GROUP 1

ACCESSORIES (RADIOS, HEATERS, MIRRORS)

CONTENTS

AUTO PILOT

ELECTRIC CLOCK

HOT WATER HEATER

RADIO AND ANTENNA

REMOTE CONTROL OUTSIDE MIRROR

WINDSHIELD WASHER

SERVICE DIAGNOSIS

ACCESSORIES (RADIOS, HEATERS, MIRRORS)

AUTO PILOT

The auto-pilot is a driver operated voluntary speed control. It can be used either as a warning signal to indicate that a pre-set speed has been reached, or as a fully automatic vehicle speed regulator.

1. SPEED WARNING OPERATION

The auto-pilot instrument panel control is used to set the auto-pilot to a desired speed for existing driving conditions. When the pre-set speed is reached, the auto-pilot provides a reaction pressure to the accelerator pedal pressure. Since the reaction pressure is low, five to seven pounds, the driver can over-ride the setting by pressing the accelerator through the reaction pressure.

2. AUTOMATIC OPERATION (Self-Latching)

The auto-pilot is self engaging when the pre-set vehicle speed is reached. Set the instrument panel control to the desired speed and pull the button in the center of the control "OUT". When the desired vehicle speed is reached the reaction pressure is felt in the accelerator pedal. At the point of reaction pressure the driver's accelerator pedal pressure is relaxed and the accelerator is in the auto-pilot automatic regulation. The auto-pilot will automatically advance the accelerator on uphill operation and retard on down grade operation. Auto-pilot automatic control ceases instantly with the slightest brake pedal movement and the accelerator will revert to manual control. Disengagement of the automatic control may also be accomplished by pushing "IN" the button in the center of the instrument panel control or turning the ignition switch to "OFF".

3. LUBRICATION

All internal working parts of the auto-pilot are equipped with self-lubricated bearings, shielded ball bearings, or bearings which have been factory lubricated for the service life of the unit.

4. TESTS

The following mechanical and electrical tests will aid in isolating and correcting malfunction conditions for the auto-pilot. Service Diagnosis procedures must be followed to make certain the malfunction is in the auto-pilot unit and not in some other component of the system. To properly test a malfunctioning auto-pilot it is essential that the following adjustments and tests be performed in the listed sequence:

Accelerator Linkage Adjustment
Control Cable Adjustment
Electrical

5. ACCELERATOR LINKAGE ADJUSTMENT (Fig. 1)

(1) Make certain the automatic choke is **OFF** and that the carburetor is at the normal idle position.

(2) Loosen the lock nut on the Auto-Pilot linkage rod and insert the locking arm gauge Tool C-3844 over the stop stud on the auto-pilot.

(3) Hold the exterior arm against the gauge pin and tighten the lock nut on the clearance between the stop stud and the exterior arm with the carburetor in the idle position.

6. CONTROL CABLE ADJUSTMENT

(1) Loosen the screw on the dust shield. (This screw retains the control cable in the bottom of the dust shield) (Fig. 2).

(2) Rotate the instrument panel control dial counter-clockwise until it contacts the internal stop.

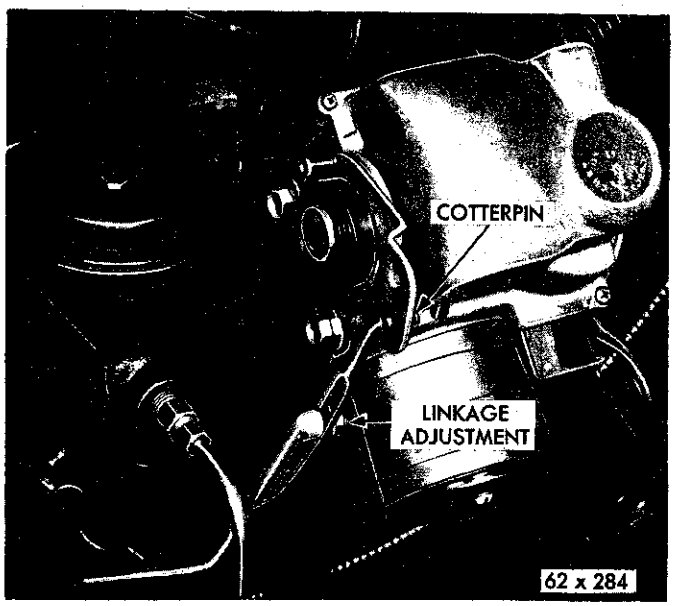


Fig. 1—Accelerator Linkage Adjustment

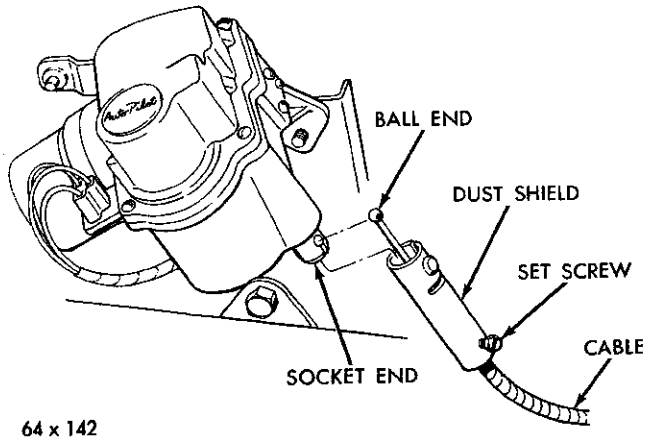


Fig. 2—Auto Pilot Dust Shield

(3) Push in lightly on the control cable at the dust shield. This will position the control rod, to which the inner cable attaches, against its upper stop.

CAUTION: Do not force the cable beyond this position.

(4) Make certain that the instrument panel control dial is still against its extreme counter-clockwise stop.

(5) Tighten the screw on the dust shield securely.

7. ELECTRICAL TESTS

(1) Turn the ignition switch to the **ON** position.

(2) Pull out the auto-pilot control button in the center of the instrument panel control. Leave the button out for all of the electrical tests. If the control button will not stay out, test for a blown fuse, feed wire disconnected or poor grounding of the control. **DO NOT START ENGINE.**

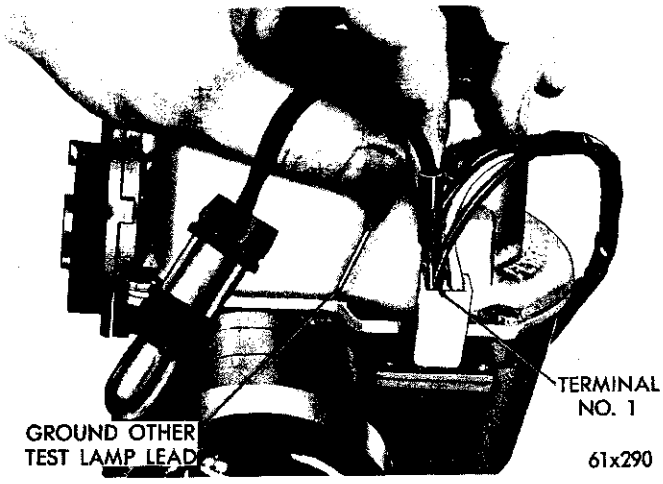


Fig. 3—Testing Terminal No. 1

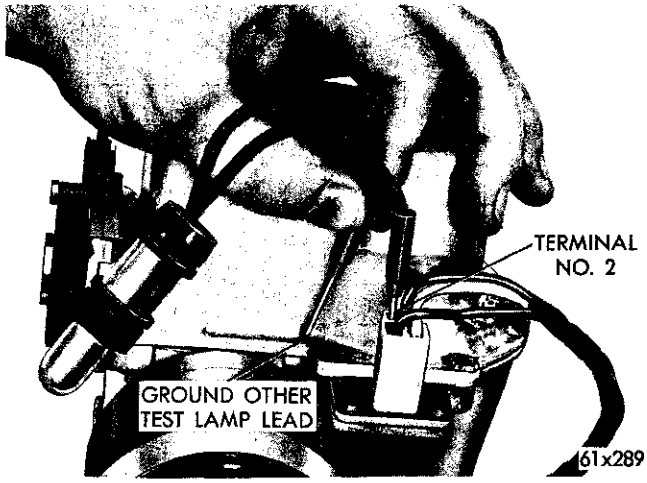


Fig. 4—Testing Terminal No. 2

(3) **Terminal No. 1 (Red Wire)**—using a test lamp, ground one of the test lamp leads and touch the other lead to terminal No. 1 (Fig. 3). The test lamp should light. If the lamp fails to light, test for an "open" circuit in the red wire between the auto-pilot and the ignition circuit, through the bulkhead connector.

(4) **Terminal No. 2 (Blue Wire)**—Ground one lead of the test lamp and touch the other lead to the No. 2 terminal (Fig. 4). If the lamp fails to light, test for "open" connections in the blue wire between the auto-pilot and the ignition circuit through the bulkhead connector and the auto-pilot brake switch. If the circuit is "open" at the brake switch, test the brake switch adjustment. Adjust the brake switch (Fig. 5) until the light goes out with approximately ¼ to ½ inch of brake pedal movement.

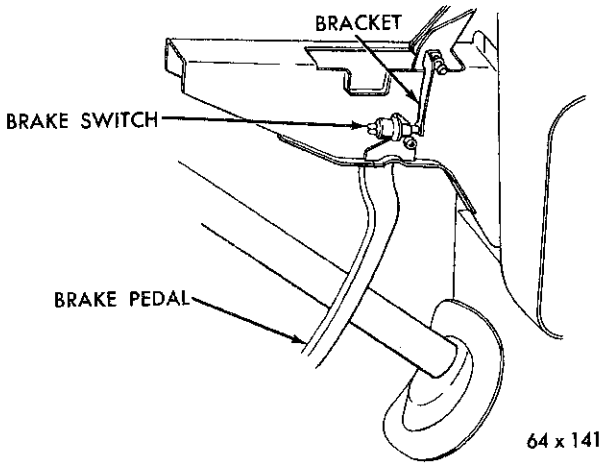


Fig. 5—Auto Pilot Brake Switch

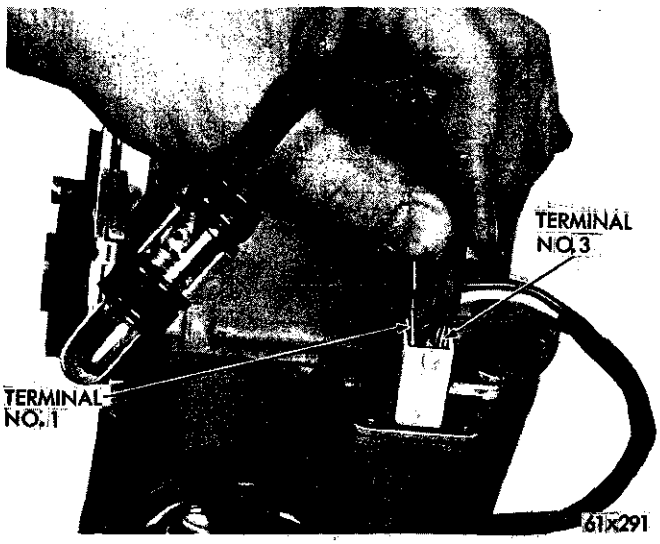


Fig. 6—Testing Terminal No. 3

(5) **Terminal No. 3 (Black Wire)**—insert one lead of the test lamp in the No. 1 terminal and the other lead of the test lamp in the No. 3 terminal (Fig. 6). The test lamp should light. If the lamp fails to light, test for an "open" circuit between the auto-pilot and the instrument panel control through the bulkhead connector. If the lamp still fails to light, inspect the instrument panel control for proper grounding. When the control button is pushed in, the lamp should go out if the circuit is wired correctly.

8. AUTO-PILOT (Drive Mechanism) Calibration

(1) Test the accelerator linkage adjustment (Paragraph 5) and the control cable adjustment (Paragraph 6).

(2) Set the instrument panel control dial counter-clockwise as far as it will turn.

(3) With the instrument panel control in the above position, engage the auto-pilot on a level road and read the speedometer. The speed at the minimum setting should be 22 to 30 miles per hour.

(4) If the minimum speed is not within specifications the low speed setting may be adjusted in the following manner:

CAUTION: This adjustment is seldom necessary and should not be attempted unless all other adjustments (Particularly the control cable) have been carefully performed.

(a) Disconnect the control cable from the bottom of the auto-pilot by loosening the screw on the dust shield. Turn and pull the dust shield down and detach the ball on the end of the wire from the ball socket.

(b) Using needle nose pliers, if necessary, pull out the ball socket. Loosen the locknut above the ball socket and rotate the socket to change the minimum speed. Rotating the socket counter-clockwise (viewed from the cable end) decreases the minimum speed. One full turn will adjust the speed approximately 3 miles per hour.

(c) Tighten the nut behind the ball socket, assemble the dust shield and cable and adjust the control cable. (See Paragraph 6.)

(5) Repeat steps 3 and 4, if necessary, until min imum speed is within specifications.

9. INSTRUMENT PANEL SELECTOR CONTROL

Removal (Chrysler)

NOTE: Disconnect the selector control ground wire before servicing.

(1) Disconnect the control cable from the bottom of the Auto-Pilot by removing the clamp nut and dust shield, and unhook the ball on the end of the wire from the ball socket.

(2) Loosen the Allen screw in the selector knob and pull button knob. Remove both knobs from the shaft.

(3) Disconnect the double plug connected to the wire harness.

(4) Unscrew the attaching nut. Remove the selector head from the instrument panel.

(5) Pull the cable through the dash panel from the passenger side.

Installation (Chrysler)

(1) Route the control cable through the dash panel from the passenger side.

(2) Install the selector head in the instrument panel.

(3) Connect the ground wire and double plug.

(4) Install the attaching nut.

(5) Install the selector knob and the dial shaft and tighten the set screw.

(6) Install the pull button knob on the shaft and tighten the set screw.

(7) Connect the control cable to the Auto-Pilot unit. Adjust the control cable as described under "Control Cable Adjustments".

Removal (Imperial)

(1) Repeat steps (1), (2), (3) under "Removal (Chrysler)".

(2) Unscrew the attaching nut.

(3) Remove the steering column lower dust shield.

(4) Remove the steering column clamp.

(5) Lower the steering column.

(6) Disconnect the double plug connected to the wiring harness.

(7) Pull the cable through the dash panel from the passenger side.

Installation (Imperial)

(1) Route the control cable through the dash panel from the passenger side.

(2) Install the selector head in the steering column.

(3) Connect the ground wire and double plug.

(4) Install the attaching nut.

(5) Install the selector knob and the dial on the shaft and tighten the set screw.

(6) Install the pull button knob on the shaft and tighten the set screw.

(7) Raise the steering column into position and install the steering column clamp. Tighten the clamp nuts.

(8) Install the steering column lower dust shield.

(9) Connect the control cable to the Auto-Pilot unit. Adjust the control cable as described under "Control Cable Adjustment".

10. AUTO PILOT DRIVE MECHANISM

Removal

(1) Disconnect the multiple electronic connector at the power unit.

(2) Disconnect the drive cable and the speedometer cable from the power unit.

(3) Loosen the set screw at the lower end of the dust shield.

(4) Remove the dust shield from the housing, then slide the dust shield down the cable and slip the ball end of the bowden cable out of the socket.

(5) Disconnect the accelerator linkage from the exterior arm plate on the power unit.

(6) Remove the two bolts securing the power unit to the mounting bracket and remove the power unit, leaving the mounting bracket attached to the fender dust shield.

Installation

(1) Position the power unit on the mounting bracket and secure to the bracket with two bolts.

(2) Connect the accelerator linkage to the locking arm on the power unit. Adjust linkage, as described in Paragraph 7.

(3) Install the ball end of the bowden cable in the socket on the power unit.

(4) Install the dust shield on the housing. Push in and turn clockwise. Do not tighten the set screw on the end of the dust shield until the control cable is properly adjusted.

(5) Adjust the control cable, as described in Paragraph 6.

(6) Connect the drive cable and the speedometer cable to the power unit.

(7) Connect the multiple electric connector at the power unit.

ELECTRIC CLOCK

All Models (so equipped) have a solenoid actuated self regulating electric clock. The electric clock can be regulated by pulling out the regulating stem below the clock face and turning until the correct setting is accomplished.

SERVICE PROCEDURES

1. ELECTRIC CLOCK

Removal (Chrysler)

(1) Disconnect the battery ground cable.

(2) Remove the instrument cluster from the instrument panel. (See "Electrical" Group 8—Instruments.)

(3) Remove the reset knob from the clock.

(4) Remove the wire connector from the terminal at the rear of the clock.

(5) Remove the two screws attaching the clock to the instrument base and remove the clock.

Removal (Imperial)

(1) Remove the trip odometer and clock reset knobs.

(2) Remove the screws that attach the instrument cluster bezel to the instrument cluster and remove the bezel.

(3) Remove the screws that attach the clock to the instrument cluster.

(4) Pull the clock forward slightly and disconnect the wiring to the clock.

(5) Remove the clock.

Installation (Chrysler)

(1) Position the clock on the instrument base and install the two retainer screws.

(2) Connect the wire lead to the terminal at the rear of the clock.

(3) Install the clock reset knob.

(4) Install the instrument cluster assembly.

(5) Connect the battery ground cable and reset the clock.

Installation (Imperial)

(1) Position the clock in front of the opening in the instrument cluster and connect the wiring to the clock.

(2) Place the clock into the instrument cluster opening and install the attaching screws.

(3) Position the instrument cluster bezel on the instrument cluster and install the attaching screws.

(4) Install the trip odometer and clock reset knobs.

HOT WATER HEATER

The hot water heating system (Fig. 1) is controlled by four push buttons and a temperature control lever. A fifth push button independently controls the summer ventilation system.

The Temperature Control Lever—operates the water valve through a bowden cable. It is important that the bowden cable be adjusted to provide full opening and closing of the water valve for efficient functioning of the system.

Summer Ventilation—is controlled by opening of the ventilator air damper.

For Heating—air enters through the cowl intake passes through the heater core into the blower and distribution duct through the opened shut-off damper.

Defrosting—is controlled by the defroster damper. For maximum defrosting or deicing, the temperature control lever must be set in the full warm position.

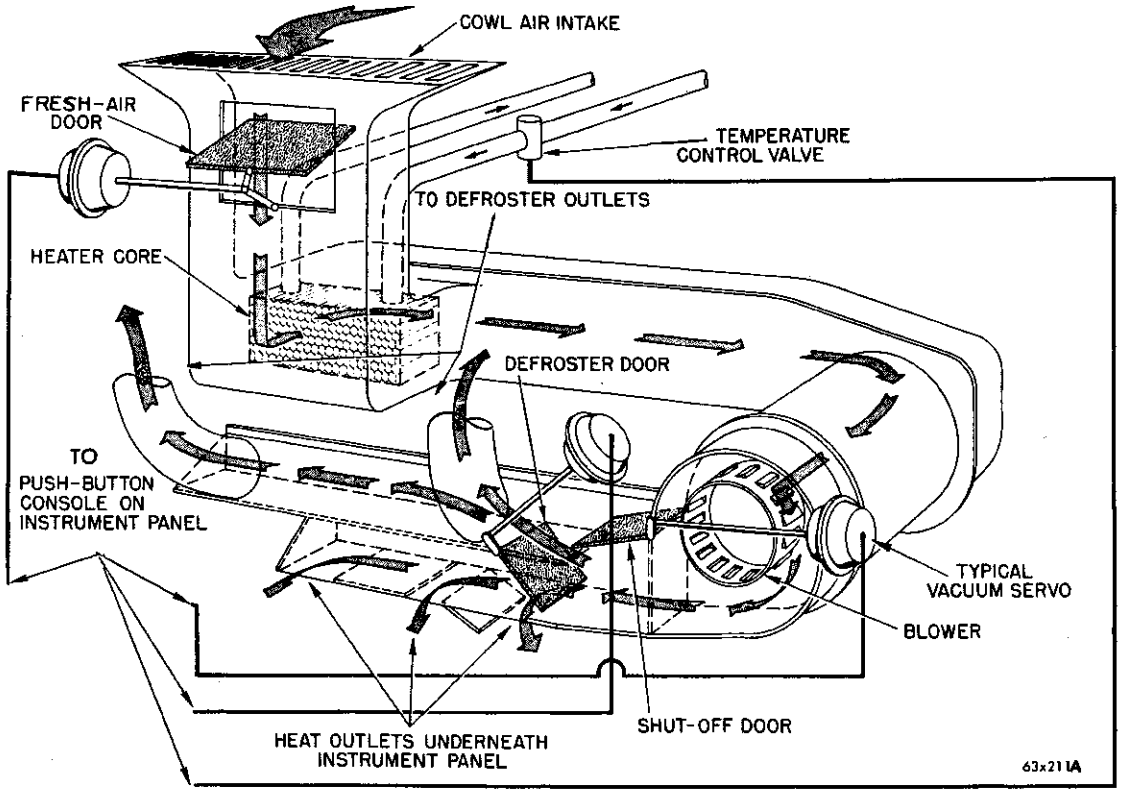


Fig. 1—Push Button Heater (Schematic View)

Temperature Control Lever—selects the temperature of the air discharged through the lower and upper outlets. When the lever is in the upper position, air is not being heated. Air temperature is increased by moving the lever down toward the "WARM" position.

"OFF" Button—When the "OFF" button is pushed in, the system will not operate. The "OFF" button cuts off the current from the control lever switch and blower motor. The ventilation doors are closed, preventing outside air from entering the vehicle.

"VENT" Button—Opens the ventilation door to allow outside air to enter the vehicle directly. It does not operate the blower.

"DEF" Button—Causes a major portion of the air to be forced onto the windshield through the air outlets on top of the instrument panel for defrosting or defogging.

"HI" Button—Causes a major portion of air to be directed toward the vehicle floor, at a high blower speed.

"LO" Button—Provides a gentle heat at a low blower speed.

Heating the Vehicle

Until the engine warms up, make sure the "OFF" button is pushed in and the temperature control lever is in the "WARM" position. Then, push in the "HI" button and leave the temperature control lever in the "WARM" position for a fast initial vehicle warm-up. After warm-up, the **"LO"** button can be used and the temperature control lever adjusted to maintain the desired temperature. At lower outside temperatures and particularly to obtain maximum rear seat heating performance, it may be necessary to use the **"HI"** button to provide maximum air circulation. It is important to keep the windows closed, particularly the front vent wings, to eliminate objectional drafts and permit maximum air flow to the rear of the vehicle.

NOTE: When the "HI" button is pushed in, sufficient warm air will be forced onto the windshield through the upper air outlets for adequate defogging during normal driving conditions.

Defrosting or Defogging the Windshield

Push the **"DEF"** button for maximum defrosting and move the temperature control lever to the "WARM" position. Under particularly severe fogging conditions, opening the front vent wings temporarily, will speed up the removal of fog from the windows.

SERVICE PROCEDURES

1. HEATER BLOWER

Removal

(1) Disconnect the battery ground cable.

(2) Disconnect the heater ground wire at the windshield wiper motor mounting bracket.

(3) Disconnect the heater wires from the harness connectors.

(4) Disconnect the vacuum hoses at each vacuum unit.

(5) Remove the hoses from their attaching clips.

(6) Remove the heater valve capillary coil from the opening in the heater housing (driver's compartment, passenger side).

(7) Remove the clips from the housing.

(8) Remove the three screws attaching the heater distribution duct to the dash panel. (One is located to the left of the vent door and to the right of the brake pedal bracket; one below the heater at the passenger side and one screw is located at the windshield wiper motor right link pivot).

NOTE: To facilitate removal, disconnect the windshield wiper right link at the pivot to expose the housing screws.

(9) Remove the housing and blower by pulling down and out of the driver's compartment.

(10) Remove the blower, mounting plate and motor.

Installation

NOTE: If the blower motor was removed from the mounting plate be sure the mounting grommets are installed at the attaching bolts.

(1) Install the blower motor and mounting plate to the heater housing. Be sure the blower wheel is free and does not rub.

(2) Position the housing on the dash panel and install the three attaching screws. There is a spacer at each attaching screw. Be sure these spacers are installed between the heater housing and the dash panel when installing the housing; otherwise, the housing could be damaged when tightening the screws.

(3) Reposition the heater water valve capillary coil in the heater housing and install the attaching clips.

(4) Connect the vacuum hoses at the vacuum unit and install the attaching clips.

(5) Connect the heater wire at the harness connectors and install the black ground wire at the windshield wiper motor bracket.

(6) Attach the windshield wiper motor pivot link (if disconnected).

(7) Connect the battery ground cable.

2. HEATER VACUUM ACTUATOR—REPLACEMENT

(1) Disconnect the vacuum hoses.

(2) Remove the two nuts and lockwashers attaching the vacuum unit to the housing, and one clip attaching the vacuum unit rod to the actuator unit.

3. VENT DEFLECTOR—REPLACEMENT

The vent deflector is attached to the heater housing by two spring clips and one screw. This deflector should be removed whenever the radio is to be removed.

4. HEATER CORE

Removal

(1) Disconnect the battery ground cable.

(2) Drain the cooling system as necessary.

(3) Disconnect the heater hoses at the heater. (Figures 2 and 3.)

(4) Remove the screws attaching the heater core

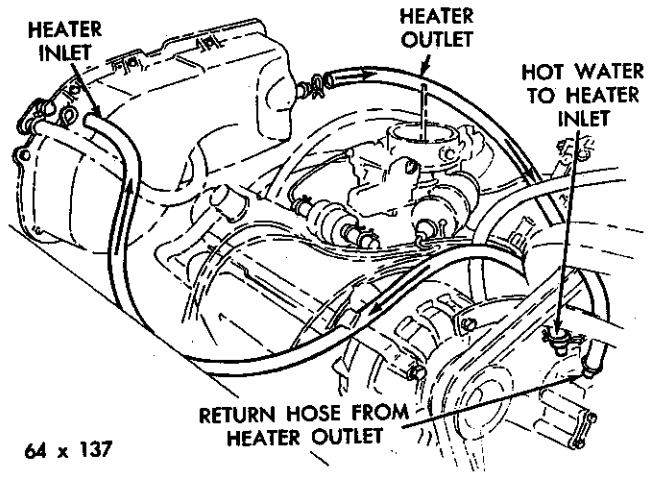


Fig. 2—Heater Hose Connections

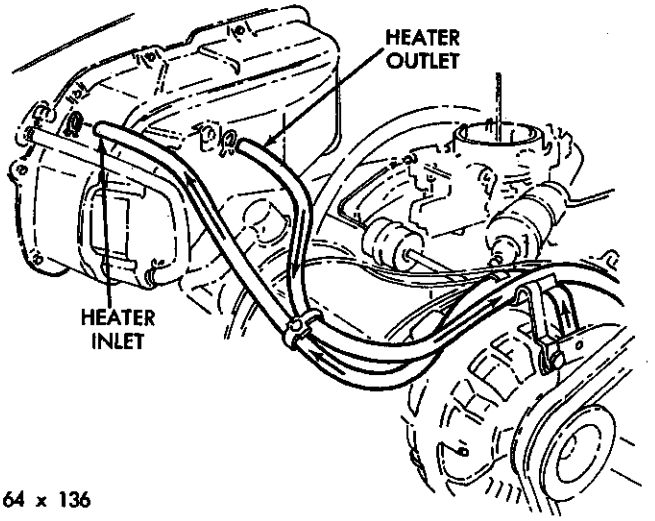


Fig. 3—Heater Hose Connections with Air

housing to the dash panel.

(5) Remove the housing and core as an assembly.

(6) Remove the mastic to expose the core mounting screws.

(7) Remove the heater core from the outer housing.

Installation

(1) Position the heater core in the heater outer housing and install the screws.

(2) Install new mastic.

(3) Position the heater housing and core assembly on the dash panel.

(4) Install all screws loosely, to insure proper alignment before tightening.

(5) Connect the heater hoses at the heater. Make certain the hoses are connected correctly (Figures 2 and 3).

(6) Refill the cooling system as necessary.

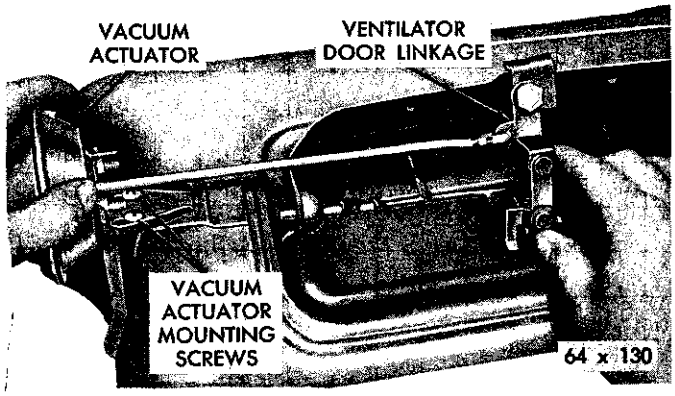


Fig. 4—Adjusting Ventilator Door

5. REAR WINDOW DEFROSTER

The rear window defroster (optional on all models) is located on and under the rear shelf panel of the vehicle, and consists of a blower, flexible hose and nozzle. A switch, located on the instrument panel, controls the blower for defrosting the rear window. The rear window defroster operates independently from the heater. The air recirculated on the rear window glass is drawn by the defroster blower from air inside the vehicle.

6. VENTILATOR DOOR ADJUSTMENT

For efficient heater operation the ventilator door must be properly adjusted. To adjust the ventilator door proceed as follows:

(1) Loosen the two vacuum actuator mounting screws.

(2) Push on the ventilator door linkage (Fig. 4) to insure that the linkage is positioned "over-center".

(3) Push on the vacuum actuator (Fig. 4), until the slack is removed.

(4) Tighten the vacuum actuator mounting screws securely.

RADIO AND ANTENNA

Chrysler models for 1964 are equipped, as optional equipment, with fully transistorized AM radio model 348. Available, as optional equipment, are fully transistorized AM-FM radios model 357 for Imperial and 351 for Chrysler. Also available, as optional equipment is AM Search-Tune radio model 414 for Imperial or model 415 for Chrysler.

Radio Controls

On the push button radios, tuning is controlled by five push buttons and the manual tuning knob is to the right of the radio dial. On the search tuned radios Models 414 and 415 the tuning is controlled manually by five push buttons and the tuning knob. The search tuning is controlled by two additional push buttons and a foot switch.

The volume, tone and the on-off switch are controlled by the dual knob to the left of the radio dial. The rear speaker fader control (if so equipped) and the tuning knob are located to the right of the radio dial. If the vehicle is equipped with a radio speaker reverberator, the reverberator control on the instrument panel replaces the fader control. Pull the reverberator control "OUT" to turn "On" the reverberator unit. Push the control "IN" to turn "Off" the reverberator and give normal fader control operation.

SERVICE PROCEDURES

1. RADIO

CAUTION: Do not operate the radio with the speaker detached since damage to the transistors may result. If the rear seat speaker is disconnected from the radio, insert a jumper wire to the rear seat speaker socket to allow the receiver to operate.

Removal (Chrysler)

(1) Disconnect the battery ground cable.

(2) Remove the upper and lower instrument panel mouldings.

(3) Remove the speaker grille.

(4) Remove the speaker and mounting plate attaching screws.

(5) Disconnect the speaker leads and remove the speaker assembly.

(6) Disconnect the "A" lead, light lead, antenna lead and the foot selector switch lead (if so equipped).

(7) Remove the radio control knobs and shaft mounting nuts.

(8) Remove the radio to dash support brackets and remove the radio through the opening in the instrument panel.

Removal (Imperial)

(1) Disconnect the battery ground cable.

(2) Remove the four screws that attach the ash receiver assembly to the instrument panel.

(3) Lower the ash receiver assembly and disconnect the turn signal flasher and the ash receiver lamp wiring.

(4) Remove the ash receiver assembly.

(5) From under the instrument panel remove the

two screws from the radio to instrument panel lower reinforcement mounting bracket and remove the bracket.

(6) Disconnect the antenna lead, the radio speaker leads and the radio feed wire.

(7) Remove the pencil brace from the instrument panel lower reinforcement to the dash panel. This brace is located just to the left of the radio.

(8) Remove the radio control knobs and mounting nuts from the front of the radio.

(9) Pull the radio out of the panel opening and rotate the radio 90 degrees so the face of the radio is to the right of the vehicle, then carefully remove the radio from under the instrument panel.

Installation (Chrysler)

(1) Position the radio in the instrument panel and install the radio to panel bracket.

(2) Install the radio control shaft nuts and control knobs.

(3) Connect the radio "A" lead, light lead, antenna lead and the foot selector switch lead (if so equipped).

(4) Connect the speaker leads to the speaker and position the speaker and mounting plate in the instrument panel.

(5) Install the speaker mounting plate screws.

(6) Install the speaker grille.

(7) Install the upper and lower instrument panel mouldings.

(8) Connect the battery ground cable.

(9) Test the operation of the radio.

Installation (Imperial)

(1) Position the radio into the instrument panel opening from under the instrument panel.

(2) Install the mounting nuts and radio control knobs from the front of the radio.

(3) Install the pencil brace from the instrument panel lower reinforcement to the dash panel.

(4) Connect the antenna lead, the radio speaker and feed wires.

(5) From under the instrument panel install the radio to instrument panel lower reinforcement mounting bracket.

(6) Position the ash receiver in front of the instrument panel opening and connect the turn signal flasher and ash receiver lamp wiring.

(7) Install the ash receiver assembly.

(8) Connect the battery ground cable.

2. RADIO SPEAKER

Removal (Chrysler)

(1) Disconnect the battery ground cable.

(2) Remove the instrument panel upper and lower mouldings.

(3) Remove the radio speaker grille.

(4) Remove the four radio speaker mounting plate attaching screws.

(5) Pull the speaker and mounting plate away from the instrument panel as an assembly and disconnect the speaker leads. Remove the radio speaker.

Removal (Imperial)

(1) Remove the radio as outlined in Paragraph 1.

(2) From under the instrument panel remove the screws that attach the defroster nozzles to the radio speaker and defroster outlet grille assembly. There is one screw on each of the defroster nozzles.

(3) From the top of the instrument panel remove the six screws that attach the radio speaker and defroster outlet grille assembly to the instrument panel and remove the grille assembly.

(4) From the top of the instrument panel remove the four screws that attach the radio speaker t the instrument panel.

(5) Remove the radio speaker from under the instrument panel.

Installation (Chrysler)

(1) Position the radio speaker and speaker mounting plate in front of the speaker opening and connect the radio speaker leads.

(2) Position the radio speaker and speaker mounting plate in the instrument panel opening and install the four attaching screws.

(3) Install the radio speaker grille.

(4) Install the instrument panel upper and lower mouldings.

(5) Connect the battery ground cable.

Installation (Imperial)

(1) From under the instrument panel position the radio speaker into the speaker opening in the instrument panel.

(2) From the top of the instrument install the four screws that attach the radio speaker to the instrument panel.

(3) Position the radio speaker and defroster outle grille on the top of the instrument panel and instal the six attaching screws.

(4) From under the instrument panel install the defroster nozzles and install the attaching screws.

(5) Install the radio as outlined in Paragraph 1.

(6) Connect the battery ground cable.

3. PUSH BUTTONS

Adjustment

(1) Extend the antenna fully and turn the radio on for fifteen minutes.

(2) Unlock the push button by pulling it out and manually tune in the desired station.

(3) Push the button back into position to lock the adjustment.

(4) Repeat the operation on the other push buttons.

Local and Distant Push Buttons

Local push button will tune the receiver to only strong signal stations. Distant push button will tune the receiver to most of the stations within range of the radio. For weak stations, manual control should be used for precise tuning.

4. FOOT SWITCH FOR SEARCH TUNING

The foot switch for search tuning, on Models 414 and 415 is located on the left forward end of the floor panel. By depressing the foot switch, it will select a station on the radio.

The foot switch activates the tuner mechanism in the same manner as the search-tuning buttons "(LOC and DIST)". Therefore, the foot switch will cause the search-tuner to operate at a sensitivity predetermined by which of the two search-tuning buttons was last depressed.

5. ANTENNA TRIMMER ADJUSTMENT

All radios are pre-trimmed by the radio manufacturer and no further adjustment is required for all original radio installations equipped with front fender mounted antennas. Original radio installations equipped with rear mounted power antennas require a trimmer adjustment because of the use of the antenna lead-in cable extension. After a radio has been repaired, a trimmer adjustment should always be performed. Trimmer adjustments are performed as follows:

(1) Operate the radio for 15 minutes.

(2) Extend the antenna to 40 inches.

(3) Manually tune the radio to noise or a weak signal between 1400 and 1600 K.C. For AM-FM radio tune to noise below 1000 K.C.

(4) Increase the radio volume to full volume and the tone control to maximum treble (fully clockwise).

(5) Adjust the antenna trimmer by carefully tuning it back and forth until the position is found that gives a peak response in volume. Maximum output indicates the proper point of antenna trimmer adjustment.

6. FADER CONTROL

This control is used only when the vehicle is equipped with a rear seat speaker. Positioning the control in one extreme position allows operation of the rear seat speaker. Rotating the control to the extreme opposite position allows both speakers to operate with varying volume as desired, or with equal volume at mid-position. If the vehicle is equipped with a radio speaker reverberator the reverberator control on the instrument panel replaces the fader control. Pull the reverberator control "**OUT**" to turn "**ON**" the reverberator unit. Push the control "**IN**" to turn "**OFF**" the reverberator and give normal fader control operation.

On the 414-415 Models, a five position switch speaker fader control is used in conjunction with the rear speaker. This feature provides an extremely wide range of sound level variation between the front and rear compartments without the usual degree of precise tuning required of the normal variable controls.

7. INTERFERENCE ELIMINATION

When installing suppression items, make certain that all paint and dirt have been removed from the grounding area between the capacitors and the engine or body components. Tighten all nuts and bolts securely.

The high tension portion of the engine ignition system uses radio resistance wire as standard equipment.

The ignition coil capacitor is installed, as shown in Figure 1.

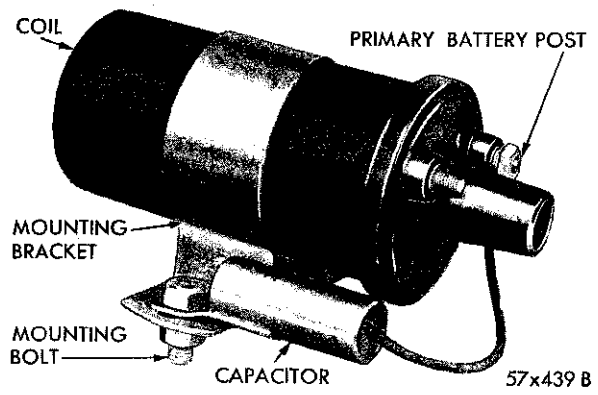


Fig. 1—Ignition Coil Capacitor

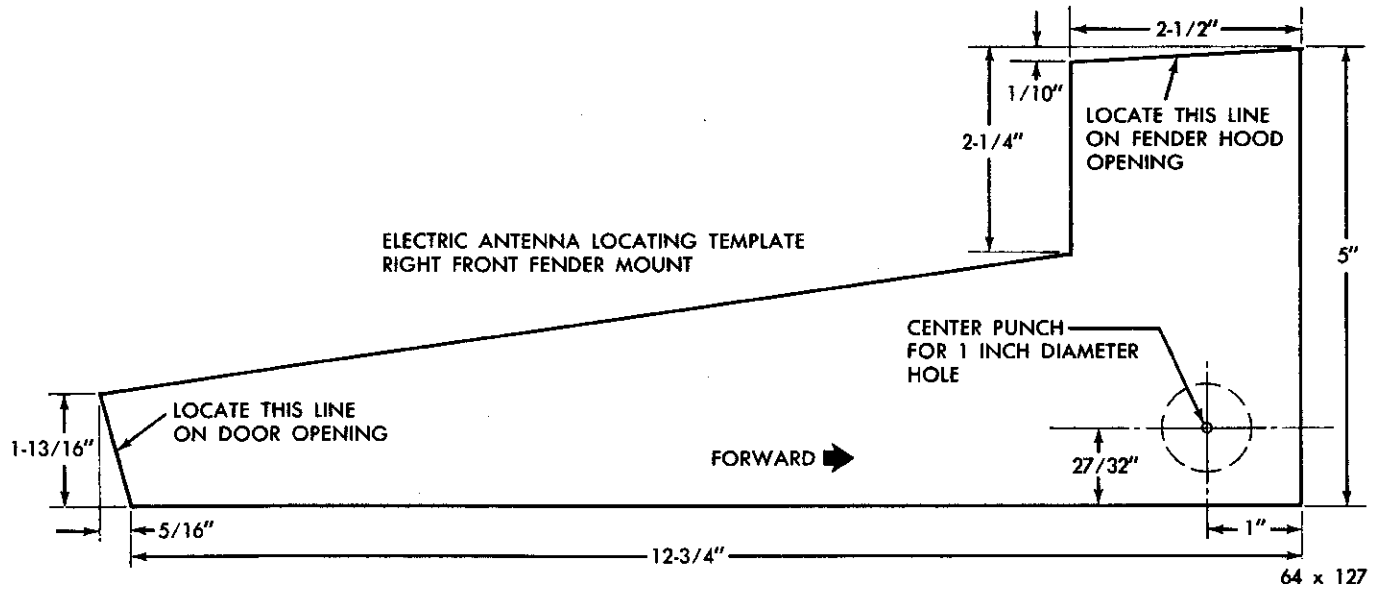


Fig. 2—Antenna Location (Imperial)

The alternator is equipped with an internal interference capacitor which is integral with the output stud.

8. MANUAL ANTENNA (if so equipped)

Removal

(1) On the front fender antenna equipped models (Figs. 2 and 3) unplug the antenna lead-in wire from the radio set at instrument panel. On rear mounted antennas, unplug the antenna short lead from the extension cable at the "Y" connector located in the trunk compartment.

(2) Lower the antenna.

(3) Remove the plastic cap and nut attaching the antenna to the rear wheel housing.

(4) Remove the nut, plastic adapter, gasket and ground collar.

(5) Remove the antenna assembly.

When installing the antenna, care should be taken to route the lead-in cable over the glove box compartment to allow for ample cable length when plugging the lead-in cable into the radio receptacle.

Installation

(1) Install the antenna rod, lower adapter and mount the antenna to quarter panel or front fender.

(2) Install the gasket, upper adapter and attaching nut.

(3) Tighten the attaching nut and install the nut plastic cap.

(4) Install the lead-in cable to "Y" connector on rear mounted antenna or in the radio set on front fender mounted models.

(5) Test the radio for proper operation.

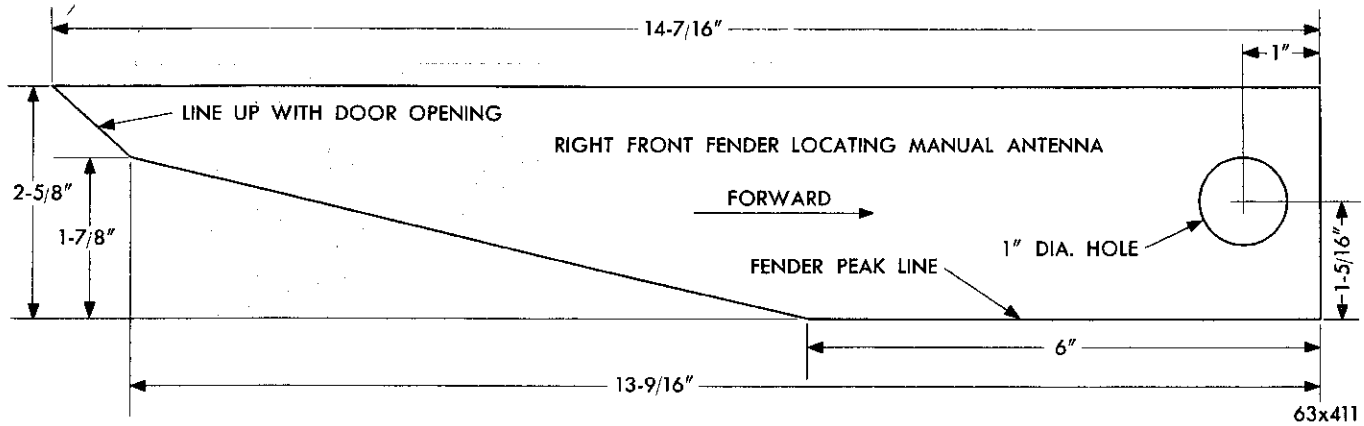


Fig. 3—Antenna Location (Chrysler)

9. ELECTRIC ANTENNA

The power operated radio antenna (Fig. 4) used on Chrysler and Imperial vehicles is a telescoping type antenna, extended and retracted by a coiled nylon cord actuated by a two direction electric motor. The main components of the power antenna are the motor and drive assembly, the mast assembly and the support tube assembly. The antenna is serviced as a mast assembly, motor and the drive assembly, connector, pad and pin assembly, lead-in assembly and the necessary switches.

Many antenna problems may be avoided by frequent cleaning of the antenna mast telescoping sections. This may be performed when the vehicle is being washed by cleaning the antenna mast sections with a clean soft cloth. In the winter, wipe the clean antenna sections with a cloth moistened with light oil.

If the antenna fails to operate satisfactorily, the problems can be divided into two general categories: (a) reception and (b) operational.

(a) Weak, intermittent, noisy, or no reception: Generally caused by a broken lead-in wire, poor connection, faulty insulation or the mast or lead-in wire, or moisture in the antenna body tube.

(b) Failure of the antenna to raise or lower: Generally can be traced to a blown fuse, faulty electrical connections at the switch or switch lead terminals, bent antenna mast rods, or a faulty motor and drive assembly.

Before an antenna is removed, the antenna performance should be tested to determine whether it is a reception problem or an operational problem.

10. TESTS

Clean the antenna and drive assembly before test or disassembly.

(1) With a source of 12 volt (D.C.) power, test the operation of the drive mechanism by grounding the negative (—) lead to the drive housing and with the positive (+) lead, contact the "yellow" (up) lead terminal to extend the antenna, and contact the "brown" (down) lead terminal to retract the antenna.

If the motor will not operate, replace the motor and drive assembly. If the motor runs freely and the antenna does not extend or retract, the mast assembly is at fault and should be replaced by a new mast. If the motor labors and the antenna extends and retracts very slowly, it may be caused by excessive dirt on the telescoping sections or bent telescoping mast rods. Clean and straighten the telescoping mast rods.

(2) Sometimes poor reception can be corrected by proper adjustment of the radio antenna trimmer. If this fails to produce the desired results, a substitute antenna known to be satisfactory may be plugged into the radio with the extended mast held out of the car window. (Do not ground the mast.)

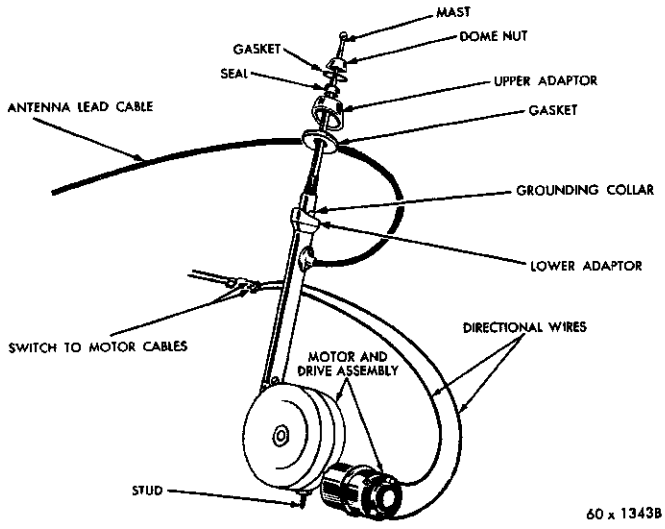


Fig. 4—Electric Antenna

Upon establishing that the fault is in the antenna assembly, it may be traced to one or more of the following conditions:

(a) Broken lead-in wire or shielding.

(b) Grounded lead-in wire or mast assembly.

(c) Moisture in the support tube or lead-in assembly.

(4) Poor connection (antenna lead-in assembly or shielding ground).

The preliminary test may indicate that removing the antenna from the vehicle is necessary for further testing, repairs or parts replacement. In this event, follow the procedure for antenna removal.

Removal

(1) Fully lower the antenna.

(2) Disconnect the motor leads at the connectors.

(3) Disconnect the antenna lead-in wire at the antenna.

(4) Remove the antenna mounting escutcheon nut. Remove the fender shield lower hole cover.

(5) Remove the nut attaching the drive housing to the antenna lower mounting bracket.

(6) Remove the antenna assembly, being careful not to bend the mast rod.

Installation

(1) Install the antenna and connect the leads.

NOTE: On the field installed dual rear antennas, care should be taken to route the rear antenna cable around the rear wheel housing behind the trunk liner

to the "Y" connector located behind the rear slot in the luggage compartment so as to avoid interference from the hinges when opening and closing the lid.

(2) Test the radio operation.

Bench Test for Reception Malfunction

(a) With the test lamp and battery in the circuit attach one test lead to the concentric pin on the "lead-in" connector and the other test lead to the mast sections. The lamp should "light" indicating continuity.

(b) Keeping the one lead on the connector pin, clip the other lead on the antenna support tube assembly. The lamp should "not light". If it does, look for a ground between the mast and support tube or inner conductor from the pin and pad.

(c) Remove the clip lead from the connector pin and clip it on the outer sheel of the connector. Connect the other clip lead to the antenna support tube assembly. The lamp should "light" again. If it does not "light", the antenna shielding has an open circuit.

(d) Locate the ground or open circuit and repair or replace component parts as required.

NOTE: DO NOT attempt to service the details of the Motor and Drive Assembly. This sub-assembly must be serviced as a complete unit.

11. MOTOR AND DRIVE OR MAST ASSEMBLY

Removal

(1) Remove the (2) two screws holding the "lead-in" receptacle.

(2) Unsolder the pin from the wire.

(3) Remove the (3) screws which hold the support tube to the motor and drive assembly.

(4) Holding the motor and drive assembly in one hand and the support tube in the other hand, pull (applying back and forth rotary motion at the same time) until the support tube assembly is removed from antenna.

(5) Holding the motor and drive assembly in one hand and mast assembly in the other hand (grasp near bottom of mast assembly), rock the mast assembly back and forth and pull at the same time. This will remove the insulator bushing from tubular fitting and outer mast section from the remainder of antenna assembly.

(6) Apply 12 volts D.C. to the "yellow" (up) power lead and ground, until the entire length of the nylon cord has been expelled from the drive. To prevent a kink or bend in the nylon cord, keep it taut by pulling on the mast.

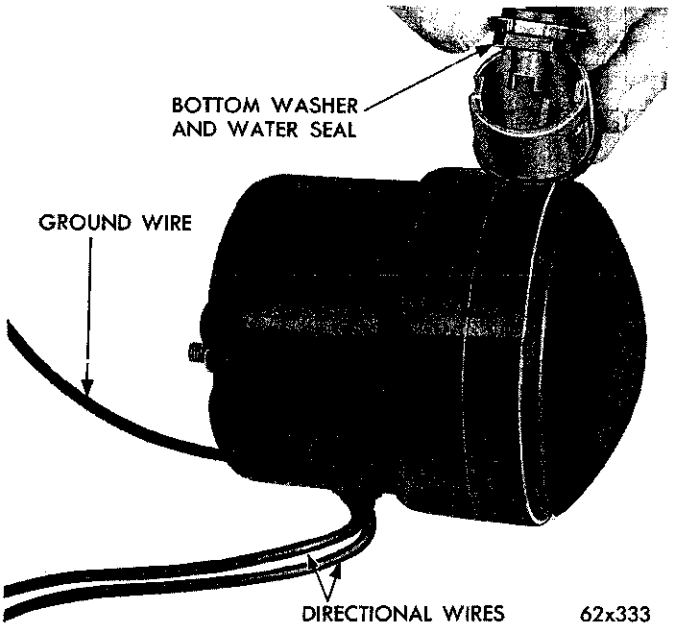


Fig. 5—Removing Bottom Insulator and Water Seal Washer

CAUTION: DO NOT DISASSEMBLE THE MOTOR AND DRIVE ASSEMBLY FOR ANY PURPOSE.

In order to remove the nylon cord from the disabled motor and drive assembly, place the assembly in a vise so that the normal plane of the nylon cord is parallel with the floor, then using both hands pull on the nylon cord until it is completely expelled from the drive.

(7) Remove the bottom insulator and water seal washer (Fig. 5) from the tubular fitting using a wire hook and long nose pliers.

Installation

(1) If the original mast assembly is reused, thread the nylon cord through the bottom insulator with the tubular projection down (Fig. 6). Then thread the nylon cord through the water seal washers.

NOTE: The bottom insulator and water seal washer are included on the service replacement mast assembly.

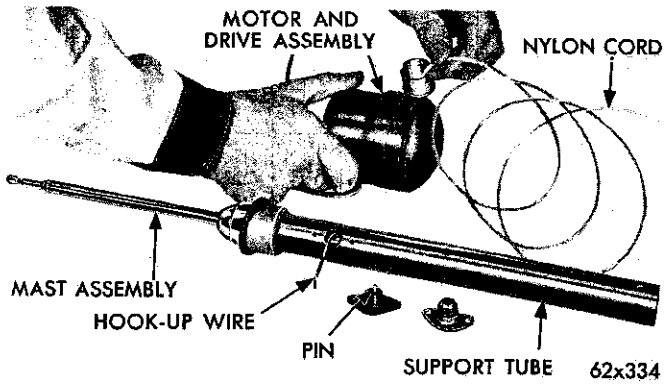


Fig. 6—Assembling Power Antenna

Fig. 7—Installing Mast Support

(2) Apply 12 volts D.C. to the "brown" (down) power lead and ground. Feed approximately 12 inches of the nylon cord into the drive. Push the water seal asher and bottom insulator all the way down into the tubular fitting. Apply 12 volt D.C. power until nylon cord disappears.

(3) Push the outer mast section down into the tubular fitting. Make sure that the upper edge of the flange on the insulator bushing is below center of the 3 holes in the tubular fitting.

(4) Install the support tube assembly in proper position making sure the hook-up wire is extended through the large hole in the body (Fig. 7).

(5) Install the (3) screws to attach the support tube assembly to the motor and drive assembly.

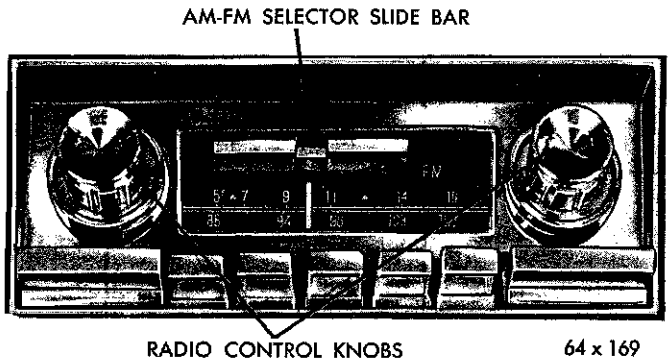


Fig. 8—AM-FM Radio

(6) Solder the hook-up wire to the pin.

(7) Assemble the lead-in receptacle with the (2) screws.

(8) Apply 12 volt power to the "yellow" and "brown" antenna leads and test for up and down operation.

12. AM-FM RADIO (If so equipped)

The AM-FM radio allows reception of both AM-FM broadcast frequencies. To select AM or FM reception move the selector slide bar (Fig. 8) to the desired position. The tuning knob and the On-Off and Volume control knob operate in the same manner as the standard AM radio.

The following items should be noted for proper AM-FM radio operation:

(1) If antenna trimming is required, tune the radio dial below 1000 K.C. (about 960 K.C.) with selector slide bar in the AM position.

(2) The antenna should be extended to a height of 31 inches for maximum FM reception.

(3) The radio push button adjustment is the same as the standard AM radio. It should be noted that a push button adjustment is only good for one station (either AM or FM) not both at the same time.

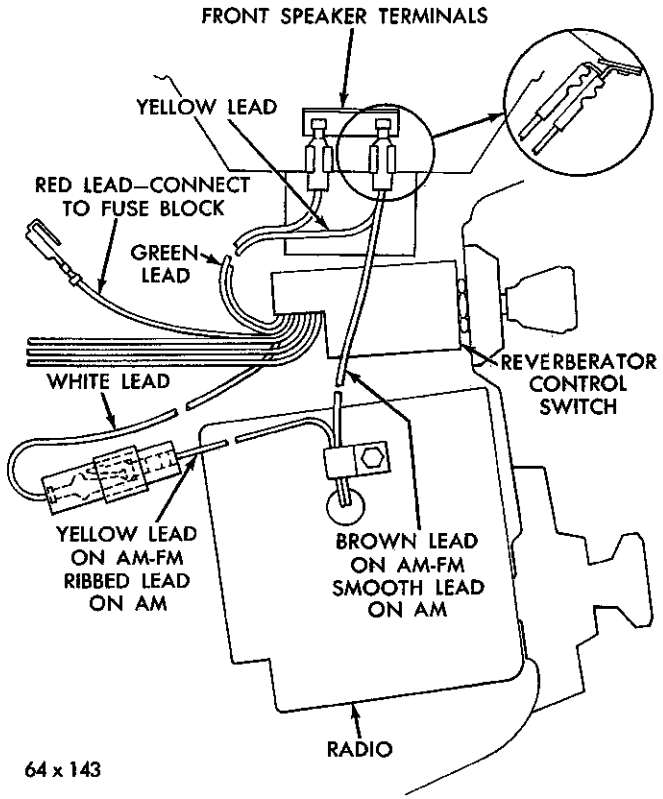
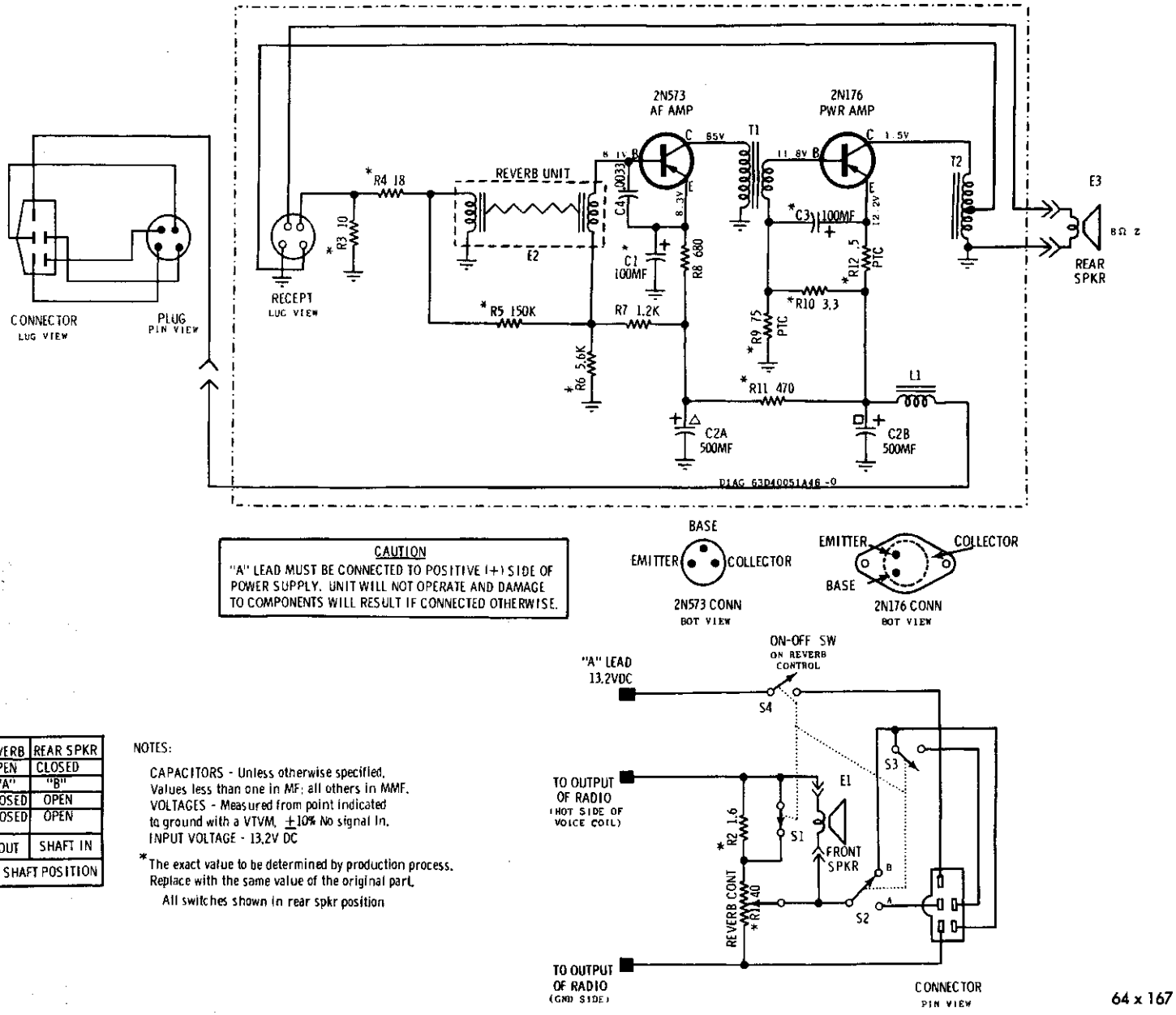


Fig. 9—Reverberator Installation



	REVERB	REAR SPKR
S1	OPEN	CLOSED
S2	"A"	"B"
S3	CLOSED	OPEN
S4	CLOSED	OPEN
SHAFT OUT		SHAFT IN
REVERB SHAFT POSITION		

NOTES:

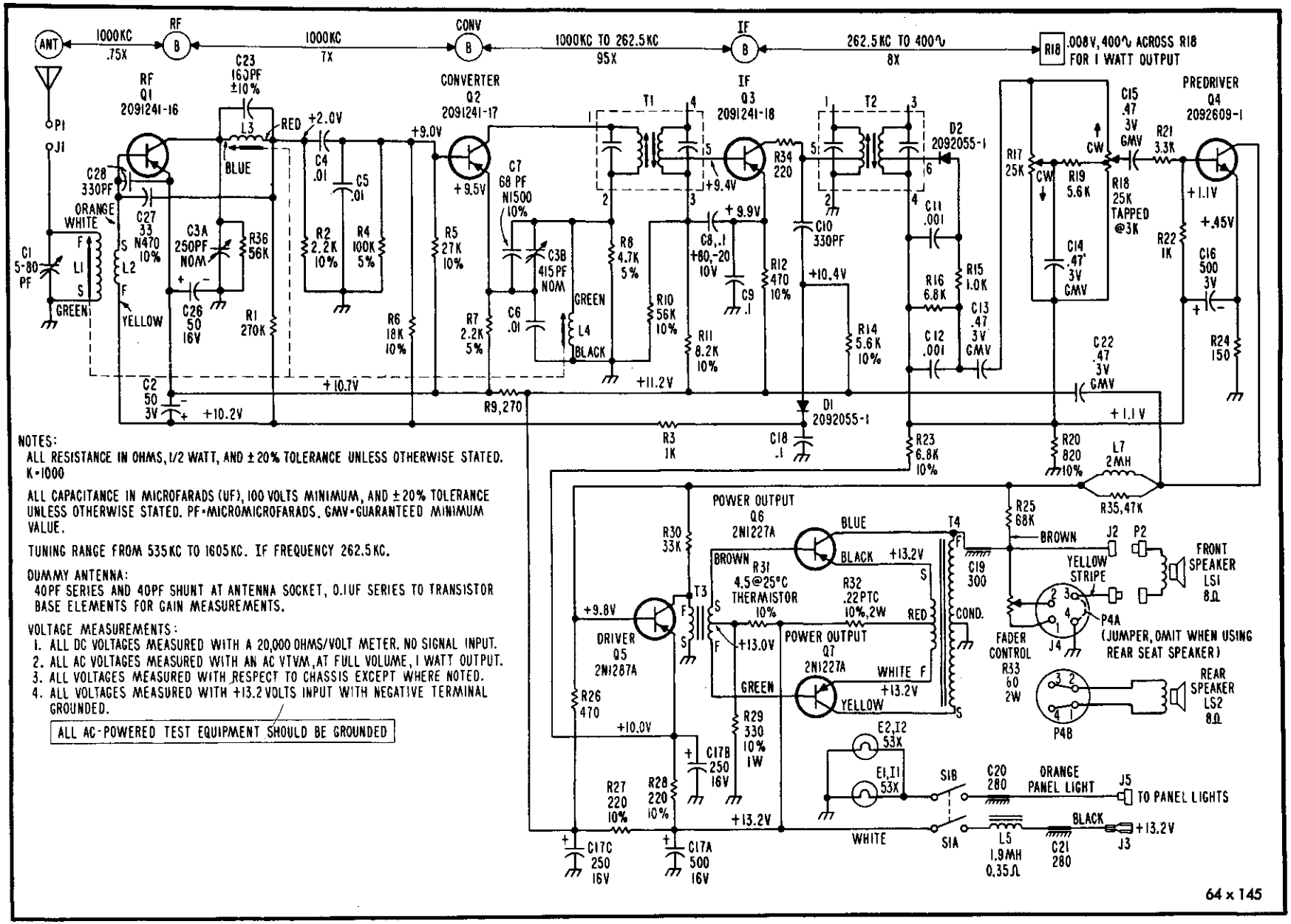
CAPACITORS - Unless otherwise specified, Values less than one in MF; all others in MMF.
VOLTAGES - Measured from point indicated to ground with a VTVM, ±10% No signal In.
INPUT VOLTAGE - 13.2V DC

*The exact value to be determined by production process. Replace with the same value of the original part.

All switches shown in rear spkr position

64 x 167

Fig. 10—Reverberator Wiring Diagram



NOTES:

ALL RESISTANCE IN OHMS, 1/2 WATT, AND ± 20% TOLERANCE UNLESS OTHERWISE STATED. K=1000

ALL CAPACITANCE IN MICROFARADS (UF), 100 VOLTS MINIMUM, AND ± 20% TOLERANCE UNLESS OTHERWISE STATED. PF=MICROMICROFARADS. GMV=GUARANTEED MINIMUM VALUE.

TUNING RANGE FROM 535KC TO 1605KC. IF FREQUENCY 262.5KC.

DUMMY ANTENNA:
40PF SERIES AND 40PF SHUNT AT ANTENNA SOCKET, 0.1UF SERIES TO TRANSISTOR BASE ELEMENTS FOR GAIN MEASUREMENTS.

VOLTAGE MEASUREMENTS:
1. ALL DC VOLTAGES MEASURED WITH A 20,000 OHMS/VOLT METER. NO SIGNAL INPUT.
2. ALL AC VOLTAGES MEASURED WITH AN AC VTVM, AT FULL VOLUME, 1 WATT OUTPUT.
3. ALL VOLTAGES MEASURED WITH RESPECT TO CHASSIS EXCEPT WHERE NOTED.
4. ALL VOLTAGES MEASURED WITH +13.2 VOLTS INPUT WITH NEGATIVE TERMINAL GROUNDED.

ALL AC-POWERED TEST EQUIPMENT SHOULD BE GROUNDED

Fig. 11—Radio Model 348

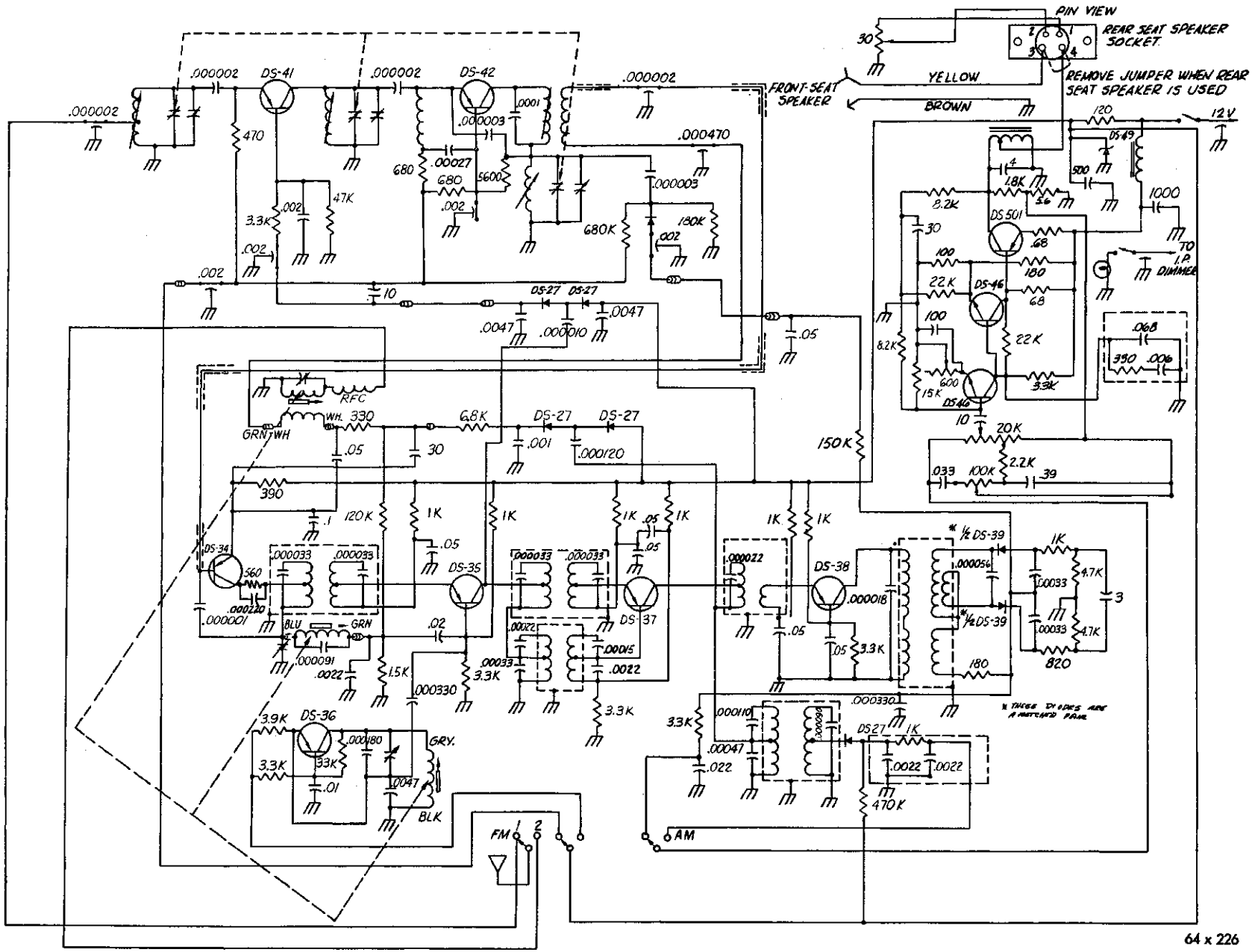
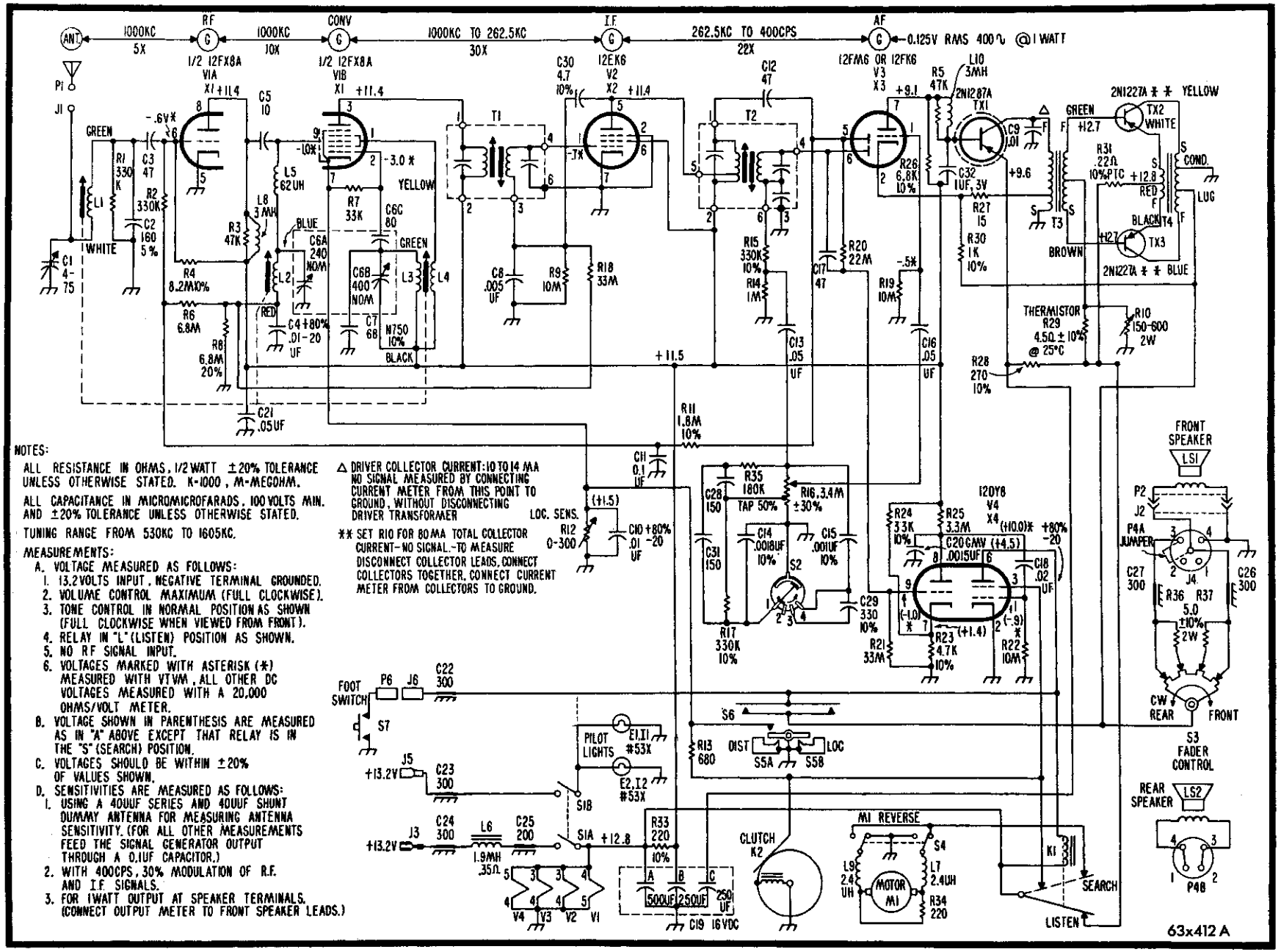


Fig. 12—Radio Models 351 and 357



NOTES:

ALL RESISTANCE IN OHMS, 1/2 WATT ±20% TOLERANCE UNLESS OTHERWISE STATED. K-1000, M-MEGOHM.

ALL CAPACITANCE IN MICROMICROFARADS. 100 VOLTS MIN. AND ±20% TOLERANCE UNLESS OTHERWISE STATED.

TUNING RANGE FROM 530KC TO 1605KC.

MEASUREMENTS:

A. VOLTAGE MEASURED AS FOLLOWS:
1. 13.2 VOLTS INPUT, NEGATIVE TERMINAL GROUNDED.
2. VOLUME CONTROL MAXIMUM (FULL CLOCKWISE).
3. TONE CONTROL IN NORMAL POSITION AS SHOWN (FULL CLOCKWISE WHEN VIEWED FROM FRONT).
4. RELAY IN "L" (LISTEN) POSITION AS SHOWN.
5. NO RF SIGNAL INPUT.
6. VOLTAGES MARKED WITH ASTERISK (*) MEASURED WITH VTVM, ALL OTHER DC VOLTAGES MEASURED WITH A 20,000 OHMS/VOLT METER.

B. VOLTAGE SHOWN IN PARENTHESIS ARE MEASURED AS IN "A" ABOVE EXCEPT THAT RELAY IS IN THE "S" (SEARCH) POSITION.

C. VOLTAGES SHOULD BE WITHIN ±20% OF VALUES SHOWN.

D. SENSITIVITIES ARE MEASURED AS FOLLOWS:
1. USING A 400UUF SERIES AND 400UUF SHUNT DUMMY ANTENNA FOR MEASURING ANTENNA SENSITIVITY. (FOR ALL OTHER MEASUREMENTS FEED THE SIGNAL GENERATOR OUTPUT THROUGH A 0.1UF CAPACITOR.)
2. WITH 400CPS, 30% MODULATION OF R.F. AND I.F. SIGNALS.
3. FOR 1WATT OUTPUT AT SPEAKER TERMINALS. (CONNECT OUTPUT METER TO FRONT SPEAKER LEADS.)

△ DRIVER COLLECTOR CURRENT: 10 TO 14 MA NO SIGNAL MEASURED BY CONNECTING CURRENT METER FROM THIS POINT TO GROUND, WITHOUT DISCONNECTING DRIVER TRANSFORMER

** SET R10 FOR 80 MA TOTAL COLLECTOR CURRENT - NO SIGNAL. TO MEASURE DISCONNECT COLLECTOR LEADS, CONNECT COLLECTORS TOGETHER. CONNECT CURRENT METER FROM COLLECTORS TO GROUND.

Fig. 13—Radio Models 414 and 415

(4) Should a malfunction occur, the trouble shooting procedures are the same as for the standard AM radio.

13. RADIO SPEAKER REVERBERATOR (If so equipped)

The radio speaker reverberator is used to produce a time delay of .025 to .030 seconds in the radio output to the rear seat speaker. The reverberator does not cause any time delay in the radio output to the front speaker. Due to the "time difference" of the radio output between the front and rear speakers an "echo" is produced which gives the effect of "Stereo" sound reproduction in the vehicle.

The reverberator consists of the reverberator unit (mounted in the luggage compartment), the instrument panel switch and the wiring from the switch to the reverberator unit (Fig. 9). The reverberator is an independently powered unit and has its voltage supply separate from the voltage supply to the radio.

To operate the reverberator turn the radio "ON" and tune the radio to the desired station. Pull the instrument panel reverberator switch "out" and then rotate the switch until the desired volume level between the front and rear speakers is achieved. With the reverberator switch "in" normal fader control action between the front and rear speakers is achieved by rotating the reverberator control knob until the desired volume level between the two speakers is established.

For service the reverberator unit is divided in two parts (Fig. 10):

(1) **Delay Line.** This item cannot be repaired, it must be serviced as an assembly.

(2) **Amplifier Section.** This item is serviced using normal radio trouble shooting procedures.

14. WIRING DIAGRAMS

Refer to Figures 11 through 13 for the radio wiring diagrams.

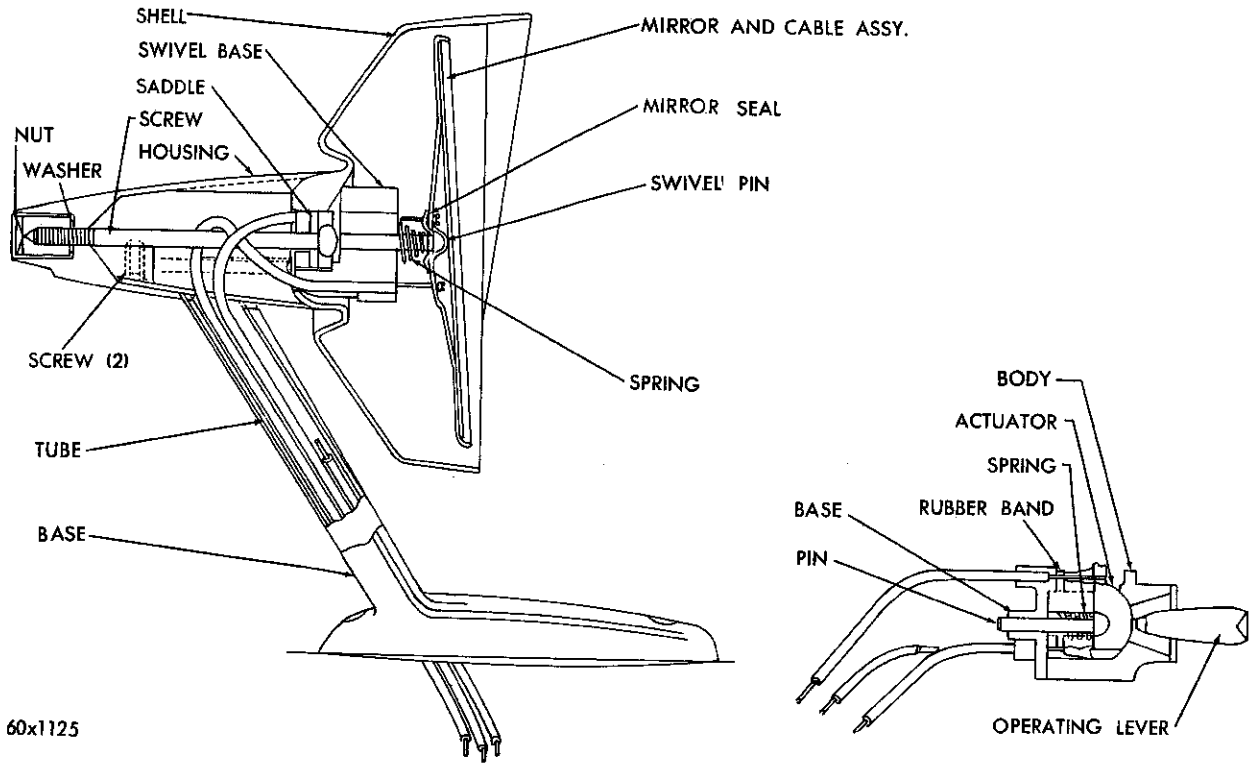


Fig. 1—Remote Control Mirror Assembly

REMOTE CONTROL OUTSIDE MIRROR

The remote control outside mirror is controlled by stainless steel wires attached to wobble plates and a lever within the mirror assembly and is operated by a toggle lever located on the instrument panel (Fig. 1). Adjustment of the mirror to meet driving requirements can be made without moving from the normal driving position.

SERVICE PROCEDURES

1. REMOTE CONTROL MIRROR-REPLACEMENT

Removal

(1) Remove the toggle lever assembly bezel.

(2) Remove the (2) screws attaching the mirror to the finder.

(3) Remove the mirror, gasket, cable and lever assembly.

Installation

(1) Install the gasket, mirror and cable assembly in the fender opening.

(2) Route the cable and lever assembly up through the body to the instrument panel opening.

(3) Attach the bezel to the cover assembly and tighten.

(4) Test and adjust the operation of the mirror.

WINDSHIELD WASHER

The windshield washers are operated by an electric motor driven pump to which fluid is gravity fed from a plastic reservoir. The motor is operated by depressing a small button in the center of the windshield wiper knob.

1. NOZZLE ADJUSTMENT

Chrysler

Adjustment of the nozzle may be made by inserting a small screwdriver into the cowl opening grille and bending the nozzle.

Imperial

Adjustment of the nozzle may be made by using a screw driver to rotate the nozzle jets "up" and "down".

Adjust the nozzles so that the centers of the streams contact the windshield glass, as shown in Figures 1 and 2.

NOTE: The oval pattern formed by the stream striking the windshield glass is not "centered" on the center of the stream. The stream center is toward the bottom of the oval pattern.

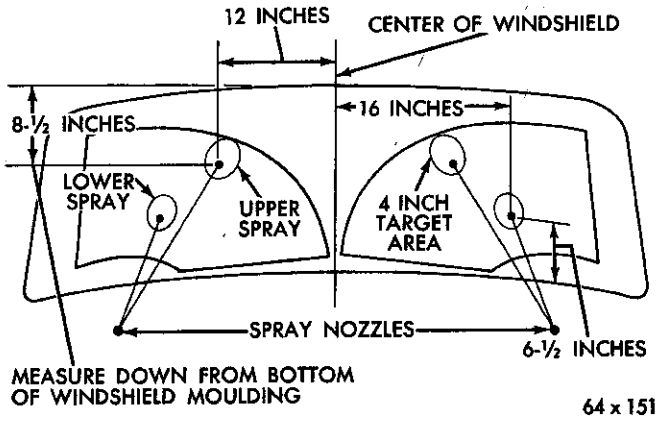


Fig. 1—Aiming Requirements (Imperial)

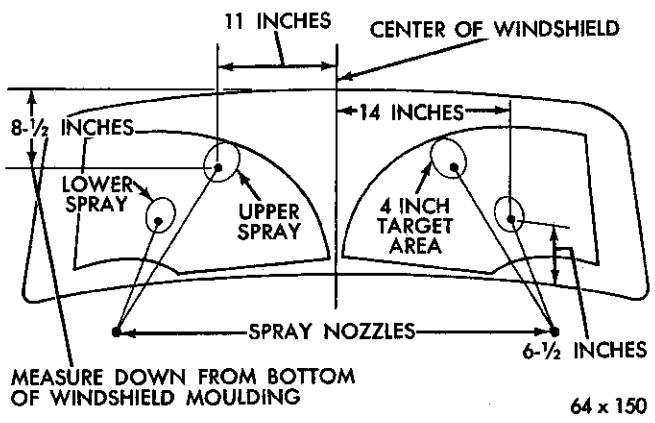


Fig. 2—Aiming Requirements (Chrysler)

SERVICE DIAGNOSIS

AUTO-PILOT

NOTE: It is recommended that the diagnosis be performed in the sequence outlined. If diagnosis shows the trouble to be an internal Auto-Pilot Control Unit condition, it is recommended that the unit be replaced. Do not attempt any internal service on the control unit.

Condition	Possible Cause	Correction
Auto-Pilot Control Button Does Not Remain Out with Ignition On	(a) Blown fuse.	(a) Replace the fuse.
	(b) Poor electrical connections to the control.	(b) Test the connections and the instrument panel control for grounding.
	(c) Faulty control unit.	(c) Replace the control unit if necessary.
No "Speed Warning" Pedal Pressure	(a) Blown fuse or defective wiring in motor circuit (red wire).	(a) Test wiring circuits. See "Electrical Tests".
	(b) Accelerator linkage broken or disconnected.	(b) Connect or replace the linkage and adjust.
"Speed Warning" Pedal Pressure at All Speeds (including below 22 miles per hour)	(a) Faulty electrical circuit.	(a) See "Electrical Tests" (Red Wire).
Automatic Latching Does Not Engage When Button is Pulled Out. "Speed Warning" O.K.	(a) Insufficient brake switch clearance.	(a) Adjust auto-pilot brake switch.
	(b) Brake pedal not returning fully.	(b) Test brake pedal for full return. Adjust or repair as necessary.
	(c) Faulty electrical circuit.	(c) See "Electrical Tests" (Blue and Black Wires).
Automatic Latch Engages at Selected Speed with Control Button Pushed In.	(a) No. 3 wire to the panel control is grounded.	(a) Test the circuit for ground and repair if necessary. (Black Wire).
	(b) Faulty grounding switch in the instrument panel control.	(b) Test at No. 3 terminal. Replace control unit if necessary.
Automatic Latch Remains Engaged When Brake Pedal is Touched	(a) Faulty or improperly adjusted brake switch.	(a) Test and adjust the brake switch. Replace if necessary.
Unit Disengages Intermittently on Rough Roads	(a) Poor electrical connections.	(a) See "Electrical Tests" (Black and Blue Wires).
	(b) Insufficient brake switch clearance.	(b) Adjust brake switch to specifications.
Auto-Pilot will Not Function at Low End of Dial	(a) Improper control cable adjustment.	(a) Adjust control cable. See Paragraph 6.

AUTO-PILOT—(Continued)

Condition	Possible Cause	Correction
Pulsating Accelerator Pedal	(a) Speedometer cable or drive cable kinked.	(a) Straighten and align the cables. Replace if necessary.
	(b) Lack of cable lubrication.	(b) Lubricate the cables.
	(c) Improper accelerator linkage adjustment.	(c) Adjust the accelerator linkage.
Carburetor Does Not Return to Normal Idle	(a) Improper auto-pilot linkage adjustment.	(a) Adjust the auto-pilot control rod.
	(b) Standard throttle linkage defective.	(b) Repair or replace the linkage.
Speedometer Does Not Register or Unit Does Not Operate	(a) Speedometer drive pinion in transmission is defective.	(a) Replace the speedometer drive pinion.
	(b) Faulty speedometer cable.	(b) Replace the speedometer cable.
	(c) Faulty drive cable from transmission to the auto-pilot drive mechanism.	(c) Replace the drive cable.
	(d) Faulty speedometer.	(d) Repair or replace the speedometer if necessary.
Speedometer Noise	(a) Cables bent or kinked.	(a) Straighten or replace the cables.
	(b) Lack of cable lubrication.	(b) Lubricate the cables.
	(c) Noisy speedometer head assembly.	(c) Repair or replace the speedometer as necessary.
Unit Repeatedly Blowing Fuses	(a) Short circuit in wiring, auto-pilot, or switches.	(a) See "Electrical Tests".

ELECTRIC CLOCK

Clock Does Not Operate	(a) Wire connector not on clock terminal.	(a) Connect wire to terminal.
	(b) Internal short.	(b) Remove clock and repair as necessary.

HOT WATER HEATER

Insufficient Heat	(a) Coolant too low.	(a) Fill the radiator.
	(b) Temperature valve not opening.	(b) Inspect the valve and repair as needed. Test the bowden cable adjustment.
	(c) Engine thermostat open.	(c) Replace the thermostat.
	(d) Damaged vacuum line to shut-off damper.	(d) Replace the vacuum line.
	(e) Obstructed heater hose.	(e) Replace the heater hose.
	(f) Leaking lower radiator hose.	(f) Correct the leak, and bleed the system.

SERVICE DIAGNOSIS

HOT WATER HEATER—(Continued)

Condition	Possible Cause	Correction
Too Much Heat	(a) Temperature valve stuck in open position.	(a) Free up the temperature valve and cable.
	(b) Disengaged cable.	(b) Connect or replace the cable.
	(c) Thermostat stuck in closed position.	(c) Replace the thermostat.
Blower Motor not Operating	(a) Blown fuse.	(a) Replace the fuse.
	(b) Faulty electrical connection.	(b) Tighten all electrical connections.
	(c) Faulty blower switch.	(c) Replace the blower switch.
	(d) Faulty motor.	(d) Replace the motor.

RADIO

Radio is Inoperative	(a) Blown fuse.	(a) Replace the fuse.
	(b) Broken, loose or shorted antenna lead-in.	(b) Test with an auxiliary antenna and replace lead-in if necessary.
	(c) Loose battery cable.	(c) Test the voltage at the fuse and tighten all connections.
	(d) Burned out transistor.	(d) Test all transistors and replace as necessary.
	(e) Faulty speaker.	(e) Replace the speaker.
	(f) Faulty antenna.	(f) Test the antenna and repair.
Radio Reception is Weak	(a) Unbalanced antenna trimmer.	(a) Adjust the antenna trimmer.
	(b) Loose antenna lead-in.	(b) Tighten the antenna lead-in.
	(c) Shorted antenna lead-in.	(c) Test with an auxiliary antenna and replace lead-in if necessary.
	(d) Weak radio transistor.	(d) Test and replace weak transistors.
	(e) Faulty antenna.	(e) Test the antenna and correct.
Radio Reception is Noisy (Engine Running)	(a) Outside electrical interferences.	(a) Move the vehicle or eliminate interference.
	(b) Insufficient or faulty radio capacitors.	(b) Install capacitors in ignition system.
Radio Reception is Noisy (Car in Motion)	(a) Static build up in tires.	(a) Ground the tires to the wheels with powdered graphite.
	(b) Loose antenna or lead-in wire.	(b) Tighten the antenna attaching nut. Inspect the fit of the antenna lead-in plug in the socket.
Radio is Noisy When Equipment is Operated	(a) Loose antenna ground.	(a) Clean and tighten the antenna connections.
Radio Reception is Distorted	(a) Speaker coil rubbing on voice core.	(a) Install an auxiliary speaker and compare. Replace if improved.
	(b) Torn speaker cone.	(b) Replace the speaker.
	(c) Faulty radio transistors.	(c) Test and replace any faulty transistors.

SERVICE DIAGNOSIS

RADIO

Condition	Possible Cause	Correction
Search Tuner Runs Continuously	(a) Vehicle located in a weak signal area.	(a) Move the vehicle to a strong signal area.
	(b) Faulty radio transistor.	(b) Test and replace any faulty transistors.
Intermittent Reception	(a) Broken lead-in wire.	(a) Test with a substitute antenna. Repair the lead-in wire.
	(b) Ground lead-in wire.	(b) Test with a substitute antenna. Repair the lead-in wire or replace
	(c) Faulty radio transistor.	(c) Test the radio transistors and replace as necessary.

REMOTE CONTROL OUTSIDE MIRROR

Unable to adjust Mirror	(a) Control cables twisted.	(a) Loosen main cable assembly and realign for free operation.
	(b) Cable or cables broken.	(b) Replace mirror assembly.

WINDSHIELD WASHER

Motor Does Not Run	(a) Loose wiring terminals.	(a) Tighten the terminals.
	(b) Corroded terminals.	(b) Clean and tighten the terminals.
	(c) Broken wires.	(c) Repair or replace the wires.
	(d) Faulty switch.	(d) Replace the wiper switch assembly.
	(e) Faulty motor.	(e) Replace the motor and pump assembly.
	(f) Poor ground.	(f) Clean the pump housing and tighten the mounting screws.
Pump Does Not Operate Motor Runs	(a) Broken coupling.	(a) Replace the motor and pump assembly.
	(b) Faulty pump.	(b) Replace the motor and pump assembly.