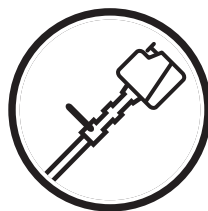


Operator's manual (EPA)

159LEB

Please read the operator's manual carefully and make sure you understand the instructions before using the machine.



English

KEY TO SYMBOLS

Symbols

WARNING! An ice drill is a dangerous tool if used carelessly or incorrectly and can cause serious, even fatal injuries. It is extremely important that you read and understand the contents of this Operator's Manual.



Please read the operator's manual carefully and make sure you understand the instructions before using the machine.



Always wear:

- Approved hearing protection
- Approved eye protection



Always wear approved protective gloves.

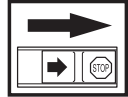


Wear sturdy, non-slip boots or shoes.

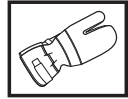


Other symbols/decals on the machine refer to special certification requirements for certain markets.

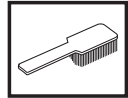
The engine is switched off by moving the stop switch to the stop position. **CAUTION!** The stop switch automatically returns to the start position. In order to prevent unintentional starting, the spark plug cap must be removed from the spark plug when assembling, checking and/or performing maintenance.



Always wear approved protective gloves.



Regular cleaning is required.



Visual check.



CONTENTS

Contents

KEY TO SYMBOLS

Symbols 2

CONTENTS

Contents 3

Note the following before starting: 3

WHAT IS WHAT?

What is what? 4

GENERAL SAFETY PRECAUTIONS

Important 5

Remember when going out onto the ice: 5

Personal protective equipment 5

Machine's safety equipment 6

ASSEMBLY

Fitting the auger 9

FUEL HANDLING

Fuel safety 10

Fuel 10

Fueling 11

STARTING AND STOPPING

Check before starting 12

Starting and stopping 12

WORKING TECHNIQUES

General working instructions 14

MAINTENANCE

Carburetor 16

Muffler 17

Cooling system 18

Spark plug 18

Air filter 18

Maintenance schedule 19

TECHNICAL DATA

Technical data 20

FEDERAL AND CALIFORNIA EMISSIONS

CONTROL WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS 21

Note the following before starting:

Please read the operator's manual carefully.



WARNING! Long-term exposure to noise can result in permanent hearing impairment. So always use approved hearing protection.



WARNING! Under no circumstances may the design of the machine be modified without the permission of the manufacturer. Always use genuine accessories. Non-authorized modifications and/or accessories can result in serious personal injury or the death of the operator or others.

Your warranty may not cover damage or liability caused by the use of non-authorized accessories or replacement parts.



WARNING! An ice drill is a dangerous tool if used carelessly or incorrectly and can cause serious, even fatal injuries. It is extremely important that you read and understand the contents of this Operator's Manual.

EMISSION CONTROL INFORMATION

 Husqvarna

HUSQVARNA AB HUSKVARNA SWEDEN

THIS ENGINE MEETS U.S. EPA AND CALIFORNIA EXH/EVP REGS FOR  SORE. REFER TO OPERATOR'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS. EMISSIONS COMPLIANCE PERIOD: 

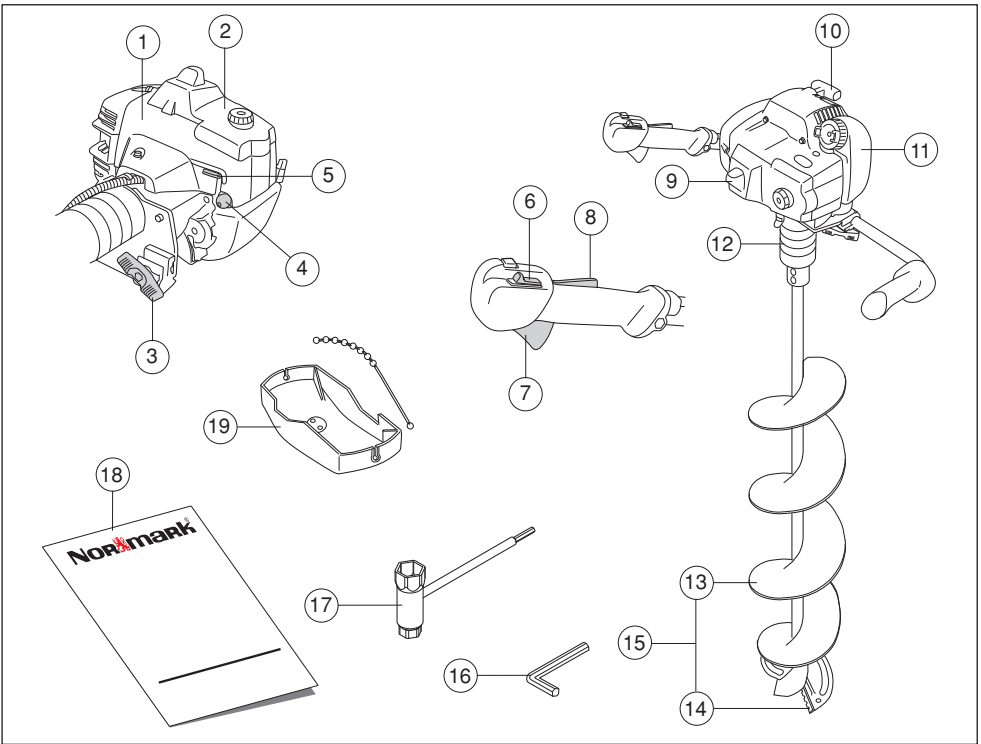
The Emissions Compliance Period referred to on the Emission Compliance label indicates the number of operating hours for which the engine has been shown to meet Federal emissions requirements.



WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

WHAT IS WHAT?



What is what?

- | | | | |
|----|-------------------------------|----|---------------------|
| 1 | Cylinder cover | 11 | Fuel tank |
| 2 | Air filter cover | 12 | Gear housing |
| 3 | Handle adjustment | 13 | Drill |
| 4 | Air purge | 14 | Cutters |
| 5 | Choke control | 15 | Cutting equipment |
| 6 | Stop switch | 16 | Allen key |
| 7 | Throttle control | 17 | Combination spanner |
| 8 | Throttle lock | 18 | Operator's manual |
| 9 | Spark plug cap and spark plug | 19 | Transport guard |
| 10 | Starter handle | | |

GENERAL SAFETY PRECAUTIONS

Important

IMPORTANT!

The machine is solely designed for drilling in ice.

Never use a machine that has been modified in any way from its original specification.

Never use the machine if you are tired, if you have drunk alcohol, or if you are taking medication that could affect your vision, your judgement or your co-ordination.

Wear personal protective equipment. See instructions under the heading Personal protective equipment.

Never use a machine that is faulty. Carry out the checks, maintenance and service instructions described in this manual. Some maintenance and service measures must be carried out by trained and qualified specialists. See instructions under the heading Maintenance.

All covers and guards must be fitted before starting. Ensure that the spark plug cap and ignition lead are undamaged to avoid the risk of electric shock.



WARNING! The ignition system of this machine produces an electromagnetic field during operation. This field may under some circumstances interfere with pacemakers. To reduce the risk of serious or fatal injury, we recommend persons with pacemakers to consult their physician and the pacemaker manufacturer before operating this machine.



WARNING! Running an engine in a confined or badly ventilated area can result in death due to asphyxiation or carbon monoxide poisoning.



WARNING! Never allow children to use or be in the vicinity of the machine. As the machine is equipped with a spring-loaded stop switch and can be started by low speed and force on the starter handle, even small children under some circumstances can produce the force necessary to start the machine. This can mean a risk of serious personal injury. Therefore remove the spark plug cap when the machine is not under close supervision.

Remember when going out onto the ice:

- Never go out onto the ice alone.
- Always carry ice prods and other safety equipment on the ice.
- Never go out onto ice if you are unsure of its strength. Always test the ice with an ice-pike if you are uncertain.
- Be aware that many factors affect the strength of the ice, not just the thickness of the ice. For example, new ice, spring ice, snow covered ice and sea ice can be weak. Straits, points, open channels, shallows, etc. are areas that can be weak even though the ice is thick.
- Always inform someone of your whereabouts and when you will be returning.

Personal protective equipment

IMPORTANT!

An ice drill is a dangerous tool if used carelessly or incorrectly and can cause serious, even fatal injuries. It is extremely important that you read and understand the contents of this Operator's Manual.

You must use approved personal protective equipment whenever you use the machine. Personal protective equipment cannot eliminate the risk of injury but it will reduce the degree of injury if an accident does happen. Ask your dealer for help in choosing the right equipment.



WARNING! Listen out for warning signals or shouts when you are wearing hearing protection. Always remove your hearing protection as soon as the engine stops.

HEARING PROTECTION

Wear hearing protection that provides adequate noise reduction.



EYE PROTECTION

Protective goggles or a visor must be worn.



GENERAL SAFETY PRECAUTIONS

GLOVES

Gloves should be worn when necessary, e.g., when fitting cutting attachments.



BOOTS

Wear sturdy, non-slip boots or shoes.



CLOTHING

Never wear loose-fitting clothes, scarves, jewellery or similar items that could get caught in the auger. Make sure your hair does not hang below shoulder level.

FIRST AID KIT

Always have a first aid kit nearby.



EQUIPMENT FOR GOING OUT ONTO ICE

Equipment that is always good to carry when going out onto ice: Ice prods around your neck (to be able to climb out if the ice should break), heaving line (to be able to help others should they fall through the ice), a change of clothes (in waterproof packing), ice-pike (to check the thickness of the ice).

Machine's safety equipment

This section describes the machine's safety equipment, its purpose, and how checks and maintenance should be carried out to ensure that it operates correctly. See the "What is what?" section to locate where this equipment is positioned on your machine.

The life span of the machine can be reduced and the risk of accidents can increase if machine maintenance is not carried out correctly and if service and/or repairs are not

carried out professionally. If you need further information please contact your nearest servicing dealer.

IMPORTANT!

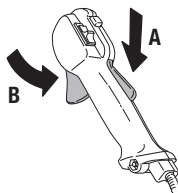
All servicing and repair work on the machine requires special training. This is especially true of the machine's safety equipment. If your machine fails any of the checks described below you must contact your service agent. When you buy any of our products we guarantee the availability of professional repairs and service. If the retailer who sells your machine is not a servicing dealer, ask him for the address of your nearest service agent.



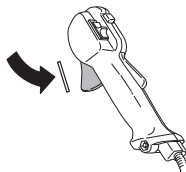
WARNING! Never use a machine with faulty safety equipment. The machine's safety equipment must be checked and maintained as described in this section. If your machine fails any of these checks contact your service agent to get it repaired.

Throttle lockout

The throttle lockout is designed to prevent accidental operation of the throttle control. When you press the lock (A) (i.e. when you grasp the handle) it releases the throttle control (B). When you release the handle the throttle control and the throttle lockout both move back to their original positions. This movement is controlled by two independent return springs. This arrangement means that the throttle control is automatically locked at the idle setting.



Make sure the throttle control is locked at the idle setting when the throttle lockout is released.

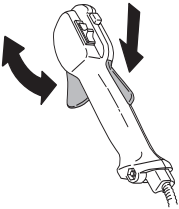


GENERAL SAFETY PRECAUTIONS

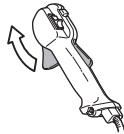
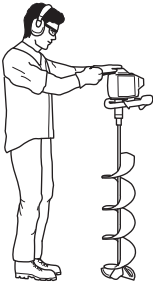
Press the throttle lockout and make sure it returns to its original position when you release it.



Check that the throttle control and throttle lockout move freely and that the return springs work properly.

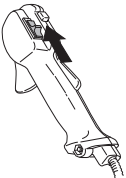


See instructions under the heading Start. Start the machine and apply full throttle. Release the throttle and check that the cutting attachment stops and remains at a standstill. If the cutting attachment rotates with the throttle in the idle position then the carburettor idle setting must be checked. See instructions under the heading Maintenance.



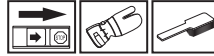
Stop switch

Use the stop switch to switch off the engine.



Start the engine and make sure the engine stops when you move the stop switch to the stop setting.

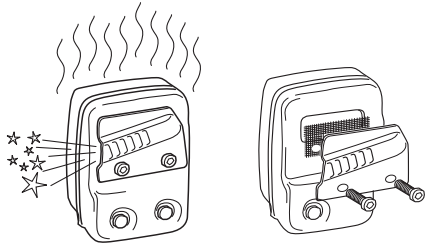
Muffler



The muffler is designed to keep noise levels to a minimum and to direct exhaust fumes away from the user. A muffler fitted with a catalytic converter is also designed to reduce harmful exhaust gases.



In countries that have a warm and dry climate there is a significant risk of fire. We therefore fit certain mufflers with a spark arrester screen. Check whether the muffler on your machine is fitted with this kind of screen.

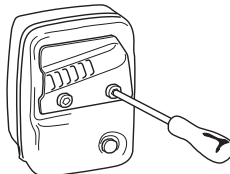


For mufflers it is very important that you follow the instructions on checking, maintaining and servicing your machine.

Never use a machine that has a faulty muffler.



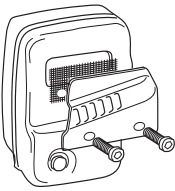
Regularly check that the muffler is securely attached to the machine.



If the muffler on your machine is fitted with a spark arrester screen this must be cleaned regularly. A blocked

GENERAL SAFETY PRECAUTIONS

screen will cause the engine to overheat and may lead to serious damage.



WARNING! Mufflers fitted with catalytic converters get very hot during use and remain so for some time after stopping. This also applies at idle speed. Contact can result in burns to the skin. Remember the risk of fire!



WARNING! The inside of the muffler contain chemicals that may be carcinogenic. Avoid contact with these elements in the event of a damaged muffler.

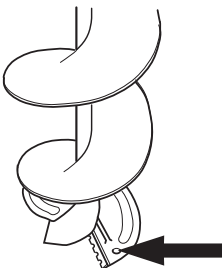


WARNING! Bear in mind that: The exhaust fumes from the engine are hot and may contain sparks which can start a fire. Never start the machine indoors or near combustible material!

Cutters

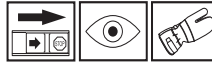


Ensure that the cutters are securely attached.

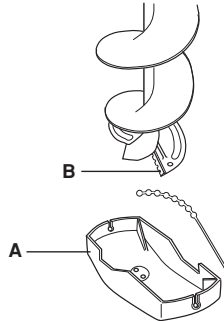


When the blade is manufactured it is sharpened using an advanced method. This means that the blade cannot be re-sharpened using conventional methods. Worn blades must be replaced with new ones to ensure your machine works satisfactorily.

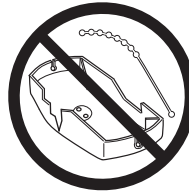
Transport guard



The transport guard (A) is intended to protect against any part of the body coming into contact with the cutting edges (B).



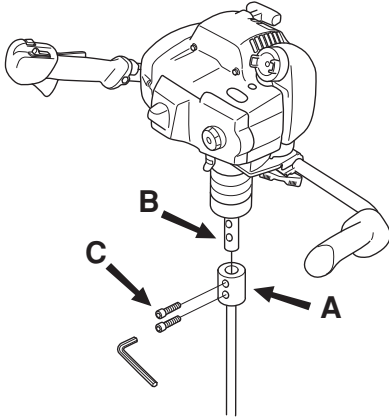
Regularly check that the transport guard is not damaged. Replace the transport guard if it is damaged.



ASSEMBLY

Fitting the auger

- 1 Fit the auger (A) to the output shaft (B).



- 2 Fit the screws (C) and tighten using the Allen key provided.

FUEL HANDLING

Fuel safety

Never start the machine:

- 1 If you have spilled fuel on it. Wipe off the spillage and allow remaining fuel to evaporate.
- 2 If you have spilled fuel on yourself or your clothes, change your clothes. Wash any part of your body that has come in contact with fuel. Use soap and water.
- 3 If the machine is leaking fuel. Check regularly for leaks from the fuel cap and fuel lines.

Transport and storage

- Store and transport the machine and fuel so that there is no risk of any leakage or fumes coming into contact with sparks or naked flames, for example, from electrical machinery, electric motors, electrical relays/switches or boilers.
- When storing and transporting fuel always use approved containers intended for this purpose.
- When storing the machine for long periods the fuel tank must be emptied. Contact your local gas station to find out where to dispose of excess fuel.
- Ensure the machine is cleaned and that a complete service is carried out before long-term storage.
- The transport guard must always be fitted to the cutting attachment when the machine is being transported or in storage.
- In order to prevent unintentional starting of the engine, the spark plug cap must always be removed during long-term storage, if the machine is not under close supervision and when performing all service measures.



WARNING! Take care when handling fuel. Bear in mind the risk of fire, explosion and inhaling fumes.

Fuel

CAUTION! The machine is equipped with a two-stroke engine and must always be run using a mixture of gasoline and two-stroke engine oil. It is important to accurately measure the amount of oil to be mixed to ensure that the correct mixture is obtained. When mixing small amounts of fuel, even small inaccuracies can drastically affect the ratio of the mixture.



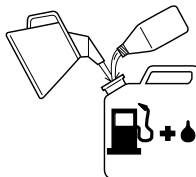
WARNING! Fuel and fuel fumes are highly inflammable and can cause serious injury when inhaled or allowed to come in contact with the skin. For this reason observe caution when handling fuel and make sure there is adequate ventilation.

Gasoline



CAUTION! Always use a quality gasoline/oil mixture with an octane rating of at least 87 octane ((RON+MON)/2). If your machine is equipped with a catalytic converter (see chapter on Technical data) always use a good quality unleaded gasoline/oil mixture. Leaded gasoline will destroy the catalytic converter.

Use low-emission gasoline, also known as alkylate gasoline, if it is available.



This engine is certified to operate on unleaded gasoline.

- The lowest recommended octane grade is 87 ((RON+MON)/2). If you run the engine on a lower octane grade than 87 so-called knocking can occur. This gives rise to a high engine temperature and increased bearing load, which can result in serious engine damage.
- When working at continuous high revs a higher octane rating is recommended.

Two-stroke oil

- For best results and performance use HUSQVARNA two-stroke engine oil, which is specially formulated for our air-cooled two stroke-engines.
- Never use two-stroke oil intended for water-cooled engines, sometimes referred to as outboard oil (rated TCW).
- Never use oil intended for four-stroke engines.
- Mixing ratio
1:50 (2%) with HUSQVARNA two-stroke oil.

Gasoline, litre	Two-stroke oil, litre
	2% (1:50)
5	0,10
10	0,20
15	0,30
20	0,40
US gallon	US fl. oz.
1	2 1/2
2 1/2	6 1/2
5	12 7/8

FUEL HANDLING

Mixing

- Always mix the gasoline and oil in a clean container intended for fuel.
- Always start by filling half the amount of the gasoline to be used. Then add the entire amount of oil. Mix (shake) the fuel mixture. Add the remaining amount of gasoline.
- Mix (shake) the fuel mixture thoroughly before filling the machine's fuel tank.



- Do not mix more than one month's supply of fuel at a time.
- If the machine is not used for some time the fuel tank should be emptied and cleaned.



WARNING! The catalytic converter muffler gets very hot during and after use. This also applies during idling. Be aware of the fire hazard, especially when working near flammable substances and/or vapours.

Fueling



WARNING! Taking the following precautions, will lessen the risk of fire:

Do not smoke or place hot objects near fuel.

Always shut off the engine before refuelling.

Always stop the engine and let it cool for a few minutes before refuelling.

When refuelling, open the fuel cap slowly so that any excess pressure is released gently.

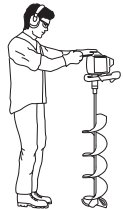
Tighten the fuel cap carefully after refuelling.

Always move the machine away from the refuelling area before starting.

- Clean the area around the fuel cap. Contamination in the tank can cause operating problems.
- Ensure that the fuel is well mixed by shaking the container before filling the tank.



Min 3 m
(10 ft)

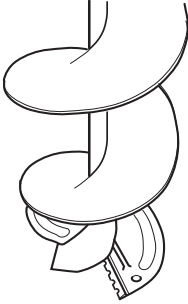


STARTING AND STOPPING

Check before starting



- Check the cutters. Never use cutters that are blunt, cracked or damaged.



- Check that the machine is in perfect working order. Check that all nuts and screws are tight.
- Check that the cutting attachment always stops when the engine is idling.
- Only use the machine for the purpose it was intended for.
- Make sure that the handle and safety features are in good working order. Never use a machine that lacks a part or has been modified outside its specifications.
- All covers must be correctly fitted and undamaged before you start the machine.

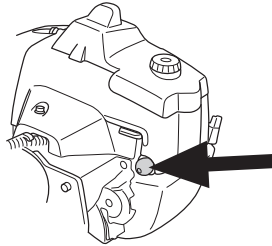
Starting and stopping



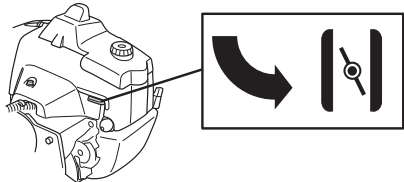
WARNING! Always move the machine about 3 metres from the refuelling position before starting. Place the machine on a flat surface. Ensure the cutting attachment cannot come into contact with any object. Make sure no unauthorised persons are in the working area, otherwise there is a risk of serious personal injury.

Cold engine

Primer bulb: Press the air purge repeatedly until fuel begins to fill the bulb. The bulb need not be completely filled.

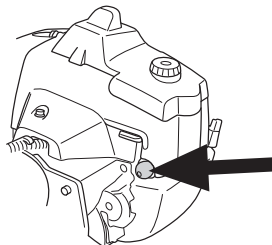


Choke: Set the choke control in the choke position.



Warm engine

Primer bulb: Press the air purge repeatedly until fuel begins to fill the bulb. The bulb need not be completely filled.



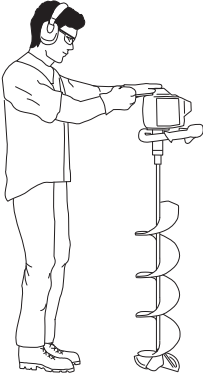
STARTING AND STOPPING

Starting

Hold the machine upright with your left hand. Grip the starter handle, slowly pull out the cord with your right hand until you feel some resistance (the starter pawls grip), now quickly and powerfully pull the cord.

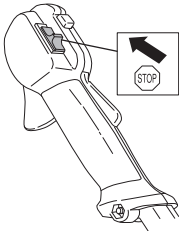
Push the choke control back to its original position as soon as the engine fires, and continue trying to start until the engine starts.

CAUTION! Do not pull the starter cord all the way out and do not let go of the starter handle when the cord is fully extended. This can damage the machine.



Stopping

The engine is switched off by moving the stop switch to the stop position.



CAUTION! The stop switch automatically returns to the start position. In order to prevent unintentional starting, the spark plug cap must be removed from the spark plug when assembling, checking and/or performing maintenance.

WORKING TECHNIQUES

General working instructions

IMPORTANT!

This section takes up the basic safety precautions for working with an ice drill.

If you encounter a situation where you are uncertain how to proceed you should ask an expert. Contact your dealer or your service workshop.

Avoid all usage which you consider to be beyond your capability.



WARNING! The machine can cause serious personal injury. Read the safety instructions carefully. Learn how to use the machine.



WARNING! Cutting tool. Do not touch the tool without first switching off the engine.

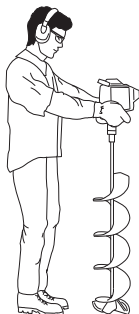
Safety instructions regarding the surroundings

- Never allow children to use the machine.
- Ensure that no-one comes closer than 5 m while you are working.
- Never allow anyone else to use the machine without first ensuring that they have understood the contents of the operator's manual.
- To prevent damage to the blades, make sure you do not use the auger in areas where the blades could come into contact with gravel or stones, especially in shallow water or underneath bridges, etc.

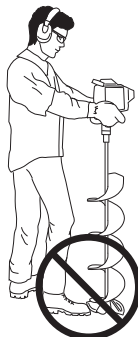
Safety instructions while working



- Always ensure you have a safe and stable working position.
- Always hold the machine with both hands.



- Use your right hand to control the throttle setting.
- Make sure that your hands and feet do not come near the cutting attachment when the engine is running.



- When the engine is switched off, keep your hands and feet away from the cutting attachment until it has stopped completely.
- If any foreign object is hit or if vibrations occur stop the machine immediately. Disconnect the HT lead from the spark plug. Check that the machine is not damaged. Repair any damage.



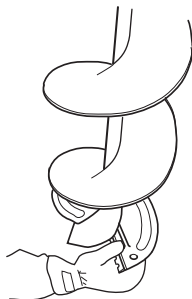
WARNING! Overexposure to vibration can lead to circulatory damage or nerve damage in people who have impaired circulation. Contact your doctor if you experience symptoms of overexposure to vibration. Such symptoms include numbness, loss of feeling, tingling, pricking, pain, loss of strength, changes in skin colour or condition. These symptoms normally appear in the fingers, hands or wrists. The risk increases at low temperatures.

WORKING TECHNIQUES

Safety instructions after completing work



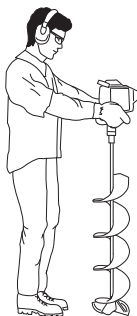
- The transport guard should always be fitted to the cutting attachment when the machine is not in use.
- Make sure the cutting attachment has stopped before cleaning, carrying out repairs or an inspection. Disconnect the HT lead from the spark plug.
- Always wear heavy gloves when replacing the cutters. The cutters are extremely sharp and can easily cause cuts.



- Store the machine out of reach of children.
- Use only original spare parts for repairs.

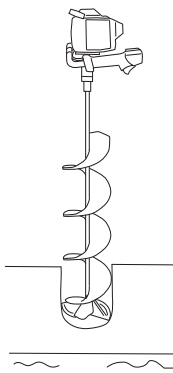
Basic working techniques

- Always ensure you have a safe and stable working position.
- Always hold the machine with both hands.



- Place the tip of the drill on the ice.
- Open the throttle gradually when the drill begins to bite into the ice.
- **Keep a firm grip on the handles and be ready to take the weight when the drill tip goes through the ice.**

- When you have finished drilling for the time being, drill a short distance into the ice so that the machine stands up by itself. By leaving the machine like this you reduce the risk of anyone accidentally coming into contact with the cutters.



- Always turn off the engine when you have finished drilling.

MAINTENANCE

Carburetor

Your Normark product has been designed and manufactured to specifications that reduce harmful emissions. After the engine has used 8-10 tanks of fuel the engine will be run-in. To ensure that it continues to run at peak performance and to minimise harmful exhaust emissions after the running-in period, ask your dealer/service workshop (who will have a rev counter at their disposal) to adjust your carburettor.



WARNING! The complete clutch cover and gear housing must be fitted before the machine is started, otherwise the clutch may come loose and cause personal injury.

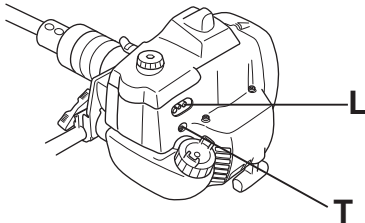
Function



- The carburetor governs the engine's speed via the throttle control. Air and fuel are mixed in the carburetor. The air/fuel mixture is adjustable. Correct adjustment is essential to get the best performance from the machine.
- The setting of the carburetor means that the engine is adapted to local conditions, for example, the climate, altitude, fuel and the type of 2-stroke oil.
- The carburettor is fitted with two adjustment possibilities:

L = Low speed jet

T = Idle adjustment screw



- The fuel quantity in relation to the air flow permitted by the throttle opening is adjusted by the L-needle. Turning the needle clockwise gives a leaner fuel mixture (less fuel) and turning it anticlockwise gives a richer fuel mixture (more fuel). A lean mixture gives a higher speed while a richer mixture gives a lower speed.
- The T-screw regulates the throttle setting at idle speed. If the T-screw is turned clockwise this gives a higher idle speed; turning it anti-clockwise gives a lower idle speed.

Basic setting

- The basic carburetor settings are adjusted during testing at the factory. The basic setting is richer than

the optimal setting and should be maintained for the first few hours the machine is in use. The carburettor should then be finely adjusted. Fine adjustment should be carried out by a skilled technician.

CAUTION! If the cutting attachment rotates when the engine is idling the idle adjustment screw T should be turned anti-clockwise until the cutting attachment stops.

Rec. idle speed: 2700 rpm

Recommended max. speed: See the Technical data section.



WARNING! If the idle speed cannot be adjusted so that the cutting attachment stops, contact your dealer/service workshop. Do not use the machine until it has been correctly adjusted or repaired.

Fine adjustment

- When the saw has been "run-in" the carburettor should be finely adjusted. The fine adjustment should be carried out by qualified person. The L-needle is adjusted first, then the idling screw T.

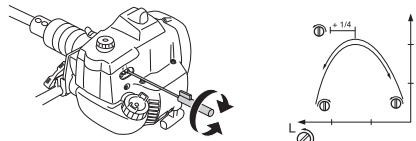
Conditions

- Before any adjustments are made, make sure that the air filter is clean and the air filter cover is fitted. If you adjust the carburettor when the air filter is dirty it will result in a leaner mixture when the filter is finally cleaned. This can lead to serious engine damage.
- Carefully turn the L-needle to the centre position between the fully screwed in and fully screwed out positions.
- Do not attempt to adjust the L-needle past the stop, as this can result in damage.
- Now start the machine according to the starting instructions and let it warm up for 10 minutes.

CAUTION! If the cutting attachment rotates when the engine is idling the idle adjustment screw T should be turned anti-clockwise until the cutting attachment stops.

Low speed jet L

Try to find the highest idling speed, turning the low speed needle L clockwise respectively counter-clockwise. When the highest speed has been found, turn the low speed needle L 1/4 turn counter-clockwise.

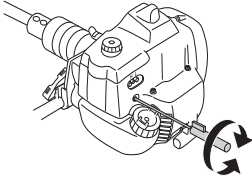


CAUTION! If the blades move while the engine is idling the T screw should be turned anti-clockwise until they stop.

MAINTENANCE

Fine adjustment of the idle speed T

Adjust the idle speed using the idle adjustment screw T, if it is necessary to readjust. First turn the idle adjustment screw T clockwise until the cutting attachment starts to rotate. Then turn the screw anticlockwise until the cutting attachment stops. The idle speed is correctly adjusted when the engine will run smoothly in every position. The idle speed should also be well below the speed at which the cutting attachment starts to rotate. The blades must also remain stationary when the choke control is in the start throttle position.



WARNING! If the idle speed cannot be adjusted so that the cutting attachment stops, contact your dealer/service workshop. Do not use the machine until it has been correctly adjusted or repaired.

Correctly adjusted carburetor

When the carburetor is correctly adjusted the machine accelerates without hesitation and burbles a little at maximum speed. It is also important that the blades do not move when the engine is idling or when the choke control is in the start position. If the low speed jet L is set too lean it may cause starting difficulties and poor acceleration. If the L-needle is set too rich it will result in acceleration problems or too low a working speed.

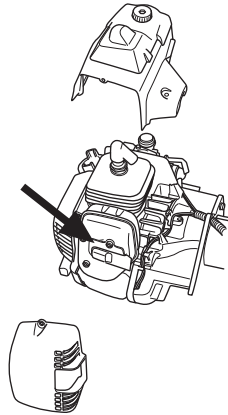
Muffler



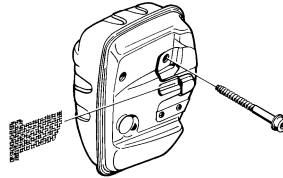
CAUTION! Some mufflers are fitted with a catalytic converter. See chapter on Technical data to see whether your machine is fitted with a catalytic converter.

The muffler is designed to reduce the noise level and to direct the exhaust gases away from the operator. The exhaust gases are hot and can contain sparks, which may

cause fire if directed against dry and combustible material.



Some mufflers are equipped with a special spark arrestor screen. If your machine has this type of muffler, you should clean the screen at least once a week. This is best done with a wire brush.



On mufflers without a catalytic converter the screen should be cleaned weekly, or replaced if necessary. On mufflers fitted with a catalytic converter the screen should be checked, and if necessary cleaned, monthly. **If the screen is damaged it should be replaced.** If the screen is frequently blocked, this can be a sign that the performance of the catalytic converter is impaired. Contact your dealer to inspect the muffler. A blocked screen will cause the machine to overheat and result in damage to the cylinder and piston. See also instructions under the heading Maintenance.

CAUTION! Never use a machine with a defective muffler.



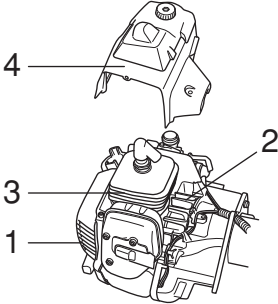
WARNING! Mufflers fitted with catalytic converters get very hot during use and remain so for some time after stopping. This also applies at idle speed. Contact can result in burns to the skin. Remember the risk of fire!

MAINTENANCE

Cooling system



To keep the working temperature as low as possible the machine is equipped with a cooling system.



The cooling system consists of:

- 1 Air intake on the starter.
- 2 Fins on the flywheel.
- 3 Cooling fins on the cylinder.
- 4 Cylinder cover (directs cold air over the cylinder).

Clean the cooling system with a brush once a week, more often in demanding conditions. A dirty or blocked cooling system results in the machine overheating which causes damage to the piston and cylinder.

Spark plug



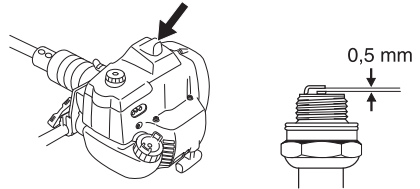
The spark plug condition is influenced by:

- Incorrect carburetor adjustment.
- An incorrect fuel mixture (too much or incorrect type of oil).
- A dirty air filter.

These factors cause deposits on the spark plug electrodes, which may result in operating problems and starting difficulties.

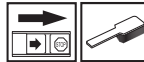
If the machine is low on power, difficult to start or runs poorly at idle speed: always check the spark plug first before taking any further action. If the spark plug is dirty, clean it and check that the electrode gap is 0.020 inch (0.5

mm). The spark plug should be replaced after about a month in operation or earlier if necessary.



CAUTION! Always use the recommended spark plug type! Use of the wrong spark plug can damage the piston/cylinder. Check that the spark plug is fitted with a suppressor.

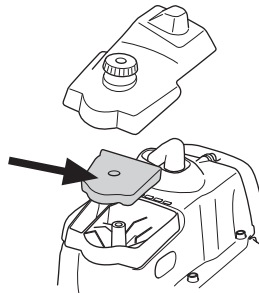
Air filter



The air filter must be regularly cleaned to remove dust and dirt in order to avoid:

- Carburettor malfunctions
- Starting problems
- Loss of engine power
- Unnecessary wear to engine parts
- Excessive fuel consumption.

Clean the filter every 25 hours, or more regularly if conditions are exceptionally dusty.



Cleaning the air filter

Remove the air filter cover and take out the filter. Wash it clean in warm, soapy water. Ensure that the filter is dry before refitting it.

An air filter that has been in use for a long time cannot be cleaned completely. The filter must therefore be replaced with a new one at regular intervals. **A damaged air filter must always be replaced.**

MAINTENANCE

Maintenance schedule

The following is a list of the maintenance that must be performed on the machine. Most of the items are described in the Maintenance section. The user must only carry out the maintenance and service work described in this manual. More extensive work must be carried out by an authorised service workshop.

Maintenance	Daily maintenance	Weekly maintenance	Monthly maintenance
Clean the outside of the machine.	X		
Make sure the throttle trigger lock and the throttle function correctly from a safety point of view.	X		
Check that the stop switch works correctly.	X		
Check that the cutting attachment does not rotate at idle.	X		
Check that the transport guard is not damaged. Replace the guard if it is damaged.	X		
Clean the air filter. Replace if necessary.	X		
Check that nuts and screws are tight.	X		
Check that there are no fuel leaks from the engine, tank or fuel lines.	X		
Check the starter and starter cord.		X	
Clean the outside of the spark plug. Remove it and check the electrode gap. Adjust the gap to 0.5 mm (.20"), or replace the spark plug. Check that the spark plug is fitted with a suppressor.		X	
Clean the machine's cooling system.		X	
Clean or replace the spark arrestor screen on the muffler (only applies to mufflers without a catalytic converter).		X	
Clean the outside of the carburettor and the space around it.		X	
Clean the fuel tank.			X
Check the fuel filter from contamination and the fuel hose from cracks or other defects. Replace if necessary.			X
Check all cables and connections.			X
Check the clutch, clutch springs and the clutch drum for wear. Replace if necessary by an authorized service workshop.			X
Replace the spark plug. Check that the spark plug is fitted with a suppressor.			X
Check and clean the spark arrestor screen on the muffler (only applies to mufflers fitted with a catalytic converter).			X

TECHNICAL DATA

Technical data

159LEB

Engine

Cylinder displacement, cu.in/cm ³	1,48/24,3
Cylinder bore, inch/mm	1,34/34,0
Stroke, inch/mm	1,06/27
Idle speed, rpm	2700
Recommended max. speed, rpm	11000
Max. engine output, acc. to ISO 8893, kW/ rpm	0,9/8400
Catalytic converter muffler	Yes
Speed-regulated ignition system	No
Emissions Durability Period according to California Air Resources Board, h.	300

Ignition system

Manufacturer/type of ignition system	Walbro MB
Spark plug	Champion RCJ 6Y
Electrode gap, inch/mm	1,06/0,5

Fuel and lubrication system

Manufacturer/type of carburetor	Zama C1Q
Fuel tank capacity, US pint/litre	1,06/0,5

Weight

Weight, without fuel and cutting tool, Lbs/kg	12,8/5,8
---	----------

Sound levels

(see note 1)

Equivalent sound pressure level at the operator's ear, measured according to EN ISO 22868, dB(A): 98

Equivalent noise power level, measured according to ISO 3744, dB(A) 102

Vibration levels

Vibration levels at handles, measured according to EN ISO 22867, m/s²

At idle, left/right handles: 5,7/7,4

At max. speed, left/right handles: 11,4/9,3

Note 1: Equivalent sound pressure level is calculated as the time-weighted energy total for sound pressure levels under various working conditions with the following time distribution: 1/2 idling and 1/2 max speed.

FEDERAL AND CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT

IMPORTANT: This product is compliant with U.S. EPA Phase 3 regulations for exhaust and evaporative emissions. To ensure EPA Phase 3 compliance, we recommend using only genuine Husqvarna brand replacement parts. Use of non-compliant replacement parts is a violation of federal law.

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The EPA (U.S. Environmental Protection Agency), CARB (California Air Resources Board), Environment Canada and Husqvarna Forest & Garden are pleased to explain the emissions control system's warranty on your 2017-2018* small off-road engine. In U.S. and Canada, small off-road engines must be designed, built, and equipped to meet the applicable Federal or California stringent anti-smog standards. Husqvarna Forest & Garden must warrant the emissions control system on your small off-road engine for the period of time listed below provided there has been no abuse, neglect or improper maintenance of your small off-road engine. Your emission control system may include parts such as the carburetor, fuel-injection system, the ignition system, catalytic converter, fuel tanks, fuel lines, fuel caps, valves, canisters, filters, vapor hoses, clamps, connectors, and other associated emission-related components. For engines less than or equal to 80 cc, only the fuel tank is subject to the evaporative emission control warranty requirements of this section (California only). Where a warrantable condition exists, Husqvarna Forest & Garden will repair your small off-road engine at no cost to you including diagnosis, parts and labor.

MANUFACTURER'S WARRANTY COVERAGE

The emissions control system is warranted for two years. If any emissions-related part on your small off-road engine is defective, the part will be repaired or replaced by Husqvarna Forest & Garden.

OWNER'S WARRANTY RESPONSIBILITIES

- As the small off-road engine owner, you are responsible for performance of the required maintenance listed in your operator's manual. Husqvarna Forest & Garden recommends that you retain all receipts covering maintenance on your small off-road engine, but Husqvarna Forest & Garden cannot deny warranty solely for the lack of receipts or your failure to ensure the performance of all scheduled maintenance.
- As the small off-road engine owner, you should however be aware that Husqvarna Forest & Garden may deny you warranty coverage if your small off-road engine or a part has failed due to abuse, neglect, or improper maintenance or unapproved modifications.
- You are responsible for presenting your small off-road engine to a Husqvarna Forest & Garden distribution

center or service center as soon as the problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days. If you have any questions regarding your warranty coverage, you should contact Husqvarna Forest & Garden in USA at 1-800-487-5951, in CANADA at 1-800-805-5523 or send e-mail correspondence to emissions@husqvarnagroup.com.

WARRANTY COMMENCEMENT DATE

The warranty period begins on the date the engine or equipment is delivered to an ultimate purchaser.

LENGTH OF COVERAGE

Husqvarna Forest & Garden warrants to the ultimate purchaser and each subsequent owner that the engine or equipment is designed, built, and equipped so as to conform with all applicable regulations adopted by EPA and CARB, and is free from defects in materials and workmanship that causes the failure of a warranted part for a period of two years.

WHAT IS COVERED

REPAIR OR REPLACEMENT OF PARTS Repair or replacement of any warranted part under the warranty must be performed at no charge to the owner at a warranty station. Warranty services or repairs will be provided at all Husqvarna Forest & Garden distribution centers that are franchised to service the subject engines. Throughout the emissions warranty period of two years, Husqvarna Forest & Garden must maintain a supply of warranted parts sufficient to meet the expected demand for such parts.

WARRANTY PERIOD Any warranted part that is scheduled for replacement as required in the maintenance schedule, is warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part will be repaired or replaced by Husqvarna Forest & Garden at no cost. Any such part repaired or replaced under warranty is warranted for the remainder of the period prior to the first scheduled replacement point for the part. Any warranted part that is not scheduled for replacement as required in the maintenance schedule, is warranted for two years. If any such part fails during the period of warranty coverage, it will be repaired and replaced by Husqvarna Forest & Garden at no cost. Any such part repaired or replaced under the warranty is warranted for the remaining warranty period. Any warranted part that is scheduled only for regular inspection in the maintenance schedule will be warranted for a period of two years. A statement in such written instructions to the effect of "repair or replace as necessary" will not reduce the period of warranty coverage. Any such part repaired or replaced under warranty will be warranted for the remaining warranty period.

FEDERAL AND CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT

DIAGNOSIS The owner must not be charged for diagnostic labor that leads to the determination that a warranted part is in fact defective, provided that such diagnostic work is performed at a warranty station.

CONSEQUENTIAL DAMAGES Husqvarna Forest & Garden is liable for damages to other engine components proximately caused by a failure under warranty of any warranted part.

EMISSION WARRANTY PARTS LIST

- 1 Carburetor and internal parts
- 2 Intake pipe, airfilter holder and carburetor bolts.
- 3 Airfilter and fuelfilter covered up to maintenance schedule.
- 4 Spark Plug, covered up to maintenance schedule
- 5 Ignition Module
- 6 Fuel tank, line and cap

WHAT IS NOT COVERED

All failures caused by abuse, neglect or improper maintenance are not covered.

ADD -ON OR MODIFIED PARTS

Add-on or modified parts that are not exempted by CARB or EPA may not be used. The use of any non-exempted add-on or modified parts will be grounds for disallowing a warranty claim. Husqvarna Forest & Garden will not be liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.

HOW TO FILE A CLAIM

If you have any questions regarding your warranty rights and responsibilities, you should contact your nearest authorized servicing dealer or call Husqvarna Forest & Garden in USA at 1-800-487-5951, in CANADA at 1-800-805-5523 or send e-mail correspondence to emissions@husqvarnagroup.com.

WHERE TO GET WARRANTY SERVICE

Warranty services or repairs are provided through all Husqvarna Forest & Garden authorized servicing dealers.

MAINTENANCE, REPLACEMENT AND REPAIR OF EMISSION-RELATED PARTS

Any replacement part may be used in the performance of any warranty maintenance or repairs and must be provided without charge to the owner. Such use will not reduce the warranty obligations of the manufacturer.

MAINTENANCE STATEMENT

The owner is responsible for the performance of all required maintenance, as defined in the operator's manual.

*Current and following model year will be updated annually in the warranty statement provided to the consumer. For example, in 2012 model year, 2012-2013 will be specified.

Original instructions

1155716-95



2016-12-19