

**WINDSCREEN WASHER AND WIPER OPERATIONS**

**Windscreen washer**

Jets—remove and refit .. .. .	..84.10.09
Pump—remove and refit .. .. .	..84.10.21
Reservoir—remove and refit .. .. .	..84.10.01
Switch—remove and refit .. .. .	84.10.25
Tubes—remove and refit .. .. .	..84.10.15

**Windscreen wiper**

Arms--remove and refit .. .. .	..84.15.01
Motor and drive—remove and refit .. .. .	..84.15.09
Motor, drive and wheel boxes—remove and refit .. .. .	..84.15.10
Motor—overhaul .. .. .	..84.15.18



**WINDSCREEN WIPERS AND WASHERS**

**WASHER RESERVOIR**

–Remove and refit

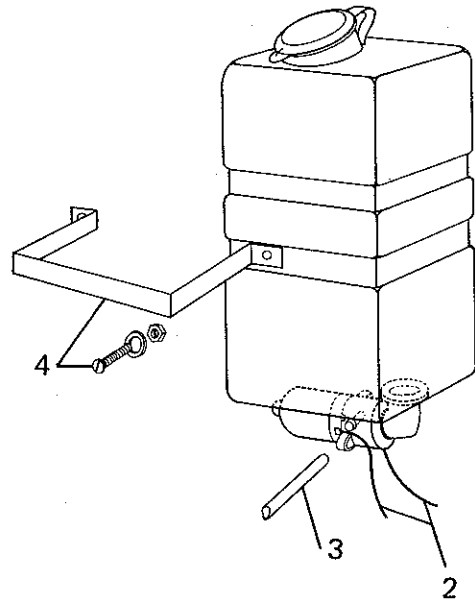
84.10.01

**Removing**

1. Disconnect the battery earth lead.
2. Disconnect the electrical leads from the pump.
3. Disconnect the tubing from the reservoir.
4. Remove mounting screws from bracket and remove reservoir.

**Refitting**

5. Reverse 1 to 4.



**WASHER JET**

–Remove and refit

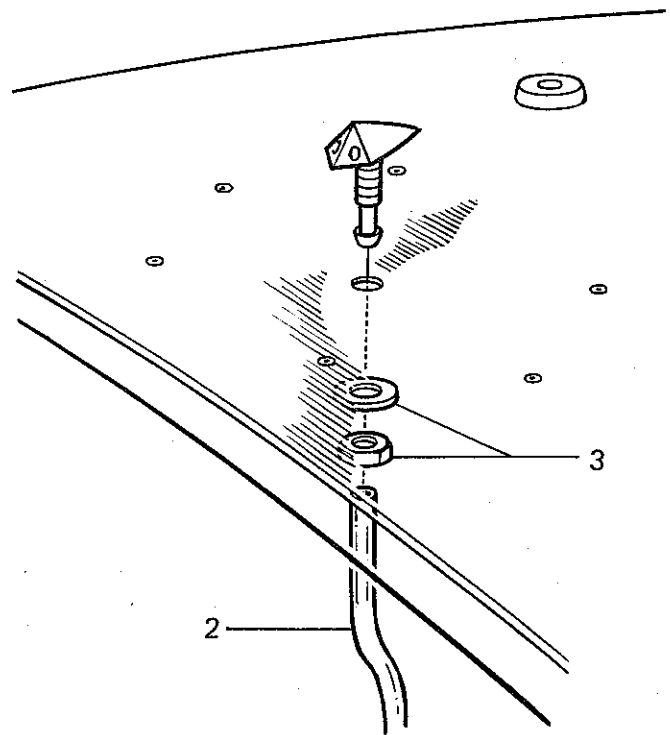
84.10.09

**Removing**

1. Open the bonnet.
2. Remove plastic tube from centre mounted jet.
3. Remove nut, washer and jet.

**Refitting**

5. Reverse 1 to 3



**WASHER TUBE**

—Remove and refit **84.10.15**

**Removing**

1. Remove tube from washer and jet.
2. Unclip tube and remove.

**Refitting**

3. Reverse 1 to 2

**WASHER PUMP**

—Remove and refit **84.10.21**

**Removing**

1. Remove washer reservoir 84.10.01.
2. If pump faulty, replace as a unit.

**Refitting**

3. Reverse 1.

**WASHER SWITCH**

—Remove and refit **84.10.25**

**Removing**

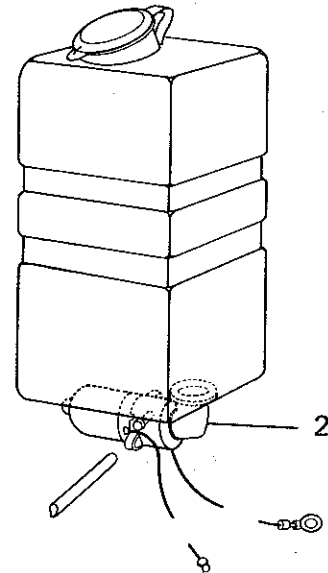
1. Disconnect battery earth lead.
2. Withdraw the instrument panel clear of the dash. 88.20.01 (items 1 to 5).
3. Disconnect leads from the back of the switch.
4. Unscrew and withdraw the switch.

**Refitting**

5. Reverse 1 to 4.

Lead colours:

B	—	Black
G	—	Green
L	—	Light
U	—	Blue



**WINDSCREEN WIPERS AND WASHERS****WIPER ARMS**

—Remove and refit

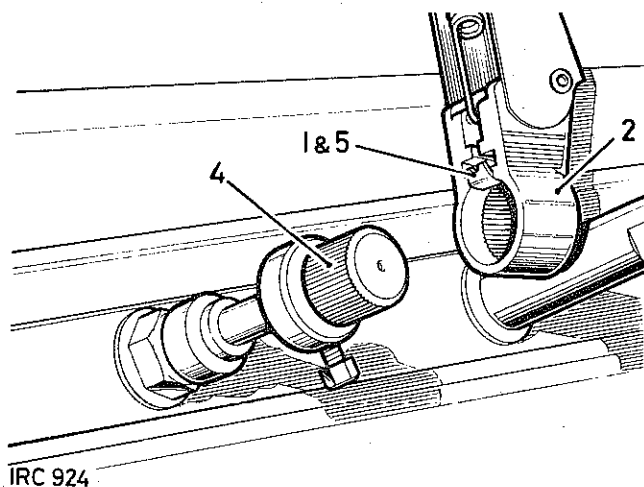
84.15.01

**Removing**

1. Using a small screwdriver, hold back the spring clip which retains the wiper arm on the spindle.
2. Withdraw the wiper arm from the spindle boss.

**Refitting**

3. Allow the motor to move to the 'park' position.
4. Push the arm onto the boss, locating it on the splines so that the wiper blade is just clear of the screen rail.
5. Ensure that the spring retaining clip is located in the retaining groove on the boss.



1RC924

**WIPER MOTOR AND DRIVE**

—Remove and refit

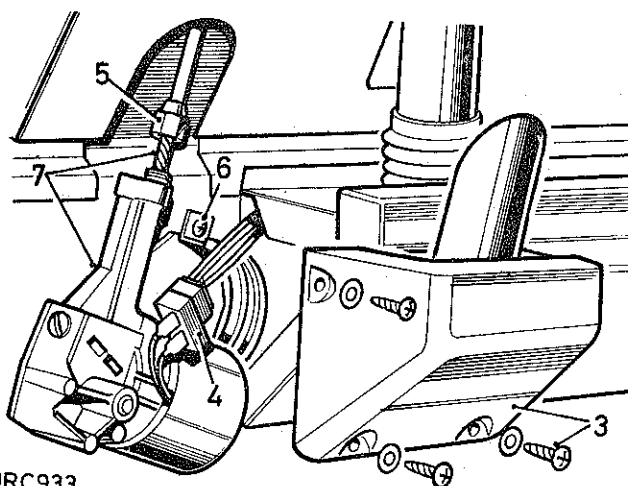
84.15.09

**Removing**

1. Disconnect the battery earth lead.
2. Remove the wiper arms. 84.15.01.
3. Remove the end cover from the lower facia.
4. Disconnect the electrical leads from the wiper motor.
5. Disconnect the drive cover tube from the wiper motor.
6. Slacken the clamp securing the wiper motor.
7. Remove the wiper motor, withdrawing the drive from the cover tube.

**Refitting**

8. Reverse 1 to 7. Rotate the wheel box spindle to assist feeding the drive through the cover tube.
9. Connect the leads between the wiper motor and the limit switch as follows.  
Blue lead to No. 1 terminal.  
Red lead to No. 5 terminal.



1RC933

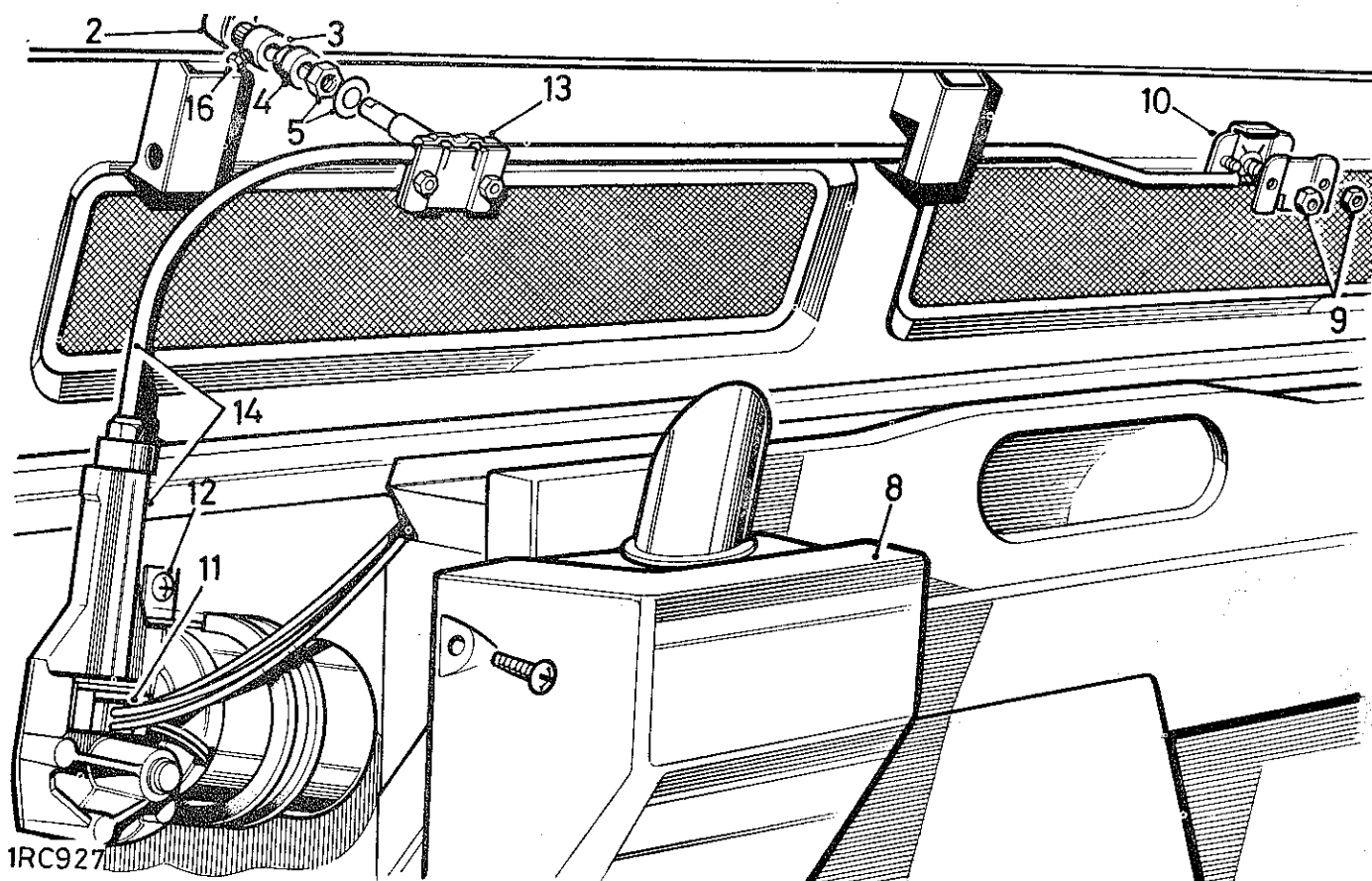
## WIPER MOTOR, DRIVE AND WHEEL BOXES

—Remove and refit

84.15.10

## Removing

1. Disconnect the battery earth lead.
2. Remove the wiper arms. 84.15.01.
3. Remove the drive adaptor from the wheel box spindles.
4. Withdraw the grommet from the wheel box spindles.
5. Remove the locknuts from the wheel boxes.
6. Remove the facia top rail. 76.46.04.
7. Remove the facia support panel. 76.46.06.
8. Remove the end cover from the lower facia.
9. Remove the backplate from the R.H. wheel box.
10. Withdraw the R.H. wheel box.

*continued*

Issue 1. Dec. 77



Land-Rover Series III Manual 607314 Issue 1

84.15.10  
Sheet 1

**WINDSCREEN WIPERS AND WASHERS**

---

11. Disconnect the electrical leads from the wiper motor.
12. Slacken the clamp securing the wiper motor.
13. Withdraw the L.H. wheel box clear of the dash.
14. Withdraw the wiper motor complete with drive cable and L.H. wheel box.

**Refitting**

15. Reverse 1 to 14. Connect the leads between the wiper motor and the limit switch as follows,  
Blue lead to No. 1 terminal.  
Red lead to No. 5 terminal.
16. Tighten the screws securing the drive adaptors to the wheel box spindles. Torque 34,5 kgf.cm (30 lbf. in.).



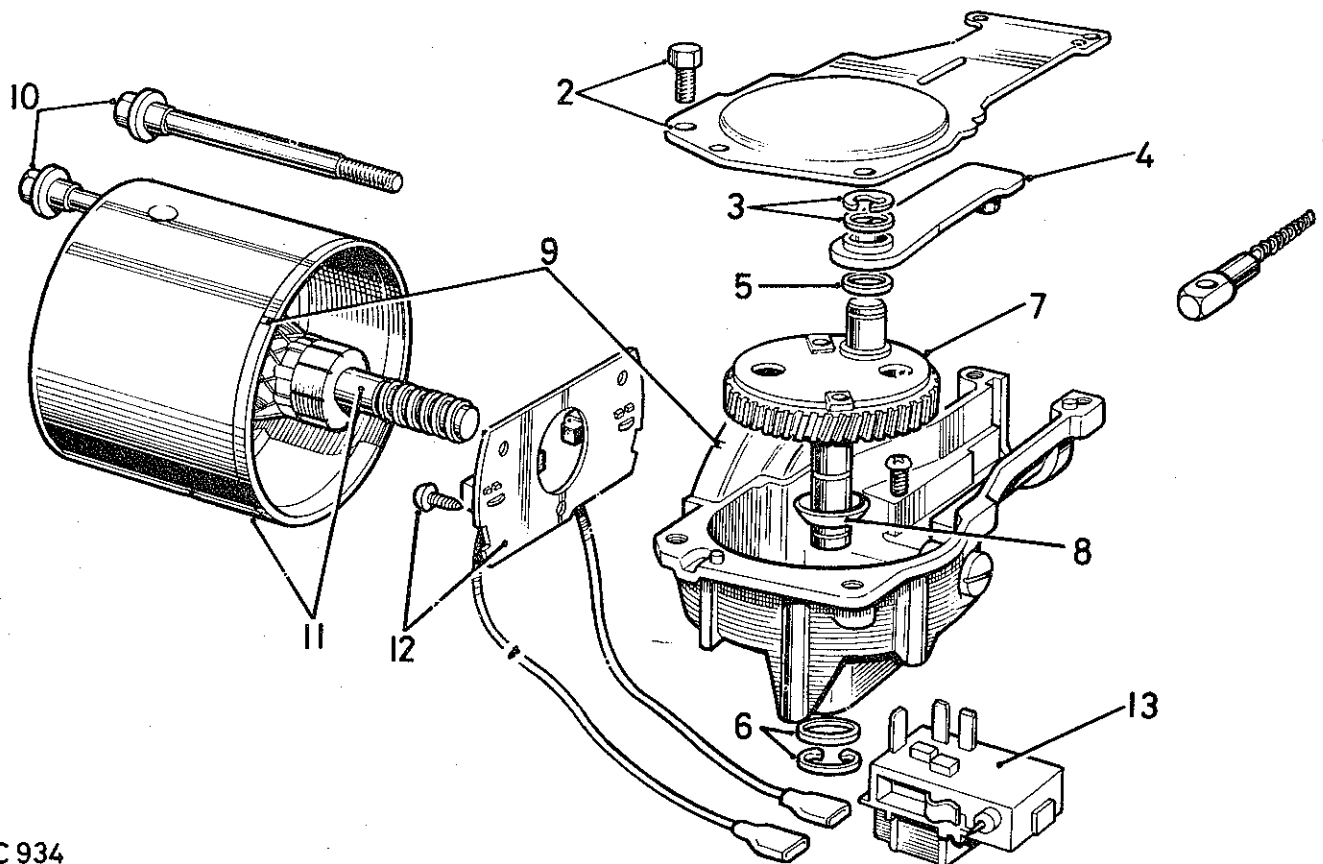
## WIPER MOTOR

—Overhaul

84.15.18

## Dismantling

1. Remove the wiper motor and drive. 84.15.09.
2. Remove the gearbox cover.
3. Remove the circlip and plain washer securing the connecting rod.
4. Withdraw the connecting rod.
5. Withdraw the flat washer.
6. Remove the circlip and washer securing the shaft and gear.
7. Clean any burrs from the gear shaft and withdraw the gear.
8. Withdraw the dished washer.
9. Add alignment marks to the yoke and gearbox for reassembly.
10. Remove the yoke securing bolts.
11. Withdraw the yoke and armature.
12. Remove the brush gear assembly.
13. Remove the limit switch.

*continued*

IRC 934

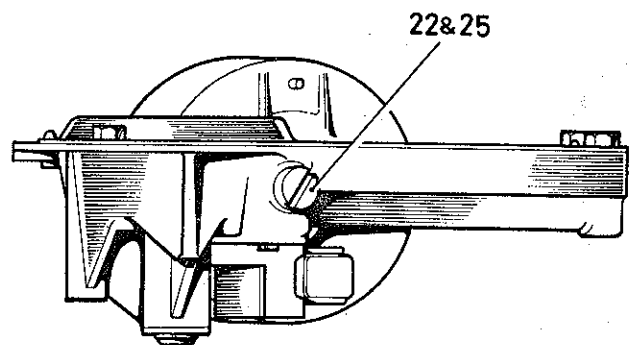


**WINDSCREEN WIPERS AND WASHERS****Inspecting**

14. Check the brushes for excessive wear, if they are worn to 4,8 mm (0.190 in.) in length, fit a new brush gear assembly.
15. Using a push type gauge, check that the brush spring pressure is 140 to 200g (5 to 7 oz.) when the bottom of the brush is level with the bottom of the slot in the brush box. Fit a new brush gear assembly if the springs are not satisfactory.
16. Test the armature for insulation and open-or short-circuits. Use a test lamp (110V, 15W). Fit a new armature if faulty.
17. Examine the gear wheel for damage or excessive wear.

**Assembling**

18. Reverse 1 to 13, noting 19 to 26
19. Use Ragosine Listate Grease to lubricate the gear wheel teeth, armature shaft worm gear, connecting rod and pin, cable rack and wheel box gear wheels.
20. Use Shell Turbo 41 oil sparingly to lubricate the bearing bushes, armature shaft bearing journals, gear wheel shaft and wheel box spindles. Thoroughly soak the felt washer in the yoke bearing with oil.
21. Tighten the yoke fixing bolts. Torque 23 kgf.cm. (20 lbf. in.).
22. If a replacement armature is being fitted, slacken the thrust screw to provide end-float for fitting the yoke.
23. Fit the dished washer beneath the gear wheel with its concave side towards the gear wheel.
24. Ensure that the larger of the two washers is fitted to the crankpin beneath the connecting rod.
25. Armature end-float: Hold the yoke vertical with the adjuster screw uppermost. Carefully screw in the adjuster until resistance is felt then, screw back a quarter turn. This will give the required end float.
26. Connect the leads between the wiper motor and the limit switch as follows
  - Blue lead to No. 1 terminal.
  - Red lead to No. 5 terminal.

*continued*

IRC 935



## DATA

## Windscreen wiper motor

Armature end float	0,1 mm to 0,2 mm (0.004 in. to 0.008 in.).
Brush length, minimum	4,8 mm (0.190 in.).
Brush spring tension	140 to 200g (5 to 7 oz.).
Resistance of armature winding at 16°C (60°F) measured between adjacent commutator segments.	0.23 to 0.35 ohms.
Light running, rack disconnected:	
Current at 13.5V	2.0 amps.
Speed, 60 seconds from cold	60 to 70 rev./min.



