

**Cooling System****24**

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TECHNICAL DATA

Coolant Capacity

Including heater circuit and degas tank 7,5 litres

Engine Coolant (All Climates)

Type Motorcraft Antifreeze Super Plus
Specification No. SSM-97B-9103-A

Pressure Cap

Releasing pressure 0,85 to 1,10 bar

Thermostat

Nominal temperature rating 88°C
Opening temperature 76°C to 88°C

Drive Belt Tensions

Alternator - new 400 to 500 N
 - used 300 to 400 N
Power assisted steering - new 450 to 550 N
 - used 350 to 450 N

Tightening Torques

	<u>Nm</u>	<u>lbf,ft</u>
Radiator to front body panel	8,0 to 12,0	6,0 to 9,0
Water pump retaining bolts	9,0 to 13,0	7,0 to 9,5
Water pump pulley retaining bolts	20,5 to 25,5	15,0 to 19,0
Alternator adjusting strap to to water pump	18,0 to 25,0	13,0 to 19,0
Alternator adjusting strap to alternator	18,0 to 25,0	13,0 to 19,0
Alternator to bracket	18,0 to 25,0	13,0 to 19,0
Fan motor to shroud	8,0 to 10,0	6,0 to 7,5
Fan motor shroud to radiator	6,8 to 9,5	5,0 to 7,0

SERVICE AND REPAIR OPERATIONS

24 222 0 FAN MOTOR - REMOVE AND INSTALL

SPECIAL TOOLS REQUIRED: NONE

To Remove

1. Open hood, fit fender covers and disconnect battery earth cable.

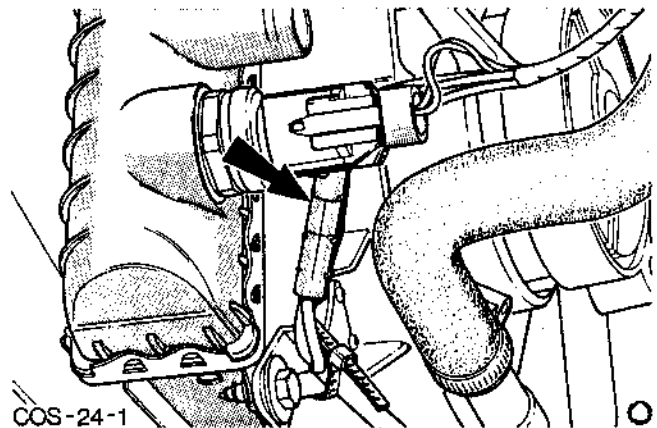


Fig.1. Disconnect fan motor electrical connection.

2. Raise vehicle on ramp.

3. Disconnect fan motor electrical cable. Remove screws securing transfer tube to radiator.

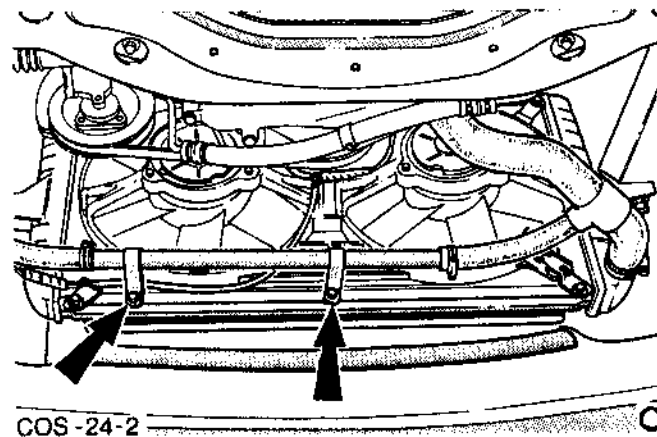


Fig.2. Transfer tube support bracket retaining bolts.

4. Remove fan shroud retaining screws from radiator and remove assembly from below vehicle.

5. Remove fan motor/s from shroud (3 bolts).

6. Disconnect electrical connection between motor assemblies.

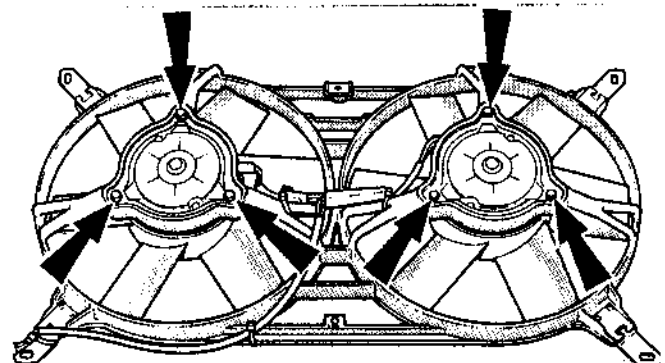


Fig.3. Remove fan motor from shroud.

7. Remove fan from motor (1 snap ring).

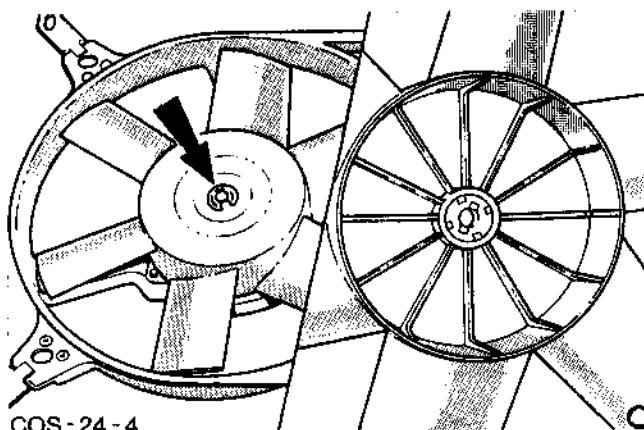
24 222 0

To Install

8. Fit fan to motor and fasten with snap ring.

NOTE: Slide the retaining lug on motor driveshaft into groove in fan.

9. Fit fan motor/s to shroud (3 bolts).

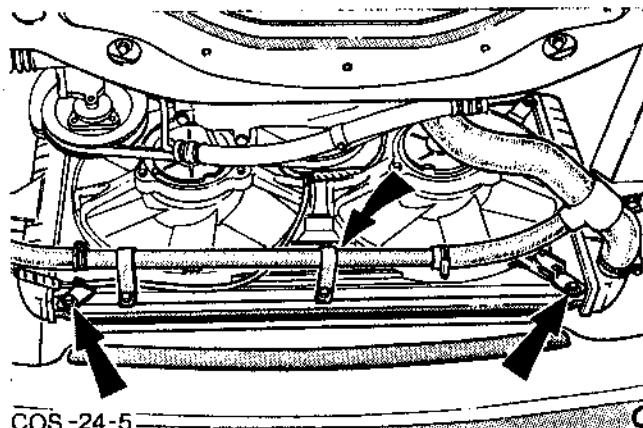


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Fig.4. Fan groove and retaining clip.

10. Connect electrical cable connection between fan motor assemblies.

11. Position fan shroud assembly on radiator from below vehicle and secure shroud to radiator.



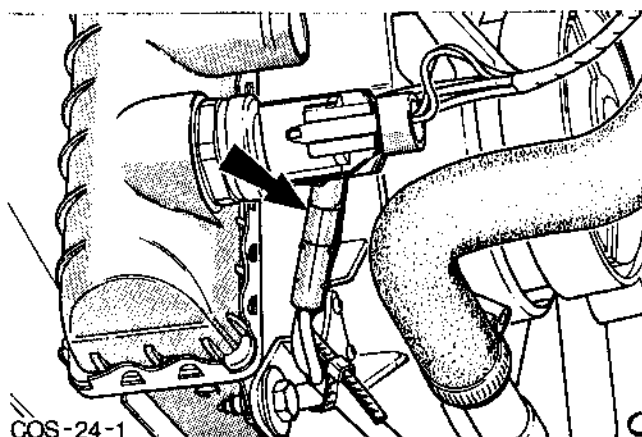
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Fig.5. Fit fan motor shroud to radiator.
(viewed from below).

12. Reconnect fan motor cable to main loom.

13. Locate transfer tube to radiator and secure.

14. Lower vehicle to ground.



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Fig.6. Connect fan motor cable.

15. Reconnect battery, remove fender covers and close hood.

24 254 0 RADIATOR - REMOVE AND INSTALL

SPECIAL TOOLS REQUIRED: NONE

To Remove

1. Open hood, fit fender covers and disconnect battery.

2. Position drain tray below radiator and relieve system pressure by slowly unscrewing degas tank cap.

NOTE: When releasing system pressure, cover cap with thick cloth to prevent coolant scalding.

3. Remove lower coolant hose from radiator and drain coolant into tray.

4. Remove radiator top hose from hose connection.

5. Remove nuts securing intercooler to radiator.

6. Raise vehicle.

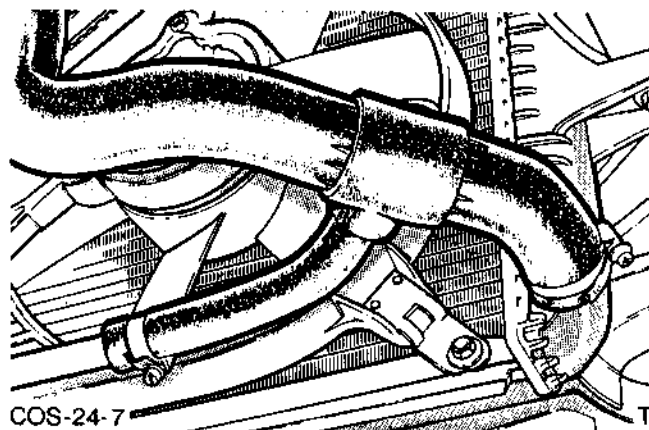


Fig.7. Remove lower radiator coolant hose.

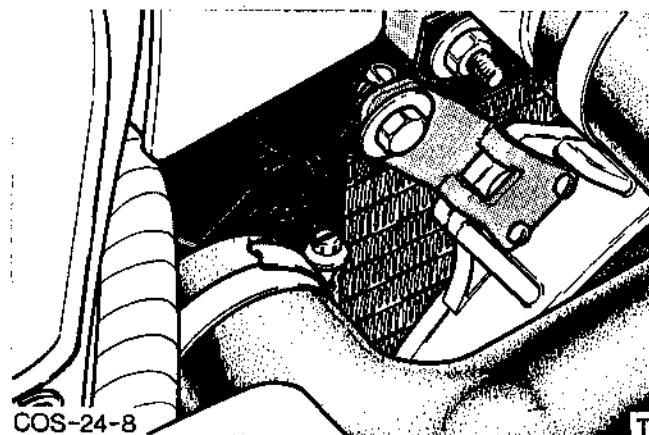


Fig.8. Remove radiator top hose.

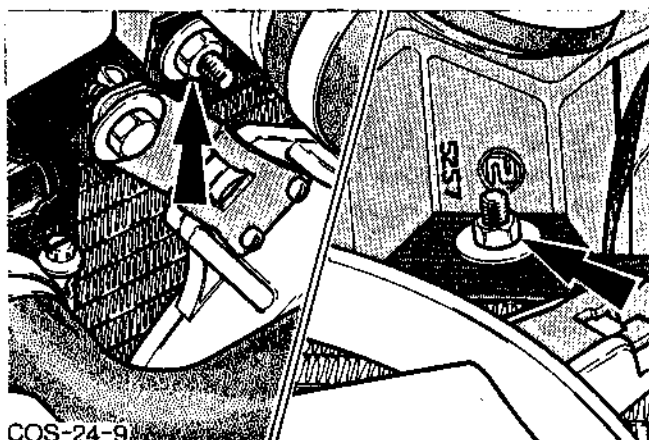


Fig.9. Detach radiator from intercooler (2 nuts).

24 254 0

7. Disconnect cable from thermo-sensor and fan motors.

8. Remove coolant transfer tube from bottom of radiator.

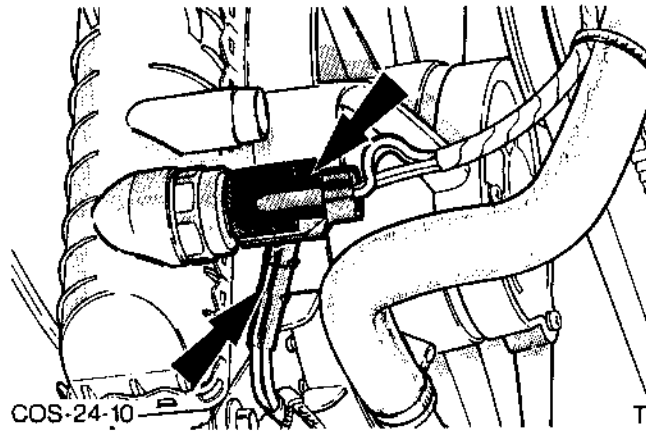


Fig.10. Disconnect electrical connection from radiator.

9. Remove radiator mounting bolts and lower radiator, complete with shroud assembly, from below vehicle.

10. Check radiator hoses for damage and renew if required.

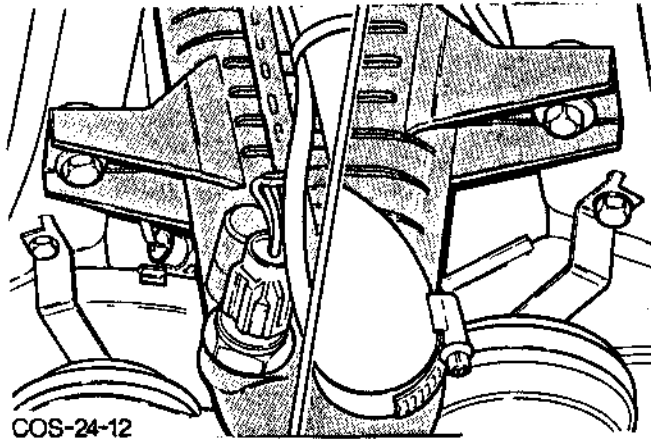


Fig.11. Radiator mounting bolts.

11. Unscrew thermo-sensor from radiator and fit to radiator.

NOTE: Use new gasket when fitting thermo-sensor.

12. Unscrew fan motors and shroud assembly from radiator and remove securing clips from radiator body.

13. Remove radiator mounting bushes and sleeve.

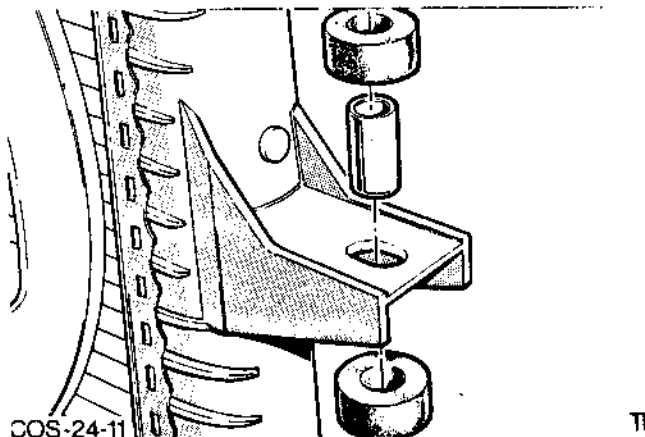


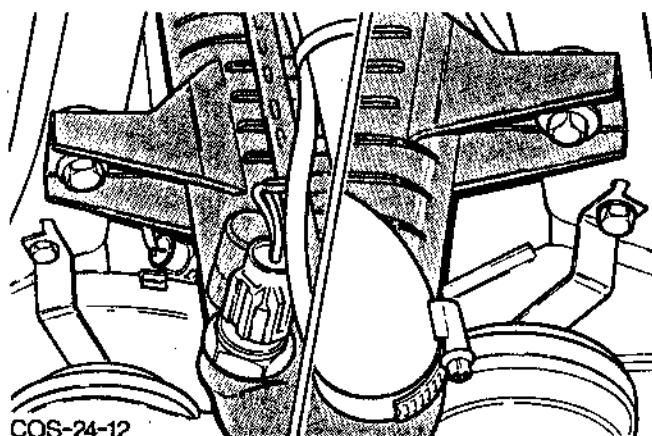
Fig.12. Remove radiator mounting bushes.

24 254 0

To Install

14. Refit radiator mounting bushes and fan shroud securing clips. Refit thermo-sensor switch and new gasket.

15. Refit fan motor and shroud assembly.

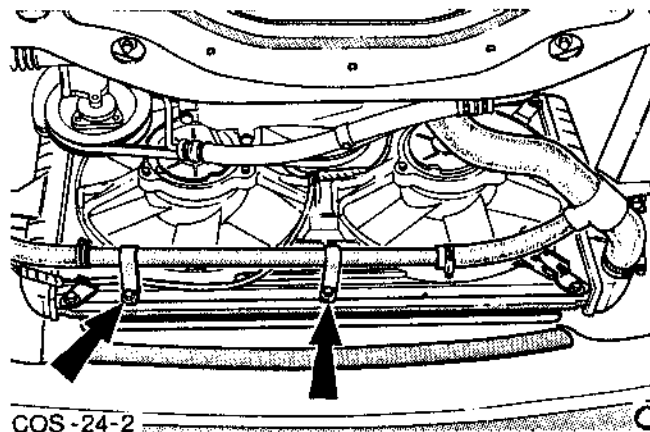


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Fig.13. Radiator retaining bolts.

16. Position radiator from below vehicle onto radiator support brackets and fit retaining bolts. Torque bolts to specification.

17. Connect transfer tube to bottom of radiator.



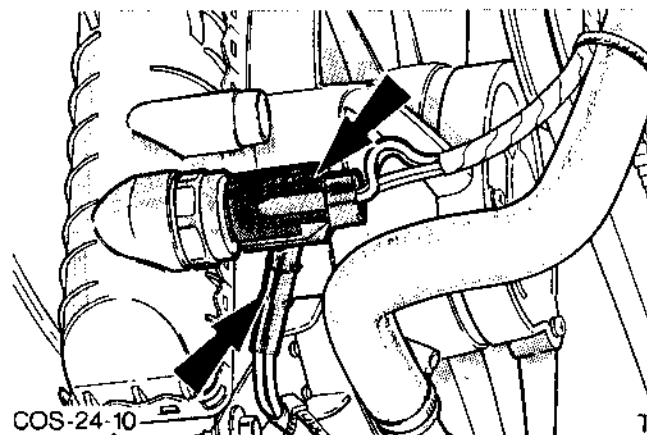
COS-24-2

Fig.14. Transfer tube securing screws.

18. Reconnect lower coolant hose to radiator.

19. Reconnect fan motor electrical connection and thermo-sensor connection.

20. Lower vehicle.

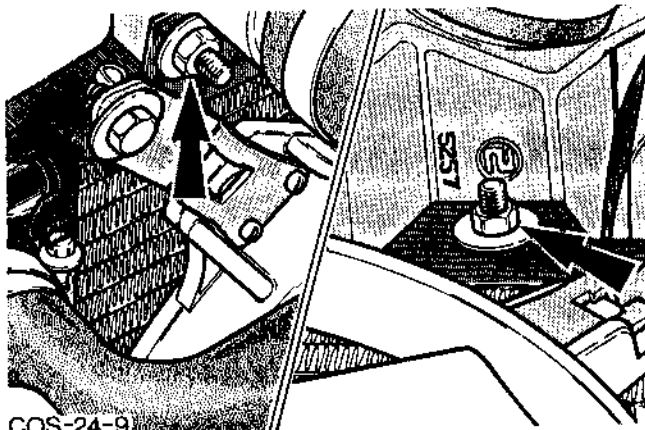


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Fig.15. Connect cables to thermo-sensor and fan motors.

24 254 0

21. Resecure intercooler to top of radiator.



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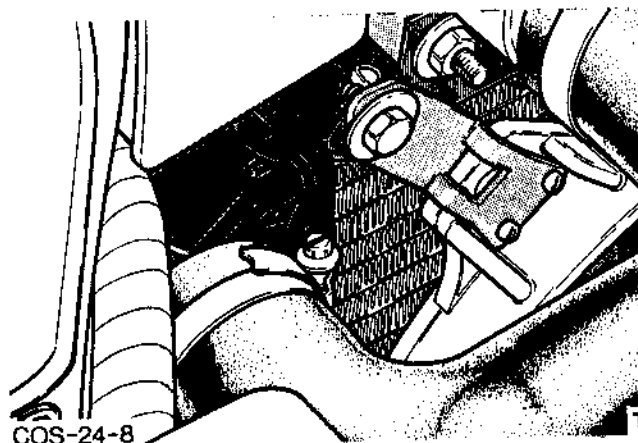
Fig.16. Radiator to intercooler securing nuts.

22. Reconnect radiator top hose.

23. Top-up cooling system.

24. Connect battery cable.

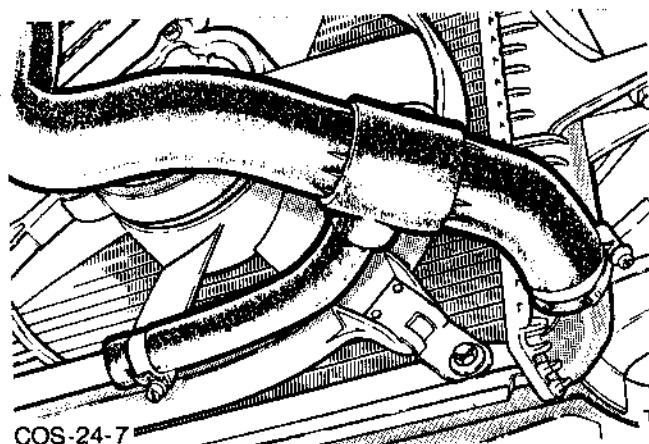
25. Start engine and allow to warm up to operating temperature.

Check coolant level and top up if required.
Check hose connections for leaks.


COS-24-8

Fig.17. Radiator top hose connection.

26. Remove fender covers and close hood.



COS-24-7

Fig.18. Lower coolant hose connection.

24 404 0 WATER PUMP ASSEMBLY - REMOVE AND INSTALL

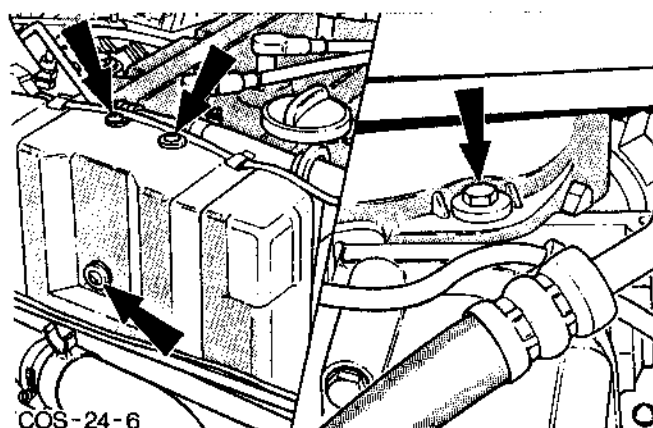
SPECIAL TOOLS REQUIRED: NONE

To Remove

1. Open hood, fit fender covers and disconnect battery earth cable. Relieve system pressure by slowly unscrewing degas tank cap.

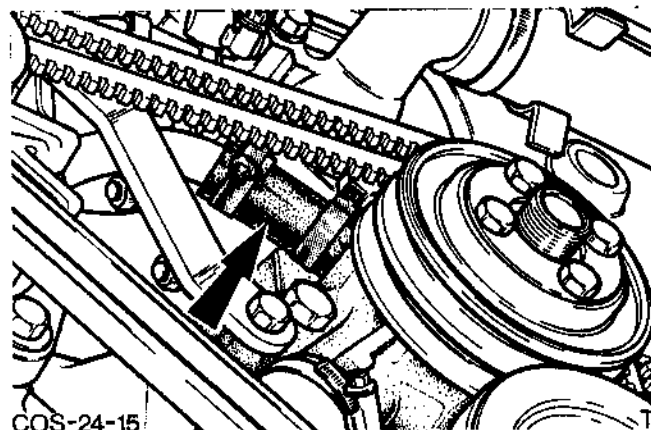
NOTE: When releasing system pressure, cover cap with thick cloth to prevent coolant scalding.

2. Remove toothed drive belt cover retaining screws.
3. Position clean drain tray below engine, detach bottom hose from radiator and drain coolant.
4. Remove bottom coolant hose from water pump.
5. Remove heater hose from water pump.
6. Remove bolts securing water pump pulley to drive flange.
7. Remove water pump drive belt by loosening alternator adjusting strap.
8. Remove water pump pulley.
9. Remove bolts securing water pump to cylinder block. Remove single bolt securing alternator adjuster strap to water pump body.



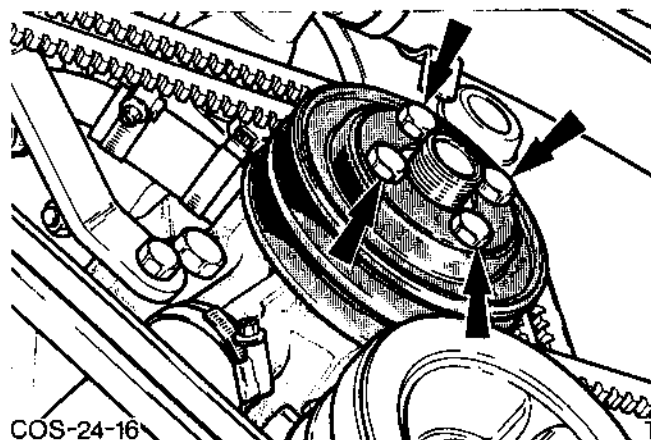
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Fig.19. Toothed drive belt cover retaining screws.



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Fig.20. Heater hose - water pump.



COS-24-16

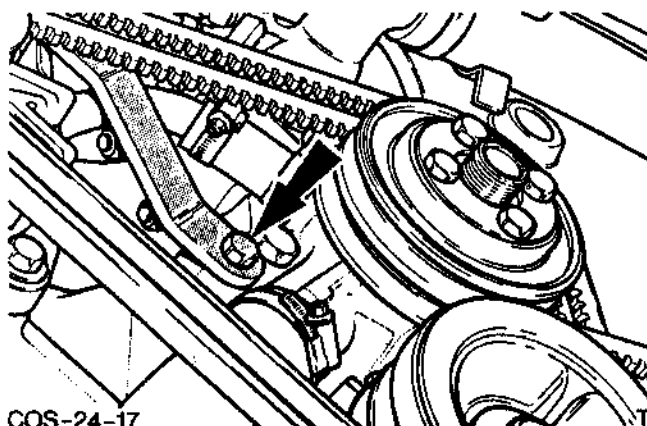
Fig.21. Remove water pump pulley retaining bolts.

24 404 0

To Install

10. Using new gasket, position and secure water pump assembly to cylinder block. Reconnect alternator adjusting strap to water pump body.

11. Fit drive belt pulley to water pump.



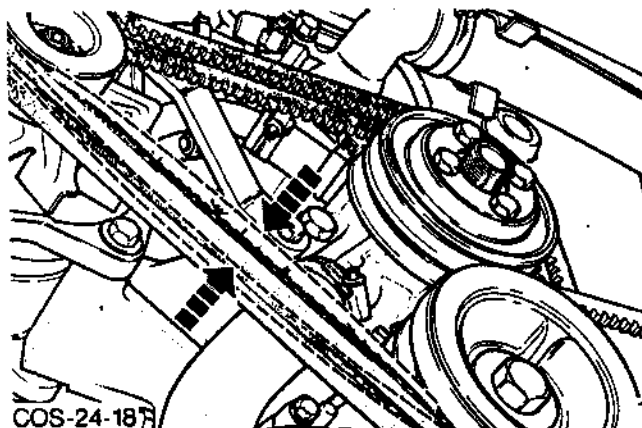
COS-24-17

Fig.22. Alternator adjusting strap pivot bolt.

12. Refit and tension water pump drive belts.

Swing alternator downwards to apply the necessary tension to the drive belt (see Technical Data) and tighten alternator mounting bolts.

13. Tighten drive belt pulley bolts.



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Fig.23. Adjust drive belt tension.

14. Refit heater hose to water pump.

15. Refit lower coolant hose to water pump and radiator.

16. Refit toothed belt cover.

17. Fill cooling system. Start engine and allow to warm up to normal operating temperature. Check coolant level and check hose connections for leaks.

18. Reconnect battery, remove fender covers and close hood.

