

# 30 - MANIFOLD AND EXHAUST SYSTEM

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## CATALYTIC CONVERTERS - V8i

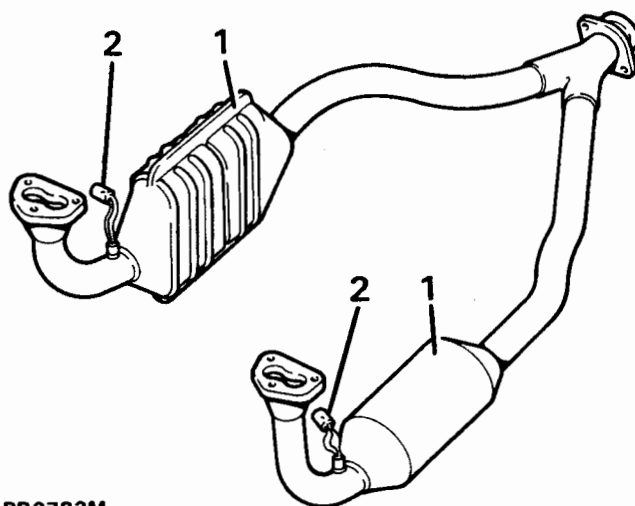
### Description

Catalytic converters which form part of the engine emission control system, are designed to 'clean' the exhaust gases, by closely controlling the fuel air ratio delivered to the engine and converting the residual exhaust compounds into products more acceptable to the environment.

The front section of the exhaust system to each cylinder bank contain the ceramic elements of the catalytic converters. The oxygen sensors which transmit information to the fuel ECU for control of the mixture, are located in the exhaust down pipes.

The Hydrocarbons (HC), Nitrogen oxides ( $\text{NO}_x$ ) and Carbon monoxide (CO) emitted by the engine react with the catalytic element and exhaust temperature to convert the toxic gas, into Nitrogen (N), Carbon dioxide ( $\text{CO}_2$ ) and water vapour.

Should the engine be supplied with a rich mixture causing high CO in the exhaust gas, the ceramic element will become coated and the useful life of the catalyst reduced. If the mixture is too weak, excess oxygen in the exhaust gas will cause the catalysts to burn out.



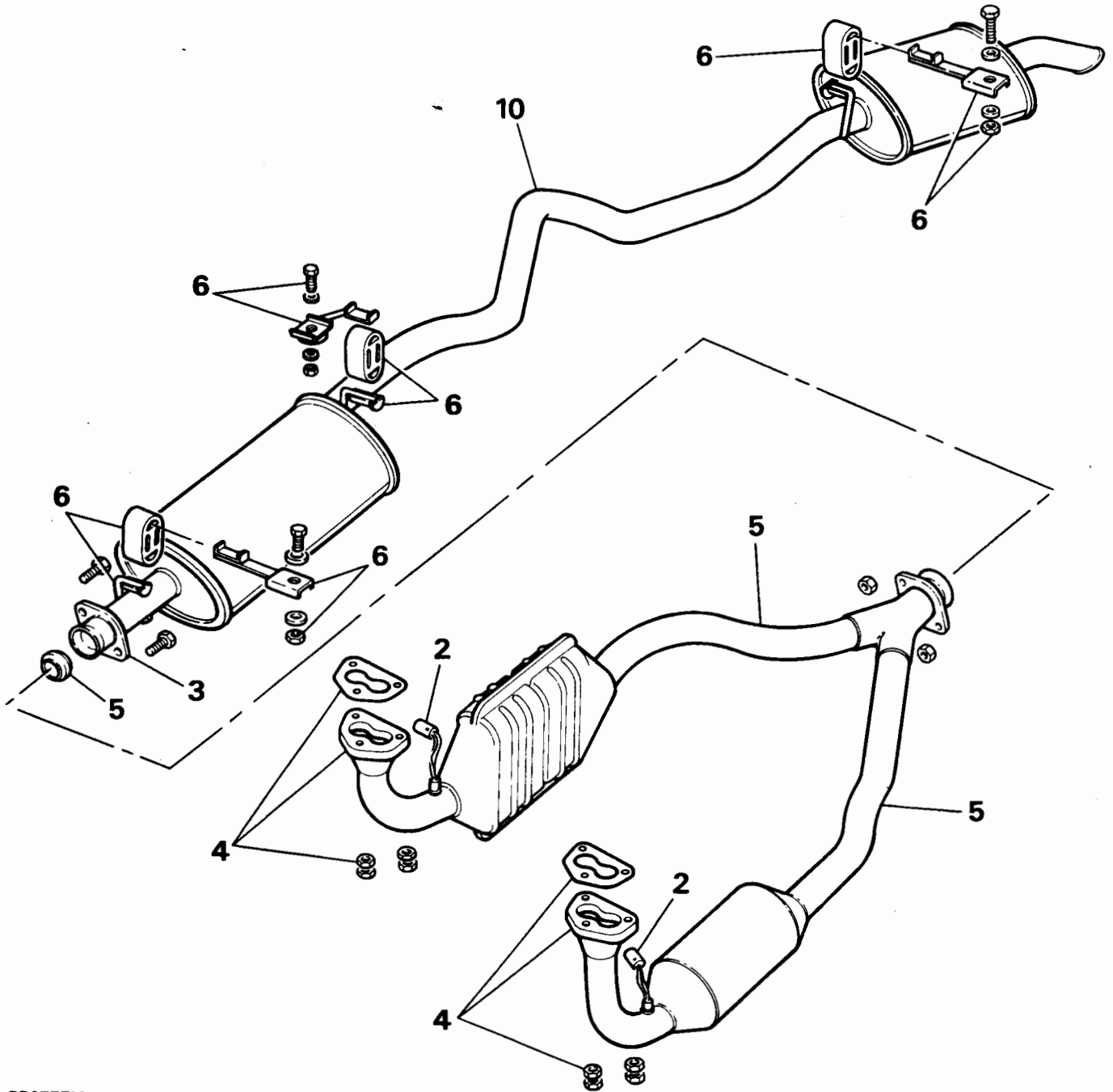
RR3783M

1. Catalysts
2. Lambda oxygen sensors



**EXHAUST SYSTEM COMPLETE**

Service repair no - 30.11.01



RR2777M

To improve sealing and accuracy of assembly, a two piece exhaust system is fitted.



**NOTE:** Ensure no exhaust leaks are evident in either a new or old exhaust system, as this will affect vehicle performance.



**WARNING:** To prevent personal injury occurring from a hot exhaust system, DO NOT attempt to disconnect any components until exhaust system has cooled down.

## Remove

### Catalysts - remove and refit 1 to 5

1. Raise vehicle on a ramp [hoist].
2. **Catalyst vehicles only:** Disconnect two lambda sensor wiring connectors.
3. Remove two bolts securing rear exhaust assembly to front exhaust assembly.
4. Remove nuts and release front downpipes from manifolds. Discard gaskets.
5. Lower front exhaust assembly with catalysts (if fitted), retain olive.



**NOTE: Assistance is required for removing and refitting rear exhaust assembly.**

6. Remove bolts securing three hanger brackets to chassis. Lower exhaust assembly onto rear axle. Detach rubbers from hanging brackets.
7. Place extended axle stands underneath chassis, in front of chassis mounted rear towing brackets.
8. Lower ramp[hoist] until vehicle weight is supported securely on stands.
9. Lower ramp [hoist] until rear shock absorbers are ALMOST fully extended.
10. Move rear exhaust to a diagonal position, centre silencer to right of vehicle.
11. Facing rear of vehicle, twist assembly anti-clockwise clear of rear axle.
12. Remove rear exhaust assembly from vehicle.

## Refit

13. Position rear exhaust assembly over rear axle in a diagonal position, as for removing.
14. Twist assembly clockwise until it is in mounting position.
15. Reverse removal procedure. 1. to 9. using new manifold gaskets and applying exhaust sealer to system joint.
16. Examine system for leaks, ensuring that system does not foul underbody components. Rectify if necessary.

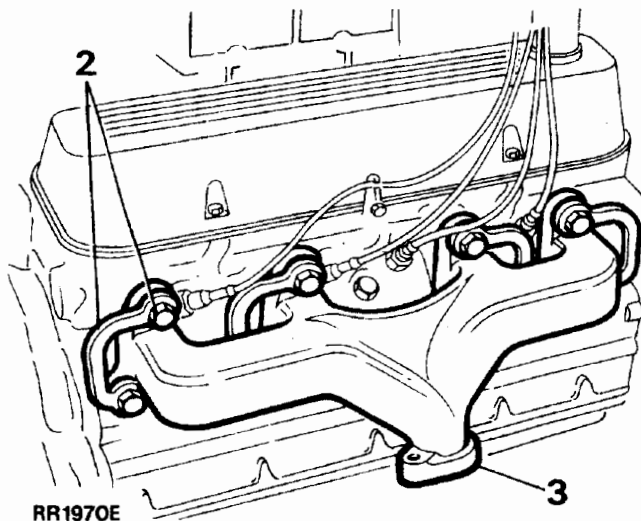
## EXHAUST MANIFOLD - V8i

Service repair no - Left hand - 30.15.10

Service repair no - Right hand - 30.15.11

## Remove

1. Disconnect front exhaust pipe(s) from manifold(s).
2. Tap back bolt locking tabs and remove eight bolts, lock tabs and washers.
3. Remove manifold(s) and old gaskets.

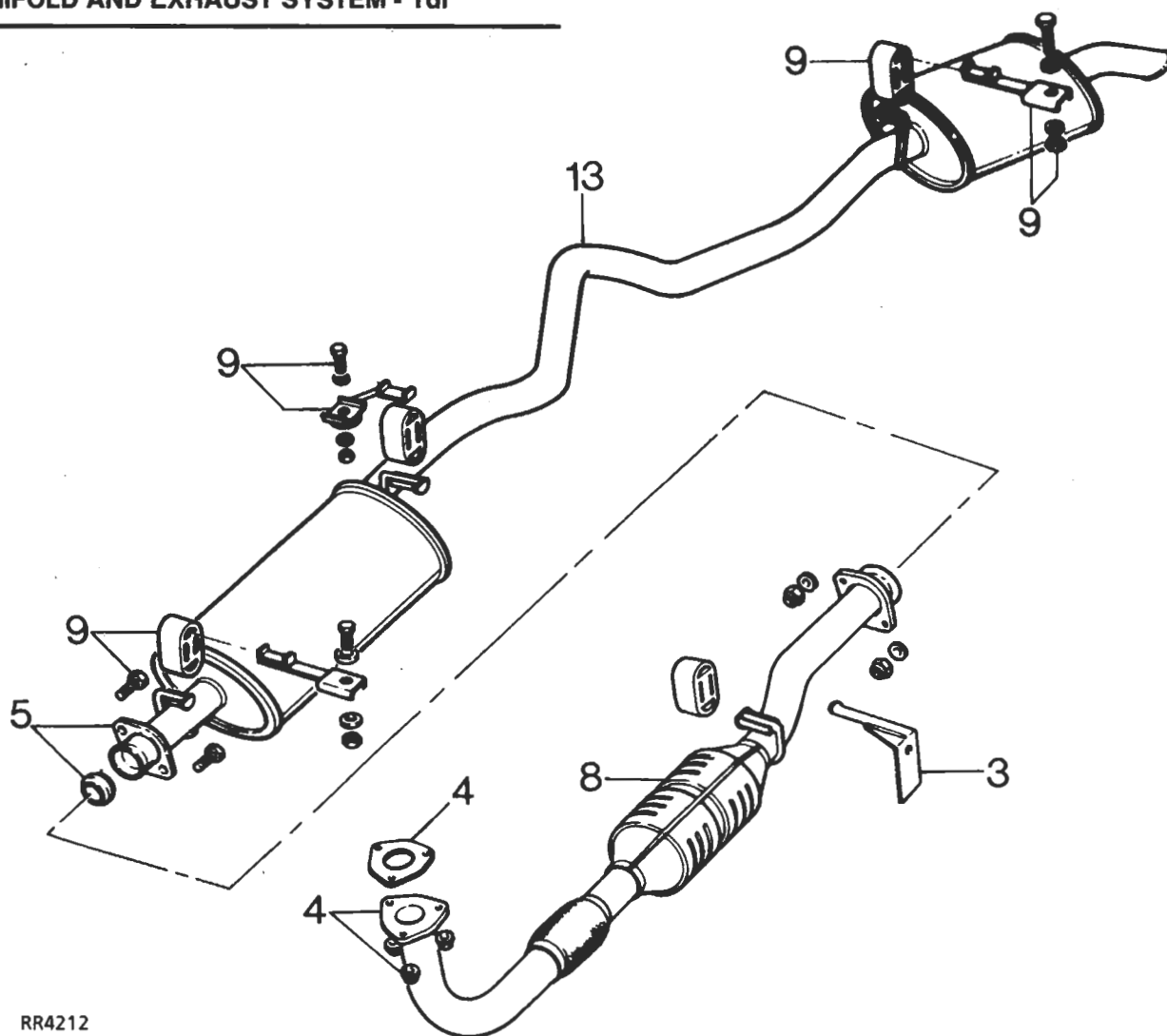


## Refit

4. Ensure that mating surfaces of cylinder head and exhaust manifold are clean and smooth.
5. Coat threads of each bolt with anti-seize compound.
6. Place manifold and new gaskets in position on cylinder head and fit securing bolts, new lockplates and plain washers. Plain washers are fitted between manifold and lockplates.
7. Evenly tighten manifold bolts to **20Nm** bend over lockplate tabs.
8. Reconnect front exhaust pipe, using new exhaust flange gaskets.



MANIFOLD AND EXHAUST SYSTEM - Tdi



RR4212

**Remove**

1. Raise vehicle on a ramp [hoist].
2. Remove anti-roll[sway] bar bolts to chassis and allow to swing down clear of axle. **See REAR SUSPENSION, Repair, Anti-roll Bar Assembly Rear**
3. Remove exhaust support bracket behind catalyst.
4. Disconnect exhaust at manifold.
5. Disconnect flange between rear and front exhaust.
6. Fit axle stands in suitable place on chassis.
7. Allow hoist to lower until front suspension is fully extended.
8. Manoeuvre front exhaust section from underneath vehicle.
9. Remove bolts securing three hanger brackets to chassis. Lower rear exhaust assembly onto rear axle. Detach rubbers from hanging brackets.
10. Place extended axle stands underneath chassis in front of chassis mounted rear towing brackets.

11. Lower hoist until vehicle weight is supported securely on stands.
12. Lower hoist until rear suspension is almost fully extended.
13. Move rear exhaust to a diagonal position, centre silencer to right of vehicle.
14. Facing rear of vehicle, twist assembly anti-clockwise clear of rear axle.
15. Remove rear exhaust assembly from vehicle.

**Refit**

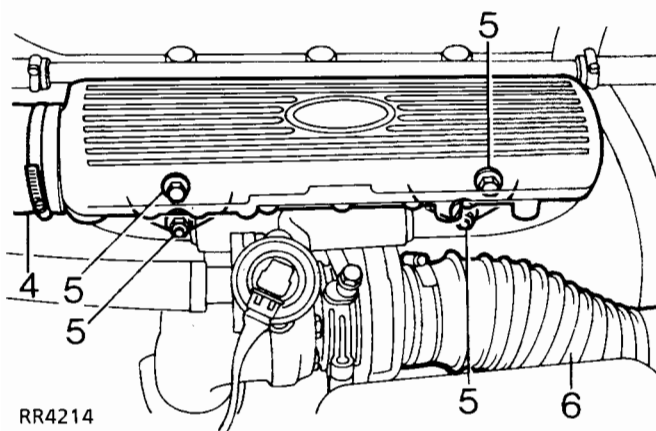
16. Position rear exhaust assembly over rear axle in a diagonal position, as for removing.
17. Twist assembly clockwise until it is in mounting position.
18. Reverse removal procedure instructions 1 to 15 using a new manifold gasket and applying exhaust sealer to system joints.
19. Examine system for leaks, ensuring that system does not foul under body components. Rectify if necessary.

**EXHAUST MANIFOLD - Tdi**

Service repair no - 30.15.10

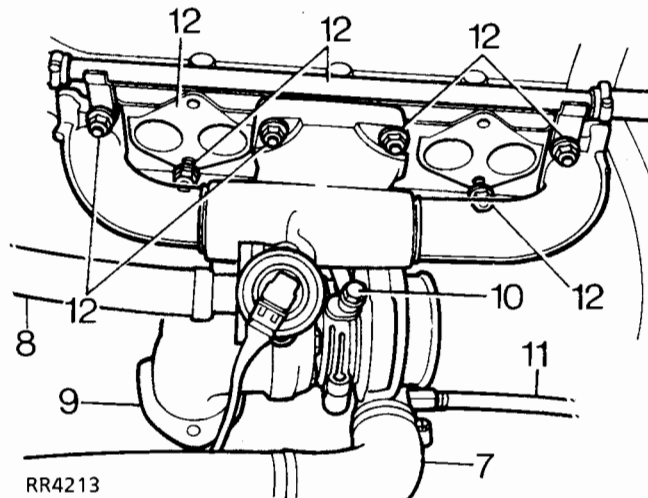
**Remove**

1. Disconnect battery negative lead.
2. Remove heat shield from rear of air intake manifold.
3. Release dip stick tube from cylinder block.
4. Disconnect the intake hose from the manifold.



RR4214

5. Remove the two bolts and two nuts securing the intake manifold to the cylinder head and withdraw the inlet manifold.
6. Remove air filter inlet pipe to turbo unit.
7. Remove intercooler pipe from turbo to intercooler.
8. Disconnect the EGR pipe from the inlet manifold hose.
9. Remove the three fixings at the exhaust pipe flange.
10. Release the turbo charger oil pipes from the cylinder block.
11. Remove the turbo boost pipes.



RR4213

12. Remove seven bolts securing the exhaust manifold, release the heater rail and remove the manifold gasket, complete with turbo unit.
13. Remove four bolts and disconnect diaphragm rod from manifold, and remove turbo charger if necessary.

**Refit**

14. Reverse removal procedure. 1 to 12. Use a new manifold and exhaust flange gaskets.
15. Reconnect battery negative lead. Start engine and check for leaks.