

All waste must be segregated into individual types e.g. oils, metals, batteries, scrap components etc. This will prevent any reaction between different materials and assist in disposal.

Disposal of waste

Dispose of waste in accordance with the following guidelines:

- **Fuel, hydraulic fluid, anti-freeze and oil:** Keep separate and dispose of to specialist contractors.
- **Refrigerant:** Collect in specialist equipment and reuse.
- **Detergents:** Safe to pour down the foul drain if diluted.
- **Paint, thinners:** Keep separate and dispose of to specialist contractor.
- **Components:** Return to supplier for refurbishment or disassemble and reuse any suitable parts. Dispose of remainder in ordinary waste.
- **Small parts:** Reuse any suitable parts, dispose of the remainder in ordinary waste.
- **Metals:** Can be sold if separate from general waste.
- **Tyres:** Keep separate and dispose of to specialist contractor. DO NOT attempt to dispose of tyres by burning.
- **Components/materials containing asbestos:** Keep separate and dispose of to specialist contractor.
- **Oil and fuel wastes (e.g. rags, used spill kit material):** Keep separate and dispose of to specialist contractors.
- **Air filters:** Keep separate and dispose of to specialist contractors.
- **Rubber/plastics:** Dispose of in ordinary waste.
- **Hoses:** Dispose of in ordinary waste.
- **Batteries:** Keep separate and dispose of to specialist contractors.
- **Air bags - DANGER EXPLOSIVES:** Keep separate and dispose of to specialist contractors.
- **Electrical components:** Return to supplier for refurbishment or disassemble and reuse any suitable components. Dispose of remainder in ordinary waste.
- **Catalytic converters:** May be sold if kept separate from general waste.
- **Packaging:** Compact/recycle as much as possible and dispose of in ordinary waste.
- **Office/paper waste:** Recycle paper and toner and ink cartridges, dispose of remainder in ordinary waste.

Noise

Car alarm testing, panel beating, running engines, using air tools etc. are operations which invariably produce a large amount of noise. The location of such activities and also the time of day must be carefully considered having regard to the proximity of houses schools etc.

Some operations may produce high noise levels which could, in time, damage hearing. In these cases, suitable ear protection must be worn.

Solder

Solders are mixtures of metals such that the melting point of the mixture is below that of the constituent metals (normally lead and tin). Solder application does not normally give rise to toxic lead fumes, provided a gas/air flame is used. Oxy-acetylene flames should not be used, as they are much hotter and will cause lead fumes to be produced.

Some fumes may be produced by the application of any flame to surfaces coated with grease, and inhalation of these should be avoided.

Removal of excess solder should be undertaken with care, to make sure that fine lead dust is not produced, which can give toxic effects if inhaled. Respiratory protection may be necessary.

Solder spillage and filings should be collected and removed promptly to prevent general air contamination by lead.


High standards of personal hygiene are necessary in order to avoid ingestion of lead or inhalation of solder dust from clothing.

Solvents

For example acetone, white spirit, toluene, xylene, trichloroethane.

Used in cleaning and dewaxing materials, paints, plastics, resins and thinners.

Some may be highly flammable or flammable.

 **WARNING:** Hydrogen and oxygen gases are produced during normal battery operation. This gas mixture can explode if flames, sparks or lighted tobacco are brought near battery. When charging or using a battery in an enclosed space, always provide ventilation and shield your eyes.

Keep out of reach of children. Batteries contain sulphuric acid. Avoid contact with skin, eyes, or clothing. Also, shield eyes when working near battery to protect against possible splashing of acid solution. In case of acid contact with skin, eyes, or clothing, flush immediately with water for a minimum of fifteen minutes. If acid is swallowed, drink large quantities of milk or water, followed by milk of magnesia, a beaten egg, or vegetable oil.

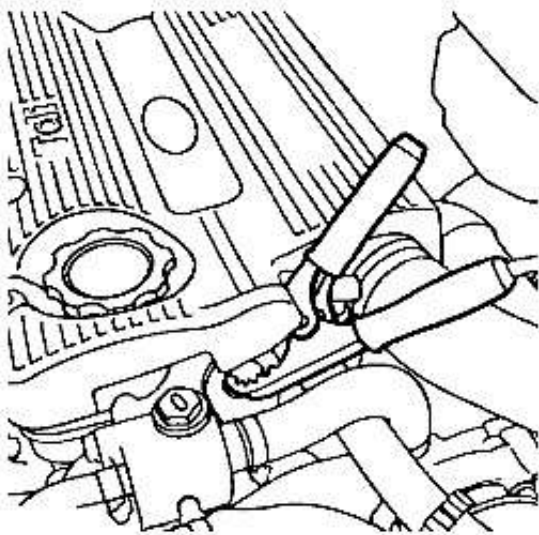
SEEK MEDICAL AID IMMEDIATELY.

To Jump Start - Negative Ground Battery


 **WARNING:** To avoid any possibility of injury use particular care when connecting a booster battery to a discharged battery.

- Position vehicles so that jump leads will reach, ensuring that vehicles DO NOT TOUCH, alternatively a fully charged slave battery may be positioned on floor adjacent to vehicle.
- Ensuring that ignition and all electrical accessories are switched off, that parking brake is applied and neutral is selected, connect the jump leads as follows;


A. Connect one end of first jumper cable to positive (+) terminal of booster battery. B. Connect other end of first jumper cable to positive (+) terminal of discharged battery. C. Connect one end of second jumper cable to negative terminal of booster battery. D. Connect other end of second jumper cable to a good earth point on the disabled vehicle (eg. engine front lifting eye, as shown in J6086), NOT TO NEGATIVE TERMINAL OF DISCHARGED BATTERY. Keep jumper lead away from moving parts, pulleys, drive belts and fan blade assembly.



J6086

 **WARNING:** Making final cable connection could cause an electrical arc which if made near battery could cause an explosion.

- If booster battery is installed in another vehicle, start engine and allow to idle.
- Start engine of vehicle with discharged battery, following starting procedure in Owners' Manual.

 **CAUTION:** If vehicle fails to start within a maximum time of 12 seconds, switch ignition off and investigate cause. Failing to follow this instruction could result in irreparable damage to catalyst, if fitted.

- Remove negative (-) jumper cable from the engine and then terminal of booster battery.
- Remove positive (+) jumper cable from positive terminals of booster battery and discharged battery.



1



2



3

E131391

Item	Part Number	Description
1	-	Brake warning indicator
2	-	ABS indicator
3	-	Traction control indicator

Brake Warning Indicator (Red)

When the ignition switch is first turned to position II, the brake warning indicator illuminates for approximately 3 seconds for a bulb check.

The brake warning indicator is shared by three brake systems

- Parking brake: illuminates when the parking brake is applied and while the starter switch is in position II, it will extinguish when the parking brake is fully released.
- Brake fluid level: illuminates when the brake-fluid level is low.
- Electronic Brake Force Distribution (EBD): illuminates when a fault is detected with EBD.

Operation of the brake warning indicator is controlled by a hard-wired connection from the parking brake, brake fluid reservoir cap and [ABS](#) module to the instrument cluster.

ABS Indicator (Amber)

The ABS indicator is amber colored and is continuously illuminated if there is a fault that affects ABS performance or causes the ABS function to be disabled.

Operation of the ABS warning indicator is controlled by a hard-wired connection from the ABS module to the instrument cluster.

When the ignition switch is first turned to position II, the ABS warning indicator illuminates for approximately 3 seconds for a bulb check.

Traction Control Indicator (Amber)

When the ignition switch is first turned to position II, the traction control indicator illuminates for approximately 3 seconds for a bulb check.

Operation of the traction control indicator is controlled by a hard-wired connection from the ABS module to the instrument cluster.

Illuminates for minimal periods whenever traction control is operating; continuous illumination indicates a fault.

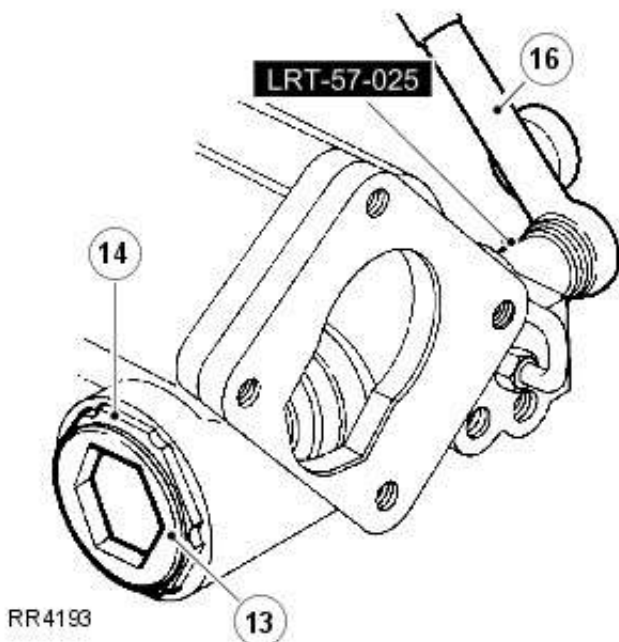
HYDRAULIC CONTROL UNIT

The [HCU](#) is a 4 channel unit that modulates the supply of hydraulic pressure to the brakes under the control of the ABS module.

The HCU is attached by three mounting bushes to a bracket on the driver-side of the engine compartment. Hydraulic pipes connect the HCU to the master cylinder and the brakes.

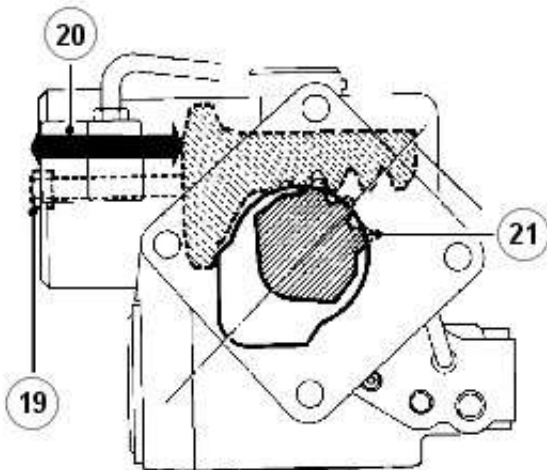
The primary and secondary outlets of the master cylinder are connected to primary and secondary circuits within the HCU. The primary circuit in the HCU has separate outlet ports to the front brakes. The secondary circuit in the HCU has separate outlet ports to the rear brakes. Each of the circuits in the HCU contain the following components to control the supply of hydraulic pressure to the brakes:

- A normally open, solenoid operated, pilot valve, to enable passive braking.
- A normally closed, solenoid operated, priming valve, to connect the brake fluid reservoir to the return pump during active braking.
- A return pump, to generate hydraulic pressure for active braking and return brake fluid to the reservoir.
- Normally open, solenoid operated, inlet valves and normally closed, solenoid operated, outlet valves, to modulate the hydraulic pressure in the individual brakes.



RR4193


17. Turn in worm adjuster while rotating shaft to increase figure measured to 0.56 Nm.
18. Back off worm adjuster ¼ turn. Turn in worm adjuster to increase reading by 0.21 - 0.34 Nm with locknut tight, 100 Nm (74 lbf/ft). Use worm adjusting wrench LRT-57-006 and locknut wrench LRT-57-028.
19. Screw slave bolt into piston to aid assembly.
20. Fit piston and rack so piston is 70 mm (2.75 in) from outer end of bore.
21. Fit sector shaft using seal saver LRT-57-021. Align roller with cut out in casing as shown. Push in sector shaft while rotating input shaft to allow sector roller to engage worm.



57M0660

22. Fit rack adjuster and thrust pad to engage rack. Back off half turn on adjuster.
23. Loosely fit new nylon pad and adjuster set screw assembly.

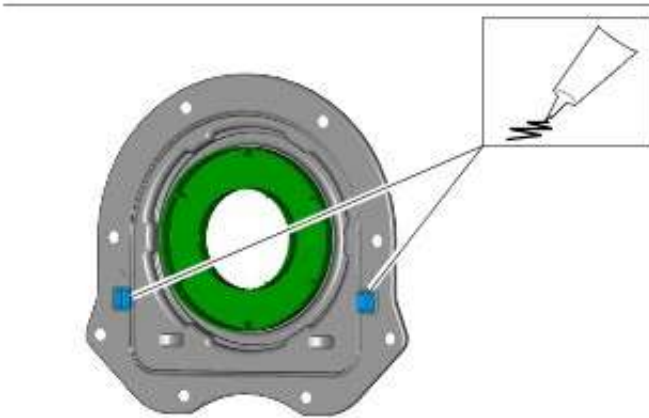


 A new crankshaft rear seal is supplied with an alignment sleeve that must not be removed until the crankshaft rear seal is fully installed. Failure to follow this instruction may result in damage to the vehicle.

 Install the new crankshaft rear seal within five minutes of applying the recommended sealant.

 Do not add the sealant anywhere other than the area shown.

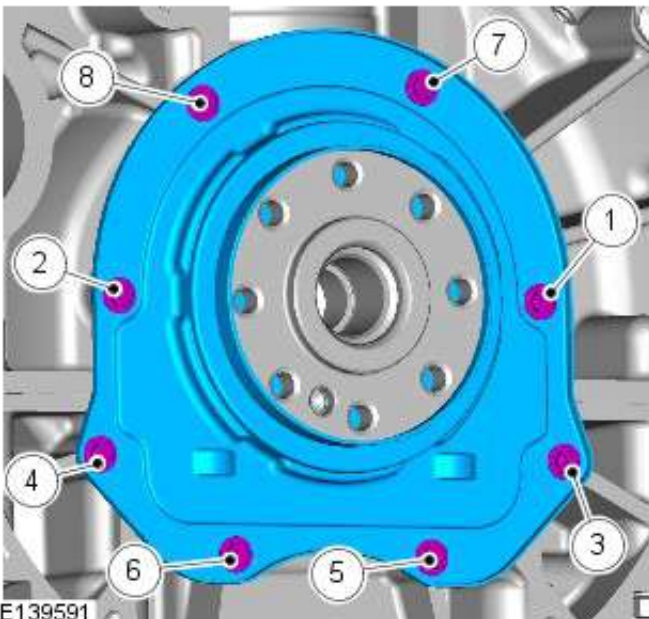
Using the recommended sealant completely fill the square areas shown.
For additional information, refer to: [Specifications](#) (303-01 Engine - ID4 2.2L Diesel, Specifications).



E139592

3. Torque:

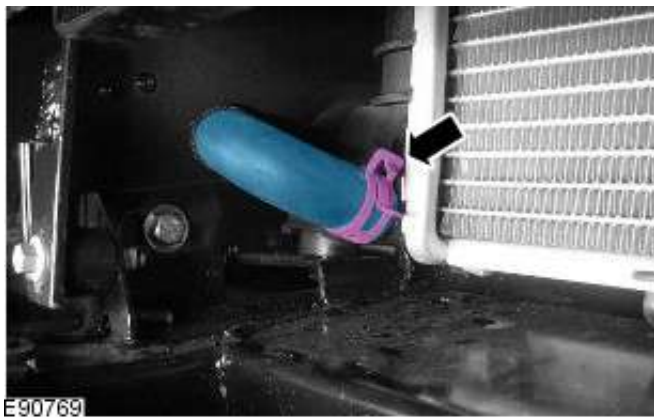
1. Stage : Hand start all bolts and tighten to 5Nm
2. Stage : Tighten the bolts to 9.5Nm in below sequence
3. Stage: Repeat to 9.5 Nm below sequence




E139591

4. Remove and discard the seal alignment sleeve.

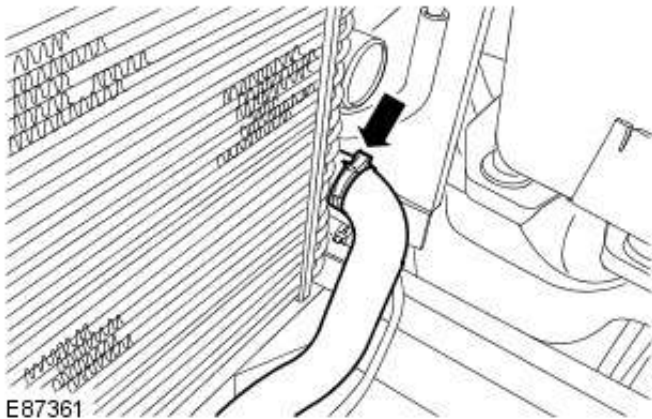
5. To install, reverse the removal procedure.




Disconnect the fuel cooler to radiator hose.

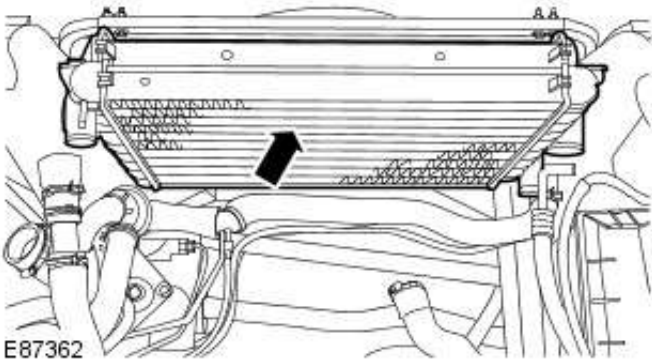
8.  **CAUTION:** Make sure that all openings are sealed. Use new blanking caps.

Disconnect the radiator bottom hose.

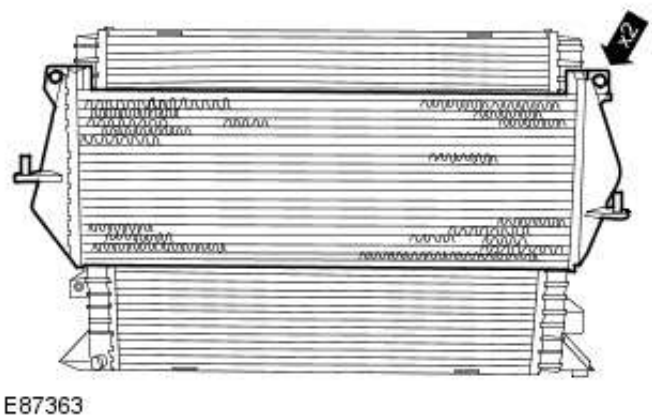


9.  **CAUTION:** Make sure that the radiator and charge air cooler are not damaged when removed.

Remove the radiator and charge air cooler assembly.



10. Remove the radiator.



Installation

1. To install, reverse the removal procedure.
 - Tighten to 20 Nm (15 lb.ft).



E108397

The engine coolant temperature (ECT) sensor is installed in the radiator upper hose, in the tee connection with the thermostat hose.

The ECT sensor is a **NTC** thermistor that receives a 5V reference voltage from the ECM. The ECM uses the temperature information for the following functions:

- Fueling calculations
- Limiting engine operation if engine coolant temperature becomes too high
- Glow plug activation time.

The ECM also transmits coolant temperature information on the high speed **CAN** bus to the instrument cluster, for temperature gauge operation.

If the **ECT** sensor fails, the following symptoms may be observed:

- Difficult cold start
- Difficult hot start
- Engine performance compromised
- Temperature gauge inoperative or inaccurate reading.

The ECM may also illuminate the **MIL**, depending on the fault.

In the event of **ECT** sensor signal failure, the ECM applies a default value of 88 °C (190 °F) coolant temperature for fueling purposes.

HEATED OXYGEN SENSOR (ONLY FITTED TO VEHICLES WITH DPF)



E 139409

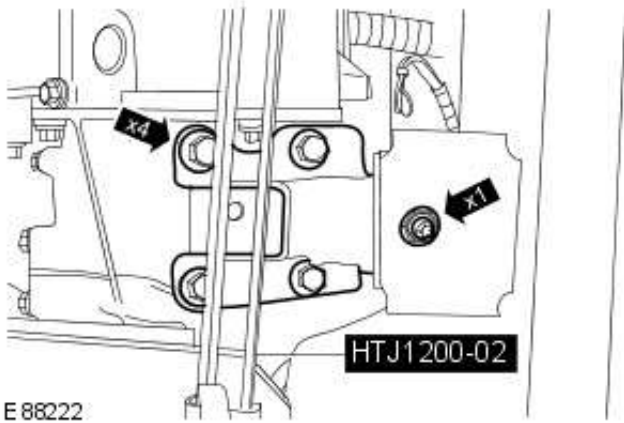
The **HO2S** is installed in the inlet of the catalytic converter and **DPF**.

The **HO2S** allows the **ECM** to measure the oxygen content of the exhaust gases, for closed loop control of the fuel:air mixture.

The heater element of the **HO2S** is controlled by a **PWM (pulse width modulation)** signal from the **ECM**. The heater element is operated immediately after each engine start and during low load conditions when the temperature of the exhaust gases is insufficient to maintain the required sensor temperature. The **PWM** duty cycle is carefully controlled to prevent thermal shock to cold sensors. A non-functioning heater delays the sensor's readiness for closed loop control and increases emissions.

If there is a fault with the **HO2S** (heater or sensor circuits) the **ECM** illuminates the **MIL** and defaults to open loop fueling.

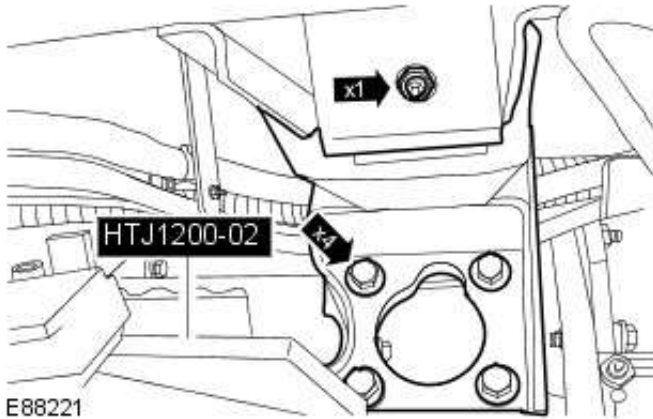
MANIFOLD ABSOLUTE PRESSURE SENSOR



E 88222

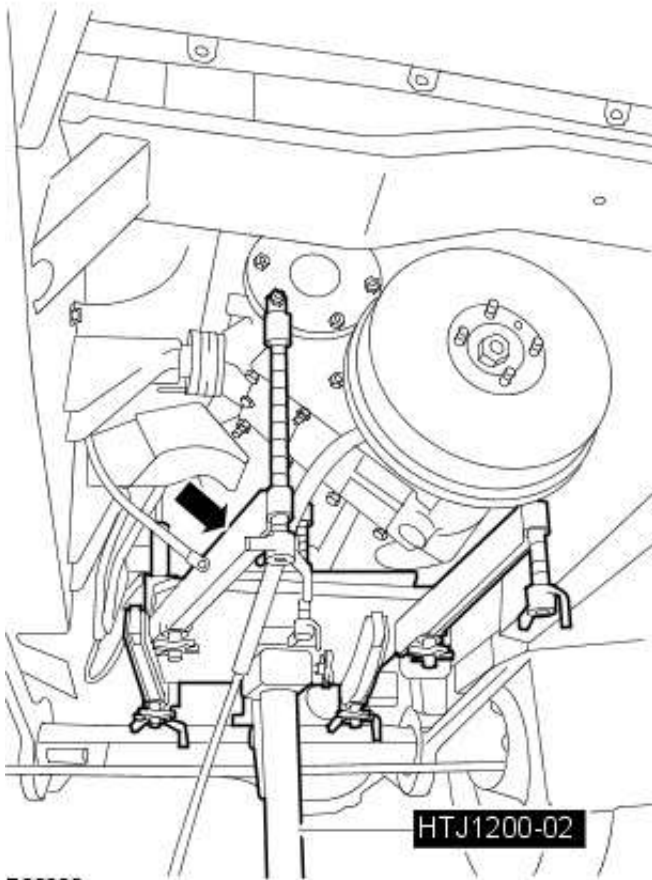
13. Install the LH transmission mount and mounting bracket.

1. Tighten the nut to 48 Nm
2. Tighten the bolts to 85 Nm



E 88221

14. Remove the special tool HTJ1200-02 from the transmission and transfer gearbox.



E 88220

15. Connect the clutch slave cylinder fluid hose to the clutch slave cylinder.

1. Remove the blanking plugs from the orifices.
2. Install a new clutch slave cylinder fluid hose O-ring seal.
3. Install the clutch slave cylinder line clip.

Air Distribution and Filtering - Air Inlet Duct

Removal and Installation

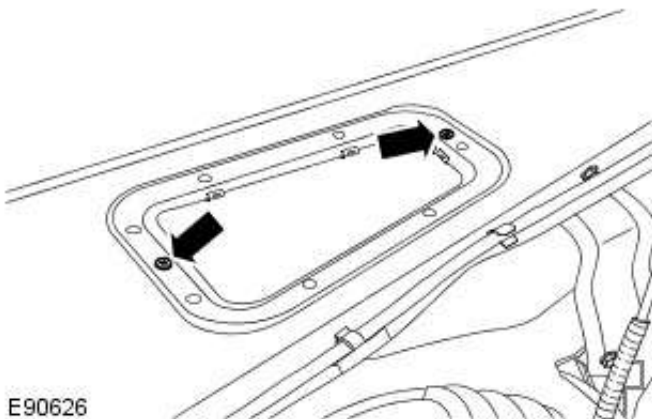
Removal

NOTE: left-hand drive (LHD) vehicle shown, right-hand drive (RHD) similar.

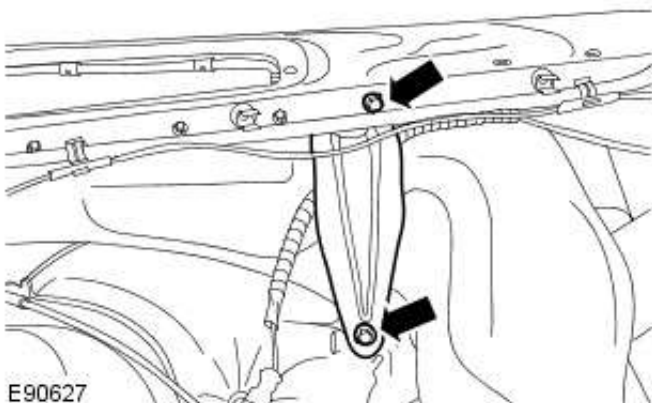
1. Remove the passenger side fresh air intake grille.



2. Remove the 2 air inlet duct upper securing screws.



3. Remove the 2 air inlet duct retaining bracket securing bolts and retaining bracket.



4. NOTE: Left-hand drive (LHD) vehicles only.

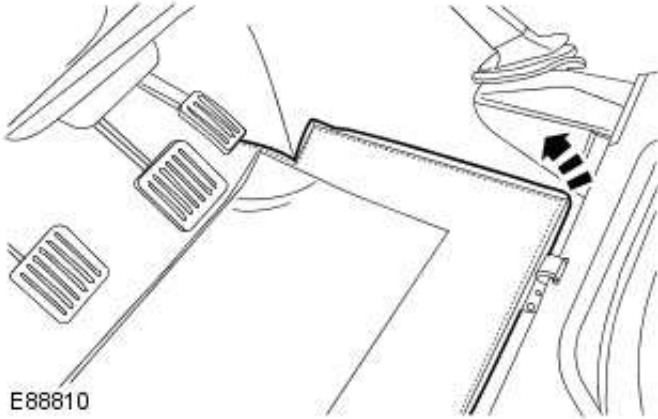
Disconnect the mass air flow (MAF) sensor electrical connector.

Exterior Lighting - Reversing Lamp Switch

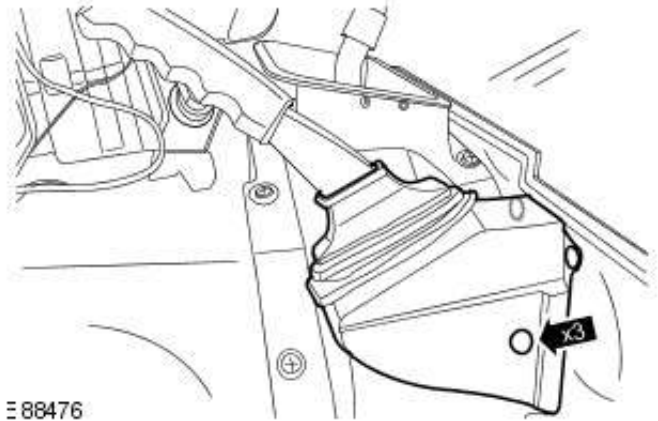
Removal and Installation

Removal

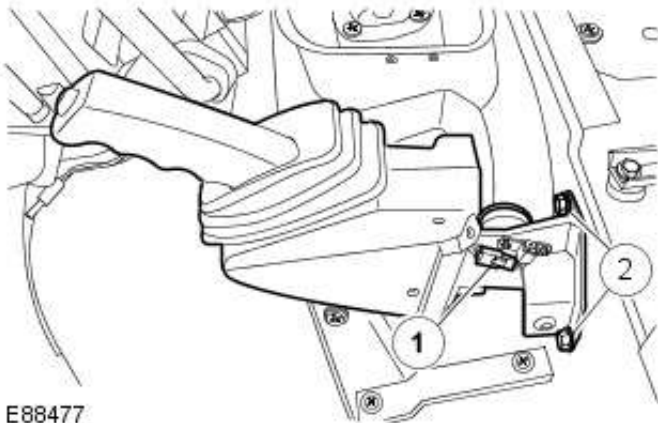
1. Remove the floor console.
For additional information, refer to: Floor Console (501-12, Removal and Installation).
2. Reposition the LH carpet.



3. Release the parking brake lever gaiter.
 - Remove the 3 clips.



4. Release the parking brake lever.
 1. Disconnect the electrical connector.
 2. Remove the 2 bolts.



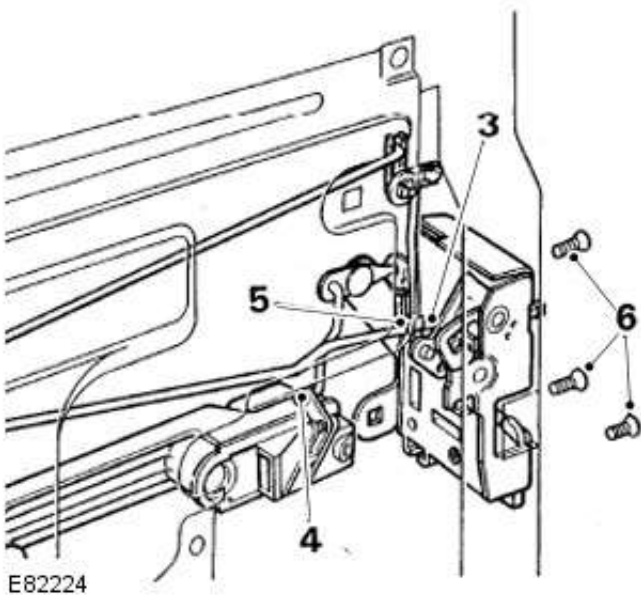
5. Remove the transmission cover panel floor covering.

Handles, Locks, Latches and Entry Systems - Rear Door Latch

Removal and Installation

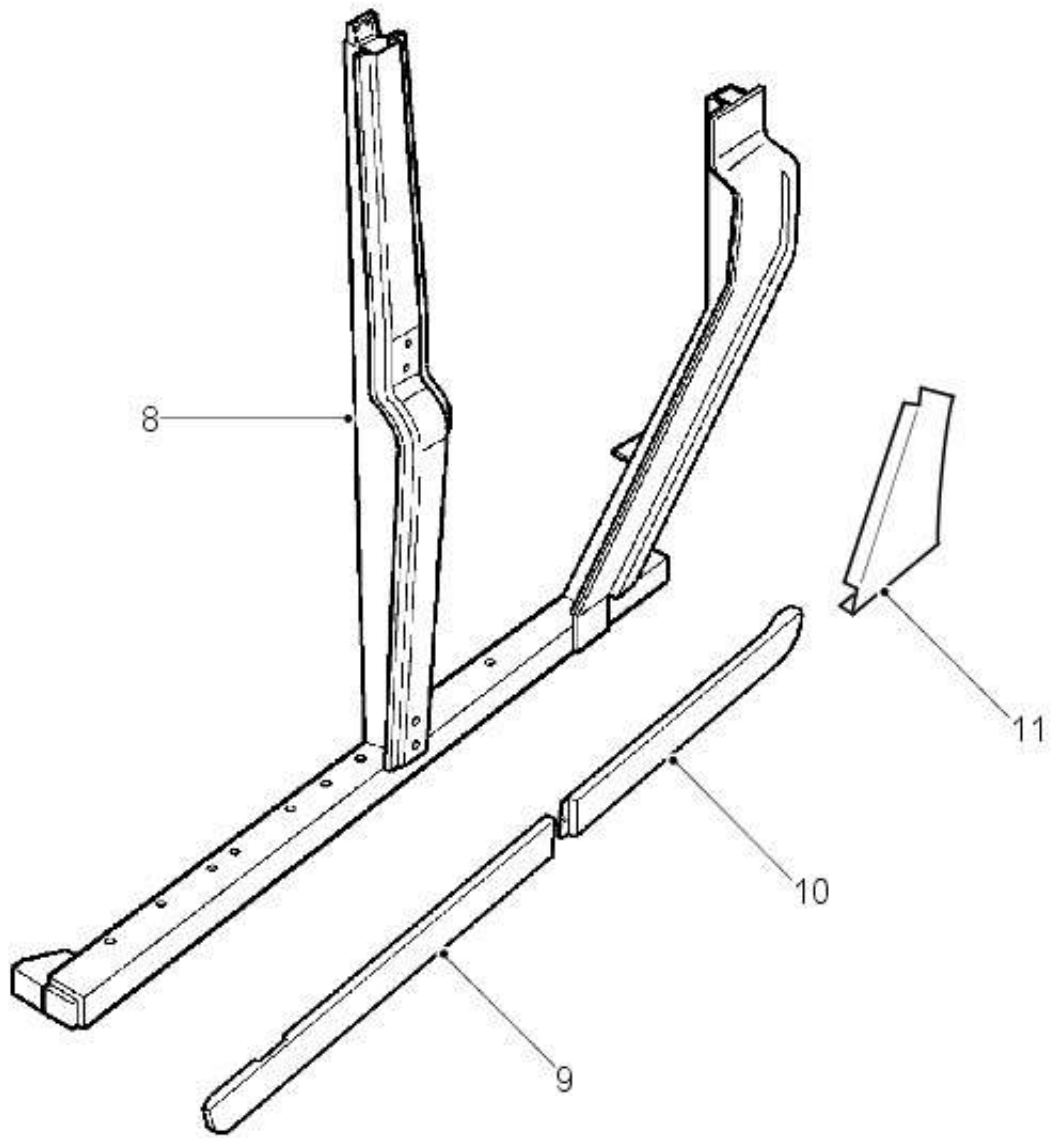
Removal

1. Remove door trim panel.
For additional information, refer to: Rear Door Trim Panel (501-05, Removal and Installation).
2. Peel-back sufficient of plastic sheet to reveal latch.
3. Release remote control lever rod from latch assembly.
4. Disconnect door outer handle control rod from latch assembly.
5. Disconnect door locking button remote control rod from latch mechanism.
6. Remove 3 retaining screws and withdraw latch assembly from door.



Installation

1. Install latch assembly to door and secure with 3 screws, noting that uppermost screw is longer.
2. Connect remote control levers to latch mechanism reversing instructions 3, 4 and 5.
3. Re-seal plastic sheet and install door trim panel.
For additional information, refer to: Rear Door Trim Panel (501-05, Removal and Installation).



M772110B

Item	Part Number	Description
8.	-	'B/C' and 'D' post assembly
9.	-	Rocker panel - front
10.	-	Rocker panel - rear
11.	-	Dogleg - lower panel

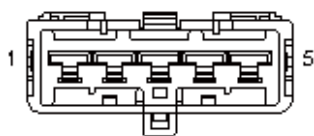
[Click here to print](#)

Connector: **C0058**

Description: **Switch-Blower motor**

Location: **Instrument panel-Center**

Qualifier:



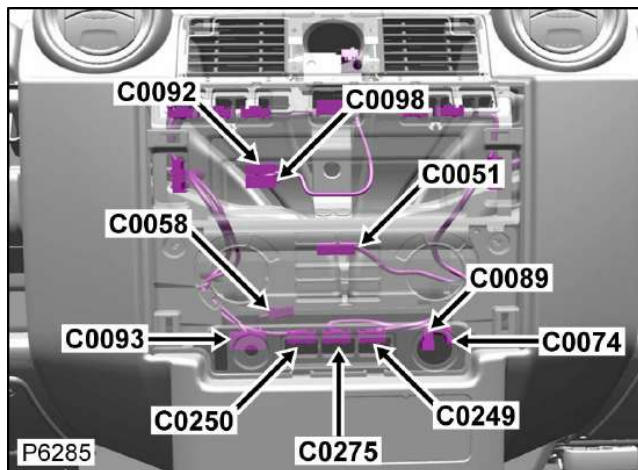
DARK GREY

Part No.: **YPC802720**

Colour: **DARK GREY**

Cavities: **5WY**

Harness: **MAIN LH + RH HARNESS**



Wire Chart

CAV	TERMINAL	CSA	COL	CCT	DESTN
1	YPL801750	2.0D	B	499	S/JOINT SJ13
2	YPL801740	1.0D	NR	14L	S/JOINT SJ26
2	YPL801740	1.0D	NR	14R	S/JOINT SJ27
2	YPL801740	1.0D	U	153R	C0068R
2	YPL801740	1.0D	U	153L	C0068L
4	YPL801750	1.5D	BN	139L	C0068L
4	YPL801750	1.5D	BN	200R	C0068R
5	YPL801750	2.5D	NR	139L	S/JOINT SJ24
5	YPL801750	2.5D	NR	200R	S/JOINT SJ25

Service Repair Kits

Refer to Harness Repair information

Se référer aux informations de réparation de faisceau

Siehe Informationen über Kabelbaumreparaturen

Vedere le informazioni che trattano le operazioni di riparazione del cablaggio

Remítase a la información sobre reparación de mazos de cables

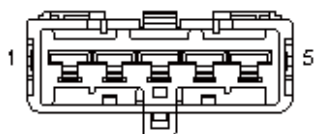
Raadpleeg de informatie over kabelboomreparaties

Connector: **C0058**

Description: **Switch-Blower motor**

Location: **Instrument panel-Center**

Qualifier:



DARK GREY

Part No.: **YPC802720**

Colour: **DARK GREY**

Cavities: **5WY**

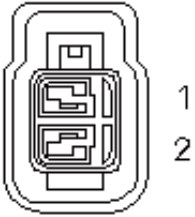
[Click here to print](#)

Connector: **C0163**

Description: **Switch-Reverse-lamp**

Location: **LH side of gearbox**

Qualifier:



BLACK

Part No.: **YPC500750**

Colour: **BLACK**

Cavities: **2WY**

Harness: **MAIN LH + RH HARNESS**



Wire Chart

CAV	TERMINAL	CSA	COL	CCT	DESTN
1	YPL500410	1.0D	GN	499	S/JOINT SJ49
2	YPL500410	1.0D	LGP	254	C3766

Service Repair Kits

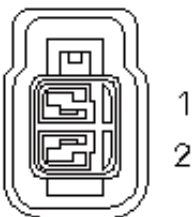
CSA	0.75- 1.00 CSA	
Cavities: 1,2		
418-411-09	SRK ITEM 1.0CSA	1
418-112	SRK ITEM	1
418-104	SRK ITEM R/B	1
418-107	SRK ITEM PIDG RED	1
418-117	SRK ITEM	1
418-116A	SRK ITEM	1
VUB900500		

Connector: **C0163**

Description: **Switch-Reverse-lamp**

Location: **LH side of gearbox**

Qualifier:



BLACK

Part No.: **YPC500750**

Colour: **BLACK**

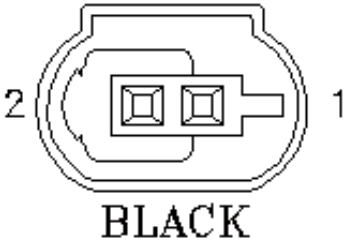
[Click here to print](#)

Connector: **C046 I**

Description: **Main harness to front door harness**

Location: **LH 'A' post**

Qualifier:



Part No.: **YPC500360**

Colour: **BLACK**

Cavities: **2WY**

Harness: **MAIN LH + RH HARNESS**



Wire Chart

CAV	TERMINAL	CSA	COL	CCT	DESTN
1	YPL101510	0.75D	O	767R	S/JOINT SJ77
2	YPL101510	0.75D	K	767R	S/JOINT SJ78

Service Repair Kits

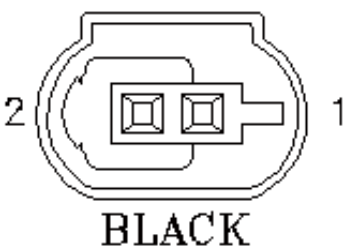
CSA	0.75- 0.75 CSA	
Cavities: 1,2		
418-549-11	SRK ITEM MQS FAMILY 0.75CSA	I
418-112	SRK ITEM	I
418-104	SRK ITEM R/B	I
418-107	SRK ITEM PIDG RED	I
418-117	SRK ITEM	I
418-116A	SRK ITEM	I
VUB500150		

Connector: **C046 I**

Description: **Main harness to front door harness**

Location: **LH 'A' post**

Qualifier:



Part No.: **YPC500360**