

**WIPERS AND WASHERS****Description****Headlamp power wash**

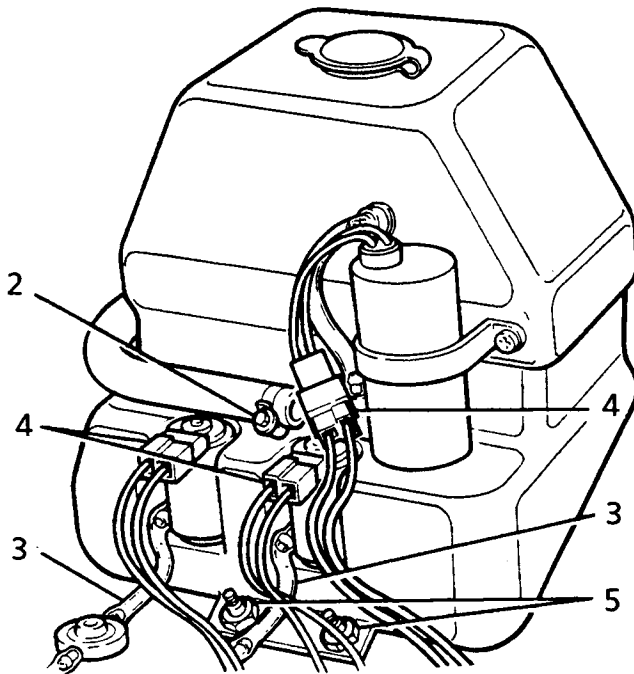
The headlamp power wash (if fitted) is actuated when the windscreen washer control is used with headlamp low beam illuminated.

**Washer reservoir**

A combined underbonnet washer reservoir supplies the windscreen, rear door glass and headlamp power wash. Three separate supply hoses are used with an electric pump for each facility.

**WASHER RESERVOIR****Remove and refit****Removal**

1. Disconnect the battery negative lead.
2. Slacken the hose clamp and remove the power wash hose (if fitted).
3. Disconnect the tubing from the washer pumps.
4. Disconnect the electrical leads from the pumps.
5. Working under the wheel arch, remove the three securing bolts and withdraw the reservoir.



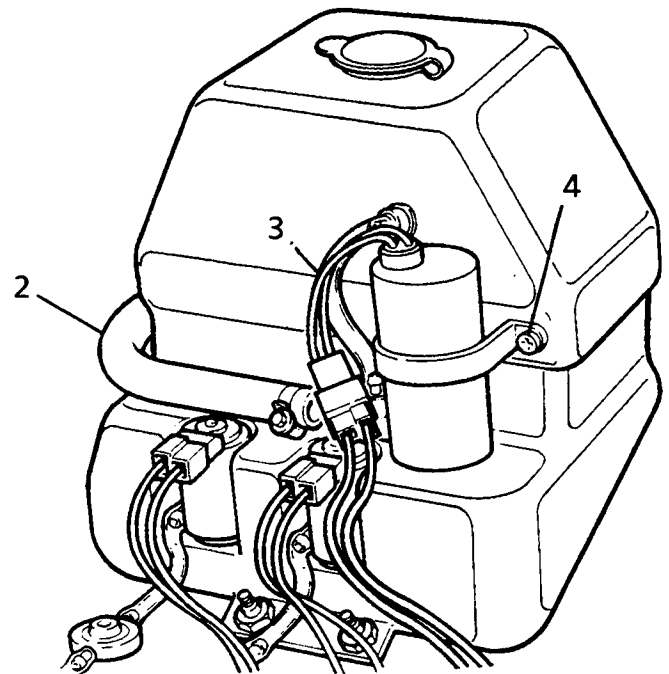
J5122M

**Refitting**

6. To refit the washer reservoir reverse the removal procedure.

**POWER WASH PUMP (If fitted)****Remove and refit****Removal**

1. Disconnect the battery negative lead.
2. Disconnect the hose from the power wash pump.
3. Disconnect the electrical leads from the pump.
4. Remove the two screws and withdraw the power wash pump.



J5121M

**Refitting**

5. To refit the power wash pump reverse the removal procedure.

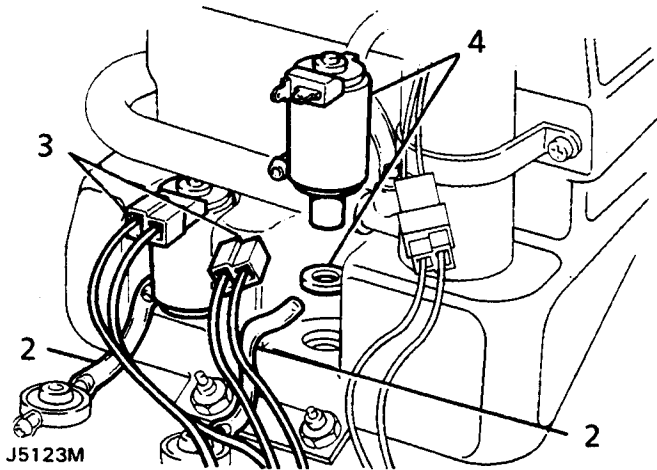
**WINDSCREEN AND REAR DOOR GLASS WASHER PUMPS**

The procedure for removing and refitting the windscreen and rear door glass washer pumps is identical.

**Remove and refit**

**Removal**

1. Disconnect the battery negative lead.
2. Disconnect the washer tubing from the pump.
3. Disconnect the electrical leads from the pump.
4. Pull the pump from its location in the reservoir, noting the position of the sealing washer in the reservoir.



**Refitting**

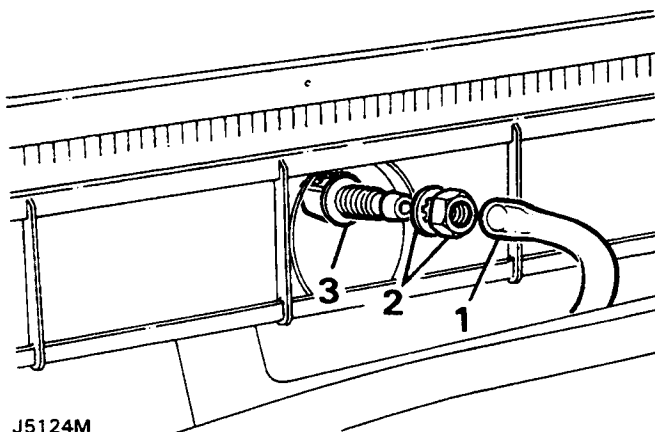
5. To refit the washer pumps reverse the removal procedure.

**WINDSCREEN WASHER JETS**

**Remove and refit**

**Removal**

1. Disconnect the washer tubes from the jets.
2. Remove the nut and washer securing the washer jet to the air intake cowl.
3. Remove the jet from the cowl.



**Refitting**

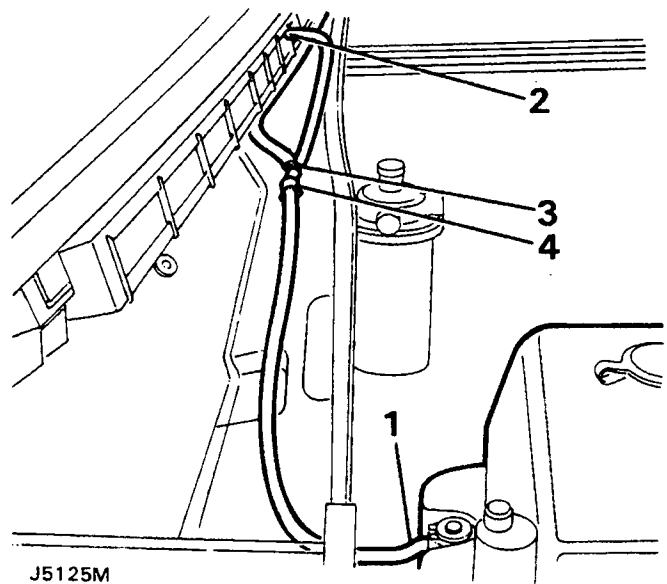
4. Refit the windscreen washer jets in reverse order to removal.
5. Align the jets as necessary using a suitable tool.

**WINDSCREEN WASHER TUBES**

**Remove and refit**

**Removal**

1. Disconnect the tubing from the reservoir pump.
2. Disconnect the tubing from the washer jets.
3. Disconnect the tubing from the three-way tee piece.
4. Release the tubing from the clip and withdraw.



**Refitting**

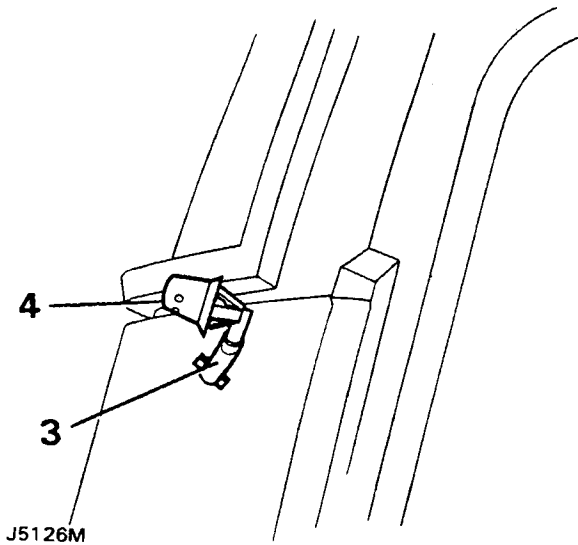
5. Refit the tubes in reverse order to removal, ensuring the tubing is not pinched or restricted.

**REAR DOOR GLASS WASHER JET**

**Remove and refit**

**Removal**

1. Turn the washer jet in a clock-wise direction to release it from the rear quarter panel.
2. Remove the rear quarter/speaker trim panel.
3. Feed the washer tubing through the quarter panel to allow removal of the washer jet.
4. Remove the washer jet from the tubing.



### Refitting

5. Refit the rear door glass washer jet in reverse order to removal.

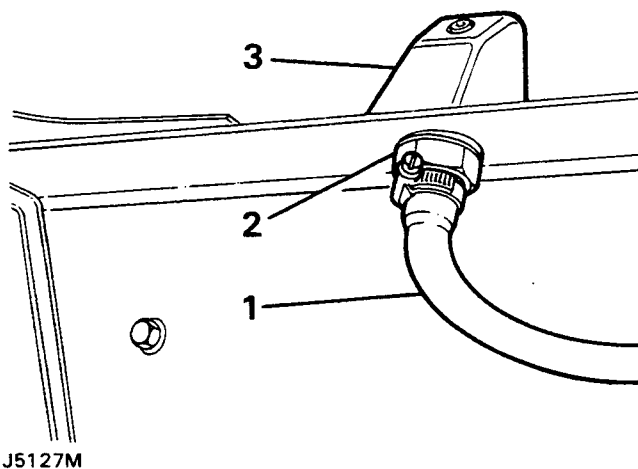
**NOTE:** The tubing run from the reservoir to the rear door washer jet differs between left and right hand drive vehicles. On right hand drive vehicles the tubing run is on the left hand side of the roof and on left hand drive the right hand side.

### HEADLAMP POWER WASH JET

#### Remove and refit

#### Removal

1. Disconnect the hose from the power wash jet.
2. Remove the nut securing the jet to the bumper.
3. Remove the power wash jet.



### Refitting

4. Refit the power wash jet in reverse order to removal, and align the jet as necessary using a suitable tool.

### POWER WASH HOSE

#### Remove and refit

#### Removal

1. Disconnect the power wash hoses from the jets and the washer pump.
2. Release the clamps securing the hose and withdraw the hose from the vehicle.

#### Refitting

3. Refit the power wash hose in reverse order to removal.

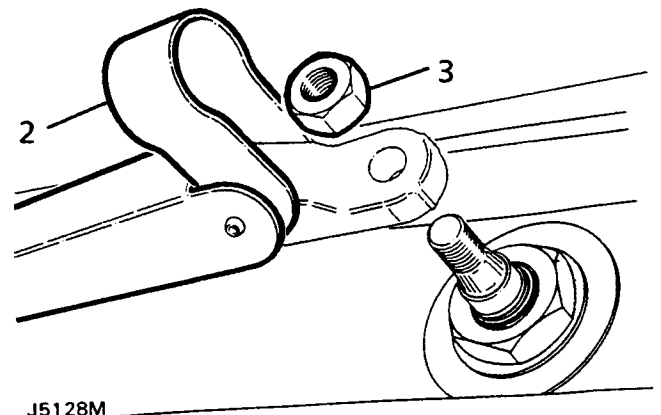
### WIPER ARMS (Windscreen)

**WARNING:** The bonnet must not be opened when the wipers are operating or parked in the mid-sweep position.

#### Remove and refit

#### Removal

1. Note the location of the wiper arm in the park position.
2. Lift the wiper arm end cap to gain access to the securing nut.
3. Remove the securing nut and withdraw the wiper arm.

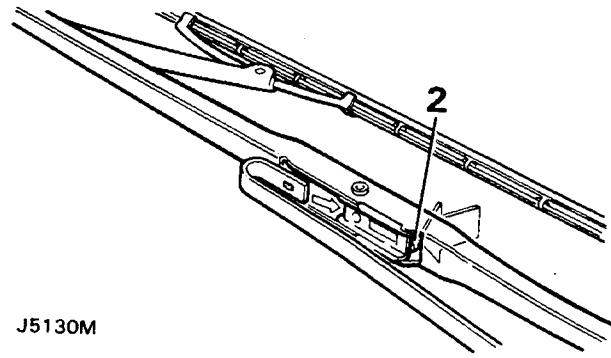


### Refitting

4. Ensure that the motor is in the park position.
5. Fit the wiper arm to the shaft, locating it on the splines in the position noted during removal.
6. Fit and tighten the securing nut to the correct torque.
7. Push the end cap over the securing nut.
8. Check the wipers for correct operation.

**WIPER ARM (Rear door)****Remove and refit****Removal**

1. Note the position of the wiper arm in the park position.
2. Remove the plastic nut cover and nut securing the wiper arm to the drive spindle and withdraw the wiper arm.



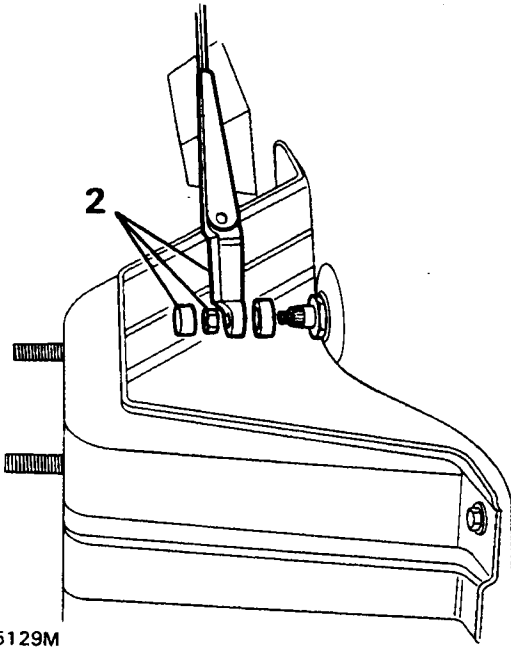
J5130M

**Refitting**

3. Refit the wiper blades in reverse order to removal.

**WINDSCREEN WIPER MOTOR AND LINKAGE****Remove and refit****Removal**

1. Disconnect the battery negative lead.
2. Remove the windscreen wiper arms.
3. Remove the securing nuts and the steel and rubber washers from the wiper spindles.
4. Open the vehicle bonnet and support it with the stay.
5. Remove the rubber seal from the cowl flange.
6. Release the screen washer tubes from the washer jets on the air intake plenum cowl.
7. Remove the centre bolt securing the cowl.
8. Remove the retainers securing the centre section of the cowl to the outer sections.
9. Detach the centre section of the cowl.
10. Remove the nut and bolt securing the wiper motor negative lead to the body.
11. Remove the screws securing the wiper motor/linkage support plate.
12. Lift the assembly clear of the bulkhead and disconnect the wiper motor multi-plug and withdraw the assembly from the vehicle.
13. Remove the wiper motor spindle nut and release the rotary connecting link from the spindle.
14. Remove the wiper motor retaining bolts and withdraw the negative lead and wiper motor from the support plate. Noting the location of the negative lead.
15. The linkage arms can be detached by removing the retaining clips and withdrawing the arms and washers. Note the location of the plain and wavy washers for reassembly purposes.



J5129M

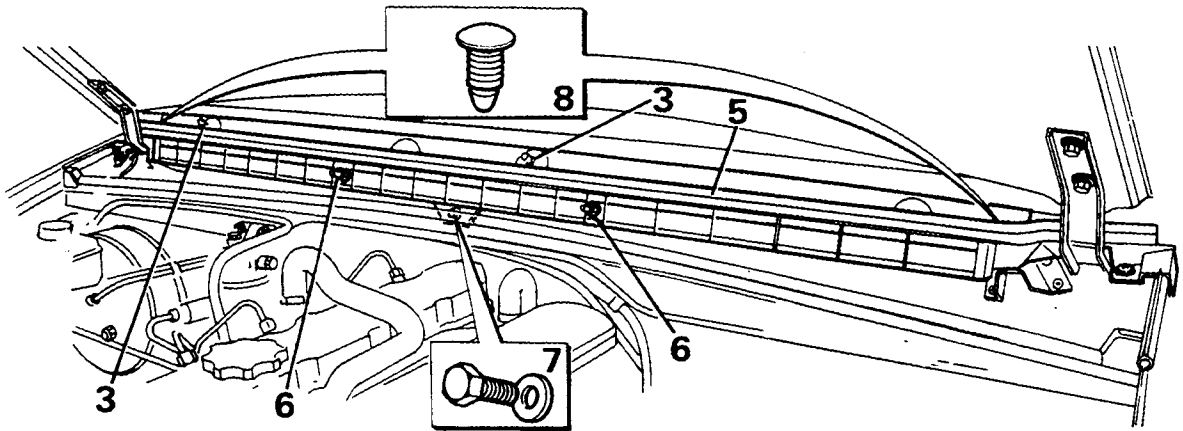
**Refitting**

3. Ensure that the motor is in the park position.
4. Fit the wiper arm to the shaft, locating it on the splines in the position noted during removal.
5. Secure with the nut, tightened to the correct torque, and fit the plastic cap.
6. Check the wiper for correct operation.

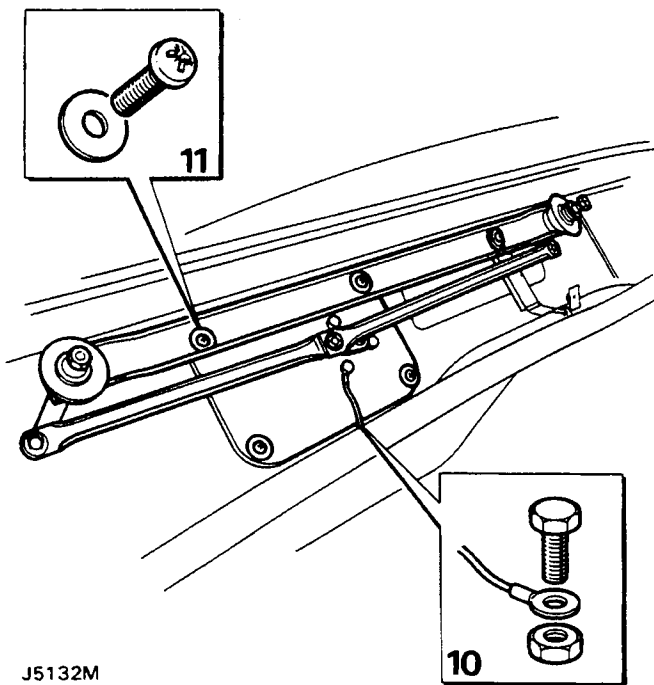
**WIPER BLADES****Remove and refit****Removal**

1. Pull the wiper arm away from the glass.
2. Depress the spring clip and slide the blade from the hooked end of the arm.

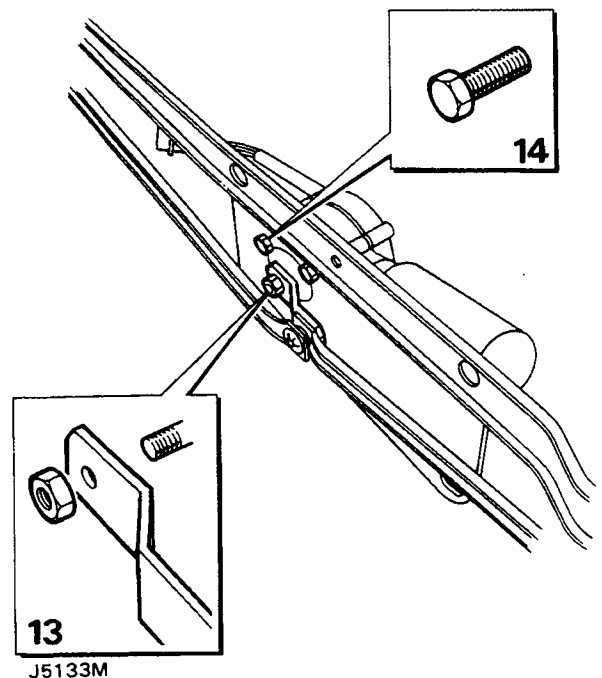
**NOTE:** To remove the wiper blade from the rear door the spare wheel must be removed.



J5131M



J5132M



J5133M

**Reassembly**

16. If removed refit the linkage arms, with the plain and wavy washers fitted in the locations noted during removal, and secure with the retaining clips.
17. Fit the wiper motor to the support plate, using new sealing bushes at the motor spindle as necessary, and secure with the three bolts, fitting the negative lead under the head of the appropriate bolt.
18. Refit the rotary connecting link to the motor spindle and secure with the nut.
19. Connect the wiper motor multi-plug, position the assembled motor and support plate, using a new seal and bushes if necessary, and secure with the four screws tightened to the correct torque.
20. Secure the negative lead to its location on the bulkhead with the nut and bolt.

21. Refit the centre section of the plenum air intake cowl, in reverse order to removal, ensuring that the lower edge of the windscreen seal overlaps the cowl.
22. Refit the wiper arms.

**WIPER MOTOR CHECKING**

**NOTE:** These instructions apply to both Windscreen and Rear door glass wiper motors.

If unsatisfactory operation of the wiping equipment is experienced, a systematic check to determine the origin of the fault should be carried out as follows:

1. Check the wiper blades for signs of excessive friction, as this will greatly reduce the wiping speed of the motor and cause increased current draw, which may damage the armature. Check by substitution.
2. With the rotary connecting link disconnected from the motor spindle check the light running current and speed of the windscreen wiper motor. Check the rear door glass wiper motor with the wiper connected and the glass wet. Connect a suitable analog or digital ammeter in series with the motor supply and measure the current consumption when the motor is switched on. Check the operating speed by timing the speed of rotation of the motor coupling link. The results should compare with the figures given in 'General Specification Data'.

**NOTE: If the vehicle wiring connections are disconnected and an alternative supply source is applied it is essential that the correct polarity is observed. Failure to observe will cause the motor to rotate in the reverse direction, which may result in the limit switch contacts being damaged.**

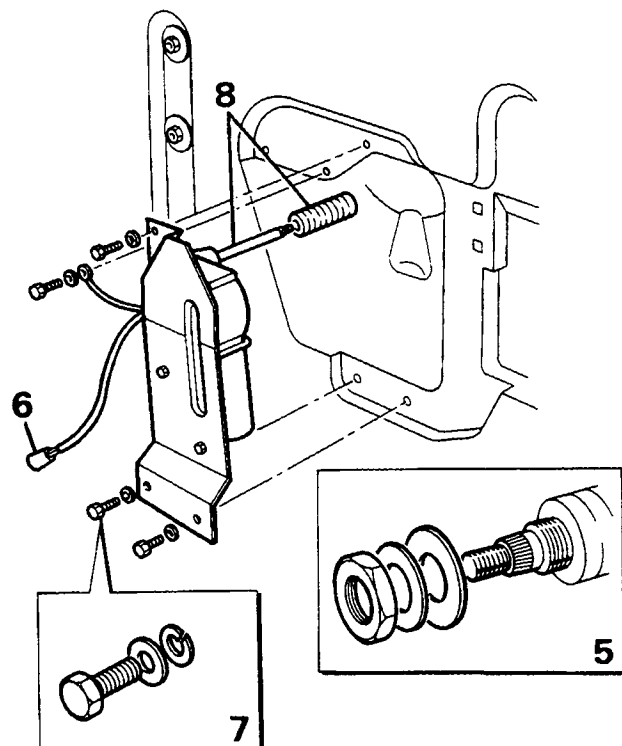
3. If the motor does not run satisfactorily or takes higher than normal current, then a fault is apparent and should be investigated.
4. If the current consumption and speed of the motor are satisfactory, then a check should be carried out for proper functioning of the linkage and wiper arm shafts.

**NOTE: Service parts are not available for wiper motors with the exception of the rotary connecting link. A complete new unit must be fitted in the event of a failure.**

## REAR DOOR WIPER MOTOR

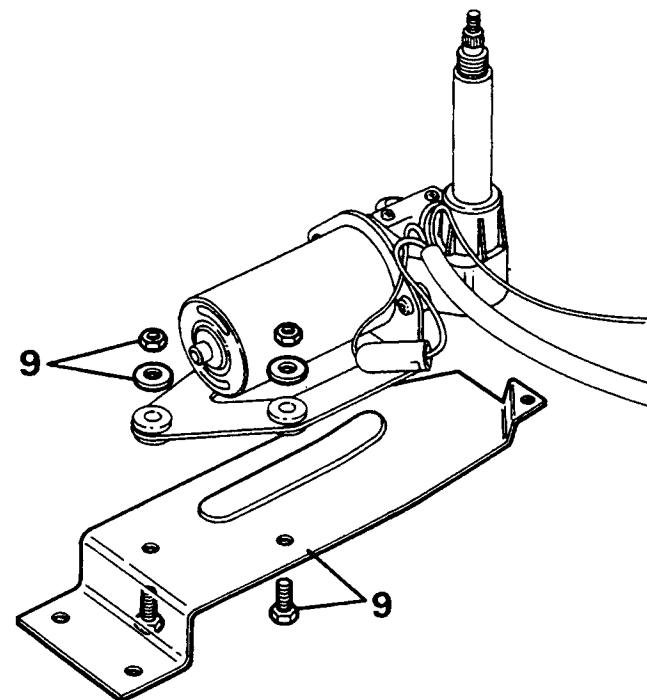
### Removal

1. Disconnect the battery negative lead.
2. Remove the door pull, trim panel and vapour protective sheet from the inner door panel.
3. From the outside of the door remove the spare wheel.
4. Remove the wiper arm and grommet.
5. Remove the nut, plain washer and seal from the drive spindle.
6. Working inside the door, disconnect the wiper motor leads from the door harness, at the multi-plug.
7. Remove the bolts, spring and plain washers securing the wiper motor mounting bracket and negative lead to the inner door panel.



J5134M

8. Withdraw the spindle from the outer door panel and manoeuvre the wiper motor from the door casing complete with the spindle spacer.
9. Remove the two rubber mounted nuts, bolts and washers securing the mounting bracket to the motor and detach the bracket.



J5135M

**Refitting**

10. If not already fitted, fit the mounting bracket to the wiper motor.
11. Fit the two spacers, long spacer first, to the drive spindle.
12. From inside the door panels locate the drive spindle through the outer panel and fit the seal, plain washer and nut. Do not fully tighten the nut at this stage.
13. Align the bracket with the bolt holes on the door panel, fit the bolts, plain and spring washers and tighten to the correct torque.
14. Secure the negative lead to the inner door panel with the nut, bolt and washers.
15. Tighten the spindle nut on the outer door panel to the correct torque.
16. Connect the wiper motor leads to the door harness.

**NOTE: If a new wiper motor assembly has been fitted, before fitting the wiper arm, reconnect the battery and operate the wiper motor to ensure that the motor is in the park position.**

17. Fit the grommet and wiper arm, secure with the nut tightened to the correct torque, and fit the plastic cap.
18. Refit the vapour protective sheet, door trim, door pull and spare wheel.
19. If not connected, to check the motor park position, reconnect the battery negative lead.