

RYOBI POWER EQUIPMENT WARRANTY

Subject to the warranty conditions below, this RYOBI tool (hereinafter called "the Product"), is warranted by Ryobi (herein called "the Company") to be free from defects in material or workmanship for a period of 24 months from the date of original purchase covering both parts and labour. Under the terms of this warranty, the repair or replacement of any part shall be the opinion of the Company or its authorised agent. Should service become necessary during the warranty period, the owner should contact the authorised Ryobi retailer from whom the product was purchased, or the nearest Company branch office. In order to obtain warranty service, the owner must include the Sales Docket and Warranty Certificate to confirm date of purchase. This Product is sold by the dealer or agent as principal and the dealer has no authority from the Company to give any additional warranty or guarantee on the Company's behalf except as herein contained or herein referred to.

Warranty Conditions

This warranty only applies provided that the Product has been used in accordance with the manufacturer's recommendations under normal use and reasonable care (in the opinion of the Company) and such warranty does not cover consumable components, damage, malfunction or failure resulting from

misuse, neglect, abuse, or used for a purpose for which it was not designed, or is not suited and no repairs, alterations or modifications have been attempted by other than an Authorised Service Agent. This guarantee will not apply if the tool is damaged by accident or if repairs arise from normal wear and tear.

Accessories such as bits, blades, sanding discs, cutting lines, etc., are excluded from this guarantee. Normal consumable parts, such as carbon brushes, bearings, chucks, cord assembly's, spark plugs, recoil pulleys and bump head assembly's are specifically excluded from this guarantee.

The Company accepts no additional liability pursuant to this warranty for the costs of travelling or transportation of the Product or parts to and from the service dealer or agent - which costs are not included in the warranty.

Nothing herein shall have the effect of excluding, restricting or modifying any conditions, warranty, right or liability imposed, to the extent only that such exclusion, restriction or modification would render any term herein void.

RYOBI®

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THIS WARRANTY FORM

SHOULD BE RETAINED BY THE CUSTOMER AT ALL TIMES.

For your record and to assist in establishing date of purchase (necessary for in-warranty service) please keep your purchase docket and this form, completed with the following particulars.

PURCHASED FROM:.....

ADDRESS OF DEALER:.....

DATE:..... MODEL NO.....

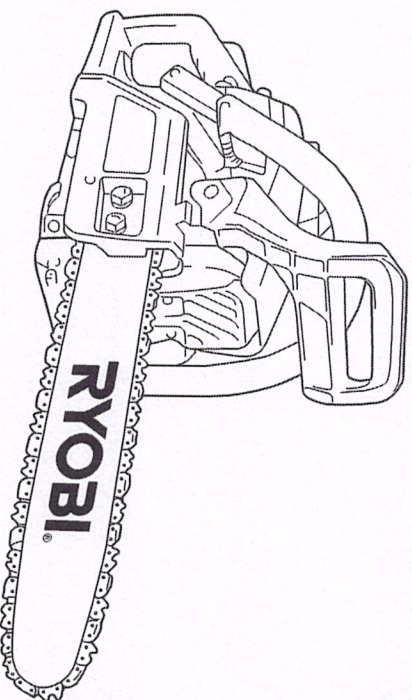
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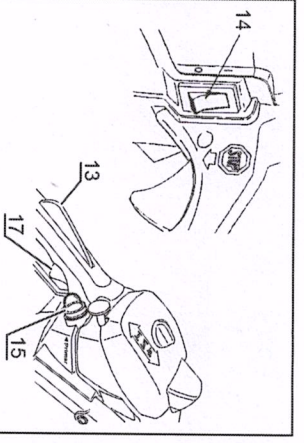
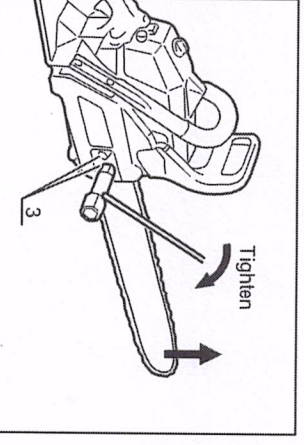
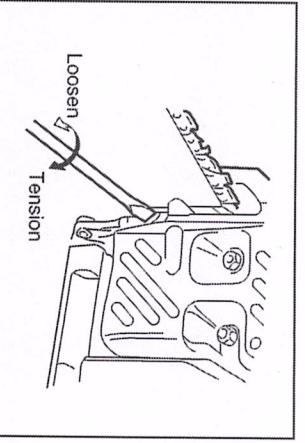
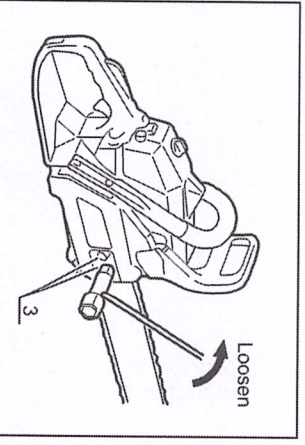
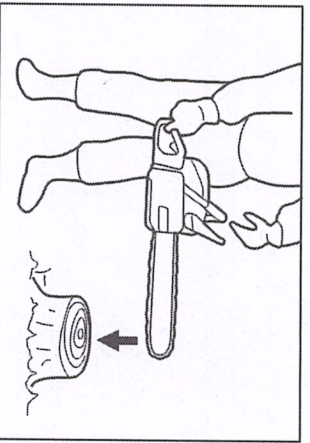
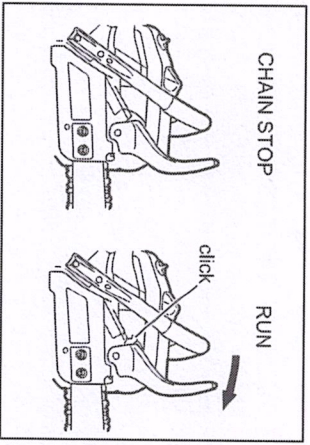
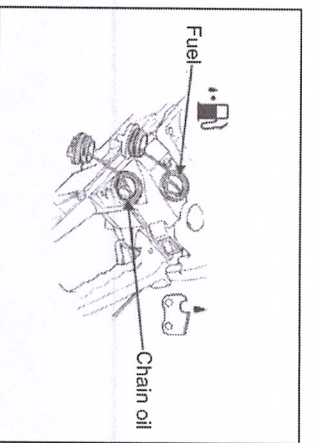
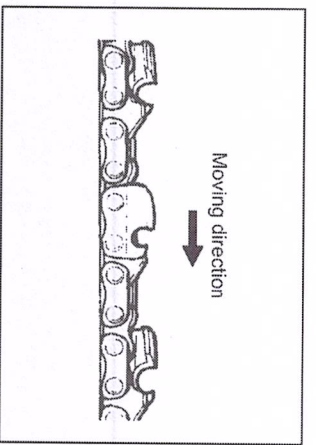
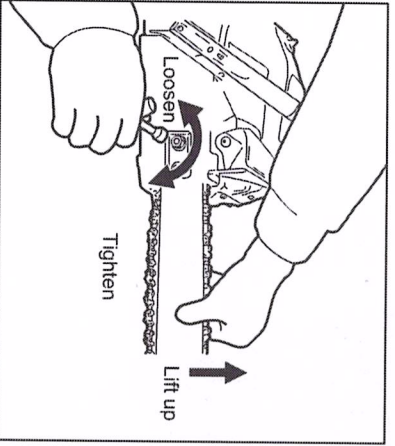
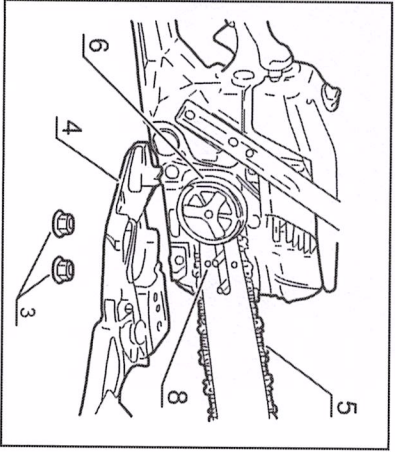
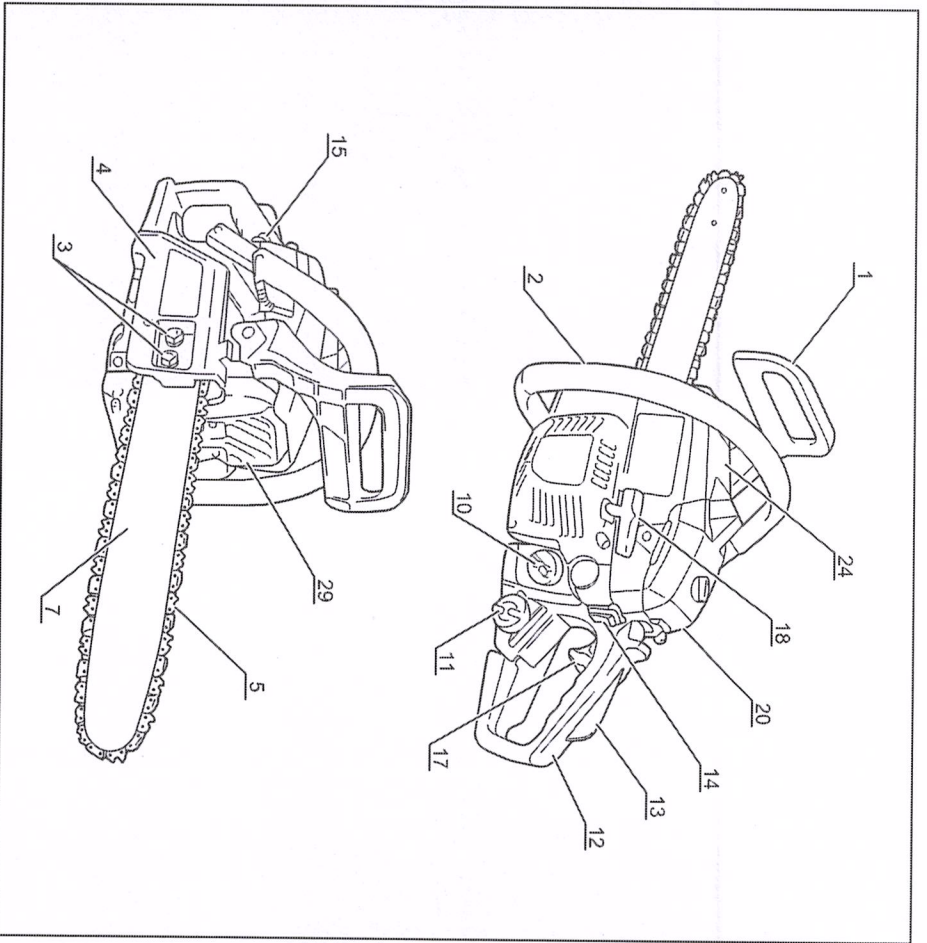
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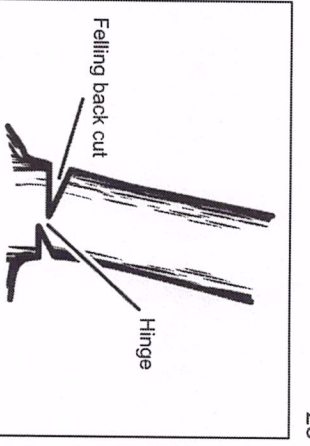
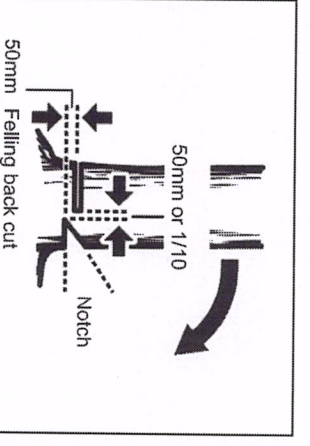
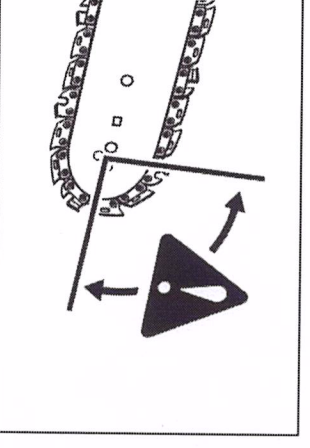
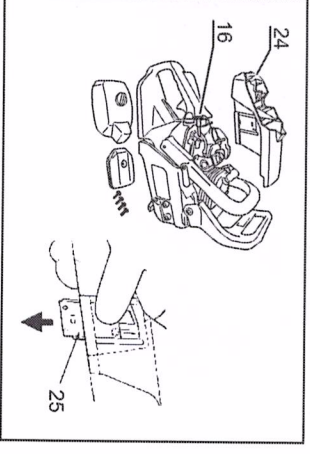
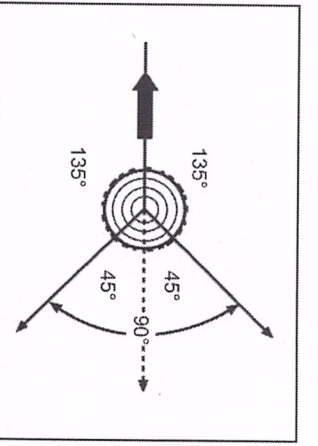
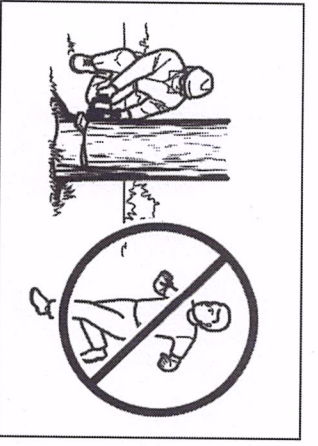
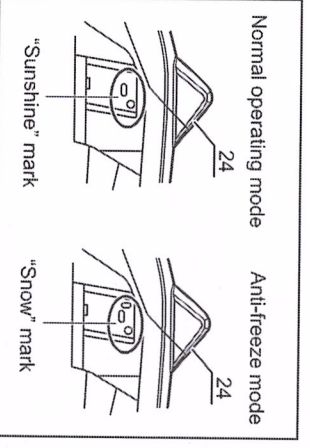
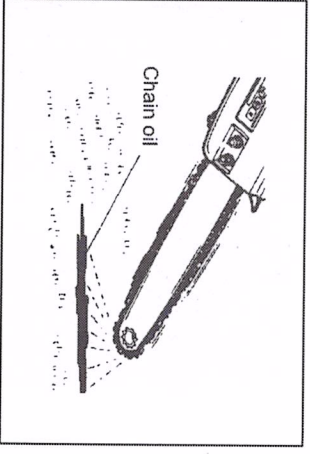
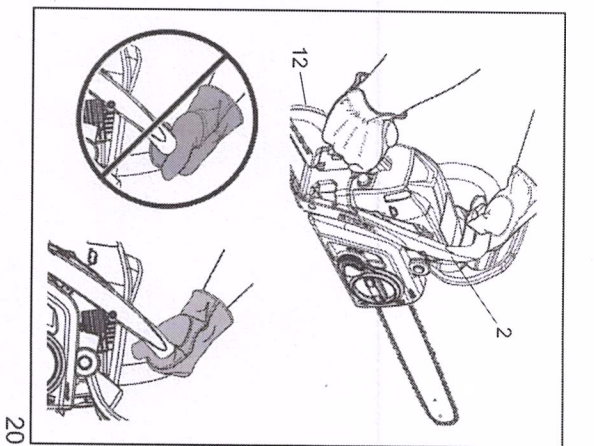
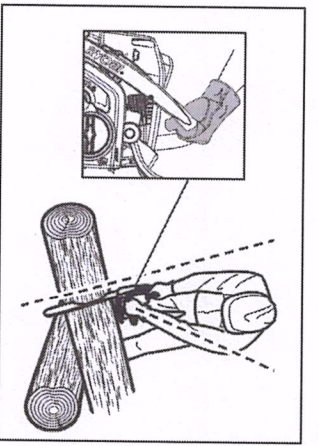
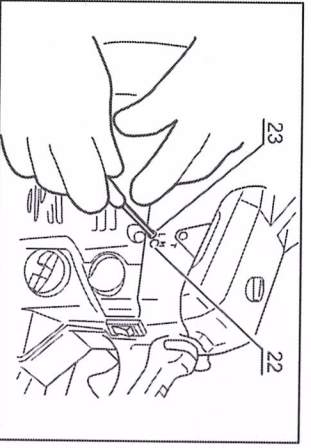
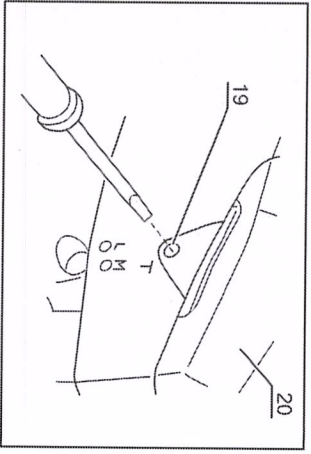
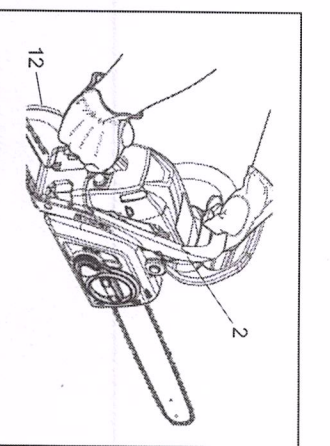
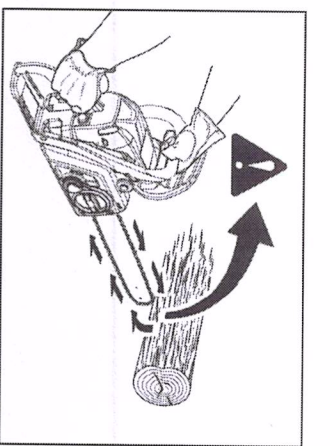
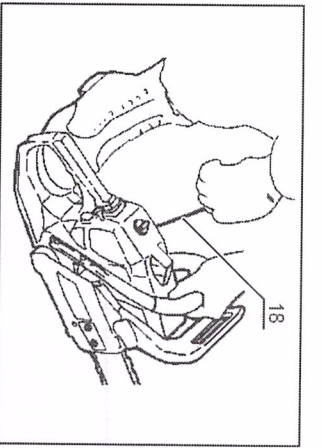
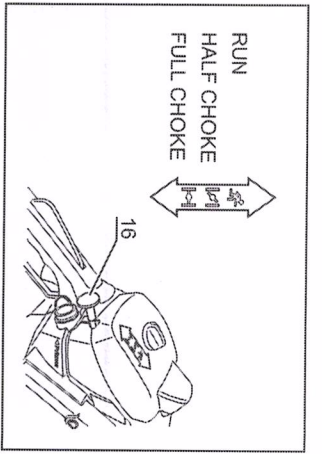
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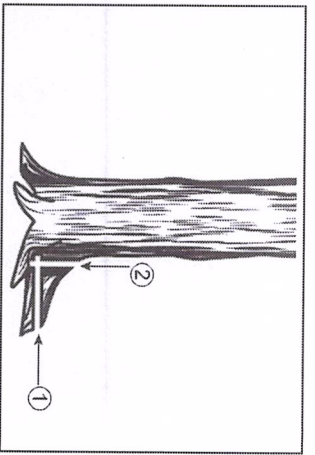
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Ⓜ OWNER'S OPERATING MANUAL

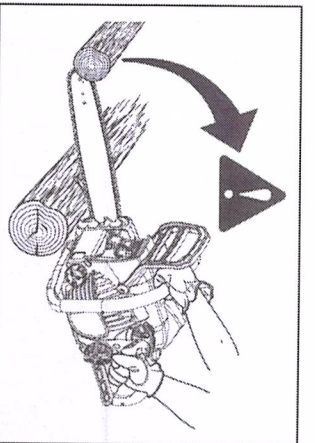




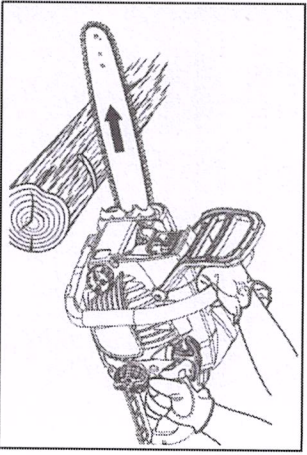




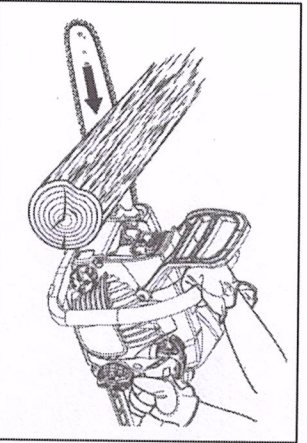
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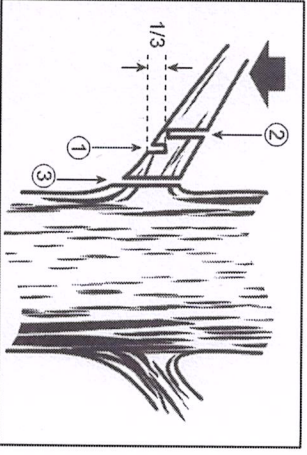
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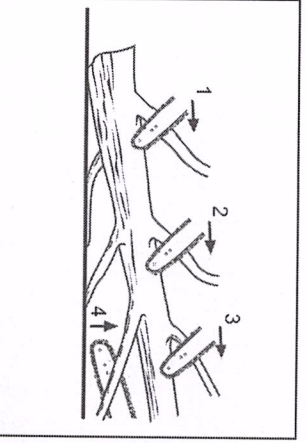
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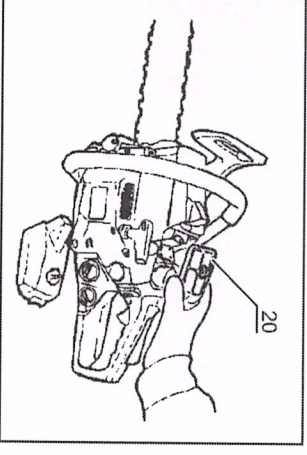
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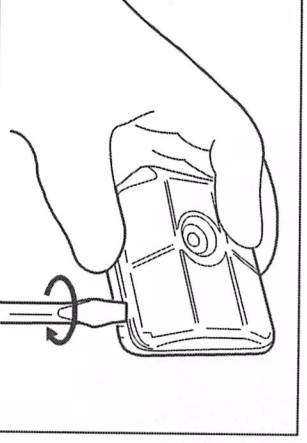
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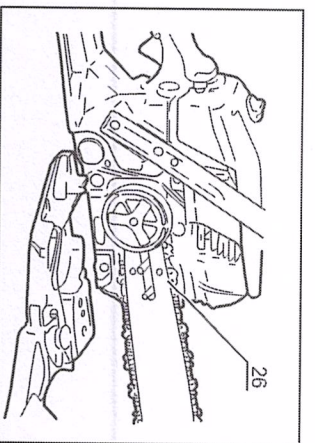
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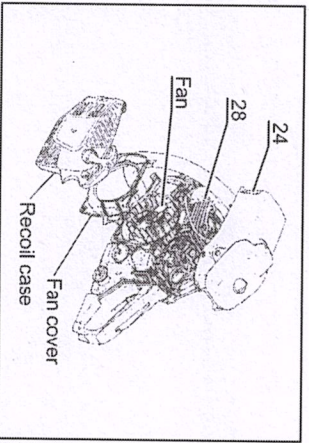
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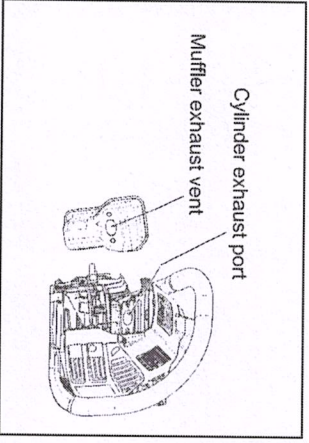
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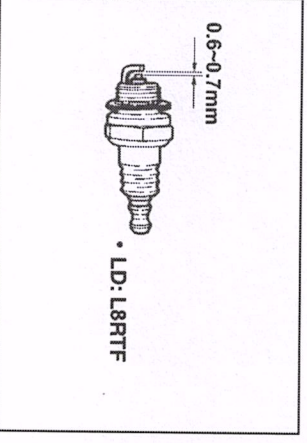
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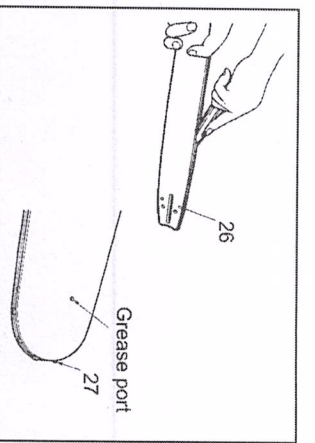
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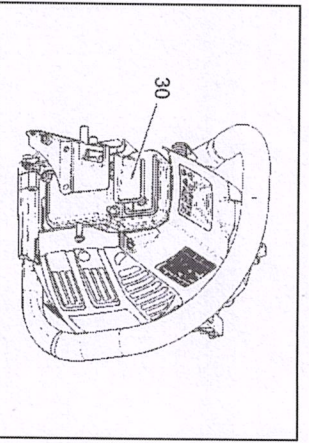
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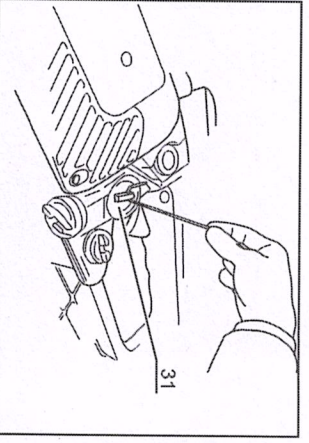
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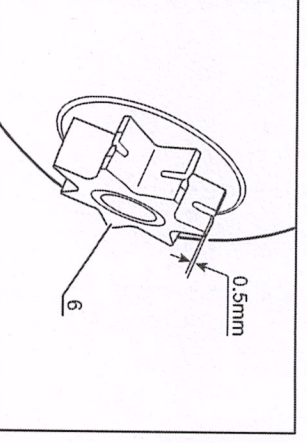
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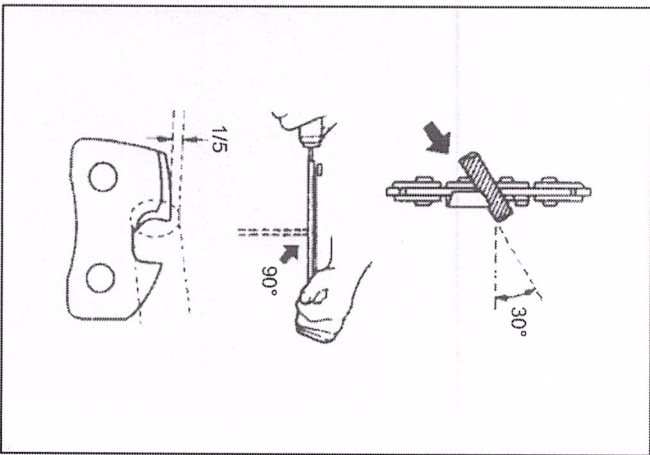
THANK YOU FOR BUYING A RYOBI PRODUCT.
To ensure your safety and satisfaction, carefully read through this OWNER'S MANUAL before using the product.

GENERAL SAFETY RULES

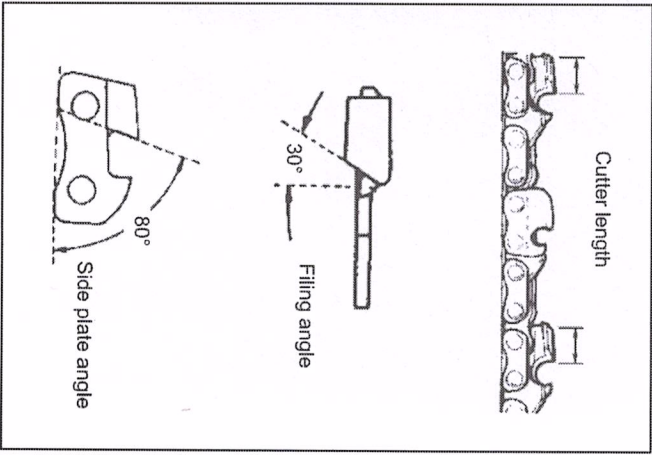
WARNING! Read all instructions. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury. The term "power tool" in all of the warnings listed below refers to your mains-operated (corded) power tool, battery-operated (cordless) power tool or petrol power tool.

SAVE THESE INSTRUCTIONS

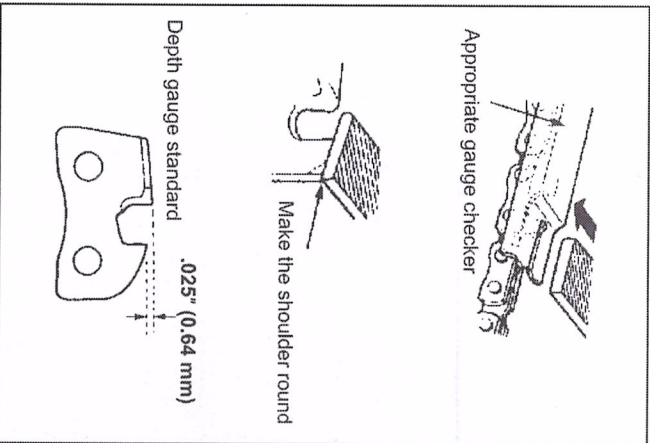
- **Know your tool.** Read the operator's manual carefully. Learn the saw's applications and limitations as well as the specific potential hazards related to this tool. We recommend you attend a professional training course to increase your awareness and proficiency in all chain saw operations.
- Kickback may occur when the nose or tip of the guide bar touches an object, or when the wood closes in and pinches the saw chain in the cut. Tip contact in some cases may cause a lightning-fast reverse reaction, kicking the guide bar up and back toward the operator. Pinching the saw chain along the top of the guide bar may push the guide bar rapidly back toward the operator. Either of these reactions may cause you to lose control of the saw, which could result in serious personal injury. Do not rely exclusively upon the safety devices built into the saw.
- As a chain saw user, you should take every step to keep your cutting jobs free from accident and injury.
- With a basic understanding of kickback, you can reduce or eliminate the element of surprise. Sudden surprise contributes to accidents.
- Keep a good firm grip on the saw with both hands when the engine is running. Place your right hand on the rear handle and your left hand on the front handle with your thumbs and fingers encircling the chain saw handles. A firm grip together with a stiff left arm will help you maintain control of the saw if kickback occurs.
- Make sure that the area in which you are cutting is free from obstructions. Do not let the nose of the guide bar contact a log, branch, fence, or any other obstruction that could be hit while you are operating the saw.
- Always cut with the engine running at full speed. Fully squeeze the throttle trigger and maintain a steady cutting speed.
- Do not overreach or cut above chest height.
- Follow the manufacturer's sharpening and maintenance instructions for the saw chain.
- Only use replacement bars and chains specified by the manufacturer or the equivalent.
- **Do not operate a chain saw with one hand.** Serious injury to the operator, helpers, bystanders, may result from one-handed operation. A chain saw is intended for two-handed use.
- **Do not operate a chainsaw when you are fatigued.** Fatigue causes carelessness. Do not operate the chainsaw if you are tired, sleepy or when under the influence of medication, drugs, or alcohol.
- **Use safety footwear.** Do not wear loose clothing. Wear protective gloves and clothing, eye, hearing, and head protection devices.
- **Heavy protective clothing may increase operator fatigue, which could lead to heat stroke.** During hot and humid weather, heavy work should be scheduled for early morning or late afternoon hours when temperatures are cooler.



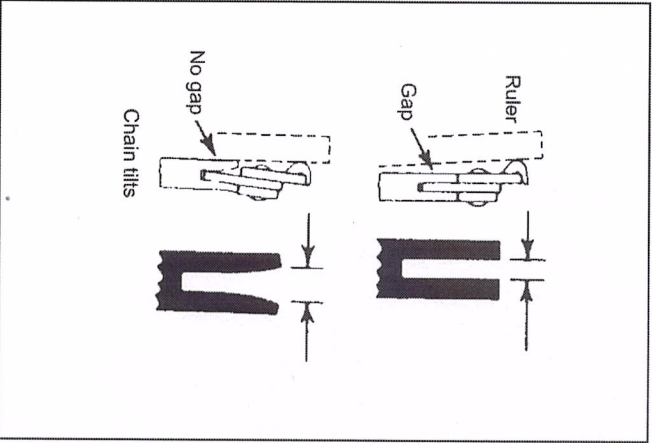
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• Do not stand on any unstable surface while using the chain saw, that includes ladders, scaffolds, trees, etc. Always keep a sound and firm footing.

- **Use caution when handling fuel.** Move the chain saw at least 10 metres from the fuelling point before starting the engine.
 - **Do not allow other persons to be near the chain saw** when starting or cutting with the chainsaw. Keep bystanders and animals out of the work area.
 - **Do not start cutting until you have a clear work area,** secure footing, and a planned retreat path from the falling tree.
 - **Keep all parts of your body away from the saw chain** when the engine is running.
 - **Always carry the chain saw with the engine stopped and the brake engaged,** the guide bar and saw chain to the rear, and the muffler away from your body. When transporting the chain saw, use the appropriate guide bar scabbard.
 - **Shut off the engine before setting the chain saw down.** Do not leave the engine running unattended. As an additional safety precaution, apply the chain brake prior to setting down the saw.
 - **Use extreme caution when cutting small-size brush and saplings** because slender material may catch the saw chain and be whipped toward you or pull you off balance.
 - **When cutting a limb that is under tension,** be alert for spring back so that you will not be struck when the tension in the wood fibres is released.
 - **Keep the handles dry, clean, and free of lubricant or fuel mixture.**
 - **Beware of carbon monoxide poisoning.** Operate the chain saw only in well-ventilated areas.
 - **Do not climb a tree to use the chainsaw,** unless you have been specifically trained to do so.
 - **Do not operate the chain saw from a ladder;** this is extremely dangerous.
 - **All chain saw service,** other than the items listed in the instruction manual and all maintenance should be performed by competent chain saw service personnel. (For example, if improper tools are used to remove the flywheel or if an improper tool is used to hold the flywheel in order to remove the clutch, structural damage to the flywheel could occur and subsequently could cause the flywheel to burst.)
 - **Always have a fire extinguisher available** when using a chain saw.
 - **Use only the replacement guide bars and low kickback chains** specified for the saw.
 - **Do not adapt the power head to a bow guide** or use it to power any attachments or devices not listed for the saw. The petrol powered saw is intended for infrequent use by homeowners, cottagers, and campers, and for such general applications as clearing, pruning, cutting firewood, etc. It is not intended for prolonged use. Prolonged periods of operation can cause circulatory (white finger) problems in the user's hands due to vibration. For such use, it may be appropriate to use a saw having an anti-vibration feature.
- Save these instructions.** Refer to them frequently and use them to instruct other users. If you loan someone this tool, loan them these instructions also.

SPECIFIC RULES FOR CHAIN SAW

WARNING! The warnings, labels, and instructions found in this section of the operator's manual are for your safety. Failure to follow all instructions may result in serious personal injury.

- **Do not cut vines and/or small underbrush** at a diameter of less than 75mm (3 in.).

- **Muffler surfaces are very hot during and immediately after operation of the chain saw!** Keep all body parts away from the muffler. Serious burns may occur if contact is made with the muffler.

- **Always hold the chain saw with both hands when the engine is running.** Use a firm grip with thumbs and fingers never let anyone who has not received adequate instructions use the chain saw. This applies to rentals as well as privately owned saws.

- **Before you start the engine,** make sure the saw chain is not contacting any object.

Wear snug-fitting clothing. Always wear heavy, long trousers, boots, and gloves. Do not wear jewellery, shorts, sandals, or go barefoot. Loose fitting clothing could be drawn into the engine or catch the chain or underbrush. Wear overalls, jeans, or chaps made of cut-resistant material or ones that contain cut-resistant inserts. Secure hair so that it is above shoulder level.

WARNING! Wear safety clothing which is designed for chain saw operators.

- **Wear non-slip safety footwear and heavy-duty gloves** to improve your grip and to protect your hands.

- Wear eye protection, as well as hearing and head protection, when operating this equipment.

- **Keep bystanders and animals out of the work area.** Do not allow other persons to be nearby during starting or cutting with the chain saw.

Note: The size of the work area depends on the job being performed as well as the size of the tree or work piece involved. For example, felling a tree requires a larger work area than making other cuts (i.e., bucking cuts, etc.).

- **Follow the sharpening and maintenance instructions for the saw chain.**

Never operate a chain saw that is damaged, improperly adjusted, or has been modified (particularly guards or safety devices), or is not completely and securely assembled. Be sure that the saw chain stops moving when the throttle control trigger is released. If the saw chain moves at idle speed, the carburetor may need adjusting. Refer to ADJUSTING THE CARBURETOR. If the saw chain still moves at idle speed after adjustment has been made, contact an authorized service centre for adjustment and discontinue use until the repair is made.

REFUELLING (DO NOT SMOKE!)

To reduce the risk of fire and burn injury, handle fuel with care. It is highly flammable.

- Mix and store fuel in a container approved for petrol.
- Mix fuel outdoors where there are no risks from sparks or flames.

- Select bare ground, stop the engine, and allow it to cool before refuelling.
- Loosen the fuel cap slowly to release any pressure and to keep fuel from escaping around the cap.

- Tighten the fuel cap securely after refuelling.
- Wipe spilled fuel from the unit. Move 10 metres away from refuelling site before starting engine.

- NEVER attempt to burn off spilled fuel under any circumstances.




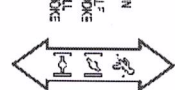

This product is very noisy when operating, to prevent long term hearing damage, wear hearing protection and keep other persons at least 15m away from the work area. Operating similar tools nearby increases the risk of injury. Use of hearing protection reduces the ability to hear warnings (shouts or alarms). The operator must pay extra attention to what is going on in the work area.














KICKBACK

Kickback is a dangerous reaction that can lead to serious injury. Do not rely only on the safety devices provided with the saw. As a chain saw user, you must take special safety precautions to help keep your cutting jobs free from accident or injury. See the General Safety Rules and Operation sections of this manual for additional information on Kickback and how to avoid serious personal injury.

SYMBOLS

Some of the following symbols may be used on this product. Please study them and learn their meaning. Proper interpretation of these symbols will allow you to operate the tool better and safer.

	The port to fill "MIX GASOLINE" Position: Fuel cap
	The port to top up chain oil Position: Oil cap
	Setting the switch to the "O" position, the engine stops immediately. Position: Rear-left of the unit
	Starting the engine. If you pull out the choke knob (at the back-right of the rear handle) to the point of the arrow, you can set the starting mode as follows: First-stage position-starting mode when the engine is warm. Second-stage position-starting mode when the engine is cold. Position: Upper-right of the air cleaner cover
H	The screw under the "H" stamp is The High-speed adjustment screw.
L	The screw under the "L" stamp is The Slow-speed adjustment screw.
T	The screw at the left of the "T" stamp is the Idle adjustment screw. Position: Left side of the rear handle
	Shows the directions that the chain brake is released (white arrow) and Activated (black arrow). Position: Front of the chain cover

SYMBOL	NAME	DESIGNATION / EXPLANATION
	Safety Alert	Precautions that involve your safety.
	Read the Operator's Manual	To reduce the risk of injury, user must read and understand operator's manual before using this product.
	Wear eye, Hearing, and Head Protection	Always wear eye protection with side shields marked to comply with BS EN 166 or Australian and New Zealand Standards, as well as hearing and head protection when operating this equipment.
	No Smoking	No smoking, sparks, or open flame.
	Operate With Two Hands	Hold and operate the saw properly with both hands.
	One Handed	Do not operate the saw using only one hand.
	Carbon Monoxide	Engines produce carbon monoxide which is an odorless, deadly poison. Do not operate in an enclosed area.
	Kickback	Danger! Beware of kickback.
	Bar Nose Contact	Avoid bar nose contact.
	Wear Gloves	Wear non-slip, heavy-duty protective gloves when handling the chainsaw.
	Petrol and Lubricant	Use unleaded petrol intended for motor vehicle use with an octane rating of 91 [(R+M)/2] or higher. This product is powered by 2-stroke engine and requires pre-mixing petrol and 2-stroke lubricant.
	Keep Bystanders Away	Keep all bystanders and animals at least 15m away.
	Chain Oil Fill / Oil Pump	Add bar and chain oil every time you add fuel to the chainsaw.

WARNING! For safe operation and maintenance, symbols are carved in relief on the machine. According to these indications, please be careful not to make any mistake.

SERVICE

Servicing requires extreme care and knowledge and should be performed only by a qualified service technician. For service we suggest you return the product to your nearest **AUTHORIZED SERVICE CENTER** for repair. When servicing, use only identical replacement parts.

WARNING! To avoid serious personal injury, do not attempt to use this product until you read thoroughly and understand completely the operator's manual. If you do not understand the warnings and instructions in the operator's manual, do not use this product. Call Ryobi customer service for assistance.

WARNING! The operation of any power tool can result in foreign objects being thrown into your eyes, which can result in severe eye damage. Before beginning power tool operation, always wear safety goggles, safety glasses with side shields, or a full face shield when needed. We recommend Wide Vision Safety Mask for use over eyeglasses or standard safety glasses with side shields.

WARNING! Long term inhalation of the engine's exhaust fumes, chain oil mist and sawdust can result in serious personal injury. **SAVE THESE INSTRUCTIONS AND PASS THEM ON IF THE SAW IS TO BE USED BY ANOTHER PERSON**

DESCRIPTION

- | | |
|-------------------------------|---------------------------|
| 1. Front guard | 2. Front handle |
| 3. Guide bar fixing nut | 4. Chain cover |
| 5. Saw chain | 6. Sprocket |
| 7. Guide bar | 8. Chain tension adjuster |
| 9. Chain tension adjust screw | 10. Fuel tank cap |
| 11. Lubricant tank cap | 12. Rear handle |
| 13. Safety lever | 14. Ignition switch |
| 15. Primer bulb | 16. Choke lever |
| 17. Throttle lever | 18. Starter rope |
| 19. T screw | 20. Air cleaner |
| 21. Carburetor | 22. H needle |
| 23. L needle | 24. Cylinder cover |
| 25. Ching cap | 26. Oiling port |
| 27. Nose Sprocket | 28. Cylinder fins |
| 29. Muffler | 30. Spark arrester |
| 31. Fuel filter | |

SPECIFICATIONS

Displacement	38cc
Fuel mixture ratio	25 : 1
Fuel tank capacity	310ml
Chain oil:	Motor oil SAE# 10W-30
Oil tank capacity	210ml
Carburetor	Diaphragm type
Sprocket (Teeth Pitch)	6T x3/8"
Bar length	355mm
Saw chain	91S052T, 3/8 pitch
Net weight	8kg

INTENDED USE

This chainsaw is designed for cutting branches, trunks, logs and beams of a diameter determined by the cutting length of the guide bar. It is only designed to cut wood. It is only to be used outdoors, by adults. Do not use the chain saw for any purpose not listed above. This chain saw is not to be used for professional tree services. It is not to be used by children or by persons not wearing adequate personal protective equipment and clothing.

RESIDUAL RISKS

Even when using the chain saw as intended, there remains a residual risk of harm which cannot be fully prevented. The follow-

ing list of potential hazards should be read and understood. You should pay extra attention and care to these items to reduce the risk of occurrence or injury.

- Contact with exposed cutting teeth and saw chain.
- Access to rotating parts (the saw chain)
- Unexpected abrupt movement (kick back) of the guide bar.
- Flying chain parts (thrown off or broken)
- Flying material (cut from the work piece)
- Inhalation of saw dust and particles or emissions from the petrol engine.
- Skin contact with petrol / oil.
- Loss of hearing if no hearing protective equipment worn during use.

PREPARATION

WARNING! If any parts are damaged or missing do not operate this product until the parts are replaced. Failure to heed this warning could result in serious personal injury. This product has been shipped completely assembled.

WARNING! Do not attempt to modify this product or create accessories not recommended for use with this product. Any such alteration or modification is misuse and could result in a hazardous condition leading to possible serious personal injury. **Note:** The chain saw has been fully factory tested. It is normal to find some slight lubricant residue on the saw. Read and remove all hang tags and store with the Operator's Manual.

WARNING! Before first use, it is essential that you follow the CHECKING AND ADJUSTING CHAIN TENSION to ensure the bar and chain have not become loose in transit. Never operate a chain saw with incorrectly adjusted chains. Failure to follow these steps could result in severe personal injury.

INSTALLING GUIDE BAR AND SAW CHAIN (Fig. 1, 2)

1. Pull the front guard (1) towards the front handle (2) to check that the chain brake is not engaged.
2. Loosen the guide bar fixing nuts (3) and remove the chain cover (4).
3. Gear the saw chain (5) to the sprocket (6), and while fitting the saw chain around the guide bar (7), mount the guide bar to the unit. Adjust the position of the chain tension adjuster (8).
4. Attach the chain cover to the saw and fasten the nuts to finger tightness.
5. While holding up the tip of the bar, adjust the chain tension by turning the chain tension adjust screw (9). Turn the screw to clockwise to tension the chain, or turn counterclockwise to loosen.
6. Tighten the nuts securely with the bar tip held up (12-15Nm). Then check the chain for smooth rotation and proper tension while moving it by hand. If necessary, readjust with the chain cover loose.

Note: Pay attention to the correct direction of the saw chain. (Fig. 3)

A new chain will expand in length in the beginning of use. Check and readjust the tension frequently as a loose chain can easily derail or cause rapid wear of chain itself and the guide bar.

FUELING (Fig. 4)

WARNING! Petrol is very flammable. Avoid smoking or bringing any flame or sparks near fuel. Make sure to stop the engine and allow it cool before refueling the unit. Select outdoor bare ground for fueling and move at least 3 m (10 ft) away from the fueling point before starting the engine.

WARNING! Check for fuel leaks. If any are found, correct them before using the saw to prevent fire or burn injury.

- Always handle fuel with care. It is highly flammable.
- Always refuel outdoors away from potential sources of ignition, do not inhale fuel vapours.
- Do not let petrol or lubricant come in contact with skin. If contact does occur wash immediately with soap and plenty of water.

Keep petrol and lubricant away from the eyes. If petrol or lubricant comes in contact with the eyes, wash them immediately with clean water. If irritation is still present, see a doctor immediately. Clean up spilled fuel immediately. Refer to refuelling in the Specific Safety Rules section of this manual for additional safety information.

MIXING THE FUEL

This product is powered by a 2-stroke engine and requires pre-mixing petrol and 2-stroke lubricant. Premix unleaded petrol and 2-stroke engine lubricant in a clean container approved for petrol.

- This engine is certified to operate on unleaded petrol intended for automotive use with an octane rating of 91 or higher.
- Use a high quality 2-stroke self-mixing lubricant for air-cooled engines. Do not use automotive lubricant or 2-stroke outboard lubricant.
- Do not use BIA or TCW/2-stroke water-cooling type/mixed oil.
- **RECOMMENDED MIXING RATIO: PETROL 25 : OIL 1**
- Poor quality petrol or oils may damage sealing rings, fuel lines or fuel tank of the engine.
- Mix the fuel thoroughly and each time before fueling.
- Mix in small quantities. Do not mix quantities larger than usable in a 30-day period. A 2-stroke lubricant containing a fuel stabilizer is recommended.

FILLING THE FUEL TANK

1. Clean the surface around the fuel tank cap (10) to prevent contamination.
2. Loosen the fuel tank cap slowly.
3. Carefully pour the fuel mixture into the tank. Avoid spillage.
4. Prior to replacing the fuel cap, clean and inspect the sealing gasket.
5. Immediately replace the fuel cap and tighten it. Wipe up any fuel spillage.

ADDING BAR AND CHAIN LUBRICANT (Fig. 4)

Use motor oil SAE #10W-30 all year round or SAE #30-#40 in summer and SAE #20 in winter. **Note:** Do not use dirty, used, or otherwise contaminated lubricants. Damage may occur to the lubricant pump, bar, or chain.

1. Clean the surface around the lubricant tank cap (11) to prevent contamination.
2. Loosen the lubricant tank cap slowly.
3. Carefully pour the chain lubricant into the tank. Avoid spillage.
4. Prior to replacing the lubricant tank cap, clean and inspect the sealing gasket.
5. Immediately replace the fuel cap and tighten it. Wipe up any lubricant spillage.

CHECKING THE CHAIN BRAKE (Fig. 5)

This machine is equipped with an automatic chain brake to stop saw chain rotation upon occurrence of kickback during saw cutting. The brake is automatically operated by inertial force,

which acts on the weight fitted inside the front guard.

This brake can also be operated manually with the front guard turned down to the guide bar. To release the brake, pull up the front guard toward the front handle till a "click" sound is heard.

CAUTION! Check the operating condition of the chain brake prior to each use.

1. Engage the chain brake by rotating your left hand around the front handle, allowing the back of your hand to push the front guard toward the bar while the chain is rotating rapidly. Be sure to maintain both hands on the saw handles at all times.
2. Reset the chain brake back into the RUN position by grasping the top of the chain brake lever/hard guard and pulling toward the front handle until you hear a click.

Note: Operating the throttle when chain brake lever is in the brake position will result in serious damage to the unit. Never squeeze and hold the throttle trigger while the chain brake is in the brake position.

NON-MANUAL CHAIN BRAKE (Fig. 6)

The non-manual chain brake stops the operation of the saw chain in such a manner that kickback action produced at the end of the guide bar non-manually actuates the chain brake.

To make sure that the non-manual chain brake operates properly, proceed as follows:

1. Stop the engine of the chain saw.
2. Operate the front and rear handle (12) with hands (grip them lightly), so that the guide bar may be placed at the height of about 40 cm.
3. Softly detach the left hand from the front handle, and touch the end of the guide bar against the wood or the like placed below so that machine receives an impact. (* at this time the rear handle should be gripped lightly with right hand).
4. The impact is propagated to the braked lever, which actuates the chain brake.

CAUTION! When checking the operation of the non-manual chain brake, use a soft surface like wood to provide the impact so the saw chain is not damaged.

WARNING! If the chain brake does not stop the chain immediately, or if the chain brake will not stay in the run position without assistance, take the saw to an authorized service centre for repair prior to use.

CHECKING AND ADJUSTING CHAIN TENSION (Fig. 7, 8, 9)

Chain tension should be checked frequently during work and corrected if necessary.

WARNING! Make sure that the engine is shut off when checking chain tension.

1. Loosen the guide bar fixing nut with plug wrench.
2. While holding up the tip of guide bar, adjust the chain tension by turning the chain tension adjust screw. (9) Turn the screw to clockwise to tension the chain, or turn counterclockwise to loosen.
3. Tighten the guide bar fixing nut securely with the guide bar tip held up. Then check the chain for smooth rotation and proper tension while moving it by hand. If necessary, readjust with the chain cover loose.

OPERATION

STARTING THE ENGINE (Fig. 10, 11, 12)

WARNING! Keep your body to the left of the chain line. Never straddle the saw or chain, or lean over the chain line.

1. Place the chain saw on level ground and ensure that no objects or obstructions are in the immediate vicinity that could come in contact with the bar and chain.

Note: The saw chain will rotate during starting.

2. Hold the front handle firmly with your left hand and put your right foot onto the base of the rear handle.

WARNING! Do not drop start the chain saw as injury may result.

3. Set the ignition switch (14) to "I" position.
3. Make sure the chain brake is in the run position by pulling back on the front guard.

3. Fully press and release the primer bulb (15) at least 7 times.
4. Pull choke lever (16) all the way out to FULL CHOKE position. The choke will be closed and the throttle lever (17) will then be set in the starting position.

Note: When restarting immediately after stopping the engine, set the choke lever in the HALF CHOKE position.

Note: Once the choke lever is pulled out, it will not return to RUN position even if you push it with your finger. To return the choke lever to RUN position, pull the throttle lever.

5. While holding the saw unit securely on the ground, pull the starter rope (18) vigorously.

6. When engine has ignited, while squeezing the throttle lever push in the choke lever to the HALF CHOKE position, and then pull the starter rope again until engine runs.

7. Allow the engine to run until warm up with the throttle lever pulled slightly.

WARNING! Keep clear of the saw chain as it will start rotating upon the start of the engine.

STOPPING THE ENGINE (Fig. 10, 11)

1. Release the throttle lever and let the engine return to idle for a while.

CAUTION! Do not put the chain saw on the ground whilst the saw chain is still moving.

For additional safety, set the chain brake when the saw is not in use.

In the event that the ignition switch will not stop the saw, pull the choke lever out to the FULL CHOKE position and engage the chain brake to stop the engine. If the ignition switch will not stop the saw when set to the stop position, have the ignition switch repaired before using the chain saw again to prevent unsafe conditions or serious injury.

Note: When you are finished using the saw, always relieve tank pressure by loosening, then retightening, the chain lubricant and fuel caps. Allow the engine to cool before storing.

ADJUSTING IDLE SPEED (Fig. 13)

1. To adjust idle speed, turn the T screw (19) which is located at lower left of the air cleaner (20). Turn the idle speed screw clockwise to increase idle speed, or turn it counterclockwise to reduce the speed.

2. Allow the saw to run at middle speed for 1-2 minutes, and then release the throttle lever. If the saw chain still moves, turn the idle speed screw counterclockwise to reduce the idling speed.

Normal idling speed: 2700 – 3100min⁻¹

WARNING! THE SAW CHAIN SHOULD NEVER TURN AT IDLE. Serious personal injury may result from the saw chain turning at idle.

ADJUSTING THE CARBURETOR (Fig. 14)

The carburetor (21) on your saw has been factory adjusted, but may require fine tuning due to a change in operating conditions. Before adjusting the carburetor, make sure that the provided air/fuel filters are clean and fresh and the fuel is properly mixed. **Note:** Be sure to adjust the carburetor with the bar chain supplied with the saw.

1. Stop the engine and turn both the H needle (22) and the L needle (23) clockwise until they stop. Never force them. Then turn them counterclockwise as below.

H needle: 1 -112 ±1/4

2. Start the engine and allow it to warm up at half-throttle. Turn the L needle slowly clockwise to find a position where idling speed is maximum, and then quarter (1/4) turn the L needle in counterclockwise direction.

3. Turn the idle adjusting screw (T) counterclockwise until the saw chain does not move. If the idling speed is too slow, turn the screw clockwise.
4. Make a test cut and adjust the H needle for best cutting power, but not for maximum speed.

CHAIN LUBRICATION TEST (Fig. 15)

Start the engine. Hold the chain just above a dry surface and open the throttle to half speed for 30 seconds. A thin line of "thrown" oil should be seen on the dry surface.

CARBURETOR ANTI-ICING MECHANISM (Fig. 16, 17)

Operating chain saws in temperatures of 0-5°C at high humidity may result in ice forming in the carburetor, and this in turn may cause the output power of the engine to be reduced or for the engine to fail to operate smoothly.

This product has a ventilation hatch on the right side of the surface of the cylinder cover (24) to allow warm air goes into the engine to prevent icing.

Your saw was set in the normal operating mode at the factory. In case icing may occur, switch it to anti-icing mode as below before operation.

1. Set the ignition switch to "O" (STOP) position.
2. Remove the air cleaner cover and the air filter, and then remove the choke lever from the cylinder cover.
3. Loosen the cylinder cover fixing screws (3pcs inside and 1pc outside), and then remove the cylinder cover.
4. Remove the icing cap by pressing it down with your finger at the right-hand side of the cylinder cover.
5. Attach back the icing cap (25) to the cylinder with making the "SNOW" mark faces upwards and then return it to its original position in the cylinder cover.

6. Fix the cylinder cover back into its original position, and then fix all other parts back into their original positions.

WARNING! If the saw is operated continuously in the anti-icing or unstable rotation of the engine, it may cause starting failure or unstable rotation of the engine. Set in the normal operation mode if the carburetor is safe from icing.

KICKBACK PRECAUTIONS (Fig. 18, 19)

Rotational kickback occurs when the moving chain contacts an object at the Kickback Danger Zone of the guide bar. The result is a lightning-fast reverse reaction, which kicks the guide bar up and back towards the operator. This reaction can cause loss of control, which can result in serious injury.

PROPER GRIP ON HANDLES (Fig. 20)

See GENERAL SAFETY RULES for appropriate safety equipment.

- Wear non-slip gloves for maximum grip and protection.
- Hold the saw firmly with both hands. Always keep your left

hand on the front handle and your right hand on the rear handle so that your body is to the left of the chain line.

WARNING! Never use a left-handed (cross-handed) grip or any stance that would place your body or arm across the chain line.

- Maintain a proper grip on the saw whenever the engine is running. The fingers should encircle the handle and the thumb is wrapped under the handlebar. This grip is least likely to be broken by a kickback or other sudden reaction of the saw.
- Any grip in which the thumb and fingers are on the same side of the handle is dangerous because a slight kick of the saw can cause loss of control.

WARNING! DO NOT operate the throttle trigger with your left hand and hold the front handle with your right hand. Never allow any part of your body to be in the chain line while operating a saw.

PROPER CUTTING STANCE (Fig. 21)

- Balance your weight with both feet on solid ground.
- Keep left arm with elbow locked in a "straight arm" position to withstand any kickback force.
- Keep your body to the left of the chain line.
- Keep your thumb on the underside of the handlebar.

WORK AREA PRECAUTIONS (Fig. 22)

- Cut only wood or materials made from wood.
- Never allow children to operate the saw. Do not allow persons to use this chain saw who have not read this operator's manual or received adequate instructions for the safe and proper use of this chain saw.
- Keep helpers, bystanders, children, and animals, a **SAFE DISTANCE** from the cutting area. During felling operations, the safe distance should be at least twice the height of the largest trees in the felling area. During bucking operations, keep a minimum distance of 5 metres between workers.
- Always cut with both feet on solid ground to prevent being pulled off balance.
- Do not cut above chest height as a saw held higher is difficult to control against kickback forces.
- Do not feel trees near electrical wires or buildings. Leave this operation for professionals.
- Cut only when visibility and light are adequate for you to see clearly.

BASIC OPERATING/CUTTING PROCEDURES

Practice cutting a few small logs using the following technique to get the "feel" of using the saw before you begin a major sawing operation.

1. Take the proper stance in front of the wood with the saw idling.
2. Accelerate the engine to full throttle just before entering the cut by squeezing the throttle trigger.
3. Begin cutting with the saw against the log.
4. Keep the engine at full throttle the entire time you are cutting.
5. Allow the chain to cut for you: exert only light downward pressure. Forcing the cut could result in damage to the bar, chain, or engine.
6. Release the throttle trigger as soon as the cut is completed allowing the engine to idle. Running the saw at full throttle without a cutting load can result in unnecessary wear to the chain, bar, and engine.
7. Do not put pressure on the saw at the end of the cut as this may cause the saw to drop in an unsafe manner.

WOOD UNDER TENSION

One must be very careful when sawing wood/trees which are under tension as there are much dangerous involved.

TYPE OF TENSION

TYPE OF TENSION	DANGER
Top side of wood under tension:	Wood will spring up.
Bottom side of wood under tension:	Wood will spring downwards.
Thick trunks and high tension:	Tree will move suddenly with immense force.
Both sides of trunk under tension	Tree will move sideways.

FELLING TREES (Fig. 23)

WARNING! Felling trees is dangerous and requires practice. If you are a beginner or inexperienced, do not try to teach yourself but seek professional training.

- Felling trees can bring down other trees with them. The **DANGER ZONE** is therefore twice the height of the tree being felled. Therefore when logging felled trees and felling operations are being performed simultaneously by two or more operators, the felling operation should be separated from the logging operation by a distance of at least twice the height of the tree being felled.
- Trees should not be felled in a manner that would endanger any person, strike any utility line or cause any property damage. If the tree does make contact with any utility line, the utility company should be notified immediately.
- The chain saw operator should keep on the uphill side of the terrain as the tree is likely to roll or slide downhill after it is felled.
- If the saw chain gets jammed, release it using a wooded wedge.

WARNING! The chain saw may only be used to fell trees which are smaller in diameter than the length of the guide bar.

- Before felling is started consider the natural lean of the tree, the location of larger branches and the wind direction to judge which way the tree will fall.
- Remove dirt, stones, loose bark, nails, staples and wire from the tree before felling cuts are to be made.
- A retreat path should be planned and cleared as necessary before cuts are started. The retreat path should extend back and diagonally to rear of the expected line of fall as illustrated.

NOTCHING UNDERCUT (Fig. 24)

A notching undercut is a notch cut in a tree to direct the fall of the tree.

First estimate the direction of fall, taking into account the center of gravity of the crown and the wind direction. Saw an undercut in the tree in the direction of fall. Make the notch 1/3 the diameter of the tree, perpendicular to the direction of fall.

Make the lower horizontal notching cut first, this will help to avoid pinching of either the saw chain or the guide bar when the second cut is being made.

FELLING BACK CUT (Fig. 25)

A felling back cut is the final cut in a tree felling operation, made on the opposite side of the tree from the notching undercut.

Make the felling back cut at least 50mm higher than the horizontal notching cut.

1. Pick your escape route (or routes in case the intended route is blocked). Clear the immediate area around the tree and make sure there are no obstructions in your planned path of retreat. Clear the path of safe retreat approximately 135° from the planned line of fall.

2. Consider the force and direction of the wind, the lean and balance of the tree, and the location of large limbs. These things influence the direction in which the tree will fall. Do not try to fell a tree along a line different from its natural line of fall.

3. Cut a notch about 1/3 the diameter of the trunk in the side of the tree. Make the notch cuts so they intersect at a right angle to the line of fall. This notch should be cleaned out to leave a straight line. To keep the weight of the wood off the saw, always make the lower cut of the notch before the upper cut.

4. Make the back cut level and horizontal, and at a minimum of 50mm above the horizontal cut of the notch.

Note: Never cut through the notch. Always leave a band of wood between the notch and back cut (approximately 50mm or 1/10 the diameter of the tree). This is called a "hinge" or "hinge wood." It controls the fall of the tree and prevents slipping or twisting or shooing back of the tree off the stump.

5. On large diameter trees, stop the back cut before it is deep enough for the tree to either fall or settle back on the stump. Then insert soft wooden or plastic wedges into the cut so they do not touch the chain. Drive wedges in, little by little, to help jack the tree over.

6. As the tree starts to fall, stop the chain saw and put it down immediately. Retreat along the cleared path, but watch the action in case something falls your way.

WARNING! Never cut through to the notch when making a back cut. The hinge controls the fall of the tree, this is the section of wood between the notch and back cut.

WARNING! DO NOT FELL TREES:

- If you can no longer distinguish details within the danger zone, e.g., owing to fog, rain or twilight.
- If the direction of fall cannot be estimated owing to wind or gusts of wind.
- If you are unable to get a firm foothold while working on sloping ground, black ice, frozen or dewy ground.

REMOVING BUTTRESS ROOTS (Fig. 26)

A buttress root is a large root extending from the trunk of the tree above the ground. Remove large buttress roots prior to felling. Make the horizontal cut into the buttress first, followed by the vertical cut. Remove the resulting loose section from the work area. Follow the correct tree felling procedure as stated in **FELLING TREES** after you have removed the large buttress roots.

BUCKING (Fig. 27)

Bucking is the term used for cutting a fallen tree to the desired log length.

- Cut only one log at a time.
- Support small logs on a saw horse or another log while bucking.
- Keep a clear cutting area. Make sure that no objects can contact the guide bar nose and chain during cutting, this can cause **Kickback**. Refer to Kickback in the Specific Safety Rules section of this manual for more information.
- During bucking operations, stand on the uphill side so that the cut-off section of the log cannot roll over you.
- Sometimes it is impossible to avoid pinching (with just standard cutting techniques) or difficult to predict which way a log will settle when cut.

Note: If the wood diameter is large enough for you to insert a soft bucking wedge without touching the chain, you should use the wedge to hold the cut open to prevent pinching.

OVERBUCKING (Fig. 28)

Begin from the top side of the log with the bottom of the saw against the log; exert light pressure downward. Note that the saw will tend to pull away from you.

UNDERBUCKING (Fig. 29)

Begin from the underside of the log with the top of the saw against the log; exert light pressure upward. During underbucking, the saw will tend to push back at you. Be prepared for this reaction and hold the saw firmly to maintain control.

BRANCH TRIMMING AND PRUNING (Fig. 30, 31)

- Work slowly, keeping both hands on the saw with a firm grip. Maintain secure footing and balance.
- Keep the tree between you and the chain while limbing.
- Do not cut from a ladder. This is extremely dangerous. Leave this operation for professionals.
- Do not cut above chest height. A saw held higher than chest height is difficult to control against kickback.
- WARNING!** Never climb into a tree to limb or prune. Do not stand on ladders, platforms, a log, or in any position which can cause you to lose your balance or control of the saw.
- When pruning trees it is important not to make the flush cut next to the main limb or trunk until you have cut off the limb further out to reduce the weight. This prevents stripping the bark from the main member.
- Underbuck the branch 1/3 through for your first cut.
- Overbuck the branch to drop it.
- Finish by cutting smoothly and neatly against the main member so the bark will grow back to seal the wound.
- WARNING!** If the limbs to be pruned are above chest height, hire a professional to perform the pruning.

MAINTENANCE

WARNING! Before cleaning, inspecting or repairing the unit, make sure that engine has stopped and is cool. Disconnect the spark plug to prevent accidental starting.

WARNING! When servicing, use only identical Ryobi replacement parts. Use of any other parts may create a hazard or cause product damage.

WARNING! Avoid using solvents when cleaning plastic parts. Most plastics are susceptible to damage from various types of commercial solvents and may be damaged by their use. Use clean cloths to remove dirt, dust, lubricant, grease, etc.

WARNING! Do not at any time let brake fluids, petrol, petroleum-based products, penetrating lubricants, etc., come in contact with plastic parts. Chemicals can damage, weaken or destroy plastic which may result in serious personal injury.

MAINTENANCE AFTER EACH USE

A. AIR CLEANER (Fig. 32, 33)

1. Dust on the air cleaner surface can be removed by tapping a corner of the air filter against a hard surface.
 2. To clean dirt in the meshes, split the cleaner into halves and brush in petrol. When using compressed air, blow from the inside.
 3. To assemble the cleaner halves, press the rim until it clicks.
- Note:** When installing the main filter, make sure that the grooves on the filter edge are correctly fit with the projections on the cylinder cover.

B. OILING PORT (Fig. 34)

Dismount the guide bar and check the oiling port (26) for clogging.

C. GUIDE BAR (Fig. 35)

1. Dismount the guide bar, and remove sawdust in the bar groove and the oiling port.
2. Grease the nose sprocket (27) from the feeding port on the tip of the bar.
3. Mount the guide bar on the saw securely.

D. OTHERS

Check fuel leakage and loose fastenings and damage to major parts, especially handle joints and guide bar mounting. If any defects are found, make sure to have them repaired before operating the saw again.

PERIODICAL MAINTENANCE

A. AIR COOLING SYSTEM (Fig. 36)

Dust clogging around the cooling system and the cylinder fins (28) will cause overheating of the engine. Periodically check and clean the cooling system and the cylinder fins with a brush after removing the cylinder cover, the air cleaner and the recoil case. When installing the cylinder cover and the cooling system, make sure that switch wires and grommets are positioned correctly in place.

Note: Be sure to block the air intake hole.

B. SPARK ARRESTER (Fig. 37)

The muffler (29) is equipped with a spark arrester (30) to prevent red hot carbon from flying out of the exhaust outlet. Periodically check and clean as necessary with a wire brush after removing two muffler cover nuts and one screw.

Note: Never use a muffler if the spark arrester is missing or defective.

C. EXHAUST PORT (Fig. 38)

Remove the muffler, insert a screwdriver into the vent, and wipe away any carbon buildup after every 100 hours of use. Wipe away any carbon buildup on the muffler exhaust vent and the cylinder exhaust port at the same time.

D. FUEL FILTER (Fig. 39)

1. Using a wire hook, take out the fuel filter (31) from the filler port.
2. Disassemble the filter and wash with gasoline, or replace with a new one if needed.

Note:

- After removing the filter, use a pinch to hold the end of the suction pipe.
- When assembling the filter, take care not to allow filter fibers or dust inside the suction pipe.

E. SPARK PLUG (Fig. 40)

Clean the electrodes with a wire brush and reset the gap to 0.65 mm as necessary.

F. SPROCKET (Fig. 41)

Check for cracks and for excessive wear interfering with the chain drive. If the wear is considerable, replace it with new one. Never fit a new chain on a worn sprocket, or a worn chain on a new sprocket.

G. CHAIN BRAKE

- Always keep the chain brake mechanism clean by lightly brushing the linkage free from dirt.
- Always test the chain brake performance after cleaning. Refer to **CHECKING THE CHAIN BRAKE** for additional information.

WARNING! Even with daily cleaning of the mechanism, the dependability of a chain brake to perform under field conditions cannot be certified.

MAINTENANCE OF SAW CHAIN AND GUIDE BAR

A. SAW CHAIN (Fig. 42, 43, 44)

For smooth and fast cutting, maintain the chain properly. The chain requires sharpening when:

- Sawdust becomes small and powdery
- Chain must be forced through the wood during cutting
- The chain cuts to one side.
- Vibration increases.
- Fuel consumption increases.

Be careful to file all cutters to the specified angles and to the same length, as fast cutting can only be obtained when all cutters are uniform.

WARNING! The saw chain is very sharp. Always wear protective gloves when performing maintenance to the chain to prevent serious personal injury.

1. Tension the chain prior to sharpening. Refer to CHECKING AND ADJUSTING CHAIN TENSION.

2. Use a 5/32 in. (4 mm) diameter round file and holder. Do all of your filing at the midpoint of the bar.

3. Keep the file level with the top plate of the tooth. Do not let the file dip or rock.

4. Use light but firm pressure. Stroke towards the front corner of the tooth.

5. Lift the file away from the chain tooth on each return stroke.

6. Put a few firm strokes on every tooth. File all left hand cutters in one direction. Then move to the other side and file the right hand cutters in the opposite direction.

7. Remove filings from the file with a wire brush.

CAUTION! A dull or improperly sharpened chain can cause excessive engine speed during cutting, which may result in severe engine damage.

WARNING! Improper chain sharpening increases the potential of kickback.

WARNING! Failure to replace or repair a damaged chain can cause serious injury.

After each cutter has been filed, check the depth gauge and file it to the proper level as illustrated.

B. GUIDE BAR (Fig. 45)

Reverse the bar occasionally to prevent partial wear.

A guide bar with any of the following faults should be replaced:

- Wear inside the bar rails that permits the chain to lay over sideways
- Bent guide bar
- Cracked or broken rails
- Spread rails

Lubricate guide bar sprockets weekly. Using a grease syringe, lubricate weekly in the lubricating hole. Turn the guide bar and check that the lubrication holes and chain groove are free from impurities.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Engine will not start.	Spark plug dirty. Engine is flooded.	Clean or replace spark plug. Reset spark plug gap. Refer to Spark Plug Replacement earlier in this manual. With the ignition switch OFF , remove spark plug. Move choke lever to run position (pushed in completely) and pull starter cord 15 to 20 times. This will clear excess fuel from engine. Clean and reinstall spark plug. Set ignition switch to run (I) position. Push and fully release primer bulb 7 times. Pull starter cord three times with choke lever at run . If engine does not start, move choke lever to full and repeat normal starting procedure. If engine still fails to start, repeat procedure with a new spark plug.
Engine starts but will not accelerate properly.	Carburettor requires "L" (Low Jet) adjustment.	Contact an authorised service centre for carburettor adjustment.
Engine starts, then dies.	Carburettor requires "L" (Low Jet) adjustment.	Contact an authorised service centre for carburettor adjustment.
Engine starts but will not run properly at high speed.	Carburettor requires "H" (High Jet) adjustment.	Contact an authorised service centre for carburettor adjustment.
Engine does not reach full speed and/or emits excessive smoke.	Lubricant/fuel mixture incorrect. Air filter dirty. Spark arrestor screen dirty.	Use fresh fuel and the correct 2-stroke lubricant mix ratio. Clean air filter. Refer to Cleaning the Air Filter in the <i>Maintenance</i> section of this manual. Clean spark arrestor screen. Refer to Inspecting/Cleaning the Spark Arrestor Screen in the <i>Maintenance</i> section of this manual. Contact an authorized service centre for carburettor adjustment.
Engine starts, runs, and accelerates but will not idle.	Carburettor requires adjustment to idle speed.	Turn idle speed screw "T" clockwise to increase idle speed. Refer to Adjusting the Carburettor in the <i>Maintenance</i> section of this manual.
Chain turns at idle.	Carburettor requires adjustment to idle speed. Air leak in the intake system.	Turn idle speed screw "T" counterclockwise to decrease idle speed. Refer to Adjusting the Carburettor in the <i>Maintenance</i> section of this manual. Contact an authorised service centre for a rebuild kit.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Bar and chain running hot and smoking.	Chain lubricant tank empty. Chain tension is too tight. Oiler is not functioning.	Lubricant tank should be filled every time fuel tank is filled. Tension chain per instructions in Adjusting the Chain Tension in the <i>Maintenance</i> section of this manual. Run at half throttle 30 to 45 seconds. Stop saw and check for lubricant dripping from guide bar. If lubricant is present, the chain may be dull or bar may be damaged. If no lubricant is present, contact an authorised service centre.
Engine starts and runs, but chain is not rotating.	Chain brake is engaged. Chain tension is too tight.	Release chain brake. Refer to Operating the Chain Brake in the <i>Operation</i> section of this manual. Tension chain per instructions in Adjusting the Chain Tension in the <i>Maintenance</i> section of this manual.
	Guide bar and chain assembled incorrectly. Guide bar and/or chain are damaged. Drive sprocket teeth damaged.	Refer to Replacing the Guide Bar and Chain in the <i>Maintenance</i> section of this manual. Inspect guide bar and chain for damage. Contact an authorised service centre for drive sprocket replacement.