Service Bulletin

JAGUAR Daimler

DATE: OCTOBER 1991

REF: JD 08/91

XJS **ITEM: 49**

WARRANTY CODES

In the latest edition of the XJS Warranty Code book, codes for the battery and spare wheel covers have been duplicated.

To rectify this situation and prevent further confusion when submitting claims, the following codes have been removed from the warranty system:–

CODE	DESCRIPTION
9DS	Spare Wheel Cover
8PZ	Battery Cover Boot

Therefore, with immediate effect, Dealers should NOT submit further claims for these codes.

All future claims for the above parts should be submitted, using the following codes only:–

9DQ	Battery Cover
9DR	Battery Cover Support Panel
8NU	Spare Wheel Cover

XJS (FACELIFT) **ITEM: 50**

WARRANTY CODES

The following new warranty complaint code has been allocated to cover the fuel gauge "anti-slosh module", introduced on XJS Facelift models.

Code	Description	SRO
7JU	Anti-Slosh Module	88.25.25

Jaguar Cars Limited

ALL MODELS **ITEM: 51**

12 CYLINDER PRESSURE CHECK

WARNING: Would all technicians please note that before performing a cylinder pressure check, Repair Operation No. 12.25.01, all fuel should be purged from the fuel rail.

Purging of the fuel rail may be achieved by disconnecting the fuel pump relay and then cranking the engine for ten seconds.

XJ6 ALL MODELS & XJS 3.6 / 4.0 **ITEM: 52**

19 CRUISE CONTROL ACTUATOR LINKAGE ADJUSTMENT

Should customer complaints be received of an increase in the cruise control response time and a degree of hunting of the set speed, the cruise control actuator linkage adjustment should be checked in accordance with the following procedure, before taking any further action.

Dealers should ensure that the clearance between the end of the actuator to throttle link slot (A Fig 1) and the shoulder bolt (B Fig 1) is 0.5mm to 1mm (C Fig 1).

S.R.O.	19.75.11
Allowance	0.10 hrs
Complaint Code	7VCP

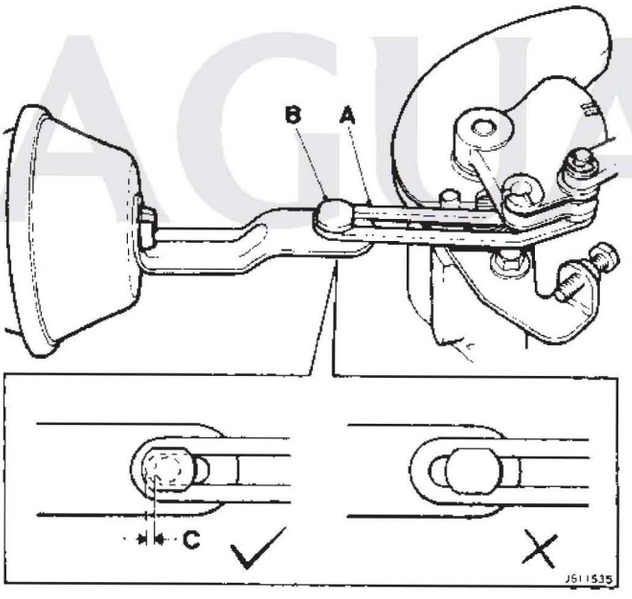


FIG 1

XJS V12 **ITEM: 53**

44 TRANSMISSION OIL COOLER CONNECTION

There have been a number of oil coolers returned with damaged coupling connector bosses, the cause of which can be attributed to poor workshop practice where backing spanners have not been used to support the integral hexagon connector of the oil cooler. This results in a fracturing of the connecting tube when torque is applied upon tightening or loosening the connection.

Technicians should use a backing spanner to hold the integral boss whilst tightening the cooler pipe connection to a torque of 15 – 17 Nm.

XJ6 / XJS / S.III / LIMOUSINE **ITEM: 54**

60 FRONT HUB END FLOAT ADJUSTMENT

The following instructions supersede all previous instructions provided in service manuals. Manuals will be updated at the next reprint.
Front hub end float on the above models should be set between 0,0254 to 0,0762mm (0.001 to 0.003in). To achieve this in service use the following method:

Note: Prior to adjusting the hub end float an absorbent cloth should be placed around the brake fluid reservoir cap.

Slacken the road wheel nuts ¼ turn each.
Jack up the front of 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.
Dependent upon model, gently prise the brake pads free or manipulate the brake caliper to ensure the brake pads are free within their mountings, i.e. the disc is free to rotate.
Prise off the hub grease cap (1 Fig. 1).
Fit a Dial Test Indicator (DTI) to the hub (Fig. 2).
Grasp the hub unit. Firmly pull and push the unit, oscillating at the same time, to determine the DTI end float reading.
If the reading is within the specification quoted there is no need to carry out the adjustment. If not, remove the hub nut split pin and cover (2, 3 Fig. 1).

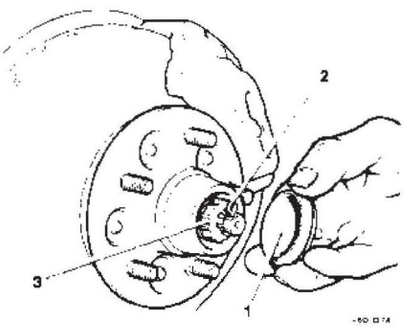


Fig. 1

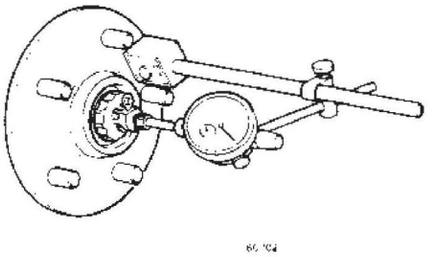


Fig. 2

Note: For identification purposes only,
Fig. 1 shows XJS, S III & Limo. type hub.
Fig. 2 shows XJ6 hub.

Adjust the nut, as necessary, to give a reading of 0,0508mm + / – 0,0254mm (0.002in + / – 0.001in).
Always try to achieve the mid–point of the tolerance i.e., 0,0508mm (0.002in).
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. 2).

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 road wheel.
Carry out the adjustment procedure on the opposite front hub.
When finished, lower the vehicle from the stands.
Ensure the wheel nuts are tightened to the specified torque.
Remove the absorbent cloth from around the brake fluid reservoir cap, ensuring the area is clean and dry.
Before moving the vehicle, pump the brake pedal to centralise the pads.

ALL MODELS — ITEM: 55

77 BODY REPAIR

To avoid the risk of causing permanent damage to vehicle ECUs during body repairs, the following precautions must be observed prior to using any electrical welding equipment.

1. Disconnect the vehicle battery and alternator.
2. Disconnect and remove all ECUs in the immediate area of any panels to be electrically welded. As a general rule, all ECUs within 2 feet of the area to be welded should be removed; for more detailed information, refer to the relevant Service Manual.
3. When using welding equipment, the earth return clamp should be located as close as possible to the area of repair.

XJ6 ALL MODELS — ITEM: 56

82 DRIVER'S BLOWER MOTOR ASSEMBLY

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

The repair operation times are now as follows:–

Left Hand Drive Vehicles:

82.25.13	Blower assembly – Left Hand – Renew	01.25 Hours
82.25.13/09	As 82.25.13 (Less J.D.S. Allowance)	00.90 Hours

Right Hand Drive Vehicles:

82.25.14	Blower Assembly – Right Hand – Renew	01.25 Hours
82.25.14/09	As 82.25.14 (Less J.D.S. 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 following procedure:–

REMOVE

Open the bonnet and disconnect the battery earth lead.
Remove the driver's side dash liner.
Remove the retaining clip from the air conditioning unit's pliable trunking.
Displace the pliable trunking from the air conditioning unit.
Displace the relay bases from their mounting brackets.
Cut and remove the ratchet straps securing the brake switch harness.
Disconnect the vacuum hose from the blower motor assembly servo unit.
Disconnect the blower motor multi–way connectors.
Undo and remove the steering column lower mounting securing nuts.
Undo and remove the steering column upper mounting securing nuts.
Lower the steering column assembly.
Retrieve the column upper packing shims.
Remove the washer bracket from the column.
Manoeuvre the steering column towards the centre of the vehicle for access.
Undo and remove the steering column outer stabilizer bar's upper and lower securing nuts.
Displace and remove the steering column stabilizer bar (Fig. 1).
Reposition the vehicle harness connectors to gain access to the blower motor assembly securing bolts.
Undo and remove the blower motor assembly securing bolts.
Displace and remove the blower motor assembly.
Remove and discard the unit intake gasket.
Remove the pliable trunking to assembly securing tape.
Remove the trunking from the unit.

REFIT

Fit and align trunking to the new blower motor assembly.
Secure the trunking to the assembly with tape.
Smear the new intake gasket with a suitable adhesive.
Fit the gasket to the blower motor assembly intake.
Fit and align the blower motor assembly into its mounting position.
Connect the pliable trunking to the air conditioning unit.
Refit and tighten the blower motor assembly securing bolts.
Fit and align the trunking retaining clip.
Connect the blower motor multi–way connectors.
Connect the vacuum hose to the blower motor assembly servo unit.

Fit and align the steering column stabilizer bar and tighten the securing bolts (10 – 14 Nm).
Fit and align the washer bracket to the column.
Loosely fit the steering column upper mounting securing nuts.
Fit the steering column packing shims as necessary.
Fit and tighten the steering column lower mounting securing nuts (20 – 22 Nm).
Fully tighten the steering column upper mounting securing nuts (20 – 22 Nm).
Reposition the brake switch harness to the blower motor assembly.
Secure the brake switch harness to the unit with ratchet straps.
Fully seat the relay bases to their mounting brackets.
Refit the driver's dash liner assembly.
Reconnect the battery earth lead and close the bonnet.

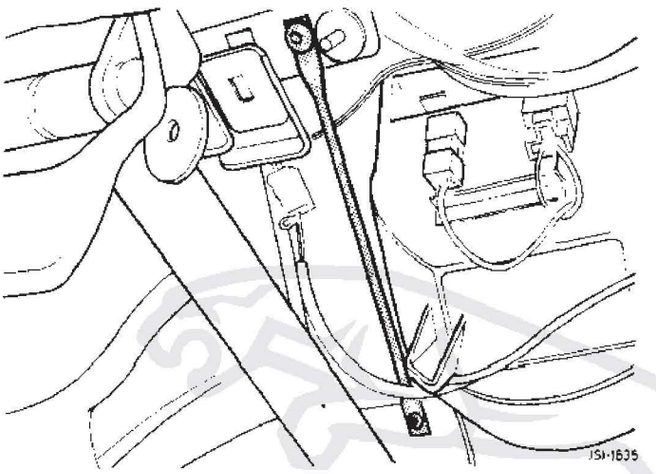


Fig. 1

S.III, XJS & XJ6 UP TO VINs:- **ITEM: 57**
506664 – USA
506448 – CANADA
507471 – R.O.W.

82 AIR CONDITIONING COMPRESSOR (GM A6 TYPE)

Investigations have confirmed the unnecessary replacement of compressors for noise and leaks.

If excessive compressor noise exists, check the following items:–

- Compressor drive belt tension.
- Compressor mountings.
- A/C refrigerant hose routing (ensure that hoses are not in contact with other components).
- Ensure that the refrigerant charge weight is correct (refer to Section 82 of the Service Manual for additional information).

- Ensure that the compressor is filled to the correct level with oil. A MAXIMUM of 4 ozs (114 cc) of refrigerant oil can be added to the compressor without discharging the refrigerant. Using an oil injector tool (such as 'Snap–on' oil injector tool ACT 111), add oil in 2 oz (57 cc) increments. (Refer to the procedure detailed below).

  NOTE: LOW OR EXCESSIVE CHARGE WEIGHT OR A LOW OIL LEVEL WILL CAUSE COMPRESSOR NOISE.

- Clutch drag or bearing noise (refer to the clutch replacement procedure, Section 82 of the Service Manual).

- Compressors which leak oil or Freon must have the seals replaced in accordance with the procedure detailed in Section 82 of the Service Manual.

Replace the compressor only after checking all of the above–mentioned items.

NOTE: All returned compressors must be complete and sealed, using the blanking plate provided on the replacement unit.

Procedure for compressor oil injector tool usage:–

- Operate the A/C system. Make sure that the system is full of Freon. Refer to Section 82 of the Service Manual for the test procedure.

- Remove the sealing gaps from the high and low pressure A/C charging points.

- Check that the valve on the oil injector tool is closed.

- Remove the threaded end cap from the oil injector tool and add 2 ozs (57 cc) of compressor oil. Replace the end cap.

- Attach the short flexible hose on the oil injector to the low pressure fitting of the vehicle A/C system.

- Attach one end of an A/C system extension hose to the fitting on the side of the valve of the oil injector tool. Attach the other end of the extension hose to the high pressure fitting of the vehicle A/C system.

- Run the engine at idle with the A/C system operating.

- Slowly open the oil injector tool valve until it is fully open. Allow the oil to flow into the compressor for 2 minutes.

- Close the oil injector tool valve. Let the engine run an additional minute, then switch off the ignition.

- Carefully remove the charging hoses from the high and low pressure fittings and install the sealing caps.

- Check the A/C system for compressor noise. If noise still exists, repeat the procedure once more, adding an additional 2 ozs (57 cc) of compressor oil.

- NOTE: NEVER ADD MORE THAN 4 OZS (114 cc) OF OIL TO THE A/C SYSTEM.

- Attach a self–adhesive label to the A/C hose (adjacent to the low pressure hose fitting), stating how much oil was added and the date.

Service Bulletin

JAGUAR

Daimler

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 ¼ 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.

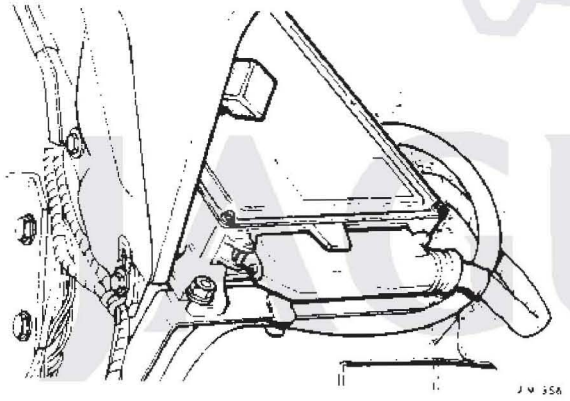


FIG 1

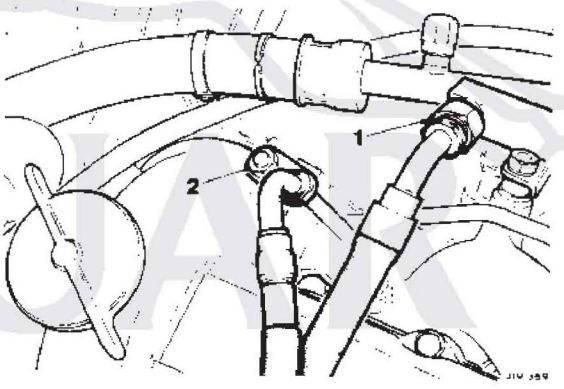


FIG 2

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 : 2,5bar ± 0,1bar.
Switch off the engine.
Depressurise the engine as detailed above.

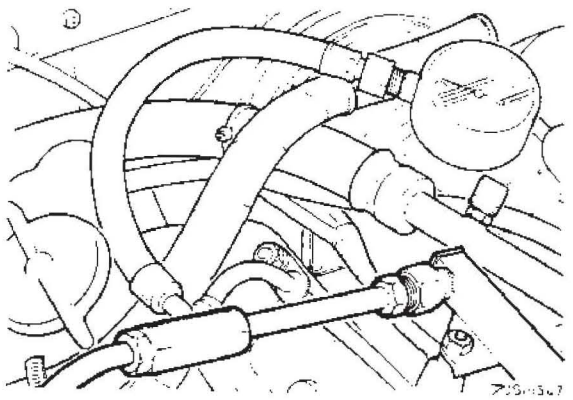


FIG 3

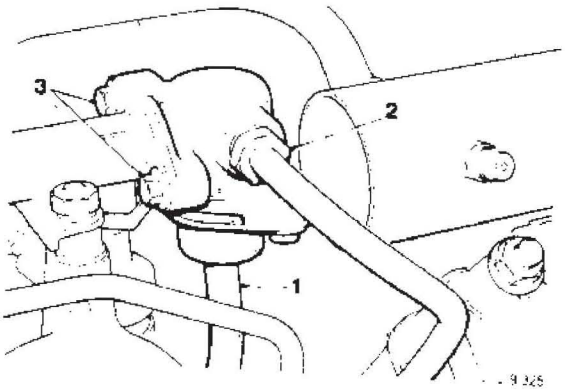


FIG 4

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.

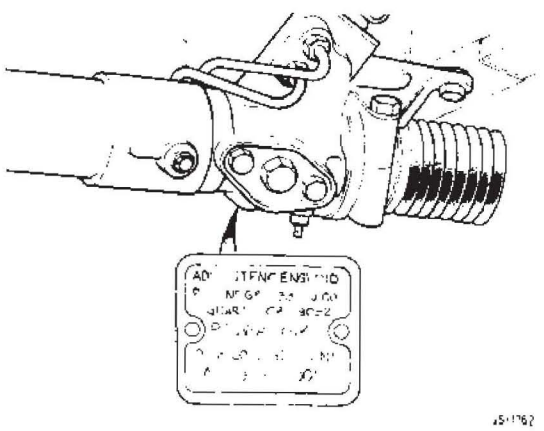


FIG 1

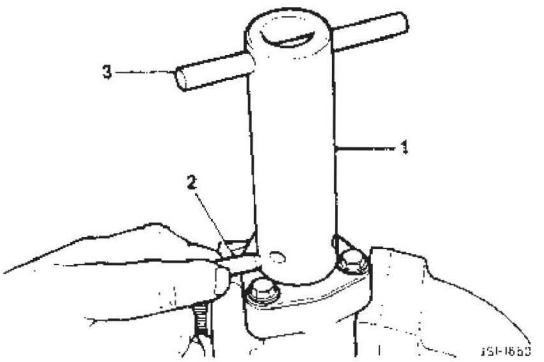


FIG 2

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).

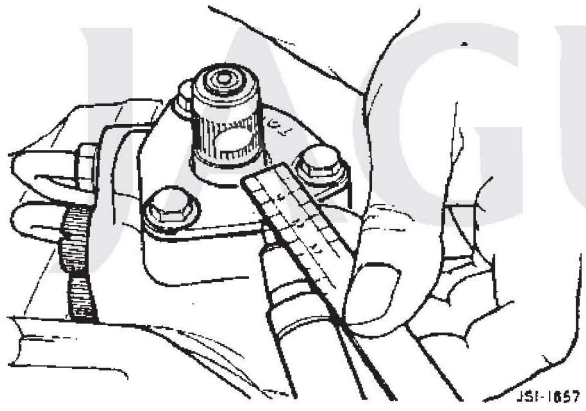


FIG 3

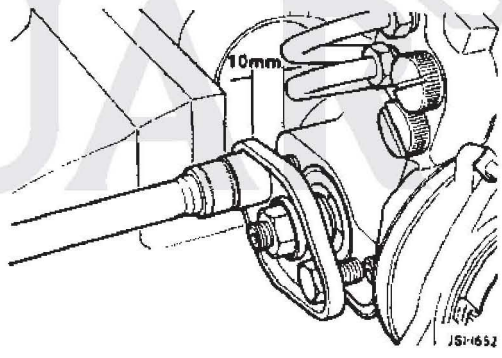


FIG 4

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.

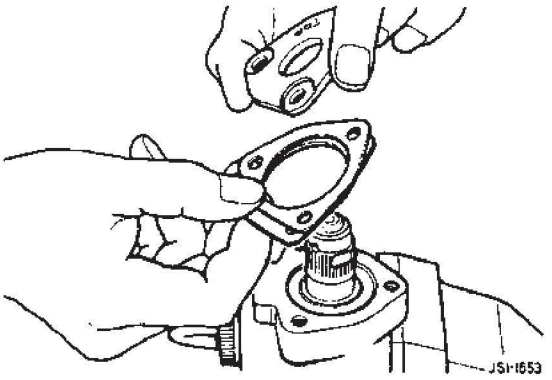


FIG 5

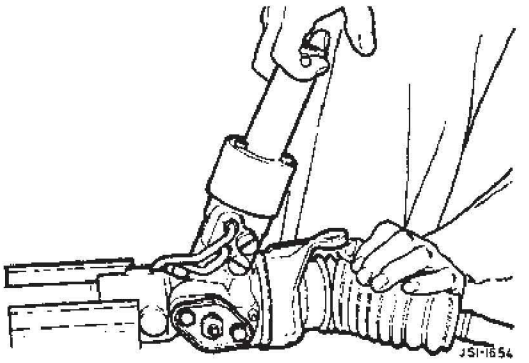


FIG 6

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.

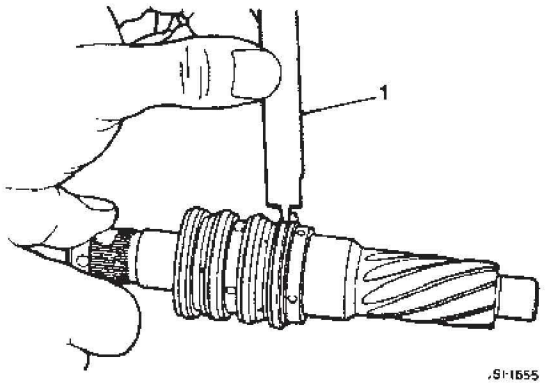


FIG 7

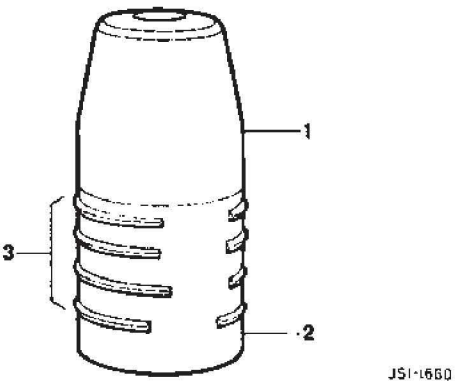


FIG 8

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).

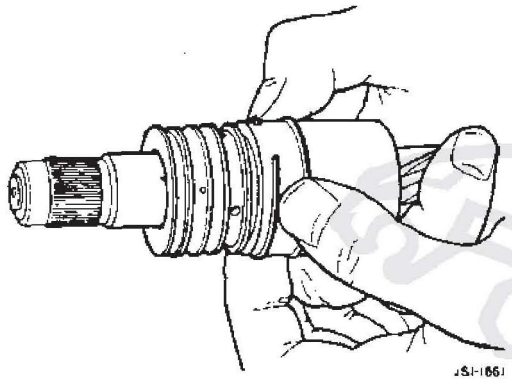


FIG 9

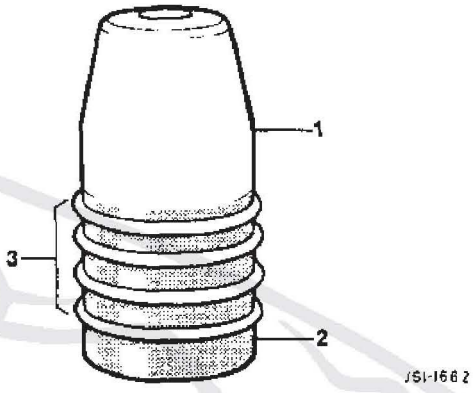


FIG 10

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.

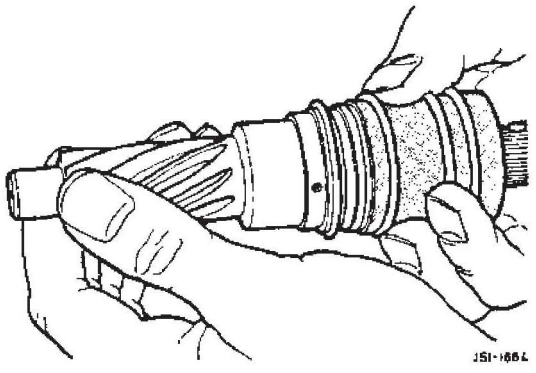


FIG 11

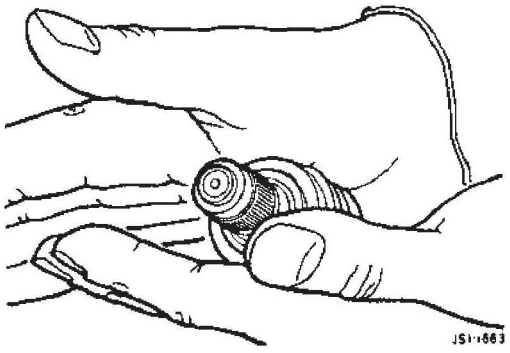


FIG 12

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.

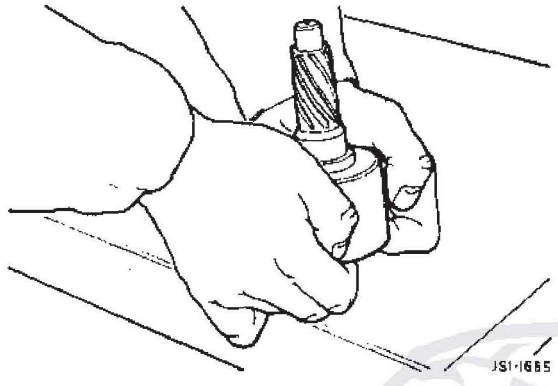


FIG 13

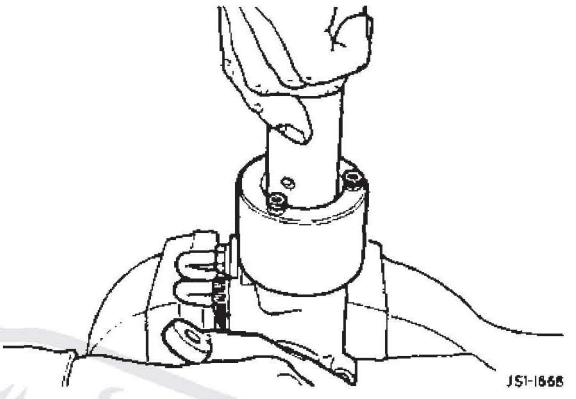


FIG 14

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. 90^0), 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).

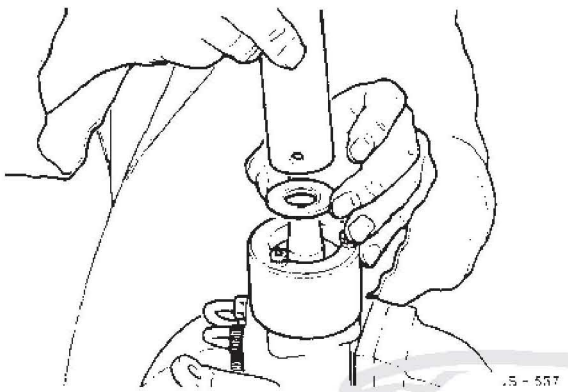


FIG 15

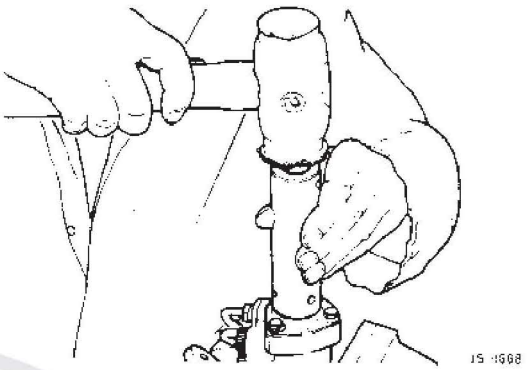


FIG 16

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).

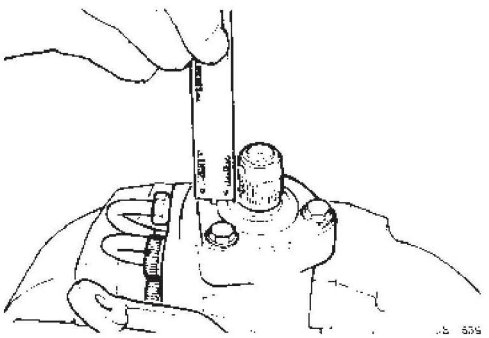


FIG 17

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.

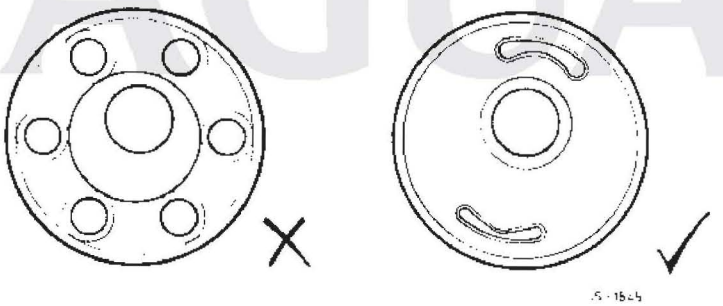


FIG 1

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 30^0 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.

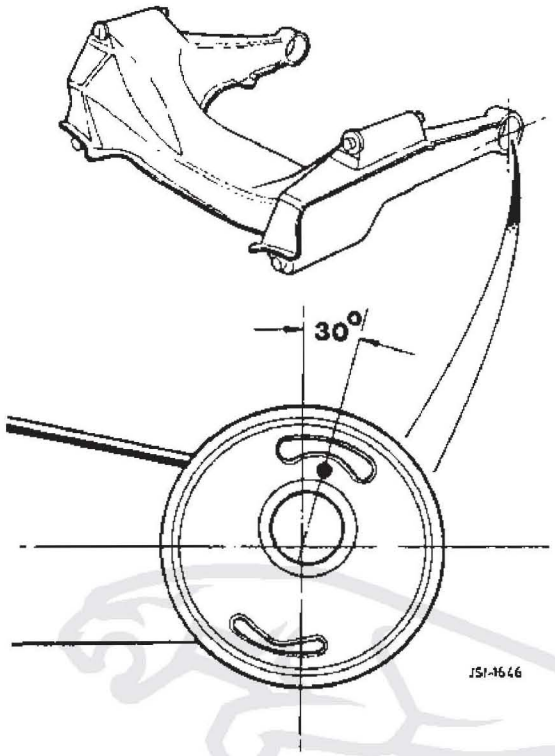


FIG 2

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 $^1/_4$ turn each.
Locate a trolley jack below the front spring pan (Fig.1).

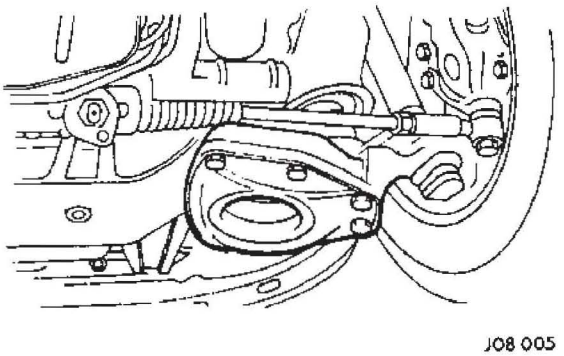


FIG 1

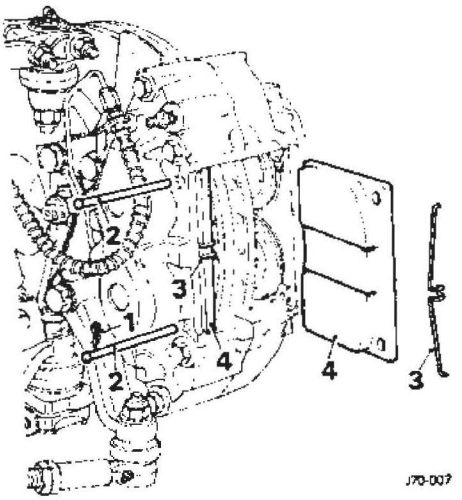


FIG 2

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 of 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).

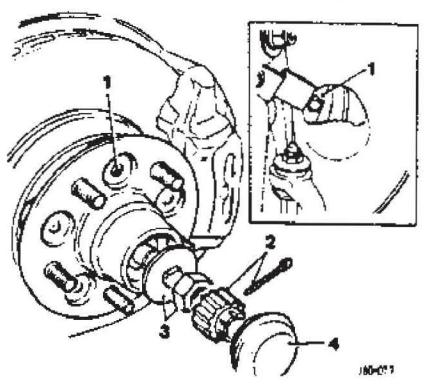


FIG 3

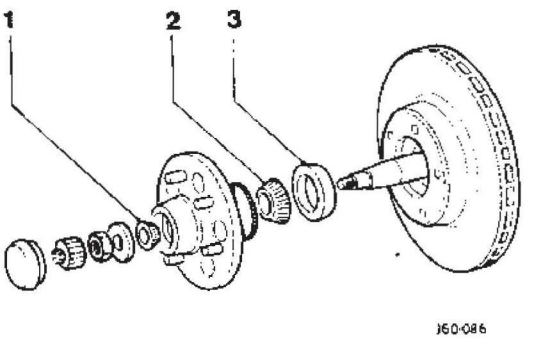


FIG 4

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).

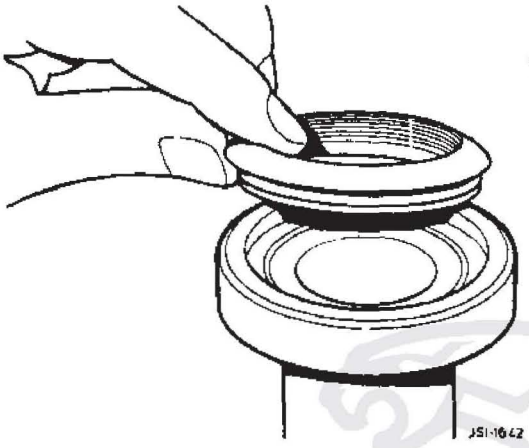


FIG 5

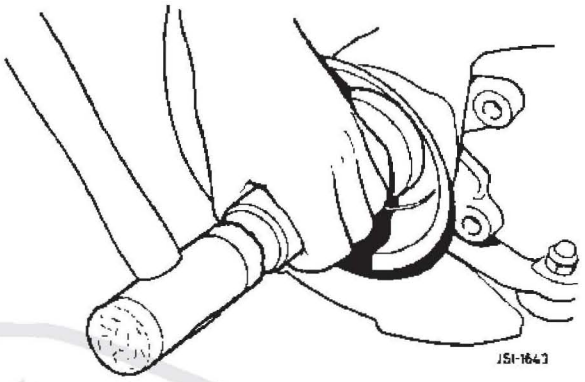


FIG 6

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).

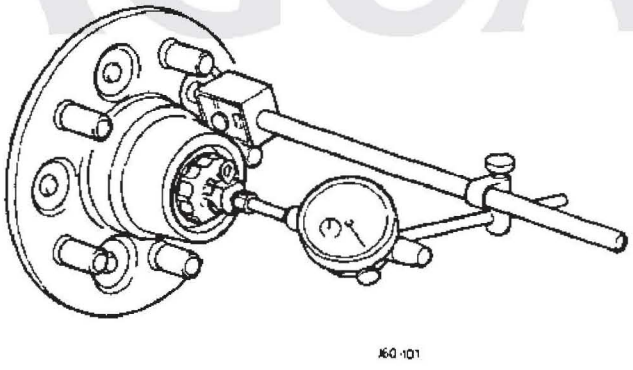


FIG 7

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 ± 0,0254 mm (0.002 in ± 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 $^1/_4$ 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.

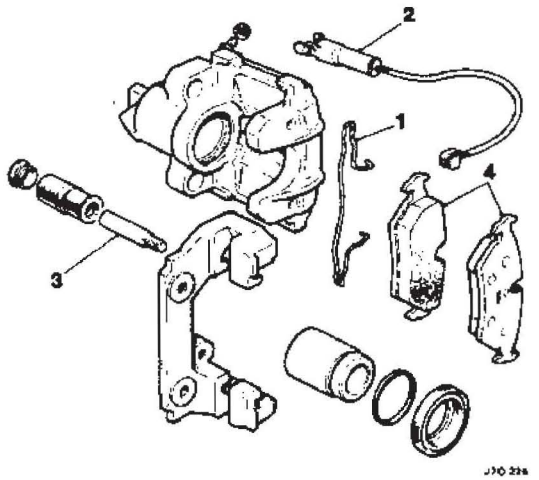


FIG 1

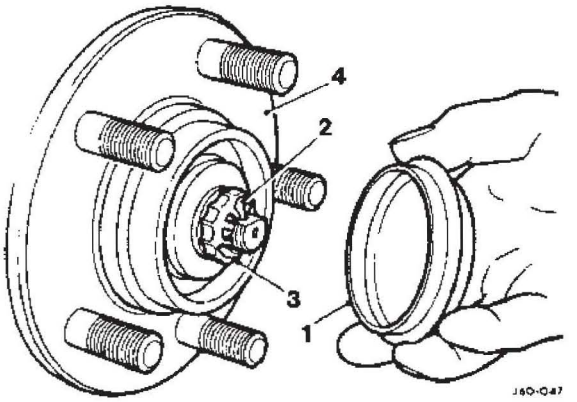


FIG 2

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 of 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.

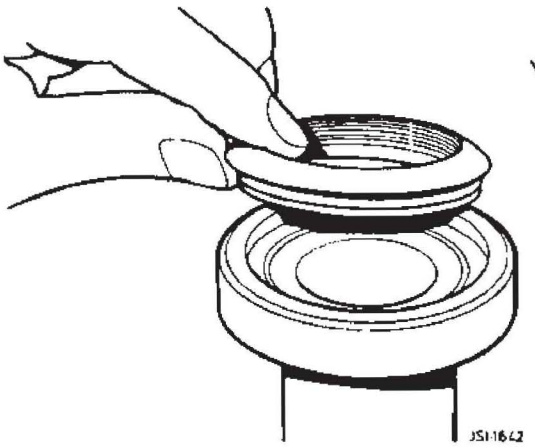


FIG 3

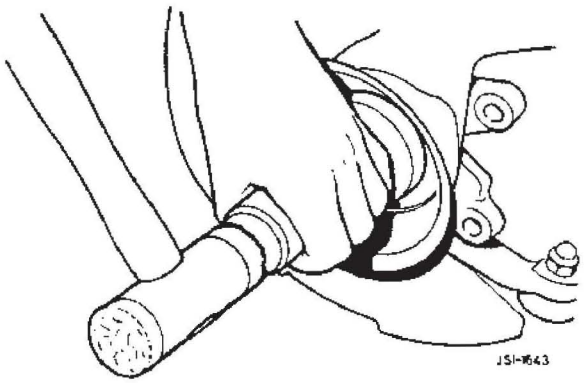
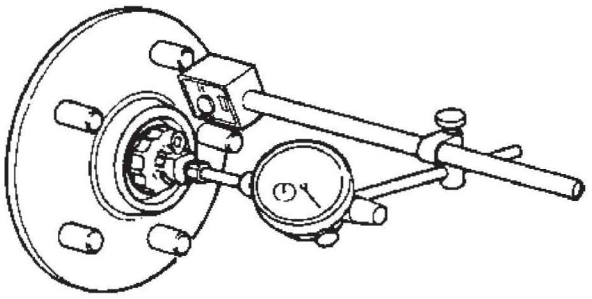


FIG 4

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).



J60 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 ± 0,0254 mm (0.002 in ± 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 ¼ 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.

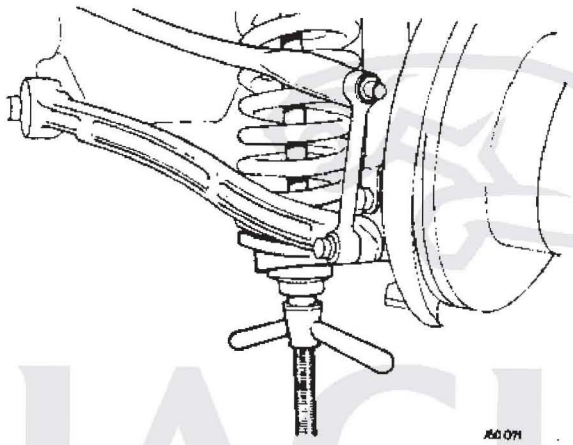


FIG 1

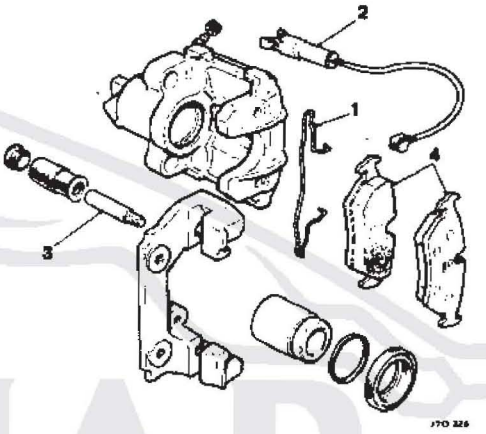


FIG 2

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.

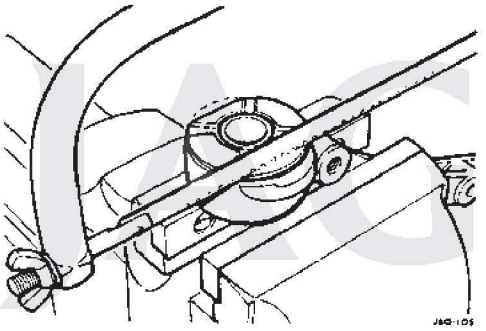


FIG 3

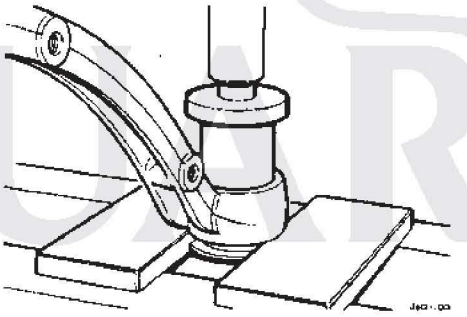


FIG 4

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.

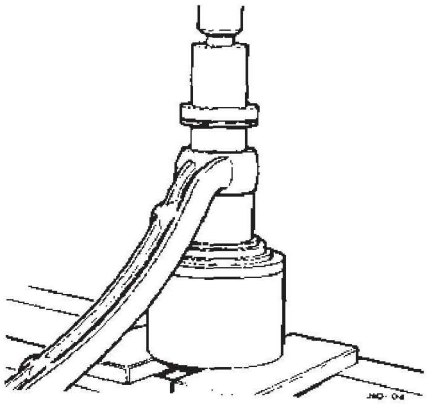


FIG 5

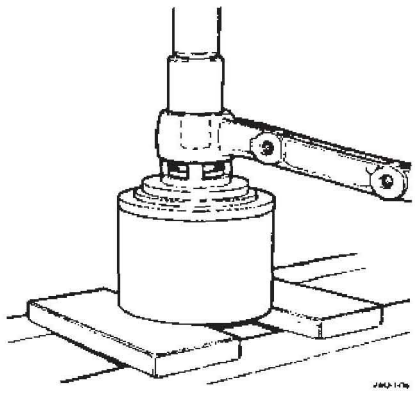


FIG 6

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.

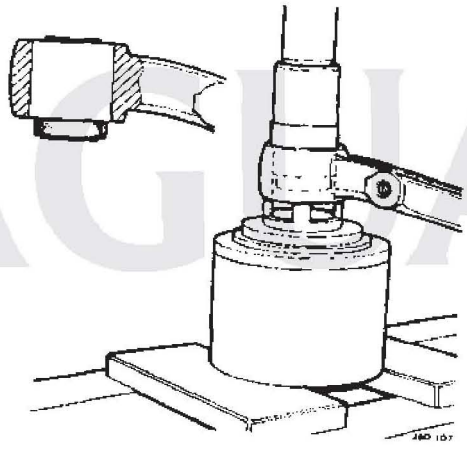


FIG 7

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).

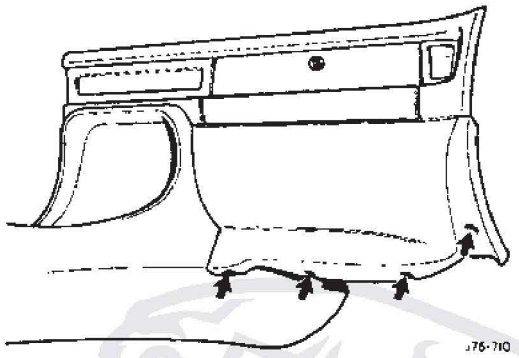


FIG 1

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.

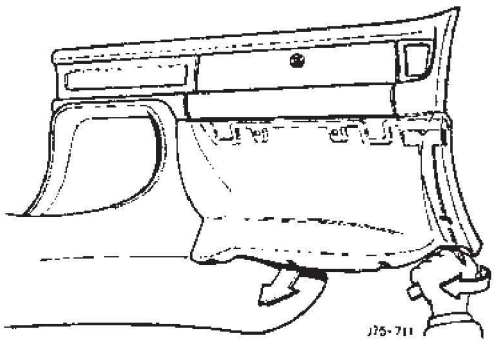


FIG 2

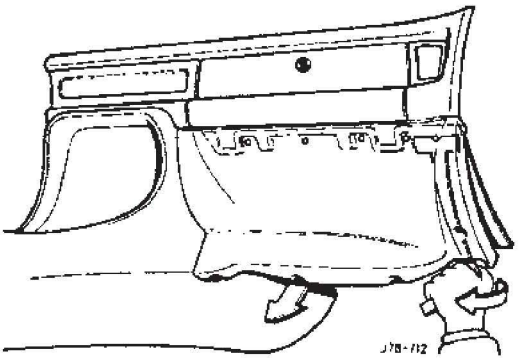


FIG 3

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

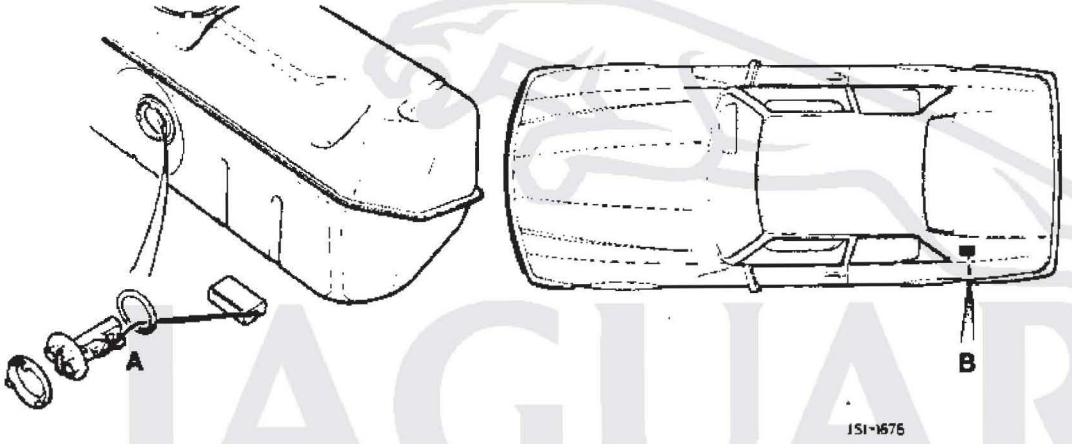
With the introduction of the XJ-S Facelift range, an anti-slosh module has been incorporated into the fuel gauge circuit, which damps the gauge needle movement and controls the low fuel warning indication.

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 resister 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).

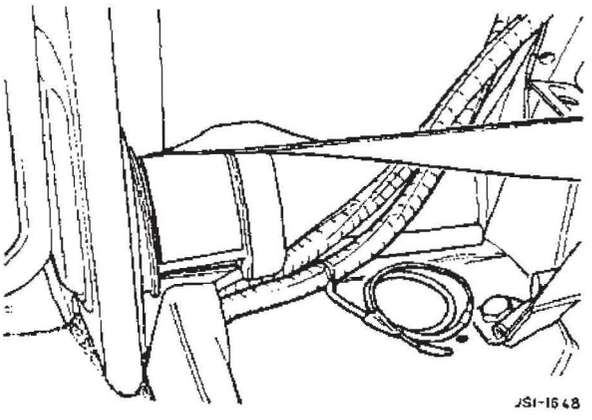


FIG 1

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).

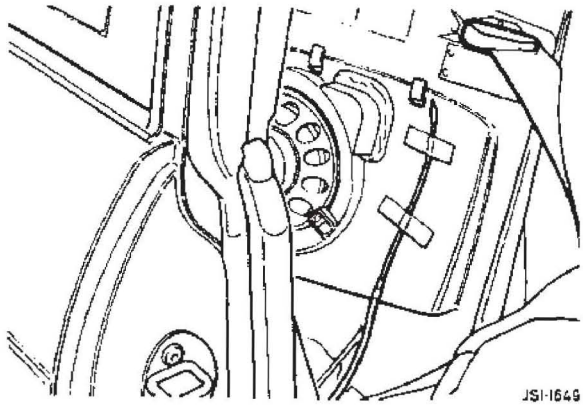


FIG 2

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.

Service Bulletin

JAGUAR

Daimler

DATE: MARCH 1993

REF: JD 05/93

ERRATA

WITH REFERENCE TO SERVICE BULLETIN JD 17/92, PLEASE NOTE THAT THE WARRANTY COMPLAINT CODE SHOWN ON PAGE 2 AS 1LBK IS INCORRECT. THIS CODE SHOULD READ 1LKB

V12 AND AJ6 ENGINES **ITEM: 01**

12 INTRODUCTION OF GRADED CRANKSHAFT BEARINGS

As part of Jaguar's on–going commitment to improving quality, three grades (sizes) of crank pin and journal bearings have been introduced on all production V12 and AJ6 engines. This will improve engine and vehicle refinement by reducing the maximum crank running clearances by approximately 20%.

Graded bearings were introduced on production from the following engine numbers:

V12 XJS: 8S 86817

V12 Series III: 7P 76912

6.0 JaguarSport: TBA *

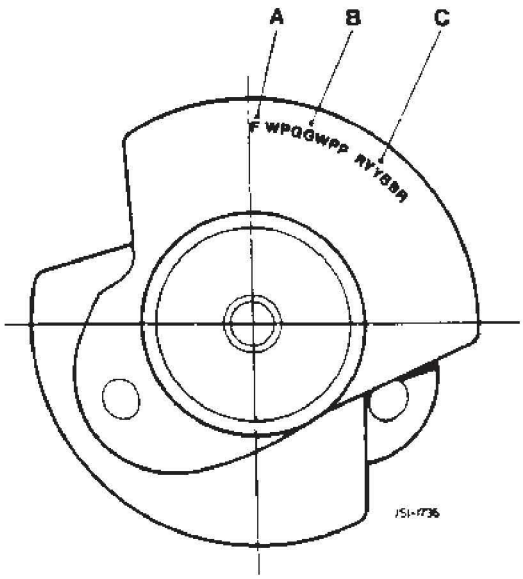
3.2: 9B 111574

4.0: 9E/9W 164637

* 6.0 litre JaguarSport engines will use the grading system when a common crank shaft is used for both JaguarSport and Jaguar 6.0 litre engines.

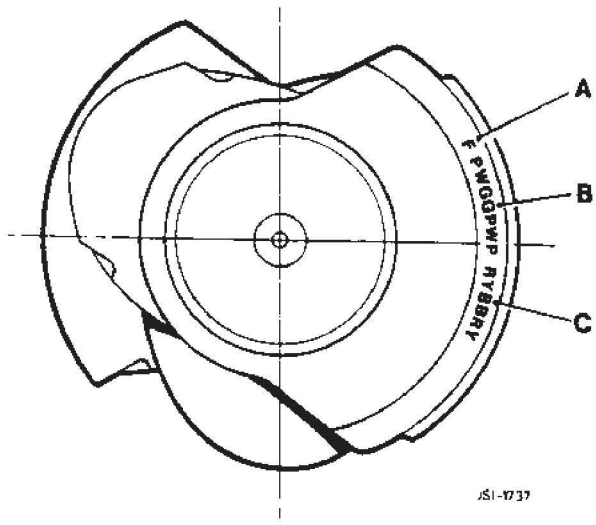
The three different grade diameters of the journals and pins are represented by a letter which corresponds to a colour, i.e. "P" equals Pink, "R" equals Red, etc. The grade of each individual journal and pin on each crankshaft is identified by having the grading diameter colour stamped on the No 1 balance weight, indicating the grade of shell to be fitted, as follows:

V12



A: F Indicates front
B: Journals 1 to 7
C: Pins 1 to 6

AJ6



A: F Indicates front
B: Journals 1 to 7
C: Pins 1 to 6

The bearing shell is identified by having the colour on one of its edges.

The grade letter and colour for each diameter are as follows:

V12

JOURNALS		
GRADE LETTER	GRADE COLOUR	GRADE DIAMETER
P	PINK	3.0005 INS (76.212MM) 3.0008 INS (76.220MM)
W	WHITE	3.0009 INS (76.222MM) 3.0012 INS (76.230MM)
G	GREEN	3.0013 INS (76.233MM) 3.0016 INS (76.240MM)

PINS		
GRADE LETTER	GRADE COLOUR	GRADE DIAMETER
R	RED	2.2993 INS (58.402MM) 2.2996 INS (58.409MM)
Y	YELLOW	2.2997 INS (58.412MM) 2.3000 INS (58.420MM)
B	BLUE	2.3001 INS (58.422MM) 2.3004 INS (58.430MM)

AJ6

JOURNALS		
GRADE LETTER	GRADE COLOUR	GRADE DIAMETER
P	PINK	3.0002 INS (76.207MM) 3.0006 INS (76.216MM)
W	WHITE	3.0006 INS (76.217MM) 3.0010 INS (76.226MM)
G	GREEN	3.0010 INS (76.227MM) 3.0014 INS (76.236MM)

PINS		
GRADE LETTER	GRADE COLOUR	GRADE DIAMETER
R	RED	2.0852 INS (52.966MM) 2.0856 INS (52.975MM)
Y	YELLOW	2.0856 INS (52.976MM) 2.0860 INS (52.985MM)
B	BLUE	2.0860 INS (52.986MM) 2.0864 INS (52.995MM)

New Part Numbers for the graded bearing shells are as follows:

V12 GRADED BEARING SHELLS (5.3 & 6.0 LITRE)

PART NUMBERS

		PART NO	NO PER ENGINE	COLOUR CODE	REPLACES
CONN ROD BEARING	SIZE 1 SIZE 2 SIZE 3	JLM 11138/01 JLM 11138/02 JLM 11138/03	12	RED YELLOW BLUE	C 38933
MAIN BEARING – FRONT/INTERMEDIATE	SIZE 1 SIZE 2 SIZE 3	JLM 11139/01 JLM 11139/02 JLM 11139/03	5	PINK WHITE GREEN	C 29313/1
MAIN BEARING – CENTRE	SIZE 1 SIZE 2 SIZE 3	JLM 11140/01 JLM 11140/02 JLM 11140/03	1	PINK WHITE GREEN	C 29314/1
MAIN BEARING – REAR	SIZE 1 SIZE 2 SIZE 3	JLM 11141/01 JLM 11141/02 JLM 11141/03	1	PINK WHITE GREEN	EAC 3973
CRANKSHAFT 5.3L		EBC 10961			
CRANKSHAFT 6.0L		EBC 10992			

AJ6 GRADED BEARING SHELLS (3.2 & 4.0 LITRE)

PART NUMBERS

		PART NO	NO PER ENGINE	COLOUR CODE	REPLACES
CONN ROD BEARING	SIZE 1 SIZE 2 SIZE 3	JLM 11135/01 JLM 11135/02 JLM 11135/03	6	RED YELLOW BLUE	EAC 2502
MAIN BEARING – FRONT/INTERMEDIATE/REAR	SIZE 1 SIZE 2 SIZE 3	JLM 11136/01 JLM 11136/02 JLM 11136/03	6	PINK WHITE GREEN	EAC 7957 (red) EAC 7958 (blue)
MAIN BEARING – CENTRE	SIZE 1 SIZE 2 SIZE 3	JLM 11137/01 JLM 11137/02 JLM 11137/03	1	PINK WHITE GREEN	EAC 7961 (red) EAC 7962 (blue)
CRANKSHAFT 3.2L		EBC 10916			
CRANKSHAFT 4.0L		EBC 10915			

If a crankshaft or bearing problem is encountered on engines built prior to the introduction of graded bearings, the following applies:

If the bearing shells only have to be replaced, sets of the old condition shells will still be available and should be ordered as before.

If the crankshaft needs to be changed, a graded bearing crankshaft will be supplied from Parts Operations and the relevant graded bearings will need to be fitted.

If a crankshaft or bearing problem is encountered on engines with the graded bearings, the following applies:

If the bearing shells only have to be replaced, the relevant shells, as noted on the No.1 balance weight (see above), should be ordered.

If the crankshaft needs to be replaced, a graded bearing crankshaft will be supplied by Parts Operations and the relevant graded bearings should be ordered separately.

ALL MODELS **ITEM: 02**

17 EVAPORATIVE EMISSION CONTROL SYSTEM

In order to meet stricter world–wide emission regulations, an Evaporative Emission Control System is now fitted to all Jaguar vehicles.

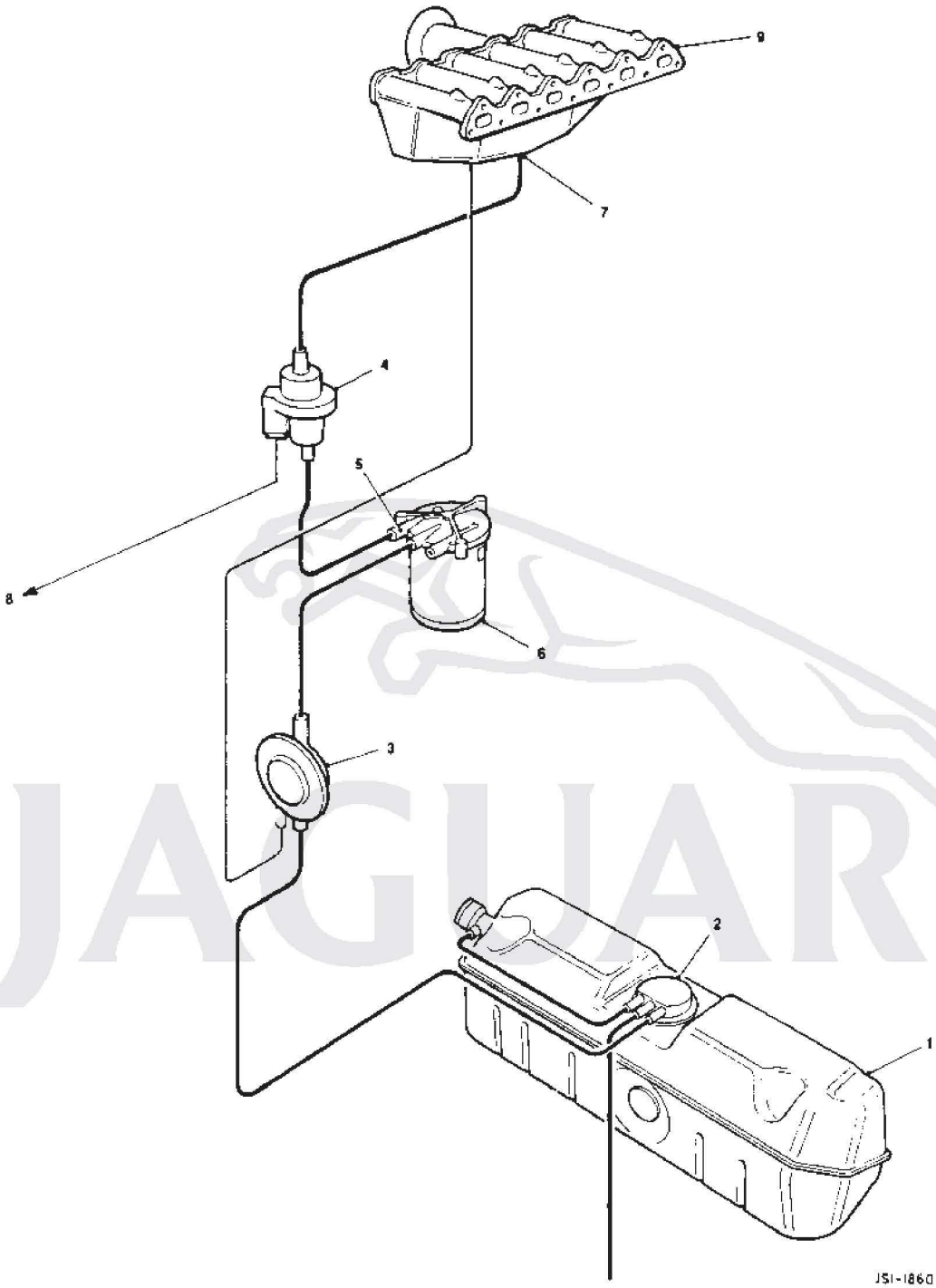
Introduction VIN's are:

XJS – 184907
SERIES III – 486831
XJ6 – 664941

Evaporative Emission Control Systems are designed to prevent fuel vapour, which consists mainly of hydro–carbons, escaping into the atmosphere.

The following is a resumé of major components of the system and the way in which the system functions:

MAJOR COMPONENTS:



1. Fuel Tank
2. Evaporative loss flange
3. Pressure/Vacuum relief valve with vacuum operated by–pass valve
4. Purge control valve
5. Purge air port (on charcoal canister)
6. Charcoal canister
7. Purge port (on induction manifold)
8. Electrical connection to ECU
9. Induction manifold

THE SYSTEM FUNCTIONS IN THE FOLLOWING WAY:

Fuel vapour, generated in the fuel tank, is passed in a controlled manner to a storage device, located at the front left–hand side of the vehicle, in front of the road wheel. The storage device is a plastic canister filled with charcoal, (6, Fig 1). The charcoal absorbs the vapour, enhancing the storage capacity of the canister.

When a vehicle is at rest with the engine turned off, the flow of vapour is controlled by a pressure/vacuum relief valve (3, Fig 1), so that a low positive pressure is maintained in the fuel tank. If this pressure exceeds approximately 1.5 psi, the pressure/vacuum relief valve opens, to allow the excess pressure and fuel vapour to bleed into the charcoal canister, thus maintaining the low positive pressure.

Should there be any blockage of the line between the fuel tank and the charcoal canister, there are further pressure relief valves, in both the evaporative loss flange and the fuel filler cap, to prevent any excess tank pressure.

When the engine is running, the pressure/vacuum relief valve is held open by engine vacuum, allowing an unchecked flow of vapour from the fuel tank to the canister and "zero" pressure in the fuel tank (i.e. atmospheric pressure.)

The charcoal canister is connected to the vehicle's induction manifold via a purge control valve (Fig 1, item 4), the operation of which is controlled by an electrical signal from the engine management ECU, according to a pre–determined map.

The canister is purged by drawing the vapour into the induction manifold, the volume of vapour being controlled by the purge valve via the ECU. The vapour is then disposed of during the combustion process.

ALL 4.0L AUTO MODELS **ITEM: 03**

18 TRANSMISSION CONTROL UNIT (TCU)

Should an automatic transmission failure warning be accompanied by fault codes 17 and 08 (torque control and select – possible open circuit), technicians may assume that the transmission control unit (TCU) is faulty and erroneously logging the fault codes, particularly if no fault is immediately evident with the wiring. However, it is unlikely that the TCU is at fault, as the most likely cause of the fault is in the wiring to the engine management ECU.

The "pull–up" resistors for the torque control and select lines are located in the engine management ECU. If the supply to this ECU is faulty, there will be no pull–up and the voltage on the select and control lines will drop. The TCU will diagnose this as an open circuit failure. Therefore, when fault codes 17 and 08 are seen together, the supply to the engine management ECU should be checked.

It is also possible that this fault may be caused by any non– approved security/alarm systems, which immobilise the engine management system by cutting its power supply.

ALL MODELS **ITEM: 04**

26 DELETION OF BARRS LEAK

When draining and refilling the cooling system during vehicle maintenance, it is no longer necessary to add 'Barrs Leak' radiator leak sealer.

Process improvements and improved component quality now render the continued use of 'Barrs Leak' unnecessary.

Note: On vehicles prior to the following VIN's 'Barrs Leak' radiator leak sealer should still be used.

XJ6 Models – VIN. 670522
XJS Models – VIN. 186210

XJ6 92 MY **ITEM: 05**

51 FINAL DRIVE UNIT

VIN range 665838 to 667716

A number of vehicles within the above VIN range have been fitted with an alternative final drive unit. The current and alternative units can be distinguished by the number of bolts in the output shaft seal housing, five in the current final drive unit and three in the alternative. The alternative final drive will not be supported with spare parts until mid–1993, therefore, should there be any service concerns, Jaguar Parts Operations will only supply the current final drive units. To complete the repair it will be necessary to fit the appropriate speed sensor bracket.

For final drive unit part numbers EBC 10910/1/2/3 and EBC 10911/1/2/3, fit speed sensor bracket EBC 9820 (identified by a blue paint spot). For all other final drive unit part numbers, fit speed sensor bracket CAC 9884.

JLM. 11242 – NON PLOK
JLM. 11241 – P. LOK.

XJ6 1991 MY – 1993 MY **ITEM: 06**

86 BATTERY QUIESCENT DRAIN INFORMATION

To enable Jaguar Dealers and their technicians to keep abreast of both past and present quiescent drain specifications, the following information covers the vehicle range over the last three years.

METHOD OF MEASUREMENT

In order to correctly measure quiescent current, technicians MUST adhere to the following procedure:

- Disconnect the battery negative lead.
- Connect ammeter between the battery negative post and negative lead.
- Select high meter range (ie: equal to or more than 10 amps)
- Switch the ignition "on" then "off", then remove the key. (Do not crank the engine)
- Observe and record the measurements obtained over the time scales identified in this Bulletin.

Note: Whilst testing is being carried out, no vehicle systems must be activated. For this reason, on 1993 Model Year vehicles, the boot light should be disabled and its lock latched shut.

QUIESCENT DRAIN FIGURES (Approximate values in milliamps)

COMPONENT	VEHICLE MODEL YEARS		
	93MY	92MY	91MY
	XJ6	XJ6	XJ6
Air con/heater	0.5		
Ride level	1.0	0.6	0.6
Transmission control	1.3	2.0	2.0
Central processor	3.3	8.0	8.0
Instrument pack	2.5	2.5	2.5
Alternator	0.5	3.0	3.0
Radio head unit	2.6	2.6	2.6
CD Autochanger	2.5	3.5	3.5
Clock	0.3	0.7	0.7
Air bag module	0.3		
Engine ECU	3.5	3.7	3.7
Infra–red locking	1.0	1.5	1.5
Seat memory modules	7.0		
Gearshift interlock control module	1.0		
Passive ECU		1.0	1.0
Door lock ECU	1.0	1.5	1.5
Facia switch panel		1.0	1.0
Wipe logic		1.0	1.0
F/R/H Bulb fail unit	0.6	0.6	0.6
F/R/H Bulb fail unit (UK)	1.5	1.5	1.5
F/L/H Bulb fail unit	0.6	0.6	0.6
F/L/H Bulb fail unit (UK)	1.5	1.5	1.5
R/R/H Bulb fail unit	0.4	0.4	0.4
R/L/H Bulb fail unit	0.4	0.4	0.4

TYPICAL QUIESCENT CURRENT LOADS FOR 1993 MY

	XJ6 3.2	XJ6 4.0	SOV 3.2	SOV 4.0	DAIM 4.0
SPECIFICATION TOTAL (NOMINAL VALUE)	20.0	28.6	27.3	28.6	28.6
BASE RF ALARM (DISARMED)	10	10	10	10	10
TOTAL DRAIN CURRENT	30.0	38.6	37.3	38.6	38.6
VEHICLE STANDING TIME IN DAYS (INC ALARM)	53.3	42.4	43.8	42.4	42.4

Note: – These figures were calculated for a new battery, discharging from 80% charged to 20% charged.

– The base quiescent drain figures will vary between markets.

– Accessory parts will reduce the vehicle stand time.

– Non–approved accessories are likely to reduce considerably the vehicle stand time.

IMPORTANT: – Vehicle drain figures should be calculated according to their individual specifications.

This information must be passed on to the appropriate workshop technicians.

STAGES OF QUIESCENT DRAIN

IMPORTANT: – The current figures used here are only examples. The time scales shown are, however, accurate.

VEHICLE QUIESCENT DRAIN FIGURES

0–5 minutes	500 milliamps (example)
6–21 minutes	75 milliamps (example)
22 minutes onward	25 milliamps (example)

The above example highlights the significant drop in current demand, which can be measured after the vehicle has been left for a few minutes.

Note: – The current drain will not drop to this final value if the keys are left in the ignition, even if the ignition is not switched on.

ALARM QUIESCENT DRAIN FIGURES (R F Alarm with ultra–sonic intrusion sensors).

1–3 days	16 milliamps
4–28 days	10 milliamps
29 days onward	6 milliamps

Note: The current drain will only drop to this final value if the alarm is armed. If the alarm is left disarmed, then there will be a constant drain of 10 milliamps for as long as the vehicle is left.

For general current measurement and battery charging procedures, please refer to the Battery Care Manual.

Service Bulletin

JAGUAR Daimler

ISSUE NO: JD 13/93
ISSUE 2

JULY 1993

S.R.O: 19–91–35

MODEL : XJS CONVERTIBLE

VINS UP TO 187836

SUBJECT : REVISED FUEL FILLER NECK

CUSTOMER CONCERN : Difficulties in filling fuel tank, especially to maximum capacity.

ADVICE TO CUSTOMER : A revised pattern of fuel filler neck assembly may be fitted, which will allow the tank to be filled efficiently to its maximum capacity.

The revised pattern of fuel filler neck was introduced on production vehicles commencing at VIN 187837

IMPORTANT NOTE: Refer the customer to the section concerning fuel tank filling, in the Driver's Handbook, under "DRIVING".

DEALER ACTION : Yes

REPAIR METHOD : **Note:**

On Pre–Facelift vehicles up to and including VIN 179736 it is only necessary to fit a revised pattern of fuel filler neck and associated seals and gaiter.

On Facelift vehicles, commencing at VIN 179737, it is necessary to fit a breather tube extension in addition to the revised pattern of fuel filler neck and associated seals and gaiter. This involves removal and refitting of the fuel tank, and replacement of additional seals.

Pre–production Facelift vehicles:
A small number of Facelift vehicles were produced, having VINs in the series up to VIN 179736. Where this repair is required on any such vehicle, the method detailed for the Facelift vehicles should be followed.

Repair Method:

Up to VIN 179736

Remove the filler neck assembly from the vehicle and transfer it to a workbench. Drift out the roll-pin which acts as the filler flap hinge pin. Discard the filler neck.

Assemble the filler flap to the revised pattern of filler neck, retaining the flap by driving in the new roll pin supplied.

Refit the filler neck to the vehicle, using a new "O" ring at the neck-to-tank joint, and a new gaiter between the filler neck and tank.

From VIN 179737

Replace the filler neck assembly by the revised pattern, as above.

Remove the fuel tank from the vehicle; remove the evaporative loss flange from the tank.

Carefully press the breather tube extension, Part No. EBC 10976, onto the breather stub on the underside of the evaporative loss flange, ensuring that the extension is pushed fully home. See Fig. 1.

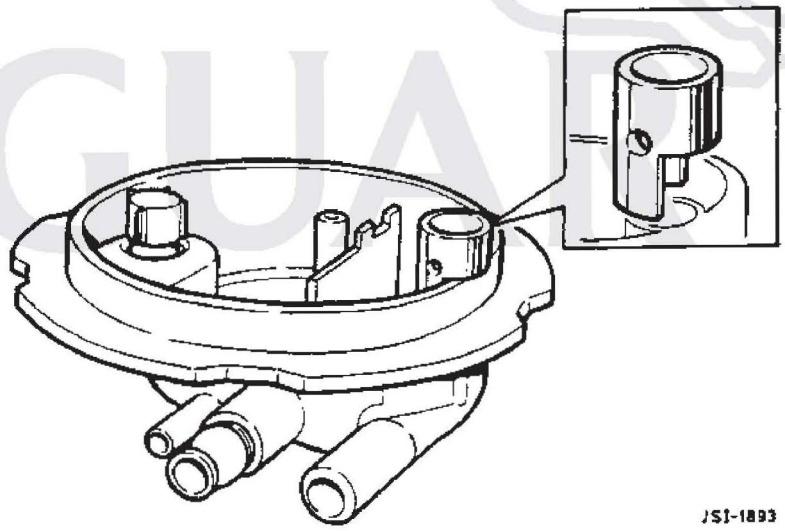


Fig 1

Refit the evaporative loss flange to the fuel tank, ensuring that a new seal is fitted.

Refit the fuel tank to the vehicle and refit the revised filler neck assembly, ensuring that new seals etc. are fitted at the following points:

"O" ring – filler neck to tank joint
Gaiter – filler neck to tank
"O" rings – fuel feed pipe to tank (2 off)
"O" rings – fuel return pipe to tank (2 off)

PARTS INFORMATION :

DESCRIPTION	PART NO.	APPLICATION
Filler Neck	BEC 24094	ALL Leaded fuel applications AND Unleaded fuel – JAPAN ONLY
Filler Neck	BEC 24096	Unleaded fuel, USA and Canada
Filler Neck	BEC 24095	Unleaded fuel, EXCEPTJapan, USA and Canada
"O" ring–tank to filler neck	CAC 7509	ALL UP TO VIN 179736
Gaiter–filler neck	CBC 2887	
"O" ring–tank to filler neck	CAC 7509	FROM VIN 179737 TO VIN 187836
"O" ring–fuel feed pipe 2 off required	AGU 1387	
"O" ring–fuel return pipe 2 off required	AGU 1386	
Gaiter–filler neck	CBC 8703/3	
Sealing ring – evaporative loss flange	CBC 9223	

ADMINISTRATION INFORMATION : For vehicles in warranty, the following applies:

WARRANTY CODE

2DNQ – Filler Neck Assembly Blocked/Restricted

REPAIR OPERATION CODE

SRO 19–91–35 should be quoted in either case below:

Up to and including VIN 179736, a time of 0.65 hours may be claimed.

From VIN 179737, a time of 2.65 hours may be claimed.

Service Bulletin

JAGUAR

Daimler

ISSUE NO: JD 19/93

AUGUST 1993

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 INFORMATION : WARRANTY CODE:
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	B Y	B O	B Y	B O
2	B Y	B O	B Y	B O
3	G K	G K	G K	G K
4	–	–	–	–
5	W N	W N	W N	W N
6	G R	G R	G R	G R
Earth Strap	N / C	B	B	B

Service Bulletin

JAGUAR Daimler

ISSUE NO: JD 12/94

FEBRUARY 1994

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.

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.

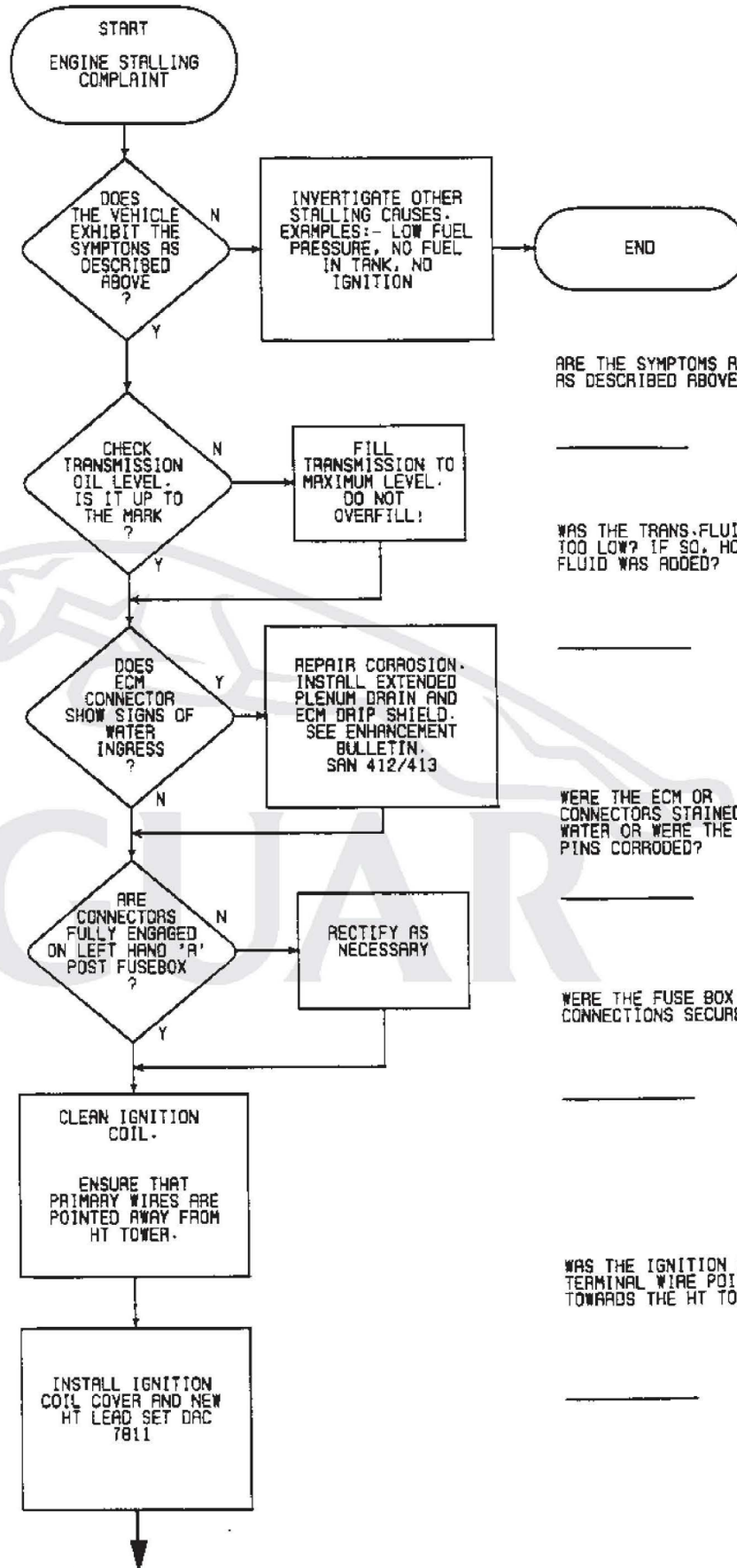
Symptom: With the engine running at normal temperature, it will hesitate or stall as the vehicle accelerates from rest, slows to a stop, or while idling. The engine can be re-started immediately and without difficulty.

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: _____

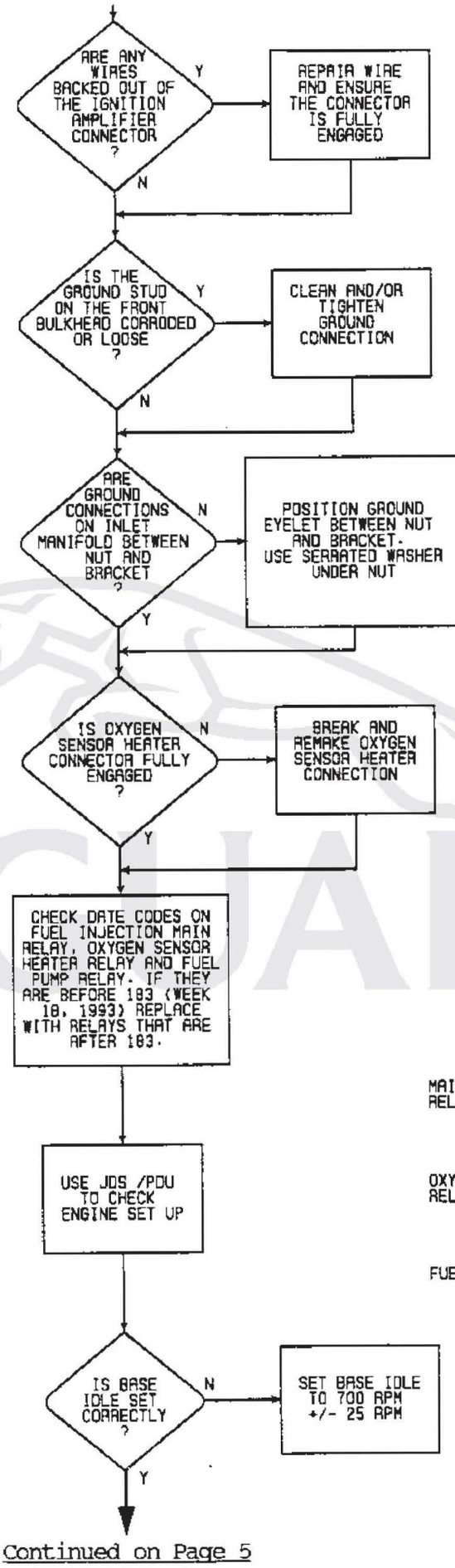
TODAY'S DATE: _____

DEALER NAME: _____

TECHNICIAN: _____

NOTE: THE AIR MASS METER DATE CODE IS A FOUR DIGIT NUMBER STAMPED ONE 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.

_____

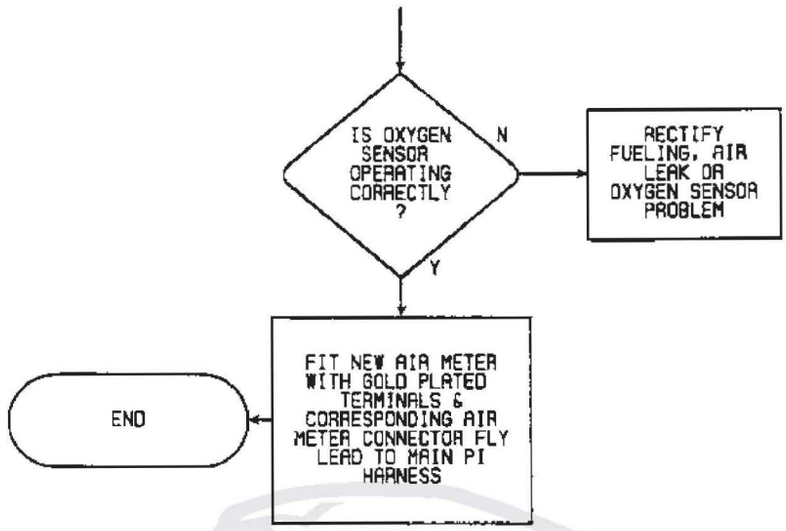
WAS THE OXYGEN SENSOR HEATER CONNECTOR FULLY ENGAGED?

_____

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.

26. Reposition the harness under the air flow sensor and fit a ratchet strap to retain the harness to the inlet manifold.

27. Reconnect the battery; re-code the radio and reset the clock.

28. Connect the air flow sensor multi-plug.

29. Complete engine set-up using J.D.S.

30. Remove the wing cover and close the bonnet.

PARTS INFORMATION :

MODEL	DESCRIPTION	PART NO.	QTY/ VEH
XJ6	AIR FLOW SENSOR		1
Up to VIN 667828	Cat & Non-Cat	DBC 12517	
From VIN 667829	Catalytic Non-Catalytic	DBC 12516 DBC 12517	
XJS except USA	AIR FLOW SENSOR		1
Up to VIN 188104	Cat & Non-Cat	DBC 12517	
From VIN 188105	Catalytic Non-Catalytic	DBC 12516 DBC 12517	
XJS (USA ONLY)	AIR FLOW SENSOR		1
Up to VIN 185819	Cat & Non-Cat	DBC 12517	
From VIN 185820	Catalytic Non-Catalytic	DBC 12516 DBC 12517	
ALL XJ6	MAFS FLYLEAD & CONNECTOR	LMD3345AA	1
ALL XJS	MAFS FLYLEAD & CONNECTOR	LHD3345AA	1

ADMINISTRATION INFORMATION : WARRANTY CODE: 7 C D X

REPAIR OPERATION CODE	TIME ALLOWANCE
SRO 18-91-07	2.15 Hours

ALL MODELS WITH AJ6/AJ16 ENGINES **ITEM: 69**

17 EMISSION SPECIFICATION DATA

When conducting certain tests using the PDU equipment, the information on the screen display may request entry of the Emission Specification.

The Emission Specification for the vehicle concerned may be ascertained by reference to the Engine Number of the vehicle, in conjunction with the diagram reproduced overleaf and the table below.

The fifth character of the Engine Number, an alphabetical letter in the series L to S, provides the information for the Emission Specification, in the form of alphabetical letters A to F, as shown in the table.

For example, where the fifth character is L, the corresponding Emission Specification to be entered in the PDU is A. Where the fifth character is S, the Emission Specification is F, etc., as below:

Fifth Character in Engine Number	Emission Specification for PDU entry
L	A
M	B
N	C
P	D
R	E
S	F

The table overleaf also confirms specification of engine cubic capacity, application, and compression ratio.

continued../

TYPICAL ENGINE NUMBER: 9 J P F S A 198911

Marque

9 = Jaguar

Serial No.

Fuel

P = Petrol

Engine Type

A = AJ6	2.9		
B = AJ6	3.2		
D = AJ6	3.6		
E = AJ6	4.0		
H = AJ16	3.2	Saloon	1995 MY
J = AJ16	4.0	"	"
K = AJ16	4.0 S/C	"	"
L = AJ16	4.0	XJS	1995 MY

Specification Change Identification

Compression Ratio

A = 9.8:1
B = 8.3:1
C = 9.5:1
D = 8.5:1
F = 10.0:1
M = 9.75:1
N = 8.3:1

Emission Specification

L = Specification		A
M =	"	B
N =	"	C
P =	"	D
R =	"	E
S =	"	F
X = Military Spec.		

oooOooo