

Lighting System

Headlights

Description

The headlights are mounted in recesses in the front of the car and have a high and low beam. The European model has asymmetrical beams which contain a bulb, reflector, and diffusion lens, and are equipped with a parking light inside the headlight housing behind the diffusion lens. The headlights have two elements, 45—40 watt while the parking lights have single element 4 watt bulbs. The two element bulbs are centered in the reflectors and are held by a flanged socket connected to a three-pin plug which can also be used for sealed beam lights.

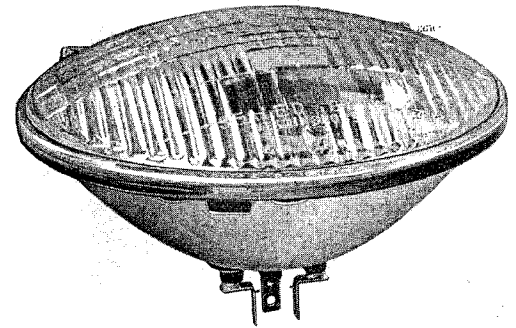


Fig. 54

The sealed beam lamp requires a special adaptor set with holder, adjustment, device, and clear protector lens, available as spare parts No. 644.631.101.31.

Sealed beam headlights are used on vehicles for the USA to meet the requirements of the Department of Motor Vehicles of the various states. These headlights are, however, at the present time not authorized in the following European countries:

France

Germany

Holland

Italy

Sweden

The parking lights for USA vehicles are located in the turn signal lamps. These are 4 watt bulbs located directly above the turn signal bulbs.

The sealed beam unit (Fig. 54) fits the standard three pin socket which is also used for the European headlights. When one of the elements burns out, the entire unit must be replaced.

When a vehicle equipped with sealed beam lights is to be driven in a country where such lights are not permitted, the lights can be easily converted to the required type by the so called sealed beam "Ersatz" set, spare part No. 644.631.106.31.

This light has the same dimensions as the sealed beam lamp and fits into the holder. The set consists of a reflector lens unit and a bulb socket (Fig. 55). The use of this unit enables temporary conversion of sealed beam lamps to the specifications of the countries concerned without requiring a completely new headlight assembly. The standard three pin socket can be used for all Porsche headlights.

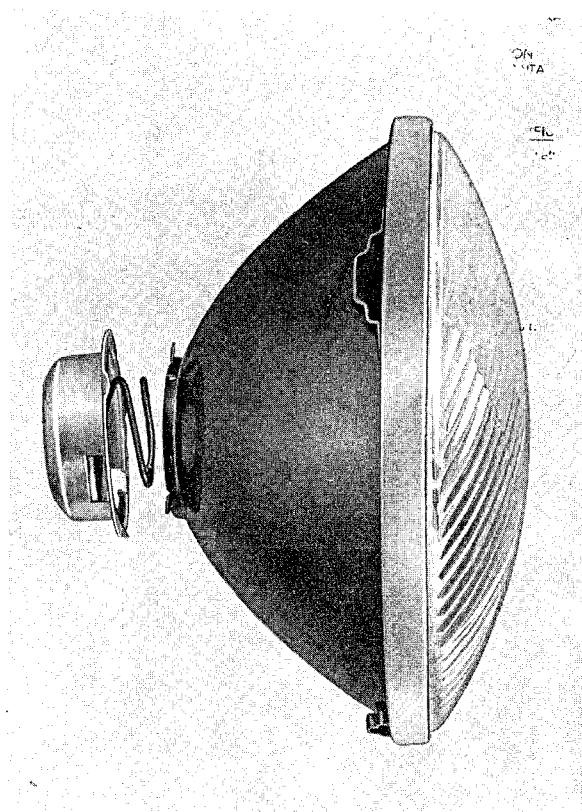


Fig. 55

high, nearly horizontal position on the side which is 15° above the downward portion of the beam. This is accomplished by providing a notch in one side of the shield below the low beam filament, together with a special set of prisms in the diffusion lens which produce the asymmetrical pattern. The sealed-beam "Ersatz" lamps are identical in operation and adjustment to the sealed-beam lamps.

Service

When performing maintenance on the european type headlights it is very important that the reflector is not touched or soiled in any way. The reflector cannot be cleaned without damaging the extremely thin silvered layer. Soiled or oxidized reflectors must be replaced.

The asymmetrical effect of the european type headlights can be prevented by covering the wedge shaped section on the diffusion lens. In this way these headlights become acceptable for travel in countries with left hand traffic. This measure will prevent the high portion of the asymmetrical beam from blinding oncoming motorists.

Description

The dimensions of the high and low beam conform with the requirements of the German Motor Vehicle Code (StVZO). The lights have 45—40 watt dual filament bulbs. The low beam has a greater range than symmetrical lamps in that it deflects to the side of the road while remaining relatively high. The oncoming motorist is not blinded by the low beam because of its low position straight ahead and a

General

Headlight sealed beam units should be replaced when either filament is burned out or when the globe becomes blackened from vaporization of the element.

Removal

1. Remove the headlight unit by removing the large screw under the headlight frame.
2. Disconnect the three pin plug from the headlight unit.
3. Place the headlight unit on a paddel surface and remove the six spring clips from the inner ring (Fig. 56.).

Warning: Eyes may be endangered if spring clips are not carefully removed.

Installation

The installation is accomplished in the reverse order of removal observing the following points:

1. Clean the protector lens of the headlight set and place the locating ring on the sealed beam globe so that it engages the three lugs.
2. Place the globe together with the locating ring in the headlight assembly so that the three tabs fit into the slots in the frame.
3. Install the six retaining clips evenly spaced around the globe so that they press against the ring but do not rest against the glass (Fig. 56).
4. Install headlight unit taking care that the three pin plug is firmly seated and the rubber gasket is properly mounted around the headlight rim.

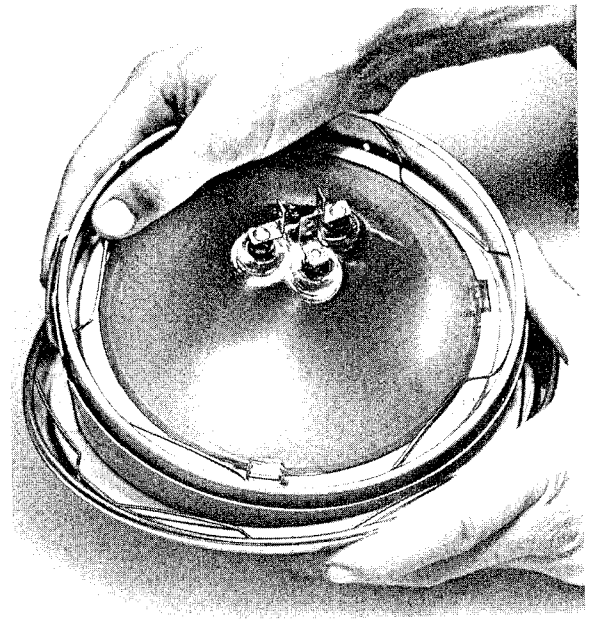


Fig. 56

Replacing Headlight Glass

1. Remove headlight assembly by removing the large screw under the headlight frame.
2. Disconnect the three pin plug from the headlight unit.
3. Remove both adjusting screws from the frame.
4. Place the headlight on a paddel surface and remove the spring clips from the outer frame.

Warning: Eyes may be endangered if spring clips are not carefully removed.

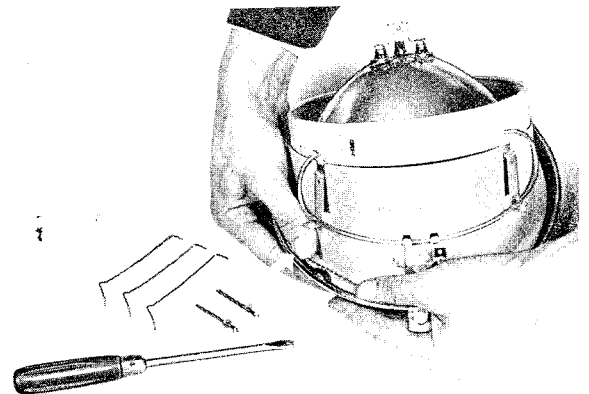


Fig. 57

5. Install the rubber gasket on the new glass and install the glass so that the shaded portion is at the top of the frame.
6. Position the rubber gasket so that it will furnish a waterproof seal.
7. Install spring clips, carefully spacing them around the circumference of the frame.
8. Install and aim the headlight (28 LI).

When installing headlight lenses it is important that the glass makes a waterproof seal with the rim and that the retaining clips are uniformly spaced around the rim as in Fig. 57.

28 LI

Aiming Headlights

Note

The adjustment is best performed with an optical headlight aiming device following the instructions furnished by the manufacturer.

In the event that such a device is not available, the lights may be aimed using a test screen.

2. The tire pressure must be correct and the car must be normally loaded. The normal load is considered to be equivalent to either a full fuel tank and no passenger or an empty tank and the driver. The loaded car must be rolled back and forth so that the rear suspension can adjust itself.

Adjustment

1. Align the car perpendicular to the test screen or testing device.
3. The aiming can now be carried out in accordance with the local regulations.

Sealed Beam

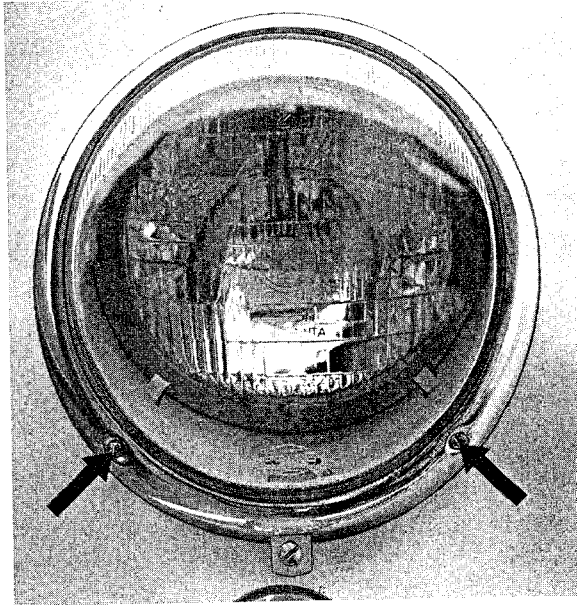


Fig. 58

Symmetrical Bosch

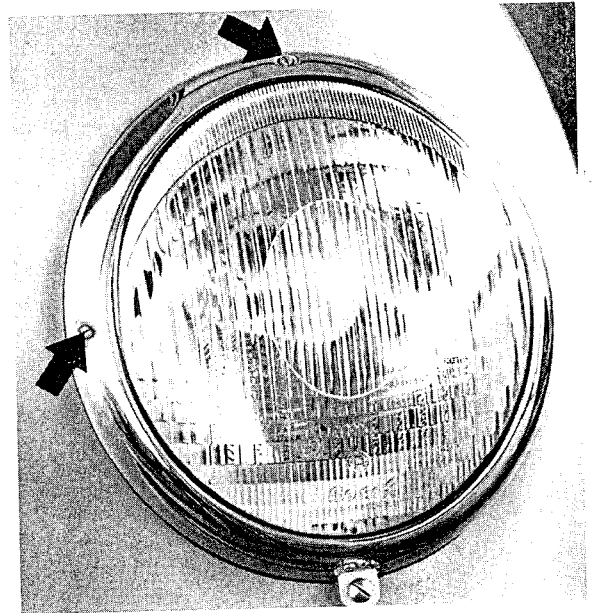


Fig. 59

Adjustment

Vertical

Left screw clockwise: higher
Left screw counter-clockwise: lower

Horizontal

Right screw clockwise: left
Right screw counter-clockwise: right

Vertical

Upper screw clockwise: lower
Upper screw counter-clockwise: higher

Horizontal

Right screw clockwise: left
Right screw counter-clockwise: right

Left and right directions are with respect to the driving direction. Clockwise and counter-clockwise are with respect to screws as seen in the frame.

Testing Headlight Voltage

The voltage reaching the headlight from the battery or generator may drop for various reasons. Several tests can be made to locate such voltage drops.

1. Remove headlight unit by removing the large screw under the headlight frame.
2. Connect a voltmeter to the low beam terminals of the headlight. When seen from the back of the sealed beam globe, terminals are: left ground, top low beam, right high beam.
3. Switch on headlights (low beam) and run the engine at approx. 2000 rpm. When the headlights are on, the voltage at the terminals should be from 6 to 6.3 volts.
4. If the voltage is considerably lower than 6 volts the following tests should be performed:
 - a. Check the battery terminal connections for clean and tight fit.
 - b. Check cable connections at the voltage regulator.
 - c. Check plug connections at the light switch.
 - d. Check terminals and fuses at the fuse box for oxidation.
 - e. Check the connectors in the three pin plug at the headlight.
5. If the trouble is not located by the preceding tests the trouble must be in the generator, regulator, or battery.

Signal System and Dimmer Switch

General

The turn signal lights in the front are located in separate lamps under the headlights and in the rear of the car in the combined tail and brake light. One bulb serves as both brake and turn signal light. The turn signal is activated by the hand lever of the combination (BAL) switch on the steering column. An automatic return brings the lever back to the neutral position after completion of the turn. A red indicator lamp is located in the face of the tachometer. The signal relay is thermally operated and is located on the wall behind the left of the instrument panel above the foot pedals (left hand drive). The relay is a plug type which may be removed by simply pulling it out. The bi-metal element with heater coil serves

to interrupt the current at regular intervals during operation.

In the event that one of the signal bulbs is burned out, a relay interrupts the current to the indicator lamp so that such failures are immediately detectable from the drivers position. It is, however, important that the indicator bulb is in working order. When replacing a burned out signal bulb it is necessary that a bulb of the specified power be installed to insure proper functioning of this system.

The combination BAL switch located on the steering column serves as left and right turn signal switch, low and high beam switch, and headlight signal switch, whereby the turn signal positions do not preclude selection of any desired headlight setting.

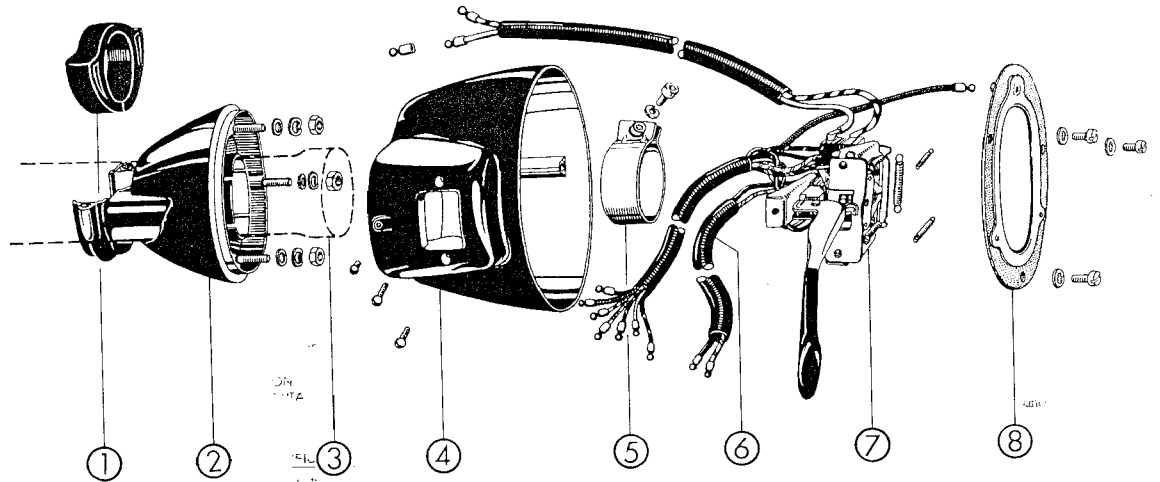


Fig. 60

BAL Switch

- | | |
|-------------------|---------------------|
| ① Rubber mount | ⑤ Clamp |
| ② Base | ⑥ Wire set |
| ③ Steering column | ⑦ Switch |
| ④ Housing | ⑧ Horn contact ring |

Removing and Installing BAL Switch

30 LI

Removal

1. Remove steering wheel (22 ST).
2. Disconnect all plug connectors.
3. Remove screws from the horn contact ring and remove the ring.

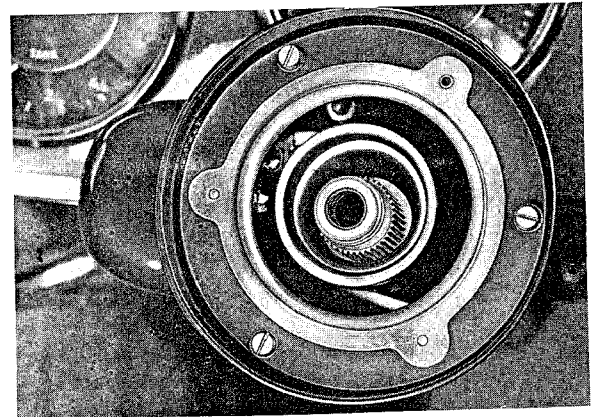


Fig. 61

4. Remove the three 9 mm nuts and remove the switch, housing and cables from the steering column.

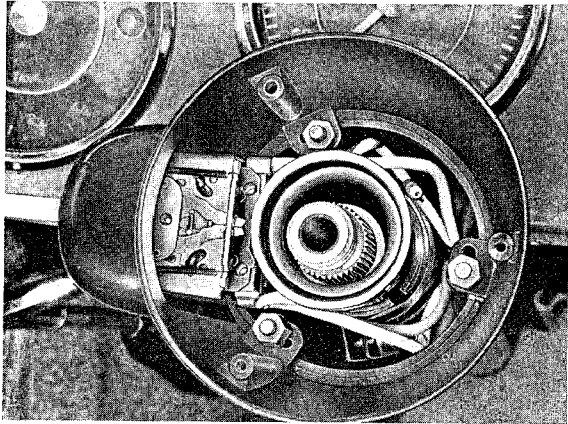


Fig. 62

5. Remove the three screws from the side of the switch housing and pull out the switch and cables from the inside.

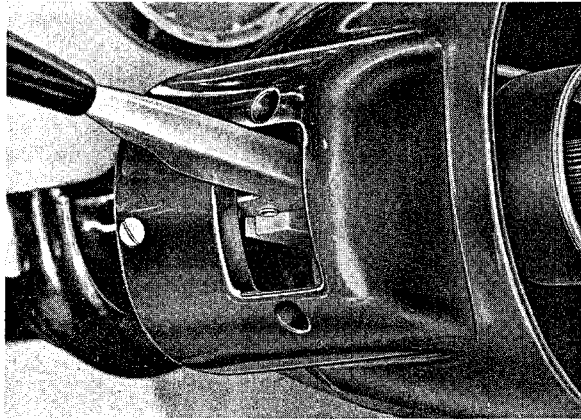


Fig. 63

Installation

The installation is accomplished in the reverse order of removal observing the following points:

1. Before installing the horn contact ring, connect the horn wire to the back of the ring.
2. Fasten the cables to the steering column with plastic electrical type.
3. Connect the cables in the correct manner always connecting cables of the same color code.

31 LI

Replacing Parking and Turn Signal Bulbs

General

The bulbs for the parking lights are located in the turn signal lamp below the headlights. The parking lights remain on when the headlights are on but may be switched on separately. In european cars the parking lights are located in the headlight reflector but operate in the same manner as those of the USA model.

Replacement

1. Grasp the turn signal lamp cover, press in and turn counter-clockwise to remove.
2. Remove burned out light bulb.
3. Install a new bulb of the same power.
4. Clean and install plastic cover and insure a water-proof seat against the gasket.

Replacing Brake, Turn Signal, and Tail Light Bulbs

32 LI

General

The combined brake, turn signal, and tail lights are located at the rear of the car on the left and right sides. The tail light is located toward the center of the vehicle while the brake and turn signals are on the outside. A common bulb serves both brake and turn signal. When signalling for a turn while braking, the brake light does not function on the side in question and begins to function in a normal turn signal manner. The brake light on the other side functions normally.

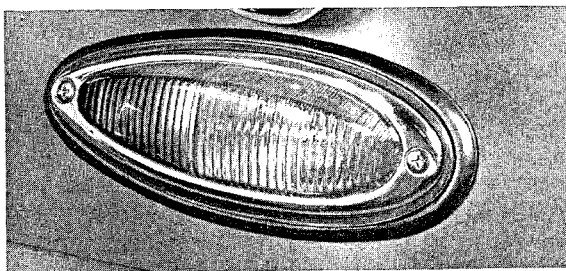


Fig. 64

Replacement

1. Remove phillips screws from the tail light frame and remove the lense.
2. Press in and turn the burned out bulb counter-clockwise to remove.
3. Clean contacts.
4. Install a new bulb of the same size.
5. Install tail light glass insuring a waterproof seal on the rubber gasket.

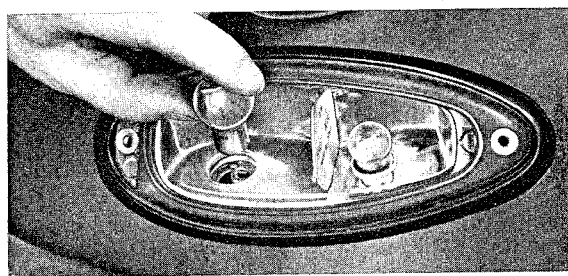


Fig. 65

Replacing Back-up and Licence Plate Light Bulbs

33 LI

General

The licence plate lights are located in the upper part of the rear bumper and have one 5 watt bulb each. The back-up light is located below the bumper in the center of the car and has a 25 watt bulb.

The licence plate lights go on with the parking lights which also light when the headlights are on. The back-up light lights automatically when the reverse

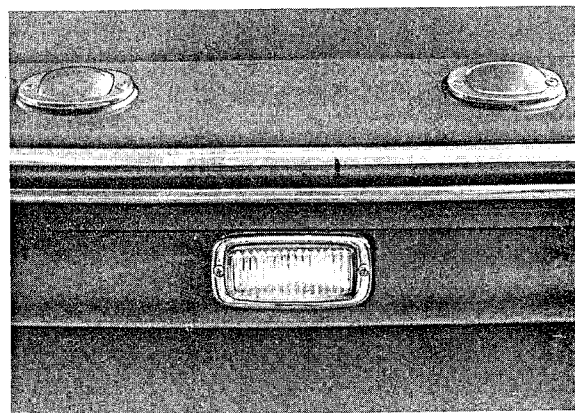


Fig. 66

gear is engaged but only when the ignition is turned on. Earlier models had the back-up light connected to the low headlight beam. A small switch connected to a plunger on the gearbox cover makes the necessary contact.

2. Press in and turn counter-clockwise to remove bulb.

3. Clean the contact spring and adjust the tension as required.

4. Clean the lens and gasket.

5. Install a new bulb of the same size.

6. Install the cover carefully to obtain a waterproof seal.

Replacement

1. Remove the two retaining screws and remove the lid.

34 LI

Replacing Interior Light Bulbs

General

The interior light of the Cabriolet/Hardtop is located in the center of the instrument panel while in the Coupe there are two lights, one over each window post. The interior lights are switched on by contacts located in both door posts, so that the lights go on when either door is opened. The lights may, however, be controlled by a switch contained in the lamp itself. This switch has three positions which are, on, off, and door controlled. In the on position the lights remain on regardless of the door contacts, while in the off position the lights do not go on at all. The door operated position allows the lights to be operated by the door contacts. The lights in the Coupe are identical so that the two light switches in the lamps operate mirror reversed. The Roadster has no interior light as standard equipment.

Replacement

1. Carefully pull out the entire lamp.

2. Remove the tube bulb without damaging the holder.

3. Install new tube bulb and check the tension of the holding clamp.

4. Install the lamp cover being careful not to damage the retaining clips.

5. Check the three position switch for proper operation.

Replacing Instrument Light Bulbs

35 LI

General

The oil pressure and generator indicator lights are located in the face of the combination instrument. The high beam and turn signal indicator lights are located in the face of the tachometer. There are two lights per instrument for illumination in the combination instrument, the tachometer, and the speedometer.

The light sockets are removable from the rear of the instruments and can be pulled out in order to replace a burned out bulb.

Replacement

1. Pull the socket of the burned out lamp from the rear of the instrument.
2. Press the bulb into the socket and rotate counter-clockwise to remove.
3. Install a new bulb of the same size and install the socket.

Replacing Back-up Light Switch

36 LI

The back-up light switch is located on the left side of the transmission cover. A small push rod operates the switch when the reverse shift fork is moved into engagement.

Removal

1. Remove rubber cap.
2. Remove contact plugs.
3. Remove the switch using a 22 mm wrench.

Installation

The installation is accomplished in the reverse order of removal observing the following points:

1. The lock ring on the push rod must be secured in order to keep it from falling into the gearbox.
2. Install the push rod with the rounded end inward.
3. After connecting the plug pins, position the rubber cap so that it furnishes a waterproof seal.

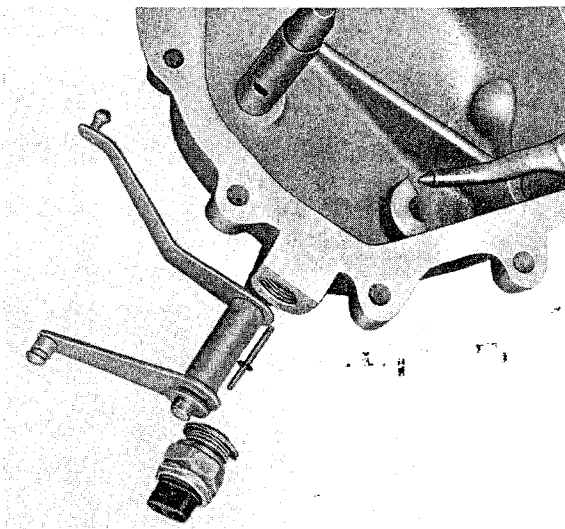


Fig. 67

Replacing Door Contact Switches

The door contact switches for the interior lights are located in the center of the inner hinge plate. The switches are pressure release actuated and operate when the doors are opened. The switch merely supplies the ground for the interior light and therefore has only one wire.

Replacement

1. Pull out switch and disconnect cable.
2. Connect cable to new switch and push switch into place.

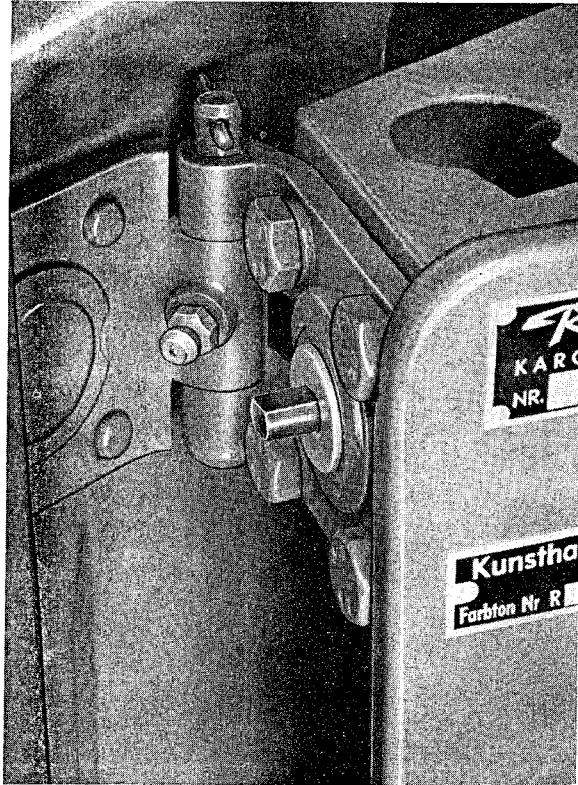


Fig. 68