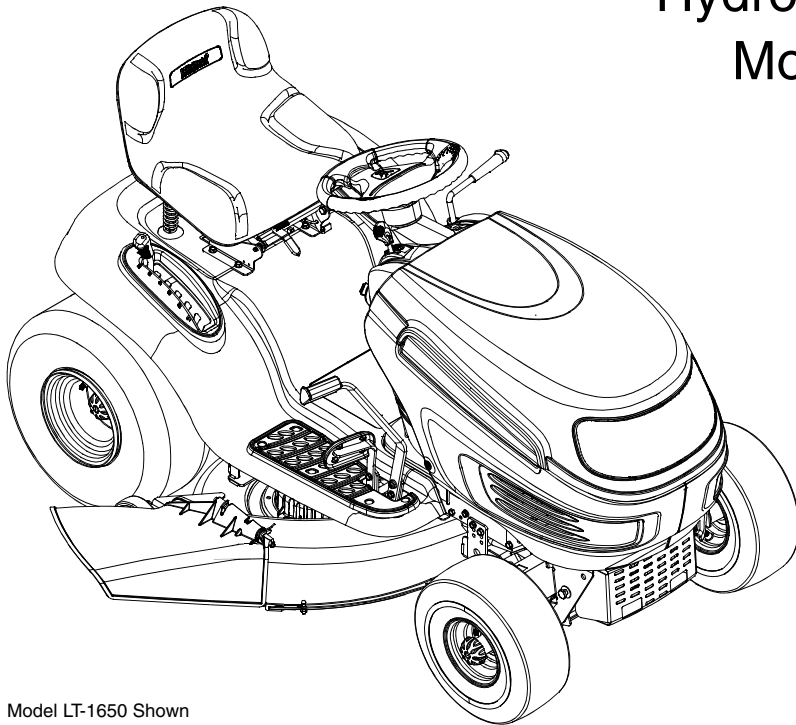


White OUTDOOR

Operator's Manual

Hydrostatic Lawn Tractor
Models LT-1650
LT-1850



Model LT-1650 Shown

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 361131 Cleveland, Ohio 44136-0019.

MTD LLC, P.O. BOX 361131 CLEVELAND, OHIO 44136-0019

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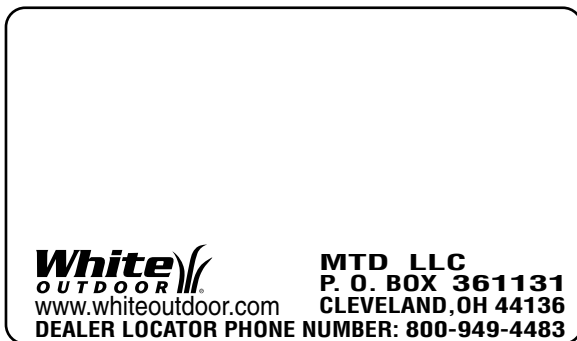
FINDING MODEL NUMBER

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



Before you start assembling your new equipment, please locate the model plate on the equipment and copy the information from it in the space provided below. The information on the model plate is very important if you need help from your *White Outdoor* dealer.

- You can locate the model number by looking beneath the seat. A sample model plate is explained below. For future reference, please copy the model number and the serial number of the equipment in the space below.



Copy the model number here: _____

Copy the serial number here: _____

CALLING CUSTOMER SUPPORT

If you have difficulty assembling this product or have any questions regarding the controls, operation or maintenance of this unit, please call the Customer Dealer Referral Line.



Call 1- (800)-949-4483 to reach the Customer Dealer Referral Line. Please have your unit's model number and serial number ready when you call. See previous section to locate this information.

For more details about your unit, visit our website at www.whiteoutdoor.com

SECTION 1: 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 this machine. Failure to comply with these instructions may result in personal injury. When you see this symbol—heed its warning.



DANGER: This machine 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 machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

California Proposition 65 Warning:



WARNING: Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

GENERAL OPERATION

1. Read, understand, and follow all instructions on the machine and in the manual(s) before attempting to assemble and operate. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
2. Be familiar with all controls and their proper operation. Know how to stop the machine and disengage them quickly.
3. Never allow children under 14 years old to operate this machine. Children 14 years old and over should read and understand the operation instructions and safety rules in this manual and should be trained and supervised by a parent.
4. Never allow adults to operate this machine without proper instruction.
5. To help avoid blade contact or a thrown object injury, keep bystanders, helpers, children and pets at least 75 feet from the machine while it is in operation. Stop machine if anyone enters the area.
6. Thoroughly inspect the area where the equipment is to be used. Remove all stones, sticks, wire, bones, toys, and other foreign objects which could be picked up and thrown by the blade(s). Thrown objects can cause serious personal injury.
7. Plan your mowing pattern to avoid discharge of material toward roads, sidewalks, bystanders and the like. Also, avoid discharging material against a wall or obstruction which may cause discharged material to ricochet back toward the operator.
8. Always wear safety glasses or safety goggles during operation and while performing an adjustment or repair to protect your eyes. Thrown objects which ricochet can cause serious injury to the eyes.
9. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Loose fitting clothes and jewelry can be caught in movable parts. Never operate this machine in bare feet or sandals.
10. Be aware of the mower and attachment discharge direction and do not point it at anyone. Do not operate the mower without the discharge cover or entire grass catcher in its proper place.
11. Do not put hands or feet near rotating parts or under the cutting deck. Contact with the blade(s) can amputate hands and feet.
12. A missing or damaged discharge cover can cause blade contact or thrown object injuries.
13. Stop the blade(s) when crossing gravel drives, walks, or roads and while not cutting grass.
14. Watch for traffic when operating near or crossing roadways. This machine is not intended for use on any public roadway.
15. Do not operate the machine while under the influence of alcohol or drugs.
16. Mow only in daylight or good artificial light.
17. Never carry passengers.
18. Disengage blade(s) before shifting into reverse. Back up slowly. Always look down and behind before and while backing to avoid a back-over accident.
19. Slow down before turning. Operate the machine smoothly. Avoid erratic operation and excessive speed.
20. Disengage blade(s), set parking brake, stop engine and wait until the blade(s) come to a complete stop before removing grass catcher, emptying grass, unclogging chute, removing any grass or debris, or making any adjustments.
21. Never leave a running machine unattended. Always turn off blade(s), set parking brake, stop engine and remove key before dismounting.
22. Use extra care when loading or unloading the machine into a trailer or truck. This unit should not be driven up or down ramp(s), because the unit could tip over, causing serious personal injury. The unit must be pushed manually on ramp(s) to load or unload properly.

23. Muffler and engine become hot and can cause a burn. Do not touch.
24. Check overhead clearances carefully before driving under low hanging tree branches, wires, door openings etc., where the operator may be struck or pulled from the unit, which could result in serious injury.
25. Disengage all attachment clutches, depress the brake pedal completely and shift into neutral before attempting to start engine.
26. Your machine 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. Dry grass or leaves may contact the engine exhaust and/or build up on the mower deck presenting a potential fire hazard.
27. Use only accessories and attachments approved for this machine by the machine manufacturer. Read, understand and follow all instructions provided with the approved accessory or attachment.
28. Data indicates that operators, age 60 years and above, are involved in a large percentage of riding mower-related injuries. These operators should evaluate their ability to operate the riding mower safely enough to protect themselves and others from serious injury.
29. If situations occur which are not covered in this manual, use care and good judgment. Contact your *White Outdoor* dealer for assistance.

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 degrees as shown on the slope gauge, do not operate this unit on that area or serious injury could result.

DO:

1. Mow up and down slopes, not across. Exercise extreme caution when changing direction on slopes.
 2. Watch for holes, ruts, bumps, rocks, or other hidden objects. Uneven terrain could overturn the machine. Tall grass can hide obstacles.
 3. Use slow speed. Choose a low enough speed setting so that you will not have to stop or shift while on the slope. Tires may lose traction on slopes even though the brakes are functioning properly. Always keep machine in gear when going down slopes to take advantage of engine braking action.
4. Follow the manufacturer's recommendations for wheel weights or counterweights to improve stability.
 5. Use extra care with grass catchers or other attachments. These can change the stability of the machine.
 6. 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.
 7. Avoid starting or stopping on a slope. If tires lose traction, disengage the blade(s) and proceed slowly straight down the slope.

DO NOT:

1. Do not turn on slopes unless necessary; then, turn slowly and gradually downhill, if possible.
2. 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, ditch, or if an edge caves in.
3. Do not try to stabilize the machine by putting your foot on the ground.
4. Do not use a grass catcher on steep slopes.
5. Do not mow on wet grass. Reduced traction could cause sliding.
6. Do not tow heavy pull behind attachments (e.g. loaded dump cart, lawn roller, etc.) on slopes greater than 5 degrees. When going down hill, the extra weight tends to push the tractor and may cause you to lose control. (e.g. tractor may speed up, braking and steering ability are reduced, attachment may jack-knife and cause tractor to overturn).

CHILDREN

1. 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. They do not understand the dangers. Never assume that children will remain where you last saw them.
 - a. Keep children out of the mowing area and in watchful care of a responsible adult other than the operator.
 - b. Be alert and turn machine off if a child enters the area.
 - c. Before and while backing, look behind and down for small children.
 - d. Never carry children, even with the blade(s) shut off. They may fall off and be seriously injured or interfere with safe machine operation.
 - e. Use extreme care when approaching blind corners, doorways, shrubs, trees or other objects that may block your vision of a child

- who may run into the machine.
 - f. Disengage the cutting blade(s) before shifting in reverse. The “No-Cut-In Reverse” feature is a reminder not to cut in reverse and to help avoid back over accidents. Do not defeat it.
 - g. Keep children away from hot or running engines. They can suffer burns from a hot muffler.
 - h. Remove key when machine is unattended to prevent unauthorized operation.
9. Never allow children under 14 years old to operate the machine. Children 14 years old and over should read and understand the operation instructions and safety rules in this manual and should be trained and supervised by a parent.

TOWING

1. Tow only with a machine that has a hitch designed for towing. Do not attach towed equipment except at the hitch point.
2. Follow the manufacturers recommendation for weight limits for towed equipment and towing on slopes.
3. Never allow children or others in or on towed equipment.
4. On slopes, the weight of the towed equipment may cause loss of traction and loss of control.
5. Travel slowly and allow extra distance to stop.

SERVICE

SAFE HANDLING OF GASOLINE:

1. **To avoid personal injury or property damage** use extreme care in handling gasoline. **Gasoline is** extremely flammable and the vapors are explosive. Serious personal injury can occur when gasoline is spilled on yourself or your clothes which can ignite. Wash your skin and change clothes immediately.
 - a. Use only an approved gasoline container.
 - b. Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before filling.
 - c. When practical, remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
 - d. Keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.
 - e. Extinguish all cigarettes, cigars, pipes and other sources of ignition.

- f. Never fuel machine indoors.
- g. Never remove gas cap or add fuel while the engine is hot or running. Allow engine to cool at least two minutes before refueling.
- h. Never over fill fuel tank. Fill tank to no more than ½ inch below bottom of filler neck to allow space for fuel expansion.
- i. Replace gasoline cap and tighten securely.
- j. If gasoline is spilled, wipe it off the engine and equipment. Move unit to another area. Wait 5 minutes before starting the engine.
- k. To reduce fire hazards, keep machine free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage and remove any fuel soaked debris.
- l. Never store the machine or fuel container inside where there is an open flame, spark or pilot light as on a water heater, space heater, furnace, clothes dryer or other gas appliances.
- m. Allow a machine to cool at least 5 minutes before storing.

GENERAL SERVICE:

1. Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless, and deadly gas.
2. Before cleaning, repairing, or inspecting, make certain the blade(s) and all moving parts have stopped. Disconnect the spark plug wire and ground against the engine to prevent unintended starting.
3. Periodically check to make sure the blades come to complete stop within approximately (5) five seconds after operating the blade disengagement control. If the blades do not stop within the this time frame, your unit should be serviced professionally by your *White Outdoor* dealer.
4. Check brake operation frequently as it is subjected to wear during normal operation. Adjust and service as required.
5. Check the blade(s) and engine mounting bolts at frequent intervals for proper tightness. Also, visually inspect blade(s) for damage (e.g., excessive wear, bent, cracked). Replace the blade(s) with the original equipment manufacturer’s (O.E.M.) blade(s) only, listed in this manual. “Use of parts which do not meet the original equipment specifications may lead to improper performance and compromise safety!”
6. Mower blades are sharp. Wrap the blade or wear gloves, and use extra caution when servicing them.
7. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.

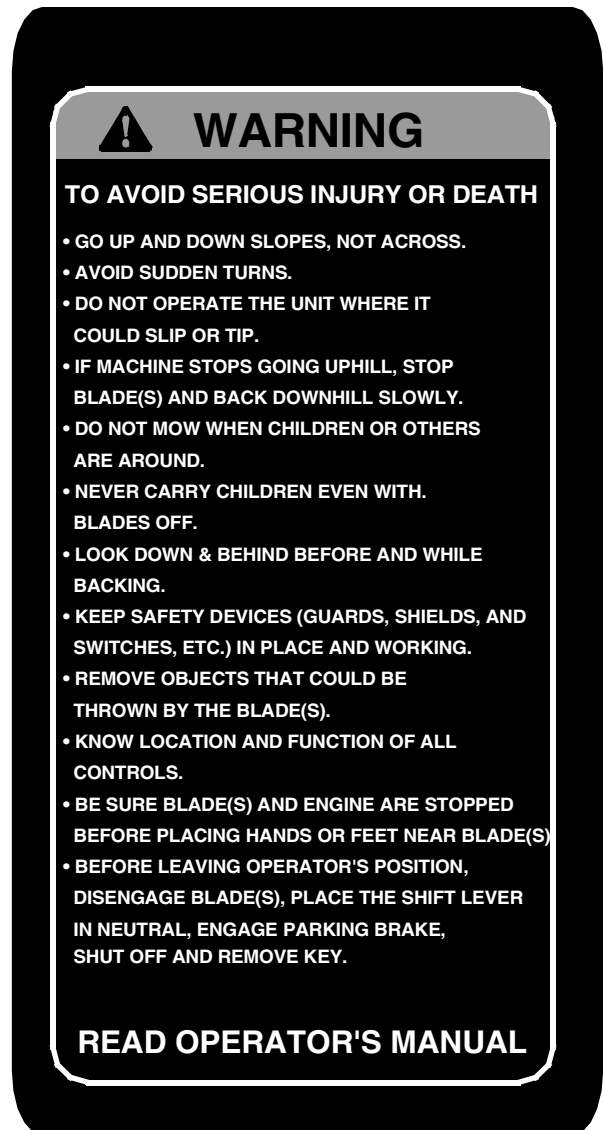
8. Never tamper with the safety interlock system or other safety devices. Check their proper operation regularly.
9. After striking a foreign object, stop the engine, disconnect the spark plug wire(s) and ground against the engine. Thoroughly inspect the machine for any damage. Repair the damage before starting and operating.
10. Never attempt to make adjustments or repairs to the machine while the engine is running.
11. Grass catcher components and the discharge cover are subject to wear and damage which could expose moving parts or allow objects to be thrown.

For safety protection, frequently check components and replace immediately with original equipment manufacturer's (O.E.M.) parts only, listed in this manual. "Use of parts which do not meet the original equipment specifications may lead to improper performance and compromise safety!"

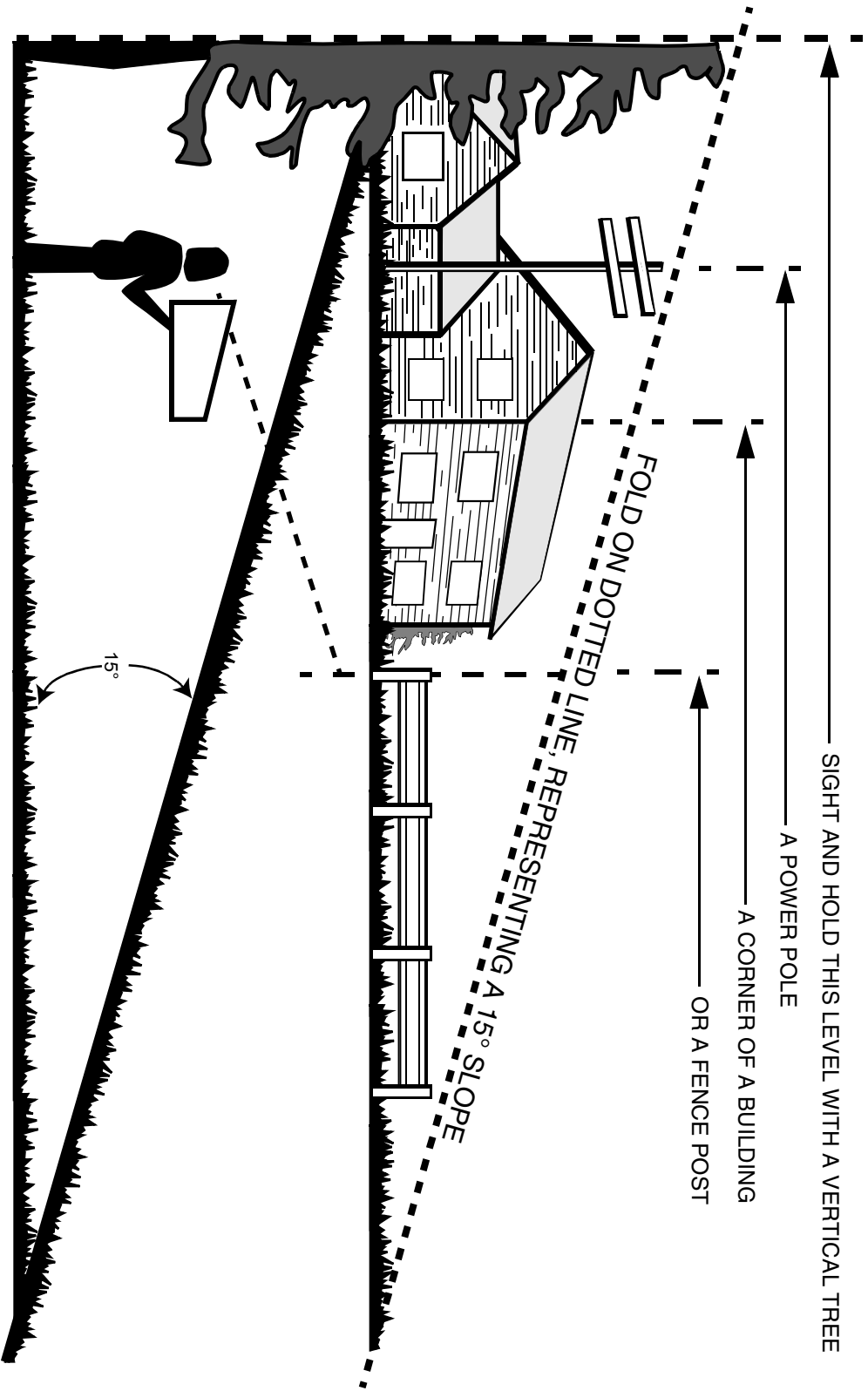
12. Do not change the engine governor settings or over-speed the engine. The governor controls the maximum safe operating speed of the engine.
13. Maintain or replace safety and instruction labels, as necessary.
14. Observe proper disposal laws and regulations for gas, oil, etc. to protect the environment.



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.



SECTION 2: SLOPE GAUGE



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.

SECTION 3: TRACTOR SET-UP

Attaching the Battery Cables

NOTE: The positive battery terminal is marked Pos. (+). The negative battery terminal is marked Neg. (-).

- The positive cable (heavy red wire) is secured to the positive battery terminal (+) with a hex bolt and hex nut at the factory. Make certain that the rubber boot covers the terminal to help protect it from corrosion.
- Remove the hex bolt and wing nut from the negative cable.
- Remove the black plastic cover, if present, from the negative battery terminal and attach the negative cable (heavy black wire) to the negative battery terminal (-) with the bolt and wing nut.
- Make certain the hold-down strap is in position over the battery, securing it in place. See Figure 1.

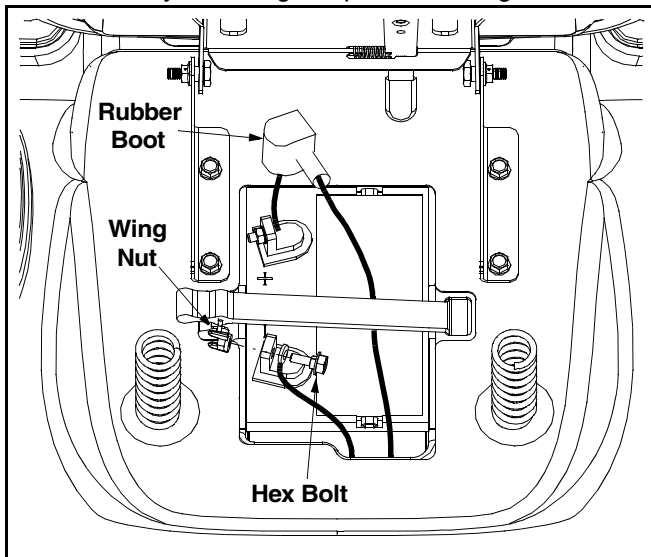


Figure 1

NOTE: If the battery is put into service after the date shown on top of battery, charge the battery as instructed on page 22 of this manual prior to operating the tractor.

Gas and Oil Fill-up

The gasoline tank is located under the hood and has a capacity of either two or three gallons. Do not overfill.



WARNING: Use extreme care when handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Never fuel machine indoors or while the engine is hot or running. Extinguish cigarettes, cigars, pipes, and other sources of ignition.

IMPORTANT: Your tractor is shipped with motor oil in the engine. However, you **MUST** check the oil level before operating. The capacity of your engine's sump and oil filter is 80 oz. Be careful not to overfill.

Shipping Brace Removal



WARNING: Make sure the riding mower's engine is off, set the parking brake and remove the ignition key before removing the shipping brace.

- Locate the shipping brace and warning tag found on the right side of the cutting deck. See Figure 2.

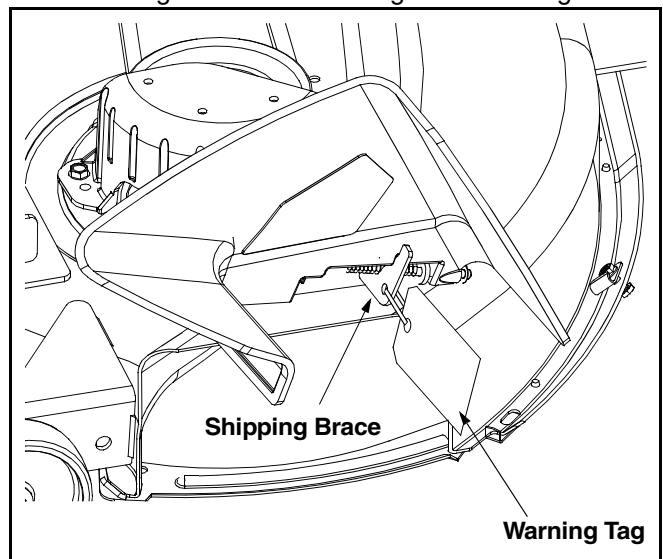


Figure 2

- While holding the discharge chute with your left hand, remove the shipping brace with your right hand by grasping it between your thumb and index finger and rotating it clockwise.

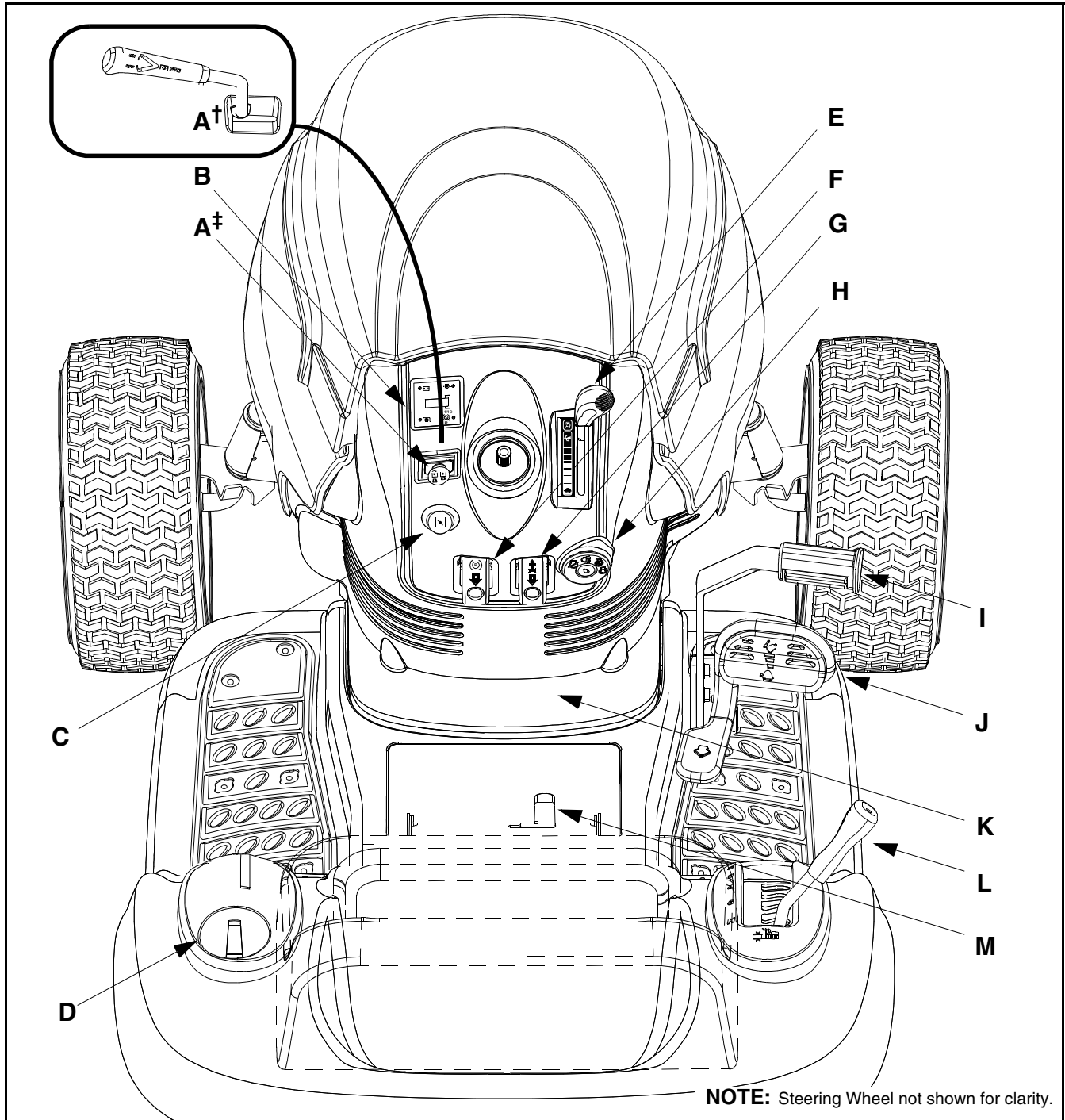


WARNING: The shipping brace, used for packaging purposes only, must be removed and discarded before operating your riding mower.



WARNING: The mowing deck is capable of throwing objects. Failure to operate the riding mower without the discharge cover in the proper operating position could result in serious personal injury and/or property damage.

SECTION 4: KNOW YOUR LAWN TRACTOR



- A PTO (Power Take-off) Lever (†LT-1650)
PTO (Power Take-off) Knob (‡LT-1850)
- B Systems Indicator Monitor/Hour Meter
- C Choke Control
- D Cup Holder
- E Throttle Control Lever
- F Parking Brake Button

- G Cruise Control Button
- H Ignition Switch
- I Brake Pedal
- J Drive Pedal
- K Cargo Net (not shown)
- L Deck Lift Lever
- M Seat Adjustment Lever

NOTE: Any reference in this manual to the RIGHT or LEFT side of the tractor is observed from operator's position.

Throttle Control Lever

The throttle control lever is located on the right side of the tractor's dash panel. This lever controls the speed of the engine. When set in a given position, the throttle will maintain a uniform engine speed. See Figure 3.

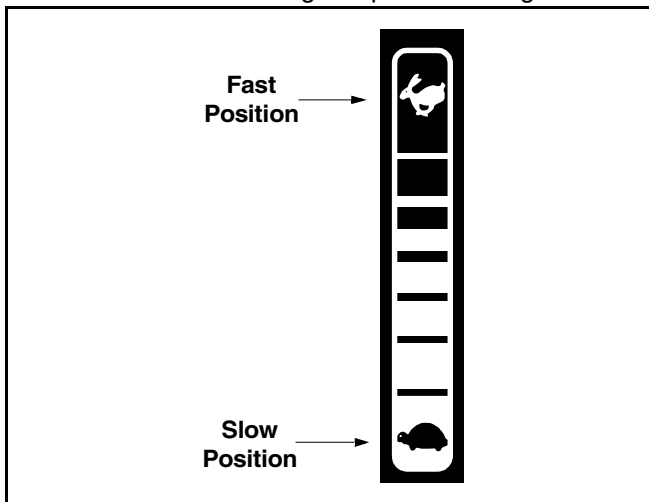


Figure 3

IMPORTANT: When operating the tractor with the cutting deck engaged, be certain that the throttle lever is **always** in the FAST (rabbit) position.

Ignition Switch



WARNING: Never leave a running machine unattended. Always disengage the PTO, set parking brake, stop engine and remove key to prevent unintended starting.

To start the engine, insert the key into the ignition switch and turn clockwise to the **START** position. Release the key into the **ON** position once engine has fired. See Figure 4.

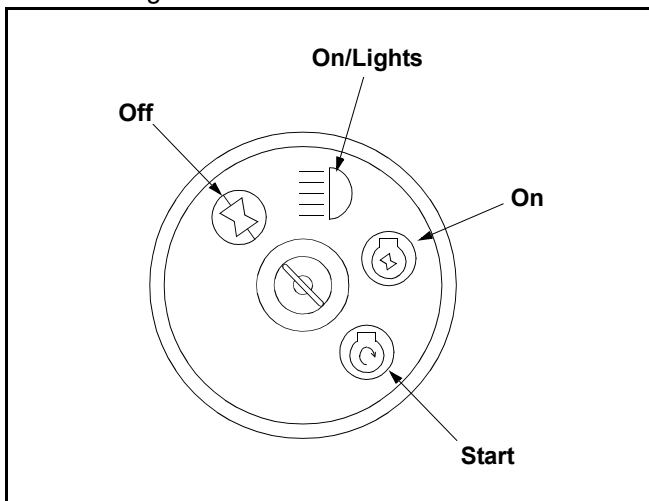


Figure 4

Refer to **Starting The Engine** on page 13 of this manual for

detailed starting instructions

The ignition switch is also used to operate the tractor's headlights. Refer to **Operating The Headlights** on page 15 of this manual for detailed instructions.

Systems Indicator Monitor / Hour Meter

Your tractor is equipped with four indicator lights and an hour meter located on the left side of the dash panel. See Figure 5.

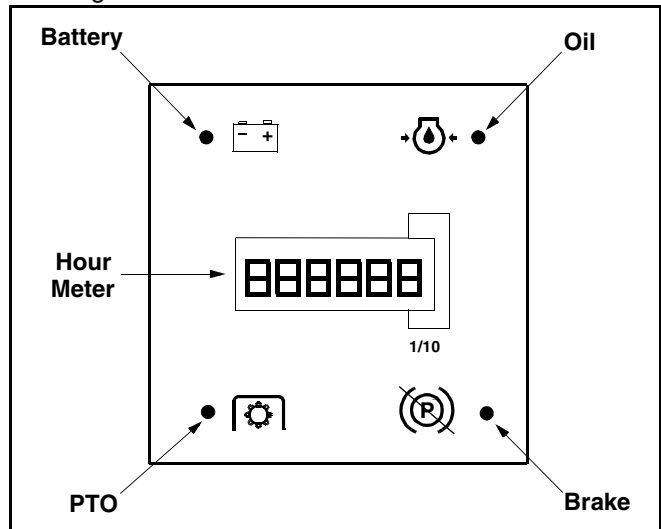


Figure 5

If the Brake light or PTO light illuminates when attempting to start the unit, proceed as follows:

- Brake** — Engage the parking brake.
- PTO** — Move the PTO lever into the disengaged (OFF) position.

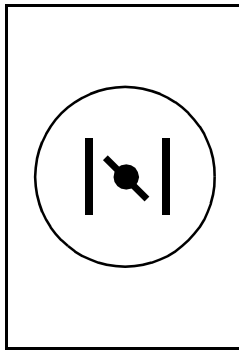
It is normal for the Oil light and the Battery light to illuminate while the engine is **cranking**, but if either illuminates while the **engine is running**, proceed as follows:

- Oil**— Stop the tractor immediately and check the crankcase oil level as instructed in the *White Outdoor Engines Operator's Manual* found after the Parts List section of this manual. Add oil as required.
- Battery**— If this light illuminate's while the engine is running, it indicates that the battery is in need of a charge OR that the engine's charging system is not generating sufficient amperage. Refer to **Battery** on page 20 of this manual for the proper battery charging procedure or have the engine's charging system checked by a *White Outdoor* dealer.

The hour meter operates whenever the engine is running and records the actual hours of tractor operation.

Choke Control

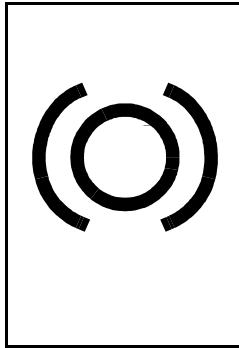
The choke control can be found on the left side of the dash panel and is activated by pulling the knob outward. Activating the choke control closes the choke plate on the carburetor and aids in starting the engine. Refer to **Starting The Engine** on page 13 of this manual for detailed starting instructions.



Brake Pedal

The brake pedal is located on the right front side of the tractor above the drive pedal along the running board. The brake pedal can be used for sudden stops or setting the parking brake.

NOTE: The brake pedal must be fully depressed to activate the safety interlock switch when starting the tractor.



Drive Pedal

The drive pedal is located below the brake pedal on the right front side of the tractor along the running board. Depress the upper portion of the drive pedal forward to cause the tractor to travel forward. Depress the lower portion of the drive pedal with the ball of your right foot (NOT your heel) to cause the tractor to travel in reverse. Ground speed is also controlled with the drive pedal. The further forward or rearward that the pedal is pivoted, the faster the tractor will travel. The pedal will return to its original position when it's not depressed.

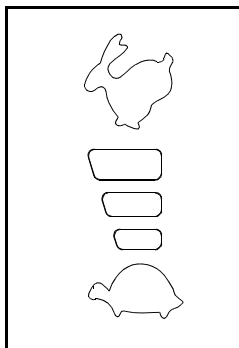
IMPORTANT: Always set the parking brake when leaving the tractor unattended.

Cup Holder

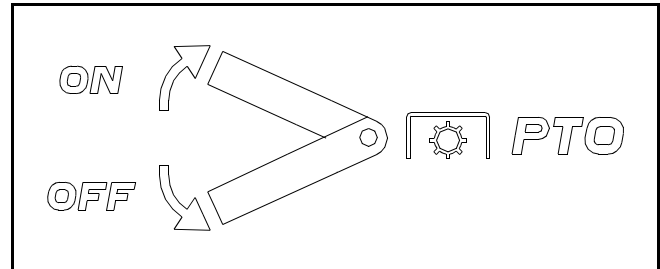
The tractor's cup holder is located on the fender to the left of the seat, just to the rear of the parking brake lever.

Deck Lift Lever

Found on your tractor's right fender, the deck lift lever is used to change the height of the cutting deck. To use, move the lever to the left, then place in the notch best suited for your application.



PTO (Power Take-off) Lever

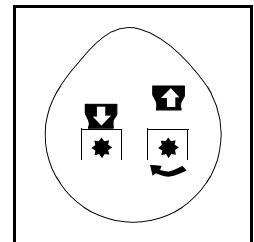


On model LT-1650, the PTO lever is located on the left side of the dashboard next to the steering wheel. Move the PTO lever forward to engage the power to the cutting deck or other (separately available) attachments; move the PTO lever rearward to disengage the power.

NOTE: The PTO lever **must** be in the disengaged (OFF) position when starting the engine, when traveling in reverse and if the operator leaves the seat.

Electric PTO (Power Take-off) Knob

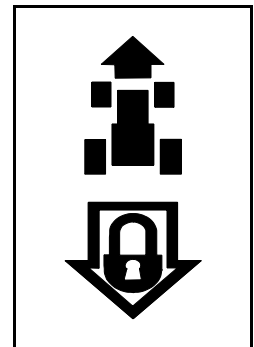
To engage the power to the cutting deck or other (separately available) attachments on model LT-1850, pull outward on the PTO knob. Push the PTO knob inward to disengage the power.



NOTE: The PTO knob **must** be in the disengaged (OFF) position when starting the engine, when simultaneously moving both control handles into the REVERSE position and if the operator leaves the seat.

Cruise Control Button

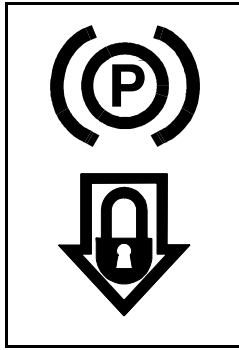
The cruise control button is located on the tractor dash panel to the left of the ignition switch. Push the cruise control button while traveling forward at a desired speed. While holding the button in, release pressure from the drive pedal. This will engage the cruise control and allow the tractor to remain at that speed without applying pressure to the drive pedal. Depress the brake pedal or the drive pedal to deactivate cruise control. Refer to **SECTION 5: OPERATING YOUR LAWN TRACTOR** in this manual for detailed instructions regarding the cruise control feature.



NOTE: Cruise control can NOT be engaged at the tractor's fastest ground speed. If the operator should attempt to do so, the tractor will automatically decelerate to the fastest optimal mowing ground speed.

Parking Brake Button

To set the parking brake, fully depress the brake pedal and push the parking brake button in. Hold the button in while taking your foot off the brake pedal. Both the parking button and the brake pedal will then stay depressed. To release the parking brake, depress the brake pedal slightly. The parking brake button will then return to its original position.



NOTE: The parking brake must be set if the operator leaves the seat with the engine running or the engine will automatically shut off.

IMPORTANT: Always set the parking brake when leaving the tractor unattended.

Seat Adjustment Lever

To adjust the seat forward or backward, slide the seat adjustment lever to the left and reposition the seat to the desired position. Once a comfortable position is found, release the seat adjustment lever to lock the seat in place. Refer to **Seat Adjustment** on page 16 of this manual for more detailed instructions.

SECTION 5: OPERATING YOUR LAWN TRACTOR



WARNING: Read, understand, and follow all instructions and warnings on the machine and in this manual before operating.

Safety Interlock Switches

This tractor is equipped with a safety interlock system for the protection of the operator. If the interlock system should ever malfunction, do not operate the tractor. Contact a *White Outdoor* dealer. The safety interlock system prevents the engine from cranking or starting unless the parking brake is engaged, and the PTO knob (or lever) is in the disengaged (OFF) position.

- The engine will automatically shut off if the operator leaves the seat before engaging the parking brake.
- The engine will automatically shut off if the operator leaves the tractor's seat with the PTO knob (or lever) in the engaged (ON) position, regardless of whether the parking brake is engaged.
- On model LT-1650, the engine will automatically shut off if the PTO lever is moved into the engaged (ON) position with the drive pedal in position for reverse travel.
- On model LT-1850, the electric PTO clutch will automatically shut off if the PTO knob is moved into the engaged (ON) position with the drive pedal in position for reverse travel.



WARNING: Do not operate the tractor if the interlock system is malfunctioning. This system was designed for your safety and protection.



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, EVEN WITH BLADES OFF.
- 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), ENGAGE BRAKE LOCK, SHUT ENGINE OFF AND REMOVE KEY.

READ OPERATOR'S MANUAL

Setting the Cutting Height

Select the height position of the cutting deck by placing the deck lift lever in any of the six different cutting height notches on the right side of the fender. Then adjust the deck wheels so that they are between ¼-inch and ½-inch above the ground when the tractor is on a smooth, flat surface such as a driveway.



WARNING: Keep hands and feet away from the discharge opening of the cutting deck.

NOTE: The deck wheels are an anti-scalp feature of the deck and are not designed to support the weight of the cutting deck.

Refer to **Leveling the Deck** on page 15 of this manual for more detailed instructions regarding various deck adjustments.

Starting the Engine



WARNING: Do not operate the tractor if the interlock system is malfunctioning. This system was designed for your safety and protection.

NOTE: Refer to the **TRACTOR SET-UP** on page 8 of this manual for Gasoline and Oil fill-up instructions.

- Insert the tractor key into the ignition switch.
- Place the PTO knob (or lever) in the disengaged (OFF) position.
- Engage the tractor's parking brake.
- Pull the choke control outward.
- Turn the ignition key clockwise to the START position. After the engine starts, release the key. It will return to the ON position.

IMPORTANT: Do NOT hold the key in the START position for longer than ten seconds at a time. Doing so may cause damage to your engine's electric starter.

- After the engine starts, deactivate the choke control and place the throttle control in the FAST position.

NOTE: Do NOT leave the choke control on while operating the tractor. Doing so will result in a "rich" fuel mixture and cause the engine to run poorly.

Stopping the Engine



WARNING: If you strike a foreign object, stop the engine, disconnect the spark plug wire(s) and ground against the engine. Thoroughly inspect the machine for any damage. Repair the damage before restarting and operating

- If the blades are engaged, place the PTO knob (or lever) in the disengaged (OFF) position.
- Turn the ignition key counterclockwise to the OFF position.
- Remove the key from the ignition switch to prevent unintended starting.

Driving The Tractor



WARNING: Avoid sudden starts, excessive speed and sudden stops.



WARNING: Do not leave the seat of the tractor without first placing the PTO knob (or lever) in the disengaged (OFF) position, depressing the brake pedal and engaging the parking brake. If leaving the tractor unattended, also turn the ignition key off and remove the key.

- Briefly depress the brake pedal to release the parking brake. Move the throttle lever into the FAST (rabbit) position.
- To travel FORWARD, slowly depress the upper portion of the drive pedal forward until the desired speed is achieved. See Figure 6.

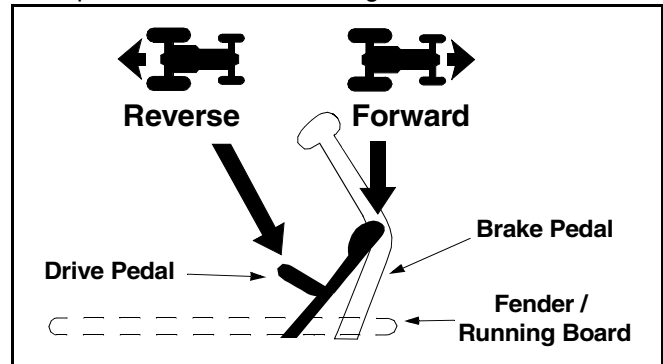


Figure 6

- To travel in REVERSE, check that the area behind is clear then slowly depress the lower portion of the drive pedal with the ball of your foot (NOT your heel) until the desired speed is achieved. See Figure 6.

IMPORTANT: Do NOT attempt to change the direction of travel when the tractor is in motion. Always bring the tractor to a **complete** stop before pivoting the drive pedal from forward to reverse or vice versa.

Engaging the Parking Brake

To engage the parking brake:

- Fully depress the brake pedal and hold it there while gently pushing the parking brake button inward.
- Hold the parking brake button in while removing your foot from the brake pedal.
- Once engaged, the parking brake button and the brake pedal will lock in the "down" position.

To disengage the parking brake:

- Slightly depress the brake pedal.

NOTE: The parking brake must be engaged if the operator leaves the seat with the engine running or the engine will automatically shut off.

Driving On Slopes

Refer to the **SLOPE GAUGE** on page 7 to help determine slopes where you may operate the tractor safely.



WARNING: Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2-1/2 feet every 10 feet). The tractor could overturn and cause serious injury.

- Mow up and down slopes, NEVER across.

- Exercise extreme caution when changing direction on slopes.
- Watch for holes, ruts, bumps, rocks, or other hidden objects. Uneven terrain could overturn the machine. Tall grass can hide obstacles.
- Avoid turns when driving on a slope. If a turn must be made, turn down the slope. Turning up a slope greatly increases the chance of a roll over.
- Avoid stopping when driving up a slope. If it is necessary to stop while driving up a slope, start up smoothly and carefully to reduce the possibility of flipping the tractor over backward.

Setting The Cruise Control

NOTE: The cruise control feature should only be utilized while traveling in the forward direction.

- Slowly depress the upper portion of the drive pedal until the desired speed is achieved.
- Lightly depress the cruise control button.
- While continuing to hold the cruise button in, lift your foot from the drive pedal (you should feel the cruise latch engage).
- Once engaged, the cruise control button and the drive pedal will lock in the “down” position, and the tractor will maintain the same forward speed.

NOTE: Cruise control can not be engaged at the tractor’s fastest ground speed. If the operator should attempt to do so, the tractor will automatically decelerate to the fastest optimal mowing ground speed.

Disengage the cruise control using one of the following methods:

- Depress the brake pedal to disengage the cruise control and stop the tractor.
- Lightly depress the drive pedal.

To change the direction of travel to reverse when operating with cruise control, depress the brake pedal to disengage the cruise control and bring the tractor to a complete stop. Then slowly depress the lower portion of the drive pedal with the ball of your foot to travel in reverse.

Moving The Tractor Manually

Your tractor’s transmission is equipped with a hydrostatic relief valve for occasions when it is necessary to move the tractor manually. Activating this valve forces the fluid in the transmission to bypass its normal route, allowing the rear tires to “freewheel.” To engage the hydrostatic relief valve, proceed as follows:

- Locate the hydrostatic bypass rod in the rear of the tractor. See Figure 7.
- Pull the hydrostatic bypass rod outward, then down, to lock it in place.

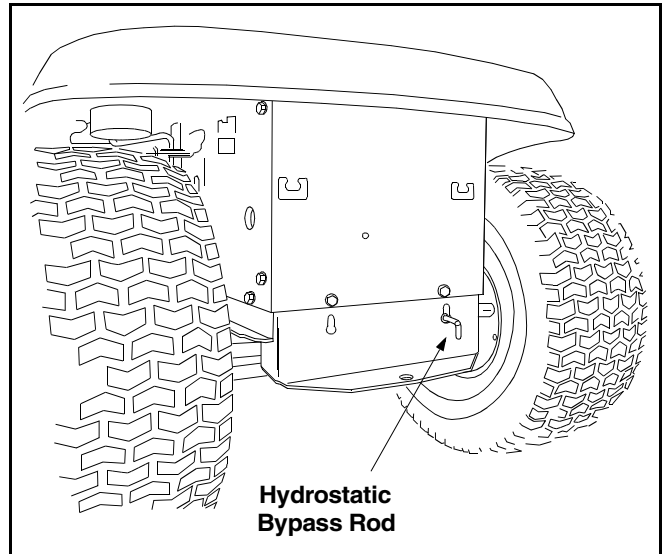


Figure 7

NOTE: The transmission will NOT engage when the hydrostatic bypass rod is pulled out. Return the rod to its normal position prior to operating the tractor.

IMPORTANT: Never attempt to move the tractor manually without first engaging the hydrostatic relief valve. Doing so will result in serious damage to the tractor’s transmission.

Engaging the PTO

Engaging the PTO transfers power to the cutting deck or other (separately available) attachments. To engage the PTO, proceed as follows:

- Move the throttle control lever to the FAST (rabbit) position.

Model LT-1650

- Grasp the PTO lever and pivot it all the way forward into the engaged (ON) position.

Model LT-1850

- Pull the PTO knob outward into the engaged (ON) position. See Figure 8.

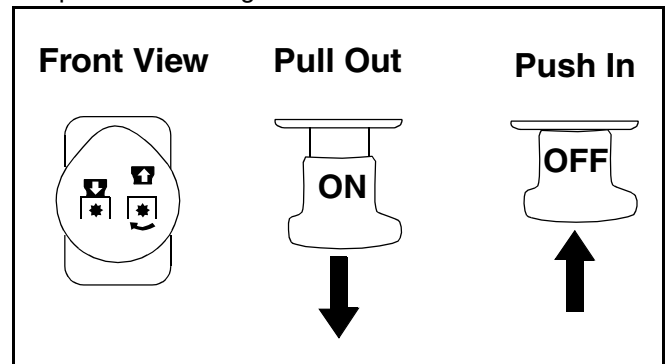


Figure 8

- Keep the throttle lever in the FAST (rabbit) position for the most efficient use of the cutting deck or other (separately available) attachments.

IMPORTANT: The engine (on model LT-1650) or electric PTO clutch (on model LT-1850) will automatically shut off if the PTO is engaged with the drive pedal in position for reverse travel. Refer to **Safety Interlock Switches** on page 12.

Using the Deck Lift Lever

To raise the cutting deck, move the deck lift lever to the left, then place it in the notch best suited for your application. Refer to **Setting The Cutting Height** earlier in this section.

Operating The Headlights

To turn the tractor's headlights on:

- Start the engine following the instructions earlier in this section.
- Turn the key one notch counterclockwise into the On/Lights position of the ignition switch. Refer to Figure 4.

To turn the tractor's headlights off:

- Turn the key either into the On position (to leave the engine running) or the Off position (to shut the engine off). Refer to Figure 4.

NOTE: *Never move the key into the Start position while the engine is running. Doing so may cause damage to your engine's electric starter.*

Mowing



WARNING: To help avoid blade contact or a thrown object injury, keep bystanders, helpers, children and pets at least 75 feet from the machine while it is in operation. Stop machine if anyone enters the area.

The following information will be helpful when using the cutting deck with your tractor.



WARNING: Plan your mowing pattern to avoid discharge of materials toward roads, sidewalks, bystanders and the like. Also, avoid discharging material against a wall or obstruction which may cause discharged material to ricochet back toward the operator.

- Do not mow at high ground speed, especially if a mulch kit or grass collector is installed.
- For best results it is recommended that the first two laps be cut with the discharge thrown towards the center. After the first two laps, reverse the direction to throw the discharge to the outside for the balance of cutting. This will give a better appearance to the lawn.
- Do not cut the grass too short. Short grass invites weed growth and yellows quickly in dry weather.
- Mowing should always be done with the engine at full throttle.
- Under heavier conditions it may be necessary to go back over the cut area a second time to get a clean cut.
- Do NOT attempt to mow heavy brush and weeds and extremely tall grass. Your tractor is designed to mow lawns, NOT clear brush.
- Keep the blades sharp and replace the blades when worn. Refer to **Cutting Blades** on page 19 of this manual for proper blade sharpening instructions.

SECTION 6: MAKING ADJUSTMENTS



WARNING: Never attempt to make any adjustments while the engine is running, except where specified in the operator's manual.



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

Leveling the Deck

NOTE: *Check the tractor's tire pressure before performing any deck leveling adjustments. Refer to Tires on page 19 for information regarding tire pressure.*

Front To Rear

The front of the cutting deck is supported by a stabilizer bar that can adjusted to level the deck from front to rear. The front of the deck should be between 1/4-inch and 3/8-inch lower than the rear of the deck. Adjust if necessary as follows:

- With the tractor parked on a firm, level surface, place the deck lift lever in the top notch (highest position) and rotate the blade nearest the discharge chute so that it is parallel with the tractor.
- Measure the distance from the front of the blade tip to the ground and the rear of the blade tip to the ground.
- The first measurement taken should be between 1/4" and 3/8" less than the second measurement.

- Determine the approximate distance necessary for proper adjustment and proceed, if necessary, to the next step.
- Loosen the two jam nuts on the rear side of the deck stabilizer bracket. See Figure 9A.
- Locate the two lock nuts on the opposite side of the stabilizer bracket. See Figure 9A. Tighten the lock nuts to raise the front of the deck; loosen the lock nuts to lower the front of the deck.
- Retighten the two jam nuts loosened earlier when proper adjustment is achieved.

Side to Side

If the cutting deck appears to be mowing unevenly, a side to side adjustment can be performed. Adjust if necessary as follows:

- With the tractor parked on a firm, level surface, place the deck lift lever in the top notch (highest position) and rotate both blades so that they are perpendicular with the tractor.

- Measure the distance from the outside of the left blade tip to the ground and the distance from the outside of the right blade tip to the ground. Both measurements taken should be equal. If they're not, proceed to the next step.
- Loosen, but do NOT remove, the hex cap screw on the left deck hanger bracket. See Figure 9B.
- Balance the deck by using a wrench to turn the adjustment gear (found immediately behind the hex cap screw just loosened) clockwise/up or counterclockwise/down.
- The deck is properly balanced when both blade tip measurements taken earlier are equal.
- Retighten the hex cap screw on the left deck hanger bracket when proper adjustment is achieved.

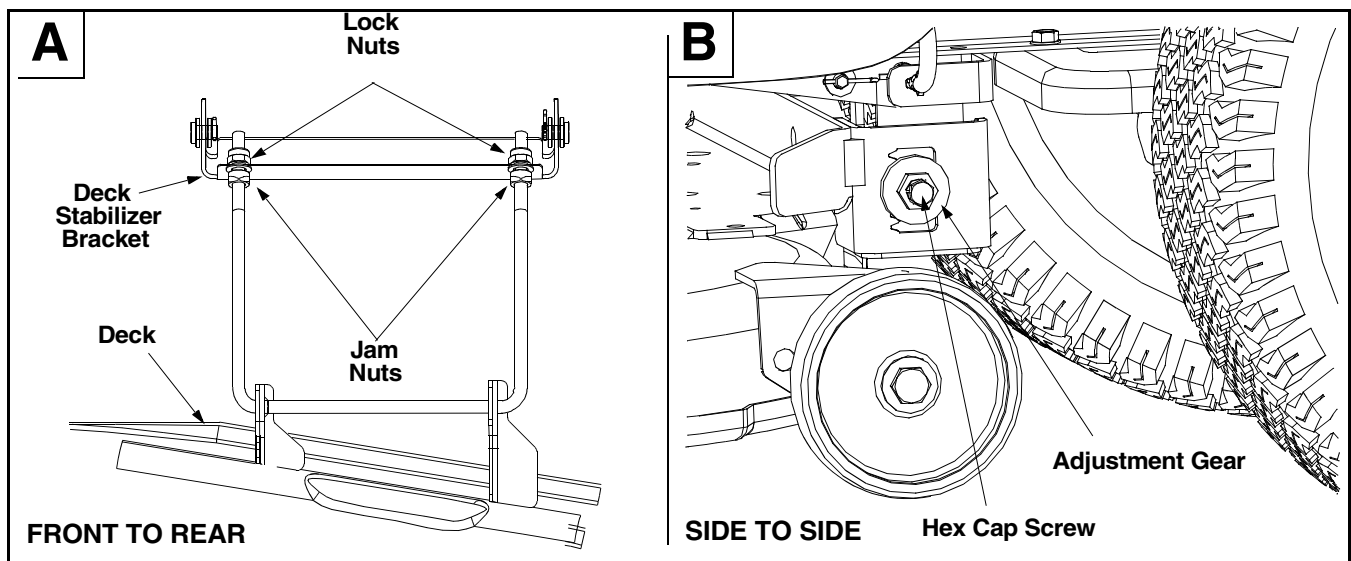


Figure 9

Seat Adjustment



WARNING: Before operating this machine, make sure the seat is engaged in the seat stop, stand behind the machine and pull back on seat until fully engaged into stop.

To adjust the position of the seat, move the seat adjustment lever to the left and slide the seat forward or rearward. Make sure seat is locked into position before operating the tractor.

Parking Brake Adjustment



WARNING: Never attempt to adjust the brakes while the engine is running. Always disengage PTO, move shift lever into neutral position, stop engine and remove key to prevent unintended starting.

If the tractor does not come to a complete stop when the brake pedal is completely depressed, or if the tractor's rear wheels can roll with the parking brake applied, the brake is in need of adjustment. The brake disc can be found on the right side of the transmission in the rear of the tractor. Adjust if necessary as follows:

- Looking at the transmission from the right side of the tractor, locate the compression spring and brake disc. See Figure 10.

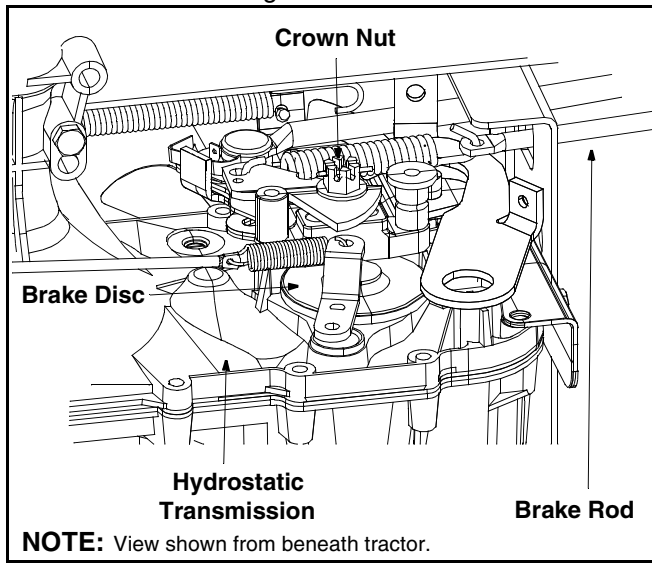


Figure 10

- Carefully remove the cotter pin from the crown nut on the right side of the brake assembly.
- Using a feeler gauge, check the gap between the brake disc and the brake puck. Proper gap is .011".
- Tighten the crown nut until the proper gap is achieved.
- Insert a replacement cotter pin (part number 714-0111) into the crown nut.

Steering Adjustment

If the tractor turns tighter in one direction than the other, or if the ball joints are being replaced due to damage or wear, the steering drag links may need to be adjusted.

Adjust the drag links so that equal lengths are threaded into the ball joint on the left side and the ball joint on the right side:

- Loosen the jam nut found on the drag link at the rear of the ball joint. See Figure 11.
- Remove the hex nut and lock washer on the top of ball joint. See Figure 11.

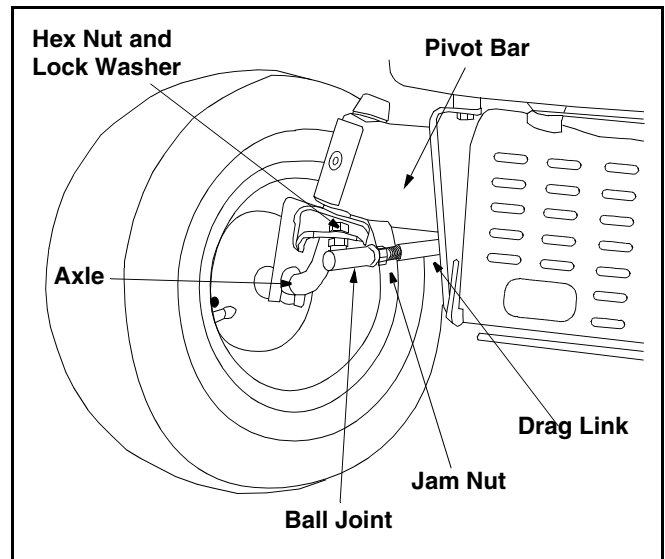


Figure 11

- Thread the ball joint toward the jam nut to shorten the drag link. Thread the ball joint away from the jam nut to lengthen the drag link.
- Replace hex nut and lock washer and retighten the jam nut after proper adjustment is achieved.

NOTE: Threading the ball joints too far onto the drag links will cause the front tires to "toe-in" too far. Proper toe-in is between 1/16" and 5/16".

Front tire toe-in can be measured as follows:

- Place the steering wheel in position for straight ahead travel.
- In front of the axle, measure the distance horizontally from the inside of the left rim to the inside of the right rim. Note the distance.
- Behind the axle, measure the distance horizontally from the inside of the left rim to the inside of the right rim. Note the distance.
- The measurement taken in front of the axle should be between 1/16" and 5/16" less than the measurement taken behind the axle.
- Adjust if necessary.

SECTION 7: MAINTAINING YOUR LAWN TRACTOR



WARNING: Before performing any maintenance or repairs, disengage PTO, move shift lever into neutral position, set parking brake, stop engine and remove key to prevent unintended starting.

Cleaning the Engine And Deck

Any fuel or oil spilled on the machine should be wiped off promptly. Do NOT allow grass, leaves, and dirt to

accumulate around the cooling fins of the engine or on any other part of the machine, especially the pulleys and other moving parts.

IMPORTANT: The use of a pressure washer to clean your tractor is NOT recommended. Direct water pressure on electrical components and the engine could result in a shortened life of the tractor and may reduce riding mower serviceability.

Deck Wash System™

Your tractor's deck is equipped with a water port on its surface as part of its deck wash system.

Use the Deck Wash System™ to rinse grass clippings from the deck's underside and prevent the buildup of corrosive chemicals. Complete the following steps **AFTER EACH MOWING**:

1. Drive the tractor to a level, clear spot on your lawn, near enough to a water sillcock (spigot) for your garden hose to reach.

IMPORTANT: Make certain the tractor's discharge chute is directed **AWAY** from your house, garage, parked cars, etc.

2. Disengage the PTO, move the shift lever into the neutral position, set the parking brake, and stop the engine.
3. Thread the hose coupler (packaged with your tractor's Operator's Manual) onto the end of your garden hose.
4. Attach the hose coupler to the water port on your decks surface. See Figure 12.

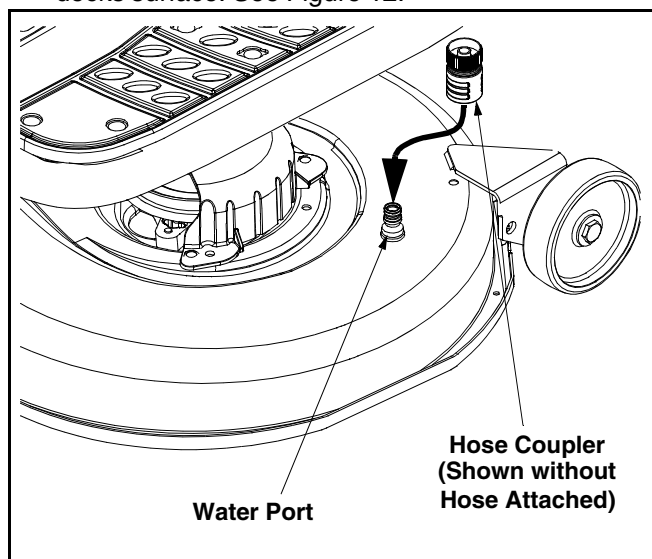


Figure 12

5. Turn the water on.
6. While sitting in the operator's position on the tractor, re-start the engine and place the throttle lever in the FAST (rabbit) position.
7. Engage the tractor's PTO.
8. **Remain in the operator's position** with the cutting deck engaged for a minimum of two minutes, allowing the underside of the cutting deck to thoroughly rinse.
9. Disengage the tractor's PTO.
10. Turn the ignition key to the STOP position to turn the tractor's engine off.
11. Turn the water off and detach the hose coupler from the water port on your decks surface.
12. On Model LT-1850, repeat step 4- step 11 on the opposite side of the cutting deck.

Engine

Refer to the *White Outdoor Engines Operator's Manual* for engine maintenance instructions.

Check **engine oil level** before each use as instructed in the *White Outdoor Engines Operator's Manual* located after the Parts List section of this manual. **Read and follow instructions carefully.**

Changing Engine Oil

- Unscrew oil fill cap and remove dipstick from the oil fill tube. See Figure 13.

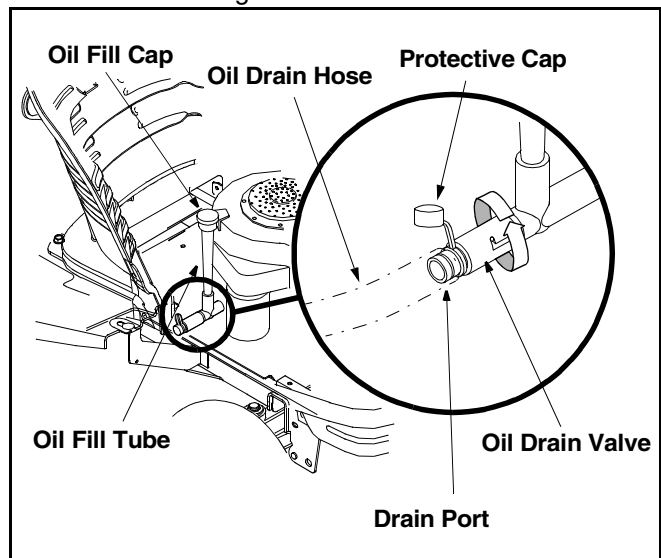


Figure 13

- Pop open the protective cap on the end of the oil drain valve to expose the drain port. See Figure 13.
- Push the oil drain hose (packed with this manual) onto the oil drain port. Route the opposite end of the hose into an appropriate oil collection container with a capacity great enough to collect the used oil (approximately 80 oz.).
- Push the oil drain valve in slightly, then rotate counterclockwise and pull outward to begin draining oil. See Figure 13.
- Service the **oil filter** as instructed in the *White Outdoor Engines Operator's Manual* located after the Parts List section of this manual.

Perform the above steps in the opposite order after oil has finished draining.

- Refill the engine with new motor oil.

IMPORTANT: Refer to the *White Outdoor Engines Operator's Manual* located after the Parts List section of this manual for information regarding the proper weight of motor oil.

Air Cleaner

Service the pre-cleaner, if so equipped, and cartridge as instructed in the *White Outdoor Engines Operator's Manual* located after the Parts List section of this manual.

Spark Plug

The spark plug should be cleaned and the gap reset once a season. Spark plug replacement is recommended at the start of each mowing season. Refer to the *White Outdoor Engines Operator's Manual* for correct plug type and gap specifications.

Lubrication



WARNING: Before lubricating, repairing, or inspecting, always disengage PTO, move shift lever into neutral position, set parking brake, stop engine and remove key to prevent unintended starting.

Engine

Lubricate the engine with motor oil as instructed in the *White Outdoor Engines Operator's Manual* located after the Parts List section of this manual.

Blade Spindles

Each of the blade spindles is equipped with a grease fitting. Lubricate with a grease gun after every 25 hours of tractor operation.

Pivot Points & Linkage

Lubricate all the pivot points on the drive system, parking brake and lift linkage at least once a season with light oil.

Front Wheels

Each of the front wheel axles is equipped with a grease fitting. Lubricate with a grease gun after every 25 hours of tractor operation.

Transmission

The hydrostatic transmission is sealed at the factory. Oil level cannot be checked nor can the oil be changed.

SECTION 8: SERVICE

Tires



WARNING: Never exceed the maximum inflation pressure shown on the sidewall of the tire.

The recommended operating tire pressure is 10 psi for the rear tires and 14 psi for the front tires. Refer to the tire sidewall for exact tire manufacturer's recommended or maximum psi. Do not overinflate. Uneven tire pressure could cause the cutting deck to mow unevenly.

Cutting Blades



WARNING: Be sure to shut the engine off, remove ignition key, disconnect the spark plug wire(s) and ground against the engine to prevent unintended starting before removing the cutting blade(s) for sharpening or replacement. Protect your hands by using heavy gloves or a rag to grasp the cutting blade.



WARNING: Periodically inspect the blade adapter and/or spindle for cracks or damage, especially if you strike a foreign object. Replace immediately if damaged.

The blades may be removed as follows.

- Remove the deck from beneath the tractor, (refer to **Cutting Deck Removal** on page 20) then gently flip the deck over to expose its underside.

- Place a block of wood between the center deck housing baffle and the cutting blade to act as a stabilizer. See Figure 14.

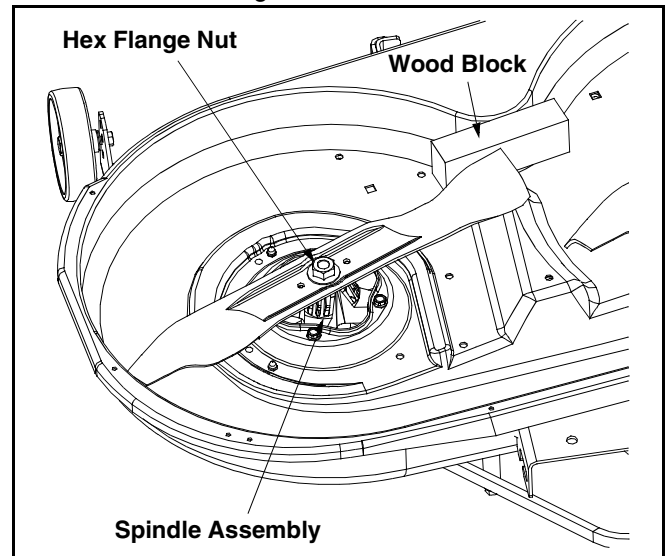


Figure 14

- Use a 15/16" wrench to remove the hex flange nut that secures the blade to the spindle assembly. See Figure 14.

To properly sharpen the cutting blades, remove equal amounts of metal from both ends of the blades along the cutting edges, parallel to the trailing edge, at a 25° to 30° angle. See Figure 15.

IMPORTANT: If the cutting edge of the blade has already been sharpened to within 5/8" of the wind wing radius, or if any metal separation is present, replace the blades with new ones. See Figure 15.

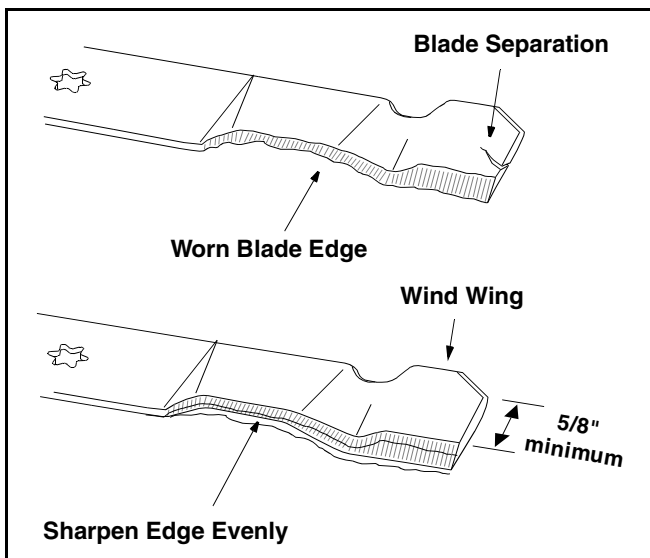


Figure 15

It is important that each cutting blade edge be ground equally to maintain proper blade balance.

A poorly balanced blade will cause excessive vibration and may cause damage to the tractor and result in personal injury.

The blade can be tested by balancing it on a round shaft screwdriver. Grind metal from the heavy side until it balances evenly.

When replacing the blade, be sure to install the blade with the side of the blade marked "Bottom" (or with a part number stamped in it) facing the ground when the mower is in the operating position.

IMPORTANT: Use a torque wrench to tighten the blade spindle hex flange nut to between 70 foot-pounds and 90 foot-pounds.

Cutting Deck Removal

To remove the cutting deck, proceed as follows:

- Place the PTO knob (or lever) in the disengaged (OFF) position and engage the parking brake.
- Lower the deck by moving the deck lift lever into the bottom notch on the right fender.
- On model LT-1650, remove the PTO belt from around the cutting deck's center pulley. On models LT-1850, remove the PTO belt from around the tractor's electric PTO clutch. Refer to Figure 18.
- Looking at the cutting deck from the left side of the tractor, locate the deck support pin on the rear left side of the deck.
- Pull the deck support pin outward to release the deck from the deck lift arm. See Figure 16.
- Rotate the pin slightly toward the rear of the tractor and release the pin into the hole provided.
- Repeat the above steps on the tractor's right side.

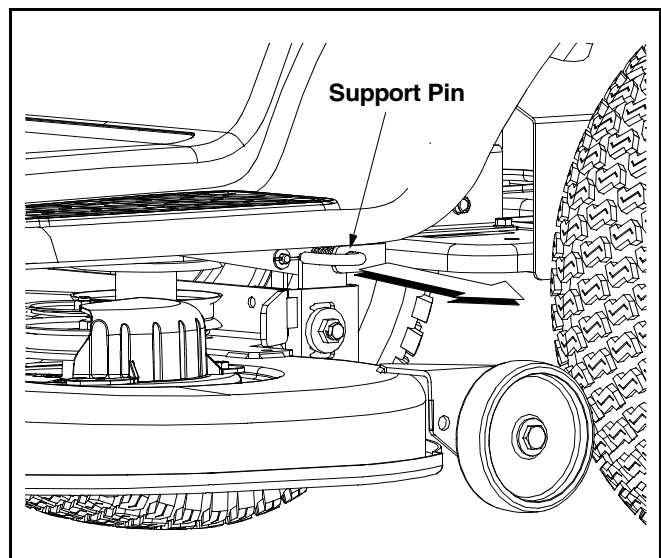


Figure 16

- Move the deck lift lever into the top notch on the right fender to raise the deck lift arms up and out of the way.
- Gently slide the cutting deck toward the front of the tractor allowing the hooks on the deck to release themselves from the deck stabilizer rod.
- Gently slide the cutting deck (from the right side) out from underneath the tractor.

Changing The Transmission Drive Belt

All belts on your tractor are subject to wear and should be replaced if any signs of wear are present.

IMPORTANT: The V-belts found on your tractor are specially designed to engage and disengage safely. A substitute (non-OEM) V-belt can be dangerous by not disengaging completely. For a proper working machine, use factory approved belts.

To change or replace the drive belt on your tractor, proceed as follows:

- Remove the cutting deck as instructed earlier in this section.
- After disconnecting the battery cables, remove the battery and battery tray from beneath the seat.

IMPORTANT: When removing the battery, disconnect the NEGATIVE (Black) wire from it's terminal first, followed by the POSITIVE (Red) wire. Re-install in reverse order.

NOTE: Proper removal of the drive belt requires the removal of several tractor components. Read through the following procedure prior to attempting it to determine if you feel you could successfully complete it. If you don't, see your White Outdoor dealer to have the belt changed.

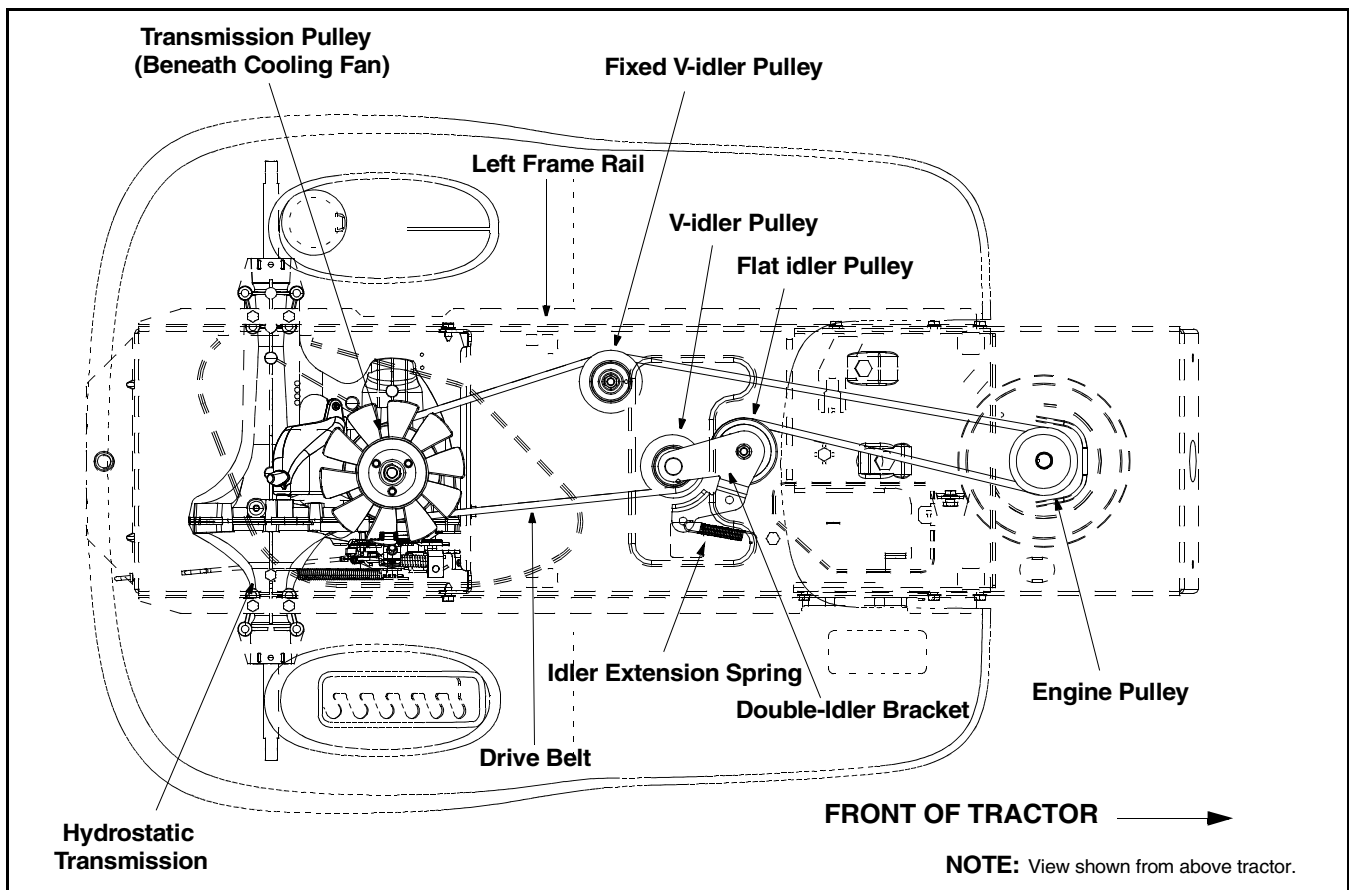


Figure 17

IMPORTANT: Note the routing of the lower drive belt around all the pulleys and the belt keepers (if present) **BEFORE** performing the following steps.

- Locate the fixed v-idler pulley found on the left underside of the frame. See Figure 17.
- Grasp the belt on both sides of the pulley and gently move it toward the left frame rail allowing it to unseat itself from the fixed v-idler. See Figure 17.
- Pivot the double-idler bracket forward slightly before removing the idler extension spring from the stud and the double-idler bracket itself. Do **NOT** discard the spring.
- Roll the drive belt out from around both the v-idler pulley and the flat idler pulley found on the double-idler bracket.
- Carefully unplug the tractor's wire harness from the connector on the electric PTO clutch (if present).
- Remove the hex bolt from the center of the electric PTO clutch (or the engine pulley) and gently lower it off of the engine crankshaft. Be careful not to lose any washers or spacers which may be found on top of the electric PTO clutch or engine pulley.
- On units equipped with an electric PTO, the engine pulley is located directly above the electric PTO clutch. Lower the engine pulley far enough to be able to remove the upper drive belt from around it.

IMPORTANT: When remounting the electric PTO clutch (or engine pulley), torque the center hex bolt to between 38 foot-pounds and 50 foot-pounds.

- Remove the drive belt by feeding it from front to rear, toward the hydrostatic transmission. See Figure 17.
- Continue removing the drive belt by gently lifting it off of the transmission pulley and over the cooling fan.

IMPORTANT: The fins on the cooling fan are only slightly flexible. Be careful not to damage the fan when removing the drive belt from around the transmission pulley.

- Reroute the new belt around the pulleys and belt keepers, if present, **EXACTLY** as the old one was routed. Refer to Figure 17.

Hydrostatic Transmission

The hydrostatic transmission is sealed at the factory and is maintenance free. The fluid level cannot be checked nor can the oil be changed. **Always** keep the area around the transmission cooling fan free of grass and debris at all times.

Battery

The battery is sealed and is maintenance-free. Acid levels cannot be checked.

- Always keep the battery cables and terminals clean and free of corrosive build-up.
- After cleaning the battery and terminals, apply a light coat of petroleum jelly or grease to both terminals
- Always keep the rubber boot positioned over the positive terminal to prevent shorting.

IMPORTANT: If removing the battery for any reason, disconnect the NEGATIVE (Black) wire from its terminal first, followed by the POSITIVE (Red) wire. When re-installing the battery, always connect the POSITIVE (Red) wire its terminal first, followed by the NEGATIVE (Black) wire. Be certain that the wires are connected to the correct terminals; reversing them could change the polarity and cause damage to your engine's alternating system.

Charging

If the unit has not been put into use for an extended period of time, charge the battery with an automotive-type 12-volt charger for a minimum of one hour at six amps.



WARNING: Batteries give off an explosive gas while charging. Charge battery in a well ventilated area and keep away from an open flame or pilot light as on a water heater, space heater, furnace, clothes dryer or other gas appliances.

Fuses

Two fuses are installed in your tractor's wiring harness to protect the tractor's electrical system from damage caused by excessive amperage.

If the electrical system does not function, or your tractor's engine will not crank, first check to be certain that the fuse has not blown.

One can be found under the hood mounted behind the

top of the dash panel on the support bar.

The other can be found under the seat mounted to the inside of the tractor frame next to the battery tray. Pull the fuse out and inspect it to determine if it is good or blown.



WARNING: Always use a fuse with the same amperage capacity for replacement.

Changing the Deck Belt & PTO Belt



WARNING: Be sure to shut the engine off, remove ignition key, disconnect the spark plug wire(s) and ground against the engine to prevent unintended starting before removing the belt(s).

All belts on your tractor are subject to wear and should be replaced if any signs of wear are present.

IMPORTANT: The V-belts found on your tractor are specially designed to engage and disengage safely. A substitute (non-OEM) V-belt can be dangerous by not disengaging completely. For a proper working machine, use factory approved belts.

To change or replace the deck belts on your tractor, proceed as follows:

- Lower the deck by moving the deck lift lever into the bottom notch on the right fender.
- Remove the belt guards by removing the self-tapping screws that fasten them to the deck.
- Grasp the rearmost portion of the PTO idler bracket and pivot it toward the discharge chute to relieve tension on the PTO belt.
- Remove the PTO belt from the engine pulley (or electric PTO clutch) and the PTO idler pulley(s).
- Grasp the deck idler pulley and pivot it toward the left side of the deck to relieve tension on the deck belt.
- Remove the deck belt from around all pulleys, including the deck idler pulley.
- Route the new belts as shown in Figure 18.
- Remount the belt guards removed earlier.

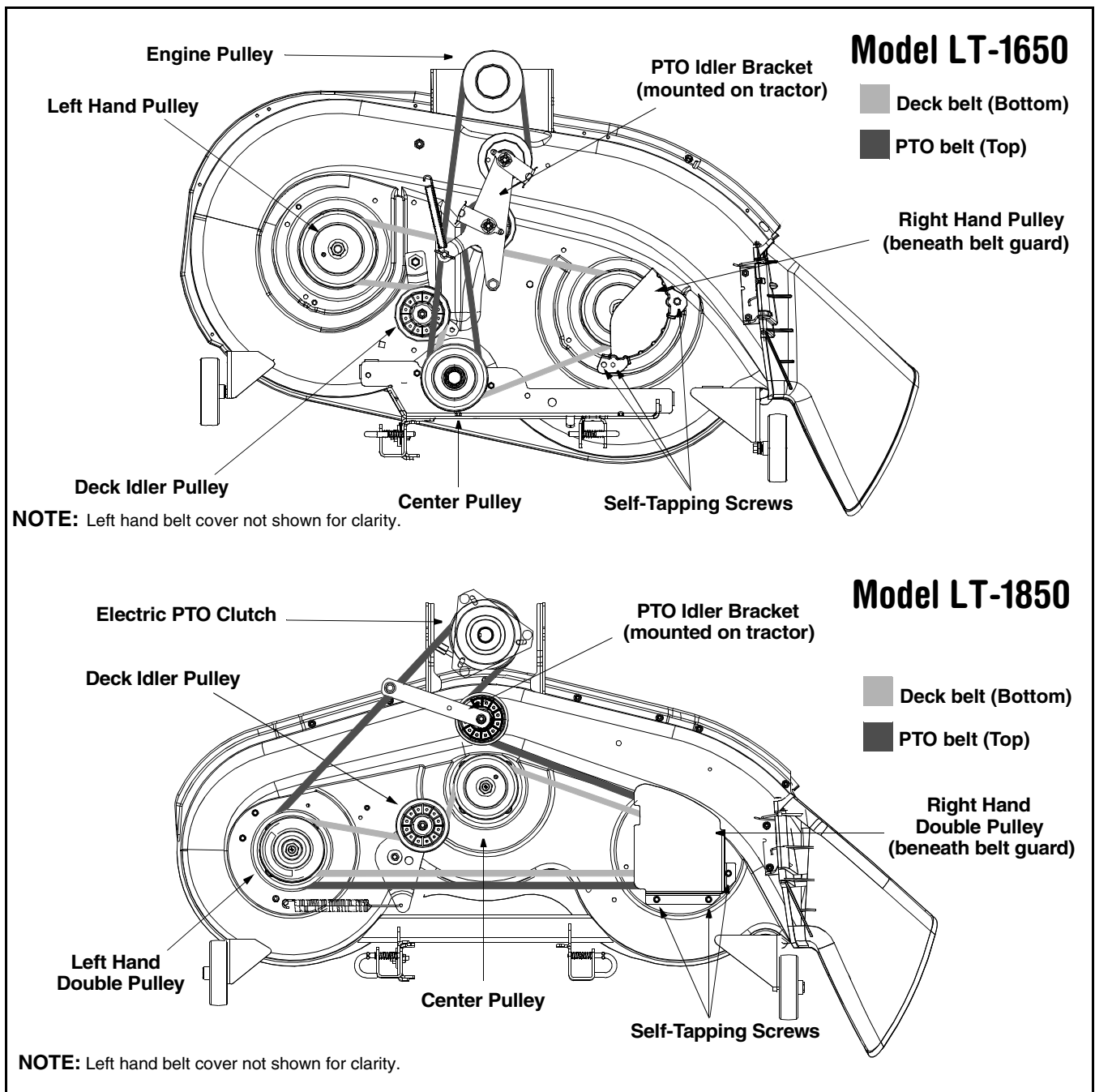


Figure 18

SECTION 9: OFF-SEASON STORAGE

Clean and lubricate the tractor as instructed in **Section 7: MAINTAINING YOUR LAWN TRACTOR** on page 17 of this manual before storing for an extended period.

WARNING: Drain fuel only into an approved container outdoors, away from an open flame. Allow engine to cool. Extinguish cigarettes, cigars, pipes, and other sources of ignition prior to draining fuel.

Follow the instructions in the **Seasonal Storage** section of the *White Outdoor Engines Operator's Manual* for proper engine care prior to storing your tractor.

WARNING: Never store the machine or fuel container indoors where there is an open flame, spark or pilot light such as on water heater, furnace, clothes dryer or other gas appliance.

SECTION 10: TROUBLESHOOTING

Trouble	Possible Cause(s)	Corrective Action
Engine fails to start	PTO knob (or lever) engaged. Parking brake not engaged. Spark plug wire(s) disconnected. Throttle control lever not in correct starting position. Choke not activated Fuel tank empty, or stale fuel. Blocked fuel line. Faulty spark plug. Engine flooded.	Disengage PTO. Engage parking brake. Connect wire(s) to spark plug. Place throttle lever to FAST position. Pull out the CHOKE control. Fill tank with clean, fresh (less than 30 days old) gas. Clean fuel line or replace fuel filter, if so equipped. Clean, adjust gap or replace plug. Crank engine with throttle in FAST position.
Engine runs erratic	Unit running with CHOKE applied. Spark plug wire(s) loose. Blocked fuel line or stale fuel. Vent in gas cap plugged. Water or dirt in fuel system. Dirty air cleaner.	Push CHOKE control in. Connect and tighten spark plug wire(s). Clean fuel line; fill tank with clean, fresh (less than 30 days old) gasoline. Replace fuel filter, if so equipped. Clear vent or replace cap if damaged. Drain fuel tank. Refill with clean, fresh (less than 30 days old) gasoline. Replace air cleaner cartridge/element or clean pre-cleaner, if so equipped.
Engine overheats	Engine oil level low. Air flow restricted.	Fill crankcase with proper capacity and weight of oil. Clean grass clippings and debris from around the engine's cooling fins and blower housing.
Engine hesitates at high RPM	Spark plug gap too close.	Remove spark plug and reset the gap.
Idles poorly	Spark plug fouled, faulty or gap too wide. Dirty air cleaner.	Replace spark plug. Set plug gap. Replace air cleaner cartridge/element or clean pre-cleaner, if so equipped.
Excessive vibration	Cutting blade loose or unbalanced. Damaged or bent cutting blade.	Tighten blade and spindle. Balance blade. Replace blade.
Uneven cut	Deck not balanced properly. Dull blade. Uneven tire pressure.	Perform side-to-side deck adjustment. Sharpen or replace blade. Check tire pressure in all four tires.

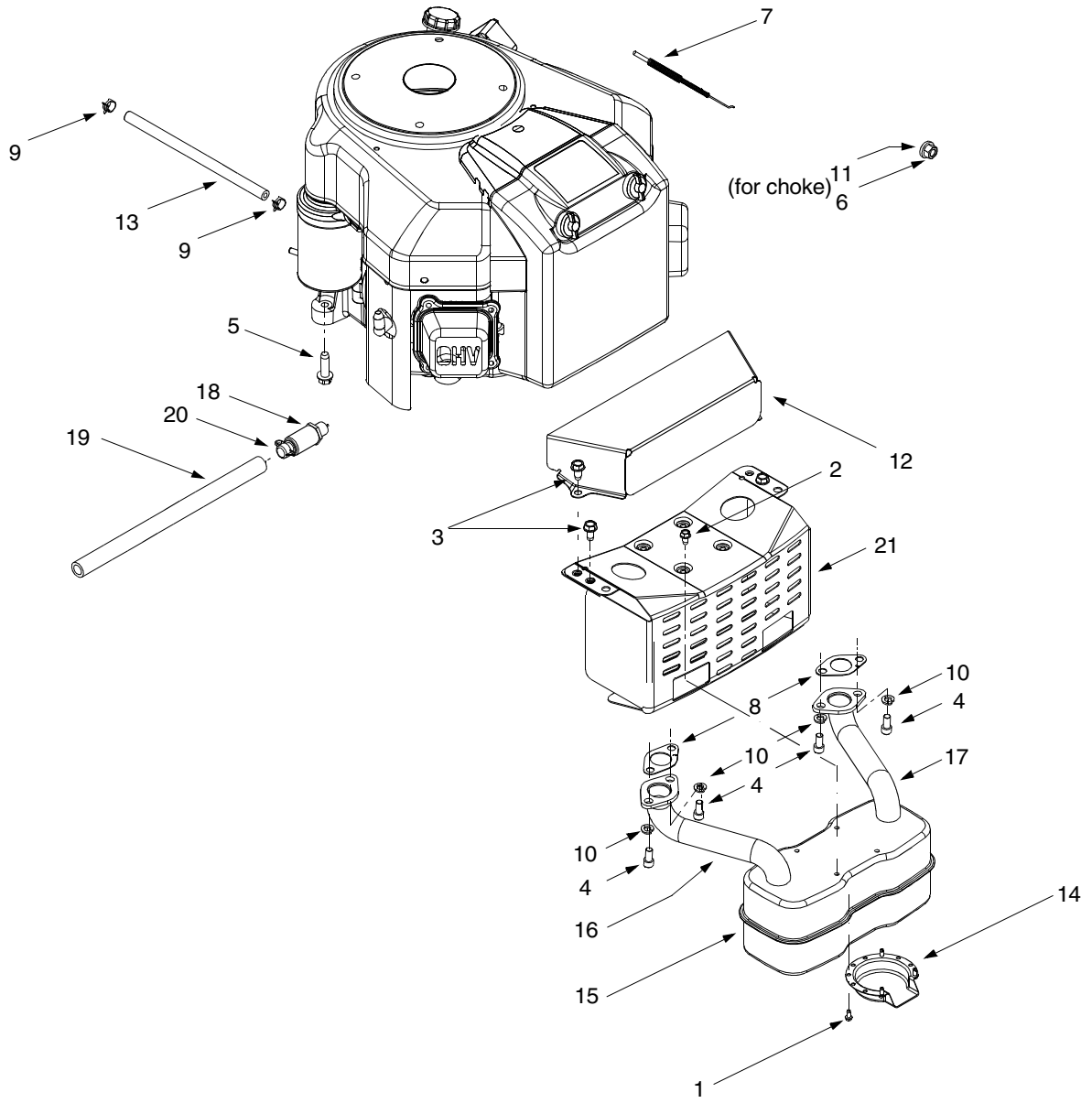
SECTION 11: ATTACHMENTS & ACCESSORIES

The following attachments and accessories are compatible for **Lawn Tractor Models LT-1650 & LT-1850**. See the your *White Outdoor* dealer for information regarding price and availability.

NOTE: *Lawn tractor models LT-1650 and LT-1850 are NOT designed for use with any type of ground-engaging attachments (e.g. tiller or plow). Use of this type of equipment WILL void the tractor's warranty.*

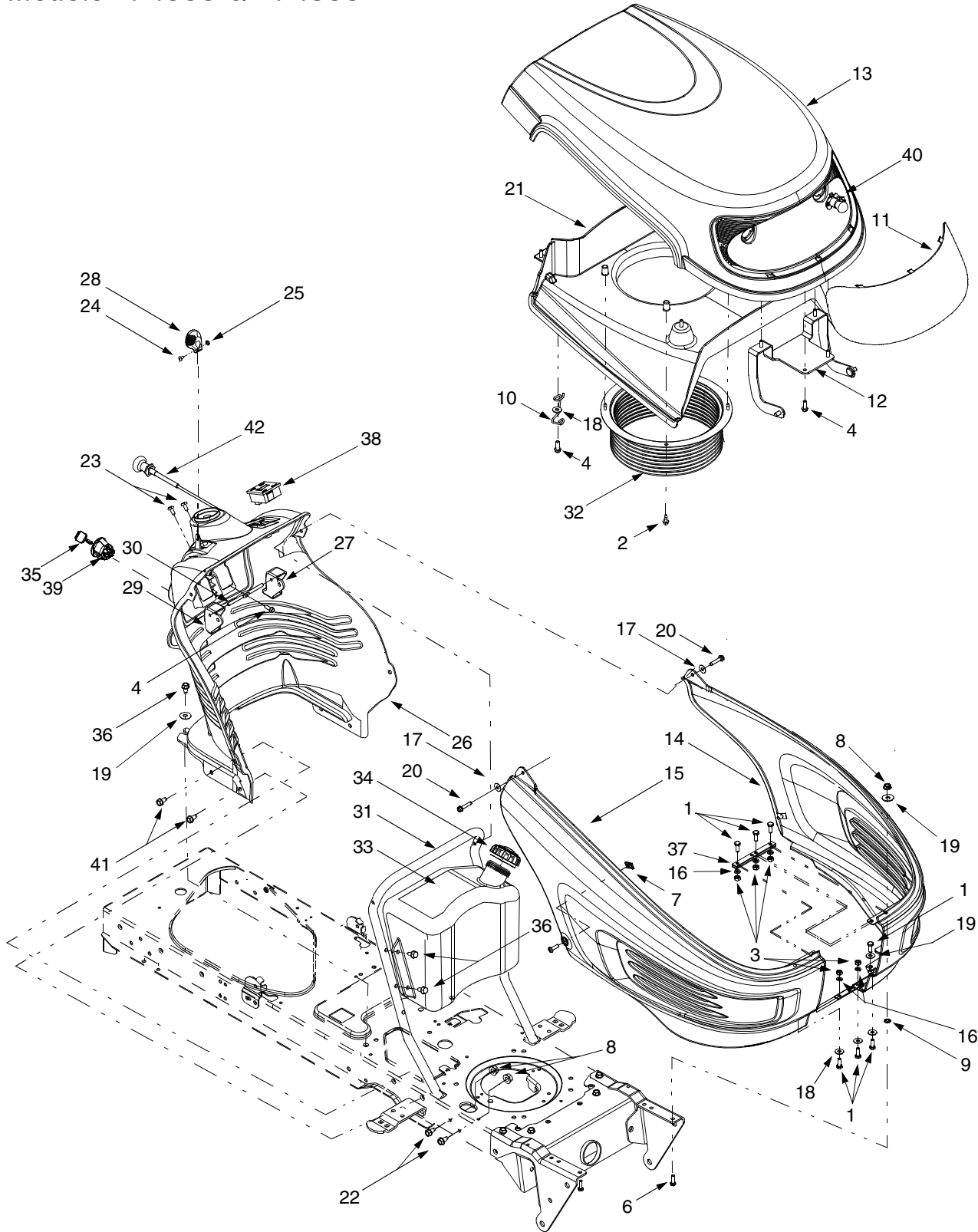
MODEL	DESCRIPTION
190-116	42-inch Deck Mulch Kit (Models LT-1650)
190-118	46-inch Deck Mulch Kit (Models LT-1850)
190-601	Twin Bagger Grass Collector (Model LT-1650)
190-602	Twin Bagger Grass Collector (Models LT-1850)
190-603	Grille Guard (mounts on front of tractor)
190-604	Yard-Mate™ Storage Container/Toolbox (mounts on rear of tractor)
190-607	Deluxe Tractor Sunshade
190-822	46-inch Front Dozer Blade
190-823	42-inch Two-stage Snow Thrower

SECTION 12: PARTS LIST



REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	710-0227	Screw, #8-18 x .5	12	783-0625C	Engine Heat Shield
2	710-0599	Self-tapping Screw, 1/4-20 x .5	13	751-0535	Fuel Line Hose
3	710-0726	Self-tapping Screw, 5/16-12 x .75	14	751-0564	Muffler Deflector
4	710-1314A	Socket Cap Screw, 5/16-18 x .625	15	751-0616	Muffler, Twin Inlet
5	710-1315	Self-tapping Screw, 3/8-16 x 1.25	16	751-0814	RH Exhaust Pipe
6	712-3017	Hex Nut, 3/8-16	17	751-0813	LH Exhaust Pipe
7	746-1086	Throttle Cable	18	751-3140	Oil Drain Valve
8	721-0460	Exhaust Gasket	19	751-3141	Oil Drain Hose
9	726-0205	Hose Clamp	20	751-3142	Oil Drain Cap
10	736-0119	Lock Washer, 5/16	21	783-0615B	Muffler Heat Shield
11	736-0300	Lock Washer, .406 x .875 x .059			

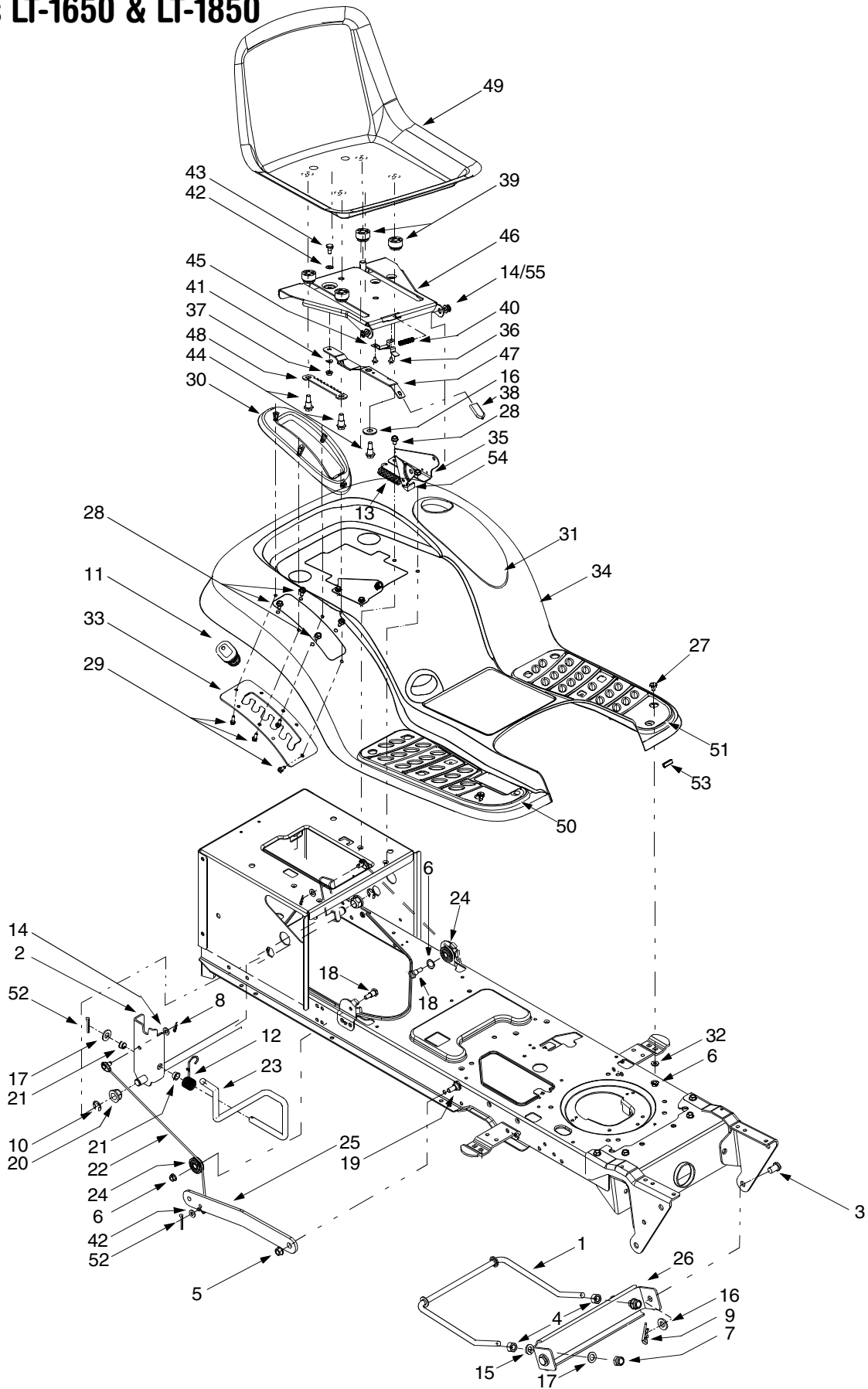
Models LT-1650 & LT-1850



Models LT-1650 & LT-1850

REF. NO.	PART NO.	DESCRIPTION
1	710-3015	Hex Cap Screw, 1/4-20 x .75
2	710-0599	Self-tapping Screw, 1/4-20 x .5
3	712-3006	Hex Nut, 1/4-20
4	710-0895	Self-tapping Screw, 1/4-15 x .75
5	710-0924	Pan Phillips Screw, 1/4-20 x .75
6	710-0376	Hex Cap Screw, 5/16-18 x 1.0
7	712-0292	U-type Speed Nut, 1/4-20
8	712-3004A	Flange Lock Nut, 5/16-18
9	726-0201	Speed Nut
10	747-2127	Hood Latch Rod
11	731-2286	Head Light Lens
12	683-0305	Hood Bracket Assembly
13	731-2283A	Hood
14	731-2327A	LH Side Panel
15	731-2328A	RH Side Panel
16	736-0329	Lock Washer, 1/4
17	736-0342	Flat Washer, .283 x .75 x .030
18	736-0173	Flat Washer, .28 x .74 x .063
19	736-3078	Flat Washer, .349 x 1.0 x .063
20	710-0809	Self-tapping Screw, 1/4-20 x 1.25
21	731-2284	Hood Plenum
22	710-0604A	Self-tapping Screw, 5/16-18 x .625
23	710-1017	Torx Self-tapping Screw, 1/4-14 x .625
24	710-3217	Torx Screw, #8-32 x .375
25	712-0142	Hex Nut, 8-32
26	631-04035	Dash Panel, 4-style w/ Cargo Net (LT-1650)
	631-04036	Dash Panel, 4-style w/ Cargo Net (LT-1850)
27	731-0072	Parking Brake Button
28	731-1857	Throttle Control Lever
29	731-2106	Cruise Control Button
30	747-1155	Brake/Cruise Pivot Rod
31	749-1087A	Dash Support Tube
32	731-2232	Intake Bellow (LT-1650)
	731-2234	Intake Bellow (LT-1850)
33	751-0658D	Fuel Tank, 3-gallon
34	751-0603	Fuel Cap
35	725-1745	Ignition Key w/ plastic cover
	725-1744	Ignition Key w/o plastic cover
36	710-0726	Self-tapping Screw, 5/16-18 x .75
37	783-1000A	Grille Support Bracket
38	725-04036	Systems Indicator Monitor, Curved Face
39	725-1741	Ignition Switch
40	625-0051	Headlight Assembly
41	710-1611B	Self-tapping Screw, 5/16-18 x .75
42	746-1085	Choke Control
—	629-0469B	Headlight Wire Harness
—	629-1071	Tractor Wire Harness (LT-1650)
—	629-1067	Tractor Wire Harness (LT-1850)

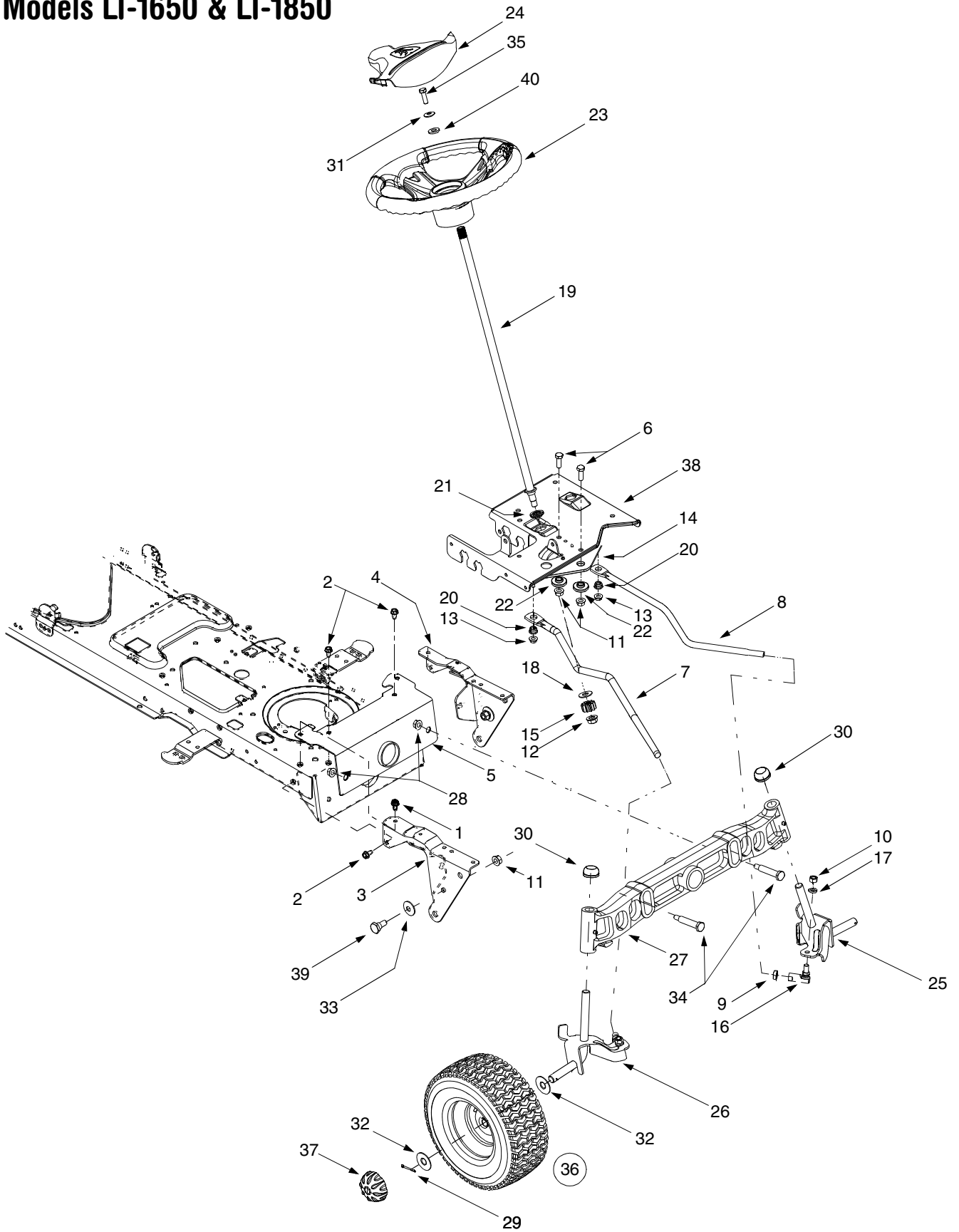
Models LT-1650 & LT-1850



Model LT-1650 & LT-1850

REF. NO.	PART NO.	DESCRIPTION
1	747-1130B	Deck Stabilizer Rod
2	683-0197B	Lift Shaft Assembly
3	711-0332	Clevis Pin, .5 x .78
4	712-0206	Hex Nut, 1/2-13
5	712-0431	Flange Lock Nut, 3/8-16
6	712-3004A	Flange Lock Nut, 5/16-18
7	712-3083	Hex Nut, 1/2-13
8	714-0104	Internal Cotter Pin
9	714-0145	Internal Cotter Pin
10	716-0106	E-ring
11	720-0311	Handle Grip
12	732-0874	Torsion Spring
13	732-1027	Extension Spring, .872 x 3.4
14	736-0275	Flat Washer, 5/16
15	736-0921	Lock Washer, 1/2
16	736-3019	Flat Washer, .31 x 1.062 x .134
17	736-3084	Flat Washer, .51 x 1.12 x .06
18	738-0138A	Hex Cap Screw, 5/16-18 x .62
19	738-0143	Shoulder Screw, 3/8-16
20	741-0225	Hex Flange Bearing
21	741-0715	Snap Flange Bearing
22	746-0968	Lift Cable, 16.16 (LT-1650)
	746-1144	Lift Cable, 15.62 (LT-1850)
23	747-1111A	Lift Handle
24	756-1154	Roller Pulley
25	783-0678A	Arm Lift
26	783-0720A	Deck Stabilizer Bracket
27	710-0260A	Carriage Bolt, 5/16 x .62
28	710-0604A	Self-tapping Screw, 5/16-18 x .625
29	710-0895	Self-tapping Screw, 1/4-15 x .75
30	731-1990	Lift Lever Cover
31	731-1993	Cover w/ Cup Holder
32	736-3078	Flat Washer, .349 x 1.0 x .063
33	783-0677	Lift Adjustment Bracket
34	783-1279	Fender
35	783-1489	Seat Mounting Bracket
36	710-1268	Screw, #10-16 x .375
37	712-3027	Hex Flange Lock Nut, 1/4-20
38	720-0309A	Seat Adjuster Grip
39	731-04074	Spacer
40	732-0499	Compression Spring, .41 x 1.5
41	736-0175	Spring Washer, .265 x .562 x .025
42	736-0204	Flat Washer, .344 x .62 x .03
43	738-0137A	Shoulder Screw, .340 x .285, 1/4-20
44	738-1007	Shoulder Screw, .50 x .50, 3/8-16
45	783-0611	Seat Stop
46	783-0738	Seat Pivot Bracket
47	783-0739	Seat Adjustment Lever
48	783-0753	Seat Adjustment Selector
49	757-04014	Medium Back Seat, Black
50	735-0656	RH Foot Pad
51	735-0657	LH Foot Pad
	726-3046	Foot Pad Clips (Not Shown)
52	714-0111	Cotter Pin
53	731-0511	Trim Strip
54	783-0209	Seat Lift Bracket
55	726-0201	Speed Clip

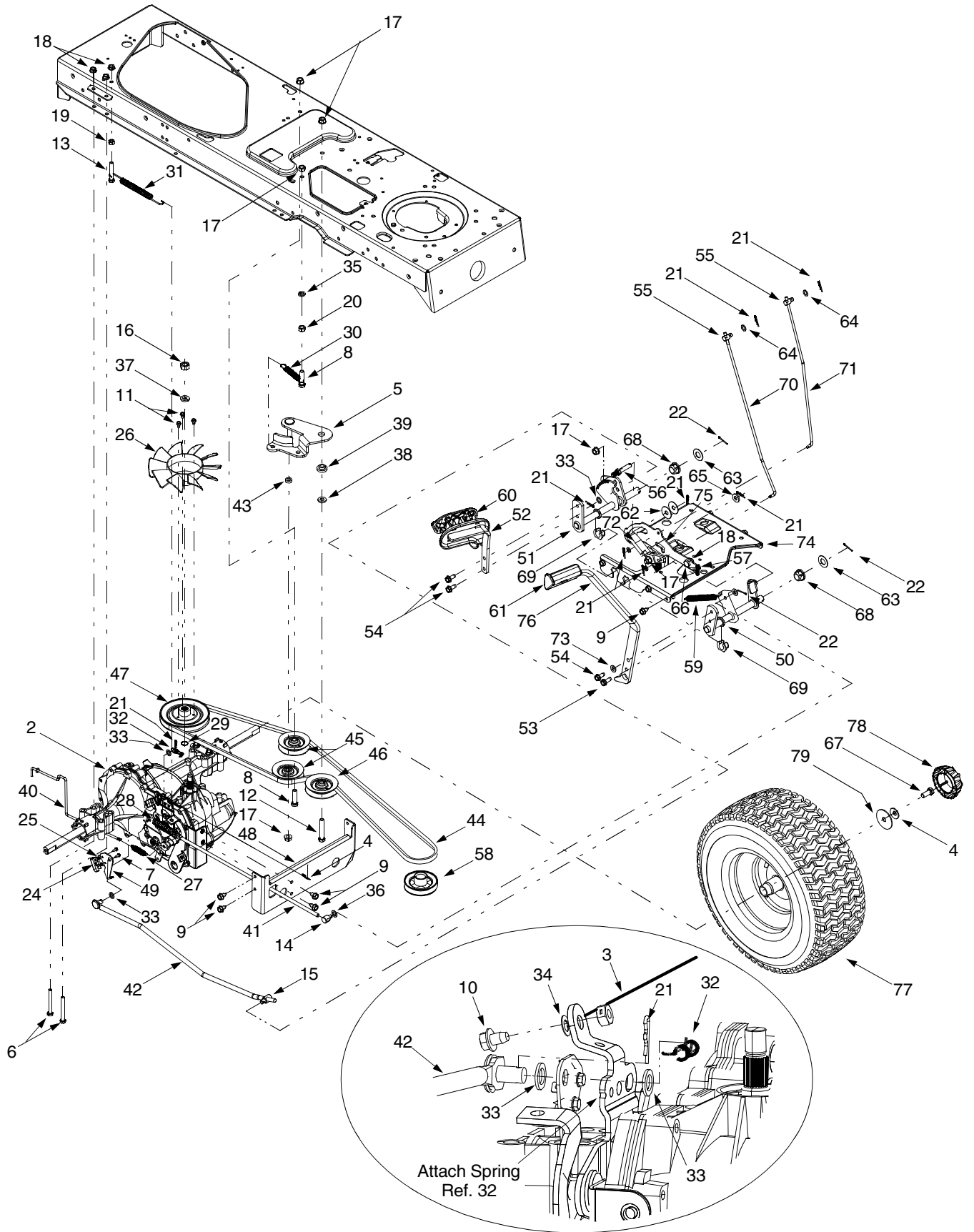
Models LT-1650 & LT-1850



Models LT-1650 & LT-1850

REF. NO.	PART NO.	DESCRIPTION
1	710-1260A	Self-tapping Screw, 5/16-18 x .75
2	710-0604A	Self-tapping Screw, 16-18 x .625
3	783-0726B	RH Pivot Support Bracket
4	783-0727A	LH Pivot Support Bracket
5	783-0728	Pivot Bar Bracket
6	710-0514	Hex Cap Screw, 3/8-16 x 1 (Grade 5)
7	711-1408	RH Drag Link
8	711-1409A	LH Drag Link
9	712-0240	Jam Nut, 7/16-20 (Grade 2)
10	712-0241	Hex Nut, 3/8-24 (Grade 2)
11	712-0431	Flange Lock Nut, 3/8-16
12	712-0459	Flange Lock Nut, 7/16-20
13	712-3004A	Flange Lock Nut, 5/16-18
14	717-1550D	Steering Gear, 11/90 Ratio
15	717-1554	Steering Pinion Gear
16	723-0448A	Ball Joint, 7/16-20
17	736-0169	Lock Washer, 3/8
18	736-3084	Flat Washer, .51 x 1.12 x .06
19	738-1001A	Steering Shaft, .625 OD x 24.4
20	741-0475	Plastic Bushing, .38 ID
21	741-0656	Hex Flange Bearing, 5/8
22	738-0372B	Shoulder Spacer, .38 ID
23	631-04008	Steering Wheel, Soft Grip, Three Spoke
24	731-04065	Steering Wheel Cover
25	638-0019A	LH Axle Assembly, .625 Dia. (Model LT-1650)
	638-0021	LH Axle Assembly .625 / .750 Dia. (Model LT-1850)
26	638-0020A	RH Axle Assembly, .625 Dia. (Model LT-1650)
	638-0022	RH Axle Assembly .625 / .750 Dia. (Model LT-1850)
27	719-0399B	Cast Iron Pivot Bar w/ Fittings, .625 (Model LT-1650)
	719-0525B	Cast Iron Pivot Bar w/ Fittings, .75 (Model LT-1850)
28	712-0431	Flange Lock Nut, 3/8-16
29	714-0162	Cotter Pin
30	726-0214	Push Cap, .625 (Model LT-1650)
	726-0341	Push Cap, .750 (Model LT-1850)
31	736-0242	Bell Washer, .34 x .872
32	736-0285	Flat Washer, .635 x 1.589 x .06
33	736-0331	Bell Washer, .39 x 1.13 x .062
34	738-1011	Shoulder Screw, .5 x 2.2, 3/8-16
35	710-0643	Hex Bolt, 5/16-18 X 1
36	634-0115	Wheel Assembly Complete, 15 x 6 x 6
—	634-0051	Rim Only
—	734-0255	Air Valve (Not Shown)
—	734-1731	Tire Only, Square Shoulder
—	737-0280	Grease Fitting (Not Shown)
—	741-0569	Ball Bearing (Not Shown)
37	734-2290A	Hub Cap
38	783-0653F	Steering Support Bracket
39	738-0143	Shoulder Screw, 3/8-16
40	736-3004	Flat Washer, .406 x .875 x .105

Models LT-1650 & LT-1850



Models LT-1650 & LT-1850

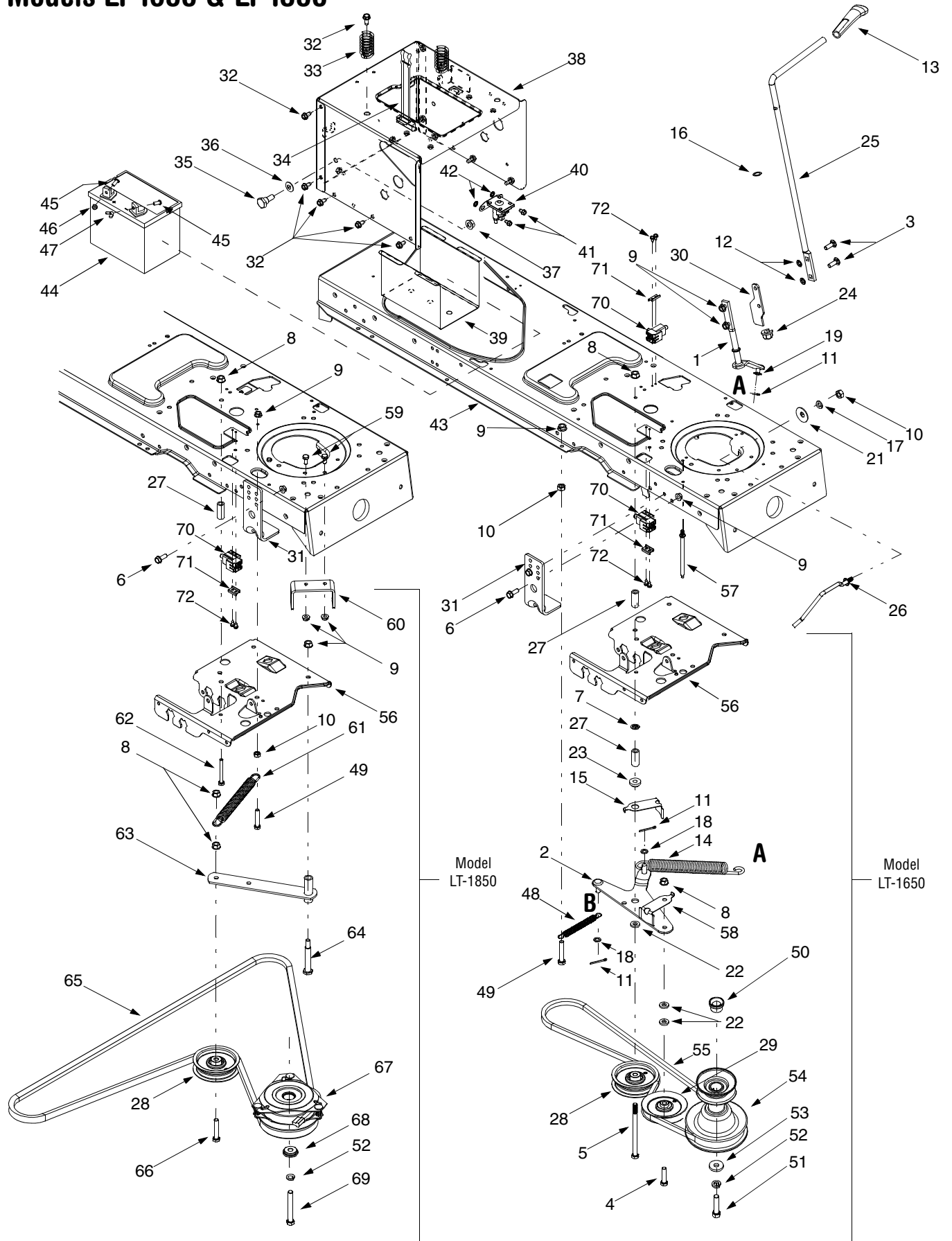
REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	17840	Transaxle Mounting Bracket	44	754-0349	Drive Belt
2	618-0319	Hydrostatic Transmission	45	756-0116	V-idler Pulley, 3.06
3	629-0949A	Reverse Wire Harness Adapter & Ground	46	756-0981A	Flat Idler Pulley, 2.75
4	736-0242	Bell Washer, .34 x .872	47	756-1166	Input Pulley, 5.0
5	683-0251	Double Idler Bracket Assembly	48	783-0810	Transmission Torque Bracket
6	710-0176	Hex Cap Screw, 5/16-18 x 2.75	49	783-1019	Switch Actuator Bracket
7	710-0227	Screw, #8-18 x .5	50	647-0031B	Brake Control Assembly
8	710-0344	Hex Cap Screw, 3/8-16 x 1.5	51	647-0049	Drive Control Assembly
9	710-0604A	Self-tapping Screw, 5/16-18 x .625	52	683-0267C	Hydro Pedal Assembly
10	710-0599	Self-tapping Screw, 1/4-20 x .5	53	710-0650	Self-tapping Screw, 5/16-18 x .875
11	710-3007	Screw, #12-24 x .375	54	710-1611B	Self-tapping Screw, 5/16-18 x .75
12	710-3011	Hex Cap Screw, 3/8-16 x 2.25	55	711-0736	Ferrule, 1/4-20
13	710-3103	Hex Cap Screw, 5/16-18 x 2.0	56	711-1363	Pin, 3/8-16 x 2.43
14	711-0677	Ferrule, 5/16-18	57	732-0335	Compression Spring, .405 OD x 1.17
15	711-0832	Ferrule, 3/8-24	58	756-0983B	Engine Pulley (LT-1650)
16	712-0333	Hex Nut, 1/2-20		756-0978A	Engine Pulley (LT-1850)
17	712-0431	Flange Lock Nut, 3/8-16	59	732-0963	Extension Spring, .50 OD x 6.37
18	712-3004A	Flange Lock Nut, 5/16-18	60	735-0662	Drive Pedal Pad
19	712-3010	Hex Nut, 5/16-18	61	735-3049	Brake Pedal Pad
20	712-3017	Hex Nut, 3/8-16	62	736-0133	Flat Washer, .411 x 1.25 x 1.0
21	714-0104	Internal Cotter Pin	63	736-0187	Flat Washer, .64 x 1.24 x .06
22	714-0111	Cotter Pin	64	736-0204	Flat Washer, .344 x .062 x .03
23	725-0157	Cable Tie	65	736-3004	Flat Washer, .406 x .875 x .105
24	725-1644	Short Spring Switch	66	738-0155	Shoulder Screw, .437 x 1.62
25	726-0320	Insulator Nut Plate	67	710-0627	Hex Cap Screw, 5/16-24 x .75
26	731-1449A	10-inch Fan	68	741-0225	Hex Flange Bearing
27	732-0209	Extension Spring, .48 x 2.03	69	741-3065B	Split Hex Flange Bearing
28	732-0716	Extension Spring, .59 x 4.0	70	747-1137	Cruise Control Rod
29	732-0729	Wire Ring	71	747-1138	Brake Lock Control Rod
30	732-0429A	Extension Spring, .5 x 3.97	72	748-0413	Cruise Latch
31	732-0994	Extension Spring, .5 x 7.0	73	736-3008	Flat Washer, .344 x .750 x .120
32	732-3118	Extension Spring, 3/8 x 1.44	74	783-0653F	Steering Support Bracket
33	736-0140	Flat Washer, .385 x .62 x .063	75	783-0663C	Drive Lockout Bracket
34	736-0142	Flat Washer, .281 x .50 x .063	76	783-0773	Brake Pedal
35	736-0169	Lock Washer, 3/8	77	634-0104†	Wheel Assembly Complete, 20 x 8 x 8
36	736-0275	Flat Washer, .344 x .688 x .065		634-0177‡	Wheel Assembly Complete, 20 x 10 x 8
37	736-0921	Lock Washer, 1/2		634-0070	Rim Assembly Only
38	736-3010	Flat Washer, .407 x .812 x .135		734-0255	Air Valve (Not Shown)
39	738-0372B	Shoulder Spacer, .38		734-1730†	Tire Only, 20 x 8 x 8, Square Shoulder
40	747-1149	Hydrostatic Bypass Rod		734-1873‡	Tire Only, 20 x 10 x 8, Square Shoulder
41	747-1150	Hydrostatic Brake Rod	78	734-2290A	Deluxe Hub Cap
42	747-1151	Hydrostatic Control Rod	79	736-0430	Flat Washer, .350 x 1.59 x .062
43	750-0535	Spacer, .376 x .625 x .22			

† LT-1650
‡ LT-1850

IMPORTANT: For a proper working machine, use Factory Approved Parts. **V-belts** are designed to engage and disengage safely. A substitute (non OEM) V-belt can be dangerous by not disengaging completely.

NOTE: For **painted parts**, please refer to the list of color codes below. Please add the applicable color code, wherever needed, to the part number to order a replacement part. For instance, if a part, numbered 700-xxxx, is painted Oyster Gray, the part number to order would be 700-xxxx-0662.
Oyster Gray: 0662
Powder Black: 0637
Red Metallic: 0650

Models LT-1650 & LT-1850



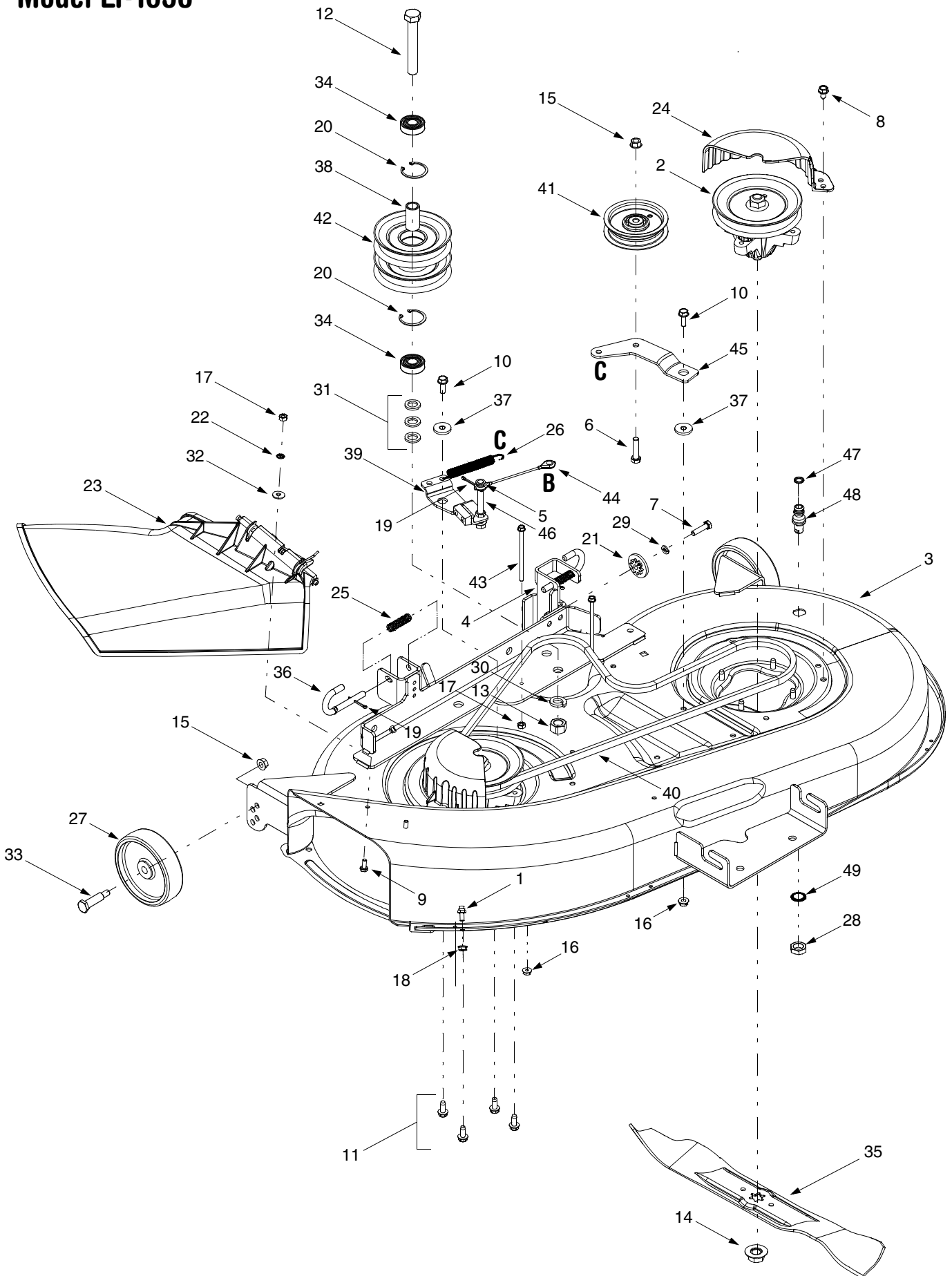
Models LT-1650 & LT-1850

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	647-0064	PTO Engage Lever Assembly	37	712-0459	Flange Lock Nut, 7/16-20
2	683-0450	PTO Engage Plate Assembly	38	783-1031A	Hitch Plate
3	710-0276	Carriage Screw, 5/16-18 x 1.00	39	783-0349	Battery Tray
4	710-0520	Hex Cap Screw, 3/8-16 x 1.5	40	725-1426	Solenoid, 12-Volt, 100 Amp
5	710-0831	Hex Cap Screw, 3/8-16 x 5.5	41	710-0599	Self Tapping Screw, 1/4-20 x .5
6	710-1238	Hex Head Washer Screw, 5/16-18 x .875	42	736-0222	Lock Washer, 1/4
7	712-0229	Push Nut, 3/8	43	683-0304B	Lower Frame Assembly
8	712-0431	Flange Lock Nut, 3/8-16	44	725-1706	12-volt Battery, 270 CCA
9	712-3004A	Flange Lock Nut, 5/16-18	45	710-0751	Hex Cap Screw, 1/4-20 x .62
10	712-3010	Hex Nut, 5/16-18	46	712-0271	Hex Sems Nut, 1/4-20
11	714-0470	Cotter Pin, 1/8 x 1.25	47	712-3044	Wing Nut, 1/4-20
12	726-0201	Speed Nut, .3125	48	732-1165	Extension Spring, .50 x 5.0
13	731-2111A	PTO Knob	49	710-3180	Hex Cap Screw, 5/16-18 x 1.75
14	732-1170	Extension Spring, .75 x 6.75	50	750-0596	Spacer Cup
15	732-0991A	Belt Guard	51	710-3029	Hex Head Cap Screw, 7/16-20 x 1.25
16	736-0108	Flat Washer, .510 x .750 x .033	52	736-0171	Lock Washer, 7/16
17	736-0119	Lock Washer, 5/16	53	736-0322	Flat Washer, .450 x 1.25
18	736-0140	Flat Washer, .385 x .62 x .063	54	756-0983B	Engine Pulley, 3.56 OD x 5.56
19	736-0275	Flat Washer, 5/16	55	754-0497	PTO Belt (LT-1650)
20	736-3000	Flat Washer, .406 x .875 x .059	56	783-0653F	Steering Support Bracket
21	736-0331	Bell Washer, .39 x 1.13 x .062	57	711-1044	Keeper Pin, 5/16 x 4.75
22	736-3010	Flat Washer, .407 x .812 x .135	58	732-1013	Belt Guard
23	738-0372	Shoulder Spacer, .380	59	710-3025	Hex Cap Screw, 5/16-18 x .625
24	741-0708	Hex Split Flange Bearing, .5	60	783-1003	Electric Clutch Anti-rotation Bracket
25	747-1112D	PTO Engagement Handle	61	732-0978	Extension Spring, .62 x 5.62
26	747-1286A	Belt Keeper Rod	62	710-0859	Hex Cap Screw, 3/8-16 x 2.5
27	748-0415B	Spacer, 3/8 x 1.54	63	683-0297	Idler Bracket Assembly
28	756-0627B	Idler Pulley, 3.5	64	738-3056	Shoulder Screw, 1/2 x 2.5
29	756-1208	Idler Pulley, 4.0	65	754-0474	PTO Belt (LT-1850)
30	783-0744A	Engagement Stop	66	710-3144	Hex Cap Screw, 3/8-16 x 2.0
31	783-0891B	Deck Stop	67	717-1708	Electric PTO Clutch
32	710-0604A	Self Tapping Screw, 5/16-18 x .625	68	738-0785	Shoulder Spacer, 1.38 x .445 x .36
33	732-04035	Compression Spring, 1.28 x 3.125	69	710-3157	Hex Cap Screw, 7/16-20 x 3.25 (Grade 5)
34	723-0444	Battery Strap	70	725-1657A	Switch
35	738-1020	Shoulder Screw, .625 x .5, 7/16-20	71	17962	Switch Plate
36	736-0407	Bell Washer, .45 x 1.0 x .062	72	710-0224	Screw, #10-16 x .5

IMPORTANT: For a proper working machine, use Factory Approved Parts. **V-belts** are designed to engage and disengage safely. A substitute (non OEM) V-belt can be dangerous by not disengaging completely.

NOTE: For **painted parts**, please refer to the list of color codes below. Please add the applicable color code, wherever needed, to the part number to order a replacement part. For instance, if a part, numbered 700-xxxx, is painted Oyster Gray, the part number to order would be 700-xxxx-0662.
 Oyster Gray: 0662
 Powder Black: 0637
 Red Metallic: 0650

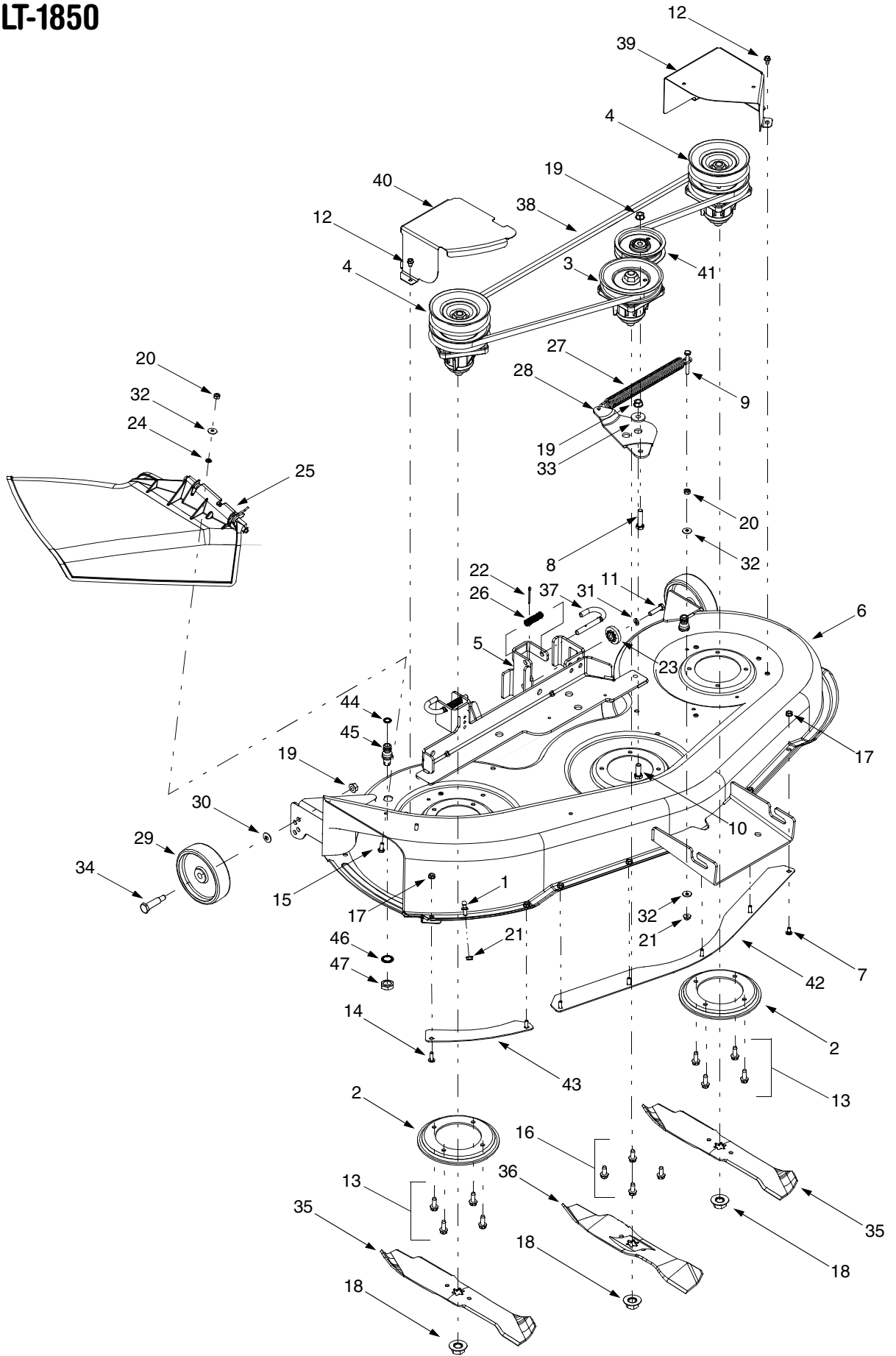
Model LT-1650



REF. NO.	PART NO.	DESCRIPTION
1	711-04069	Grass Catcher Pin, 1/4-20
2	618-0574	Spindle Assembly, 5.75 Dia. w/ Fitting
	756-0980	Pulley Only
3	683-04051	42-inch Deck Shell
4	683-0254	Deck Adjustment Bracket w/ Weld Nut
5	736-0140	Flat Washer, .385 x .62 x .063
6	710-0520	Hex Cap Screw, 1/4-20 x 1.5
7	710-0528	Hex Cap Screw, 5/16-18 x 1.25
8	710-0726	Self-tapping Screw, 5/16-12 x .75
9	710-0751	Hex Cap Screw, 1/4-20 x .62
10	710-1238	Hex Head Washer Screw, 5/16-18 x .875
11	710-0650	Self-tapping Screw, 5/16-18 x .875
12	710-3151	Hex Cap Screw, 5/8-18 x .875
13	712-0337	Hex Nut, 5/8-18
14	712-0417A	Hex Flange Nut, 5/8-18
15	712-0431	Flange Lock Nut, 3/8-16
16	712-3004A	Flange Lock Nut, 5/16-18
17	712-3006	Hex Nut, 1/4-20
18	712-3027	Hex Flange Lock Nut, 1/4-20
19	714-0470	Cotter Pin, 1/8 x 1.25
20	716-3020	Internal Snap Ring
21	717-1553B	Deck Adjustment Gear
22	726-0233	Push Nut, .25 x .5
23	731-1032B	Side Discharge Chute Assembly
24	731-2486	Belt Cover
25	732-0306	Compression Spring, .406 x .531 x 1.75
26	732-0470A	Extension Spring, .50 x 4.74
27	734-0973	Deck Wheel, 5 x 1.38
28	712-0641	Hex Nut, M-16 x 1.5
29	736-0119	Lock Washer, 5/16
30	736-0158	Lock Washer, 5/8
31	736-0162	Flat Washer, .64 x 1.0 x .12
32	736-0270	Bell Washer, .265 x .75 x .062
33	738-0373	Shoulder Screw, .498 x 1.53
34	741-0524	Bearing, .625 x 1.574 x .470
35	742-0616A	Three-in-one Blade, Star Center, 21.23"
36	747-1116	Deck Release Pin
37	748-0331	Shoulder Spacer, .625 x .324
38	750-0932A	Spacer, .635 x .88 x 1.72
39	683-0440	Deck Brake Assembly
40	754-0498	Deck Belt
41	756-0627B	Idler Pulley, 3.5
42	756-1202	Double Pulley, 5.0
43	710-1830	Self-tapping Screw, 1/4-20 x 4.0
44	746-0970	Brake Cable, 5.05
45	783-1291	Idler Bracket
46	711-1534	Pin, 3/8-16, 3/8 x 3.27
47	721-0417	O-Ring
48	737-04003	Water Nozzle
49	736-0760	Lock Washer, 17 x 23.8 x 1.95

IMPORTANT: For a proper working machine, use Factory Approved Parts. **V-belts** are designed to engage and disengage safely. A substitute (non OEM) V-belt can be dangerous by not disengaging completely.

Model LT-1850

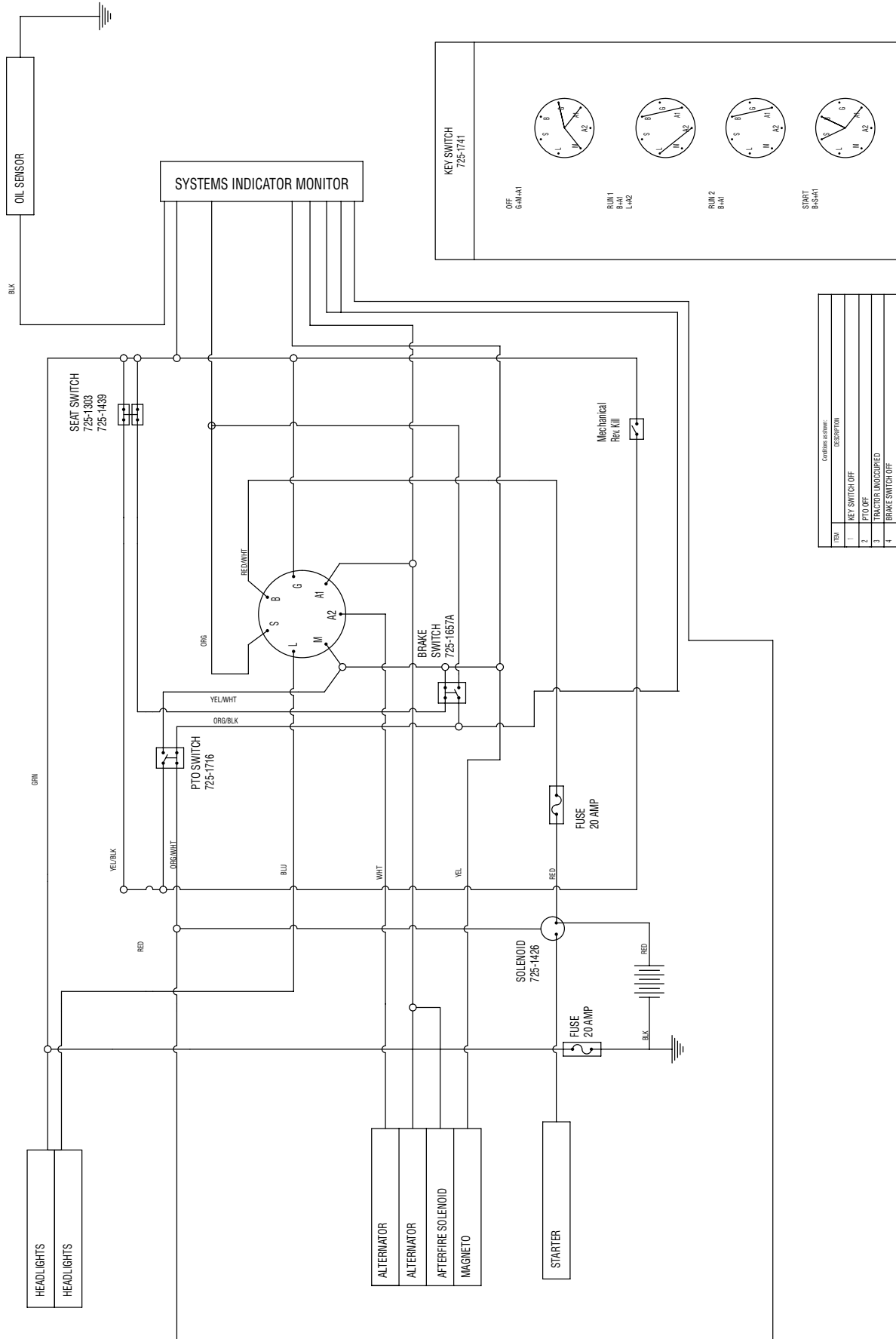


Models LT-1850

REF. NO.	PART NO.	DESCRIPTION
1	711-04069	Grass Catcher Pin, 1/4-20
2	17982	Spindle Reinforcement Plate
3	618-0430A	Spindle Assembly, 5.0 Dia. w/ Fitting
	756-1187	Pulley Only
4	618-0431	Double Pulley Spindle Assembly w/ Fitting
	756-0603	Pulley Only
5	683-0254	Deck Adjustment Bracket Assembly
6	683-04052	46-inch Deck Shell
7	710-0167	Carriage Screw, 1/4-20 x .50
8	710-0344	Hex Cap Screw, 3/8-16 x 1.5
9	710-0501	Hex Cap Screw, 1/4-20 x 2.0
10	710-0514	Hex Cap Screw, 3/8-16 x 1.0
11	710-0528	Hex Cap Screw, 5/8-18 x 1.25
12	710-0599	Self-tapping Screw, 1/4-20 x .5
13	710-0650	Self-tapping Screw, 15/16-18 x .875
14	710-0703	Hex Screw, 1/4-20 x .75
15	710-0751	Hex Cap Screw, 1/4-20 x .62
16	710-1260A	Self-tapping Screw, 5/16-18 x .75
17	712-0271	Hex Sems Nut, 1/4-20
18	712-0417A	Hex Flange Nut, 5/8-18
19	712-0431	Flange Lock Nut, 3/8-16
20	712-3006	Hex Nut, 1/4-20
21	712-3027	Hex Flange Lock Nut, 1/4-20
22	714-0470	Cotter Pin, 1/8 x 1.25
23	717-1553A	Deck Adjustment Gear
24	726-0233	Push Nut. .25 x .5
25	731-1032B	Side Discharge Chute Assembly
26	732-0306	Compression Spring, .406 x .531 x 1.75
27	732-0594A	Extension Spring, .91 x 7.3
28	783-0139A	Idler Bracket
29	734-0973	Deck Wheel, 5 x 1.38
30	736-0105	Bell Washer, .401 x .87 x .063
31	736-0119	Lock Washer, 5/16
32	736-0270	Bell Washer, .265 x .75 x .062
33	738-0347	Shoulder Spacer, .625 x 1.16
34	738-0373	Shoulder Screw
35	742-0611	Three-in-one Blade, Star Center, 16.28"
36	742-0612	Three-in-one Blade, Star Center, 14.88"
37	747-1116	Deck Release Pin
38	754-0349	Deck Belt, Poly
39	783-0747	LH Belt Cover
40	783-0805A	RH Belt Cover
41	756-0627B	Idler Pulley, 3.5
42	783-0141	Center Deck Skirt
43	783-0142	RH Deck Skirt
44	721-0417	O-Ring
45	737-04003	Water Nozzle
46	736-0760	Lock Washer, 17 x 23.8 x 1.95
47	712-0641	Hex Nut, M-16 x 1.5

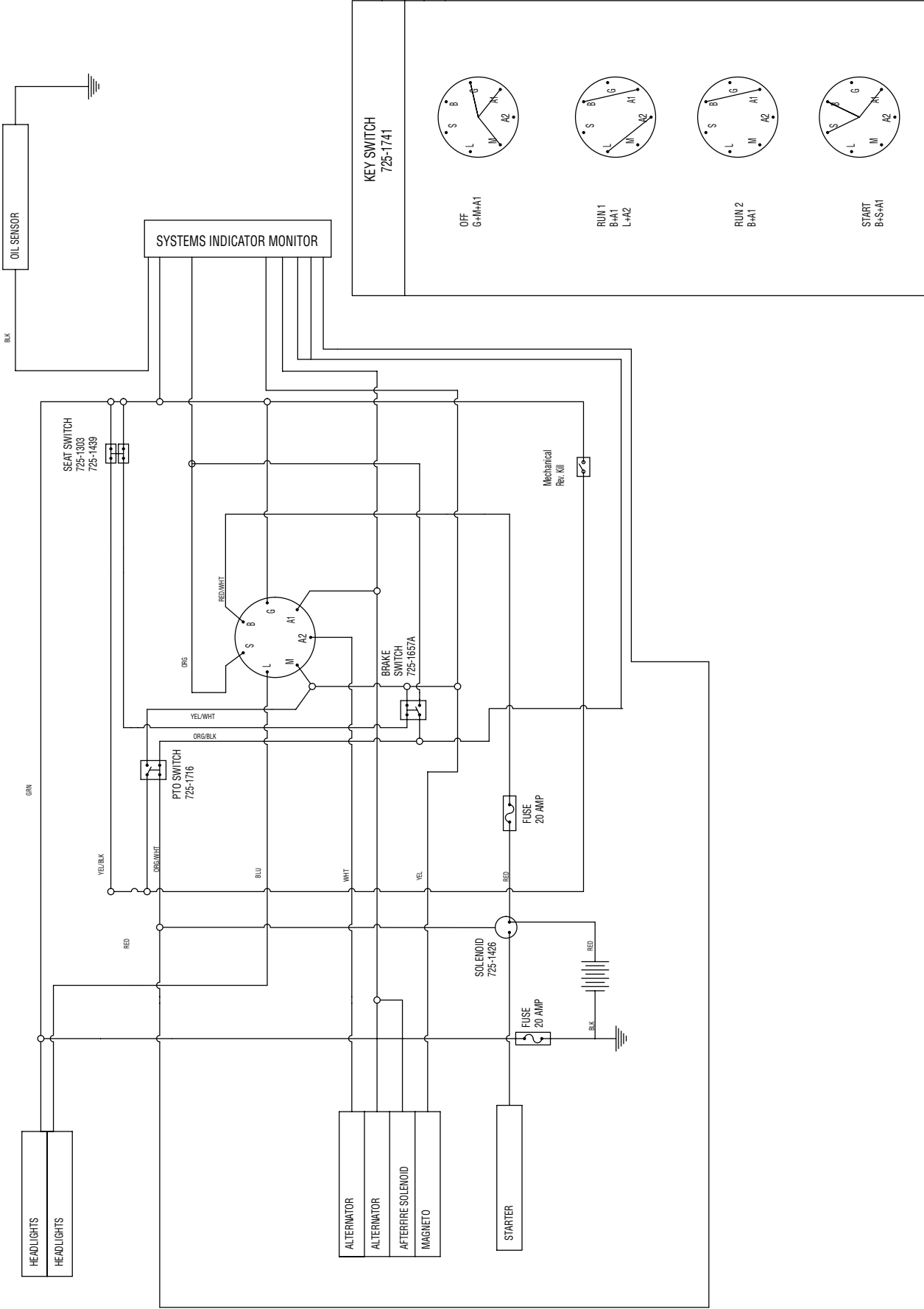
IMPORTANT: For a proper working machine, use Factory Approved Parts. **V-belts** are designed to engage and disengage safely. A substitute (non OEM) V-belt can be dangerous by not disengaging completely.

Model LT-1650

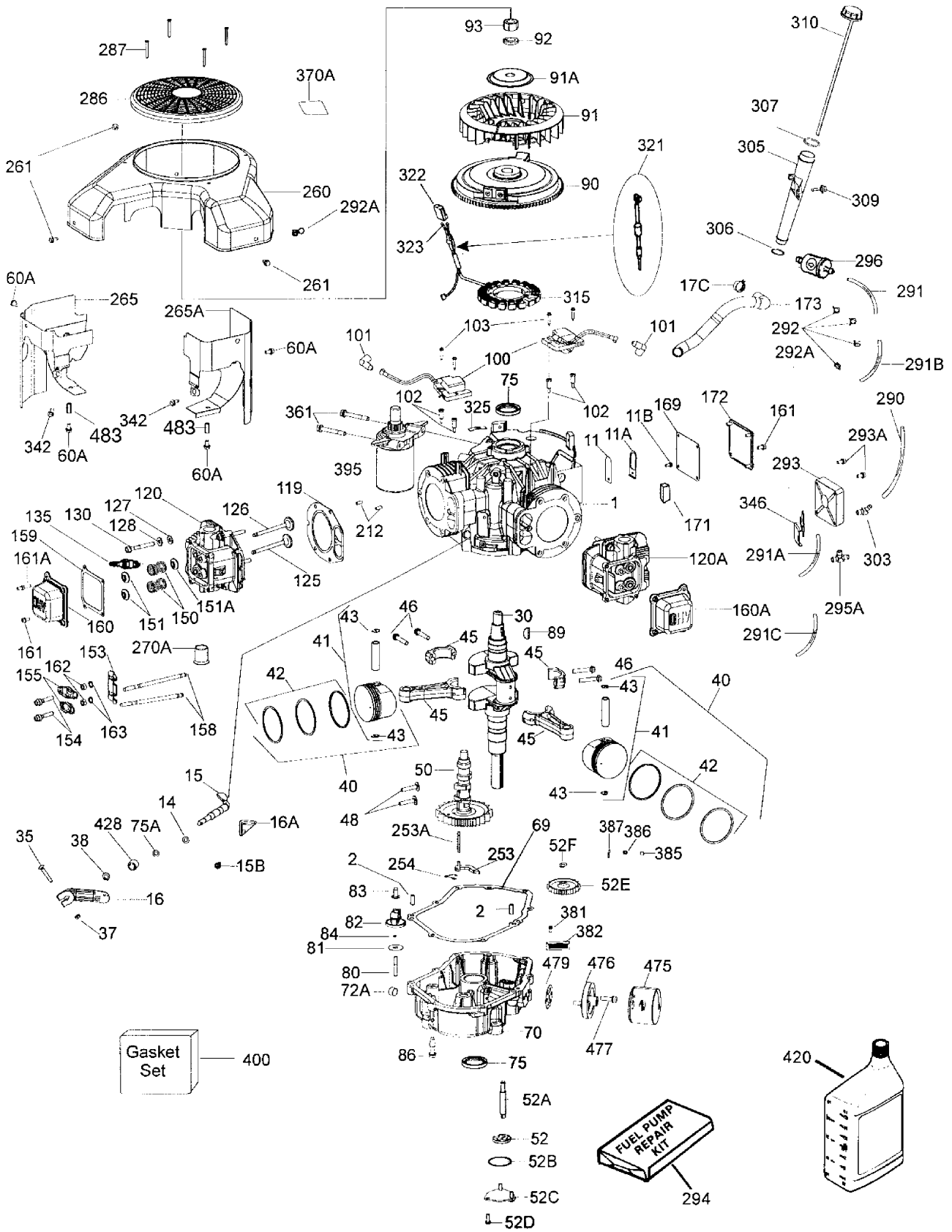


ITEM	DESCRIPTION
1	KEY SWITCH OFF
2	PTO OFF
3	TRACTOR UNOCCUPIED
4	BRAKE SWITCH OFF

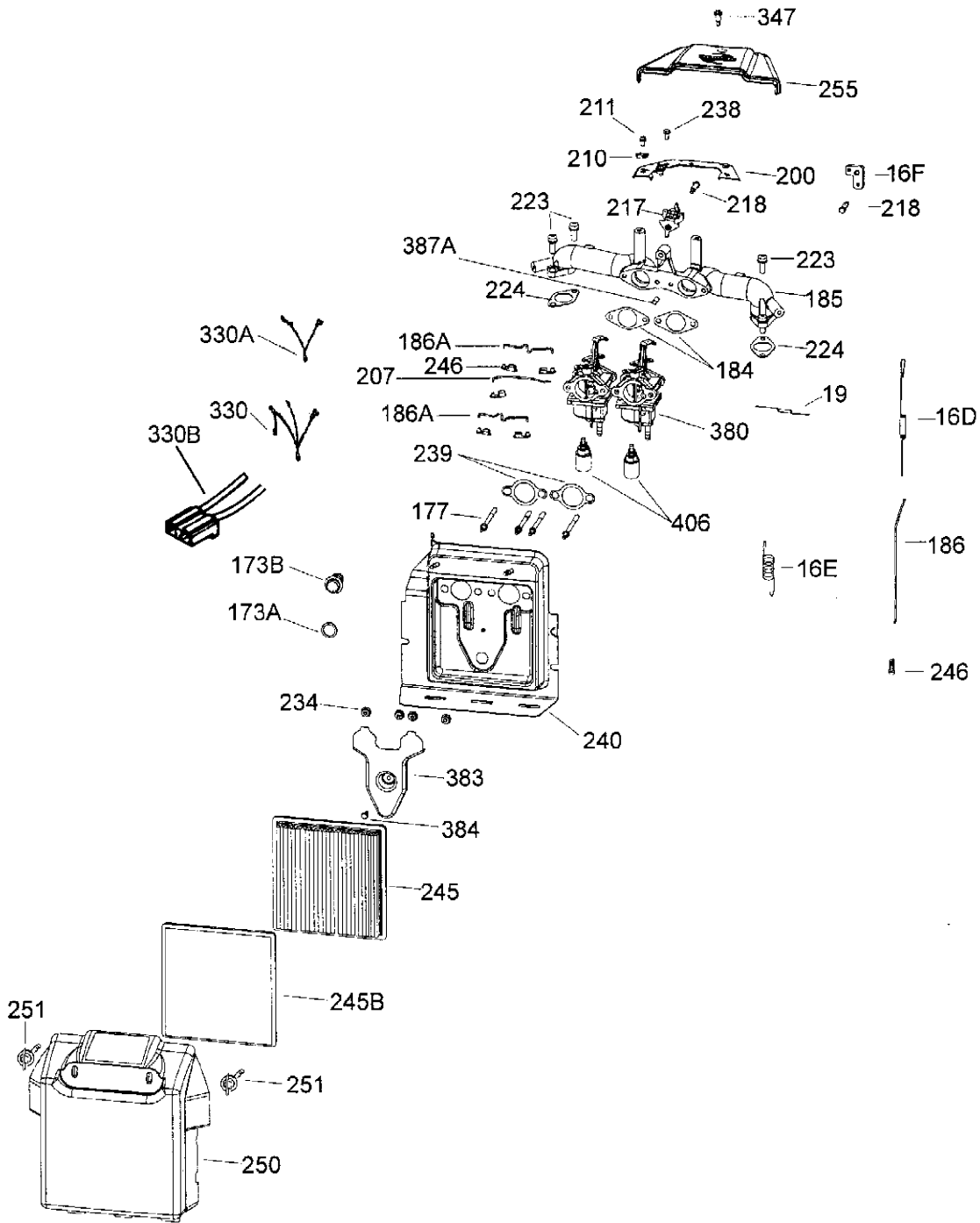
Model LT-1850



Models LT-1650 and LT-1850



Models LT-1650 and LT-1850



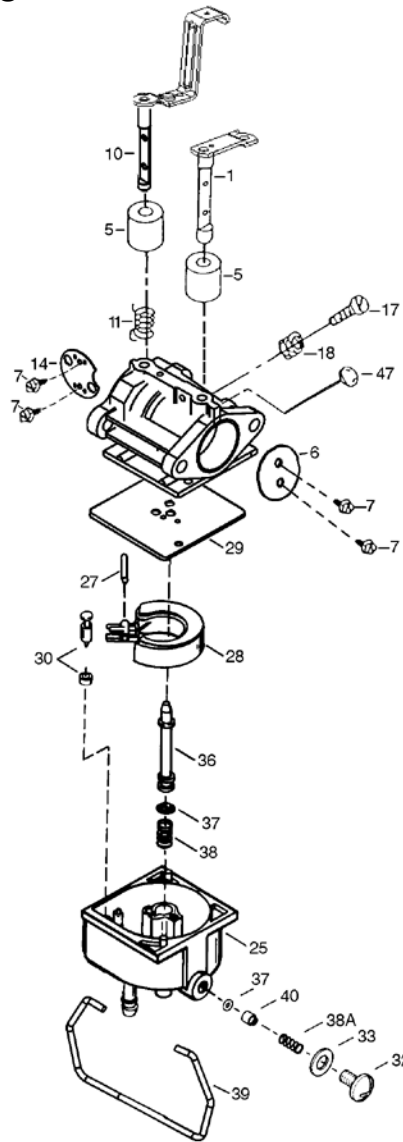
Models LT-1650 and LT-1850

Ref.	Part Number	Description	Ref.	Part Number	Description
2	TC-27652	Dowel Pin	83	TC-35322	Governor Spool
11	TC-36302	Check Valve	84	TC-29193	Retaining Ring
11A	TC-36303	Breather Plate	86	TC-651064	Screw, 5/16-18 x 1-15/32"
11B	TC-650902	Screw, 10-32 x 7/16"	89	TC-650592	Flywheel Key
14	TC-37363	Washer	90	TC-611254	Flywheel (Incl. 91 & 91A)
15	TC-37364	Governor Rod	91	TC-611241	Flywheel Fan
15B	TC-650738	Screw, 1/4-20 x 5/8"	91A	TC-611242	Flywheel Retainer
16	TC-37413	Governor Lever	92	TC-651082	Belleville Washer
16A	TC-37414	Governor Spring Bracket	93	TC-650594	Flywheel Nut
16D	TC-37415	Governor Spring, Hi-speed	100	TC-37395	Solid State Ignition (Incl. 101)
16E	TC-37417	Governor Idle Spring	101	TC-610118	Spark Plug Cover
16F	TC-37418	Bell Crank Lever	102	TC-651024	Solid State Mounting Stud
17C	TC-37429	Breather Tube Clamp	103	TC-651007	Screw, T-15 10-24 x 15/16"
19	TC-37416	Throttle Spring	119	TC-37388	Cylinder Head Gasket
30	TC-37371	Crankshaft	120	TC-37387	Cylinder Head, Opp. Breather Side
35	TC-651069	Screw, Carriage 1/4-20 x 1-1/2"	120A	TC-37389	Cylinder Head, Breather Side
37	TC-650456	Lock Nut, 1/4-20	125	TC-36934	Exhaust Valve (Std.)
38	TC-37365	Retaining Ring	126	TC-36935	Intake Valve (Std)
40	TC-40040	Piston, Pin & Ring Set (Std.)	127	TC-650691	Flat Washer
40	TC-40041	Piston, Pin & Ring Set (.010"OS)	128	TC-650690	Belleville Washer
41	TC-40038	Piston & Pin Ass'y. (Std.) (Incl. 43)	130	TC-650697A	Screw, 5/16-18 x 2-1/2" (Head Mount)
41	TC-40039	Piston & Pin Ass'y. (.010"OS) (Incl. 43)	135	TC-34645	Spark Plug (RN4C)
42	TC-40013	Ring Set (Std.)	150	TC-33507	Valve Spring
42	TC-40014	Ring Set (.010"OS)	151	TC-33508	Valve Keeper Retainer & Cap Set
43	TC-27888	Piston Pin Retaining Ring	151A	TC-35862	Valve Seal
45	TC-37372	Connecting Rod Ass'y. (Incl. 46)	153	TC-37390	Push Rod Guide
46	TC-651063	Connecting Rod Bolt	154	TC-650945	Rocker Arm Stud
48	TC-37373	Valve Lifter	155	TC-35950	Rocker Arm
50	TC-37374	Camshaft (MCR)	158	TC-37391	Push Rod
52	TC-37305	Oil Pump Ass'y.	159	TC-35952	Rocker Arm Cover Gasket
52A	TC-37382	Oil Pump Shaft	160	TC-35953A	Rocker Arm Cover, Opp. Breather Side
52B	TC-36333	"O" Ring	160A	TC-37392	Rocker Arm Cover, Breather Side
52C	TC-36334	Oil Pump Cover (Incl. 52B)	161	TC-30063	Screw, T-30 1/4-20 x 1/2"
52D	TC-650888	Screw, T-30 1/4-20 x 43/64"	161A	TC-651034	Stud, Valve Cover Mounting
52E	TC-37383	Oil Pump Gear	162	TC-650947	Rocker Arm Jam Nut, 5/16-24
52F	TC-37384	Oil Pump Gear Retaining Ring	163	TC-650890	Internal Lock Washer, 5/16"
60A	TC-650773	Screw, 1/4-20 x 1/2"	169	TC-37367	Valve Cover Gasket
69	TC-37377	Mounting Flange Gasket	171	TC-37366	Breather Element
70	TC-37378	Mounting Flange (Incl. 72, 72A, 75, 80, 381-387)	172	TC-37368	Valve Cover
72C	TC-37651	Oil Drain Valve	173	TC-37393	Breather Tube
75	TC-36301	Oil Seal (1 in Ref 1, 1 in Ref 70)	173A	TC-37410	Breather Tube Grommet
75A	TC-37369	Oil Seal (Governor Shaft)	173B	TC-37409	Breather Tube Fitting
80	TC-37379	Governor Shaft	177	TC-651067	Carbuertor Mounting Stud
81	TC-37381	Washer (Governor Shaft)	184	TC-36352	Carburetor to Intake Pipe Gasket
82	TC-37380	Governor Gear Ass'y.	185	TC-37396	Intake Pipe (Incl. 387A)

Models LT-1650 and LT-1850

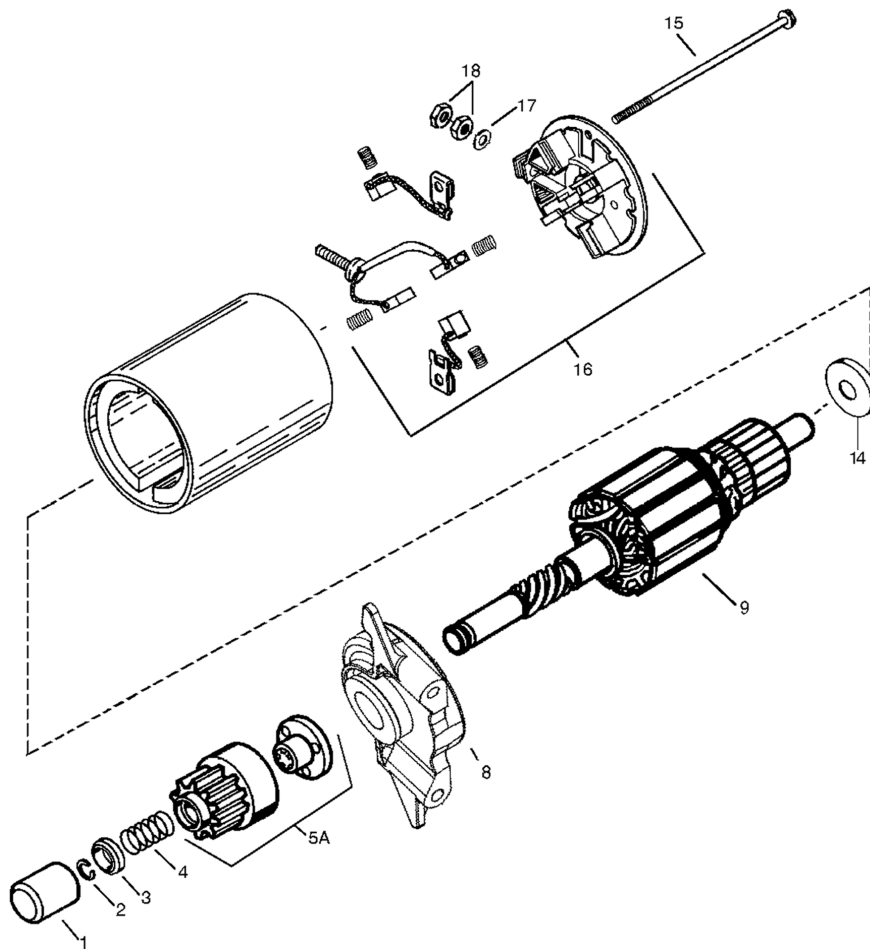
REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
186	TC-37404	Governor Link	305	TC-36349	Oil Fill Tube
186A	TC-37405	Choke Link	306	TC-37401	O-Ring (Oil Fill, Bottom)
200	TC-37400	Control Bracket	307	TC-35499	O-Ring Oil Fill, Top)
207	TC-37406	Throttle Link	309	TC-650974	Screw, 1/4-20 x 57/64"
210	TC-27793	Conduit Clip	310	TC-37421	Dipstick
211	TC-28942	Screw, 10-32 x 3/8"	313A	TC-36674	Spacer
212	TC-37370	Bushing	314	TC-651007	Screw, T-15, 10-24 x 15/16"
217	TC-37419	Control Lever	315	TC-611292	Alternator Coil (16 Amp) (Incl. 322-323B)
218	TC-651070	Screw, 10-32 x 1-1/4"	319	TC-651015	Screw, 1/4-20 x 1-1/8"
223	TC-650971	Screw, T-30 5/16-18 x 7/8"	320	TC-611184	Regulator (16 Amp)
224	TC-33515A	Intake Pipe Gasket (Pipe to Head)	322	TC-611281	Connector Body
234	TC-650928	Lock Nut, 1/4-20	323	TC-611276	Terminal
238	TC-650902	Screw, 10-32 x 7/16"	323A	TC-611277	Terminal
239	TC-36358	Air Cleaner Gasket	323B	TC-611282	Terminal
240	TC-37691	Air Cleaner Body Ass'y. (Incl. 239)	325	TC-36342	Wire Clip
245	TC-37360	Air Cleaner Filter (Paper)	330	TC-37739	Fuel Solenoid Wire Assembly (R & G)
245B	TC-37361	Air Cleaner Pre-Filter (Poly)	330A	TC-37403	Fuel Solenoid Wire Assembly (Black)
246	TC-37407	Connector Bushing Link	342	TC-651031	Screw, 1/4-20 x 9/16"(Ref. 240 & 265)
250	TC-37690	Air Cleaner Cover	346	TC-36413	Fuel Pump Bracket
251	TC-37689	Wing Nut, 1/4-20 x 1-19/32"	347	TC-650898A	Screw, 10-32 x 27/32"
253	TC-37376	Compression Release Weight	361	TC-651065	Screw, 5/16-18 x 2-3/8"
253A	TC-37424	Compression Release Pin	370A	TC-35274	Lubrication Decal
254	TC-37375	Compression Release Spring	380	TC-640221	Carburetor (Incl. 184 & 428)
255	TC-37420	Control Cover	381	TC-650767	Screw, 8-32 x 27/64"
260	TC-37398	Blower Housing (Red)	382	TC-36931	Oil Strainer Screen
261	TC-650737	Screw, 1/4-20 x 1/2"	383	TC-37411	Carburetor Baffle
265	TC-37627	Cylinder Head Cover, Opp. Breather	384	TC-30200	Screw, 10-24 x 9/16" Self Tap
265A	TC-37628	Cylinder Head Cover, Breather Side	385	TC-570673	Ball
270A	TC-35829A	Exhaust Port Liner	386	TC-36329	Pressure Release Spring
286	TC-37394	Flywheel Screen	387	TC-37652	Cotter Pin
287	TC-651066	Screw, T-20 8-18 x 1-15/32"	387A	TC-37397	Roll Pin
290	TC-30962	Fuel Line (16.75")	395	TC-37284	Electric Starter Motor (12 Volt)
291	TC-29774	Fuel Line (8-1/4")	400	TC-37423	Gasket Set
291A	TC-29774	Fuel Line (8-1/4")	406	TC-611221	Fuel Shut-Off Solenoid
291C	TC-34357	Fuel Line (6.75")	428	TC-37362	Spacer
292	TC-26460	Fuel Line Clamp	475	TC-36563	Oil Filter
292A	TC-37399	Fuel Line Retainer	476	TC-36929	Oil Filter Adaptor (Incl. 479)
293	TC-35787	Pulse Pump	477	TC-650378	Screw, T-30 5/16-18 x 1 3/32"
293A	TC-650931	Screw, 8-32 x 1-1/2"	479	TC-36930	Oil Filter Adaptor Gasket
295A	TC-37422	Fuel Fitting	483	TC-37629	Cylinder Wrap Spacer
296	TC-37768	Fuel Filter (Incl. 292)			
303	TC-32958	Pulse Pump/Fuel Fitting			

Models LT-1650 and LT-1850



REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
—	TC-640221	Carburetor (Incl. 184 of Engine Parts List)	27	TC-632544	Float Shaft
1	TC-640216	Throttle Shaft & Lever Assembly	28	TC-632543	Float
5	TC-640037	Dust Seal	29	TC-640047	Float Bowl to Body Gasket
6	TC-640038	Throttle Shutter	30	TC-632709	Inlet Needle & Seat
7	TC-650506	Throttle & Choke Shutter Screws	32	TC-640041	Bowl Drain Screw
10	TC-640217	Choke Shaft & Lever Assembly	33	TC-640042	Bowl Drain Washer
11	TC-632785	Choke Return Spring	36	TC-640067	Main Nozzle Tube
14	TC-640177	Choke Shutter	37	TC-632547	O-ring
17	TC-651025	Throttle Crack Screw/ Idle Speed Screw	38	TC-632545	Spring, Main Nozzle Tube
18	TC-630766	Tension Spring	38A	TC-36918	Spring
25	TC-640220	Float Bowl Assembly	39	TC-640218A	Float Bowl Retainer
25A	TC-730649	Float Bowl Repair Kit	40	TC-640219	Main Fuel Jet
			47	TC-630748	Welch Plug, Idle Mixing Well

Models LT-1650 and LT-1850



REF. NO.	PART NO.	DESCRIPTION
—	TC-37284	Electric Starter (12 Volt)
1	TC-33841	Dust Cover
2	TC-33842	Retainer Ring
3	TC-33843	Spring Retainer
4	TC-33854	Anti-drift Spring
5A	TC-36853	Gear & Nut (Incl. 2)
8	TC-37354	Drive End Cap Assembly
9	TC-37355	Armature
14	TC-35897	Thrust Washer
15	TC-36856	Case Bolt
16	TC-37356	End Cap & Brush Card Ass'y (Incl. 14, 17 & 18)
17	TC-650168	Washer
18	TC-650864	Nut

White

OUTDOOR

**3 YEAR
ENGINE
WARRANTY**

**PRESSURE LUBE
SPIN-ON OIL FILTER**



TVT691, VTX 691

Operator's Manual

Four-Cycle Twin Cylinder Engine • Vertical Crankshaft • Air-Cooled

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IMPORTANT NOTICE!

SAFETY DEFINITIONS

Statements in this manual preceded by the following words are of special significance:



WARNING

or



WARNING

WARNING indicates a potentially hazardous situation which if not avoided, could result in death or serious injury.

NOTE

Refers to important information and is placed in italic type.

It is recommended that you take special notice of all items discussed on the next page and wear the appropriate safety equipment.

Before operating this engine *it is your responsibility* to read this Operator's Manual. Follow these basic rules for your personal safety:

- Keep this manual handy at all times for future reference.
- Read it carefully and familiarize yourself with operating, maintenance, components and safety instructions.

Notice Regarding Emissions

NOTE

Engines which are certified to comply with California and U.S. EPA emission regulations for SORE (Small Off Road Equipment), are certified to operate on regular unleaded gasoline, and include the following emission control systems: (EM) Engine Modification and (TWC) Three-way Catalyst (if so equipped).

Tecumseh Website

Visit the Tecumseh website at:
www.TecumsehPower.com

I. General Safety Precautions

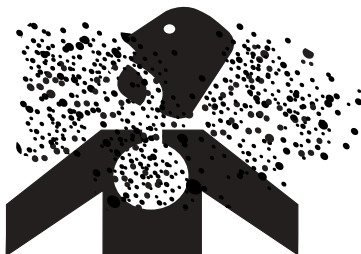


WARNING

Read equipment manufacturer's manual and this material thoroughly before using this engine. Failure to do so can result in serious injury or death. Call Tecumseh Products Company at 1-800-558-5402 if you have any questions.

A. Avoid Carbon Monoxide Poisoning

All engine exhaust contains carbon monoxide, a deadly gas. Breathing carbon monoxide can cause headaches, dizziness, drowsiness, nausea, confusion and eventually death.



Carbon monoxide is a colorless, odorless, tasteless gas which may be present even if you do not see or smell any engine exhaust. Deadly levels of carbon monoxide can collect rapidly and you can quickly be overcome and unable to save yourself. Also, deadly levels of carbon monoxide can linger for hours or days in enclosed or poorly-ventilated areas. If you experience any symptoms of carbon monoxide poisoning, leave the area immediately, get fresh air, and SEEK MEDICAL TREATMENT.

To prevent serious injury or death from carbon monoxide:

- NEVER run engine indoors. Even if you try to ventilate engine exhaust with fans or open windows and doors, carbon monoxide can rapidly reach dangerous levels.
- NEVER run engine in poorly-ventilated or partially enclosed areas such as barns, garages, basements, carports, under dwellings, or in pits.
- NEVER run engine outdoors where engine exhaust can be drawn into a building through openings such as windows and doors.

B. Avoid Gasoline Fires

Gasoline (fuel) vapors are highly flammable and can explode. Fuel vapors can spread and be ignited by a spark or flame many feet away from engine. To prevent injury or death from fuel fires, follow these instructions:



- NEVER store engine with fuel in fuel tank inside a building with potential sources of ignition such as hot water and space heaters, clothes dryers, electric motors, etc.
- NEVER remove fuel cap or add fuel when engine is running.
- Allow engine to cool before refueling.
- NEVER fill fuel tank indoors. Fill fuel tank outdoors in a well-ventilated area.
- DO NOT smoke while refueling tank.
- Use only an approved red GASOLINE container to store and dispense fuel.
- DO NOT attempt to pour fuel from engine. Empty fuel tank by running engine.

C. Transporting Engine

DO NOT transport engine with fuel in tank. Fuel vapor or spilled fuel may ignite.

D. Avoid Other Fires

To reduce the risk of fire, keep all materials that can burn, including grass and leaves, away from muffler and the rest of the engine.

E. Stay Away from Hot Surfaces

The muffler and other engine parts become extremely hot during operation and remain hot after the engine has stopped. To avoid severe burns on contact, stay away from these areas.



F. Do Not Modify Engine

To avoid serious injury or death, DO NOT modify engine in any way. NEVER tamper with the factory setting of engine governor. Running the engine faster than the speed set at the factory can be dangerous and will VOID THE ENGINE WARRANTY.

G. Avoid Accidental Starts

To prevent accidental starting when working on equipment, always disconnect spark plug wire and keep it away from spark plug by attaching it securely to grounding post.

H. Stay Away from Rotating Parts

Never operate engine with covers or guards removed. Rotating parts can cause severe injury. Keep hands, feet, hair, jewelry and clothing away from all moving parts.



II. How to Get Service

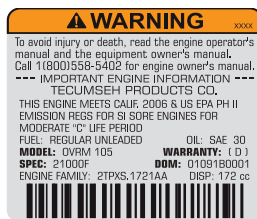
For engine adjustments, repairs or warranty service not covered in this manual, contact your nearest Authorized Tecumseh Servicing Dealer. It is listed in your Yellow Pages under “Engines, Gasoline.”

A sample decal (see below) located on your engine, indicates your engine’s model number, specification of engine and the date of manufacture (D.O.M.). Please look at the decal on your engine and fill in this information in the spaces below for future reference

ENGINE MODEL: _____

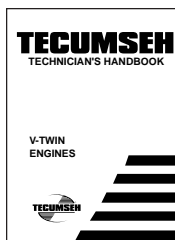
SPEC: _____

D.O.M.: _____



The D.O.M. Decal includes engine life specifications for the emissions-related useful life period of your engine. This period relates to the emission compliance life as certified by EPA/CARB. To find the life period specification for your engine, please look on your decal and find the letter enclosed by quotation marks in-between the words MODERATE and LIFE PERIOD. Match one of the following letters with the letter printed on your D.O.M. Decal: “C” 250 hours, “B” 500 hours, “A” 1000 hours.

If you have a general understanding of internal combustion engines and wish to repair and service your engine and/or engine emission control systems yourself, a Technician’s Handbook is available from your Authorized Tecumseh Servicing Dealer. This handbook covers repairs and adjustments not covered within this manual. Order as part no. 696325.



Tecumseh manufactures and is responsible only for the engine used on this power equipment. If repair or service is needed for anything other than the engine, contact the service source recommended by the equipment manufacturer.

III. Oil and Fuel Specifications

A. Oil

To operate engine you need to use a clean, high quality, detergent oil. For recommended engine oil, See Table 1.

NOTES

Be sure original container is marked A.P.I. Service “SL/SJ”.

Using multigrade oil above 32°F (0°C) will increase oil consumption. SAE10W40 is not recommended.

- Oil sump capacity (including oil filter) is 80 ounces or 5 U.S. Pints (2.36 liters).
- Oil sump capacity (without oil filter) is 72 ounces or 4-1/2 U.S. Pints (2.12 liters).

Tecumseh special-formulated oils are available at your Authorized Tecumseh Servicing Dealer.

Oil Type	Temperature	Recommended Oil
Straight Grade	Above 32°F (0°C)	Tecumseh Part No. 730225A OR SAE 30W
	0°F to 32°F (-18°C to 0°C)	Tecumseh Part No. 730226A OR SAE 5W30 SAE10W
	Below 0°F (-18°C)	SAE 0W30

B. Fuel

Use unleaded regular, unleaded premium or reformulated automotive fuel only. You may use gasoline containing the following components identified in Table 2.

- DO NOT use leaded fuel.
- Fuel must be fresh and clean. NEVER use fuel left over from last season or stored for long periods.
- NEVER mix oil with fuel.
- DO NOT use fuel containing Methanol (Wood Alcohol).

Fuel Component	Percentage
Ethanol	10%
Grain Alcohol (“Gasohol”)	10%
MTBE (Methyl Tertiary Butyl Ether)	15%
ETBE (Ethyl Tertiary Butyl Ether)	15%

IV. Before Starting Your Engine

A. Checking Oil Level

To avoid engine damage, it is important to:

- Check oil level before each use and every 5 operating hours when engine is warm. Check oil level more frequently during engine break-in.
- Keep oil level between “FULL” and “ADD” marks on dipstick. See Figure 1.
- Insure oil fill cap and dipstick is tightened securely.

NOTES

Do not overfill oil filler. Doing so may result in oil carry-over to the air cleaner and equipment malfunction or damage.

Do not allow oil level to fall below the “ADD” mark on dipstick. Doing so may result in equipment malfunction or damage.

Contact your Authorized Tecumseh Servicing Dealer for Tecumseh Oil Part Numbers.

B. Filling Oil Sump

1. Be sure engine is upright and level.
2. Unscrew oil fill cap from oil filler tube and wipe dipstick clean. See Figure 2.
3. Screw oil fill cap back into oil filler tube. Tighten securely.
4. Unscrew and remove oil fill cap from oil filler tube. Note oil level. If oil reading on dipstick is below “ADD” mark, slowly add oil to reach “FULL” level. See Figure 1.
5. Screw oil fill cap back into oil filler tube. Tighten securely.
6. Wipe away any spilled oil.

C. Filling Fuel Tank

WARNING Gasoline (fuel) vapors are highly flammable and can explode. Fuel vapors can spread and be ignited by a spark or flame many feet away from engine. To prevent injury or death from fuel fires, follow these instructions:

1. Stop engine and allow it to cool before refueling.
2. Be sure engine is outdoors and in a well-ventilated area.
3. Clean area around fuel fill cap and remove fuel fill cap.
4. Using an approved red GASOLINE container, add fuel slowly, being careful to avoid spilling. DO NOT overfill fuel tank. Leave space in the tank to allow fuel to expand without overflowing.
5. Replace fuel fill cap securely and wipe up spilled fuel before starting engine. If fuel is spilled DO NOT start engine. Move machine away from area of spillage. Avoid creating any source of ignition until fuel vapors are gone.

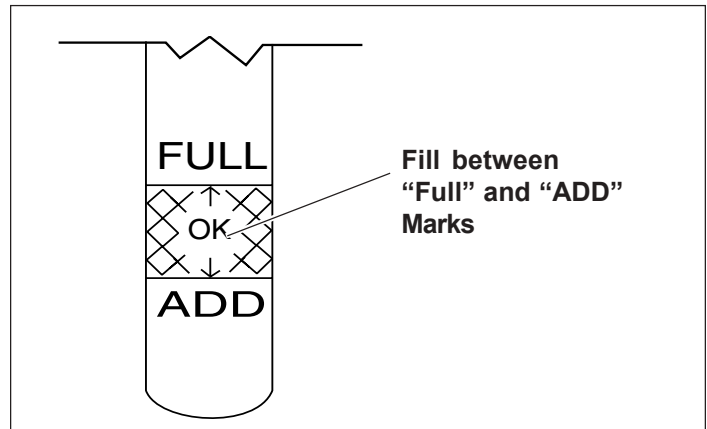


Figure 1. Engine Oil level

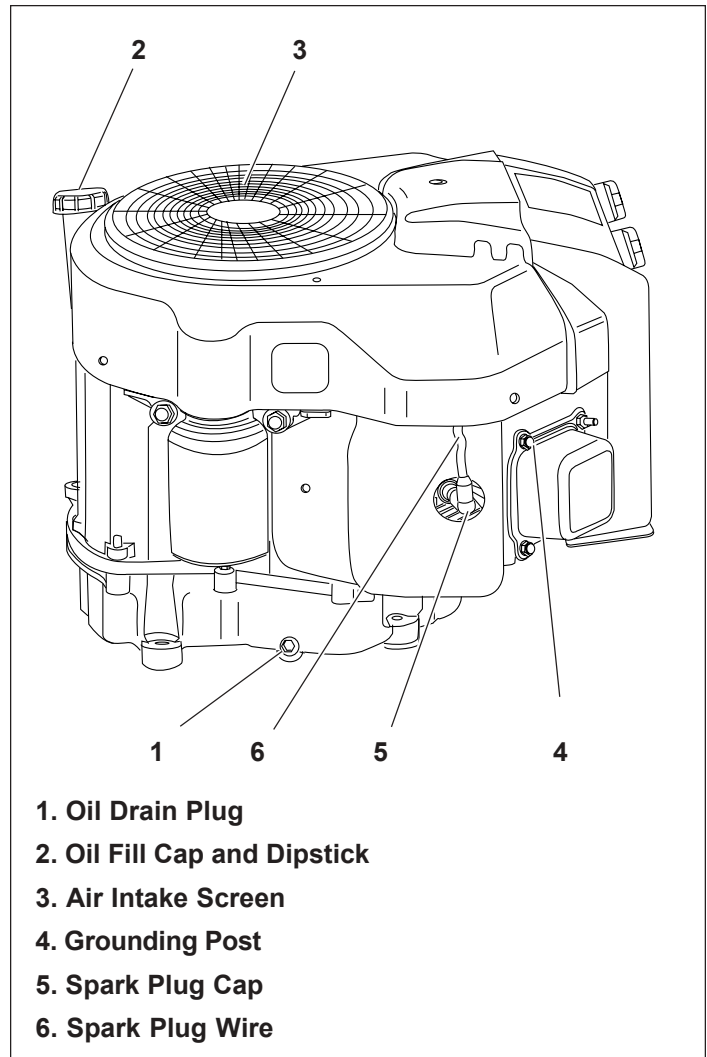


Figure 2. Engine With Oil Fill Dipstick

V. Starting Your Engine

WARNING If you are unable to start this engine after following instructions in this manual, contact your Authorized Tecumseh Servicing Dealer. To avoid serious burn injuries or damage to your engine, **DO NOT** attempt to start or troubleshoot this engine in any other way. For example:

- DO NOT use starting fluid.
- DO NOT spray flammable vapors into carburetor or onto air cleaner.
- DO NOT put flammable liquids into carburetor or onto air cleaner.
- DO NOT operate engine or pull on starter rope with spark plug removed. Fuel can spray from spark plug hole and ignite.

This section contains starting instructions for electric and manual start engines. In order to locate the instructions that apply to your engine, first determine what type of starter you have. If you have an electric starter see “A. Engines with Electric Starter” instructions. If you have a manual recoil starter see “B. Engines with Recoil Starters” instructions.

A. Engines with Electric Starters

Only one of the following two sections will apply to your engine. See Table 3.

If your engine has:	Go to:
Combined Speed and Choke Controls	Section A.I
Independent Speed and Choke Controls	Section A.II

I. Combined Speed and Choke Control

1. To avoid carbon monoxide poisoning, make sure engine is outdoors in a well-ventilated area.
2. Move Combined Control to “CHOKE” or “START” (see equipment manufacturer’s instructions). See Figures 3 and 4.

NOTE

If restarting a warm engine after a short shutdown, move Combined Control to “FAST” instead of “CHOKE” or “START” position. See Figures 3 and 4.

3. Push starter button or turn ignition switch key (see equipment manufacturer’s instructions) to start engine.

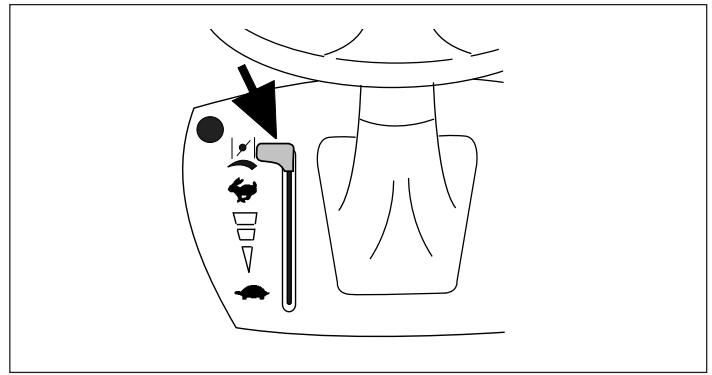


Figure 3. Combined Speed and Choke Control



Figure 4. Typical Engine Symbols

If engine fails to start after 3 attempts repeat steps 2 thru 3.

NOTE

DO NOT operate an electric starter for more than 5 seconds each attempt.

4. When engine starts:
 - a. Release starter button or ignition switch key.
 - b. Next, move control to “FAST”.
 - c. Finally, move control to desired speed in “RUN” range.

NOTES

If engine starts, but falters when control is moved to “FAST” position:

- a. *Momentarily move control back to “CHOKE” position.*
- b. *Next, move control to “FAST” position.*
- c. *Finally, move control to desired speed in “RUN” range.*

If engine dies after control is moved to “FAST” position, repeat steps 2 thru 4 to restart engine.

5. If engine fires but does not continue to run, move control lever to “FAST” and then start engine.
6. If engine fails to start after 3 attempts with control in “FAST”, move control to “CHOKE” and push button or turn key to start engine again.
7. If engine does not start after following steps 1 thru 6, contact your Authorized Tecumseh Servicing Dealer. **DO NOT** attempt to start or troubleshoot this engine in any other way.

II. Independent Speed and Choke Controls

1. To avoid carbon monoxide poisoning, make sure engine is outdoors in a well-ventilated area.
2. Move engine speed control to "FAST" and set choke control to "FULL" (see equipment manufacturer's instructions). See Figures 4, 5, and 6.

NOTES

Generator and Water Pump applications may have the choke lever mounted on the engine.

If restarting a warm engine after a short shutdown, move Speed Control to "FAST" and move Choke Control to "NO CHOKE".

3. Push starter button or turn ignition switch key (see equipment manufacturer's instructions) to start engine.

NOTES

DO NOT operate an electric starter for more than 5 seconds each attempt.

If engine fails to start after 3 attempts repeat steps 2 thru 3.

4. When engine starts:
 - a. Release starter button or ignition switch key.
 - b. Move choke control to "1/2 CHOKE" position until engine runs smoothly.
 - c. Next, move control to "NO CHOKE" position. See Figure 6.

5. Move speed control to desired speed in "RUN" range.

NOTES

If engine starts but falters when choke is moved to "NO CHOKE" position:

- a. *Momentarily move choke control back to "FULL CHOKE" position.*
- b. *Next, move control to "1/2 CHOKE" until engine runs smoothly.*
- c. *Finally, move control to "NO CHOKE" position. See Figure 6.*

If engine dies after choke control is moved to "NO CHOKE" position repeat steps 2 thru 5 to restart engine.

6. If engine fires but does not continue to run, move choke control to "NO CHOKE" position and start engine.
7. If engine fails to start after 3 attempts in the "NO CHOKE" position, move choke control to "FULL CHOKE" position and start engine.
8. If engine does not start after following steps 1 thru 7, contact your Authorized Tecumseh Servicing Dealer. DO NOT attempt to start or troubleshoot this engine in any other way.

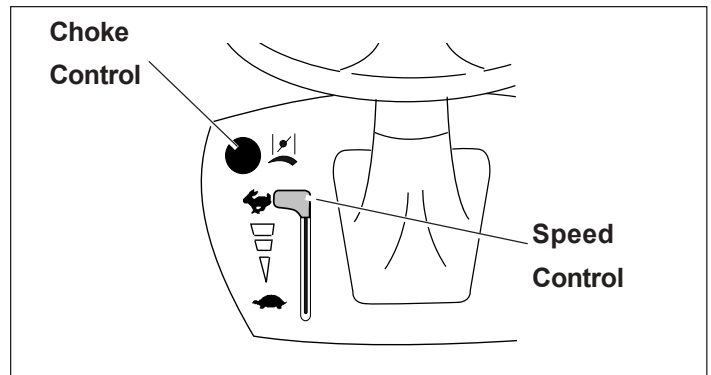


Figure 5. Independent Speed and Choke Controls

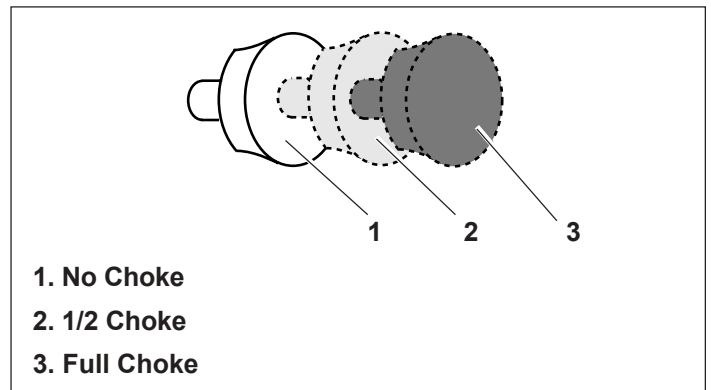


Figure 6. Choke Control Positions

VI. Stopping Your Engine and Short-Term Storage

Stop engine according to equipment manufacturer's instructions.

WARNING Never store the engine with fuel in the fuel tank inside a building with potential sources of ignition such as hot water and space heaters, clothes dryers, electric motors, etc.

VII. Maintenance

WARNING To prevent accidental starting when working on equipment, always disconnect spark plug wires and keep them away from spark plugs by attaching them securely to grounding posts. See Figure 7.

WARNING The muffler and other engine parts become extremely hot during operation and remain hot after the engine has stopped. To avoid severe burns on contact, stay away from these areas.

A. Checking and Changing Oil

To avoid engine damage, it is important to:

- Check oil level before each use and every 5 operating hours when engine is warm. See "Checking Oil Level" instructions.
 - Change oil after first 2 operating hours and every 25 operating hours thereafter; more often if operated in extremely dusty or dirty conditions. Engine should still be warm but not hot from recent use.
1. Be sure you find the correct drain plug location if present. (See equipment manufacturer's instructions). See Figure 8.

NOTE

The Twin Cylinder Engines have **two** spark plug connections.

2. Disconnect spark plug wires and keep them away from spark plugs by attaching them securely to grounding posts. See Figure 7.
3. Ensure the gas cap is on and is tightened securely.
4. Clean area around oil drain plug. See Figure 8.
5. Place approved recyclable oil container under oil drain plug. (See equipment manufacturer's instructions).

NOTE

Used oil must be disposed of at a proper collection center.

6. Remove oil drain plug and drain oil into an approved container. See Figure 8.
7. Install oil drain plug and tighten securely.

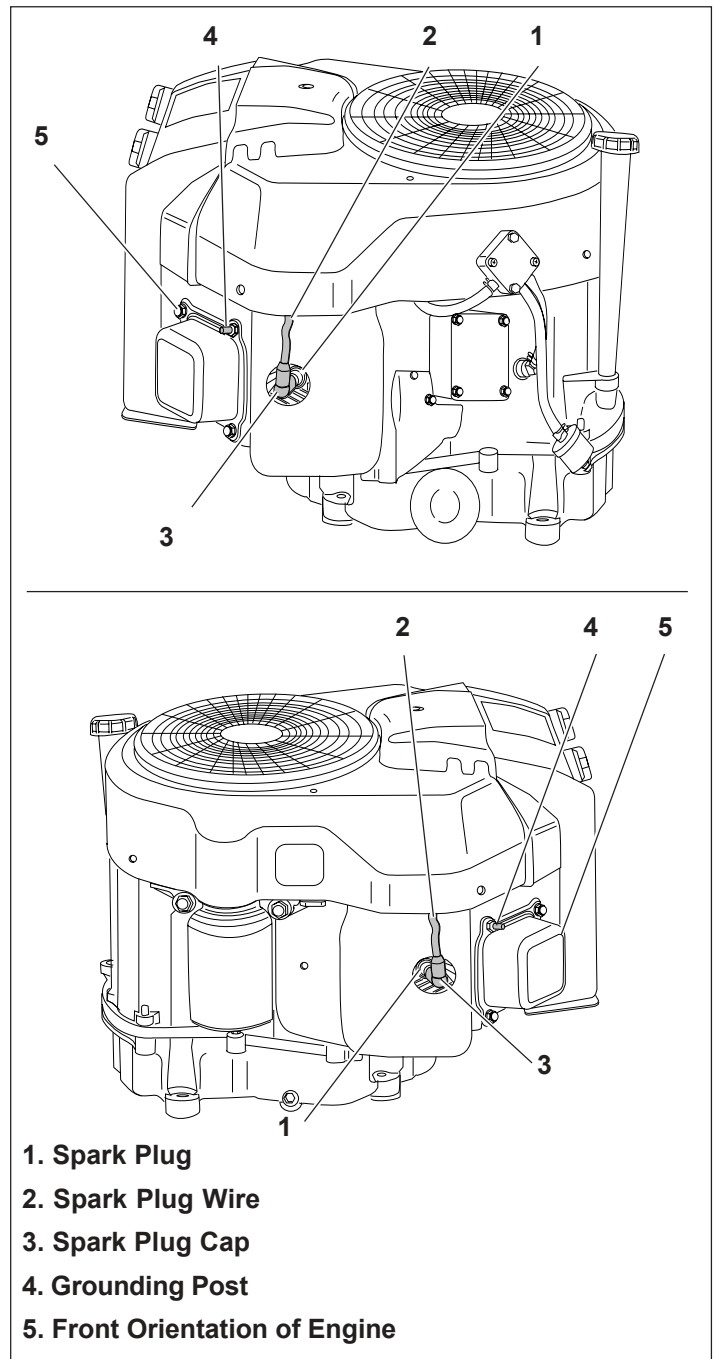


Figure 7. Spark Plug Locations

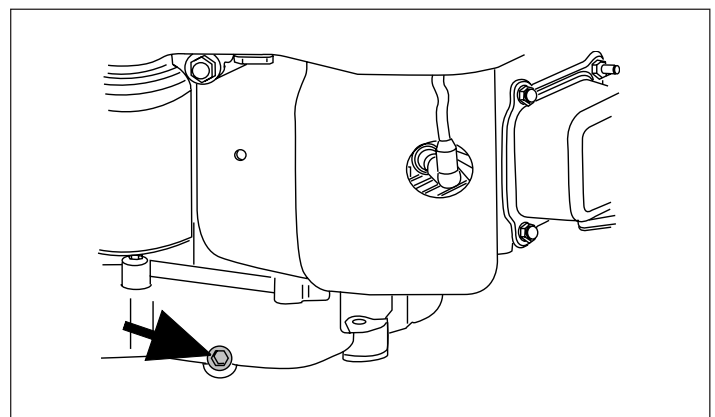


Figure 8. Oil Drain Plug Location

7. Fill with recommended oil. See Page 2. See Figure 9.
8. Wipe away any spilled oil.
9. Carefully remove spark plug wires from grounding posts and connect to spark plugs. See Figure 7.

NOTE

The oil filter if so equipped, should be changed every 100 operating hours or at least once a year. The filter should be changed more often if the engine is operated in extremely dust or dirty conditions.

Changing the oil filter requires that additional oil be added to fill the filter.

Contact your Authorized Tecumseh Servicing Dealer for Tecumseh Oil Filter and Oil Part Numbers.

B. Removing Debris from Engine

Before each use, remove grass clippings, dirt and debris from the following the Air Intake Screen. See Figure 10.

Removing debris will insure adequate cooling, correct engine speed and reduce the risk of fire.

C. Spark Plug

Check both spark plugs yearly or every 100 operating hours.

1. Clean area around spark plug.
2. Remove and inspect spark plug.
3. Replace spark plug if porcelain is cracked or if electrodes are:
 - Pitted
 - Burned
 - Fouled with deposits
4. Check electrode gap with wire feeler gauge and set gap to .030 (0.76mm) if necessary. See Figure 11.
5. Install spark plug and tighten securely.

NOTE

A resistor spark plug must be used for replacement. Contact your Authorized Tecumseh Servicing Dealer for Tecumseh Resistor Spark Plug Part Numbers.

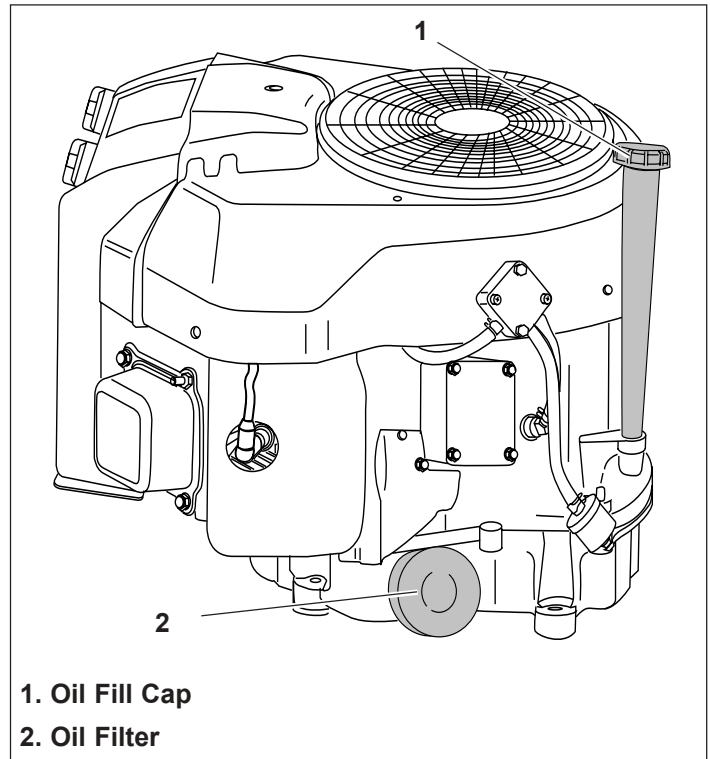


Figure 9. Oil Fill Cap and Oil Filter Location

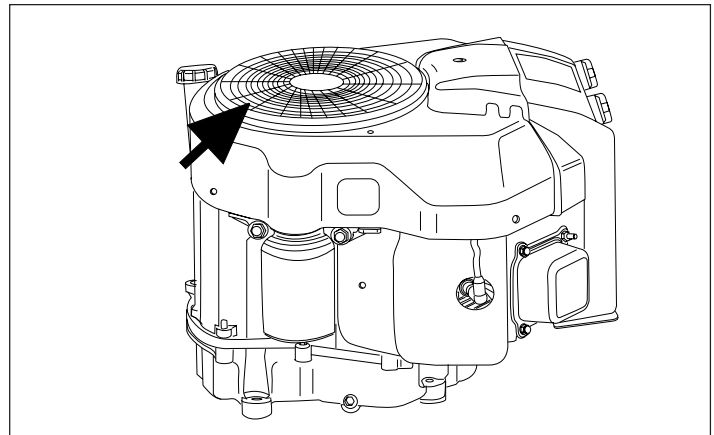
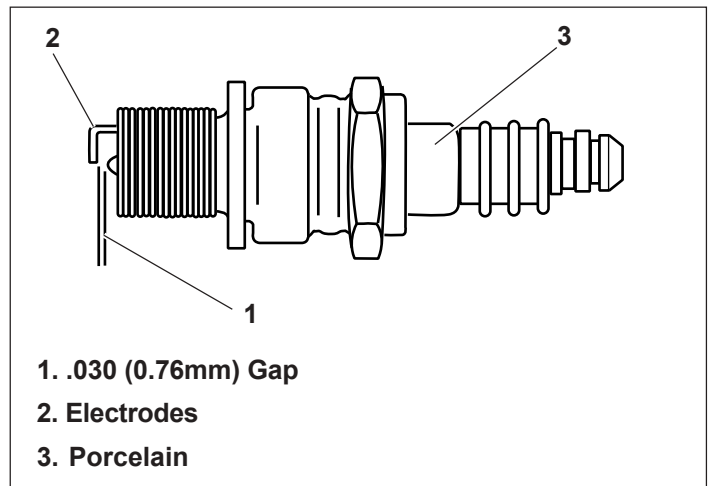


Figure 10. Air Intake Screen



1. .030 (0.76mm) Gap
2. Electrodes
3. Porcelain

Figure 11. Spark Plug

D. Cleaning/Replacing Air Cleaner

Your engine has an air cleaner which helps prevent premature engine wear and failure. NEVER run engine without complete air cleaner installed on engine. Your air cleaner periodically needs to be cleaned or replaced.

NOTE

Contact your Authorized Tecumseh Servicing Dealer for Tecumseh Air Cleaner Part Numbers.

I. Servicing Foam Pre-Filter

Clean foam pre-filter every 3 months or every 25 operating hours. Clean daily if used in extremely dusty conditions. After removing the pre-filter, follow these cleaning instructions below:

1. Wash in warm water and detergent solution then press (DO NOT twist) until all dirt is removed.
2. Rinse thoroughly until water is clear.
3. Wrap in a clean cloth and press (DO NOT twist) until completely dry.

NOTE

DO NOT oil foam pre-filter.

4. Replace foam pre-filter onto paper filter.

II. Servicing Paper Filters

Paper filters cannot be cleaned and must be replaced once a year or every 100 operating hours; more often if used in extremely dusty conditions. Replacement filters are available at an Authorized Tecumseh Servicing Dealer.

NOTE

DO NOT clean a paper filter.

III. Filter Removal/Installation

1. Remove wing nuts from air cleaner cover. See Figure 12.
2. Remove air cleaner cover while lifting upward then outward.
3. Remove and inspect filter(s) for discoloration or dirt accumulation. If either is present, see "Servicing Filters" instructions.
4. Clean inside of cover and body thoroughly.
5. Install paper filter (see equipment manufacturer's instructions).

NOTE

Wire mesh side of paper filter must face air cleaner base.

6. Install foam pre-filter (see equipment manufacturer's instructions).
7. Install cover.
 - a. Push cover inward onto base.
 - b. Lock tabs into slots on base.
 - c. Push down onto cover.
8. Install wing nuts and tighten securely.

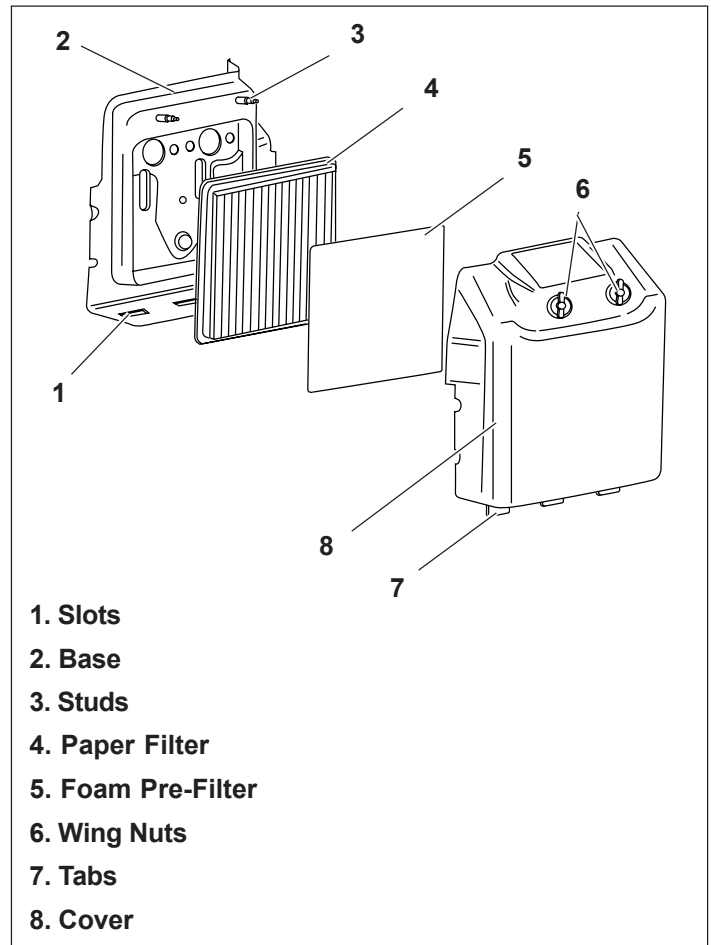


Figure 12. Air Cleaner Components

E. Carburetor

If you think your carburetor needs adjusting, see your nearest Authorized Tecumseh Servicing Dealer. Engine performance should not be affected at altitudes up to 7,000 feet (**2,134 meters**). For operation at higher elevations, contact your Authorized Tecumseh Servicing Dealer.

F. Engine Speed

To avoid serious injury NEVER tamper with the factory setting of engine governor. Running the engine faster than the speed set at the factory can be dangerous and will VOID THE ENGINE WARRANTY.

G. Adjustments

DO NOT make any engine adjustments. Factory settings are satisfactory for most conditions. If adjustments are needed, contact your Authorized Tecumseh Servicing Dealer.

H. Fuel Filter Removal/Installation

1. Remove hose clamp on hose. See Figure 13.
2. Slide hose clamp away from filter; repeat for other clamp.
3. Remove hoses from fuel filter.
4. Place hoses on both ends of new fuel filter.
5. Install hose clamp.
6. Slide hose clamp toward filter; repeat for other clamp.

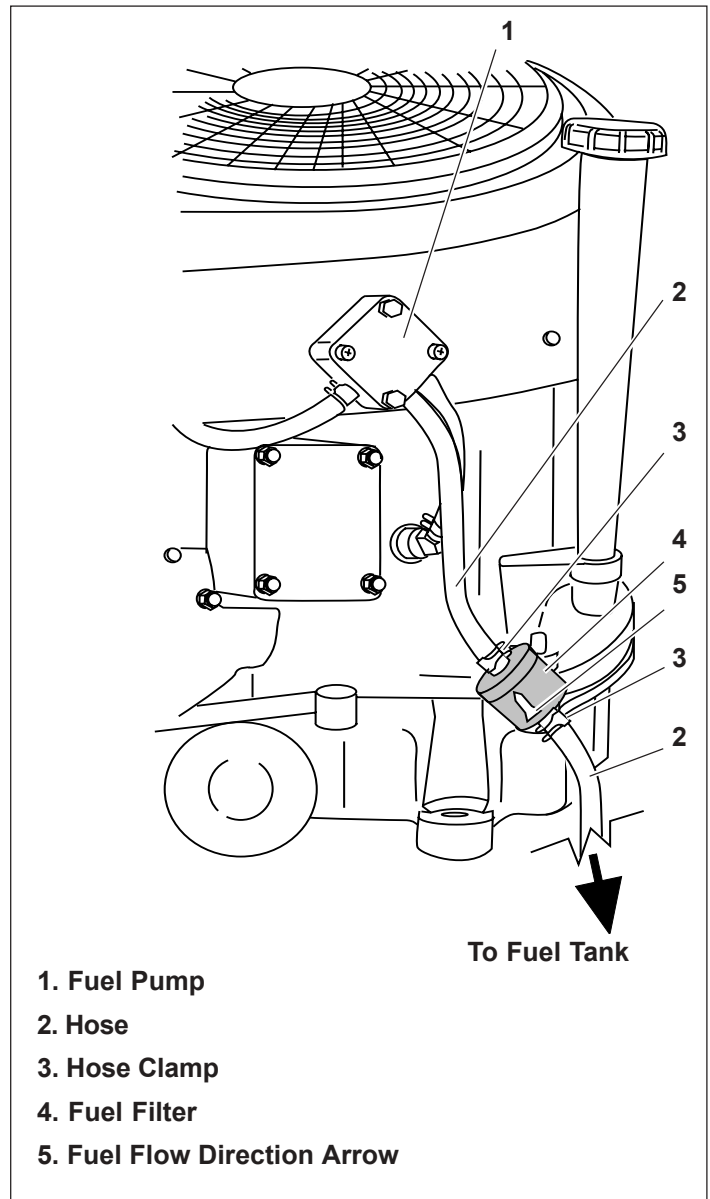


Figure 13. Replacing Fuel Filter

VIII. Seasonal Storage

If engine is to be unused for more than a month, prepare engine as indicated below:

A. Fuel System

Fuel stored in the tank will gradually deteriorate, leaving gum deposits which will clog the carburetor or fuel system. To avoid these problems, treat the fuel system in one of the two following methods:

Method 1

NOTE

Tecumseh recommends using ULTRA-FRESH™ Gasoline Stabilizer as an acceptable method of minimizing formation of fuel gum deposits during storage. This product is available from your Authorized Tecumseh Servicing Dealer.

1. Add fuel preservative/stabilizer according to manufacturer's instructions.
2. Run engine at least 10 minutes after adding stabilizer to allow it to reach carburetors.

NOTES

Always follow mix ratio found on stabilizer container. Failure to do so may result in equipment damage.

DO NOT drain stabilizer from carburetor. Doing so may result in gum deposits and/or corrosion and cause equipment malfunction.

Instead of using a fuel preservative/stabilizer, you can empty the fuel tank as follows:

Method 2

To prevent serious injury from fuel fires, empty fuel tank by running engine until it stops from lack of fuel.

DO NOT attempt to pour fuel from engine.

B. Oil

Change oil if not changed within the last 3 months. See “A. Checking and Changing Oil” instructions under “VII. Maintenance and Adjustments”.

C. Lubricating Cylinder Bores

WARNING When lubricating cylinder bores, fuel may spray from spark plug holes. To prevent serious injury from fuel fires, follow these instructions:

1. Disconnect both spark plug wires and keep them away from spark plugs by attaching them securely to their grounding posts. See Figure 3.
2. Remove spark plugs.
3. Squirt 1oz. (30ml) of clean engine oil into each spark plug hole.
4. Cover each spark plug hole with a rag to prevent fuel from spraying out of spark plug hole when starter rope is pulled.
5. Grasp starter cord handle and pull out *slowly* using a full arm stroke. Repeat once. (This will distribute oil throughout each cylinder to prevent corrosion during storage.)
6. Install spark plugs.

NOTE

Connect both spark plug wires before attempting to start engine once engine is out of storage.

D. Battery

See equipment manufacturer’s instructions for proper battery storage if present.

IX. Preventing Forest, Brush and Grass Fires

Local, state and federal laws may require use of a spark arrester to prevent fires. For example, it is a violation of California Public Resources Code (section 4442) to use or operate engine on any forest-covered, brush-covered or unimproved grass-covered land unless engine is equipped with a spark arrester. Spark arrester must be maintained in effective working order by owner and/or operator.

See the equipment manufacturer’s instructions for obtaining the proper muffler and spark arrester for this engine.

X. Quick Maintenance Chart

PROCEDURE:	After first two hours	Every 5 hours or daily	Every 25 hours/3 months	Every 100 hours/seasonally	Every 200 hours/seasonally
Check oil level		•			
Change oil	•		•		
Clean foam filter			•		
Replace paper filter				•	
Check spark plugs				•	
Replace spark plug					•
Clean cooling fins		•			
Replace fuel filter				•	
Replace oil filter				•	

CALIFORNIA & US EPA EMISSION CONTROL WARRANTY STATEMENT

The U. S. Environmental Protection Agency ("EPA"), the California Air Resources Board ("CARB") and Tecumseh Products Co. are pleased to explain the Federal and California Emission Control Systems Warranty on your new small off-road engine. In California, new 1995 and later small off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. In other states, new 1997 and later model year engines must be designed, built and equipped, at the time of sale, to meet the U.S. EPA regulations for small non-road engines. Tecumseh Products Co. will warrant the emission control system on your small off-road engine for the periods of time listed below, provided there has been no abuse, neglect, unapproved modification, or improper maintenance of your small off-road engine.

Your emission control system may include parts such as the carburetor, ignition system and exhaust system. Also included may be the compression release system and other emission-related assemblies.

Where a warrantable condition exists, Tecumseh Products Co. will repair your small off-road engine at no cost to you for diagnosis, parts and labor.

MANUFACTURER'S EMISSION CONTROL SYSTEM WARRANTY COVERAGE

Emission control systems on 1995 and later model year California small off-road engines are warranted for two years as hereinafter noted. In other states, 1997 and later model year engines are also warranted for two years. If, during such warranty period, any emission-related part on your engine is defective in materials or workmanship, the part will be repaired or replaced by Tecumseh Products Co.

OWNER'S WARRANTY RESPONSIBILITIES

As the small off-road engine owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual, but Tecumseh Products Co. will not deny warranty solely due to the lack of receipts or for your failure to provide written evidence of the performance of all scheduled maintenance.

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

You are responsible for presenting your small off-road engine to a Tecumseh Authorized Service Outlet (any Tecumseh Registered Service Dealer, Tecumseh Authorized Service Distributor or Tecumseh Central Warehouse Distributor) as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

Warranty service can be arranged by contacting either a Authorized Tecumseh Servicing Dealer or by contacting Tecumseh Products Co., c/o Service Manager, Engine and Transmission Group Service Division, 900 North Street, Grafton, WI 53024-1499. Telephone 1-262-377-2700 [or in USA/Canada call 1-800-558-5402] or see your local telephone yellow pages under "Engines, Gasoline" for the name, address and telephone number of a Authorized Tecumseh Servicing Dealer near you.

IMPORTANT NOTE

This warranty statement explains your rights and obligations under the Emission Control System Warranty ("ECS Warranty") which is provided to you by Tecumseh Products Co. pursuant to California law. Tecumseh Products Co. also provides to original purchasers of new Tecumseh Products Co. engines. The Tecumseh Products Co. Limited Warranties for New Tecumseh Engine and Electronic Ignition Modules ("Tecumseh Products Co. Warranty") which is enclosed with all new Tecumseh Products Co. engines on a separate sheet. The ECS Warranty applies only to the emission control system of your new engine. To the extent that there is any conflict in terms between the ECS Warranty and the Tecumseh Products Co. Warranty, the ECS Warranty shall apply except in any circumstances in which the Tecumseh Products Co. Warranty may provide a longer warranty period. Both the ECS Warranty and the Tecumseh Products Co. Warranty describe important rights and obligations with respect to your new engine.

Warranty service can only be performed by a Tecumseh Products Co. Authorized Servicing Dealer. At the time of requesting warranty service, evidence must be presented of the date of sale to the original purchaser. The purchaser shall pay any charges for making service calls and/or for transporting the products to and from the place where the inspection and/or warranty work is performed. The purchaser shall be responsible for any damage or loss incurred in connection with the transportation of any engine or any part(s) thereof submitted for inspection and/or warranty work.

If you have any questions regarding your warranty rights and responsibilities, you should contact Tecumseh Products Co. at 1-262-377-2700 or in USA/Canada call 1-800-558-5402.

Revised October, 2001

EMISSION CONTROL SYSTEM WARRANTY

Emission Control System Warranty ("ECS Warranty") for 1995 and later model year California small off-road engines (for other states, 1997 and later model year engines):

A. **APPLICABILITY:** This warranty shall apply to 1995 and later model year California small off-road engines (for other states, 1997 and later model year engines). The ECS Warranty Period shall begin on the date the new engine or equipment is delivered to its original, end-use purchaser, and shall continue for 24 consecutive months thereafter.

B. **GENERAL EMISSIONS WARRANTY COVERAGE:** Tecumseh Products Co. warrants to the original, end-use purchaser of the new engine or equipment and to each subsequent purchaser that each of its small off-road engines is:

1. Designed, built and equipped so as to conform with all applicable regulations adopted by the Air Resources Board pursuant to its authority in Chapters 1 and 2, Part 5, Division 26 of the Health and Safety Code, and
2. Free from defects in materials and workmanship which, at any time during the ECS Warranty Period, will cause a warranted emissions-related part to fail to be identical in all material respects to the part as described in the engine manufacturer's application for certification.

C. The ECS Warranty only pertains to emissions-related parts on your engine, as follows:

1. Any warranted, emissions-related parts which are not scheduled for replacement as required maintenance in the Owner's Manual shall be warranted for the ECS Warranty Period. If any such part fails during the ECS Warranty Period, it shall be repaired or replaced by Tecumseh Products Co. according to Subsection 4 below. Any such part repaired or replaced under the ECS Warranty shall be warranted for any remainder of the ECS Warranty Period.
2. Any warranted, emissions-related part which is scheduled only for regular inspection as specified in the Owner's Manual shall be warranted for the ECS Warranty Period. A statement in such written instructions to the effect of "repair or replace as necessary", shall not reduce the ECS Warranty Period. Any such part repaired or replaced under the ECS Warranty shall be warranted for the remainder of the ECS Warranty Period.
3. Any warranted, emissions-related part which is scheduled for replacement as required maintenance in the Owner's Manual, shall be warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part shall be repaired or replaced by Tecumseh Products Co. according to Subsection 4 below. Any such emissions-related part repaired or replaced under the ECS Warranty, shall be warranted for the remainder of the ECS Warranty Period prior to the first scheduled replacement point for such emissions-related part.
4. Repair or replacement of any warranted, emissions-related part under this ECS Warranty shall be performed at no charge to the owner at a Tecumseh Authorized Service Outlet.

5. The owner shall not be charged for diagnostic labor which leads to the determination that a part covered by the ECS Warranty is in fact defective, provided that such diagnostic work is performed at a Tecumseh Authorized Service Outlet.

6. Tecumseh Products Co. shall be liable for damages to other original engine components or approved modifications proximately caused by a failure under warranty of an emission-related part covered by the ECS Warranty.

7. Throughout the ECS Warranty Period, Tecumseh Products Co. shall maintain a supply of warranted emission-related parts sufficient to meet the expected demand for such emission-related parts.

8. Any Tecumseh Products Co. authorized and approved emission-related replacement part may be used in the performance of any ECS Warranty maintenance or repair and will be provided without charge to the owner. Such use shall not reduce Tecumseh Products Co. ECS Warranty obligations.

9. Unapproved add-on or modified parts may not be used to modify or repair a Tecumseh Products Co. engine. Such use voids this ECS Warranty and shall be sufficient grounds for disallowing an ECS Warranty claim. Tecumseh Products Co. shall not be liable hereunder for failures of any warranted parts of a Tecumseh Products Co. engine caused by the use of such an unapproved add-on or modified part.

EMISSION-RELATED PARTS INCLUDE THE FOLLOWING:

1. Carburetor Assembly and its Internal Components
 - a) Fuel filter
 - b) Carburetor gaskets
 - c) Intake pipe
2. Air Cleaner Assembly
 - a) Air filter element
3. Ignition System, including:
 - a) Spark plug
 - b) Ignition module
 - c) Flywheel assembly
4. Catalytic Muffler (*if so equipped*)
 - a) Muffler gasket (*if so equipped*)
 - b) Exhaust manifold (*if so equipped*)
5. Crankcase Breather Assembly and its Components
 - a) Breather connection tube



SERVICE WARRANTY POLICY



LIMITED WARRANTY FOR NEW TECUMSEH ENGINES AND ELECTRONIC IGNITION MODULES

Revised October 2002

For the time period shown below from the date of purchase and subject to the exceptions and limitations described herein, Tecumseh Products Company will, at its option as the exclusive remedy, either repair or replace for the original purchaser, free of charge, any part of any new Tecumseh engine which is found, upon examination by any Tecumseh Authorized Service Outlet or by Tecumseh's factory in Grafton, Wisconsin, to be **DEFECTIVE IN MATERIAL AND/OR WORKMANSHIP**. This Limited Warranty **DOES NOT COVER** (i) any Tecumseh engine or part(s) thereof used to power any vehicle in competitive racing and/or used on any commercial or rental track, or (ii) defects or damage caused by alterations or modifications of new Tecumseh engines or parts or by normal wear, accidents, improper maintenance, improper use or abuse of the product, or failure to follow the instructions contained in an Instruction Manual for the operation of the new Tecumseh engine or part. The cost of normal maintenance or replacement of service items which are not defective shall be paid for by the original purchaser. At the time warranty service is requested, evidence must be presented of the date of purchase by the original purchaser. Any charge for making service calls and/or for transporting any engine or part(s) thereof to and from the place where the inspection and/or warranty work is performed is payable solely by the purchaser. The purchaser is responsible for any damage or loss incurred in connection with the transportation of any engine or part(s) thereof submitted for inspection and/or warranty work. **WARRANTY SERVICE CAN ONLY BE PERFORMED BY A TECUMSEH AUTHORIZED SERVICE OUTLET.** Warranty service can be arranged by contacting a Tecumseh Authorized Service Outlet (any Tecumseh Registered Service Dealer, Tecumseh Authorized Service Distributor, or Tecumseh Central Warehouse Distributor) or by contacting Tecumseh c/o Service Manager, Engine and Transmission Group Service Division, 900 North Street, Grafton, Wisconsin USA 53024-1499.

Warranty Category ⁽⁶⁾	"CONSUMER USE" ⁽⁴⁾		"COMMERCIAL USE" ⁽⁵⁾	
	Within U.S.A. and Canada	Outside U.S.A. and Canada	Within U.S.A. and Canada	Outside U.S.A. and Canada
(A)	90 day	90 day ⁽¹⁾	No Warranty	No Warranty
(B)	1 Year	1 Year ⁽¹⁾	1 Year	1 Year
(C)	2 Years	1 Year ⁽¹⁾	1 Year	1 Year
(D)	2 Years	2 Years ⁽²⁾	1 Year	1 Year
(E)	2 Years	2 Years	1 Year	1 Year
(H)	2 'n 10 ⁽³⁾	2 'n 10 ⁽³⁾	1 Year	1 Year
(K)	2 'n 10 ⁽³⁾	2 'n 10 ⁽³⁾	2 'n 10 ⁽³⁾	1 Year
(M) ⁽⁷⁾	3 Years	3 Years	1 Year	1 Year

- (1) 2 years for Member States of the European Union. Consumers may have additional legal rights not affected by the terms of this warranty pursuant to EU Directive 1999/44/EC and the national legislation of certain Member States of the European Union.
- (2) 1 year for Australia/New Zealand for rotary mower engines.
- (3) 2 years on engine and 10 years (first 5 years covering parts and labor only, the second 5 years covering parts only) on electronic ignition.
- (4) For purposes of this warranty policy, "consumer use" shall mean consumer's personal, residential, household use by the original retail purchaser.
- (5) For purposes of this warranty policy, "commercial use" shall mean all other uses, including use for commercial, income producing, or rental purposes.
- (6) The engine warranty category of your engine can be determined by review of the engine model number on the "Important Engine Information" decal. One letter in the engine model number will be surrounded by parentheses (A), (B), (C), (D), (E), (H), (K) or (M) and that letter is your engine warranty category designation.
- (7) Qualification for three (3) year consumer use warranty under engine warranty category (M) may be determined by notation of an (M) designation on the "Important Engine Information" decal located on the engine housing or on an addendum decal affixed adjacent thereto.

THIS EXPRESS WARRANTY IS SUPPLEMENTED BY THE TECUMSEH EMISSION CONTROL WARRANTY STATEMENT, if any.

PARTS, SHORT BLOCKS, OR SERVICE ENGINES WARRANTY PERIOD		
	"CUSTOMER PURCHASED"	"INSTALLED" UNDER WARRANTY
Parts	90 days ⁽¹⁾	Remainder of original warranty
Short Blocks	1 Year ⁽¹⁾	Remainder of original warranty
Service Engines	Normal warranty applies ⁽¹⁾	Remainder of original warranty

This limited warranty applies to repair and/or replacement of defective parts caused by faulty material or workmanship in manufacture. It does not apply to defects caused by negligence or normal wear.

THIS EXPRESS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES. Neither Tecumseh nor any of its affiliates makes any warranties, representations, or promises, written or oral, as to the quality of the engine or any of its parts, other than as set forth herein. **ANY IMPLIED WARRANTY OF MARKETABILITY, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT THAT EITHER MAY APPLY TO ANY TECUMSEH ENGINE OR PART(S) THEREOF, SHALL BE LIMITED IN DURATION TO THE PERIODS OF THE EXPRESS WARRANTIES SHOWN IN THE WARRANTY PERIOD CHART ABOVE AND TO THE EXTENT PERMITTED BY LAW ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED. IN NO EVENT WILL TECUMSEH BE LIABLE FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES AND/OR EXPENSES, INCLUDING, BUT NOT LIMITED TO, ANY LOSS OF TIME, INCONVENIENCE, LOSS OF UNIT USE OR ANY COST OR EXPENSE OF SUBSTITUTE UNITS DURING PERIODS OF MALFUNCTION OR NON-USE.** Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitation(s) or exclusion(s) may not apply to you. This Limited Warranty gives you specific legal rights and you may also have other legal rights which vary from state-to-state. Tecumseh neither assumes nor authorizes any other person, natural or corporate, to assume for Tecumseh any other obligations or liabilities in connection with or with respect to any Tecumseh product or parts. The seller or dealer of a Tecumseh product or part has no authority, whatsoever, to make any representations or promises on behalf of Tecumseh or to modify the terms or limitations of Tecumseh's warranty in any way.

MANUFACTURER'S LIMITED WARRANTY FOR:



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

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

Normal wear parts or components thereof are subject to separate terms as follows: All normal wear parts or component failures will be covered on the product for a period of 90 days regardless of cause. After 90 days, but within the two year period, normal wear part failures will be covered ONLY IF caused by defects in materials or workmanship of OTHER component parts. Normal wear parts and components include, but are not limited to: batteries, belts, blades, blade adapters, grass bags, rider deck wheels, seats, snow thrower skid shoes, shave plates, auger spiral rubber, 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, check your Yellow Pages, or contact MTD LLC at P.O. Box 361131, Cleveland, Ohio 44136-0019, or call 1-800-949-4483 or log on to our Web site at www.whiteoutdoor.com.

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

- a. The engine or component parts thereof. These items carry a separate manufacturer's warranty. Refer to applicable manufacturer's warranty for terms and conditions.
- b. Log splitter pumps, valves, and cylinders have a separate one year warranty.
- c. Routine maintenance items such as lubricants, filters, blade sharpening, tune-ups, brake adjustments, clutch adjustments, deck adjustments, and normal deterioration of the exterior finish due to use or exposure.
- d. MTD LLC does not extend any warranty for products sold or exported outside of the United States, its possessions and territories, except those sold through MTD LLC's authorized channels of export distribution.
- e. Parts that are not genuine MTD parts are not covered by this warranty.
- f. Service completed by someone other than an authorized service dealer is not covered by this warranty.
- g. Transportation charges and service calls are not covered.

No implied warranty, including any implied warranty of merchantability of fitness for a particular purpose, applies after the applicable period of express written warranty above as to the parts as identified. No other express warranty, whether written or oral, except as mentioned above, given by any person or entity, including a dealer or retailer, with respect to any product, shall bind MTD LLC. During the period of the warranty, the exclusive remedy is repair or replacement of the product as set forth above.

The provisions as set forth in this warranty provide the sole and exclusive remedy arising from the sale. MTD LLC shall not be liable for incidental or consequential loss or damage including, without limitation, expenses incurred for substitute or replacement lawn care services or for rental expenses to temporarily replace a warranted product.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you.

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

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

HOW STATE LAW RELATES TO THIS WARRANTY: This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

MTD LLC, P.O. BOX 361131 CLEVELAND, OHIO 44136-0019; Phone: 1-800-949-4483