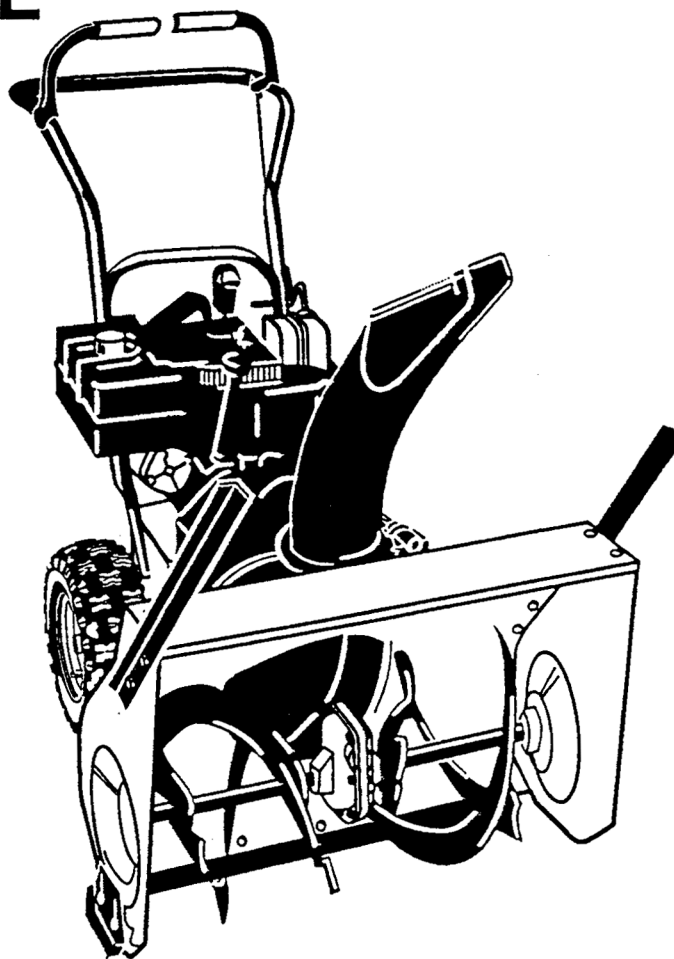


OPERATOR'S MANUAL



ST-5024

**SNOW
THROWER**

WARNING  **DANGER**

READ INSTRUCTIONS CAREFULLY AND
FOLLOW RULES FOR SAFE OPERATION.
FAILURE TO DO SO COULD RESULT IN
SERIOUS INJURY.

ECHO®



SAFETY RULES



ALWAYS DISCONNECT SPARK PLUG WIRE AND PLACE WIRE WHERE IT CANNOT CONTACT SPARK PLUG TO PREVENT ACCIDENTAL STARTING WHEN SETTING-UP, TRANSPORTING, ADJUSTING OR MAKING REPAIRS.

IMPORTANT: SAFETY STANDARDS REQUIRE OPERATOR PRESENCE CONTROLS TO MINIMIZE THE RISK OF INJURY. YOUR SNOW THROWER IS EQUIPPED WITH SUCH CONTROLS. DO NOT ATTEMPT TO DEFEAT THE FUNCTION OF THE OPERATOR PRESENCE CONTROL UNDER ANY CIRCUMSTANCES.

BEFORE USE

- **Read the Owner's Manual carefully.** Be thoroughly familiar with the controls and the proper use of the snow thrower. Know how to stop the snow thrower and disengage the controls quickly.
- Do not operate the snow thrower without wearing adequate winter outer garments. Wear footwear that will improve footing on slippery surfaces.
- Keep the area of operation clear of all persons, particularly small children, and pets.
- Thoroughly inspect the area where the snow thrower is to be used and remove all doormats, sleds, boards, wires, and other foreign objects.
- Use extension cords and receptacles as specified by the manufacturer for all snow throwers with electric drive motors or with factory-installed or optional starting motors.
- Use only attachments and accessories approved by the manufacturer of the snow thrower (such as electric starter kits, etc.).
- Never operate the snow thrower without good visibility or light. Always be sure of your footing, and keep a firm hold on the handles. Walk; never run.
- This snow thrower is for use on sidewalks, driveways, and other ground level surfaces. **Do not attempt to clear on steep sloping surfaces. DO NOT USE SNOW THROWER ON SURFACES ABOVE GROUND LEVEL** such as roofs of residences, garages, porches or other such structures or buildings.
- Check all bolts at frequent intervals for proper tightness to be sure the snow thrower is in safe working condition.
- Disengage clutch and shift into neutral before starting the engine.
- Let engine and snow thrower adjust to outdoor temperatures before starting to clear snow.

FUEL SAFETY

- Handle fuel with care; it is highly flammable.
- Use an approved fuel container.
- Check fuel supply before each use, allowing space for expansion as the heat of the engine and/or sun can cause fuel to expand.
- Fill fuel tank outdoors with extreme care. Never fill fuel tank indoors.
- Replace fuel tank cap securely and wipe up spilled fuel.
- Never remove fuel tank cap or add fuel to a running engine or hot engine.
- Never store fuel or snow thrower with fuel in the tank inside a building where fumes may reach an open flame or spark.

OPERATING SAFETY

- Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.
- Never operate the snow thrower without proper guards, plates or other safety protective devices in place.
- Never allow children or young teenagers to operate the snow thrower and keep them away while it is operating. never allow adults to operate the snow thrower without proper instruction.
- Always wear safety glasses or eye shields during operation or while performing an adjustment or repair to protect eyes from foreign objects that may be thrown from the snow thrower.
- Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic.
- Exercise caution to avoid slipping or falling, especially when operating in reverse or backing up.
- Do not clear snow across the face of slopes. Exercise caution when changing direction on slopes. Do not attempt to clear steep slopes.
- Never operate the snow thrower without proper guards, plates or other safety protective devices in place.
- Never operate the snow thrower near glass enclosures, automobiles, window wells, drop-offs, and the like without proper adjustment of the snow discharge angle. Keep children and pets away.
- Never operate the snow thrower at high transport speeds on slippery surfaces. Look behind and use care when backing.
- Do not run the engine indoors, except when starting the engine and for transporting the snow thrower in or out of the building. Open the outside doors; exhaust fumes are dangerous (containing **CARBON MONOXIDE**, an **ODORLESS** and **DEADLY GAS**).
- Take all possible precautions when leaving the snow thrower unattended. Disengage the auger/impeller, stop engine, and remove key.
- Do not overload the machine capacity by attempting to clear snow at too fast a rate.
- Never direct discharge at bystanders or allow anyone in front of the unit.
- Do not operate the machine while under the influence of alcohol or drugs or when very tired.
- Do not operate this machine if you are taking drugs or other medication which can cause drowsiness or affect your ability to operate this machine.
- Do not use this machine if you are mentally or physically unable to operate this machine safely.



SAFETY RULES

SAFE STORAGE

- Always refer to Owner's Manual instructions for important details if the snow thrower is to be stored for an extended period.
- Disengage power to the auger/impeller when snow thrower is transported or not in use.
- Never store the snow thrower with fuel in the fuel tank inside a building where ignition sources are present such as hot water and space heaters, clothes dryers, and the like. Allow the engine to cool before storing in any enclosure.

REPAIR/ADJUSTMENTS SAFETY

- After striking a foreign object, stop the engine and remove the wire from the spark plug, or disconnect the cord from electric motor. Thoroughly inspect the snow thrower for any damage, and repair the damage before restarting and operating the snow thrower.
- If the snow thrower should start to vibrate abnormally, stop the engine (or electric motor) and check immediately for the cause. Vibration is generally a warning of trouble.
- Stop the engine (or electric motor) whenever you leave the operating position, before unclogging the auger/impeller housing or discharge guide, and when making any repairs, adjustments, or inspections. Remove wire from spark plug or disconnect cord from electric motor.

- When cleaning, repairing, or inspecting, make certain the auger/impeller and all moving parts have stopped. Disconnect the spark plug wire and keep the wire away from the plug to prevent accidental starting.
- Never attempt to make any adjustments while the engine is running (except when specifically recommended in this manual or the engine manual).
- Maintain or replace safety and instruction labels, as necessary.
- Run the snow thrower a few minutes after throwing snow to prevent freeze-up of the auger/impeller.



This snow thrower is for use on sidewalks, driveways, and other ground level surfaces. CAUTION should be exercised while using on steep sloping surfaces. DO NOT USE SNOW THROWER ON SURFACES ABOVE GROUND LEVEL such as roofs of residences, garages, porches or other such structures or buildings.



LOOK FOR THIS SYMBOL TO POINT OUT IMPORTANT SAFETY PRECAUTIONS. IT MEANS--ATTENTION!!! BECOME ALERT!!! YOUR SAFETY IS INVOLVED.



California Proposition 65 WARNING!

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

INTERNATIONAL SYMBOLS



ENGINE START



ENGINE RUN



OFF



ELECTRIC
START



STOP



ENGINE STOP



ON



CHOKE OFF



CHOKE ON



THROTTLE



FAST



SLOW



NEUTRAL



PRIMER BUTTON



IGNITION KEY



IGNITION OFF



IGNITION ON



FUEL



OIL



FUEL OIL MIXTURE



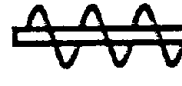
TRANSMISSION



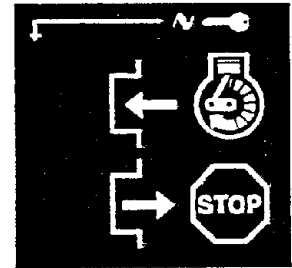
DRIVE CLUTCH



AUGER CLUTCH



AUGER/
COLLECTOR



IGNITION KEY INSERT
TO RUN PULL OUT TO
STOP



FORWARD



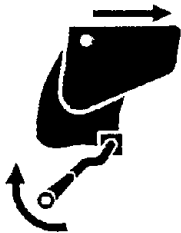
REVERSE



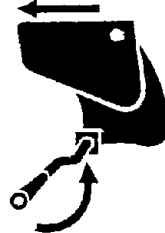
DISCHARGE
CHUTE - UP
POSITION



DISCHARGE
CHUTE - DOWN
POSITION



DISCHARGE
CHUTE -
TURN RIGHT



DISCHARGE
CHUTE -
TURN LEFT



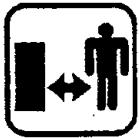
CAUTION



READ OWNER'S
MANUAL



KEEP HANDS,
FEET, AND
CLOTHING AWAY!



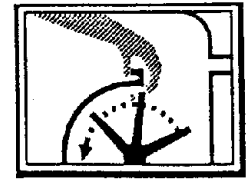
KEEP
BYSTANDERS
AWAY



BEWARE OF
THROWN
OBJECTS



HOT SURFACE



DO NOT USE
HANDS TO UN-
CLOG DISCHARGE
CHUTE.

CONGRATULATIONS on your purchase of an ECHO Snow Thrower. It has been designed, engineered and manufactured to give you the best possible dependability and performance.

Should you experience any problem you cannot easily remedy, please contact your nearest ECHO dealer. ECHO has competent, well-trained technicians and the proper tools to service or repair this unit.

Please read and retain this manual. The instructions will enable you to assemble and maintain your snow thrower properly. Always observe the "SAFETY RULES."

MODEL
NUMBER ST-5024

SERIAL
NUMBER _____
DATE OF
PURCHASE _____

THE MODEL AND SERIAL NUMBERS WILL BE FOUND ON A DECAL ATTACHED TO THE REAR OF THE SNOW THROWER HOUSING.

YOU SHOULD RECORD BOTH SERIAL NUMBER AND DATE OF PURCHASE AND KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.

PRODUCT SPECIFICATIONS -ST-5024

HORSE POWER:	5 hp
DISPLACEMENT:	12.04 cu. in.
GASOLINE CAPACITY:	2 quarts Unleaded
OIL	SAE 5W-30
SPARK PLUG : (GAP .030 in.)	Champion RJ19LM

CUSTOMER RESPONSIBILITIES

- Read and observe the safety rules.
- Follow a regular schedule in maintaining, caring for and using your snow thrower.
- Follow the instructions under "Maintenance" and "Storage" sections of this Operator's Manual.

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CONTENTS OF SHIPPING CARTON

- 1 - Snow thrower
- 1 - Container 5W30 4cycle oil
- 1 - Chute Assembly (may be assembled)
- 1 - Parts Bag Containing:
- 1 - Owner's Manual (Not Shown) and Parts shown below:

TOOLS REQUIRED FOR ASSEMBLY

- 1 - Knife (to cut carton and plastic ties)
- 2 - 1/2 inch Wrenches (or adjustable wrenches)
- 2 - 9/16 inch Wrenches (or adjustable wrenches)
- 2 - 3/4 inch Wrenches (or adjustable wrenches)
- 1 - Pair Pliers (to spread cotter pin)
- 1 - Screwdriver

CONTENTS OF PARTS BAG



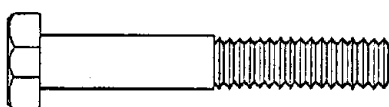
*2 - Spare Shear Bolts
(1/4-20 x 1-3/4 In.)



*2- Spare Spacers



*2 - Spare 1/4-20 Hex Nuts



1- Bolt, 5/16-18 x 2 In.



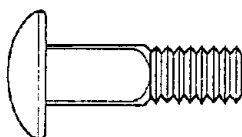
1- Nut, 5/16-18 Reghex



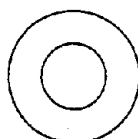
1- Flatwasher .344x.69x.065



1- Washer Hvspitk
.328x.60x.09



3- Screws, 5/16-18 x 2 In.



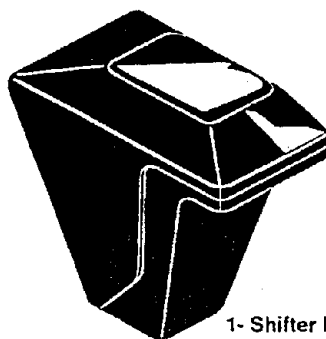
3- Flatwashers .349 x .69x.06603



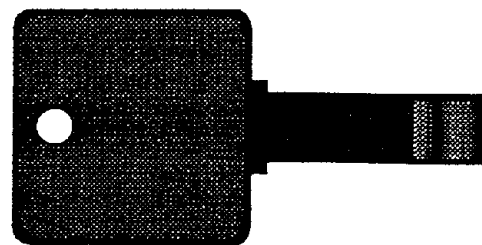
3- Nuts, 5/16-18 Nylon



1- 1/2-13hex jam nut



1- Shifter Knob



2 - Ignition Keys

*Non-Assembled Parts

FIG. 1-ASSY shows the snow thrower in the shipping position.

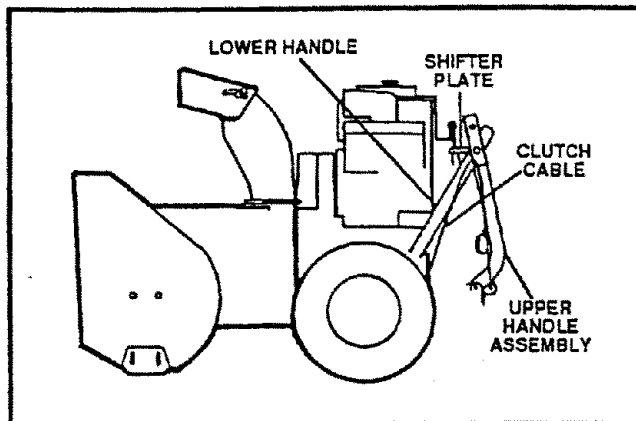


FIG. 1-ASSY

FIG. 2-ASSY shows the snow thrower completely assembled.

Reference to the right and left hand side of the snow thrower is from the operator's position at the handle.

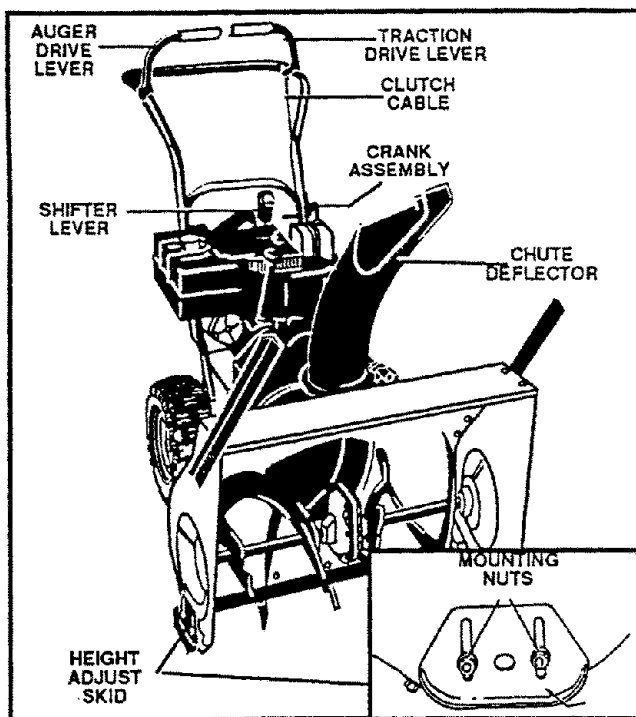


FIG. 2-ASSY

TO REMOVE SNOW THROWER FROM CARTON (See FIG. 1-ASSY)

- Locate and remove loose parts from parts box.
- Remove top pallet from carton.
- Cut and discard the plastic ties that secure the crank assembly to the pallet and place the assembly aside.

- Remove and discard the packing material from around snow thrower.
- Cut all four corners of the carton from top to bottom and lay the panels flat.
- Roll the snowthrower off the carton by pulling on the lower handle. **CAUTION:** Do not back over cable.
- Remove the packing material from the control panel and upper handle assembly.

TO INSTALL THE UPPER HANDLE AND CRANK ASSEMBLY

- Loosen, but do not remove the screws, flatwashers, lockwashers and hex nuts in the top holes of the lower handle. See FIG. 3-ASSY.
- Raise upper handle into operating position. Upper handle should be to the outside of the lower handle.

NOTE: Make sure the cables are not caught between the upper and lower handle.

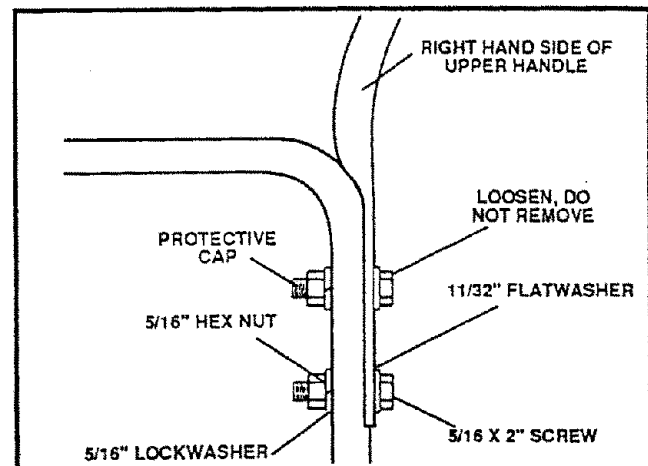


FIG. 3-ASSY

- Install hardware supplied in the parts bag (Screw, flatwasher, lockwasher, and locknut) into lower hole on right hand side of handles. Do not tighten until all bolts are in place.
- Remove the 3/8" nylon locknut and flatwasher from the eye bolt assembly. Check to make sure the two 3/8" jam nuts are tight. The jam nuts should be 2.75 inches from the end of the eye bolt. See FIG. 4-ASSY.
- Install eye bolt through lower hole in the left hand side of the handle. See FIG. 4-ASSY.
- Install the 3/8" flatwasher and the 3/8" nylon locknut loosely on the eye bolt as shown in FIG. 4-ASSY.

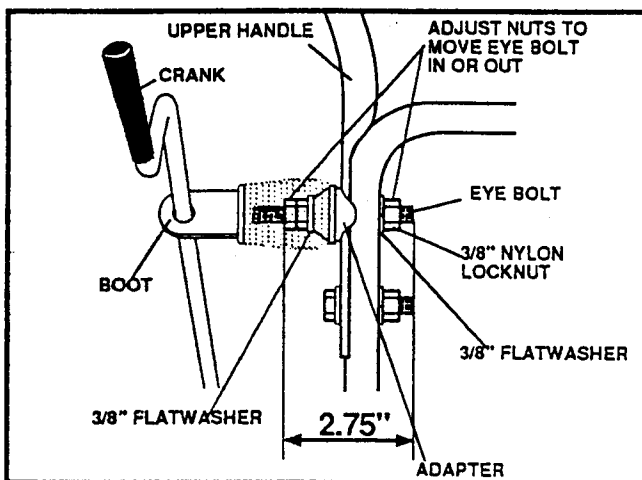


FIG. 4A-ASSY

- Carefully remove cotter pin, clevis pin and universal joint pin from yoke end of crank rod assembly as shown in FIG. 5-ASSY.

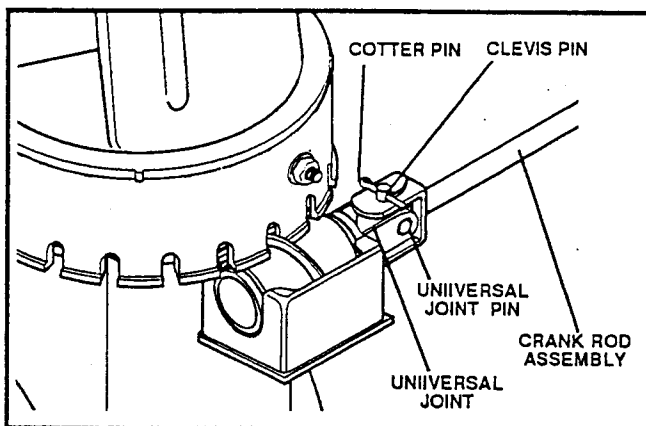


FIG. 5-ASSY

- Place universal joint into end of worm gear lining up large holes. Insert universal joint pin (ensure opening in pin is in line with small openings in universal joint).
- Place yoke end of crank rod around universal joint, lining up openings. Insert clevis pin through assembly and secure with cotter pin. Spread ends of cotter pin to lock in place. See FIG. 5-ASSY.
- Tighten nut on eye bolt installed earlier, keeping eye in line with the rod while tightening the inside securely.
- Tighten all handle bolts.

NOTE: If the cables have become disconnected from the clutch levers, reinstall the cables as shown in FIG. 5A-ASSY.

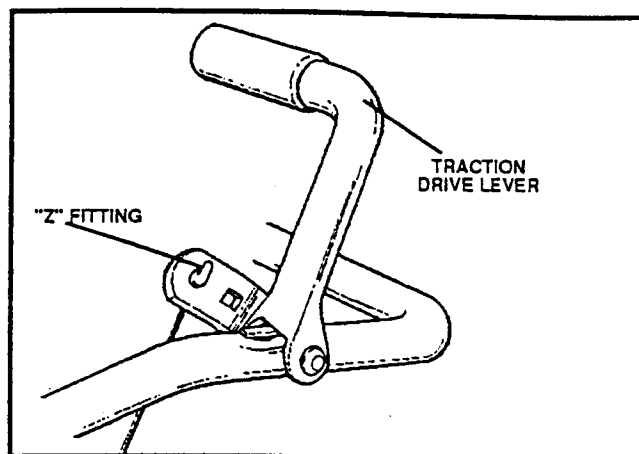


FIG. 5A-ASSY

TO INSTALL SHIFTER LEVER KNOB

- Thread the hex nut found in the parts bag onto the shifter lever.
- Thread the shifter lever knob onto the threaded end of the shifter lever until it is snug against the hex nut and the lip is pointed away from the engine. Tighten the hex nut against the bottom of the shift lever knob. See FIG. 6-ASSY.

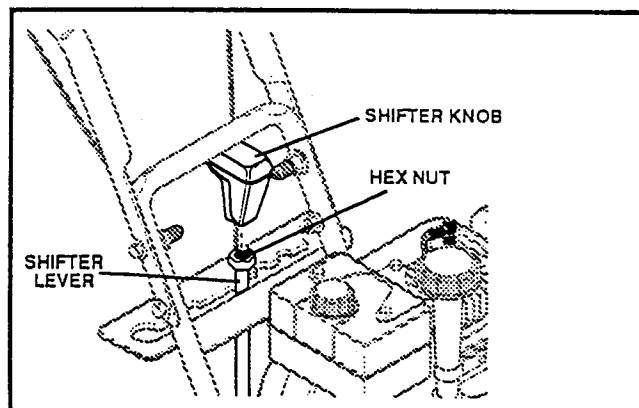


FIG. 6-ASSY

TO INSTALL CHUTE ASSEMBLY

- Position snow chute on snow chute flange and align the three holes in the snow chute with holes in the snow chute flange (See FIG. 7-ASSY)
- Install (3) carriage bolts (found in parts bag) from inside of chute as shown in FIG. 7-ASSY.
- Install (3) flat washers and (3) nuts as shown in FIG. 7-ASSY.
- Tighten all four carriage bolts securely.

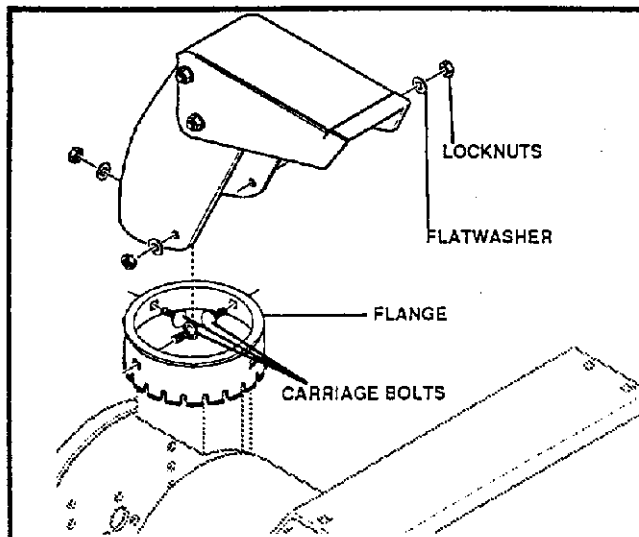


FIG. 7-ASSY

DRIFT CUTTER ASSEMBLY (If equipped)

- Remove the fasteners securing the drift cutters and then rotate drift cutters 180° (See FIG. 8-ASSY).
- Reinstall fasteners and secure.

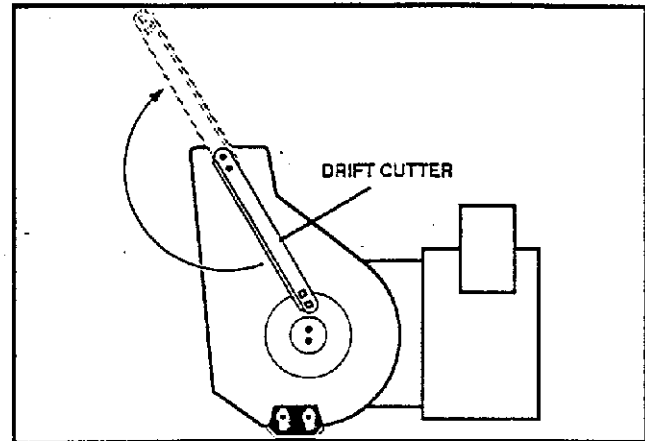


FIG. 8-ASSY

TO CHECK/ADJUST CLUTCH CONTROL CABLES

The control cables, FIG. 9-ASSY, attached to the auger clutch lever and traction clutch lever may need to be adjusted before you use your snow thrower.

For instructions on checking or adjusting the control cables, (See To Adjust Clutch Control Cables paragraph in the Service & Adjustments section of this manual).

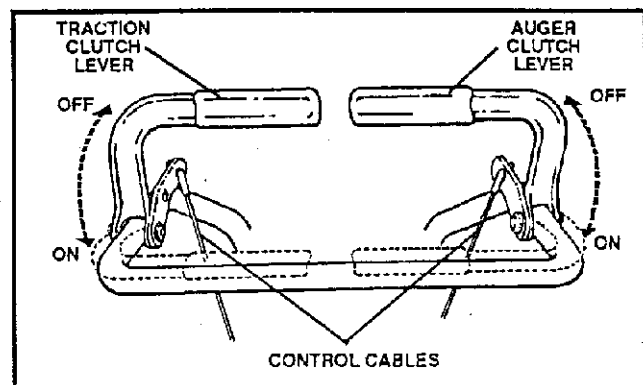


FIG. 9-ASSY

HOW TO SET UP YOUR SNOW THROWER

- Your snow thrower is equipped with height adjust skids (See FIG. 2-ASSY) on the outside of the auger housing. To adjust the skid height for different conditions, see To Adjust Skid Height paragraph in the Service & Adjustments section of this manual.

KNOW YOUR SNOW THROWER

READ THIS OWNER'S MANUAL AND SAFETY RULES BEFORE OPERATING YOUR SNOW THROWER. Compare the illustrations with your snow thrower to familiarize yourself with the location of various controls and adjustments. Save this manual for future reference.

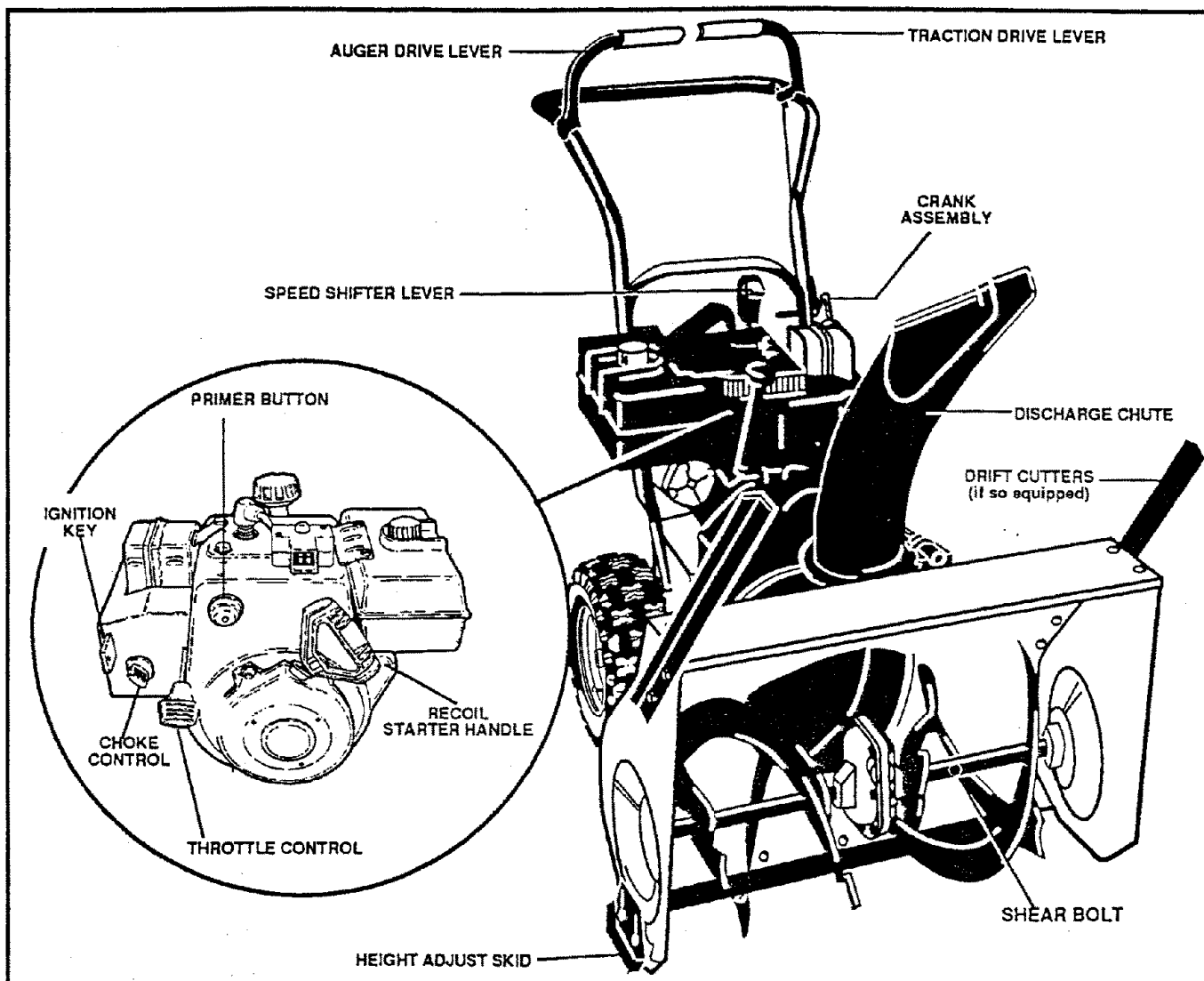


FIG. 1-OP

This snow thrower conforms to the safety standards of the American National Standards Institute.

AUGER DRIVE LEVER - Starts and stops the auger and impeller (snow gathering and throwing).

TRACTION DRIVE LEVER - Propels the snow thrower forward and in reverse.

SPEED SHIFTER LEVER - Selects the speed of the snow thrower (6 speeds forward and 2 speeds reverse).

CRANK ASSEMBLY - Changes the direction of snow throwing through the discharge chute.

CHUTE DEFLECTOR - Changes the distance the snow is thrown.

DISCHARGE CHUTE - Changes the height and direction the snow is thrown.

HEIGHT ADJUST SKIDS - Adjusts the ground clearance of the auger housing.

IGNITION KEY - Must be inserted to start the engine.

RECOIL STARTER HANDLE - Starts the engine manually.

CHOKE CONTROL - Used to start a cold engine.

PRIMER BUTTON - Injects fuel directly into the carburetor manifold for fast starts in cold weather.

THROTTLE CONTROL - Controls the engine speed.

DRIFT CUTTERS - (if so equipped) Cuts a path through snow drifts taller than unit.

SHEAR BOLT - Shear bolts are designed to break (to protect the machine) if an object becomes lodged in the auger housing. Use of a harder bolt will destroy the protection provided by the shear bolt.



The operation of any snow thrower can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety glasses or eye shields while operating the snow thrower. We recommend standard safety glasses or a wide vision safety mask for over your glasses.

HOW TO USE YOUR SNOW THROWER

TO CONTROL SNOW DISCHARGE

- Turn the crank assembly to set the direction of the snow throwing.
- Loosen the wing knob on the chute deflector and move the deflector to set the distance. Move the deflector "UP" for more distance, "DOWN" for less distance. Then tighten the wing knob (FIG. 2-OP).

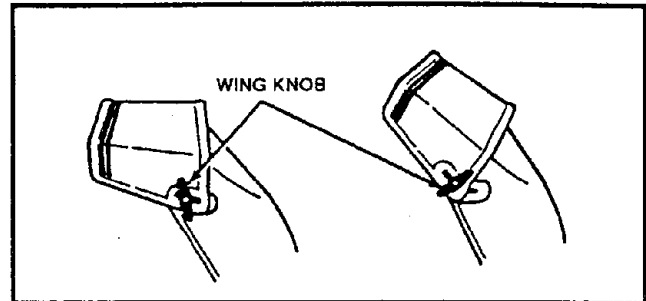


FIG. 2-OP

TO STOP YOUR SNOW THROWER

- To stop throwing snow, release the auger drive lever (See FIG. 4-OP).
- To stop the wheels, release the traction drive lever.
- To stop the engine, push the throttle control lever to off and pull out the ignition key (See FIG. 3-OP).

TO MOVE FORWARD AND BACKWARD

- To shift, release the traction drive lever and move the speed shifter lever to the speed you desire. Ground speed is determined by snow conditions. Select the speed you desire by moving the speed shifter lever left into the appropriate notches on the shift lever plate:

Speeds 1, 2 - Wet, Heavy

Speed 3 - Light

Speed 4 - Very Light

Speeds 5, 6 - Transport only

- Engage the traction drive lever (See FIG. 4-OP, left hand). As the snow thrower starts to move, maintain a firm hold on the handles, and guide the snow thrower along the clearing path. Do not attempt to push the snow thrower.
- To move the snow thrower backward, move the speed shifter lever right into first or second reverse and engage the traction drive lever (left hand).

IMPORTANT: DO NOT MOVE THE SPEED SHIFTER LEVER WHILE THE TRACTION LEVER IS DOWN.

TO THROW SNOW

- Push down the auger drive lever (See FIG. 4-OP, right hand).
- Release to stop throwing snow.

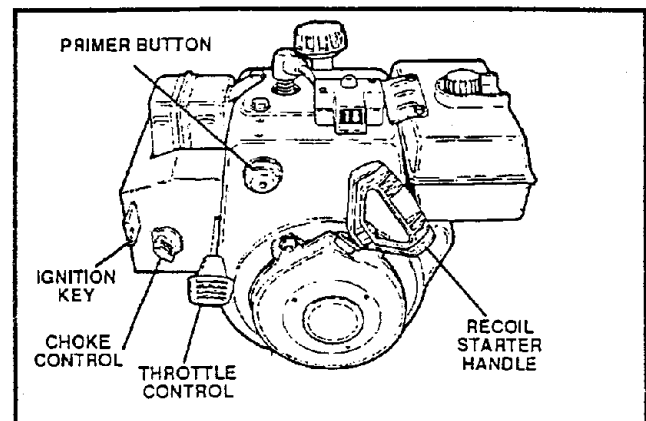


FIG. 3-OP

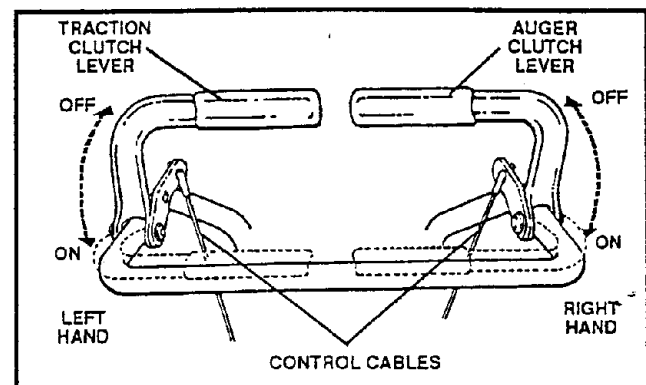


FIG. 4-OP



READ OWNER'S MANUAL BEFORE OPERATING MACHINE. NEVER DIRECT DISCHARGE TOWARD BYSTANDERS. STOP THE ENGINE BEFORE UNCLOGGING DISCHARGE CHUTE OR AUGER HOUSING AND BEFORE LEAVING THE MACHINE.

TO USE WHEEL LOCKOUT PIN

- The left hand wheel is secured to the axle with a click pin (See FIG. 5-OP). This unit was shipped with this click pin in the locked (through wheel hole) position.
- For ease of maneuverability in light snow conditions, disconnect the click pin from the wheel locked position and push into the single wheel drive (unlocked axle hole only) position (See FIG. 6-OP).
- Make sure that the click pin is in the single wheel drive position of the axle only and not through the locked position.

BEFORE STARTING THE ENGINE

- If the snow thrower must be moved without the aid of the engine, it is easier to pull the snow thrower by the handles rather than pushing.
- Before you service or start the engine, familiarize yourself with the snow thrower. Be sure you understand the function and location of all controls.

NOTE: Check tension of clutch cables before starting the engine (See To Adjust The Control Cables paragraph in the Service & Adjustments section of this manual).

- Be sure that all fasteners are tight.
- Make sure the height adjust skids are properly adjusted (See To Adjust Skid Height paragraph in the Service & Adjustments section of this manual).
- Check tire pressure (14 to 17 pounds). Do not exceed maximum amount of pressure.

FILL OIL:

The engine on this snow thrower was shipped without oil. 5W30 oil is included with this unit and must be added to the engine before operating. Remove the oil fill cap/dipstick and fill the crank case to "FULL" line on dipstick (See FIG. 7-OP) with S.A.E. 5W-30 motor oil (or equivalent). Do not overfill. Tighten the fill cap/dipstick securely each time you check the oil level.

FILL GAS:

Fill the fuel tank with clean, fresh, unleaded grade automotive gasoline. Be sure that the container you pour the gasoline from is clean and free from rust or other foreign particles. Never use gasoline that may be stale from long periods of storage in the container.

NOTE: S.A.E. 0W-30 motor oil may be used to make starting easier in areas where temperature is consistently 20° F. or lower.

WARNING: Experience indicates that alcohol blended fuels (called gasohol or those using ethanol or methanol) can attract moisture which leads to separation and formation of acids during storage. Acidic gas can damage the fuel system of an engine while in storage.

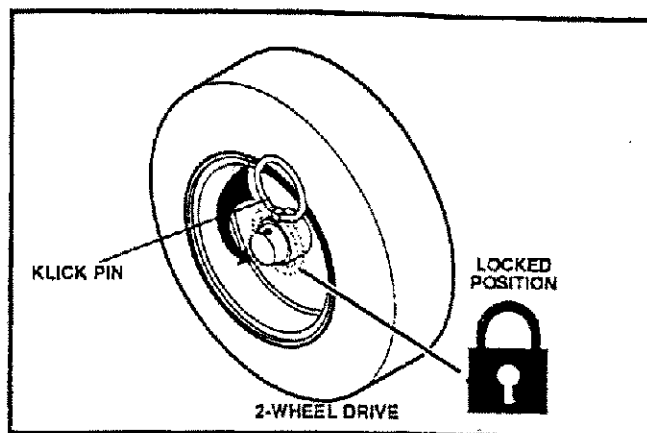


FIG. 5-OP

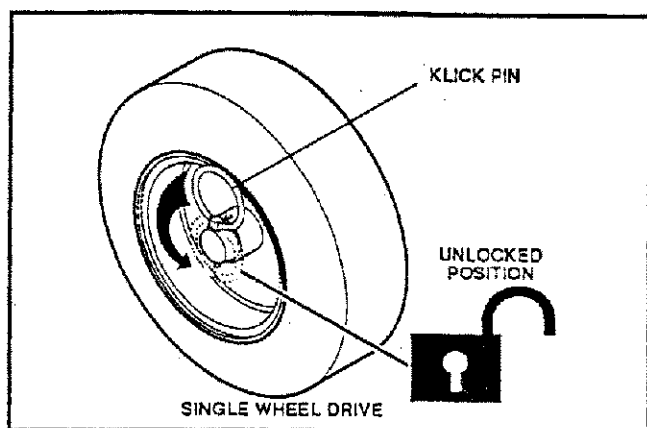


FIG. 6-OP

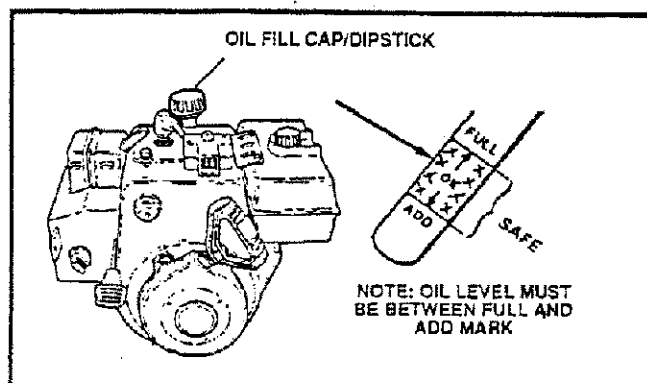


FIG. 7-OP

To avoid engine problems, the fuel system should be emptied before storage for 30 days or longer. Start the engine and let it run until the fuel lines and carburetor are empty. Use the carburetor bowl drain to empty residual gasoline from the float chamber (FIG. 1-STORAGE). Use fresh fuel next season (See Storage section in this manual for additional information).

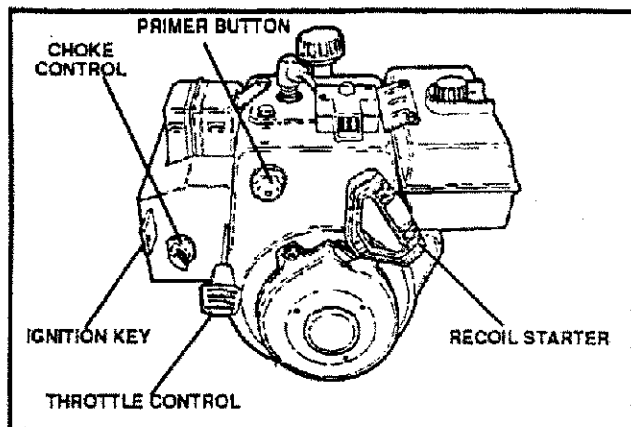


FIG. 8-OP

TO STOP ENGINE

- To stop engine, move the throttle control lever to "STOP" position and remove key. Keep the key in a safe place. The engine will not start without the key.

TO START ENGINE (Recoil Starter)

Be sure that the engine has sufficient oil. Before starting the engine, be certain that you have read the following information:

COLD START (See FIG. 8-OP)

- Be sure the auger drive and the traction drive levers are in the disengaged "RELEASED" position.
- Move the throttle control up to "FAST" position.
- Push the key into the ignition slot. Be sure it snaps into place. Do not turn key. Remove the plastic bag and extra key.
- Rotate choke control to "FULL" choke position.
- Press the primer button in cold weather. Press two or three times, while keeping your finger over the vent hole on the primer button. Additional priming may be necessary for the first start if the temperature is below 15° F. Do not prime if temperature is above 50° F.
- Pull the starter handle rapidly. Do not allow the handle to snap back, but allow it to rewind slowly while keeping a firm hold on the starter handle.
- As the engine warms up and begins to operate evenly, rotate the choke knob slowly to "OFF" position. If the engine falters, return to "FULL" choke, then slowly move to "OFF" choke position.

NOTE: Allow the engine to warm up for a few minutes because the engine will not develop full power until it reaches operating temperature.

- Run the engine at or near the top speed when throwing snow.

GASOLINE IS FLAMMABLE AND CAUTION MUST BE USED WHEN HANDLING OR STORING IT.

DO NOT FILL FUEL TANK WHILE SNOW THROWER IS RUNNING, WHEN IT IS HOT, OR WHEN SNOW THROWER IS IN AN ENCLOSED AREA.

KEEP AWAY FROM OPEN FLAME OR AN ELECTRICAL SPARK AND DO NOT SMOKE WHILE FILLING THE FUEL TANK.



NEVER FILL THE TANK COMPLETELY. FILL THE TANK TO WITHIN 1/4" - 1/2" FROM THE TOP TO PROVIDE SPACE FOR EXPANSION OF FUEL.

ALWAYS FILL FUEL TANK OUTDOORS AND USE A FUNNEL OR SPOUT TO PREVENT SPILLING.

MAKE SURE TO WIPE UP ANY SPILLED FUEL BEFORE STARTING THE ENGINE.

STORE GASOLINE IN A CLEAN, APPROVED CONTAINER AND KEEP THE CAP IN PLACE ON THE CONTAINER.

WARM START

If restarting a warm engine after a short shutdown, rotate choke to "OFF" instead of "FULL" and do not push the primer button.

FROZEN STARTER

If the starter is frozen and will not turn engine:

- Pull as much rope out of the starter as possible.
- Release the starter handle and let it snap back against the starter.

If the starter still fails to turn engine, repeat the two previous steps until the starter engages. Then continue with the directions for cold start.

To help prevent possible freeze-up of recoil starter and engine controls, proceed as follows after each snow removal job.

- With the engine running, pull the starter rope hard with a continuous full arm stroke three or four times. Pulling of starter rope will produce a loud clattering sound. This is not harmful to the engine or starter.
- With the engine not running, wipe all snow and moisture from the carburetor cover in area of control levers. Also move throttle control, choke control, and starter handle several times.



NEVER RUN ENGINE INDOORS OR IN ENCLOSED, POORLY VENTILATED AREAS. ENGINE EXHAUST CONTAINS CARBON MONOXIDE, AN ODORLESS AND DEADLY GAS. KEEP HANDS, FEET, HAIR AND LOOSE CLOTHING AWAY FROM ANY MOVING PARTS ON ENGINE AND SNOW THROWER.

WARNING: TEMPERATURE OF MUFFLER AND NEARBY AREAS MAY EXCEED 150° F. AVOID THESE AREAS.

DO NOT ALLOW CHILDREN OR YOUNG TEENAGERS TO OPERATE OR BE NEAR SNOW THROWER WHILE IT IS OPERATING.



DO NOT ATTEMPT TO REMOVE ANY ITEM THAT MAY BECOME LODGED IN AUGER WITHOUT TAKING THE FOLLOWING PRECAUTIONS:

- RELEASE AUGER DRIVE AND TRACTION DRIVE LEVERS.
- MOVE THROTTLE LEVER TO STOP POSITION.
- REMOVE (DO NOT TURN) IGNITION KEY.
- DISCONNECT SPARK PLUG WIRE.
- DO NOT PLACE YOUR HANDS IN THE AUGER OR DISCHARGE CHUTE. USE A PRY BAR.

SNOW THROWING TIPS

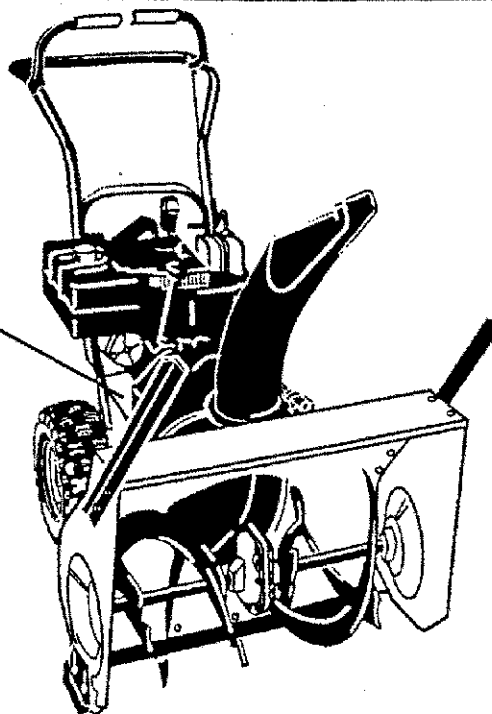
- For maximum snow thrower efficiency in removing snow, adjust ground speed, **NEVER** the throttle. Go slower in deep, freezing or wet snow. If the wheels slip, reduce forward speed. The engine is designed to deliver maximum performance at full throttle and should be run at this power setting at all times.
- Most efficient snow blowing is accomplished when the snow is removed immediately after it falls.
- For complete snow removal, slightly overlap each path previously taken.
- The snow should be discharged down wind whenever possible.
- For normal usage, set the skids so that the scraper bar is 1/8" above the skids. For extremely hard-packed snow surfaces, adjust the skids upward so that the scraper bar touches the ground.
- On gravel or crushed rock surfaces, set the skids at 1-1/4" below the scraper bar (See **To Adjust Skid Height** paragraph in the **Service & Adjustments** section of this manual). Rocks and gravel must not be picked up and thrown by the machine.
- After the snow blowing job has been completed, allow the engine to idle for a few minutes, which will melt snow and accumulated ice off the engine.
- Clean the snow thrower thoroughly after each use.
- Remove ice and snow accumulation and all debris from the entire snow thrower, and flush with water (if possible) to remove all salt or other chemicals. Wipe snow thrower dry.

MAINTENANCE

SERVICE RECORDS Fill in dates as you complete regular service	SCHEDULE								SERVICE DATES		
	After First 2 hours	Before Each Use	Often	Every 5 Hours	Every 10 Hours	Every 25 Hours	Each Season	Before Storage			
Check Engine Oil Level		✓		✓			✓				
Change Engine Oil	✓					✓	✓				
Tighten All Screws and Nuts	✓		✓								
Check Traction Clutch Cable Adjustment (See Cable Adjustment)							✓				
Check Spark Plug						✓	✓				
Check Drive Belts							✓				
Lubricate All Pivot Points					✓			✓			
Lubricate Drive Chains					✓			✓			
Check Fuel		✓									
Drain Fuel								✓			
Check Auger Clutch Cable Adjustment (See Cable Adjustment)							✓				
Lubricate Disc Drive Plate Zerk (See Maintenance)						✓		✓			

LUBRICATION CHART

Lubricate the Disc Drive Plate zerk with a HI Temp EP Moley grease.



GENERAL RECOMMENDATIONS

The warranty on this snow thrower does not cover items that have been subjected to operator abuse or negligence. To receive full value from the warranty, operator must maintain snow thrower as instructed in this manual.

Some adjustments will need to be made periodically to properly maintain your snow thrower.

All adjustments in the Service and Adjustments section of this manual should be checked at least once each season.

AFTER EACH USE

- Check for any loose or damaged parts.
- Tighten any loose fasteners.
- Check and maintain the auger.
- After each use, remove all snow and slush off the snow thrower to prevent freezing of auger or controls.
- Check controls to make sure they are functioning properly.
- If any parts are worn or damaged, replace immediately.
- Change the oil after first two (2) hours of use.

SNOW THROWER

LUBRICATION - EVERY 25 HOURS

- Lubricate Disc Drive Plate every 25 hours and at the end of the season and/or before storage.

To Lubricate:

- Position speed selector lever in first gear.
- Turn disc drive plate clockwise by hand until grease zerk is clearly visible at front center (See FIG. 2-MAINT).
- Place a coin or (a shim of equal thickness) between the rubber friction wheel and disc drive plate to prevent rubber friction wheel contacting the drive disc.
- To grease zerk, use a hand grease gun, lubricate with a Hi Temp EP Moly grease. (See FIG. 2-MAINT inset) DO NOT over fill or allow grease to come in contact with the disc drive plate or friction wheel or damage will result. Fill zerk only until grease becomes visible below bearing assembly located under grease zerk. (See FIG. 2-MAINT inset)

IMPORTANT: Remove coin and ensure that a gap exists between friction wheel and disc drive plate.

NOTE: Clean all excess grease found on friction disc hub.

CAUTION: Do not allow grease to contact friction wheel and disc drive plate.

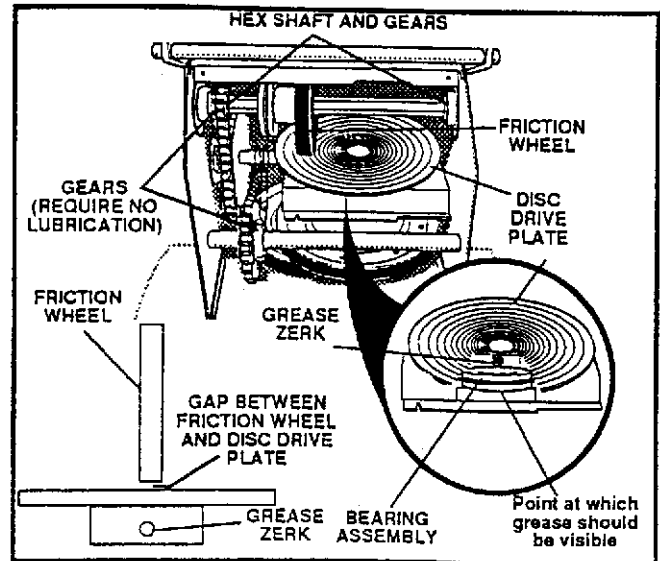


FIG. 2-MAINT

LUBRICATION - BEFORE STORAGE

- Remove both wheels, grease (any automotive type grease) both axles (See FIG. 3-MAINT) and replace wheels. Do this at least once a year and/or prior to storage.

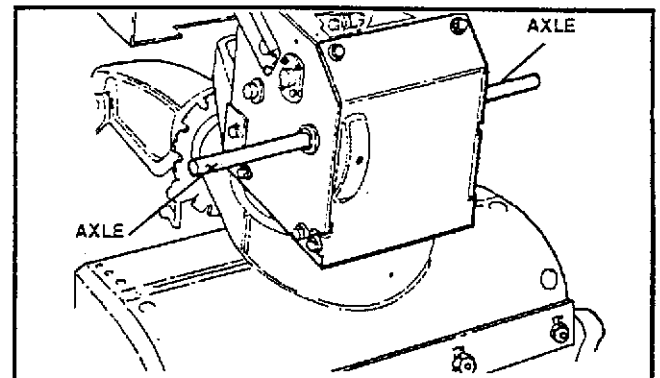


FIG. 3-MAINT

LUBRICATION - NOT REQUIRED

- Hex Shaft and Gears - Hex shaft and gears require no lubrication. All bearings and bushings are lifetime lubricated and require no maintenance (See FIG. 2-MAINT).

NOTE: Any greasing or oiling of the above components can cause contamination of the friction wheel. If the disc drive plate or friction wheel come in contact with grease or oil, damage to the friction wheel will result.

Should grease or oil come in contact with the disc drive plate or friction wheel, be sure to clean the plate and wheel thoroughly.

NOTE: For storage, the hex shaft and gears should be wiped with 5W-30 motor oil to prevent rusting (See FIG. 2-MAINT).

MAINTENANCE

- Auger Gear Box - The auger gear box is lubricated at the factory and should not require additional lubrication. If for some reason the lubricant should leak out, have auger gear case checked by a competent repairman.

ENGINE LUBRICATION

Check the crankcase oil level (See FIG. 4-MAINT) before starting the engine and after each five (5) hours of continuous use. Add S.A.E. 5W-30 motor oil as needed. Tighten fill cap/dipstick securely each time you check the oil level.

Change the oil after first two hours of operation and every (25) hours thereafter or at least once a year if the snow thrower is not used for (25) hours (See FIG. 5-MAINT).

- Position the snow thrower so that the oil drain plug is at the lowest point on the engine. Remove the oil drain plug and the oil fill cap/dipstick. Drain the oil into a suitable container. Oil will drain more freely when warm.
- Replace the oil drain plug and tighten securely. Refill the crankcase with S.A.E. 5W-30 motor oil.

SPARK PLUG

- Make sure that the spark plug is tightened securely into the engine and the spark plug wire is attached to the spark plug.
- If a torque wrench is available, torque plug to 18 to 23 foot pounds.
- Clean the area around the spark plug base before removal to prevent dirt from entering the engine.
- Clean the spark plug and reset the gap periodically (See FIG. 6-MAINT).

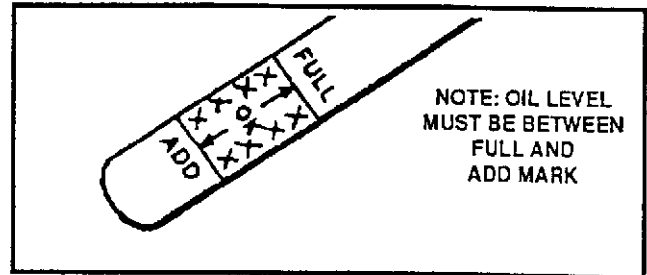


FIG. 4-MAINT

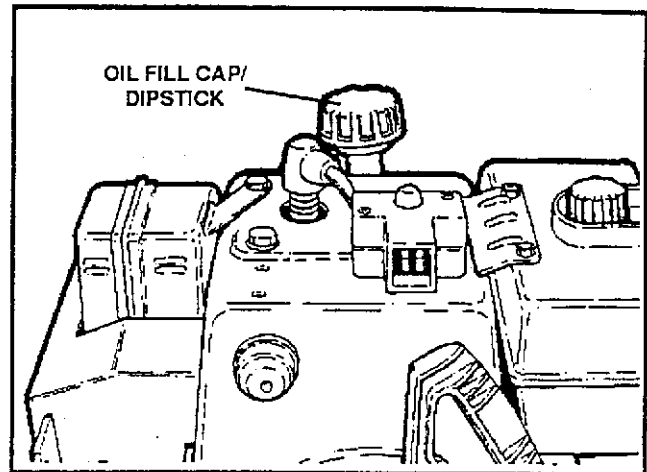


FIG. 5-MAINT

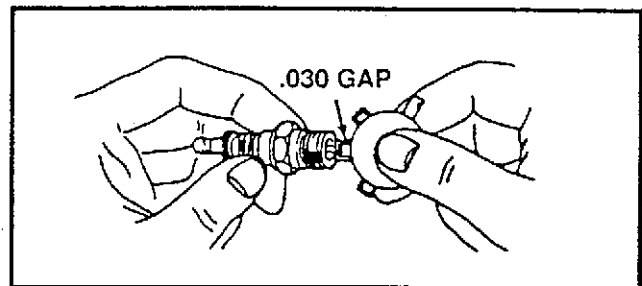


FIG. 6-MAINT



ALWAYS DISCONNECT THE SPARK PLUG WIRE AND TIE BACK AWAY FROM THE PLUG BEFORE MAKING ANY ADJUSTMENTS OR REPAIRS.

TO ADJUST SKID HEIGHT

This snow thrower is equipped with two height adjustment skids, located on the outside of the auger housing (See FIG. 1-SERV & ADJ). These skids elevate the front of the snow thrower.

For normal hard surfaces, such as a paved driveway or walk, adjust the skids as follows:

- Check both tires for equal inflation. Correct tire pressure is 14 to 17 pounds. Do not exceed sidewall maximum pressure on tire.
- Place the extra shear bolts supplied (found in parts bag) under each end of the scraper bar near but not under the skid.
- Loosen the skid mounting nuts (See FIG. 1-SERV & ADJ), and adjust the skids up to bring the front of the snow thrower down. Re-tighten the mounting nuts.
- Set the skid on the other side at the same height.

NOTE: For rocky or uneven surfaces, raise the front of the snow thrower by moving the skids down. This will help prevent rocks and other debris from being picked up and thrown by the auger.

TO ADJUST SCRAPER BAR

After considerable use, the metal scraper bar will have a definite wear pattern. The scraper bar in conjunction with the skids should always be adjusted to allow 1/8" between the scraper bar and the sidewalk or area to be cleaned.

- Position the snow thrower on a level surface.
- Make sure both tires are equally inflated. Proper tire pressure is 14 to 17 PSI. See side of tire for maximum inflation. Do not exceed sidewall maximum pressure on tire.
- Loosen the carriage bolts and nuts securing the scraper bar to the auger housing.
- Adjust the scraper bar to the proper position.
- Tighten the carriage bolts and nuts, making sure that the scraper bar is parallel with the working surface.
- For extended operation, the scraper bar may be reversed. If the scraper bar must be replaced due to wear, remove the carriage bolts and nuts and install a new scraper bar.

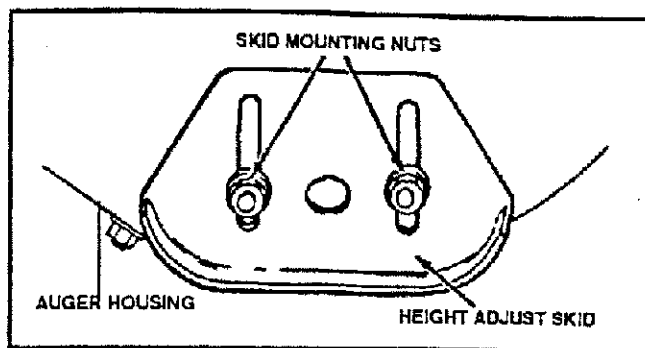


FIG. 1-SERV & ADJ



BE CERTAIN TO MAINTAIN PROPER GROUND CLEARANCE FOR YOUR PARTICULAR AREA TO BE CLEARED. OBJECTS SUCH AS GRAVEL, ROCKS OR OTHER DEBRIS, IF STRUCK BY THE IMPELLER, MAY BE THROWN WITH SUFFICIENT FORCE TO CAUSE PERSONAL INJURY, PROPERTY DAMAGE OR DAMAGE TO THE SNOW THROWER.

SERVICE AND ADJUSTMENTS

TO ADJUST THE CLUTCH CONTROL CABLES

Periodic adjustment of the cables may be required due to normal stretch and wear on the belts. To check for correct adjustment, the control lever must be in the full forward position, resting on the upper handle. The control cables are correctly adjusted when the center of the "Z" fitting is in the center of the hole in the cable pivot plate and there is no droop in the cable (See FIG. 3-SERV & ADJ).

If adjustment is necessary:

- Disconnect "Z" Fitting from cable pivot plate.
- Push the cable through the spring (See FIG. 4-SERV & ADJ) to expose the threaded portion of the cable.
- Hold the square end of the threaded portion with pliers and adjust the locknut in until the excess slack is removed (See FIG. 4-SERV & ADJ Inset).
- Pull the cable back through the spring and connect the cable.
- Do the same for the other lever cable, if needed.

NOTE: Whenever the traction drive or auger belts are adjusted or replaced, the cables will need to be adjusted.

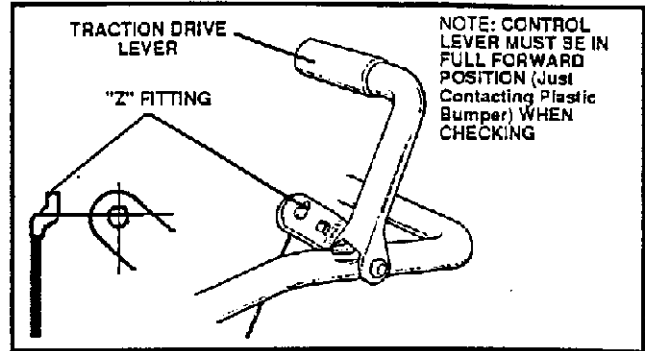


FIG. 3-SERV & ADJ

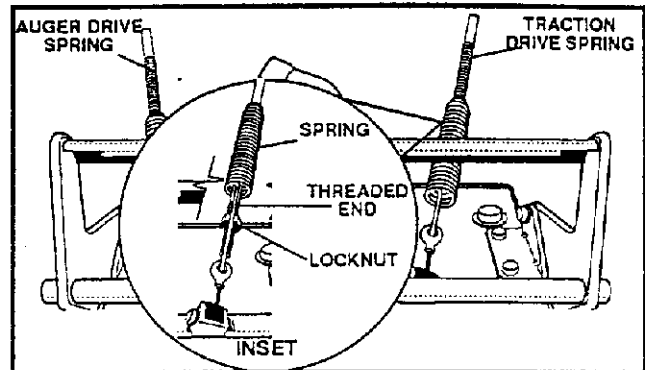


FIG. 4-SERV & ADJ

TO ADJUST BELT

AUGER DRIVE BELT (FIG. 6-SERV&ADJ)

If your snow thrower will not discharge snow, check the control cable adjustment. If it is correct, then check the condition of the auger drive belt. It may be loose or damaged. If it is damaged, replace it (See To Replace Belts paragraph in this section).

TRACTION DRIVE BELT (FIG. 6-SERV & ADJ)

The traction drive belt has constant spring pressure and does not require adjustment.

- Replace the traction drive belt if it is slipping (See To Replace Belts paragraph in this section).

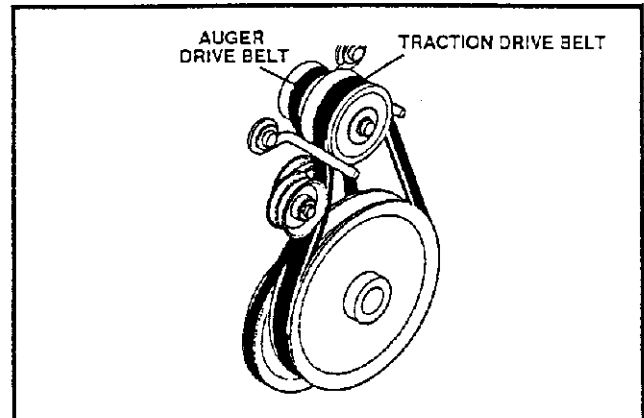


FIG. 6-SERV & ADJ

TO REPLACE BELTS

The drive belts on this snow thrower are of special construction and should be replaced with original equipment belts available from your nearest authorized service representative. A distributor's list is on the inside back cover of this manual.

You will need the assistance of a second person while replacing the belts.

Drain the gasoline from the fuel tank by removing the fuel line. Drain the gas and reinstall the fuel line.



**DRAIN THE GASOLINE OUTDOORS,
AWAY FROM FIRE OR FLAME.**

AUGER DRIVE BELT

If your snow thrower will not discharge snow, and the auger drive belt is damaged, replace it as follows:

- Disconnect the spark plug wire.
- Remove the belt cover (See FIG. 7-SERV & ADJ).
- Loosen the belt guides (See FIG. 8-SERV & ADJ) and pull away from the engine drive pulley.
- Loosen the nut on the idler pulley (See FIG. 8-SERV & ADJ) and pull idler pulley away from the belt.
- Remove belt from engine drive pulley.
- Remove top two bolts securing auger housing to motor mount frame. Loosen bottom two bolts (See FIG. 10-SERV & ADJ).
- Auger housing and motor mount frame will separate, hinged by bottom two bolts.
- Remove old belt from the auger drive pulley.
- Install new replacement belt of the same type onto the auger pulley.
- Position belt onto engine drive pulley.
- Adjust the auger drive belt (See To Adjust Auger Drive Belt paragraph in this section).
- Adjust the belt guides (See To Adjust The Belt Guides paragraph in this section).
- Replace top two bolts. Re-tighten bottom two bolts.
- Reinstall the belt cover.
- Check the clutch control cable adjustment (See To Adjust The Clutch Control Cables in this section).
- Reconnect the spark plug wire.

TRACTION DRIVE BELT (See FIG. 8-SERV & ADJ)

If your snow thrower will not move forward, check the traction drive belt for wear (Check other causes also in the Trouble Shooting Points section). If the traction drive belt needs to be replaced, proceed as follows:

- Disconnect the spark plug wire.
- Remove the belt cover.

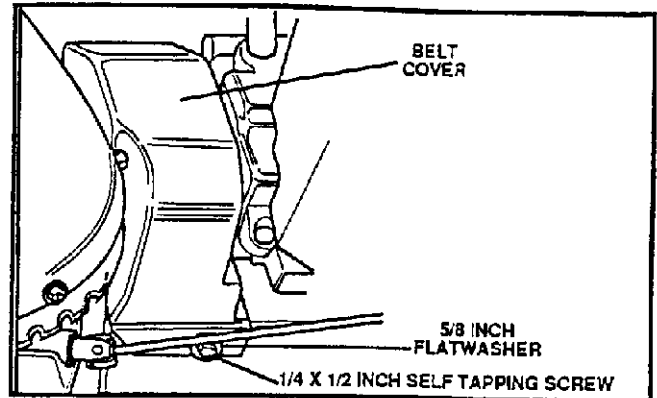


FIG. 7-SERV & ADJ

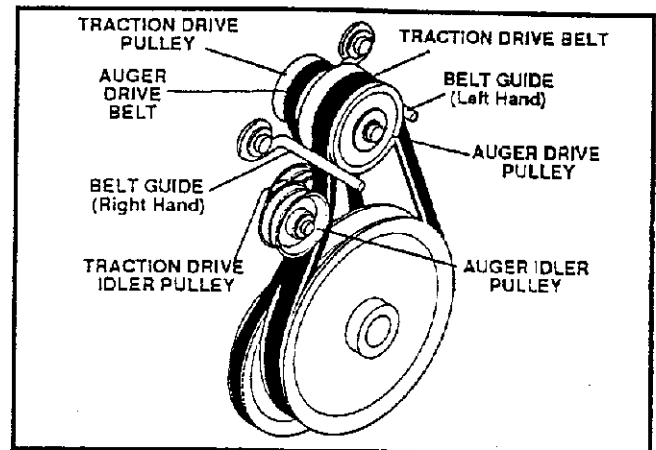


FIG. 8-SERV & ADJ

- Loosen belt guides and pull guides away from the engine drive pulley.
- Loosen nut on auger idler and pull auger idler pulley away from belt.
- Remove auger drive belt from engine pulley.
- Pull the traction drive belt idler pulley away from the traction drive belt.
- Remove traction drive belt.
- Position new replacement belt of the same type onto traction pulley.
- Pull idler pulley away from belt, allowing belt to be positioned onto engine pulley.
- Release idler pulley. Ensure idler pulley is properly engaged with belt.
- Reinstall auger drive belt.
- Adjust belt guides and tighten the mounting screws (See To Adjust The Belt Guides paragraph in this section).
- Reinstall the belt cover.
- Reconnect the spark plug wire.

SERVICE AND ADJUSTMENTS

TO ADJUST THE BELT GUIDES

There are two belt guides on your snow thrower, a left and right. After you replace the auger drive belt, you need to adjust one or both of the belt guides. Proceed as follows for each belt:

- Disconnect the spark plug wire.
- Remove the belt cover.
- Engage the auger drive clutch lever.
- Measure the distance between the belt guides and the belt (See FIG. 9-SERV & ADJ). The distance should be $3/32$ " for each guide.
- If adjustment is necessary, loosen the belt guide mounting bolts. Move the belt guides to the correct position. Tighten the mounting bolts.
- Reinstall the belt cover.
- Reconnect the spark plug wire.

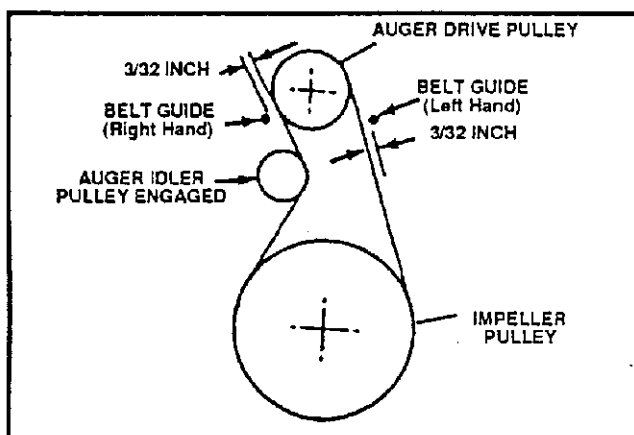


FIG. 9-SERV & ADJ

TO ADJUST THE FRICTION WHEEL

If the snow thrower will not move forward, you need to check the traction drive belt, the traction drive cable or the friction wheel. If the friction wheel is damaged, it will need to be replaced. (See To Replace Friction Wheel paragraph in this section). If the friction wheel is not worn, check the adjustment, as follows:

- Disconnect the spark plug wire.
- Drain the gasoline from the gas tank.
- Stand snow thrower on the auger housing end.
- Remove the bottom panel (See FIG. 10-SERV & ADJ).
- Position the shifter lever in first (1) gear.
- Note the position of the friction wheel on the disc drive plate. The right outer side of the disc drive plate should be 3" from the center of the friction wheel (See FIG. 11-SERV & ADJ).

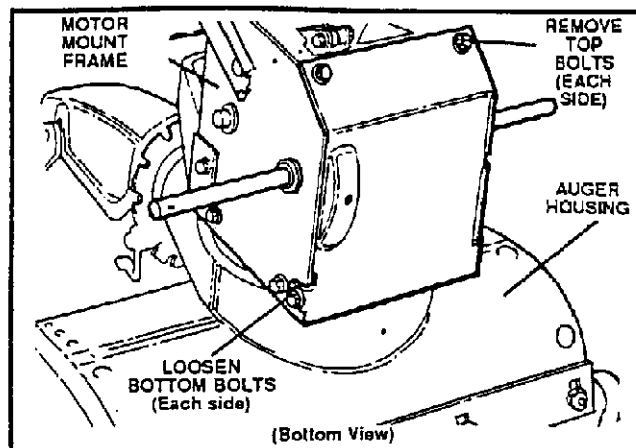


FIG. 10-SERV & ADJ

If adjustment is necessary:

- Loosen bolts in shift rod (See FIG. 12-SERV & ADJ).
- Move friction wheel to proper position as indicated in previous step (See FIG. 11-SERV & ADJ).
- Re-tighten bolts in shift rod.
- Reinstall the bottom panel.

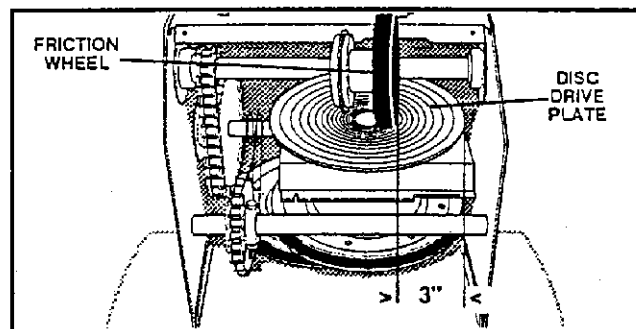


FIG. 11-SERV & ADJ

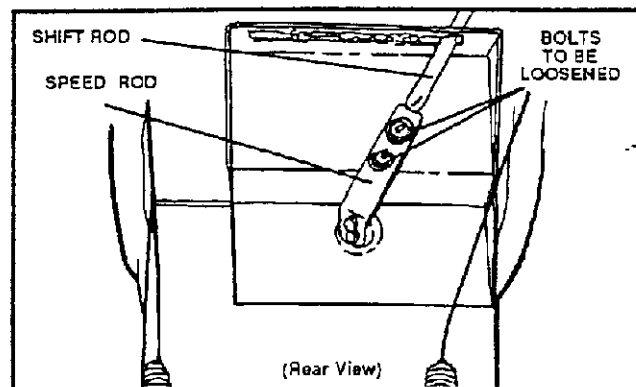


FIG. 12-SERV & ADJ

SERVICE AND ADJUSTMENTS

TO REPLACE FRICTION WHEEL

If the snow thrower will not move forward, and the friction wheel is worn or damaged, you need to replace it as follows: (First allow the engine to cool).



DRAIN GASOLINE OUTDOORS AWAY FROM FIRE OR FLAME.

- Drain the gasoline from the fuel tank by removing the fuel line. Drain the fuel and reinstall the fuel line.
- Disconnect the spark plug wire.
- Stand the snow thrower up on the auger housing end (See FIG. 15-SERV & ADJ).
- Remove the bottom panel (See FIG. 13-SERV & ADJ).
- Remove shift rod from speed rod (See FIG. 12-SERV & ADJ).
- Remove the three (3) fasteners (screws, lockwashers, and nuts) securing the friction wheel to hub (See FIG. 15-SERV & ADJ) and set fasteners aside.

NOTE: Note position of special washers and retaining ring on the hex shaft and sprocket assembly.

- Remove the four bolts securing the bearing plates (both sides).
- Remove right side bearing plate. Leave hex shaft in original position, and carefully raise hex shaft just until the friction wheel clears the frame enough to be removed.
- Remove friction wheel from hub. Slip friction wheel off hex shaft towards right side (See FIG. 14-SERV & ADJ).
- Position new friction wheel onto hub.
- Install bearing plates to original position. Ensure hex shaft is engaged with both bearing plates and special washers are intact.

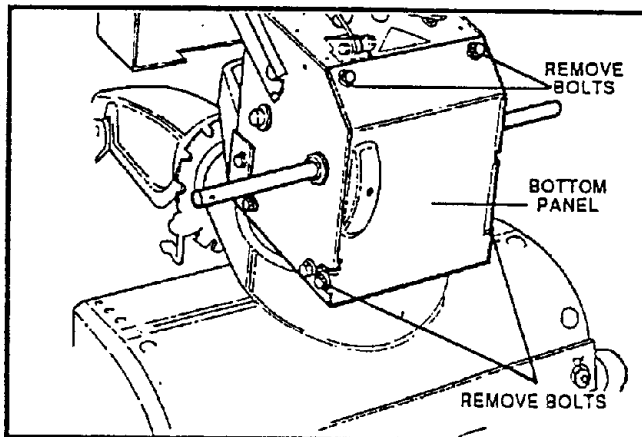


FIG. 13-SERV & ADJ

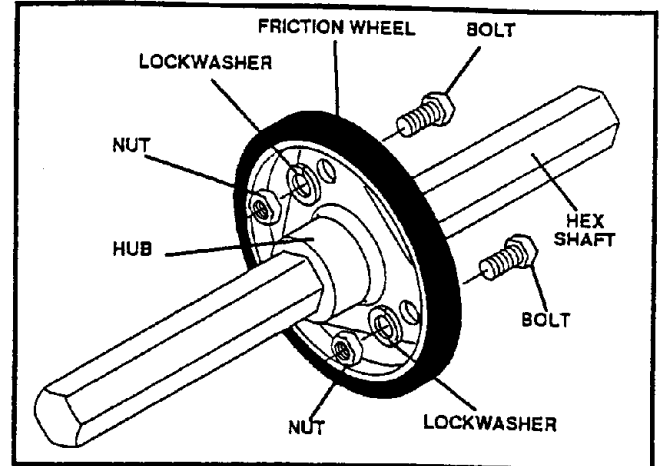


FIG. 14-SERV & ADJ

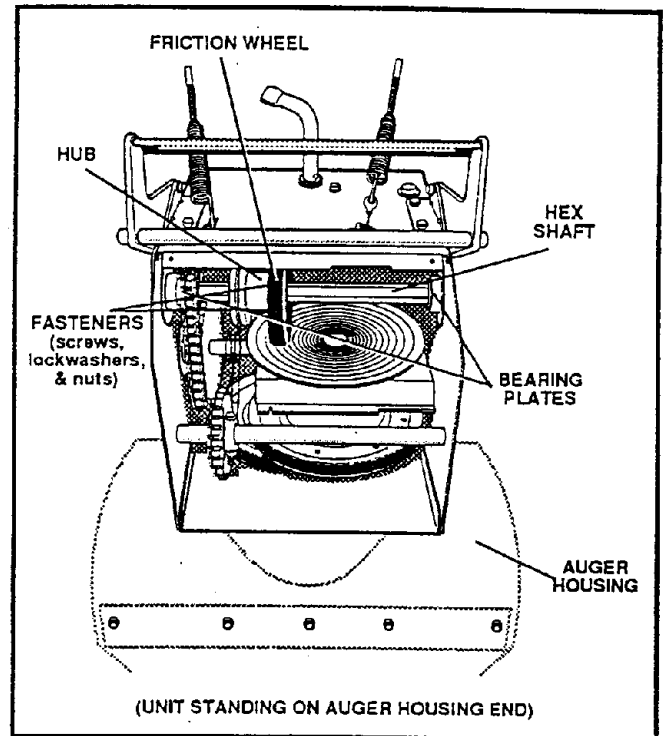


FIG. 15-SERV & ADJ

- Secure bearing plates using bolts removed earlier.
- Secure friction wheel to hub using fasteners removed earlier. Ensure hex shaft turns freely.
- Reinstall shift rod to speed rod.
- Should friction wheel require adjustment, (See To Adjust the Friction Wheel).

NOTE: Ensure friction wheel and friction disc are free from grease or oil.

- Replace bottom panel.
- Lower the snow thrower.


SERVICE AND ADJUSTMENTS

TO REPLACE AUGER SHEAR BOLT

The augers are secured to the auger shaft with special bolts (See FIG. 16-SERV & ADJ) that are designed to break (to protect the machine) if an object becomes lodged in the auger housing. Use of a harder bolt will destroy the protection provided by the shear bolt.

IMPORTANT: TO INSURE SAFETY AND LEVELS, ONLY ORIGINAL EQUIPMENT SHEAR BOLTS SHOULD BE USED. WHEN REPLACING SHEAR BOLTS, BE SURE TO REPLACE SHEAR BOLT SPACERS.

To replace a broken shear bolt, proceed as follows:

- Move the throttle to  "STOP" and turn off all controls.
- Disconnect the spark plug wire. Be sure all moving parts have stopped.
- Lubricate the auger shaft zerk fitting (See the Maintenance section in this manual).
- Align the hole in the auger with the hole in the auger shaft. Install the new shear bolt, shear bolt spacer, and locknut provided in parts bag.
- Reconnect the spark plug wire.

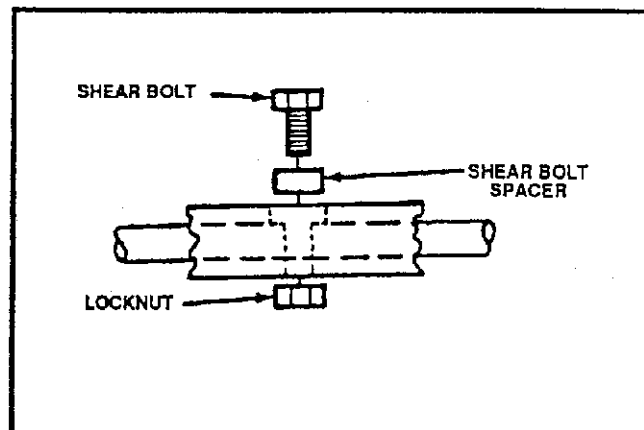


FIG. 16-SERV & ADJ

TO ADJUST CARBURETOR

The carburetor has been pre-set at the factory and readjustment should not be necessary. Take your snow thrower to an authorized TECUMSEH dealer for repair and adjustment.

IMPORTANT: NEVER TAMPER WITH THE ENGINE GOVERNOR, WHICH IS FACTORY SET FOR PROPER ENGINE SPEED. OVER-SPEEDING THE ENGINE ABOVE THE FACTORY HIGH SPEED SETTING CAN BE DANGEROUS. IF YOU THINK THE ENGINE-GOVERNED HIGH SPEED NEEDS ADJUSTING, TAKE YOUR SNOW THROWER TO AN AUTHORIZED TECUMSEH DEALER FOR REPAIR AND ADJUSTMENT.

TO ADJUST OR REPLACE THE SPARK PLUG

If you have difficulty starting your snow thrower, you may need to adjust or replace the spark plug. Follow the instructions below.

Replace the spark plug if the electrodes are pitted or burned or if the porcelain is cracked.

TO ADJUST:

- Clean the spark plug by carefully scraping the electrodes (do not sand blast or use a wire brush).
- Be sure the spark plug is clean and free of foreign material. Check the electrodes gap (See FIG. 17-SERV & ADJ) with a wire feeler gauge and reset the gap to .030 inch if necessary.

TO REPLACE:

- Remove the spark plug wire.
- Clean the area around the plug base to prevent dirt from entering the engine when the plug is removed.
- Remove the spark plug. If it is cracked, fouled or dirty, it must be replaced.
- Set the gap between the electrodes of the new spark plug at .030 inch. Next, install the spark plug in the cylinder head. Tighten the plug to 18 to 23 foot pounds. If you do not use a torque wrench, tighten the plug firmly (See FIG. 17-SERV & ADJ).

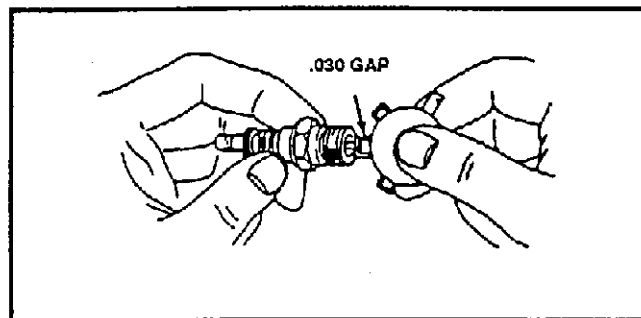


FIG. 17-SERV & ADJ



CAUTION: NEVER STORE THE ENGINE WITH FUEL IN THE TANK INDOORS OR IN AN ENCLOSED, POORLY VENTILATED AREA WHERE FUEL FUMES MAY REACH AN OPEN FLAME, SPARK OR PILOT LIGHT AS ON A FURNACE, WATER HEATER, CLOTHES DRYER, ETC.

NOTE: Immediately prepare your snow thrower for storage at the end of the season or if the unit will not be used for 30 days or more.

SNOW THROWER

Thoroughly clean the snow thrower.

- Lubricate all lubrication points (See the Maintenance section).
- Be sure that all nuts, bolts and screws are securely fastened. Inspect all visible moving parts for damage, breakage and wear. Replace if necessary.
- Touch up all rusted or chipped paint surfaces; sand lightly before painting.
- Cover the bare metal parts of the blower housing auger and the impeller with rust preventative, such as sprayable lubricant.

NOTE: A yearly checkup or tuneup by a authorized Service Center is a good way to insure that your snow thrower will provide maximum performance for the next season.

ENGINE

IMPORTANT: EMPTYING THE FUEL SYSTEM BEFORE STORAGE IS IMPORTANT TO PREVENT GUM DEPOSITS FROM FORMING IN ESSENTIAL FUEL SYSTEM PARTS SUCH AS THE CARBURETOR, FUEL FILTER, FUEL HOSE OR TANK DURING STORAGE. ALSO, EXPERIENCE INDICATES THAT ALCOHOL BLENDED FUELS (CALLED GASOHOL OR USING ETHANOL OR METHANOL) CAN ATTRACT MOISTURE WHICH LEADS TO SEPARATION AND FORMATION OF ACIDS DURING STORAGE. ACIDIC GAS CAN DAMAGE THE FUEL SYSTEM OF AN ENGINE WHILE IN STORAGE.

- Drain the gasoline from the fuel tank by removing the fuel line. Drain the fuel and reinstall the fuel line.



CAUTION: DRAIN FUEL INTO APPROVED CONTAINER OUTDOORS, AWAY FROM OPEN FLAME.

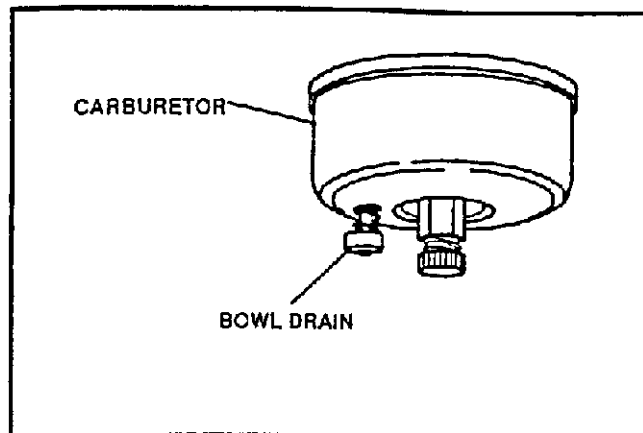



FIG. 1-STORAGE

- Start the engine and run at  **SLOW (Idle)** speed until the engine stops from lack of fuel.
- Drain the carburetor by pressing upward on the bowl drain (See FIG. 1-STORAGE), located below the carburetor cover.

NOTE: Fuel stabilizer (such as STA-BIL) is an acceptable alternative in minimizing the formation of fuel gum deposits during storage. Add stabilizer to gasoline in the fuel tank or storage container. Always follow the mix ratio found on stabilizer container. Run the engine at least 10 minutes after adding stabilizer to allow the stabilizer to reach the carburetor. Do not drain the gas tank and carburetor if using fuel stabilizer.

- Remove the spark plug and squirt one (1) ounce of engine oil into the cylinder. **NOTE:** Cover the spark plug hole with a rag to absorb oil spray. Pull the recoil starter rope slowly, allowing the piston to coat the internal engine parts. Install an old spark plug. This prevents fouling a new plug with the preservative used to lubricate the internal parts of the engine. Close the choke and plug the muffler opening.

OTHER

- If possible, store your snow thrower indoors and cover it to give protection from dust and dirt.
- If the machine must be stored outdoors, block up the snow thrower to be sure the entire machine is off the ground.
- Cover the snow thrower with a suitable protective cover that does not retain moisture. Do not use plastic.

IMPORTANT: NEVER COVER SNOW THROWER WHILE ENGINE AND EXHAUST AREAS ARE STILL WARM.

TROUBLE SHOOTING POINTS

TROUBLE	CAUSE	CORRECTION
Difficult starting	Defective spark plug.	Replace defective plug.
	Water or dirt in fuel system.	Use carburetor bowl drain to flush and refill with fresh fuel.
Engine runs erratic	Blocked fuel line or empty gas tank or stale gasoline.	Clean fuel line; check fuel supply; add fresh gasoline.
Engine stalls	Unit running on CHOKE.	Set choke lever to RUN position.
Engine runs erratic; Loss of power	Water or dirt in fuel system.	Use carburetor bowl drain to flush and refill with fresh fuel.
	Carburetor out of adjustment.	Adjust carburetor.
Excessive vibration	Loose parts; damaged impeller.	Stop engine immediately and disconnect spark plug wire. Tighten all bolts and make all necessary repairs. If vibration continues, have the unit serviced by a competent repairman.
Unit fails to propel itself	Drive belt loose or damaged.	Replace drive belt.
	Incorrect adjustment of traction drive cable.	Adjust traction drive cable.
	Worn or damaged friction wheel.	Replace friction wheel.
Unit fails to discharge snow	Auger drive belt loose or damaged.	Adjust auger drive belt; replace if damaged.
	Auger control cable not adjusted correctly.	Adjust auger control cable.
	Shear bolt broken.	Replace shear bolt.
	Discharge chute clogged.	Stop engine immediately and disconnect spark plug wire. Clean discharge chute and inside of auger housing.
	Foreign object lodged in auger.	Stop engine immediately and disconnect spark plug wire. Remove object from auger.

PARTS CATALOG

To obtain a parts catalog send a check or money order for \$2.00 per parts book made payable to ECHO, INCORPORATED and state on a sheet of paper the model number, parts list part number, your name and address and mail to:

ECHO, INCORPORATED
400 Oakwood Rd.
Lake Zurich, IL 60047

If you require additional parts books, you may order them by writing down the model number and serial number of the ECHO unit you have along with \$2.00 per parts book.

Model#	Parts List Part#
ST-5024	999222 02809

ECHO, INCORPORATED
400 OAKWOOD ROAD
LAKE ZURICH, IL 60047
PHONE: (847) 540-8400

999222 02807

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