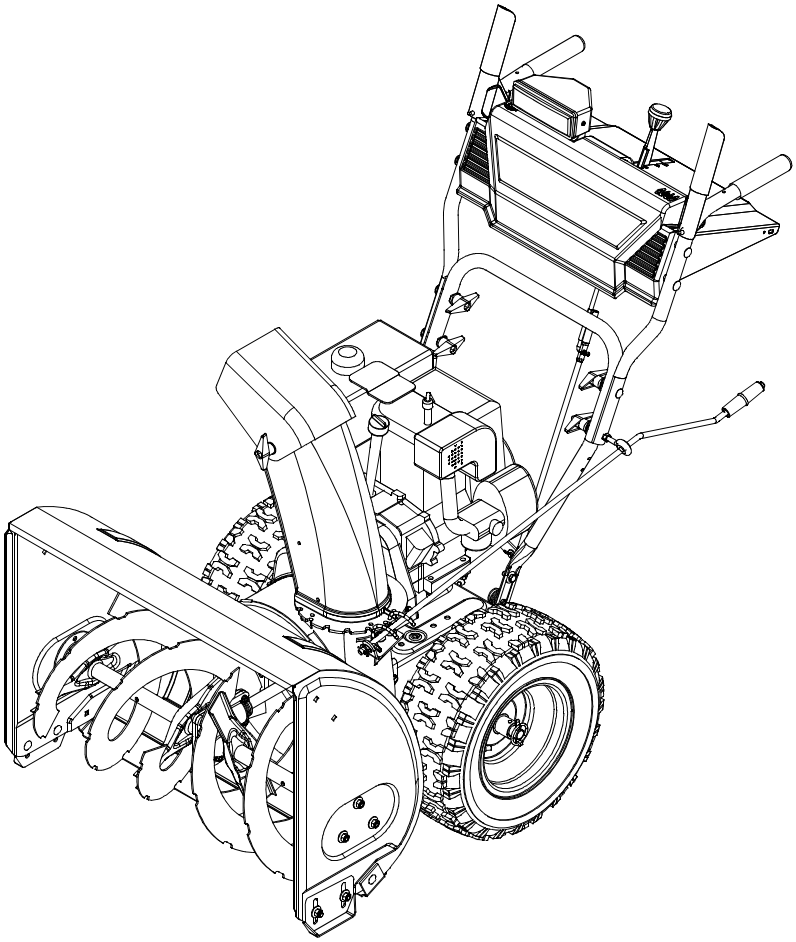
YARD MACHINES by MTD

OPERATOR'S MANUAL



SNOW THROWER

MODELS
E600E, E610E
E640F, E660G
E6C0F

MTD For A Growing World.

IMPORTANT: READ SAFETY RULES AND INSTRUCTIONS CAREFULLY

Warning: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 368022 Cleveland, Ohio 44136-9722.

MTD PRODUCTS INC. P.O. BOX 368022 CLEVELAND, OHIO 44136-9722

PRINTED IN U.S.A.

FORM NO. 770-10167A
6/99

SECTION 1: FINDING YOUR MODEL NUMBER

This Operator's Manual is an important part of your new snow thrower. It will help you assemble, prepare and maintain the unit for best performance. Please read and understand what it says.

Before you start to prepare your snow thrower, please locate the model plate on the equipment and copy the information from it to the space provided below. The information on the model plate is very important if you need help from an authorized dealer or our Customer Support Department.

- You can locate the model number by standing behind the unit in the operating position and looking down at the rear frame below the engine. A sample model plate is shown below. See Figure 1.

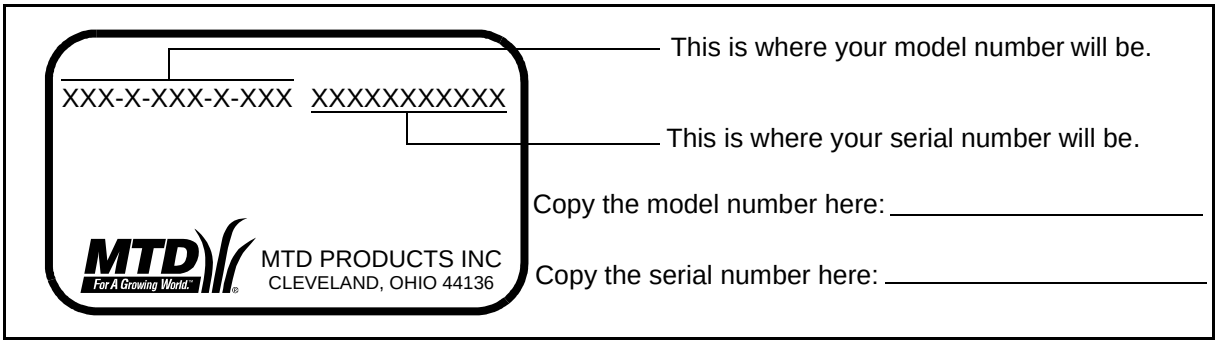


Figure 1

SECTION 2: CALLING CUSTOMER SUPPORT

- **LOCATE YOUR MODEL NUMBER AND SERIAL NUMBER —** Record this information in the space provided. To find your unit's specific model number and serial number, see SECTION 1: FINDING YOUR MODEL NUMBER.
- If you are having difficulty assembling this product or if you have any questions regarding the controls, operation or maintenance of this unit, please call the Customer Support Department.
- Customer Support can be reached by dialing: **1- (330) 220-4MTD (4683)**
  or
  1- (800)-800-7310
- Please have your model number and serial number ready when you call.
- Although both numbers are important, you will be asked to enter only your ***serial*** number before your call can be processed.

SECTION 3: IMPORTANT SAFE OPERATION PRACTICES

WARNING: THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH, IF NOT FOLLOWED, COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO OPERATE YOUR SNOW THROWER. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY. WHEN YOU SEE THIS SYMBOL, HEED ITS WARNING.

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

DANGER: Your snow thrower was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. If you violate any of these rules, you may cause serious injury to yourself or others.

1. TRAINING

- Read this operator's manual carefully in its entirety before attempting to assemble or operate this machine. Be completely familiar with the controls and the proper use of this machine before operating it. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
- Never allow children under 14 years old to operate a snow thrower. Children 14 years old and over should only operate snow thrower under close parental supervision. Only persons well acquainted with these rules of safe operation should be allowed to use your snow thrower.
- No one should operate this unit while intoxicated or while taking medication that impairs the senses or reactions.
- Keep the area of operation clear of all persons, especially small children and pets.
- Exercise caution to avoid slipping or falling, especially when operating in reverse.

2. PREPARATION

- Thoroughly inspect the area where the equipment is to be used and remove all door mats, sleds, boards, wires and other foreign objects.
- Disengage all clutches and shift into neutral before starting engine.
- Do not operate equipment without wearing adequate winter outer garments. Do not wear jewelry, long scarfs or other loose clothing which could become entangled in moving parts. Wear footwear which will improve footing on slippery surfaces.
- Before working with gasoline, extinguish all cigarettes and other sources of ignition. Check the fuel before starting the engine. Gasoline is an extremely flammable fuel. Do not fill the gasoline tank indoors, while the engine is running, or until engine has been allowed to cool at least two minutes. Replace gasoline cap securely and wipe off any spilled gasoline before starting the engine as it may cause a fire or explosion.
- Use a grounded three wire plug-in for all units with electric drive motors or electric starting motors.
- Adjust collector housing height to clear gravel or crushed rock surface.
- Never attempt to make any adjustments while engine is running (except where specifically recommended by manufacturer).
- Let engine and machine adjust to outdoor temperature before starting to clear snow.
- 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 machine in any direction.

3. OPERATION

- Do not put hands or feet near or under rotating parts. Keep clear of discharge opening and auger at all times.
- Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic. Do not carry passengers.
- After striking a foreign object, stop the engine, remove wire from spark plug, and thoroughly inspect the snow thrower for any damage. Repair the damage before restarting and operating the snow thrower.
- If the snow thrower should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
- Stop engine whenever you leave the operating position, before unclogging the collector/impeller housing or discharge guide, and making any

repairs, adjustments, or inspections. Never place your hand in the discharge or collector openings. Use a stick or wooden broom handle to unclog the discharge opening.

- Take all possible precautions when leaving the unit unattended. Disengage the collector/impeller, shift into neutral, stop the engine, and remove the key.
- When cleaning, repairing, or inspecting, make certain collector/impeller and all moving parts have stopped. Disconnect spark plug wire and keep away from plug to prevent accidental starting.
- Do not run engine indoors, except when starting engine and transporting snow thrower in or out of building. Open doors. Exhaust fumes are dangerous.
- Do not clear snow across the face of slopes. Exercise extreme caution when changing direction on slopes. Do not attempt to clear steep slopes.
- Never operate snow thrower without guards, plates, or other safety protection devices in place.
- Never operate snow thrower near glass enclosure, automobiles, window wells, drop off, etc., without proper adjustments of snow thrower discharge angle. Keep children and pets away.
- Do not overload machine capacity by attempting to clear snow at too fast a rate.
- Never operate the machine at high transport speeds on slippery surfaces. Look behind and use care when backing.
- Never direct discharge at bystanders or allow anyone in front of unit.
- Disengage power to collector/impeller when transporting or not in use.
- Use only attachments and accessories approved by the manufacturer of snow thrower (such as wheel weights, counter weights, cabs, 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.
- Muffler and engine become hot and can cause a burn. Do not touch.

4. MAINTENANCE AND STORAGE

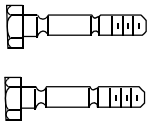
- Check shear bolts, engine mounting bolts, etc., at frequent intervals for proper tightness to be sure equipment is in safe working condition.
- Never store the machine with fuel in the fuel tank inside a building where ignition sources are present, such as hot water and space heaters, clothes dryers, and the like. Allow engine to cool before storing in any enclosure.
- Always refer to operator's manual instructions for important details if snow thrower is to be stored for an extended period.
- Run machine a few minutes after throwing snow to prevent freeze up of collector/impeller.
- Check clutch controls periodically to verify they engage and disengage properly and readjust if necessary. Refer to operator's manual for adjustment instructions.

WARNING - YOUR RESPONSIBILITY: Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.

Figure 2

SECTION 4: ASSEMBLY

AUGER SHEAR BOLTS (SPARES)



Shear Bolts (710-0890A)

Hex Lock Nuts 5/16" Thread (712-0429)

NOTE: The augers are secured to the spiral shaft with two shear bolts and hex lock nuts. If you hit a hard foreign object or ice jam, the snow thrower is designed so that the bolts may shear. Two replacement shear bolts and nuts are provided for your convenience. Store in a safe place until needed.

IMPORTANT: NEVER replace the auger shear bolts with standard hex bolts. Any damage to the auger gearbox or other components as a result of doing so will NOT be covered by your snow thrower's warranty.

UNPACKING

1. Remove the screws from the top, sides and ends of the shipping crate.
2. Set top panel aside to avoid tire punctures or personal injury.
3. Remove and discard plastic bag that covers unit.
4. Carefully roll unit out of crate.

IMPORTANT: After assembly, service engine with gasoline, and check oil level as instructed in the separate engine manual packed with your unit.

NOTE: All references to right or left side of the snow thrower are determined from behind the unit in the operating position.

ASSEMBLY

1. Remove the **lower** two plastic wing nuts, cupped washers and carriage bolt (eyebolt on the left side) from the lower handle. See Figure 3.
2. Raise the upper handle assembly until it aligns with lower handle.
3. Be sure both cables are aligned with cable roller guides located in the lower rear of snow thrower frame.
4. Secure the upper handle and lower handle with the plastic wing nuts, cupped washers, and carriage bolt (eyebolt on the left side) previously removed.

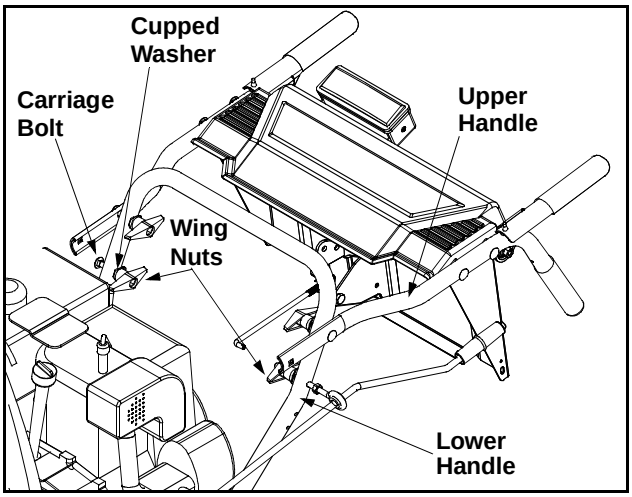


Figure 3

5. Adjust the eyebolt on the chute directional control so the control rod does not come into contact with the engine by moving the hex nut against the handle (if necessary). Retighten the wing nut to secure the chute directional control in this position. See Figure 4.
6. Slide the shift rod connector down over the end of the lower shift rod. Tap the top of connector until it **locks** on the lower shift rod.

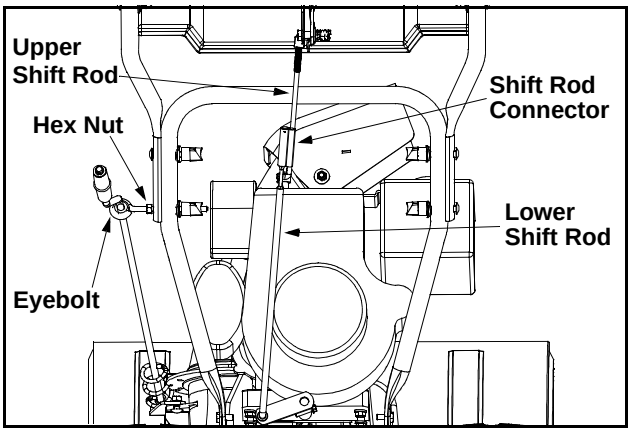


Figure 4

NOTE: If the connector is not properly assembled, the shift rod will pivot and you will not be able to shift gears or change directions.

7. Unwrap the headlight wire which is attached to the headlight, beneath the handle panel. Wind it around the right handle several times to remove excess slack in the wire. See Figure 5.
8. Plug the wire from the headlight into the wire lead coming from the right side of the engine, underneath the fuel tank.

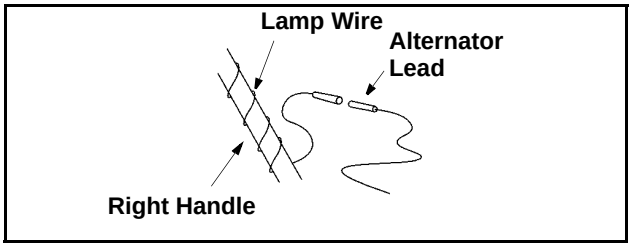


Figure 5

FINAL ADJUSTMENTS

Auger Control Adjustment

To check the adjustment of the auger control, push forward on the left hand control, depressing the rubber bumper on end of control. There should be slack in the cable. Release the control. The cable should be straight. Make certain you can depress the auger control against the left handle completely.

If necessary, loosen the hex lock nut and thread the cable in (for less slack) or out (for more slack) as necessary. Recheck the adjustment. Tighten the lock nut against the cable when correct adjustment is reached. See Figure 6.

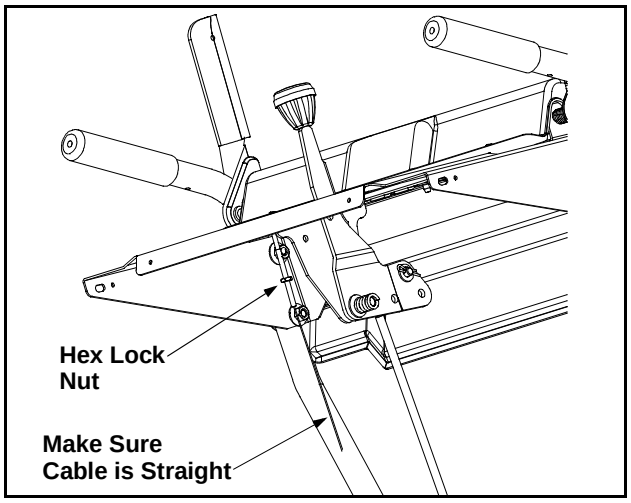


Figure 6

Traction Control and Shift Lever Adjustment

To check the adjustment of the traction control and shift lever, move the shift lever all the way forward to sixth (6) position. With the traction control released, push the snow thrower forward. The unit should roll forward. Then engage the traction control grip. The wheels should stop turning.

Now release the traction control, and push the unit again. Move the shift lever back to the fast reverse position, then all the way forward again. There should be no resistance in the shift lever, and the wheels should keep turning.

If you have resistance when moving the shift lever or the wheels stop when they should not, loosen the jam nut on the traction control cable and unthread the cable one turn. If the wheels do not stop when you engage the traction control grip, loosen the jam nut on the traction control cable and thread the cable in one turn. Recheck the adjustment and repeat as necessary. Tighten the jam nut to secure the cable when correct adjustment is reached.

NOTE: If you are uncertain that you have reached the correct adjustment, refer to SECTION 6: ADJUSTMENTS.

SKID SHOE ADJUSTMENT

The space between the shave plate and the ground can be adjusted by adjusting the skid shoes.

1. Place skid shoes in the low position to remove snow close to the ground. Place skid shoes in a higher position to remove snow from uneven ground. See Figure 7.
2. Adjust skid shoes by loosening the four hex nuts and carriage bolts and moving skid shoes to desired position. Make certain the entire bottom surface of skid shoe is against the ground to avoid uneven wear on the skid shoes. Retighten nuts and bolts securely.

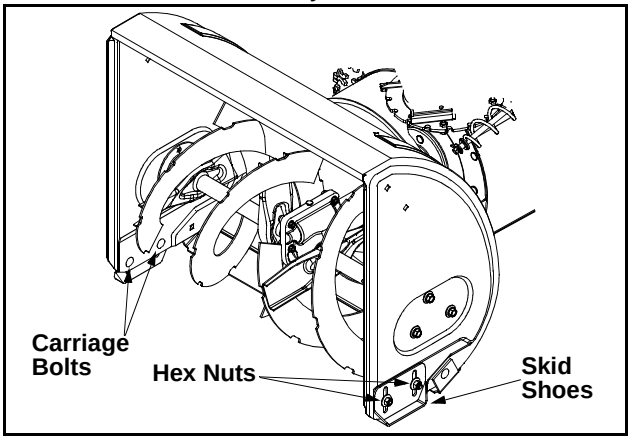


Figure 7

TIRE PRESSURE (Pneumatic Tires)

The tires are over-inflated for shipping purposes. Check tire pressure and reduce to 15 to 20 psi.

NOTE: If the tire pressure is not equal in both tires, the unit may pull to one side or the other.

SECTION 5: OPERATION

OPERATING CONTROLS

SHIFT LEVER

The shift lever is located in the center of the handle panel. The shift lever may be moved into one of eight positions. Run engine with throttle in the fast position. Use the shift lever to determine ground speed. See Figure 8.

Forward - There are six speeds. Position number one (1) is the slowest. Position number six (6) is the fastest.

Reverse - There are two reverse (R) speeds. “R” closest to the operator (all the way back) is the faster of the two.

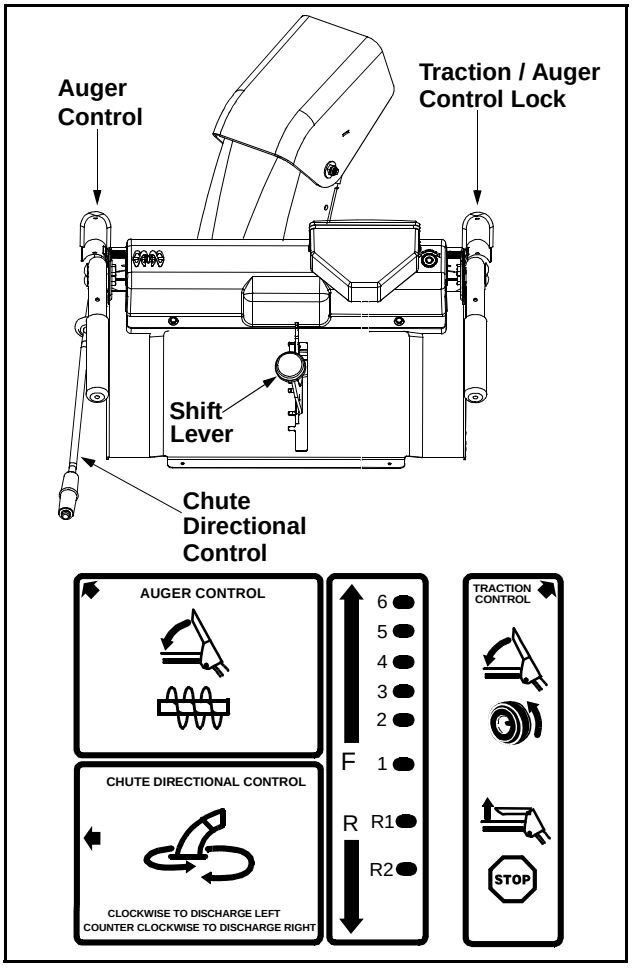


Figure 8

AUGER CONTROL

The auger control is located on the left handle. Squeeze the control to engage the augers. Release to stop the snow throwing action. (Traction control must also be released.) See Figure 8.

TRACTION / AUGER CONTROL LOCK

The traction control is located on the right handle. Squeeze the control to engage the wheel drive. Release to stop.
This same control also locks the auger control so you can turn the chute directional control without interrupting the snow throwing process. If the auger control is engaged with the traction control engaged, the operator can release the auger control (on the left handle) and the augers will remain engaged. Release the traction control to stop both the augers and wheel drive (auger control must also be released). See Figure 8.

CHUTE DIRECTIONAL CONTROL

The chute directional control is located on left hand side of the snow thrower. See Figure 8.
To change the direction in which snow is thrown, turn chute directional control as follows:

1. Crank clockwise to discharge to the left.
2. Crank counterclockwise to discharge to the right.

SAFETY IGNITION SWITCH

The ignition key must be inserted in the switch before the unit will start. Remove the ignition key when snow thrower is not in use. See Figure 10.

FUEL SHUT-OFF VALVE

The fuel shut-off valve, located under fuel tank, controls fuel flow from tank. (If equipped) See Figure 9.

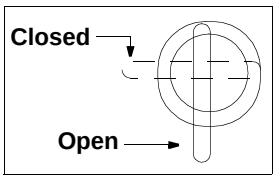


Figure 9

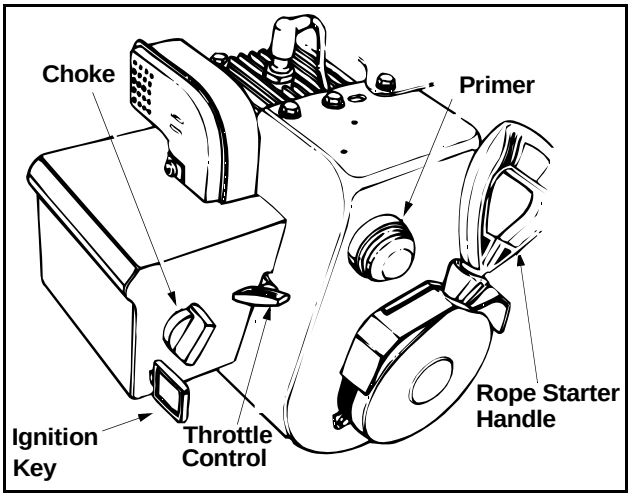


Figure 10

THROTTLE CONTROL

The throttle control is located on the engine. It regulates the speed of the engine. See Figure 10.

BEFORE STARTING

WARNING: Observe all Warning Labels on the snow thrower prior to use. See Figure 2.

Your snow thrower is shipped with oil; however, you must check the oil level before operating. Be careful not to overfill.

The spark plug wire was disconnected for safety. Attach spark plug wire to spark plug before starting.

GAS AND OIL FILL-UP

Check oil level and add oil if necessary. Service the engine with gasoline as instructed in the separate engine manual packed with your snow thrower. Read instructions carefully.

WARNING: Never fill fuel tank indoors. Never fill fuel tank with engine running or while engine is hot. Do not smoke when filling fuel tank.

TO START ENGINE

1. Attach spark plug wire to spark plug. Make certain the metal loop on end of the spark plug wire (inside the boot) is fastened securely over the metal tip on the spark plug. See Figure 11.

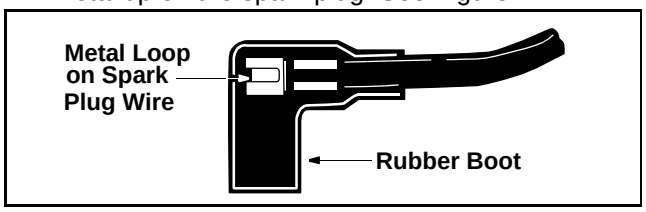


Figure 11

2. Make certain the fuel shut-off valve is in the OPEN (vertical) position.
3. Make certain the auger and traction controls are in the disengaged (released) position.
4. Move throttle control up to FAST position. Insert ignition key into slot. Be certain it snaps into place. Do not turn key. See Figure 12.

Note: Engine will not start unless ignition key is inserted into ignition slot in carburetor cover. Do not turn ignition key.

Recoil Starter:

5. Rotate choke knob to FULL choke position (cold engine start).
6. If engine is warm, place choke in OFF position instead of FULL.
7. Push primer button three or four times for cold engine start.
8. If engine is warm, push primer button once only.

NOTE: Always cover vent hole in primer button when pushing. Additional priming may be necessary for first start if temperature is below 15 degrees Fahrenheit.

9. Grasp starter handle and pull rope out slowly, until it pulls slightly harder. Let rope rewind slowly.
10. Pull starter handle rapidly. Do not allow handle to snap back. Allow it to rewind slowly while keeping a firm hold on the starter handle.
11. Repeat step 10 until engine starts.
12. As engine warms up and begins to operate evenly, rotate choke knob slowly to OFF position. If engine falters, return to FULL choke, then slowly move to OFF position.

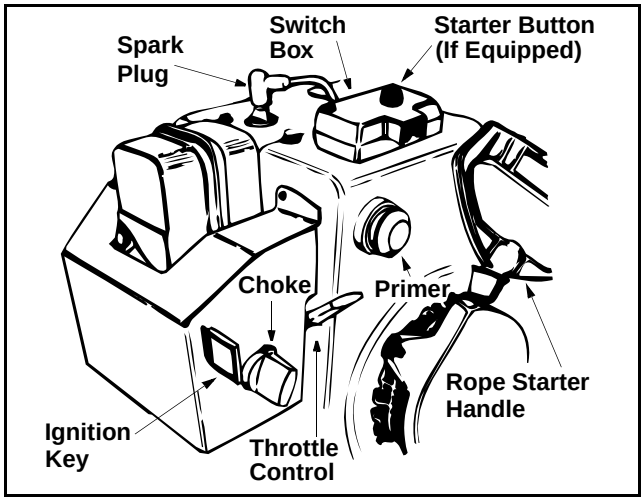


Figure 12

Electric Starter: (If Equipped)

WARNING: The electric starter is equipped with a three-wire power cord and plug, and is designed to operate on 120 volt AC household current. It must be properly grounded at all times to avoid the possibility of electric shock which may cause injury to the operator.

Follow all instructions carefully. Determine that your house wiring is a three wire grounded system. Ask a licensed electrician if you are not certain. If your house wiring system is not a three-wire grounded system, do not use this electric starter under any conditions. If your system is grounded and a three-hole receptacle is not available at the point your starter will normally be used, one should be installed by a licensed electrician.
When connecting the power cord, always connect cord to starter on engine first, then plug the other end into a three-hole grounded receptacle.

When disconnecting the power cord, always unplug the end from the three-hole grounded receptacle first.

1. Rotate choke knob to OFF position. **Do not prime engine.**
2. Connect power cord to switch box on engine. Plug the other end of power cord into a three-hole, grounded 12-volt AC receptacle.
3. Push starter button to crank engine. As you crank the engine, move choke knob to FULL choke position. (cold engine start) See Figure 12.
4. When engine starts, release starter button, and move choke gradually to OFF. If engine falters, move choke immediately to FULL and then gradually to OFF.

TO STOP ENGINE

1. Run engine for a few minutes before stopping to help dry off any moisture on the engine.
2. To help prevent possible freeze up of starter, proceed as follows.
   - **Electric Starter:** Connect power cord to switch box on engine, then to 120 volt AC receptacle. With the engine running, push starter button and spin the starter for several seconds. The unusual sound made by spinning the starter will not harm engine or starter. Disconnect the power cord from receptacle first, and then from switch box.
   - **Recoil Starter:** With engine running, pull starter rope with a rapid, continuous full arm stroke three or four times. Pulling the starter rope will produce a loud clattering sound, which is not harmful to the engine or starter.
3. To stop engine, move throttle control to **STOP** or **OFF** position.
4. Remove the ignition key. Do not turn key. Disconnect the spark plug wire from the spark plug to prevent accidental starting while equipment is unattended.

NOTE: Do not lose the ignition key. Keep it in a safe place. Engine will not start without the ignition key.

5. Wipe all snow and moisture from the carburetor cover in the area of the control levers. Also, move control levers back and forth several times.

TO ENGAGE DRIVE

1. With the engine running near top speed, move shift lever into one of the five FORWARD positions or two REVERSE positions. Select a speed appropriate for the snow conditions. Use the slower speeds until you are familiar with the operation of the snow thrower.
2. Squeeze the auger control and the augers will turn. Release it and the augers will stop.
3. Squeeze the traction control and the snow thrower will move. Release it and drive motion will stop.
4. NEVER move shift lever without releasing traction control.

TO ENGAGE AUGERS

To engage the augers and start the snow throwing action, squeeze the auger control against the left handle. Release to stop the augers.

TIRE CHAINS (Optional Equipment)

Tire chains should be used whenever extra traction is needed.

OPERATING TIPS

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

WARNING: Temperature of muffler and surrounding areas may exceed 150 degrees Fahrenheit. Avoid these areas.

1. For most efficient snow removal, remove snow immediately after it falls.
2. Discharge snow downwind whenever possible. Slightly overlap each previous path.
3. Set the skid shoes 1/4" below the scraper bar for normal usage. The skid shoes may be adjusted upward for hard-packed snow. Adjust downward when using on gravel or crushed rock.
4. Be certain to follow the precautions listed under **TO STOP ENGINE** to prevent possible freeze-up.
5. Clean the snow thrower thoroughly after each use.

SECTION 6: ADJUSTMENTS

WARNING: NEVER attempt to clean chute or make any adjustments while engine is running. Refer to label in Figure 2 in safety section.

CHUTE ASSEMBLY ADJUSTMENT

The distance snow is thrown can be adjusted by adjusting the angle of the chute assembly. The sharper the angle, the shorter the distance snow is thrown. See Figure 13.
To adjust chute assembly, loosen the hand knob. Pivot the top of the chute assembly to position desired. Retighten the hand knob.

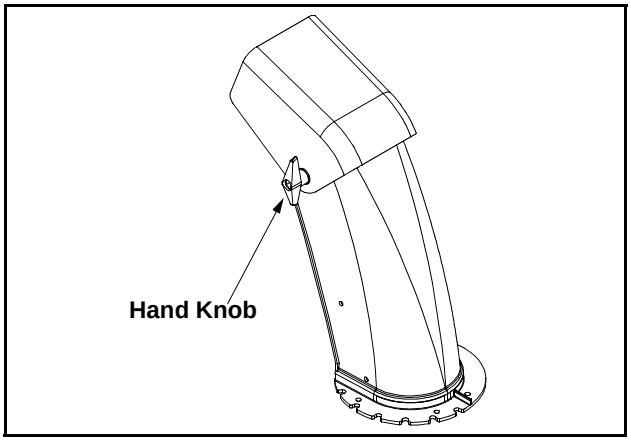


Figure 13

Chute Directional Control Support Bracket Adjustment

If the spiral at the base of the chute directional control isn't fully engaging with the notches in the lower chute assembly, the support bracket can be adjusted inward or outward as follows:

1. Loosen, but do NOT remove the two hex nuts which secure the chute directional control support bracket to the snow thrower housing. See Figure 14.

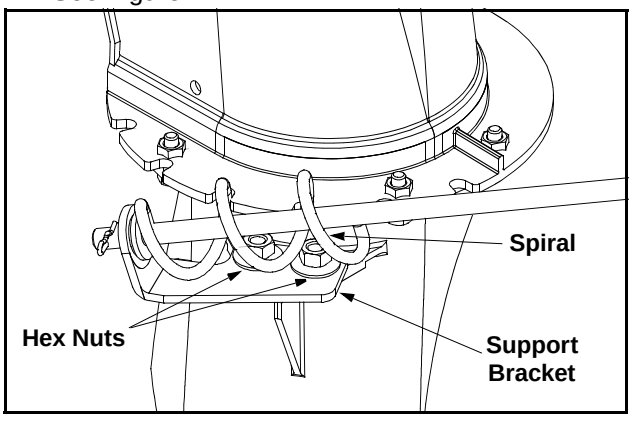


Figure 14

2. Adjust the support bracket inward or outward so that the spiral is fully engaged in the notches on the chute before retightening the hex nuts.

AUGER CONTROL ADJUSTMENT

To adjust the auger control, refer to **FINAL ADJUSTMENTS** in SECTION 4: ASSEMBLY.

SHIFT ROD ADJUSTMENT

1. Remove hairpin clip and slide shift rod connector up to separate upper and lower shift rod. See Figure 15.
2. Place shift lever in sixth (6) position or fastest forward speed.
3. Rotate shift arm assembly counter clockwise as far as it will go.
4. Thread the upper shift rod on the ferrule to align upper shift rod elbow with lower shift rod hole.
5. Insert cotter pin and slide shift rod connector down. Tap to secure.

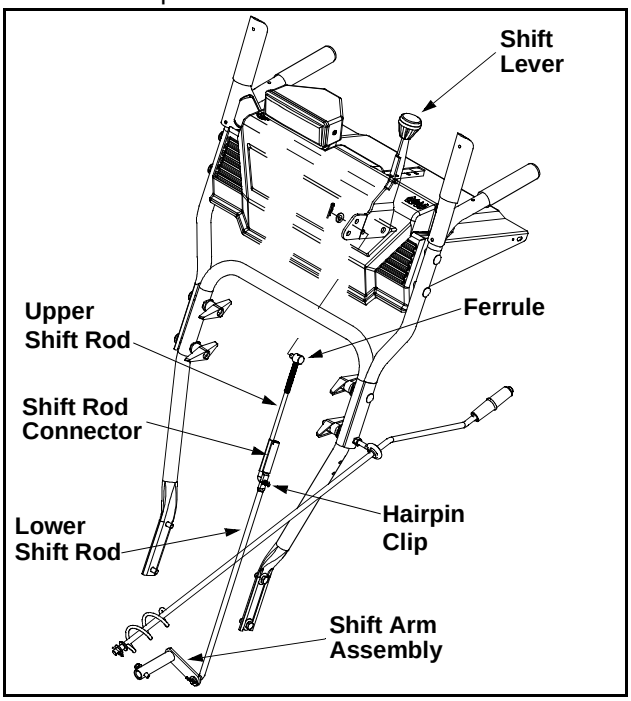


Figure 15

CARBURETOR ADJUSTMENT

WARNING: If any adjustments are made to the engine while the engine is running (e.g. carburetor), keep clear of all moving parts. Be careful of heated surfaces and muffler.

Minor carburetor adjustment may be required to compensate for differences in fuel, temperature, altitude and load.

Refer to the separate engine manual packed with your unit for carburetor adjustment information.

TRACTION CONTROL ADJUSTMENT

Refer to the **FINAL ADJUSTMENTS** in SECTION 4: ASSEMBLY to adjust the traction control. If you are uncertain that you have reached the correct adjustment, the adjustment can be physically checked as follows.

With the snow thrower tipped forward (be certain to drain the oil and gasoline or drain the oil and place plastic film under the gas cap if the snow thrower has already been operated), remove the frame cover underneath the snow thrower by removing six self-tapping screws.

With the traction control released, there must be clearance between the friction wheel and the drive plate in all positions of the shift lever. With the traction control engaged, the friction wheel must contact the drive plate. See Figure 16.

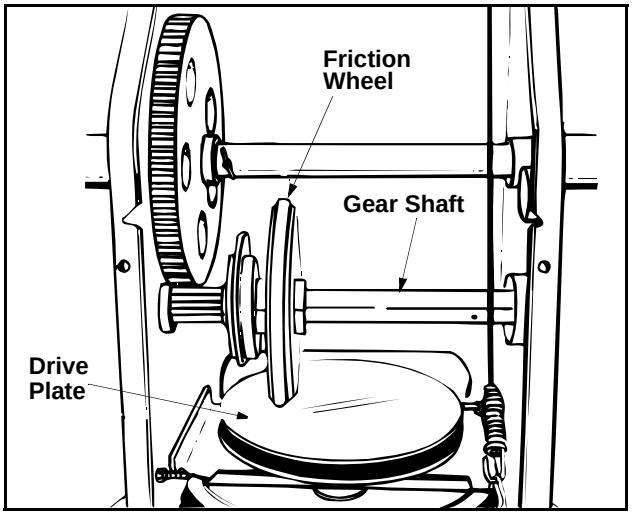


Figure 16

If adjustment is necessary, loosen the hex jam nut on the traction control cable and thread the cable in or out as necessary. Tighten the hex jam nut to secure the cable when correct adjustment is reached. Reassemble the frame cover.

NOTE: If you placed plastic under the gas cap, be certain to remove it.

SKID SHOE ADJUSTMENT

The space between the shave plate and the ground can be adjusted by adjusting the skid shoe. Slide the skid shoe upwards and lower the housing to remove snow close to the ground. Slide skid shoe downwards and raise the housing to remove snow from uneven ground like gravel. For more details, refer to **FINAL ADJUSTMENTS** in SECTION 4: ASSEMBLY.

DRIVE WHEEL

The wheel may be adjusted for two different methods of operation. The adjustment is made by placing the klick pin in one of two different holes on the right side of the unit. See Figure 17.

1. **One Wheel Driving -** Place klick pin in the outside axle hole on the right side. This position gives power drive to the left wheel only, making the unit easier to maneuver.
2. **Both Wheels Driving -** Rotate wheel assembly to align hole in hub with inner hole on axle shaft. Insert klick pin in hole. Outer axle shaft hole should be visible.This position is good for heavy snow as there is power to both wheels.

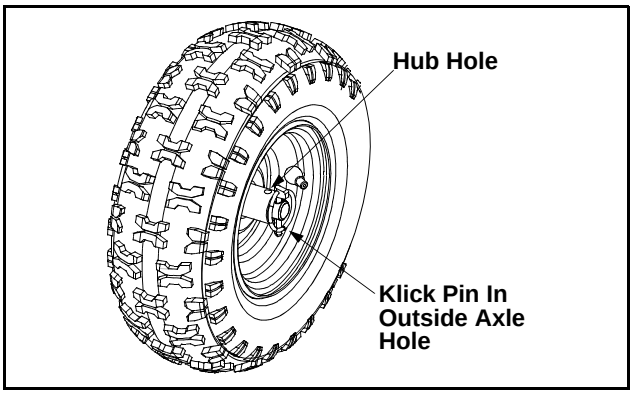


Figure 17

SECTION 7: MAINTENANCE

WARNING: Disconnect the spark plug wire and ground against the engine before performing any repairs or maintenance.

LUBRICATION

CHUTE DIRECTIONAL CONTROL

The worm gear on the chute direction control should be greased with multipurpose automotive grease.

WHEELS

Oil or spray lubricant into bearings at wheels at least once a season. Pull the klick pins and remove wheels, clean and coat axles with a multipurpose automotive grease. See Figure 18.

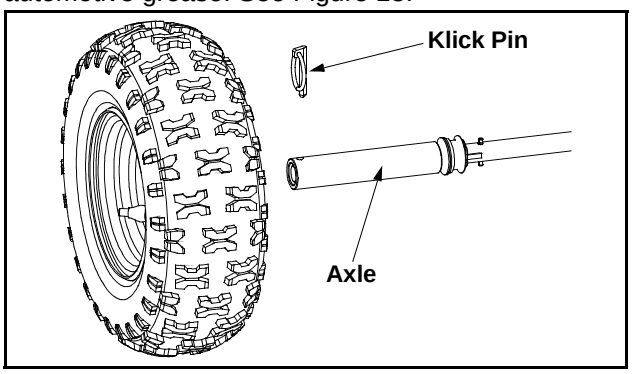


Figure 18

AUGER SHAFT

At least once a season, remove shear bolts on auger shaft. Oil or spray lubricant inside shaft. Also lubricate the auger bearings at least once a season. See Figure 19.

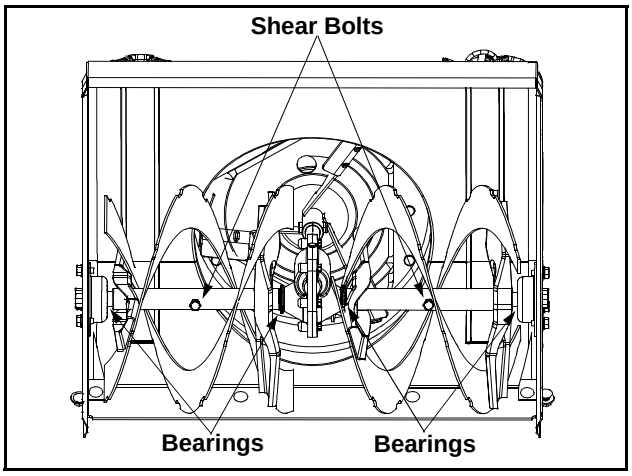


Figure 19

GEAR SHAFT

Lubricate the gear shaft with a good multi-purpose light grease at least once a season or after every 25 hours of operation. Refer to Figure 16.

IMPORTANT: Keep all grease and oil off of the friction wheel and drive plate.

DRIVE AND SHIFTING MECHANISM

Remove rear cover. Oil any chains, sprockets, gears, bearings, shafts, and shifting mechanism at least once a season. Use engine oil or a spray lubricant. Avoid getting oil on rubber friction wheel and aluminum drive plate. Refer to Figure 16.

GEAR CASE

The worm gear case has been filled with grease at the factory. If disassembled for repairs, lubricate with 2 ounces of shell grease, part number 737-0168.

IMPORTANT: Do not overfill the gear case. Damage to the seals could result. Be sure the vent plug is free of grease in order to relieve pressure.

ENGINE

Refer to separate engine manual for all engine maintenance procedures.

WARNING: When following instructions in separate engine manual for draining oil, be sure to protect frame to avoid oil dripping onto transmission parts.

CLEAN EQUIPMENT

Be certain to follow the precautions listed under **TO STOP ENGINE** to prevent possible freeze-up.

SECTION 8: SERVICE

AUGERS

The augers are secured to the spiral shaft with two shear bolts and hex lock nuts. See Figure 19. If you hit a foreign object or ice jam, the snow thrower is designed so that the hex bolts will shear.

If the augers will not turn, check to see if the bolts have sheared. Two replacement shear bolts and hex lock nuts have been provided with the snow thrower. For future use, order part number 710-0890A (shear bolt) and 712-0429 (hex lock nut).

SHAVE PLATE AND SKID SHOES

The shave plate and skid shoes on the bottom of the snow thrower are subject to wear. They should be checked periodically and replaced when necessary. To remove skid shoes, remove the four carriage bolts, bell washers and hex nuts which attach them to the snow thrower. Reassemble new skid shoes with the four carriage bolts, bell washers (cupped side goes against skid shoes) and hex nuts. Make certain the skid shoes are adjusted to be level.

To remove shave plate, remove the carriage bolts, bell washers and hex nuts which attach it to the snow thrower housing. Reassemble new shave plate, making sure heads of the carriage bolts are to the inside of the housing. Tighten securely.

ENGINE

Refer to separate engine manual for all engine service procedures.

BELT REMOVAL AND REPLACEMENT

WARNING: Disconnect the spark plug wire from the spark plug and ground.

AUGER BELTS

NOTE: It is necessary to remove both belts in order to change either one. If changing just one belt, be certain to check the condition of the other belt model 600/610E has only one auger belt).

1. Remove the plastic belt cover on the front of the engine by removing the two self-tapping screws. See Figure 20.
2. Drain the gasoline from the snow thrower, or place a piece of plastic under the gas cap.
3. Tip the snow thrower up and forward so that it rests on the housing.

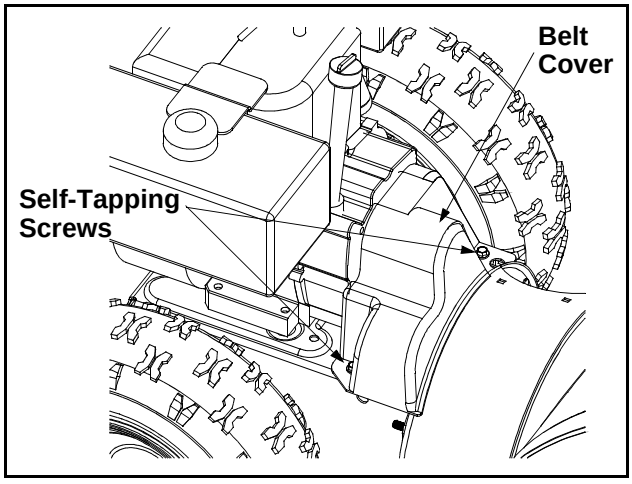


Figure 20

4. Remove six self-tapping screws from the frame cover underneath the snow thrower.
5. Roll the front and rear auger belts off the engine pulley. See Figure 21.

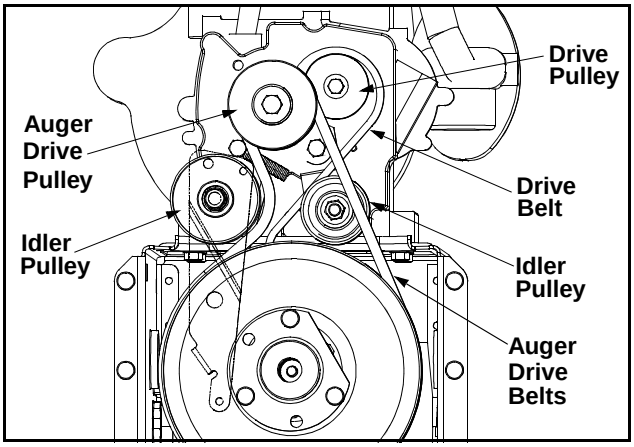


Figure 21

6. Unhook the idler spring from the hex bolt on the auger housing. See Figure 22.
7. Back out the stop bolt to allow the belts to slip between the bolt and auger pulley. See Figure 23.

NOTE: It may be necessary to loosen the six hex nuts that connect the frame to the auger housing to aid in belt removal.

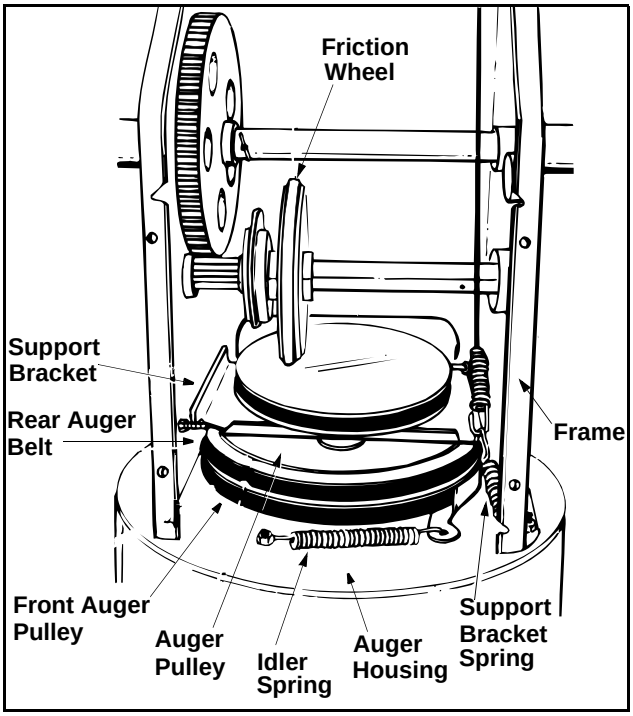


Figure 22

8. Lift the rear auger belt from the auger pulley, and slip belt between the support bracket and the auger pulley. Repeat this step for front auger belt.
9. Replace both auger drive belts by following instructions in reverse order.

DRIVE BELT

1. Follow steps 1 through 4 of previous instructions.
2. Pull idler pulley up, and lift belt off engine pulley and friction wheel disc. See Figure 21.
3. Back out the stop bolt until the support bracket rests on the auger pulley. See Figure 23.
4. Slip belt between friction wheel and friction wheel disc. See Figure 23. Remove and replace belt. Reassemble following the instructions in reverse order.

NOTE: The support bracket must rest on the stop bolt after the new belt has been assembled. See Figure 23.

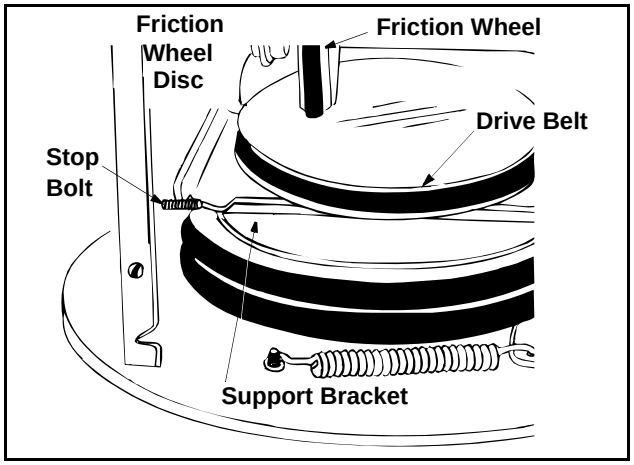


Figure 23

CHANGING FRICTION WHEEL RUBBER

The rubber on the friction wheel is subject to wear and should be checked after 25 hours of operation, and periodically thereafter. Replace the friction wheel rubber if any signs of wear or cracking are found.

1. Drain the gasoline from the snow thrower, or place a piece of plastic under the gas cap.
2. Tip the snow thrower up and forward, so that it rests on the housing. See Figure 24.
3. Remove six self-tapping screws from the frame cover underneath the snow thrower.
4. Remove the klick pins which secure the wheels, and remove the wheels from the axle.
5. Using a wrench to hold the shaft, loosen, but do not completely remove, the hex nut and bell washer on left end of gear shaft. See Figure 24.

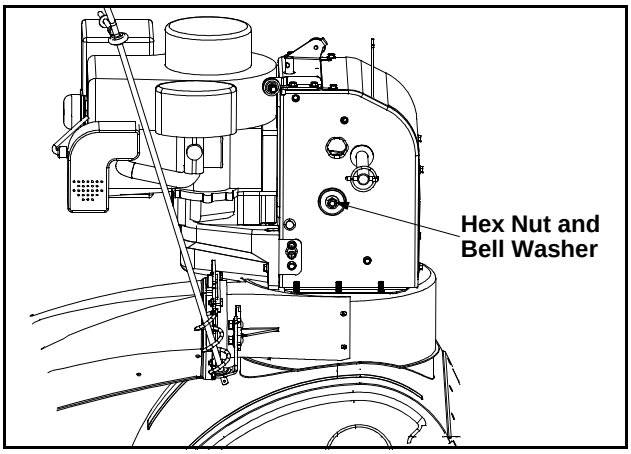


Figure 24

6. Lightly tap the hex nut to dislodge the ball bearing from the right side of frame. Remove the hex nut and bell washer from left end of shaft.
7. Slide the gear shaft to the right and slide the friction wheel assembly from the shaft.
8. Remove the six screws from the friction wheel assembly (three from each side). Remove the friction wheel rubber from between the friction wheel plate. See Figure 25.

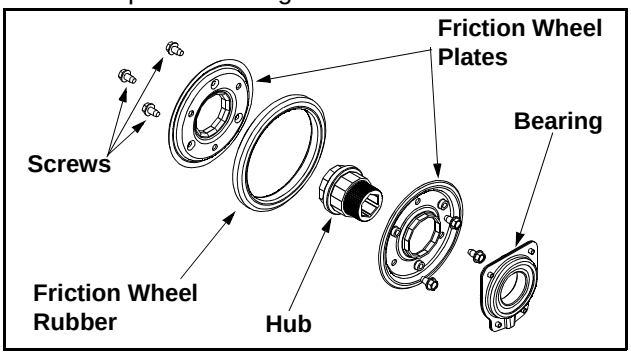


Figure 25

9. Reassemble new friction wheel rubber to the friction wheel assembly, tightening the six screws in rotation and with equal force.
10. Position the friction wheel assembly up onto the pin of the shift rod assembly, and slide the shaft through the assembly. Reassemble in reverse order.

SECTION 9: OFF-SEASON STORAGE

WARNING: Never store engine with fuel in tank indoors or in poorly ventilated areas, where fuel fumes may reach an open flame, spark or pilot light as on a furnace, water heater, clothes dryer or other gas appliance.

1. If unit is to be stored over 30 days, prepare the engine for storage as instructed in the separate engine operator's manual included with your unit.
2. Remove all dirt from exterior of engine and equipment.
3. Follow lubrication recommendations in SECTION 7: MAINTENANCE.

NOTE: When storing any type of power equipment in a poorly ventilated or metal storage shed, care should be taken to rust proof the equipment. Using a light oil or silicone, coat the equipment, especially any chains, springs, bearings and cables.

SECTION 10: Trouble Shooting Guide

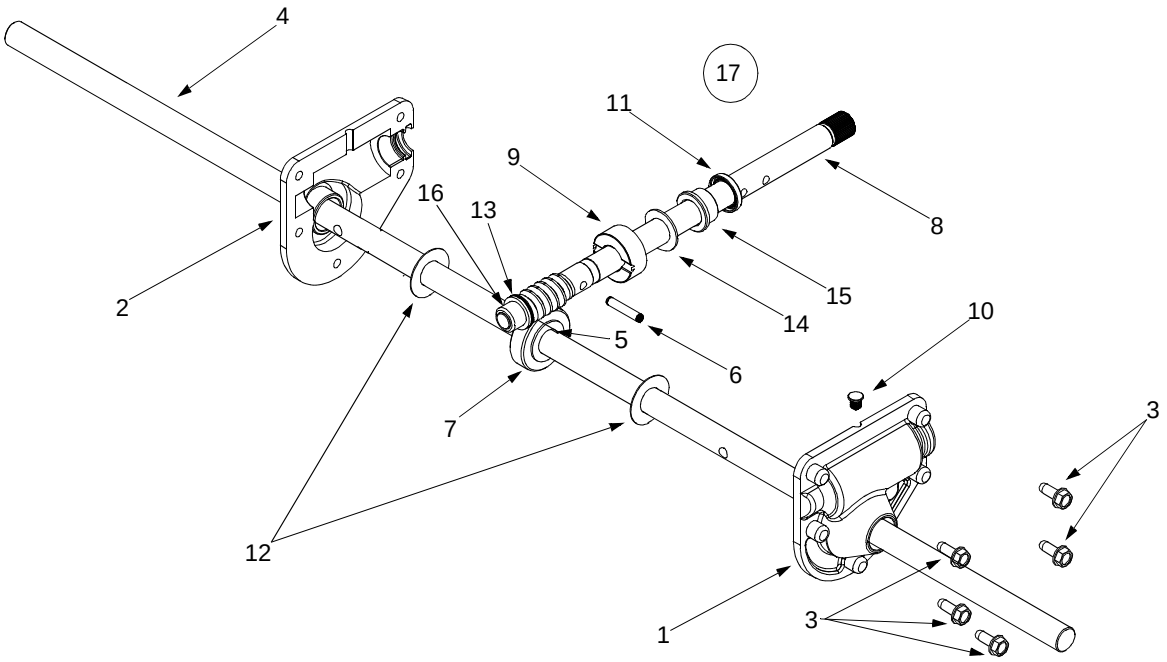
Trouble	Possible Cause(s)	Corrective Action
Engine fails to start	Fuel tank empty, or stale fuel.	Fill tank with clean, fresh gasoline. Fuel may not last over thirty days unless a fuel stabilizer is used.
	Blocked fuel line.	Clean fuel line.
	Choke not in ON position	Move switch to ON position
	Faulty spark plug.	Clean, adjust gap or replace.
	Key not in switch on engine.	Insert key.
	Spark plug wire disconnected.	Connect spark plug wire.
	Primer button not depressed.	Refer to the engine manual packed with your unit.
	Fuel shut-off valve closed (if so equipped).	Open fuel shut-off valve.
Engine runs erratic	Unit running on CHOKE.	Move choke lever to OFF position.
	Blocked fuel line or stale fuel.	Clean fuel line; fill tank with clean fresh gasoline. Fuel may not last over thirty days unless a fuel stabilizer is used.
	Water or dirt in fuel system.	Drain fuel tank. Refill with fresh fuel.
	Carburetor out of adjustment.	Refer to the engine manual packed with your unit or have carburetor adjusted by an authorized service dealer.
Loss of power	Spark plug wire loose.	Connect and tighten spark plug wire.
	Gas cap vent hole plugged.	Remove ice and snow from cap. Be certain vent hole is clear.
	Exhaust port plugged.	Clean-see Maintenance section of engine manual.
Engine overheats	Carburetor not adjusted properly.	Refer to the engine manual packed with your unit or have carburetor adjusted by an authorized service dealer.
	Incorrect fuel mixture.	Drain fuel tank. Refill with proper fuel mixture.
Excessive vibration	Loose parts or damaged auger.	Stop engine immediately and disconnect spark plug wire. Tighten all bolts and nuts. Make all necessary repairs. If vibration continues, have unit serviced by an authorized service dealer.
Unit fails to propel itself	Incorrect adjustment of drive cable.	Adjust drive cable. Refer to Adjustment section of this manual.
	Drive belt loose or damaged.	Replace drive belt. Refer to Belt Replacement in Maintenance section of this manual.
Unit fails to discharge snow	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.
	Incorrect adjustment of drive cable.	Adjust drive cable. Refer to Adjustment section of this manual.
	Drive belt loose or damaged.	Replace drive belt. Refer to Belt Replacement in Maintenance section of this manual.

Note: For repairs beyond the minor adjustments above, contact your local authorized service dealer.

NOTES

Gear Assembly

Models E600E, E610E, E640F, E660G, and E6C0F

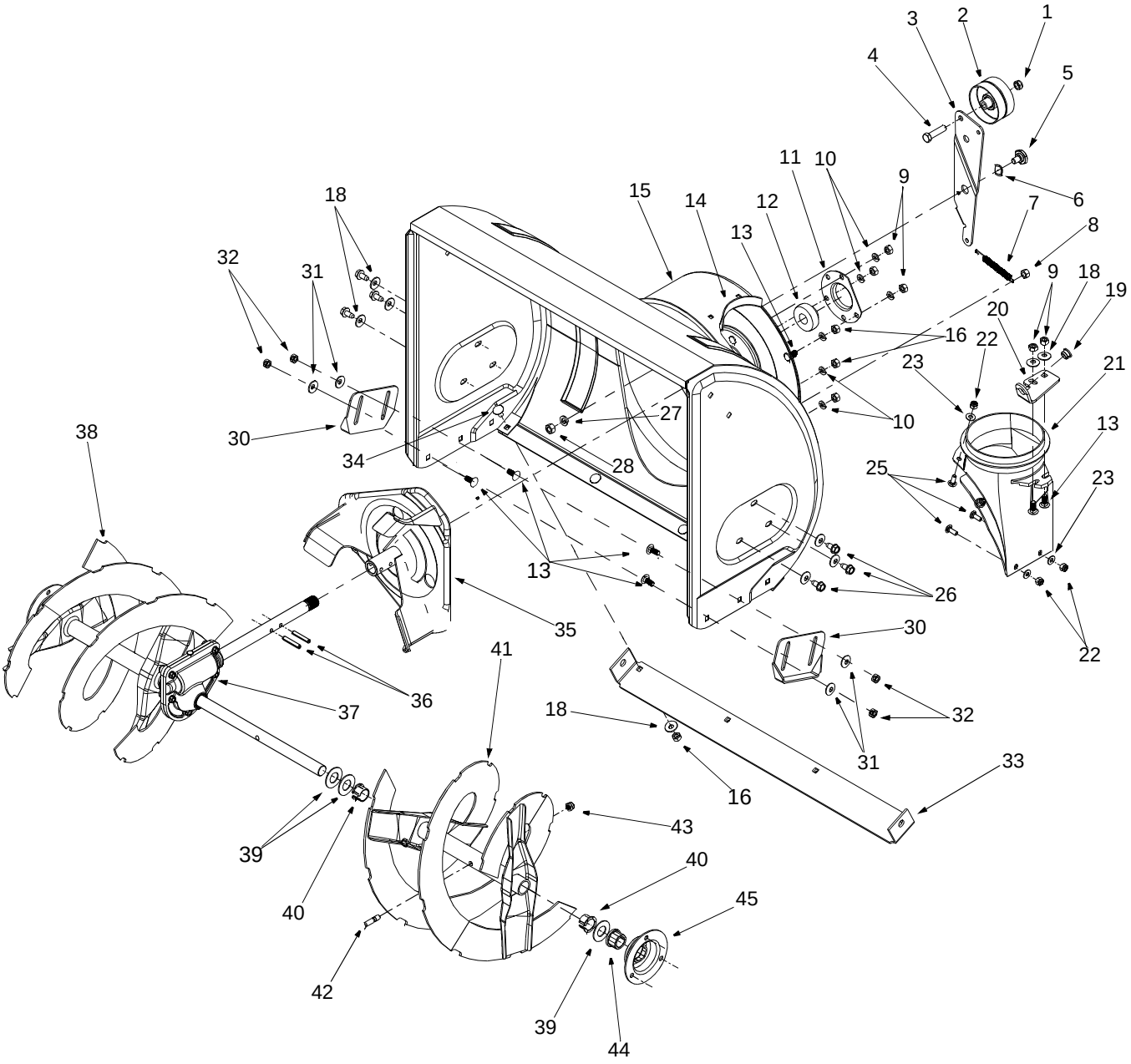


REF. NO.	PART NO.	DESCRIPTION
1	618-0123	RH Reducer Housing
2	618-0124	LH Reducer Housing
3	710-0642	Hex Screw 1/4-20 x .75
4	711-0909	Spiral Axle 26"
	711-0910	Spiral Axle 28"
5	714-0161	Key
6	715-0143	Pin-Spiral
7	717-0528	Worm Gear, 20T
8	717-0526	Worm Shaft
9	718-0186	Thrust Collar

REF. NO.	PART NO.	DESCRIPTION
10	721-0325	Grease Plug
11	721-0327	Grease Seal
12	736-0351	Flat Washer .76 x 1.5 x .030
13	736-0369	Flat Washer .508 x 1.0 x .020
14	736-0445	Flat Washer .76 x 1.5 x .060
15	741-0662	Flange Bearing .75 x 1.0 x .59
16	741-0663	Flange Bearing .75 x 1.0 x .925
17	618-0121	Ass'y. Complete 26"
	618-0122	Ass'y. Complete 28"

Blower Housing

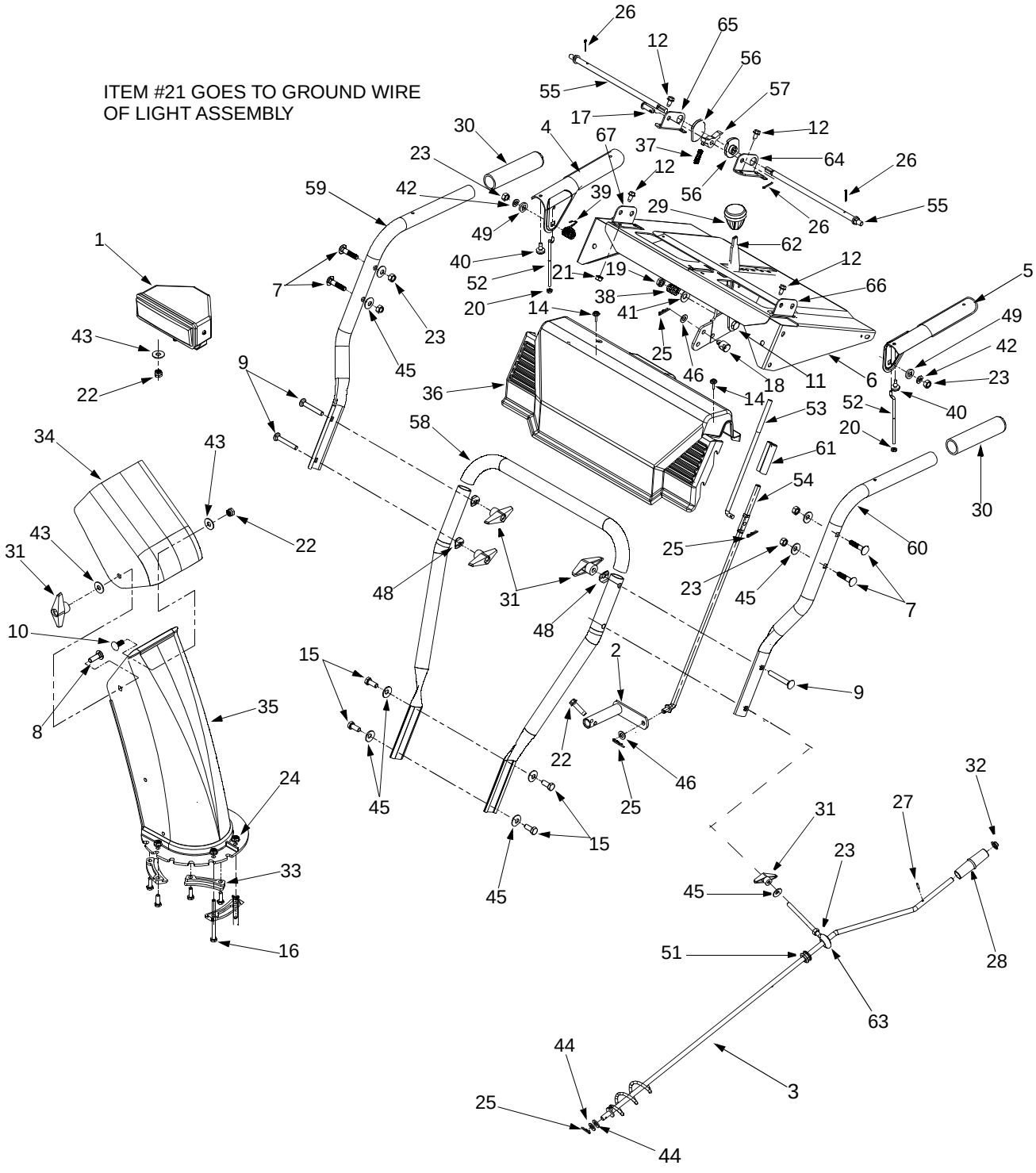
Models E600E, E610E, E640F, E660G, and E6C0F



REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	712-0116	Lock Jam Nut 3/8-24	26	710-0604	Hex Washer Screw 5/16-18
2	756-0178	Flat Idler	27	736-0169	Lock Washer 3/8
3	784-5632A	Auger Idler Arm	28	712-0798	Hex Nut 3/8-16
4	710-0459A	Hex Cap Screw 3/8-24 x 1.50	30	784-5580	Snow Shoe
5	738-0281	Shoulder Screw	31	736-0242	Bell Washer
6	736-0174	Wave Washer	32	712-3010	Hex Nut 5/16-18
7	732-0611	Extension Spring	33	784-5579A	26” Shave Plate
8	712-3068	Hex Nut 5/16-18		784-5582A	28” Shave Plate
9	712-3010	Hex Nut 5/16-18	34	710-0260	Carriage Bolt 5/16-18 x .62
10	736-0119	Lock Washer 5/16	35	684-0065	Impeller Assembly
11	05931	Housing	36	715-0114	Pin
12	741-0309	Ball Bearing	37	618-0121	26” Gear Assembly
13	710-0451	Carriage Bolt 5/16-18 x .75		618-0122	28” Gear Assembly
14	705-5226	Reinforcement Chute	38	605-5192A	Spiral 26” RH
15	684-0040C	26” Housing Assembly		605-5196A	Spiral 28” RH
	684-0041C	28” Housing Assembly	39	736-0188	Flat Washer
16	712-3010	Hex Nut 5/16-18	40	741-0493A	Flange Bushing
18	736-0242	Bell Washer	41	605-5193A	Spiral 26” LH
19	741-0475	Bushing		605-5197A	Spiral 28” LH
20	784-5647	Chute Crank Bracket	42	710-0890A	Shear Bolt 5/16-18 x 1.5
21	731-1379A	Chute Adapter	43	712-0429	Lock Nut 5/16-18
22	712-0324	Hex Lock Nut 1/4-20	44	741-0245	Hex Flange Bearing
23	736-0463	Flat Washer	45	784-5618	Bearing Housing
25	710-0703	Carriage Screw 1/4-20 x .75			

Handle Assembly

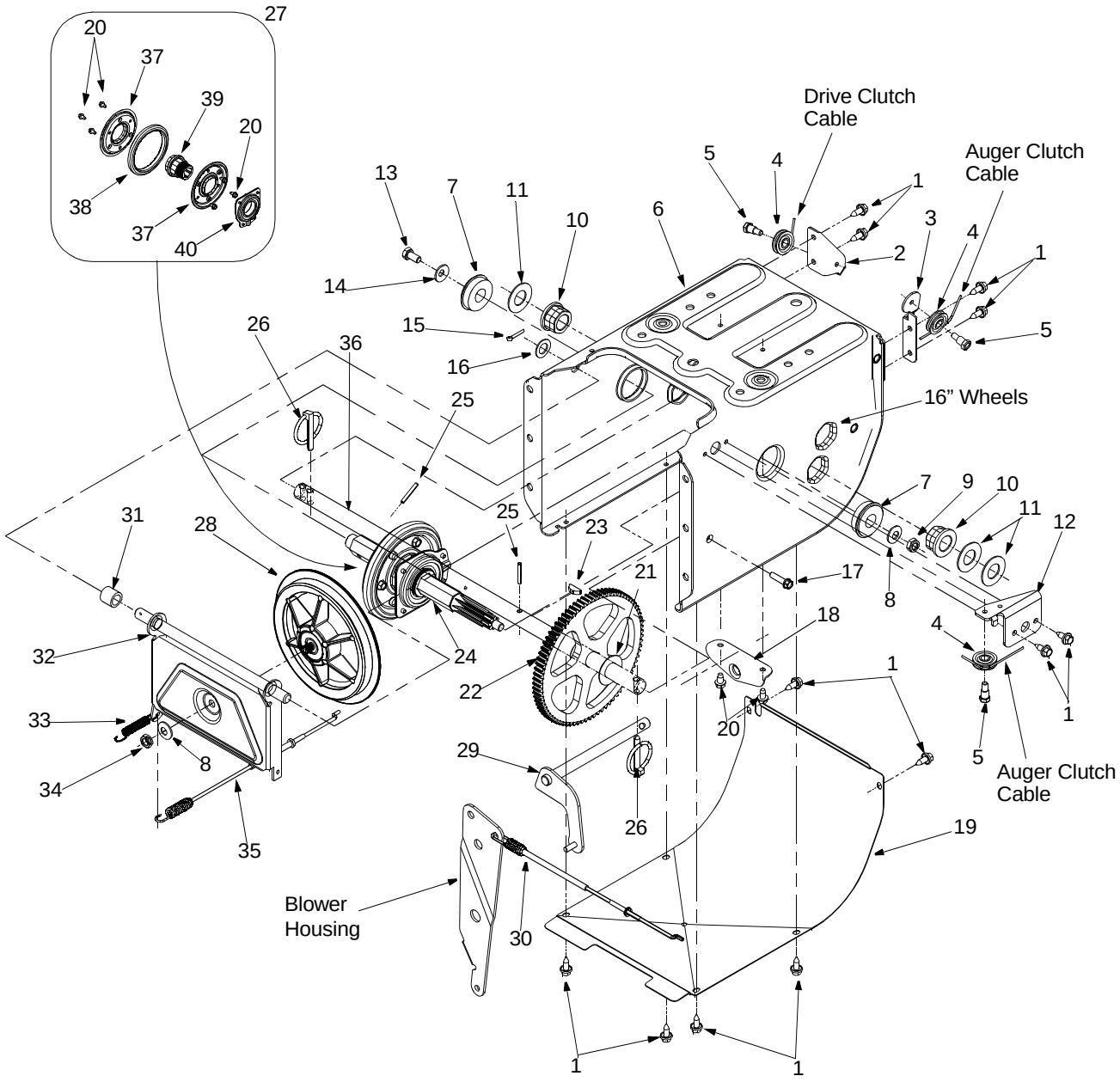
Models E600E, E610E, E640F, E660G, and E6C0F



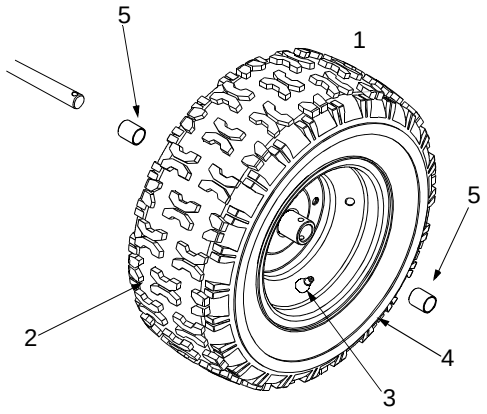
REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	625-0007	Light Ass'y, Top Mount	35	731-1300A	Lower Chute
2	684-0008A	Shift Arm Ass'y.	36	731-1393	Handle Panel
3	684-0022	Chute Crank Ass'y.	37	732-0145	Compression Spring
4	684-0036	Handle Ass'y - Engagement R.H.	38	732-0193	Compression Spring
5	684-0037	Handle Ass'y - Engagement l.H.	39	732-0746	Torsion Spring
6	684-0103	Handle Panel Ass'y	40	735-0199A	Bumper, Rubber
7	710-0262	Carriage Bolt 5/16-18 x 1.5	41	736-0105	Bell Washer .401 x .870
8	710-0276	Carriage Screw 5/16-18 x 1.0	42	736-0119	Lock Washer 5/16
9	710-0449	Carriage Screw 5/16-18 x 2.25	43	736-0159	Washer .349 ID x .879 OD
10	710-0451	Carriage Bolt 5/16-18 x .75	44	736-0185	Flat Washer .375 ID x .738 OD
11	710-0459	Hex Head Screw 3/8-24 x 1.5	45	736-0242	Bell Washer .340 ID x .872 OD
12	710-0599	Hex Washer Screw 1/4-20 x .50	46	736-0275	Flat Washer .344 ID x .688 OD
14	710-1003	Hex Washer Screw #10-16 x .625	47	736-0271	Spring Washer .317 ID x .625 OD
15	710-3008	Hex Cap Screw 5/16-18	48	736-0451	Saddle Washer .320 ID x .93 OD
16	710-3015	Hex Cap Screw 1/4-20 x .75	49	736-0509	Washer, Spec
17	711-0653	Clevis Pin	51	735-0234	Rubber Grommet
18	711-0677	Ferrule	52	746-0778	"Z" Fitting
19	712-0116	Jam Nut 3/8-24	53	747-0620A	Upper Shift Rod
20	712-0121	Nut #10-24	54	747-0621	Lower Shift Rod
21	712-0271	Hex Nut 1/4-20	55	747-0877	Rod, Cam
22	710-0788	Hex Washer Screw 1/4-20 x 1.0	56	748-0362	Cam Handle
23	712-3010	Hex Nut 5/16-18	57	748-0363	Pawl, Handle Lock
24	712-3027	Flange Lock Nut 1/4-20	58	749-0951	Lower Handle
25	714-0104	Cotter Pin	59	749-0952	Handle, R.H.
26	714-0507	Cotter Pin	60	749-0953	Handle, L.H.
27	715-0138	Roll Pin	61	750-0963	Clutch Rod Connector
28	720-0201A	Chute Crank Knob	62	784-5619A	Shift Handle
29	720-0232	Knob, Shift	63	747-0697	Eyebolt Chute Crank
30	720-0274	Grip	64	784-5679	Handle Support Bracket, L.H.
31	720-0284	Wing Nut	65	784-5680	Handle Support Bracket, R.H.
32	726-0100	Push Cap	66	784-5681	Handle Support Bracket, L.H.
33	731-0851A	Chute Flange Keeper	67	784-5682	Handle Support Bracket, R.H.
34	731-0921	Upper Chute			

Frame Assembly

Models E600E, E610E, E640F, E660G, and E6C0F



REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	710-1652	Hex Screw	21	736-0351	Flat Washer .760 ID x .50 OD
2	784-5688	Drive Cable Guide Bracket	22	717-1445	Gear
3	784-5687A	Auger Clutch Cable Bracket	23	714-0126	Key
4	756-0625	Roller Cable	24	717-1444	7-Tooth Shaft
5	738-0924	Hex Screw 1/4-28	25	715-0249	Roll Pin
6	684-0030	Frame Assembly	26	714-0143	Klik Pin
7	741-0563	Ball Bearing	27	684-0042B	Friction Wheel Assembly
8	736-0105	Bell Washer	28	656-0012A	Friction Disc Wheel
9	712-0116	Lock Jam Nut	29	684-0013B	Wheel Shift Rod Assembly
10	741-0598	Hex Flange Bearing	30	746-0897	Drive Cable
11	736-0188	Flat Washer	31	748-0190	Spacer
12	784-5689A	Front Support Guide Bracket	32	684-0021	Friction Wheel Bracket Assembly
13	710-0538	Lock Hex Screw	33	732-0264	Extension Spring
14	736-0242	Bell Washer .340 ID x .872 OD	34	712-0711	Jam Nut 3/8-24
15	714-0474	Cotter Pin	35	746-0898	Drive Cable
16	736-0160	Flat Washer .536 ID x .930 OD	36	738-0830	Axle 16” Wheels
17	710-0788	Hex Washer Screw 1/4-20	37	784-5617A	Friction Plate
18	784-5590	Frame Shift Bracket	38	735-0243	Friction Wheel Rubber
19	784-5638	Frame Cover	39	718-0301A	Friction Wheel Hub
20	710-0599	Hex Washer Screw 1/4-20	40	618-0063	Friction Wheel Bearing



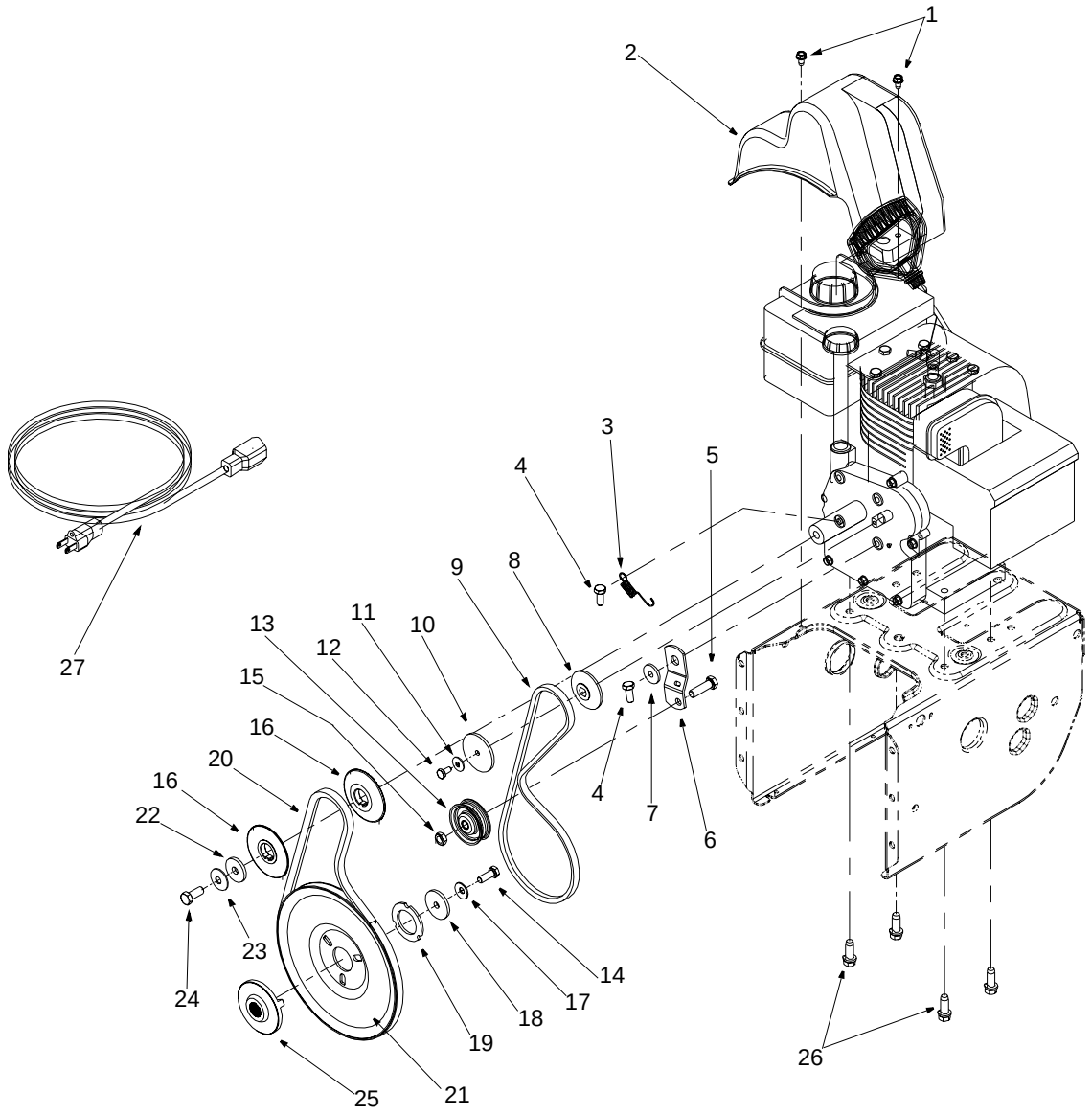
WHEEL ASSEMBLIES						
MODEL NUMBER	SIZE	REF. NO. 1 WHEEL ASS’Y COMPLETE	REF. NO. 2 TIRE ONLY	REF. NO. 3 AIR VALVE	REF. NO. 4 RIM ONLY	REF. NO. 5 SLEEVE BEARING (2)
31AE640F	16.5 x 4.8	734-1709	734-1530	734-0255	734-1708	741-0401
31AE660G	16 x 6.5	734-1712	734-1525	734-0255	734-1711	741-0401

Engine and V-Belts

E600E, E610E

IMPORTANT: For a proper working machine, use Factory Approved Parts.

V-BELTS are specially designed to engage and disengage safely. A substitute (non OEM) V-Belt can be dangerous by not disengaging completely.



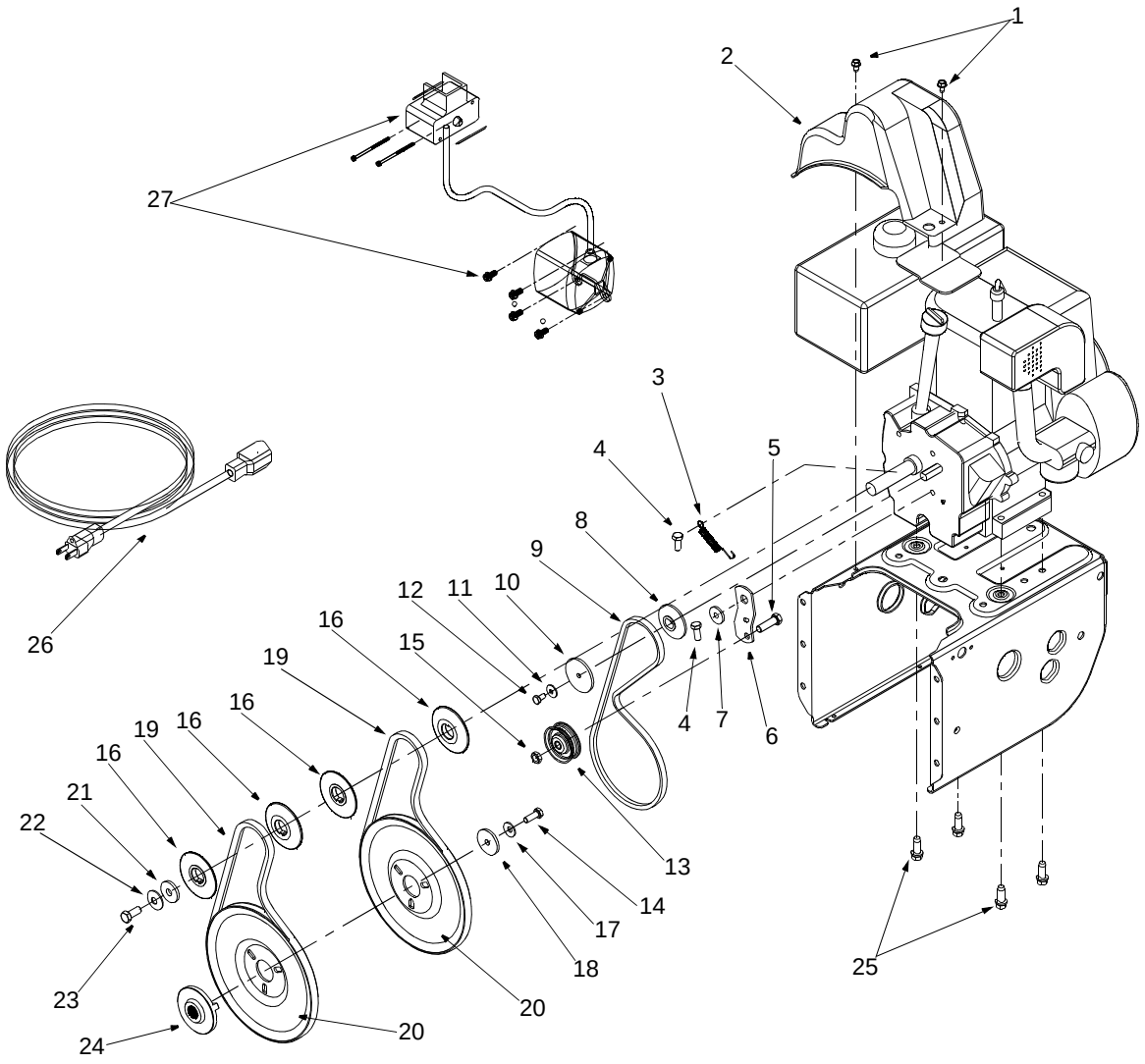
REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	710-0599	Hex Washer Screw 1/4-20 x.5	15	712-0181	Lock Jam Nut 3/8-16
2	731-1324	Belt Cover	16	756-0569	Pulley Half
3	732-0339	Extension Spring	17	736-0242	Bell Washer
4	710-0627	Hex Screw 5/16-24 x .75	18	736-0505	Flat Washer
5	710-3005	Hex Cap Screw 3/8-16 x 1.25	19	736-0507	Washer
6	05896A	Drive Clutch Bracket	20	754-0430A	Belt
7	748-0234	Shoulder Spacer	21	756-0967	Auger Pulley
8	756-0985	Pulley Half	22	736-0247	Flat Washer
9	754-0343	V-Belt	23	736-0331	Bell Washer
10	756-0984	Pulley Half	24	710-0696	Hex Cap Screw 3/8-24
11	736-0270	Bell Washer	25	748-0360	Pulley
12	710-0230	Hex Cap Screw 1/4-28 x .50	26	710-0654A	Hex Washer Screw 3/8-16 x 1.0
13	756-0313	Flat Idler	27	629-0071	Extension Cord
14	710-1245	Lock Cap Screw 5/16-24		OEM-390-986	Electric Start Kit

Engine and V-Belts

E640F, E660G, E6C0F

IMPORTANT: For a proper working machine, use Factory Approved Parts.

V-BELTS are specially designed to engage and disengage safely. A substitute (non OEM) V-Belt can be dangerous by not disengaging completely.



REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	710-1652	Hex Washer Screw 1/4-20 x .625	15	712-0181	Lock Jam Nut 3/8-16
2	731-1324	Belt Cover	16	756-0569	Pulley Half
3	732-0710	Extension Spring	17	736-0242	Bell Washer
4	710-0627	Hex Screw 5/16-24 x .75	18	736-0505	Flat Washer
5	710-3005	Hex Cap Screw 3/8-16 x 1.25	19	754-0430A	Belt
6	05896A	Drive Clutch Idler Bracket	20	756-0967	Auger Pulley
7	748-0234	Shoulder Spacer	21	736-0247	Flat Washer 3/8 x 1.25 OD
8	756-0987	Pulley Half	22	736-0331	Bell Washer
9	754-0346	V-Belt	23	710-0696	Hex Cap Screw 3/8-24
10	756-0986	Pulley Half	24	748-0360	Adapter Pulley
11	736-0270	Bell Washer	25	710-0654A	Hex Screw 3/8-16 x 1.0
12	710-0230	Hex Cap Screw 1/4-28 x .50	26	629-0071	Extension Cord
13	756-0313	Flat Idler	27	OEM-390-987	Electric Start
14	710-1245	Lock Hex Cap Screw 5/16-24			

MANUFACTURER'S LIMITED WARRANTY FOR:

YARD MACHINES by MTD®

The limited warranty set forth below is given by MTD PRODUCTS INC ("MTD") with respect to new merchandise purchased and used in the United States, its possessions and territories.

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

Normal wear parts or components thereof are subject to separate terms as follows: All normal wear part or component failures will be covered on the product for a period of 90 days regardless of cause. After 90 days, but within the two year period, normal wear part failures will be covered ONLY IF caused by defects in material or workmanship of OTHER component parts. Normal wear parts and components include, but are not limited to, belts, blades, blade adapters, grass bags, rider deck wheels, seats, snow thrower skid shoes, shave plates and tires. Batteries are covered by a 90-day limited replacement warranty.

HOW TO OBTAIN SERVICE: Warranty service is available, WITH PROOF OF PURCHASE THROUGH YOUR LOCAL AUTHORIZED SERVICE DEALER. To locate the dealer in your area, please check for a listing in the Yellow Pages or contact the Customer Service Department of MTD PRODUCTS INC by calling 1-800-800-7310 or writing to P.O. Box 368022, Cleveland, Ohio 44136-9722. No product returned directly to the factory will be accepted unless prior written permission has been extended by the Customer Service Department of MTD PRODUCTS INC.

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

a. The engine or component parts thereof. These items carry a separate manufacturer's warranty. Please refer to the applicable manufacturer's warranty on these items.
b. Routine maintenance items such as lubricants, filters, blade sharpening and tune-ups, or adjustments such as brake adjustments, clutch adjustments or deck adjustments; and normal deterioration of the exterior finish due to use or exposure.
c. Log splitter pumps, valves and cylinders have a separate one year warranty.
d. MTD does not extend any warranty for products sold or exported outside of the United States of America, its possessions and territories, except those sold through MTD's authorized channels of export distribution.

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

The provisions as set forth in this Warranty provide the sole and exclusive remedy arising from the sales. MTD shall not be liable for incidental or consequential loss or damages including, without limitation, expenses incurred for substitute or replacement lawn care services, for transportation or for related expenses, or for rental expenses to temporarily replace a warranted product. (Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.)

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

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

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