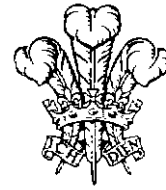




BY APPOINTMENT TO  
HER MAJESTY QUEEN ELIZABETH II  
MANUFACTURERS OF DAIMLER AND JAGUAR CARS  
JAGUAR CARS LIMITED COVENTRY



BY APPOINTMENT TO  
HER MAJESTY QUEEN ELIZABETH  
THE QUEEN MOTHER  
MANUFACTURERS OF DAIMLER AND JAGUAR CARS  
JAGUAR CARS LIMITED COVENTRY



BY APPOINTMENT TO  
HIS ROYAL HIGHNESS THE PRINCE OF WALES  
MANUFACTURERS OF DAIMLER AND JAGUAR CARS  
JAGUAR CARS LIMITED COVENTRY

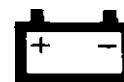
# XJS

# SERVICE MANUAL

## VOLUME 4

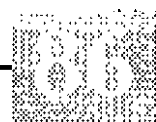
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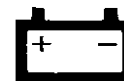
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## BATTERY

### DESCRIPTION

86.15.00

The declaration of the battery capacity in ampere hours by battery manufacturers is now optional and a more realistic method of declaring the functional characteristics of a battery is by quoting the RESERVE CAPACITY. A battery user will find more information about how long a battery will sustain the maximum electrical demand in the event of a failure, and the battery's cold start performance of much greater value than that of battery capacity at the 10 or 20 hour rate.

#### Reserve Capacity:

It is the period for which the battery can supply a constant current of 25 amps down to a voltage of 7.5 volts per cell at a temperature of 25°C. The current is based on a typical total electrical load of a vehicle as would be demanded by the engine under adverse driving conditions in the event of the failure of the vehicle charging system. The time is usually stated in minutes.

#### Cranking Performance:

It is the assessed performance of the battery under simulated load conditions. The cranking current is the current the battery can deliver at the initial temperature of -18°C which enables a minimum cranking torque to be obtained at the battery terminals after 10 seconds.

The battery must be kept at a constant level of charge and topped up regularly. Topping-up should be carried out when the electrolyte falls below the top of the separators. The vent covers should be left in position at all times during the topping-up procedure. When battery charging is carried out the vent covers should be left in position to allow gas to escape and prevent flooding of electrolyte. Also it is advisable to disconnect the battery from the vehicle.

The capacity of the battery = 52 amps at the 20 hour rate.

The rapid discharge current = 450 amps at -18°C.

The rapid discharge voltage = 7.95 volts -18°C.

The reserve capacity time = 85 minutes at 25 amps.

### HEALTH AND SAFETY PRECAUTIONS

Batteries contain SULPHURIC ACID. They also contain EXPLOSIVE MIXTURES OF HYDROGEN AND OXYGEN GASES in each cell at all times. Therefore, it is essential to follow the safety precautions listed below.

- Hydrogen which is highly explosive is emitted, particularly during charging.
- No smoking when working near batteries.
- Avoid sparks, short circuits or other sources of ignition.
- Switch off current before making or breaking electrical connections.
- Always disconnect the earth terminal first and reconnect it last.
- Ensure to charge the battery in a well ventilated area.
- Switch off the charger before disconnecting.

When working with acid, such as filling batteries, protective clothing is advisable. Use extreme care to avoid spilling acid as it can destroy clothing as well as burning the skin. If acid is spilled or splashed on clothing or the body, it should be neutralised and then rinsed with clean water. A solution of baking soda or ammonia and water may be used as a neutraliser.



Avoid contact with battery acid

Battery acid is poisonous and corrosive, it will cause burns to the skin as well to the eyes and destroy **clothing**. In the event of skin or eye contact drench the affected area with water. In the case of eye contact seek urgent medical attention.

If battery acid is spilled or splashed on any surface of a vehicle, it should be neutralised and rinsed with clean water.

If it should become necessary to prepare electrolyte of a desired specific gravity, **always** pour the concentrated acid slowly into water; not water into acid. Heat is generated when acid is mixed with **water**. Add small amounts of acid slowly while stirring. Allow to cool if noticeable heat develops. Except for lead or lead lined containers, always use non metallic receptacles **and/or** funnels. **Do** not store acid in excessively warm locations or in direct sunlight.

## BATTERY

### TEST

86.15.02

#### Heavy Discharge Test

This test ensures that the battery is capable of supplying the heavy currents required by the starter motor at the moment of **starting** the engine.

A heavy discharge tester should be applied to the battery terminals with the red lead to the positive terminal and the black lead to the negative terminal.

The tester should be set to discharge at approximately 180 amps on the ammeter 15 seconds. Observe the voltmeter during the battery discharge. If the voltmeter reading is above 9.6 volts the battery can be considered serviceable.

Should the voltage fall below the specified 9.6 volts recharge the battery and retest.

If the electrolyte is observed to boil in one of the cells during the discharge period the battery can be considered unserviceable.

Sulphation is a condition which occurs when a battery remains in a discharged state for a period of time. It is not readily **distinguishable** from a battery which has been recently discharged. Charging may or may not recover the battery, but the test procedure will determine whether it is serviceable or not.

#### Specific Gravity Test

The electrolyte consists of a mixture of sulphuric acid and water in given proportions.

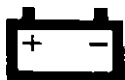
The electrolyte becomes weaker as the cell discharges and this weakening effect is directly proportional to the amount of electricity given up by the cell. Therefore the specific gravity of the electrolyte gives a direct indication of the condition of the battery.

When a tube of a hydrometer is inserted **into the** electrolyte and the rubber bulb is pressed and released a small quantity of electrolyte is drawn up into the hydrometer. The specific gravity of the electrolyte determines the depth of the float in the liquid. With the float in a high position the specific gravity is high. If the specific gravity is low the float sinks to a lower position.

The specific gravity readings are taken when the liquid level crosses the scale on the float and this gives an accurate indication of the state of charge of the battery.

The volume of electrolyte and hence its specific gravity varies with temperature.





### Electrolyte **Temperature** Correction

For every 10°C below 15°C subtract 0.007 from the hydrometer reading and for every 10°C above 15°C add 0.007 to the hydrometer reading.

### Example

Specific gravity reading = 1.250

The temperature = 5°C

The equivalent specific gravity at 15°C  
= 1.250 - 0.007 = 1.243

### STARTING VEHICLE WITH JUMP LEADS AND BOOSTER BATTERY.

1. Apply the hand brake and place the transmission in neutral or park. Ensure the lights heater and other electrical loads are turned off.
2. Attach one end of one jumper cable to the positive terminal of the booster battery and the other end of the same cable to the positive terminal of the discharged vehicle battery. **DO NOT ALLOW THE VEHICLES TO TOUCH EACH OTHER.** This could establish an earth connection cause sparks, and counteract the benefits of this procedure.
3. Attach one end of the remaining negative cable to the negative terminal of the booster battery and the other end to an earth point on the vehicle **being started** at least 305mm from the discharged battery. **(DO NOT CONNECT DIRECTLY TO THE NEGATIVE POST OF THE DISCHARGED BATTERY).**
4. Allow the engine to tick over. Disconnect the booster battery in the reverse order to the connecting procedure.

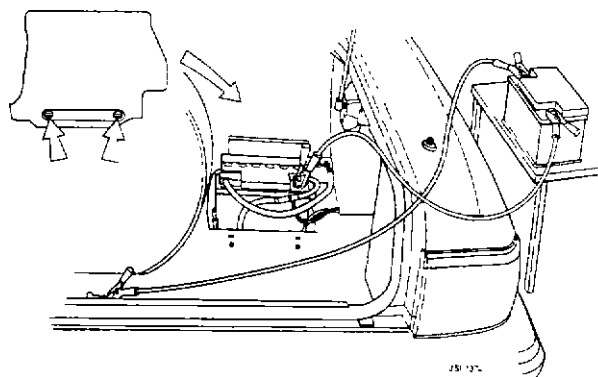


Fig. 1

## BATTERY

### RENEW

**86.15.01**

Release the battery cover 1/4 turn fasteners.

Displace and remove the battery trim cover.

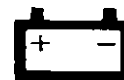
Reposition the battery negative lead terminal cover.

Undo but do not remove the clamp nut/bolt securing lead to battery.

Displace lead from terminal post.

Reposition the positive lead terminal post cover.

Undo but do not remove the positive lead clamp securing nut/bolt.



Reposition lead from battery.  
Disconnect the breather pipe from the battery.  
Undo but do not remove the battery carrier stay wing nuts.  
Displace and **remove** the stays.  
Displace and remove the battery retaining bracket.  
Carefully displace and remove the battery.  
To refit a new battery is the reversal of the removal procedure.

### ALTERNATOR (BOSCH)

#### DESCRIPTION

86.10.00

Bosch alternator is a three-phase machine with a star wound stator, twelve pole rotor, full wave rectification, and a solid state voltage regulator. The voltage is controlled at 14 volts and the maximum output of the alternator is 115 amps. The alternator is machine sensed with an externally fitted radio suppression capacitor. An alternator load dump module is fitted to the inner wing valance and is used for load dump protection. This device protects the alternator and the vehicle electrical system from high transient voltages caused by the removal of the battery leads or loose battery connections. When the ignition is switched on, the rotor winding is connected to the battery via the warning lamp and the ignition switch. A small current flows through the rotor to earth via the voltage regulator. This small current flow produces a weak magnetic field which, when the engine is started is sufficient to begin the build-up of the alternator output voltage through the output diodes and the field or exciter diodes. As the alternator voltage builds up, the same amount of voltage will be applied to both sides of the warning lamp (12 volts from the alternator and 12 volts from the battery) at this point the warning lamp will be extinguished and as the alternator speed builds up the charging current will flow through the output diodes to the battery. The action of the regulator is similar to that of the vibrating contact type of voltage control unit, but instead of vibrating contacts to switch the rotor circuit on and off the switching is achieved by the use of transistors. When the battery voltage rises to 14 volts, the transistor located in the voltage regulator switch off and on very quickly in order to maintain the control voltage at a steady 14 volts.

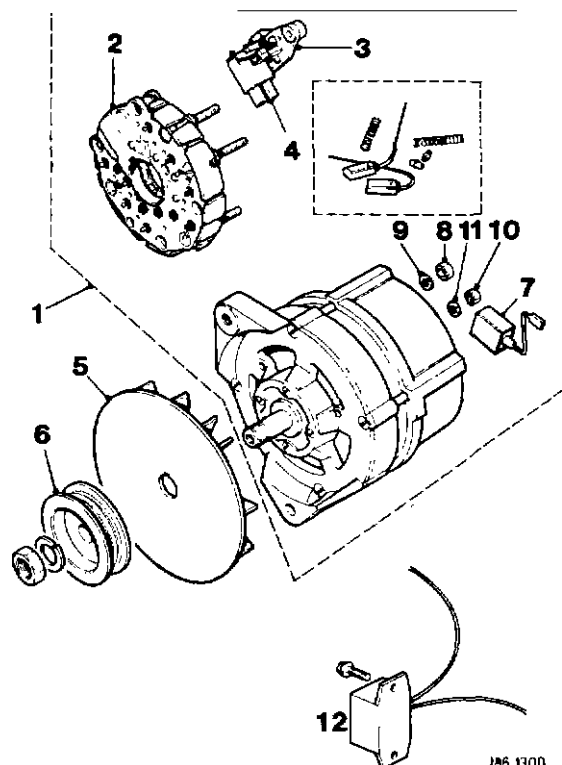


Fig. 1

Key to Fig. 1

- |                       |                     |
|-----------------------|---------------------|
| 1 Alternator assembly | 7 Suppressor        |
| 2 Rectifier           | 8 Nut - M8          |
| 3 Regulator           | 9 Washer-spring M8  |
| 4 Brush set           | 10 Nut - M5         |
| 5 Fan - cooling       | 11 Washer-spring M5 |
| 6 Pulley              | 12 Module-load dump |







## TESTING.

### Test 1.

#### Battery Hydrometer Reading.

Take specific gravity readings of the electrolyte in each cell.

Should the hydrometer register less than 1.230, recharge the battery or substitute with a fully charged battery.

Check the alternator and the battery for loose connections. Clean and tighten where necessary.

### Test 2.

Check the drive belt tension.

A load of 1.5 kg must give a total belt deflection of 4.4 mm when applied at the mid-point of the belt.

### Test 3 (Fig. 1).

Checking the alternator cable continuity:

Disconnect the ignition switch and the battery.

or zero reading is obtained on the main +B lead, check the starter solenoid connections, terminal posts and the battery connections. If a low or zero reading is obtained on the +D lead, check the warning lamp, the wiring from the ignition switch to the warning lamp and the wiring from the warning lamp to the alternator. If no fault is found, switch off the ignition and reconnect the leads to the alternator.

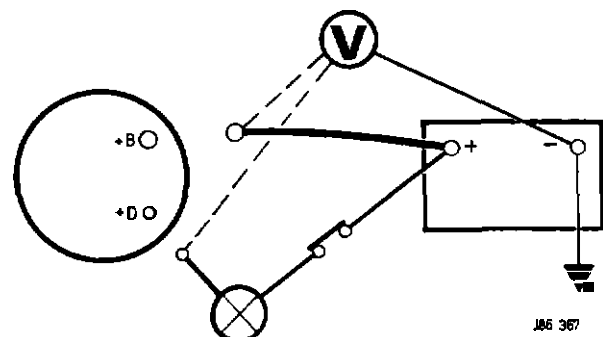


Fig. 1

### Test 4 (Fig. 2).

Checking the alternator output.

Disconnect the +B lead from the battery terminal. Connect an ammeter between the disconnected lead and the alternator +B terminal. Switch on all loads (except the wipers) for 1 minute to discharge the battery. Start and run the engine at normal charging speed and the ammeter should indicate the maximum output for the machine. If a low output is obtained proceed with tests. If no output is obtained remove and bench check the alternator.

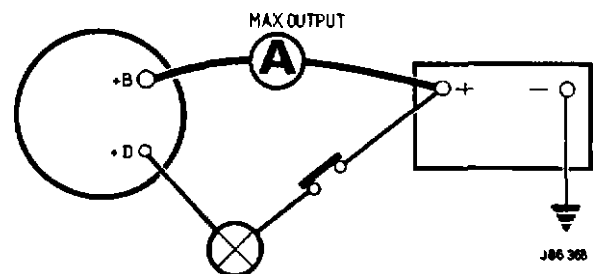
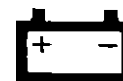


Fig. 2



## Test 5 (Fig. 1).

Checking the charging circuit for voltage drop.  
Reconnect the +B lead to the battery terminal.  
Connect a voltmeter between the battery positive terminal and the alternator +B terminal. Switch on all loads except the wipers. Start and run the engine at charging speed, the voltmeter should not register more than 0.5 volts.  
If the voltmeter registers more than 0.5 volts, check for loose or dirty connection between the alternator and the battery.

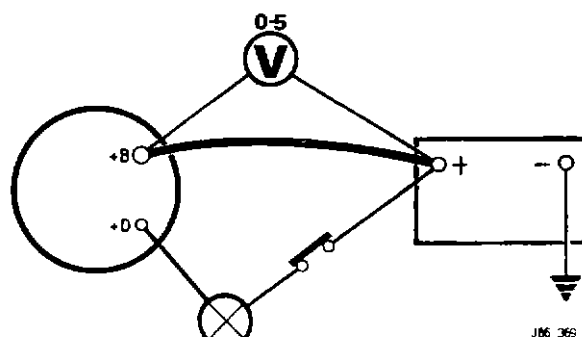


Fig. 1

## Test 6 (Fig. 2).

Checking the voltage control setting.  
Disconnect the +B lead from the battery and connect an ammeter between the disconnected lead and the alternator +B terminal. Connect a voltmeter across the battery. Start and run the engine at charging speed until the ammeter registers less than 10 amps.  
The voltmeter should register 14 volts. If an incorrect reading is obtained renew the regulator.

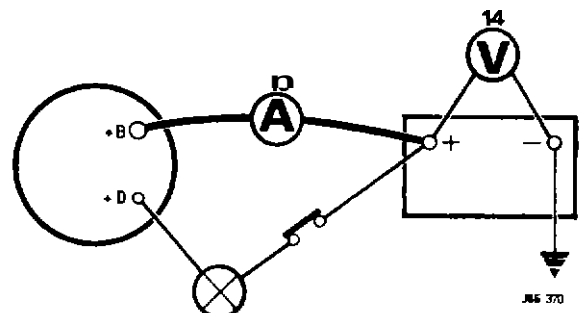


Fig. 2

## ALTERNATOR (BOSCH)

### DISMANTLE.

Remove the two screws securing the voltage regulator and remove the regulator and brush holder assembly.

Remove the four through bolts and carefully prise the stator complete with the slip-ring end bracket from the rotor and drive end bracket.

Remove the shaft nut, washers, pulley, cooling fan, woodruff key and spacers from the rotor shaft.

Press the rotor shaft from the drive end bearing.

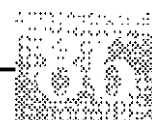
Remove the nuts and washers securing the terminal posts to the slip-ring end bracket.

Remove the screws securing the diode pack assembly to the slip-ring end bracket and carefully remove the bracket.

Note: Note the position of the stator leads and unsolder the leads from the diode pack.

Remove the diode pack assembly.

Reassembly is a reversal of the dismantling procedure. Care must be taken when re-soldering the stator leads to the diode pack. Ensure that the brushes move freely in the brush holders and that the slip rings are clean and smooth.





Key to Fig. 1

- |                       |                     |
|-----------------------|---------------------|
| 1 Alternator assembly | 7 Suppressor        |
| 2 Rectifier           | 8 Nut - M8          |
| 3 Regulator           | 9 Washer-spring M8  |
| 4 Brush set           | 10 Nut - M5         |
| 5 Fan - cooling       | 11 Washer-spring M5 |
| 6 Pulley              | 12 Module-load dump |

## ALTERNATOR

**RENEW (6 cyl)**

**86.10.02**

Disconnect the battery earth lead.

Remove the air cleaner element for access.

Undo the alternator link arm adjusting nut. (8 Fig. 2)

Loosen but do not remove the alternator link arm trunnion bolt. (7 Fig. 2)

Loosen the link arm pivot bolt and pivot the alternator towards the engine (6 Fig. 2).

Remove the drive belt from the alternator pulley.

Remove the trunnion bolt (7 Fig. 2).

From beneath the vehicle displace the rubber boots from the alternator cable connectors.

Note and disconnect the cables from the alternator.

Remove the alternator pivot nut and bolt (5 Fig. 2).

Displace the alternator from the bracket and remove the spacer washer.

From above lift and remove the alternator from its location.

On refitting ensure that the drive belt is adjusted to the correct tension. A load of 1.5 kg must give a total belt deflection of 4.5 mm when applied at the mid point of the belt.

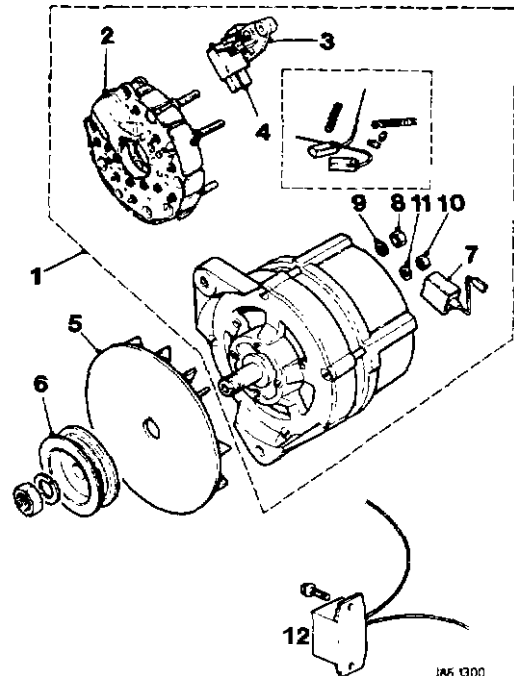


Fig. 1

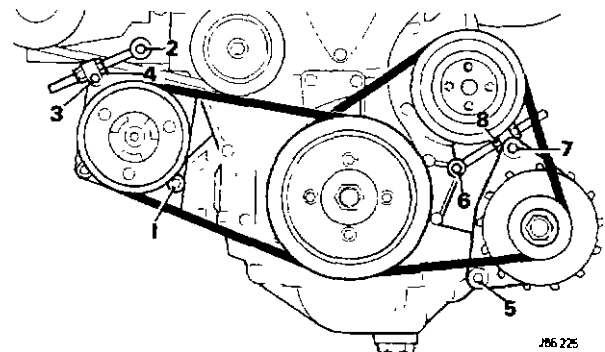


Fig. 2

## ALTERNATOR

**RENEW (12 cyl)**

**86.10.02**

Disconnect battery earth lead.

Remove right-hand air cleaner.

Remove air pump if fitted.

Slacken nut securing alternator mounting bolt. (4 Fig. 3).

Slacken nut securing alternator adjusting link. (6 Fig. 3).

Slacken trunnion block to mounting bracket securing bolt. (5 Fig. 3).

Withdraw electrical connector from alternator.

Slacken adjusting link locknuts.

Ease alternator drive belt off pulley.

Withdraw the bolts.

Remove alternator complete with pulley, from engine compartment.

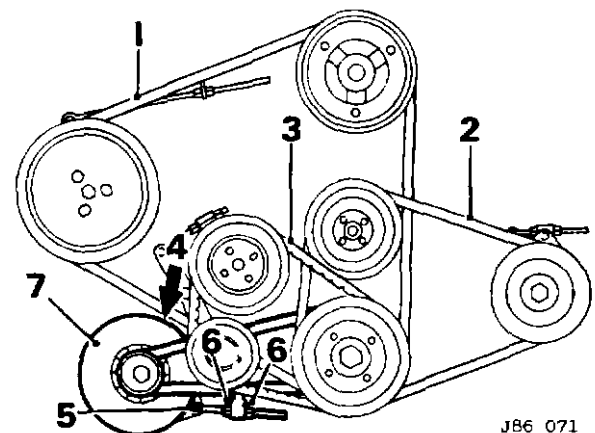


Fig. 3



## ALTERNATOR DRIVE BELT

### RENEW AND ADJUST

86.10.03

Loosen the pivot bolts securing the air conditioning compressor.

Loosen the adjusting link securing bolt and trunnion block bolt.

Loosen the adjusting link locknut and adjust the compressor towards the engine until compressor drive belt can be removed.

Loosen the alternator pivot nut and bolt.

Loosen the adjusting link pivot bolt and the trunnion block bolt.

Loosen the adjusting link locknut and adjust the alternator towards the engine by means of the adjusting nut.

Remove the trunnion block bolt and push the alternator towards the engine until the drive belt can be removed from the pulleys.

On fitting the new belt ensure that the drive belt is adjusted to the correct tension. A load of 1.5 kg must give a total belt deflection of 45 mm when applied at the mid point of the belt.

## ALTERNATOR PULLEY

### RENEW

86.10.04

Open the bonnet and disconnect the battery earth lead.

Remove the air cleaner element for access.

From below loosen the alternator pulley nut (1 Fig. 1) and the alternator pivot nut/bolt (3 Fig. 1). From above loosen the top adjusting nut, the adjusting link securing bolt, the trunnion securing bolt and the lower adjusting nut to relieve the belt tension (2 Fig. 1).

Pivot the alternator towards the engine and remove the drive belt from the pulley.

Remove the nut and washer securing the pulley.

Remove the pulley (5 Fig. 1).

Fitting a new pulley is the reversal of the above procedure.

Ensure that the drive belt is adjusted to the correct tension. A load of 1.5 kg (3.3 lb) must give a total belt deflection of 44 mm (0.17 in) when applied at mid point of the belt.

Ensure also that the pulley nut is tightened to a torque of 27.2 to 47.5 Nm.

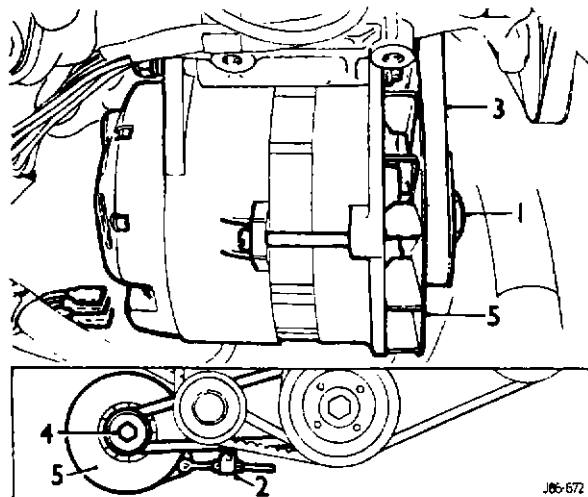


Fig. 1

## ALTERNATOR DUMP MODULE

### RENEW

86.10.06

Open the bonnet and disconnect the battery earth lead.

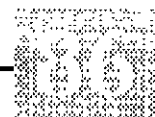
Remove the air cleaner assembly.

Remove the screws, nuts and washers securing the module.

Disconnect the cable to the alternator and the earth lead.

Remove the module.

The refitting procedure is a reversal of the removal procedure. Ensure electrical connections are clean and secure.





## ELECTRICALLY OPERATED WINDOWS

### DESCRIPTION

86.25.00

Power is supplied via auxiliary controlled load relay contacts from the main battery supply through a thermal circuit breaker. The auxiliary controlled load relay is energised when the ignition switch is closed and this energises the circuit to the window lift motor.

When a control switch is operated to lower a window, current flows via contacts within the switch to the motor (circuit to earth is also via the switch).

When the switch is operated to raise the window, current flows in the opposite direction through the switch and motor.

### TESTING

If the windows fail to operate check the fuse and all connectors and ensure that all connections are clean and tight.

1. Check the thermal circuit breaker:
  - i Connect the **white/blue** and **brown/blue** leads together.
  - ii Switch on the ignition.
  - iii Operate the window switch. If the window operates as **normal**, the circuit breaker is faulty and should be replaced.
2. With the ignition switched on, battery voltage should be obtained at the **brown/blue** lead terminal of the left hand window switch. Operate the switch. Battery voltage should be obtained at the **red/blue** lead terminal when the switch is operated in one direction, and the **green/blue** lead terminal when the switch is operated in the opposite direction. Should a zero reading be obtained at either test point, replace the switch.

**Note:** The same test applies to the right hand window switch, the switch cable colours are **red/green** for one direction and **green/red** for the opposite direction.

If the above tests prove satisfactory, check the window lift motor for continuity. If the wiring continuity proves satisfactory, remove the window lift motor for bench testing.

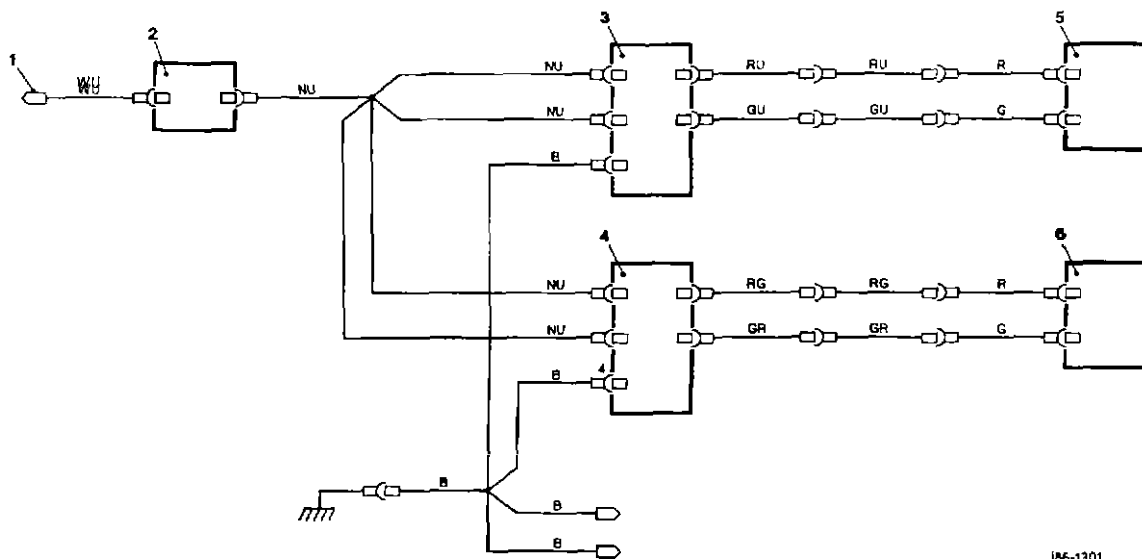
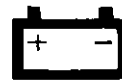


Fig. 1

Key to Fig. 1

- |                                 |                        |
|---------------------------------|------------------------|
| 1 To auxiliary controlled relay | 4 RH window switch     |
| 2 Thermal circuit breaker       | 5 LH window lift motor |
| 3 LH window switch              | 6 RH window lift motor |



## LEFT HAND REAR QUARTER WINDOW MOTOR

### RENEW

86.25.11

Move the two seats forward to full extent for access.

Disconnect the battery earth lead.

Remove the quarter lower trim pad.

Remove the rear stowage compartment.

Disconnect the window motor electrical connections.

Remove the window finisher-feed wires through grommet.

Remove the bolts securing the window motor mounting bracket.

Displace the motor assembly and disengage from the glass.

Remove the motor assembly.

Remove the bolts securing the motor to carrier and remove the motor.

Fitting a new motor is a reversal of the removal procedure

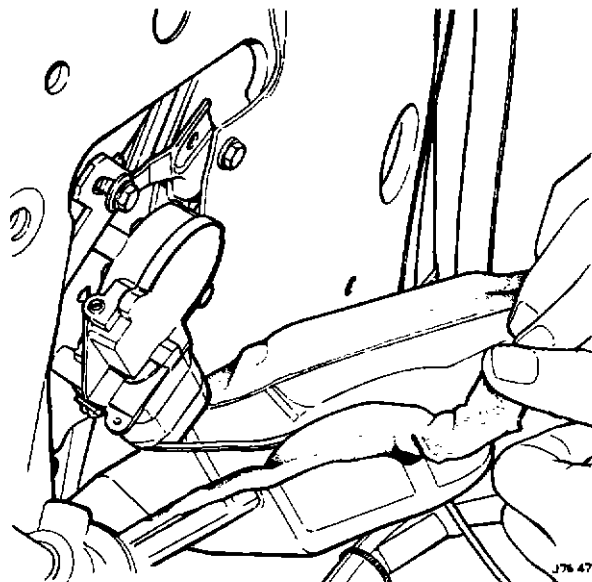


Fig. 1

## RIGHT HAND REAR QUARTER MOTOR

### RENEW

86.25.18

Move the seats forward to full extent.

Disconnect the battery earth lead.

Remove the rear stowage compartment.

Remove the lower trim pad.

Select the manual position of the hood pump.

Manually raise the hood to midway position.

Select the position of the hood pump.

Remove the hood cylinder support bracket securing bolt.

Support the hood and remove the cylinder to hood securing bolt.

Remove the cylinder support bracket.

Disconnect the cylinder from the pivot.

Lower the hood.

Remove the window motor cover securing clips.

Disconnect the motor electrical connectors.

Displace the wires and the grommet through the cover and remove the cover.

Remove the window motor assembly securing bolts.

Displace and remove the motor assembly.

Remove the bolts securing the motor to carrier.

Remove the motor.

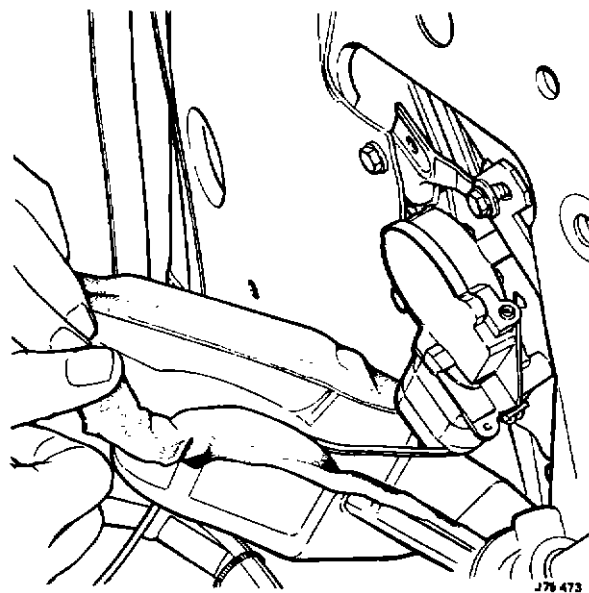
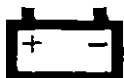


Fig. 2



**FRONT DOOR WINDOW LIFT MOTOR****RENEW****86.25.04**

Disconnect the battery earth lead.

Remove the door trim pad 76.34.01

Remove the front door speaker 86.50.13

Remove the front door weather shield 76.34.13.

Displace and remove front quarter seal retaining peg (1 Fig. 1).

Release the stiction between the seal and the door panel.

Undo and remove front quarter channel (2 Fig. 1) to lower bracket securing bolts.

Undo but do not fully remove the bolt (3 Fig. 1) securing lower bracket to door.

Undo and remove the screws (4 Fig. 1) securing the upper front quarter to the door.

Displace and remove front door quarter/seal assembly (5 Fig. 1).

Using suitable tape, secure glass to the door.

Mark the position of the glass relative to the carrier bracket securing bolts (6 Fig. 1).

Undo and remove bolts securing door glass to front carrier.

Undo and remove the upper bolt (7 Fig. 1) securing glass vertical guide channel to door.

Undo and remove the lower guide channel securing bolt (8 Fig. 1).

Reposition the channel for access to motor.

Displace the window lift motor harness multi plug from the retaining clip

Disconnect the harness multi plug (10 Fig. 1).

Undo and remove the motor stop adjuster lock nuts (11 Fig. 1).

Undo and remove the bolt (12 Fig. 1) securing outer to inner door skin spacer.

Retrieve the spacer.

Undo and remove the bolts (13 Fig. 1) securing the motor to the door.

Displace and remove the door pocket retaining bracket (14 Fig. 1).

Displace and remove the window lift motor assembly (9 Fig. 1) and place to front.

Undo and remove the bolts (16 Fig. 1) securing the regulator (15 Fig. 1) to the motor.

Displace and remove the motor. Place aside.

Clean the regulator.

Fitting a new motor is the reversal of the removal procedure taking care that door glass is repositioned to previously marked position.

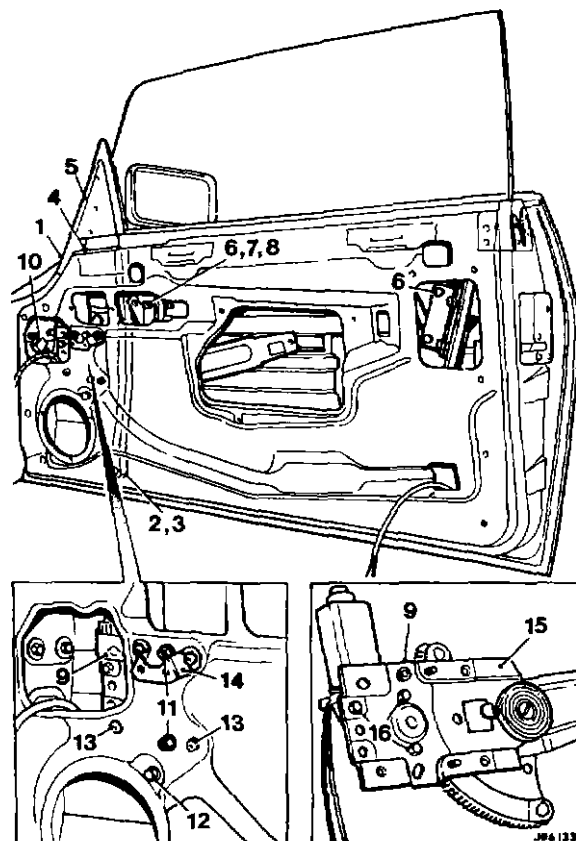


Fig. 1



## CIRCUIT BREAKER

### RENEW

86.25.31

Disconnect the battery earth lead.  
Remove the passenger side dash liner.  
Remove nuts and shakeproof washers (1 Fig. 1) securing mounting plate to fan motor.  
Ease the mounting plate from studs.

Note position of cables and disconnect at lucas on relevant circuit breaker.

Remove the two screws (3 Fig. 1) securing the unit and remove the unit (2 Fig. 1).  
Fitting a new circuit breaker is a reversal of the removal procedure.

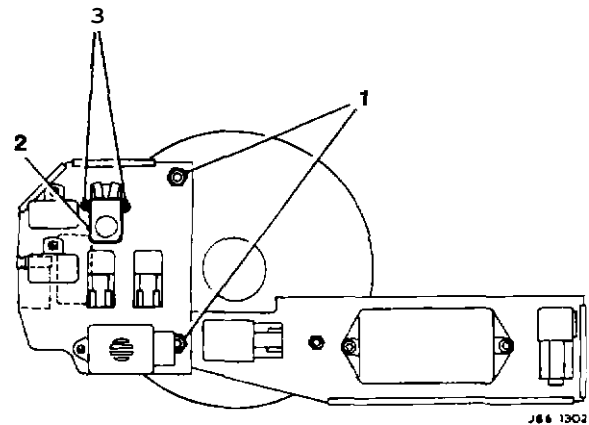


Fig. 1

## WINDOW LIFT SWITCHES

### RENEW

86.25.03

Disconnect the battery earth lead.  
Carefully displace the window lift switchpack from the console veneer panel.  
Disconnect the harness multiplug from the window lift switch.  
Displace and remove the switch from the panel.  
The refitting procedure is a reversal of the removal procedure.

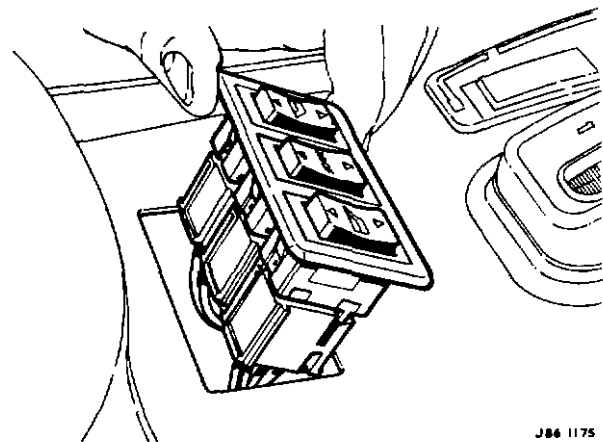
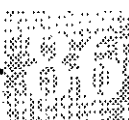


Fig. 2

## KIEKERT CENTRAL LOCKING SYSTEM

Key to Fig. 1 page 16

- 1 RH door lock switch
- 2 LH door lock switch
- 3 Ignition switch
- 4 Door lock control module
- 5 RH door lock motor
- 6 LH door lock motor
- 7 Boot lock motor
- 8 Fuel filler flap lock (coupe only)





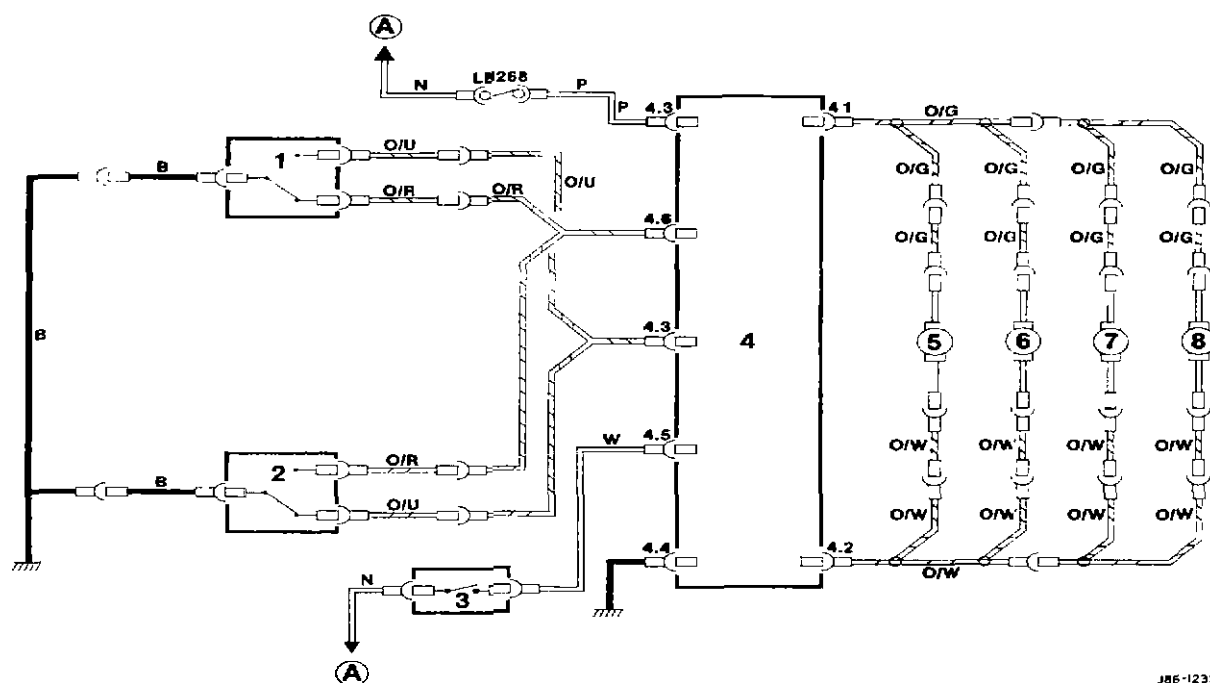


Fig. 1

J86-1233

## DESCRIPTION

86. 25.00

The system comprises an actuator in both doors and the boot lid. An electronic control module in the passenger side 'A' post controls the system.

The door actuators are identical, incorporating a microswitch which signals a change of state by the actuator and a motor which drives to the lock or unlock positions. The microswitch is of the changeover type and provides an earth for the lock or unlock signal input to the control unit.

There are two lock and unlock inputs to the control unit. The 'lock' inputs are commoned together to one lock input to the control unit, so that the locking of either door with the key or the interior door flap will lock both doors simultaneously. The boot will lock in unison with the door locks or remain unlocked, dependant on the door lock position—see positions 1 to 3 below.

The 'unlock' inputs are commoned together to one unlock input to the control unit, so that the unlocking of either door with the key or the interior door flap will unlock both doors simultaneously.

The boot will remain locked or will be unlocked in unison with the door locks, dependant on the boot lock positions 1 to 3 below.

The control unit responds only to negative going signals i.e. any input changing from a high to ground. Immediately after such a change of state, all motors are driven for a preset time. Therefore the motors are not driven continuously when the input signal wire is taken to earth. The motors are all paralleled together and are driven by two changeover relays in the control unit. These relays change the direction of the battery supply to the motor, depending upon whether the motor is locking or unlocking. The motors are driven for a preset time after which both power leads are connected to earth.

The boot lock has three positions:

1. Lock turned fully clockwise. In this position the boot lid locks/unlocks in unison with the door locks.
2. Lock turned fully anti-clockwise. In this position the boot lid is permanently locked and cannot be unlocked using the central locking system.
3. Lock turned to the central position. With the lock in this position the key cannot be removed.

The boot lid can be opened irrespective of the central door locking mode (locked or unlocked). This enables access to the boot if the car is centrally locked. Refer to section 90 for complete electrical diagrams.



## FRONT DOOR LOCK MOTOR

### RENEW

86.25.45

Disconnect the battery earth lead.  
Remove front door trim pad 76.34.01.  
Disconnect door lock motor harness multi plug.  
Remove and discard harness to door securing tape.  
Reposition weather strip for access.  
Displace door lock operating rods from guide clips.  
Displace and remove rear control rod guide clip.  
Disconnect the outer lock to mechanism operating rod.  
Reposition rod from mechanism.  
Disconnect clip retaining outer release handle to mechanism operating rod.  
Reposition the rod from the mechanism.  
Disconnect the clip retaining door lock barrel rod to mechanism.  
Reposition the rod from the mechanism.  
Disconnect the clip retaining door release rod to mechanism.  
Reposition the rod from the mechanism.  
Undo and remove the outer lock securing screws.  
Displace and remove the outer lock assembly.  
Displace and remove the motor/lock mechanism assembly.  
Undo and remove the motor securing screws.  
Displace and remove the motor assembly from the mechanism.  
Place the motor aside.  
The refitting procedure is a reversal of the removal procedure.

## BOOT LID LOCK ACTUATOR

### RENEW

86.25.49

Open the boot lid.  
Disconnect the battery earth lead.  
Remove the bolts securing the actuator cover and remove the cover.  
Remove the nuts and washers securing the number plate and reverse lamp assembly housing.  
Disconnect the actuator block connector.  
Disconnect the number plate and reverse lamp block connectors.  
Displace and remove boot lid lock to linkage retaining clip.  
Remove the screws securing the boot lock handle.  
Remove the bolts securing the actuator.  
Remove the actuator.  
The refitting procedure is a reversal of the removal procedure.

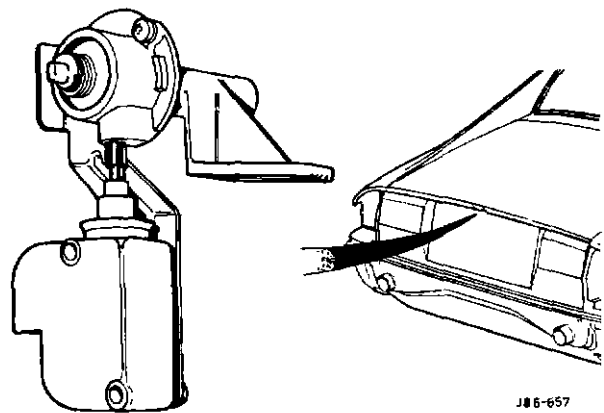
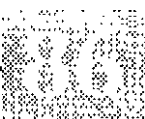


Fig. 1





## HORNS

### DESCRIPTION 86.30.00

Twin horns are fitted. mounted on the front lower cross-member behind and beneath the front bumper.

Both horns operate simultaneously and are energised by a relay. The relay is connected to the battery through the ignition switch so that the horns will only operate with the ignition 'ON'.

## HORN PUSH

### RENEW 86.65.18

Open door. Displace and remove horn push from steering wheel.

The refitting procedure is a reversal of the removal procedure.

## HORNS

### RENEW 86.30.09

Disconnect the battery earth lead.

Remove the screws securing the horns to mounting beneath front bumper apron.

Lower horns and recover distance pieces and washers.

Disconnect supply leads at lucar connectors.

The refitting procedure is a reversal of the removal procedure.

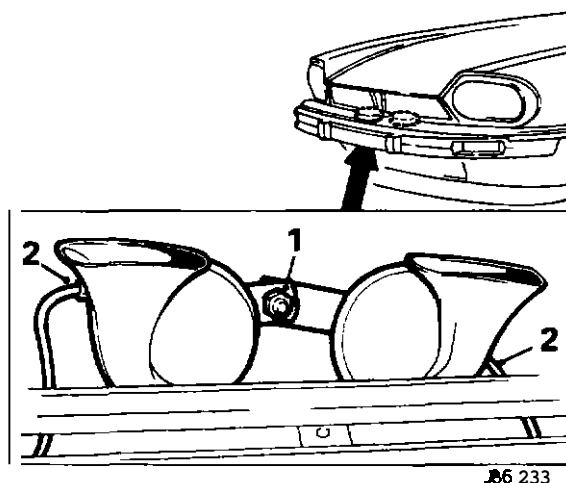


Fig. 1

## AUTOMATIC TRANSMISSION SELECTOR LAMP BULB

### RENEW 86.45.40

Raise the centre console glove box lid.

Remove two armrest catch escutcheon securing screws (1 Fig. 2) to remove escutcheon.

Undo and remove the screw and washer (2 Fig. 2) from beneath the escutcheon.

Prise up the switch assembly escutcheon plate (3 Fig. 2) with a suitable tool and disconnect the three block connectors.

Prise up the speed control escutcheon plate (4 Fig. 2) and disconnect the cable connector.

Prise up the cigar lighter escutcheon plate (5 Fig. 2) and disconnect the three cable connectors.

Slacken two bolts (6 Fig. 2) securing veneer panel. Raise the panel over the gear selector and remove for access.

Remove nuts securing the selector quadrant cover.

Raise the cover clear of quadrant.

Remove shroud (7 Fig. 2) from the selector lamp.

Remove the bulb (8 Fig. 2).

Fit new bulb of the correct wattage.

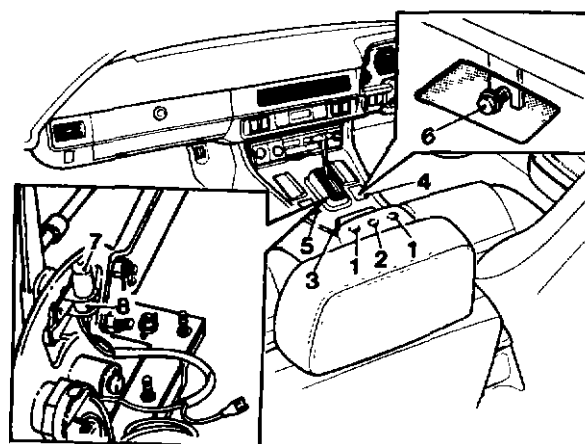


Fig. 2



## FRONT AND REAR PARKING LAMPS

### CIRCUIT DESCRIPTION

86.40.00

With the master light switch in the parking lamp on position current flows to the side light relay (2 section 90) to energise circuit to side lights and bulb failure units. The current flowing through the bulb failure units will cause the bulb failure warning lamp to glow for 15 to 30 seconds. If the warning lamp fails to go out then there is a bulb failure or a circuit fault in the front parking lamp, rear lamps or number plate lamps.

#### Fault Finding

For fault finding refer to circuitry in section 90.

Check the fuses and all connections, ensuring the earth connections are clean and tight.

With the master light switch in the parking lamp on position, battery voltage should be obtained at terminals 85 and 87 of the sidelight relay 2. This in turn makes the circuit to the lamp failure units 6, 11, 17 and 23.

If battery voltage is obtained at the B terminal of a lamp failure unit but a zero reading at the L terminal replace the bulb failure unit.

## HEADLAMPS

### DESCRIPTION

86.40.00

With the master light switch 1.1 (section 90) in the headlamp position, power is supplied to energise the headlamp relay which in turn energises the headlamp control module. The headlamps changeover switch 1.2 selects main or dip headlights via the headlamp control module 28 which in turn activates the main or dip headlamp filaments 30 and 32 or 34 and 36.

## FLASHER LAMPS

### DESCRIPTION

86.40.00

With the ignition switch 64 on and a flasher lamp 1.4 selected, current flows (at the appropriate flash rate) to the flasher lamps via the hazard warning switch 50, and flasher unit 51.

When the hazard lamps are selected, current is allowed to flow to all flasher lamps.

#### Fault Finding

Check the fuses and all connections. The earth connections should be clean and tight.

With the headlights changeover switch off, the supply will be made to dipped filaments 30 and 32 i.e. supply will be made to terminal 56b of the control module 28.1. With the main beam selected supply will be made to the main beam filaments 34 and 36 i.e. supply will be made to terminal 56a.

Headlamps (Daylight Running and Headlamp Levelling) refer to section 90 circuit.

## HEADLAMP

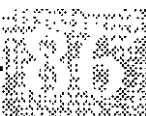
### ALIGNMENT

86.40.18

**Note:** Headlamp beam setting should only be carried out with approved beam setting apparatus.

#### Adjustment

Vertical and horizontal adjustment of the headlamp beam is made with two adjusting screws set in a yellow plastic moulding sited above either front wheel arch inside the bonnet. The silver screw adjusts the horizontal alignment and the black screw adjusts the vertical alignment. For horizontal beam adjustment of the right hand headlamp turn the screw clockwise to move the beam to the right. Turn the screw anti-clockwise to move the beam to the left.





Turn in the opposite directions for adjustment of the left hand headlamp.  
Where a headlamp levelling motor is fitted (i.e. interposed in the **drive cable**), setting the beam vertically is exactly the same as for the non - headlamp beam levelling lamp. Three positions are however available for setting the levelling motor to cater for differing rear end loads.

### HEADLAMP ASSEMBLY

#### RENEW

**86.40.16**

Disconnect the battery earth lead.  
Remove headlamp rim finisher **86.40.01**.  
Displace manual adjuster retaining block from inner wing.  
Displace adjuster cables from block.  
Remove adjuster block and place aside.  
Reposition adjuster cables through inner wing.  
Undo and remove headlamp carrier to body securing screws.  
Displace headlamp assembly from aperture.  
Disconnect headlamp multiplug.  
Remove headlamp assembly.  
The refitting procedure is a reversal of the removal procedure. Take care not to touch the bulb glass envelope).

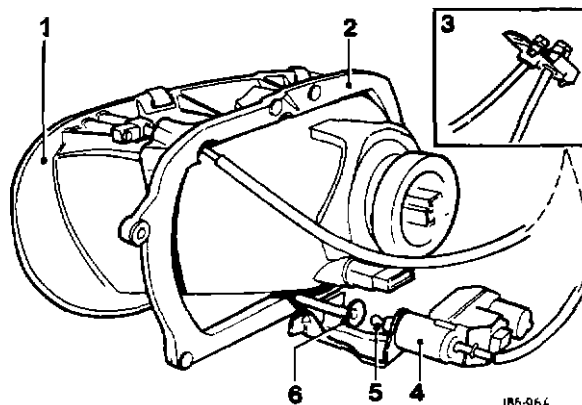


Fig. 1

### HEADLAMP

#### RENEW

**86.40.15**

Disconnect battery earth lead.  
Remove headlamp rim finisher **86.40.01**.  
Remove headlamp assembly **86.40.16**.  
Displace and remove carrier to headlamp spring clips.  
Displace and remove carrier (3 ball and socket joints).  
Displace and remove rubber dust cover from bulb.  
Reposition bulb retaining clip to release bulb from headlamp.  
The refitting procedure is a reversal of the removal procedure. Take care not to touch the bulb glass envelope).

1. Headlamp
2. Headlamp carrier
3. Manual adjuster cable
4. Motor
5. Motor drive ball
6. Headlamp carrier socket

### HEADLAMP - USA

#### RENEW

**86.40.15**

Disconnect battery earth lead.  
Remove headlamp rim finisher **86.40.01**.  
Remove headlamp assembly **86.40.16**.  
Displace and remove carrier to headlamp spring clips.  
Displace and remove carrier (3 ball and socket joints).  
Rotate bulb holder retaining ring anti-clockwise and remove from headlamp.  
Displace and remove bulb.  
The refitting procedure is a reversal of the removal procedure. Take care not to touch the bulb glass envelope.

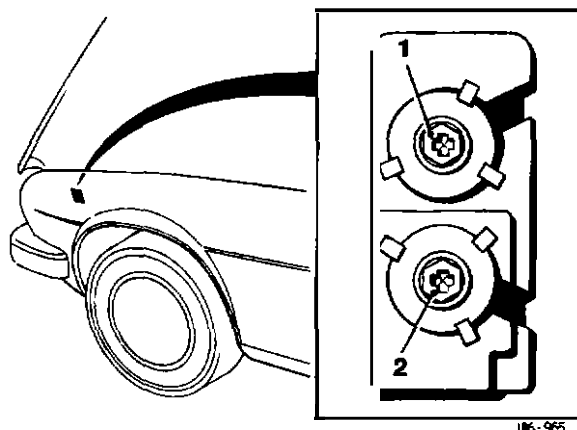


Fig. 2



## HEADLAMP BULB

### RENEW

86.40.22

Disconnect the battery earth lead.  
Reposition the front wheels to gain access to the plate located inside the wheel arch.  
Turn fastener anti-clockwise and remove the plate.  
Disconnect the multi-connector socket from the bulb and remove the rubber cover.  
Disconnect the wire clip securing bulb to the headlamp unit and remove the bulb 1 Fig. 1 (not applicable to U.S.A.).  
The refitting procedure is a reversal of the removal procedure. Take care not to touch the bulb glass envelope).

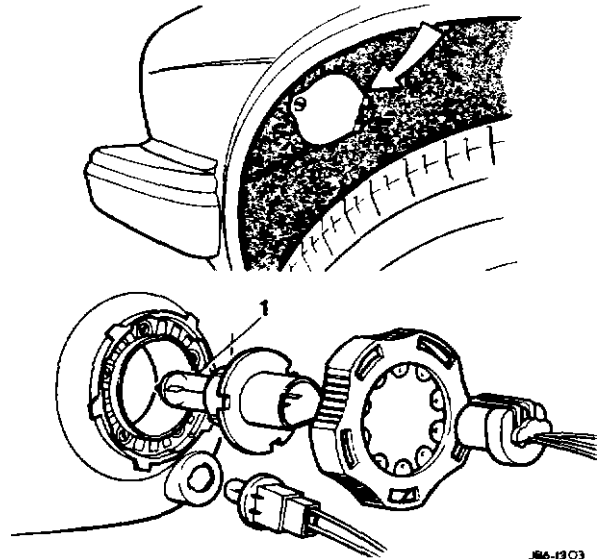


Fig. 1

## FRONT PARKING LIGHT BULB

### RENEW

86.40.11

Disconnect the battery earth lead.  
Reposition the front wheels to gain access to the plate located inside the wheel arch.  
Turn fastener anti-clockwise and remove the plate.  
Rotate the bulb holder anti-clockwise and remove from the headlamp.  
Pull the capless bulb (1 Fig. 2) from the holder and replace with one of the correct type.

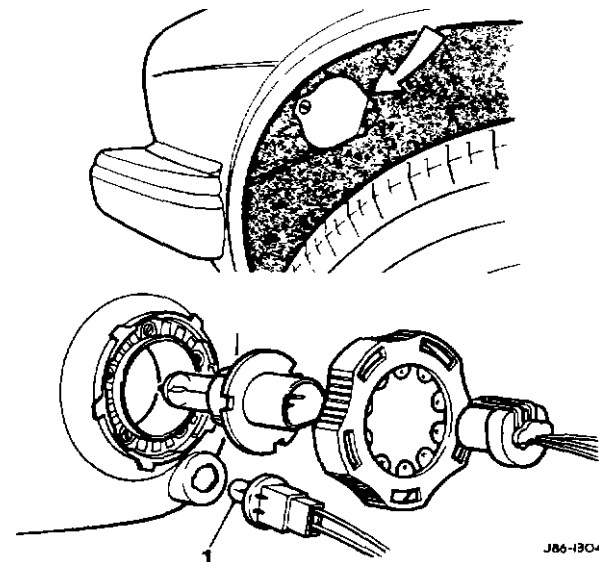


Fig. 2

## BOOT LID NUMBER PLATE REFLECTOR LENS

### RENEW

86.40.81

Open boot.  
Undo and remove reflector to boot lid securing nuts.  
Remove reflector from boot lid.  
The refitting procedure is a reversal of the removal procedure.

## FOG AND REVERSE LAMP ASSEMBLY

### RENEW

86.40.82

Disconnect the battery earth lead.  
Undo and remove screws (1 Fig. 3) securing lamp assembly cover to boot lid.  
Disconnect bulb wires from fog and reverse bulbs.  
Undo and remove nuts (2 Fig. 3) securing lamp assembly to boot lid.  
Remove lamp assembly (3 Fig. 3) from boot lid.  
To fit a new lamp assembly is the reversal of the removal procedure.

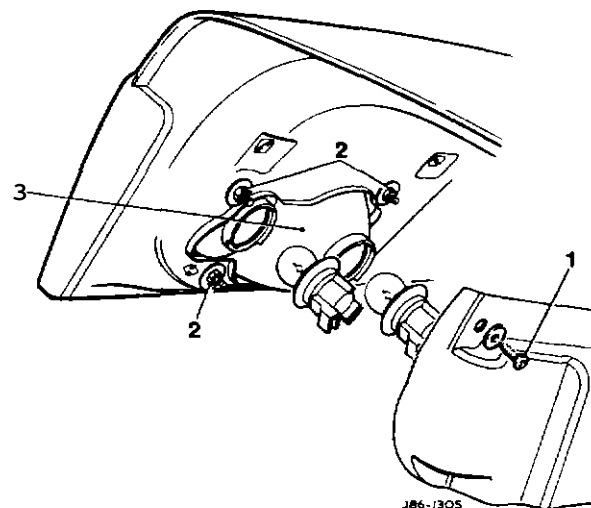
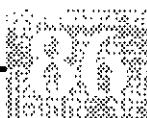


Fig. 3





## REVERSE LAMP BULB

### RENEW

86.40.90

Undo and remove screws securing lamp assembly to boot lid.

Remove cover.

Displace bulb holder from lamp assembly (outer).

Displace and remove bulb (1 Fig. 1) from holder.

The refitting procedure is a reversal of the removal procedure.

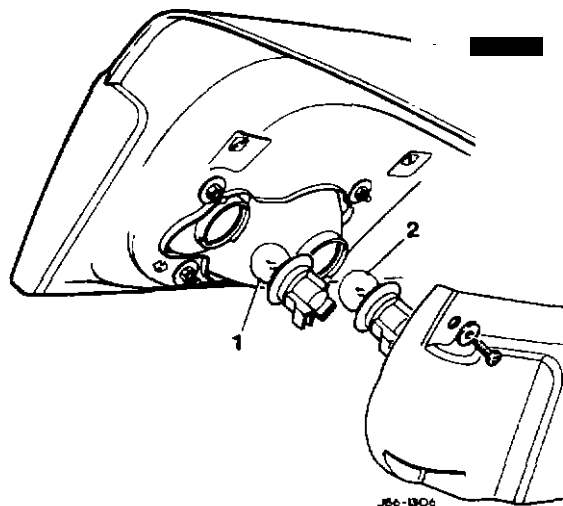


Fig. 1

## FOG LAMP BULB

### RENEW

86.40.94

Undo and remove screws securing lamp assembly cover to boot lid.

Remove cover.

Displace bulb holder from lamp assembly (inner).

Displace and remove bulb (2 Fig. 1) from holder.

To fit a new bulb is a reversal of the removal procedure.

## NUMBER PLATE LAMP LENS

### RENEW

86.40.84

Disconnect the battery earth lead.

Undo and remove lamp securing screws (1 Fig. 2).

Displace assembly (2 Fig. 2) from aperture.

Disconnect wires from lamp.

Remove assembly from the vehicle.

Displace and remove the bulb.

Displace and remove the gasket.

Displace and remove contacts.

Place lens aside.

To fit a new lens is a reversal of the removal procedure.

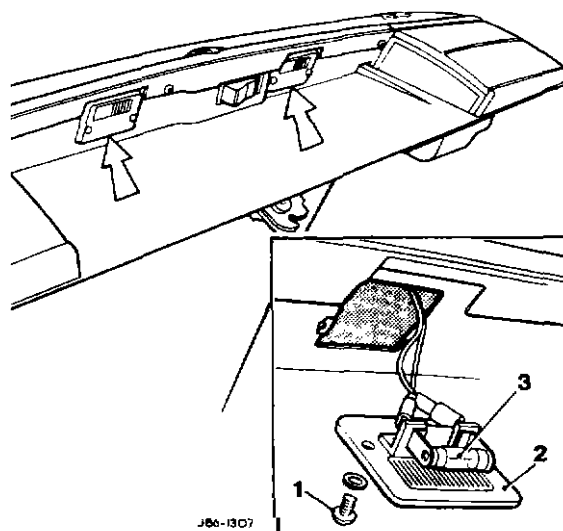


Fig. 2

## NUMBER PLATE LAMP BULB

### RENEW

86.40.85

Undo and remove screws securing number plate lamp.

Displace lamp from aperture.

Displace and remove bulb (3 Fig. 2).

To fit a new bulb is a reversal of the removal procedure.



## TAIL, STOP AND FLASHER LAMP ASSEMBLY

### RENEW 86.40.70

Disconnect the battery earth lead.  
Displace the boot rear side trim for access.  
Disconnect wires from stop/tail and flasher bulbs.  
Undo and remove lamp assembly to body securing nuts (1 Fig. 1).  
Remove lamp assembly from rear wing housing.  
The refitting procedure is a reversal of the removal procedure.

## TAIL, STOP AND FLASHER LAMP BULB

### RENEW 86.40.69

Displace boot rear side trim for access.  
Displace bulb holder from lamp assembly (Red – stop/tail : blue – flasher).  
Remove bulb from holder (2 Fig. 1).  
Fitting a new bulb is a reversal of the removal procedure.

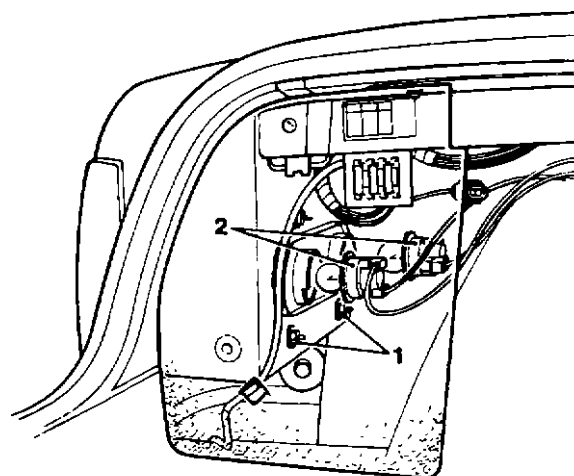


Fig. 1

## FRONT FLASHER LAMP BULB

### RENEW 86.40.41

Rotate the bulb holder anti clockwise by hand and withdraw from behind the front bumper.  
Remove the bulb from the holder and replace with one of the correct type.  
Refit the bulb holder and turn clockwise.

## FRONT FLASHER REPEATER LAMP LENS

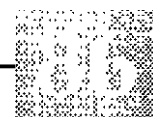
### RENEW 86.40.51

Undo and remove lens securing screws.  
Displace and remove lens.

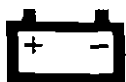
## FRONT FLASHER REPEATER LAMP BULB

### RENEW 86.40.52

Undo and remove lens securing screws.  
Displace and remove lens.  
Remove the bulb cover and remove the bulb.







### FRONT FLASHER REPEATER LAMP ASSEMBLY

**RENEW** **86.40.53**

By hand, position lamp assembly to left to release locking tag and displace from wing.  
Disconnect link harness multiplug.

### SIDE MARKER LAMP LENS

**RENEW** **86.40.57**

Undo and remove screws securing side marker to bumper.  
Displace the side marker assembly from the bumper.  
Remove side marker lens from bulb holder.  
The refitting procedure is a reversal of the removal procedure.

### SIDE MARKER LAMP BULB

**RENEW** **86.40.58**

Remove side marker lamp lens 86.40.57.  
Remove bulb from holder.  
Fitting a new bulb is a reversal of the removal procedure.

### SIDE MARKER LAMP ASSEMBLY

**RENEW** **86.40.59**

Undo and remove side marker to bumper securing screws.  
Displace side marker assembly from bumper.  
Disconnect the assembly from the harness connector plug.  
The refitting procedure is a reversal of the removal procedure.



## INTERIOR LAMPS

### DESCRIPTION

86.45.00

The courtesy lamp delay unit controls the operation of the vehicle interior lamps so that they remain on for approximately 10 seconds after the doors are closed: see section 90 for details of the circuit. The delay switch is polarity conscious, but a reverse polarity connection will not result in damage to the unit.

When terminal 1 is earth via a door switch, a transistor charges a capacitor in a timing circuit which joins terminals 3 and 4 together via an internal relay. When terminal 1 (earth circuit) is broken (door closed) the capacitor commences to discharge, turning off the relay at the end of the prescribed period which in turn switches off the interior lamps.

Power is supplied to passengers door lamp 6 map lamp 7 and interior lights LH and RH via interior lighting switch BN4.

### Fault Finding

Check the fuse and all connections.

Ensure the earth connections are clean and tight.

Battery voltage should be obtained at terminal 2 of the delay unit. If the voltage is satisfactory bridge terminal 1 of the delay unit to earth. If the interior lamps now illuminate, check the door switches, and the wiring to the door switches. If the lamps still operate unsatisfactorily bridge terminals 3 and 4 together on the delay unit. Should the lamps now illuminate replace the delay unit.

Boot lamps circuit will be found with circuit dealing with interior lighting in section 90.

## ROOF LAMP BULB

### RENEW

86.45.01

Disconnect the battery earth lead.

Prise the lamp assembly from mounting in the head lining and clear of aperture.

Remove the shroud from the rear of the assembly.

Remove the bulb.

Fit new bulb of the correct wattage.

## ROOF LAMP ASSEMBLY

### RENEW

86.45.02

Disconnect the battery earth lead.

Prise the lamp assembly from mounting in the head lining and clear of aperture.

Disconnect the electrical connectors from the lamp terminals.

Remove the lamp.

Fitting a new lamp is a reversal of the removal procedure.

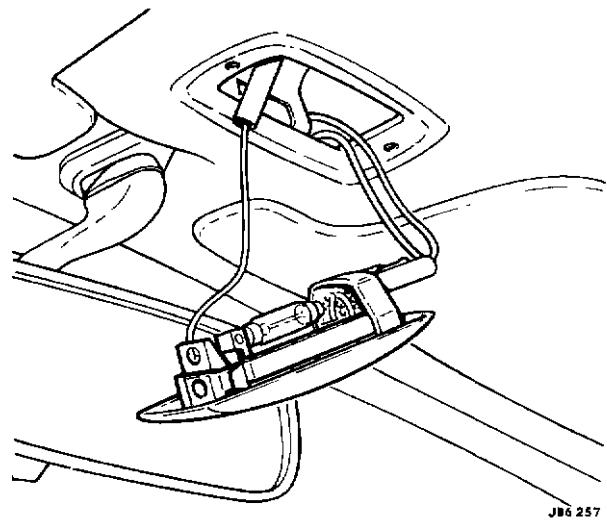


Fig. 1





## INTERIOR AND MAP LAMP BULB

### RENEW

86.45.03

Disconnect the battery earth lead.  
Prise the interior lamp from its location and clear of aperture.  
Remove the bulb from bulb holder.  
Fit new bulb of the correct wattage.

## INTERIOR AND MAP LAMP ASSEMBLIES

### RENEW

86.45.04

Disconnect the battery earth lead.  
Prise the interior lamp from its location and clear of aperture.  
Note and disconnect the electrical connector from the rear of the lamp assembly.  
Remove the lamp assembly.  
Fitting a new lamp is a reversal of the removal procedure.



Fig. 1

J66 1310

## LUGGAGE COMPARTMENT LAMP BULB

### RENEW

86.45.15

Open the luggage compartment.  
Bulbs are located in lamp assemblies either side of the luggage compartment space on compartment strut mounting plates.  
Press in spring clips from, behind, to release lamp assembly from mounting bracket.  
Displace lamp assembly.  
Remove bulb.  
Fit a new bulb of correct wattage.

## LUGGAGE COMPARTMENT LAMP ASSEMBLY

### RENEW

86.45.16

Open the luggage compartment.  
**Press** in spring clips, from behind, to release lamp assembly from mounting bracket.  
Displace lamp assembly.  
Disconnect unit multiplug.  
Fitting a new lamp is a reversal of the removal procedure.

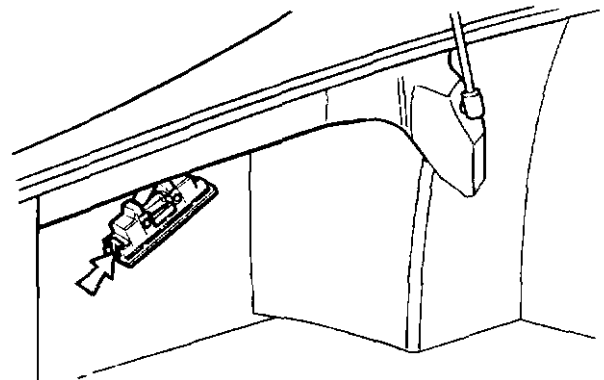


Fig. 2

J66 1311



## SPEEDOMETER ILLUMINATION BULB

RENEW **86.45.49**

This operation also serves for the following operations:

TACHOMETER ILLUMINATION BULB **86.45.53**

OIL AND TEMPERATURE GAUGE ILLUMINATION BULB **86.45.83**

BATTERY AND FUEL GAUGE ILLUMINATION BULB **86.45.84**

Remove the central finisher.

Displace and remove the side finishers.

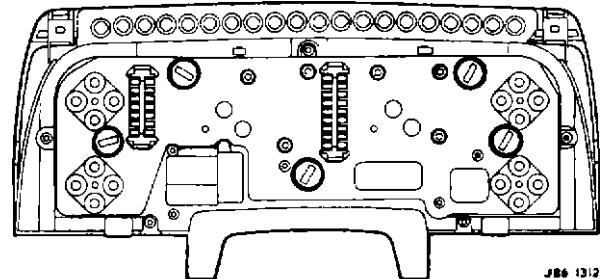
Displace and remove the instrument panel to fascia securing screw cover plates.

Undo and remove screws securing fascia to panel.

Carefully displace the instrument panel for access.

Displace and remove the illumination bulb from the instrument panel.

Fitting a new bulb is a reversal of the removal procedure.



J86 1312

Fig. 1

## AUTOMATIC GEARBOX FAILURE WARNING INDICATOR BULB

RENEW **86.45.94**

This operation also serves for the following operations:

FLASHER BULB (5 & 16) **86.45.63**

IGNITION BULB (7) **86.45.64**

HEADLAMP HIGH BEAM BULB (15) **86.45.65**

OIL PRESSURE BULB (11) **86.45.66**

HANDBRAKE BULB (10) **86.45.67**

BRAKE WARNING BULB (12) **86.45.69**

FUEL WARNING BULB (9) **86.45.70**

LOW COOLANT WARNING BULB (13) **86.45.74**

SEAT BELT WARNING BULB (6) **86.45.75**

FOG LAMP WARNING BULB (17 & 20) **86.45.76**

BULB FAILURE WARNING BULB (19) **86.45.77**

CARAVAN WARNING BULB (4) **86.45.78**

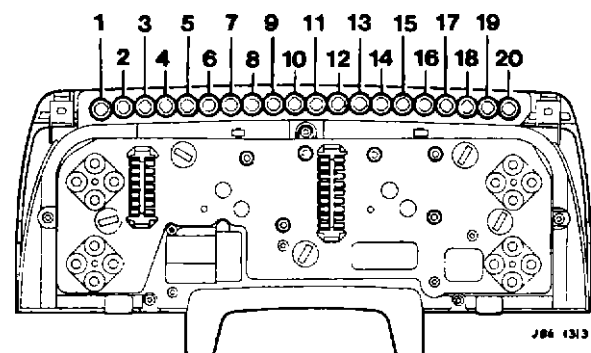
EXHAUST TEMPERATURE WARNING BULB (2) **86.45.80**

WIPE/WASH WARNING BULB (8) **86.45.86**

SPORT MODE BULB (18) **86.45.90**

CHECK ENGINE WARNING BULB (8) **86.45.91**

ANTI LOCK BRAKE WARNING BULB (14) **86.45.92**



J86 1313

Fig. 2

Disconnect the battery earth lead.

Position tilt steering column to lowest position.

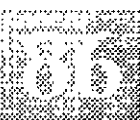
Undo and remove instrument panel finishers securing screws.

Remove central finisher.

Displace and remove side finishers.

Displace and remove instrument panel to fascia securing screw cover plates.

Undo and remove panel to fascia securing screws.





Carefully displace instrument panel for access.  
Displace and remove indicator bulb (3 Fig. 2 page 27) from instrument panel.  
Fitting a new bulb is the reversal of the removal procedure.

### COMBINED ELECTRIC SEAT/HEATER ILLUMINATION BULB

#### RENEW

86.46.11

Remove front door trim pad 76.34.01.  
Carefully displace and remove door switch surround.  
Undo but do not fully remove door release lever securing screws.  
Undo and remove lever front securing screw.  
Undo and remove the remaining switch securing screw.  
Reposition switch assembly for access.  
Displace and remove bulb.  
Fitting a new bulb is a reversal of the removal procedure.

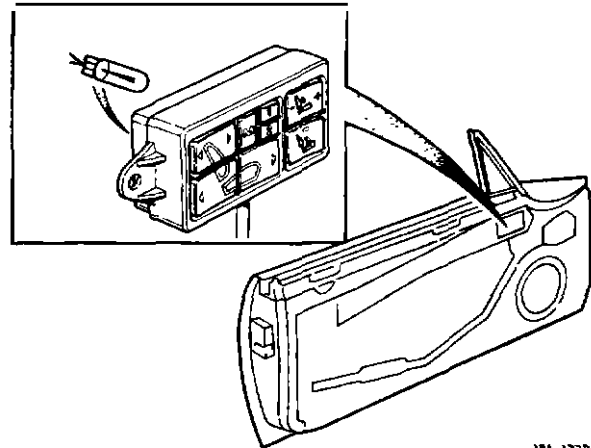


Fig. 1

### STEERING COLUMN STALK SWITCH ILLUMINATION BULB

#### RENEW

86.45.29

Remove steering wheel – Renew 57.60.01.  
Remove steering column lower cowl 76.46.03.  
Displace and remove fibre optic illumination bulb cover (1 Fig. 2).  
Displace and remove bulb from holder.  
To fit a new bulb is a reversal of the removal procedure.

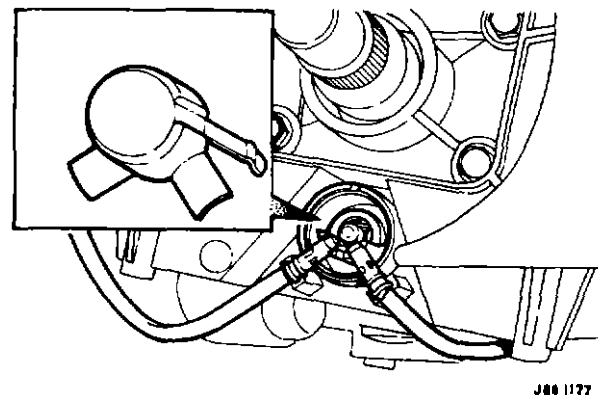


Fig. 2

### COMBINED FLASHER/MASTER LIGHTING/MAIN BEAM AND CRUISE CONTROL RESUME SWITCH

#### RENEW

86.65.04

Disconnect the battery earth lead.  
Remove steering wheel 57.60.01.  
Remove steering column lower cowl 76.46.03.  
Remove steering column upper cowl 76.46.02.  
Displace and remove the fibre optic illumination bulb cover.  
Displace switch fibre optic lead from housing.  
Squeeze the stalk switch securing lugs (1 Fig. 3) to release switch from mounting.  
Slide out switch to displace from mounting.  
Cut and remove the harness to switch ratchet strap.

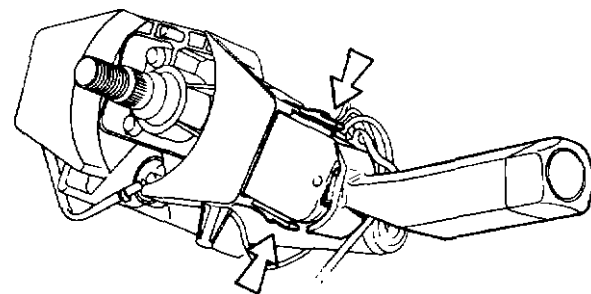
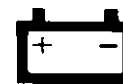


Fig. 3



Disconnect switch **harness** block connector.

**Note:** Note position and disconnect the harness lucar connections from the rear of the switch.

Remove the switch.

The refitting procedure is a reversal of the removal procedure.

## FLASHER UNIT

### RENEW

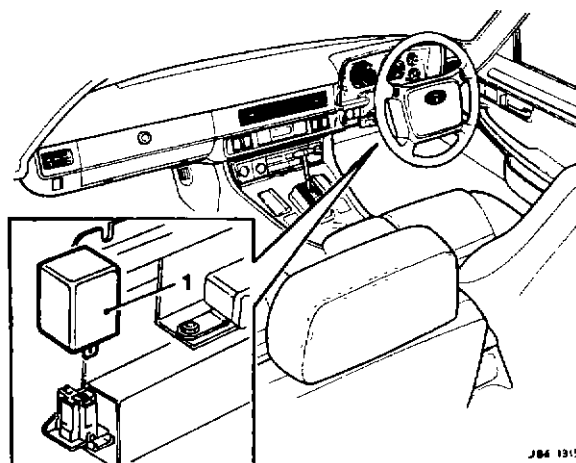
86.55.11

Remove quarter turn fastener securing dash liner to 'A' post (drivers side).

Pivot liner down for access.

Disconnect relay (1 Fig.1) (black) from plug base (yellow).

The refitting procedure is a reversal of the removal procedure.



J06 1315

Fig. 1

## SEAT BELT LOGIC UNIT

### RENEW

86.57.18

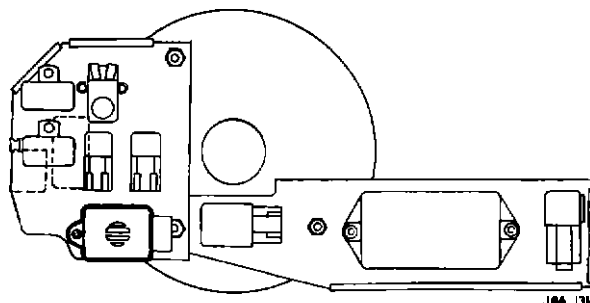
Remove passenger's side dash liner 76.46.15.

Disconnect unit multiplug.

Undo and remove unit to mounting plate securing screw

Remove unit.

The refitting procedure is a reversal of the removal procedure.



J06 1316

Fig. 2

## HEADLAMP RELAY

### RENEW

86.55.17

Open bonnet.

Displace and remove relay (light blue on blue base) from block connector.

Fit and position new relay to block connector.

## PARK LAMP FAILURE WARNING SENSOR (ALL CARS)

### RENEW

86.55.22

Disconnect battery **earth** lead.

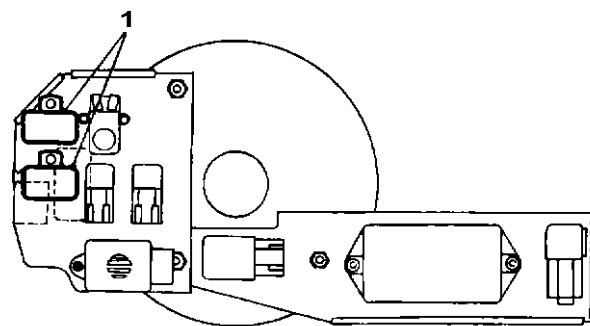
EUROPEAN SPECIFICATION CARS—RIGHT HAND SIDE FRONT AND REAR.

NORTH AMERICAN SPECIFICATION CARS—RIGHT HAND FRONT ONLY.

Remove passenger side dash liner.

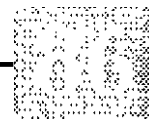
Remove nuts securing mounting plate to fan motor, ease mounting plate clear of location.

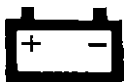
Remove electrical connectors and drive screw.



J06 1317

Fig. 3





Remove sensor (1 Fig. 3 page 29) from locating piece on mounting plate.

EUROPEAN SPECIFICATION CARS LEFT HAND SIDE FRONT AND REAR.

NORTH AMERICAN SPECIFICATION CARS LEFT HAND FRONT ONLY.

Remove passenger side dash liner.

Remove electrical connectors.

Remove drive screw securing sensor to mounting plate.

Remove sensor from locating piece on mounting plate.

NORTH AMERICAN SPECIFICATION CARS ONLY LEFT AND RIGHT REAR.

Open boot and locate sensor related to left or right hand rear park light beneath rear body side panel forward of lamp unit assemblies.

Pull sensor from mounting bracket, located and secured by plastic spigot.

Disconnect electrical connectors.

Remove sensor.

Fitting a new unit reverse above operations relevant to model specification and component location.

### STARTER RELAY

#### RENEW

**86.55.28**

Disconnect battery earth lead.

Open the bonnet for access.

Remove the screws securing the relay cover.

Remove the screws securing the relay.

**Note:** Note position of and disconnect the electrical connectors.

Remove the relay (light blue on natural base).

Fitting a new relay is a reversal of the removal procedure.

### LOW COOLANT WARNING CONTROL UNIT

#### RENEW

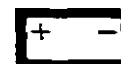
**86.55.33**

Remove passenger's side dash liner 76.46.15.

Disconnect unit multiplug.

Displace and remove coolant warning unit from relay mounting plate edge clip (rear of plate).

The refitting procedure is a reversal of the removal procedure.

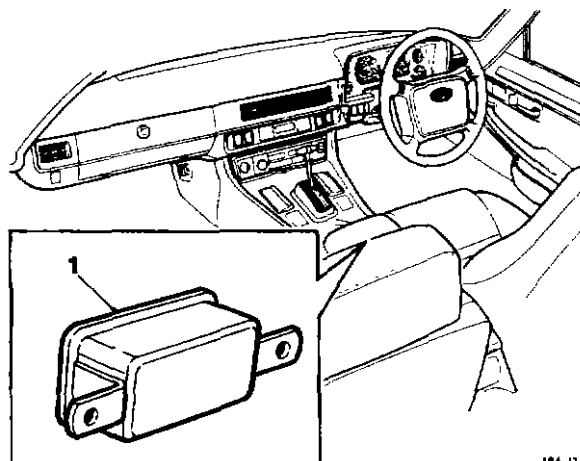


## STOP LIGHT FAILURE SENSOR

### RENEW

86.55.34

Disconnect battery earth lead.  
Raise centre console glove **box** lid for access to escutcheon catch securing screws.  
Remove screw and washer beneath escutcheon catch.  
Remove switch and cigar assemblies.  
Slacken two bolts securing veneer panel.  
Lift centre panel over selector handle.  
Disconnect sensor harness at block connector and lucars.  
Remove screws securing sensor to mounting bracket.  
Recover sensor (1 Fig. 1).



J86 1319

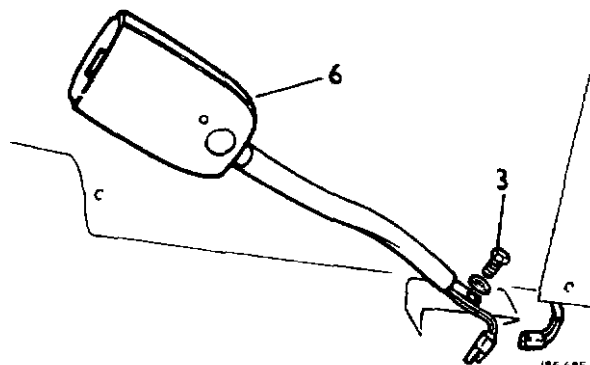
Fig. 1

## BELT SWITCH(ES)

### RENEW

86.57.25

Disconnect battery earth lead.  
Push seat forward to full extent of travel.  
Remove bolt securing belt unit to floor pan.  
Raise belt and ease connector leads clear of carpet.  
Disconnect switch unit block connector.  
Recover belt/switch unit.



J86 685

Fig. 2

## COMBINED HEATED BACKLIGHT AND HAZARD WARNING SWITCH

### RENEW

86.65.35

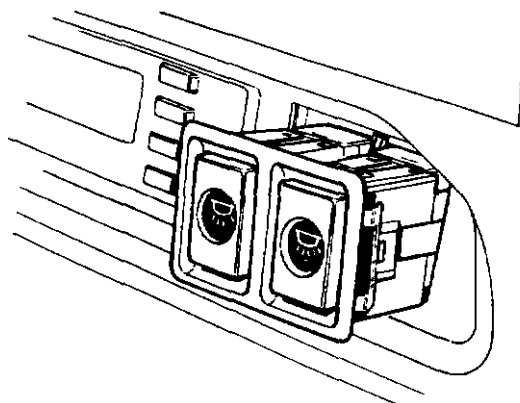
Carefully displace switch assembly from veneer panel.  
Disconnect switch assembly from harness multiplug.  
The refitting procedure is a reversal of the removal procedure.

## COMBINED INTERIOR LIGHT SWITCH

### RENEW

86.65.19

Carefully displace switch assembly from veneer panel.  
Disconnect switch assembly from harness multiplug.  
The refitting procedure is a reversal of the removal procedure.



J86 1173

Fig. 3







## PANEL LIGHT RHEOSTAT

### RENEW

86.65.07

Pivot down drivers side dash liner.  
Remove rheostat control knob from front (1 Fig.1).  
Remove hexagon nut from front (2 Fig.1).  
Remove rheostat from mounting (3 Fig.1).  
Disconnect electrical connector (4 Fig.1).  
The refitting procedure is a reversal of the removal procedure.

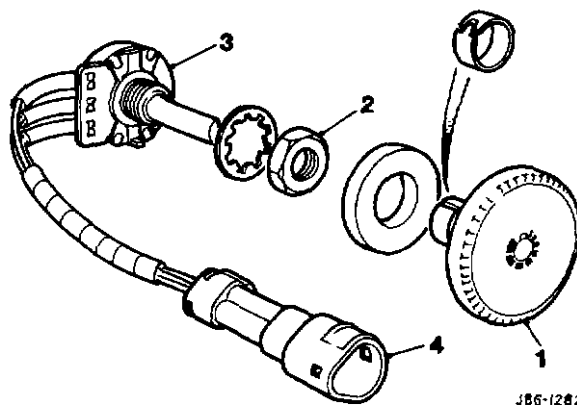


Fig. 1

## DOOR PILLAR SWITCH

### RENEW

86.65.15

Disconnect battery earth lead.  
Remove screw securing switch to door pillar.  
Withdraw switch (Fig. 2).  
Disconnect cable at Lucar. The refitting procedure is a reversal of the removal procedure.

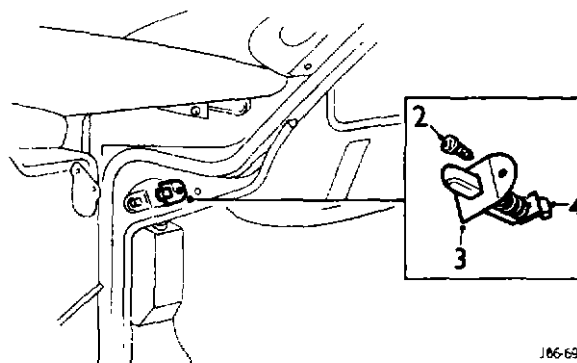


Fig. 2

## REVERSE LIGHT SWITCH (5.3 LITRE)

### RENEW

86.65.20

Disconnect battery earth lead.  
Raise centre console glove box lid for access to escutcheon catch screws (1 Fig. 3).  
Remove screw and washer (2 Fig. 3) beneath escutcheon catch.  
Remove switch (4 Fig. 3) and cigar (5 Fig. 3) assemblies.  
Slacken two bolts (6 Fig. 3) securing veneer panel.  
Remove centre panel.  
Remove nuts securing transmission selector mechanism cover.  
Remove selector mechanism cover (7 Fig. 3).

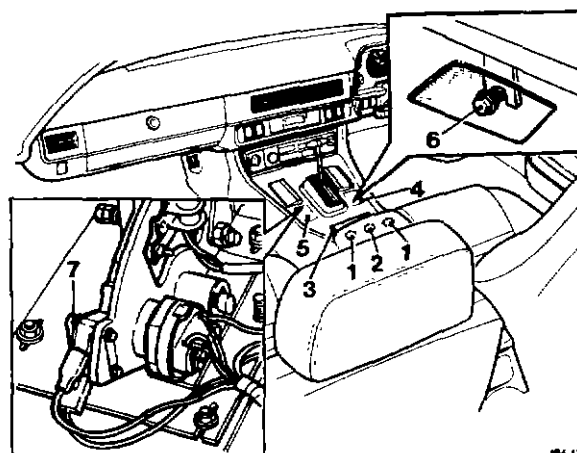


Fig. 3

**Note:** Note position of cables on reverse light switch and disconnect.

Unscrew switch from location.  
The refitting procedure is a reversal of the removal procedure.

**Note:** When fitting ensure that operating plunger of reverse light switch protrudes through mounting plate by an amount sufficient for car to operate switch when reverse is selected.



## LUGGAGE COMPARTMENT LIGHT SWITCH

### RENEW

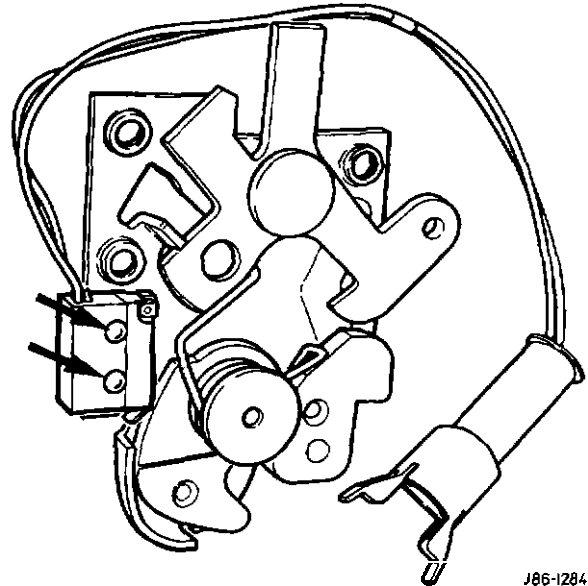
86.65.22

Open luggage compartment.

The switching device for the luggage compartment light is an integral part of the luggage compartment lock assembly. Disconnect cable connector through aperture in luggage compartment lid.

Remove three screws securing assembly to luggage compartment lid and remove boot catch/switch assembly.

Remove micro switch by drilling out the rivets.



J86-1284

Fig. 1

## DOOR SWITCH, KEY ALARM

### RENEW

86.65.27

Disconnect battery earth lead.

Remove screw securing switch to door pillar.

Withdraw switch.

Disconnect cables at Lucars.

The refitting procedure is a reversal of the removal procedure.

## OIL PRESSURE SWITCH

### RENEW

86.65.30

Refer to operation 88.25.08.

## COMBINED WINDSCREEN WIPER/WASHER SWITCH

### RENEW

86.65.41

Remove steering wheel – Renew 57.60.01.

Remove steering column lower cowl – Renew 76.46.03.

Remove steering column upper cowl – Renew 76.46.02.

Displace and remove fibre optic illumination bulb cover.

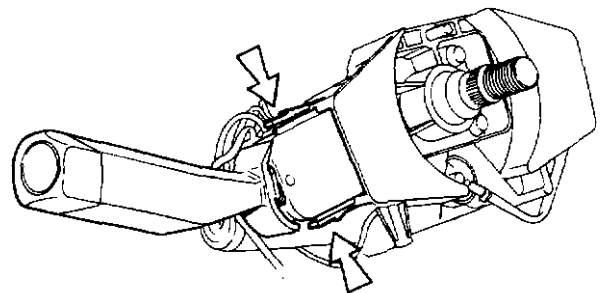
Displace switch fibre optic lead from housing.

Squeeze wiper/washer stalk switch securing lugs to release from mounting.

Slide out switch to displace from mounting.

Cut and remove harness to switch ratchet strap.

Disconnect switch harness block connector.



J86-1321

Fig. 2

**Note:** Note position and disconnect harness lucar connections from rear of switch.

Remove switch.

The refitting procedure is a reversal of the removal procedure.





### COMBINED FRONT AND REAR FOG LAMP SWITCH

#### RENEW

86.65.10

Release drivers knee bolster to 'A' post fastener.  
Pivot knee bolster down for access (knee bolster secured by two "push on" type clips).  
Disconnect fog lamp switch assembly from harness multiplug.  
Displace and ~~remove~~ switch assembly from fascia mounting.  
The refitting procedure is a reversal of the removal procedure.

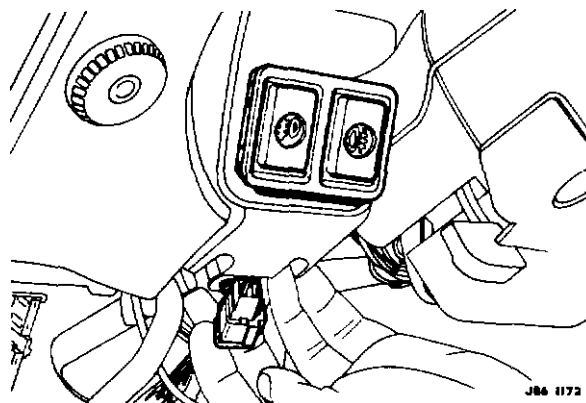


Fig. 1

### HAND BRAKE WARNING SWITCH

#### RENEW

86.65.45

Disconnect battery earth lead  
Remove front seat 76.70.01.  
Undo and remove switch cover securing screws.  
Displace and remove switch cover.  
Note and disconnect switch feed wires.  
Slacken handbrake assembly securing bolts.  
Displace handbrake assembly from position.  
Undo and remove switch securing screws.  
Remove switch retaining plate.  
Remove switch.  
The refitting procedure is a reversal of the removal procedure.

### STOP LIGHT SWITCH

#### RENEW

86.65.51

Disconnect electrical connectors from lucars on switch.  
Remove switch securing bolt.  
Remove threaded keep plate and switch.  
The refitting procedure is a reversal of the removal procedure. Adjust switch for correct operation.

### STOP LIGHT SWITCH

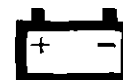
#### ADJUST

86.65.56

Slacken switch securing bolt.  
Adjust switch position until stop lights operate when brake pedal is depressed, and are **OFF** when pedal is fully released.

**Note:** Ignition switch must be on while adjustments are carried out.

Tighten securing bolt.



## FUEL CUT-OFF INERTIA SWITCH

### RENEW

86.65.58

Disconnect battery earth lead.  
Pull protective cover from inertia switch location.  
Remove inertia switch from retaining clips.  
Disconnect electrical connectors from lucars.  
Recover switch (3 Fig 2).  
The refitting procedure is a reversal of the removal procedure.

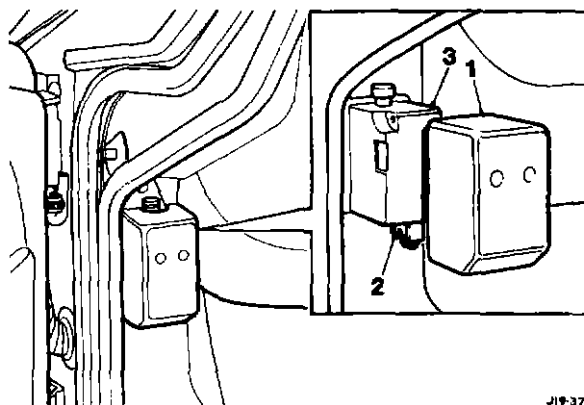


Fig.

## FUEL CUT-OFF INERTIA SWITCH

### RESET

86.65.59

The inertia switch is fitted in the electrical supply to the fuel pumps.  
Should the car be subjected to heavy impact forces, the switch will operate, isolating the fuel pumps and ensuring fuel is not pumped to a potentially dangerous area. The switch is located on the side of the fascia on the driver's side A post. Press the button mounted on top of the switch to re-set after operation.

## CIGAR LIGHTER

### RENEW

86.65.60

Carefully displace surround from fascia (securing clips are in the four corners of the surround).  
Displace assembly to one side.  
Disconnect two plugs and connector and remove cigar lighter assembly.  
The refitting procedure is a reversal of the removal procedure.

## CONVERTIBLE HOOD CONTROL SWITCH

### RENEW

86.65.90

Carefully displace the window lift/hood control switchpack from the console veneer panel.  
Disconnect the harness multiplug from hood control switch.  
Displace and remove the switch from the panel.  
The refitting procedure is a reversal of the removal procedure.

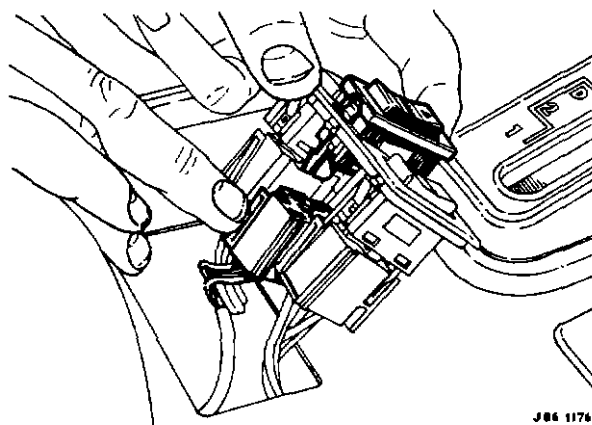
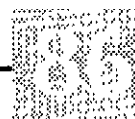


Fig. 2



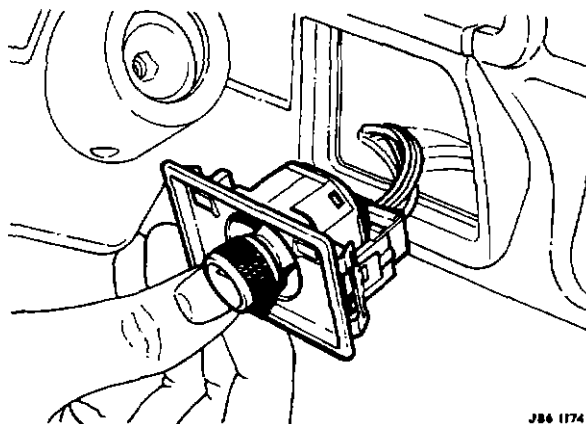


## ELECTRIC DOOR MIRROR CONTROL SWITCH

### RENEW

86.65.75

Release the driver's knee bolster to 'A' post fastener. Pivot the knee post bolster down for access (knee bolster secured by two "push on" type clips). Displace the mirror control switch from fascia mounting. Disconnect the mirror control switch from fascia harness multiplug. Fitting a new switch is a reversal of the removal procedure.



J86 1174

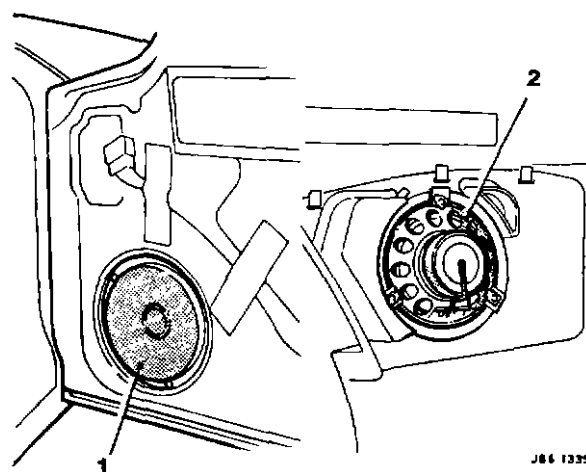
Fig. 1

## FRONT DOOR SPEAKER

### RENEW

86.50.13

Disconnect the battery earth lead. Remove front door trim pad 76.34.01. Undo and remove door speaker securing screws. Reposition speaker for access (1 Fig 2). Note and disconnect speaker feed wires. Remove speaker assembly. Fitting a new speaker is a reversal of the removal procedure.



J86 1335

Fig. 2

## REAR SPEAKER

### RENEW

86.50.12

Disconnect the battery earth lead. Remove rear seat cushion 76.70.44. Remove rear quarter lower trim pad 76.13.12. Remove rear speaker grille 86.50.08. Undo and remove speaker securing screws. Reposition speaker for access (2 Fig 2). Note and disconnect speaker feed wires. Remove speaker assembly. Fitting a new speaker is a reversal of the removal procedure.

## FRONT SPEAKER GRILLE

### RENEW

86.50.09

Replace front door trim pad 76.34.01. Displace and remove speaker grille spire clips. Displace and remove grille. Fitting a new grille is a reversal of the removal procedure.



## REAR SPEAKER GRILLE

### RENEW

86.50.08

Remove rear seat cushion 76.70.44  
Remove rear quarter lower trim pad 76.13.12.  
Displace and remove armrest pad.  
Bend up speaker/vent grille retaining tangs.  
Displace and remove speaker grille panel from 1/4 trim panel.  
Displace and remove fir tree fasteners.  
Place speaker grille panel aside.  
Fitting a new grille is a reversal of the removal procedure.

## COMPACT DISC AUTO CHANGER

### RENEW

86.50.06

Disconnect battery earth lead.  
Displace and remove spare wheel cover.  
Displace boot left hand lamp from trim panel.  
Disconnect lamp feed wire.  
Disconnect and remove lamp from remaining wire.  
Displace and remove trim panel.  
Reposition CD harness for access to multi plug.  
Disconnect harness from multi plug.  
Undo and remove CD unit to bracket securing screws.  
Displace and remove unit and place aside.  
To fit a new auto changer reverse the removal procedure.

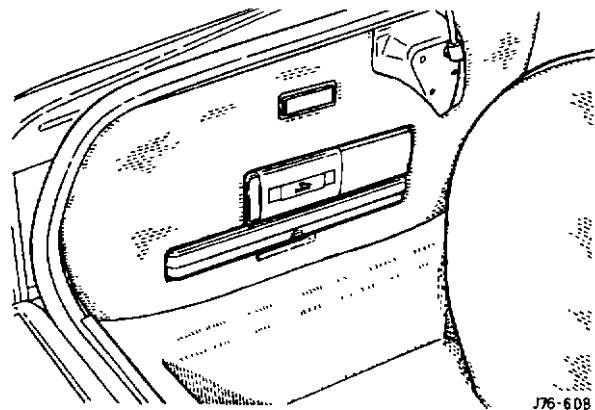


Fig. 1

## ELECTRICALLY OPERATED FRONT SEATS

### DESCRIPTION

86.75.00

The front seats are adjustable via the three switches located on each front door trim panel adjacent to the interior door lock.

If required, the driver's or front passenger's seats may be repositioned before entering the vehicle by opening either door and pressing the seat adjustment switches or the seat memory buttons (where fitted) located on the door trim panel.

The seat adjustment switches operate when the ignition switch is in position 1 or 11. When either door is open the seats can also be operated with the ignition key removed or in the steering lock position 'O'. Each front seat incorporates an electric heater in both the squab and cushion, which is controlled by a switch located on the side of the centre console and only operates when the temperature drops below 15°C (59°F). The system incorporates a timer unit and a thermostat which limits the operation of the heater to 10–12 minutes or until the seat reaches the preset temperature of 45°C (113°F).

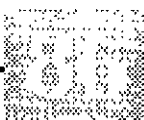
Each front seat incorporates an adjustable lumbar support built into the backrest of the seat.

This function only operates when the ignition switch is in position '1' or '11'.

Circuits for Drivers seat control (with memory) and (non-memory) can be found in Section 90.

### SEAT MEMORY (Where fitted)

Two sets of seat and exterior driving mirror positions may be programmed into the memory for the driving position. Adjust the drivers seat and the exterior mirrors to suit the driver, then simultaneously press the memory marked 'M' and the button marked '1' and hold for two seconds. A second set of positions can be programmed into the memory by simultaneously pressing the memory button marked 'M' and the button marked '2' and holding for two seconds.





## SEAT MEMORY ELECTRONIC CONTROL UNIT

### RENEW

86.75.15

Reposition front floor carpet, drivers side, for access to E.C.U. panel securing screws.  
Undo and remove E.C.U. cover securing screws.  
Displace cover plate.  
Disconnect E.C.U. harness multi plugs.  
Release clip retaining E.C.U. to floor.  
Displace and remove E.C.U. assembly (1 Fig. 1).  
The refitting procedure is a reversal of the removal procedure.

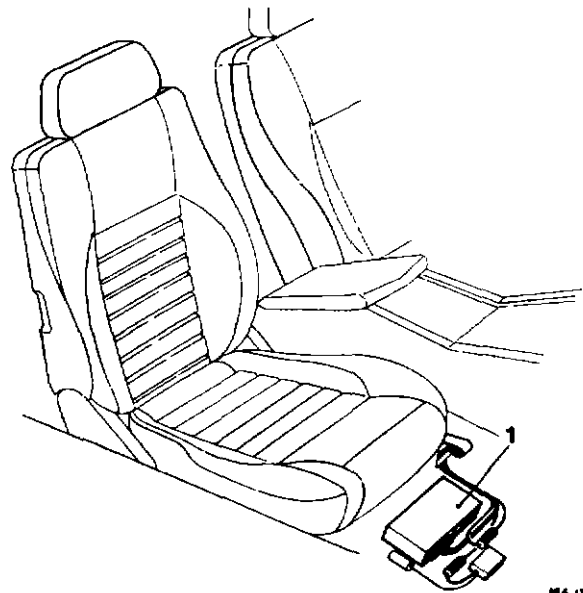


Fig. 1

JM 6 1322

## FRONT SEAT SQUAB HEATER ELEMENT

### RENEW

86.75.14

Remove seat runner 76.70.20  
Remove electrically operated front seat back finisher 76.70.09  
Remove front seat headrest – electrically operated seat 76.70.14.  
Remove electrically operated front seat squab cover 76.70.15  
Using a suitable knife, carefully cut and remove the seat heater element from the foam taking care not to damage the foam.  
The refitting procedure is a reversal of the removal procedure. Apply a suitable adhesive to the seat squab foam when replacing the heater element.

## FRONT SEAT CUSHION HEATER ELEMENT

### RENEW

86.75.13

Remove front seat runner 76.70.20  
Remove front seat cushion diaphragm 76.70.31  
Remove electrically operated front seat centre cushion 76.70.32  
Remove electrically operated front seat centre cushion cover 76.70.16  
Using a suitable knife, cut and remove the seat heater element from the foam cushion.  
Displace and remove the heater element.  
The refitting procedure is a reversal of the removal procedure. Apply a suitable adhesive to foam cushion when fitting and aligning a new heater element.

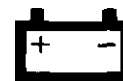
## LUMBAR SUPPORT MOTOR ASSEMBLY

### RENEW

86.75.12

Remove front seat runner 76.70.20.  
Remove electrically operated front seat back finisher 76.70.09

Remove front seat recline motor 86.75.04  
Cut and remove lumbar motor harness to seat squab lower ratchet strap.



Cut and remove lumbar pipe to seat support wire ratchet strap.  
Displace and remove lumbar support bag cover to vertical bar hog rings (both sides).  
Displace and remove lumbar motor bag to vertical bar hog rings.

Displace and remove lumbar bag cover to rubber support strap staples.  
Release lumbar support bag to seat frame retaining hooks.  
Reposition bag assembly from behind rubber support straps.  
Reposition harness through tfim sleeve into squab area.  
Displace and remove the lumbar motor/bag assembly.  
The refitting procedure is a reversal of the removal procedure.

### SEAT MOTOR GEARBOX DRIVE

**RENEW** **86.75.10**

Remove front seat runner 76.70.20.  
Displace and remove driveshaft/gearbox assembly from runner/motor; place to front.  
Displace and remove driveshaft assembly from gearbox.  
Displace and remove driveshaft from outer sleeve.  
Clean components.  
The refitting procedure is a reversal of the removal procedure. Lubricate new driveshaft before fitting.

### DRIVERS SEAT MOTOR POTENTIOMETER

**RENEW** **86.75.09**

Remove front seat runner 76.70.20.  
Displace left hand driveshaft/gearbox from seat runner.  
Cut and remove tape securing potentiometer harness to seat harness.  
Displace seat harness multi plug from retaining clip.  
Disconnect motor harness multi plug.  
Reposition seal from rear of multi plug.  
Using tool JD 141 displace pink/green, purple/slate and purple wire pins from econoseal plug.  
Reposition wires through multi plug seal.  
Displace and remove the potentiometer.  
The refitting procedure is a reversal of the removal procedure.







## COMBINED ELECTRIC SEAT/HEATER SWITCH

### RENEW

86.75.08

Disconnect the battery earth lead.  
Remove door trim pad 76.34.01.  
Carefully displace and remove door switch surround.  
Undo but do not fully remove door release lever rear securing screws.

Undo and remove lever front securing screw.  
Reposition the harness multi plug from behind the door panel closing plate.  
Disconnect the switch harness multi plug.  
Undo and remove the remaining switch securing screw.  
Displace and remove the switch.  
The refitting procedure is a reversal of the removal procedure.

## FRONT SEAT RECLINE MOTOR

### RENEW

86.75.04

Disconnect the battery earth lead.  
Replace front seat runner 76.70.20.  
Replace electrically operated front seat back finisher 76.70.09.  
Undo and remove screws securing pivot trim covers.  
Displace and remove the covers.  
Cut and remove the recline motor harness ratchet straps.  
Disconnect the harness multi plug.  
Reposition the harness multi plug through the seat trim sleeve.  
Displace and remove the trim cover retaining clip adjacent to the recline motor.  
Reposition trim for access to motor securing bolt.  
Undo and remove the motor securing bolt.  
Reposition motor harness through the seat squab.  
Displace and remove motor/harness assembly (1 Fig. 1).  
The refitting procedure is a reversal of the removal procedure.

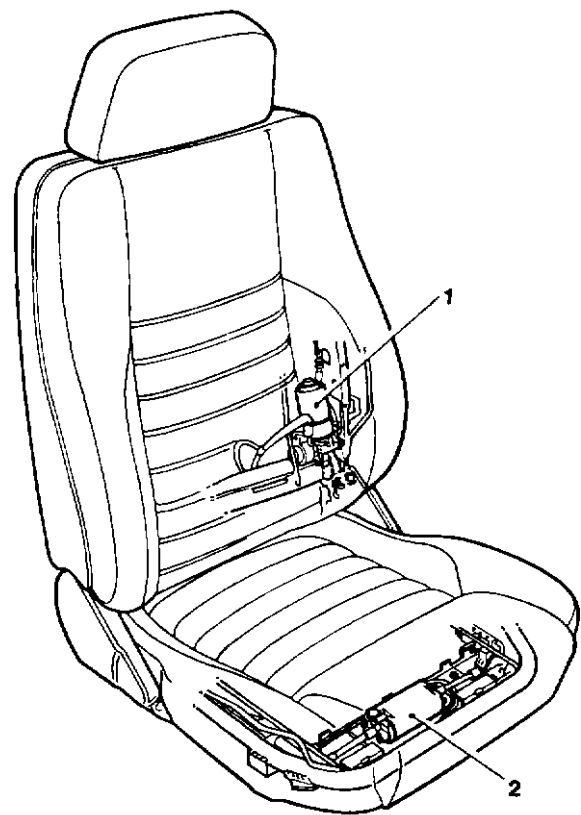


Fig. 1

## FRONT SEAT MOTOR

### RENEW

86.75.01

Disconnect the battery earth lead.  
Remove front seat runner 76.70.20.  
Displace the seat motor harness multi plug from retaining clip.



Undo and remove the motor securing screws.  
Displace and remove the **motor/drive** assembly.  
Displace and remove the **drive/gearboxes** from **motor**.

Place the motor (**2 Fig.1 Page 40**) aside.

The refitting procedure is a reversal of the removal procedure. Lubricate drive shafts.

## POWERED SEAT LINK LEAD

### RENEW

86.70.12

Disconnect the battery earth lead.

Remove the front seat link lead 76.70.20.

Displace and remove seat motor harness multi plug from retaining clip.

Disconnect the motor harness motor multi plug.

Undo and remove the harness to runner clamp securing screws.

Displace and remove the plastic clamp plate.

Displace and remove the harness.

The refitting procedure is a reversal of the removal procedure.

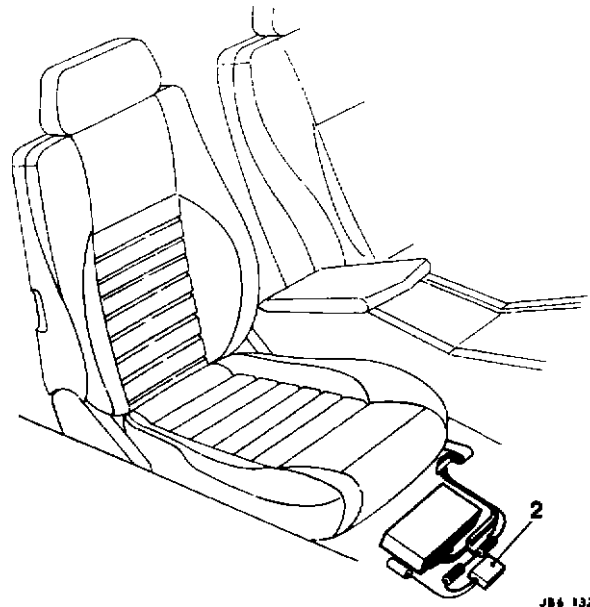


Fig. 1

## HEATED SEAT DELAY UNIT

### RENEW

86.55.37

Reposition floor carpet for access to panel securing screws.

Undo and remove securing screws.

Reposition cover panel for access to delay unit.

Cut and remove delay unit harness ratchet straps.

Disconnect the harness multi plugs.

Displace and remove delay unit (**2 Fig. 1**) from cover.

The refining procedure is a reversal of the removal procedure.

## STARTER SYSTEM

### TEST

86.60.00

Checking for Excessive Voltage Drop in the Starter Circuit.

If tests have proved that the battery and the battery connections are satisfactory, a moving coil voltmeter (0–20 volt range) should be used to determine whether there is excessive voltage drop in the circuit.

**Note:** During the voltmeter checks, the starter should crank the engine, without starting it. The low-tension circuit of the ignition coil should be disconnected between the coil and distributor.

### Test 1 (Fig. 2)

Checking the Battery Terminal Voltage Under Load Conditions. Connect the voltmeter across the battery terminals and operate the starter switch. The reading should be about 10.0 volts. Proceed to Test 2.

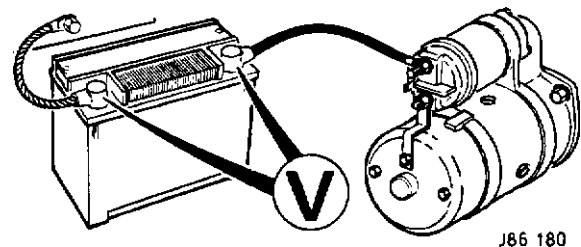


Fig. 2





## ELECTRICAL SYSTEM



A low voltage reading would indicate excessive current flow in the circuit. The starter should be removed for bench testing.

**Note:** If the solenoid operates intermittently during the test or the engine is cranked at a low or irregular speed, there is insufficient voltage at the solenoid operating winding terminal or the solenoid is faulty (Fig. 1).

To check the switching circuit for high resistance, connect the voltmeter between the solenoid operating winding terminal and earth (commutator end bracket).

When the switch contacts are closed the reading on the voltmeter should be slightly less than the reading in Test 1. A satisfactory reading will indicate that there is a negligible voltage drop in the circuit and that the fault is in the solenoid.

If the reading is appreciably lower than in Test 1, check the switching circuit for high resistance or faulty connections.

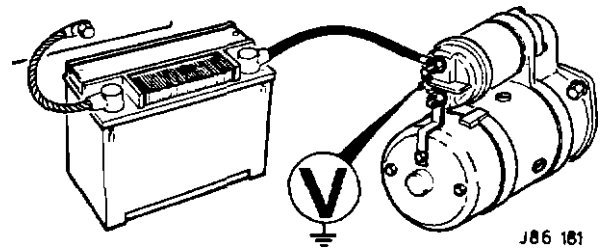


Fig. 1

### Test 2 (Fig. 2)

Checking the Starter Terminal Voltage Under Load Conditions.

Having ascertained the battery voltage under load, the voltage across the starter is checked with the voltmeter connected between the starter input terminal and earth (commutator end bracket). When the operating switch is closed, the reading should be not more than 0.5 volts below that obtained in Test 1.

If the reading is within this limit, the starter circuit is satisfactory. If there is a low reading across the starter, but the voltage at the battery is satisfactory, it indicates a high resistance in the cable or at the solenoid contacts. Proceed to Test 3.

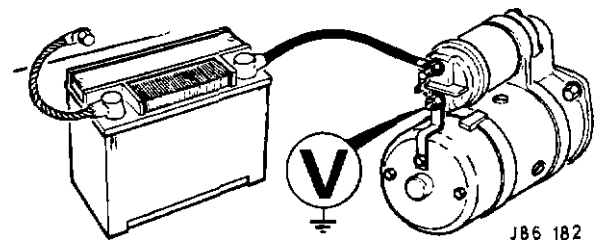


Fig. 2

### Test 3 (Fig. 3)

Checking the Voltage Drop on the Insulated Line

The voltage drop on the insulated line is then checked with the voltmeter connected between the starter input terminal and the battery (insulated) terminal.

When the operating switch is open, the voltmeter should register battery voltage. When the operating switch is closed, the voltmeter reading should be practically zero.

A high voltmeter reading indicates a high resistance in the starter circuit.

All insulated connections at the battery, solenoid and starter should be checked. Proceed to Test 4.

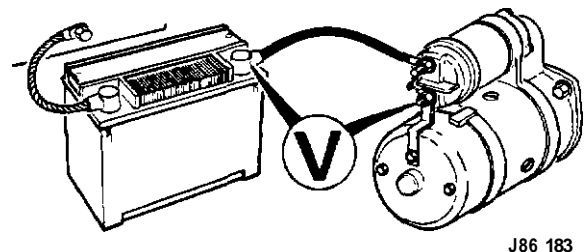
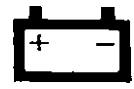


Fig. 3



## Test 4

### Checking the Voltage Drop Across the Solenoid Contacts

To check the voltage drop across the solenoid contacts, connect the voltmeter across the two main solenoid terminals. Crank the engine.

A zero or fractional reading on the voltmeter indicates that the high resistance deduced in Test 3 **must** be due either to high resistance starter cables or soldered connections.

A high reading (similar to that in Test 3) indicates a faulty solenoid or connections.

## Test 5

Finally. Check the voltage drop on the earth line. Connect the voltmeter between the battery earth terminal and the starter commutator end bracket. The voltmeter **should** indicate practically zero when the starter is operated.

**Note:** The total voltage drop in the starter circuit (i.e. insulated line and earth line) must not exceed 0.5 volts.

If the meter reading is high, clean and tighten all earth connections and **check the bonding strap**. The bonding strap must make good electrical contact with the chassis and engine block. If the bonding strap is frayed, it will have a serious effect on the performance of the starter. It may even immobilize the vehicle.

## STARTER MOTOR (5.3 LITRE)

### RENEW

86.60.01

Disconnect battery earth lead.

Raise vehicle on 4 post ramp.

Remove right hand front pipe 30.10.10.

Remove right hand air cleaner assembly 19.10.02.

Undo and remove nut securing starter motor solenoid leads.

Displace leads from solenoid.

Undo and remove nut securing red/white lead.

Displace lead from solenoid.

Undo and remove starter motor upper securing bolts.

Undo and remove starter motor lower securing bolts.

Displace and remove starter motor.

The refitting procedure is a reversal of the removal procedure.

## STARTER SOLENOID (5.3 LITRE)

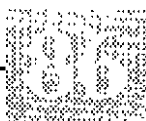
### RENEW

86.60.08.

Disconnect battery earth lead.

Raise vehicle on 4 post ramp.

Remove right hand front pipe 30.10.10.



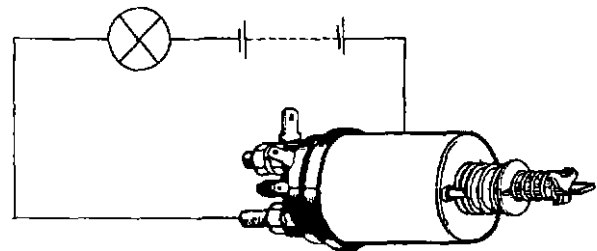


Remove right hand air cleaner assembly **19.10.02**.  
Remove starter motor **86.60.01**.  
Open vice jaws.  
Place starter motor in vice.  
**Tighten** vice jaws.  
Undo and remove nut securing solenoid link lead to starter motor.  
Disconnect the link lead.  
Undo and remove bolts securing solenoid to starter motor.  
Displace and remove solenoid from starter motor.  
Displace and remove plunger and spring from motor.  
The refitting procedure is a reversal of the removal procedure. Make sure that plunger fully engages on drive peg.

### STARTER MOTOR SOLENOID UNIT

#### TEST **86.60.09**

Remove bridge strap connecting solenoid to motor.  
Check the windings by connecting a **12 volt** battery operated test lamp between the solenoid main terminal **STA** and the solenoid body. If the lamp lights, it indicates that both windings are satisfactory (Fig. 1).  
Check that contacts open and close satisfactorily by connecting **12 volt** battery and a high wattage test lamp between the main solenoid terminals. The lamp should not light. **Close** the switch by energising the solenoid windings. The solenoid should be heard to operate and the closing of the solenoid contacts will be indicated by the lamp lighting with full brilliance.  
Open switch. Lamp should go out.



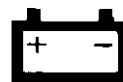
J86236

Fig. 1

### STARTER MOTOR

#### BENCH TESTING **86.60.14**

The following bench test will determine if the fault is with the motor or solenoid unit.  
Clamp motor in vice.  
Connect a **12 volt** battery, using heavy duty cables, to the motor frame and motor terminal.  
Check that motor operates under light running conditions.  
If necessary equipment is available check light running current and speed against figures stated under Performance Data.  
If starter motor fails test, replace starter motor.  
If starter operates check or replace solenoid unit as follows:  
Transfer cable from motor terminal to main solenoid terminal.  
Fit jumper lead and touch to lucar solenoid connector.



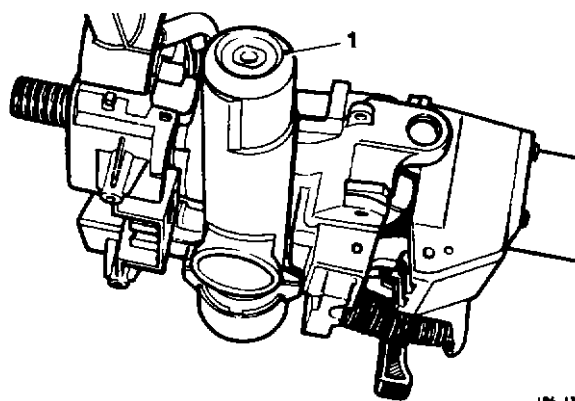
If motor does not operate, solenoid or solenoid contacts are faulty. Check and replace as necessary.

## IGNITION SWITCH

### RENEW

86.65.03

Disconnect battery earth lead.  
Remove driver's side dash casing.  
Remove screw securing shroud to fascia, and instrument module surround.  
Slacken screws securing shroud to mounting bracket.  
Ease shroud clear of location to gain access to grub screw securing switch (1 Fig. 1).  
Slacken grub screw, ease switch and associated harness clear of location.  
Disconnect block connector after removing rubber retaining collar.  
Remove switch unit.  
The refitting procedure is a reversal of the removal procedure.



J86 1325

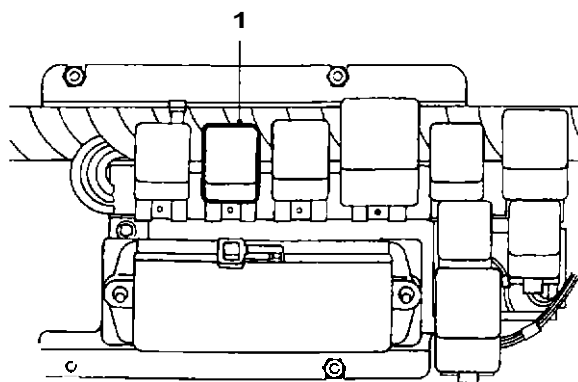
Fig. 1

## IGNITION CONTROLLED RELAY

### RENEW

86.55.28

The ignition controlled relay protects the ignition switch against overloading when all the auxiliary units are in operation such as the heated rear screen, wiper motors, etc.  
Disconnect the battery earth lead.  
Remove the driver's side dash liner.  
Locate and remove relay (1 Fig. 2) from mounting bracket.  
Remove cable harness connector from the relay.  
Recover the relay. Silver relay on natural base.  
Fitting a new relay is a reversal of the removal procedure.



J86 1326

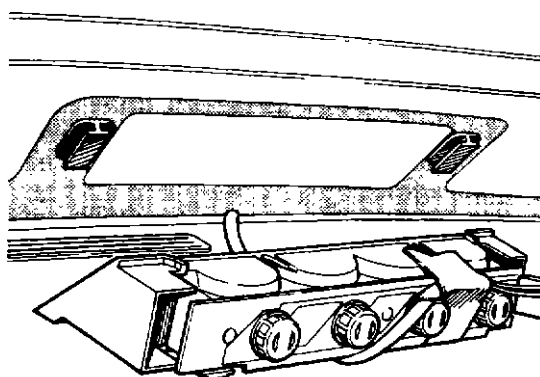
Fig. 2

## HIGH MOUNTED STOP LAMP (COUPE)

### RENEW

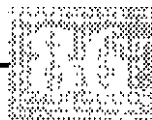
86.41.01

Depress the two spring clips at the base of the lamp cover and remove the cover.  
Slide the lamp upwards.  
Disengage the lamp from the mounting brackets (Fig. 3).  
Disconnect the harness and remove the lamp/harness assembly.  
Fit the replacement lamp into position. Connect the harness.  
Slide the lamp downwards over the mounting brackets.  
Refit the cover.



J86 889

Fig. 3





## HIGH MOUNTED STOP LAMP (CONVERTIBLE)

### RENEW

86.41.01

Open the boot for access. Remove the lamp securing nuts. Disconnect the harness. Displace and remove the **lamp/harness** assembly. Fit the new lamp into position. Connect the harness. Fit and tighten the securing nuts. Check for correct operation.

## HARNESS FAULTS

Harness faults fall into two distinct categories; open circuit faults and short circuit faults in which an unwanted connection is made between one part of a circuit and either another circuit or ground. Ground short circuits invariably cause a fuse to blow or a device to be lost.

### OPEN CIRCUIT FAULTS

Open circuit faults are normally attributed to dirty or **badly/non** united connectors and these conditions should, therefore, be checked and eliminated first. An open circuit due to a broken wire or terminal locking lance is remote, but instances of such are repaired as follows:

1. Locate the broken wire by performing a continuity check between the terminals of the harness connectors.
2. Examine the connector faces for indented terminals associated with terminal locking lance failure, and renew any offending terminal terminal as detailed in the relevant **terminal/extraction** procedure.
3. Examine the faulty harness covering for signs of physical damage, i.e. chafing **and/or** cuts, and both investigate and correct the cause if damage is evident.
4. Remove the harness covering to expose the broken section in the wire and remake the connection by installing an in-line connector.
5. Electrically check the repaired wire to ensure the repair is good and re-cover the harness using insulating tape.

### SHORT CIRCUIT FAULTS

Short circuit faults may be attributed to connector contamination or damaged wire insulation. If no connector contamination is evident, proceed as follows:

1. Locate the shorted wire by performing a continuity check between the terminals of the harness connectors.
2. Examine the faulty harness covering for signs of physical damage i.e. chaffing **and/or** cuts, and both investigate and correct the cause if damage is evident.
3. Remove the harness covering to expose the shorted section. **Tape** over the shorted section if minor damage is the cause. If insulation damage is extensive, remove the damaged section and remake the connections by installing in-line connectors.
4. Electrically **check the** repaired wire to ensure that the repair is good and recover the harness using insulating tape.

This section provides instruction in the following repairs:

- Typical Electrical Repairs
- Splicing Copper Wire
- Splicing Twisted/Shielded Cable



## TYPICAL ELECTRICAL REPAIRS

An open circuit is an incomplete circuit. A signal cannot reach the load or reach ground. If a circuit is open, active components do not energise. A short circuit is an unwanted connection between one part of the circuit and either ground or another part of the circuit.

Short Circuits Caused by Damaged Wire Insulation.

Locate the damaged wire.

Find and correct the cause of the wire insulation damage.

For minor damage, tape over the wire. If damage is more extensive, replace the faulty segment of the wire. (Refer to the splicing instructions for copper, aluminium, or shielded cable for the correct splicing procedure).

## SPLICING COPPER WIRE

Open the harness

If the harness is taped, remove the tape. To avoid wire insulation damage use a sewing 'seam ripper' to cut open the harness (available from sewing supply stores).

If the harness has a plastic conduit, simply pull out the desired wire.

Cut the wire,

Begin by cutting as little wire off as possible. You may need the extra length of wire later if you decide to cut more wire off to change the locations of a splice. You may have to adjust splice locations to make certain that each splice is at least 40mm (1 1/2 in) away from the other splices, harness branches, or connectors.

Tape the Splice

Centre and roll the splicing tape. The tape should cover the entire splice. Roll on enough tape to duplicate the thickness of the insulation on the existing wires. Do not flag the tape. Flagged tape may not provide enough insulation, and the flagged ends will tangle with other wires in the harness.



## SPLICING TWISTED/SHIELDED CABLE

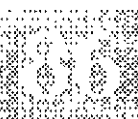
Twisted shielded cable is sometimes used to protect wiring from electrical noise (stray signals).

Remove Outer Cover

Remove the outer jacket and discard it. Be careful to avoid cutting into the drain wire or the mylar tape.

Fig. 1

J86-516







## Unwrap the Tape

Unwrap the tape but do not remove it. The tape will be used to rewrap the twisted conductors after the splices have been made.

## Prepare the Splice

Untwist the conductors. Then, prepare the splice by following the splicing instructions for copper wire presented earlier. Remember to stagger splices to avoid shorts.

## Reassemble the Cable

After you have spliced and taped each wire, rewrap the conductors with mylar tape. Be careful to avoid wrapping the drain wire in the tape. Next, splice the drain wire following the splicing instructions for copper wire. Then, wrap the drain wire around the conductors and mylar tape.

## Tape the Cable

Tape over the entire cable using a winding motion. This tape will replace the section of the jacket you removed to make the repair.

## Strip the insulation

If the wire size is unknown, start with the largest opening in the wire stripper and work down until a clean strip of the insulation is achieved. Avoid nicking or cutting any of the wires.

The splice should be at least 40mm (1 1/2 in) away from any other splices, harness branches, or connectors.

Check the stripped wire for nicks or cut strands. If the wire is damaged, repeat the procedure on a new section of wire. The two stripped wire ends should be equal in length.

## Crimp the Wires

Select the proper clip to secure the splice. To determine the proper clip size for the wire being spliced, follow the directions included with your clips. Select the correct anvil on the crimper. (On most crimpers the choice is limited to either a small or large anvil.) Overlap the two stripped wire ends and hold them between thumb and forefinger as shown. Then centre the splice clip under the stripped wires and hold it in place.

Open the crimping tool to its full width and rest one handle on a firm flat surface.

Centre the back of the splice clip on the proper anvil and close the crimping tool to the point where the former touches the wings of the clip.

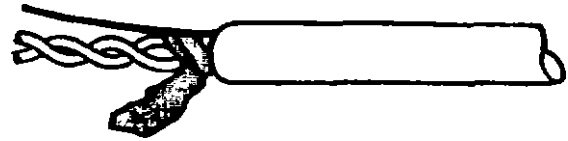


Fig. 1

J06 521



Fig. 2

J06 526

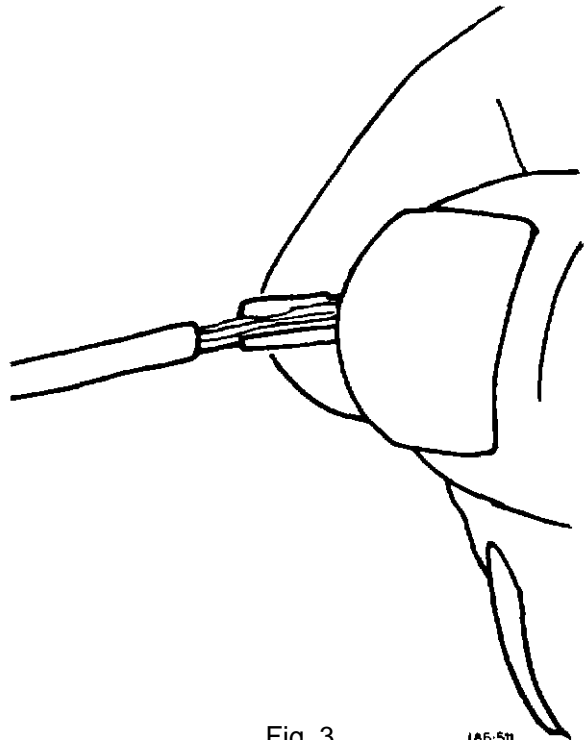


Fig. 3

J06 511

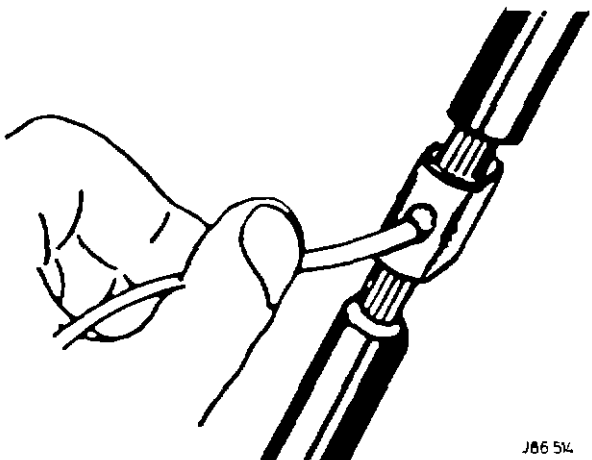


Fig. 4

J06 514



Ensure that the clip and wires are still in the correct position. Then, apply steady pressure until the crimping tool closes.

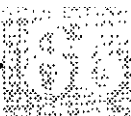
Before crimping the ends of the clip, be sure that:

The wires extend beyond the clip in each direction.  
No strands of wire are cut loose, and  
No insulation is caught under the clip.

Crimp the splice again, once on each end. Do not let the crimping tool extend beyond the edge of the clip or you may damage or nick the wire.

## **Solder**

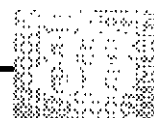
Apply 50/50 resin core solder to the opening in the back of the clip as shown. Follow the manufacturer's instructions for the solder equipment you are using.





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## DESCRIPTION

88.00.00

The instrument pack (Fig. 1) features the traditional layout of two large main dials with four small supplementary gauges. These are conventional analogue gauges comprising 90 degree movements for the four minor gauges and 270 degree movements for the two major gauges.

The trip meter is integrated into the tachometer and the odometer is included in the speedometer. The pulse signal **required to operate the speedometer is controlled** by a speed sensor situated in the differential unit. The engine speed signal received by the tachometer is derived from the ignition coil negative terminal. The voltage wave form at this point can reach as much as **400 volts** when a spark is generated and it is desirable to suppress this voltage before allowing it into the wiring harness.

There is an array of 'secret til lit' warning lights which are situated in a row at the top of the instrument pack (Fig. 1).

Refer to Section 90 Electrical Circuits for the detailed circuit layout of the instrument pack.

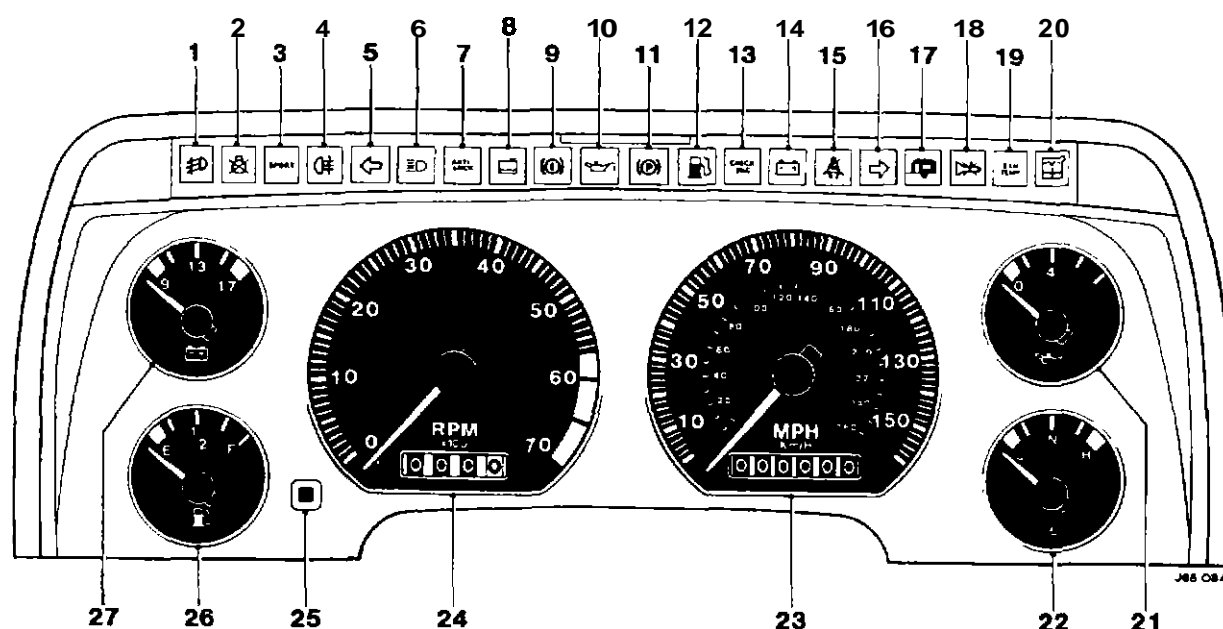


Fig. 1

Key to Fig. 1:

- |   |   |
|---|---|
| 1. Front fog lamps (where fitted)                   | 14. Ignition                                    |
| 2. Bulb failure                                     | 15. Seat belt                                   |
| 3. Sport mode (4.0 Litre auto)                      | 16. Right direction indicator monitor           |
| 4. Rear fog guard                                   | 17. Caravan/trailer direction indicator monitor |
| 5. Left direction indicator monitor                 | 18. Auto transmission failure (4.0 Litre auto)  |
| 6. Headlamp main beam (high)                        | 19. Exhaust temperature (Japan only)            |
| 7. Anti-lock braking system                         | 20. Low windscreen washer reservoir level       |
| 8. Low coolant level                                | 21. Oil pressure gauge                          |
| 9. Low brake fluid level/ABS low hydraulic pressure | 22. Coolant temperature gauge                   |
| 10. Low oil pressure                                | 23. Speedometer & odometer                      |
| 11. Handbrake (park brake)                          | 24. Tachometer & trip meter                     |
| 12. Low fuel level                                  | 25. Trip meter reset button                     |
| 13. Check engine                                    | 26. Fuel level gauge                            |
|   | 27. Battery condition indicator                 |



TEST

88.00.00

## FUEL GAUGE TANK UNIT

XJS (Convertible)

### CALIBRATION LIMITS

LEVEL	RESISTANCE (Ohms)	FUEL REMAINING (Litres)
Empty	240-250	6
Warning Light	185-215	12
Quarter Full	102-104	24.50
Half Full	68-70	43
Three Quarters Full	44-46	61.50
Full	16-18	80

XJS (Coupe)

### CALIBRATION LIMITS

LEVEL	RESISTANCE (Ohms)	FUEL REMAINING (Litres)
Empty	240-250	6
Warning Light	185-215	12
Quarter Full	102-104	26
Half Full	68-70	66
Three Quarters Full	44-46	66
Full	16-18	86



## INSTRUMENTS



### INSTRUMENT PACK CONNECTIONS (Fig 1)

#### SOCKET A

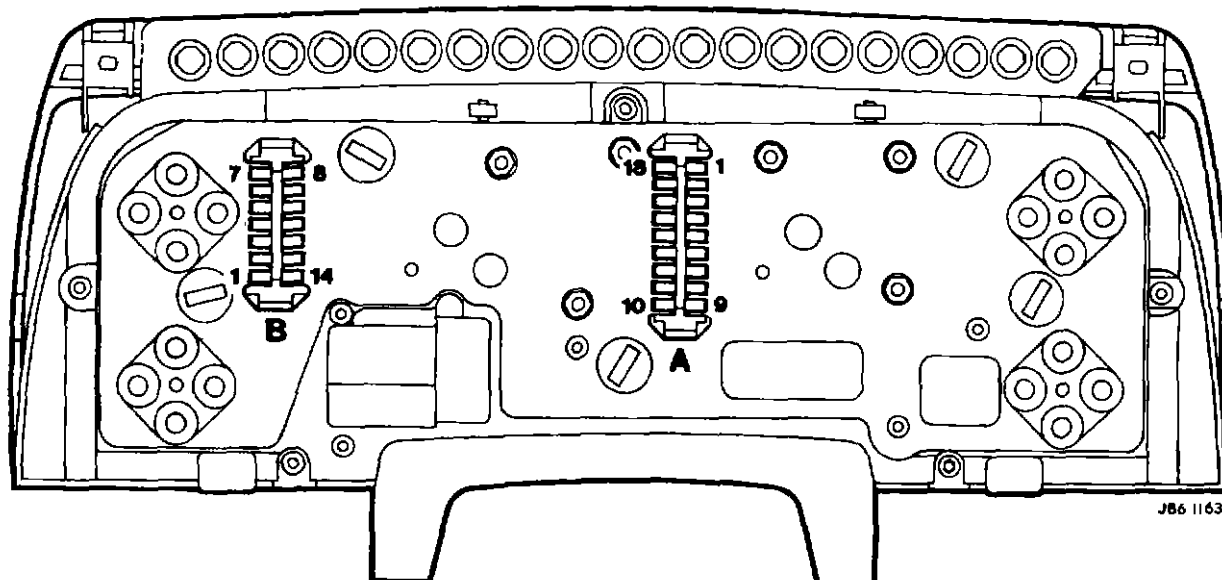
PIN	CIRCUIT INPUT
-----	---------------

01	Brake systems
02	Main beam
03	LH. turn
04	Rear fog
05	Auto transmission sports mode
06	Bulb failure
07	Front fog
08	Tachometer
09	Fuel gauge
10	Speedometer
11	Check engine
12	Low <b>fuel</b> tell-tail
13	Low fuel tell-tail
14	Park brake
15	Oil pressure tell-tail
16	Brake systems
17	Low coolant
18	Anti-lock brakes

#### SOCKET B

PIN	CIRCUIT INPUT
-----	---------------

01	Panel lamps (5 off), ground
02	Panel lamps (5 off). positive
03	Oil pressure gauge
04	-Not used
05	Supply for exhaust temperature/ speed warning, oil pressure gauge, washer level
06	Washer level
07	Exhaust temperature (Japan)/ Speed warning (Saudi Arabia)
08	Gear <b>box</b> fail
09	Caravan/trailer
10	R.H. turn
11	Seat belt
12	Ignition
13	Supply for analogue instruments & A14 to A17, B11, B12
14	Temperature gauge



J86 1163

Fig 1



## TRIP COMPUTER:

### DESCRIPTION

88.00.00

When the ignition is switched ON, the LCD back lights illuminate and the trip computer defaults to the time of day. The time button is dual function; first press gives the time of day, a subsequent press causes the elapsed time since reset to be displayed, with leading zero suppressed. After five seconds the elapsed time reverts to the time of day.

The trip computer provides information on vehicle speed, fuel usage and distance travelled, all of which are calculated by a microprocessor. It computes fuel consumption, both average and 'at the moment' usage, fuel used on a journey or period: distance travelled, average speed and time elapsed since the start of the journey or over a period. The information may be displayed in either litres and kilometres or in miles and gallons.

The unit also provides a warning of fuel failure. In the event of an engine management fault occurring, the 'check engine' warning light and the words 'check engine' are permanently displayed on the trip computer until the engine is switched off. When the fault has been signalled, the likely area of malfunction can be indicated when the vehicle is stationary. Switch off the engine, wait at least five seconds, turn the ignition switch to position II (do not start the engine). The relevant failure code FF11 to FF99 is displayed.

With reference to Fig. 1, inputs 7, 8 and 9 have a maximum low of 1.2 V and a minimum high of 7.5 V and are supplied directly from the side light relay. Refer to Section 90 Trip Computer for the detailed circuit layout.

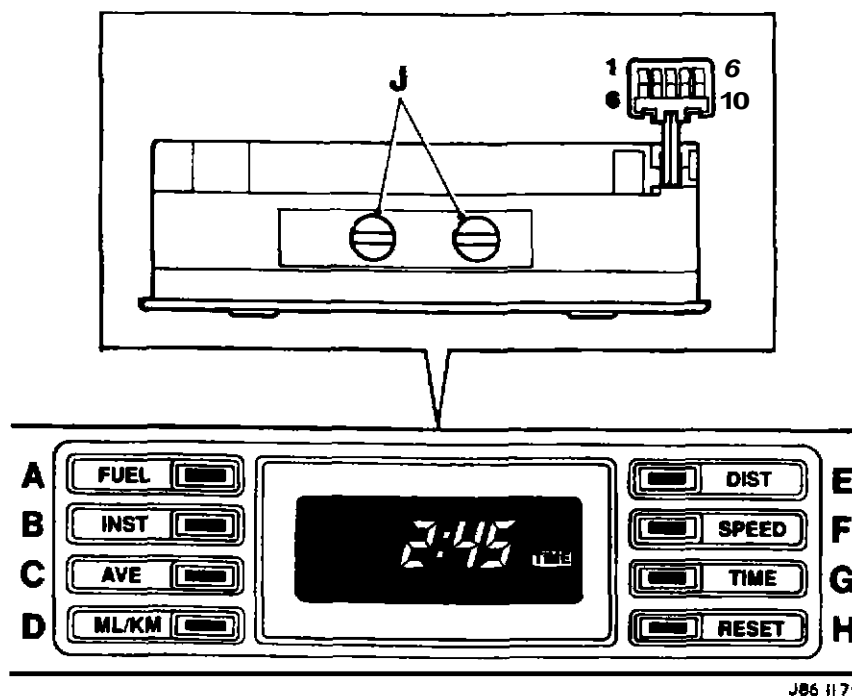


Fig. 1

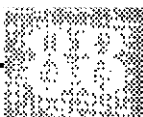
Key to Fig. 1:

#### Functions

- A - Fuel used since last reset
- B - Instantaneous fuel consumption
- C - Average fuel consumption since last reset
- D - Miles-km conversion
- E - Distance travelled since last reset
- F - Average speed since last reset
- G - Time of day/Elapsed time
- H - Reset-clear memory
- J - Back light bulbs

#### 10-way sumitomo Connector pin details

- 1 - Ground
- 2 - Sidelight feed
- 3 - Battery feed
- 4 - Ignition feed
- 5 - Spare
- 6 - Distance input
- 7 - Fuel fail
- 8 - Diagnostic test input
- 9 - Fuel information
- 10 - Diagnostic test output





## INSTRUMENT PANEL MODULE

### RENEW

88.20.01

Disconnect the battery earth cable.  
Position the tilt steering column to the lowest position.

Remove the instrument panel finishers' securing screws and remove the central and side finishers (1 Fig. 1).

Remove the instrument panel to fascia securing screw cover plates and remove the screws securing the instrument panel to the fascia (2 Fig. 1).

Ease the instrument panel forward for access and disconnect the multiplugs.

Remove the instrument panel.

**Note:** To minimise the risk of damage and contamination, all repairs conducted on the Instrument Pack should be performed in a non-static dust free environment.

Position the new instrument panel adjacent to the mounting position and connect the multiplugs.

Fully seat the instrument panel.

Fit and tighten the instrument panel to the fascia and secure the screws.

Fit the securing screw finishers.

Position and fit the side and central finishers and secure the screws.

Reposition the steering column to the original position.

Reconnect the battery earth cable.

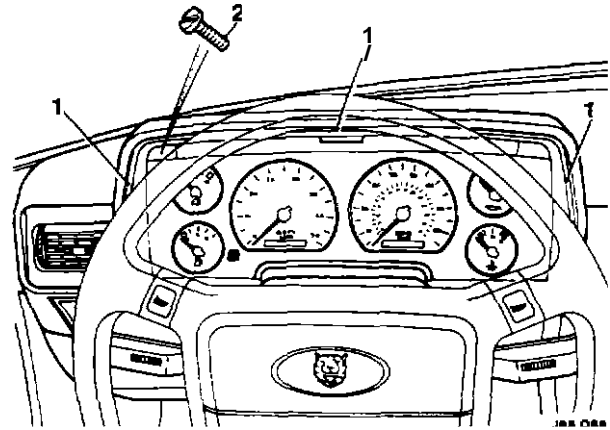


Fig. 1

## INSTRUMENT PRINTED CIRCUIT

### RENEW

88.20.19

Disconnect the battery earth lead.

Position the tilt steering column to the lowest position.

Remove the instrument panel finishers' securing screws and remove the central and side finishers (1 Fig. 1).

Remove the instrument panel to fascia securing screw cover plates and remove the screws securing the instrument panel to the fascia (2 Fig. 1).

**Note:** To minimise the risk of damage and contamination, all repairs conducted on the Instrument Pack should be performed in a non-static dust free environment.

Place a protective cover on a workbench and position the instrument panel down onto the cover.

Remove the panel illumination bulbs (1 Fig. 2).

Remove the printed circuit securing nut rubber covers.

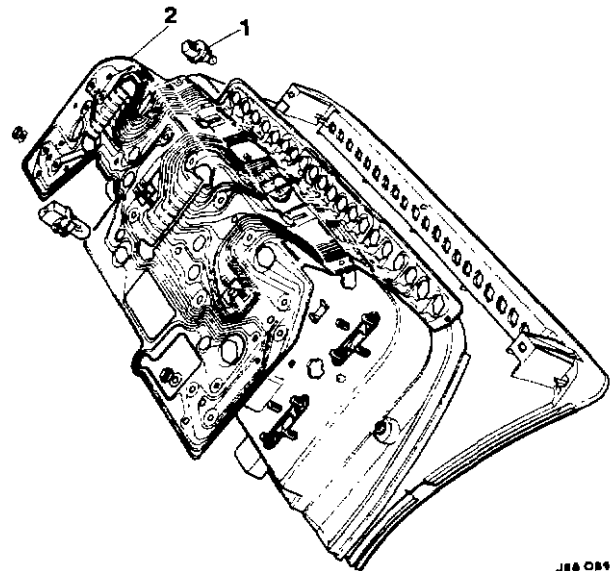


Fig. 2





Remove the printed circuit to instrument panel securing nuts and remove the printed circuit from the instrument panel (2 Fig. 2 page 6).

Carefully fit the new printed circuit to the instrument panel and secure the nuts.

Refit the printed circuit securing nut rubber covers.

**Note:** Ensure the printed circuits are not torn or deformed.

Fit the panel illumination bulbs.

Refit the instrument panel assembly to the vehicle.

Reconnect the battery earth lead.

## SPEEDOMETER

### RENEW

88.30.01

Disconnect the battery earth cable.

Position the tilt steering column to the lowest position.

Remove the instrument panel finishers' securing screws and remove the central and side finishers (1 Fig. 1).

Remove the instrument panel to fascia securing screw cover plates and remove the screws securing the instrument panel to the fascia (2 Fig. 1).

**Note:** To minimise the risk of damage and contamination, all repairs conducted on the Instrument Pack should be performed in a non-static dust free environment.

Place a protective cover on a workbench and position the instrument panel lens down onto the cover.

Remove the gauge illumination bulbs (1 Fig. 2).

Remove the printed circuit to instrument panel securing nuts (2 Fig. 2) and remove the printed circuit from the locating lugs.

Remove the screws securing the rear cover to the lens/veneer panel (3 Fig. 2).

Invert the assembly and remove completely with the printed circuit from the rear cover.

Remove the tachometer from the rear cover housing (1 Fig. 3).

Remove the speedometer and odometer assembly from the rear cover housing (2 Fig. 3).

Disconnect the odometer to speedometer link lead and place the speedometer to one side.

Place the new speedometer to the front and connect the odometer to speedometer link lead connector plug.

Fit the speedometer and odometer assembly to the rear cover housing.

Fit the new tachometer to the rear cover housing.

Reposition the printed circuit around the rear cover and fit the lens/assembly to the rear cover housing.

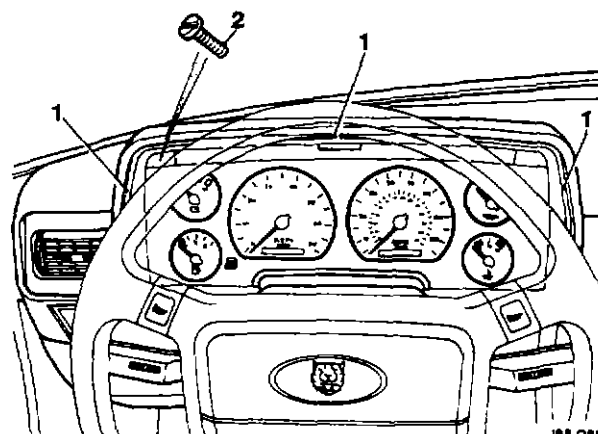


Fig. 1

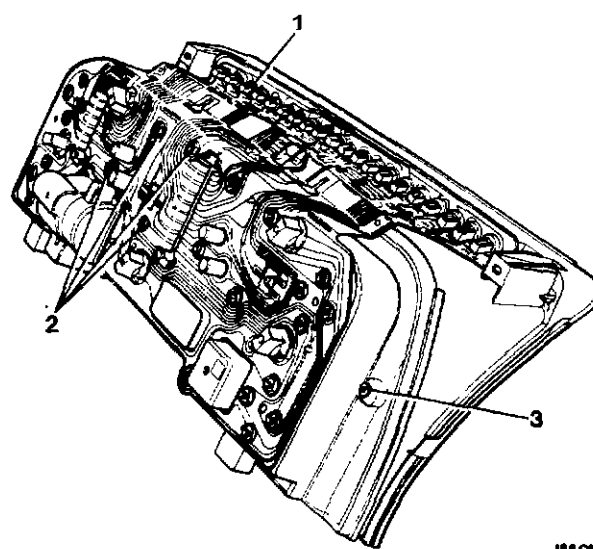


Fig. 2

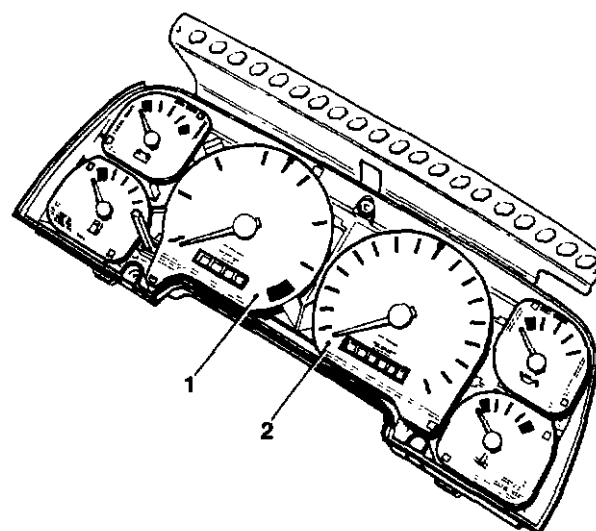


Fig. 3



Fit the rear cover to the lens/veneer panel and secure the screws.  
Fit the printed circuit to the rear housing and secure the nuts.  
Fit the gauge illumination bulbs.  
Refit the instrument panel.  
Reconnect the battery earth cable.

## TACHOMETER

### RENEW

88.30.21

Disconnect the battery earth cable.  
Position the tilt steering column to the **lowest position**.

Remove the instrument panel finishers' securing screws and remove the central and side finishers (1 Fig. 1).

Remove the instrument panel to fascia securing screw cover plates and remove the screws securing the instrument panel to the fascia (2 Fig. 1).

**Note:** To minimise the risk of damage and contamination, all repairs conducted on the Instrument Pack should be performed in a non-static dust free environment.

Place a protective cover on a workbench and position instrument panel lens down onto the cover.  
Remove the gauge illumination bulbs (1 Fig. 2).  
Remove the printed circuit to instrument panel securing nuts and remove the printed circuit from the locating lugs (2 Fig. 2).  
Remove the screws securing the rear cover to the lens/veneer panel (3 Fig. 2).  
Invert the assembly and remove complete with the printed circuit from the rear cover.  
Remove the tachometer from the rear cover housing (1 Fig. 3).

Fit the new tachometer to the rear cover housing.  
Reposition the printed circuit around the rear cover and fit the lens/assembly to the rear cover housing.  
Fit the rear cover to the lens/veneer panel and secure screws.  
Fit the printed circuit to the rear housing and secure the nuts.  
Fit the gauge illumination bulbs.  
Refit the instrument panel.  
Reconnect the battery earth cable.

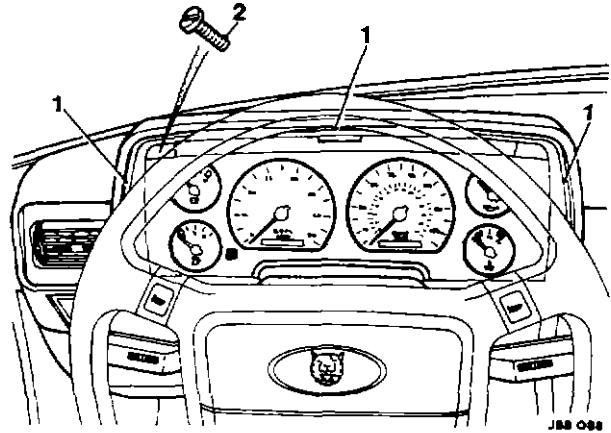


Fig. 1

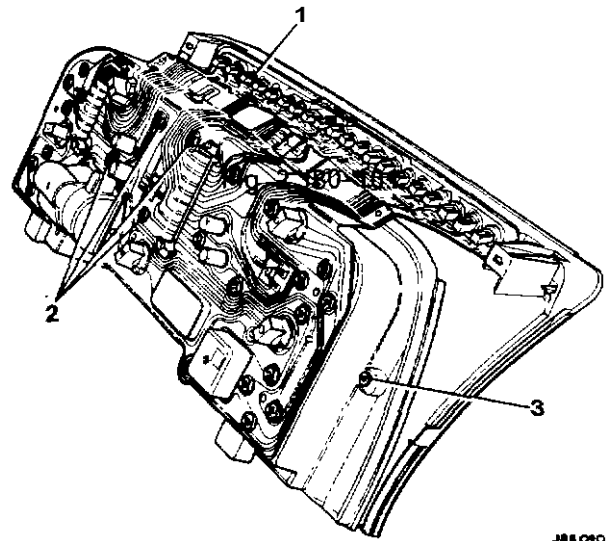


Fig. 2

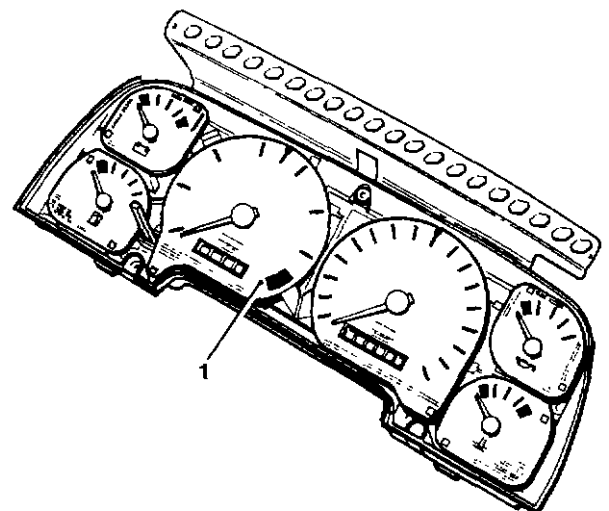


Fig. 3



## BATTERY CONDITION INDICATOR

### RENEW

88.10.07

Disconnect the battery earth cable.  
Position the tiltsteering column to the lowest position.

Remove the instrument panel finishers' securing screws and remove the central and side finishers (1 Fig. 1).

Remove the instrument panel to fascia securing screw cover plates and remove the screws securing the instrument panel to the fascia (2 Fig. 1).

**Note:** To minimise the risk of damage and contamination, all repairs conducted on the Instrument Pack should be performed in a non-static dust free environment.

Place a protective cover on a workbench and position the instrument panel lens down onto the cover.

Remove the gauge illumination bulbs (1 Fig. 2).

Remove the printed circuit to instrument panel securing nuts and remove the printed circuit from the locating lugs (2 Fig. 2).

Remove the screws securing the rear cover to the lens/veneer panel (3 Fig. 2).

Invert the assembly and remove complete with the printed circuit from the rear cover.

Remove the battery condition indicator from the rear cover housing (1 Fig. 3).

Fit the new battery condition indicator to the rear cover housing.

Reposition the printed circuit around the rear cover and fit the lens/assembly to the rear cover housing. Fit the rear cover to the lens/veneer panel and secure screws.

Fit the printed circuit to the rear housing and secure the nuts.

Fit the gauge illumination bulbs.

Refit the instrument panel.

Reconnect the battery earth cable.

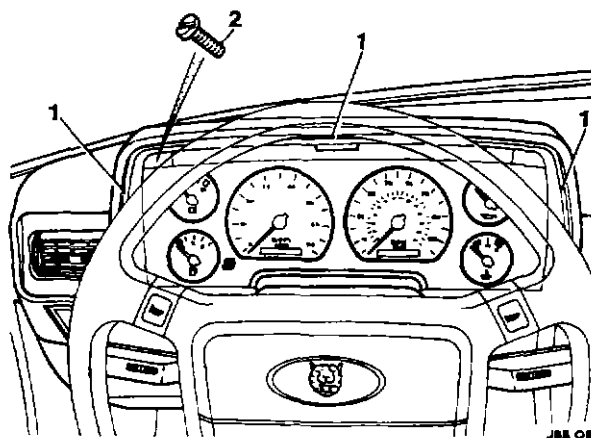


Fig. 1

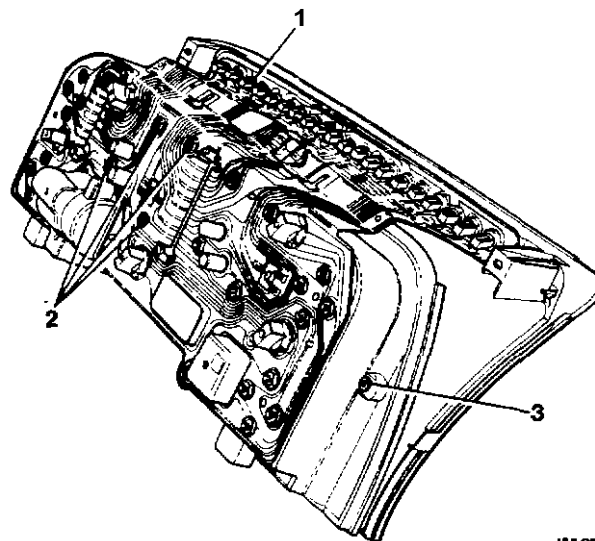


Fig. 2

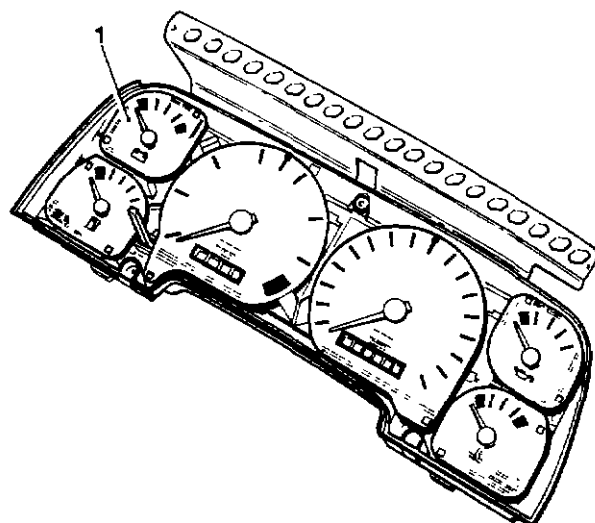


Fig. 3





## COOLANT TEMPERATURE GAUGE

### RENEW

88.25.14

Disconnect the battery earth cable.  
Position the tiltsteering column to the lowest position.

Remove the instrument panel finishers' securing screws and remove the central and side finishers (1 Fig. 1).

Remove the instrument panel to fascia securing screw cover plates and remove the screws securing the instrument panel to the fascia (2 Fig. 1).

**Note:** To minimise the risk of damage and contamination, all repairs conducted on the Instrument Pack should be performed in a non-static dust free environment.

Place a protective cover on a workbench and position the instrument panel lens down onto the cover.

Remove the gauge illumination bulbs (1 fig. 2).

Remove the printed circuit to instrument panel securing nuts and remove the printed circuit from the locating lugs (2 Fig. 2).

Remove the screws securing the rear cover to the lens/veneer panel (3 Fig. 2).

Invert the assembly and remove completely with the printed circuit from the rear cover.

Remove the coolant temperature gauge from the rear cover housing (1 Fig. 3).

Fit the new coolant temperature gauge to the rear cover housing.

Reposition the printed circuit around the rear cover and fit the lens/assembly to the rear cover housing. Fit the rear cover to the lens/veneer panel and secure screws.

Fit the printed circuit to the rear housing and secure the nuts.

Fit the gauge illumination bulbs.

Refit the instrument panel.

Reconnect the battery earth cable.

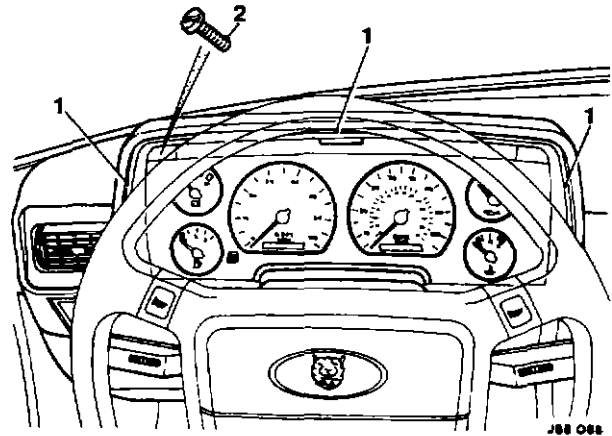


Fig. 1

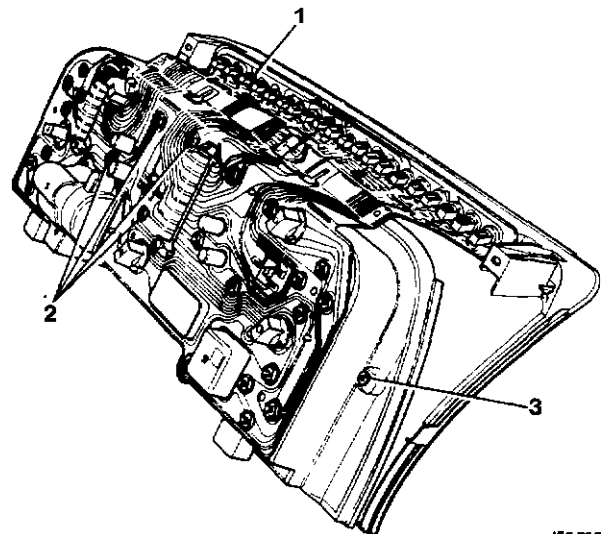


Fig. 2

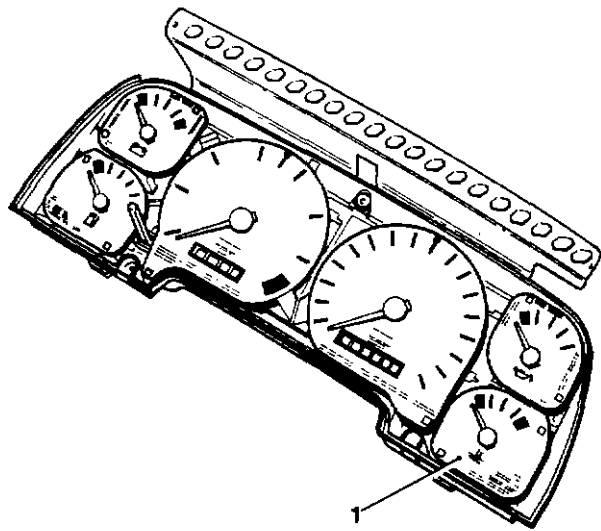


Fig. 3



## FUEL GAUGE

### RENEW

88.25.26

Disconnect the battery earth cable.  
Position the tiltsteering column to the lowest position.

Remove the instrument panel finishers' securing screws and remove the central and side finishers (1 Fig. 1).

Remove the instrument panel to fascia securing screw cover plates and remove the screws securing the instrument panel to the fascia (2 Fig. 1).

**Note:** To minimise the risk of damage and contamination, all repairs conducted on the Instrument Pack should be performed in a non-static dust free environment.

Place a protective cover on a workbench and position the instrument panel lens down onto the cover.

Remove the gauge illumination bulbs (1 Fig. 2).

Remove the printed circuit to instrument panel securing nuts and remove the printed circuit from the locating lugs (2 Fig. 2).

Remove the screws securing the rear cover to the lens/veneer panel (3 Fig. 2).

Invert the assembly and remove completely with the printed circuit from the rear cover.

Remove the fuel gauge from the rear cover housing (1 Fig. 3).

Fit the new fuel gauge to the rear cover housing.  
Reposition the printed circuit around the rear cover and fit the lens / assembly to the rear cover housing.

Fit the rear cover to the lens/veneer panel and secure screws.

Fit the printed circuit to the rear housing and secure the nuts.

Fit the gauge illumination bulbs.

Refit the instrument panel.

Reconnect the battery earth cable.

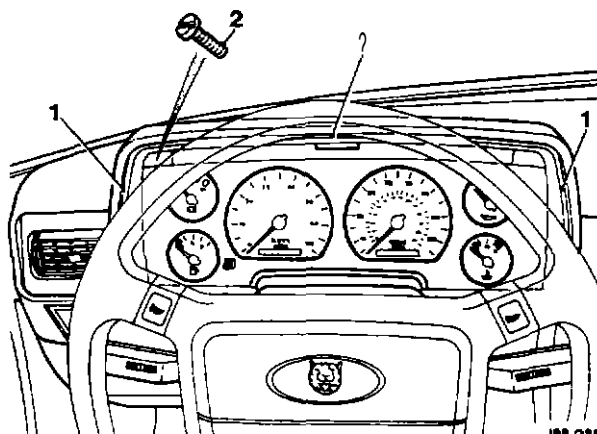


Fig. 1

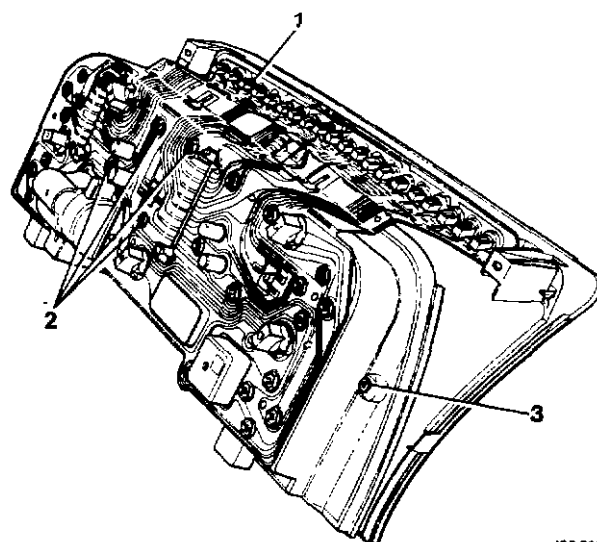


Fig. 2

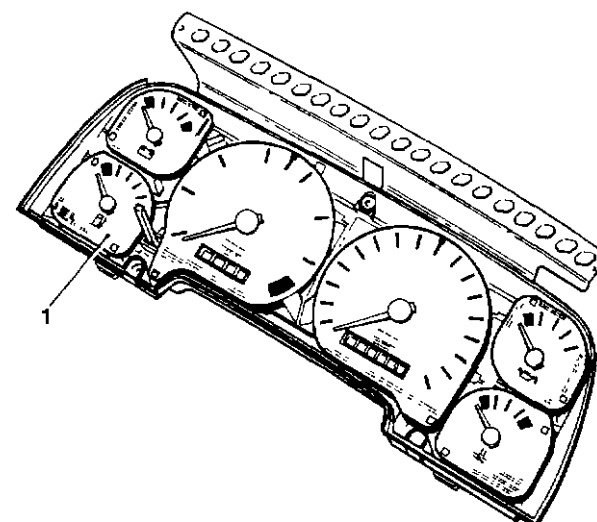


Fig. 3



## OIL PRESSURE GAUGE

### RENEW

88.25.01

Disconnect the battery earth cable.  
Position the tilt steering column to the lowest position.

Remove the instrument panel finishers' securing screws and remove the central and side finishers (1 Fig. 1).

Remove the instrument panel to fascia securing screw cover plates and remove the screws securing the instrument panel to the fascia (2 Fig. 1).

**Note:** To minimise the risk of damage and contamination, all repairs conducted on the Instrument Pack should be performed in a non-static dust free environment.

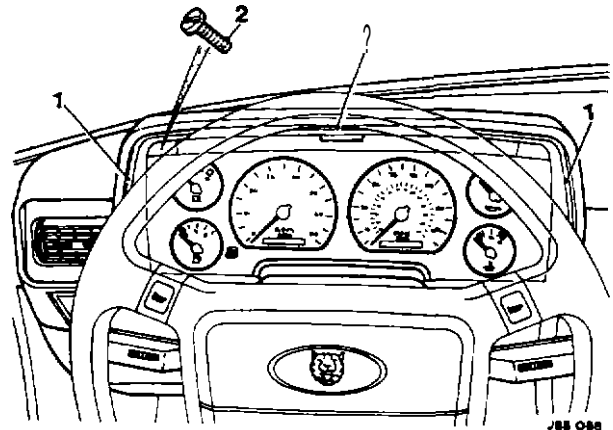


Fig. 1

Place a protective cover on a workbench and position the instrument panel lens down onto the cover.

Remove the gauge illumination bulbs (1 Fig. 2).

Remove the printed circuit to instrument panel securing nuts and remove the printed circuit from the locating lugs (2 Fig. 2).

Remove the screws securing the rear cover to the lens/veneer panel (3 Fig. 2).

Invert the assembly and remove completely with the printed circuit from the rear cover.

Remove the oil pressure gauge from the rear cover housing (1 Fig. 3).

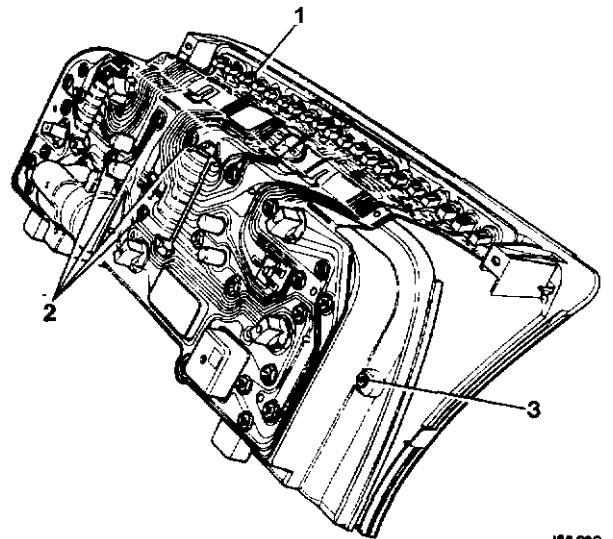


Fig. 2

Fit the new oil pressure gauge to the rear cover housing.

Reposition the printed circuit around the rear cover and fit the lens/assembly to the rear cover housing. Fit the rear cover to the lens/veneer panel and secure screws.

Fit the printed circuit to the rear housing and secure the nuts.

Fit the gauge illumination bulbs.

Refit the instrument panel.

Reconnect the battery earth cable.

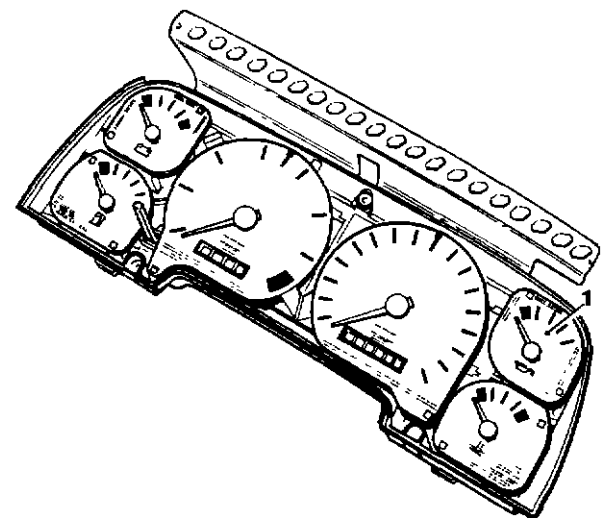


Fig. 3



## COOLANT TEMPERATURE TRANSMITTER

### RENEW

88.25.20

Open the bonnet.  
Disconnect the battery earth lead.

**WARNING:** DO NOT REMOVE THE CAP AT THE REMOTE HEADER TANK UNLESS THE ENGINE IS COLD.

Remove the radiator pressure cap to depressurise the system.  
Disconnect the transmitter feed wire.  
Unscrew and remove the transmitter (1 Fig. 1 - 5.3 Litre: 1 Fig. 2 - 4.0 Litre). Remove and discard the seal / washer.

Fit a new seal / washer to the replacement transmitter.

Fit and tighten the transmitter.

Reconnect the transmitter feed wire.

Check / top up the coolant. Refit the pressure cap.

Note: Always top-up with the recommended strength of antifreeze, never with water only.

Reconnect the battery earth lead.  
Close the bonnet.

### DATA

#### TORQUE FIGURES

Transmitter to engine **49-54Nm**

#### SPANNER SIZES

22mm

#### OILS/SEALANTS/LUBRICANTS

'JAGUAR UNIVERSAL' or a **PHOSPHATE FREE** type to B.S. 6580 antifreeze 50% down to  $-36^{\circ}\text{C}$  ( $-33^{\circ}\text{F}$ ); 55% down to  $-40^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$ ); 33% down to  $-19^{\circ}\text{C}$  ( $-2.2^{\circ}\text{F}$ ).

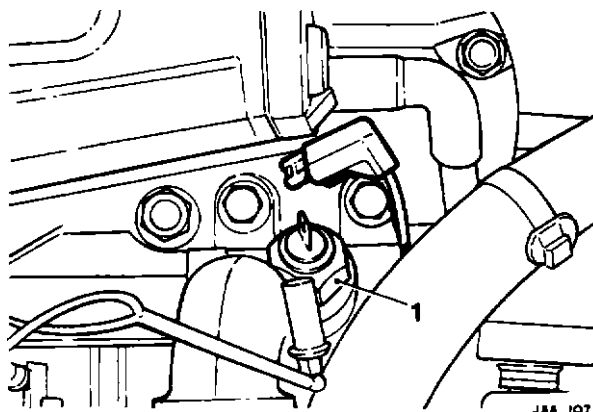


Fig. 1

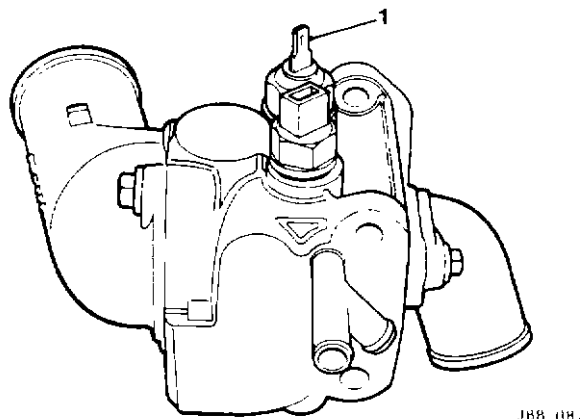
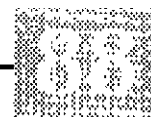


Fig. 2





## OIL PRESSURE TRANSMITTER

### RENEW

88.25.20

4.0 Litre Engine:  
Open the bonnet.  
Disconnect the battery earth lead.  
Disconnect the transmitter feed wire.  
Unscrew and remove the transmitter (Fig 1).

Fit and tighten the new transmitter.  
Reconnect the transmitter feed wire.  
Reconnect the battery earth lead.  
**Close** the bonnet.

5.3 Litre Engine:  
Open the bonnet.  
Disconnect the battery earth lead.  
Disconnect the rubber boot and the transmitter feed wire.  
Unscrew and remove the transmitter (Fig 2).

Fit and tighten the new transmitter.  
Reconnect the transmitter feed wire and the rubber boot.  
Reconnect the battery earth lead.  
Close the bonnet.

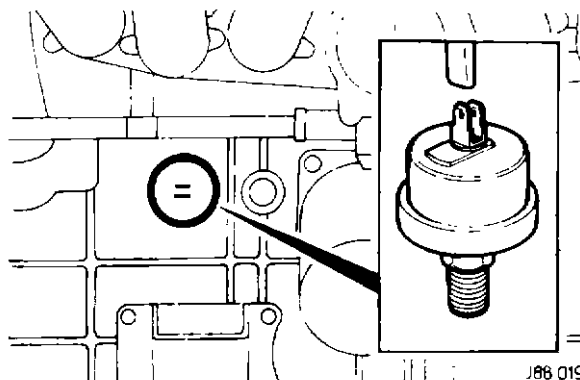


Fig. 1

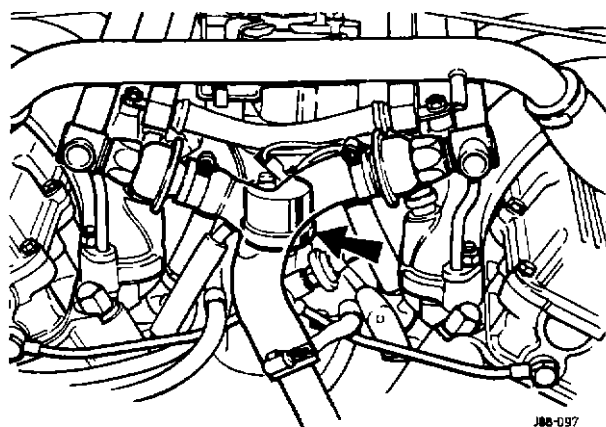


Fig. 2

### DATA

#### TORQUE FIGURES

Transmitter *to* engine **20–27Nm**

#### SPANNER SIZES

**18mm**

## OIL PRESSURE WARNING LIGHT SWITCH

### RENEW

88.25.08

Open the bonnet.  
Disconnect the battery earth lead.  
Disconnect the switch feed wire.  
Unscrew and remove the switch (Fig 1 – 4.0 Litre engine; Fig 3 – 5.3 Litre Engine).

Fit and tighten the new switch.  
Reconnect the switch feed wire.  
Reconnect the battery earth lead.  
Close the bonnet.

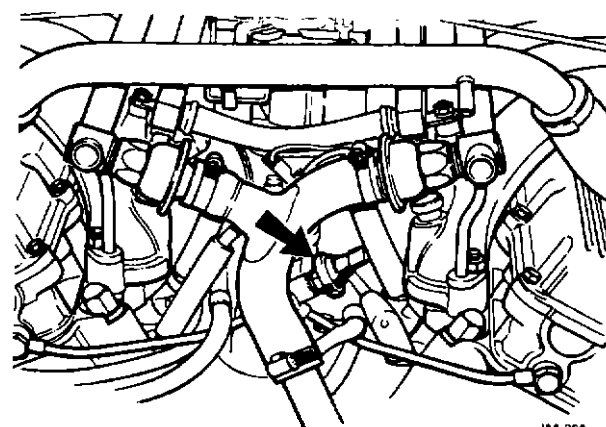


Fig. 3

### DATA

#### TORQUE FIGURES

Switch *to* engine **20–27Nm**

#### SPANNER SIZES

**18mm**





## FUEL GAUGE TANK UNIT

RENEW

88.25.32

**WARNING:** FUEL IS HIGHLY FLAMMABLE AND GREAT CARE MUST BE TAKEN WHEN DRAINING THE FUEL TANK. NO SMOKING SIGNS MUST BE DISPLAYED NEAR THE WORKING AREA. DISCONNECT THE BATTERY LEADS BEFORE DRAINING THE TANK. KEEP NEARBY A CO<sub>2</sub> FIRE EXTINGUISHER AND DRY SAND TO SOAK UP ANY SPILLAGE. ENSURE THE AREA IS WELL VENTILATED.  
**THE FUEL MUST BE DRAINED INTO AN AUTHORISED EXPLOSION PROOF CONTAINER.**

Open the boot and disconnect the battery.  
Drain the fuel from the tank using the approved equipment.  
Remove the boot right and left hand side liners.  
Remove the spare wheel trim cover and remove the spare wheel.  
Remove the boot seal from the front body flange and remove the boot front liner.  
Disconnect the harness to the tank unit wires.  
Using the service tool 18G 1001 (Fig. 1), remove the tank unit securing ring then the tank unit assembly.  
Remove and discard the 'O' ring seal and clean the tank seal face.

Fit a new seal to the tank and carefully fit the tank unit, secure with the retaining ring.  
Reconnect the harness to the tank unit wires.  
Fit the front liner and reposition the trim over the front flange. Fully seat the boot seal to the flange.  
Refit the spare wheel, secure the nut and replace the wheel cover.  
Fit the left and right hand front side liners.  
Refill the fuel tank, check for leaks.  
Close the boot.

## DATA

### SERVICE TOOLS

18G 1001 Locking ring spanner

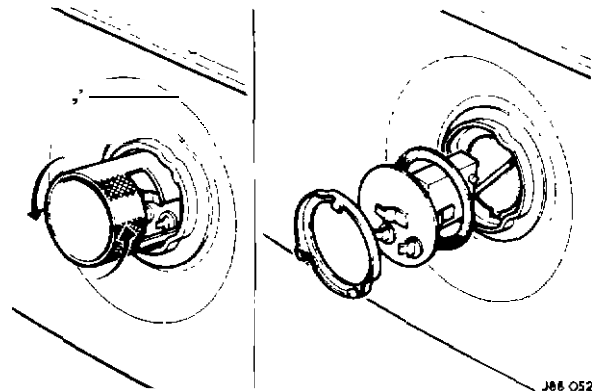
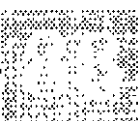


Fig. 1





## SPEED SENSOR AIR GAP

### CHECK/ADJUST

**88.30.05**

Drive the vehicle on to a ramp. Raise the ramp.  
Remove the sensor (1 Fig. 1) from the final drive backplate.  
Displace and remove the shims from the sensor.  
Remove and discard the 'O' ring seal.  
Clean the backplate face.

Position the car on the ramp to align one rotor tooth directly in front of the sensor mounting hole.  
Fit the sensor to the backplate (without the 'O' ring), ensuring that the sensor bottoms onto the rotor tooth.

Measure and note the gap (A Fig. 2) between the sensor securing flange and the backplate.

Remove the sensor. Fit a new 'O' ring. Fit and align the correct size/number of shims to the sensor to give 0.010–0.020 in clearance between the sensor and the rotor teeth.

Fit the sensor assembly to the backplate. Fit and tighten the securing bolts.  
Lower the ramp.

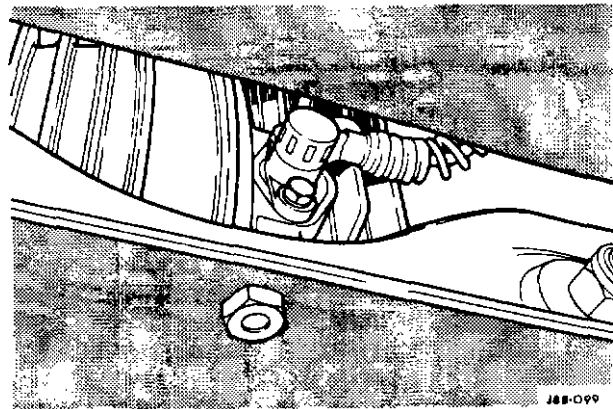


Fig. 1

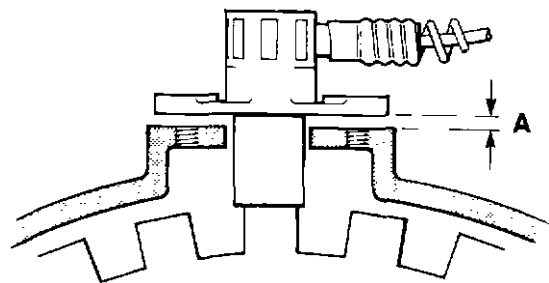


Fig. 2

JMB 051

### DATA

Sensor Air Gap 0.010 – 0.020 in

## SPEED SENSOR

### RENEW

**88.30.03**

Drive the vehicle on to a ramp. Open the boot. Remove the spare wheel for access.  
Remove the LH boot liner.

Disconnect the speed sensor multi plug, located under the LH rear wing (black PMHD).

Displace the harness and body grommet.

Reposition the harness from the boot into the axle area.

Raise the ramp.

Remove the sensor from the final drive backplate (1 Fig. 1).

Displace and remove the sensor/harness assembly.

Displace and remove the shims from the sensor.  
Clean the backplate face.

Remove the protection cap from the new sensor.  
Displace and remove the 'O' ring.

Position the car on the ramp to align one rotor tooth directly in front of the sensor mounting hole.



Fit the sensor to the backplate, ensuring that the sensor bottoms onto the rotor tooth.

Measure and note the gap (A Fig. 2 page 16) between the sensor securing flange and the backplate.

Remove the sensor. Fit a new O ring. Fit and align the correct size/number of shims to the sensor to give 0.010–0.020in clearance between the sensor and the rotor teeth.

Fit the sensor assembly to the backplate. Fit and tighten the securing bolts.

Reposition the harness into the boot area.

Seat the body grommet.

Lower the ramp.

Position the harness and reconnect the multi plug.

Fit the liner and spare wheel. Close the boot.

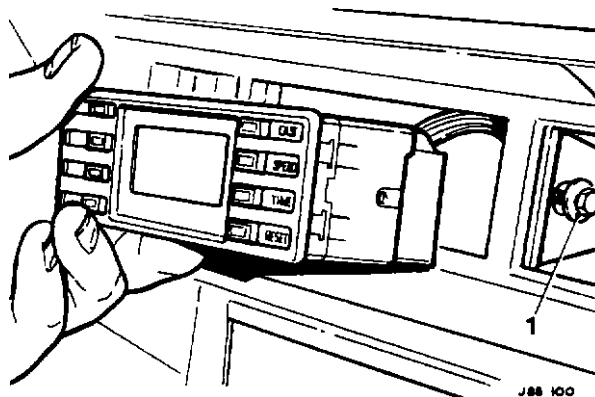


Fig. 1

## DATA

Sensor Air Gap 0.010 – 0.020in

## TRIP COMPUTER

### RENEW

88.30.17

Disconnect the battery earth lead.

Remove the combined interior light switch refer to operation 86.65.19 Electrical System.

Remove the combined heated backlight and hazard warning switch refer to operation 86.65.35 Electrical System.

Remove the computer to fascia securing bolts (1 Fig. 1) and carefully displace the computer from the veneer panel.

Disconnect the computer from the harness multi-plug, then connect the new computer to the multi-plug.

Fit the new computer to the veneer panel and tighten the fascia securing bolts.

Refit the combined heated backlight and hazard warning switch assembly.

Refit the combined interior light switch assembly.

Reconnect the battery earth lead.

