

DATE: JULY 1992

PAGE: 1 of 10

REF: JD 08/92

## ERRATA

WITH REFERENCE TO SERVICE BULLETIN JD 02/92, ITEM 16, THE FOLLOWING IS A CORRECTION TO THE FAULT DIAGNOSIS PROCEDURE ITEM:

"FUEL GAUGE ALWAYS READS EMPTY"

PLEASE NOTE, DURING THE CHECK PROCEDURE DETAILED, THE LOW FUEL WARNING LIGHT WILL ALSO REMAIN ILLUMINATED WHEN THE UPPER WIRE IS CONNECTED TO GROUND TO CHECK THE GAUGE NEEDLE MOVEMENT. THE CURRENT BULLETIN ONLY STATES THAT THIS WILL OCCUR WHEN DISCONNECTING THE UPPER WIRE TO CHECK IF THE GAUGE READS EMPTY.

### XJ6 & XJ-S

ITEM: 27

#### 00 WARRANTY CODE BOOK

To enable dealers to diagnose customer concerns of "brake pull" accurately, a new 4th digit code of "R" has been introduced into sections 6E and 6J of the XJ6 Warranty Code Book and section 6J of the XJ-S Warranty Code Book.

Dealers should amend their code books immediately to reflect this addition.

### XJ6 3.2 & 4.0

ITEM: 28

#### 03 REPAIR OPERATION TIME AMENDMENT

An error has been discovered within the XJ6 Repair Time Schedule Section 30-15, Exhaust Manifolds. The incorrect times have been issued and affect 3.2 and 4.0 catalyst non-EGR vehicles only. The correct times are as follows:

30-15-09	Exhaust Manifold Heatshield - Renew	0.20 Hrs
30-15-12	Exhaust Manifold Gasket - Engine Set - Renew	1.15 Hrs
30-15-20	Front Exhaust Manifold Gasket - Renew	0.95 Hrs
30-15-21	Rear Exhaust Manifold Gasket - Renew	1.00 Hrs
30-15-36	Front Exhaust Manifold - Renew	0.95 Hrs
30-15-37	Rear Exhaust Manifold - Renew	1.00 Hrs
30-15-38	Exhaust Manifold - Engine Set - Renew	1.15 Hrs

Please amend your Repair Time Schedules accordingly.

No other times are affected.

**ALL V12 ENGINED VEHICLES****ITEM: 29****12 REVISED GASKET AND FIXING BOLT (FASTENER) PACKAGE**

A revised gasket and fastener package has been introduced on production for V12 engines to overcome complaints of oil leaks in service.

The package was fitted from the following engine numbers:

7P 67281	S. III
8S 86317	XJ-S
8W 10641	XJR-S 6.0L

The gaskets and fasteners are available from Jaguar Parts Operations and are all able to be retro-fitted to earlier engines. Where specified below, the correct fasteners **MUST** be used. The new fasteners are designed to reduce torque relaxation.

Part numbers and fitting details are as follows:

Oil filter mounting gasket: EBC 9624 replaces EAC 6337. EBC 9624 should be fitted without RTV sealant.

Sump gasket: EBC 9623 replaces EAC 7251. EBC 9623 should be fitted without RTV sealant and must only be used with fasteners JZS 100033 and JZS 100035 in place of C 37175/4 and BH 505141/J, respectively.

The fasteners should be torqued to 21–27 Nm. The dished serrated washer C 30075/2 should not be used.

Sump sandwich plate gasket: EBC 9637 replaces EAC 7252. EBC 9637 should be fitted without RTV sealant on split lines between the cylinder block and the timing cover and must only be used with fasteners JZS 100034 and JZS 100035 in place of SH 505081/J and BH 505141/J respectively. The fasteners should be torqued to 21–27 Nm. The dished serrated washer C 30075/2 should not be used.

"A" bank cam cover gasket: EBC 9627 replaces C 29428. EBC 9627 should be fitted without RTV sealant and must only be used with M6 bolts, Pt No FS 106251/J in place of SN 106251/J, torqued to 9.5–11.5 Nm.

"B" bank cam cover gasket: EBC 9628 replaces C 29429. All other details are as for the "A" bank cam cover gasket.

NOTE: RTV sealant should continue to be used on the rubber half-round seal located at the rear of the cam carrier.

Water rail gasket: EBC 9634 replaces C 30344. EBC 9634 should be fitted without RTV sealant.

Throttle body gasket: EBC 9635 replaces EAC 9759. EBC 9635 should be fitted without RTV sealant and with the tab on the gasket facing downwards.

Water pump elbow gasket: EBC 9636 replaces EAC 9805. The gasket should be fitted without RTV sealant and with the black side of the gasket to the pump body. This makes disassembly easier, should it be necessary.

Water pump gasket: (Between the 2 halves of the water pump) EBC 9630 replaces C 36542. EBC 9630 should be fitted without RTV sealant and grease should not be used to retain the gasket during assembly.

Water pump gasket – pump assembly to timing cover: EBC 9629 replaces C 29626. EBC 9629 should be fitted without RTV sealant and grease should not be used to retain the gasket during assembly.

Top cover gasket: (Also known as "Valley" gasket). EBC 9631 replaces C 29485. EBC 9631 should be fitted without RTV sealant or grease, with the black side of the gasket to the cylinder block. This makes disassembly easier, should it be necessary.

"A" bank timing cover gasket: EBC 9632 replaces EBC 3280.

"B" bank timing cover gasket: EBC 9633 replaces EBC 3281.

Timing cover top gasket: EBC 9625 replaces EBC 3282.

The three timing cover gaskets above must be fitted without RTV sealant or grease. After fitting the timing cover, the ends of the gaskets should be trimmed flush with the block, using a sharp knife.

All fixing bolts/screws and their torques, not mentioned above, remain as before.

## XJ-S & S.III V12

ITEM: 30

### 12 OIL PUMPS

To improve quality, Jaguar is now using an alternative supplier for the V12 oil pump.

In most cases, the new pump can be used as a direct replacement with no modification to the block; however, in some cases, a foul condition may exist between the pump and certain areas of the old sand-cast block. To check for any foul condition, the pump should be offered in the correct position to the mounting bosses. If it lies flat against the bosses, the condition is correct. If the pump lies proud of the bosses, material should be removed from the foul area of the block (refer to shaded areas in Fig. 1 for possible foul areas) by careful use of a rotary file or similar implement.

**WARNING: PROTECTIVE EYE WEAR MUST BE WORN WHEN USING ROTARY FILES.**

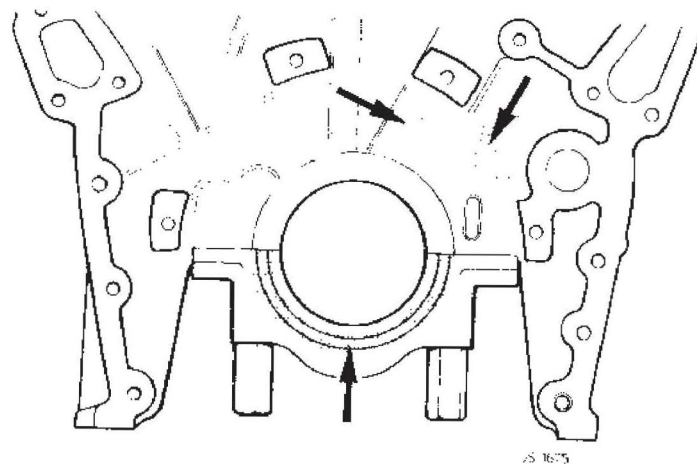


FIG 1

Care should be taken when removing material to ensure that swarf produced by the operation is completely cleared from the area and that no other part of the engine, i.e. crank, main bearing, is damaged during the operation.

In some cases, the new pump may appear to be seized or difficult to turn. This can be explained by "stiction", arising due to storage, and does not mean that the pump is damaged in any way.

If the pump does appear to be seized, 10 ccs of engine oil should be poured into the suction port and the inner rotor of the pump turned, using a suitable implement.

The repair method is as outlined in the relevant Service Manual. Note: the torque for the fixing bolts remains the same at: 21.5 – 28.5 Nm.

Service Tools are as outlined in the relevant Service Manual.

The new part number is EBC 3163 for the pump and EBC 4240 for the adaptor collar, which must be used in conjunction with the pump.

In addition, shorter fixing bolts must be used: 4-off Part No SH 50507 1J. The washers for the bolts remain the same, Part No C30075 2.

WARRANTY CODE: 1EA  
 REPAIR OPERATION CODE: SRO 12-60-26

## ALL AJ6 ENGINES

ITEM: 31

### 12 CYLINDER HEAD EROSION

On removal of AJ6 cylinder heads for service work, it has been reported that in some cases a certain amount of erosion exists on the gasket face around the inlet side water jacket holes.

As a guide to whether the cylinder head should be changed, dealers should proceed as follows:

Clean the gasket mating face using fine emery cloth or a soft wire brush.

**NOTE: CARE SHOULD BE TAKEN NOT TO SCORE OR DAMAGE THE SURFACE.**

Make a paper template of the cored holes in the cylinder block that correspond with the affected water holes in the head. To orientate the template to the head water holes, include the cylinder head bolt holes on the template. (See Fig. 1)

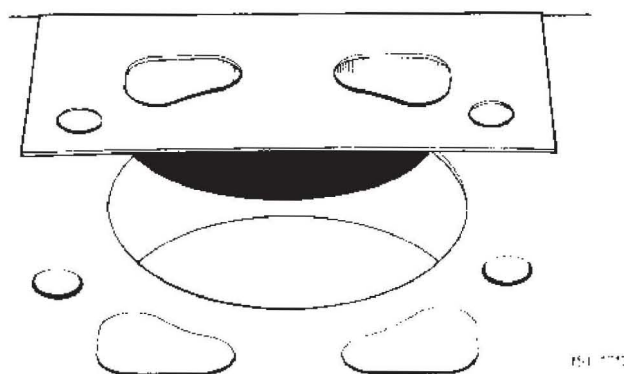


FIG. 1

Position the template on the cylinder head by aligning the cylinder head bolt holes on the template to those on the head.

ONLY IF THE EROSION ON THE HEAD OVERLAPS THE CORED HOLE CUT-OUTS SHOULD THE HEAD BE CHANGED.

If the erosion is within the cut-out the cylinder head should be refitted in the normal manner.

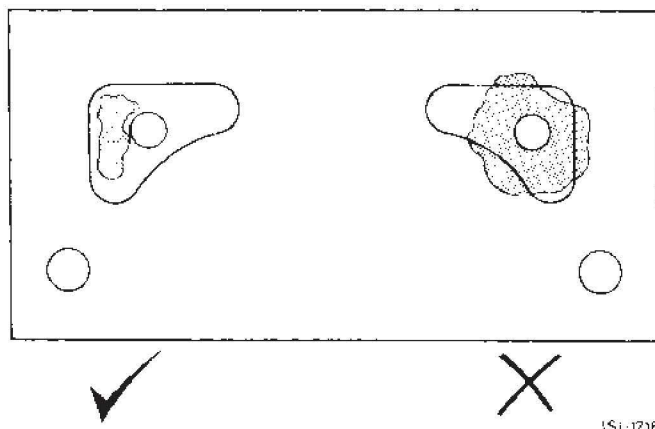


FIG. 2

Dealers should ensure that Jaguar coolant / anti-freeze / corrosion inhibitor is used in the cooling system at the correct concentration, or, where this is not available, phosphate-free anti-freeze to BS 6580 should be used.

NOTE: CYLINDER HEADS SHOULD NOT BE REMOVED TO LOOK FOR THIS CONDITION. THE ABOVE SHOULD ONLY BE NECESSARY WHEN THE CONDITION IS NOTICED ON REMOVAL OF A CYLINDER HEAD FOR OTHER REPAIR WORK.

## AJ6 ENGINES

ITEM: 32

### 12 DISTRIBUTOR / ROTOR ARM – SETTING GAUGE

Initial setting of the distributor body and rotor arm may be carried out with Service Tool JD 189 as follows:

Unclip and remove the distributor cap (H.T. leads remain connected).

Set the engine to T.D.C., firing on No.1 cylinder (rotor arm at approx. 5 o' clock).

Slacken the distributor clamp bolt.

Fit Service Tool JD 189 ((setting gauge) Fig. 1) to the distributor body.

Adjust the distributor body to enable the tool to engage the distributor body and rotor arm (Fig. 2).

Tighten the distributor clamp bolt.

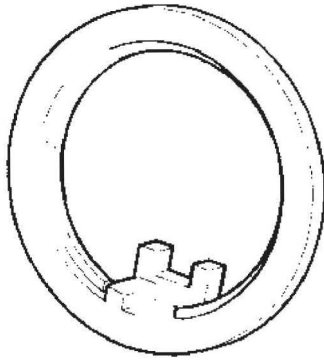


FIG.1

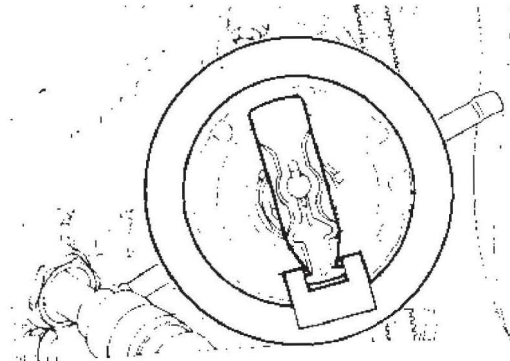


FIG. 2

Remove tool JD 189, setting gauge.

Fit the distributor cap and clamp with the securing clips.

**XJ6****ITEM: 33****76 DASH LINERS R/H & L/H**

Problems associated with the cosmetic appearance, fit and removal of the dash liners have prompted the following corrective actions.

To assist removal and prevent damage to the dash liner pads, a removal tool JD 188 and Service Bulletin JD 02/92 Item 13 have been issued to all Jaguar Dealers / Importers.

The visual appearance of the facia glovebox lid hinges has been improved on all vehicles built from VIN 658676. Hinges fitted to cars from this VIN are now finished in black.

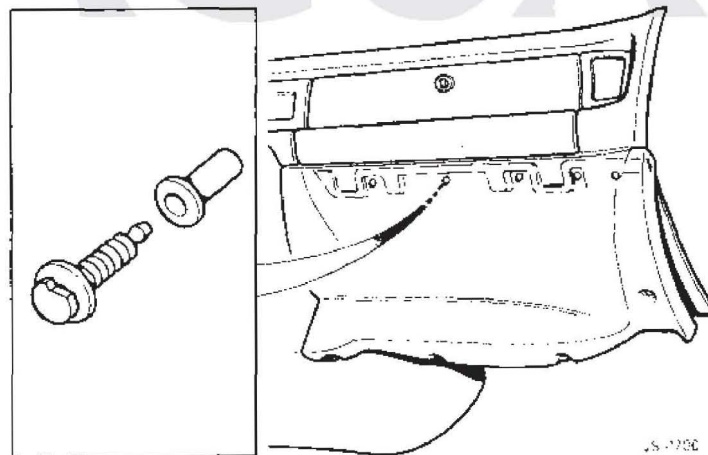


FIG 1

When renewing / refitting a dash liner, the only fixings that should currently be used are the stud fastener push-in fixings (Part No AGU 1425). These should be used in conjunction with the stud anchor plastic retainers (Part No AJU 1136).

**NB:** The fixings identified above are the only ones that should be used to secure dash liners. Any other fixing currently being used for this purpose should be discarded IMMEDIATELY.

## WARRANTY CODES

8RG Dash Liner Driver's side  
8RH Dash Liner Passengers' side

## REPAIR OPERATION CODES

SRO 76-41-11  
SRO 76-46-15

**XJ-S****ITEM: 34****76 BONNET – LOCKING GAS-FILLED SUPPORT STRUTS**

To provide a positive method of supporting the XJ-S bonnet when in the fully open position, a locking support strut is now fitted to the L.H. side of all bonnets from VIN 184672. This revised strut has been designed to be retrofittable to all XJ-S vehicles.

## PROCEDURE FOR OPENING / CLOSING:

- \* The method of opening the bonnet has not changed, however the bonnet should be opened fully to engage the locking strut.
- \* To close the bonnet: pull the bonnet down slightly, then push it fully open to disengage the lock, then lower the bonnet and close as normal.

## SERVICE REPLACEMENT:

To fit this new strut to existing vehicles, the following parts will be required.

## PARTS:

BEC 15544	L.H. gas strut – locking	1 off
BEC 13584	Ball pin	2 off
BEC 17641	Label – underbonnet closing	1 off

## FITTING INSTRUCTIONS:

- \* Unlock the bonnet and support it in the fully open position – use a wooden wedge.
- \* Unbolt and remove the L.H. strut. Discard this strut and its securing bolts.

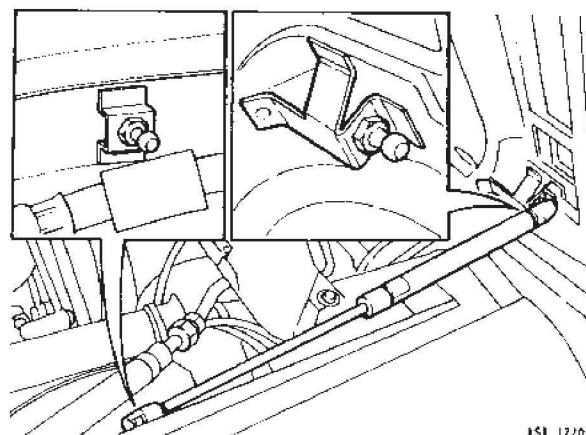
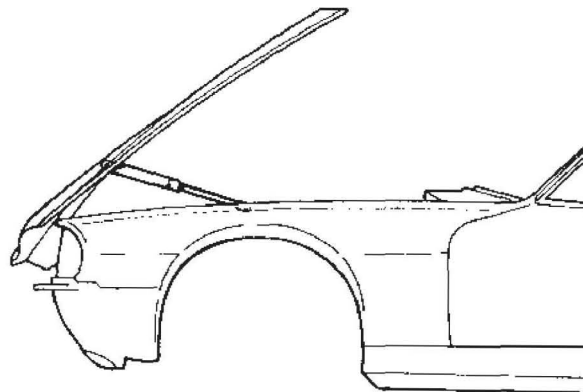


FIG 1

- \* Refer to Fig 1. Fit the "Ball Pin" strut mountings into the mounting brackets on the bonnet and the inner wing. Secure by applying a torque of 10 Nm minimum to 12 Nm maximum.

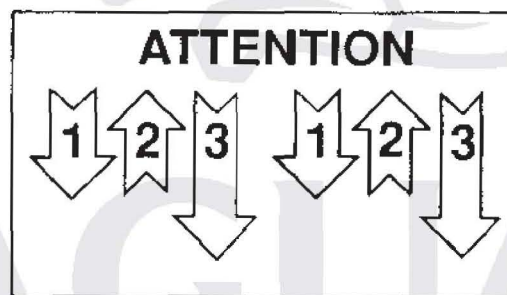


J51 1721

FIG 2

- \* Refer to Fig 2. Mount the lockable strut as shown.

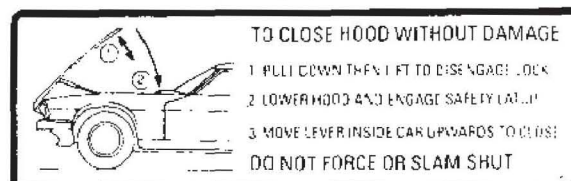
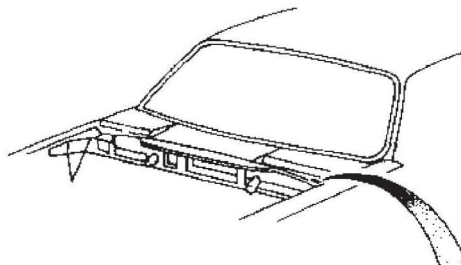
Note: This strut has a bright red warning label, showing the method of operation – Refer to Fig 3.



J51 1723

FIG 3

- \* Remove the bonnet temporary support.
- \* Test bonnet open / close function.



J51 1724

FIG 4



- \* Refer to Fig 4. Fit bonnet open / close warning label to the left-hand side of the vehicle exactly as shown.

NOTE: From VIN 184672 both L.H. locking and R.H. non-locking struts will be fitted into the vehicle using the "Ball Pin" swivel mountings.

#### PARTS DETAILS:

The following parts are fitted to all XJ-S models from VIN 184672. All of these parts are retrofittable.

PART NOs	DESCRIPTION	QUANTITY / VEHICLE
BEC 15544	L.H. bonnet gas strut locking	1 off
BEC 13515	R.H. bonnet gas strut	1 off
BEC 13584	Ball pin	4 off
BEC 17641	Label – underbonnet closing	1 off

#### APPLICABLE WARRANTY CODES AND SRO:

WARRANTY CODE: R.H. Strut 9CK  
L.H. Strut 9CL

SRO: 76-16-14

#### XJ6

ITEM: 35

#### 82 HEATER TO AIR CONDITIONING RETRO-FIT CONVERSION

Further to Service Bulletin JD 02/92, Item 15, the following comprehensive air conditioning retro-fit kits are now available.

All kits contain the necessary parts for conversion for the relevant model year and vehicle specification and supplementary parts are not required.

JLM 10639 A/C Kit – 91 MY from VIN 629285

JLM 10755 A/C Kit – 90 MY from VIN 607111 to 629284

JLM 10796 A/C Kit – 88 – 90 MY 2.9 after Engine No. 107821  
3.6 after Engine No. 106424

JLM 10797 A/C Kit – 2.9 from 1986 to Engine No. 107821

JLM 10798 A/C Kit – 3.6 from 1986 to Engine No. 106424

#### XJ6 & XJ-S

ITEM: 36

#### 86 HIRSCHMANN ELECTRICAL AERIAL

There has been a recent increase in the number of Hirschmann electrical aerial assemblies replaced, following complaints of abnormally slow operation of the telescopic mast.

Investigations have confirmed that the cause was a change to the carbon brush assembly composite, introduced by the supplier following some minor concerns with brush / commutator noise.

Our supplier has now revised the carbon brush specification to address the concern.

Aerials to the latest condition are identified by a "green spot" on the motor housing and were progressively introduced from VINs:

659651 - XJ6  
183682 - XJ-S

Parts Operations' stock has been reworked to the latest level and may also be identified by a "green spot".



# Service Bulletin

  
**JAGUAR**

**Daimler**

ISSUE NO: JD 10/92

AUGUST 1992

SHEET: 1 OF 1

S.R.O: 88-25-20

- MODEL** : XJS 4.0L AND V12 FACELIFT MODELS  
VIN RANGE 179737 TO 185038
- SUBJECT** : COOLANT TEMPERATURE GAUGE
- CUSTOMER CONCERN** : There is a tendency for the gauge to indicate a three-quarter or higher reading during normal driving conditions.
- ADVICE TO CUSTOMER** : A new coolant temperature transmitter is now available, which will ensure that the needle indication is "central" at normal engine operating temperatures.
- DEALER ACTION** : Yes
- REPAIR METHOD** : COOLANT TEMPERATURE TRANSMITTER - RENEW
- Disconnect the battery negative lead.
- WARNING:** Do not remove the cap at the remote header tank unless the engine is cold.
- Remove the radiator pressure cap to depressurise the system.
- Disconnect the transmitter feed wire, unscrew and remove the transmitter (V12 see Fig 1, 4.0L see Fig 2).
- Remove and discard the seal / washer.
- Fit the new seal / washer to the replacement transmitter.
- Fit and tighten the transmitter.
- Reconnect the transmitter feed wire. Check / top up the coolant. Refit the pressure cap.
- NOTE:** Always top up with the recommended strength of anti-freeze, never with water only. Re-connect the battery earth lead.

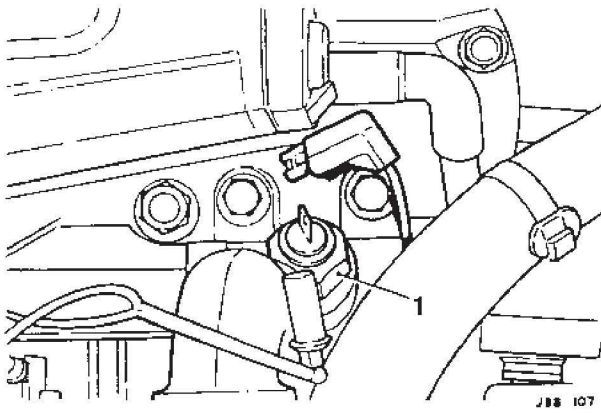


Fig 1

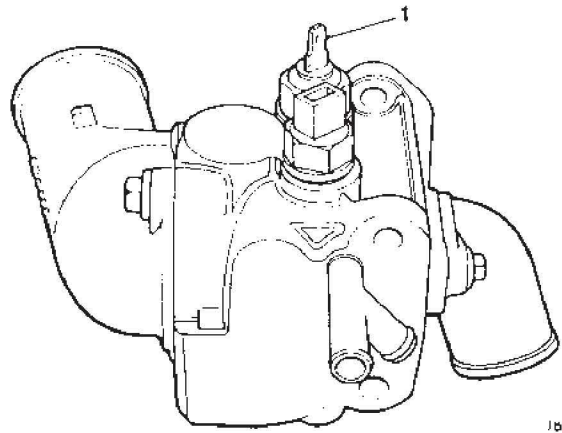


Fig 2

**DATA**

**TORQUE FIGURES:** Transmitter to engine 49–54 Nm

**SPANNER SIZES:** 22mm

**OILS / SEALANTS / LUBRICANTS:**

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

**SERVICE TOOLS**

: N / A

**PARTS INFORMATION**

: PART NO DESCRIPTION

DAC 11079 Coolant temperature transmitter

: NOTE: The new transmitter, DAC 11079, which should be fitted to XJS facelift models only, is identified by a red plastic top; conversely, the XJ40 transmitter will continue to have a black plastic top for recognition purposes.

**ADMINISTRATION INFORMATION**

: WARRANTY CODE

7JHU – Coolant temperature transmitter inaccurate / high

REPAIR OPERATION CODE

SRO 88–25–20

DATE: SEPTEMBER 1992

PAGE: 1 of 4

REF: JD 14/92

ALL MODELS

ITEM: 40

## 12 FLUROELASTOMERS – HAZARDS AND PRECAUTIONS

Further to recent media publications pointing out the problems involved in the use of fluoroelastomers, the following information **should be read and the precautions adhered to:**

When used within the designed operating conditions, fluoroelastomers are safe and **do not** present hazards to health.

In fire or conditions with temperatures greater than 315°C, fluoroelastomers will decompose and can become potentially hazardous. Physical signs of decomposition may be in the form of charring or a black sticky mass. Some decomposition may occur at temperatures above 200°C.

### Hazards

Fluoroelastomers are synthetic rubber-like materials which contain fluorine. They are commonly present in seals, gaskets, diaphragms, hoses and 'O' rings.

If heated beyond normal operating conditions, for example during attempts to remove a tight coupling flange or in a fire, they can not only break down to become toxic, but a highly corrosive acid may also form. This acid can cause serious burns on contact with skin. Avoid skin contact with fire-damaged fluoroelastomers.

### Precautions

1. Assume, unless you know otherwise, that seals, gaskets, diaphragms, hoses and 'O' rings are fluoroelastomers.
2. Allow all overheated, burnt or decomposed fluoroelastomer materials to cool down before inspection, investigation, tear-down or removal.
3. **Do not touch**, or allow skin / eye contact with any blackened or charred materials.
4. **Always wear** PVC or Neoprene protective gloves to handle cooled parts containing decomposed fluoroelastomers.
5. Clothing, gloves and any other contaminated parts or materials should be disposed of according to national and local regulations.

6. If contact with a decomposed fluoroelastomer is suspected, either physical (skin or eye) or through the inhalation of fumes, seek **medical attention immediately**.

**For Information:**

Technical instructions for Service Action R 374 call for the removal of the injector by burning through the injector hose with a soldering iron.

Please be advised that the injector hose contains no fluoroelastomer.

**XJ6 3.2/4.0 & XJS 4.0**

**ITEM: 41**

**18 DISTRIBUTOR CAP**

There has been a material change and revised electrode terminals introduced on AJ6 distributor caps.

Distributor assemblies incorporating caps to the revised condition were progressively introduced from 1st April 1992 production build, with the following safe engine numbers and VINs provided:

				ENGINE NO	VIN
XJ40	-	(4.0)	=	9EPCNA 160563	663458
"	-	(3.2)	=	9BPMNA 109324	663448
XJS	-	(4.0)	=	9EPCNA 160566	184714

Please note that the part number for the distributor cap, JLM 150, remains unchanged and is fully interchangeable on vehicles with engine numbers prior to those listed above.

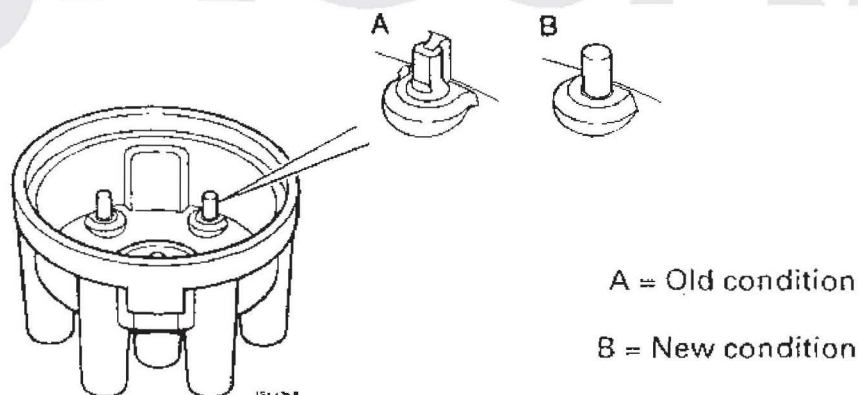


FIG 1

**XJ6 / XJS / SERIES III**

**ITEM: 42**

**86 CD AUTOCHANGER UNIT (PT. NO DBC 5130)**

There have been isolated incidences reported of compact discs becoming displaced within the CD autochanger unit, accompanied by error code E.02 being displayed on the radio-cassette display screen.

Jaguar Cars Limited 2005

If a vehicle is returned for this concern together with E.02 displayed, the following pro-

- a) Slide back the door on the CD unit and press the eject button.
- b) Remove the CD cartridge from the unit.
- c) Remove all discs from the cartridge.
- d) Replace the empty cartridge back into the CD player.
- e) The disc should now eject into slot (1) in the cartridge.
- f) Remove the cartridge.
- g) Replace the remaining compact discs into the cartridge.
- h) Test operation.

**NOTE:** If the cartridge does not eject from the changer unit, as in (a) above, the disconnect the lead connecting the CD autochanger to the radio-cassette for approximately 30 seconds. Reconnect and test operation.

Should the disc(s) still fail to eject, do not attempt to remove the disc(s) by any other means.

Remove the CD autochanger unit and return, following normal warranty returns procedures.

**NOTE:** Please ensure that the transit screws are in position when returning units to prevent mechanism damage during transit.

#### FOR INFORMATION PURPOSES

#### COMPACT DISCS

The specification of compact discs for use with CD autochanger DBC 5130 should comply with BS 7064 or equivalent. This Standard refers to the following criteria:

Outer diameter	120mm	+	0.3mm
		-	
Thickness of disc	1.2mm	+	0.3mm
		-	0.1mm

Compact discs outside these parameters may cause the E.02 error message.

**Compact discs which do not comply with this Standard should be avoided.**

If any other error code appears on the radio-cassette refer to Service Bulletin JD 03/91, Item 25 for advice.

#### XJS FACELIFT

ITEM: 43

#### 86 BRAKE PEDAL SWITCH

Isolated reports have been received concerning the driver's side blower motor recirculation flap being held partially open, due to the flap fouling the brake pedal switch mounting bracket.

To provide adequate clearance, the blower motor assembly is now positioned slightly forward by the introduction of a rubber spacer mounted on the rear face of the blower

This modification was introduced from VIN 184622.

The rubber spacer is attached to the blower surface using "Butyl" tape (double sided adhesive tape).

In the event that a driver's side blower motor assembly requires replacement on a vehicle after the above VIN, Dealers should ensure that the spacer is removed and re-fitted to the new blower motor assembly.

Please note the "Butyl" tape remains flexible and may be re-used to secure the spacer to the new motor. (Refer to Fig 1 for position and dimension references).

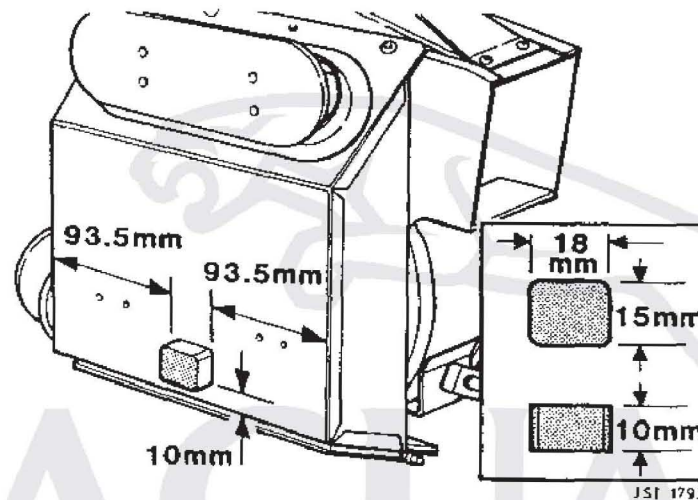


FIG 1

Fig 1 shows the right-hand blower motor assembly for RHD vehicles. The blower motor assembly for LHD vehicles is symmetrically opposite.



DATE: OCTOBER 1992

PAGE: 1 of 8

REF: JD 16/92

## ERRATA

Owing to revised information, the torque figure for the coolant temperature transmitter to engine, XJS models, is 14,5 to 19,5 Nm.

The torque figure given in Service Bulletin JD 10/92 and Section 88 of XJS Service Manual, JJM 10 04 06/20, should be ignored and only the revised figure used.

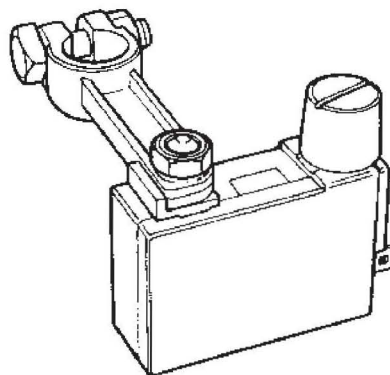
Service Manuals will be amended at the next reprint.

**XJ6 93 MY (FROM VIN 667829)**

**ITEM: 44**

### BATTERY TRANSIT RELAY – REMOVAL

Owing to the relocation of the battery into the boot at 93 MY, a revised battery transit relay has been introduced, (see Fig 1).



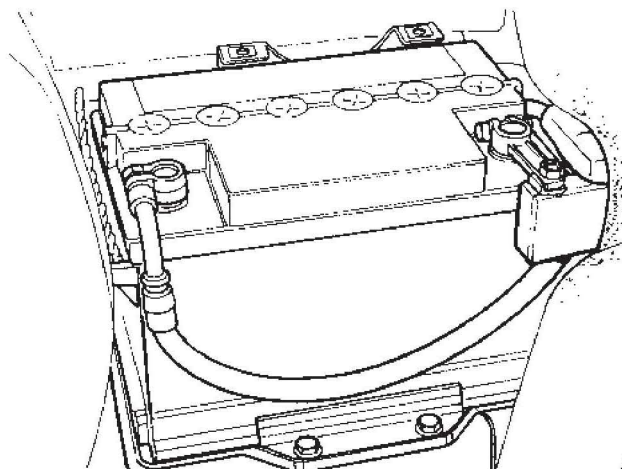
J51-1773

FIG 1

The procedure for the removal of this new relay is as follows:

#### WITH THE IGNITION OFF:

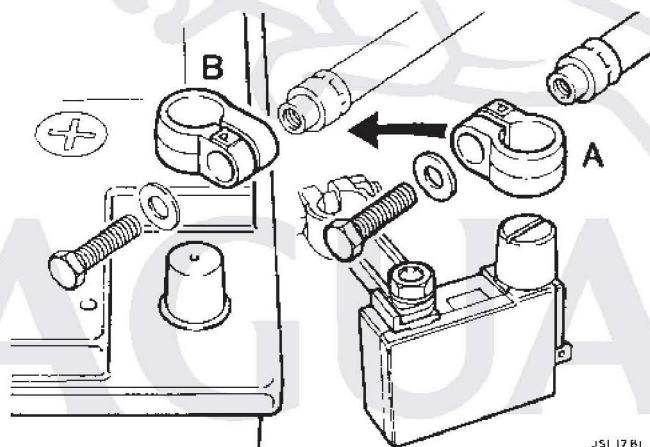
1. Open the boot and remove the battery cover, (see Fig 2).
2. Remove the negative lead from the battery.
3. Disconnect the transit relay from the battery.
4. Remove the white / yellow (W/Y) ignition wire from the transit relay.



J51-1778

FIG 2

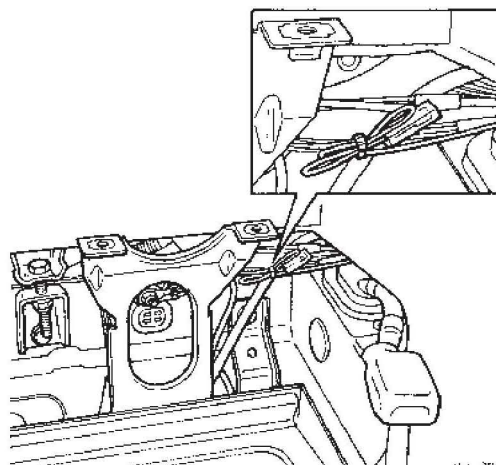
5. Remove the positive lead from the transit relay terminal post, (A, Fig 3).
6. Reverse the positive lead clamp and refit the clamp to the positive lead (B, Fig 3).



J51-1781

FIG 3

7. Displace the battery.
8. Tie back and secure the white / yellow (W/Y) ignition wire, (see Fig 4).



J51-1780

FIG 4

9. Refit the battery.
10. Refit and secure the positive and then negative lead of the battery.
11. Replace the battery cover.

**NOTE: ALL UK DEALERS MUST CONTINUE TO RETURN THE DISPLACED TRANSIT RELAYS.**

**REMOVAL OF THE TRANSIT RELAY SHOULD BE CARRIED OUT NO LONGER THAN 24 HOURS BEFORE THE VEHICLE IS HANDED OVER TO THE CUSTOMER.**

**THE RADIO AND TIME CLOCK MUST BE RESET AFTER THE RELAY IS REMOVED.**

**IMPORTANT: UNDER NO CIRCUMSTANCES SHOULD THE RELAY BE USED OR RETAINED AS AN ISOLATION DEVICE FOR ROAD USE.**

**XJS**

**ITEM: 45**

### 03 REPAIR OPERATION TIMES

#### Air Conditioning Blower Motor Assembly

The repair operation times for renewing the air conditioning blower motor assemblies have been re-studied on 1992 MY vehicles.

The new operation times for vehicles from VIN 179737 are as follows:

#### Right-hand drive vehicles

82-25-13	Blower Assembly – Left-Hand – Renew	0.95 Hrs
82-25-13/09	As 82-25-13 (Less JDS Allowance)	0.60 Hrs

82-25-14	Blower Assembly – Right-Hand – Renew	1.60 Hrs
82-25-14/09	As 82-25-14 (Less JDS Allowance)	1.25 Hrs

#### Left-hand drive vehicles

82-25-13	Blower Assembly – Left-Hand – Renew	1.60 Hrs
82-25-13/09	As 82-25-13 (Less JDS Allowance)	1.25 Hrs

82-25-14	Blower Assembly – Right-Hand – Renew	0.95 Hrs
82-25-14/09	As 82-25-14 (Less JDS Allowance)	0.60 Hrs

Please amend your repair times accordingly.

No other repair times are affected.

**XJ6 / XJS****ITEM: 46****10 BRAKE SYSTEM SERVICE RECOMMENDATIONS**

**Note:** This bulletin supersedes Item 21 of Service Bulletin JD 03/92.

With the introduction of the ABS brake system, from the following VINs, the brake servicing recommendations have changed:

1. XJ6 from VIN 594576.
2. XJS (5.3 convertible) from VIN 147269.
3. XJS (5.3 coupe) from VIN 148782.
4. XJS (3.6 coupe) from VIN 148945.

No routine replacement of system seals is necessary. The system and components, which are sealed for life, require no maintenance. Repair is by replacement.

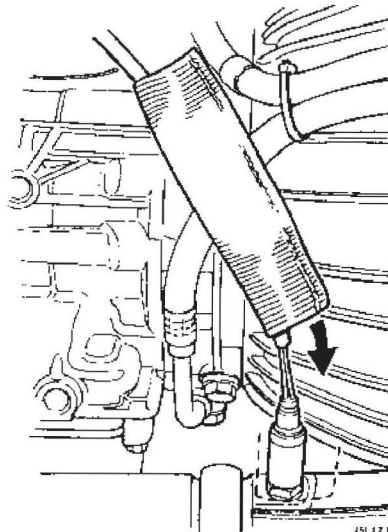
The braking system must still be inspected for satisfactory operation and condition at the regular service intervals.

Because of its hygroscopic nature, brake fluid must be renewed at 2 year or 30 000 mile (48 000 km) intervals, whichever is sooner.

**XJ6 ALL MODELS****ITEM: 47****18 LAMBDA SENSOR SPLASH-SHIELD**

Following reports of the intermittent display of "Fuel Failure 44" on the instrument pack, it was found that this symptom could be caused by water penetrating the lambda sensor.

A lambda sensor splash-shield has been introduced from VIN 664941, which can be fitted retrospectively and should be installed whenever a lambda sensor is changed. This will reduce the possibility of water ingress.



SLEEVE  
C. 33139/4

The six-inch silver heat-proof sleeve is fitted by sliding it over the sensor, prior to its replacement. After the sensor has been fitted, Dealers should ensure that the sleeve is pushed fully back down to cover the whole sensor.

**ALL MODELS****ITEM: 48****18 IGNITION SPARK PLUGS**

Spark plugs have been returned under warranty with a yellow / brown stain visible on the insulator housing. Dealers have incorrectly interpreted this as leakage of combustion gases between the insulator and metal housing and the cause for spark plug misfire. The following is an explanation for the staining and the more likely cause for spark plug misfire.

During most atmospheric conditions a form of static discharge, common to high voltage conductors, can occur, which is commonly known as "Corona discharge".

Ignition systems are particularly prone to this effect during wet weather, when the air space surrounding the spark plugs becomes charged with a gas composed of electrons, ions and air particles, forming a state of general ionization. Too much ionization counteracts the spark plug insulation and causes a partial discharge, which in turn gives out a blue light.

Under normal circumstances this will in no way affect the running of the car, providing the spark plug insulators are kept clean.

Running problems would normally only occur if the spark plug insulators were coated in a film of dirt, which would allow high voltage tracking, known as "flashover", between the spark plug terminal stud and earth, thus causing a misfire.

However, protection is provided against this eventuality by the inclusion of "ribs" along the insulator body. To identify whether or not the spark plugs have been subjected to Corona discharge, plugs should be examined in daylight for the presence of a yellow / brown stain at the base of the insulator, next to the metal housing.

The actual stain is caused by oil-contaminated particles, in suspension around the spark plug insulator, receiving the electrostatic charge of ionization and fusing themselves to the plug. The stain is quite harmless and can usually be wiped off easily.

Corona discharge will cause no deterioration in service or malfunction of the spark plug.

Moisture or dirt may cause "flashover" but Corona discharge does not. Cleanliness is vital, therefore, spark plug insulators should be kept clean and dry at all times.

**Note:** Spark plugs returned under warranty may be rejected as "no fault found" for the reasons given above.

**XJ6 ALL MODELS****ITEM: 49****64 REAR SHOCK ABSORBERS**

Jaguar Cars Limited 2005

From VIN 667829, a new rear shock absorber is fitted to all non-ride-levelling vehicles. This new part is fully interchangeable with all previous components when

This new part, number CCC 6923, should be used in all cases where rear shock absorbers are replaced, with immediate effect.

**Under no circumstances** should this new part be mixed with old condition parts on a vehicle axle.

When failures are identified in service, single shock absorbers only need to be changed if the parts have less than 25,000 miles (40,000km) service use.

The new units, which have a black finish, can be easily distinguished from the previous parts by a new sealed gaiter, which will reduce dirt ingress.

### **XJS 6CYL / V12 AND SERIES III V12**

**ITEM: 50**

#### **82 RECEIVER DRIER BOTTLE**

When replacing the receiver drier bottle, Part Number CAC 1881, it is essential that the receiver drier bottle is mounted with the sight glass vertical. This is to ensure that the pick-up tube inside the drier bottle is always immersed in liquid refrigerant. If the receiver drier bottle is mounted at angles in excess of +/- 20 degrees from the vertical, there is a risk, under certain conditions, that vapour rather than liquid may enter the pick-up tube. Should this occur, erratic air conditioning performance may result.

### **XJS 4.0L / V12**

**ITEM: 51**

#### **86 LOW COOLANT WARNING LIGHT FAULT DIAGNOSIS**

Dealer investigations into low coolant warning light concerns have resulted in a high number of low coolant probes and control units being replaced unnecessarily, as most probes and control units tested by the supplier reveal no faults. In order to reduce this unnecessary replacement, the following electrical checks should be carried out by Dealers before condemning or replacing components where the cause is found to be low coolant level. The checks should include inspection of the coolant system for leaks, which is best achieved by pressure testing the coolant system to locate the source of the leak.

Coolant leaks may be caused by: loose hose clip connections, worn or damaged pressure cap seals, or damaged hoses. Lack of coolant recovery from the atmospheric recovery bottle may be a further reason for low coolant level in the header tank.

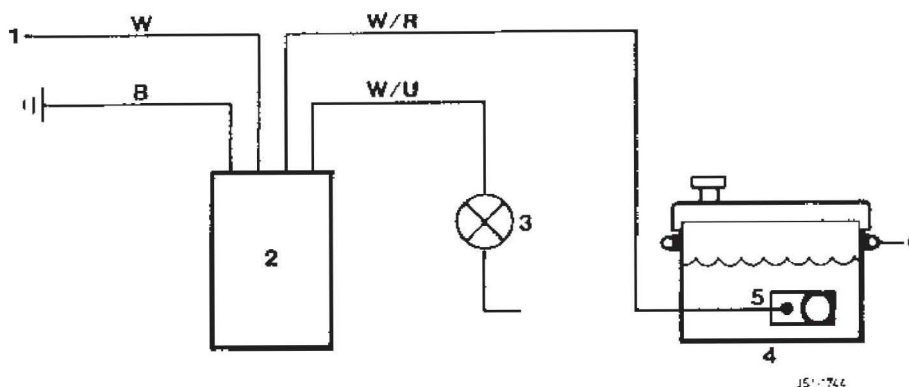
Transfer of coolant from the atmospheric recovery bottle relies on the presence of a vacuum, as the coolant contracts when the engine is turned off. Checks should be made to ensure that the recovery bottle and its connections through to the header tank are leak-free and unrestricted. In addition, the vacuum valve in the header tank should be checked to ensure that it operates correctly and does not stick.

### **ELECTRICAL CHECK PROCEDURE**

#### **CIRCUIT / SYSTEM DETAILS**

Jaguar Cars Limited 2005

The system operates by measuring the resistance of the coolant. With resistance below 5,000 Ohm, the warning light is off. The light will illuminate with the resistance



**COMPONENT / CIRCUIT CODE**

- 1 – Ignition (IGN) supply
- 2 – Low coolant control unit
- 3 – Warning light (W/L)
- 4 – Header tank
- 5 – Low coolant probe
- 6 – Header tank earth via fixing bolts

**WIRING CODE**

- W – White
- W/R – White / Red
- W/U – White / Blue
- B – Black

FAULT	CAUSE	ACTION
W/L does not illuminate at any time. (Bulb check does not occur i.e. @ 1 sec on following ign)	Blown W/L or open circuit on W/L wire	Check by shorting white / blue (W/U) wire to earth – W/L should come on.
	Earth wire at unit open circuit	Check resistance to good chassis ground – less than 2 Ohm.
	Ign supply to unit open circuit	Check supply at unit, should be battery voltage.

If the above checks are satisfactory replace faulty low coolant unit.

W/L on all the time with ign	Low coolant	Check and top up as required
------------------------------	-------------	------------------------------

If the coolant level is satisfactory, the following check will determine which part of the circuit is at fault.

Disconnect the probe wire at the tank and short to ground. If the W/L goes out, proceed to (A). If the W/L stays on, go to (B).

(A)	Poor connection, tank body to earth	Check resistance of tank body to good chassis earth – should be less than 2 Ohm.
	Poor connection on Lucar connector Red / White wire. Lucar rivet loose on low coolant probe	Visual check – clean, replace as required.
	Low coolant probe / plating contaminated	Remove probe from tank – clean with wire wool – if probe Lucar is damaged or loosened during re-

(B)	Short to earth in W/L wire or W/L bulb-holder pack	Unplug low coolant unit. If the W/L goes off, circuit OK – If W/L remains illuminated – locate short circuit.
	Short to earth on probe wire White / Red (W/R)	With unit and probe disconnected, check the White / Red wire resistance to good chassis earth – should be above 20,000 Ohm.

If all of the above checks are satisfactory, replace faulty low coolant unit.

W/L flashes on, then goes off	Low coolant level	Check – top up as required.
	Intermittent open circuit, on White / Red (W/R) low coolant probe wire	Ground probe wire at tank – test drive vehicle. If fault recurs, check harness / connectors, locate open circuit
Less likely causes but may in certain conditions, with an out of specification unit, cause a fault	Bad connection tank body to earth	Check resistance of tank body to good chassis earth – should be less than 2 Ohm.
	Poor connection on Lucar connector Red / White (R/W) wire. Lucar rivet loose on low coolant probe	Visual check – clean replace as required.
	Low coolant – probe / plating contaminated	Remove probe from tank, clean with wire wool – if probe Lucar is damaged or loosened during removal replace probe.



# Service Bulletin

**JAGUAR**

**Daimler**

ISSUE NO: JD 10/93

JULY 1993

SHEET: 1 OF 1

S.R.O: 88-30-31

MODEL : XJS 4.0 LITRE MODELS ONLY  
SUBJECT : SPEED INTERFACE MODULE  
CUSTOMER CONCERN : Fuel Fail (FF) Code 68 registering at speeds in excess of 90 mph (144 kph).  
ADVICE TO CUSTOMER : A new interface module is now available and should be fitted to resolve this concern.  
DEALER ACTION : Yes  
REPAIR METHOD : Speed interface module – renew (XJS 4.0 litre only).  
\* Open the boot  
\* Disconnect the battery negative lead  
\* Remove the LH side trim panel  
\* Locate the speed interface module secured to the relay mounting bracket (See Fig. 1.)

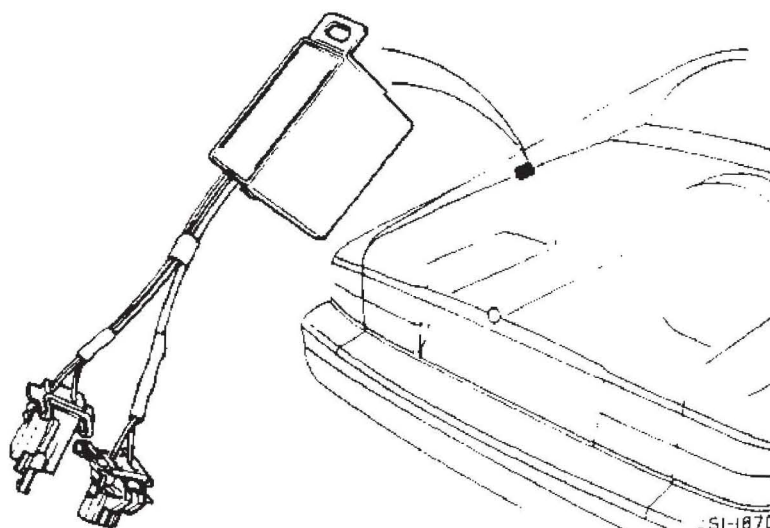


Fig 1

- \* Remove the module and replace with new interface module, Part No. DAC 11375
- \* Replace the trim panel
- \* Reconnect the battery negative lead
- \* Close the boot

SERVICE TOOLS : N/A

PARTS INFORMATION : PART NO DESCRIPTION  
 DAC 11375 Speed Interface Module

Note: DAC 11375 replaces DAC 7474 on all XJS models from the introduction of 1993 M.Y., VIN 185820.

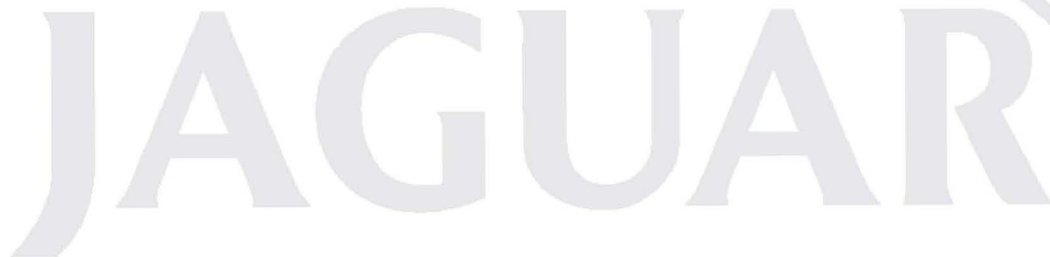
For service replacement purposes DAC 11375 should be fitted in place of DAC 7474 on any XJS 4.0 litre vehicle exhibiting FF68.

Dealers should continue to use DAC 7474 on XJS V12 models, until stocks are exhausted.

ADMINISTRATION : WARRANTY CODES  
 INFORMATION 7 ARP – Speed Interface Module – wrongly adjusted

REPAIR OPERATION CODE

For vehicles in warranty, claims should be submitted quoting SRO 88-30-31/09 (less JDS allowance) for which a labour time of 0.10 hours will be allowed.


 JAGUAR

# Service Bulletin



**JAGUAR**

**Daimler**

**ISSUE NO: JD 19/93**

**AUGUST 1993**

**PAGE: 1 OF 3**

**SRO: 86-91-59**

**MODEL** : ALL 1991 AND 1992 MY XJ6 & XJS VEHICLES FITTED WITH 3.2 & 4.0 AJ6 ENGINES  
ANY 1989 AND 1990 MY XJ6 & XJS VEHICLES FITTED WITH 3.6 AJ6 ENGINES HAVING SERVICE REPLACEMENT AIR FLOW METERS

**SUBJECT** : AIR FLOW METER CONNECTOR

**CUSTOMER CONCERN** : Intermittent loss of power, or stalling.

**ADVICE TO CUSTOMER** : These symptoms may be caused by a poor electrical connection to the air flow meter. Rectification action involves the fitment of a revised connector between the meter unit and the harness to the engine management ECU.

## BACKGROUND

Vehicles manufactured in 1989 and 1990 Model Years were fitted with air flow meters, which may be identified by a Brown-coloured connector, together with an earthing stud.

Vehicles manufactured in 1991 and 1992 Model Years were fitted with air flow meters which may be identified by either a Black or a White-coloured connector; this pattern does not have an earthing stud.

However, replacement air flow meters supplied for the 1989 and 1990 MY vehicles were of the same pattern as those used for 1991 and 1992 manufacture, hence any vehicle to which a replacement air flow meter has been fitted in service is effectively to 1991 / 2 MY condition, though variations in wire colours occur within the main wiring harness, depending on Model Year. These variations are tabulated later in this bulletin.

**DEALER ACTION** : Yes

**REPAIR METHOD** :

1. Open the bonnet, and fit a wing cover.
2. Disconnect the battery.
3. Disconnect the harness connector to the air flow meter.

4. Remove the harness from under the air flow meter and cut the ratchet strap which retains the harness to the inlet manifold.
5. Unwrap the tape from the harness, sufficient to allow new joints to be made between the wires from the replacement connector and the wires in the harness, using heat-shrinkable in-line crimp connectors.

**Note 1:** In carrying out the subsequent operations, the overall length of the harness to the outer end of the replacement connector must be no shorter than the existing length, but should not be extended by more than 25mm. (1 inch)

**Note 2:** The replacement connector is slightly longer than the connector to be displaced.

**Note 3:** The ends of the leads from the replacement connector are of staggered length, so that no bunching will occur at the crimp joints.

6. Observing the above conditions, match the wire colours and cut the wires in the existing harness to appropriate lengths. Discard the displaced connector.

**Note 4:** On 1991 and 1992 MY vehicles, the wire colours of the vehicle harness correspond to those of the revised connector.

If fitting the revised connector to a 1989 or 1990 MY vehicle, the table below indicates the wire colours of the vehicle harness which must be connected to the corresponding wires from the revised connector.

7. Suitably strip back the insulation from the cut ends of the existing harness wires and the wires from the new connector.
8. Use crimp connectors to join the corresponding wires to the existing harness.
9. Using a hot air gun, shrink the outer tubing of the crimp connectors.
10. Ensuring that the crimp connectors remain staggered, re-wrap the exposed length of harness with insulation tape.
11. Fit the connector to the air flow meter.
12. Reposition the harness under the air flow meter and fit a ratchet strap to retain the harness to the inlet manifold.
13. Reconnect the battery and close the bonnet.

PARTS INFORMATION : CONNECTOR / LEAD ASSEMBLY:

XJ6 - Part No. DBC 12191

XJS - Part No. DAC 11325

ADMINISTRATION : WARRANTY CODE:  
INFORMATION 7CD

REPAIR OPERATION CODE:

SRO 86-91-59 0.35 hours

**The table below identifies the harness wire colours for 1989 and 1990 MY vehicles.**

REVISED CONNECTOR WIRE COLOURS		VEHICLE MAIN HARNESS WIRE COLOURS		
Pin Number	Colour	XJ6 3.6L 1989 MY	XJ6 4.0L 1990 MY	XJS 3.6L 1989 & 1990 MY
1	BY	BO	BY	BO
2	BY	BO	BY	BO
3	GK	GK	GK	GK
4	-	-	-	-
5	WN	WN	WN	WN
6	GR	GR	GR	GR
Earth Strap	N/C	B	B	B

# Service Bulletin



ISSUE NO: JD 21/93

AUGUST 1993

PAGE: 1 OF 3

SRO: 86-91-68

MODEL : JAGUAR XJ6 AND XJS 1993 MY WITH AJ6 ENGINES

VIN RANGE 667829 TO 678670  
185820 TO 188104

SUBJECT : INTERMITTENT FLAGGING OF FF12

CUSTOMER CONCERN : Instances of FF12 being flagged, intermittently.

ADVICE TO CUSTOMER : The concern may be overcome by the fitment of an additional relay in the Petrol Injection (PI) circuit.

DEALER ACTION : Yes – where necessary.

REPAIR METHOD : **XJ6 MODELS**

1. Disconnect the battery
2. Open the bonnet; remove the PI main relay (DAC 7686) from its base (Black base)
3. Displace the anti-backout clips from the relay base
4. Using extraction tools, remove the following wires from the relay base:

Brown / Yellow from pin 30

White / Brown from pin 87

5. Reconnect the Brown / Yellow wire into pin 87 of the relay base
6. Reconnect the White / Brown wire into pin 30 of the relay base
7. Using the extraction tools remove the Black wire from pin 85 of the relay base
8. Connect the appropriate end of the new link harness (Part No. LMB 3998AA) to the connector of the Black wire removed from pin 85 of the relay base in (7) above

**Note:** Only one end of the link harness will mate with the connector of the Black wire

9. Connect the other end of the link harness (Black wire with White marker) to pin 87A of the relay base
10. Connect the remaining Black wire of the link harness to pin 85 of the relay base
11. Refit the relay anti-backout clips
12. Use suitable adhesive tape to secure the link harness to the relay harness  
**Note:** Ensure that the exposed connection is properly insulated
13. Refit the relay base to the mounting bracket
14. Fit the new relay (Part No. DAC 7687) into the relay base
15. Close the bonnet and reconnect the battery

: **XJS MODELS**

1. Disconnect the battery
2. Remove the carpet of the passenger-side footwell and the cover of the inertia switch
3. Displace the draught welting adjacent to the base of the A post, reposition the tread plate and remove the lower trim pad
4. Displace the cover of the ECM
5. Pull the PI relay base away from its bracket and remove the relay (AGU1070)
6. Displace the anti-backout clips from the relay base
7. Using extraction tools remove the following wires from the relay base:  
Brown / Yellow from pin 30  
White / Brown from pin 87
8. Reconnect the Brown / Yellow wire into pin 87 of the relay base
9. Reconnect the White / Brown wire into pin 30 of the relay base
10. Using the extraction tools remove the Black wire from pin 85 of the relay base
11. Connect the appropriate end of the new link harness (Part No. LMB3998AA) to the connector of the Black wire removed from pin 85 of the relay base in (10) above  
**Note:** Only one end of the link harness will mate with the connector of the Black wire
12. Connect the other end of the link harness (Black wire with White marker) to pin 87A of the relay base
13. Connect the remaining Black wire of the link harness to pin 85 of the relay base

14. Refit the relay anti-backout clips
15. Use suitable adhesive tape to secure the link harness to the relay harness
  - Note:** Ensure that the exposed connection is properly insulated
16. Fit the new relay (Part No. DAC 7687) into the relay base and refit the relay base to its bracket
17. Refit the ECM cover
18. Refit the lower trim panel, tread plate and draught welting
19. Refit the cover of the inertia switch and the carpet of the passenger-side footwell
20. Reconnect the battery

**PARTS INFORMATION** : The following parts should be ordered from Jaguar Parts Operations:

<u>DESCRIPTION</u>	<u>PART NO.</u>	<u>QTY / VEHICLE</u>
Resistor / link lead	LMB 3998AA	1
Relay	DAC 7687	1

**ADMINISTRATION INFORMATION** : WARRANTY COMPLAINT CODE  
7CDD

REPAIR OPERATION CODE & LABOUR TIME ALLOWANCE

SRO: 86-91-68	0.25 hours - XJ6
	0.40 hours - XJS

In addition, a Drive in / Drive out allowance of 0.15 hours may be claimed by quoting SRO 10-10-10, where applicable.



# Service Bulletin

# JAGUAR

# Daimler

ISSUE NO. JD 01/94

DATE: JANUARY 1994

SHEET 1 OF 2

- See issue 2*
- MODEL : XJ6 FROM 1993 MY  
XJ12 FROM 1993.25 MY  
XJS FROM 1993.5 MY
- SUBJECT : SECURITY SYSTEM TRANSMITTER
- CUSTOMER CONCERN : Range is consistently less than 10m around the vehicle, intermittent operation or inadvertent operation.
- ADVICE TO CUSTOMER : Dealers should apply the following Fault Diagnostic Flow Chart to determine if the concern relates to the transmitter unit itself or whether further investigation of the security system is required.
- DEALER ACTION : Yes - if required.
- REPAIR METHOD : Follow the procedure as given in the Flow Chart.

#### Abbreviations:

TX = Transmitter  
ECU = Electronic Control Unit

- PARTS INFORMATION : The Parts listed below should be ordered from Jaguar Parts Operations as required:

<u>DESCRIPTION</u>	<u>PART NO.</u>	<u>QTY/VEH</u>
Transmitter	Refer to the Parts Fiche for Market Specification	2 (Max)
* Transmitter Cover	LMB 2610AA	2 (Max)
Battery	JLM 9999	1

- \* Where the Flow Chart diagnosis indicates fitting of the revised Transmitter Cover, LMB 2610AA, please refer to Service Bulletin JD 28/93 for further information.

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ADMINISTRATION  
INFORMATION: WARRANTY COMPLAINT CODES

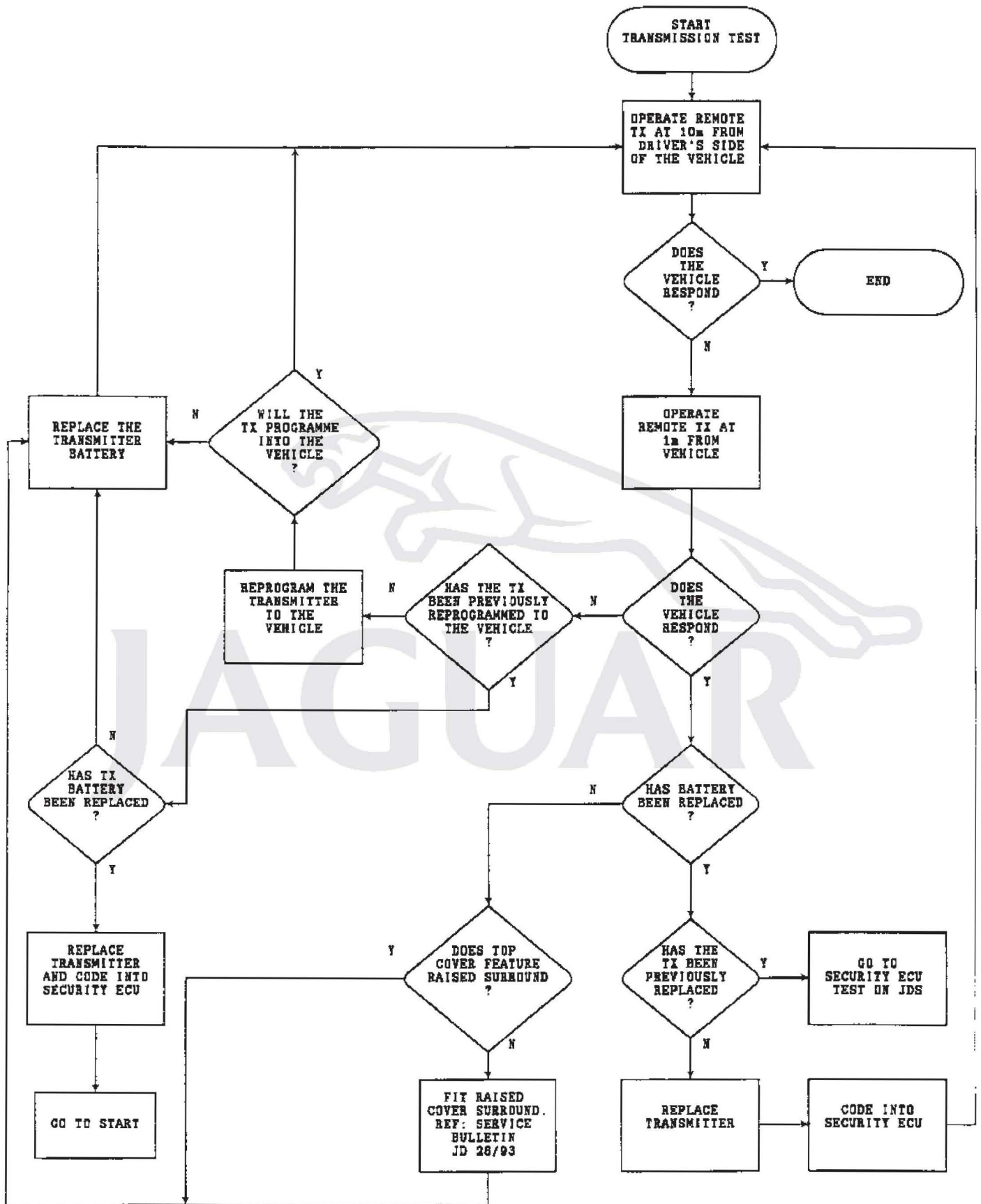
	<u>XJ6/12</u>	<u>XJS</u>
1. Transmitter	3MD	3MD
2. Transmitter Cover	3MDG	N/A
3. Battery	3ME	3ME

Please use appropriate 4th. digit codes for items 1 and 3.

REPAIR OPERATION CODES AND LABOUR ALLOWANCES

1. SRO 86-52-19	0.45	Hours
2. SRO 86-91-78	0.10	Hours
3. SRO 86-52-28	0.10	Hours





# Service Bulletin

# JAGUAR

# Daimler

ISSUE NO. JD 01/94

DATE: JANUARY 1994

SHEET 1 OF 2

**\*\* ISSUE 2 \*\***

MODELS : XJ6 FROM 1993 MY  
XJ12 FROM 1993.25 MY  
XJS FROM 1993.5 MY

SUBJECT : SECURITY SYSTEM TRANSMITTER

CUSTOMER CONCERN : Range is consistently less than 10m around the vehicle, intermittent operation or inadvertent operation.

ADVICE TO CUSTOMER : Dealers should apply the following Fault Diagnostic Flow Chart to determine if the concern relates to the transmitter unit itself or whether further investigation of the security system is required.

DEALER ACTION : Yes - if required.

REPAIR METHOD : Follow the procedure as given in the Flow Chart.

Abbreviations:

TX = Transmitter  
ECU = Electronic Control Unit

PARTS INFORMATION : The Parts listed below should be ordered from Jaguar Parts Operations as required:

<u>DESCRIPTION</u>	<u>PART NO.</u>	<u>QTY/VEH</u>
Transmitter	Refer to the Parts Fiche for Market Specification	2 (Max)
* Transmitter Cover	1MB 2610AA	2 (Max)
Battery	JLM 9999	1

**Jaguar Cars Limited**

\* Where the Flow Chart diagnosis indicates fitting of the revised Transmitter Cover, LMB 2610AA, please refer to Service Bulletin JD 28/93 for further information.

ADMINISTRATION  
INFORMATION

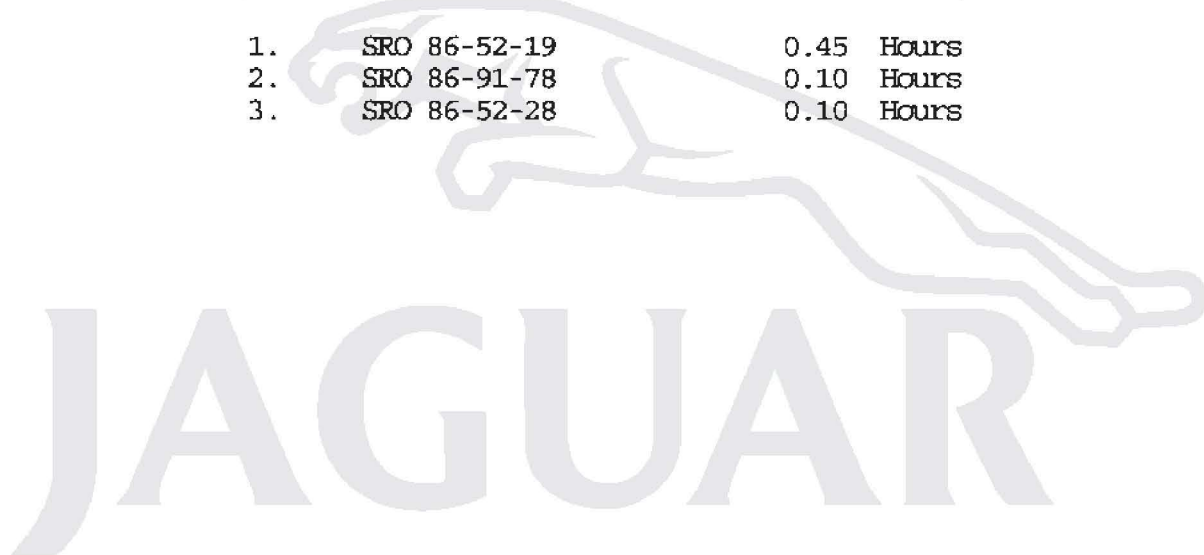
: WARRANTY COMPLAINT CODES

		<u>XJ6/12</u>	<u>XJS</u>
1.	Transmitter	3MD	3MD
2.	Transmitter Cover	3MDG	N/A
3.	Battery	3MDE	3MDE

Please use appropriate 4th. digit codes for item 1.

REPAIR OPERATION CODES AND LABOUR ALLOWANCES

1.	SRO 86-52-19	0.45	Hours
2.	SRO 86-91-78	0.10	Hours
3.	SRO 86-52-28	0.10	Hours



# Service Bulletin



DATE: FEBRUARY 1994

PAGE 1 OF 1

REF: JD 09/94

JAGUAR & DAIMLER XJ6, XJ12 1994 MY ALL VARIANTS  
JAGUAR XJS 1994 MY ALL VARIANTS

ITEM: 10

## 86 DELETION OF MIRROR MEMORY FUNCTION

From VIN 701123 (Saloons) and VIN 192880 (XJS) the door mirror memory function has been deleted from the vehicle specification.

As a result, the automatic dip operation of the passenger-side door mirror when reverse is selected is also deleted.

Under no circumstances should any attempt be made to re-enable the mirror memory function.

In addition to ensuring that all Service personnel within your Dealership are made aware of the above change in specification, please also ensure that the contents of this Service Bulletin are brought to the attention of your Sales colleagues immediately.

**Jaguar Cars Limited**

# Service Bulletin



**JAGUAR**  
Daimler

ISSUE NO: JD 12/94

FEBRUARY 1994

PAGE: 1 OF 8

SRO: 18-91-07

- MODELS : ALL 1991, 1992, 1993 AND 1994 MY XJ6 VEHICLES  
FITTED WITH 3.2 LITRE OR 4.0 LITRE ENGINES  
PRIOR TO SAFE VIN 699043
- ALL 1992, 1993.5 AND 1994 MY XJS VEHICLES FITTED  
WITH 4.0 LITRE ENGINES  
PRIOR TO SAFE VIN 192404
- SUBJECT : AIR FLOW SENSOR CONNECTOR QUALITY
- CUSTOMER CONCERN : Intermittent loss of power, or stalling.
- ADVICE TO CUSTOMER : A revised air flow sensor and harness connector are  
now available, featuring gold plated pins, the use  
of which should overcome this concern.

In addition, a comprehensive trouble shooting flowchart is incorporated within this bulletin, which will help to ensure that all possible causes of stalling have been investigated and eliminated.

## BACKGROUND

This Bulletin supersedes all previous Bulletins, Service Actions and other literature issued in the past by Jaguar Cars on the subject of the air flow sensor/connector and stalling.

**Note:** If any vehicle has need for the replacement of the Air Flow Sensor, for any reason, the Air Flow Sensor Connector Fly Lead **MUST** also be replaced.

TIN PLATED HARNESS CONNECTORS ARE NOT COMPATIBLE WITH GOLD PLATED AIR FLOW SENSOR CONNECTOR PINS. AIR FLOW SENSORS WITH TIN PLATED CONNECTOR PINS WILL NOT BE AVAILABLE THROUGH JAGUAR PARTS OPERATIONS. HENCE IF THE AIR FLOW SENSOR IS TO BE REPLACED THE HARNESS FLYLEAD MUST BE CHANGED IN ADDITION.

**Jaguar Cars Limited**

- DEALER ACTION : Yes, where necessary, if the vehicle has NOT been fitted with an Air Flow Sensor AND Fly Lead Connector with gold plated terminals. Follow the Diagnostic Procedure within the attached flow chart; replace the Air Flow Sensor if necessary as a result of the Diagnostic Procedure.
- REPAIR METHOD : DIAGNOSTIC
- Work through the attached flow chart and record information as indicated.

**1993 MY 3.2 LITRE & 4.0 LITRE ENGINE STALLING**

**TROUBLE-SHOOTING FLOWCHART**

The accompanying flowchart (Pages 3-5) is designed to facilitate tracing and rectification of the causes of engine stalling.

Symptom: With the engine running at normal temperature, it will hesitate or stall as the vehicle accelerates from rest, slows to a stop, or while idling. The engine can be re-started immediately and without difficulty.

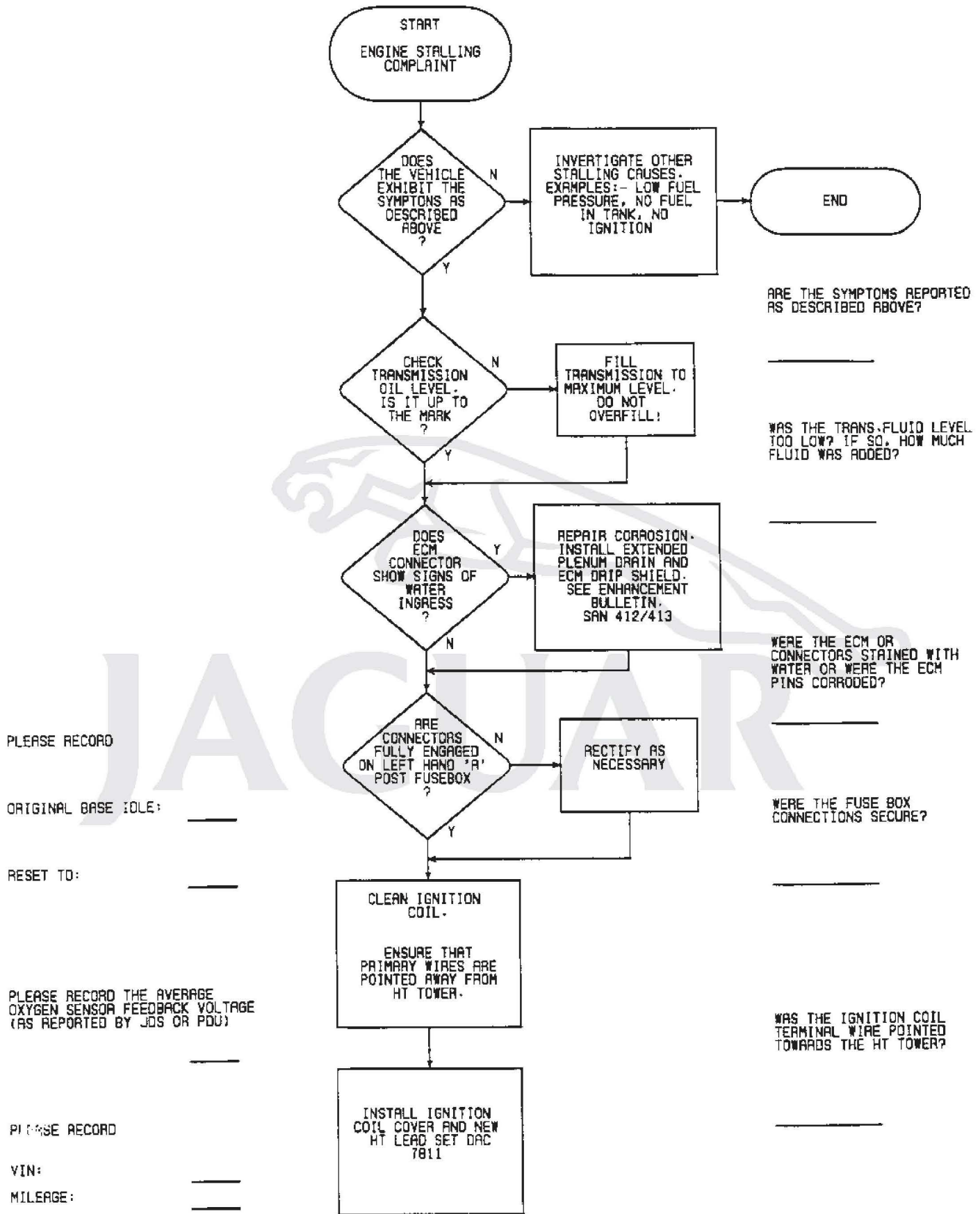
Complete each step and record the findings in the space provided on the flowchart. Since stalling may be caused by more than one fault, it is important that EVERY step be performed, whether or not any fault is found.

Should the symptoms not correspond to those described above, this flowchart may not enable the cause to be traced, in which case other causes should be investigated. Refer to the Service Manual, Engine Management, Fuel System and Emissions sections.

The completed flowchart should be filed with Vehicle Service History details retained by the Dealer.

Dealers should make available photocopies of the attached flowchart to their Workshop, as required.





Continued on Page 4

AIR MASS METER DATE CODE: \_\_\_\_\_

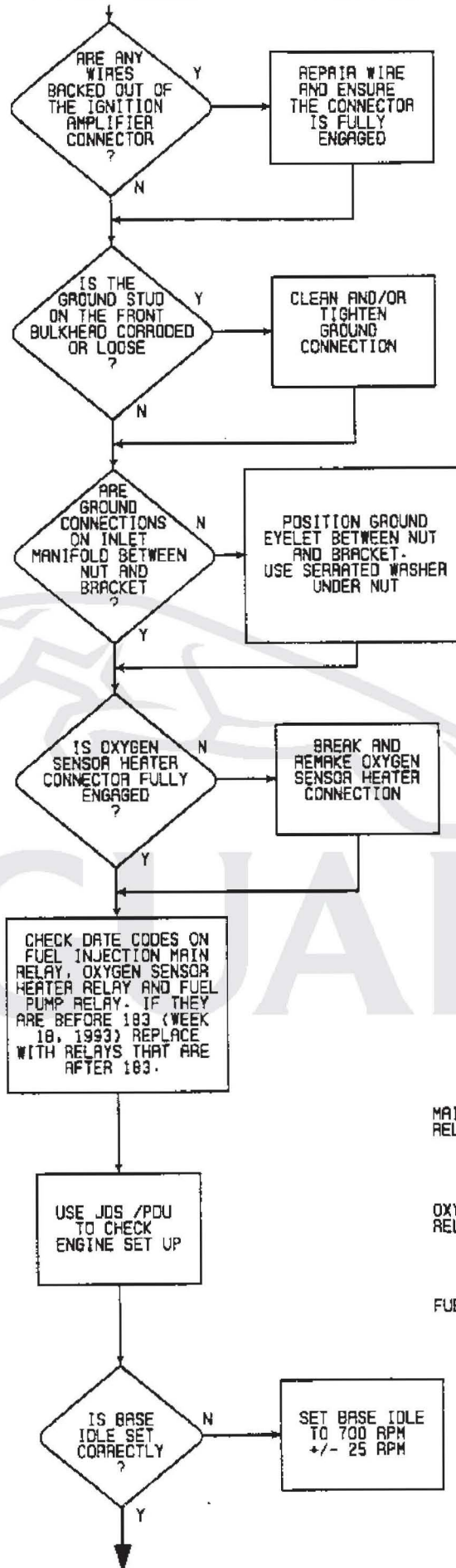
AIR MASS METER SERIAL NUMBER: \_\_\_\_\_

TODAY'S DATE: \_\_\_\_\_

DEALER NAME: \_\_\_\_\_

TECHNICIAN: \_\_\_\_\_

NOTE: THE AIR MASS METER DATE CODE IS A FOUR DIGIT NUMBER STAMPED ON THE LABEL (EXAMPLE: 4592 IS WEEK 45, 1992).  
THE SERIAL NUMBER IS A 6 (SIX) DIGIT NUMBER ON THE SIDE OF THE AIR MASS METER, ON A BAR CODED LABEL.



WERE ANY WIRES BACKED OUT OF THE IGNITION AMPLIFIER CONNECTOR?  
\_\_\_\_\_

WAS THE GROUND CONNECTION TO THE BULKHEAD STUD LOOSE OR CORRODED? IF SO, PLEASE DESCRIBE.  
\_\_\_\_\_

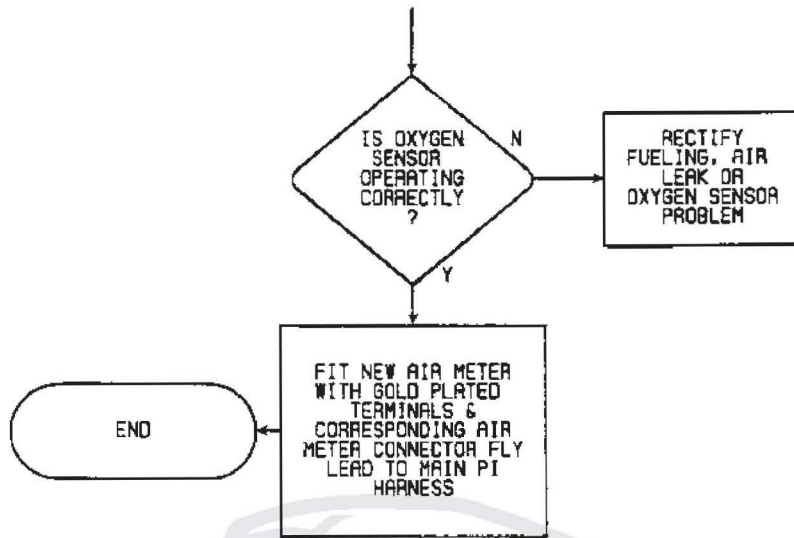
WAS THE INLET MANIFOLD GROUND EYELET LOCATED BETWEEN THE NUT AND THE BRACKET OR BETWEEN THE BRACKET AND THE MANIFOLD? SPECIFY.  
\_\_\_\_\_

WAS THE OXYGEN SENSOR HEATER CONNECTOR FULLY ENGAGED?  
\_\_\_\_\_

PLEASE LIST THE DATE CODE PRINTED ON EACH OF THE RELAYS IN THE VEHICLE.

	NEW	OLD
MAIN FUEL INJECTION RELAY	_____	_____
OXYGEN SENSOR HEATED RELAY	_____	_____
FUEL PUMP RELAY	_____	_____

Continued on Page 5



REPAIR METHOD : FITMENT OF MASS AIR FLOW SENSOR

1. Open the bonnet and fit a wing cover.
2. Disconnect the air flow sensor multi-plug.
3. Slacken the clips securing the air flow sensor to the intake elbow hose.
4. Undo and remove the earth lead securing nut.
5. Disconnect the earth lead.
6. Reposition the hose away from the air flow sensor.
7. Release the clips securing the air flow sensor to the air cleaner assembly.
8. Carefully displace and remove the air flow sensor assembly from the vehicle.
9. Remove and discard the 'O' ring seal.
10. To the replacement air flow sensor fit and fully seat the new 'O' ring seal.
11. Fit and align the new air flow sensor to the air cleaner assembly.  
**Note:** Ensure the correct seating of the 'O' ring seal and locating dowel in the air cleaner.
12. Secure the air flow sensor to the air cleaner with retaining clips.
13. Reposition the elbow hose to the air flow sensor.
14. Position and tighten the hose clips.
15. Connect the earth lead.
16. Fit and tighten the earth lead securing nut.

**IMPORTANT:** UNLESS THE HARNESS CONNECTOR HAS BEEN CHANGED TO THE LATEST PATTERN, HAVING GOLD-PLATED PINS, IN THE COURSE OF A PREVIOUS REPAIR OPERATION, THE CONNECTOR MUST BE CHANGED, AS DETAILED IN ITEMS 17 - 28 ON THE FOLLOWING PAGES.

17. Disconnect the battery.
18. Remove the harness from under the air flow sensor and cut the ratchet strap which retains the harness.
19. Unwrap the tape from the harness, sufficient to allow new joints to be made between the wires from the replacement connector and the wire in the harness, using heat-shrinkable in-line crimp connectors.

**Note 1:** In carrying out the subsequent operations, the overall length of the harness, to the outer end of the replacement connector, must be no shorter than the existing length, but should not be extended by more than 25mm (1 inch).

**Note 2:** The replacement connector is slightly longer than the connector to be displaced.

**Note 3:** The ends of the leads from the replacement connector are of staggered length, so that no bunching will occur at the crimp joints.

20. Observing the above conditions, match the wire colours and cut the wires in the harness to appropriate lengths. Discard the displaced connector.

**Note 4:** On 1991 and 1992 MY vehicles, the wire colours of the vehicle harness correspond to those of the revised connector.

21. Suitably strip back the insulation from the cut ends of the existing harness wires and the wires from the new connector.
22. Use crimp connectors to join the corresponding wires to the existing harness.
23. Using a hot air gun, shrink the outer tubing of the crimp connectors.
24. Ensuring that the crimp connectors remain staggered, rewrap the exposed length of harness with insulation tape.
25. Fit the connector to the air flow sensor.



DATE: NOVEMBER 1991

PAGE: 1 of 5

REF: JD 09/91

## ERRATA

Would Dealers please note that in Service Bulletin JD 05/91, Item 31 "Forged Alloy Wheels", the Part No. for the XJS road wheels should be CBC 6175 (not CBC 9175).

## XJ6 MODELS

ITEM: 58

### 44 TRANSMISSION FRONT PUMP ASSEMBLY

A new front pump assembly has been introduced which cannot be retro-fitted to earlier models as the intermediate plate is not compatible.

Should this later type be fitted inadvertently to an earlier transmission unit, the internal pressures created will blow-out the pump seal (this is because the ventilation channel is now in a different position).

Part No.	Qty	Description
2.9, 3.2 & 3.6 Litre Models		
Up to Gearbox Serial No. 1158414:		
JLM 1957	1	Front Pump Assembly
JLM 885	1	Intermediate Plate
From Gearbox Serial No. 1158415:		
JLM 2286	1	Front Pump Assembly
JLM 10715	1	Intermediate Plate
4.0 Litre Models		
Up to Gearbox Serial No. 35365:		
JLM 10441	1	Front Pump Assembly
JLM 10448	1	Intermediate Plate
From Gearbox Serial No. 35366:		
JLM 10716	1	Front Pump Assembly
JLM 10717	1	Intermediate Plate

**Jaguar Cars Limited**

**XJ6 4.0 L****ITEM: 59****44 AUTO TRANSMISSION SHIFT QUALITY 1 – 2**

Whilst modifications have been made to improve the transmission 1 – 2 shift quality, with the introduction of transmission ECU 6162/6328 and further enhancement on current vehicles with ECU DBC 10110, it has been established that claims for this complaint on current models have largely arisen because of incorrect engine management set-up at idle.

This has the effect that the transmission ECU receives an incorrect speed signal from the engine which causes the ECU indirectly to increase the transmission oil line pressure beyond that required to sustain the torque output from the engine.

In order to rectify this problem dealers should set the base idle speed with the help of JDS to establish accurate stepper motor operation, ensuring that the air bypass valve is open and correctly calibrated within the bar graph setting on the JDS screen.

**XJ6 3.2 AND 4.0****ITEM: 60****47 DRIVE LINE VIBRATION**

The following improvements have been introduced to help alleviate this concern:-

**A. PROPSHAFT CHANGE**

A new family of XJ40 propshafts have now been introduced onto production to overcome instances of drive line vibration. These propshafts have a metalastik centre bearing. Introduction VIN 646880.

Models:	4.0L with automatic transmission	EBC 9104
	3.2L with automatic transmission	EBC 9105
	3.2 / 4.0L with manual gearbox	EBC 9106

**Note:** These propshafts have M8 weld nuts at the centre bearing; however, a small number of vehicles produced initially had 5/16" UNF weld nuts fitted.

These new propshafts should only be fitted if the alignment actions undertaken below do not resolve the problem.

On vehicles prior to VIN 646880, which exhibit drive line vibration in the mid speed range, the following procedure should be carried out:

1. Slacken the two bolts retaining the anti-twist plate.
2. Move the propshaft to the RHS of the vehicle using hand pressure. When maximum travel is reached (and keeping it in this position) push the anti-twist plate to the LHS and retighten the retaining bolts.

**B. DIFFERENTIAL STRUT CHANGE**

These struts (Part No. CCC 3789) are slightly shorter than those previously used. This ensures that the differential pinion is brought into line with the drive line axis. Whilst these units are interchangeable with earlier struts, there is a remote possibility that



a foul condition could exist due to a tolerance build-up in some body / axle assemblies. In the unlikely event of a foul condition occurring, the struts must be removed and the original equipment struts refitted.

Introduction from VIN 643800, although a 100% introduction was assured from VIN 644283 from axle number 485346 and 485268.

## ALL MODELS

ITEM: 61

### 74 TYRE PRESSURES

Complaints have been received of harsh ride on XJS Sports Pack vehicles. Investigations have established that the tyre pressures were too high for normal urban driving.

Would all Dealers please refer to the comfort settings on tyre pressures in the relevant Service Manual/Driver's Handbook before any attempt is made to investigate possible areas that could contribute to the problem.

## XJ6 / XJS / S.III V12

ITEM: 62

### 82 AIR CONDITIONING/HEATER MICROPROCESSOR

Following investigations into the cause of air conditioning/heater unit rotary flaps 'sticking', a concern has been identified with the servo motor drive ICs retained to the heatsink on the microprocessor unit. On a number of ECUs, the earth points have been found to be electrically poor, causing permanent or intermittent failure of the servo drives. The effect of this, in vehicle, is the 'sticking flaps' problem where the flaps appear to be jammed, although it is the ECU which is at fault.

In the event of a vehicle being returned with either an upper or lower rotary flap problem, i.e. intermittent or permanent sticking, the Dealer should carry-out the following procedure before any further action is taken:-

1. Initially determine in what mode the upper or lower rotary flap is jammed, i.e. cooling or heat mode.
2. Remove the necessary trim items from the right-hand side of the unit to gain access to the microprocessor assembly, Fig 1 (A).
3. Switch-on the ignition and air con/heater system. Select manual override. Having already determined in which mode the rotary flap in question is jammed, rotate the temperature demand control in the opposite direction; i.e. if, for instance, the rotary flap is stuck in the cooling mode, turn the

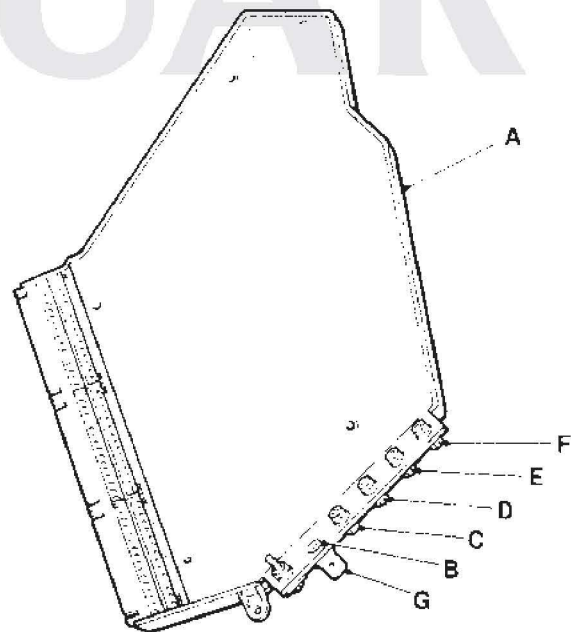


FIG 1

temperature demand control to full heat, or visa versa.

4. Using a digital voltmeter, touch one lead on to the earth rivet Fig 1 (B). Then, in turn, probe each of the four earth connection bolts, Fig 1 (C, D, E and F); if the earth connections are satisfactory, '0' volts will be indicated. If, during probing, any one of the four readings is abnormally higher, this will indicate a poor earth track.
5. If a higher reading is identified, check the tightness of the earth bolt affected. Tighten if necessary and re-check the voltage. (The Dealer may also check the tightness of the other earth bolts as a precaution).
6. If the voltage reading returns to '0' volts, re-check the system operation. (If the fault persists, proceed to point 8).
7. If the voltage reading remains high, turn-off the ignition. Release and remove the earth bolt and check for any signs of contamination, oxidization, etc. Using a very fine abrasive paper (P1000 or above), clean the earth track as shown in Fig 2. Ensure that both the microprocessor heat sink surface (H) and the power transistor bracket surface (J) are cleaned.

**IMPORTANT:** Do not bend the power transistor away from the heatsink as permanent damage may be caused to the PCB connections. Slide the abrasive paper between the heatsink and the transistor bracket.

Replace the bolt, re-tighten, switch-on the ignition and re-check the voltage reading. If the voltage reading indicates '0' volts, the fault should be corrected. Re-check the system operation.

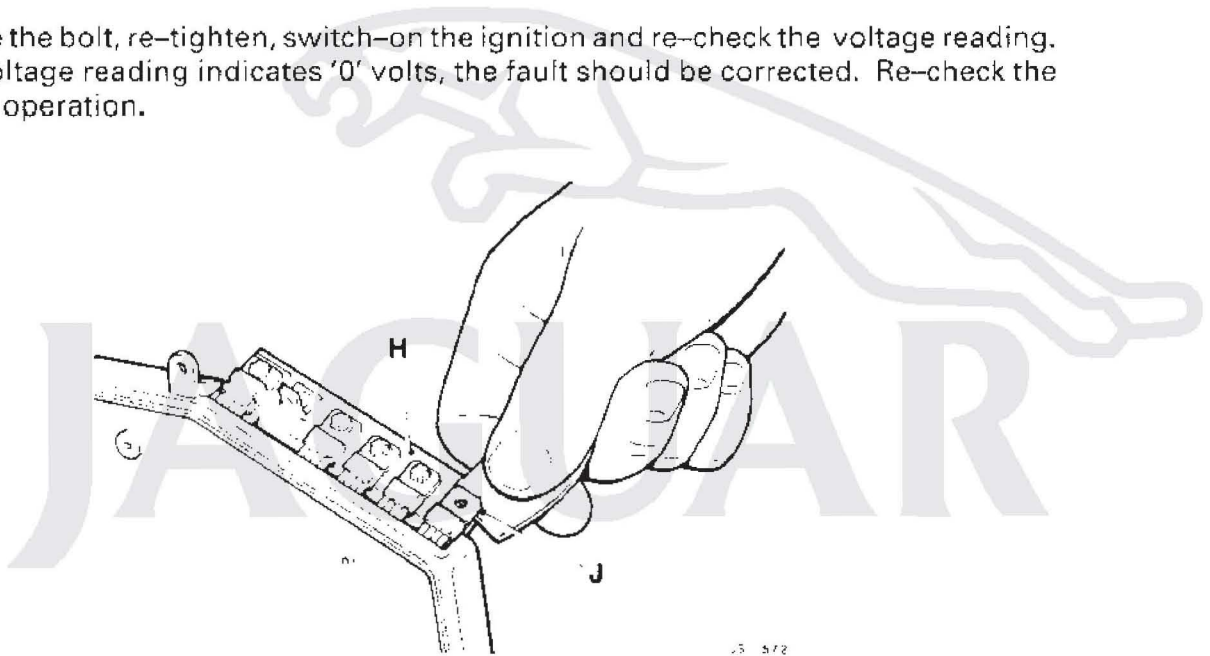


FIG 2

8. It is unlikely that the fault will persist; however, should this occur, the Dealer should then continue with normal diagnostic procedures to determine the cause.
9. In the event that the fault may not be present at the time the vehicle is returned to the Dealer, the following check should be carried-out to determine if a poor earth connection is present.
10. Switch-off the ignition. Disconnect the earth lead from the Lucar connector on the reverse side of the microprocessor earth rivet, Fig 1 (G).
11. Using a digital meter, measure the resistance (Ohms) between the earth rivet, Fig 1 (B) and the four earth connections, Fig 1 (C, D, E and F).

If a good earth connection is present, approximately 0.5 of an Ohm or less should be registered; any abnormally higher resistance reading will indicate a poor earth track.

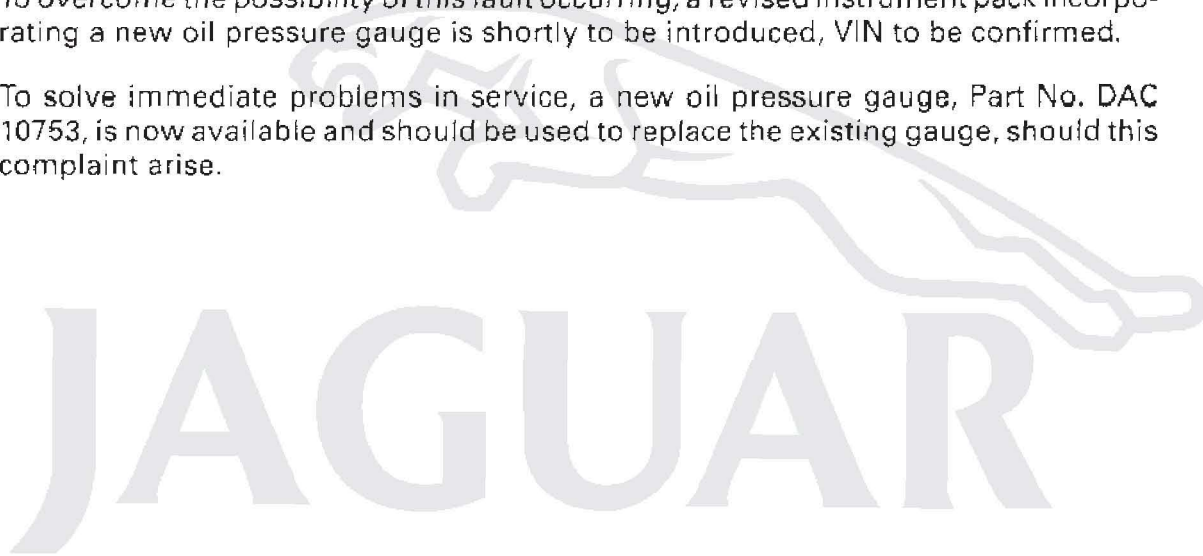
12. If a higher reading is identified, proceed as points 5, 6, 7 and 8, with the exception that all checks should be conducted with the ignition turned-off and measurements taken in resistance (Ohms) mode. Please note that when required in Operations 6 and 7 to check the system, ensure that earth lead Fig 1 (G) is reconnected before commencing the system check.

**XJS 92 MY (FACELIFT)****ITEM: 63****88 OIL PRESSURE GAUGE**

Following the launch of XJS 'Facelift' models, complaints may have been received of the oil pressure gauge indicating zero or dropping into the red band at idle speed, although the oil quantity and pressure is correct.

To overcome the possibility of this fault occurring, a revised instrument pack incorporating a new oil pressure gauge is shortly to be introduced, VIN to be confirmed.

To solve immediate problems in service, a new oil pressure gauge, Part No. DAC 10753, is now available and should be used to replace the existing gauge, should this complaint arise.



JAGUAR

**DATE: JANUARY 1992**

**PAGE: 1 of 25**

**REF: JD 02/92**

## NOTE

JD 01/92, which covers XJ-S 92.5 MY preliminary information, has been released for translation purposes only; the English language version will be released nearer to the volume build date of 09.03.92.

### XJ-S FACELIFT

**ITEM: 02**

#### 00 WARRANTY CODES

The following new warranty complaint code has been allocated to cover the "CD Auto Changer Link Lead":

CODE	DESCRIPTION
7QU	CD Auto Changer Link Lead

### XJ6 & XJ-S

**ITEM: 03**

#### 00 WARRANTY CODES

To enable Dealers to code more accurately the causes of radio interference, new 4th digit warranty complaint codes have been allocated to the following sections of the XJ6 and XJ-S code books.

XJ6 AND XJ-S COMPLAINT CODE BOOK - 4TH DIGIT ADDITIONS		
SECTION	4TH DIGIT CODE	DESCRIPTION
2G	Y	Radio Interference
4G	Y	Radio Interference
7A	Y	Radio Interference
7B	W	Radio Interference
7C	E	Radio Interference
7U	W	Radio Interference

Please use the appropriate third digit component code within these sections, if that component is the source of the interference.

Reference to codes in Section 7Q should only be made if components within this area are the cause.

**XJ6****ITEM: 04****10 REVISED SERVICING INTERVAL / TIMES**

Servicing times have been re-examined to include inspection of the handbrake shoes and now comply with the following list:

Miles	1000	7500	15000	22500	30000	37500	45000
Kilometres	1500	12000	24000	36000	48000	60000	72000
Hours	1.85	2.05	2.55	2.05	4.05	2.05	2.55

Miles	52500	60000	67500	75000	82500	90000	97500
Kilometres	84000	96000	108000	120000	132000	144000	156000
Hours	2.05	4.70	2.05	2.55	2.05	4.05	2.05

**AJ6 ENGINES****ITEM: 05****12 CYLINDER HEAD REAR COVER GASKET**

As a result of oil and coolant leakage from the cylinder head rear cover gasket, gasket EBC 2568 has been introduced to seal the cylinder head rear cover plate instead of the previously used "Hermetite" sealant.

The gasket is of the Dow Print type (ie: it has a sealing bead on one side) and should be fitted with the beading facing the cylinder head. No additional sealant is needed.

This gasket supersedes the paper gasket EBC 1131.

SRO: 12.29.16

TIME: 1.4 Hours

**XJ6 2.9****ITEM: 06****18 SPARK PLUG (SERVICE REPLACEMENT)**

For service replacement purposes, Champion N4C spark plugs are recommended to overcome problems of misfire / uneven running conditions which may be experienced with XJ6 2.9 models.

N4C plugs are now available through Parts Operations, under Part No. EBC 8523, and supersede the previously-recommended N3C plug, Part No. EAC 8344.

**PLEASE NOTE THAT N4C SPARK PLUG PART NUMBER EBC 8523 SHOULD ONLY BE FITTED TO XJ6 2.9 MODELS.**

**XJ-S V12 (92 MY)****ITEM: 07****19 FUEL PRESSURE TEST**

A fuel pressure test adaptor, JD181, has been developed for use on 92MY XJ-S V12 systems (from VIN 179740).

The adaptor has identical end fittings to the fuel rail and fuel supply hose. It also has a  $\frac{1}{4}$  BSP end gauge fitting to be used in conjunction with pressure gauge YWB 107 (Epitest equipment pressure gauge).

Using the following procedure, pressure test the fuel system observing all the safety precautions detailed in the Service Manual:

Open the luggage compartment and displace the right hand trim liner.  
 Displace the fuel pump relay (Fig. 1) silver relay on black / yellow base) from its mounting, adjacent to the E.C.U. and remove the relay.  
 Crank the engine to depressurise the fuel system.  
 Refit the fuel pump relay.  
 Open the bonnet and fit wing protection.  
 Undo the union nut (1 Fig. 2), remove the fuel supply hose from the fuel rail and remove the 'Viton' seal.

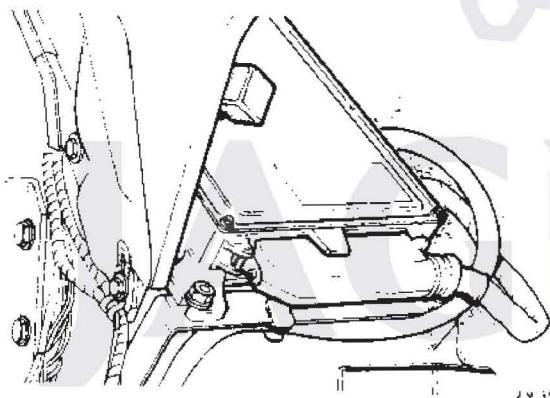


FIG 1

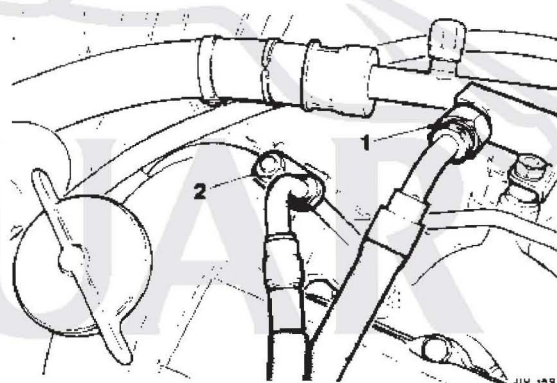


FIG 2

With the seal in place, fit the pressure test adaptor JD 181 to the fuel rail and tighten the union nut.

Fit the seal to the supply hose and connect to the pressure test adaptor. Tighten the union nut.

Fit and tighten the pressure test gauge, YWB 107, to the adaptor (Fig. 3). Ensure a sealing washer is in place.

Disconnect the vacuum hose from the base of the fuel pressure regulator valve (1 Fig. 4).

Run the engine.

Monitor the fuel pressure :  $2,5\text{bar} \pm 0,1\text{bar}$ .

Switch off the engine.

Depressurise the engine as detailed above.

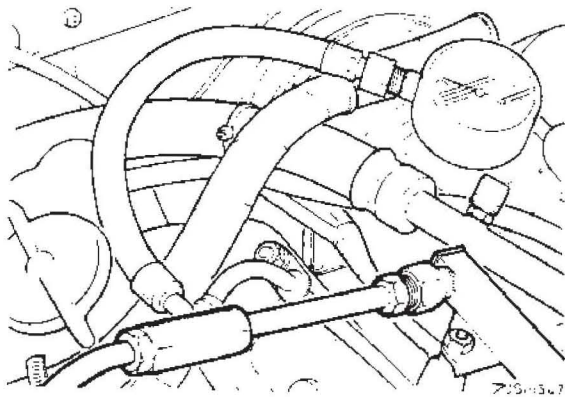


FIG 3

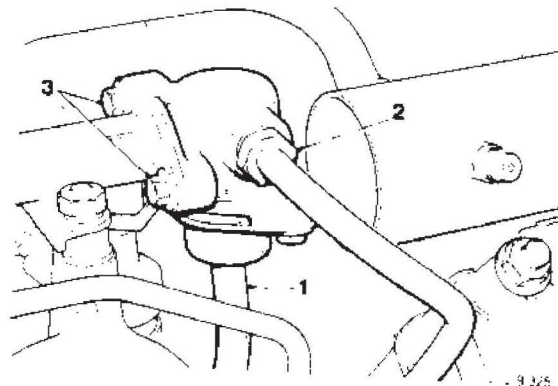


FIG 4

Remove the pressure test adaptor and gauge (Fig. 3).  
 Fit a new 'Viton' seal and refit the supply hose to the rail. Torque tighten the union nut to 10 to 12 Nm.  
 Connect the vacuum hose to the fuel pressure regulator valve.  
 Refit the fuel pump relay and re-position the trim liner.  
 Remove wing protection, close the bonnet and the luggage compartment.

**XJ6 MODELS**

**ITEM: 08**

**57 STEERING RACK, PINION VALVE ASSEMBLY SEALS – RENEW – 57.10.09**

A set of Service Tools has been developed (JD 184, JD 185, JD 186 and JD 187) to assist in renewing the steering pinion valve energised seals; Service Tool JD 120, steering rack centralising pin, is also needed to carry out the operation.  
 As a general guide, if lack of steering assistance from cold is experienced, renew the seals. A seal kit is available, Part No. JLM 10839.  
 To renew the seals, proceed as follows:

**Note:** Energised pinion seals should only be fitted to steering racks with plated pinion bores. Plated bore racks were fitted from VIN 597940. The plated racks are also identified by the part number stamped on the plate on the underside of the rack (Fig. 1). Part No. CBC 9052 – Right-hand drive vehicles. Part No. CBC 9053 – Left-hand drive vehicles. Energised seals were introduced from Part No. CCC 5650, XJ6 and Part No. CCC 5660, XJS.

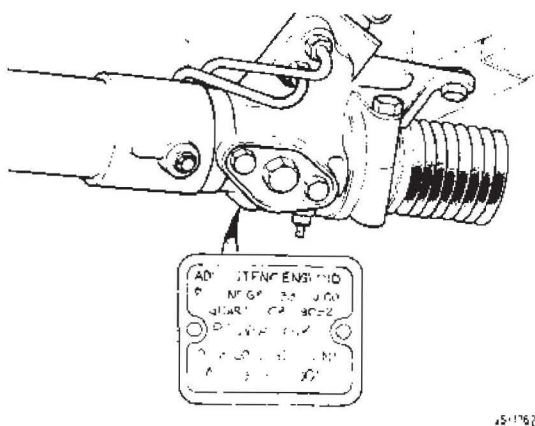


FIG 1

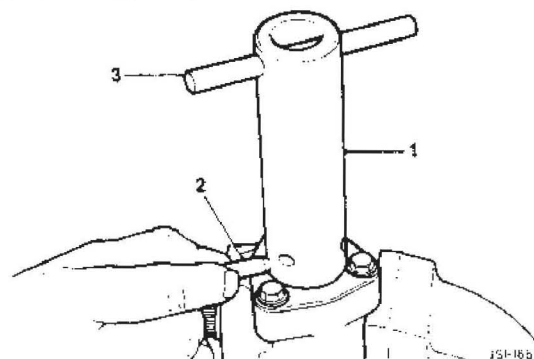


FIG 2

Remove the steering rack as detailed in operation 57.10.01.

Clean the steering rack pinion housing area.

Secure the rack in a vice, ensuring the vice jaws clamp across the pinion housing lugs and taking care not to trap any pipes.

Remove the dirt / dust excluder from the steering rack pinion shaft.

Ensure Service Tools JD 184, JD 185, JD 186 and JD 187 are free of any scores, burrs or marks which could cause damage to components.

Fit the body and handle of tool JD 184 to the pinion shaft (1, 3 Fig. 2). Align the tool with the pinch pin cut-out and fit the brass pinch pin (2 Fig. 2).

Place a suitable container below the pinion housing. Unscrew and remove the blanking plugs from the pinion housing, fitted during operation 57.10.01.

Operate the steering rack from lock to lock to remove any residual steering fluid. Wipe any remaining fluid from the pinion housing.

Unscrew and remove the tapered plug from the steering rack centralising pin-hole. Insert Service Tool JD 120 (centralising pin) into the pin-hole, maintaining light thumb-pressure.

Gently operate the steering rack until the pin is engaged. Remove the centralising pin, JD 120, then refit and lightly tighten the taper plug into the centralising pin-hole. Remove the brass pinch pin from tool JD 184 and remove the tool from the pinion shaft. Mark a line on the edge of the top plate and onto the pinion housing. Ensure it is in line with the centre of the pinion pinch pin cut-out (Fig. 3).

Unscrew, but do not remove, the support plate bolts to give a 10 mm gap between the plate and the pinion housing (Fig. 4).

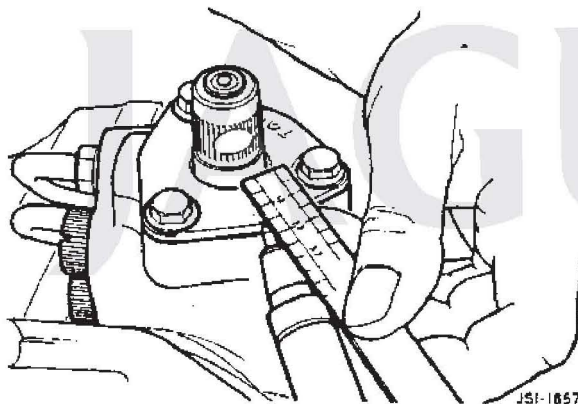


FIG 3

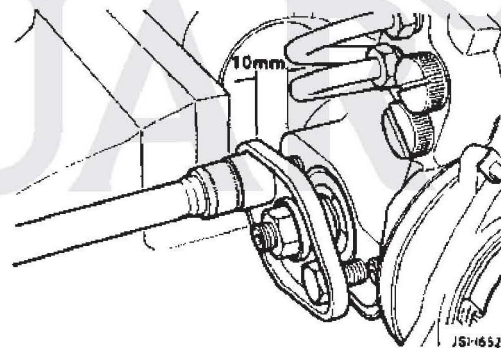


FIG 4

Unscrew the bolts securing the top plate and remove the top plate and shims (Fig. 5). Fit tool JD 184 to the pinion shaft with the brass pinch pin in place, as previously described.

Fit and align tool JD 186 with the taper of the bore towards the pinion housing face. Fit and tighten the cap head screws, securing tool JD 186.

Fit the tool handle and using hand-pressure only, pull the pinion valve assembly partially away from the pinion housing and into tool JD 186 (Fig. 6). Ensure the assembly is kept aligned during this operation.



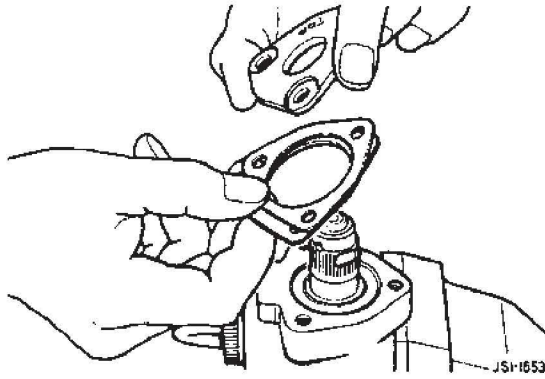


FIG 5

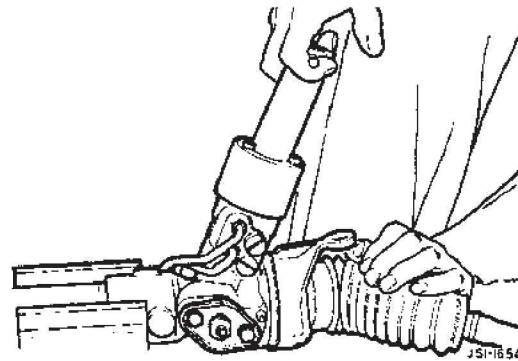


FIG 6

Remove the tool handle. Unscrew and remove the cap head screws, securing tool JD 186 to the pinion housing. Carefully remove tool JD 186 from the pinion valve. Refit the tool handle to tool JD 184. Keeping in alignment, gently pull and rotate the pinion valve assembly until fully removed from the housing. Remove tool JD 184 from the pinion valve assembly.

Remove the thrust washer package from the assembly as follows:  
Square section outer seal, P.T.F.E. inner seal and 'O' ring seal.

Clean the thrust washer and place safely to one side.

Remove and discard the quad seal from the pinion or pinion housing.

Clean and inspect the pinion housing bore for any scores or damage.

Cut and remove the P.T.F.E. sealing rings from the pinion valve (Fig. 7). Ensure the valve walls are not marked or scored whilst carrying out this operation.

**Note:** A suitable tool can be made by grinding a broken hacksaw blade to a narrow chisel shape (1 Fig. 7).

Remove and discard the sealing ring energisers.

**Note:** Older type seals in unplated racks had no energiser ring. All plated racks are fitted with energised seals.

Clean the pinion valve ready for re-assembly.

Lubricate, fit and seat a new quad seal into the pinion housing.

Lubricate the bore of the pinion housing.

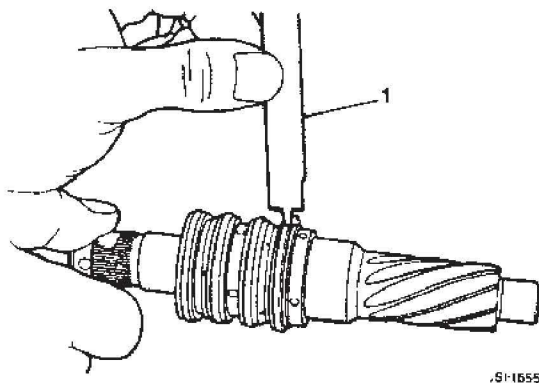


FIG 7

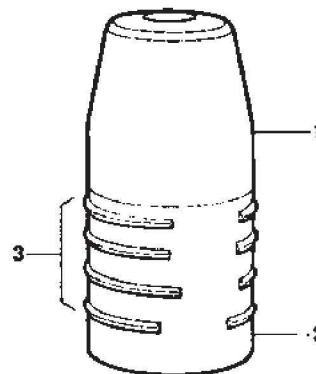


FIG 8

Fit the tapered mandrel of tool JD 185 (1 Fig. 8) into the zinc-plated sleeve (2 Fig. 8). Load four new sealing ring energisers onto the zinc-plated sleeve, leaving a gap between each (3 Fig. 8).

**Note:** Service Tool JD 185 is a three-piece tool comprising: a tapered mandrel, a zinc-plated sleeve for fitting sealing ring energisers and a black machine-finish sleeve for fitting sealing rings.

Remove the mandrel from the zinc-plated sleeve; carefully fit the loaded sleeve onto the pinion valve and align the tool end parallel with the first seal groove. Slide the energiser from the zinc-plated sleeve into the first seal groove (Fig. 9). Continue until all four energisers have been placed in the four seal grooves.

Remove the zinc-plated sleeve from the pinion valve and place safely to one side.

Fit the tapered mandrel of tool JD 185 (1 Fig. 10) into the black-finish sleeve (2 Fig. 10).

Load four new P.T.F.E. sealing rings (blue) onto the black-finish sleeve, leaving a gap between each (3 Fig. 10).

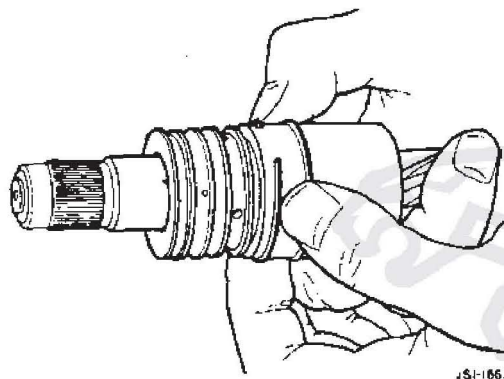


FIG 9

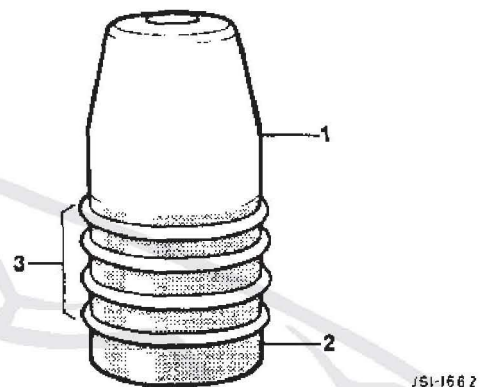


FIG 10

Remove the mandrel from the black-finish sleeve; carefully fit the loaded sleeve onto the pinion valve and align the tool end parallel with the first seal groove.

Slide the seal from the black-finish sleeve into the first seal groove (Fig. 11). Continue until all four seals have been placed in the four seal grooves.

**Note:** The P.T.F.E. sealing rings should only remain on the black-finish sleeve for the minimum time possible.

Remove the black-finish sleeve from the pinion valve and place safely to one side.

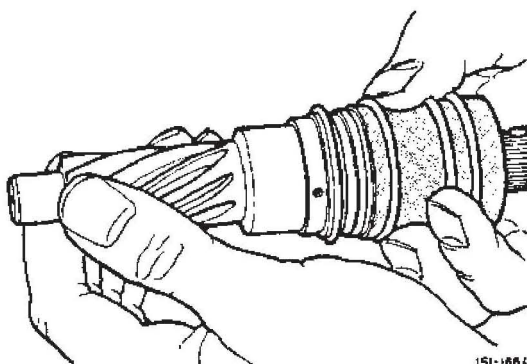


FIG 11

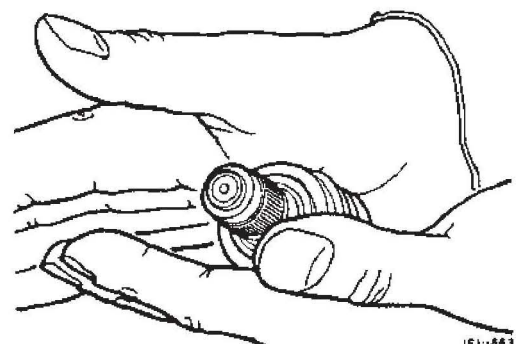


FIG 12

Grasp the pinion valve and rotate between the palms of the hands to compress the P.T.F.E. sealing rings fully onto the energisers (Fig. 12).

**Note:** Ensure that the P.T.F.E. sealing rings fit fully and evenly over the steel energisers.

Lubricate the P.T.F.E. sealing rings and pinion valve assembly.  
Fit tool JD 186 over the pinion valve by passing the tapered bore of the tool over the geared end of the pinion. Pass the pinion through the tool several (five) times to size the sealing rings (Fig. 13).

**Note:** During the sizing operation, ensure the P.T.F.E. sealing rings do not become trapped or bent over the grooves, thus causing possible damage.

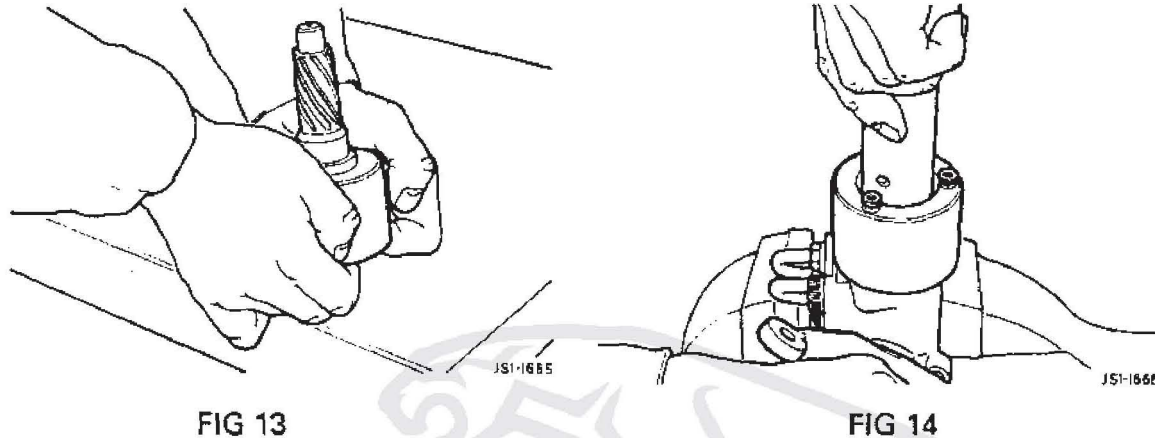


FIG 13

FIG 14

After sizing, position the pinion valve in the parallel part of the tool bore.  
Fit and align the pinion and tool assembly to the steering rack housing.  
Fit, but do not tighten, the cap head screws that secure tool JD 186. Ensure that the tool is allowed to self-centre.

Remove the tapered plug from the steering rack centralising hole. Fit the centralising pin, JD 120, to ensure that the rack has remained central.  
Fit and align tool JD 184 with the tool handle and brass pinch pin in position.  
Position the pinion so that, allowing for helix angle rotation (approx.  $90^{\circ}$ ), the pinion arrives at the previously-marked position (Fig. 3).  
Allow the pinion to mesh with the rack gear by gently pulling the rack gear away from the pinion. Carefully push and rotate the pinion to seat the pinion valve assembly fully into the rack housing (Fig. 14).

**Note:** The centre of the pinion pinch bolt cut-out should finally align with the marks on the top plate and housing, shown in Fig. 2.

**Note:** The handle hole in tool JD 184 is parallel with the pinion pinch bolt cut-out to aid the previous operation.

Remove the centralising pin from the rack.  
Fit and tighten the tapered plug into the steering rack centralising pin-hole.  
Remove the handle from tool JD 184  
Unscrew and remove the cap head screws, securing tool JD 186 to the pinion housing.  
Remove tool JD 186 from the pinion housing and place to one side.  
Remove the brass pinch pin from tool JD 184.  
Remove tool JD 184 from the pinion.  
Ensure that the 'O' ring seal has remained seated in the rack support assembly bore.  
Tighten the support plate securing bolts.  
Align tool JD 186 to the pinion housing with the tapered end of the bore away from the housing. Fit, but do not fully tighten, the cap head screws securing the tool (this will allow the tool to self-centre).  
Fit a new set of seals to the thrust washer, i.e. square section seal, 'O' ring seal and

stepped seal.

Ensure that the stepped side of the seal faces inboard in its final fitted position.

Lubricate the thrust washer and seal assembly.

Fit the seal protector, JD 187, onto the pinion spline. Fit the thrust washer assembly onto the seal protector taper with the step side facing inboard.

Using the handle end of tool JD 184, with hand-pressure only, push the thrust washer assembly into the pinion housing (Fig. 15).

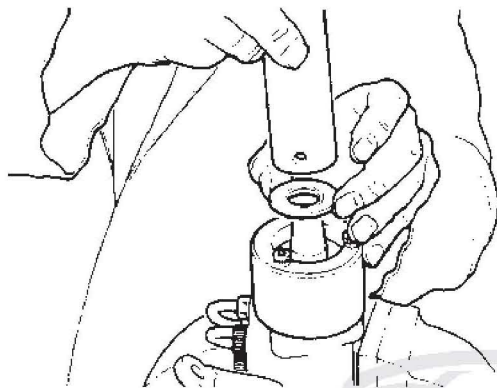


FIG 15

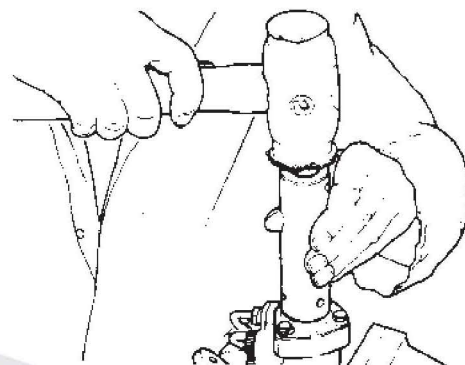


FIG 16

**Note:** The handle end of tool JD 184 is machined out for the purpose of fitting the thrust washer assembly.

Remove tool JD 184 from the pinion.

Remove the seal protector from the pinion shaft and place safely to one side.

Remove the cap head screws, securing tool JD 186 to the pinion housing.

Remove tool JD 186 and place safely to one side.

Fit the shims to the pinion housing.

Fit the top plate, ensuring it is aligned with the previous markings (Fig. 3).

Centralise the top plate around the pinion shaft and fit and tighten the securing bolts.

Fit a new dirt / dust excluder to the pinion shaft.

Position the brass pinch pin end of tool JD 184 over the pinion and up to the dirt / dust excluder.

Using a soft-faced mallet, carefully drive the dust / dirt excluder onto the pinion shaft (Fig. 16).

Ensure the top face of the dirt / dust excluder is 4,0 to 4,5 mm away from the top face of the top plate (Fig. 17).

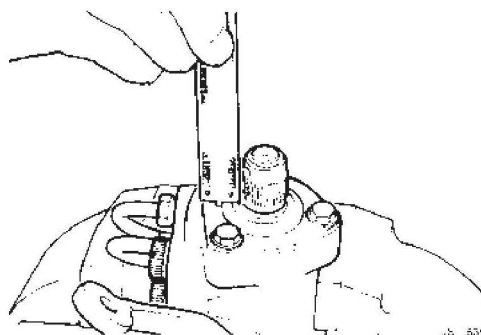


FIG 17

Remove tool JD 184 and place safely to one side.

Remove the container from below the pinion housing; remove the steering rack assembly from the vice and refit to the vehicle (57.10.01).

For vehicles within warranty, the following information applies:

Warranty Claim Code	:	5AAN
S.R.O.	:	57. 10. 09
Time Allowance	:	2.40 hours LHD vehicles
	:	2.35 hours RHD vehicles

XJ40

ITEM: 09

## 60 FRONT CROSSMEMBER BUSHES – RENEWAL

Should the eccentric bushes, securing the rear of the front crossmember assembly need renewing, proceed as follows:

Remove the front crossmember by following the instructions detailed in operation 76.10.05.

Place the bush replacement tool, JD 143, on to a suitable press. Fit and align the adaptor ring, JD 143-1, to the replacement tool.

Carefully position the front crossmember / bush on to the press / tool.

Fit and align the bush remover tool, JD 143-5, to the bush and using the press, displace and remove the bush from the crossmember.

Remove the crossmember from the press.

Remove the opposite side crossmember bush in the same manner.

**Note:** The bushes originally used were termed as 'six-shooter' bushes. These have now been redesigned / replaced by the 'smiley-faced' bushes currently being used, see Fig. 1 for identification.

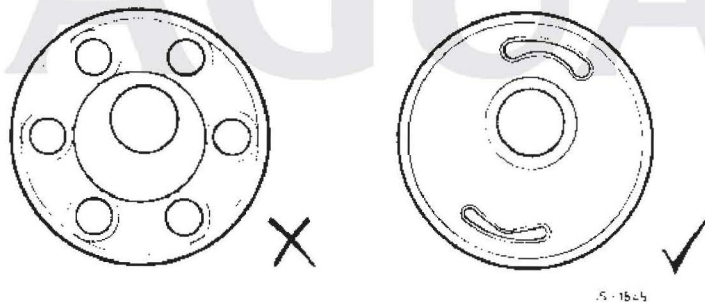


FIG 1

To aid assembly, prior to fitting new bushes, it is **important** they are correctly aligned with the crossmember.

The bush rubber identification pip **must** be 30° clockwise from the top dead centre of the crossmember mounting hole (the horizontal is parallel with the bottom face of the crossmember) see Fig. 2.

Once aligned, scribe a marker line across the crossmember and bush.

When the alignment marks have been scribed, the crossmember is ready for reassembly.

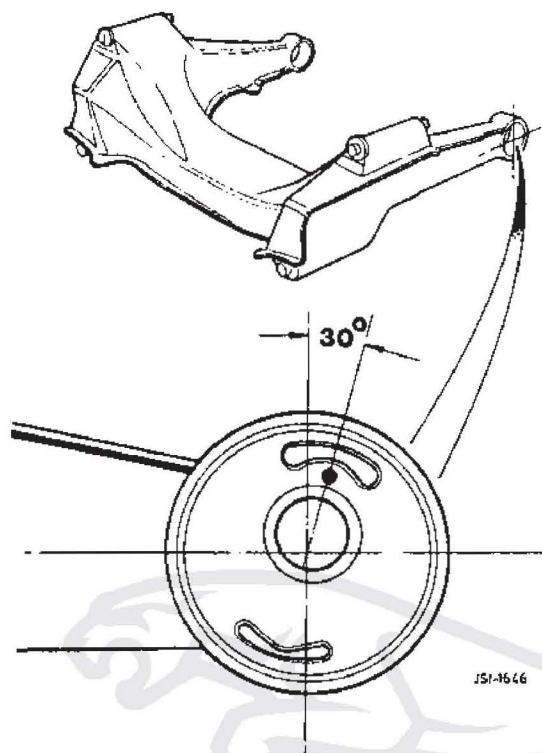


FIG 2

Carefully align the crossmember to the press / tool.  
 Fit and align a new bush to the crossmember, ensuring that the scribe mark matches to the mark on the crossmember.  
 Fit and align the replacer tool, JD 143-5, to the bush.  
 Using the press, fully seat the new bush into the crossmember.  
 Remove the replacer tool, JD 143-5, and place to one side.  
 Remove the crossmember from the press and repeat the procedure to fit the other new crossmember bush.  
 When the new bushes are correctly aligned and fully fitted to the crossmember, refit the crossmember to the vehicle, as detailed in operation 76.10.05.  
 On completion, check that the steering geometry is correct, prior to re-using the vehicle.

XJ-S / S.III / LIMOUSINE

ITEM: 10

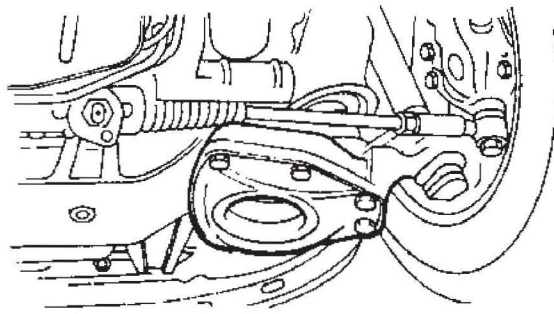
## 60 FRONT HUB SEAL REPLACEMENT

A tool has been developed and is now available for replacing front hub seals on the above models

To renew a seal, carry out the following procedure:

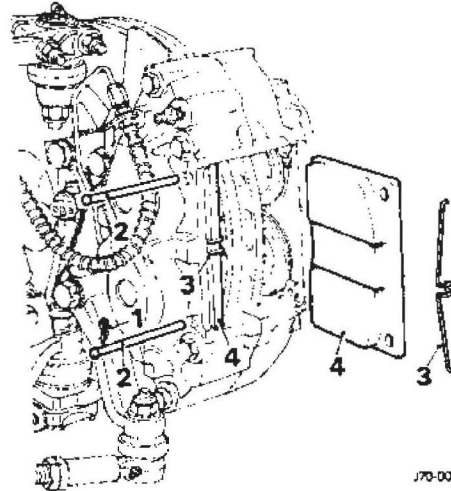
**Note:** Prior to carrying out the procedure, an absorbent cloth should be placed around the brake fluid reservoir cap

Slacken the road wheel nuts  $\frac{1}{4}$  turn each.  
 Locate a trolley jack below the front spring pan (Fig.1).



J08 005

FIG 1



J70-007

FIG 2

Jack up the vehicle. Place an axle stand below the appropriate jacking spigot. Lower the vehicle / jacking spigot on to the axle stand. Leave the jack in position as a precautionary measure. Remove one wheel nut, mark the wheel relative to the stud and remove the remaining wheel nuts. Remove the roadwheel and tyre assembly.

Remove the spring clips (1 Fig. 2) securing the brake pad retaining pins (2 Fig. 2); withdraw the pins.

Remove the anti-rattle springs (3 Fig. 2) and withdraw the brake pads (4 Fig. 2).

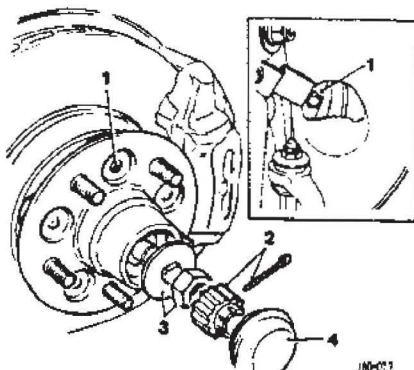
**WARNING:** BRAKE LINING DUST CAN CONTAIN ASBESTOS WHICH, IF INHALED, CAN DAMAGE YOUR HEALTH. ALWAYS USE A VACUUM BRUSH TO REMOVE DRY BRAKE LINING DUST. NEVER USE AN AIRLINE.

Ensure the brake caliper piston is fully retracted and remains in that position until the pads are refitted.

Position the steering rack to 'full lock' outward. Rotate the brake disc to gain access to the securing bolts through the aperture in the disc shield (1 Fig. 3). Remove the bolts and washers securing the hub assembly to the brake disc.

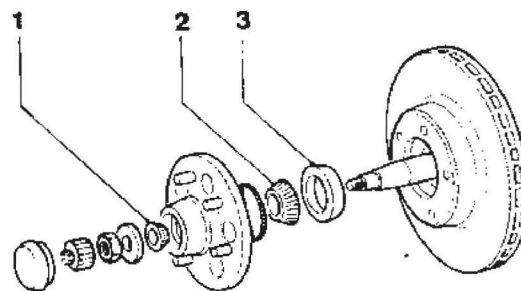
Prise off the hub grease cap (4 Fig. 3). Remove the hub nut split pin and cover (2 Fig. 3). Remove the hub nut and 'D' washer (3 Fig. 3). Carefully remove the hub assembly from the stub axle. Remove the outer bearing (1 Fig. 4) from the hub assembly.

Displace and remove the brake disc from the stub axle carrier assembly. Remove the inner bearing (2 Fig. 4) from the stub axle, then, using a suitable pry bar, remove and discard the hub seal (3 Fig. 4).



J60-001

FIG 3



J60-006

FIG 4

Clean all components and examine for wear and damage. Replace as necessary if worn or damaged.

Pack the hub bearings with grease and fit them to the hub assembly. Coat the stub axle shaft with grease.

**Note:** Lubricate the new hub seal and ensure grease is applied to all the seal lips.

Fit the new hub seal to the fitting tool, JD 180 (Fig. 5). Using the tool, drift the seal fully on to the stub axle shaft (Fig. 6).

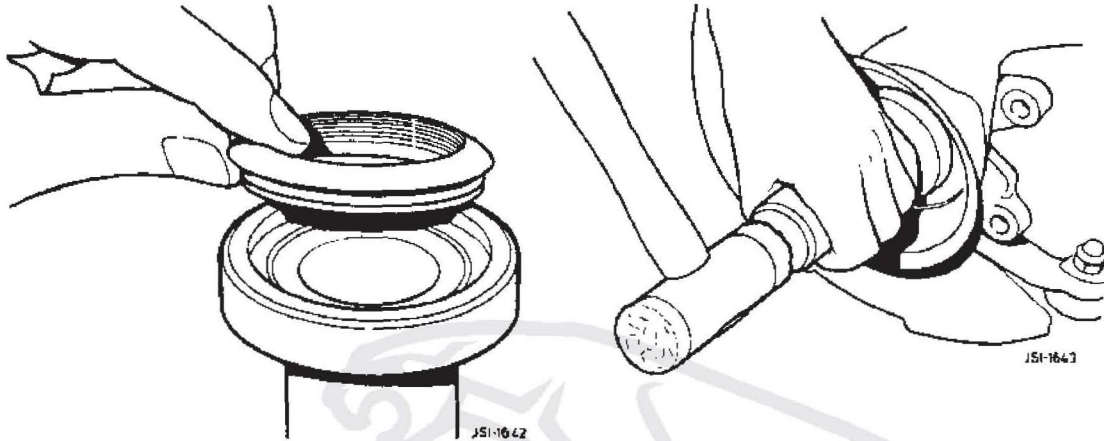


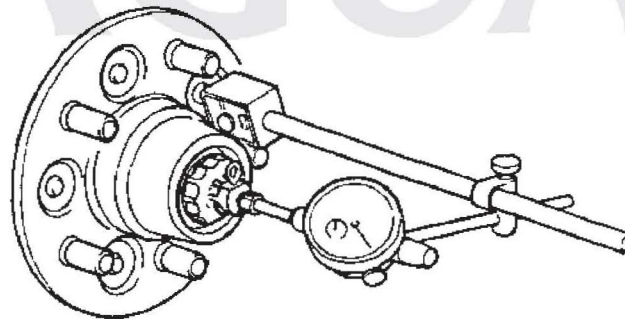
FIG 5

FIG 6

Fit and position the disc to the carrier assembly. Fit and fully seat the hub assembly, complete with bearings and the 'D' washer to the stub axle. Fit, but do not tighten, the securing nut.

Position the hub to align the brake disc mounting holes. Fit and tighten the brake disc to hub securing bolts.

Set the hub and end float between 0,0254 and 0,0762 mm (0.001 to 0.003 in). To do this, fit a magnetic base Dial Test Indicator (DTI) to the hub (Fig. 7).



K60-101

FIG 7

Grasp the hub unit. Firmly pull and push the unit, oscillating at the same time, to determine the DTI end float reading.

Adjust the hub nut as necessary, to give a reading of 0,0508 mm  $\pm$  0,0254 mm (0.002 in  $\pm$  0.001 in).

If possible, **always** try to achieve the mid-point of the tolerance i.e. 0,0508 mm (0.002 in).

When set, align the hub nut cover and secure with a new split pin.

When the new split pin is fitted, ensure the end float is re-checked using the DTI gauge (Fig. 7).

If necessary, re-adjust using the same method, until the end float is correct.



**Always** finish the adjustment by checking with a DTI gauge.  
**Always** ensure the end float is within the limits quoted.

Refit the grease cap (4 Fig. 3). Return the steering rack to the straight ahead position and refit the brake pads (4 Fig. 2), retaining pins (2 Fig. 2), anti-rattle springs (3 Fig. 2) and retaining pin securing spring clips (1 Fig. 2).

Refit the road wheel, then lower the vehicle from the axle stands and torque-tighten the wheel nuts.

Pump the brake pedal to centralise the pads.

**WARNING:** APPLICATION OF THE BRAKE PEDAL MUST BE CARRIED OUT, AS THE BRAKES WILL NOT OPERATE EFFICIENTLY UNTIL THE PADS ARE CORRECTLY POSITIONED.

Remove the absorbent cloth from around the brake fluid reservoir cap, ensuring the area is clean and dry.

XJ6

ITEM: 11

## 60 FRONT HUB SEAL REPLACEMENT

A tool has been developed and is now available for replacing front hub seals on the above model.

To renew a seal, carry out the following procedure:

**Note:** Prior to carrying out the procedure, an absorbent cloth should be placed around the brake fluid reservoir cap.

Slacken the road wheel nuts  $\frac{1}{4}$  turn each.

Jack up the vehicle and support with axle stands.

Remove one wheel nut, mark the wheel relative to the stud, and remove the remaining wheel nuts.

Remove the roadwheel and tyre assembly.

Carefully displace and remove the brake caliper anti-squeal spring (1 Fig. 1).

Displace the pad wear sensor multi-plug from the retaining clip, then disconnect the harness multi-plug (2 Fig. 1).

Remove the caliper securing bolt dust caps, then remove the socket head securing bolts (3 Fig. 1).

Remove the caliper from the carrier and safely secure the caliper to one side.

**Note:** Ensure the caliper is placed where the brake hose and harnesses are not stressed.

Displace and remove the brake pads (4 Fig. 1).

**WARNING:** BRAKE LINING DUST CAN CONTAIN ASBESTOS WHICH, IF INHALED, CAN DAMAGE YOUR HEALTH. ALWAYS USE A VACUUM BRUSH TO REMOVE DRY BRAKE LINING DUST. NEVER USE AN AIRLINE.

Ensure the brake caliper piston is fully retracted and remains in that position until the pads are refitted.

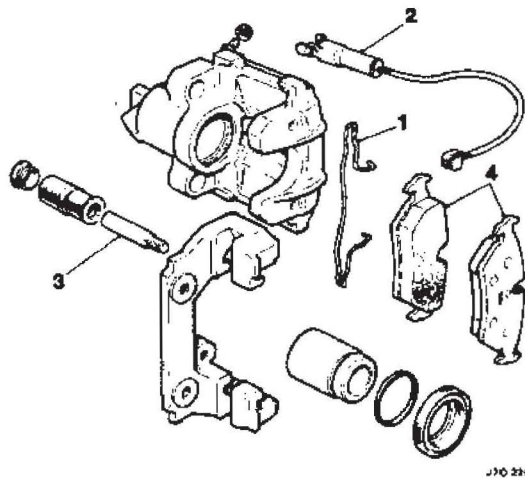


FIG 1

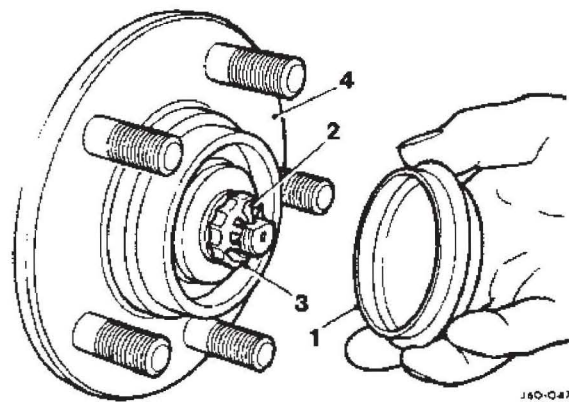


FIG 2

Cut and remove the carrier securing bolt lockwire.  
 Unscrew the carrier securing bolts and remove the carrier.  
 Remove the disc securing screw and remove the disc.  
 Prise off the hub grease cap (1 Fig. 2).  
 Remove the hub nut split pin and cover (2, 3 Fig. 2).  
 Remove the hub nut and 'D' washer.  
 Carefully remove the hub assembly (4 Fig. 2) from the stub axle.  
 Remove the inner bearing from the stub axle, then, using a suitable pry bar, remove and discard the hub seal.

Clean all components and examine for wear and damage. Replace as necessary if worn or damaged.  
 Pack the hub bearings and coat the stub axle shaft with grease.

**Note:** Lubricate the new hub seal and ensure grease is applied to all the seal lips.

Fit the new hub seal to the fitting tool, JD 179 (Fig. 3).  
 Using the tool, drift the seal fully on to the stub axle shaft (Fig. 4).  
 Place the inner bearing on to the shaft and ensure it is pushed fully up to the new hub seal.

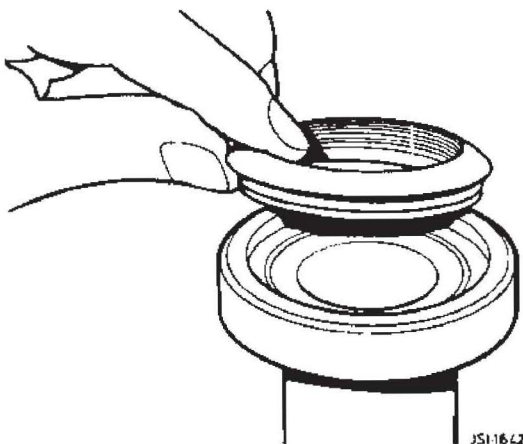


FIG 3

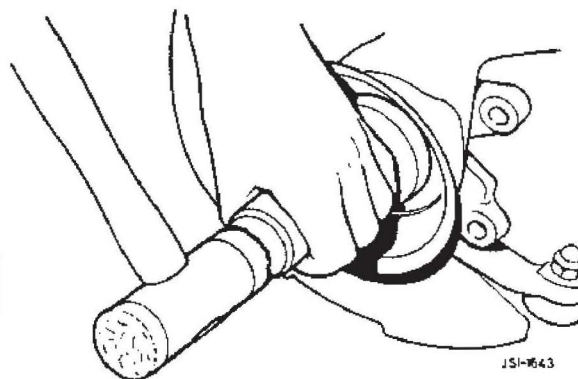
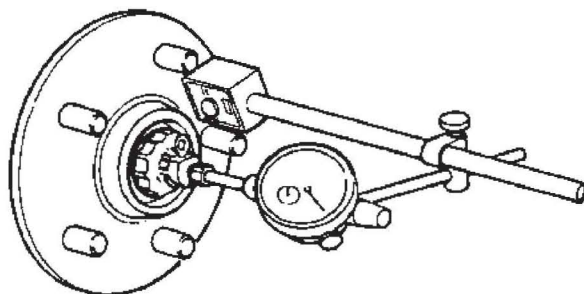


FIG 4

Fit and fully seat the hub assembly, outer bearing and 'D' washer to the stub axle. Fit, but do not tighten, the securing nut.

Set the hub end float between 0,0254 to 0,0762 mm (0.001 to 0.003 in). To do this, fit a magnetic base Dial Test Indicator (DTI) to the hub (Fig. 5).



60 102

FIG 5

Grasp the hub unit. Firmly pull and push the unit, oscillating at the same time, to determine the DTI end float reading.

Adjust the hub nut as necessary, to give a reading of 0,0508 mm  $\pm$  0,0254 mm (0.002 in  $\pm$  0.001 in).

If possible, **always** try to achieve the mid-point of the tolerance i.e. 0,0508 mm (0.002 in).

When set, align the hub nut cover and secure with a new split pin.

When the new split pin is fitted, ensure the end float is re-checked using the DTI gauge (Fig. 5).

If necessary, re-adjust using the same method, until the end float is correct.

**Always** finish the adjustment by checking with a DTI gauge.

**Always** ensure the end float is within the limits quoted.

Refit the grease cap.

Refit the brake assembly, disc, carrier, pads, caliper and all multi-plugs and connectors.

Refit the road wheel then lower the vehicle from the axle stands and torque-tighten the wheel nuts.

Pump the brake pedal to centralise the pads.

**WARNING:** APPLICATION OF THE BRAKE PEDAL MUST BE CARRIED OUT, AS THE BRAKES WILL NOT OPERATE EFFICIENTLY UNTIL THE PADS ARE CORRECTLY POSITIONED.

Remove the absorbent cloth from around the brake fluid reservoir cap, ensuring the area is clean and dry.

XJ6

ITEM: 12

## 60 LOWER WISHBONE, BUSH – RENEW – 60.35.22

Part of the above operation is to renew the wishbone bushes, but the description for this part of the operation is not specific; therefore, to renew the bushes, proceed as follows:

**Note:** Prior to carrying out the procedure, an absorbent cloth should be placed around the brake fluid reservoir cap.

Slacken the road wheel nuts  $\frac{1}{4}$  turn each.  
Jack up the front of the vehicle and support with axle stands.

**Note:** Ensure the vehicle is high enough to access Service Tool JD 115.

Remove one wheel nut, mark the wheel relative to the stud, and remove the remaining wheel nuts.

Remove the road wheel and tyre assembly.

Fit the lower adaptors to Service Tool JD 115, then fit the tool to the front spring (Fig. 1). Engage the dowel in the slots in the suspension turret top.

Ensure that the dowel is seated correctly.

Tighten the tool to tension the spring until the load is taken off the spring pan.

Remove the spring pan securing bolts, slacken off the tool wing nut to release the tension on the spring and release the tool from the suspension turret.

Remove the tool from the suspension assembly.

Remove the spring plates and road spring from the tool.

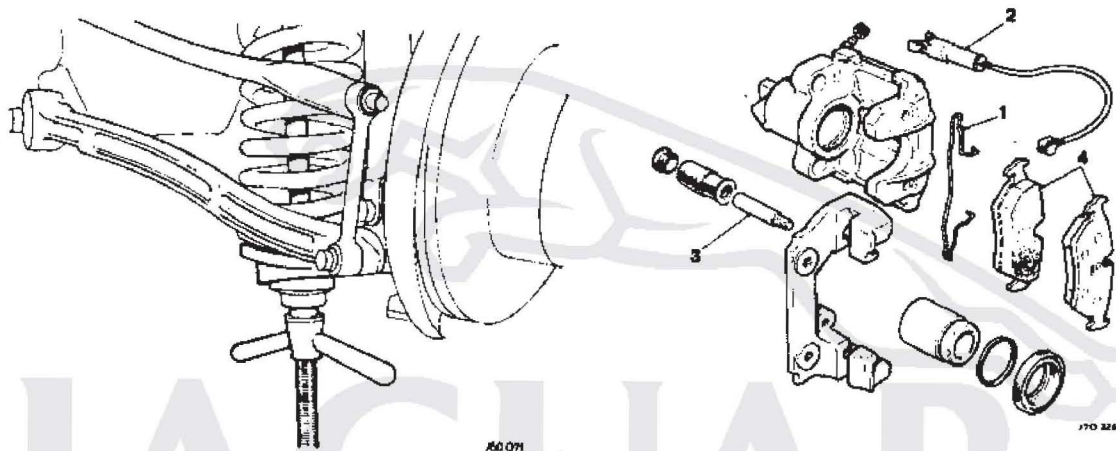


FIG 1

FIG 2

Carefully displace and remove the brake caliper anti-squeal spring (1 Fig. 2).

Displace the pad wear sensor multi-plug from the retaining clip then disconnect the harness multi-plug (2 Fig. 2).

Remove the caliper securing bolt dust caps then remove the socket head securing bolts (3 Fig. 2).

Remove the caliper from the carrier and safely secure the caliper to one side.

**Note:** Ensure the caliper is placed where the brake hose and harnesses are not stressed.

Displace and remove the brake pads (4 Fig. 2).

**WARNING:** BRAKE LINING / PAD DUST CAN CONTAIN ASBESTOS WHICH, IF INHALED, CAN DAMAGE YOUR HEALTH. ALWAYS USE A VACUUM BRUSH TO REMOVE DRY BRAKE LINING / PAD DUST. NEVER USE AN AIRLINE.

Ensure the brake caliper piston is fully retracted and remains in that position until the pads are refitted.

Undo and remove the track rod end to steering arm securing nut.

Fit Service Tool JD 100 to the track rod end joint.

Tighten the tool bolt to break the taper.

Undo the tool bolt and place the tool aside.

Undo and remove the steering rack to front crossmember securing nuts and bolts, and remove the spacers.

Undo and remove the anti-roll bar link arm lower securing nut and bolt.

Undo and remove the upper ball joint securing bolts, note the position and collect the castor shims.

Reposition the stub axle assembly outwards.

Displace and remove the split pin securing the fulcrum shaft nut.

Undo and remove the fulcrum shaft nut.

Remove the shock absorber lower mounting securing bolt / nut.

Carefully lower the wishbone / stub axle assembly to the floor.

Displace the pivot bolt to allow removal of the front wishbone, remove the front wishbone.

Remove the serrated spacer.

Manoeuvre the steering rack to give clearance, displace and remove the fulcrum bolt.

Remove the rear wishbone/stub axle assembly.

Remove the remaining serrated spacer.

Using a suitable workbench with a vice:

Secure the front wishbone arm in the vice, ensuring that the top hat of the bush faces upwards.

Using a suitable hacksaw, cut and remove the bush top hat sides (Fig. 3).

Undo the vice.

Position the wishbone arm between the press adaptor plates.

Fit and align bush removal tool JD 143-4 to the bush (Fig. 4).

Using the press, displace and remove the bush.

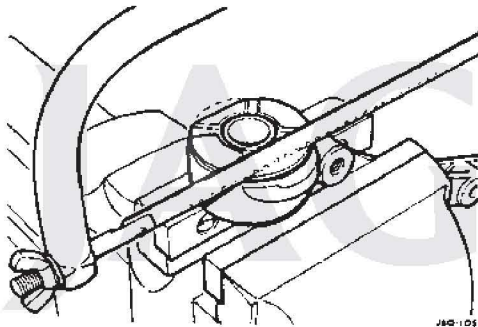


FIG 3

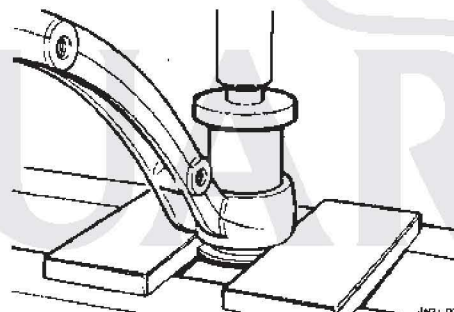


FIG 4

Place tool JD 143 to the press.

Fit and align the adaptor ring JD 143-1.

Fit and align adaptor tool JD 143-2 to the adaptor ring, ensuring that the narrow end of the tool is uppermost.

Install the wishbone in the press and align the new bush to the wishbone.

Align the large diameter of the bush replacer tool JD 143-3 to the bush (Fig. 5).

Using the press fully seat the bush into the wishbone.

Remove the wishbone front arm and bush replacer tool from the press.

Align tool JD 143-3/2 to the press.

Carefully align the wishbone rear arm / hub assembly to give the best / most surface contact between the wishbone and the narrow leg of tool JD 143-3/2.

Align removal tool JD 143-3/1 to the bush (Fig. 6).

Using the press, carefully displace and remove the bush.

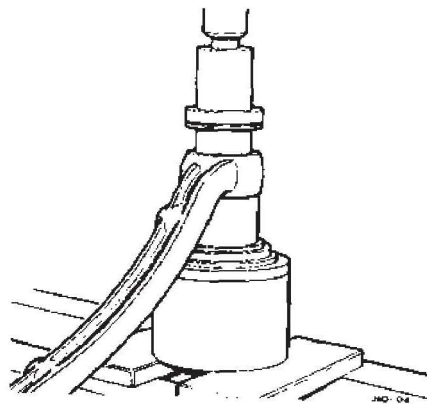


FIG 5

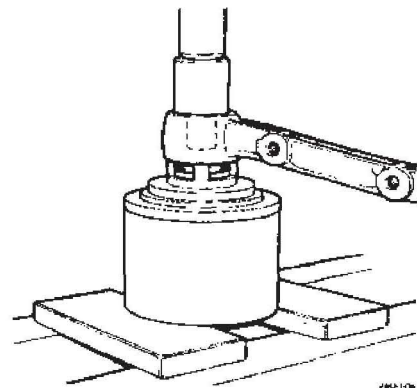


FIG 6

Remove the wishbone assembly from the press.

Using a suitable cleaning agent, clean the wishbone arm faces.

Reposition tool JD 143-3/2 in the press.

Align the wishbone rear arm / hub assembly to give the best / most surface contact between the wishbone and the narrow leg of tool JD 143-3/2.

Carefully align the new bush to the wishbone.

Align bush replacer tool JD 143-3/1 to the bush (Fig. 7).

Using the press, fully seat the bush into the wishbone arm until the upper face of the bush is level with the upper face of the wishbone (see detail in Fig. 7).

Remove the wishbone assembly and the tools from the press.

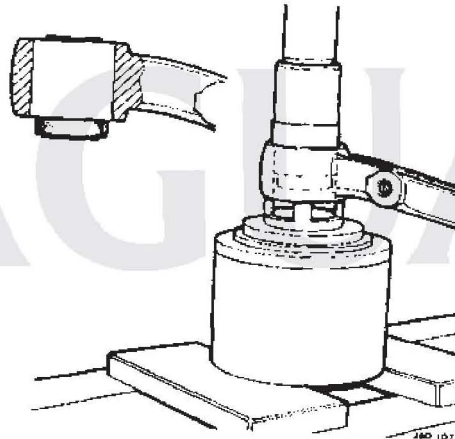


FIG 7

Repeat the procedure on the opposite front side of the vehicle.

When all bushes have been replaced, reverse the removal procedure to refit the wishbones, brake assemblies and road springs.

Refit the road wheels then lower the vehicle from the axle stands and torque-tighten the wheel nuts.

Pump the brake pedal to centralise the pads.

**WARNING:** APPLICATION OF THE BRAKE PEDAL MUST BE CARRIED OUT, AS THE BRAKES WILL NOT OPERATE EFFICIENTLY UNTIL THE PADS ARE CORRECTLY POSITIONED.

**Note:** Ensure the steering geometry is checked and set correctly.

Remove the absorbent cloth from around the brake fluid reservoir cap, ensuring the area is clean and dry.

XJ6

ITEM: 13

## 76 DASH LINER REMOVAL TOOL

A quantity of dash liners has been replaced due to damage caused by their removal. A Service Tool (JD 188) has now been developed to assist with this procedure. To remove a dash liner, driver's or passenger's side of vehicle, proceed as follows:

Open the appropriate door to gain access to the dash liner.  
Undo and remove the dash liner securing screws (Fig.1).

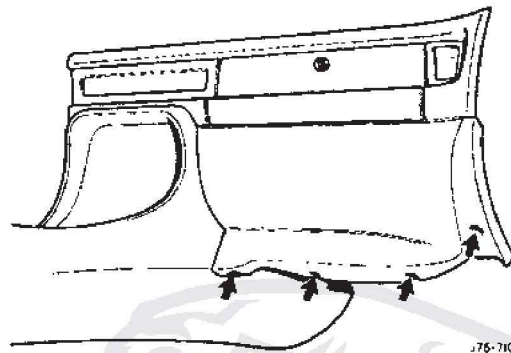


FIG 1

Insert Service Tool JD 188 behind the dash liner. Locate onto the upper flange with the 'V' cut-out in the tool either side of the first fir tree retainer (Fig. 2). Displace the fir tree retainer from the plastic retainer socket by gently twisting the tool handle (Fig. 2). Remove the remaining retainers in the same manner.

**Note:** On vehicles fitted with a steel armature, the tool **must** be inserted between the dash liner and the steel armature (Fig. 3).

The number of dash liner retainers is different between Federal and U.K. vehicles. To avoid any damage to the dash liner, always ensure all retainers have been carefully displaced before removal.

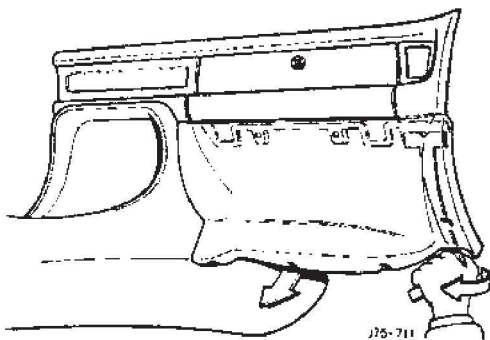


FIG 2

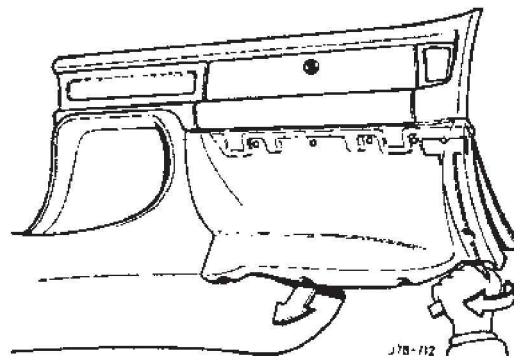


FIG 3

**Note:** The illustrations show L.H.D. passenger's side only. The procedure for the driver's side and R.H.D. vehicles is carried out in the same manner.

XJ6

ITEM: 14

## 80 HEATER BLOWER MOTOR ASSEMBLY – DRIVER'S SIDE

The repair operation time for renewing the driver's side heater blower motor assembly has changed on all XJ6 vehicles from VIN 629286.

The repair operation times are now as follows:

## LEFT-HAND DRIVE VEHICLES

80.20.12	Blower Assembly Left-Hand – Renew	01.25 Hours
80.20.12/09	As 80.20.12 (Less JDS Allowance)	00.90 Hours

## RIGHT-HAND DRIVE VEHICLES

80.20.11	Blower Assembly Right-Hand – Renew	01.25 Hours
80.20.11/09	As 80.20.11 (Less JDS Allowance)	00.90 Hours

Please amend your repair time schedules accordingly.

No other repair times are affected.

To achieve these times in service, adhere to the procedure detailed in Service Bulletin JD 08/91, Item 56.

The bulletin item refers to "air conditioning blower motor assembly", but the procedure for renewal of the heater blower motor assembly is identical.

XJ6

ITEM: 15

## 82 HEATER TO AIR CONDITIONING RETRO-FIT CONVERSION

When installing the air conditioning retro-fit kit to vehicles built prior to VIN 607111, the following additional parts are required to supplement main kit JLM 10755 in order to provide efficient and stable air conditioning operation:

- CBC 9133 Electric motor assembly.
- JLM 1947 Motor assembly installation kit.
- JLM 10793 Sensor assembly to A/C unit link harness.

These vehicles are not equipped with a motorised aspirator / in-car sensor as original equipment; the above parts comprise the service fit aspirator / sensor assembly.

Full details of installation of the aspirator / sensor assembly can be found in Service Bulletin JD 09/89, Item 47 and an addendum sheet to be included with main kit JLM 10755.

In addition to the above modification, system installation necessitates replacement of the crankshaft damper/pulley assembly on earlier vehicles.

- 2.9 vehicles produced prior to engine number 107821 require fitment of damper assembly EBC 2225.
- 3.6 vehicles produced prior to engine number 106424 require fitment of damper assembly EBC 1441.



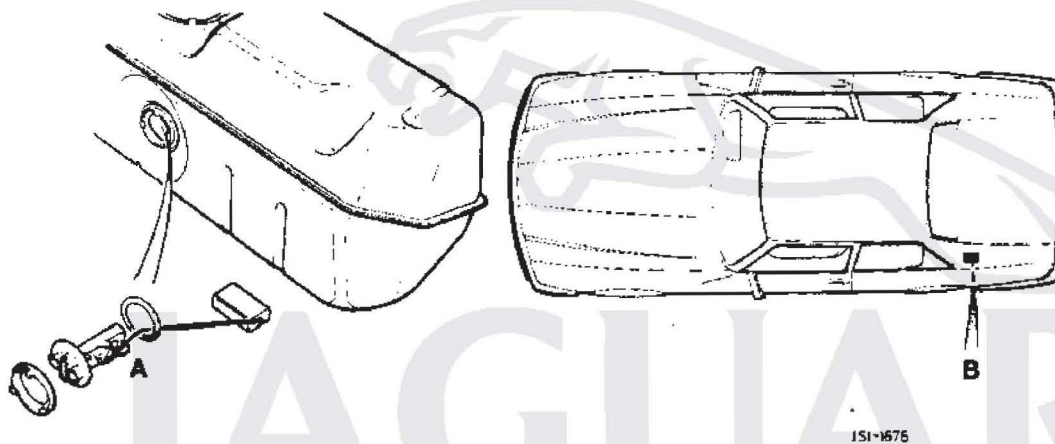
**XJ-S FACELIFT****ITEM: 16****86 ANTI-SLOSH MODULE / FUEL TANK SENDER UNIT – FAULT DIAGNOSIS**

With the introduction of the XJ-S Facelift range, an anti-slosh module has been incorporated into the fuel gauge circuit, which damps the gauge needle movement and controls the low fuel warning indication.

Following isolated concerns with this circuit, some Dealer confusion has arisen during fault diagnosis, which has resulted in the unnecessary replacement of components.

In order to assist Dealers, this Bulletin has been designed to identify possible fault conditions which may occur and details the correct diagnosis procedures.

**PLEASE NOTE** that the following information refers only to the anti-slosh module and the fuel tank sender unit; it is not a fault diagnosis of the fuel gauge.

**COMPONENT LOCATION**

A – Fuel Tank Sender Unit

B – Anti-Slosh Module

**ANTI-SLOSH MODULE TERMINAL VOLTAGES**

The five terminals of the anti-slosh module have the following voltage ranges at normal operating voltage of 13.5 V :

Pin 1	Gauge	2.49 V to 11.08 V dependent on fuel quantity
Pin 2	Low Fuel Warning	Battery voltage (13.5 V) when off; 0.1 V to 1 V when on
Pin 3	Ignition	Battery voltage (13.5 V)
Pin 4	Sender Unit	2.49 V to 11.08 V dependent on fuel quantity
Pin 5	Ground	0 V

**POSSIBLE FAULT CONDITIONS****Loss of damping**

Turn off the ignition. Remove the upper wire from the fuel sender unit and connect the wire to ground.

Turn on the ignition and check the gauge; the pointer should rise rapidly to a position above the “full” mark.

Disconnect the upper wire of the sender from ground and check that the fuel gauge starts to fall. If the low fuel warning light illuminates within 12 seconds of this operation, replace the anti-slosh module.

Turn off the ignition and reconnect the fuel sender unit correctly.

No low fuel warning lamp with gauge reading empty.

Turn off the ignition. Remove the upper wire from the fuel sender unit.

Turn on the ignition. Check that the gauge reads empty and that the warning lamp is on.

If the warning lamp fails to illuminate, check the voltage on the warning lamp output of the anti-slosh module (pin 2). If the voltage is less than 0.9 volts, the fault does not lie in the anti-slosh module; therefore, check the lamp and harness. If the voltage is more than 0.9 volts, change the anti-slosh module.

Turn off the ignition and reconnect the sender unit correctly.

Low fuel warning lamp stays on over the full range of the gauge.

Turn off the ignition. Remove the anti-slosh module and turn on the ignition.

If the warning lamp goes out, replace the anti-slosh module. If the warning lamp stays on, check the vehicle wiring.

Too slow to reach final position when the ignition is turned on.

If the fuel gauge takes longer than 15 seconds to display its final position on the gauge when the ignition is turned on, replace the anti-slosh module.

Fuel gauge constantly reads full.

Turn off the ignition. Remove the upper wire from the fuel sender unit. Turn on the ignition.

Check that the gauge reads empty and that the warning light is on.

If the gauge reads full, turn off the ignition and remove the anti-slosh module. Switch the ignition back on; if the gauge reads empty, replace the anti-slosh module. If the gauge reads full, check the vehicle wiring and the gauge.

Turn off the ignition. Refit the anti-slosh module and reconnect the sender unit correctly.

Fuel gauge always reads empty.

Turn off the ignition. Remove the upper wire from the fuel sender unit.

Turn on the ignition. Check that the gauge reads empty and that the warning lamp is on.

Turn off the ignition. Connect the upper wire of the sender unit to ground.

Turn on the ignition and check that the gauge rises to full. If the gauge does not rise to full, turn off the ignition and remove the anti-slosh module. Connect the fuel gauge to ground. If the gauge rises to full, change the anti-slosh module. If the gauge does not rise to full, check the vehicle wiring, the sender unit and the gauge.

Turn off the ignition, refit the anti-slosh module and reconnect the sender correctly.

Fuel gauge reads above empty when tank is empty.

DO NOT remove the sender unit from the tank.

With either a new sender unit or a 250 Ohm resistor connected in place of the existing sender unit, check that the gauge drops to empty. If it is above empty, replace the anti-slosh module. If the gauge reads empty, check the sender unit or the gauge.

Check for normal operation.

#### SENDER UNIT FAULT DIAGNOSIS

Gauge flickers and swings to zero intermittently.

The likely fault with this symptom is an intermittent open circuit on the sender unit. It is difficult to diagnose this with the sender unit in the fuel tank. The recommended test is to obtain a new sender unit and connect it to the car and holding it in the same orientation as the vehicle, move it through its full travel slowly, watching the gauge for normal operation. If all appears well, the sender unit in the tank should be changed for the new one. If the symptoms persist, check the wiring and the gauge.

**Note:** During heavy cornering, i.e. traffic islands, etc, needle movement will occur towards the empty position, particularly on right-hand manoeuvring.

Recovery to the correct fuel gauge indication after the cornering manoeuvre will be slow due to the operation of the anti-slosh module. This is normal and should not be interpreted as a fault.

**XJ-S COUPE / CONVERTIBLE – 92 MY**

**ITEM: 17**

#### 86 ALARM SYSTEM OPERATION

Investigation into Dealer reports of poor operation of the alarm system on XJ-S 92 MY vehicles has shown that a final operation has been omitted from the supplied installation instructions. Therefore, where customer complaints are received, the following action should be taken.

1. Remove the right-hand rear quarter lower trim pad assembly.
2. Identify the alarm antenna coiled in the harness (refer to Fig 1).

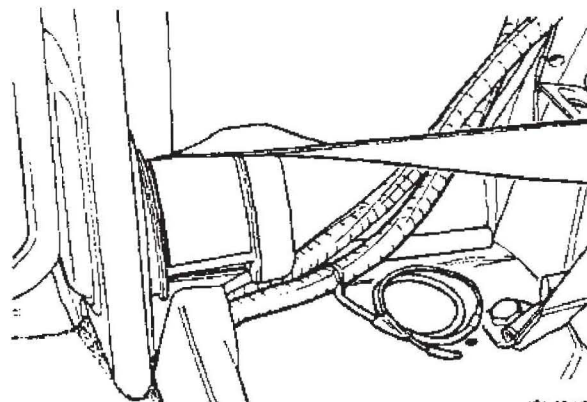


FIG 1

3. Remove the adhesive tape from the antenna, uncoil and straighten.
4. Position the rear quarter trim panel assembly to the vehicle.
5. Attach the straightened antenna to the rear of the trim panel in vertical attitude, using suitable adhesive tape (refer to Fig 2).

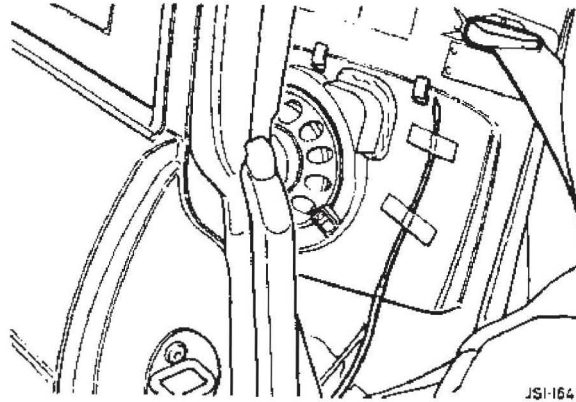


FIG 2

6. Refit the trim panel.

The above action only applies to VIN range 179737 onwards.

Parts Warranty claims for this work should be made using Complaint Code 9SSX and quoting SRO 86-91-42 (Coupe) or 86-91-42/70 (Convertible).

Total time allowance is 0.20 Hours (Coupe) and 0.25 Hours (Convertible).

Dealers and Importers using electronic claim submissions should use Claim Type 03.

It is intended that this operation will shortly be integrated into the vehicle build and an appropriate VIN will be issued in a future Service Bulletin.

### **XJ6 LHD ONLY**

**ITEM: 18**

#### **86 72AH BATTERY**

A larger capacity 72aH battery has been introduced on all left-hand-drive XJ6 vehicles from VIN 653463.

This new battery (Part Nos: DBC 6429 [wet] and JLM 10455 [dry]) is not interchangeable with either previous left-hand-drive or right-hand-drive vehicles.

### **XJ6 / XJ-S**

**ITEM: 19**

#### **86 18 EM IGNITION AMPLIFIER**

Investigation of recent warranty returns has identified instances of ignition amplifiers being changed and, in the process, being removed from their base-plates.

These parts should not be separated and must only be replaced as a complete assembly. Under no circumstances should they be dismantled.

Any parts returned through warranty will be rejected if incomplete or if attempts to split the assembly have been made.

**DATE: APRIL 1992**

**PAGE: 1 of 4**

**REF: JD 03/92**

Owing to revised information received from Engineering, pages 11 of Service Bulletin JD 01/92, 3/4 and 9/10 of Service Bulletin JD 02/92 are being re-issued and are provided at the end of this Bulletin, marked " \*Issue 2\* ".

Existing pages of the above should be removed and discarded to be replaced with the revised version.

**XJ6 3.2 & 4.0**

**ITEM: 20**

## 03 ADDITIONAL REPAIR OPERATION TIME

The following Repair Operation Times are now available:

12.29.16 – Cylinder Head Gasket Rear Blanking Plate – Renew – 1.40 Hrs  
Gasket

12.29.17 – Cylinder Head Rear Blanking Plate – Renew – 1.40 Hrs

Please amend your Repair Operation Time Schedule accordingly.

No other Repair Times are affected.

**XJ6 / XJS**

**ITEM: 21**

## 10 BRAKE SYSTEM SERVICE RECOMMENDATIONS

With the introduction of new brake components on the above models, the brake servicing recommendations have changed.

No routine replacement of system seals is necessary as the seals are designed to last for the life of the vehicle.

The braking system must still be inspected for satisfactory operation and condition at the regular service intervals.

Brake fluid to be renewed at 2 years or 30 000 miles (48 000 km) intervals, whichever is the sooner. For North America only, 18 months or 30 000 miles (48 000 km).

**Note:** Service Manuals will be up-dated at the next reprint.

**ALL AJ6-ENGINEED VEHICLES****ITEM: 22****26 WATER PUMPS**

A revised water pump assembly has been introduced on AJ6 engines. The assembly now has a gasket between the two halves, instead of RTV sealant as previously used.

The revised assembly is fitted from the following engine numbers:

3.2 : 107696

4.0 : 157275

The part number of the new assembly is EBC 8550 and replaces EBC 4437. The part number of the gasket is EBC 9220.

**Note:** THE GASKET CANNOT BE RETRO-FITTED TO RTV-SEALED WATER PUMPS. IF A LEAK BETWEEN THE TWO HALVES IS APPARENT, THE OLD STYLE PUMP ASSEMBLY MUST BE REPLACED BY EBC 8550.

When EBC 8550 has been fitted to an engine, the bolts securing the two halves together must be re-torqued to 21.5 Nm – 28.5 Nm, to overcome the possibility of gasket relaxation.

**XJ6 / XJ-S / S.III****ITEM: 23****80 AIR CONDITIONING/HEATER MICROPROCESSOR****82**

Refer to Service Bulletin JD 09/91, Item 62.

To improve the retention of the air conditioning/heater servo drive motor ICs (integrated circuits) secured to the microprocessor unit heatsink, the supplier has now changed the process to "Rivscrews".

This modification commenced during mid-November 1991 and replaced the previous bolt-type fixings.

Air conditioning/heater units fitted with revised microprocessors were progressively introduced from VINs:

XJ6	-	659029
XJS	-	183501
S.III	-	486299

**XJ6****ITEM: 24****84 WINDSCREEN WIPER ARM AND BLADE**

From VIN 657725, all XJ6 vehicles have been fitted with a revised wiper arm and blade assembly.

These new parts are interchangeable with cars built prior to this VIN, when changed as an assembly only. Dimensional changes prevent the fitment of a mixed condition of arm and blades.

Dealers are reminded that wiper blade replacement remains a part of the 7500 mile (12000 km) service schedule for all vehicles.

XJS

ITEM: 25

86 STOP LIGHT FAILURE SENSOR MODULE – LOCATION

From VIN 179737 (92MY Facelift XJS), the stop light failure sensor module is located in the boot of the vehicle, attached to the inside of the boot side reinforcement panel (drainage channel) L.H. (Fig. 1).

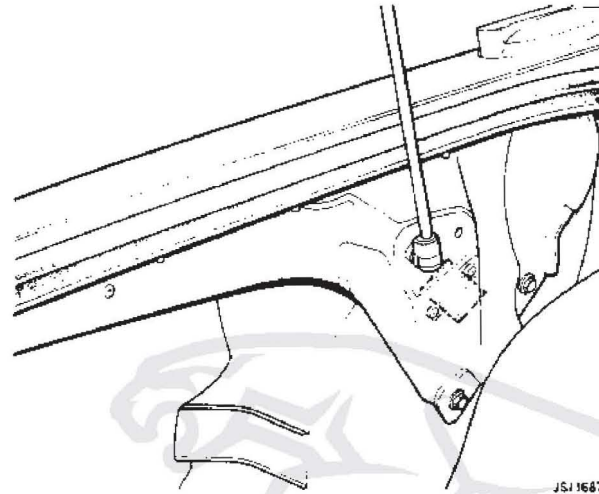


FIG. 1

Prior to VIN 179737 (90MY XJS), the module is located beneath the centre console veneer finisher, attached to a bracket in front of the stowage compartment (Fig. 2).

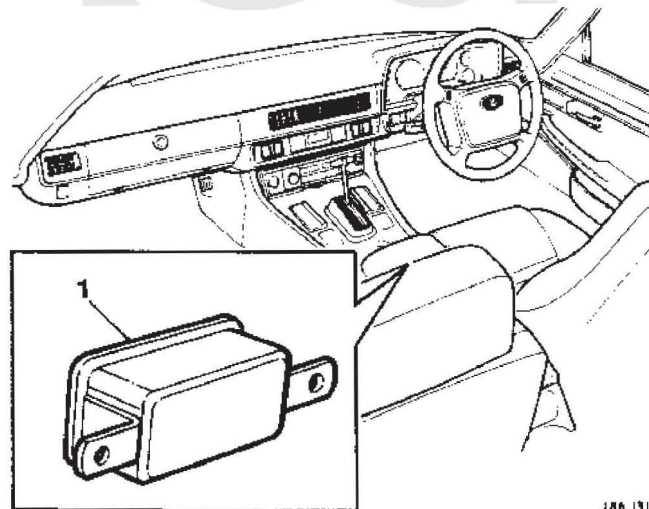


FIG. 2

XJ6

ITEM: 26

## 88 EXTERNAL SPEED SENSOR BRACKETS – IDENTIFICATION

Two external speed sensor brackets are available for use on XJ6 models. To avoid any confusion, they are identified as follows:

Bracket Part No	Description Of Use
CAC 9884	For all Drive Units prior to the introduction of EBC 9750 and EBC 9751 (no colour identification).
EBC 9820	For all Drive Units from the introduction of EBC 9750 and EBC 9751 (identified by a "spot" of <b>blue</b> paint).

