LOCATION OF ELECTRICAL EQUIPMENT

1. Battery
2. Air conditioning compressor
3. Horns
4. Oil pressure switch
5. Water temperature switch
6. Electronic distributor
7. Alternator
8. Starter motor
9. Coil
10. Relays
11. Wiper motor-front screen
12. Relays/delay units
13. Heater
14. Window lift motor (front right hand door)
15. Door lock actuator (front right hand door)
16. Electronic control unit
17. Relays
18. Parking brake warning light switch
19. Window lift motor (front left hand door)
20. Door lock actuator (front left hand door)
21. Seat adjustment fusebox
22. Seat motor-relay
23. Inertia switch
24. Window lift motor (rear left hand door)
25. Door lock actuator (rear left hand door)
26. Electrical in-tank fuel pump
27. Window lift motor (rear right hand door)
28. Door lock actuator (rear right hand door)
29. Wiper motor-rear screen
30. Radio aerial amplifier
31. Fuel filler flap lock actuator

For full information on fuel injection related items-see fuel injection section of manual.

To identify individual relays (items 10, 12, 17 and 22) see relays in Electrical Section of Manual.
<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>CURE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A-Battery</strong> in low state of charge</td>
<td>1. Broken or loose connection in alternator circuit</td>
<td>1. Examine the charging and field circuit wiring. Tighten any loose connections, repair/replace broken leads. Examine the battery connection.</td>
</tr>
<tr>
<td></td>
<td>2. Current voltage regulator not functioning correctly</td>
<td>2. Check/fit new unit</td>
</tr>
<tr>
<td></td>
<td>3. Slip rings greasy or dirty.</td>
<td>3. Clean</td>
</tr>
<tr>
<td></td>
<td>4. Brushes worn, not fitted correctly or wrong type</td>
<td>4. Fit new brushes</td>
</tr>
<tr>
<td></td>
<td>5. Fan belt broken</td>
<td>5. Fit new belt</td>
</tr>
<tr>
<td><strong>B-Battery overcharging</strong> leading to burnt out bulbs and frequent need for topping-up</td>
<td>1. Current voltage regulator not functioning correctly</td>
<td>1. Fit new unit</td>
</tr>
<tr>
<td><strong>C-Lamps giving insufficient illumination</strong></td>
<td>1. Battery discharged</td>
<td>1. Charge the battery from independent supply or by a long period of daylight running</td>
</tr>
<tr>
<td></td>
<td>2. Bulbs discoloured through prolonged use</td>
<td>2. Fit new bulb</td>
</tr>
<tr>
<td></td>
<td>3. Fan belt broken</td>
<td>3. Fit new belt</td>
</tr>
<tr>
<td><strong>D-Lamps light when switched on but fade out</strong></td>
<td>1. Battery discharged</td>
<td>1. Charge the battery from an independent supply or by a long period of daylight running</td>
</tr>
<tr>
<td><strong>E-Lights flicker</strong></td>
<td>1. Loose connection</td>
<td>1. Tighten/clean</td>
</tr>
<tr>
<td><strong>F-Failure of lights</strong></td>
<td>1. Battery discharged</td>
<td>1. Charge the battery from an independent supply or by a long period of daylight running</td>
</tr>
<tr>
<td></td>
<td>2. Loose broken connection</td>
<td>2. Locate and rectify</td>
</tr>
<tr>
<td></td>
<td>3. Fan belt broken</td>
<td>3. Fit new belt</td>
</tr>
<tr>
<td>SYMPTOM</td>
<td>POSSIBLE CAUSE</td>
<td>CURE</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td>Starter motor lacks power or fails to turn engine</td>
<td>1. Stiff engine</td>
<td>1. Locate cause and remedy</td>
</tr>
<tr>
<td></td>
<td>2. Battery discharged</td>
<td>2. Charge the battery either by a long period of daytime running or from independent electrical supply</td>
</tr>
<tr>
<td></td>
<td>3. Broken or loose connection in starter circuit</td>
<td>3. Check and tighten all battery, starter and starter switch connections and check the cables connecting these units for damage</td>
</tr>
<tr>
<td></td>
<td>4. Greasy or dirty slip rings</td>
<td>4. Clean</td>
</tr>
<tr>
<td></td>
<td>5. Brushes worn, not fitted correctly or wrong type</td>
<td>5. Fit new brushes</td>
</tr>
<tr>
<td></td>
<td>6. Brushes sticking in holders or incorrectly tensioned.</td>
<td>6. Rectify</td>
</tr>
<tr>
<td></td>
<td>7. Starter pinion jammed in mesh with flywheel</td>
<td>7. Remove starter motor and investigate</td>
</tr>
<tr>
<td>H-Starter noisy</td>
<td>1. Starter pinion or flywheel teeth chipped or damaged</td>
<td>1. Fit new components</td>
</tr>
<tr>
<td></td>
<td>2. Starter motor loose on engine</td>
<td>2. Rectify, checking pinion and the flywheel for damage</td>
</tr>
<tr>
<td></td>
<td>3. Armature shaft bearing</td>
<td>3. Fit new bearing</td>
</tr>
<tr>
<td>I-Starter operates but does not crank the engine</td>
<td>1. Pinion of starter does not engage with the flywheel</td>
<td>1. Check operation of starter solenoid. If correct, remove starter motor and investigate</td>
</tr>
<tr>
<td>V-Starter pinion will not disengage from the flywheel when the engine is running</td>
<td>1. Starter pinion jammed in mesh with the flywheel</td>
<td>1. Remove starter motor and investigate</td>
</tr>
<tr>
<td>SYMPTOM</td>
<td>POSSIBLE CAUSE</td>
<td>CURE</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Engine will not start</td>
<td>1. The starter will not turn the engine due to a discharged battery</td>
<td>1. Recharge battery by running the car for a long period during daylight or from an independent electrical supply</td>
</tr>
<tr>
<td></td>
<td>2. The starter will not turn due to incorrect gear selection.</td>
<td>2. Select ‘P’ or ‘N’</td>
</tr>
<tr>
<td></td>
<td>3. Sparking plugs faulty, dirty or incorrect plug gaps</td>
<td>3. Rectify, fit new plugs</td>
</tr>
<tr>
<td></td>
<td>4. Defective coil or distributor</td>
<td>4. Carry out ignition checks. Fit a new coil or distributor</td>
</tr>
<tr>
<td></td>
<td>5. A fault in the low tension wiring circuit</td>
<td>5. Examine all the ignition cables and check that the terminals are secure and not corroded.</td>
</tr>
<tr>
<td></td>
<td>7. Air gap out of adjustment</td>
<td>7. Adjust</td>
</tr>
<tr>
<td>M-Engine misfired stalls</td>
<td>1. Faulty sparking plugs</td>
<td>1. Rectify</td>
</tr>
<tr>
<td></td>
<td>2. Air gap incorrectly set</td>
<td>2. Adjust</td>
</tr>
<tr>
<td></td>
<td>3. Distributor cap cracked</td>
<td>3. Fit new cap</td>
</tr>
<tr>
<td></td>
<td>4. Faulty pick-up or reluctor</td>
<td>4. Fit new components</td>
</tr>
<tr>
<td></td>
<td>5. Excessive wear in distributor shaft brushes, etc.</td>
<td>5. Fit a new components</td>
</tr>
<tr>
<td></td>
<td>6. Rotor arm and flash shield cracked or showing signs of tracking</td>
<td>6. Fit new component</td>
</tr>
<tr>
<td>SYMPTOM</td>
<td>POSSIBLE CAUSE</td>
<td>CURE</td>
</tr>
<tr>
<td>---------</td>
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</tr>
<tr>
<td>&amp;Frequent recharging of the battery necessary</td>
<td>1. Alternator inoperative &lt;br&gt;2. Loose or corroded connections &lt;br&gt;3. Slipping fan belt &lt;br&gt;4. Voltage regulator faulty &lt;br&gt;5. Excessive use of the starter motor &lt;br&gt;6. Vehicle operation confined largely to night driving &lt;br&gt;7. Abnormal accessory load &lt;br&gt;8. Internal discharge of the battery,</td>
<td>1. Check the brushes, cables and connections or fit a new alternator &lt;br&gt;2. Examine all connections especially the battery terminals and ground cables &lt;br&gt;3. Adjust &lt;br&gt;4. Fit new component &lt;br&gt;5. In the hands of the operator, advise &lt;br&gt;6. In the hands of the operator, advise &lt;br&gt;7. Superfluous electrical fittings such as extra lamps, etc. &lt;br&gt;8. Fit new battery</td>
</tr>
<tr>
<td>SYMPTOM</td>
<td>POSSIBLE CAUSE</td>
<td>CURE</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-------------------------------------------</td>
</tr>
</tbody>
</table>
| S-Central door locking does not operate (on all doors) | 1. Battery discharged  
2. Control unit in driver’s door lock actuator faulty  
3. Loose or broken connection in driver’s door  
4. Blown fuse | 1. Recharge  
2. Fit new unit  
3. Locate and rectify  
4. Rectify |
| T-Central door locking does not operate (on one door only) | 1. Loose or broken connection  
2. Lock actuator failure  
3. Faulty lock  
4. Mechanical linkages disconnected | 1. Locate and rectify  
2. Fit new actuator  
3. Rectify  
4. Locate and rectify |
| U-Window lift will not operate | 1. Motor failure  
2. Loose or broken connection  
3. Faulty switch  
4. Mechanical linkage faulty | 1. Fit new motor  
2. Locate and rectify  
3. Fit new switch  
4. Rectify |
| V-Exterior mirrors fail to operate | 1. Loose or broken connection  
2. Faulty switch  
3. Mirror motor failure | 1. Locate and rectify  
2. Fit new switch  
3. Fit new motor |
ELECTRICAL EQUIPMENT

DESCRIPTION

The electrical system is Negative ground, and it is most important to ensure correct polarity of the electrical connections at all times. Any incorrect connections made when reconnecting cables may cause irreparable damage to the semi-conductor devices used in the alternator and regulator. Incorrect polarity would also seriously damage any transistorized equipment such as radio and tachometer etc.

WARNING: During battery removal or before carrying out any repairs or maintenance to electrical components always disconnect the battery negative lead first. If the positive lead is disconnected with the negative lead in place, accidental contact of the wrench to any grounded metal part could cause a severe spark, possibly resulting in personal injury. Upon installation of the battery the positive lead should be connected first.

ALTERNATOR - LUCAS A13380

The alternator is a three phase, field sensed unit. The rotor and stator windings produce three phase alternating current, AC, which is rectified to direct current, DC. The electronic voltage regulator unit controls the alternator output voltage by high frequency switching of the rotor field circuit. Use only the correct Range Rover replacement fan belt. Occasionally check that the engine and alternator pulleys are accurately aligned.

It is essential that good electrical connections are maintained at all times. Of particular importance are those in the charging circuit (including those at the battery) which should be occasionally inspected to see that they are clean and tight. In this way any significant increase in circuit resistance can be prevented.

Do not disconnect battery cables while the engine is running or damage to the semi-conductor devices may occur. It is also inadvisable to break or make any connections in the alternator charging and control circuits while the engine is running.

The Model 15TR electronic voltage regulator employs micro-circuit techniques resulting in improved performance under difficult service conditions. The whole assembly is encapsulated in silicone rubber and housed in an aluminium heat sink, ensuring complete protection against the adverse effects of temperature, dust, and moisture etc.

The regulating voltage is set during manufacture to give the required regulating voltage range of 14.2 ± 0.2 volts, and no adjustment is necessary. The only maintenance needed is the occasional check on terminal connections and wiping with a clean dry cloth.

The alternator system provides for direct connection of a charge (ignition) indicator warning light, and eliminates the need for a field switching relay or warning light control unit. As the warning lamp is connected in the charging circuit, lamp failure will cause loss of charge. Lamp should be checked regularly and a spare carried.

When using rapid charge equipment to re-charge the battery, the battery must be disconnected from the vehicle.
ALTERNATOR

Remove and refit

Removing

1. Disconnect battery ground lead.
2. Disconnect leads from alternator.
3. Loosen alternator fixings, pivot alternator inwards and remove drive belt.
4. Remove three mounting bolts and lift the alternator clear of the engine.

Refitting

5. Fit the alternator and mounting bolts.
   
   NOTE: The fan guard is attached to the front fixing and the adjustment bracket bolt.
6. Fit the drive belt and adjust the belt tension.
7. Tighten the mounting bolts and the adjustment bracket securing nut.
8. Connect the wiring leads to the alternator.
9. Connect the battery.

ALTERNATOR DRIVE BELT

Adjust

1. Loosen the alternator fixings and the adjustment link.
2. Pivot the alternator to give the required belt tension.
3. Belt tension should be 4 to 6mm (0.19 to 0.25 in) at the point indicated by the bold arrow.
4. Tighten the alternator fixing bolts and the adjustment link.

NOTE: Check adjustment after running engine at fast idle speed for 3 to 5 minutes if a new belt has been fitted.

REVISED: SEPT. 87
ALTERNATOR-LUCAS-TYPEA13380

1. Cover
2. Regulator
3. Rectifier
4. Drive end bracket
5. Bearing assembly
6. Rotor
7. Slip ring end bearing
8. Slip rings
9. Slip ring end bracket
10. Stator
11. Brush box
12. Brushes
13. Through bolts (three)
14. Suppressors

REVISED: JULY 88
ALTERNATOR-LUCAS-TYPE A133/80

Overhaul
Including Test (Bench)

NOTE: Alternator charging circuit-The ignition warning light is connected in series with the alternator field circuit. Bulb failure would prevent the alternator charging, except at very high engine speeds, therefore, the bulb should be checked before suspecting an alternator failure.

Precautions

Battery polarity is NEGATIVE GROUND, which must be maintained at all times.
No separate control unit is fitted; instead a voltage regulator of micro-circuit construction is incorporated on the slip ring end bracket, inside the alternator cover.
Battery voltage is applied to the alternator output cable even when the ignition is switched off, the battery must be disconnected before commencing any work on the alternator. The battery must also be disconnected when repairs to the body structure are being carried out using electric welding equipment.

Sequence of connections

1. Suppression capacitors (two)
2. Positive suppression terminal
3. IND terminal
4. + output terminal
5. Sensing terminal

REVISED: JULY 88
ALTERNATOR TESTING

Charging system check

1. Check the battery is in good condition, with an open circuit voltage of at least 12.6 V. Recharge or fit a charged substitute battery to carry out test.
2. Check drive belt adjustment and condition. Rectify as necessary.
3. Check battery connections are clean and tight.
4. Check alternator connections are clean and tight.
5. Ensure that there is no continuous drain on battery due, for example, to interior, underhood or door edge lamps being left on.

Alternator test

The following instructions refer to the use of suitable test equipment using a carbon pile rheostat.

6. Connect test equipment referring to the manufacturer's instructions.
7. Start engine and run at 3000 rev/min without accessory load.
8. Rotate the carbon pile load control to achieve the greatest output (amps) without allowing voltage to fall below 12.0 V. A reading of 80 amps, minus 10% to allow for EPI and Ignition loss, should be obtained.
9. Run engine at 3000 rev/min, switch selector to regulator test, read voltmeter. A reading of 13.6 to 14.4 V should be obtained.
10. Switch selector to diode/stator test, switch on headlamps to load alternator. Raise engine speed to 3000 rev/min, read voltmeter. The needle must be within the 'OK' range.

NOTE: See also charging circuit resistance test, page 13.
22. Remove the two remaining screws securing the rectifier assembly to the slip ring end bracket and lift off the rectifier assembly. Further dismantling of the rectifier is not required.

23. Check the diodes. Connect the test equipment as shown and test each diode in turn, note whether lamp lights, then reverse test lead connections. The lamp should light in one direction only. Renew the rectifier assembly if a faulty diode is diagnosed.

24. Remove the slip ring end bracket bolts and lift off the bracket.

25. Connect a 12 volt battery and a 36 watt test lamp to two of the stator connections. Repeat the test replacing one of the two stator connections with the third. If test lamp fails to light in either test, fit a new stator.

26. Using a 110 volt a.c. supply and a 15 watt test lamp, test for insulation between any one of the three stator connections and stator laminations. If test lamp lights, fit a new stator.

27. Clean surfaces of slip rings using a solvent moistened cloth.

28. Inspect slip ring surfaces for signs of burning; remove burn marks using very fine sandpaper. On no account should emery cloth or similar abrasives be used, or any attempt made to machine the slip rings.

29. Note the position of the stator output leads in relation to the alternator fixing lugs, and lift the stator from the drive end bracket.

30. Connect an ohmmeter to the slip rings. A reading of 2.6 ohms should be recorded.

31. Using a 110 volt a.c. supply and a 15 watt test lamp, test for insulation between one of the slip rings and one of the rotor poles. If the test lamp lights, fit a new rotor.
32. To separate the drive end bracket and rotor, remove the shaft nut, washers, woodruff key and spacers from the shaft.

33. Remove bearing retaining plate by removing the three screws. Using a press, drive the rotor shaft from the drive end bearing.

34. If necessary, to remove the slip rings or the slip ring end bearing on the rotor shaft, unsolder the outer slip ring connection and gently pry the slip ring off the shaft, repeat the procedure for the inner slip ring connection. Using a suitable extraction tool, withdraw the slip ring bearing from the shaft.

Reassembling

35. Reverse the dismantling procedure, noting the following points.

(a) Use Shell Alvania 'RA' to lubricate bearings.
(b) When refitting slip ring end bearing, ensure it is fitted with open side facing rotor.
(c) Use Fry's H.T.3 solder on slip ring field connections.
(d) When refitting rotor to drive end bracket, support inner track of bearing. Do not use drive end bracket to support bearing when fitting rotor.
(e) Tighten through-bolts evenly.
(f) Fit brushes into housings before fitting brush moulding.
(g) Tighten shaft nut to the correct torque, see Torque Values.
(h) Refit regulator pack to brush moulding.

36. Reconnect the leads between the regulator, brush box and rectifier.

37. Refit the alternator.

Testing in position

Charging circuit resistance test.

1. Connect a low range voltmeter between the alternator terminal marked + and the positive terminal of the battery.

2. Switch on the headlamps and start the engine. Set the throttle to run at approximately 3000 rev/min. Note the voltmeter reading.

3. Transfer the voltmeter connections to the frame of the alternator and the negative terminal of the battery, and again note the voltmeter reading.

4. If the reading exceeds 0.5 volt on the positive side or 0.25 volt on the negative side, there is a high resistance in the charging circuit which must be traced and remedied.
BATTERY

Remove and refit

WARNING: During battery removal or before carrying out any repairs or maintenance to electrical components always disconnect the battery negative lead first. If the positive lead is disconnected with the negative lead in place, accidental contact of the wrench to any grounded metal part could cause a severe spark, possibly resulting in personal injury. Upon installation of the battery the positive lead should be connected first.

Removing

1. Disconnect battery ground lead followed by the disconnection of the positive lead.
2. Release the four nuts securing the battery bracket in position.
3. Remove the bracket from the studs.
4. Remove the batten.

Refitting

5. Reverse the removal procedure.

NOTE: Coat the battery clamps and terminals with petroleum jelly before refitting.

HORNS

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove radiator grille.
3. Remove the nut and withdraw the horn.
4. Disconnect the electrical leads.
5. Remove the plain and serrated washer.

Refitting

NOTE: When refitting the horn ensure that the stud location is pushed firmly to the back of the elongated slot to prevent the horn fouling the radiator grille.

DISTRIBUTOR-LUCAS 35 DLM8

SERVICE PARTS

1. Cap
2. HT brush and spring
3. Rotor arm
4. Insulation cover
5. Pick-up module and base plate assembly
6. Vacuum unit
7. Amplifier module
8. 'O' ring oil seal
9. Gasket
ELECTRONIC I G NITION

A Lucas 35DLM8 distributor is employed. This has a conventional vacuum advance unit and centrifugal automatic advance mechanism.

A pick-up module, in conjunction with a rotating timing reluctor inside the distributor body, generates timing signals. These are applied to an electronic ignition amplifier module mounted on the side of the distributor body.

NOTE: The pick-up air gap is factory set. Do not adjust the gap unless the pick-up is being changed or the base plate has been moved. Use a non-ferrous feeler gauge to set the air gap.

DISTRIBUTOR

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Disconnect the vacuum hose.
3. Remove the distributor cap.
4. Disconnect low tension lead from the coil.
5. Mark distributor body in relation to centre line of rotor arm.

6. Add alignment marks to distributor and front cover.

NOTE: Marking distributor enables refitting in exact original position, but if engine is turned while distributor is removed, complete ignition timing procedure must be followed.

7. Release the distributor clamp and remove the distributor.

Refitting

NOTE: If a new distributor is being fitted, mark body in same relative position as distributor removed.

8. Leads for distributor cap should be connected as illustrated. Figures 1 to 8 inclusive indicate plug lead numbers.

RH-Right hand side of engine, when viewed from the rear.
LH-Left hand side of engine, when viewed from the rear.
9. If engine has not been turned while distributor has been removed, proceed as follows (items 10 to 17). Alternatively proceed to instruction 18.

10. Fit new '0' ring seal to distributor housing.

11. Turn distributor drive until centre line of rotor arm is 30° counter-clockwise from mark made on top edge of distributor body.

12. Fit distributor in accordance with alignment markings.

NOTE: It may be necessary to align oil pump drive shaft to enable distributor drive shaft to engage in slot.

13. Fit clamp and bolt. Secure distributor in exact original position.

14. Connect vacuum hose to distributor and low tension lead to coil.

15. Fit distributor cap.

16. Reconnect battery.

17. Using suitable electronic equipment, set the ignition timing, see IGNITION TIMING-Adjust.

18. If, with distributor removed, engine has been turned it will be necessary to carry out the following procedure.

19. Set engine-No. 1 piston to static ignition timing figure (see Engine Tuning Data-Section 05) on compression stroke.

20. Turn distributor drive until rotor arm is approximately 30° counter-clockwise from number one sparking plug lead position on cap.

21. Fit distributor to engine.

22. Check that centre line of rotor arm is now in line with number one sparking plug lead on cap. Reposition distributor if necessary.

23. If distributor does not seat correctly in front cover, oil pump drive is not engaged. Engage by lightly pressing down distributor while turning engine.

24. Fit clamp and bolt leaving both loose at this stage.

25. Set the ignition timing statically to 6° B.T.D.C.

26. Connect the vacuum hose to the distributor.

27. Fit low tension lead to coil.

28. Fit distributor cap.

29. Reconnect the battery.

30. Using suitable electronic equipment set the ignition timing, see IGNITION TIMING-Adjust.

DISTRIBUTOR-LUCAS 35DLM8

Overhaul

DISTRIBUTOR CAP

1. Unclip and remove the cap.
2. Fit a new cap if known to be faulty.
3. Clean the cap and HT brush with a lint free cloth.

ROTOR ARM

4. Pull rotor arm from shaft.
5. Fit a new rotor arm if known to be faulty.

INSULATION COVER (Flash shield)

6. Remove cover, secured by three screws.
7. Fit a new cover if known to be faulty.

VACUUM UNIT

8. Remove two screws from vacuum unit securing bracket, disengage vacuum unit connecting rod from pick-up base plate connecting peg, and withdraw vacuum unit from distributor body.

Continued
AMPLIFIER MODULE

9. Remove two screws and withdraw the module.
10. Remove the gasket.
11. Remove two screws securing the cast heatsink and remove the heatsink.

WARNING: The amplifier module is a sealed unit containing Beryllia. This substance is extremely dangerous if handled. Do not attempt to open or crush the module.

PICK-UP AND BASE PLATE ASSEMBLY

12. Use circlip pliers to remove the circlip retaining the reluctor on rotor shaft.
13. Remove the flat washer and then the 'O' ring recessed in the top of the reluctor.
14. Gently withdraw the reluctor from the shaft, taking care not to damage the teeth.

NOTE: Coupling ring fitted beneath reluctor.

15. Remove three support pillars and cable grommet. Lift out the pick-up and base plate assembly.

NOTE: Do not disturb the two barrel nuts securing the pick-up module, otherwise the air gap will need re-adjustment.

16. Fit a new pick-up and base plate assembly if module is known to be faulty, otherwise check pick-up winding resistance (2k-5k ohm).

RE-ASSEMBLY

17. This is mainly a reversal of the dismantling procedure, noting the following points:

LUBRICATION

Apply clean engine oil:

a. A spot into the rotor spindle before fitting rotor arm.

Apply Omnilube 2 (or equivalent) grease.

b. Auto advance mechanism.
c. Pick-up plate centre bearing.
d. Pre tilt spring and its rubbing area (pick-up and base plate assembly).
e. Vacuum unit connecting peg (pick-up and base plate assembly).
f. The connecting peg hole in vacuum unit connecting rod.

FITTING PICK-UP AND BASE PLATE ASSEMBLY

18. Pick-up leads must be prevented from fouling the rotating reluctor. Both leads should be located in plastic guide as illustrated. Check during re-assembly.

REFITTING RELUCTOR

19. Slide reluctor as far as it will go on rotor shaft, then rotate reluctor until it engages with the coupling ring beneath the pick-up base plate. The distributor shaft, coupling ring and reluctor are 'keyed' and rotate together. Fit the 'O' ring, flat washer and retaining circlip.

PICK-UP AIR GAP ADJUSTMENT

20. The air gap between the pick-up limb and reluctor teeth must be set within the specified limits, using a non-ferrous feeler gauge.

21. If adjustment is necessary, slacken the two barrel nuts to set the air gap. See Engine Tuning Data.
NOTE: When the original pick-up and base plate assembly has been refitted the air gap should be checked, and adjusted if necessary.

When fitting a new assembly the air gap will require adjusting to within the specified limits.

AMPLIFIER MODULE

22. Before fitting the module, apply MS4 Silicone grease or equivalent heat-conducting compound to the amplifier module backplate, the seating face on distributor body and both faces of the heatsink casting.

IGNITION COIL

Remove and refit

Removing

1. Disconnect the battery negative terminal.
2. Disconnect the High Tension and Low Tension electrical leads from the Ignition coil.

3. Remove the two bolts securing the coil to the valance.

NOTE: A ground strap is located under one of the bolts.

4. Remove the coil from the engine compartment.

Refitting

5. Reverse the removal instructions.

NOTE: Ensure that the bolting location for the ground strap is free from paint and grease. Coat the area around the bolt with Petroleum Jelly.

IGNITION TIMING

Adjust

1. It is essential that the following procedures are adhered to. Inaccurate timing can lead to serious engine damage and additionally create failure to comply with emission regulations. If the engine is being checked in the vehicle, the air conditioning compressor must be disengaged.

2. On initial engine build, or if the distributor has been disturbed for any reason, the ignition timing must be set statically to 6° B.T.D.C. (This sequence is to give only an approximation in order that the engine may be started) ON NO ACCOUNT MUST THE ENGINE BE STARTED BEFORE THIS OPERATION IS CARRIED OUT.

Equipment required

Calibrated Tachometer
Stroboscopic lamp

3. Couple stroboscopic timing lamp and tachometer to engine following the manufacturer’s instructions.

4. Disconnect the vacuum hose from the distributor.

5. Start engine, with no load and not exceeding 3,000 rev/min run engine until normal operating temperature is reached. (Thermostat open). Check that the normal idling speed falls within the tolerance specified in the data section.

6. Idle speed for timing purposes must not exceed 800 rev/min.

7. With the distributor clamping bolt loosened turn distributor until the timing flash coincides with the timing pointer and the correct timing mark on the rim of the torsional vibration damper as shown in the engine tuning section.

Continued
8. Retighten the distributor clamping bolt securely. Recheck timing in the event that retightening has disturbed the distributor position.
9. Refit vacuum hose.
10. Disconnect stroboscopic timing lamp and tachometer from engine.

LUCAS CONSTANT ENERGY IGNITION SYSTEM
35DLM8-PRELIMINARY CHECKS

Inspect battery cables and connections to ensure they are clean and tight. Check battery state of charge if in doubt as to its condition.

Inspect all LT. connections to ensure that they are clean and tight. Check the HT. leads are correctly positioned and not shorting to ground against any engine components. The wiring harness and individual cables should be firmly fastened to prevent chafing.

PICK-UP AIR CAP

Check the air gap between pick-up limb and reluctor teeth, using a non-ferrous gauge, see 'Engine Tuning Data'.

NOTE: The gap is set initially at the factory and will only require adjusting if tampered with or when the pick-up module is replaced.

TEST 1:

H.T. Sparking

Remove coil/distributor H.T. lead from distributor cover and hold approximately 6mm (0.25 in) from the engine block, using suitable insulated pliers. Switch the ignition ‘On’ and operate the starter. Regular sparking indicates fault in H.T. distribution, plugs, timing or fuelling, proceed to Test 6. If no spark or weak spark occurs proceed to Test 2.

Test 2:

L.T. Voltage

Switch the ignition ‘On’, engine stationary.

(a) Connect voltmeter to points in the circuit indicated by V1 to V4 and make a note of the voltage readings.

(b) Compare voltages obtained with the specified values listed below:

EXPECTED READINGS

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>More than 12 volts.</td>
</tr>
<tr>
<td>V2</td>
<td>1 volt maximum below volts at V1.</td>
</tr>
<tr>
<td>V3</td>
<td>1 volt maximum below volts at V1.</td>
</tr>
<tr>
<td>V4</td>
<td>0 volt - 0.1 volt.</td>
</tr>
</tbody>
</table>

(c) If all readings are correct proceed to Test 3.
(d) Check incorrect reading(s) with chart to identify area of possible faults, i.e. faults listed under heading SUSPECT and rectify.
(e) If coil and amplifier is suspected, disconnect LT. lead at coil, repeat V3. If voltage is still incorrect, fit new coil. If voltage is now correct, check LT. lead, if satisfactory fit new amplifier.
(f) If engine will not start proceed to Test 3.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th>SUSPECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td></td>
<td></td>
<td></td>
<td>DISCHARGED BATTERY</td>
</tr>
<tr>
<td>*</td>
<td>L</td>
<td>L</td>
<td></td>
<td>IGN. SWITCH AND/OR WIRING</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td></td>
<td></td>
<td>COIL OR AMPLIFIER</td>
</tr>
<tr>
<td>*</td>
<td>*</td>
<td>*</td>
<td>H</td>
<td>AMPLIFIER GROUND</td>
</tr>
</tbody>
</table>

**KEY**
- H Voltage higher than expected
- L Voltage lower than expected
- Expected Voltage

**TEST 3:**

**Amplifier Switching**

Connect the voltmeter between battery positive (+ve) terminal and H.T. coil negative (-ve) terminal, the voltmeter should register 0 volts.

Switch the ignition 'On', the voltmeter should still register 0 volts.

Crank the engine, the voltmeter reading should increase when cranking, in which case proceed to Test 5.

If there is no increase in voltage during cranking proceed to Test 4.

**TEST 4:**

**Pick-up Coil Resistance**

Remove the amplifier.

Connect the ohmmeter leads to the two pick-up terminals in the body of the distributor.

The ohmmeter should register between 2k and 5k ohm if pick-up is satisfactory. If ohmmeter reading is correct, check all connections between pick-up and amplifier, if satisfactory, fit new amplifier. If the engine still does not start carry out Test 5.

Change the pick-up if ohmmeter reading is incorrect. If the engine still does not start proceed to Test 5.

**Continued**
TEST 5:
Coil H.T. Sparking

Remove existing coil/distributor H.T. lead and fit test H.T. lead to coil tower. Using suitable insulated pliers, hold free end about 6mm (0.25 in) from the engine block and crank the engine. There should be good H.T. sparking.

If weak or no sparking fit new coil repeat test.

H.T. sparking good, repeat test with original H.T. lead. If sparking is good carry out Test 6.

If weak or no sparking, fit new H.T. lead, if engine will not start carry out Test 6.

TEST 6:
Rotor Arm

Remove distributor cover. Disconnect coil H.T. lead from cover, using insulated pliers hold about 3mm (0.13 in) above rotor arm electrode and crank the engine.

There should be no H.T. sparking between rotor and H.T lead. If satisfactory carry out Test 7.

If H.T. sparking occurs, an earth fault on rotor arm is indicated. Fit new rotor arm. If engine will not start carry out Test 7.

TEST 7:
Visual and H.T. Cable Checks

Examine: Should be:
1. Distributor Cover Clean, dry, no tracking marks
2. Coil Top Clean, dry, no tracking marks.
3. H.T. Cable Insulation Must not be cracked, chafed or perished
4. H.T. Cable Continuity Must not be open circuit
5. Sparking Plugs Clean, dry, and set to correct gap

NOTE:
1. Reluctor Must not foul pick-up or leads
2. Rotor and Insulation Cover Must not be cracked or show signs of tracking marks
HEADLAMP ASSEMBLY/SEALED BEAM UNIT

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the radiator grille - see Body Section 76.
3. Remove three crosshead screws and the headlamp retaining rim.

4. DO NOT disturb the two adjusting screws.
5. Withdraw the sealed beam unit and disconnect the wiring plug from the rear of the unit.
6. Remove three securing screws, pry away the grommet and withdraw the headlamp bowl.

Refitting

7. Reverse removal procedure.

HEADLAMP ALIGNMENT

Headlamp beam setting should only be carried out by qualified person using suitable beam setting equipment.

1. Turn the top adjusting screw counter-clockwise to lower the beam, clockwise to raise the beam.
2. Turn the side adjusting screw counter-clockwise to move the beam to the left, clockwise to move the beam to the right.

3. Disconnect the electrical plug.
4. Remove the single nut and washer.

5. From the front of the vehicle, maneuver the lamp and remove it from the spoiler opening.
6. Remove the two screws securing the cover to the rear of the lamp.
7. Withdraw the cover.
8. Disconnect the lucar connector.
9. Release the spring clip securing the bulb to the lamp unit.
10. Remove the bulb.
Refitting

11. Fit a new bulb ensuring that the two notches on the bulb body locate with the registers on the lamp unit.
12. Reverse the removal procedure.

Adjusting

The correct adjustment is beam horizontal (parallel to the ground) and parallel to the vehicle axis.

13. Loosen the lamp adjusting bolt to lower or raise the beam.
14. Loosen the lamp securing bolt to move the beam to left or right.
15. Tighten fixing bolts to the correct torque, see Torque Values.

SIDELIGHT AND FLASHER LAMP ASSEMBLY-RH AND LH AND BULB

Remove and refit

Removing

1. Open the hood and disconnect the battery negative lead.
2. Remove the two screws and plain washers securing the lamp assembly.
3. Lift the assembly away sufficiently to gain access to the rear of the lamp.
4. Remove the waterproof cover.
5. Depress the two retaining clips and withdraw the bulb holder.

6. Remove the required bulb. The direction indicator bulb is located in the upper section of the bulb holder, the side lamp bulb in the lower.
7. Disconnect the multi-plug to remove the complete assembly.

Refitting

8. Reverse the removal procedure, ensuring the waterproof cover is located correctly.

TAIL, STOP, REVERSE AND FLASHER LAMP ASSEMBLY-RH AND LH

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the four lens retaining screws.
3. Remove lens.
4. Remove sealing rubber, if required.

NOTE: To remove the sealing rubber complete it is necessary to remove the side marker lens.

5. Remove the bulbs.
6. Remove the four screws securing the lamp unit to the body.
7. Remove the two through-screws from the reflector side, which also secure the lamp unit to the body.
8. Ease the lamp unit forward and disconnect leads at moulded connectors.
UNDER HOOD LAMP ASSEMBLY

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the two securing screws.
3. Remove the lamp glass.
4. Pull the five-watt 'wedge' type bulb from the bulb holder.

Refitting

7. Reverse operations 1 to 6.

NOTE: A piece of bent wire will be needed to pull the electrical leads out of the channel exit hole when fitting a new lamp assembly.

NOTE: To remove the rubber seal completely it is necessary to remove the tail light lens.

Refitting

4. Reverse the removal procedure.
HEATER/VENTILATION AND AIR CONDITIONING CONTROL PANEL

Bulb replacement

The heater/ventilation control panel is illuminated by four 12-volt 1.2 watt 'wedge' type (capless) bulbs. In the event of a bulb failure a replacement bulb can be fitted as follows:

1. Pull the five finger tip knobs off the control levers.
2. Remove the two screws at the top of the panel.
3. Carefully ease the panel away from the centre console only as far as the electrical leads will permit.
4. Pull the appropriate bulb holder out of the rear of the panel.
5. Pull the bulb from the holder.
6. Fit a new bulb and push the bulb holder firmly back into its location at the rear of the panel.

Refitting

7. Ensuring that the electrical leads do not become trapped between the panel console and operating levers, refit the panel.

DOOR EDGE LAMPS/PUDDLE LAMPS

Incorporated into the front door assemblies are door edge lamps and puddle lamps, these are located on the door edge and bottom of the door. The lamps are activated by the courtesy light switches when either front door is opened and will immediately switch off when both doors are closed.

Remove and refit

Removing

1. Ensure the side door glass is fully closed.
2. Disconnect the battery negative lead.
3. Remove the interior door handle and armrest/door pull from the door.
4. Carefully release the interior door trim pad from the inner door panel.
5. Peel back the lower half of the plastic vapour barrier.
6. Disconnect the door edge lamp and puddle lamp two pin electrical plugs within the door. Accessible through the lower centre and outer openings of the inner door panel.
7. Release the door edge lamp electrical leads from the retaining clips.
8. Remove the lens and pry the lamps out of the door and withdraw the electrical leads.

Refitting

7. Reverse the removal procedure.

NOTE: Ensure the door lamp wiring harness is securely clipped to the lower stiffener plate within the door to prevent damage occurring to the electrical leads when the door glass is in its lowest position.
DOOR EDGE LAMPS/PUDDLE LAMPS

Bulb replacement

1. Disconnect the battery negative lead.
2. Carefully pry out the lamp lens.
3. Withdraw the lamp body from the door ONLY as far as the electrical leads will permit.
4. Pull the bulb from the holder.
5. Fit a new the bulb and refit the lamp lens.
6. Push the lamp into the door. The correct bulb type is a 12-volt 5-watt capless.

AUTOMATIC GEAR SELECTOR-PANEL ILLUMINATION

Bulb replacement

1. Disconnect the battery negative lead.
2. Unclip the cover from the top of the gear selector knob.
3. Remove the circlip retaining the detent button.
4. Withdraw the detent button.
5. Remove the lower circlip above the gear selector knob securing nut.
6. Remove the securing nut.
7. Withdraw the serrated washer.
8. Slide the selector knob off the shaft.
9. Carefully pry the inset panel out of the floor mounted console, complete with selector illumination panel and ash tray.
10. The two illumination bulbs are located on the reverse side of the illumination panel.
11. Pull the appropriate bulb holder from its location.
12. If necessary, to facilitate easier removal of the bulb holders, remove the four screws securing the illumination panel to the outer surround panel.
13. Pull the bulb from the holder. The correct bulb type is a 24-volt 5-watt ‘wedge’ base (capless).
14. Reverse the removal procedure ensuring that the electrical leads beneath the floor mounted console do NOT become trapped between mating surfaces.
15. To prevent damage to the gear selector knob on reassembly do NOT overtighten the retaining nut, see Torque Values.
LICENSE PLATE LAMP ASSEMBLY AND BULB

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the two self-tapping screws and washers.
3. Detach the lamp assembly.
4. Disconnect the bulb holder and remove the bulb.

NOTE: Carefully pull the electrical leads out of the bottom of the lower tailgate panel to reveal the snap connectors.

Refitting

8. Reverse the removal procedure. The correct bulb ‘type’ is a 12-volt, 5 watt wedge base (capless).

INTERIOR ROOF LAMPS

Remove and refit

The interior roof lamps are operated automatically via the side door and tailgate courtesy switches or by an independent switch located on the auxiliary switch panel.

Removing

1. Disconnect the battery negative lead.
2. Remove the lens from the courtesy lamp by pressing upward and turning it counter-clockwise.
3. Withdraw bulb from spring clip holder.
4. Remove screws securing lamp base to roof panel.
5. Lower the lamp to reveal the cable snap connections.
6. Disconnect the electrical connections.

Refitting

7. Reverse the removal procedure.

INTERIOR ROOF LAMPS CIRCUIT DELAY

Remove and refit

The roof lamp circuit incorporates a delay function which is designed to allow the lamps to remain on for 12 to 18 seconds after either of the front doors are closed.

NOTE: Switching on the ignition (with both doors closed) will immediately over-ride this feature, switching the interior lamps off.
Removing

1. Disconnect the battery negative lead.
2. Remove the six screws securing the lower dash panel.
3. Lower the dash panel to gain access to the red delay unit attached to the steering column support bracket.
4. Remove the delay unit by pushing the unit up off its retaining bracket, to clear the steering column support bracket.
5. Pull the red multi-plug off the delay unit.

Refitting

6. Reverse the removal operations.

STARTER MOTOR-LUCAS M78R

Remove and refit

Removing

1. Place the vehicle on a suitable hoist.
2. Disconnect the battery negative lead.
3. Disconnect the leads from the solenoid and starter motor and remove the exhaust heat shield.
4. Remove the two bolts securing the starter motor to the flywheel housing.
5. Remove the starter motor from underneath the vehicle.

Refitting

6. Reverse the removal procedure.
STATER MOTOR-Lucas M78R

Overhaul

Dismantling

1. Remove the starter motor.
2. Remove the braid between the starter and the solenoid terminal.
3. Remove the solenoid fixing screws.
4. Withdraw the solenoid body.
5. Lift and remove the solenoid plunger.
6. Remove two nuts and two screws from the commutator end bracket.
7. Remove the commutator end bracket.
8. Remove the grommet from the yoke.
9. Lift the brushbox assembly clear of the armature.
10. Remove the brush springs.
11. Unclip and remove the ground brushes.
12. Remove the insulating plate.
13. Withdraw the brushes and bus bar.
14. Remove the armature from the yoke.
15. Remove the yoke.
16. Remove the intermediate bracket.
17. Loosen and remove the through bolts from the drive end bracket.
18. Remove the sun and planet gears.
19. Push out the drive shaft sprocket assembly from the drive end bracket.
20. Carefully tap the thrust collar from over the jump ring back towards the drive.
21. Pry the snap ring from its locating groove.
22. Remove the drive assembly from the drive shaft.
Inspecting

Solenoid

23. Check the continuity and resistance value of windings by connecting an ohmmeter as shown.

(a) Resistance value should be: $1.074 \pm 0.035$ ohms

(b) Resistance value should be: $0.298 \pm 0.015$ ohms

If test results are unsatisfactory replace the solenoid.
If results are correct proceed to 24.

24. Check the contacts by connecting an ohmmeter as shown. Solenoid plunger removed, ohmmeter should read infinity.

25. Check operation of spring for freedom of movement.

Brush gear

26. Check brush springs and ensure that the brushes move freely in their holders. Clean the brushes with a solvent moistened cloth, if required.

Brush length new, Dimension A is 9mm (0.354 in). Minimum brush length, Dimension B is 3.5mm (0.138 in).
Armature

27. Check the armature insulation using suitable test equipment. Connect the tester between any one commutator segment and the shaft. The method illustrated uses a 110V, 15W test lamp. If the lamp illuminates the armature is faulty, and a replacement component is required.

31. Drive end/intermediate end bracket: press out the bush using a suitable press and mandrel.

32. Press the new bush in, ensuring that on the drive end bracket, the bush is flush with the casting.

33. Commutator end bracket; thread a 9/16" Whitworth or suitable similar tap firmly into the bush. Extract the bush with the tap using a power press in reverse.

NOTE: Soak new bushes in engine oil for thirty minutes before fitting.

Reassemble

34. Reverse the instructions 1 to 22. Smear the teeth and operating collar of the roller clutch with Shell Retinax 'A' grease. Smear the pivot lever of the drive assembly with Mobil 22 grease. Smear the drive shaft sun and planet gears with Rocol BRB1200 grease.

35. Tighten all the fixings to the correct torque—see Torque Values.

28. If necessary, the commutator may be machined, providing a finished surface can be obtained without reducing the diameter below 28.8mm (1.13 in), otherwise a new commutator must be fitted. Finish the surface with fine emery cloth. Do not undercut the insulation slots.

Drive assembly

29. Test the roller clutch. The pinion should rotate in one direction only, independent of the clutch body. Replace the unit if unsatisfactory or if teeth are damaged or worn.

Bearings

30. Fit new the bearing bushes if there is evidence of armature fouling magnets or if there is perceptible side play between the shaft and bush.
### FUSE BOX

<table>
<thead>
<tr>
<th>FUSE NO.</th>
<th>COLOUR CODE</th>
<th>FUSE VALUE</th>
<th>CIRCUIT SERVED</th>
<th>IGNITION KEY CONTROLLED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown</td>
<td>7.5 amp</td>
<td>RH headlamp low beam and power wash</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Brown</td>
<td>7.5 amp</td>
<td>RH headlamp high beam</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Brown</td>
<td>7.5 amp</td>
<td>RH headlamp high beam</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Brown</td>
<td>7.5 amp</td>
<td>RH headlamp high beam</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Tan</td>
<td>5 amp</td>
<td>RH parking lights and instrument illumination</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Tan</td>
<td>5 amp</td>
<td>LH parking lights and instrument illumination</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Blue</td>
<td>15 amp</td>
<td>Front wash/wiper motors</td>
<td>AUX</td>
</tr>
<tr>
<td>8</td>
<td>Yellow</td>
<td>20 amp</td>
<td>Heating/air conditioning motor</td>
<td>AUX</td>
</tr>
<tr>
<td>9</td>
<td>White</td>
<td>25 amp</td>
<td>Heated rear screen</td>
<td>IGN</td>
</tr>
<tr>
<td>10</td>
<td>Violet</td>
<td>3 amp</td>
<td>Mirror heater</td>
<td>IGN</td>
</tr>
<tr>
<td>11</td>
<td>Blue</td>
<td>15 amp</td>
<td>Audio warning unit, headlamp flash, door, hood and internal lamps, radio, clock, horns, hazard switch, key 'IN' switch and emission maintenance reminder</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Blue</td>
<td>15 amp</td>
<td>Low coolant monitor, stop and reverse lamps, direction indicators, instruments, bulb check, low oil monitor, screen wash, fluid monitor, interior lamp delay unit and speed transducer</td>
<td>IGN</td>
</tr>
<tr>
<td>13</td>
<td>Blue</td>
<td>15 amp</td>
<td>Low coolant monitor, stop and reverse lamps, direction indicators, instruments, bulb check, low oil monitor, screen wash, fluid monitor, interior lamp delay unit and speed transducer</td>
<td>IGN</td>
</tr>
<tr>
<td>14</td>
<td>Blue</td>
<td>15 amp</td>
<td>Assistive feed trailer</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Blue</td>
<td>15 amp</td>
<td>Assistive driving lamps</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Red</td>
<td>10 amp</td>
<td>Rear wash/wipe motor</td>
<td>AUX</td>
</tr>
<tr>
<td>17</td>
<td>Yellow</td>
<td>20 amp</td>
<td>Cigar lighter (front and rear), gear selector illumination</td>
<td>IGN</td>
</tr>
<tr>
<td>18</td>
<td>Red</td>
<td>10 amp</td>
<td>Fuel pump</td>
<td>IGN</td>
</tr>
<tr>
<td>19</td>
<td>Red</td>
<td>10 amp</td>
<td>Central locking</td>
<td>AUX</td>
</tr>
<tr>
<td>20</td>
<td>White</td>
<td>25 amp</td>
<td>Windscreen</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Radio/Cassette combination. An in-line type 5 amp fuse is incorporated in the power input lead of the unit.

### AUXILIARY FUSE PANEL-(A)

<table>
<thead>
<tr>
<th>FUSE NO.</th>
<th>COLOUR CODE</th>
<th>FUSE VALUE</th>
<th>CIRCUIT SERVED</th>
<th>IGNITION KEY CONTROLLED</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Yellow</td>
<td>20 amp</td>
<td>Air conditioning fan</td>
<td>IGN</td>
</tr>
<tr>
<td>A2</td>
<td>Yellow</td>
<td>20 amp</td>
<td>Air conditioning fan</td>
<td>IGN</td>
</tr>
<tr>
<td>A3</td>
<td>Tan</td>
<td>5 amp</td>
<td>Air conditioning compressor clutch</td>
<td>IGN</td>
</tr>
<tr>
<td>A4</td>
<td>Tan</td>
<td>5 amp</td>
<td>Air conditioning compressor clutch</td>
<td>IGN</td>
</tr>
<tr>
<td>A5</td>
<td>Violet</td>
<td>3 amp</td>
<td>Electric mirror motors</td>
<td>IGN</td>
</tr>
<tr>
<td>A6</td>
<td>Brown</td>
<td>7.5 amp</td>
<td>Cruise control</td>
<td>IGN</td>
</tr>
</tbody>
</table>

NOTE: Sunroof fuse is a 20 amp blade type fuse and is located on the side of the sunroof main relay. See pages 77-78 for relay location.

REVISED: JULY 88
AUXILIARY FUSE BOX (B)-Located under the front left-hand seat

<table>
<thead>
<tr>
<th>FUSE NO</th>
<th>COLOUR</th>
<th>FUSE VALUE</th>
<th>CIRCUIT SERVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Green</td>
<td>30 amp</td>
<td>Seat recline</td>
</tr>
<tr>
<td>B2</td>
<td>Green</td>
<td>30 amp</td>
<td>Seat base</td>
</tr>
<tr>
<td>B3</td>
<td>------</td>
<td>----</td>
<td>Spare</td>
</tr>
<tr>
<td>B4</td>
<td>------</td>
<td>----</td>
<td>Spare</td>
</tr>
<tr>
<td>B5</td>
<td>Green</td>
<td>30 amp</td>
<td>Seat recline</td>
</tr>
<tr>
<td>B6</td>
<td>Green</td>
<td>30 amp</td>
<td>Seat base</td>
</tr>
</tbody>
</table>

FUSE BOX-Main and Auxiliary

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the clip-on fuse box cover.
3. Remove the fuses from the main and auxiliary fuse boxes.
4. Remove the single screw securing the top auxiliary fuse box to the fuse box surround.
5. Unclip the opposite end of the fuse box.
6. Remove the two screws securing the main fuse box to the lower centre dash panel.
7. Withdraw the auxiliary fuse box surround.
8. Maneuver the main and auxiliary fuse box to enable them to be withdrawn through the fuse box opening.
9. Remove the leads from the fuse boxes, by inserting a small screwdriver into each fuse socket to depress the small retaining tab on the back of the lucar connectors, withdraw the leads from the rear of the fuse box.

Refitting

10. Reverse the removal instructions ensuring that all leads are refitted to the correct fuse socket (refer to main circuit diagram).

NOTE: When refitting the leads to the fuse box, the retaining tabs on the back of the lucar connectors must be in their raised position to prevent the leads being pushed out of the rear of the fuse box when the fuse is refitted.

RELAYS-Identification

incorporated in the vehicle electrical circuits are several relays, some of which are located behind the lower dash panel attached to the steering column support bracket. Relays are also located in the engine compartment attached to the closure panel. These relays are accessible having removed the black protective cover. The remaining relays are located beneath both front seats.

REVISED: JULY 88
Closure panel viewed from the engine compartment, with protective cover removed. Steering column mounted relays viewed with the lower dash panel removed.

<table>
<thead>
<tr>
<th>Relay</th>
<th>Circuit Diagram Item Number</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Headlamp wash timer unit</td>
<td>17. Main circuit diagram</td>
<td>Black</td>
</tr>
<tr>
<td>2. Heated rear window</td>
<td>65. Main circuit diagram</td>
<td>Natural</td>
</tr>
<tr>
<td>3. Starter solenoid relay</td>
<td>6. Main circuit diagram</td>
<td>Natural</td>
</tr>
<tr>
<td>4. Compressor clutch</td>
<td>11. Air conditioning diagram</td>
<td>Natural</td>
</tr>
<tr>
<td>5. Condenser fan</td>
<td>9. Air conditioning diagram</td>
<td>Natural</td>
</tr>
<tr>
<td>6. Air conditioning/heater</td>
<td>5. Air conditioning diagram</td>
<td>Natural</td>
</tr>
<tr>
<td>7. Stowage position</td>
<td>Not used</td>
<td>--------</td>
</tr>
<tr>
<td>8. Rear wiper delay</td>
<td>139. Main circuit diagram</td>
<td>Black</td>
</tr>
<tr>
<td>9. Ignition load relay</td>
<td>1. Main circuit diagram</td>
<td>Black</td>
</tr>
<tr>
<td>10. Front wiper delay</td>
<td>14. Main circuit diagram</td>
<td>Red</td>
</tr>
<tr>
<td>11. Flasher/Hazard unit</td>
<td>74. Main circuit diagram</td>
<td>Blue</td>
</tr>
<tr>
<td>12. Voltage sensitive switch</td>
<td>71. Main circuit diagram</td>
<td>Yellow</td>
</tr>
<tr>
<td>13. Interior lamp delay</td>
<td>100. Main circuit diagram</td>
<td>Red</td>
</tr>
<tr>
<td>14. Auxiliary lamp relay</td>
<td>87. Main circuit diagram</td>
<td>Natural</td>
</tr>
<tr>
<td>15. Seat adjustment relay</td>
<td>4. Seat adjustment diagram</td>
<td>Natural</td>
</tr>
<tr>
<td>16. Main EFI relay</td>
<td>22. EFI circuit diagram</td>
<td>Natural</td>
</tr>
<tr>
<td>17. Fuel pump relay</td>
<td>21. EFI circuit diagram</td>
<td>Natural</td>
</tr>
</tbody>
</table>
Seat adjustment relay located beneath the left hand front seat adjacent to fuse box (B).

Main EFI (black terminal block) and fuel pump relays (blue terminal block) mounted beneath right hand front seat.

NOTE: Refer to fuel injection section of manual for full information on E.F.I. relays.

RELAYS-(Mounted on the engine compartment closure panel).

Remove and refit

Removing

1. Lift the hood.
2. Disconnect the battery negative lead.
3. Remove the bolt securing the relay protective cover, located on the front of the engine compartment closure panel.
4. Remove the cover.

5. Pull the appropriate relay off its multi-plug.

Refitting

6. Reverse the removal procedure.

RELAYS-(Mounted on the steering column support bracket)

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the six screws securing the lower fascia panel.
3. Lower the dash panel, disconnect the electric leads from the dimming control switch and remove the fascia panel.
4. Locate the appropriate relay on the relay mounting bracket, carefully pull the relay off the multi-plug.

Refitting

5. Reverse the removal procedure.

RELAYS-(Floor mounted beneath front seats)

Remove and refit

Removing

1. Position seat to gain access to the required relay.
2. Disconnect the battery negative lead.
3. Carefully pull the relay off the multi-plug.

Refitting

4. Reverse the removal procedure.
AUXILIARY SWITCH PANEL

The auxiliary switch panel contains four 'push-push' type switches which incorporate integral symbols for identification.

(The first and sixth switch openings are fitted with blank covers, which are removable, to facilitate the fitting of extra switches if required).

The symbols are illuminated by two bulbs which become operational when the vehicle lights are on.

The heated rear screen switch (5) is provided with an individual warning light, illuminated when the switch is operated.

Removing

1. Disconnect the battery negative lead.
2. Carefully pry the auxiliary switch panel surround away from the centre console.
3. Withdraw the switch panel as far as the electrical leads will permit.
4. Unclip the multi-plugs at the rear of the switches by depressing the retaining lugs.
5. Pull the plugs from the switches.
6. Remove the switch assembly complete.

NOTE: If necessary each individual switch can now be removed as follows.

7. Depress the small retaining lugs on the top and bottom of the switch and push the switch(es) through the front of the switch surround.

Refitting

8. Reverse the removal procedure.

NOTE: To aid identification and location of multi-plug to switch, a coloured plastic tab is attached to each body which corresponds with an appropriate coloured multi-plug. The switches if removed, should always be refitted in their original position.
Auxiliary switch panel/heated rear screen warning light warning light

Bulb replacement (switch 5)

1. Disconnect the battery negative lead.
2. Carefully pry the switch panel surround away from the centre console.
3. Unclip the multi-plug from the rear of the switch and disconnect the plug.
4. The warning light bulb is located in the multi-plug and is removed by pulling the bulb from its location.
5. Fit a new bulb and refit the multi-plug.
6. Press the auxiliary switch panel back into the centre console. The correct bulb type is an amber 12-volt 1.2-watt 'wedge' base (capless).

Auxiliary switch panel illumination

To replace either bulb

The auxiliary panel green illumination bulbs are located in the interior lamp/heated rear screen and multi-plugs, each bulb is positioned in the centre of a group of four switches.

1. Disconnect the battery negative lead.
2. Carefully pry the switch panel surround away from the centre console to give access to the multi-plugs at the rear of the switches.
3. Unclip and pull the multi-plugs from the rear of the appropriate switch.
4. Pull the green illumination bulb from its location.
5. Fit a new bulb and refit the multi-plug.
6. Press the auxiliary panel surround back into the centre console.

The correct bulb type is a 12-volt 1.2-watt 'wedge' base (capless).
STEERING COLUMN CONTROLS

The steering column switch layout is as follows:

LEFT HAND CONTROLS

Lower switch: Main lighting switch
Upper switch: High and low beam, direction indicators and horn.

RIGHT HAND CONTROLS

Lower switch: Rear screen programmed wash/wipe.
Upper switch: Windscreen programmed wash/wipe.

STEERING WHEEL

The following operations for steering column controls show the steering wheel removed, this is for clarity only, and is not a necessary part of the procedure. If steering wheel removal is required, refer to steering wheel remove and refit on page 21 Section 57 carefully observing the spiral cassette instructions.

STEERING COLUMN SHROUD

Certain operations within the electrical section necessitate removal of the steering column shroud. Unless removal of both sides of the shroud is required, remove ONLY the side necessary for access.

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the lower dash panel.
3. Disconnect the electrical connections to either the master lighting switch or the rear screen wash wipe switch. (Disconnect both if removing the complete shroud).
4. Left hand shroud—remove three securing screws and remove the shroud over the indicator/high beam switch.
5. Right hand shroud—remove three securing screws and remove the shroud over the windscreen wash wipe switch.
6. To facilitate reassembly remove the screw securing the two halves of the shroud together from one side only.

Refitting

7. If both sides of the shroud have been removed ensure that the plate on the steering column is correctly located in the slot in the shroud.
8. Reverse the removal procedure.

MAIN LIGHTING SWITCH

REAR SCREEN PROGRAMMED WASH WIPE SWITCH

Remove and refit

Removing

1. Remove the steering column shroud from the required side.
2. Disconnect cables at snap connectors.
3. Push the two spring clips locating the switch inwards and remove the switch from its mounting.

Refitting

4. Reverse the removal procedure.
WINDSCREEN PROGRAMMED WASH WIPE SWITCH

HIGH AND LOW BEAM, DIRECTION INDICATORS AND HORN SWITCH

Remove and refit

Removing

1. Remove the steering column shroud from the required side.
2. Release the appropriate retaining clip and pull the fibre optic guide from the housing.
3. Depress the retainers at the top and bottom of the switch and pull combined switch assembly away from the steering column switch housing.

4. Lighting, indicator and horn switch: release the two harness multi-plugs from the back of the switch and remove the switch assembly.
Wiper and washer switch: release the harness multi-plug from the back of the switch and remove the switch assembly.

Refitting

5. Reverse the removal procedure.

HAZARD WARNING SWITCH BULB REPLACEMENT

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Pull the hazard switch cover upwards and remove it to gain access to the bulb.
3. Remove the bulb by pulling it upwards. A piece of rubber tubing or adhesive tape attached to the bulb may facilitate removal and refitting.

Refitting

4. Locate the bulb in its holder and reverse instructions 1 to 3.
The correct bulb is a 12V, 1.2 watt ‘wedge’ base (capless).
COLUMN SWITCH ILLUMINATION BULB REPLACEMENT

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the left hand side steering column shroud.
3. Working behind the column switch housing twist the bulb holder through 90° and withdraw.
4. Remove the bulb.

Refitting

5. Reverse the removal procedure. The correct bulb type is a 12-volt, 1.2-watt 'wedge' base (capless).

IGNITION STARTER SWITCH

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the lower dash panel.
3. Remove the steering column shroud left hand side.
4. Disconnect the ignition switch cable at the multi-plug.
5. Remove the rubber cover protecting the switch.

Refitting

5. Reverse removal procedure.

DOOR PILLAR SWITCH

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the screw securing the switch to door pillar.
3. Withdraw switch.
4. Disconnect electrical lead from connector blade.

Refitting

5. Reverse removal procedure.
REAR TAILGATE SWITCH

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the single screw securing the switch to the tailgate opening.
3. Withdraw the switch.
4. Disconnect the electrical lead.

Refitting

5. Reverse the removal procedure.

UNDER HOOD ILLUMINATION SWITCH

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the single screw securing the switch to the cowl panel.
3. Withdraw the switch.
4. Disconnect the electrical lead.

Refitting

5. Reverse the removal procedure.

CIGAR LIGHTER-radio housing

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the High/Low range gear knob.
3. Remove the main gearbox knob. See Automatic gear selector panel illumination.
4. Remove the glove box liner and release the parking brake cable from the parking brake lever, pry the inset panel out of the floor mounted console. Pull the two illumination bulbs from the selector panel.
5. Release the glove box from its four floor mounted fixings.
6. Raise the front of the glove box and console and ease the unit away from the radio housing.
7. Remove the radio, referring to the Manufacturer's instructions for removal and installation.
8. Remove the single screw securing the housing to the top of the gearbox tunnel.
9. Pull the housing away from the lower dash panel.
10. Disconnect the electrical leads at the rear of the cigar lighter.
11. Remove the push in switch from the lighter outer body.
12. Depress the outer plastic surround where denoted by the arrows and push the outer body through the surround.
13. Maneuver the plastic surround and remove it from the radio housing.

Refitting
16. Reverse the removal procedure.

CIGAR LIGHTER-Glove Box

The rear cigar lighter is located in the bottom of the glove box, access to the rear of the lighter is gained through heater/air vent duct below the rear ashtray.

Follow instructions 13 to 16 of CIGAR LIGHTER - radio housing, to remove the lighter from the glove box.

REVERSE LIGHT SWITCH-START INHIBITOR SWITCH/NEUTRAL SAFETY SWITCH

Automatic gearbox

Remove and refit

The reverse light switch is an integral part of the start inhibitor switch and is located on the left hand side of the gearbox above the front of the gearbox sump and is accessible from beneath the vehicle.

Removing
1. Drive the vehicle onto a suitable hoist.
2. Disconnect the battery negative lead.
3. Disconnect the multi-plug.
4. Release the clamp bolt and remove the clamp.
5. Withdraw the switch from its location.
Refitting

6. Reverse the removal instructions.
7. Fit a NEW 'O' ring to the switch.

OIL PRESSURE WARNING SWITCH

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Disconnect the electrical lead from the switch.
3. Unscrew the switch unit.
4. Remove switch and sealing washer.

Refitting

5. Reverse the removal procedure, using a NEW sealing washer.

COOLANT TEMPERATURE TRANSMITTER

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Disconnect the electrical lead from the transmitter.
3. Remove the transmitter from the inlet manifold.

Refitting

8. Reverse the removal procedure.
PARKING BRAKE WARNING SWITCH

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Apply the parking brake.
3. To gain access to the warning switch located on the side of the parking brake mounting bracket, it is necessary to remove the glove box liner.
4. Remove the four screws securing the glove box liner and lift out the liner.
5. Carefully pull the rear warm air flow hose away from the side of the parking brake mounting bracket to give access to the two screws securing the switch in position.
6. Remove the two screws.
7. Maneuver the switch around the front of the parking brake mounting bracket and disconnect the electrical lead.
8. Withdraw the switch.

Refitting

9. Reverse the removal procedure.

EXTERIOR DRIVING MIRRORS

1. The mirror housing is hinged vertically and should be set in one of the two fixed angle positions provided to suit the respective left or right side mirror location.

2. Additionally, for safety and convenience, the mirror housing is designed to fold completely forwards or rearwards against the vehicle body.

Adjusting

3. Fine adjustment is controlled by an electric motor inside the mirror housing. This is operated by two controls fitted in the dash panel. To adjust, select left or right hand mirror. Move the head of the finger tip control to the left, right up or down as required.
4. The mirror also incorporates a demist facility, activated by operation of the rear window demist switch.

Replacing the mirror glass

5. Press the inner (wider) end of the glass inwards to its full extent.
6. Insert the fingers under the outer (narrower) end of the glass, and pull outwards until the glass is released from its four retaining clips.
7. Disconnect the two demister leads attached to the back of the glass unit.
8. To replace the glass, locate the inner (wider) end of the glass in the mirror housing first.

Continued
9. Carefully press the outer (narrower) end of the glass inwards until it is safely held by its four retaining clips.
10. Reset the fine adjustment as required.

EXTERIOR DRIVING MIRRORS

ELECTRIC MOTORS

Remove and refit

Removing

17. Disconnect the battery negative lead.
18. Carefully pry the switch retaining panel out of the dash panel.
19. Withdraw the panel only as far as the electrical leads will permit.

EXTERIOR DRIVING MIRRORS

CONTROL SWITCHES

Remove and refit

17. Disconnect the battery negative lead.
18. Carefully pry the switch retaining panel out of the dash panel.
19. Withdraw the panel only as far as the electrical leads will permit.

Refitting

20. Pull the multi-plug from the rear of the fingertip controlled mirror switch.
21. Disconnect the multi-plug at the rear of the selector switch and remove the panel.
22. Carefully pry off the fingertip button at the operating end of the switch.
23. Unscrew the black plastic retaining collar securing the switch.
24. Remove the switch from the panel noting the position of the locating hole in the panel retaining clip.
25. Depress the two spring clips securing the selector switch and push it through the panel.

Refitting

26. Reverse operations 17 to 25.
EXTERIOR DRIVING MIRRORS

COMPLETE ASSEMBLY

Remove and refit

Removing

27. Disconnect the battery negative lead.
28. Carefully pry off the interior finisher plate to reveal the three securing screws and electric wiring.
29. Disconnect the two electrical plugs (one two pin, one three pin).
30. Supporting the exterior mirror assembly remove the three securing screws (with plain and spring washer).
31. Pull the inner mounting plate away from the inner door frame complete with the two retaining clips.
32. Detach the mirror assembly from the outer door frame.
33. Remove the sealing rubber.

Refitting

34. Reverse the operations 27 to 33.

NOTE: To prevent damage to the electrical wiring do not push the leads down inside the door casing.

CLOCK

Remove and refit

Removing

1. Disconnect the battery negative terminal.
2. Carefully pry the clock out of the dash panel to reveal the electrical connections.
3. Disconnect the two electrical leads.
4. Remove the illumination lead complete with holder and bulb.

NOTE: The clock is illuminated by a 2-watt bayonet type bulb.

Refitting

5. Reverse the removal procedure.
INSTRUMENT BINNACLE WARNING LIGHT SYMBOLS

- Trailer connected-flashes with direction indicators (green)
- Direction indicator- left turn / right turn (green)
- Seat belt (red)
- Headlamp high beam on (blue)
- Engine oil pressure, low (red)
- Flashing - engine oil level low
- Electronic fuel injection warning lamp (red) indicates failure of air flow sensor, throttle potentiometer, water temperature thermistor, or Lambda sensor
- Ignition on/No charge indicator (red)
- Low coolant (red)
- Automatic gearbox oil temperature high (red)
- Fuel indicator, low (amber)
- Low wash fluid (amber)

Symbol (not used) will illuminate on initial bulb check
Brake pad wear (amber)
Brake fluid pressure failure, AP system/Brake fluid level, Lucas Girling system/Transmission park brake on (red)

REVISED: SEPT. 87
The differential lock warning light, (located on the radio console) and the fifteen segments of the warning light panel within the binnacle will all be illuminated when the ignition key is turned to the 'ignition On II' position as an initial check to ensure that all bulbs are operational. All bulbs, except for the ‘Brake Failure/ Transmission Parking Brake’- ‘Engine Oil Pressure’ and ‘Ignition On’ symbols will go out automatically.

The ‘Engine Oil Pressure’ and ‘Ignition On’ symbols will remain on when the ignition key is turned to the engine crank position 'III' and extinguished when the engine is running.

The ‘Brake Failure/Transmission Parking Brake’ symbol will extinguish when the parking brake lever is released.

NOTE: Should the ignition key be turned directly to the engine crank position the bulb check procedure will be overridden.

A photo transistor incorporated into the Instrument binnacle senses ambient light levels. During normal ambient daylight levels the warning light panel will glow at normal intensity. When ambient light levels decrease, the photo transistor senses the reduction and lowers the intensity of the warning light panel accordingly.

PANEL AND WARNING LIGHT-bulb replacement

1. Disconnect the battery negative terminal.
2. Unclip the back of the cowl from the instrument binnacle to give access to the panel and warning light bulbs in the back of the instrument case.
3. Remove the appropriate bulb holder unit by rotating it counter-clockwise and withdrawing it.

NOTE: The "No Charge/Ignition On" warning light, identified by its-red coloured bulb holder, is of a higher wattage and is the only bulb which can be pulled from its holder and replaced independently.

4. Fit a new bulb holder unit and rotate clockwise to lock in position. The correct bulb type is a 1.2 watt bulb/holder unit, except the ignition bulb which is 2 watt wedge base type.
5. Refit the cowl and reconnect the battery.

NOTE: If difficulty is experienced in changing bulbs, due to the limited space available the instrument binnacle fixings should be removed to enable the binnacle to be raised above the dash as far as other connections permit. See ‘Instrument Binnacle Removal’ below for details of binnacle mounting bracket fixing.

INSTRUMENT BINNACLE

Remove and refit

Remove

1. Disconnect the battery negative terminal.
2. Remove the lower dash panel by releasing the six retaining screws.
3. Remove the four nuts (with spring and plain washers) from under the top dash rail which secure the instrument binnacle to the vehicle.
4. Unclip the binnacle cowl, from the rear, to provide access to the speedometer cable.
5. Disconnect the speedometer cable from the speedometer drive on the back of the instrument case.
6. Remove the two large multi-plugs from the printed circuit, and the single plug from the warning lamp control unit.

REVISED: APR. 88
7. Lift the instrument binnacle from the top dash rail and transfer it to the workbench.

Refitting

- Reverse the removal instructions 1 to 7.

Removing instrument pack

9. Having removed the instrument binnacle from the vehicle, detach the binnacle mounting bracket. This is secured to the instrument case by two screws and to the bottom of the binnacle bezel by two smaller screws.

10. Remove the two screws retaining the top of the bezel to the front housing and detach the bezel.

11. Separate the instrument case from the binnacle housing by releasing the two wire clips.

12. Detach the curved lens from the binnacle housing by releasing the wire clip at the top.

Refitting instrument pack to binnacle

13. Reverse removal instructions 9 to 12.

Removing printed circuit, multi-function unit and photo transistor

NOTE: Ensure all warning light and panel illumination bulb holders are removed before removing the printed circuit. Note the position of the no charge warning light (red holder).

14. Remove the two tachometer nuts (with washers) to release the printed circuit connecting tags.

15. Remove the four nuts (with washers) securing the fuel and temperature gauges to release the printed circuit from the fixing studs.

16. Release the two retaining screws and carefully remove the multi-function unit. Using a pair of tweezers or a fine screwdriver, lift the printed circuit out of its location and extract the rubber contact pad.

NOTE: If fitting a new multi-function unit the new rubber contact pad supplied MUST be installed under the printed circuit to ensure correct contact pressure.

17. Remove the two harness connectors, retained by four screws, to release the printed circuit tags.

18. Twist the photo transistor counter clockwise to disengage from the binnacle housing. Remove the five screws securing the single multi-plug wiring connections. Note the position of the leads for reassembly.

19. Carefully ease the printed circuit from its four locating pegs.

Refitting the printed circuit, multi-function unit and photo transistor

20. Reverse the removal procedure items 14 to 19.

21. Ensure that the fuel and temperature gauge mounting studs are correctly located before pressing the printed circuit on to its four locating pegs.

Removing tachometer

22. Carefully pry the needle shroud from the tachometer and disconnect the fibre optic element underneath the shroud.

23. Remove the two nuts (with washers) at the back of the instrument case which retains the tachometer and release the printed circuit tags.

24. Loosen the four nuts retaining the fuel and temperature gauges and carefully maneuver the tachometer from the front of the instrument case.

Continued
instrument Pack

1. Fuel gauge
2. Temperature gauge
3. Voltage stabiliser
4. Ignition warning bulb (with separate red holder unit)
5. Panel/warning lights bulb/holder
6. Printed circuit input tags (for harness connection)
7. Speedometer drive unit
8. Printed circuit
9. Tachometer
10. Warning lights panel.
11. instrument case (front)
12. Curved lens
13. Wire connecting clips
14. Binnacle housing
15. Speedometer
16. Photo transistor - automatic dimming - warning lights
Instrument case (back)

1. Locating pegs
2. Panel light bulbs
3. Speedometer securing screw
4. Speedometer drive securing screws
5. Harness connectors
6. Warning light bulbs (14)
7. No charge warning light bulb (red holder)
8. Temperature and fuel gauge unit securing nuts
9. Tachometer securing nuts
10. Multi-function unit
11. Printed circuit
12. Pull-up resistor-high temperature gearbox oil
13. Photo transistor
14. Single multi-plug
15. Single multi-plug securing screw
16. Single multi-plug wiring connecting screws (5)

PRINTED CIRCUIT HARNESS CONNECTIONS

Sequence of connections looking towards the back of instrument case.
CIRCUIT SERVED

<table>
<thead>
<tr>
<th>Circuit Served</th>
<th>Pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tacho signal</td>
<td>1</td>
</tr>
<tr>
<td>Ignition switch 12V+</td>
<td>2</td>
</tr>
<tr>
<td>Low coolant input</td>
<td>3</td>
</tr>
<tr>
<td>Ground-VE</td>
<td>4</td>
</tr>
<tr>
<td>Ignition warning light</td>
<td>5</td>
</tr>
<tr>
<td>Low oil level/pressure warning light</td>
<td>6</td>
</tr>
<tr>
<td>High beam warning light</td>
<td>7</td>
</tr>
<tr>
<td>Ground from bulb check unit</td>
<td>8</td>
</tr>
<tr>
<td>Trailer warning light</td>
<td>9</td>
</tr>
<tr>
<td>Direction indicators warning light</td>
<td>10</td>
</tr>
<tr>
<td>Seat belts warning light</td>
<td>11</td>
</tr>
<tr>
<td>E.F.I. warning light</td>
<td>12</td>
</tr>
<tr>
<td>Temperature warning light (automatic gearbox)</td>
<td>13</td>
</tr>
<tr>
<td>Low wash fluid warning light</td>
<td>14</td>
</tr>
<tr>
<td>Not used</td>
<td>15</td>
</tr>
<tr>
<td>12V+ from bulb check unit</td>
<td>16</td>
</tr>
<tr>
<td>Brake fail warning light</td>
<td>17</td>
</tr>
<tr>
<td>Panel illumination bulbs (6 off)</td>
<td>18</td>
</tr>
<tr>
<td>Low fuel warning light</td>
<td>19</td>
</tr>
<tr>
<td>Low coolant warning light</td>
<td>20</td>
</tr>
</tbody>
</table>

NOTE: The following 21 to 25 are connected at the single multiplug located behind the binnacle

<table>
<thead>
<tr>
<th>Pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
</tr>
<tr>
<td>22</td>
</tr>
<tr>
<td>23</td>
</tr>
<tr>
<td>24</td>
</tr>
<tr>
<td>25</td>
</tr>
</tbody>
</table>

Sequence of pin connections viewed on the binnacle harness plug.

MULTI-FUNCTION UNIT

A. 12V+ supply
B. Input to low coolant circuit
C. Tachometer drive
D. Tachometer
E. Spare
F. 12V+ stabilised
G. Input to fuel tank unit - stabilised
H. Tachometer signal
I. Low fuel warning light
J. Spare
K. Low coolant warning light
L. Ground
Refitting the tachometer

25. Reverse the removal procedure, items 22 to 24.

Removing fuel and temperature gauge unit

26. Carefully pry the needle shroud from the tachometer and disconnect the fibre optic element underneath the shroud.
27. Remove the two nuts (with washers) retaining the tachometer and release the printed circuit taps.
28. Remove the four nuts (with washers) retaining the fuel and temperature gauges and carefully maneuver the tachometer, fuel and temperature gauge unit from the front of the instrument case.

Refitting the fuel and temperature gauges

29. Locate the fuel and temperature gauge unit in the instrument panel but do not fit the washers and nuts at this stage.
30. Feed the fibre optic element through the opening in the tachometer then locate the tachometer in the instrument panel.
31. Position the printed circuit tags over the two tachometer studs, fit the washers and fit and tighten the retaining nuts.
32. Fit the washers to the four fuel and temperature gauge studs and fit and tighten the retaining nuts.

Removing the speedometer and speedometer drive unit

33. Carefully pry the needle shroud from the element underneath the shroud.
34. Remove the two hexagonal headed screws (with washers) at the back of the instrument case which retain the speedometer.
35. Carefully remove the speedometer from the front of the instrument case.
36. To release the speedometer drive unit, remove the two self-tapping screws securing it to the back of the instrument case.

Refitting the speedometer and speedometer drive unit

37. Reverse the removal procedure items 33 to 36.

WARNING LAMP CONTROL UNIT

-see also page 69

Remove and refit

Removing

1. Disconnect the battery negative terminal.
2. Release the six screws securing the lower dash panel below the steering column.
3. Lower the dash panel and disconnect the multi-plug from the rheostat switch.
4. Pull the warning lamp control unit from the spring clip on the underside of the dash panel and disconnect the three multi-plugs from the unit.
5. Remove the warning lamp control unit from the vehicle.

Refitting

6. Reverse the removal procedure ensuring that the multi-plugs and unit are securely pushed into position.
INSTRUMENT ILLUMINATION ELECTRONIC DIMMING CONTROLLERHEOSTAT

The electronic dimming control switch is located on the lower dash panel adjacent to the steering column. Rotate the control upwards to fully illuminate the instruments and downwards to reduce intensity. The dimming control unit also controls the clock, heater and cigar lighter illumination.

Remove and refit

Removing

1. Disconnect the battery.
2. Remove the lower dash panel by releasing the six securing screws.
3. Disconnect the dimming control multi-plug.
4. Remove the two screws securing the dimmer control switch to the under-side of the lower dash panel.

Refitting

Reverse operations 1 to 4.

SPEEDOMETER CABLE

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Carefully pry the window lift switch surround away from the front of the glove box.
3. Disconnect the multi-plug at the rear of the switch(es).
4. Apply pressure to the rear of the switch to push it through the surround.

Refitting

5. Reverse the removal procedure.

8. To remove the shorter cable, disconnect it from the speed transducer and remove the single nut and clamp securing the cable to the speedometer drive housing at the rear of the transfer box.

Refitting

9. Reverse instructions 1 to 8.

WINDOW LIFT SWITCHES

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Carefully pry the window lift switch surround away from the front of the glove box.
3. Disconnect the multi-plug at the rear of the switch(es).
4. Apply pressure to the rear of the switch to push it through the surround.
WINDOW LIFT MOTOR-Front doors

Remove and refit

Removing

1. Ensure that the side door glass is in its fully closed position and secure it with adhesive tape.
2. Disconnect the battery.
3. Detach the arm-rest/door-pull finisher to reveal the two securing screws.
4. Remove the two screws (with plain washers) to enable the arm-rest/door-pull to be detached from the inner door panel.
5. Remove the interior door handle finisher button to reveal the screw retaining the handle surround.
6. Remove the screw and detach the handle surround from the inner door panel.
7. Detach the inner door trim pad by inserting a screwdriver between the trim pad and inner door panel gently prising out the nine plastic securing clips from their respective holes in the inner door panel. Tape perimeter to prevent scratches.
8. Disconnect the two radio speaker connections behind the trim pad, remove the trim pad complete with speaker.

NOTE: At this stage the speaker can be removed by releasing the four nuts (with plain washers) located on the back of the trim pad.

9. Peel back the front top corner of the plastic vapour barrier to reveal the window lift motor.
10. Release the window lift motor wiring harness from the three retaining clips to allow the harness to be pulled out of the opening at the front of the inner door panel.
11. Disconnect the window lift motor multi-plug from the main door harness.

Refitting

12. Supporting the motor, remove the three securing bolts.
13. Withdraw the motor through the top front opening of the door:

NOTE: Ensure that the drive gear is engaged and correctly aligned with the window lift linkage before fitting the securing bolts.

WINDOW LIFT MOTOR-Rear doors

Remove and refit

Removing

15. Ensure that the side door glass is in its fully closed position and secure it with adhesive tape.
16. Disconnect the battery.
17. Remove the arm-rest/door-pull finisher to reveal the two securing screws.
18. Remove the two screws (with plain washers) and detach the arm-rest/door-pull from the inner door panel. To enable the arm-rest/door-pull to be removed from the door, the window operating switch multi-plug must be disconnected from the rear of the switch.
NOTE: At this stage the window operating switch can be removed by applying a little pressure to the rear of the switch to push it through the door-pull handle.

19. Remove the interior handle finisher button to reveal the screws retaining the handle surround.
20. Remove the screw and detach the handle surround from the door trim pad.
21. Remove the door trim pad by inserting a screwdriver between the trim pad and inner door panel, gently prying out the six plastic securing clips from their respective holes in the inner door panel.
22. Carefully detach the bottom half of the vapour barrier to reveal the window lift motor.
23. Release the lift motor wiring harness from the retaining clips.
24. Disconnect the lift motor harness snap connections from the main door harness.
25. Supporting the lift motor release the three bolts securing the motor to the inner door panel.
26. Withdraw the lift motor from the lower opening in the inner door panel.

27. Reverse operations 15 to 26.
28. Ensure the lift motor drive gear is engaged and correctly aligned with the window lift linkage before fitting the securing bolts.
ELECTRICALLY OPERATED CENTRAL DOOR LOCKING SYSTEM

An electrically operated central door locking system is fitted as standard equipment.

Locking or unlocking the drivers door from outside by key operation, or from inside by sill knob automatically locks or unlocks all four doors and the fuel filler flap.

Front and rear passenger doors can be independently locked or unlocked from inside the vehicle by sill knob operation but can be overridden by further operation of the driver's door locking control.

On rear doors only, a child safety lock is provided which can be mechanically pre-set to render the interior door handles inoperative.

failure of an actuator will not affect the locking of the remaining three doors or the fuel filler flap. The door with the inoperative actuator can still be locked or unlocked manually, but not the fuel filler flap.

NOTE: The actuator units contain non-serviceable parts. If a fault should occur replace the unit concerned with a new one.

Before carrying out any maintenance work disconnect the battery negative lead.

FRONT DOOR ACTUATOR UNITS

Remove and refit

Removing

1. Ensure the window is in its fully closed position.
2. Remove the arm-rest/door-pull finisher to reveal the two retaining screws.
3. Remove the interior door handle finisher button to reveal the screw retaining the handle surround.
4. Release the screw and remove the handle surround from the interior door trim pad.
5. Release the door trim pad by inserting a screwdriver between the trim pad and the inner door panel, carefully prying out the nine plastic clips from their respective holes around the edges of the trim pad.
6. Disconnect the two speaker connections inside the door and remove the door trim pad complete with speaker.
7. Peel back the top of the plastic vapour barrier at the rear of the inner door panel to expose the lock actuator unit.
8. Remove the \( f_{\text{OU}} \) screws (with plain washers) securing the lock actuator mounting plate to the inner door panel.
9. Release the clip retaining the electrical cable.
10. Maneuver the actuator assembly to detach the operating rod 'eye' from the hooked end of the actuator link on the door lock.

RR369M

11. Withdraw the actuator assembly from the door until the electrical cable is pulled out of its channel sufficiently to expose the connectors which can then be detached.
12. Remove the actuator assembly from the door.
13. The actuator unit may be changed if necessary by removing the two rubber mounted screws which secure it to the mounting plate.

Refitting

14. Locate the actuator assembly in the inner door panel and fit the electrical cable connectors. The cable, and connectors, are pulled back into the channel from the font end and the cable clip refitted.
15. Maneuver the actuator assembly to engage the operating rod 'eye' on the hooked actuator link.
16. Loosely fit the actuator mounting plate to the inner door panel with the four screws, setting the mounting plate in the centre of the slotted holes.
17. Ensure that manual operation of the sill locking control is not restricted by the operation of the actuator operating rod and vice versa, resetting the mounting plate as necessary.
18. Reconnect the vehicle battery.
19. Check that electrical operation of the door lock occurs when the sill locking control is moved through half of its total movement. Reset the mounting plate if necessary and tighten the four screws.

NOTE: The above adjustment ensures that the full tolerance on the switching operation is utilised.

REAR DOOR ACTUATOR UNITS

Remove and refit

instructions as for front doors with the following exceptions:

20. No radio speaker is involved.
21. The electrical cable and plug is retained and is immediately accessible through the large opening in the door.

22. Instruction 19 does not apply to rear actuator units which are not fitted with switches.

NOTE: If necessary the lock actuator may be detached from its mounting plate to facilitate the removal of the lock actuator from the connector rod inside the door panel.

FUEL FILLER FLAP ACTUATOR UNIT

Remove and refit

Removing

1. Remove six screws and withdraw the closure panel, situated in the tool stowage area.
2. Ensure that the actuator is in the unlocked position and the fuel filler flap is open.
3. Release two screws and maneuver the actuator unit clear of its mounting.

REAR DOOR ACTUATOR UNITS

Remove and refit

instructions as for front doors with the following exceptions:

20. No radio speaker is involved.
21. The electrical cable and plug is retained and is immediately accessible through the large opening in the door.
4. Disconnect the wiring plug.
5. Withdraw the actuator.

Refitting

6. Reverse the removal procedure. The actuator mounting holes in the body are elongated. Adjust the position of the actuator to ensure that the rod will pass through the guide brackets without fouling.
7. Check the operation of the central locking system.

FUEL TANK GAUGE UNIT

Remove and refit

Service tool-RO 600964 Locking wrench.

Removing

1. Disconnect the battery negative lead.
2. Remove the fuel tank, referring to the instructions on page 38, Fuel Injection System, Section 19.
3. Using service tool RO 600964 release the tank unit locking ring.
4. Remove the gauge unit and sealing washer.

Refitting

5. Coat the mating faces with Bostik 772 adhesive and fit a NEW sealing washer. Locate the gauge unit in the tank ensuring that the notch in the outer edge of the gauge unit locates with the gauge opening of the tank.
6. Retighten the locking ring.
7. Refit the fuel tank.

TRAILER SOCKET-OPTION

Incorporated in the vehicle electrical circuit is a facility for fitting a seven pin trailer lighting socket. The pick-up point is located behind the right hand rear tail light cluster and is accessible by removing the tail light assembly.
The pick-up point consists of a seven pin pre-wired plug, a separate auxiliary fused line feed and reverse light lead.

CAUTION: The fitting of the trailer socket and its associated wiring MUST be carried out by a qualified vehicle electrician.

1. Disconnect the battery.
2. Remove the rear tail light assembly and disconnect the electrical plug.
Pre-wired plug · Part No. PRC4143

Yellow · Left indicator.
Green · Right indicator.
Red/Yellow · Spare, unused.
White · Ground.
Brown · Right-hand tail lights.
Black · Left-hand tail lights.
Red · Stop lamps.

1. Refit rear tail light.
2. Reconnect the battery.

DIFFERENTIAL LOCK WARNING LAMP
ASSEMBLY/BULB REPLACEMENT

Remove and refit

Removing

1. Carefully pry the warning lamp out of the radio console.
2. Remove the two wiring connectors and withdraw the lamp assembly, if required.
3. Squeeze the sides of the lamp body to enable the lens surround to be slid back along the body.

4. Remove the amber lens.
5. Remove the bayonet fitting bulb.

Refitting

6. Reverse the removal procedure.

The correct bulb type is a 12-volt, 2-watt bayonet fitting.

Electrical lead identification

Single leads · Item 10

Plain White · Fused auxiliary line feed.
Green/Brown · Reverse light feed.

NOTE: Cable colours in this plug correspond to the main circuit diagram. The red/yellow is a spare unused wire.
AUDIBLE WARNING UNIT

The audible warning unit will sound with varying notes to warn the driver of the following conditions:

(a) Intermittent high and low notes for a period of 4 to 8 seconds:
- key in ignition position 'II' and driver’s seat belt unfastened.

(b) Interrupted low note:
- drivers door open with key in switch but not in ignition position.

(c) Rapidly repeated low note:
- vehicle lights on and driver’s door open with key removed from ignition switch.

(d) Constant high note:
- vehicle ignition switched on with transfer gearbox lever in neutral.

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the steering column shroud.
3. Remove the under dash panel.
4. Disconnect the multi-pin plug.
5. Remove two securing screws and withdraw the audible warning unit.

Refitting

6. Reverse the removal procedure.

LOW OIL LEVEL SENSOR UNIT

The low oil level sensor unit is fitted into the right hand side of the engine sump.

Remove and refit

NOTE: Ensure that the oil level is below the sensor before removal

Removing

1. Disconnect the battery negative lead.
2. Disconnect the wiring connector.

Refitting

3. Remove the brass securing nut.
4. Withdraw the sensor unit.
5. Fit a new sealing washer.
6. Reverse the removal procedure.
7. Top up the engine oil level. Run the engine and check for leaks around the sensor unit.
LOW OIL LEVEL WARNING LOGIC UNIT

When the ignition is switched 'ON' the warning lamp in the binnacle will flash for 10 to 20 seconds if low oil level is detected. The unit will not repeat the warning until the ignition is again switched 'ON'.

If the ignition is switched 'ON' within 15 to 30 seconds of the preceding sequence, the warning lamp will not operate.

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the lower dash panel.
3. Disconnect the wiring at the multi-plug.
4. Remove the securing screws and withdraw the logic control unit.

Refitting

5. Reverse the removal procedure.

FRONT SEAT ADJUSTMENT MOTORS

Remove and refit

Four electric motors mounted beneath each front seat control the fore and aft movement, the cushion height front and rear, and the angle of recline of the seat. Adjustment is possible with either front door open, or with ignition switched ON.

Removing

1. Position the seat to give access to the motors.
2. Disconnect the battery negative lead.
3. Remove the seat base trim.
4. Remove two securing screws from each side of the required motor.
5. Withdraw the motor from its mounting.
6. Disconnect the drive cables by unscrewing the ferrule.
7. Disconnect the wires from the multi-plug and remove the motor.

Refitting

8. Reverse the removal procedure.
9. Check the seat adjustment for correct operation.
SEAT ADJUSTMENT CONTROL SWITCH

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Pry the two finger tip controls from the top of the switch housing.
3. Removing the switch housing cover by lightly depressing the sides of the cover to disengage the clips. Remove the diaphragm fitted to later models.
4. Remove two crosshead screws and washers and lift the switch assembly to gain access to the two multiplugs.
5. Disconnect the multiplugs and withdraw the switch assembly.

Refitting

6. Reverse instructions 1 to 5.

NOTE: If switch housing removal is required it is necessary to remove the seat to gain access to the two securing screws- see Body Section 76.

RADIO ANTENNA AMPLIFIER

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Lower or remove the rear headlining.
3. Remove the electrical leads and the antenna lead to the radio.
4. Remove two screws and withdraw the amplifier unit.

Refitting

5. Reverse the removal procedure.
ELECTRIC MIRRORS

Circuit diagram

1. Clinch
2. Main cable connections
3. Fuse A5 - mirror motors
4. Mirror motors
5. Change over switch
6. Mirror control switch
7. Ground - via main cable

8. Mirror heating elements - active with heated rear screen
9. Fuse 10 - heating elements
10. Fuse 13

CABLE COLOUR CODE

B  Black
U  Blue
N  Brown
G  Green
S  Crey
O  Orange
K  Pink
P  Purple
R  Red
W  White
Y  Yellow

The last letter of a colour code denotes the tracer.
WINDOW LIFTS AND DOOR LOCKS-
Circuit diagram

1. Main cable connections
   NK: (+) Battery feed - central locking
   WO: (+) Key position 1 - window lift
   B: (-) Ground
2. Clinches
3. Switch unit-central door locking (drivers door)
4. Fuel flap actuator
5. Lock unit-central door locking (front passenger door)
6. Window lift motor L/H front
7. Window lift motor R/H front
8. isolator switch
9. Window lift switch L/H front
10. Window lift switch R/H front

CABLE COLOUR CODE

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</tr>
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</tbody>
</table>

The last letter of a colour code denotes the tracer.
WINDOW LIFTS AND DOOR LOCKS -
Circuit diagram
SEAT ADJUSTMENT:

Circuit diagram

1. Main connections - Item 126 on main circuit diagram.
   - Brown - Live positive feed
   - White - Ignition positive feed
   - Purple/Orange - Door switch
2. Driver's seat control.
3. Passenger seat control.
4. Load control relay.
5. Auxiliary fuse box (B).
7. Seat height (rear) motor.
8. Seat base adjust motor.

CABLE COLOUR CODE

B  Black
U  Blue
N  Brown
G  Green
O  Orange
P  Purple
R  Red
W  White
Y  Yellow

The last letter of a colour code denotes the tracer.
WARNING LAMP CONTROL UNIT

Circuit diagram

1. W- White: Ignition feed
2. WK-White/pink: Common positive side for negative switched lamps
3. BR-Black/red: Common negative side for positive switched lamps
4. B-Black: Earth

See main circuit diagram for key.

Description

Ignition ON will initiate the bulb check for $12 \pm 4$ secs.
If the engine is cranked during bulb check, the check will terminate in $0.75 \pm 0.25$ secs.
In normal ambient light the warning lamps will operate at full brightness at the end of the bulb check period, and change to reduced brightness within 20 secs. Note that the ignition and oil warning lamps will not reduce in brightness.
If a fault is suspected check the warning lamp bulbs and the continuity of the circuits before changing the warning lamp control unit.
SUNROOF - Circuit diagram

1. Main harness connections
   Brown - live positive feed
   White - ignition positive feed
   Black - ground
2. Fuse
3. Auxiliary relay
4. Operating switch
5. Stepper relay
6. Micro-switch - motor switching:
   Contact (a) and (c) - CLOSED
   Contact (a) and (b) - OPEN/TILT
7. Drive motor

CABLE COLOUR CODE

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</tbody>
</table>

The last letter of a colour code denotes the tracer colour.
MAIN CIRCUIT DIAGRAM - 1987 Model Year
* RR2947E & RR2948E

1. Ignition load relay
2. Battery
3. Terminal post
4. Starter solenoid
5. Starter motor
6. Starter relay
7. Starter inhibit switch
8. Ignition switch
9. Tachometer
10. Ignition warning lamp
11. Alternator
12. Fuse 7
13. Front wipe/wash switch
14. Front wipe delay unit
15. Front wiper motor
16. Front wash pump
17. Headlamp wash timer unit
18. Headlamp wash pump
19. Main lighting switch
20. Fuse 6
21. Fuse 5
22. LH side lamp
23. LH tail lamp
24. LH license plate lamp
25. High beam dimmer/flash switch
26. Radio illumination
27. RH side lamp
28. RH tail lamp
29. RH license plate lamp
30. Rheostat
31. Fuse 3
32. Fuse 4
33. Fuse 1
34. Fuse 2
35. Not used
36. Not used
37. Switch illumination (2 off)
38. Cigar lighter illumination (2 off)
39. Heater illumination (4 off)
40. Clock illumination
41. Automatic gear selector illumination (2 off)
42. Instrument illumination (6 off)
43. Not used
44. Not used
45. Not used
46. LH low beam
47. RH low beam
48. LH high beam
49. RH high beam
50. High beam warning lamp
51. Fuel gauge
52. Fuel gauge sender unit
53. Water temperature gauge
54. Water temperature sender unit
55. Fuse 11
56. Horn switch
57. RH horn
58. LH horn
59. Under hood illumination switch
60. Under hood light
61. Clock
62. Fuse 19
63. Fuse 20
64. Pick-up point central locking/window lift
65. Heated rear window relay
66. Fuse 9
67. Radio aerial amplifier
68. Heated rear screen
69. Heated rear screen switch
70. Heated rear screen warning lamp
71. Voltage sensitive switch
72. Fuse 13
73. Hazard switch
74. Flasher unit
75. Direction indicator switch
76. Hazard/indicator warning lamp
77. LH rear indicator lamp
78. LH front indicator lamp
79. LH side repeater lamp
80. RH side repeater lamp
81. RH front indicator lamp
82. RH rear indicator lamp
83. Trailer warning lamp
84. Fuse 15
85. Stop lamp switch
86. Reverse lamp switch
87. Auxiliary lamp relay
88. LH stop lamp
89. RH stop lamp
90. LH reverse lamp
91. RH reverse lamp
92. LH auxiliary lamp
93. RH auxiliary lamp
94. Auxiliary lamp switch
95. Fuse 17
96. Dash cigar lighter
97. Glove box cigar lighter
98. LH interior lamp
99. RH interior lamp
100. Interior lamp delay unit

REVISED: SEPT. 90
101. LH door edge lamp
102. RH door edge lamp
103. LH puddle lamp
104. RH puddle lamp
105. Interior lamp switch
106. LH rear door switch
107. RH rear door switch
108. Tailgate switch
109. LH front door switch
110. RH front door switch
111. Differential lock warning lamp
112. Differential lock switch
113. Oil pressure/level warning lamp
114. Oil pressure switch
115. Fuse 18
116. Inertia switch
117. Fuel pump
118. Ignition coil
119. Capacitor
120. Distributor
121. E.F.I. Harness plug
122. Radio choke
123. Radio fuse
124. Radio
125. Four speakers
126. Electric seats pick up point
127. Seat belt warning lamp
128. "Key-in" switch
129. Speed transducer; see Cruise Control
130. Resistor
131. Audible warning unit
132. Transfer box neutral switch
133. Seat buckle switch
134. Ignition connection points
135. Automatic transmission oil temperature warning lamp
136. Automatic transmission oil temperature switch
137. Fuse 16
138. Rear wash wipe switch
139. Rear wipe delay unit
140. Rear wiper motor
141. Rear screen wash pump
142. Low screen wash fluid level warning lamp
143. Low screen wash switch
144. Low coolant warning lamp
145. Multi-function unit and binacle
146. Low coolant level warning lamp
147. Low fuel level warning lamp
148. E.F.I. warning lamp
149. Low oil level logic unit
150. Low oil level probe
151. Not used - will illuminate on initial bulb check
152. Parking brake/brake fail warning lamp
153. Parking brake warning switch
154. Brake fail warning switch
155. Brake pad wear warning lamp
156. Brake pad wear sensors
157. Warning lamp control unit
158. Heater/air conditioning connections
159. Fuse 6
160. Cruise control connection points
161. Coil negative, engine speed signal to ECU

CABLE COLOUR CODE

B Black
U Blue
N Brown
G Green
S Grey
L Light
O Orange
K Pink
P Purple
R Red
W White
Y Yellow
ELECTRICAL EQUIPMENT - CIRCUIT DIAGRAMS
- 1988 Model year

ELECTRIC MIRRORS -
Circuit diagram

1. Auxiliary fuse box connection
2. Fuse 13
3. Fuse AS - mirror motors
4. Mirror motors
5. Change over switch
6. Mirror control switch
7. Mirror heating elements - active with heated rear screen
8. Fuse 10 - heating elements

CABLE COLOUR CODE

- B Black
- U Blue
- N Brown
- G Green
- S Crey
- O Orange
- K Pink
- P Purple
- R Red
- W White
- Y Yellow

The last letter of a colour code denotes the tracer.
AUXILIARY SWITCH PANEL

The auxiliary switch panel contains four 'push-push' type switches which incorporate integral symbols for identification.
(The sixth switch opening is fitted with a blank cover, which is removable, to facilitate the fitting of an extra switch if required).
The symbol in segment 1 will illuminate initially when turning the ignition on but will go out after a few seconds. The warning light is designed to illuminate at 52,500 and 105,000 miles when critical emission maintenance intervals are reached.
The symbols are illuminated by two bulbs which become operational when the vehicle lights are on.

The heated rear screen switch (5) is provided with an individual warning light, illuminated when the switch is operated.

6. Blank

---

AUXILIARY SWITCH PANEL

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Carefully pry the auxiliary switch panel surround away from the centre console.
3. Withdraw the switch panel as far as the electrical leads will permit.
4. Unclip the multi-plugs at the rear of the switches by depressing the retaining lugs.
5. Pull the plugs from the switches.
6. Remove the switch assembly complete.

NOTE: If necessary each individual switch can now be removed as follows.

7. Depress the small retaining lugs on the top and bottom of the switch and push the switch(es) through the front of the switch surround.

Refitting

8. Reverse the removal procedure.

NOTE: To aid identification and location of multi-plug to switch, a coloured plastic tab is attached to each body which corresponds with an appropriate coloured multi-plug. The switches if removed, should always be refitted in their original position.

NOTE: Refer to page 38 of Section 86, for bulb replacement procedure.
Closure panel viewed from the engine compartment, with protective cover removed.

Steering column mounted relays viewed with the lower dash panel removed.

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<td>15. Voltage sensitive switch</td>
<td>71. Main circuit diagram</td>
</tr>
<tr>
<td>16. Front wiper delay</td>
<td>14. Main circuit diagram</td>
</tr>
<tr>
<td>17. Seat adjustment relay</td>
<td>4. Seat adjustment diagram</td>
</tr>
<tr>
<td>18. Main EFI relay</td>
<td>22. EFI circuit diagram</td>
</tr>
<tr>
<td>20. Sunshine roof auxiliary relay</td>
<td>3. Sunroof circuit diagram</td>
</tr>
</tbody>
</table>
RELAYS-(Mounted on the engine compartment closure panel).

Remove and refit

Removing

1. Lift the hood
2. Disconnect the battery negative lead.
3. Remove the bolt securing the relay protective cover, located on the front of the engine compartment closure panel.
4. Remove the cover.
5. Pull the appropriate relay off its multi-plug.

Refitting

6. Reverse the removal procedure.

RELAYS-(Mounted on the steering column support bracket)

Remove and refit

Removal.

1. Disconnect the battery negative lead.
2. Remove the six screws securing the lower fascia panel.
3. Lower the dash panel, disconnect the electric leads from the dimming control switch and remove the fascia panel.
4. Locate the appropriate relay on the relay mounting bracket, carefully pull the relay off the multi-plug.

Refitting

5. Reverse the removal procedure.

RELAYS-(Floor mounted beneath front seats)

Remove and refit

Removing

1. Position seat to gain access to the required relay.
2. Disconnect the battery negative lead.
3. Carefully pull the relay off the multi-plug.

Refitting

4. Reverse the removal procedure.

Seat adjustment relay located beneath the left hand front seat adjacent to fuse box (B).

Main EFI (black terminal block) and fuel pump relays (blue terminal block) mounted beneath right hand front seat.

NOTE: Refer to fuel injection section of manual for full information on E.F.I. relays.

Sunshine roof auxiliary relay located on side of the steering column support bracket located behind the lower dash panel.
MAIN CIRCUIT DIAGRAM • 1988 Model Year
- RR2949E & RR2950E

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ignition load relay</td>
</tr>
<tr>
<td>2</td>
<td>Battery</td>
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<tr>
<td>3</td>
<td>Terminal post</td>
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<tr>
<td>4</td>
<td>Starter solenoid</td>
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<tr>
<td>5</td>
<td>Starter motor</td>
</tr>
<tr>
<td>6</td>
<td>Starter relay</td>
</tr>
<tr>
<td>7</td>
<td>Starter inhibit switch</td>
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<tr>
<td>8</td>
<td>Ignition switch</td>
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<td>9</td>
<td>Tachometer</td>
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<td>10</td>
<td>Ignition warning lamp</td>
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<tr>
<td>11</td>
<td>Alternator</td>
</tr>
<tr>
<td>12</td>
<td>Fuse 7</td>
</tr>
<tr>
<td>13</td>
<td>Front wipe/wash switch</td>
</tr>
<tr>
<td>14</td>
<td>Front wipe delay unit</td>
</tr>
<tr>
<td>15</td>
<td>Front wiper motor</td>
</tr>
<tr>
<td>16</td>
<td>Front wash pump</td>
</tr>
<tr>
<td>17</td>
<td>Headlamp wash timer unit</td>
</tr>
<tr>
<td>18</td>
<td>Headlamp wash pump</td>
</tr>
<tr>
<td>19</td>
<td>Main lighting switch</td>
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<tr>
<td>20</td>
<td>Fuse 6</td>
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<td>21</td>
<td>Fuse 5</td>
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<td>22</td>
<td>LH side lamp</td>
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<td>23</td>
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<td>24</td>
<td>License plate lamp (2 off)</td>
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<tr>
<td>25</td>
<td>High beam dimmer/flash switch</td>
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<tr>
<td>26</td>
<td>Radio illumination</td>
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<td>27</td>
<td>RH side lamp</td>
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<td>28</td>
<td>RH tail lamp</td>
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<tr>
<td>29</td>
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<td>30</td>
<td>Rheostat</td>
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<td>Fuse 3</td>
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<tr>
<td>36</td>
<td>Not used</td>
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<tr>
<td>37</td>
<td>Switch illumination (2 off)</td>
</tr>
<tr>
<td>38</td>
<td>Cigar lighter illumination (2 off)</td>
</tr>
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<td>39</td>
<td>Heater illumination (4 off)</td>
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<tr>
<td>40</td>
<td>Clock illumination</td>
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<td>41</td>
<td>Automatic gear selector illumination (2 off)</td>
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<td>42</td>
<td>Instrument illumination (6 off)</td>
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<td>46</td>
<td>LH low beam</td>
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<td>47</td>
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<td>48</td>
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<td>49</td>
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<td>Fuse 11</td>
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<tr>
<td>56</td>
<td>Horn switch</td>
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<td>57</td>
<td>RH horn</td>
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<td>59</td>
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<td>61</td>
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<td>Fuse 19</td>
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<td>Fuse 20</td>
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<td>64</td>
<td>Pick-up point central locking/window lift</td>
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<tr>
<td>65</td>
<td>(a) Window lift relay</td>
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<td>Heated rear window relay</td>
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<td>Heated rear screen switch</td>
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<td>Heated rear screen warning lamp</td>
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<td>73</td>
<td>Fuse 13</td>
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<td>74</td>
<td>Hazard switch</td>
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<td>75</td>
<td>Flasher unit</td>
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<td>76</td>
<td>Direction indicator switch</td>
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<td>77</td>
<td>Hazard/indicator warning lamp</td>
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<td>78</td>
<td>LH rear indicator lamp</td>
</tr>
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<td>79</td>
<td>LH front indicator lamp</td>
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<tr>
<td>80</td>
<td>Pick up point + electric mirrors</td>
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<tr>
<td>81</td>
<td>Fuse 10</td>
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<td>82</td>
<td>RH rear indicator lamp</td>
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<td>83</td>
<td>Trailer warning lamp</td>
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<td>84</td>
<td>Fuse 15</td>
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<td>85</td>
<td>Stop lamp switch</td>
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<td>89</td>
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<td>Fuse 17</td>
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<td>96</td>
<td>Dash cigar lighter</td>
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<td>97</td>
<td>Glove box cigar lighter</td>
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<td>98</td>
<td>LH interior lamp</td>
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<td>99</td>
<td>RH interior lamp</td>
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<tr>
<td>100</td>
<td>Interior lamp delay unit</td>
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</tbody>
</table>

ADDITION: SEPT. 87/REvised: SEPT. 90
101. LH door edge lamp
102. RH door edge lamp
103. LH puddle lamp
104. RH puddle lamp
105. Interior lamp switch
106. LH rear door switch
107. RH rear door switch
108. Tailgate switch
109. LH front door switch
110. RH front door switch
111. Differential lock warning lamp
112. Differential lock switch
113. Oil pressure/level warning lamp
114. Oil pressure switch
115. Fuse 18
116. Inertia switch
117. Fuel pump
118. Ignition coil
119. Capacitor
120. Distributor
121. EFI Harness plug
122. Not used
123. Radio fuse
124. Radio
125. Four speakers
126. Electric seats pick up point
126. (a) Electric seat relay
127. Seat belt warning lamp
128. "Key-in" switch
129. Speed transducer, see Cruise Control
130. Resistor
131. Audible warning unit
132. Transfer box neutral switch
133. Seat buckle switch
134. Sunroof connection points (option)
135. Automatic transmission oil temperature warning lamp
136. Automatic transmission oil temperature switch
137. Fuse 16
138. Rear wash wipe switch
139. Rear wipe delay unit
140. Rear wiper motor
141. Rear screen wash pump
142. Low screen wash fluid level warning lamp
143. Low screen wash switch
144. Low coolant switch
145. Multi-function unit and binnacle
146. Low coolant level warning lamp
147. Low fuel level warning lamp
148. E.F.I. warning lamp
149. Low oil level logic unit
150. Low oil level probe
151. Not used - will illuminate on initial bulb check
152. Parking brake/brake fluid loss warning lamp
153. Parking brake warning switch
154. Brake fluid loss warning switch
155. Brake pad wear warning lamp
156. Brake pad wear sensors
157. Warning lamp control unit
158. Heater/air conditioning connections
159. Fuse 6
160. Cruise control connection points
161. Coil negative, engine speed signal to ECU
162. Emission maintenance reminder
163. Check engine warning lamp
164. Trailer pick up point
165. Fuse 14

CABLE COLOUR CODE

- B Black
- U Blue
- N Brown
- G Green
- S Gray
- L Light
- O Orange
- K Pink
- P Purple
- R Red
- W White
- Y Yellow

ADDITION: SEPT. 87/REVISED: SEPT. 90
Alphabetical key

11. Alternator
131. Audible warning unit
41. Automatic gear selector illumination (2 off)
136. Automatic transmission oil temperature switch
135. Automatic transmission oil temperature warning lamp
87. Auxiliary lamp relay
94. Auxiliary lamp switch
2. Batten!
154. Brake fluid loss warning switch
156. Brake pad wear sensors
155. Brake pad wear warning lamp
119. Capacitor
163. Check engine warning lamp
38. Cigar lighter illumination (2 off)
61. Clock
40 Clock illumination
161. Coil negative, engine speed signal to ECU
166. Cruise control connection points
96. Dash cigar lighter
112. Differential lock switch
111. Differential lock warning lamp
75. Direction indicator switch
120. Distributor
121. EFI Harness plug
146. EFI warning lamp
126. Electric seats pick up point
126. (a) Electric seat relay
162. Emission maintenance reminder
74. Flasher unit
16. Front wash pump
14. Front wipe delay unit
13. Front wipe/wash switch
15. Fuel gauge
52. Fuel gauge sender unit
117. Fuel pump
33. Fuse 1
34. Fuse 2
31. Fuse 3
32. Fuse 4
21. Fuse 5
20. Fuse 6
12. Fuse 7
159. Fuse 6
66. Fuse 9
80. Fuse 10
55. Fuse 71
72. Fuse 13
165. Fuse 14
84. Fuse 15
137. Fuse 16
95. Fuse 17
115. Fuse 18
62. Fuse 19
63. Fuse 20
97. Clove box cigar lighter
73. Hazard switch
76. Hazard/indicator warning lamp
18. Headlamp wash pump
17. Headlamp wash timer unit
68. Heated rear screen
69. Heated rear screen switch
70. Heated rear screen warning lamp
65. Heated rear window relay
39. Heater illumination (4 off)
158. Heater/air conditioning connections
25. High beam dimmer/flash switch
50. High beam warning lamp
56. Horn switch
118. Ignition coil
1. Ignition load relay
8. Ignition switch
10. Ignition warning lamp
116. Inertia switch
42. Instrument illumination (6 off)
100. Interior lamp delay unit
105. Interior lamp switch
128. "KEY-ON" switch
92. LH auxiliary lamp
101. LH door edge lamp
109. LH front door switch
78. LH front indicator lamp
48. LH high beam
58. LH horn
98. LH interior Lamp
24. License plate lamp (2 off)
46. LH low beam
103. LH puddle lamp
106. LH rear door switch
77. LH rear indicator lamp
90. LH reverse lamp
22. LH side lamp
88. LH stop lamp
23. LH tail lamp
146. Low coolant level warning lamp
144. Low coolant switch
147. Low fuel level warning lamp
149. Low oil level logic unit
150. Low oil level probe
142. Low screen wash fluid level warning lamp
143. Low screen wash switch
19. Main lighting switch
145. Multi-function unit and binnacle
134. Oil pressure switch
113. Oil pressure/level warning lamp
153. Parking brake warning switch
152. Parking brake/brake fluid loss warning lamp
79. Pick up point - electric mirrors
64. Pick-up point central locking/window lift
124. Radio
67. Radio aerial amplifier
123. Radio fuse
26. Radio illumination
125. Radio speakers (4 off)
141. Rear screen wash pump
138. Rear wash wipe switch
139. Rear wipe delay unit
140. Rear wiper motor
130. Resistor
86. Reverse lamp switch
93. RH auxiliary lamp
102. RH door edge lamp
110. RH front door switch
81. RH front indicator lamp
49. RH high beam
57. RH horn
99. RH interior lamp
47. RH low beam
104. RH puddle lamp
107. RH rear door switch
82. RH rear indicator lamp
91. RH reverse lamp
27. RH side lamp
89. RH stop lamp
28. RH tail lamp
30. Rheostat
127. Seat belt warning lamp
133. Seat buckle switch
129. Speed transducer, see Cruise Control
7. Starter inhibit switch
5. Starter motor
6. Starter relay
4. Starter solenoid
85. Stop lamp switch
134. Sunroof connection points (option)
37. Switch illumination (2 off)
9. Tachometer
108. Tailgate switch
3. Terminal post
164. Trailer pick up point
83. Trailer warning lamp
132. Transfer box neutral switch
59. Under hood illumination switch
60. Under hood light
71. Voltage sensitive switch
157. Warming lamp control unit
53. Water temperature gauge
54. Water temperature sender unit
64. (a) Window lift relay

ADDITION: SEPT. 87/REVISED: SEPT. 89
LOCATION OF ELECTRICAL EQUIPMENT
* 1989 MODEL YEAR

1. Battery
2. Air conditioning compressor
3. Horns
4. Oil pressure switch
5. Water temperature switch
6. Electronic distributor
7. Alternator
8. Starter motor
9. Coil
10. Relays
11. Wiper motor-front screen
12. Relays/delay units
13. Heater
14. Window lift motor (front right hand door)
15. Door lock actuator (front right hand door)
16. Electronic control unit (EFI)
17. EFI relays (two)
18. Park brake warning light switch
19. Seat adjustment (fuse box)
20. Door lock actuator (front left hand door)
21. Window lift motor (front left hand door)
22. Seat adjustment relays (two)
23. Inertia switch
24. Window lift motor (rear left hand door)
25. Door lock actuator (rear left hand door)
26. Electrical in-tank fuel pump
27. Window lift motor (rear right hand door)
28. Door lock actuator (rear right hand door)
29. Wiper motor-rear screen
30. Radio aerial amplifier
31. Fuel filler flap lock actuator
32. Tailgate lock actuator
33. Window lift relays and one touch control unit
34. Emission maintenance reminder
35. Cruise control relay (neutral lockout)
36. Condenser fan timer unit

For full information on fuel injection related items-see Fuel Injection Section of manual.

To identify individual relays see relays in Electrical Section of Manual.
### Fuse Box

<table>
<thead>
<tr>
<th>No.</th>
<th>Colour</th>
<th>Fuse Code</th>
<th>Circuit Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown</td>
<td>7.5 amp</td>
<td>RH headlamp low beam and power wash</td>
</tr>
<tr>
<td>2</td>
<td>Brown</td>
<td>7.5 amp</td>
<td>LH headlamp low beam</td>
</tr>
<tr>
<td>3</td>
<td>Brown</td>
<td>7.5 amp</td>
<td>RH headlamp high beam</td>
</tr>
<tr>
<td>4</td>
<td>Brown</td>
<td>7.5 amp</td>
<td>LH headlamp high beam, auxiliary lamp switch</td>
</tr>
<tr>
<td>5</td>
<td>Tan</td>
<td>5 amp</td>
<td>RH parking lights and instrument illumination</td>
</tr>
<tr>
<td>6</td>
<td>Tan</td>
<td>5 amp</td>
<td>LH parking lights and radio illumination</td>
</tr>
<tr>
<td>7</td>
<td>Blue</td>
<td>15 amp</td>
<td>Front wash/wiper motors, seat relay, window lift relay, antennae amplifier</td>
</tr>
<tr>
<td>8</td>
<td>Green</td>
<td>30 amp</td>
<td>Heater/air con. motor</td>
</tr>
<tr>
<td>9</td>
<td>White</td>
<td>25 amp</td>
<td>Heated rear screen</td>
</tr>
<tr>
<td>10</td>
<td>Green</td>
<td>30 amp</td>
<td>Window lifts rear</td>
</tr>
<tr>
<td>11</td>
<td>Blue</td>
<td>15 amp</td>
<td>Interior light delay, clock, radio, under hood illumination, audible warning unit, cruise control, key in switch, emission maintenance reminder, seat connection</td>
</tr>
<tr>
<td>12</td>
<td>Blue</td>
<td>15 amp</td>
<td>-- NOT USED</td>
</tr>
<tr>
<td>13</td>
<td>Blue</td>
<td>15 amp</td>
<td>Direction indicators, stop and reverse lights, electric mirrors, low coolant, low oil, heated jets, interior lamp delay, heater/air con relay, audible warning unit, neutral resistor</td>
</tr>
<tr>
<td>14</td>
<td>Yellow</td>
<td>20 amp</td>
<td>Hazard lights, horn, headlamps flash, alarm</td>
</tr>
<tr>
<td>15</td>
<td>Blue</td>
<td>15 amp</td>
<td>Auxiliary driving lamps</td>
</tr>
<tr>
<td>16</td>
<td>Red</td>
<td>10 amp</td>
<td>Rear wash/wipe motor, heated rear screen switch</td>
</tr>
<tr>
<td>17</td>
<td>Yellow</td>
<td>20 amp</td>
<td>Cigar lighters (front and rear), gear selector illumination</td>
</tr>
<tr>
<td>18</td>
<td>Red</td>
<td>10 amp</td>
<td>Fuel pump</td>
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<td>19</td>
<td>Red</td>
<td>10 amp</td>
<td>Central door locking</td>
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<tr>
<td>20</td>
<td>Green</td>
<td>30 amp</td>
<td>Electric window lifts front</td>
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</table>

**NOTE:** Radio Cassette combination. An in-line 5 amp fuse is incorporated in the power input lead of the unit.

### Auxiliary Fuse Panel (A)

<table>
<thead>
<tr>
<th>No.</th>
<th>Colour</th>
<th>Fuse Code</th>
<th>Circuit Served</th>
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</thead>
<tbody>
<tr>
<td>A1</td>
<td>Yellow</td>
<td>20 amp</td>
<td>Air conditioning fan</td>
</tr>
<tr>
<td>A2</td>
<td>Yellow</td>
<td>20 amp</td>
<td>Air conditioning fan</td>
</tr>
<tr>
<td>A3</td>
<td>Tan</td>
<td>5 amp</td>
<td>Air conditioning compressor clutch</td>
</tr>
<tr>
<td>A4</td>
<td></td>
<td></td>
<td>Spare</td>
</tr>
<tr>
<td>A5</td>
<td>Violet</td>
<td>3 amp</td>
<td>Electric mirror motors</td>
</tr>
<tr>
<td>A6</td>
<td>Brown</td>
<td>7.5 amp</td>
<td>Cruise control</td>
</tr>
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ADDITION: SEPT. 88/REVISED: DEC. 88
AUXILIARY FUSE BOX

AUXILIARY FUSE BOX (B) - Located under the front left-hand seat

<table>
<thead>
<tr>
<th>FUSE NO</th>
<th>COLOUR CODE</th>
<th>FUSE VALUE</th>
<th>CIRCUIT SERVED</th>
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</thead>
<tbody>
<tr>
<td>B1</td>
<td>Green</td>
<td>30 amp</td>
<td>Drivers seat base/height front</td>
</tr>
<tr>
<td>B2</td>
<td>Green</td>
<td>30 amp</td>
<td>Drivers seat recline/height rear</td>
</tr>
<tr>
<td>B3</td>
<td>----</td>
<td>----</td>
<td>Spare</td>
</tr>
<tr>
<td>B4</td>
<td>----</td>
<td>----</td>
<td>Spare</td>
</tr>
<tr>
<td>B5</td>
<td>Green</td>
<td>30 amp</td>
<td>Passengers seat base/height front</td>
</tr>
<tr>
<td>B6</td>
<td>Green</td>
<td>30 amp</td>
<td>Passengers seat recline/height rear</td>
</tr>
</tbody>
</table>

ADDITIONAL FUSES

Sunroof fuse (1) is a 20 amp, yellow, blade type located on the side of the sunroof main relay

Heated front screen (2) has two 25 amp white, blade type fuses mounted adjacent to the bank of steering column mounted relays. Pull fuse holder off its mounting blade to gain access to fuses.

Addition: Sept. 88
Closure panel viewed from the engine compartment, with protective cover removed.

Steering column mounted relays viewed with the lower dash panel removed.

### Relay/delay/timer unit

<table>
<thead>
<tr>
<th>Relay/delay/timer unit</th>
<th>Circuit Diagram Item number</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Headlamp wash timer unit</td>
<td>17. Main circuit</td>
<td>Black</td>
</tr>
<tr>
<td>2. Heated rear window relay</td>
<td>65. Main circuit</td>
<td>Natural</td>
</tr>
<tr>
<td>3. Starter solenoid relay</td>
<td>6. Main circuit</td>
<td>Natural</td>
</tr>
<tr>
<td>4. Compressor clutch relay</td>
<td>11. Air conditioning</td>
<td>Natural</td>
</tr>
<tr>
<td>5. Condenser fan relay</td>
<td>9. Air conditioning</td>
<td>Natural</td>
</tr>
<tr>
<td>6. Air conditioning/heater relay</td>
<td>5. Air conditioning</td>
<td>Natural</td>
</tr>
<tr>
<td>7. Fresh air solenoid relay</td>
<td>10. Air conditioning</td>
<td>Natural</td>
</tr>
<tr>
<td>8. Stowage position</td>
<td>Not used</td>
<td>-----</td>
</tr>
<tr>
<td>9. Auxiliary lamp relay</td>
<td>87. Main</td>
<td>Natural</td>
</tr>
<tr>
<td>11. Ignition load relay</td>
<td>1. Main</td>
<td>Natural</td>
</tr>
<tr>
<td>12. Headlamp relay</td>
<td>26. Main</td>
<td>Natural</td>
</tr>
<tr>
<td>13. Heater/air con. relay</td>
<td>168. Main</td>
<td>Natural</td>
</tr>
<tr>
<td>14. Rear wiper delay</td>
<td>139. Main</td>
<td>Blue</td>
</tr>
<tr>
<td>15. Interior lamp delay</td>
<td>100. Main</td>
<td>Red</td>
</tr>
<tr>
<td>16. Flasher/hazard unit</td>
<td>74. Main</td>
<td>Black</td>
</tr>
<tr>
<td>17. Voltage sensitive switch</td>
<td>71. Main</td>
<td>Yellow</td>
</tr>
<tr>
<td>18. Front wiper delay-</td>
<td>14. Main</td>
<td>Red</td>
</tr>
<tr>
<td>20. Seat adjustment relays * two</td>
<td>5, 6. Seat adjustment</td>
<td>Natural</td>
</tr>
<tr>
<td>21. Main EFI relay</td>
<td>22. EFI</td>
<td>Silver</td>
</tr>
<tr>
<td>22. Fuel pump relay</td>
<td>21. EFI</td>
<td>Silver</td>
</tr>
<tr>
<td>23. Cruise control relay</td>
<td>16. Cruise control</td>
<td>Natural</td>
</tr>
<tr>
<td>24. Condenser fan unit</td>
<td>23. Air conditioning</td>
<td>Green</td>
</tr>
<tr>
<td>25. Rear window lift relay</td>
<td>13. Window lift</td>
<td>Natural</td>
</tr>
<tr>
<td>26. Front window lift relay</td>
<td>14. Window lift</td>
<td>Natural</td>
</tr>
<tr>
<td>27. Window lift one touch unit</td>
<td>1. Window lift</td>
<td>Black</td>
</tr>
<tr>
<td>28. Sunroof auxiliary relay</td>
<td>3. Sunroof</td>
<td>Natural</td>
</tr>
</tbody>
</table>
Seat adjustment relays (load control) located beneath the left hand front seat adjacent to fuse box (B).

EFI (black terminal block) and fuel pump relays (blue terminal block) mounted beneath right hand front seat.

Condenser fan timer unit (24) mounted beneath right hand front seat.

Cruise control relay (23)

Front (black terminal block) and rear (blue terminal block) window relays. One touch control unit (27) is located inside the glove box, accessible by removing glove box liner.

Sunshine roof auxiliary relay located on side of the steering column support bracket located behind the lower dash panel (left hand drive shown).

Relays - interim condition (early 1989 models)

Steering column mounted relays viewed with the lower dash panel removed.
ELECTRICALLY OPERATED CENTRAL DOOR LOCKING SYSTEM

The central door locking system now includes an actuator unit to lock the upper tailgate.

Locking or unlocking the drivers door from outside by key operation, or from inside by sill knob automatically locks or unlocks all four doors, the upper tailgate and the fuel filler flap.

Front and rear passenger doors can be independently locked or unlocked from inside the vehicle by sill knob operation but can be overridden by further operation of the driver locking control.

On rear doors only a child safety lock is provided which can be mechanically pre-set to render the interior door handles inoperative.

Failure of an actuator will not affect the locking of the remaining three doors, tailgate or fuel filler flap. The door/tailgate with the inoperative actuator can still be locked or unlocked manually, but not the fuel filler flap.

It is also possible to override the tailgate central locking by use of the key.

NOTE: The door lock actuator units contain non-serviceable parts. If a fault should occur replace the unit concerned with a new one.

Before carrying out any maintenance work disconnect the battery.

UPPER TAILGATE ACTUATOR UNIT

Remove and refit

Removing

1. Remove two screws and the trim covering to gain access to the actuator.
2. Disconnect the electrical connection.
3. Remove the two actuator retaining screws.
4. Manoeuvre the actuator assembly to detach the operating rod ‘eye’ from the actuator link to the lock.
5. Withdraw the tailgate actuator unit.

Refitting

6. Reverse the removal procedure.
7. Check the operation of the central locking system.

ADDITION: SEPT. W/REVISED: DEC. 88
AUXILIARY SWITCH PANEL

The auxiliary switch panel contains the Emission maintenance reminder warning light, four 'push-push' type switches and a single touch switch for the heated front screen.

The switches incorporate integral symbols for identification. The symbols are illuminated when the vehicle lights are on.

The heated front (6) and rear (5) screen switches are provided with individual warning lights, illuminated when the switch is operated.

AUDIBLE WARNING UNIT

1989 model year vehicles feature ignition override of headlamps, i.e. headlamps will be switched off when ignition is switched off. Therefore the rapidly repeated low tone described under AUDIBLE WARNING UNIT, section 86, page 62, is deleted.

ALTERNATOR HEAT SHIELD

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the fixing screw to rocker cover.
3. Remove nut from alternator rear mounting bolt. Remove heat shield.

Refitting

4. Reverse removal procedure, check and adjust drive belt tension if required.
ELECTRICAL EQUIPMENT - CIRCUIT DIAGRAMS
- 1989 Model year

CENTRAL DOOR LOCKING
- Circuit diagram RR2545E

1. Switch/lock unit drivers door
2. Lock unit front passenger door
3. Lock unit-left hand rear door
4. Lock unit-right hand rear door
5. Fuel flap actuator
6. Lock unit-tailgate
7. Clinches
8. Fuse 19

Cable colour code
- B Black
- G Green
- K Pink
- L Light
- N Brown
- P Purple
- R Red
- U Blue
- W White
- Y Yellow
- O Orange
- s Grey

The last letter of a colour code denotes the tracer.
ELECTRIC SEAT ADJUSTMENT

Circuit diagram - RR2530E

1. Seat recline motor
2. Seat height (rear) motor
3. Seat base adjust motor
4. Seat height (front) motor
5. Load relay-from driver's door courtesy switch
6. Load relay-fused auxiliary feed controled
7. Auxiliary fuse box (B)
8. Driver's seat control
9. Passenger's seat control
10. Main cable connections:
   - A: Fused auxiliary feed
   - B: Battery feed
   - C: Fused 12 volt
   - D: Courtesy switch earth
   - E: Battery feed

Cable colour code

<table>
<thead>
<tr>
<th>Letter</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Black</td>
</tr>
<tr>
<td>U</td>
<td>Blue</td>
</tr>
<tr>
<td>N</td>
<td>Brown</td>
</tr>
<tr>
<td>G</td>
<td>Green</td>
</tr>
<tr>
<td>S</td>
<td>Grey</td>
</tr>
<tr>
<td>P</td>
<td>Purple</td>
</tr>
<tr>
<td>Y</td>
<td>Yellow</td>
</tr>
<tr>
<td>Y</td>
<td>Light</td>
</tr>
<tr>
<td>W</td>
<td>White</td>
</tr>
<tr>
<td>R</td>
<td>Red</td>
</tr>
<tr>
<td>O</td>
<td>Orange</td>
</tr>
</tbody>
</table>

The last letter of a colour code denotes the tracer.

ADDITION: SEPT. 88 / REVISED: MAY 89
ELECTRIC MIRRORS

RR2704E
Circuit diagram - RR2704E

1. Auxiliary fuse box connection.
2. Fuse 13.
3. Fuse A5 - mirror motors.
4. Mirror motors.
5. Change over switch.
7. Mirror heating elements - active with heated rear screen.
8. Fuse 16 - heating elements.
9. Heated rear screen switch.

ELECTRIC WINDOW LIFT

Circuit diagram - RR2531E

1. One touch control unit - drivers window
2. Window lift motor - drivers window
3. Window lift motor - front passengers side
4. Window lift motor - LH rear
5. Window lift motor - RH rear
6. Window lift switch - drivers window
7. Window lift switch - front passengers window
8. Window lift switch - LH rear door
9. Window lift switch - RH rear door
10. Isolator switch
11. Window lift switch in LH rear door
12. Window lift switch in RH rear door
13. Relay - rear windows
14. Relay - front windows
15. Clinches
16. Main cable fuses
- a: Fuse 10
- b: Fuse 20
- c: Fuse 7

Cable colour code

B Black  L Light  P Purple  U Blue
G Green  N Brown  R Red  W White
K Pink  O Orange  S Grey  Y Yellow

The last letter of a colour code denotes the tracer.
HEATED FRONT SCREEN

Circuit diagram - RR2593E

1. Main harness connections
   - Brown - live positive feed
   - Green - ignition positive feed
   - Purple/yellow - EFI harness plug
   - White/brown - oil pressure switch
   - Black - earth
2. Timer unit
3. Load relay
4. Switch/warning light
5. In line fuses - 25 Amp.
6. Heated front screen

Cable colour code

<table>
<thead>
<tr>
<th>Cable Colour</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>B</td>
</tr>
<tr>
<td>Green</td>
<td>G</td>
</tr>
<tr>
<td>Pink</td>
<td>K</td>
</tr>
<tr>
<td>Light</td>
<td>L</td>
</tr>
<tr>
<td>Brown</td>
<td>N</td>
</tr>
<tr>
<td>Red</td>
<td>R</td>
</tr>
<tr>
<td>Orange</td>
<td>O</td>
</tr>
<tr>
<td>Grey</td>
<td>S</td>
</tr>
<tr>
<td>Blue</td>
<td>U</td>
</tr>
<tr>
<td>White</td>
<td>W</td>
</tr>
<tr>
<td>Yellow</td>
<td>Y</td>
</tr>
</tbody>
</table>

The last letter of a colour code denotes the tracer.
MAIN CIRCUIT DIAGRAM - 1989 Model Year - RR2951E & RR2952E

Numerical key

1. Ignition load relay
2. Battery
3. Terminal post
4. Starter solenoid
5. Starter motor
6. Starter relay
7. Starter inhibit switch
8. Ignition switch
9. Tachometer
10. Ignition warning lamp
11. Alternator
12. Fuse 7
13. Front wipe/wash switch
14. Front wipe delay unit
15. Front wiper motor
16. Front wash pump
17. Headlamp wash timer unit
18. Headlamp wash pump
19. Main lighting switch
20. Fuse 6
21. Fuse 5
22. LH side lamp
23. LH tail lamp
24. License plate lamp (2 off)
25. High beam dimmer/flash switch
26. Headlamp relay
27. RH side lamp
28. RH tail lamp
29. Not used
30. Rheostat
31. Fuse 3
32. Fuse 4
33. Fuse 1
34. Fuse 2
35. Not used
36. Not used
37. Switch illumination (2 off)
38. Cigar lighter illumination (2 off)
39. Heater illumination (4 off)
40. Clock illumination
41. Automatic gear selector illumination (2 off)
42. Instrument illumination (6 off)
43. Column switch illumination
44. Not used
45. Not used
46. LH low beam
47. RH low beam
48. LH high beam
49. RH high beam
50. High beam warning lamp
51. Fuel gauge
52. Fuel gauge sender unit
53. Water temperature gauge
54. Water temperature sender unit
55. Fuse 11
56. Horn switch
57. RH horn
58. LH horn
59. Under hood illumination switch
60. Under hood light
61. Clock
62. Fuse 19
63. Fuse 20
64. Pick-up point central locking/window lift
65. Heated rear window relay
66. Fuse 9
67. Radio aerial amplifier
68. Heated rear screen
69. Heated rear screen switch
70. Heated rear screen warning lamp
71. Voltage sensitive switch
72. Fuse 13
73. Hazard switch
74. Flasher unit
75. Direction indicator switch
76. Hazard/indicator warning lamp
77. LH rear indicator lamp
78. LH front indicator lamp
79. Pick up point - electric mirrors
80. Fuse 10
81. RH front indicator lamp
82. RH rear indicator lamp
83. Trailer warning lamp
84. Fuse 15
85. Stop lamp switch
86. Reverse lamp switch
87. Auxiliary lamp relay
88. LH stop lamp
89. RH stop lamp
90. LH reverse lamp
91. RH reverse lamp
92. LH auxiliary lamp
93. RH auxiliary lamp
94. Auxiliary lamp switch
95. Fuse 17
96. Dash cigar lighter
97. Clove box cigar lighter
98. LH interior lamp
99. RH interior lamp
100. Interior lamp delay unit
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>RH door edge lamp</td>
</tr>
<tr>
<td>102</td>
<td>RH puddle edge lamp</td>
</tr>
<tr>
<td>103</td>
<td>LH door edge lamp</td>
</tr>
<tr>
<td>104</td>
<td>LH puddle lamp</td>
</tr>
<tr>
<td>105</td>
<td>Interior lamp switch</td>
</tr>
<tr>
<td>106</td>
<td>LH rear door switch</td>
</tr>
<tr>
<td>107</td>
<td>RH rear door switch</td>
</tr>
<tr>
<td>108</td>
<td>Tailgate switch</td>
</tr>
<tr>
<td>109</td>
<td>RH front door switch</td>
</tr>
<tr>
<td>110</td>
<td>LH front door switch</td>
</tr>
<tr>
<td>111</td>
<td>Not used</td>
</tr>
<tr>
<td>112</td>
<td>Fuse 14</td>
</tr>
<tr>
<td>113</td>
<td>Oil pressure/level warning lamp</td>
</tr>
<tr>
<td>114</td>
<td>Oil pressure switch</td>
</tr>
<tr>
<td>115</td>
<td>Fuse 18</td>
</tr>
<tr>
<td>116</td>
<td>Inertia switch</td>
</tr>
<tr>
<td>117</td>
<td>Fuel pump</td>
</tr>
<tr>
<td>118</td>
<td>Ignition coil</td>
</tr>
<tr>
<td>119</td>
<td>Capacitor</td>
</tr>
<tr>
<td>120</td>
<td>Distributor</td>
</tr>
<tr>
<td>121</td>
<td>EFI Harness plug</td>
</tr>
<tr>
<td>122</td>
<td>Not used</td>
</tr>
<tr>
<td>123</td>
<td>Radio fuse</td>
</tr>
<tr>
<td>124</td>
<td>Radio</td>
</tr>
<tr>
<td>125</td>
<td>Six speakers</td>
</tr>
<tr>
<td>126</td>
<td>Seats pick up point</td>
</tr>
<tr>
<td>127</td>
<td>Seat belt warning lamp</td>
</tr>
<tr>
<td>128</td>
<td>&quot;Key-in&quot; switch</td>
</tr>
<tr>
<td>129</td>
<td>Speed transducer, see Cruise Control</td>
</tr>
<tr>
<td>130</td>
<td>Resistor</td>
</tr>
<tr>
<td>131</td>
<td>Audible warning unit</td>
</tr>
<tr>
<td>132</td>
<td>Transfer box neutral switch</td>
</tr>
<tr>
<td>133</td>
<td>Seat buckle switch</td>
</tr>
<tr>
<td>134</td>
<td>Sunroof connection points (option)</td>
</tr>
<tr>
<td>135</td>
<td>Automatic transmission oil temperature warning lamp</td>
</tr>
<tr>
<td>136</td>
<td>Automatic transmission oil temperature switch</td>
</tr>
<tr>
<td>137</td>
<td>Fuse 16</td>
</tr>
<tr>
<td>138</td>
<td>Rear wash wipe switch</td>
</tr>
<tr>
<td>139</td>
<td>Rear wipe delay unit</td>
</tr>
<tr>
<td>140</td>
<td>Rear wiper motor</td>
</tr>
<tr>
<td>141</td>
<td>Rear screen wash pump</td>
</tr>
<tr>
<td>142</td>
<td>Low screen wash fluid level warning lamp</td>
</tr>
<tr>
<td>143</td>
<td>Low screen wash switch</td>
</tr>
<tr>
<td>144</td>
<td>Low coolant switch</td>
</tr>
<tr>
<td>145</td>
<td>Multi-function unit and binnacle</td>
</tr>
<tr>
<td>146</td>
<td>Low coolant level warning lamp</td>
</tr>
<tr>
<td>147</td>
<td>Low fuel level warning lamp</td>
</tr>
<tr>
<td>148</td>
<td>E.F.I. warning lamp</td>
</tr>
<tr>
<td>149</td>
<td>Low oil level logic unit</td>
</tr>
<tr>
<td>150</td>
<td>Low oil level probe</td>
</tr>
<tr>
<td>151</td>
<td>Not used - will illuminate on initial bulb check</td>
</tr>
<tr>
<td>152</td>
<td>Parking brake/brake fluid loss warning lamp</td>
</tr>
<tr>
<td>153</td>
<td>Parking brake warning switch</td>
</tr>
<tr>
<td>154</td>
<td>Brake fluid loss warning switch</td>
</tr>
<tr>
<td>155</td>
<td>Brake pad wear warning lamp</td>
</tr>
<tr>
<td>156</td>
<td>Brake pad wear sensors</td>
</tr>
<tr>
<td>157</td>
<td>Warming lamp control unit</td>
</tr>
<tr>
<td>158</td>
<td>Heaters/air conditioning connections</td>
</tr>
<tr>
<td>159</td>
<td>Fuse 8</td>
</tr>
<tr>
<td>160</td>
<td>Cruise control connection points</td>
</tr>
<tr>
<td>161</td>
<td>Coil negative, engine speed signal to ECU</td>
</tr>
<tr>
<td>162</td>
<td>Emission maintenance reminder</td>
</tr>
<tr>
<td>163</td>
<td>Check engine warning lamp</td>
</tr>
<tr>
<td>164</td>
<td>Trailer pick up point</td>
</tr>
<tr>
<td>165</td>
<td>Alarm connection points</td>
</tr>
<tr>
<td>166</td>
<td>Heated washer jets</td>
</tr>
<tr>
<td>167</td>
<td>Thermostat-heated jets</td>
</tr>
<tr>
<td>168</td>
<td>Heaters/air con. relay</td>
</tr>
<tr>
<td>169</td>
<td>Heated screen pick up point</td>
</tr>
</tbody>
</table>

**CABLE COLOUR CODE**

- B  Black
- U  Blue
- N  Brown
- G  Green
- S  Grey
- L  Light
- O  Orange
- K  Pink
- P  Purple
- R  Red
- W  White
- Y  Yellow
Alphabetical key

165. Alarm connection points
11. Alternator
131. Audible warning unit
41. Automatic gear selector illumination (2 off)
136. Automatic transmission oil temperature switch
135. Automatic transmission oil temperature warning lamp
87. Auxiliary lamp relay
94. Auxiliary lamp switch
3. Battery
154. Brake fluid loss warning switch
156. Brake pad wear sensors
155. Brake pad wear warning lamp
114. Capacitor
163. Check engine warning lamp
38. Cigar lighter illumination (2 off)
61. Clock
40. Clock illumination
161. Cool negative engine speed signal to ECU
43. Column switch illumination
160. Cruise control connection points
96. Dash cigar lighter
75. Direction indicator switch
120. Distributor
121. EFI Harness plug
148. EFI warning lamp
162. Emission maintenance reminder
74. Flasher unit
16. Front wash pump
14. Front wipe delay unit
13. Front wipe/wash switch
15. Front wiper motor
51. Fuel gauge
52. Fuel gauge sender unit
117. Fuel pump
33. Fuse 1
34. Fuse 2
31. Fuse 3
32. Fuse 4
21. Fuse 5
20. Fuse 6
12. Fuse 7
159. Fuse 8
66. Fuse 9
80. Fuse 10
55. Fuse 11
72. Fuse 13
112. Fuse 14
84. Fuse 15
137. Fuse 16
95. Fuse 17
115. Fuse 18
62. Fuse 19
63. Fuse 20
97. Glove box cigar lighter
73. Hazard switch
76. Hazard/indicator warning lamp
18. Headlamp wash pump
17. Headlamp wash timer unit
169. Heated front screen connections
68. Heated rear screen
69. Heated rear screen switch
70. Heated rear screen warning lamp
65. Heated rear window relay
166. Heated washer jets
39. Heater illumination (4 off)
158. Heater/air conditioning connections
168. Heater/air con. relay
35. High beam dimmer/flash switch
50. High beam warning lamp
51. Horn switch
118. Ignition coil
1. Ignition load relay
8. Ignition switch
10. Ignition warning lamp
116. Inertia switch
42. Instrument illumination (6 off)
100. Interior lamp delay unit
105. Interior lamp switch
126. "Kev-in" switch
92. LH auxiliary lamp
103. LH door edge lamp
110. LH front door switch
78. LH front indicator lamp
48. LH high beam
58. LH horn
98. LH interior lamp
24. License plate lamp (2 off)
46. LH low beam
104. LH puddle lamp
106. LH rear door switch
77. LH rear indicator lamp
90. LH reverse lamp
22. LH side lamp
88. LH stop lamp
23. LH tail lamp
146. Low coolant level warning lamp
144. Low coolant switch
147. Low fuel level warning lamp
149. Low oil level logic unit
150. Low oil level probe
142. Low screen wash fluid level warning lamp
143. Low screen wash switch
19. Main lighting switch
145. Multi-function unit and binnacle
14. Oil pressure switch
113. Oil pressure/level warning lamp
153. Parking brake warning switch
152. Parking brake/brake fluid loss warning lamp
79. Pick up point - electric mirrors
64. Pick-up point central locking/window lift
124. Radio
67. Radio aerial amplifier
123. Radio fuse
125. Radio speakers (6 off)
141. Rear screen wash pump
138. Rear wash wipe switch
139. Rear wipe delay unit
140. Rear wiper motor
130. Resistor
86. Reverse lamp switch
53. RH auxiliary lamp
101. RH door edge lamp
109. RH front door switch
81. RH front indicator lamp
49. RH high beam
57. RH horn
99. RH interior lamp
47. RH low beam
102. RH puddle lamp
107. RH rear door switch
82. RH rear indicator lamp
91. RH reverse lamp
27. RH side lamp
89. RH stop lamp
28. RH tail lamp
30. Rheostat
127. Seat belt warning lamp
133. Seat buckle switch
126. Seats nick up point
129. Speed transducer, see Cruise Control
  7. Starter inhibit switch
  5. Starter motor
  6. Starter relay
  4. Starter solenoid
85. Stop lamp switch
134. Sunroof connection points (option)
  37. Switch illumination (2 off)
  9. Tachometer
108. Tailgate switch
  3. Terminal post
167. Thermostat heated jets
164. Trailer pick up point
  83. Trailer warning lamp
132. Transfer box neutral switch
  59. Under hood illumination switch
  60. Under hood light
  71. Voltage sensitive switch
157. Warming lamp control unit
  53. Water temperature gauge
  54. Water temperature sender unit
LOCATION OF ELECTRICAL EQUIPMENT - 1990 MODEL YEAR

1. Battery
2. Air conditioning compressor
3. Horns
4. Oil pressure switch
5. Water temperature switch
6. Electronic distributor
7. Alternator
8. Starter motor
9. Coil
10. Headlamp wash timer unit
11. Heater
12. Relays/flasher units
13. Air con relays/diode unit
14. Window lift motor (front RH door)
15. Door lock actuator (front RH door)
16. Electronic control unit (EFI)
17. Wiper motor - front screen
18. Relays/delay units
19. Park brake warning light switch
20. Window lift motor (front LH door)
21. Electronic control unit and relays (ABS)
22. Seat adjustment fusebox
23. Door lock actuator (front LH door)
24. Window lift motor (rear LH door)
25. Door lock actuator (rear LH door)
26. Seat adjustment relays - two
27. Electrical in-tank fuel pump
28. Inertia switch
29. Tailgate lock actuator
30. Wiper motor - rear screen
31. Radio aerial amplifier
32. Fuel filler flap lock actuator
33. Window lift relays and one touch control unit
34. Door lock actuator (rear RH door)
35. Window lift motor (rear RH door)
36. EFi relays (two)
37. Condenser fan timer unit
38. Cruise control relay
39. Emission maintenance reminder

ADDITION: SEPT. 89 / REVISED: MARCH 90
RELAYS, DELAY UNITS, TIMER UNITS, DIODE PACK - Identification

Closure panel viewed from the engine bay compartment, with protective cover removed.

Steering column mounted relays viewed with the lower dash panel removed.

RR2739M shows relays mounted in left hand side of footwell, trim panel removed.

RR2740M shows relays mounted in right hand side of footwell, trim panel removed.
<table>
<thead>
<tr>
<th>Relay/delay/timer/diode unit</th>
<th>Circuit diagram item number</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Headlamp wash timer unit</td>
<td>18. Main</td>
<td>Black</td>
</tr>
<tr>
<td>2. Headlamp relay</td>
<td>16. Main</td>
<td>Natural</td>
</tr>
<tr>
<td>3. Heated front screen relay</td>
<td>3. Heated front screen</td>
<td>Black</td>
</tr>
<tr>
<td>4. Ignition load relay</td>
<td>1. Main</td>
<td>Natural</td>
</tr>
<tr>
<td>5. Starter solenoid relay</td>
<td>6. Main</td>
<td>Natural</td>
</tr>
<tr>
<td>6. Heated rear window relay</td>
<td>64. Main</td>
<td>Natural</td>
</tr>
<tr>
<td>7. Rear wiper delay</td>
<td>139. Main</td>
<td>Blue</td>
</tr>
<tr>
<td>8. Interior lamp delay/timer timer</td>
<td>99. Main</td>
<td>Red</td>
</tr>
<tr>
<td>9. Heated front screen timer unit</td>
<td>2. Heated front screen</td>
<td>Crey</td>
</tr>
<tr>
<td>10. Voltage sensitive switch</td>
<td>70. Main</td>
<td>Yellow</td>
</tr>
<tr>
<td>11. Front wiper delay</td>
<td>14. Main</td>
<td>Red</td>
</tr>
<tr>
<td>12. Flasher/hazard unit</td>
<td>73. Main</td>
<td>Blue</td>
</tr>
<tr>
<td>13. Fog lamp relay</td>
<td>86. Main</td>
<td>Natural</td>
</tr>
<tr>
<td>14. Sunroof auxiliary relay</td>
<td>3. Sunroof</td>
<td>Natural</td>
</tr>
<tr>
<td>15. Air con./heater relay</td>
<td>175. Main</td>
<td>Natural</td>
</tr>
<tr>
<td>16. Compressor clutch relay</td>
<td>11. Air conditioning</td>
<td>Natural</td>
</tr>
<tr>
<td>17. Heater/air con. load relay</td>
<td>5. Air conditioning</td>
<td>Natural</td>
</tr>
<tr>
<td>18. Condenser fan relay</td>
<td>9. Air conditioning</td>
<td>Natural</td>
</tr>
<tr>
<td>19. Air con. diode pack</td>
<td>1. Air conditioning</td>
<td>Orange</td>
</tr>
<tr>
<td>20. Seat adjustment relays - two</td>
<td>5 &amp; 6: Seal adjustment</td>
<td>Natural</td>
</tr>
<tr>
<td>21. Main EFI relay</td>
<td>3. EFI</td>
<td>Silver</td>
</tr>
<tr>
<td>22. Fuel pump relay</td>
<td>21. EFI</td>
<td>Silver</td>
</tr>
<tr>
<td>23. Cruise control relay</td>
<td>16. Cruise control</td>
<td>Natural</td>
</tr>
<tr>
<td>24. Condenser fan timer unit</td>
<td>33. EFI</td>
<td>Green</td>
</tr>
<tr>
<td>25. Rear window lift relay</td>
<td>13. Window lift</td>
<td>Natural</td>
</tr>
<tr>
<td>26. Front window lift relay</td>
<td>14. Window lift</td>
<td>Natural</td>
</tr>
<tr>
<td>27. Window lift one touch unit</td>
<td>1. Window lift</td>
<td>Black</td>
</tr>
<tr>
<td>20. Gear selector illumination relay</td>
<td>40a Main</td>
<td>Natural</td>
</tr>
</tbody>
</table>

NOTE: See Brakes, Section 70 for details of ABS relays

Seat adjustment relays (load control) located beneath the left hand front seat adjacent to fuse box (B).

EFI (black terminal block) and fuel pump relays (blue terminal block) mounted beneath right hand front seat (21 and 22).

Condenser fan timer unit (24) mounted beneath right hand front seat.

Cruise control relay (23).
RR2906 shows relays located inside the glove box, accessible by removing the glove box liner. Front (black terminal block) and rear (blue terminal block) window relays (25 and 26) window lift one touch control unit (27). Gear shift illumination relay (28).

AUXILIARY SWITCH PANEL

The auxiliary panel contains five 'push-push' and one single push switch which incorporate integral symbols for identification.

The symbols are illuminated by two bulbs which become operational when the vehicle lights are on.

The heated front (6) and rear (5) screen switches are also provided with individual warning lights, illuminated when the switches are operated.

HIGH LEVEL STOP LAMP

Remove and refit

Remove

1. Disconnect the battery negative lead.

Refit

2. Remove the two cover retaining screws and remove the cover.
3. Disconnect the electrical leads to the bulb holder. Remove the bulbholder and the bulb with a counter clockwise twist.
4. Remove the two mounting plate to brake light screws.
5. Observe position of stop lamp on the rear screen. Carefully release the assembly tabs on the stop lamp from the rear screen mountings.
6. Slide the stop lamp out.

7. Renew the bulb if necessary, the correct bulb is a 12V, 21 watt, bayonet type.
8. Reverse the removal instructions.
**Fuse Box - RR2697M**

<table>
<thead>
<tr>
<th>Fuse No.</th>
<th>Colour</th>
<th>Rating</th>
<th>Ign. Key</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>LH low beam</td>
</tr>
<tr>
<td>A2</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>LH high beam, auxiliary lamp relay</td>
</tr>
<tr>
<td>A3</td>
<td>Tan</td>
<td>5</td>
<td>0</td>
<td>LH parking lamps, radio ill., trailer pickup</td>
</tr>
<tr>
<td>A4</td>
<td></td>
<td></td>
<td></td>
<td>Not used</td>
</tr>
<tr>
<td>A5</td>
<td>Yellow</td>
<td>20</td>
<td>II</td>
<td>Direction ind., resistor, heated jets, thermo., heated front screen timer, air con. low coolant, low oil, speed transducer, interior lamp delay, reverse lights, stop lights, audible warning unit</td>
</tr>
<tr>
<td>A6</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>Fog lamps (from low beam)</td>
</tr>
<tr>
<td>A7</td>
<td>Tan</td>
<td>5</td>
<td>0</td>
<td>RH parking lamps, rheostat controlled</td>
</tr>
<tr>
<td>A8</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>RH high beam</td>
</tr>
<tr>
<td>A9</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>RH low beam</td>
</tr>
<tr>
<td>B1</td>
<td>Yellow</td>
<td>20</td>
<td>I</td>
<td>Front wash/wipe, seat relays, window lift relays, antenna amplifier</td>
</tr>
<tr>
<td>B2</td>
<td>Yellow</td>
<td>20</td>
<td>0</td>
<td>Interior light, clock, underhood ill., elec. seat relays, radio, door lamps, key in switch, audible warning</td>
</tr>
<tr>
<td>B3</td>
<td>Yellow</td>
<td>20</td>
<td>0</td>
<td>Hazard switch, alarm, headlamp dip/flash, horns</td>
</tr>
<tr>
<td>C1</td>
<td>Green</td>
<td>30</td>
<td>II</td>
<td>Cigar lighters</td>
</tr>
<tr>
<td>C2</td>
<td>Green</td>
<td>30</td>
<td>II</td>
<td>Sunroof motor</td>
</tr>
<tr>
<td>C3</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>Headlamp wash</td>
</tr>
<tr>
<td>C4</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>Air conditioning compressor clutch</td>
</tr>
<tr>
<td>C5</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>Air conditioning/radiator cooling fan</td>
</tr>
<tr>
<td>C6</td>
<td></td>
<td></td>
<td></td>
<td>Air conditioning/radiator cooling fan</td>
</tr>
<tr>
<td>C7</td>
<td>Blue</td>
<td>15</td>
<td>0</td>
<td>Heated rear screen (voltage switch controlled)</td>
</tr>
<tr>
<td>C8</td>
<td>Green</td>
<td>30</td>
<td>II</td>
<td>Window lift * rear</td>
</tr>
<tr>
<td>C9</td>
<td>Green</td>
<td>30</td>
<td>II</td>
<td>Rear wash/wipe motor, heated rear screen relay, *MOTOR heaters</td>
</tr>
<tr>
<td>C4</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>Fuel pump</td>
</tr>
<tr>
<td>C5</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>Mirror motors, cruise control</td>
</tr>
<tr>
<td>C6</td>
<td></td>
<td></td>
<td></td>
<td>Not used</td>
</tr>
<tr>
<td>C7</td>
<td>Blue</td>
<td>15</td>
<td>0</td>
<td>Central locking</td>
</tr>
<tr>
<td>C8</td>
<td>Green</td>
<td>30</td>
<td>II</td>
<td>Window lift * front</td>
</tr>
<tr>
<td>C9</td>
<td>Green</td>
<td>30</td>
<td>II</td>
<td>Heater/air conditioning motor</td>
</tr>
</tbody>
</table>

**Addition:** Sept. 89 / Revised: March 90
INSTRUMENT BINNACLE WARNING LIGHT SYMBOLS

- Direction indicator - left turn (green)
- Direction indicator - right turn (green)
- Headlamp high beam on (blue)
- Brake pad wear (amber)
- Trailer connected - flashes with direction indicators (green)
- EFI warning light (red)
- Brake fluid pressure failure/low fluid level, transmission handbrake on (red)
- Low screenwash fluid (amber)
- ABS warning light (red)
- Automatic gearbox oil or transfer box temperature high (red)
- Emission maintenance reminder
- Seat belt (red)
- Ignition on/low charge (red)
- Engine oil pressure low (red)
- Low coolant (red)
Instrument pack

1. Tachometer, fuel and temperature gauge.
2. Ignition warning bulb (with separate blue holder unit)
3. Panel illumination bulb and holder.
4. Warning lights bulb and holder.
5. Printed circuit input tags (for harness connection).
6. Printed circuit.
7. Warning light panel.
8. Instrument case (front).
11. Speedometer.

A revised instrument pack is fitted to 1990 model year vehicles. An electronic speedometer is fitted, deleting the requirement for a speedometer cable between speed transducer and speedometer. The instruments are restyled to improve the clarity of graphics.

INSTRUMENT BINNACLE
instrument case (back)

1. Printed circuit locating pegs.
3. Harness connectors.
4. Warning light bulbs.
5. No charge warning light bulb (blue holder).
7. Speedometer securing screws - 3.

PRINTED CIRCUIT HARNESS CONNECTIONS

Sequence on connections looking towards the back of the instrument case
RENEWAL OF PANEL AND WARNING LIGHTS

1. Disconnect the battery negative lead.
2. Unclip the back of the cowl from the instrument binnacle to give access to the panel and warning light bulbs in the back of the instrument case.
3. Remove the appropriate bulb holder unit by rotating it anti-clockwise and withdrawing it.

NOTE: The ‘No Charge/Ignition On’ warning light, identified by its BLUE coloured bulb holder, is a 2 watt capless type.

4. Fit a new bulb and rotate the bulb holder clockwise to lock in position. The correct bulb type is: warning lights, 1.4 watt capless type, panel illuminatron, 3 watt capless type.
5. Refit the cowl and refit the battery negative lead.

NOTE: If difficulty is experienced in changing bulbs due to the limited space available the instrument binnacle fixings should be removed to enable the binnacle to be raised above the fascia as far as other connections permit. See ‘Instrument Binnacle - remove and refit’ below for details of binnacle mounting bracket fixing.

INSTRUMENT BINNACLE

Remove and refit

Remove

1. Disconnect the battery negative lead.
2. Remove the lower fascia by releasing the six retaining screws.
3. Remove the four nuts (with spring and plain washers) from under the top fascia rail which secure the instrument binnacle to the vehicle.
4. Unclip the binnacle cowl from the rear, and remove.
5. Disconnect the two multi-plugs and the single plug from the printed circuit connectors.
6. Lift the instrument binnacle from the top fascia rail and transfer it to the workbench.

Refitting

7. Reverse the removal instructions 1 to 6.

REMOVING INSTRUMENT PACK

8. Having removed the instrument binnacle from the vehicle, detach the binnacle mounting bracket. This is secured to the instrument case by two screws and to the bottom of the binnacle bezel by two smaller screws.
9. Remove the two screws retaining the top of the bezel to the front housing and detach the bezel.
10. Detach the curved lens from the binnacle housing by depressing four tabs and easing the top of the lens out, the depressing three tabs and easing the lower edge of the lens out of its location.
11. Separate the instrument case from the binnacle housing by releasing the upper and lower locating tabs in turn.

Refitting Instrument Pack to Binnacle

12. Reverse removal instructions 9 to 11.
CIRCUIT SERVED

Numbers refer to pin number on instrument pack circuit diagram RR2735M

Coolant temperature .............................................. 1
Low coolant input .................................................. 2
Ignition switch 12V+ ............................................. 3
Ignition warning light ............................................ 4
Oil pressure warning light ....................................... 5
Fuel tank unit ...................................................... 6
Transmission oil temperature ................................. 7
Cold start warning (diesel) .................................. 8
12V+ ignition ..................................................... 9
Tachometer signal ................................................ 10
Brake fail/handbrake warning light ......................... 11
Brake pad wear warning light ................................. 12
Low wash fluid ................................................... 13
Direction indicator - left ..................................... 14
Zero volts from dimmer ....................................... 15
Main beam warning light .................................... 16
Trailer warning light .......................................... 17
Direction indicator - right .................................. 18
EFI warning light ............................................... 19
ABS warning light ............................................. 20
Seat belt warning light ..................................... 21
Low coolant check .............................................. 22
Speed signal ...................................................... 23
Photo transistor ................................................ 24
Panel illumination bulbs (4) ................................ 25
Earth -ve .......................................................... 26

Instrument pack

Key

A. Speedometer
B. Tachometer
C. Temperature gauge
D. Fuel gauge
E. Low fuel warning unit
F. Low fuel warning light
G. Low coolant warning light
H. Low coolant warning unit

ADD: SEPT. 89
Removing Tachometer, Fuel and Temperature Gauge Unit

NOTE: The tachometer, fuel and temperature gauges are replaced as a unit if necessary.

13. Remove the two panel illumination bulb holders.
14. Remove the three larger screws retaining the tachometer, fuel and temperature gauges. Note the position of the black and white leads secured by two of the screws.
15. Carefully manoeuvre the unit from the front of the instrument case.

Refitting the Tachometer, Fuel and Temperature Gauge Unit

16. Reverse the removal procedure, items 13 to 15.

Removing the speedometer

17. Remove the two panel illumination bulb holders.
18. Remove the three larger screws securing the speedometer.
19. Carefully remove the speedometer from the front of the instrument case.

Refitting the speedometer

20. Reverse the removal procedure items 16 to 18.

Removing the Printed Circuit

21. Remove the Speedometer and Tachometer units as described above. Removal all warning light bulbs before removing the printed circuit. Note the position of the no charge warning light, identified by its blue coloured bulb holder.
22. Remove the two harness connectors, retained by four screws to release the printed circuit tags and the input plug.
23. Remove the eight screws and plain washers securing the printed circuit.
24. Carefully ease the printed circuit from its locating pegs.

Refitting the printed circuit

25. Reverse the removal procedure, items 21 to 24.

CENTRAL DOOR LOCKING - two point

The central door locking system on four door models is now activated from both driver's and passenger's doors. A switch/lock actuator is fitted in both front doors. The system is controlled by an electronic unit situated on the steering column support bracket.

CENTRAL DOOR LOCK CONTROL UNIT

Remove and refit

Removing

1. Disconnect the battery negative lead.
2. Remove the lower fascia panel.
3. Disconnect the harness multi-plug.
4. Remove the securing screws.
5. Remove the control unit.

Refitting

6. Reverse the removal procedure.

ADDITION: SEPT. 89
ELECTRIC MIRRORS

Circuit diagram - RR2824M
1. Ignition 12V.
2. Ignition load relay.
3. Fuse C5 - mirror motors.
4. Mirror motors.
5. Change over switch.
7. Mirror heating elements - active with heated rear screen.
8. Fuse C3 - heating elements.
9. Heated rear screen switch.
10. Feed to heated screen relay.

ELECTRIC WINDOW LIFT

Circuit diagram - RR2531E
1. One touch control unit - drivers window
2. Window lift motor - drivers window
3. Window lift motor - front passengers side
4. Window lift motor - LH rear
5. Window lift motor - RH rear
6. Window lift switch - drivers window
7. Window lift switch - front passengers window
8. Window lift switch - LH rear door
9. Window lift switch - RH rear door
10. Isolator switch
11. Window lift switch in LH rear door
12. Window lift switch in RH rear door
13. Relay - rear windows
14. Relay - front windows
15. Clinches
16. Main cable fuses

a: Fuse C2
b: Fuse CL2
c: Fuse B1

Cable colour code
B Black
Cl Green
K Pink
L Light
N Brown
0 Orange
P Purple
R Red
S Crey
U Blue
W White
Y Yellow

The last letter of a colour code denotes the tracer.
Circuit diagram - RR2794E

1. Switch/lock unit right hand front door
2. Switch/lock unit left hand front door
3. Lock unit left hand rear door relay
4. Lock unit right hand rear door
5. Fuel flap actuator
6. Lock unit tailgate
7. Suppressor
8. Fuse A5
9. Feed from ignition load relay
10. Fuse C7
11. Battery 12V +ve
12. Central door locking control unit

Cable colour code:

<table>
<thead>
<tr>
<th>B</th>
<th>Black</th>
<th>L</th>
<th>Light</th>
<th>P</th>
<th>Purple</th>
<th>U</th>
<th>Blue</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>Green</td>
<td>N</td>
<td>Brown</td>
<td>R</td>
<td>Red</td>
<td>W</td>
<td>White</td>
</tr>
<tr>
<td>K</td>
<td>Pink</td>
<td>O</td>
<td>Orange</td>
<td>S</td>
<td>Grey</td>
<td>Y</td>
<td>Yellow</td>
</tr>
</tbody>
</table>
1. Main harness connections
   - Brown - live positive feed
   - White - ignition positive feed
   - Black - ground
2. Fuse B5
3. Auxiliary relay
4. Operating switch
5. Stepper relay
6. Micro-switch - motor switching:
   - Contact (a) and (c) - CLOSED
   - Contact (a) and (b) - OPEN/TILT
7. Drive motor
8. Mirror

CABLE COLOUR CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Black</td>
</tr>
<tr>
<td>U</td>
<td>Blue</td>
</tr>
<tr>
<td>N</td>
<td>Brown</td>
</tr>
<tr>
<td>P</td>
<td>Purple</td>
</tr>
<tr>
<td>G</td>
<td>Green</td>
</tr>
<tr>
<td>R</td>
<td>Red</td>
</tr>
<tr>
<td>W</td>
<td>White</td>
</tr>
<tr>
<td>Y</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

The last letter of a colour code denotes the tracer colour.
**Numerical key**

1. Ignition load relay
2. Battery
3. Terminal post
4. Starter solenoid
5. Starter motor
6. Starter relay
7. Starter inhibit switch
8. Ignition switch
9. Tachometer
10. Ignition warning lamp
11. Alternator
12. Fuse B1
13. Front wipe/wash switch
14. Front wipe delay unit
15. front wiper motor
16. Headlamp relay
17. Front wash pump
18. Headlamp wash timer unit
19. Headlamp wash pump
20. Main lighting switch
21. Fuse A3
22. Fuse A7
23. LH side lamp
24. LH tail lamp
25. LH license plate lamp
25a. RH license plate lamp
26. High beam dimmer/flash switch
27. RH side lamp
28. RH tail lamp
29. Rheostat
30. Fuse A8
31. Fuse A2
32. Fuse A9
33. Fuse A1
34. Fuse B6
35. Not used
36. Switch illumination (2 off)
37. Cigar lighter illumination (2 off)
38. Heater illumination (4 off)
39. Clock illumination
40. Auto gear selector illumination (2 off)
40a. Auto gear selector illumination relay
41. Instrument illumination (4 off)
42. Column switch illumination
42. Not used
43. Not used
44. Fuse B3
45. LH low beam
46. RH low beam
47. LH high beam
48. RH high beam
49. High beam warning lamp
50. Fuel gauge
51. Fuel gauge sender unit
52. Water temperature gauge
53. Water temperature sender unit
54. Fuse B2
55. Hom switch
56. RH horn
57. LH horn
58. Under hood illumination switch
59. Under hood light
60. Clock
61. Fuse C7
62. Fuse C2
63. Pick-up point central locking/window lift
64. Heated rear window relay
65. Fuse C1
66. Radio aerial amplifier
67. Heated rear screen
68. Heated rear screen switch
69. Heated rear screen warning lamp
70. Voltage sensitive switch
71. Fuse A5
72. Hazard switch
73. Flasher unit
74. Direction indicator switch
75. LH indicator warning lamp
75a. RH indicator warning lamp
76. LH rear indicator lamp
77. LH front indicator lamp
78. Not used
79. Not used
80. RH front indicator lamp
81. RH rear indicator lamp
82. Trailer warning lamp
83. Fuse A6
84. Stop lamp switch
85. Reverse lamp switch
86. Front fog lamp relay
87. LH stop lamp
88. RH stop lamp
89. LH reverse lamp
90. RH reverse lamp
91. LH front fog lamp
92. RH front fog lamp
93. Front fog lamp switch
94. Fuse B4
95. Dash cigar lighter
96. Glove box cigar lighter
97. Front interior lamp
98. Rear interior lamp
99. Interior lamp delay unit
100. LH door edge lamp
101. LH puddle lamp
102. RH door edge lamp
103. RH puddle lamp
104. Interior lamp switch
105. LH rear door switch
106. RH rear door switch
107. Tailgate switch
108. LH front door switch
109. RH front door switch
110. Heated washer jets
111. Thermostat heated jets
112. Oil pressure/level warning lamp
113. Oil pressure switch
114. Fuse C4
115. Inertia switch
116. Fuel pump
117. Ignition coil
118. Capacitor
119. Distributor
120. EFI Harness plug
121. Speed transducer
122. Trailer nick up point
123. Radio fuse
124. Radio and six speakers
125. Sun roof relay
125a. Fuse B5
126. Alarm pick up point
127. Seat belt warning lamp
128. 'Key-in switch'
129. Resistor
130. Audible waming unit
131. Seat buckle switch
132. Transfer box neutral switch
133. Heated front screen pick up point
134. Sunroof connection point (option)
135. Auto transmission and transfer box oil temperature waming lamp
136. Auto transmission oil temperature switch
136a. Transfer box oil temperature switch
137. Fuse C3
138. Rear wam wash wip switch
139. Rear wiper delay unit
140. Rear wiper motor
141. Rear screen wash pump
142. Low screen wash fluid level warning lamp
143. Low screen wash switch
144. Low coolant switch
145. Electronic speedo and instrument controls
146. Low coolant level warning lamp
147. Low fuel level warning lamp
148. E.F.I. waming lamp
149. Low oil level logic unit
150. Low oil level probe
151. Not used
152. ABS waming lamp
153. Parking brake/brake fluid loss waming lamp
153a. Brake fluid level warning switch
154. Park brake waming switch
155. Brake pad wear waming lamp
156. Brake pad wear sensors
157. Waming lamp control unit
158. Check engine waming lamp
159. Emission maintenance reminder unit
160. Heater/air conditioning connections
161. Fuse C9
162. Coil negative (engine RPM input to ECU)
163. ignition load relay (+)
164. Battery feed (+)
165. ignition auxiliary (+)
166. Ignition on (+)
167. Earth (-)
168. Warning lights supply common earth (-)
169. Warning lights supply (+)
170. Electric seats pick up point
171. Fuse C5
172. Fuse B8
173. Fuse C8
174. Electric mirrors pick up point
175. Heater/air conditioning relay
176. Cruise control connection points
177. Fuse B9
178. Condenser fan relay
179. Fuse B7
180. ABS pick up point

CABLE COLOUR CODE

B  Black
U  Blue
N  Brown
G  Green
S  Grey
L  Light
O  Orange
K  Pink
P  Purple
R  Red
W  White
Y  Yellow

ADDITION: SEPT. 89 / REVISED: SEPT. 90
MAIN CIRCUIT DIAGRAM • 1990 Model Year • RR2945E & RR2946E

Alphabetical key

180. ABS pick up point
152. ABS warning lamp
126. Alarm pick up point
11. Alternator
130. Audible warning unit
40. Auto gear selector illumination (2 off)
40a. Auto gear selector illumination relay.
135. Auto transmission and transfer box oil temperature warning lamp
136. Auto transmission oil temperature switch
2. Battery
164. Battery feed (+)
153a. Brake fluid loss warning switch
155. Brake pad wear warning lamp
156. Brake pad wear sensors
118. Capacitor
163. Check engine warning lamp
37. Cigar lighter illumination (2 off)
60. Clock
3Y. Clock illumination
162. Coil negative (engine RPM input to ECU)
42. Column switch illumination
178. Condenser fan relay
176. Cruise control connection points
95. Dash cigar lighter
74. Direction indicator switch
119. Distributor
148. E.F.I. warning lamp
120. E.R. Harness plug
167. Earth (+)
174. Electric mirrors pick up point
170. Electric seats pick up point
145. Electronic speedo and instrument controls
159. Emission maintenance reminder
73. Flasher unit
86. Front fog lamp relay
93. Front fog lamp switch
97. Front interior lamp
17. Front wash pump
13. Front wiper/wash switch
14. Front wiper delay unit
15. Front wiper motor
51. Fuel gauge sender unit
50. Fuel gauge
116. Fuel pump
33. Fuse Al
31. Fuse A2
21. Fuse A3
71. Fuse A5
83. Fuse A6
30. Fuse A8
22. Fuse A7
32. Fuse A9
12. Fuse B1
54. Fuse B2
44. Fuse B3
94. Fuse B4
125a. Fuse B5
34. Fuse B6
179. Fuse B7
172. Fuse B8
177. Fuse B9
65. Fuse C1
62. Fuse C2
137. Fuse C3
114. Fuse C4
171. Fuse C5
61. Fuse C7
173. Fuse C8
161. Fuse C9
96. Glove box cigar lighter
72. Hazard switch
16. Headlamp relay
19. Headlamp wash pump
18. Headlamp wash timer unit
133. Heated front screen pick up point
68. Heated rear screen switch
64. Heated rear window relay
69. Heated rear screen warning lamp
67. Heated rear screen
110. Heated washer jets
38. Heater illumination (4 off)
175. Heater/air conditioning relay
160. Heater/air conditioning connections
26. High beam dimmer/flash switch
49. High beam waming lamp
55. Horn switch
165. Ignition auxiliary (+)
117. Ignition coil
1. Ignition load relay
163. Ignition load relay (+)
166. Ignition on (+)
8. Ignition switch
10. Ignition warning lamp
115. Inertia switch
41. Instrument illumination (4 off)
104. Interior lamp switch
99. Interior lamp delay unit
128. 'Key-in switch'
100. LH door edge lamp
108. LH front door switch
91. LH front fog lamp
77. LH front indicator lamp
47. LH high beam
57. LH horn
75. LH indicator warning lamp
25. LH license plate lamp
45. LH low beam
101. LH puddle lamp
105. LH rear door switch
76. LH rear indicator lamp
89. LH reverse lamp
23. LH side lamp
87. LH stop lamp
24. LH tail lamp
146. Low coolant level warning lamp
144. Low coolant switch
147. Low fuel level warning lamp
150. Low oil level probe
149. Low oil level logic unit
143. Low screen wash switch
142. Low screen wash fluid level warning lamp
20. Main lighting switch
151. Not used - will illuminate on initial bulb check
112. Oil pressure/level warning lamp
154. Park brake warning switch
153. Parking brake/brake fluid loss warning lamp
63. Pick-up point central locking/window lift
102. RH door edge lamp
109. RH front door switch
92. RH front fog lamp
80. RH front indicator lamp
46. RH high beam
56. RH horn
75a. RH indicator warning lamp
25a. RH license plate lamp
46. RH low beam
103. RH puddle lamp
106. RH rear door switch
81. RH rear indicator lamp
90. RH reverse lamp
27. RH side lamp
88. RH stop lamp
28. RH tail lamp
66. Radio aerial amplifier
124. Radio and six speakers
123. Radio fuse
98. Rear interior lamp
141. Rear screen wash pump
138. Rear wash wipe switch
139. Rear wipe delay unit
140. Rear wiper motor
129. Resistor
85. Reverse lamp switch
29. Rheostat
127. Seat belt warning lamp
131. Seat buckle switch
121. Speed transducer
7. Starter inhibit switch
5. Starter motor
6. Starter relay
4. Starter solenoid
84. Stop lamp switch
125. Sun roof relay
134. Sunroof connection point (option)
36. Switch illumination (2 off)
9. Tachometer
LOCATION OF ELECTRICAL EQUIPMENT - 1991 MODEL YEAR

1. Battery
2. Air conditioning compressor
3. Horns
4. Oil pressure switch
5. Water temperature switch
6. Electronic distributor
7. Alternator
8. Starter motor
9. Coil
10. Headlamp wash timer unit
11. Heater
12. Relays/flasher units
13. Air con relays/diode unit
14. Window lift motor (front RH door)
15. Door lock actuator (front RH door)
16. Electronic control unit (EFI)
17. Wiper motor - front screen
18. Relays/delay units
19. Park brake warning light switch
20. Window lift motor (front LH door)
21. Electronic control unit and relays (ABS)
22. Seat adjustment fusebox
23. Door lock actuator (front LH door)
24. Window lift motor (rear LH door)
25. Door lock actuator (rear LH door)
26. Seat adjustment relays - two
27. Electrical in-tank fuel pump/sender unit
28. Inertia switch
29. Tailgate lock actuator
30. Wiper motor - rear screen
31. Radio aerial amplifier
32. Fuel filler flap release actuator
33. Window lift relays and one touch control unit
34. Door lock actuator (rear RH door)
35. Window lift motor (rear RH door)
36. EFI relays (two)
37. Condenser fan timer unit
38. Cruise control relay
39. Emission maintenance reminder
40. Glare control mirror
41. RH door lock heater
42. LH door lock heater

ADDITION: SEPT. 90
INSTRUMENT BINNACLE WARNING LIGHT SYMBOLS

- Direction indicator - left turn (green)
- Direction indicator - right turn (green)
- Headlamp high beam on (blue)
- Brake pad wear (amber)
- Trailer connected - flashes with direction indicators (green)
- EFI warning light (amber) - 1991 model year change
- Brake fluid pressure failure/low fluid level, transmission handbrake on (red)
- Low screenwash fluid (amber)
- ABS warning light (red)
- Automatic gearbox oil or transfer box temperature high (red)
- Emission maintenance reminder
- Seat belt (red)
- Ignition on/low charge (red)
- Engine oil pressure low (red)
- Low coolant (red)
<table>
<thead>
<tr>
<th>FUSE No.</th>
<th>COLOUR</th>
<th>RATING AMPs</th>
<th>IGN. KEY POSITION</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>LH low beam, front fog lamp relay</td>
</tr>
<tr>
<td>A2</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>LH high beam, auxiliary lamp relay</td>
</tr>
<tr>
<td>A3</td>
<td>Tan</td>
<td>5</td>
<td>0</td>
<td>LH parking lamps, trailer pickup</td>
</tr>
<tr>
<td>A4</td>
<td>Blue</td>
<td>15</td>
<td>I</td>
<td>Radio, CD player</td>
</tr>
<tr>
<td>A5</td>
<td>Yellow</td>
<td>20</td>
<td>II</td>
<td>Direction ind., resistor, heated jets, thermo., heated front screen timer, air con. low coolant, low oil, speed transducer, interior lamp delay, reverse lights, stop lights, audible waming unit, glare control mirror</td>
</tr>
<tr>
<td>A6</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>Fog lamps (from low beam)</td>
</tr>
<tr>
<td>A7</td>
<td>Tan</td>
<td>5</td>
<td>0</td>
<td>RH parking lamps, rheostat controlled instrument/switch illumination, trailer pick up</td>
</tr>
<tr>
<td>A8</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>RH high beam</td>
</tr>
<tr>
<td>A9</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>RH low beam</td>
</tr>
<tr>
<td>B1</td>
<td>Yellow</td>
<td>20</td>
<td>I</td>
<td>Front wash/wipe, seat relays, window lift relays, antenna amplifier</td>
</tr>
<tr>
<td>B2</td>
<td>Yellow</td>
<td>20</td>
<td>0</td>
<td>Interior light, clock, underhood ill., elec. seat relays, radio, door lamps, key in switch, audible waming, door lock heater</td>
</tr>
<tr>
<td>B3</td>
<td>Yellow</td>
<td>20</td>
<td>0</td>
<td>Hazard switch, alarm, headlamp dip/flash, horns</td>
</tr>
<tr>
<td>B4</td>
<td>Yellow</td>
<td>20</td>
<td>II</td>
<td>Cigar lighters</td>
</tr>
<tr>
<td>B5</td>
<td>Yellow</td>
<td>20</td>
<td>II</td>
<td>Sunroof motor</td>
</tr>
<tr>
<td>B6</td>
<td>Yellow</td>
<td>20</td>
<td>II</td>
<td>Headlamp wash</td>
</tr>
<tr>
<td>B7</td>
<td>Tan</td>
<td>5</td>
<td>II</td>
<td>Air conditioning compressor clutch</td>
</tr>
<tr>
<td>B8</td>
<td>Yellow</td>
<td>20</td>
<td>II</td>
<td>Air conditioning/radiator cooling fan</td>
</tr>
<tr>
<td>B9</td>
<td>Yellow</td>
<td>20</td>
<td>II</td>
<td>Air conditioning/radiator cooling fan</td>
</tr>
<tr>
<td>C1</td>
<td>Green</td>
<td>30</td>
<td>II</td>
<td>Heated rear screen (voltage switch controlled)</td>
</tr>
<tr>
<td>c2</td>
<td>Green</td>
<td>30</td>
<td>II</td>
<td>Window lifts - rear</td>
</tr>
<tr>
<td>c3</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>Rear wash wipe motor, heated rear screen relay, mirror heaters</td>
</tr>
<tr>
<td>c4</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>Fuel pump</td>
</tr>
<tr>
<td>C5</td>
<td>Red</td>
<td>10</td>
<td>II</td>
<td>Mirror motors, cruise control</td>
</tr>
<tr>
<td>C6</td>
<td>Tan</td>
<td>5</td>
<td>0</td>
<td>Fuel filler flap</td>
</tr>
<tr>
<td>c7</td>
<td>Blue</td>
<td>15</td>
<td>0</td>
<td>Central locking</td>
</tr>
<tr>
<td>C8</td>
<td>Green</td>
<td>30</td>
<td>II</td>
<td>Window lifts - front</td>
</tr>
<tr>
<td>C9</td>
<td>Green</td>
<td>30</td>
<td>II</td>
<td>Heater/air conditioning motor</td>
</tr>
</tbody>
</table>

**ADDITION: SEPT. 50**
CD PLAYER WITH POWER AMPLIFIERS

Circuit diagram - RR2941E
CD PLAYER WITH POWER AMPLIFIERS

Circuit diagram - RR2941E

1. Fuse B2
2. Fuse B4
3. Radio - head unit
4. Front power amplifier
5. Rear power amplifier
6. CD auto changer
7. Data link cable
8. Fuse A7
9. Rheostat
10. Screened cable, RH rear speaker signal
11. Screened cable, LH rear speaker signal
12. RH front door speaker
13. LH front door speaker
14. RH rear speaker
15. LH rear speaker
16. In-line connector, sub-woofer cross-over unit
17. 4 amp in-line fuse, front amplifier
18. 4 amp in-line fuse, rear amplifier

NOTE: SCK denotes screen

Cable colour code

<table>
<thead>
<tr>
<th>B</th>
<th>Black</th>
<th>L</th>
<th>Light</th>
<th>P</th>
<th>Purple</th>
<th>U</th>
<th>Blue</th>
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</thead>
<tbody>
<tr>
<td>G</td>
<td>Green</td>
<td>N</td>
<td>Brown</td>
<td>R</td>
<td>Red</td>
<td>W</td>
<td>White</td>
</tr>
<tr>
<td>K</td>
<td>Pink</td>
<td>O</td>
<td>Orange</td>
<td>S</td>
<td>Crey</td>
<td>Y</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

The last letter of a colour code denotes the tracer.
HEATED FRONT SCREEN

RR2957E

Circuit diagram - RR2957E

1. Terminal post
2. Timer unit
3. Load relay
4. Switch/warning light
5. In line fuses - 25 Amp
6. Heated front screen
7. Fuse A5
8. EFI ECU pin 8
9. Oil pressure switch

Cable colour code

<table>
<thead>
<tr>
<th>Letter</th>
<th>Colour</th>
<th>Tracer</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Black</td>
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<tr>
<td>P</td>
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<tr>
<td>R</td>
<td>Red</td>
<td>S</td>
</tr>
<tr>
<td>S</td>
<td>Crey</td>
<td></td>
</tr>
<tr>
<td>U</td>
<td>Blue</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>Y</td>
<td>Yellow</td>
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</tr>
</tbody>
</table>

The last letter of a colour code denotes the tracer.
ELECTRIC SEAT ADJUSTMENT

RR2964E

Circuit diagram - RR2530E

1. Seat recline motor
2. Seat height (rear) motor
3. Seat base adjust motor
4. Seat height (front) motor
5. Load relay-from driver's door courtesy switch
6. Load relay-fused auxiliary feed controled
7. Auxiliary fuse box (B)
8. Driver's seat control
9. Passenger's seat control
10. Terminal post
11. Drivers door switch
12. Fuse B2
13. Fuse B1

Cable colour code
B Black L Light P Purple U Blue
G Green N Brown R Red W White
K Pink O Orange S Crey Y Yellow

The last letter of a colour code denotes the tracer.
1. Switch/lock unit right hand front door
2. Switch/lock unit left hand front door
3. Lock unit left hand rear door relay
4. Lock unit right hand rear door
5. Fuel flap actuator
6. Lock unit tailgate
7. Suppressor
8. Fuse A5
9. Feed from ignition load relay - pin 87
10. Fuse C7
11. Battery 12V +ve
12. Central door locking control unit

Cable colour code

- B Black
- G Green
- K Pink
- L Light
- N Brown
- P Purple
- R Red
- S Grey
- U Blue
- V White
- Y Yellow

ADDITION: SEPT. 90
CIRCUIT DIAGRAM

1. Main harness connections
   Brown - live positive feed
   White - ignition positive feed
   Black - ground
2. Fuse B5
3. Auxiliary relay
4. Operating switch
5. Relay - tilt, open to closed
   - slide, closed to open
6. Relay - slide, open to closed
   - tilt, closed to open
7. Drive motor
8. Mirror connection
9. Fuse A5
10. Reverse lamps switch
11. Reverse lamps

CABLE COLOUR CODE

<table>
<thead>
<tr>
<th>Colour Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Black</td>
</tr>
<tr>
<td>U</td>
<td>Blue</td>
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<tr>
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<td>Green</td>
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<tr>
<td>R</td>
<td>Red</td>
</tr>
<tr>
<td>W</td>
<td>White</td>
</tr>
<tr>
<td>Y</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

The last letter of a colour code denotes the tracer colour.

****** Denotes component enclosure
MAIN CIRCUIT DIAGRAM - RR2942E & RR2943E

Numerical key

1. Ignition load relay
2. Battery
3. Terminal post
4. Starter solenoid
5. Starter motor
6. Starter relay
7. Starter inhibit switch
8. Ignition switch
9. Tachometer
10. Ignition warning lamp
11. Alternator
12. Fuse B1
13. Front wipe/wash switch
14. Front wipe delay unit
15. Front wiper motor
16. Headlamp relay
17. Front wash pump
18. Headlamp wash timer unit
19. Headlamp wash pump
20. Main lighting switch
21. Fuse A3
22. Fuse A7
23. LH side lamp
24. LH tail lamp
25. LH license plate lamp
25a. RH license plate lamp
26. High beam dimmer/flash switch
27. RH side lamp
28. RH tail lamp
29. Rheostat
30. Fuse A8
31. Fuse A2
32. Fuse A9
33. Fuse A1
34. Fuse B6
35. Window lift connections
36. Switch illumination (2 off)
37. Cigar lighter illumination (2 off)
38. Heater illumination (4 off)
39. Clock illumination
40. Auto gear selector illumination (2 off)
40a. Auto gear selector illumination relay
41. Instrument illumination (4 off)
42. Column switch illumination
42. Not used
43. Not used
44. Fuse B3
45. LH low beam
46. RH low beam
47. LH high beam
48. RH high beam
49. High beam warning lamp
50. Fuel gauge
51. Fuel gauge sender unit
52. Water temperature gauge
53. Water temperature sender unit
54. Fuse B2
55. Horn switch
56. RH horn
57. LH horn
58. Under hood illumination switch
59. Under hood light
60. Clock
61. Fuse C7
62. Fuse C8
63. Central door locking unit
64. Heated rear window relay
65. Fuse C1
66. Radio aerial amplifier
67. Heated rear screen
68. heated rear screen switch
69. Heated rear screen warning lamp
70. Voltage sensitive switch
71. Fuse A5
72. Hazard switch
73. Flasher unit
74. Direction indicator switch
75. LH indicator warning lamp
75a. RH indicator warning lamp
76. LH rear indicator lamp
77. LH front indicator lamp
78. Not used
79. Not used
80. RH front indicator lamp
81. RH rear indicator lamp
82. Trailer warning lamp
83. Fuse A6
84. Stop lamp switch
85. Reverse lamp switch
86. Front fog lamp relay
87. LH stop lamp
88. RH stop lamp
89. LH reverse lamp
90. RH reverse lamp
91. LH front fog lamp
92. RH front fog lamp
93. Front fog lamp switch
94. Fuse B4
95. Dash cigar lighter
96. Glove box cigar lighter
97. Front interior lamp
98. Rear interior lamp
99. Interior lamp delay unit

ADDITION: SEPT. 90
100. LH door edge lamp
101. LH puddle lamp
102. RH door edge lamp
103. RH puddle lamp
104. Interior lamp switch
105. LH rear door switch
106. RH rear door switch
107. Tailgate switch
108. LH front door switch
109. RH front door switch
110. Heated washer jets
111. Thermostat heated jets
112. Oil pressure/level warning lamp
113. Oil pressure switch
114. Fuel pump
115. Ignition switch
116. Capacitor
117. Distributor
118. EFI Harness plug
119. Speed transducer
120. Trailer nick un point
121. Fuse A4
122. Radio and six speakers
123. Sun roof relay
124. Fuse B5
125. Alarm pick up point
126. Seat belt warning lamp
127. 'Key-in switch'
128. Resistor
129. Audible warning unit
130. Seat buckle switch
131. Condenser fan motors
132. Sunroof connection point (option)
133. Auto transmission and transfer box oil temperature warning lamp
134. Auto transmission oil temperature switch
135. Transfer box oil temperature switch
136. Fuse C3
137. Rear wash wipe switch
138. Rear wiper delay unit
139. Rear wiper motor
140. Rear screen wash pump
141. Low screen wash fluid level warning lamp
142. Low screen wash switch
143. Low coolant switch
144. Electronic speedo and instrument controls
145. Low coolant level warning lamp
146. Low fuel level warning lamp
147. E.F.I warning lamp
148. Low oil level logic unit
149. Low oil level probe
150. Compressor clutch relay
151. ABS warning lamp
152. Parking brake/brake fluid loss warning lamp
153. Brake fluid level warning switch
154. Park brake warning switch
155. Brake pad wear warning lamp
156. Brake pad wear sensors
157. Warming lamp control unit
158. Check engine warning lamp
159. Emission maintenance reminder unit
160. Diode pack fair con
161. Fuse C9
162. Coil negative (engine RPM input to ECU)
163. Ignition load relay (+)
164. Battery feed (+)
165. Ignition auxiliary (+)
166. Ignition on (+)
167. Earth (-)
168. Warming lights supply common earth (-)
169. Warming lights supply (+)
170. Fuse C6
171. Fuse C5
172. Fuse B8
173. Fuse C8
174. Fuel filler flap release
175. Heater/air conditioning relay
176. Cruise control connection points
177. Fuse B9
178. Condenser fan relay
179. Fuse B7
180. ABS ECU
181. Front amplifier audio
182. Rear amplifier audio
183. Electric seat relays
184. Heated front screen timer unit
185. Electric mirror elements
186. Glare control mirror

Note: The following items are now incorporated into the main harness assembly, ABS, air conditioning, CD player, electric mirrors, door locks, heated front screen and window lift. These items are shown on the main circuit diagram as a box containing the relevant number, or indicated by an arrow and the item number. Refer to the appropriate circuit diagram for details of these items.
### Alphabetical key

<table>
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<th>Component</th>
<th>Description</th>
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<td>180. ABS pick up point</td>
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<td>152. ABS warning lamp</td>
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<td>126. Alarm pick up point</td>
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<td>156. Brake pad wear sensors</td>
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<td>37. Cigar lighter illumination (2 off)</td>
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<td>60. Clock</td>
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<td>Radio aerial amplifier</td>
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<td>Radio and six speakers</td>
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<td>Rear amplifier audio</td>
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<td>Starter relay</td>
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4. Starter solenoid  
84. Stop lamp switch  
125. Sun roof relay  
134. Sunroof connection point (option)  
36. Switch illumination (2 off)  
9. Tachometer  
107. Tailgate switch  
3. Terminal post  
111. Thermostat heated jets  
132. Trailer pick up point  
82. Trailer warning lamp  
136a. Transfer box oil temperature switch  
133. Transfer box neutral switch  
58. Under hood illumination switch  
59. Under hood light  
70. Voltage sensitive switch  
157. Warming lamp control unit  
168. Warming lights supply common earth (+)  
169. Warming lights supply (-)  
53. Water temperature sender unit  
52. Water temperature gauge temperature warning lamp  
35. Windscreen light connections  

ADDITION: SEPT. 90