

! WARNING

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- Lead from lead-based paints,
- Crystalline silica from bricks and cement and other masonry products, and
- Arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.



POWERHORSE™

**GAS-POWERED CHAIN SAW
OWNER'S MANUAL**



POWERHORSE™

Distributed by
Northern Tool + Equipment Co.,
2800 Southcross Drive West
P.O. Box 1499 Burnsville, MN 55337-0499
Made in China

! WARNING:

Read carefully and understand all INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury. Allow only persons who have read and understand this manual to operate the chain saw.

Item # 190557

Thank you very much for choosing a Powerhorse™ Product! For future reference, please complete the owner's record below:

Model: _____ Purchase Date: _____

Save the receipt, warranty and these instructions. It is important that you read the entire manual to become familiar with this product before you begin using it.

This machine is designed for certain applications only. The distributor cannot be responsible for issues arising from modification. We strongly recommend this machine is not modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, DO NOT use the machine until you have first contacted the distributor to determine if the application should be performed using product.

For technical questions please call **1-866-443-2576**.

INTENDED USE

This chain saw is designed for cutting wood and wood-related products only. Do not cut solid metal, sheet metal, plastic or any other non-wood material.

Any Questions, Comments, Problems, or Parts Orders

Call Powerhorse Product Support at 1-866-443-2576

WARRANTY

MANUFACTURER'S LIMITED WARRANTY

The limited warranty set forth below is given by Northern Tool + Equipment Co. with respect to new merchandise purchased and used in the United States, its possessions and territories.

Northern Tool + Equipment Co. warrants this product against defects in material and workmanship for a period of two (2) years commencing on the date of original purchase and will, at its option, repair or replace, free of charge, any part found to be defective in material or workmanship. This limited warranty shall only apply if this product has been operated and maintained in accordance with the Operator's Manual furnished with the product, and has not been subject to misuse, abuse, commercial use, neglect, accident, improper maintenance, alteration, vandalism, theft, fire, water or damage because of other peril or natural disaster. Damage resulting from the installation or use of any accessory or attachment not approved by Northern Tool + Equipment Co. for use with the product(s) covered by this manual will void your warranty as to any resulting damage. This warranty is limited to ninety (90) days from the date of original retail purchase for any Northern Tool + Equipment Co. product that is used for rental or commercial purposes, or any other income-producing purposes.

This limited warranty does not provide coverage in the following cases:

1. Tune-ups – Spark Plugs, Carburetor Adjustments, Filters
2. Wear items – Starter Pulley and Starter Rope
3. Northern Tool + Equipment Co. does not extend any warranty for products sold or exported outside of the United States of America, its possessions and territories, except those sold through Northern Tool + Equipment Co. authorized channels of export distribution.

Northern Tool + Equipment Co. reserves the right to change or improve the design of any Northern Tool + Equipment Co. product without assuming any obligation to modify any product previously manufactured.

No implied warranty, including any implied warranty of merchantability or fitness for a particular purpose, applies after the applicable period of express written warranty above as to the parts as identified. No other express warranty or guaranty, whether written or oral, except as mentioned above, given by any person or entity, including a dealer or retailer, with respect to any product shall bind Northern Tool + Equipment Co. During the period of the Warranty, the exclusive remedy is repair or replacement of the product as set forth above. (Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.)

The provisions as set forth in this warranty provide the sole and exclusive remedy arising from the sales. Northern Tool + Equipment Co. shall not be liable for incidental or consequential loss or damages including, without limitation, expenses incurred for substitute or related expenses, or for rental expenses to temporarily replace a warranted product. (Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.)

In no event shall recovery of any kind be greater than the amount of the purchase price of the product sold. Alteration of the safety features of the product shall void this warranty. You assume the risk and liability for loss, damage, or injury to you and your property and/or to others and their property arising out of the use or misuse or inability to use the product.

This limited warranty shall not extend to anyone other than the original purchaser, original lessee or the person for whom it was purchased as a gift.

How State Law Relates to this Warranty: This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

For questions about your warranty, please call 1-866-443-2576.

ENGINE EXPLODED VIEW – (CONTINUED)

Item #	Part #	Description	Qty
1	YD45_01.02-1	Cylinder body	1
2	GB/T6186	Nut M5	2
3	GB/T93	Washer 5	15
4	GB/T97.1	Washer 5	2
5	YD45_01_09-1	Silencer cover plate	1
6	YD45_01.09.01-00	Silencer body	1
7	YD45_01_00-2	Silencer sealing plate	1
8	YD45.01.00-24	Muffler connecting screw	2
9	GB/T70.1	Screw M5X20	6
10	GB/T848	Washer 5	11
11	YD45.01.11.04-00	Spark plug NHSP LD L8RTF	1
12	YD45.01.02-2	Air intake tube sealing plate	1
13	YD45.01.02.01-00	Air intake tube	1
14	GB/T818	Screw M5X12	4
15	YD45.01.00-17	Hold coil	1
16	YD45.01.00-1	Cylinder sealing plate	1
17	YD45.01.03-2	Piston ring	2
18	YD45.01.03-1	Piston	1
19	YD45.01.03-4	Piston pin circlip	2
20	YD45.01.03-3	Piston pin	1
21	YD45.01.03-5	Needle bearing ring	2
22	YD45.01.03.01-00	Crankshaft connecting bar components	1
23	YD45.01.03.02-00	Needle bearing 11X15X12.5	1
24	GB/T1099	Semicircular key 3X3.5X10	1
25	YD45.00.00-4	Conical spreader spring	1
26	YD45.00.00-3	Conical spreader base	1
27	GB/T845	Tapping screw ST5X16	4
28	YD45.00.00.01-00	Chain catcher	1
29	GB/T818	Screw M5X16	1
30	YD45.01.01.02-2	Aeration jet	1
31	YD45.01.01.02-3	Aeration jet circlip	1
32	YD45.01.00-22	Sponge transition block	1
33	YD45.01.00-21	Bumper spikes	1
34	GB/T818	Screw M5X10	5
35	YD45.01.00.04-2	Oil filter screen	1
36	YD45.01.00.04-1	Oil filter	1
37	YD45.01.00-12	Oil tube	1
38	GB/T818	Screw M4X14	2
39	YD45.01.15-00	Oil pump	1
40	YD45.01.00-23	Sponge transition coil	1
41	YD45.01.00-13	Nozzle	1
42	YD45.01.00-16	Chain guide block	1
43	GB/T900	Double-screw bolt AYM8-M8X26-8.8	2
44	YD45.01.13.01-2	Shoe block	3
45	YD45.01.13.01-1	Retainer	1
46	YD45.01.13.01-3	Clutch extension spring	1
47	YD45.01.00-19	Clutch adjusting washer	1
48	YD45.01.00.10-00	Needle bearing 12X15X14.5	1
49	YD45.01.13-1	Clutch shell	1
50	YD45.01.00-26	Sprocket	1

Item #	Part #	Description	Qty
51	YD45.01.00.06-00	Turbine	1
52	YD45.01.00-15	Cover plate	1
53	YD45.01.00.09-00	Oil seal 15X28X4.5	1
54	GB/T276	Bearing 6202 grade D 15X35X11	1
55	YD45.01.00-8	Shock block 1	1
56	YD45.01.00-7	Throttle lever retaining bracket	1
57	YD45.01.00.03-00	Throttle rod	1
58	YD45.01.00-11	Right shock block	1
59	YD45.01.00.07-00	Cushion socket	3
60	YD45.01.00.01-00	Air intake support	1
61	YD45.01.00-4	Backing board	1
62	YD45.01.00-3	Sealing plate of air intake support	1
63	YD45.01.00-14	Air intake flange	1
64	YD45.01.06-00	Carburetor	1
65	YD45.01.00.02-00	Air intake socket	1
66	YD45.01.08-00	Air filter	1
67	GB/T899	Double-screw bolt GM5-M5X30	1
68	YD45.01.00-5	Cushion of air intake socket	1
69	GB/T818	Nut M5X50	2
70	YD45.01.01.02-1	Right case body	1
71	YD45.01.00-6	Dust plate	1
72	GB/T119.2	Pin 5X10	3
73	YD45.01.00-9	Shoe block 2	1
74	YD45.01.11-2	Ground strip	1
75	YD45.01.11.03-00	Extinction switch	1
76	YD45.01.11-1	Extinction switch socket	1
77	YD45.01.00-10	Left shock block	1
78	GB/T70.1	Screw M5X25	5
79	YD45.01.00-20	Oil seal damper	1
80	GB/T97.1	Washer 4	2
81	GB/T93	Washer 4	2
82	GB/T818	Screw M4X10	6
83	YD45.01.10.01-00	Flywheel	1
84	GB/T93	Washer 8	1
85	GB/T6171	Nut M8X1	1
86	YD45.01.00.05-3	Packing washing 20X30X2	1
87	YD45.01.00.05-2	Anti-drop plate	1
88	YD45.01.00.05-1	Oil cover	1
89	YD45.01.01.01-3	Suction tube circlip	2
90	YD45.01.01.01-2	Suction tube 2.5X7X105	1
91	YD45.01.01.03-00	Suction jet	1
92	YD45.01.01.01-1	Left case body	1
93	GB/T893.1	Ring 35	1
94	YD45.01.00.08-00	Oil seal 15X35X4.5	1
95	YD45.01.11.01-00	Igniter	1
96	YD45.01.11.02-00	Extinction conductor	1
97	YD45_00_00-2	Dust cover	3
98	YD45.01.01-1	Case body sealing plate	1
99	YD45.01.00-18	Damper	1

GENERAL SAFETY RULES



WARNING:

Some instructions contained within this manual are marked with this symbol. These instructions are critical points that must be taken seriously. **Read and understand all instructions.** Failure to follow all instructions listed below may result in serious bodily injury.

IMPORTANT:

This indicates instructions, which must be followed. Failure to do so could lead to mechanical failure, breakdown or damage.

NOTE:

This indicates hints or specific direction useful to the assembly and/or use of the product



WARNING: Do not lend or rent your chainsaw without the owner's manual. Be sure anyone using your saw reads and understands the information contained in this manual.



WARNING: Because a chain saw is a high-speed woodcutting tool, some special safety precautions must be observed as with any other power saw to reduce the risk of personal injury. Careless or improper use may cause serious or fatal injury.



WARNING: Carbon Monoxide produced by the engine during use can kill. Saw **MUST** be used outdoors. Do not use indoors, near windows or in other sheltered areas.



WARNING: The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions or situations that could occur. It must be understood by the operator that common sense and caution are factors, which cannot be built into this product, but must be supplied by the operator.

SAVE THESE INSTRUCTIONS

WORK AREA

- **Keep work area clean**, free of clutter and well lit. Cluttered and dark work areas can cause accidents.
- **Do not use the chain saw where there is a risk of causing a fire or an explosion**; e.g. in the presence of flammable liquids, gasses, or dust. Chain saw use creates sparks, which may ignite the dust or fumes.
- **Minors should never be allowed to use a chain saw.** Bystanders, especially children and animals, should not be allowed in the area where a chain saw is in use.
- **Be aware of all power lines, electrical circuits**, water pipes and other mechanical hazards in your work area, particularly those hazards below the work surface hidden from the operator's view that may be unintentionally contacted and may cause personal harm or property damage.
- **Be aware of your surroundings.** Never use the chain saw when the ground is slippery or when other conditions exist which might make it difficult to maintain a steady posture. Using the chain saw in confined work areas may also put you in a dangerous situation.
- **Do not use the chain saw at night** or at times of heavy fog, or at any other times when your field of vision might be limited, making it difficult to gain a clear view of the area.
- **Never use the chain saw during a rain or lightning storm**, or at times of strong or gale-force winds, or at other times when weather conditions make it unsafe to use the chain saw.

PERSONAL SAFETY

- **Stay alert**, watch what you are doing and use common sense when operating a chain saw. Do not use a chain saw while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating a chain saw may result in serious personal injury.

- **Dress properly.** Clothing must be sturdy and snug fitting, but allow complete freedom of movement.



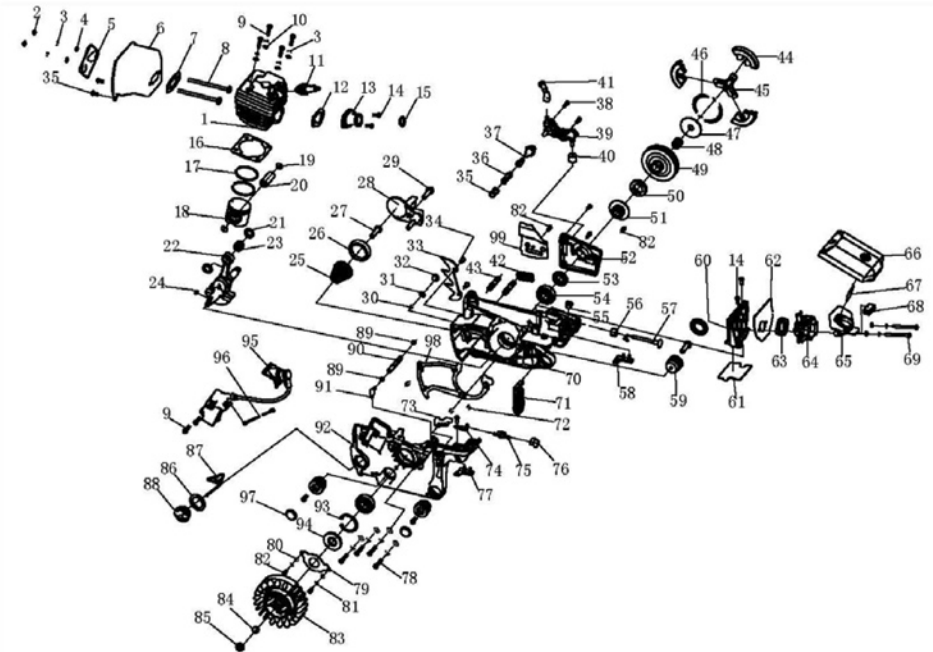
Avoid loose-fitting jackets, scarves, neckties, jewelry, flared or cuffed pants, unconfined long hair or anything that could become entangled with the saw or brush. Wear overalls or jeans with a reinforced cut-retardant insert or cut-retardant chaps.

- **Use safety apparel and equipment.** Use safety goggles or safety glasses with side shields which comply with current national standards, or when needed, a face shield. Wear an approved safety hard hat to protect your head. Chain saw noise may damage your hearing. Always wear sound barriers (ear plugs or ear muffs) to protect your hearing. Continual and regular users should have their hearing checked regularly. Protect your hands with heavy-duty, nonslip gloves. Wear sturdy boots with nonslip soles. Steel-toed safety boots are recommended.



- **Do not overreach.** Good footing is most important in chain saw work. Keep proper footing and balance at all times.

ENGINE EXPLODED VIEW



CHAINSAW EXPLODED VIEW – (CONTINUED)

Item #	Part #	Description	Qty	Item #	Part #	Description	Qty
1	YD45.04.00-00	Right cover assembly	1	38	YD45.02.00-1	Bossing	1
2	YD45.04.00-16	Shield pin	1	39	GB/T818	Screw M5X10	1
3	YD45.04.00-15	Shield pin gland	1	40	GB/T96	Washer 5	1
4	GB/T896	Ring 3	1	41	YD45.02.00-2	Start plate	1
5	YD45.04.00-17	Spacer pin	1	42	YD45.02.00-3	Coil-spring gland	1
6	YD45.04.00-10	Secondary brake spring	1	43	YD45.02.00-5	Start coil-spring	1
7	YD45.04.00-9	Brake spring	1	44	YD45.02.00-4	Start handle	1
8	YD45.04.00-14	Brake control rod	1	45	YD45.02.00-7	Start stretching wire	1
9	YD45.04.00-3	Secondary pull-rod	1	46	YD45.02.00-8	LH sheathing	1
10	GB/T119.2	Pin 3x9	1	47	YD45.02.01-00	Start cover	1
11	YD45.04.00-4	Main level	1	48	YD45.03.00-2	Fuel tube	1
12	YD45.04.00-18	Tightener screw	1	49	YD45.03.03-00	Petrol filter components	1
13	YD45.04.00-19	Tension block	1	50	YD45.03.00-1	Shock rubber	1
14	GB/T845	Tapping screw ST4x8	5	51	YD45.03.01-00	Base	1
15	YD45.04.00-1	Brake spring cover plate	1	52	YD45.03.02-00	Shock rubber gland	2
16	YD45.04.00-5	Shock rubber washer	1	53	GB/T845	Tapping screw ST5X16	4
17	GB/T896	Shield ring 5	1	54	YD45.00.00-2	Dust cover	2
18	GB/T96	Washer 6	1	55	YD45.01.00.05-2	Anti-drop plate	1
19	YD45.04.00-8	Brake torsion rod spring	1	56	YD45.01.00.05-3	Packing washing 20X30X2	1
20	YD45.04.00-11	Tensioner cover plate	1	57	YD45.01.00.05-1	Oil cover	1
21	YD45.01.00-16	Chain guide dog	1	58	YD45.03.00-9	Button	1
22	YD45.04.01-00	Right cover	1	59	YD45.03.00-10	Button spring	1
23	YD45.04.00-12	Brake strap	1	60	GB/T119.2	Pin 6X30	1
24	YD45.04.00-7	Dust shield	1	61	GB/T845	Tapping screw ST4X25	1
25	GB/T896	Shield ring 4	1	62	YD45.03.00-13	Trigger control rack	1
26	YD45.04.00-13	Spacing shield	1	63	YD45.03.00-12	Trigger torsion rod spring	1
27	YD45.04.00-6	Shock rubber cushioning	1	64	YD45.03.00-11	Trigger	1
28	YD45.04.00-2	Front damper	1	65	YD45.01.00-25	Throttle	1
29	YD45.04.00-21	Tension gear	1	66	YD45.03.00-8	Button shaft	1
30	GB/T6177.1	Nut M8	2	67	YD45.03.00-14	Handle cover	1
31	YD45.05.01-00	Air filter lock nut	1	68	YD45.03.00-4	Balancer oil tube	1
32	YD45.05.01-02	Lock nut washer 15X26X1	1	69	YD45.03.00-5	Balancer body	1
33	YD45.05.00-01	Air filter cover	1	70	YD45.03.00-6	Balancer rubber	1
34	YD45.00.00-6	Idle adjusting guide set	1	71	YD45.03.00-7	Balancer cover	1
35	GB/T818	Screw M5X16	11	72	YD45.03.00-3	Sealing rubber	1
36	YD45.00.00-1	Upper cover plate	1	73	GB/845	Tapping screw ST4X13	1
37	YD45.02.00-00	Starter assembly	1	74	YD45.06.00-00	Front handle assembly	1



WARNING: Avoid “kickback” by knowing what conditions can create it. Kickback may occur when the nose or tip of the guide bar touches an object, or when the wood closes in and pinches the saw chain in the cut. Tip contact in some cases may cause a lightning fast reverse reaction, kicking the guide bar up and back towards the operator. Pinching the saw chain along the top of the guide bar may push the guide bar rapidly back towards the operator. Either of these reactions may cause you to lose control of the saw which could result in serious personal injury.

- **Remove adjusting keys or wrenches** before starting the chain saw. A wrench or key that is left attached to a rotating part of the chain saw may result in personal injury.

INTERNAL COMBUSTION ENGINE SAFETY



WARNING: Internal combustion engines present special hazards during operation and fueling. Read and follow the warning instructions in the engine Owner’s Manual and the safety guidelines below. Failure to follow the warnings and safety standards could result in severe injury or death.

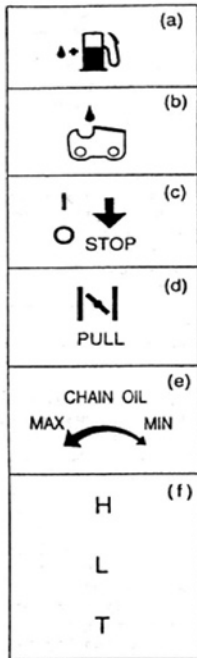
- **DO NOT** run the chain saw indoors or in an enclosed area such as a deep trench unless adequate ventilation, through such items as exhaust fans or hoses, is provided. Exhaust gas from the engine contains poisonous carbon monoxide gas; exposure to carbon monoxide can cause loss of consciousness and may lead to death.
- **DO NOT** smoke while operating the chain saw.
- **DO NOT** smoke when refueling the chain saw.
- **DO NOT** refuel a hot or running chain saw.
- **DO NOT** refuel the chain saw near an open flame.
- **DO NOT** spill fuel when refueling the chain saw.
- **DO NOT** run the chain saw near open flames.
- **ALWAYS** refill the fuel tank in a well-ventilated area.
- **ALWAYS** replace the fuel tank cap after refueling.
- **ALWAYS** check the fuel lines and the fuel tank for leaks and cracks before starting the chain saw. Do not run the chain saw if fuel leaks are present or the fuel lines are loose.
- **ALWAYS** avoid contact with hot fuel, oil, exhaust fumes and solid surfaces.
- **Never touch** the engine or muffler while the engine is on or immediately after it has been turned off. These areas get hot and may cause burns.
- **Move the chain saw at least 10 feet from fueling point** before starting the engine.

NOTE: All Federal and State laws and any regulation having jurisdiction covering the safety requirements for use of the chain saw take precedence over the statements in this manual. Users of this chain saw must adhere to such regulations.

EXPLANATION OF SYMBOLS ON THE MACHINE

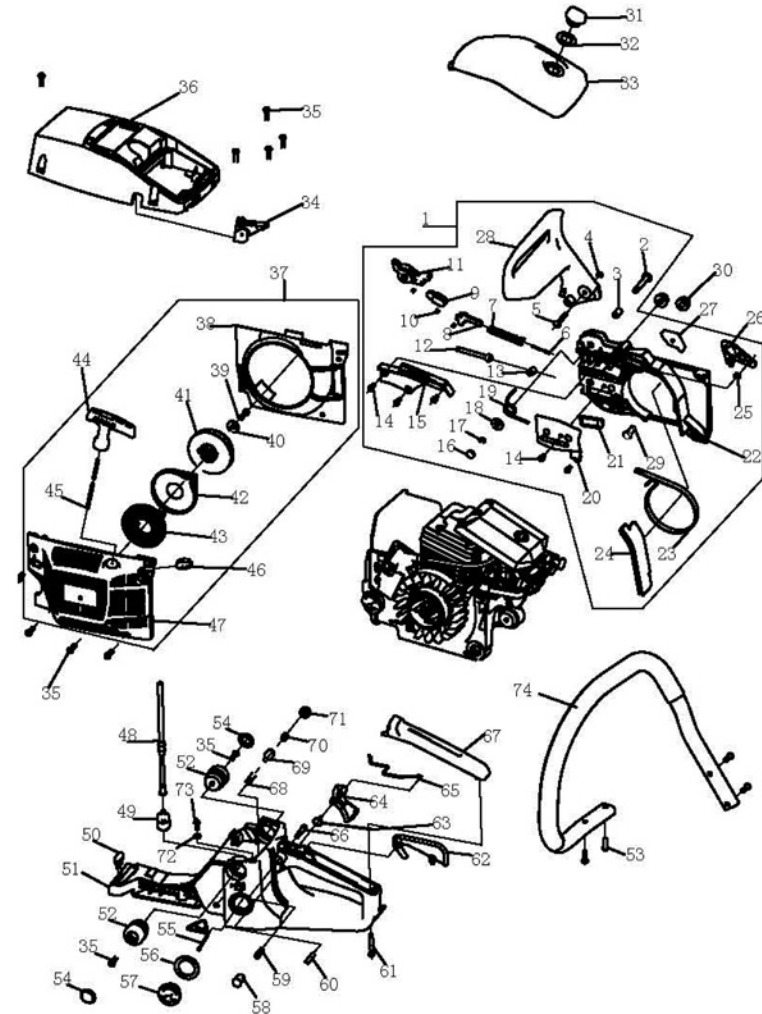


For safe operation and maintenance, symbols are carved on the machine.



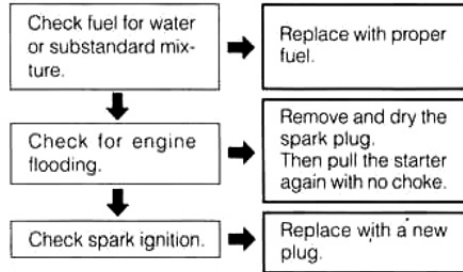
- The port to refuel "MIX GASOLINE"
Location: Fuel cap
- The port to add "CHAIN OIL"
Location: Oil cap
- Setting the switch to the "O" position, the engine stops immediately.
Location: Rear left of the unit.
- Pulling out the choke knob, the choke closes.
Location: Rear right of the unit
- "MIN" – the oil flow decreases
"MAX" – the oil flow increases
Location: Bottom of the clutch side
- The screw under the "H" stamp is the High-speed adjustment screw
The screw under the "L" stamp is the Slow-speed adjustment screw
The screw at the left of the "T" stamp is the Idle adjustment screw.
Location: Rear left of the unit

CHAINSAW EXPLODED VIEW

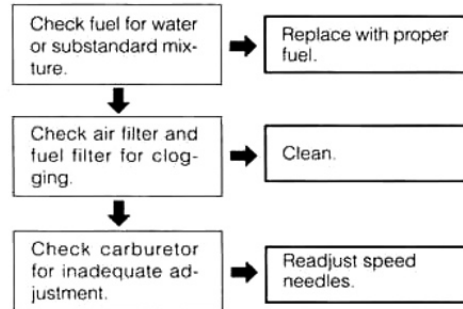


TROUBLESHOOTING GUIDE

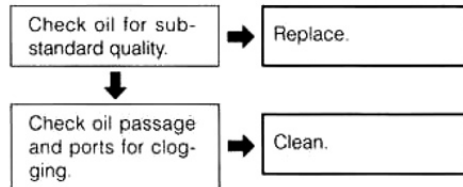
1. Starting Failure



2. Lack of Power/Poor Acceleration/Rough Idling



3. Chain oil does not come out



If the unit seems to need further service, please consult with an authorized service shop in your area.

Any Questions, Comments, Problems, or Parts Orders

Call Powerhorse Product Support at 1-866-443-2576

TECHNICAL SPECIFICATIONS & PACKING LIST

Model		190557
External dimension: L x W x H	mm	410x235x265
	inch	16.1x9.3x10.6
Mass: Saw with guide bar and chain, empty tanks	lb/kg	11.9/5.4
Volume:		
Fuel Tank	gallon/mL	0.15/550
Tank for chain lubrication oil	gallon/mL	0.07/260
Fuel (Mixture ratio)		Gas (40:1)
Oil		2-cycle engine oil
Usable cutting length of guide bar	inch/mm	18/457.2
Chain:		
Specified pitch	inch/mm	0.325/8.26
Specified gauge (thickness of drive links)	inch/mm	0.05/1.27
Replacement chain (Oregon brand)		21BP/34SL
Replacement bar (Oregon brand)		188SLGK095
Type of guide bar		Sprocket nose
Lubrication		Automatic oil pump w/ adjuster
Sprocket: Specified number of teeth		7
Maximum chain speed	m/s	21
	ft/s	68.898
Engine:		
Type		Air cooled 2-cycle single cylinder
Carburetor		Diaphragm type Walbro WT
Spark Plug Type / Gap		NHSP LD LDRTF L8 0.0263inch - 0.0265inch
Magneto		CDI
Starter		Recoil starter
Maximum speed with cutting attachment	RPM	12500r/min ± 10%
Speed at idling	RPM	3000r/min ± 10%
Engine Displacement:	cc	45.02
Fuel consumption: At maximum engine power	g/kw.h	560
Sound pressure level: (ISO7182) LpAav	db(A)	94.1
Guaranteed sound power level: (ISO9207) LwAav	dB(A)	114
Chain brake: (ISO6535) Mean braking time at racing speed	s	0.12
Vibration: (ISO7505)	ms/s ²	8.418

NOTE: Specifications, descriptions and illustrative material in this literature are as accurate as known at the time of publication, but are subject to change without notice.

Illustrations may include optional equipment and accessories, and may not include all standard equipment.

CHAIN SAW USE AND CARE

- **Do not rely exclusively upon the safety devices** built into your chain saw. As a chain saw user, you should take several steps to keep your cutting free from accident or injury.
 - With a basic understanding of kickback, you can reduce or eliminate the element of surprise. Sudden surprise contributes to accidents.
 - Keep a good firm grip on the saw with both hands, the right hand on the rear handle, and the left hand on the front handle, when the engine is running. Use a firm grip with thumbs and finger encircling the chainsaw handles. A firm grip will help you reduce kickback and maintain control of the saw. Do not let go!
 - Make sure the area in which you are cutting is free from obstructions. Do not let the nose of the guide bar contact a log, branch, or any other obstruction that could be hit while you are operating the saw.
 - Cut with the chain saw running at full speed.
 - Do not overreach or cut above shoulder height.
 - Keep the chain sharp and the saw properly maintained.
- **Do not operate a chain saw in a tree** unless you have been specifically trained to do so.
- **Do not force the chain saw.** Chain saws do a better and safer job when used in the manner for which they are designed. Plan your work, and use the correct accessories for the job.
- **Never use a chain saw** with a malfunctioning switch. Any chain saw that cannot be controlled with the switch is dangerous and must be repaired by an authorized service representative before using. Be sure the saw chain stops moving when the throttle trigger is released.
- **Always** operate chain saw with all safety devices and guards in place and in working order. **DO NOT** modify or defeat safety devices. **DO NOT** operate chain saw if any safety devices or guards are missing or inoperative.
- **Keep guards in place** and in working order.
- **Before starting the engine** make sure the chain saw is not in contact with anything.
- **Keep all parts of your body away** from the saw chain when the engine is running.
- **Do not operate chain saw with one hand!** Serious injury to operator, helpers, bystanders or any combination thereof may result from one-handed operation.
- **Keep the handles** dry, clean, and free of oil or fuel mixture.
- **Never leave chain saw** running unattended, and shut off the engine before setting down the saw.
- **Carry the chain saw** with the engine stopped, the chain guard (scabbard) over the chain and guide bar, the scabbard covered guide bar facing the rear, and the muffler away from you body.
- **When transporting the chain saw in a vehicle**, keep the chain and bar covered with the chain guard and properly secure the saw to prevent turnover and fuel spillage.
- **Store chain saw properly.** When the chain saw is not in use, store it in a dry, secure place out of the reach of children. Inspect the chain saw for good working condition prior to storage and before re-use.
- **Use only accessories that are recommended** by the manufacturer for your model. Accessories that may be suitable for one chain saw may create a risk of injury when used on another tool.

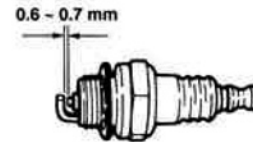
Oil Tank

- With a wire hook, pull the oil filter through the filler port and clean in gasoline. When putting the filter back into the tank, make sure that it comes to the front right corner. Also clean any dirt in the tank.



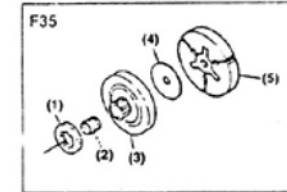
Spark Plug

- Clean the electrodes with a wire brush and reset the gap to .0256in (0.65mm) as necessary.



Sprocket

- Check for cracks and for excessive wear interfering with the chain drive. If the wear is evident, replace the sprocket with a new one. Never fit a new chain on a worn sprocket, or a worn chain on a new sprocket. (Fig 35)

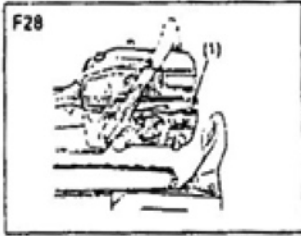


Item #	Description
1	Sprocket
2	Needle bearing
3	Clutch drum
4	Spacer
5	Clutch shoe

Front and Rear Dampers

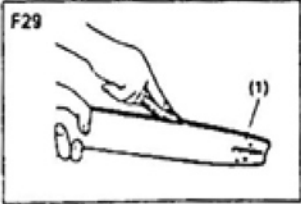
- Replace if adhered part is peeled or a crack is evident on the rubber part.

⚠ IMPORTANT: Read carefully and understand all SAFETY AND OPERATING instructions before using this chain saw. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury. Allow only persons who have read and understand this manual to operate the chain saw.



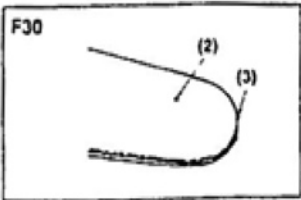
Oiling Port

- Detach the guide bar and check the oiling port for clogging. (Fig 28) (1) – Oiling port



Guide Bar

- With the guide bar off, remove any sawdust in the bar groove and oiling port. (Fig 29) (1) – Oiling port
- Grease the nose sprocket from the feeding port on the tip of the bar. (Fig 30) (2) – Grease port, (3) - Sprocket



Other Maintenance

- Check for fuel leakage and loose fasteners and damage to major parts, especially handle joints and guide bar mounting. If any defects are found, have them repaired before operating again.

PERIODICAL SERVICE POINTS

Cylinder Fins

- Dust accumulation between the cylinder fins will cause the engine to overheat.

Periodically check and clean the cylinder fins after removing the air cleaner and the cylinder cover. When installing the cylinder cover, make sure that switch wires and grommets are repositioned correctly.

NOTE: Be sure not to block the air intake hole.



Fuel Filter

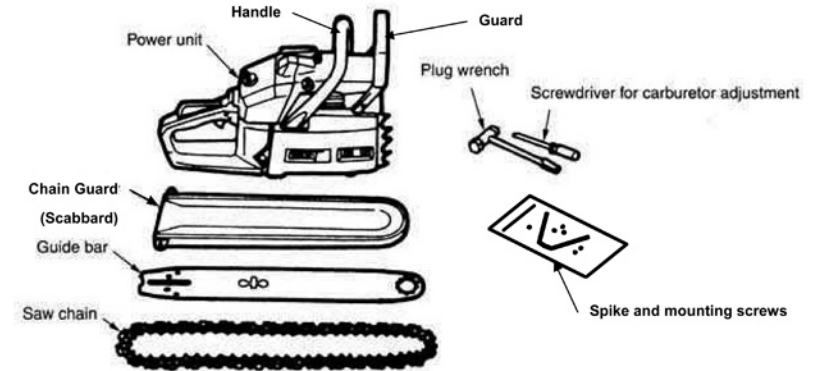
- Using a wire hook, remove the filter from the filler port.



- Disassemble the filter and wash with gasoline, or replace if needed.

NOTE: When assembling the filter, do not allow filter fibers or dust inside the suction pipe.

INSTALLING GUIDE BAR AND SAW CHAIN

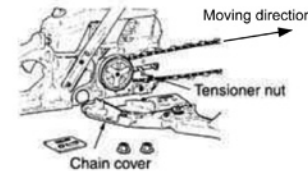
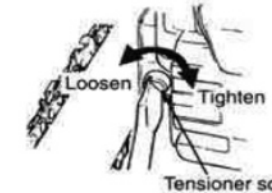


Open the box and install the guide bar and the saw chain on the power unit as follows:

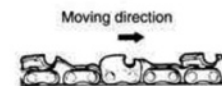


WARNING: The saw chain has very sharp edges. Use thick protective gloves for safety.

1. Pull the guard toward the front handle to check that the chain brake is not engaged.
2. Loosen the nuts and remove the chain cover.
3. Gear the chain to the sprocket and, while fitting the saw chain around the guide bar, mount the guide bar to the power unit. Adjust the position of chain tensioner
5. While holding up the tip of the guide bar, adjusting the chain tension by turning the tensioner screw until the tie straps just touch the bottom side of the bar rail.



Note: Chain must be in the groove. Pay attention to the correct direction of the saw chain.



4. Fit the chain cover to the power unit and fasten the nuts to finger tightness.
6. Tighten the nuts securely with the bar tip held up (12-15N.m). Then check the chain for smooth rotation and proper tension while moving it by hand. If necessary, readjust with chain cover loose.
7. Tighten the tensioner screw.

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

FUEL AND CHAIN OIL

WARNING: Gasoline is very flammable. Avoid smoking, open flames and/or sparks near fuel. Stop the engine and allow to cool before refueling. Move at least 3m (10 ft) away from the fueling point before restarting the engine

Mix a quality grade of unleaded gasoline with quality oil specifically for air-cooled 2 cycle engines. For best performance, use oils with class ISO EGD or JASCO FC formulated for aircooled, 2-stroke engines.

The recommended mixture ratio is 50:1, which you can achieve by mixing 2.56 oz. of 2-cycle oil with one gallon of gasoline.

NOTE: Most engine troubles are caused, directly or indirectly, by the fuel used on the machine. Take special care not to mix motor oil for 4 cycle engines.

FUELING

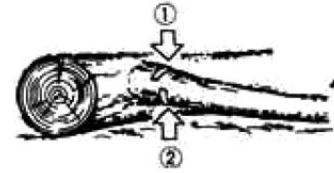
1. Untwist and remove fuel cap.
2. Pour fuel into fuel tank to 80% of full capacity.
3. Fasten fuel cap securely and wipe any fuel spillage around the unit.

CHAIN OIL

Use special chain and bar oil formulated specifically for use with chain saws.

NOTE: Do not use used oil that can cause damage to the oil pump. Always use fresh oil.

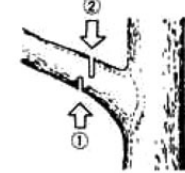
Cutting the limbs off a fallen tree



First check to which side the limb is bent. Then make the initial cut from the bent side and finish by sawing from the opposite side.

WARNING: Be alert of the springing back of a limb.

Pruning of standing tree



Start cutting up from the bottom, and finish down from the top.

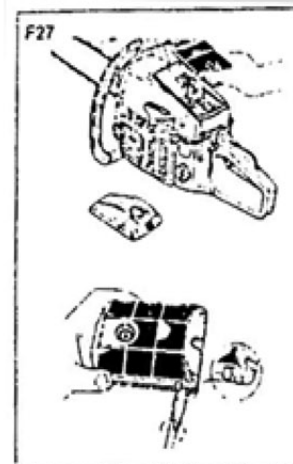
- WARNING:**
- Do not use an unstable foothold or ladder.
 - Do not overreach.
 - Do not cut above shoulder height
 - Always use both hands to hold the saw.

MAINTENANCE

WARNING: Make sure this chain saw is turned off before attempting any maintenance, cleaning, or inspection. Disconnect the spark plug to prevent accidental starting.

- **Maintain your chain saw.** It is recommended that the general condition of any chain saw be examined before it is used. Keep your chain saw in good repair by adopting a program of conscientious repair and maintenance in accordance with the recommended procedures found in this manual. If any abnormal vibrations or noise occurs, turn the tool off immediately and have the problem corrected before further use. Have necessary repairs made by qualified service personnel.
- **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control. Keep handles dry, clean, and free from oil and grease.
- **Cleaning.** Use only soap and a damp cloth to clean your tools. Many household cleaners are harmful to plastics and insulation. Never allow liquids inside the chainsaw.

MAINTENANCE AFTER EACH USE




Air Filter

- Dust on the air filter can be removed by tapping the corner of the filter against a hard surface. To clean dirt in the mesh, split the filter into halves and brush in gasoline. When using compressed air, blow from the inside. (Fig 27)
- To assemble the cleaner halves, press the rim until it clicks.

NOTE: When installing the main filter, make sure that the grooves on the filter edge fit correctly with the projections on the cylinder cover.

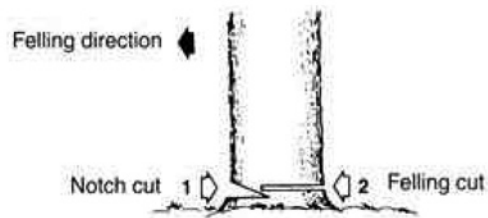
SAWING


 Always follow the safety regulations. The chain saw must only be used for cutting wood. It is forbidden to cut other types of material vibrations and kickback vary with different materials and the requirements of the safety regulations would not be respected. Do not use the chain saw as a lever for lifting, moving or splitting objects.

- It is not necessary to force the saw into the cut. Apply only light pressure while running the engine at full throttle.
- When the saw chain is caught in the cut, do not attempt to pull it out by force, but use a wedge or a lever to open the way.

FELLING A TREE

- Decide the felling direction. Consider the wind, lean of the tree, location of heavy branches, and ease of completing the task after felling and other factors.
- While clearing the area around the tree, arrange a good foothold and retreat path.
- Make a notch cut one-third of the way into the tree on the felling side.
- Make a felling cut from the opposite side of the notch and at a level slightly higher than the bottom of the notch.



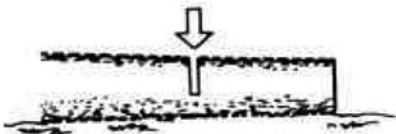
 Before you fell a tree, warn all bystanders of the danger.

BUCKING AND LIMBING

- Always ensure your foothold. Do not stand on the log.
- Be alert to the rolling over of a cut log. When working on a slope, stand on the uphill side of the log.
- Follow the instructions in "Operation" to avoid kickback of the saw.

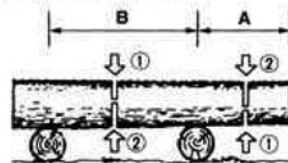
Before starting work, check the direction of bending force inside the log to be cut. Always finish cutting from the opposite side of the bending direction to prevent the guide bar from being caught in the cut.

A log laying on the ground




Saw down halfway, then roll the log over and cut from the opposite side.


A log hanging off the ground



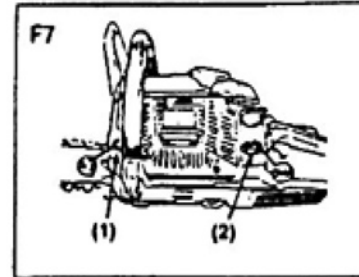
In area A, saw up from the bottom one-third and finish by sawing down from the top. In area B, saw down from the top one-third and finish by sawing up from the bottom.

OPERATION

 **WARNING: Do not drop start your chainsaw.** This method is very dangerous because you may lose control of the saw. Proper starting methods reduce the risk of injury.

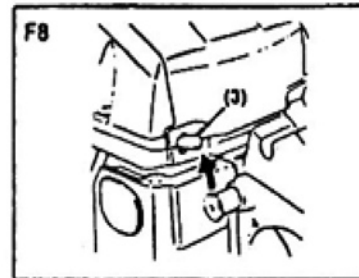
 **WARNING: Be sure that the guide bar and chain are clear of you and all other obstructions, including the ground.** Never attempt to start the chainsaw when the guide bar is in a cut or kerf.

STARTING THE ENGINE

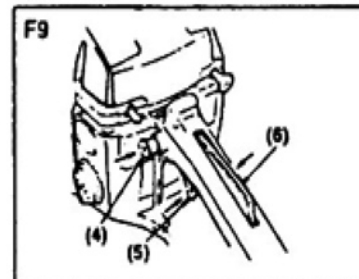


Item #	Description	Item #	Description
1	Chain oil	5	Throttle lever
2	Fuel	6	Throttle interlock
3	Switch	7	Choke knob
4	Throttle lock button		

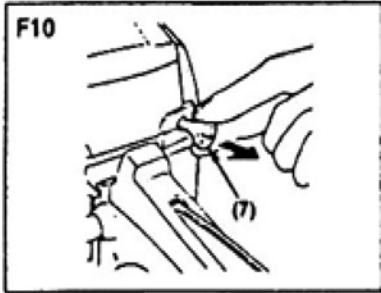
- Fill fuel and chain oil tanks, and tighten the caps securely. (Fig 7)



- Move the switch to the "I" position. (Fig 8)



- While holding the throttle lever together with the throttle interlock, push in the side throttle lock button and release the throttle lever to hold it at the starting position. (Fig 9)



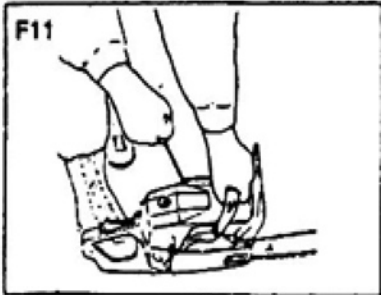
4. Pull out the choke knob to the closed position. (Fig 10)

5. While holding the saw unit securely on the ground, pull the starter rope vigorously. (Fig 11)

WARNING: Do not start the engine while hanging onto the chain saw. The saw chain may come into contact with your body causing injury.

6. When engine has ignited, push in the choke knob.

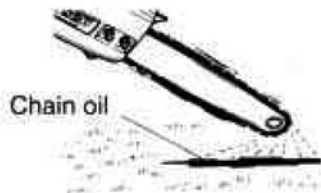
7. Allow the engine to warm up with the throttle lever pulled slightly.



WARNING: Do not wrap the starting rope around your hands when pulling the starter grip. Do not allow the grip to snap back.

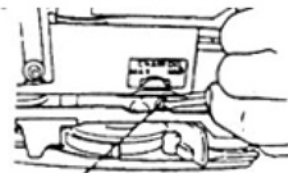
CHECKING THE CHAIN OIL SUPPLY

• After starting the engine, run the chain at medium speed and see if chain oil scatters from the chain.



• Chain oil flow can be changed by inserting a screwdriver in the hole on the bottom of the clutch side. Adjust according to your work conditions.

Note: Never adjust oil flow with the engine running.



Adjuster

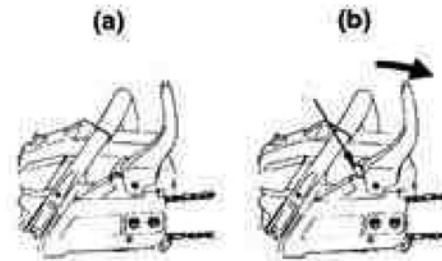
NOTE: The oil reservoir should be nearly empty by the time fuel is used up. Be sure to refill the oil tank each time you refuel your chain saw.

CHAIN BRAKE

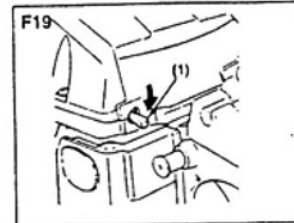
- This machine is equipped with an automatic brake system to stop saw chain rotation upon occurrence of kickback during saw cutting. The brake is automatically operated by inertial force, which acts on the weight fitted inside the front guard.
- This brake can be operated manually by pushing the front guard towards the guide bar. To release the brake, pull front guard back towards the front handle until a "click" sound is heard.

• The chain should stop immediately with the engine at full speed. If the chain is slow to stop or does not stop, replace the brake band and clutch drum before use.

CAUTION: Confirm brake operation each time you use the chain saw. In case the brake is not effective, ask an authorized dealer to inspect and possibly repair the unit. If the engine is allowed to run at a high speed with the brake engaged, the clutch will overheat and create problems for the engine. If the chain saw is operated while the brake is engaged, immediately release the throttle lever and keep the engine idling.



STOPPING ENGINE



1. Release the throttle lever to engine to idle for a few minutes. Pull switch to the "O" (STOP) position. (Fig 19)

(1) - Switch