ACCESSORIES

CONTENTS

SERVICE DIAGNOSIS

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

Condition	Possible Cause	Correction
AUTO-PILOT		
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.	(c) Replace the control unit if necessary.
NO "SPEED WARNING" PEDAL PRESSURE	(a) Blown fuse or faulty 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 black 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.

Condition	Possible Cause	Correction
AUTO-PILOT—(Continued)		
PULSATING ACCELERATOR PEDAL	(a) Speedometer cable or drive cable kinked.	(a) 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 faulty.	(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) 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, drive mechanism or switches.	(a) See "Electrical Tests."
AUTOMATIC BEAM CHANGER		
UNIT NOT OPERATING	(a) Poor grounding of control units.	(a) Clean and tighten all control units.
	(b) Electrical circuit not properly wired.	(b) Trace the circuit, see the schematic diagram.
	(c) Faulty dimmer switch.	(c) Replace the dimmer switch.
	(d) Faulty tube.	(d) Replace the tube.
	(e) Faulty scanner.	(e) Replace the scanner.
	(f) Faulty control units.	(f) Replace the faulty control units.
	(g) Improperly focused scanner unit.	(g) Focus the scanner.
	(h) Loose cover screws.	(h) Tighten the cover screws as they also ground the unit.
TUBE NOT LIGHTED	(a) Faulty dimmer switch.	(a) Replace the dimmer switch.
	(b) Poor grounding of control units.	(b) Remove, clean and reinstall the control units.
	(c) Faulty tube.	(c) Replace the faulty tube.
	(d) Poor electrical connection.	(d) Clean and tighten all electrical connections.
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.
HEATER		
INSUFFICIENT HEAT	(a) Coolant too low.	(a) Fill the radiator.
	(b) Temperature valve not opening, AY-1.	(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.

Condition	Possible Cause	Correction
HEATER—Continued		
TOO MUCH HEAT	(a) Temperature valve stuck in open position, AY-1.	(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) Send radio to authorized radio service station for repair.
	(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) Send radio to authorized radio service station for repair.
	(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 built 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) Send radio to authorized radio service station for repair.
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) Send radio to authorized radio service station for repair.

Condition	Possible Cause	Correction
WINDSHIELD WASHERS		
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.
	(g) Faulty circuit breaker.	(g) Replace circuit breaker.
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.
INTERMITTENT OPERATION OF SYSTEM	(a) Faulty circuit breaker.	(a) Replace circuit breaker.

AUTO-PILOT

Description

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.

SERVICE PROCEDURES

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.

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."

LUBRICATION

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

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.

If the malfunction cannot be definitely isolated, it is recommended that the tests and adjustments be performed in the following sequence:

Accelerator Linkage Adjustment
Control Cable Adjustment
Electrical Tests

ACCELERATOR LINKAGE ADJUSTMENT

(Fig. 1)

(1) Make certain the automatic choke is "off" and that the carburetor is at the normal idle position. Operate the linkage by moving the Auto-pilot exterior arm several times and allow the linkage to ease into its normal position. Do not force the linkage to close the throttle.

(2) Loosen the lock nut on the Auto-Pilot linkage

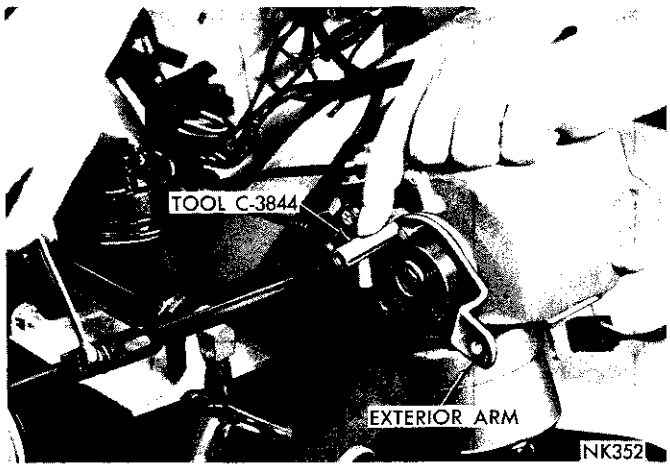


Fig. 1—Accelerator Linkage Adjustment

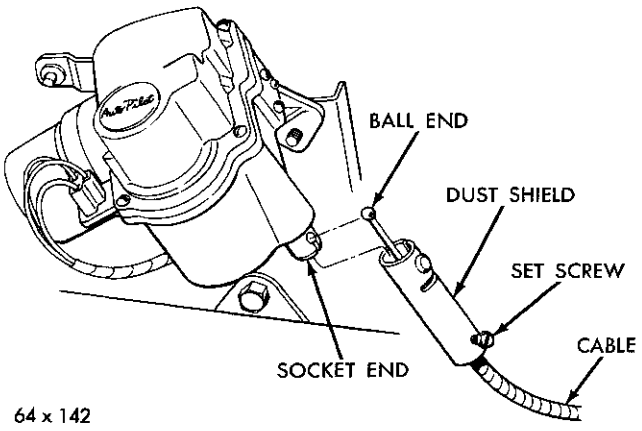


Fig. 2—Auto Pilot Dust Shield

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.

CONTROL CABLE ADJUSTMENT

(1) Loosen but do not remove 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.

(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 counterclockwise stop.

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

NOTE: A correctly adjusted control cable will not spring back on full rotation in either direction.

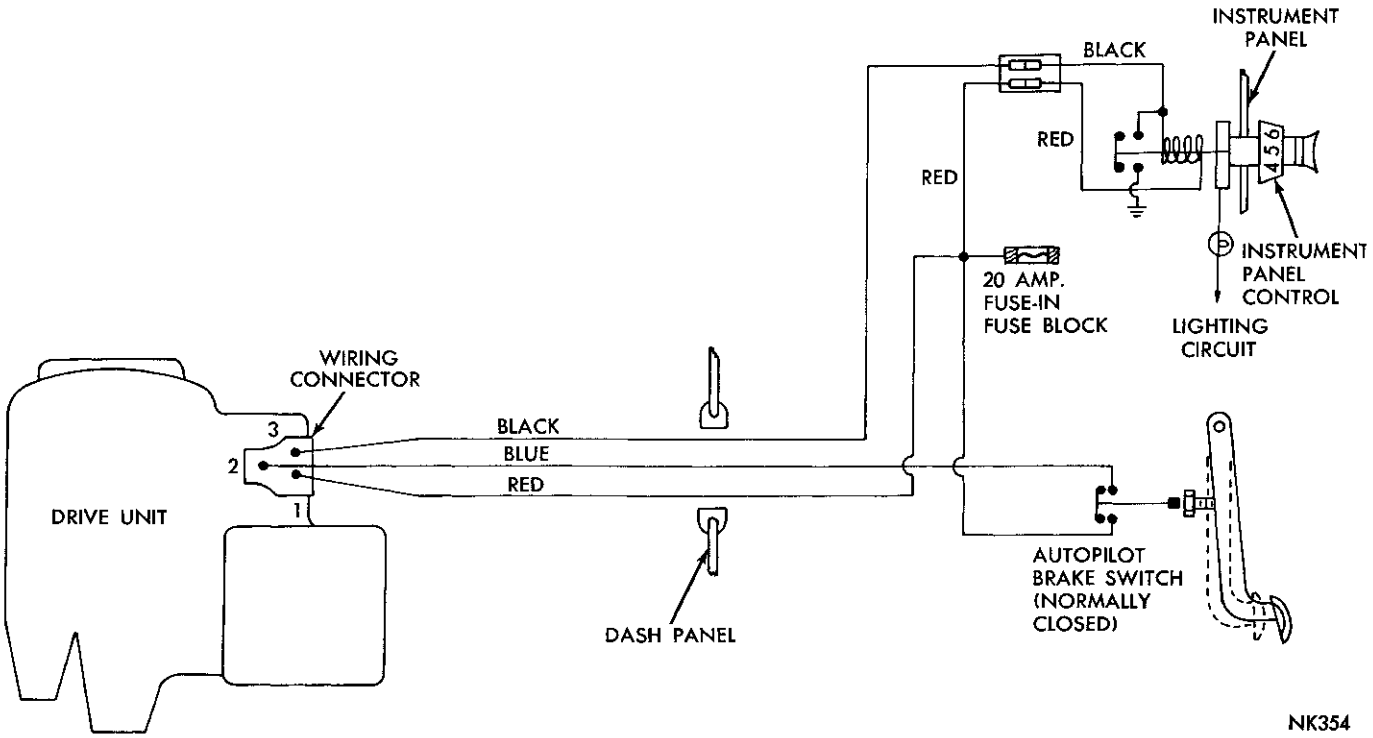


Fig. 3—Auto Pilot Electrical Circuit

ELECTRICAL TESTS (Fig. 3)

(1) Turn the ignition switch to the "On" or "Accessory" position. **DO NOT START THE ENGINE.**

(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.

(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. 4). 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.

(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 auto-pilot brake switch. If the circuit is "open" at the brake switch, test the brake switch adjustment.

NOTE: It is important that this adjustment be carefully performed to insure proper Auto-pilot operation.

Adjust the brake switch (Fig. 5) until the light goes out with approximately ¼ to ½ inch of brake pedal movement.

For convenience in adjusting the brake switch, the test lamp can be connected to the "Blue Wire" side of the switch.

(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. 4). The test lamp should light. If the lamp fails to light, test for an "open" circuit in the black wire circuit between the auto-pilot and the instrument panel control. 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.

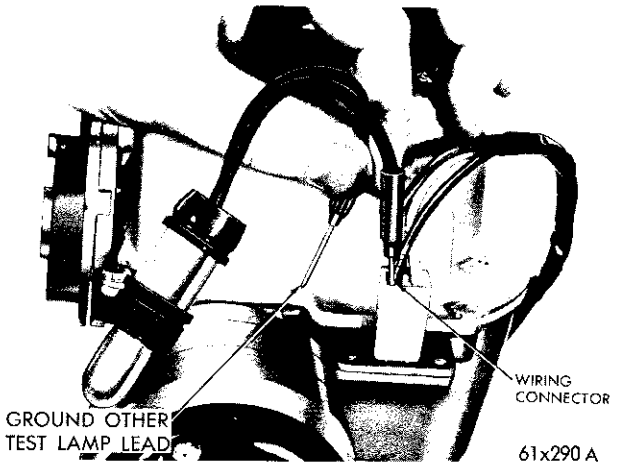


Fig. 4—Testing Wiring Circuits

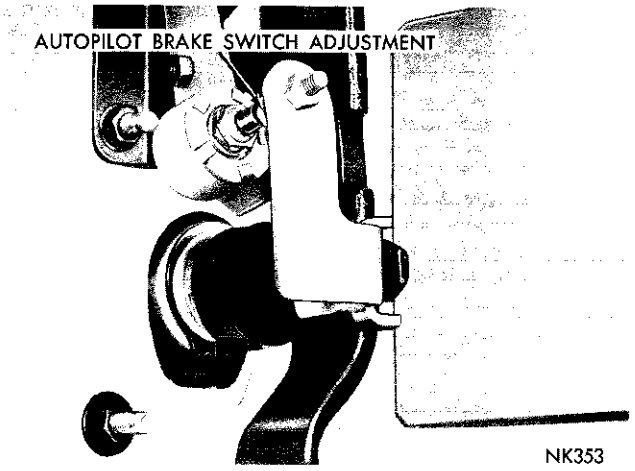


Fig. 5—Auto Pilot Brake Switch

INSTRUMENT PANEL CONTROL DIAL CALIBRATION

(1) On a level stretch of road engage the Auto-pilot at the full counterclockwise dial position. Carefully increase the dial setting to the "3" mark on the dial, being careful not to overshoot the "3" mark. If the "3" mark is overshot repeat the setting procedure from below the "3" mark.

(2) Record the speedometer reading with the dial at the "3" mark.

(3) Move the dial to the "4" mark and record the speedometer reading again being careful not to overshoot the "4" mark.

(4) Repeat the procedure at higher speeds until the normal driving range has been covered.

(5) Repeat the procedure as the dial position is lowered through the normal driving range being careful to avoid downward overshooting of the desired mark on the dial.

(6) Examine the recorded speedometer readings at each dial setting for both "upward" and "downward" indications and adjust the dial for the best overall correlation between the Auto-pilot control dial and the speedometer.

For AY1 models turn the control knob until the set screw on the control ring is at the top. Loosen the set screw, using an Allen wrench, and rotate the control the desired amount while preventing the ring from turning with the Allen wrench. Tighten the set screw and recheck calibration.

On AC-1, AC-2 and AC-3 Models, use a hex wrench and remove the reset button, washer and control knob. Rotate the plastic dial protruding through the bezel the required amount. Install the control knob and push it in all the way so the serrations on the

dial and control knob mate. Tighten this set screw. Retest the calibration and if satisfactory, install the washer and reset button.

DRIVE MECHANISM

Removal

(1) Disconnect the wiring connector at the drive mechanism.

(2) Disconnect the drive cable and speedometer cable at the drive unit.

NOTE: A small piece of tape will prevent the ferrule nut on the drive cable from falling down the cable.

(3) Loosen the set screw at the lower end of the dust shield. It is not necessary to remove the screw.

(4) Turn and pull the dust shield from the housing and 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 on the drive unit.

(6) Remove the bolts and nuts securing the drive mechanism to the mounting brackets and remove the drive mechanism leaving the brackets in the vehicle.

Installation

(1) Position the drive mechanism on the mounting brackets and install the mounting bolts and nuts.

(2) Connect the drive cable and speedometer cable to the drive mechanism.

(3) Connect the accelerator linkage to the exterior arm on the drive mechanism. Adjust the linkage.

(4) Install the ball end of the bowden cable in the socket on the drive mechanism.

(5) 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 after the control cable is properly adjusted.

(6) Adjust the control cable.

(7) Connect the wiring connector at the drive mechanism.

AUTOMATIC BEAM CHANGER MODELS AY-1

Description

The automatic beam changer is an automatic headlamp control unit which senses the headlamp intensity from other vehicles and automatically adjusts the headlights to a bright or dim setting.

A scanner and base assembly is mounted on top of the instrument panel (Fig. 1). The control unit is mounted on a convenient structural part (grounding purposes) of the vehicle's body, Fig. 2.

The automatic beam changer will dim the headlights when an oncoming car is seen at a distance of approximately 1200 feet. The unit will reset the headlights on "bright" within approximately ½ second after the approaching car has passed.

The headlamp setting can be interrupted by using the conventional dimmer switch. If the unit has a hi-beam setting and the driver feels that a "dim" setting is required, he can override the automatic control by depressing the dimmer switch to obtain the "dim" condition. Automatic operation is restored when the driver again depresses the dimmer switch.

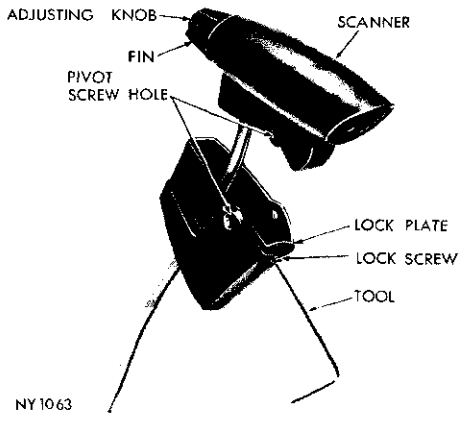


Fig. 1—Scanner Assembly

SERVICE PROCEDURES

DRIVER ADJUSTMENTS

A knob, located at the rear of the scanner unit, Figure 1, provides a sensitivity adjustment. If the head-

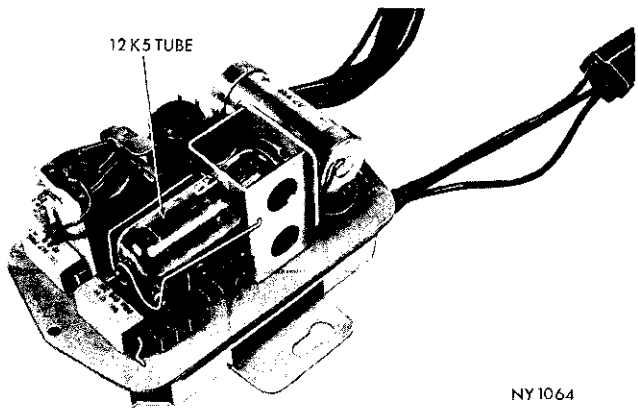


Fig. 2—Scanner Control Box Assembly

lights do not "dim" quickly enough upon approaching another car, it is an indication that sensitivity is set too "low" and correction is made by turning the scanner knob clockwise (to the right). If the headlights "dim" too soon, sensitivity can be decreased by turning the scanner knob clockwise (to the right). If the headlights "dim" too soon, sensitivity can be decreased by turning the scanner knob counterclockwise (to the left).

AIMING THE AUTOMATIC BEAM CHANGER

Pre-aiming instructions—Before attempting to aim the automatic beam changer, complete the following: Place the vehicle on a level floor. Measure the front spring height. Adjust to specifications, if necessary. Check tire inflation. Tire pressure should not vary more than 3-5 pounds. Rock the vehicle sideways to allow the spring shackles and other suspension parts to assume normal position. If the fuel tank is not full, place an equivalent weight in the trunk of vehicle. There should be no load in the vehicle, other than the driver.

AIMING THE SCANNER

Mount the "scanner" aimer leveling Tool C-3697, on the "scanner" unit, as shown in Figure 3. Make sure that all conditions listed under "pre-aiming instructions" have been met, before proceeding with the aiming operation.

Loosen the Phillips head pivot locking screw, Figure 1, just enough to permit free movement of the "scanner" through its arc, as controlled by the mounting base. (Total angular deflection of the "scanner" unit is 14 degrees.)

Pivot the "scanner" forward or backwards on base (through arc) until the leveler assumes a level position. Tighten the pivot and locking screws.

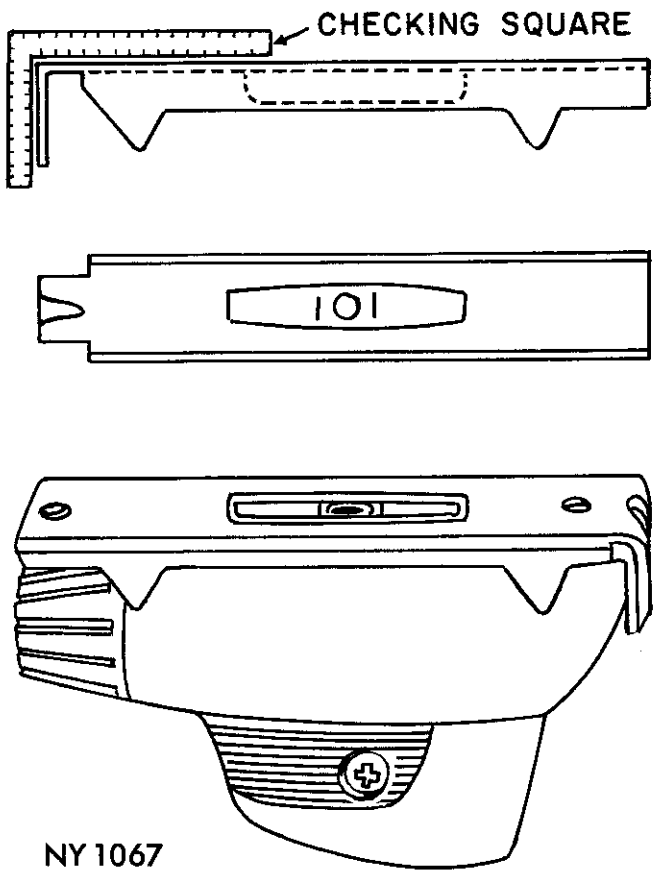


Fig. 3—Scanner Leveling Tool

SCANNER UNIT

Removal

(1) Disconnect the battery ground cable.
(2) Disconnect the feed wires.
(3) Remove the pivot and locking screws.
(4) Remove the scanner assembly from the instrument panel.

Installation

(1) Mount the scanner to scanner base and position on the instrument panel.
(2) Install the pivot and locking screw.
(3) Connect the feed wires.
(4) Connect the battery ground cable.
(5) Perform the operations listed under "Aiming the Scanner."

CONTROL BOX UNIT

Removal

(1) Disconnect the battery ground cable.
(2) Remove the left kickpad.
(3) Disconnect the control box wires at the connectors.
(4) Loosen the control box attaching screws.
(5) Remove the control box assembly.

Installation

(1) Clean the area around the body where the control box spacer is attached to the dash panel to obtain proper metal to metal ground.
(2) Mount the control box assembly to the body and the attaching screws.
(3) Connect the control box wires to the connectors.
(4) Install the left kick pad.
(5) Connect the battery ground cable.

ELECTRIC CLOCK
MODELS AC-1, AC-2, AC-3, AY-1

Description

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

SERVICE PROCEDURES

Removal—Models AY-1

(1) Remove the clock reset knob.
(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.

Removal—Models AC-1, AC-2, AC-3

(1) Disconnect the battery ground cable.
(2) Remove the upper portion of the glove box (four screws).
(3) Remove the ash receiver and housing assembly.
(4) Loosen the radio from the instrument panel and move clear of the clock area.
(5) From under the instrument panel disconnect the wiring to the clock.
(6) Remove the four screws that mount the clock to the instrument panel. The two screws on the right are accessible through the glove box opening. The screws on the left are accessible through the ash receiver opening.
(7) Remove the clock.

Installation—Models AY-1

(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 clock reset knob.

Installation—Models AC-1, AC-2, AC-3

(1) Position the clock in the instrument panel opening and install the four mounting screws.
(2) Connect the wiring to the clock.
(3) Install the ash receiver and housing assembly.
(4) Install the radio.
(5) Install the upper portion of the glove box.
(6) Connect the battery ground cable.

HEATER—MODELS AY-1

Description

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 control cable. It is important that the control cable be adjusted to provide full opening and closing of the water valve for efficient functioning of the system. 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.

Summer Ventilation—is controlled by 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 defrosted damper. For maximum defrosting or deicing, the temperature control lever must be set in the full 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"

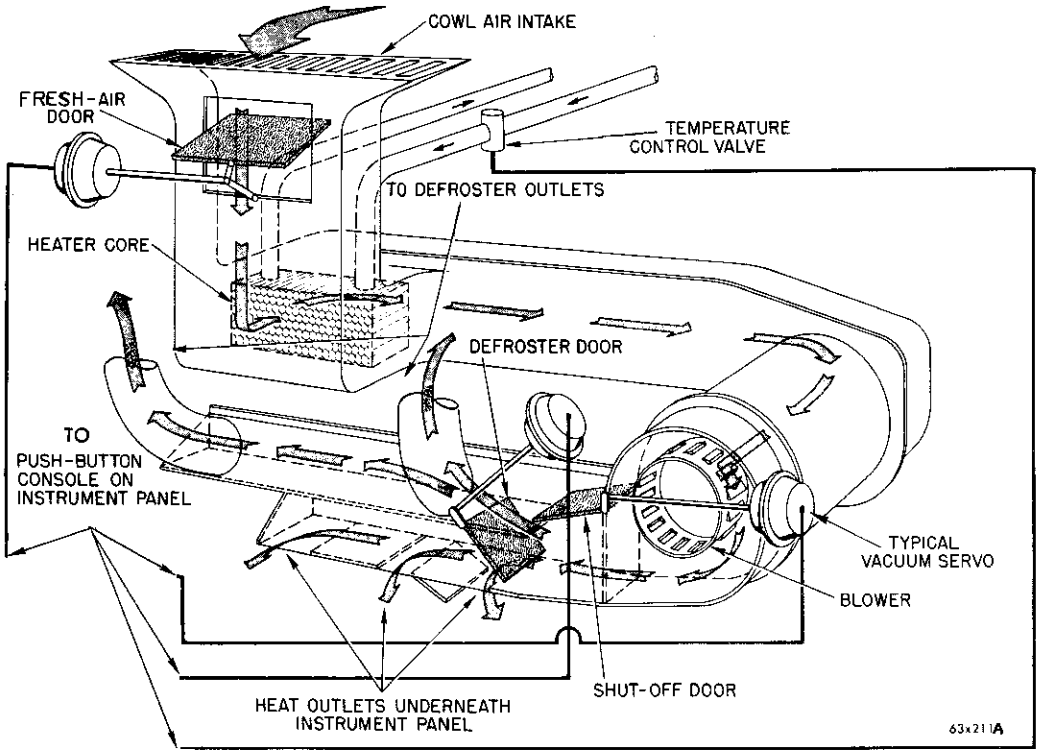


Fig. 1—Push Button Heater (Schematic View)

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 wints, 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

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.

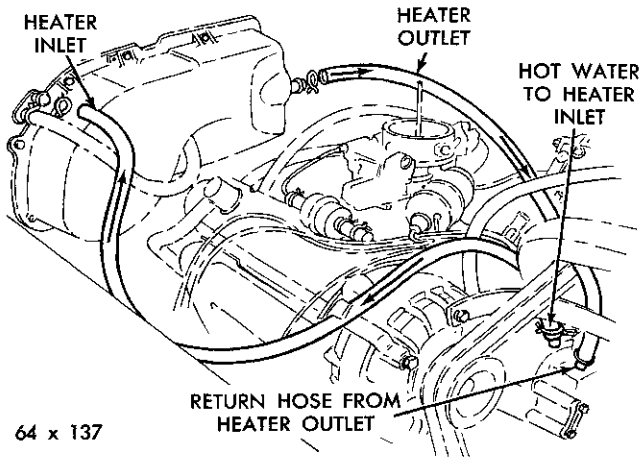


Fig. 2—Heater Hose Connections

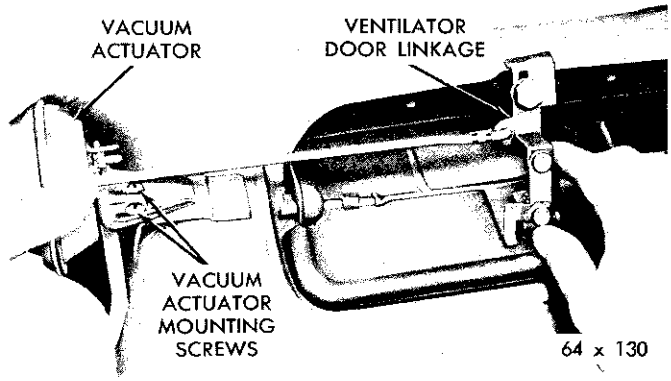


Fig. 3—Adjusting Ventilator Door

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.

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.

HEATER CORE

Removal

(1) Disconnect the battery ground cable.

(2) Drain the cooling system.

(3) Disconnect the heater hoses at the heater (Fig. 2).

(4) Remove the screws attaching the heater core 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 (Fig. 2).

(6) Fill the cooling system.

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. 3) to insure that the linkage is positioned "over-center."

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

(4) Tighten the vacuum actuator mounting screws securely.

HEATER—MODELS AC-1, AC-2, AC-3

Description

The heater is controlled by four pushbuttons, a temperature control lever and a fan switch.

The Temperature Control Lever determines the position of the fresh air door in the heater assembly which controls the amount of air which passes through the heater core.

Two doors, inside the heater assembly, are controlled by the "Heat" and "Defrost" buttons. When the "Heat" button is pressed the heater defroster door is closed and the heater regulator door, by the action of the vacuum actuator, is opened. When the "Defrost" button is pressed the heater regulator door remains open and the heater defroster door, by the action of the vacuum actuator, is opened to route the heated air up to the windshield.

The "Rear Heat" button will automatically put the heater in a high blower speed condition regardless of the position of the fan switch.

The "Fan Switch" determines the speed of the heater blower motor.

Heating the Vehicle

For best heating results the windows of the vehicle should be closed. When the green temperature indicator light goes "out" move the temperature control lever to the "warm" position. Push the "Heat" button and move the fan switch to "high." The temperature condition inside the vehicle can then be controlled using the "Fan Switch" and the "Temperature Control Lever."

Summer Ventilation

Two air inlets are provided to allow outside air to be brought inside the vehicle in warm weather. The control knobs for the inlets are located on the lower edge of the instrument panel on both sides of the steering column. **Be sure the air inlets are shut during cold weather.**

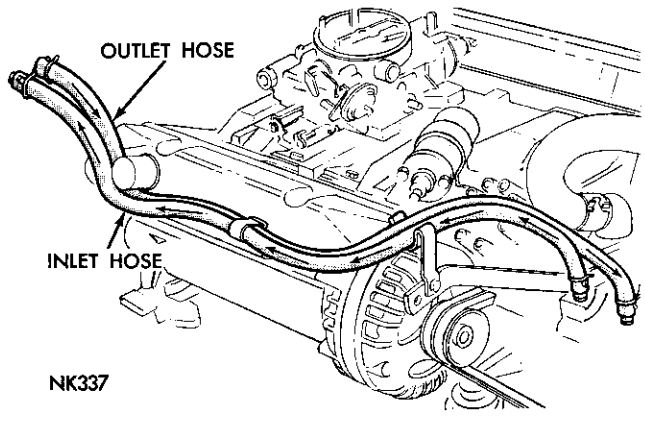


Fig. 4—Heater Hose Connections

Heater Removal (Fig. 4)

(1) Disconnect the battery ground cable.

(2) In the engine compartment disconnect the heater hoses at the dash panel. Plug the hose fittings on the heater. This will prevent any coolant from spilling on the inside of the vehicle as the heater assembly is removed.

(3) From under the instrument panel remove the bracket from the top of the heater to the dash panel.

(4) Remove the defroster hoses at the heater and disconnect the vacuum lines at the heater.

(5) Disconnect the wiring at the heater blower motor resistor.

(6) Remove the glove box.

(7) Disconnect the control cable at the heater end.

(8) Unclamp the flexible connector at the right end of the heater. **Do Not Remove the Connector.**

(9) Pull the carpet or mat out from under the instrument panel.

(10) From inside the engine compartment remove the three nuts that mount the heater assembly to the dash panel.

(11) Pull the heater assembly toward the rear of the vehicle until the mounting studs are clear of the dash panel. Rotate the heater assembly until the studs are down and remove the heater from under the instrument panel.

Heater Installation

(1) Position the heater assembly under the instrument panel with the mounting studs down.

(2) Push the heater toward the front of the vehicle while rotating the heater until the mounting studs are in line with the mounting holes in the dash panel. Push the heater until the studs protrude through the dash panel.

(3) From in the engine compartment install the three heater assembly mounting nuts.

(4) From under the instrument panel install the flexible connector at the right end of the heater.

(5) Connect and adjust the control cables at the heater assembly.

(6) Connect the wiring at the heater blower motor resistor.

(7) Install the defroster hoses and connect the heater vacuum lines.

(8) Install the heater to dash panel bracket.

(9) Install the glove box.

(10) Position the carpet or mat under the instrument panel.

(11) From in the engine compartment remove the plugs from the hose fittings and connect the hoses to the heater.

(12) Connect the battery ground cable.

(13) Start the engine, operate the heater and bleed the air from the heater system.

HEATER CORE

Removal

(1) Remove the heater as outlined in "Heater Removal."

(2) Remove the heater cover plate.

(3) Remove the screws that mount the heater core to the heater and remove the core.

Installation

(1) Position the core in the heater assembly and install the mounting screws.

(2) Install the heater cover plate.

(3) Install the heater as outlined in "Heater Installation."

HEATER BLOWER MOTOR

Removal

(1) Remove the heater as outlined in "Heater Removal."

(2) Disconnect the wiring from the heater assembly to the blower motor.

(3) Remove the motor cooler tube.

(4) Remove the heater backplate (10 screws).

(5) Remove the fan from the motor shaft.

(6) Remove the blower motor from the back plate.

Installation

(1) Install the blower motor on the heater backplate.

(2) Install the fan on the motor shaft. Adjust for clearance between the motor and fan.

(3) Install the heater backplate (10 screws).

(4) Install the motor cooler tube.

(5) Connect the wiring from the heater assembly to the blower motor.

(6) Install the heater as outlined in "Heater Installation."

BLOWER MOTOR RESISTOR REPLACEMENT

(1) From under the instrument panel disconnect the wiring at the resistor.

(2) Remove the two screws that mount the resistor to the heater and remove the resistor.

(3) Position the new or repair resistor into the opening in the heater assembly and install the two mounting screws.

(4) Connect the wiring to the resistor.

HEATER DOOR SERVICE

For service of either the heater regulator door, heater defroster door or the heater fresh air door the heater must be removed from the vehicle and disassembled. Refer to "Heater Removal and Installation."

HEATER CONTROLS AND ADJUSTMENTS

(1) Disconnect the battery ground cable.

(2) From under the instrument panel remove the left defroster hose.

(3) From under the instrument panel remove the three screws that mount the heater control assembly to the instrument panel. Lower the control assembly below the instrument panel.

(4) Disconnect the temperature control cable at the heater assembly.

(5) At the heater control position the temperature control cable so approximately ¼ inch of the cable housing extends beyond the edge of the cable retaining clip.

(6) Install the heater control assembly to the instrument panel.

(7) Place the temperature control arm in the extreme left position and connect the cable to temperature control door crank on the heater assembly while holding the door in the extreme right position.

(8) Install the left defroster hose.

(9) Connect the battery ground cable.

REAR WINDOW DEFROSTER

The rear window defroster 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.

RADIO AND ANTENNA—MODELS AC-1, AC-2, AC-3, AY-1

Description

The radios available for Models AC-1, AC-2, and AC-3 are the AM Model 365, the AM-FM Model 366 and the AM Search Tuner Model 416. The radios available for Models AY-1 are the Search Tuner Model 417 and the AM-FM Model 367. All radios are fully transistorized.

Tuning is controlled by five push buttons and the manual tuning knob on the right of the radio. On models 416 and 417 search-tuning is controlled by a three position sensitivity control plus the search-tune bar and a foot switch.

The volume, tone and the on-off switch are controlled by the dual knob on the left of the radio. The rear speaker fader control, if so equipped, is located on the bottom of the instrument panel. 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

AM-FM RADIOS

The AM-FM radio allows reception of both AM-FM broadcast frequencies. To select AM or FM reception rotate the selector control, located behind the manual tuning control, 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, place the band selector control in the AM position and proceed with the antenna trimming procedure as outlined in "Antenna Trimming."

(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.

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

RADIO

CAUTION: Do not operate the radio with the speaker detached since damage to the transistors may result.

Removal—Models AY-1 (Fig. 1)

(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 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.

Removal—Models AC-1, AC-2, AC-3 (Fig. 2)

NOTE: On vehicles with air conditioning, it is necessary to remove the center air conditioning outlet hose.

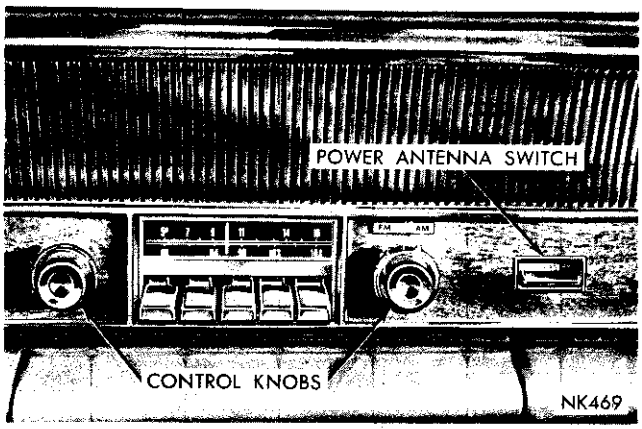


Fig. 1—Radio—AY-1 Models

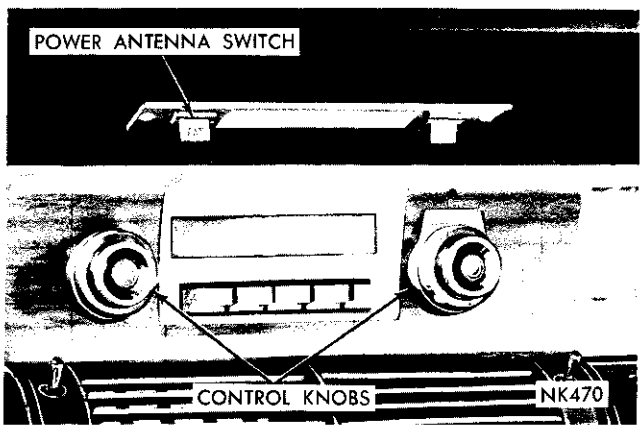


Fig. 2—Radio—AC-1, AC-2, and AC-3 Models

(1) Disconnect the battery ground cable.
(2) Remove the ash receiver and housing assembly.
(3) Remove the radio control knobs.
(4) Remove the radio mounting nuts.
(5) Working through the ash receiver opening, disconnect the speaker leads, radio feed wire and antenna lead cable.
(6) Remove the radio to instrument panel mounting bracket.
(7) Remove the radio out through the ash receiver opening in the instrument panel.

Installation—Models AY-1

(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 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.

Installation—Models AC-1, AC-2, AC-3

(1) Install the radio in the instrument panel opening by inserting the radio up through the ash receiver opening in the instrument panel.
(2) Install the radio to instrument panel mounting bracket.
(3) Connect the speaker leads, radio feed wire and antenna lead cable.
(4) Install the radio mounting nuts.
(5) Install the radio control knobs.
(6) Install the center air conditioning outlet hose, if so equipped.
(7) Install the ash receiver and housing assembly.
(8) Connect the battery ground cable.

SPEAKER

Removal—Models AY-1

(1) Disconnect the battery ground cable.
(2) 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.
(3) From the top of the instrument panel remove the four screws that attach the radio speaker to the instrument panel.
(4) Remove the radio speaker.

Removal—Models AC-1, AC-2, AC-3

(1) Disconnect the battery ground cable.
(2) Remove the radio as outlined in "Radio Removal."
(3) Remove the upper section of the glove box.
(4) Reach through the glove box opening and remove the speaker mounting plate attaching screw that is nearest the glove box opening.
(5) Reach through the ash receiver opening and remove the remaining speaker mounting plate attaching screw.
(6) Remove the speaker and mounting plate out through the ash receiver opening.

Installation—Models AY-1

(1) Position the speaker in 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 outlet grille on the top of the instrument panel and install the six attaching screws.
(4) Connect the battery ground cable.

Installation—Models AC-1, AC-2, AC-3

(1) Install the speaker and mounting plate through the ash receiver opening and install the mounting plate attaching screw on the left end of the mounting plate.
(2) Working through the glove box opening install the remaining speaker mounting plate attaching screw.
(3) Install the upper section of the glove box.
(4) Install the radio as outlined in "Radio Installation."
(5) Connect the battery ground cable.

ADJUSTMENTS

Push Buttons

(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, Mid and Distant Settings (Models 416 and 417)

Local setting will tune the receiver to only strong signal stations. Distant setting 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.

Foot Switch for Search Tuning

The foot switch for search tuning, on Model 416 and 417, is located on the left forward end of the floor panel. By depressing the foot switch, it will select a station on the radio.

Antenna Trimming

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 required 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.

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 out "OUT" to turn "ON" the reverberator unit. Push the control "IN" to turn "OFF" the reverberator and give normal fader control operation.

On the 416-417 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.

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.

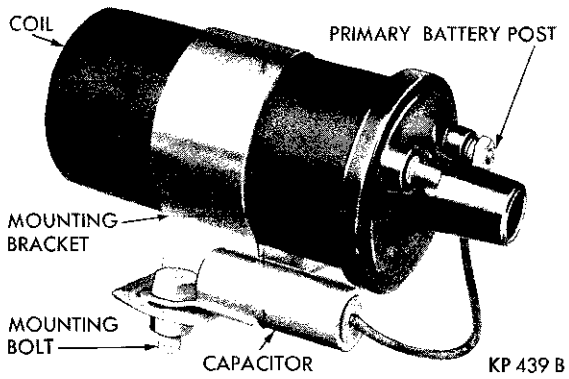


Fig. 3—Ignition Coil Capacitor

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

The ignition coil capacitor is installed, Fig. 3.

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

MANUAL ANTENNA—MODELS AC-1, AC-2, AC-3

Removal

(1) On the front fender antenna equipped models unplug the antenna lead-in wire from the radio set at instrument panel.

(2) Lower the antenna.

(3) Remove the nut attaching the antenna to the fender.

(4) Remove the adapter and gasket.

(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 the front fender.

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

(3) Tighten the attaching nut.

(4) Install the lead-in cable in the radio.

(5) Test the radio for proper operation.

When an initial antenna installation is being performed it will be necessary to drill a hole in the body sheet metal to allow mounting of the antenna. Refer to Figs. 4 and 5.

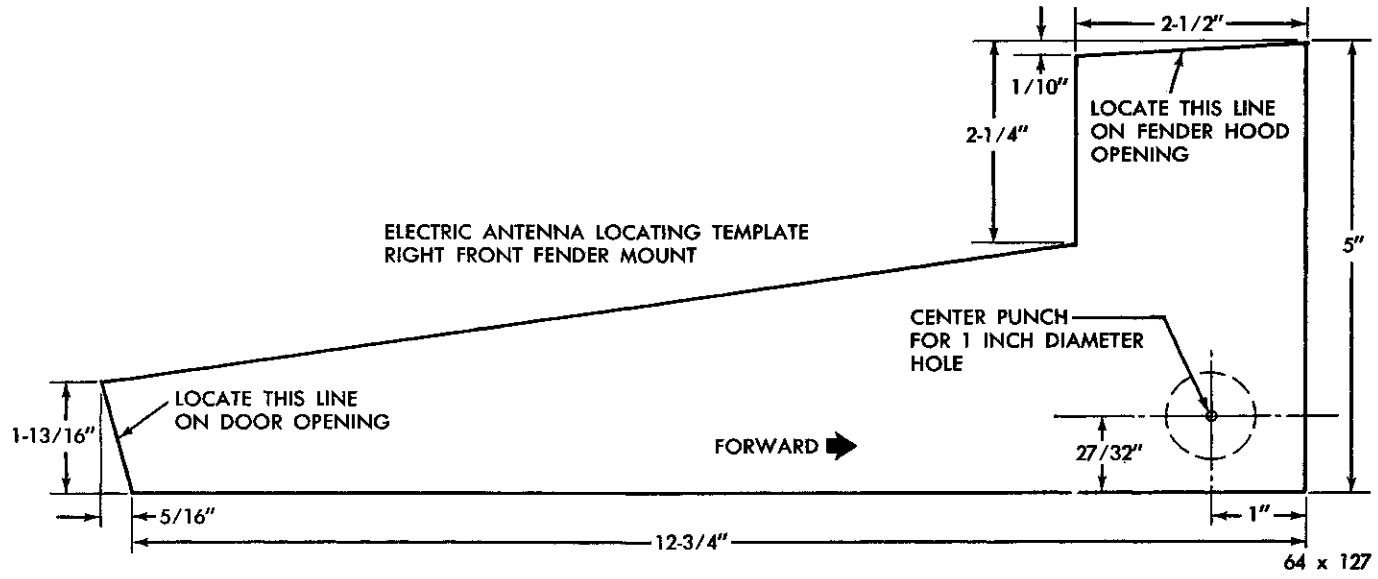


Fig. 4—Antenna Mounting Location AY-1 Models

POWER ANTENNA—MODELS AC-1, AC-2, AC-3, AY-1

Description

The power operated radio antenna (Fig. 6) 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 serv iced as a mast assembly, motor and the drive assem-

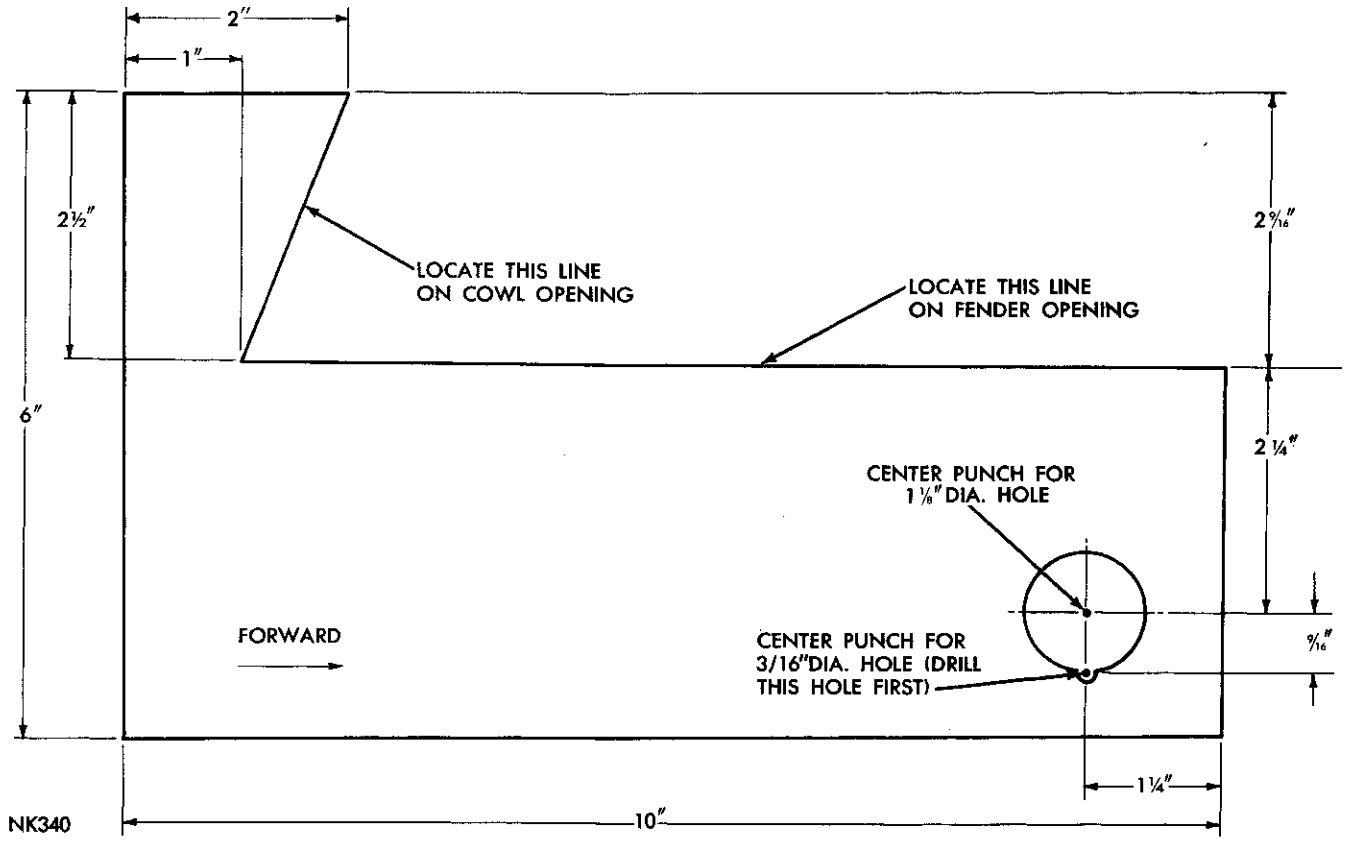


Fig. 5—Antenna Mounting Location—AC-1, AC-2 and AC-3 Models

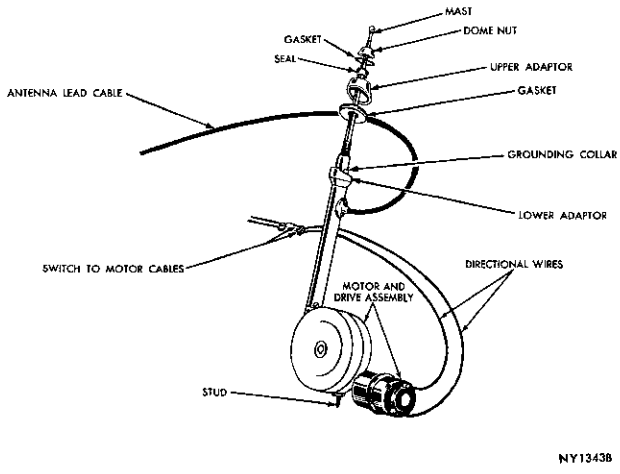


Fig. 6—Power Antenna

bly, 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.

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

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 position (+) 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, mast or drive assembly is at fault and should be replaced by either a new mast or motor and drive assembly. 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) Occasionally 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.)

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.

(d) 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) For front mounted power antenna remove the fender shield cover for access. For rear mounted power antenna open the luggage compartment for access to the antenna assembly.

(3) Disconnect the motor leads at the connectors.

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

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

(6) For front mounted power antenna loosen the collar tightening screw under the fender. For rear mounted power antenna remove the cap nut, upper adapter and gasket.

(7) 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 shell 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.

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.

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. 7) from the tubular fitting using a wire hook and long nose pliers.

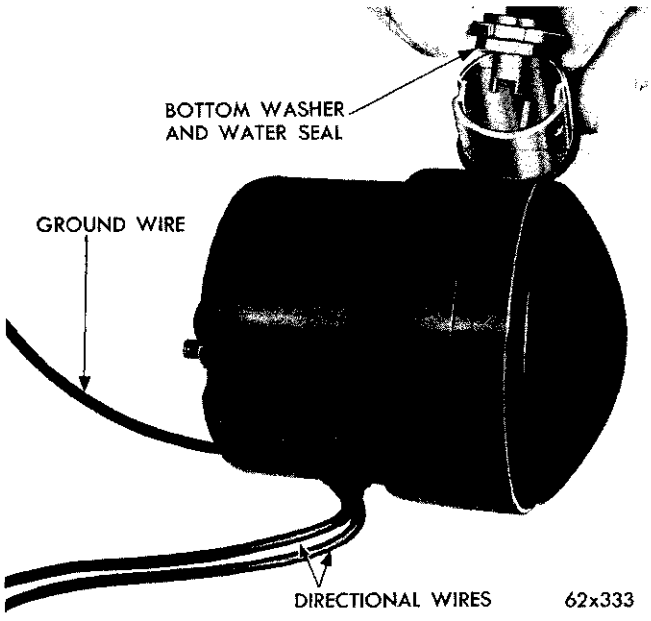


Fig. 7—Removing Bottom Insulator and Water Seal Washer

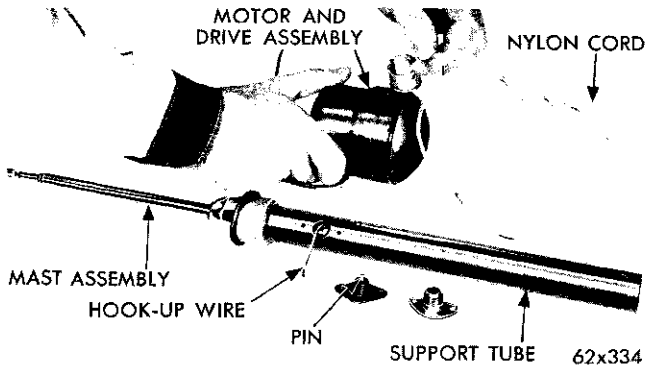


Fig. 8—Assembling Power Antenna

Installation

(1) If the original mast assembly is reused, thread the nylon cord through the bottom insulator with the tubular projection down (Fig. 8). Then thread the nylon cord through the water seal washers.

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

(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

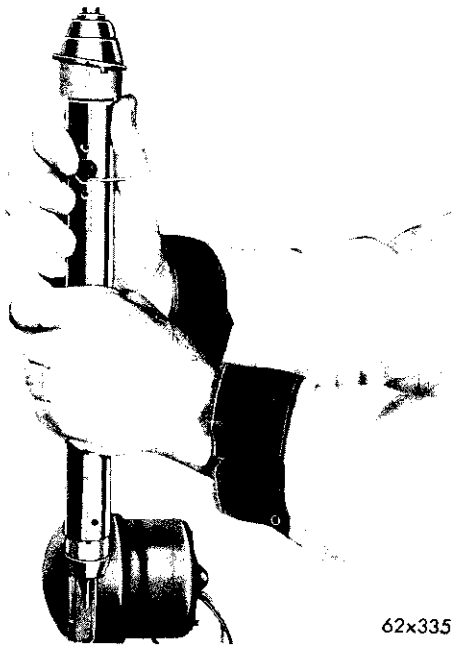


Fig. 9—Installing Mast Support

washer and bottom insulator all the way down into the tubular fitting. Apply 12 volts 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. 9).

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

(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.

RADIO SPEAKER REVERBERATOR—MODELS AC-1, AC-2, AC-3, AY-1

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. 10). 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

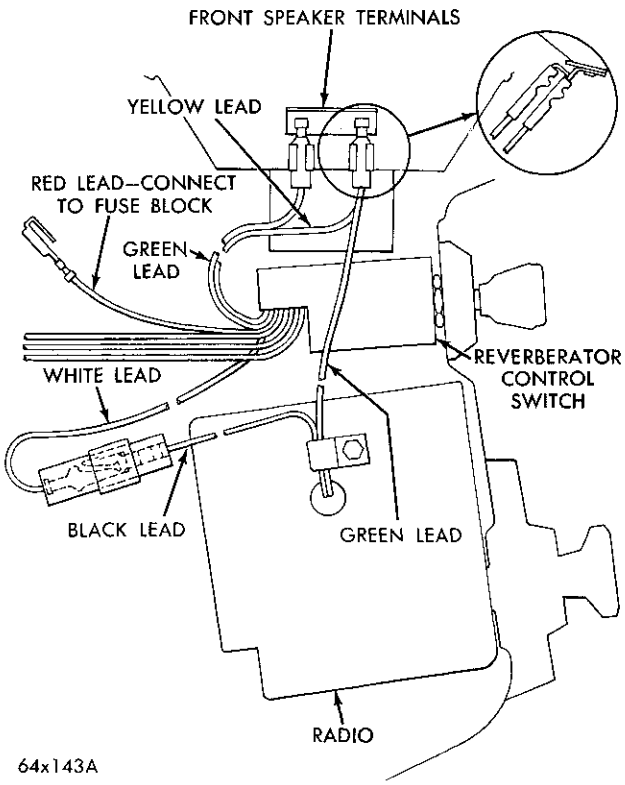


Fig. 10—Reverberator Installation

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. 11):

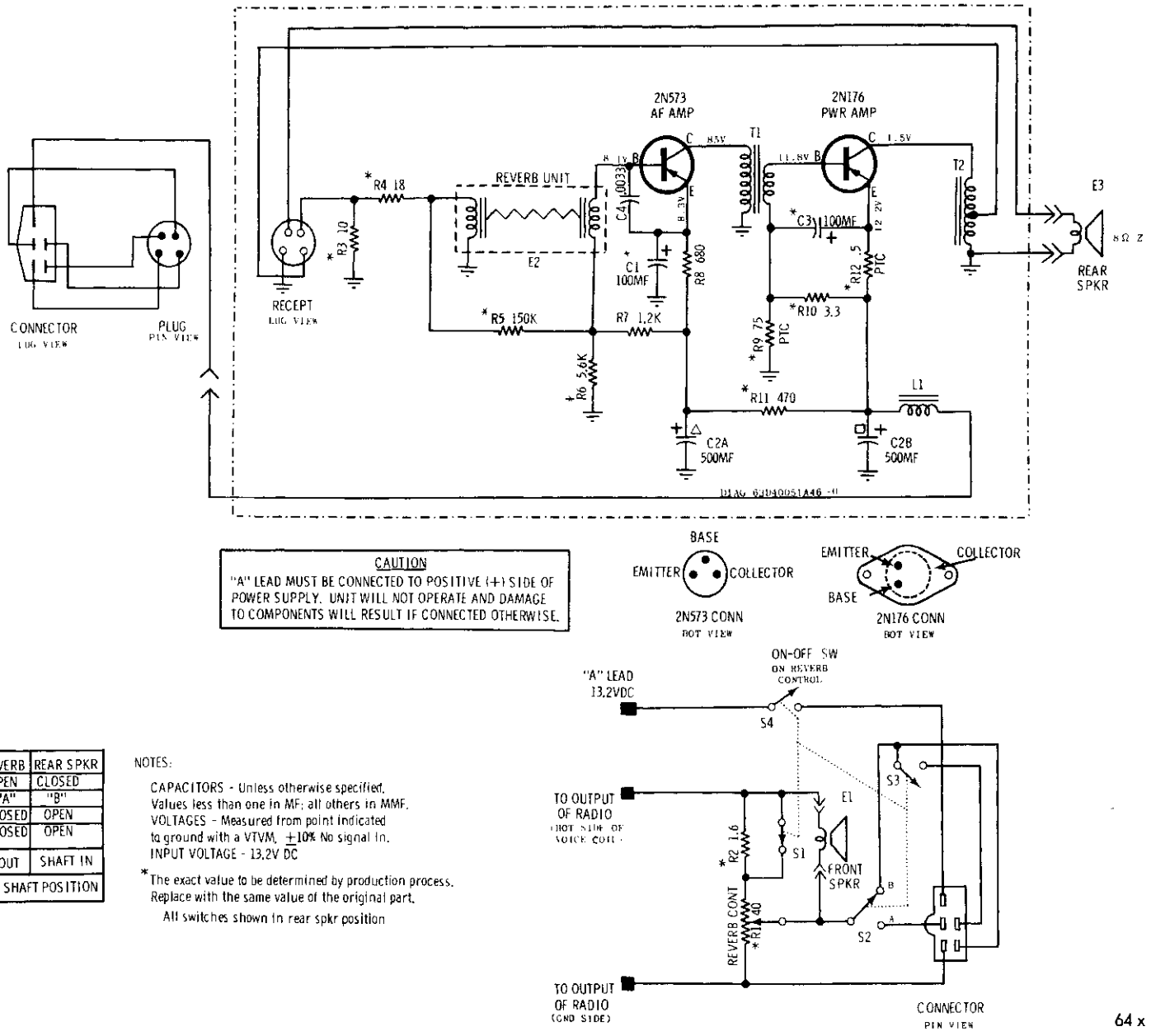
(1) **Delay Line.** This item cannot be repaired, it must be serviced as an assembly.

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

WINDSHIELD WASHERS—MODELS AC-1, AC-2, AC-3, AY-1

Description

The windshield washers are operated by an electric motor driven pump to which fluid is gravity fed from a plastic reservoir (Fig. 1). The motor is operated by depressing the windshield wiper knob or a button located under the instrument panel. The pump assembly is located under the hood below the plastic reservoir. The unit has a permanent magnet type motor coupled to a gear pump that supplies fluid through rubber hoses to dual nozzle jets mounted in or on the fresh air intake grille of the cowl ventilator. The motor is a permanently lubricated, sealed unit. A circuit breaker mounted inside the pump housing protects the motor in the event of a frozen pump. The circuit breaker is a serviceable item. The pump and motor are serviced as an assembly only.



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. 11—Reverberator Wiring Diagram

SERVICE PROCEDURES

NOZZLE ADJUSTMENT—MODELS AC-1, AC-2, AC-3 (Fig. 2)

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

Models AY-1 (Fig. 3)

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

Adjust the nozzles so that the centers of the streams contact the windshield glass.

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.

Pump Circuit Breaker Replacement

(1) Empty the reservoir.

(2) Disconnect the hoses from the pump.

(3) Disconnect the electrical terminal.

(4) Remove the pump assembly from the vehicle.

(5) Lift up the pump cover retaining tabs and remove the cover.

(6) Unsolder the circuit breaker lead from the motor terminal.

(7) Remove the circuit breaker and terminal from the pump and motor bracket.

(8) Install the new circuit breaker and terminal in the slot in the bracket. Press the insulator firmly in place.

(9) Solder the bare end of the circuit breaker lead to the motor terminal using rosin core solder.

(10) Install the pump cover. Carefully bend the retaining tabs in place.

(11) Install the pump.

(12) Connect the hoses to the pump.

(13) Connect the electrical terminal.

(14) Fill the reservoir and test the operation of the washer system.

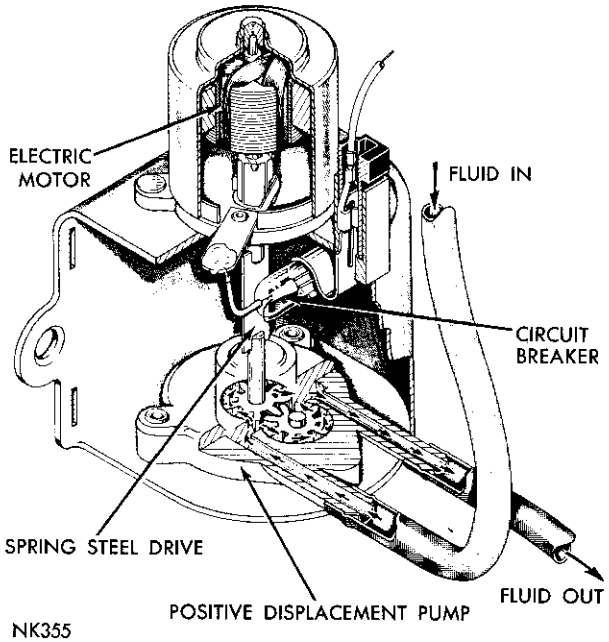


Fig. 1—Washer Motor and Pump Assembly

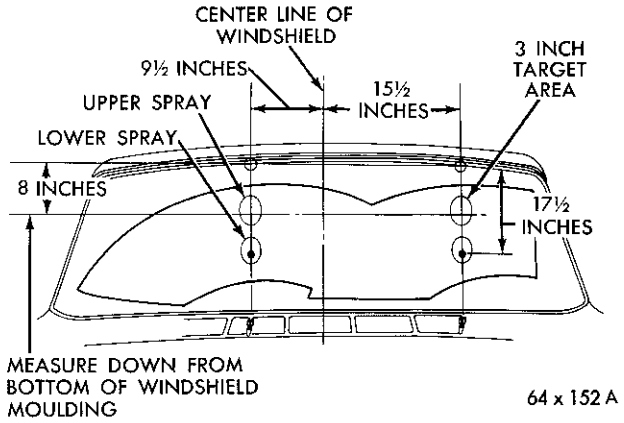


Fig. 2—Washer Aiming Requirements—A-1, AC-2 and AC-3 Models

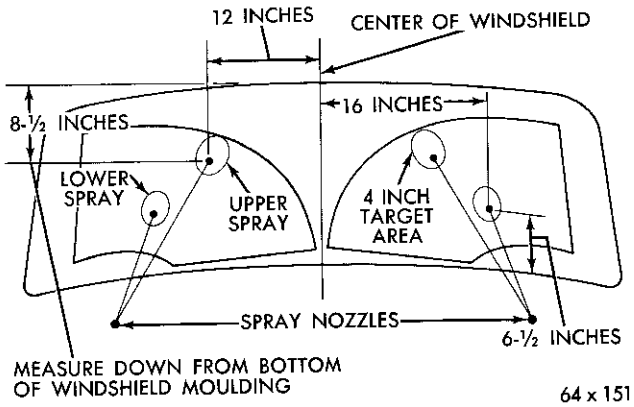


Fig. 3—Washer Aiming Requirements—AY-1 Models