



Sedan Range

DATE 07/00
Amended 08/02

05.1-26

SERVICE

TECHNICAL BULLETIN

Recall T493 - 1995 MY/Recall R493 - 1996-97
MY – AJ16 EGR System –
Replace PROMs and EGR Valve

MODEL 1995-97 MY
Sedan (4.0L) Range
VIN
720001-812255

Remove and destroy Bulletin 05.1-26, amended 11/01.
Replace with this Bulletin.

Note: In January 2002 Jaguar advised you that the above recall action required on 1995 MY vehicles was temporarily suspended due to unforeseen problems with one of the components associated with this recall. Jaguar had requested that dealers cease conducting further actions on 1995 MY vehicles until the problem with the affected component had been resolved.

Jaguar is now pleased to inform you that the issue with the PROMs has been resolved, and that Jaguar once again will be contacting owners requesting that they contact their dealer to have the repair performed.

This version of the recall bulletin has revised part numbers for the 1995 MY vehicles. Additional Warranty Information has been added for those 1995 MY vehicles previously re-worked under this Recall Action. Please destroy all previous versions of Recall Action Bulletin R493 and replace it with this version.

Please note that the Recall number for all 1995 MY vehicles is now T493, R493 will continue to be used for 1996-97 MY vehicles.

ISSUE:

Since the introduction of the AJ16 engine Jaguar has seen a high rate of replacement of EGR valves following illumination of the malfunction indicator lamp (MIL). This is understood to be a result of accumulated contamination within the EGR valve that can produce possible drivability issues such as rough idle, hesitation, and difficult starting.

Following consultation with the US Environmental Protection Agency (EPA) Jaguar has decided to recall all vehicles equipped with this engine and carry out a number of modifications including the introduction of a cleaning cycle to the EGR valve. The following actions apply to all vehicles within the above VIN ranges.

- Replace PROMs within Engine Control Module (ECM). Jaguar Cars has upgraded the PROMs within the ECM to provide a cleaning cycle of the EGR system.

- Replace EGR valve and gasket, to ensure that it is free from contamination.
- Replace throttle return spring. Some vehicles may experience customer complaints of high idle speeds.

Jaguar Cars is writing to all owners of the above vehicles (in timed mailings) to advise them to take their vehicles into their local dealer to have the above modifications made.

Note: For those 1995 MY normally aspirated vehicles previously reworked under R493, the entire Recall will need to be performed again with the exception of the throttle spring.

This recall will supersede Service Action S483, S675, and S676, no further claims for these Service Actions will be accepted.

Note: On 1995 MY XJR vehicles not previously reworked under R493, the only repair to be performed under T493 is to replace the throttle spring.

ACTION:

Refer to the following charts to determine the appropriate course of action.

MODEL YEAR	COMPONENT	XJ6 Normally Aspirated	XJR Supercharged
95 MY- Recall previously performed			
	EGR Valve	X	Not Applicable
	EGR Valve Gasket	X	Not Applicable
	EGR Valve Bolt As Required	X	Not Applicable
	Throttle Spring Replacement	No Further Action Required	No Further Action Required
	EPROM Replacement	X	Not Applicable
96 MY- Recall previously performed		No Further Action Required	No Further Action Required
97 MY- Recall previously performed		No Further Action Required	No Further Action Required

MODEL YEAR	COMPONENT	XJ6 Normally Aspirated	XJR Super charged
95 MY- Recall not previously performed			
	EGR Valve	X	Not Applicable
	EGR Valve Gasket	X	Not Applicable
	EGR Valve Bolt As Required	X	Not Applicable
	Throttle Spring Replacement	X	X
	EPROM Replacement	X	Not Applicable
96 MY- Recall not previously performed			
	EGR Valve	X	X
	EGR Valve Gasket	X	X
	EGR Valve Bolt As Required	X	X
	Throttle Spring Replacement	X	X
	EPROM Replacement	X	X
97 MY- Recall not previously performed			
	EGR Valve	X	X
	EGR Valve Gasket	X	X
	EGR Valve Bolt As Required	X	X
	Throttle Spring Replacement	X	X
	EPROM Replacement	X	X

Note: In the case of customer brings to the dealer a vehicle that exhibits a drivability concern that the recall action does not eradicate, normal diagnostic procedures can be followed as necessary to determine the root cause. The completion of any subsequent repairs are subject to normal New Car Warranty or Select Edition Warranty, or customer pay authorization as appropriate.

Remove the ECM from the vehicle by the following procedure.

1. Connect the WDS to the vehicle's data link connector.
2. Record any diagnostic trouble codes stored in the ECM, then clear them from the system.
3. Turn the ignition switch to 'off', wait 20 seconds before continuing with this procedure.
4. Note customer settings such as radio stations.
5. Open the luggage compartment, remove the cover from the battery and disconnect the battery ground cable.

REMOVING ECM

1. Open the right side door. Remove the 'A' post-trim panel.
2. Remove the trim panel-mounting bracket.
3. Remove the retaining bolt; disengage the upper spade mounting of the ECM from the slot in the 'A' post. Note the location of the earth connections.
4. Disconnect both harness connectors from the ECM and remove it from the vehicle.
5. Mark the VIN on the side of the ECM, to prevent confusion when more than one ECM is being modified.

ISSUE 1 - REPLACING PROM

1. Check that the 'anti-back out' plate on the face of each harness connector is still in place after disconnecting the connector.

Note: In the event of the anti-back out plate becoming loose or detached, secure it to the face of the connector, pressing it firmly in place.

⚠ Caution: Perform the following operations at an antistatic workstation (previously supplied) while wearing a grounding wrist-strap (Illustration 1). Additional work mats can be sourced locally, such as Radio Shack cat. no. 910-3780.

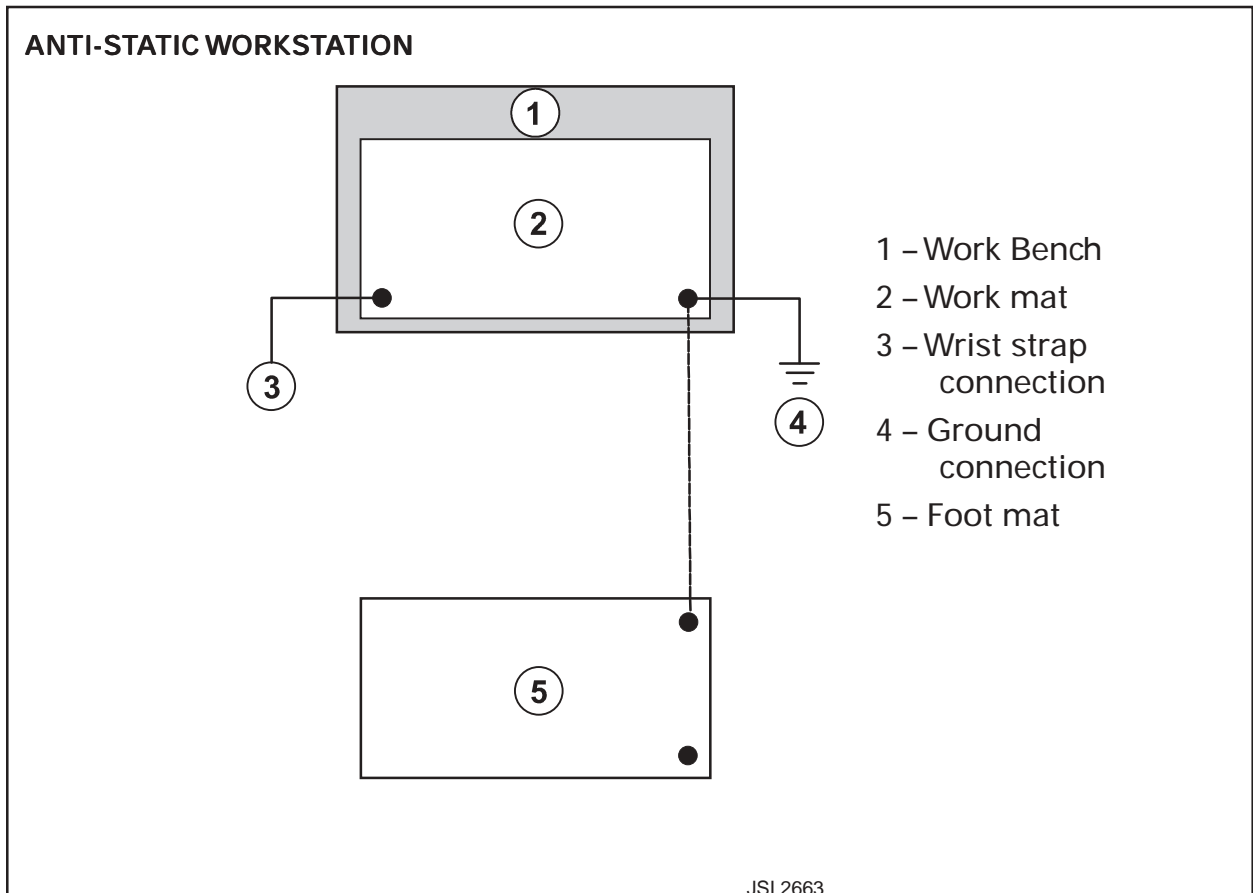


ILLUSTRATION 1

2. Place the ECM on the anti-static work mat, with one flat face to the mat. Looking towards the two connectors, the red connector should be to the upper right, the black connector to the lower left.
3. Note the orientation of the top cover with its mounting lugs, relative to the ECM casing. Mark both the cover and casing, using a felt-tip marker pen, to assist when reassembling.
4. Remove the four retaining screws of the top ECM cover (i.e. the cover adjacent to the red connector) using a Torx 20 anti-tamper type bit. Remove the cover.

LOCATION OF PROMS IN ECM

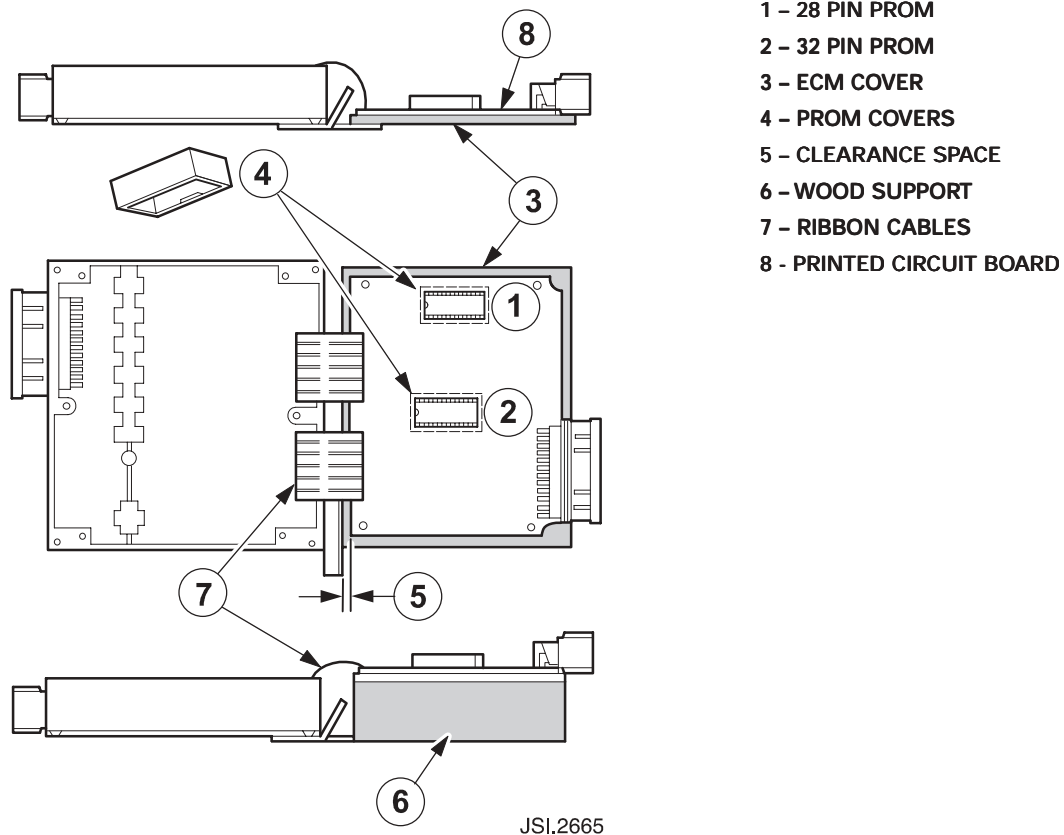
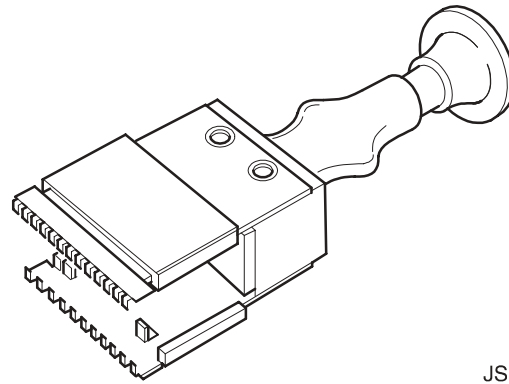


ILLUSTRATION 2

5. Remove the seven retaining screws of the printed circuit board (8, Illustration 2). Fold the printed circuit board away from the body of the ECM unit and support it on a block of wood (6, Illustration 2) so that no strain is placed on the ribbon connectors (7, Illustration 2). Allow a clearance space (5, Illustration 2) so that no damage can occur from contact with the mounting brackets.
6. The modification kit contains two microchips, one each of the 28-pin (1, Illustration 2) and 32-pin (2, Illustration 2) design.
7. Remove the covers (4, Illustration 2) from the microchips on the printed circuit board. Remove each cover by applying a side-to-side rocking action, gripping the cover lightly with combination pliers midway along each long side.

⚠ Caution: Do not touch the printed circuit board with the pliers, or mark the surface of the printed circuit board.

EXAMPLE OF CHIP REMOVAL TOOL

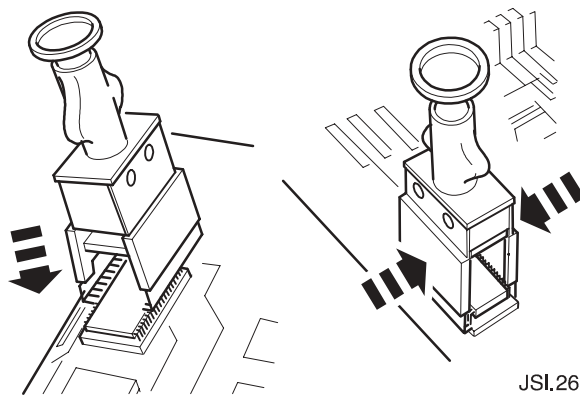


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ILLUSTRATION 3

8. Remove the PROM microchips from the printed circuit board using a suitable proprietary removal/reinstallation tool (Illustrations 3 & 4).

USE OF TYPICAL CHIP REMOVAL TOOL



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ILLUSTRATION 4

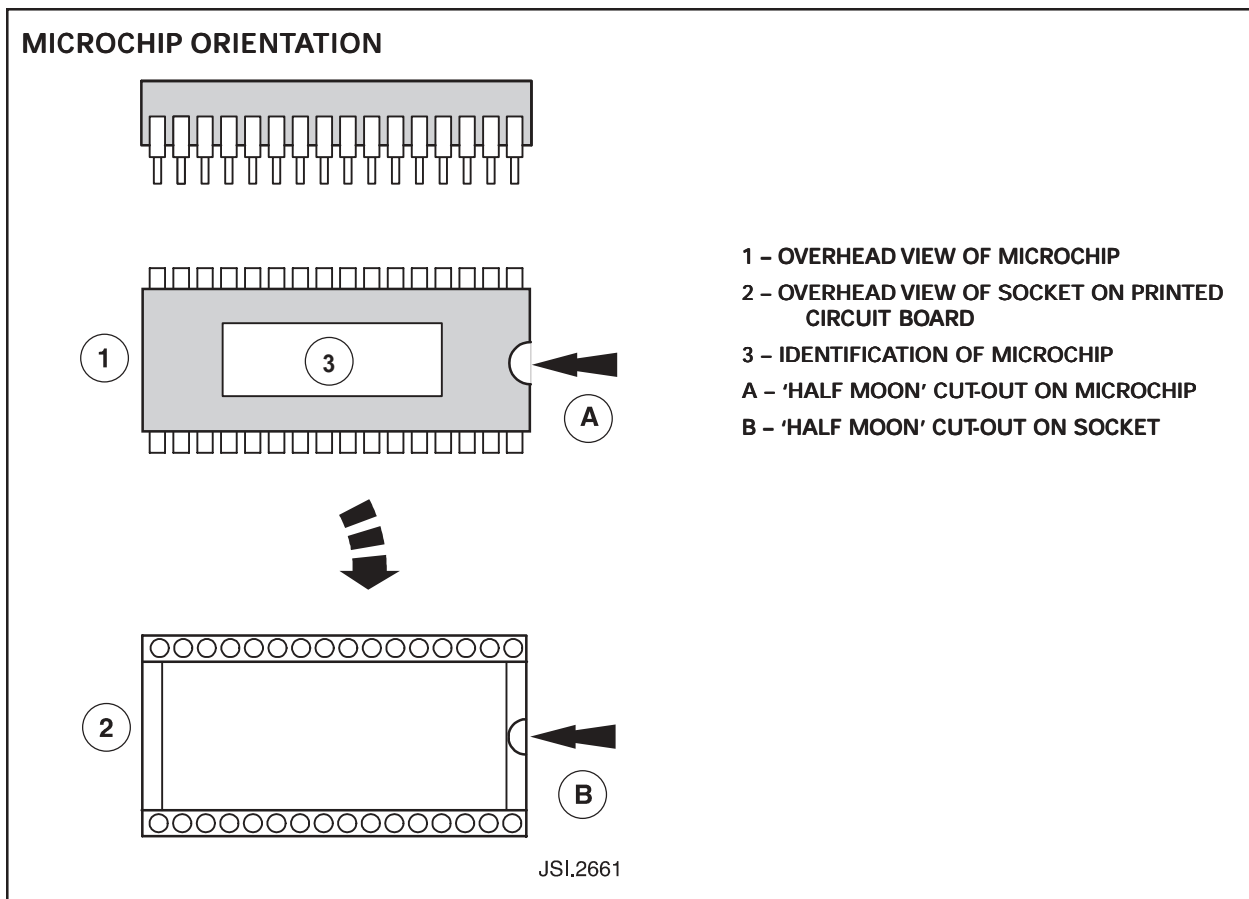


ILLUSTRATION 5

9. When inserting the replacement PROM microchips, identify the 'half moon' cutouts in both the microchip and the socket on the printed circuit board (Illustration 5).

⚠ Caution: Correct orientation is mandatory. The cutouts in both items must be aligned as the microchip is inserted into the socket.

10. The removed microchips should be set on one side, to be returned to Jaguar.
11. Identify and install the replacement 28-pin and 32-pin microchips from the modification kit to the appropriate sockets.

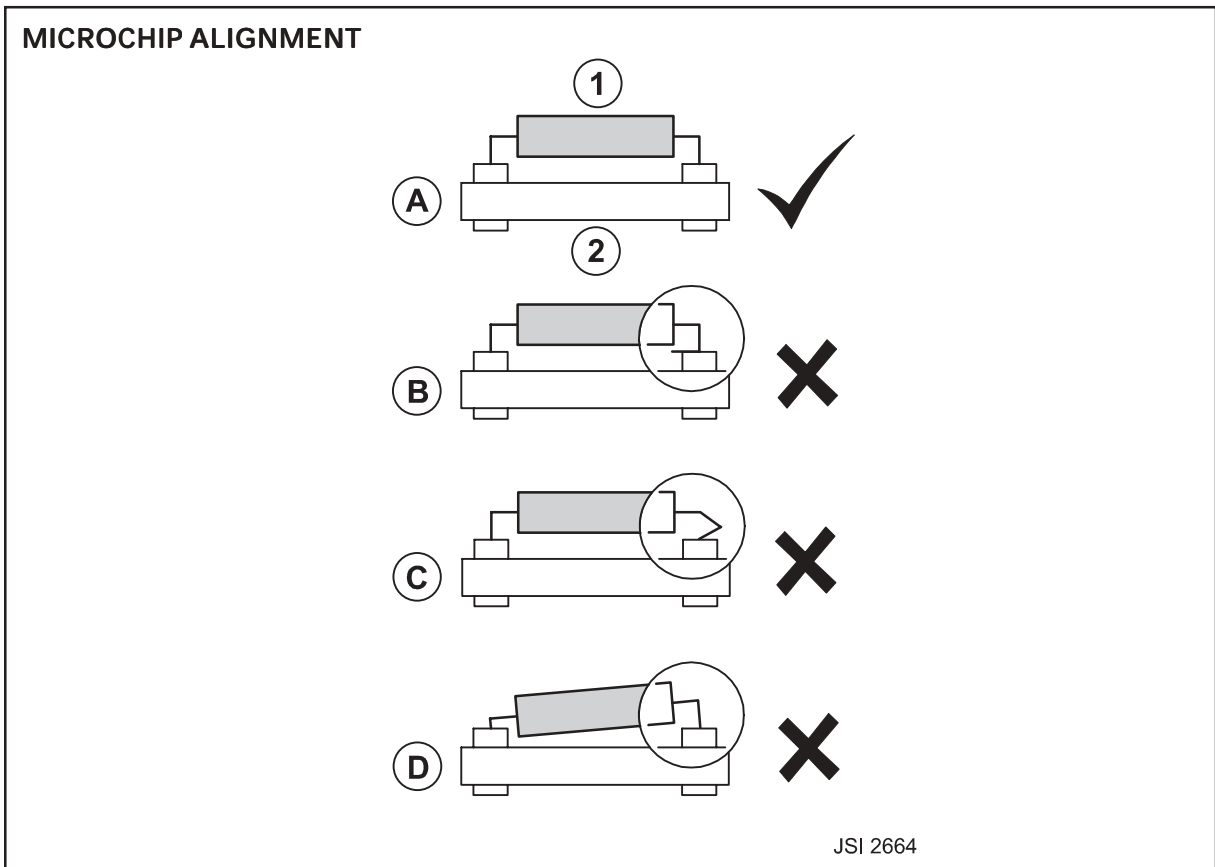


ILLUSTRATION 6

12. Use great care to achieve condition '1' in Illustration 6. The microchip must lie parallel to the printed circuit board, with all pins fully engaged into their corresponding locations in the socket.

⚠ Caution: Permanent damage to the microchip is likely in conditions B or C. Malfunctions will occur with partial engagement, as in condition D.

13. Reinstall the original covers over the replacement PROM microchips.
14. Carefully fold the printed circuit board back to its original location on the casing of the ECM, ensuring that the connector is correctly aligned to its location in the casing. Install and tighten the seven securing screws. Torque setting: 2.25–2.82 Nm (20–25 lb in).
15. Reinstall the ECM cover on the case, aligning the marks made at step 3 of this workshop procedure, prior to removal of the cover. Install and tighten the four securing screws. Torque setting: 2.25–2.82 Nm (20–25 lb in).

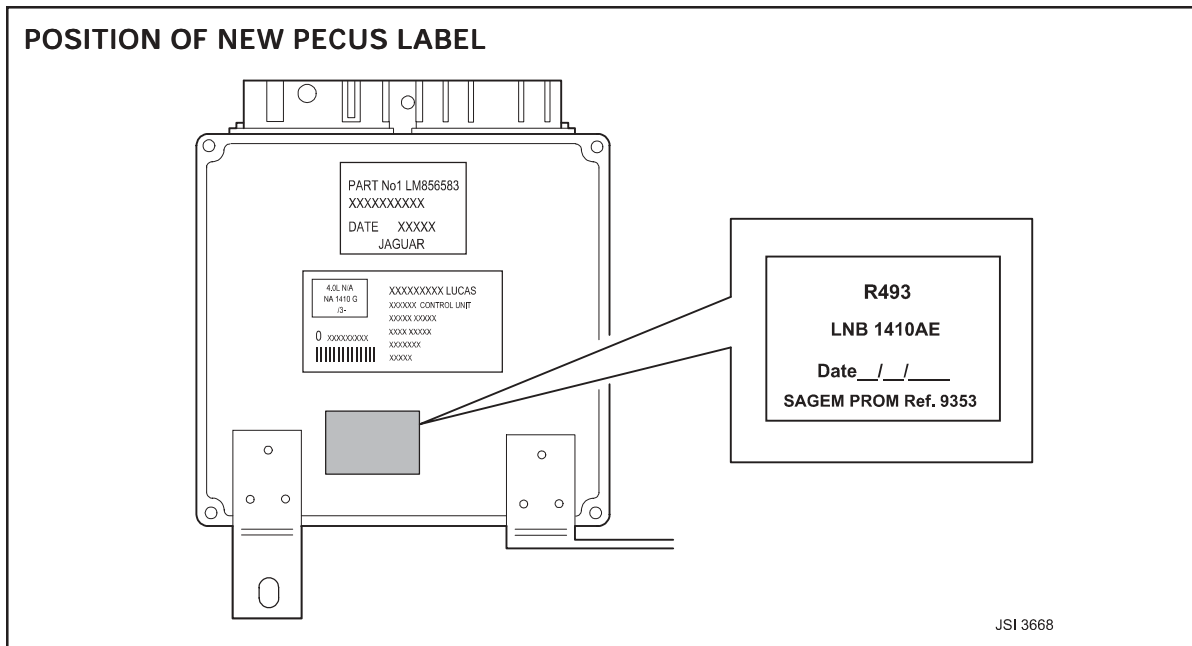


ILLUSTRATION 7

16. Apply the PECUS label from the modification kit to the cover of the ECM. The new label must not obscure any existing label on the unit (Illustration 7).

Note: Use this label for T493 also.

17. Reinstall the ECM in the vehicle, by a reversal of the process used for its removal.

Note: When reinstalling the ECM in its location, ensure that the upper spade is correctly relocated in the slot in the vehicle body, and that the ground leads are correctly reconnected.

18. Continue with the procedure for replacing the EGR valve.

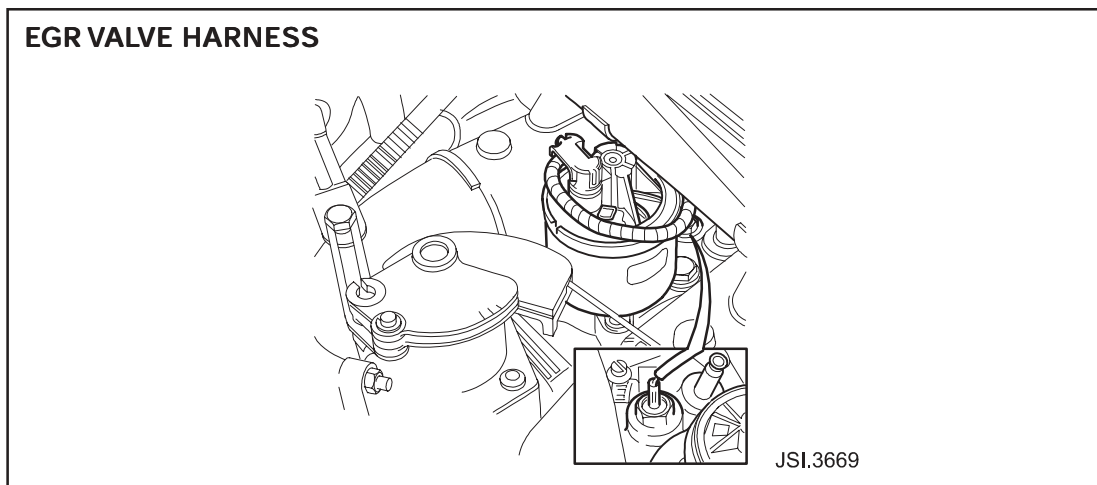


ILLUSTRATION 8

ISSUE 2 - REPLACING EGR VALVE

1. Open the hood and place covers over the fenders.
2. Disconnect the EGR valve harness connector (Illustration 8).
3. Remove the EGR valve securing bolts.
4. Remove the EGR valve and valve gasket.
5. Clean the valve mating faces.
6. To reinstall the new EGR valve and gasket, reverse the EGR valve removal process.

Note: Care must be taken not to damage the EGR valve securing bolts. Torque figure: 23–27 Nm (17–20 lb ft).

7. Continue with the procedure for replacing the throttle spring.

ISSUE 3 - REPLACING THROTTLE RETURN SPRING - NORMALLY ASPIRATED

1. Disconnect the inner accelerator cable from the throttle assembly.
2. Remove the cruise control linkage pin and circlip.
3. After removing the three Torx head screws that retain the throttle assembly cap to the pedestal, carefully remove the cap sub-assembly. Note the position of the straight extension of the throttle return spring.

4. Unhook the throttle torsion spring (Illustration 9) from the throttle shaft actuator and then remove the spring and the sleeve from the shaft.

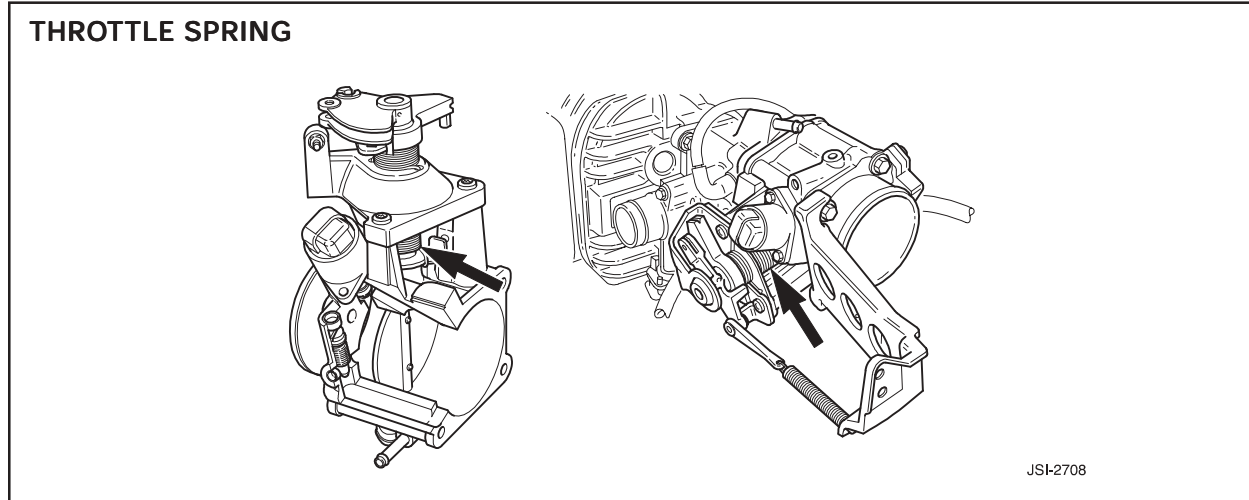


ILLUSTRATION 9

5. Remove the sleeve from the spring and discard the spring.
6. Insert the sleeve into the replacement spring. Install the sleeve and spring on the throttle shaft and hook the spring on to the actuator.

Note: The throttle return spring must be tensioned, (pre-loaded) by rotating the straight extension one full turn counterclockwise until it can be installed in the same position as the original spring.

7. Carefully reinstall the cap to the throttle assembly noting the lever location, and install and tighten the screws.
8. Reconnect the cruise control linkage.
9. Reconnect the accelerator cable to the throttle assembly.
10. Check the operation of the throttle assembly.
11. Remove fender covers, reconnect the battery, reinstall the battery cover, and close the lid of the luggage compartment. Reset the vehicle clock and customer preferences.
12. Using the WDS, perform the oxygen sensors orientation test. (Select set-up and configuration, engine and transmission, oxygen sensor orientation.)
13. Using the WDS, perform the throttle potentiometer adaptation test.

Note: During the throttle pot adaptation test portion of the engine set-up procedure, the WDS will ask if a new throttle position sensor has been installed. Answer this question with YES even though the existing sensor is being reused. This action will allow the WDS to reset a larger set of parameters.

14. Check for the presence of any erroneous diagnostic trouble codes (DTCs). If DTCs are present, they should be recorded, and then cleared.

REPLACING THROTTLE RETURN SPRING – SUPERCHARGED ENGINES

1. Remove the intercooler induction elbow retaining bolts and clip.
2. Remove the elbow, hose and sealing ring.
3. Disconnect the cruise control vacuum hose and the return spring and remove the retaining nut and the actuator.
4. Disconnect the inner accelerator cable from the throttle assembly.
5. Loosen and remove the three Torx head screws that retain the throttle assembly cap to the pedestal and remove the cap sub-assembly.
6. Unhook the throttle torsion spring (Illustration 9) from the throttle shaft actuator and then remove the spring and the sleeve from the shaft.
7. Remove the sleeve from the spring and discard the spring.
8. Insert the sleeve into the replacement spring. Install the sleeve and spring on the throttle shaft and hook the spring on to the actuator.

Note: Tension (pre-load) the throttle return spring by rotating the straight extension one full turn counterclockwise until it can be installed in the same position as the original spring.

9. Carefully reinstall the cap to the throttle assembly noting the lever location. Install and tighten the screws.
10. Reconnect the accelerator cable to the throttle assembly.
11. Reinstall the speed control actuator on the mounting bracket with the retaining nut.
12. Reconnect the vacuum hose, linkage pin and the return spring.
13. Reinstall the sealing ring on the induction elbow and then reinstall the elbow on the throttle assembly with the retaining bolts and clip.
14. Check the operation of the throttle assembly.
15. Remove fender covers, reconnect the battery, reinstall the battery cover, and close the lid of the luggage compartment. Reset the vehicle clock and customer preferences.
16. Using the WDS, perform the oxygen sensors orientation test. (Select set-up and configuration, engine and transmission, oxygen sensor orientation.)
17. Using the WDS, perform the throttle potentiometer adaptation test.

Note: During the throttle pot adaptation test portion of the engine set-up procedure, the WDS will ask if a new throttle position sensor has been installed. Answer this question with YES even though the existing sensor is being reused. This action will allow the WDS to reset a larger set of parameters.

18. Check for the presence of any erroneous diagnostic trouble codes (DTCs). If DTCs are present, they should be recorded, and then cleared.

ADDITIONAL INITIATIVES

The following are diagnostic procedures that may be followed should a drivability concern still be apparent after the recall action has been completed. The completion of any subsequent repairs are subject to normal New Car Warranty or Select Edition Warranty, or customer pay authorization as appropriate.

TSB	Date of issue	Title	Symptoms	Model	Action
05.1-07	Amended 12/98	Spark plugs	Change to hotter plug	1995-97 sedan	Service replacement plug
05.1-14	05/96	Engine misfire/starting	Engine misfire/starting difficulty connector PI1 corrosion due to water entry	1995-96 sedan	Replace right side forward harness and engine harness
05.1-16	05/96 Amended 01/97	Poor hot start	Extended cranking/poor hot start	1995 sedan	Tank pressure control valve
05.1-35	02/01	Blow by stain on spark plugs	Discoloration on porcelain	1995-97 sedan	Do not change plugs for corona discharge stain.
03.1-15	12/98	Throttle sticking closed on cold engine	Throttle sticks shut when cold	1995-97 sedan	Modify crankcase breather system and clean throttle
05.1-19	06/96	EGR valve harness reroute - S666	EGR valve harness being burnt on EGR hardware Note: Service Action Campaign S666 is closed. Claims should be made following the normal warranty procedure.	1996 XJR sedan	Reroute harness to avoid damage
05.1-20	06/96	Engine harness contacting EGR pipe - S669	Engine harness being burnt on EGR hardware Note: Service Action Campaign S669 is closed. Claims should be made following the normal warranty procedure.	1996 XJR sedan	Reroute harness to avoid damage

PARTS INFORMATION:

The appropriate modification kit for the 1995 MY only (LNC 1411AB) initially will be allocated to each dealer based on size and volume to ensure an even distribution and full coverage. After the initial allocation, parts should be ordered from Jaguar Parts Operations following normal procedures. All other parts required should be ordered through Jaguar Parts Operations following the normal process.

All of the PROM kits include 2 PROMs and a revised 'PECUS' label to be applied to the ECM after completing the modification.

VEHICLE	VIN RANGE	MODIFICATION KIT PART	QTY	KIT UPDATES ECM TO THIS PART NUMBER	PROM ID NO.
95 MY XJ	720120 - 754303	LNC 1411AB	1	LNA 1410AL	9361
96 MY XJ - SWB	754304 - 787953	LNC 1411CA	1	LNA 1410VK	9357
96 MY XJ - LWB	754304 - 787953	LNC 1411DA	1	LNA 1410DF	9358
96 MY XJR	754304 - 787953	LNC 1411EA	1	LNA 1410SF	9359
97 MY XJ - SWB	787954 - 812255	LNC 1411GA	1	LNB 1410AE	9353
97 MY XJ - LWB	787954 - 812255	LNC 1411HA	1	LNB 1410FE	9354
97 MY XJR	787954 - 812255	LNC 1411JA	1	LNB 1410DD	9355

Note: 1995 MY XJR vehicles were not equipped with EGR.

<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>QTY</u>
EGR valve - XJ Sedan	LHE 1550AC	1
EGR valve gasket	C2A 1231	1
EGR valve bolt	FS 108251J	As required
Throttle return spring - All	NBB 3131AB	1

To obtain R493 Authorized Modification Labels from the Product Legislation and Compliance Department, refer to Administration Bulletin 6-94 (USA) or 6-16/02 (Canada) titled "Availability of Service Action and Recall Authorized Modification Labels/stickers."

<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>QTY</u>
R493 Modification Label	R 493 STK	1
CA & MA only: Proof of Correction Form	S CAL RCL	1

WARRANTY INFORMATION:

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

Drive in/drive out may only be claimed when the vehicle has been brought in for this action alone to be undertaken.

Please use option code of X and **also enter** the SRO (s) and parts details on the claim applicable to the repair completed.

Recall **T493** 1995 MY Normally Aspirated Vehicles Only

REPLACEMENT OF PROMS IN ECM

Vehicle	Repair	SRO	Time	Part Number	Description	QTY
95 MY XJ6 VIN Range: 720120 - 754303	Replace PROMS within ECM	18.91.18	0.7	LNC 1411AB	PROM Kit	1

EGR VALVE & GASKET REPLACEMENT

95 MY XJ6 VIN Range: 720120 - 754303	Replace EGR valve & gasket	17.45.01	0.2	LHE 1550AC C2A 1231 FS 108251J	EGR valve Gasket Set Screw	1 1 As Req.
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THROTTLE RETURN SPRING REPLACEMENT

95 MY XJ6 4.0 NA VIN Range: 720120 - 754303	Replace throttle return spring	19.91.46	0.2	NBB 3131AB	Throttle return spring	1
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DRIVE IN/DRIVE OUT

ALL	Drive in/drive out	10.10.10	0.1			
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Recall **T493** 1995 MY Supercharged Vehicles Only

THROTTLE RETURN SPRING REPLACEMENT

95 MY XJR VIN Range: 720120 - 754303	Replace throttle return spring	19.91.46	0.6	NBB 3131AB	Throttle return spring	1
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DRIVE IN/DRIVE OUT

ALL	Drive in/drive out	10.10.10	0.1			
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Recall R493 1996-97 MY Vehicles Only

REPLACEMENT OF PROMS IN ECM

Vehicle	Repair	SRO	Time	Part Number	Description	QTY
96 MY XJ6 SWB VIN Range: 754304 - 787953	Replace PROMS within ECM	18.91.18	0.7	LNC 1411CA	PROM Kit	1
96 MY XJ6 LWB VIN Range 754304 - 787953	Replace PROMS Within ECM	18.91.18	0.7	LNC 1411DA	PROM Kit	1
96 MY XJR VIN Range 754304 - 787953	Replace PROMS within ECM	18.91.18	0.7	LNC 1411EA	PROM Kit	1
97 MY XJ6 SWB VIN Range: 787954 - 812255	Replace PROMS within ECM	18.91.18	0.7	LNC 1411GA	PROM Kit	1
97 MY XJ6 LWB VIN Range 787954 - 812255	Replace PROMS within ECM	18.91.18	0.7	LNC 1411HA	PROM Kit	1
97 MY XJR VIN Range 787954 - 812255	Replace PROMS Within ECM	18.91.18	0.7	LNC 1411JA	PROM Kit	1

EGR VALVE & GASKET REPLACEMENT

XJ6 VIN Range 754304 - 812255	Replace EGR valve & gasket	17.45.01	0.2	LHE 1550AC C2A 1231 FS 108251J	EGR valve Gasket Set Screw	1 1 As Req.
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THROTTLE RETURN SPRING REPLACEMENT

XJ6 4.0 NA VIN Range: 754304 - 812255	Replace throttle return spring	19.91.46	0.2	NBB 3131AB	Throttle return spring	1
XJR VIN Range 754304 - 812255	Replace throttle return spring	19.91.46	0.6	NBB 3131AB	Throttle return spring	1

DRIVE IN/DRIVE OUT

ALL	Drive in/drive out	10.10.10	0.1			
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NOTE: Always perform a DDW claim search first to determine whether this recall has been performed on this vehicle. The warranty selection under the vehicle inquiry will give a listing of all claims against the vehicle. If R493 appears in the program code field, do not perform this recall.