

TOWER THE RUNER

MODEL PP1250

OWNERS MANUAL

Echo, Incorporated 400 Oakwood Rd. Lake Zurich, IL 60047 1-800-673-1558 8:30 - 4:30 M-F CST

89861022460 01/96 **CONGRATULATIONS -**

on your purchase of the MODEL PP1250 POWER PRUNER™. It has been engineered, designed and manufactured to provide you with years of dependability and performance. This Technic Tool Corporation product is a high performance unit to be used for tree pruning, sawing and limbing. The PP1250 is designed for commercial use.

This Model PP1250 Owners Manual provides information necessary for assembly, safe operation and maintenance. Carefully read and retain this manual. Please familiarize yourself with the entire contents of your Owners Manual BEFORE you attempt to assemble or operate your POWER PRUNERTM.



Follow rules for safe operation and operating instructions carefully. Technic Tool Corporation provides this Owners Manual and it must be read for proper and safe operation.

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Specifications, descriptions and illustrative materials in this literature were accurate at the time of publication, but are subject to change without notice. Illustrations are representative and may include optional equipment and accessories and may not include all standard equipment.



This is the international symbol which identifies important safety precautions and procedures. They are written for your protection. Follow the safety message to avoid severe personal injury.



⚠ **DANGER**Avoid all power lines. This unit is not insulated against electrical current.



 WARNING
 Do not operate closer than 10 feet (3 meters) from electrical hazards.



⚠ WARNING

Dogo No

 Keep bystanders at least 30 feet (10 meters) away.



 Read and understand owners manual.



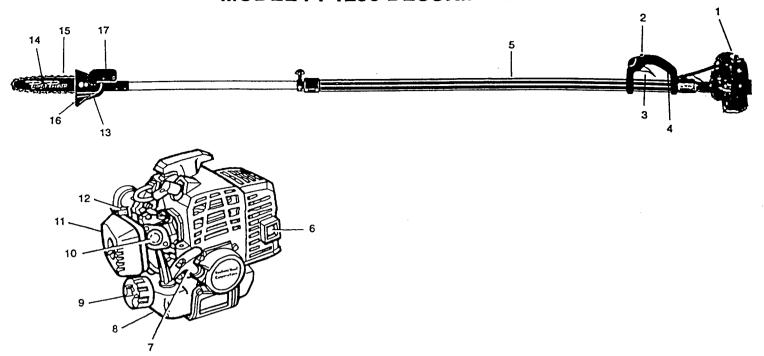
 Wear head, eye, hearing, and hand protection. Use two handed.



 Plan retreat path from falling objects.

WE CARE ABOUT YOUR SAFETY!

MODEL PP1250 DESCRIPTION



- ENGINE Echo, kioritz 24cc, (Model TT-24-A) two-stroke gasoline powered engine. Operation range:
 Clutch engagement 3200 rpm. Wide open throttle
 10400 rpm. Consult with your POWER PRUNER™
 dealer for proper engine adjustment dependant
 upon your cutting conditions, location and altitude.
 Use only Echo branded (or an approved substitute)
 two-stroke motor oil in a 50:1 ratio. Use branded
 89 octane (R+M/2) unleaded gasoline or gasohol
 (maximum 10% ethyl alcohol, no methyl alcohol).
- IGNITION SWITCH Mounted on top of Handle assembly. Slide switch button forward for run position. Slide button backward to stop.
- 3. THROTTLE TRIGGER Spring loaded to return to idle when released. When accelerating press gradually for best operating technique.
- HANDLE ASSEMBLY Sturdy handle for right hand placement.
- 5. LOWER HOUSING Durable fiberglass mesh housing.
- MUFFLER, SPARK ARRESTER The spark arrester must be serviced periodically. (See Service Maintenance Guide).
- STARTER HANDLE Pull handle slowly until starter engages, then pull quickly and firmly with short strokes. When engine starts return handle slowly. DO NOT let handle snap back into place or damage may occur to the unit.
- 8. FUEL TANK Holds 14.2 oz. fuel. Fuel mixture should be 50:1 ratio using only branded Echo (or an approved substitute) two stroke engine oil. Fuel filter is on end of fuel line inside tank.

- 9. FUEL TANK CAP Covers and seals fuel tank.
- 10. PURGE BULB Pumping purge bulb before starting engine draws new fuel from the fuel tank priming the carburetor for starting. Pump the bulb repeatedly (normally 3 or 4 times) until fuel is visible in clear fuel return line.
- AIR CLEANER ASSEMBLY Contains heavy duty air filter. This filter needs to be checked and cleaned before each use. Always replace damaged or worn out filter. (See Service Maintenance Guide).
- 12. CHOKE LEVER Located above air cleaner housing. Controls operation of choke. Move lever forward to close choke (starting position) and backward to open (run position).
- 13. CUTTING HEAD GEAR BOX Sealed, gear ratio is 1-1/2: 1 step down.
- 14. CHAIN BAR 12 inch Oregon Bar.
- CUTTING CHAIN 91 VS (anti-vibration) 3/8" low profile Oregon cutting chain. 44 links per loop. Runs approximately 2000 ft/min at full throttle. See Filing Cutting Chain pg. 7 for sharpening instructions.
- CUTTING SHOE Used to capture and stabilize branch while cutting. Place cutting shoe against branch, accelerate and lower cutting chain into branch.
- 17. AUTOMATIC OILER ASSEMBLY Self oiling. Use high quality, low viscosity, non detergent bar and chain oil.



OPERATOR SAFETY

READ THIS POWER PRUNERTM Owners Manual carefully. Be sure you understand how to operate this unit properly before you use it.

Use of the POWER PRUNER™ should be restricted to mature, properly instructed individuals. NEVER allow a person to use this unit unless instructions are read and understood. Clear the work area of bystanders, animals and any hazardous obstacles. Keep people and animals out of danger zone. This is a circle 33 feet (11 Meters) in radius (about 11 paces) around the unit and operator. Post Warning, Danger or Men Working signs in areas where bystanders could be present.



DANGER

All overhead electrical conductors and communications wires and cables should be considered to be energized with potentially fatal voltages and should never be touched either directly or indirectly. DO NOT operate the POWER PRUNERTM if any wires are closer than 10 feet (3 meters) minimum distance to any part of the unit or operator.

Avoid all electrical power lines. Pruning near electrical hazards should be restricted to only qualified line clearance tree trimmers and minimum clearances shall be maintained.

Survey work area to identify possible hazards and keep area free from obstructions. A safe working procedure is your first defense towards preventing accidents.

The operator should wear and properly adjust the shoulder strap. The shoulder strap will assist in directional use, safety, tool weight and fatigue.

Use caution when handling fuel. Put the gas caps back tightly on both the gas can and the POWER PRUNERTM fuel tank. Move at least 10 feet from the refueling point and be sure there is no leakage of fuel from the gas cap or the fuel system before starting the engine.

Operate this gasoline powered unit in a well ventilated area only.

Before starting the engine, make sure the chain bar is not in contact with anything. Start the engine while on the ground or in a stable, secure location.

DO NOT operate in an awkward position or while standing on any unstable surface. Use a firm two-handed grip and secure balanced footing.

Turn the POWER PRUNERTM off when you are moving from tree to tree on the ground or in a bucket truck. Fully release throttle trigger at all times when not cutting. You should carry the POWER PRUNERTM with the engine stopped and the hot muffler away from your body while also preventing any contact with the cutting chain.

Operate the POWER PRUNERTM only from the ground or out of an approved bucket lift. DO NOT stand on unstable platforms or in positions which might endanger your balance and cause loss of positive pruner control. DO NOT operate the POWER PRUNERTM from ladders or out of trees.



OPERATOR SAFETY (continued)

DO NOT operate the POWER PRUNER™ when you are fatigued. Periodic rest stops will assure a high production rate, safe operation and better quality workmanship.

DO NOT operate when under the influence of alcohol, medications or substances which can affect your vision, dexterity or judgment. You must be in good physical and mental health in order to operate the **POWER PRUNER**TM safely.

Always carry a first aid kit when working with or around power equipment.

When pruning, plan a retreat path before cutting a branch. Never stand directly under the branch being pruned and wear a hard hat and eye protection at all times.

When cutting a limb that is under tension, be alert for limb springback.

DO NOT alter the tool in any way. Only POWER PRUNER™ replacement parts should be used.

The POWER PRUNER™ should only be used in cutting wood, brush and trimming trees.

Keep the chain lubricated and maintain proper tension.

On limbs greater than 4 inches in diameter always make a small undercut to avoid pinching the chain bar.

Plan cutting to avoid situations which might cause the chain bar to become pinched in a cut. If it does become pinched, stop the engine before removing. Avoid prying the bar loose, which may cause damage to the cutting head and or drive shaft.

Always obtain full throttle speed before cutting or resuming previous cut.

WARNING



DANGER

Always stop the engine if the bar and chain become pinched or jammed during a cut. DO NOT attempt to remove the cutting head from the pinch or jam while the engine is running. Physical injury can occur if during removal the cutting head suddenly kicks back.

- Do not allow other persons or pets in the area when starting or operating the POWER PRUNER™.
- Keep a firm grip on the POWER PRUNER™ with both hands, the right hand on the throttle grip and the left hand on the lower housing. Use a firm grip with thumbs and fingers encircling the throttle handle and pole. A firm grip will help you keep control of the POWER PRUNER™. NEVER OPERATE the POWER PRUNER™ with only one hand.
- Do all cutting at full throttle speed. Cutting at less than full speed can cause damage to the clutch by allowing it to slip.
- Always carry the POWER PRUNERTM
 with the engine stopped and the HOT
 muffler away from your body.



KICKBACK

Kickback can lead to dangerous loss of control of the **POWER PRUNER™** and result in serious injury to the operator or anyone standing close by.

Kickback may occur when the moving chain at the nose or tip of the chain bar touches an object, or when the wood closes in and pinches the saw in the cut. In some cases this may cause a lightning-fast reverse action, kicking the chain bar up and back or down and back towards the operator. Either of these reactions may cause the operator to lose control of the POWER PRUNER™ which could result in serious personal injury.

With a basic understanding of kickback, you can reduce or eliminate the element of surprise which contributes to accidents.

Hold the POWER PRUNER™ firmly with both hands. Be aware of the down and outward path the pruner will take after the cut is made.

Avoid contact of the chain bar tip with any object while the chain is moving.

Cut only wood. Avoid striking concrete, metal, wire, or other obstructions which could cause kickback or damage to the saw chain.

If the chain does strike a foreign object, immediately stop the engine, inspect and repair the POWER PRUNERTM if necessary.

WARNING



DANGER

POWER PRUNER™ users risk injury to themselves and others if the pruner is used improperly, and/or safety precautions are not followed. Proper clothing and safety gear must be worn when operating a POWER PRUNER™.



PROTECTIVE EQUIPMENT

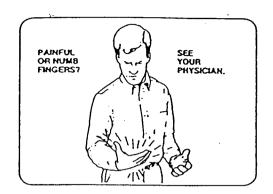
- Always wear eye protection goggles that meet ANSI Z87.1 requirements (Z87 should be stamped on the goggles).
- Always wear a HARD HAT meeting ANSI Z89.1 requirements.
- The hard hat will help protect you from falling branches, etc. . .
- Wear hearing protection. If hearing protection is not used, hearing loss may occur. The Occupational Health and Safety Act of 1970 requires the wearing of hearing protection if you use the unit more than two hours per day. Technic Tool Corporation recommends hearing protection be worn at all times to protect against temporary or cumulative hearing loss.
- Wear snug fitting, durable clothing. Avoid wearing loose clothing that could become entangled when contact is made with the POWER PRUNERTM.
- Wear shoes with nonskid soles to ensure proper footing.
- Wear nonslip heavy-duty work gloves to improve your grip on the POWER PRUNER™. The gloves will also help reduce the transmission of vibration to your hands.



WARNING DANGER PRECAUTION AGAINST VIBRATION AND COLD

Some operators may develop a condition know as Raynaud's Syndrome affecting the hands or arms. It is believed that the condition, brought about by exposure to cold and/or vibration, may result in tingling and burning and then by loss of color and numbness in the victim's fingers.

Even though your POWER PRUNER™ has been equipped with anti-vibration devices, we recommend that you take the following precautions:



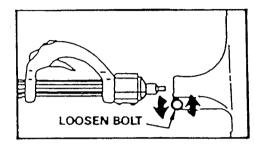
- · Keep your body warm, especially the head and neck, feet and ankles, hands and wrists.
- Avoid awkward, unnatural, stressful grips on the unit without losing control. Avoid hard, stiff "death grips" while the unit is vibrating.
- Maintain good blood circulation. Avoid smoking. Exercise vigorously during frequent work breaks. Also limit the amount of time you spend using this or any other hand held vibrating tool.
- If you experience discomfort, redness and swelling of the fingers, followed by whitening and loss of feeling, consult your physician before exposing yourself to vibration and cold.

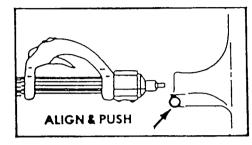
ASSEMBLY INSTRUCTIONS

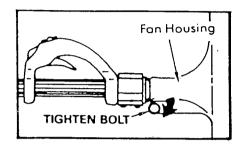
Tools for assembly

- 1. Combination wrench (contained in your owner's kit)
- 2. 8mm wrench, socket or nut driver
- 3. Phillips screwdriver

DRIVE SHAFT TO ENGINE INSTALLATION

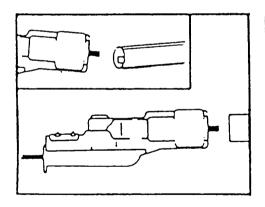


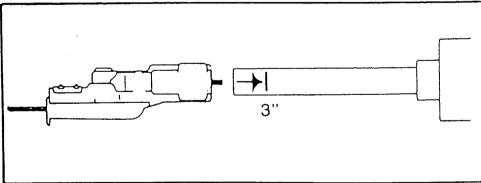




- 1. Loosen bolt.
- 2. Match square socket in engine with square shaft and slide together. Slide engine to end of machined surface.
- 3. Rotate so handle, head and engine are in upright position.
- 4. Tighten bolt securely so engine will not rotate under load.

CUTTING HEAD TO DRIVE SHAFT INSTALLATION





- 1. Loosen the 4 lower screws on cutting head.
- 2. Mark aluminum shaft down 3 inches from end of housing.
- 3. Pull out upper aluminum housing 5 or 6 inches, and slide back until shaft sticks out.
- 4. Align ridges on aluminum with seams in cutting head.
- 5. Slide together. Head should slide down to 3 inch mark.
- 6. Tighten the 4 screws.

To extend or collapse the **POWER PRUNER** loosen the center adjustment knob and pull or push the shaft to set desired length.

THROTTLE CABLEWIRE CONNECTIONS

NOTE: The engine is delivered separated from shaft. The throttle cable is attached to the handle.

- 1. Loosen nut from throttle cable.
- 2. Insert throttle cable in fan cover slot.
- 3. Finger tighten nut and attach the inner cable to the swivel on the throttle lever.

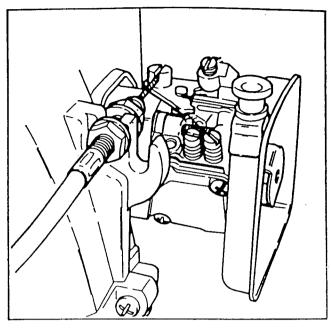
NOTE: It is important that the bead of the throttle cable fits into one side of slot.

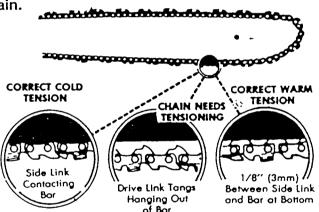
- 4. Tighten the 10mm cable nuts.
- 5. Check throttle for freedom of movement and make sure it returns to idle position.
- 6. Connect ground wire terminal under screw on fan housing.
- 7. Connect stop switch wire to stop wire on engine.

SAW CHAIN TENSION ADJUSTMENT

Always wear work gloves when handling saw chain. To Adjust Chain Tension.

- 1. Loosen 1/4" chain bar bolt located on cutting head using the adjustment wrench provided.
- Turn chain tightener screw (located next to chain bar in sprocket cover) CLOCKWISE to TIGHTEN chain on chain bar. Turning screw COUNTERCLOCKWISE will LOOSEN chain on chain bar.
- 3. Tighten bar bolt firmly, but not so much that the head starts to distort. Move saw chain backwards on chain bar by hand. Chain should move freely on bar if it is in proper mesh with sprocket.





Keep the chain lubricated and properly adjusted and the bar bolt tightened firmly at all times. If chain is difficult to rotate or binds on guide bar, it is too tight. Use a 5/32" chain file to sharpen chain.

AUTOMATIC OILING SYSTEM

- 1. Turn oil fill cap 45° counter clockwise and lift to remove.
- 2. Fill with a quality, low viscosity, bar and chain oil.

 DO NOT USE SYNTHETICS OR SILICONES TO PREVENT PLASTIC DETERIORATION.
- 3. Set rate indicator to center.
- 4. Adjust for minimum oil rate. (Very little visible oil on the chain will provide sufficient lubrication.) NOTE: One reservoir of oil should equal one tank of gas.

FILING CUTTING CHAIN Low Profile 3/8"

Use a 5/32" chain file for sharpening.

SEMI CHISEL 90 Series End View 1 DEPTH-GAUGE CUTTING ANGLE: 025 CHAIN TYPE GAUGE # LINKS 91 VS .050* 39 SIDE-PLATE ANGLE: USER APPLICATIONS NOT a Low-kickback Chain No bumper tile straps

TOOLS FOR FILING

PART NO.	DESCRIPTION
80513	5/32" Round File
37534	5/32" Assembled File Guide
22290	.025" Depth-gauge Tool
12211	Depth-gauge File (flat)

S FILE-GUIDE



FUEL AND LUBRICATION



Mix fuel in an area with adequate ventilation and away from heat or flame. Keep handles dry and clean of oil or fuel mixture.

HANDLING FUEL





Handle fuel carefully. Fuel is extremely flammable. Follow all rules listed below to help prevent fire or explosion which may result in severe injury or death.



- Comply with all fire prevention regulations. Take appropriate fire fighting equipment with you when operating pruner in dry areas.
- Carry fuel in approved containers and store away from heat, open flame and keep out of reach of children.
- Stop the engine and slowly loosen fuel tank cap to release any pressure build-up in the tank before refueling your pruner, NEVER refuel while the engine is running or hot.
- Refuel only outdoors in a safe, clear area away from ignition sources such as open flame. To avoid carbon
 monoxide poisoning from gas exhaust NEVER start or run engine indoors or in a poorly ventilated area.
- Wipe pruner clean of any spilled fuel or oil and move at least 10 feet (3 meters) from fueling area before starting engine.
- NEVER smoke while refueling or operating your pruner.
- Keep hands and tool dry, clean and free of fuel mixture.
- DO NOT set hot engine down where flammable material is present. NEVER run the engine without the muffler or muffler screen.
- NEVER store or transport the POWER PRUNER™ with the fuel in the tank. A fuel leak could result in fire.
- NEVER use your engine fuel for starting fires.



The engine uses two-stroke fuel, a mixture of gasoline and specially blended two-stroke oil. An Echo 50:1 ratio two-stroke engine oil (or approved substitute) must be used.

ALWAYS FOLLOW THE MIXING INSTRUCTIONS ON THE CONTAINER OF THE TWO-CYCLE OIL BEING USED.

Use branded 89 octane (R+M/2) unleaded gasoline or gasohol (maximum 10% ethyl alcohol, no methyl alcohol).

Mix and store fuel only in a clean, safe, approved container. Check and follow local ordinances on type and required location of storage containers.

IMPORTANT: Two stroke fuel may separate. Shake fuel container thoroughly before each use. Stored fuel ages. DO NOT mix more fuel than you expect to use in one month.

STARTING AND OPERATING INSTRUCTIONS

SAFE STARTING TECHNIQUES

- · Check unit for loose nuts, bolts and screws before starting.
- Always clear work area of debris before starting operation.
- · Start unit on the ground with throttle set at idle.
- DO NOT start if chain is obstructed by the ground or any other object.
- When pulling starter rope, use short pulls (1/2 to 2/3 of rope length).
- DO NOT allow the starter handle to snap back against the housing.
- · Always hold the unit firmly.

STARTING COLD ENGINE



DANGER

When engine starts, the chain may move even with trigger in low-speed position.

- 1. Slide ignition switch to START/RUN position.
- 2. Push purge bulb 3 to 4 times or until constant flow of fuel is visible in the fuel return line.
- 3. Start the engine at idle.
- 4. Close the choke and pull starter rope until engine fires.
- 5. Open the choke.
- 6. Restart engine and allow to warm up at idle speed.

STARTING WARM ENGINE

- 1. If fuel tank was emptied during previous operation, refill tank and push purge bulb 3 to 4 times or until constant flow of fuel is visible in the fuel return line.
- 2. Slide the ignition switch to the START/RUN position.
- 3. Make sure choke is open.
- 4. Start the engine at idle.
- 5. Pull starter handle.

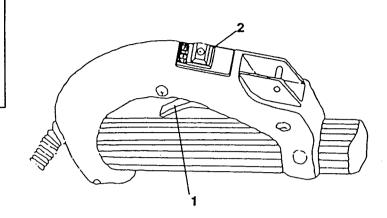
IF THE ENGINE DOES NOT START AFTER 4 PULLS, FOLLOW THE COLD STARTING PROCEDURE.

STOPPING THE ENGINE

- 1. Release throttle trigger and allow engine to return to idle.
- 2. Slide ignition switch to the STOP position.



If engine does not stop, close choke to stall engine. Take your POWER PRUNER™ to the nearest dealer for inspection and repair.



SERVICE MAINTENANCE GUIDE

AREA	MAINTENANCE	PAGE	BEFORE USE	MONTHLY	YEARLY
AIR FILTER	CLEAN/REPLACE*	11	•		+
FUEL FILTER	INSPECT/REPLACE*	11		•	
SPARK PLUG	INSPECT/CLEAN/ADJUST/REPLACE*	11		•	
CARBURETOR	ADJUST (AS NEEDED)	12			•
COOLING SYSTEM	INSPECT/CLEAN	13	•		
MUFFLER					
(SPARK ARRESTOR)	INSPECT/CLEAN .	13			
STARTER ROPE	INSPECT/REPLACE*			•	
BAR	INSPECT/REPLACE*/LUBRICATE	14	•		
CHAIN	INSPECT/SHARPEN/REPLACE*/LUBRICATE	8 & 14	•		
FUEL LINE	INSPECT/REPLACE*			•	
FUEL LEAKS	INSPECT/REPAIR		•		
SCREWS, BOLTS & NUTS	INSPECT/TIGHTEN/REPLACE*		•		

^{*} ALL RECOMMENDATIONS TO REPLACE ARE BASED ON THE FINDING OF DAMAGE OR WEAR DURING INSPECTION.

IMPORTANT NOTE: Time intervals shown are maximum. Actual use and your experience will determine the frequency of required maintenance.

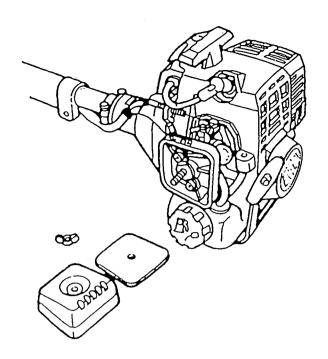
MAINTENANCE INSTRUCTIONS

CLEANING AIR FILTER (Before each use)

- 1. Push choke lever forward to the START (closed) position.
- 2. Remove the air cleaner cover by loosening and removing the wing nut fastening the cover to the engine.
- 3. Remove air filter (air filter is located inside air filter cover).
- 4. Brush dirt from filter or clean by blowing with compressed air.

NOTE: If air filter is excessively dirty, damaged or no longer fits properly replace it with a new filter to prevent damage to internal engine parts.

- 5. Reinstall filter into air cleaner cover.
- 6. Reinstall air cleaner cover and tighten wing nut.



FUEL SYSTEM INSPECTION

Poor quality fuel, e.g. high alcohol content, can cause rapid deterioration of plastic and rubber components. Due to unknown fuel quality, it is important to check internal and external fuel lines, fuel cap gaskets, carburetor diaphragms and other plastic and rubber fuel system components a minimum of twice yearly. Replace any part that is defective or questionable.

REPLACING FUEL FILTER

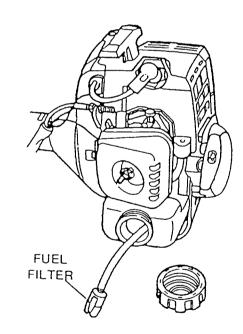
(Check Monthly)

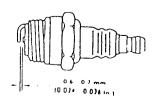
- 1. Remove fuel cap. Loosen slowly to relieve any pressure that might be present in fuel tank.
- 2. Using a wire hook, pull fuel filter through fuel tank opening.
- 3. Pull old fuel filter from fuel line.
- 4. Install new filter on fuel line and push back into fuel tank.

CHECK SPARK PLUG

(Check Monthly)

- 1. Remove spark plug, using wrench provided, by loosening in a counter-clockwise direction.
- 2. Check plug gap. Correct gap is 0.6-0.7mm (0.024 0.028").
- 3. Inspect electrode for wear.
- 4. Inspect insulator for oil or other deposits.
- 5. Replace plug if needed.
- Reinstall plug and tighten to 145-155kg-cm (125-135 in. lb.).





CARBURETOR ADJUSTMENT

(As Needed)

FOR BEST OPERATION AND PERFORMANCE IT IS RECOMMENDED YOU CONSULT YOUR POWER PRUNER™ DEALER FOR PROPER CARBURETOR ADJUSTMENT DEPENDANT UPON YOUR CUTTING CONDITIONS, LOCATION AND ALTITUDE.

General

If the carburetor needs adjustment follow these procedures.

NOTE: The diaphragm carburetor has three external adjustments. Each adjustment affects the others.

The idle speed adjustment screw controls the throttle opening at the idle position.

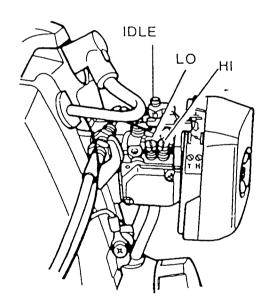
The low (LO) speed adjustment screw controls the volume of fuel/oil mixture at low engine speed. It also controls the supplementary fuel required to obtain smooth progression from idling to high speed.

The high (HI) speed adjustment screw controls the volume of fuel/oil mixture at full throttle.

Initial Adjustment

NOTE: The needle screws have a sharp point. To avoid carburetor damage, do not use excessive force when seating needle in body.

- 1. Turn HI and LO adjustment screws clockwise until seated lightly in carburetor body.
- 2. Turn LO adjustment screw counter-clockwise 1 1/8 turn.
- 3. Start engine and allow it to run at high idle until warm (approximately 2-3 minutes).



NOTE: Idle speed screw may need to be readjusted to keep engine from stalling. If engine does stall at idle, turn Idle speed screw 1/2 turn clockwise and restart. Chain on cutting head should not rotate at idle. If chain rotates turn idle screw counter-clockwise until chain stops rotating.

Low Speed Adjustment

- 1. Slowly turn the LO adjustment screw clockwise and note the position when engine speed drops.
- 2. Turn the LO adjustment screw counter-clockwise and note the position when engine speed drops.
- 3. Set the screw midway between these two points.
- 4. Turn the idle speed screw clockwise until cutting chain just begins to rotate.
- 5. Turn idle speed screw counter-clockwise one-half turn to stop cutting chain from rotating.

CARBURETOR ADJUSTMENT (continued)

High Speed Adjustment

1. Turn the HI adjustment screw counter-clockwise 1-1/4 turns.

IMPORTANT: Do not run the engine on full throttle longer than 5-6 seconds to avoid damage to engine.

- 2. While running the engine at full throttle, turn the HI adjustment screw slowly clockwise until the engine runs smoothly.
- 3. Turn the screw counter-clockwise 1/8 turn to obtain optimum fuel mixture for full power under load conditions.

NOTE: It may be necessary to reset idle speed as outlined in steps 4 and 5 of "Low Speed Adjustment" section.

CLEANING MUFFLER AND EXHAUST PORT

(Check Monthly)

- 1. Remove spark plug lead from spark plug, and throttle cable from carburetor swivel.
- Remove the four screws which secure the engine cover. Remove the engine cover and pull the engine cover away from the engine.
- 3. Remove the spark arrestor. Replace screen if it is plugged, cracked or has holes burned through it.
- 4. Remove the two bolts securing the muffler to the engine and remove the muffler and heat shield.

NOTE: Be careful not to scratch the cylinder or piston when cleaning the cylinder exhaust port.

- 5. Clean deposits from muffler, muffler exhaust port and cylinder exhaust port.
- 6. Inspect gaskets and replace if necessary.
- 7. Install heat shield and muffler
- 8. Install engine cover and spark plug lead.

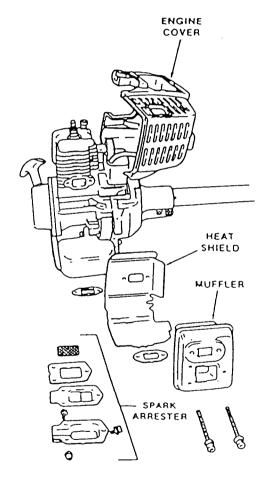
COOLING SYSTEM MAINTENANCE

IMPORTANT

To maintain proper engine operating temperatures, cooling air must pass freely through the cylinder fin area. This flow of air carries combustion heat away from the engine.

Overheating and engine seizure can occur when:

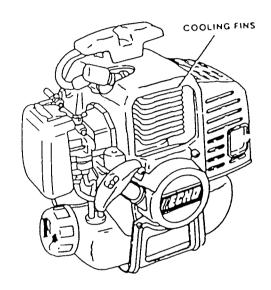
- 1 Air intakes are blocked, preventing cooling air from reaching the cylinder.
- 2 Dust and grass build up on the outside of the cylinder. This build-up insulates the engine and prevents the heat from leaving.

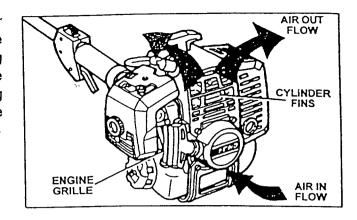


Removal of cooling passage blockages or cleaning of cylinder fins is considered "Normal Maintenance". Any resultant failure attributed to lack of maintenance is not warranted. The cooling system relies on cooling air entering the engine through the grille located between the fuel tank and starter. The cooling fan pushes this air through the cylinder area and out the opening in the engine cover.

CLEANING CYLINDER FINS

(Check before each use)





- 1. Remove dust and dirt from between cooling fins.
- If greater access is needed to thoroughly clean fins, remove the engine cover as outlined in steps 1 & 2 in "Cleaning Muffler and Exhaust Port".

CUTTING BAR AND CHAIN REPLACEMENT

(As Needed)

- 1. Remove sprocket cover.
- 2. Loosen both bar bolts and relieve tension of cutting chain.
- 3. Free chain from sprocket and remove chain from bar. If chain bar is okay proceed to step 5.
- 4. Slide bar forward and remove from cutting head. Install new bar sliding it onto the cutting head as far as possible.
- 5. Install new cutting chain onto bar. Make sure cutting links are faced in the proper direction.
 - A. Engage cutting chain with sprocket.
 - B. Follow instructions on adjusting cutting chain tension (pg. 7) to finish process.
- 6. Replace sprocket cover.

TROUBLESHOOTING

TROUBLE	CAUSE	REMEDY
1. Engine fails to start.	No fuel in tank.	Fill tank.
•	Strainer clogged.	Clean strainer.
	Fuel line clogged.	Clean fuel line.
	Spark plug shorted or fouled.	Install new spark plug.
	Spark plug broken (cracked	Replace spark plug.
	porcelain or electrodes broken).	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	Ignition lead wire shorted, broken or	Replace lead wire or attach to spark plug.
	disconnected from spark plug.	ropides tead time of animals to apain plog.
	Ignition lead wire shorted.	Contact your nearest dealer.
2. Engine hard to start.	Water in gasoline or stale fuel mixture.	Drain entire system and refill with fresh fuel.
	Too much oil in fuel mixture.	
	Engine over or under choked.	Drain and refill with correct mixture.
		If flooded by over choking:
		a. Make certain choke knob is in OPEN POSITION.
		b. Check that ignition switch is in START/RUN position.
		c. Hold throttle full open and pull starter rope until
		engine fires.
		 d. If engine fails to start after 10-15 tries, refer to Trouble 1.
		If under choked, move choke knob to CLOSED position
		and crank two or three times.
		Replace gaskets.
	Gasket leaks (carburetor or cyl. base gasket).	, ,
	Carburetor out of adjustment.	Contact your nearest dealer.
	Weak spark at spark plug.	Contact your nearest dealer.
3. Engine misses.	Dirt in fuel line or carburetor.	Remove and clean. Clean or replace spark plug - set gap to 0.6-0.7mm (0.024-0.028 in).
	Spark plug fouled, broken or incorrect gap	
	setting.	
	Weak or intermittent spark at spark plug.	Contact your nearest dealer.
	Carburetor improperly adjusted.	Contact your nearest dealer.
4. Engine lacks power.	Air cleaner clogged.	Clean air cleaner.
,	Muffler clogged.	Clean carbon from muffler.
	Clogged exhaust ports.	Remove muffler, rotate engine until the piston is at top of
		cylinder. With a wooden scraper or blunt tool, remove all
		carbon from exhaust ports. Be careful not to scratch or
		damage piston or cylinder walls. Blow out loose carbon
		with compressed air Install muttler and eachet
	Carburator out of adjustment	with compressed air. Install muffler and gasket.
	Carburetor out of adjustment.	Contact your nearest dealer.
	Carburetor out of adjustment. Poor compression.	
5. Engine overheats.		Contact your nearest dealer.
5. Engine overheats.	Poor compression.	Contact your nearest dealer. Contact your nearest dealer.
	Poor compression. Insufficient oil in fuel mixture. Air flow obstructed.	Contact your nearest dealer. Contact your nearest dealer. Mix fuel as shown in starting instructions. Clean flywheel and cylinder fins and screen.
6. Engine noisy or	Poor compression. Insufficient oil in fuel mixture. Air flow obstructed. Loose flywheel.	Contact your nearest dealer. Contact your nearest dealer. Mix fuel as shown in starting instructions. Clean flywheel and cylinder fins and screen. Tighten flywheel nut.
	Poor compression. Insufficient oil in fuel mixture. Air flow obstructed. Loose flywheel. Spark plugs incorrect heat range.	Contact your nearest dealer. Contact your nearest dealer. Mix fuel as shown in starting instructions. Clean flywheel and cylinder fins and screen. Tighten flywheel nut. Replace with plugs specified for engine.
6. Engine noisy or	Poor compression. Insufficient oil in fuel mixture. Air flow obstructed. Loose flywheel.	Contact your nearest dealer. Contact your nearest dealer. Mix fuel as shown in starting instructions. Clean flywheel and cylinder fins and screen. Tighten flywheel nut.
6. Engine noisy or knocking.	Poor compression. Insufficient oil in fuel mixture. Air flow obstructed. Loose flywheel. Spark plugs incorrect heat range. Worn bearings, piston rings or cylinder wall.	Contact your nearest dealer. Contact your nearest dealer. Mix fuel as shown in starting instructions. Clean flywheel and cylinder fins and screen. Tighten flywheel nut. Replace with plugs specified for engine. Contact your nearest dealer.
6. Engine noisy or	Poor compression. Insufficient oil in fuel mixture. Air flow obstructed. Loose flywheel. Spark plugs incorrect heat range. Worn bearings, piston rings or	Contact your nearest dealer. Contact your nearest dealer. Mix fuel as shown in starting instructions. Clean flywheel and cylinder fins and screen. Tighten flywheel nut. Replace with plugs specified for engine.

STORAGE

LONG TERM STORAGE (Over 60 Days)

DO NOT store your POWER PRUNERTM for a prolonged period of time (60 days or longer) without performing protective storage maintenance which includes the following:

- 1. Store the unit in a dry, dust free place out of the reach of children.
- 2. Place the ignition in the "OFF" position.
- 3. Remove any accumulation of grease, oil, dirt and debris from the exterior of the unit.
- 4. Perform all periodic lubrication and services that are required.
- 5. Tighten all screws, nuts and bolts.
- 6. Drain the fuel tank completely and pull the starter handle several times to remove fuel from the carburetor.
- 7. Remove the spark plug and pour 1/4 oz. (1/2 tablespoon) of fresh, clean, two-stroke engine oil through the spark plug hole.
 - A. Place a clean dry cloth over the spark plug hole.
 - B. Pull the starter handle 2-3 times to distribute the oil inside the engine.
 - C. Observe the piston location through the spark plug hole. Pull the starter handle slowly until the piston reaches the top of its travel and leave it there.
- 8. Install the spark plug but DO NOT connect the ignition cable.



DO NOT STORE IN ENCLOSURE WHERE FUEL FUMES MAY ACCUMULATE OR REACH AN OPEN FLAME OR SPARK.

PARTS

Replacement parts and service are available through your local POWER PRUNERTM servicing dealer. Call 1-800-432-ECHO to find your local dealer.