

**LIGHTING SYSTEM  
DATA AND SPECIFICATIONS**

MODELS	P-30, P-31, LP-1, LP-2
Headlamps—Type	Sealed Beam
Lower Beam Control	Foot Switch
Headlamp Control	3 Position Rotary Switch
Stoplight Control	Hydraulic Switch at Brake Master Cylinder
Instrument Lighting	Indirect-Variable Resistance Control
Wiring Protection	Circuit Breaker

**LAMP CHART**

MODELS	P-30, P-31, LP-1, LP-2	
Location	Candle Power 1957—40-50 Watts 1958—Inboard—37.5 Outboard—37.5 50.0	Lamp Number 1957—5400 1958—Inboard—4001 Outboard—4002
Headlamp		
Parking and Turn Signal Lamp	32-4	1034
Tail and Stop Lamp	32-4	1034
Direction Indicator Tell Tale	2	57
License Plate Lamp	3	67
Back-Up Lamp	21	1141
Headlamp Beam Indicator	2	57
Dome Lamp	15	1004
Clock Lamp	2	57
Radio Dial Lamp	—	1892
Glove Box Lamp	2	57
Courtesy Lamp	15	1004
Instrument Lamp	2	57
Trunk Compartment Lamp	15	1003
Generator Indicator Lamp	2	57
Oil Pressure Indicator Lamp	2	57
Automatic Transmission Lamp	2	57
Under Hood Lamp	15	1003
Hand Brake Signal Lamp	6	90
Fog Lamp	35W	4412A
Spot Light	30W	4435

# PART THREE—BODY

## SECTION V—LIGHTING SYSTEM

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### 1. TESTING VOLTAGE IN LIGHTING SYSTEM

Voltage must be measured with the lights burning. To do this, remove the headlamp door and with the Sealed Beam unit partially removed from its mounting seat, attach leads of a low reading voltmeter to the prongs of the Sealed Beam unit while it is still inserted in the connector socket.

The top prong supplies current for the traffic beam. One of the side prongs supplies current for the country beam and the other is the ground connection.

With engine stopped and the lamps "on" for 5 minutes, voltage at the headlamps with the country beam filament burning, should not be less than 11.25 volts. With the lamps "on" and the engine warmed up and running at an approximate car speed of 20 miles per hour, voltage at the headlamps should not be less than 12.3 volts, nor more than 13.5 volts with the battery and generator at room temperature (70°). If voltage is low at either headlamp socket, with only standard equipment in the circuit, proceed as follows:

Test the voltage output of the battery which should be 12 to 12.5 volts. Clean and tighten battery terminals and ground cable. Check wires and connections to all lamps, also the main headlamp switch and the dimmer switch for high resistance. When a voltmeter is placed at the ground and input side of a switch and then between the ground and the output side of a switch (with the lamps burning), the difference in readings will represent the voltage drop in the switch. A switch showing a voltage drop of more than 1/10 volt should be replaced.

This test may be made by taking a reading at each end of the wire. A wire showing a voltage drop of more than 1/10 volt should be replaced. If any wire in the lighting circuit has been replaced with other than standard equipment wire, it may lack conductivity and

cause a voltage drop. Be sure to check the wires from the starter solenoid and generator regulator to the ammeter. These wires carry the full load of all branching circuits.

### 2. CIRCUIT BREAKER

A circuit breaker consists of a bi-metallic blade and a set of contact points connected in series with a circuit. When excess current passes through the circuit, the bi-metallic blade heats up and separates the contact points, opening the circuit. Then, until the short circuit is eliminated, the points will open and close repeatedly.

Individual circuit breakers are rated (rating appears on each unit) and should be tested at room temperature because the current required to open the contact points is affected by the outside temperature. Under a normal current load the contact points will remain closed indefinitely. Under a double rated current load the contact points will open within 60 seconds and will remain open for about 10 seconds and then close. Do not attempt to readjust the points. If the circuit breaker does not function properly, replace with a new one.

Circuit breakers built into switches are essentially the same construction as individual circuit breakers. The constant speed windshield wiper motor uses a control switch containing a built in circuit breaker to protect the motor. The switch is serviced as an assembly. No attempt should be made to disassemble the switch for repair.

Units which have individual circuit breaker protection are—the variable speed wiper motor attached to switch—power seat motor, convertible top motor, window lift motor, all of which are located behind the left cowl panel. The headlight circuit is protected by a circuit breaker attached to the headlamp switch.

### 3. TESTING LIGHTING CIRCUIT

It is good practice to make periodic inspections of the wiring in the lighting circuit. Inspect for loose or corroded connections and for chafed or frayed insulation. Inspect the switches, bulb sockets and lamp shells for looseness and corrosion. Clean and tighten where necessary to prevent loss of efficiency due to poor or dirty connections.

A test lamp can be used to test the headlamp switch. Disconnect the wire or wires from the switch terminal that feeds the circuit or circuits. Connect a test lamp to the post on the switch where the circuit wire or wires were connected and ground the test lamp. If the lamp lights with the switch on, the switch is functioning properly. Therefore the circuit or circuits should be checked for opens or grounds. If the test lamp does not light, the switch is at fault and the switch should be replaced.

#### TESTING TAILLAMPS, LICENSE LAMP, PANEL LAMP SWITCH, DIMMER SWITCH, PARKING LAMPS, AND IGNITION-STARTER SWITCH LIGHT CIRCUIT

First make certain that there are no shorts or open circuits in the connections to the headlamp switch. Wires lead off the headlamp switch and feed current through the circuits. The panel lamp switch connects to the instrument lamps and regulates the brightness by means of a built in rheostat.

Tracing the source of trouble is accomplished by checking each circuit individually. Remove one wire at a time making certain that others are connected. When the faulty circuit is located, check that particular circuit for shorts or opens in the wire or for poor connections at the other end. Use a jumper wire with a test lamp to determine if switches are at fault. Wires must be carefully inspected for frayed or worn insulation which may

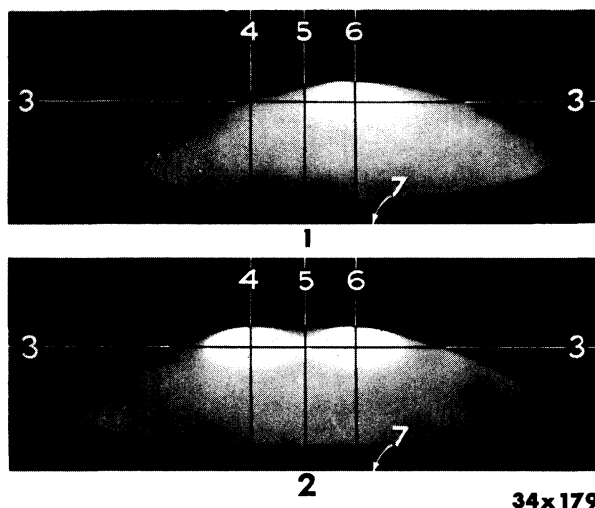


Figure 1—Pattern of Beam from Correctly Aimed Headlamps (1957 Models)

cause a momentary grounding and result in flickering lights due to vibration when driving over rough roads. Inspect the connections and sockets at the taillamp, panel lamps, license lamps, and parking lamps for poor ground, dirt, corrosion or loose wiring.

#### TESTING DOME LIGHT AND GLOVE BOX LAMP

Remove lens and inspect bulb and socket. Remove all wire from "A" terminal of headlamp switch. Connect test lamp from "A" terminal to ground. If lamp lights, circuit breaker is functioning properly. Connect dome lamp lead to "A" terminal and connect test lamp to the end of the wire at the dome lamp and ground the test lamp. Check both the "A" and "B" post switches with the test lamp. The glove box lamp circuit can also be checked in the same manner.

### 4. AIMING THE HEADLAMPS

#### 1957 MODELS

There are many different types of aiming equipment which will produce accurate aiming provided that the manufacturer's instructions are followed. However, an aiming screen can also produce satisfactory results.

To aim the headlights, use an aiming screen or a light colored wall and make certain the car is on a level floor 25 feet from the screen or wall. Four lines are required on the screen or wall: A horizontal line 2 inches below the centers of the headlamps (as required in most states); a center vertical line which must be lined up with the hood ornament; a vertical line on the left of screen in line with the center of the left headlamp; and a vertical line on the right of the screen in line with the center of the right headlamp. See Figure 1.

#### IMPORTANT

*Never use the low beam for aiming the headlamps. If headlamp testing equipment is used, follow the instructions provided by the manufacturer of the tester.*



- 1—Upper beam of right headlamp.
- 2—Upper beams of both headlamps.
- 3—Horizontal line 2 inches below headlamp centers.
- 4—Vertical line in line with center of left headlamp.
- 5—Vertical line in line with the windshield center strip.
- 6—Vertical line in line with the center of the right headlamp.
- 7—Floor level.

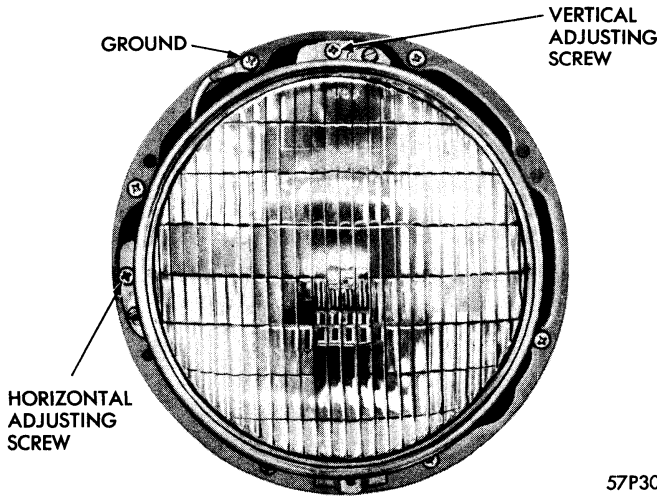


Figure 2—Headlamp Adjustment Screws (1957 Models)

With the car in front of the aiming screen at the specified distance, remove the headlamp door. Adjust the top adjusting screw for vertical adjustment, and the side screw for horizontal adjustment. See figure 2. Adjust one headlamp at a time with the other one covered. Aiming the high beam will also properly aim the low beam.

1958 MODELS

All 1958 Plymouth models are equipped with dual headlamps. The outboard lights have individual filaments for low and high beam. The inboard lights have one filament, each for high beam only.

When the lights are operated on high beam, the lower filament of the outboard lamp supplies "fill-in" light. Before adjustments are attempted the following preparations are to be made:

Park car on floor with tires correctly inflated. If gas tank is not full, place weight in trunk to simulate. A full tank of gas weighs approximately 100 lbs. Rock car sideways to allow spring shackles, etc., to assume normal driving conditions and remove headlamp doors. Place a screen 25 ft. in front of car with all wheels at right angles to screen. Draw a horizontal line on the screen at the same level as the actual centerline of the headlights. Draw vertical lines on the screen to represent the vertical centerline of the inner and outer headlights. A center vertical line should be equal distance from the outer lines which represent the vertical center of the headlights.

Inboard Light Adjustment—With lights on high beam, cover the outboard lights so that they do not show on screen. Adjust the vertical adjusting screws, Figure 3, on the inboard light so that the beam's horizontal aiming line is centered 2 in. below the horizontal centerline on the screen. Adjustment of the horizontal adjusting screws is then made until the beam of light is equally divided by the inner vertical centerline on the screen, Figure 4.

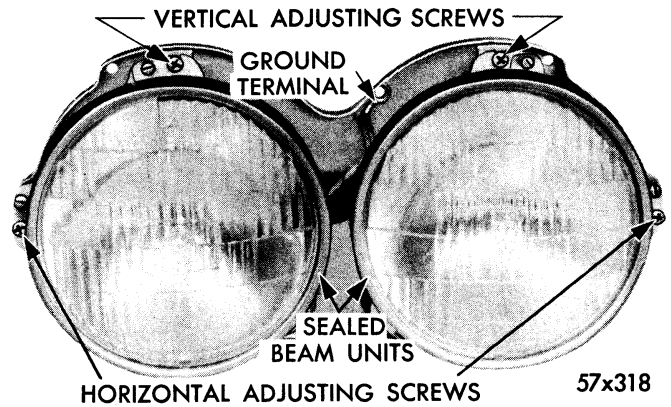


Figure 3—Dual Headlamp Adjustment Screws (1958 Models)

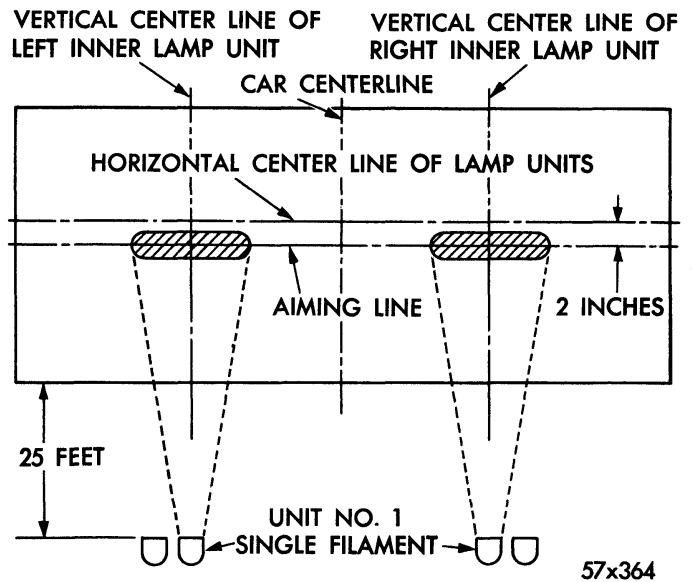


Figure 4—Aiming Inboard Lamps (1958 Models)

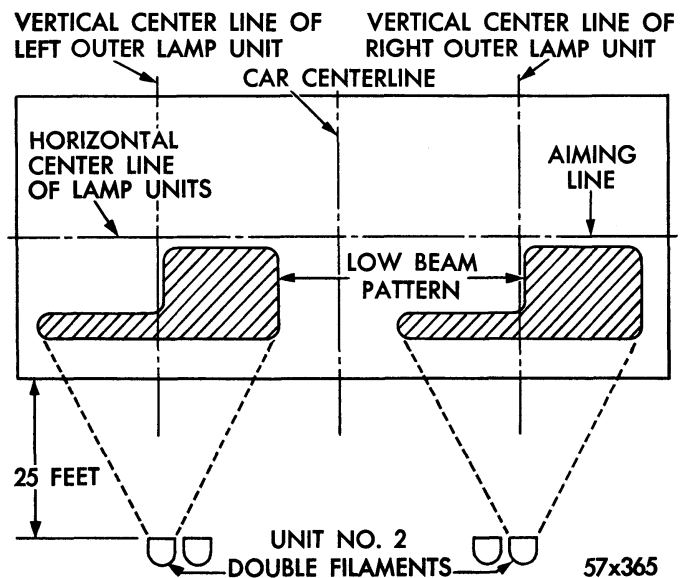


Figure 5—Aiming Outboard Lamps (1958 Models)

Outboard Light Adjustment—Switch the lamps to the low beam. Adjust the vertical adjustment screw on the outboard lamp until the beam's top edge aims at the horizontal centerline on the screen. Figure 5. Adjustment of the horizontal adjusting screws is then made until the left edge of the beam touches the vertical centerline on screen.

## 5. HEADLAMP AND PANEL LAMP SWITCHES

The headlamp switch and the panel lamp switch are held in the instrument panel by a common threaded sleeve and hex nut. The panel lamp knob indexes on its switch shaft by means of lugs in the knob and slots in the shaft. The headlamp knob is held on its respective shaft by means of a recessed hex screw.

## 6. DIAGNOSIS PROCEDURES

### DIM HEADLIGHTS

(ENGINE IDLING OR SHUT OFF)

1. **BATTERY**—Test for a weak or discharged battery, loose or defective cables, or for corroded battery terminals.

2. **WIRING AND SWITCHES**—Test wiring and switches in lighting circuit for voltage drop.

### DIM HEADLIGHTS

(ENGINE RUNNING ABOVE IDLE WITH BATTERY FULLY CHARGED)

1. **WIRING AND SWITCHES**—Test wiring and switches in lighting circuit for voltage drop.

2. **GENERATOR**—Test for low output or high resistance in generator brushes.

### ONE LIGHT FAILS

1. **BULB OR SEALED BEAM UNIT**—Inspect for corrosion at socket terminals, loose connections at sockets, or for a defective bulb.

2. **CONNECTIONS**—Inspect all connections for looseness.

3. **WIRING**—Inspect for a broken wire with a test light from terminal block to socket or for an improperly grounded bulb socket housing with jumper from housing to ground.

### 4. SWITCHES

(a) *Dome Light Switch*—Check each of the two dome light switches with jumper wire, by jumping directly from the dome light wire to ground.

(b) *Stop Light Switch*—Test by using a jumper wire across the leads of the stop light switch.

### ALL LIGHTS FAIL

1. **BATTERY**—Test battery. Inspect for loose or defective cables and for corroded battery terminals.

2. **WIRING**—Inspect for poor grounds, or for a short circuit in the lighting circuit.

3. **SWITCHES**—Install a new head light switch if stop light operates and all other lights fail.

4. **CIRCUIT BREAKER**—If battery and wiring are in good condition, but lights will not operate or only part of the lighting circuit does not operate it may be due to a faulty circuit breaker in the headlamp switch. Use a test lamp to check circuit breaker.