

GROUP 15

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PART 15-1 GENERAL LIGHTING SYSTEM, HORNS, AND INSTRUMENTS SERVICE

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1 DIAGNOSIS AND TESTING

LIGHT TROUBLE DIAGNOSIS GUIDE

ALL HEADLIGHTS DO NOT LIGHT	<ol style="list-style-type: none"> 1. Loose battery cable. 2. Loose quick disconnect or broken wire from the battery to the headlight switch. 3. Defective headlight switch. 4. Disconnected or broken wire from the headlight switch to the beam selector switch. 	<ol style="list-style-type: none"> 5. Loose or broken wire to the bulbs. 6. Defective beam selector switch. 7. All headlight bulbs burned out. This may be caused by a defective or improperly adjusted alternator voltage regulator (Group 13).
INDIVIDUAL LIGHTS DO NOT LIGHT	<ol style="list-style-type: none"> 1. Burned out bulb. 2. Loose or broken wires to the 	<ol style="list-style-type: none"> bulb. 3. Poor ground.
LIGHTS BURN OUT REPEATEDLY	<ol style="list-style-type: none"> 1. Loose or corroded electrical connections. 2. Excessive vibration. 	<ol style="list-style-type: none"> 3. Improperly adjusted or defective alternator voltage regulator (Group 13).

INSTRUMENT TROUBLE DIAGNOSIS GUIDE

FUEL GAUGE ERRATIC OR INOPERATIVE	<ol style="list-style-type: none"> 1. Loose or broken wire from the constant voltage regulator to the fuel gauge. 2. Defective fuel gauge (Part 15-4). 3. Loose, broken, or shorted wire from fuel gauge to the fuel tank sending unit. 	<ol style="list-style-type: none"> 4. Defective constant voltage regulator (Part 15-4). 5. Defective fuel tank sending unit. 6. Defective radio suppression choke. 7. Poor ground between fuel tank and body.
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INSTRUMENT TROUBLE DIAGNOSIS GUIDE (Continued)

TEMPERATURE GAUGE ERRATIC OR INOPERATIVE	<ol style="list-style-type: none"> 1. Loose or broken wire from the constant voltage regulator to the temperature gauge. 2. Defective temperature gauge (Part 15-4). 3. Loose or broken wire from the temperature sending unit to the temperature gauge. 	<ol style="list-style-type: none"> 4. Defective temperature sending unit. 5. Defective constant voltage regulator (Part 15-4). 6. Defective radio suppression choke.
FUEL, TEMPERATURE AND OIL PRESSURE GAUGES ERRATIC	<ol style="list-style-type: none"> 1. Loose or corroded constant voltage regulator ground. 2. Defective constant voltage regulator (Part 15-4). 3. Broken or loose wire from or 	<ol style="list-style-type: none"> 4. Defective ignition switch. 5. Defective radio suppression choke.
OIL PRESSURE INDICATOR GAUGE INOPERATIVE	<ol style="list-style-type: none"> 1. Loose or broken wire from the constant voltage regulator to the oil pressure gauge. 2. Grounded or broken wire from the engine oil pressure sending unit. 3. Defective oil pressure gauge. 	<ol style="list-style-type: none"> 4. Defective oil pressure sending unit (Part 15-4). 5. Defective radio suspension choke.
CHARGE INDICATOR GAUGE INOPERATIVE	<ol style="list-style-type: none"> 1. Defective charge indicator gauge (Part 15-4). 2. Loose or broken wires. 	<ol style="list-style-type: none"> 3. Alternator system malfunction (Group 13).

HORN TROUBLE DIAGNOSIS GUIDE

HORNS DO NOT SOUND	<ol style="list-style-type: none"> 1. Loose connections at horn button contact. 2. Open wire (blue-yellow stripe) from horn to horn button. 	<ol style="list-style-type: none"> 3. Open wire (yellow) from battery to horn button. 4. Horns defective or out of adjustment.
ONE HORN FAILS TO OPERATE	<ol style="list-style-type: none"> 1. Broken or loose wire to the horn. 	<ol style="list-style-type: none"> 2. Horn defective or out of adjustment.
HORNS OPERATE CONTINUOUSLY	<ol style="list-style-type: none"> 1. Horn button defective. 	

TURN INDICATOR TROUBLE DIAGNOSIS GUIDE

TURN INDICATOR LIGHTS INOPERATIVE	<ol style="list-style-type: none"> 1. Burned out bulbs or loose sockets. 2. Burned out fuse. 3. Loose or broken wire from ignition switch to flasher. 4. Defective flasher. 	<ol style="list-style-type: none"> 5. Loose or broken wire from flasher to turn indicator switch. 6. Defective turn indicator switch. 7. Broken, shorted, or loose wires from switch to lights.
TURN INDICATOR LIGHTS OPERATE INCORRECTLY	<ol style="list-style-type: none"> 1. Loose, broken, or shorted wires from switch to light. 2. Defective indicator switch. 	<ol style="list-style-type: none"> 3. Defective flasher. 4. Burned out bulb.
TURN INDICATOR CANCELS IMPROPERLY	<ol style="list-style-type: none"> 1. Cam improperly positioned on steering wheel hub. 	<ol style="list-style-type: none"> 2. Coil spring on switch plate assembly loose or weak.

WINDSHIELD WIPER TROUBLE DIAGNOSIS GUIDE

WINDSHIELD WIPER INOPERATIVE	<ol style="list-style-type: none"> 1. Control cable not properly adjusted. 2. Control cable broken. 	<ol style="list-style-type: none"> 3. Wiper binding. 4. Defective wiper motor. 5. Low fluid pressure.
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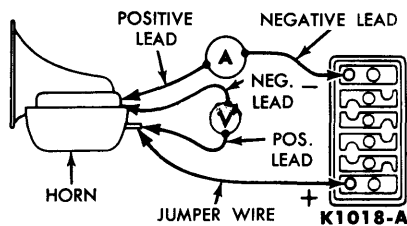


FIG. 1—Horn Current Draw Test

TESTING

Refer to Wiring Diagram Manual Form 7795P-65 for schematics and locations of wiring harnesses.

HORN TEST

The only test necessary on the horns is for current draw.

Current Draw Test. Connect a voltmeter and ammeter to the horn and to a voltage supply as shown in Fig. 1. The normal current draw for the horns at 12 volts is 4.0-5.0 amperes.

HEADLIGHT AND BEAM SELECTOR SWITCH TESTS

The following tests may be made to determine whether a headlight switch or a beam selector switch is defective:

Set the headlight switch at the headlight position and operate the beam selector switch. If none of the headlights turn on when the beam selector switch is operated, yet the instrument panel lights operate, the headlight switch or the red-yellow stripe wire from the headlight switch to the beam selector switch is probably defective. Substitute a known good switch for the suspected switch to determine whether the switch or the wiring is at fault.

If the headlights operate only with the beam selector switch in one position, the switch or the wiring from the switch to the headlight is defective. Substitute a known good switch for the suspected switch to determine whether the switch or the wiring is at fault.

CONSTANT VOLTAGE REGULATOR TEST

Turn the ignition switch ON. Check for voltage at the gauge feed wire (black with green stripe) at one of the gauges. The voltage should oscillate between zero and about 10 volts. If it does not, the constant voltage regulator is defective, the radio suppression choke is defective,

or there is a short to ground between the voltage regulator and the gauges.

If a gauge unit is inaccurate or does not indicate, replace it with a new unit. If the gauge unit still is erratic in its operation, the sending unit or wiring to the sending unit is faulty.

If the fuel gauge, the temperature gauge, and the oil pressure gauge indicate improperly and in the same direction, the constant voltage regulator could be defective as it supplies the three gauges.

FUEL GAUGE AND FUEL LEVEL SENDING UNIT TEST

Disconnect the wire from the fuel level sending unit and connect it to a known good sending unit. Connect a jumper wire from the sending unit mounting plate to the car frame. Raise the float arm to the upper stop; the instrument panel gauge should read full. Lower the float arm to the bottom stop, the gauge should read empty.

If the gauge now reads properly, the sending unit in the gas tank is defective.

If the gauge unit still indicates improperly or is erratic in its operation, the gauge unit or the wiring to the gauge unit is faulty. Repair the wire or replace the gauge unit.

LOW FUEL WARNING SYSTEM TEST

The warning light circuit is tested each time the ignition switch is turned to the START position. When the ignition switch is turned from ON to START, the warning light is illuminated. This proves that both the circuit and the light are functioning properly.

In the event of system failure, make the following tests:

1. Check to see that the bulb lights with the ignition switch in the START position.

2. Check for loose connections.

3. Turn the ignition switch to the ACC or ON position. Disconnect the wiring from the fuel level sender assembly and ground the relay to thermistor lead (green-black stripe). If the warning light lights, replace the sender assembly. If the warning light does not light, replace the relay. Fig. 2, Part 15-4, shows the location of the thermistor terminal with the fuel level sender mounted in the tank.

TEMPERATURE GAUGE TEST

Start the engine and allow it to run until it has reached normal operating temperature. Place a thermometer in the coolant at the radiator filler cap. The temperature should read close to the temperature range of the coolant thermostat that is being used. The gauge in the instrument panel should indicate within the normal band.

If the gauge does not indicate, momentarily short the temperature sender unit terminal wire to ground (ignition switch on). If the gauge now indicates, the sender unit is defective or it was not properly sealed to the engine. **Be sure to use the electrically conductive sealer C3AZ-19554-B.** If the gauge does not indicate, the gauge, the wires leading to the gauge or the constant voltage regulator are at fault. **Do not leave the sender wire grounded longer than necessary to make the test, as the gauge may be damaged.**

OIL PRESSURE INDICATOR GAUGE TEST

Remove the oil pressure sender unit and temporarily attach an oil pressure gauge in its place. Operate the engine to determine the oil pressure. If the oil pressure is normal, the gauge should indicate within the normal band.

If the gauge did not indicate, momentarily short the oil pressure sender wire to ground. If the gauge now indicates the sender unit is defective or it was not properly sealed to the engine. **Be sure to use electrically conductive sealer C3AZ-19554-B.** If the gauge does not indicate, the gauge, the wires leading to the gauge or the constant voltage regulator are at fault. **Do not leave the sender wire grounded longer than necessary to make the test, as the gauge may be damaged.**

AMMETER TEST

To test the ammeter, turn the headlights on with the engine stopped. The meter pointer should move toward the "D" or discharge scale. If no movement of the needle is observed, check the loop on the rear of the meter housing to see if the battery to circuit breaker wire passes inside the loop. If the wire is in the loop, and the meter does not indicate a discharge, the meter is inoperative. **If the meter pointer moves toward the "C" or charge**

scale when the headlights are turned on, the wire passes through the loop in the wrong direction or the battery is reversed. Feed the wire through in the opposite direction to correct this condition after checking first to make sure that the battery is not reversed.

SPEEDOMETER TESTS

To test the odometer accuracy, drive the car over a measured mile. Speedometer accuracy can be checked by comparing the speedometer in question against one known to be accurate, while two cars are moving at the same speed, or by timing the

car on a measured mile.

Most cases of speedometer inaccuracy are due to a change to non-standard tire sizes without changing the speedometer drive gear ratio. Refer to the Ford Car Master Parts Catalog for the proper gears to use for various rear axle-tire size combinations.

2 COMMON ADJUSTMENTS AND REPAIRS

WINDSHIELD WIPER ADJUSTMENT

The only adjustment required on the hydraulic motor is the control cable adjustment.

1. Remove the wiper arm and blade assemblies.
2. Remove the bezels and nuts from the wiper pivot shafts.
3. Remove the 14 screws retain-

ing the cowl top panel and remove the panel.

4. Adjust the control cable with the adjustment screw so that the control lever on the instrument panel moves the valve control lever on the motor from OFF to full ON.

5. Position the cowl top panel and install the 14 retaining screws.

6. Install the nuts and bezels on the wiper pivot shafts.

7. Position and install the wiper arm and blade assemblies.

HORN ADJUSTMENT

Current is adjusted by changing the contact tension. Connect the horn as shown in Fig. 1. Turn the self-locking adjusting nut until the current is within the limits for the horn being adjusted.

PART 15-2

LIGHTING SYSTEM AND HORNS

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2 In-Car Adjustments and Repairs.....	15-5		

1 DESCRIPTION AND OPERATION

Refer to Wiring Diagram Manual Form 7795P-65 for schematics and locations of wiring harnesses.

HEADLIGHTS

Four sealed-beam headlights are used. The two outboard lights have two filaments each for low beam and high beam, and are marked by a numeral "2" molded in the glass lens. Locating tabs molded in the glass allow the mounting of the No. 2 lights in the outboard headlight support frames only. The low beams are

used for city driving, when meeting oncoming traffic on the highway, and for No. 2 headlight alignment.

The inboard headlights with a numeral "1" molded in the glass lens have only one filament and are used for highway driving along with the high beams of the No. 2 headlights. Locating tabs molded in the glass allow the mounting of the No. 1 lights in the inboard headlight support frames only. A conventional beam selector switch is located on the floor board near the left.

Quick disconnect terminals are provided at the left and right of the radiator support assembly. The terminals are color coded. Like colored terminals are connected together.

HORNS

The Thunderbird is equipped with a pair of tuned horns. The horn button switch closes the circuit to the horns without the use of a relay. One of the horns has a high-pitched tone; the other has a low-pitched tone.

2 IN-CAR ADJUSTMENTS AND REPAIRS

HEADLIGHT ALIGNMENT

All headlight adjustments should be made with a half-full fuel tank, plus or minus one gallon, with a person seated in the driver's seat, the car unloaded and the trunk empty except for the spare tire and the jacking equipment, and the recommended pressure in all tires. Before each adjustment, bounce the car by pushing on the center of both the front and rear bumpers to level the car.

To align the No. 1 headlights (inboard lights) by means of a wall screen, select a level portion of the shop floor. Lay out the floor and wall as shown in Fig. 1.

Establish the headlight horizontal centerline by subtracting 20 inches from the actual measured height of the headlight lens center from the floor and adding this dimension (dimension "B", upper diagram Fig. 2) to the 20-inch reference line obtained by sighting over the uprights. Draw a horizontal line two inches below, and parallel to the headlight horizontal centerline. Then draw the headlight vertical centerlines on the screen as measured on the car (dimension "A," upper diagram Fig. 2).

NO. 1 HEADLIGHT ADJUSTMENT (INNER LIGHTS)

Adjust each No. 1 headlight (inner light) beam as shown in Fig. 2. Cover the No. 2 lights when making this adjustment.

NO. 2 HEADLIGHT ADJUSTMENT (OUTER LIGHTS)

To align the No. 2 headlights (outer lights), a different wall chart (lower diagram Fig. 2) is used. Di-

mention "B" for the No. 2 lights is the same as "B" for the No. 1 lights; dimension "A" is as measured on the car. Note that the line of adjustment of the No. 2 lights is the horizontal centerline of the No. 2 lights. Turn the headlights to low beam and adjust each No. 2 light as shown in Fig. 2.

Each headlight is adjusted by means of two screws located under the headlight trim ring, as shown in

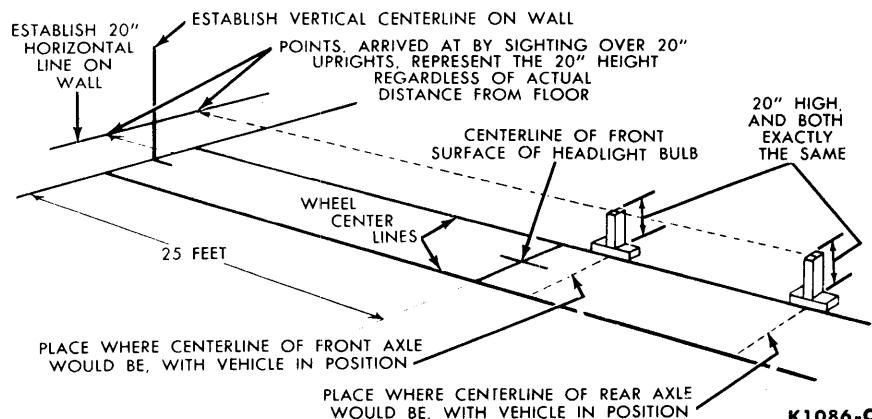


FIG. 1—Floor and Wall Layout

Fig. 3. Always bring each beam into final position by turning the adjusting screws clockwise, so that the headlights will be held against the tension

springs when the operation is completed.

Some states may not approve of the 2-inch dimension for the

No. 1 headlights. Check the applicable state law, as a 3-inch dimension may be required.

3 REMOVAL AND INSTALLATION

HEADLIGHTS

1. Remove the retaining screws and headlight trim ring.
2. Loosen the retaining ring screws (Fig. 3), rotate the retaining ring counterclockwise, and remove it.
3. The headlight bulb may now be pulled forward far enough to disconnect the wiring assembly plug.
4. Plug in the new bulb and place it in position, making sure that the locating tabs are placed in the positioning slots.
5. Install the headlight bulb retaining ring, rotating it clockwise under the screws, and tighten the screws.
6. Place the trim ring into position and install the retaining screws.

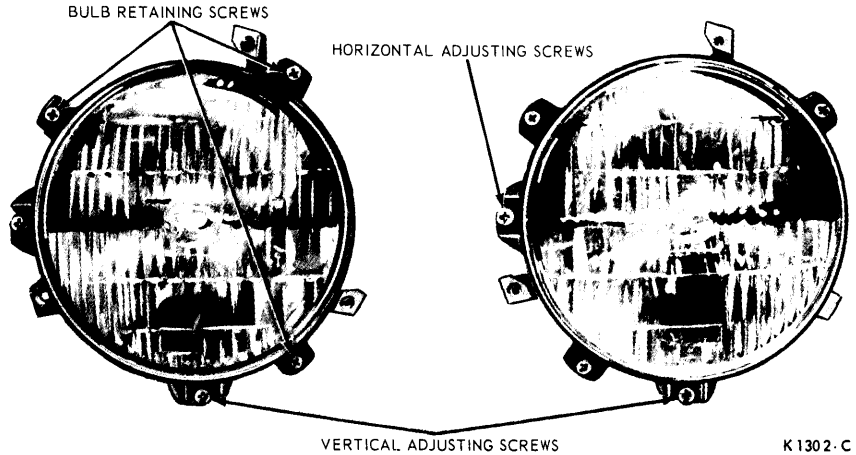


FIG. 3—Headlight Adjustment

PARKING LIGHT

To replace the bulb in the parking light, remove the retaining screws, lens, and bulb (Fig. 4). After the bulb is replaced, install the lens and retaining screws.

TAIL AND STOP LIGHT, BACK-UP LIGHT, AND LICENSE PLATE LIGHTS

The tail, stop light and back-up light are shown in Fig. 5. To replace

the bulbs, remove the retaining screws, and lens.

To remove the license plate light, remove the bezel retaining screw, bezel, and lens. Remove the bulb.

ASH TRAY LIGHT

The bulb and socket assembly is mounted on the forward face of the glove box. Remove the ash tray to replace the bulb.

GLOVE BOX LIGHT

The bulb and socket assembly is located in the forward end of the glove box. The assembly is held in place by a spring retainer clip. To replace the bulb, compress the clip and remove the bulb and socket assembly from the opening.

COURTESY LIGHTS

Courtesy lights are located on the lower trim panel of both the right

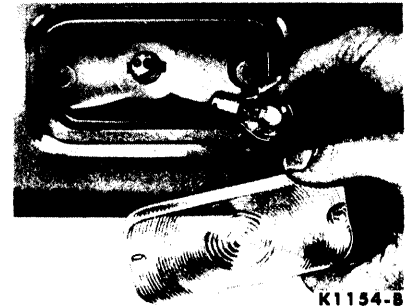


FIG. 4—Parking Light

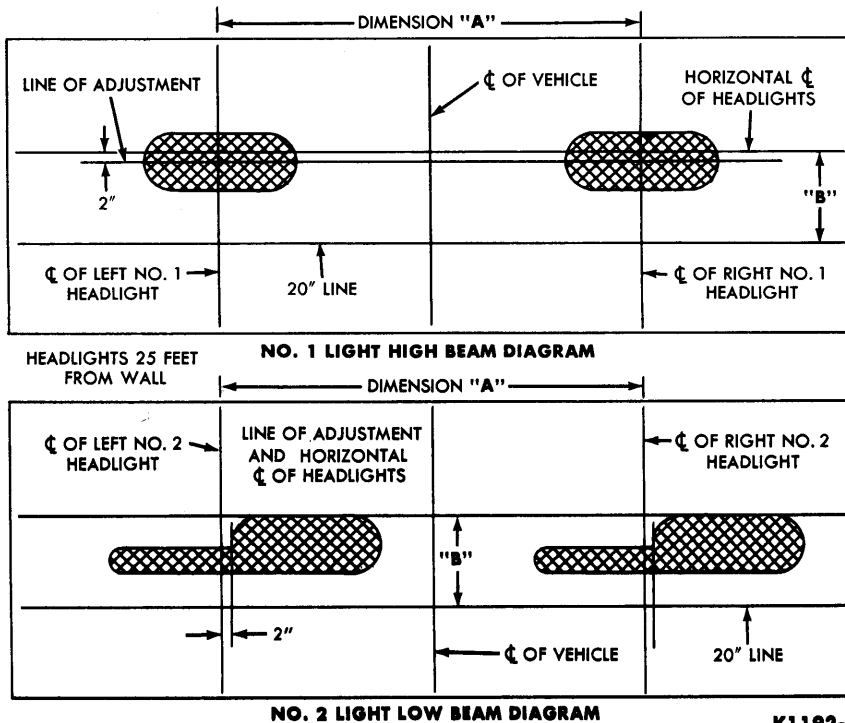


FIG. 2—Headlight Wall Screens



FIG. 5—Tail and Stop Light

and left door of convertible models, and on the right and left roof quarter trim panel of hardtop models. To replace the bulbs, remove the bezel from the trim panel. Pry the bezel and lamp assembly from the roof quarter trim panel on the hardtop models.

INSTRUMENT LIGHTS

OIL, FUEL, TEMPERATURE AND CHARGE INDICATOR GAUGE LIGHTS

To remove the light bulb remove the retaining screw and the indicator cover. Then remove the light bulb.

MAP LIGHT

To remove the light bulb remove the two retaining screws and the lens, then remove the bulb.

HEADLIGHT SWITCH LIGHT

To remove the light bulb remove two screws and one nut and remove the bracket under the left end of the instrument panel that connects the movable steering column to the instrument panel. Remove the socket from the light housing, then remove the bulb.

CLOCK LIGHT

1. Remove the retaining screws and remove the wiper, the washer, the left air, and the right air control knobs.

2. Remove the screws retaining the clock housing to the upper instrument panel and lower the housing.

3. Remove the socket from the clock, then remove the bulb.

IGNITION SWITCH LIGHT

1. Remove the two retaining screws and remove the left console trim moulding.

2. Remove the four retaining screws and remove the carpet retainer.

3. Remove the seven retaining screws and remove the console side panel.

4. Remove the socket, then remove the bulb.

SEAT BELT WARNING LIGHT

1. Remove the radio knobs, the two nuts, and the radio bezel.

2. Remove the heater control knobs.

3. Remove the retaining screws and raise the center finish panel.

4. Remove the socket, then remove the bulb.

HEATER CONTROL LIGHT

1. Remove the radio knobs, the two nuts, and the radio bezel.

2. Remove the heater control knobs.

3. Remove the retaining screws and raise the center finish panel.

4. Remove the socket, then remove the bulb.

HIGH BEAM INDICATOR LIGHT

Removal

1. Remove the battery ground cable.

2. Remove the radio knobs, the two nuts, and the radio bezel.

3. Remove the headlight switch control knob and the bezel nut.

4. Remove the retaining screws and the center instrument finish panel, and moulding.

5. Remove three retaining screws and push the headlight switch toward the front of the car.

6. Remove the five retaining screws from the left lower instrument panel moulding.

7. Cover the steering column and instrument panel where necessary.

8. Remove the four retaining screws and remove the covers from the indicating gauges.

9. Remove the retaining screws and remove the knobs from the wiper, the washer, the left air and the right air control levers.

10. Remove the retaining screws and position the clock housing back from the instrument panel.

11. Disconnect the wires and remove the clock housing.

12. Remove the retaining screws from the upper console moulding, and from under the instrument panel.

13. Through the indicator gauge openings remove the screws retaining the lower instrument panel to the upper instrument panel, and remove the lower instrument panel.

14. Pull out the high beam indicator socket and remove the light bulb.

Installation

1. Install the light bulb in the socket and install the socket in the upper instrument panel.

2. Position the lower instrument panel to the upper instrument panel and install the retaining screws through the indicator gauge openings.

3. Position the indicator gauge covers and install the retaining screws.

4. Check the operation of all of the indicator gauges and the instrument panel lights.

5. Install the retaining screws to the console moulding and the lower instrument panel.

6. Position the headlight switch to the instrument panel and install the retaining screws.

7. Install the instrument panel moulding and finish panel, and install the retaining screws.

8. Install the light switch control knob and bezel nut.

9. Install the radio bezel, the retaining nuts, and the knobs.

10. Position the clock housing, connect the wires, install the clock housing and the retaining screws.

11. Install the wiper, the washer, the left air, and the right air con-

trol knobs, and install the retaining screws.

12. Remove the covers from the steering column and the instrument panel.

13. Install the battery ground cable.

TURN SIGNAL INDICATOR LIGHTS

The indicator lights are located on the right and left front fenders. To replace the bulb, unscrew the special

nut holding the lens and light socket in place. Remove the lens and turn the bulb counterclockwise to release.

HORNS

The horns are mounted on the left radiator support assembly. Disconnect the horn wire from the terminal. Remove the retaining bolt and lift the horn out from below the support.

To install, position the horn from the bottom and install the retaining bolt. Connect the horn wire.

HORN BUTTONS

1. Disconnect the battery ground cable.

2. Remove the center steering wheel medallion assembly.

3. Remove the three retaining screws from the center of the steering wheel and remove the horn buttons.

4. Position the new horn buttons and install the three retaining screws.

5. Install the steering wheel medallion assembly.

6. Connect the battery ground cable.

PART 15-3

SWITCHES, CIRCUIT BREAKERS AND FUSES

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1 DESCRIPTION AND OPERATION

Refer to Wiring Diagram Manual Form 7795P-65 for schematics and locations of wiring harnesses.

HEADLIGHT SWITCH

A combination headlight switch and two circuit breakers is used (Fig. 1). The headlight circuit is protected by an 18 ampere circuit breaker. The tail, parking and license plate light circuits are protected by a 15 ampere circuit breaker.

FUSES

The fuse panel is mounted on the right cowl panel under the right end of the instrument panel. The fuses and circuit breakers on the panel are illustrated in Fig. 2.

DOMELIGHT SWITCH

The dome light switch is part of the headlight switch. It is actuated by rotating the switch control knob to the maximum counterclockwise position.

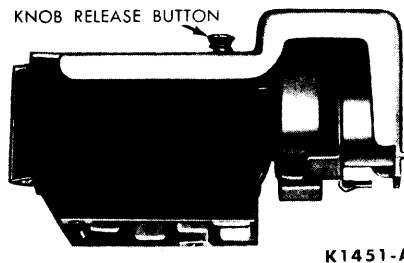


FIG. 1—Headlight Switch

MECHANICAL STOP LIGHT SWITCH

The mechanical stop light switch differs from the hydraulic switch formerly used. The switch assembly is installed on the pin of the brake pedal arm so that it straddles the master cylinder push rod. The switch assembly is a slip fit on the pedal arm pin and thus the switch assembly moves with the pedal arm whenever the brake pedal is depressed.

The brake pedal arm pin has a designed-in clearance with the eye of the master cylinder push rod (Fig. 3). Because of this clear-

ance, whenever the brake pedal is pushed forward, the stop light switch contacts, moving with the pedal arm, are actually pushed against the end of the master cylinder push rod, through the switch actuating pin. It is this movement of the switch with respect to the actuating pin and master cylinder push rod that closes the switch contacts completing the circuit to the stop lights.

When the brake pedal is released, the spring in the stop light switch returns the actuating pin to its normal position and the circuit to the stop lights opens.

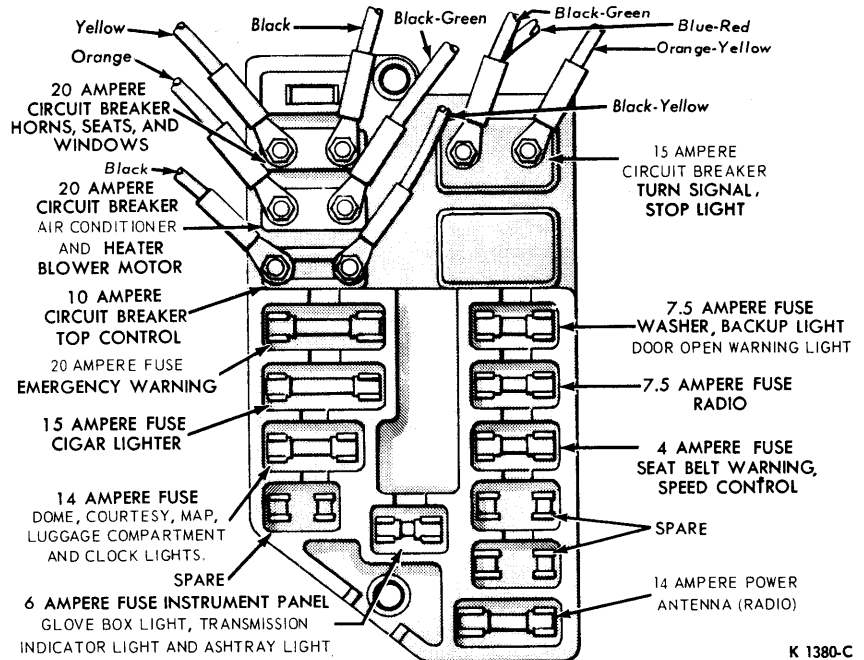


FIG. 2—Fuse Panel

2 REMOVAL AND INSTALLATION

SWITCHES

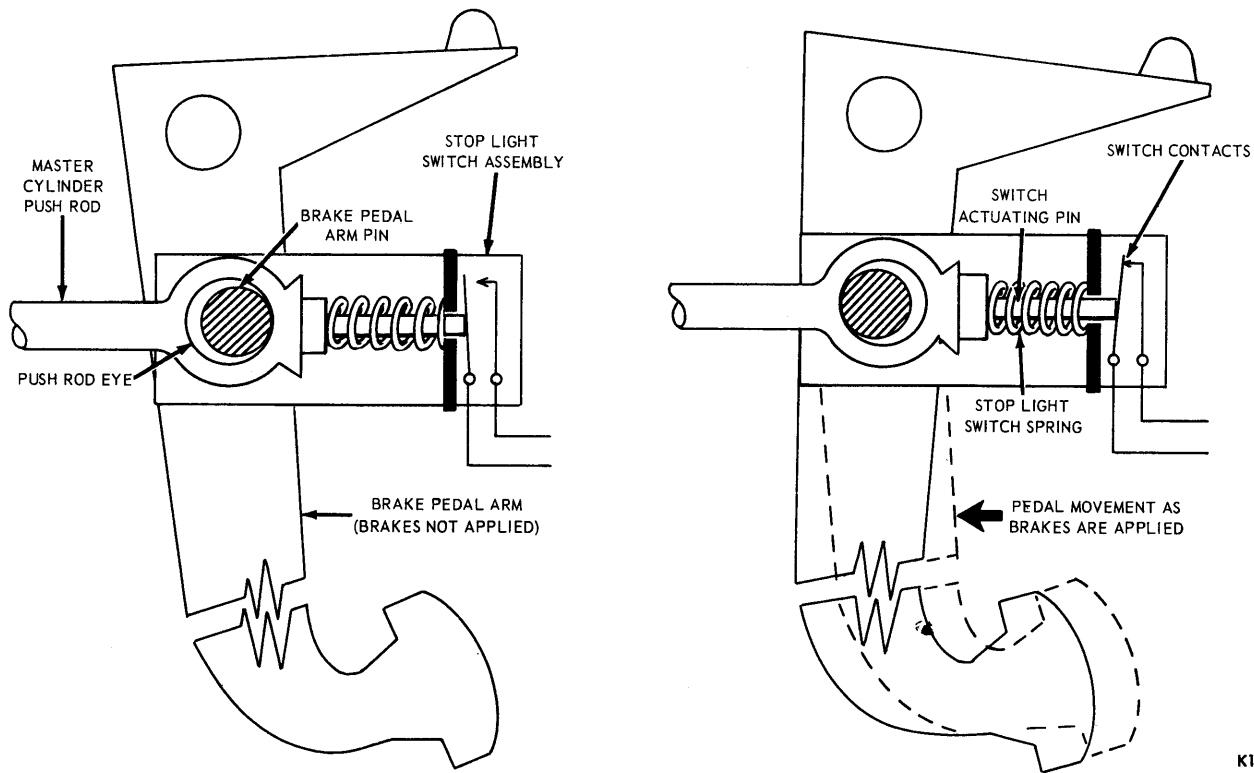
Before removing any switch, disconnect the battery ground cable from the battery.

HEADLIGHT SWITCH

1. Remove the control knob and shaft by pressing the knob release button on the switch housing (Fig.

1) with the knob in the full ON position. Pull the knob and shaft out of the switch.

2. Remove the switch bezel and



K1582-A

FIG. 3—Mechanical Stoplight Switch Operation

the retaining nut. Remove the switch from the instrument panel.

3. Disconnect the electrical connection from the switch and remove the switch.

4. To install the switch, connect the electrical connector to the switch. Position the switch in the instrument panel and install the retaining nut. Install the switch bezel.

5. Install the knob and shaft assembly by inserting it all the way into the switch until a distinct click is heard. In some instances, it may be necessary to rotate the shaft slightly until it engages.

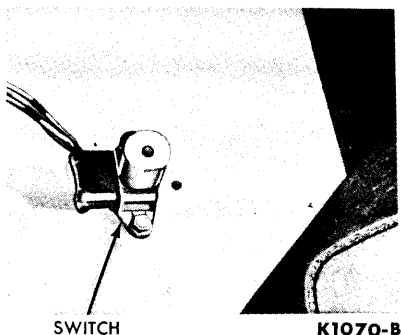


FIG. 4—Headlight Beam Selector Switch

HEADLIGHT BEAM SELECTOR SWITCH

Lay the floor mat back from the area of the switch and remove the mounting screws (Fig. 4). Disconnect the wire terminal block from the switch.

To install the switch, connect the terminal block to the switch and install the switch to the floor. Replace the floor mat.

STOP LIGHT SWITCH

1. Disconnect the wires at the connector.

2. Remove the hairpin retainer, slide the stop light switch, the push rod and the nylon washers and bushing away from the pedal, and remove the switch (Fig. 5).

3. Position the switch, push rod, and bushing and washers on the brake pedal pin, in the order shown in Fig. 5, and install the hairpin retainer.

4. Connect the wires at the connector, and install the wires in the retaining clip (Fig. 5).

IGNITION SWITCH AND LOCK CYLINDER

1. Disconnect the negative cable from the battery.

2. Turn the ignition key to the accessory position. Slightly depress the pin shown in Fig. 6, turn the key counterclockwise, and pull the key and lock cylinder out of the switch assembly. If only the lock cylinder is to be replaced, proceed to step 9.

3. Remove the five retaining screws and remove the lower instrument panel shield.

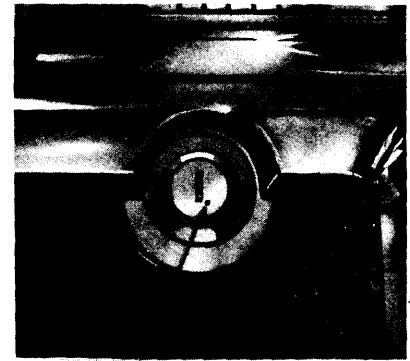
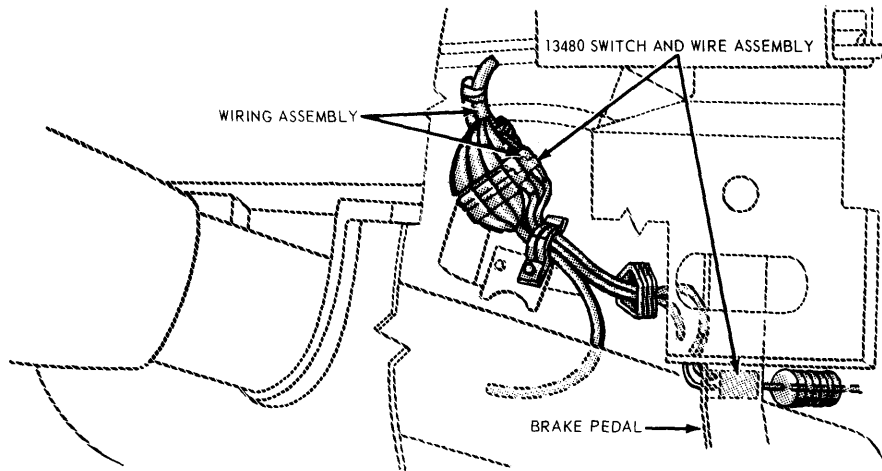
4. Press in on the rear of the switch and rotate the switch $\frac{1}{8}$ turn counterclockwise (as viewed from the terminal end). Remove the bezel and switch.

5. Remove the lock nut and the retaining nut and pull the connector from the switch.

6. If a new ignition switch as well as the lock cylinder is to be installed, insert a screwdriver into the lock opening of the ignition switch and turn the slot in the switch to a full counterclockwise position.

7. Install the connector to the back of the switch and install the retaining nut and lock nut.

8. Position the switch in the instrument panel with the light bulb and retainer. Position the bezel in the instrument panel. Rotate the



RELEASE-PIN HOLE K1072-D

FIG. 6—Ignition Switch and Lock

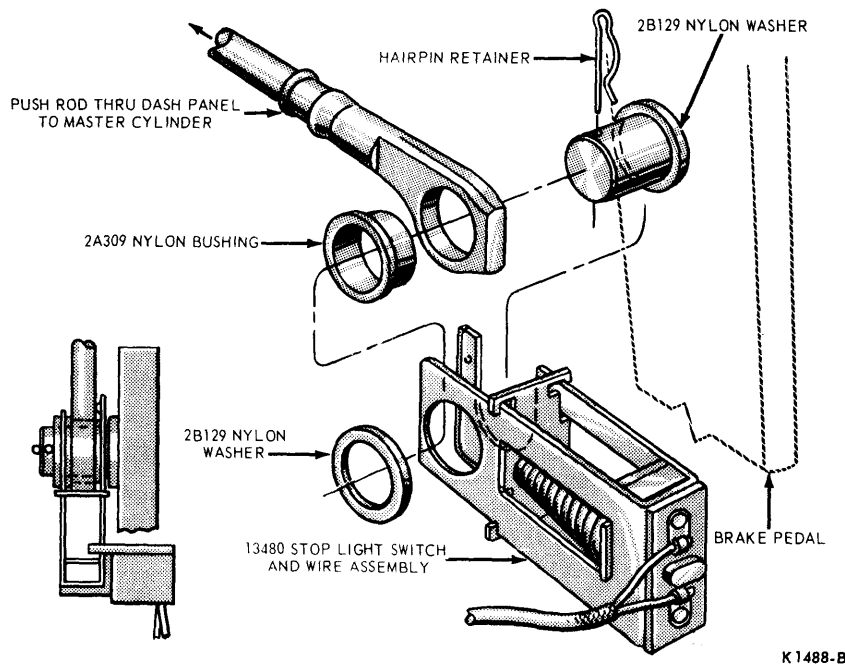


FIG. 5—Mechanical Stop Light Switch Assembly

switch $\frac{1}{8}$ turn to lock it in the bezel.

9. If a new lock cylinder is to be installed, insert the key in the cylinder and turn the key to the accessory position. Place the lock and key in the ignition switch, depress the pin slightly (Fig. 6), and turn the key counterclockwise. Push the lock cylinder into the switch. Turn the key to check the lock cylinder operation.

10. Position the lower instrument panel shield and install the five retaining screws.

11. Connect the battery cable and check the ignition switch operation.

MAP LIGHT SWITCH

Remove the control knobs from the windshield wiper, windshield washer, and the right- and left-hand air vent control levers from below the clock housing. Remove the four screws retaining the clock housing to the instrument panel and lower the clock housing. Disconnect the switch wires. Remove the two switch retaining screws and remove the switch.

PART 15-4 INSTRUMENTS

Section	Page	Section	Page
1 Description and Operation.....	15-12	3 Removal and Installation.....	15-13
2 In-Car Adjustments and Repairs.....	15-13		

1 DESCRIPTION AND OPERATION

All of the instruments are electrically operated except the speedometer. Illumination is provided by lights controlled by a rheostat on the lighting switch.

Refer to Wiring Diagram Manual Form 7795P-65 for schematics and locations of wiring harnesses.

GAUGES

The instrument cluster includes a fuel gauge, oil pressure indicator gauge, temperature gauge, charge indicator gauge, speedometer, and a high-beam indicator light.

CONSTANT VOLTAGE REGULATOR

The constant voltage regulator (Fig. 1) used with the fuel, temperature, and oil gauges maintains an average value of 5.0 volts at the gauge terminals.

The regulator operates by means of a bimetallic arm and a heating coil. When the ignition switch is turned on, the heating coil (Fig. 1) heats the bimetallic arm causing it to bend and break the contacts, disconnecting the voltage supply from

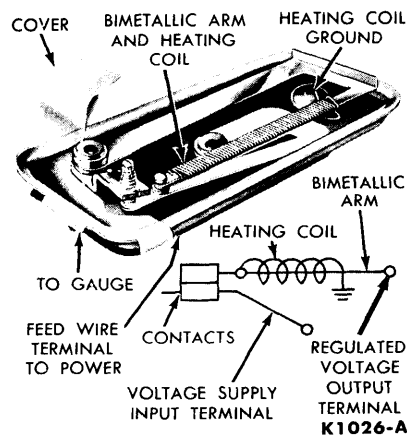


FIG. 1—Constant Voltage Regulator

the heating coil. The bimetallic arm then cools and brings the contacts together again. The making and breaking of the contacts, causes a pulsating voltage, with an effective average value of 5.0 volts to be supplied to the gauges. Although these pulsations are quite rapid, there is in each gauge a bimetallic arm which changes temperature quite slowly, and this assures steady average readings.

As the pulsating voltage would normally cause radio interference, a radio interference suppression choke is connected in series with the constant voltage regulator supply wire.

FUEL GAUGE

The fuel gauge consists of a sending unit, located on the gas tank and a remote register unit mounted in the instrument cluster. The remote register unit pointer is controlled by a bimetallic arm and heating coil. The sending unit is a rheostat that varies its resistance depending on the amount of fuel in the tank. The rheostat is operated by a float control. As the fuel level rises or falls the float control arm moved by the float, varies the resistance.

LOW FUEL LEVEL WARNING SYSTEM

The low fuel level warning system consists of the fuel level sending unit located on the gas tank, the warning relay, and the warning lamp located in the center of the instrument panel. The warning lamp will light up just before the fuel gauge pointer indicates empty and/or when there are approximately three and one-half gallons of fuel in the tank.

A thermistor assembly (Fig. 2), attached to the fuel sender outlet

tube, is kept cool when covered by gasoline. When the fuel level drops low enough to expose the thermistor to air, the thermistor heats up. The thermistor resistance then drops and allows current to flow through a warning signal relay. The relay contacts then close, to light the warning lamp.

TEMPERATURE GAUGE

The temperature gauge consists of a sending unit mounted in the cylinder head, and a remote register unit (temperature gauge) mounted on the instrument panel. Changes of engine temperature vary the resistance of the sending unit, which in turn operates the temperature gauge.

OIL PRESSURE INDICATOR GAUGE

A meter-type oil pressure gauge is used. The gauge consists of a send-

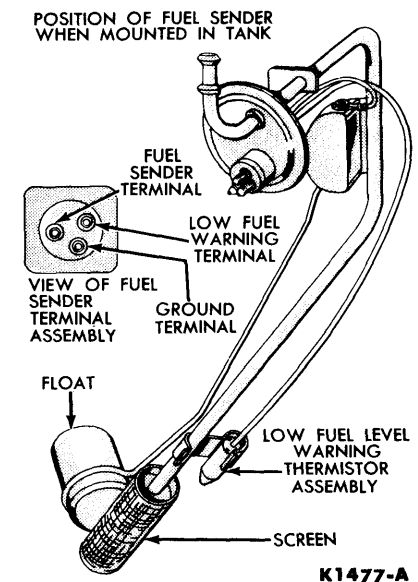


FIG. 2—Fuel Level Warning Sender Assembly

ing unit on the engine and a remote register unit (oil pressure gauge) mounted in the instrument cluster. The sending unit operates by varying resistance according to the actual oil pressure against it, which in turn operates the oil pressure gauge.

SEQUENTIAL TURN SIGNAL INDICATOR

The sequential turn signal indicator system is composed of the following component parts: A turn signal switch which is located in the steering column; a current relay mounted on the brake pedal support to operate the indicator pilot lights; a relay, and a flasher assembly which are located in the luggage compartment behind the rear seat.

The flasher assembly consists of a motor and 4 cams. One cam returns the motor to the start position after the turn signal indicators are canceled. The remaining 3 cams are staggered and each set of contacts is connected to one of the three rear light bulbs.

When the turn signal indicator switch is moved to indicate a right or left turn, the circuit is completed to the flasher motor and to the flasher cam contacts. This starts the motor in operation and the cams begin to rotate. As the cams rotate, the inboard rear light bulb is illuminated first and remains on until the cycle is completed. The center light bulb is then illuminated and it remains on while the outboard rear light bulb is illuminated. All three lights go out at the same time and the cycle is repeated, as long as the turn signal indicator switch is closed to indicate a turn. The front parking light bulb flashes in sequence with the center rear light bulb.

When the turn signal indicator

switch is canceled, the light bulbs go out immediately. The motor cam allows the motor to travel to the park position so that the sequence always starts with the inboard rear light.

The turn signal pilot light, located on each front fender, is controlled by a current relay. The relay is adjusted so that it will open a set of contacts whenever the 4 signal light bulbs are on. The relay remains closed and the pilot light is illuminated until the 4 exterior light bulbs are all on. The relay contacts then open and the pilot light goes out until all 4 exterior lights are off. The relay contacts then close to illuminate the pilot light. If one or more of the exterior light bulbs are not functioning (burned out), the relay contacts will remain closed and the pilot light will remain on.

CHARGE INDICATOR GAUGE

The charge indicator gauge is an ammeter which indicates whether the battery is being charged or discharged. The ammeter is non-adjustable and should be replaced if proved to be defective.

EMERGENCY FLASHER WARNING SYSTEM

The emergency flasher warning system is controlled by a combination switch and flasher assembly. All turn signal lights can be made to flash at the same time by closing the switch of the switch-flasher assembly.

SPEEDOMETER

The speedometer incorporates a long drum. It is painted one-half red and one-half white on the diagonal so that as the drum revolves, a red

line moves horizontally across the dial face indicating the miles per hour being driven.

The speedometer is connected to the output shaft of the transmission by means of a flexible shaft and drive gear located inside the transmission. The flexible shaft drives the speedometer which registers speed in miles per hour. It also drives an odometer which records distance traveled in miles and tenths of a mile.

CLOCK

Adjustment of the clock is automatic. If the clock runs slow or fast, merely reset the clock to the proper time. This action adjusts the clock automatically.

The clock fuse is located on the fuse panel mounted on the right cowl panel.

WINDSHIELD WIPER

The windshield wiper motor is hydraulically operated. The hydraulic power for the motor is obtained from the power steering unit. The hydraulic fluid flows from the pump through the steering gear to the wiper motor, and then to the fluid reservoir. During wiper operation, a part of the fluid is by-passed through the motor by a valve on the motor. The speed of the wiper is controlled by adjusting the valve on the wiper motor with a bowden wire control operated from the upper instrument panel.

WINDSHIELD WASHER

The windshield washer is operated by pulling out the control lever. This action closes a switch attached to the control, which operates the windshield washer pump.

2 IN-CAR ADJUSTMENTS AND REPAIRS

WINDSHIELD WIPER BLADE ADJUSTMENT

Start the engine. Turn the wiper

control on, then off, to bring the wiper pilot shafts to their proper park position. Stop the engine. Install

the wiper blades so that they lie flat against the lower edge of the windshield.

3 REMOVAL AND INSTALLATION

GAUGES

The fuel gauge, oil pressure indicator gauge, and temperature gauge,

can be replaced without removing the instrument cluster assembly. To replace the speedometer, constant

voltage regulator or charge indicator gauge it is necessary to first remove the cluster assembly.

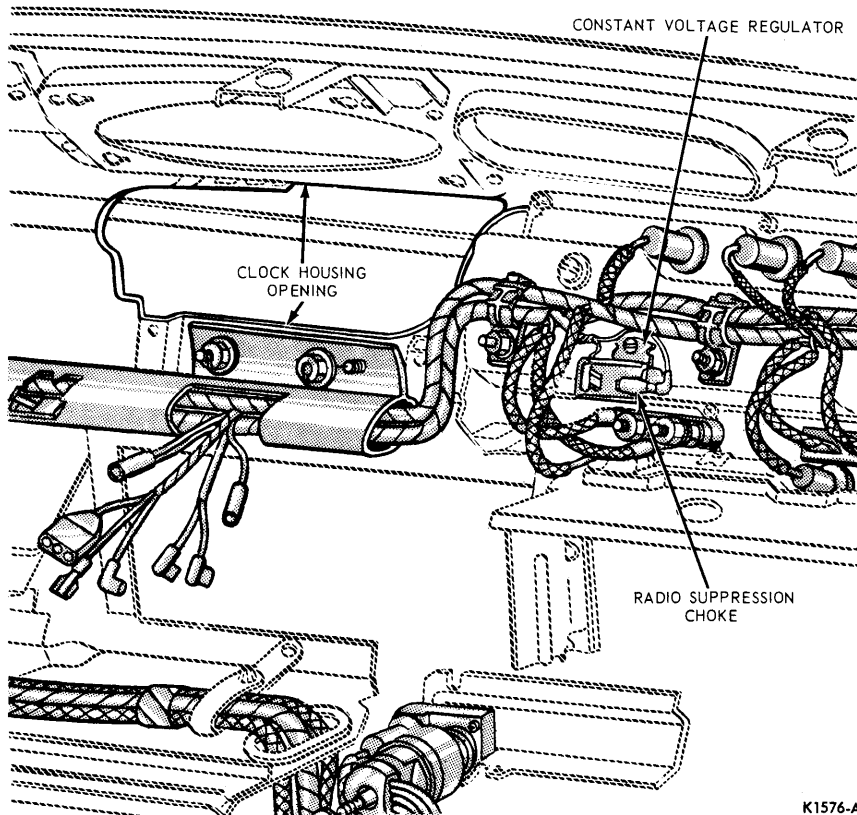


FIG. 3—Constant Voltage Regulator Mounting

CONSTANT VOLTAGE REGULATOR

REMOVAL

1. Disconnect the battery ground cable.
2. Remove the four retaining screws and remove the knobs from the wiper, the washer, the left air, and the right air control levers.
3. Remove the screws retaining the clock housing to the upper instrument panel, and lower the clock housing assembly.
4. Disconnect the wires and remove the clock housing.
5. Reaching left through the clock housing opening, remove the one retaining screw, remove the constant voltage regulator from the right side of the speedometer, and disconnect the two wires (Fig. 3).

INSTALLATION

1. Position the constant voltage regulator and install the one retaining screw and connect the two wires.
2. Connect the wires, position the clock housing and assemble the retaining screws.
3. Position the knobs on the wiper, the washer, the left air, and the

right air control levers, and install the retaining screws.

4. Connect the battery ground cable.

FUEL GAUGE

1. Remove the pod bezel retaining screw and remove the bezel and lens.
2. Remove the two fuel gauge retaining screws.
3. Pull the fuel gauge out of the pod and disconnect the wires.
4. Connect the wires to the fuel gauge.
5. Position the fuel gauge in the pod and install and tighten the retaining screws.
6. Position the lens and bezel and install the bezel retaining screw.

FUEL SENDING UNIT

REMOVAL

1. Raise the car on a hoist.
2. Drain the fuel from the tank.
3. Disconnect the wires from the sending unit.
4. Disconnect the fuel lines from the sending unit.
5. Remove any dirt that has collected around the sending unit so that it will not enter the tank.

6. Remove the sending unit and gasket from the tank.

INSTALLATION

1. Clean the sending unit mounting surface at the fuel tank.
2. Install the sending unit with a new gasket.
3. Connect the wires and the fuel lines.
4. Lower the car.
5. Fill the fuel tank with the fuel removed.
6. Check the operation of the fuel gauge, the low fuel warning light, and check for leaks.

TEMPERATURE GAUGE

1. Remove the pod bezel retaining screw and remove the bezel and lens.
2. Remove the two temperature gauge retaining screws.
3. Pull the temperature gauge out of the pod and disconnect the wires.
4. Connect the wires to the temperature gauge.
5. Position the temperature gauge in the pod and install and tighten the retaining screws.
6. Position the lens and bezel and install the bezel retaining screw.

TEMPERATURE SENDING UNIT

1. Disconnect the temperature sending unit wire from the sending unit.
2. Prepare the new temperature sending unit for installation by applying a small amount of electrically conductive sealer C3AZ-19554-B to the threads.
3. Remove the temperature sending unit from the cylinder head and immediately install the new temperature sending unit.
4. Connect the wire to the temperature sending unit.
5. Start the engine and check the sending unit operation.

OIL PRESSURE INDICATOR GAUGE

1. Remove the pod bezel retaining screw, bezel and lens.
2. Remove the two oil pressure gauge retaining screws.
3. Pull the oil pressure gauge out of the pod and disconnect the wires.
4. Connect the wires to the oil pressure gauge.
5. Position the oil pressure gauge in the pod. Install and tighten the retaining screws.

6. Position the lens and bezel, and install the bezel retaining screw.

OIL PRESSURE SENDING UNIT

1. Disconnect the oil pressure sending unit wire from the unit (Fig. 4).

2. Remove the sending unit.

3. Apply electrically conductive sealer C3AZ-19554-B to the threads of the new sending unit and install the unit.

4. Connect the wire to the sending unit.

5. Check the operation of the unit.

CHARGE INDICATOR GAUGE REMOVAL

1. Disconnect the battery ground cable.

2. Cover the steering column and instrument panel where necessary with tape to prevent paint damage when the instrument cluster is removed.

3. Remove the radio knobs and bezel (Fig. 5).

4. Remove the headlight switch control knob and bezel nut.

5. Remove the instrument finish panel (Fig. 5 two pieces).

6. Remove the headlight switch mounting screws and push the headlight switch toward the front of the car.

7. Remove the console panel finish moulding cap, and remove the five screws retaining the left lower half

of the instrument cluster housing assembly (Fig. 5).

8. Remove the wiper, washer, left air and right air control knobs.

9. Remove the clock housing retaining screws, disconnect all wires, and remove the clock housing.

10. Remove two screws from the instrument panel upper moulding (Fig. 5), and five screws under the cluster. Pull the moulding away from the instrument panel for access to the cluster screws.

11. Remove the four instrument indicator cover retaining screws and remove the covers (Fig. 5).

12. Through the indicator openings, remove the four screws retaining the lower cluster to the upper cluster.

13. Position the lower cluster out from the upper cluster, remove the wire retaining nuts from the charge indicator, remove the wires and retaining block, and remove the bulb socket.

14. Remove the two screws which retain the charge indicator to the cluster, and remove the charge indicator.

INSTALLATION

1. Position the new charge indicator in the cluster and install the two retaining screws.

2. Position the wires and the retaining block to the charge indicator and install the retaining nuts. Install the bulb socket.

3. Position the lower instrument

panel cluster to the upper cluster and through the indicator openings install the four screws retaining the lower cluster to the upper cluster.

4. Check the operation of all indicators and the instrument panel lights.

5. Install the indicator covers.

6. Install the screws retaining the left lower half of the cluster housing to the instrument panel. Install the console panel finish moulding cap.

7. Position the headlight switch in the instrument panel and install the mounting screws.

8. Install the screws retaining the instrument panel upper moulding.

9. Position the instrument finish panel (two pieces), and install the retaining screws.

10. Install the light switch bezel, nut and control knob.

11. Install the radio bezel, retaining nuts and knobs.

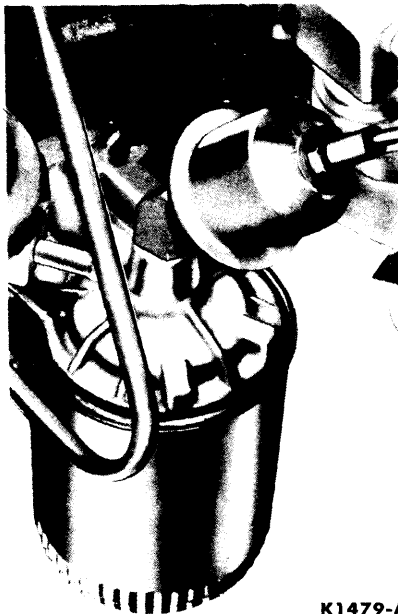
12. Position the clock housing to the instrument panel, connect all the wires, check the operation of the clock and warning lights, and install the retaining screws.

13. Install the wiper, washer, left air, and right air control knobs.

14. Connect the battery ground cable and remove the protective tape from the cluster and steering column.

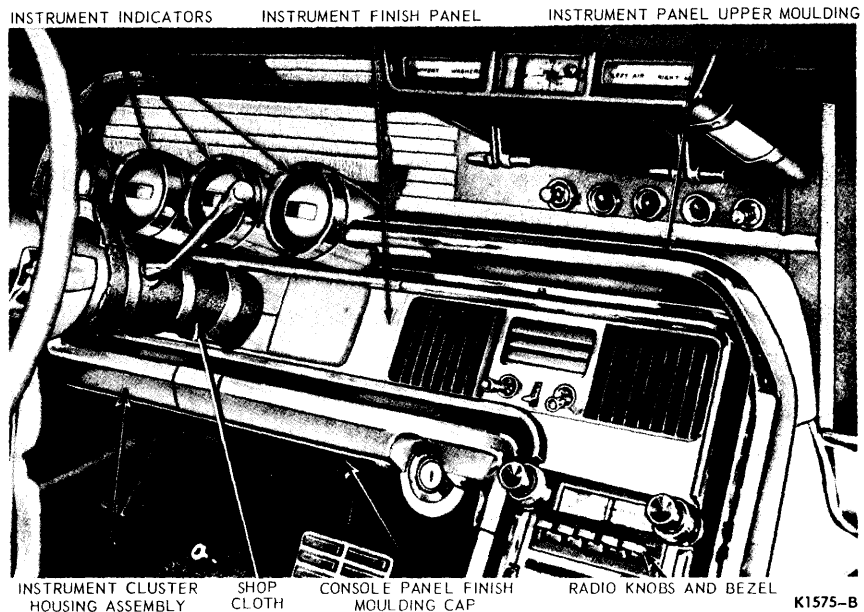
TURN INDICATOR SWITCH

To remove the turn indicator switch, the steering wheel must first be removed.



K1479-A

FIG. 4—Oil Pressure Sending Unit



K1575-B

FIG. 5—Instrument Panel

1. Unscrew the turn signal switch lever from the steering column.
2. Remove the switch mounting bracket screw; then remove the switch and bracket from the steering column.

3. Remove the conical tension spring and the switch actuating arm.

4. Disconnect the switch wires from the bullet connectors, remove the wire protector from the side of the steering column, remove the switch to mounting bracket screws, and remove the switch and wires.

When installing the new switch, make certain that the canceling cam on the steering wheel makes contact with the canceling pawls on the switch. The clearance between the steering wheel hub and steering shaft housing flange should not be more than $\frac{1}{16}$ inch for proper switch canceling. Reposition the steering shaft housing if necessary.

TURN INDICATOR FLASHER (MOTOR AND CAMS)

1. Open the luggage compartment door.
2. Disconnect the negative (ground) cable from the battery.
3. Disconnect the wires from the motor operated flasher (located in the forward area of the luggage compartment) at the 2 multiple connectors.
4. Remove the ground wire attaching screw.
5. Remove 2 flasher attaching screws and remove the flasher from the car.
6. Position the flasher in the luggage compartment and install the 2 attaching screws.
7. Position the ground wire and install the attaching screw.
8. Connect the flasher wires at the 2 connectors.
9. Connect the negative (ground) cable to the battery and check the operation of the flasher.
10. Close and lock the luggage compartment door.

TURN INDICATOR RELAY

1. Open the luggage compartment door.
2. Disconnect the negative (ground) cable from the battery.
3. Disconnect the wires from the relay (located in the forward area of the luggage compartment) at the 2 multiple connectors.

4. Remove 2 relay attaching screws and remove the relay.

5. Position the relay in the luggage compartment and install the 2 attaching screws.

6. Connect the relay wires at the 2 multiple connectors.

7. Connect the negative (ground) cable to the battery and check the operation of the relay.

8. Close and lock the luggage compartment door.

SPEEDOMETER CLUSTER

REMOVAL

1. Disconnect the battery ground cable.
2. Cover the steering column and instrument panel, where necessary (Fig. 5), with tape to prevent paint damage when the instrument cluster is removed.
3. Remove the radio knobs and bezel (Fig. 5).
4. Remove the headlight switch control knob and bezel nut.
5. Remove the instrument finish panel (Fig. 5 two pieces).
6. Remove the headlight switch mounting screws and push the headlight switch toward the front of the car.
7. Remove the console panel finish moulding cap, and remove the five screws retaining the left lower half of the instrument cluster housing assembly (Fig. 5).
8. Remove the clock housing retaining screws. Rotate the clock housing upward and rearward to expose the two tab screws retaining the instrument panel upper moulding.
9. Remove two screws from the instrument panel upper moulding (Fig. 5), and five screws under the cluster. Pull the moulding away from the instrument panel for access to the cluster screws. Tape the tabs to prevent scratches.
10. Remove the four instrument indicator cover retaining screws and remove the covers (Fig. 5).
11. Through the indicator openings, remove the four screws retaining the lower cluster to the upper cluster. Position the four instrument indicator covers on the instruments to prevent damage to the indicators. Install the retaining screw on the charge indicator cover.
12. Remove the four screws retaining the speedometer cluster to the instrument panel at the top of the cluster, and position the speed-

ometer cluster out from the instrument panel.

13. Disconnect the light bulbs across the top of the speedometer. Remove the wiring harness from the plastic clips, disconnect the speedometer cable, and the constant voltage regulator wires, and remove the speedometer cluster.

14. Remove the speedometer housing-to-cluster mounting screws and remove the speedometer housing assembly.

15. Remove the screws retaining the speedometer housing cover to the speedometer assembly and remove the speedometer.

INSTALLATION

1. Position the speedometer in the housing cover and install the mounting screws.
2. Position the speedometer housing assembly in the speedometer cluster and install the retaining screws.
3. Position the speedometer cluster in the instrument panel, connect the speedometer cable, connect the wires to the constant voltage regulator, plug in the light bulbs, position the wiring harness in the plastic clips and install the cluster with the retaining screws at the top of the cluster.
4. Position the lower instrument panel cluster to the upper cluster, remove the four instrument indicator covers, and through the indicator openings install the four screws retaining the lower cluster to the upper cluster.
5. Check the operation of all indicators and the instrument panel lights.
6. Install the indicator covers.
7. Install the screws retaining the left lower half of the cluster housing to the instrument panel. Install the console panel finish moulding cap (Fig. 5).
8. Position the headlight switch in the instrument panel and install the mounting screws.
9. Remove the tape from the tabs and install the screws retaining the instrument panel upper moulding.
10. Position the instrument finish panel (two pieces), and install the retaining screws.
11. Install the light switch bezel, nut, and control knob.
12. Install the radio bezel, retaining nuts and knobs.
13. Position the clock housing to

the instrument panel, and install the retaining screws.

14. Connect the battery ground cable and remove the protective tape from the cluster and steering column.

SPEEDOMETER LIGHTS

Two of the speedometer lights are accessible from the left-hand side of the car under the instrument panel. The balance of the lights require the following procedure for their replacement.

REMOVAL

1. Disconnect the battery ground cable.

2. Cover the console.

3. Remove the clock housing.

4. Remove the retainer screws from the radio speaker grille.

5. Remove the radio speaker retainers and remove the speaker from the instrument panel and position it next to the console.

6. Remove the retaining nuts at the radio speaker grille, and remove the grille.

7. Remove the retaining nuts and remove the defroster nozzle from the instrument panel, disconnect the nozzle from the hose and remove the nozzle through the speaker opening. Position the defroster hose to the right side of the clock opening.

8. Remove the retaining screws and remove the windshield washer and vent control mounting plate from the instrument panel and rest it on top of the console.

9. Reaching through the clock housing opening remove the defective bulb(s).

INSTALLATION

1. Install the new bulb(s).

2. Install the windshield washer and vent control mounting plate to the instrument panel, and install the retaining screws.

3. Reaching through the radio speaker opening, install the defroster nozzle to the hose, then install the nozzle to the instrument panel.

4. Position the radio speaker grille, then install the retaining nuts.

5. Position the radio speaker to the instrument panel, and install the retainers.

6. Install the radio speaker grille retaining screws.

7. Install the clock housing.

8. Remove the cover from the console.

9. Install the battery ground cable.

SPEEDOMETER CABLE

REMOVAL

1. Disconnect the battery ground cable.

2. Cover the seat.

3. Remove the four retaining screws and remove the knobs from the wiper, the washer, the left air, and the right air control levers.

4. Remove the screws retaining the clock housing to the upper instrument panel, and lower the clock housing assembly.

5. Disconnect the wires, and the vacuum hoses at the door lock switch, and remove the clock housing.

6. Reaching through the clock housing opening disconnect the speedometer cable at the speedometer head.

7. Remove the upper part of the speedometer drive cable.

8. Raise the car on a hoist.

9. Remove one mounting bolt and disconnect the speedometer cable casing from the transmission (Fig. 6).

10. Remove the lower part of the speedometer drive cable and the driven gear.

INSTALLATION

1. Install the driven gear in the speedometer cable casing and install the speedometer cable casing in the transmission.

2. Install the mounting bolt and torque to 20-25 foot-pounds.

3. Lower the car to the floor.

4. Using the two parts of the old cable set end to end, carefully determine the exact length, then subtract $\frac{1}{16}$ inch.

5. Cut the new cable to this length, and remove any burrs or frayed edges. **Be certain not to cut from the squared end of the cable.**

6. Install the tip on the cable

making certain to seat the cable in the bottom of the tip.

7. Place the cable and tip in a crimping die, and placing the die on a solid surface strike it squarely with a hammer to crimp it.

8. Remove the crimping die.

9. Lubricate the cable with cable lubricant B5A-19581-A (do not over lubricate) and install it in the speedometer cable casing. When the cable is nearly seated, twist it slightly to make sure that the squared drive is engaged in the speedometer driven gear.

10. Connect the speedometer cable casing to the speedometer head.

11. Connect the wires, and the vacuum hoses at the door lock switch, and position the clock housing.

12. Install the retaining screws.

13. Position the knobs on the wiper, the washer, the left air, and the right air control levers, and install the retaining screws.

14. Remove the cover from the seat.

15. Connect the battery ground cable.

CLOCK

REMOVAL

1. Disconnect the battery cable.

2. Remove the control knobs from the wiper, washer, left air and right air control levers, from below the clock housing.

3. Remove the four screws retaining the clock housing to the instrument panel, lower the housing and disconnect the two courtesy light wires.

4. Disconnect the two clock quick disconnects and the two light sockets.

5. Remove the two clock retaining screws and remove the clock.

INSTALLATION

1. Position the clock in the clock housing and install the two retaining screws.

2. Connect the two quick disconnects and plug in the two light sockets.

3. Position the courtesy light wire over the windshield wiper control cable and the other wire over the air vent control cable and connect the wires.

4. Position the clock housing in the instrument panel and install the four retaining screws.

5. Install the control knobs on the

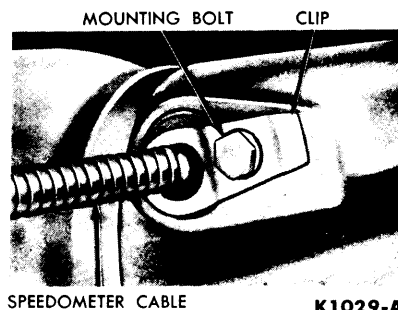


FIG. 6—Speedometer Cable Mounting

wiper, washer, left air, and right air control levers.

6. Connect the battery cable and check the operation of the clock.

WINDSHIELD WIPER

WIPER MOTOR

Removal

1. Remove the wiper arm and blade assemblies.

2. Remove the wiper pivot shaft bezels and nuts.

3. Remove the air cleaner.

4. Remove the 14 retaining screws and remove the cowl top panel.

5. Remove the two retaining screws and the seal plate from the dash panel.

6. Remove the two clips retaining the wiper links to the wiper motor. Rotate the link to remove the left clip.

7. Disconnect the hydraulic line under the hood (Fig. 7). Be careful not to burn the hands with the hot hydraulic fluid.

8. Disconnect the hydraulic line in the cowl from the motor.

9. Remove the two bolts retaining the motor to the mounting bracket. Disconnect the wiper control cable and remove the motor.

Installation

1. Transfer the one hydraulic line and fitting to the new motor.

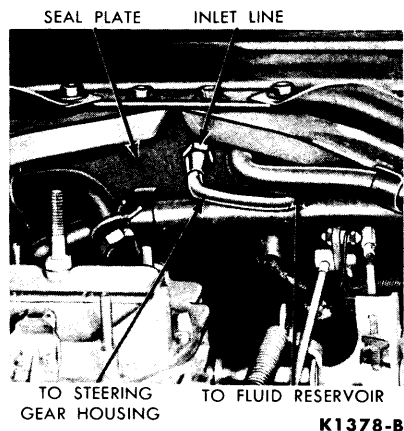


FIG. 7—Wiper Motor Hydraulic Line Connections

2. Remove the one nut and two bolts retaining the wiper pivot shaft and link assembly to the cowl.

3. Position the wiper pivot shaft and link assembly and install the one nut and the two retaining bolts.

4. Position the wiper motor. Connect the wiper control cable, and install the two hydraulic lines so that they are snug. Adjust the control cable so that the control on the instrument panel moves the valve control lever from OFF to full ON.

5. Install the two wiper motor to mounting bracket retaining bolts.

6. Tighten the two hydraulic lines.

7. Install the wiper links on the motor and install the two retaining clips.

8. Position the seal plate and install the two retaining screws.

9. Start the engine and check for leaks. Check the power steering fluid. Add fluid if necessary.

10. Position the cowl top panel and install the 14 retaining screws.

11. Install the pivot shaft nuts and bezels.

12. Install the wiper arm and blade assemblies.

13. Install the air cleaner.

WIPER CONTROL

Removal

1. Disconnect the battery cable.

2. Remove the windshield wiper, windshield washer, and right- and left-hand air vent control knobs.

3. Remove the four screws retaining the clock housing to the instrument panel, lower the housing and disconnect the two courtesy light wires.

4. Remove the two screws retaining wiper control to the control plate assembly.

5. Remove the wiper arm and blade assemblies.

6. Remove the wiper pivot shaft bezels and nuts.

7. Remove the 14 retaining screws and remove the cowl top panel.

8. Disconnect the wiper control cable from the motor.

9. Inside the passenger compartment, pull the control cable through

the dash panel and remove the wiper control and cable assembly.

Installation

1. Position the new wiper control and cable assembly and feed the cable through the dash panel. Insert the rubber grommet in the dash panel.

2. Connect the wiper control cable to the motor.

3. Position the cowl top panel and install the 14 retaining screws.

4. Install the pivot shaft nuts and bezels.

5. Install the wiper arm and blade assemblies.

6. Install the two screws retaining the wiper control to the control plate assembly.

7. Position one courtesy light wire over the wiper control cable and the other over the air vent control cable and connect the wires.

8. Position the clock housing in the instrument panel and install the four retaining screws.

9. Install the windshield wiper, windshield washer, and right- and left-hand air vent control knobs.

10. Connect the battery cable.

WIPER PIVOT SHAFT AND LINK

1. Remove the wiper arm and blade assemblies.

2. Remove the wiper pivot shaft bezels and nuts.

3. Remove the 14 retaining screws and remove the cowl top panel.

4. Remove the clip retaining the link at the motor. Rotate the link to remove the left clips.

5. Remove one nut and two bolts retaining the pivot shaft and link assembly to the cowl and remove the pivot shaft and link assembly.

6. Position the pivot shaft and link assembly and install the one nut and the two retaining bolts.

7. Position the cowl top panel and install the 14 retaining screws.

8. Install the pivot shaft nuts and bezels.

9. Install the wiper arm and blade assemblies.

PART 15-5

SPECIFICATIONS

BULB CHART

Unit	Candela* or Wattage	Trade No.
Headlight—No. 1 (Inner)	37.5 w	4001
Headlight—No. 2 (Outer)	37.5/50 w	4002
Front Turn Signal/Parking	4/32 c.	1157-A
Rear Turn Signal & Stop/Tail	4/32 c.	1157
Map Light	6 c.	631
License Plate	4 c.	1155
Back-Up Lights	32 c.	1076
Spot Light	30 w	4405
Instrument Panel Indicators:		
Hi Beam	2 c.	1895
Oil Pressure Gauge	3 c.	1816
Ammeter	3 c.	1816
Turn Signal Indicator (Fender)	1 c.	53X**
Parking Brake Warning	2 c.	1895
Illumination:		
Speedometer	2 c.	1895
Cluster	2 c.	1895
Heater Control	1½ c.	1445
Clock	2 c.	1895
Radio Dial—AM	2 c.	1891
Radio Dial—AM-FM	1 c.	1892
Courtesy and/or Map (Door Mounted)	15 c.	1004
Automatic Transmission Control	2 c.	158

*Candela is the new international term for candlepower.

**For Minnesota and Wisconsin—2 c. No. 1895-G (Instrument Panel)

HORN CURRENT DRAW

Either	4-5 Amperes at 12 Volts
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SPEEDOMETER CABLE

Transmission Mounting Clip Bolt Torque	20-25 ft.-lbs.
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CIRCUIT PROTECTION

Circuit	Protective Device	Location
Instrument Panel	14 Amp. Fuse	Fuse Panel
Dome, Courtesy, Interior Lights, and Clock	14 Amp. Fuse	Fuse Panel
Tail and Park Lights	15 Amp. Circuit Breaker	Fuse Panel
Stop Light	15 Amp. Circuit Breaker	Fuse Panel
Cigar Lighter	15 Amp. Fuse	Fuse Panel
Heater	20 Amp. Circuit Breaker	Fuse Panel
Turn Signal	15 Amp. Circuit Breaker	Fuse Panel
Radio	7.5 Amp. Fuse	Fuse Panel
Back-Up Lights	7.5 Amp. Fuse	Fuse Panel
Windshield Washer	7.5 Amp. Fuse	Fuse Panel
Power Seats	20 Amp. Circuit Breaker	Fuse Panel
Power Windows	20 Amp. Circuit Breaker	Fuse Panel
Convertible Top Control (Neutral Relay)	10 Amp. Circuit Breaker	Fuse Panel
Convertible Top Control (Motor Feed)	60 Amp. Circuit Breaker	At Starter Relay
Seat Belt Warning	4 Amp. Fuse	Fuse Panel
Horns	20 Amp. Circuit Breaker	Fuse Panel
Automatic Transmission Control	6 Amp. Fuse	Fuse Panel
Transistorized Ignition	2 Amp. Fuse	In Line