

(3) Examine the distributor and cap for cracks and signs of tracking. Examine the pick-up brush for wear and freedom of movement in its holder. Renew as necessary.

(4) Check the rotor for damage, electrode security, and burning or tracking. Renew as necessary.

(7) Secure the drive dog with the parallel pin (6).

(8) Refit the base and bearing plate assembly (5). Ensure the base plate is pressed against the register in the body of the distributor so that the chamfered edge engages the undercut.

REASSEMBLY

3. Reassemble the distributor as follows:

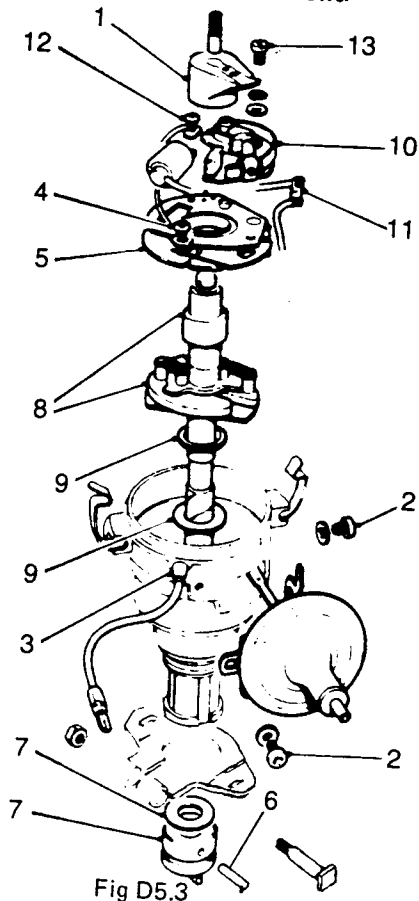


Fig D5.3

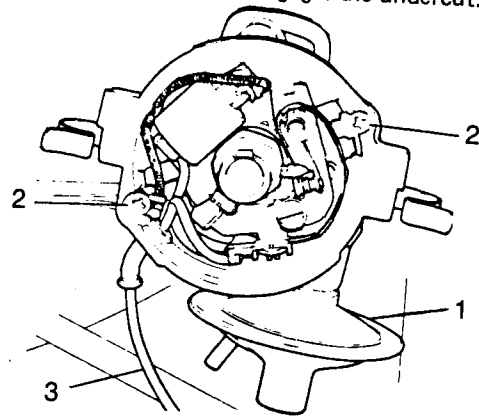


Fig D5.4

(9) Refer to Fig D5.4. Take up the slack in the low tension lead (3) by pulling it and the grommet through the body.

(10) Replace the vacuum unit (1), re-engaging the operating arm to the movable plate. Secure with the two retaining screws (2).

(11) Grease the outside of the contact breaker hollow pivot post and lightly smear the spindle cam, using Retinax 'A' grease.

(12) Replace the cam oiling pad and apply one or two drops of clean engine oil to it.

(13) Replace the rotor arm.

(14) Replace the moulded cover and secure with the clips (Fig D5.1,(1)).

(15) Replace the distributor (see Sub-section D4, Chapter 2).

(1) Refer to Fig D5.3. Replace the fixed contact assembly and secure with the screw (13), spring and plain washers.

(2) Refit the capacitor and earth lead tag. Secure with the fixing screw (12).

(3) Push the moving contact spring (10) towards the centre and clip in the low tension lead (11). Do not take up the slack at this stage.

(4) Refit the nylon spacer and steel washer (9) to the spindle.

(5) Replace the centre spindle complete with the automatic advance weights and springs (8). During reassembly grease the pivots of the weights and springs and the spindle bearing area with Rocol MP (Molypad).

(6) Replace the drive dog and thrust washer (7) with the raised pips on the washer facing the dog. If a new drive spindle is fitted, tap the drive end of the distributor dog to flatten the 'pips' on the dog washer and ensure the correct amount of end float.

SUB-SECTION D5

DISTRIBUTOR - OVERHAUL

DISMANTLING

1. To dismantle the distributor:

- (1) Remove the distributor (see Sub-section D4, Chapter 2).

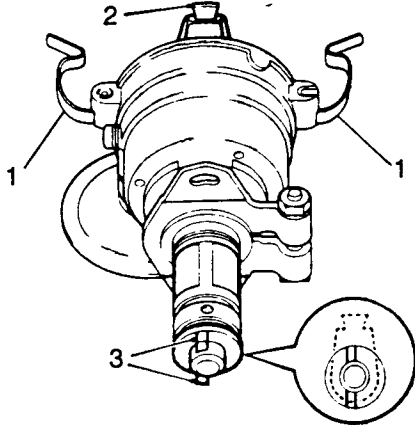


Fig D5.1

- (2) Refer to Fig D5.1. Spring back the clips (1) and remove the moulded cover (the dust cap).
- (3) Note the relative position of the offset drive dog (3) to the rotor arm lobe (2). The centre line of the drive dog is parallel with and offset to the centre line of the rotor arm.

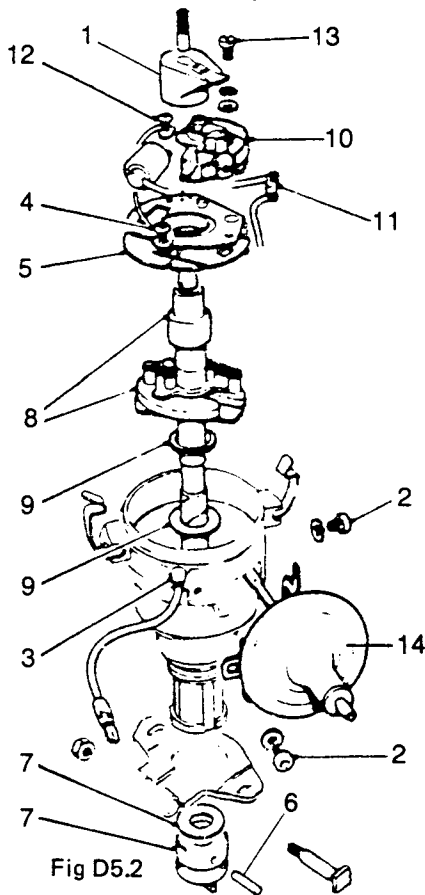


Fig D5.2

- (4) Refer to Fig D5.2. Remove the rotor arm (1).

- (5) Remove the cam oiling pad.

- (6) Remove the two screws (2) retaining the vacuum unit (14), noting that two prongs protrude downwards from the base plate and straddle one of the retaining screws. Disengage the operating arm from the movable plate and remove the assembly.

- (7) Push the grommet and low tension lead (3) through the body towards the inside of the housing.

- (8) Remove the base plate retaining screw (4).

- (9) Lever the base plate (5) from its retaining groove in the body.

- (10) Remove the base and bearing plate assembly (5).

- (11) Drive out the parallel pin (6) retaining the drive dog.

- (12) Remove the drive dog and thrust washer (7) noting that the raised pips on the washer face the drive dog.

- (13) Remove the centre spindle complete with the automatic advance weights and springs (8).

- (14) Remove the steel washer and nylon spacer from the spindle (9).

- (15) Push the moving contact spring (10) towards the centre of the distributor and unclip the low tension lead (11).

- (16) Remove the screw (12) retaining the earth lead tag and the capacitor.

- (17) Remove the screw (13) spring and plain washer retaining the fixed contact and remove the contact assembly.

INSPECTION

2. Inspect the distributor components:

- (1) Examine the fit of the drive spindle in its bush, and the spindle cam for wear. The automatic advance mechanism should not be dismantled other than to remove the control springs. If any of the moving parts are excessively worn or are damaged the complete spindle assembly must be renewed. If the spindle bearing is worn allowing excessive side play, the complete distributor must be replaced.

- (2) Check the spring between the fixed and movable plates. Operate the plate and examine for freedom of movement and excessive wear. Renew as an assembly.

SUB-SECTION D6

MAINTENANCE

INTRODUCTION

1. Ignition system maintenance should be confined to regular inspections and setting of the spark plugs and contact breaker gaps. Some lubrication of the distributor is also required.

DISTRIBUTOR CONTACT POINTS

2. Reset the points at first service (1 500 km) and thereafter every 10 000 km or 6 months. Replace every 20 000 km or 12 months.

3. Check and adjust the contact points clearance as follows:

- (1) Remove the distributor cap and rotor arm and then turn the engine until the contacts are fully open.
- (2) The clearance should be 0,35 to 0,40 mm with the feeler gauge a sliding fit between the contacts.
- (3) If necessary slacken the screw securing the adjustable contact, adjust by the adjuster slot until the clearance is correct and then retighten the retaining screw.

(4) Replace the rotor arm and distributor cap.

DISTRIBUTOR MAINTENANCE

4. At first service (1 500 km) and thereafter every 10 000 km or 6 months carry out the following:

- (1) Remove the distributor cap and rotor arm.



Fig D6.1

(2) Refer to Fig D6.1. Remove the lock screw (1), spring washer and washer.

(3) Lift out the Quikafit contact assembly.

(4) Disengage the contact spring from the insulation pad.

(5) Unclip the terminal plate from the contact spring.

(6) If the contact faces are pitted or cannot be cleaned to a satisfactory condition, renew them. (Ensure that new contact points are free of grease or oil).

(7) If the old contact points are reusable, clean with a fine carborundum stone and wipe with a petrol moistened cloth.

(8) Replace the contacts and adjust as detailed in para 3 above.

(9) Lightly smear the cam with clean engine oil.

(10) Add a few drops of thin machine oil to lubricate the cam bearing and distributor shaft.

(11) Add a few drops of thin machine oil through the side of the contact breaker base plate to lubricate the automatic timing control.

(12) Wipe the inside and outside of the cap with a soft dry cloth. Ensure that the small carbon brush works freely in its holder.

(13) Replace the rotor arm and distributor cap.

SPARK PLUGS

5. Check every 10 000 km or 6 months, replace every 20 000 km or 12 months.

(1) The sparking plugs are fitted with plastic covers.

(2) To gain access to the plugs for cleaning and gap-setting, pull off the plug covers without detaching them from the high tension leads.

(3) Check or replace the sparking plugs as applicable. If the plugs are in good condition, they should be cleaned, preferably using an approved spark plug cleaning machine.

(4) Test the plugs in accordance with the plug cleaning machine manufacturer's recommendations.

(5) If satisfactory set the electrode gap to 0,625 to 0,660 mm and replace.

(6) It is important that only the recommended sparking plugs, Champion N9Y, are used for replacements.

SECTION CONTENTS LIST

SECTION E

COOLING SYSTEM

SUB-SECTION	DESCRIPTION	PAGE
E1	DESCRIPTION AND SPECIFICATIONS	E1.1
E2	FAULT DIAGNOSIS AND CORRECTIVE ACTION	E2.1
E3	TESTING THE THERMOSTAT	E3.1
E4	REMOVAL AND REPLACEMENT PROCEDURES	E4.1
E5	MAINTENANCE	E5.1

SUB-SECTION CONTENTS LIST

SUB-SECTION E1

DESCRIPTION AND SPECIFICATIONS

CHAPTER	DESCRIPTION	PAGE
1	DESCRIPTION OF THE COOLING SYSTEM	E1.3
2	SPECIFICATIONS	E1.4

SUB-SECTION E1

CHAPTER 1

DESCRIPTION OF THE COOLING SYSTEM

1. The vehicle has a pressurised, 'no loss' cooling system comprising a radiator, fan, water pump and an expansion tank.
2. The natural thermo syphon action of the water is augmented by a belt-driven pump with centrifugal impeller which is mounted at the cylinder block end of the fan spindle. The impeller receives water from the bottom tank of the radiator and passes it through the cylinder block. From here it rises into the cylinder head and out to a thermostat valve in the top radiator hose. The valve prevents cold water passing to the top tank of the radiator before the engine warms up.
3. The water is recirculated through the engine until it is hot enough to open the thermostat valve, thus giving a quick warm up.
4. The hot water in the top tank of the radiator flows through the finned core where it is cooled. The passage of air past the core is assisted by the action of a fan.
5. A spring loaded valve in the radiator filler cap pressurises the system and so increases the temperature at which the water boils. The system is pressurised to 105 kPa. As the coolant temperature falls a vacuum is created and at 6,5 kPa a valve opens in the filler cap to allow water from the expansion tank to refill the radiator tank.

SUB-SECTION E1

CHAPTER 2

SPECIFICATIONS

INTRODUCTION

1. General data for the cooling system are given in Table E1.1. There are no torque specifications for the cooling system.

TABLE E1.1 - GENERAL DATA FOR THE COOLING SYSTEM

ITEM	DESCRIPTION
Type	Pressurised, impeller assisted sealed unit with expansion tank.
Expansion tank cap - blow-off pressure	105 kPa
Thermostat - type	Western Thompson
- crack open temperature	74° C
Water pump - type	Centrifugal with sealed bearings
Water pump/alternator belt - type	V-wedge
Fan - type	Viscous - 7 blade
- diameter	405 mm

SUB-SECTION E2

FAULT DIAGNOSIS AND CORRECTIVE ACTION

INTRODUCTION

1. This Sub-section deals with fault diagnosis and suggested action to cure a fault. Table E2.1 gives a list of symptoms, the probable cause and necessary remedial action. The Table is not exhaustive and faults may occur which are not listed. In this case the suspected components should be removed for closer inspection and/or overhaul.

TABLE E2.1 - COOLING SYSTEM FAULT DIAGNOSIS CHART

SYMPTON	POSSIBLE CAUSE	REMEDY
External leakage	Loose hose clips. Defective rubber hose. Damaged radiator seams. Excessive wear in the water pump. Loose core plugs. Damaged gaskets. Leaks at the heater connections or plugs. Leak at the water temperature gauge plug.	Tighten. Renew. Rectify. Renew. Renew. Renew. Rectify. Tighten.
Internal leakage	Defective cylinder head gasket. Cracked cylinder wall. Loose cylinder head bolts.	Renew. Check engine oil for contamination and refill as necessary. Renew cylinder block. Tighten. Check engine for oil contamination and refill as necessary.
Water loss	Boiling. Internal or external leakage. Restricted radiator or inoperative thermostat.	Ascertain the cause of engine overheating and correct as necessary. See above. Flush radiator or renew the thermostat as necessary.
Poor circulation	Restriction in system. Insufficient coolant. Inoperative water pump. Loose fan belt. Inoperative thermostat.	Check hoses for crimps, reverse flush the radiator, and clear the system of rust or sludge. Replenish. Renew. Adjust. Renew.
Corrosion	Excessive impurity in the water. Infrequent flushing and draining of system. Incorrect anti-freeze mixtures.	Use only soft, clean water together with correct anti-freeze or inhibitor mixture. The cooling system should be drained and flushed thoroughly at least once a year. Certain anti-freeze solutions have a corrosive effect on parts of the cooling system. Only recommended solutions should be used.
Overheating	Poor circulation. Dirty oil and sludge in engine. Radiator fins choked with chaff, mud, etc.	See above. Refill. Use air pressure from the engine side of the radiator and

	<p>Incorrect ignition timing. Insufficient coolant. Low oil level. Tight engine.</p> <p>Choked or damaged exhaust pipe or silencer. Dragging brakes. Overloading vehicle. Driving in heavy sand or mud. Engine labouring on gradients. Low gear work. Excessive engine idling. Inaccurate temperature gauge. Defective thermostat.</p>	<p>clean out passages thoroughly. Rectify. Replenish. Replenish. New engines are very tight during the 'running-in' period and moderate speeds should be maintained for the first 1,000 miles (1,500 km). Rectify or renew.</p> <p>Adjust brakes. In the hands of the operator. In the hands of the operator. In the hands of the operator. In the hands of the operator. In the hands of the operator. Renew. Renew.</p>
Overcooling	<p>Defective thermostat. Inaccurate temperature gauge.</p>	<p>Renew. Renew.</p>

SUB-SECTION E3

TESTING THE THERMOSTAT

1. To test the thermostat:
 - (1) Remove the thermostat (see Sub-section E4, Chapter 5).
 - (2) Suspend the thermostat in a suitable container of water ensuring that the thermostat is fully immersed and not touching the bottom or sides of the container.
 - (3) Heat the water.
 - (4) Using a reliable thermometer check the temperature at which the thermostat operates. It should begin to open at 74°C.
2. If the thermostat does not start to open or if the valve sticks in the fully open position, renew the thermostat.
3. Under no circumstances should any attempt be made to repair the thermostat.
4. It is unwise to operate a vehicle for any prolonged period without a thermostat fitted.

SUB-SECTION CONTENTS LIST

SUB-SECTION E4

REMOVAL AND REPLACEMENT PROCEDURES

CHAPTER	DESCRIPTION	PAGE
1	RADIATOR - REMOVAL AND REPLACEMENT	E4.3
2	FAN COWL - REMOVAL AND REPLACEMENT	E4.4
3	EXPANSION TANK - REMOVAL AND REPLACEMENT	E4.5
4	FAN BLADES - REMOVAL AND REPLACEMENT	E4.6
5	THERMOSTAT - REMOVAL AND REPLACEMENT	E4.7
6	WATER PUMP - REMOVAL AND REPLACEMENT	E4.8

SUB-SECTION E4

CHAPTER 1

RADIATOR - REMOVAL AND REPLACEMENT

REMOVAL

1. To remove the radiator:

WARNING

Do not remove the radiator filler cap while the system is hot unless the expansion tank cap has been removed first.

- (1) Remove the fan cowl (see Sub-section E4, Chapter 2).

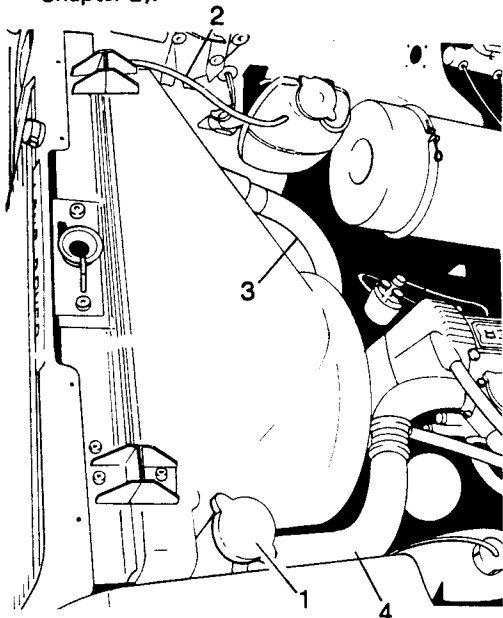


Fig E4.1

- (2) Refer to Fig E4.1. Remove the radiator filler cap (1).
- (3) Remove the lower radiator hose (3) and drain the radiator.
- (4) Disconnect the expansion tank hose (2).
- (5) Disconnect the top hose (4) from the radiator.
- (6) Lift the radiator clear of the bottom mountings.

REPLACEMENT

2. Replace the radiator as follows:

- (1) Fit the radiator into position on the bottom mountings.
- (2) Connect the top and bottom hoses to the radiator.
- (3) Reconnect the expansion tank hose and replace the expansion tank cap.
- (4) Replace the fan cowl (see Sub-section E4, Chapter 2).
- (5) Fill the radiator with the required solution of water and inhibitor and, if necessary, anti-freeze solution. Replace the filler cap.

SUB-SECTION E4

CHAPTER 2

FAN COWL - REMOVAL AND REPLACEMENT

REMOVAL

1. To remove the fan cowl:

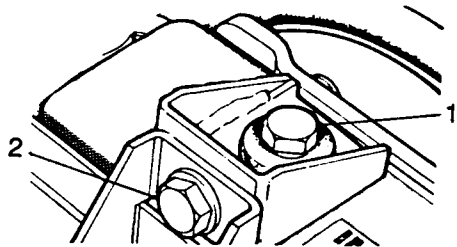


Fig E4.2

- (1) Refer to Fig E4.2. Remove the two bolts, nuts and washers (1) and (2) on each bracket. (The other bracket is at the other side of the radiator).
- (2) Lift the cowl upwards, keeping the lower part clear of the fan blades.

REPLACEMENT

2. Replace the cowl as follows:
 - (1) Lower the cowl into position.
 - (2) Fit and tighten the nuts, washers and bolts in the brackets. The top bolts (1) should only be tightened sufficiently to start compression of the rubber washer. Do not overtighten these bolts.

SUB-SECTION E4

CHAPTER 3

EXPANSION TANK - REMOVAL AND REPLACEMENT

REMOVAL

1. Remove the expansion tank as follows:

WARNING

Do not remove the expansion tank filler cap when the engine is hot because the cooling system is pressurised and personal scalding could result.

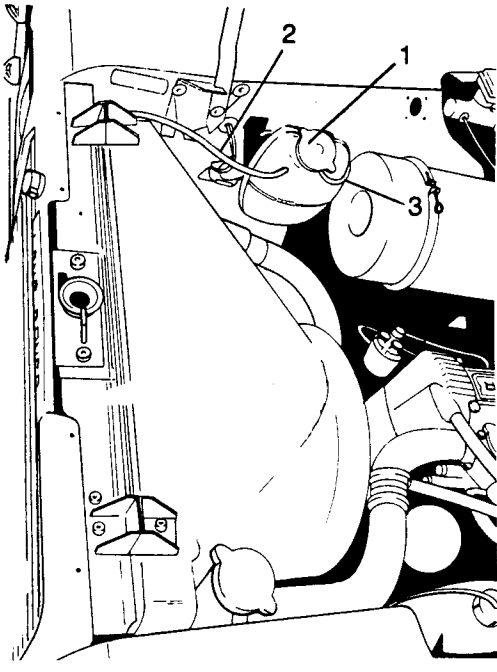


Fig E4.3

- (1) Refer to Fig E4.3. Remove the expansion tank filler cap (1) by first turning it counter clockwise a quarter of a turn to allow pressure to escape, then turning it further in the same direction to lift it off.

- (2) Disconnect the hose (2) from the radiator.

- (3) Disconnect the overflow pipe (3).

- (4) Remove the two bolts in the bracket over the tank and take off the bracket.

- (5) Remove the expansion tank.

REPLACEMENT

2. To replace the expansion tank:

- (1) Place the tank in position, fit the bracket and secure with the two bolts.

- (2) Reconnect the overflow pipe and the hose from the radiator.

- (3) Fill the tank with water to the level marked on the tank.

SUB-SECTION E4

CHAPTER 4

FAN BLADES - REMOVAL AND REPLACEMENT

REMOVAL

1. To remove the fan:

(1) Remove the fan cowl (see Sub-section E4, Chapter 2).

(3) Pull off the metal coupling and fan blades complete (2).

(4) To remove the fan blades remove the four bolts and nuts (3) and separate the blades from the metal coupling.

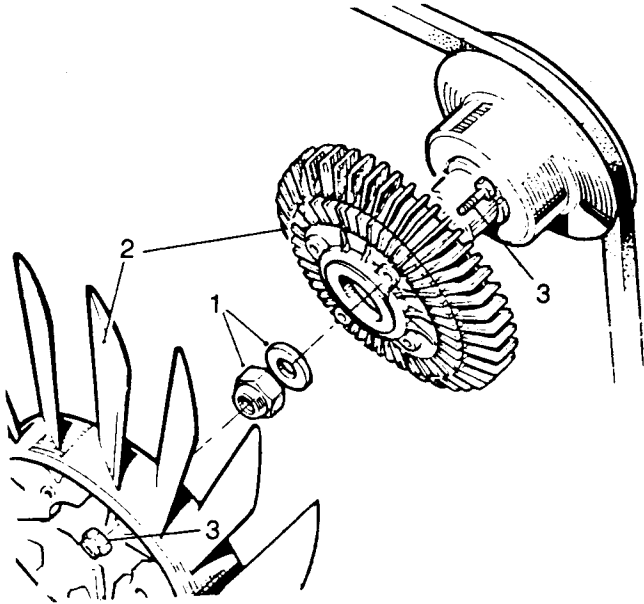


Fig E4.4

(2) Refer to Fig E4.4. Remove the water pump shaft centre nut and washer (1).

REPLACEMENT

2. Replace the fan blades as follows:

(1) Reassemble the fan blades to the metal coupling and secure with the four nuts and bolts.

(2) Fit the fan blade assembly onto the water pump shaft.

(3) Replace the washer and nut and tighten.

(4) Replace the fan cowl (see Sub-section E4, Chapter 2).

SUB-SECTION E4

CHAPTER 5

THERMOSTAT - REMOVAL AND REPLACEMENT

REMOVAL

1. To remove the thermostat:
 - (1) Drain the cooling system.
 - (2) Disconnect the top radiator hose.
 - (3) Disconnect the water outlet elbow.
 - (4) Remove the joint gasket and lift out the thermostat.
 - (5) Test the thermostat to the procedure given in Sub-section E3 if required.

REPLACEMENT

2. To replace the thermostat:
 - (1) Fit the thermostat into position with the side marked 'Top' uppermost.
 - (2) Reconnect the water outlet elbow, using a new gasket.
 - (3) Refit the top radiator hose.
 - (4) Fill the cooling system with the correct water and inhibitor solution and add anti-freeze if required.

SUB-SECTION E4

CHAPTER 6

WATER PUMP - REMOVAL AND REPLACEMENT

NOTE

The water pump can not be repaired. If it is faulty it must be replaced.

REMOVAL

1. To remove the water pump:
 - (1) Remove the fan blades (see Sub-section E4, Chapter 4).
 - (2) Slacken the alternator pivot bolts and adjusting link nut.
 - (3) Remove the fan belt and water pump pulley.
 - (4) Remove the bypass and heater hoses.
 - (5) Remove the three bolts securing the pump to the cylinder block and withdraw the pump.

REPLACEMENT

2. Replace the pump as follows:
 - (1) Fit the pump with a new sealing gasket to the cylinder block and secure with three bolts and lock washers.
 - (2) Refit the bypass and heater hoses.
 - (3) Replace the fan belt and water pump pulley.
 - (4) Adjust the alternator drive belt (see Sub-section O4).
 - (5) Replace the fan blades (see Sub-section E4, Chapter 4).

SUB-SECTION E5

MAINTENANCE

INTRODUCTION

1. Other than checking the water level in the radiator and expansion tank regularly, the only maintenance required is checking the hoses (including the heater hoses) for damage and chafing. Any leaks found must be repaired immediately.

CHECKING WATER LEVEL

2. To check the water level:

- (1) If the engine is hot, turn the filler cap counterclockwise to the first stop and allow the pressure to escape.
- (2) Press the filler cap down and turn further counterclockwise until the cap can be lifted off.
- (3) Check that the water is:
 - i. Just below or level with the bottom of the filler neck (engine hot).
 - ii. Between 12 and 19 mm below the bottom of the filler neck (engine cold).
- (4) When the engine is cold, remove the cap on the expansion tank and check that there is about 50 mm of water in the tank. If not, fill to this level.
- (5) Replace both caps. It is important that they are fully tightened down, not just to the first stop.

CAUTION

Failure to tighten the filler cap properly may result in water loss with possible damage to the engine through overheating.

DRAINING AND REFILLING THE COOLING SYSTEM

3. To drain the system completely:

- (1) Remove the filler cap.

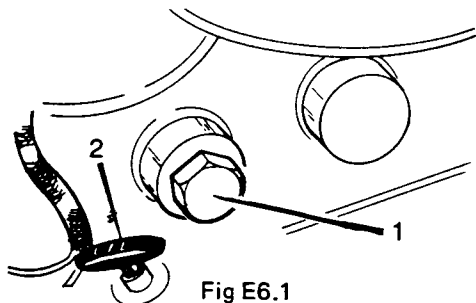


Fig E6.1

- (2) Refer to Fig E6.1. Open the cylinder block drain plug (1) (close to the dipstick (2)).

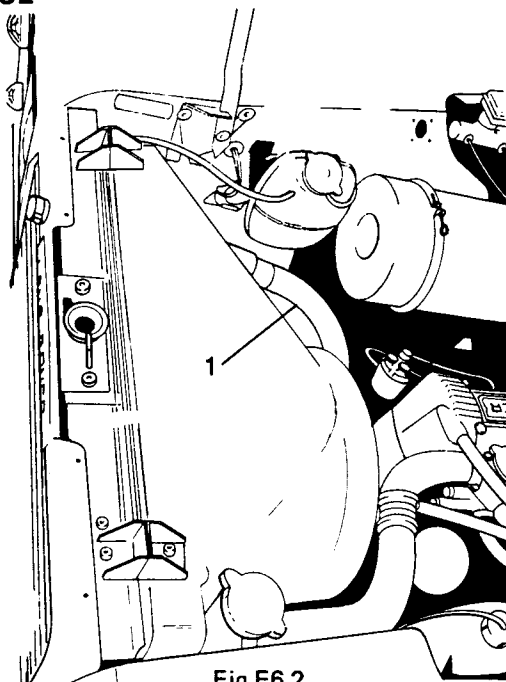


Fig E6.2

- (3) Refer to Fig E6.2. Remove the lower radiator hose (1) at the radiator.
- (4) Allow all water to drain from the system.
- (5) Refit and tighten the drain plug ((1) on Fig E6.1). Refit the lower radiator hose ((1) on Fig E6.2).
- (6) Refill the radiator with the correct water and inhibitor solution, add antifreeze if required and replace the filler cap.
- (7) Run the engine for a few minutes, then switch off and check the water level. Top up if necessary to 12 to 19 mm below the filler neck.

ADDING ANTIFREEZE SOLUTION

4. When the ambient temperature is expected to fall below 0°C add antifreeze solution in the ratio one part antifreeze to three parts water. For this engine, the quantities will be 2ℓ antifreeze to 6ℓ water.
5. To add antifreeze:
 - (1) Drain the system (para 3).
 - (2) Fill the radiator with 4,5ℓ of clean, soft water.
 - (3) Add the antifreeze solution.
 - (4) Top up the radiator with water to 12 to 19 mm below the filler neck.
 - (5) Run the engine for a few minutes to ensure good circulation and then switch off.
 - (6) Check the water level and if necessary top up.

SECTION CONTENTS LIST

SECTION F

EXHAUST SYSTEM

SUB-SECTION	DESCRIPTION	PAGE
F1	DESCRIPTION OF THE EXHAUST SYSTEM	F1.1
F2	FAULT DIAGNOSIS AND CORRECTIVE ACTION	F2.1
F3	REMOVAL AND REPLACEMENT PROCEDURES	F3.1
F4	MAINTENANCE	F4.1

SUB-SECTION F1

DESCRIPTION OF THE EXHAUST SYSTEM

1. The exhaust system is designed to minimise the noise emitted from the exhaust manifolds and to provide optimum back pressure while carrying exhaust fumes clear of the driver's cab.
2. Two downpipes are used. They run into a single exhaust pipe carrying the gasses to the series connected silencer and expansion box and thence to the tail pipe. The front downpipe can be detached from the pipe junction.
3. The exhaust system is precisely designed; leaks or broken baffles in the silencer tend to reduce engine efficiency and also lead to a high fuel consumption.

SUB-SECTION F2

FAULT DIAGNOSIS AND CORRECTIVE ACTION

INTRODUCTION

1. This Sub-section covers exhaust system faults.

Table F2.1 gives a list of symptoms, the possible causes of the fault and the suggested remedial action. The table is not exhaustive and faults may occur which are not listed. Should such a fault be found the suspected components should be removed for a closer inspection.

TABLE F2.1 - EXHAUST SYSTEM FAULT DIAGNOSIS CHART

SYMPTOM	POSSIBLE CAUSE	REMEDY
Leaking exhaust gas	Exhaust couplings misaligned. Holes in exhaust system.	Realign couplings. Replace damaged components.
Engine overheating	Silencer or expansion box blocked. Tail pipe blocked (flattened).	Repair or replace component. Remove blockage or replace tail pipe.
Engine lacks power or stalls	Silencer or expansion box blocked. Tail pipe blocked.	Repair or replace component. Remove blockage or replace tail pipe.

SUB-SECTION CONTENTS LIST

SUB-SECTION F3

REMOVAL AND REPLACEMENT PROCEDURES

CHAPTER	DESCRIPTION	PAGE
1	MANIFOLDS - REMOVAL AND REPLACEMENT	F3.3
2	EXHAUST SYSTEM - REMOVAL AND REPLACEMENT	F3.5

SUB-SECTION F3

CHAPTER 1

MANIFOLDS - REMOVAL AND REPLACEMENT

REMOVAL

1. To remove the manifolds:

(1) Disconnect the battery.

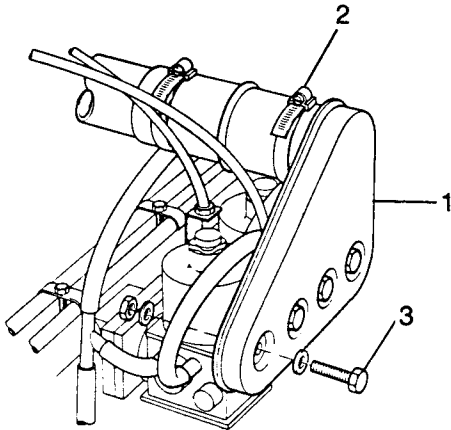


Fig F3.1

(2) Refer to Fig F3.1. Remove the air intake box (1) by disconnecting the air inlet hose (2) and removing the four bolts (3) holding the box to the carburettors. (The bolts have loose nuts and washers behind the box).

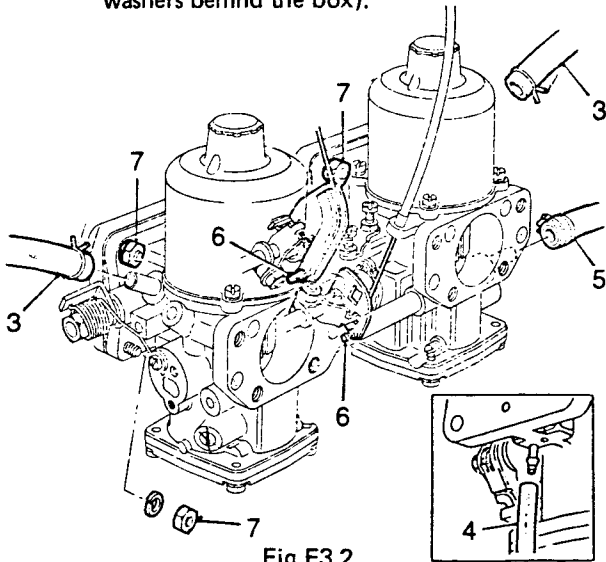


Fig F3.2

(3) Refer to Fig F3.2. Disconnect the engine purge hoses (3) from the carburettors.

(4) Disconnect the ignition vacuum advance pipe (4) from the rear carburettor.

(5) Disconnect the fuel feed pipe (5) to the rear carburettor.

(6) Release the throttle and choke cables (6).

(7) Remove the eight nuts and spring washers (7) to release the carburettors.

(8) Remove the carburettors together with the throttle cable abutment bracket distance plate for the front carburettor, distance pieces and gaskets, keeping the carburettors together so as not to disturb the interconnecting links.

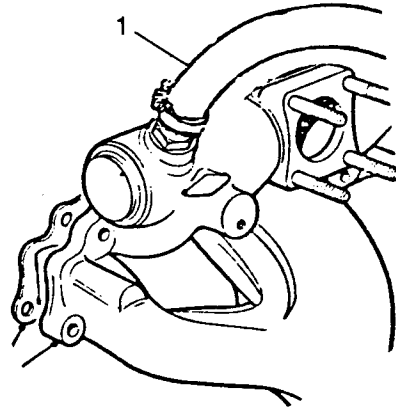


Fig F3.3

(9) Refer to Fig F3.3. Disconnect the brake servo hose (1) from the adapter on the inlet manifold.

(10) Remove the two set bolts to release the heat shield from the exhaust manifold.

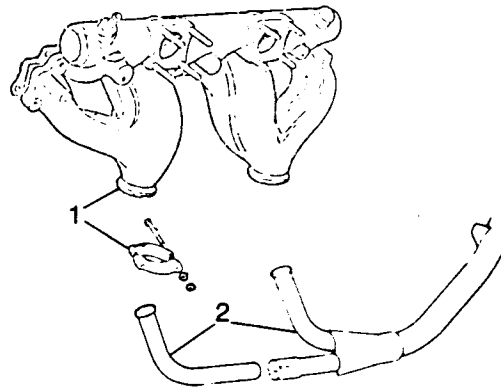


Fig F3.4

(11) Refer to Fig F3.4. Remove the two clamps (1) to release the exhaust downpipes (2) from the exhaust manifold.

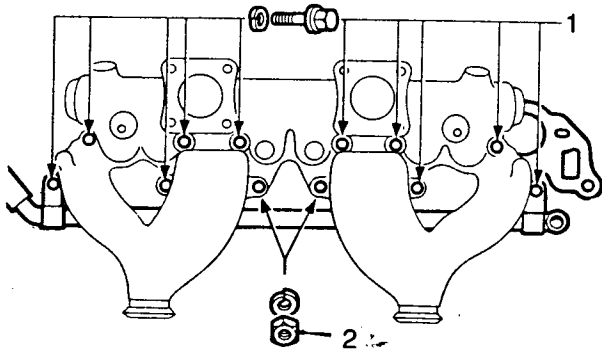


Fig F3.5

(12) Refer to Fig F3.5. Remove the ten set bolts (1) and the two nuts (2) securing the exhaust manifold to the cylinder head.

(13) Remove the manifold and gaskets.

REPLACEMENT

2. Replace the manifold as follows:

(1) Using a new gasket fit the manifold into position and secure with the ten set bolts and two nuts (Fig F3.5). Torque to 20 N.m.

(2) Replace the exhaust downpipes and secure with the two clamps (Fig F3.4).

(3) Replace the heat shield and the two set bolts.

(4) Replace the brake servo hose onto the adaptor on the inlet manifold (Fig F3.3).

(5) Fig F3.2 still applies. Using new gaskets replace the carburetors and fit the eight nuts and spring washers (7) to the studs.

(6) Refit the throttle and choke cables (6).

(7) Reconnect the fuel feed pipe to the rear carburettor (5).

(8) Reconnect the ignition vacuum advance pipe (4) and the engine purge hoses (3).

(9) Replace the air intake box and air inlet hose (Fig F3.1).

(10) Reconnect the battery.

SUB-SECTION F3

CHAPTER 2

EXHAUST SYSTEM - REMOVAL AND REPLACEMENT

REMOVAL

1. To remove the exhaust system:

(1) Disconnect the battery.

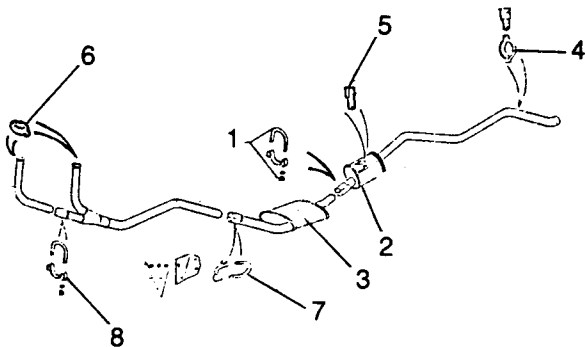


Fig F3.6

(2) Refer to Fig F3.6. Remove the U-bolt, spring washers and nuts (1) securing the rear silencer assembly (2) to the intermediate silencer (3).

(3) Remove the tail pipe support bracket (4).

(4) Disconnect the securing strap (5) and remove the rear silencer and tail pipe.

(5) Support the remainder of the exhaust system.

(6) Remove the clamps (6) to release both downpipes from the exhaust manifold.

(7) Remove the U-bolt (7) securing the downpipe to the mounting bracket.

(8) Remove the intermediate silencer and downpipes.

(9) Undo the nuts, remove the U-bolt (8) holding the front downpipe to the intermediate pipe and separate the pipes.

REPLACEMENT

2. Replace the exhaust system as follows:

(1) Fit the front downpipe to the intermediate pipe but do not tighten the U-bolt (8) at this stage.

(2) Fit the downpipes into position and lightly secure with the clamps (6).

(3) Fit the intermediate silencer and lightly clamp into position with the U-bolt (7).

(4) Place the rear silencer and tail pipe in position and lightly secure with the securing strap (5) and support bracket (4).

(5) Fit the U-bolt, spring washers and nuts (1) to the junction of the rear and intermediate silencers. Tighten finger tight.

(6) Starting from the manifold clamps progressively tighten all nuts and bolts while ensuring that there is no strain on any of the components.

(7) Finally, torque all nuts and bolts to 15 to 18 N.m.

SUB-SECTION F4

MAINTENANCE

1. Regular examinations should be made of the complete exhaust system to ensure that it is intact and that components are not breaking loose. Any fault which allows leakage of exhaust gases, especially into the cab, can be dangerous.
2. Misalignment of components should be rectified immediately. Components with holes in them should be replaced while noisy exhausts should be investigated and the faulty component repaired or replaced without delay.

SECTION CONTENTS LIST

SECTION G

AIR CLEANING SYSTEM

SUB-SECTION	DESCRIPTION	PAGE
G1	DESCRIPTION OF THE AIR CLEANER SYSTEM	G1.1
G2	AIR CLEANER - REMOVAL AND REPLACEMENT	G2.1
G3	MAINTENANCE	G3.1

SUB-SECTION G1

DESCRIPTION OF THE CLEANER SYSTEM

INTRODUCTION

1. The air cleaner system is an important part of the engine since a correctly operating system supplies purified air to the combustion chambers. It is essential that the filter element is in good condition and not blocked and that there are no air leaks in the system. Air leaks will result in impure air being drawn into the cylinders and can cause excessive wear to moving parts. A blocked system will starve the cylinders of air and result in poor performance, difficult starting or even stop the engine.

ARRANGEMENT

2. The air intake assembly consists of a Donaldson Cyclopac filter feeding the carburettors through a feed pipe and an intake box. The filter is secured to the right hand wing valance by two straps and is fitted with an indicator which shows red when element efficiency is impaired.
3. A dust cap, fitted to the end of the filter accumulates dust drawn into the air intake system and is designed for easy removal and cleaning.

SUB-SECTION G2

AIR CLEANER - REMOVAL AND REPLACEMENT

REMOVAL

1. To remove the air cleaner:

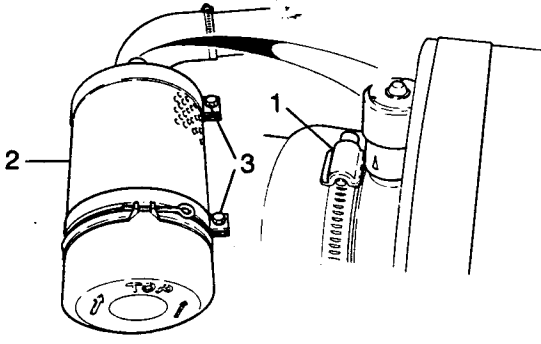


Fig G2.1

- (1) Refer to Fig G2.1. Release the hose clamp (1) and pull the flexible pipe away from the air cleaner (2).
- (2) Remove the two nuts and bolts (3) in the retaining straps, separate the straps and lift the air cleaner out.

REPLACEMENT

2. Replace the air cleaner as follows:
 - (1) Fit the air cleaner into the retaining straps with the dust cup to the front of the engine.
 - (2) Replace the two nuts and bolts into the straps and tighten.
 - (3) Fit the flexible hose over the end of the cleaner and tighten the hose clamp.

SUB-SECTION G3

MAINTENANCE

INTRODUCTION

1. The air filter is a single element, dry type, fitted with a dust cup. Frequent inspections of the dust cup should be made, especially when operating in dusty off-road conditions. Under such conditions inspection of the dust cup may be necessary as often as once daily.
2. The filter element is so designed that little or no routine maintenance is required. The indicator shows red when the efficiency of the element is impaired and at this stage, or every two years, whichever is the shorter period, the element should be changed.
3. It is essential that the ducting between the filter and the engine has no cracks and all flange joints and clamps are tight. A regular inspection of the ducting should be made to check these points.

DUST CUP CLEANING

4. To remove and clean the dust cup:

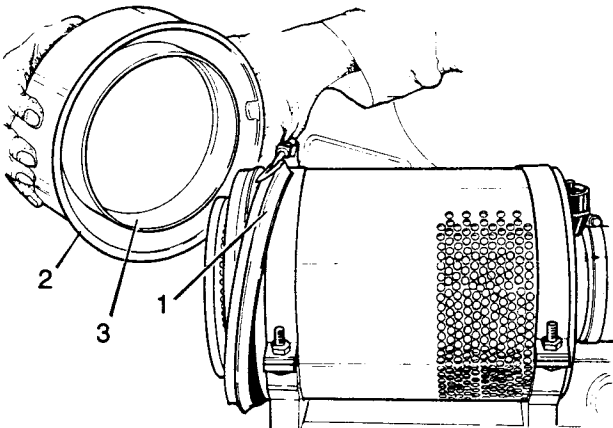


Fig G3.1

- (1) Refer to Fig G3.1. Unscrew the bolt in the dust cup clamp (1) and take off the dust cup (2).
- (2) Lift out the baffle (3) inside the dust cup.
- (3) Empty the dust from the cup and wipe the cup and baffle clean with a dry cloth.
- (4) Fit the baffle into the dust cup.
- (5) Replace the dust cup with the arrows pointing upwards and secure with the clamp.

ELEMENT REPLACEMENT

CAUTIONS

1. Do not open any part of the air filter system with the engine running.
2. Always ensure that gaskets and seals in the filtration system are in prime condition before fitting/refitting.

3. Do not open any part of the air filter system when the ambient air is dusty or gritty.
 4. Preferably only open the air filter system in a dust free workshop.
 5. Renew air hoses every two years.
 6. Do not change or clean the element unnecessarily. Only service if the indicator shows red.
5. If carefully carried out, the element may be cleaned up to six times before renewing. However, it is recommended that rather than clean a used element, a fresh element is fitted once every two years (or earlier if the indicator shows red). If circumstances are such that the old element must be reused the precautions given in the cautionary notes below must be strictly adhered to.

CAUTIONS

1. Do not remove dust by knocking the element with or against anything.
 2. Take care that the element is not accidentally damaged.
 3. A dented or damaged element must be discarded and not reused.
 4. Apply low pressure compressed air from inside the element to clear the dust.
6. To replace an element:

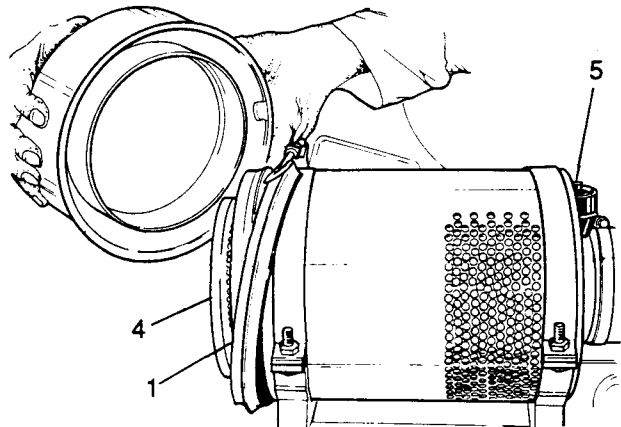


Fig G3.2

- (1) Refer to Fig G3.2. Unscrew the bolt holding the dust cup clamp (1). Remove the clamp and the dust cup.
- (2) Lift the baffle out of the dust cup.
- (3) Unscrew the wing nut and pull the element (4) and its gasket clear of the body assembly.