

STIHL BT 131

Instruction Manual
Manual de instrucciones



WARNING

Read Instruction Manual thoroughly before use and follow all safety precautions – improper use can cause serious or fatal injury.

ADVERTENCIA

Antes de usar la máquina lea y siga todas las precauciones de seguridad dadas en el manual de instrucciones – el uso incorrecto puede causar lesiones graves o mortales.



Instruction Manual

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Manual de instrucciones

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Allow only persons who fully understand this manual to operate your earth auger.

To receive maximum performance and satisfaction from your STIHL earth auger, it is important that you read, understand and follow the safety precautions and the operating and maintenance instructions in chapter "Safety Precautions and Working Techniques" before using your earth auger. For further information you can go to www.stihlusa.com

Contact your STIHL dealer or the STIHL distributor for your area if you do not understand any of the instructions in this manual.

WARNING

Because an earth auger is a high-torque, gasoline-powered tool, some special safety precautions must be observed to reduce the risk of personal injury. Careless or improper use may cause serious or even fatal injury.

STIHL®

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Guide to Using this Manual

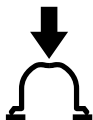
Pictograms

The meanings of the pictograms attached to or embossed on the machine are explained in this manual.

Depending on the model concerned, the following pictograms may be on your machine.



Fuel tank for gasoline and engine oil mixture



Press to operate manual fuel pump



Auger brake

Symbols in Text

Many operating and safety instructions are supported by illustrations.

The individual steps or procedures described in the manual may be marked in different ways:

- A bullet marks a step or procedure.

A description of a step or procedure that refers directly to an illustration may contain item numbers that appear in the illustration. Example:

- Loosen the screw (1).
- Lever (2) ...

In addition to the operating instructions, this manual may contain paragraphs that require your special attention. Such paragraphs are marked with the symbols and signal words described below:



DANGER

Indicates a hazardous situation that, if not avoided, will result in death or serious injury.



WARNING

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

NOTICE

Indicates a risk of property damage, including damage to the machine or its individual components.

Engineering Improvements

STIHL's philosophy is to continually improve all of its products. As a result, engineering changes and improvements are made from time to time. Therefore, some changes, modifications and improvements may not be covered in this manual. If the operating characteristics or the appearance of your machine differs from those described in this manual, please contact your STIHL dealer or the STIHL distributor for your area for assistance.

Safety Precautions and Working Techniques



Because an earth auger is a high-torque, gasoline-powered tool, some special safety precautions must be observed to reduce the risk of personal injury.



It is important that you read, fully understand and observe the following safety precautions and warnings. Read the instruction manual and the safety precautions periodically. Careless or improper use may cause serious or fatal injury.

Have your STIHL dealer show you how to operate your power tool. Observe all applicable federal, state and local safety regulations, standards and ordinances.



DANGER



Drilling into or contact with electrical wires may cause severe shock, burns or death. See the section "Working Conditions" below.



WARNING

Striking a hard object in the earth with the turning drill and the resulting slowing or stopping of the auger creates reactive forces. The transfer of rotational (reactive) forces can cause the auger powerhead and handles to rotate suddenly in a counterclockwise direction

and can result in loss of control or cause the handle frame to hit the operator or throw him to the ground, resulting in serious injury.

WARNING

Do not lend or rent your power tool without the instruction manual. Be sure that anyone using it understands the information contained in this manual.

WARNING

The use of this machine may be hazardous. If the drilling tool comes in contact with your body, it could cause impact or cut injuries.

Use your earth auger only for drilling holes in soil (with earth auger attachments) or ice (with ice auger attachments).

WARNING

Do not use it for other purposes, since misuse may result in personal injury or property damage, including damage to the machine.

WARNING

Minors should never be allowed to use this power tool. Bystanders, especially children, and animals should not be allowed in the area where it is in use.

WARNING

To reduce the risk of injury to bystanders and damage to property, never let your power tool run unattended. When it is

not in use (e.g. during a work break), shut it off and make sure that unauthorized persons do not use it.

Most of these safety precautions and warnings apply to the use of all STIHL earth augers. Different models may have different parts and controls. See the appropriate section of your instruction manual for a description of the controls and the function of the parts of your model.

Safe use of an earth auger involves

- 1 the operator
- 2 the power tool
- 3 the use of the power tool.

THE OPERATOR

Physical Condition

You must be in good physical condition and mental health and not under the influence of any substance (drugs, alcohol, etc.) which might impair vision, dexterity or judgment. Do not operate this machine when you are fatigued.

WARNING

Be alert – if you get tired, take a break. Tiredness may result in loss of control. Working with any power tool can be strenuous. If you have any condition that might be aggravated by strenuous work, check with your doctor before operating this power tool.

WARNING

Prolonged use of a power tool (or other machines) exposing the operator to vibrations may produce whitefinger disease (Raynaud's phenomenon) or carpal tunnel syndrome.

These conditions reduce the hand's ability to feel and regulate temperature, produce numbness and burning sensations and may cause nerve and circulation damage and tissue necrosis.

All factors which contribute to whitefinger disease are not known, but cold weather, smoking and diseases or physical conditions that affect blood vessels and blood transport, as well as high vibration levels and long periods of exposure to vibration are mentioned as factors in the development of whitefinger disease. In order to reduce the risk of whitefinger disease and carpal tunnel syndrome, please note the following:

Most STIHL power tools are available with an anti-vibration ("AV") system designed to reduce the transmission of vibrations created by the machine to the operator's hands. An AV system is recommended for those persons using power tools on a regular or sustained basis.

- Wear gloves and keep your hands warm.
- Keep the AV system well maintained. A power tool with loose components or with damaged or worn AV elements will tend to have higher vibration levels.
- Maintain a firm grip at all times, but do not squeeze the handles with constant, excessive pressure. Take frequent breaks.

All the above-mentioned precautions do not guarantee that you will not sustain whitefinger disease or carpal tunnel syndrome. Therefore, continual and regular users should closely monitor the condition of their hands and fingers. If any of the above symptoms appear, seek medical advice immediately.

WARNING

The ignition system of the STIHL unit produces an electromagnetic field of a very low intensity. This field may interfere with some pacemakers. To reduce the risk of serious or fatal injury, persons with a pacemaker should consult their physician and the pacemaker manufacturer before operating this tool.

Proper Clothing

WARNING

To reduce the risk of injury, the operator should wear proper protective apparel.

WARNING



To reduce the risk of injury to your eyes never operate your power tool unless wearing goggles or properly fitted protective glasses with adequate top and side protection complying with ANSI Z87 "+" (or your applicable national standard).

Power tool noise may damage your hearing. Wear sound barriers (ear plugs or ear muffs) to protect your hearing. Continual and regular users should have their hearing checked regularly.

Be particularly alert and cautious when wearing hearing protection because your ability to hear warnings (shouts, alarms, etc.) is restricted.



Clothing must be sturdy and snug-fitting, but allow complete freedom of movement. Wear overalls or long pants made of heavy material to help protect your legs. Do not wear shorts, sandals or go barefoot.

Avoid loose-fitting jackets, scarfs, neckties, jewelry, flared or cuffed pants, unconfined long hair or anything that could be drawn into the drilling tool. Secure hair so it is above shoulder level.



Good footing is very important. Wear sturdy boots with nonslip soles. Steel-toed safety boots are recommended.



Wear an approved safety hard hat to reduce the risk of injury to your head when there is a danger of head injuries.



Always wear heavy duty work gloves (e.g. made of leather or other wear resistant material) when handling the machine and the drilling tool. Heavy-duty, nonslip gloves improve your grip and help to protect your hands.

THE POWER TOOL

For illustrations and definitions of the power tool parts see the chapter on "Main Parts."

WARNING

Never modify this power tool in any way. Only attachments supplied by STIHL or expressly approved by STIHL for use with the specific STIHL model are authorized. Although certain unauthorized attachments, drills and

augers are useable with STIHL power tools, their use may, in fact, be extremely dangerous.

If this tool is subjected to unusually high loads for which it was not designed (e.g. heavy impact or a fall), always check that it is in good condition before continuing work. Check in particular that the fuel system is tight (no leaks) and that the controls and safety devices are working properly. Do not continue operating this machine if it is damaged. In case of doubt, have it checked by your STIHL servicing dealer.

THE USE OF THE POWER TOOL

Transporting the Power Tool

WARNING

Always shut off the engine before putting the earth auger down or carrying it. Carrying an earth auger with the engine running is dangerous. Accidental acceleration of the engine can cause the drilling tool to rotate.

WARNING

During operation, the powerhead muffler and the parts around it reach extremely high temperatures. Avoid setting down a hot unit onto dry, flammable material, or touching the hot muffler; you could receive serious burns.

Carry the unit by the handle frame with hot parts of the machine (e.g., gearbox) away from your body.

Remove the auger before transporting the power tool long distances.

When transporting in a vehicle, properly secure your power tool to prevent turnover, fuel spillage and damage.

When the power tool is not in use, shut it off and put it down so it cannot endanger others.

Fuel

Your STIHL power tool uses an oil-gasoline mixture for fuel (see the chapter on "Fuel" of your instruction manual).

WARNING



Gasoline is an extremely flammable fuel. If spilled and ignited by a spark or other ignition source, it can cause fire and serious burn injury or property damage. Use extreme caution when handling gasoline or fuel mix. Do not smoke or bring any fire or flame near the fuel or the power tool. Note that combustible fuel vapor may escape from the fuel system.

Fueling Instructions

WARNING

Fuel your power tool in well-ventilated areas, outdoors. Always shut off the engine and allow it to cool before refueling. Gasoline vapor pressure may build up inside the fuel tank depending on the fuel used, the weather conditions and the tank venting system.

In order to reduce the risk of burns and other personal injury from escaping gas vapor and fumes, remove the fuel filler cap on your power tool carefully so as to allow any pressure build-up in the tank to release slowly. Never remove the fuel filler cap while the engine is running.

Select bare ground for fueling and move at least 10 feet (3 m) from the fueling spot before starting the engine. Wipe off any spilled fuel before starting your machine.

WARNING



Check for fuel leakage while refueling and during operation. If fuel leakage is found, do not start or run the engine until the leak is fixed and any spilled fuel has been wiped away. Take care not to get fuel on your clothing. If this happens, change your clothing immediately.

Screw Cap

WARNING



Unit vibrations can cause an improperly tightened fuel filler cap to loosen or come off and spill quantities of fuel. In order to reduce the risk of fuel spillage and fire, tighten the fuel filler cap by hand as securely as possible.

See "Fueling" chapter in your instruction manual.

Before Starting

WARNING

Always check your power tool for proper condition and operation before starting, particularly the throttle trigger, throttle trigger lockout, stop switch, drilling tool and auger brake. The throttle trigger must move freely and always spring back to the idle position. Never attempt to modify the controls or safety devices. Regular maintenance is important in this respect. Make sure the drilling tool is in good condition and properly connected.

WARNING

Check fuel system for leaks, especially the visible parts, e.g., filler cap, hose connections, manual fuel pump (only for power tools equipped with a manual fuel pump). Do not start the engine if there are leaks or damage – risk of fire! Have the machine repaired by a servicing dealer before using it.

WARNING

Never operate your power tool if it is damaged, improperly adjusted or maintained, or not completely or securely assembled.

WARNING

Check that the spark plug boot is securely mounted on the spark plug – a loose boot may cause arcing that could ignite combustible fumes and cause a fire.

Keep the handles clean and dry at all times; it is particularly important to keep them free of moisture, pitch, oil, fuel mix,

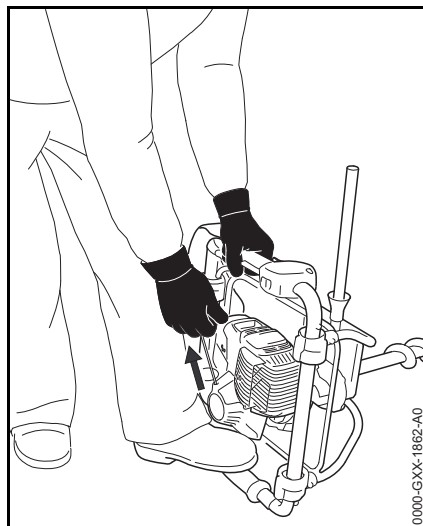
grease or resin in order for you to maintain a firm grip and properly control your power tool.

Auger Brake

Your earth auger model is equipped with an auger brake, which is designed to reduce the risk of injury from reactive forces by stopping the rotation of the auger / powerhead when the brake activating lever is engaged. It should also be used during starting and when unwinding a trapped auger. See the chapter on "Auger Brake" for information on engagement of the brake.

Starting

Start the engine at least 10 feet (3 m) from the fueling spot, outdoors only.



For specific starting instructions, see the appropriate section of your manual. Place the power tool on firm ground or

other solid surface in an open area. Maintain good balance and secure footing.

WARNING

Your earth auger should be started only when it is held steady by the operator.

WARNING

To reduce the risk of loss of control, be sure that the auger brake is engaged. When the engine starts at starting throttle, engine speed will be fast enough for the clutch to engage and, if the auger brake is not engaged, turn the drilling tool.

Once the engine has started, immediately blip the throttle trigger, which should release the starting throttle and allow the engine to slow down to idle speed.

WARNING

Your power tool is a one-person machine. Do not allow other persons in the general work area, even when starting.

WARNING

When you pull the starter grip, do not wrap the starter rope around your hand. Do not let the grip snap back, but guide the starter rope to rewind it properly. Failure to follow this procedure may result in injury to your hand or fingers and may damage the starter mechanism.

Important Adjustments

WARNING

To reduce the risk of personal injury from loss of control or contact with the turning drilling tool, do not use your unit with incorrect idle adjustment. At correct idle speed, the drilling tool should not move. For directions on how to adjust idle speed, see the appropriate section of your instruction manual.

If you cannot set the correct idle speed, have your STIHL dealer check your power tool and make proper adjustments and repairs.

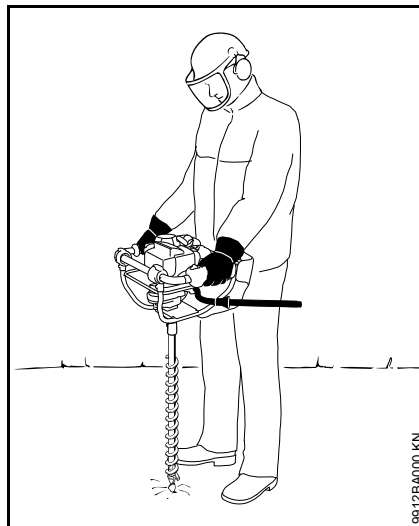
During Operation

Holding and Controlling the Power Tool

Always hold the unit firmly with both hands on the handles while you are working. Wrap your fingers and thumbs around the handles.

Keep your hands in this position to have your earth auger under control at all times.

Select drilling angle so that the auger brake lever is always in a position to be activated by the operator's left thigh.



WARNING

Do not overreach. Keep proper footing and balance at all times. Special care must be taken in slippery conditions (wet ground, snow, ice) and in difficult, overgrown terrain. Watch for hidden obstacles such as tree stumps, roots and ditches to avoid stumbling. For better footing, clear away fallen branches, scrub and cuttings. Be extremely cautious when working on slopes or uneven ground or when working with an ice auger attachment on ice.

Working Conditions

Operate and start your power tool only outdoors in a well ventilated area. Operate it under good visibility and daylight conditions only. Work carefully.

WARNING



As soon as the engine is running, this product generates toxic exhaust fumes containing chemicals, such as unburned hydrocarbons (including benzene) and carbon monoxide, that are known to cause respiratory problems, cancer, birth defects, or other reproductive harm. Some of the gases (e.g. carbon monoxide) may be colorless and odorless. To reduce the risk of serious or fatal injury/illness from inhaling toxic fumes, never run the machine indoors or in poorly ventilated locations.

WARNING

Inhalation of certain dusts, especially organic dusts such as mold or pollen, can cause susceptible persons to have an allergic or asthmatic reaction. Substantial or repeated inhalation of dust and other airborne contaminants, in particular those with a smaller particle size, may cause respiratory or other illnesses. Control dust at the source where possible. Use good work practices, such as operating the unit so that the wind or operating process directs any dust raised by the power tool away from the operator. Follow the recommendations of EPA/OSHA/NIOSH and occupational and trade associations with respect to dust ("particulate matter"). When the

inhalation of dust cannot be substantially controlled, i.e., kept at or near the ambient (background) level, the operator and any bystanders should wear a respirator approved by NIOSH/MSHA for the type of dust encountered.



Striking something hard in the earth, such as a rock or gravel, may cause the drilling tool to slow down suddenly or stop. In such a situation, some or all of the rotational force (reactive force) is transferred to the powerhead and handle frame of the earth auger which can cause the auger powerhead and handles to rotate suddenly in a counterclockwise direction.

WARNING

Work carefully in rocky ground or where other solid objects may be present. Keep throttle feed pressure to a minimum. If you feel or hear the drilling tool strike a solid object, release the throttle trigger immediately and remove the object before drilling is continued. When drilling in heavy clay soil, bore about 1/3 way and remove the auger from the hole. Clean off auger drilling tool then continue in slow steps frequently clearing tool.

WARNING

You should hold your earth auger firmly to control sudden jolts and reactive forces. Be prepared to release the

throttle completely if the forces become too great. If reactive forces are not controlled, rotation of the handles may result in severe jerking and loss of control and may cause the handle frame to strike you or throw you to the ground. Your earth auger model is equipped with an auger brake. If the auger hits something it cannot drill through and the powerhead begins to rotate so that the auger brake activating lever strikes the operator's thigh and engages, the brake is designed to stop the rotation of the powerhead.

WARNING

In order to reduce the risk of serious or fatal injury from reactive forces, never operate your earth auger without a properly functioning auger brake.

If the auger becomes trapped in the drillhole, turn off the engine immediately and remove as described in the chapter entitled "Releasing a Trapped Auger."

DANGER



Contact with electrical cables or wires can cause serious injury or death as a result of electrical shock. This unit is not insulated.

WARNING

To reduce the risk of electrocution and damage to property, always be alert for underground pipes and cables and for overhead wires. Before drilling, obtain the necessary plans and permits. Contact your local utility company or your locator service, such as "Miss

Utility" or "One Call," for information as to cable and pipe locations. Where necessary, confirm actual location by use of devices such as cable detectors and/or by carefully dug trenches. Stay clear of overhead electrical wires when backing the drilling tool out of the hole. If any portion of the machine strikes a wire, it will cause electrical shock and serious injury or death.

WARNING

Before working with an ice auger attachment on frozen ponds, lakes or streams, check with local authorities and take all necessary precautions to ensure safe ice thickness.

WARNING

Thrown objects may ricochet and strike the operator.

Operating Instructions

WARNING

Do not operate your power tool using the starting throttle lock, as you do not have control of the engine speed.

In the event of an emergency, shut off the engine immediately – press the stop switch.

WARNING

When taking the drilling tool out of the hole, lift the machine vertically so that the tool comes out straight without canting. To minimize splashing when drilling ice holes, back off the throttle when the drilling tool breaks through the

ice. Raise the unit slowly. Cover and clearly mark boreholes to prevent anyone from stepping in a hole.

WARNING

To reduce the risk of injury, never touch a drilling tool or drilling spindle with your hand or any part of your body when the engine is running or the drilling tool is rotating. It continues to rotate for a short period after the throttle trigger is released. Always shut off the engine before putting the machine down.

WARNING

Drilling tool blades and point are sharp. To reduce the risk of cut injuries, use caution when operating and handling.

MAINTENANCE, REPAIR AND STORING

Maintenance, replacement, or repair of the emission control devices and systems may be performed by any nonroad engine repair establishment or individual. However, if you make a warranty claim for a component which has not been serviced or maintained properly or if nonapproved replacement parts were used, STIHL may deny coverage.

WARNING

Use only identical STIHL replacement parts for maintenance and repair. Use of non-STIHL parts may cause serious or fatal injury.

Strictly follow the maintenance and repair instructions in the appropriate section of your instruction manual. Please refer to the maintenance chart near the end of this manual.

WARNING

Always stop the engine before doing any maintenance or repair work or cleaning the power tool.

WARNING

Do not attempt any maintenance or repair work not described in your instruction manual. Have such work performed by your STIHL servicing dealer only.

WARNING

Never test the ignition system with the spark plug boot removed from the spark plug or with a removed spark plug, since uncontained sparking may cause a fire.

WARNING

Use the specified spark plug and make sure it and the ignition lead are always clean and in good condition. Always press spark plug boot snugly onto spark plug terminal of the proper size. (Note: If terminal has detachable SAE adapter nut, it must be securely attached.) A loose connection between spark plug terminal and the ignition wire connector in the boot may create arcing that could ignite combustible fumes and cause a fire.

WARNING

Check condition of drilling tool at regular short intervals. If behavior of tool changes, check immediately for tightness or any signs of cracks in particular.

WARNING

Wear gloves when handling or performing maintenance on auger drilling tools.

WARNING

Replace damaged drilling tools immediately, even if they have only superficial cracks. Never attempt to repair damaged drilling tools.

WARNING

Do not operate your power tool if the muffler is damaged, missing or modified. An improperly maintained muffler will increase the risk of fire and hearing loss. Your muffler is equipped with a spark-arresting screen to reduce the risk of fire; never operate your power tool if the screen is missing, damaged or clogged. Remember that the risk of a brush or forest fire is greater in hot or dry weather.

In California, it is a violation of § 4442 or § 4443 of the Public Resources Code to use or operate gasoline-powered tools on forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a complying spark arrester that is maintained in effective working order. The owner/operator of this product is responsible for properly maintaining the

spark arrester. Other states or governmental entities/agencies, such as the U.S. Forest Service, may have similar requirements. Contact your local fire agency or forest service for the laws or regulations relating to fire protection requirements.

Tighten all nuts, bolts and screws except the carburetor adjustment screws after each use.

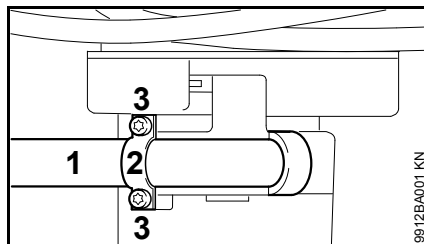
For any maintenance of the emission control system please refer to the maintenance chart **and to the limited warranty statement** near the end of the instruction manual.

Do not clean your machine with a pressure washer. The solid jet of water may damage parts of the machine.

Store your power tool in a dry and locked location out of reach of children. Before storing for longer than a few days, always empty the fuel tank (see chapter "Storing the Machine" in the instruction manual).

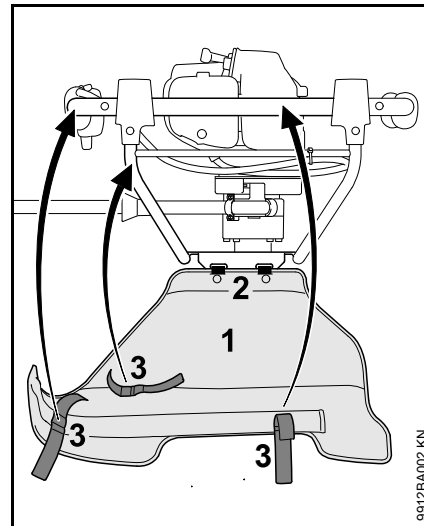
Assembling the Unit

Fitting activating lever for auger brake

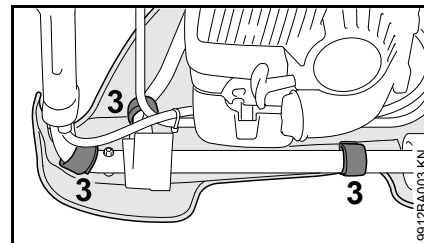


- Insert the activating lever (1) into the clamp
- Place the holder (2) onto the activating lever
- Screw in the fastening screws (3) and tighten

Fit the padding



- Hook the padding (1) with the tabs (2) into the oblong holes in the handle frame
- Fold up the padding

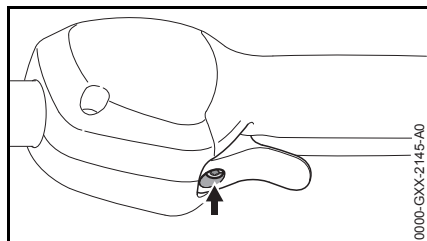


- Secure the padding to the handlebar with the cling strips (3) – do not jam the throttle cable

Adjusting the Throttle Cable

It may be necessary to correct the adjustment of the throttle cable after assembling the machine or after a prolonged period of operation.

Adjust the throttle cable only when the machine is completely and properly assembled.



- Set the throttle trigger to the full throttle position.
- Rotate the screw in the throttle trigger clockwise until you feel initial resistance. Then rotate it another half turn in the same direction.

Fuel

This engine is certified to operate on unleaded gasoline and the STIHL two-stroke engine oil at a mix ratio of 50:1.

Your engine requires a mixture of high-quality gasoline and two-stroke air cooled engine oil.

Use mid-grade unleaded gasoline with a minimum octane rating of 89 ((R+M)/2) and no more than 10% ethanol content.

NOTICE

Fuel with an octane rating below 89 may increase engine temperatures. This, in turn, increases the risk of piston seizure and damage to the engine.

The chemical composition of the fuel is also important. Some fuel additives not only detrimentally affect elastomers (carburetor diaphragms, oil seals, fuel lines, etc.), but magnesium castings and catalytic converters as well. This could cause running problems or damage the engine. For this reason STIHL recommends that you use only quality unleaded gasoline!

NOTICE

Gasoline with an ethanol content of more than 10% can cause running problems and major damage in engines and should not be used.

For further details, see www.STIHLusa.com/ethanol

The ethanol content in gasoline affects engine speed – it may be necessary to readjust the carburetor if you use fuels with various ethanol contents.

WARNING

To reduce the risk of personal injury from loss of control and/or contact with the running cutting tool, do not use your unit with an incorrect idle adjustment. At correct idle speed, the cutting tool should not move.

If your machine's idle speed is incorrectly adjusted, have your authorized STIHL servicing dealer check your machine and make the proper adjustments and repairs.

The idle speed and maximum speed of the engine change if you switch from a fuel with a certain ethanol content to a fuel with a much higher or lower ethanol content.

This problem can be avoided by always using fuel with the same ethanol content.

To ensure the maximum performance of your STIHL engine, use a high quality 2-cycle engine oil. To help your engine run cleaner and reduce harmful carbon deposits, STIHL recommends using STIHL HP Ultra 2-cycle engine oil or ask your dealer for an equivalent fully synthetic 2-cycle engine oil.

To meet the requirements of EPA and CARB we recommend to use STIHL HP Ultra oil.

STIHL MotoMix

STIHL recommends the use of STIHL MotoMix. STIHL MotoMix has a high octane rating and ensures that you always use the right gasoline/oil mix ratio.

STIHL MotoMix uses STIHL HP Ultra two-stroke engine oil suited for high performance engines.

For further details, see www.STIHLUSA.com/ethanol

If not using MotoMix, use only STIHL two-stroke engine oil or equivalent high-quality two-stroke engine oils that are designed for use in air cooled two-cycle engines.

The use of non-seasonal gasoline blends may increase the potential for pressure to build in the fuel tank during operation. For example, using a winter blend during the summer will increase pressure in the fuel tank. Always use gasoline blends appropriate to the season, altitude and other environmental factors.

Do not use BIA or TCW rated (two-stroke water cooled) mix oils or other mix oils that state they are for use in both water cooled and air cooled engines (e.g., outboard motors, snowmobiles, chain saws, mopeds, etc.).

WARNING

Take care when handling gasoline. Avoid direct contact with the skin and avoid inhaling fuel vapor. When filling at the pump, first remove the container from your vehicle and place the container on the ground before filling. To reduce the risk of sparks from static discharge and resulting fire and/or explosion, do not fill fuel containers that are sitting in or on a vehicle or trailer.

The container should be kept tightly closed in order to limit the amount of moisture that gets into the mixture.

The machine's fuel tank should be cleaned as necessary.

Fuel mix ages

If not using MotoMix, only mix sufficient fuel for a few days of work, not to exceed 30 days of storage. Store in approved fuel-containers only. When mixing, pour oil into the container first, and then add gasoline. Close the container and shake it vigorously by hand to ensure proper mix of oil and gasoline.

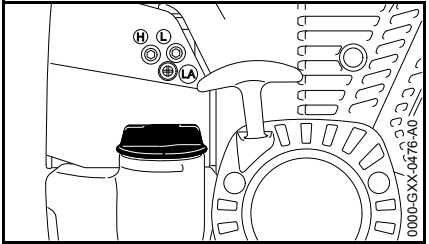
Gasoline US gal.	Oil (STIHL 50:1 or equivalent high-quality oils) US fl.oz.
1	2.6
2 1/2	6.4
5	12.8

Dispose of empty mixing-oil containers only at authorized disposal locations.

Fueling



Preparations



- Before fueling, clean the filler cap and the area around it to ensure that no dirt falls into the tank.

Always thoroughly shake the mixture in the canister before fueling your machine.

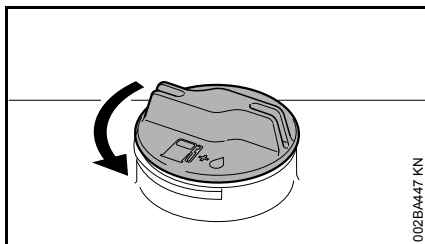
- Position the machine so that the filler cap is facing up.

WARNING

To reduce the risk of fire and personal injuries due to escaping fuel and vapor, remove the fuel filler cap carefully so that any excess pressure in the tank can escape slowly.

Use the proper seasonal gasoline blend, i.e., winter blend in winter, summer blend in summer.

Opening the threaded filler cap



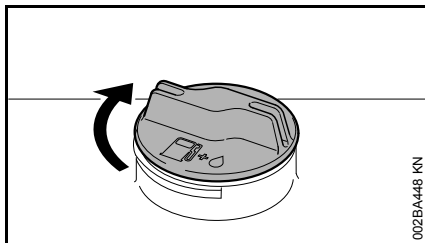
002BA447 KN

- Turn the cap counterclockwise until it can be removed from the tank opening.
- Remove the filler cap.

Refueling

Take care not to spill fuel while fueling and do not overfill the tank.

Closing the threaded filler cap

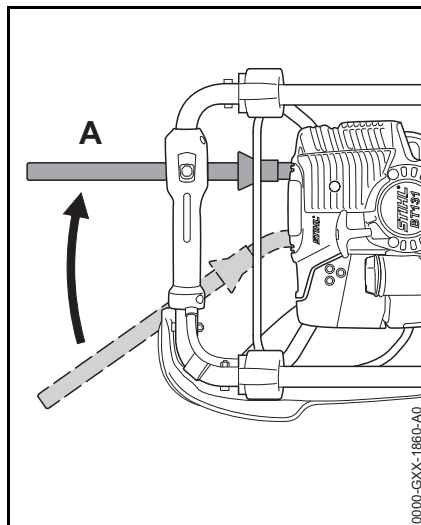


002BA448 KN

- Position cap.
- Turn the cap clockwise as far as it will go and tighten it as securely as possible by hand.

Auger Brake

Engaging the Auger Brake

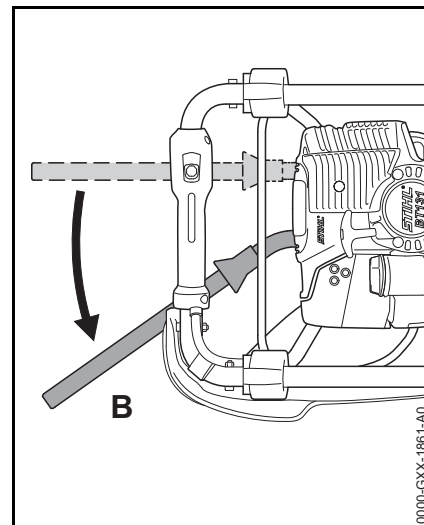


0000-GXX-1860-A0

- Move the activating lever to position **A**.
- when starting
- at idling speed
- to unwind a trapped auger

If the auger snags on an obstacle in the hole (e.g. roots or stones) the machine will begin to turn counterclockwise – the activating lever is pressed against the operator's thigh and thus engages the auger brake.

Disengaging the Auger Brake



0000-GXX-1861-A0

- Move the activating lever to position **B**

Checking Operation of Auger Brake

The auger brake is subject to normal wear and tear. Regularly check that it is operating properly before you start work and after releasing a trapped auger.

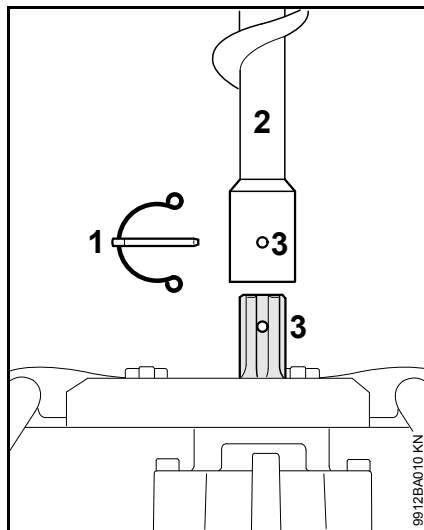
Before starting work and after releasing a trapped auger

- With the engine running at idle speed, engage the auger brake and then open the throttle wide for no more than 3 seconds – the auger must not rotate.

If the auger brake fails, have it repaired immediately by your dealer – STIHL recommends that this work be performed by a STIHL servicing dealer.

Fitting the Auger

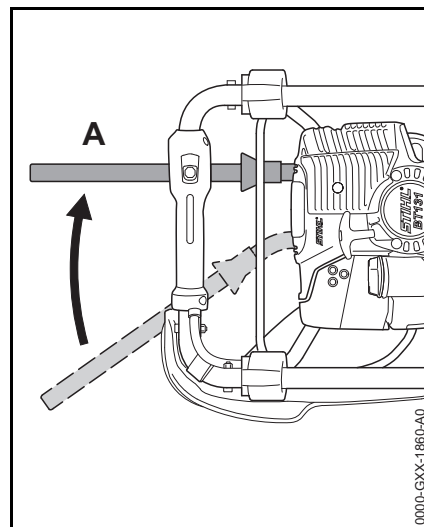
- Shut off the engine and engage the auger brake – see "Auger Brake".
- Put the machine down.



- Pull the retaining pin (1) out of the auger's shank.
- Push the auger (2) onto the drilling spindle so that the holes (3) line up.
- Push the retaining pin into the hole.
- Spring clip on the retaining pin must fit snugly around the auger's shank.

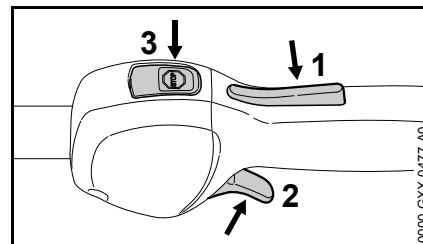
Starting / Stopping the Engine

Engaging the Auger Brake



- Move the activating lever to position A.

Controls



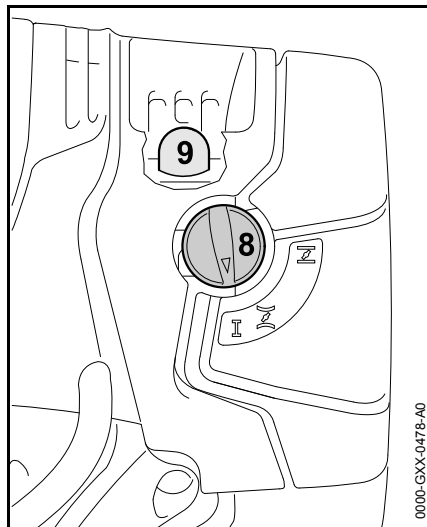
- 1 Throttle trigger lockout
- 2 Throttle trigger

- 3 Stop switch with **Run** and **Stop** positions. Depress the stop switch (⊖) to switch off the ignition – see "Function of stop switch and ignition system".

Function of stop switch and ignition system

The stop switch is normally in the Run position, i.e. when it is **not** depressed: The ignition is switched on – the engine is ready to start. Operate the stop switch to switch off the ignition. The ignition is switched on again automatically after the engine stops.

Starting the Engine



- Press the manual fuel pump bulb (9) at least five times – even if the bulb is already filled with fuel.

- Press home the choke knob (8) and turn it to the required position – it must engage

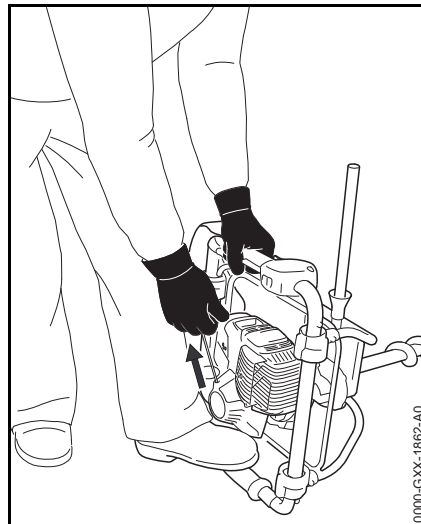


if the engine is cold



for warm start – also use this position if the engine has been running but is still cold.

Cranking



- Place the unit on the ground:

To reduce the risk of accidents, check that the cutting attachment is not touching the ground or any other obstacles.

- Make sure you have a safe and secure footing.
- Put your left foot on the handle frame.

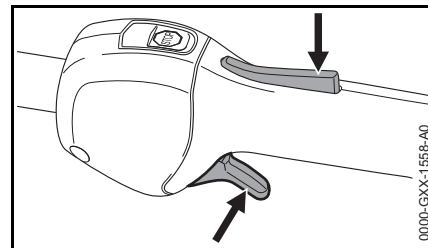
- Left hand on the handle frame – do not touch the throttle trigger or lockout lever – your thumb should be under the fan housing.
- Hold the starter grip with your right hand.
- Pull the starter grip slowly until you feel it engage and then give it a brisk strong pull.

NOTICE

Do not pull out the starter rope all the way – **it might otherwise break**.

- Do not let the starter grip snap back. Guide it slowly back into the housing so that the starter rope can rewind properly.
- Continue cranking until the engine runs.

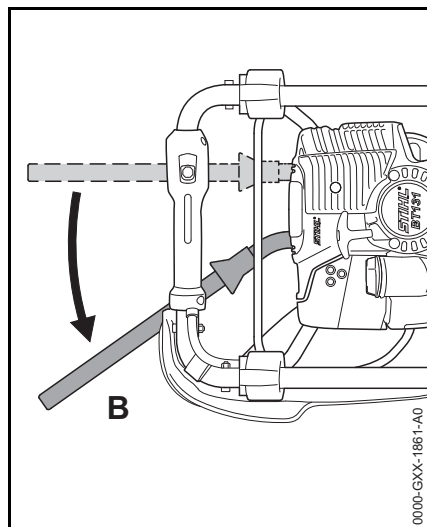
As soon as the engine runs



- Depress throttle trigger lockout and immediately blip the throttle trigger – the choke knob moves to the run **I** position.

NOTICE

Since the auger brake is still engaged, the engine must be returned to idling speed **immediately** – or the clutch might otherwise be damaged.



- Stand the machine on the tip of the auger.
- Disengage the auger brake by moving the activating lever to position **B**. Your earth auger is now ready for operation.

WARNING


Make sure the carburetor is correctly adjusted. The auger must not rotate when the engine is idling.


Your machine is now ready for operation.


Stopping the Engine


- Depress the momentary contact stop switch – the engine stops – release the stop switch – it springs back to the run position.

Other Hints on Starting

Engine stalls in cold start position  or under acceleration.

- Move the choke knob to  and continue cranking until the engine runs.

Engine does not start in warm start position .

- Move the choke knob to  and continue cranking until the engine runs.

If the engine does not start

- Check that all settings are correct.
- Check that there is fuel in the tank and refuel if necessary.
- Check that the spark plug boot is properly connected.
- Repeat the starting procedure.

Engine is flooded

- Move the choke knob to **I** and continue cranking until the engine runs.

Fuel tank run until completely dry

- After refueling, press the manual fuel pump bulb at least five times – even if the bulb is already filled with fuel.
- Set the choke knob to suit the engine temperature.
- Now start the engine.

Operating Instructions

During break-in period

A factory-new machine should not be run at high revs (full throttle off load) for the first three tank fillings. This avoids unnecessary high loads during the break-in period. As all moving parts have to bed in during the break-in period, the frictional resistances in the engine are greater during this period. The engine develops its maximum power after about 5 to 15 tank fillings.

During Operation

After a long period of full throttle operation, allow the engine to run for a short while at idle speed so that engine heat can be dissipated by the flow of cooling air. This protects engine-mounted components (ignition, carburetor) from thermal overload.

After Finishing Work

Wait for the engine to cool down. Drain the fuel tank. Store the machine in a dry location. Check the tightness of all accessible screws and nuts (not adjusting screws) at regular intervals and retighten if necessary.

Working with shaft extension (special accessory)

Do not fit the shaft extension until the full length of the auger is in the hole.

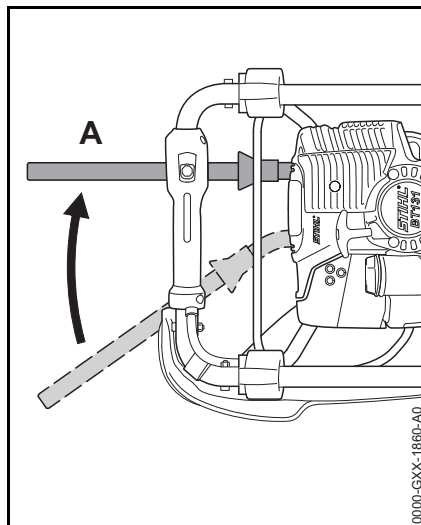
WARNING

Starting a hole with the shaft extension fitted increases the risk of personal injury because the unit is then at chest height and cannot be controlled properly. For the same reason the shaft extension must be removed before the auger is pulled out of the hole.

Releasing a Trapped Auger

If the auger jams in the drill hole

- Shut off the engine immediately.
- Depress the momentary contact stop switch – the engine stops – release the stop switch – it springs back to the run position.



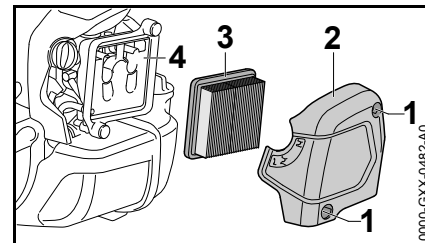
- Engage the auger brake by moving the activating lever to position **A**.
- Rotate the whole machine counterclockwise to unwind the auger from the ground.
- After releasing the trapped auger, check operation of the auger brake – see “Auger Brake”.

Replacing the Air Filter

Filters have an average life of more than a year. Do not remove the filter cover or replace the air filter as long as there is no noticeable loss of power.

If there is a noticeable loss of engine power.

- Remove padding from the handle frame.



- Turn the choke knob to **I**.
- Take out the screws (1).
- Remove the filter cover (2).
- Clean away loose dirt from around the filter.
- Remove the filter element (3).
- Replace dirty or damaged filter.
- Replace any damaged parts.

Installing the Filter Element

- Install the filter element in the filter housing and fit the cover.
- Fit the screws and tighten them down firmly.
- Fit the padding – see "Assembling the Unit".

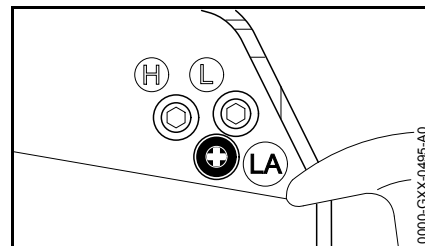
Engine Management

Exhaust emissions are controlled by the design of the fundamental engine parameters and components (e.g. carburation, ignition, timing and valve or port timing) without the addition of any major hardware.

Adjusting the Carburetor

The carburetor has been set at the factory to provide an optimum fuel-air mixture under most operating conditions.

Adjusting Idle Speed



Engine stops while idling

- Warm up the engine for about 3 minutes.
- Turn the idle speed screw (LA) slowly clockwise until the engine runs smoothly – the auger must not rotate.

Auger rotates when engine is idling

- Turn the idle speed screw (LA) slowly counterclockwise until the auger stops rotating and then turn the screw about another 1/2 to 3/4 turn in the same direction.

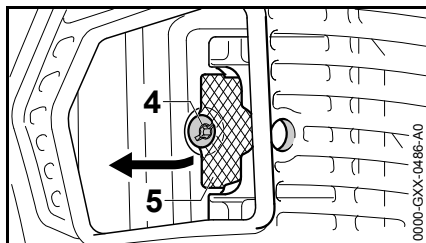


WARNING

If the auger continues to rotate when the engine is idling, have your machine checked and repaired by your servicing dealer.

Spark Arresting Screen in Muffler

- If the engine is down on power, check the spark arresting screen in the muffler.
- Wait for the muffler to cool down.



- Take out the screw (4).
- Lift the spark arresting screen (5) and pull it out.
- Clean the spark arresting screen (5). If the screen is damaged or heavily carbonized, install a new one.
- Refit the spark arresting screen (5).
- Insert the screw (4) and tighten it down firmly.

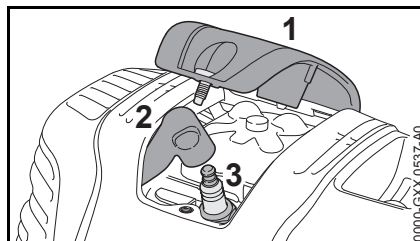
Spark Plug

If the engine is down on power, difficult to start or runs poorly at idling speed, first check the spark plug.

Install a new spark plug after approx. 100 operating hours or earlier if the electrodes are badly eroded/corroded.

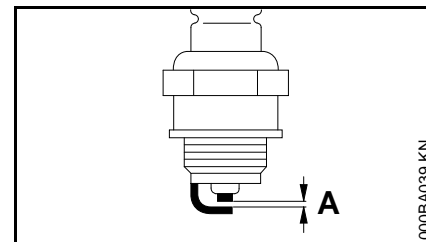
The wrong fuel mix (too much engine oil in the gasoline), a dirty air filter and unfavorable running conditions (mostly at part throttle etc.) affect the condition of the spark plug. These factors cause deposits to form on the insulator nose which may degrade performance.

Removing the Spark Plug



- Remove the cover (1).
- Pull off the spark plug boot (2).
- Unscrew the spark plug (3).

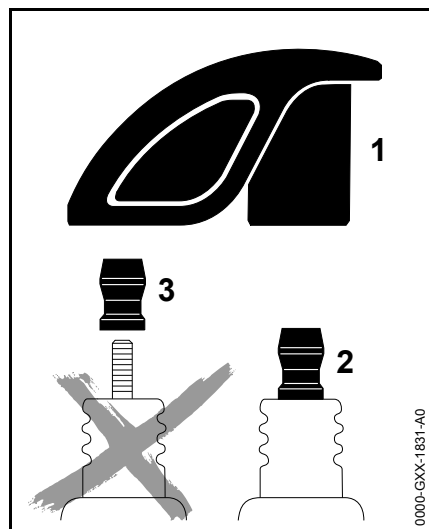
Checking the Spark Plug



- Clean dirty spark plug.
- Check electrode gap (A) and readjust if necessary – see chapter "Specifications."
- Use only resistor type spark plugs of the approved range.

Rectify problems which have caused fouling of spark plug:

- too much oil in fuel mix,
- dirty air filter,
- unfavorable running conditions, e.g. operating at part load.



! WARNING

To reduce the risk of fire and burn injury, use only spark plugs authorized by STIHL. Always press the spark plug boot (1) snugly onto the spark plug terminal (2).

Do not use a spark plug with a detachable SAE adapter terminal (3). Arcing may occur that could ignite combustible fumes and cause a fire. This can result in serious injuries or damage to property.

- Only use resistor type spark plugs with solid, non-threaded terminals

Installing the Spark Plug

- Screw the spark plug (3) into the cylinder.
- Tighten down the spark plug (3) with the combination wrench.

- Press the boot (2) firmly onto the spark plug.
- Fit the cover (1) and screw it down firmly.

Engine Running Behavior

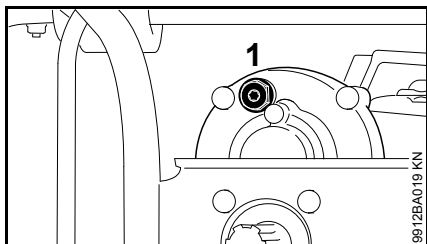
If engine running behavior is still unsatisfactory after the air filter has been serviced and the carburetor and throttle cable have been adjusted correctly, the cause may also be in the muffler.

Have the muffler checked for contamination (coking) by a servicing dealer!

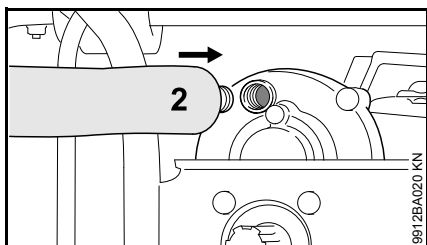
STIHL recommends that maintenance and repair work be carried out only by authorized STIHL dealers.

Lubricating the Gearbox

Check grease level after every 50 hours of operation and re-lubricate if necessary.



- Remove the screw plug (1).



- If no grease can be seen on the inside of the screw plug (1): Screw the tube (2) of STIHL gear lubricant (special accessory) into the filler hole.
- Squeeze about 5 - 10 g (1/5 - 2/5 oz) grease into the gearbox.

NOTICE

Do not completely fill the gearbox with grease.

- Unscrew the tube (2).
- Insert the screw plug (1) and tighten it down firmly.

Storing the Machine

For periods of about 3 months or longer

- Remove the auger.
- Drain and clean the fuel tank in a well ventilated area.
- Dispose of fuel properly in accordance with local environmental requirements.
- Run the engine until the carburetor is dry – this helps prevent the carburetor diaphragms sticking together.
- Thoroughly clean the machine.
- Store the machine in a dry and secure location. Keep out of the reach of children and other unauthorized persons.

Maintenance and Care

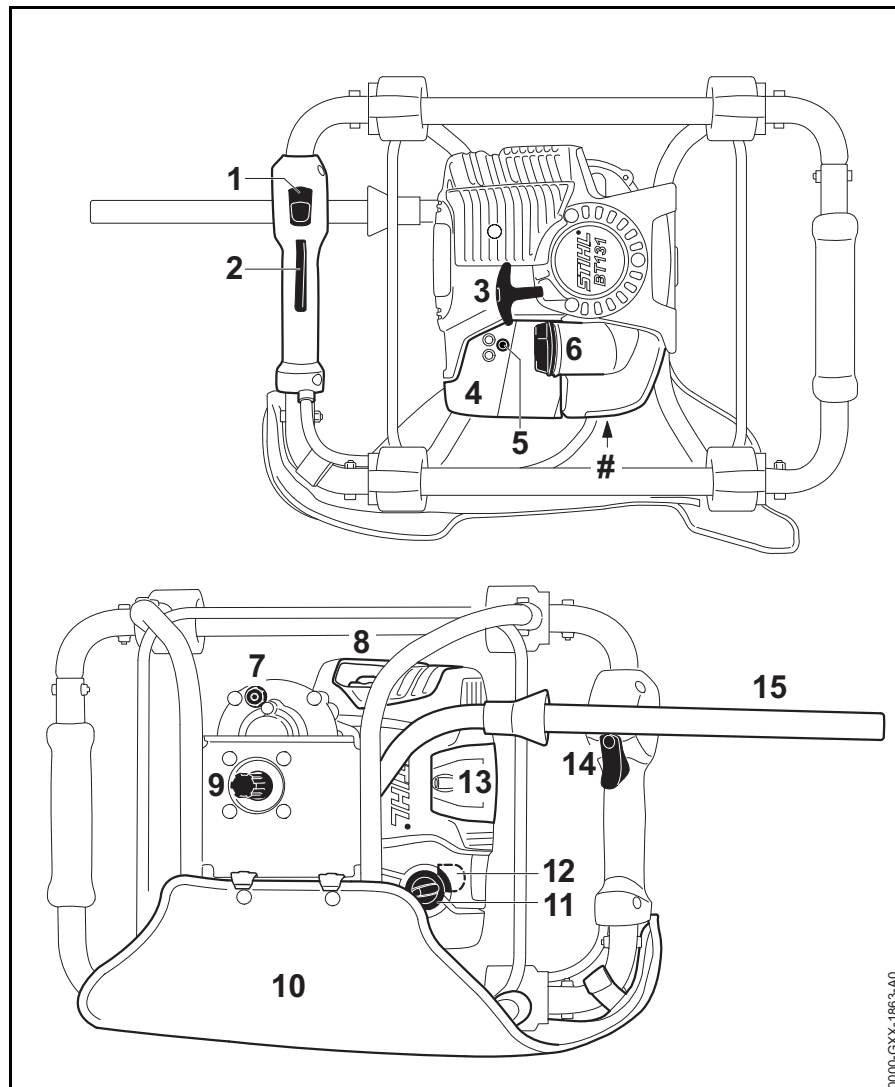
The following intervals apply to normal operating conditions only. If your daily working time is longer or operating conditions are difficult (very dusty work area, etc.), shorten the specified intervals accordingly.		before starting work	after finishing work or daily	after each refueling stop	weekly	monthly	every 12 months	if problem	if damaged	as required
Complete machine	Visual inspection (condition, leaks)	X		X						
	Clean		X							
	Replace any damaged parts	X							X	
Auger brake	Check operation	X		X						
	Have serviced by dealer ¹⁾									X
Control handle	Check operation	X		X						
Air filter	Visual inspection					X		X		
	Replace ²⁾								X	X
Manual fuel pump (if fitted)	Check	X								
	Have repaired by servicing dealer ¹⁾								X	
Pickup body in fuel tank	Have checked by servicing dealer ¹⁾							X		
	Have replaced by servicing dealer ¹⁾						X		X	X
Fuel tank	Clean							X		X
Carburetor	Check idle adjustment – drilling spindle must not rotate	X		X						
	Adjust idle speed									X
Spark plug	Adjust electrode gap							X		
	Replace after every 100 operating hours									
Cooling inlets	Visual inspection		X							
	Clean									X
Cylinder fins	Have cleaned by servicing dealer ¹⁾						X			
Valve clearance	If power is low or cranking effort very high, have valve clearance checked and, if necessary, adjusted by servicing dealer ¹⁾									X

The following intervals apply to normal operating conditions only. If your daily working time is longer or operating conditions are difficult (very dusty work area, etc.), shorten the specified intervals accordingly.		before starting work	after finishing work or daily	after each refueling stop	weekly	monthly	every 12 months	if problem	if damaged	as required
Spark arresting screen in muffler	Check		X					X		
	Clean or replace								X	X
All accessible screws and nuts (not adjusting screws)	Retighten									X
Anti-vibration elements	Check	X						X		X
	Have replaced by servicing dealer ¹⁾								X	
Gearbox lubrication	Check				X					
	Replenish									X
Drilling spindle	Clean		X							
Auger	Check	X								
	Replace								X	X
Safety labels	Replace								X	

¹⁾ STIHL recommends an authorized STIHL servicing dealer.

²⁾ Only if there is a noticeable loss of engine power

Main Parts



- 1 Stop Switch
- 2 Throttle Trigger Lockout
- 3 Starter Grip
- 4 Air Filter Cover
- 5 Carburetor Adjusting Screw
- 6 Fuel Filler Cap
- 7 Screw Plug
- 8 Muffler with Spark Arresting Screen
- 9 Drilling Spindle
- 10 Padding
- 11 Choke Knob
- 12 Manual Fuel Pump
- 13 Spark Plug Cover
- 14 Throttle Trigger
- 15 Auger Brake Activating Lever
- # Serial Number

Definitions

- 1 Stop Switch**
Switches the engine's ignition off and stops the engine.
- 2 Throttle Trigger Lockout**
Must be depressed before the throttle trigger can be activated.
- 3 Starter Grip**
The grip of the pull starter, for starting the engine.
- 4 Air Filter Cover**
Covers and protects the air filter element.
- 5 Carburetor Adjusting Screw**
For setting idle speed.
- 6 Fuel Filler Cap**
For closing the fuel tank.
- 7 Screw Plug**
Seals filler opening for gearbox grease.
- 8 Muffler with Spark Arresting Screen**
Muffler reduces exhaust noises and diverts exhaust gases away from operator.
Spark arresting screen is designed to reduce the risk of fire.
- 9 Drilling Spindle**
For attaching the chuck or adapter to the power drill.
- 10 Padding**
Helps cushion thigh against handle frame.
- 11 Choke Knob**
Eases engine starting by enriching mixture.

- 12 Manual Fuel Pump**
Provides additional fuel feed for a cold start.
- 13 Spark Plug Cover**
Covers and protects the spark plug.
- 14 Throttle Trigger**
Controls the speed of the engine.
- 15 Auger Brake Activating Lever**
Lever for engaging and disengaging the auger brake.

Specifications

EPA / CEPA

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

Category

A = 300 hours

B = 125 hours

C = 50 hours

CARB

The Emission Compliance Period used on the CARB-Air Index Label indicates the terms:

Extended = 300 hours

Intermediate = 125 hours

Moderate = 50 hours

Engine

STIHL single cylinder four-stroke engine with mixture lubrication

Displacement:	36.3 cc (2.22 cu.in)
Bore:	43 mm (1.693 in)
Stroke:	25 mm (0.984 in)
Engine power to ISO 8893:	1.4 kW (1.88 bhp) at 8,500 rpm
Idle speed:	2,800 rpm

Cut-off speed:	9,500 rpm
Valve clearance	
Inlet valve:	0.10 mm (0.004 in)
Exhaust valve:	0.10 mm (0.004 in)

Ignition System

Electronic magneto ignition

Spark plug (resistor type):	NGK CMR 6H
Electrode gap:	0.5 mm (0.020 in)

Fuel System

All position diaphragm carburetor with integral fuel pump

Fuel tank capacity: 0.71 l (24 fl.oz)

Drilling gear

Two-stage spur gear drive

Gear ratio:	47.5:1
Max. spindle speed:	200 rpm
Max. torque at drilling spindle:	81 Nm (59.74 lbf. ft)
Lubrication:	STIHL gear lubricant for brushcutters

Weight

Dry, without drilling tool (auger): 10 kg (22 lbs)

Dimensions


Length with handle frame:	400 mm (15.8 in)
Width with handle frame:	530 mm (20.9 in)
Height without drilling tool (auger):	365 mm (14.4 in)

Features

Z Spark arrestor equipment

Maintenance and Repairs

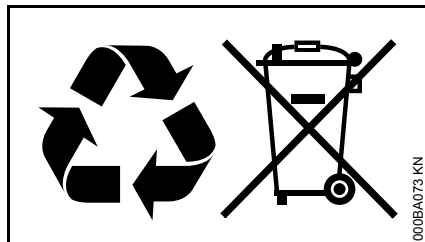
Users of this unit should carry out only the maintenance operations described in this manual. STIHL recommends that other repair work be performed only by authorized STIHL servicing dealers using genuine STIHL replacement parts.

Genuine STIHL parts can be identified by the STIHL part number, the **STIHL** logo and, in some cases, by the STIHL parts symbol . The symbol may appear alone on small parts.

For repairs of any component of this unit's air emissions control system, please refer to the air emissions systems warranty in this manual.

Disposal

Observe all country-specific waste disposal rules and regulations.



STIHL products must not be thrown in the garbage can. Take the product, accessories and packaging to an approved disposal site for environment-friendly recycling.

Contact your STIHL servicing dealer for the latest information on waste disposal.

STIHL Incorporated Federal Emission Control Warranty Statement

Your Warranty Rights and Obligations

The U.S. Environmental Protection Agency (EPA) and STIHL Incorporated are pleased to explain the Emission Control System Warranty on your equipment type engine. In the U.S. new 1997 and later model year small off-road equipment engines must be designed, built and equipped, at the time of sale, to meet the U.S. EPA regulations for small non road engines. The equipment engine must be free from defects in materials and workmanship which cause it to fail to conform with U.S. EPA standards for the first two years of engine use from the date of sale to the ultimate purchaser.

STIHL Incorporated must warrant the emission 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 equipment engine.

Your emission control system includes parts such as the carburetor and the ignition system. Also included may be hoses, and connectors and other emission-related assemblies.

Where a warrantable condition exists, STIHL Incorporated will repair your small off-road equipment engine at no cost to you including diagnosis (if the diagnostic work is performed at an authorized dealer), parts and labor.

Manufacturer's Warranty Coverage

In the U.S., 1997 and later model year small off-road equipment engines are warranted for two years. If any emission-related part on your engine is defective, the part will be repaired or replaced by STIHL Incorporated free of charge.

Owner's Warranty Responsibilities

As the small off-road equipment engine owner, you are responsible for the performance of the required maintenance listed in your instruction manual. STIHL Incorporated recommends that you retain all receipts covering maintenance on your small off-road equipment engine, but STIHL Incorporated cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

Any replacement part or service that is equivalent in performance and durability may be used in non-warranty maintenance or repairs, and shall not reduce the warranty obligations of the engine manufacturer.

As the small off-road equipment engine owner, you should be aware, however, that STIHL Incorporated may deny you warranty coverage if your small off-road equipment engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your small off-road equipment engine to a STIHL service center as soon as a

problem exists. The warranty repairs will be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, please contact a STIHL customer service representative at 1-800-467-8445 or you can write to

STIHL Inc.,
536 Viking Drive, P.O. Box 2015,
Virginia Beach, VA 23450-2015

www.stihlusa.com

Coverage by STIHL Incorporated

STIHL Incorporated warrants to the ultimate purchaser and each subsequent purchaser that your small off-road equipment engine will be designed, built and equipped, at the time of sale, to meet all applicable emissions regulations. STIHL Incorporated also warrants to the initial purchaser and each subsequent purchaser that your engine is free from defects in materials and workmanship which cause the engine to fail to conform with applicable emissions regulations for a period of two years.

Warranty Period

The warranty period will begin on the date the utility equipment engine is purchased by the initial purchaser. Product registration is recommended, so that STIHL has a means to contact you if there ever is a need to communicate repair or recall information about your product, but it is not required in order to obtain warranty service.

If any emission-related part on your engine is defective, the part will be replaced by STIHL Incorporated at no cost to the owner. Any warranted part which is not scheduled for replacement as required maintenance, or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" will be warranted for the warranty period. Any warranted part which is scheduled for replacement as required maintenance will be warranted for the period of time up to the first scheduled replacement point for that part.

Diagnosis

You, as the owner, shall not be charged for diagnostic labor which leads to the determination that a warranted emissions part is defective. However, if you claim warranty for an emissions component and the machine is tested as non-defective, STIHL Incorporated will charge you for the cost of the emission test. Mechanical diagnostic work will be performed at an authorized STIHL servicing dealer. Emission test may be performed either at STIHL Incorporated or at any independent test laboratory.

Warranty Work

STIHL Incorporated shall remedy warranty defects at any authorized STIHL servicing dealer or warranty station. Any such work shall be free of charge to the owner if it is determined that a warranted part is defective.

Any manufacturer-approved or equivalent replacement part may be used for any warranty maintenance or repairs on emission-related parts and must be provided without charge to the owner. STIHL Incorporated is liable for damages to other engine components caused by the failure of an emissions warranted part still under warranty.

The following list specifically defines the emission-related warranted parts:

- Air Filter
- Carburetor (if applicable)
- Fuel Pump
- Choke (Cold Start Enrichment System) (if applicable)
- Control Linkages
- Intake Manifold
- Magneto or Electronic Ignition System (Ignition Module or Electronic Control Unit)
- Fly Wheel
- Spark Plug
- Injection Valve (if applicable)
- Injection Pump (if applicable)
- Throttle Housing (if applicable)
- Cylinder
- Muffler
- Catalytic Converter (if applicable)
- Fuel Tank
- Fuel Cap
- Fuel Line
- Fuel Line Fittings

- Clamps
- Fasteners

Where to Make a Claim for Warranty Service

Bring the product to any authorized STIHL servicing dealer.

Maintenance Requirements

The maintenance instructions in this manual are based on the application of the recommended 2-stroke fuel-oil mixture (see also instruction "Fuel"). Deviations from this recommendation regarding quality and mixing ratio of fuel and oil may require shorter maintenance intervals.

Limitations

This Emission Control Systems Warranty shall not cover any of the following:

- repair or replacement required because of misuse, neglect or lack of required maintenance,
- repairs improperly performed or replacements not conforming to STIHL Incorporated specifications that adversely affect performance and/or durability, and alterations or modifications not recommended or approved in writing by STIHL Incorporated,

and

- replacement of parts and other services and adjustments necessary for required maintenance at and after the first scheduled replacement point.

STIHL Incorporated Limited Warranty Policy for Non-Emissions Related Parts and Components

This product is subject to the STIHL Incorporated Limited Warranty Policy, available at <http://www.stihlusa.com/warranty.html>. It can also be obtained by requesting a copy by mail at the address below, or by calling 1-800-GO-STIHL (1-800-467-8445). The STIHL Incorporated Limited Warranty Policy is in lieu of all other warranties, express or implied, including the implied warranties of merchantability and fitness for a particular purpose.

Trademarks

STIHL Registered Trademarks

STIHL®

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The color combination orange-grey (U.S. Registrations #2,821,860; #3,010,057, #3,010,058, #3,400,477; and #3,400,476)



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