

**S-TYPE**

DATE 10/02

S415-02

SERVICE**TECHNICAL BULLETIN****Poor AM or FM Reception –
Diagnostic Procedures –
Modification Procedure**MODEL 2000-02 MY
S-TYPE

VIN L00001-M44997

Issue:

Some owners of 2000-02 MY S-TYPE vehicles may complain of poor radio reception on both AM and FM.

This Technical Bulletin is designed to provide a quick check for specific AM/FM reception interference issues.

With all diagnostic checks carried out and with a 'No Fault Found' (NFF) situation, a roof-mount manual aerial service fix option may be offered to reduce multipath (interference caused by signals rebounding back of buildings) and improve reception.

Action:

On a customer complaint basis only, follow the workshop procedure outlined in this Technical Bulletin.

S-TYPE – AM/FM AUDIO INTERFERENCE DIAGNOSTIC CHECKS**VIN L00267 TO L77674**

Check the history of vehicle to ascertain whether actions described in Technical Bulletin S415-01 (AM reception interference) concerns have been carried out on vehicles between VIN L00267 to L77674. If not do this first.

If there is no AM, check that the red/yellow wire is present between FC40-4 and FC71-7. Check all coaxial cable connections, check the FUBA connections and make sure the mounting is good since it is also a ground. Check the harness between the FUBA and the rear glass for opens or short circuits. Check the rear glass terminal, check that the black/white wire is to the top and check the rear glass for shorting between the pins.

AM/FM RECEPTION ISSUES VIN L77675 TO M44997**AM-Specific issue**

Concern - Standard Corporate Protocol (SCP) network interference, evident with the ignition in auxiliary position I, and engine run position II. Noise does not increase with engine RPM. The noise exhibits itself as a ticking and is primarily due to inadequate screening of the antenna circuitry. At VIN M20244 the antenna module to screen harness was screened. Between VIN L77675 to M20244, if this concern is identified, check the antenna lead to see if it has already been replaced with the latest screened condition. To check, carry out the following workshop procedure.

1. Remove the left hand side rear quarter trim panel to expose the Antenna Module. (See Workshop Manual, JTIS CD ROM, section: 501-05)

- Carefully unclip the antenna harness (As indicated at 1 Illustration 1) from the screen connections and disconnect from the antenna module. (As indicated at 2 Illustration 1)

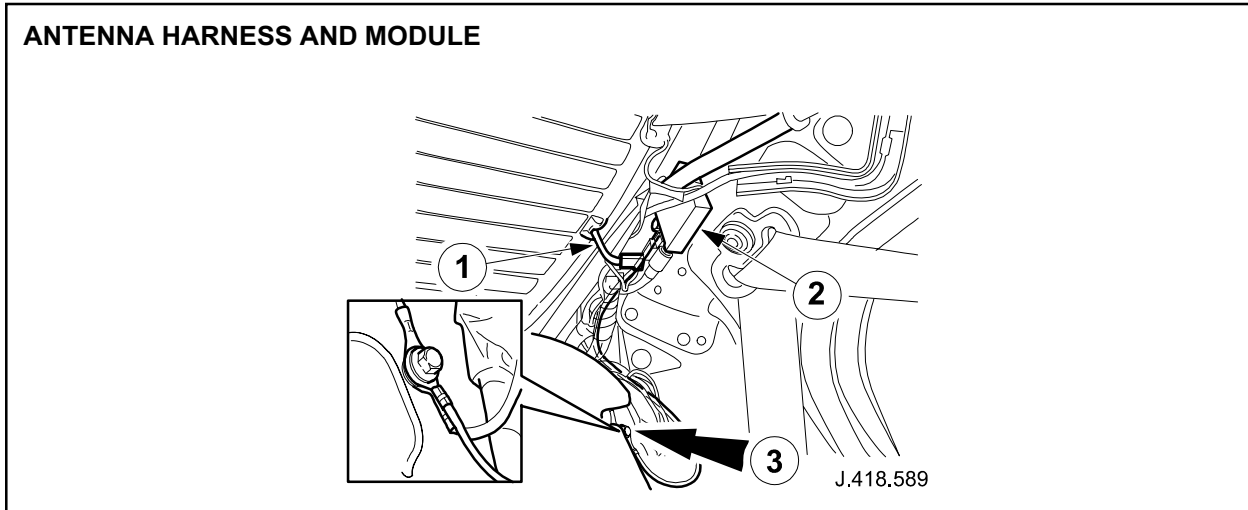


ILLUSTRATION 1

- Carefully pull back the harness insulation tape at the connector and check to see if there is a braided cable situated between the two harness cables. If not fitted, install new modified cable, part number: XR8 36434 (Illustration 2).

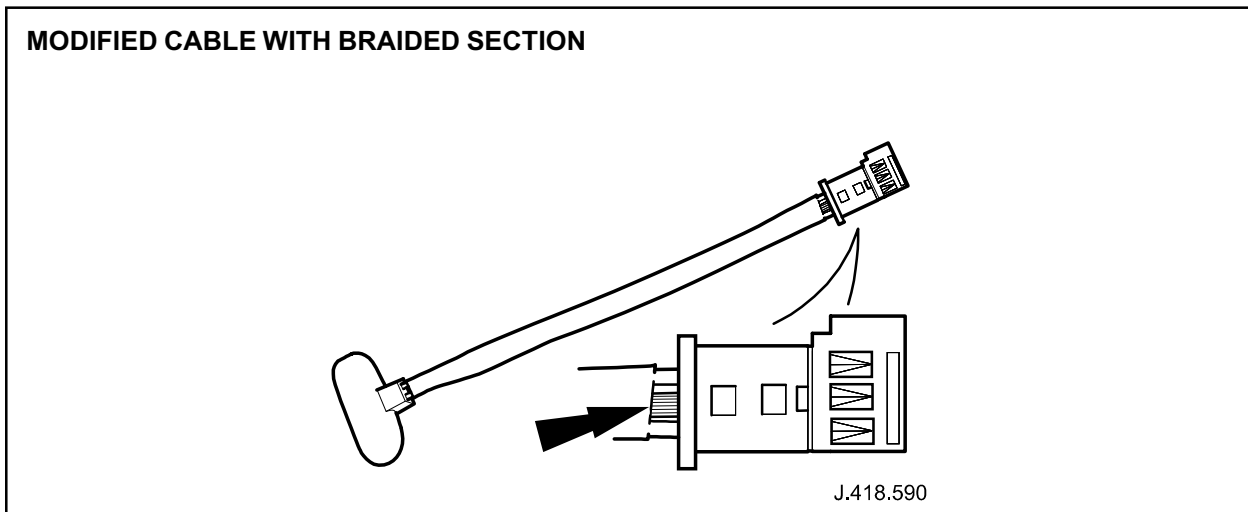


ILLUSTRATION 2

Note: When refitting the screened lead to the terminal, the black wire with white tracer should be connected to the upper screen terminal.

Should the concern persist with a screened harness fitted check the antenna module ground circuit.

4. Check if fixing bolt securing the antenna module bracket to the D-post is tight. If loose tighten to 6.2 Nm.
5. Disconnect antenna module coax connector from the module. (Using a suitable multimeter with appropriate ohm setting). Connect one probe to ground point on the antenna module and the other probe to the local ground point on the rear bulkhead behind the seat squab trim. (As indicated at 3 Illustration 3)

Note: Do not connect the multimeter probe to the fixing bolt for antenna module.

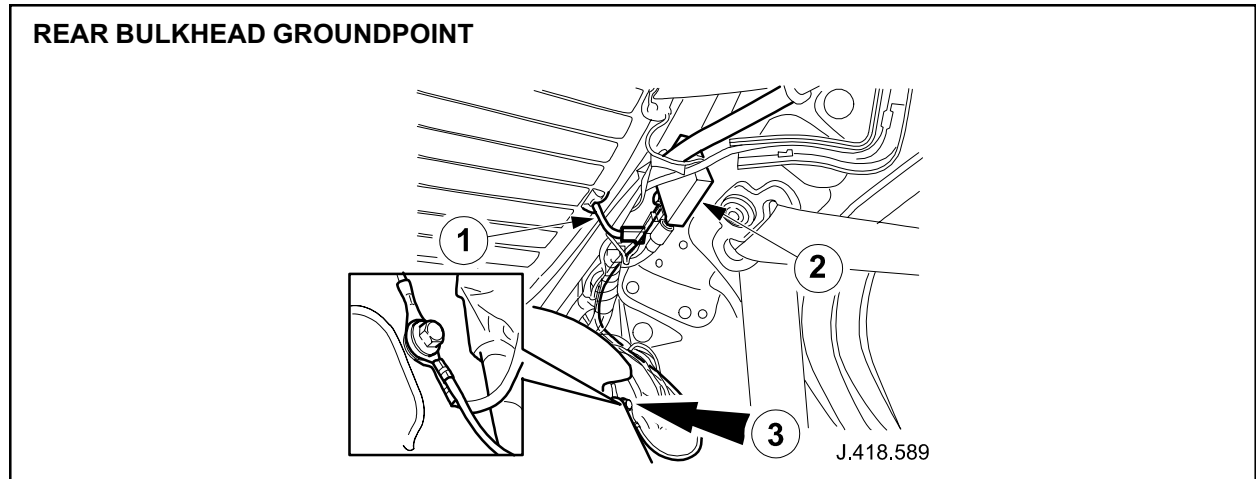


ILLUSTRATION 3

6. If a high resistance reading is present a concern with the antenna module ground connection exists. The ground path for this is through a dedicated cage nut on the rear bulkhead. Loosen the fixing bolt to the cage nut and re-torque to 6.2 Nm. to reestablish the correct ground path.

NO AM RECEPTION BUT POSSIBLY SOME FM STATION COVERAGE

Assuming the radio unit is powering up and operating correctly, the fault could be caused by the loss of 12-volt supply to the antenna module.

1. Using a suitable multimeter, check voltage at electrical connection CA20 at the antenna module, if there is no voltage, check voltage at the intermediate electrical connection FC40 pin 4. This electrical connector is located at the left hand side of the facia assembly behind the A-post cover. If there is voltage at FC40 pin 4 electrical connection then the fault is within the rearward electrical harness section to the antenna module.
2. Check all electrical terminals and wires are secure and connected correctly. If satisfactory the fault is within the electrical harness.
3. If there is no voltage present at FC40 pin 4 remove radio and check voltage output from electrical connector FC71 pin 7 (on some wiring diagrams this connector is FC73 pin 7). If there is no voltage at FC71 pin 7 check battery/ignition inputs and fuses.

Circuitry details as below:

Standard Ice Radio

	Radio	Splices	Primary Junction Box	Fuse
Battery+	FC71 pin 1	N/A	FC37 pin 4	20 amp
Ignition+	FC71 pin 3	N/A	FC37 pin 18	10 amp

Premium Ice Radio

Battery+	FC71 pin 1	N/A	FC37 pin 4	20 amp
Ignition+				
With Navigation	FC71 pin 3	FCS3	FC37 pin 18	10 amp
Non Navigation	FC71 pin 3	N/A	FC37 pin 18	10 amp

Radio Unit Grounds

FC71 pin 2
FC75 pin 3
FC71 pin 6

Ground Stud- FC38 is located behind the center control console/center console trim.

AM/FM Combined Issues

Concern- Overall poor radio reception, increased multipath issues on FM broadcasts.

1. Remove left hand side C-pillar trim to expose antenna module. (See Workshop Manual, JTIS CD ROM, section: 501-05, SRO 76.13.73).
2. Carefully unclip the antenna harness from the screen connections.
3. Using a suitable multimeter with appropriate ohm setting selected, place one probe on the upper screen stud and the other probe on the lower stud. The expected reading should be '0' ohms. If there is a high resistance reading then check for solder splash between the two screen studs or screen sealant on the studs. If contamination is present this should be carefully removed with a suitable blade or implement.
4. If there is interference only when the Heated Rear Window (HRW) is switched on, affecting AM frequencies and weaker FM bands, possibly caused a break in the circuit of the HRW. Install new screen.

Note: If the screen is damaged it is not covered under warranty.

FM Issues

Concern- Poor radio reception all frequencies.

1. Remove left hand side C-pillar trim to expose antenna module. (See Workshop Manual, JTIS CD ROM, section: 501-05, SRO 76.13.73).
2. Carefully unclip the antenna harness from the screen connections.
3. Using a suitable multimeter with appropriate ohm setting selected, place one probe on upper screen stud and second probe onto heated rear window buzz bar, the reading should be 6 ohm plus or minus 1 ohm. If the reading is higher than 6 ohm this will indicate that there is a break somewhere in the screen element circuitry.

Install new screen.

Note: If the screen is damaged it is not covered under warranty.

General Information

Concern- AM/FM poor radio reception.

If the customer has a non-Jaguar phone, and glass whip aerial installed on the rear screen. The location of the aerial, if in contact or close to the rear screen elements could compromise radio reception signals. Even if the glass whip aerial is disconnected, the actual presence of the aerial on the screen could be a factor.

Note: If any of the diagnostic checks require repair, carry out a separate warranty claim. This Technical Bulletin only covers the interference diagnostic checks and the installation of the roof mounted manual aerial.

WORKSHOP PROCEDURE

Install roof mounted manual aerial

1. Open luggage compartment lid.
2. Disconnect battery (see Workshop Manual, JTIS CD ROM, section: 414-01, "Battery Disconnect"). Record the customer settings for the following systems so they can be reset to the customer's preferences:
 - Clock time setting
 - Clock 12 / 24 hour setting
 - CD compress mode (if equipped. Radio must be in CD mode to check this setting.)
 - Navigation volume defaults to 14 (if equipped)
 - Voice feedback volume defaults to 14 (if equipped - voice training is **not** lost).
 - Transmission shift mode
 - Radio presets AM/FM
 - Compass calibration and zone setting
 - Navigation memory will be retained if the battery is not disconnected longer than 24 hrs.
3. Remove fascia left hand end cover. (See Illustration 4)

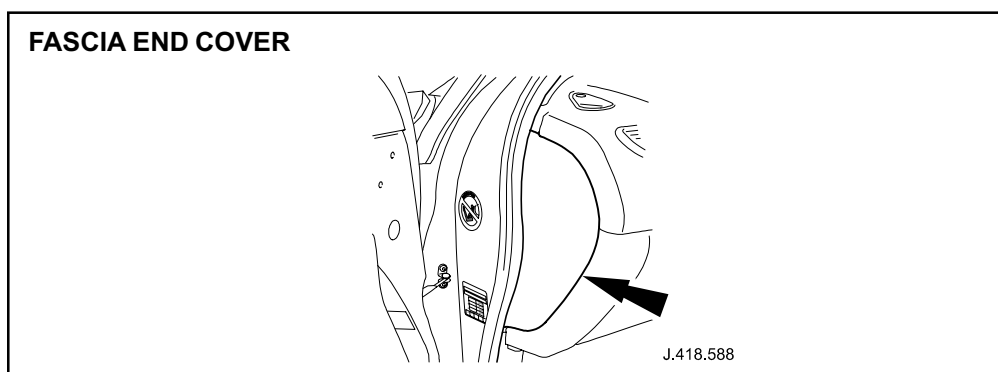


ILLUSTRATION 4

WOODEN BLOCK

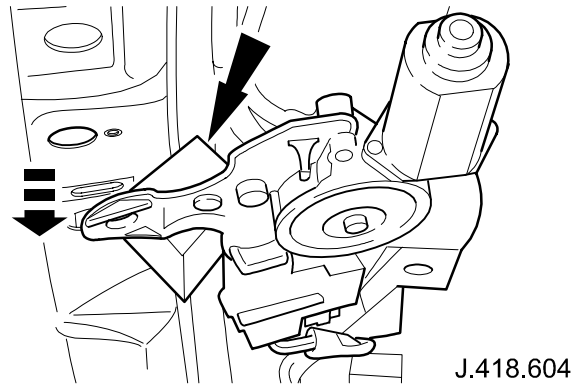


ILLUSTRATION 5

Vehicles with sliding roof only

- Remove headlining (see Workshop Manual, JTIS CD ROM, section: 501-05, SRO 76.64.01).
- Undo and remove the five forward most sliding roof to body securing screws.
- Carefully reposition front of sliding roof assembly downwards for access.
- Install suitable block of wood between front of sliding roof and body (Illustration 5).

Note: Suitable block of wood to be approximately 35 mm thick.

Vehicles without sliding roof

- Remove A-post upper trim pads (see Workshop Manual, JTIS CD ROM, section: 501-05, SRO 76.13.31).
- Remove B-post upper trim pads (see Workshop Manual, JTIS CD ROM, section: 501-05, SRO 76.13.28).
- Remove front grab handles.
- Remove roof console.
- Remove sun visor blocks.
- Remove sun visor (see Workshop Manual, JTIS CD ROM, section: 501-05).

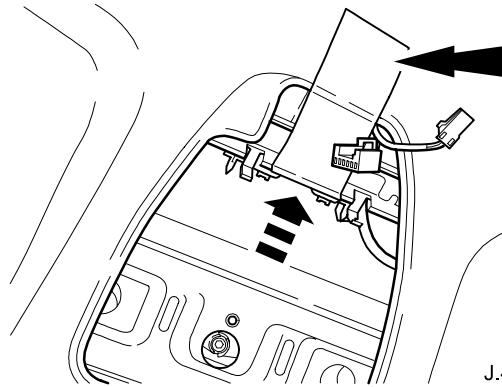
Note: Throughout complete operation, be very careful not to damage headlining.

- Reposition headlining downwards from front door aperture seals and grab-handle fixing blocks.

Note: Reposition headlining downwards only sufficient to carry out following operations.

- Displace and reposition roof console bulb holder assembly rearwards above headlining aperture rear edge.

SECURE BULB WITH MASKING TAPE



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ILLUSTRATION 6

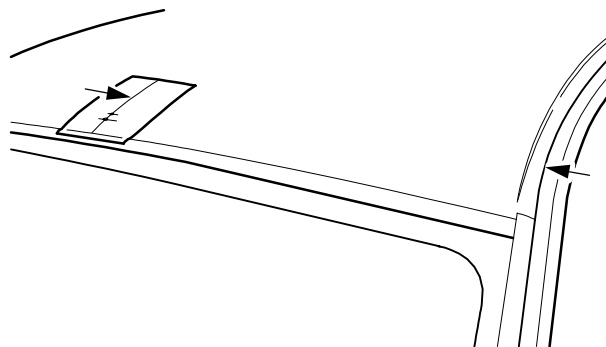
- Using masking tape, secure bulb holder to headlining (Illustration 6)
- Place suitable protective covering over vehicle interior below area of roof to be drilled.

Vehicles with and without sliding roof

From outside of vehicle.

4. Adhere masking tape centrally to roof outer panel adjacent to windshield finisher.
5. Measure centerline of roof outer panel from each side of vehicle.

MARK CENTER LINE ON MASKING TAPE



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ILLUSTRATION 7

6. Using a sharp lead pencil, mark centerline on masking tape (Illustration 7).

MARK 32 MM AWAY FROM FINISHER

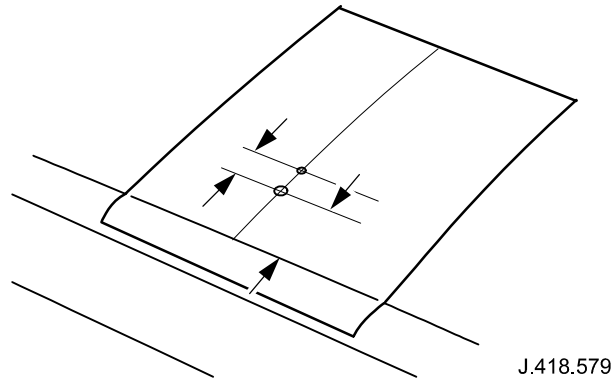


ILLUSTRATION 8

- Using a sharp lead pencil, Centrally measure and mark 32 mm rearward from top edge of windshield finisher. Centrally, measure and mark off 14 mm rearwards from the 32 mm marked position (Illustration 8).

DRILL 3 MM PILOT HOLE

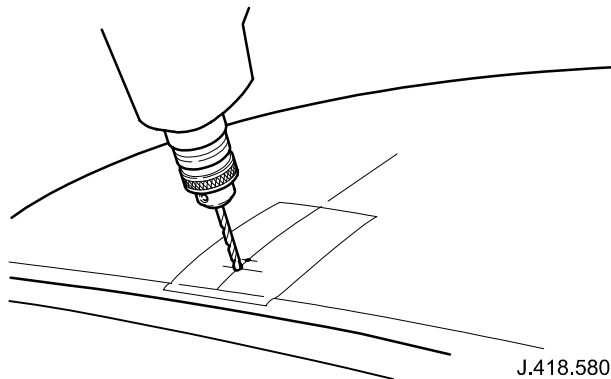


ILLUSTRATION 9

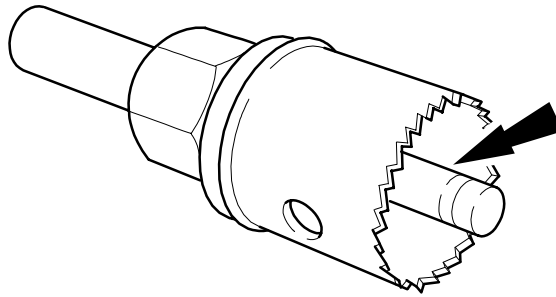
- Carefully drill 3 mm diameter pilot hole through roof panel at previously marked 32 mm position (Illustration 9).

⚠ Caution: Throughout drilling operation take care not to distort outer roof panel.

Note: During following operation ensure drill is at right angles to roof panel outer contour.

- Continue to drill 3 mm diameter pilot hole through panel inner strengthening panel.
- Select suitable 25 mm diameter hole saw.
- Dismantle hole saw and remove the twist drill.
- Cut and finish steel rod of suitable length and diameter for following operation.

HOLE SAW WITH PILOT ROD



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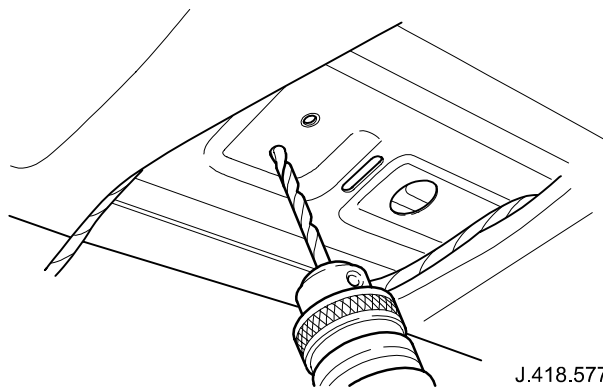
ILLUSTRATION 10

13. Assemble hole saw, using a rod of the same diameter as removed drill to protrude 10 mm from the saw face (Illustration 10).

From inside vehicle

⚠ Caution: During the next operation, ensure drill bit does not contact outer roof panel. A suitable drill stop in the form of a rubber sleeve will aid previous operation.

OPENING PILOT HOLE

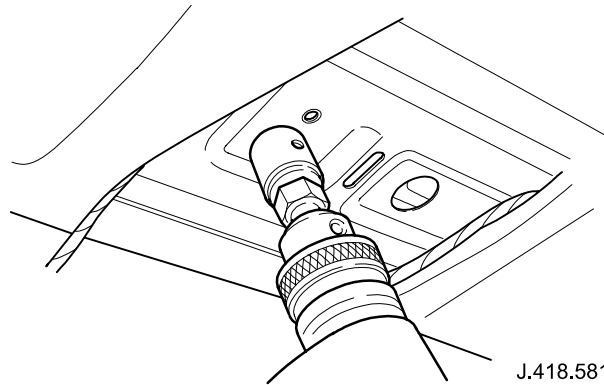


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ILLUSTRATION 11

14. Using the drill removed from the hole saw, open up pilot hole in strengthening panel (Illustration 11).

CUTTING ROOF PANEL STRENGTHENING SKIN



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ILLUSTRATION 12

15. Using 25 mm diameter hole saw with plain rod as a pilot, cut through roof panel strengthening skin (Illustration 12).

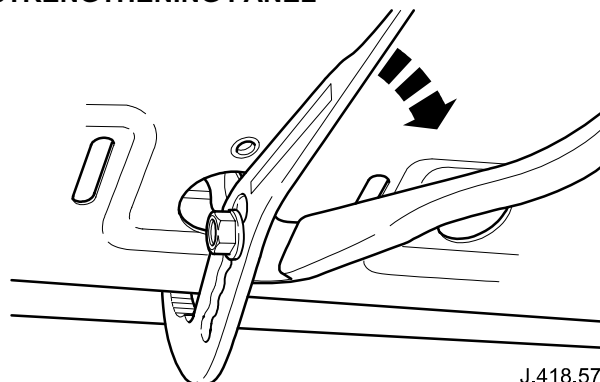
⚠ Caution: On vehicles with a sliding roof, the hole will need to be cut at a slight angle to avoid the sliding roof front mounting. During previous operation take care not to damage roof outer panel.

From outside of vehicle

⚠ Caution: Throughout the drilling operation be very careful not to distort the outer roof panel.

16. Open out 3 mm diameter pilot hole in roof outer panel to 10 mm diameter.
17. Verify marked 14 mm position is still 14 mm from center of drilled 10 mm hole.
18. Carefully drill 3 mm diameter pilot hole through roof panel at previously marked 14 mm position.
19. Open out 3 mm pilot hole to 4.8 mm.

MODIFYING EDGE OF STRENGTHENING PANEL



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ILLUSTRATION 13

From inside vehicle

20. Using suitable handgrips bend edge of roof intermediate strengthening panel downwards (Illustration 13).

Note: Bend edge of roof intermediate strengthening panel downwards only sufficient, for aerial base connector access.

From inside and outside vehicle.

21. Deburr drilled holes/sharp edges.
22. Remove protective covering from vehicle interior.
23. Clean any remaining drilling swarf from vehicle.
24. Apply suitable zinc enriched paint to bare metal surfaces created during process and allow to dry.

From inside vehicle

25. Remove and discard six plastic clips from antenna cable.
26. Remove three metal clips from antenna cable, discard two and retain one for further use.

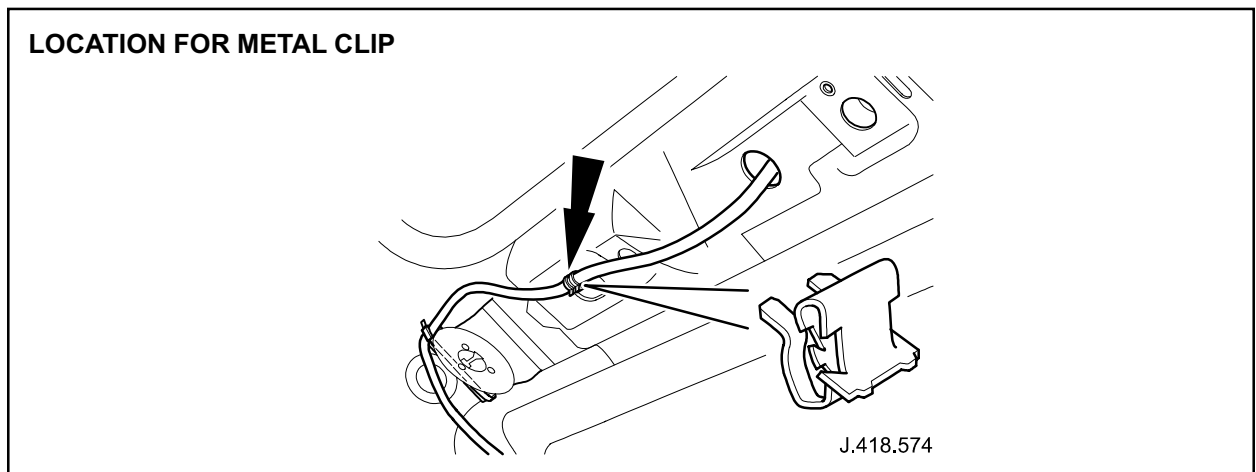


ILLUSTRATION 14

27. Install metal clip to left-hand side of roof strengthening panel aperture (Illustration 14).
28. Cut, remove and discard push-in-plug from antenna lead.
29. Unwrap felt tape from cut end of antenna lead and retain for further use.

Note: Antenna lead must be routed from 25 mm cut hole towards left hand side of vehicle.

30. Route antenna lead through 25 mm diameter cut hole, intermediate panel hole, and strengthening panel hole.

Note: Suitable long nosed pliers will aid in the following two operations.

LOOP ANTENNA CABLE

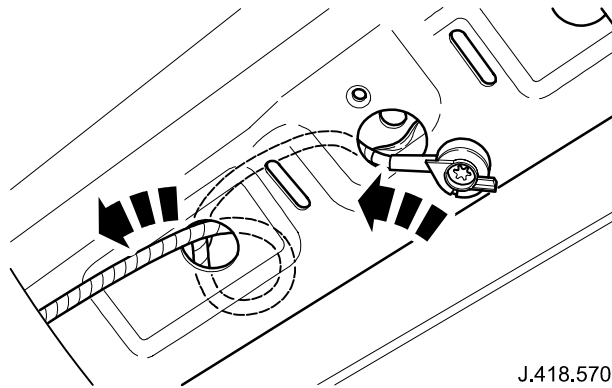


ILLUSTRATION 15

31. Loop the antenna cable between the intermediate and the strengthening panel holes (Illustration 15).

Note: This operation will prevent an acute bend in the antenna lead routing.

SEATING BASE CONNECTOR

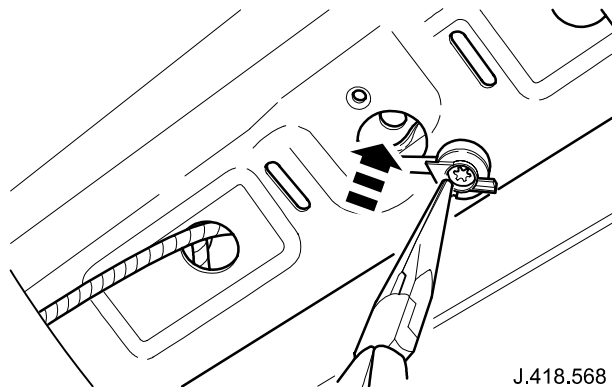


ILLUSTRATION 16

32. With the aid of needle-nose pliers, align and fully seat the base connector into the 10 mm diameter hole drilled in the roof panel (Illustration 16).

Note: Base connector plastic isolator and fixing screw must remain captive at all times.

33. Route antenna lead over top of left hand sun visor body mounting bracket.

SECURING ANTENNA LEAD

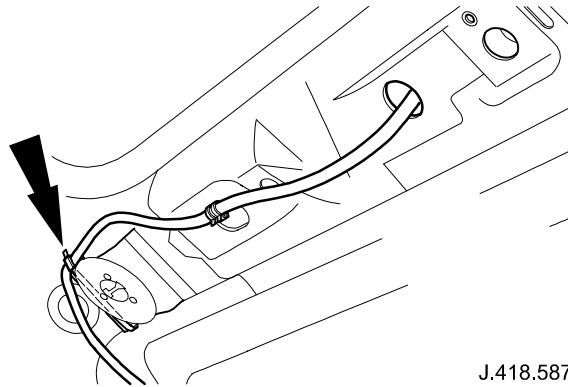


ILLUSTRATION 17

34. Using tie strap secure antenna lead to sun visor mounting bracket. (Illustration 17)
35. Cut and remove protruding tail from tie strap.
36. Route antenna lead downwards along left hand A-post past corner area into facia end aperture.

ANTENNA LEAD SECURED TO A-POST

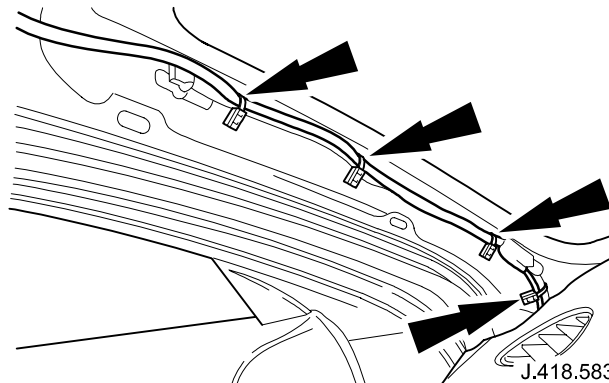


ILLUSTRATION 18

37. Using tie straps secure antenna lead to left hand A-post harness at four places. (Illustration 18)
38. Cut and remove protruding tails from tie straps.
39. Place antenna mount/mast assembly to front.
40. Ensure rubber seal is seated in antenna mount base.
41. With the aid of another person install new antenna mounting base/mast assembly to outer roof panel.

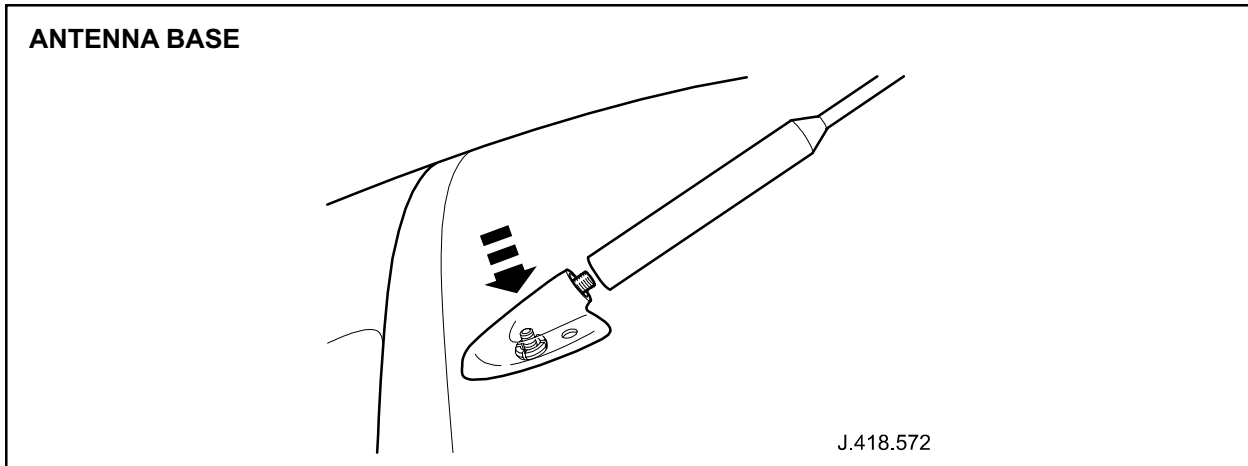


ILLUSTRATION 19

42. Tighten antenna lead base connector to mounting base/mast-securing screw (Illustration 19).

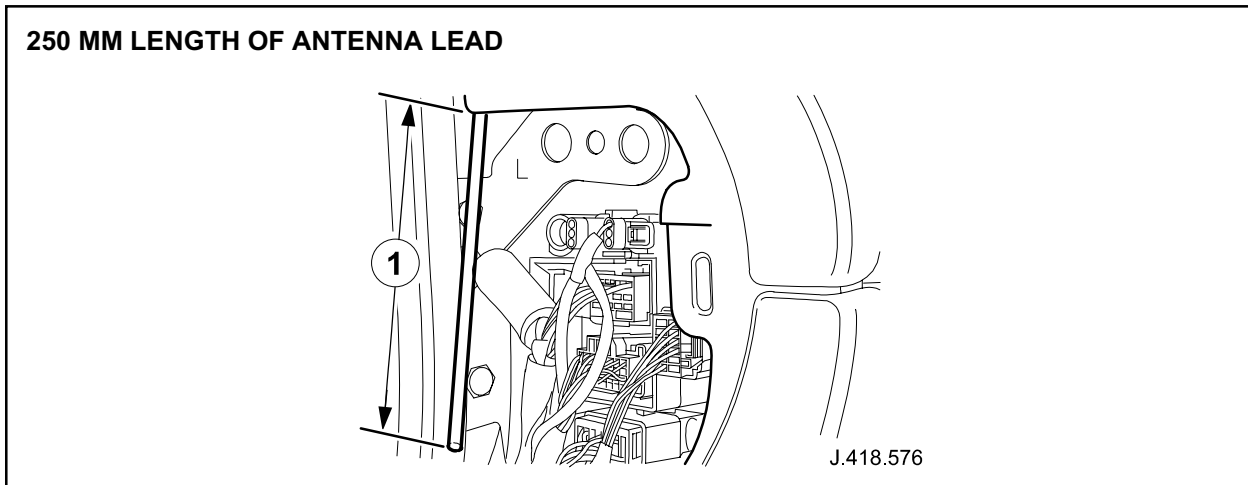
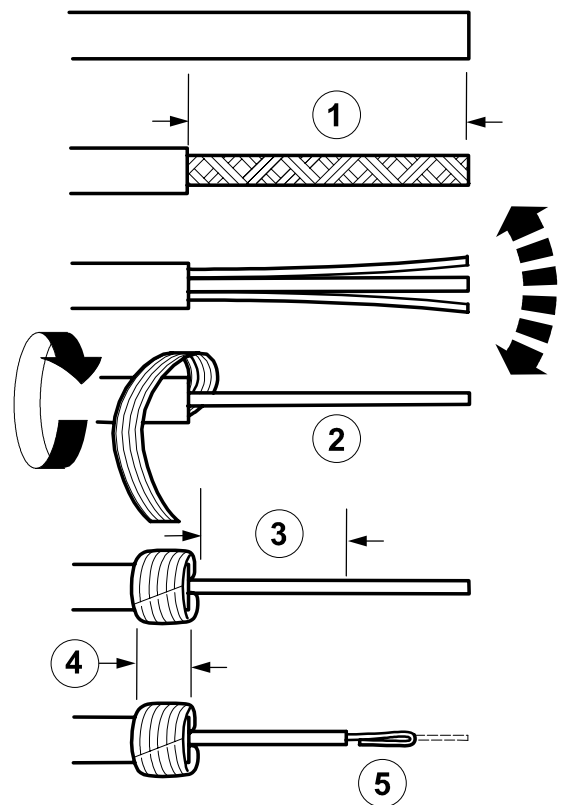


ILLUSTRATION 20

43. Measure 250 mm along new antenna lead from fascia end aperture top front corner (Illustration 20).
44. Cut, remove and discard excess lead at measured position.
45. Wrap felt tape removed and retained previously on to new antenna lead.
46. Dismantle supplied lead plug to its basic components and undo center terminal grub screw.
47. Place supplied lead plug terminal aside.
48. Prepare new lead for installation of supplied lead plug.
49. Install lead plug end cap onto new lead.

PREPARATION OF ANTENNA LEAD FOR CONNECTOR



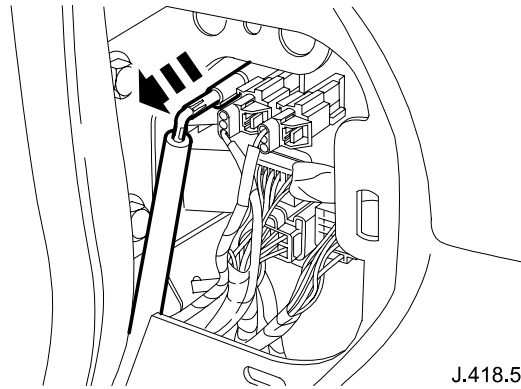
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ILLUSTRATION 21

50. Measure off 50 mm from cut end of new antenna lead (1 Illustration 21).
51. Cut and remove outer insulation at measured position.
52. Splay open new antenna lead ground braiding.
53. Spiral-wrap ground braiding around new antenna lead outer insulation (2 Illustration 21).
54. Measure off 25 mm along new antenna lead inner insulation from ground braiding (3 Illustration 21).
55. Cut and remove inner insulation at measured position.
56. Twist together strands of new antenna lead center cable.
57. Fold back on itself new antenna lead center cable (5 Illustration 21).
58. Install lead plug ground clasp onto new antenna lead ground braiding.
59. Install plug center terminal to new antenna lead center cable.
60. Tighten center supplied lead plug grub screw.
61. Install lead plug plastic body.
62. Tighten lead plug plastic end cap.

Note: Ensure good contact between ground clasp and ground braiding.

ANTENNA LEAD PLUG

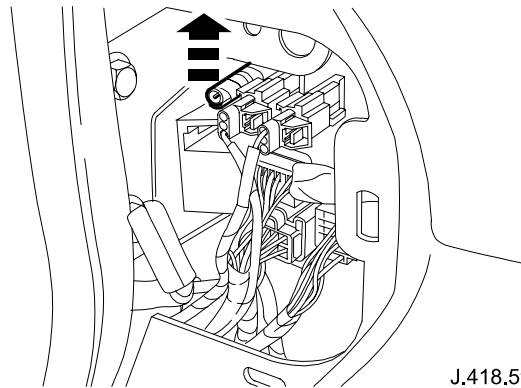


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ILLUSTRATION 22

63. Disconnect Jaguar antenna lead plug from Jaguar radio link lead socket (Illustration 22).

RADIO LINK LEAD SOCKET



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ILLUSTRATION 23

64. Displace the plastic fir tree clip for the Jaguar link lead socket from the multi plug plastic support (Illustration 23).
65. Reposition Jaguar link lead for access. Remove knee bolster cover to improve access, if necessary.
66. Unwrap and remove tape securing plastic fir tree clip to Jaguar link lead socket.
67. Remove plastic fir tree clip and retain for further use.

FIR TREE CLIP

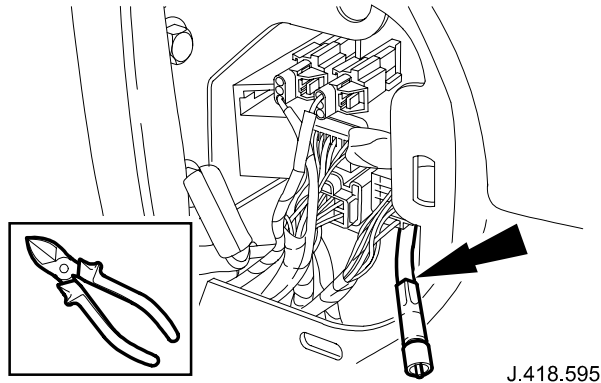


ILLUSTRATION 24

68. Cut, remove and discard socket from Jaguar link lead at cable end (Illustration 24).
69. Dismantle supplied lead socket to its basic components and undo center terminal grub screw.

Note: Ensure ground tube remains correctly positioned in plastic body at all times. The supplied lead socket center terminal is designed to fit into the deepest half of socket ground tube. If socket ground tube is positioned incorrectly, it will not contact ground clasp.

70. Place lead socket center terminal aside.
71. Prepare Jaguar link lead for installation of lead socket.
72. Install supplied lead socket end cap onto Jaguar link lead.

PREPARING END OF LINK LEAD

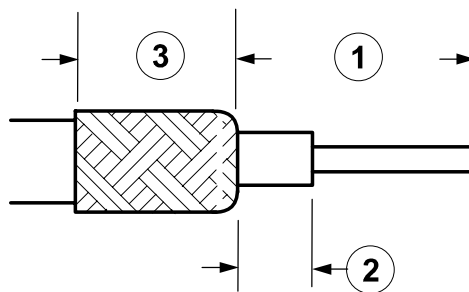


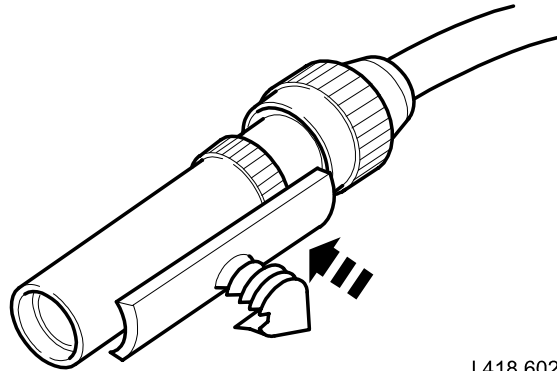
ILLUSTRATION 25

73. Measure off 15 mm from the cut end of Jaguar link lead (1 Illustration 25).
74. Cut and remove outer insulation at measured position.
75. Fold back ground braiding over Jaguar link lead outer insulation (3 Illustration 25).
76. Measure off 4 mm along Jaguar link lead inner insulation from ground braiding (2 Illustration 25).
78. Cut and remove inner insulation at measured position.
79. Install lead socket ground clasp onto Jaguar link lead ground braiding.

80. Install lead socket center terminal to Jaguar link lead center wire.
81. Tighten lead socket center terminal grub screw.
82. Install lead socket plastic body and ground tube.
83. Tighten lead socket plastic end cap.

Note: Ensure good contact between ground clasp and ground braiding.

ATTACH FIR TREE CLIP TO LINK LEAD SOCKET

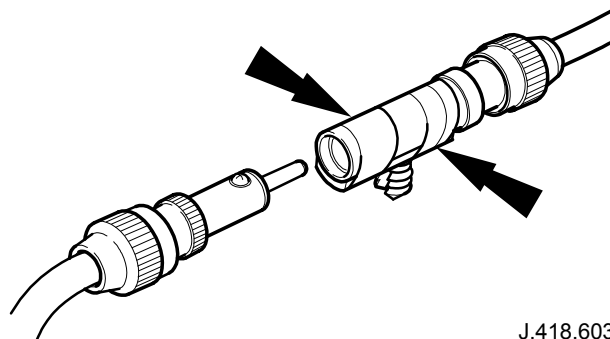


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ILLUSTRATION 26

84. Install plastic fir tree clip (removed and retained previously) to Jaguar link lead socket (Illustration 26).

SECURING FREE TREE CLIP



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ILLUSTRATION 27

85. Using suitable adhesive tape, secure plastic fir tree clip to the socket in two places (Illustration 27).
86. Reposition Jaguar link lead to connector plastic support.
87. Secure Jaguar radio link lead plastic fir tree clip to connector plastic support.
88. Connect lead plug to Jaguar link lead socket.
89. Cut foam in half (from squeak and rattle kit JLM 21204 part number JLM 21205) and place one half aside.

FOAM PLACED AROUND UNUSED PLUG

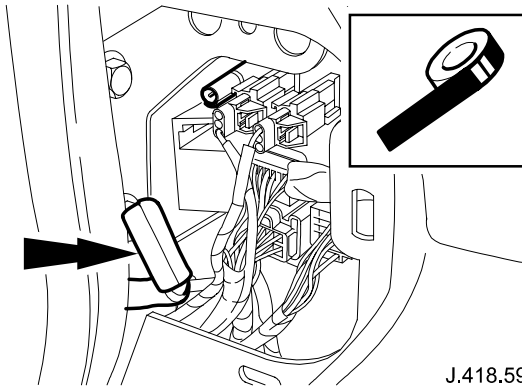


ILLUSTRATION 28

90. Remove backing paper from retained piece of foam.
91. Wrap adhesive foam around redundant Jaguar antenna lead plug (Illustration 28).

TIESTRAP SECURING UNUSED PLUG

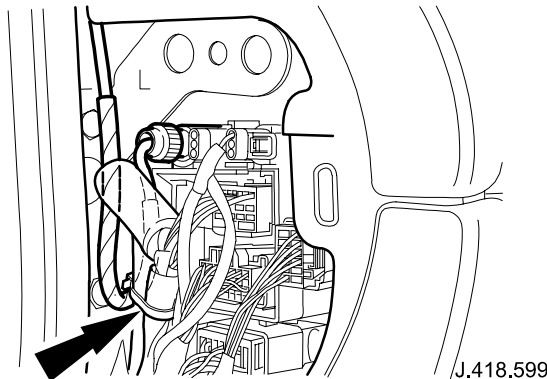


ILLUSTRATION 29

92. Using suitable ratchet strap, secure foam covered plug/lead to vehicle harness (Illustration 29).
93. Cut and remove protruding tail from tie strap.

Vehicles with sliding roof only.

- Remove block of wood from between front of sliding roof and body.
- Install and tighten the five forward most sliding roof to body securing screws.
- Install headlining (see Workshop Manual, JTIS CD ROM, section: 501-05, SRO 76.64.01).

Vehicles without sliding roof

- Remove and discard masking tape securing roof console bulb holder to headlining.
- Reposition and secure center console bulb holder to body.
- Reposition and align headlining to front grab-handle fixing blocks.
- Reposition front door aperture seals over headlining edges.
- Secure headlining Velcro fixings to roof panel.
- Install sun visor (see Workshop Manual, JTIS CD ROM, section: 501-05, SRO 76.10.48).
- Install sun visor blocks.
- Install roof console.
- Install front grab handles.
- Install B-post upper trim pads (see Workshop Manual, JTIS CD ROM, section: 501-05, SRO 76.13.28).
- Install A-post upper trim pads (see Workshop Manual, JTIS CD ROM, section: 501-05, SRO 76.13.31).

Vehicles with and without sliding roof

94. Install fascia left hand end cover.
95. Connect battery (see Workshop Manual, JTIS CD ROM, section: 414-01).
96. Install boot floor carpet to original condition.
97. Close luggage compartment lid.

Parts Information:

DESCRIPTION	PART NUMBER	QTY
Aerial lead plug/socket connector	XR8 41125	1
Aerial lead plug/socket connector	XR8 41126	1
Aerial rod	XR8 36433	1
Aerial rod base	XR8 36432	1
Coax cable	XR8 36431	1
Screened lead assembly	XR8 36434	1

Warranty Information:

Warranty claims should be submitted quoting the information found in the table below. This will result in payment of the stated time and, where applicable parts/miscellaneous expense codes as listed.

Description	SRO	Time	Causal Part Number	Causal Part Description
Install manual aerial	86.93.01	3.1 hrs.	XR8 36433	aerial rod
Install manual aerial with sliding roof	86.93.01/-01	3.7 hrs.	XR8 36433	aerial rod