MINI-14

INSTRUCTION MANUAL

INTRODUCTION

We thank you for having selected our MINI - 14 Diesel engine for your use.

BEFORE SETTING THE ENGINE RUNNING, it is important to read the operation and maintainance instructions contained in this booklet closely to follow them strictly.
If you have any doubt or query on your engine or in case of breakdown, please contact the nearest dealer where you will receive due attention.

ATTENTION

So that spare parts deliveries may be exact and immediate, it is extremely important to give the details listed below in your order:

a) Type of engine (given on the nameplate).
b) Engine number (given on the top of the block, alternator side).
c) Number and description of the required part.

OBSERVATIONS: The descriptions and illustrations given in this instruction booklet are not binding. Therefore, whilst maintaining the main features of the engine described and illustrated here, SOLE, S.A. reserves all rights to make modifications in parts, details and accessories as may be required for any technical or commercial reasons.

CONTENTS

1 - PRECAUTION WHEN USING THE ENGINE

* Always use an appropriate oil and check the oil pressure while the engine is running.
* Use clean fuel, free from impurities and water.
* Prevent water and air from entering into the fuel circuit.
* If the starter motor pinion does not mesh with the crown gear on starting up, turn the key again after the motor has stopped running.
* Pay attention to the coluor of the exhaust gases.
* Clean or periodically change the fuel and oil filters;
* Change the oil as specified.
* Check that the cooling water circulates correctly through the engine.

Safety precautions

* Do not touch any moving parts of the engine while this is running.
* Do not touch hot parts, such as the exhaust pipe, and keep any in flammable materials away from them.
* Inspect and adjust engine parts only when stopped.
* Check engine oil cooling and fuel levels and refill only when the engine stopped.
* Use always tools of an appropriate size and work with care when effecting any service operation.

2 - SPECIFICATIONS

Type:	Vertical water cooled 4 stroke
N.° of cylinders:	Two.
Bore:	70 mm. (2,76")
Stroke:	78 mm. (3,07")
Capacity:	600 c. c. (36,61 cu. in.)
Compression ratio:	20:1
Power (DIN6270-B):	13 Hp. (9,5 KW)
Maximum r. p. m.	3.000
Gear box:	Mechanical RONIM III type Ratio 1,9:1
Maximun intallation angle:	20°
Lubrication:	Forced, by rotary pump.
Oil capacity:	Engine 2,5 l. Gear box, 0,4 l.
Type of oil:	HD 20° or above SAE-30) 5° to 20° SAE-20) - SAE-10W-30 5° or bellow SAE-10)
Cooling:	Fresh water, whit heat exchanger
Cooling water capacity:	5,5 litres
Injection system:	Bosch M. type. Cintrifugal regulator Injector pressure $120 \begin{smallmatrix}+10\\0\end{smallmatrix}$
Electrical system:	See wiring diagrams, pages 25, 26 and 27 Starter 12 V. 1,1 KW. Alternator 12 V. 35 A. Glow plugs, sheated type. 40 A. Fuse.

3 - USE

3.1 - BEFORE STARTING UP

Your new engine requires a 50 HOUR running-in period for setting all moving parts and obtaining a high performance.
Carry out this running-in carefully, bearing in mind the following points:

> WARNING
>
> * Run the motor at slow-running speed and warm up for at least 5 minutes.
> * Avoid hasty acceleration.

3.2 - PREPARATIONS FOR STARTING UP

1) Filling of engine and reverse gear with oil

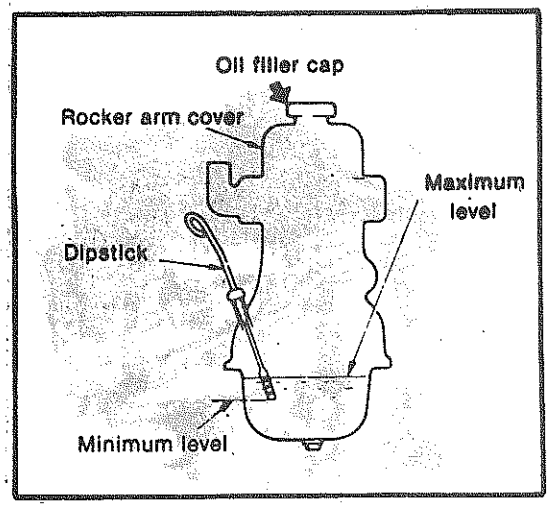


Fig. 1

Fill the engine with the recommended oil up to the upper mark on the dipstick (Fig. 1) through the oil filler hole. Fill the the reverse gear with oil up to the level mark on the dipstick through the hole (Fig. 2).
Use the same type of oil as for the engine.

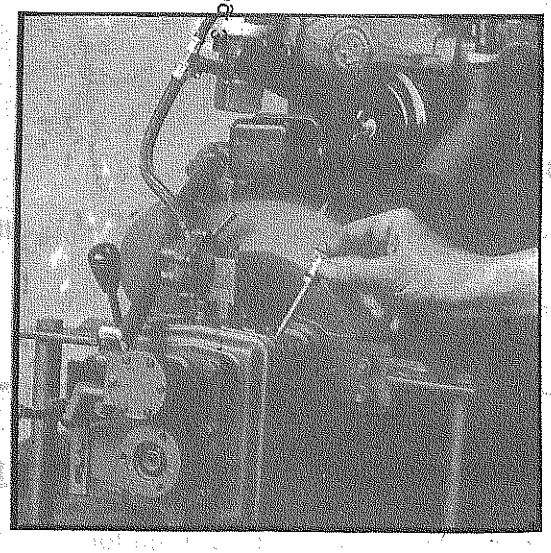


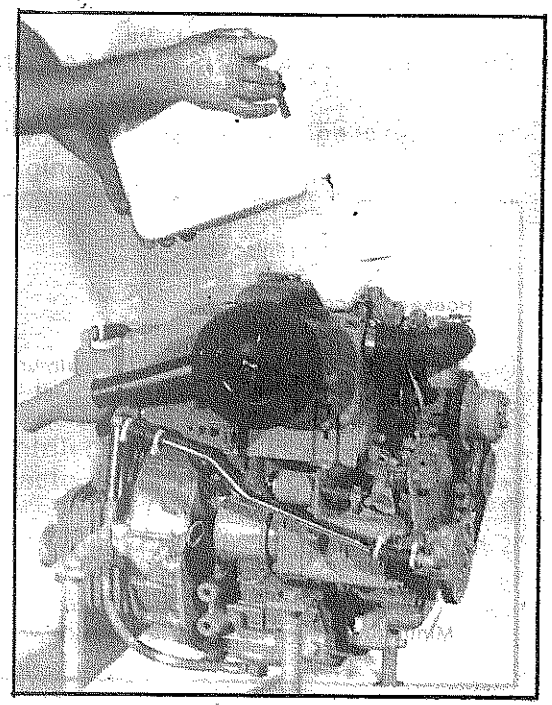
Fig. 2

2) Filling of fuel tank

Fill the fuel tank with clean, filtered gasoil.
Check taht the tank is quite clean and free from iron or polyester particles.
Open thel fuel valve.

3) Filling water system

Fill the system with clean water up to the filler opening. In winter, add antifreeze (Fig. 3)



4) Open the water inlet valve

5) Purging of fuel circuit

First purge the fuel filter and then the injection pump.
(For further details check «Fuel circuit purge» in Chapter (4.2).

6) Connection of battery disconnector

Connect the battery disconnector.

3.3 - STARTING UP

1) Reverse gear neutral position

Set the clutch to neutral and open the throttle half way.

2) Setting of ignition key in position «1»

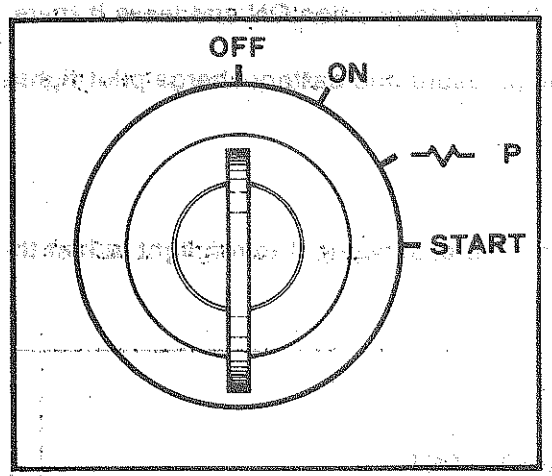


Fig. 4

Set the ignition key in position «1» and check that the pilot lights are illuminated and the alarm sounds (Fig. 4)

3) Pre-heating of glow plugs.

Turn the ignition key to position «P» (warming-up) until the glow plug indicator becomes sufficiently red hot.
The normal warm-up time is 20 seconds. In cold weather, follow the table as below:

Temperature	Warm-up time
+ 5° or above	Approx. 20 seconds
+ 5°C to —5°C	Approx. 30 seconds
— 5°C or below	Approx. 60 seconds

Notwithstanding, the warm-up period should not last more than 2 minutes to avoid shortening the plug life.
If the plug indicator does not become red hot, it should be checked by a SOLE Service Centre.

4) Starting up

Turn the ignition key to position «START» and hold it there until the engine fires. If the engine does not fire, although the key is held is position «START» for 10 seconds, release the key for 30 seconds and thereafter try to start the engine up again, after allowing for a sufficient warm-up of the plug. The starter motor must never be operated for more than 30 seconds at a time.
Once the engine has fired, turn the key to position ON and leave it there while running.
After starting, check that the oil pressure and battery charge pilot lights are extinguished,

5) Warm-up

Warm up the engine for about 5 minute, allowing it to run light at half throttle.

IMPORTANT:

While the engine is running, do not turn the key to position «START», since in this case the starter motor would be damaged.

Il the engine is warm, the warm-up operations are not required in this case, turn the key to position «START» and hold it there until the engine fires. Once the engine has fired, return the key to position ON.

3.4 - WITH ENGINE RUNNING

* Check that the cooling water is flowing.
* Check that there are no water or oil leaks.
* Check that the oil pressure pilot light is extinguished.
* Check that the exhaust fumes are as follows:

— While the engine is cold: White smoke
— As the engine warms up: Almost smokeless
— When the engine is overloaded: A slight amount if black smoke

IMPORTANT:

Always change gear with the engine at slow running speed.

3.5. - STOPPAGE

1) Set the engine to slow running and the clutch to neutral.
2) Push the Stop button until the engine has completely stopped.
3) With the engine stopped, set the ignition key to position OF. The battery will be discharged if the key is left in position ON.
To prevent this, remove the key after stopping the engine.
If the engine is not going to be used for a long period of time, it is advisable to close the water and fuel valves and to disconnect the battery.

IMPORTANT:

The Stop button does not operate if the key is not in position ON.

4.4 - MAINTAINANCE

4.1 - LUBRICATION SYSTEM

1 - Correct viscosity of oil

Use an oil having a viscosity appropriate to the local ambient temperature. The use an all-season SAE-10W-30 multigrade oil is recommended since this affords a minimum viscosity variation at different temperatures (see Specifications Section).

2 - Oil pressure

To help you monitor the oil pressure while the engine is running there is an oil pressure warning light and an alarm horn.

- During normal running:

The oil pressure is normal if the light is extinguished.

- When starting:

The light should be illuminated and the horn sounding.

The light will become illuminated during normal running if the oil pressure drops below 0.2-0.4 kg/cm² and in such case you should consult your nearest SOLE Service Centre.

NOTE:
If the oil pressure drops or the cooling water excessively overheats, the alarm

3 - Oil change

a) Engine
Change the engine oil after the first 50 hours running and thereafter at intervals of 100 hours.
To change the oil, drain the old oil with the aid of the drain pump through the dipstick hole (Fig. 5).

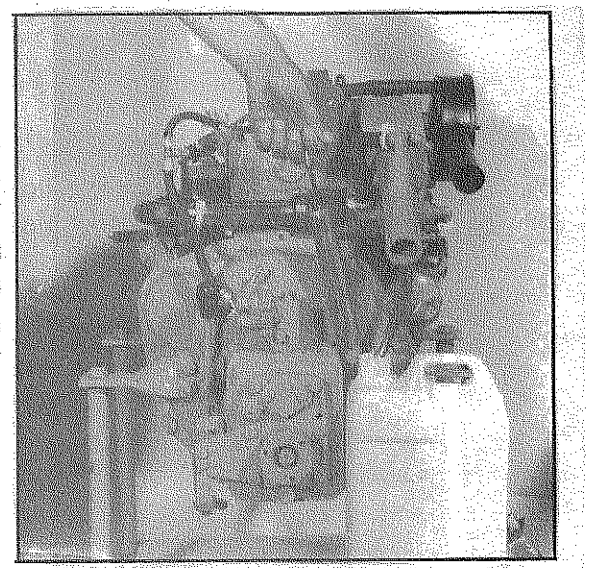


Fig. 5

After the old oil has been removed, pour in new oil through the filler opening in the rocker arm cover (Fig. 7). Next idle the engine for several minutes. Then stop it and check the oil level by taking out the dipstick, cleaning it with a rag, putting it back and pressing it home. Now take it out again to check the level.

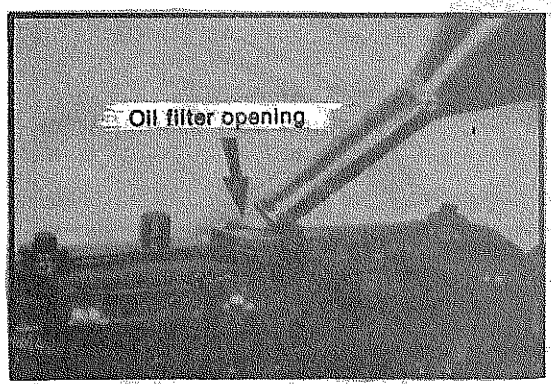


Fig. 5 bis

NOTE:

Remember that the dipstick gives a correct level when the engine is horizontal, therefore the degree of engine rake should be taken into account when checking the level.

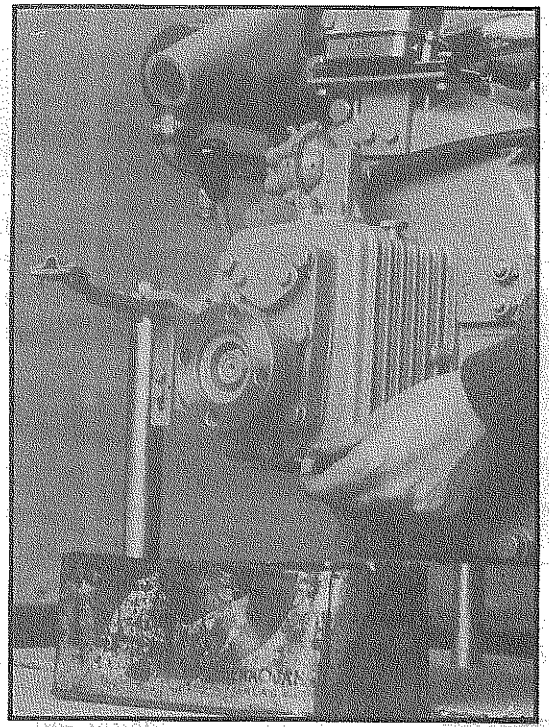


Fig. 6

b) Reverse gear
The reverse gear has its own lubrication independent from that of the engine.
To change the oil, drain the old oil with the aid of the drain pump through the dipstick hole or removing the plug underneath the reverse gear. (Fig. 6).

4 - Oil filter change

Change the oil filter after the first 50 hours running and thereafter at intervals of 100 hours.
The oil filter is an easy-to-handle cartridge type not requiring internal cleaning.

On fitting the new oil filter, rub a little engine oil on the seal and screw up hand-tight.
After replacing the filter, set the engine running and check for leaks (Fig. 7).

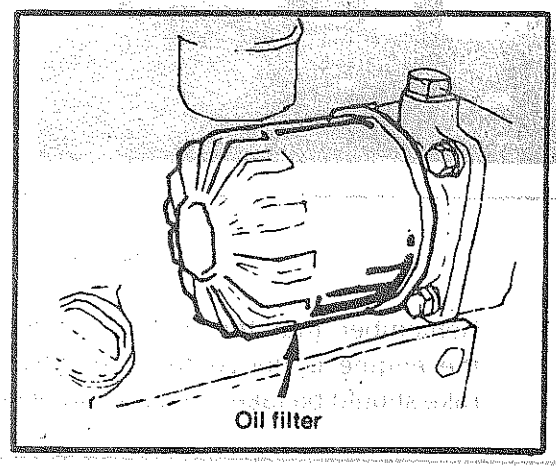


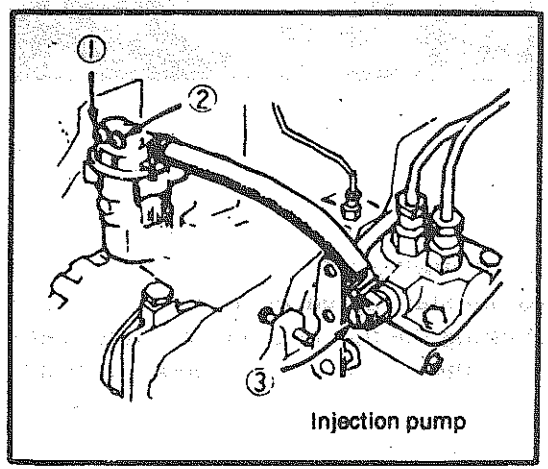
Fig. 7

4.2 - FUEL SYSTEM

1 - Gasoil

Always use clean, filtered gasoil. Never use kerosene or heavy oils.
Fill with fuel beforehand. In cold weather, a lot of water vapour is produced when there is a lot of air in the fuel tank. Therefore the tank should be kept as full as possible.
When filling the tank, try to avoid impurities and water, always using clean plastic containers and filter the fuel whenever possible.
Also make sure that the tank is free from water and dirt.

2 - Fuel system purge



Injection pump

The presence of air in the fuel system will prevent the engine from starting up. Therefore it is absolutely necessary to inspect and pay due attention to the fuel system to check for air leaks.

To purge the air from the fuel system, first loosen the fuel filter ventilation screw (1) and re-tighten the screw after bubbling ceases. Thereafter purge the air by loosening the fuel filter and injection pump ventilation screws (2) and (3), in this order, and then re-tighten the screws (Fig. 8).

Thereafter turn the engine over for a few seconds with the starter motor, with the lever in the «fully open» position so that the air may be removed from the piston, the fuel injection tubes and the nozzles.

This operation may also be effected by operating the supply pump lever located at the top of the reverse gear (Fig. 9) until the air is purged.

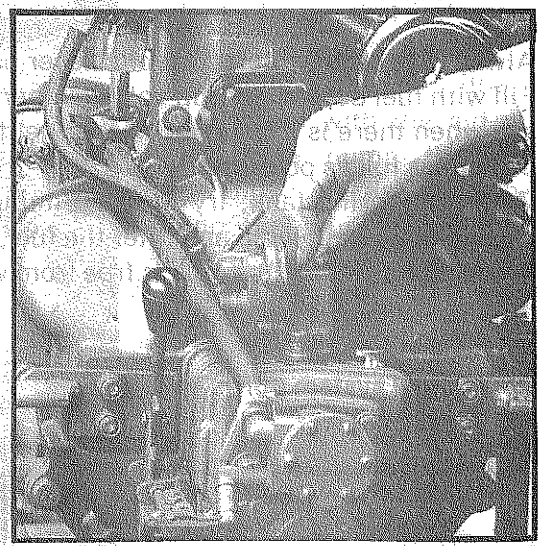


Fig. 9

The engine may be started up by following the above listed sequence of operations. If the engine does not start up easily, remove the injection screws from the nozzle side, setting the fuel lever in the «fully open» position, operate the starter motor or the fuel pump lever and then firmly tighten up the nuts.

3 - Cleaning and replacement of fuel filter

The fuel filter is of the easy-to-handle cartridge type. The accumulation of dirt and water in the filter causes operating difficulties. Remove the engine filter every 100 running hours, clean the outside and remove the two ventilation screws. Purge any water that has collected inside and thereafter rinse the filter in clean gasoil (Fig. 10).

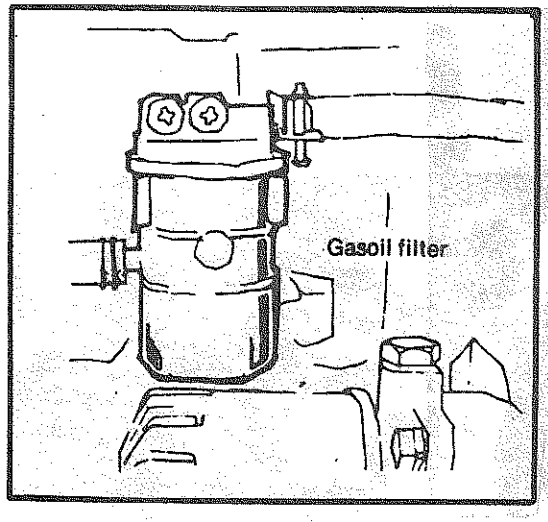


Fig. 10

The filter should be replaced after every 200 hours running. If a fuel decanter filter is fitted apart from the engine, drain it every 100 hours and replace the cartridge every 200 hours.

4 - Fuel injection pump

The fuel injection pump is one of the most important parts of a Diesel engine and, therefore, great care is required when handling it. Moreover, the injection pump has been very carefully adjusted at the works and should never be handled carelessly. When any adjustment is required, it should be effected by an authorized SOLE Service Centre, since a precision pump tester and specialized knowledge are needed.
The requirements for handling fuel injection pumps are as follows:

- Always use fuels free from impurities.
- Clean and replace the fuel filters periodically.

5 - Setting of slow running speed

Slacken off the locknut of the screw in front of the gas lever and tighten up or slacken off the nut according to whether it is wanted to increase or reduce the slow running speed (Fig. 11). Then re-tighten the locknut.

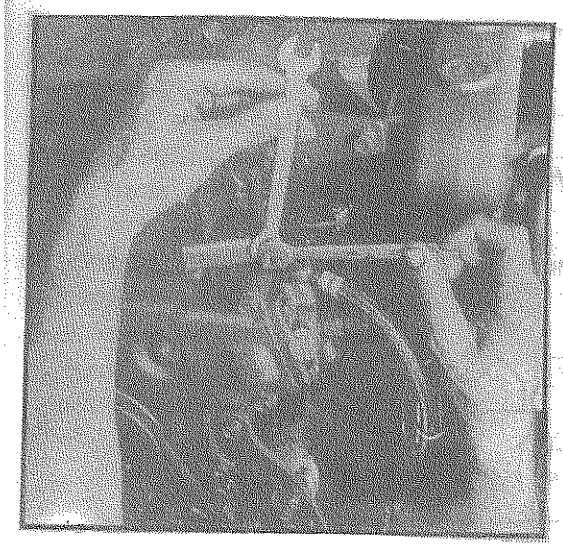


Fig. 11

IMPORTANT:

Never touch the sealed screw located behind the gas lever.

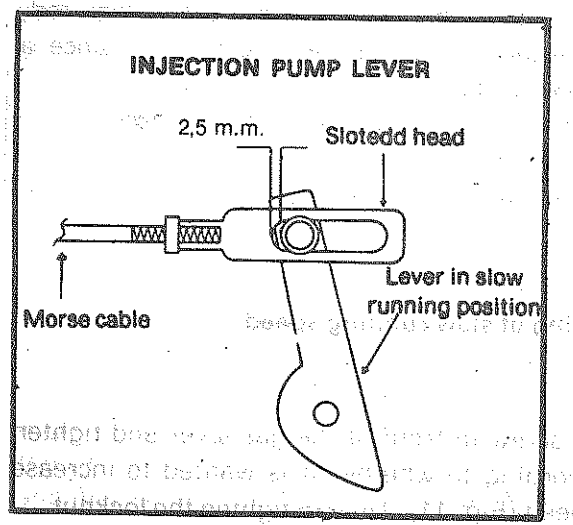


Fig. 12

6 - Fitting of remote control to engine

The engine fuel system comprises a single lever for accelerating and stopping the engine. Therefore, the gas lever slotted head has to be fitted as shown in Fig. 12.

4.3 - INLET SYSTEM

1 - Replacement of inlet air filter element

Change the air filter element every 400 hours.

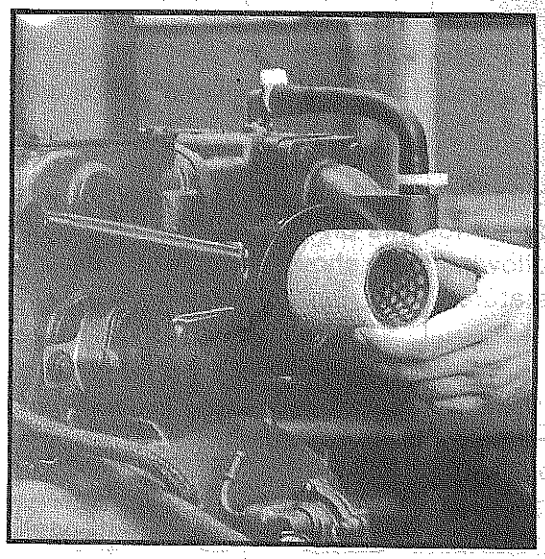


Fig. 12 bis

To replace the filter, slacken off the filter centre nut, remove the cover and pull out the filter element. Insert a new element (Fig. 12 bis).
The element MAY NOT be cleaned.

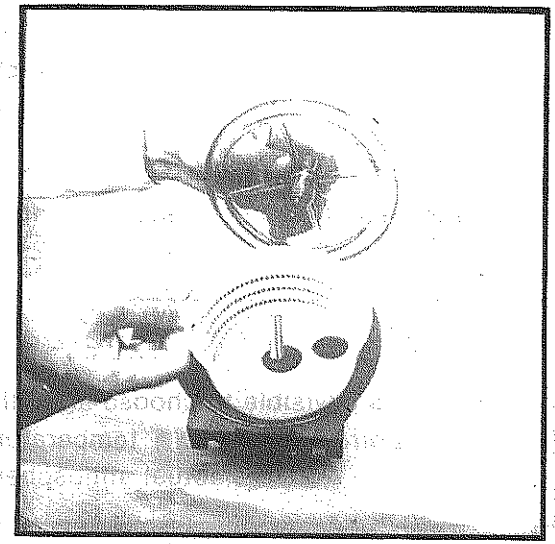


Fig. 14

It is important to install a filter between the engine and the bottom cock to prevent the impurities contained in the sea water from obstructing the cooling pipes and seizing the thermostat.
Clean the filter every 50 hours by slackening off the wing nut and removing the filter element. Clean out and replace, making sure that the cover is properly seated on the O-ring. (Fig. 14).
Then set the engine running to check for water leaks from the cover.

4.4 - COOLING SYSTEM

1 - Fres water system

The engine is cooled by fresh water, contaminated as little as possible, such as tap water or rainwater. Using hard or dirty water will cause formation of scale inside the system, which will considerably reduce the cooling effect.

If low temperatures, i.e. below 0°C, are a hazard, antifreeze must be added to the cooling water.

The proportion of antifreeze depends on the anticipated temperatures. The antifreeze makers give guidance for this on the package labels of their products. In any case, the following table shows the proportions appropriate for the expected temperatures.

Concentration of antifreeze (%)		13	23	30	35	45	50	60
Temperature	in °C	—5	—10	—15	—20	—30	—40	—50
	in °F	(23)	(14)	(5)	(—4)	(—22)	(—40)	(—58)

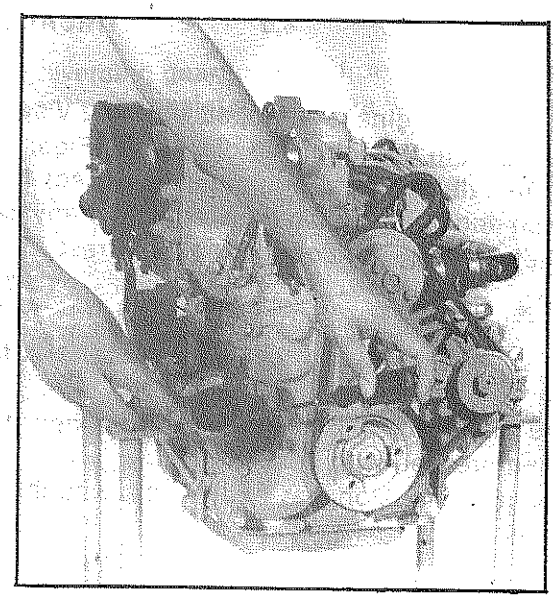
Be sure to clean the cooling system before adding antifreeze.

NOTE

It is advisible to choose an antifreeze concentration corresponding to a temperature about 5°C lower than the actual atmospheric temperature.

Cooling system capacity: 5,5 litres

Fig. 13



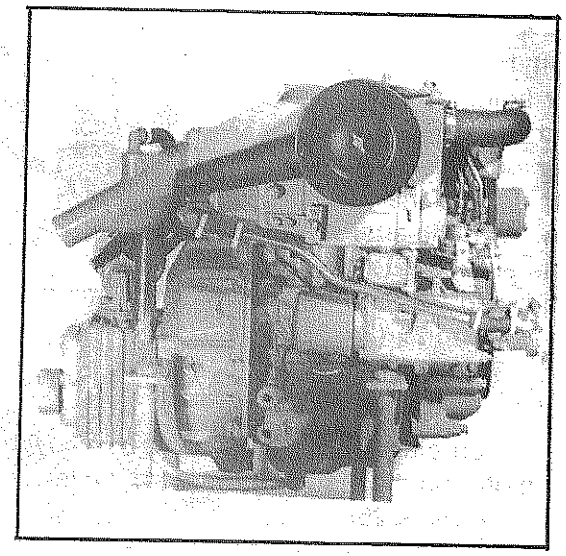
2 - Sea water system

a) Water pump

The water pump is located on the right hand side of the engine at the front, underneath the alternator. The rotor is made of neoprene and must not be allowed to run dry. If it without water it can break. It is therefore important always to carry a spare.

To replace the rotor, turn off the water inlet cock, take off the pump cover and remove the rotor from its shaft, using two screwdrivers for leverage. Clean the seat and fit a new rotor. Replace the cover with a new gasket (Fig. 13).
Open the bottom cock.

Fig. 15



3 - Drainage

The engine two drain cocks, for fresh water (Fig. 15).

4.5 · ELECTRICAL SYSTEM

1 - The engine is equipped with a 12 V system and the electrical circuit is shown in the following diagrams (Figs. 20 and 21).
To install electrical equipment, connect it correctly, following the diagram and, at the same time, check for any damaged cable sheathing and whether the earth connection is correct.

2 - Alternator belt tension

The alternator belt is properly tensioned if it moves from 10 to 12 mm when pressed with your finger.
Too much tension may cause rapid wearing of the and the alternator bearings.

On the other hand, if it is too slack or is oily, there may be an insufficient charge due to slipping of the belt.

Never try to adjust the belt tension with engine running.
To tension the alternator belt, loosen the two alternator holding bolts, one located underneath and the other on the tension device, tension up the belt by levering with the alternator until the appropriate tension is obtained. Then retighten the two boits. (Fig. 16).

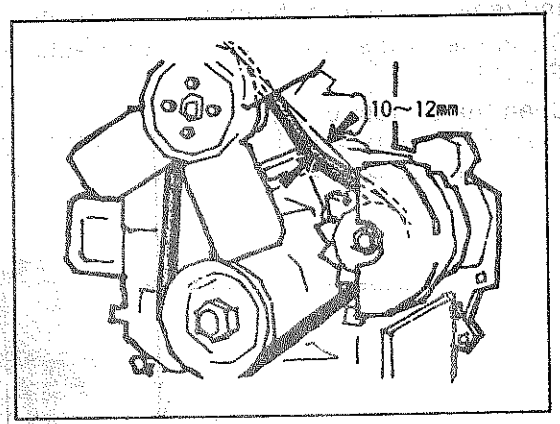


Fig. 16

3 - Fuse

The electrical system is protected by a 40 A fuse, fitted alongside the starter motor on the lead running from the latter to the control panel (see diagram on page 25).
If no power reached the panel, make sure that the fuse is not burnt out. If it is, install a new one.

4.6 · REVERSING REDUCTION GEAR

The ronim mechanically operated reversing gear is made from aluminium alloy having hihg mechanical strength and resistance to sea water.

1) Operation

With the engine running at tick-over speed, gently push the reverse gear lever forwards (ahead) or backwards (astern) as desired.

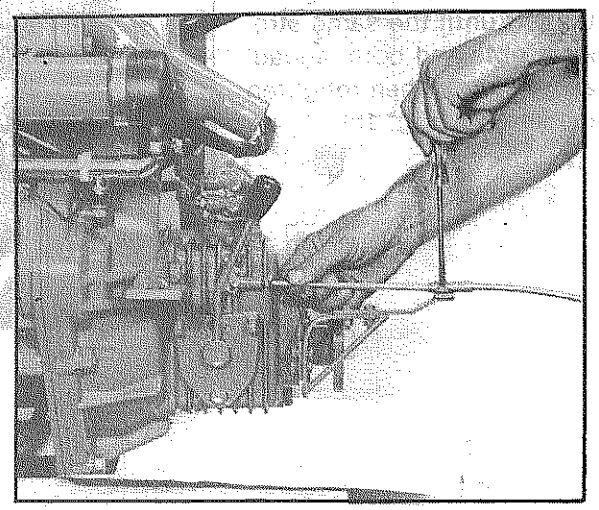
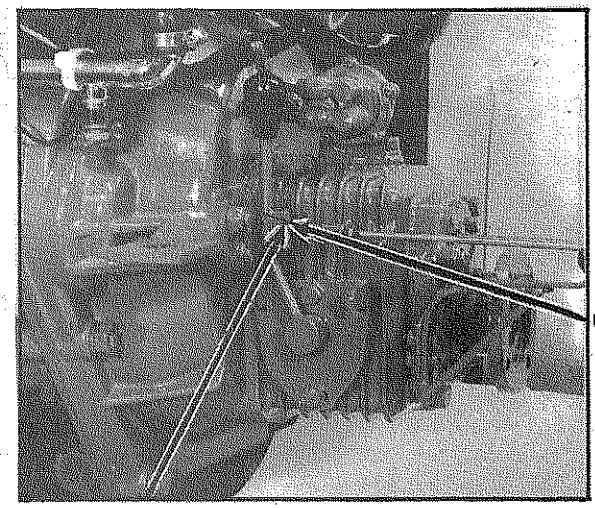


Fig. 17

2) Remote control connection

Connect the control cable to the lever with the ball joint provided and attach the cable with the clamp.
Once the control is mounted, adjust it so that it moves the same distance forwards as backwards and do not open the accelerator until the gear has properly entered. (Fig. 17) To check that the assembly is correct, proceed as follows:

Fig. 18



Push the reverse gear lever and the remote control lever to 'ahead'.
At this stage, line up the bores of the ball join (A) and lever (B) (Fig. 18).

Any adjusment is made with the reverse gear lever bores and with the elongate holes of the cable attachment support.

3) Adjustment of control

Slacken off the control attachment screwus and move it sideways to the right or the left until the same stroke is obtained both 'ahead' and 'astern'. Then retighten the screws (Fig. 19)

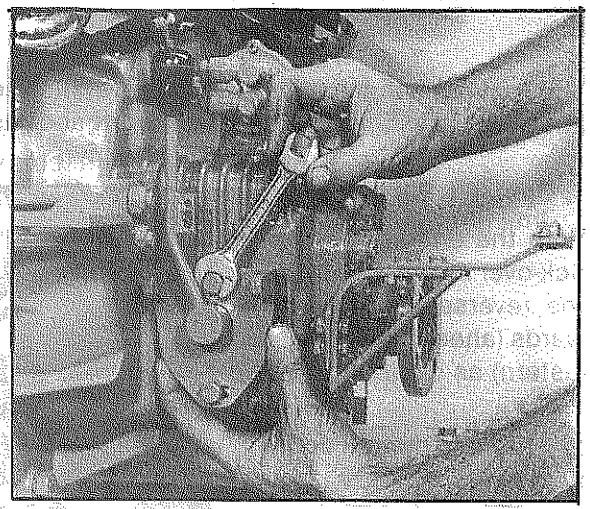


Fig. 19

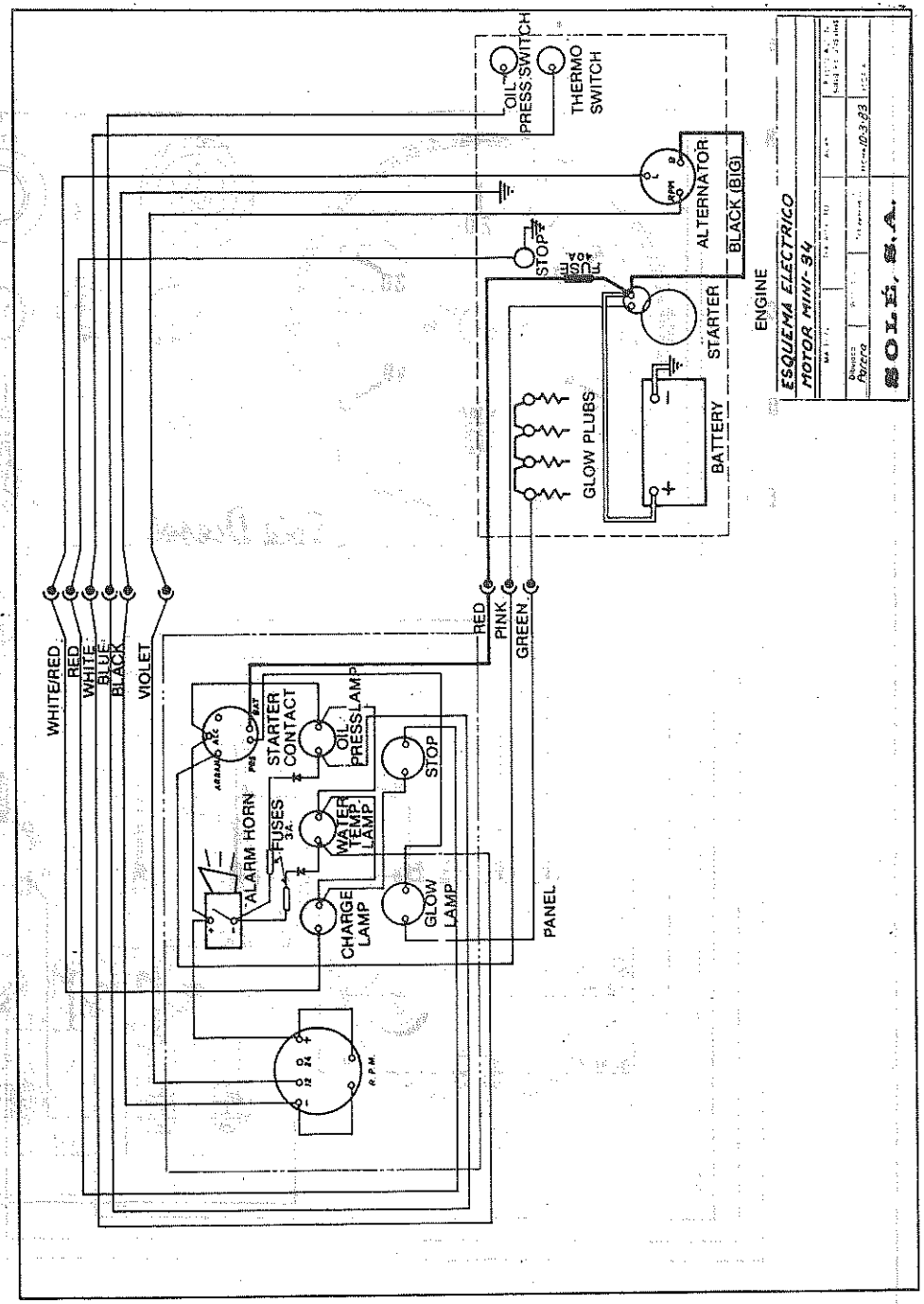
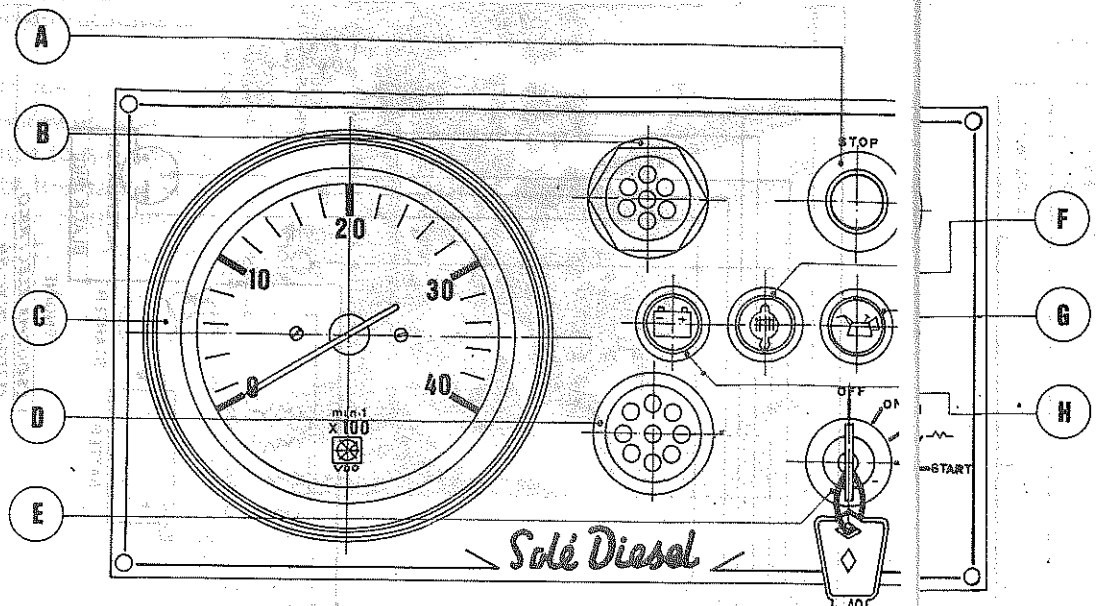
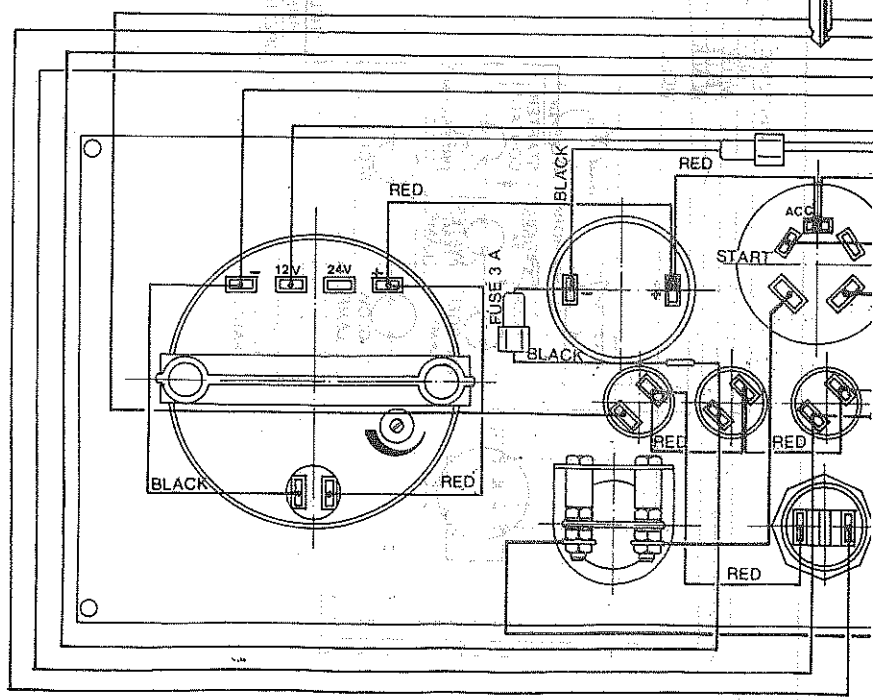
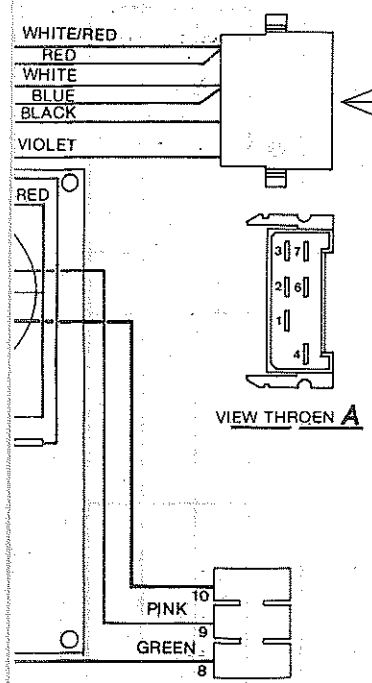


Fig. 20







VIEW THROEN **A**

Nº	CABLE FUNCTION	COLOUR
1	NEGATIF	BLACK
2	WATER ALARM	WHITE
3	BATTERY CHARGE	WHITE/RED
4	TACHOMETER	VIOLET
6	OIL ALARM	BLUE
7	ENGINE STOP	RED

8	GLOW PLUES	GREEN
9	STARTER	PINK
10	COURRONT TAP +	RED

PUNTO	DESCRIPTION
H	CHARGE LAMP
G	OIL PRESS. LAMP
F	WATER TEMP. LAMP
E	STARTER SWITCH
D	ALARM HORN
C	TACHOMETER
B	GLOW LAMP
A	STOP SWITCH

CUADRO ELECTRICO
MOTOR MINI-34

Dibujado Parera — 10-3-83 — ESCALA

SOLÉ, S.A.

Fig. 21

○ Inspection, adjustment of filling □ Cleaning ● Change △ Drain

	Item to inspect / Intervals	Daily	First 50 hours	Every 100 hours	Every 200 hours	Every 400 hours	Every 800 hours	Long term
Engine body	Tighten setscrews		○			○		
	Valve clearance		○			○		
	Engine slow running speed		○	○				
	Engine compression							
	ratio						○	
Lubrication system	Engine oil	○	●	●				
	Reverse gear oil	○	●	●				
	Oil filter		●	●				
Fuel system	Fuel	○						△
	Fuel tank							□
	Fuel filter			□	●			
	Fuel Filter with water trap (if any)		○	△	●			
	Nozzle				○			
	Injection pump						○	
	Air filter					●		
Cooling system	Cooling water	○					●	
	Water filter		□					
	Bottom cock	○						
	Water pump impeller					○		
Electrical system	Each instrument	○						
	Glow plug					○		
	Starter motor, alternator and regulator						○	
	Alternator belt tension		○		○			
	Battery water level.				○			

5 - PERIODICAL INSPECTIONS

5.1 - DAILY CHECKS BEFORE USING THE ENGINE

1 - Check engine and reverse gear oil level. Top up. No topping up required if oil level is close to upper level on dipstick.

2 - Check fuel level and open tank outlet valve.

3 - Open water inlet valve.

4 - Check pilot lights.

After starting, check oil pressure, water temperature and battery charge. The three pilot lamps should be extinguished and the horn should not sound.

5 - Check that the cooling water is flowing and for any irregularities in the exhaust gases, noise and vibrations.

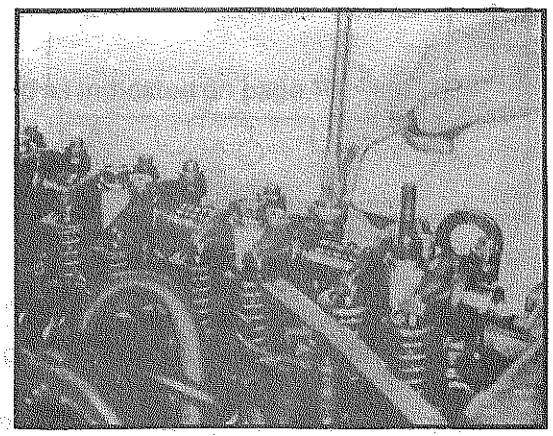
6 - Check cooling water level.

5.2 - MAINTAINANCE AFTER FIRST 50 HOURS RUNNING

1 - Change engine and reverse gear oil. Proceed as indicated on pages 13 and 14.

2 - Change oil filter. Change as specified on page 14.

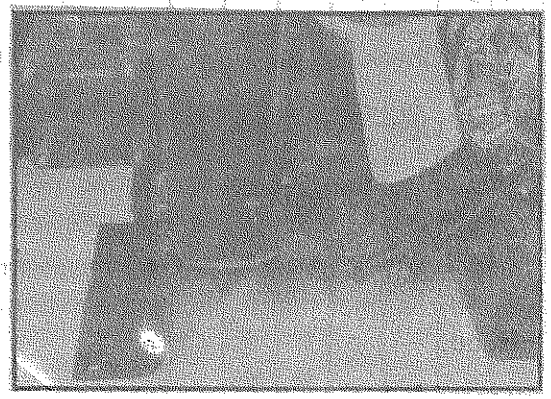
Fig. 22



3 - Setting valve clearance. Carry out this operation when the engine is cold, as follows:
a) Remove the rocker arm cover, slacken off the rocker arm nut and while the adjusting screw is being turned, check the valve clearance with a gauge (Fig. 22).

b) With the no. 1 cylinder (box) piston at top dead centre on the compression stroke, set the clearance of the no. 1 cylinder inlet and exhaust valves. Likewise, with no. 2 cylinder piston at top dead centre, set the clearance of no. 2 cylinder inlet and exhaust valves.

Fig. 23



c) The positioning of no. 1 cylinder piston at top dead centre may be checked by mating marks on the distribution cover and the crank pulley (Fig. 23).

d) After adjusting, tighten the rocker arm nut well, whilst the adjusting screw is held against rotation.

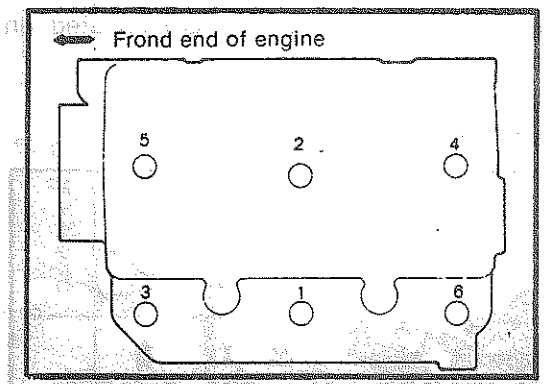


Fig. 24

NOTE:
The valve clearance must be adjusted after re-tightening the cylinder head holding screws (order of tightening illustrated in Fig. 24).

Valve clearance (inlet-exhaust: 0,25 mm (0,0098 pulg)
Cylinder head torque: 12-13 Kgm (with washer).

4 - Alternator belt adjustment. Proceed as indicated on page 22.

5 - Re-tightening nuts and bolts.
Check the tightness of the engine and propeller shaft mounting bolts.

6 - Adjust engine slow running speed.
Check the engine slow running speed and adjust as indicated on page 17.

5.3 - MAINTAINANCE AFTER EVERY 100 HOURS RUNNING

1 - Change engine oil (see page 13).

2 - Change oil filter (see page 14).

3 - Clean fuel filter (see page 16).

4 - Drain fuel decanter filter.
Slacken off the wing nut located at the bottom of the glass bowl and allow all the accumulated water to run out. Re-tighten the wing nut and check for dripping.

5 - Clean water filter (see page 19).

6 - Adjust engine slow running speed (see page 18).

5.4 - MAINTAINANCE AFTER EVERY 200 HOURS RUNNING

1 - Change fuel filter. Proceed as indicated on page 16.

2 - Change decanter filter element.
Replace filter element together with gaskets.
Check that there is no fuel leak.

3 - Adjust alternator belt. (See page 22).

4 - Nozzle check.
Set the nozzle pressure to 120^{+10}_{-0} Kg/cm² and remove any undesirable

injection conditions, including «after-dripping». (This operation should be effected by an Official SOLE Service Centre.

5 - Check battery water level.
Check this level, topping up with DISTILLED WATER, whenever required.

5.5 - MAINTAINANCE AFTER EVERY 400 HOURS RUNNING

1 - Change air filter element. Proceed as indicated on page 14.

2 - Tighten up engine and propeller shaft mounting screws.

3 - Adjust valve clearance (see page 29).

4 - Check glow plugs.
Check whether glow plugs are burned out.

5.6 - MAINTAINANCE AFTER EVERY 800 HOURS RUNNING

1 - Check compression.

- Remove glow plugs (or nozzles) and measure the pressure using a compression gauge.
Adjust as required if the pressure difference between cylinders is more than 2.5 kg/cm² or the pressure of each cylinder is below 26 kg/cm² (at 280 r.p.m.).

2 - Adjust fuel injection.
Have this operation done by a SOLE Service Centre.

3 - Check alternator and regulator.

- Regulate the voltage and the current using a circuit tester.

4 - Check starter motor pinion and engine flywheel ring gear.
Touch up any damaged bevel area with a file and replace if the part is completely damaged.

5 - Check water pump impeller.
Check that the impeller has no broken arm. If it has, proceed as indicated on page 21.

6 - Change the cooling system water.
Drain by opening the fresh water system drain cock (Fig. 15). After all the water has drained out, close the cock and refill with fresh, clean water up to the filler cap opening (Fig. 3).

6 - TROUBLESHOOTING

It is essencial to detect and repair any breakdown or fault as soon as possible. Check and act in accordance with the instructions given below. If any repair requires a technical capacity beyond your reach, have it done by a SOLE, S. A. Authorized Service Centre.

1. Engine does no start

Starter switch faulty.	Check connections and contacts.
Low starter motor torque.	The battery is exhausted, the starter motor is faulty or the wiring is dirty or has a loose connection.
Inappropiate engine oil viscosity.	Check viscosity and change oil as required.
Moving parts seized.	Correct
Still air inside. No fuel in tank. Fuel filter clogged.	Thoroughly purge. Fill up. Clean or replace.

2. Engine stops while running

Fuel tank empty.	Fill up.
Fuel filter clogged.	Clean or replace.
Air in fuel system.	Retighten fuel pipe connections.

3. Poor engine performance

Fuel filter clogged.	Clean or replace.
Air in fuel system.	Retighten fuel pipe connections.

4. Inadequate oil pressure

Insufficient amount of oil.	Top up.
Oil leaks from connections.	Repair.
Oil pressure switch faulty.	Replace.

5. Engine overheats

Insufficient cooling water.	Check water pump impeller and replace. Check bottom cock.
Dirty water filter.	Clean.
Cooling circuit clogged.	Clean.
Faulty thermocontact.	Replace.

6. Battery charges poorly

Incorrect belt tension.	Adjust.
Wiring faults.	Repair.
Incorrect ammeter. (if fitted)	Replace.
Faulty battery.	Replace.
Faulty regulator.	Repair or replace.

7. Gears do not engage smoothly

Remote control poorly adjusted.	Adjust.
Reverse gear control maladjusted.	Adjust.
Clutch cone worn.	Replace.

7. SERVICE DETAILS

7.1 - SERVICE STANDARDS

* Valve clearance:	0.25 mm. (0.010'') with cold engine (both inlet and exhaust valves)
* Compression:	32 kg/cm² (454.4 psi) (320 R.P.M.)
* Oil capacity:	Engine 2,5 litres Reverse gear 0.4 litres
* Injection order:	1 - 2
* Injection timing:	23° BTDC
* Nozzle pressure:	$120\ ^{+10}_{-0}$ kg/cm² ($1.706\ ^{+0.143}_{-0}$ psi)

7.2 - TABLE OF TIGHTENING TORQUES

	kg-m	(pounds-foot)
* Cylinder head bolts	12-13	(86,76-93,99)
* Crank pulley nut:	15-20	(108.5-144.6)
* Conrod big end cap nut:	3.2-3.5	(23.1-25.3)
* Conrod big end cap bolt:	5.5-6.0	(39.8-43.4)
* Flywheel bolt:	11.5-12.5	(83.2-90.4)
* Oil drain plug:	5.0-6.0	(36.2-43.4)
* Oil filter:	1.1-1.3	(8.0-9.4)
* Discharge valve support:	4.0-5.0	(28.9-36.2)
* Nozzle support setscrew:	1.5-2.0	(10.8-14.5)
* Nozzle holding nut and support:	8-10	(43.3-57.9)
Glow plug:	1.5-2.0	(10.8-14-5)
* Reverse gear inlet clamp nut:		
* Reverse gear outlet clamp nut:		
* For general tightening up of bolts:		
M.6	0.7	(5.1)
M.8	1.7	(12.3)
M.10	3.5	(25.3)
M.12	6.4	(46.3)

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