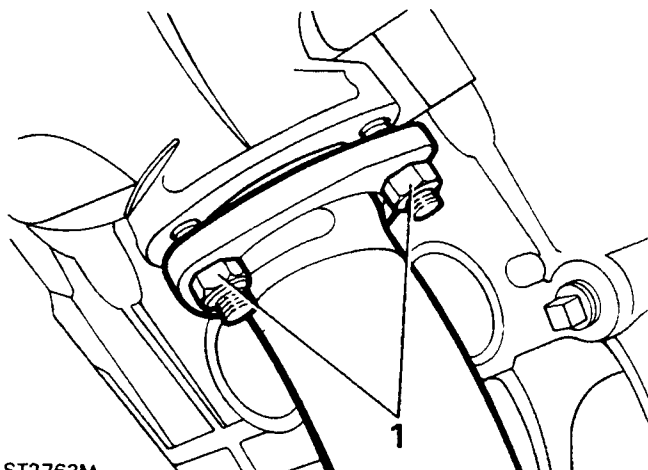


REMOVE V8 ENGINE EXHAUST MANIFOLDS

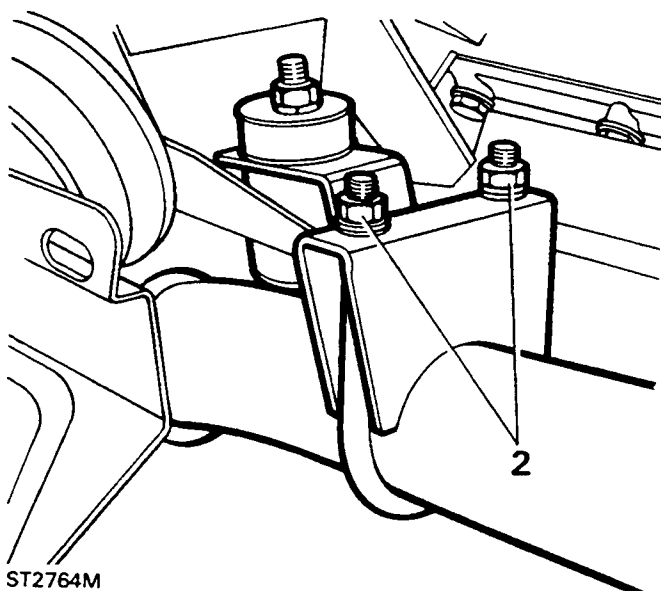
CAUTION: It is important to ensure that when renewing or disturbing any part of the exhaust system that the various joints are checked for leaks. A leaking system could allow dangerous fumes to enter the vehicle, contravene emission regulations and adversely affect vehicle engine performance.

1. Disconnect the battery and from beneath the vehicle, remove the six nuts, three each side, securing the exhaust front pipes to the manifolds.



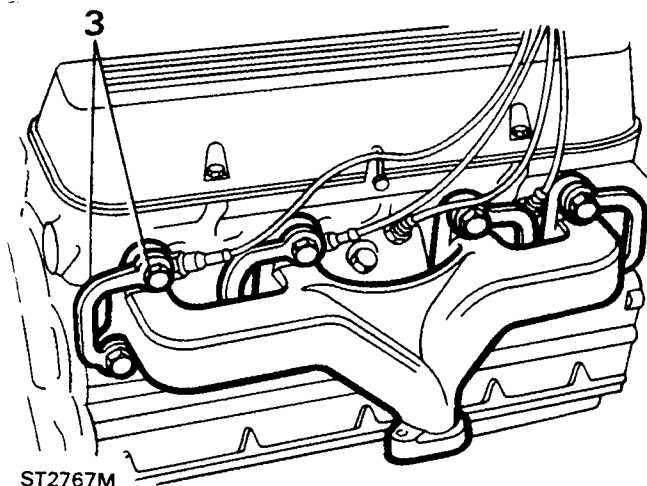
ST2763M

2. To prevent any strain on the pipe system, slacken the front pipe fixings at the gearbox bracket.



ST2764M

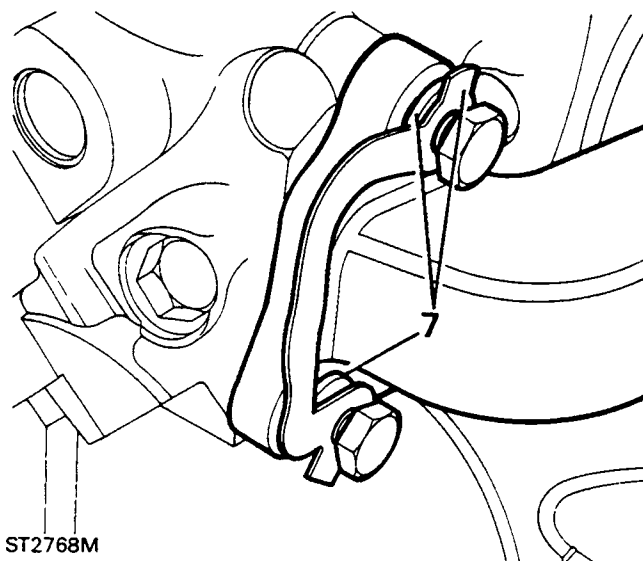
3. From within the engine compartment, bend back the lock tabs and remove the eight bolts securing each manifold to the cylinder heads.
4. withdraw the manifolds.



ST2767M

Fitting manifolds.

5. Ensure that the mating faces of the cylinder head and exhaust manifolds are clean and smooth.
6. Coat the manifold and cylinder head faces with Foliac J 166 or Moly Paul anti-seize compound. Foliac J is manufactured by Rocal Ltd., Rocal House, Swillington, Leeds. England. Moly Paul is made by K.S. Paul Products Ltd., Nobel Road, London N.18.
7. Offer-up the manifolds to the cylinder head and secure with the bolts, lock plates and plain washers. The plain washers are fitted between the manifold and lock plates. Evenly tighten the manifold bolts to the correct torque and bend the tabs over a convenient flat.

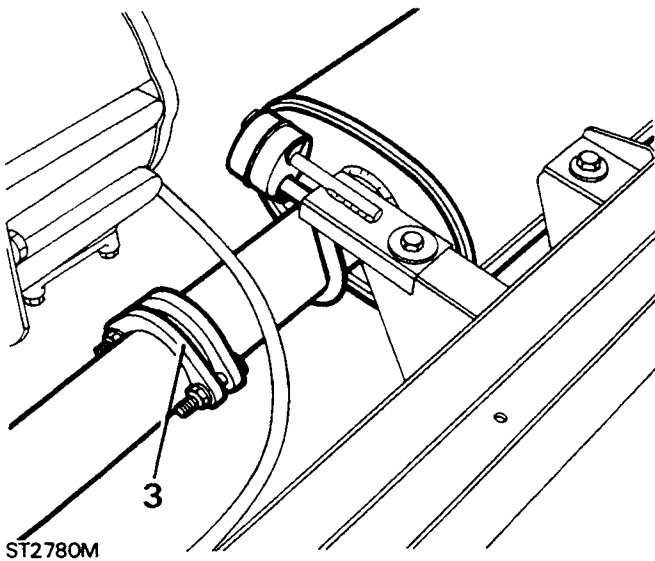


ST2768M

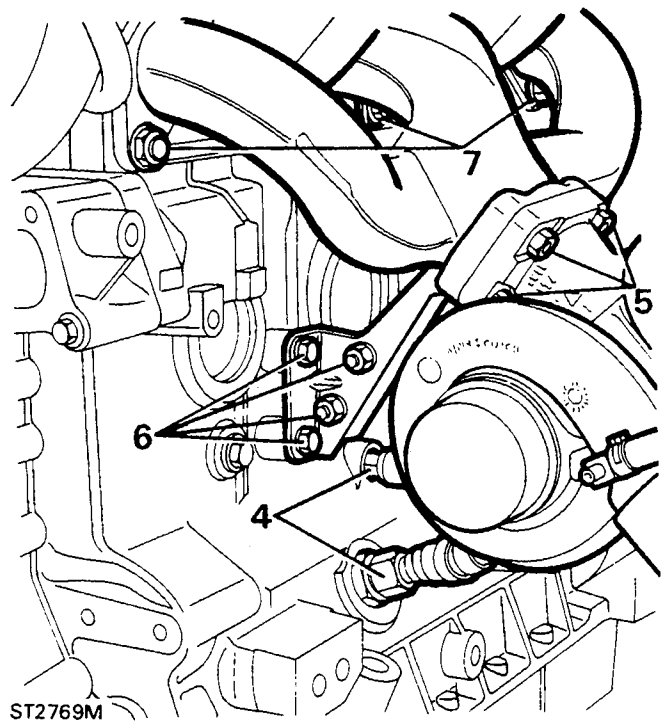
8. Without imposing any strain upon the exhaust pipe system, assemble the front pipes to the manifold and secure with the nuts whilst ensuring that the two flanges are parallel to each other. Tighten the nuts evenly to the correct torque.
9. Tighten the front pipe fixings at the gearbox bracket.
10. Connect the battery, run the engine and check for exhaust gas leaks.

REMOVE DIESEL ENGINE EXHAUST MANIFOLD.

1. Disconnect the battery.
2. Release the dipstick tube at the cylinder block and from the inlet manifold. Disconnect the hose and remove the manifold.

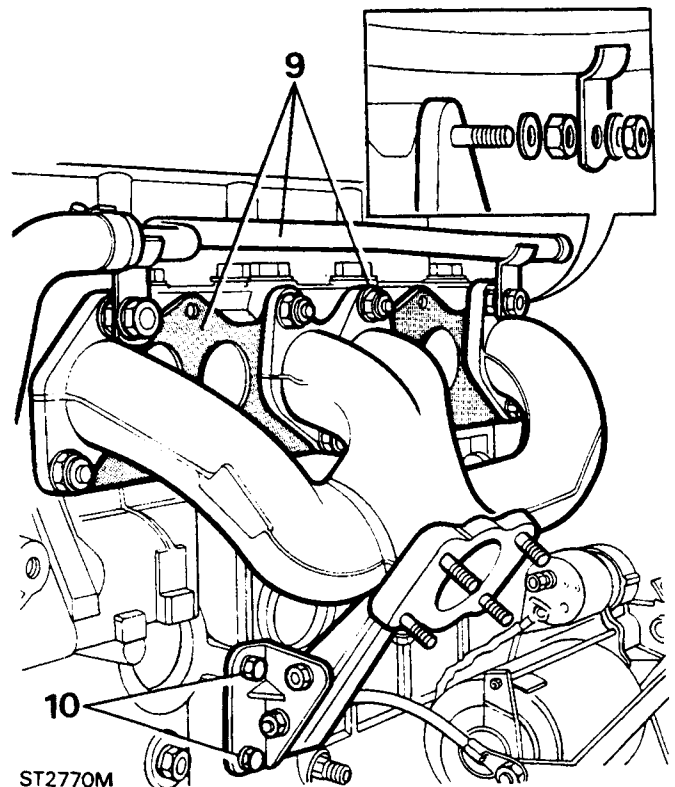


3. Slacken the front exhaust pipe fixings at the silencer end.
4. Release the turbo charger oil pipes from the cylinder block.
5. Remove the four nuts securing turbo to exhaust manifold and move turbo away from manifold.
6. Remove nut securing support bracket to manifold. Slacken the two support bracket nuts and bolts and remove bolts retaining bracket to cylinder block and remove the support bracket.
7. Remove the manifold seven securing bolts, release the heater rail and remove the manifold and gasket.



Fitting manifold.

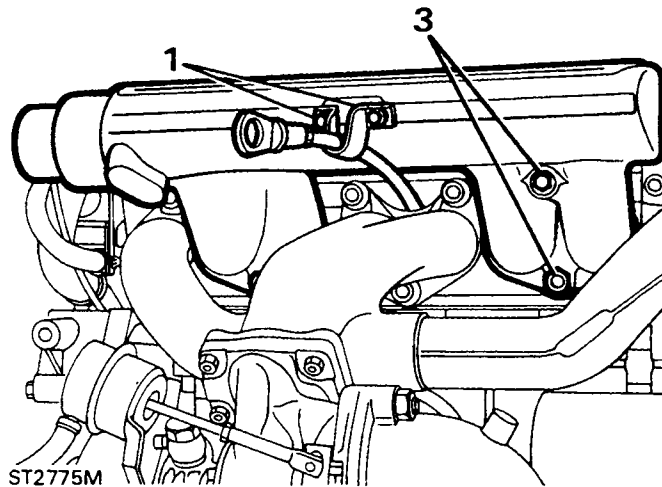
8. Fit the support bracket to manifold with single nut.
9. Fit gasket and manifold and heater rail to cylinder head and secure with the seven bolts tightening evenly to the correct torque.
10. Fit support bracket to cylinder block and tighten all the support bracket fixings.



11. Secure turbo charger to manifold with steel gasket and four nuts.
12. Connect the turbo oil pipes to the cylinder block.
13. Prime the turbo charger see section 12 page 51.
14. Fit the air inlet manifold and connect hose and secure dipstick tube at the top and bottom.
15. Tighten the exhaust front pipe connection at the silencer end.
16. Connect the battery, start engine and check for leaks.

REMOVING DIESEL ENGINE AIR INTAKE

1. Release the dipstick tube attachment to the air intake manifold.
2. Disconnect the intake hose from the manifold.
3. Remove the two bolts and two nuts securing the intake manifold to the cylinder head and carefully withdraw the manifold.



Fitting air intake.

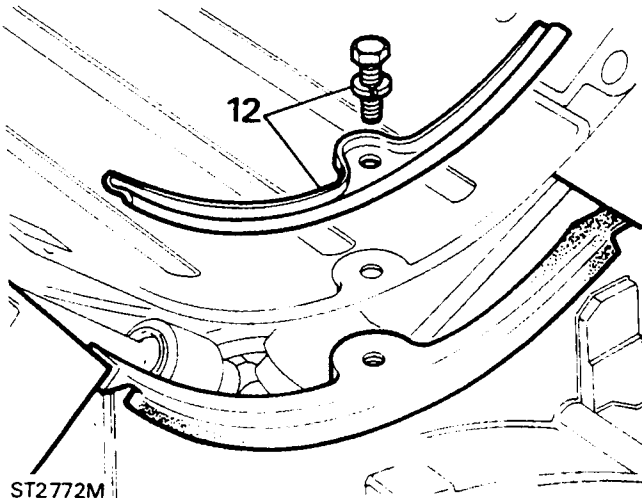
4. Check that the manifold gasket is in good condition and secure the air intake to the cylinder head. tighten the two nuts and two bolts evenly to the correct torque.
5. Connect the inlet hose to the intake.
6. Secure the dipstick tube to the intake.

REMOVING PETROL ENGINE INLET MANIFOLD.

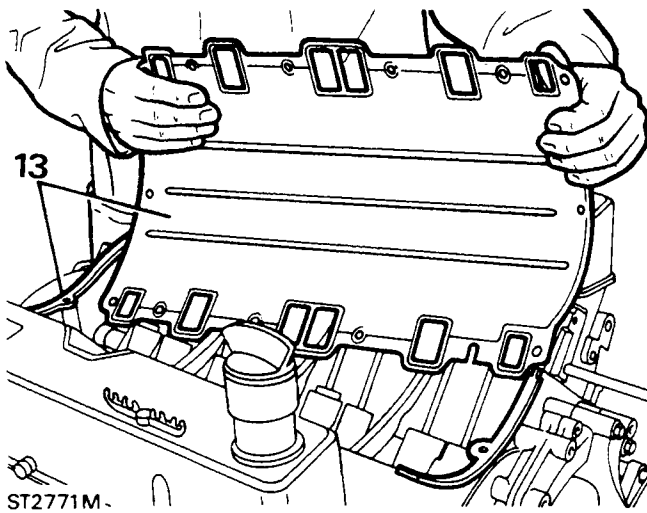
1. Release the bottom hose from the radiator to partially drain the cooling system. Refit and tighten hose clip.
2. Remove the air cleaner and elbows from the carburetters.
3. Disconnect the heater hoses from the rear of the manifold.
4. Disconnect the throttle cable from the carburetter linkage.
5. Disconnect the radiator top hose from thermostat housing.
6. Disconnect the brake servo hose from the manifold.
7. Disconnect the fuel supply and spill return pipes from the carburetters.
8. Disconnect the H.T. leads from the spark plugs and remove the distributor cap. Cover the exposed distributor to prevent damage and entry of dirt.
9. Remove or disconnect any other pipes, hoses and electrical leads and make note of the positions to assist assembly.
10. Evenly slacken and withdraw the twelve bolts securing the manifold to the cylinder block. Carefully lift-off the manifold complete with carburetters.
11. If required, remove the eight nuts and remove the carburetters whilst noting the sequence of the joint washers, deflector and insulator.

Removing manifold gasket.

12. If it is necessary, to renew the gasket, wipe away surplus coolant from the gasket and remove the gasket clamps.



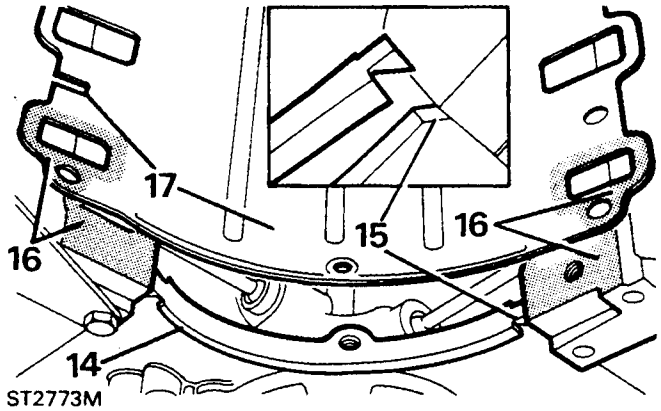
13. Lift-off the gasket and remove the seals.



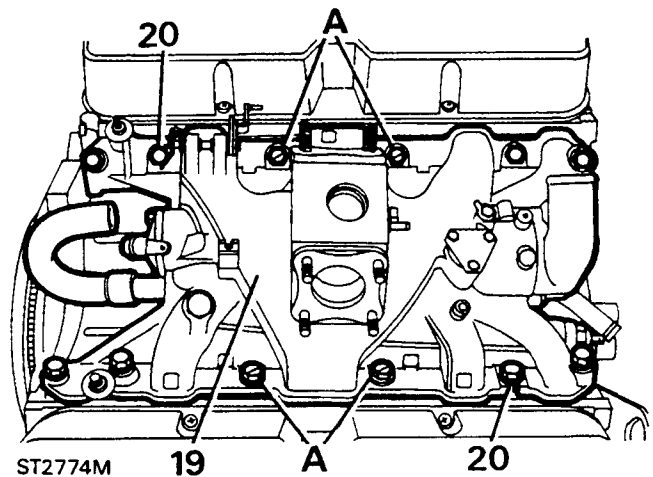
Fitting Manifold.

14. Coat both sides of new gasket seals with silicon grease.
15. Apply a 6mm diameter globule of Loctite Super Flex in the four notches formed between the cylinder head and block. Locate the seals in position with the ends engaged in the notches.

16. Apply Hylomar sealing compound SQ32M at the corners of the cylinder heads, gasket, and manifold, round the water passage joints.
17. Fit the manifold gasket with the word 'FRONT' towards the front of the engine and the slotted bolt hole at the front right hand side.



18. Fit the gasket clamps but do not fully tighten the securing bolts at this stage.
19. Fit the manifold to the cylinder heads. Clean the threads of the twelve manifold securing bolts and apply Loctite 572 to the threads.
20. Fit the manifold bolts noting that the four with the slotted heads are fitted at the positions "A". Tighten the bolts a little at a time at alternate sides working from the centre to the outside. Finally, tighten to the correct torque. Also, tighten the clamp bolts to the correct torque.

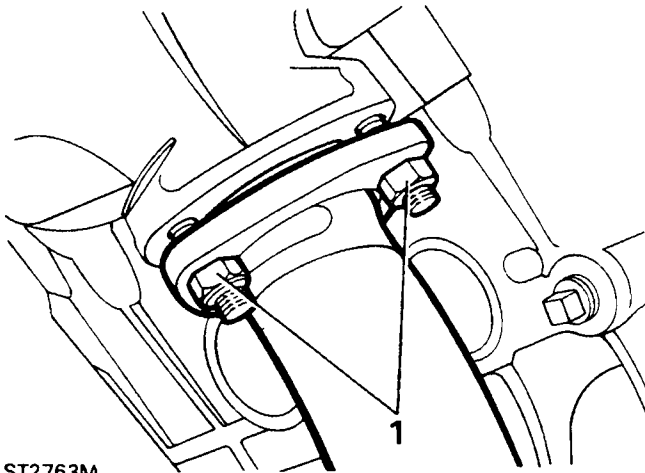


21. If removed, refit the carburettors see section 19.
22. Reverse instructions 2 to 9 and refill the cooling system with the required concentration of anti-freeze, see section 26.
23. Connect the battery, start the engine and check for coolant leaks.

RENEWING PETROL ENGINE EXHAUST SYSTEM.

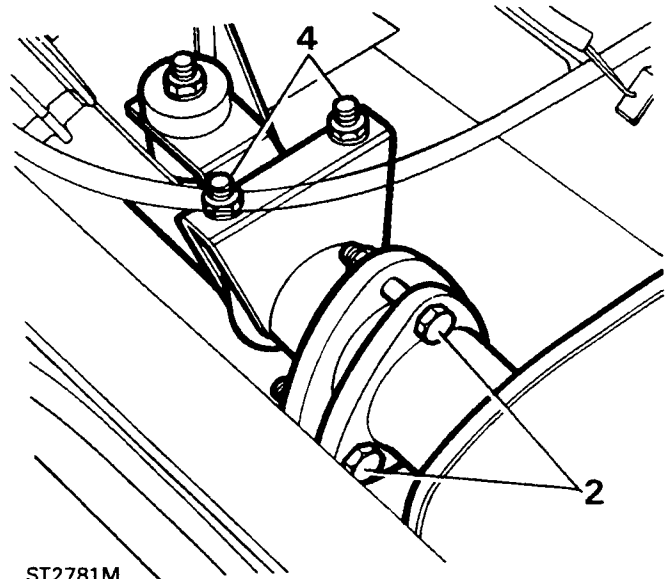
FRONT PIPE.

1. Slacken the nuts securing the front pipe to the exhaust manifolds.



ST2763M

2. Remove the three nuts and bolts securing the front pipe to the forward silencer.
3. Remove the nuts retaining the pipe to the manifolds.
4. Remove the "U" bolt securing the front pipe to the support bracket and support the forward silencer.
5. Remove the front pipe from the vehicle and retrieve the olive.



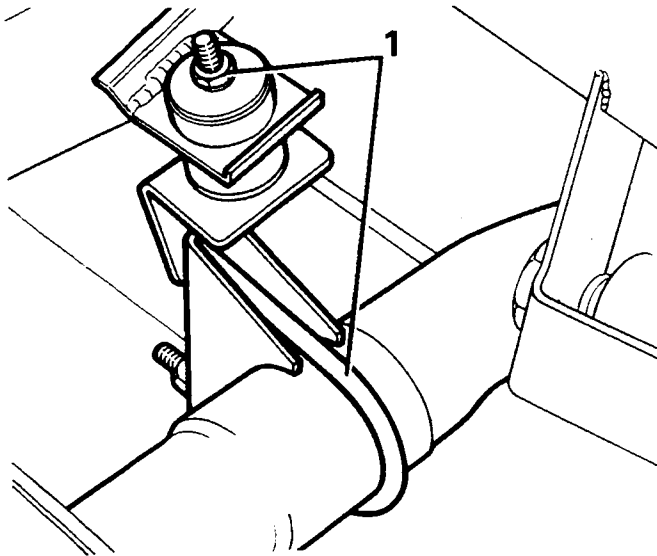
ST2781M

Fitting front pipe.

6. Offer-up the pipe to the vehicle and loosely secure to the exhaust manifolds.
7. Fit the olive to the joint between the front pipe and silencer and loosely join the two assemblies together.
8. Fit the support bracket and "U" bolt assembly but do not fully tighten.
9. Without exerting strain upon the system, gradually tighten all the fixings to the torque figures where specified.

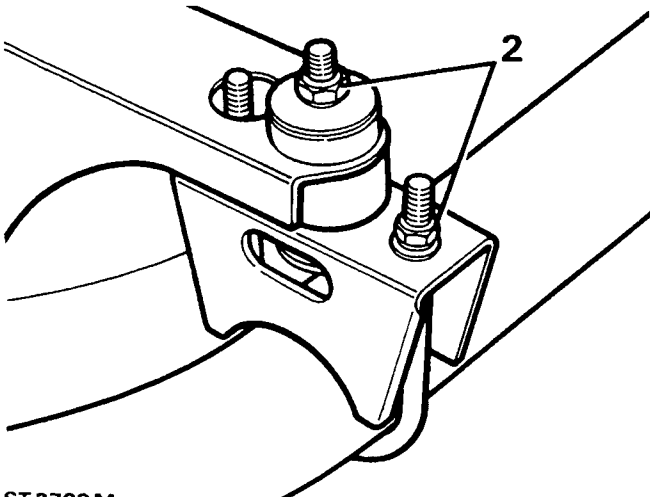
REAR PIPE AND SILENCER ASSEMBLY.

1. Remove the "U" bolt that clamps the rear pipe section to the front silencer and slacken the support bracket fixings.



ST2782M

2. Remove the "U" bolt and slacken the rear support bracket fixings.
3. Carefully ease the rear pipe assembly from the front silencer and remove from the vehicle.



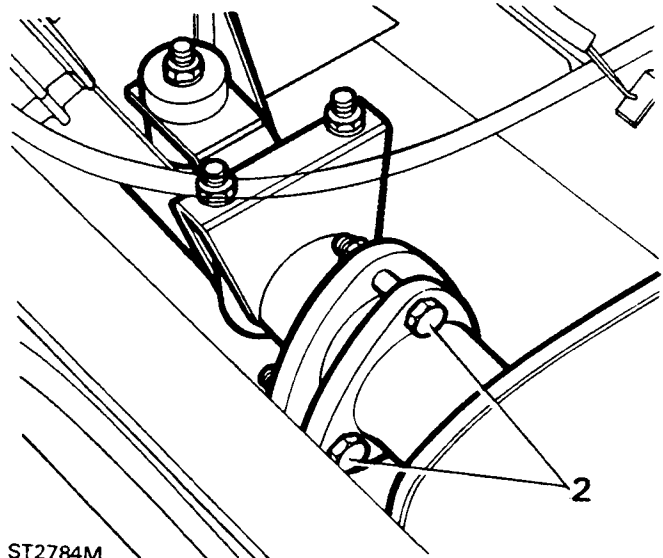
ST2783M

Fitting rear pipe assembly.

4. Smear Holts "Firegum" round the outside of the rear pipe and on the inside of the silencer pipe.
5. Fit the rear pipe assembly to the front silencer and loosely fit the "U" bolt to the pipe and rear support bracket.
6. Fit the "U" bolt that clamps the rear pipe to the front silencer.
7. Tighten all the fixings gradually to prevent strain and distortion.

FRONT SILENCER.

1. Remove the rear pipe and silencer assembly.
2. Remove the three flange bolts and nuts that connect the front silencer to the front pipe and remove the silencer and heat shield.



ST2784M

Fitting front silencer.

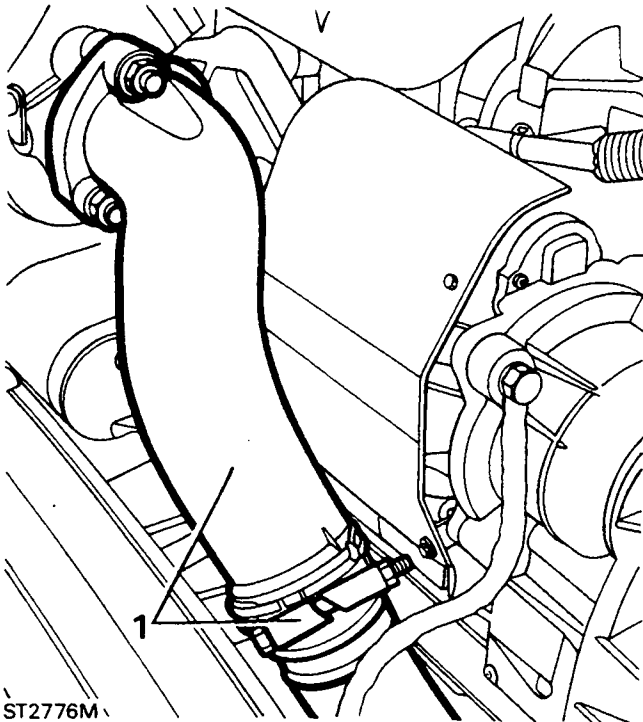
3. Assemble the front silencer to the front pipe with the olive and two bolts and nuts. Leave the nuts slack at this stage.
4. Smear Holts "Firegum" to the inside of the silencer pipe and the outside of the rear pipe.

5. Fit the rear pipe to the silencer and loosely secure with the "U" bolt to the rear support bracket.
6. Loosely fit the "U" bolt to the silencer and rear pipe joint and support bracket.
7. Without causing strain or distortion to the system tighten all the fixings gradually to the correct torque, where specified.

RENEWING DIESEL ENGINE EXHAUST SYSTEM

FRONT PIPE.

1. Release the clamp that secures the front pipe to the turbocharger elbow.



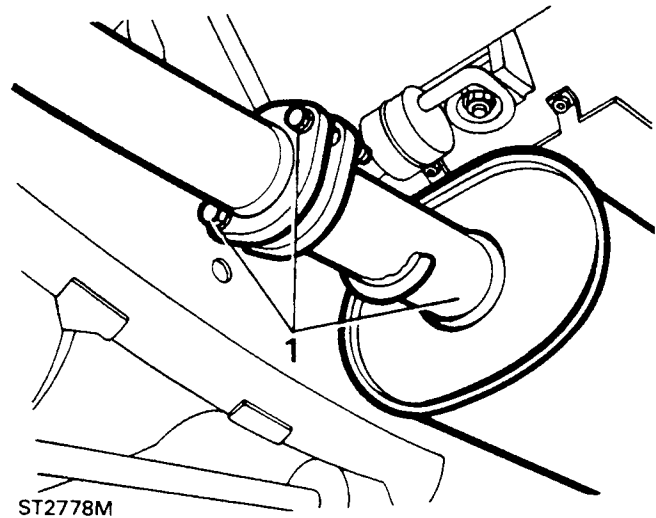
2. Remove the two flange bolts and nuts that connect the front pipe to the silencer.
3. Release the front silencer from the front support bracket.
4. If necessary, to prevent straining the system, release the silencer from the rear support bracket.
5. Separate the front pipe from the silencer and withdraw the front pipe from the elbow.

Fitting front pipe.

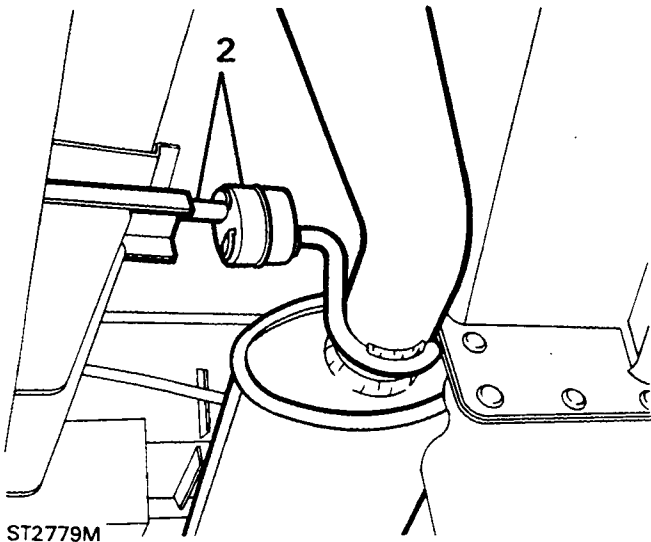
6. Apply Holts "Firegum" to the outside diameter of the elbow and to the inside of the front pipe.
7. Slide the clamp over the front pipe and fit the pipe to the elbow. Loosely secure the joint with the clamp.
8. Connect the front pipe to the silencer with the olive and loosely secure the joint with the two bolts and nuts.
9. Connect the silencer to the front and rear support brackets with new rubbers, if necessary.
10. Tighten all the fixings evenly to the specified torque.

REAR PIPE AND SILENCER

1. Remove the two flange bolts and nuts connecting the rear pipe section to the front silencer.



2. Release the rear pipe from the rear support bracket and remove the section from the vehicle.

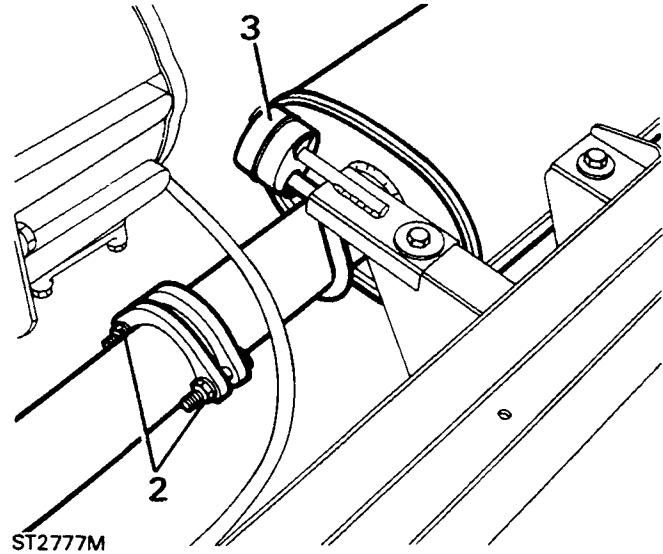


Fitting rear pipe and silencer.

3. Fit the rear pipe section to the rear support bracket with new rubbers, if necessary.
4. Connect the rear pipe to the front silencer with the olive and two flange bolts and nuts and tighten evenly.

FRONT SILENCER

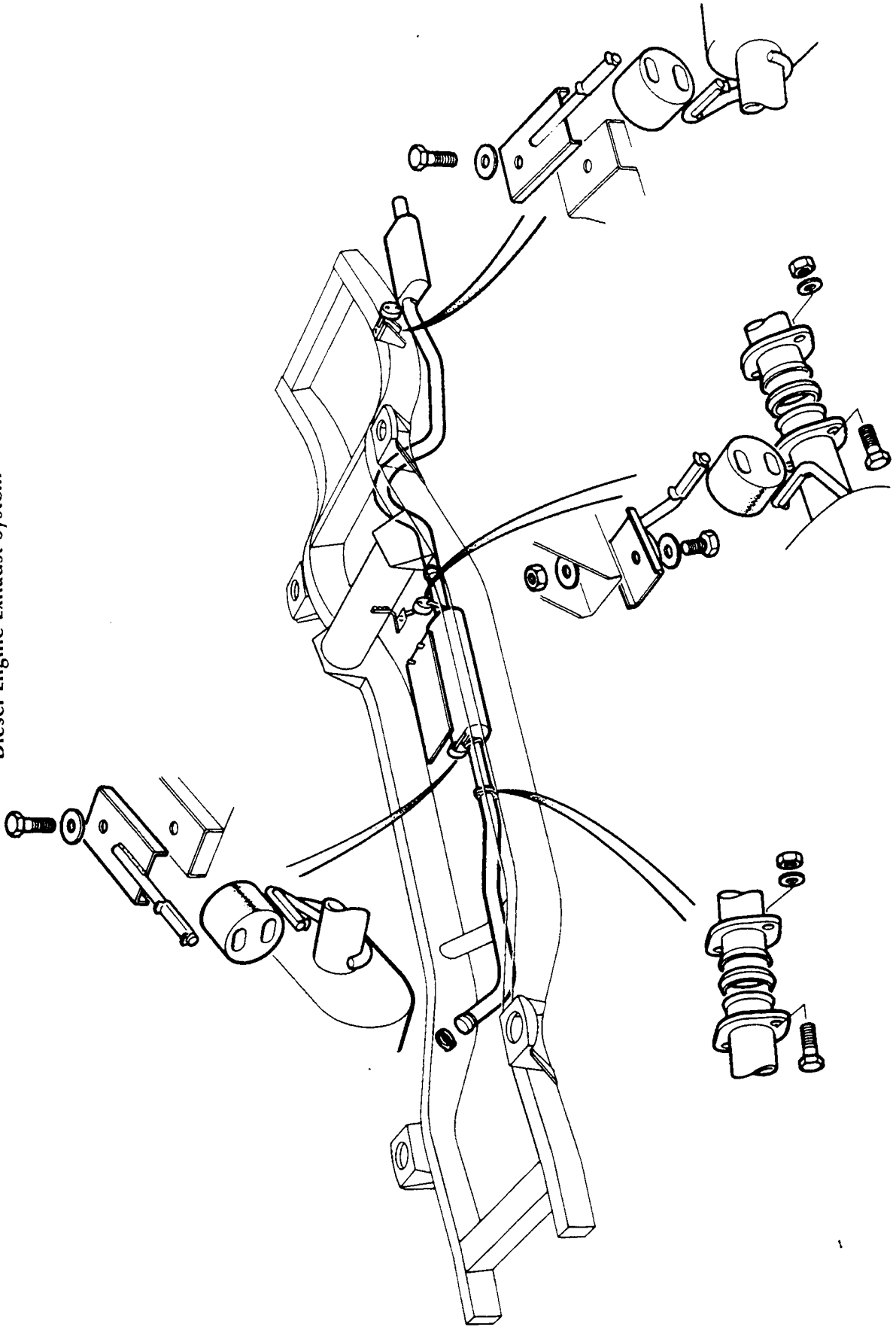
1. Remove the rear pipe and silencer section.
2. Remove the two flange nuts and bolts retaining the front pipe to the silencer.
3. Release the silencer from the front support bracket and withdraw it from the front pipe.



Fitting front silencer.

4. Loosely secure the silencer to the front pipe with the olive and two bolts and nuts.
5. Attach the silencer to the front support bracket and evenly tighten the two flange bolts.
6. Fit the rear pipe and silencer into position and attach to the rear support bracket.
7. Connect the rear pipe to the silencer with the olive and two bolts and evenly tighten the two nuts.

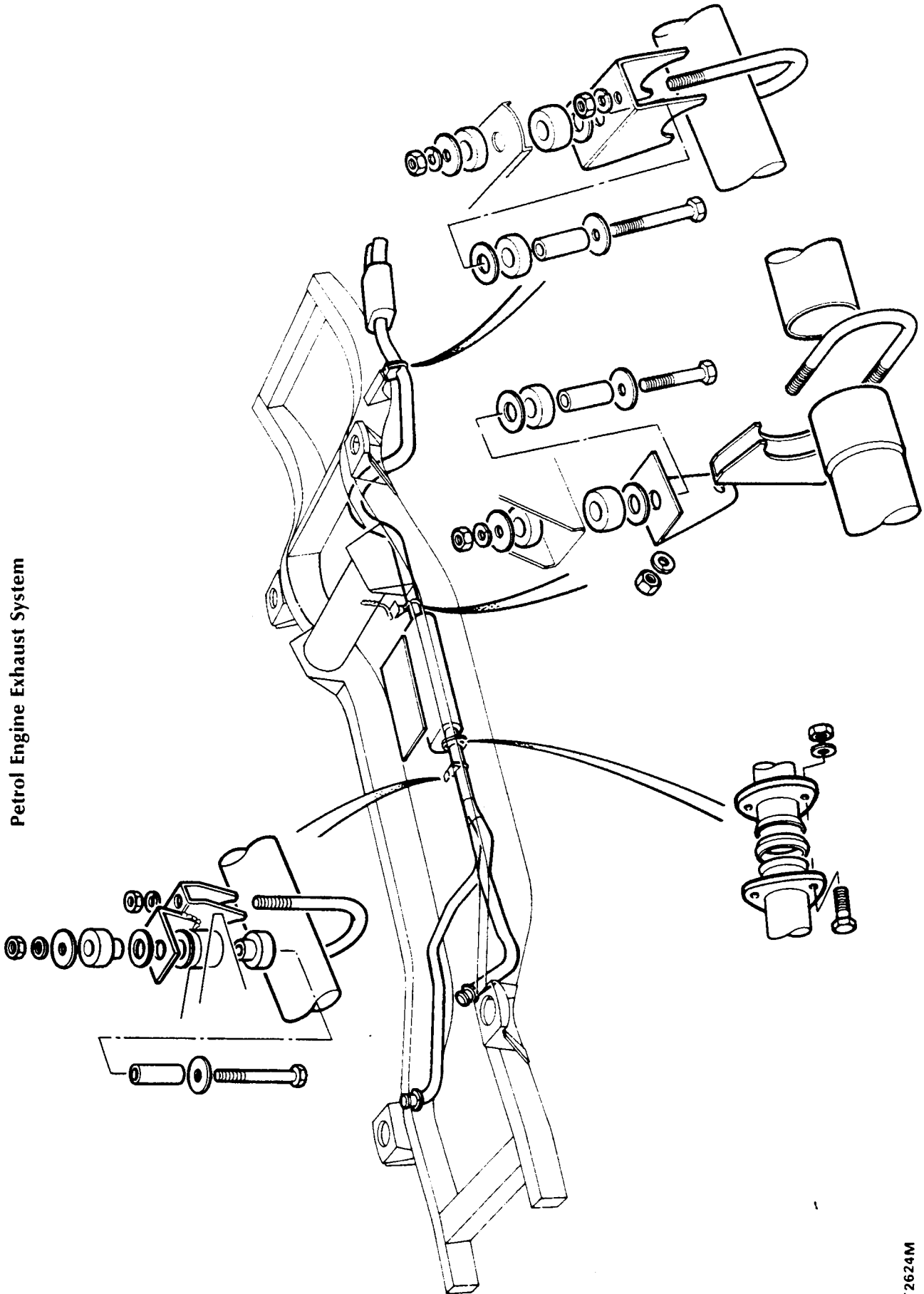
Diesel Engine Exhaust System



ADDITION: JANUARY 1990

ST2623M

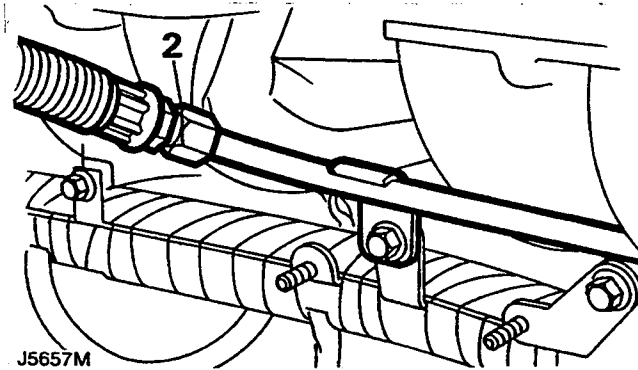
Petrol Engine Exhaust System



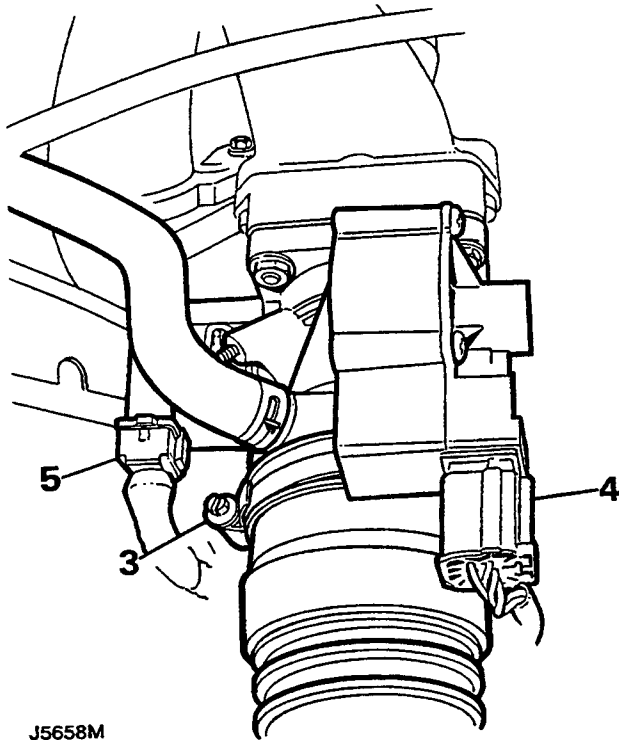
ST2624M

INLET MANIFOLD GASKET - Mpi**Remove**

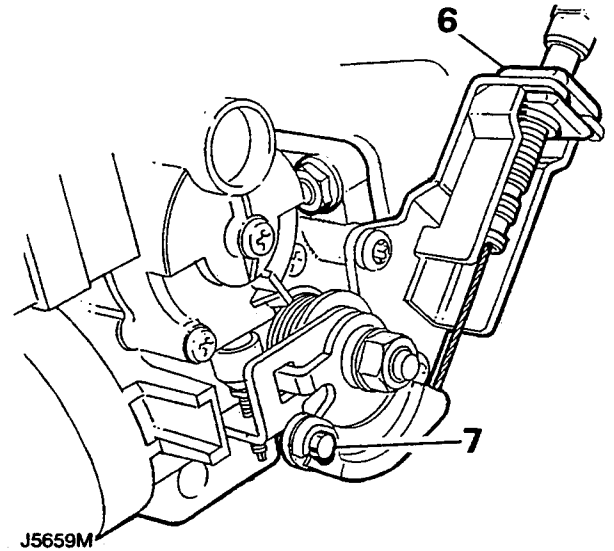
1. Disconnect the battery negative lead.
2. Position absorbent cloth around fuel pipe to fuel rail union. Unscrew union to relieve fuel pressure. Re-tighten bolt.

CAUTION: plug connections.

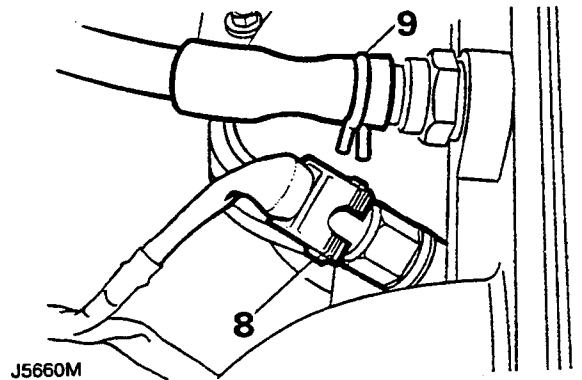
3. Release clip and remove air cleaner to throttle housing hose.
4. Disconnect stepper motor multiplug.
5. Disconnect throttle potentiometer multiplug.



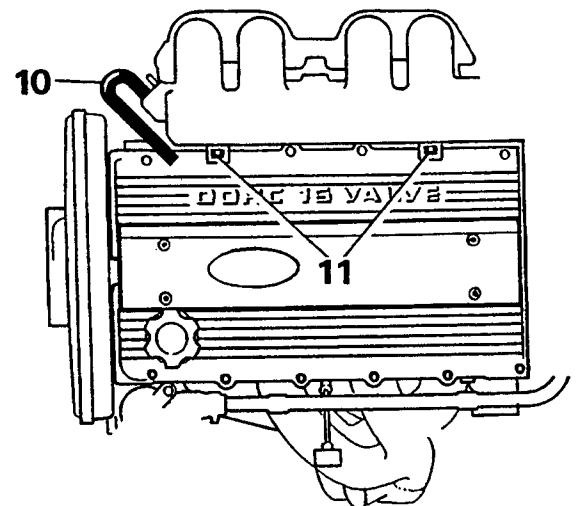
6. Release throttle cable from abutment bracket.
7. Release throttle cable from cam and place aside.



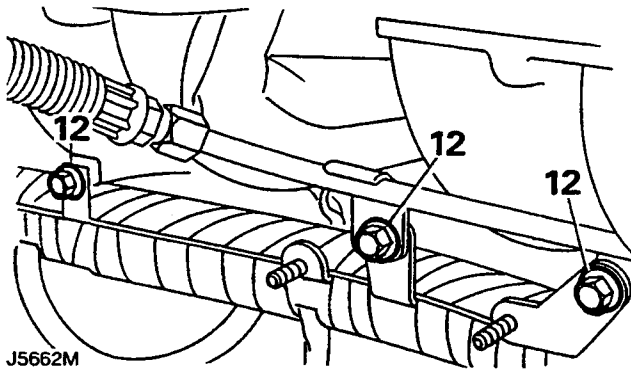
8. Disconnect fuel temperature sensor multiplug.
9. Release clip and disconnect brake servo hose from manifold.



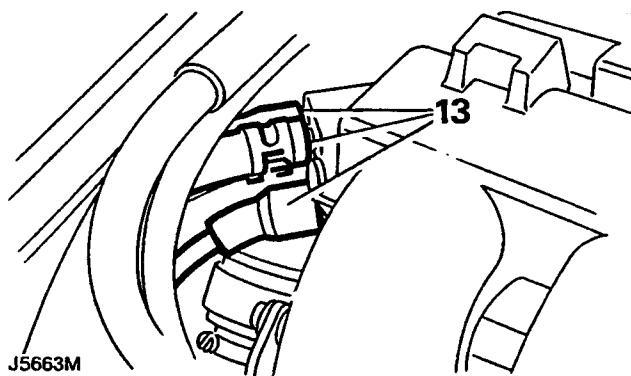
10. Release clip and disconnect breather hose from manifold.
11. Release 2 bolts securing cam cover brackets to manifold.



12. Remove 3 bolts securing engine harness to manifold.



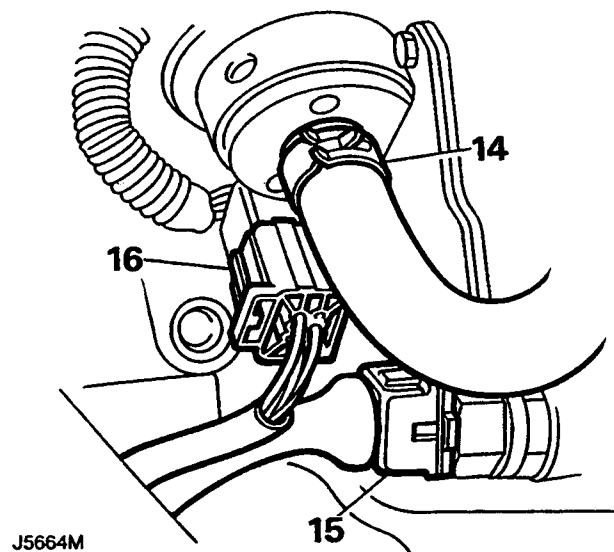
13. Disconnect 3 vacuum hoses from manifold.



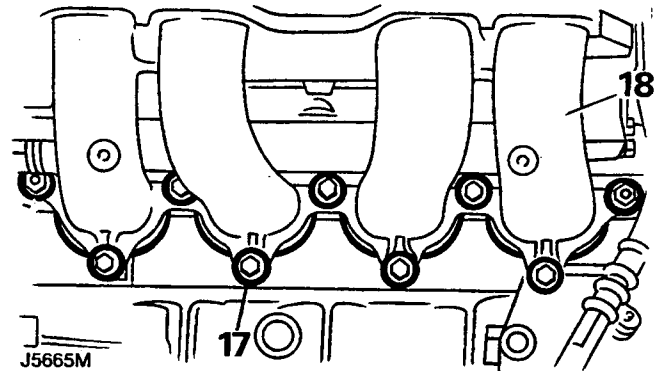
14. Release clip and disconnect fuel hose from pressure regulator.

CAUTION: Plug the connections.

15. Disconnect intake air temperature sensor multiplug.
16. Disconnect fuel injector harness multiplug.

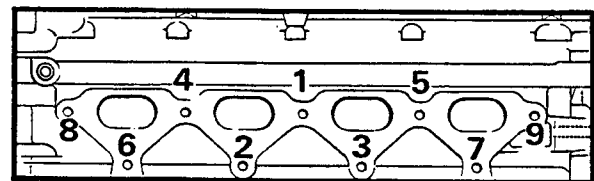


17. Remove 2 nuts and 7 bolts securing manifold to cylinder head
18. Remove manifold assembly and collect gaskets.



Refit

1. Ensure mating faces of inlet manifold and cylinder head are clean.
2. Fit a new gasket, position inlet manifold to cylinder head.
3. Fit nuts and bolts, tighten in the order shown to the correct torque.

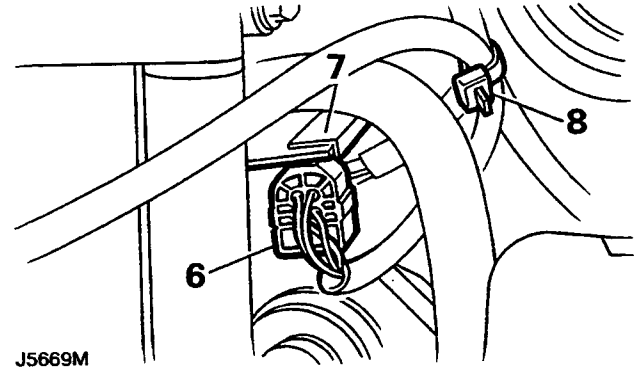


J5666M

4. Position engine breather hose to manifold and secure with bolts.
5. Connect fuel injector harness and intake air temperature sensor multiplug.
6. Connect fuel hose to pressure regulator and secure with clip.
7. Fit fuel pipe to fuel rail, tighten union to correct torque.
8. Connect vacuum hoses to manifold.
9. Position engine harness and cam cover brackets to manifold, secure with bolts.

10. Connect breather hose and brake servo hose to manifold, secure with clips.
11. Connect multiplug to fuel temperature sensor.
12. Connect breather hose to throttle housing and secure with clip.
13. Connect throttle cable to cam and secure to abutment bracket.
14. Connect stepper motor and throttle potentiometer multiplugs.
15. Connect air cleaner hose to throttle housing and secure with clip.
16. Connect battery earth lead.
17. Adjust throttle cable.

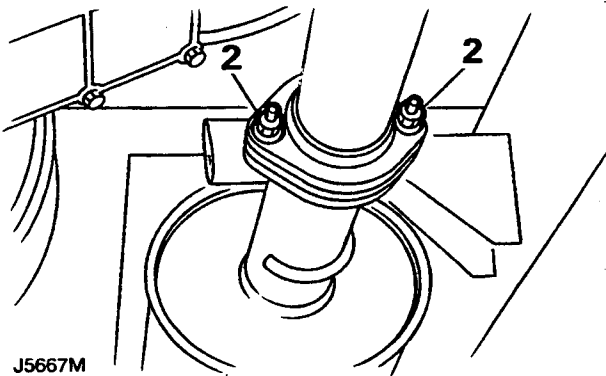
6. Disconnect oxygen sensor multiplug.
7. Release multiplug from bracket on thermostat housing.
8. Release harness from cable tie.



J5669M

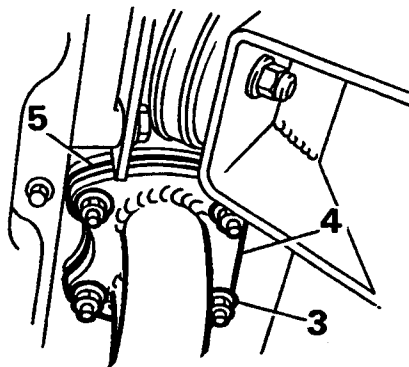
EXHAUST MANIFOLD GASKET - Mpi**Remove**

1. Raise vehicle.
2. Slacken 2 nuts securing downpipe to silencer box.



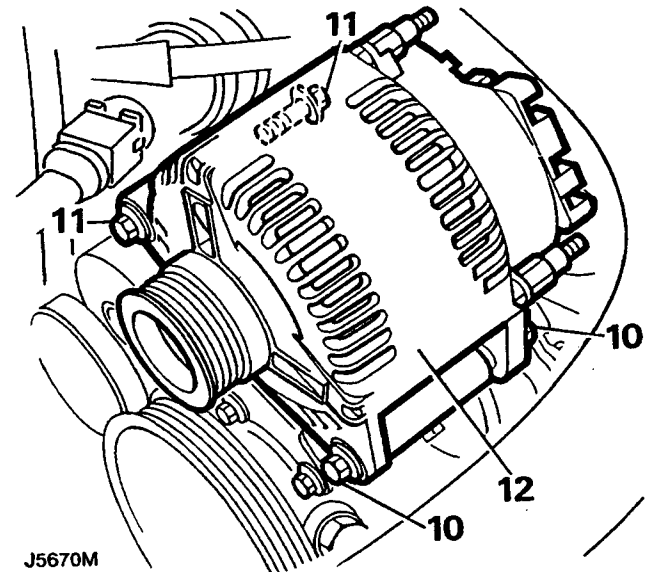
J5667M

3. Remove 4 nuts securing downpipe to exhaust manifold.
4. Release downpipe from exhaust manifold.
5. Discard gasket.



J5668M

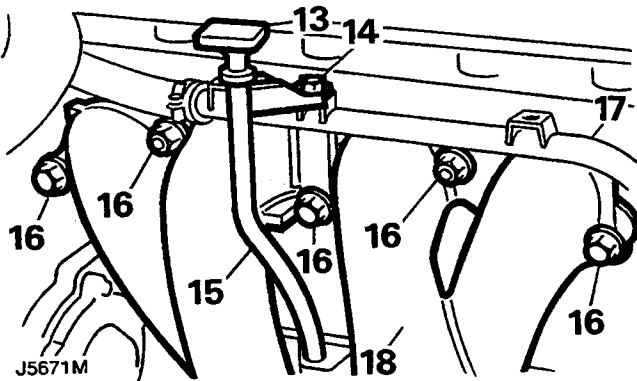
9. Remove drive belt, see Maintenance section 10.
10. Remove 2 front bolts securing alternator to mounting bracket.
11. Remove 2 rear bolts securing alternator to mounting bracket.
12. Move alternator from mounting bracket and place aside.



J5670M

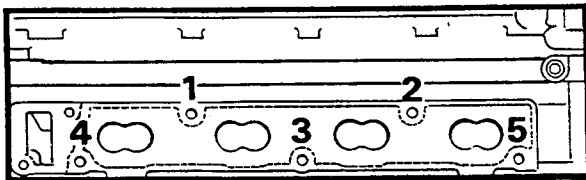
13. Remove dipstick.
14. Remove bolt securing dipstick to coolant rail.
15. Remove dipstick tube from cylinder block.

16. Remove 3 bolts and 2 nuts securing exhaust manifold to cylinder head.
17. Release coolant rail bracket from manifold studs.
18. Remove exhaust manifold and discard gasket.



Refit

1. Clean mating faces of exhaust manifold and cylinder head.
2. Fit new manifold gasket and align exhaust manifold to cylinder head.
3. Position coolant rail bracket to manifold studs.
4. Fit manifold nuts and bolts, tighten to the correct torque in the order shown.



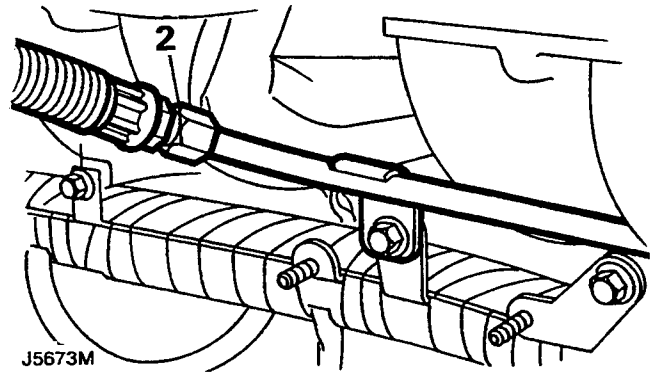
J5672M

5. Secure oxygen sensor multiplug to bracket.
6. Connect oxygen sensor multiplug.
7. Fit new manifold flange gasket and align exhaust front pipe to manifold.
8. Fit nuts and tighten diagonally to the correct torque.
9. Tighten exhaust downpipe to silencer box nuts to the correct torque.
10. Position alternator to mounting bracket.
11. Fit and tighten 4 alternator securing bolts.
12. Refit drive belt.

MANIFOLD CHAMBER GASKET - Mpi

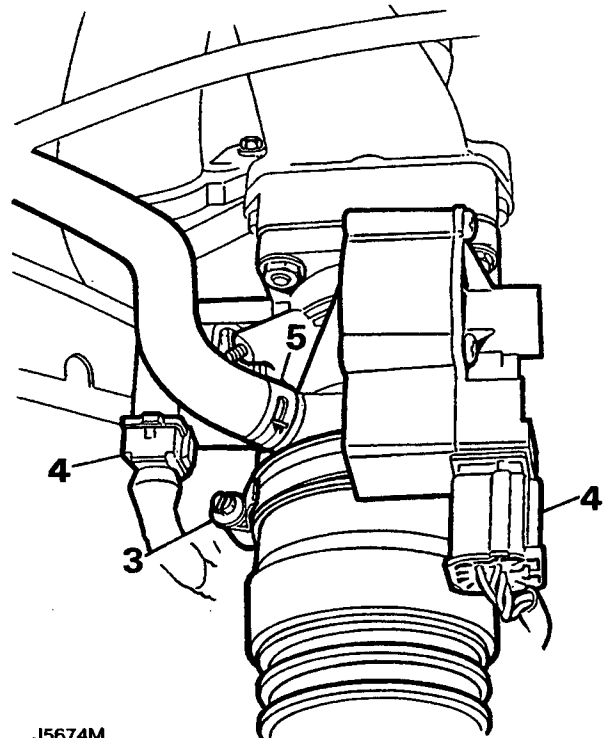
Remove

1. Disconnect the battery negative lead.
2. Position absorbent cloth around fuel pipe to fuel rail union. Slacken union to relieve pressure. Re-tighten union.



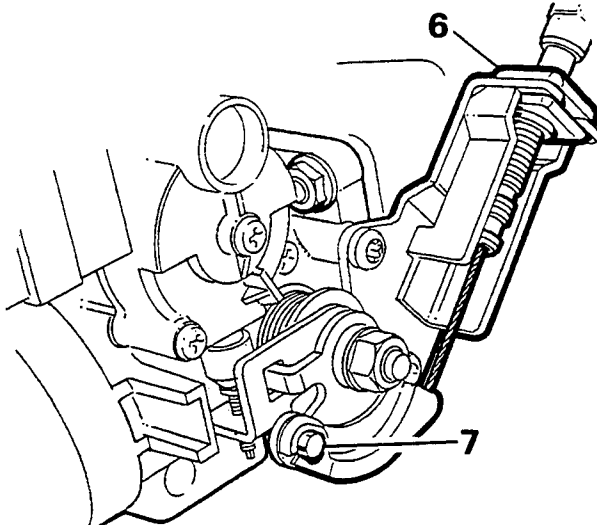
J5673M

3. Release clip and remove air cleaner to throttle housing hose.
4. Disconnect stepper motor and throttle potentiometer multiplugs.
5. Release clip and disconnect breather hose from throttle housing.



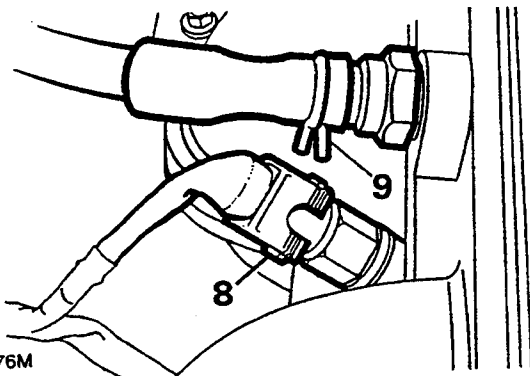
J5674M

6. Release throttle cable from abutment bracket.
7. Release throttle cable from cam and place aside.



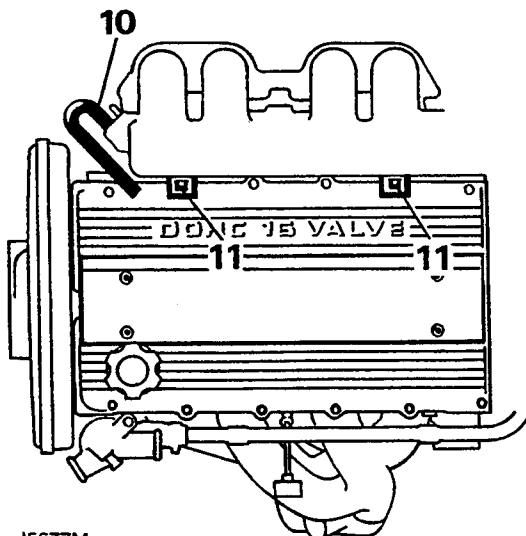
J5675M

8. Disconnect fuel temperature sensor multiplug.
9. Release clip and disconnect brake servo hose from manifold.



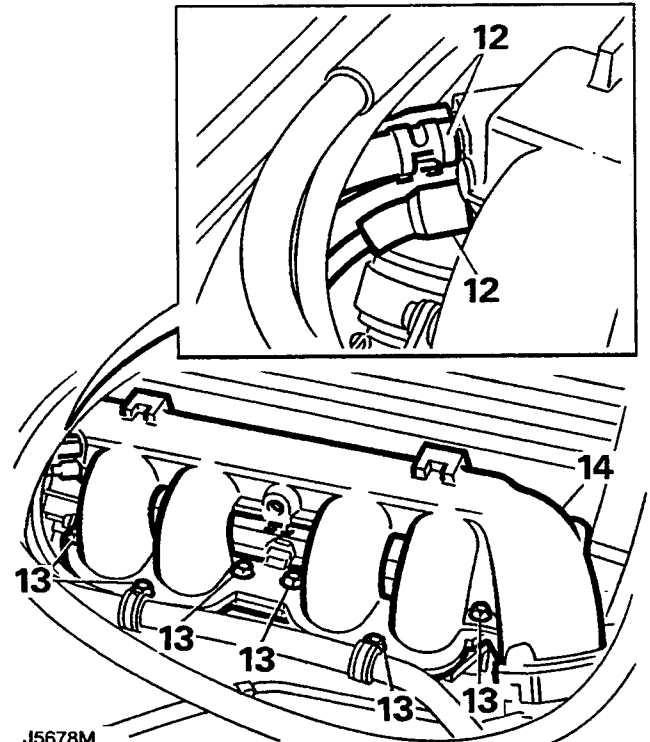
J5676M

10. Release clip and disconnect breather hose from manifold.
11. Release 2 bolts securing camshaft cover brackets to manifold.



J5677M

12. Disconnect 4 vacuum hoses from manifold.
13. Remove 6 bolts securing manifold chamber to lower manifold.
14. Remove manifold chamber and collect gaskets.



J5678M

Refit

1. Ensure mating faces of manifold chamber and lower manifold are clean.
2. Fit a new gasket, position manifold chamber to lower manifold.
3. Fit bolts, tighten to the correct torque.
4. Connect vacuum hoses to manifold.
5. Position camshaft cover brackets to manifold, secure with bolts.
6. Connect breather hose and brake servo hose to manifold, secure with clips.
7. Connect multiplug to fuel temperature sensor.
8. Connect breather hose to throttle housing and secure with clip.
9. Connect throttle cable to cam and secure to abutment bracket.
10. Connect stepper motor and throttle potentiometer multiplugs.
11. Connect air cleaner hose to throttle housing and secure with clip.
12. Connect battery earth lead.
13. Adjust throttle cable.