the connector near the Amplifier unit. (CAUTION - The blue wire removed from the connector is at 12 volts potential, care should be taken to prevent grounding.) The headlamps should switch between upper and lower beams by operating the Foot Switch. If not, the trouble is in the -

1. Power Relay
2. Foot Switch
3. Wiring Harness

(b) Replace the blue wire in the connector. Remove the Photo Unit pink wire and insert it along side of the white wire in its connector. Disconnect red wire. Turn headlamps on and allow 30 seconds warm-up -

1. Headlamps should be on lower beam in both positions of the Foot Switch. If okay, proceed to test (c).

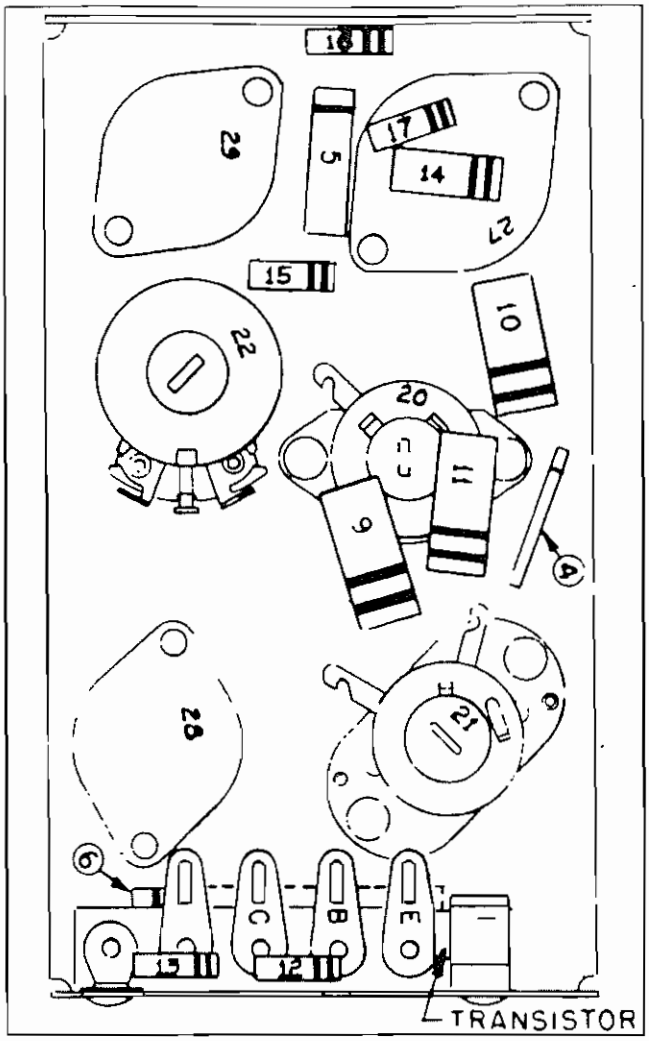


Figure 66

2. If not, see "Minor Service Corrections on Car".

(c) Connect a wire between ground and the amplifier red wire. Headlamps should switch between upper and lower beams by means of the Foot Switch. If not, refer to "Minor Service Corrections on Car".

(d) Remove wire between ground and amplifier red wire. Replace red wire from Foot Switch

1. In "Automatic" position of the Foot Switch in a slight pressure on top of the switch should cause the headlamps to switch to upper beam.

2. When pressure is removed from the switch, the headlamps should switch to lower beam.

3. If not, trouble is in the override section of the Foot Switch.

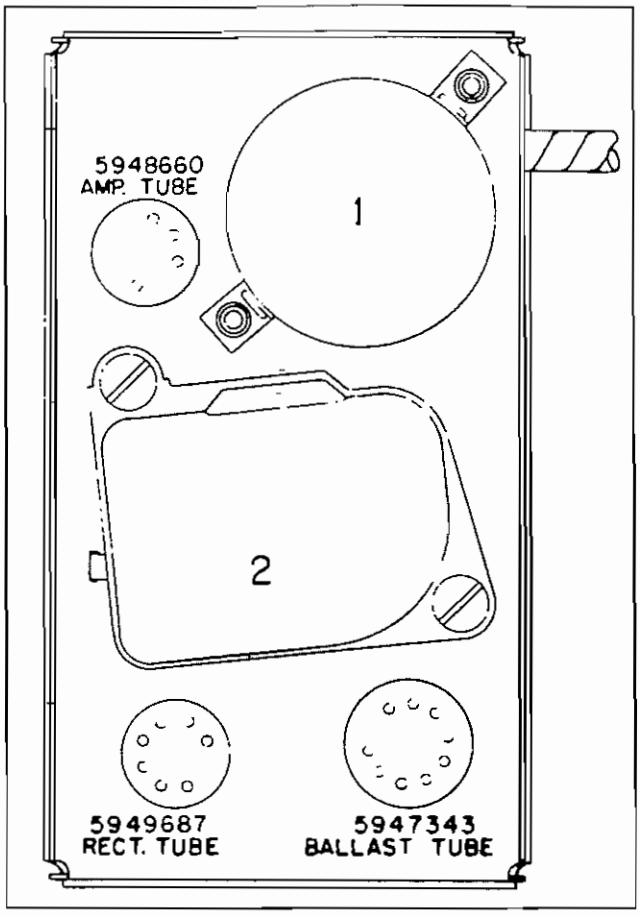


Figure 67

If trouble is located in the Power Relay or Foot Switch, they should be replaced. If the above procedure does not correct the trouble, the Amplifier Unit and Phototube Unit should be removed for detached servicing.

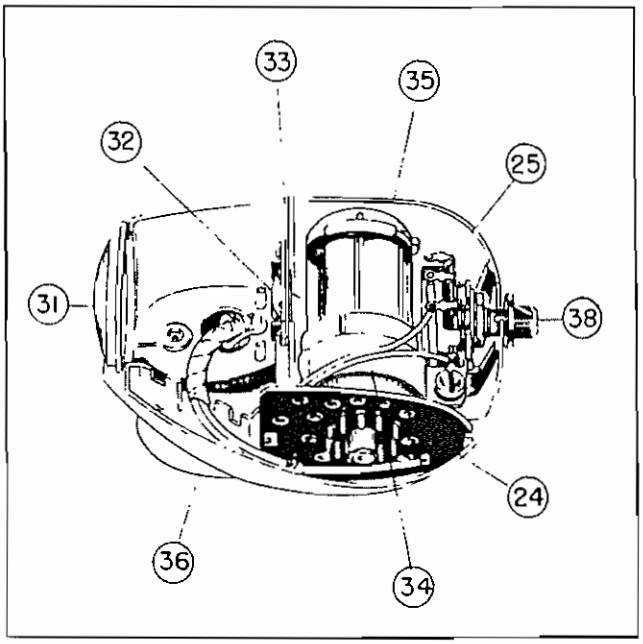


Figure 68

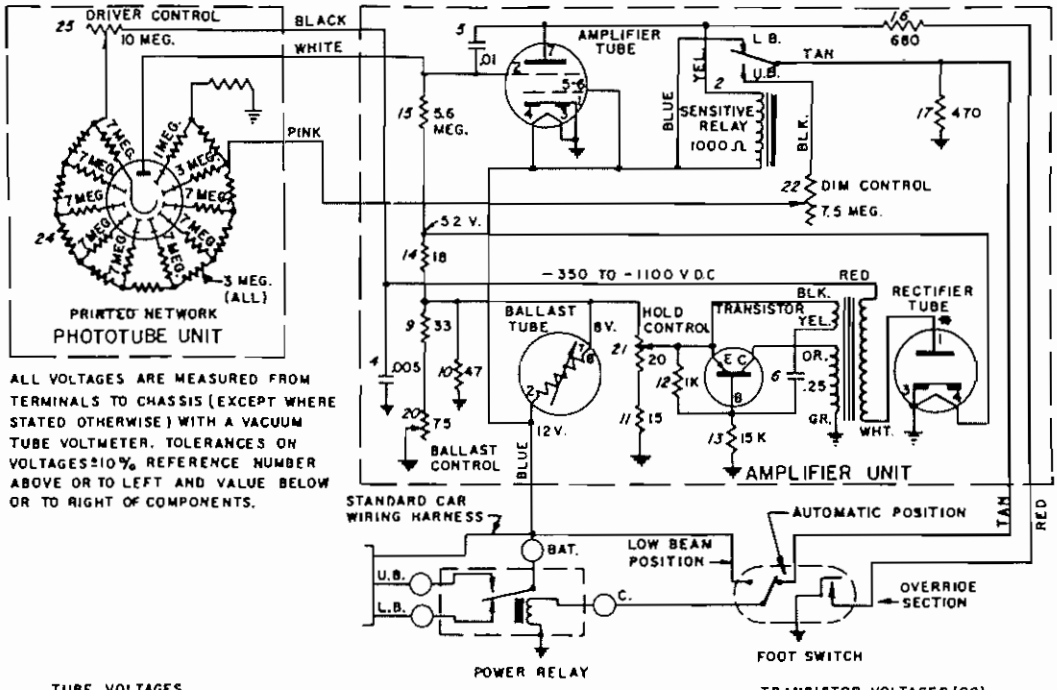


Figure 69

TUBE VOLTAGES

	PIN NUMBERS																			
	1		2		3		4		5		6		7		8		9		10	
TUBE	UB	LB	UB	LB	UB	LB	UB	LB	UB	LB	UB	LB	UB	LB	UB	LB	UB	LB	UB	LB
AMP.	0	0	* & -60		0	0	12	12	12	12	12	12	330	120						
RECT	*	*			0	0	5.2	5.2												
BAL			12	12	* & 12.0						0	12	8	8	8	8			52	52

* DO NOT MEASURE

TRANSISTOR VOLTAGES (DC)

E		B		C	
UB	LB	UB	LB	UB	LB
4.0 & 8.0	4.0 & 8.0	4.15 & 8.15	4.15 & 8.15	0.1	0.1

POWER RELAY - SPDT

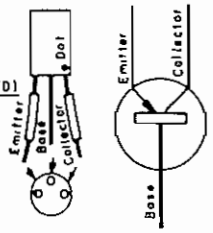
VOLTS	COIL RESISTANCE
±2 VDC	60 OHMS

SENSITIVE RELAY SPDT ILL. NO 2

COIL VOLTS		COIL RESISTANCE
U.B.	L.B.	
7 to 10	0	1000 OHMS ±10%

TRANSISTOR TROUBLE SHOOTING (CONNECTED) THE COLLECTOR VOLTAGE SHOULD BE 0.1 VOLT, D.C OR APPROX 4 TO 8 VOLTS A.C IF VOLTAGE IS 0, TRANSISTOR IS NOT CONDUCTING IF VOLTAGE IS TOO HIGH, TRANSISTOR CONDUCTING HEAVILY, HIGH VOLTAGE CIRCUIT SHOULD BE CHECKED.

TRANSISTOR TROUBLE SHOOTING (DISCONNECTED)
SET V.T.V.M ON THE RX1 OHM SCALE
(NO OTHER SCALE SHOULD BE USED)
PLACE NEG. LEAD OF OHMMETER (POLARITY REFERS TO INTERNAL OHMMETER BATTERY) ON COLLECTOR AND POSITIVE LEAD ON THE EMITTER, IF THE TRANSISTOR IS SHORTED, THE READING IS 0



TRANSFORMER

CODE	A C VOLTS Ω	Resistance
BLACK to YELLOW	0.2 to 0.7	0.1 OHM
ORANGE to GREEN	1.5 to 6.0	0.3 OHM
RED to WHITE	*	550 OHMS

* DO NOT MEASURE
Ω MEASURED WITH V.T.V.M. 1000 OHMS PER VOLT

If the "Autronic-Eye" cannot be serviced, the headlamps will be converted to manual operation when the amplifier is disconnected and removed. Manual operation can be obtained by removal of the amplifier blue wire from the battery terminal of the power relay.

NOTE: If the amplifier is removed for service, the blue wire must be taped to prevent grounding.

SERVICE PARTS LIST

Illus. No.	Service Part No.	Description
		ELECTRICAL PARTS FOR AMPLIFIER UNIT
1	5949382	Transformer
2	5949381	Relay, Sensitive
		CAPACITORS
4	5949384	.005 Mfd. 1600 V Ceramic
5	5949383	.01 Mfd. 100 V Tubular
6	5947382	.25 Mfd. 50 V Tubular
		RESISTORS
9	1181	33 Ohm 2W ± 10% Insulated
10	1183	47 Ohm 2W ± 10% Insulated
11	1177	15 Ohm 2W ± 10% Insulated
12	1125	1000 Ohm 1/2W ± 10% Insulated
13	1213	15000 Ohm 1/2 W ± 10% Insulated
14	1141	18 Ohm 1W ± 10% Insulated
15	1244	5.6 Megohm 1/2W ± 10% Insulated
16	1123	680 Ohm 1/2 W ± 10% Insulated
17	1121	470 Ohm 1/2W ± 10% Insulated
		CONTROLS
20	5949376	75 Ohm WW Rheostat (Ballast)
21	5949617	20 Ohm WW Potentiometer (Hold)
22	5949377	7.5 Megohm Potentiometer (Dim)
		WIRING ASSEMBLIES
	5949585	Wire Assembly (Amplifier)
	5949538	Wire Assembly (Connector to Car)
		ELECTRICAL PARTS FOR PHOTOTUBE UNIT
24	5949523	Socket, Resistor Plate and Wire Assembly
25	5949358	10 Megohm Potentiometer (Driver Control)

Illus. No.	Service Part No.	Description
		MISCELLANEOUS PARTS
	5945189	Relay - Power
	1997024	Switch - Dimmer Override
		TUBES - TRANSISTOR
	5949386	Transistor, Type 2N217
	5949687	Tube, Rectifier
	5947343	Tube, Ballast
	5948660	Tube, Relay 12K5
	5949684	Tube, Phototube
		MECHANICAL PARTS FOR AMPLIFIER UNIT
	5949379	Clip (Transistor Retaining)
	5949380	Terminal (2 Lug)
	5937653	Clip - Harness
	5949391	Base
	5948148	Grommet
	5949538	Cover Assembly
	5944287	Socket - Tube - Miniature - 9 Pin
	5943616	Socket - Tube - Miniature - 7 Pin
	5947318	Socket - Tube - Miniature - 7 Pin
	2965578	Connector - 5 Way
	2962458	Connector - 1 Way
		MECHANICAL PARTS FOR PHOTOTUBE UNIT
31	5942564	Lens
32	5943350	Filter
33	5943300	Mask
34	5943347	Clamp - Tube Retaining
	5942563	Cover
35	5949610	Base
	5947233	Pin - Clevis to Base
	5947235	Clevis - Mounting Bracket to Base
36	5948663	Mounting Bracket
	5930825	Stud - Mounting Bracket
	5943349	Nut, Friction - Vertical Aiming
	455970	Screw - Aiming - Vertical
	193222	Screw - Aiming - Horizontal
	217218	Screw - Set - Pin Retaining
37	5945884	Screw - Cover Retaining
38	5949360	Knob - Driver Control
	5943309	Lug - Ground
	5942644	Spring
		INSTALLATION PARTS
	5942468	Pad - Phototube Unit Mounting
	5947311	Plate Phototube Unit Mounting
	2962449	Connector - 3 Way
	5289849	Connector - Wade
	125591	Screw - Mounting