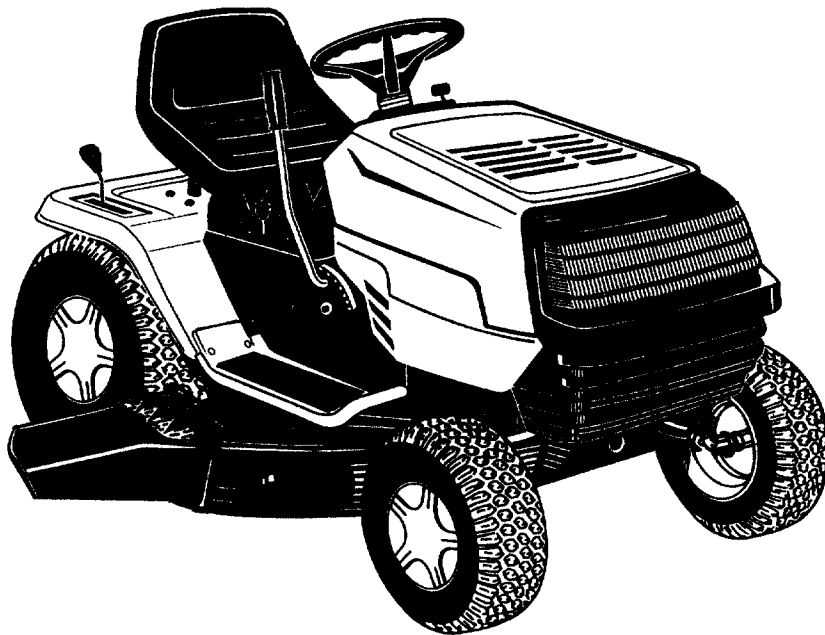


OPERATOR'S MANUAL



Model Series 690 Thru 699 HYDROSTATIC LAWN TRACTORS

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

SECTION 1: FINDING YOUR MODEL NUMBER

This Operator's Manual is an important part of your new lawn tractor. It will help you assemble, prepare and maintain your lawn tractor. Please read and understand what it says.

Before you start to prepare your lawn tractor for its first use, please locate the model plate and copy the information from it in this Operator's Manual. The information on the model plate is very important if you need help from your dealer or the MTD customer support department.

- Every lawn tractor has a model plate. You can locate it by pivoting the seat forward and looking under the seat at the seat pivot bracket. See Figure 1

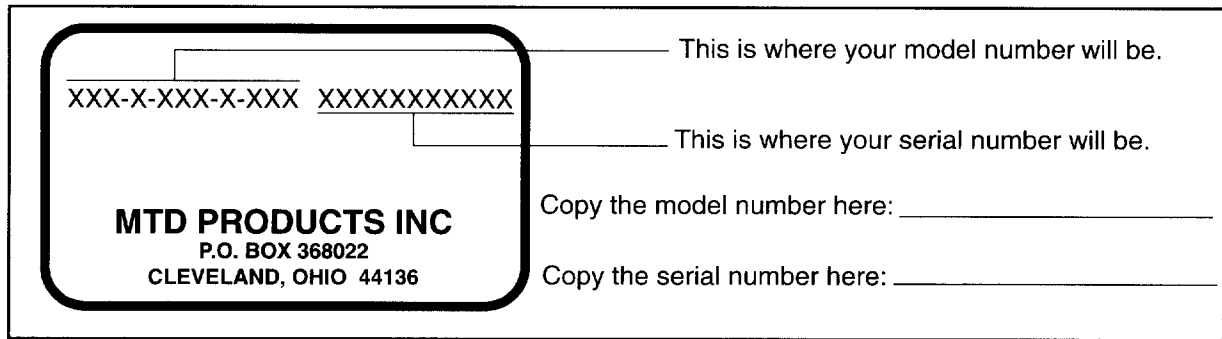


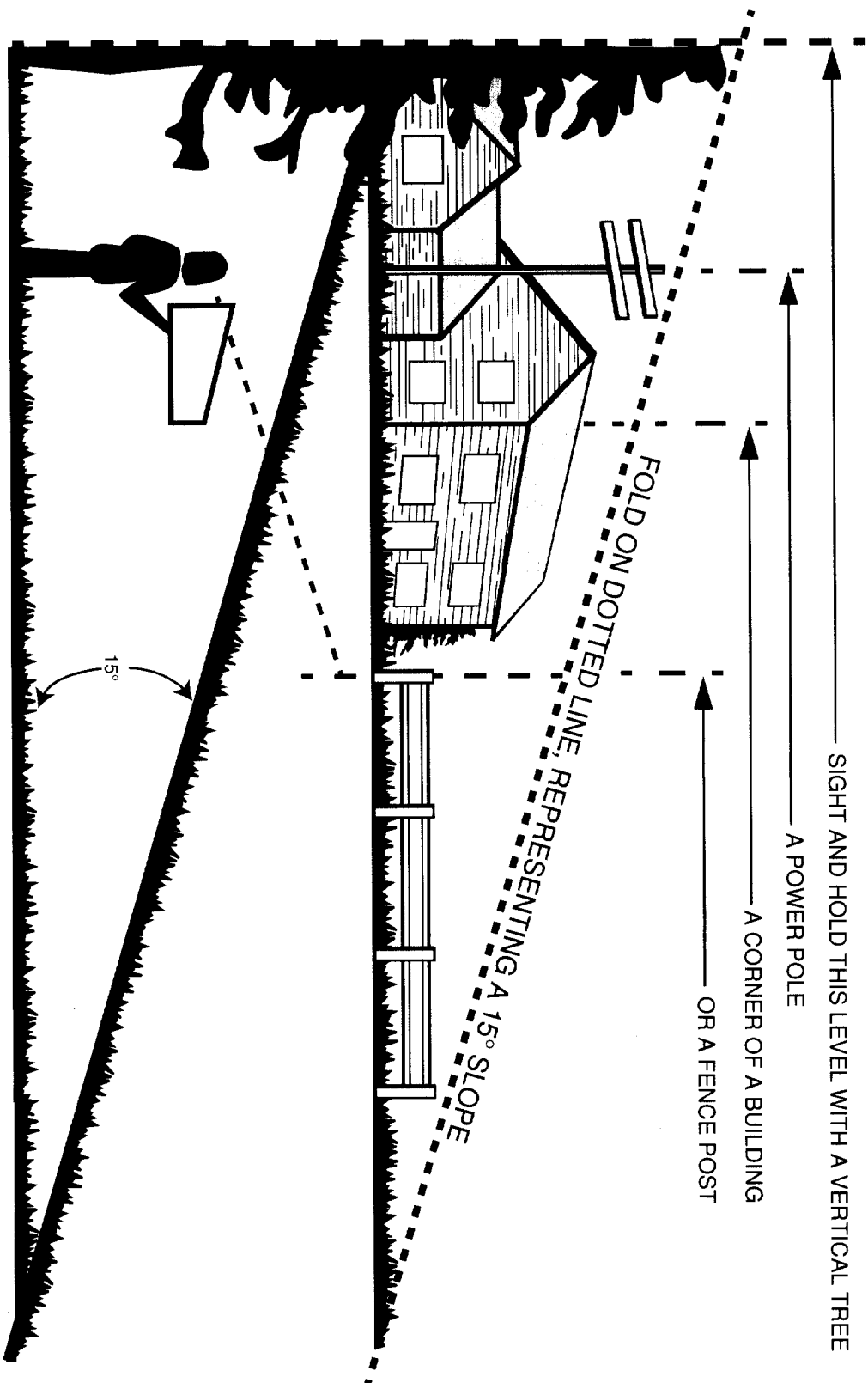
Figure 1

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.

Slope Gauge

USE THIS PAGE AS A GUIDE TO DETERMINE SLOPES WHERE YOU MAY NOT OPERATE SAFELY.



Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2-1/2 feet every 10 feet). A riding mower could overturn and cause serious injury. If operating a walk-behind mower on such a slope, it is extremely difficult to maintain your footing and you could slip, resulting in serious injury.

Operate RIDING mowers up and down slopes, never across the face of slopes.
Operate WALK-BEHIND mowers across the face of slopes, never up and down slopes.

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 LAWN MOWER. 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 lawn mower 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. This lawn mower is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

1. GENERAL OPERATION

- Read, understand, and follow all instructions in the operator's manual and on the machine before starting. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
- Only allow responsible individuals familiar with the instructions to operate the machine. Know controls and how to stop the machine quickly.
- Do not put hands or feet under cutting deck or near rotating parts.
- Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by the blade. A small object may have been overlooked and could be accidentally thrown by the mower in any direction and cause injury to you or a bystander. To help avoid a thrown objects injury, keep children, bystanders and helpers at least 75 feet from the mower while it is in operation. Always wear safety glasses or safety goggles during operation or while performing an adjustment or repair, to protect eyes from foreign objects. Stop the blade(s) when crossing gravel drives, walks or roads.
- Be sure the area is clear of other people before mowing. Stop machine if anyone enters the area.
- Never carry passengers.
- Disengage blade(s) before shifting into reverse and backing up. Always look down and behind before and while backing.
- Be aware of the mower and attachment discharge direction and do not point it at anyone. Do not operate the mower without either the entire grass catcher or the chute guard in place.
- Slow down before turning. Operate the machine smoothly. Avoid erratic operation and excessive speed.
- Never leave a running machine unattended. Always turn off blade(s), place transmission in neutral, set park brake, stop engine and remove key before dismounting.
- Turn off blade(s) when not mowing.
- Stop engine and wait until blade(s) comes to a complete stop before (a) removing grass catcher or unclogging chute, or (b) making any repairs, adjusting or removing any grass or debris.
- Mow only in daylight or good artificial light.
- Do not operate the machine while under the influence of alcohol or drugs.
- Watch for traffic when operating near or crossing roadways.
- Use extra care when loading or unloading the machine into a trailer or truck. This unit should not be driven up or down a ramp onto a trailer or truck under power, because the unit could tip over, causing serious personal injury. The unit must be pushed manually on a ramp to load or unload properly.
- Never make a cutting height adjustment while engine is running if operator must dismount to do so.
- Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Do not wear loose fitting clothes or jewelry. They can be caught in moving parts. Never operate a unit in bare feet, sandals, or sneakers.
- Check overhead clearance carefully before driving under power lines, wires, bridges or low hanging tree branches, before entering or leaving buildings, or in any other situation where the operator may be struck or pulled from the unit, which could result in serious injury.
- Disengage all attachment clutches, thoroughly depress the brake pedal, and shift into neutral before attempting to start engine.

- Your mower is designed to cut normal residential grass of a height no more than 10". Do not attempt to mow through unusually tall, dry grass (e.g., pasture) or piles of dry leaves. Debris may build up on the mower deck or contact the engine exhaust presenting a potential fire hazard.

2. SLOPE OPERATION

Slopes are a major factor related to loss of control and tip-over accidents which can result in severe injury or death. All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not mow it.

For your safety, use the slope gauge included as part of this manual to measure slopes before operating this unit on a sloped or hilly area. If the slope is greater than 15° as shown on the slope gauge, do not operate this unit on that area or serious injury could result.

DO:

- Mow up and down slopes, not across.
- Remove obstacles such as rocks, limbs, etc.
- Watch for holes, ruts or bumps. Uneven terrain could overturn the machine. Tall grass can hide obstacles.
- Use slow speed. Choose a low enough gear so that you will not have to stop or shift while on the slope. Always keep machine in gear when going down slopes to take advantage of engine braking action.
- Follow the manufacturer's recommendations for wheel weights or counterweights to improve stability.
- Use extra care with grass catchers or other attachments. These can change the stability of the machine.
- Keep all movement on the slopes slow and gradual. Do not make sudden changes in speed or direction. Rapid engagement or braking could cause the front of the machine to lift and rapidly flip over backwards which could cause serious injury.
- Avoid starting or stopping on a slope. If tires lose traction, disengage the blade(s) and proceed slowly straight down the slope.

DO NOT:

- Do not turn on slopes unless necessary; then, turn slowly and gradually downhill, if possible.
- Do not mow near drop-offs, ditches or embankments. The mower could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.
- Do not mow on wet grass. Reduced traction could cause sliding.
- Do not try to stabilize the machine by putting your foot on the ground.
- Do not use grass catcher on steep slopes.

3. CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the machine and the mowing activity. Never assume that children will remain where you last saw them.

- Keep children out of the mowing area and in watchful care of an adult other than the operator.
- Be alert and turn machine off if children enter the area.
- Before and when backing, look behind and down for small children.
- Never carry children, even with the blades off. They may fall off and be seriously injured or interfere with the safe machine operation.
- Never allow children under 14 years old to operate the machine. Children 14 years and over should only operate machine under close parental supervision and proper instruction.
- Use extra care when approaching blind corners, shrubs, trees or other objects that may obscure your vision of a child or other hazard.
- Remove key when machine is unattended to prevent unauthorized operation.

4. SERVICE

- Use extreme care in handling gasoline and other fuels. They are extremely flammable and the vapors are explosive.
- Use only an approved container.
- Never remove fuel cap or add fuel with the engine running. Allow engine to cool at least two minutes before refueling.
- Replace fuel cap securely and wipe off any spilled fuel before starting the engine as it may cause a fire or explosion.
- Extinguish all cigarettes, cigars, pipes and other sources of ignition.
- Never refuel the machine indoors because fuel vapors will accumulate in the area.
- Never store the fuel container or machine inside where there is an open flame or spark, such as a gas hot water heater, space heater or furnace.
- Never run a machine inside a closed area.
- To reduce fire hazard, keep the machine free of grass, leaves or other debris build-up. Clean up oil or fuel spillage. Allow machine to cool at least 5 minutes before storing.
- Before cleaning, repairing or inspecting, make certain the blade and all moving parts have stopped. Disconnect the spark plug wire, and keep the wire away from the spark plug to prevent accidental starting.

- Check the blade and engine mounting bolts at frequent intervals for proper tightness. Also, visually inspect blade for damage (e.g., excessive wear, bent, cracked). Replace with blade which meets original equipment specifications.
- Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.
- Never tamper with safety devices. Check their proper operation regularly. Use all guards as instructed in this manual.
- After striking a foreign object, stop the engine, remove the wire from the spark plug and thoroughly inspect the mower for any damage. Repair the damage before restarting and operating the mower.
- Grass catcher components are subject to wear, damage and deterioration, which could expose moving parts or allow objects to be thrown. For your safety protection, frequently check components and replace with manufacturer's recommended parts when necessary.
- Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves and use extra caution when servicing blade(s).
- Check brake operation frequently. Adjust and service as required.
- Muffler, engine and belt guards become hot during operation and can cause a burn. Allow to cool down before touching.
- Do not change the engine governor settings or overspeed the engine. Excessive engine speeds are dangerous.
- Observe proper disposal laws and regulations. Improper disposal of fluids and materials can harm the environment and the ecology.
- Prior to disposal, determine the proper method to dispose of waste from your local Environmental Protection Agency. Recycling centers are established to properly dispose of materials in an environmentally safe fashion.
- Use proper containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them. Properly dispose of the containers immediately following the draining of fluids.
- DO NOT pour oil or other fluids into the ground, down a drain or into a stream, pond, lake or other body of water. Observe Environmental Protection Agency regulations when disposing of oil, fuel, coolant, brake fluid, filters, batteries, tires and other harmful waste.



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.

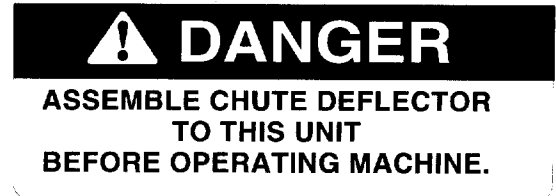


Figure 2 Safety labels found on your unit

SECTION 4: UNPACKING

TO REMOVE UNIT FROM CRATE

1. Remove all screws from the top of the crate using a 1/4" hex head socket or a flat blade screwdriver.
2. To remove ends, grasp top board on the end, and pull towards you in a downward motion. (A hammer may be helpful).
3. Set panel aside to avoid tire punctures.
4. Repeat procedure for each side of the crate.
5. Remove and discard plastic bag which covers unit.
6. Loose parts (may include the owner's guide, steering wheel, optional oil drain sleeve or hose, battery fluid, chute deflector, optional mulching plug, etc.) are on the seat or in a box wrapped in plastic. Carefully cut and remove the plastic wrap. Remove the loose parts.
7. Make certain parking brake and hydrostatic transmission relief valve are released and unit is in neutral. See the controls section of this manual for the location of the parking brake release and the hydrostatic relief valve. Raise the deck and push the unit off the skid.

SECTION 5: ASSEMBLY INSTRUCTIONS

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

NOTE: Reference to right or left hand side of the unit is observed from the driver's seat, facing forward.

TOOLS REQUIRED FOR ASSEMBLY

- (1) 1/4" socket wrench or flat blade screwdriver
- (1) 1/2" wrench or socket wrench*
- (1) 9/16" wrench or socket wrench
- (2) 7/16" wrenches or socket wrenches

*If your steering wheel cap is square, you **must** have a socket wrench in order to install the steering wheel.

BATTERY INFORMATION



WARNING

- A. Battery acid must be handled with great care as contact with it can burn and blister the skin. It is also advisable to wear protective clothing (goggles, rubber gloves and apron) when working with it.
- B. Should battery acid accidentally splatter into the eyes or onto the face, rinse the affected area immediately with clean cold water. If there is any further discomfort, seek prompt medical attention.
- C. If acid spills on clothing, first dilute it with clean water, then neutralize with a solution of ammonia/water or baking soda/water.
- D. Since battery acid is corrosive, do not pour it into any sink or drain. Before discarding empty electrolyte containers, rinse them with a neutralizing solution.

- E. NEVER connect or disconnect charger clips to battery while charger is turned on as it can cause sparks.
- F. Keep all lighted materials (cigarettes, matches, lighters) away from the battery as the hydrogen gas generated during charging can be combustible.
- G. As a further precaution, only charge the battery in a well-ventilated area.

***Always shield eyes, protect skin and clothing when working near batteries.**



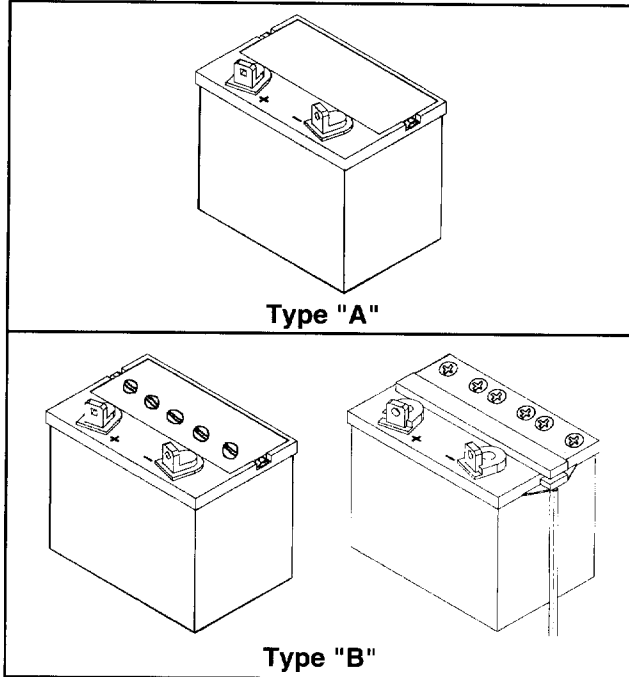
DANGER

Battery contains sulfuric acid. Refer to warning at right. Antidote: EXTERNAL—Flush with water. INTERNAL—Drink large quantities of water or milk. Follow with milk of magnesia, beaten eggs or vegetable oil. Call physician immediately. EYES: Flush with cool water for at least 15 minutes, then get prompt medical attention.

Since batteries produce explosive gases, keep all lighted materials (cigarettes, lighters, matches, etc.) away. Be sure to charge battery only in well-ventilated areas. Make certain venting path of battery drain tube (if equipped) is always open.

**KEEP BATTERIES
OUT OF THE REACH OF CHILDREN!**

BATTERY IDENTIFICATION



Compare the battery in your lawn tractor (located under the seat) with the illustration above. Type "A" batteries are activated and are ready to use. Type "B" batteries must be filled with battery fluid (acid) and charged before they are put into service. Follow the instructions which apply to the battery in your lawn tractor.

ACTIVATING AND CHARGING THE BATTERY

(TYPE "B" BATTERY ONLY)

Do not activate battery (fill with battery acid) until battery is actually placed in service. Be certain to read previous battery warnings before activating the battery.

1. Pivot the seat pivot bracket forward. Unhook the strap which secures the battery (hook is on rear frame, under fender). Disconnect the positive cable from the positive terminal. Save the hardware for reassembly.
2. Remove the battery from the lawn tractor, paying attention to how the battery is placed in the unit, and how the drain tube (attached to the battery) is routed.
3. Activate the battery as instructed in the "Quick Start" brochure included with the battery fluid. **Read instructions carefully.**

NOTE: You can continue assembling the lawn tractor while battery is standing for 30 minutes (after filling with acid), and later while you are charging the battery.

IMPORTANT: To obtain the maximum life from your battery, it **MUST BE CHARGED** prior to initial use.

CHARGE THE BATTERY after the 30 minute standing period. Battery P/N 725-1705D—Charge at 2-3 amps for one hour. Battery P/N 725-1707D, 725-0453G, and 725-1750—Charge at 6 amps for one hour.

NOTE: If you charge the battery at a lower AMP rate, use a hydrometer to make sure the battery is completely charged. The hydrometer should read 1.260 minimum at an electrolyte temperature of 60-110°F. **DO NOT CHARGE AT MORE THAN 6 AMPS.**

ATTACHING THE STEERING WHEEL

1. The hardware for attaching the steering wheel has been packed inside the steering wheel. Carefully pry off the steering wheel cap and remove the hardware.
2. Remove the steering bellow from the lift lever on the right hand side of lawn tractor. Place steering bellow over the steering shaft extending through the dash.
3. **With the wheels of the tractor pointing straight forward**, place the steering wheel over the steering shaft, positioning steering wheel as desired.
4. Place the washer with the cupped side down over the steering shaft. Secure with hex lock bolt.

NOTE: If your steering wheel cap is square, you **must** use a socket wrench.

5. Place the steering wheel cap over the center of the steering wheel and seat it with your hand.

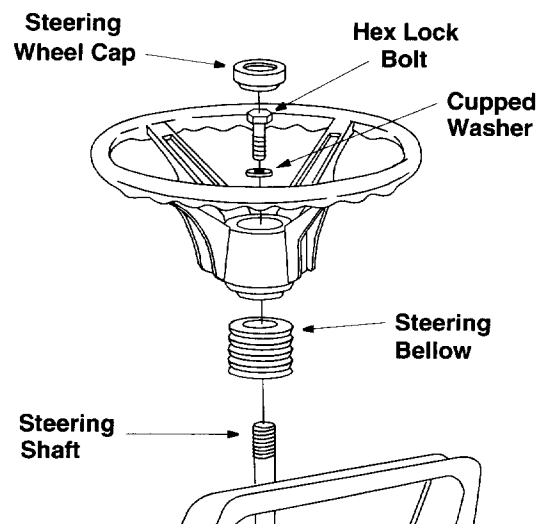
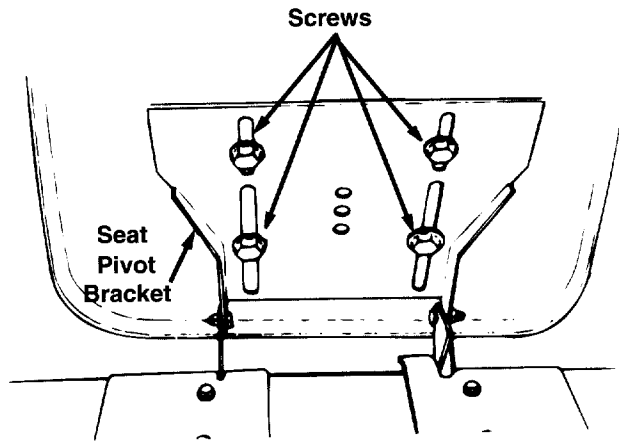
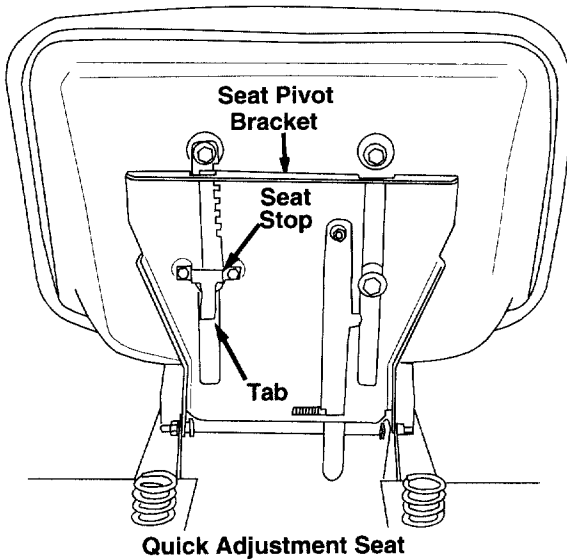


Figure 3



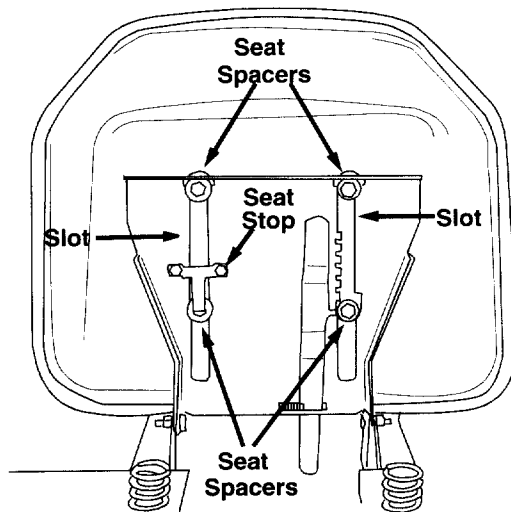
Manual Adjustment Seat

Figure 4



Quick Adjustment Seat

Figure 5



Quick Adjustment Seat

Figure 6

ATTACHING THE SEAT

There are two different seat pivot brackets used on this series of lawn tractor, a manual adjustment seat or a quick adjustment seat. See Figure 4 and Figure 5 to identify which seat is on your unit. Follow the instructions which apply to your lawn tractor.

MANUAL ADJUSTMENT SEAT

Remove the four screws which secure the seat to the seat pivot bracket. Turn the seat around and place in position against the seat pivot bracket, lining up the slotted holes in the pivot bracket with the holes in the seat. Select desired position for the seat, and secure with the four screws. See Figure 4.

NOTE: Your seat may have been shipped in a box. Remove the four screws from the bottom of seat and place seat in position against the seat pivot bracket. Follow the directions above to attach the seat.

QUICK ADJUSTMENT SEAT

Pull out tab on seat stop and hold open while sliding seat out of seat pivot bracket. See Figure 5. Turn the seat around and line up plastic seat spacers with the slots in seat pivot bracket. Slide seat in until front seat spacer engages the seat stop. See Figure 6. To adjust the seat refer to the adjustment section in this manual.

NOTE: If your seat was shipped in a box, line up plastic seat spacers with the slots in seat pivot bracket and slide seat in until front seat spacer engages seat stop.



WARNING: Before operating your unit, stand behind quick adjustment seat and pull back on seat, making sure seat is engaged in seat stop.

ATTACHING THE CHUTE DEFLECTOR

The chute deflector must be attached to the right side of the deck so that it covers the chute opening.



WARNING: Do not operate your unit unless the chute deflector has been properly installed.

1. Make certain deck is raised to its highest position (lift lever pulled all the way back).

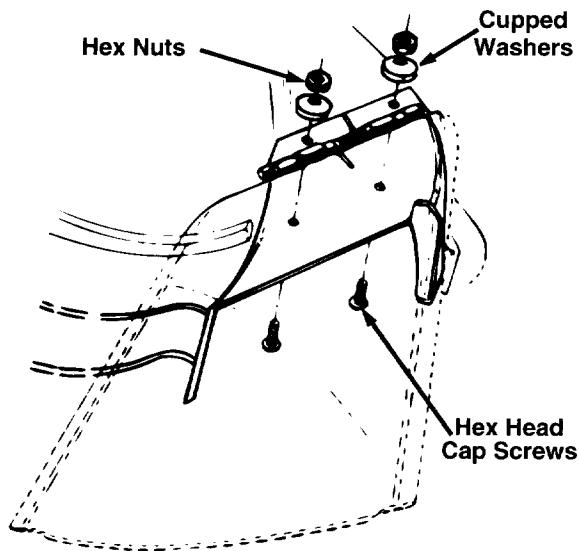


Figure 7

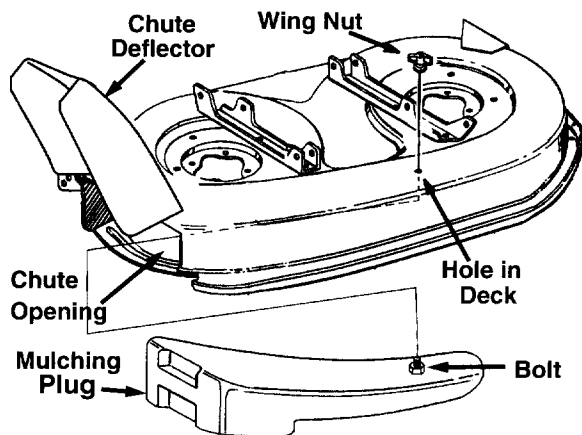


Figure 8

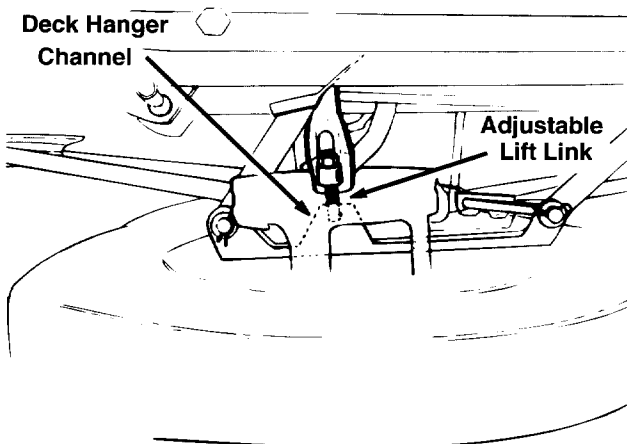


Figure 9

NOTE: Your mowing deck may be equipped with an optional mulching plug. Remove the mulching plug by removing the wing nut on top of the deck. Grasp the mulching plug and pull out of the deck.

2. Remove the hex head cap screws, cupped washers and hex nuts which are attached to the deck next to the chute opening.
3. Place the chute deflector in position as shown in Figure 7. Secure with hardware just removed. Cupped sides of washers go against the chute deflector.

INSTALLING THE MULCHING PLUG (OPTIONAL EQUIPMENT)

1. Remove the mulching plug from the box packed with your lawn tractor (If not already removed from the deck).
2. Remove the wing nut from the bolt on the mulching plug.
3. Lift up the chute deflector and insert the mulching plug through chute opening. See Figure 8.
4. Line up the bolt on the mulching plug with the hole in the top of the deck. Push up on the end of the mulching plug and secure with the wing nut.

TIRE PRESSURE

The tires on your unit may be over-inflated for shipping purposes. Reduce the tire pressure before operating the unit. Recommended operating tire pressure is approximately 10 p.s.i. Check sidewall of tire for maximum p.s.i.



WARNING: Maximum tire pressure under any circumstances is 30 p.s.i. Equal tire pressure should be maintained on all tires.

LEVELING THE DECK

With unit on hard, level surface, place the blades in a straight line, and measure the distance from the outside edge of the blade tips to the ground.

If adjustment is needed, proceed as follows:

1. Remove the hairpin clip and flat washer from the bottom of the adjustable lift link on the left side of the deck. (Hairpin clip and flat washer are on the inside of the lift link.)
2. Pull the adjustable lift link out of the deck hanger channel. See Figure 9. Turn the adjustable lift link up or down as necessary to level the deck. Usually only one or two turns are needed.

3. Insert the end of the adjustable lift link into the hole in the deck hanger channel. Recheck the adjustment. Readjust if necessary.
4. When deck is level, secure end of adjustable lift link with flat washer and hairpin clip.

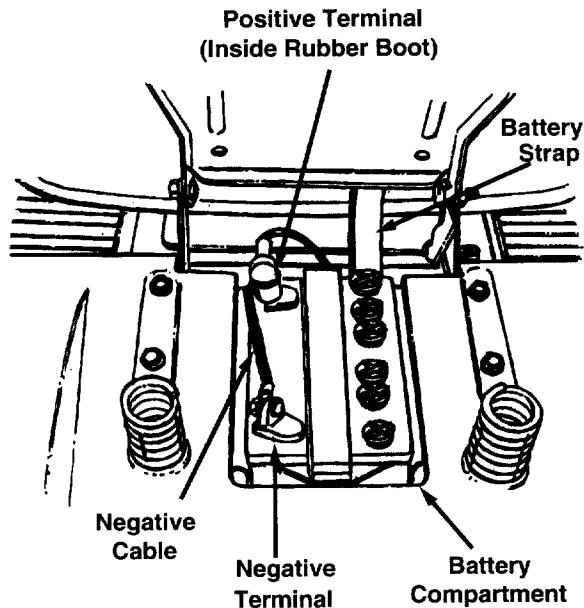


Figure 10

INSTALLING THE BATTERY (TYPE "A" BATTERY)

NOTE: If battery is put into service after date shown on top of battery, charge for minimum of 1 hour at 6-10 amps

1. Lift the seat.
2. Remove the plastic cover from the negative terminal.
3. Remove the hex bolt and nut from the negative (black) cable. Attach negative cable to the negative terminal with this bolt and nut.

INSTALLING THE BATTERY (TYPE "B" BATTERY)

1. Lift the seat.
2. Make certain both the negative (black) cable and the positive (red) cable are routed up through the battery compartment as shown in Figure 10.
3. Replace the battery into the battery compartment in the same position as it was before (positive terminal is toward the front of the unit).
4. Attach the positive (red) cable to the positive terminal of the battery. Secure with hex bolt and nut previously removed. Slide rubber boot down over the positive terminal.
5. Remove the hex bolt and nut from the negative (black) cable. Attach negative cable to the negative terminal with this bolt and nut.
6. Secure battery by hooking battery strap into slot in rear frame, under the fender. See Figure 11.
7. Insert the drain tube down through the hole in the battery compartment and the hole in the transaxle reinforcement bracket located on the **right** side of the unit. See Figure 11. Be certain drain tube is routed away from the wheel rim.
8. Trim excess end of drain tube if necessary (about 4" should extend past the bracket or cable tie).

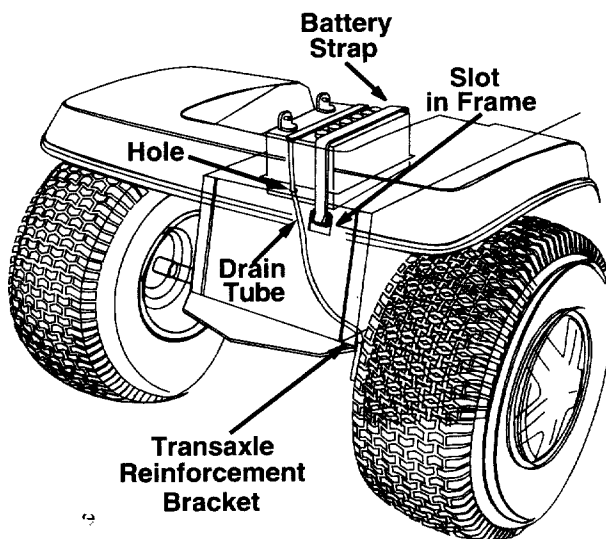


Figure 11

SECTION 6: CONTROLS

IGNITION SWITCH

The ignition switch is located on the dashboard. The engine is started by turning the key to the START position. When the engine is running, leave the key in the ON position. To stop the engine, turn the key to the OFF position. See Figure 12.



WARNING: Remove the key from the tractor when the tractor is not in use to prevent accidental starting.

THROTTLE CONTROL

The throttle control is located on the dashboard and is used to regulate the engine speed. To get maximum efficiency from cutting, the throttle should be in the FAST position when operating the mower. See Figure 12.

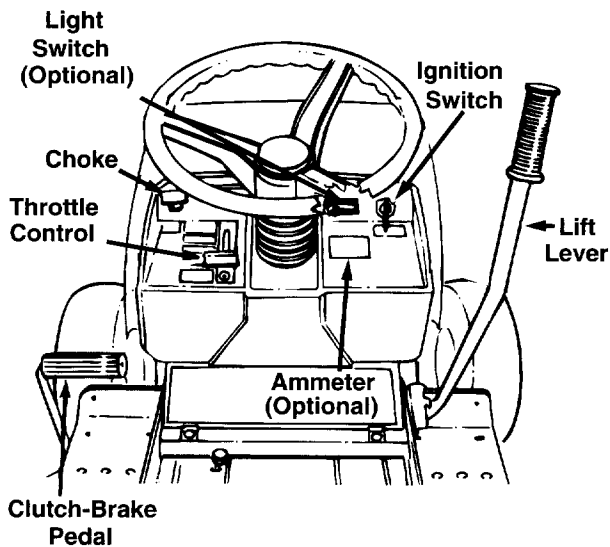


Figure 12

CHOKE CONTROL

The choke control is located on the dashboard and is operated manually. Details for the choke operation are covered in the separate engine manual packed with your unit. See Figure 12.

LIGHT SWITCH (Optional)

The head lamps are operated by pushing the light switch located on the dashboard. The head lamps will only operate when the engine is running. See Figure 12.

AMMETER (Optional)

The ammeter registers the rate of battery charge or discharge. The ammeter will register on the discharging side with starting the engine. It should register on the opposite side (charging) when the engine is running in the fast position until the battery is completely charged. With a fully charged battery or with the engine idling, the ammeter will not show a charge. See Figure 12.

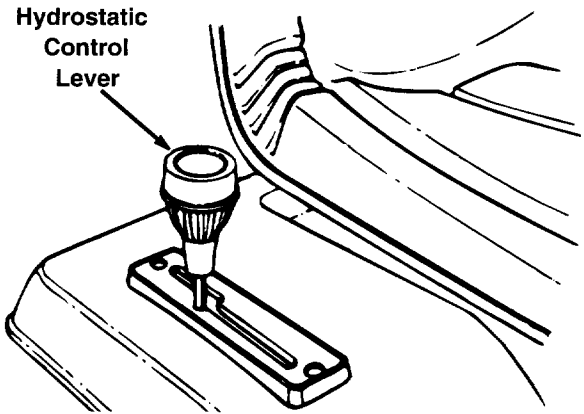


Figure 13

HYDROSTATIC CONTROL LEVER

The hydrostatic control lever is located on top of the fender on the right side of the tractor. This single control lever, connected to the hydrostatic transmission, controls both the speed and direction of the tractor. Infinite speed control is achieved by moving the control lever forward or backward. The farther forward or backward you move the control lever, the faster you will travel. Pulling the control lever into neutral (N) area will stop the tractor. See Figure 13.

CLUTCH-BRAKE PEDAL

The clutch-brake pedal is located on the left side of the tractor. See Figure 12. Depressing the pedal returns the drive unit to neutral (N) and applies the brake.

NOTE: The clutch-brake pedal must be depressed to start the engine.

PARKING BRAKE

To set the parking brake, depress the clutch-brake pedal, pull up the parking brake knob and release the clutch-brake pedal. It will stay in the raised position. To release the parking brake, depress and release the clutch-brake pedal while pushing down on the parking brake knob. See Figure 14.

NOTE: The parking brake must be set if the operator leaves the seat with the engine running.

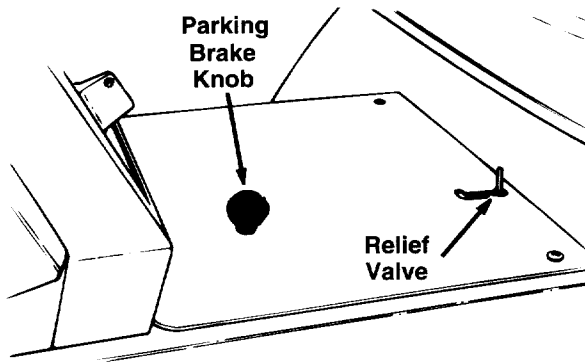


Figure 14

RELIEF VALVE

A hydrostatic relief valve is provided so the unit can be moved without the engine running. The lever which operates the relief valve is located on the console. See Figure 14.

To operate the relief valve, place the hydrostatic control lever in neutral, release the parking brake, push the lever forward and to the right to lock. Be certain to release the lever by pushing it to the left before operating the engine.

INDICATOR LIGHTS (Optional)

If your unit is equipped with indicator lights, two or three indicator lights are located in the dash panel. If a light illuminates when attempting to start the unit, proceed as follows.

CLUTCH—Depress the clutch pedal.

PTO—Place lift lever in the BLADES STOP position.

OIL (Vanguard Twin and Intek Twin Engines Only)—Check the crankcase oil level, and add oil as required.

CUTTING CONTROLS

A. LIFT LEVER

The lift lever is used to raise and lower the cutting deck and to engage and disengage the blades. Pulling it all the way back and locking it disengages the blades.

NOTE: The lift lever **must** be in the BLADES STOP position when starting the engine, when shifting into reverse and if the operator leaves the seat. See Figure 15.

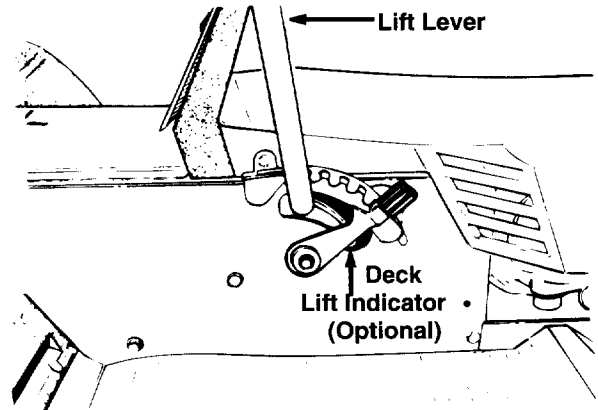


Figure 15

B. DECK LIFT INDICATOR (Optional Equipment)

The deck lift indicator (if so equipped) marks the position being used for the lift lever. Select the lift lever position desired, press the indicator lever outward, move it to the position immediately below the lift lever and release the indicator lever.

See Figure 15.

C. SETTING THE CUTTING HEIGHT

1. Select the position for the lift lever which gives the desired cutting height. Move the deck lift indicator (if so equipped) so that the lift lever can be returned to the same position after it is raised.
2. Move the deck wheels (if so equipped) to the hole location so the wheels are 1/4 inch above the ground. All wheels must be placed in the same relative position.

SECTION 7: OPERATION



WARNING

AVOID SERIOUS INJURY OR DEATH

- GO UP AND DOWN SLOPES, NOT ACROSS.
 - AVOID SUDDEN TURNS.
- DO NOT OPERATE THE UNIT WHERE IT COULD SLIP OR TIP.
- IF MACHINE STOPS GOING UPHILL, STOP BLADE(S) AND BACK DOWNHILL SLOWLY.
- DO NOT MOW WHEN CHILDREN OR OTHERS ARE AROUND.
- NEVER CARRY CHILDREN.
- LOOK DOWN AND BEHIND BEFORE AND WHILE BACKING.
- KEEP SAFETY DEVICES (GUARDS, SHIELDS, AND SWITCHES) IN PLACE AND WORKING.
- REMOVE OBJECTS THAT COULD BE THROWN BY THE BLADE(S).
- KNOW LOCATION AND FUNCTION OF ALL CONTROLS.
- BE SURE BLADE(S) AND ENGINE ARE STOPPED BEFORE PLACING HANDS OR FEET NEAR BLADE(S).
- BEFORE LEAVING OPERATOR'S POSITION, DISENGAGE BLADE(S), PLACE THE SHIFT LEVER IN NEUTRAL, ENGAGE BRAKE LOCK, SHUT ENGINE OFF AND REMOVE KEY.

READ OPERATOR'S MANUAL

GAS AND OIL FILL-UP

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

IMPORTANT: Your tractor is shipped with oil; however you **must** check the oil level before operating. Be careful not to overfill.

STARTING THE ENGINE

IMPORTANT: This unit is equipped with a **safety interlock system** for your protection. The purpose of the safety interlock system is to prevent the engine from cranking or starting unless the clutch-brake pedal is depressed and the lift lever is in the BLADES STOP position. In addition, the lift lever must be in the BLADES STOP position when the unit is put into reverse or the engine will shut off. If the operator leaves the seat with the lift lever engaged and/or without setting the parking brake, the engine will shut off.



WARNING: Do not operate the tractor if the interlock system is malfunctioning because it is a safety device, designed for protection.

1. Place the lift lever in the BLADES STOP position.
2. Depress the clutch-brake pedal and set the parking brake.
3. Place the hydrostatic control lever in the NEUTRAL (N) position.
4. Set the throttle control in the FAST position.
5. Pull out the choke control (a warm engine may not require choking).
6. Turn the ignition key to the right to the START position. After the engine starts, release the key. It will return to the ON position.

NOTE: *Protect the starter's life by using short starting cycles of several seconds. Cranking more than 15 seconds per minute can damage the starter motor.*

7. Push choke knob in gradually. Move the throttle control to desired engine speed.

STOPPING THE ENGINE

Turn the ignition key to the left to the OFF position. Remove the key to prevent accidental starting.

IMPORTANT: If you strike a foreign object, stop the engine. Remove wire from spark plug, thoroughly inspect the unit for any damage, and repair the damage before restarting and operating the mower.

NOTE: *If any problems are encountered, refer to the Trouble Shooting Guide.*

OPERATING THE LAWN TRACTOR

1. Move throttle control to full throttle to prevent strain on the engine and to operate the cutting blades.
2. Depress the clutch-brake pedal while pushing down on the parking brake knob so the parking brake is released, and then release the clutch-brake pedal.
3. Place the hydrostatic control lever in either the FORWARD or REVERSE position. The farther forward you move the hydrostatic control lever, the faster you will travel.



WARNING: Look to the rear before backing up.

To stop the lawn tractor, pull the hydrostatic control lever into NEUTRAL (N) or depress the clutch-brake pedal.

Be sure that the lawn is clear of stones, sticks, wire, or other objects which could damage lawn tractor or engine. For best results and to insure more even grass distribution, do not mow when lawn is excessively wet.



WARNING: Before leaving the operator's position for any reason, disengage the blades, place the hydrostatic control lever in neutral, engage the parking brake, shut engine off and remove the key.

When stopping the unit to empty a grass bag, etc., follow the instructions above. This procedure will also eliminate "browning" the grass, which is caused by hot exhaust gases from a running engine.

GRASS COLLECTOR AVAILABLE

Grass Collector Model 190-063-000 is available as optional equipment for lawn tractors with 38" and 42" decks. Grass Collector Model 190-103-000 is available for lawn tractors with 46" decks.



WARNING: The mower should not be operated without the entire grass catcher or chute deflector in place.

NOTE: Under normal usage bag material is subject to wear, and should be checked periodically. Be sure to use only factory authorized replacement bag.

SECTION 8: ADJUSTMENTS



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

MANUAL ADJUSTMENT SEAT

To adjust the position of the seat, loosen the four screws on the bottom of the seat. See Figure 4. Slide the seat forward or backward as desired. Retighten the four screws.

QUICK ADJUSTMENT SEAT

To adjust the position of the seat, move the seat adjustment lever (located under the seat) to the left and slide the seat forward or backwards. See Figure 16. Make sure seat is locked into one of the six adjustment positions before operating the lawn tractor.

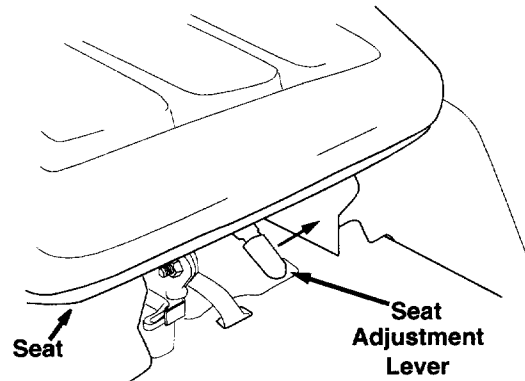


Figure 16

HYDROSTATIC NEUTRAL CONTROL ADJUSTMENT

The hydrostatic transmission control is in correct adjustment when the tractor does not move with the engine running, the clutch engaged and the hydrostatic control lever in the neutral position. If adjustment is necessary, follow these steps:

1. Raise both rear wheels off the ground by placing blocks under the rear frame.
2. Remove the transmission panel by removing the parking brake knob, rubber boot on hydro relief valve and truss machine screws.
3. Loosen the hex jam nut on the speed selector adjusting rod. See Figure 17.

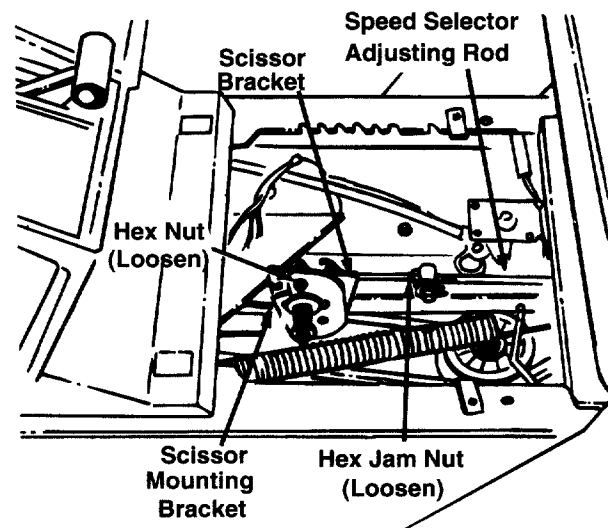


Figure 17

4. Loosen the hex nut on the scissor mounting bracket. See Figure 17.
5. Start the engine and run at full throttle.
6. Move the hydrostatic control lever until you find neutral (rear wheels do not rotate in either direction).
7. Depress the clutch-brake pedal until the scissor brackets come together.
8. Shut off the engine.
9. Tighten the hex nut on the scissor mounting bracket
10. Thread the speed selector rod in or out of the ferrule until the hydrostatic control lever lines up in the neutral position on the speed control index bracket.
11. Tighten hex jam nut against the ferrule.
12. Replace the transmission panel, parking brake knob and rubber boot on relief valve.
13. Remove the blocks from under the frame and test the operation of the tractor.

DECK LEVELING ADJUSTMENT

If an uneven cut is obtained, the deck may be leveled by following instructions in the Assembly section.

CUTTING DECK ENGAGEMENT ADJUSTMENT

The cutting deck engagement may be adjusted to make certain deck is disengaged when lift lever is in the BLADES STOP position. Correct adjustment as follows.

With the engine off, place the lift lever in the highest cutting position (first position). Remove the cotter pin and flat washer which secure the disengagement rod to the stabilizer shaft assembly. See Figure 18. Shorten the rod by threading it in, until the ferrule is against the back of the slot in the lift shaft assembly, and the rod lines up with the hole in the stabilizer shaft. For more belt tension the disengagement rod must be lengthened. To decrease belt tension the disengagement rod must be shortened.

Check the adjustment by placing the lift lever in the BLADES STOP position. The deck should move up and forward, allowing the belt to become loose. Start and test for disengagement. Repeat procedure as necessary.

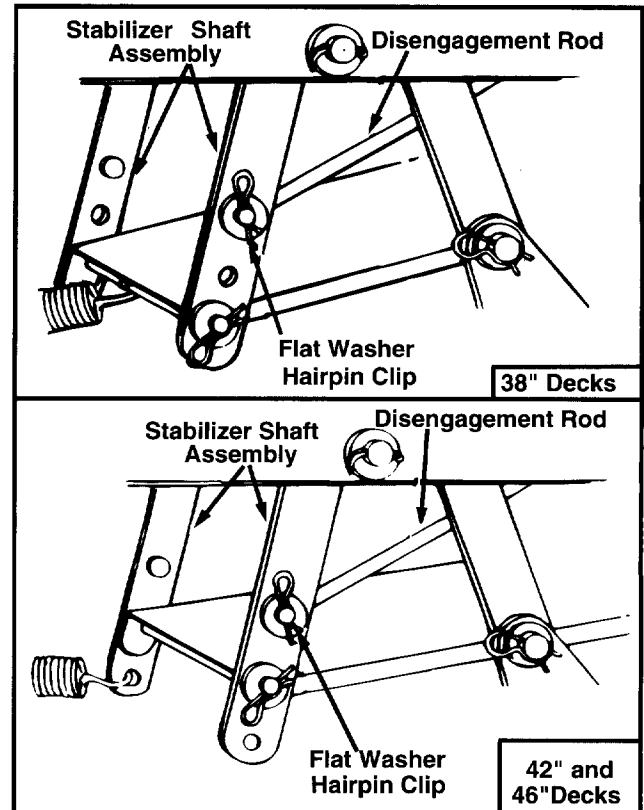


Figure 18

BRAKE ADJUSTMENT (See Figure 19)

The brake is located by the right rear wheel inside the frame. The brake has been set at the factory to the proper clearance. During normal operation of this machine, the brakes are subject to wear and will require periodic examination and adjustment.



WARNING: Do not have the engine running when you adjust the brake.

To adjust the brake, adjust the nut so the brake starts to engage when the brake lever is 1/4" to 5/16" away from the axle housing.

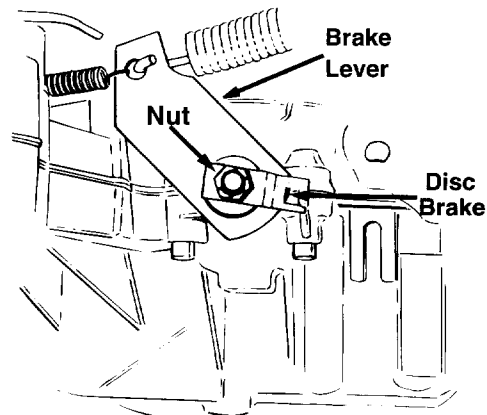


Figure 19

CARBURETOR ADJUSTMENTS



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

Minor carburetor adjustments may be required to compensate for differences in fuel, temperature, altitude and load. Refer to separate engine manual for carburetor adjustment information.

NOTE: A dirty air cleaner will cause an engine to run rough. Be certain air cleaner is clean and attached to the carburetor before adjusting carburetor.

SECTION 9: LUBRICATION



WARNING: Always stop engine and disconnect spark plug wire before cleaning, lubricating or doing any kind of work on lawn tractor.

STEERING GEARS

Lubricate teeth of steering gears with automotive multi-purpose grease after every 25 hours of operation or once a season. See Figure 20.

STEERING SHAFT

Lubricate steering shaft at least once a season with light oil.

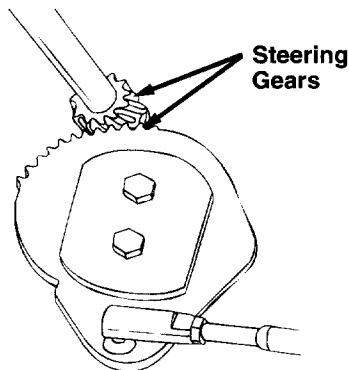


Figure 20

HYDROSTATIC TRANSMISSION

The hydrostatic transmission is filled at the factory and does not require checking. If repairs are needed, contact your local service dealer. (Hydrostatic transmission contains approximately 2.5 quarts of SAE 20W50 oil.)

LINKAGE

Once a season lubricate all the pivot points on the clutch, brake and lift linkage with SAE 30 engine oil.

WHEELS

The front wheels may be provided with optional grease fittings. The rear wheels must be removed from the axle for lubrication. Lubricate at least once a season with automotive multi-purpose grease.

PIVOT POINTS

Lubricate all pivot points with light oil at least once a season.

BALL JOINTS

The ball joints and drag link ends are permanently lubricated.

SECTION 10: MAINTENANCE



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

TROUBLE SHOOTING

Refer to the trouble shooting chart for engine problems.

HYDROSTATIC TRANSMISSION COOLING

The hydrostatic transmission is cooled by the oil, fan and fins. If the hydrostatic transmission runs hot, check to see if the fan is in operating condition, the oil level is correct and the fins are clean.

NOTE: DO NOT use high pressure water spray or steam to clean the hydrostatic transmission.

ENGINE

Refer to the separate engine manual for engine maintenance instructions.

Service **air cleaner** every 10 hours under normal conditions. Clean every few hours under extremely dusty conditions. To service the air cleaner, refer to the separate engine manual packed with your unit.

The **spark plug(s)** should be cleaned and the gap reset once a season. Spark plug replacement is recommended at the start of each mowing season; check engine manual for correct plug type and gap specifications.

Maintain **engine oil** as instructed in the separate engine manual packed with your unit. Read and follow instructions carefully.

FUEL FILTER

Your unit is equipped with a replaceable in-line fuel filter. Replace filter whenever contamination or discoloration is noticed. Order replacement filter through your authorized engine service dealer.

CLEANING ENGINE AND DECK

Any fuel or oil spilled on the machine should be wiped off promptly. Grass, leaves, and other dirt must not be left to accumulate around the cooling fins of the engine or on any part of the machine.

Clean the underside of the deck after each mowing.

Optional Oil Drain Sleeve

Your lawn tractor may have a plastic oil drain sleeve packed with the loose parts for your convenience in draining oil from the crankcase. To drain the oil, snap small end of oil drain sleeve onto oil sump. See Figure 21. Remove drain plug and drain oil into a suitable container.

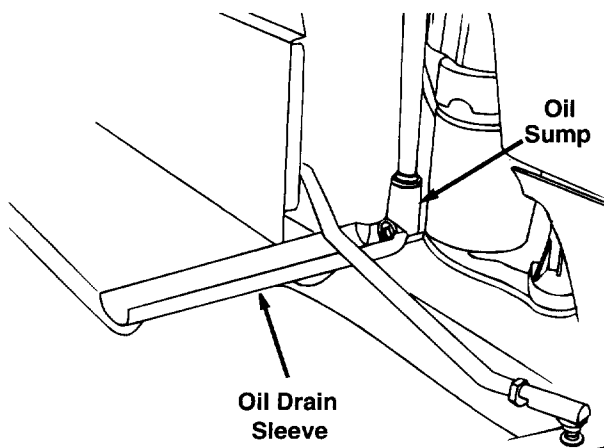


Figure 21

Optional Oil Drain Valve

Your lawn tractor may have a valve installed on the engine for draining oil from the crankcase. See Figure 22. To drain the oil, insert the 12" hose (shipped loose with your unit) over the end of the valve. Place the other end in a suitable container. Push in black cap, rotate counterclockwise and pull valve open. When oil is completely drained, push top of valve in and rotate clockwise to close.

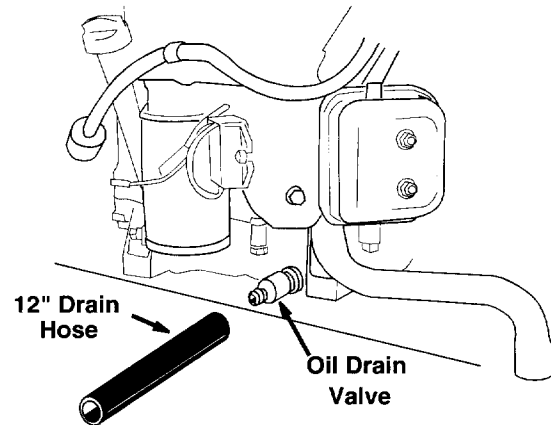


Figure 22

WHEEL ADJUSTMENT (Units with Adjustable Tie Rod)

The caster (forward slant of the king pin) and the camber (tilt of the wheels out at the top) require no adjustment. Automotive steering principles have been used to determine the caster and camber on the tractor. The front wheels should toe-in between 1/16- 5/16 inch.

To adjust the toe-in, follow these steps.

1. Remove the hex nut and lock washer, and drop the end of the tie rod from the axle bracket. See Figure 23.
2. Loosen the hex jam nut on tie rod.
3. Adjust the tie rod assembly for correct toe-in.

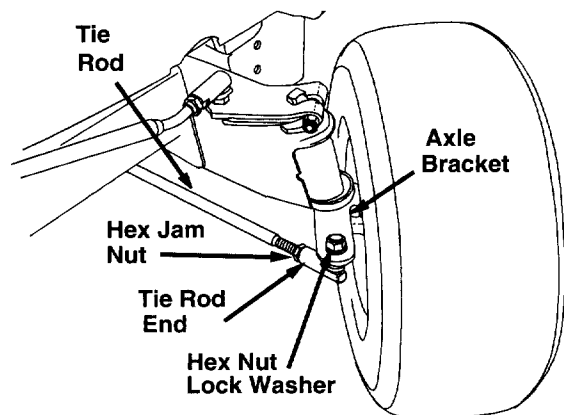


Figure 23

Dimension "B" should be approximately 1/16"-5/16" less than Dimension "A." See Figure 24. To increase Dimension "B," screw tie rod into tie rod end. To decrease Dimension "B," unscrew tie rod from tie rod end. Reassemble tie rod. Check dimensions. Readjust if necessary.

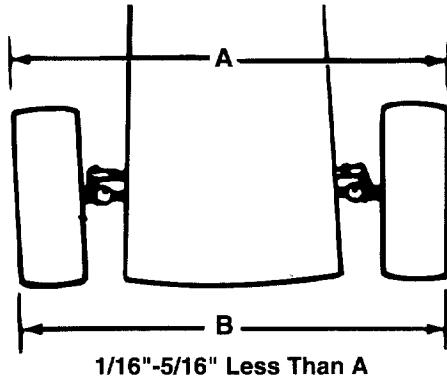


Figure 24

CUTTING BLADES

A. REMOVAL FOR REPLACEMENT OR SHARPENING



WARNING: Be sure to disconnect and ground the spark plug wire(s) and remove ignition key before working on the cutting blade to prevent accidental engine starting. Protect hands by using heavy gloves or a rag to grasp the cutting blades.

1. Remove the hex flange nut which holds the blade to the blade spindle.
2. Remove the blade from the spindle.

A. SHARPENING

Remove the cutting blades by following the directions of the preceding section.

When sharpening the blades, follow the original angle of grind as a guide. It is extremely important that each cutting edge receives an equal amount of grinding to prevent an unbalanced blade. An unbalanced blade will cause excessive vibration when rotating at high speeds, may cause damage to the mower and could break, causing personal injury. The blade can be tested for balance by balancing it on a round shaft screwdriver. Remove metal from the heavy side until it balances evenly.

B. REASSEMBLY

When replacing blades, be sure to install the blade with the side of the blade marked "Bottom" (or with part number) facing the ground when the mower is in the operating position. Carefully align "star" on blade with "star" on spindle. Secure with hex flange nut.

Blade Mounting Torque

Hex Flange Nut: 840 in. lb. min., 1080 in. lb. max.

To ensure safe operation of your unit, **all** nuts and bolts must be checked periodically for correct tightness.

BATTERY CARE AND MAINTENANCE (TYPE "A" BATTERY)

Type "A" batteries are sealed and are maintenance free.

BATTERY CARE AND MAINTENANCE (TYPE "B" BATTERY)

CHECK FLUID LEVEL

Check fluid level inside each cell of the battery every two weeks and before and after charging. Always keep level between maximum and minimum fill level.

Add only distilled water. Never add additional acid or any other chemicals to the battery after initial activation.

NOTE: After operating the lawn tractor for a long period of time, check the fluid level in the battery as it can overheat and lose fluid.

CHARGING THE BATTERY (ALL BATTERIES)

The engine is equipped with an alternator which charges battery when tractor is operated. Under normal conditions, the battery only needs to be charged before, during and after off-season storage. Follow the instructions under "Off-Season Storage."

To charge the battery: Battery P/N 725-1705D—Charge at 2-3 amps for one hour. Battery P/N 725-1707D, 725-0453G, and 725-1750—Charge at 6 amps for one hour.

REMOVING / INSTALLING / JUMP STARTING



WARNING: When removing or installing the battery, follow these instructions to prevent the screwdriver from shorting against the frame.

Removing the Battery: Disconnect negative cable first, then positive cable.

Installing the Battery: Connect positive cable first, then negative cable.

Jump Starting

1. First, connect end of one jumper cable to the positive terminal of the good battery, then the other end to the positive terminal of the dead battery.
2. Connect the other jumper cable to the negative terminal of the good battery, then to the FRAME OF THE UNIT WITH THE DEAD BATTERY.



WARNING: Failure to use this procedure could cause sparking, and the gas in either battery could explode.

CLEAN THE BATTERY

Clean the battery by removing it from the unit and washing with a baking soda and water solution. If necessary, scrape the battery terminals with a wire brush to remove deposits. Coat terminals and exposed wiring with grease or petroleum jelly to prevent corrosion.

BATTERY FAILURES

Some common causes for battery failure are: incorrect initial activation, lack of water, adding chemicals other than water after initial activation, undercharging, overcharging, corroded connections, freezing. **These failures do not constitute warranty.**

TIRES

Recommended operating tire pressure is approximately 10 p.s.i. Maximum tire pressure under any circumstances is 30 p.s.i. Equal tire pressure should be maintained on all tires.

When installing a tire to the rim, be certain rim is clean and free of rust. Lubricate both the tire and rim generously. Never inflate to over 30 p.s.i. to seat beads.



WARNING: Excessive pressure (over 30 p.s.i.) when seating beads may cause tire/rim assembly to burst with force sufficient to cause serious injury.

BELT REMOVAL AND REPLACEMENT



WARNING: Disconnect the spark plug wire(s) and ground it against the engine. Block the wheels of the unit.

NOTE: Figure 25 and 27 are shown with the unit tipped up for clarity. It is not necessary to tip the unit to remove the belts.

However, if tipping the unit is desired, remove the battery from the unit. To prevent gasoline leakage, drain the gasoline, or remove the fuel tank cap, place a thin piece of plastic over the neck of the fuel tank and screw on the cap. Be certain to remove the plastic when finished changing the belts. Block unit securely.

DECK BELT (38" and 42" DECKS)

1. Place the lift lever in the engaged (all the way forward) position.

2. Disconnect the spring which is attached to a bracket on the transaxle, inside the right rear wheel. Use a spring puller or other suitable tool.

NOTE: When reassembling, make certain belt keeper pins are assembled in the same locations from which they were removed. See Figure 25.

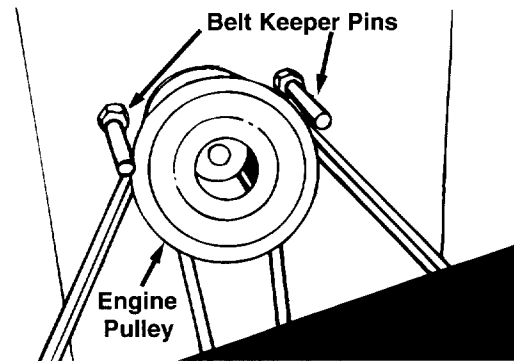


Figure 25

3. Place the lift lever in the BLADES STOP position.
4. Remove the belt keeper pins from the lower frame. See Figure 25.
5. Unhook the deck belt from the engine pulley.
6. Place the lift lever in the engaged (all the way forward) position.
7. Disconnect the stabilizer plate from the stabilizer shaft assembly by removing the hairpin clips and flat washers and sliding out the rod. Refer to Figure 18.
8. Disconnect the six deck links by removing the hairpin clips and flat washers.
9. Place the lift lever in the BLADES STOP position.
10. Slide the deck from beneath the lawn tractor.

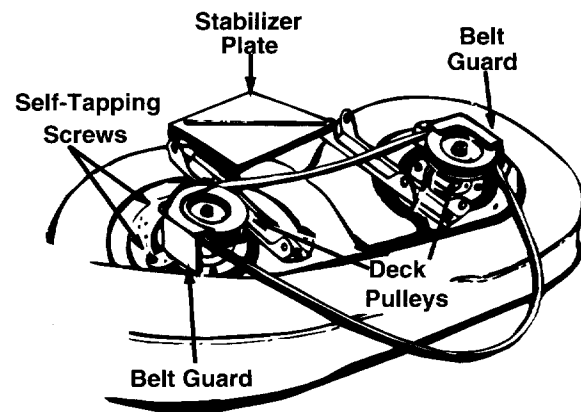


Figure 26

11. Remove the belt guards at each deck pulley by removing the self-tapping screws. See Figure 26.

12. Remove and replace the belt, reassemble following the instructions in reverse order.

DECK BELTS (46" DECK)

1. Place the lift lever in the engaged (all the way forward) position.
2. Disconnect the spring which is attached to a bracket on the transaxle, inside the right rear wheel. Use a spring puller or other suitable tool.

NOTE: When reassembling, make certain belt keeper pins are assembled in the same locations from which they were removed. See Figure 25.

3. Place the lift lever in the BLADES STOP position.
4. Remove the belt keeper pins from the lower frame. See Figure 25.
5. Unhook the deck belt from the engine pulley.
6. Place the lift lever in the engaged (all the way forward) position.
7. Disconnect the stabilizer plate from the stabilizer shaft assembly by removing the hairpin clips and flat washers and sliding out the rod. Refer to Figure 18.
8. Disconnect the six deck links by removing the hairpin clips and flat washers.
9. Place the lift lever in the BLADES STOP position.
10. Slide the deck from beneath the lawn tractor.
11. Remove the top deck drive belt by lifting up on the stabilizer plate, and slipping belt off the pulley.
12. Remove the belt cover at the two outside deck pulleys, by removing the self-tapping screws.
13. Release the tension on the spring loaded idler by pushing the idler toward the rear of the deck.
14. Remove the belt from around the idler pulleys, and remove from the three deck pulleys.
15. Reassemble new belts, following instructions in reverse order.

DRIVE BELT (See Figure 27)

1. Depress the clutch pedal and set the parking brake.
2. Remove the deck from the lawn tractor.
3. Raise and block the front wheels of the lawn tractor so you can work under it.
4. Remove the transmission panel by removing the parking brake knob, relief valve rubber boot and truss machine screws.
5. Raise the seat. Disconnect the battery cables. Remove the battery from the unit.

6. Disconnect the idler pulley spring which is attached to a bracket on the frame, inside the left rear wheel. Use a spring puller or other suitable tool.
7. Remove the three self-tapping screws from the cooling fan. Remove the fan.
8. Remove the center bolt, lock washer and flat washer, and let the engine pulley drop down so the belt is past the belt guards.
9. Roll the belt off of top sheave of engine pulley, onto the pulley hub.
10. Remove the belt from the transmission pulley and engine pulley, and remove from the unit.
11. Reassemble using a new belt, following instructions in reverse order.

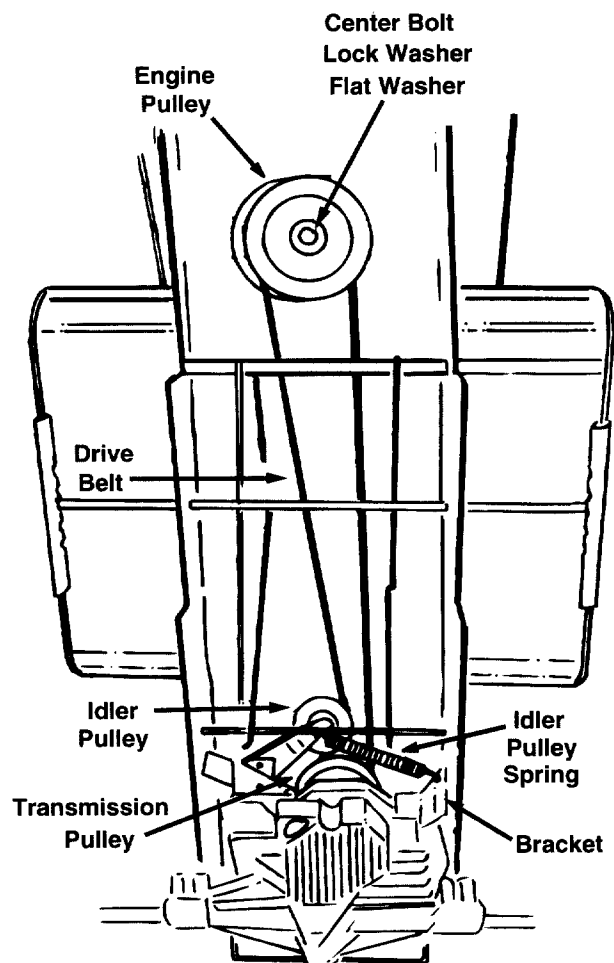


Figure 27

SECTION 11: OFF-SEASON STORAGE

If the machine is to be inoperative for a period longer than 30 days, prepare for storage as follows.

1. Clean the engine and the entire unit thoroughly.
2. Lubricate all lubrication points. Wipe the entire machine with an oiled rag to protect the surfaces.
3. Refer to the engine manual for correct engine storage instructions. The engine must be completely drained of fuel to prevent gum deposits from forming on essential carburetor parts, fuel lines and fuel tanks.
4. **Charge battery fully.** The battery loses some of its charge each day when the unit is not used. NEVER

store battery without a full charge. Recharge battery before returning to service or every two months, whichever occurs first.

5. When storing unit for extended periods, disconnect battery cables. Removing battery from unit recommended.
6. Store unit in a clean, dry area. Do not store next to corrosive materials, such as fertilizer.

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

SECTION 12: OPTIONAL EQUIPMENT

Description	Model No.
40" Two Stage Snow Thrower	190-621-000
42" Dozer Blade	190-620-000
Mulching Kit for 38"/42" Deck	190-112-000
Mulching Kit for 46" Deck	190-118-000
Twin Bag Grass Collector for 38" and 42" Side Discharge Decks	190-063-000
Twin Bag Grass Collector for 46" Side Discharge Decks	190-103-000
Front Counterweight	190-745-000
Tire Chains—	18 x 8.5 190-754-000
	18 x 9.5 190-657-000
	20 x 8 190-658-000
	20 x 10 190-915-000
31 Lb. Wheel Weights	190-215-000
Gang Reel (Set of three)	45-0195*
38" Lawn Sweeper	45-0222*
Heavy Duty Dump Cart	45-0171*
Tine De-Thatcher	45-0186*

At the time of manufacture of lawn tractor, the optional equipment listed is available.

NOTE: These lawn tractors are not designed for ground-engaging equipment (tillers, plows, etc).

*Available through your local dealer or from Agri-Fab Inc., 303 W. Raymond Street, Sullivan, Illinois 61951.

SECTION 13: TROUBLE SHOOTING GUIDE

Trouble	Possible Cause(s)	Corrective Action
Engine will not crank	Safety switch button not depressed. Battery installed incorrectly. Battery is dead or weak. Blown fuse or circuit breaker. Engine ground wire loose.	There are two switches in the starting circuit of your unit: the clutch pedal switch and the deck lift lever switch. Make certain the actuator is fully depressing the buttons on each switch. The battery must be installed with negative terminal attached to black ground wire. Negative terminal is identified at the post by "NEG", "N" or "-". The positive terminal, identified by "POS", "P" or "+", must be attached to the big red wire which goes to the solenoid. All batteries are to be fully charged before installing. Refer to "Quick Start" battery guide that came with the operator's manual. Check fluid level in battery. If fluid is low, fill to just below split rings with water. Charge with 6 AMP charger until fully charged. Refer to operator's manual for fuse box location. Replace fuse with automotive type fuse. Fuses seldom fail without a reason. The problem must be corrected. Check for loose connections in the fuse holder. Replace fuse holder if necessary. A dead short may be in the cranking or charging circuit where the insulation may have rubbed through and exposed the bare wire. Replace the wire or repair with electrician's tape if the wire strands have not been damaged. Note: Look for a wire pinched between body panels, burned by the exhaust pipe or muffler or rubbed against a moving part. Engine should have a black ground wire running from engine to frame or mounting bolt.
Engine cranks but will not start	Throttle or choke not in starting position. No fuel to the carburetor. No spark to spark plug. Dirty air cleaner.	Check operator's manual for correct position for throttle control and choke for starting. Gasoline tank empty. Fill. Fuel line or in-line fuel filter plugged. Remove and clean fuel line. Replace filter if necessary. Spark plug lead disconnected. Connect lead. Hold spark plug lead away from engine block about 1/8". Crank engine. There should be a spark. If not, have engine repaired at authorized engine service dealer. Faulty spark plug. To test, remove spark plug. Attach spark plug lead to spark plug. Ground the spark plug body against the engine block. Crank the engine. The spark plug should fire at the electrode. Replace if it does not. If the air cleaner is dirty, the engine may not start. Refer to the engine manual packed with your unit.
Engine smokes	Engine oil has been overfilled. Engine loses crankcase vacuum.	Check oil level. Dipstick not seated or broken. Replace defective part. Engine breather defective. Replace.
Excessive vibration	Bent or damaged blade. Bent blade.	Stop engine immediately. Check all pulleys, blade adapters, keys and bolts for tightness and spindle damage. Tighten or replace any damaged parts. Stop engine immediately. Replace damaged blade. Only use original equipment blades.
Mower will not discharge grass or leaves uncut strips	Engine speed low. Speed selection. Cutting height set too low. Blades short or dull.	Throttle must be set at full throttle. Use lower ground speed. The slower your ground speed, the better the quality of cut. Raise deck. Sharpen or replace blades (uncut strip problem only).

If the above steps fail to correct the problem, take the unit to your local authorized service dealer for repair.

MANUFACTURER'S LIMITED WARRANTY

For TWO YEARS from the date of retail purchase within the United States of America, its possessions and territories, the manufacturer will, at its option, repair or replace, for the original purchaser, free of charge, any part or parts found to be defective in material or workmanship. This warranty covers units which have been operated and maintained in accordance with the operating instructions furnished with the unit, and which have not been subject to misuse, abuse, commercial use, neglect, accident, improper maintenance or alteration.

Normal wear parts or components thereof are subject to separate terms as noted below in the "No Fault Ninety Day Consumer Warranty" clause.

All normal wear part failures will be covered on this product for a period of 90 days regardless of cause. After 90 days, but within the two year period, normal wear parts failures will be covered ONLY IF caused by defects in material or workmanship of OTHER component parts. Normal wear parts are defined as batteries*, belts, blades, blade adapters, grass bags, rider deck wheels, seats, snow thrower skid shoes, shave plates and tires.

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 the yellow pages or contact the Customer Service Department of the manufacturer, P. O. Box 368022, Cleveland, Ohio 44136-9722. Phone 1-800-800-7310. The return of a complete unit will not be accepted by the factory unless prior written permission has been extended by the service department of the manufacturer.

Transportation charges: Transportation charges for the movement of any power equipment unit or attachment are the responsibility of the purchaser.

Units exported out of the United States: The manufacturer 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 the manufacturer's authorized channels of export distribution.

Other Warranties:

1. The engine or component parts thereof carry separate warranties from their manufacturers. Please refer to the applicable manufacturer's warranty on these items.
2. *Batteries are covered by a 90-day replacement warranty.
3. Log splitter pumps, valves and cylinders or component parts thereof are covered by a one year warranty.
4. All other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular purpose, are hereby expressly disclaimed in their entirety.
5. The provisions as set forth in this warranty provide the sole and exclusive remedy of the manufacturer's obligations arising from the sales of its products. The manufacturer will not be liable for incidental or consequential loss or damage.

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. Certain disclaimers are not allowed in some states and therefore they may not apply to you under all circumstances.

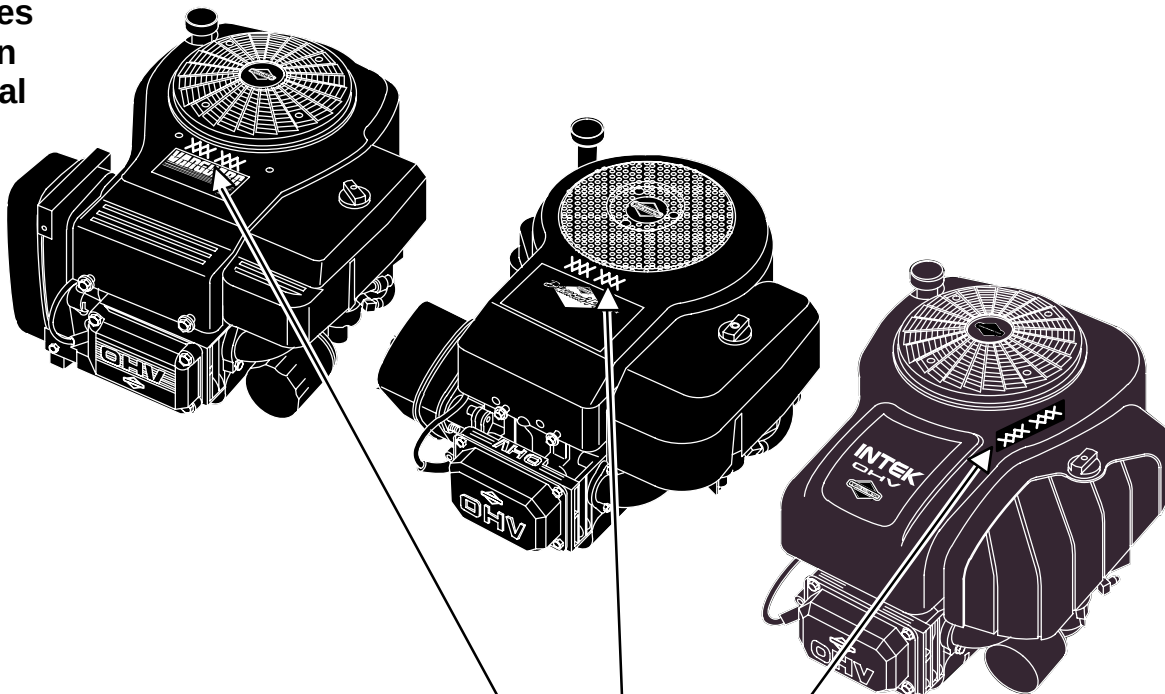
NOTE: This warranty does not cover routine maintenance items such as lubricants, filters, blade sharpening and tune-ups, or adjustments such as brake adjustments, clutch adjustments or deck adjustments. Nor does this warranty cover normal deterioration of the exterior finish due to use or exposure.



Operating & Maintenance Instructions

Model Series Covered in This Manual

28N700
287700
28P700
28Q700
28S700
28U700
310700
311700
312700
313700



Model	Type	Code

Note: General Model Series numbers noted above include many specific numbers like the ones on your engine. To get replacement parts or technical assistance in the future, write your engine Model, Type, Code and date of purchase here.

Month	Day	Year

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WARNING

Briggs & Stratton does not approve or authorize the use of these engines on 3-wheel All Terrain Vehicles (ATVs), motor bikes, aircraft products or vehicles intended for use in competitive events. Use of these engines in such applications could result in property damage, serious injury (including paralysis), or even death.

In the USA and Canada our 24 hour hotline is

1-800-233-3723

Briggs & Stratton Corporation
Milwaukee, Wisconsin 53201
www.briggsandstratton.com



The Power In Power Equipment™

Thank you for selecting a Briggs & Stratton engine to power your equipment.

Briggs & Stratton is committed to producing a line of engines which will make your life's chores easier to perform. We have, at the same time, improved the design of our engines so they are environmentally friendly. Since 1995, we have succeeded in reducing smog-forming exhaust emissions from our engines by 70%. Briggs & Stratton's efforts have not stopped there. We are also committed to designing and introducing even cleaner engines in the future, while maintaining our reputation for excellent utility and value.

Briggs & Stratton's environmental awareness has resulted in the engineering of the "Smart-Fill®" gas can, featuring a spill resistant nozzle which opens only when fully inserted into the gas tank, and which shuts off automatically when the tank is full. Because refueling spills can harm the environment, the Smart-Fill® container helps preserve a stronger ecosystem by reducing this source of pollution.

We hope you will enjoy your new engine and equipment. We welcome you to our worldwide family of Briggs & Stratton engine users.

Best Wishes Always,

The Employees of Briggs & Stratton Corporation

Look For Relevant Emissions Durability Period and Air Index Information On Your Engine Emissions Label

Engines that are certified to meet the California Air Resources Board (CARB) Tier 2 Emission Standards must display information regarding the Emissions Durability Period and the Air Index. Briggs & Stratton makes this information available to the consumer on our emission labels.

The **Emissions Durability Period** describes the number of hours of actual running time for which the engine is certified to be emissions compliant, assuming proper maintenance in accordance with the Operating & Maintenance Instructions. The following categories are used:

Moderate: Engine is certified to be emission compliant for 125 hours of actual engine running time.

Intermediate: Engine is certified to be emission compliant for 250 hours of actual engine running time.

Extended: Engine is certified to be emission compliant for 500 hours of actual engine running time.

For example, a typical walk-behind lawn mower is used 20 to 25 hours per year. Therefore, the **Emissions Durability Period** of an engine with an **intermediate** rating would equate to 10 to 12 years.

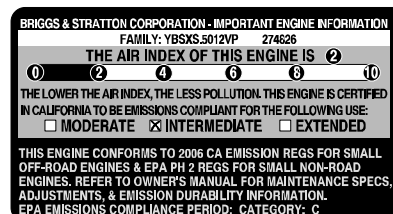
The **Air Index** is a calculated number describing the relative level of emissions for a specific engine family. The lower the **Air Index**, the cleaner the engine. This information is displayed in graphical form on the emissions label.

After July 1, 2000, Look For Emissions Compliance Period On Engine Emissions Compliance Label

After July 1, 2000 certain Briggs & Stratton engines will be certified to meet the United States Environmental Protection Agency (USEPA) Phase 2 emission standards. For Phase 2 certified engines, the Emissions Compliance Period referred to on the Emissions Compliance label indicates the number of operating hours for which the engine has been shown to meet Federal emission requirements. For engines less than 225 cc displacement, Category C = 125 hours, B = 250 hours and A = 500 hours. For engines of 225 cc or more, Category C = 250 hours, B = 500 hours and A = 1000 hours.

The displacement of Model Series 280000 engines is 465 cc. The displacement of Model Series 310000 engines is 501 cc.

This is a generic representation of the emission label typically found on a certified engine.





BEFORE OPERATING ENGINE

- Read entire Operating & Maintenance Instructions AND the instructions for the equipment this engine powers.*
- Failure to follow instructions could result in serious injury or death.

THE OPERATING & MAINTENANCE INSTRUCTIONS CONTAIN SAFETY INFORMATION TO

- Make you aware of hazards associated with engines
- Inform you of the risk of injury associated with those hazards, and
- Tell you how to avoid or reduce the risk of injury.

The safety alert symbol () is used to identify safety information about hazards that can result in personal injury.

A signal word (DANGER, WARNING, or CAUTION) is used with the alert symbol to indicate the likelihood and the potential severity of injury. In addition, a hazard symbol may be used to represent the type of hazard.



DANGER indicates a hazard which, if not avoided, **will result in death or serious injury.**



WARNING indicates a hazard which, if not avoided, **could result in death or serious injury.**



CAUTION indicates a hazard which, if not avoided, **might result in minor or moderate injury.**

CAUTION, when used **without** the alert symbol, indicates a situation that **could result in damage to the engine.**

HAZARD SYMBOLS AND MEANINGS



Fire



Moving Parts



Explosion



Shock



Toxic Fumes



Hot Surface



Kickback



WARNING



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

* Briggs & Stratton does not necessarily know what equipment this engine will power. For that reason, you should carefully read and understand the operating instructions for the equipment on which your engine is placed.

SAFETY

BRIGGS & STRATTON



WARNING



Gasoline and its vapors are extremely flammable and explosive.

Fire or explosion can cause severe burns or death.

WHEN ADDING FUEL

- Turn engine OFF and let engine cool at least 2 minutes before removing gas cap.
- Fill fuel tank outdoors or in well-ventilated area.
- Do not overfill fuel tank. Fill tank to approximately 1-1/2 inches below top of neck to allow for fuel expansion.
- Keep gasoline away from sparks, open flames, pilot lights, heat, and other ignition sources.
- Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.

WHEN STARTING ENGINE

- Make sure spark plug, muffler, fuel cap and air cleaner are in place.
- Do not crank engine with spark plug removed.
- If fuel spills, wait until it evaporates before starting engine.
- If engine floods, set choke to OPEN/RUN position, place throttle in FAST and crank until engine starts.

WHEN OPERATING EQUIPMENT

- Do not tip engine or equipment at angle which causes gasoline to spill.
- Do not choke carburetor to stop engine.

WHEN TRANSPORTING EQUIPMENT

- Transport with fuel tank EMPTY or with fuel shut-off valve OFF.

WHEN STORING GASOLINE OR EQUIPMENT WITH FUEL IN TANK

- Store away from furnaces, stoves, water heaters or other appliances that have pilot light or other ignition source because they can ignite gasoline vapors.



WARNING



Unintentional sparking can result in fire or electric shock.

Unintentional start-up can result in entanglement, traumatic amputation, or laceration.

BEFORE PERFORMING ADJUSTMENTS OR REPAIRS

- Disconnect spark plug wire and keep it away from spark plug.
- Disconnect battery at negative terminal (only engines with electric start).

WHEN TESTING FOR SPARK

- Use approved spark plug tester.
- Do not check for spark with spark plug removed.



WARNING



Starting engine creates sparking.

Sparking can ignite nearby flammable gases.

Explosion and fire could result.

- If there is natural or LP gas leakage in area, do not start engine.
- Do not use pressurized starting fluids because vapors are flammable.



SAFETY

WARNING



Engines give off carbon monoxide, an odorless, colorless, poison gas.

Breathing carbon monoxide can cause nausea, fainting or death.

- Start and run engine outdoors.
- Do not start or run engine in enclosed area, even if doors or windows are open.

WARNING



Running engines produce heat. Engine parts, especially muffler, become extremely hot.

Severe thermal burns can occur on contact.

Combustible debris, such as leaves, grass, brush, etc. can catch fire.

- Allow muffler, engine cylinder and fins to cool before touching.
- Remove accumulated combustibles from muffler area and cylinder area.
- Install and maintain in working order a spark arrester before using equipment on forest-covered, grass-covered, brush-covered unimproved land. The state of California requires this (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal land.

WARNING



Rotating parts can contact or entangle hands, feet, hair, clothing, or accessories.

Traumatic amputation or severe laceration can result.

- Operate equipment with guards in place.
- Keep hands and feet away from rotating parts.
- Tie up long hair and remove jewelry.
- Do not wear loose-fitting clothing, dangling drawstrings or items that could become caught.

WARNING



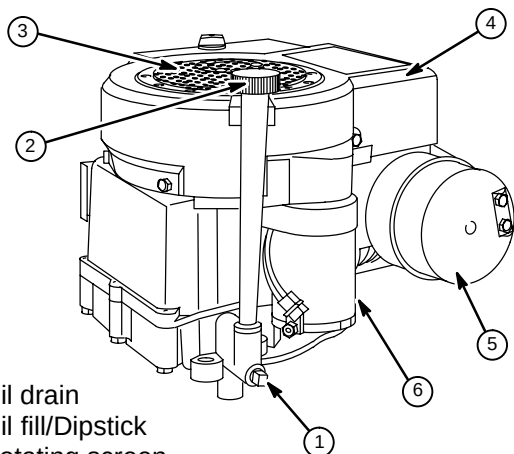
Rapid retraction of starter cord (kickback) will pull hand and arm toward engine faster than you can let go.

Broken bones, fractures, bruises or sprains could result.

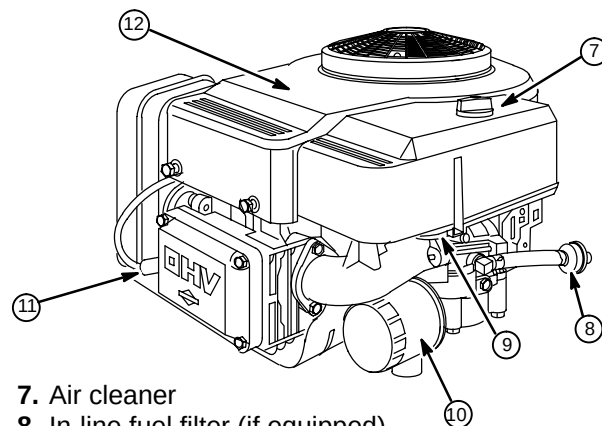
- When starting engine, pull cord slowly until resistance is felt, then pull rapidly.
- Remove all external equipment/engine loads before starting engine.
- Direct coupled equipment components such as, but not limited to, blades, impellers, pulleys, sprockets, etc., must be securely attached.

ENGINE PARTS

BRIGGS & STRATTON



1. Oil drain
2. Oil fill/Dipstick
3. Rotating screen
4. Blower housing
5. Muffler/(Muffler guard, if equipped)/
(Spark arrester, if equipped)
6. 12 V electric starter



7. Air cleaner
8. In-line fuel filter (if equipped)
9. Carburetor
10. Oil filter (if equipped)
11. Spark plug wire
12. Engine

Model	Type	Code
xxxxx	xxxx xx	xxxxxxxxx

GENERAL INFORMATION

ENGINE MODEL

This is a single cylinder, overhead valve (OHV), air-cooled engine. It is a low emissions engine.

In the state of California, OHV Model Series 280000 and 310000 engines are certified by the California Air Resources Board to meet emissions standards for 250 hours. Such certification does not grant the purchaser, owner or operator of this engine any additional warranties with respect to the performance or operational life of this engine. This engine is warranted solely according to the product and emissions warranties stated elsewhere in this manual.

MODEL SERIES 280000

Bore 3-7/16 in. (87.31 mm)
Stroke 3-1/16 in. (77.78 mm)
Displacement 28.42 cu. in. (465.7 cc)

MODEL SERIES 310000

Bore 3-9/16 in. (90.60 mm)
Stroke 3-1/16 in. (77.78 mm)
Displacement 30.59 cu. in. (501.2 cc)

Note: For practical operation, the horsepower loading should not exceed 85% of rated horsepower. Engine power will decrease 3-1/2% for each 1,000 feet (300 meters) above sea level and 1% for each 10° F (5.6° C) above 77° F (25° C). Engine will operate satisfactorily at an angle up to 15°.

THE INTERNATIONAL SYMBOLS USED ON THE ENGINE OR IN THIS MANUAL INCLUDE:



Safety Alert



Read Owner's
Manual



On Off



Oil



Stop



Fuel Shutoff



Choke



Fuel

TUNE-UP SPECIFICATIONS

Armature air gap ... 0.010 – 0.014 in. (0.25 – 0.36 mm)
Spark plug gap 0.030 in. (0.76 mm)
Valve clearance with valve springs installed and piston 1/4 in. (6 mm) past top dead center (check when engine is cold). See Repair Manual P/N 272147 or 274008.
Intake 0.003 – 0.005 in. (0.08 – 0.13 mm)
Exhaust 0.005 – 0.007 in. (0.13 – 0.18 mm)

**OIL**

CAUTION: This engine is shipped from Briggs & Stratton **without oil**. Check oil level before starting engine. If you start the engine without oil, the engine will be damaged beyond repair and will not be covered under warranty.

OIL CAPACITY

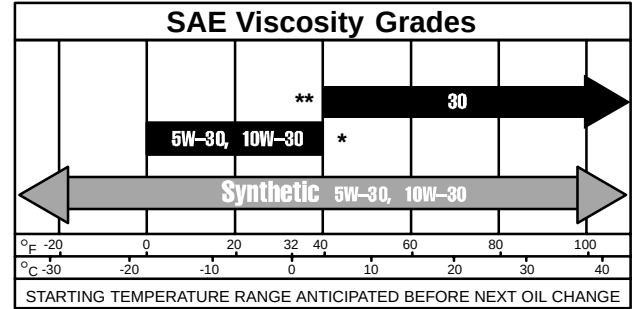
Engine without oil filter holds approximately 1-1/2 quarts (48 ounces; 1.4 liters). Engine equipped with oil filter holds approximately 1-3/4 quarts (56 ounces; 1.7 liters).

TYPE OF OIL TO USE

- Use a high quality detergent oil classified "For Service SF, SG, SH, SJ" or higher, such as Briggs & Stratton 30W, Part Number 100005 (20 oz) or 100028 (48 oz).
- Do not use special additives.
- Choose a viscosity according to the table opposite.



Note: Synthetic oil meeting ILSAC GF-2, API certification mark and API service symbol (shown at left) with "SJ/CF ENERGY CONSERVING" or higher, is an acceptable oil at all temperatures. **Use of synthetic oil does not alter required oil change intervals.**

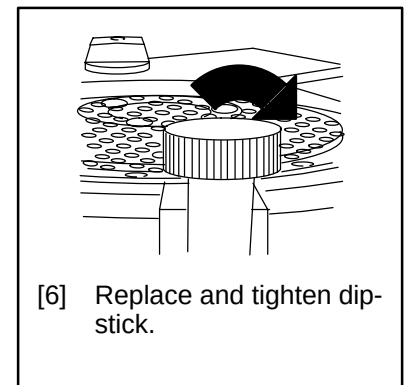
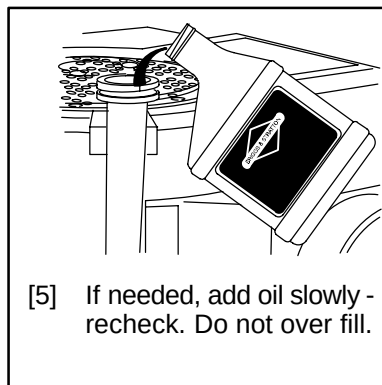
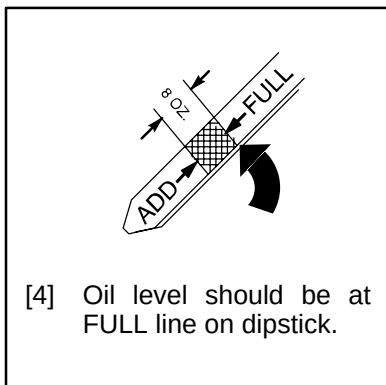
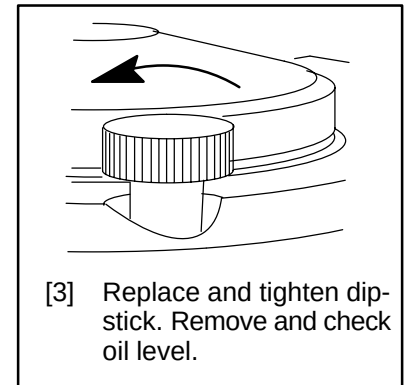
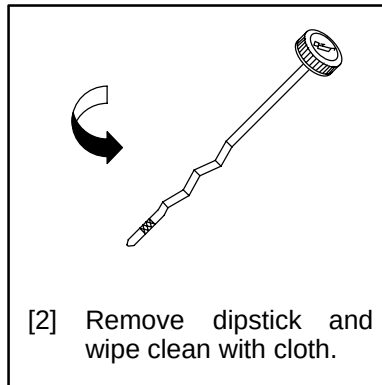
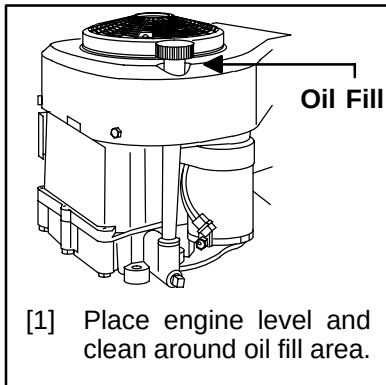


* **CAUTION:** Air cooled engines run hotter than automotive engines. The use of non-synthetic multi-viscosity oils (5W-30, 10W-30, etc.) in temperatures above 40° F (4° C) will result in higher than normal oil consumption. When using a multi-viscosity oil, check oil level more frequently.

** **CAUTION:** SAE 30 oil, if used below 40° F (4° C), will result in hard starting and possible engine bore damage due to inadequate lubrication.

CHECKING AND ADDING OIL

- Check oil level *before* starting the engine.
- Check level daily, or after every eight (8) hours.
- Keep oil level at FULL.
- Do not overfill.



FUEL



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®

TYPE OF FUEL TO USE

- Use clean, fresh, regular unleaded gasoline with a minimum of 85 octane. Fresh fuel prevents gum from forming in the fuel system or on essential carburetor parts. Purchase fuel in quantity that can be used within 30 days.
- Do not use gasoline which contains Methanol.
- Do not mix oil with gasoline.
- For engine protection use Briggs & Stratton Gasoline Additive available from your Authorized Briggs & Stratton Dealer (P/N 5041 or single use pouch).

- This engine is certified to operate on gasoline. Exhaust Emission Control System: EM (Engine Modifications).

CAUTION: Some fuels, called oxygenated or reformulated gasoline, are gasoline blended with alcohols or ethers. Excessive amounts of these blends can damage the fuel system or cause performance problems. If any undesirable operating symptoms occur, use gasoline with a lower percentage of alcohol or ether.

ADDING FUEL



WARNING



- [1] Fill fuel tank outdoors or in well-ventilated area, away from sparks, open flames, pilot lights, heat, and other ignition sources.
- [2] If fuel spills, wait until it evaporates before starting engine.
- [3] Turn engine OFF and let engine cool at least 2 minutes before removing gas cap.

- [4] Remove cap. Fill tank to approximately 1-1/2 inches below top of neck to allow for fuel expansion. Be careful not to overfill. Briggs & Stratton **Smart-fill®** fuel can fills to the correct level and automatically shuts off, reducing spills and emissions.
- [5] Replace cap before starting.

STARTING

BRIGGS & STRATTON

®



WARNING



- Do not use pressurized starting fluids.
- Vapors are flammable.

OIL PRESSURE SWITCH

If engine is equipped with an oil pressure switch, the switch will either activate a warning light or stop the engine when the engine runs low on oil. (Read the operating instructions supplied by the equipment manufacturer to determine which way your engine is equipped because the equipment manufacturer supplies the oil pressure gauge.)

See **OIL PRESSURE** on page 12 for oil filling instructions.

STARTING AND OPERATING TIPS

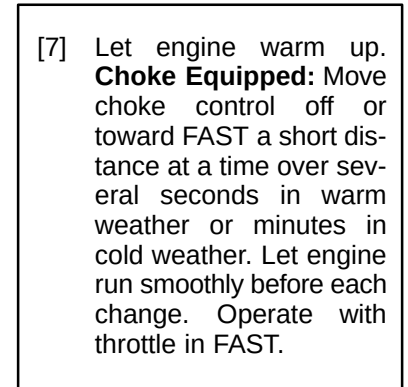
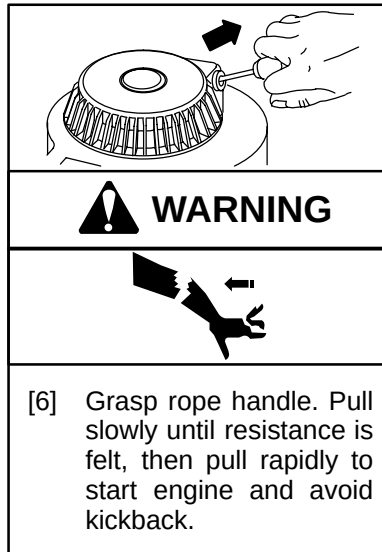
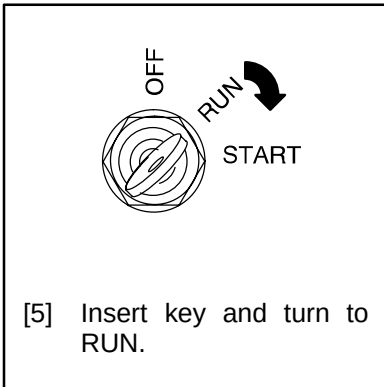
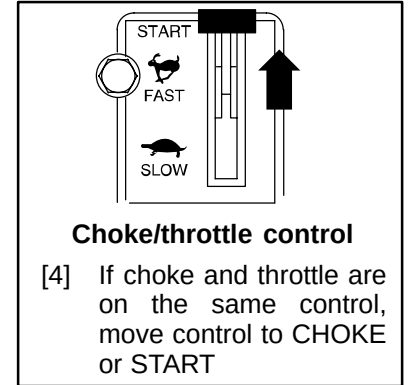
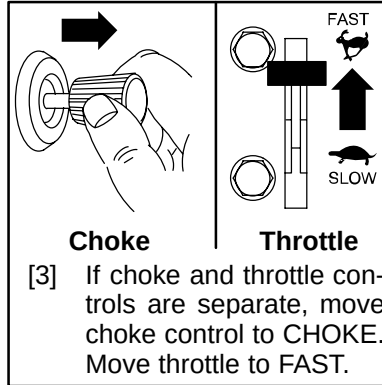
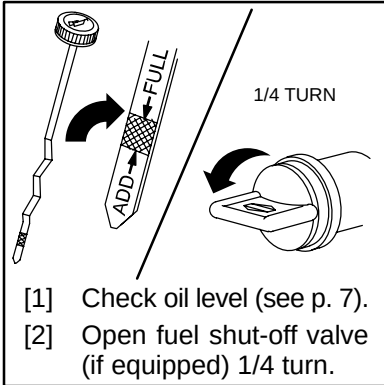
- ◆ Store and fuel equipment in level position.
- ◆ Use fresh fuel. (See Fuel.)
- ◆ Use correct type of oil for expected starting temperature. (See Oil.)
- ◆ Remove external equipment/engine loads. (See equipment operating instructions.)
- ◆ Start lawn mower on hard surface or over previously cut grass.
- ◆ Periodically remove grass buildup under mower deck. (See Maintenance.)
- ◆ After engine has started, let it warm up several seconds to several minutes, depending on outside temperature.
- ◆ For maximum performance and life, operate engine with choke in RUN and throttle in FAST.



STARTING AND STOPPING

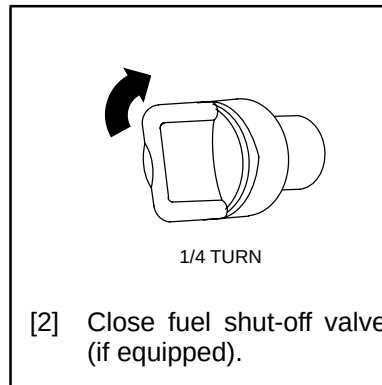
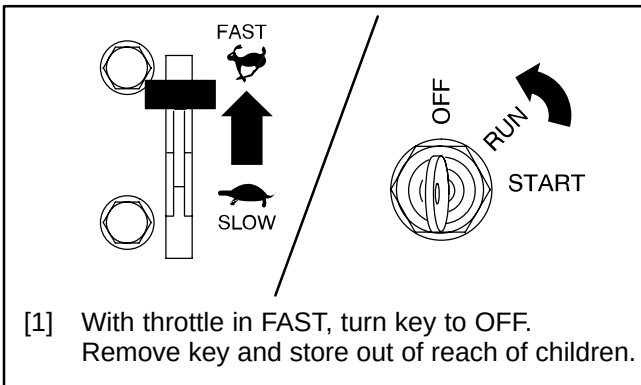
REWIND (MANUAL) STARTER (auxiliary)

TO START ENGINE



TO STOP ENGINE

CAUTION: Do not stop engine by moving choke control to CHOKE. Backfire, fire or engine damage could occur.

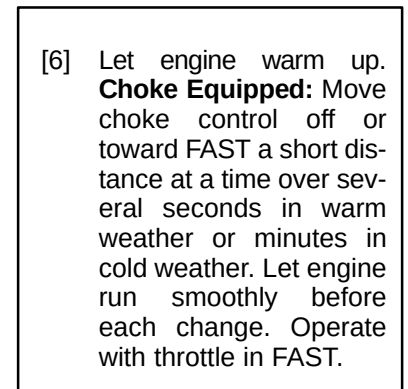
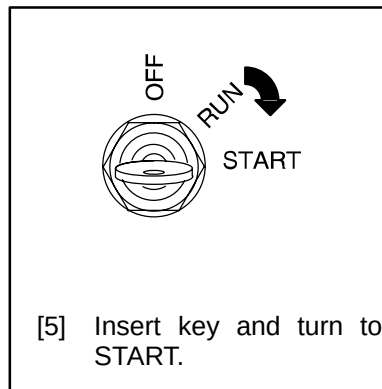
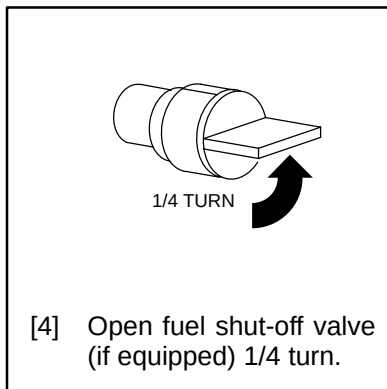
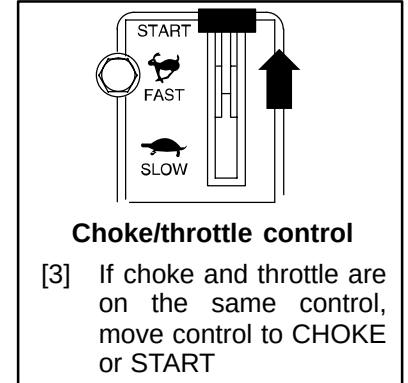
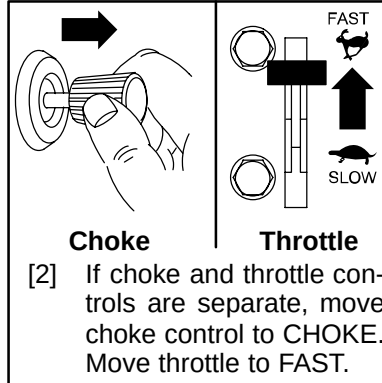
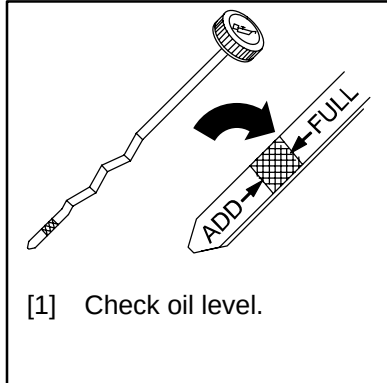


STARTING AND STOPPING

BRIGGS & STRATTON

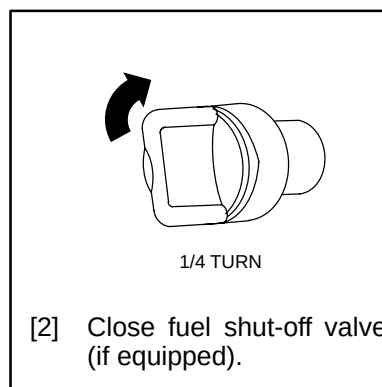
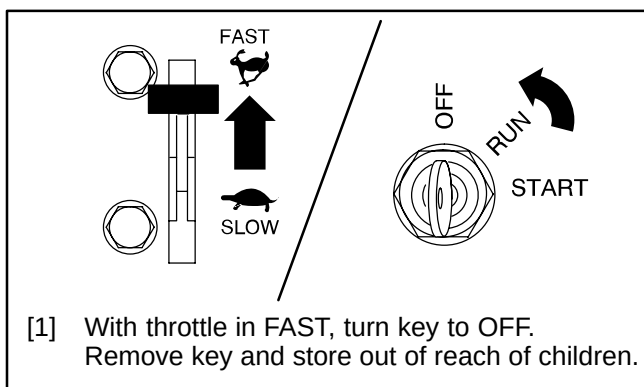
ELECTRIC (KEY) STARTER (if equipped)

TO START ENGINE



CAUTION: To prolong starter life, use short starting cycles (5 seconds maximum, then wait one minute). Follow equipment manufacturer's recommendations for charging battery.

TO STOP ENGINE





MAINTENANCE

MAINTENANCE

Regular maintenance will improve the performance and extend the life of the engine. See any Authorized Briggs & Stratton Dealer for service. **Use only genuine Briggs & Stratton parts. Other parts may not perform as well, may damage the engine, and may result in injury.** In addition, use of other parts may void your warranty.

EMISSION CONTROL

Maintenance, replacement or repair of the emission control devices and systems may be performed by any nonroad engine repair establishment or individual. However, to obtain no charge repairs under the terms and provisions of the Briggs & Stratton warranty statement, any service or emission control part repair or replacement must be performed by a factory authorized dealer.

Follow the instructions and schedules indicated below.

Task <i>Perform task at hourly or calendar interval, whichever comes first.</i>	Every 8 Hours or Daily	25 Hours or Every Season	50 Hours or Every Season	100 Hours or Every Season	Yearly
Check Oil Level	✓				
Change Oil		✓ *			
Change oil filter (if equipped)			✓ *		
Service air cleaner pre-cleaner (if equipped)	✓ **				
Service air cleaner cartridge (if not equipped with pre-cleaner)	✓ **				
Service air cleaner cartridge (if equipped with pre-cleaner)				✓ **	
Inspect spark arrester (if equipped)		✓			
Replace spark plug				✓	
Replace in-line fuel filter (if equipped)				✓	
Clean cooling system			✓ **		
Check valve clearance					✓

* **Change oil after first 5 to 8 hours of use**, then every 50 hours or every season. Change oil every 25 hours when operating the engine under heavy load or in high temperatures.

** Clean more often under dusty conditions or when airborne debris is present. Replace air cleaner parts, if very dirty.

CAUTION: Used oil is a hazardous waste product. Dispose of used oil properly. Do not discard with household waste. Check with your local authorities, service center, or dealer for safe disposal/recycling facilities.

CHANGING OIL

5/16" HEX

3/8" SQUARE

7/16" PIPE

Typical drain plugs

WARNING

- [1] Place engine level.
- [2] Disconnect spark plug wires and keep away from spark plugs. Disconnect battery (if equipped with electric starter) at negative terminal.
- [3] With engine OFF but still warm remove oil drain plug and drain oil into appropriate receptacle.
- [4] Reinstall drain plug. Remove dipstick.
- [5] Fill to FULL mark on dipstick with new oil.
Do not overfill.

Note: Engine without oil filter holds approximately 1-1/2 quarts (48 ounces; 1.4 liters). Engine equipped with filter holds approximately 1-3/4 quarts (56 ounces; 1.7 liters).

OIL DRAIN PLUG
TO REMOVE

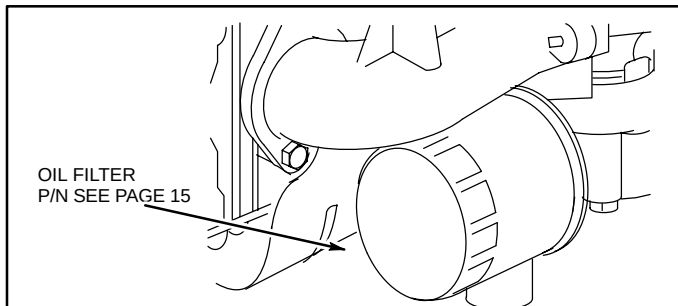
ADD → FULL

MAINTENANCE

BRIGGS & STRATTON

CHANGING OIL FILTER (IF EQUIPPED)

Replace oil filter after every 100 hours of operation.



- [1] Drain engine oil and remove oil filter.
- [2] Before installing new filter, lightly oil filter gasket with fresh, clean engine oil.
- [3] Screw filter on by hand until gasket contacts oil filter adapter. Tighten 1/2 to 3/4 turn more.
- [4] Add fresh oil. Fill to FULL line on dipstick.
- [5] Start and run engine at idle to check for oil leaks.
- [6] Stop engine. Recheck oil level and add oil if required.

OIL PRESSURE

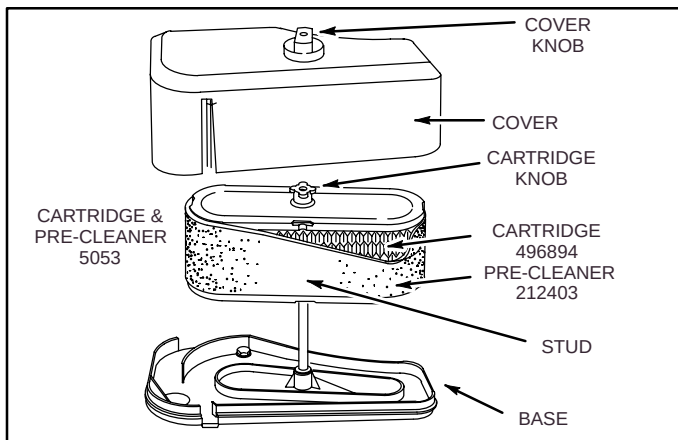
If oil pressure drops too low, an oil pressure switch (if engine is equipped) will either activate a warning light or stop the engine. Check oil level with dipstick. If oil level is between **ADD** and **FULL** mark on dipstick, Do not try to restart engine. Contact an Authorized Briggs & Stratton Service Dealer. Do not operate engine until oil pressure is corrected.

If oil level is below **ADD** mark on dipstick, add oil to bring level to **FULL** mark. Restart engine and check oil pressure. If pressure is normal, continue to operate engine.

Note: Oil pressure gauge, if engine is equipped, is supplied by manufacturer of equipment.

AIR CLEANER

All engines have an air cleaner cartridge. In addition, some engines have a pre-cleaner.



REMOVING AND RE-INSTALLING AIR CLEANER

- [1] Remove cover knob and cover.
- [2] Remove cartridge knob.
- [3] Carefully lift air cleaner assembly (pre-cleaner, if equipped, and cartridge) from base over stud.
- [4] Clean base carefully to prevent debris from entering carburetor.
- [5] Reassemble pre-cleaner on cartridge and place assembly over stud. Air cleaner must fit securely in base.
- [6] Tighten cartridge knob securely.
- [7] Replace cover and tighten cover knob securely.

CLEANING PRE-CLEANER AND CARTRIDGE

CAUTION: Do not use pressurized air or solvents to clean cartridge. Pressurized air can damage cartridge; solvents will dissolve cartridge.

Pre-cleaner

To clean pre-cleaner (if equipped), separate it from cartridge and wash in liquid detergent and water. Squeeze dry in a clean cloth. Saturate in engine oil. Squeeze in clean, absorbent cloth to remove all EXCESS oil.

Cartridge

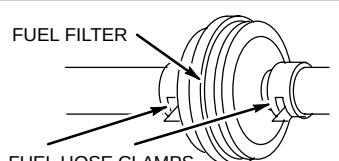
To clean cartridge, gently tap on a flat surface.

FUEL SYSTEM



Replacement parts for fuel system (cap, hoses, tanks, filters, etc.) must be the same as original parts, otherwise fire can occur.

REPLACE FUEL FILTER (if equipped)

PART NO. 394358 (WITH FUEL PUMP) PART NO. 298090 OR 5018 (WITHOUT FUEL PUMP)	 FUEL FILTER FUEL HOSE CLAMPS
	[1] Disconnect spark plug wire and keep it away from spark plugs. [2] Drain fuel tank or close fuel shut-off valve before replacing fuel filter. Otherwise, fuel can leak out, creating a fire/explosion hazard.



MAINTENANCE

ENGINE AND ENGINE PARTS

We recommend that you see an authorized Briggs & Stratton Service Dealer for all maintenance and service of the engine and engine parts. Use only genuine Briggs & Stratton parts.



If you perform any maintenance on the engine, first disconnect the spark plug wire from the spark plug, and disconnect the battery at the negative terminal (electric starter engines only) to prevent unintentional sparking. Unintentional sparking can result in fire or electric shock. Unintentional start-up can result in entanglement, traumatic amputation or laceration. Use only correct tools.

- Do not strike the flywheel with a hammer or hard object because the flywheel may later shatter during operation.
- Do not tamper with governor spring, links or other parts to increase engine speed.

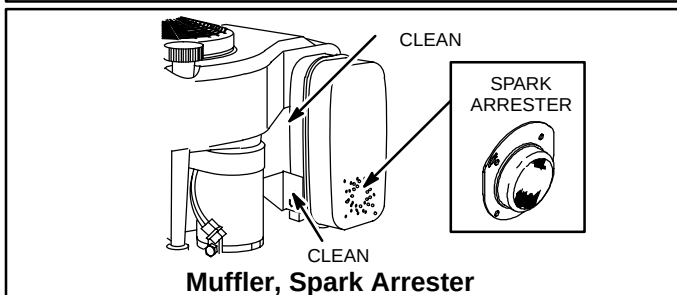
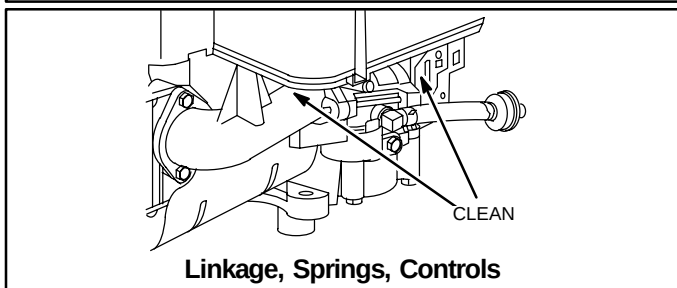
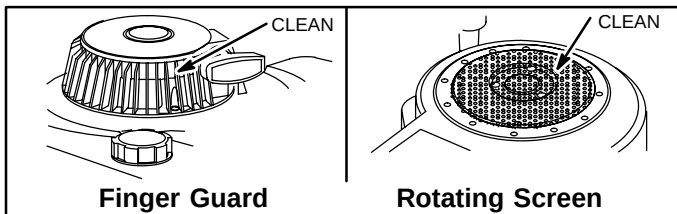
CLEANING DEBRIS

CAUTION: Do not use water to clean engine parts. Water could contaminate fuel system. Use a brush or dry cloth.



Engine parts should be kept clean to reduce the risk of overheating and ignition of accumulated debris. This is especially important if cutting tall grass.

Daily or before every use, clean grass, chaff or accumulated debris from engine. Keep linkage, spring and controls clean. Keep area around and behind muffler free of any combustible debris.



MUFFLER



Replacement parts for the muffler must be the same and installed in the same position as the original parts, otherwise fire can occur.

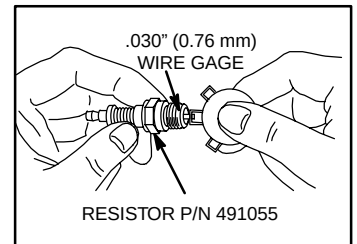
If muffler is equipped with spark arrestor screen, re-

move screen for inspection. Replace screen if damaged or plugged.

SPARK PLUG

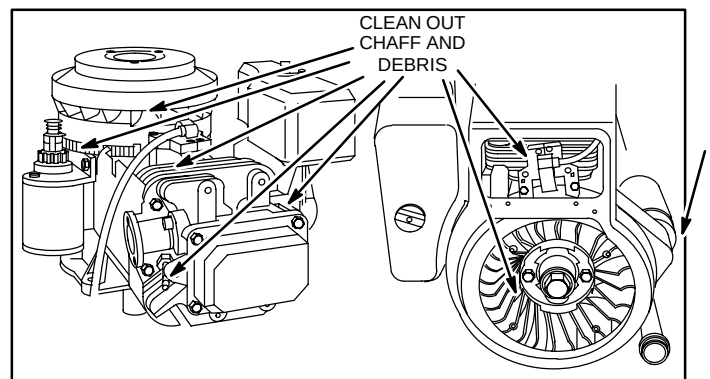
Use only Briggs & Stratton Spark Tester (part number 19368) to check for spark.

Note: In some areas, local law requires using resistor spark plug to suppress ignition signals. If this engine was originally equipped with resistor spark plug, use same type for replacement.



AIR COOLING SYSTEM

We recommend that after every 100 hours you have an authorized Briggs & Stratton Service Dealer clean the air cooling system.



VALVE CLEARANCE

Check valve clearance yearly. (See Tune-up Specifications on page 6).

ADJUSTMENTS

BRIGGS & STRATTON

CONTROL ADJUSTMENTS

WARNING



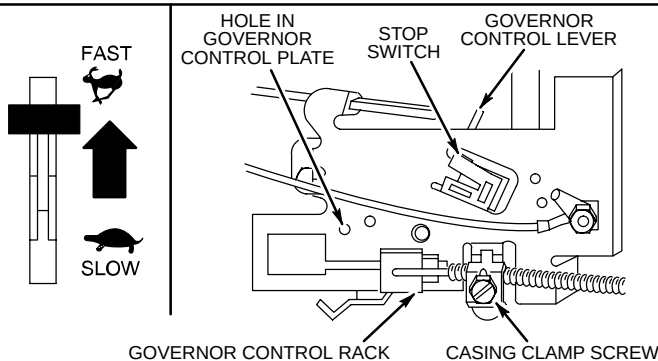
Prevent unintentional starting.

Before performing adjustments:

- Remove spark plug wire from spark plug.
- Disconnect battery at negative terminal (only engines with electric start).

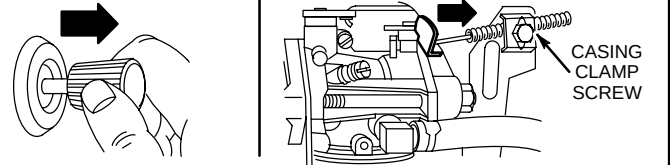
TO ADJUST REMOTE THROTTLE

If the engine does not start or if it runs roughly, the remote throttle control may need adjustment. See your authorized Briggs & Stratton dealer or follow the instructions below.



- [1] Move remote throttle control to FAST position.
- [2] Hole in governor control lever (located just behind governor control plate) must align with hole in governor control plate, as illustrated above.
- [3] If holes do not line up, loosen casing clamp screw and then move governor control rack until it does.
- [4] Tighten casing clamp screw.
- [5] Check operation of throttle. Move throttle control to STOP position.
- [6] Governor control lever must make good contact with stop switch (if equipped). Readjust if necessary.

TO ADJUST REMOTE CHOKE



- [1] Hold choke control to CHOKE or START position.
- [2] Loosen casing clamp screw.
- [3] Pull casing, wire and choke lever in direction of arrow to end of travel.
- [4] Tighten casing clamp screw.

CARBURETOR ADJUSTMENT

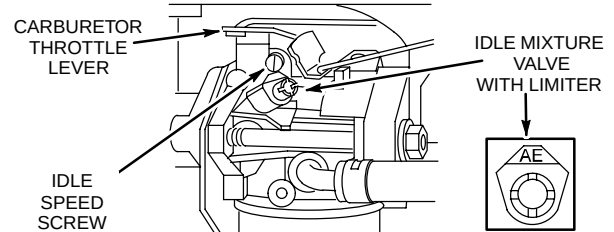
WARNING

The manufacturer of the equipment on which this engine is installed specifies top speed at which the engine will be operated. DO NOT EXCEED this speed.

Differences in fuel, temperature, altitude or load may require minor carburetor adjustment. Air cleaner and its cover must be assembled to carburetor before starting engine.

The carburetor on this engine is equipped with an idle mixture valve with a limiter (see inset), which allows some adjustment, and an idle speed adjustment screw.

TO ADJUST CARBURETOR



- [1] To adjust idle speed, start engine and warm up about 5 minutes.
- [2] With engine running, place equipment throttle control in SLOW position.
- [3] Rotate carburetor throttle lever against the idle speed screw and hold it. Turn idle speed screw to obtain 1750 rpm (use a tachometer).
- [4] Then rotate idle mixture valve full travel clockwise and then counterclockwise.
- Note:** DO NOT remove limiter caps. DO NOT force beyond limits.
- [5] Then, position idle mixture valve in middle of travel.
- [6] Check idle speed. Re-adjust to 1750 rpm, if needed.
- [7] Move throttle control to FAST position. Engine should accelerate smoothly. If it does not, adjust idle mixture valve counterclockwise 1/8 turn.

Note: Engines operated at approximately 3000 to 5000 feet (900 to 1500 meters) above sea level may require a high altitude carburetor nozzle. If erratic performance is observed, contact a Briggs & Stratton Authorized Service Dealer for cost to install/purchase a high altitude carburetor nozzle.



SERVICE & STORAGE

PARTIAL LIST OF GENUINE BRIGGS & STRATTON PARTS

<u>PART</u>	<u>BRIGGS & STRATTON PART NO. (or equivalent)</u>
Air cleaner cartridge	496894
Air cleaner pre-cleaner	212403
Cartridge and pre-cleaner	5053
Oil	100005 or 100028
Oil filter (3-1/2 in. long)	491056
Oil filter (2-1/4 in. long)	492932
Fuel filter (without filter)	298090 (5018)
Fuel filter (with filter)	394358
Gas additive	5041
Resistor spark plug	491055
Long life platinum spark plug (used on most OHV engines)	5066
Spark plug wrench	89838 (5023)
Spark tester	19368
Oil pump kit (uses standard electric drill to remove oil from engine quickly)	5056

SERVICE

See an Authorized Briggs & Stratton Service Dealer. Each one carries a stock of Genuine Briggs & Stratton Parts and is equipped with special service tools. Trained mechanics assure expert repair service on all Briggs & Stratton engines. Only dealers advertising as "Authorized Briggs & Stratton" are required to meet Briggs & Stratton standards.

When you purchase equipment powered by a Briggs & Stratton engine, you are assured of highly skilled, reliable service at more than 30,000 Authorized Service Dealers worldwide, including more than 3,600 Master Service Technicians. Look for these signs wherever Briggs & Stratton service is offered.



You may locate your nearest Authorized Briggs & Stratton Service Dealer in our dealer locator map on our web site **www.briggsandstratton.com** or in the "Yellow Pages™"



directory under "Engines, Gasoline" or "Gasoline Engines," or "Lawn Mowers" or similar category.

Note: Walking fingers logo and "Yellow Pages" are registered trademarks in various jurisdictions.

An illustrated shop manual includes common specifications and detailed information covering adjustment, tune-up and repair of Briggs & Stratton single cylinder, OHV, 4 cycle engines. It is available for purchase from an Authorized Briggs & Stratton Service Dealer or you can order it from the factory. Write:
Briggs & Stratton Corporation
Attn: Service Division
P. O. Box 1144
Milwaukee, WI 53201



Part No. 272147
for all Models except
28S700 & 311700



Part No. 274008
for Models
28S700 & 311700

To purchase a complete list of Genuine Briggs & Stratton Parts for your engine, fill in both sides of this order form carefully. We cannot fill your order without the correct Engine Model/Type/Code. Allow 3 to 4 weeks for delivery.

Payment Method: ☐ Check or money order enclosed payable to Briggs & Stratton Corporation in the amount of \$ _____ (U.S. Dollars, please) ☐ Please charge my ☐ MasterCard ☐ VISA ☐ VISA		Fill in both sides of this order form carefully CREDIT CARD NUMBER EXPIRATION DATE
SIGNATURE (REQUIRED FOR CREDIT CARD ORDERS) CREDIT CARD NUMBER EXPIRATION DATE		**AL 5% CT 6% FL 6.5% GA 4% KY 6% MI 6% MN 6% MO 4.25% NY 8.5% OH 5% TN 6% TX 6.25% WA 6.5% WI 5%
Parts List Shipping & Handling **Add State Sales Tax Total	\$2.00 \$1.50 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00

SERVICE & STORAGE



STORAGE

Engines stored over 30 days need special attention.

- [1] To prevent gum from forming in fuel system or on essential carburetor parts:
- a) if fuel tank contains oxygenated or reformulated gasoline (gasoline blended with an alcohol or an ether), run engine until it stops from lack of fuel, **or** b) if fuel tank contains gasoline, either run engine until it stops from lack of fuel, or add a gasoline additive to the gas in the tank. (See parts list. Single – use pouches of gas additive are available from your service dealer.) If you use a gas additive, run the engine for several minutes to circulate the additive through the carburetor. Then, engine and fuel can be stored up to 24 months.

- [2] While engine is still warm, change oil.
- [3] Remove spark plug and pour about 1 oz. (30 ml) of engine oil into cylinder. Replace spark plug and crank slowly to distribute oil.
- [4] Clean engine of surface debris, chaff or grass.

[5]



Store in a clean, dry area. Do not store in same area as a stove, furnace, water heater, or other appliance that uses a pilot light or has a device that can create a spark.

Fill in both sides, clip and return to:
Briggs & Stratton Corporation
P.O. Box 1144
Milwaukee, WI 53201-1144 U.S.A.

Name _____

Address _____

City _____ State _____ Zip _____ Country _____

Your Engine Model _____ Type _____ Code _____

To purchase a complete list of Genuine Briggs & Stratton Parts for your engine, fill in both sides of this order form carefully. We cannot fill your order without the correct Engine Model/Type/Code. Allow 3 to 4 weeks for delivery.

**Briggs & Stratton Corporation (B&S), the California Air Resources Board (CARB)
and the United States Environmental Protection Agency (U.S. EPA)
Emission Control System Warranty Statement (Owner's Defect Warranty Rights and Obligations)**

EMISSION CONTROL WARRANTY COVERAGE IS APPLICABLE TO CERTIFIED ENGINES PURCHASED IN CALIFORNIA IN 1995 AND THEREAFTER, WHICH ARE USED IN CALIFORNIA, AND

California and United States Emission Control Defects Warranty Statement

The California Air Resources Board (CARB), U.S. EPA and B&S are pleased to explain the Emission Control System Warranty on your model year 2000 and later small off-road engine (SORE). In California, new small off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. Elsewhere in the United States, new non-road, spark-ignition engines certified for model year 1997 and later, must meet similar standards set forth by the U.S. EPA. B&S must warrant the emission control system on your engine for

Briggs & Stratton Emission Control Defects Warranty Coverage

Small off-road engines are warranted relative to emission control parts defects for a period of two years, subject to provisions set forth

Owner's Warranty Responsibilities

As the small off-road engine owner, you are responsible for the performance of the required maintenance listed in your Operating and Maintenance Instructions. B&S recommends that you retain all your receipts covering maintenance on your small off-road engine, but B&S cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the small off-road engine owner, you should however be aware that B&S may deny you warranty coverage if your small off-road engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

Briggs & Stratton Emission Control Defects Warranty Provisions

The following are specific provisions relative to your Emission Control Defects Warranty Coverage. It is in addition to the B&S engine warranty for non-regulated engines found in the Operating and Maintenance Instructions.

1. Warranted Parts

Coverage under this warranty extends only to the parts listed below (the emission control systems parts) to the extent these parts were present on the engine purchased.

a. Fuel Metering System

- Cold start enrichment system
- Carburetor and internal parts
- Fuel Pump

b. Air Induction System

- Air cleaner
- Intake manifold

c. Ignition System

- Spark plug(s)
- Magneto ignition system

d. Catalyst System

- Catalytic converter
- Exhaust manifold
- Air injection system or pulse valve

e. Miscellaneous Items Used in Above Systems

- Vacuum, temperature, position, time sensitive valves and switches
- Connectors and assemblies

2. Length of Coverage

B&S warrants to the initial owner and each subsequent purchaser that the Warranted Parts shall be free from defects in materials and workmanship which caused the failure of the Warranted Parts for a period of two years from the date the engine is delivered to a retail purchaser.

TO CERTIFIED MODEL YEAR 1997 AND LATER ENGINES WHICH ARE PURCHASED AND USED ELSEWHERE IN THE UNITED STATES (AND AFTER JANUARY 1, 2001 IN CANADA).

the periods of time listed below, provided there has been no abuse, neglect or improper maintenance of your small off-road engine.

Your emission control system includes parts such as the carburetor, air cleaner, ignition system, muffler and catalytic converter. Also included may be connectors and other emission related assemblies. Where a warrantable condition exists, B&S will repair your small off-road engine at no cost to you including diagnosis, parts and labor.

below. If any covered part on your engine is defective, the part will be repaired or replaced by B&S.

You are responsible for presenting your small off-road engine to an Authorized B&S Service Dealer as soon as a problem exists. The undisputed warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact a B&S Service Representative at 1-414-259-5262.

The emission warranty is a defects warranty. Defects are judged on normal engine performance. The warranty is not related to an in-use emission test.

3. No Charge

Repair or replacement of any Warranted Part will be performed at no charge to the owner, including diagnostic labor which leads to the determination that a Warranted Part is defective, if the diagnostic work is performed at an Authorized B&S Service Dealer. For emissions warranty service contact your nearest Authorized B&S Service Dealer as listed in the "Yellow Pages" under "Engines, Gasoline," "Gasoline Engines," "Lawn Mowers," or similar category.

4. Claims and Coverage Exclusions

Warranty claims shall be filed in accordance with the provisions of the B&S Engine Warranty Policy. Warranty coverage shall be excluded for failures of Warranted Parts which are not original B&S parts or because of abuse, neglect or improper maintenance as set forth in the B&S Engine Warranty Policy. B&S is not liable to cover failures of Warranted Parts caused by the use of add-on, non-original, or modified parts.

5. Maintenance

Any Warranted Part which is not scheduled for replacement as required maintenance or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" shall be warranted as to defects for the warranty period. Any Warranted Part which is scheduled for replacement as required maintenance shall be warranted as to defects only for the period of time up to the first scheduled replacement for that part. Any replacement part that is equivalent in performance and durability may be used in the performance of any maintenance or repairs. The owner is responsible for the performance of all required maintenance, as defined in the B&S Operating and Maintenance Instructions.

6. Consequential Coverage

Coverage hereunder shall extend to the failure of any engine components caused by the failure of any Warranted Part still under warranty.

In the USA and Canada, a 24 hour hot line, **1-800-233-3723**, has a menu of pre-recorded messages offering you engine maintenance information.

About your engine warranty: (see next page for statement of LIMITED WARRANTY).

Briggs & Stratton welcomes warranty repair and apologizes to you for being inconvenienced. Any Authorized Service Dealer may perform warranty repairs. Most warranty repairs are handled routinely, but sometimes requests for warranty service may not be appropriate. For example, warranty would not apply if engine damage occurred because of misuse, lack of routine maintenance, shipping, handling, warehousing or improper installation. Similarly, warranty is void if the serial number of the engine has been removed or the engine has been altered or modified.

If a customer differs with the decision of the Service Dealer, an investigation will be made to determine whether the warranty applies. Ask the Service Dealer to submit all supporting facts to his Distributor or the Factory for review. If the Distributor or the Factory decides that the claim is justified, the customer will be fully reimbursed for those items that are defective. To avoid misunderstanding which might occur between the customer and the Dealer, listed below are some of the causes of engine failure that the warranty does not cover.

Normal wear:

Engines, like all mechanical devices, need periodic parts service and replacement to perform well. Warranty will not cover repair when normal use has exhausted the life of a part or an engine.

Improper maintenance:

The life of an engine depends upon the conditions under which it operates, and the care it receives. Some applications, such as tillers, pumps and rotary mowers, are very often used in dusty or dirty conditions, which can cause what appears to be premature wear. Such wear, when caused by dirt, dust, spark plug cleaning grit, or other abrasive material that has entered the engine because of improper maintenance, is not covered by warranty.

This warranty covers engine related defective material and/or workmanship only, and not replacement or refund of the equipment to which the engine may be mounted. Nor does the warranty extend to repairs required because of:

1. PROBLEMS CAUSED BY PARTS THAT ARE NOT ORIGINAL BRIGGS & STRATTON PARTS.
2. Equipment controls or installations that prevent starting, cause unsatisfactory engine performance, or shorten engine life. (Contact equipment manufacturer.)
3. Leaking carburetors, clogged fuel pipes, sticking valves, or other damage, caused by using contaminated or stale fuel. (Use clean, fresh, lead-free gasoline and Briggs & Stratton gasoline stabilizer, Part No. 5041.)

4. Parts which are scored or broken because an engine was operated with insufficient or contaminated lubricating oil, or an incorrect grade of lubricating oil (check oil level daily or after every 8 hours of operation. Refill when necessary and change at recommended intervals.) OIL GARD® may not shut down running engine. Engine damage may occur if oil level is not properly maintained. Read Operating & Maintenance Instructions.
5. Repair or adjustment of associated parts or assemblies such as clutches, transmissions, remote controls, etc., which are not manufactured by Briggs & Stratton.
6. Damage or wear to parts caused by dirt, which entered the engine because of improper air cleaner maintenance, re-assembly, or use of a non-original air cleaner element or cartridge. (At recommended intervals, clean and re-oil the Oil-Foam® element or the foam pre-cleaner, and replace the cartridge.) Read Operating & Maintenance Instructions.
7. Parts damaged by overspeeding, or overheating caused by grass, debris, or dirt, which plugs or clogs the cooling fins, or flywheel area, or damage caused by operating the engine in a confined area without sufficient ventilation. (Clean fins on the cylinder, cylinder head and flywheel at recommended intervals.) Read Operating & Maintenance Instructions.
8. Engine or equipment parts broken by excessive vibration caused by a loose engine mounting, loose cutter blades, unbalanced blades or loose or unbalanced impellers, improper attachment of equipment to engine crankshaft, overspeeding or other abuse in operation.
9. A bent or broken crankshaft, caused by striking a solid object with the cutter blade of a rotary lawn mower, or excessive v-belt tightness.
10. Routine tune-up or adjustment of the engine.

Warranty is available only through service dealers which have been authorized by Briggs & Stratton Corporation. Your nearest Authorized Service Dealer is listed in the "Yellow Pages™" of your telephone directory under "Engines, Gasoline" or "Gasoline Engines," "Lawn Mowers," or similar category.

Briggs & Stratton Engines Are Made Under One Or More Of The Following Patents: Design D-247,177 (Other Patents Pending)							
5,852,951	5,548,955	5,269,713	5,188,069	5,040,644	4,895,119	4,630,498	DES. 309,458
5,823,153	5,546,901	5,265,700	5,186,142	5,040,503	4,875,448	4,522,080	DES. 309,457
5,819,513	5,503,125	5,243,878	5,138,996	5,009,208	4,819,593	4,520,288	DES. 308,872
5,765,713	5,501,203	5,235,943	5,105,331	4,996,956	4,719,682	4,453,507	DES. 308,871
5,645,025	5,497,679	5,197,425	5,086,890	4,995,357	4,694,792	4,430,984	
5,642,701	5,320,795	5,197,422	5,070,829	4,977,879	4,684,917	4,355,253	
5,606,948	5,271,363	5,191,864	5,058,544	4,971,219	4,633,556		

In the USA and Canada, a 24 hour hot line, **1-800-233-3723**, has a menu of pre-recorded messages offering you engine maintenance information.

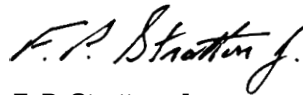
<https://truckmanualshub.com/>
BRIGGS & STRATTON ENGINE OWNER WARRANTY POLICY
effective July 1, 1999

**Replaces all undated Warranties and all Warranties
dated before July 1, 1999**

LIMITED WARRANTY

"Briggs & Stratton Corporation will repair or replace, free of charge, any part, or parts of the engine that are defective in material or workmanship or both. Transportation charges on parts submitted for repair or replacement under this Warranty must be borne by purchaser. This warranty is effective for the time periods and subject to the conditions provided for in this policy. For warranty service contact your nearest Authorized Service Dealer as listed in the 'Yellow Pages™' under 'Engines, Gasoline,' 'Gasoline Engines,' 'Lawn Mowers' or similar category. THERE IS NO OTHER EXPRESS WARRANTY. IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO ONE YEAR FROM PURCHASE, OR TO THE EXTENT PERMITTED BY LAW ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED. LIABILITY FOR CONSEQUENTIAL DAMAGES UNDER ANY AND ALL WARRANTIES ARE EXCLUDED TO THE EXTENT EXCLUSION IS PERMITTED BY LAW. Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state."

Briggs & Stratton Corporation



F. P. Stratton, Jr.
Chairman and Chief Executive Officer

WARRANTY PERIOD

ENGINES	WITHIN U.S.A. AND CANADA		OUTSIDE U.S.A. AND CANADA	
	CONSUMER USE*	COMMERCIAL USE*	CONSUMER USE*	COMMERCIAL USE*
All Vanguard™ engines.	2 year – engine ‡			
All Diamond Plus®, Industrial Plus™, I/C® engines and sleeve bore Intek series.	2 year	1 year	2 year ‡	1 year
Quantum® and Diamond Power®.	2 year	90 days	2 year † ‡	90 days
All standard engines and Kool Bore™ Intek series installed on lawn mowers, riders, edgers, chippers, shredders, tillers, and all Sno/Gard engines.	2 year	90 days	1 year	90 days
All other standard engines and Classic™ series.	1 year	90 days	1 year	90 days

* For purposes of this warranty policy, "consumer use" means personal residential household use by the original retail consumer. "Commercial use" means all other uses, including use for commercial, income producing or rental purposes. Once an engine has experienced commercial use, it shall thereafter be considered as a commercial use engine for purposes of this warranty. ***Engines used in competitive racing or on commercial or rental tracks are not warrantied.***

† One (1) year in Australia, New Zealand, Middle East and Africa.

‡ One (1) year in India.

**NO WARRANTY REGISTRATION CARD IS NECESSARY TO OBTAIN WARRANTY ON BRIGGS & STRATTON ENGINES.
YOU MUST SAVE THE PURCHASE RECEIPT. A PROOF OF PURCHASE DATE WILL BE REQUIRED TO OBTAIN WARRANTY.**

In the USA and Canada, a 24 hour hot line, **1-800-233-3723**, has a menu of pre-recorded messages offering you engine maintenance information.

**La Corporation Briggs & Stratton (B&S), le California Air Resources Board (CARB)
et le Bureau de protection environnementale des États-Unis (US EPA)**

Garantie sur le système d'échappement (Garantie contre les défauts, droits et obligations du propriétaire)

LA GARANTIE SUR LE SYSTÈME D'ÉCHAPPEMENT EST APPLICABLE SUR LES MOTEURS CERTIFIÉS ACHETÉS EN CALIFORNIE EN 1995 ET LES ANNÉES SUIVANTES ET QUI SONT UTILISÉS EN CALIFORNIE, AINSI QU'ÀUX MODÈLES CERTIFIÉS DE 1997 ET LES ANNÉES SUI-

VANTES QUI ONT ÉTÉ ACHETÉS ET UTILISÉS AILLEURS AUX ÉTATS-UNIS (ET APRÈS LE 1^{ER} JANVIER 2001 AU CANADA).

Déclaration de garantie sur le système d'échappement pour la Californie, les États-Unis

Le California Air Resources Board (CARB), le Bureau américain de protection environnementale (U.S. EPA) et B&S sont heureux d'expliquer la garantie sur le système d'échappement des petits moteurs hors-route de votre modèle 2000 et des années ultérieures (SORE). En Californie, les nouveaux petits moteurs hors route doivent être conçus, construits et équipés pour rencontrer les standards rigoureux d'antipollution. Ailleurs aux États-Unis, les nouveaux moteurs hors route à bougie d'allumage certifiés pour les modèles de 1997 et plus, doivent rencontrer des normes similaires mises de l'avant par le U.S. EPA. Briggs & Stratton garantit le système de contrôle d'échap-

pement de votre moteur pour la période de temps mentionnée ci-contre, sauf s'il a fait l'objet d'abus, de négligence ou d'un entretien inapproprié.

Votre système de contrôle d'échappement comprend des pièces telles que le carburateur, le filtre à air, le système d'ignition, le silencieux et le convertisseur catalytique. Il peut aussi comprendre les connecteurs et autres pièces reliées à l'émission.

Lorsqu'il y a condition à garantie, B&S réparera gratuitement votre petit moteur hors-route incluant le diagnostic, les pièces et la main d'œuvre.

Couverture de garantie Briggs & Stratton contre toute défaillance du système de contrôle d'échappement

Les petits moteurs hors route sont garantis contre la défaillance des pièces du système de contrôle d'échappement pour une période de 2 ans, sujette aux conditions stipulées ci-contre. Si n'impor-

te quelle pièce de votre moteur couverte par cette garantie est défectueuse, elle sera réparée ou remplacée par B&S.

Responsabilités du propriétaire

En tant que propriétaire d'un petit moteur hors route, vous êtes responsable de veiller à l'exécution de l'entretien requis tel que stipulé dans votre manuel d'opération et d'entretien. B&S vous recommande de conserver tous les reçus couvrant les travaux d'entretien de votre petit moteur hors route, mais B&S ne peut refuser la garantie en raison d'absence de reçus ou pour défaut d'avoir suivi tout l'échéancier du programme d'entretien.

En tant que propriétaire d'un petit moteur hors route, vous devez être informé que B&S peut refuser d'honorer cette garantie si la défaillance de votre moteur ou d'une partie de votre moteur est due à un emploi abusif, une négligence, un entretien incorrect ou une modification non approuvée.

Dispositions de la garantie du système d'échappement Briggs & Stratton

Ce qui suit concerne les dispositions spécifiques relativement à votre garantie sur le système de contrôle d'échappement. C'est une addition à la garantie B&S pour les moteurs non réglementés contenue dans le manuel d'entretien et d'utilisation.

1. Pièces sous garantie

La couverture de cette garantie ne s'applique que sur les pièces listées ci-contre (les parties du système de contrôle d'échappement) dans la mesure où ces pièces étaient présentes sur le moteur au moment de l'achat.

- Système de dosage du carburant
 - Système d'enrichissement de démarrage à froid
 - Carburateur et parties internes
 - Pompe à essence
- Système d'induction d'air
 - Filtre à air
 - Tubulure d'admission
- Système d'ignition
 - Bougies d'allumage
 - Système d'allumage électromagnétique
- Système catalyseur
 - Convertisseur catalytique
 - Collecteur d'échappement
 - Système d'injection d'air ou à pulsion
- Autres pièces utilisées dans les systèmes ci-haut mentionnés
 - Soupapes et interrupteurs de dépression, de température, de position.
 - Connecteurs et assemblages.

2. Durée de la couverture

B&S garantit le propriétaire initial et tous les acheteurs subséquents que les pièces sous garantie sont exemptes de vice de matière ou de fabrication qui pourraient causer des défaillances des pièces sous garantie pour une période de deux ans à partir de la date à laquelle le moteur a été livré à l'acheteur.

3. Aucuns Frais

La réparation ou le remplacement de toute pièce sous garantie sera effectuée sans aucuns frais pour le propriétaire, incluant les frais de main d'œuvre pour le diagnostic afin de déterminer si la pièce sous garantie est défectueuse, conditionnel à ce que le diagnostic soit effectué chez un détaillant autorisé B&S. Pour la garantie relative au système d'échappement, communiquez avec le détaillant autorisé B&S le plus proche tel que listé dans les pages jaunes de votre localité sous la rubrique moteur à essence, tondeuse ou autre catégorie similaire.

4. Réclamations et exclusions de la couverture.

Les réclamations de garantie doivent être complétées en accord avec les dispositions de la politique de garantie B&S. La garantie ne couvre pas les défaillances de pièces qui ne sont pas des pièces d'origine B&S ou dans le cas d'abus, négligence ou d'un entretien inapproprié. La garantie B&S ne couvre pas les défaillances de pièces sous garantie qui ont fait l'objet d'ajouts, ont été modifiées ou de pièces qui ne sont pas des pièces B&S d'origine.

5. Entretien

Toute pièce sous garantie qui n'est pas remplacée au moment requis selon le manuel d'entretien ou qui est planifiée seulement pour une inspection régulière sous la mention « réparer ou remplacer si nécessaire » est garantie contre toute défaillance pour la période de garantie. Toute pièce sous garantie qui est planifiée pour un remplacement tel que requis dans l'entretien est garantie contre toute défaillance seulement pour la période de temps qui va jusqu'au premier remplacement prévu pour cette pièce. Toute pièce de remplacement équivalente en performance et durabilité peut être utilisée pour l'entretien ou la réparation. Le propriétaire est responsable de l'exécution de tout entretien requis tel que défini dans le manuel d'instruction B&S sur l'entretien et la réparation.

6. Couverture indirecte

La couverture ci-contre s'étend à toute défaillance des composantes du moteur causée par la défaillance de n'importe quelle pièce couverte par la garantie et dont la garantie est encore en vigueur.

Consultez les informations sur la période de durabilité d'émission et l'INDICE d'air sur l'étiquette d'émission de votre moteur

Les moteurs qui sont certifiés conformes aux normes standards d'émission du California Air Resources Board (CARB) Tier 2, doivent afficher l'information concernant la période de durabilité du système d'émission et l'INDICE d'air. Cette information est indiquée sur les étiquettes apposées sur les moteurs par Briggs & Stratton.

La **période de durabilité d'émission** indique le nombre d'heures d'utilisation normale pour lequel le moteur est certifié conforme aux normes d'émission sous réserve d'un entretien approprié tel qu'indiqué dans le manuel d'opération et d'entretien. Les catégories suivantes sont utilisées :

Modéré le moteur est certifié conforme pour 125 heures d'utilisation normale.

Intermédiaire le moteur est certifié conforme pour 250 heures d'utilisation normale.

Prolongé le moteur est certifié conforme pour 500 heures d'utilisation normale.

Par exemple, une tondeuse de modèle standard est utilisée environ 20 à 25 heures par année. Par conséquent, la **période de durabilité d'émission** d'un moteur dans la catégorie intermédiaire pour ce type de tondeuse équivaut à 10 à 12 ans.

L'**indice d'air** est un nombre qui décrit le niveau relatif d'émission pour une catégorie spécifique de moteur. Plus l'**indice d'air** est bas, plus le moteur est écologique. Cette information est indiquée sous une forme graphique sur l'étiquette d'émission.

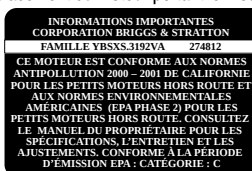
A compter du 1^{er} juillet 2000, surveillez la période de conformité d'émission sur les étiquettes

Après le 1^{er} juillet 2000, certains moteurs B&S seront certifiés conformes aux normes environnementales d'émission standard du United States Environmental Protection Agency (US EPA) Phase 2. Pour les moteurs certifiés pour la Phase 2, la période de conformité d'émission mentionnée sur les étiquettes indique le nombre d'heures d'utilisation pour lequel le moteur rencontre les normes fédérales. Pour les moteurs de force moindre que 225 cc, la catégorie C = 125 heures, B = 250 heures et A = 500 heures. Pour les moteurs de 225 cc et plus, la catégorie C = 250 heures, B = 500 heures et A = 1000 heures.

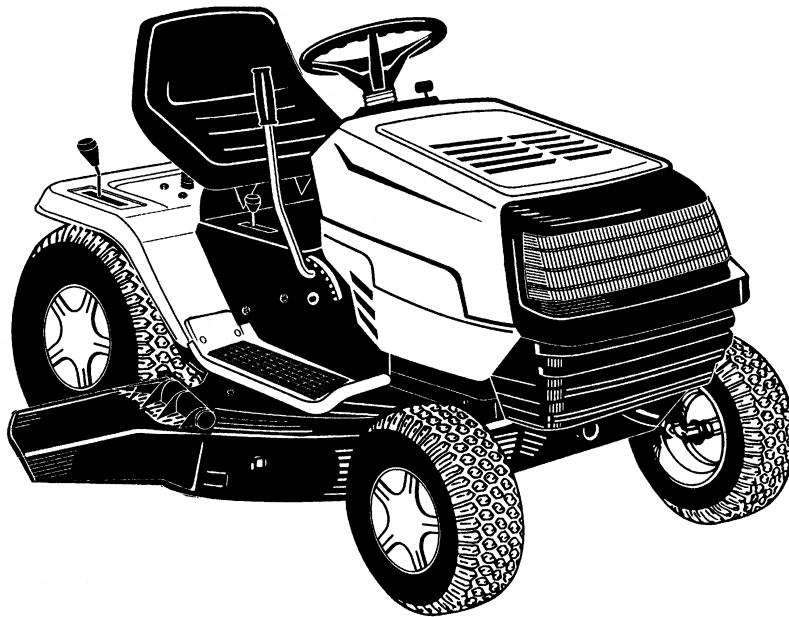
Le remplacement du moteur portant le modèle de série 185400 est 297 cc. Le remplacement du moteur portant le modèle de série 235400 et 245400 est 392 cc.

Ceci est une représentation des étiquettes d'émission

que vous retrouverez sur les moteurs certifiés :



Illustrated Parts List



Hydrostatic Lawn Tractor

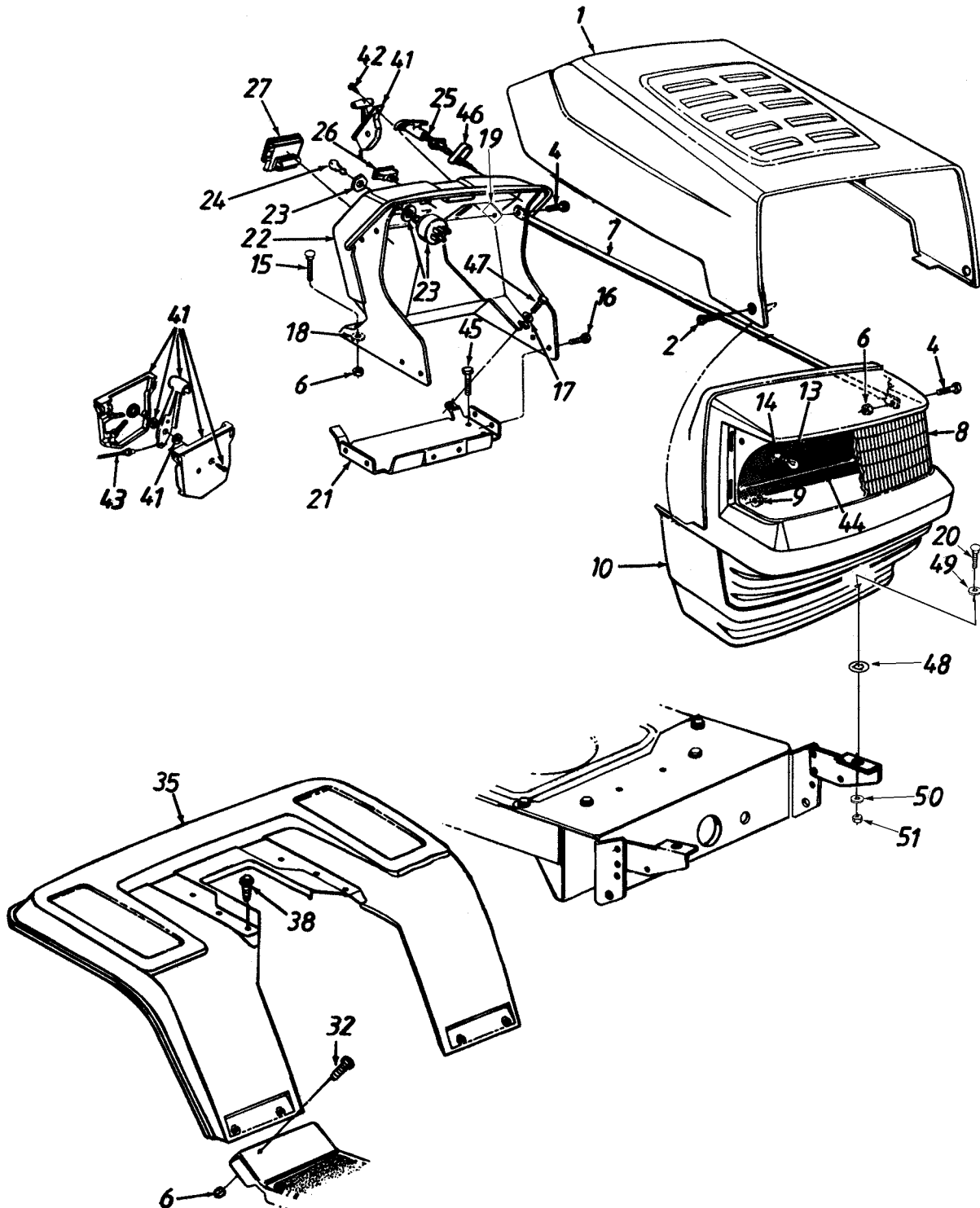
Model Series
690 through 699

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

PRINTED IN U.S.A.

FORM NO. 770-10118A
(11/99)

Style 0



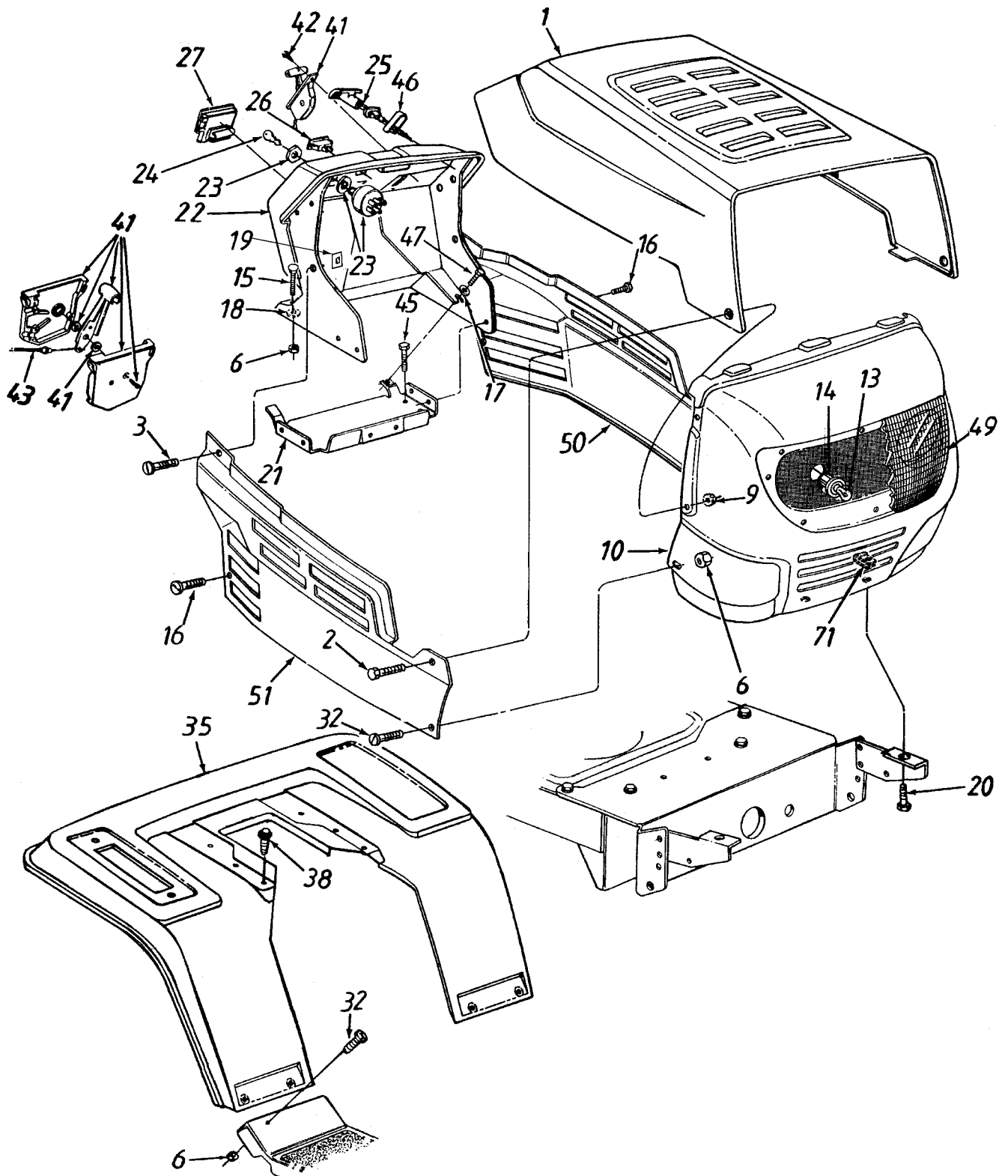
Style 0

REF. NO.	PART NO.	DESCRIPTION
1	783-0250	Hood
2	738-0952A	Shld. Bolt .375" Dia. x .125" Lg.
4	710-0924	Pan Hd. Scr. 1/4-20 x .75" Lg.
6	712-3006	Hex Sems Nut 1/4-20 Thd.
7	749-0812	Grille Support Rod
8	731-1099A	Headlight Lens w/o Logo
	731-1767	Headlight Lens w/ Logo
9	712-3027	Flange Lock Nut 1/4-20 Thd.
10	731-1097E	Grille
13	725-0963	Lamp
14	725-1649	Socket
15	710-0703	Carriage Bolt 1/4-20 x .75" Lg.
16	710-0599	Hex Wash. Hd. TT-Tap Scr. 1/4-20 x .5"
17	736-0173	Flat Washer .281" I.D. x .73" O.D.
18	726-0233	Bolt Retainer 1/4" I.D.
19	712-0185	Speed Nut 1/4-20 Thd.
20	710-3008	Hex Bolt 5/16-18 x .75" Lg. (Gr.5)
21	17632A	Gas Tank Support Brkt.
22	731-1096B	Dash w/Ammeter Hole
	731-1337A	Dash w/o Ammeter Hole
23	725-0267	Ignition Switch
24	725-0201	Ignition Key
25	746-0616A	Choke Control 23" Lg.
	746-0614A	Choke Control 38" Lg.
	746-0720	Choke Control 20" Lg.
	746-3021	Choke Control 29" Lg.
26	725-0634	Light Switch**
27	725-0925	Ammeter**
32	710-0286	Truss Mach. Scr. 1/4-20 x .5" Lg.
35	17871B	Fender w/Cutout
38	710-0726	Hex Wash. Hd. AB-Tap Scr. 5/16 x .75"
41	831-0823A	Throttle Box Assembly
42	710-0779A	Truss Mach. AB-Tap Scr. #10 x .5" Lg.
43	746-0776	Throttle Control Wire 18.5" Lg.
	746-0634	Throttle Control Wire 35" Lg.
	746-0638	Throttle Control Wire 22" Lg.
44	777-9206	Grille Reflector Label
45	710-0603	Hex Wash. Hd. B-Tap Scr. 5/16-18 x .5"
46	17782	Choke Retainer
47	710-0642	Hex TT-Tap Scr. 1/4-20 x .75" Lg.
48	726-0201	U-Nut 5/16-18 Thd.
49	736-3078	Flat Washer .34" I.D. x 1" O.D.
50	736-0119	Lock Washer 5/16" I.D.
51	712-3010	Hex Nut 5/16-18 Thd. (Gr.5)
—	629-0309	Headlight Harness (Not Shown)

** Optional Parts

NOTE: For faster service, obtain the standard fasteners locally. If these are not available locally, call 1(800) 800-7310 or 1(330) 220-4MTD to order by part number and size as shown here.

Style 3



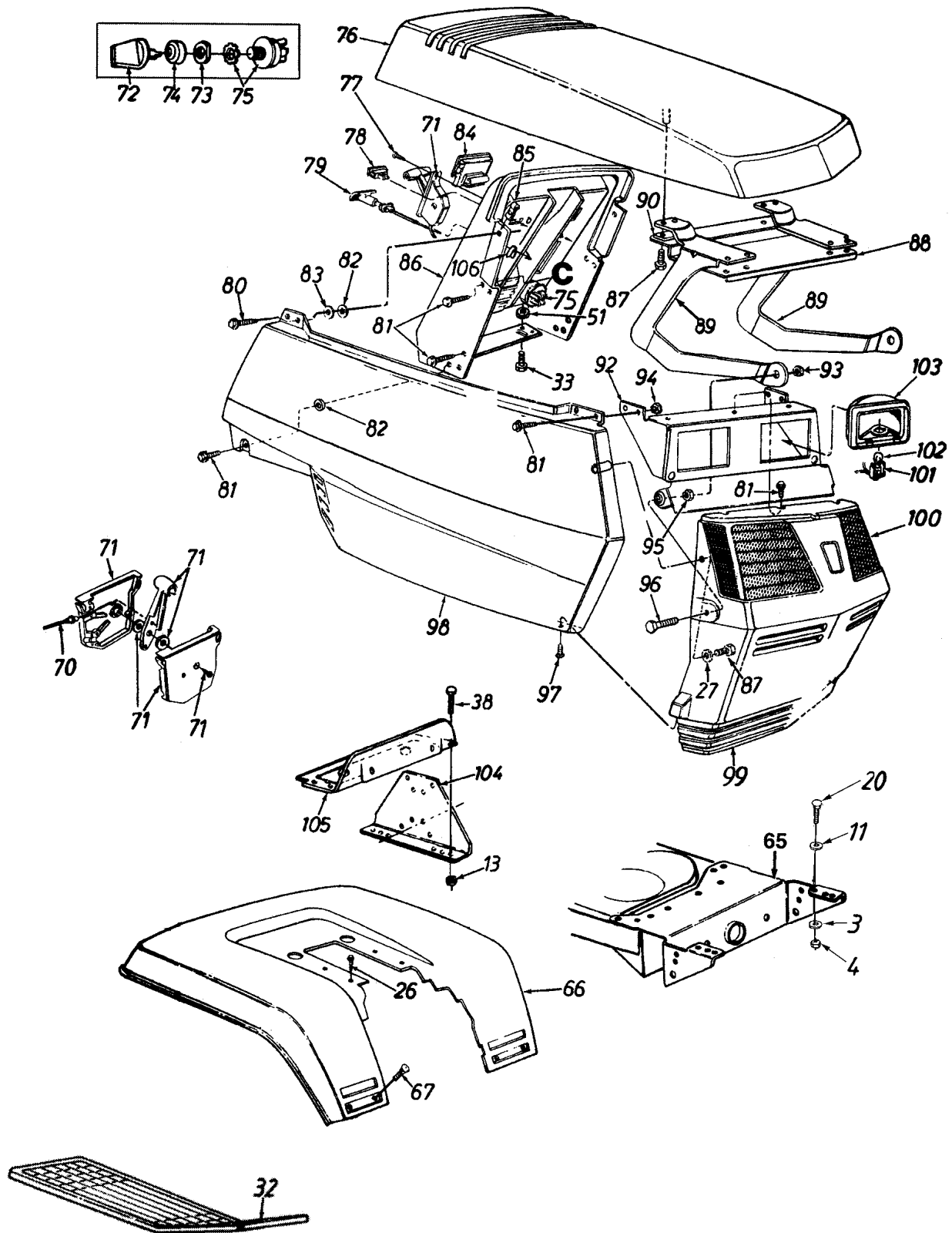
Style 3

REF. NO.	PART NO.	DESCRIPTION
1	783-0250	Hood
2	738-0952	Shld. Bolt .375" Dia. x .125" Lg.
6	712-0271	Hex Sems Nut 1/4-20 Thd.
9	712-3027	Flange Lock Nut 1/4-20 Thd.
10	783-0156A	Grille
13	725-0963	Lamp
14	725-1651	Socket
15	710-0703	Carriage Bolt 1/4-20 x .75" Lg.
16	710-0599	Hex Wash. Hd. TT-Tap Scr. 1/4-20 x .5"
17	736-0173	Flat Washer .281" I.D. x .73" O.D.
18	726-0233	Bolt Retainer 1/4" I.D.
19	712-0185	Speed Nut 1/4-20 Thd.
20	710-0376	Hex Bolt 5/16-18 x .1" Lg.
21	17632A	Gas Tank Support Brkt.
22	731-1096B	Dash w/Ammeter Hole
	731-1337A	Dash w/o Ammeter Hole
23	725-0267	Ignition Switch
24	725-0201	Ignition Key
25	746-0616A	Choke Control 23" Lg.
	746-0614A	Choke Control 38" Lg.
	746-3021	Choke Control 29" Lg.
	746-0720	Choke Control 20" Lg.
26	725-0634	Light Switch**
27	725-0925	Ammeter**
32	710-0924	Pan Hd. Scr. 1/4-20 x .75" Lg.
35	17871B	Fender
38	710-0726	Hex Wash. Hd. AB-Tap Scr. 5/16 x .75"
41	831-0823A	Throttle Box Assembly
42	710-0779A	Truss Mach. AB-Tap Scr. #10 x .5" Lg.
43	746-0776	Throttle Control Wire 18.5" Lg.
	746-0634	Throttle Control Wire 35" Lg.
	746-0638	Throttle Control Wire 22" Lg.
45	710-0603	Hex Wash. Hd. B-Tap Scr. 5/16-18 x .5"
46	17782	Choke Retainer
47	710-0642	Hex TT-Tap Scr. 1/4-20 x .75" Lg.
49	731-1503A	Lens
50	783-0151A	Side Panel—LH
51	783-0150A	Side Panel—RH
71	726-0211	U-Nut 5/16-18 Thd.
-	629-0309	Headlight Harness (Not Shown)

** Optional Parts

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Style 4



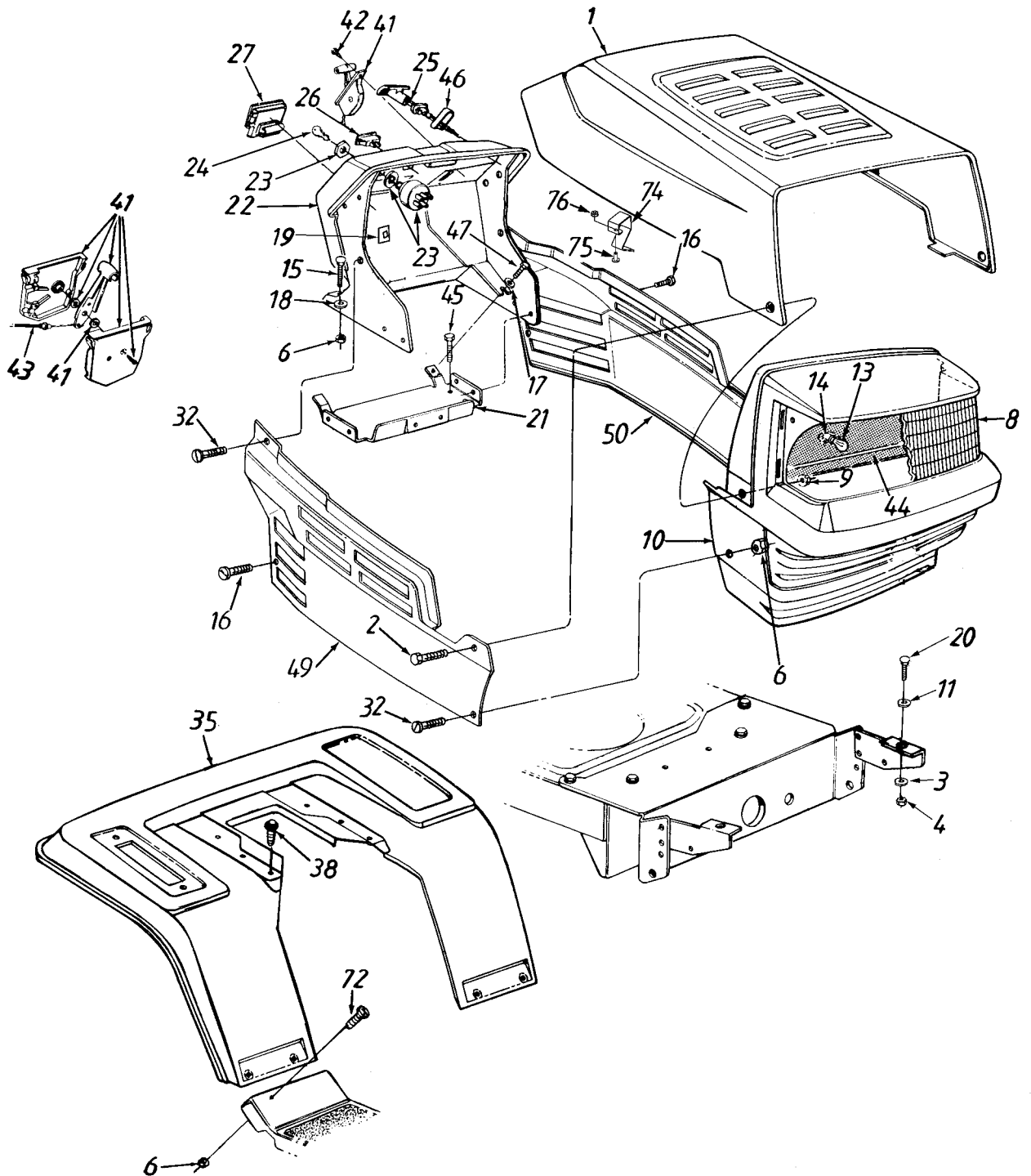
Style 4

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
9	710-3008	Hex Bolt 5/16-18 x .75" Lg. (Gr.5)	82	726-0233	Push Nut Fastener
10	712-3010	Hex Nut 5/16-18 Thd. (Gr.5)	83	736-0176	Flat Washer .27" I.D. x .948"
11	736-0119	Lock Washer 5/16" I.D.	84	725-0925	Ammeter
12	736-3078	Flat Washer .34" I.D. x 1" O.D.	85	712-0185	Speed Nut 1/4-20 Thd.
13	712-0271	Hex Sems Nut 1/4-20 Thd.	86	731-0961A	Dash Panel
26	710-0726	Hex Wash. Hd. AB-Tap Scr.5/16 x .75"	87	710-0599	Hex Wash. Hd. B-Tap Scr.1/4 x .75" Lg.
27	736-0142	Flat Washer .218" I.D. x .5" O.D.	88	783-0121	Hood Reinforcement
32	731-0911	Rubber Foot Pad—LH **	89	783-0123	Hood Hinge
	731-0912	Rubber Foot Pad—RH**	90	17762	Hood Reinforcement Spacer
33	710-3008	Hex Bolt 5/16-18 x .75" Lg.	92	17223	Light Bracket
38	710-0258	Hex Bolt 1/4-20 x .62" Lg.	93	712-0158	Hex Lock Nut 5/16-18 Thd.
51	712-0265	Hex Sems Nut 5/16-18 Thd.	94	712-0107	Hex Lock Nut 1/4-20 Thd.
65	783-0041A	Pivot Bar Brkt.	95	712-3007	Hex Jam Nut 5/16-18 Thd.
66	783-0350	Fender	96	710-0874	Hex Bolt 5/16-18 x 7/8" Lg.
67	710-0167	Carriage Bolt 1/4-20 x .62" Lg.	97	710-0351	Truss Mach. B-Tap Scr. #10 x .5" Lg.
70	746-0776	Throttle Wire 18.5" Lg.	98	731-1434	Side Cover—RH - Red
	746-0634	Throttle Wire 35" Lg.		731-2256	Side Cover—RH - Black
	746-0636	Throttle Wire 28" Lg.		731-1435	Side Cover—LH (Not Shown) - Red
71	831-0823A	Throttle Control Box Assembly		731-2255	Side Cover—LH (Not Shown) - Black
72	725-1341B	Ignition Key	99	731-1442A	Grille - Red
73	725-1346	Ignition Switch Nut		731-2254	Grill - Black
74	725-1347	Ignition Switch Cap	100	731-0949	Lens—LH
75	725-1396	Ignition Switch		731-0948	Lens—RH
76	731-1433	Hood - Red	101	725-1650	Twist Lock-Lamp Socket
	731-2253	Hood - Black	102	725-0963	Lamp
77	710-0779A	Truss Mach. AB-Tap Scr. #10 x .5" Lg.	103	731-0705	Headlight Housing
78	725-0634	Light Switch	104	17300D	Dash Support Brkt.
79	746-3021	Choke Control 29" Lg.	105	17633A	Support Brkt.
	746-0614A	Choke Control 38" Lg.	106	17782	Choke Retainer
80	710-0642	Hex Wash. Hd. Tap Scr. 1/4 x .75" Lg.	—	629-0309	Headlight Harness (Not Shown)
81	710-0599	Hex Tap Scr. 1/4-20 x .5" Lg.			

** Optional Parts

NOTE: For faster service, obtain the standard fasteners locally. If these are not available locally, call 1(800) 800-7310 or 1(330) 220-4MTD to order by part number and size as shown here.

Style 5



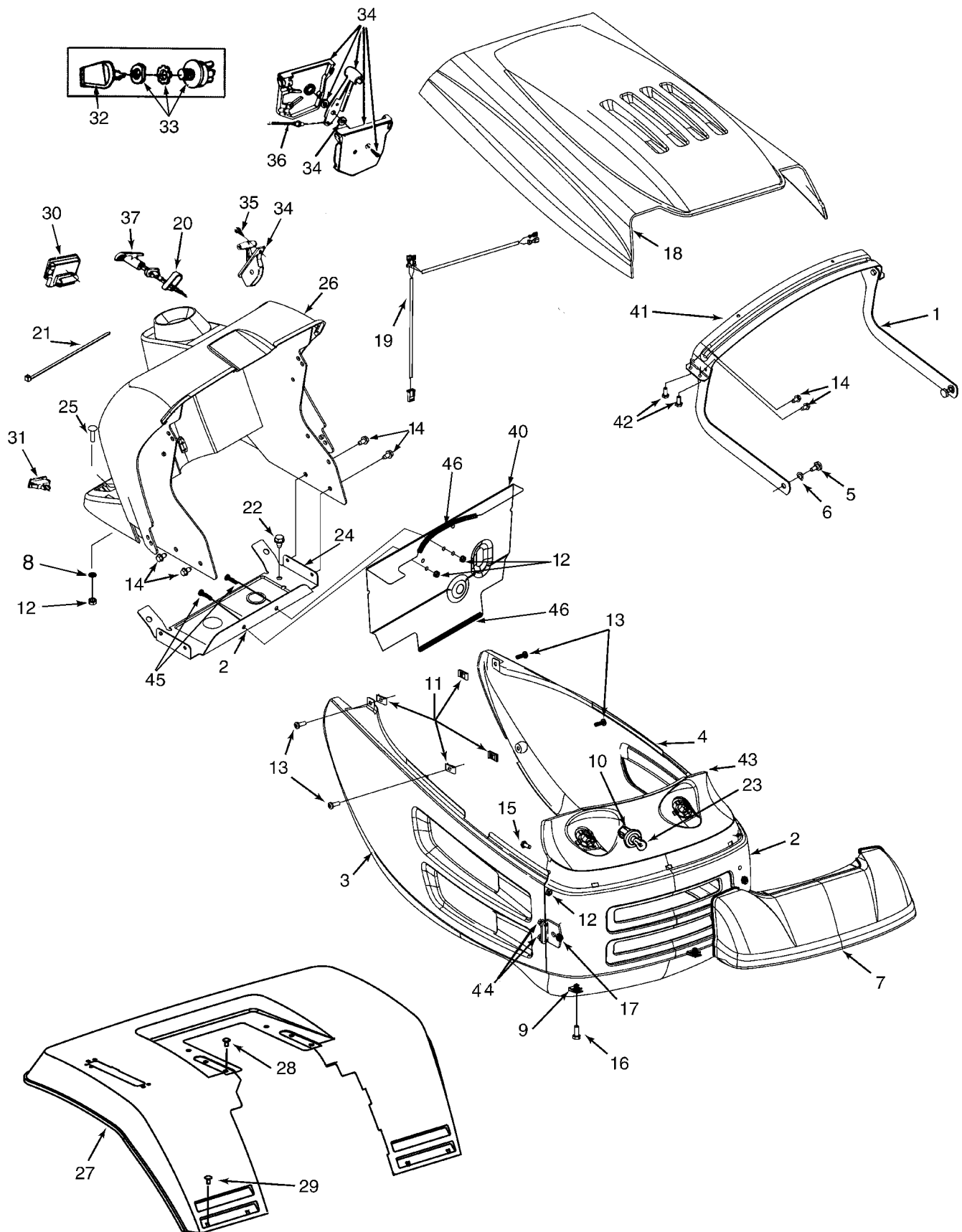
Style 5

REF. NO.	PART NO.	DESCRIPTION
1	783-0250	Hood
2	738-0952	Shld. Bolt .375" Dia. x .125" Lg.
3	736-0119	Lock Washer 5/16" I.D.
4	712-3010	Hex Nut 5/16-18 Thd.
6	712-0271	Hex Sems Nut 1/4-20 Thd.
8	731-1099A	Headlight Lens w/o Logo
	731-1767	Headlight Lens w/ Logo
9	712-3027	Flange Lock Nut 1/4-20 Thd.
10	731-1097E	Grille
11	736-3078	Flat Washer .344" I.D. x 1" O.D.
12	712-0267	Hex Nut 5/16-18 Thd.
13	725-0963	Lamp
14	725-1649	Socket
15	710-0703	Carriage Bolt 1/4-20 x .75" Lg.
16	710-0599	Hex Wash. Hd. TT-Tap Scr. 1/4-20 x .5" Lg.
17	736-0173	Flat Washer .281" I.D. x .73" O.D.
18	726-0233	Bolt Retainer 1/4" I.D.
19	712-0185	Speed Nut 1/4-20 Thd.
20	710-3008	Hex Bolt 5/16-18 x .75" Lg. (Gr.5)
21	17632A	Gas Tank Support Brkt.
22	731-1096B	Dash w/Ammeter Hole
	731-1337A	Dash w/o Ammeter Hole
23	725-0267	Ignition Switch
24	725-0201	Ignition Key
25	746-0616A	Choke Control 23" Lg.
	746-0614A	Choke Control 38" Lg.
	746-3021	Choke Control 29" Lg.
	746-0720	Choke Control 20" Lg.
26	725-0634	Light Switch**
27	725-0925	Ammeter**
32	710-0924	Pan Hd. Scr. 1/4-20 x .75" Lg.
35	17871B	Fender w/Cutout
38	710-0726	Hex Wash. Hd. AB-Tap Scr. 5/16 x .75" Lg.
41	831-0823A	Throttle Box Assembly
42	710-0779A	Truss Mach. AB-Tap Scr. #10 x .5" Lg.
43	746-0776	Throttle Control Wire 18.5" Lg.
	746-0634	Throttle Control Wire 35" Lg.
	746-0638	Throttle Control Wire 22" Lg.
44	777-9206	Grille Reflector Label
45	710-0603	Hex Wash. Hd. B-Tap Scr. 5/16-18 x .5" Lg.
46	17782	Choke Retainer
47	710-0642	Hex TT-Tap Scr. 1/4-20 x .75" Lg.
49	783-0150A	Side Panel-RH
50	783-0151A	Side Panel-LH
72	710-0286	Truss Mach. Scr. 1/4-20 x .5" Lg.
73	736-0342	Flat Washer .283" I.D. x .75" Lg.
74	732-0835	Hood Latch **
75	712-0272	Hex Sems Nut 10-24 Thd. **
76	710-0473	Truss Mach. Scr. 10-24 x .5" Lg. **
—	629-0309	Headlight Harness (Not Shown)

** Optional Parts

NOTE: For faster service, obtain the standard fasteners locally. If these are not available locally, call 1(800) 800-7310 or 1(330) 220-4MTD to order by part number and size as shown here.

Style 8



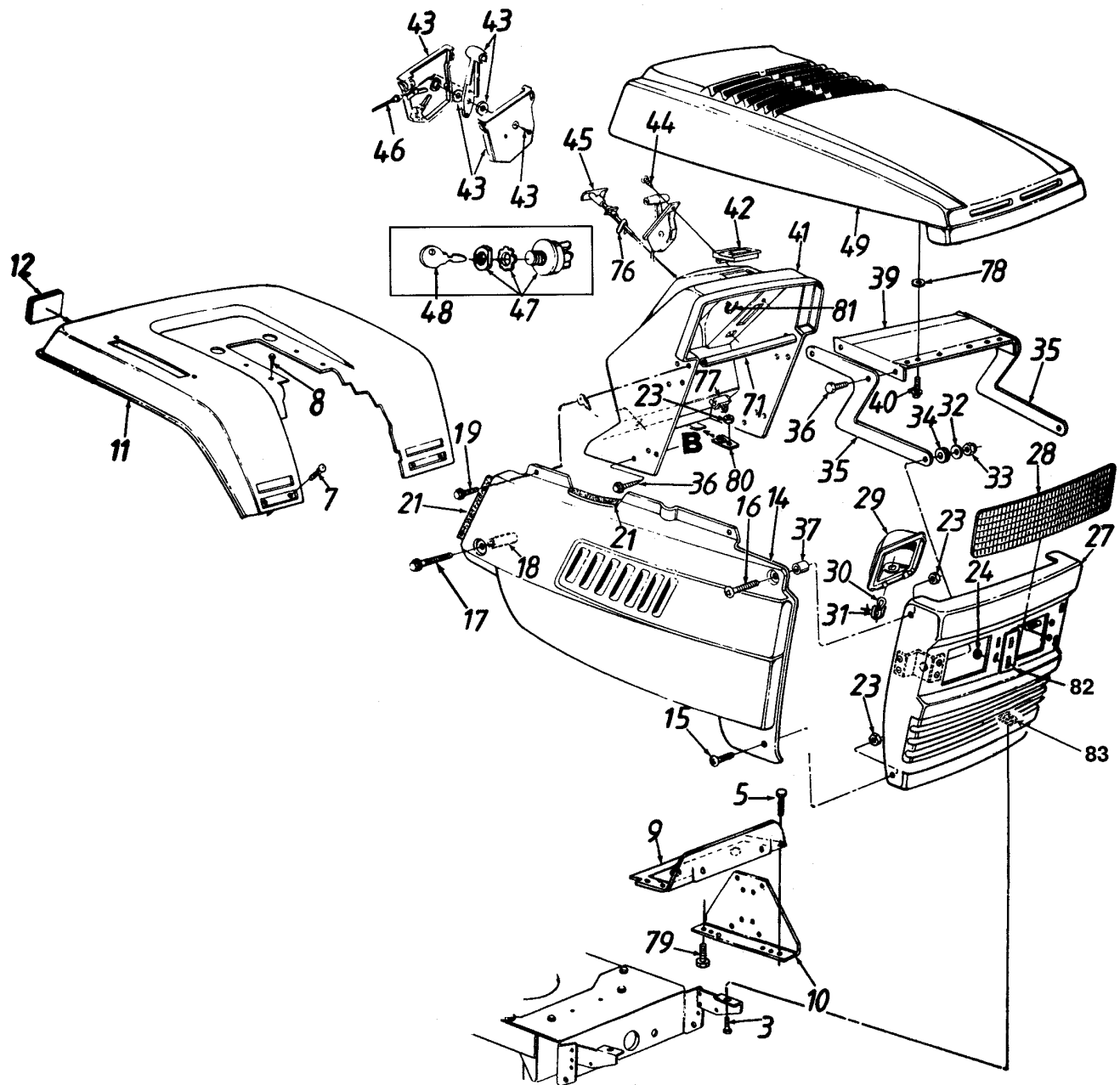
Style 8

REF NO.	PART NO.	DESCRIPTION
1	783-0551	Hood Brkt.
2	783-0477	Grille
3	783-0476	Side Panel -RH
4	783-0475	Side Panel - LH
5	738-0255	Shld. Bolt .375" Dia.
6	736-0413	Spr. Wash. .39" I.D. x .62" O.D.
7	731-1854	Lens
8	726-0233	Retainer Nut
9	726-0211	U - Nut 5/16-18 Thd
10	725-1651	Socket
11	712-0292	Tinn. Nut 1/4-20 Thd.
12	712-0271	Hex Sems Nut 1/4-20 Thd.
13	710-0924	Pan Hd. Mach. Scr. 1/4-20 x .75" Lg.
14	710-0599	Hex Wash. Hd. TT-Tap Scr. 1/4-20 x .5"
15	710-0751	Hex Bolt
16	710-0376	Hex Bolt 5/16-18 x .1" Lg. (Gr.5)
17	683-0168	Hood Pivot Brkt. Assembly
18	783-0478	Hood
19	629-0308	Headlight Harness
20	17782	Choke Retainer
21	725-0157	Cable Tie
22	710-0607	Hex Wash. Hd. Tap Scr. 5/16-18 x .5"
23	725-0963	Lamp
24	17632A	Gas Tank Support Brkt.
25	710-0703	Carriage Bolt 1/4-20 x .75" Lg.
26	731-1852	Dash Panel
27	783-0350	Fender
28	710-0726	Hex Wash. Hd. Tap Scr. 5/16 x .75"
29	710-0286	Truss Mach. Scr. 1/4-20 x .5" Lg.
30	725-0925	Ammeter
31	725-0634	Light Switch
32	725-0201	Ignition Key
33	725-0267	Ignition Switch
34	831-0823A	Throttle Box Assembly
35	710-0779A	Truss Mach. AB-Tap Scr. #10 x .5"
36	746-0776	Throttle Control Wire 18.5" Lg.
	746-0638	Throttle Control Wire 22" Lg.
	746-0634	Throttle Control Wire 35" Lg.
37	746-0720	Choke Control 20" Lg.
	746-0616A	Choke Control 23" Lg.
	746-3021	Choke Control 29" Lg.
	746-0614A	Choke Control 38" Lg.
40	16988A	Engine Baffle †
41	783-0553	Hood Brkt. Support
42	710-0351	Pan Hd. Scr. #10-16 x .5" Lg.
43	726-0293	Retainer Nut
44	710-0896	Hex Wash. AB-Tap Scr. 1/4-14 x .625"
45	710-0166	Pan Hd. Scr. 1/4-20 x 1" Lg.†
46	731-0511-18	Trim Strip †

† B&S Twin Cylinder Engine Only.

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Style 9



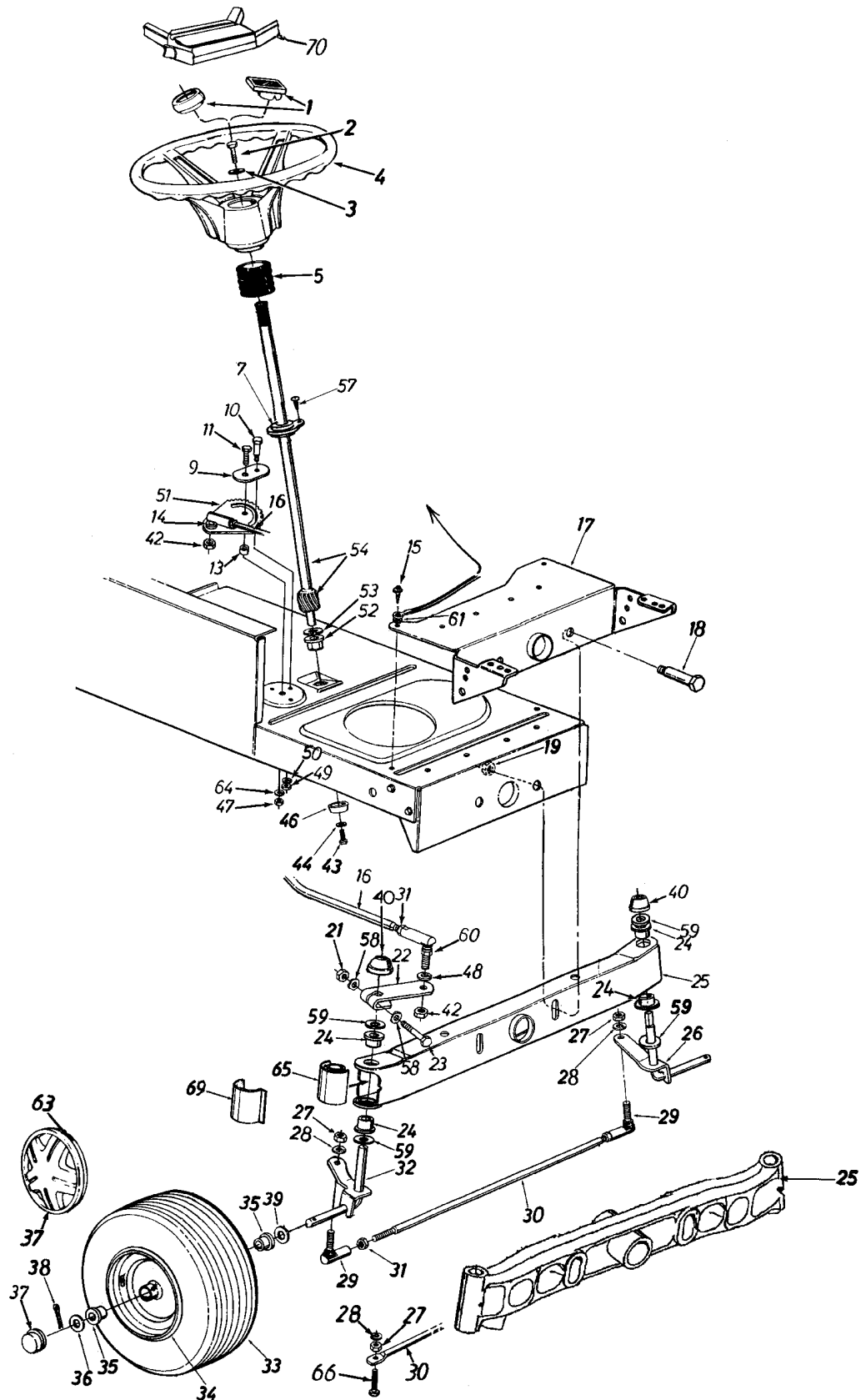
Style 9

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
3	710-0376	Hex Bolt 5/16-18 x .1" Lg.	37	750-0218	Spacer .262" I.D. x .31"
5	710-0603	Hex Wash. Hd. Scr. 5/16" x .5" Lg.	39	16903A	Hood Plate
7	710-0286	Truss Mach. Scr. 1/4-20 x .5" Lg.	40	710-1005	Hex Wash. Hd. Tap Scr. 1/4-20 x .5" Lg.
8	710-0726	Hex Wash. Hd. Tap Scr. 5/16 x .75" Lg.	41	731-1048B	Dash
9	17633A	Support Bracket	42	725-0925	Ammeter
10	17300D	Dash Support Bracket	43	831-0823A	Throttle Control Box Assembly
11	783-0350	Rear Fender	44	710-0919	Mach. Scr. #10 x .44" Lg.
12	730-3000	Reflector **	45	746-0616A	Choke Control 23" Lg.
14	16725	Side Panel—RH †		746-0614A	Choke Control 38" Lg.
	17458A	Side Panel w/Foam—RH		746-3021	Choke Control 29" Lg.
	17459A	Side Panel Assembly w/Foam—LH(Not Shown)		746-0720	Choke Control 20" Lg.
	17309B	Side Panel-LH (Not Shown)	46	746-0776	Throttle Control Wire 18.5" Lg.
15	710-0286	Truss Mach. Scr. 1/4-20 x .5" Lg.		746-0634	Throttle Control Wire 35" Lg.
16	710-0166	Truss Mach. Scr. 1/4-20 x 1.0" Lg.		746-0638	Throttle Control Wire 22" Lg.
17	710-1026	Hex Wash. TT-Tap Scr. 1/4-20 x 1.75"	47	725-0267	Ignition Switch
18	750-0768	Spacer .26" I.D. x 1.32"	48	725-0201	Ignition Key
19	710-0642	Hex Rolling Tap Scr. 1/4-20 x .75" Lg.	49	731-1491A	Hood-Red
21	731-0511-18	Trim Strip-18" Lg.		731-1531A	Hood-Charcoal
22	736-0329	Lock Washer 1/4" I.D.		731-1497A	Hood-Oyster Gray
23	712-0271	Hex Sems Nut 1/4-20 Thd.		731-1704A	Hood-Evergreen
24	726-0201	Speed Nut 5/16" Thd.		731-1893A	Hood-Black
27	17410	Grille Assembly	71	749-0814	Grille Support Tube
28	731-1044	Headlight Lens	73	736-0607	External Lock Washer 5/16" I.D.
29	731-0705	Headlamp Housing	76	17782	Choke Retainer
30	725-0963	Headlamp	77	725-0634	Light Switch
31	725-1650	Twist Lock Lamp Socket	78	736-3010	Flat Washer .406" I.D. x .812" O.D.
32	736-0242	BelLock Washer .345" I.D. x .88"	79	710-0206	Hex Bolt 1/4-20 x .88" Lg.
33	712-0429	Hex Lock Nut 5/16-18 Thd.	80	783-0013	Dash Fastening Tab
34	735-0126	Rubber Washer	81	725-0157	Cable Tie
35	783-0190	Hood Hinge	82	777-8568A	Chrome Label
36	710-0599	Hex Wash.Hd.B-Tap Scr.1/4-20 x.5"	83	726-0211	U-Nut 5/16-18 Thd.

** Optional Parts

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Model 690 through 699

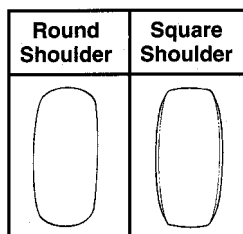


Model 690 through 699

REF NO.	PART NO.	DESCRIPTION	REF NO.	PART NO.	DESCRIPTION
1	731-0220	Steering Wheel Cap	30	747-0753	Tie Rod (Adjustable)
	731-1459A	Steering Wheel Cap (Sq.—MTD)		747-0861	Tie Rod (Non-Adjustable)
	731-1460	Steering Wheel Cap (Sq.—No logo)	31	712-0711	Hex Jam Nut 3/8-24 Thd.
2	710-0643	Hex Bolt 5/16-18 x 1" Lg.	32	—	Front Axle Assembly—RH
3	736-0242	Belleville Wash. .345" I.D.	33	—	Wheel Assembly Comp.
4	731-1693	Steering Wheel (3 Spoke)†	34	—	Front Wheel Rim Only
	731-1687	Steering Wheel (3 Spoke)††	35	—	Bearing
	631-0027	Steering Wheel (4 Spoke)	36	736-0285	Flat Washer .635 I.D. x 1.59" O.D.
5	731-0559A	Steering Bellow—4.5" (Style A)	37	731-0484A	Front Wheel Hub Cap
	731-0954	Steering Bellow—9" (Style 0, 1, 3, 4, 5, 6, 8, 9)		734-1787A	Spoked Hub Cap (Yellow—Opt.)
	731-1542	Steering Bellow—3.25" (Style 7)		734-1613A	Spoked Hub Cap (Gray—Opt.)
6	712-0240	Hex Jam Nut 7/16-20 Thd.		734-1612A	Spoked Hub Cap (Beige—Opt.)
7	741-0587	Flange Bearing .628" I.D. x 1.36 O.D.	38	714-0470	Cotter Pin 1/8" Dia. x 1.25"
8	723-0448	Ball Joint 7/16-20 Thd.	39	736-0162	Flat Washer .640" I.D. x 1.20" O.D.
9	17198A	Retainer Plate	40	726-0214	Push Cap 5/8" Dia. Rod
10	738-0141	Shoulder Bolt .437 x .35 Lg. 5/16-18	42	712-0262	Hex Jam Nut 3/8-24 Thd.
11	710-0152	Hex Bolt 3/8-24 x 1.0" Lg. (Gr. 5)	43	710-1309	Hex Patch Bolt 5/16-18 x .62"
13	750-0535	Spacer .380" I.D. x .625" O.D.x	46	748-0389	Cap
14	736-0217	Lock Washer 3/8" I.D. (H.D.)	47	712-0214	Hex Cent. Lock Nut 3/8-24 Thd.
15	710-0726	Hex Wash. Hd. Self-Tap Scr.	48	736-0169	Lock Washer 3/8" I.D.
16	711-1107	Steering Drag Link	49	712-0158	Hex Cent. Lock Nut 5/16-18 Thd.
17	783-0041B	Front Pivot Brkt.	50	736-0119	Lock Washer 5/16" I.D.
18	738-0527	Shoulder Bolt	51	717-0622A	Steering Gear Segment
19	712-0431	Flanged L- Nut 3/8-16 Thd.	52	741-0656	Hex Flg. Brg. .634 I.D.
21	712-0411	Hex Lock Nut 5/16-24 Thd.	53	736-0187	Flat Washer (Hardened)
22	16481A	Steering Arm Front Axle	54	738-0919	Steering Shaft
23	710-0593	Hex Bolt 5/16-24 x 2.25" Lg.	57	710-0837	Oval Hd. C.Sunk Scr. (Style A)
24	741-0659	Hex Flg. Brg. .632 I.D.	58	736-0271	Wave-Wash. .32" I.D. x .62" O.D.
25	683-0128A	Pivot Bar Assembly (Steel)	59	736-0187	Flat Washer (Hardened)
	719-0342A	Pivot Bar Assembly (Cast Iron)	60	723-0448	Drag Link Ball Joint 7/16-20 Thd.
	—	Grease Fitting (Cast Iron)	63	727-0425A	Spring Clip (Used w/Spoked Hub Cap)
26	—	Front Axle Assembly—LH	64	736-0356	Washer .39" I.D. x 1.38" O.D.
27	712-0241	Hex Nut 3/8-24 Thd.	65	731-1291A	Pivot Bar End Cap (If equipped)
28	736-0169	Lock Washer 3/8" I.D.	66	710-0459	Hex Bolt 3/8-24 x 1.5" Lg. (Gr. 5)
29	723-3018	Ball Joint 3/8-24 Thd.	69	731-1649	Axle Cap
			70	731-0955	Steering Wheel Insert (If equipped)

**FRONT WHEEL CHART

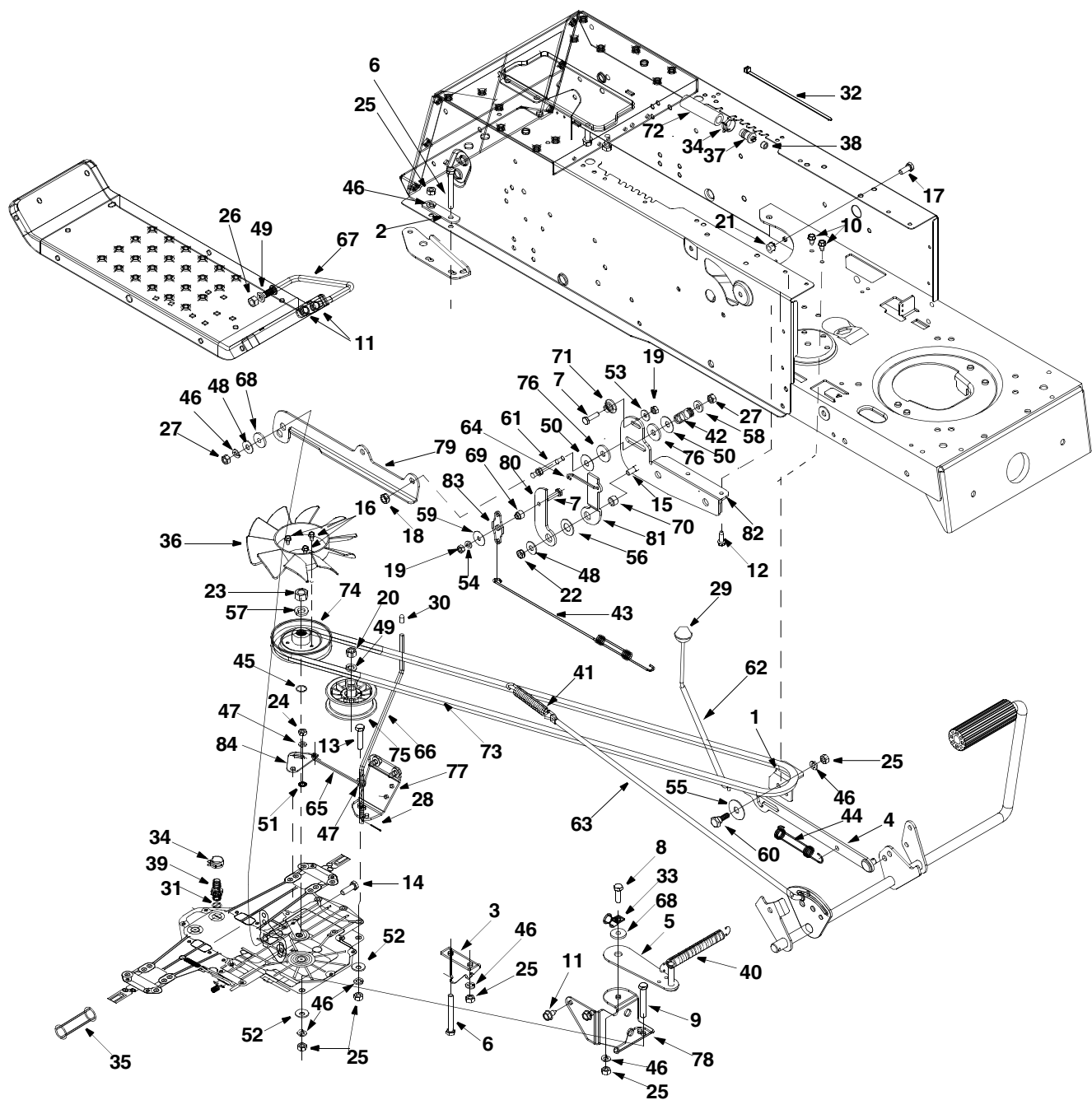
† Uses Round Steering Wheel Cap
 †† Uses Square Steering Wheel Cap



NOTE: For faster service, obtain the standard fasteners locally. If these are not available locally, call 1(800) 800-7310 or 1(330) 220-4MTD to order by part number and size as shown here.

Description	15" x 6" (Round Shoulder)	15" x 6" (Square Shoulder)
Wheel Assembly Comp.	634-0056A	634-0105
Tire Only	734-0864	734-1731
Rim Only	634-0172	634-0024
Bearing	741-0487A	741-0487A
	741-0706 (in kit	753-0845)
Air Valve	734-0255	734-0255
Grease Fitting (If equipped)	737-0211A	737-0211A
Grease Plug	737-0212A	737-0212A
Front Axle Assembly—LH	683-0127	683-0127
Front Axle Assembly—RH	683-0126	683-0126
Front Axle Assembly—LH (46" Deck)	683-0124	683-0124
Front Axle Assembly—RH (46" Deck)	683-0125	683-0125

Model 690 through 699



Description	20" x 8" (Round Shoulder)	20" x 8" (Square Shoulder)
Wheel Assembly Comp.	734-1675	634-0104
Tire Only	734-1596	734-1730
Rim Only	634-0070	634-0070

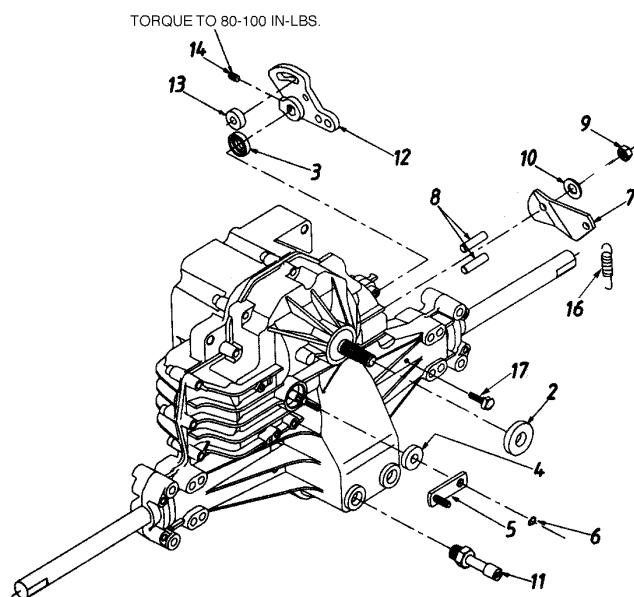
Round Shoulder	Square Shoulder
	

Model 690 through 699

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1.	17755A	Hydrostatic Bracket	43.	732-0727	Neutral Return Spring
2.	17840	Transaxle Mounting Bracket	44.	732-0728	Extension Spring
3.	17994	Retainer Bracket	45.	732-0729	Wire Ring
4.	683-0049	Lockout Bracket	46.	736-0119	Lock Washer
5.	683-0051	Flat Idler Bracket	47.	736-0142	Flat Washer
6.	710-0176	Hex Screw 5/16-18 x 1.0"	48.	736-0159	5/16 Washer
7.	710-0299	Hex Screw 1/4-28 x 1.0" Special	49.	736-0169	Lock Washer
8.	710-0376	Hex Screw 5/16-18 x 1.0"	50.	736-0219	Bell Washer
9.	710-0395	Hex Screw 5/16-18 x 2.25"	51.	736-0222	Lock Washer
10.	710-0599	TT Screw 1/4-20 x 0.5"	52.	736-0242	Beleville Washer
11.	710-0604A	TT Screw 5/16-18 x 0.625"	53.	736-0270	Bell Washer
12.	710-0642	TT Screw 1/4-20 x 0.75"	54.	736-0329	Lock Washer
13.	710-0805	Hex Screw 5/16-18 x 1.5"	55.	736-0406	Flat Washer
14.	710-0888	Hex Screw 5/16-24 x 1.0"	56.	736-0414	Flat Washer
15.	710-1012	Hex Screw 5/16-18 x 1.0"	57.	736-0921	Lock Washer
16.	710-3007	C Screw #12-24 x 0.375"	58.	736-3008	Flat Washer
17.	710-3008	Hex Screw 5/16-18 x 0.75"	59.	736-3092	Flat Washer
18.	712-0116	Jam Nut	60.	738-0296	Shoulder Screw .437 x .286
19.	712-0138	Hex Nut 1/4-28	61.	738-0879	Friction Disc Stud
20.	712-0241	Hex Nut 3/8-24	62.	747-0608A	Brake Lockout Rod
21.	712-0265	Sems Nut	63.	747-0886	Brake Rod
22.	712-0273	Hex Lock Nut 5/16-24	64.	747-0887	Neutral Return Rod
23.	712-0333	Hex Nut 1/2-20	65.	747-0893	Rod: Bypass Actuator
24.	712-3006	Hex Nut	66.	747-0894	Lever: Bypass Control
25.	712-3010	Hex Nut 5/16-18	67.	747-1216	Stop Pedal Rod
26.	712-3017	Hex Nut 3/8-16	68.	748-0234	Shoulder Spacer
27.	712-3057	Hex Nut 5/16-24	69.	748-0368	Shoulder Spacer
28.	714-0127	Cotter Pin	70.	750-0808	Spacer
29.	720-0166	Knob	71.	750-0918	Centering Gauge Spacer
30.	720-0238	Dipped Cap	72.	751-0588	Fuel Line
31.	721-0330	O Ring	73.	754-0441	V Belt
32.	725-0157	Cable Tie	74.	756-0975	Transmission Pulley
33.	726-0272	Clamp	75.	756-0981	Flat Idler
34.	726-0324	Fuel Clamp	76.	761-0196	Friction Washer
35.	731-1086A	Sleeve	77.	783-0085	Transaxle Support Bracket
36.	731-1449A	Blade Fan	78.	783-0086A	Transaxle Support Bracket
37.	731-1480	Plastic Vent	79.	783-0090A	Neutral Return Bracket
38.	731-1481	Plastic Vent Cap	80.	783-0092	Flat Scissor
39.	731-1485	Hose Fitting	81.	783-0093	Offset Scissors
40.	732-0384	Extension Spring	82.	783-0095	Mounting Bracket: Neutral Return
41.	732-0716	Extension Spring	83.	783-0096	Lever: Neutral Return
42.	732-0718	Compression Spring	84.	783-0098	Adjustment Bracket

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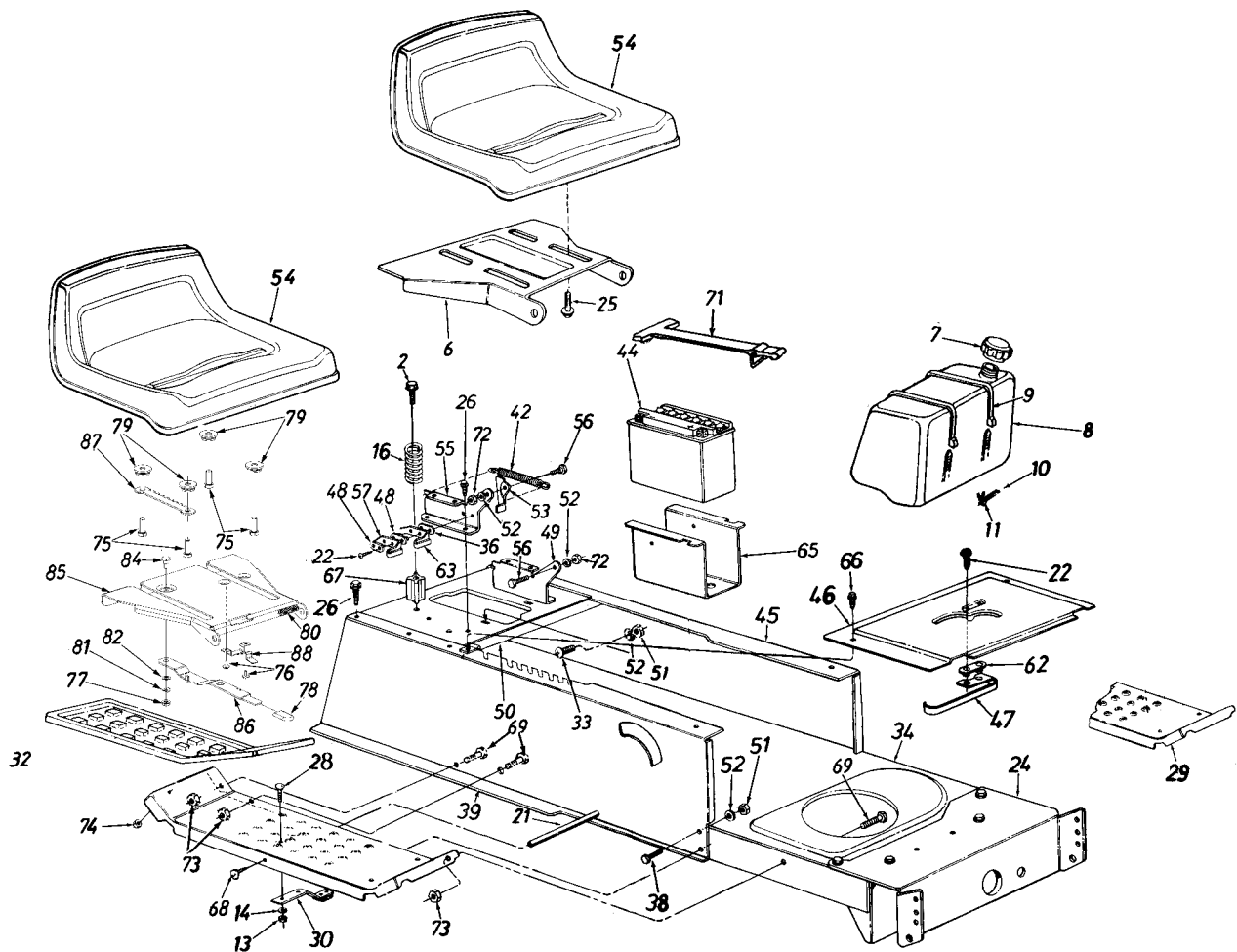
Model 690 through 699



REF NO.	PART NO.	DESCRIPTION
1	718-0255A	Transmission Comp.
2	HG-9008000-0128	Seal—Lip
3	HG-9008000-0126	Seal—Lip
4	HG-45074	Seal—Lip 10X25X7
5	HG-50126	Bypass Arm
6	HG-44870	Retaining Ring
7	HG-44094	Actuating Arm
8	HG-44891	Actuating Pin
9	72-0329	Nut-Hex Lock 5/16-24
10	736-0371	Washer 7/16" x 7/8" x .06"
11	HG-50042	Breather Assembly
12	HG-45007	Arm—Control
13	HG-50034	Puck—Dampener
14	HG-50018	Set Screw
16	HG-50384	Extension Spring
17	HG-50653	Self Tapping Scr. #10-32

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Model 690 through 699



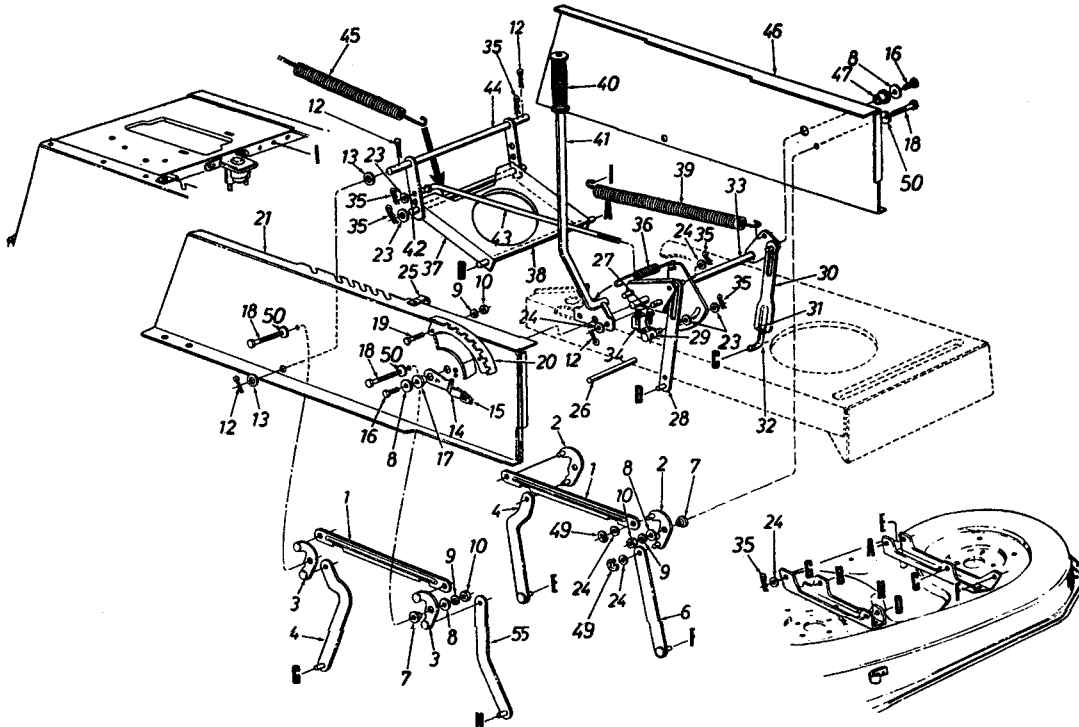
Model 690 through 699

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
2	710-1208	Hex Tap Scr. 5/16-18 x 3.25"	53	17239A	Seat Lift Brkt.
6	783-0039A	Seat Pivot Bracket	54	757-0363A	Seat 8-7/8" High
7	751-0603	Fuel Cap		757-0364A	Seat 8-7/8" High (Yellow)
8	751-0555	Fuel Tank (1.5 Gal.)		757-0360A	Seat 10-5/8" High
	751-0657	Fuel Tank (3 Gal.)		757-0365	Seat 10-5/8" High (Yellow)
9	726-0209	Tie Strap		757-0348A	Seat 14-1/4" High
10	751-0535-15	Fuel Line		757-0372	Seat 14-1/4" High (Yellow)
11	726-0205	Hose Clamp		757-0350	Seat 14-1/4" High w/ Drain Holes
13	712-0287	Hex Nut 1/4-20 Thd.	55	17950A	Seat Pivot Brkt. Support—RH
14	736-0329	Lock Washer 1/4" I.D.	56	738-0296	Shld. Bolt .437" Dia. x .268"
16	732-0735	Compression Spring	57	725-1303	Spring Switch (Seat—Outer)
21	738-0526	Running Board Rod	59	710-0650	Hex TT-Tap Scr. 5/16-18 x 7/8"
22	710-0227	Hex AB-Tap Scr. #8 x .50" Lg.	63	725-1439	Safety Switch (Seat—Inner)
23	726-0139	Speed Nut #10Z	65	783-0345	Battery Tray
24	783-0041A	Front Pivot Brkt.	66	710-0351	Truss Mach. B-Tap Scr.#10 x .5" Lg.
25	710-0870	Hex Tap Scr. 3/8-16 x .62" Lg.	67	748-0347	Spring Spacer
26	710-0726	Hex Wash. Hd. AB-Tap Scr.5/16 x .75"	68	710-0323	Truss Mach. Scr. 5/16-18 x .75"
28	710-0134	Carriage Bolt 1/4-20 x .62"	69	710-3008	Hex Bolt 5/16-18 x .75" Lg.
29	17770D	Running Board (RH & LH)	70	731-0405	Snap Bushing
30	761-0168B	Blade Brake Assembly	71	723-3064	Battery Retainer Strap
32	731-0909	Rubber Foot Pad—LH**	72	712-3010	Hex Nut 5/16-18 Thd.
	731-0910	Rubber Foot Pad—RH**	73	712-0265	Hex Sems Nut 5/16-18 Thd.
	723-0422	Abrasive Foot Pad**	74	712-0271	Hex Sems Nut 1/4-20 Thd.
34	783-0310C	Lower Frame	75	738-1007	Shouler Screw 3/8-16 x .5**
36	726-0278	Insulator Boss Plate	76	710-1268	Hex Wash. B-Tap Scr. #10-16 x .38" **
37	736-0264	Flat Washer .344" I.D. x .625" O.D.	77	712-3027	Hex Flanged Lock Nut 1/4-20 Thd. **
38	710-3008	Hex Bolt 5/16-18 x .75" Lg.	78	720-0309A	Seat Adjustable Grip **
39	783-0042A	Upper Frame—RH	79	731-1989	Spacer **
42	732-0581B	Extension Spring 5.31" Lg.	80	732-0499	Compression Spring 1.5" Lg. **
44	725-1706	12-V Battery	81	736-0175	Spring Washer .265" I.D. x .56" O.D. **
45	783-0043	Upper Frame—LH	82	736-0204	Flat Washer .344" I.D. x .62" O.D. **
46	783-0133B	Shift Cover	84	738-0137A	Shld. Bolt .34" x 1/4 -20 Thd. **
48	726-0279	Insulator Plate	85	783-0607A	Seat Pivot Bracket **
49	1795A	Seat Pivot Brkt. Support—LH	86	783-0609	Seat Lever **
50	783-0355A	Hitch Plate	87	783-0753	Seat Selector **
51	712-0267	Hex Nut 5/16-18 Thd.	88	783-0611	Seat Stop **
52	736-0119	Lock Washer 5/16" I.D.			

** Optional Parts

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Model 690 through 699

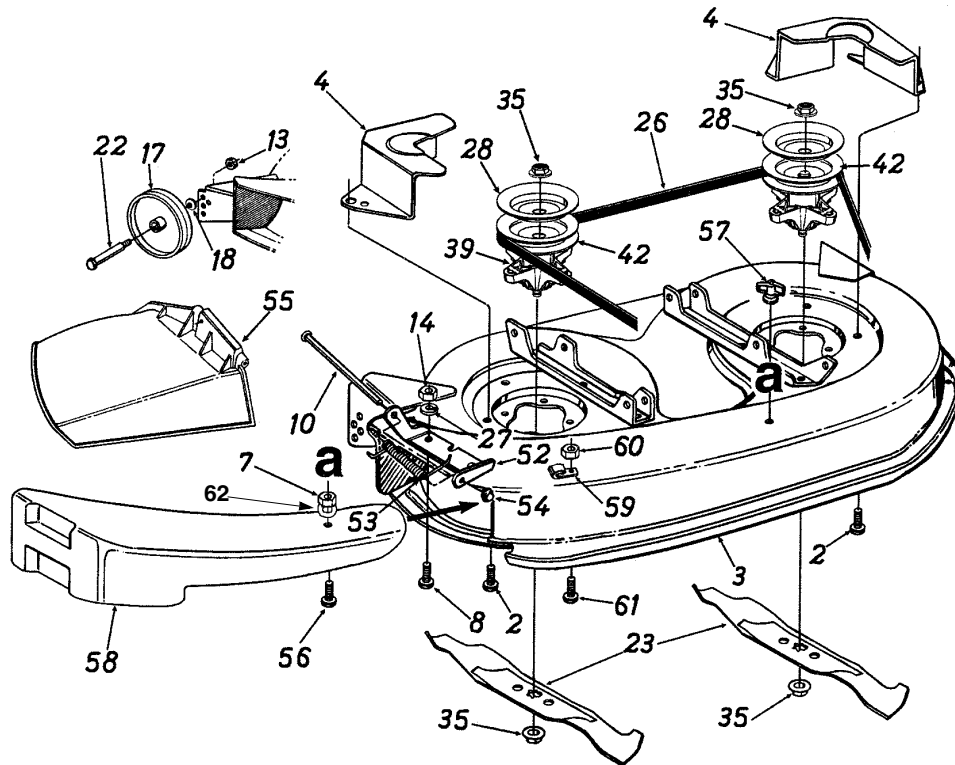


REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	783-0103	Connecting Rod	27	710-3007	Hex Wash. Hd. Tap Scr.
2	683-0029A	Pivot Link Assembly—LH	28	14802A	Link Deck Lift Assembly
3	683-0028A	Pivot Link Assembly.—RH	29	711-0723A	Adj. Ferrule 3/8-24 Thd.
4	17710	Deck Hanger Link Assembly	30	17712	Adj. Deck Lift Link
5	14800A	Deck Hanger Link Assembly	31	712-3066	Hex Nut 1/2-20 Thd.
6	14804A	Deck Hanger Link Assembly	32	711-0841	Lift Link Adjuster
7	748-0331	Shld. Spacer .318" I.D.	33	17637A	Lift Shaft Assembly
8	736-0231	Flat Washer .344" I.D. x 1.125" O.D.	34	725-1657A	Safety Switch (Deck)
9	736-0119	Lock Washer 5/16" I.D.	35	714-0145	Inter. Cotter Pin 3/8" Dia.
10	712-3010	Hex Nut 5/16-18 Thd.	36	732-0637	Extension Spring
12	714-0470	Cotter Pin 1/8" Dia.	37	17636C	Stabilizer Bracket
13	736-0256	Flat Washer .635" I.D. x 1.0" O.D.	38	738-0670A	Shaft 1/2" Dia. x 10.28" Lg.
14	683-0003	Hgt Adj. Stop Lever Assembly**	39	732-0638	Extension Spring
15	08540	Knob**	40	720-0233	Grip (Lift Handle)
16	710-0604A	Hex Wash. TT-Tap Scr. 5/16-18 x .625"	41	97675A	Deck Lift Handle Assembly.
17	748-0176	Flange Bearing .63" I.D.**	42	738-0669	Shaft 3/8" Dia. x 9.34" Lg.
18	710-1238	Hex Wash. Hd. Scr. 5/16-18 x .875"	43	747-0598	Disengagement Rod
19	710-3008	Hex Bolt 5/16-18 x .75" Lg.	44	97624	Stabilizer Shaft Assembly.
20	17730	Index Brkt.	45	732-0556	Extension Spring 7.58" Lg.
21	783-0042B	Upper Frame—RH	46	783-0043	Upper Frame—LH
23	736-0267	Flat Washer .385" I.D. x .87" O.D.	47	741-0487A	Flange Brg. .632" I.D.
24	736-0160	Flat Washer .531" I.D. x .93" O.D.	48	17128A	Spring Retainer Brkt.
25	726-0272	Clamp	49	716-0104	"E"-Ring
26	738-0526	Running Board Rod	50	736-0425	Washer .325" I.D.

** Optional Parts

NOTE: For faster service, obtain the standard fasteners locally. If these are not available locally, call 1(800) 800-7310 or 1(330) 220-4MTD to order by part number and size as shown here.

Deck F



REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
2	710-1260A	Hex Wash. Hd. TT-Tap Scr. 5/16-18 x .75"	33	710-0157	Hex Bolt 5/16-24 x .75" Lg.
3	683-0129	38" Deck Assembly **	35	712-0417A	Hex Flange Nut 5/8-18 Thd.†
	753-0694	38" Deck Ass'y. Comp. (for service only) **	39	618-0138	Blade Spindle Ass'y. (Incl. Ref. 28, 35, 42)
4	783-0343A	Belt Guard Deck	42	756-0969	5" Dia. Pulley†
7	712-3006	Hex Lock Nut 1/4-20 Thd.††	52	703-1693	Hinge Mtg. Brkt.
8	710-0751	Hex Bolt 1/4-20 x .62"	53	732-0602	Torsion Spring
10	711-0792	Hinge Pin	54	726-0106	Push Nut
13	712-0181	Hex Top Lock Nut 3/8-16 Thd.	55	731-1032	Chute Ass'y. (Incl. Ref.10, 52, 53, 54, 55)
14	712-3006	Hex Nut 1/4-20 Thd. (Gr. 5)	56	710-0597	Hex Bolt 1/4-20 x 1" Lg.††
17	734-0973	Deck Wheel 5"	57	712-3087	Wing Nut 1/4-20 Thd. ††
18	736-0105	Washer .40" I.D. x .88" O.D.	58	731-1643A	Mulching Plug††
22	738-0373	Shld. Bolt .498" Dia. x 1.53"	59	16606	Retainer Hook Brkt.
23	742-0610	3 in 1 Blade	60	712-0271	Hex Sems Nut 1/4-20 Thd.
26	754-0329A	V-Belt	61	710-0751	Hex Bolt 1/4-20 x .62" Lg.
27	736-0270	Washer 1/4" I.D.	62	736-0173	Flat Washer .28 ID x .74 OD
28	783-0342	Brake Disc			

† Deck pulleys and blade nuts must be torqued to 100 ft. lbs. if removed or replaced.

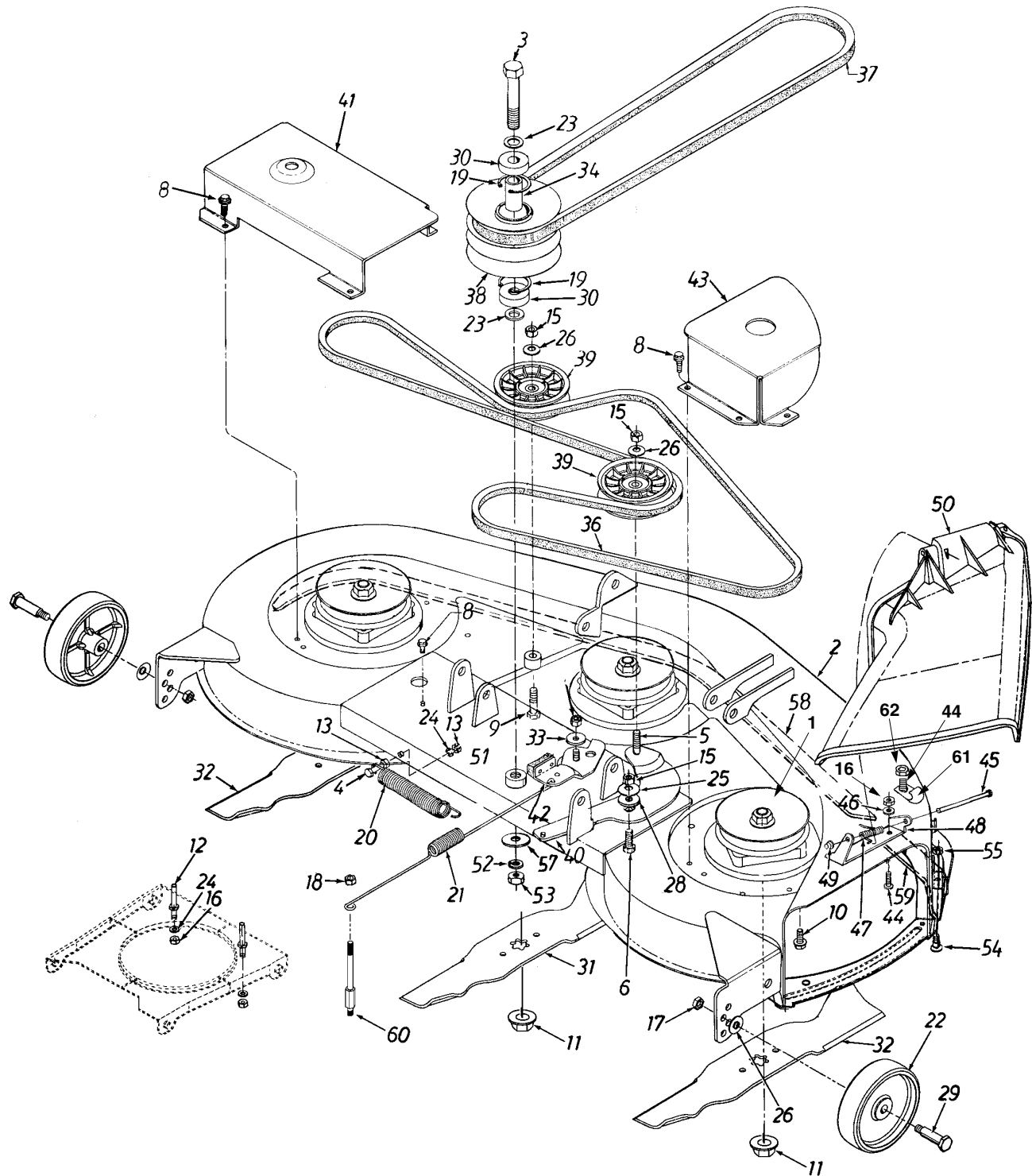
†† If equipped

** Must be ordered with 4 digit color code.

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.

Deck H



Deck H

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	618-0240	Blade Spindle Assembly	32	742-0644	Blade 16.28" Lg.
2	983-0120A	46" Deck Assembly **	33	748-0234	Shoulder Spacer
	913-06921	46" Deck Ass'y. Comp. (For Service) **	34	750-0932A	Spacer .635" I.D. x .088" O.D.
3	710-3151	Hex Bolt 5/8-18 x 4.25" Lg.	36	754-0440	V-Belt
4	710-0428	Hex Bolt 1/4-28 x 1.25" Lg.	37	754-0439	V-Belt
5	710-0459A	Hex Bolt 3/8-24 x 1.5" Lg.	38	756-0638	Pulley Double Deck 5" O.D.
6	710-1039	Hex Bolt 3/8-24 x 1" Lg.	39	756-0627	Flat Idler Pulley 3.5 O.D.
8	710-0599	Hex Wash. Hd. TT-Tap Scr. 1/4-20 x .5"	40	783-0046	Idler Deck Bracket
9	710-0151	Hex Bolt 3/8-24 x 2" Lg.	41	783-0063A	Belt Cover—LH
10	710-1260A	Hex Flange Bolt 5/16-24 x .75" Lg.	42	17116	Deck Brake Brkt. Assembly
11	712-0417A	Hex Flange Lock Nut 5/8-18 Thd.	43	17258A	Belt Cover Brkt.—RH
12	711-0993	Belt Guard Pin	44	710-0751	Hex Bolt 1/4-20 x .62" Lg.
13	712-0138	Hex Nut 1/4-28 Thd.	45	711-0792	Hinge Pin
14	712-0429	Hex Ins. Lock Nut 5/16-18 Thd.	46	736-0270	BelLock Washer 1/4" I.D.
15	712-0241	Hex Nut 3/8-24 Thd.	47	732-0602	Torsion Spring
16	712-3006	Hex Nut 1/4-20 Thd. (Gr. 5)	48	703-1693	Hinge Mtg. Brkt.
17	712-0181	Hex Top Jam Nut 3/8-16 Thd.	49	726-0106	Push Nut
18	712-0158	Hex Center Lock Nut 5/16-18 Thd.	50	731-1032	Chute Assembly Comp. (Incl. Ref. 45, 47, 48, 49, 50)
19	716-3020	Int. Snap Ring	51	750-0960	Spacer .635" I.D. x 1" O.D.
20	732-0594A	Ext. Spring .88" O.D. x 6.17"	52	736-0158	Lock Washer 5/8" I.D.
21	732-0723	Ext. Spring .788" O.D. x 15.5"	53	712-0337	Hex Nut 5/8-18 Thd.
22	734-0973	Deck Wheel	54	710-0167	Carriage Bolt 1/4-20 x .5" Lg.
23	736-0290	Flat Washer .635" I.D. x 1" O.D. x .06"	55	712-0271	Hex Sems Nut 1/4-20 Thd.
24	736-0329	Lock Washer 1/4" I.D.	57	736-3088	Flat Washer .635" I.D.
25	736-0331	BelLock Washer 3/8" x 1.125" x .062"	58	783-0141	Center Deck Skirt
26	736-0105	BelLock Washer 3/8" x .87" x .064"	59	783-0142	Deck Skirt—RH
28	738-0347	Shoulder Spacer .625" I.D. x .169"	60	738-0999	Return Spring Stud
29	738-0373	Shld. Bolt .498" x 1.525"	61	16606	Retainer Hook Bracket
30	741-0524	Ball Brg. .625" I.D. x 1.574" O.D. x .47"	62	712-3027	Hex Lock Nut 1/4-20
31	742-0645	Blade 14.88" Lg.			

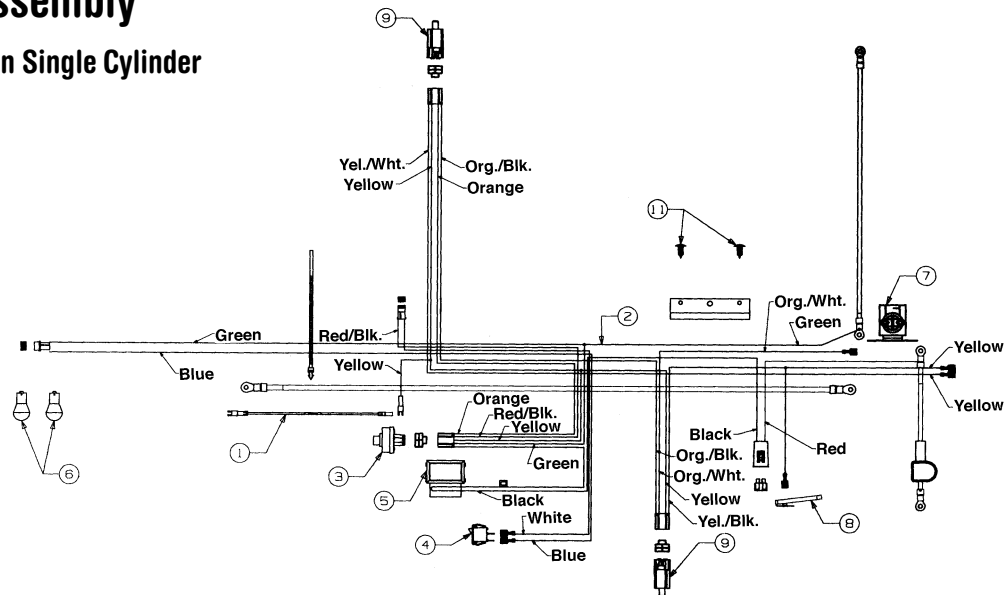
** Must be ordered with 4-digit color code.

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.

Harness Assembly

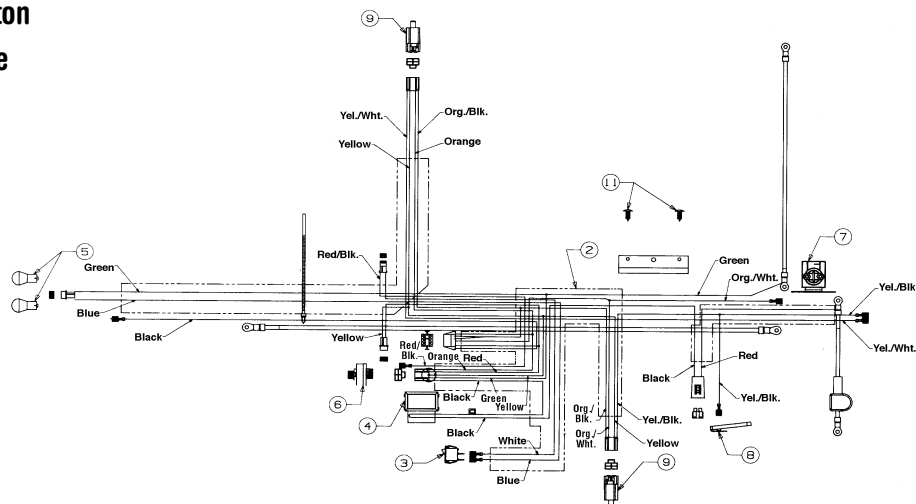
Briggs & Stratton Single Cylinder



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	629-0207	Harness Adapter (Mag.)	6	725-0963	Bulb (Headlight)
2	629-0302B	Wire Harness w/Light Switch and Amp	7	725-1426	Solenoid
	629-0301B	Wire Harness w/o Light Switch and Amp	8	725-1643	Safety Switch (Reverse)
3	725-0267	Ignition Switch	9	725-1657A	Safety Switch
4	725-0634	Light Switch (If equipped)	11	726-3046	Ratchet
5	725-0925	Ammeter (If equipped)			

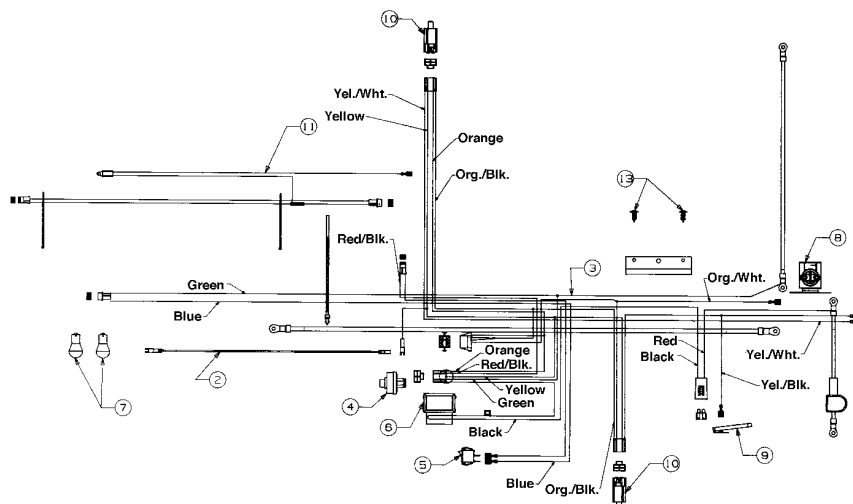
Briggs & Stratton

Overhead Valve



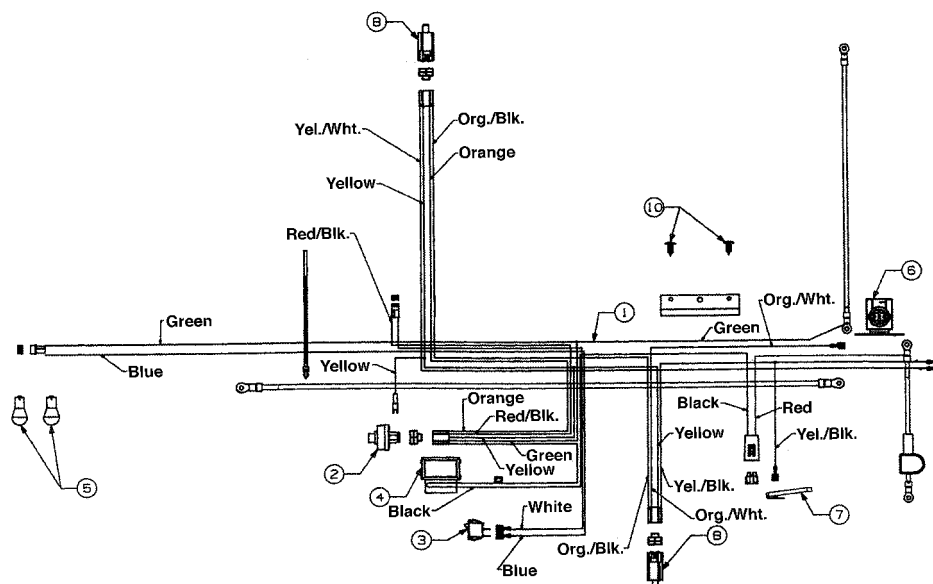
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
2	629-0305B	Wire Harness w/Light Switch and Amp	7	725-1426	Solenoid
	629-0304B	Wire Harness w/o Light Switch and Amp	8	725-1643	Safety Switch (Reverse)
3	725-0634	Light Switch (If equipped)	9	725-1657A	Safety Switch
4	725-0925	Ammeter (If equipped)	11	726-3046	Ratchet
5	725-0963	Bulb (Headlight)			
6	725-1396	Ignition Switch			

Briggs & Stratton Twin Cylinder



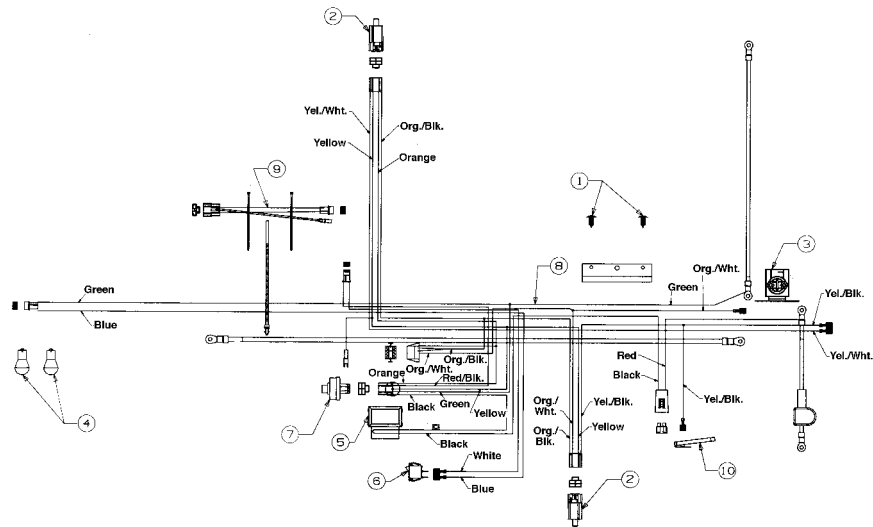
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
2	629-0208	Harness Adapter	8	725-1426	Solenoid
3	629-0302B	Wire Harness w/Light Switch & Amp	9	725-1643	Safety Switch (Reverse)
	629-0301B	Wire Harness w/o Light Switch & Amp	10	725-1657A	Safety Switch
4	725-0267	Ignition Switch	11	629-0125	Harness Adapter (Alt.)
5	725-0634	Light Switch	13	726-3046	Ratchet
6	725-0925	Ammeter			
7	725-0963	Bulb			

Tecumseh



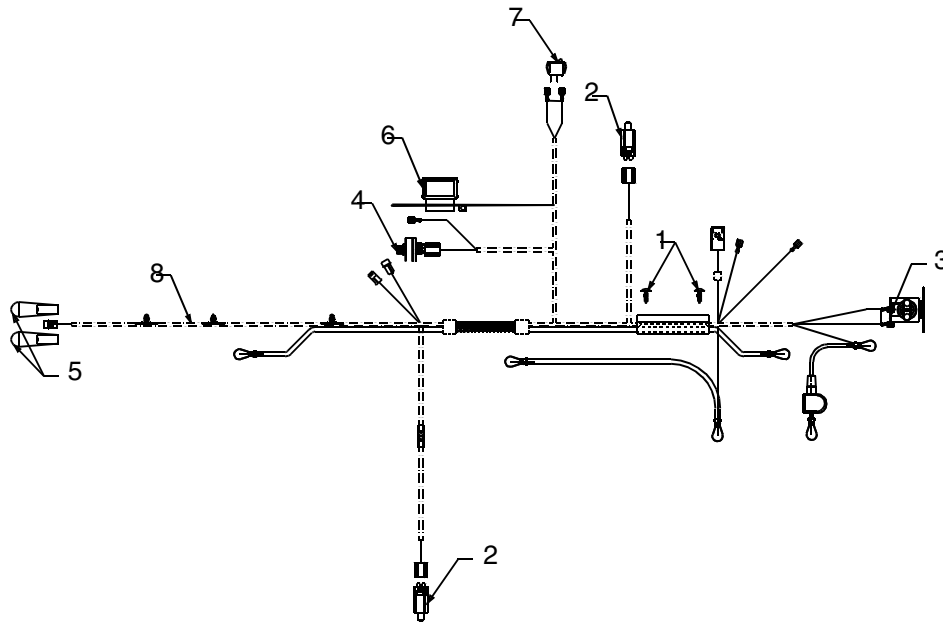
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	629-0302B	Wire Harness w/Light Switch & Amp	6	725-1426	Solenoid
	629-0301B	Wire Harness w/o Light Switch & Amp	7	725-1643	Safety Switch (Reverse)
2	725-0267	Ignition Switch	8	725-1657A	Safety Switch
3	725-0634	Light Switch (If equipped)	10	726-3046	Ratchet
4	725-0925	Ammeter (If equipped)			
5	725-0963	Bulb (Headlight)			

Kohler



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	726-3046	Ratchet	6	725-0634	Light Switch
2	725-1657A	Safety Switch	7	725-0267	Ignition Switch
3	725-1426	Solenoid	8	629-0303B	Wire Harness
4	725-0963	Bulb (Headlight)	9	629-0209	Wire Harness Adapter
5	725-0925	Ammeter	10	629-0132	Wire Harness (Monitor)

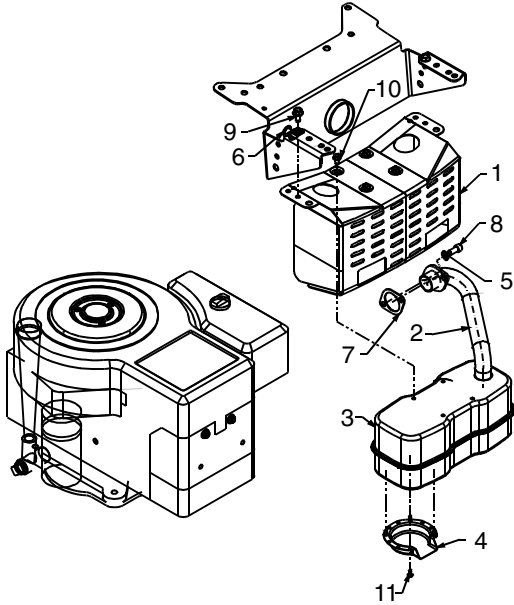
Intek Twin



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	726-3046	Ratchet	6	725-0925	Ammeter
2	725-1657A	Safety Switch	7	725-0634	Light Switch
3	725-1426	Solenoid	8	629-0305B	Wire Harness w/Lt./Amp
4	725-1396	Ignition Switch		629-0306B	Wire Harness w/Lt./Amp/Mon.
5	725-0963	Bulb (Headlight)			

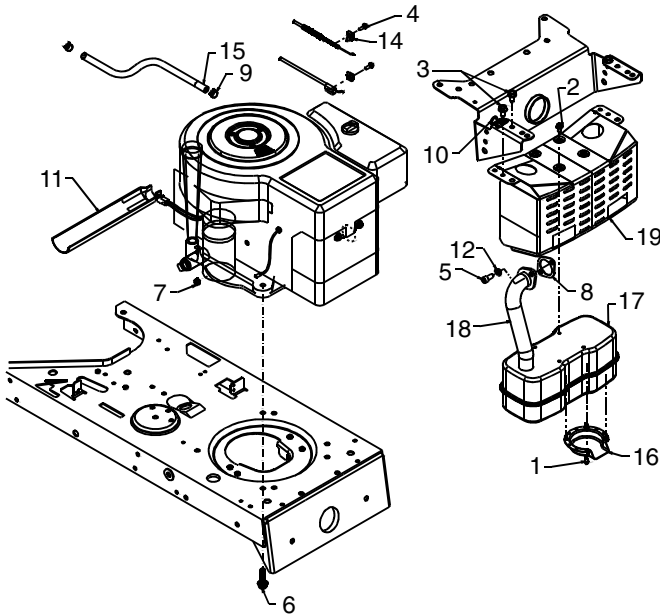
Engine

Briggs & Stratton Single Cylinder



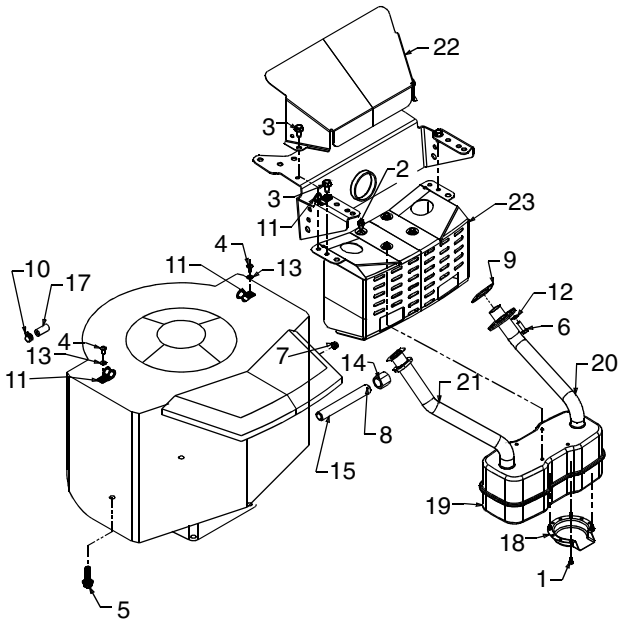
Ref. No.	Part No.	Description
1	783-0615	Muffler Bracket
2	751-0618	Exhaust Pipe
3	751-0617	Muffler
4	751-0564	Muffler Deflector
5	736-0119	Lock Washer 5/16" I.D.
6	726-0272	Clamp
7	721-0208	Exhaust Gasket
8	710-1314	Socket Hd. Bolt 5/16-18 x .62" Lg.
9	710-0604	Hex Wash Hd. TT-Tap Scr. 5/16-18 x .62"
10	710-0599	Hex Wash. TT-Tap Scr. 1/4-20 x .5" Lg.
11	710-0148	Hex Slot Scr. #8-32 x .38" Lg.

Briggs & Stratton Overhead Valve



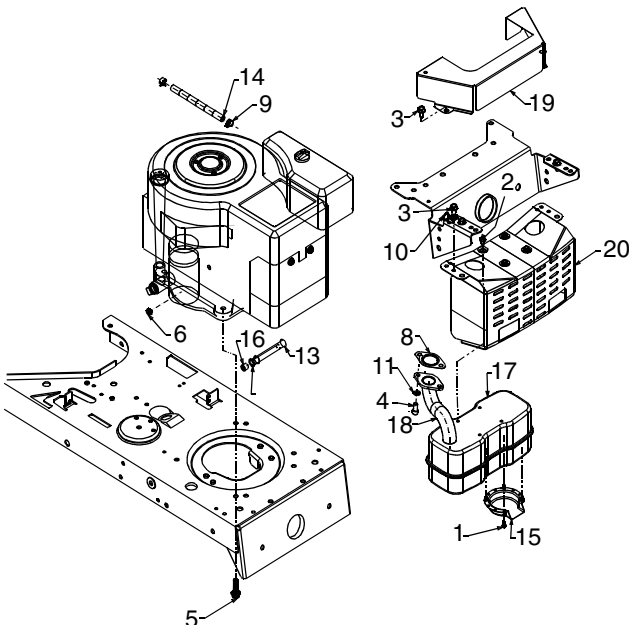
Ref. No.	Part No.	Description
1	710-0148	Hex Tap Scr. #8-32 x .38" Lg.
2	710-0599	Hex TT-Tap Scr. 1/4-20 x .5" Lg.
3	710-0604	Hex TT-Tap Scr. 5/16-18 x .62"
4	710-1237	Hex Wash. Scr. #10-32 x .62"
5	710-1314	Socket Head Scr. 5/16-18 x .62"
6	710-1315	Hex TT-Tap Scr. 3/8-16 x 1.25"
7	712-0271	Hex Sems Scr. 1/4-20 Thd.
8	721-0208	Gasket
9	726-0205	Hose Clamp
10	726-0272	Clamp
11	731-1682A	Oil Drain Sleeve
12	736-0119	Lock Washer 5/16" I.D.
14	751B213146	Casing Clamp
15	751-0535-12	Fuel Line 12" Lg.
16	751-0564	Muffler Deflector
17	751-0617	Muffler
18	751-0619	Exhaust Pipe
19	783-0615	Muffler Brkt.

Briggs & Stratton Twin Cylinder



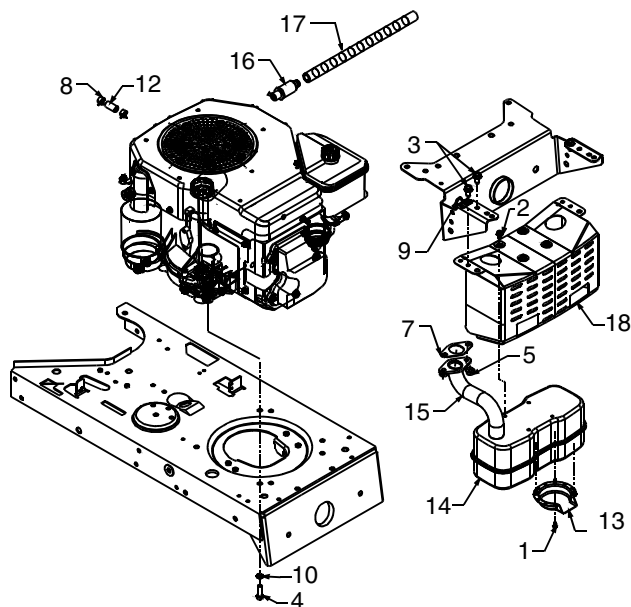
Ref. No.	Part No.	Description
1	710-0148	Hex Tap Scr. #8-32 x .38" Lg.
2	710-0599	Hex Wash. TT-Tap Scr. 1/4-20 x5" Lg.
3	710-0604	Hex Wash. TT-Tap Scr. 5/16-18 x .62"
4	710-0779A	Truss Mach. Scr. #10 x .5" Lg.
5	710-1315	Hex Hd. Tap Scr. 3/8-16 x 1.25"Lg.
6	710-3015	Hex Bolt 1/4-20 x .75"Lg.
7	712-0271	Hex Sems Nut 1/4-20 Thd.
9	721-0346	Exhaust Gasket
10	726-0205	Hose Clamp
11	726-0272	Clamp
12	736-0329	Lock Washer 1/4" I.D.
13	736-3067	Flat Washer .188" I.D. x .438" O.D.
14	737-0143	Oil Drain Cap
15	737-0164	Pipe Nipple 3/8 x 18 NPT.
17	751-0535-26	Fuel Line 26" Lg.
18	751-0564	Deflector: Muffler
19	751-0616	Muffler
20	751-0623	Exhaust Pipe—LH
21	751-0624	Exhaust Pipe—RH
22	783-0357	Heat Shield
23	783-0615	Muffler Bracket

Tecumseh



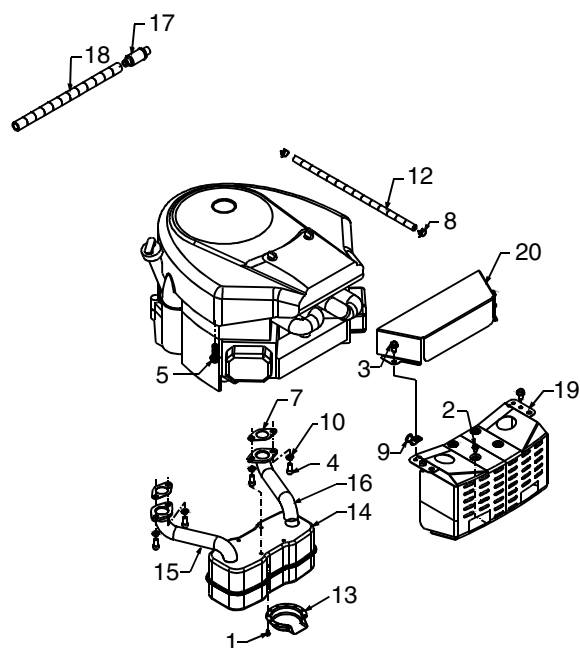
Ref. No.	Part No.	Description
1	710-0148	Hex Bolt #8-32 x .38" Lg.
2	710-0599	Hex Wash. Hd. TT-Scr. 1/4-20 x .5" Lg.
3	710-0604	Hex Wash. Hd. TT-Scr. 5/16-18 x .62"
4	710-1314	Socket Hd. Bolt 5/16-18 x .62" Lg.
5	710-1315	Hex Wash. Hd. TT-Scr. 3/8-16 x 1.25"
6	712-0271	Hex Sems Nut 1/4-20 Thd.
8	721-0348	Exhaust Gasket
9	726-0205	Hose Clamp
10	726-0272	Clamp
11	736-0119	Lock Washer 5/16" I.D.
13	737-0286	Pipe 3/8 NPT x 3.8" Lg. (16/17 HP)
	737-0199	Pipe 3/8 NPT x 2" Lg. (12/13 HP)
14	751-0535-12	Fuel Line
15	751-0564	Muffler Deflector
16	751-0572	Hex Pipe Plug (16/17 HP)
	737-0143	Oil Drain Cap (12/13 HP)
17	751-0617	Muffler
18	751-0620	Exhaust Pipe (16/17 HP)
	751-0622	Exhaust Pipe (12/13 HP)
19	783-0378A	Heat Shield (16/17 HP)
20	783-0615	Muffler Bracket

Kohler



Ref. No.	Part No.	Description
1	710-0148	Hex Tap Scr. #8-32 x .38" Lg.
2	710-0599	Hex Wash. TT-Tap Scr. 1/4-20 x5" Lg.
3	710-0604	Hex Wash. TT-Tap Scr. 5/16-18 x .62"
4	710-3206A	Hex Bolt M8 x 1.25
5	712-3086	Hex Flange Nut M8 Thd.
7	721-0375	Exhaust Gasket
8	726-0205	Hose Clamp
9	726-0272	Clamp
10	736-0607	External Lock Washer 5/16" I.D.
12	751-0535-12	Fuel Line 12" Lg.
13	751-0564	Muffler Deflector
14	751-0617	Muffler
15	751-0621	Exhaust Pipe
16	751-3140	Oil Drain
17	751-3141	Oil Drain Hose
18	783-0615	Muffler Bracket.

Intek Twin



Ref. No.	Part No.	Description
1	710-0148	Hex Tap Scr. #8-32 x .38" Lg.
2	710-0599	Hex Wash. TT-Tap Scr. 1/4-20 x5" Lg.
3	710-0604	Hex Wash. TT-Tap Scr. 5/16-18 x .62"
4	710-1314	Socket Head Scr. 5/16-18 x .62"
5	710-1315	Hex TT-Tap Scr. 3/8-16 x 1.25"
7	721-0460	Exhaust Gasket
8	726-0205	Hose Clamp
9	726-0272	Clamp
10	736-0119	Lock Washer 5/16" I.D.
12	751-0535-12	Fuel Line 12" Lg.
13	751-0564	Muffler Deflector
14	751-0616	Muffler
15	751-0650	Exhaust Pipe—RH
16	751-0651	Exhaust Pipe—LH
17	751-3140	Oil Drain
18	751-3141	Oil Drain Hose
19	783-0615	Muffler Bracket
20	783-0625	Heat Shield

