# Power Pruner

*Operator's Manual*

## MODEL:

**PPFD-2400 TYPE 1/1E**

**Serial Number 001001 & Up**

**⚠ WARNING ⚠**

**The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.**

**WARNING ⚠ DANGER**

Read rules for safe operation and instructions carefully. ECHO provides an Operator's Manual, which must be read and understood for proper and safe operation. Failure to do so could result in serous injury.

**X7502301301**

**89861024661**
**08/98**

## INTRODUCTION

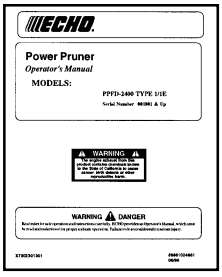
Congratulations on your Power Pruner purchase. This product was designed and manufactured to provide long life and on-the-job-dependability. Read and understand this manual before operating the unit. You will find it easy to read and full of helpful operating tips and SAFETY messages.

**WARNING ⚠ DANGER**

Read rules for safe operation and instructions carefully. Echo Inc. provides an Owner's Manual, which must be read and understood for proper and safe operation.

### THE OWNER'S MANUAL --

contains specifications and information for operation, starting, stopping, maintenance, storage and assembly specific to this product.



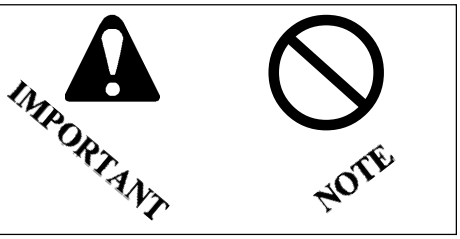

## TABLE OF CONTENTS

Introduction ..... 2
- The Owner's Manual ..... 2
Manual Safety Symbols & Important Information ..... 3
Safety ..... 3
- General Description ..... 3
- Decals ..... 4
- International Symbols ..... 4
- Equipment ..... 4
- Fuel ..... 5
- Personal Condition & Safety Equipment ..... 6
- Safe Operation ..... 7
- Kickback ..... 8
- Extended Operation/Extreme Conditions ..... 9
Description ..... 10
- Contents ..... 10
- Emission Control ..... 10
Specifications ..... 13
Assembly ..... 14
- Shaft Tube / Power Head Installation ..... 14
- Cutting Attachment to Shaft Tube Installation 14
- Throttle Linkage Connections ..... 15
- Saw Chain Tension Adjustment ..... 16
Pre-Operation ..... 17
- Fuel ..... 17
- Automatic Oiling System ..... 18
- Equipment Check ..... 18
- Determine Operation Area ..... 19
Operation ..... 19
- Starting Cold Engine ..... 19
- Starting Warm Engine ..... 20
- Stopping Engine ..... 21
- Pruning Technics ..... 21
Maintenance ..... 22
- Skill Levels ..... 22
- Maintenance Intervals ..... 22
- Air Filter ..... 23
- Fuel Filter ..... 23
- Spark Plug ..... 24
- Cooling System Cleaning ..... 24
- Exhaust System ..... 25
- Carburetor Adjustment Emissions ..... 26
- Carburetor Adjustment Non Emissions ..... 27
- Guide Bar and Saw Chain Replacement ..... 28
- Pruner Cleaning ..... 28
- Filing Saw Chain ..... 31
Troubleshooting ..... 32
Storage ..... 33
Servicing Information ..... 34
- Parts ..... 34
- Service ..... 34
- Warranty Card ..... 34
- Additional or Replacement Manuals ..... 34
- Manual Ordering Instructions ..... 34

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.

## MANUAL SAFETY SYMBOLS & IMPORTANT INFORMATION

Throughout this manual and on the product itself, you will find safety alerts and helpful, information messages preceded by symbols or key words. The following is an explanation of those symbols and key words and what they mean to you.




This symbol accompanied by the words **WARNING** and **DANGER** calls attention to an act or condition that can lead to serious personal injury to operator and bystanders.

The circle with the slash symbol means whatever is shown within the circle is prohibited.

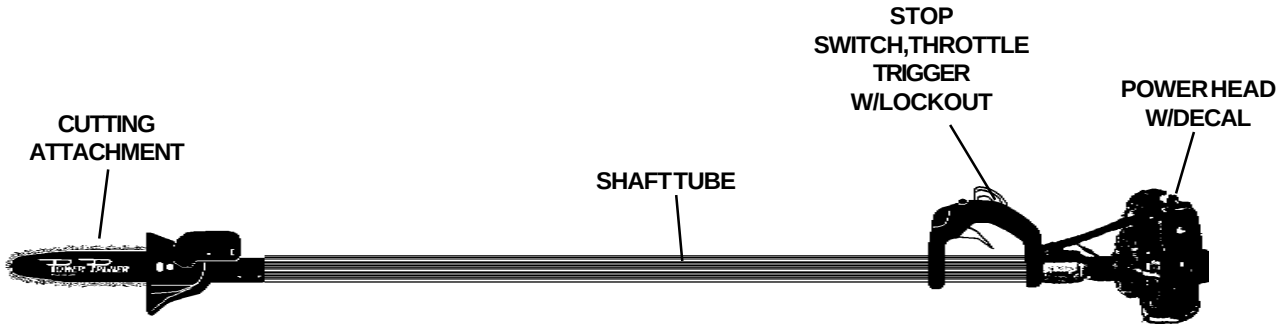
**IMPORTANT** The enclosed message provides information necessary for the protection of the unit.

**NOTE** This enclosed message provides tips for use, care and maintenance of the unit.

## SAFETY

### GENERAL DESCRIPTION

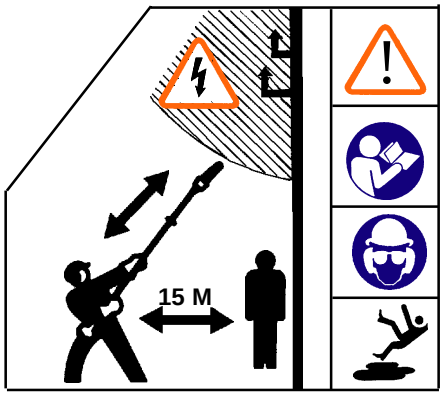
**IMPORTANT**
See Description and Specification sections for full description and illustration of model variation in power head, and handle type.



## DECALS

Locate this safety decal on your unit. The complete unit illustration found in the "DESCRIPTION" section, will help you locate them. Make sure the decals are legible and that you understand and follow the instructions on them. If a decal cannot be read, a new one can be ordered from your ECHO dealer. See PARTS ORDERING instructions for specific information.

### *Engine Cover*




## INTERNATIONAL SYMBOLS

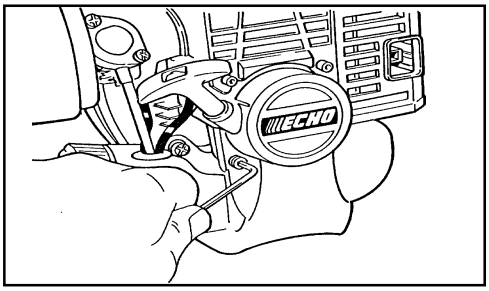
| Symbol form/shape | Symbol description/application | Symbol form/shape | Symbol description/application |
|---|---|---|---|
|  | Read and understand owners manual. |  | Fuel and oil mixture |
|  | Wear eyes, ears and head protection |  | Finger Severing |
|  | Emergency stop | L | Carburetor adjustment - Low speed mixture |
|  | Wear hand protection. Use two handed. |  | DO NOT smoke near fuel. |
|  | Engine choke control. | Stop Switch<br>ON I<br>OFF O | Stop Switch ON/OFF |
|  | Saw Chain lubrication |  | Primer Bulb |

| Symbol form/shape | Symbol description/application | Symbol form/shape | Symbol description/application |
|---|---|---|---|
|  | Hot Surface | H | Carburetor adjustment - High speed mixture |
|  | Safety/Alert | T | Carburetor adjustment - Idle speed |
|  | Avoid all power lines. This unit is not insulated against electrical current. |  | Do not operate closer than 15 M (50 ft.) from electrical hazards. |
|  | Keep bystanders at least 15 meters (50 feet) away. |  | Plan retreat path from falling objects. |
|  | DO NOT allow flames or sparks near fuel. |  | Wear slip resistant foot wear. |

## EQUIPMENT

Before operation a complete check of the unit must be performed;

- Check unit for loose/missing nuts, bolts and screws. Tighten and/or replace as needed.
- Inspect fuel lines, tank and area around carburetor for fuel leaks. DO NOT operate unit if leaks are found.
- Never adjust the guide bar or saw chain when the engine is operating.

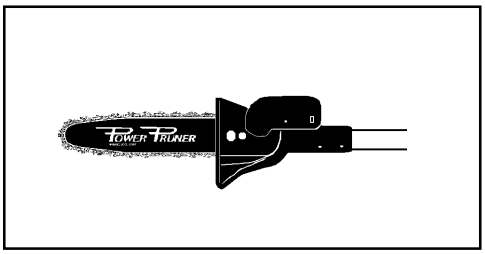


### *Guide Bar and Saw Chain*

**WARNING ⚠ DANGER**

- Serious injury may result from the use of non approved guide bar and saw chain combinations. Read and comply with all safety instructions listed in this manual.
- Echo Inc. will not be responsible for the failure of cutting devices or accessories which have not been tested and approved by Echo for use with this unit.

- Check that the cutting attachment, guide bar and saw chain is firmly attached and in safe operating condition.
- Only use Echo approved guide bar and saw chain.
- Do not hit rocks, stones, tree stumps and other foreign objects with the saw chain.
- Do not cut into the ground with the saw chain.
- If cutting attachment end strikes an obstruction, stop engine immediately and inspect saw chain for damage.
- Do not operate with a dull, fractured or discolored saw chain.
- Remove all foreign objects from work area.
- Always cover the guide bar and saw chain during transportation and storage using the guide bar cover.

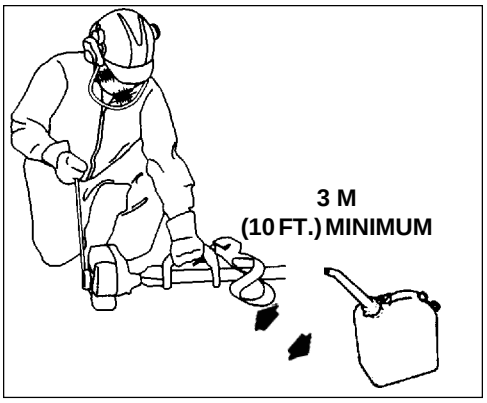



## FUEL

**WARNING ⚠ DANGER**

Fuel is **VERY** flammable. Use extreme care when mixing, storing or handling, or serious personal injury may result.

- Use an approved fuel container.
- DO NOT smoke near fuel.
- DO NOT allow flames or sparks near fuel.
- Fuel tanks/cans may be under pressure. Always loosen fuel caps slowly allowing pressure to equalize.
- NEVER refuel a unit when the engine is HOT!
- NEVER refuel a unit with the engine running.
- DO NOT fill fuel tanks indoors. ALWAYS fill fuel tanks out doors over bare ground.
- Securely tighten fuel cap after refueling.
- Inspect for fuel leakage. If fuel leakage is found, do not start or operate unit until leakage is repaired.




### *After Refueling;*

- Wipe any spilled fuel from the unit.
- Move at least 3 M (10 ft.) from refueling location before starting.

### *After Use;*

- DO NOT store a unit with fuel in its tank. Leaks can occur. Return unused fuel to an approved fuel storage container.

## PERSONAL CONDITION & SAFETY EQUIPMENT

**WARNING ⚠ DANGER**

Power Pruner users risk injury to themselves and others if the Power Pruner is used improperly and or safety precautions are not followed. Proper clothing and safety gear must be worn when operating a Power Pruner.

### *Physical Condition --*

Your judgment and physical dexterity may not be good:

- if you are tired or sick,
- if you are taking medication,
- if you have taken alcohol or drugs.

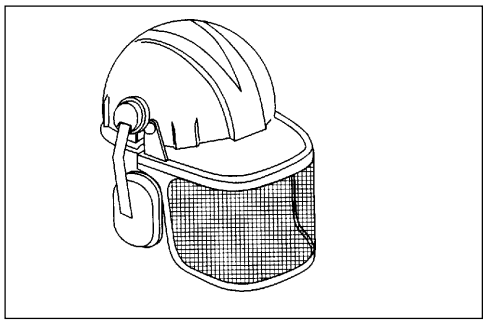
Operate unit only if you are physically and mentally well.


### *Eye Protection --*

Wear eye protection that meets ANSI Z87.1 or CE requirements whenever you operate the Power Pruner.

### *Face & Head Protection --*

When trimming overhead, always wear head protection meeting ANSI Z89.1 and CE requirements with a full face shield. Head protection with full face shield will help protect you from falling branches and debris.

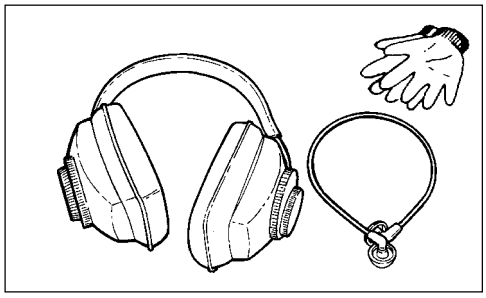


### *Hand Protection --*

Wear no-slip, heavy duty work gloves to improve your grip on the Power Pruner handles. Gloves also reduce the transmission of machine vibration to your hands.

### *Hearing Protection --*

Echo recommends wearing hearing protection whenever unit is used.



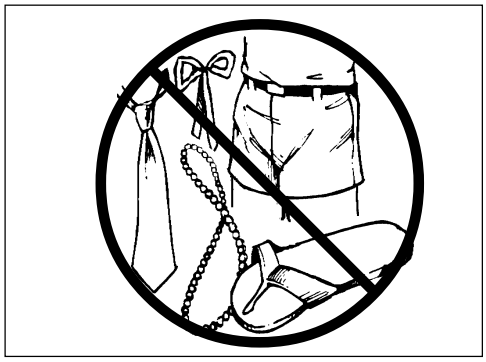
### *Proper Clothing --*

Wear snug fitting, durable clothing;

- Pants should have long legs, shirts with long sleeves.
- DO NOT WEAR SHORTS,
- DO NOT WEAR TIES, SCARVES, JEWELRY.

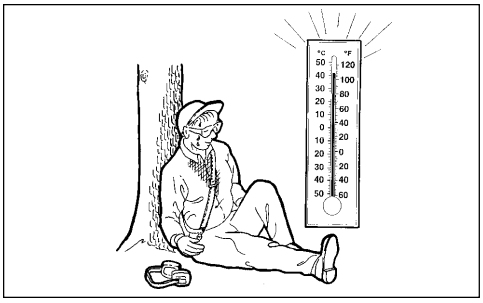
Wear sturdy work shoes with non-skid soles;

- DO NOT WEAR OPEN TOED SHOES,
- DO NOT OPERATE UNIT BAREFOOTED.



### *Hot Humid Weather --*

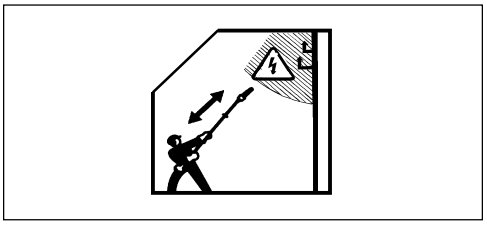
Heavy protective clothing can increase operator fatigue which may lead to heat stroke. Schedule heavy work for early morning or late afternoon hours when temperatures are cooler.



## SAFE OPERATION

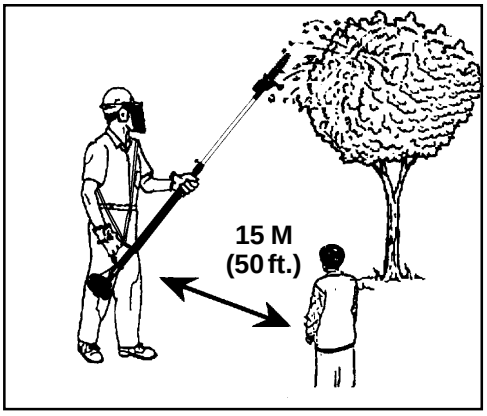
**WARNING ⚠ DANGER**

All over head electrical conductors and communications wires can have electricity flow with high voltages. Never touch wires directly or indirectly when pruning, otherwise serious injury or death may result.



### *Determine Operation Area*

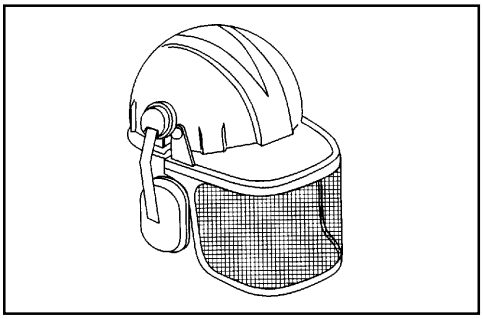
- Provide all operators of this equipment with the Operator's Manual and instructions for safe operation.
- Do not operate this product indoors or in inadequately ventilated areas.
- Review the area to be trimmed. Look for hazards that could contribute to unsafe conditions. DO NOT operate unit if any wires (power, telephone, cable, etc.) are closer than 15 M (50 ft.) to any part of the operator or unit.
- Spectators and fellow workers must be warned, and children and animals prevented from coming nearer than 15 M (50 ft.) while the Power Pruner is in use.
- Avoid all power lines.




### *Operation*

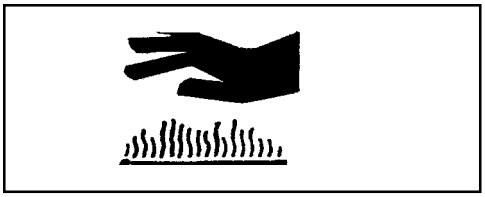
**Use Proper Clothing & Equipment**

- Before starting the unit, equip yourself and any other person working within the 15 M (50 ft.) Safety Zone with the required Protective Equipment and clothing.
- Always wear head protection with full face shield to help protect against falling branches and debris.

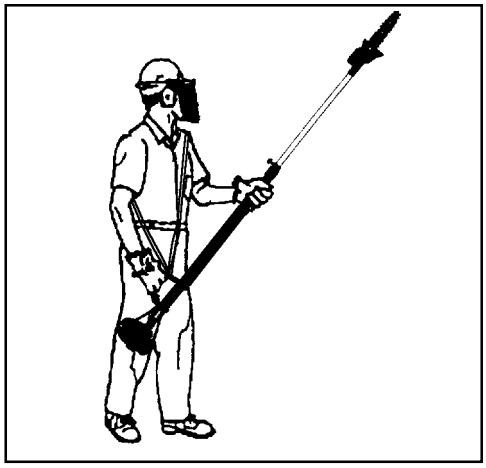


**Avoid Hot Surfaces**

- During operation, the complete unit, especially the power head, muffler area and cutting attachment may become very hot, too hot to touch. Avoid contact during and immediately after operation.



**Keep A Firm Grip**
- Grip Power Pruner with both hands with thumbs and fingers tightly encircling the handle, and shaft tube.

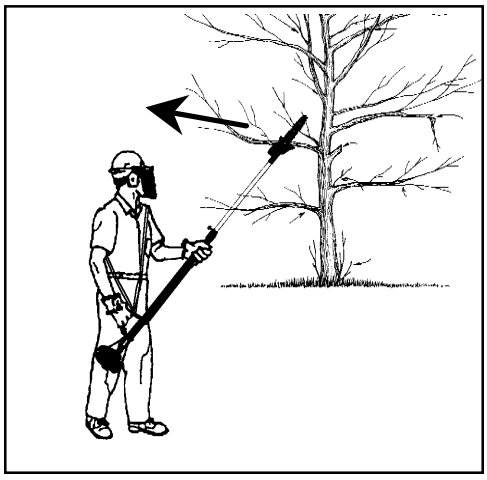


**Keep A Solid Stance**
- Maintain footing and balance at all times. Do not stand on slippery, uneven or unstable surfaces. Do not work in odd positions or on ladders. Do not overreach.
- Operate the Power Pruner only from the ground or out of an approved bucket lift.
- Always evaluate the branches to be pruned for hazards such as loose dead branches which may fall and strike the operator or helpers. Remove hazards before pruning.
- Plan retreat path from falling objects.
- Cut branches bounce when striking ground.
- Check that shoulder harness is adjusted for safe, comfortable operation. See picture at right for proper adjustment.
- Turn the Power Pruner off when moving from tree to tree.
- Avoid any contact with saw chain.

## KICKBACK

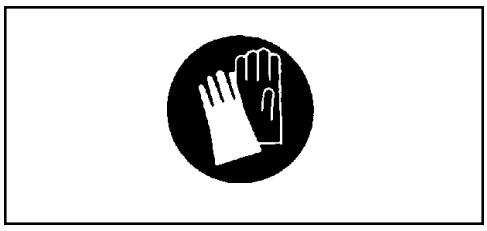
**WARNING ⚠ DANGER**

Kickback can lead to dangerous loss of control of the Power Pruner and result in serious injury to the operator or any one standing close by.



Kickback may occur when the moving saw chain at 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. In some cases this may cause a lightning-fast reverse action, kicking the guide bar and saw chain 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.

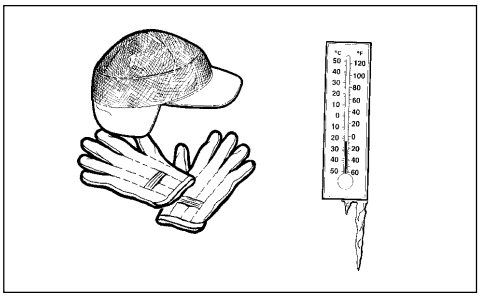
Avoid contact of the guide bar tip with any object while the saw chain is moving.

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

If the saw chain does strike a foreign object, immediately stop the engine, inspect and repair the Power Pruner if necessary.

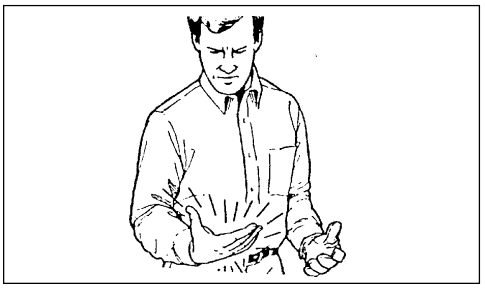
## EXTENDED OPERATION/EXTREME CONDITIONS

### *Vibration and Cold*



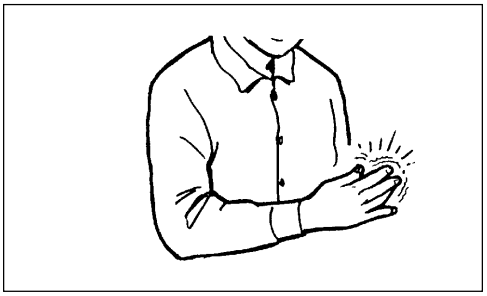
It is believed that a condition called Raynaud's Phenomenon, which affects the fingers of certain individuals may be brought about by exposure to vibration and cold. Exposure to vibration and cold may cause tingling and burning sensations followed by loss of color and numbness in the fingers. The following precautions are strongly recommended because the minimum exposure which might trigger the ailment is unknown.

- Keep your body warm, especially the head, neck, feet, ankles, hands and wrists.
- Maintain good blood circulation by performing vigorous arm exercises during frequent work breaks and also by not smoking.
- Limit the hours of operation. Try to fill each day with jobs where operating the trimmer or other hand-held power equipment is not required.
- If you experience discomfort, redness and swelling of the fingers followed by whitening and loss of feeling, consult your physician before further exposing yourself to cold and vibration.



### *Repetitive Stress Injuries*

It is believed that overusing the muscles and tendons of the fingers, hands, arms and shoulders may cause soreness, swelling, numbness, weakness and extreme pain in those areas. Certain repetitive hand activities may put you at a high risk for developing a Repetitive Stress Injury (RSI). An extreme RSI condition is Carpal Tunnel Syndrome (CTS), which could occur when your wrist swells and squeezes a vital nerve that runs through the area. Some believe that prolonged exposure to vibration may contribute to CTS. CTS can cause severe pain for months or even years.
To reduce the risk of RSI/CTS, do the following:



- Avoid using your wrist in a bent, extended or twisted position. Instead try to maintain a straight wrist position. Also, when grasping, use your whole hand, not just the thumb and index finger.
- Take periodic breaks to minimize repetition and rest your hands.
- Reduce the speed and force with which you do the repetitive movement.
- Do exercises to strengthen the hand and arm muscles.
- See a doctor if you feel tingling, numbness or pain in the fingers, hands, wrists or arms. The sooner RSI/CTS is diagnosed, the more likely permanent nerve and muscle damage can be prevented.

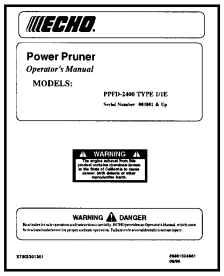
## DESCRIPTION

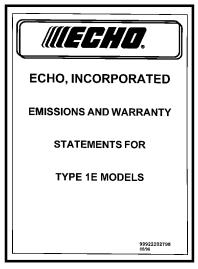
Due to packaging restriction the ECHO product you have purchased requires some assembly.

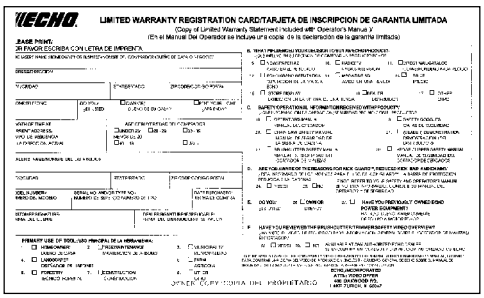
After opening the carton, check for damage. Immediately notify your retailer or ECHO Dealer of damaged or missing parts. Use the contents list to check for missing parts.

## CONTENTS LIST

__ Power Head
__ Shaft Tube Assembly
__ Cutting Attachment
__ Plastic Bag
__ Operator's Manual
__ How to Prune Manual
__ Warranty Registration Card
__ Warranty Statement
__ T-Wrench (combination screwdriver/spark plug socket)
__ 3 mm hex wrench
__ 8 x 10 mm Spanner
__ Safety Glasses
__ 2-Stroke Oil Bottle (2.6 oz.)
__ Shoulder Harness
__ Guide Bar Cover



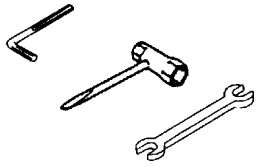



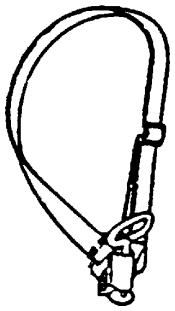

## EMISSION CONTROL - Emissions Models

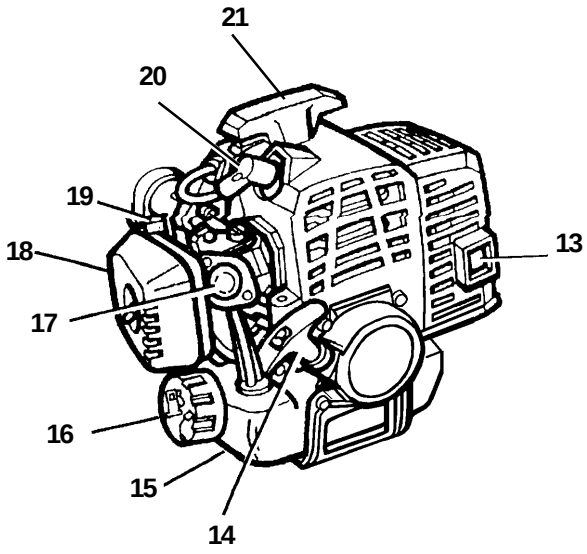
The emission control system for this engine is EM (Engine Modification).

**IMPORTANT ENGINE INFORMATION**
ENGINE FAMILY: TEH024UB24RA
DISPLACEMENT: 23.6cc
THIS ENGINE MEETS U.S. EPA PH1 AND 1995-1998 CALIFORNIA EMISSION REGULATIONS FOR ULGE ENGINES. REFER TO OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS.
KIORITZ CORP.

**Emission Control Label** (located on Engine) (EXAMPLE ONLY, information on label varies by FAMILY).

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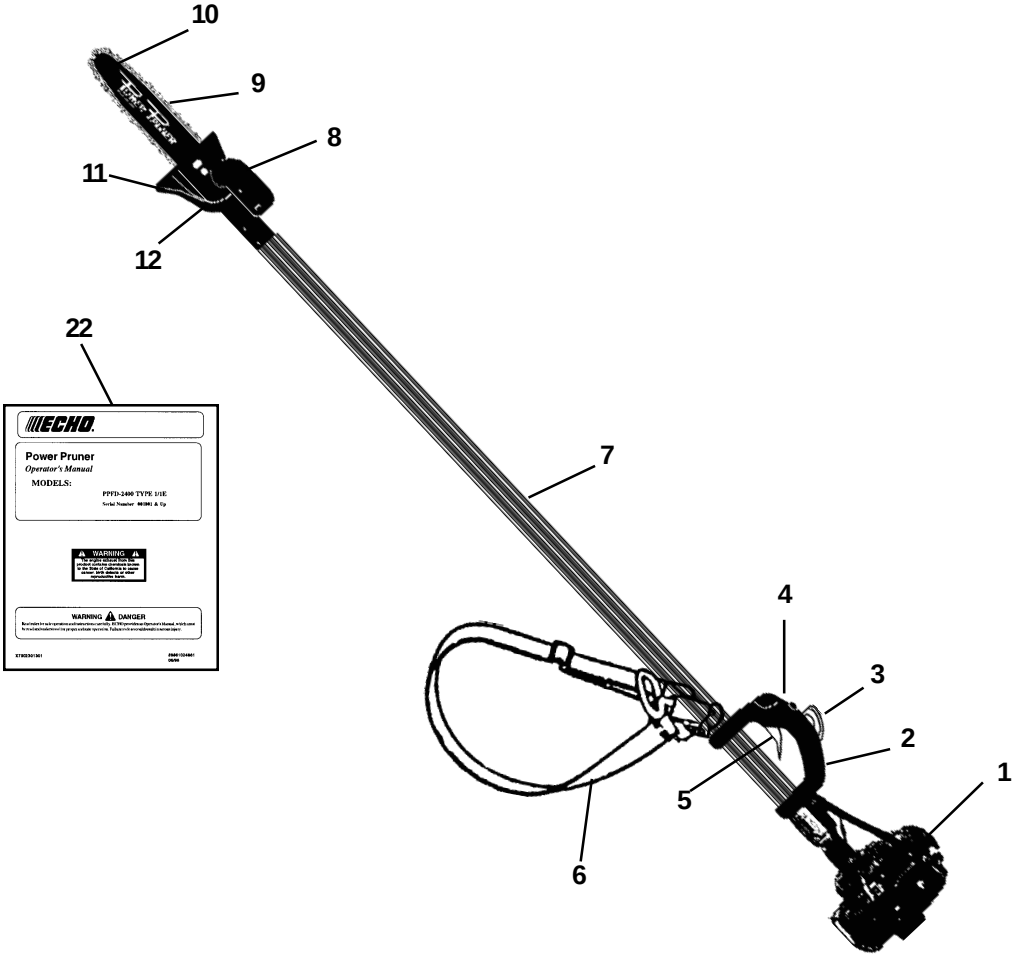
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ECHO
Power Pruner
Operator's Manual
MODELS:
PPTD-2400 TYPE 1/1E
WARNING
WARNING DANGER

1. **POWER HEAD** - Includes the Engine, Clutch, Fuel System, Ignition System and Recoil Starter.

2. **REAR HANDLE ASSEMBLY WITH THROTTLE TRIGGER LOCKOUT** - Sturdy handle for right hand placement. Includes stop switch, throttle trigger and throttle trigger lockout.

3. **THROTTLE TRIGGER LOCKOUT** - This lever must be held during starting. The engine does not stop when throttle trigger lockout lever is released and throttle trigger is engaged during throttle operation. Operation of the throttle trigger is prevented unless throttle trigger lockout lever is engaged.

4. **STOP SWITCH** - Mounted on top of rear handle assembly. Move switch forward to run, back to stop.

5. **THROTTLE TRIGGER** - Spring loaded to return to idle when released. During acceleration press throttle trigger gradually for best operating technique.

6. **SHOULDER HARNESS** - An adjustable strap that suspends the unit from the operator.

7. **SHAFT TUBE** - Durable fiberglass mesh housing.

8. **AUTOMATIC OILER** - Self oiling. Use high quality, low viscosity, non detergent guide bar and saw chain oil.

9. **SAW CHAIN** - 91 VS 9.53 mm (3/8") low profile Oregon saw chain. Runs approximately 609.6 m/min (2000 ft/min) at full throttle.

10. **GUIDE BAR** - 305 mm (12 inch) Guide Bar.

11. **CUTTING SHOE** - Used to capture and stabilize branch while cutting. Place cutting shoe against branch, accelerate and lower saw chain into branch.

12. **CUTTING ATTACHMENT** - Sealed, gear ratio is 1.5:1 reduction.

13. **MUFFLER, SPARK ARRESTER** - The muffler controls the exhaust noise while the spark arrestor prevents hot, glowing particles of carbon from leaving the muffler where they could possibly start a fire.

14. **RECOIL STARTER** - Pull handle slowly until recoil starter engages, then quickly and firmly. When engine starts return handle slowly. **DO NOT** let handle snap back or damage will occur.

15. **FUEL TANK** - Contains fuel and fuel filter.

16. **FUEL TANK CAP** - Covers and seals fuel tank opening.

17. **PRIMER BULB** - Pumping primer bulb before starting engine draws fresh fuel from the fuel tank priming the carburetor for starting. Pump the bulb 10 times until fuel is visible in clear fuel return line.

18. **AIR CLEANER ASSEMBLY** - Contains replaceable air filter element.

19. **CHOKE** - Located above air cleaner housing. Controls operation of choke. Move lever to starting position (Close Choke) and back to run position (Open Choke).

20. **SPARK PLUG** - Provides spark to ignite fuel mixture.

21. **ARM REST** - Provides arm rest during operation and protects arm from hot engine.

22. **OPERATORS MANUAL** - Read and understand this manual before operation. Keep manual in a safe location for future reference, i.e., operation, maintenance, storage and specifications.

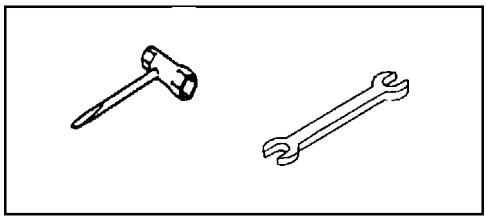
## SPECIFICATIONS

| MODEL | PPFD-2400 |
|---|---|
| Length (Standard) | 2320 mm (91.25 in.) |
| Width | 222 mm (8.75 in.) |
| Height | 229 mm (9.0 in.) |
| Weight (dry) without guide bar/saw chain | 7.0 kg (15.4 lb.) |
| Engine Type | Air cooled, two-stroke, single cylinder gasoline engine |
| Bore | 34.0 mm (1.339 in.) |
| Stroke | 26.0 mm (1.04 in.) |
| Displacement | 23.6 cc (1.44 cu. in.) |
| Exhaust System | Spark Arrestor Muffler |
| Carburetor | Diaphragm, w/primer |
| Ignition System | CDI (capacitor discharge ignition) |
| Spark Plug | NGK BPM-7Y Gap 0.65 mm (0.026 in.) |
| Fuel | Mixed (Gasoline and Two-stroke Oil) |
| Fuel/Oil Ratio | 50:1 ECHO High Performance, two-stroke air cooled engine oil |
| Gasoline | 89 Octane unleaded. DO NOT use fuel containing methyl alcohol, more than 10% ethyl alcohol or 15% MTBE. |
| Oil | 50:1 ECHO High Performance, two-stroke air cooled engine oil |
| Fuel Tank Capacity | 0.4 lit. (14.0 US fl. oz.) |
| Recoil Starter System | Automatic Recoil Starter |
| Clutch | Centrifugal Type |
| Sprocket Type | 6 tooth spur, 9.53 mm (3/8") pitch |
| Power Transmission Shaft Assembly | Fiberglass Extrusion |
| Gear Case Ratio | 1.5:1 |
| Oiling System | Automatic |
| Saw Chain Oil Capacity | 59 ml (2.0 oz.) |
| Handle | Right hand grip w/throttle trigger and lockout |
| Shoulder Harness | Standard |
| Idle Speed (RPM) | 2500 - 3000 |
| Wide Open Throttle Speed (RPM) | 11,000 - 12,000 |
| Guide Bar and Saw Chain | 305 mm (12 in.) ; 9.53 mm (3/8") pitch (91VS) |

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.

# ASSEMBLY

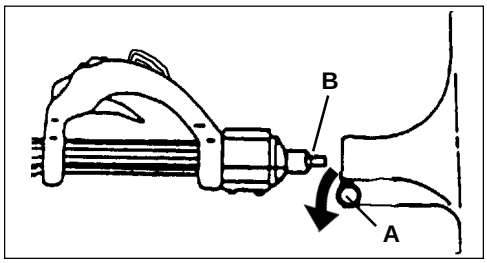
## SHAFT TUBE/POWER HEAD



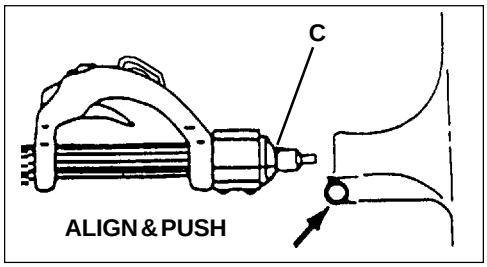
*Tools Required:* T-wrench, 8 mm X 10 mm Wrench

*Parts Required:* Power Head, Shaft Tube Assembly; Cutting Attachment

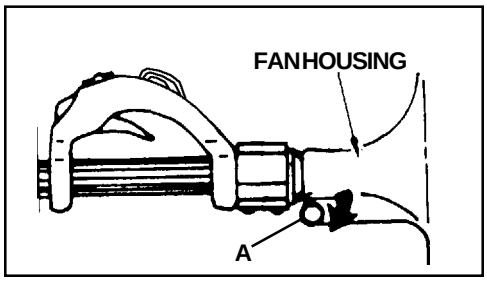
1. Loosen bolt (A).




2. Match square socket in engine shaft with square power transmission shaft (B) and slide together until engine rests against the machine surface of shaft tube coupler (C).




3. Rotate power transmission shaft housing to align engine and rear handle assembly in an upright position.

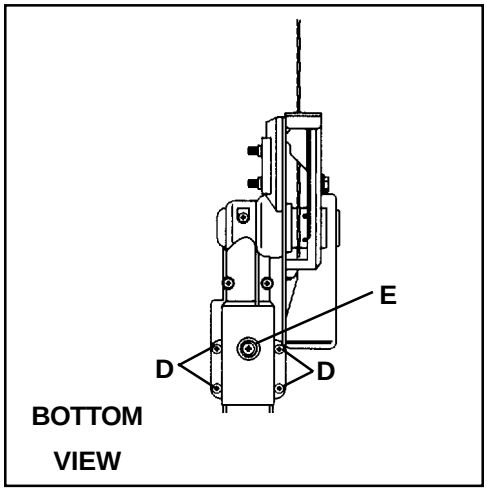



4. Tighten bolt (A) securely so engine will not rotate on shaft tube.

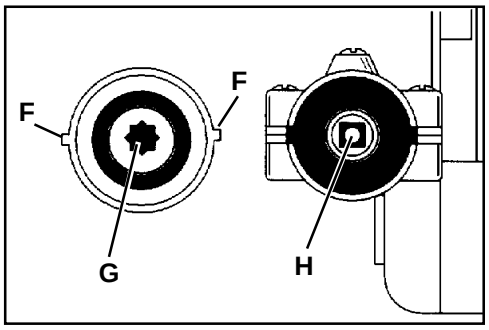
## CUTTING ATTACHMENT TO SHAFT TUBE INSTALLATION

1. Loosen the four (4) screws (D) and locator screw (E) on cutting attachment.

**NOTE**
Do not remove locator screw (E) completely from cutting attachment, otherwise inner lock nut will come loose and be lost.

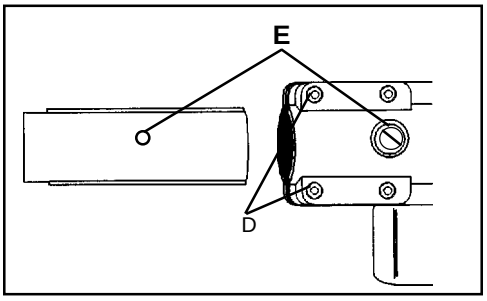


2. Align ridges on aluminum shaft tube (F) with seams in cutting attachment. Join star shaped drive end of inner power transmission shaft (G) with cutting attachment shaft (H).




3. Slide together aligning locator screw (E) in cutting attachment with locating hole in aluminum shaft tube.

4. Tighten locator screw (E). Tighten four (4) cutting attachment screws (D).




## THROTTLE LINKAGE CONNECTIONS

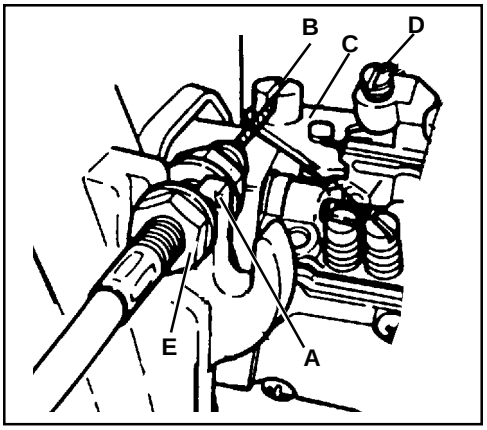
**NOTE**
The engine is delivered separated from shaft tube. The throttle linkage and stop switch wire are attached to the rear handle.

1. Loosen outer nut on throttle linkage.

2. Insert throttle linkage in fan cover slot (A).

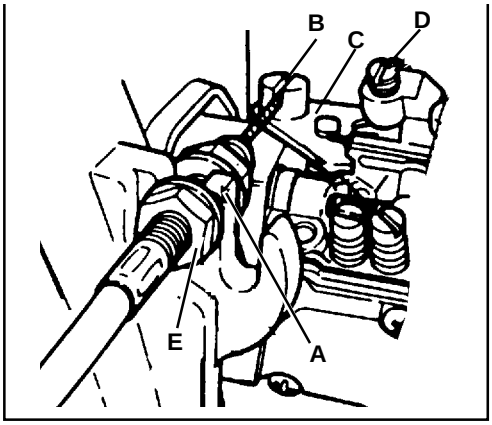
3. Finger tighten nut and attach the inner linkage to the swivel (B) on the carburetor throttle lever.

**NOTE**
It is important that the head of the throttle linkage fit inside the slot well of the swivel (B).



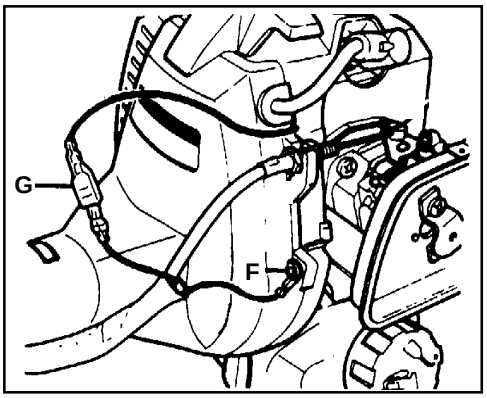
4. Tighten the 10mm linkage nuts.

5. Check throttle for freedom of movement and make sure it returns to idle position. If the throttle linkage does not allow the carburetor throttle plate (C) to return to idle against idle screw (D), loosen linkage nuts; turn throttle linkage nut (E) counter clockwise until throttle plate (C) rests against idle screw (D). Hold linkage nut (E) from turning and tighten other linkage nut.




6. Connect ground wire terminal (F) under screw on fan housing.

7. Connect stop switch wire (G) to stop wire of engine.

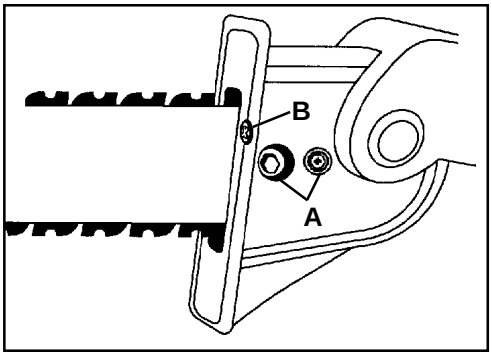



## SAW CHAIN TENSION ADJUSTMENT

**WARNING ⚠ DANGER**

Always wear work gloves when handling saw chain, otherwise serious personal injury may result.

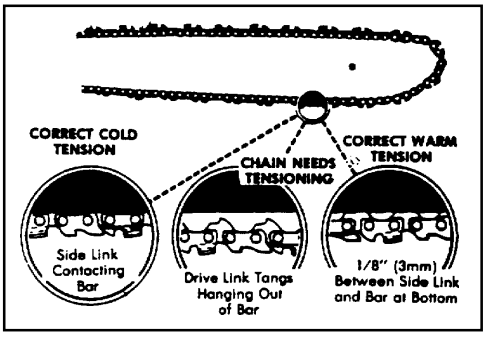
### *To Adjust Saw Chain Tension.*




1. Loosen two (2) 11mm (7/16") guide bar bolts (A) located on cutting attachment using the adjustment wrench provided.

2. Turn saw chain tensioner screw (B) (located next to guide bar in sprocket cover) clockwise to tighten saw chain on guide bar. Turning screw counter clockwise will loosen saw chain on guide bar.

3. Tighten guide bar bolts firmly, but not so much that the head starts to distort. Move saw chain backwards on guide bar by hand. Saw chain should move freely on guide bar if it is in proper mesh with sprocket.

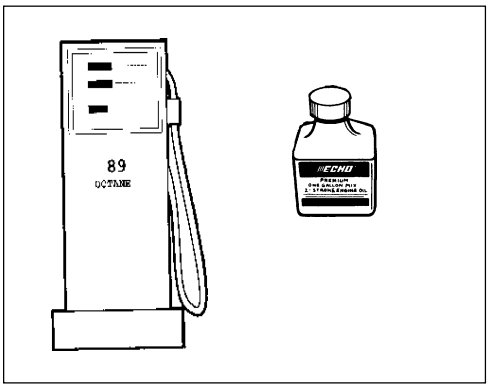



Keep the saw chain lubricated and properly adjusted and the guide bar bolts tightened firmly at all times. If saw chain is difficult to rotate or binds on guide bar, it is too tight.

# PRE-OPERATION

## FUEL

### *Fuel Requirements*




**Gasoline -** Use 89 Octane [ $\frac{R+M}{2}$] gasoline or gasohol known to be good quality. Gasohol may contain up to 10% Ethyl (grain) alcohol or 15% MTBE (methyl tertiary-butyl ether). Gasohol containing methanol (wood alcohol) is **NOT** approved.

**Two-Stroke Oil -** A two-stroke engine oil meeting ISO-L-EGD Standard (ISO/CD 13738), must be used. Echo brand Premium 50:1 oil meets this standard. Engine problems due to inadequate lubrication caused by failure to use an ISO-L-EGD approved oil, such as Echo Premium 50:1 Two-stroke Oil, will void the two-stroke engine warranty. (Emission related parts only are covered for two years, regardless of two-stroke oil used, per the statement listed in the EPA Phase I/California Emission Defect Warranty Explanation.).

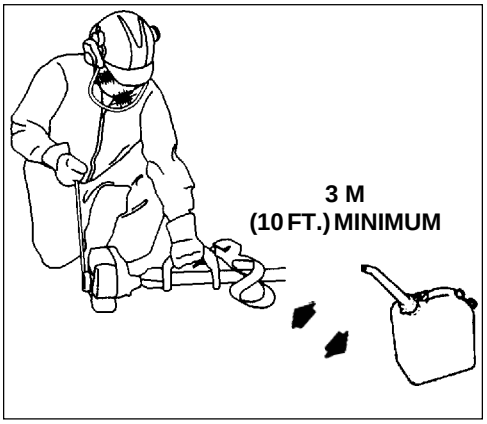
**Mixing -** Follow directions on the oil container.

### *Handling Fuel*

**WARNING ⚠ DANGER**

Fuel is **VERY** flammable. Use extreme care when mixing, storing or handling, or serious personal injury may result.

- Use an approved fuel container.
- DO NOT smoke near fuel.
- DO NOT allow flames or sparks near fuel.
- Fuel tanks/cans may be under pressure. Always loosen fuel caps slowly allowing pressure to equalize.
- NEVER refuel a unit when the engine is HOT!
- NEVER refuel a unit with the engine running.
- DO NOT fill fuel tanks indoors. ALWAYS fill fuel tanks out doors over bare ground.
- Securely tighten fuel cap after refueling.
- Inspect for fuel leakage. If fuel leakage is found, do not start or operate unit until leakage is repaired.

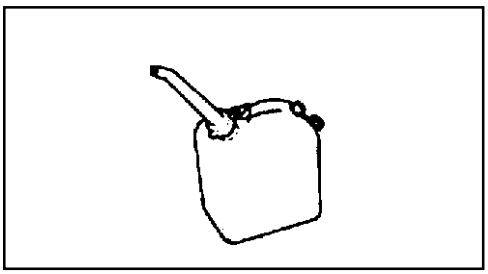



***After Refueling;***

- Wipe any spilled fuel from the unit.
- Move at least 3 M (10 ft.) from refueling location before starting the engine.

***After use;***

- DO NOT store a unit with fuel in its tank. Leaks can occur. Return unused fuel to an approved fuel storage container.



***Storage -***

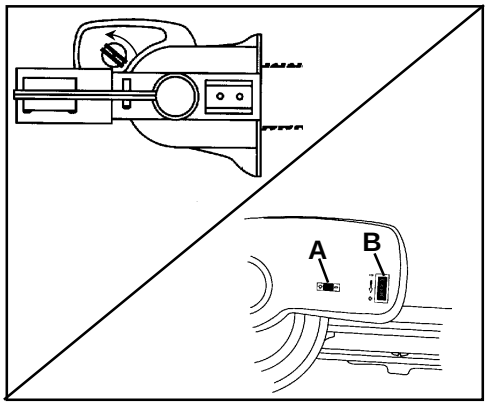
Fuel storage laws vary by locality. Contact your local government for the laws affecting your area. As a precaution, store fuel in an approved, air tight container. Store in a well ventilated, unoccupied building, away from sparks and flames. Do not store fuel longer than 30 days.

**IMPORTANT**
Stored fuel ages. Do not mix more fuel than you expect to use in thirty (30) days, ninety (90) days when a fuel stabilizer is added.

**IMPORTANT**
Stored two-stroke fuel may separate. ALWAYS shake fuel container thoroughly before each use.

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 29 | (30) | 31 | | | | |

## AUTOMATIC OILING SYSTEM



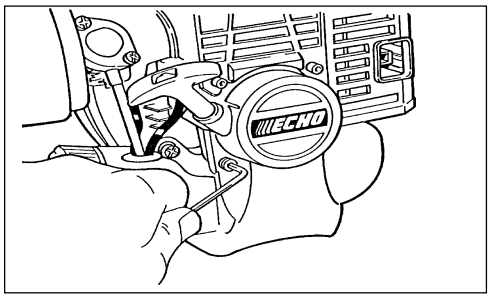

1. Turn oil fill cap $45^0$ counter clockwise and lift to remove.
2. Fill with a quality, low viscosity, guide bar and saw chain oil.

**IMPORTANT**
To prevent plastic deterioration, do not use synthetic or silicone based oil.

3. Set rate indicator (A) to center by turning adjustment wheel (B).
4. Adjust for minimum oil rate by turning adjustment wheel (B). (Very little visible oil on the saw chain will provide sufficient lubrication).

**NOTE**
Proper oiling rate will use one reservoir of oil for each tank of gas.

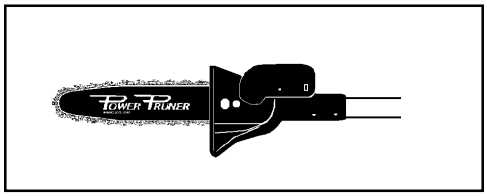
**IMPORTANT**
Do not force adjustment wheel after indicator has reached the end of travel window.




## EQUIPMENT CHECK

Before operation a complete check of the unit must be performed;

- Check unit for loose/missing nuts, bolts and screws. Tighten and/or replace as needed.

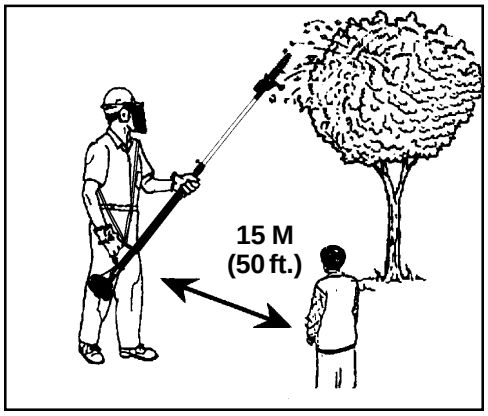



- Inspect fuel lines, tank and area around carburetor for fuel leaks. DO NOT operate unit if leaks are found.

- Check that the cutting attachment is firmly attached and the saw chain is correctly tensioned on the guide bar. Dull, loose or damaged saw chain should not be used. Refer to page 31 for correct Filing Saw Chain procedures.

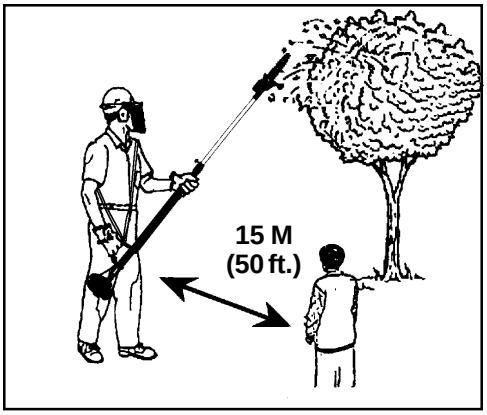
- Before use check for contamination such as moisture, sawdust, etc. that may allow an electrical path to occur between the cutting attachment and the outer shaft tube. Clean off all contamination from shaft tube, and dry unit completely with a clean silicone cloth. Refer to Maintenance Section page 28 for proper cleaning instructions.

- Check that harness is adjusted for safe, comfortable operation. See figure at right for proper adjustment.



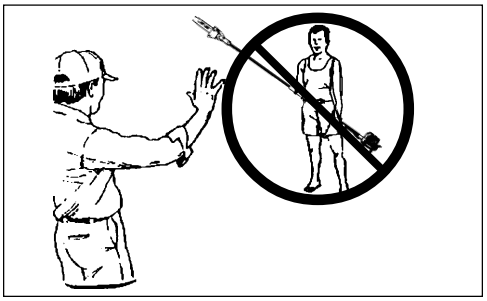
## DETERMINE OPERATION AREA

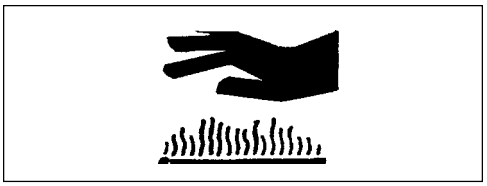
- Before staring the unit, equip yourself and fellow workers in the 15 M (50 ft.) safety zone with the required protective equipment and clothing.
- Review the area to be trimmed. Look for hazards that could contribute to unsafe conditions.
- Spectators, children and animals must be prevented from coming nearer than 15 M (50 ft.) while the pruner is in use.




# OPERATION

- Provide all operators of this equipment with the Operator's Manual and instructions for safe operation.
- Before starting the unit, equip yourself and any other person working within the 15 M (50 ft.) Safety Zone with the required Protective Equipment and clothing.
- Always evaluate the area being cut for overhead hazards such as dead branches which may fall and strike the operator or helpers.
- Be aware of branches bouncing when striking the ground.
- Larger branches should be removed in sections.
- During operation, the complete unit, especially the shaft tube and the bearing housing may become very hot, too hot to touch. Avoid contact during and immediately after operation.

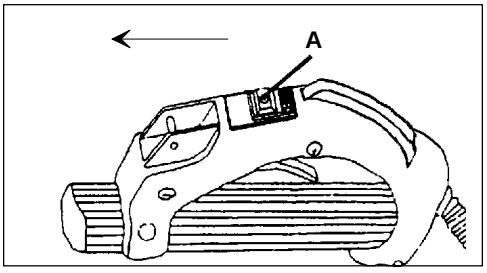




## STARTING COLD ENGINE

**WARNING ⚠ DANGER**

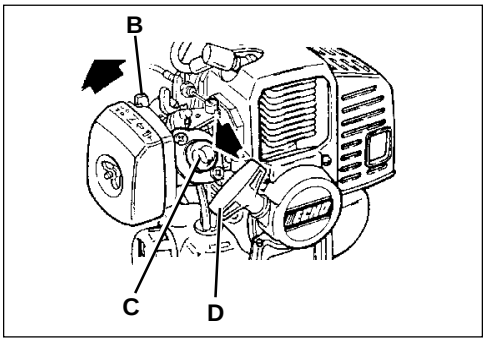
The cutting attachment should not rotate at idle. If cutting attachment rotates, readjust carburetor according to "Carburetor Adjustment" instructions in this manual or see your dealer, otherwise serious personal injury may result.




1. Stop Switch - Start/Run.
   Move stop switch button (A) forward away from the STOP position.

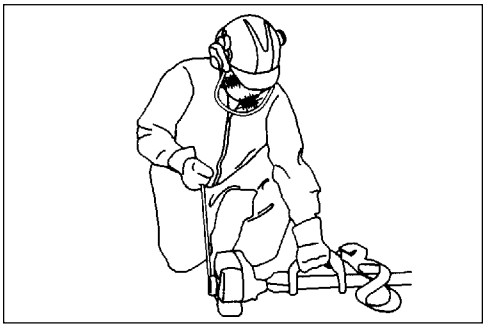
2. Choke - Cold Start.
   Move choke (B) to “Cold Start” Position.

3. Primer Bulb - Primer.
   Pump primer bulb (C) 10 times. Fuel will be visible and flow freely in the clear fuel tank return line.



**WARNING ⚠ DANGER**

Inspect starting area for hazards such as rocks, glass, debris etc. which could be contacted by the cutting attachment when starting. Keep helpers and bystanders at least 15 M (50 ft.) from starting area, otherwise serious personal injury may result.



4. Lay the pruner on a flat clear area. Firmly grasp rear handle and throttle trigger lockout with left hand and fully depress throttle trigger to wide open position. Rapidly pull recoil starter handle (D) until engine fires (or maximum five [5] pulls).

5. After engine fires (or five [5] pulls), move choke to "Run" position. Hold throttle trigger and throttle trigger lockout fully depressed and pull recoil starter handle/rope until engine starts and runs. Release throttle trigger and allow unit to warm up at idle for several minutes.

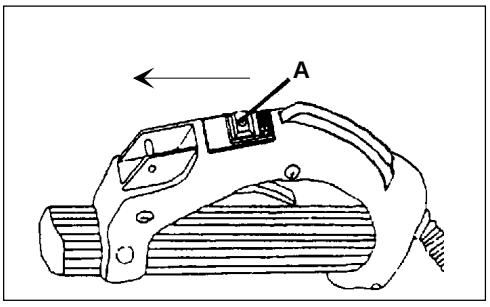
**NOTE**
If engine does not start with choke in "Run" position after 4 pulls, repeat instructions.

6. After engine warm up, gradually depress throttle trigger to increase engine RPM to operating speed.

## STARTING WARM ENGINE

**WARNING ⚠ DANGER**

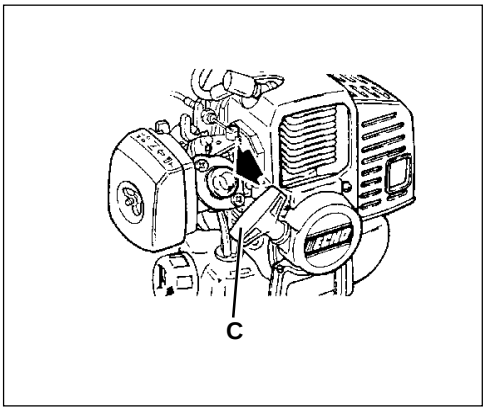
The cutting attachment should not rotate at idle. If cutting attachment rotates, readjust carburetor according to "Carburetor Adjustment" instructions in this manual or see your dealer, otherwise serious personal injury may result.



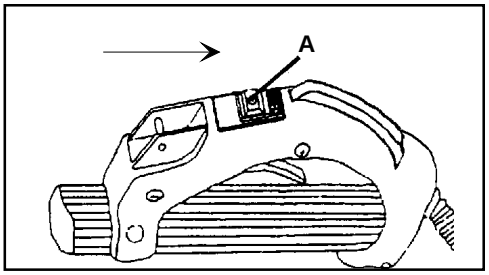

1. Stop Switch - Start/Run. Move stop switch button (A) forward away from the STOP position.

2. Recoil Start - Pull Rope. Lay the trimmer on a flat clear area and pull the recoil starter handle (C) until the engine fires.

**NOTE**
If engine does not start after 4 pulls, use Cold Start Procedure.



## STOPPING ENGINE

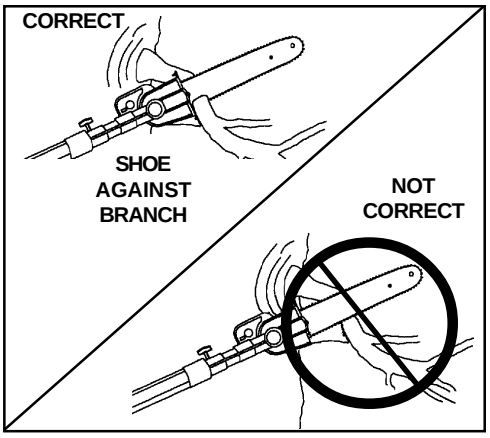



1. Release Throttle Trigger. Allow engine to idle for a minute.
2. Stop Switch - Stop. Move stop switch button (A) backward to STOP position.

**WARNING ⚠ DANGER**

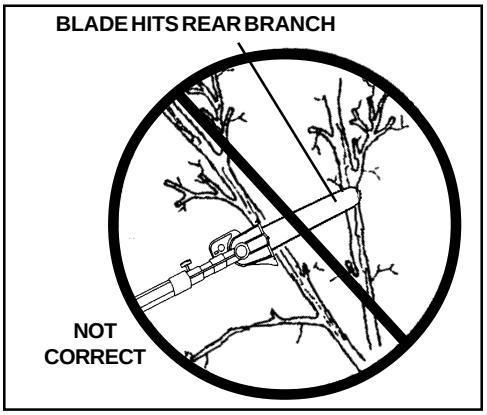
If engine does not stop when stop switch is moved to STOP position, close choke - COLD START position - to stall engine. Have your ECHO dealer repair stop switch before using pruner again.

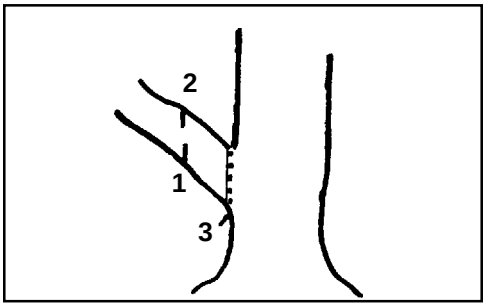
## PRUNING TECHNIQUES




The Power Pruner is designed for light to medium trimming of limbs and branches up to 203 mm (8 in.) in diameter. Follow these tips for successful operation.

- Plan cut carefully. Check direction branch will fall.
- Long branches should be removed in several pieces.
- Do not stand directly beneath branch being cut.
- When ready to cut:
  Hold "front cutting shoe" against branch. This will prevent whipping of the branch. DO NOT use back and forth sawing action.
- Look out for branch immediately behind the branch being cut. If saw chain hits rear branch damage to the saw chain my occur.
- Accelerate to full throttle.
- Apply cutting pressure.
- Ease cutting pressure when nearing end of cut to maintain control.
- When pruning a limb 102 mm (4 in.) diameter or larger cut as follows:
  1. Under cut 1/4 limb diameter near tree trunk.
  2. Finish top cut slightly farther out on limb.
  3. Flush cut stub at trunk.
- DO NOT use for felling or bucking.



# MAINTENANCE

Your ECHO Power Pruner™ is designed to provide many hours of trouble free service. Regular scheduled maintenance will help your pruner achieve that goal. If you are unsure or are not equipped with the necessary tools, you may want to take your unit to an ECHO Service Dealer for maintenance. To help you decide whether you want to DO-IT-YOURSELF or have the ECHO Dealer do it, each maintenance task has been graded. If the task is not listed, see your ECHO Service Dealer for repairs.

## SKILL LEVELS

**Level 1** = Easy to do. Most required tools come with unit.
**Level 2** = Moderate difficulty. Some specialized tools may be required.
**Level 3** = Experience required. Specialized tools are required.

ECHO offers **REPOWER™** Maintenance Kits and Parts to make your maintenance job easier. Just below each task heading are listed the various part numbers required for that task. See your ECHO dealer for these parts.

## MAINTENANCE INTERVALS

| COMPONENT/ SYSTEM | MAINTENANCE PROCEDURE | REQ'D SKILL LEVEL | DAILY OR BEFORE USE | EVERY REFUEL | 3 MONTHS OR 90 HOURS | 6 MONTHS OR 270 HOURS | YEARLY 600 HOURS |
|---|---|---|---|---|---|---|---|
| **Recommended Echo Dealer Maintenance Procedures** | | | | | | | |
| Cylinder Exhaust Port | Inspect/Clean/Decarbon | 3 | | | I / C | | |
| **Do-It-Yourself Maintenance Procedures** | | | | | | | |
| Air Filter | Inspect/Clean/Replace | 1 | I / C | | I* | | |
| Choke System | Inspect/Clean | 2 | I / C | | | | |
| Fuel Filter | Inspect/Replace | 1 | | | I | | I / R * |
| Fuel System, leaks | Inspect/Replace | 1 | I / R * | I | I | | |
| Cooling System | Inspect/Clean | 2 | I / C | | | | |
| Muffler Spark Arrestor | Inspect/Replace | 2 | | | I / R * | | |
| Power Transmission Shaft | Inspect/Clean/Oil | 2 | I (1) | | | | I |
| Guide Bar | Inspect/Clean/Lubricate | 2 | I / C | I | | | |
| Saw Chain | Inspect/Sharpen/Replace/ Lubricate | 2 | I / R* | I | | | |
| Recoil Starter Rope | Inspect/Clean | 1 | I / R* | | | | |
| Spark Plug | Inspect/Clean | 2 | | | I / C | R * | |
| Screws/Nuts/Bolts | Inspect/Tighten/Replace | 1 | I / R * | | | | |

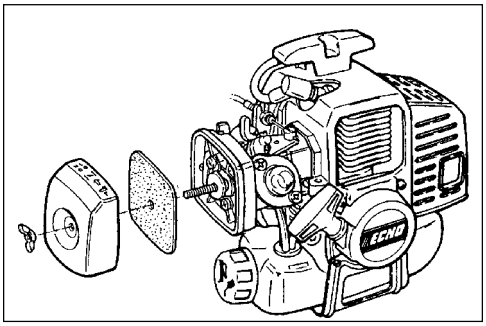
**MAINTENANCE PROCEDURE LETTER CODES: I = INSPECT, R = REPLACE, C = CLEAN**
**IMPORTANT NOTE -** Time intervals shown are maximum. Actual use and your experience will determine the frequency of required maintenance.
**MAINTENANCE PROCEDURE NOTES:**
***** All recommendations to replace are based on the finding of damage or wear during inspection.
**(1)** Apply ECHO® LUBE™ every 25 hours of use.

## AIR FILTER

**Level 1.**

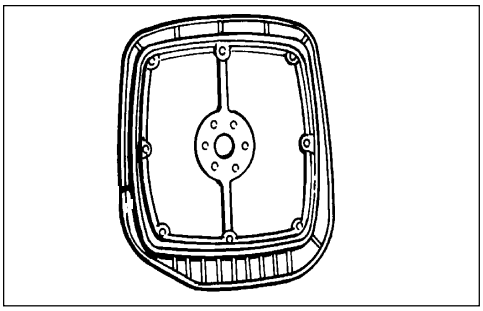
*Parts required:* REPOWER Filtration Kit P/N 90008

1. Close choke (Cold Start Position). This prevents dirt from entering the carburetor throat when the air filter is removed. Brush accumulated dirt from the air cleaner area.



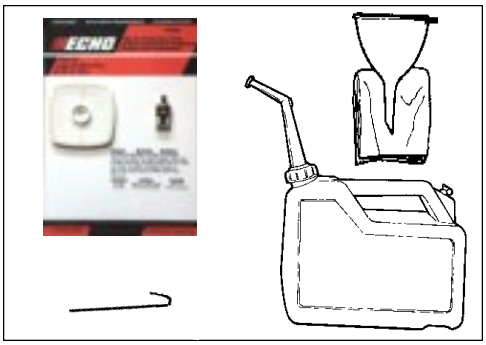
2. Remove the air cleaner cover. Clean and inspect the element for damage. If element is fuel soaked and very dirty, replace.

3. If element can be cleaned and reused, be certain it:
   -properly fits the cavity in the air cleaner cover.
   -is installed with the original side out.



**NOTE**
Carburetor adjustment may be needed after air filter cleaning/ replacement. See Carburetor Adjustment Section.

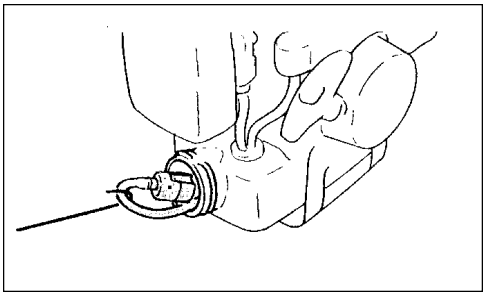
## FUEL FILTER



**Level 1.**

*Parts Required:* REPOWER Filtration Kit P/N 90008

**WARNING ⚠ DANGER**
Fuel is **VERY** flammable. Use extreme care when mixing, storing or handling or serious personal injury may result.

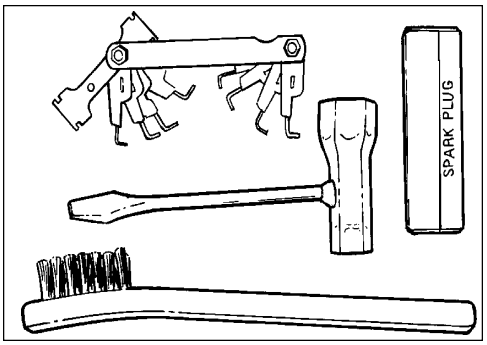


1. Use a clean rag to remove loose dirt from around fuel cap and empty fuel tank.

2. Use the "fuel line hook" to pull the fuel line and filter from the tank.

3. Remove the filter from the line and install the new filter.

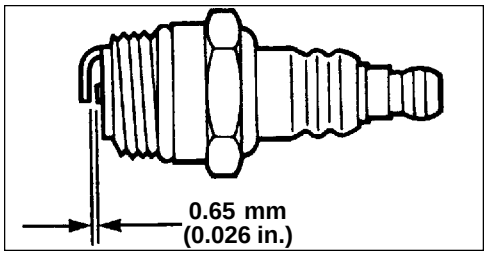
## SPARK PLUG



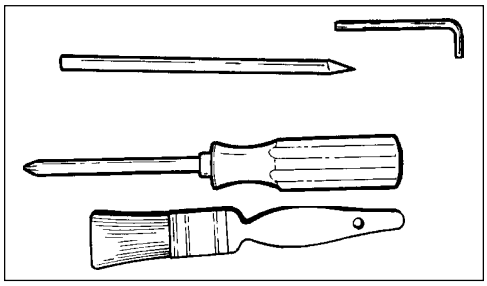

**Level 2.**

*Parts Required:* Spark Plug, NGK BPM-7Y

1. Remove spark plug and check for fouling, worn and rounded center electrode.
2. Clean the plug or replace with a new one. DO NOT sand blast to clean. Remaining sand will damage engine.
3. Adjust spark plug gap by bending outer electrode.
4. Tighten spark plug to 145-155 kg-cm (125-135 in. lb.).



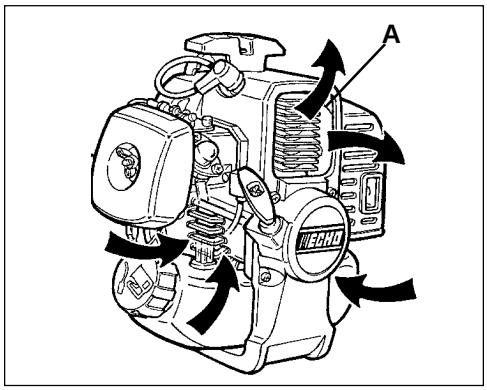

## COOLING SYSTEM CLEANING



**Level 3.**

*Parts Required:* None.

**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.

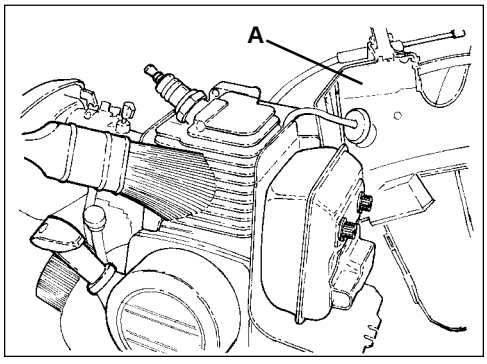



Overheating and engine seizure can occur when:

- Air intakes are blocked, preventing cooling air from reaching the cylinder.
- 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 cooling fins is considered “Normal Maintenance”. Any failure attributed to lack of maintenance is not warranted.

1. Remove spark plug lead from spark plug and throttle linkage end from the carburetor swivel.
2. Remove the four screws that retain the engine cover (A). Two at the top of the recoil starter, two on either side of the front. Lift the cover from the engine and lay to the front of the Power Pruner.

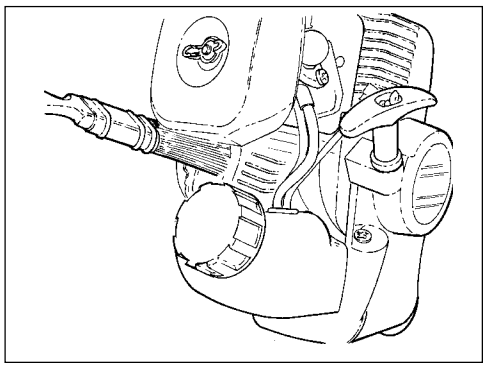


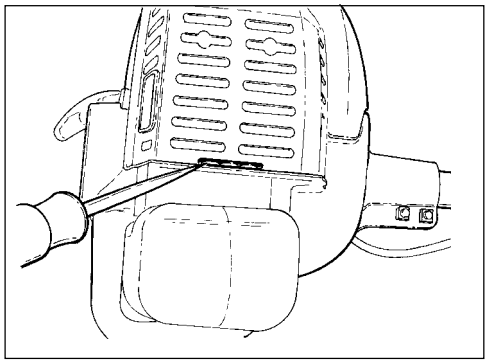

**NOTE**
The throttle linkage remains assembled to the engine cover and the spark plug lead and grommet remain installed.

3. Use the wooden stick or brush to remove dirt form cylinder fins.

4. Remove grass and leaves from the grid between the starter and fuel tank.

5. Assemble components in reverse order.





**NOTE**
When installing the engine cover, be certain the tab of the metal deflector shield is in the slot of the engine cover.

## EXHAUST SYSTEM

### *Spark Arrestor Screen*

**Level 2.**

*Parts Required:* Screen, Gasket Lid

1. Remove engine cover (A). See "Cleaning Cooling System" pages 25 & 26 for step by step instructions.

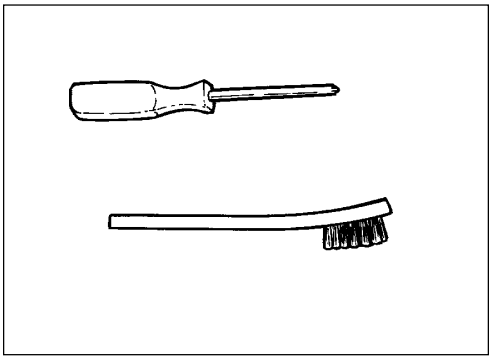
2. Place piston at Top Dead Center (TDC) to prevent carbon/dirt from entering cylinder.

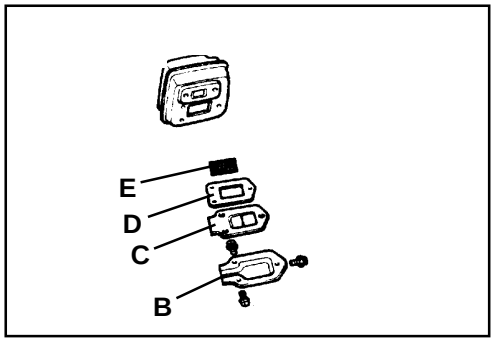
3. Remove spark arrestor screen cover (B), screen holder (C), gasket (D) and screen (E) from muffler body.

4. Clean carbon deposits from screen and muffler components.

5. Replace screen if it is cracked, plugged or has holes burned through.

6. Assemble components in reverse order.

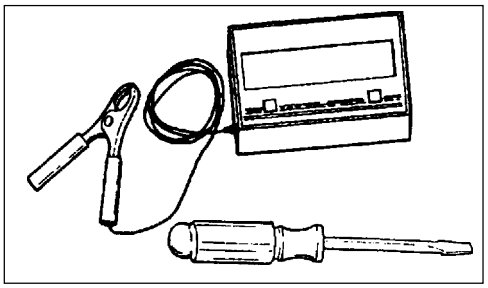





**NOTE**
When installing the engine cover, be certain the tab of the metal deflector shield is in the slot of the engine cover.

## CARBURETOR ADJUSTMENT

***Emission Models***

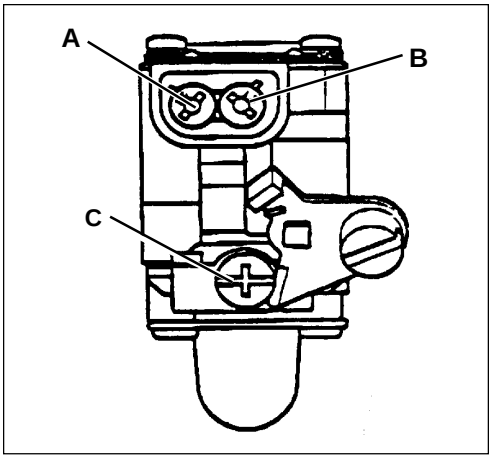


**Level 2.**

*Parts required:* None.

**NOTE**
Every unit is run at the factory and the carburetor is set in compliance with EPA Phase 1 and California Emission Regulations. In addition, the carburetor is equipped with HI (A) and LO (B) needle adjustment limiters that prevent settings outside acceptable limits.

1. Before adjusting the carburetor, clean or replace the air filter and spark arrester screen.
2. Start engine and run for several minutes to reach operating temperature.
3. Stop engine. Turn HI (A) speed needle CCW (counter clockwise) to stop. Turn LO (B) speed needle midway between full CCW and CW (clockwise) stops.
4. Idle Speed Adjustment.
   -Start engine and turn idle (C) speed adjustment screw CW until the saw chain begins to turn, then turn the screw CCW until saw chain stops turning. Turn screw CCW an additional 1/4 turn.
5. Accelerate to full throttle for 2-3 seconds to clear excess fuel from engine then return to idle. Accelerate to full throttle to check for smooth transition from idle to full throttle. If engine hesitates, turn LO (B) needle CCW an additional 1/8 turn and repeat acceleration. Continue adjusting until smooth acceleration results.
6. Check HI speed RPM at W.O.T. (Wide Open Throttle). HI speed RPM should be set to specifications found on page 13 "Specifications" of this manual.
7. Check idle speed and reset if necessary. If a tachometer is available, idle speed should be set to the specification found on page 13 "Specifications" of this manual.

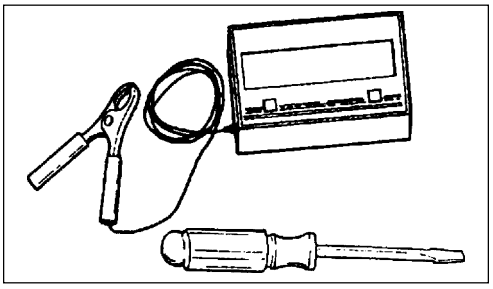



**WARNING ⚠ DANGER**
When carburetor adjustment is completed, saw chain should not move at idle, otherwise serious personal injury may result.

## CARBURETOR ADJUSTMENT

### *Non Emission Models*

### *Idle Speed Adjustment*



Turn "idle" speed adjustment screw (C) CW (clockwise) until saw chain begins to turn, then turn screw out CCW (counter clockwise) until saw chain stops turning. Turn screw out, CCW an additional 1/4 turn.

**WARNING ⚠ DANGER**

Saw chain must not turn when unit is idling, otherwise serious personal injury may result.

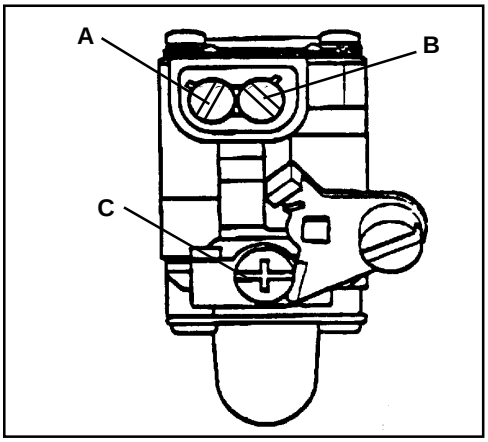
### *Basic Setting*

1. Stop engine and turn both LO (B) and HI (A) needles in, CW until they stop and are lightly seated.

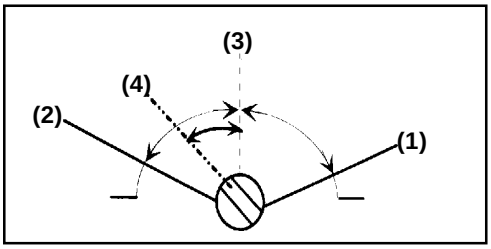
**IMPORTANT**
**DO NOT** over tighten needles. Forcing them to tighten will damage the carburetor.

2. Turn needles out CCW
   LO (B) 2-1/4 turns; HI (A) 3-1/4 turns

### *Fine Tuning (Requires Accurate Tachometer)*




1. Start engine and allow to warm to operating temperature (minimum 2 - 3 minutes) varying engine speed from idle to full throttle.
2. Always begin fine tuning with LO (B) needle.
   a. Lean drop-off - With engine idling, turn LO (B) needle slowly CW (in) to lean drop-off point. RPM will increase, then abruptly drop-off. Note this position. (1)
   b. Rich drop-off - With engine idling, slowly turn LO (B) needle CCW (out) to rich drop-off point. RPM will increase then gradually slow and drop-off. Note this position. (2)
   c. Final setting - Set needle at mid point between lean rich drop-off points. (3)
   d. Turn needle 1/8 turn CCW (out) making mixture slightly richer. (4)
3. HI speed adjustment.
   Adjust HI (A) needle with tachometer. Refer to Wide Open Throttle RPM settings listed in "Specifications" on page 13.
4. Check idle speed and reset if necessary. If tachometer is available, idle speed should be set to the specifications found on page 13 "Specifications" of this manual.




**WARNING ⚠ DANGER**

When carburetor adjustment is completed, saw chain should not move at idle, otherwise serious personal injury may result.

## GUIDE BAR AND SAW CHAIN REPLACEMENT

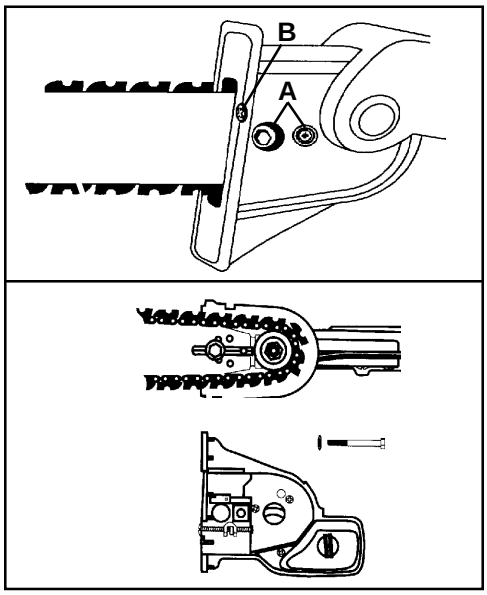
**WARNING ⚠ DANGER**

Never try to replace or adjust guide bar and saw chain with engine running. This saw chain is VERY sharp, wear heavy gloves to protect your hands when handling it. Wear eye protection meeting ANSI Z87.1 or CE requirements.

### *Guide Bar Replacement / Installation*

**Level 3**

- Loosen two (2) 11mm (7/16") guide bar bolts (A) and relieve saw chain tension turning screw (B) counter clockwise.
- Remove sprocket cover.
- Free saw chain from sprocket and remove from guide bar. If guide bar is okay proceed to saw chain installation.
- Slide guide bar forward and remove from cutting attachment. Install new guide bar sliding it onto the cutting attachment as far as possible.




### *Saw Chain Installation*

**Level 3**

- Install new saw chain onto guide bar. Make sure cutting links are faced towards the nose of the guide bar.
- Engage saw chain with sprocket.
- Replace sprocket cover.
- Follow instruction on adjusting saw chain tension page 17.

## PRUNER CLEANING

**WARNING ⚠ DANGER**

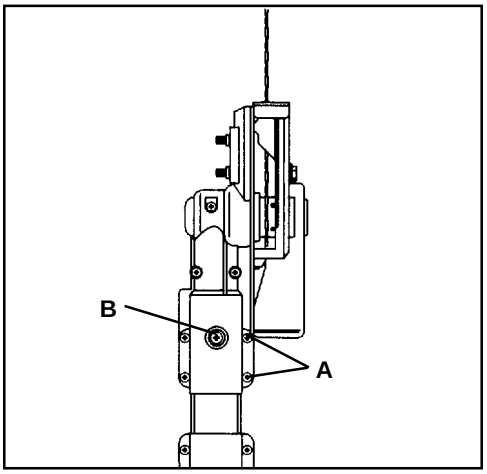
Dirt and oil contaminants may provide an electrical path from the Power Pruner to the operator. Before each use, clean the shaft tubes of all dirt and oil residues, otherwise accidental contact with overhead conductors may cause serious personal injury or death.

### *Cleaning Procedure*

**NOTE**

The term "Hot Stick" applies to a non conductive insulated pole used by electric utilities in moving "live" downed power lines. Cleaning materials designated with "Hot Stick" are certified for cleaning applications on dielectric tools. "Hot Stick" certified cleaners can be purchased from any industrial electric supply business.

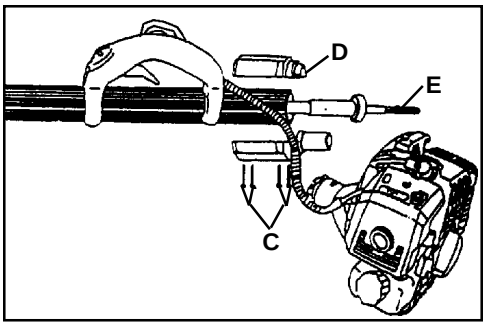
1. Loosen four (4) screws (A) and locator screw (B). Remove cutting attachment from shaft tube.




**NOTE**
Do not remove locator screw (B) completely from cutting attachment, otherwise inner lock nut will come loose and be lost.

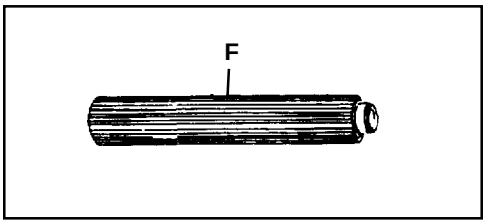
2. Remove four (4) screws (C) from engine end adaptor. Remove upper adapter cap (D) with "O" ring half.

3. Push power transmission shaft (E) forward to disconnect from engine clutch drum PTO, then set engine, with lower adapter end, to the side.




4. Remove power transmission shaft (E) from shaft tube (F).

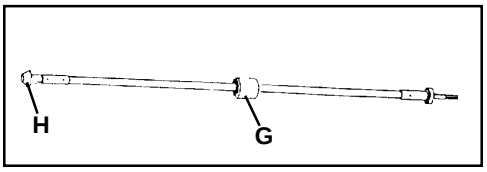
5. Clean inside shaft tube housing assembly (F) with "Hot Stick" cleaning solution and cloth. Use a rod or wooden dowel that will not shed conductive contaminates. Push cloth from engine end to cutting attachment end. Wipe inner shaft tube assembly completely dry with clean cloth.




6. Clean outer shaft tube grooves with cleaning pad. Then dry.

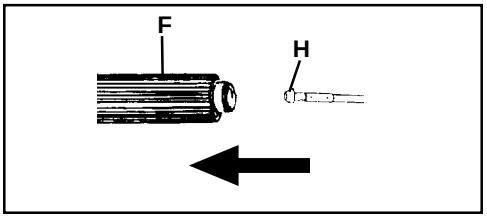
7. Apply silicone to a clean cloth and wipe down outer and inner shaft tube walls.

8. Clean fiberglass power transmission shaft (E) with "Hot Stick" cleaner. Clean center bushing (G) with a cloth. Do not use cleaner on center bushing assembly. Check center foam and bushing (G) for wear and apply silicone lubricant as required.



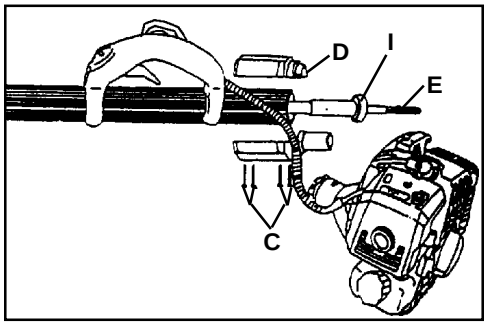

**NOTE**
Application of "Hot Stick" wax to all fiberglass surfaces will improve resistance to moisture.

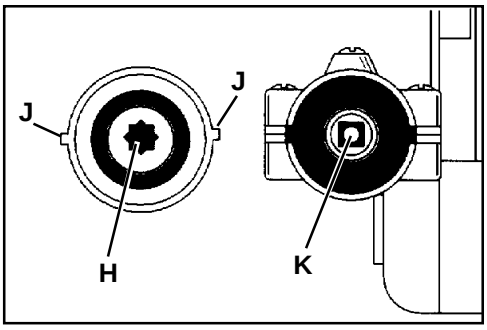
9. Insert cone shaped power transmission shaft end (H) into engine end of shaft tube (F). Squeeze bushing cover (G) to fit housing bore and push power transmission shaft into position.



10. Assemble engine/lower adaptor assembly in position at housing end and engage power transmission shaft end (E) into engine clutch drum PTO.

11. Check upper adaptor cap (D) for correct placement of "O" ring half. Assemble cap onto the shaft tube locating power transmission shaft ball bearing (I) into adaptor body and cap groove. Assemble four (4) screws (C). Rotate shaft tube to correctly position rear handle then tighten screws maintaining equal upper and lower adaptor half side gap spacing.

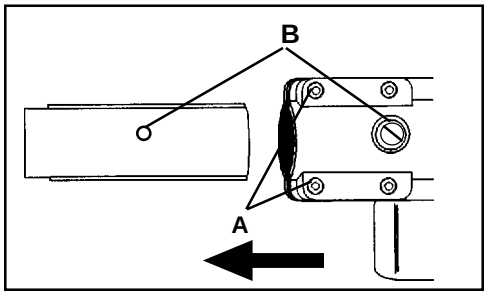



12. Align ridges on aluminum shaft tube (J) with seams in cutting attachment. Join star shaped drive end of inner power transmission shaft (A) with cutting attachment shaft (F).

13. Slide together aligning locating screw (B) in cutting attachment with locating hole in aluminum shaft tube.

14. Tighten locator screw (B) and four (4) cutting attachment screws (A).



## FILING SAW CHAIN

**Level 3.**

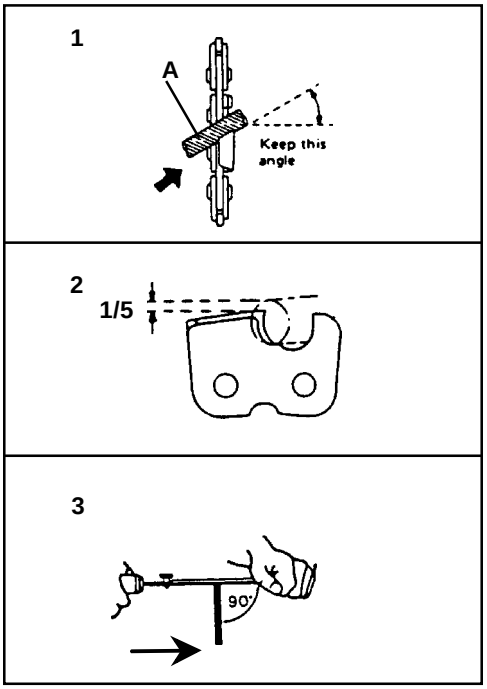
**IMPORTANT**
Dull or damaged cutter will result in poor cutting performance, increased vibration, and premature saw chain failure.

**WARNING ⚠ DANGER**
Always stop engine and wear gloves when filing saw chain, otherwise serious personal injury may result.

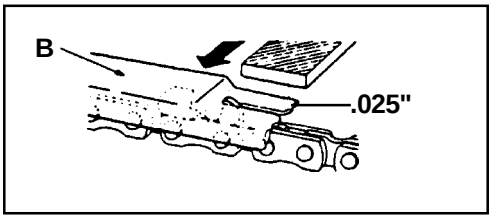
1. Set round file (A) in cutter at 30° angle. One-fifth (1/5) of the file should be exposed above top cutter edge.

2. Keep file horizontal in cutter and file in one direction.

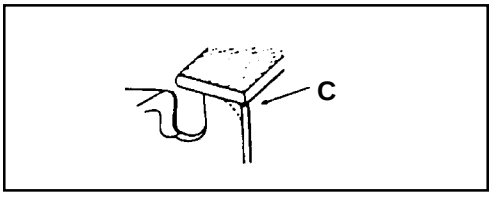
3. File until cutter top and side bevel edges are sharp without nicks.




4. Place depth gauge tool (B) firmly on top of cutter with .635 mm (.025 in.) slot end against front cutter raker. File cutter raker with flat file until flush with top of depth gauge.



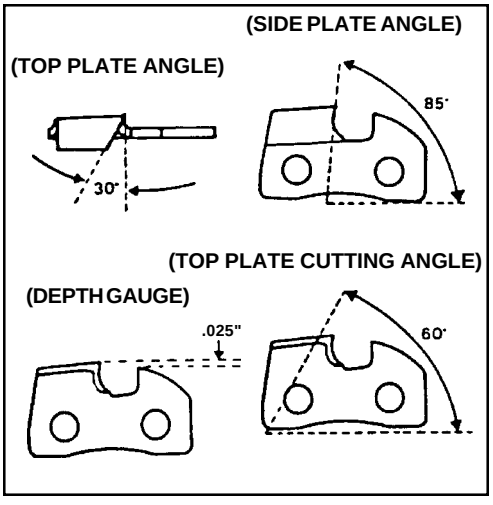

5. Finish cutter sharpening by rounding front raker edge (C) with flat file.




6. Properly filed cutter is as shown.

7. Apply clean oil and rotate saw chain slowly to wash away filings.

8. If saw chain is coated or clogged with resin, clean in kerosene and soak in oil.



## TROUBLESHOOTING

| Problem<br>Engine — starts hard<br>— does not start | | | Cause | Remedy |
|---|---|---|---|---|
| Engine Cranks | Fuel at carburetor | No fuel at carburetor | Fuel strainer clogged<br>Fuel line clogged<br>Carburetor | Clean<br>Clean<br>See your dealer |
| | Fuel at cylinder | No fuel at cylinder | Carburetor | See your dealer |
| | | Muffler wet with fuel | Fuel mixture is too rich | Open choke<br>Clean/replace air filter<br>Adjust carburetor<br>See your dealer |
| | Spark at end of plug wire | No spark at end of plug wire | Stop switch off<br>Electrical problem<br>Interlock switch | Turn switch on<br>See your dealer<br>See your dealer |
| | Spark at plug | No spark at plug | Spark gap incorrect<br>Covered with carbon<br>Fouled with fuel<br>Spark plug defective | Adjust. 0.65 mm (0.026 in.)<br>Clean or replace<br>Clean or replace<br>Replace plug |
| Engine does not crank | | | Internal engine problem | See your dealer |
| Engine runs | Dies or Accelerates poorly | | Air filter dirty<br>Fuel filter dirty<br>Fuel vent plugged<br>Spark plug<br>Carburetor<br>Cooling system plugged<br>Exhaust port/spark arrestor screen plugged | Clean or replace<br>Replace<br>Replace<br>Clean and adjust/replace<br>Adjust<br>Clean<br>Clean |

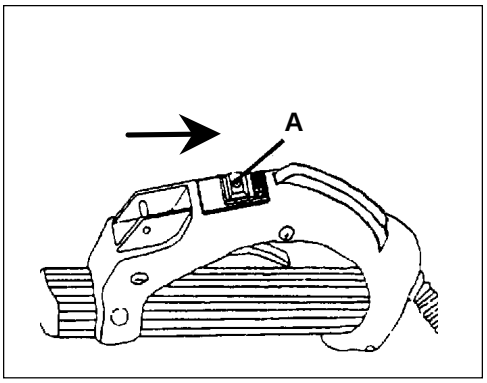
# STORAGE

### *Long Term Storage (over 30 days)*

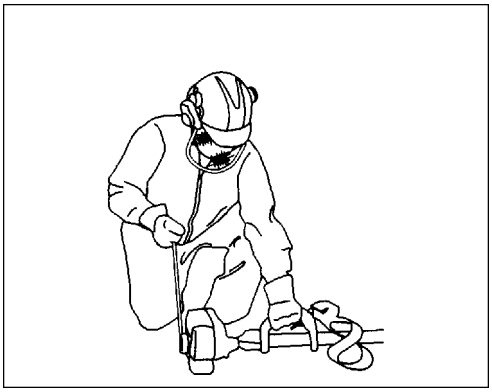
Do not store your unit for a prolonged period of time (30 days or longer) without performing protective storage maintenance which includes the following:

1. Store unit in a dry, dust free place, out of the reach of children.

**WARNING ⚠ DANGER**
Do not store in enclosure where fuel fumes may accumulate or reach an open flame or spark or serious personal injury may result.




2. Move stop switch button (A) backward to STOP position.
3. Remove accumulation of grease, oil, dirt and debris from exterior of unit.
4. Perform all periodic lubrication and services that are required.
5. Tighten all the screws and nuts.
6. **Drain** the fuel tank **completely** and pull the recoil starter handle several times to remove fuel from the carburetor.
7. Remove the spark plug and pour 30 ml of fresh, clean, two-stroke engine oil into the cylinder through the spark plug hole.
   A. Place a clean cloth over the spark plug hole.
   B. Pull the recoil starter handle 2-3 times to distribute the oil inside the engine.
   C. Observe the piston location through the spark plug hole. Pull the recoil starter handle slowly until the piston reaches the top of its travel and leave it there.



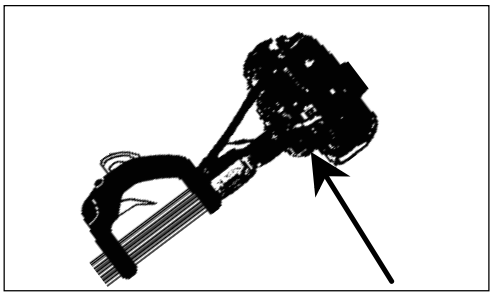
8. Install the spark plug (do not connect spark plug cable).
9. Install guide bar cover on guide bar and saw chain during storage.

# SERVICING INFORMATION

## PARTS

Genuine ECHO Parts and ECHO Re Power Parts and Assemblies for your ECHO products are available only from an Authorized ECHO Dealer. When you do need to buy parts **always** have the Model Number, Type number and Serial Number of the unit with you. You can find all three numbers on the engine housing. For future reference, write them in the space provided below.

Model No. _____ Type No. _____ SN. _____



**DEALER?**

**Call**

**1-800-432-ECHO**

## SERVICE

Service of this product during the warranty period must be performed by an Authorized ECHO Service Dealer. For the name and address of the Authorized ECHO Service Dealer nearest you, ask your retailer or call: 1-800-432-ECHO**.** When presenting your unit for Warranty service/ repairs, proof of purchase is required.

## WARRANTY CARD

This card is our means of registering all original owners of ECHO equipment. The card plus proof of purchase provides you the assurance that authorized warranty work will be done. It also provides a direct link between you and ECHO if we find it necessary to contact you.

ECHO LIMITED WARRANTY REGISTRATION CARD

(Copy of Limited Warranty Statement included with Operator's Manual)

PLEASE PRINT

PURCHASER'S NAME (HOMEOWNER OR BUSINESS):

ADDRESS

CITY STATE ZIP CODE

PHONE ( ) DO YOU OWN OR RENT YOUR HOME

PRIMARY USE AT CURRENT ADDRESS AGE OF BUYER UNDER 20 20 - 29 30 - 39 40 - 49 50 +

DEALER'S NAME

CITY STATE ZIP CODE

MODEL NUMBER SERIAL NUMBER OR TYPE NO. DATE PURCHASED

CUSTOMER SIGNATURE DEALER SIGNATURE (IF APPLICABLE)

A. PRIMARY USE OF TOOL: 1 HOMEOWNER 2 MUNICIPALITY 3 FORESTRY 4 TREE MAINTENANCE 5 LANDSCAPING 6 CONSTRUCTION 7 FARM 8 OTHER

B. WHAT INFLUENCED YOUR DECISION TO BUY AN ECHO PRODUCT? 9 WORD OF MOUTH 10 BROCHURE 11 DIRECT MAIL CATALOG 12 ECHO BRAND IDENTIFICATION 13 MAGAZINE AD 14 PRICE 15 STORE DISPLAY 16 DEALER 17 OTHER

C. SAFETY/OPERATIONAL INFORMATION RECEIVED WITH PRODUCT? 18 OPERATOR'S MANUAL 19 ON PRODUCT LABELS 20 CHAIN SAW SAFETY MANUAL 21 DEALER DEMONSTRATION 22 BRUSHCUTTER SAFETY MANUAL

D. WERE YOU ADVISED OF AVAILABILITY AND REASONS FOR KICK GUARD*, REDUCED KICK BAR AND CHAINT 23 YES 24 NO

E. DO YOU OWN OR HAVE YOU OWNED ECHO POWER EQUIPMENT? 25 YES 26 NO

F. HAVE YOU REVIEWED THE BRUSHCUTTER/TRIMMER VIDEO OVERVIEW? 27 YES 28 NO

TO RECEIVE A COPY OF THE ECHO SAFETY VIDEO OVERVIEW ON THE BRUSHCUTTER/TRIMMER SAFETY MANUAL, SEND (5 ?) FOR SHIPPING AND HANDLING TO:

ECHO, INCORPORATED
ATTN: VIDEO OFFER
400 OAKWOOD RD.
LAKE ZURICH, IL 60047

## ADDITIONAL OR REPLACEMENT MANUALS

**Operator's and Parts Manuals** are available for purchase from your ECHO dealer or directly from ECHO. [See ordering instructions below.]

ECHO Incorporated
400 Oakwood Road
Lake Zurich, IL 60047

Technical Publications Orders

## ORDERING INSTRUCTIONS

To obtain a Parts Catalog or Operator's Manual send a check or money order for $2.00 per Parts Catalog or $1.50 per Operator's Manual made payable to ECHO, INCORPORATED. State on a sheet of paper the model number and serial numbe of the ECHO unit you have, part number of the manual (if known), your name and address and mail to address above.

***Available Parts Catalog***

PPFD-2400 Type 1/1E Serial Number 001001 & Up Part Number 99922202954

**ECHO, INCORPORATED**
400 OAKWOOD ROAD
LAKE ZURICH, IL 60047