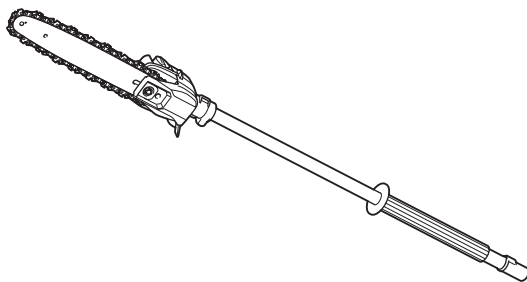




EN	Pole Saw Attachment	INSTRUCTION MANUAL	7
PTBR	Implemento Podador	MANUAL DE INSTRUÇÕES	17
ES	Accesorio para Sierra de Extensión	MANUAL DE INSTRUCCIONES	28
ZHCN	高枝链锯切割头总成	使用说明书	39
ZHTW	高枝鏈鋸組件	使用說明書	50
KO	엔진용 체인톱대	취급 설명서	61
ID	Alat Tambahan Gergaji Galah	PETUNJUK PENGGUNAAN	70
MS	Alat Tambahan Gergaji Batang	MANUAL ARAHAN	81
VI	Phụ Kiện Máy Cưa Cành Trên Cao	TÀI LIỆU HƯỚNG DẪN	92
TH	อุปกรณ์ต่อพ่วงเลื่อยตัดกิ่งไม้	คู่มือการใช้งาน	102
AR	ملحق منشار العصيان	دليل الإرشادات	121
FA	ضمیمه اره تلسکوپی	دفترچه راهنما	130

EY403MP



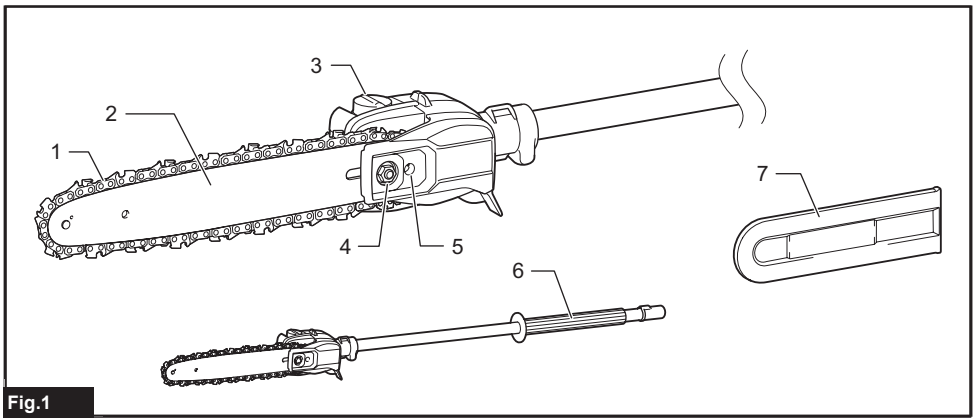


Fig.1

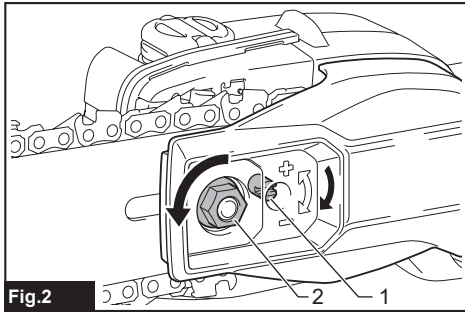


Fig.2

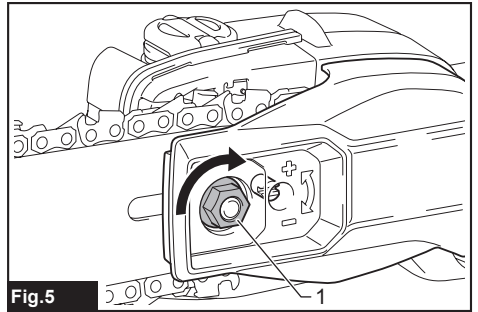


Fig.5

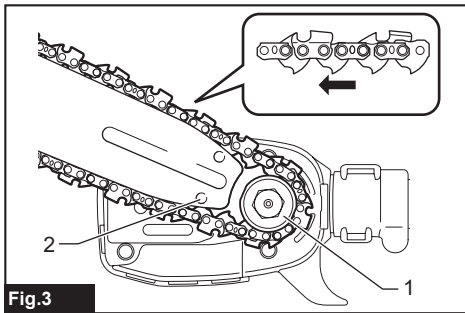


Fig.3

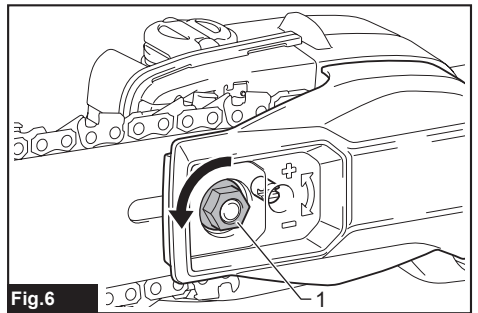


Fig.6

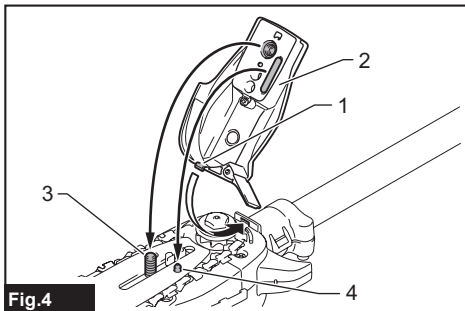
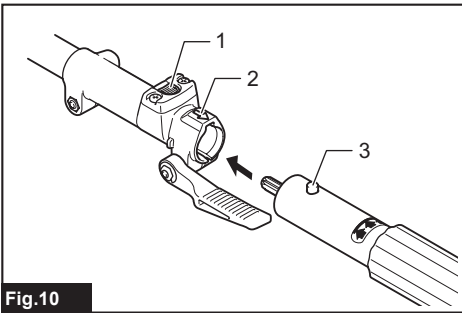
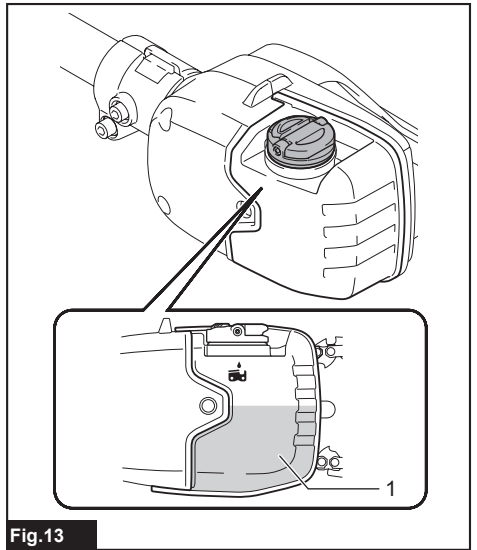
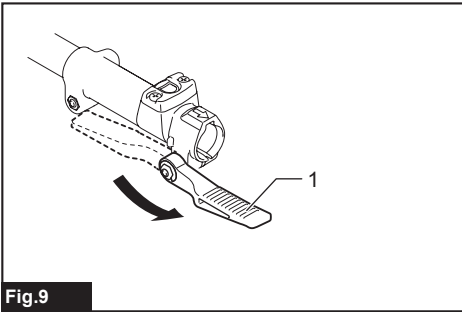
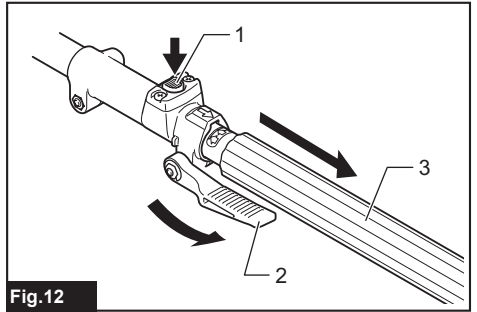
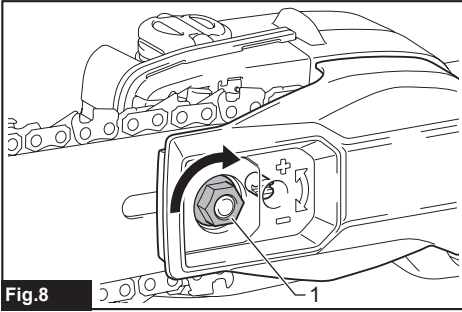
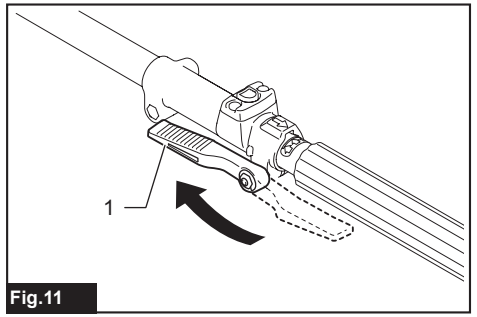
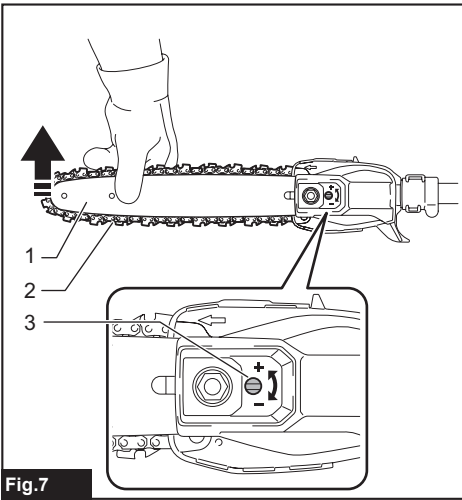
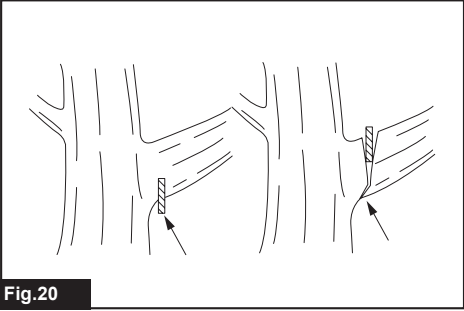
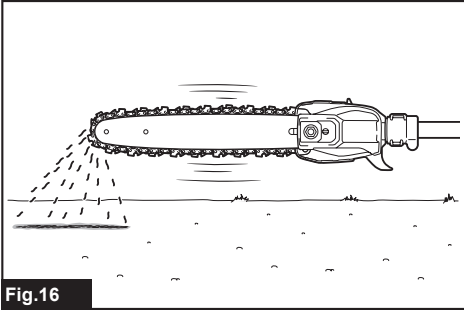
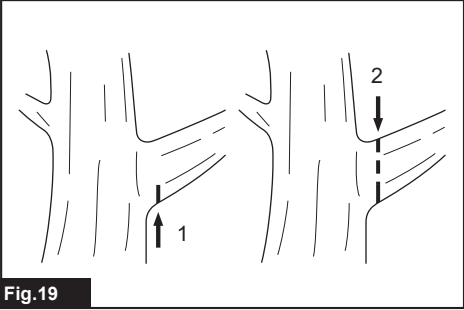
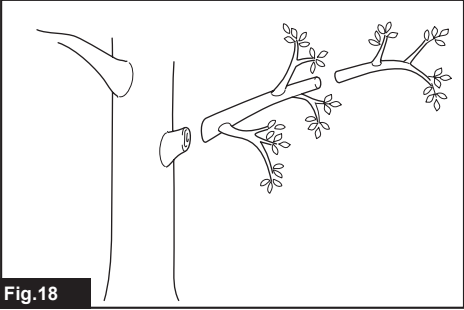
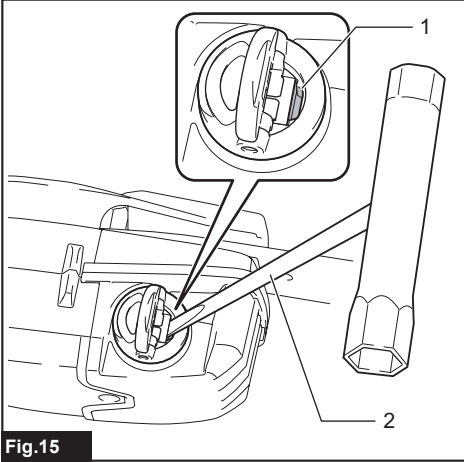
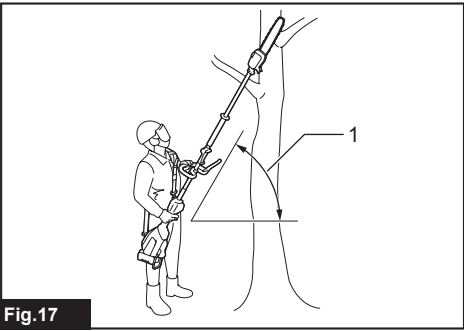
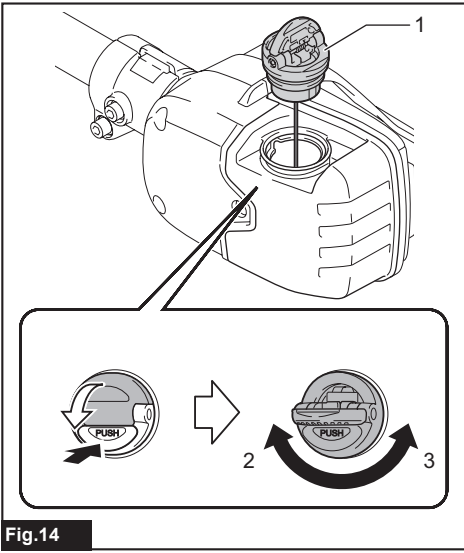
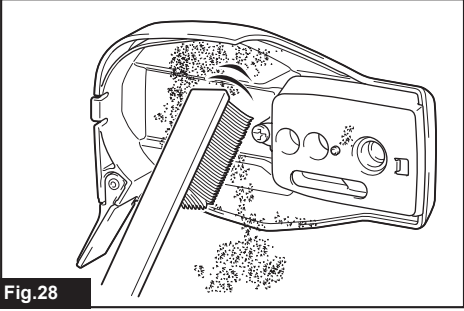
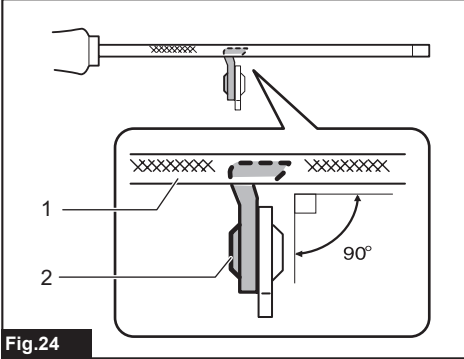
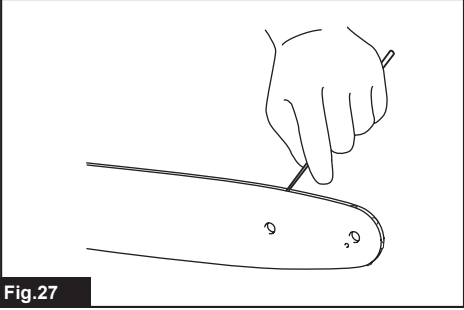
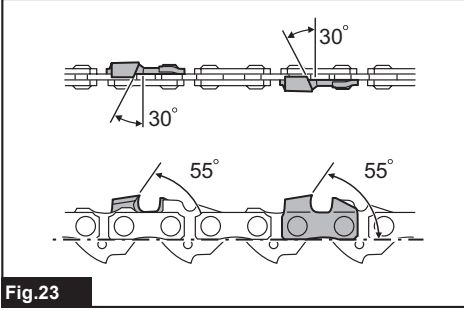
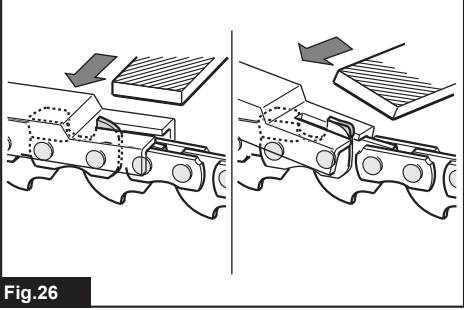
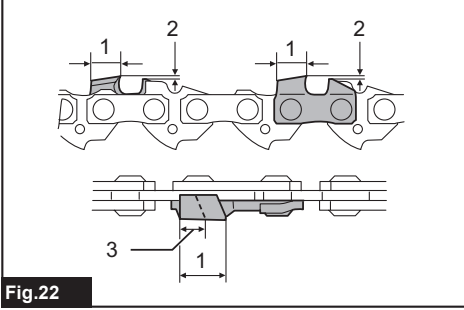
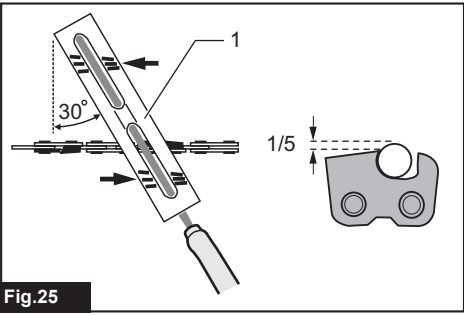
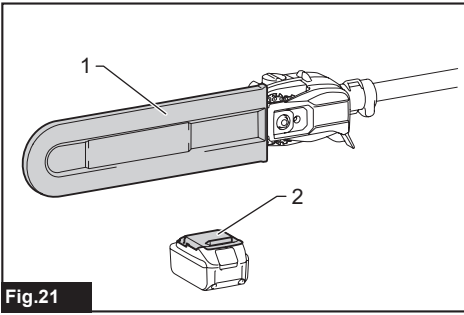


Fig.4







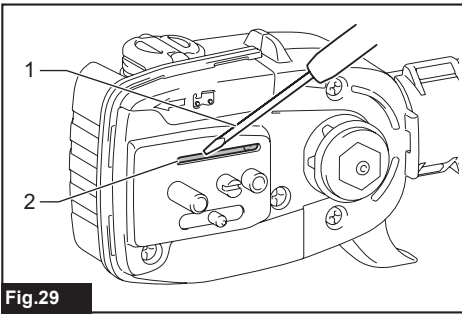


Fig.29

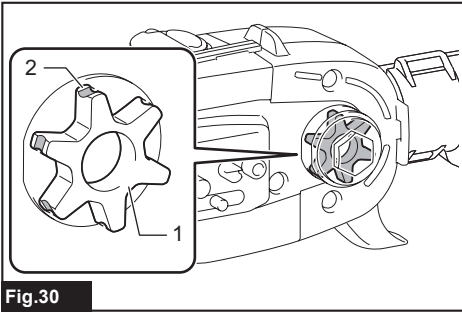


Fig.30

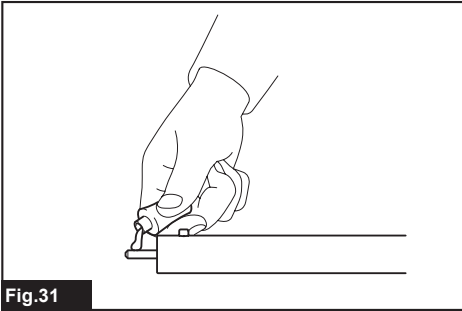


Fig.31

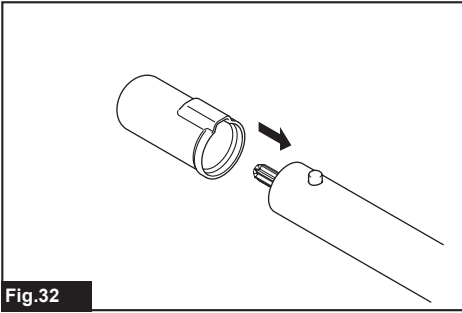


Fig.32

SPECIFICATIONS

Model:		EY403MP
Overall length (without guide bar)		913 mm
Net weight	*1	1.4 kg
	*2	2.0 kg
Standard guide bar length		300 mm
Recommended guide bar length	with 90PX	250 - 300 mm
	with 91PX	250 - 300 mm
Applicable saw chain type (refer to the table below)		90PX 91PX
Standard sprocket	Number of teeth	6
	Pitch	3/8"
Chain oil tank volume		160 cm ³

- Due to our continuing program of research and development, the specifications herein are subject to change without notice.
- Specifications may differ from country to country.

*1: Weight, with empty oil tank, and without guide bar, chain, according to EN ISO11680-1.

*2: Weight according to EPTA-Procedure 01/2014

Saw chain, guide bar, and sprocket combination

Saw chain type		90PX
Number of drive links		46
Guide bar	Guide bar length	300 mm
	Cutting length	296 mm
	Pitch	3/8"
	Gauge	1.1 mm
	Type	Sprocket nose bar
Sprocket	Number of teeth	6
	Pitch	3/8"

Saw chain type		91PX
Number of drive links		46
Guide bar	Guide bar length	300 mm
	Cutting length	296 mm
	Pitch	3/8"
	Gauge	1.3 mm
	Type	Sprocket nose bar
Sprocket	Number of teeth	6
	Pitch	3/8"

⚠ WARNING: Use appropriate combination of the guide bar and saw chain. Otherwise personal injury may result.

Approved power unit

This attachment is approved to use only with the following power unit(s):




- DUX60 Cordless multi function power head
- DUX18 Cordless multi function power head
- UX01G Cordless multi function power head

- EX2650LH Multi function power head

⚠ WARNING: Never use the attachment with non-approved power unit. Non-approved combination may cause serious injury.

Symbols

The followings show the symbols which may be used for the equipment. Be sure that you understand their meaning before use.

	Read instruction manual.
	Wear a helmet, goggles and ear protection.
	Wear protective gloves.
	Wear sturdy boots with nonslip soles. Steeltoed safety boots are recommended.
	Beware of electrical lines, risk of electrical shock.
	Keep distance at least 15 m.
	Maximum permissible cut length
	Direction of chain travel
	Chain oil tank
	Hot surfaces - Burns to fingers or hands.

Intended use

This attachment is designed only for the purpose of pruning branches and limbs in conjunction with an approved power unit. Never use the attachment for the other purposes. Abusing the attachment may cause serious injury.

About this instruction manual

The term "tool" in this instruction manual refers to the combination of the attachment and the power unit. The term "motor" in this instruction manual refers to electric or engine motor of the power unit.

SAFETY WARNINGS

Pole Saw Safety Warnings

⚠ WARNING: Read all safety warnings, instructions, illustrations and specifications provided with this machine as well as the instruction manual of the power unit before using. Failure to follow all instructions listed below may result in electric shock, fire, and/or serious injury to the operator and/or bystanders.

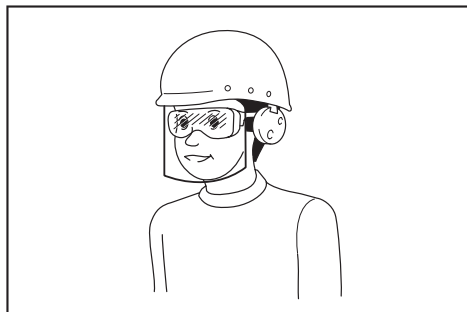
Save all warnings and instructions for future reference.

General precautions

1. Before starting the tool, read this instruction manual to become familiar with the handling of the tool.
2. Do not lend the tool to a person with insufficient experience or knowledge regarding handling of the tool.
3. When lending the tool, always attach this instruction manual.
4. Do not allow children or young persons under 18 years old to use the tool. Keep them away from the tool.
5. Handle the tool with the utmost care and attention.
6. Never use the tool after consuming alcohol or drugs, or if feeling tired or ill.
7. Never attempt to modify the tool.
8. Do not use the tool in bad weather conditions, especially when there is a risk of lightning. This decreases the risk of being struck by lightning.
9. National regulations may restrict of the use of the tool. Follow the regulations about handling of the tool in your country.

Personal protective equipment

1. Wear safety helmet, protective goggles and protective gloves to protect yourself from flying debris or falling objects.
2. Always wear protective goggles to protect your eyes from injury when using the machine. The goggles must comply with ANSI Z87.1 in the USA, EN 166 in Europe, or AS/NZS 1336 in Australia/New Zealand. In Australia/New Zealand, it is legally required to wear a face shield to protect your face, too.



It is an employer's responsibility to enforce the use of appropriate safety protective equipments by the tool operators and by other persons in the immediate working area.

3. Wear ear protection such as ear muffs to prevent hearing loss.
4. Wear proper clothing and shoes for safe operation, such as a work overall and sturdy, non-slip shoes. Do not wear loose clothing or jewelry. Loose clothes, jewelry or long hair can be caught in moving parts.

5. **When handling the saw chain or adjusting the chain tension, wear protective gloves.** Saw chain can cut bare hands severely.
6. **Use personal protective equipment. Always wear eye protection.** Protective equipment such as a dust mask, non-skid safety shoes, hard hat or hearing protection used for appropriate conditions will reduce personal injuries.
3. **Avoid contact with fuel or engine oil. Do not inhale fuel vapor.** If fuel or oil spills, wipe it off from the machine and/or ground immediately. If fuel spills on your clothes, change it immediately to prevent it from catching fire.
4. **After refueling, carefully tighten the fuel tank cap and check for fuel leak. Move at least 3 m (10 feet) away from the fueling source and site before starting engine.**
5. **Only transport and store fuel in approved containers. Keep children away from the stored fuel.**

Work area safety

1. **Keep the tool at least 15 m away from electric lines and communication cables (including any branches contacting them). Touching or approaching high-voltage lines with the tool can result in death or serious injury. Watch power lines and electrical fences around the work area before starting operation.**
2. **Operate the tool under good visibility and daylight conditions only. Do not operate the tool in darkness or fog.**
3. **During operation, never stand on an unstable or slippery surface or a steep slope. During the cold season, beware of ice and snow and always ensure secure footing.**
4. **During operation, keep bystanders or animals at least 15 m away from the tool. Stop the tool as soon as someone approaches.**
5. **When working with two or more people, keep a distance of at least 15 m or more between each other, and put a supervisor.**
6. **Before operation, examine the work area for wire fences, walls, or other solid objects. They can damage the saw chain.**
7. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Power tools create sparks which may ignite the dust or fumes.**

Preparation

1. **Before assembling or adjusting the tool, switch off the tool and remove the battery cartridge or the spark plug cap.**
2. **Before handling the saw chain or adjusting the chain tension, wear protective gloves.**
3. **Before starting the tool, inspect the tool for damages, loose screws/nuts or improper assembly. Sharpen blunt saw chain. If the saw chain is bent or damaged, replace it. Check all control levers and switches for easy action. Clean and dry the grips and handles.**
4. **Never attempt to start the tool if the tool is damaged or not fully assembled. Otherwise serious injury may result.**
5. **Adjust the shoulder harness to suit the operator's body size.**
6. **Adjust the chain tension properly. Refill the chain oil, if necessary.**

Refueling

1. **Stop the engine before refueling. Keep away from open flames and sparks. Never smoke during refueling. Otherwise fire and/or explosion may result.**
2. **Refuel outdoors.** Refueling in a closed room can cause explosion of fuel vapor.

Starting the tool

1. **Wear the personal protective equipments before starting the tool.**
2. **Before starting the tool, make sure that there is no person or animal in the work area.**
3. **When installing the battery cartridge or starting the engine, keep the saw chain and guide bar clear of your body and other object, including the ground. The saw chain may move when starting and may cause serious injury or damage to the saw chain and/or property.**
4. **Place the tool on firm ground. Maintain good balance and secure footing.**
5. **Check that there is sufficient difference between idling and engagement speed to ensure that the attachment is at a standstill while the engine is idling (if necessary reduce idling speed).**
6. **If the saw chain moves at idle, stop the engine and adjust the idle speed down.**

Operation

1. **In the event of an emergency, switch off the tool immediately.**
2. **If you notice any unusual condition (e.g. noise, vibration) during operation, switch off the tool. Do not use the tool until the cause is recognized and solved.**
3. **The saw chain continues to move for a short period after switching off the tool. Don't rush to contact the saw chain.**
4. **During operation, use the shoulder harness. Keep the tool on your right side firmly.**
5. **Hold the front grip or front handle with your left hand and the rear grip or rear handle with your right hand, no matter you are right-hander or left-hander. Wrap your fingers and thumbs around the grips or handles.**
6. **Hold the tool by insulated gripping surfaces only, because the saw chain may contact hidden wiring. A saw chain contacting a "live" wire may make exposed metal parts of the extended-reach pruner "live" and could give the operator an electric shock.**
7. **Never attempt to operate the tool with one hand. Loss of control may result in serious or fatal injury. To reduce the risk of injury, keep your hands and feet away from the saw chain.**
8. **Do not overreach. Keep proper footing and balance at all times. Watch for hidden obstacles such as tree stumps, roots and ditches to avoid stumbling. Clear fallen branches and other objects away.**

9. **Never work on a ladder or tree to avoid loss of control.**
 10. **If the tool gets heavy impact or fall, check the condition before continuing work. If there is any damage or doubt, ask Makita authorized service center for the inspection and repair.**
 11. **Do not touch the head of the tool.** The head of the tool becomes hot during operation.
 12. **Take a rest to prevent loss of control caused by fatigue.** We recommend to take a 10 to 20-minute rest every hour.
 13. **When you leave the tool, even if it is a short time, always switch off the tool and remove the battery cartridge or the spark plug cap.** The running and unattended tool may be used by unauthorized person and cause serious accident.
 14. **When operating the tool, do not raise your right hand above your shoulder height.**
 15. **During operation, never hit the saw chain against hard obstacles such stones and nails. Take particular care when cutting branches next to walls, wire fences or the like.**
 16. **If branches get caught in the tool, always stop the tool and remove the battery cartridge or the spark plug cap.** Otherwise unintentional start may cause serious injury.
 17. **If the saw chain becomes clogged, always switch off the tool and remove the battery cartridge or the spark plug cap before cleaning.**
 18. **Accelerating the tool with the saw chain blocked increases the load and will damage the tool.**
 19. **Before cutting limbs, keep an escape area away from the falling limb. First, clear obstructs such as limbs and branches from the work area. Move all tools and goods from the escape area to another safe place.**
 20. **Before cutting branches and limbs, check the falling direction of them, considering the condition of branches and limbs, adjoining trees, wind direction, etc. Pay full attention to the falling direction, and the rebound of the branch, which hit the ground.**
 21. **Never hold the tool at an angle of more than 60°. Otherwise falling objects can hit the operator and cause serious injury. Never stand underneath the limb being cut.**
 22. **Pay attention to broken or bent branches.** They may bounce back in cutting, causing unexpected injury.
 23. **Before cutting limbs that you intend to cut, remove branches and leaves around them.** Otherwise the saw chain may be caught by them.
 24. **To prevent the saw chain from being caught in the kerf, do not release the lever before pulling the saw chain out of the kerf.**
 25. **If the saw chain is bound in the kerf, immediately stop the tool, carefully move the branch to open the kerf and release the saw chain.**
 26. **Avoid kickback (rotational reactive force towards the operator). To prevent kickback, never use the guide bar nose or perform a penetrating cut. Always beware of the position of the guide bar nose.**
 27. **Check the chain tension frequently. When checking or adjusting the chain tension, switch off the tool and remove the battery cartridge or the spark plug cap. If the tension is loose, tighten it.**
 28. **Pay attention to the environment. Avoid unnecessary throttle operation for less pollution and noise emissions. Adjust the carburetor correctly.**
 29. **During or after operation, do not put the hot tool onto dry grass or combustible materials.**
- ### Transport
1. **Before transporting the tool, switch off the tool and remove the battery cartridge or the spark plug cap. Always fit the guide bar cover during transportation.**
 2. **When transporting the tool, carry it in a horizontal position by holding the grip or handle.**
 3. **Keep the hot muffler away from your body.**
 4. **When transporting the equipment in a vehicle, properly secure it to avoid turnover. Otherwise, fuel spillage and damage to the equipment and other baggage may result.**
- ### Maintenance
1. **Have your equipment serviced by our authorized service center, always using only genuine replacement parts.** Incorrect repair and poor maintenance can shorten the life of the tool and increase the risk of accidents.
 2. **Before doing any maintenance or repair work or cleaning the tool, always switch off the tool and remove the battery cartridge or the spark plug cap. Wait until the tool cools down.**
 3. **Always wear protective gloves when handling the saw chain.**
 4. **After each use, tighten all screws and nuts, except for adjustment screws.**
 5. **Keep the saw chain sharp. If the saw chain has become blunt and cutting performance is poor, ask Makita authorized service center to sharpen it or replace it with new one.**
 6. **Do not attempt any maintenance or repair not described in this instruction manual. Ask Makita authorized service center for such work.**
 7. **Always use Makita genuine spare parts and accessories only.** Using parts or accessories supplied by a third party may result in the tool breakdown, property damage and/or serious injury.
 8. **To reduce the risk of fire, never service the equipment in the vicinity of fire.**
- ### Storage
1. **Before storing the tool, perform full cleaning and maintenance. Fit the guide bar cover. Remove the battery cartridge or the spark plug cap. Drain the fuel and chain oil after the tool cools down.**
 2. **Store the tool in a dry and high or locked location out of reach of children.**
 3. **Do not prop the tool against something, such as a wall. Otherwise it may fall suddenly and cause an injury.**

Electrical and battery safety

1. **Do not dispose of the battery(ies) in a fire.**
The cell may explode. Check with local codes for possible special disposal instructions.
2. **Do not open or mutilate the battery(ies).**
Released electrolyte is corrosive and may cause damage to the eyes or skin. It may be toxic if swallowed.
3. **Do not charge battery in rain, or in wet locations.**
4. **Do not charge the battery outdoors.**
5. **Do not handle charger, including charger plug, and charger terminals with wet hands.**
6. **Avoid dangerous environment. Don't use the tool in dump or wet locations or expose it to rain.** Water entering the tool will increase the risk of electric shock.

First Aid

1. **In case of accident make sure that a first-aid box is available in the vicinity of the operations. Immediately replace any item taken from the first aid box.**
2. **When asking for help, give the following information:**
 - Place of accident
 - What happened

- Number of injured persons
- Kind of injuries
- Your name

SAVE THESE INSTRUCTIONS.

⚠WARNING: DO NOT let comfort or familiarity with product (gained from repeated use) replace strict adherence to safety rules for the subject product.

MISUSE or failure to follow the safety rules stated in this instruction manual may cause serious personal injury.

⚠WARNING: Use of this product can create dust containing chemicals which may cause respiratory or other illnesses. Some examples of these chemicals are compounds found in pesticides, insecticides, fertilizers and herbicides. Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

PARTS DESCRIPTION

► Fig.1

1	Saw chain	2	Guide bar	3	Oil tank cap
4	Retaining nut	5	Chain adjusting screw	6	Front grip
7	Guide bar cover	-	-	-	-

ASSEMBLY

⚠CAUTION: Always be sure that the motor is switched off and the battery cartridge or the spark plug cap is removed before carrying out any work on the tool.

⚠CAUTION: Do not touch the saw chain with bare hands. Always wear gloves when handling the saw chain.

Removing or installing saw chain

⚠CAUTION: The saw chain and the guide bar are still hot just after the operation. Let them cool down enough before carrying out any work on the tool.

⚠CAUTION: Carry out the procedure of installing or removing saw chain in a clean place free from sawdust and the like.

To remove the saw chain, perform the following steps:

1. Loosen the chain adjusting screw, then the retaining nut.

► **Fig.2:** 1. Chain adjusting screw 2. Retaining nut

2. Remove the sprocket cover, and then remove the saw chain and guide bar from the tool body.

To install the saw chain, perform the following steps:

1. Check the direction of the saw chain. Match the direction of the saw chain with that of the mark on the tool body.

2. Fit one end of the saw chain on the top of the guide bar. Fit the other end of the saw chain around the sprocket. Make sure that the saw chain is properly fitted on the sprocket and properly fitted in the groove of the guide bar.

3. Attach the guide bar to the tool body, aligning the hole on the guide bar with the pin on the tool body.

► **Fig.3:** 1. Sprocket 2. Hole

4. Insert the protrusion on the sprocket cover to the tool body, and then close the cover so that the bolt and pin on the tool body meet their counterparts on the cover.

► **Fig.4:** 1. Protrusion 2. Sprocket cover 3. Bolt 4. Pin

5. Tighten the retaining nut to secure the sprocket cover, then loosen it a bit for tension adjustment.

► **Fig.5:** 1. Retaining nut

Adjusting saw chain tension

⚠ CAUTION: Do not tighten the saw chain too much. Excessively high tension of saw chain may cause breakage of saw chain and wear of the guide bar.

⚠ CAUTION: A chain which is too loose can jump off the bar and it may cause an injury accident.

The saw chain may become loose after many hours of use. From time to time check the saw chain tension before use.

1. Loosen the retaining nut a bit to loosen the sprocket cover lightly.

► **Fig.6:** 1. Retaining nut

2. Lift up the guide bar tip slightly and adjust the chain tension. Turn the chain adjusting screw counterclockwise to tighten, turn it clockwise to loosen.

Tighten the saw chain until the lower side of the saw chain fits in the guide bar rail as illustrated.

► **Fig.7:** 1. Guide bar 2. Saw chain 3. Chain adjusting screw

3. Keep holding the guide bar lightly and attach the sprocket cover.

Make sure that the saw chain does not loose at the lower side.

4. Tighten the retaining nut to secure the sprocket cover.

► **Fig.8:** 1. Retaining nut

Mounting the attachment pipe

⚠ CAUTION: Always check that the attachment pipe is secured after installation. Improper installation may cause the attachment falling off from the power unit and cause personal injury.

Mount the attachment pipe to the power unit.

1. Turn the lever of the power unit toward the attachment side.

► **Fig.9:** 1. Lever

2. Remove the cap of the attachment. Align the pin with the arrow mark and insert the attachment pipe until the release button pops up.

► **Fig.10:** 1. Release button 2. Arrow mark 3. Pin

3. Turn the lever toward the power unit side.

► **Fig.11:** 1. Lever

Make sure that the surface of the lever is parallel to the pipe.

To remove the pipe, turn the lever toward the attachment side and pull the pipe out while pressing down the release button.

► **Fig.12:** 1. Release button 2. Lever 3. Pipe

OPERATION

Lubrication

NOTICE: When filling the chain oil for the first time, or refilling the tank after it has been completely emptied, add oil up to the bottom edge of the filler neck. The oil delivery may otherwise be impaired.

NOTICE: Use the saw chain oil exclusively for Makita chain saws or equivalent oil available in the market.

NOTICE: Never use oil including dust and particles or volatile oil.

NOTICE: When pruning trees, use botanical oil. Mineral oil may harm trees.

NOTICE: Before the cutting operation, make sure that the oil tank cap is tightened securely.

Saw chain is automatically lubricated when the tool is in operation. Check the amount of remaining oil in the oil tank periodically.

► **Fig.13:** 1. Oil tank

To refill the tank, place the tool on a flat surface, then push the button on the oil tank cap so that the button on the other side stands up, and then remove the oil tank cap by turning it.

The proper amount of oil is 160 ml. After refilling the tank, make sure that the oil tank cap is tightened securely.

► **Fig.14:** 1. Oil tank cap 2. Tighten 3. Loosen

NOTE: If it is difficult to remove the oil tank cap, insert the box wrench into the slot of the oil tank cap, and then remove the oil tank cap by turning it counterclockwise.

► **Fig.15:** 1. Slot 2. Box wrench

After refilling, hold the tool away from the tree. Start it and wait until lubrication on saw chain is adequate.

► **Fig.16**

Working with the tool

⚠ CAUTION: Keep all parts of the body away from the saw chain when the motor is operating.

⚠ CAUTION: Hold the tool firmly with both hands when the motor is running.

⚠ CAUTION: Do not overreach. Keep proper footing and balance at all times.

⚠ CAUTION: When cutting through branches, be careful not to lose your balance due to the weight of the tool head.

⚠ CAUTION: Always keep escape route in case a cut branch falls towards the operator.

⚠ CAUTION: Never use the tip of the guide bar for cutting. Otherwise, dangerous kickback may occur, and it may result in personal injury.

NOTICE: Never toss or drop the tool.

NOTICE: Do not cover the vents of the tool.

NOTICE: Do not force the tool. Otherwise, it may damage the tool.

Stand on a stable surface, and hold the tool away from the branches so that the angle of the tool becomes 60° or less against the horizontal ground.

► **Fig.17:** 1. 60° or less

Start the tool, and then press the saw chain onto the branch lightly.

When cutting long branches, in order to control the drop position of cut branches, divide the branch in sections and cut the branch from the tip. Pay attention to the falling branches since they may bounce in the direction of the operator after hitting the ground.

► **Fig.18**

When cutting thick branches, first make a shallow undercut and then make the finish cut from the top.

► **Fig.19**

If you try to cut off thick branches from the bottom, the branch may close in and pinch the saw chain in the cut. If you try to cut off thick branches from the top without a shallow undercut, the branch may splinter.

► **Fig.20**

Carrying tool

Before carrying the tool, always remove the battery cartridge or the spark plug cap, and then attach the guide bar cover. Also cover the battery cartridge with the battery cover.

► **Fig.21:** 1. Guide bar cover 2. Battery cover

MAINTENANCE

CAUTION: Always be sure that the motor is switched off and the battery cartridge or the spark plug cap is removed before attempting to perform inspection or maintenance.

CAUTION: Always wear gloves when performing any inspection or maintenance.

NOTICE: Never use gasoline, benzine, thinner, alcohol or the like. Discoloration, deformation or cracks may result.

To maintain product SAFETY and RELIABILITY, repairs, any other maintenance or adjustment should be performed by Makita Authorized or Factory Service Centers, always using Makita replacement parts.

Sharpening the saw chain

Sharpen the saw chain when:

- Mealy sawdust is produced when damp wood is cut;
- The chain penetrates the wood with difficulty, even when heavy pressure is applied;
- The cutting edge is obviously damaged;
- The saw pulls to the left or right in the wood. (caused by uneven sharpening of the saw chain or damage to one side only)

Sharpen the saw chain frequently but a little each time. Two or three strokes with a file are usually sufficient for routine resharpening. When the saw chain has been resharpened several times, have it sharpened in our authorized service center.

Sharpening criteria:

WARNING: An excessive distance between the cutting edge and depth gauge increases the risk of kickback.

► **Fig.22:** 1. Cutter length 2. Distance between cutting edge and depth gauge 3. Minimum cutter length (3 mm)

- All cutter length must be equal. Different cutter lengths prevent the saw chain from running smoothly and may cause the saw chain to break.
- Do not sharpen the chain when the cutter length has reached 3 mm or shorter. The chain must be replaced with new one.
- The chip thickness is determined by the distance between the depth gauge (round nose) and the cutting edge.
- The best cutting results are obtained with following distance between cutting edge and depth gauge.
 - Chain blade 90PX : 0.65 mm
 - Chain blade 91PX : 0.65 mm

► **Fig.23**

- The sharpening angle of 30° must be the same on all cutters. Different cutter angles cause the chain to run roughly and unevenly, accelerate wear, and lead to chain breaks.
- Use a suitable round file so that the proper sharpening angle is kept against the teeth.
 - Chain blade 90PX : 55°
 - Chain blade 91PX : 55°

File and file guiding

- Use a special round file (optional accessory) for saw chains to sharpen the chain. Normal round files are not suitable.
- Diameter of the round file for each saw chain is as follows:
 - Chain blade 90PX : 4.5 mm
 - Chain blade 91PX : 4.0 mm
- The file should only engage the cutter on the forward stroke. Lift the file off the cutter on the return stroke.
- Sharpen the shortest cutter first. Then the length of this shortest cutter becomes the standard for all other cutters on the saw chain.

— Guide the file as shown in the figure.

► **Fig.24:** 1. File 2. Saw chain

— The file can be guided more easily if a file holder (optional accessory) is employed. The file holder has markings for the correct sharpening angle of 30° (align the markings parallel to the saw chain) and limits the depth of penetration (to 4/5 of the file diameter).

► **Fig.25:** 1. File holder

— After sharpening the chain, check the height of the depth gauge using the chain gauge tool (optional accessory).

► **Fig.26**

— Remove any projecting material, however small, with a special flat file (optional accessory).

— Round off the front of the depth gauge again.

Cleaning the guide bar

Chips and sawdust will build up in the guide bar groove. They may clog the bar groove and impair the oil flow. Clean out the chips and sawdust every time when you sharpen or replace the saw chain.

► **Fig.27**

Cleaning the sprocket cover

Chips and saw dust will accumulate inside of the sprocket cover. Remove the sprocket cover and saw chain from the tool then clean the chips and saw dust.

► **Fig.28**

Cleaning the oil discharge hole

Small dust or particles may be built up in the oil discharge hole during operation. These dust or particles may impair the oil to flow and cause an insufficient lubrication on the whole saw chain. When a poor chain oil delivery occurs at the top of guide bar, clean the oil discharge hole as follows.

1. Remove the sprocket cover and saw chain from the tool.
2. Remove the small dust or particles using a slotted screwdriver or the like.

► **Fig.29:** 1. Slotted screwdriver 2. Oil discharge hole

3. Install the battery cartridge to the power unit or attach the spark plug cap to the power unit. Pull the switch trigger to flow built-up dust or particles off the oil discharge hole by discharging chain oil.

4. Remove the battery cartridge from the power unit or remove the spark plug cap from the power unit. Reinstall the sprocket cover and saw chain on the tool.

Replacing the sprocket

CAUTION: A worn sprocket will damage a new saw chain. Have the sprocket replaced in this case.

Before fitting a new saw chain, check the condition of the sprocket. If the sprocket is worn or damaged, ask Makita Authorized Service Centers for replacement.

► **Fig.30:** 1. Sprocket 2. Areas to be worn out

Overall inspection

Check for damaged parts. Ask our authorized service center to replace them if necessary.

Lubricating moving parts

NOTICE: Follow the instruction of the frequency and amount of grease supplied. Otherwise insufficient lubrication may damage moving parts.

Drive axle:

Apply grease (Makita grease N No.2 or equivalent) every 25 hours of operation.

► **Fig.31**

NOTE: Genuine Makita grease may be purchased from your local Makita dealer.

Storing the tool

WARNING: Follow the warnings and precautions in the chapter “SAFETY WARNINGS” and the instruction manual of the power unit.

1. Clean the tool before storing. Remove any chips and sawdust from the tool after removing the sprocket cover.
2. After cleaning the tool, run it under no load to lubricate the saw chain and guide bar.
3. Cover the guide bar with the guide bar cover.
4. Empty the oil tank.

When storing the attachment separated from the power unit, put the cap onto the end of the shaft.

► **Fig.32**

Instructions for periodic maintenance

To ensure long life, prevent damage and ensure the full functioning of the safety features, the following maintenance must be performed regularly. Warranty claims can be recognized only if this work is performed regularly and properly. Failure to perform the prescribed maintenance work can lead to accidents! The user of the tool must not perform maintenance work which is not described in the instruction manual. All such work must be carried out by our authorized service center.

Check item / Operating time		Before operation	Everyday	Every week	Every 3 month	Annually	Before storage
Entire tool	Inspection.	✓	-	-	-	-	-
	Cleaning.	-	✓	-	-	-	-
	Check at authorized service center.	-	-	-	-	✓	✓
Saw chain	Inspection.	✓	-	-	-	-	-
	Sharpening if necessary.	-	-	-	-	-	✓
Guide bar	Inspection.	✓	✓	-	-	-	-
	Remove from the tool.	-	-	-	-	-	✓
Chain lubrication	Check the oil feed rate.	✓	-	-	-	-	-
Oil tank cap	Check tightness.	✓	-	-	-	-	-
Screws and nuts	Inspection.	-	-	✓	-	-	-

TROUBLESHOOTING

Before asking for repairs, conduct your own inspection first. If you find a problem that is not explained in the manual, do not attempt to disassemble the tool. Instead, ask Makita Authorized Service Centers, always using Makita replacement parts for repairs.

Malfuction status	Cause	Action
The tool does not start.	Battery cartridge is not installed.	Install a charged battery cartridge.
	Battery problem (low voltage).	Recharge the battery cartridges. If recharging is not effective, replace the battery cartridge.
	Main power switch is off.	The tool is automatically turned off if it is un-operated for a certain period. Turn on the main power switch again.
The motor stops running after a little use.	Battery's charge level is low.	Recharge the battery cartridges. If recharging is not effective, replace the battery cartridge.
No oil on the chain.	Oil tank is empty.	Fill the oil tank.
	Oil guide groove is dirty.	Clean the groove.
The tool does not reach maximum RPM.	Battery cartridge is installed improperly.	Install the battery cartridges as described in this manual.
	Battery power is dropping.	Recharge the battery cartridge. If recharging is not effective, replace the battery cartridge.
	The drive system does not work correctly.	Ask the authorized service center in your region for repair.
Abnormal vibration: Stop the tool immediately!	Loose guide bar or saw chain.	Adjust the guide bar and saw chain tension.
	Tool malfunction.	Ask the authorized service center in your region for repair.
The saw chain cannot be installed.	The combination of saw chain and sprocket is not correct.	Use the correct combination of saw chain and sprocket by referring to the section for specifications.

OPTIONAL ACCESSORIES

⚠ CAUTION: These accessories or attachments are recommended for use with your Makita tool specified in this manual. The use of any other accessories or attachments might present a risk of injury to persons. Only use accessory or attachment for its stated purpose.

If you need any assistance for more details regarding these accessories, ask your local Makita Service Center.

- Saw chain
- Guide bar
- Guide bar cover
- File

⚠ WARNING: If you purchase a guide bar of different length from the standard guide bar, also purchase a suitable guide bar cover together. It must fit and fully cover the guide bar on the tool.

NOTE: Some items in the list may be included in the tool package as standard accessories. They may differ from country to country.

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