OPERATOR'S HANDBOOK

for the

BMC

1·5-LITRE DIESEL ENGINE

The maintenance instructions detailed in this Handbook apply only to the 1·5-litre diesel engine and its subsidiary parts, and should be used in conjunction with the relative vehicle handbook. Additional copies are obtainable only from your Authorized Distributor or Dealer and Part No. AKD1922A should be quoted when ordering

THE BRITISH MOTOR CORPORATION

FOREWORD

IN producing this book the object has been to confine the contents to information essential to the proper running and operation of the engine. Nevertheless, the operator will find all the guidance necessary to maintain the engine in first-class condition and to ensure trouble-free service. Every engine leaving the Factory is capable of giving absolute satisfaction if the maintenance instructions detailed in the following pages are carefully carried out.

Remember that a B.M.C. Authorized Distributor/Dealer is better equipped to provide routine and repair service than any other operator; he is at your service and should be consulted if you encounter trouble. When emergency work has been undertaken by other than a B.M.C. Franchise holder the vehicle should be submitted to a B.M.C. Distributor/Dealer for checking.

All Warranty work must be carried out by a B.M.C. Distributor/Dealer.

When communicating with your Distributor/Dealer always quote the engine number. This is stamped on a plate attached to the right-hand side of the cylinder block below Nos. 2 and 3 heater plugs.

For those wanting information of a more detailed and technical nature than is contained in this Handbook a Workshop Manual is available at a reasonable price from your Distributor/Dealer.

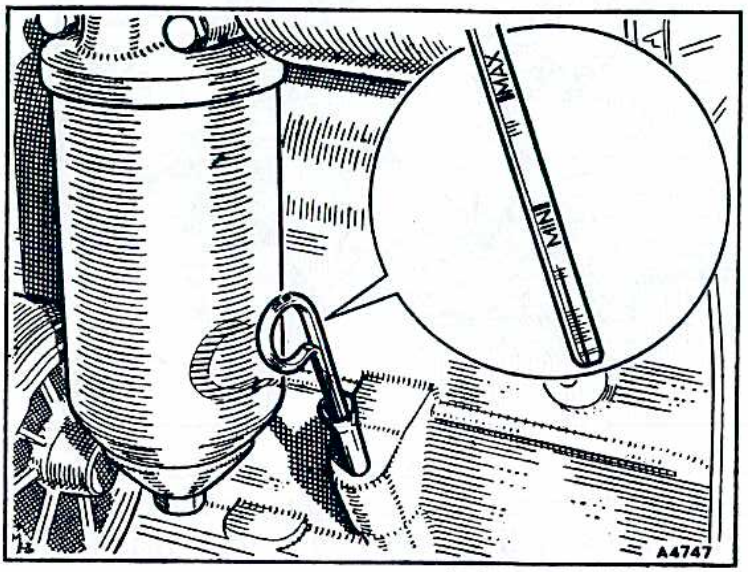
GENERAL DATA

Engine types	15X, 15Y, 15YA, and 15Z
Number of cylinders	4
B.H.P.	40 at 4,000 r.p.m.
Bore	2·875 in. (73·025 mm.)
Stroke	3·5 in. (88·9 mm.)
Capacity	90·88 cu. in. (1489 c.c.)
Valve rocker clearance (hot or cold)	·015 in. (·38 mm.)
Compression ratio	23 : 1
Injection order	1, 3, 4, 2
Injection pressure	135 atmospheres
Static injection timing	22° B.T.D.C. (fully retarded)
Oil pressure (engine hot):	
At idling speed	15 lb./sq. in. (1·05 kg./cm.²)
At normal running speed	50 lb./sq. in. (3·52 kg./cm.²)
Engine oil capacity (including filter)	8¼ pints (4·68 litres)
Engine oil filter	Tecalemit (full-flow)
Fuel injection pump	C.A.V. type DPA3246446
Fuel lift pump	A.C. (mechanical) Type U
Fuel injector nozzles	C.A.V. Pintaux BDN.O.SPC6209
Fuel injector nozzle holders	C.A.V. BKB.35.SD5091
Main fuel filter	C.A.V. Type FS5836020
Heater plugs	KLG 12-volt Type GS103L
Fan	2 or 6 blades
Cooling control	Thermostat
Thermostat opening temperature	176 to 183° F. (80 to 84° C.)
Starter motor	Lucas 12-volt Type M418G
Dynamo	Lucas 12-volt Type C40

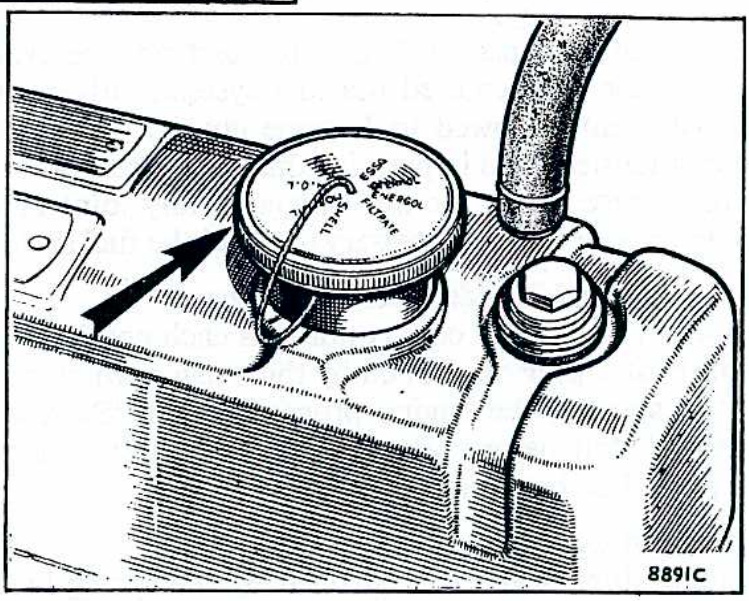
PREPARING FOR THE ROAD

Checking the engine oil level

Every day, before starting the engine, check the level of the oil in the sump by withdrawing the oil level indicator, located on the right-hand side of the engine. Wipe the lower portion of the indicator with a piece of clean cloth, reinsert it. and withdraw it again. The oil clinging to the indicator will show the actual level of the oil in the sump. The correct oil level is indicated by the 'MAX' mark on the indicator. If necessary, top up the level of the oil in the sump through the filling orifice on the top of the valve rocker cover, using one of the recommended lubricants listed on page 21.



The engine oil level indicator is located on the right-hand side of the engine. Shown inset are the maximum and minimum oil level markings



The engine oil filler is located on the valve rocker cover. Turn the filler cap in an anti-clockwise direction to release it

Filling the cooling system

Refer to the Driver's Handbook for the vehicle concerned.

Filling up with fuel

Refer to the Driver's Handbook for the vehicle concerned.

Do not allow the fuel tank to become empty, as air will enter the fuel system and it will be necessary to bleed the system as described on page 11.

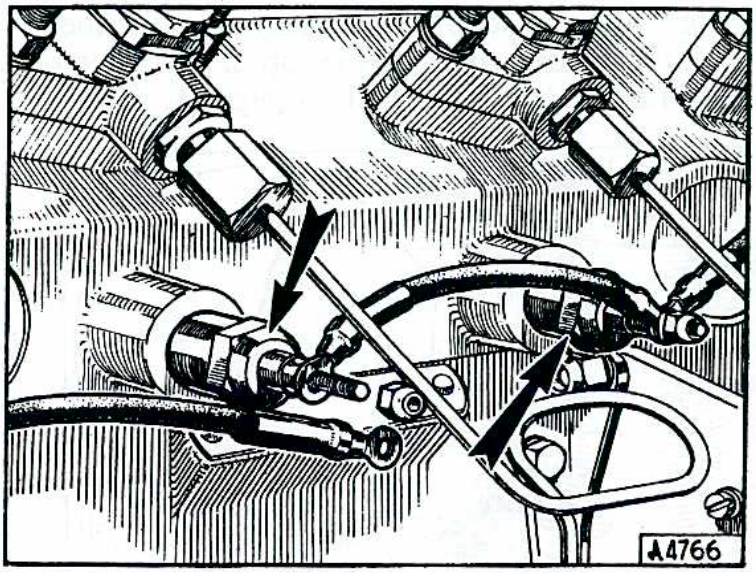
No trouble should be experienced with the fuel system provided clean fuel free from water, dirt, or sand is used. Dirty fuel will lead to faulty injection, due to choked filters, and injector and injection pump faults.

RUNNING INSTRUCTIONS

Starting the engine under normal conditions

Turn on the master switch and check that the charging warning light glows and that the fuel gauge registers. Push the engine stop control fully home into the 'run' position and hold the accelerator in the fully open position. Operate the starter switch, and immediately the engine starts release the accelerator to allow the fuel injection pump governor to bring the engine under control.

If the engine fails to start within five or six seconds release the starter switch and allow the engine to come to rest. Before making a further attempt to start the engine switch on the heater plugs for a few seconds (see **'Starting the engine under cold conditions'**).



Each combustion chamber is fitted with a heater plug to assist starting in cold conditions

Check the engine oil pressure on the gauge, which should register within 30 seconds of the engine starting. Also check that the charging warning light goes out when the engine is running above idling speed, indicating that the dynamo is charging.

One possible cause of failure to start and of erratic engine acceleration is that air may have entered the fuel system, either through a leaking joint, the fuel tank being allowed to become empty, or any part of the system having been dismantled. It is imperative that no air should be present in the fuel system and that there should be no leakage at any joint or union. If these conditions are suspected it will be necessary to bleed the fuel system as described on page 11.

Starting the engine under cold conditions

To assist starting in cold conditions each combustion chamber is fitted with a 12-volt heater plug controlled by the master switch in the driver's compartment.

When starting the engine proceed as for **'Starting the engine under normal conditions'**, but before operating the starter switch, switch on the heater plugs for a period of between 15 and 30 seconds.

Idling adjustment

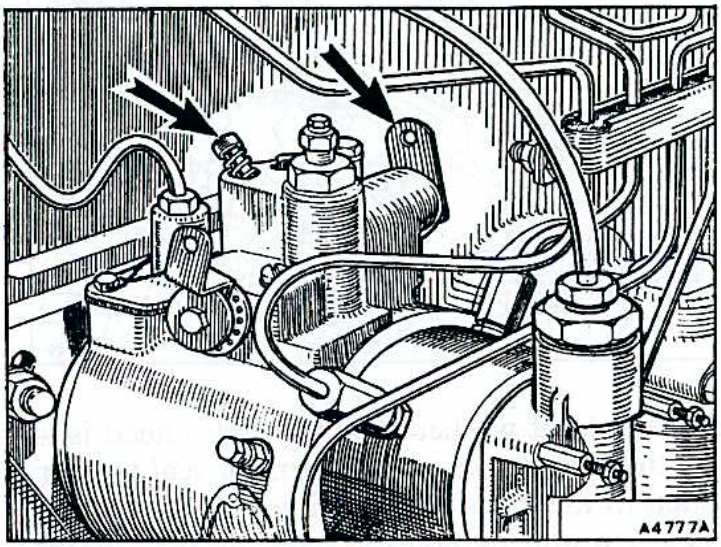
Engine idling speed is controlled by the spring-loaded stop screw located on the top of the injection pump hydraulic governor housing. This screw is set correctly before the engine leaves the Factory and further adjustment should not be necessary. If, however, the engine idles unevenly and the cause is not due to poor mechanical condition of the engine or a choked fuel filter or air cleaner, then further adjustment may be necessary.

RUNNING INSTRUCTIONS

To adjust the idling speed run the engine until it has attained its normal operating temperature and then screw in the stop screw until the engine is running at a fast idle. Retract the stop screw slowly until the engine idles evenly.

Stopping the engine

Operate the stop control or immobilizing device, located in the driver's compartment, to actuate the stop lever on the injection pump. This will stop the engine by cutting off the supply of fuel from the injection pump to the engine.



Location of the engine idling speed stop screw and engine stop lever on the fuel injection pump

Running-in speeds

The treatment given to a new engine will have an important bearing on its subsequent life, and engine speeds during this early period must be limited. The following instructions should be strictly adhered to.

During the first 500 *miles* (800 *km.*) *or* 25 *hours*

DO NOT exceed 28 m.p.h. (45 km.p.h.).

DO NOT operate at full throttle in any gear.

DO NOT allow the engine to labour in any gear.

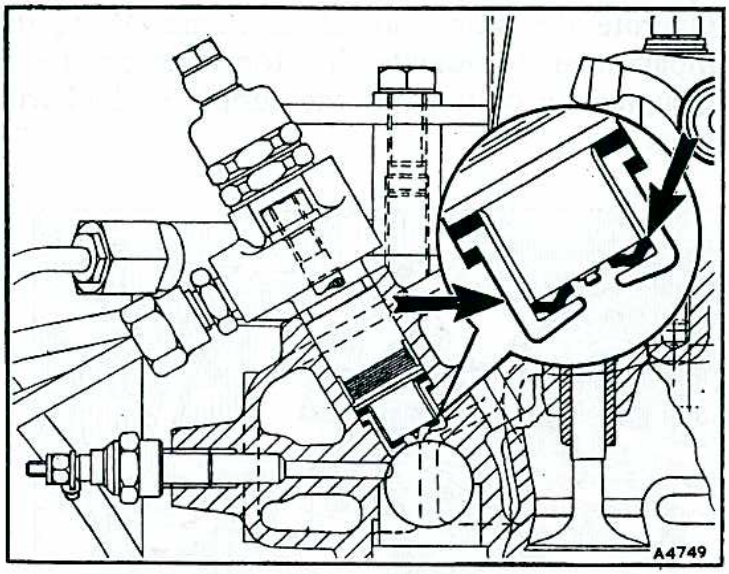
Roadside injection adjustment

On no account must the injectors or any part of the injection pump be dismantled at the roadside. It is recommended that a spare injector and an atomizer corrugated seal washer are carried, and renewing an injector is the only servicing of this nature permissible. During assembly the corrugation in the atomizer seal washer is compressed to ensure a gas-tight joint between the injector nozzle and nozzle heat shield. A used atomizer seal washer should not be refitted as it may not form an effective seal and so cause overheating of the injector nozzle.

It is often possible to locate an injector which is not working correctly by slackening the feed pipe union nut of the suspect injector and allowing the fuel to leak past the union whilst the engine is running slowly. If there is no change in the engine performance or if a faulty condition, such as a smoky exhaust, has disappeared, it is reasonable to assume that the injector nozzle is faulty.

To renew a faulty injector disconnect the high-pressure feed pipe from the injector nozzle holder and the leak-off pipe from all the injector cap nuts noting the seal washers located on each side of the pipe banjo-type unions.

Remove the two nuts securing the faulty injector to the cylinder head and withdraw the injector. In cases of difficulty Service tool 18G491A should be used to draw the injector from the cylinder head. Remove the atomizer seal washer from inside the injector nozzle heat shield.



A section through the cylinder head, showing an injector nozzle heat shield and atomizer seal washer

Ensure that the injector nozzle holder joint washer in the cylinder head is in good condition and will make a gas-tight joint. Fit a new atomizer seal washer, ensuring that it is correctly positioned in the bottom of the injector nozzle heat shield. Place the new injector in position and tighten the securing nuts evenly half a turn at a time to ensure even seating. A torque wrench set to 12 lb. ft. (1·6 kg. m.) should be used whenever possible.

Reconnect the fuel pressure pipe and leak-off unions, ensuring that the joint washers are fitted on each side of the leak-off pipe banjo unions.

COLD-WEATHER PRECAUTIONS

Cooling system

Water, when it freezes, expands, and if precautions are not taken there is considerable risk of damage to the cooling system and cylinder block. Such damage may be avoided either by adding anti-freeze to the cooling water or, when the engine is to stand idle for any length of time in frosty weather, by draining the cooling system.

Only anti-freeze of the ethylene glycol type incorporating the correct type of corrosion inhibitor is suitable and owners are recommended to use Bluecol, Shell Anti-freeze, Mobil-Permazone, or Esso Anti-freeze. We also approve the use of any anti-freeze conforming to Specification B.S. 3151 or B.S.3152.

Prior to filling with an anti-freeze solution the cooling system should be flushed with clean water in accordance with the instructions contained in the Driver's Handbook for the vehicle concerned.

The quantity of anti-freeze solution for protection against 35° of frost, −3° F. (−19° C.), is 20 per cent. or one-fifth of the total cooling capacity.

It is advisable for engines with an anti-freeze solution in the cooling system to be suitably marked to this effect. The following precautions are necessary on engines using an anti-freeze solution:

(1) Make sure that the strength of the mixture is that recommended on the container of the particular anti-freeze solution used.

(2) The strength of the mixture must be maintained by topping up with anti-freeze solution at the correct strength when the system is warm. Topping up with water only gradually reduces the degree of protection provided.

(3) If the cooling system has to be emptied run the mixture into clean containers and strain ready for use again.

(4) If for any reason the mixture is lost and the system is filled with water remove the anti-freeze indication mark.

(5) In extreme cold conditions use a greater proportion of anti-freeze solution. Consult your local agent for the correct quantity.

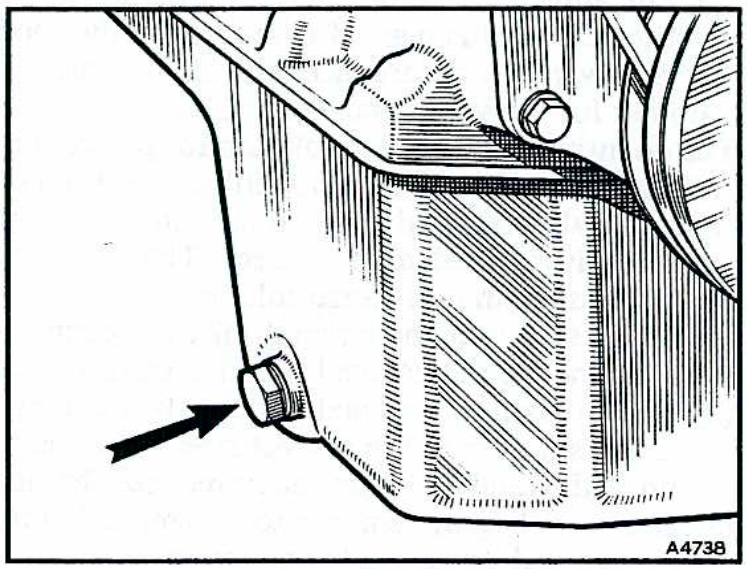
MAINTENANCE ATTENTION

The following maintenance instructions have been prepared in order to show in a clearly arranged and concise manner the attentions required to maintain the engine in an efficient condition under normal conditions of work and climate and are based on the assumption that the lubricants used are in accordance with the recommendations given on page 21.

Extreme climatic or operating conditions may, however, necessitate alterations to the intervals at which some of the attentions are given, and it must therefore be left to the discretion of the operators on the spot to vary these intervals to suit local conditions.

Where the actual miles (kilometres) run in a given period are small it may be advisable to apply the instructions on a 'time' instead of on a 'distance' basis.

For details of the 500 miles (800 km.) free service and for a summary of the maintenance attention refer to pages 18 to 20.



The engine oil drain plug is located on either the right- or left-hand side of the deep part of the sump

EVERY 1,000 MILES (1600 Km.) OR 50 HOURS

Accelerator linkage

Apply clean engine oil sparingly to the control rod joints from the accelerator pedal to the governor control lever.

EVERY 3,000 MILES (4800 Km.) OR 150 HOURS

Draining the engine sump

The engine oil should be drained and the sump refilled with one of the recommended lubricants listed on page 21.

This operation should be carried out immediately the vehicle returns from a journey while the engine oil is still hot.

Place the vehicle so that the engine is in a level position and, with a suitable receptacle under the sump, remove the drain plug, which is located on the right- or left-hand side of the deep part of the sump. Thoroughly clean the drain plug internally and externally and ensure that the drain plug washer is in good condition. After the oil has drained completely from the sump refit the plug.

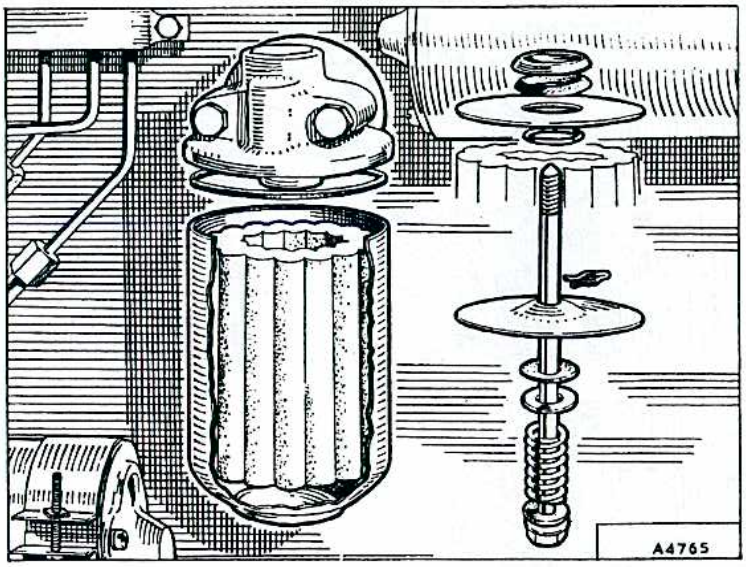
Before refilling the sump with fresh oil (see page 3 for quantity) withdraw and clean the oil filter bowl and renew the oil filter element.

EVERY 3,000 MILES (4800 Km.) OR 150 HOURS

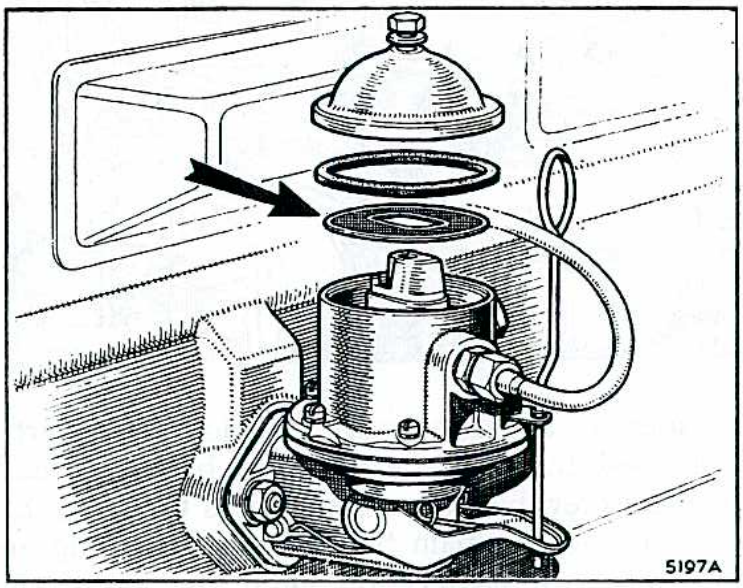
Oil filter element

The external oil filter should be dismantled, the filter bowl cleaned internally, and the filter element renewed.

Release the filter bowl by unscrewing the centre-fixing bolt securing the bowl to the filter head. Remove and discard the filter element, wash the filter bowl in petrol (gasoline), and allow to dry. Install a new element in the filter bowl, ensure that the joint washer in the filter head is positioned correctly and in good condition, and reassemble the filter. Start the engine, ensure that the oil pressure gauge registers within 30 seconds, allow the engine to warm up thoroughly, and then check the filter for oil leaks.



Components of the engine external oil filter, which is located on the right-hand side of the crankcase



The mechanical fuel lift pump with the cap removed and the filter gauze withdrawn

Mechanical fuel lift pump (if fitted)

The fuel lift pump filter gauze should be removed and cleaned in petrol (gasoline), using a stiff brush or an air jet. The mechanical fuel lift pump is mounted on the left-hand side of the engine.

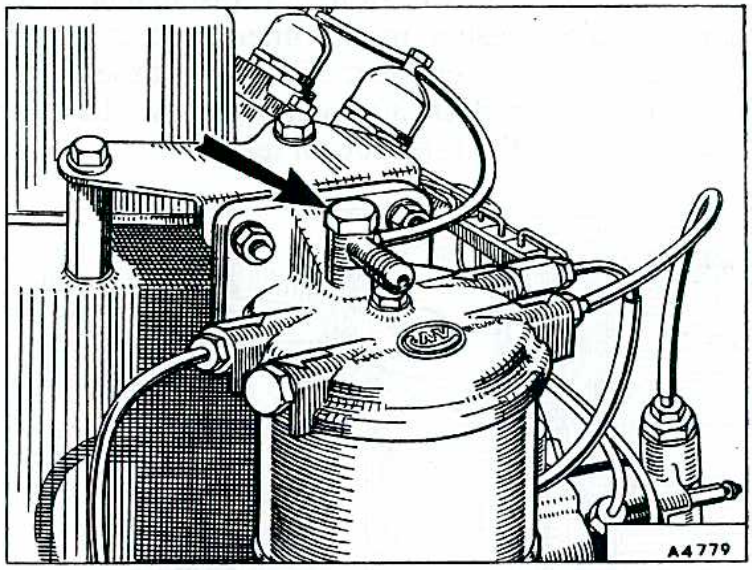
Remove the set bolt and fibre washer securing the cap to the pump body, lift off the pump cap and its sealing washer, and withdraw the filter gauze.

When reassembling ensure that the sealing washer is in good condition, and

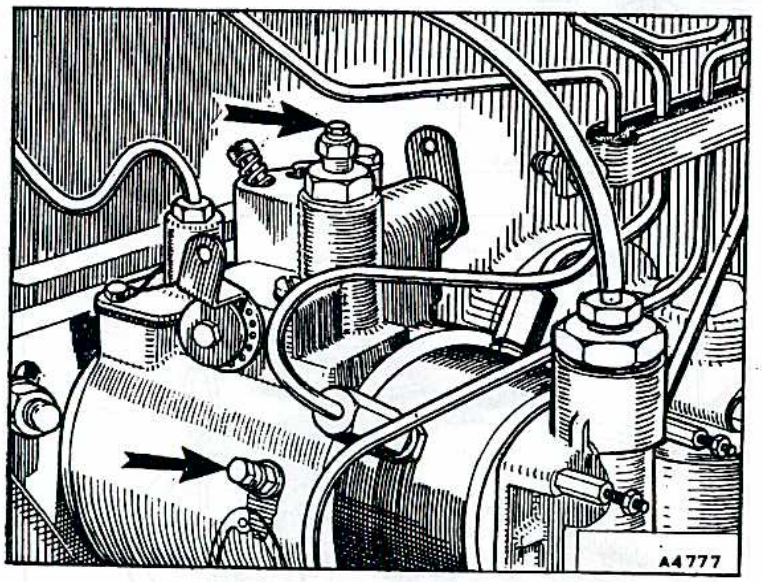
do not overtighten the cap set bolt. Sufficient to ensure a fuel-tight joint is all that is necessary. After reassembly any air in the fuel system must be eliminated by bleeding the system as described below.

Eliminating air from the fuel system (bleeding)

Failure to start or erratic engine acceleration can be the result of air in the fuel system. This can be caused by allowing the fuel tank to become empty, by a leaking joint, or by dismantling any part of the fuel system. If this condition



The fuel leak-off pipe banjo union bolt and air bleed point on the main fuel filter, which is fitted either at the front or rear of the engine



Two air bleed valves are fitted on the fuel injection pump

is suspected, and after every occasion when part of the fuel system has been dismantled, the fuel system must be bled of air as follows:

(1) Unscrew by two or three turns the banjo bolt attaching the fuel leak-off pipe to the main fuel filter head casting and slacken the two air bleed valves on the injection pump. One bleed valve is located on the top of the hydraulic governor housing, while the other is mounted on the uppermost of the hydraulic head locking screws.

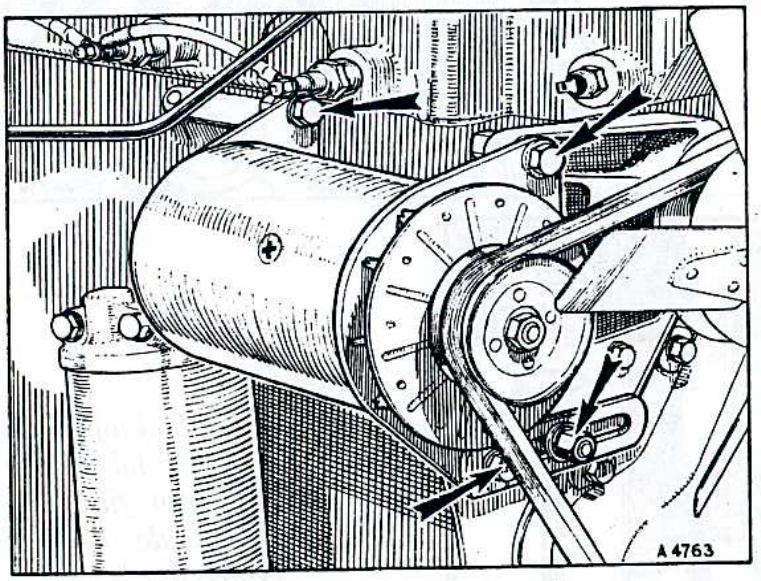
(2) Operate the hand priming lever (mechanical lift pump) or turn on the master switch (vehicle with electric lift pump), and when the fuel flowing

from each bleed point is free from air bubbles tighten the fuel filter banjo bolt, hydraulic head bleed valve, and hydraulic governor housing bleed valve, in this order.

(3) Slacken the union nuts at the injector ends of the high-pressure pipes to the injectors. The nuts must be slackened sufficiently to allow fuel at injection pressure to pass the union threads without frothing.

(4) Set the accelerator in the fully open position and ensure that the stop control is in the 'run' position. Crank the engine until the fuel flowing past any two of the pipe unions is free from air bubbles and then tighten the pipe union nuts.

If the engine should fail to start, this is indicative that air is still present in the fuel system and the process of bleeding, as outlined above, must be repeated.



Slacken the dynamo attachment bolts and nuts and pivot the dynamo away from the engine to tension the driving belt

Fan and dynamo driving belt

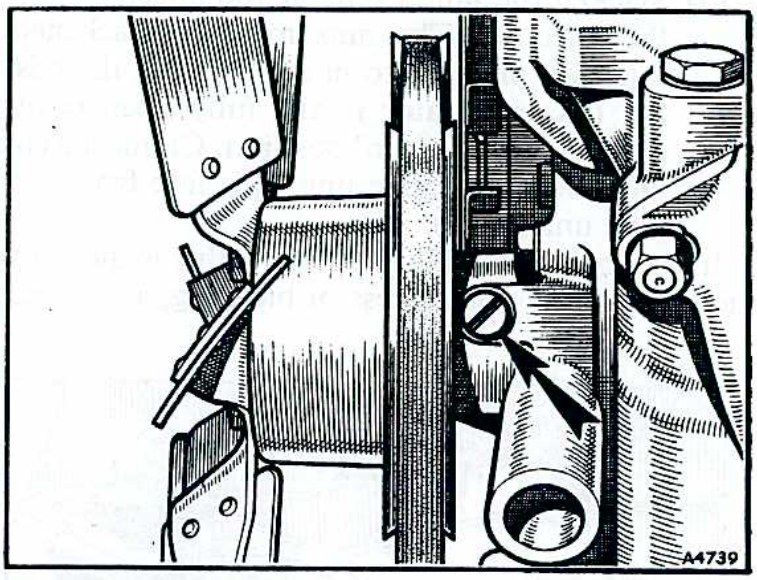
Check the fan and dynamo driving belt for correct tension. The long run of a correctly tensioned belt can be pressed in ½ in. (12·7 mm.) at the centre by normal thumb pressure.

To adjust the belt tension slacken the two dynamo pivot bolts and nuts, the bolt securing the dynamo to the adjusting link, and the nut securing the adjusting link to the engine. Pivot the dynamo away from the engine until the belt tension is correct and tighten the attachment bolts and nuts to secure the dynamo in this position. Overtensioning of the belt must be avoided as this will impose an undue load on the dynamo bearings.

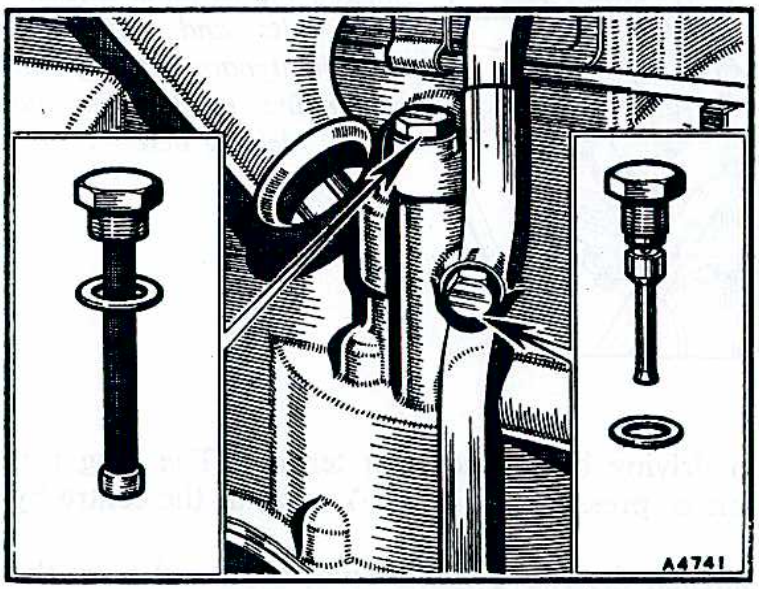
Water pump

Lubricate the water pump bearings. Remove the oiling plug from the water pump body and add a small quantity of one of the recommended oils listed on page 21.

The oiling of the water pump bearings must be carried out sparingly, otherwise oil will flow past the bearings onto the face of the water seal and impair its efficiency.



Location of the oiling plug on the water pump body



Location of the fuel injection pump driving gear lubricator and the lubricator filter on the left-hand side of the crankcase

Fuel injection pump driving gears

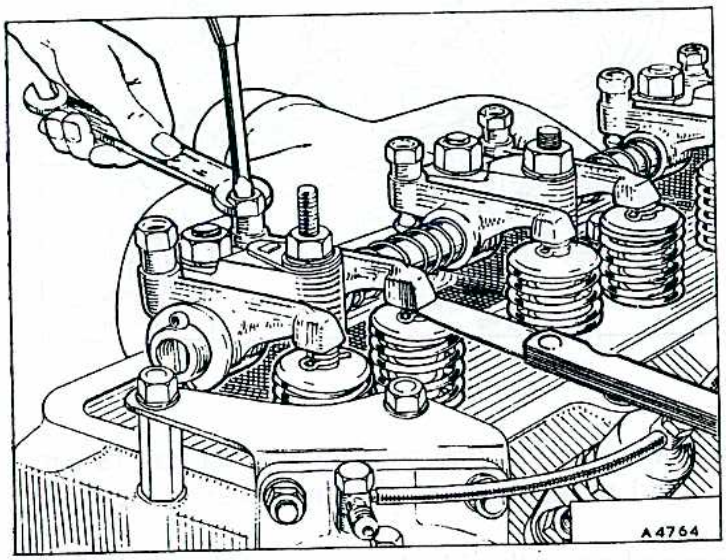
The fuel injection pump driving gear lubricator and lubricator filter gauze should be withdrawn and cleaned in petrol (gasoline). A stiff brush should be used to remove the particles of 'sludge' from the filter gauze while the lubricator should be blown clear with compressed air. Both the lubricator and the lubricator filter are located on the left-hand side of the crankcase and screw into tappings in the main oilway. Before the lubricator can be removed the crankcase vent pipe must be detached from the engine. Unscrew the set screw securing the lower end of the pipe to the crankcase and, using a twisting movement, pull the pipe downwards to detach it from the elbow on the tappet chamber cover.

EVERY 6,000 MILES (9600 Km.) OR 300 HOURS

When reassembling, ensure that the copper joint washers are in good condition and will make an oil-tight joint.

Valve to rocker clearance

Unscrew the two cap nuts to release the valve rocker cover, and check, and adjust if necessary, the valve stem to rocker clearance. Correct valve to rocker clearance is essential if the engine is to give its best performance and the valves are to retain their maximum useful life. Therefore, when checking or adjusting the clearance it is imperative that the tappet of the valve being operated on is



Adjusting the valve to rocker clearance

on the back of its cam—that is, opposite to the peak. As the position of the tappet on its cam cannot be observed, and to avoid cranking the engine more than is necessary, the valve to rocker clearance should be set in the following order:

Check and adjust No. 1 valve (ex.) with No. 8 valve fully open.

,,	,,	,,	,,	3	,,	(in.)	,,	,,	6	,,	,,	,,
,,	,,	,,	,,	5	,,	(ex.)	,,	,,	4	,,	,,	,,
,,	,,	,,	,,	2	,,	(in.)	,,	,,	7	,,	,,	,,
,,	,,	,,	,,	8	,,	(ex.)	,,	,,	1	,,	,,	,,
,,	,,	,,	,,	6	,,	(in.)	,,	,,	3	,,	,,	,,
,,	,,	,,	,,	4	,,	(ex.)	,,	,,	5	,,	,,	,,
,,	,,	,,	,,	7	,,	(in.)	,,	,,	2	,,	,,	,,

To set the valve to rocker clearance release the rocker adjusting screw locknut and interpose a ·015 in. (·38 mm.) feeler gauge between the top of the valve stem and the rocker.

Adjust the valve rocker screw to allow the feeler gauge to have a light 'drag-through' clearance and tighten the locknut. Check the clearance again to ensure that the setting has not been disturbed while tightening the locknut.

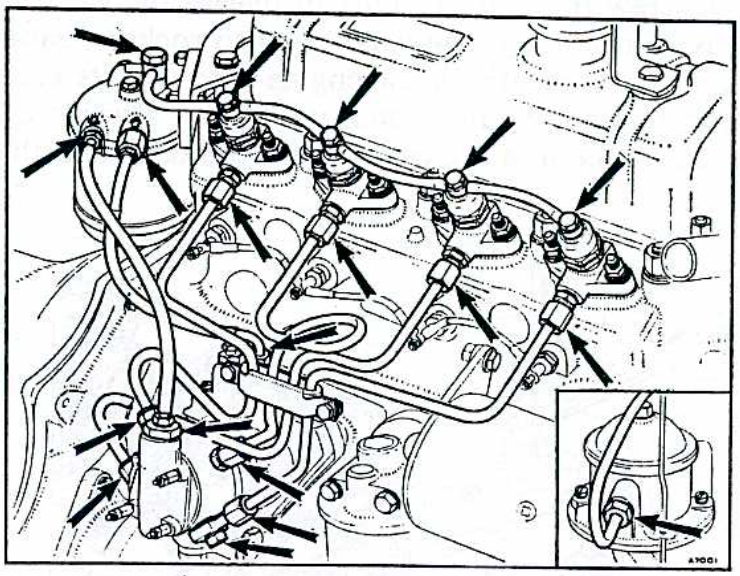
Water connections

Wipe the water hoses clean and check them for leaks, signs of damage, and perishing. Check the hose clips for tightness, but avoid overtightening as this will only distort and damage the hoses.

EVERY 6,000 MILES (9600 Km.) OR 300 HOURS

Fuel line connections

Inspect for leaks, and tighten if necessary, all connections in the fuel feed lines to the lift pump, main fuel filter, injection pump, and injectors. The injector leak-off pipe unions should also be checked as there is a continuous flow of fuel from the main filter to the supply tank through this pipe when the engine is running. This check should be carried out with the engine running, when the pipe unions will be subjected to fuel under pressure.



The fuel line connections

Oil leaks

Carry out a thorough inspection of the sump and various engine covers for oil leaks, and check all nuts, bolts, and mountings on the engine and ancillary equipment for tightness.

Sometimes the tracing of the source of a small oil leak can be made more easy if the engine is first cleaned down and then run until it is thoroughly warm. The source of the oil leak is then usually more apparent.

Road test

Upon completion of the periodic maintenance attention the engine should be checked functionally under normal operating conditions. Before commencing the following tests it is imperative that the vehicle is run until the engine is thoroughly warm and the lubricants in the gearbox and rear axle are at their normal working temperature.

(1) Check the engine oil pressure when idling and at normal running speed.
(2) Check for satisfactory engine acceleration in all gears.
(3) Check the engine for power, particularly when travelling uphill.
(4) Ensure that the engine idles smoothly and does not 'hunt'.

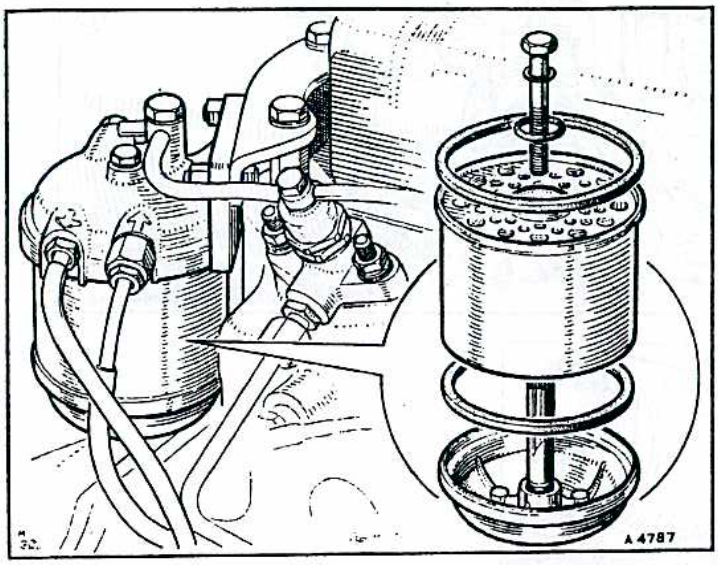
After the road test has been completed inspect the engine for slow-action oil leaks not apparent in the first check.

EVERY 9,000 MILES (14400 Km.) OR 450 HOURS

Main fuel filter

The main fuel filter element, which is of the paper type and not intended to be cleaned, should be renewed. This interval of element renewal is for engines operating under normal conditions and using clean, filtered fuel. If, however, the engine misfires or runs erratically, owing to fuel starvation due to a choked main fuel filter, the element must be renewed irrespective of the mileage covered.

The filter, which is fitted either at the front or rear of the engine, is a C.A.V. bowl-less type, the element being clamped between the filter head and base castings.



Components of the main fuel filter, which is fitted either at the front or rear of the engine

To renew the element support the base and unscrew the retaining bolt located in the centre of the head casting. Detach the base casting and, using a twisting movement, separate the element from the head casting. Remove the three sealing rings from their locations in the head and base castings.

Thoroughly wash the base casting in petrol, and when dry remove any residue.

Reassemble, using a new element and sealing rings, fitting the element with its strengthened rim uppermost.

Bleed the fuel system as described on page 11.

Fuel injectors

Remove the fuel injectors from the cylinder head, test them for correct spraying, and, if necessary, clean and adjust them.

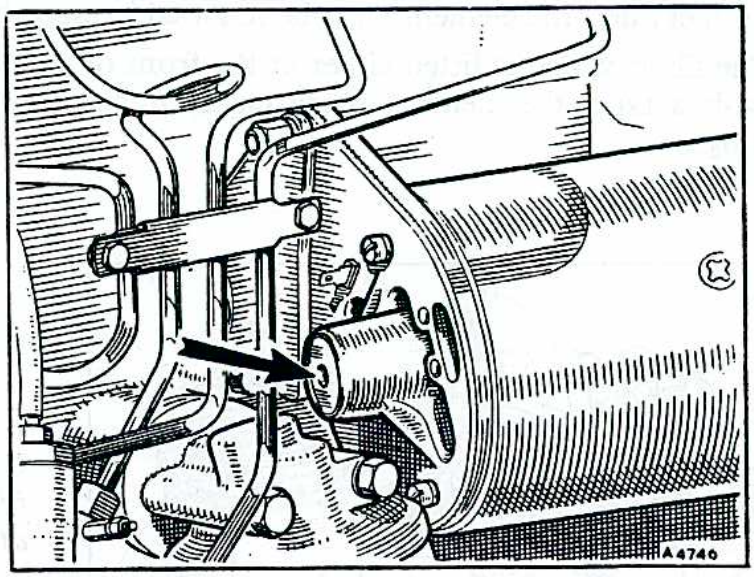
Owing to the varying conditions under which engines operate more frequent attention may be necessary; this is indicated by loss of engine power, black exhaust fumes, and increased fuel consumption.

As the testing of an injector cannot be carried out satisfactorily without specialized knowledge and the use of special equipment, this item of maintenance should be entrusted to your Authorized Distributor or Dealer.

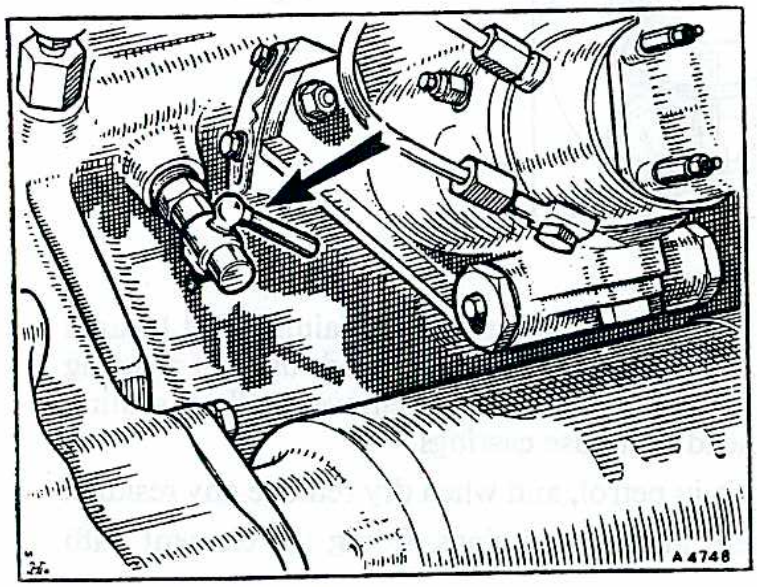
EVERY 12,000 MILES (19200 Km.) OR 600 HOURS

Engine sump and oil strainer

Drain and remove the engine sump and detach the gauze strainer from the base of the oil pump. Clean the sump both internally and externally and the crankcase internally. The gauze oil strainer should be cleaned in paraffin, using a stiff brush to remove the 'sludge' particles choking the gauze. Reassemble, using new sump and oil strainer joint washers, and refill the sump with one of the recommended lubricants listed on page 21. This work should be entrusted to your Authorized Distributor or Dealer.



Lubricate the dynamo commutator end bearing through the hole in the centre of the bearing housing



The cylinder block water drain tap (shown in the off position)

Dynamo

Lubricate the dynamo commutator bearing. A felt washer located in the bearing housing feeds lubricant to the porous bronze bearing. This felt washer is replenished with lubricant by injecting two or three drops of one of the recommended engine oils listed on page 21 into the central hole in the commutator end bearing plate.

Avoid over-oiling of the commutator end bearing as in many cases surplus lubricant finding its way into the commutator is the cause of the dynamo failing to charge.

EVERY 12,000 MILES (19200 Km.) OR 600 HOURS

Cooling system

To reduce the formation of sediment and so ensure efficient water circulation the cooling system should be drained and flushed with clean water. This operation should be carried out in accordance with the instructions contained in the Driver's Handbook for the vehicle concerned.

The cylinder block drain tap is situated on the left-hand side of the cylinder block just above the starter motor.

FREE SERVICE

500 MILES (800 Km.) OR 25 HOURS

During the early life of the engine, soon after it has completed 500 miles (800 km.) or 25 hours, you are entitled to have the following initial service carried out free of charge by the Authorized Distributor or Dealer from whom you purchased it, or, if this is not convenient, by any other Authorized Distributor or Dealer by arrangement.

It will be appreciated that this attention given during the critical period in the life of the engine will make all the difference to its subsequent life and performance.

(1) Check and tighten the cylinder head nuts to the recommended pressure.

(2) Check and tighten the valve rocker shaft bracket nuts to the recommended pressure.

(3) Check and tighten the manifold nuts to the recommended pressure.

(4) Check and adjust the valve to rocker clearance.

(5) Check and adjust the tension of the fan and dynamo drive belt.

(6) Check and adjust the accelerator linkage to the governor control lever for correct action.

(7) Check all water connections for leaks and tighten the clips.

(8) Drain the engine and refill with new oil.

ALL MATERIALS CHARGEABLE TO THE CUSTOMER

MAINTENANCE SUMMARY

Regular and thorough servicing is essential if the engine is to be maintained in its most efficient and economical running condition. With this object in view we recommend that advantage be taken of the 'Maintenance Service Scheme' sponsored by the vehicle manufacturers, details of which will be found in the voucher book supplied with each vehicle.

Daily

Check the engine oil level, and top up as necessary.

Every 1,000 miles (1600 km.) or 50 hours

Lubricate the accelerator linkage to the governor control lever.

Every 3,000 miles (4800 km.) or 150 hours

Lubricate the accelerator linkage to the governor control lever.
Drain the engine sump and refill with new oil.
Renew the external oil filter element.
Clean the fuel lift pump filter and bleed the fuel system.
Check and adjust the fan and dynamo belt tension.

Every 6,000 miles (9600 km.) or 300 hours

Lubricate the accelerator linkage to the governor control lever.
Drain the engine sump and refill with new oil.
Renew the external oil filter element.
Clean the fuel injection pump driving gear lubricator and lubricator filter.
Lubricate the water pump bearings.
Clean the fuel lift pump filter and bleed the fuel system.
Check and adjust the fan and dynamo belt tension.
Check and adjust the valve to rocker clearance.
Check all water connections and tighten the clips.
Check for fuel leaks, and tighten all union nuts if necessary.
Check for oil leaks, and tighten if necessary all nuts, bolts, and mountings on the engine and engine ancillary equipment.
Road-test the engine and report.

Every 9,000 miles (14400 km.) or 450 hours

Lubricate the accelerator linkage to the governor control lever.
Drain the engine sump and refill with new oil.
Renew the external oil filter element.
Clean the fuel lift pump filter.
Renew the main fuel filter element.
Remove the injectors and test for spray.
Bleed the fuel system.
Check and adjust the fan and dynamo belt tension.

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