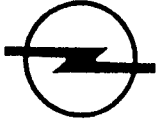


Opel Astra  **Opel Kadett**

Workshop Manual

Section N

Electrical Equipment and Instruments

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Issued by: Service Division
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July, 1993

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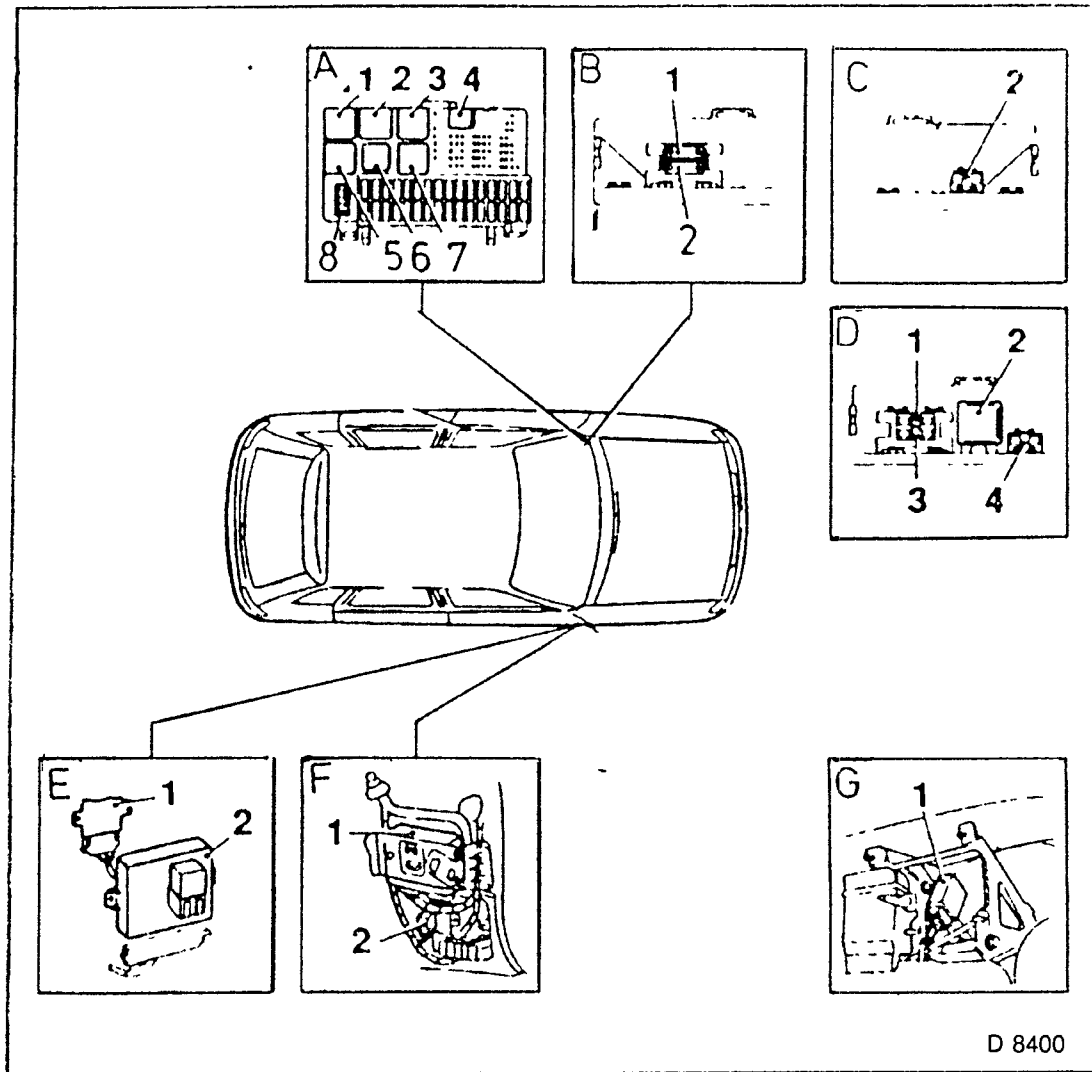


Fig 1

Wiring Harness, Fuse Box

SURVEY OF RELAYS/CONTROL UNITS

A Fuse box

- 1 — Relay, heated outer mirror K35
- 2 — Relay, turn signal unit/trailer hitch turn signal unit K10
- 3 — Relay, rear screen wash/wipe system K30
- 4 — Relay, fog lamp K5
- 5 — Relay, windscreen wash/wipe system K8
- 6 — Relay, heated rear screen K1
- 7 — Warning buzzer H19
- 8 — Diagnostic plug

B Fuse box, rear view

- 1 — Fuse 30A, radiator fan F42
- 2 — Fuse 30A, heating fan F46

C Fuse box, rear view

- 1 — Fuse 10A, anti-theft warning system F38

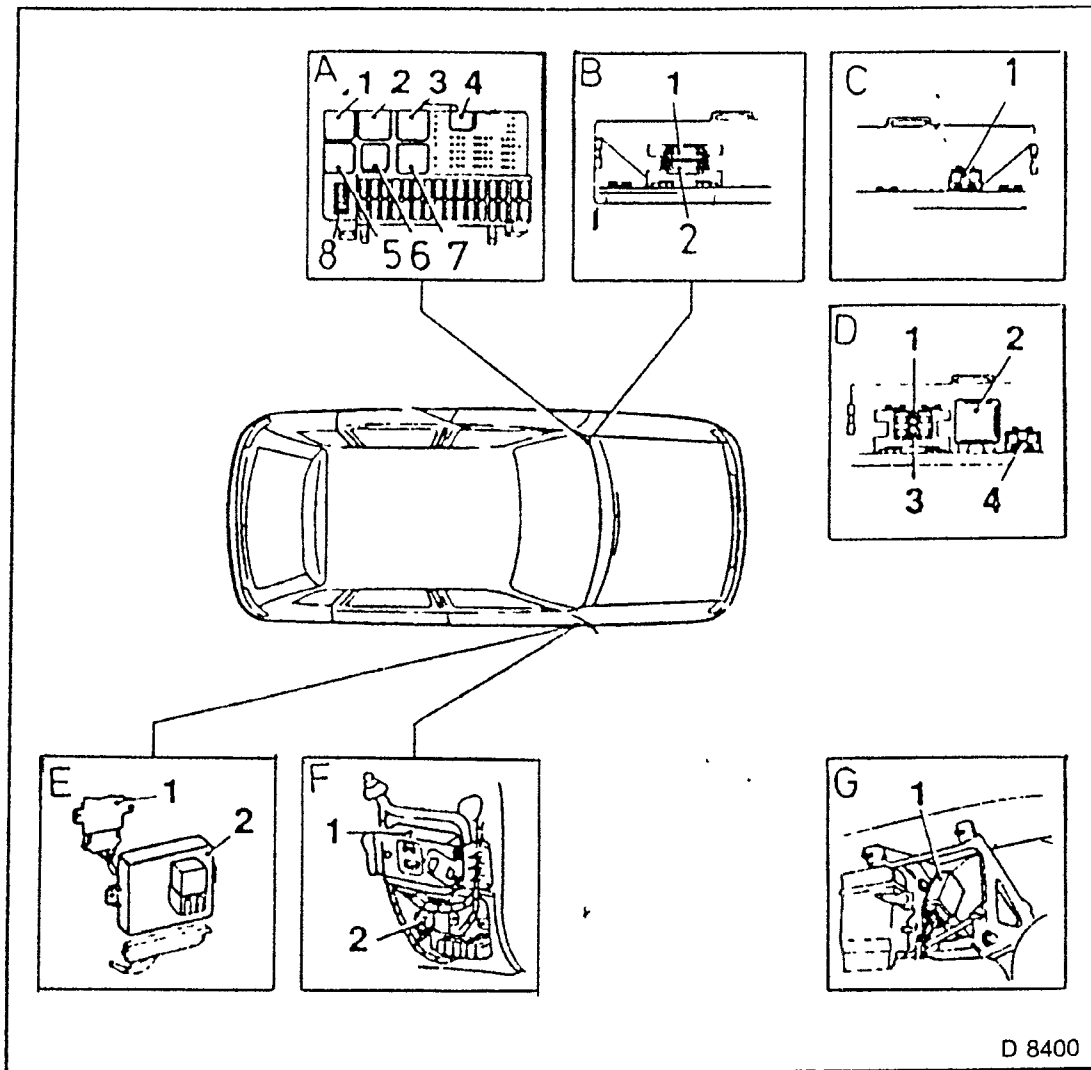


Fig 2

D Fuse box, rear view

- 1 — Fuse 30A radiator fan F42
- 2 — Relay, starter K3
- 3 — Fuse 30A heater fan F46
- 4 — Fuse 10A anti-theft warning system F38

E A pillar, right

- 1 — Control unit central door locking K37
- 2 — Control unit anti-theft warning system K94

F A pillar, right

- 1 — Control unit, Motronic/MPFI/TBI/preheating time
- 2 — Relay, fuel pump K58/K68

G Bracket, steering column

- 1 — Relay, driving lamp K59 (only Sweden/Norway)

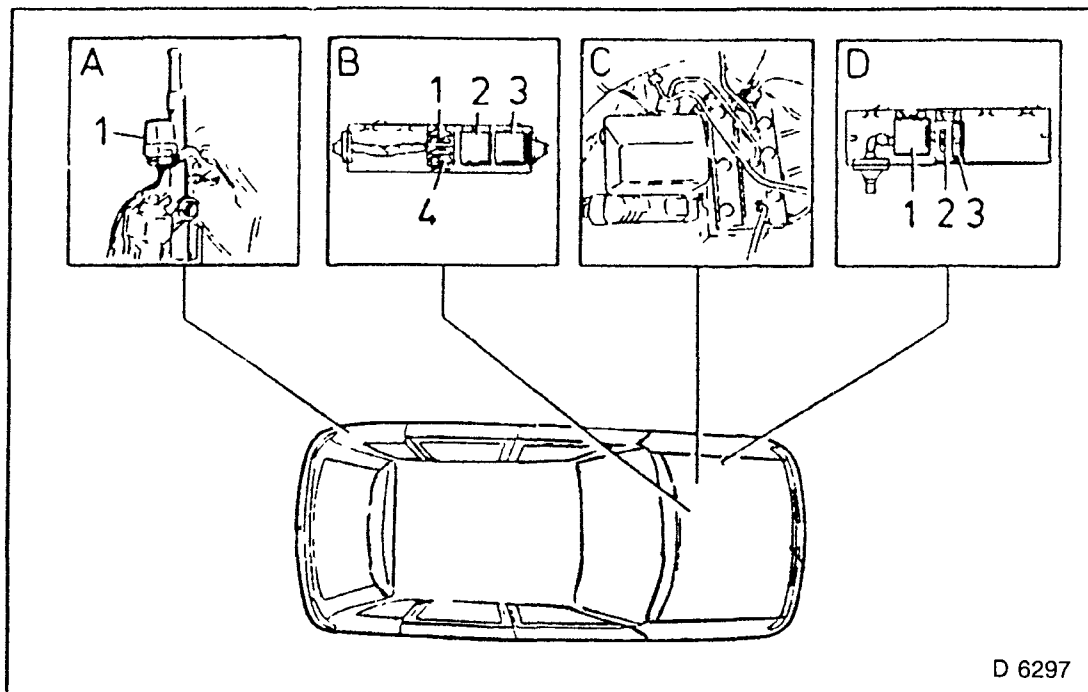


Fig 3

A Rear quarter panel, left

- 1 — Automatic antenna relay

B On bulkhead

- 1 — Fuse 30A, headlamp high pressure wash/wipe system F39
- 2 — Relay, headlamp high pressure wash/wipe system K97
- 3 — Relay, fanfare K63
- 4 — Fuse, fanfare F45

C Hydraulic modulator

- 1 — Control unit, ABS

D On engine compartment wheel well, left TC 4EE1

- 1 — Fuel pre-heating relay K80 (green)
- 2 — Fuse 30A, fuel pre-heating F36 (green)
- 3 — Fuse 60A, preheating time F41 (black)

D 6297

Survey of Fuse Box — Fuse Box with 28 Fuses

1. 20A Central Locking System *
 2. 20A Fuel Pump
 3. 30A Windshield Wipers, Horn
 4. 10A Dipped Beam (Left)
 5. 10A Dipped Beam (Right)
 6. 20A ABS*, Automatic Transmission*
 7. 10A Electrically adjustable exterior mirror*, Lamp Glove Box, Control indicators
 8. — Not applicable
 9. — Not applicable
 10. 30A Electrically Operated door windows*
 11. — Not applicable
 12. 10A Main Beam (Left)
 13. 10A Main Beam (Right)
 14. 30A Heater Fan, Air Conditioning System
 15. 30A Cooling Fan
 16. 30A Heated Rear Window
 17. 20A Fog Lamps*
 18. 10A Parking and Tail Lamps (Left)
 19. 10A Parking and Tail Lamps (Right)
Instrument Illumination, Licence Plate Lamp
 20. 20A Carburettor preheating*, reverse lamp, cigarette lighter
 21. 30A Cooling Fan, Air conditioning system
 22. — Not Applicable
 23. 30A Blower Heater Fan (without Air Con.)
 24. 20A Courtesy Lamp, Luggage Compartment Lamp, Hazard Warning flashers, clock, radio*, trip computer*
 25. 10A Automatic Transmission*
 26. — Not applicable
 27. — Not applicable
 28. 15A Turn signal lamps, brake lamps, ABS*
- At rear of fuse box:
10A Vehicle Security System horn*

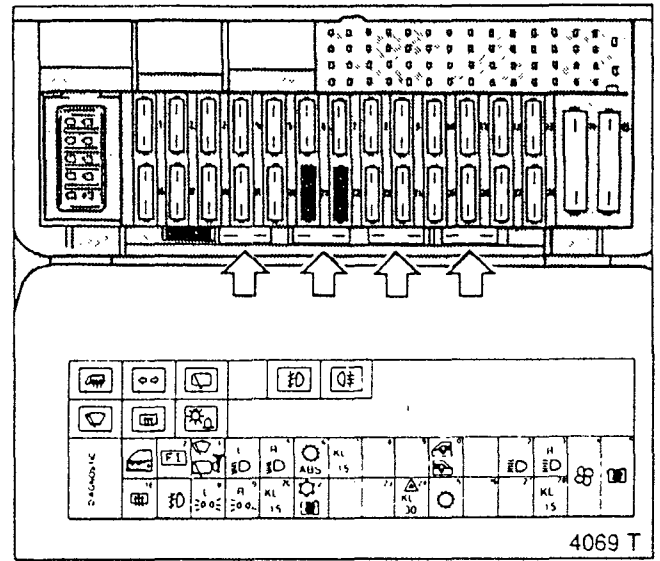


Fig 4

Survey of Fuses and Relays in Engine Compartment

ON BULKHEAD

- 1 — Relay, fanfare K63 (black)
- 2 — Fuse 20A, fanfare F45

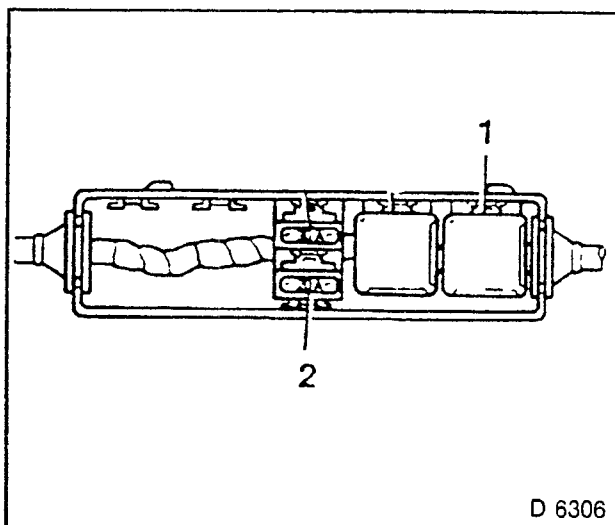


Fig 5

ON ENGINE COMPARTMENT WHEEL HOUSING, LEFT TC 4EE1 (Fig. 6 "A")

- 1 — Relay, fuel pre-heating K80 (green)
- 2 — Fuse 30A, fuel pre-heating F36 (green)
- 3 — Fuse 60A, glow plugs F41 (black)

ON ENGINE COMPARTMENT WHEEL HOUSING, LEFT 17D (Fig. 6 "B")

- 1 — Fuel pre-heating relay K80 (green)
- 2 — Fuse A30, fuel pre-heating F36 (green)
- 3 — Engine cold start acceleration relay K82 (black)

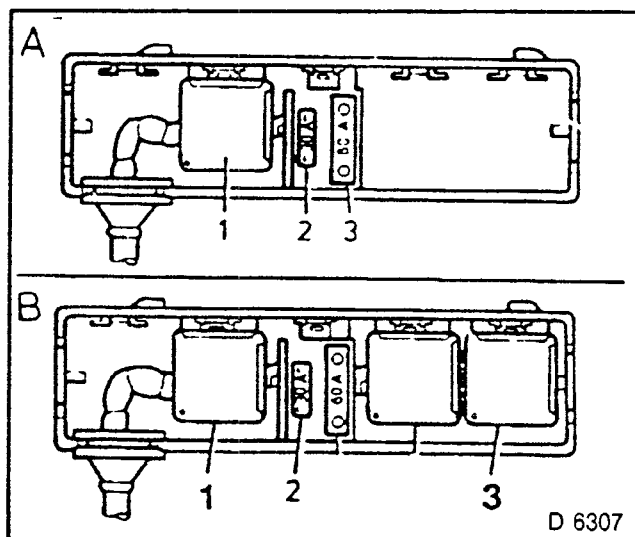
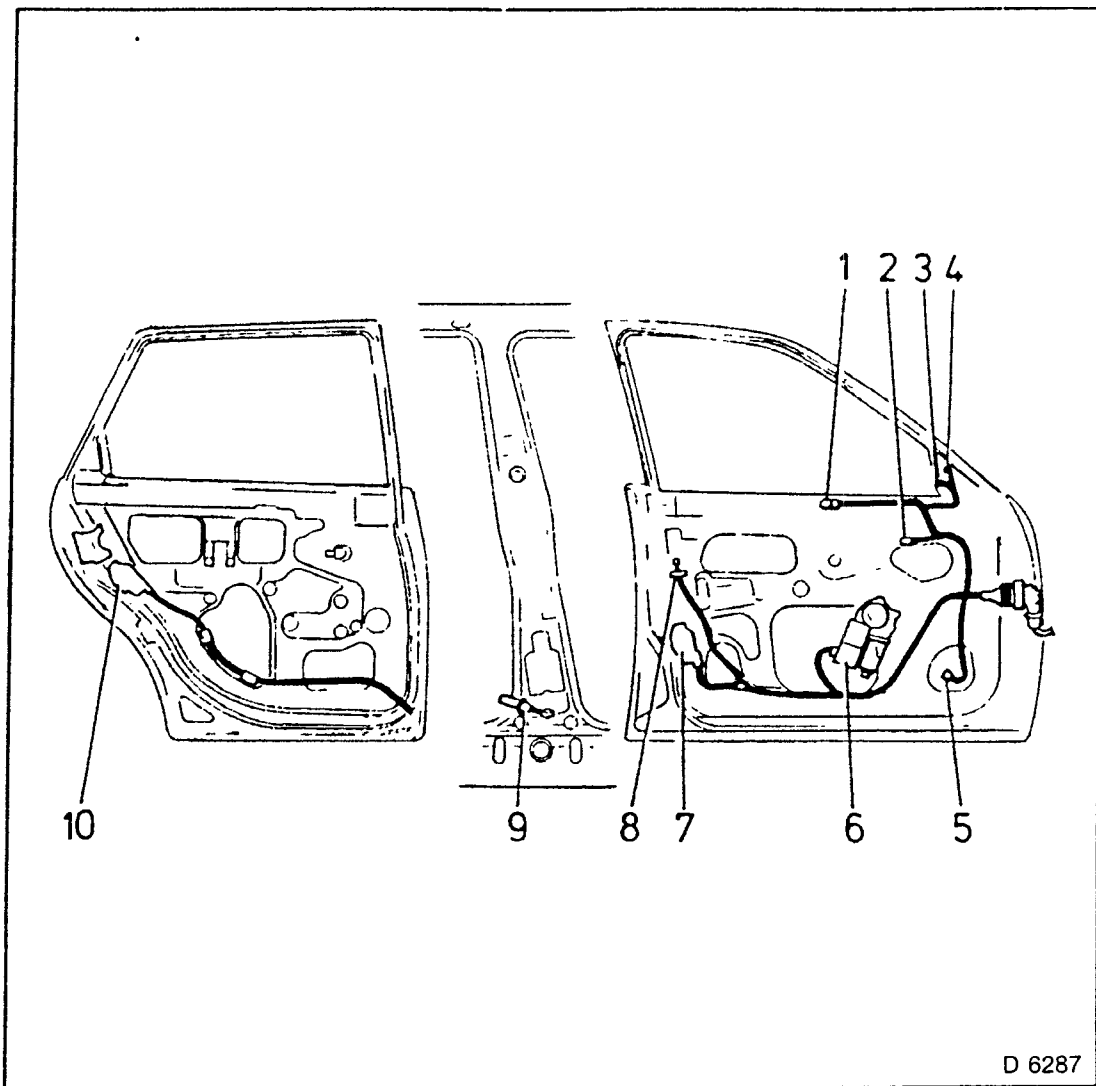


Fig. 6



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Fig. 7

Wiring Harness Front and Rear Doors

- 1 — To switch, electrical mirror adjustment
- 2 — To switch, electrical window winder
- 3 — Plug, electrical mirror adjustment
- 4 — To treble loudspeaker
- 5 — To bass loudspeaker
- 6 — Window winder motor
- 7 — Central door locking motor
- 8 — Central door locking switch
- 9 — Rear door wiring harness plug
- 10 — Central door locking motor

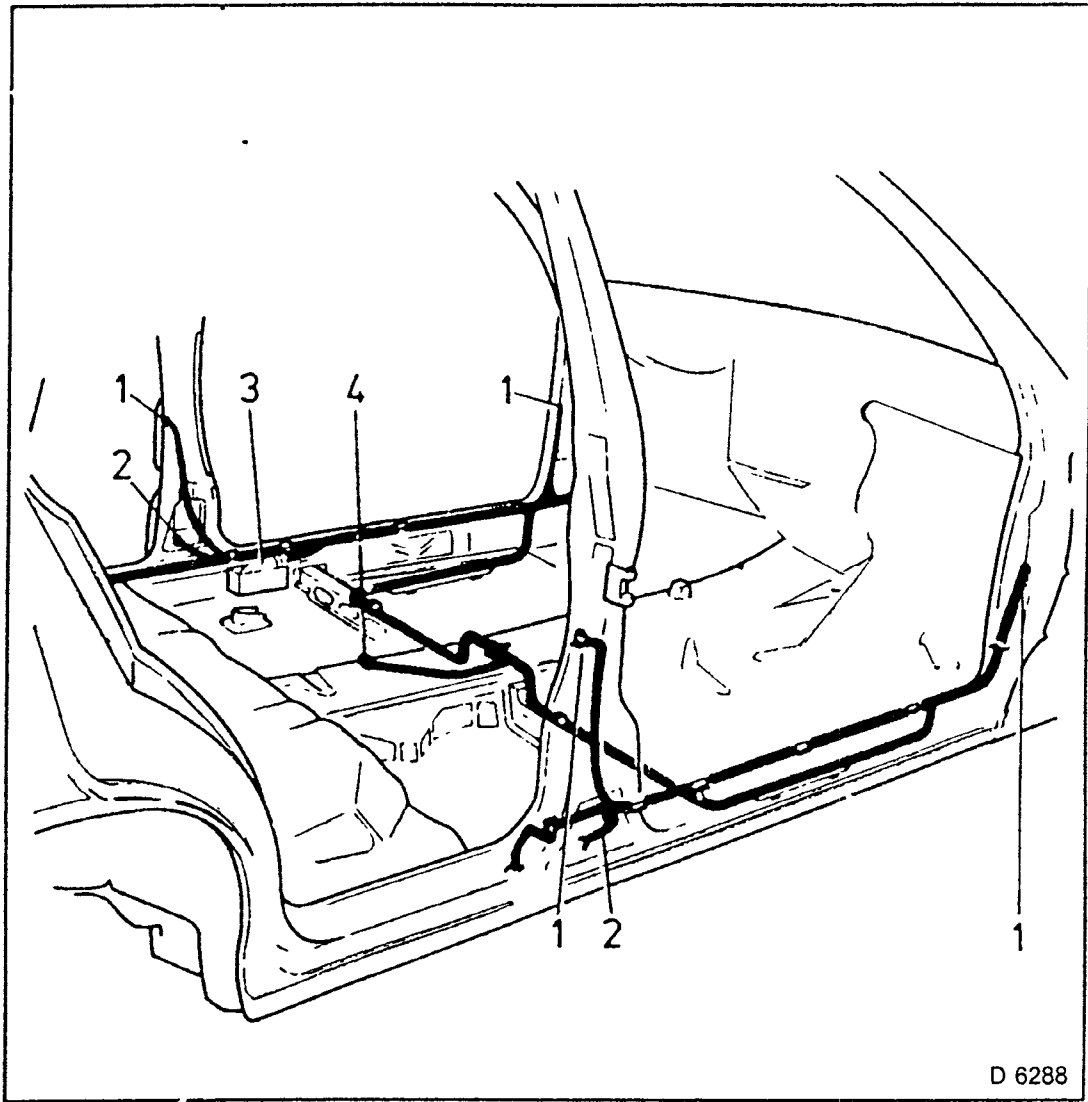
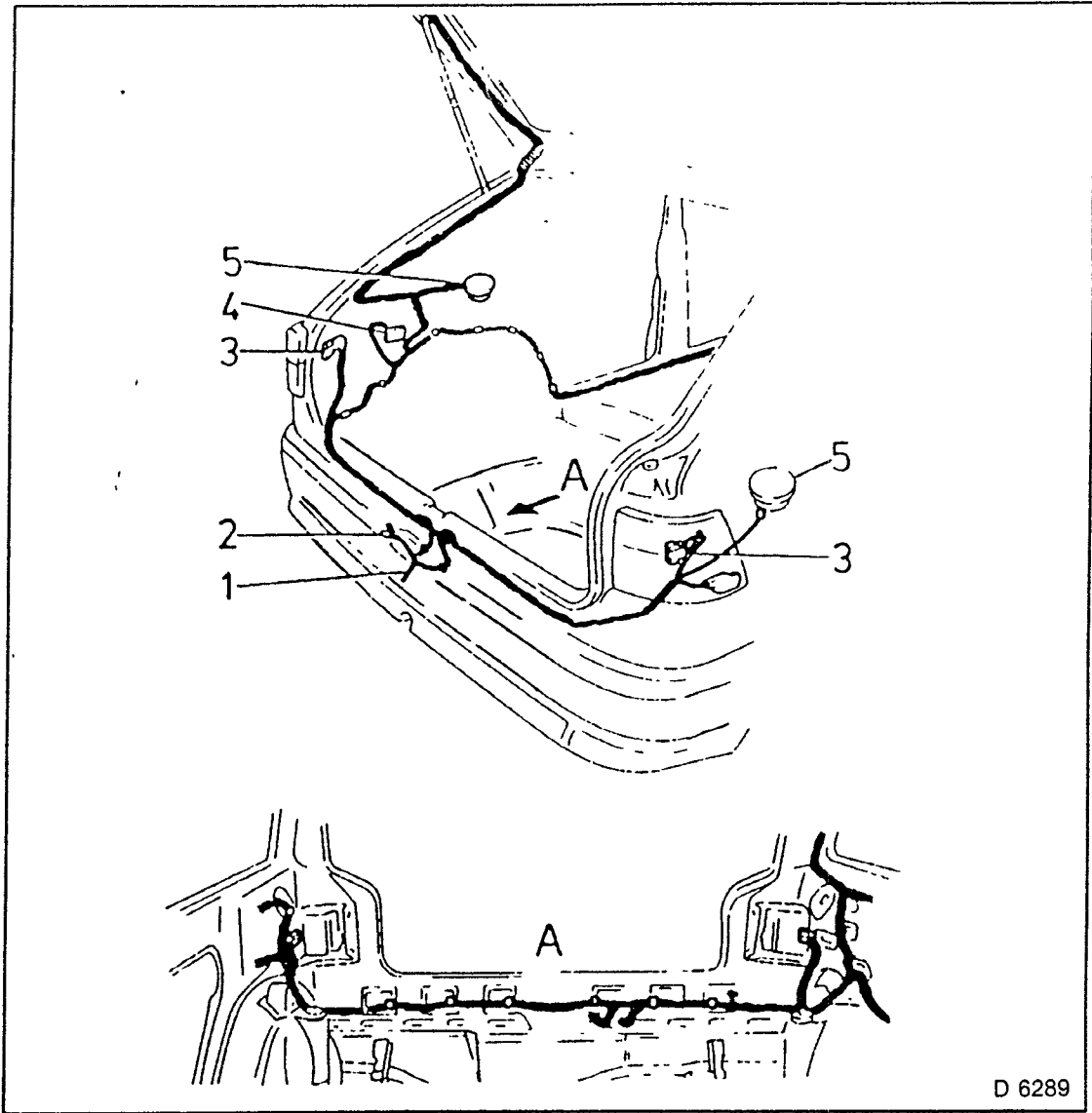


Fig 8

Wiring Harness, Doors

- 1 — Interior lamp contact switch
- 2 — Connection to rear doors wiring harness
- 3 — ETC control unit
- 4 — Parking brake telltale switch



D 6289

Fig. 9

Wiring Harness, Rear Body (Kadett)

- 1 — Trailer hitch connection
- 2 — Licence plate lamp connection
- 3 — Rear lamp connection
- 4 — Luggage compartment lamp
- 5 — Loudspeaker connection

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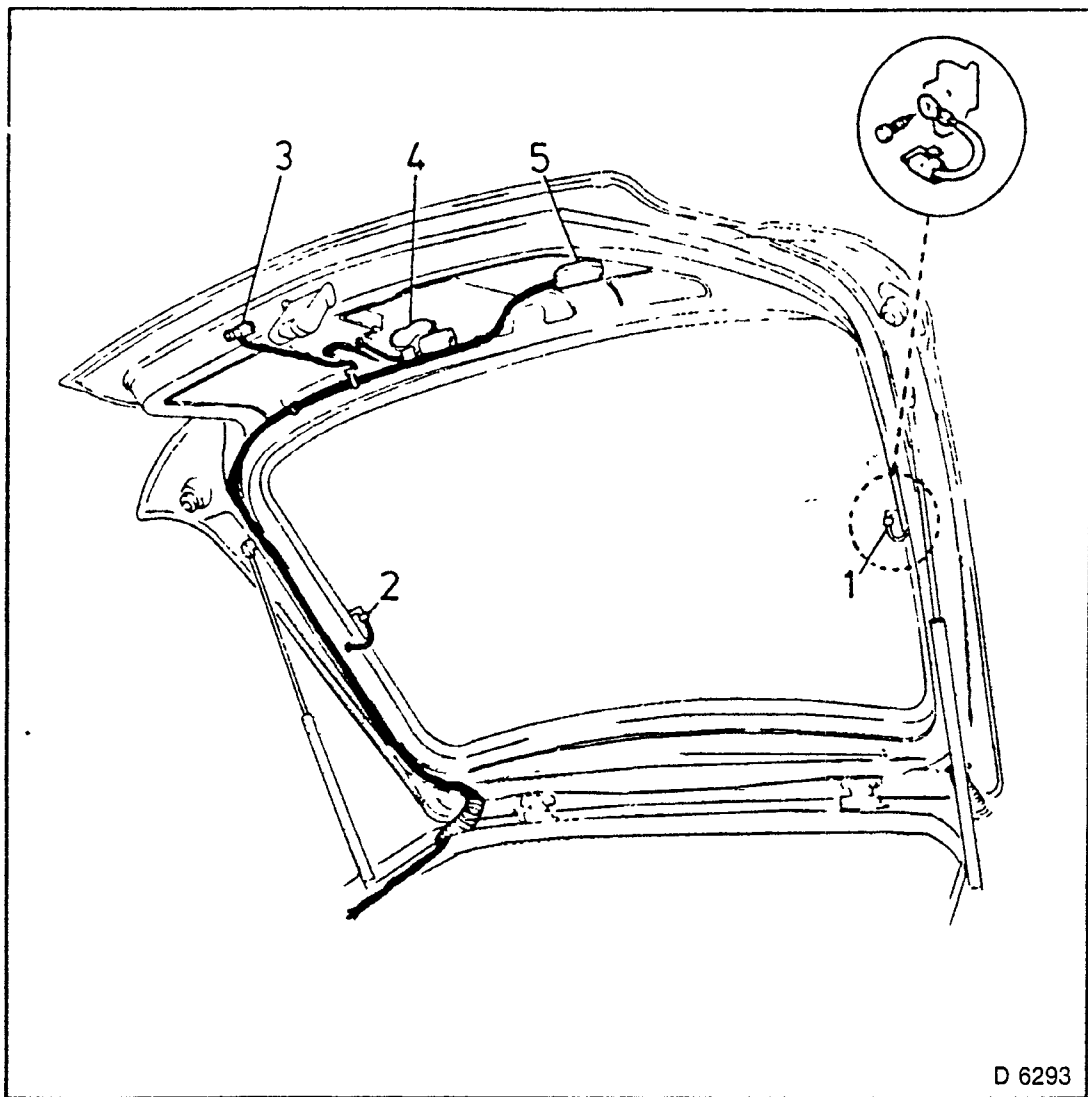


Fig. 10

Wiring Harness, Tailgate (Kadett)

- 1 — Heated rear screen ground connection
- 2 — Heated rear screen current connection
- 3 — Luggage compartment lamp switch
- 4 — Windscreen wiper motor
- 5 — Central door locking motor

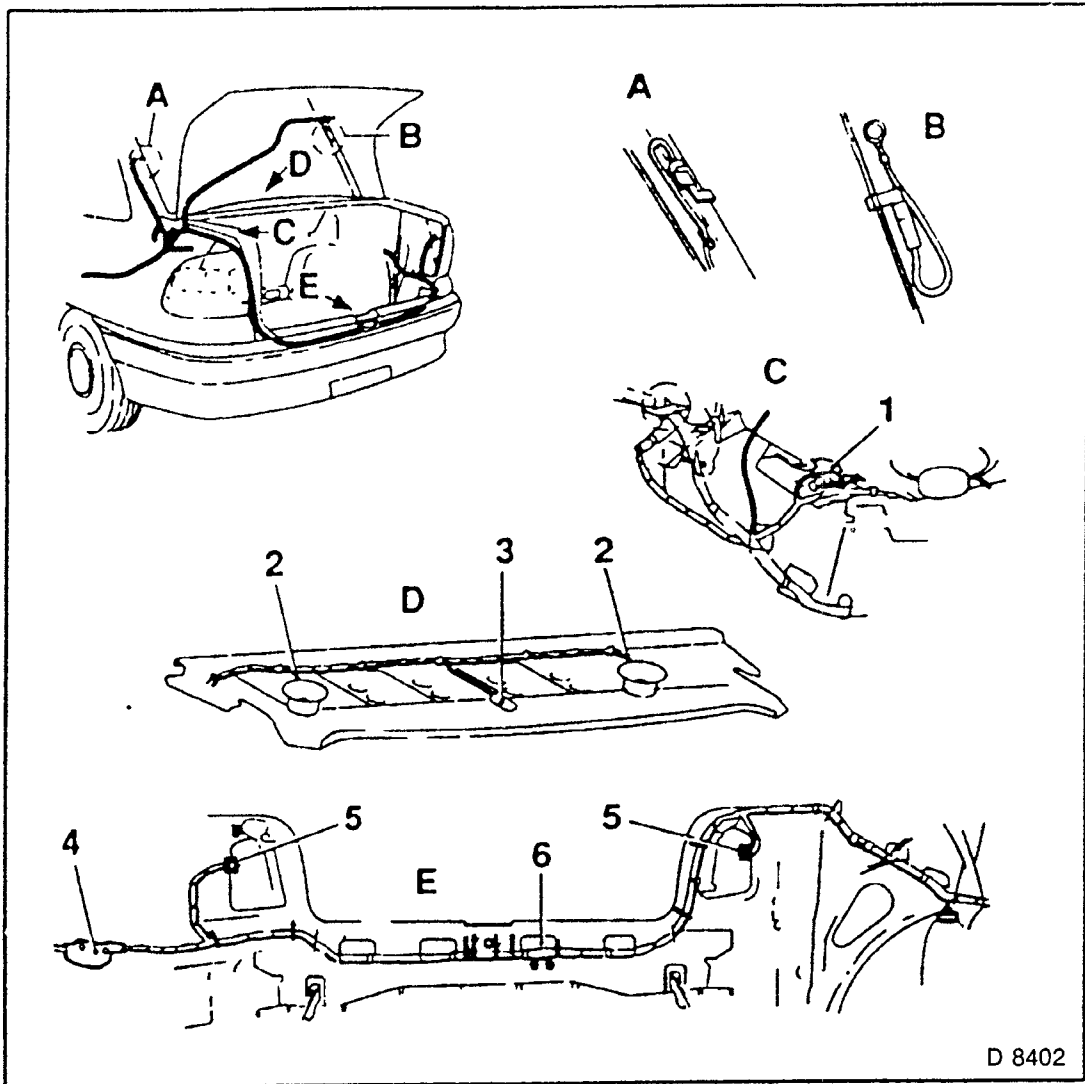


Fig 11

Wiring Harness, Body, Rear (Astra)

A — LEFT C PILLAR

Positive connection, heated rear screen

B — RIGHT C PILLAR

Ground connection, heated rear screen

C — LUGGAGE COMPARTMENT, TOP LEFT

1 — Switch for luggage compartment illumination

D — UPPER REAR END PANEL

2 — Loudspeakers

3 — Luggage compartment lamp

E — LOWER REAR END PANEL

4 — Central door locking servo motor for fuel tank flap

5 — Rear lamps connection

6 — License plate lamp connection trailer hitch

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Wiring Harness, Luggage Compartment Lid — (Astra)

- 1 — Motor for central door locking
- 2 — Switch for central door locking

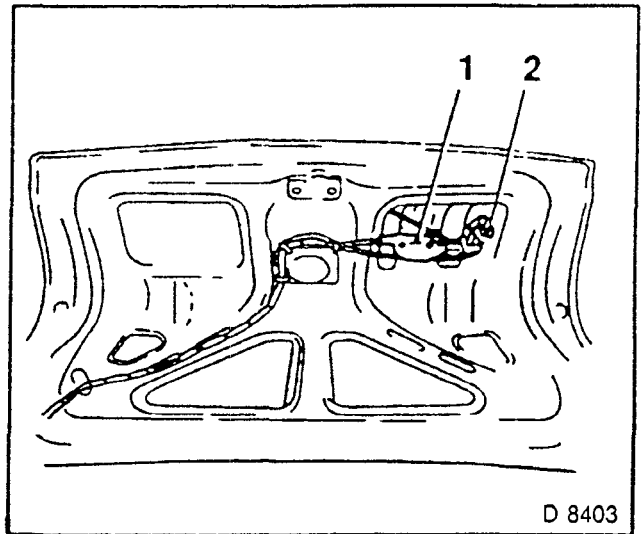


Fig 12

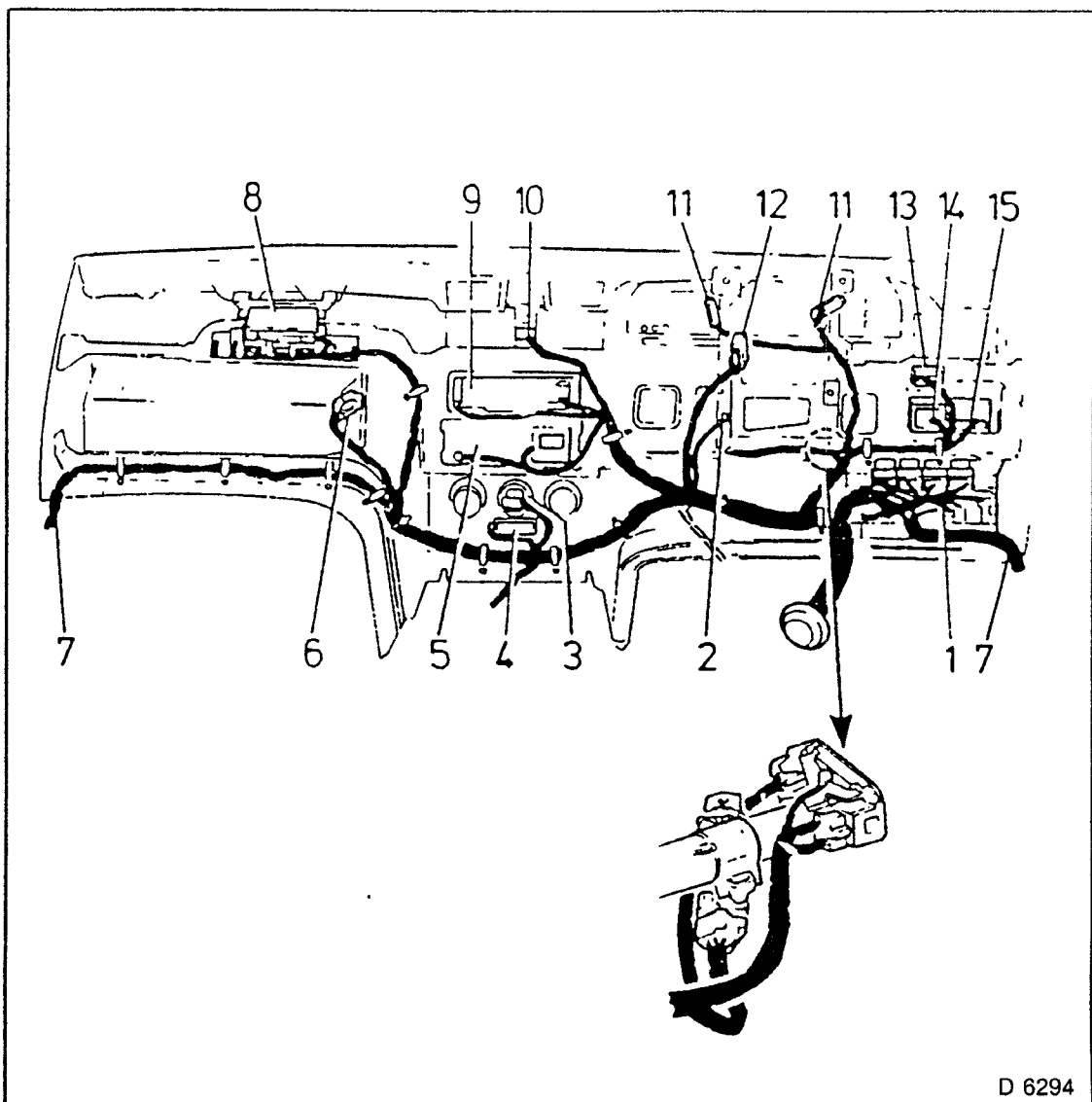


Fig 13

Wiring Harness, Instrument Panel

- | | |
|-----------------------------------|---|
| 1 — Central electrics | 9 — Display: MID/DID |
| 2 — Ground connection | 10 — Hazard warning lamp switch |
| 3 — Fan/heated rear screen switch | 11 — Instrument assembly connection |
| 4 — Recirculating air switch | 12 — Driving lamp relay
(only Sweden/Norway) |
| 5 — Radio | 13 — Rear fog lamp/fog lamp switch |
| 6 — Glove compartment lamp | 14 — Headlamp range control switch |
| 7 — To body wiring harness | 15 — Light and interior lamp switch |
| 8 — Bulb monitor sensor | |

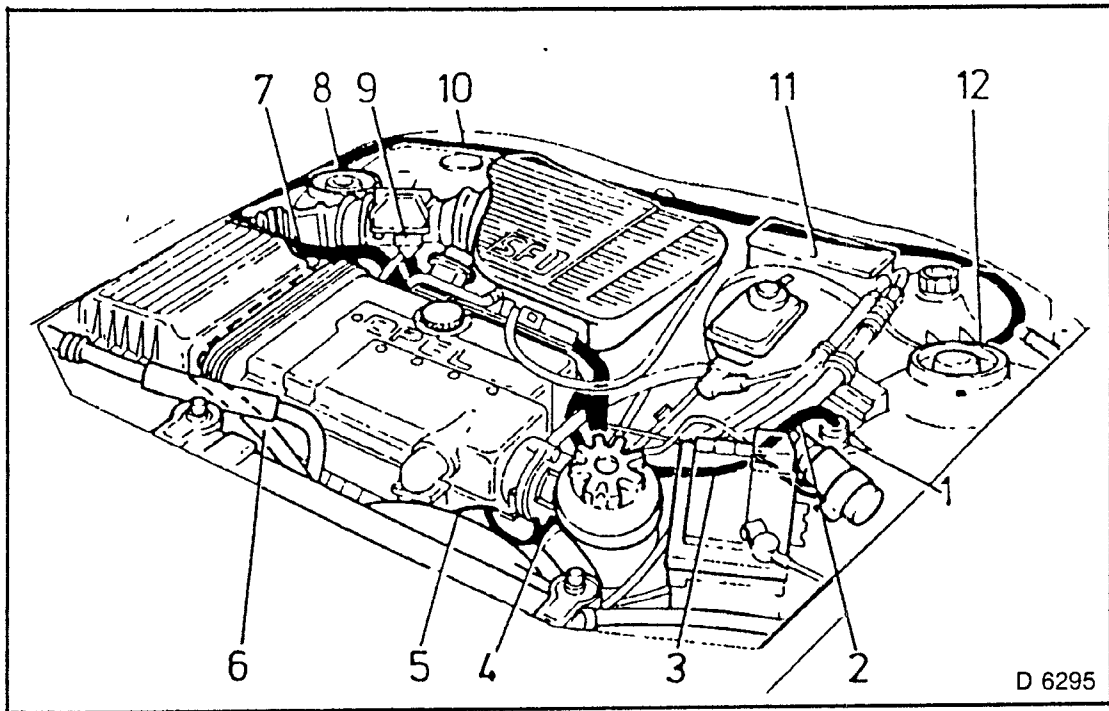


Fig 14

Wiring Harness, Engine

WIRING HARNESS C20 XE ENGINE

- 1 — To instrument panel wiring harness
- 2 — Ignition coil
- 3 — Reversing lamps switch
- 4 — Hall sensor, cylinder recognition
- 5 — Remaining oil amount sensor
- 6 — Coolant temperature sensor
- 7 — To crankshaft pulse pick up wiring harness
- 8 — To body wiring harness
- 9 — To mass air flow sensor
- 10 — Oxygen sensor wiring plug
- 11 — Relays/fuses
- 12 — Octane number adjustment

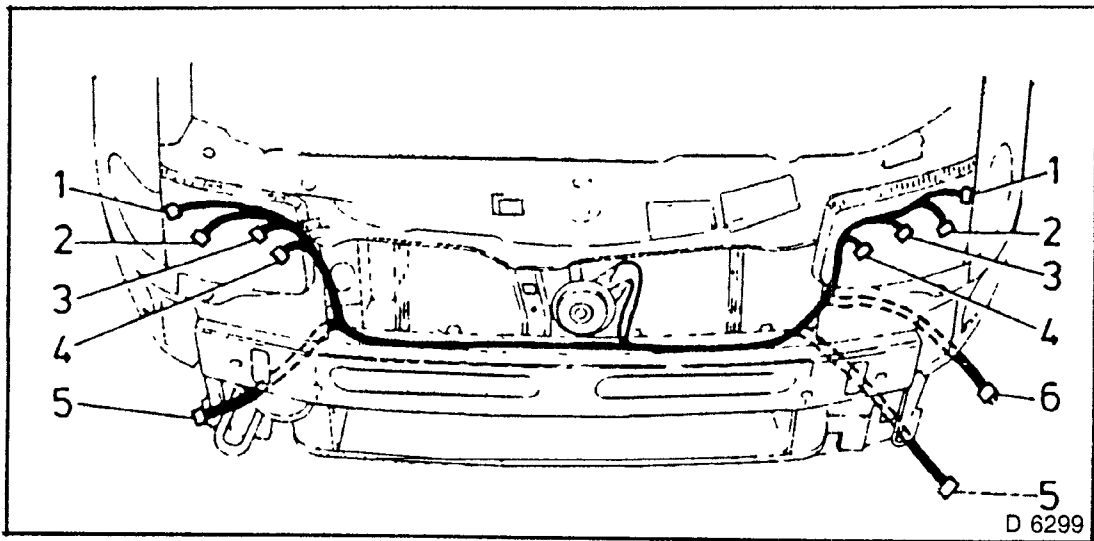


Fig. 15

Wiring Harness, Front Body

- 1 — Connection, turn signal unit
- 2 — Connection, headlamp range control
- 3 — Connection, low beam/high beam
- 4 — Connection, parking light
- 5 — Connection, fog lamp
- 6 — Connection, outside temperature

Headlamps, exterior lamps, interior lamps, switch

HEADLAMP ADJUSTMENT, CHECK AND ADJUST

The main headlamp housing or retainer displays the reference $\equiv \triangleright 1,2\%$ for the low beam adjustment according to EEC 76/756 or ECE — R48 guidelines. The fog lamp has not yet been provided with a reference for the 2% inclination of the light beam centre.

The 76/756 EEC or ECE — R48 guidelines cover checking and adjustment of headlamps on the vehicle. The correct adjustment of the headlamps on the vehicle should enable optimal road illumination by the low beam, with minimal dazzling of oncoming traffic. The inclination of the headlamp beam to the level road surface and the angle of the beam to the vertical longitudinal plane running through the vehicle's centre must satisfy the conditions laid down in the guidelines.

Dazzling (low beam) is considered eliminated if the intensity of illumination at a distance of 25 m from each individual headlamp on the plane perpendicular to the road and at the height of the headlamp as well as beyond, is not greater than 1 lux. This requirement is generally satisfied if the headlamp adjustment is carried out according to the adjustment guidelines.

The reference $\equiv \triangleright 1,2\%$ corresponds to the adjustment dimension of the headlamp in reference to the inclination of the light beam. The inclination at 10 m distance from the vehicle headlamp is therefore 12 cm (Fig. 16 and Fig. 17).

The inclination of low beam headlamp is indicated by its light/dark border.

The headlamps are adjusted with an adjustment unit according to the specifications, as shown in Figs. 16 and 17. When a headlamp adjustment unit is used, the surfaces where the vehicle is standing and where the unit is set up must be flat and parallel to one another.

The vehicle tyres must be inflated to the prescribed pressures. Defective headlamp lenses and mirrors and blackened bulbs must be replaced before adjustment.

Adjustment is made with vehicle at curb weight, laden with one person or 75 kg on the driver's seat. (Curb weight = weight of vehicle ready for operation with fuel tank completely full and including the weight of all accessories normally carried, e.g. spare wheel, tools, jack, fire extinguisher, first aid kit, warning triangle, etc.)

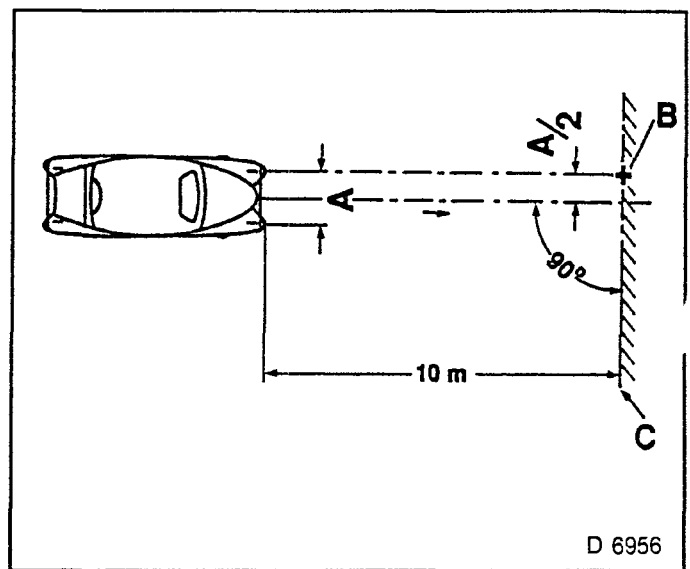


Fig. 16

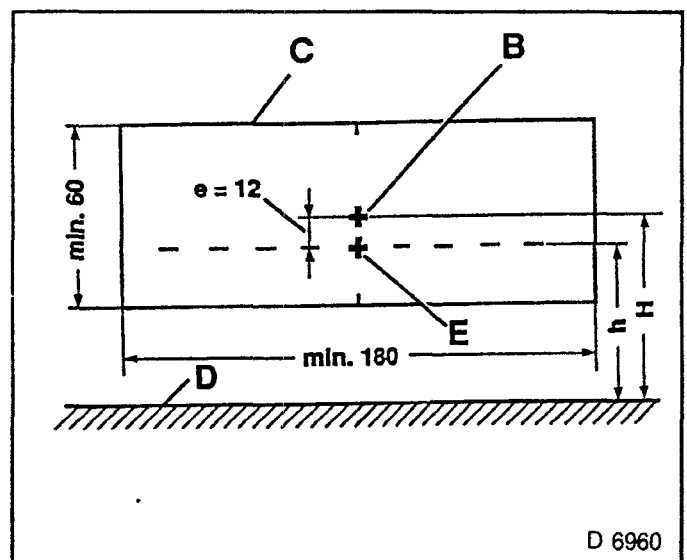


Fig. 17

- A = Horizontal distance between centre points of headlamps
- B = Central marking
- C = Test surface
- D = Road surface
- E = Point of deflection
- e = Adjustment dimension in cm; $e = H - h$ (adjustment of headlamps 1,2%, $e = 12$ cm, fog lamps 2%, $e = 20$ cm)
- H = Height of centre of headlamp over road surface
- h = Height of light/dark border of low beam headlamp above road surface

The headlamp adjustment is carried out according to the regulations, as shown in Fig. 5, 18 and 19, using an adjuster. When using a headlamp adjuster, ensure that the vehicle road surface and surface for setting up the adjuster are level and parallel to one another.

Vehicle tyres must have the prescribed air pressure. Defective headlamp lenses and mirrors as well as blackened bulbs must be replaced before adjusting.

Adjustment is carried out at vehicle curb weight plus one person or 75 kg on the driver's seat (Curb weight = weight of operation — ready vehicle with completely filled fuel tank as well as weight of all equipment carried during operation, e.g. spare wheel, tools, jack, first aid kit, emergency warning triangle, etc.)

Vehicles with manual level control must be adjusted to the prescribed basic pressure (0,8 bar at curb weight). On vehicles with automatic level control, switch on ignition so that the automatic level control brings the vehicle (curb weight) to normal position. After approximately one minute, the headlamp adjustment can be made.

On vehicles with headlamp range control, the switch for headlamp range control must be at position "O" (position for headlamp basic adjustment).

The intersection between the horizontal and the ascending parts of the light/dark border (break point) must lie on the perpendicular through the central marking.

For easier determination of the intersection point, the headlamp halves can be alternately covered and uncovered a few times.

The headlamp adjuster used must correspond to the existing guidelines and the manufacturer's operating instructions must be followed.

The headlamp adjuster must be regularly checked by the manufacturer's maintenance service.

The headlamp adjuster is set up according to manufacturer's guidelines and is adjusted to 1,2% inclination for the low beam or 2% inclination for the fog lamp.

According to Guideline 76/756 EEC, the 15° line for low beam on the measurement screen is no longer required. The guideline specifications can however still be set on headlamp adjustment units that have the 15° line on the measurement screen.

The point of intersection of the horizontal line and the inclined line of the light/dark border (point of deflection) must run vertically through the central mark.

To ease determination of the abovementioned point of intersection, one half of the headlamp can be alternatively covered and uncovered a few times.

For headlamps with joint adjustment for low beam and high beam, the centre of light beam at high beam must lie within the corner limits around the central marking (see Fig. 19)

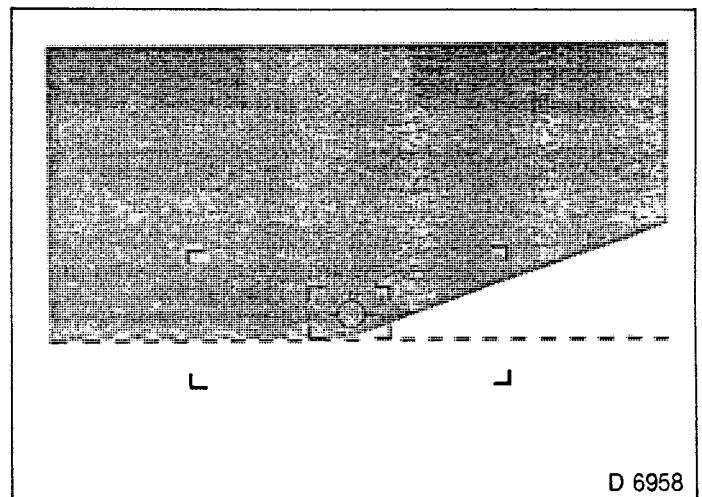


Fig 18

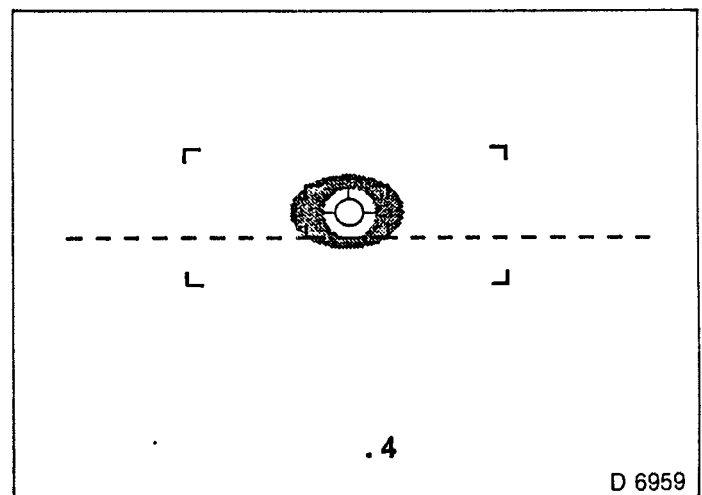


Fig 19

ADJUST HEADLAMP

A — Height adjustment

B — Lateral adjustment

The headlamps must be adjusted according to regulations with an adjusting wall or with an optical headlamp adjustment unit.

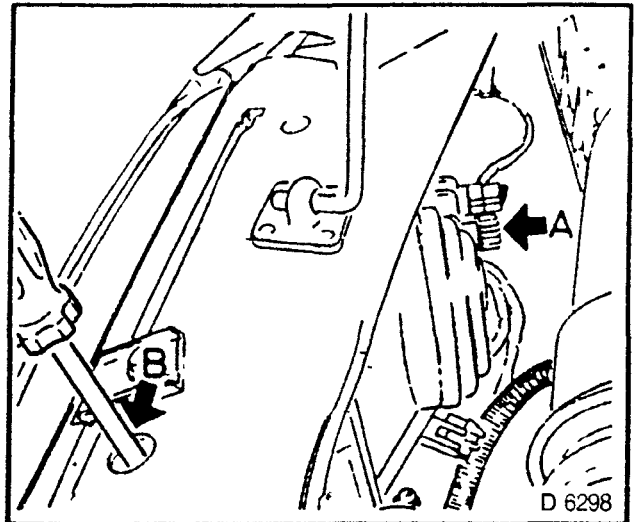


Fig. 20

Height adjustment

The left light — dark border of the adjusting cross must be in a horizontal position on the adjustment line.

Side adjustment

The light — dark — border must be horizontal from the left side up to adjustment cross and must run from that point to an angle of approximately 15° towards right upper direction.

The inclination of the beam is 1,2% in 10 m.

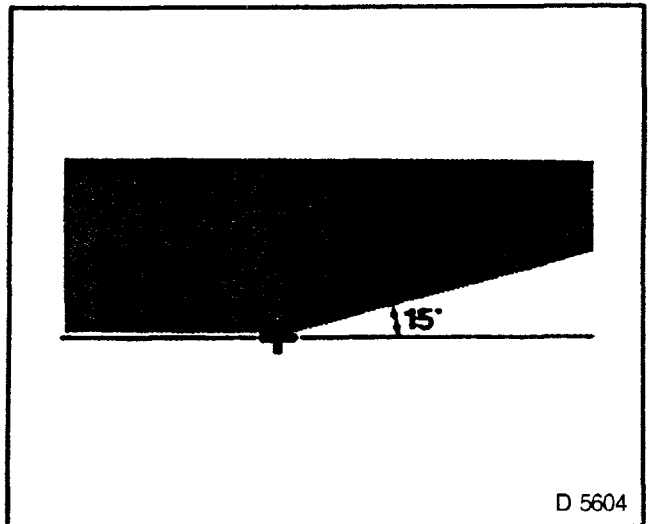


Fig 21

Turn Signal Lamp, Front — Remove and Install

REMOVE, DISCONNECT

1. Only loosen bolt, turn signal lamp from bracket.
2. Unlatch wiring harness plug and remove

INSTALL, CONNECT

1. Wiring harness plug
2. Turn signal lamp.

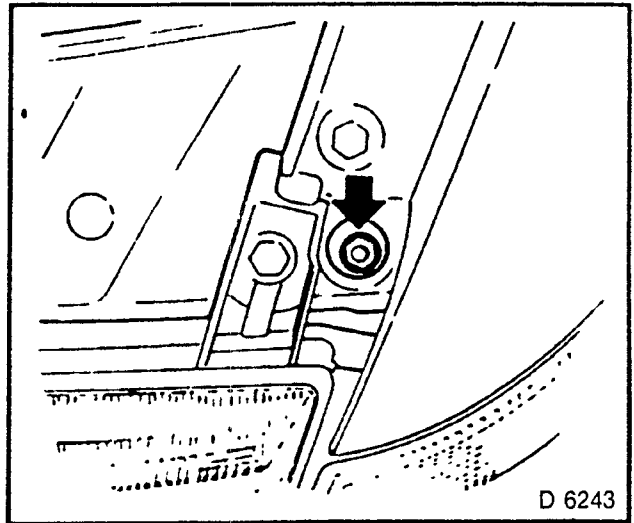


Fig. 22

Bulb — Turn Signal Lamp, Front — Replace

REMOVE, DISCONNECT

1. Turn signal lamp.
2. Unlatch wiring harness plug and remove.
3. Turn socket out of turn signal lamp
4. Remove bulb.

INSTALL, CONNECT

1. Bulb.
2. Socket.
3. Wiring harness plug.
4. Turn signal lamp.

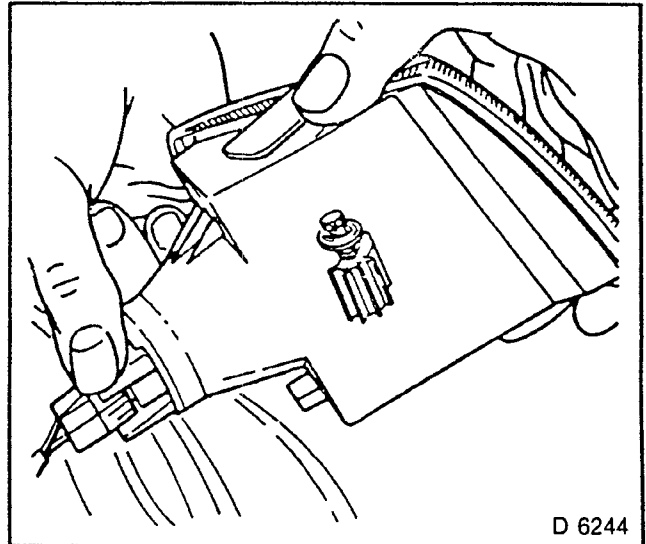


Fig. 23

Side Turn Signal Lamp — Remove and Install

REMOVE, DISCONNECT

1. Unlatch wiring harness plug and remove.
2. Release turn signal lamp and pull out of wing.

INSTALL, CONNECT

1. Turn signal lamp.
2. Wiring harness plug.

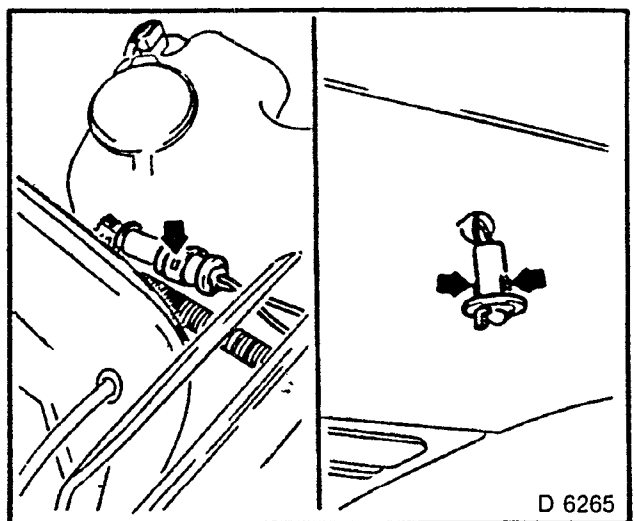


Fig. 24

Bulb — Side Turn Signal Lamp — Replace

REMOVE, DISCONNECT

1. Remove turn signal lamp lens.
2. Pull bulb out of turn signal lamp

INSTALL, CONNECT

1. Bulb
2. Turn signal lamp lens

Rear Lamp (Astra) — Remove and Install

REMOVE, DISCONNECT

1. Open cover.
2. Disconnect wiring harness plug and remove.
3. Rear lamp — 4 bolts.

INSTALL, CONNECT

1. Rear lamp.
2. Wiring harness plug
3. Close cover.

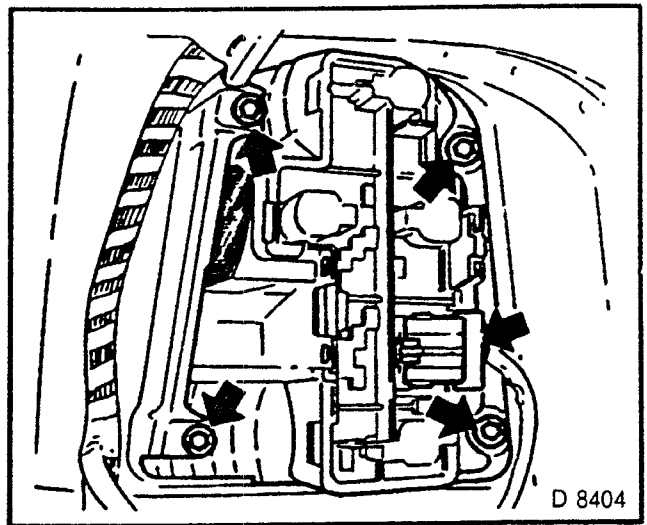


Fig. 25

Bulb — Rear Lamp (Astra) — Replace

REMOVE, DISCONNECT

1. Open cover.
2. Disconnect lamp support and remove.
3. Unscrew relevant bulb

INSTALL, CONNECT

1. Bulb
2. Lamp support.
3. Close cover.

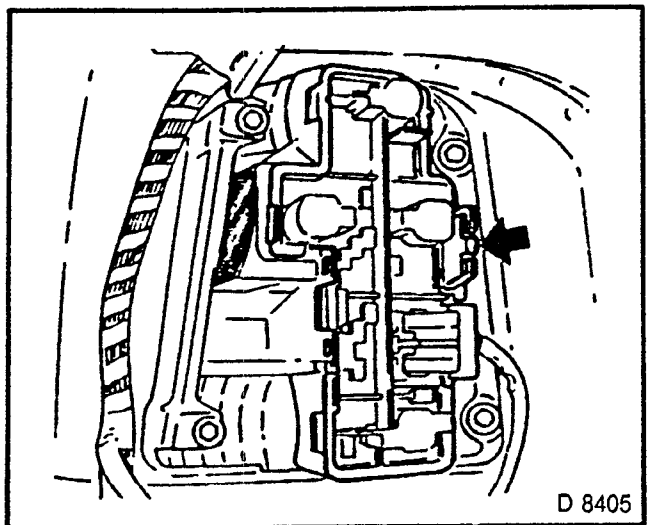


Fig. 26

Rear Lamp (Kadett) — Remove and Install

REMOVE, DISCONNECT

1. Remove cover.
2. Disconnect lamp support (1) and remove.
3. Rear lamp — four bolts.

INSTALL, CONNECT

1. Rear lamp
2. Lamp support.
3. Cover.

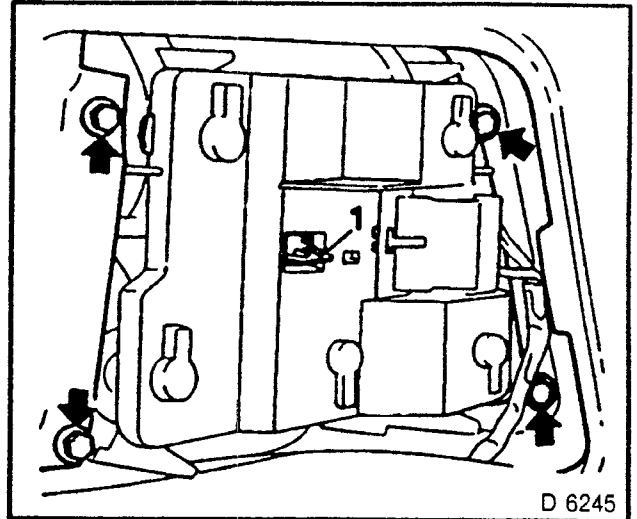


Fig. 27

Bulb — Rear Lamp (Kadett) — Replace

REMOVE, DISCONNECT

1. Remove cover.
2. Disconnect lamp support and remove.
3. Unscrew relevant bulb.

INSTALL, CONNECT

1. Bulb.
2. Lamp support.
3. Cover.

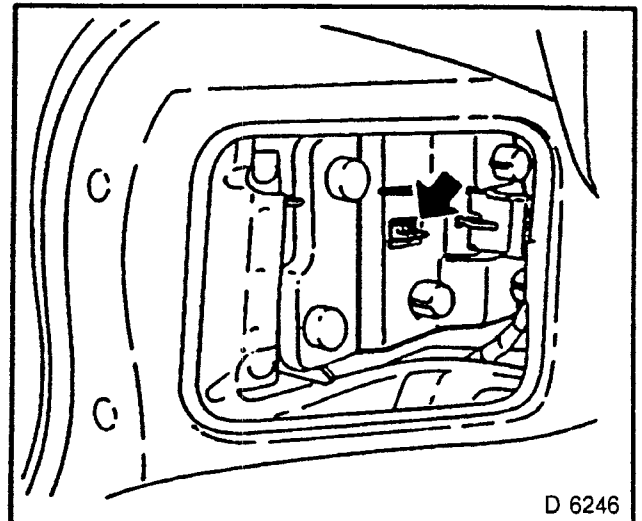


Fig. 28

License Plate Lamp — Remove and Install

REMOVE, DISCONNECT

1. Unlatch license plate lamp with a small screwdriver.
2. Remove from rear trim.
3. Remove cable.

INSTALL, CONNECT

1. Cable.
2. License plate lamp.

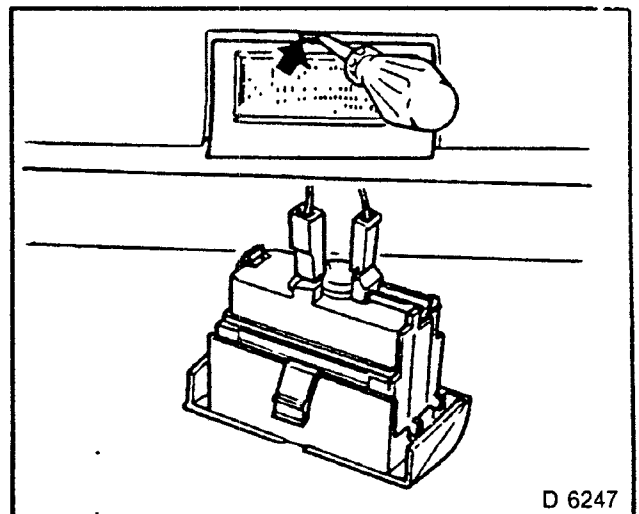


Fig. 29

Bulb — License Plate Lamp — Replace

REMOVE, DISCONNECT

1. Release license plate lamp
2. Remove from rear panelling.
3. Lamp support.
4. Bulb

INSTALL, CONNECT

1. Bulb
2. Lamp support.
3. License plate lamp.

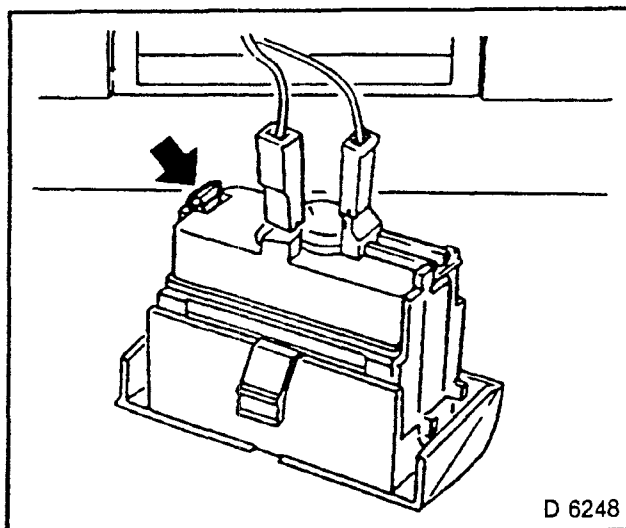


Fig. 30

Interior Lamp — Remove and Install

REMOVE, DISCONNECT

1. Unclip interior lamp from panel.
2. Wiring harness plug from interior lamp.

INSTALL, CONNECT

1. Wiring harness plug.
2. Interior lamp

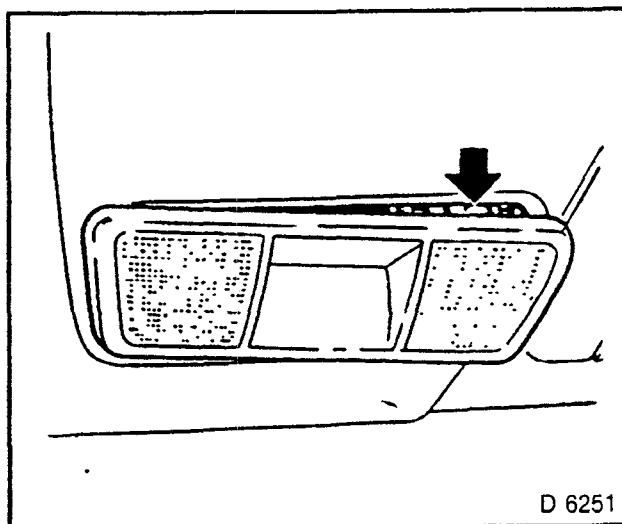


Fig. 31

Bulb — Interior Lamp — Replace

REMOVE, DISCONNECT

1. Unclip interior lamp from cover.
2. Remove glass from interior lamp
3. Remove bulb.
4. Bulb.

INSTALL, CONNECT

1. Bulb
2. Glass.
3. Interior lamp.

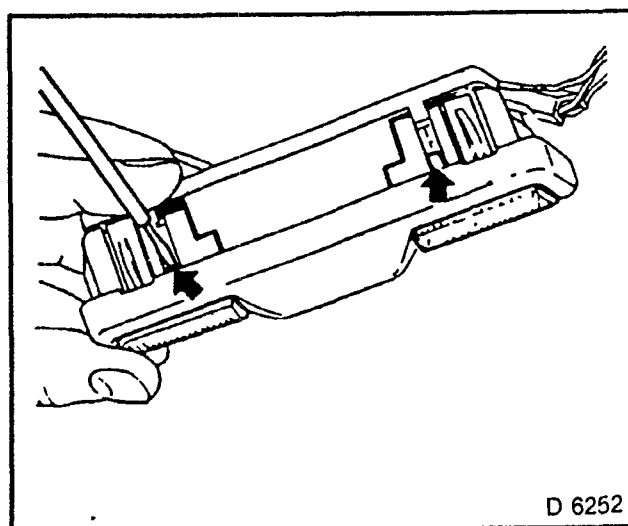


Fig. 32

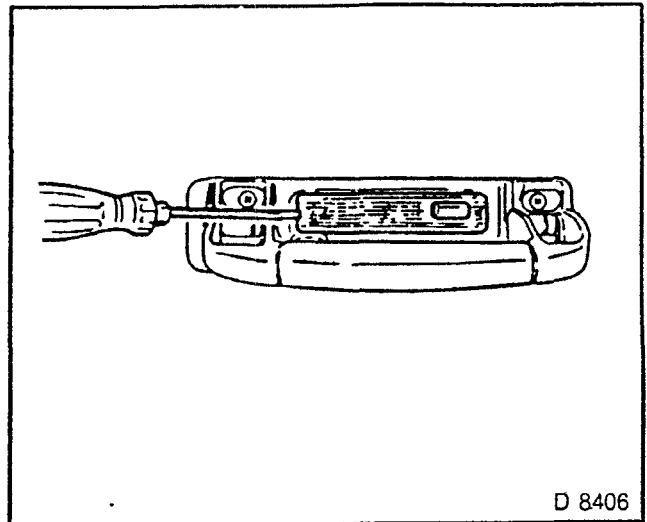
Rear Reading Lamp — Remove and Install

REMOVE, DISCONNECT

1. Carefully lever out reading lamp from assist handle with small screwdriver.
2. Remove wiring harness plug.

INSTALL, CONNECT

1. Wiring harness plug.
2. Reading lamp in assist handle.



D 8406

Fig 33

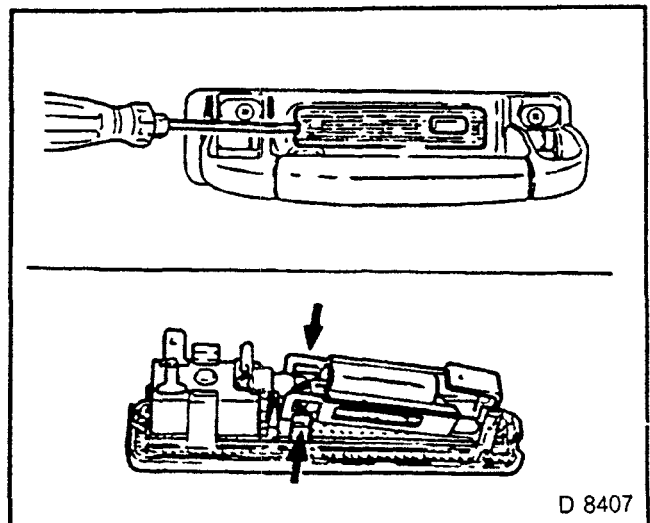
Bulb — Rear Reading Lamp — Replace

REMOVE, DISCONNECT

1. Carefully lever out reading lamp from assist handle with small screwdriver.
2. Remove wiring harness plug.
3. Carefully disconnect heat shield
4. Remove bulb.

INSTALL, CONNECT

1. Bulb
2. Heat shield
3. Wiring harness plug.
4. Reading lamp in assist handle



D 8407

Fig 34

Headlamp — Remove and Install

REMOVE, DISCONNECT

- 1 Radiator grille.
- 2 Turn signal lamp.
- 3 Headlamp.
- 4 Multiplug from bulb.
- 5 Headlamp range control motor.

INSTALL, CONNECT

1. Both multiplugs.
2. Headlamp.
3. Turn signal lamps.
4. Radiator grille.

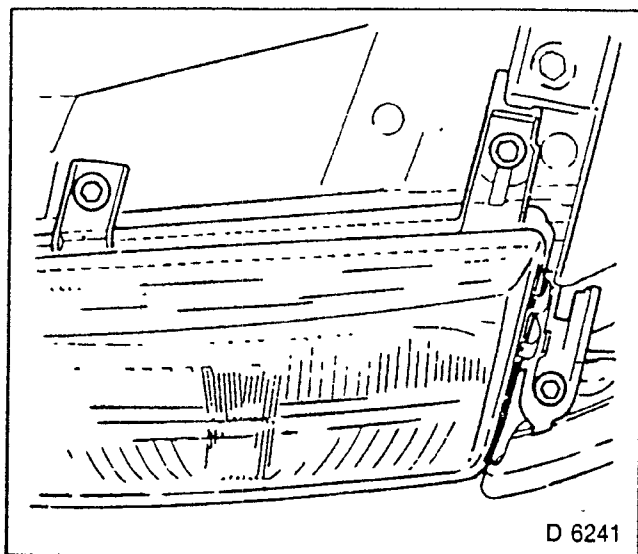


Fig 35

Headlamps with Headlamp Range Control — Replace

REMOVE, DISCONNECT

1. Pull radiator grille forwards (1).
2. Pull lower bracket upwards out of front panelling (2).
3. Headlamp washer system hose (if present).

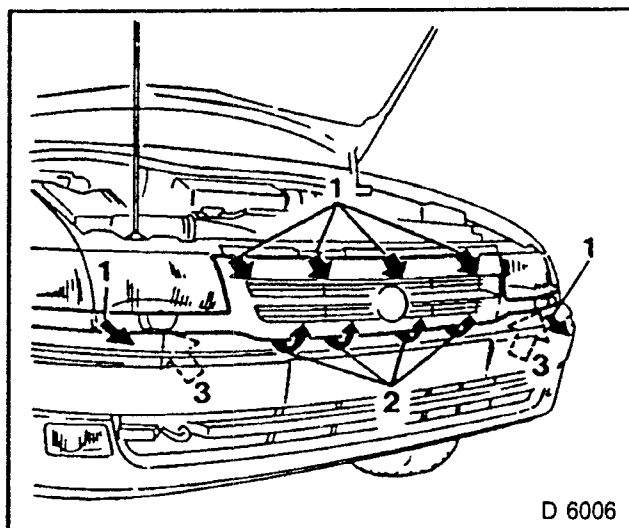


Fig 36

4. Loosen turn signal unit bolt (1) and remove forward from bracket.
5. Unbolt headlamp (2).
6. Wiring harness plug from bulb
7. Headlamp range control motor.

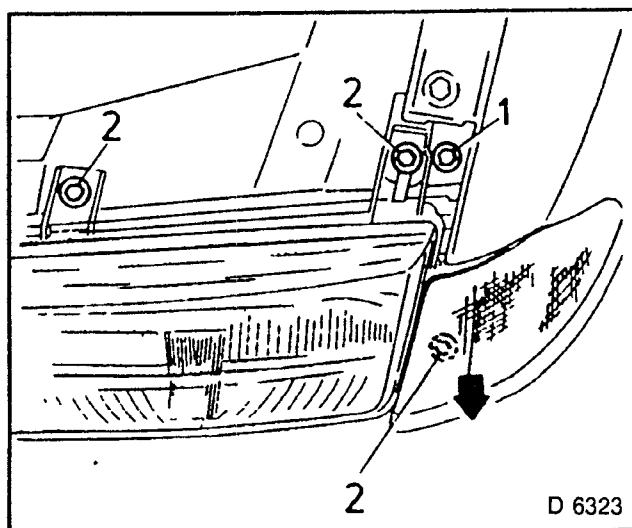


Fig 37

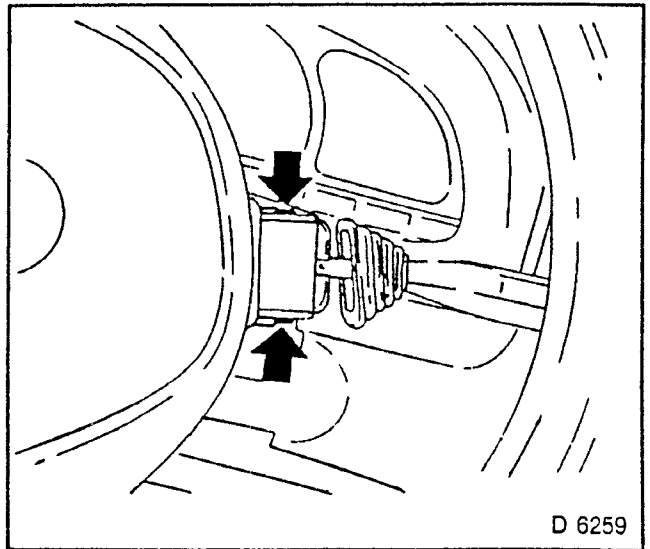
Turn Signal/Wiper Switch — Remove and Install

REMOVE, DISCONNECT

- 1 Signal switch panelling
2. Unlatch signal/wiper switch and remove
3. Unlatch wiring harness plug and remove

INSTALL, CONNECT

- 1 Wiring harness plug.
2. Signal/wiper switch.
3. Signal switch cover.



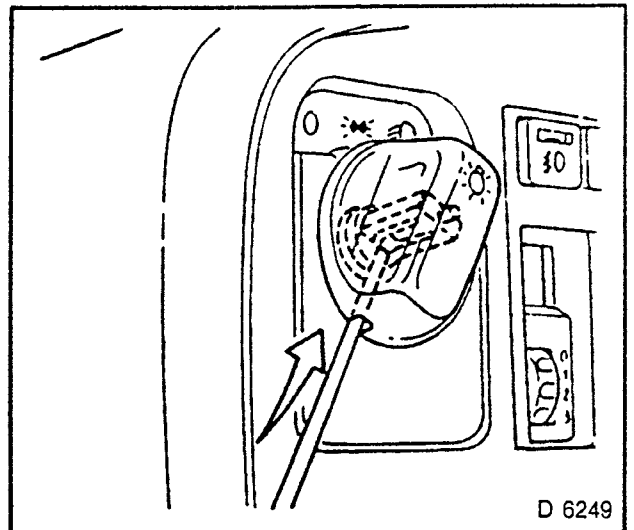
D 6259

Fig. 38

Light and Interior Lamp Switch — Remove and Install

REMOVE, DISCONNECT

1. Turn rotary knob to low beam "ON" position and remove.
2. Unlatch rotary knob with small screwdriver or electrode wire.



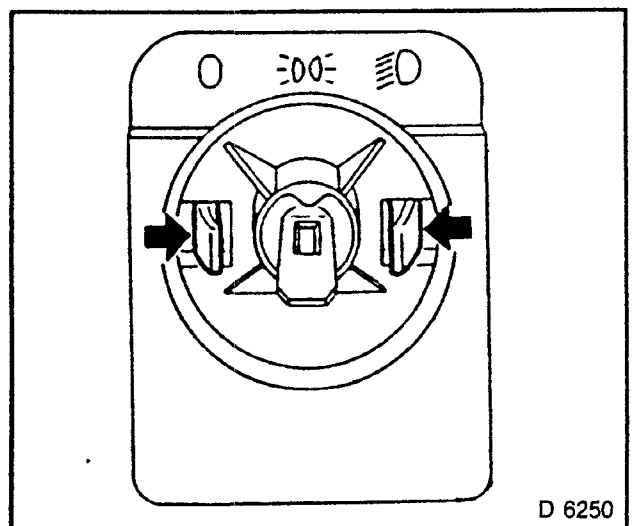
D 6249

Fig. 39

- 3 Press together catch.
4. Remove light and interior lamp switch from wiring harness plug.

INSTALL, CONNECT

1. Light and interior lamp switch.
2. Rotary knob.



D 6250

Fig. 40

Hazard Warning Lamp Switch — Remove and Install

WARNING:
ONLY REMOVE HAZARD WARNING LAMP SWITCH WHEN IN "ON" POSITION.

REMOVE, DISCONNECT

- 1 Hazard warning lamp switch in "ON" position, carefully lever out key.
2. Unlock hazard warning lamp switch and pull off from base.

INSTALL, CONNECT

1. Hazard warning lamp switch.
2. Cover.

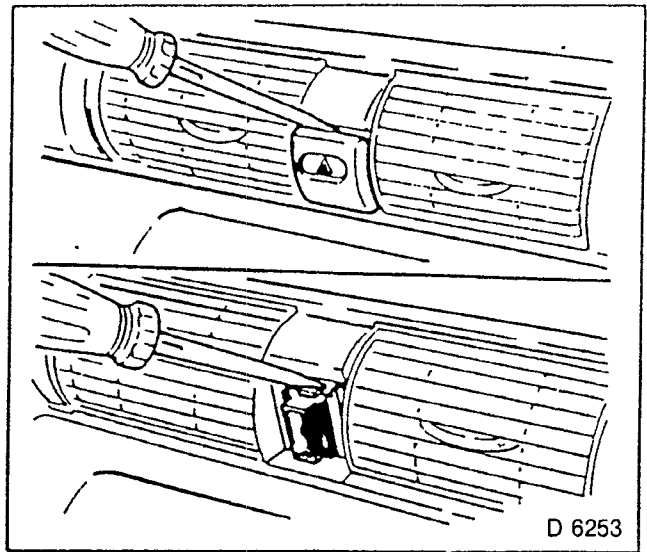


Fig 41

Signal Switch — Remove and Install

REMOVE, DISCONNECT

1. Pull signal switch from steering wheel.
2. Remove cable.

INSTALL, CONNECT

1. Cable.
- 2 Signal switch.

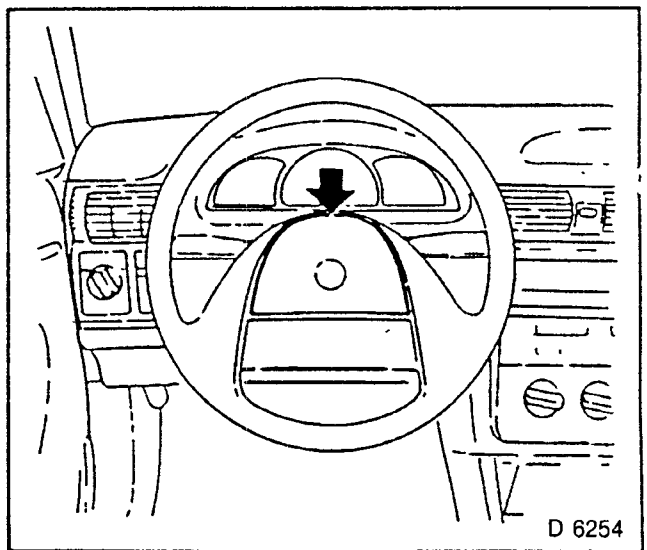


Fig. 42

Brake Lamp Switch — Remove and Install

REMOVE, DISCONNECT

1. Footwell panelling on driver's side.
2. Disconnect multiplug and remove
3. Turn brake lamp switch to left.

INSTALL, CONNECT

1. Brake lamp switch.
2. Multiplug
3. Footwell panelling.

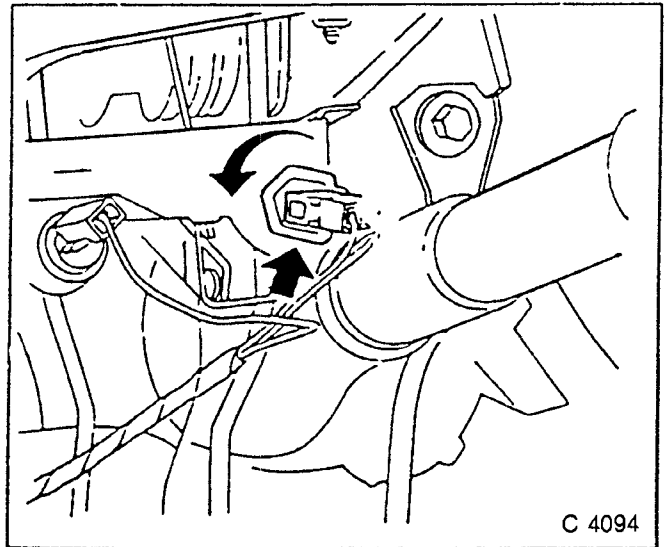


Fig. 43

Parking Brake Telltale Switch — Remove and Install

REMOVE, DISCONNECT

1. Left seat (Front Seat, Remove and Install Section C).
2. Centre console (Centre Console, Remove and Install Section C).
3. Release parking brake lever (Parking Brake Lever, Remove and Install Section H)
4. Switch from parking brake lever.
5. Flat socket from switch.

INSTALL, CONNECT

1. Wiring plug.
2. Switch.
3. Parking brake lever
4. Centre console.
5. Seat

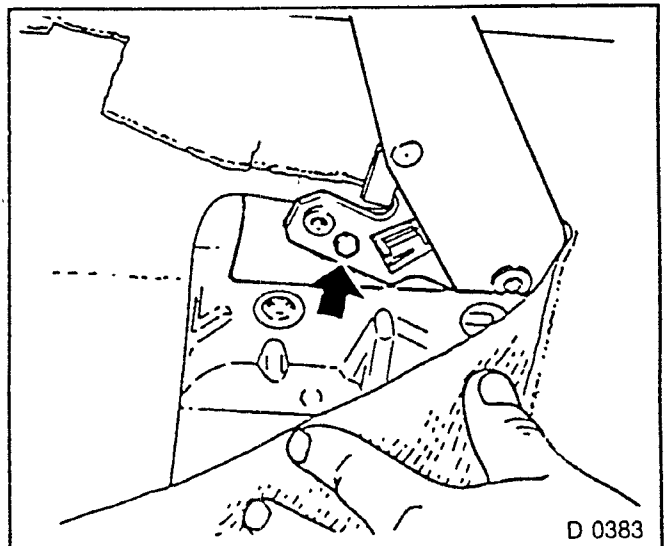


Fig. 44

Horn — Remove and Install

REMOVE, DISCONNECT

- 1 Radiator grille (Section A).
2. Cable from horn
3. Horn from air deflector panel.

INSTALL, CONNECT

- 1 Horn.
2. Cable
- 3 Radiator grille.

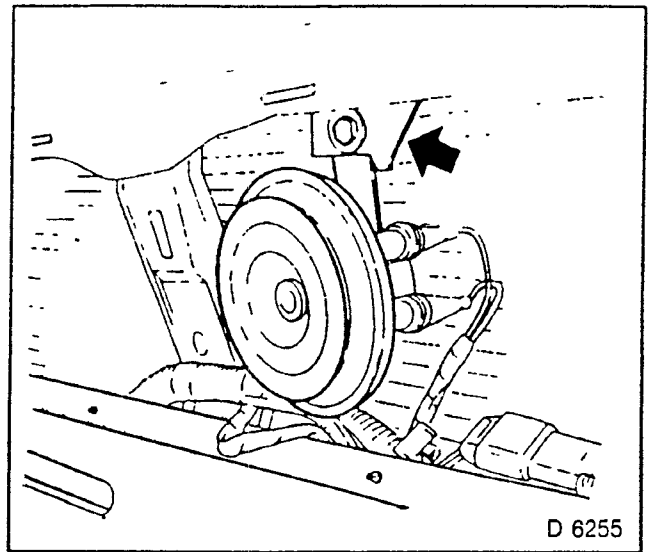


Fig. 45

Signal Switch Cover — Remove and Install

REMOVE, DISCONNECT

1. Signal switch cover — five bolts
2. Steering wheel removed for better viewing.

INSTALL, CONNECT

- 1 Signal switch cover

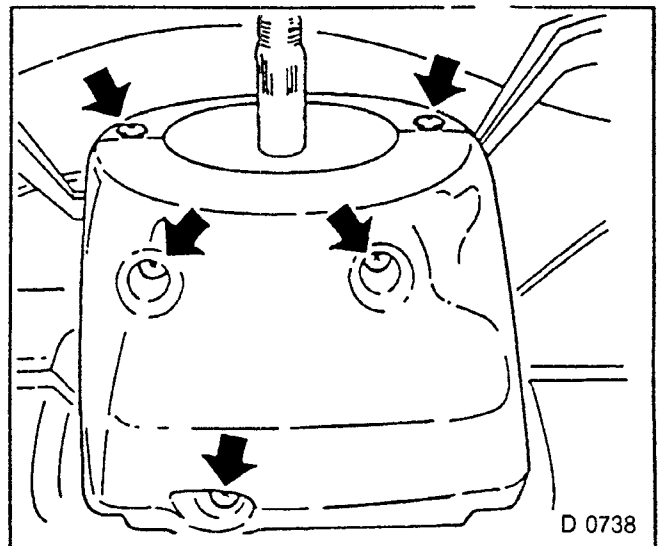


Fig. 46

Fog Lamp Switch — Remove and Install

Prepare tool (see Fig. 47)

REMOVE, DISCONNECT

1. Pull lamp switch from base.

INSTALL, CONNECT

1. Insert fog lamp switch in base.

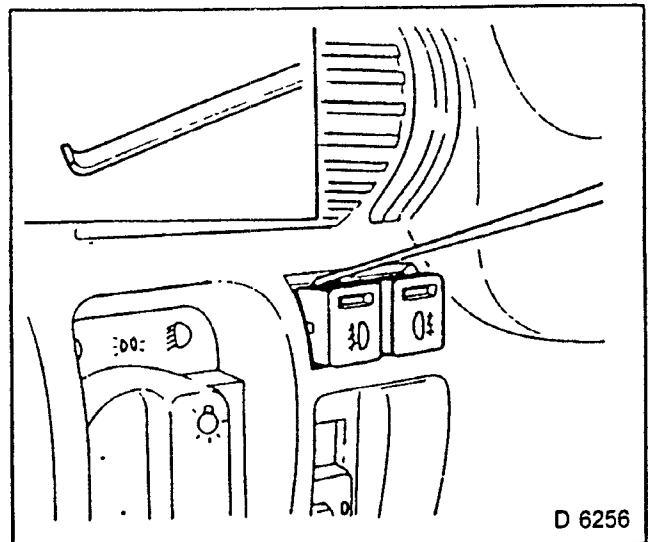


Fig. 47

STEERING AND IGNITION LOCK

Contact Piece for Steering and Ignition Lock — Replace

REMOVE, DISCONNECT

- 1 Signal switch panelling — five bolts.
- 2 Remove cover from below steering wheel (clipped).
- 3 Unscrew two headless screws opposite one another.
- 4 Remove contact piece from steering and ignition lock.
- 5 Release wiring harness plug and remove.

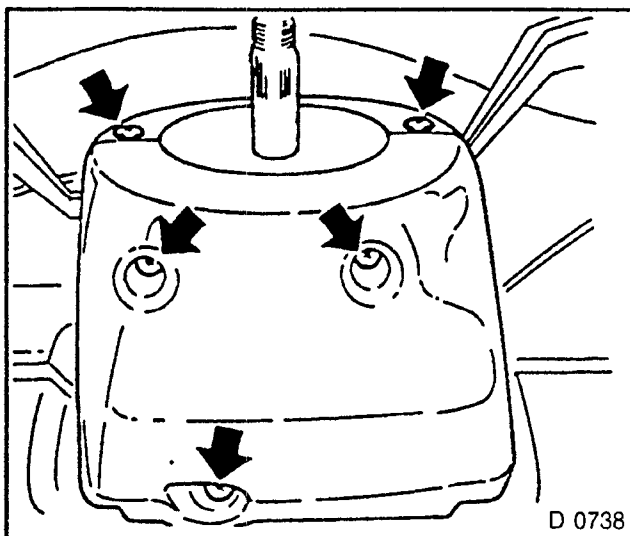


Fig. 48

NOTE:
CHECK POSITION OF SWITCH PIECE
IN CONTACT PIECE, CORRECT IF
NECESSARY.

INSTALL, CONNECT

1. Wiring harness plug.
2. Contact piece.
3. Signal switch panelling.

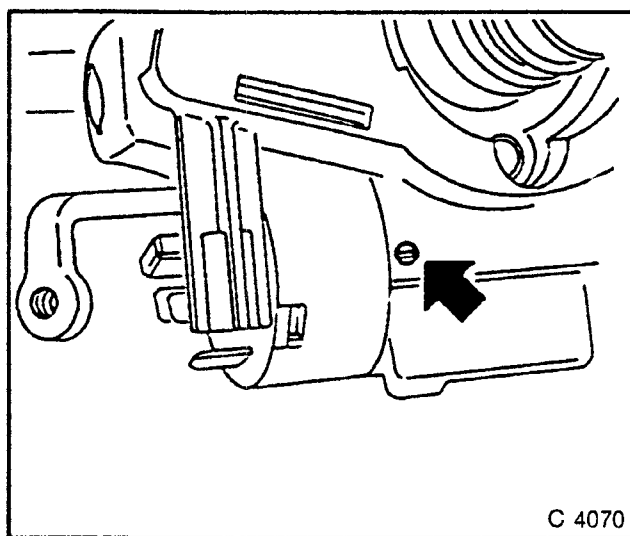


Fig. 49

Lock Cylinder for Steering and Ignition Lock — Replace

- 1 Signal switch panelling — five bolts.
- 2 Turn ignition lock to position "II".

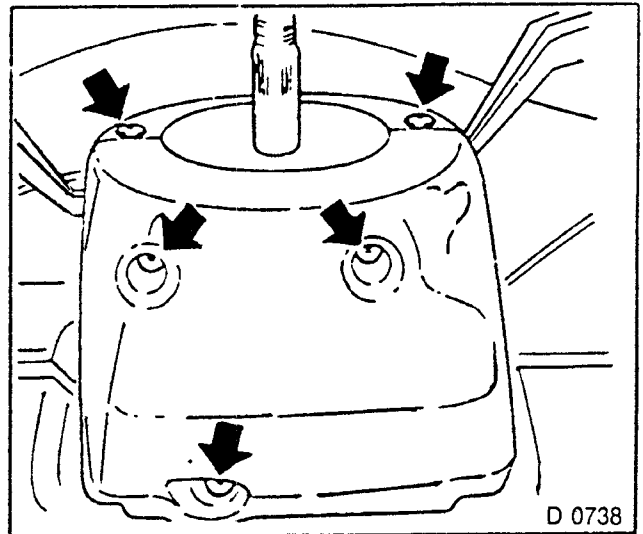


Fig. 50

- 3 Press down detent springs and at same time,
4. Pull lock cylinder out of steering lock.

CAUTION:
UNDER NO CIRCUMSTANCES REMOVE CONTACT PIECE, TO PREVENT DAMAGE TO STEERING AND IGNITION LOCK.

INSTALL, CONNECT

1. Push lock cylinder into steering lock until detent springs engage.
2. Signal switch panelling

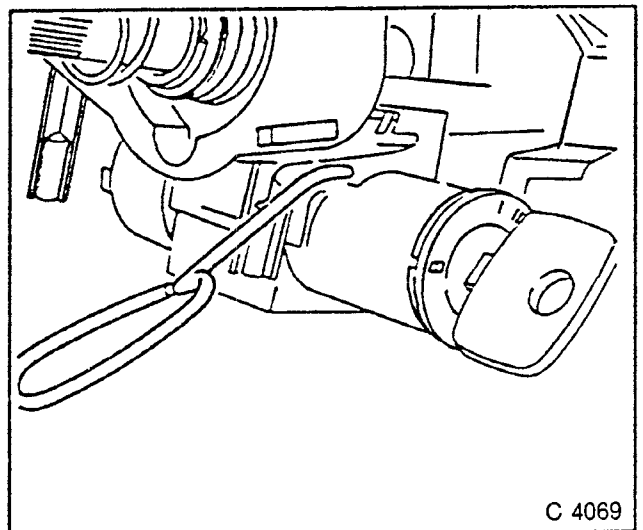


Fig 51

INSTRUMENTS

Instrument Housing Cover — Remove and Install

REMOVE, DISCONNECT

1. Signal switch cover — five bolts.
2. Steering wheel removed for better viewing

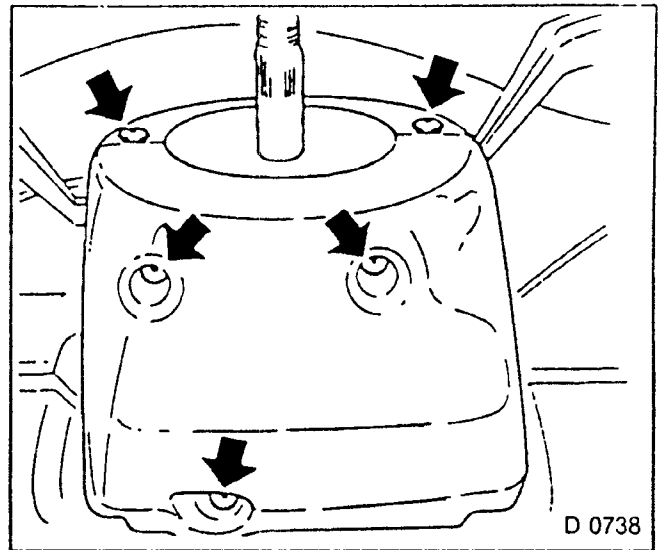


Fig 52

3. Instrument housing cover — four bolts.

INSTALL, CONNECT

1. Instrument housing cover
2. Signal switch cover.

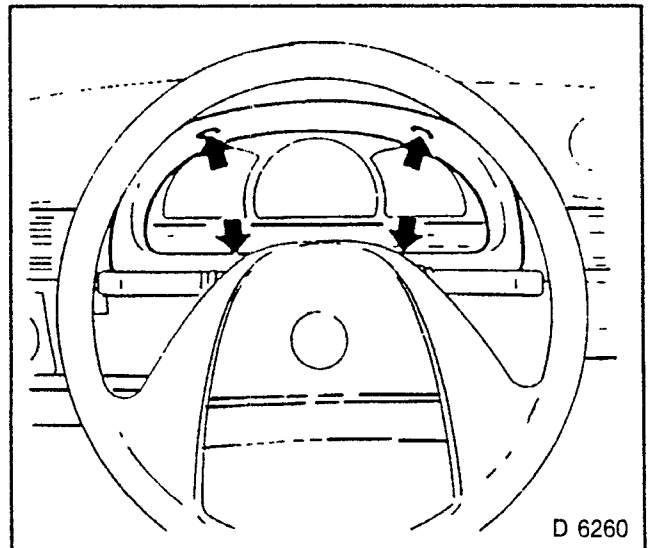


Fig 53

Instrument Assembly — Remove and Install

REMOVE, DISCONNECT

1. Disconnect battery.
2. Unbolt speedometer cable from transmission.
3. Signal switch cover Page 29.
4. Instrument housing cover.
5. Loosen instrument assembly.

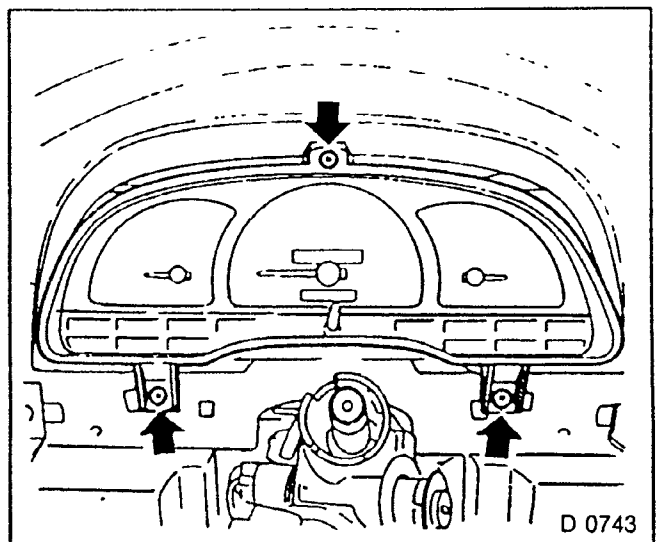


Fig. 54

6. Instrument assembly from instrument panel
7. Press down retaining spring from speedometer cable and remove.
8. Unlatch both multiplugs and remove.

INSTALL, CONNECT

1. Multiplug
2. Speedometer cable.
3. Instrument assembly
4. Instrument housing cover
5. Signal switch cover.
6. Speedometer cable to transmission
7. Connect battery.

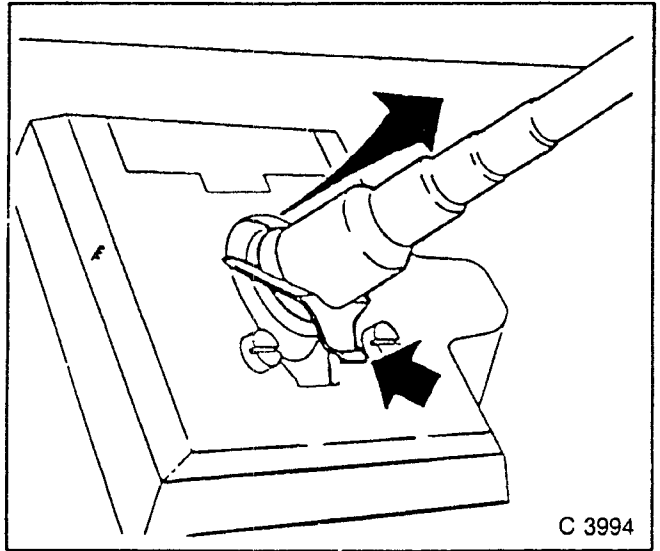


Fig 55

Temperature Gauge, Fuel Gauge — Remove and Install

REMOVE, DISCONNECT

INSTRUMENT ASSEMBLY — (See page 32)

1. Pull off pin for trip odometer.
2. Raise clip and remove instrument glass.

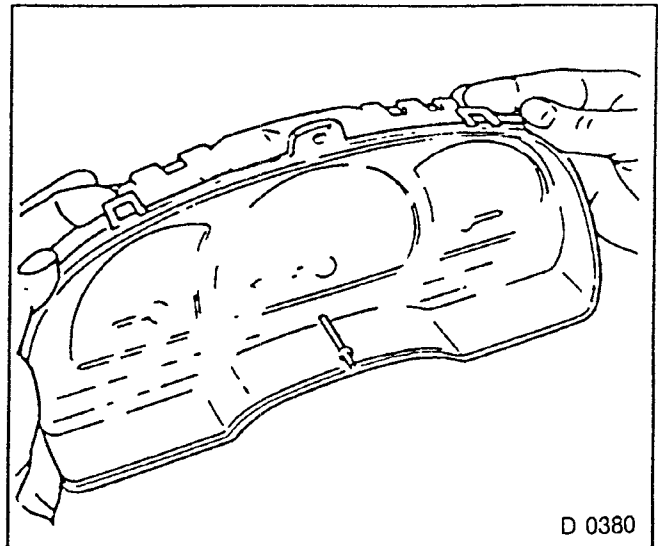


Fig. 56

3. Unbolt two bolts (1).
4. Remove instrument from instrument housing.

INSTALL, CONNECT

1. Instrument.
2. Instrument glass.
3. Pin for trip odometer.
4. Instrument assembly

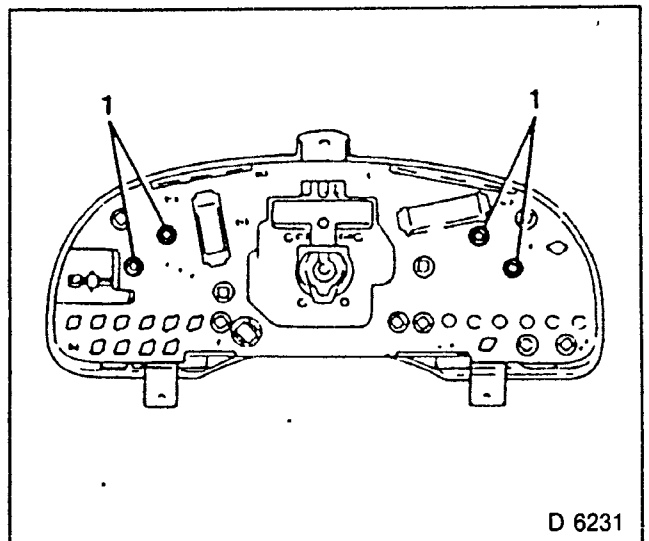


Fig 57

Speedometer — Remove and Install

REMOVE, DISCONNECT

Instrument assembly (see page 32).

1. Remove pin for trip odometer.
2. Raise tab.
3. Remove instrument housing cover.
4. Remove clamp (2) from odometer frequency sensor
5. Remove (1 bolt)
6. Carefully loosen printed circuit board (1).
7. Speedometer — four bolts (3)

INSTALL, CONNECT

1. Speedometer.
2. Odometer frequency sensor
3. Clamp.
4. Instrument housing cover
5. Pin for trip odometer.
6. Instrument assembly.

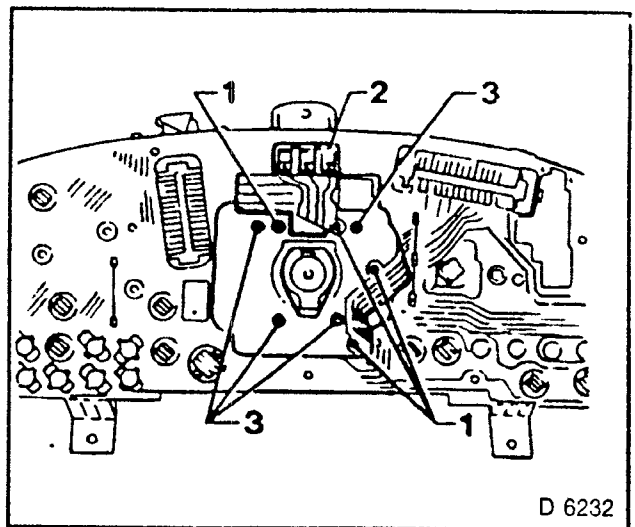


Fig. 58

Voltage Stabilizer — Remove and Install

REMOVE, DISCONNECT

Instrument assembly (See page 32).

1. Unbolt voltage stabilizer from instrument housing.
2. Remove from plug contacts.

INSTALL, CONNECT

1. Voltage stabilizer.
2. Instrument assembly.

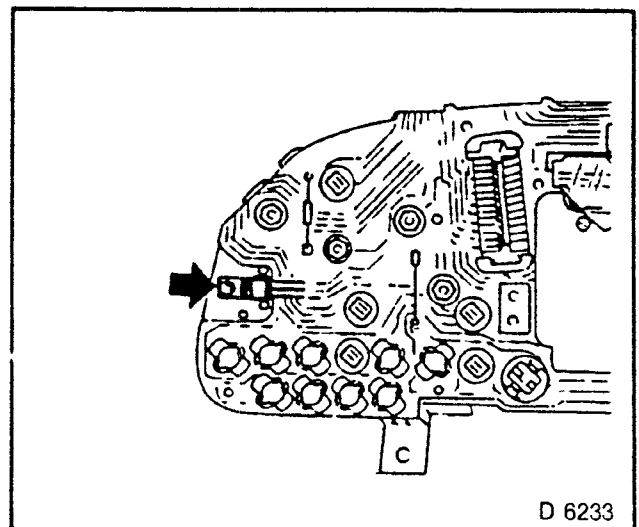


Fig. 59

Printed Circuit Board — Remove and Install

REMOVE, DISCONNECT

Instrument assembly (see page 32).

1. All instruments.
2. Instruments telltales.
3. Voltage stabilizer.
4. Printed circuit board from instrument housing.

INSTALL, CONNECT

1. Printed circuit board.
2. Voltage stabilizer.
3. Instruments
4. Instrument/telltales.
5. Instrument assembly.

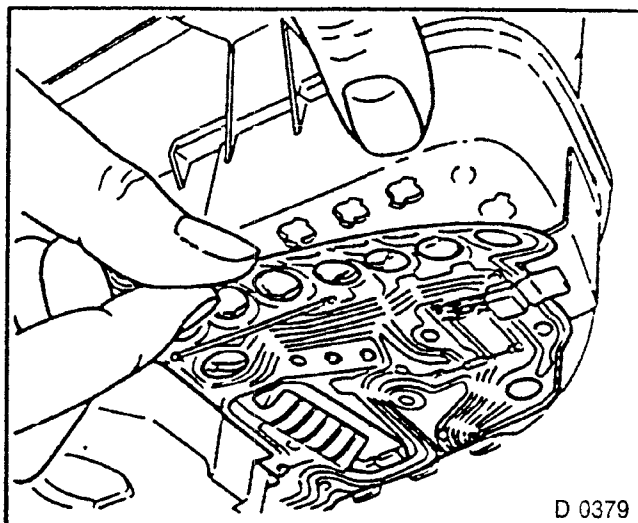


Fig 60

Instrument/Telltales — Replace

REMOVE, DISCONNECT

Instrument assembly (See page 32).

1. Turn instrument/telltales to left.

INSTALL, CONNECT

1. Instrument/telltales.
2. Instrument assembly.

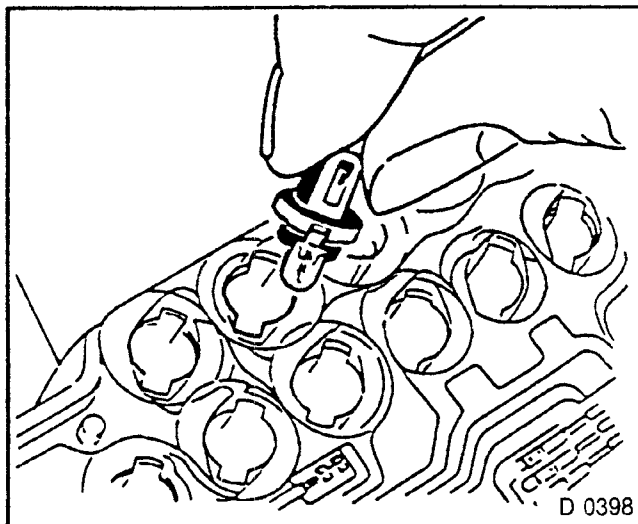


Fig. 61

Tachometer — Remove and Install

REMOVE, DISCONNECT

Instrument assembly (see page 32).

1. Remove pin for trip odometer.
2. Raise tabs and remove.
3. Instrument housing cover.
4. Unscrew speedometer.
5. Loosen printed circuit board partially (arrow)
6. Remove plug contact.

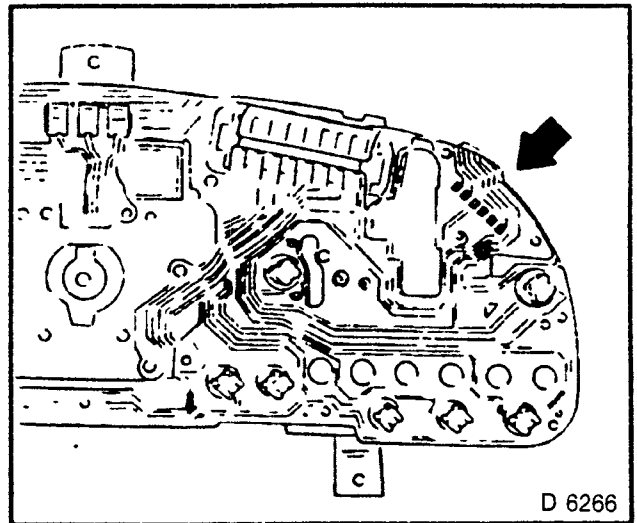


Fig. 62

7. Unbolt tachometer from instrument housing.

INSTALL, CONNECT

1. Tachometer.
2. Plug contact.
3. Fasten printed circuit board.
4. Speedometer
5. Instrument housing cover
6. Pin for trip odometer
7. Instrument assembly.

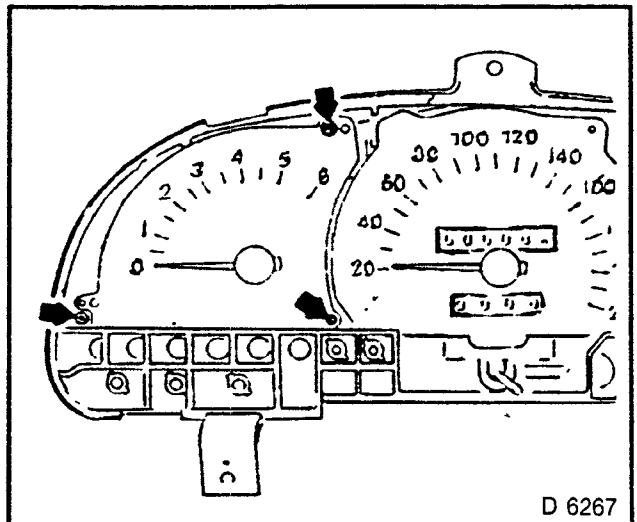


Fig 63

CENTRAL DOOR LOCKING

Servo Motor — Driver's Door, Adjust REMOVE, DISCONNECT

1. Disconnect battery
2. Door inner panelling (see Section C)
3. Door lock/servo motor assembly (see Section C)

ADJUST

1. Press slider (1) of servo motor into closed position and hold in place.
2. Loosen bolt (2) of servo motor.
3. Position lock lever so that it rests on rubber buffer by moving servo motor.
4. Tighten bolt.

INSTALL, CONNECT

1. Door lock/servo motor assembly.
2. Connect battery
3. Check function.
4. Install door inner panelling.
5. If necessary, program electronic components.

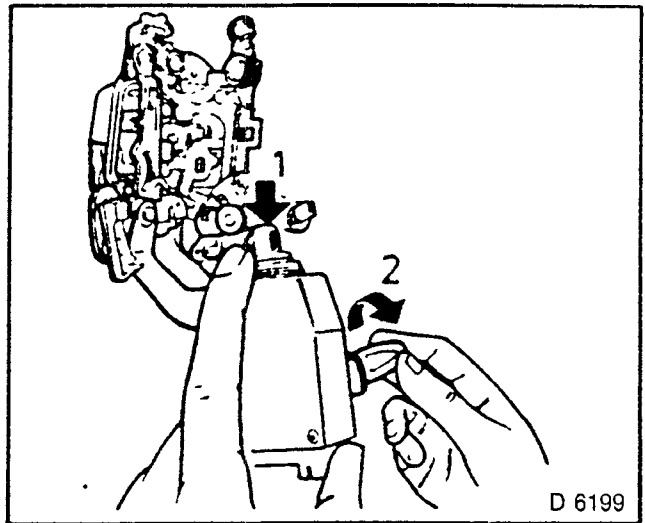


Fig 64

D 6199

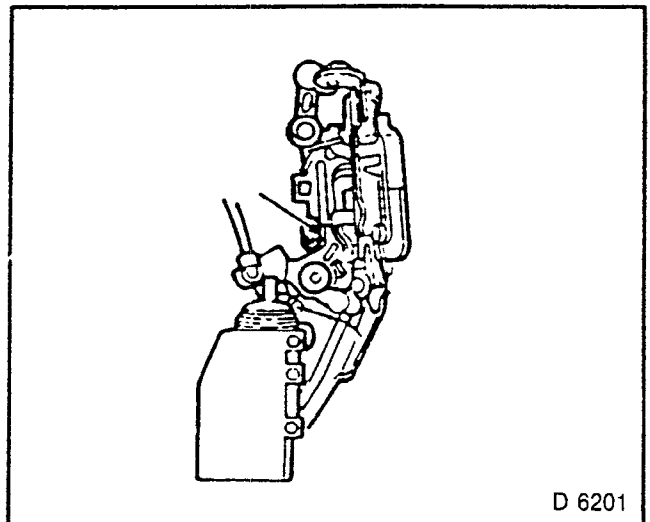


Fig. 65

D 6201

Servo Motor — Passenger Door, Adjust

REMOVE, DISCONNECT

- 1 Disconnect battery, door inner panelling (see Section C)
- 2 Door lock/servo motor assembly (see Section C)

ADJUST

1. Press slider (1) of servo motor into closed position and hold in place.
2. Loosen bolt (2) of servo motor

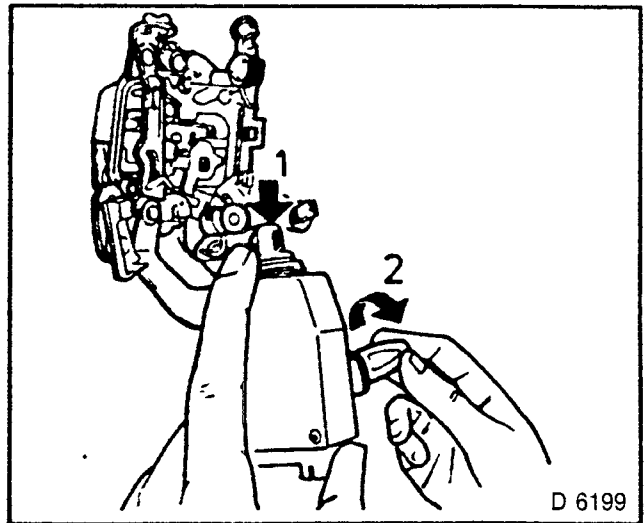


Fig. 66

3. Position lock lever to a distance of 2 mm by moving servo motor.
4. Tighten bolt.

INSTALL, CONNECT

1. Door lock/servo motor assembly.
2. Connect battery.
3. Check function.
4. Install door inner panelling.
5. If necessary, program electronic components (e.g. board computer, electric window winders).

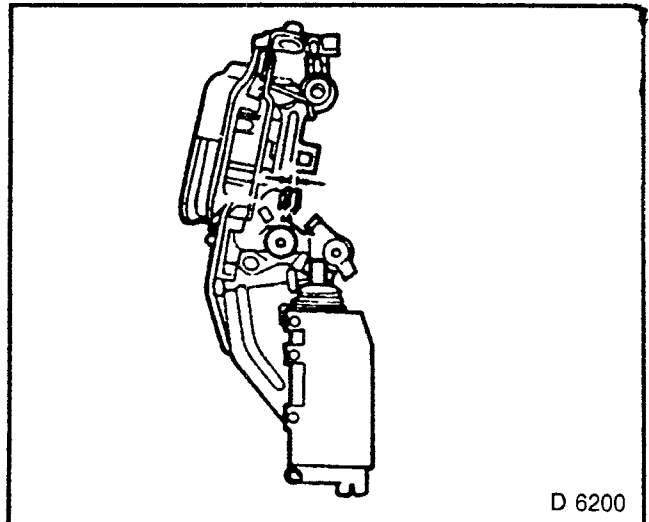


Fig 67

Servo Motor — Rear Doors Adjust

REMOVE, DISCONNECT

1. Disconnect battery.
2. Door inner panelling (see Section C)
3. Door lock/servo motor assembly (see Section C)

ADJUST

1. Press slider (1) of servo motor into closed position and hold in place.
2. Loosen bolt (2) of servo motor.

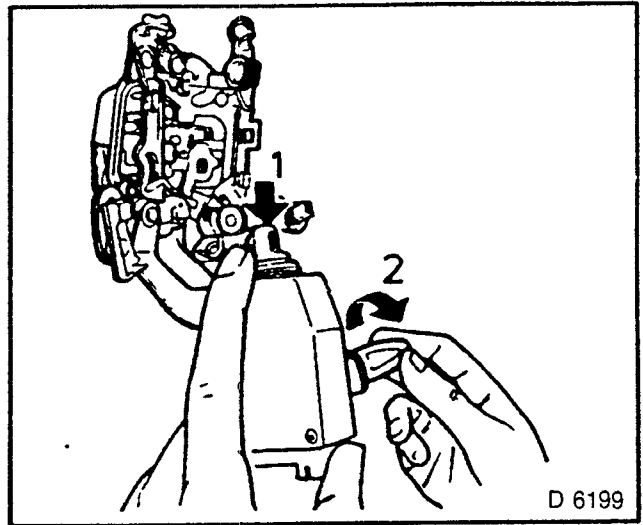


Fig. 68

D 6199

3. Position lock lever to a distance of 2 mm by moving servo motor.
4. Tighten bolt.

INSTALL, CONNECT

1. Door lock/servo motor assembly.
2. Connect battery.
3. Check function.
4. Install door inner panelling.
5. If necessary, program electronic components (e.g. board computer, electric window winders).

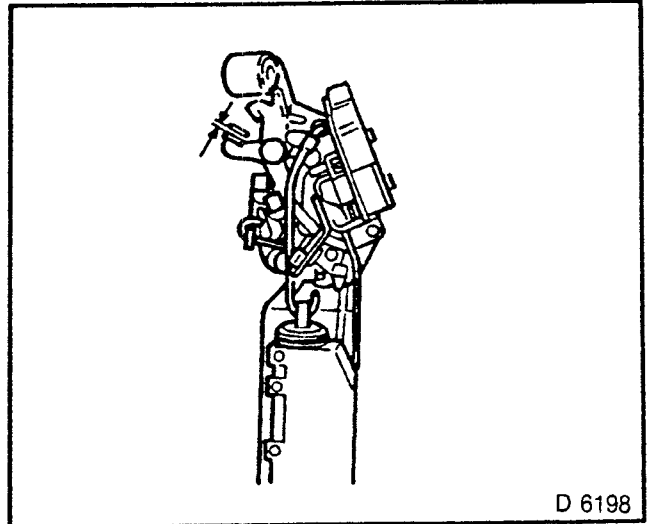


Fig 69

D 6198

Control Unit — Remove and Install

REMOVE, DISCONNECT

1. Right sill panelling (See Section C).
2. Control unit.
3. Wiring harness plug from control unit.

INSTALL, CONNECT

1. Control unit.
2. Wiring harness plug.
3. Right sill panelling.

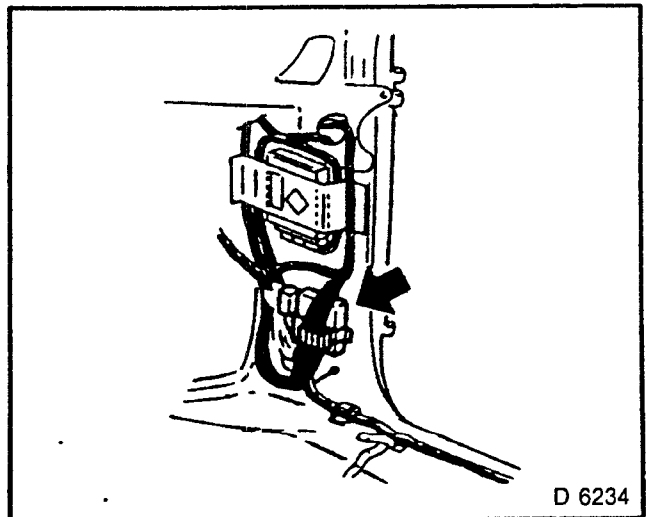


Fig. 70

D 6234

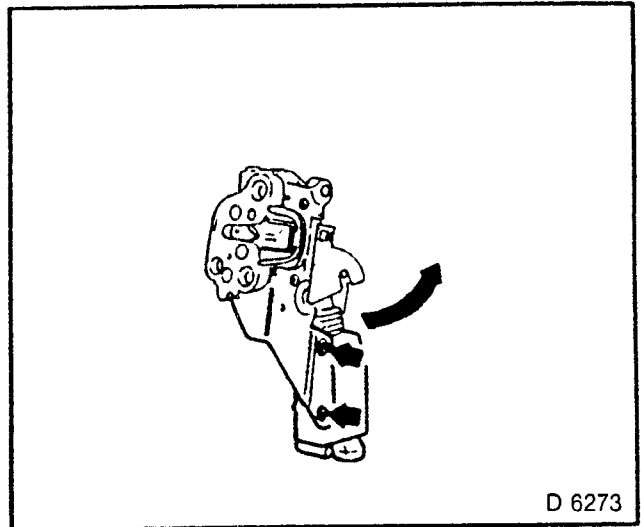
Servo Motor (Front Door) — Remove and Install

REMOVE, DISCONNECT

1. Inner door trim panel (See Section C).
2. Door lock (See Section C).
3. Servo motor from lock.

INSTALL, CONNECT

1. Servo motor.
2. Door lock
3. Inner door trim panel.



D 6273

Fig 71

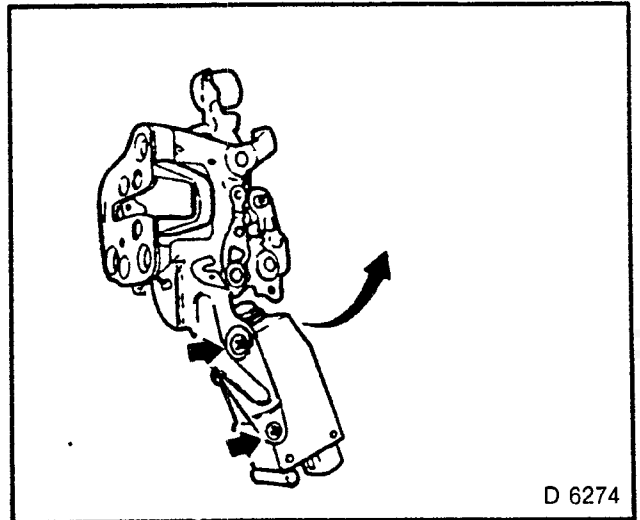
Servo Motor (Rear Door) — Remove and Install

REMOVE, DISCONNECT

1. Inner door trim panel (See Section C).
2. Door lock (See Section C).
3. Servo motor from door lock.

INSTALL, CONNECT

1. Servo motor.
2. Door lock
3. Inner door trim.



D 6274

Fig 72

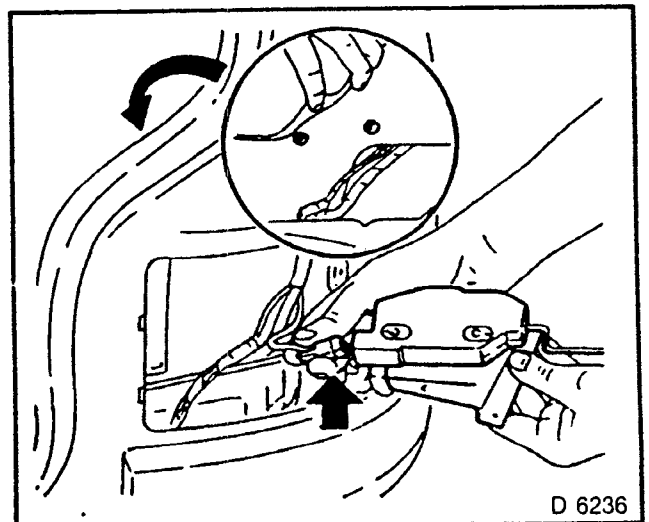
Servo Motor (Fuel Filler Flap) — (Kadett) — Remove and Install

REMOVE DISCONNECT

1. Luggage compartment side panelling, right rear lamp (see Section C).
2. Servo motor from rear quarter panel.
3. Disconnect wiring harness plug and remove.

INSTALL, CONNECT

1. Wiring harness plug.
2. Servo motor.
3. Rear lamp.
4. Luggage compartment side panelling.



D 6236

Fig. 73

Servo Motor (Fuel Filler Flap) (Astra) — Remove and Install

REMOVE, DISCONNECT

1. Rear quarter rear right panelling (See Section C)
2. Servo motor from rear quarter panel.
3. Disconnect wiring harness plug and remove.

INSTALL, CONNECT

1. Wiring harness plug.
2. Servo motor.
3. Rear quarter panelling.

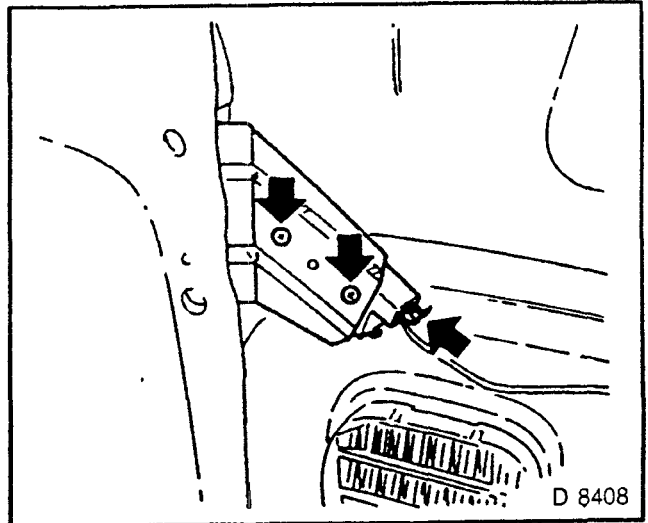


Fig. 74

Servo Motor (Luggage Compartment Lid) (Astra) — Remove and Install

REMOVE, DISCONNECT

1. Unscrew cover.
2. Disconnect wiring harness plug and remove.
3. Servo motor from luggage compartment lid.

INSTALL, CONNECT

1. Servo motor.
2. Wiring harness plug.
3. Cover.

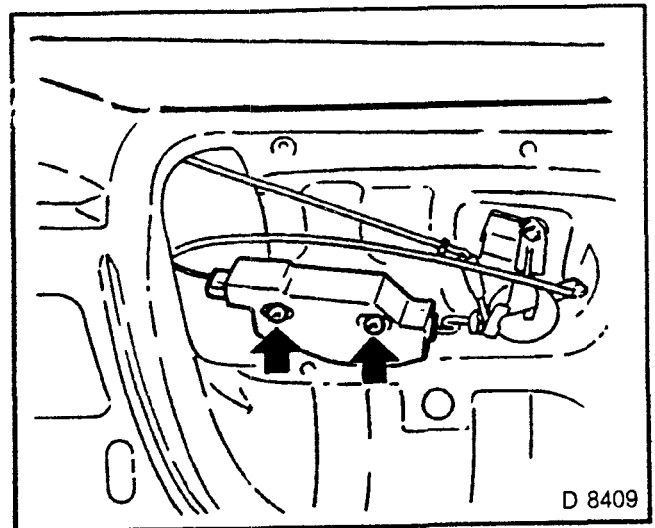


Fig. 75

Servo Motor (Tailgate) (Kadett) — Remove and Install

REMOVE, DISCONNECT

1. Tailgate panelling — (see Section C).
2. Servo motor from tailgate.
3. Disconnect wiring harness plug and remove.

INSTALL, CONNECT

1. Wiring harness plug.
2. Servo motor.
3. Tailgate panelling.

Switch (Driver's Door) — Remove and Install

REMOVE, DISCONNECT

Inner door trim (See Section C)

1. Clamp.
2. Switch with electronic connections.
3. Separate plug connections at wiring harness door.

INSTALL, CONNECT

1. Switch.
2. Plug connection.
3. Inner door trim.

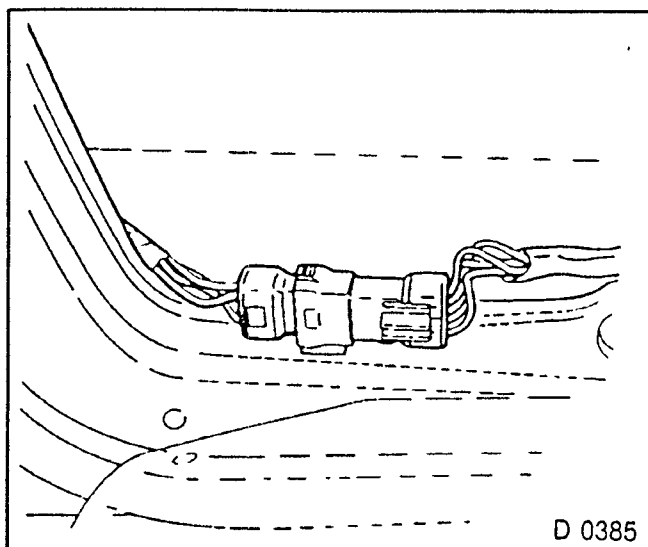


Fig. 76

DISPLAY SYSTEMS

Function Display — Remove and Install

REMOVE, DISCONNECT

1. Glove compartment (See Section C).
2. Remove rubber mat in front of function display
3. Unbolt function display
4. Press function display out of instrument panel from behind.

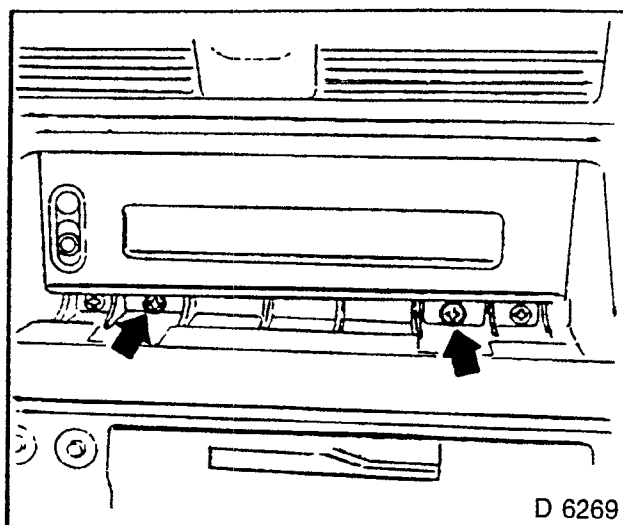


Fig. 77

5. Unlatch wiring harness plug and remove

INSTALL, CONNECT

1. Wiring harness plug
2. Function display.
3. Rubber mat.
4. Glove compartment.

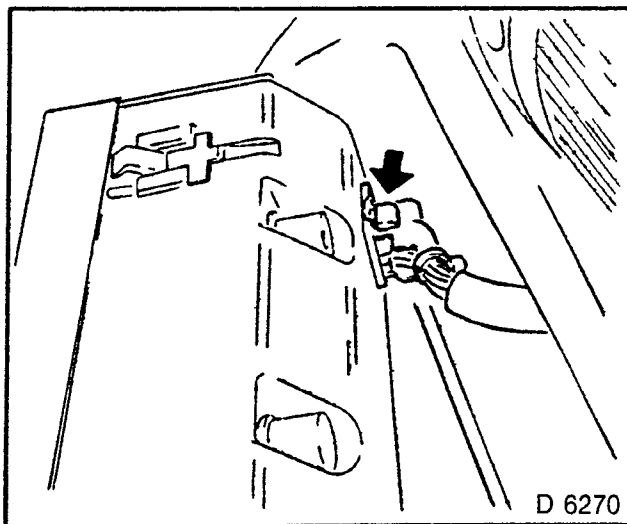


Fig. 78

Coolant Residue Sensor — Replace

REMOVE, DISCONNECT

1. Wiring harness plug
2. Sensor from coolant fluid compensation tank.

INSTALL, CONNECT

1. Sensor.
2. Wiring harness plug.

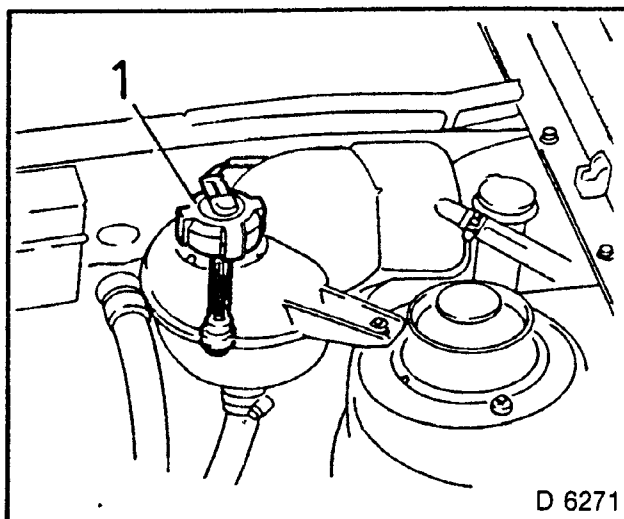


Fig. 79

Cleaning Fluid Residue Sensor — Replace

NOTE:
COLLECT ANY CLEANING FLUID WHICH MAY ESCAPE.

REMOVE, DISCONNECT

1. Fluid reservoir.
2. Wiring harness plug.
3. Sensor from fluid reservoir

INSTALL, CONNECT

1. Sensor.
2. Wiring harness plug.
3. Fluid reservoir, top up cleaning fluid.

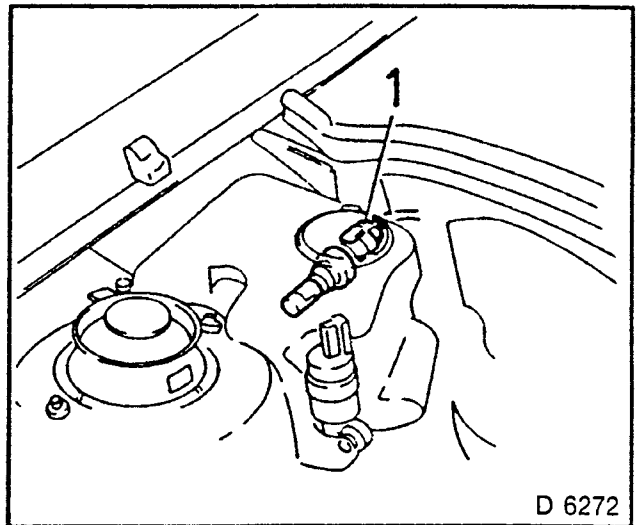


Fig. 80

Engine Oil Residue Sensor — Replace

REMOVE, DISCONNECT

1. Wiring harness plug from sensor.
2. Sensor from fluid pan.

INSTALL, CONNECT

1. Sensor
2. Wiring harness plug.

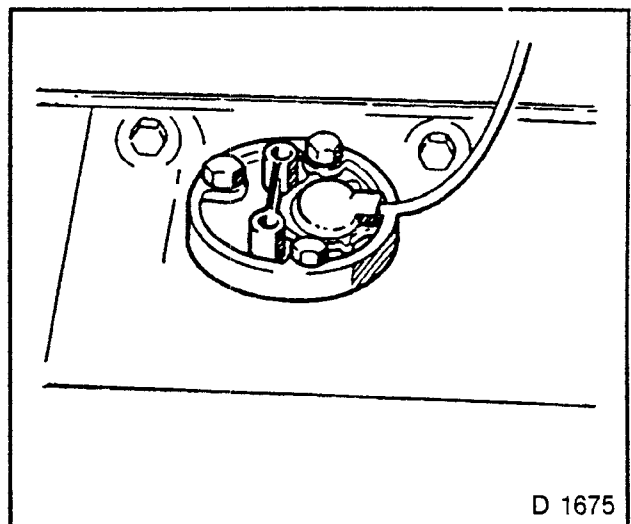


Fig. 81

Outside Temperature Sensor — Replace

REMOVE, DISCONNECT

- 1 Outside temperature sensor from front bumper.
2. Separate wiring harness plug.

INSTALL, CONNECT

1. Outside temperature sensor.
- 2 Wiring harness plug.

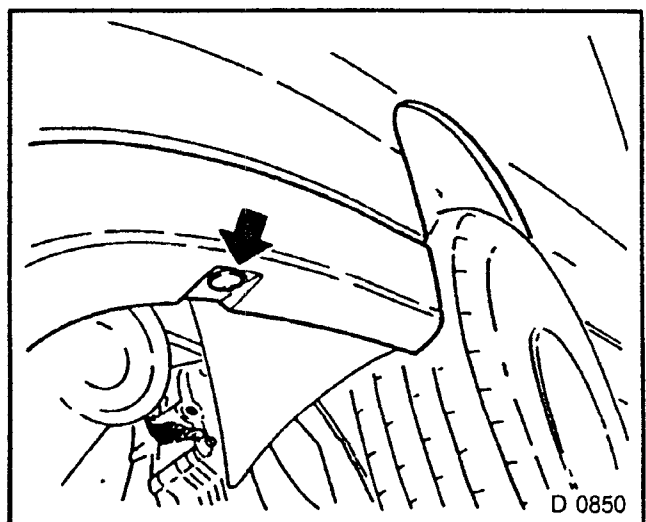


Fig. 82

HEATED REAR SCREEN

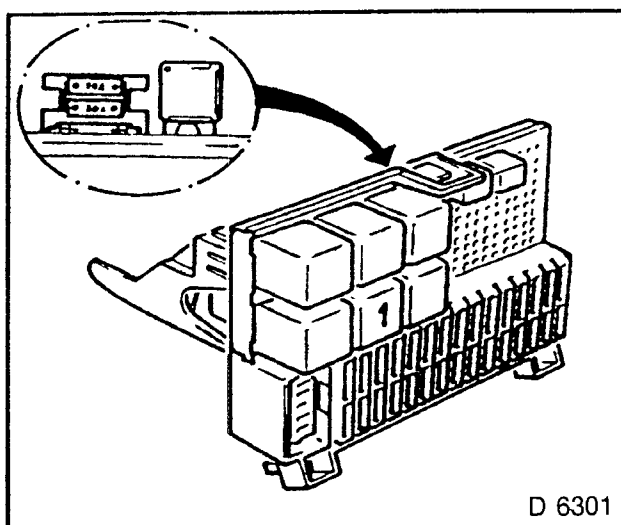
Heated Rear Screen Relay — Replace

REMOVE, DISCONNECT

1. Cover from fuse box.
2. Remove relay (1) from socket

INSTALL, CONNECT

1. Insert relay in socket.
2. Secure fuse box.



D 6301

Fig. 83

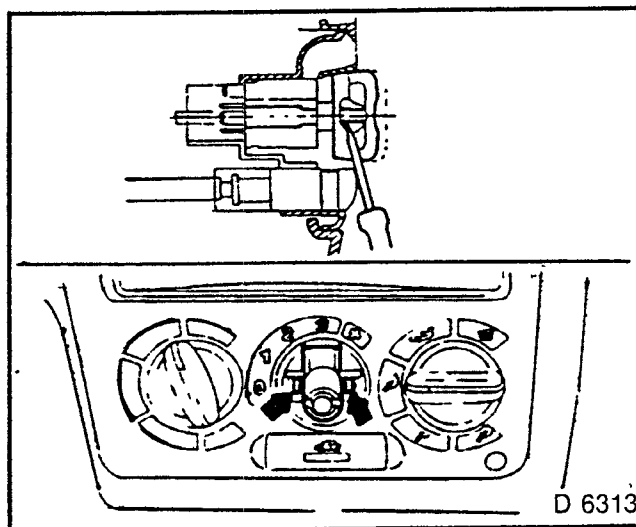
Heated Rear Screen Switch — Remove and Install

REMOVE, DISCONNECT

1. Switch for heated rear screen in "ON" position.
2. Unlatch rotary knob and remove.
3. Unlatch switch for heated rear screen with a small screwdriver and remove from base

INSTALL, CONNECT

1. Heated rear screen switch.
2. Rotary knob.



D 6313

Fig. 84

SCREEN WIPERS, SCREEN WASH/WIPE SYSTEM, HEADLAMP WASHER SYSTEM

Windscreen Wiper Motor with Linkage — Remove and Install

REMOVE, DISCONNECT

1. Windscreen wiper arm, wind deflector (See Section A).
2. Detach wiring harness plug (1) and remove.
3. Unbolt motor with linkage (arrows).

INSTALL, CONNECT

1. Motor with linkage.
2. Wiring harness plug.
3. Wind deflector.
4. Windscreen wiper arm.

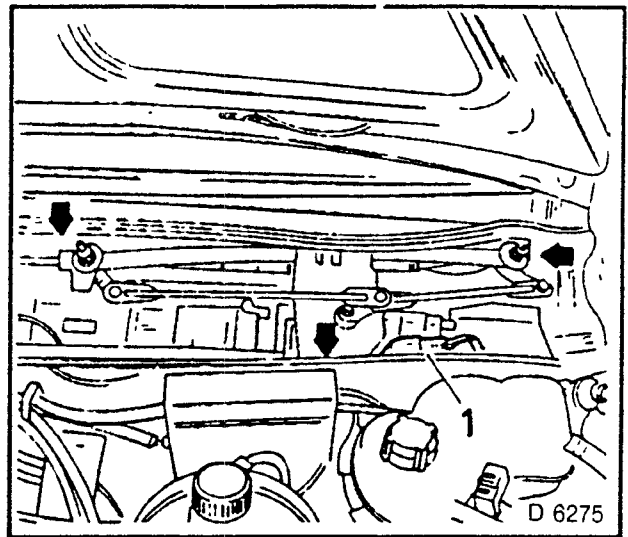


Fig 85

Rear Screen Wiper Motor (Kadett) — Remove and Install

REMOVE, DISCONNECT

1. Unscrew screen wiper arm.
2. Nut from screen wiper cable.
3. Tailgate panelling (See section C)
4. Disconnect wiring harness plug and remove.
5. Unscrew motor from tailgate.

INSTALL, CONNECT

1. Bolt on motor with ground cable.
2. Wiring harness plug.
3. Tailgate panelling.
4. Nut on screen wiper cable.
5. Screen wiper arm.

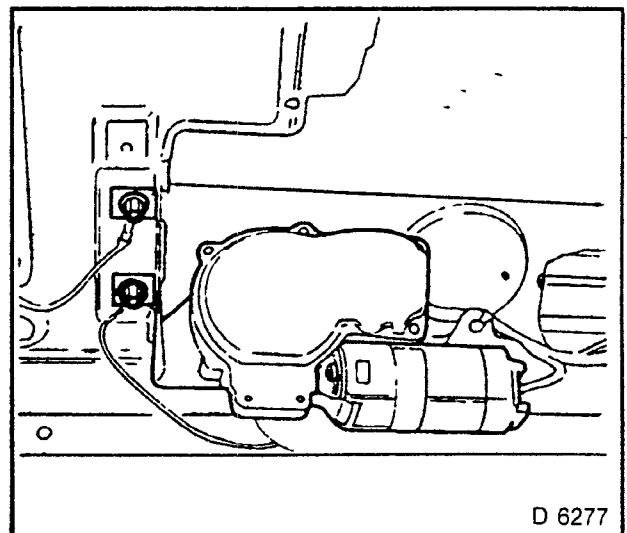


Fig. 86

Interval Relay — Screen Wash/Wipe System — Replace

REMOVE, DISCONNECT

1. Loosen fuse box.
2. Remove interval relay from socket.
 - 1 — Windscreen interval relay
 - 2 — Rear screen interval relay.

INSTALL, CONNECT

1. Insert interval relay in socket.
2. Fasten fuse box

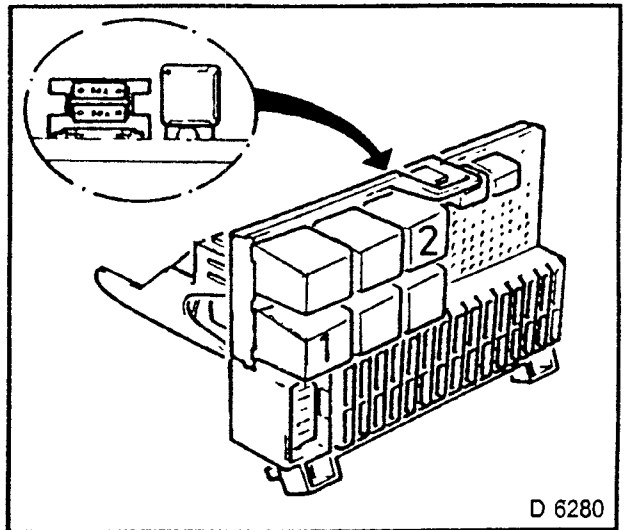


Fig 87

Pump — Screen Wash/Wipe System — Remove and Install

NOTE:
COLLECT ANY CLEANING FLUID WHICH MAY ESCAPE.

REMOVE, DISCONNECT

1. Pull off wiring harness plug
2. Separate hoses (3).
3. Pump from reservoir (1 + 2).

INSTALL, CONNECT

1. Pump.
2. Hoses.
3. Wiring harness plug

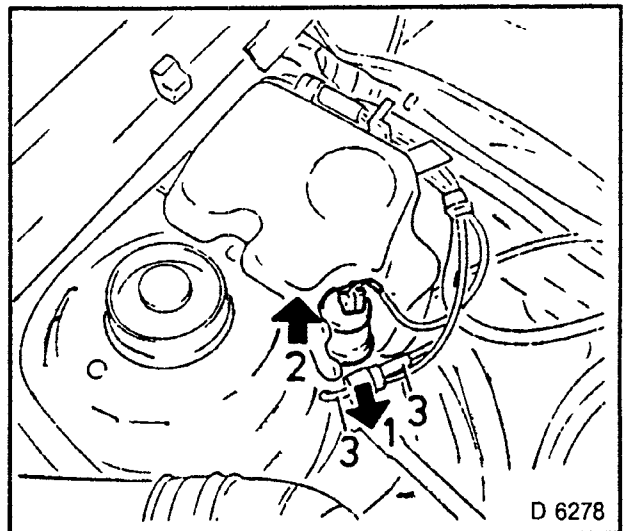


Fig. 88

Wash/Wipe System Reservoir — Remove and Install

REMOVE, DISCONNECT

1. Unbolt wiring harness plug.
2. Hoses.
3. Pump (1, 2)
4. Fluid reservoir (3)
Pull from bracket.

INSTALL, CONNECT

1. Fluid reservoir.
2. Pump
3. Hoses.
4. Wiring harness plug.

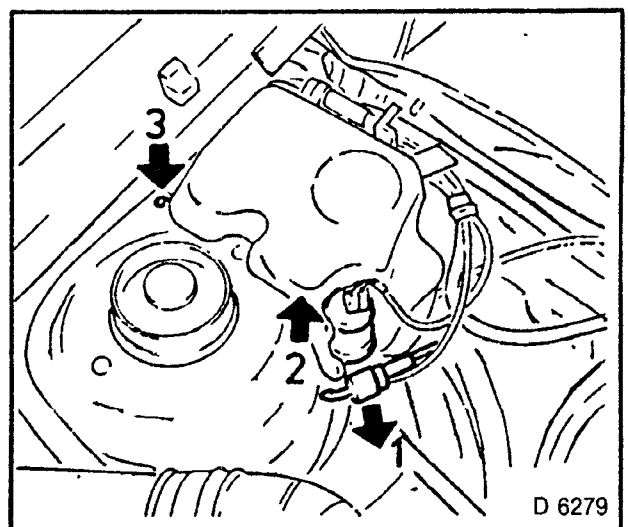


Fig. 89

ELECTRONICALLY OPERATED WINDOW WINDERS

Operating Switch (Driver's Door) — Remove and Install

REMOVE, DISCONNECT

1. Inner door trim (See Section C).
2. Detach wiring harness plug and remove.
3. Carefully lever out operating switch from inner door trim.

INSTALL, CONNECT

1. Operating switch.
2. Wiring harness plug.
3. Inner door trim.

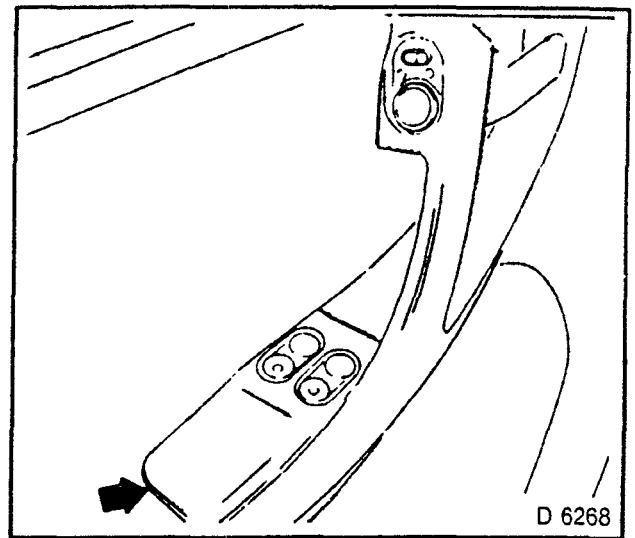


Fig. 90

Operating Switch (Passenger Door) — Remove and Install

REMOVE, DISCONNECT

1. Carefully lever operating switch out of door inner panelling.
2. Door inner panelling (See Section C).
3. Disconnect wiring harness plug and remove
4. Operating switch with wiring harness from door inner panelling

INSTALL, CONNECT

1. Wiring harness plug.
2. Door inner panelling.
3. Operating switch.