



Chain Saw

鏈鋸機

체인톱

Máy cưa xích

เลื่อยโซ่ไฟฟ้า

TCS 51EA

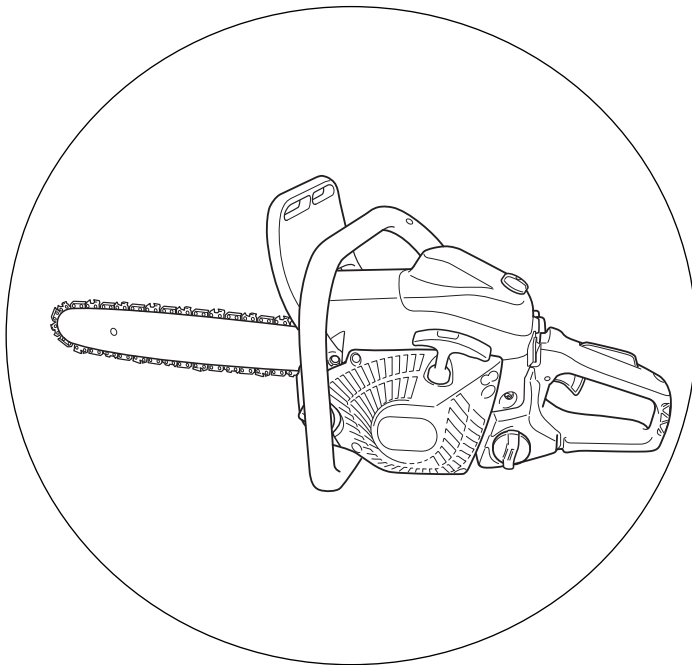
Handling instructions

使用説明書

취급 설명서

Hướng dẫn sử dụng

คู่มือการใช้งาน



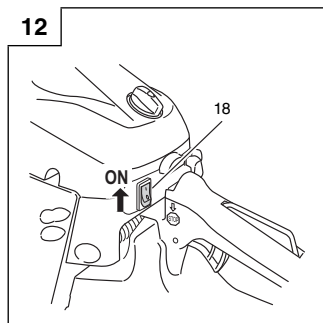
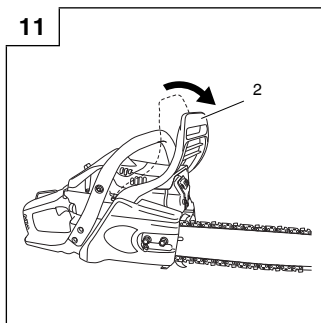
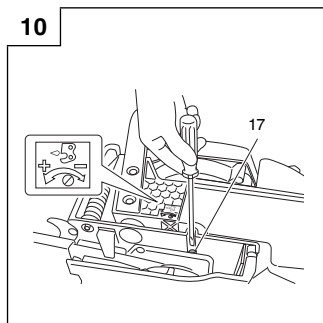
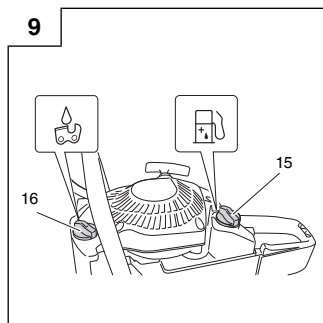
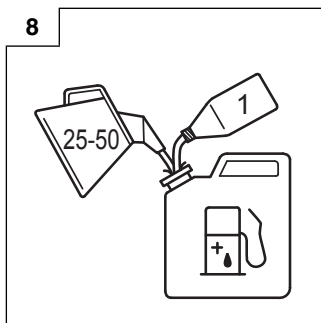
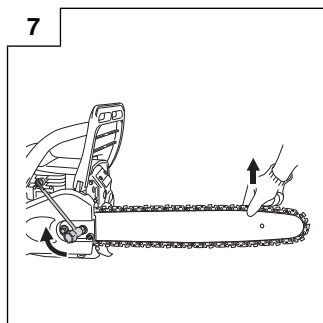
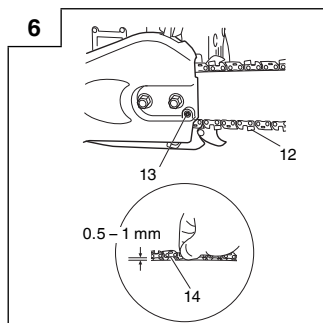
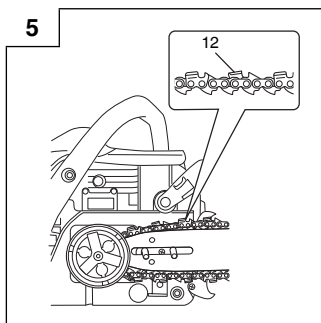
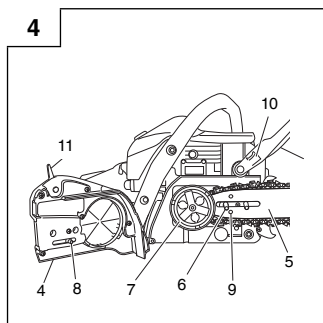
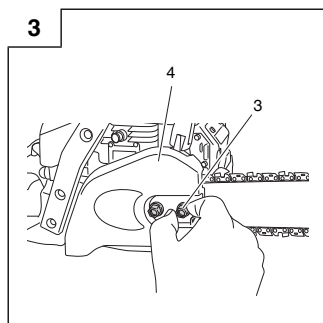
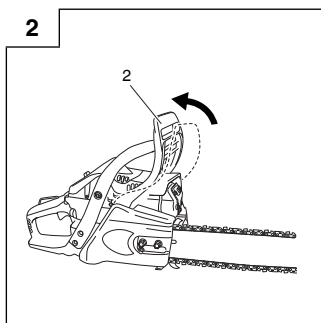
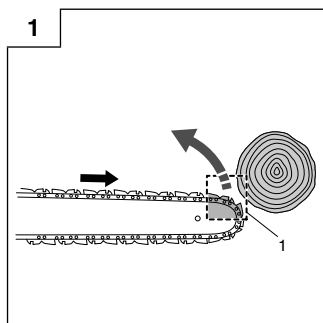
Read through carefully and understand these instructions before use.

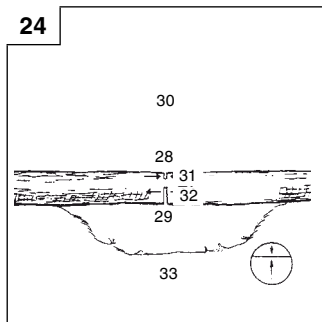
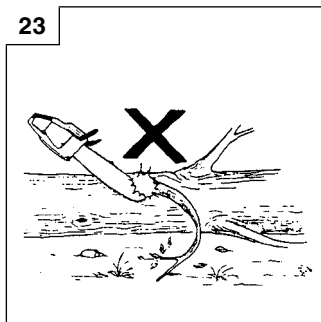
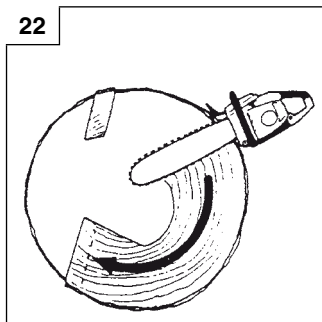
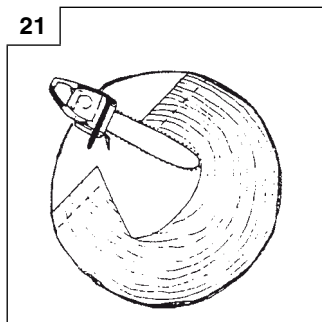
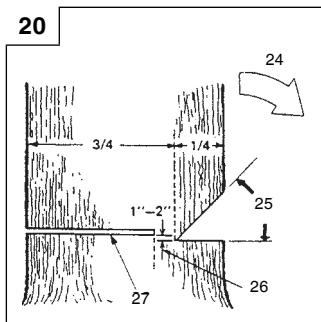
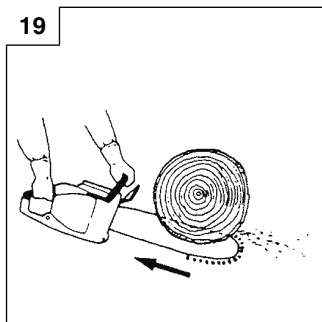
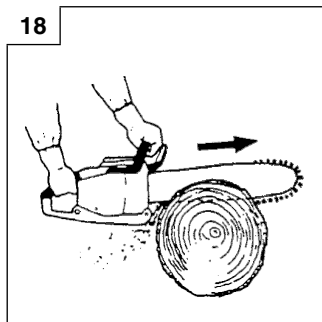
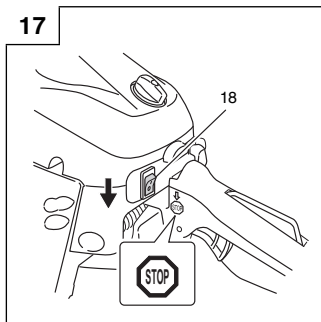
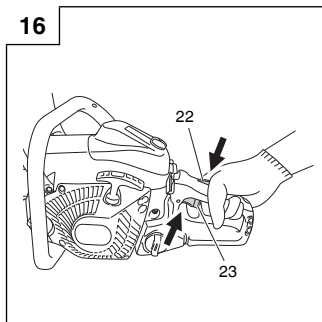
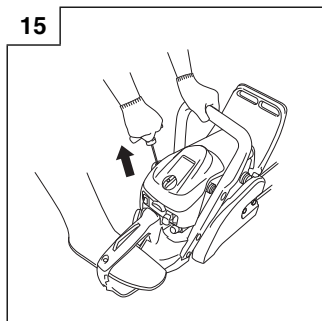
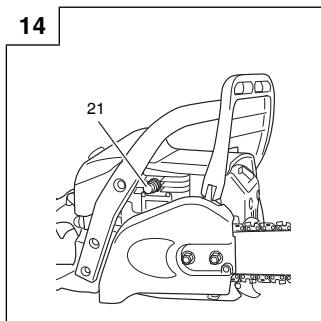
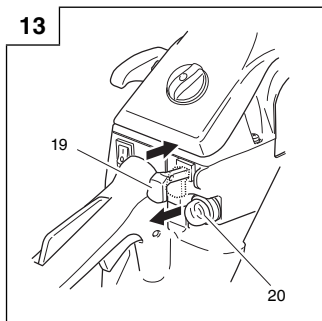
使用前務請詳加閱讀

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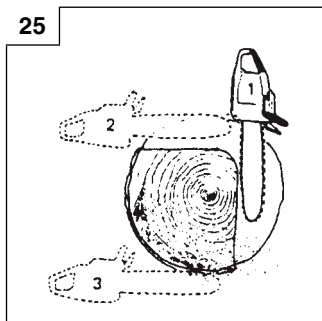
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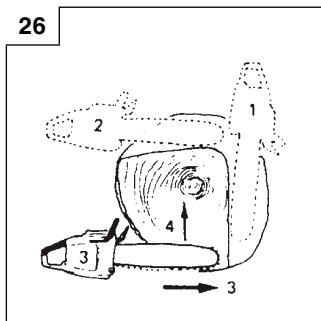




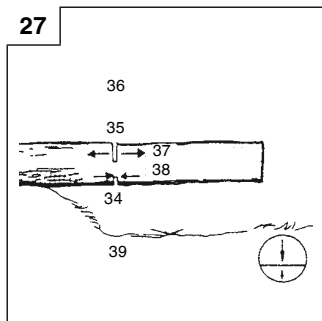
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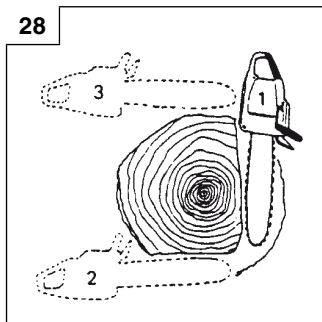
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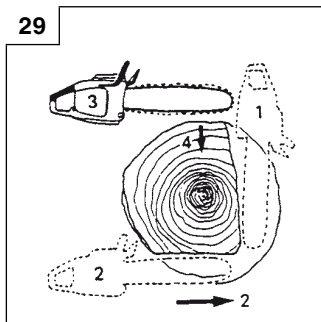
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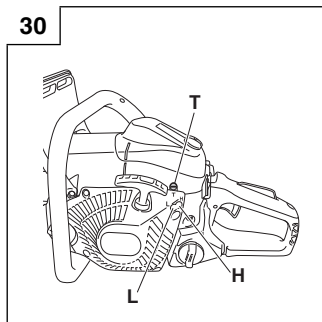
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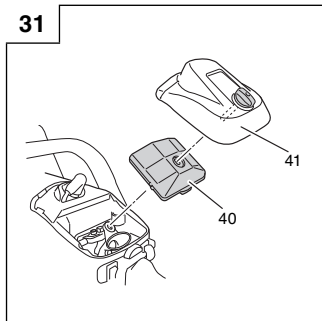
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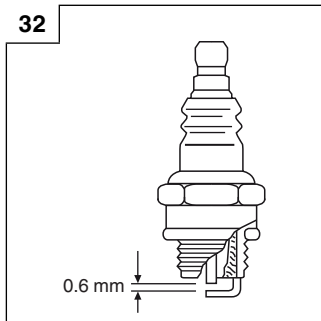
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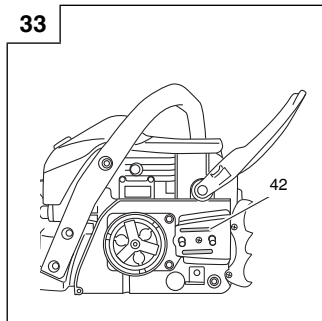
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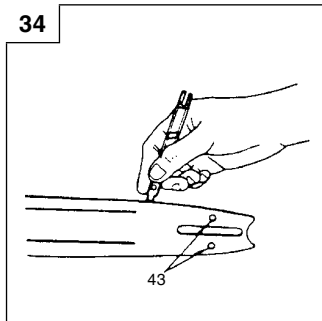
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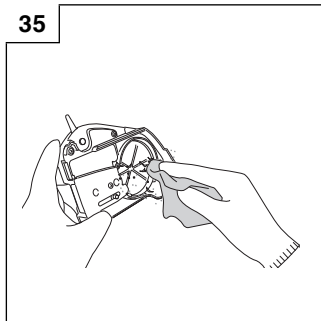
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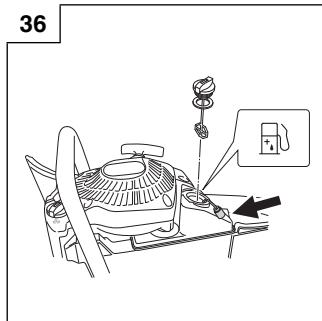
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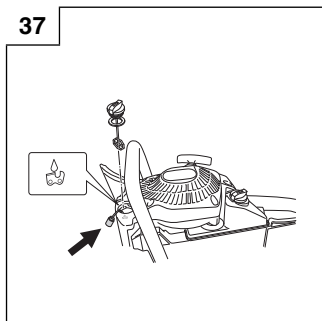
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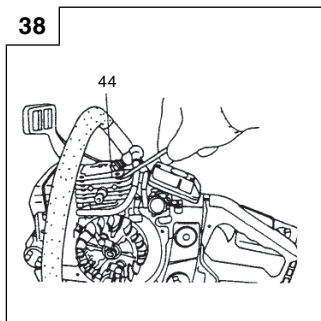
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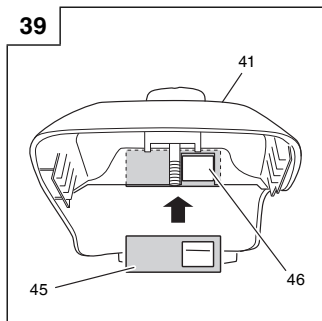
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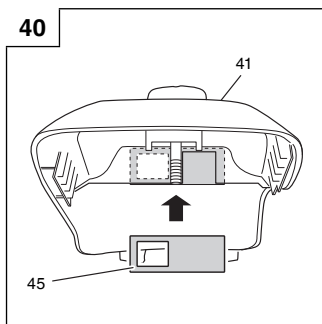
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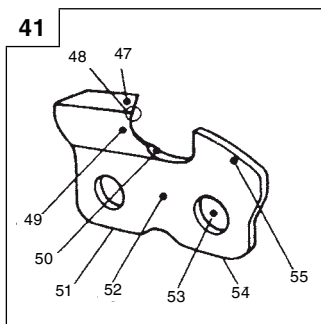
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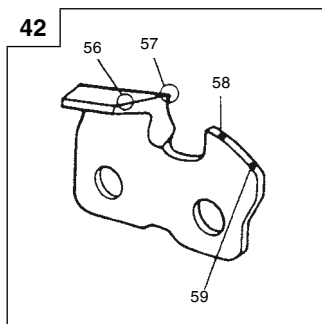
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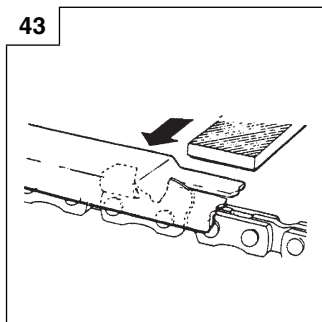
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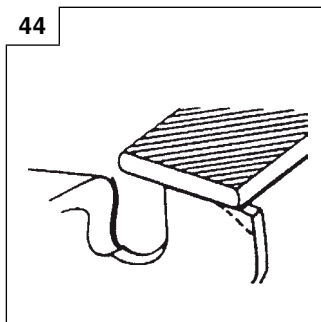
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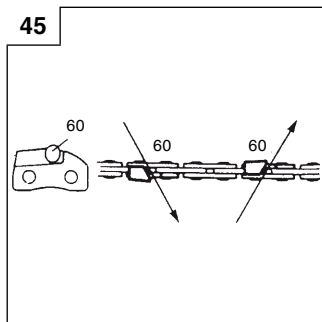
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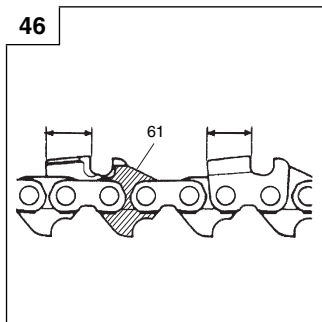
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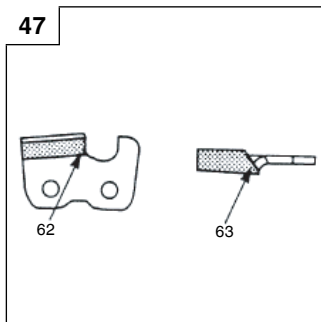
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MEANINGS OF SYMBOLS

NOTE: Some units do not carry them.

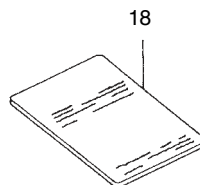
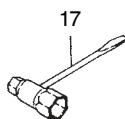
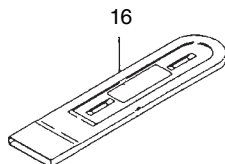
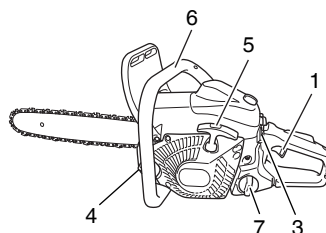
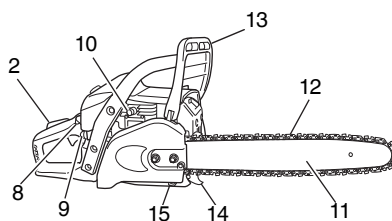
	Symbols ⚠ WARNING The following show symbols used for the machine. Be sure that you understand their meaning before use.	
		 Emergency stop
	Read, understand and follow all warnings and instructions in this manual and on the unit.	 Fuel and oil mixture
	Always wear eye, head and ear protectors when using this unit.	 Chain oil fill
	Warning, kickback danger. Be careful of possible sudden and accidental upward and/or backward motion of the guide bar.	T Carburetor adjustment - Idle speed
	One-handed usage not permitted. While cutting, hold saw firmly with both hands with thumb firmly locked around front handle.	L Carburetor adjustment - Low speed mixture
	Chain brake	H Carburetor adjustment - High speed mixture
	Choke	 Oil pump adjustment
I	On/Start	 Priming pump
O	Off/Stop	 Decompression valve

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WHAT IS WHAT?

1. Throttle lever: Device activated by the operator's finger, for controlling the engine speed.
2. Throttle lever lockout: Device that prevents the accidental operation of the throttle lever until manually released.
3. Stop switch: Device for allowing the engine to be started or stopped.
4. Oil tank cap: For closing the oil tank.
5. Recoil starter: Pull handle to start the engine.
6. Front handle: Support handle located at or towards the front of the engine housing.
7. Fuel tank cap: For closing the fuel tank.
8. Choke lever: Device for enriching the fuel/air mixture in the carburetor, to aid starting.
9. Priming pump: Device for supplying extra fuel, to aid starting.
10. Decompression valve: Device for reducing the compression pressure to aid starting.
11. Guide bar: The part that supports and guides the saw chain.
12. Saw chain: Chain, serving as a cutting tool.
13. Chain brake (Front hand guard): Device for stopping or locking the chain.
14. Spiked bumper: Device for acting as a pivot when in contact with a tree or log.
15. Chain catcher: Device for restraining the saw chain.
16. Guide bar cover: Device for covering the guide bar and saw chain when the unit is not being used.
17. Combi box spanner: The tool for removing or installing a spark plug and tensioning the saw chain.
18. Handling instructions: Included with unit. Read before operation and keep for future reference to learn proper, safe techniques.



WARNINGS AND SAFETY INSTRUCTIONS

Operator safety

- Always wear a safety face shield or goggles.
- Gloves should be used when sharpening chain.
- Always wear safety protective equipment such as jacket, trousers, gloves, helmet, boots with steel toe-caps and non-slip soles, and eye, ear and leg protection equipment whenever you use a chain saw. For working in trees the safety boots must be suitable for climbing techniques. Do not wear loose clothing, jewelry, short pants, sandals or go barefoot.
- Secure hair so it is above shoulder length.
- Do not operate this tool when you are tired, ill or under the influence of alcohol, drugs or medication.
- Never let a child or inexperienced person operate the machine.
- Wear hearing protection. Pay attention to your surroundings. Be aware of any bystanders who may be signaling a problem. Remove safety equipment immediately upon shutting off engine.
- Wear head protection.
- Never start or run the engine inside a closed room or building. Breathing exhaust fumes can kill.
- For respiratory protection, wear a protection mask while emitting the chain oil mist and dust from sawdust.
- Keep handles free of oil and fuel.
- Keep hands away from cutting equipment.
- Do not grab or hold the unit by the cutting equipment.
- When the unit turned off, make sure the cutting attachment has stopped before the unit is set down.
- When operation is prolonged, take a break from time to time so that you may avoid possible Hand-Arm Vibration Syndrome (HAVS) which is caused by vibration.
- The operator must obey the local regulations of cutting area.

WARNING

- Antivibration systems do not guarantee that you will not sustain Hand-Arm Vibration Syndrome or carpal tunnel syndrome. Therefore, continual end regular users should monitor closely the condition of their hands and fingers. If any of the above symptoms appear, seek medical advice immediately.
- Long or continuous exposure to high noise levels may cause permanent hearing impairment. Always wear approved hearing protection when operating a unit/machine.
- If you are using any medical electric/electronic devices such as a pacemaker, consult your physician as well as the device manufacturer prior to operating any power equipment.

Unit/machine safety

- Inspect the entire unit/machine before each use. Replace damaged parts. Check for fuel leaks and make sure all fasteners are in place and securely tightened.
- Replace parts that are cracked, chipped or damaged in any way before using the unit/machine.
- Make sure the side case is properly attached.
- Keep others away when making carburetor adjustments.
- Use only accessories as recommended for this unit/machine by the manufacturer.
- Never let the chain strike any obstacle. If the chain makes contact, the machine should be stopped and checked carefully.
- Make sure the automatic oiler is working. Keep the oil tank filled with clean oil. Never let chain run dry on the bar.
- All chain saw service, other than the items listed in the operator's/owner's manual, 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 could subsequently cause the flywheel to burst.)

WARNING

- Never modify the unit/machine in any way. Do not use your unit/machine for any job except for which it is intended.
- Never use chain saw without any safety equipment or that has faulty safety equipment. It could result in serious personal injury.
- Using guide bar/chain other than recommended by the manufacturer which are not approved, could result in a high risk of personal accidents or injury.

Fuel safety

- Mix and pour fuel outdoors and where there are no sparks or flames.
- Use a container approved for fuel.
- Do not smoke or allow smoking near fuel or the unit/machine or while using the unit/machine.
- Wipe up all fuel spills before starting engine.
- Move at least 3 m away from fueling site before starting engine.
- Stop engine and let it cool for a few minutes before removing fuel tank cap.
- Empty the fuel tank before storing the unit/machine. It is recommended that the fuel be emptied after each use. If fuel is left in the tank, store so fuel will not leak.
- Store unit/machine and fuel in area where fuel vapors cannot reach sparks or open flames from water heaters, electric motors or switches, furnaces, etc.

WARNING

Fuel is easy to ignite or get explosion or inhale fumes, so that pay special attention when handling or filling fuel.

Cutting safety

- Do not cut any material other than wood or wooden objects.
- For respiratory protection, wear an aerosol protection mask when cutting the wood after insecticide has been applied.
- Keep others including children, animals, bystanders and helpers outside the hazard zone. Stop the engine immediately if you are approached.
- Hold the unit/machine firmly with the right hand on the rear handle and the left hand on the front handle.
- Keep firm footing and balance. Do not over-reach.
- Keep all parts of your body away from the muffler and cutting attachment when the engine is running.
- Keep Bar/Chain below waist level.
- Before felling a tree, the operator must be accustomed to the sawing techniques of the chain saw.
- Be sure to pre-plan a safe exit from a falling tree.
- While cutting, hold the unit/machine firmly with both hands with thumb firmly locked around front handle, and stand with feet well balanced and your body balanced.
- Stand to the side of the saw when cutting - never directly behind it.
- Always keep the spiked bumper face to a tree, because the chain may suddenly be drawn into a tree, if so equipped.
- When completing a cut, be ready to hold up the units as it breaks into clear, so it will not follow through and cut your legs, feet or body, or contact an obstruction.
- Be alert against kickback (when saw kicks up and back at operator). Never cut with the nose of the bar.
- When relocating to a new work area, be sure to shut off the machine and ensure that all cutting attachments are stopped.
- Never place the machine on the ground when running.
- Always ensure that the engine is shut off and any cutting attachments have completely stopped before clearing debris or removing grass from the cutting attachment.
- Always carry a first-aid kit when operating any power equipment.
- Never start or run the engine inside a closed room or building and/or near the inflammable liquid. Breathing exhaust fumes can kill.

Maintenance safety

- Maintain the unit/machine according to recommended procedures.
- Disconnect the spark plug before performing maintenance except for carburetor adjustments.
- Keep others away when making carburetor adjustments.
- Use only genuine Tanaka replacement parts as recommended by the manufacturer.

CAUTION

Do not disassemble the recoil starter. You may get a possibility of personal injury with recoil spring.

WARNING

Improper maintenance could result in serious engine damage or in serious personal injury.

Transport and storage

- Carry the unit/machine by hand with the engine stopped and the muffler away from your body.
 - Allow the engine to cool, empty the fuel tank, and secure the unit/machine before storing or transporting in a vehicle.
 - Empty the fuel tank before storing the unit/machine. It is recommended that the fuel be emptied after each use. If fuel is left in the tank, store so fuel will not leak.
 - Store unit/machine out of the reach of children.
 - Clean and maintain the unit carefully and store it in a dry place.
 - Make sure stop switch is off when transporting or storing.
 - When transporting or storage, cover chain with guide bar cover.
- If situations occur which are not covered in this manual, take care and use common sense. Contact Tanaka dealer if you need assistance. Pay special attention to statements preceded by the following words:

WARNING

Indicates a strong possibility of severe personal injury or loss of life, if instructions are not followed.

CAUTION

Indicates a possibility of personal injury or equipment damage, if instructions are not followed.

NOTE

Helpful information for correct function and use.

**WARNING
KICKBACK DANGER (Fig. 1)**

One of the most severe dangers when working with a chain saw is the possibility of kickback. Kickback may occur when the upper 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 you. Pinching the saw chain along the top of the guide bar may also push the guide bar rapidly back towards you. Either of these reactions may cause you to lose control of the saw which could result in serious personal injury. Even though your saw has safety built into its design, you should not rely on these safety features exclusively. Know where your bar tip is at all times. Kickback does occur if you allow the kickback zone (1) of the bar to touch an object. Do not use that area. Kickback from pinching is caused by a cut closing and pinching the upper side of the guide bar. Study your cut and make sure it will open as you cut through. Maintain control when the engine is running by always keeping a firm grip on the saw with your right hand on the rear handle, your left hand on the front handle and your thumbs and fingers encircling the handles. Always hold the saw with both hands during operation and cut at high engine speed. Follow manufacturer's sharpening and maintenance instructions for the saw chain. The lack of this maintenance may increase the possibility of kickback.

SPECIFICATIONS

- Code "CS" of model name means "Chain saw"

Model	TCS51EA (40S)	TCS51EA (45S)	TCS51EA (50S)
Type of equipment	Chain saw, portable		
Engine Size (cm ³)	50.1		
Spark Plug	NGK BPMR-7A		
Fuel Tank Capacity (cm ³)	530		
Chain Oil Tank Capacity (cm ³)	270		
Dry Weight (kg) (Without guide bar and chain)	5.1		
Chain pitch (mm)	8.26		
Chain gauge (mm)	1.27		
Sound pressure level LpA (dB (A)) by ISO 22868 Equivalent Uncertainty	104 1		
Sound power level LwA (dB (A)) by ISO 22868 Measured Uncertainty	113 2		
Sound power level LwA (dB (A)) by 2000/14/EC Measured Guaranteed	114 117		
Vibration level (m/s ²) by ISO 22867 Front handle Rear handle Uncertainty	3.3 2.7 0.8	3.3 2.7 0.8	3.3 2.7 0.8
Guide bar length (mm)	400	450	500
Type of chain	95VPX (Oregon)		20BPX (Oregon)
Max. engine power by ISO 7293 (kW)	2.5		
Max. engine speed (min ⁻¹)	13500		
Idle engine speed (min ⁻¹)	3000		
Specific fuel consumption at maximum engine power (g/kWh)	439		
Max. chain speed (m/sec)	26.0		
Sprocket (number of teeth)	7		

NOTE: Equivalent noise level/vibration levels are calculated as the time-weighted energy total for noise/vibration levels under various working conditions with the following time distribution: 1/3 idle, 1/3 full, 1/3 racing speed.

*All data subject to change without notice.

ASSEMBLY PROCEDURES

⚠ WARNING

Never try to start engine without side case, bar and chain securely fastened.

1. Pull the front hand guard (2) toward the front handle to check that the chain brake is disengaged. (Fig. 2)
2. Remove guide bar clamp nuts (3). Remove the side case (4). (Fig. 3)
3. Install the guide bar (5) onto the bolts (6), then push it toward the sprocket (7) as far as it will go.
4. Confirm the direction of saw chain (12) is correct as in the figure, and align the chain on the sprocket. (Fig. 5)
5. Guide the chain drive links into the bar groove all around the bar.
6. Install the side case (4) onto the bolts (6).
Make sure that the boss of chain tension adjust bolt (8) fits into the hole (9) of the bar. (Fig. 4)
The brake lever (11) of the side case must fit the groove (10) on the side of the front hand guard.
Then tighten the guide bar clamp nuts (3) by hand that allows the guide bar end to move up and down easily. (Fig. 3)
7. Raise the bar end, and tighten the chain (12) by turning the tension adjustment bolt (13) clockwise. To check proper tension, lightly lift up the center of chain and there should be about 0.5 – 1.0 mm clearance (14) between bar and edge of drive link. (Fig. 6, 7)

CAUTION

PROPER TENSION IS EXTREMELY IMPORTANT

8. Raise the bar end and securely tighten the guide bar clamp nuts with the combi box spanner. (Fig. 7)
9. A new chain will stretch so adjust the chain after a few cuts and watch chain tension carefully for the first half hour of cutting.

NOTE

Check the chain tension frequently for optimum performance and durability.

CAUTION

- When the chain is excessively tightened, the bar and chain will be damaged rapidly. Conversely, when the chain is excessively loosened, it may get out of the groove in the bar.
- Always wear gloves when touching the chain.

⚠ WARNING

During operation, hold chain saw firmly with both hands. A single hand operation may cause serious injury.

OPERATING PROCEDURES

Fuel (Fig. 8)

⚠ WARNING

- The chain saw is equipped with a two-stroke engine. Always run the engine on fuel, which is mixed with oil. Provide good ventilation, when fueling or handling fuel.
- Fuel contains highly flammable and it is possible to get the serious personal injury when inhaling or spilling on your body. Always pay attention when handling fuel. Always have good ventilation when handling fuel inside building.

Fuel

- Always use branded 89 octane unleaded gasoline.
 - Use genuine two-cycle oil or use a mix between 25:1 to 50:1, please consult the oil bottle for the ratio or Tanaka dealer.
 - If genuine oil is not available, use an anti-oxidant added quality oil expressly labeled for air-cooled 2-cycle engine use (JASO FC GRADE OIL or ISO EGC GRADE). Do not use BIA or TCW (2-stroke water-cooling type) mixed oil.
 - Never use multi-grade oil (10 W/30) or waste oil.
 - Always mix fuel and oil in a separate clean container.
- Always start by filling half the amount of gasoline, which is to be used.
Then add the whole amount of oil. Mix (shake) the fuel mixture. Add the remaining amount of gasoline.
Mix (shake) the fuel-mix thoroughly before filling the fuel tank.

Fueling

⚠ WARNING (Fig. 9)

- Always shut off the engine before refueling.
- Slowly open the fuel tank (15), when filling up with fuel, so that possible overpressure disappears.
- Tighten the fuel cap carefully, after fueling.
- Always move the unit at least 3 m from the fueling area before starting.
- Always wash any spilled fuel from clothing immediately with soap.
- Be sure to check any fuel leaking after refueling.

Before fueling, clean the tank cap area carefully, to ensure that no dirt falls into the tank. Make sure that the fuel is well mixed by shaking the container, before fueling.

Chain oil (Fig. 9)

Fill up with chain oil (16). Always use good quality chain oil. When the engine is running, the chain oil is automatically discharged.

NOTE

When pouring fuel (15) or chain oil (16) into the tank, place the unit with cap side up. (Fig. 9)

ADJUSTMENT OF CHAIN OIL SUPPLY

The chain oil quantity discharged through the lubrication system is adjusted to the maximum in the factory. Adjust the quantity in accordance with the operating condition.

Turn the adjusting screw (17) counterclockwise to increase the quantity and turn it clockwise to decrease the quantity. (Fig. 10)

Chain brake operation (Fig. 2, 11)

Chain brake is designed to activate in an emergency such as kick-back action.

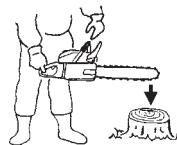
Application of brake is made by moving the front hand guard towards the bar. During the chain brake operation, even if the throttle lever is pulled, the engine speed does not increase and the chain does not turn. To release the brake, pull the front hand guard toward the front handle.

If the engine keeps rotating at high speed with the brake engaged, the clutch will overheat causing trouble.

When the brake engages during operation, immediately release the throttle lever to slow down the engine.

How to confirm the activation of the chain brake

- 1) Turn off the engine.
- 2) Holding the chain saw horizontally, release your hand from the front handle, hit the tip of the guide bar to a stump or a piece of wood, and confirm brake operation. Operating level varies by bar size.



In case the brake is not effective, ask our dealer for inspection and repairs.

Starting (Fig. 11 – 16)

CAUTION

Before starting, make sure chain brake is engaged and that the bar/chain does not touch anything. (Fig. 11)

1. Set ignition switch (18) to ON position. (Fig. 12)
*Push priming pump (20) several times so that fuel flows through bulb into carburetor. (Fig. 13)
2. Pull the choke lever (19) to choked position (Fig. 13).
This will automatically lock to the half-throttle.
3. Push the decompression valve (21).
The valve (21) will automatically return to the original position once the engine has started (Fig. 14).
4. Pull recoil starter briskly, taking care to keep the handle in your grasp and not allowing it to snap back. (Fig. 15)
5. When you hear first ignition, return the choke lever (19) all the way in. (Fig. 13)
6. Push the decompression valve.

7. Pull recoil starter briskly again in the aforementioned manner. (Fig. 15)

NOTE

If engine does not start, repeat procedures from 2 to 7.

8. As soon as engine start, pull throttle lever (23) full once with throttle lever lockout (22) and release immediately. (Fig. 16) Then half-throttle is disengaged.

Pull the front hand guard (2) toward the front handle to disengage the chain brake.

Allow the engine about 2-3 minutes to warm up before subjecting it to any load.

Do not run the engine at high speed without the load to avoid shortening the life of the engine.

⚠ WARNING

Do not carry the machine with the engine running.

Stopping (Fig. 17)

Decrease engine speed, and push ignition switch (18) to stop position.

⚠ WARNING

- Do not overreach or cut above shoulder height.
- Use extra caution when felling, and do not use the saw in a nose-high position or above shoulder height.

CHAIN CATCHER

The chain catcher is located on the power head just below the chain to further prevent the possibility of a broken chain striking the chain saw user.

⚠ WARNING

Do not stand in-line with chain when cutting.

BASIC TECHNIQUES FOR MAKING FELLING, LIMBING AND BUCKING CUTS

The intention of the following information is to provide you with the general introduction to wood cutting techniques.

⚠ WARNING

- This information does not cover all specific situations, which may depend on differences in terrain, vegetation, kind of wood, form and size of trees, etc. Consult your servicing dealer, forestry agent or local forestry schools for advice on specific woodcutting problems in your area. This will make your work more efficient and safer.
- Avoid cutting in adverse weather conditions, such as dense fog, heavy rain, bitter cold, high winds, etc.
Adverse weather is often tiring to work in and creates potentially dangerous conditions such as slippery ground.
High winds may force the tree to fall in an unexpected direction causing property damage or personal injury.

CAUTION

Never use a chain saw to pry or for any purpose for which it is not intended.

⚠ WARNING

- Avoid stumbling on obstacles such as stumps, roots, rocks, branches and fallen trees. Watch out for holes and ditches. Be extremely cautious when working on slopes or uneven ground. Shut off the engine when moving from one work place to another. Always cut at wide open throttle. A slow moving chain can easily catch and force the saw to jerk.
- Never use the saw with only one hand.
You cannot control the saw properly and you may lose control and injure yourself severely.
Keep the saw body close to your body to improve control and reduce strain.
When cutting with the bottom part of the chain the reactive force will pull the saw away from you towards the wood you are cutting. The saw will control the feeding speed and sawdust will be directed towards you. (Fig. 18)
- When cutting with the upper part of the chain the reactive force will push the saw towards you and away from the wood you are cutting. (Fig. 19)
- There is a risk of kickback if the saw is pushed far enough so that you begin to cut with the nose of the bar.
The safest cutting method is to cut with the bottom part of the chain. Sawing with the upper part makes it much more difficult to control the saw and increases the risk of kickback.

- In case the chain locked, immediately release the throttle lever. If the throttle lever keeps rotating at high speed with the chain locked, the clutch will overheat causing trouble.

NOTE

Always keep the spiked bumper face to a tree, because the chain may suddenly be drawn into a tree.

FELLING

Felling is more than cutting down a tree. You must also bring it down as near to an intended place as possible without damaging the tree or anything else.

Before felling a tree, carefully consider all conditions which may effect the intended direction, such as:

Angle of the tree. Shape of the crown. Snow load on the crown. Wind conditions. Obstacles within tree range (e.g., other trees, power lines, roads, buildings, etc.).

⚠ WARNING

- Always observe the general conditions of the tree. Look for decay and rot in the trunk which will make it more likely to snap and start to fall before you expect it.
- Look for dry branches, which may break and hit you when you are working.
Always keep animals and people at least twice the tree length away while felling. Clear away shrubs and branches from around the tree.
Prepare a path of retreat away from the felling direction.

BASIC RULES FOR FELLING TREES

Normally the felling consists of two main cutting operations, notching and making the felling cut. Start making the upper notch cut on the side of the tree facing the felling direction. Look through the kerf as you saw the lower cut so you do not saw too deep into the trunk. The notch should be deep enough to create a hinge of sufficient width and strength. The notch opening should be wide enough to direct the fall of the tree as long as possible. Saw the felling cut from the other side of the tree between one and two inches (3-5 cm) above the edge of the notch. (Fig. 20)

24. Felling direction
25. 45° minimum notch opening
26. Hinge
27. Felling cut

Never saw completely through the trunk. Always leave a hinge. The hinge guides the tree. If the trunk is completely cut through, you lose control over the felling direction.
Insert a wedge or a felling lever in the cut well before the tree becomes unstable and starts to move. This will prevent the guide bar from binding in the felling cut if you have misjudged the falling direction. Make sure no people have come into the range of the falling tree before you push it over.

FELLING CUT, TRUNK DIAMETER MORE THAN TWICE GUIDE BAR LENGTH

Cut a large, wide notch. Then cut a recess into the center of the notch. Always leave a hinge on both sides of the center cut. (Fig. 21) Complete the felling cut by sawing around the trunk as in the Fig. 22.

⚠ WARNING

These methods are extremely dangerous because they involve the use of the nose of guide bar and can result in kickback. Only properly trained professionals should attempt these techniques.

LIMBING

Limbing is removing the branches from a feller tree.

⚠ WARNING

A majority of kickback accidents occur during limbing. Do not use the nose of the guide bar. Be extremely cautious and avoid contacting the log, other limbs or objects with the nose of the guide bar. Be extremely cautious of limbs under tension. They can spring back towards you and cause loss of control resulting in injury. (Fig. 23)

Stand on the left side of the trunk. Maintain a secure footing and rest the saw on the trunk. Hold the saw close to you so that you are in full control of it. Keep well away from the chain. Move only when the trunk is between you and the chain. Watch out for spring back of limbs under tension.

LIMBING THICK BRANCHES

When limbing thick branches, the guide bar may get pinched easily. Branches under tension often snap up, so cut troublesome branches in small steps. Apply the same principles as for cross cutting. Think ahead and be aware of the possible consequences of all your actions.

CROSS CUTTING/BUCKING

Before starting to cut through the log, try to imagine what is going to happen. Look out for stresses in the log and cut through it in such a manner that the guide bar will not get pinched.

CROSS CUTTING LOGS, PRESSURE ON TOP

Take a firm stance. Begin with an upper cut. Do not cut too deeply, about 1/3 of the log diameter is enough. Finish with a bottom cut. The saw cuts should meet. (Fig. 24)

28. Relieving cut
29. Cross cut
30. Pressure on top
31. Pressure side
32. Tension side
33. Relative depth of saw cuts

THICK LOG, LARGER THAN GUIDE BAR LENGTH

Begin by cutting on the opposite side of the log. Pull the saw towards you, followed by previous procedure. (Fig. 25)

If the log is lying on the ground make a boring cut to avoid cutting into the ground. Finish with a bottom cut. (Fig. 26)

⚠ WARNING

KICKBACK DANGER

Do not attempt a boring cut if you are not properly trained. A boring cut involves the use of the nose of the guide bar and can result in kickback.

CROSS CUTTING LOGS, PRESSURE ON BOTTOM

Take a firm stance. Begin with a bottom cut. The depth of the cut should be about 1/3 of the log diameter.

Finish with an upper cut. The saw cuts should meet. (Fig. 27)

34. Relieving cut
35. Cross cut
36. Pressure on bottom
37. Tension side
38. Pressure side
39. Relative depth of saw cuts

THICK LOG, LARGER THAN GUIDE BAR LENGTH

Begin by cutting on the opposite side of the log. Pull the saw towards you, followed by previous procedure. Make a boring cut if the log is close to the ground. Finish with a top cut. (Fig. 28)

⚠ WARNING

KICKBACK DANGER

Do not attempt a boring cut if you are not properly trained. A boring cut involves the use of the nose of the guide bar and can result in kickback. (Fig. 29)

IF THE SAW GETS STUCK

Stop the engine. Raise the log or change its position, using a thick branch or pole as a lever. Do not try to pull the saw free. If you do, you can deform the handle or be injured by the saw chain if the saw is suddenly released.

MAINTENANCE

MAINTENANCE, REPLACEMENT OR REPAIR OF THE EMISSION CONTROL DEVICES AND SYSTEM MAY BE PERFORMED BY ANY NON-ROAD ENGINE REPAIR ESTABLISHMENT OR INDIVIDUAL.

Carburetor adjustment (Fig. 30)

In the carburetor, fuel is mixed with air. When the engine is test run at the factory, the carburetor is adjusted. A further adjustment may be required, according to climate and altitude. The carburetor has one adjustment possibility:

T = Idle speed adjustment screw.

Idle speed adjustment (T)

Check that the air filter is clean. When the idle speed is correct, the cutting attachment will not rotate. If adjustment is required, close (clockwise) the T-screw, with the engine running, until the cutting attachment starts to rotate. Open (counter-clockwise) the screw until the cutting attachment stops. You have reached the correct idle speed when the engine runs smoothly in all positions well below the rpm when the cutting attachment starts to rotate.

If the cutting attachment still rotates after idle speed adjustment, contact Tanaka dealer.

⚠ WARNING

When the engine is idling the cutting attachment must under no circumstances rotate.

NOTE

Do not touch the High speed adjustment (H) and the Low speed adjustment (L).

Those are only for Tanaka dealer.

If you rotate them, it will cause a serious damage to the machine.

Air filter (Fig. 31)

The air filter (40) must be cleaned from dust and dirt in order to avoid:

- Carburetor malfunctions.
- Starting problems.
- Engine power reduction.
- Unnecessary wear on the engine parts.
- Abnormal fuel consumption.

Clean the air filter daily or more often if working in exceptionally dusty areas.

Remove the air filter cover (41) and the filter (40).

Rinse them in warm soap suds. Check that the filter is dry before reassembly. An air filter that has been used for some time cannot be cleaned completely. Therefore, it must regularly be replaced with a new one. A damaged filter must always be replaced.

Spark plug (Fig. 32)

The spark plug condition is influenced by:

- An incorrect carburetor setting.
- Wrong fuel mixture (too much oil in the gasoline)
- A dirty air filter.
- Hard running conditions (such as cold weather).

These factors cause deposits on the spark plug electrodes, which may result in malfunction and starting difficulties. If the engine is low on power, difficult to start or runs poorly at idling speed, always check the spark plug first. If the spark plug is dirty, clean it and check the electrode gap. Readjust if necessary. The correct gap is 0.6 mm. The spark plug should be replaced after about 100 operation hours or earlier if the electrodes are badly eroded.

NOTE

In some areas, local law requires using a resistor spark plug to suppress ignition signals. If this machine was originally equipped with resistor spark plug, use same type of spark plug for replacement.

Oilier port (Fig. 33)

Clean the chain oiler port (42) whenever possible.

Guide bar (Fig. 34)

Before using the machine, clean the groove and oiler port (43) in the bar with the special gauge offered as an optional accessory.

Side case (Fig. 35)

Always keep the side case and drive area clean of saw dust and debris. Periodically apply oil or grease to this area to protect from corrosion as some trees contain high levels of acid.

Fuel filter (Fig. 36)

Remove the fuel filter from the fuel tank and thoroughly wash it in solvent. After that, push the filter into the tank completely.

NOTE

If the filter is hard due to dust and dirt, replace it.

Chain oil filter (Fig. 37)

Remove the oil filter and thoroughly wash it in solvent.

Cleaning the cylinder fins (Fig. 38)

When wood chips are caught between cylinder fins (44), the engine may overheat, resulting in lower output. To avoid this, always keep cylinder fins and fan case clean.

Icing protection system (Fig. 39, 40)

This system is to protect carburetor from icing when the unit is operated in winter time.

- When you need icing system work, remove air filter cover (41). Pull out the shutter (45) from inside the air filter cover and reinstall it in winter time position by turning half-way. (Fig. 39) This will allow heated air to flow from cylinder side to carburetor cabin through the opening (46).

NOTE

When winter time has been over and carburetor will not suffer from icing, make sure that the shutter is reinstalled in ordinary position (Fig. 40).

For long-term storage

Drain all fuel from the fuel tank. Start and let engine run until it stops. Repair any damage which has resulted from use. Clean the unit with a clean rag, or the use of high pressure air hose. Put a few drops of two-cycle engine oil into the cylinder through the spark plug hole, and spin the engine over several times to distribute oil. Cover the unit and store it in a dry area.

CHAIN SHARPENING**Parts of a cutter (Fig. 41, 42)****⚠ WARNING**

- Gloves should be used when sharpening chain.
- Be sure to round off the front edge to reduce the chance of kickback or tie-strap breakage.

- Top plate
- Cutting corner
- Side plate
- Gullet
- Heel
- Chassis
- Rivet hole
- Toe
- Depth gauge
- Correct angle on top plate (degree of angle depends on chain type)
- Slightly protruding "hook" or point (curve on non-chisel chain)
- Top of depth gauge at correct height below top plate
- Front of depth gauge rounded off

LOWERING DEPTH GAUGES WITH A FILE

- If you sharpen your cutters with a file holder, check and lower the depth.
- Check depth gauges every third sharpening.
- Place depth gauge tool on cutter. If depth gauge projects, file it level with the top of the tool. Always file from the inside of the chain toward an outside cutter. (Fig. 43)
- Round off front corner to maintain original shape of depth gauge after using depth gauge tool. Always follow the recommended depth gauge setting found in the maintenance or operator manual for your saw. (Fig. 44)

GENERAL INSTRUCTIONS FOR FILING CUTTERS

File (60) cutter on one side of the chain from the inside out. File on forward stroke only. (Fig. 45)

- Keep all cutters the same length. (Fig. 46)
- File enough to remove any damage to cutting edges (side plate (62) and top plate (63)) of cutter. (Fig. 47)

NOTE

Do not file or alter the tops of bumper drive links (61). (Fig. 46).

SHARPENING ANGLES FOR SHARPENING SAW CHAIN

1. Part Number	95VPX/20BPX
2. Pitch	0.325"
3. Depth Gauge Setting	0.025"
4. Side Plate Filing Angle	85°
5. Top Plate Angle	30°
6. File Guide Angle	100°

Maintenance schedule

Below you will find some general maintenance instructions. For further information please contact Tanaka dealer.

Daily maintenance

- Clean the exterior of the unit.
- Clean the chain oil filter port.
- Clean the groove and oil filter port in the guide bar.
- Clean the side case of saw dust.
- Check that the saw chain is sharp.
- Check that the bar nuts are sufficiently tightened.
- Make sure that the chain transport guard is undamaged and that it can be securely fitted.
- Check that nuts and screws are sufficiently tightened. Especially inspect the bolt of muffler and ensure that they are properly tightened before starting engine. Should any of the bolts be loose, retighten them immediately. Failure to do so could result in serious hazard.
- Check the tip of the guide bar. Please exchange it for the new one when it is worn out.
- Check the band of chain brake. Please exchange it for the new one when it is worn out.
- Clean the air filter.

Weekly maintenance

- Check the recoil starter, especially cord.
- Clean the exterior of the spark plug.
- Remove the spark plug and check the electrode gap. Adjust it to 0.6 mm or change the spark plug.
- Clean the cooling fins on the cylinder and check that the air intake at the recoil starter is not clogged.

Monthly maintenance

- Rinse the fuel tank with gasoline, and clean fuel filter.
- Clean chain oil filter.
- Clean the exterior of the carburetor and the space around it.
- Clean the fan and the space around it.

NOTE

When ordering the parts to your nearest dealer, please use the item numbers showing on the parts breakdown section in this instruction.

	BAR NO.	LENGTH-TYPE	CHAIN NO.
MODEL NO. OREGON	160MLBK041	400 mm (16")	95VPX-66
	180MLBK041	450 mm (18")	95VPX-72
	200PXBK041	500 mm (20")	20BPX-78

標誌的意義

註: 某些裝置並沒有附帶此標誌。

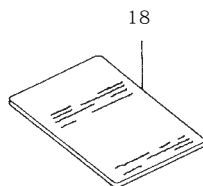
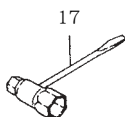
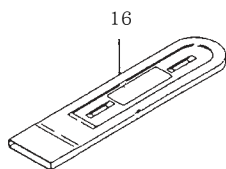
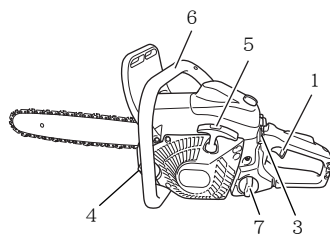
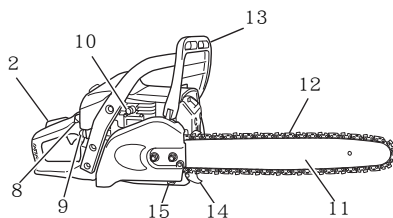
標誌 ⚠警告 以下為此機器所使用的符號。請確定在使用前您已瞭解其中的意義。			
	閱讀並完全瞭解及遵守以下的安全預防措施與警告是非常重要的。疏忽或不當使用此裝置，可能會造成嚴重或致命的傷害。		緊急停止
	請閱讀、瞭解並遵循所有本手冊以及裝置上的警告與指示。		燃油機油混合物
	使用此裝置時請隨時配戴眼、頭及耳保護裝置。		鏈鋸油加油口
	警告，反彈危險。請小心引導器可能突發的向上及／或向後的意外移動。		化油器調整 – 怠速
	不允許單手操作。切割時，請用雙手握緊電鋸，並用拇指扣緊前把手。		化油器調整 – 低速混合
	鏈鋸制動器		化油器調整 – 高速混合
	阻氣門		機油泵調整
	On/啟動		輸油泵
	Off/停止		減壓閥

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零件名稱

1. 節流閥操作桿：由操作者的手指啟動，用來控制引擎速度的裝置。
2. 節流閥操作桿保險：在手動釋放之前，可防止意外操作節流閥操作桿的裝置。
3. 停止開關：用來啟動或停止引擎的裝置。
4. 機油箱蓋：用來蓋上機油箱。
5. 手拉式啟動器：拉動把手來啟動引擎。
6. 前把手：位於或朝向引擎罩前方的支撐把手。
7. 燃料箱蓋：用來蓋上燃料箱。
8. 阻氣門操作桿：用來增進汽化器中燃料／空氣混合程度，或幫助啟動的裝置。
9. 自吸式泵浦：需供應額外燃料的裝置，可協助啟動。
10. 減壓閥：用於降低壓縮壓力以協助啟動的裝置。
11. 引導器：支撐及引導鋸鏈的零件。
12. 鋸鏈：做為切割工具使用的鏈條。
13. 鏈條制動器（前手保護）：用來停止或鎖住鏈條的裝置。
14. 尖刺保險槓：當接觸樹木或木料時做為樞軸使用的裝置。
15. 鏈條支持器：用來控制鋸鏈的裝置。
16. 引導器蓋：當不使用本裝置時，用來蓋住引導器與鋸鏈的裝置。
17. 複合箱扳手：用來卸除或安裝火星塞及拉緊鋸鏈的工具。
18. 處理指示：隨附於裝置。操作之前請先閱讀，並請妥善保存以供未來參考及學習正確、安全技巧之用。



警告與安全指示

操作者安全

- 請隨時配戴安全面罩或護目鏡。
- 磨銳鏈條時應戴上手套。
- 當您使用電鋸時，請務必穿戴安全保護裝備，例如夾克、長褲、手套、頭盔、鋼頭防滑安全工作鞋，以及提供眼睛、耳朵、腿部防護的裝備。在樹林中工作時，安全靴必須適用於攀爬技巧。請勿穿著寬鬆衣物、佩戴珠寶、短褲、拖鞋，或赤腳。
- 固定頭髮並使其高於肩部。
- 當您疲累、生病、飲酒後、藥物影響或醫療過程中，請勿操作此工具。
- 絕對不可讓小孩或是無經驗人員操作機器。
- 配戴聽力保護裝置。注意您的周圍。小心任何可能造成困擾的旁觀者。關閉引擎時，請立刻移除安全保護裝置。
- 配戴頭部保護裝置。
- 絕對不可在封閉的房間或建物中，啟動或運作引擎。吸入廢氣煙煙可能會致命。
- 裝置會散發鏈油霧及噴出鋸木屑，為了保護呼吸系統，請戴上保護面罩。
- 保持把手無油污或燃油附著。
- 手部需遠離切割設備。
- 請勿藉由切割設備抓取或握持裝置。
- 當裝置關閉時，確認切割配件已經在單元關閉前停止。
- 當長期操作時，適時的休息可避免因振動而導致的手臂振動症候群 (HAVS)。
- 操作者必須遵守切割區域當地的法規。

△警告

- 反振動系統並無法保證您不會罹患HAVS或腕管症候群。因此，連續或長時間且定期的使用者，必須謹慎監視他們的手及手指狀況。若有任何上列徵狀出現，請立刻尋求醫療諮詢。
- 長時間或持續暴露於高噪音之下可能會導致永久性聽覺障礙。操作裝置時，請始終配戴經主管機關核准的聽力保護器具。
- 若您正在使用醫療電氣／電子裝置，例如心律調整器，請在操作任何動力設備前，徵詢您的醫師及裝置製造商。

裝置與機器安全

- 每次使用前檢視整個裝置與機器。更換損壞零件。檢查燃料漏洩以及確認所有固定件已到位，並且穩固地鎖緊。
- 無論如何請在使用裝置與機器前，更換破裂、缺損或損毀的零件。

- 確認側蓋已經連接妥當。
- 進行汽化器調整時，請他人遠離。
- 請使用本裝置與機器製造商所建議的配件。
- 請絕對不要讓鏈條撞擊任何障礙物。如果鏈條接觸到任何障礙物，請立即停止機器，並仔細檢查。
- 請確保自動注油器功能正常。請保持機油箱填注乾淨的機油。絕對不要讓鏈條在引導器上乾燥地運轉。
- 除操作者／擁有者手冊中所列項目以外，所有電鋸維護工作皆應由合格的電鋸維修人員執行。(例如，如果使用不正確的工具來卸除慣性輪，或使用不正確的工具來固定慣性輪以卸除離合器，則可能會對慣性輪造成結構性的損壞，並最終導致慣性輪爆裂。)

△警告

- 無論如何請勿修改裝置與機器。請勿使用您的裝置與機器，於任何非為其設計目的之工作。
- 在未配備任何安全設備或安全設備有問題的情況下，請絕對不要使用電鋸。這可能會導致嚴重的人身傷害。
- 使用非製造商建議且未經主管單位許可的引導器／鏈條，可能會導致造成人員意外或傷害的高度危險。

燃料安全

- 請於室外混合傾注燃料，而該處不得有火花或火焰。
- 使用認證過適用於燃料的容器。
- 請勿吸菸或允許在燃料或裝置與機器附近、亦或是使用裝置與機器時吸菸。
- 啟動引擎前，擦乾所有溢出燃料。
- 啟動引擎前，移動至離處理燃料處至少3公尺以上。
- 開啟油箱蓋前，請先停止引擎並冷卻數分鐘。
- 儲藏裝置與機器前請先清空燃料箱。建議每次使用後將燃料清空。若燃料殘留於箱內，儲藏時需使燃料不會漏洩。
- 儲藏裝置與機器以及燃料於燃料蒸氣無法傳達至熱水器、電氣馬達或開關、爐具等，可產生火花或開放性火災之處所。

△警告

燃料極易點燃、爆炸或吸入煙煙，因此處理或填充燃料時請特別注意。

切割安全

- 請勿切割木材或木製物品以外的任何材料。
- 於施放除蟲劑後切割草木，為了保護呼吸系統請穿戴煙霧防護面罩。
- 請其餘人員包含兒童、動物、旁觀者和協助人員，保持遠離危險區。有人接近您時，請立即停止引擎。

- 用右手緊握住機器的後把手，用左手緊握住機器的前把手。
- 保持穩固步伐與平衡。請勿過度伸展。
- 當引擎運作時，請保持您身體所有部位遠離消音器及切割配件。
- 保持引導器／鏈條低於腰部高度。
- 鋸樹之前，操作者必須熟悉電鋸的鋸樹技巧。
- 請務必預先計算好樹木倒下時的安全逃離路線。
- 切割時，請用雙手握緊本設備／機器，並以拇指扣緊前把手，雙腳平衡站立，身體保持平衡。
- 切割時，請站在電鋸側面 - 絕對不要站在電鋸的正後方。
- 配備尖刺保險槓時，請始終保持尖刺保險槓面向樹木，因為鏈條可能突然被拖入樹木。
- 完成切割之後，裝置會突然失去藉力，因此請握好裝置，以免因慣性而誤傷腿部、腳部或身體，或接觸到障礙物。
- 請小心反彈（電鋸向上及向後彈跳傷及操作者）。絕對不要使用引導器的圓頭處切割。
- 當重新配置至新工作區域時，請務必關閉機器並確認所有切割配件都已停止。
- 運作時絕對不要將機器置於地面。
- 由切割配件上清理碎片或移除青草前，務必確認引擎關閉且所有切割配件皆已完全停止。
- 當操作任何動力設備時，務必攜帶急救套件。
- 絕對不可在封閉的房間或建物中，啟動或運作引擎及／或靠近可燃性液體。吸入廢氣煙煙可能會致命。

保養安全

- 根據建議的程序保養裝置與機器。
- 除了調整汽化器外，在進行保養前拔請除火星塞。
- 進行汽化器調整時，請他人遠離。
- 僅可使用Tanaka正廠替換物件。

注意

請勿拆解手拉式啟動器。您有可能會因彈簧反作用力，而遭致人身傷害。

△警告

不正確的維護可能會導致引擎嚴重損壞或人身嚴重傷害。

運輸與儲藏

- 以手搬運裝置與機器，引擎必須已經停止並將身體遠離消音器。
- 在儲藏或由機動車輛運輸前，請將引擎降溫、清空燃料箱，並且固定裝置與機器。
- 儲藏裝置與機器前先清空燃料箱。建議每次使用後將燃料清空。若燃料殘留於箱內，儲藏時需使燃料不會漏洩。

- 將裝置與機器儲藏於孩童無法觸及處。
 - 清理裝置並小心執行保養，並將其儲藏於乾燥處。
 - 運輸或存放時請務必關閉停止開關。
 - 運輸或儲藏時，請以導引桿護蓋蓋住鏈條。
- 若發生的狀況未包含在本手冊內，請小心並用一般常識處理。若需協助，請聯絡Tanaka經銷商。請特別注意以下警語之聲明：

△警告

表示若未依循指示，極可能造成嚴重的人身傷害或喪命。

注意

表示若未依循指示，將可能造成人身傷害或機器損毀。

註

對正確的運行及使用提供有用的資訊。

△警告

反彈危險（圖 1）

使用電鋸時，其中一項最危險的情況就是反彈的情況。當引導器的上緣觸碰到物體時，或當接近木材而在切割時擠壓到電鋸時，可能會發生反彈的情形。在某些情況下，上緣的接觸可能會導致發生極快的反向反應，使引導器往您的方向向上及向後反彈。沿著引導器上緣擠壓鋸鏈也可能將引導器往您的方向快速向後反彈。這些反應都可能使您失去對於電鋸的控制，而造成嚴重的人身傷害。即使您的電鋸在設計時已有安全設計，您也不應完全依賴這些安全功能。請隨時注意引導器的圓頭朝向哪裡。如果您讓引導器的反彈區域（1）觸碰到物體，便可能發生反彈。請勿使用該區域。因擠壓所造成的反彈是因切割時接近及擠壓到引導器上緣所導致的。請對您要切割的目標做好研究，確定您在鋸下時能被鋸開。引擎運轉時，請始終用右手握牢電鋸的後把手，用左手握牢前把手，用拇指與其他手指扣緊環繞把手，來保持對於電鋸的控制。操作過程中，請始終用雙手握住電鋸，並以高速引擎切割。

請遵照製造商的指示磨利及維修鋸鏈；若未妥善維修，可能會使本設備故障，導致人身傷害。

規格

○ 型號中的代碼 "CS" 代表 "鏈鋸"

型	TCS51EA (40S)	TCS51EA (45S)	TCS51EA (50S)
設備類型	電鋸、可攜式		
引擎尺寸（毫升）	50.1		
火星塞	NGK BPMR-7A		
燃料箱容量（毫升）	530		
鏈條機油箱容量（毫升）	270		
乾重（公斤） （不含引導器與鏈條）	5.1		
鏈條間距（公釐）	8.26		
鏈條軌距（公釐）	1.27		
聲壓位準 LpA（dB (A)） 按ISO 22868 測量	相等 不確定		
聲音功率位準測量 LwA（dB (A)） 根據 ISO 22868	104 1		
已測量 不確定	113 2		
聲音功率位準測量 LwA（dB (A)） 根據 2000/14/EC	114 117		
已測量 確定			
震動位準（m/s ² ）根據 ISO 22867			
前把手	3.3	3.3	3.3
後把手	2.7	2.7	2.7
不確定	0.8	0.8	0.8
引導器長度（公釐）	400	450	500
鏈條類型	95VPX (Oregon)		20BPX (Oregon)
最大引擎動力根據 ISO 7293 (kw)	2.5		
最大引擎速度 (min ⁻¹)	13500		
怠速引擎速度 (min ⁻¹)	3000		
啟動引擎最大功率時的特定燃料消耗 (g/kWh)	439		
最大鏈條速度 (m/sec)	26.0		
扣鏈齒（齒數）	7		

註：相等噪音位準／震動位準在不同的工作條件下以下列時間分配方式計算為噪音／震動位準的總時間加權
能量：1/3 怠速，1/3 全速，1/3 加速。
* 所有資料若有變更恕不另行通知。

組裝程序

△警告

絕對不要嘗試在未束緊側蓋、引導器與鏈條的情況下啟動引擎。

1. 請將前手保護 (2) 朝前把手方向拉動，檢查鏈條制動器是否已鬆開 (圖 2)。
2. 卸下導引桿鎖緊鉗螺帽 (3)。卸下側蓋 (4)。(圖 3)
3. 將導引桿 (5) 安裝到螺栓 (6) 上，然後將它往扣鏈齒 (7) 的方向盡可能地推。
4. 確定鋸鏈 (12) 的方向正確，如圖所示，然後將鏈條對準扣鏈齒。(圖 5)
5. 將鏈條驅動鏈導引至引導器周圍的凹槽中。
6. 將側蓋 (4) 安裝到栓 (6) 上。
確定鏈條拉緊調整栓的圓形突出物 (8) 能夠裝到引導器的孔 (9) 中。(圖 4)
側邊外殼上的減速拉柄 (11) 必須對準前護手板側邊上的溝槽 (10)。
然後暫時鎖緊導引桿鎖緊鉗螺帽 (3)，並允許引導器末端可輕鬆上下移動。(圖 3)
7. 提起導引桿的一端，以順時針方向旋轉拉緊調整栓 (13) 以鎖緊鏈條 (12)。若要檢查拉緊程度是否適當，請稍微提起鏈條的中央，在引導器與驅動鏈邊緣之間應有約 0.5 - 1.0 公釐的空隙 (14)。(圖 6、7)

注意

正確的拉緊程度非常重要

8. 提起導引桿的一端，然後用複合箱扳手牢固鎖緊引導器鎖緊鉗螺帽。(圖 7)
9. 新的鏈條將會伸展開來，請在切割幾下之後調整鏈條，在剛開始切割的半個小時之內仔細觀察鏈條的拉緊程度。

註

請時常檢查鏈條的拉緊程度，以獲得最佳的效能與耐用性。

注意

- 當鏈條過緊時，引導器與鏈條將會很快損壞。相反地，當鏈條過鬆時，它將會從引導器的凹槽中掉出。
- 觸摸鏈條時請始終戴上手套。

△警告

操作過程中，請用雙手牢牢握住電鋸。單手操作可能會導致嚴重傷害。

操作程序

燃料 (圖 8)

△警告

- 本鏈鋸機配置一具二行程引擎。請使用燃料讓引擎運行，並混入機油。當於填充或處理燃料時，請保持良好通風。
- 燃料含有高度可燃性並且在吸入或噴濺到您的身體時，可能會造成嚴重的個人傷害。處理燃料時，請務必隨時注意小心。於建物內處理燃料時，請隨時保持良好通風。

燃料

- 請使用有廠牌的辛烷值89無鉛汽油。
- 使用正廠二行程機油，或使用混合比介於25:1至50:1者，請參閱機油瓶上比例說明，或洽詢Tanaka經銷商。
- 若是正廠機油無法取得，請使用標籤上註明為添加抗氧化劑應用於氣冷式二行程引擎之高品質機油 (JASO FC GRADE OIL或ISO EGC GRADE)。請勿使用BIA或TCW (二行程水冷型) 混合機油。
- 切勿使用複級機油 (10 W/30) 或廢棄油品。
- 請分別在乾淨的容器中混合燃料及機油。
請先注入預計使用之一半容量的汽油，然後再添加機油總量。混合 (搖動) 燃料混合物後，再將其餘汽油量加入。
在注入燃料箱前，徹底混合 (搖動) 燃料混合物。

加油

△警告 (圖 9)

- 重新添加燃料前，請務必關閉引擎。
 - 添加燃料時，請緩慢開啟燃料箱 (15) 使可能產生的過壓狀況消失。
 - 添加燃料後請謹慎鎖緊燃料蓋。
 - 啟動前請將裝置移至遠離添加燃料處至少3公尺外。
 - 請立刻用肥皂清洗噴濺在衣物上的燃料。
 - 重新添加燃料後，請務必檢查是否有漏油現象。
- 添加燃料前，請小心清理箱蓋區域以確保無灰塵落入箱內。添加燃料前，搖動容器確保燃料充分混合。

鏈條機油 (圖 9)

填滿鏈條機油 (16)。請務必使用品質良好的鏈條機油。引擎運轉中時，鏈條機油會自動消耗。

註

將燃料 (15) 或鏈條機油 (16) 倒進油箱時，請以蓋子朝上的方向放置裝置。(圖 9)

調整鏈條機油供應

原廠將由潤滑系統消耗的鏈條機油量調整為最大值，請依實際操作情形調整油量。逆時針旋轉調整螺絲（17）可增加油量，順時針旋轉螺絲則可減少油量。（圖 10）

鏈條制動器操作（圖 2、11）

您可以在發生例如反彈動作等緊急情況下使用它。

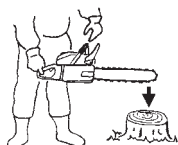
請將前手保護器移向鏈條來使用制動器。在鏈條制動器的操作過程當中，即使已拉起節流閥操作桿，引擎速度也不會加速，鏈條也不會轉動。若要鬆開制動器，請將前手保護朝前把手方向拉動。

如果引擎在使用觸動器的情況下仍以高速旋轉，離合器將會過熱而導致發生故障。

當在操作過程中使用制動器時，請立即釋放節流閥操作桿，以減緩引擎運轉。

確認鏈條制動器啟動的方法

- 1) 關閉引擎。
- 2) 以水平方向握住電鋸，鬆開前把手上的手，用引導器的圓頭觸碰樹幹或木材，來確認制動器的操作。操作等級因引導器的尺寸而有所不同。



如果制動器無法使用，請送經銷商檢修。

啟動（圖 11-16）

注意

啟動之前，請確定鏈條制動器已鬆開，且引導器／鏈條未觸碰任何物品。（圖 11）

1. 將點火開關（18）設定至開啟位置。（圖 12）
*按壓自吸式泵浦（20）數次，使燃料經由球狀部位流入汽化器之中。（圖 13）
2. 拉動阻氣門操作桿（19）至阻器的位置。（圖 13）
此將自動鎖定至半節流閥。
3. 按下減壓閥（21）。只要一啟動引擎，減壓閥（21）將自動退回至原始位置。（圖 14）
4. 迅速拉動手拉式啟動器，請小心緊握把手，並勿使把手猛然彈回。（圖 15）
5. 當您聽到第一聲點火聲時，請完全退回阻氣門操作桿（19）。（圖 13）
6. 按下減壓閥。
7. 以前述方式再次迅速拉動手拉式啟動器。（圖 15）

註

若是引擎無法啟動，請重複2至7程序。

8. 當引擎一啟動後，請利用節流閥操作桿保險（22）完全拉開節流閥操作桿（23），然後再立即放開（圖 16），接著半節流閥會鬆開。

請將前手保護（2）朝前把手方向拉動，以鬆開鏈條制動器。

開始工作之前，請讓引擎暖機 2 - 3 分鐘。

請勿使引擎高速空轉，以避免縮短引擎壽命。

△警告

請勿在引擎運轉過程中攜帶機器移動。

停止（圖 17）

降低引擎速度，並將點火開關（18）推向停止的位置。

△警告

- 請勿將電鋸舉到超過肩膀以上的高度切割。
- 樹木倒下時請特別小心，另外也請勿將電鋸舉到超過鼻子或肩膀以上的高度切割。

鏈條支持器

鏈條支持器位於鏈條底下的動力頭上，可進一步防止斷裂的鏈條打到電鋸使用者。

△警告

切割時請勿站在與電鋸並列的位置。

砍倒樹木、切割枝葉及使用鋸木架切割的基本技巧以下資訊的目的是要為您提供切割木材技巧的一般簡介。

△警告

- 此資訊並不包含所有特定情況，其可能因地形、植被、木材種類、樹木類型與大小等而不同。關於當地特定木材切割問題的建議，請洽服務經銷商、林業代表或當地林業學校。這將使您的工作更有效率、更安全。
- 請避免在惡劣天氣環境下切割，例如濃霧、大雨、極冷、強風等。
惡劣天氣環境常令人無法集中精力工作，並且會產生潛在的危險情況，例如濕滑的地面。
強風可能會使樹木以未預期的方向倒下，導致財產的損壞或人員的傷害。

注意

請勿使用電鋸來撬開物品，或用於其他非設計使用之目的。

△警告

- 請避免被障礙物絆倒，例如樹木的殘幹、樹根、石頭、樹枝及倒下的樹木。請注意洞穴及溝渠。在斜坡或不平的地面上工作時，請特別小心。
當從一個工作地點移往另一個工作地點時，請關閉引擎。
請始終以全開的節流閥來切割。慢速移動的鏈條很可能會卡住，使電鋸遭到猛然拉動。

○ 請勿以單手使用電鋸。

您可能無法正確控制電鋸，失去對電鋸的控制，進而對自己造成嚴重的傷害。

請使鋸身靠近您的身體，以加強控制力，並降低緊張程度。

當以鏈條的底部切割時，反作用力會將電鋸從您的位置往您要切割的木材的位置拉動。

電鋸將會控制饋送速度，木屑會往您的方向噴發。(圖 18)

○ 當以鏈條的上部切割時，反作用力會將電鋸從您要切割的木材的位置往您的位置推動。(圖 19)

○ 如果將電鋸推出足夠遠的距離，而使您開始用引導器的圓頭部位切割，那麼便會出現反彈的危險。

最安全的切割方法是用鏈條的底部切割。用上部切割將使您難以控制電鋸，並增加反彈的危險。

○ 如果鏈條鎖住，請立即釋放節流閥操作桿。

如果節流閥操作桿在鏈條鎖住的情況下仍以高速旋轉，離合器將會過熱而導致發生故障。

註

請始終保持尖刺保險槓面向樹木，因為鏈條可能突然被拖入樹木。

樹木倒下

樹木倒下不僅僅只是砍倒一棵樹那麼簡單。您也必須設法盡量使樹倒在預計的位置，而不可損傷樹木或其他任何物品。

在樹木倒下之前，請仔細考慮可能影響預計倒下方向所有情況，例如：

樹木的角度。樹頂的形狀。樹頂的積雪。

風向狀況。樹木倒下範圍之內的障礙物（例如其他樹木、電線、道路、建築物等）。

△警告

○ 請務必觀察樹木的一般情況。尋找樹幹中的腐爛處，這種地方比較容易折斷，可使樹木比您所預期的時間更早倒下。

○ 尋找乾樹枝，這些樹枝可能會在您工作時折斷並打到您。

樹木倒下之前，請務必使動物及人員離開樹木高度兩倍以上的距離。請清除樹木周圍的矮樹及樹枝。

請計畫好從倒下方向撤離的路徑。

樹木倒下的基本規則

通常，樹木倒下包含兩個主要的切割操作，切開凹口及使樹木倒下的切割。開始在樹木面向倒下方向的一側切割上方凹口。切割下方凹口時，緊密注意切口，不要鋸入樹幹太深。凹口的深度應足以建立足夠寬度與強度的樞紐。凹口必須夠寬，以使樹木倒下時僅可能地長。從樹木的另一側，介於凹口邊緣上方一至兩英寸（3 - 5 公分）之間的位置進行使樹木倒下的切割。(圖 20)

24. 樹木倒下的方向

25. 45° 最小凹口

26. 樞紐

27. 使樹木倒下的切割

絕對不要完全切斷樹幹。請始終保留一個樞紐。

樞紐會引導樹木。如果將樹幹完全切斷，您將無法控制樹木倒下的方向。

在樹木變得不穩定並開始晃動之前，將楔子或樹木倒下操作桿插入到開口中。如果您誤判樹木倒下的方向，這將可防止引導器被夾在使樹木倒下的開口中。在您將樹木推倒之前，確定沒有人、動物在樹木倒下的範圍之內。

使樹木倒下的切割，樹幹直徑大於引導器長度的兩倍切割一個寬大的凹口。然後在凹口的中央切割一個凹進處。始終在中央切割處的兩側保留一個樞紐。(圖 21)

如圖 22 所示圍繞樹幹切割來完成使樹木倒下的切割。

△警告

這些方法非常危險，因為這牽涉到引導器圓頭的使用，可能會導致反彈。

只有經過正確訓練的專業人員才可以嘗試這些技巧。

切割枝葉

切割枝葉就是將樹枝從倒下的樹木上切下。

△警告

絕大多數的反彈意外都在切割枝葉時發生。

請勿使用引導器的圓頭處。請特別小心，並避免引導器的圓頭部位接觸到木料、其他枝葉或物體。請特別注意被拉緊的枝葉。它們會向您反彈，並可能導致失去控制而受傷。(圖 23)

站在樹幹的左側。保持安全的站立位置，並將電鋸放在樹幹上。握住電鋸，緊靠您，使您能夠完全控制住電鋸。與鏈條保持一定距離。只有當樹幹介於您與鏈條之間時才移動。請注意枝葉在被拉緊的情況下產生的反彈。

切割粗枝葉

切割粗枝葉時，引導器很容易遭到擠壓。受到壓力的枝葉常會折斷，因此請一小段一小段地切割麻煩的枝葉。對於交錯的切割，也請使用相同的原則。請事先思考並注意您所有動作的可能後果。

交錯切割／使用鋸木架切割

開始鋸木之前，請試著想像接下來可能發生的情況。研究一下木料中的壓力情況，以引導器不會受到擠壓的方式切割。

交錯切割木料，壓力位於上方

站穩姿勢。以上方切割開始。請勿切割得太深，約切割到木料直徑的1/3處即可。以底部的切割結束。

電鋸切割處應會相遇。(圖 24)

28.緩和切割

29.交錯切割

30.壓力位於上方

31.壓力側

32.拉緊側

33.電鋸切割的相對深度

厚木料，大於引導器的長度

從切割木料的反面開始。將電鋸往您的方向拉，接著執行之前的程序。(圖 25)

如果木料躺在地上，請進行鑽孔切割以避免切割到地面。以底部的切割結束。(圖 26)

△警告

反彈危險

如果您未受過正確訓練，請勿嘗試鑽孔切割。鑽孔切割牽涉到引導器圓頭的使用，可能會導致發生反彈。

交錯切割木料，壓力位於下方

站穩姿勢。以底部的切割開始。切割的深度應約為木料直徑的1/3。

以上方切割結束。電鋸切割處應會相遇。(圖 27)

34.緩和切割

35.交錯切割

36.壓力位於底部

37.拉緊側

38.壓力側

39.電鋸切割的相對深度

厚木料，大於引導器的長度

從切割木料的反面開始。將電鋸往您的方向拉，接著執行之前的程序。如果木料接近地面，請進行鑽孔切割。以上方的切割結束。(圖 28)

△警告

反彈危險

如果您未受過正確訓練，請勿嘗試鑽孔切割。鑽孔切割牽涉到引導器圓頭的使用，可能會導致發生反彈。(圖 29)

如果電鋸卡住

停止引擎。抬起木料或變更其位置，使用粗樹枝或木桿做為槓桿。請勿嘗試拉扯電鋸。如果您這樣做，假使電鋸突然鬆開，您可能會使把手變形，或被電鋸弄傷。

保養

可由任何非公路用引擎修理機構或人員進行保養、更換或修理排氣控制裝置以及系統。

化油器調整 (圖 30)

燃料與空氣在化油器中混合。當引擎在工廠做測試運作時，化油器已作調整。根據氣候與海拔作進一步調整是有其必要性。化油器有一種調整可能性：

T=怠速調整螺絲。

怠速調整 (T)

檢查空氣過濾器是否清潔。當怠速正確時，修剪配件並不會轉動。若調整為必要，請在引擎運作時將T-螺絲關閉（順時針），直到修剪配件開始轉動為止。開啟（逆時針）螺絲直到修剪配件停止。當引擎在所有低於修剪配件開始轉動的位置皆能順暢運作時，此即代表您已經調到正確怠速。

當修剪配件在完成怠速調整後仍繼續轉動時，請聯絡 Tanaka 經銷商。

△警告

當引擎處於待機狀態時，於任何狀況下修剪配件都不應該會轉動。

註

請勿觸碰高速調整 (H) 及低速調整 (L) 部位。以上部位僅限 Tanaka 經銷商操作。若您轉動以上部位，可能會對機器造成嚴重損害。

空氣過濾器 (圖 31)

空氣過濾器 (40) 必須保持乾淨且無塵土附著，以避免：

- 化油器故障。
- 啟動問題。
- 引擎動力減損。
- 引擎零件上不必要的磨損。
- 燃料耗用異常。

每天清理空氣過濾器或在塵土極高區域工作時，應更加頻繁清理。

移除空氣過濾器蓋 (41) 及濾心 (40)。

以溫肥皂水清洗。重新安裝前，請檢查濾心是否已乾燥。當空氣過濾器在使用過一段時間後，即無法完全清理乾淨，因此必須定期更換新的過濾器。而毀損的濾心必須隨時更換。

火星塞 (圖 32)

火星塞的狀態會受下列影響：

- 不正確的化油器設定。
- 錯誤的燃料混合物（汽油中含過多機油）。
- 空氣過濾器髒汙。
- 運作困難的狀態下（例如：寒冷的天氣）。

造成火星塞電極上沉積的幾個因素，將可能導致故障或是啟動困難。若引擎動力低落、難以啟動或是在怠速時運作不良，請務必先檢查火星塞。若是火星塞髒汙，請清理並檢查電極間距，必要時請進行調整。正確的間距為0.6公釐。火星塞大約在操作100小時後必須更換，或當電極嚴重磨耗時提早更換。

註

在某些地區，當地法律要求使用附有電阻器的火星塞來抑制點火訊號。如果本裝置原本即配有附有電阻器的火星塞，請使用相同類型的火星塞來替換。

注油器埠（圖 33）

可能的情况下，請清潔鏈條注油器埠（42）。

引導器（圖 34）

使用機器之前，請使用特殊選用配件來清潔凹槽與注油器埠（43）。

側蓋（圖 35）

請始終保持側蓋與驅動區域的清潔，不要有殘留的木屑與碎片。請定期為此區域上油以防腐蝕，因為某些樹木含有大量的酸。

燃料過濾器（圖 36）

從燃料箱中卸除燃料過濾器，然後用溶劑徹底清洗。在此之後，將過濾器完全推入燃料箱內。

註

如果過濾器因灰塵堆積而變硬，請更換過濾器。

鏈條機油過濾器（圖 37）

卸除機油過濾器，用溶劑徹底清洗。

清潔氣缸鰭翼（圖 38）

當氣缸鰭翼（44）上附著木片時，引擎可能會過熱，而使輸出降低。若要避免發生此情形，請始終保持氣缸鰭翼與風扇蓋的清潔。

防冷凝系統（圖 39、40）

在冬天使用本設備時，此系統可防止汽化器冷凝。

1. 需啟用防冷凝系統時，請取下空氣過濾器蓋（41）。將遮板（45）從空氣過濾器蓋中取出，裝回空氣過濾器蓋時旋轉半圈（冬天位置）。（圖 39）此開口可讓汽缸的熱氣導入汽化器室（46）。

註

非冬天時，汽化器不會產生冷凝現象，請務必將遮板調回標準位置。（圖 40）

針對長期存放

洩除燃料箱中的所有燃料。啟動引擎，讓引擎一直運轉，直到停止為止。修護任何因使用而造成的損壞。用乾淨的抹布或高壓噴槍清潔裝置。透過火星塞孔將幾滴二行程引擎機油滴入汽缸，使引擎轉動幾次來散佈機油。

蓋好裝置，將其存放於乾燥區域。

磨銳鏈條

切割器零件（圖 41、42）

△警告

- 磨銳鏈條時應戴上手套。
- 請務必磨圓前端邊緣以減少反彈或皮帶斷裂的機會。

47.頂板

48.切割角落

49.側板

50.溝槽

51.根部

52.底盤

53.鉚釘孔

54.趾部

55.深度表

56.頂板上的正確角度（角度視鏈條類型而定）

57.稍微突出的「勾」或點（非鑿鏈上的曲線）

58.位於頂板下方正確高度上的深度表頂部

59.磨圓的深度表前方

用銼刀降低深度表

- 1) 如果您用銼刀把磨銳切割器，請檢查並降低深度。
- 2) 每磨銳三次檢查一次深度表。
- 3) 將深度表工具放置在切割器上。如果深度表突出，請使用工具的頂端將它磨平。請始終從鏈條內側往外部切割器磨平。（圖 43）
- 4) 磨平前側角以在使用過深度表工具之後維持深度表的原始形狀。請始終遵循電鋸維護或操作手冊中的建議深度表設定。（圖 44）

磨平切割器的一般指示

從內往外地磨平（60）鏈條一側上的切割器。請只以往前擊打的方式磨平。（圖 45）

5) 將所有切割器保持相同長度。（圖 46）

6) 請將切割器邊緣（側板（62）與頂板（63））磨平到足以去除任何損壞情形的程度。（圖 47）

注意

請勿觸碰或變更保護驅動鏈的表面（61）。（圖 46）

磨銳鋸鏈的磨銳角

1. 零件編號	95VPX/20BPX
2. 間距	0.325"
 3. 深度表設定	0.025"
 4. 側板磨平角度	85°
 5. 頂板角度	30°
 6. 磨平引導角	100°

保養時程

下述提供一些基本保養說明。若需更進一步的訊息，請聯絡Tanaka經銷商。

日常保養

- 清潔單元外部。
- 清潔鏈條機油過濾器埠。
- 清潔引導器中的凹槽與機油過濾器埠。
- 清潔側蓋上的木屑。
- 檢查鋸鏈是否銳利。
- 檢查引導器螺帽是否已經充分鎖緊。
- 確認鏈條傳輸護罩沒有損傷，且也已穩固裝配完成。
- 檢查螺帽與螺絲是否已經充分鎖緊。
請特別檢查消音器螺絲，並確保在啟動引擎前已確實鎖緊，如有任何螺絲鬆脫，請立即重新鎖緊，否則可能會導致嚴重危害。
- 檢查導引桿的尖端。若已磨損，請更換新零件。
- 檢查鏈條制動器的傳送帶。若已磨損，請更換新零件。
- 清潔空氣過濾器。

每週保養

- 檢查後座力啟動器，尤其是電線。
- 清潔火星塞外部。
- 移除火星塞並檢查電極間距。將其調整為0.6公釐，或更換火星塞。
- 清潔氣缸上的散熱鰭翼，並檢查後座力啟動器進氣口無阻塞。

每月保養

- 以汽油沖洗燃料箱，然後清潔燃料過濾器。
- 清潔鏈條機油過濾器。
- 清潔化油器外部及其周邊空間。
- 清潔風扇及其周邊空間。

註

當遠離您最近的經銷商訂購零件時，請使用本說明書中零件分解章節所示之料號。

	引導器編號	長度類型	鏈條編號
型號 OREGON	160MLBK041	400公釐 (16")	95VPX-66
	180MLBK041	450公釐 (18")	95VPX-72
	200PXBK041	500公釐 (20")	20BPX-78

기호의 의미

참고: 일부 기기에는 기호가 표시되어 있지 않습니다.

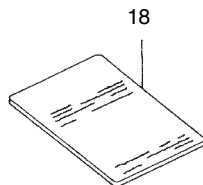
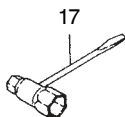
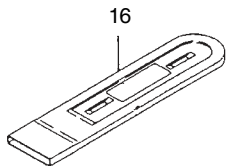
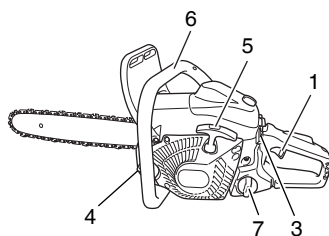
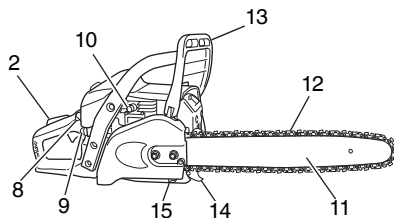
	기호 ⚠경고 다음은 기기에 사용되는 기호입니다. 기호의 의미를 이해한 후에 기기를 사용해 주시기 바랍니다.
	다음 안전 주의사항과 경고를 읽고 내용을 완전히 이해한 후 준수해 주십시오. 기기를 부주의하게 사용하거나 잘못 사용할 경우 중상 또는 치명상을 입을 수 있습니다.  비상 정지
	본 사용설명서와 기기의 모든 경고 사항과 지침을 읽고 이해한 후 준수해 주십시오.  연료 및 오일 혼합물
	본 기기를 사용할 때는 눈과 머리 및 귀를 보호할 수 있는 보호장비를 항상 착용하십시오.  체인 오일 보충
	경고, 반동 위험. 가이드 바의 갑작스럽고 우연한 상황 및/또는 하향 동작에 주의하십시오.  기화기 조정 - 공회전 속도
	한 손으로 사용하지 마십시오. 벌채 중에 양손으로 톱을 단단히 붙잡고 엄지손가락으로 앞쪽 핸들을 세게 감아 쥐십시오.  기화기 조정 - 저속 혼합물
	체인 브레이크  기화기 조정 - 고속 혼합물
	초크  오일 펌프 조정
	켜짐/시작  프라임링 펌프
	꺼짐/정지  감압 밸브

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각부 명칭 및 소개

1. 스로틀 레버: 조작자의 손가락에 의해 작동되며 엔진 속도를 조절하는 데 사용되는 장치입니다.
2. 스로틀 레버 잠금장치: 수동으로 해제하기 전까지 스로틀 레버의 우발적 작동을 방지하는 장치.
3. 점화 스위치: 엔진의 시동 또는 정지를 가능하게 하는 장치.
4. 오일 탱크 캡: 오일 탱크를 닫는 데 사용됩니다.
5. 리코일 스타터: 엔진을 시동하기 위한 잡아당김 방식 핸들.
6. 앞쪽 핸들: 엔진 하우징 앞쪽에 있거나 엔진 하우징 앞쪽을 향해 있는 지지 핸들.
7. 연료 탱크 캡: 연료 탱크를 닫는 데 사용됩니다.
8. 초크 레버: 기화기의 연료/공기 혼합물을 진하게 하여 시동을 보조하기 위한 장치.
9. 프라임 펌프: 추가 연료를 공급하여 시동을 보조하기 위한 장치.
10. 감압 밸브: 감압하여 시동을 보조하기 위한 장치.
11. 가이드 바: 톱 체인을 지지하고 안내하는 부품.
12. 톱 체인: 벌채 도구로 사용되는 체인.
13. 체인 브레이크(앞쪽 손 보호대): 체인을 정지시키거나 고정시키기 위한 장치.
14. 스파이크 범퍼: 나무 또는 목재와 접촉할 때 선회축 역할을 하기 위한 장치.
15. 체인 캐처: 톱 체인을 억제시키기 위한 장치.
16. 가이드 바 커버: 장치를 사용하지 않을 때 가이드 바와 톱 체인의 덮개 역할을 하는 장치.
17. 콤비 박스 스패너: 스파크 플러그를 제거하거나 장착하고 톱 체인의 장력을 조정하기 위한 공구.
18. 취급 지침: 장치와 함께 제공됩니다. 조작 전에 읽고 나중에 올바르게 안전한 사용법을 배우기 위해 참조할 수 있도록 별도로 보관하십시오.



경고 및 안전 수칙

작업자 안전 주의사항

- 항상 보호면 또는 고글을 착용하십시오.
- 체인을 연마할 때 장갑을 착용해야 합니다.
- 체인톱을 사용할 때마다 항상 재킷, 바지, 장갑, 헬멧, 스타일 도구 캡과 미끄럼 방지 밑창이 달린 장화, 보안경, 귀마개 및 다리 보호 장구와 같은 안전 보호장구를 착용하십시오. 숲에서 작업하려면 등산에 적합한 안전 장화를 신어야 합니다. 험령한 작업복, 장신구, 반바지, 샌달을 피하고 맨발로 작업하지 마십시오.
- 머리카락을 어깨보다 높이 오도록 묶으십시오.
- 병중이거나 피곤한 상태 또는 알코올을 섭취하거나 약물을 복용한 경우에는 이 기기를 사용하지 마십시오.
- 어린이나 숙련되지 않은 사람이 기기를 사용하지 못하도록 하십시오.
- 청각 보호 장비를 착용하십시오. 작업 중에는 주변을 잘 살펴하십시오.
- 작업과 관계 없는 사람이 근처에 있을 경우 위험할 수 있으므로 주의하십시오. 엔진을 끈 후 곧바로 안전 장비를 제거하십시오.
- 안전모를 착용하십시오.
- 밀폐된 실내 또는 건물 안에서는 엔진을 시동하거나 작동하지 마십시오. 배기 가스를 흡입할 경우 사망에 이를 수 있습니다.
- 체인 오일 연무와 톱밥이 배출되는 동안 호흡기 보호를 위해서 보호 마스크를 착용하십시오.
- 손에 기름이나 연료가 묻지 않도록 하십시오.
- 절단 장비에 손이 닿지 않도록 하십시오.
- 절단 장비를 손으로 잡거나 들지 마십시오.
- 기기를 끈 경우 기기를 내려 놓기 전에 절단 장치가 중지되었는지 확인하십시오.
- 작업이 길어질 때는 때때로 휴식을 취해 기기의 진동으로 인해 발생하는 손-팔 진동 증후군(HAVS)을 방지하십시오.
- 조작자는 벌채 지역의 현지 규정을 준수해야 합니다.

△경고

- 진동 방지 시스템이 반드시 HAVS 또는 수근관 증후군 방지를 보장하는 것은 아닙니다.
- 따라서 기기를 연속적으로, 또는 정기적으로 사용할 경우에는 손과 손가락의 상태를 주의 깊게 살펴야 합니다. 위에서 언급한 증상이 나타날 경우 즉시 의사에게 진찰을 받으십시오.
- 높은 소음에 장시간 또는 연속적으로 노출되면 청력이 영구적으로 손상될 수 있습니다. 장치/기계를 조작할 때 항상 공인된 귀마개를 착용하십시오.
- 심장 박동 조절기와 같은 의료 전기/전자 기기를 사용하고 있다면 전동 장비를 사용하기 전에 의사 및 장치 제조업체와 상담하십시오.

기기 안전 주의사항

- 기기를 사용하기 전에 전체적으로 점검하십시오. 손상된 부품은 교체해 주십시오. 연료 누출이 없는지 점검하고 모든 고정 장치가 제 위치에 단단히 고정되어 있는지 확인하십시오.
- 기기를 사용하기 전에 갈라지거나 부서지거나 손상된 부품이 있으면 교체해 주십시오.
- 출력 케이블을 올바르게 부착되어 있는지 확인하십시오.
- 기화기를 조정할 때는 다른 사람이 가까이 오지 못하도록 하십시오.
- 본 기기에 제조업체에서 권장하는 부속품만 사용하십시오.
- 체인이 어떤 장애물에도 부딪치지 않게 하십시오. 체인이 장애물과 부딪칠 경우 기계를 정지하여 자세히 검사해야 합니다.

- 자동 오일러가 동작하고 있는지 확인하십시오. 오일 탱크에 깨끗한 오일을 채우십시오. 체인이 바에서 건조한 상태로 작동하게 하지 마십시오.
- 조작자/사용자 설명서에 나와 있는 항목을 제외한 모든 체인톱 정비는 유자격 체인톱 정비 기술자에 의해서 수행되어야 합니다. (예를 들어, 올바르게 않은 공구를 사용해 플라이휠을 제거할 경우 또는 올바르게 않은 공구를 사용해 플라이휠을 지지하여 클러치를 제거할 경우, 플라이휠이 구조적으로 손상되어 파열할 수 있습니다.)

△경고

- 기기를 절대로 변형하지 마십시오. 원래 용도가 아닌 다른 작업에 기기를 사용하지 마십시오.
- 체인톱을 안전장비 없이 사용하지 마십시오. 또한 안전장비가 고장난 체인톱을 사용하지 마십시오. 중상을 입을 수 있습니다.
- 제조업체가 권장하지 않고 공인되지 않은 가이드 바/체인을 사용하면 사고를 당하거나 상해를 입을 위험이 높습니다.

연료 안전 주의사항

- 연료를 혼합 및 주입할 때는 불씨나 화기가 없는 야외에서 작업하십시오.
- 연료 전용 용기를 사용하십시오.
- 연료나 기기 근처에서, 또는 기기를 사용하는 중에는 담배를 피우지 마십시오.
- 연료를 엷지는 경우에는 엔진을 가동하기 전에 모두 닦아내야 합니다.
- 연료 보관 장소에서 최소 3m 이상 떨어진 곳에서 엔진을 가동하십시오.
- 연료 탱크 캡을 제거하기 전에 엔진을 멈추고 몇 분 동안 냉각하십시오.
- 기기를 보관하기 전에 연료 탱크를 비우십시오. 사용 후에는 항상 연료 탱크를 비우는 것이 좋습니다. 연료가 탱크에 남아 있는 경우에는 새지 않도록 주의하여 보관하십시오.
- 기화한 연료가 온수기, 전동기 또는 스위치, 난로 등에서 나온 불씨나 화기에 닿을 수 없는 장소에 기기 및 연료를 보관하십시오.

△경고

- 연료는 점화되거나 폭발하거나 발연성 물체와 반응하기 쉬우므로 취급 또는 주입 시 특별한 주의를 기울여야 합니다.

절단 작업 안전 주의사항

- 목재 또는 목재로 만든 물체 이외의 어떤 물건도 절단하지 마십시오.
- 살충제를 뿌린 후의 목재를 벌채할 때는 호흡기 보호를 위해서 에어로졸 보호 마스크를 착용하십시오.
- 어린이, 동물, 작업과 관계 없는 사람, 보조 인력은 위험 지역에서 이내로 접근하지 못하도록 하십시오. 접근했을 경우에는 즉시 엔진을 멈추십시오.
- 오른손으로 뒤쪽 핸들을 잡고 왼손으로 앞쪽 핸들을 잡아 장치/기계를 단단히 고정하십시오.
- 안정감 있는 자세로 균형을 잡으십시오. 몸을 지나치게 뻗지 마십시오.
- 엔진이 가동 중일 때는 몸에 소음기와 절단 장치가 닿지 않도록 하십시오.
- 바/체인을 허리 높이 아래에 두십시오.
- 나무를 벌도하기 전에, 조작자는 체인톱의 사용법에 익숙해져야 합니다.
- 넘어지는 나무에서 안전하게 빠져나오는 방법을 반드시 미리 생각해 두십시오.
- 벌채 중에 양손으로 몸을장치/기계를 단단히 붙잡고 엄지손가락으로 앞쪽 핸들을 세게 감아 쥐고, 양발과 상체의 균형을 유지 하여 서십시오.

- 벌채 시 톱의 측면에 서고 바로 뒤에 서지 마십시오.
- 항상 스파이크 범퍼 면이 나무와 마주하게 하십시오. 체인이 갑자기 나무에 걸려들어갈 수 있기 때문입니다.
- 벌채를 완료하면, 장치를 세워 허공을 향하게 하여 다리, 발 또는 신체를 절단하지 않게 하거나 장애물에 부딪치지 않게 하십시오.
- 반동에 주의하십시오(톱이 조작자쪽으로 반동할 때). 절대로 바의 노즈로 절단하지 마십시오.
- 새 작업 공간으로 이동할 때는 기기를 끄고 절단 장치가 완전히 정지되었는지 확인하십시오.
- 기기가 작동 중일 때는 절대로 바닥에 내려 놓지 마십시오.
- 절단 장치에서 파편 또는 풀을 제거하기 전에는 엔진이 꺼져 있고 절단 장치가 완전히 멈췄는지 항상 확인해야 합니다.
- 전동 장비를 사용할 때는 항상 구급함을 휴대하십시오.
- 밀폐된 실내 또는 건물 내부, 인화성 액체 근처에서는 엔진을 시동하거나 작동하지 마십시오. 배기 가스를 흡입할 경우 사망에 이를 수 있습니다.

관리 안전 주의사항

- 권장 절차에 따라 기기를 관리해 주십시오.
- 기화가 장정을 제외한 관리 작업을 수행하기 전에는 점화 플러그를 분리하십시오.
- 기화기를 조정할 때는 다른 사람이 가까이 오지 못하도록 하십시오.
- 제조업체에서 권장하는 부품 Tanaka 부품만 사용하십시오.

주의

리코일 스타터를 분해하지 마십시오. 리코일 스프링에 의해 상해를 입을 수 있습니다.

△경고

올바르지 않게 정비할 경우 엔진이 심각하게 손상되거나 중상을 입을 수 있습니다.

운반 및 보관

- 엔진이 꺼진 상태에서 손으로 기기를 들고 소음기가 몸에 닿지 않도록 주의해서 옮기십시오.
- 기기를 차량 안에 보관하거나 차량으로 운반할 경우에는 엔진을 식히고 연료 탱크를 비운 후 움직이지 않도록 고정시키십시오.
- 기기를 보관하기 전에 연료 탱크를 비우십시오. 사용 후에는 항상 연료 탱크를 비우는 것이 좋습니다. 연료가 탱크에 남아 있는 경우에는 새지 않도록 주의하여 보관하십시오.
- 어린이의 손이 닿지 않는 곳에 기기를 보관하십시오.
- 기기를 꼼꼼하게 청소하고 점검한 후 건조한 곳에 보관하십시오.
- 운반하거나 보관할 때는 STOP 스위치가 꺼져 있는지 확인하십시오.
- 운반하거나 보관할 때 체인에 가이드 바 커버를 씌우십시오.

본 사용설명서에서 언급하지 않은 상황이 발생할 경우 일반 상식을 이용해 주의해서 처리하십시오. 지원이 필요한 경우 Tanaka 대리점에 연락하십시오. 다음과 같은 표시에는 특히 주의를 기울여 주십시오.

△경고

지침을 따르지 않을 경우 심각한 부상 또는 생명 손실이 발생할 위험이 매우 높음을 나타냅니다.

주의

지침을 따르지 않을 경우 부상 또는 장비 손상이 발생할 수 있음을 나타냅니다.

참고

기기의 올바른 기능 및 사용에 대한 유용한 정보를 제공합니다.

△경고

반동 위험(그림 1)

체인톱으로 작업할 때 가장 심각한 위험 가운데 하나는 반동의 가능성입니다. 반동은 가이드 바의 위쪽 톱이 물체에 닿거나 절단 중에 목재가 톱 체인에 말려 들어 갈 때 발생할 수 있습니다. 톱이 접촉하면 때때로 순식간에 후진 동작이 발생하여 가이드 바를 사용자쪽으로 반동하게 합니다. 가이드 바의 상단을 따라 톱 체인에 끼면 가이드 바가 순식간에 사용자쪽으로 밀릴 수 있습니다. 이러한 반작용을 가운데 어느 하나도 톱에 대한 조종력을 상실하게 하여 중상을 입힐 수 있습니다. 톱이 안전 장치가 내장되어 설계된 경우에도, 이러한 안전 장치에만 전적으로 의존해서는 안 됩니다. 바 톱이 어디에 있는지 항상 알아 두십시오. 바의 반동 영역 (1) 이 물체에 닿게 할 경우 반동이 발생합니다.

해당 반동 영역을 사용하지 마십시오. 절단 중에 가이드 바의 위쪽에 목재가 끼면 반동이 발생합니다. 절단 방식을 검토하고 절단하는 동안 가이드 바의 위쪽이 열려 있게 합니다. 엔진 가동 중에는 항상 오른손으로 뒤쪽 핸들을 잡고, 왼손으로 앞쪽 핸들을 잡고 손가락으로 핸들을 감아 쥐어 톱을 단단히 고정하여 조종력을 유지합니다. 조작 중에는 항상 톱을 양손으로 고정하고 엔진을 고속으로 가동하여 절단합니다. 톱 체인을 위한 제조업체의 연마 및 유지보수 지침을 따르십시오. 유지보수를 하지 않을 경우 반동의 가능성이 커집니다.

사양

○ 모델 이름의 코드 "CS"는 "체인톱"을 나타냅니다.

모델	TCS51EA (40S)	TCS51EA (45S)	TCS51EA (50S)
장비 유형	체인톱, 휴대용		
엔진 크기(cm ³)	50.1		
스파크 플러그	NGK BPMR-7A		
연료 탱크 용량(cm ³)	530		
체인 오일 탱크 용량(cm ³)	270		
건중량(kg) (가이드 바와 체인을 장착하지 않은 경우)	5.1		
체인 피치(mm)	8.26		
체인 게이지(mm)	1.27		
ISO 22868에 따른 음압 레벨 LpA (dB (A)) 동일값 불확실성	104 1		
ISO 22868에 따른 측정 음력 세벨 LwA (dB (A)) 측정값 불확실성	113 2		
2000/14/EC에 따른 음력 레벨 LwA (dB (A)) 측정값 보장값	114 117		
ISO 22867에 따른 진동 레벨(m/s ²) 앞쪽 핸들 뒤쪽 핸들 불확실성	3.3 2.7 0.8	3.3 2.7 0.8	3.3 2.7 0.8
가이드 바 길이(mm)	400	450	500
체인 유형	95VPX (Oregon)		20BPX (Oregon)
ISO 7293에 따른 최대 엔진 출력(kW)	2.5		
최대 엔진 속도(min ⁻¹)	13500		
엔진 공회전 속도(min ⁻¹)	3000		
엔진 출력이 최대일 때의 고유 연료 소비량 (g/kWh)	439		
최대 체인 속도(m/s)	26.0		
스프로킷(톱니 수)	7		

참고: 동일한 소음 레벨/진동 레벨은 다음 시간 분포에 따라 여러 작동 조건 하의 소음/진동 레벨에 대한 시간 가중 에너지 합계로 계산됩니다: 1/3 공회전, 1/3 최고 속도, 1/3 레이싱 속도.

* 모든 데이터는 예고 없이 변경됩니다.

조립 절차

△경고

- 측면 케이스, 바 및 체인을 단단히 고정하지 않은 상태에서 절대로 엔진을 시동하지 마십시오.
1. 앞쪽 손 보호대(2)를 앞쪽 핸들로 잡아당겨 체인 브레이크가 풀렸는지 확인하십시오. (그림 2)
 2. 가이드 바 클램프 너트(3)를 제거하십시오. 측면 케이스(4)를 제거하십시오. (그림 3)
 3. 가이드 바(5)를 볼트(6)에 끼운 다음 스프로킷(7)쪽으로 최대한 멀리 밀어 주십시오.
 4. 톱 체인(12)의 방향이 그림과 같이 올바른지 확인한 후 체인을 스프로킷에 정렬하십시오. (그림 5)
 5. 체인 드라이브 링크를 바 홈에 끼우십시오.
 6. 측면 케이스(4)를 볼트(6)에 끼우십시오.
체인 장력 조정 볼트(8)의 보스가 바 구멍(9)에 끼워지는지 확인하십시오. (그림 4)
사이드 케이스의 브레이크 커버(11)는 프론트 핸드 가드의 측면에 있는 홈(10)에 끼워져야 합니다.
그런 다음 가이드 바 클램프 너트(3)를 손으로 조여 가이드 바 끝이 쉽게 올라갔다 내려갔다 할 수 있게 하십시오. (그림 3)
 7. 바 단부를 올린 다음 장력 조정 볼트(13)를 시계 방향으로 돌려 체인(12)을 조이십시오. 장력이 올바른지 확인하려면, 체인 중앙을 살짝 들어올리십시오. 바와 드라이브 링크 가장자리 사이에 0.5 - 1.0 mm의 간극(14)이 있어야 합니다. (그림 6, 7)

주의

- 올바른 장력은 극히 중요합니다.
8. 바 단부를 올린 후 가이드 바 클램프 너트를 콤비 박스 스페너로 단단히 조이십시오. (그림 7)
 9. 새 체인은 늘어나기 때문에 두세 차례의 별채 작업 후 체인을 조정하고 처음 30분 동안 별채하면서 체인 장력을 주의하여 살펴 보십시오.

참고

최적의 성능과 내구성을 유지하려면 체인 장력을 자주 점검하십시오.

주의

- 체인을 과도하게 조이면, 바와 체인이 빨리 손상됩니다. 역으로, 체인이 과도하게 느슨하면, 바의 홈에서 빠져나올 수 있습니다.
- 체인을 만질 때 항상 장갑을 착용하십시오.

△경고

조작 중에 체인톱을 양손으로 단단히 쥐십시오. 한 손으로 조작하면 중상을 입을 수 있습니다.

작동 순서

연료(그림 8)

△경고

- 체인톱에는 2행정 엔진이 장착되어 있습니다. 엔진을 작동할 때는 혼합 연료를 사용하십시오. 연료를 주입하거나 연료를 다룰 때는 충분히 환기를 시켜야 합니다.
- 연료에는 고인화성 물질이 포함되어 있으므로 흡입하거나 몸에 얹지를 경우 심각한 부상을 입을 수 있습니다. 따라서 연료를 취급할 때는 항상 주의해야 합니다. 건물 안에서 연료를 취급할 경우에는 항상 충분히 환기를 시키십시오.

연료

- 항상 89 무연 옥탄 가솔린을 사용하십시오.
- 정품 2사이클 오일을 사용하거나 25:1에서 50:1 비율로 혼합하여 사용하십시오. 비율은 오일 용기 대리점 또는 Tanaka 대리점에 문의해 주십시오.

- 정품 오일을 사용할 수 없을 경우 공냉식 2사이클 엔진용 (JASO FC 등급 오일 또는 ISO EGC 등급)이라는 라벨이 부착된 산화 방지제 첨가 오일을 사용하십시오. BIA 또는 TCW(2행정 수냉식) 혼합유는 사용하지 마십시오.
- 다급유(10 W/30)나 폐유는 사용하지 마십시오.
- 항상 깨끗한 용기를 따로 준비하여 연료와 오일을 혼합하십시오.

휘발유는 항상 사용량의 절반을 채워 시동하십시오. 그런 다음 전체 사용량의 오일을 추가하십시오 연료 혼합물을 혼합하십시오(흔들어서). 남은 양의 휘발유를 추가하십시오.
연료 탱크를 채우기 전에 용기를 흔들어 혼합유를 완전히 섞습니다.

연료 주입

△경고 (그림 9)

- 연료를 주입하기 전에는 항상 엔진을 끄십시오.
 - 연료를 주입할 때는 압력이 과도하게 발생하지 않도록 연료 탱크(15)를 천천히 엽니다.
 - 연료 주입 후에는 연료 캡을 단단히 닫습니다.
 - 항상 시동 전에 연료 주입 장소에서 최소 3 m 떨어진 곳으로 장치를 이동하십시오.
 - 연료가 옷에 묻었을 경우 즉시 비누로 닦아 내십시오.
 - 연료를 채운 후 연료가 새지 않는지 확인하십시오.
- 연료를 주입하기 전에 탱크에 오물이 들어가지 않도록 탱크 캡 주위를 깨끗이 닦으십시오. 연료를 주입하기 전에 용기를 흔들어 연료를 잘 섞습니다.

체인 오일(그림 9)

체인 오일(16)을 주입하십시오. 항상 좋은 품질의 체인 오일을 사용하십시오. 엔진 가동 중에 체인 오일이 자동으로 배출됩니다.

참고

엔진(15) 또는 체인 오일(16)을 탱크에 주입할 때 캡을 옆으로 세워 장치를 놓으십시오. (그림 9)

체인 오일 공급 조정

운할 시스템을 통해서 배출되는 체인 오일의 양은 공장에서 최대로 조정됩니다. 작동 상태에 따라 체인 오일 배출량을 조정하십시오. 조정 나사(17)를 시계 반대 방향으로 돌리면 배출량이 늘어나고 시계 방향으로 돌리면 배출량이 줄어듭니다. (그림 10)

체인 브레이크 작동(그림 2, 11)

체인 브레이크는 작동 작동과 같은 비상 상황에서 작동하도록 고안되었습니다.

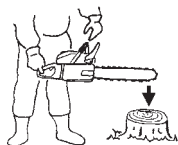
앞쪽 손 보호대를 밖으로 움직이면 브레이크가 작동합니다. 체인 브레이크 작동 중에, 스로틀 레버를 당긴 경우에도, 엔진 속도는 증가하지 않으며 체인은 회전하지 않습니다. 브레이크를 해제하려면 앞쪽 손 보호대를 앞쪽 핸들쪽으로 잡아당기십시오.

브레이크가 작동한 상태에서 엔진이 계속 고속으로 회전할 경우, 클러치가 과열되어 고장을 일으킵니다.

조작 중에 브레이크가 작동하면, 스로틀 레버를 즉시 놓고 엔진 속도를 천천히 줄이십시오.

체인 브레이크 작동 확인 방법

- 1) 엔진을 끄십시오.
- 2) 체인톱을 수평으로 고정하고 앞쪽 핸들에서 손을 떼고 가이드 바의 팁을 그루터기 또는 목재 조각에 대고 쳐서 브레이크 작동을 확인하십시오. 작동 레벨은 바 크기에 따라 다릅니다.



브레이크가 작동하지 않을 경우, 대리점에 문의하여 검사 및 수리하십시오.

시동(그림 11~16)

주의

시동하기 전에 체인 브레이크가 작동되었는지 확인하고 바/체인이 어떤 것과도 접촉하지 않는지 확인하십시오. (그림 11)

1. 점화 스위치(18)를 ON 위치로 설정하십시오. (그림 12)
*프라이밍 펌프(20)를 여러 차례 밀어 연료가 밸브를 통해서 기화기로 흘러들어가게 하십시오. (그림 13)
2. 초크 레버(19)를 막힌 위치로 잡아당기십시오. (그림 13).
이렇게 하면 스톱을 절반만 자동으로 잠급니다.
3. 감압 밸브(21)를 밀어 주십시오.
감압 밸브(21)는 엔진이 시동되면 자동으로 원위치로 돌아갑니다. (그림 14).
4. 리코일 스타터를 세계 잡아당기십시오. 이때 핸들을 세게 쥐어 핸들이 뒤로 꺾이지 않도록 주의하십시오. (그림 15)
5. 첫 번째 점화음이 들리면, 초크 레버(19)를 도로 집어넣으십시오. (그림 13)
6. 감압 밸브를 밀어 주십시오.
7. 리코일 스타터를 앞에서 설명한 방법으로 다시 세게 잡아당기십시오. (그림 15)

참고

- 엔진이 시동하지 않을 경우, 2단계에서 7단계의 절차를 반복하십시오.
8. 엔진이 시동되는 직후, 스톱을 레버 잠금 장치(22)로 스톱을 레버(23)를 한 번 완전히 잡아당겼다가 즉시 놓으십시오. (그림 16). 그런 다음 스톱을 반만 해제하십시오.
앞쪽 손 보호대(2)를 앞쪽 핸들로 잡아당겨 체인 브레이크를 해제하십시오.
엔진에 부하를 걸기 전에 엔진을 2~3분 동안 워밍업시키십시오.
- 엔진 수명을 단축시키지 않으려면 부하가 걸리지 않은 상태에서 엔진을 고속으로 작동시키지 마십시오.

△경고

엔진 가동 상태에서 기계를 운반하지 마십시오.

정지(그림 17)

엔진 속도를 줄인 후 점화 스위치(18)를 정지 위치로 밀어 주십시오.

△경고

- 어깨높이 위에서 작업하거나 벌채하지 마십시오.
- 벌도할 때 극히 주의하십시오. 톱을 코 높이 위치 또는 어깨 높이 위에서 사용하지 마십시오.

체인 캐터

체인 캐터는 체인 바로 아래의 파워 헤드에 있으며 부서진 체인이 체인톱 사용자를 다치게 할 가능성을 추가로 방지하기 위한 장치입니다.

△경고

벌채 시 체인과 일렬로 서지 마십시오.

벌도, 가지자르기 및 조재 절단을 하기 위한 기본적인 방법 다음 정보는 벌목 방법을 소개하기 위한 정보입니다.

△경고

- 이 정보는 지형, 식물, 목재의 종류, 나무의 모형과 크기 등의 차이에 따라 달라질 수 있는 구체적인 상황을 모두 다루고 있는 것은 아닙니다. 해당 지역의 구체적인 벌목 문제들에 대한 조언을 구하려면 정비 대리점, 삼림 관리 기관 또는 지역 삼림 학교에 문의하십시오. 더 효율적이고 더 안전하게 작업할 수 있을 것입니다.
- 짙은 안개, 폭우, 강추위, 강풍 등과 같이 날씨나 나쁜 상황에서 벌채하는 것을 피하십시오.
날씨가 나쁘면 작업하기가 힘들고 미끄러운 지면과 같이 잠재적으로 위험한 조건이 만들어집니다.
강풍이 불면 나무가 예상치 못한 방향으로 넘어져 재산 손상 또는 상해를 유발할 수 있습니다.

주의

체인톱을 지렛대용으로 또는 지정되지 않은 용도로 절대로 사용하지 마십시오.

△경고

- 그루터기, 뿌리, 바위, 가지, 넘어진 나무와 같은 장애물에 걸려서 넘어지지 않도록 주의하십시오. 구덩이와 도랑에 주의하십시오. 경사면 또는 울퉁불퉁한 지면에서 작업할 때 극히 주의하십시오.
한 장소에서 다른 장소로 이동할 때 엔진을 끄십시오.
항상 스톱을 완전히 개방한 상태에서 작업하십시오.
체인이 천천히 움직이면 톱을 쉽게 잡아 움직일 수 있습니다.
- 톱을 한 손으로 사용하지 마십시오.
톱을 올바르게 조종할 수 없고, 톱에 대한 조종력을 상실하여 중상을 입을 수 있습니다. 조종력을 개선하고 피로를 줄이려면 톱 본체를 사용자 몸통에 가깝게 하십시오.
체인 아랫부분으로 벌채할 때 반동력이 사용자가 벌채 중인 나무쪽으로 톱을 끌어당길 수 있습니다.
톱은 이속속도를 제어하며 톱밥이 사용자쪽으로 튕깁니다. (그림 18)
- 체인 윗부분으로 벌채할 때 반동력이 사용자가 벌채 중인 나무에서 사용자쪽으로 톱을 밀 수 있습니다. (그림 19)
- 바의 노즈로 벌채를 시작할 수 있을 만큼 톱이 너무 멀리 밀리면 반동의 위험이 있습니다.
가장 안전한 벌채 방법은 체인의 아랫부분으로 벌채하는 것입니다. 윗부분으로 톱질하면 톱을 조종하기가 훨씬 더 어렵고 반동의 위험이 커집니다.
- 체인이 잠긴 경우, 스톱을 레버를 즉시 놓으십시오.
체인이 잠긴 상태에서 스톱을 레버가 계속 고속으로 회전할 경우, 클러치가 과열되어 고장을 일으킵니다.

참고

항상 스파이크 범퍼 면이 나무와 마주하게 하십시오. 체인이 갑자기 나무에 끌려들어가 수 있기 때문입니다.

벌도

벌도는 나무를 베어 넘어뜨리는 것보다 넓은 범위의 작업입니다. 또한 나무나 다른 어떤 것도 손상하지 않고 나무를 원하는 장소에 가깝게 넘어뜨려야 합니다.
나무를 벌도하기 전에, 나무가 쓰러지는 방향에 영향을 줄 수 있는 다음과 같은 모든 조건을 주의하여 검토하십시오: 나무의 각도, 왕관 모양, 왕관에 쌓인 눈, 바람의 상태, 나무 주변의 장애물(다른 나무, 전력선, 도로, 건물 등).

△경고

- 항상 나무의 일반적 조건을 관찰하십시오. 나무를 쪼개거나 하거나 예상보다 일찍 넘어가게 하는 줄기의 썩은 부분이 있는지 확인하십시오.
- 작업 중에 부러져서 사용자를 칠 수 있는 마른 가지가 있는지 확인하십시오.
작업 중에 항상 동물과 사람을 나무 길이의 최소 두 배만큼 떨어져 있게 하십시오. 나무 주변에서 관목과 가지들을 치우십시오.
벌도 방향에서 후퇴할 수 있는 경로를 준비하십시오.

벌도의 기본 규칙

일반적으로 벌도는 두 가지 절단 작업, 즉 절상과 벌도 절단으로 구성됩니다. 나무에서 벌도 방향을 향한 쪽에서 위를 절상합니다. 줄기를 너무 깊이 톱질하지 않도록 아래쪽 절상부에 톱질할 때 벤 자국을 확인합니다. 절상은 충분한 폭과 강도의 기둥을 만들어내기에 충분할 정도로 깊어야 합니다. 절상 개방각은 나무가 최대한 오래 쓰러지게 할 만큼 넓어야 합니다. 나무의 다른쪽에서 벌도 절단부를 절상부 가장자리 위에서 1~2인치(3~5 cm) 사이로 톱질합니다. (그림 20)

24. 벌도 방향
25. 45° 최소 절상 개방각
26. 기둥
27. 벌도 절단

절대로 줄기를 완전히 관통해 톱질하지 마십시오. 항상 기둥을 남기십시오. 기둥은 나무를 특정 방향으로 이끅니다. 줄기가 완전히 관통되어 절단되면, 벌도 방향을 통제할 수 없습니다. 나무가 불안정해지거나 움직이기 시작하기 전에 절단부에 썬기 또는 벌도 지렛대를 삽입하십시오. 이렇게 하면 나무가 쓰러지는 방향을 잘못 판단한 경우에도 벌도 절단부에 가이드 바가 끼는 것이 방지됩니다. 나무를 밀어 넘어뜨리기 전에 나무가 쓰러지는 범위에 어느 누구도 들어오지 않게 하십시오.

벌도 절단, 줄기 직경이 가이드 바 길이의 두 배 초과

크고 넓은 절상부를 절단합니다. 그런 다음 절상부 가운데를 움푹하게 베어냅니다. 중앙 절단부 양쪽에 항상 기둥을 남겨둡니다. (그림 21)

그림 22와 같이 줄기 둘레를 톱질하여 벌도 절단을 완료합니다.

△경고

이러한 방법들은 가이드 바 노즈의 사용을 포함하고 있고 반동을 유발할 수 있기 때문에 극히 위험합니다. 적절한 훈련을 받은 전문가들만 이러한 방법들을 시도해야 합니다.

가지자르기

가지자르기는 벌도목에서 가지를 제거하는 것입니다.

△경고

대다수 반동 사고는 가지자르기 중에 발생합니다. 가이드 바의 노즈를 사용하지 마십시오. 극히 주의하고 가이드 바를 통나무, 다른 가지 또는 물체와 접촉시키지 마십시오. 평평한 상태에서는 가지에 극히 주의하십시오. 가지가 사용자쪽으로 튀어 사용자가 조종력을 상실하여 상해를 입을 수 있습니다. (그림 23)

줄기의 왼쪽에 섭니다. 발을 단단히 딛고 톱을 줄기에 고정합니다. 톱을 사용자와 가깝게 고정하여 톱을 완전히 통제할 수 있게 합니다. 체인에서 멀리 떨어져 있습니다. 줄기가 사용자와 체인 사이에 있을 때만 움직입니다. 평평한 상태에서 가지의 반동에 주의하십시오.

두꺼운 가지 자르기

두꺼운 가지를 자를 때, 가이드 바가 쉽게 꺾 수 있습니다. 평평한 가지는 종종 튀어오르기 때문에 절단이 어려운 가지는 여러 차례에 걸쳐 조금씩 절단합니다. 교차 절단의 경우와 똑같은 원리를 적용합니다. 작업 동작으로 인해 발생할 결과를 미리 생각하여 주의하십시오

교차 절단/조재

통나무를 절단하기 전에 작업이 어떻게 진행될지 상상합니다. 통나무가 응력을 받는지 확인하고 가이드 바가 끼지 않도록 통나무를 절단합니다.

통나무 교차 절단, 상부 압력

단단한 자재로 섭니다. 위쪽부터 절단합니다. 너무 깊이 절단하지 말고 통나무 직경의 1/3 정도만 절단합니다. 아래쪽을 절단하여 완료합니다. 톱 절단부가 서로 만나야 합니다. (그림 24)

28. 양각 절단
29. 교차 절단
30. 상부 압력
31. 측면 압력
32. 측면 장력
33. 톱절단부의 상대적 깊이

가이드 바 길이를 초과하는 두꺼운 통나무

통나무의 반대쪽부터 절단합니다. 앞의 절차를 완료한 후 톱을 사용자쪽으로 당깁니다. (그림 25) 통나무가 지면에 누워 있을 경우 속을 우비어 파기를 하여 땅속을 파는 것을 피합니다. 아래쪽을 절단하여 완료합니다. (그림 26)

△경고

반동 위험

올바른 교육을 받지 않은 경우 속을 우비어 파기를 하지 마십시오. 속을 우비어 파기를 하려면 가이드 바의 노즈를 사용해야 하며, 잘못 파면 반동이 발생할 수 있습니다.

통나무 교차 절단, 하부 압력

단단한 자재로 섭니다. 아래쪽부터 절단합니다. 절단 깊이는 통나무 직경의 1/3 정도이어야 합니다. 위쪽을 절단하여 완료합니다. 톱 절단부가 서로 만나야 합니다. (그림 27)

34. 양각 절단
35. 교차 절단
36. 하부 압력
37. 측면 장력
38. 측면 압력
39. 톱절단부의 상대적 깊이

가이드 바 길이를 초과하는 두꺼운 통나무

통나무의 반대쪽부터 절단합니다. 앞의 절차를 완료한 후 톱을 사용자쪽으로 당깁니다. 통나무가 지면과 가까이 있을 경우 속을 우비어 팝니다. 위쪽을 절단하여 완료합니다. (그림 28)

△경고

반동 위험

올바른 교육을 받지 않은 경우 속을 우비어 파기를 하지 마십시오. 속을 우비어 파기를 하려면 가이드 바의 노즈를 사용해야 하며, 잘못 파면 반동이 발생할 수 있습니다. (그림 29)

톱이 고착될 경우

엔진을 정지하십시오. 두꺼운 가지 또는 기둥을 지렛대로 사용하여 통나무를 올리거나 통나무 위치를 변경하십시오. 톱을 마음대로 잡아당기려 하지 마십시오. 잡아당기려 할 경우 핸들이 변형되며, 또는 톱이 갑자기 고착 상태에서 풀릴 경우 톱 체인에 의해서 상해를 입을 수 있습니다.

관리

배기 가스 제어 장치 및 시스템의 관리, 교체 또는 수리는 비도로용 엔진 수리 업체나 개인이 수행할 수 있습니다.

기화기 조정(그림 30)

조절기에서 연료가 공기와 섞입니다. 조절기는 공장에서 엔진을 시험 가동할 때 기본적으로 조정됩니다. 기후와 고도에 따라 추가 조정이 필요할 수 있습니다. 조절기의 조정 방법은 한 가지뿐입니다.

T = 공회전 속도 조정 나사

공회전 속도 조정(T)

공기 필터가 깨끗한지 확인하십시오. 공회전 속도가 올바르면 절단 장치가 회전하지 않습니다. 조정이 필요할 경우 엔진이 작동하는 상태에서 절단 장치가 회전을 시작할 때까지 T 나사를 시계 방향으로 돌려서 잠급니다. 절단 장치를 시계 반대 방향으로 돌려서 열면 절단 장치가 중지됩니다. 절단 장치가 회전을 시작하는 속도보다 훨씬 낮은 속도에서도 엔진이 원활하게 작동되면 올바른 공회전 속도에 도달한 것입니다.

공회전 속도를 조정한 후에도 절단 장치가 여전히 회전할 경우 Tanaka 대리점에 문의하십시오.

△경고

엔진이 공회전 중일 때는 어떠한 경우에도 절단 장치가 회전해서는 안 됩니다.

참고

고속 조정 장치(H)와 저속 조정 장치(L)를 만지지 마십시오.

고속 및 저속 조정 장치는 Tanaka 대리점만 조작할 수 있습니다.

고속 및 저속 조정 장치를 회전시킬 경우 기계가 심하게 손상됩니다.

공기 필터(그림 31)

공기 필터(40)는 먼지나 오물이 들어가지 않도록 깨끗하게 관리해야 합니다. 그렇지 않으면 다음과 같은 상황이 발생할 수 있습니다.

- 기화기 고장
- 시동 문제
- 엔진 동력 감소
- 엔진 부품의 불필요한 마모
- 비정상적인 연료 소모

먼지가 많은 곳에서 작업할 경우 매일 또는 더 자주 공기 필터를 청소하십시오.

공기 필터 커버와 필터(40)를 분리합니다. 따뜻한 비눗물에 행굽니다. 필터(41)를 다시 조립하기 전에 물기가 없는지 확인합니다. 한 동안 사용한 공기 필터는 완전히 깨끗하게 세척되지 않습니다. 따라서 정기적으로 새 공기 필터로 교체해야 합니다. 손상된 필터는 반드시 교체해야 합니다.

점화 플러그(그림 32)

점화 플러그의 상태에 영향을 주는 요인은 다음과 같습니다.

- 잘못된 기화기 설정
- 잘못된 연료 혼합(가솔린에 비해 오일이 너무 많음)
- 오염된 공기 필터
- 불안정한 가동 조건(추운 날씨 등)

이러한 요소는 점화 플러그 전극에 침전을 형성하므로 점화 플러그가 고장나거나 시동 시 문제가 발생할 수 있습니다. 엔진의 동력이 떨어지면 시동이 어렵거나 공회전 속도에서 제대로 작동되지 않으므로 항상 점화 플러그를 먼저 점검하십시오. 점화 플러그가 오염된 경우 청소하고 전극 간격을 점검하십시오. 필요한 경우 다시 조정하십시오. 올바른 간격은 0.6mm입니다. 사용 시간이 약 100시간을 넘은 경우 점화 플러그를 교체해야 하며 전극이 심하게 부식된 경우는 그보다 빨리 교체해야 합니다.

참고

일부 지역에서는 현지 법률에 따라 저항기 스파크 플러그를 사용하여 점화 신호를 억제해야 합니다. 이 기계에 원래 저항기 스파크 플러그가 장착된 경우, 동일한 유형의 스파크 플러그를 교환에 사용하십시오.

오일러 포트(그림 33)

가능할 때마다 체인 오일러 포트(42)를 청소하십시오.

가이드 바(그림 34)

기계를 사용하기 전에 옵션 액세서리로 제공되는 특수 게이지로 바의 홈과 오일러 포트(43)를 청소하십시오.

측면 케이스(그림 35)

항상 측면 케이스와 구동부에서 톱밥과 찌꺼기를 제거하십시오. 주기적으로 오일 또는 그리스를 이 부위에 발라 부식을 방지하십시오. 일부 나무에는 고농도 산이 들어 있기 때문입니다.

연료 필터(그림 36)

연료 필터를 연료 탱크에서 제거하고 솔벤트로 깨끗하게 닦으십시오. 그런 후 필터를 탱크에 완전히 밀어넣으십시오.

참고

필터가 먼지와 오물 때문에 딱딱할 경우 교환하십시오.

체인 오일 필터(그림 37)

오일 필터를 제거하여 솔벤트로 깨끗이 닦으십시오.

실린더 핀 청소(그림 38)

목재 칩이 실린더 핀들(44) 사이에 끼어 있으면 엔진 과열로 출력이 저하될 수 있습니다. 이것을 피하려면 실린더 핀과 팬 케이스를 항상 깨끗하게 유지하십시오.

결빙 방지 시스템(그림 39, 40)

이 시스템은 장치를 동절기에 작동할 때 기화기의 결빙을 방지하기 위한 것입니다.

1. 결빙 방지 시스템의 수리 작업이 필요한 경우 에어 필터 커버(41)를 탈거하십시오. 셔터(45)를 에어 필터 커버 안쪽에서 잡아당겨 꺼내 반쯤 돌려 동절기 위치에 재장착하십시오. (그림 39)
- 이렇게 하면 가열된 공기가 실린더 측면에서 나와 개구(46)를 통해 기화기 캐빈으로 들어갑니다.

참고

동절기가 끝나고 기화기가 결빙되지 않을 경우, 셔터를 정상 위치에 재장착하십시오. (그림 40)

오래 보관하려는 경우

모든 연료를 연료 탱크에서 배출하십시오. 엔진을 시동하여 정지할 때까지 가동시키십시오.

기계를 사용하여 발생한 모든 손상을 수리하십시오. 장치를 깨끗한 형질로 닦거나 고압 에어 호스를 사용하여 청소하십시오. 2행정 엔진 오일을 스파크 플러그 구멍을 통해서 실린더에 몇 방울 떨어뜨린 다음 엔진 커버를 몇 차례 돌려 오일을 고르게 퍼지게 하십시오.

장치 커버를 식염 건조한 장소에 보관하십시오.

체인 연마**커터 부품(그림 41, 42)****△경고**

- 체인을 연마할 때 장갑을 착용해야 합니다.
- 반드시 앞쪽 날을 동글게 깎아 반동하거나 타이 스트랩이 끊어질 가능성을 줄이십시오.

47. 상부 플레이트
48. 모서리 절단
49. 측면 플레이트
50. 걸릿
51. 힐
52. 새시
53. 리브 구멍
54. 토우
55. 깊이 게이지
56. 상부 플레이트 상의 올바른 각도(각도는 체인 유형에 따라 다름)
57. 약간 돌출한 “고리” 또는 지점(비-치즐 체인의 곡선부)

58. 상부 플레이트 아래의 올바른 높이에서의 깊이 게이지의 상부
59. 동글게 깎은 깊이 게이지의 앞쪽.

줄로 깊이 게이지를 낮추기

- 1) 줄 홀더로 커터를 연마할 경우, 깊이를 확인하여 낮추십시오.
- 2) 깊이 게이지를 세 번째 연마할 때마다 점검하십시오.
- 3) 깊이 게이지 공구를 커터 위에 놓으십시오. 깊이 게이지가 돌출할 경우 공구 상부와 평평해지도록 줄질하십시오. 항상 체인 안쪽에서 바깥쪽 커터를 향해 줄질하십시오. (그림 43)
- 4) 깊이 게이지 공구 사용 후 앞쪽 모서리를 동글게 깎아 깊이 게이지의 원형을 유지시키십시오. 항상 톱의 유지보수 설명서 또는 사용설명서에 나와 있는 권장 깊이 게이지 설정을 따르십시오. (그림 44)

커터 줄질을 위한 일반 지침

- 체인의 한쪽에 있는 커터를 바깥쪽부터 줄질하십시오.(60). 전진 방향으로만 줄질하십시오. (그림 45)
- 5) 항상 모든 커터의 길이를 똑같이 유지하십시오. (그림 46)
- 6) 커터의 절단날 손상을 제거할 정도로 충분히 줄질하십시오(측면 플레이트(62) 및 상부 플레이트(63)). (그림 47)

참고

범퍼 드라이브 링크(61)의 상부를 줄질하거나 변경하지 마십시오. (그림 46)

톱 체인 연마를 위한 연마 각도

1. 부품번호	95VPX/20BPX
2. 피치	0.325"
 3. 깊이 게이지 설정	0.025"
 4. 측면 플레이트 줄질 각도	85°
 5. 상부 플레이트 각도	30°
 6. 줄 가이드 각도	100°

관리 일정

다음은 일반적인 관리 지침입니다. 자세한 내용은 Tanaka 대리점에 문의하십시오.

일일 관리

- 기기의 외부를 청소합니다.
- 체인 오일 필터 포트를 닦으십시오.
- 가이드 바의 홈 및 오일 필터 포트를 닦으십시오.
- 측면 톱밥 케이스를 청소하십시오.
- 톱 체인이 날카로운지 확인하십시오.
- 바 너트를 충분히 조였는지 점검하십시오.
- 체인 운반 보호대가 손상되지 않았고 단단히 끼워질 수 있는지 확인하십시오.
- 너트와 나사를 충분히 조였는지 점검하십시오. 특히 머플러의 볼트를 검사하고 엔진 시동 전에 올바르게 조여졌는지 확인하십시오. 느슨한 볼트가 있을 경우 즉시 다시 조이십시오. 그렇게 하지 않을 경우 중상을 입을 수 있습니다.
- 가이드 바 팁을 점검하십시오. 마모된 경우 새것으로 교환하십시오.
- 체인 브레이크의 밴드를 점검하십시오. 마모된 경우 새것으로 교환하십시오.
- 공기 필터를 청소합니다.

주별 관리

- 리코일 스타터, 특히 코드를 점검하십시오.
- 점화 플러그의 외부를 청소합니다.
- 스파크 플러그를 제거한 후 전극 간격을 점검하십시오. 전극 간격을 0.6 mm로 조정하거나 스파크 플러그를 교환하십시오.
- 실린더의 냉각 핀을 청소하고 리코일 스타터의 공기 흡입구가 막히지 않았는지 확인합니다.

월별 관리

- 연료 탱크를 휘발유로 씻고 연료 필터를 청소하십시오.
- 체인 오일 필터를 청소하십시오.
- 기화기 외부와 주변부를 청소합니다.
- 팬과 주변부를 청소합니다.

참고

부품을 대리점에 주문할 때 이 지침서의 부품 분해도 단원에 나와 있는 품목번호를 사용하십시오.

	바 번호	길이 유형	체인 번호
모델 번호 OREGON	160MLBK041	400 mm (16")	95VPX-66
	180MLBK041	450 mm (18")	95VPX-72
	200PXBK041	500 mm (20")	20BPX-78

Ý NGHĨA CÁC BIỂU TƯỢNG

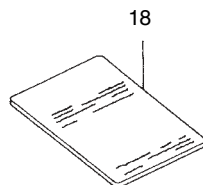
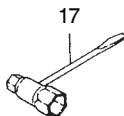
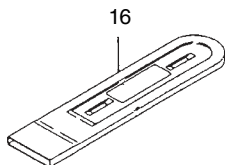
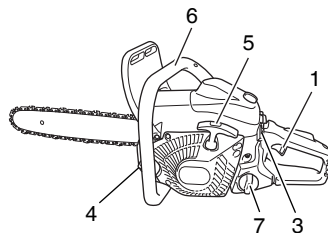
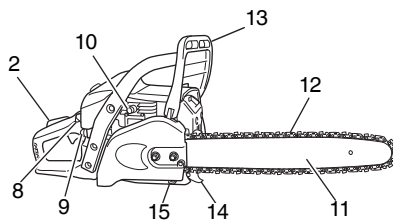
LƯU Ý: Một số thiết bị không có các biểu tượng này.

Biểu tượng  CẢNH BÁO Sau đây là các biểu tượng được dùng cho máy cưa. Đảm bảo bạn hiểu rõ ý nghĩa của chúng trước khi sử dụng.			
	Bạn cần phải đọc kỹ, hiểu rõ và tuân thủ các lưu ý và cảnh báo an toàn sau đây. Sử dụng máy cưa bất cẩn hoặc không đúng cách có thể gây ra chấn thương nghiêm trọng hoặc chết người.		Ngừng khẩn cấp
	Đọc kỹ, hiểu rõ và tuân thủ mọi cảnh báo và hướng dẫn trong sổ tay này cũng như trên máy cưa.		Hỗn hợp nhiên liệu và dầu
	Luôn mang theo các dụng cụ bảo vệ mắt, đầu và tai khi sử dụng máy cưa này.		Châm dầu phun xích
	Chú ý đến nguy hiểm đến từ lực giật lùi. Hãy chú ý đến chuyển động hướng lên và/hoặc giật lùi đột ngột và bất ngờ có thể xảy ra từ thanh dẫn.		Điều chỉnh bộ chế hòa khí – Tốc độ không tải
	Cấm sử dụng một tay. Khi cắt, giữ chặt máy cưa bằng cả hai tay với ngón cái khóa chặt quanh tay cầm phía trước.		Điều chỉnh bộ chế hòa khí – Kết hợp tốc độ chậm
	Hãm xích		Điều chỉnh bộ chế hòa khí – Kết hợp tốc độ cao
	Bướm gió		Chỉnh bơm dầu
	Bật/Khởi động		Bơm khởi động
	Tắt/Ngừng		Van giảm áp

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PHỤ KIỆN NÀO LÀ QUAN TRỌNG?

1. Cần điều chỉnh: Thiết bị được kích hoạt bằng ngón tay của người vận hành để điều khiển tốc độ động cơ.
2. Khóa cần điều chỉnh: Thiết bị giúp để phòng hoạt động bất ngờ của cần điều chỉnh cho đến khi được nhả ra bằng tay.
3. Công tắc STOP (DỪNG): Thiết bị dùng để cho phép khởi động hoặc tắt động cơ.
4. Nắp đầy bình chứa dầu: Dùng để đầy bình chứa dầu.
5. Bộ khởi động giạt lùi: Kéo tay cầm để khởi động động cơ.
6. Tay cầm phía trước: Đỡ tay cầm nằm ở hoặc hướng về phía trước hộp chứa động cơ.
7. Nắp đầy bình nhiên liệu: Dùng để đầy bình nhiên liệu.
8. Cần điều khiển bướm gió: Thiết bị dùng để bơm đầy nhiên liệu/ hỗn hợp khí vào bộ chế hòa khí nhằm trợ giúp khởi động.
9. Bơm khởi động: Thiết bị dùng để cung cấp thêm nhiên liệu nhằm trợ giúp khởi động.
10. Van giảm áp: Thiết bị dùng để giảm áp suất nén nhằm trợ giúp khởi động.
11. Thanh dẫn: Bộ phận này vốn hỗ trợ và truyền dẫn xích máy cưa.
12. Xích máy cưa: Xích dùng làm dụng cụ cắt.
13. Hãm xích (Tám chắn bảo vệ tay phía trước): Thiết bị dùng để dừng hoặc khóa xích.
14. Thanh giảm xóc mẫu nhọt: Thiết bị hoạt động như trục xoay khi tiếp xúc với cây hoặc gỗ.
15. Móc hãm xích: Thiết bị dùng để hãm tốc độ xích máy cưa.
16. Vỏ dây thanh dẫn: Thiết bị dùng để đầy thanh dẫn và xích máy cưa khi bạn không sử dụng máy cưa.
17. Chìa vận đai ốc hộp phụ kiện: Dụng cụ dùng để tháo hoặc lắp bu lông và căng xích máy cưa.
18. Hướng dẫn sử dụng: Được kèm theo máy cưa. Đọc kỹ trước khi sử dụng và lưu giữ để tham khảo sau này nhằm hiểu rõ các kỹ thuật thích hợp và an toàn.



CẢNH BÁO VÀ HƯỚNG DẪN AN TOÀN

An toàn cho người vận hành

- Luôn mang tấm chắn bảo vệ mặt hoặc kính bảo hộ.
- Phải sử dụng găng tay khi mài sắc xích.
- Luôn mang thiết bị bảo hộ an toàn như áo giảm nhiệt, quần dài, găng tay, mũ bảo hộ, giày ống có mũi bằng thép và đế không trượt, và thiết bị bảo vệ mắt, tai và chân bắt cứ khi nào bạn sử dụng máy cưa xích. Để vận hành trên cây, giày ống an toàn phải thích hợp với các kỹ thuật leo trèo. Không mặc quần áo lỏng lẻo, quần áo, đeo trang sức, mang dép hoặc đi chân không.
- Đeo đai an toàn phía trên vai.
- Không vận hành máy cưa này khi bạn mệt mỏi, bị ốm hoặc đang dùng rượu, ma túy hoặc thuốc tây.
- Không được để trẻ em hoặc người thiếu kinh nghiệm vận hành máy cưa này.
- Mang thiết bị bảo vệ tai. Để ý đến môi trường xung quanh. Để ý đến mọi người đứng xem, người mà có thể đang bảo hộ sự cố.
- Tháo ngay thiết bị an toàn sau khi tắt động cơ.
- Mang thiết bị bảo vệ đầu.
- Không được bật hoặc chạy động cơ bên trong phòng hoặc tòa nhà kín.
- Khi thả ra từ động cơ có thể gây chết người.
- Để bảo vệ đường hô hấp, hãy đeo mặt nạ bảo vệ khi có hơi dầu từ xích tỏa ra và bụi từ mùn cưa.
- Giữ cho các tay cầm không dính dầu và nhiên liệu.
- Giữ đôi tay cách xa thiết bị cắt.
- Không được cầm hoặc giữ thiết bị cắt của máy cưa.
- Khi máy cưa tắt, đảm bảo bộ phận cắt đã dừng trước khi đặt máy cưa xuống.
- Khi vận hành lâu, thỉnh thoảng bạn nên nghỉ ngơi để có thể phòng tránh Hội chứng rung bàn tay-cánh tay (HAVS) có thể xảy ra do rung động.
- Người vận hành phải tuân thủ các quy định địa phương tại khu vực đang cưa.

⚠ CẢNH BÁO

- Các hệ thống chống rung không đảm bảo rằng bạn sẽ luôn tránh được Hội chứng rung bàn tay-cánh tay hoặc hội chứng ống cổ tay.
- Do đó, những người thường dùng máy cưa liên tục nên theo dõi kỹ tình trạng của các bàn tay và ngón tay của mình. Nếu có bất kỳ hội chứng nào ở trên, hãy đến gặp bác sĩ ngay.
- Việc tiếp xúc lâu dài hoặc liên tục với các mức tiếng ồn cao có thể gây trầm cảm thính giác vĩnh viễn. Phải luôn mang dụng cụ bảo vệ tai thích hợp khi vận hành thiết bị/máy.
- Nếu bạn đang sử dụng bất kỳ thiết bị điện/điện tử y học nào như máy trợ tim, hãy tham khảo ý kiến bác sĩ cũng như nhà sản xuất thiết bị trước khi vận hành bất kỳ thiết bị điện nào.

An toàn thiết bị/máy

- Kiểm tra toàn bộ thiết bị/máy trước mỗi lần sử dụng. Thay thế các phụ kiện bị hỏng. Kiểm tra các lỗ rò rỉ nhiên liệu và đảm bảo mọi chốt cài đều được lắp thích hợp và siết chặt.
- Phải thay thế các phụ kiện đã bị nứt mẻ hoặc bị hỏng trước khi sử dụng thiết bị/máy.
- Đảm bảo thùng chứa bên cạnh được gắn thích hợp.
- Đặt xa các phụ kiện khác khi thực hiện điều chỉnh bộ chế hòa khí.
- Chỉ sử dụng các phụ kiện cho thiết bị/máy này như được đề nghị bởi nhà sản xuất.
- Không được đặt bất kỳ vật cản nào vào miếng mạ lót xích. Nếu xích va chạm nhau, phải tắt máy cưa và kiểm tra cần xích.
- Đảm bảo bơm dầu tự động vẫn đang hoạt động. Luôn nạp đầy dầu sạch vào bình đựng dầu. Không được để xích chạy khô trên thanh dẫn.
- Mọi dịch vụ liên quan đến máy cưa xích, thay vì các mục được liệt kê trong sổ tay người vận hành/người sử dụng, phải được thực hiện bởi nhân viên bảo trì chuyên nghiệp. (Ví dụ: nếu sử dụng các công cụ không thích hợp để tháo bánh đà hoặc để giữ bánh đà nhằm tháo khớp trục, bạn có thể gây ra thiệt hại kết cấu cho bánh đà và sau đó khiến cho bánh đà nổ tung.)

⚠ CẢNH BÁO

- Không được sửa đổi thiết bị/máy trong mọi trường hợp. Không dùng thiết bị/máy cho bất cứ công việc nào ngoài trừ công việc cần dùng đến.
- Không được dùng máy cưa xích mà không có bất cứ thiết bị an toàn nào hoặc có thiết bị an toàn bị hỏng. Điều này có thể gây ra chấn thương cá nhân nghiêm trọng.
- Không được phép dùng thanh dẫn/xích khác thay vì loại đã được đề nghị bởi nhà sản xuất vì điều này có thể dẫn đến nguy cơ cao về tai nạn hoặc chấn thương cá nhân.

An toàn nhiên liệu

- Pha và nạp nhiên liệu ở bên ngoài và nơi không có các tia lửa điện hoặc ngọn lửa.
- Dùng bình chứa nhiên liệu thích hợp.
- Không hút thuốc hoặc cho phép hút thuốc gần nhiên liệu hoặc thiết bị/máy hoặc trong khi sử dụng thiết bị/máy.
- Lau sạch mọi vết dầu lau trước khi khởi động động cơ.
- Di chuyển xa vị trí nạp nhiên liệu ít nhất 3 mét trước khi khởi động động cơ.
- Tắt động cơ và để máy nguội vài phút trước khi tháo nắp thùng chứa nhiên liệu.
- Hút sạch bình chứa nhiên liệu trước khi cất giữ thiết bị/máy. Bạn nên hút sạch nhiên liệu khỏi bình chứa sau mỗi lần sử dụng. Nếu nhiên liệu vẫn giữ lại trong bình chứa, hãy cất giữ thiết bị theo cách không bị rò rỉ nhiên liệu.
- Cất giữ thiết bị/máy và nhiên liệu ở khu vực nơi mà hơi nhiên liệu không thể đến được với các tia lửa điện hoặc ngọn lửa đang bật từ bếp đun nước, động cơ điện hoặc công tắc, lò sưởi, v.v...

⚠ CẢNH BÁO

- Nhiên liệu dễ bắt lửa hoặc cháy nổ hoặc hút hơi khói, vì vậy bạn phải chú ý đặc biệt khi cầm hoặc nạp nhiên liệu.

An toàn khi cưa

- Không cưa bất cứ vật liệu nào khác ngoài gỗ hay các vật liệu bằng gỗ.
- Để bảo vệ đường hô hấp, hãy đeo mặt nạ bảo vệ hóa chất khi cưa gỗ sau khi cây đã được phun thuốc trừ sâu.
- Giữ các đối tượng khác như trẻ em, động vật, người đứng xem và người trợ giúp bên ngoài vùng nguy hiểm. Tắt ngay động cơ nếu mọi người tiến gần đến bạn.
- Giữ chặt thiết bị/máy bằng tay phải trên tay cầm phía sau và tay trái trên tay cầm phía trước.
- Giữ chặt chân và giữ thẳng bằng. Không vơi xa quá.
- Giữ mọi bộ phận trên cơ thể xa khỏi bộ giảm thanh và bộ phận cắt khi động cơ đang chạy.
- Giữ thanh dẫn/xích dưới mức thất lưng.
- Trước khi đốn hạ cây, người vận hành phải làm quen với các kỹ thuật của của máy cưa xích.
- Đảm bảo chuẩn bị trước vị trí thoát an toàn khỏi cây đốn ngã.
- Trong lúc cưa, giữ chặt thiết bị/máy bằng cả hai tay với ngón cái được khóa chặt quanh tay cầm phía trước và đứng vững bằng hai chân và cơ thể cân bằng.
- Đứng lệch sang bên cạnh máy cưa khi cưa - không được đứng trực diện phía sau máy cưa.
- Luôn giữ bộ giảm xóc mẫu nhọt trực diện với cây vì xích có thể bị kéo đột ngột và cây sẽ được trang bị để hoạt động theo cách này.
- Khi cưa xong, luôn sẵn sàng nâng máy cưa lên để nó không chạy theo dài và cắt vào ống chân, bàn chân và cơ thể bạn hoặc va chạm với vật cản.
- Phải cảnh giác với lực giật lùi (khi máy cưa này lên và giật lùi về phía người vận hành). Không được cưa bằng đầu nhọt của thanh dẫn.
- Khi di chuyển sang một khu vực cưa mới, đảm bảo tắt máy cưa và đứng mọi bộ phận cắt.
- Không được đặt máy cưa xuống đất khi đang chạy.
- Luôn đảm bảo đã tắt động cơ và dùng hẳn mọi bộ phận cắt trước khi dọn sạch mảnh vụn hoặc gỡ bỏ khỏi bộ phận cắt.
- Luôn mang theo bộ dụng cụ cấp cứu khi vận hành mọi thiết bị điện.
- Không được bật hoặc chạy động cơ bên trong phòng hoặc tòa nhà kín và/hoặc gần chất lỏng dễ cháy. Khi thả ra từ động cơ có thể gây chết người.

An toàn khi bảo trì

- Bảo trì thiết bị/máy theo các quy trình khuyến nghị.
- Ngắt bugi trước khi thực hiện dịch vụ bảo trì ngoại trừ các điều chỉnh bộ chế hòa khí.
- Đặt xa các phụ kiện khác khi thực hiện điều chỉnh bộ chế hòa khí.
- Sử dụng phụ kiện thay thế Tanaka chính hãng như đề nghị của nhà sản xuất.

CHÚ Ý

Không tháo rời bộ khởi động giạt lùi. Bạn có thể gặp phải chấn thương cá nhân vì lò xo giạt lùi.

⚠ CẢNH BÁO

Bảo trì không đúng cách có thể gây hỏng nặng cho động cơ hoặc dẫn đến chấn thương cá nhân.

Vận chuyển và bảo quản

- Xách thiết bị/máy bằng tay với động cơ đã tắt và đặt bộ giảm xóc cách xa cơ thể.
- Để nguội động cơ, hút sạch bình chứa nhiên liệu và buộc chặt thiết bị/máy trước khi cất giữ hoặc chuyển lên xe.
- Hút sạch bình chứa nhiên liệu trước khi cất giữ thiết bị/máy. Bạn nên hút sạch nhiên liệu khỏi bình chứa sau mỗi lần sử dụng. Nếu nhiên liệu vẫn giữ lại trong bình chứa, hãy cất giữ thiết bị theo cách không bị rò rỉ nhiên liệu.
- Cất giữ thiết bị/máy xa tầm tay trẻ em.
- Vệ sinh và bảo dưỡng thiết bị cẩn thận và cất giữ nó ở nơi khô ráo.
- Đảm bảo công tắc STOP (DỪNG) được chuyển sang off (tắt) khi vận chuyển hoặc cất giữ.
- Khi vận chuyển hoặc cất giữ, hãy đẩy vỏ thanh dẫn lại.

Nếu xảy ra các sự cố không bao gồm trong sổ tay này, hãy thận trọng và dùng cách xử trí thông dụng. Liên hệ với đại lý Tanaka nếu bạn cần sự trợ giúp. Quan tâm đặc biệt đến các lưu ý đặt ngay sau các từ sau đây:

⚠ CẢNH BÁO

Cho biết có nhiều khả năng bị chấn thương cá nhân nghiêm trọng hoặc thiệt mạng nếu không tuân thủ các hướng dẫn.

CHÚ Ý

Cho biết có khả năng bị chấn thương cá nhân hoặc hư hỏng thiết bị nếu không tuân thủ các hướng dẫn.

LƯU Ý

Thông tin hữu ích về chức năng và cách sử dụng thích hợp.

⚠ CẢNH BÁO

NGUY HIỂM ĐẾN TỪ LỰC GIẠT LÙI (Hình 1)

Một trong những hiểm họa nghiêm trọng nhất khi làm việc với máy cưa xích là máy có thể bị giạt lùi. Cú giạt lùi có thể xảy ra khi đầu mút của thanh dẫn chạm vào vật nào đó, hoặc trong lúc cưa, phần gỗ tiến đến gần sát và ép vào xích máy cưa. Lực va chạm đầu mút trong một vài trường hợp có thể gây ra phản ứng giạt ngược đột ngột, đẩy thanh dẫn bật lên và giạt lùi về phía bạn. Lực ép lên xích máy cưa dọc theo phía trên thanh dẫn cũng có thể đẩy thanh dẫn giạt ngược nhanh về phía bạn. Một trong hai phản ứng trên đều có thể khiến cho bạn khó kiểm soát máy cưa và có khả năng dẫn đến chấn thương nghiêm trọng. Mặc dù máy cưa của bạn đã được thiết kế đảm bảo an toàn, tuy vậy bạn không nên quá phụ thuộc vào các tính năng an toàn này. Bạn phải luôn luôn xác định phần đầu của thanh dẫn nằm ở đâu. Lực giạt lùi sẽ xảy ra nếu bạn làm cho vùng để bị giạt lùi (1) của thanh dẫn chạm vào vật nào đó.

Không được sử dụng vùng đó. Lực giạt lùi do sức ép xảy ra khi vết cưa tiến gần và ép vào phần trên của thanh dẫn. Hãy nghiên cứu vết cưa của bạn và đảm bảo chắc chắn là nó sẽ mở ra khi bạn cưa xuyên qua. Duy trì kiểm soát trong lúc động cơ đang hoạt động bằng cách luôn giữ vững máy cưa với tay phải giữ chắc tay cầm phía sau, tay trái nắm tay cầm phía trước và dùng ngón cái cùng các ngón khác bao quanh tay cầm. Luôn luôn cầm máy cưa bằng cả hai tay trong khi vận hành và cưa với tốc độ cao.

Thực hiện theo các hướng dẫn về cách mài sắc và bảo dưỡng của nhà sản xuất đối với xích máy cưa. Thiếu hoạt động bảo dưỡng có thể tăng khả năng hoạt động giạt lùi.

THÔNG SỐ KỸ THUẬT

○ Mã "CS" của tên mẫu máy cưa có nghĩa là "Máy cưa xích"

Mẫu	TCS51EA (40S)	TCS51EA (45S)	TCS51EA (50S)
Loại thiết bị	Máy cưa xích cầm tay		
Kích thước động cơ (cm³)	50.1		
Bugì	NGK BPMR-7A		
Dung tích bình chứa nhiên liệu (cm³)	530		
Dung tích bình chứa dầu phun xích (cm³)	270		
Trọng lượng khô (kg) (Không có thanh dẫn và xích)	5.1		
Bước xích (mm)	8.26		
Cỡ xích (mm)	1.27		
Mức áp suất âm thanh LpA (dB (A)) theo chuẩn ISO 22868	104		
Tương đương Bất định	1		
Mức công suất âm thanh LwA (dB (A)) theo chuẩn ISO 22868	113		
Được xác định Bất định	2		
Mức công suất âm thanh LwA (dB (A)) theo chuẩn 2000/14/EC	114		
Được xác định Được bảo đảm	117		
Mức giao động (mét/giây vuông) theo chuẩn ISO 22867	3.3		
Tay cầm phía trước	3.3	3.3	3.3
Tay cầm phía sau	2.7	2.7	2.7
Bất định	0.8	0.8	0.8
Chiều dài thanh dẫn (mm)	400	450	500
Loại xích	95VPX (Oregon)		20BPX (Oregon)
Công suất động cơ tối đa theo chuẩn ISO 7293 (kW)	2.5		
Tốc độ động cơ tối đa (vòng/phút)	13500		
Tốc độ động cơ không tải (vòng/phút)	3000		
Tiêu thụ nhiên liệu cụ thể với mức công suất động cơ tối đa (g/kWh)	439		
Tốc độ xích tối đa (phút/giây)	26.0		
Bánh xích (số bước răng)	7		

LƯU Ý: Độ ồn/mức giao động tương đương được tính như là tổng mức năng lượng do theo giờ trong nhiều điều kiện hoạt động khác nhau với sự phân bố giờ như sau: 1/3 không tải, 1/3 có tải, 1/3 tốc độ tối đa.

* Mọi dữ liệu luôn có sự thay đổi mà không cần thông báo.

QUY TRÌNH LẮP RÁP

CẢNH BÁO

- Không được cố khởi động động cơ nếu chưa siết chặt thùng chứa bên cạnh, thanh dẫn và xích.
- Kéo tảo bảo vệ tay phía trước (2) hướng về tay cầm phía trước để kiểm tra xem hãm xích đã được nhả hay chưa. (Hình 2)
 - Tháo đai ốc bàn kẹp thanh dẫn (3). Tháo thùng chứa bên cạnh (4) (Hình 3)
 - Lắp đặt thanh dẫn (5) vào các bulông (6) rồi đẩy nó hướng xa về phía bánh (7).
 - Kiểm tra xem hướng của xích máy cưa (12) có đúng như hình minh họa hay không, và chỉnh thẳng xích trên bánh xích. (Hình 5)
 - Hướng các mắt xích truyền động vào rãnh bao quanh toàn bộ thanh dẫn.
 - Lắp đặt thùng chứa bên cạnh (4) vào các bulông (6).
Đảm bảo vấu lõm của bulông chỉnh độ căng xích (8) phải khít vào lỗ của thanh dẫn (9). (Hình 4)
Cần hãm (11) của hợp động bên cạnh phải khớp với đường rãnh (10) ở mặt tâm chắn bùn phía trước.
Sau đó siết các đai ốc thanh dẫn (3) bằng tay sao cho đuôi thanh dẫn có thể dịch chuyển lên và xuống dễ dàng. (Hình 3)
 - Nâng đầu mút thanh dẫn và siết chặt xích (12) bằng cách vận bulông chỉnh độ căng (13) theo chiều kim đồng hồ. Để kiểm tra độ căng chính xác, hãy nâng nhẹ đoạn giữa của xích và phải có độ hở khoảng 0,5 – 1 mm (14) giữa thanh dẫn và gờ của xích truyền dẫn. (Hình 6 & 7)

CHÚ Ý

ĐỘ CĂNG CHÍNH XÁC LÀ CỰC KỲ QUAN TRỌNG

- Nâng đầu mút thanh dẫn và siết chặt các đai ốc bàn kẹp thanh dẫn bằng chia vận đai ốc theo hợp phụ kiện. (Hình 7)
- Xích mới sẽ giãn ra, vì vậy hãy chỉnh xích sau một vài lần cưa và quan sát kỹ độ căng của xích trong nửa giờ đầu sử dụng máy cưa.

LƯU Ý

- Kiểm tra thường xuyên độ căng của xích để đạt hiệu suất và độ bền tối ưu.

CHÚ Ý

- Khi xích được siết quá căng, thanh dẫn và xích sẽ bị hỏng nhanh. Ngược lại, khi siết xích quá lỏng, nó có thể rớt ra khỏi rãnh trong thanh dẫn.
- Luôn đeo găng tay khi chạm vào xích.

CẢNH BÁO

- Trong khi vận hành, hãy giữ chặt máy cưa xích bằng cả hai tay. Vận hành một tay có thể gây ra chấn thương nghiêm trọng.

QUY TRÌNH VẬN HÀNH

Nhiên liệu (Hình 8)

CẢNH BÁO

- Máy cưa xích được trang bị động cơ hai thì. Luôn chạy động cơ bằng nhiên liệu pha với dầu. Chọn nơi thông thoáng tốt khi nạp hoặc cầm nhiên liệu.
- Nhiên liệu chứa chất rất dễ cháy và có thể gây chấn thương cá nhân nghiêm trọng khi hít phải hoặc làm đổ lên cơ thể.
Luôn chú ý khi cầm nhiên liệu. Luôn chọn nơi thông thoáng tốt khi cầm nhiên liệu bên trong tòa nhà.

Nhiên liệu

- Luôn dùng nhiên liệu hóa dầu không chì có nhớt hiện 89.
- Dùng dầu chỉnh hãng cho động cơ hai thì hoặc sử dụng nhiên liệu pha giữa 25:1 và 50:1, hãy xem bình đựng dầu để biết tỷ lệ hoặc liên hệ với đại lý Tanaka.
- Nếu dầu chỉnh hãng không có sẵn, hãy dùng dầu chất lượng có thêm chất chống oxy hóa được ghi nhãn rõ là đúng cho động cơ hai thì được công bố (JASO FC GRADE OIL hoặc ISO EGC GRADE). Không dùng dầu pha BIA hoặc TCW (loại làm lạnh ngược cho động cơ 2 thì).
- Không được dùng dầu đa cấp (10 W/30) hoặc dầu thải.
- Luôn pha nhiên liệu và dầu trong bình chứa sạch riêng biệt.
- Luôn bắt đầu bằng cách nạp một nửa số nhiên liệu cần dùng. Sau đó nạp toàn bộ số dầu còn lại. Khuấy (lắc) đều hỗn hợp nhiên liệu. Thêm số nhiên liệu còn lại.
- Khuấy (lắc) kỹ hỗn hợp nhiên liệu trước khi nạp vào bình chứa.

Nạp nhiên liệu

CẢNH BÁO (Hình 9)

- Luôn tắt động cơ trước khi nạp lại nhiên liệu.
 - Mở chambers chứa nhiên liệu (15) khi nạp nhiên liệu để không còn áp suất quá cao có thể xảy ra.
 - Siết chặt nắp đầy nhiên liệu sau khi nạp.
 - Luôn chuyển máy cưa cách khu vực nạp nhiên liệu ít nhất 3 mét trước khi khởi động.
 - Luôn giặt sạch mọi quần áo có dính nhiên liệu bằng xà phòng.
 - Đảm bảo kiểm tra mọi lỗ rò rỉ nhiên liệu sau khi nạp lại nhiên liệu.
- Trước khi nạp nhiên liệu, hãy lau sạch nắp đầy bình chứa để đảm bảo không có chất dơ rơi vào. Đảm bảo nhiên liệu được pha kỹ bằng cách lắc đều bình chứa trước khi nạp nhiên liệu.

Dầu phun xích (Hình 9)

- Nạp đầy dầu phun xích (16). Luôn dùng dầu phun xích có chất lượng tốt. Khi động cơ đang chạy, dầu phun xích sẽ tự động phun ra.

LƯU Ý

- Khi nạp nhiên liệu (15) hoặc dầu phun xích (16) vào bình chứa, hãy đặt máy cưa với phía nắp đầy hướng lên. (Hình 9)

ĐIỀU CHỈNH BỘ CẤP DẦU PHUN XÍCH

- Theo thông số mặc định gốc, số lượng dầu phun xích phun ra qua hệ thống bôi trơn sẽ được điều chỉnh ở mức tối đa. Chỉnh số lượng theo điều kiện vận hành.

- Vận vít chỉnh (17) ngược theo chiều kim đồng hồ để tăng số lượng dầu và vận nó theo chiều kim đồng hồ để giảm số lượng dầu. (Hình 10)

Sử dụng hãm xích (Hình 2 & 11)

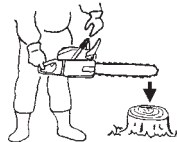
- Hãm xích được thiết kế để sử dụng trong trường hợp khẩn cấp như sự cố giật lùi.

- Sử dụng hãm xích bằng cách di chuyển tấm bảo vệ tay cầm trước hướng về phía thanh dẫn. Trong khi sử dụng hãm xích, dù đã kéo cần điều chỉnh nhưng tốc độ động cơ vẫn không tăng và xích vẫn không quay. Để nhả hãm xích, hãy kéo tấm bảo vệ tay phía trước hướng về phía tay cầm phía trước.

- Nếu động cơ tiếp tục quay với tốc độ cao khi hãm xích vẫn chưa nhả, khớp trục sẽ trở nên quá nóng và có thể gây ra hỏng hóc. Khi hãm xích không nhả trong khi máy cưa hoạt động, hãy thả ngay cần điều chỉnh để giảm tốc độ động cơ.

Cách kiểm tra hoạt động của hãm xích

- Tắt động cơ.
- Giữ máy cưa xích theo chiều nằm ngang, thả tay khỏi tay cầm phía trước, đẩy đầu mút thanh dẫn sang gốc cây hoặc khúc gỗ và kiểm tra hoạt động của hãm xích. Mức hoạt động sẽ thay đổi theo kích thước thanh dẫn.



- Trong trường hợp hãm xích vẫn không hoạt động, hãy yêu cầu đại lý bán hàng kiểm tra và sửa chữa.

Khởi động (Hình 11-16)

CHÚ Ý

- Trước khi khởi động, đảm bảo hãm xích vẫn chưa nhả và thanh dẫn/xích không va chạm bất cứ vật gì. (Hình 11)
- Chuyển công tắc khóa điện (18) sang vị trí ON (BẬT). (Hình 12)
*Đẩy bom khởi động (20) nhiều lần để nhiên liệu chảy qua bình chứa vào bộ chế hòa khí. (Hình 13)
 - Kéo cần điều chỉnh bướm gió (19) sang vị trí bị chặn (Hình 13). Thao tác này sẽ tự động khóa vào một nửa bướm ga.
 - Đẩy van giảm áp (21).
 - Van này (21) sẽ tự động trở về vị trí ban đầu khi đã khởi động động cơ (Hình 14)
 - Kéo mạnh bộ khởi động giật lùi, chủ ý giữ chặt tay cầm và dừng để nó giật lùi. (Hình 15)
 - Khi bạn nghe tiếng nổ máy đầu tiên, hãy chuyển toàn bộ cần điều khiển bướm gió (19) trở về. (Hình 13)

- Đẩy van giảm áp.
- Kéo mạnh bộ khởi động giặt lùi thêm lần nữa theo cách như đã trình bày trước đó. **(Hình 15)**

LƯU Ý

- Nếu động cơ không khởi động, hãy lặp lại các quy trình từ 2 - 7.
- Ngay khi động cơ khởi động, kéo một lần toàn bộ cần điều khiển (23) bằng khóa cần điều khiển (22) và thả ngay. **(Hình 16)** Sau đó một nửa bướm ga sẽ được nhả ra. Kéo tấm bảo vệ tay phía trước (2) hướng về tay cầm phía trước để nhả hãm khí ra. Để động cơ nóng lên khoảng 2-3 phút trước khi thực hiện mọi thao tác vận hành. Không chạy động cơ không tải với tốc độ cao để tránh làm giảm tuổi thọ động cơ.

⚠ CẢNH BÁO

Không cầm máy khi động cơ đang hoạt động.

Tắt máy (Hình. 17)

Giảm tốc độ động cơ và đẩy công tắc khóa điện (18) đến vị trí ngừng.

⚠ CẢNH BÁO

- Không được với quá xa hoặc cửa ở vị trí cao hơn vai.
- Đặc biệt cần trọng khi đổ ngã cây, và không được sử dụng máy cửa ở vị trí cao ngang mũi hay cao hơn vai.

MỐC HÂM XÍCH

Mốc hãm xích nằm trên bộ nguồn ngay phía dưới xích máy cửa nhằm ngăn ngừa trường hợp dây xích bị đứt văng vào người sử dụng.

⚠ CẢNH BÁO

Không được đứng ngang hàng với xích máy cửa khi cửa.

KỸ THUẬT ĐỐN CÂY, CỬA NHÁNH VÀ XÈ GỖ CƠ BẢN

Mục đích của những thông tin sau là nhằm cung cấp cho bạn hướng dẫn khái quát về kỹ thuật cửa gỗ.

⚠ CẢNH BÁO

- Thông tin này không áp dụng cho mọi tình huống cụ thể, vốn có thể phụ thuộc vào những khác biệt về thảm thực vật, địa hình, loại gỗ, hình dạng và kích thước cây, v.v... Hãy tham khảo ý kiến của đại lý dịch vụ, cơ quan kiểm lâm hay trường lâm nghiệp tại địa phương để được tư vấn về các khó khăn cụ thể khi cửa gỗ trong khu vực của bạn. Điều này sẽ giúp bạn làm việc hiệu quả và an toàn hơn.
- Tránh cửa trong điều kiện thời tiết bất lợi như sương mù dày đặc, mưa lớn, lạnh giá, gió mạnh, v.v...
- Thời tiết bất lợi thường khiến mọi người mệt mỏi khi làm việc và dễ phát sinh tình huống nguy hiểm như mặt đất trơn trượt. Giữ mạnh có thể xô đổ cây cối theo hướng không như ý, gây thiệt hại cho tài sản hoặc gây thương tích cho nhân.

CHÚ Ý

Không bao giờ được sử dụng máy cửa xích làm đòn bẩy hay cho bất kỳ mục đích nào khác không thuộc chức năng của máy.

⚠ CẢNH BÁO

- Tránh đốn những chương ngại như gốc cây, ngọn cây, nhánh cây hay cây ngã. Hãy quan sát hố và rãnh. Đặc biệt chú ý khi làm việc trên mặt đất dốc hay không bằng phẳng. Tắt động cơ khi di chuyển từ nơi này sang nơi khác. Luôn cửa với cần điều chỉnh mở rộng. Xích máy cửa chuyển động chậm có thể dễ dàng làm hay khiến cho máy cửa giật mạnh đột ngột.
- Không bao giờ được cầm máy cửa bằng một tay. Bạn không thể kiểm soát tốt máy cửa và có thể mất kiểm soát đồng thời làm cho chính mình bị thương nghiêm trọng. Giữ thân máy cửa sát người để tăng lực kiểm soát và giảm sức căng. Khi cửa bằng phần dưới cùng của xích máy cửa, phần lực sẽ kéo máy cửa ra khỏi bạn và hướng về cây đang cửa. Máy cửa sẽ kiểm soát tốc độ cửa và mìn cửa sẽ văng về phía bạn. **(Hình 18)**
- Khi cửa bằng phần trên của xích máy cửa, phần lực sẽ đẩy máy cửa về phía bạn và hướng ra ngoài cây đang cửa **(Hình 19)**
- Sẽ có nguy hiểm đến từ lực giặt lùi nếu máy cửa bị đẩy ra xa đến mức khiến bạn bắt đầu cửa bằng phần mũi thanh dẫn. Phương pháp an toàn nhất là cửa bằng phần dưới cùng của xích máy cửa. Cửa bằng phần trên sẽ khiến bạn khó kiểm soát máy cửa hơn và tăng nguy cơ bị giặt lùi.

- Trong trường hợp xích máy cửa bị khóa, hãy mở cần điều chỉnh ngay.

Nếu cần điều chỉnh cứ quay vòng với tốc độ cao trong khi xích máy cửa bị khóa, khớp ly hợp sẽ nóng quá mức gây ra sự cố.

LƯU Ý

Luôn giữ thanh giảm xóc mấu nhọn đối diện với cây, vì xích máy cửa có thể bị kéo vào cây đột ngột.

ĐỐN CÂY

Đốn cây khác hẳn với chặt cây. Bạn còn phải làm cho cây ngã càng gần vị trí đã định càng tốt mà vẫn không làm tổn hại đến cây khác hay những thứ khác.

Trước khi đổ ngã cây, hãy xem xét cẩn thận mọi tình huống có thể ảnh hưởng đến hướng cây ngã dự tính như: Hướng cây mọc. Hình dạng ngọn cây. Tuyệt phủ trên ngọn. Tình hình gió. Chương ngại xung quanh cây (ví dụ như các cây khác, đường dây điện, đường xá, nhà cửa, v.v...)

⚠ CẢNH BÁO

- Luôn luôn quan sát các đặc điểm chung của cây. Hãy chú ý những dấu hiệu suy tàn và mục nát trên thân cây khiến cho cây có vẻ sẽ ngã đột ngột hay bắt đầu ngã trước lúc bạn muốn.
- Hãy quan sát các nhánh cây khô, chúng có thể bị gãy và rơi trúng bạn khi bạn đang làm việc. Luôn giữ động vật và mọi người cách xa ít nhất gấp đôi chiều cao của cây khi đổ ngã. Hãy phát quang bụi rậm và nhánh cây xung quanh. Chuẩn bị đường rút lui khỏi hướng cây ngã.

NGUYÊN TẮC CƠ BẢN KHI ĐỐN CÂY

Thông thường việc đổ ngã bao gồm hai hoạt động chính là cửa góc chữ V và làm cho cây ngã. Bắt đầu cửa phần trên của góc chữ V ở phía thân và cắt diện với hướng ngã. Nhìn qua vết cửa, khi bạn thấy đường cửa phía dưới thì không được cửa quá sâu vào thân cây. Góc cửa hình chữ V phải đủ sâu để tạo một bản lề đủ rộng và chắc. Độ mở của góc cửa chữ V phải đủ rộng để làm cho cây đổ càng xa càng tốt. Cửa ngã cây từ phía bên kia, trên cạnh của góc chữ V từ 1 đến 2 inch (3-5cm). **(Hình 20)**

- Hướng ngã
- Độ mở của góc cửa chữ V tối thiểu 45°
- Bản lề
- Cửa ngã

Không bao giờ được cửa xuyên qua thân cây. Luôn luôn giữ lại bản lề. Bản lề sẽ định hướng ngã cho cây. Nếu thân cây bị cửa xuyên hoàn toàn, bạn sẽ không kiểm soát được hướng ngã của cây. Chèn chặt một cái nêm hay đòn bẩy vào chỗ cửa trước khi cây mất dần độ vững và bắt đầu ngã. Việc này làm cho thanh dẫn không bị kẹt lại khi cây ngã trong trường hợp bạn phán đoán sai hướng đổ của cây. Hãy đảm bảo là không có ai đứng xung quanh phạm vi cây đổ trước khi bạn đẩy nó ngã.

ĐỐN NGÃ, ĐƯỜNG KÍNH THÂN CÂY LỚN HƠN HAI LẦN CHIỀU DÀI THANH DẪN

Cửa góc chữ V lớn và rộng. Sau đó khoét sâu vào chính giữa vết cửa. Luôn luôn giữ lại bản lề ở cả hai phía của vết cửa chính giữa. **(Hình 21)**

Hoàn tất việc đổ ngã bằng cách cửa xung quanh thân cây như **Hình 22**.

⚠ CẢNH BÁO

Phương pháp này đặc biệt nguy hiểm vì phải cửa bằng mũi thanh dẫn và có thể tạo ra lực giặt lùi. Chỉ những chuyên gia lành nghề mới được phép thực hiện những kỹ thuật này.

CỬA NHÁNH

Cửa nhánh là cửa bỏ nhánh cây của những cây đã được đổ ngã.

⚠ CẢNH BÁO

Phần lớn tai nạn do lực giặt lùi xảy ra trong quá trình cửa nhánh. Không được sử dụng mũi thanh dẫn. Đặc biệt cẩn thận và tránh để cây ngã, cành cây hay vật nào khác tiếp xúc với thanh dẫn. Đặc biệt chú ý đến các cành cây bị kéo căng. Chúng có thể bật mạnh về phía bạn và làm cho bạn mất kiểm soát dẫn tới bị thương. **(Hình 23)**

Đứng bên trái thân cây. Đứng vững trên mặt đất và đặt máy cửa vào thân cây. Giữ máy cửa gần với bên để có thể dễ dàng kiểm soát máy. Hãy tránh thật xa xích máy cửa. Chỉ chuyển động khi thân cây nằm giữa bạn và xích máy cửa. Hãy quan sát để tránh các cành cây bị kéo căng bật ngược lại.

CỬA NHÁNH CÂY LỚN

Khi cửa của nhánh cây lớn, thanh dẫn có thể dễ bị kẹt. Các nhánh cây bị kéo căng thường dễ gãy, vì vậy nên cửa nhánh cây khó cửa theo nhiều bước nhỏ. Vận dụng các nguyên tắc tương tự như khi cửa ngang. Hãy lưu ý trước và nhận thức những hậu quả có thể xảy ra xuất phát từ mỗi hành động của bạn.

CỬA NGANG/XẾ GỖ

Trước khi bắt đầu cửa ngang qua khúc cây, hãy thử hình dung điều gì sẽ xảy ra tiếp theo. Quan sát sức ép của khúc cây và tìm cách cửa ngang sao cho thanh dẫn không bị kẹt.

CỬA NGANG KHÚC CÂY, LỰC TÁC DỤNG TỪ TRÊN XUỐNG

Tạo tư thế vững chắc. Bắt đầu cửa từ phía trên. Không cửa quá sâu, chỉ cửa khoảng 1/3 đường kính khúc cây là đủ. Kết thúc bằng cách cửa từ phía dưới lên. Các đường cửa phải gặp nhau (Hình 24).

- 28. Bóc vỏ cây
- 29. Cửa ngang
- 30. Lực tác dụng từ trên xuống
- 31. Phía chịu lực
- 32. Phía chịu kéo
- 33. Độ sâu tương đối của vết cửa

KHÚC CÂY DÀY, LỚN HƠN CHIỀU DÀI THANH DẪN

Bắt đầu bằng cách cửa phía đối diện của khúc cây. Kéo máy cửa về phía bạn, làm theo các tiến trình đã nêu. (Hình 25)
Nếu khúc cây nằm trên mặt đất, hãy tiện gỗ để tránh cửa trúng mặt đất. Kết thúc bằng việc cửa từ dưới lên. (Hình 26)

⚠ CẢNH BÁO
NGUY HIỂM ĐẾN TỪ LỰC GIẬT LÙI

Không được tìm cách tiện gỗ nếu bạn chưa được đào tạo chuyên nghiệp. Tiện gỗ cần sử dụng mũi thanh dẫn và điều này có thể tạo ra lực giật lùi.

CỬA NGANG KHÚC CÂY, LỰC TÁC DỤNG TỪ DƯỚI LÊN

Tạo tư thế vững chắc. Bắt đầu cửa từ phía dưới. Độ sâu vết cửa bằng khoảng 1/3 đường kính khúc cây.
Kết thúc bằng cách cửa từ phía trên xuống. Các đường cửa phải gặp nhau (Hình 27)

- 34. Bóc vỏ cây
- 35. Cửa ngang
- 36. Lực tác dụng từ dưới lên
- 37. Phía chịu kéo
- 38. Phía chịu lực
- 39. Độ sâu tương đối của vết cửa

KHÚC CÂY DÀY, LỚN HƠN CHIỀU DÀI THANH DẪN

Bắt đầu bằng cách cửa phía đối diện của khúc cây. Kéo máy cửa về phía bạn, làm theo các tiến trình đã nêu. Hãy tiện gỗ nếu khúc cây nằm sát mặt đất. Kết thúc bằng việc cửa từ trên xuống (Hình 28)

⚠ CẢNH BÁO
NGUY HIỂM ĐẾN TỪ LỰC GIẬT LÙI

Không được tìm cách tiện gỗ nếu bạn chưa được đào tạo chuyên nghiệp. Tiện gỗ cần sử dụng mũi thanh dẫn và điều này có thể tạo ra lực giật lùi (Hình 29).

NẾU MÁY CỬA BỊ KẸT

Tắt động cơ. Nâng cao hoặc thay đổi vị trí khúc cây, sử dụng một nhánh cây to hay cái cọc để làm đòn bẩy. Đừng cố gắng kéo máy cửa ra. Nếu làm vậy, bạn có thể khiến tay cầm bị biến dạng hoặc bị thương do xích máy cửa trong trường hợp máy cửa đột ngột bung ra.

BẢO DƯỠNG

BẢO DƯỠNG, THAY THẾ HOẶC SỬA CHỮA THIẾT BỊ VÀ HỆ THỐNG KIỂM SOÁT KHÍ THẢI CÓ THỂ ĐƯỢC THỰC HIỆN BỞI BẤT KỲ CỞ SỞ HAY NHÂN VIÊN BẢO TRÌ ĐỘNG CƠ KHÔNG LƯU THÔNG ĐƯỜNG BỘ NÀO.

Điều chỉnh Bộ chế hòa khí (Hình 30)

Trong bộ chế hòa khí, nhiên liệu được trộn lẫn với không khí. Bộ chế hòa khí đã được điều chỉnh khi chạy thử động cơ tại nhà máy. Tùy theo khí hậu và độ cao mà có thể cần phải chỉnh lại bộ chế hòa khí. Bộ chế hòa khí có một mức điều chỉnh:
T = Vít chỉnh tốc độ không tải.

Điều chỉnh tốc độ không tải (T)

Kiểm tra đảm bảo bộ lọc không khí sạch sẽ. Khi chạy đúng tốc độ không tải, các linh kiện của máy cửa sẽ không quay. Nếu cần phải điều chỉnh, hãy đóng (theo chiều kim đồng hồ) vít T, để động cơ chạy cho đến khi các linh kiện máy cửa bắt đầu quay. Mở (ngược chiều kim đồng hồ) chốt T đến khi linh kiện ngừng quay. Bạn đặt tốc độ không tải chính xác nếu động cơ chạy êm ở mọi vị trí dưới vòng/phút khi linh kiện máy cửa bắt đầu quay.
Nếu linh kiện máy cửa vẫn tiếp tục quay sau khi điều chỉnh tốc độ không tải, hãy liên hệ với đại lý của Tanaka.

⚠ CẢNH BÁO

Khi động cơ đang chạy không tải, các linh kiện máy cửa phải đứng yên hoàn toàn.

LƯU Ý

Không được chạm vào vít Điều chỉnh tốc độ cao (H) và Điều chỉnh tốc độ thấp (L).
Chỉ đại lý của Tanaka mới thực hiện các thao tác này.
Nếu bạn xoay các vít này thì máy cửa sẽ bị hư hỏng nghiêm trọng.

Bộ lọc không khí (Hình 31)

Bộ lọc không khí (40) phải hoàn toàn không dính bụi bẩn nhằm tránh:

- Hư bộ chế hòa khí
- Gặp sự cố khi khởi động
- Giảm công suất động cơ
- Các phụ tùng động cơ bị vướng những thứ không cần thiết
- Tiêu thụ nhiên liệu bất thường.

Lau sạch bộ lọc không khí hàng ngày hoặc thường xuyên hơn nếu làm việc trong khu vực đặc biệt (bụi bẩn).
Tháo nắp bộ lọc không khí (41) và bộ lọc (40).

Rửa sạch bằng bột xà phòng ấm. Kiểm tra đảm bảo bộ lọc hoàn toàn khô trước khi lắp vào lại. Nếu bộ lọc không khí đã được sử dụng một thời gian thì không thể rửa sạch hoàn toàn được. Do đó, phải thường xuyên thay bộ lọc mới. Phải luôn thay mới bộ lọc đã hư.

Bugì (Hình 32)

Chất lượng bugì bị ảnh hưởng bởi:

- Lắp bộ chế hòa khí sai.
- Hỗn hợp nhiên liệu không phù hợp (xăng chứa quá nhiều dầu).
- Bộ lọc không khí bẩn.
- Điều kiện khởi động bất lợi (ví dụ trời lạnh)

Những yếu tố này tạo muội than trên điện cực của bugì gây ra sự cố và khởi động khó khăn. Nếu động cơ chạy với công suất thấp, khó khởi động hoặc chạy yếu ở tốc độ không tải thì bao giờ cũng phải kiểm tra bugì đầu tiên. Nếu bugì bị bẩn, hãy lau sạch và kiểm tra khoảng cách điện cực. Điều chỉnh lại nếu cần. Khoảng cách đúng là 0,6mm.

Bugì phải được thay mới sau 100 giờ chạy máy hoặc sớm hơn nếu điện cực bị ăn mòn.

LƯU Ý

Ở một số khu vực, luật pháp địa phương quy định phải sử dụng bugì có điện trở để ngăn chặn ảnh hưởng của tín hiệu đánh lửa. Nếu máy cửa này được trang bị sẵn bugì có điện trở, khi thay mới phải sử dụng bugì cùng loại.

Lỗ châm dầu (Hình 33)

Làm sạch lỗ châm dầu xích máy cửa (42) bất cứ khi nào có thể

Thanh dẫn (Hình 34)

Trước khi sử dụng máy cửa, làm sạch đường rãnh và lỗ châm dầu (43) trong thanh dẫn bằng thước đo chuyên dụng được bán dưới dạng linh kiện tùy chọn.

Vỏ máy bên (Hình 35)

Luôn giữ khu vực vỏ máy bên và bộ truyền động không bị dính mùn cửa và mảnh vỡ. Định kỳ tra dầu mỡ vào khu vực này để chống ăn mòn vì một số loại cây chứa hàm lượng acid cao.

Bộ lọc nhiên liệu (Hình 36)

Tháo bộ lọc nhiên liệu ra khỏi bình nhiên liệu và rửa thật sạch bằng dung môi. Sau đó, lắp chặt bộ lọc vào bình nhiên liệu.

LƯU Ý

Hãy thay mới nếu bộ lọc bị bám quá nhiều bụi bẩn.

Bộ lọc dầu của xích máy cưa (Hình 37)

Tháo bộ lọc dầu ra và rửa sạch bằng dung môi.

Làm sạch khe xi-lanh (Hình 38)

Khi đảm gỗ kẹt giữa khe xi lanh (44), động cơ sẽ bị nóng quá mức làm cho công suất giảm. Để tránh điều này, luôn giữ khe xi lanh và vỏ quạt sạch sẽ.

Hệ thống chống đóng băng (Hình 39, 40)

Hệ thống này nhằm bảo vệ bộ chế hòa khí khỏi bị đóng băng khi vận hành thiết bị vào mùa đông.

1. Khi bạn cần sử dụng hệ thống chống đóng băng, hãy tháo nắp dây bộ lọc khí (41). Kéo màng chắn (45) ra khỏi bên trong nắp dây bộ lọc khí và lắp lại vào vị trí dùng cho mùa đông bằng cách lật qua một nửa. **(Hình 39)**
 Điều này sẽ cho phép khí nóng thoát ra từ phía xi lanh vào khoang đựng bộ chế hòa khí thông qua khe hở (46).

LƯU Ý

Khi mùa đông đã qua và bộ chế hòa khí không bị đóng băng, đảm bảo lắp lại màng chắn vào đúng vị trí thông thường. **(Hình 40)**

Cất giữ trong thời gian dài

Xả hết nhiên liệu khỏi bình chứa nhiên liệu. Khởi động và để động cơ chạy đến khi ngừng hẳn.
 Rửa sạch mọi hư hỏng do quá trình sử dụng. Lau thiết bị bằng khăn sạch, hoặc làm sạch bằng ống dẫn khí nén áp suất cao. Nhỏ vài giọt dầu làm trơn cho động cơ hai thì vào xi lanh qua lỗ bugi, và lắc động cơ vài lần để phân tán đều dầu. Đặt nắp thiết bị và cất giữ nơi khô thoáng.

MÀI SẮC XÍCH MÁY CƯA

Những bộ phận của lưới cưa (Hình 41, 42)

⚠ CẢNH BÁO

- Phải đeo găng tay khi mài xích máy cưa.
 ○ Đảm bảo mài tròn cạnh phía trước để hạn chế nguy cơ bị giạt lùi hay bị đứt giấy đai cố định.

47. Tầm đỉnh
 48. Góc cắt
 49. Tầm bên
 50. Rãnh răng cưa
 51. Đế tựa
 52. Khung găm
 53. Lỗ đỉnh tán
 54. Chân bánh răng
 55. Thước đo chiều cao
 56. Góc đúng trên tầm đỉnh (góc độ tùy thuộc vào từng loại xích máy cưa)
 57. "Mẫu" hay mũi nhọn hơi nhỏ ra
 58. Chiều cao chính xác tính từ thước đo chiều cao đến tầm đỉnh bên trên.
 59. Phía trước thước đo chiều cao bo tròn.

HẠ THẤP THƯỚC ĐO CHIỀU CAO BẰNG CÁI GIỮA

- 1) Nếu bạn mài lưới cưa bằng một bộ giữa, hãy kiểm tra và hạ thấp chiều cao.
 2) Cữ mài sắc ba lần thì kiểm tra thước đo chiều cao một lần.
 3) Đặt thước đo đo chiều cao vào máy cưa. Nếu thước đo chiều cao nhỏ ra, hãy mài lại bằng đầu trên của dụng cụ. Luôn mài từ bên trong xích máy cưa ra bên ngoài lưới cưa. **(Hình 43)**
 4) Bo tròn góc trên để giữ hình dạng ban đầu của thước đo chiều cao sau khi sử dụng dụng cụ đo chiều cao. Luôn làm theo các thông số đo chiều cao được đề nghị trong hướng dẫn vận hành hoặc bảo dưỡng kèm theo máy cưa của bạn. **(Hình 44)**

HƯỚNG DẪN CHUNG VỀ GIỮA LƯỚI CƯA

Giữa (60) lưới cưa trên một bên xích máy cưa theo hướng từ trong ra ngoài. Chỉ giữa về phía trước **(Hình 45)**

- 5) Đảm bảo tất cả các lưới cưa dài bằng nhau **(Hình 46)**.
 6) Giữa sao cho có thể loại bỏ mọi hư hỏng trên cạnh (tầm bên (62) và tầm đỉnh (63)) của lưới cưa. **(Hình 47)**

LƯU Ý

Không được gạt dũa hay sửa đổi các đỉnh mắt xích truyền động của bộ giảm chấn (61). **(Hình 46)**

CÁC GÓC MÀI ĐỂ MÀI SẮC XÍCH MÁY CƯA

1. Mã số linh kiện	95VPX/20BPX
2. Bước răng	0.325"
 3. Thông số chiều cao	0.025"
 4. Góc giữa tấm bên	85°
 5. Góc tấm trên	30°
 6. Góc giữa thanh dẫn	100°

Lịch trình bảo dưỡng

Dưới đây là một vài hướng dẫn bảo dưỡng chung. Để biết thêm thông tin vui lòng liên hệ đại lý của Tanaka.

Bảo dưỡng hàng ngày

- Lau chùi bên ngoài thiết bị
 ○ Lau chùi lỗ lọc dầu của xích máy cưa
 ○ Lau chùi rãnh và lỗ lọc dầu trên thanh dẫn.
 ○ Lau chùi mìn cưa ở vỏ máy bên.
 ○ Kiểm tra độ sắc của xích máy cưa.
 ○ Kiểm tra độ chắc của khớp nối thanh dẫn.
 ○ Đảm bảo lá chắn xích máy cưa không bị hư hỏng và có thể lắp vào an toàn.
 ○ Kiểm tra độ chắc của khớp nối và đỉnh ốc.
 Đặc biệt chú ý kiểm tra bu-lông của bộ giảm thanh và đảm bảo là chúng được siết chặt hoàn toàn trước khi khởi động. Nếu có bu-lông nào bị lỏng, phải siết chặt lại ngay lập tức. Nếu không có thể dẫn đến hư hại nghiêm trọng.
 ○ Kiểm tra đầu thanh dẫn. Hãy thay mới nếu cái cũ bị mòn.
 ○ Kiểm tra đai hãm xích. Thay mới nếu đai cũ bị mòn.
 ○ Lau sạch bộ lọc không khí.

Bảo dưỡng hàng tuần

- Kiểm tra hệ thống khởi động giặt lùi, đặc biệt là dây dẫn.
 ○ Kiểm tra bên ngoài bugi.
 ○ Tháo bugi ra và kiểm tra khoảng cách điện cực. Điều chỉnh khoảng cách là 0,6mm hoặc thay mới bugi.
 ○ Lau sạch khe làm mát trên xi-lanh và kiểm tra đảm bảo đường dẫn khí cho hệ thống khởi động giặt lùi không bị tắc.

Bảo dưỡng hàng tháng

- Rửa sạch bình nhiên liệu bằng xăng và lau sạch bộ lọc nhiên liệu.
 ○ Rửa bộ lọc dầu của xích máy cưa.
 ○ Lau sạch bên ngoài bộ chế hòa khí và không gian xung quanh nó.
 ○ Lau sạch quạt và không gian quanh nó.

LƯU Ý

Khi đặt mua các linh kiện ở đại lý gần nhất của bạn, vui lòng dùng mã số thiết bị ghi trong mục hõng học linh kiện có trong hướng dẫn này.

	MÃ SỐ THANH DẪN	CHIỀU DÀI	MÃ SỐ XÍCH MÁY CƯA
SỐ MODEL OREGON	160MLBK041	400 mm (16")	95VPX-66
	180MLBK041	450 mm (18")	95VPX-72
	200PXBK041	500 mm (20")	20BPX-78

ความหมายของสัญลักษณ์

หมายเหตุ: เครื่องมือบางอย่างไม่มีสัญลักษณ์เหล่านี้

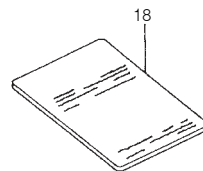
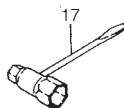
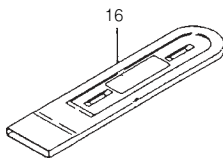
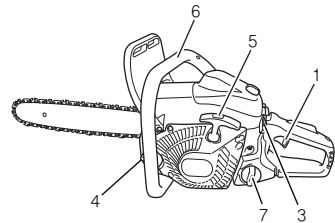
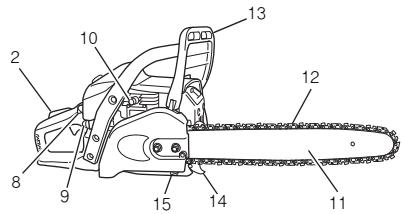
	สัญลักษณ์		
	 คำเตือน สัญลักษณ์ต่อไปนี้ใช้สำหรับอุปกรณ์ โปรดแน่ใจว่าคุณเข้าใจความหมายของสัญลักษณ์เหล่านี้ก่อนการใช้งาน		
	สิ่งสำคัญคือคุณต้องอ่านทำความเข้าใจให้ครบถ้วน และปฏิบัติตามข้อควรระวัง และคำเตือนด้านความปลอดภัยดังต่อไปนี้ หากใช้เครื่องมืออย่างประมาทหรือไม่ถูกต้อง อาจเกิดการบาดเจ็บสาหัสหรือถึงแก่ชีวิตได้		หยุดฉุกเฉิน
	อ่านทำความเข้าใจ และปฏิบัติตามคำเตือนและคำสั่งทั้งหมดในคู่มือนี้ และที่ตัวเครื่อง		ส่วนผสมของเชื้อเพลิงและน้ำมัน
	สวมอุปกรณ์ป้องกันตามศีรษะและหู เสมอเมื่อใช้ตัวเครื่องนี้		เติมน้ำมันโซ้
	คำเตือนเกี่ยวกับอันตรายจากการกระชากกลับ โปรดระวัง ก้านนำอาจกระชากไปข้างหน้าหรือกลับหลังอย่างทันทีทันใดโดยไม่มีสาเหตุ		การปรับคาร์บูเรเตอร์ — ความเร็วหมุนเปล่า
	ไม่อนุญาตให้ทำงานด้วยมือข้างเดียวกับอุปกรณ์ ในขณะที่ทำการตัด ให้ถือเลื่อยให้แน่นด้วยมือทั้งสองข้างและใช้นิ้วมือถือครอบมือจับด้านหน้าให้แน่น		การปรับคาร์บูเรเตอร์ — ส่วนผสมความเร็วต่ำ
	เบรคโซ้		การปรับคาร์บูเรเตอร์ — ส่วนผสมความเร็วสูง
	โซ้ค		การปรับปั้มน้ำมัน
	เปิด/สตาร์ท		ปั้มน้ำมัน
	ปิด/หยุด		วาล์วลดแรงดัน

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ส่วนประกอบ

1. ตันเร่ง: อุปกรณ์ที่ทำงานโดยนิ้วมือของผู้ใช้ เพื่อการควบคุมความเร็วของเครื่องยนต์
2. ตัวล็อกคันเร่ง: อุปกรณ์ที่ป้องกันมิให้คันเร่งทำงานโดยบังเอิญ เว้นแต่จะถูกปลดโดยผู้ใช้งาน
3. สวิตช์หยุดการทำงาน: เพื่อสตาร์ทหรือดับเครื่องยนต์
4. ฝาถังน้ำมัน: เพื่อปิดถังน้ำมัน
5. ระบบสตาร์ทแบบเชือกดึงม้วนกลับเอง: ดึงมือจับเพื่อสตาร์ทเครื่องยนต์
6. มือจับด้านหน้า: มือจับเพื่อรองรับน้ำหนัก ติดตั้งอยู่ที่ด้านหน้าของตัวถังเครื่องยนต์
7. ฝาถังเชื้อเพลิง: เพื่อปิดถังเชื้อเพลิง
8. คันโยก: อุปกรณ์เพิ่มส่วนผสมระหว่างเชื้อเพลิงและอากาศในคาร์บูเรเตอร์ เพื่อช่วยการสตาร์ท
9. บั๊มฉีดน้ำมัน: คืออุปกรณ์สำหรับเพิ่มน้ำมันให้มากเป็นพิเศษ เพื่อช่วยในการสตาร์ทเครื่อง
10. วาล์วลดแรงดัน: อุปกรณ์ลดแรงดันเพื่อช่วยในการสตาร์ทเครื่อง
11. ก้านนำ: ส่วนประกอบที่รองรับและนำการเลี้ยว
12. โซ่เลี้ยว: โซ่ทำหน้าที่ตัด
13. เบรค (ตัวป้องกันมือจับด้านหน้า): อุปกรณ์สำหรับหยุดหรือล็อกโซ่เลี้ยว
14. กันชนแบบเดียว: ใช้เพื่อเป็นจุดหมุนในขณะที่เลี้ยวต้นไม้หรือพุ่มสูง
15. ตัวยึดโซ่: อุปกรณ์ยึดโซ่เลี้ยว
16. ครอบก้านนำ: อุปกรณ์ครอบก้านนำและโซ่เลี้ยวในเวลาที่ไม่มีการใช้งาน
17. ชุดประแจบ็อกซ์: เครื่องมือถอดหรือติดตั้งหัวเทียนและขันโซ่เลี้ยว
18. คู่มือใช้งาน: มีมาให้กับอุปกรณ์นี้ โปรดอ่านก่อนการใช้งานและเก็บไว้สำหรับการอ้างอิงในครั้งต่อไปเพื่อการศึกษาเทคนิคการทำงานที่ถูกต้องและปลอดภัย



คำเตือนและคำแนะนำด้านความปลอดภัย

ความปลอดภัยของผู้ใช้งาน

- สวมหมวกป้องกันหน้าหรือแว่นตาป้องกันเสมอ
- ควรใส่ถุงมือในขณะลับโซ่เลื่อย
- สวมใส่อุปกรณ์ป้องกัน เช่น เสื้อชั้นนอก กางเกง ถุงมือ หมวกนิรภัย รองเท้าหุ้มข้อที่หุ้มปลายด้วยโลหะและมีพื้นที่ไม่ลื่น รวมถึงอุปกรณ์ป้องกันดวงตาหู และขา ทุกครั้งที่คุณใช้เลื่อยยนต์ ในขณะที่คุณทำงานในพื้นที่ป่า รองเท้าของคุณควรจะช่วยในการปีนป่าย อย่าสวมใส่เสื้อผ้าหลวม เครื่องประดับ กางเกงขาสั้น รองเท้าแตะ หรือเท้าเปล่า และรัดผมให้สูงพ้นจากระดับไหล่ขึ้นมา
- อย่าใช้ตัวเครื่องเมื่อคุณเหนื่อยล้า ป่วยหรือดื่มแอลกอฮอล์ ยาเสพติด หรือกินยาที่ออกฤทธิ์
- อย่าให้เด็กหรือผู้ไม่มีประสบการณ์มาใช้เครื่องจักร
- สวมอุปกรณ์ป้องกันหู ระวังคนผ่านไปมาที่อาจสร้างปัญหา เมื่อดับเครื่องยนต์ ถอดอุปกรณ์นิรภัยออกเสียทันที
- สวมชุดป้องกันศีรษะ
- อย่าสตาร์ทหรือเดินเครื่องยนต์ในห้องหรืออาคารที่ปิด เพราะอาจหายใจเอาไอเสียเข้าไปจนเสียชีวิตได้
- เพื่อปกป้องระบบทางเดินหายใจ โปรดสวมใส่หน้ากากนิรภัยในขณะที่ทำงานในสภาพแวดล้อมที่มีละอองน้ำมันและฝุ่นจากจากโซ่เลื่อย
- ไม่ให้มือมีน้ำมันหรือน้ำมันหล่อลื่นเปื้อนอยู่
- อย่าให้มือเข้าใกล้ชุดใบมีดตัด
- อย่าจับหรือถือตัวเครื่องทางด้านชุดใบมีดตัด
- เมื่อปิดตัวเครื่อง โปรดแน่ใจว่า ชุดใบมีดตัดหยุดก่อนจะวางตัวเครื่องลง
- เมื่อใช้งานเป็นเวลานาน พักเป็นระยะเพื่อไม่ให้เกิดกลุ่มอาการแขนและมือสั่น (HAVS) เนื่องจากแรงสั่นสะเทือน
- ผู้ใช้งานจะต้องปฏิบัติตามกฎระเบียบในพื้นที่ปฏิบัติงาน

คำเตือน

- ระบบป้องกันการสั่นสะเทือนไม่ได้ประกันว่า คุณจะไม่เกิดกลุ่มอาการ HAVS หรือกลุ่มอาการอุโมงค์ข้อมือ ดังนั้น ผู้ที่ใช้งานอย่างต่อเนื่องและสม่ำเสมอควรติดตามอาการของมือและนิ้วอย่างใกล้ชิด ถ้าเกิดกลุ่มอาการอย่างใดอย่างหนึ่งข้างต้น โปรดปรึกษาแพทย์ทันที
- การทำงานในพื้นที่ที่มีระดับเสียงดังมากเป็นระยะเวลานานติดต่อกัน อาจทำให้สูญเสียการได้ยินอย่างถาวร โปรดสวมเครื่องป้องกันหูที่เหมาะสมในขณะที่ใช้งานอุปกรณ์ทุกครั้ง
- ถ้าคุณใช้อุปกรณ์การแพทย์ทางไฟฟ้า/อิเล็กทรอนิกส์เช่นเครื่องกระตุ้นหัวใจ ปรึกษาแพทย์และผู้ผลิตรายอื่นก่อนจะใช้เครื่องมือกลใดๆ

ความปลอดภัยของตัวเครื่อง/เครื่องจักร

- ตรวจสอบตัวเครื่อง/เครื่องจักรทั้งหมดก่อนใช้งาน เปลี่ยนชิ้นส่วนที่ชำรุด ตรวจสอบน้ำมันรั่ว และโปรดแน่ใจว่าตัวติดต่างๆ เข้าที่และขันไว้แล้วอย่างเพียงพอ
- เปลี่ยนชิ้นส่วนที่ร้าว แตกหรือเสียหายจากสาเหตุใดๆ ก่อนใช้ ตัวเครื่อง/เครื่องจักร
- โปรดแน่ใจว่าได้ติดตั้งกล่องด้านข้างอย่างถูกต้อง

- ให้คนอื่นอยู่ห่างๆ เมื่อปรับแต่งคาร์บูเรเตอร์
- ใช้อุปกรณ์ประกอบที่ผู้ผลิตแนะนำสำหรับตัวเครื่อง/เครื่องจักรนี้เท่านั้น
- ระวังอย่าให้โซ่เลื่อยกระแทกเข้ากับสิ่งกีดขวางใดๆ หากเกิดการกระทบกระแทก ให้ปิดเครื่องยนต์และตรวจสอบอุปกรณ์อย่างระมัดระวัง
- โปรดตรวจสอบให้แน่ใจว่าเครื่องหยุดน้ำมันหล่อลื่นอัตโนมัติทำงานอยู่ และมีน้ำมันที่สะอาดเต็มถัง อย่าให้โซ่เลื่อยทำงานบนก้านที่แห้ง
- นอกจากรายการที่แสดงไว้ในคู่มือการใช้งานแล้ว การบริการด้านการบำรุงรักษาเลื่อยยนต์ทั้งหมดควรกระทำโดยบุคลากรผู้เชี่ยวชาญด้านเลื่อยยนต์ (ตัวอย่างเช่น ถ้าคุณใช้เครื่องมือที่ไม่เหมาะสมในการถอดล้อช่วยแรงหรือในการยึดล้อช่วยแรงเพื่อถอดคลัตช์ โครงสร้างของล้อช่วยแรงอาจเกิดการเสียหายและนำไปสู่การระเบิดของล้อช่วยแรงได้)

คำเตือน

- อย่าดัดแปลงตัวเครื่อง/เครื่องจักรโดยเด็ดขาด อย่าใช้ตัวเครื่อง/เครื่องจักรในงานอื่น ยกเว้นงานตามที่ได้ออกแบบไว้
- ห้ามมิให้โซ่เลื่อยยนต์โดยไม่ได้ใส่เครื่องป้องกันหรือใส่เครื่องป้องกันที่บกพร่อง ซึ่งอาจก่อให้เกิดการบาดเจ็บส่วนบุคคลได้
- ใช้ก้านนำโซ่เลื่อยแบบอื่นนอกเหนือไปจากที่ผู้ผลิตแนะนำและเห็นด้วยอาจก่อให้เกิดความเสียหายต่อการเกิดอุบัติเหตุหรือการบาดเจ็บส่วนบุคคลได้

ความปลอดภัยของน้ำมัน

- ผสมและเทน้ำมันที่นอกอาคาร และเมื่อไม่มีประกายไฟ
- ใช้ภาชนะที่ออกแบบสำหรับน้ำมัน
- อย่าสูบบุหรี่หรือยอมให้คนสูบบุหรี่ใกล้น้ำมันหรือตัวเครื่อง/เครื่องจักรหรือขณะกำลังใช้ตัวเครื่อง/เครื่องจักร
- เช็ดน้ำมันที่หกก่อนสตาร์ทเครื่องยนต์
- ก่อนสตาร์ทเครื่องยนต์ ย้ายไปให้ห่างจากตำแหน่งเติมน้ำมัน 3 เมตร
- ดับเครื่องยนต์ และปล่อยให้เครื่องเย็นเป็นเวลาสองสามนาที ก่อนถอดฝาดังน้ำมัน
- ระบายน้ำมันออกจากถังก่อนเก็บตัวเครื่อง/เครื่องจักร ควรระบายน้ำมันออกให้หมดหลังจากใช้งานในแต่ละครั้ง ถ้าน้ำมันตกค้างในถังเก็บอย่าให้น้ำมันรั่ว
- เก็บตัวเครื่อง/เครื่องจักรและน้ำมันในพื้นที่ที่ไวไฟไม่กระทบเปลวไฟหรือดอกไม้ไฟจากเครื่องทำน้ำร้อน มอเตอร์ ลิฟท์ เตอบ เป็นต้น

คำเตือน

น้ำมันติดไฟ ระเบิดหรือสูดดมเข้าได้ง่าย ให้ระมัดระวังเป็นพิเศษเมื่อหยิบฉวยหรือเติมน้ำมัน

ความปลอดภัยในการตัด

- อย่าตัดวัสดุอื่นใดนอกจากไม้หรือวัสดุที่ทำจากไม้เท่านั้น
- เพื่อป้องกันระบบทางเดินหายใจ โปรดสวมใส่หน้ากากป้องกันละอองของเหลวในขณะตัดไม้ หลังจากการฉีดพ่นยาฆ่าแมลง
- ให้คนอื่น เด็ก สัตว์ คนผ่านไปมาและผู้ช่วยอยู่นอกเขตอันตราย ตัวเครื่องยนต์ทันทีถ้ามีคนเข้ามา

- จับเลื่อยให้แน่นโดยใช้มือขวาจับมือจับด้านหลัง และมือซ้ายจับมือจับด้านหน้า
- ยืนให้มั่นคงและสมดุล อย่าเอื้อมไกลเกินไป
- ให้ทุกส่วนของร่างกายอยู่ห่างจากทั้งเก็บบนและชุดใบมีดตัด เมื่อเครื่องยนต์กำลังทำงาน
- รักษาระดับก้านเลื่อยยนต์ให้ต่ำกว่าเอว
- ก่อนที่จะตัดต้นไม้ ผู้ใช้งานเลื่อยยนต์ควรมีความชำนาญในการเลื่อย โดยการใช้เลื่อยยนต์
- โปรดแน่ใจว่าได้วางแผนล่วงหน้าในการหาทางหลบเลี่ยงต้นไม้ที่จะล้มลงมา
- ในขณะที่ทำการตัด ให้ถือเครื่องมือให้แน่นด้วยมือทั้งสองข้าง และใช้นิ้วมือถือเครื่องมือจับด้านหน้าให้แน่น ยืนให้เท้าทั้งสองและร่างกายสมดุล
- ยืนด้านข้างของเลื่อยยนต์ในขณะที่ทำการตัด ห้ามยืนข้างหลังเลื่อยยนต์โดยตรง
- รักษาระดับกันชนแบบเดียวที่ผิวหน้าของต้นไม้ตลอดเวลาเนื่องจากโซ่เลื่อยอาจถูกดึงเข้าไปในต้นไม้ หากเลื่อยยนต์มีกันชนแบบเดียวติดตั้งอยู่
- ทันทีก่อนที่จะตัด ให้พร้อมที่จะยึดเลื่อยยนต์ให้อยู่กับที่เมื่อเลื่อยยนต์พ้นจากลำต้นไม้ เพื่อมิให้เกิดแรงตามติดและตัดขา เท้า หรือร่างกายของผู้ใช้งาน หรือกระทบเข้ากับสิ่งกีดขวางใดๆ
- โปรดระวังการกระชากกลับ (เมื่อเลื่อยยนต์กระชากกลับมาที่ตัวผู้ใช้งาน) ห้ามมิให้ทำการตัดโดยใช้ปลายก้าน
- เมื่อต้องการย้ายสถานที่ปฏิบัติงาน โปรดปิดเครื่อง และตรวจสอบให้แน่ใจว่าชิ้นส่วนในการตัดทั้งหมดได้หยุดทำงานแล้ว
- อย่าวางเครื่องจักรบนพื้นขณะกำลังเดินเครื่อง
- โปรดแน่ใจเสมอว่า ตัวเครื่องยนต์และปิตชุดใบมีดตัดทั้งหมดก่อนกำลังจะหรือเอาเท้าออกจากชุดใบมีดตัด
- พกพาชุดปฐมพยาบาลเสมอ เมื่อกำลังใช้เครื่องมือใดๆ ที่เกิดพลังงาน
- อย่าสตาร์ทหรือเดินเครื่องยนต์ในห้องหรืออาคารปิด และ/หรือใกล้ของเหลวที่ติดไฟได้ ถ้าหายใจรับไอเสีย อาจทำให้เสียชีวิตได้

ความปลอดภัยในการบำรุงรักษา

- บำรุงรักษาตัวเครื่อง/เครื่องจักรตามขั้นตอนที่แนะนำ
- ถอดหัวเทียนก่อนบำรุงรักษา ยกเว้นเมื่อปรับแต่งคาร์บูเรเตอร์
- ให้คนอื่นอยู่ห่างๆ ขณะปรับแต่งคาร์บูเรเตอร์
- ใช้เฉพาะอะไหล่เปลี่ยนของแท้ของทางฮาคะเท่านั้น ตามที่ผู้ผลิตแนะนำ

ข้อควรระวัง

โปรดอย่าแยกชิ้นส่วนระบบสตาร์ทแบบเชือกดึงด้วยตนเอง มิฉะนั้นอาจเกิดการบาดเจ็บส่วนบุคคลจากการติดกลับของม้วนเชือก

คำเตือน

การบำรุงรักษาอย่างไม่ถูกต้องอาจก่อให้เกิดความเสียหายต่อเครื่องยนต์หรือการบาดเจ็บส่วนบุคคลได้

การขนส่งและเก็บรักษา

- ถอดตัวเครื่อง/เครื่องจักรด้วยมือเมื่อเครื่องยนต์ดับ และให้ห่อเก็บเสียงอยู่ห่างจากตัวคุณ

- ปลดปล่อยเครื่องยนต์เย็นตัว ระบายน้ำมันออกจากถัง และยึดตัวเครื่อง/เครื่องจักรให้แน่นก่อนจะเก็บหรือขนส่งด้วยยานพาหนะ
- ระบายน้ำมันก่อนจะเก็บตัวเครื่อง/เครื่องจักร ควรระบายน้ำมัน หลังจากใช้งานแต่ละครั้ง ถ้าน้ำมันตกค้างในถัง เก็บโดยไม่ให้น้ำมันรั่ว
- เก็บตัวเครื่อง/เครื่องจักรให้ห่างจากมือเด็ก
- ทำความสะอาดและดูแลรักษาอุปกรณ์อย่างระมัดระวัง แล้วเก็บในที่แห้ง
- ตรวจสอบให้แน่ใจว่าได้ปิดสวิตช์หยุดการทำงานเมื่อขนส่งหรือจัดเก็บ
- เวลาขนส่งหรือเก็บรักษา ให้ครอบโซ่ด้วยผ้าครอบก้านนำทาง ถ้าเกิดกรณีที่ไม่ใช่ผู้มีคุณสมบัติ โปรดระวังและใช้สามัญสนัก ติดต่อด่วนเจ้าหน้าที่ของทางฮาคะ ถ้าคุณต้องการความช่วยเหลือ เอาใจใส่ข้อความที่ตามหลังคำเตือนต่อไปนี้:

คำเตือน

แสดงถึงความเป็นไปได้มากที่อาจบาดเจ็บสาหัสหรือเสียชีวิต หากไม่ปฏิบัติตามคำแนะนำ

ข้อควรระวัง

แสดงถึงความเป็นไปได้ที่อาจบาดเจ็บหรืออุปกรณ์ชำรุด หากไม่ปฏิบัติตามคำแนะนำ

หมายเหตุ

ข่าวสารที่มีประโยชน์เพื่อการทำงานและการใช้งานที่ถูกต้อง

คำเตือน

อันตรายจากการกระชากกลับ (รูปที่ 1)

อันตรายอย่างหนึ่งที่อาจเกิดขึ้นในขณะที่ใช้งานเลื่อยยนต์ได้แก่ความเสี่ยงที่อุปกรณ์อาจกระชากกลับ การกระชากกลับอาจเกิดขึ้นเมื่อปลายด้านบนของก้านนำสัมผัสกับวัตถุ หรือเมื่อไม้ใกล้เข้ามาและหนีบลูบเลื่อยยนต์ไว้นั้นขณะตัด การสัมผัสปลายในบางกรณีอาจทำให้เกิดปฏิกิริยาย้อนกลับอย่างรวดเร็วมาก และกระชากก้านนำขึ้นและย้อนกลับไปทางผู้ใช้งาน ปฏิบัติอย่างใดอย่างหนึ่งนี้อาจทำให้ผู้ใช้งานสูญเสียการควบคุมเลื่อยยนต์และทำให้เกิดการบาดเจ็บอย่างรุนแรงได้ ถึงแม้ว่าเลื่อยยนต์จะได้รับการออกแบบมาให้มีความมั่นคงปลอดภัยก็ตาม

ผู้ใช้งานไม่ควรจะพึ่งพากับคุณสมบัติของอุปกรณ์แต่เพียงอย่างเดียว โปรดสังเกตตำแหน่งของปลายก้านนำไว้ตลอดเวลา การกระชากกลับจะเกิดขึ้นเมื่อคุณปล่อยให้เกิดระยะกระชาก (1) ระหว่างก้านนำและวัตถุ อย่าปล่อยให้มันพื้นที่นั้นเกิดขึ้นการกระชากกลับที่เกิดจากการหนีบเกิดจากการที่การตัดเข้ามาใกล้และหนีบด้านบนของก้านนำ โปรดสังเกตการตัด ให้แน่ใจว่า การตัดจะเปิดออกเมื่อตัดผ่านไปจนสุดทาง รักษาเครื่องยนต์ให้อยู่ในความปลอดภัยตลอดเวลาในขณะที่เครื่องยนต์ทำงาน โดยการจับเลื่อยยนต์ให้แน่นโดยใช้มือขวาจับที่มือจับด้านหลัง มือซ้ายจับที่มือจับด้านหน้า ให้นิ้วโป้งและนิ้วที่เหลือง้ามือจับให้รอบ ใช้สองมือจับเลื่อยยนต์เสมอ ในขณะที่ทำงานหรือทำการตัดด้วยความเร็วสูง

โปรดปฏิบัติตามคำแนะนำเกี่ยวกับการล้มและการบำรุงรักษาโซ่เลื่อย การขาดการบำรุงรักษานั้นอาจก่อให้เกิดความเสี่ยงในการสะบัดกลับได้

รายละเอียดจำเพาะ

○ รหัส "CS" ของชื่อรุ่น หมายถึง "เลื่อยโซ่"

รุ่น	TCS51EA (40S)	TCS51EA (45S)	TCS51EA (50S)
ชนิดของอุปกรณ์	เลื่อยโซ่ไฟฟ้า เคลื่อนย้ายได้		
ขนาดเครื่องยนต์ (มล.)	50.1		
หัวเทียน	NGK BPMR-7A		
ความจุของถังน้ำมัน (ลิตร)	530		
ปริมาตรความจุถังน้ำมันโซ่เลื่อย (มล.)	270		
น้ำหนักเมื่อว่าง (กก.) (โดยไม่มีก้านนำและโซ่)	5.1		
ระดับโซ่เลื่อย (มม.)	8.26		
ขนาดโซ่เลื่อย (มม.)	1.27		
ระดับแรงดันเสียง LpA (dB (A)) โดย ISO 22868 เทียบเท่า ไม่แน่ใจ	104 1		
ระดับกำลังเสียง LwA (เดซิเบลเอ) โดย ISO 22868 ที่วัดได้ ไม่แน่ใจ	113 2		
ระดับกำลังเสียง LwA (เดซิเบลเอ) โดย 2000/14/EC ที่วัดได้ รับประกัน	114 117		
ระดับความสั่นสะเทือน (m/s ²) โดย ISO 22867 มือจับด้านหน้า มือจับด้านหลัง ไม่แน่ใจ	3.3 2.7 0.8	3.3 2.7 0.8	3.3 2.7 0.8
ความยาวก้านนำ (มม.)	400	450	500
ประเภทของโซ่เลื่อย	95VPX (โอเรกอน)		20BPX (โอเรกอน)
กำลังเครื่องสูงสุด โดย ISO 7293 (กิโลวัตต์)	2.5		
ความเร็วเครื่องยนต์สูงสุด (ค่าต่ำสุด ⁻¹)	13500		
ความเร็วเครื่องยนต์หมุนเปล่า (ค่าต่ำสุด ⁻¹)	3000		
อัตราการบริโภคเชื้อเพลิงจำเพาะที่ระดับการทำงาน สูงสุดของเครื่อง (กรัม/กิโลวัตต์ชั่วโมง)	439		
ความเร็วโซ่เลื่อยสูงสุด (เมตร/วินาที)	26.0		
ล้อฟันเฟือง (จำนวนฟัน)	7		

หมายเหตุ: การคำนวณระดับเสียง/ความสั่นสะเทือนที่เท่ากัน ได้มาจากค่าพลังงานทั้งหมดที่ถึงง่ามนักด้วยเวลาสำหรับระดับเสียง/ความสั่นสะเทือน
ภายใต้สภาวะการทำงานที่แตกต่างกันไป ด้วยการกระจายเวลาดังต่อไปนี้: 1/3 หมุนเปล่า 1/3 เต็มกำลัง 1/3 ความเร็วเร่ง
* ข้อมูลทั้งหมดอาจมีการเปลี่ยนแปลงโดยมิต้องแจ้งให้ทราบล่วงหน้า

ลำดับการประกอบ

⚠ คำเตือน

อย่าสารถเครื่องยนต์หากยังไม่ได้ขันผ่าช่าง แผ่นบังคับโซ่ และโซ่ให้แน่น

1. ดึงแผ่นกันมือด้านหน้า (2) เข้ามาทางด้ามจับด้านหน้า เพื่อตรวจสอบว่าเบรกของโซ่ไม่ได้เปิดอยู่ (รูปที่ 2)
 2. ถอดนอตยึดก้านกันทางออก (3) ถอดผ่าข้างออก (4) (รูปที่ 3)
 3. ติดตั้งก้านนำทาง (5) เข้ากับโบลต์ (6) แล้วดันเข้าไปหาล้อฟันเฟือง (7) จนสุดทาง
 4. ตรวจสอบว่าทิศทางของโซ่เลื้อย (12) ถูกต้องตามรูปภาพ และไปในแนวเดียวกับโซ่บนล้อฟันเฟือง (รูปที่ 5)
 5. จัดให้ตัวยึดสายโซ่เข้ากับร่องไปตลอดแนวก้าน
 6. ติดตั้งกล่องด้านข้าง (4) เข้ากับโบลต์ (6)
- โปรดแน่ใจว่าตุ้มของโบลต์ปรับสายโซ่ (8) พอดีกับรู (9) ของก้าน (รูปที่ 4)
- ต้องใส่ก้านเบรก (11) ของกรอบด้านข้างเข้าไปในร่อง (10) ที่ด้านข้างของที่ป้องกันมือด้านหน้า
- แล้วขันนอตยึดก้านนำทาง (3) ด้วยมือ โดยให้ปลายแผ่นบังคับยังเคลื่อนที่ขึ้นและลงได้อย่างสะดวก (รูปที่ 3)
7. ยกปลายก้านขึ้น และใส่โซ่ให้แน่น (12) โดยหมุนโบลต์ปรับความตึงสายโซ่ (13) ไปตามเข็มนาฬิกา หากต้องการตรวจสอบความตึงที่เหมาะสม ให้ยกตรงกลางโซ่ขึ้นเบาๆ จนมีระยะห่างห่าง (14) จากก้านและขอบของตัวยึดสายโซ่ประมาณ 0.5-1.0 มิลลิเมตร (รูปที่ 6, 7)

ข้อควรระวัง

ความตึงที่เหมาะสมเป็นสิ่งที่สำคัญมาก

8. ยกปลายก้านขึ้นและขันนอตยึดก้านนำให้แน่นด้วยชุดประแจบ็อกซ์ (รูปที่ 7)
9. โซ่ใหม่ จะมีความตึงสูง ดังนั้นให้ปรับโซ่หลังการทดสอบสามครั้ง และสังเกตความตึงโซ่อย่างระมัดระวังในช่วงครึ่งชั่วโมงแรกของการตัด

หมายเหตุ

ตรวจสอบความตึงโซ่บ่อยๆ เพื่อประสิทธิภาพการทำงานที่เหมาะสมกับความทนทาน

ข้อควรระวัง

- หากโซ่ถูกขี้นตึงเกินไป ก้านและโซ่จะเสียหายในเวลาสั้นๆ ในทางตรงกันข้าม หากโซ่หย่อนเกินไป โซ่อาจหลุดออกจากร่องของก้าน
- สวมถุงมือเสมอเมื่อจับต้องโซ่เลื้อย

⚠ คำเตือน

ในขณะปฏิบัติงานจับเลื้อยยนต์ให้แน่นด้วยมือทั้งสองข้าง การทำงานด้วยมือข้างเดียวอาจก่อให้เกิดการบาดเจ็บอย่างรุนแรงได้

ลำดับการใช้งาน

น้ำมันเชื้อเพลิง (รูปที่ 8)

⚠ คำเตือน

- เลือยยนต์นี้ใช้เครื่องยนต์สองจังหวะ โปรดใช้เชื้อเพลิงที่ผสมกับน้ำมันเครื่องเมื่อใช้เครื่องยนต์ เติมน้ำมันในที่ที่มีอากาศถ่ายเทได้สะดวก

- น้ำมันมีสภาพไวไฟ และอาจทำให้บาดเจ็บสาหัสเมื่อสูดดมหรือหกใส่ร่างกายของคุณ ให้เอาใจใส่เมื่อใช้น้ำมันเสมอ ระบายอากาศให้ดีเมื่อใช้น้ำมันในอาคาร

น้ำมันเชื้อเพลิง

- ใช้น้ำมันเบนซินออกเทน 89 ชนิดไร้สารตะกั่ว
 - ใช้น้ำมันหล่อลื่นเครื่องยนต์ 2 จังหวะของแท้ หรือใช้ส่วนผสม 25 ต่อ 1 ถึง 50 ต่อ 1 โปรดตรวจสอบดูตุน้ำมันเพื่อหาอัตราส่วน หรือปรึกษากับผู้แทนจำหน่ายของท่าน
 - ถ้าไม่มีน้ำมันหล่อลื่นของแท้ ใช้น้ำมันแบบตัดด้านออกซิเจนที่มีป้ายระบุให้ใช้ระบายความร้อนของเครื่องยนต์ 2 จังหวะด้วยอากาศ (JASO FC GRADE OIL หรือ ISO EGC GRADE) อย่าใช้น้ำมันผสม BIA หรือ TCW (ระบายความร้อนของเครื่องยนต์ 2 จังหวะด้วยน้ำ)
 - อย่าใช้น้ำมันหล่อลื่นมัลติเกรด (10 W/30) หรือน้ำมันที่ใช้แล้ว
 - ผสมน้ำมันเชื้อเพลิงกับน้ำมันหล่อลื่นในภาชนะอื่นที่สะอาดเสมอ
- โปรดเริ่มจากการเติมน้ำมันเบนซินที่จะใช้ลงไปครึ่งหนึ่ง แล้วเติมน้ำมัน เครื่องลงให้หมด ผสม (เขย่า) ส่วนผสมของน้ำมันเบนซิน แล้วจึงเติมน้ำมันเบนซินที่เหลือลงไป
- ผสม (เขย่า) ส่วนผสมเชื้อเพลิงให้ทั่วก่อนที่จะเติมลงถังน้ำมัน

การเติมน้ำมัน

⚠ คำเตือน (รูปที่ 9)

- ดับเครื่องยนต์ก่อนเติมน้ำมันเสมอ
- ค่อยๆ เปิดถังน้ำมัน (15) ในขณะเติมน้ำมันเพื่อป้องกันความดันส่วนเกินในถังที่อาจมีขึ้น
- เมื่อเติมน้ำมันแล้ว หมุนฝาถังอย่างระมัดระวังจนแน่น
- เคลื่อนย้ายอุปกรณ์ให้ห่างจากพื้นที่เติมน้ำมันอย่างน้อย 3 เมตร ก่อนการสตาร์ทเครื่องยนต์
- ใช้สบูล้างน้ำมันที่หกใส่เสื้อผ้าทันที
- โปรดแน่ใจว่าได้ตรวจสอบน้ำมันรั่วหลังจากเติมน้ำมันก่อนเติมน้ำมัน ทำความสะอาดผาถังให้หมดจด เพื่อไม่ให้ฝุ่นผงตกลง ในถัง โปรดแน่ใจว่าน้ำมันผสมกันดีโดยเขย่าภาชนะใส่ก่อนจะเติมน้ำมัน

น้ำมันโซ่ (รูปที่ 9)

เติมน้ำมันโซ่ (16) โปรดใช้แต่น้ำมันโซ่คุณภาพดี ในขณะที่เครื่องยนต์กำลังทำงาน น้ำมันโซ่จะถูกดึงไปใช้งานโดยอัตโนมัติ

หมายเหตุ

ในขณะที่เติมน้ำมัน (15) หรือน้ำมันโซ่ (16) ลงในถัง ให้วางอุปกรณ์โดยให้ผาดังอยู่ด้านบน (รูปที่ 9)

การปรับการจ่ายน้ำมันหล่อลื่นโซ่

ปริมาณน้ำมันหล่อลื่นโซ่ที่จ่ายผ่านระบบหล่อลื่นนั้นได้รับการปรับตั้งค่ามาแล้วจากโรงงานให้อยู่ในระดับสูงสุด แต่หากก็สามารถปรับปริมาณน้ำมันนี้ให้เหมาะสมกับสภาพการใช้งานได้ หมุนสกรูน้ำมัน (17) ทวนเข็มนาฬิกาเพื่อเพิ่มปริมาณน้ำมัน หรือหมุนตามเข็มนาฬิกาเพื่อลดปริมาณน้ำมัน (รูปที่ 10)

การใช้งานเบรกโซ่เลื้อย (รูปที่ 2, 11)

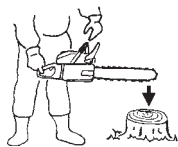
เบรกของโซ่เลื้อยอันนี้ออกแบบมาให้ทำงานเองหากเกิดเหตุฉุกเฉินอย่างเช่นเมื่อเกิดการกระตุก

ท่านสามารถใช้งานเบรกได้โดยการเลื่อนแผ่นกันมือด้านหน้ามาทางแผ่นบังคับโซ่ ระหว่างที่เบรกกำลังทำงานอยู่นั้น แม้ว่าท่านจะดึงคันเร่งความเร็วเครื่องก็จะไม่เพิ่มขึ้นและโซ่ก็จะไม่หมุน ท่านสามารถยกเลิกการเบรกได้โดยดึงแผ่นกันมือด้านหน้ามาทางตามจับด้านหน้า

ถ้าเครื่องยนต์หมุนที่ความเร็วสูงขณะเบรกกำลังทำงานอยู่ คลัตช์ก็จะเร่งจัดและสร้างปัญหาขึ้นได้ ถ้าเบรกทำงานขณะที่ท่านใช้งานเครื่อง กรุณาปล่อยคันเร่งเพื่อลดความเร็วของเครื่องยนต์ทันที

วิธีการตรวจสอบการทำงานของเบรกโซ่เสีย

- 1) ดับเครื่องยนต์
- 2) ถือเลื่อยให้อยู่ในแนวระดับ ปล่อยมือจากตามจับด้านหน้า แต่ปลายของแผ่นบังคับโซ่ไปต่อไม้หรือชิ้นไม้ แล้วยืนรับการทำงานของเบรก ระดับการทำงานจะแตกต่างกันไปตามขนาดของแผ่นบังคับโซ่



ในกรณีนี้เบรกเสีย ให้แจ้งตัวแทนจำหน่ายของเราเพื่อตรวจสอบและซ่อมแซม

การสตาร์ท (รูปที่ 11 - 16)

ข้อควรระวัง

- ก่อนเริ่มการทำงาน โปรดแน่ใจว่าได้ปลดเบรกโซ่เสีย และก้านโซ่เสียอยู่อย่างอิสระไม่ได้สัมผัสกับสิ่งใดๆ (รูปที่ 11)
1. ตั้งสวิตช์สตาร์ท (18) ไปที่ตำแหน่ง ON (รูปที่ 12)
 2. กดปุ่มฉีดน้ำมัน (20) หลายครั้งเพื่อให้ น้ำมันไหลผ่านหลอดไปจนถึงคาร์บูเรเตอร์ (รูปที่ 13)
 3. ดึงคันโซ่ (19) ไปที่ตำแหน่งโซ่ (รูปที่ 13)
- การทำเช่นนี้จะเป็นการล๊อคลิ้นควบคุมน้ำมันให้อยู่ในตำแหน่งเปิดครึ่งเดียวโดยอัตโนมัติ
3. กดวาล์ว (21) ลดแรงดัน
- วาล์ว (21) จะกลับไปอยู่ในตำแหน่งเริ่มต้นอีกครั้งโดยอัตโนมัติเมื่อเครื่องยนต์สตาร์ทติดแล้ว (รูปที่ 14)
4. ดึงเชือกสตาร์ทอย่างแรง ระวังมืออีกข้างหนึ่งให้จับมือจับให้แน่นอยู่เสมอ และอย่าให้อุปกรณ์กระชากกลับได้ (รูปที่ 15)
 5. เมื่อท่านได้ยินเสียงเครื่องสตาร์ทครั้งแรก ให้เลื่อนคันโซ่ (19) ไปจนสุด (รูปที่ 13)
 6. กดวาล์วลดแรงดัน
 7. ดึงเชือกสตาร์ทอย่างแรงอีกครั้งหนึ่งตามที่ได้กล่าวมาแล้ว (รูปที่ 15)

หมายเหตุ

- หากเครื่องยนต์ไม่ติด ให้ทำข้อ 2 ถึง 7 ซ้ำ
8. เมื่อเครื่องติด ให้ดึงคันเร่ง (23) จนสุดหนึ่งครั้งเมื่อคันลิ้นควบคุมน้ำมันล๊อค (22) แล้วปล่อยทันที (รูปที่ 16) จากนั้นลิ้นควบคุมน้ำมันก็จะอยู่ในตำแหน่งปลดล๊อคดึงแผ่นกันมือด้านหน้า (2) เข้ามาทางตามจับด้านหน้า เพื่อปลดเบรกของโซ่
- อุปกรณ์ประมาณ 2-3 นาทีก่อนเริ่มใช้งานจริงอย่าเดินเครื่องยนต์ที่รอบสูงโดยไม่ได้ปล่อยอะไร มิฉะนั้นอายุการใช้งานของเครื่องจะสั้นลง

คำเตือน

อย่าเลือกย้ายอุปกรณ์ในขณะที่เครื่องยนต์กำลังทำงาน

การดับเครื่องยนต์ (รูปที่ 17)

ลดความเร็วเครื่องยนต์และกดสวิตช์สตาร์ท (18) ไปที่ตำแหน่งหยุด

คำเตือน

- อย่าทำงานที่ห่างจนสุดเอื้อมหรือทำการตัดเหนือระดับไหล่
- ใช้ความระมัดระวังเป็นพิเศษเมื่อต้นไม้ล้ม อย่าใช้เลื่อยในระดับสูงหรือระดับไหล่

ตัวยึดโซ่เสีย

ตัวยึดโซ่เสียติดตั้งอยู่ที่เพาเวอร์เซต ได้โซ่เสียเพื่อป้องกันมิให้โซ่ที่ขาดกระเด็นใส่ผู้ใช้งานได้

คำเตือน

อย่ายืนในแนวเดียวกับโซ่เสียในขณะที่ทำการตัด

เทคนิคเบื้องต้นในการล้มต้นไม้ เล็มกิ่งก้าน และตัดเป็นท่อน ข้อมูลต่อไปนีเพื่อให้ผู้ใช้งานได้เรียนรู้เทคนิคการตัดไม้เบื้องต้นโดยทั่วไป

คำเตือน

- ข้อมูลเหล่านี้ไม่รวมถึงสถานการณ์พิเศษ ซึ่งอาจเกิดขึ้นในสภาพพื้นที่ที่แตกต่างกัน พันธุ์ต้นไม้ ประเภทของไม้ รูปร่าง ขนาดของต้นไม้ และอื่นๆ โปรดขอคำปรึกษากับตัวแทนการให้บริการ กรมป่าไม้ หรือคณะวนศาสตร์ เกี่ยวกับปัญหาการตัดไม้ในพื้นที่ของคุณ ซึ่งจะช่วยให้คุณทำงานได้อย่างมีประสิทธิภาพและปลอดภัยมากขึ้น
- อย่าทำการตัดในขณะที่ดินฟ้าอากาศไม่เอื้ออำนวย เช่น มีหมอก ลมหนา ผ่นตกหนัก อากาศหนาวเย็น ลมแรง เป็นต้น ที่ดินฟ้าอากาศที่ไม่เอื้ออำนวยทำให้การทำงานเป็นไปด้วยความยากลำบากและก่อให้เกิดสภาพการทำงานที่เสี่ยงต่อการเกิดอันตราย เช่น พื้นลื่น ลมที่แรงอาจล้มต้นไม้ไปในทิศทางที่ไม่คาดหมาย และทำให้เกิดการเสียหายแก่ทรัพย์สินหรือการบาดเจ็บส่วนบุคคลได้

ข้อควรระวัง

ห้ามใช้เลื่อยยนต์ในการจี่ตะ หรืองานอื่นที่มีจุดประสงค์ของอุปกรณ์

คำเตือน

- ระวังอย่าเดินสะดุดวัตถุขีดขวาง เช่นตอไม้ รากไม้ ก้อนหิน กิ่งไม้ และต้นไม้ล้ม โปรดระวังหลุมและร่อง โปรดระวังให้มากในขณะที่ทำงานบนที่ลาดชันหรือพื้นที่ที่มีพื้นผิวไม่สม่ำเสมอ
- ปิดเครื่องยนต์เมื่อต้องการย้ายสถานที่ทำงาน
- เวลาทำการตัดให้ดันคันเร่งไปมาก เพราะหากโซ่หมุนช้าเกินไป การตัดก็อาจติดขัดและเกิดการกระตุกได้
- ห้ามใช้เลื่อยยนต์ด้วยมือเดียว คุณไม่สามารถควบคุมเลื่อยยนต์ได้อย่างถูกต้อง และอาจทำให้สูญเสียการควบคุมและทำให้ตนเองบาดเจ็บอย่างรุนแรง รักษาระดับเลื่อยให้ใกล้ตัวเพื่อการควบคุมที่ดีขึ้นและลดอาการเมื่อยล้า เมื่อทำการตัดด้วยส่วนล่างของเลื่อยยนต์แรงปฏิกิริยาจะดึงเลื่อยยนต์ให้ออกห่างจากตัวคุณ ไปในทิศทางของไม้ที่ตัดอยู่ เลื่อยยนต์จะควบคุมความเร็วป้อนและซีเลื่อยจะถูกเป่าเข้าหาตัวคุณ (รูปที่ 18)

- หากคุณใช้ส่วนของรอยย่นในการตัด แร่งปฏิกริยาจะผลัก รอยย่นให้เข้ามาหาตัวคุณ ไปในทิศทางตรงกันข้ามของไม้ที่ตัดอยู่ (รูปที่ 19)
- อาจมีความเสี่ยงที่จะเกิดการกระชากกลับหากดันรอยย่นต่อไปไกลพอที่จะทำให้คุณเริ่มใช้ปลายก้านในการตัด วิธีที่ปลอดภัยที่สุดได้แก่การตัดด้วยส่วนล่างของรอยย่น การเลี้ยวด้วยส่วนบนของรอยจะทำให้การควบคุมรอยเป็นไปได้ยาก และก่อให้เกิดความเสี่ยงที่จะเกิดการกระชากกลับ
- ในกรณีที่ปลอดภัย ให้ปลดคันเร่งทันที หากคันเร่งยังหม่นด้วยความเร็วสูงในขณะที่ปลอดภัย คลัตช์จะร้อนและทำให้เกิดปัญหาขึ้น
- ในกรณีที่ปลอดภัยไว้ ให้ปลดคันเร่งทันที ถ้าคันเร่งยังหม่นทำงานที่ความเร็วสูงในขณะที่ปลอดภัยอยู่นั้น คลัตช์จะร้อนจัดซึ่งอาจก่อให้เกิดปัญหาได้

หมายเหตุ

หันก้นชนแบบเดียวเข้าหาต้นไม้ตลอดเวลานี้เนื่องจากโซ่เลื่อยอาจถูกดึงเข้าไปในต้นไม้

การล้มต้นไม้

การล้มต้นไม้ให้มันมีขีปนาวุธเพียงการตัดต้นไม้ลงมาจากนั้น ผู้ใช้งานจะต้องล้มต้นไม้ลงมากลางกับตำแหน่งที่คาดหวังไว้ให้มากที่สุดเท่าที่จะทำได้ โดยมีให้ต้นไม้หรือสิ่งอื่นๆ เสียหาย ก่อนการล้มต้นไม้ โปรดพิจารณาถึงสภาพแวดล้อมในทุกๆ ด้านที่อาจมีผลต่อตำแหน่งที่คาดหวังไว้ เช่น มุมของต้นไม้ รูปร่างของยอดไม้ น้ำหนักของหิมะบนยอดไม้ สภาพของลม วัสดุที่ขวางกั้นอยู่ในระยะล้ม (เช่น ต้นไม้ต้นอื่น สายไฟฟ้า ถนน อาคาร และอื่นๆ)

⚠ คำเตือน

- ตรวจสอบสภาพทั่วๆ ไปของต้นไม้ ตรวจสอบจุดพังและเน่าเปื่อยบนลำต้นที่อาจหักและล้มลงมาก่อนเวลาที่คาดหวังไว้
- ตรวจสอบกิ่งที่แห้ง ซึ่งอาจหักและตกลงมาใส่ผู้ใช้งานในขณะที่ทำงาน ก้นคนและสัตว์ให้อยู่ห่างจากต้นไม้เป็นระยะทางอย่างน้อยสองเท่าของความยาวต้นไม้ที่ล้ม กำจัดพุ่มไม้และกิ่งไม้ออกจากบริเวณต้นไม้ที่จะล้ม
- เตรียมเส้นทางที่จะหลบต้นไม้ที่ล้มลงมา

กฎขั้นพื้นฐานของการล้มต้นไม้

ตามปกติแล้ว การล้มต้นไม้จะประกอบไปด้วยการตัดหลักๆ สองครั้ง ได้แก่การบากและการตัดเพื่อล้มต้นไม้ เริ่มที่รอยบากด้านบนตรงข้างลำต้นด้านที่จะล้ม มองเข้าไปในรอยตัดเมื่อคุณเลื่อยรอยบากด้านล่างเพื่อมิให้ตัดเข้าไปในลำต้นลึกเกินไป รอยบากควรลึกพอที่จะสร้างบานพับที่มีความกว้างและความแข็งแรงพอ ระยะเปิดของรอยบากควรจะกว้างพอที่จะเหนี่ยวนำให้ต้นไม้ล้มตามทิศทางที่คาดหวังไว้ให้มากที่สุดเท่าที่จะทำได้ จากนั้นให้เลื่อยเพื่อล้มต้นไม้ในตำแหน่งตรงกันข้าม ในระยะหนึ่งหรือสองนิ้ว (3-5 ซม.) เหนือขอบของรอยบาก (รูปที่ 20)

24. ทิศทางการล้ม

25. ระยะเปิดของรอยบากต่ำสุด 45 องศา

26. บานพับ

27. การตัดเพื่อล้มต้นไม้

ห้ามเลื่อยลำต้นไม้ขาดในครั้งเดียว ผู้ใช้งานจะต้องทำบานพับก่อนเสมอ บานพับจะเป็นตัวป้องกันการล้ม หากผู้ใช้งานเลื่อยลำต้นไม้ขาดในครั้งเดียว คุณจะไม่สามารถควบคุมทิศทางของการล้มของต้นไม้ได้ สอดลิ้มหรือคานเข้าไปในรอยตัดก่อนที่ต้นไม้จะเริ่มเอนเอียงและเริ่มล้ม เพื่อเป็นการป้องกัน ทำให้ก้านนำตัดชิดชิดในขณะที่ทำการตัดเพื่อล้มต้นไม้ หากคุณคาดคะเน ทิศทางการล้มผิด โปรดแน่ใจว่าไม่มีใครอยู่ในระยะล้มก่อนที่จะล้ม ต้นไม้ลง

การตัดเพื่อล้มต้นไม้ เส้นผ่าศูนย์กลางลำต้นยาวมากกว่าสองเท่าของความยาวก้านนำ

ให้ตัดรอยบากที่กว้างและใหญ่ แล้วตัดรอยบากตรงกลางรอยบาก และปล่อยให้บานพับทั้งสองด้านของรอยตัดตรงกึ่งกลางเสมอ (รูปที่ 21) ตัดเพื่อล้มต้นไม้โดยการตัดไปรอบๆ ลำต้นตามที่แสดงในรูปที่ 22

⚠ คำเตือน

วิธีนี้อันตรายมากเนื่องจากจำเป็นต้องใช้ปลายก้านนำในการทำงาน ซึ่งอาจก่อให้เกิดการกระชากกลับได้ เทคนิคนี้ควรกระทำโดยผู้เชี่ยวชาญที่ได้รับการฝึกฝนมาเป็นอย่างดีแล้ว

การเล็มกิ่งก้านต้นไม้

ได้แก่การตัดกิ่งไม้ออกจากต้นไม้ที่ล้ม

⚠ คำเตือน

การกระชากกลับเกิดขึ้นมากที่สุดเมื่อเล็มกิ่งก้านต้นไม้ ห้ามใช้ปลายก้านนำในการตัด ให้ใช้ความระมัดระวังอย่างมาก และอย่าให้ปลายก้านนำสัมผัสกับขลุ่ย กิ่งก้านอื่นๆ หรือวัตถุอื่นใด ใช้ความระมัดระวังกับกิ่งก้านที่มีแรงตึงสูง ซึ่งอาจติดกลับมาหาตัวผู้ใช้งาน ทำให้สูญเสียการควบคุมและเกิดการบาดเจ็บได้ (รูปที่ 23)

ให้ยืนทางด้านซ้ายของลำต้นให้มั่นคง วางรอยย่นใต้ไว้บนลำต้น ถือรอยย่นให้อยู่ใกล้ตัวคุณเพื่อการควบคุมที่ดี อยู่ให้ห่างโซ่เลื่อย เคลื่อนไหวเมื่อลำต้นไม่อยู่ระหว่างตัวผู้ใช้งานและโซ่เลื่อยเท่านั้น ระวังการติดตัวของกิ่งก้านที่มีแรงตึงสูง

การเล็มกิ่งก้านใหญ่

ในขณะที่เล็มกิ่งก้านใหญ่ ก้านนำจะถูกหนีบได้ง่าย กิ่งที่มีแรงตึงสูงมักติดกลับได้ง่าย ดังนั้นให้ค่อยๆ ตัดกิ่งที่มีปัญหาทีละน้อย โดยใช้วิธีเดียวกับการตัดตามขวาง โปรดวางแผนล่วงหน้าและคิดถึงผลอื่นๆ ที่อาจเกิดขึ้นจากการทำงานของคุณ

การตัดตามขวางตัดตรงเป็นท่อน

ก่อนการตัดตรง โปรดคิดล่วงหน้าถึงความเป็นไปได้ที่อาจเกิดมีขึ้น สังเกตแรงเค้นในท่อนซุงและตัดสินใจโดยระมัดระวังให้ก้านนำถูกหนีบ

การตัดตรงตามขวาง/แรงดันด้านบน

ยื่นให้มั่นคง เริ่มจากการตัดด้านบนก่อน อย่าตัดให้ลึกเกินไป ให้ตัดประมาณ 1/3 ของเส้นผ่าศูนย์กลางของซุง แล้วตัดด้านล่าง รอยเลื่อยควรจะบรรจบกัน (รูปที่ 24)

28. การตัด

29. การตัดตามขวาง

30. แรงดันด้านบน

31. ด้านที่มีแรงดัน
32. ด้านที่มีแรงดึง
33. ความลึกรอยรอยที่สัมพันธ์กัน

ท่อนซุงที่หนา และใหญ่กว่าความยาวของก้านนำ

เริ่มโดยตัดในด้านตรงข้ามของท่อนซุง ดึงเลื่อยยนต์เข้าหาตัวแล้วให้ทำตามขั้นตอนข้างต้น (รูปที่ 25)
ถ้าท่อนซุงนอนอยู่บนพื้นให้ตัดเปิดช่องทางเพื่อมีให้ตัดลงไปในพื้นที่ แล้วตัดด้านล่างของซุง (รูปที่ 26)

⚠ คำเตือน

อันตรายจากการกระชากกลับ

อย่าพยายามตัดแบบเปิดช่องหากผู้ใช้งานไม่ได้รับการฝึกฝนมาอย่างถูกต้อง การตัดเปิดช่องเป็นการใช้ปลายก้านนำในการตัด ซึ่งอาจทำให้เกิดการกระชากกลับได้

การตัดท่อนซุงตามแนวขวาง แร่งต้นด้านล่าง

ยื่นให้มันคง เริ่มตัดจากด้านล่าง โดยให้ลึกประมาณ 1/3 ของเส้นผ่าศูนย์กลางของซุง แล้วตัดด้านบน รอยเลื่อยควรจบรวมกับกัน (รูปที่ 27)

34. การตัด
35. การตัดตามขวาง
36. แร่งต้นด้านบน
37. ด้านที่มีแรงดัน
38. ด้านที่มีแรงดึง
39. ความลึกรอยรอยที่สัมพันธ์กัน

ท่อนซุงที่หนา และใหญ่กว่าความยาวของก้านนำ

เริ่มโดยตัดในด้านตรงข้ามของท่อนซุง ดึงเลื่อยยนต์เข้าหาตัวแล้วให้ทำตามขั้นตอนข้างต้น ใช้วิธีตัดแบบเปิดช่องทางร่อนซุงอยู่กับพื้น แล้วตัดด้านบน (รูปที่ 28)

⚠ คำเตือน

อันตรายจากการกระชากกลับ

อย่าพยายามตัดแบบเปิดช่องหากผู้ใช้งานไม่ได้รับการฝึกฝนมาอย่างถูกต้อง การตัดเปิดช่องเป็นการใช้ปลายก้านนำในการตัด ซึ่งอาจทำให้เกิดการกระชากกลับได้ (รูปที่ 29)

ถ้าโซ่เลื่อยติดขัด

ปิดเครื่องยนต์ ยกท่อนซุงขึ้นหรือเปลี่ยนตำแหน่งโดยใช้ก้านไม้ใหญ่ๆ หรือเสาเป็นคานงัด อย่าพยายามดึงเลื่อยยนต์ให้หลุด มิฉะนั้นมือจับอาจเสียหาย หรือเกิดการบาดเจ็บจากโซ่เลื่อย หากโซ่เลื่อยหลุดออกมาอย่างทันทีทันใด

การบำรุงรักษา

อาจบำรุงรักษา เปลี่ยน หรือซ่อมอุปกรณ์และระบบควบคุมไฮดรอลิกโดยหน่วยงานหรือช่างซ่อมเครื่องยนต์ใดๆ ที่ไม่ใช่จากบริษัทวาลวาจ

การปรับแต่งคาร์บูเรเตอร์ (รูปที่ 30)

ผสมกับอากาศในคาร์บูเรเตอร์ ในการทดลองเครื่องยนต์จากโรงงาน คาร์บูเรเตอร์จะถูกปรับตั้งมาแล้ว การปรับตั้งอีกอาจจำเป็น ขึ้นอยู่กับสภาพอากาศและความสูงการปรับตั้งคาร์บูเรเตอร์จะมีให้เพียงหนึ่งระดับ

T= สกรูปรับแต่งรอบหมุนเดินเบา

การปรับแต่งรอบหมุนเดินเบา (T)

ตรวจสอบว่าไส้กรองอากาศสะอาดหรือไม่ เมื่อรอบหมุนเดินเบาถูกต้อง ชุดไทม์มิตต์จะไม่หมุน หากจำเป็นต้องปรับแต่ง ปิด (ตามเข็มนาฬิกา) สกรู T ขณะเครื่องยนต์กำลังทำงาน จนชุดไทม์มิตต์เริ่มหมุน เปิด (ทวนเข็มนาฬิกา) สกรูจนชุดไทม์มิตต์หยุดหมุน คุณจะได้รับความเร็วเดินเบาที่ถูกตั้งเมื่อเครื่องยนต์ทำงานเรียบในทุกตำแหน่งที่ต่ำกว่ารอบหมุนที่ชุดไทม์มิตต์จะเริ่มหมุน
ถ้าชุดไทม์มิตต์ยังคงหมุนหลังจากปรับแต่งรอบหมุนเดินเบาแล้ว โปรดแจ้งตัวแทนจำหน่ายของท่าน

⚠ คำเตือน

เมื่อเครื่องยนต์เดินเบา ชุดไทม์มิตต์ต้องไม่หมุนในทุกกรณี

หมายเหตุ

ห้ามปรับตัวปรับความเร็วสูง (H) และตัวปรับความเร็วต่ำ (L) ทั้งสองจุดนี้ไว้สำหรับตัวแทนจำหน่ายของท่านเท่านั้น หากท่านหมุนสองจุดนี้ ก็อาจสร้างความเสียหายแก่เครื่องของท่านได้

ไส้กรองอากาศ (รูปที่ 31)

ไส้กรองอากาศ (40) จะต้องสะอาด ปราศจากฝุ่นละอองเพื่อหลีกเลี่ยง:

- คาร์บูเรเตอร์ไม่ทำงานผิดปกติ
- ปัญหาเมื่อสตาร์ท
- เครื่องยนต์สูญเสียกำลัง
- ชิ้นส่วนเครื่องยนต์สึกหรอโดยไม่จำเป็น
- สิ้นเปลืองน้ำมันผิดปกติ

ทำความสะอาดไส้กรองน้ำมันทุกครั้ง หรือบ่อยขึ้นเมื่อใช้งานในบริเวณที่มีฝุ่นผงมากเป็นพิเศษ

ถอดฝาครอบไส้กรองอากาศ (41) และไส้กรองอากาศ (40) ล้างด้วยน้ำสบู่อุ่นๆ ตรวจสอบว่าไส้กรองอากาศแห้งสนิทก่อนการประกอบ
เข้าไปใหม่ ไส้กรองอากาศที่ผ่านการใช้งานมาในระยะเวลาหนึ่งจะไม่สามารถล้างให้สะอาดได้หมด ดังนั้นจึงควรเปลี่ยนไส้กรองอากาศใหม่อย่างสม่ำเสมอ ควรเปลี่ยนไส้กรองอากาศที่เสียหายด้วยเช่นกัน

หัวเทียน (รูปที่ 32)

สภาพของหัวเทียนรับผลกระทบจาก:

- การตั้งค่าคาร์บูเรเตอร์ที่ไม่ถูกต้อง
- น้ำมันที่ผสมไม่ดี (มีน้ำมันหล่อลื่นในน้ำมันเบนซินมากเกินไป)
- ไส้กรองอากาศที่สกปรก
- สภาพการใช้งานหนัก (เช่น ใช้งานเมื่ออากาศเย็นจัด)

ปัจจัยเหล่านี้ทำให้เกิดเขม่าที่ผิวของหัวเทียน จนทำงานผิดปกติและ สดาร์ทเครื่องยนต์ได้ยาก ถ้าเครื่องยนต์มีกำลังอ่อน ติดเครื่องได้ยาก หรือเดินเครื่องแย่ เมื่ออยู่ในจังหวะเดินเบา ให้ตรวจดูหัวเทียนก่อนอื่น ถ้าหัวเทียนสกปรก ทำความสะอาดและตรวจดูระยะห่างของขี้หว ปรับแต่งใหม่หากจำเป็น ให้มีระยะที่ถูกต้อง 0.6 มม. ควรเปลี่ยน หัวเทียนเมื่อเดินเครื่องไปประมาณ 100 ชั่วโมงหรือเร็วกว่านั้น เมื่อหัว ไฟฟ้าสึกหรมาก

หมายเหตุ

ในบางพื้นที่ กฎหมายท้องถิ่นกำหนดให้ใช้หัวเทียนด้านทานเพื่อลด สัญญาณสดาร์ท ถ้าหัวเทียนด้านทานถูกติดตั้งกับอุปกรณ์มาแต่เดิม ให้ใช้หัวเทียนแบบเดียวกันในการเปลี่ยน

ช่องเติมน้ำมัน (รูปที่ 33)

ทำความสะอาดช่องเติมน้ำมันโซ่เลื่อย (42) บ่อยครั้งเท่าที่จะทำได้

ก้านนำ (รูปที่ 34)

ก่อนการซื้ออุปกรณ์ ให้ทำความสะอาดร่องและช่องเติมน้ำมัน (43) ในก้านด้วยอุปกรณ์พิเศษที่เสนอให้เป็นตัวเลือก

กล่องด้านข้าง (รูปที่ 35)

รักษาความสะอาดของกล่องด้านข้างและพื้นที่ขับเคลื่อนจากโซ่เลื่อยและ ฟันผง ทาน้ำมันหรือจาระบีลงบนบริเวณนี้เป็นครั้งคราวเพื่อป้องกันการ สึกกร่อนเนื่องจากดินไม้บางพันธุ์มีระดับความเป็นกรดสูง

ไส้กรองน้ำมัน (รูปที่ 36)

ถอดไส้กรองน้ำมันออกจากถังน้ำมันและล้างในตัวทำลายให้สะอาด หลังจากนั้นดันไส้กรองกลับเข้าไปในถังให้สุด

หมายเหตุ

ให้เปลี่ยนไส้กรองหากไส้กรองแข็งเนื่องจากฝุ่นละออง

ไส้กรองน้ำมันโซ่เลื่อย (รูปที่ 37)

ถอดไส้กรองน้ำมันออกจากถังน้ำมันและล้างในตัวทำลายให้สะอาด

การล้างครีบทรงกระบอก (รูปที่ 38)

เมื่อเศษไม้เข้าไปติดอยู่ระหว่างครีบทรงกระบอก (44) เครื่องยนต์อาจ ร้อนจัด ทำให้ประสิทธิภาพงานไม่ดีเท่าที่ควร เพื่อหลีกเลี่ยงปัญหานี้ ดังกล่าว ให้ทำความสะอาดครีบทรงและกล่องใบพัดอยู่เสมอ

ระบบป้องกันการเกิดน้ำแข็ง (รูปที่ 39, 40)

ระบบนี้มีจุดประสงค์เพื่อป้องกันมิให้เกิดน้ำแข็งขึ้นที่คาร์บูเรเตอร์เมื่อใช้ เครื่องมือในฤดูหนาว

- เมื่อคุณต้องการให้ระบบป้องกันน้ำแข็งทำงาน ให้ถอดฝาครอบตัว กรองอากาศออก (41) ดึงลิ้นปิด (45) จากด้านในตัวกรองอากาศ แล้วติดตั้งภายในเข้าไปในตำแหน่งการใช้งานในฤดูหนาวโดยการ หมุนเพียงครึ่งหนึ่ง (รูปที่ 39)

การดำเนินการดังกล่าวจะทำให้อากาศร้อนสามารถไหลจากด้าน กระบอกสูบไปยังช่องเก็บคาร์บูเรเตอร์ทางช่องที่เปิดอยู่ (46)

หมายเหตุ

เมื่อสิ้นสุดฤดูหนาวและพื้นที่ช่วงที่อาจเกิดน้ำแข็งขึ้นที่คาร์บูเรเตอร์ แล้ว โปรดอย่าลืมติดตั้งลิ้นกับชุดตำแหน่งเดิม (รูปที่ 40)

สำหรับการเก็บรักษาจากการไม่ได้ใช้งานเป็นเวลานาน เหน้หน้าจกถังถึงให้หมด สดาร์ทเครื่องยนต์แล้วปล่อยให้เครื่องยนต์ ทำงานจนดับเอง ซ่อมแซมความเสียหายจากการใช้งาน ทำความสะอาด อุปกรณ์ด้วยผ้าสะอาดหรือใช้เครื่องเป่าลมแรงสูง เติมน้ำมันเครื่องสอง จังหวะเข้าไปในทรงกระบอก ผ่านช่องหัวเทียน หมุนเครื่องยนต์หลายๆ ครั้ง เพื่อกระจายน้ำมันปิดผาเครื่องและเก็บรักษาในที่แห้ง

การลับคมโซ่เลื่อย

อะไหล่ของใบมีด (รูปที่ 41, 42)

คำเตือน

- ควรสวมถุงมือในขณะลับคมเลื่อย
- โปรดลับขอบด้านหน้าให้เรียบเพื่อลดโอกาสในการเกิดการกระชากกลับ หรือสายยึดเสียหาย

47. ถาดด้านบน
48. มุมการตัด
49. ถาดเลื่อน
50. รางนำ
51. ท้ายอุปกรณ์
52. โครงเครื่องยนต์
53. รูสำหรับยึดหมุด
54. ปลาย
55. เครื่องวัดความลึก
56. มุมที่ถูกต้องบนถาดด้านบน (องศาของมุมจะขึ้นอยู่กับประเภทของ โซ่)
57. ดันตะขอ หรือปลายเข้าไปเล็กน้อย (แนวโค้งบนโซ่ที่ไม่ได้สกัด)
58. ด้านบนของเครื่องวัดความลึกที่ความสูงที่ต้องการ ได้ถาดด้านบน
59. ด้านหน้าของเครื่องวัดความลึกที่ถูกปรับให้เรียบ

ลดตำแหน่งของเครื่องวัดความลึกด้วยตะใบ

- 1) ถ้าคุณลับใบมีดด้วยตะใบ ตรวจสอบและลดความลึกของ
- 2) ตรวจสอบเครื่องวัดความลึกทุกการลับสามครั้ง
- 3) วางเครื่องวัดความลึกบนใบมีด ถ้าเครื่องวัดความลึกยื่นออกมา ให้ตะใบให้เสมอกันกับด้านบนของอุปกรณ์ โปรดตะใบจากด้านใน ของโซ่เลื่อยออกมาด้านนอกใบมีดเสมอ (รูปที่ 43)
- 4) ลับมุมด้านหน้าเพื่อรักษารูปร่างเดิมของเครื่องวัดความลึกหลังการใช้ เครื่องวัดความลึกแล้ว โปรดปฏิบัติตามคำแนะนำการตั้งค่าเครื่องวัด ความลึกในคู่มือผู้ใช้งานของเลื่อยยนต์ (รูปที่ 44)

คำแนะนำทั่วไปในการตะใบใบมีด

- ให้ตะใบ (60) ใบมีดบนด้านใดด้านหนึ่งของโซ่เลื่อยจากด้านในไปหา ด้านนอก และตะใบไปยังหน้าเท่านั้น (รูปที่ 45)
- 5) ตรวจสอบให้ใบมีดมีความยาวเท่ากัน (รูปที่ 46)
 - 6) ตะใบให้มากพอที่จะเอาความเสียหายของใบมีด (ถาดด้านข้าง (62) และถาดด้านบน (63)) ออก (รูปที่ 47)

หมายเหตุ

อย่าตะใบหรือปรับแต่งด้านบนของตัวกันสะบัดระหว่างข้อต่อ (61) (รูปที่ 46)

การลับมุมสำหรับการลับโซ่เลื่อย

1. อะไหล่หมายเลข	95VPX/20BPX
2. ความลาด	0.325"
 3. การตั้งค่าเครื่องวัดความลึก	0.025"
 4. มุมตะไบภาคด้านข้าง	85 °
 5. มุมภาคด้านบน	30 °
 6. มุมในการตะไบ	100 °

แผนการบำรุงรักษา

ต่อไปนี้เป็นคำแนะนำทั่วไปบางอย่างในการบำรุงรักษา หาข้อมูลเพิ่มเติมได้จากตัวแทนจำหน่ายของท่าน

การบำรุงรักษาประจำวัน

- ทำความสะอาดด้านนอกของตัวเครื่อง
- ทำความสะอาดช่องกรองน้ำมันโซ่เลื่อย
- ทำความสะอาดร่องและช่องกรองน้ำมันโซ่เลื่อยในก้านนำ
- ทำความสะอาดกล่องด้านข้างจากโซ่เลื่อย
- ตรวจสอบความคมของโซ่เลื่อย
- ตรวจสอบว่าได้ขันน็อตของก้านจนแน่นแล้ว
- ตรวจสอบว่าเครื่องป้องกันการหมุนของโซ่มีได้เสียหายและสามารถยกขึ้นได้อย่างมั่นคง
- ตรวจสอบว่าได้ขันน็อตและสกรูจนแน่นแล้ว
- ตรวจสอบสลักกันเสียงอย่างละเอียดแล้วดูว่าขันแน่นดีแล้วก่อนสตาร์ทเครื่อง หากสลักหลวม ให้ขันให้แน่นขึ้นที่ สลักที่ไม่แน่นนั้น อาจทำให้เกิดอันตรายอย่างร้ายแรงได้
- ตรวจสอบปลายก้านนำ โปรตเปลี่ยนปลายก้านนำใหม่หากเกิดการสึกหรอ
- ตรวจสอบวงโซ่เลื่อย โปรตเปลี่ยนใหม่หากเกิดการสึกหรอ
- ทำความสะอาดไส้กรองอากาศ

การบำรุงรักษาประจำสัปดาห์

- ตรวจสอบคู่มือสวิตช์เตอร์ โดยเฉพาะสาย
- ทำความสะอาดด้านนอกของหัวเทียน
- ถอดหัวเทียนและตรวจสอบช่องของหัวไฟฟ้า ปรับให้ห่าง 0.6 มิลลิเมตร หรือเปลี่ยนหัวเทียนใหม่
- ทำความสะอาดครีบบายความร้อนที่กระบอกสูบและตรวจสอบว่าอากาศเข้ารีคอยล์สวิตช์เตอร์ไม่อุดตัน

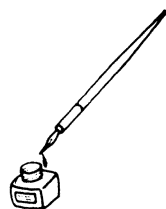
การบำรุงรักษาประจำเดือน

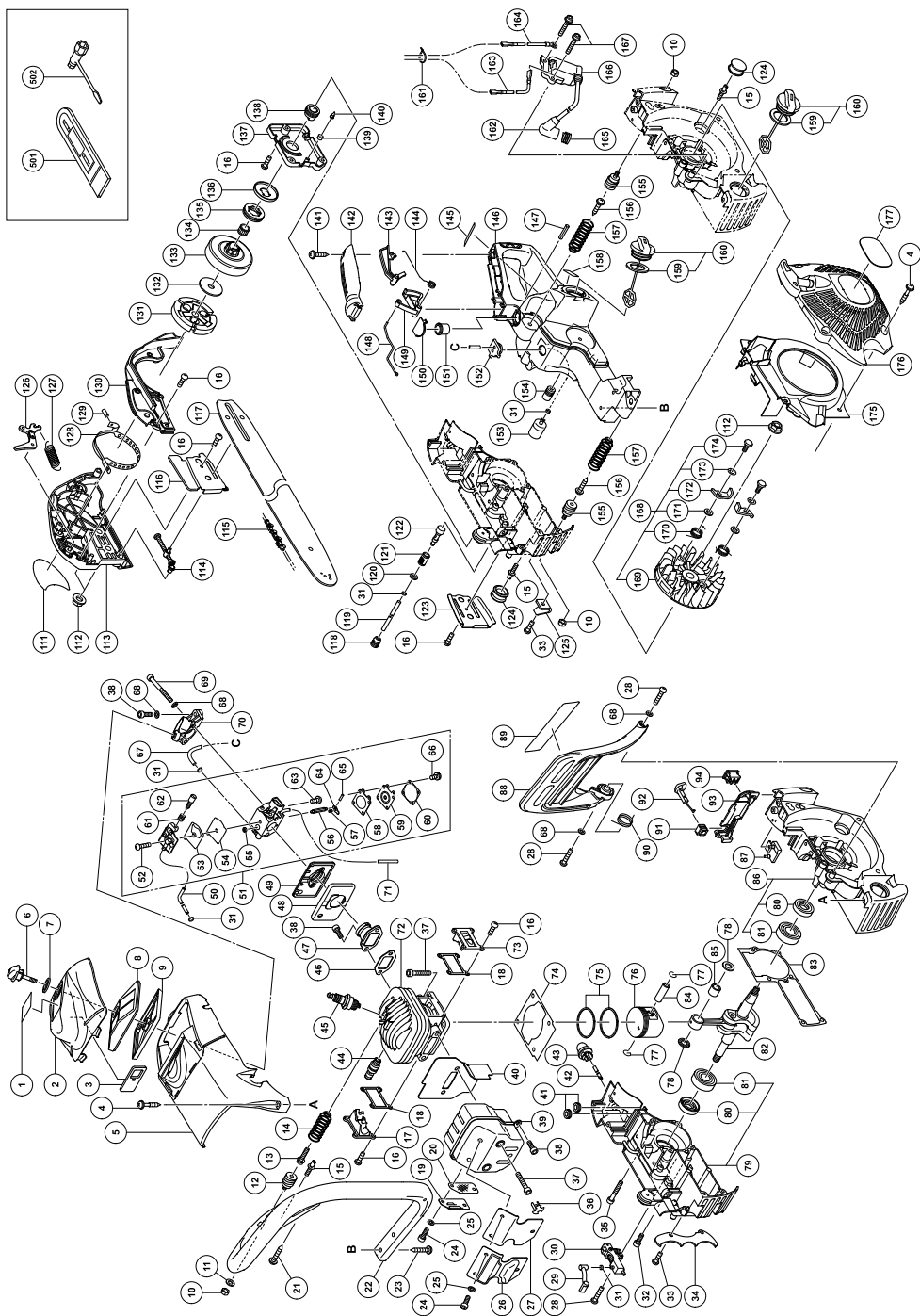
- ล้างถังน้ำมันด้วยน้ำมันเบนซิน และล้างไส้กรองน้ำมัน
- ทำความสะอาดไส้กรองน้ำมันโซ่เลื่อย
- ทำความสะอาดด้านนอกของคาร์บูเรเตอร์และที่ว่างรอบๆ
- ทำความสะอาดพัดลมและที่ว่างรอบๆ

หมายเหตุ

เมื่อสั่งอะไหล่จากตัวแทนจำหน่ายใกล้บ้านท่าน โปรดใช้หมายเลขอะไหล่ที่แสดงในบทที่แสดงการแยกชิ้นส่วนอุปกรณ์ในคู่มือการใช้งาน

	หมายเลขบาร์	ชนิดของ ความยาว	หมายเลขโซ่
หมายเลขรุ่น โอเรกอน	160MLBK041	400 มม. (16")	95VPX-66
	180MLBK041	450 มม. (18")	95VPX-72
	200PXBK041	500 มม. (20")	20BPX-78

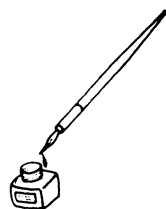


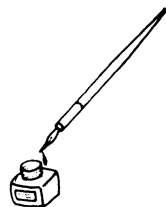


ITEM NO.	PART NAME	Q'TY
1	START LABEL	1
2	CLEANER COVER (C51)	1
3	SHUTTER PLATE	1
4	COVER SET BOLT	7
5	CYLINDER COVER (C51)	1
6	CLEANER KNOB	1
7	KNOB PACKING	1
8	CLEANER ELEMENT (B)	1
9	CLEANER ELEMENT (A)	1
10	NUT M6	3
11	BOLT WASHER M6	1
12	SPRING HOLDER	1
13	HEX. SOCKET HD. BOLT (W/FLANGE) M6 x 20	1
14	ANTIVIBRATION SPRING	1
15	DAMPER SET BOLT	3
16	SEAL LOCK SCREW M4 x 10	18
17	SCAVENGING COVER (B)	1
18	COVER PACKING (C51)	2
19	EXHAUST PIPE (C51)	1
20	MUFFLER GAUZE (C51)	1
21	TAPPING SCREW (W/FLANGE) D5 x 25	2
22	FRONT HANDLE	1
23	TAPPING SCREW (W/FLANGE) D5 x 20	2
24	HEX. SOCKET HD. BOLT M4 x 10	5
25	BOLT WASHER M4	5
26	MUFFLER PROTECTOR	1
27	MUFFLER PROTECTOR PACKING	1
28	MACHINE SCREW M4 x 16	3
29	OIL PIPE (CS40)	1
30	OIL PUMP	1
31	CLIP	4
32	SEAL LOCK HEX. SOCKET HD. BOLT M5 x 30	4
33	SEA LOCK SCREW M5 x 12	3
34	SPIKE	1
35	SEAL LOCK HEX. SOCKET HD. BOLT M5 x 45	2
36	MUFFLER CAP	2
37	HEX. SOCKET HD. BOLT M6 x 20	6
38	HEX. SOCKET HD. BOLT M5 x 12	5
39	MUFFLER (C51)	1
40	MUFFLER PACKING (C51)	1
41	GROMMET	2
42	FUEL PIPE 2.5 x 4 x 90	1
43	PRIMING PUMP COMP.	1
44	DECOMP.	1
45	SPARK PLUG BPMR7A	1
46	INTAKE PACKING (C51)	1
47	INTAKE (C51)	1
48	CAB. INSULATOR RUBBER	1
49	CARBURETOR INSULATOR (C51)	1
50	FUEL PIPE	1
51	CARBURETOR ASS'Y	1
52	SCREW	1
53	PUMP GASKET	1
54	PUMP DIAPHRAGM	1

ITEM NO.	PART NAME	Q'TY
55	INLET SCREEN	1
56	NEEDLE VALVE	1
57	VALVE SPRING	1
58	DIAPHRAGM PACKING-METERING	1
59	METERING DIAPHRAGM	1
60	DIAPHRAGM COVER-METERING	1
61	IDLE ADJUST SPRING	1
62	IDLE ADJUST SCREW	1
63	HINGE PIN SET SCREW	1
64	CONTROL LEVER	1
65	HINGE PIN	1
66	SET SCREW	1
67	FUEL PIPE	1
68	WASHER 5	5
69	HEX. SOCKET HD. BOLT M5 x 45	2
70	CLEANER SUPPORT (C51)	1
71	FUEL PIPE	1
72	CYLINDER	1
73	SCAVENGING COVER (A)	1
74	CYLINDER PACKING (C51)	1
75	PISTON RING	2
76	PISTON (44) M	1
77	CIR CLIP	2
78	PISTON PIN COLLAR (C51)	2
79	ENGINE CASE (B)	1
80	OIL SEAL	2
81	BALL BEARING 6202C3	2
82	CRANK SHAFT	1
83	CRANK CASE PACKING (C51)	1
84	PISTON PIN	1
85	NEEDLE BEARING (A)	1
86	ENGINE CASE (A)	1
87	REAR DAMPER (C51)	1
88	BRAKE HANDLE	1
89	CAUTION LABEL	1
90	BRAKE LEVER SPRING (B)	1
91	CHOKE ROD RUBBER	1
92	CHOKE BUTTON	1
93	OPERATIONAL PANEL	1
94	STOP SWITCH	1
111	NAME PLATE	1
112	FLANGE NUT M8	3
113	SIDE CASE SUB	1
114	CHAIN PULLER	1
115	SAW CHAIN	1
116	GUIDE PLATE (B)	1
117	BAR	1
118	OIL GROMMET (A)	1
119	FUEL PIPE	1
120	BOLT WASHER D5	1
121	OIL FILTER	1
122	OIL FILTER BODY	1
123	GUIDE PLATE (A)	1
124	DAMPER (C51)	2
125	CHAIN CATCHER	1
126	BRAKE LINK	1
127	BRAKE SPRING	1
128	BRAKE BAND	1
129	NEEDLE ROLLER D3	1

ITEM NO.	PART NAME	Q'TY
130	BRAKE LINK COVER	1
131	CLUTCH	1
132	CLUTCH WASHER (B)	1
133	CLUTCH HOUSING	1
134	NEEDLE BEARING	1
135	RIM SPROCKET	1
136	CLUTCH WASHER	1
137	OIL PUMP COVER (C51)	1
138	WORM	1
139	AIR VENT SPONGE	1
140	AIR VENT VALVE (B)	1
141	TAPPING SCREW (W/FLANGE) D4 x 16	1
142	REAR HANDLE GRIP	1
143	THROTTLE LEVER LOCKOUT	1
144	THROTTLE LEVER SPRING	1
145	NUMBER PLATE	1
146	REAR HANDLE	1
147	SPRING PIN 5 x 25	1
148	THROTTLE ROD	1
149	THROTTLE LEVER	1
150	AIR VALVE CAP	1
151	INNER CAP	1
152	GROMMET	1
153	PUMP FILTER BODY	1
154	FRONT DAMPER	1
155	SPRING HOLDER	2
156	FLANGED TAPPING SCREW D6	2
157	ANTIVIBRATION SPRING	2
158	TANK MARK LABEL	1
159	TANK CAP PACKING	2
160	FUEL TANK CAP ASS'Y	2
161	BAND	1
162	PLUG CAP	1
163	CORD (A)	1
164	CORD (B)	1
165	METAL FITTING OF PLUG CAP	1
166	IGNITION COIL	1
167	HEX. SOCKET HD. BOLT (W/FLANGE) M4 x 18	2
168	MAGNETO ASS'Y	1
169	MAGNETO ROTOR	1
170	STARTER PAWL SPRING	2
171	WASHER 0.8	2
172	STARTER PAWL	2
173	SHIM	2
174	STEP BOLT	2
175	AIR DEFLECTOR	1
176	RECOIL STARTER	1
177	TANAKA LABEL	1
501	CHAIN COVER	1
502	COMBI BOX SPANNER	1





Koki Holdings Co., Ltd.