

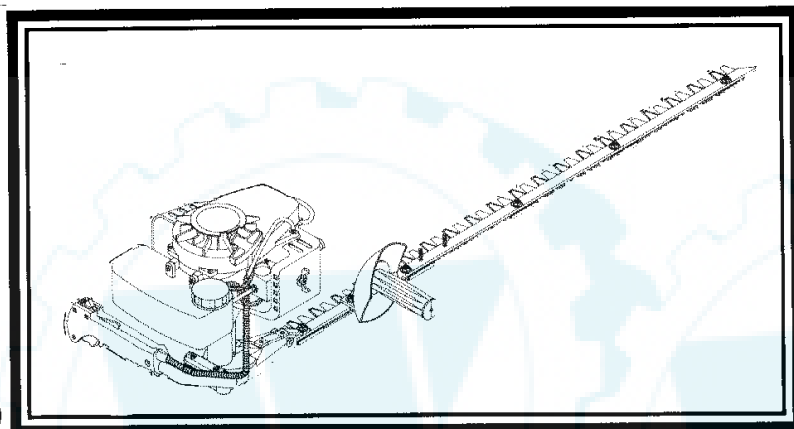
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LITTLE WONDER®

OWNER'S MANUAL and SAFETY INSTRUCTIONS

for *Single Sided Gasoline Hedge Trimmers*

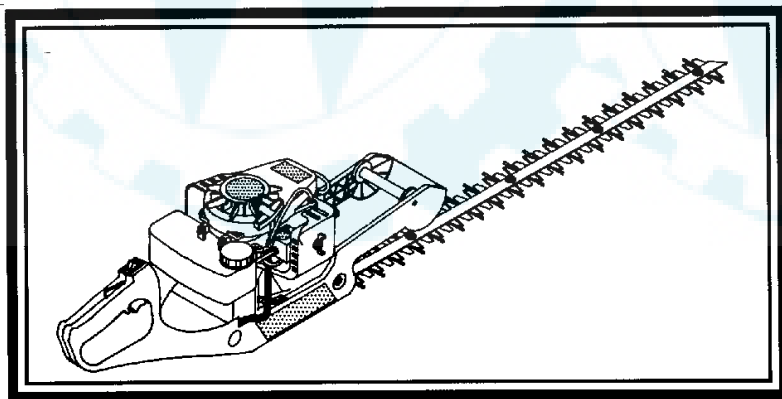


Models

2230S - 30 inch

2242S - 42 inch

and for *Double Sided Gasoline Hedge Trimmers*



Models

2216D - 16 inch

2224D - 24 inch

2230D - 30 inch

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Ihr Ersatzteilspezialist im Internet

5 YEAR LIMITED SERVICE & WARRANTY POLICY
FOR GASOLINE HEDGE TRIMMERS

All **Little Wonder** Gasoline Hedge Trimmers are guaranteed against defects in material and workmanship for a period of FIVE YEARS from date of purchase, when used for RESIDENTIAL SERVICE, or COMMERCIAL SERVICE. Any **Little Wonder** Gasoline Hedge Trimmer or part found to be defective within the warranty period is to be returned to any registered Little Wonder Dealer.

Engines for all gasoline powered products are warranted separately by the engine manufacture for a period of a year. Therefore, there are no warranties made, expressed or implied, for engines for gasoline powered products by **Little Wonder**.

Transportation charges for parts and units submitted for replacement under this warranty must be borne by the purchaser.

THIS WARRANTY shall not be effective if the product has been subject to misuse, negligence or accident, used in cutting hedges or shrubs greater than 1" in diameter, used to cut foreign objects such as wire, rocks, or fences, or if the product has been repaired or altered outside of our Southampton factory in any respect which affects its condition or operation.

LITTLE WONDER shall not be liable for any special indirect or consequential damages arising from defective equipment. Any implied warranty, including merchantability of fitness for a particular purpose, shall not extend beyond the written warranty period.

THIS WARRANTY shall only be effective if the enclosed Warranty/Registration card is properly filled out and returned to **Little Wonder**, Div. of Schiller-Pfeiffer, Inc. at time of purchase.

 **Warning:** The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

LITTLE WONDER®

DIVISION OF SCHILLER-PFEIFFER, INCORPORATED
1028 STREET ROAD, P.O. BOX 38
SOUTHAMPTON, PA 18966
PHONE 215-357-5110 • FAX 215-357-8045

B. SERVICE INFORMATION

CUTTER BAR

Contact your local **Little Wonder** dealer

ENGINE

Contact an authorized Echo dealer. Dealers are listed in the Yellow Pages under "Lawn and Garden Equipment Supplies", "Lawn Maintenance" or "Lawn Mowers".

C. SPECIAL SAFETY INFORMATION

▲ WARNING DANGER ▲
ATTENTION; THIS SYMBOL POINTS OUT OUR IMPORTANT SAFETY INSTRUCTIONS.

WHEN YOU SEE THIS SYMBOL, **▲** HEED IT'S WARNING!!
STAY ALERT!!

▲ WARNING DANGER ▲
TO REDUCE THE POTENTIAL FOR ACCIDENTS, COMPLY WITH THE SAFETY INSTRUCTIONS IN THIS MANUAL. FAILURE TO COMPLY MAY RESULT IN SERIOUS PERSONAL INJURY AND OR EQUIPMENT AND PROPERTY DAMAGE.

▲ Warning: The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

II. SAFETY AND WARNINGS

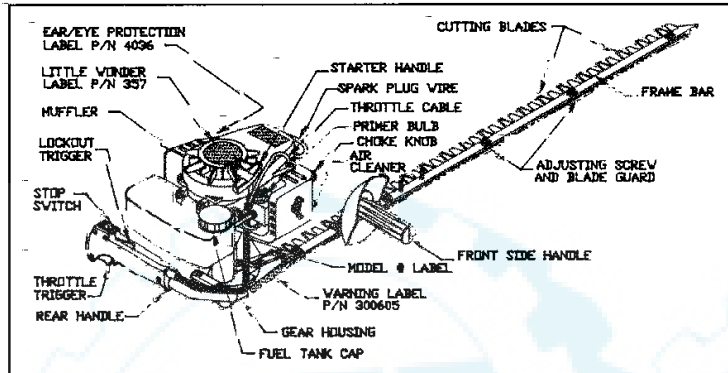
▲ WARNING DANGER ▲
IMPROPER USE OR CARE OF THIS TRIMMER, OR FAILURE TO WEAR PROPER PROTECTION CAN RESULT IN SERIOUS INJURY.

READ AND UNDERSTAND THE RULES FOR SAFE OPERATION AND ALL INSTRUCTIONS IN THIS MANUAL.

WEAR HEARING PROTECTION.

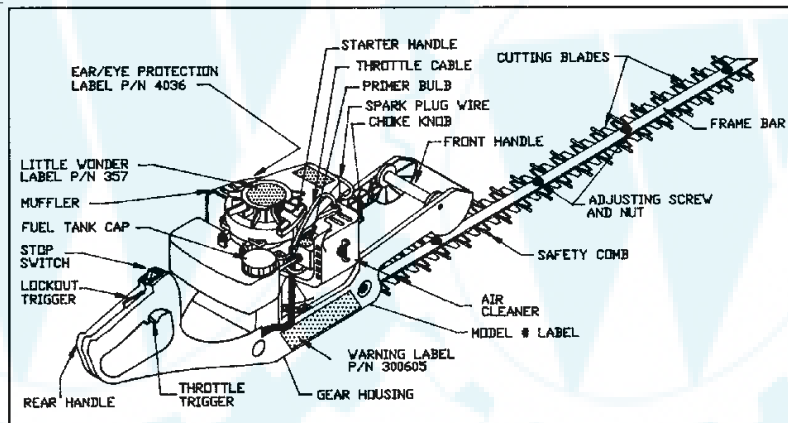
A. SAFETY DECALS

An important part of the safety system incorporated in this trimmer are the warning and informational decals found on various parts of the trimmer. These decals must be replaced in time due to abrasion, etc. It is your responsibility to replace the decals when they become hard to read. The location of these decals and their part numbers for ordering are shown below.



Single Sided Trimmer

Double Sided Trimmer



B. SAFETY DECAL IDENTIFICATION

| | |
|--|------------|
| ▲ WARNING ▲ | P/N 300605 |
| <ul style="list-style-type: none"> ■ READ AND UNDERSTAND OPERATOR'S MANUAL BEFORE USING! KEEP IN A SAFE PLACE! ■ KEEP BOTH HANDS ON HANDLES AND AWAY FROM BLADES! ■ KEEP A SURE FOOTING AND NEVER OVERREACH! WHEN REACHING HIGH, STAND ONLY ON A STABLE SUPPORT, AND NEVER ON THE TOP OF A LADDER! ■ BLADES COAST AFTER THROTTLE TRIGGER IS RELEASED OR ENGINE IS SWITCHED OFF! ■ NEVER OPERATE WITHOUT GUARDS, HANDLES, AND SAFETY DEVICES IN PLACE! | |

P/N 300605
Warning Label



P/N 4036
Ear and Eye
Protection Label

A C. GENERAL SAFETY RULES

1. Read and understand the owner's manual. Pay particular attention to all sections regarding safety.
2. Always keep a firm grip on both handles while the blades are moving and/or the engine is running. On Double Sided units one hand grasps the front handle, while the other hand grasps the rear handle. On Single Sided units the right hand grasps the front side handle and the left hand grasps the rear handle. **BE AWARE!!** The blades coast after throttle trigger is released or engine is switched off. Make sure blades have come to a complete stop and engine is off before releasing a handle.
3. Maintain a firm footing and good balance, do not overreach while trimming. Before you start to trim, check the work area for obstacles that might cause you to lose your footing, balance or control of the machine.
4. Keep area clear of children, pets, and bystanders.

A WARNING DANGER A
IF TRIMMER IS USED IMPROPERLY
OR SAFETY PRECAUTIONS ARE NOT
FOLLOWED, THE USER RISKS SERIOUS
INJURY TO THEMSELVES AND OTHERS.

READ AND UNDERSTAND THE
FOLLOWING BEFORE ATTEMPTING TO
OPERATE THIS HEDGE TRIMMER.

A D. WARNINGS — DON'TS

Don't use trimmer with one hand, keep both hands on handles with fingers and thumbs encircling the handles, while blades are moving, and engine is running.

Don't overreach or stand on unstable support. Do not stand on the top of a ladder while trimming. Use proper equipment for reaching higher heights. Keep a good footing at all times.

Don't ever grasp cutting blades for any reason.

Don't attempt to clear cut material while blades are moving, and the engine is running. Never try to remove jammed material before switching the engine off and making sure the blades have stopped completely.

Don't over-ride safety features.

Don't allow children or incapable people to operate this trimmer.

Don't operate this hedge trimmer while under the influence of alcohol or drugs.

Don't attempt to repair this hedge trimmer. Have repairs made by a qualified dealer or repairman. See that only original **Little Wonder** parts are used.

▲ E. WARNINGS — Do's

Always read and follow all instructions

Always stay alert. Watch what you are doing and use common sense. Do not operate unit when fatigued.

Always dress properly. Do not wear loose clothing or jewelry, they might get caught in moving parts. Use sturdy proper fitting, non-slip gloves. Gloves reduce the transmission of vibration to your hands. Prolonged exposure to vibration can cause numbness and other ailments. Wear non-skid foot wear to ensure secure and proper footing.

Always wear ear and eye protection. Eye protection must meet ANSI Z 87.1. To avoid hearing damage we recommend hearing protection be worn whenever using the equipment.

Always keep both hands on both handles when trimmer is running. Severe injuries can result if you try to use the hedge trimmer with only one hand or with an insecure grip.

Always keep children, pets, and incapable persons away

Always use trimmer properly. Cut only types and size of growth described in the Trimming section of this manual. Overloading or abusing your hedge trimmer can cause premature failure and can result in injury. Use common sense.

Always keep a safe distance between two or more operators when working together simultaneously.

Always inspect your unit before each use and ensure that all handles, guards, safety devices and fasteners are secure, operating, and in place.

Always maintain and examine your trimmer with care. Follow maintenance instructions given in manual.

Always store trimmer in a sheltered area (a dry place) not accessible to children. The hedge trimmer as well as fuel should not be stored in a house.

▲ F. ENGINE/FUEL WARNINGS—DON'TS

▲ WARNING DANGER ▲
HANDLE FUEL WITH CARE, IT IS
HIGHLY FLAMMABLE. FUELING A
HOT ENGINE OR NEAR AN IGNITION
SOURCE CAN CAUSE A FIRE AND
RESULT IN SERIOUS PERSONAL INJURY
AND/OR PROPERTY DAMAGE.

Don't fuel, refuel or check fuel while smoking or near an open flame or other ignition source. Stop engine and be sure it is cool before refueling.

Don't leave the engine running while the trimmer is unattended. Stop engine before putting the trimmer down or while transporting from one place to another.

Don't start, run this trimmer indoors, or in an improperly ventilated area as poisonous carbon monoxide and other gasses are emitted.

Don't run engine when electrical system causes spark outside the cylinder. During periodical checks of the spark plug, keep plug a safe distance from cylinder to avoid burning of evaporated fuel from cylinder.

Don't check for spark with spark plug, or plug wire removed and grounded. Use an approved tester. Sparks can ignite fumes.

Don't crank engine with spark plug removed. If the engine is flooded, open the choke (push choke knob in) and pull recoil until engine starts. If this fails read and follow section IV. E. of this manual.

Don't run engine when the odor of gasoline is present or other explosive conditions exist.

Don't operate the unit if gasoline is spilled. Clean up spill completely before starting engine.

Don't refuel indoors or in an improperly ventilated area.

Don't operate your trimmer if there is an accumulation of debris around the muffler, and cooling fins.

Don't touch hot mufflers, cylinders or cooling fins as contact may cause serious burns.

▲ G. ENGINE/FUEL WARNINGS—DO'S

Always use fresh gasoline in the fuel mixture. Stale gasoline can cause leakage.

Always pull starter cord slowly until resistance is felt. Then pull cord rapidly to avoid kickback and prevent arm or hand injury.

Always operate engine with spark arrestor installed and operating properly. The use of spark arrestor mufflers is required by law in the state of California (Section 4442 of the California Public Resources Code), as well as in other states or municipalities. Federal laws apply on federal lands.

III. ASSEMBLY INSTRUCTIONS

▲ WARNING DANGER ▲
BLADES ARE EXTREMELY SHARP.
TO AVOID INJURY WHEN
UNPACKING THE HEDGE
TRIMMER, DO NOT GRASP
THE BLADES.

For Double Sided Models

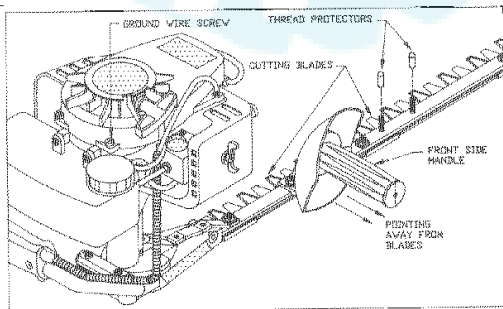
Your **Little Wonder** hedge trimmer has been assembled for you at the factory. Before operating be sure all fasteners are secure, and all guards and safety devices are in place and operating properly.

For Single Sided Models

1. Remove the cutter bar assembly, the engine with handle and throttle assembly, the side handle, and hardware bag from their boxes.

The hardware bag consists of the following items:

| P/N | Description | Qty |
|--------|------------------------|-----|
| 972 | 1/4-20 Lock Nut | 2 |
| 300102 | Handle Support Channel | 2 |
| 300113 | Spacer Tube | 2 |
| 300111 | Shock Absorber | 4 |
| 300112 | Support Plate | 1 |
| 300505 | 1/4-20 x 2 1/2 Bolt | 2 |
| 3036-B | 1/4-28 Flange Locknut | 2 |

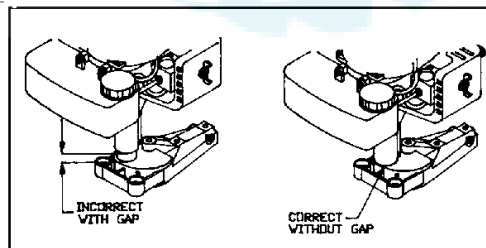


2. Place the front side handle over the two 1/4-28 studs protruding from the frame bar in front of the gear housing. The handle grip **must** be pointing away from the cutting blades as illustrated below, left. On Model 2230S use the set of studs which places the handle in the most comfortable position for you. Place the thread protectors over the set of studs that you choose not to use at this time to protect the threads. Secure the handle in place using two 1/4-28 flange locking nuts provided. The nuts should be tightened enough to keep the handle from moving but not so tight as to crush the plastic.

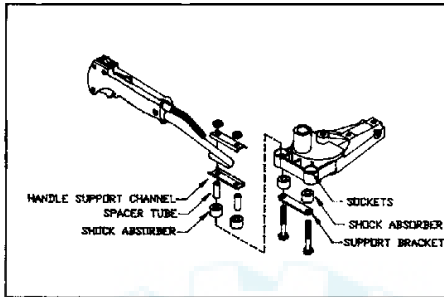
▲ WARNING DANGER ▲
IMPROPER ASSEMBLY OF THIS
TRIMMER CAN RESULT IN
SERIOUS INJURY. MAKE SURE TO
FOLLOW ALL INSTRUCTIONS
CAREFULLY.

IF YOU HAVE ANY QUESTIONS,
CONTACT YOUR LOCAL DEALER
OR OUR FACTORY AT
(215) 357-5110

3. Install the engine to the hedge trimmer by first aligning the hex drive on the trimmer gear housing with the hex socket in the engine. Slide the engine over the 1" diameter stem containing the hex drive on the gear housing until it is seated all the way down on the gear housing, tighten screw (see illustration below).



4. Press shock absorbers into sockets on the gear housing followed by the spacer tubes. Secure handle and tubing support channel, spacer, and bracket with the 1/4-20 hex bolts and locking nuts supplied (see illustration below).



5. With the stop switch in the stop position, engine not running, check the throttle for proper operation. Grasp rear handle with left hand, depressing the lockout trigger, squeeze the throttle trigger until it stops when the carburetor lever hits the carburetor case. Release the throttle trigger and make sure the throttle returns to the idle position, when the carburetor lever rests on the idle screw. Throttle movement should be smooth and unobstructed.

IV. OPERATION

WARNING DANGER
THE OPERATOR OF THIS
HEDGE TRIMMER IS
RESPONSIBLE FOR ACCIDENTS
OR HAZARDS OCCURRING TO
HIMSELF, OTHER PEOPLE OR
THEIR PROPERTY.

A. FUEL MIXTURE

WARNING DANGER
FUEL IS EXTREMELY FLAMMABLE.
HANDLE IT WITH CARE. KEEP
AWAY FROM IGNITION SOURCES.
DO NOT SMOKE WHILE FUELING
YOUR EQUIPMENT.

Your **Little Wonder** hedge trimmer is powered by an Echo Model SV-4/B two stroke, air cooled engine which requires a fuel mixture of gasoline and lubricating oil.

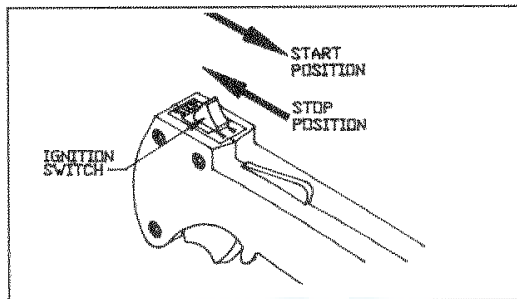
Use a mixture of 50 parts unleaded gasoline (min. octane 89) and 1 part 50:1, Echo 2-Stroke Oil. Gasohol may be used provided it contains a maximum 10% ethyl alcohol, no methyl alcohol.

B. MIXING FUEL

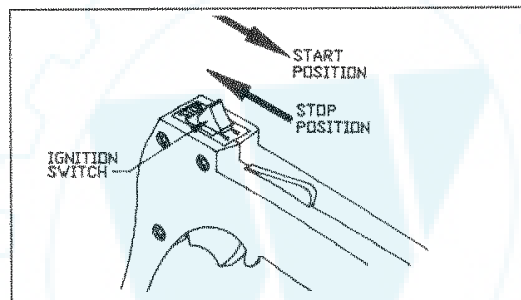
1. Pour 1/2 of the gasoline into a safe container. DO NOT mix fuel in the engine fuel tank.
2. Add the oil to the gasoline and mix.
3. Add the remaining gasoline and remix.
4. Install fuel cap and wipe spilled fuel from container and area.
5. **Important**, two stroke fuel separates and ages. Do not mix more than you will use in a month. Shake fuel container to thoroughly mix fuel before each use. Do not attempt to run your engine on gasoline only, use the proper fuel mixture.

C. STARTING A COLD ENGINE

The trimmer has a Start/Stop ignition switch which must be used for starting and stopping the engine.

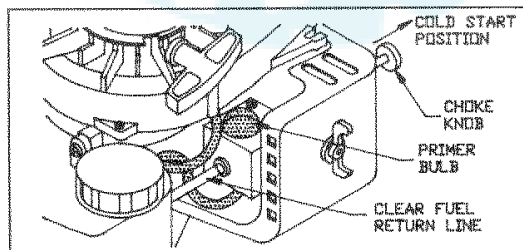


FOR SINGLE SIDED TRIMMERS



FOR DOUBLE SIDED TRIMMERS

1. Place the hedge trimmer flat on the ground, or another stable surface. Slide the ignition switch to the START position.
2. Pull choke knob out to COLD START (closed) position.



3. Push primer bulb 3 to 4 times, or until fuel is visible in the clear fuel return line.
4. Pull starter rope until engine sputters. Use short pulls, 1/2 to 2/3 of the rope length.

▲ WARNING DANGER ▲

AVOID ACCIDENTAL BLADE ENGAGEMENT.

DO NOT SQUEEZE THE THROTTLE TRIGGER WHEN STARTING.

MAINTAIN PROPER IDLE SPEED ADJUSTMENT (2200-2300 RPM)

5. Push choke knob in to RUN position.
6. Restart engine and allow it to warm up for a minute or two.
7. With both hands on the handles, squeeze throttle trigger gradually to increase the engine speed and engage the blades.

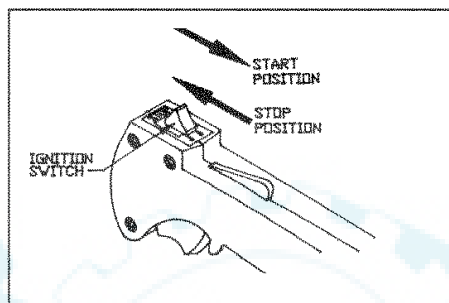
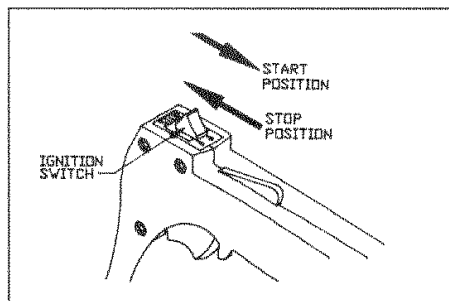
D. STARTING A WARM ENGINE

1. Slide ignition switch to START position.
2. Push choke knob in to RUN (open) position.
3. If there is no fuel in the clear return line, push primer bulb 3-4 times or until fuel is visible in the line.
4. Pull starter rope using short pulls, 1/2 to 2/3 of the rope length.
5. If engine fails to start in 4 pulls, use cold start procedure.
6. With both hands on the handles, squeeze throttle trigger gradually to increase the engine speed and engage the blades.

E. STARTING A FLOODED ENGINE

1. Remove the cap from the spark plug and un-screw the plug with a spark plug wrench. If the end of the spark plug is wet, the engine may be flooded.

2. Disconnect spark plug wire and remove plug.
3. Use a paper towel or clean rag to dry the end of the spark plug.
4. Pull the choke knob out (closed position) and pull the starter rope several times.
5. Replace the spark plug and cap.
6. Push the choke knob in (open position) and pull starter rope three to four times.
7. Now pull the choke knob out (closed position) and pull the starter rope until the engine sputters.
8. Finally, push the choke knob in (open position) and pull the starter rope to start the engine



F. STOPPING THE ENGINE

1. Release the throttle trigger and allow engine to idle.
2. Slide ignition switch to the STOP position.
3. Make sure blades have come to a complete stop before releasing either handle.

⚠ WARNING DANGER ⚠

**IF ENGINE DOES NOT STOP WHEN SWITCH IS PUT IN THE STOP POSITION,
RELEASE THE THROTTLE TRIGGER, ALLOW ENGINE TO IDLE.**

**PUT THE TRIMMER DOWN, AND PULL THE CHOKE KNOB OUT TO
COLD START, (CLOSED) POSITION.**

**CHECK AND REPLACE IGNITION SWITCH BEFORE
STARTING ENGINE AGAIN.**

G. TRIMMING

▲ WARNING DANGER ▲
BLADES COAST AFTER RELEASING THROTTLE OR STOPPING ENGINE.

KEEP A FIRM GRIP WITH BOTH HANDS ON BOTH HANDLES WHILE BLADES ARE MOVING AND/OR ENGINE IS RUNNING.

DO NOT STAND ON THE TOP OF A LADDER WHILE TRIMMING.

MAKE SURE YOUR LADDER OR OTHER SUPPORT IS STABLE AND ON FIRM GROUND.

KEEP A SURE FOOTING. DO NOT OVERREACH.

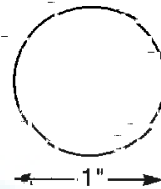
IF YOUR TRIMMER BECOMES JAMMED RELEASE THROTTLE AND STOP ENGINE. MAKE SURE BLADES HAVE STOPPED COMPLETELY, THEN REMOVE THE OBSTRUCTION.

1. **WARNING!** Read and follow all safety instructions in the manual before attempting to use this trimmer.
2. Only after you are familiar with your hedge trimmer and all of its controls and the functions should you start the engine.
3. Once the engine is started grasp the handles securely, the left hand should grasp the rear handle and the right hand should grasp the front side handle on Single Sided trimmers. On Double Sided trimmers, one hand grasps the front handle, while the other hand grasps the rear handle.
4. Squeeze the throttle to accelerate the engine and engage the blades.

5. Tilt the trimmer so the cutting teeth are angled slightly toward the hedge or shrub and proceed to cut. Use overlapping sweeping motions away from your body to achieve a safe and even cut.

6. This unit is designed to cut any type of hedge or shrub; however,

THICKNESS OF CUT SHOULD NOT EXCEED 1 INCH IN DIAMETER.



Misuse of this Hedge Trimmer will void the warranty.

ie: Cutting hedges or shrubs over 1" in diameter or foreign objects such as wires, rocks, or fences. Before trimming check work area for foreign objects such as wires, cords, glass, fences, or rocks. Be sure to remove any foreign objects from the work area. Failure to properly maintain this hedge trimmer will void the warranty.

V. MAINTENANCE

A. LUBRICATION

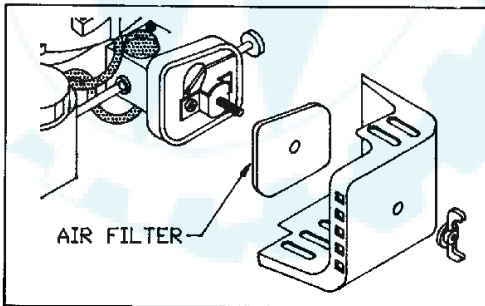
1. A few drops of a light #10 oil should be placed on the back edge of each blade guard at each adjusting screw approximately after every 4 hours of normal operation.
2. To obtain trouble free trimming, it is necessary to keep the blades lubricated and clean. The gum that collects and builds up on the blades can be removed with a 50-50 mixture of kerosene and #10 oil. As petroleum products can shorten the life of some plastics it is necessary to remove excess oil-kerosene mixture from the plastic parts.

3. When blades are replaced, or any other time that the bottom cover plate is removed, the grease level should be checked for proper amount (approximately 3/4 full in the area of the gears) and a new gasket should be used to insure proper seating of the cover plate. Use only Lubrico M3-3K-9K (P/N 16-78A) grease in the gear housing.

B. ENGINE

1. Air Filter

- a. Clean the air filter before each use. Remove wing nut and air filter cover.
- b. If filter is excessively dirty or no longer fits properly, replace it. Otherwise carefully brush dirt from filter or clean if necessary. Allow to air dry.
- c. Re-install filter to inside cover making sure it is seated properly.
- d. Re-install cover onto air cleaner case and secure with wing nut.

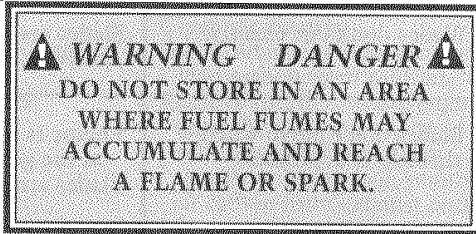


2. Cooling Fins

Remove dirt and debris from around cooling fins and exhaust before each use. Proper air circulation is essential for engine performance and life.

C. LONG TERM STORAGE (OVER 60 DAYS)

1. Store your trimmer in a dry and dust free space, out of the reach of children.



- 2. Place the ignition switch in the stop position.
- 3. Clean the engine and blades thoroughly and coat the blades with #10 oil to prevent rust.
- 4. Perform all required maintenance and service found in this manual.
- 5. Drain the fuel tank and pull the starter rope several times to remove the fuel from the carburetor.
- 6. Remove the spark plug and pour 1/4 oz. of fresh, clean, two-stroke engine oil into the cylinder via the spark plug hole. Cover the hole with a rag and pull the starter rope 2-3 times.
- 7. While looking through the spark plug hole pull the starter rope until the piston reaches the top of it's stroke and stop.
- 8. Install the spark plug, but leave the ignition cable disconnected.

VI. SERVICE

A. TROUBLE SHOOTING

| Problem | Cause | Remedy |
|--|--|---|
| 1. Blades don't cut cleanly. | Blades are dull or not adjusted properly. | Have blades sharpened and adjusted. |
| 2. Blades don't move when throttle is depressed. | Engine is not seated properly on the gear housing. Blades are adjusted too tight. | Re-install engine following the assembly instructions. Re-adjust blades following service instructions. |
| 3. Engine fails to start | ON/OFF switch is in OFF position. No fuel in tank. Fuel strainer clogged. Fuel line clogged. Spark plug shorted or fouled. Spark plug is broken (cracked porcelain or electrodes broken). Ignition lead wire shorted, broken or disconnected from spark plug. Ignition inoperative (no spark from lead wire). | Move switch to ON. Fill Tank. Replace Strainer. Clean fuel line. Install new sparkplug. Replace sparkplug. Replace lead wire or attach to sparkplug. Contact your nearest authorized dealer. |
| 4. Engine hard to start. | Water in gasoline or stale fuel mixture. Too much oil in fuel mixture. Engine under or over choked. Carburetor out of adjustment. Gasket leaks (carburetor or cylinder base gasket). Weak spark at sparkplug. | Drain entire system and refill with fresh fuel. Drain and refill with correct mixture. If flooded by over choking, proceed according to instructions in operation section. If under choked, move choke lever to closed position and crank two or three times. See "Carburetor Adjustment" Replace gaskets. Contact your nearest authorized dealer. |
| 5. Engine misses. | Dirt in fuel line or carburetor. Carburetor improperly adjusted. Sparkplug fouled, broken or incorrect gap setting. Weak or intermittent spark at spark plug. | Remove and clean. See "Carburetor Adjustment". Clean or replace spark plug - set gap to 0.6-0.7 mm (.024 .028in.). Contact your nearest authorized dealer. |

| TRUBLE SHOOTING (CONT.) | | |
|---------------------------------|---|---|
| Problem | Cause | Remedy |
| 6. Engine lacks power | Air cleaner clogged. Carburetor out of adjustment Muffler clogged. Clogged exhaust ports. Clogged spark arrestor Poor compression. | Clean air cleaner. See "Carburetor Adjustment". Clean carbon from muffler. 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 all loose carbon with compressed air. Install muffler and gasket. Clean Contact your nearest authorized dealer. |
| 7. Engine overheats | Insufficient oil in fuel mixture. Air flow obstructed. | Mix fuel as described in starting instructions. Clean flywheel, cylinder fins and screen. |
| 8. Engine noisy or knocking. | Loose flywheel. Spark plugs incorrect heat range. Worn bearings, piston ring or cylinder walls. | Tighten flywheel nut. Replace with plugs specified for engine. Contact your nearest authorized dealer. |
| 9. Engine stalls under load | Carburetor adjustment too "lean". Engine overheats. | See "Carburetor Adjustment". Remove dust and dirt from between cylinder fins. |
| B. ENGINE SPECIFICATIONS | | |
| Dry Weight | 2.5 kg — 5 lbs., 10 ounces | |
| Type of Engine | Air Cooled, Two stroke, Single-Cylinder, Gasoline Engine | |
| Rotation | Counterclockwise, viewed from TOP | |
| Bore | 32.2 mm (1.268 in.) | |
| Stroke | 26.0 mm (1.04 in.) | |
| Spark Plug | NGK BPM6A, CHAMPION CJ-8Y, AUTOLITE 2976 | |
| Fuel | Premixed two stroke fuel | |
| Fuel Oil Ratio | 50:1 ratio with ECHO oil | |
| Gasoline | Unleaded, 89 octane or higher | |
| Displacement | 21.2 cc (1.294 cu. in.) | |
| Exhaust System | Spark arrester muffler | |
| Carburetor | ZAMA diaphragm model C1U type | |
| Ignition System | Flywheel magneto, capacitor discharge ignition type | |

B. ENGINE SPECIFICATIONS (CONTINUED)

Clutch Centrifugal type
 Ignition System Flywheel magneto, capacitor discharge ignition type

C. SERVICE MAINTENANCE GUIDE

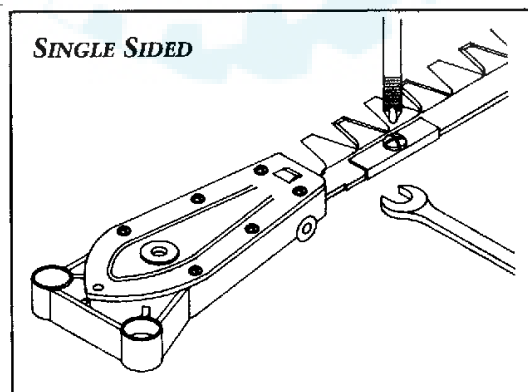
| Area | Maintenance | Frequency |
|--------------------------|------------------------------------|------------|
| Air Filter | Clean / Replace | Before Use |
| Fuel Filter | Inspect / Replace | Monthly |
| Spark Plug | Inspect / Clean / Adjust / Replace | Monthly |
| Carburetor | Adjust | Yearly |
| Cooling System | Inspect / Clean | Before Use |
| Muffler (Spark Arrestor) | Inspect / Clean | Monthly |
| Gear Housing | Check Grease | Monthly |
| Blades | Inspect / Clean / Lubricate | After Use |
| Fuel Leaks | Inspect / Repair | Before Use |
| Fasteners | Inspect / Tighten / Replace | Before Use |
| Labels | Inspect / Replace | Before Use |
| Handles | Inspect / Replace | Before Use |
| Guards / Safety Devices | Inspect / Replace | Before Use |
| Fuel Line | Inspect / Replace | Monthly |
| Starter Rope | Inspect / Replace | Monthly |

IMPORTANT- Time Intervals shown are maximum. Actual use and your experience will determine the frequency of required maintenance.

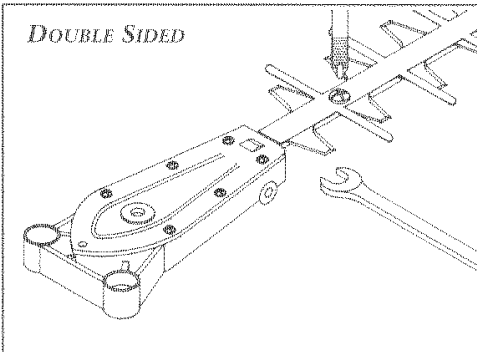
D. BLADE ADJUSTMENT

The care and adjustment of the blades is very important to the efficient operation of the trimmer and especially to the long life of the engine.

1. Place trimmer in vise, clamping on the frame bar. **Be careful! Blades are sharp!**
2. Using a 7/16" wrench, loosen all blade locknuts and unscrew the large head screws by two turns.
3. Starting with the screw nearest the gear housing, tighten the screw until the blade guard of the Single Sided trimmer or the protective comb of the Double Sided trimmer can just be moved with



finger pressure and a .0015" (1 1/2 thou.) feeler blade just slips under the blade



guard or comb. Tighten the locknuts while holding the screw stationary in its correct adjusted position.

4. Repeat Step 3 on the screws in turn until all are correctly adjusted.

NOTE: CORRECT BLADE ADJUSTMENT CAN ONLY BE ACHIEVED ON CLEAN, OILED BLADES.

E. CARBURETOR ADJUSTMENT (AS NEEDED)

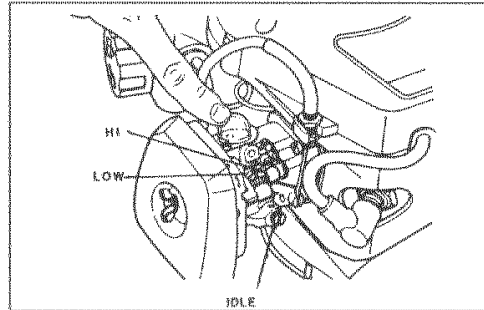
1. General

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

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

The low (LO) speed adjustment screw controls the volume of fuel 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 mixture at full throttle.



2. Initial Carburetor Adjustment

NOTE: The needle screws have a sharp point. To avoid damage to the carburetor, do not use excessive force.

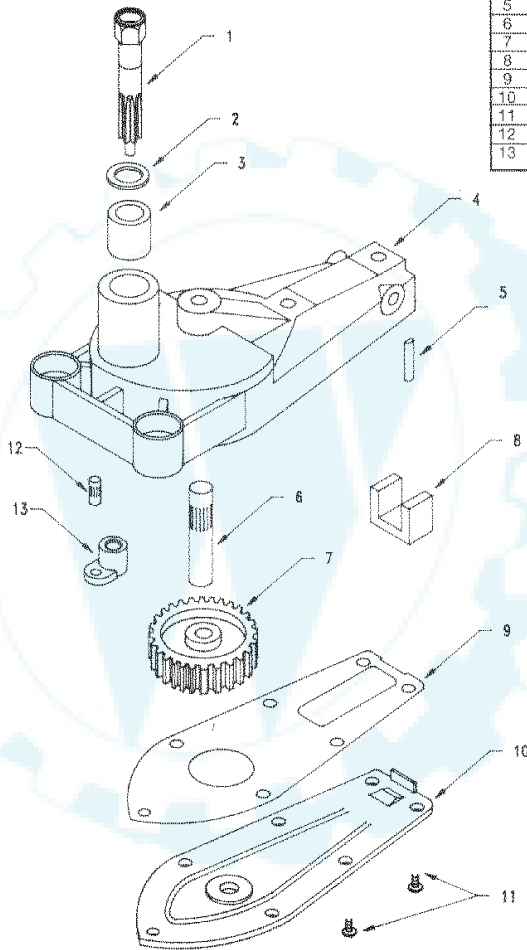
1. Turn HI and LO screws clockwise until seated lightly in carburetor body.
2. Turn LO screw counterclockwise one turn.
3. Start engine and allow it to run at high idle until warm.

⚠ WARNING DANGER ⚠
KEEP HANDS AWAY FROM THE BLADES WHILE SERVICING THE HEDGE TRIMMER. BE SURE TRIMMER IS SECURED AND BLADES ARE GUARDED WHILE MAKING ADJUSTMENTS

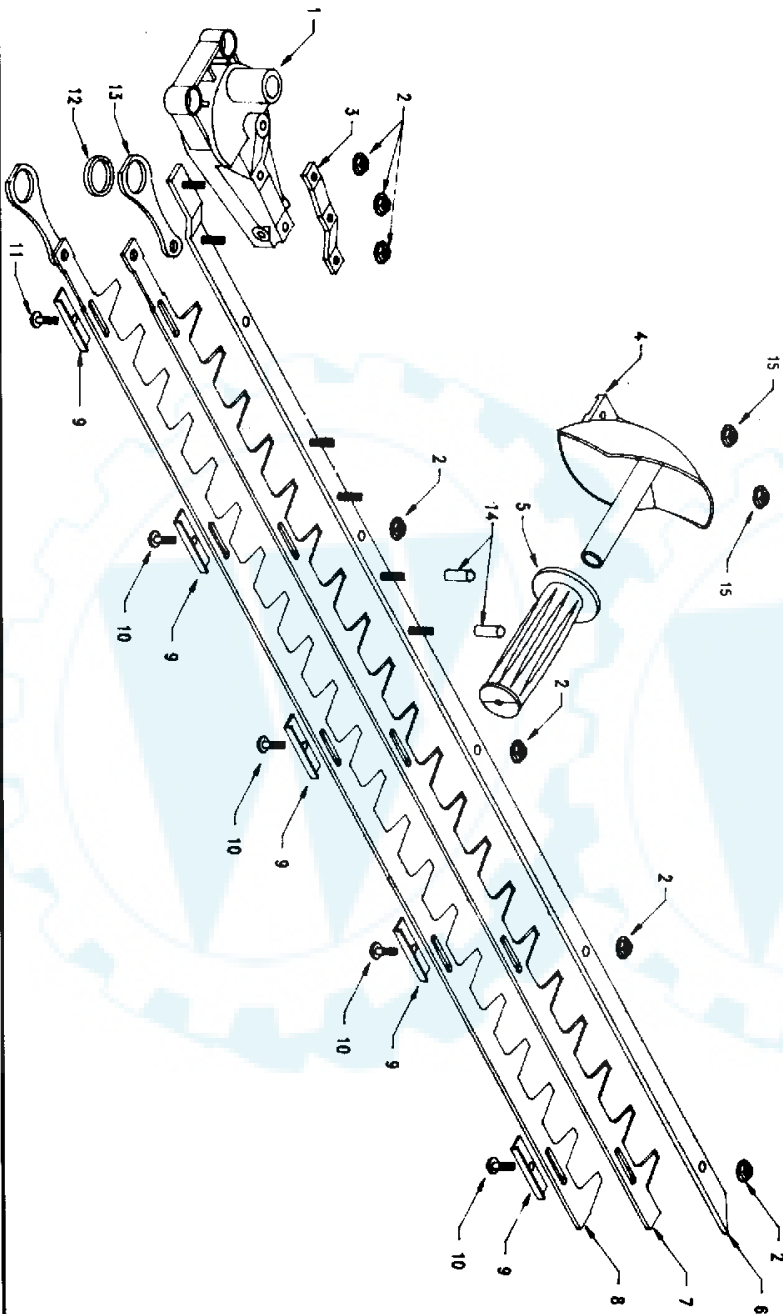
NOTE: The Idle speed screws may have to be re-adjusted to keep engine from stalling. The Engine must be at normal operating temperature to adjust properly.

VII PARTS EXPLOSIONS

| Key No. | Part No. | Description | Qty. |
|---------|----------|---|------|
| 1 | 371 | Pinion | 1 |
| 2 | 375 | Washer | 1 |
| 3 | 374 | Upper Bushing | 1 |
| 4 | 300000 | Gear Hsg Assem. (inc. Key No. 3, 6, 12) | 1 |
| 5 | D16-56F | Wear Plate | 1 |
| 6 | 16-61 | Eccentric Shaft | 1 |
| 7 | 372 | Eccentric Gear | 1 |
| 8 | 314 | Felt | 1 |
| 9 | 319 | Gasket | 1 |
| 10 | 316 | Cover Plate | 1 |
| 11 | 16-81 | 6-32 x 5/16 Screw Pack | 1 |
| 12 | 16-80 | Cover Plate Pin | 1 |
| 13 | 373 | Lower Bushing | 1 |



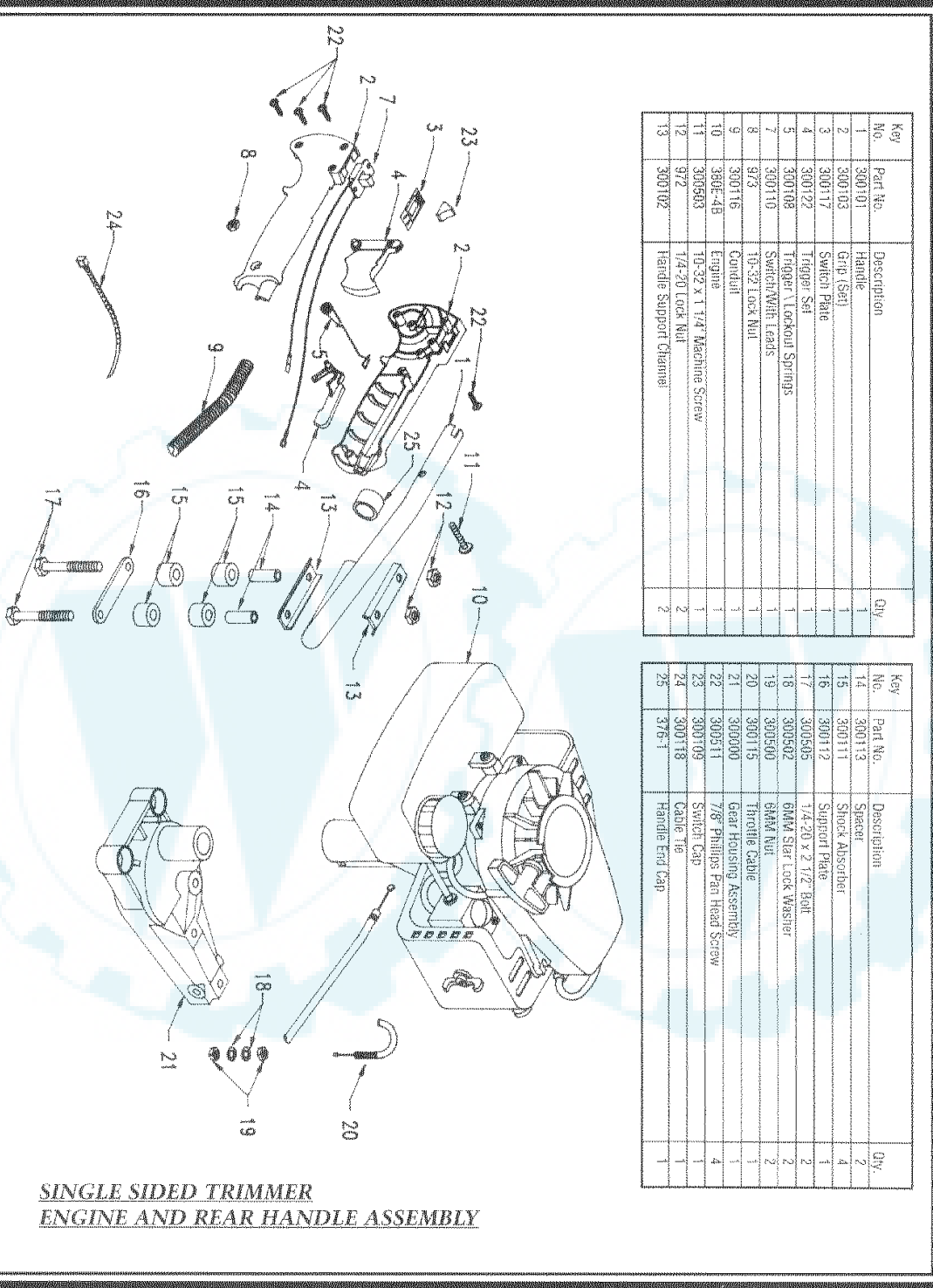
GEAR HOUSING ASSEMBLY



| Key No. | Part No. | Description | Qty. |
|---------|----------|--|------|
| 1 | 300000 | Gear Housing Assembly | 1 |
| 2 | 16-54B | 1/4-28 Whiz Flange Locknut (For Model 2230S) | 7 |
| 2 | 16-54B | 1/4-28 Whiz Flange Locknut (For Model 2242S) | 9 |
| 3 | 300300 | Frame Bar Brace | 1 |
| 4 | 300200 | Side Handle | 1 |
| 5 | 300201 | Grip | 1 |
| 6 | 300310 | 30" Frame Bar (For Model 2230S) | 1 |
| 6 | 300314 | 42" Frame Bar (For Model 2242S, Not Shown) | 1 |
| 7 | 30-2 | 30" Inside Blade (For Model 2230S) | 1 |
| 7 | 42-2 | 42" Inside Blade (For Model 2242S, Not Shown) | 1 |
| 8 | 30-1 | 30" Outside Blade (For Model 2230S) | 1 |
| 8 | 42-1 | 42" Outside Blade (For Model 2242S, Not Shown) | 1 |

| Key No. | Part No. | Description | Qty. |
|---------|----------|---|------|
| 9 | 16-93 | Blade Guard (For Model 2230S) | 5 |
| 9 | 16-93 | Blade Guard (For Model 2242S) | 7 |
| 10 | 16-54A | Large Head Phillips Screw (For Model 2230S) | 4 |
| 10 | 16-54A | Large Head Phillips Screw (For Model 2242S) | 6 |
| 11 | 300504 | Large Head Screw 1/4-28 x 7/8 | 1 |
| 12 | 16-65 | Connecting Rod Spacer | 1 |
| 13 | 16-64 | Connecting Rod | 1 |
| 14 | 300316 | Thread Protector (For Model 2230S) | 2 |
| 15 | 3036-B | 1/4-28 Flange Locknut | 2 |

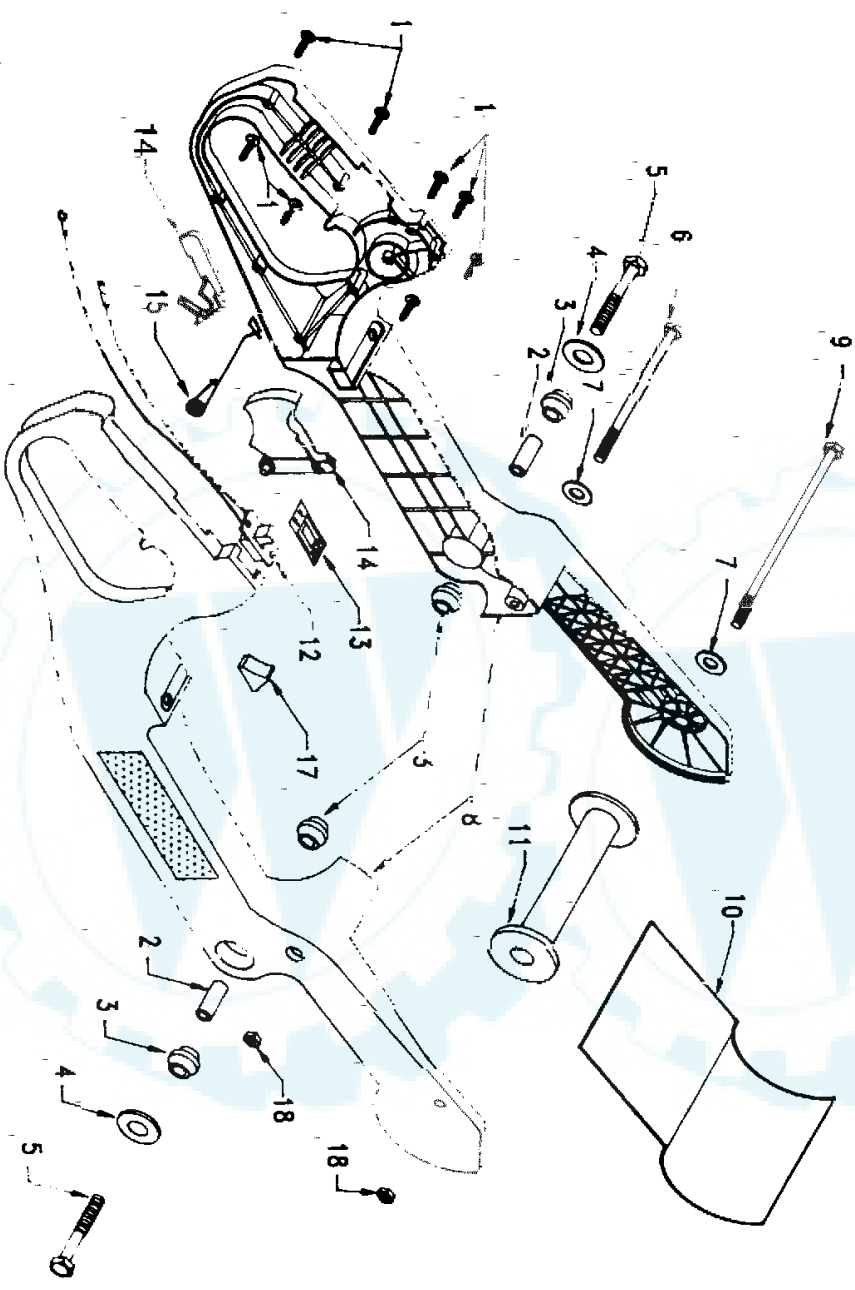
SINGLE SIDED TRIMMER
CUTTING BAR AND SIDE HANDLE ASSEMBLY



**SINGLE SIDED TRIMMER
ENGINE AND REAR HANDLE ASSEMBLY**

| Key No. | Part No. | Description | Qty. |
|---------|----------|------------------------------|------|
| 1 | 3800101 | Handle | 1 |
| 2 | 3800103 | Grip (Set) | 1 |
| 3 | 3000117 | Switch Plate | 1 |
| 4 | 3000122 | Trigger Set | 1 |
| 5 | 3000108 | Trigger Lockout Springs | 1 |
| 7 | 3000110 | Switch/Wire Leads | 1 |
| 8 | 973 | 10-32 Lock Nut | 1 |
| 9 | 3800116 | Control | 1 |
| 10 | 3800E-4B | Engine | 1 |
| 11 | 3000503 | 10-32 x 1 1/4" Machine Screw | 1 |
| 12 | 972 | 1/4-20 Lock Nut | 2 |
| 13 | 3000102 | Handle Support Channel | 2 |

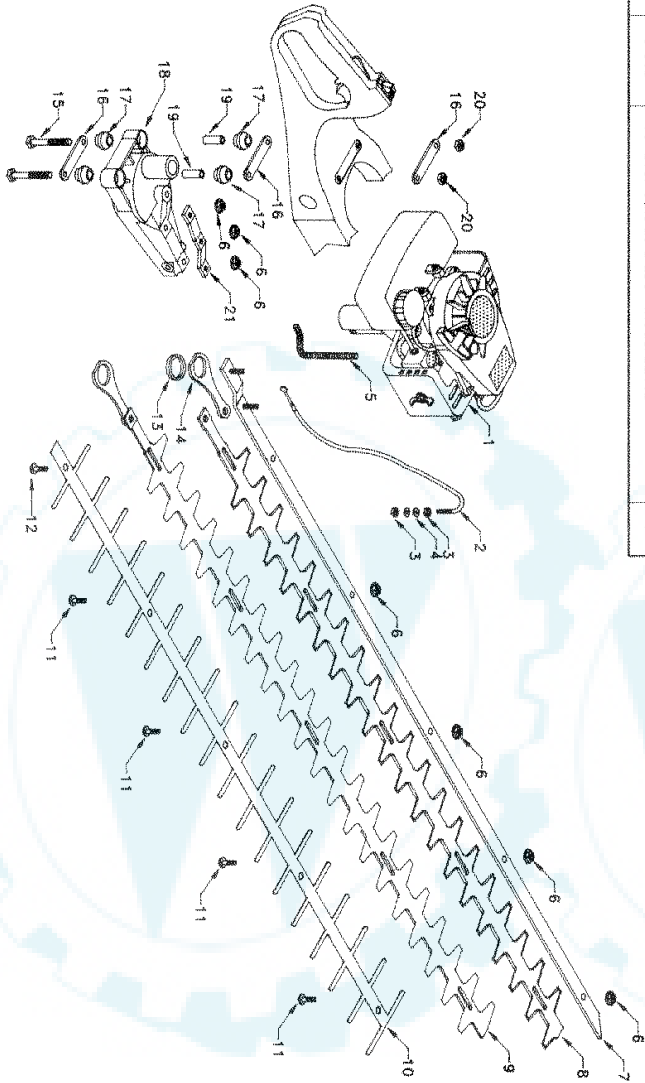
| Key No. | Part No. | Description | Qty. |
|---------|----------|------------------------------|------|
| 14 | 3000113 | Spacer | 2 |
| 15 | 3000111 | Shock Absorber | 4 |
| 16 | 3000112 | Support Plate | 1 |
| 17 | 3000505 | 1/4-20 x 2 1/2" Bolt | 2 |
| 18 | 3000502 | 6MM Star Lock Washer | 2 |
| 19 | 3000500 | 6MM Nut | 2 |
| 20 | 3000115 | Throttle Cable | 1 |
| 21 | 3000000 | Gear Housing Assembly | 1 |
| 22 | 3000511 | 7/8" Phillips Fan Head Screw | 4 |
| 23 | 3000109 | Switch Cap | 1 |
| 24 | 3000118 | Cable Tie | 1 |
| 25 | 376-1 | Handle End Cap | 1 |



| Key No. | Part No. | Description | Qty. |
|---------|----------|------------------------------|------|
| 1 | 300511 | 7/8" Phillips Pan Head Screw | 8 |
| 2 | 300113 | Spacer | 4 |
| 3 | 300403 | Shock Absorber | 8 |
| 4 | 328 | 1/4" Flat Washer | 2 |
| 5 | 300506 | 1/4-28 x 1 5/8 Hex Head Bolt | 2 |
| 6 | 300510 | 10-32 x 4 Hex Head Bolt | 1 |
| 7 | 300508 | #10 Flat Washer | 2 |
| 8 | 300400 | Grip Set | 1 |
| 9 | 300507 | 10-32 x 5 1/2 Hex Head Bolt | 1 |

| Key No. | Part No. | Description | Qty. |
|---------|----------|------------------------|------|
| 10 | 300405 | Hand Guard | 1 |
| 11 | 300404 | Front Handle | 1 |
| 12 | 300110 | Switch With Leads | 1 |
| 13 | 300111 | Switch Plate | 1 |
| 14 | 300122 | Trigger Set | 1 |
| 15 | 300108 | Trigger/Lockout Spring | 1 |
| 16 | 300108 | Switch Cap | 1 |
| 17 | 300109 | Switch Cap | 1 |
| 18 | 973 | 10-32 Locknut | 2 |

DOUBLE SIDED TRIMMER
HANDLE ASSEMBLY

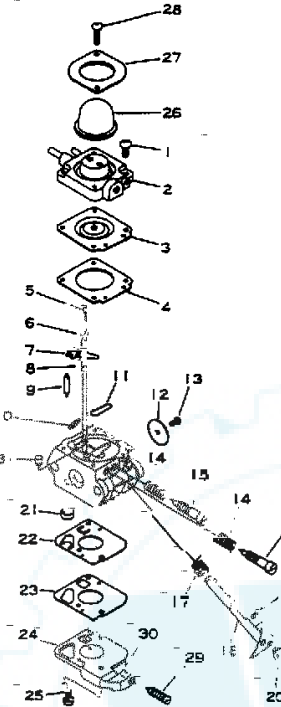


| Key No. | Part No. | Description | Qty. |
|---------|----------|--|------|
| 1 | 380E-4B | Engine | 1 |
| 2 | 300115 | Throttle Cable | 1 |
| 3 | 300500 | 6MM Nut | 2 |
| 4 | 300502 | 6MM External Star Lockwasher | 2 |
| 5 | 300119 | Conduit | 1 |
| 6 | 16-54B | 1/4 - 28 Whip Flange Locknut - Model 2230D Model 2224D | 7 |
| 7 | 300312 | 30" D.S. Frame Bar w/Studs - Model 2230D Model 2216D | 5 |
| 7 | 300308 | 24" D.S. Frame Bar w/Studs - Model 2230D Model 2224D | 1 |
| 7 | 300304 | 16" D.S. Frame Bar w/Studs - Model 2216D Model 2224D | 1 |
| 8 | 30-2D | 30" D.S. Inside Blade - Model 2230D Model 2216D | 1 |
| 8 | 24-2D | 24" D.S. Inside Blade - Model 2224D Model 2216D | 1 |
| 8 | 16-52D | 16" D.S. Inside Blade - Model 2216D Model 2230D | 1 |
| 9 | 30-1D | 30" D.S. Outside Blade - Model 2230D Model 2224D | 1 |
| 9 | 24-1D | 24" D.S. Outside Blade - Model 2224D Model 2216D | 1 |
| 9 | 16-51D | 16" D.S. Outside Blade - Model 2216D Model 2230D | 1 |

| Key No. | Part No. | Description | Qty. |
|---------|----------|---|------|
| 10 | 30-42 | 30" Protective Comb - Model 2230D Model 2224D | 1 |
| 10 | 24-42 | 24" Protective Comb - Model 2224D Model 2216D | 1 |
| 10 | 16-42 | 16" Protective Comb - Model 2216D Model 2230D | 1 |
| 11 | 16-54A | Large Head Phillips Screw - Model 2230D Model 2224D Model 2216D | 3 |
| 12 | 300504 | 7/8" Large Head Phillips Screw | 2 |
| 13 | 16-65 | Connecting Rod Spacer | 1 |
| 14 | 16-64 | Connecting Rod | 1 |
| 15 | 300512 | 1/4 - 20 X 2 1/4 Bolt | 2 |
| 16 | 300112 | Support Plate | 3 |
| 17 | 300403 | Shock Absorber | 8 |
| 18 | 300000 | Gear Housing Assembly | 8 |
| 19 | 300113 | Spacer | 1 |
| 20 | 972 | 1/4 - 20 Locknut | 4 |
| 21 | 300300 | Frame Bar Brace | 2 |

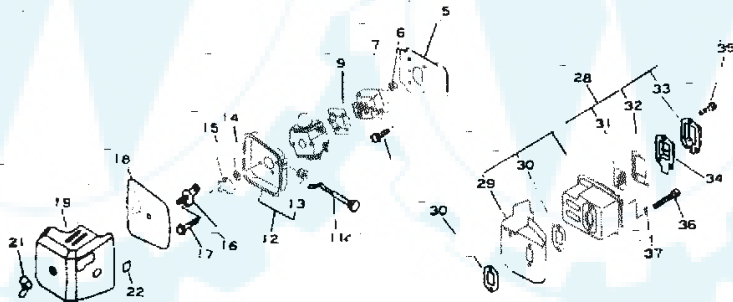
**DOUBLE SIDED TRIMMER
CUTTING BAR, HANDLE AND ENGINE ASSEMBLY**

SV-4(B) ENGINE CARBURETOR ASSEMBLY



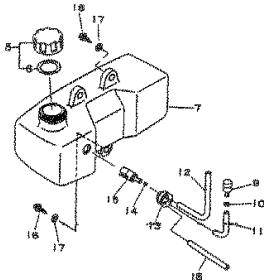
| KEY NO. | PART. NO. | QTY | DESCRIPTION | KEY NO. | PART. NO. | QTY | DESCRIPTION |
|---------|-------------------|-----|---|---|--------------|-----|---------------------|
| | Kit #125200 11823 | 1 | Carburetor Asy. Includes the following: | 21 | B | 1 | Strainer, Fuel |
| 1 | 125310 05360 | 2 | Screw | 22 | A, B | 1 | Diaphragm, Fuel Pum |
| 2 | 125383 05360 | 1 | Base, Primer | 23 | A, B | 1 | Gasket, Fuel Pump |
| 3 | A, B | 1 | Diaphragm | 24 | 125324 42030 | 1 | Cover, Pump |
| 4 | A, B | 1 | Gasket, Diaphragm | 25 | 125310 42030 | 2 | Screw |
| 5 | B | 1 | Screw | 26 | 125381 46730 | 1 | Pump, Primer |
| 6 | B | 1 | Pin, Metering Lever | 27 | 125383 11610 | 1 | Ring |
| 7 | B | 1 | Lever, Metering | 28 | 125344 05360 | 2 | Screw |
| 8 | B | 1 | Spring, Coil | 29 | 125334 13930 | 1 | Screw, Idle Adjust |
| 9 | B | 1 | Valve, Inlet Needle | 30 | 125378 13930 | 1 | Piece, Friction |
| 10 | 125327 15130 | 1 | Clip | 31 | 125376 42030 | 1 | Nozzle, Check Valve |
| 11 | B | 1 | Plug, Welsh | | | | |
| 12 | 125316 42030 | 1 | Valve, Throttle | A- Part No. 125303-06560 - Gasket/Diaphragm/Kit consists of the following: Key Numbers - 3, 4, 22 and 23. | | | |
| 13 | 125314 13930 | 1 | Screw | | | | |
| 14 | 125319 42030 | 2 | Spring, Coil | B- Part No.125300-06560 - Repair Kit consists of the following: Key Numbers - 3, 4, 5, 6, 7, 8, 9, 11, 21, 22, and 23. | | | |
| 15 | 125318 11820 | 1 | Needle, Low Speed | | | | |
| 16 | 125320 42030 | 1 | Needle, High Speed | | | | |
| 17 | 125313 42030 | 1 | Spring, Throttle Return | | | | |
| 18 | 125317 11820 | 1 | Shaft, Throttle | | | | |
| 19 | 125327 13930 | 1 | Clip | | | | |
| 20 | 125372 42030 | 1 | Swivel | | | | |

SV-4(B) AIR CLEANER ASSEMBLY • MUFFLER ASSEMBLY



| KEY NO. | PART. NO. | QTY | DESCRIPTION | KEY NO. | PART. NO. | QTY | DESCRIPTION |
|---------|-----------|-----|----------------------|---------|--------------|-----|---------------------|
| | -42032 | | Gasket, Intake | 18 | 130310-04560 | 1 | Filter, Air |
| | -00005 | 2 | Nut 5 | 19 | 130326-11521 | 1 | Cover, Air Cleaner |
| | -42031 | | Insulator | 21 | 900528-00005 | 1 | Nut, Wing 5 |
| | -05020 | 2 | Screw 5 x 20 | 22 | 890121-49730 | 1 | Label, Choke |
| | -42031 | 1 | Gasket, Intake | 28 | 145800-11820 | 1 | Muffler Assembly |
| | -11822 | | Carburetor C1U-K17 | 29 | 145871-05360 | 1 | Cover, Muffler |
| | -48830 | | Rod, Choke | 30 | 145510-42031 | 2 | Gasket, Muffler |
| | -04560 | | Case, Air Cleaner | 31 | 145862-40630 | 1 | Screen, Muffler |
| | -05230 | | Grommet, Choke | 32 | 145866-42031 | 1 | Gasket, Muffler Lid |
| | -00830 | | Washer 5 | 33 | 145863-06960 | 1 | Fixture, Screen |
| | -04560 | 1 | Shutter, Choke | 34 | 145876-42030 | 1 | Lid, Muffler |
| | -05360 | 1 | Bracket, Air Cleaner | 35 | 900242-04010 | 3 | Screw 4 x 10 |
| | -05057 | 2 | Screw 5 x 57 | 36 | 900105-05050 | 2 | Bolt, H.S. 5 x 50 |
| | | | | 37 | 900600-00005 | 2 | Washer 5 |

SV-4 (B) ENGINE FUEL TANK LAYOUT



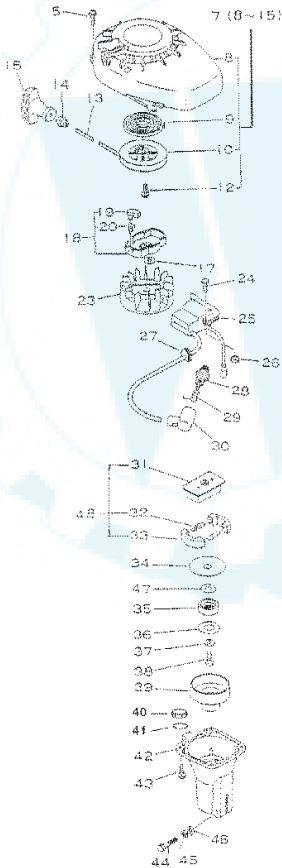
| KEY NO. | PART. NO. | QTY | DESCRIPTION |
|---------|--------------|-----|-----------------------|
| 5 | 131004-40930 | 1 | Cap Assem., Fuel Tank |
| 6 | 131016-40930 | 1 | Gasket, Fuel Tank Cap |
| 7 | 131005-11820 | 1 | Tank, Fuel |
| 9 | 131300-40630 | 1 | Vent Assembly |
| 10 | 132013-02361 | 1 | Clip, Pipe |
| 11 | 131312-44330 | 1 | Pipe 3 x 5 x 70 |
| 12 | 132010-11520 | 1 | Pipe 3 x 5 x 210 |
| 13 | 132115-46730 | 1 | Grommet, Fuel |
| 14 | 132013-09820 | 1 | Clip |
| 15 | 131205-14930 | 1 | Strainer, Fuel |
| 16 | 900250-05014 | 3 | Screw 5 x 14 |
| 17 | 900603-00005 | 3 | Washer 5 |
| 18 | 132012-11820 | 1 | Pipe, Fuel (outer) |

SV-4 (B) ENGINE BLOCK ASSEMBLY LAYOUT

| KEY NO. | PART. NO. | QTY | DESCRIPTION |
|---------|--------------|-----|-----------------------|
| 4 | 100012-51230 | 1 | Bearing, Needle |
| 5 | 100212-42030 | 2 | Oilseal |
| 6 | 900238-05028 | 3 | Screw 5 x 28 |
| 7 | 100200-11520 | 1 | Crankcase Set |
| 8 | 100215-03930 | 2 | Pin, Dowel |
| 9 | 900810-36201 | 2 | Bearing, Ball 6201 |
| 10 | 100100-11521 | 1 | Crankshaft |
| 11 | --- | 1 | Crankcase Gasket * |
| 12 | 610325-02730 | 1 | Key, Woodruff |
| 13 | 100014-11520 | 1 | Spacer, Piston Pin |
| 14 | --- | 1 | Piston ** |
| 15 | 100015-04630 | 2 | Circlip, Piston Pin |
| 16 | 100013-11520 | 1 | Pin, Piston |
| 17 | 100011-05330 | 2 | Ring, Piston |
| 18 | 101010-44331 | 1 | Gasket, Cylinder Base |
| 19 | 101011-45230 | 1 | Cylinder |
| 20 | 900238-05022 | 2 | Screw 5 x 22 |
| 22 | 101606-11520 | 1 | Cylinder Cover |
| 26 | 900238-04018 | 2 | Screw 4 x 18 |
| 27 | 889000-42031 | 1 | Cyl. Gasket Kit - SV4 |
| 28 | 100000-11520 | 1 | Piston Kit |

* Only available in Item "Key 27"
 ** Only available in "Key 28"

SV-4 (B) ENGINE STARTER, PAWL CATCHER, AND CLUTCH ASSEMBLIES



| KEY NO. | PART. NO. | QTY | DESCRIPTION |
|---------|--------------|-----|----------------------|
| 5 | 900238-04016 | 4 | Screw 4 x 16 |
| 7 | 177200-11822 | 1 | Starter Assembly |
| 8 | 101511-11522 | 1 | Cover, Fan |
| 9 | 177220-42030 | 1 | Spring, Rewind |
| 10 | 177215-42030 | 1 | Drum Starter |
| 12 | 177236-40630 | 1 | Screw |
| 13 | 177226-05530 | 1 | Rope, Starter |
| 14 | 177227-42030 | 1 | Guide, Rope |
| 15 | 177228-06530 | 1 | Grip, Starter |
| 17 | 900605-00008 | 1 | Washer 8 |
| 18 | 177202-44330 | 1 | Pawl Assem., Starter |
| 19 | 177218-44330 | 1 | Pawl, Starter |
| 20 | 177234-42030 | 1 | Spring, Return |
| 23 | 150801-44330 | 1 | Flywheel |
| 24 | 900238-04022 | 2 | Screw 4 x 22 |
| 25 | 150626-11521 | 1 | Coil, Ignition |
| 26 | 150117-09130 | 2 | Spacer |
| 27 | 156110-04920 | 1 | Grommet |
| 28 | 159010-12330 | 1 | Plug, Spark |
| 29 | 159011-03432 | 1 | Coil, Spark Plug Cap |
| 30 | 159012-01620 | 1 | Cap, Spark Plug |
| 31 | 175016-05020 | 1 | Hub, Clutch |
| 32 | 175018-05130 | 2 | Spring, Clutch |
| 33 | 175009-05131 | 2 | Shoe, Clutch |
| 34 | 175019-04630 | 1 | Plate, Clutch |
| 35 | 900808-36000 | 1 | Bearing, Ball 6000 |
| 36 | 175044-04630 | 1 | Washer, Clutch |
| 37 | 175014-11520 | 1 | Washer, Clutch |
| 38 | 900238-06012 | 1 | Screw 6 x 12 |
| 39 | 175010-04632 | 1 | Drum, Clutch |
| 42 | 610223-11520 | 1 | Flange, D.S. Housing |
| 43 | 900238-04014 | 2 | Screw 4 x 14 |
| 44 | 900100-05025 | 1 | Bolt 5 x 25 |
| 45 | 900605-00005 | 1 | Washer, Spring 5 |
| 46 | 900600-00005 | 2 | Washer 5 |
| 47 | 900600-00010 | 1 | Washer 10 |
| 48 | 175000-07531 | 1 | Clutch Assembly |

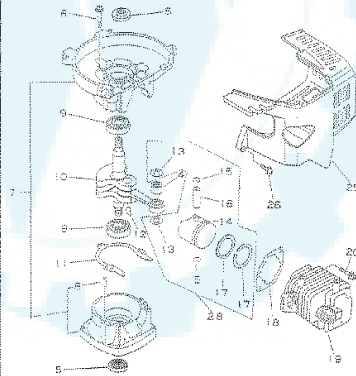


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I. IMPORTANT INFORMATION

A. INTRODUCTION

On behalf of everyone at **Little Wonder**, we would like to thank you for your purchase of a **Little Wonder** Gasoline Powered Hedge Trimmer. This professional trimming machine was designed to the highest standards to ensure you many hours of uninterrupted service.

This manual provides the information necessary for safe and efficient operation and service. For your safety, it is critically important that you read and understand this entire manual before operating your hedge trimmer.