

WARRANTY

1 year from Date of Purchase

The manufacturers will repair or replace, free of charge any part of parts of this engine found defective in material and workmanship by an Authorised Service Dealer. This warranty covers only domestic use. The following is a list of situations or conditions which will not be covered by the warranty or which will render void any further warranty on the engine:

1. Attempting to disassemble or repair the engine or have repairs made by anyone other than an Authorised Service Dealer.
2. Normal wear and tear.
3. Damage due to lack of owner and/or user maintenance.
4. Damage due to improper storage and/or lack of preparation for storage.
5. Damage in transit.
6. Overloading engine beyond factory rated horsepower.
7. Negligence, misuse or abuse.
8. Accident.
9. Damage caused by out-of-balance conditions (bent blades, unbalanced blades, loose blades, etc).
10. Failure of owner and/or user to inspect, repair or have repaired immediately any abnormal conditions of equipment.
11. Damage due to engines not being securely attached to equipment.
12. Bent or broken shafts.
13. Damage due to overheating or fire.
14. Modification to any part of the equipment, whatsoever.

These engines are for domestic use only and not suitable for commercial or industrial purposes.

The manufacturer operates a policy of continual improvement and reserves the right to alter product specifications without giving prior notice.



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ENGINE INSTRUCTION MANUAL

DO NOT TILT MOWER ON ITS SIDES

Before performing under-carriage inspection ensure that the engine is off and the spark plug has been disconnected.

For undercarriage inspection, push handle down backwards, making sure the spark plug points upwards.

For more information consult the maintenance section of your engine operating manual



(Picture for illustrative purposes only)

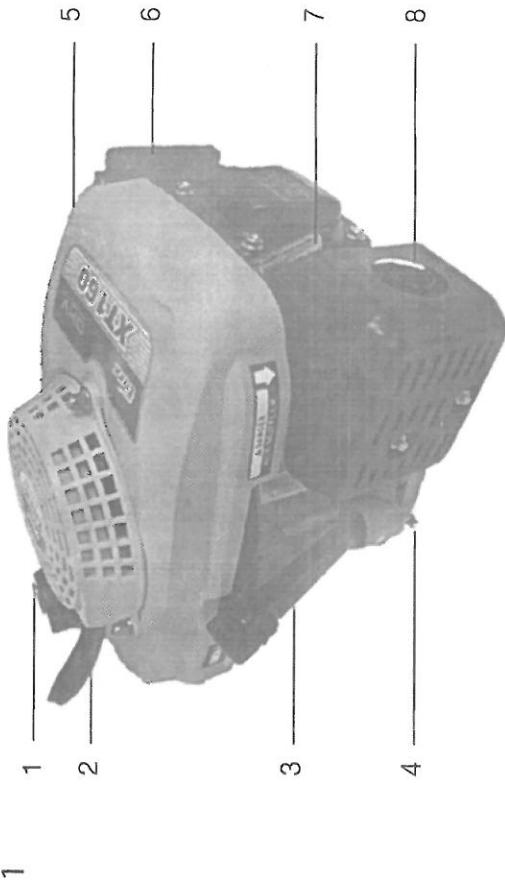
V2-1011/AFRI
1600-574545

Procedure following prolonged storage

- Check the engine as described in the section "Checking the engine before start-up".
- If the fuel was drained prior to storage of the unit, fill up the tank with fresh petrol. If a petrol can is used for refueling ensure that it contains fresh petrol.
- If the cylinder was oiled during storage, the engine generates a little smoke when it is started. This is normal.

Warranty

The warranty regulations used by our company or the importer are valid in all countries. We shall repair any faults on your unit free of charge in accordance with the warranty provided the fault was due to defective materials or manufacturing. If claiming under the warranty, please contact your seller or your nearest branch.



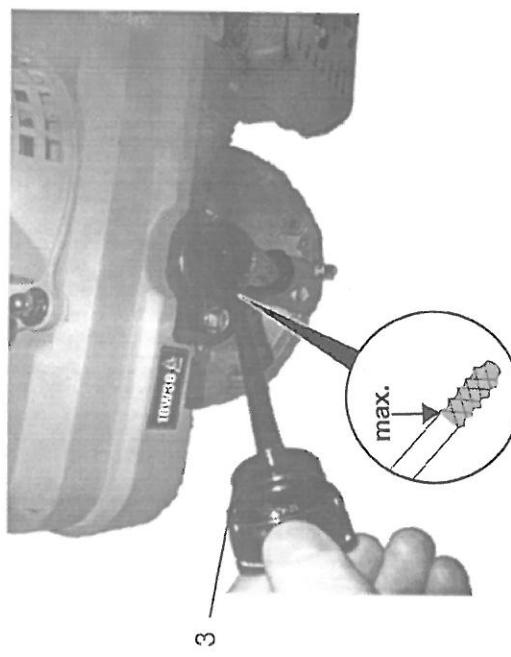
Troubleshooting

Fault	Possible cause	Remedial action
Engine does not start	Safety lever not actuated No fuel in the tank.	Actuate Safety lever (if fitted). Fill tank with clean, fresh and lead-free fuel.
Stale fuel.		Drain stale fuel into a suitable container outdoors. Fill tank with clean, fresh and lead-free fuel.
Engine in a cold state, choke-primer (if fitted); not actuated.		Actuate choke/primer.
Throttle not set to "START" or maximum speed.		Set throttle to "START" – maximum speed.
Spark plug terminal not connected.		Connect sparkplug terminal to the Spark plug.
Spark plug dirty or defective.		Clean sparkplug. Re-adjust gap between electrode or change spark plug.
Blocked petrol line.		Clean petrol line. (*)
Engine runs irregularly (sputters)	Choke (if fitted) actuated Spark plug terminal connected loosely.	Put back choke lever Firmly connect spark plug terminal
Stale fuel.		Drain stale fuel into a suitable container outdoors. Fill tank with clean, fresh and lead-free fuel.
Ventilation hole in fuel cap blocked		Clean fuel cap.
Air filter dirty.		Clean air filter.
Spark plug scorched; defective or gap between electrodes too wide.		Re-adjust gap between electrodes or change sparkplug.
Engine overheats	Inadequate engine oil. Air flow restricted	Fill crank case with appropriate amount of oil. Remove grass clippings and dirt from the area round the cooling fins on the engine and from the blower housing.
Engine cuts out at high speed.	Gap between electrodes too narrow	Remove spark plug and re-adjust gap between electrodes

(*) This work may be carried out by a specialist company only.



Important
If repairs exceed the work mentioned above, please contact your local dealer with customer service facilities.



Models without primer

Fig. 4

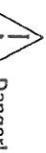
- Remove the wing screw and the air filter cover. Remove the filter element. Carefully check the element for holes and cracks and replace if damaged.

- Paper element:

Gently tap the paper element several times on a hard surface to remove dirt or blow out dirt with compressed air from inside through the filter. Never attempt to brush out dirt; the dirt would only be rubbed permanently into the fibres. Replace the paper element if it is excessively dirty.

- Re-insert filter and attach cover.

Servicing the spark plug



Danger!

Leave the engine to cool down. Conduct an ignition test on a spark plug which has been removed. Do not start the engine without installed spark plug.

To ensure that the engine runs correctly, the gap between the electrodes on the spark plug must be set correctly and free of contaminants.

Fig. 5

- Remove the spark plug terminal (1) and unscrew the spark plug (2) with a spark-plug wrench.
- Visually check the spark plug. Replace the spark plug if it is clearly worn or the insulator is damaged.
- Clean the spark plug with a wire brush if it is to be used again.
- Measure the gap between the electrodes with a feeler gauge. If required, re-adjust the gap by slightly bending the side electrode. The gap between the electrodes should be 0.70-0.80 mm (Fig. 6).
- Check that the sealing ring on the spark plug is in good condition, then screw in the spark plug by hand to prevent damage to the thread.
- When the spark plug is hand-tight, tighten with the spark-plug wrench.



Caution!

Do not tighten the spark plug too tightly. Observe the following values for tightening the spark plug with a spark-plug wrench:

- New spark plug maximum $\frac{1}{2}$ revolution
- Used spark plug maximum $\frac{1}{8}$ - $\frac{1}{4}$ revolution. An incorrectly tightened spark plug may become very hot and damage the engine.

Cleaning the engine

If the engine has already been running, leave it to cool down for at least one hour before cleaning. Regularly remove accumulated grass and dirt from the engine. Clean the finger guard and the area around the exhaust. Use a brush or compressed air.



Danger!

Dirt which has accumulated around the exhaust may catch fire. Check and clean the area before using the unit.

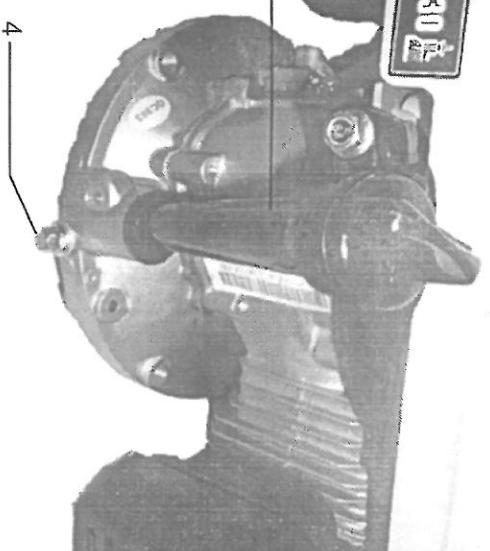
Storage

Engines which are stored for longer than 30 days should have an empty fuel tank in order to prevent the formation of residue in the fuel system, especially on important parts of the carburettor. If storage is from 30 to maximum 90 days, a stabilizer can be added to the fuel. Contact your dealer or the customer service centre.

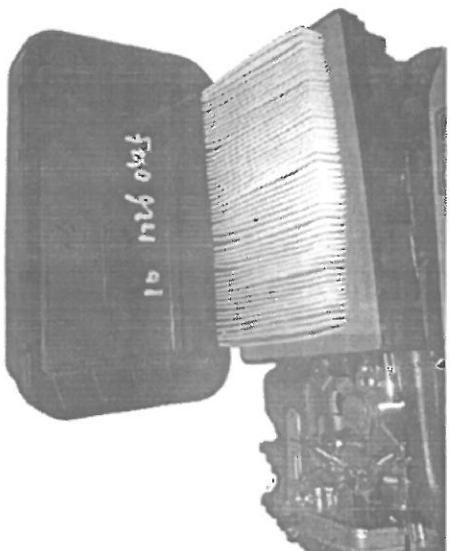
- Leave the engine running until the tank runs out of fuel and the engine stops.
- Change the oil. See "Changing the oil".
- Remove the spark plug and pour approx. 15 ml of engine oil into the cylinder. Re-install the spark plug and slowly pull the starter cable to distribute the oil.
- Remove grass and dirt from around the engine, from under the engine cover and from around the exhaust.
- Touch up areas of flaking paint and apply a thin film of oil to other areas which could rust.
- Store in a clean, dry and well ventilated area away from units which operate with a flame or a warning lamp, e.g. heating equipment, boilers or tumble dryers. Areas should also be avoided in which a spark-generated electric motor is situated or in which electric tools are used.
- If possible, storage areas with high air humidity should not be selected either, as this promotes the formation of rust and corrosion.
- Store the unit on a flat surface. If the unit is on an incline, fuel or oil may run out.
- Please note that if the spark plug is not disconnected, the engine may accidentally start.

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Maintenance schedule

Maintenance work	After the first 5 operating hours	Before each use or every 5 hours	Once a season or every 25 hours	Once a season or every 50 hours	Once a season or every 100 hours
Clean engine cover		•			
Check engine oil	•	•	• ¹⁾	• ²⁾	
Change engine oil	•				
Check air filter	•	•			
Check spark plugs		•			
Service spark plugs					
Change fuel filter			•	•	
Clean exhaust area	•				

- 1) If a heavy load or at high ambient temperatures
- 2) If operating the unit in a dusty environment, clean more frequently

- If the engine is operated under difficult conditions, more frequent maintenance is required.
- At the end of the season have the unit inspected and serviced by a specialist company.

Checking the oil

- Before starting the engine, always check the oil level.
 - Ensure that the correct oil level is always maintained.
- See "Checking the oil level".

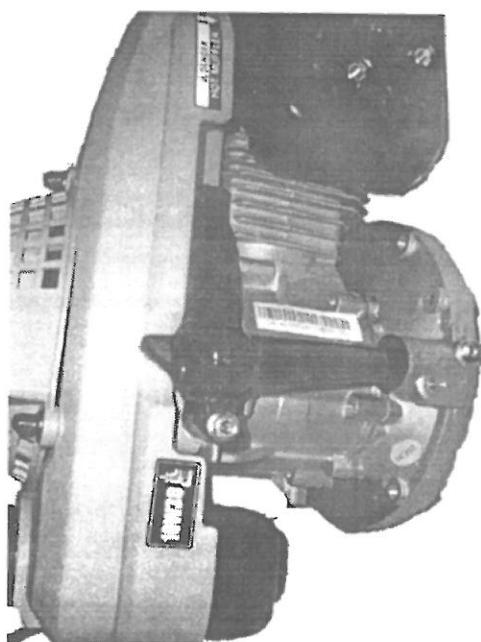
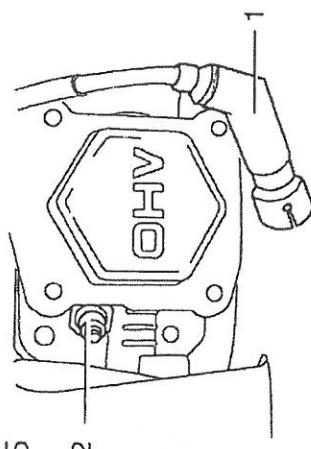
Changing the oil

- Danger! Waste engine oil may cause skin cancer if it comes into contact with the skin frequently and for a prolonged period. Even though this is unlikely, provided waste oil is not handled daily, it is advisable to wash hands as soon as possible with soap and water after working with waste oil.

Caution!

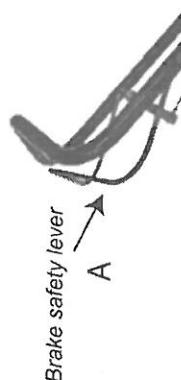
- Drain the oil while the engine is still warm but no longer hot (the oil drains quickly and completely). Fig. 3 .

- Remove the oil filter cap (3).
- Drain the oil into a suitable container by:-
- opening the oil drain plug (4), or
- tilting the unit on its side (air filter side face up).



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- Danger!**
Before tipping the unit to drain the oil, run the engine until the petrol tank is empty.
• Screw in the oil drain plug (if removed) and tighten.
• Fill the oil tank with the recommended oil and check the oil level.
• Re-attach the oil filter cap.

Important

- Dispose of waste oil according to the currently valid regulations for the protection of the environment. It is recommended to take the waste oil in a leakproof container to a waste oil collection centre. Do not dispose of with residual waste or pour onto the ground and leave to seep away.

Servicing the air filter

- A dirty air filter restricts the air flow to the carburetor. To prevent the carburetor from malfunctioning, clean the air filter regularly. In an extremely dusty environment more frequent maintenance may be required.

- Danger!**
Never clean the air filter with petrol or solvents with a low flash point. There is a risk of fire or explosion.

- Caution!**
Never run the engine without an air filter. Otherwise the engine may be damaged or subject to increased wear.

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Checking the petrol level



Caution!

- Before refueling, leave the engine to cool down for at least two minutes.
- Before removing the fuel cap and refueling, clean the area around the filler neck.
- Fill the tank until approx. two centimeters below the rim of the filler neck to allow the fuel to expand.

Starting the engine



Danger!

- Keep hands and feet away from moving parts.
- Do not use any pressurised starting aids.
- The vapours are flammable.



Caution!

- Follow all operating instructions in the operating manual for the unit on which this engine is mounted.



Note:

- Some models have "no choke and no primer".
- The engine is automatically set to the particular starting process.

- The speed is automatically set.

- The engine always runs at optimum speed.

- no throttle.

- Preparin to start the engine if the engine is cold
- Ensure throttle lever is in the start/choke position.



Important

- Even if the engine is warm, it may be necessary
- To actuate the choke (if fitted) or to actuate the primer (if fitted) 1x.

Starting with the hand starter

- Stand behind the unit, lift the brake safety lever A (refer to Fig. 8, if fitted) and hold up in place against the handle. Place the throttle lever in the start/choke position, and pull gently on the start handle (2, Fig. 1) until it begins to resist. Then pull quickly.
- The required force to overcome the compression and prevent backlash, if required, repeat.

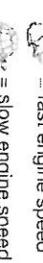


Caution!

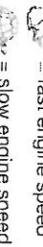
- Do not let the starter handle spring back against the engine, slowly guide it back to prevent damaging the starter.

When the engine has started

- When the engine is running or as soon as the engine has warmed up, set the throttle lever to the required position.



= fast engine speed



= slow engine speed

Stopping the engine

- Release the brake safety lever (if fitted) or set the throttle lever to its most bottom position.

Maintenance/cleaning



Danger!

- Before carrying out any work, e.g. maintenance and cleaning work, leave the engine to cool down. To prevent the engine from starting unintentionally, always remove the spark plug terminal.



Caution!

- The engine has been set optimally by the manufacturer with respect to power and consumption.
- Any change to these settings may be made by the manufacturer or authorized technicians only.
- If the engine has to be tilted for transportation of the unit, for inspection or removal of grass, ensure that the spark plug is facing up to prevent fuel and oil from damaging the engine.

- Share parts must comply with the requirements specified by the manufacturer.
- Therefore, use only original spare parts or those part parts authorized by the manufacturer. Repairs may be carried out by a specialist company only.

- To maintain a constantly high power, it is essential to inspect and re-adjust the engine on a regular basis.

- Regular maintenance ensures a long service life.

- The required maintenance intervals and the type of maintenance work to be carried out are indicated in the following table.

- The intervals according to operating hours or other times/dates should be observed according to whichever occurs first.

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Handling the document

- As the user of this unit, read this operating manual carefully before using the unit for the first time. Then comply with the operating manual and keep it for subsequent use. Never allow children or other people who are not familiar with this operating manual to use the unit.

In addition, local laws and/or regulations can restrict the age of the user/operator. If the operator lacks experience and knowledge, a person responsible for their safety is required to provide supervision and instruction concerning the use of the appliance.

Children should be supervised to ensure that they do not play with the appliance.

The appliance is not intended for use by persons with reduced physical, sensory or mental capabilities, or reduced capacity to judge, understand or reduce risk.

This manual includes safety instructions which point out dangers in connection with the engine identified as follows:

- Point out dangers in connection with the engine
- Indicate risks of injury
- Show how the risk of injury can be avoided or reduced.

The safety instructions in this manual are identified as follows:

- Danger! Denotes *impending danger. Non-observance of this warning may result in death or extremely severe injuries.*

- Caution! Denotes a dangerous situation. Non-observance of this warning may result in slight injury or damage to property.

- Important Denotes application tips and important information.

- DO NOT TILT THE LAWNMOWER. Should you need to inspect underneath the chassis, firstly ensure the engine has been switched off, the wire/terminal to the spark plug has been disconnected, the blade has stopped rotating and then press down on the handle thereby lifting the front nose of the lawnmower.

- Frequent check fuel lines, tank fuel cap and connection parts for cracks and leaks. If required, replace.

- Before starting the engine, ensure that the spark plug, exhaust, fuel cap and air filter have been attached.

- Do not start the engine without installed spark plug.

- If fuel has been spilled, wait until the fuel has evaporated before starting the engine.

- When operating units, do not tilt the engine or the unit to such an extent that fuel can run out. This lawnmower cannot be used for lawns or areas with a slope of 30 degrees or more.

Safe operating practices

- i** Important In general the term "unit" is used in the following. The engine can be installed in different units.



Risk of explosion and fire!

Petrol and petrol vapours are extremely flammable and explosive. A fire or an explosion may result in serious burns or fatalities. If petrol gets into your body or clothing, wash skin immediately and change clothing.

Before refuelling, switch off the engine and leave to cool down for at least two minutes before opening the fuel cap.

Fill up the tank outdoors or in a well-ventilated area only.

Use authorized fuel containers only.

Never fill up a petrol can in a vehicle, tractor or on a trailer with plastic paneling. Always fill a petrol can on the ground and at some distance from the vehicle.

If possible, take motorised units out of the heavy goods vehicle or the trailer and refuel on the ground. If this is not possible, fill up these units with a petrol can instead of directly with the petrol pump hose.

Always place the tank pipe on the edge of the filler neck on the tank or petrol can until the refuelling is complete. Do not use the locking lever for continuous filling.

Do not overfill the tank. Fill the tank until approx. two centimeters below the rim of the filler neck to allow the fuel to expand.

Keep the fuel away from sparks, naked flames, warming lights, heat and ignition sources.

Never refuel units in closed rooms, as flammable vapours will form.

Do not smoke.

Frequently check fuel lines, tank fuel cap and connection parts for cracks and leaks. If required, replace.

Before starting the engine, ensure that the spark plug, exhaust, fuel cap and air filter have been attached.

Do not start the engine without installed spark plug.

If fuel has been spilled, wait until the fuel has evaporated before starting the engine.

When operating units, do not tilt the engine or the unit to such an extent that fuel can run out. This lawnmower cannot be used for lawns or areas with a slope of 30 degrees or more.

- Do not use the choke to stop the engine.

Risk of injury!
Rotating parts may touch or catch hands, feet, hair, clothing or clothing parts. This may result in serious injuries.
 Operate the unit with installed guards only.
 Keep hands and feet away from rotating parts.
 Before starting work, tie back long hair and remove jewellery.

Risk of explosion and fire!
Sparks are generated when the engine is started. These sparks may ignite flammable vapours in the vicinity. This may result in an explosion or fire.
 Do not start the engine near damaged, gas-operated equipment.
 Do not use any pressurized starting aids, as their vapours are flammable.

Risk of asphyxiation!

Engines release carbon monoxide, an odourless and colourless toxic gas. Inhalation of carbon monoxide may result in dizziness, fainting or death.
 Start and run the engine outdoors only.
 Do not start or run the engine in closed rooms, even if doors and windows are open.

Risk of injury!

If the engine is started unintentionally, this may result in serious injuries, a fire or an electric shock.

Before carrying out any work, e.g. settings or repairs, always remove the spark plug terminal and keep it away from the spark plug.
 For ignition tests, use an authorized ignition tester only.
 Conduct an ignition test on a spark plug which has been removed.

Risk of burns! Risk of fire!

A running engine generates heat. Engine parts, especially the exhaust, are extremely hot. Do not touch, otherwise you could receive severe burns. Flammable objects such as leaves, grass, bushes, etc. may catch fire.
 Do not touch the exhaust, cylinder block or cooling fins until they have cooled down.
 Keep children away from a hot or running engine.
 Remove flammable objects from the vicinity of the exhaust and cylinder.

Risk of electric shock! Risk of fire!
Ignition sparks may cause a fire or electric shock.

Caution!
If inferior oil or oil for 2-stroke engines is used, the service life of the engine may be damaged.

Checking the oil level

- Fig. 1
- | | |
|----------------------------|------------------------|
| 1 Fuel cap | 2 Starter handle |
| 3 Oil filter cap/dip stick | 4 Oil drain screw |
| 5 Engine cover | 6 Air filter |
| 7 a) Spark plug | b) Spark plug terminal |
| 8 Exhaust | |

Operating instructions
Checks to be carried out before operating the unit.

Recommended oil grades

Risk of injury!

The quick retraction of the starter cable (recoil, e.g. caused by a misfire) will pull your hand and arm towards the engine more quickly than you can release the starter handle. This may result in injuries.
 To start the engine, slowly pull the starter handle until it begins to resist, then pull in one go.

Symbols on the unit

Safety instructions and warning instructions, illustrated with symbols or pictograms, can be found on the engine. The symbols have the following meanings.

Caution!
Warning – danger source.

Read operating instructions before starting the unit!

Warning – hot surface!



Warning – toxic vapours!



Petrol is flammable



Use unleaded fuel!

Risk of engine damage!
Do not mix fuel and oil.
Use clean, fresh and unleaded fuel only.

Use fuel with an octane number of 87 or higher only.
Store fuel in quantities which can be used within 30 days.
Ensure that no dirt, dust or water gets into the tank.

About the engine

Compare Fig. 1 with your unit and make sure you know where the different controls and regulators are located.



Caution!
If inferior oil or oil for 2-stroke engines is used, the service life of the engine may be damaged.

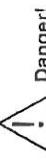
Checking the oil level



Caution!
When checking the oil, ensure that the unit is on a level surface and that the engine is switched off. Fig. 2

- Unscrew the oil filter cap (3) and wipe the dip stick.
- Insert the dip stick into the filler neck. Insert but do not screw in.
- Pull out the dipstick and check the oil level. If the level is too low, slowly pour in a little oil up to the upper "max" mark on the dip stick.
- Before starting the engine, firmly screw in the dip stick.

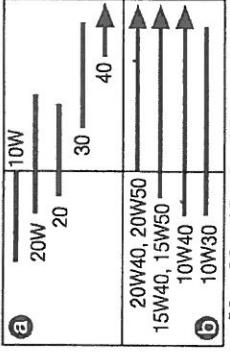
Recommended fuels



Caution!

Do not pour in too much oil.

Too much oil may result in engine damage, smoke generation, starting problems, sooted spark plug or oiled-up air filter.



- a) Single viscosity
b) Multiple viscosity

SAE 10W-30 is recommended for general use in the normal temperature range. If single viscosity oil is used, select one from the following table for the average temperature in the application area.