

## 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 traveling 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.



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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:.....

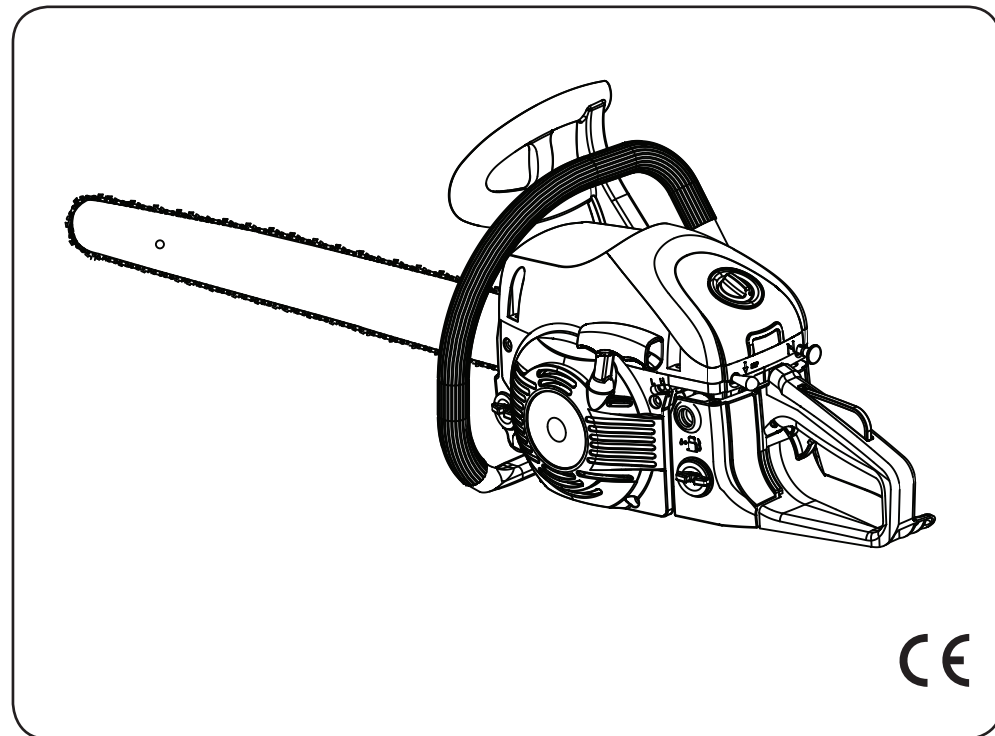
DATE:..... MODEL NO..... SERIAL NO.....

Present this form with your Purchase Docket when Warranty Service is required.

# RYOBI®

## CS-5045

(GB) OWNER'S OPERATING MANUAL




# RYOBI®

## OWNER'S OPERATING MANUAL PETROL CHAIN SAW MODEL CS-5045

### SPECIFICATIONS

Max cutting diameter .....	455 mm
Engine type .....	air cooling single cylinder, 2-stroke 50cc
Rated output power .....	2.2 kw
Idling speed .....	3200 min <sup>-1</sup>
Fuel mixing rate .....	1:25
Fuel tank capacity .....	550 ml
Chain oil tank capacity .....	260 ml
Net weight .....	8.5 kg

### THANK YOU FOR BUYING A RYOBI PETROL CHAIN SAW

Your new petrol chain saw has been engineered and manufactured to Ryobi's high standard of dependability, ease of operation, and operator safety. Properly cared for, it will give you years of rugged, trouble free performance. If you use your petrol chain saw properly and only for what it is intended, you will enjoy years of safe, reliable service.



**CAUTION:** Carefully read through this entire owner's manual, pay close attention to the general safety rules and rules for safe operation, before using.

**KEEP THIS MANUAL FOR FUTURE REFERENCE**

## GENERAL SAFETY RULES

The purpose of safety rules is to attract your attention to possible dangers. The safety symbols and the explanations with them, require your careful attention and understanding. The safety warnings do not by themselves eliminate any danger. The instruction or warnings they give are not substitutes for proper accident prevention measures.



**SAFETY ALERT SYMBOL.** Indicates caution or warning. May be used in conjunction with other symbols or pictures.

Failure to obey a safety warning can result in serious injury to yourself or to others. Always follow the safety precautions to reduce the risk of fire, electric shock and personal injury.

Do not attempt to operate this tool until you have read thoroughly and completely understood the safety rules, etc. contained in this manual. Failure to comply can result in accidents involving fire, electric shock or serious personal injury. Save this Owners Operating Manual and review it frequently for continual safe operation and for instructing others who may use this tool.



The operation of any 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 or safety glasses with side shields and a full face shield when needed. We recommend Wide Vision Safety Mask for use over eye glasses or standard safety glasses with side shields.

**Due to continued product refinement policy, product features and specifications can and will change without notice. Check current features and specifications with your retailer.**

### GENERAL REQUIREMENTS

1. The saw is specially designed for tree service, i.e. for off-ground working in trees, and when being used as such should only be used by trained operators.
2. One handed operation of the saw can be dangerous.
3. Be alert for the phenomena "skating" and "bouncing", greater risk from kickback.
4. Be cautious not to lose balance of your body due to "drop" at the end of a cut.
5. If working off the ground the operator must be trained in safe climbing techniques and use of all recommended safety equipment such as harness, loops, strops, ropes and karabiners for himself and for the saw.
6. When hoisting a chain saw using a rope tied to a lifting hook for operation on a tree, ensure that the lifting hook is not strained by excessive force.

### PHYSICAL CONDITION

1. Do not operate a chain saw when you are tired or under the influence of alcohol or drugs.
2. You should be in good physical and mental health in order to handle your chain saw safe. Errors in judgment or execution can be serious or fatal. If you have any physical condition which strenuous work could worsen, check with your physician before using a chain saw. Do not operate when ill or tired, or under the influence of any substance or medication which could affect your vision, dexterity or judgment.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

1. Always wear approved goggles to protect your eyes. Wood chips, dust, snapping branches and other debris can be tossed by the cutting chain into the operator's facial area. Goggles may also offer limited protection in the event of the cutting chain hitting the operator in the eye area. If conditions warrant that a ventilated face shield should be worn, goggles must be worn underneath it.
2. Recommends wearing hearing protection at all times. If not followed, hearing loss can occur. You should reduce the risk of hearing damage by wearing either "headset" type protectors or ear plugs which are approved by an authorized organization.
3. All persons who make part of their living using chain saws should be tested periodically for hearing deterioration.

## GENERAL SAFETY RULES



**CAUTION:** Stuffing ears with cotton is not recommended.

4. Always wear a cap or hat when working with a chain saw. A safety hard hat is highly recommended when felling or working under trees, or when objects can fall on you.
5. Wear heavy duty, non-slip gloves for improved grip, and also for protection against cold and vibration.
6. Safety tip shoes or boots with non-slip sole should be worn.
7. Use eye protection and protective clothing, including gloves and foot protection suitable for tree climbing.
8. Never wear loose clothing, unbuttoned jackets, flared sleeves and cuffs, scarfs, tie-strings, neckties, cords, chains, jewelry, etc. which could snag the saw chain or underbrush.
9. Clothing should be sturdy, protective material. It should be snug-fitting to resist snagging, but roomy enough for freedom of movement.
10. Trouser legs should not be flared or cuffed, and should be either tucked into the boot tops or trimmed short.
11. Safety vests, leg chaps and logger's pants of heavy leather material are available.
12. It is the operator's responsibility to wear such additional protection if conditions warrant it.
13. Never operate a chain saw when you are alone. Arrange to have someone remain within calling distance in case you need help.

### FUEL



**WARNING:** Petrol and fuel are extremely flammable. If spilled or ignited by ignition source, it can cause fire and serious injury or property damage. Extra caution is required, when handling petrol or fuel.

1. Use an appropriate type fuel container.
2. Do not smoke or bring flame or sparks near fuel supplies.
3. The fuel tank may be under pressure. Always loosen the fuel cap and wait for pressure to be equalized before removing the cap.
4. When fuel tank cap or oil tank cap is difficult to remove by fingers, put the attached socket wrench into the groove of cap and turn it anticlockwise.
5. Fill the fuel tank outdoors over bare ground and install the fuel cap securely. Do not pour fuel indoors.
6. Wipe any spilled fuel off the unit.
7. Never refuel while the engine is still hot, or fuel a running engine.
8. Do not store the unit with fuel in its tank, because a fuel leak could start a fire.
9. Bring an extinguisher or shovel in case of fire. Despite the precautions which can be taken, operating a chain saw, or just working in the forest, presents dangers.
10. After refueling, tighten fuel cap firmly and check for leakage. In case of fuel leakage, repair before starting operation since there is a danger of fire.



**NOTE:** Do not press socket wrench forcefully, since tank cap is plastic. Pressing forcefully can damage tank cap. If tank cap is damaged, do not start engine.

## RULES FOR SAFE OPERATION

### STARTING ENGINE

1. Move the chain saw at least 3 m from the fuelling point before starting the engine.
2. Do not allow other persons to be near the chain saw when you are starting or cutting with the chain saw. Keep bystanders and animals out of the work area. Do not let anyone hold wood for you to cut.
3. Do not start cutting until you have a clear work area, secure footing, and a planned retreat path from the falling tree.
4. Before you start the engine, make sure that the saw chain is not contacting anything.
5. Keep the handles dry, clean, and free of oil or fuel mixture.

## RULES FOR SAFE OPERATION

- Operate the chain saw only in well-ventilated areas. Exhaust fuel, oil mist (from chain saw lubrication) or saw dust is harmful to health.
- Starting must always be done with the chain break deactivated - in off position.
- When starting the chain saw place the unit on a flat ground and hold the front handle with left hand and hold firmly the rear end or rear handle with right knee and pull starter handle with right hand.



**WARNIGN:** Do not drop start the chain saw, drop start chain saw in an insecure position can result in injury. Start the chain saw in a correct manner.

### TRANSPORTATION

- When transporting your chain saw, use the appropriate guide bar cover.
- Carry the chain saw with the engine stopped, the guide bar and saw chain to the rear, and the silencer away from your body.

### KICKBACK SAFETY PRECAUTIONS



**WARNIGN:** Avoid kickback which can result in serious injury. Kickback is the backward, upward or sudden forward motion of the guide bar occurring when the saw chain near the upper tip of the guide bar contacts any object such as a log or branch, or when the wood closes in and pinches the saw chain in the cut. Contacting a foreign object in the wood can also result in loss of chain saw control.

- Rotational Kickback can occur when the moving chain contacts an object at the upper tip of the guide bar. This contact can cause the chain to dig into the object, which stops the chain for an instant. The result is a lightning fast, reverse reaction which kicks the guide bar up and back toward the operator.
- Pinch-Kickback can occur when the wood closes in and pinches the moving saw chain in the cut along the top of the guide bar and the saw chain is suddenly stopped. This sudden stopping of the chain results in a reversal of the chain force used to cut wood and causes the saw to move in the opposite direction of the chain rotation. The saw is driven straight back toward the operator.
- Pull-In can occur when the moving chain contacts a foreign object in the wood in the cut

along the bottom of the guide bar and the saw chain is suddenly stopped. This sudden stopping pulls the saw forward and away from the operator and could easily cause the operator to lose control of the saw.

### REDUCE THE CHANCE OF KICKBACK

- Recognize that kickback can happen. With a basic understanding of kickback, you can reduce the element of surprise which contributes to accidents.
- Never let the moving chain contact any object at the tip of the guide bar.
- Keep working area free from obstructions such as other trees, branches, rocks, fences, stumps, etc. Eliminate or avoid any obstruction that your saw chain could hit while cutting.
- When cutting a branch, do not let the guide bar contact another branch or other objects around it.
- Keep saw chain sharp and properly tensioned. A loose or dull chain can increase the chance of kickback. Follow manufacturer's chain sharpening and maintenance instructions. Check tension at regular intervals, but never with engine running. Make sure chain brake nuts are securely tightened.
- Begin and continue cutting at full speed. If the chain is moving at a slower speed, there is greater chance of kickback occurring.
- Use extreme caution when reentering a cut.
- Do not attempt cuts starting with the tip of the bar (plunge cuts).
- Watch for shifting logs or other forces that could close a cut and pinch or fall into chain.

### AVOID PINCH-KICKBACK

- Be extremely aware of situations or obstructions that can cause material to pinch the top of or otherwise stop the chain.
- Do not cut more than one log at a time.
- Do not twist saw as bar is withdrawn from an undercut when bucking.

### AVOID PULL-IN

- Always begin cutting with the engine at full speed and the saw housing against wood.
- Use wedges made of plastic or wood. Never use metal to hold the cut open.

### OTHER SAFETY PRECAUTIONS

It is believed that a condition called Raynaud's Phenomenon, which affects the fingers of certain individuals, may be brought about by exposure to cold and vibration. Accordingly, your chain saw has shock mounts deigned to reduce the intensity of vibration received through the handles. Exposure to cold and vibration may cause tingling and burning followed by loss of color and numbness in

## RULES FOR SAFE OPERATION

the fingers. We strongly recommend your taking the following precautions because the minimum exposure which might trigger the ailment is unknown.

- Keep your body warm, especially the head and neck, feet and ankles, and hands and wrists.
- Maintain good blood circulation by performing vigorous arm exercises during frequent work breaks and also by not smoking.
- Limit the number of hours of chain saw operation. Try to fill a part of each work day with jobs other than chain sawing.
- If you experience discomfort, redness and swelling of the fingers, followed by whitening and loss of feeling, consult your physician before further exposing yourself to cold and vibration.

### REPETITIVE STRESS INJURIES

It is believed that over using the muscles and tendons of the fingers, hands, arms and shoulders may cause soreness, swelling, numbness, weakness and extreme pain to the areas just mentioned. To reduce the risk of repetitive stress injury, do the following.

- Avoid using your wrist in a bent, extended or twisted position. Instead, try to maintain a straight wrist position. Also, when grasping, use your whole hand, not just the thumb and index finger.
- Take periodic breaks to minimize repetition and rest your hands.
- Reduce the speed and force in which you do the repetitive movement.
- Do exercises to strengthen the hand and arm muscles.
- See a doctor if you feel tingling, numbness or pain in the fingers, hands, wrists or arms.

### MACHINE CONDITIONS

Do not operate a chain saw that is damaged. Improperly adjusted, or not completely and securely assembled. Do not operate the chain saw with a loose or defective silencer. Be sure that the saw chain stops moving when the throttle control trigger is released.

### CUTTING

- Do not operate a chain saw in a tree unless you have been specifically trained to do so.
- Keep all parts of your body away from the saw chain when the engine is running.
- 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 by the limb or chain saw when the tension in the wood fibers is released.

- Cutting while on a ladder is extremely dangerous because the ladder can slip and your control of the chain saw is limited. Working aloft should be left to professionals.
- Stop the engine before setting the chain saw down.

### SERVICES

All chain saw service, other than items listed in the operator's manual maintenance instruction, should be performed by competent service personnel. (For example, if 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.)

### WOOD PRACTICES

- Operating a chain saw safety requires a chain saw in proper working order, sound judgment, and knowledge of the methods which should be applied in each cutting situation.
- Do not let any person use your saw unless he has read this operator's manual and fully understands its instructions.
- Never let children operate the saw.
- Use your saw only to cut wood or wood products. Do not cut solid metal, sheet metal, plastics or any non-wood materials.
- Stay on the uphill side when bucking or lambing logs which might roll when cut.
- Keep both feet on the ground. Do not work from off the ground positions.

### CHAIN BRAKE

You always check that chain brake works properly before use. The chain brake's function is to stop chain rotation after a kickback. It neither prevents nor reduces kickback. Do not depend on the chain brake for protection against kickback. Even with a chain brake, depend on your own good sense and proper cutting methods just as though there were on chain brake. Even with normal use and proper maintenance, the response time of the brake may lengthen. The following may interfere with the brake's ability to protect the operator:

- Saw wrongly held too close to operator's body. Kickback time may be too fast even for a perfectly maintained brake to work in time.
- The operator's hand may not be in position to contact the hand guard.
- Brake will not be tripped.
- Lack of proper maintenance lengthens the brake's stopping time, making it less effective.

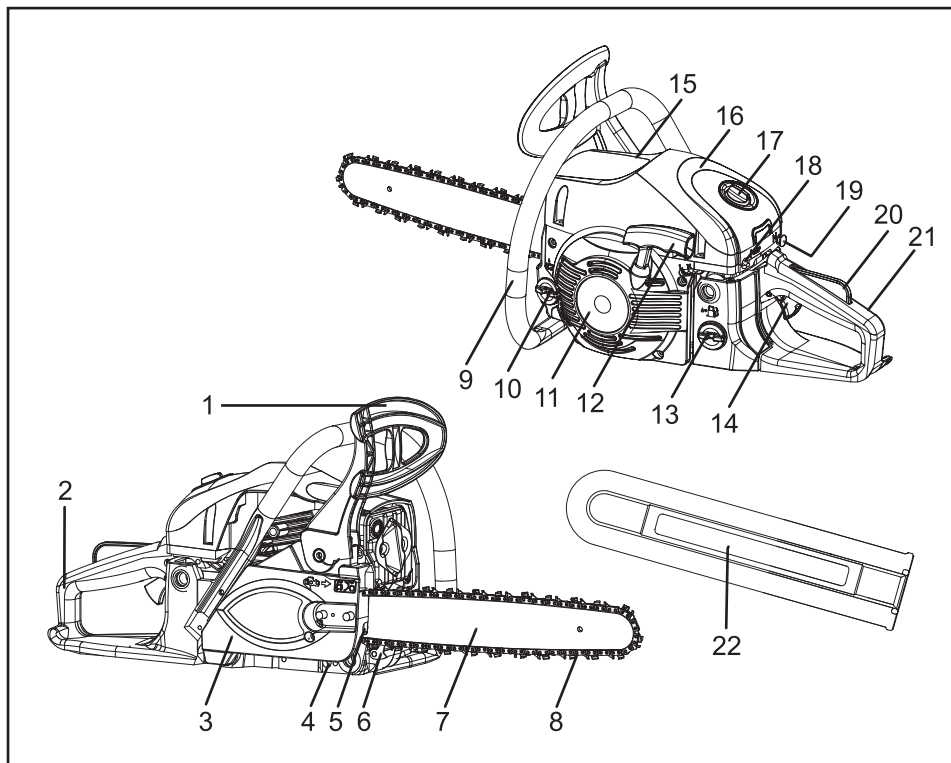


## RULES FOR SAFE OPERATION

5. Dirt, grease, oil, pitch, etc. getting into the working parts of the mechanism may lengthen the stopping time.
6. Wear and fatigue of the activating brake spring,

7. A damaged hand guard and lever may render the brake inoperative.

## DESCRIPTION



- |                           |                              |
|---------------------------|------------------------------|
| 1. Safety guard           | 12. Starter handle           |
| 2. Rear handle            | 13. Fuel tank cap            |
| 3. Clutch cover           | 14. Throttle trigger         |
| 4. Chain catcher          | 15. Engine cover             |
| 5. Chain tension adjuster | 16. Air filter cover         |
| 6. Spiked bumper          | 17. Filter cover knob        |
| 7. Guide bar              | 18. Cut-off switch           |
| 8. Saw chain              | 19. Choke lever              |
| 9. Front handle           | 20. Throttle trigger lockout |
| 10. Oil tank cap          | 21. Rear handle              |
| 11. Starter cover         | 22. Guide bar cover          |

## ASSEMBLY

### MOUNTING GUIDE BAR AND CHAIN

The unit is delivered with guide bar and saw chain separated. Install guide bar and chain as follows.



**Warning:** For your own safety, always stop the engine before performing any of the following operations.

- Unscrew two nuts and remove clutch cover. (Fig. 1)
- Remove the plastic mat. (Fig. 2)
- Mount bar and slide toward clutch to make saw chain installation easier. (Fig. 3)
- Install saw chain. (Ensure cutters are pointing in the right direction) (Fig. 4)
- Install the clutch cover. Ensure that chain tension adjuster fits into bar hole. Tighten nuts finger tight. (Fig. 5-6)
- Hold the bar nose up and turn the adjuster clockwise until the chain fits snugly against the underside of the bar. (Fig. 7)
- Tighten both nuts with the bar nose held up.
- Pull the chain around the bar by hand. Loosen the adjuster with the chain cover loose if you feel tight spots.
- Start the engine and run at low speed. Stop and readjust if necessary.



**CAUTION:** All adjustments should be made when cold. Always wear gloves when working on chain. Do not operate with a loose chain.

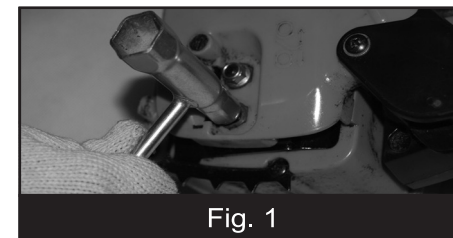


Fig. 1



Fig. 2

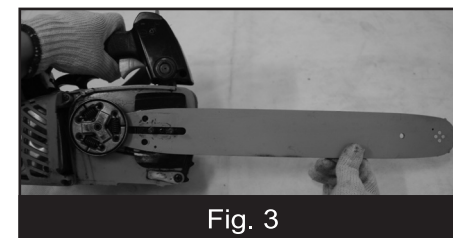


Fig. 3

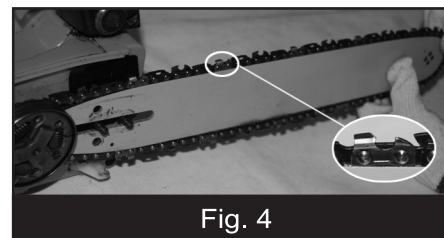


Fig. 4

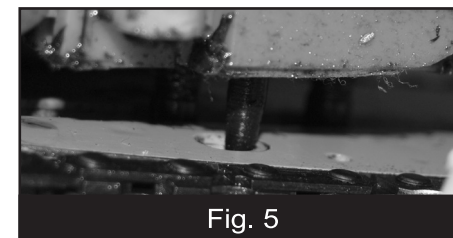


Fig. 5

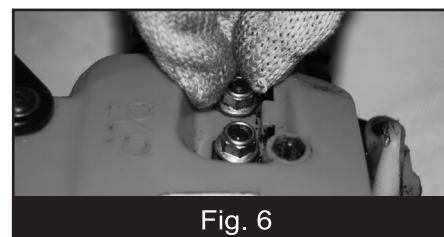


Fig. 6

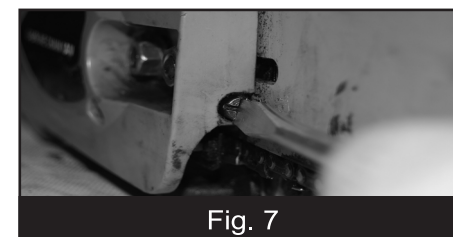


Fig. 7

## FUEL MIXING AND CHAIN LUBRICANT

### FUEL AND LUBRICANT

- Fuel is a mixture of regular grade petrol and an air-cooled 2-stroke engine oil of reputable brand name. Minimum 89 Octane unleaded petrol is recommended. Do not use fuel containing methyl alcohol or more than 10% of ethyl alcohol.
- Recommended mixture ratio; 25:1 for FC grade oil.  
Do not mix directly in engine fuel tank.  
Avoid spilling petrol or oil. Spilled fuel should always be wiped up.  
Handle petrol with care, it is highly inflammable.  
Always store fuel in approved container.

### CHAIN LUBRICANT

Proper lubrication of the chain while in operation reduces the friction between the chain and the guide bar to a minimum and assure a longer life time. Use only special chain oil of high quality for this purpose.  
Adjust the oil flow by rotate the inner screw. (Fig. 8)  
Do not use any waste or reclaimed oil to avoid various problems with the oil pump.  
In case of emergency it is allowed to use motor oil for a short time.

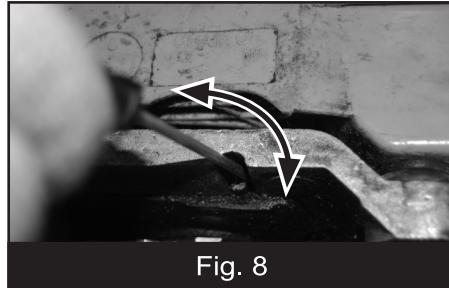


Fig. 8

SAE 30...in summer  
SAE 10...in winter or for the cutting of wood with much resin.

- CAUTION:** Whenever opening up the fuel tank, always loosen the cap very slowly and wait for the tank pressure to be equalized before removing the cap.

## OPERATION

### STARTING THE COLD ENGINE

- Fill the fuel tank with fuel.
- Fill the chain oil tank with lubricant.
- Switch on the chain saw. (Fig. 9)

**Warning:** After the choke lever is moved to "cold position" and then returned to "warm position", throttle remains a little open (latch condition). If engine is started in this latch condition, chain starts to turn. Do not start engine before chain brake is activated.

**CAUTION:** Do not pull starter rope out to the maximum position. Do not allow starter handle to snap back against the casing.

- Press safety guard forward. (Chain brake ACTIVATED position)
- Pull the choke lever out to "Cold start" position. (Fig. 10)
- Securely hold the chain saw. When starting the chain saw, place the unit on a flat ground and hold the front handle with left hand and hold firmly the rear end of saw with right knee. (Fig. 11)



Fig. 9

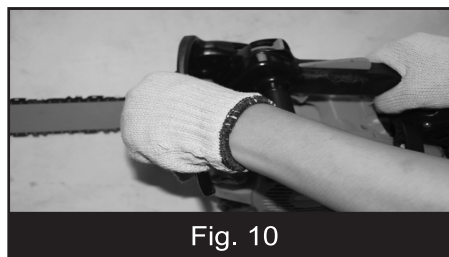


Fig. 10

- Make sure guide bar and saw chain are not touching anything when starting the saw.
- Pull starter handle until engine starts.

## OPERATION

- CAUTION:** 1. After starting the engine, squeeze throttle trigger slightly to release throttle latch and pull safety guard back towards the operator immediately. (Chain brake RELEASED position) (Fig. 12)
2. Do not increase engine speed while chain brake is engaged.
3. Use the chain brake in an emergency. Do not use it unless absolutely necessary.

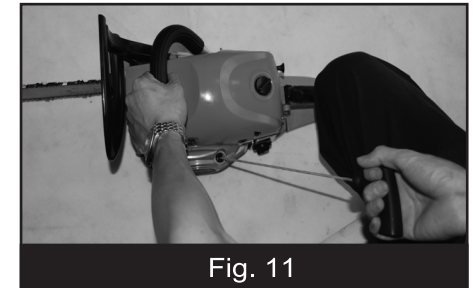


Fig. 11

- CAUTION:** When throttle latch is released, saw chain will go into motion as soon as the engine starts. Never use throttle latch for cutting. Use it only when starting the engine.

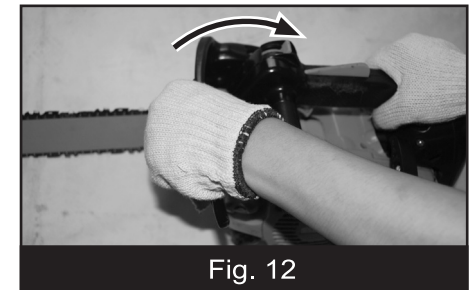


Fig. 12

### STARTING THE WARM ENGINE

- Switch on the chain saw.
- Press safety guard forward. (Chain brake ACTIVATED position)
- Move the choke lever to "Warm start" position.
- Securely hold the chain saw.
- Pull starter handle.
- Choke may be used if necessary, but after first firing sound, press throttle trigger a little to release throttle latch and choke lever. After choke lever is moved to "Cold start" position and then lever is returned to "Warm start" position, throttle remains a little open (latch condition).

- CAUTION:** Clutch engages and chain will rotate when engine is started with throttle trigger squeezed. After engine starts release throttle trigger to idle position. (Fig. 13)

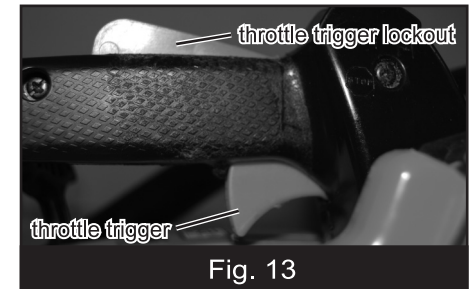


Fig. 13

### RUNNING

- After engine starts, allow it to idle for a few minutes.
- Squeeze throttle trigger gradually to increase engine revolution.
- The chain starts moving when the engine reaches 4,500 r/min approximately.
- Ensure proper acceleration and lubrication of saw chain and guide bar.
- Be sure that saw chain stops moving when throttle trigger is released.

### STOPPING THE ENGINE

- Release throttle trigger and allow engine to idle.
- Switch off the chain saw. (Fig. 14)



Fig. 14

## OPERATION

**NOTE:** When engine does not stop, slide control lever to "cold start" position to stop engine. Check and repair ignition switch before starting the engine again.

### CHECKING CHAIN TENSION

- 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.

- Tension the chain as tight as possible, but so it can still be pulled easily along the bar by hand.

### PRE CUTTING TEST

- Familiarize yourself with your chain saw before you start actual cutting.
- For this purpose it may be wise to practice by cutting some small logs or limbs several times.
- Do not allow either people or animal into the work area.
- Multiple operators-Keep a safe distance between two or more operators when working together simultaneously.

### CHAIN LUBRICATION TEST

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.

### CORRECT USE OF CHAIN BRAKE CHECKING THE BRAKE FUNCTION OF THE BRAKE

- Place the chain saw on the ground.
- Hold the handle with both hands and accelerate the engine to high speed by throttle trigger.
- Operate the chain brake by turning your left wrist against the safety guard during your grip on the front handle.
- The chain stop immediately.
- Release the throttle trigger.
- If the chain does not stop immediately, bring the saw to your nearest RYOBI authorised service centre.
- When safety guard is fully pulled towards the operator, chain brake is released.

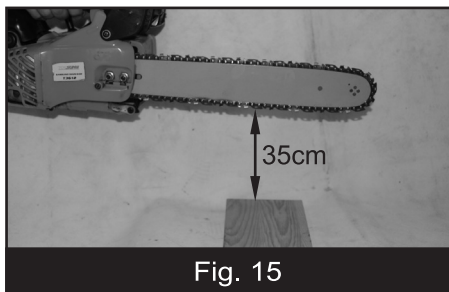
**Warning:** Most hazardous is the kickback motion of the guide bar such that, in an instant the tip of the bar touches a wood or the like. Chain brake reduces the possibility of injury due to kickback. You always check that chain brake works properly before use.

### NON-MANUAL CHAIN BRAKE

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;

- Stop the engine of the chain saw.
- Operate the front and rear handles with hands (grip them lightly), so that the guide bar may be placed at the height of about 35 cm as shown in (Fig. 15).



- 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).
- The impact is propagated to the braked lever, which actuates the chain brake.

## OPERATION

### (PRECAUTION)

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.

- NOTE:**
- For practice, while cutting a small tree, push the front guard forward to engage the brake.
  - At all times, confirm whether the brake works properly before each work.
  - If the chain brake is clogged with wood chips, function of the brake deteriorates a little. Always keep the device clean.
  - Do not increase engine revolution while the chain brake is engaged.
  - Chain brake is used in emergencies. Do not use it unless absolutely necessary.
  - When using throttle latch at starting, keep the chain brake position. And after starting the engine, release the brake immediately.
  - Never test the brake in an area where petrol fumes are present.

### CUTTING INSTRUCTION GENERAL

Operators of tree service chain-saws for this work should be trained in general safe climbing and work positioning techniques and be properly equipped with harnesses, ropes, strops, carabiners and other equipment for maintaining secure and safe working positions for both themselves and the saw.

It is difficult at times to take care for your own safety, so don't assume the responsibility for a helper as well.

After you have learned the basic techniques of using the saw, your best aid will be your own good common sense.

The accepted way to hold the saw is to stand to the left of the saw with your left hand on the front handle so you can operate the throttle trigger with your right index finger.

Operators of tree service chain-saws working at height from a rope and harness should never work alone. A ground worker trained in appropriate emergency procedures should assist them. Before thoroughly familiar with the control and the responses of the saw. Start the engine, see that is running properly. Squeeze the trigger to open the throttle wide open, then start the cut. It is not necessary to press down hard to make the saw cut. If the chain is properly sharpened, the cutting should be relatively effortless. Pushing the saw too hard will slow the engine and cutting will actually be more difficult. Some material may adversely affect the housing of your chain saw. (Example: palm tree acid, fertilizer etc.) To avoid housing deterioration carefully remove all packed saw dust around clutch and guide bar area and wash with water.

**Warning:** Do not let the nose or tip of the guide bar touch anything while engine is running to avoid kickback.



## OPERATION

### WOOD UNDER TENSION

One must be very careful when sawing wood/trees which are under tension as there are many dangers involved (refer to the table below).

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



#### 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.

Falling 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 wooden 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 the rear of the expected line of fall as illustrated in (Fig. 16)

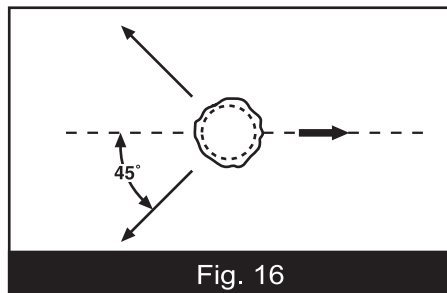


Fig. 16

## OPERATION

### NOTCHING UNDERCUT

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 centre of gravity of the crown and the wind direction. Saw an under cut in the tree in the direction of fall. Make the notch 1/3 the diameter of the tree, perpendicular to the direction of fall as illustrated in (Fig. 17) 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.

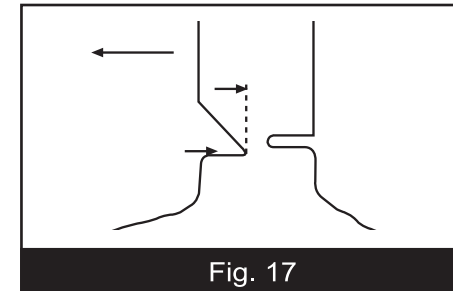


Fig. 17

### FELLING BACK CUT

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 as illustrated in (Fig. 18) Keep the felling back cut parallel to the horizontal notching cut. Make the felling back cut so enough wood is left to act as a hinge. The hinge wood keeps the tree from twisting and falling in the wrong direction. Do not cut through the hinge. As the felling cut gets close to the hinge, the tree should begin to fall. If there is any chance that the tree may not fall in the desired direction or it may rock back and bind the saw chain, stop cutting before the felling back cut is complete and use wedges of wood, plastic or aluminium to open the cut and drop the tree along the desired line of fall. When the tree begins to fall, remove the chain saw from the cut, stop the motor, put the chain saw down, then use the retreat path planned. Be alert for overhead limbs and watch your footing.

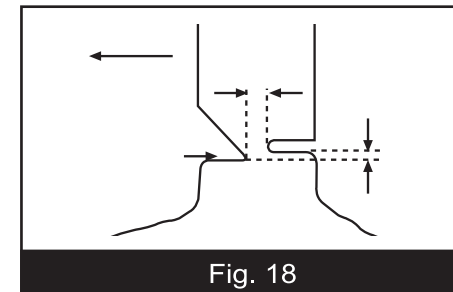


Fig. 18



#### WARNING:

Fell the tree by driving a wedge into the back cut, not by sawing through the hinge.

### DO NOT FELL TREES:

- If you can no longer distinguish details within the danger zone, eg. owing to fog, rain, snow, or twilight.
- If the direction of fall cannot be reliably 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.

### LIMBING A TREE

Limbing is removing the branches from a fallen tree. When limbing, leave larger lower limbs to support the log off the ground. Remove the small limbs in one cut as illustrated in Fig. 16. Branches under tension should be cut from the bottom up (Fig. 19), to avoid binding the chain saw.

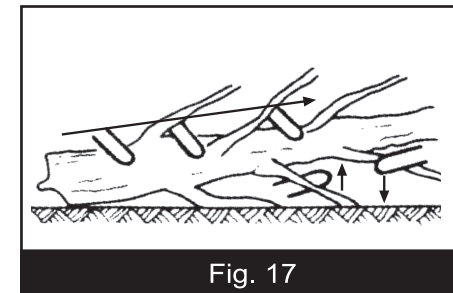


Fig. 17



## OPERATION

### BUCKING A LOG

This is the process of cross cutting a felled tree or log into lengths.

Bucking is cutting a log into lengths. It is important to make sure your foot is firm and your weight is evenly distributed on both feet. When possible the log should be raised off the ground by the use of limbs, logs or chocks. Follow the simple direction for easy cutting. When the log is supported along the entire length as illustrated in (Fig. 18) it is cut from the top (overbuck).

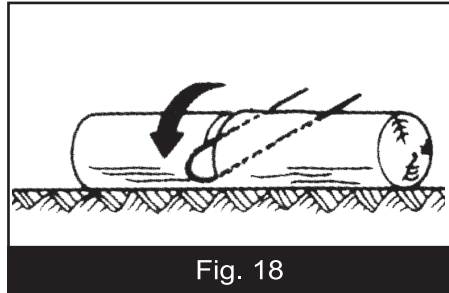


Fig. 18

When the log is supported on one end, as illustrated in (Fig. 19), cut 1/3 the diameter from the underside (underbuck). Then make the finished cut by overbucking to meet the first cut.

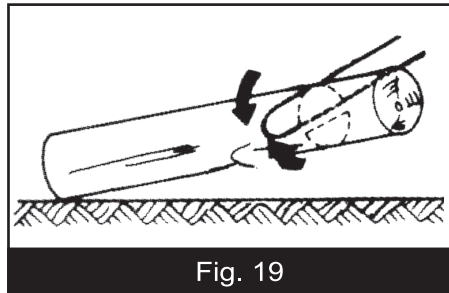


Fig. 19

When the log is supported on both ends, as illustrated in (Fig. 20), cut 1/3 the diameter from the top overbuck. Then make the finished cut by underbucking the lower 2/3 to meet the first cut.

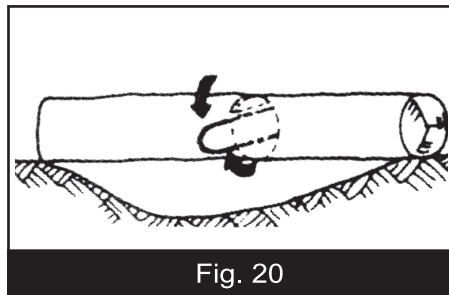


Fig. 20

When bucking on a slope always stand on the uphill side of the log.

When "cutting through", to maintain complete control, release the cutting pressure near the end of the cut without relaxing your grip on the chain saw handles.



### WARNING:

Do not let the chain make contact with the ground. After completing the cut, wait for the saw chain to stop before you move the chain saw. Always stop the motor before moving from tree to tree.

## MAINTENANCE

- Do not make any adjustments while the motor is in motion.
- Always disconnect the electrical cord from the power source before carrying out any assembly, adjustment or maintenance work.
- Only the maintenance work described in these operating instructions may be carried out. Any other maintenance work must be carried out by an authorised service centre.
- Do not modify the chain saw as this could jeopardize your safety and will make the warranty null and void.
- Check the chain saw for damage. Any damaged safety devices and parts must be repaired or replaced immediately.
- After use, check your tool to keep it in top condition.
- Keep the cooling vents on the motor housing clean and unobstructed at all times. Clean out accumulated dust.

### SPROCKET

The sprocket is subjected to especially high wear and tear. If you notice deep wear marks on the teeth, the sprocket must be replaced. A worn sprocket curtails the service life of the saw chain. Have the sprocket replaced by an authorised service centre.

### SHARPENING THE SAW CHAIN



### WARNING:

We advise you to have the deep or important sharpening carried out by a service agent who is equipped with an electric sharpener.

When the chain penetrates into wood with difficulty, it needs sharpening as follows:

1. Put the chain under tension
2. Fasten the bar in a vice so that the chain can slide (Fig. 21)
3. Fasten the file to the file holder and place it on cutter at 35° angle (Fig. 22)

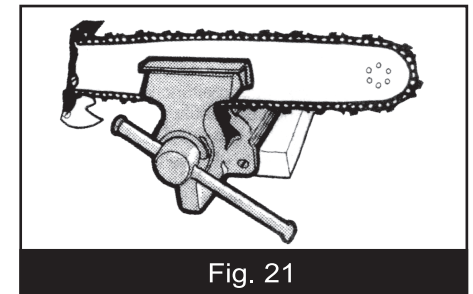


Fig. 21

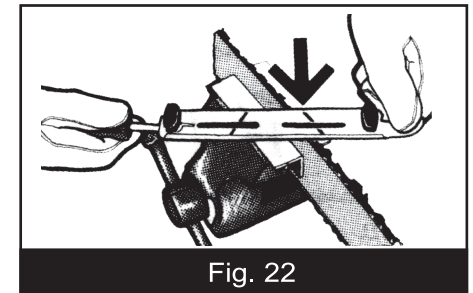


Fig. 22

## MAINTENANCE

4. File with forward strokes only until all the worn out parts of the cutting edge is removed.
5. Count the number of strokes given to the cutter as a reference basis and file away the same number of strokes on all other cutters.
6. If after sharpening a few times, the depth gauge protrudes from the template, you must reset its level using a flat file (Fig. 23).

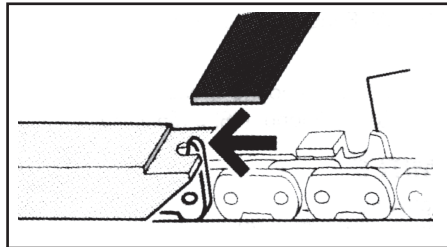


Fig. 23

7. Finally, round off the depth gauge (Fig. 24).

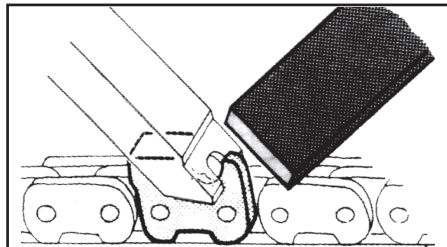


Fig. 24

### GUIDE BAR

The guide bar is subjected to especially severe wear and tear at the nose and the bottom. To avoid one-sided wear and tear, turn the guide bar over every time you sharpen the chain.

1. When you have finished working, clean out the groove and the oil passages, with a special scraping hook (Fig. 25).

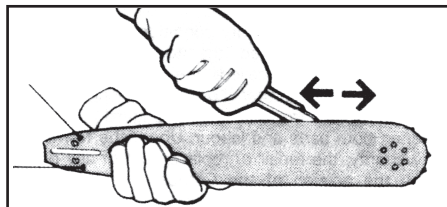


Fig. 25

2. Periodically trim the sides of the rails using a flat file. If not done in the long run, the "feathered edges" might break away and damage the bar. (Fig. 26)

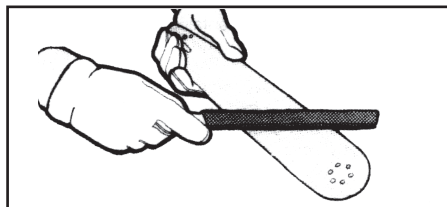


Fig. 26

## MAINTENANCE

3. If one rail is higher than the other one, it is necessary to make it even with a flat file and then smooth them with a file or fine grain abrasive paper (Fig. 27).

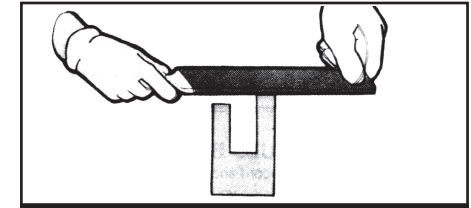


Fig. 27

## STORAGE

### KEEP YOUR CHAIN SAW IN A SAFE PLACE

The unused chain saw should be stored clean, on a flat surface and in a dry place which is inaccessible to children.

## SERVICE

Now that you have purchased your tool, should a need ever exist for repair parts or service, simply contact your nearest Ryobi Authorised Service Centre or other qualified service organisation. Be sure to provide all pertinent facts when you call or visit.