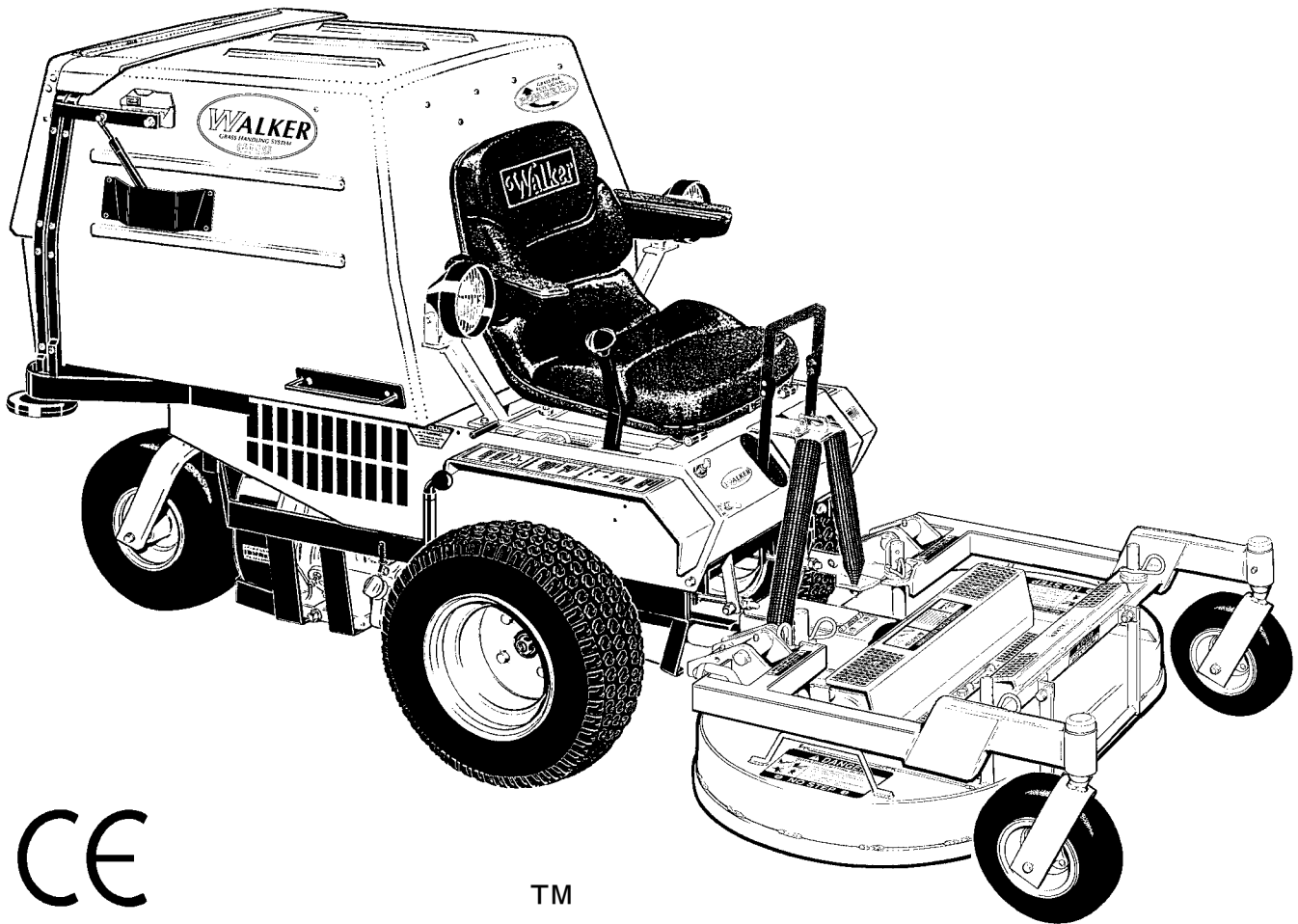


Walker Rider Lawnmowers

OWNER'S MANUAL

Safety, Assembly, Operating, and Maintenance Instructions

Model MS (13 HP)



CE

TM

Please Read and Save These Instructions

For Safety, Read All Safety and Operation
Instructions Prior to Operating Machine

Effective Date: 10-01-03

P/N 5000-11

Price \$5.00



Foreword

Thank you. . .for purchasing a Walker mower. Every effort has been made to provide you with the most reliable mower on the market, and we are sure you will be among our many satisfied customers. If for any reason this product does not perform to your expectations, please contact us at (970) 221-5614. Every customer is important to us. Your satisfaction is our goal.

Please. . .read this manual thoroughly! This manual is to be used in conjunction with the engine manufacturer's manual for the specific engine on the mower model you have purchased. Before you operate your new mower, please read this entire manual. Some of the information is crucial for proper operation and maintenance of this mower - it will help protect your investment and ensure that the mower performs to your satisfaction. Some of the information is important to your safety, and must be read and understood to help prevent possible injury to the operator or others. If anything in this manual is confusing or hard to understand, please call our service department, at (970) 221-5614, for clarification before operating or servicing this mower.

This manual covers Model MS with the Kawasaki FE400 13 HP gasoline engine.

All shields and guards must be in place for the proper and safe operation of this machine. Where they are shown removed in this manual, it is for illustration purposes only. **Do not operate this machine unless all shields and guards are in place.**

Specifications given are based on the latest information available at the time this manual was produced.

Walker Mfg. Co. is continually striving to improve the design and performance of its products. We reserve the right to make changes in specifications and design without thereby incurring any obligation relative to previously manufactured products.

Sincerely,
WALKER MANUFACTURING COMPANY

A handwritten signature in cursive script that reads "Bob Walker".

Bob Walker, President

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General Information

HIGHLIGHTED INFORMATION

Walker Manufacturing recommends that any service requiring special training or tools be performed by an authorized Walker Mower Dealer. There are several general practices to be aware of in the area of safety. Most accidents associated with the operation or maintenance of a Walker Mower are caused by disregarding basic safety precautions or specific warnings. Such accidents, in most cases, can be prevented by being aware of the dangers present.

Information of special importance has been highlighted in bold type in this manual. Refer to **Safety Instructions** for the meanings of **DANGER, WARNING, CAUTION, IMPORTANT, and NOTE.**

GLOSSARY

There are many terms that are either unique to this equipment or that are used as acronyms. The following terms and their definitions will help while using this manual:

- **DECK** is the mowing attachment mounted on the front of the tractor which includes the carrier frame, deck housing, blade drive gearboxes, and cutter blades.
- **FORWARD SPEED CONTROL (FSC)** controls the maximum forward speed of the tractor; functioning as a cruise control.
- **GRASS HANDLING SYSTEM (GHS)[®]** collects mowed material and deposits it in the catcher.
- **GRASS-PAK[®] SWITCH** is mounted on the grass delivery spout (in the catcher) and activates the "full" signal horn when the grass catcher is full.
- **GROUND DRIVE** refers to the dual hydrostatic transmissions which drive the main wheels.
- **HYDROSTATIC TRANSMISSION** transmits and controls power from the ground drive belt to the main drive wheel.
- **LEFT HAND (LH)** refers to the left-hand side of the tractor when the operator is seated facing forward in the tractor seat.

- **POWER TAKE-OFF (PTO)** transmits engine power to run the cutter blades and GHS blower.
- **POWERFIL[®]** spreads the mowed material throughout the interior of the grass catcher by an oscillating delivery spout.
- **RIGHT HAND (RH)** refers to the right-hand side of the tractor when the operator is seated facing forward in the tractor seat.
- **SIDE DISCHARGE (SD)** mows but does not collect the mowed material.
- **STEERING LEVERS** steer the tractor by controlling the dual hydrostatic transmissions.
- **TRACTOR** is the prime mover, including the engine, drive train, operator seat, and controls to operate the mower.
- **TRANSMISSION LOCKOUT** releases the hydrostatic transmissions to permit freewheeling the tractor.

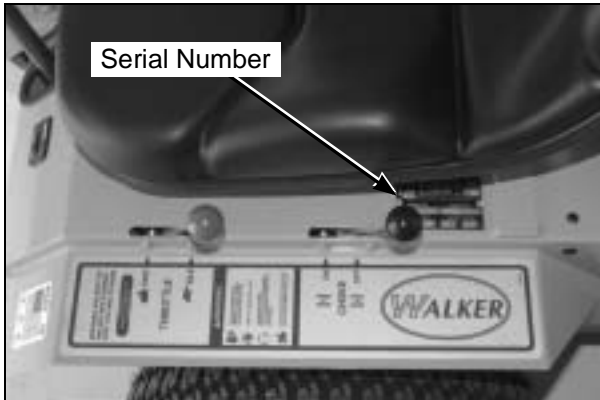
IDENTIFYING NUMBER LOCATIONS

The tractor serial number plate is affixed to the tractor body just below the left rear corner of the seat. The mower deck serial number plate is affixed alongside the angle iron framing on the RH side of the RH mower blade drive. Model and serial numbers are helpful when obtaining replacement parts and maintenance assistance. For ready reference, please record these numbers in the space provided.

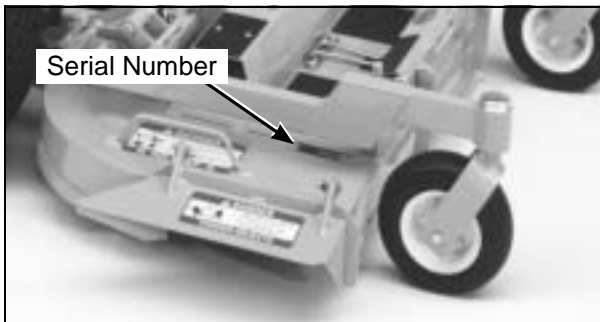
Tractor Model No.	_____
Tractor Serial No.	_____
Deck Serial No.	_____
Engine Model No.	_____
Engine Serial No.	_____
Date of Purchase	_____

Fill In By Purchaser

General Information



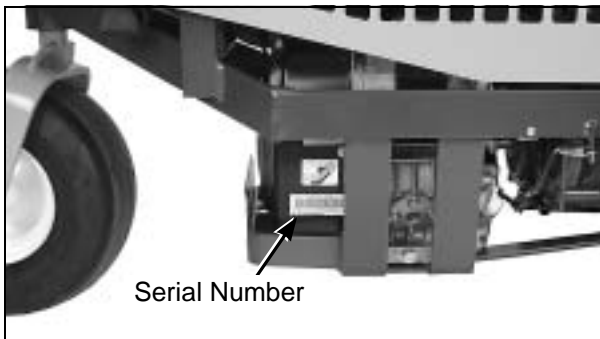
Tractor Serial Number Location



Mower Deck Serial Number Location

ENGINE SERIAL NUMBER LOCATION

The Kawasaki engine model, type, and code numbers are located on the starter side of the engine shroud. For the mower model covered by this manual, an engine manual is available to cover the Kawasaki FE400.



**Engine Serial Number Location
(view from right side of tractor)**

SERVICING OF ENGINE AND DRIVETRAIN COMPONENTS

The detailed servicing and repair of the engine, hydrostatic transmission and gearboxes are not covered in this manual. Only routine maintenance and general service instructions are provided. For the service of these components during the limited warranty period, it is important to find a local, authorized servicing agent of the component manufacturer. **Any unauthorized work done** on these components during the warranty period **may void the warranty**. If you have any difficulty finding an authorized outlet or obtaining warranty service, please contact our Service Department for assistance:

Walker Manufacturing Company

5925 E. Harmony Road
Fort Collins, CO 80528
1-970-221-5614

Service manuals are available for each of these components from their respective manufacturers as follows:

Kawasaki Engine

Kawasaki Engine Division

P.O. Box 888285
Grand Rapids, MI 49588-8285

Hydrostatic
Transmissions

Eaton Corporation

15151 Highway 5
Eden Prairie, MN 55344

Gearboxes (Deck)

Tecumseh Products Co.

900 North Street
Grafton, WI 53024

Specifications

MODEL	MS
ENGINE	
Manufacturer/Model	Kawasaki, FE 400D, 1 Cyl. OHV (Air-Cooled)
Displacement	24.5 cu. in. (401 cc)
HP (@ 3600 RPM)	13.0
Max. RPM (No Load)	4000
Governed RPM	3600
Max. Torque [ft-lb (N·m) @ RPM]	19.5 (26.4) @ 2500
Idle RPM	1300
Spark Plug Type	NGK BPR5ES
Spark Plug Gap	.030 in. (.75 mm)
Crankcase Capacity	1.35 qts (1.3 liters)
Crankcase Lubricant	API SC/SD/SE/SF/SG/SH Grade Oil Only with 10W-30/10W-40 Viscosity or 40W Above 68° F (20° C) Only
Fuel Tank Capacity	1.7 Gallons (6.4 liters)
Fuel	Automotive Grade Unleaded Gasoline (87 Octane)
Cooling System	Air Cooled
ELECTRICAL SYSTEM	
Battery	12 Volt, 230 CCA (Interstate SP-30)
Charging System	Flywheel Alternator
Charging Output	13 Amp DC (Regulated)
System Polarity	Negative Ground
Ignition	Transistorized Electronic Magneto
Starter	12 Volt Electric Key and Solenoid Operated
Interlock Switch	Ignition Lockout by Seat Switch, Transmission Neutral and Blade Clutch
TRANSMISSION	
Manufacturer/Model	Dual Hydrostatic, Eaton Model 7, Each Wheel Independently Driven
Steering	Hand Lever Control / Individual Wheel
Forward Speed Control	Precision Friction Lock Lever, Cruise Control, with Neutral-Park Position
Service Brake	Dynamic Braking through Hydrostatic Transmission
Parking Brake	Mechanical Pin Lock in Transmission Gear
Neutral	Transmission Release by Manual Dump Valve
Final Drive	Gear Drive Axle

Specifications

MODEL	MS
TRANSMISSION (continued)	
Transmission Fluid	
Factory Service	Mobil 1 Synthetic Motor Oil (15W-50)
Transmission Fluid Capacity	1 qt (1 liter)
Transmission Cooling	Cooling Fan Mounted on Drive Pulley
Ground Travel Speed	
Forward m.p.h. (km/h)	0-5 (0-8) Infinitely Variable
Reverse m.p.h. (km/h)	0-5 (0-8) Infinitely Variable
BLADE DRIVE	
PTO Shaft	Sliding Spline Shaft with Two (2) High-Speed U-Joints
Blade Spindle	Each Blade (2) Mounts Direct on Peerless Right Angle Gearbox with Tee Gearbox in Center Connected to PTO Shaft (Complete Geared Drive, Peerless Model 1000 Gearboxes)
Blade Drive Clutch and Brake	Manual Belt Tightener Clutch and Scrubber Brake (Stops Blades within Five (5) Seconds of Disengagement)
Max. Blade Speed [22 in. (56 cm) Blade] @ 3600 RPM Engine	2900 RPM [16700 FPM (5090 m/min)]
TIRE SIZE	
Deck Caster Wheel	2.80/2.50-4 Pneumatic (4-Ply)
Deck Caster Wheel (Optional)	8.25 x 2.75 (Semi-Pneumatic)
Drive	18 x 6.50-8 (4-Ply)
Drive (Optional Wide Tire)	18 x 8.50-8 (4-Ply)
Rear	13 x 6.50-6 (4-Ply)
TIRE PRESSURE	
Deck Caster Wheel	20 PSI (137 kPa)
Drive	15 PSI (103 kPa)
Rear	20 PSI (137 kPa)
DIMENSIONS (Tractor and Mower)	
Length	
36 in. (91 cm) GHS Model	87 in. (221 cm)
42 in. (107 cm) GHS Model	89 in. (226 cm)
Width	
36 in. (91 cm) SD Model (with Deflector)	41-3/4 in. (106 cm)
42 in. (107 cm) SD Model (with Deflector)	47-3/4 in. (121 cm)
36 in. (91 cm) GHS Model	37 in. (94 cm)
42 in. (107 cm) GHS Model	43 in. (109 cm)

Specifications

MODEL	MS
DIMENSIONS (continued)	
Height	
SD Model	37-1/2 in. (95 cm)
GHS Model	44-1/2 in. (112 cm)
Wheel Base (Tractor)	42-1/4 in. (107 cm)
Tread Width (Tractor)	
Standard Tires	28-1/4 in. (72 cm)
Optional Tires	29-3/4 in. (76 cm)
MOWER DECK	
Width of Cut SD/GHS	36 or 42 in. (91 or 107 cm)
Cutting Height	1 to 4 in. (3 to 10 cm)
Height Adjustment	7 Positions - 1/2 in. (1 cm) Increment Hitch Pins Installed in Multi-Position Deck Support
Blade Size	
36 in. (91 cm) SD Model	20 in. (51 cm) Two (2) Clockwise-Rotating Blades with a 4 in. (10 cm) Center Overlap
36 in. (91 cm) GHS Model	20 in. (51 cm) Two (2) Counter-Rotating Blades with a 4 in. (10 cm) Center Overlap
42 in. (107 cm) SD Model	22 in. (56 cm) Two (2) Clockwise-Rotating Blades with a 2 in. (5 cm) Center Overlap
42 in. (107 cm) GHS Model	22 in. (56 cm) Two (2) Counter-Rotating Blades with a 2 in. (5 cm) Center Overlap
Deck Suspension	Torsion-Flex Frame with Caster Wheels and Counterweight Springs
CURB WEIGHT (Approximate)	
SD Tractor Only	490 lb (224 kg)
GHS Tractor Only	565 lb (256 kg)
SD Tractor and 36 in. SD Deck	635 lb (288 kg)
SD Tractor and 42 in. SD Deck	670 lb (304 kg)
GHS Tractor and 36 in. GHS Deck	715 lb (324 kg)
GHS Tractor and 42 in. GHS Deck	735 lb (340 kg)
DRIVE BELTS	
Engine PTO	Walker P/N 5230-2 Gates BX30
Ground Drive	Walker P/N 5232 Gates 6847
PTO Drive SD Model	Walker P/N 5234-1 Gates 6935
PTO Drive GHS Drive	Walker P/N 5234-2 Gates 6944

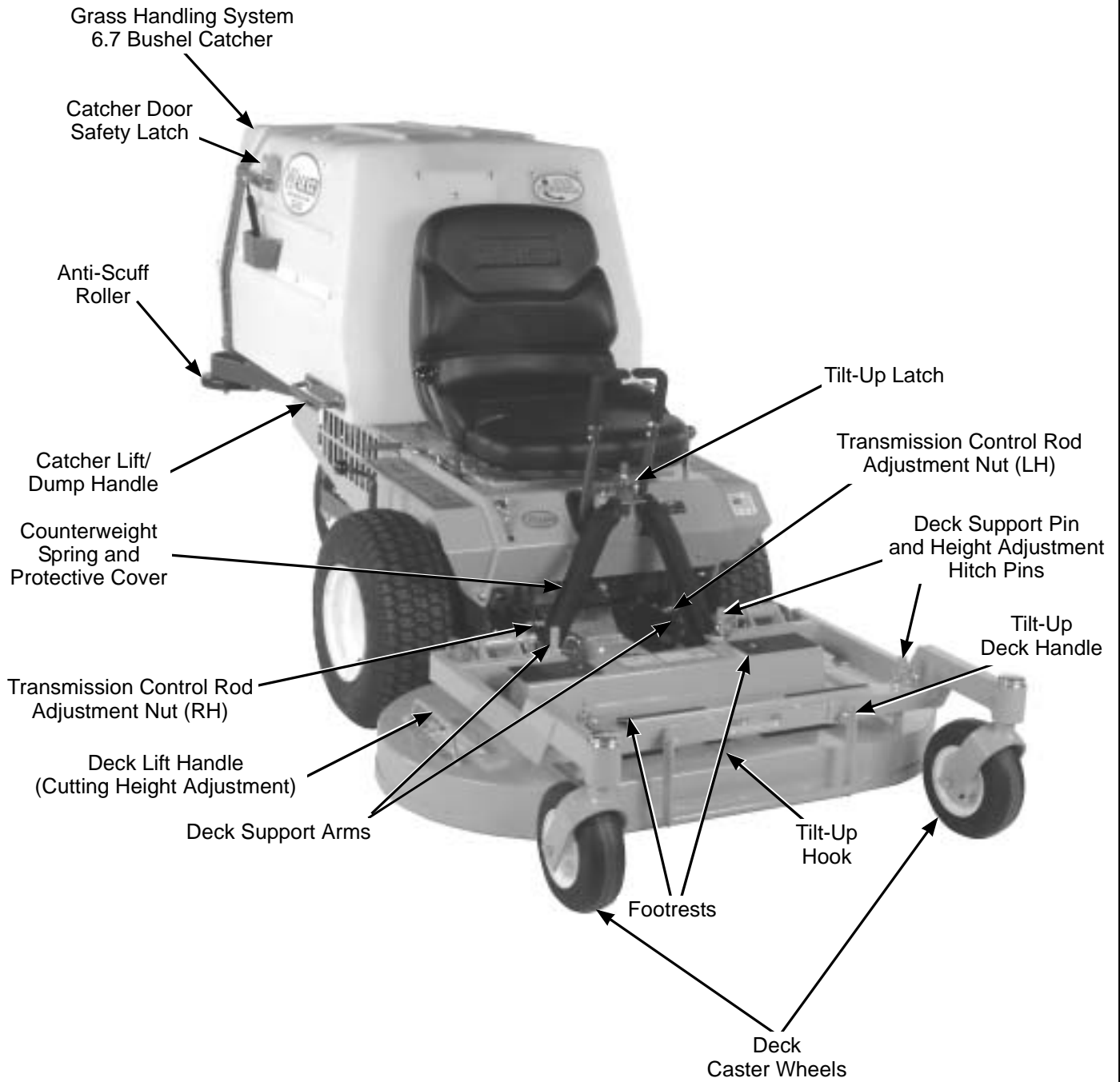
Specifications

MODEL	MS
GHS SYSTEM (Optional)	
Blower	3 1/2 x 9 x 1/4 in. (9 x 23 x 1 cm) Three-Blade Paddle Wheel (Driven by Mower Engine)
Blower Brake	Belt Scrubber Brake (Works in Combination with PTO Clutch, Stops Blower within Five (5) Seconds of PTO Disengagement)
Max. Blower Speed	3600 RPM
Grass Catcher Capacity	63 Gallons (238 liters)/6.7 Bushels
Full Signal	Oscillating Vane Switch Mounted on Grass Delivery Spout Triggers Horn Signal
Powerfil [®]	Oscillating Delivery Spout Driven by 12 Volt Electric Gearmotor Spreads Material throughout Interior of Catcher @ 25 Cycles/Minute
SEAT	Contour-Molded, with Nylon Backed Vinyl Cover and Integral Foam Cushion
FRAME/BODY CONSTRUCTION	
Frame	All Welded Unitized Steel Chassis
Body	14 Gauge Steel
Deck	11 Gauge Steel
GHS Catcher and Chutes	Molded Cross-Linked Polyethylene (UV Stabilized)

NOTE: The manufacturer reserves the right to make changes in specifications shown herein at any time without notice or obligation.

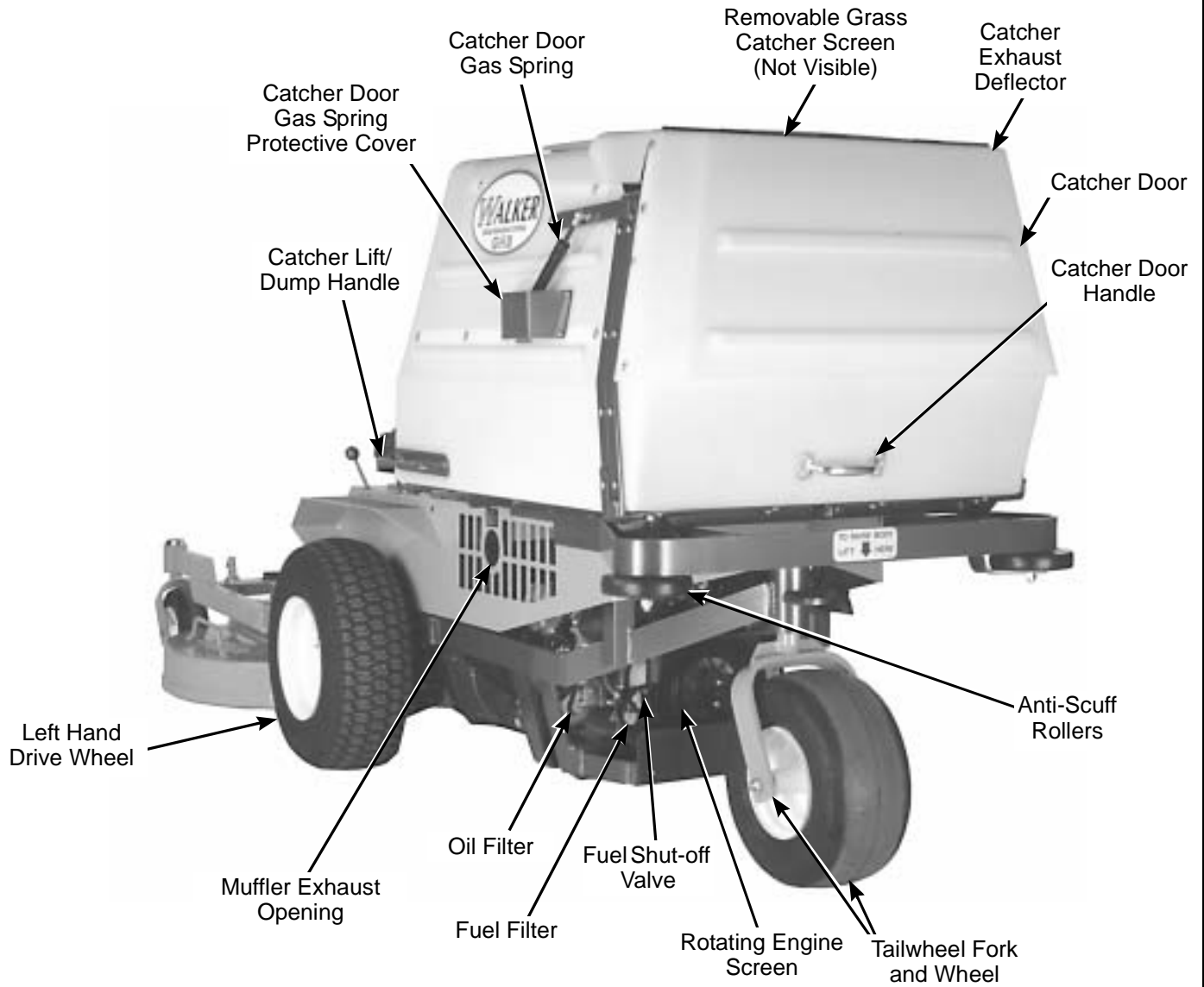
Component Identification

NOTE: Control Identification shown in **Operating Instructions** section.



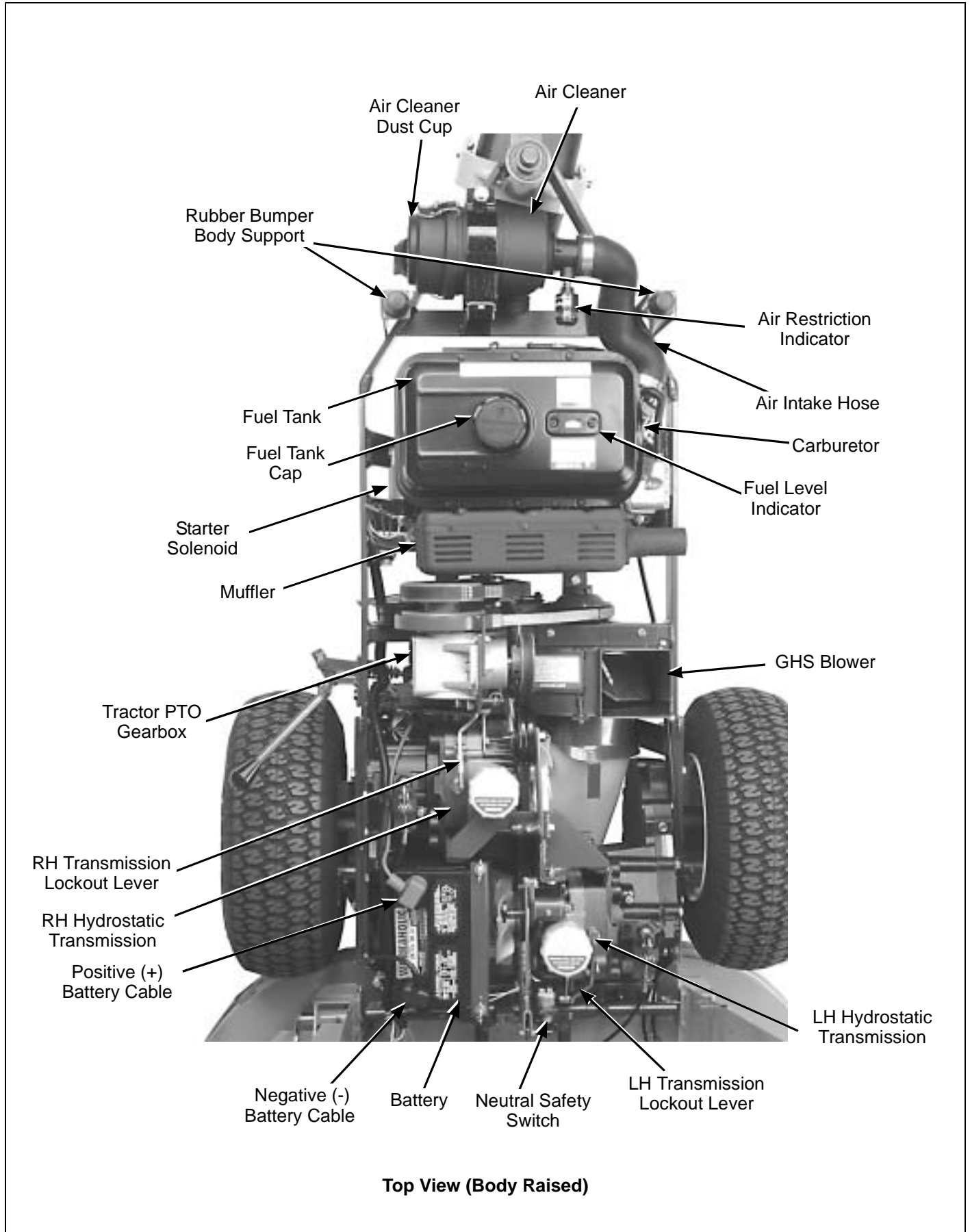
Front View and Right Side View

Component Identification




Rear View and Left Side View

Component Identification



Safety Instructions

Pay particular attention to any information labeled **DANGER, WARNING, CAUTION, IMPORTANT,** and **NOTE** in this manual.

When you see the Safety Alert Symbol (), read, understand, and follow the instructions. Failure to comply with safety instructions may result in personal injury.

The seriousness or degree of importance of each type of information is defined as follows:

DANGER

An **IMMEDIATE** hazard that **WILL** result in severe personal injury or **DEATH**, if warning is ignored and proper safety precautions are not taken.

WARNING

A **POTENTIAL** hazard that **COULD** result in severe personal injury or **DEATH**, if warning is ignored and proper safety precautions are not taken.

CAUTION

Possible hazards or unsafe practices that **MAY** result in **MODERATE** personal injury or property damage, or machine damage, if warning is ignored and proper safety precautions are not taken.

IMPORTANT: Identifies mechanical information demanding special attention, since it deals with the possibility of damaging a part or parts of the machine.

NOTE: Identifies information worthy of special attention.

Walker Manufacturing cannot predict every potentially dangerous situation. Therefore, items labeled as such in this manual do not cover all conceivable situations. Any person using procedures, tools, or control techniques not recommended by Walker Manufacturing must take full responsibility for safety.

The Walker Rider Lawnmower has been designed with many safety features to protect the operator from personal harm or injury. However, it is necessary for the operator to use safe operating procedures at all times. **Failure to follow safety instructions contained in this manual may result in personal injury or damage to equipment or property.**

If you have any questions concerning setup, operation, maintenance, or safety, please contact your authorized Walker Mower Dealer or call Walker Manufacturing Company at (970) 221-5614.

BEFORE OPERATING

1. **Read and understand the contents of this Owner's Manual before starting and operating the machine.** Become thoroughly familiar with all machine controls and how to stop the machine and disengage the controls quickly. Replacement Owner's Manuals are available by sending the Model and Serial Number to:

Walker Manufacturing Company
5925 East Harmony Road
Fort Collins, CO 80528

2. **Never allow children to operate rider mower.** Do not allow adults to operate without proper instruction.
3. **Clear the area to be mowed of any foreign objects** which may be picked up and thrown by cutter blades. Pick up all sticks, stones, wire, and any other debris.
4. Keep everyone, especially children and pets, a safe distance away from the area being mowed. **Do not mow with bystanders in the area.**
5. Do not operate the machine barefoot or wearing sandals, sneakers, tennis shoes, or similar lightweight footwear. **Wear substantial protective footwear.**

Safety Instructions

6. Do not wear loose fitting clothing that could get caught in moving parts. Do not operate this machine while wearing shorts; **always wear adequate protective clothing**, including long pants. Wearing safety glasses, safety shoes, and a helmet is advisable and required by some local ordinances and insurance regulations.
7. Prolonged exposure to loud noise can cause impairment or loss of hearing. **Operator hearing protection is recommended**; particularly for continuous operation of the GHS Model due to blower noise level. Wear a suitable hearing protective device, such as earmuffs or earplugs.
8. **Keep all protective shields and safety devices in place.** If a protective shield, safety device, or decal is damaged, unusable, or missing, repair or replace it **before** operating the machine.
9. **Be sure interlock switches are functioning correctly**, so the engine cannot be started unless the Forward Speed Control lever is in the **NEUTRAL-PARK** position, and the PTO clutch is in the **DISENGAGED** position. Also, the engine should stop if the operator lifts off the seat with the PTO clutch in the **ENGAGED** position.
10. **Handle gasoline with care.** Gasoline is highly flammable and its vapors are explosive:
 - a. Use an approved fuel container.
 - b. Never add fuel to a running engine or hot engine (allow hot engine to cool several minutes).
 - c. Keep matches, cigarettes, cigars, pipes, open flames, or sparks away from the fuel tank and fuel container.
 - d. Always fill the fuel tank outdoors using care. Fill to about one inch from the top of the tank. Use a funnel or spout to prevent spilling.
 - e. Replace the machine fuel cap and container cap securely and clean up any spilled fuel before starting the engine.
11. **Never attempt to make any adjustments while the engine is running**, except where specifically instructed to do so.

12. The electrical system battery contains sulfuric acid. Avoid any contact with skin, eyes, and clothing. Keep the battery and acid out of reach of children.

OPERATING

1. **Operate the mower only in daylight** or in good artificial light with good visibility of the area being mowed.
 2. Sit on the seat when starting the engine and operating the machine. Keep feet on the deck footrests at all times when the tractor is moving and/or mower blades are operating.
 3. For a beginning operator, **learn to steer (maneuver) the tractor with a slow engine speed before attempting any mowing operation.** Be aware that, with the front mounted mower configuration, the back of the tractor swings to the outside during turns.
 4. Remember, for an emergency stop, the forward motion of the tractor can always be stopped by pulling the Forward Speed Control (FSC) into the **NEUTRAL-PARK** position.
 5. In case either of the transmission drive belts break during operation, and if the machine is on a slope, the machine will freewheel down the slope. **To maintain control**, immediately (1) Release the steering levers and simultaneously (2) Move the FSC to the NEUTRAL-PARK position. When the machine is stopped or moving slowly, engage the parking brake.
- NOTE:** This is exactly the same procedure used to normally stop and park the machine.
6. Disengage the blade clutch and put the FSC in the **NEUTRAL-PARK** position before starting the engine (an ignition interlock switch normally prevents starting of the machine if these controls are in the **OPERATING** position).
 7. **Do not run the engine in a confined area without adequate ventilation.** Exhaust fumes are hazardous and can be deadly.
 8. **Do not carry passengers** - maximum seating capacity is one (1) person.

Safety Instructions

9. Watch for holes, rocks, and roots in the terrain and for other hidden hazards. When mowing tall grass, mow higher than desired to expose any hidden obstacles. Then, clean the area and mow to the desired height.
10. **Avoid sudden starts or stops.** Before backing the machine up, look to the rear to be sure no one is behind the machine. Watch carefully for traffic when crossing or working near roadways.
11. Disengage the blade drive when transporting the machine across drives, sidewalks, etc. **Never raise the mower deck while blades are rotating.**
12. **The maximum recommended side slope operating angle is 20 degrees or 33% grade.** When operating the machine on a slope, reduce speed and use caution to start, stop, and maneuver. To prevent tipping or loss of control of the machine, avoid sharp turns or sudden changes in direction.
13. **Never adjust cutting height with the engine running.** Before adjusting cutting height or servicing, disengage the blade clutch (PTO), stop the engine, and remove the ignition key. Wait for all movement to stop before getting off the seat.

NOTE: A blade/blower brake should normally stop drive line rotation within five (5) seconds of disengaging the PTO clutch.
14. For side discharge mower decks, **do not operate with the grass deflector chute removed.** Keep the deflector in the lowest possible position.
15. For tractors equipped with tilt-up deck, **observe the following recommendations:**
 - a. Do not move tractor with deck in tilt-up position.
 - b. Never tilt body forward with deck in tilt-up position.
16. For GHS equipped models, **do not operate the machine with the grass catcher in the DUMP position or with the back door OPEN.** Dangerous projectiles may be thrown out of the discharge chute or the back of the grass catcher.

17. For GHS equipped models, **use care when closing the grass catcher door.** Keep fingers and hands away from the hinge and pinch points when the door is being closed. Also, keep fingers and hands clear of the door frame. The door is held closed with springs and the door may slam shut with considerable force.
18. **In case of a clogged or plugged mower deck or GHS catching system:**
 - a. Disengage the blade clutch (PTO) and turn the engine off before leaving the seat.
 - b. **LOOK** to make sure blade drive shaft and blower drive pulley movement has stopped before trying to unclog the system.
 - c. Disconnect the spark plug wire.
 - d. Never place hands under the deck or in the GHS blower - use a stick or similar tool to remove clogged material.
19. If the cutting blades strike a solid object or the machine begins to vibrate abnormally, **immediately disengage the blade clutch (PTO), stop the engine, and wait for all moving parts to stop.** To prevent accidental starting, disconnect the spark plug wire. Thoroughly inspect the mower and repair any damage before restarting the engine and operating the mower. Make sure cutter blades are in good condition and blade nuts are torqued to 60 ft-lb (81.3 N·m).
20. **Do not touch the engine or muffler while the engine is running** or immediately after stopping the engine. These areas may be hot enough to cause serious burns.
21. When leaving the machine unattended, **disengage the blade clutch (PTO), stop the engine, and remove the key.**

MAINTENANCE

1. To prevent accidental starting of the engine when servicing or adjusting the machine, remove the key from the ignition switch and disconnect the spark plug wire.
2. **To reduce fire hazards,** keep the engine free of grass, leaves, excessive grease, and dirt.

Safety Instructions

3. Keep all nuts, bolts, and screws tight to ensure the machine is in a safe, working condition. Check the blade mounting nuts frequently, making sure they are tight.
4. **Perform only maintenance instructions described in this manual.** Unauthorized maintenance operations or machine modifications may result in unsafe operating conditions.
5. If the engine must be running to perform a maintenance adjustment, keep hands, feet, and clothing away from moving parts. **Do not wear jewelry or loose clothing.**
6. **Always use the proper engine service manual when working on the engine.** Unauthorized maintenance operations or modifications to the engine may result in unsafe operating conditions.
7. Altering the equipment or engine in any manner which adversely affects its operation, performance, durability, or use will **VOID the warranty** and may cause hazardous conditions.
8. Never attempt to disconnect any safety devices or defeat the purpose of these safety devices.
9. Do not change the engine governor settings or overspeed the engine. The governor has been factory-set for maximum-safe engine operating speed.
10. **Use genuine factory replacement parts.** Substitute parts may result in product malfunction and possible injury to the operator and/or others.
11. **Use care when charging the battery** or performing maintenance on the battery and electrical system:
 - a. Make sure the battery charger is unplugged before connecting or disconnecting cables to the battery.
 - b. Charge the battery in a well-ventilated space, so gases produced while charging can dissipate. Make sure the battery vents in the caps are open.

- c. Keep sparks, flames, and smoking materials away from the battery at all times. To avoid sparks, use care when removing battery cables from posts.
- d. Disconnect both battery cables before unplugging any wiring connectors or making repairs on the electrical system.

IMPORTANT: Keep all applicable manuals immediately accessible to anyone who may operate or service this machine.

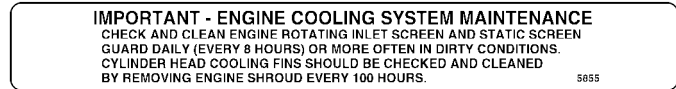
Safety Instructions

SAFETY, CONTROL, AND INSTRUCTION DECALS

Safety, Control, and Instruction Decals are installed on the machine; if any are missing, illegible, or damaged, a replacement should be ordered and installed before putting the machine into operation. The Decal Part Number is listed below and in the Parts Manual.



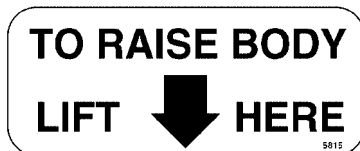
Underside of Body (5861)



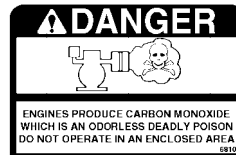
Top Rear of Fuel Tank (5855)



Top of Blower Housing (5819)



Rear Crossbreed of Body (5815)



Top of Fuel Tank (6810)



Hydrostat Oil Reservoir (5810)



Deck Carrier Frame (5865)



Gear Axle (5810-1)



Catcher Door Hinge Bar, LH and RH Sides (5868)



Parking Brake (7809)



Deck Gearbox Cover (5807-3)

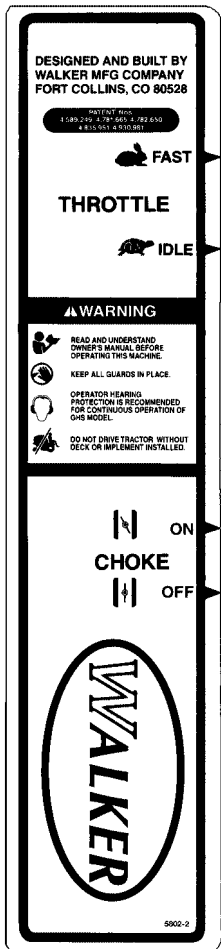


On Body Adjacent to Clutch Control Lever (5806)

Safety Instructions

SAFETY, CONTROL, AND INSTRUCTION DECALS

Safety, Control, and Instruction Decals are installed on the machine; if any are missing, illegible, or damaged, a replacement should be ordered and installed before putting the machine into operation. The Decal Part Number is listed below and in the Parts Manual.



LH Fender (5802-2)



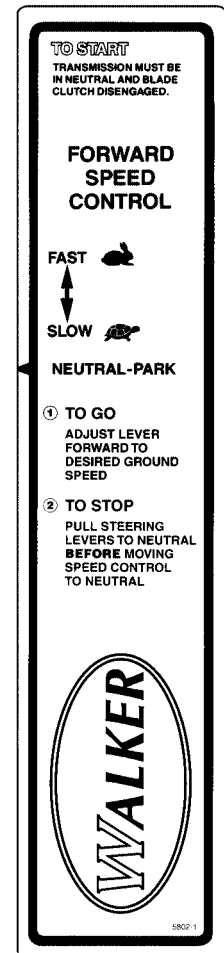
Each End of Mower Deck (5808)



SD Deck Discharge Shield (5848)



Adjacent to Blower Discharge Chute Through Body (5804)



RH Fender (5802-1)

Assembly Instructions

SETUP INSTRUCTIONS

Walker Mowers are shipped partially assembled. After uncrating the tractor and mower deck, initial setup is required.

NOTE: During the process of unpacking, any damaged or missing parts should be noted and reported to the delivering carrier immediately (put in writing within 15 days). The carrier will provide directions for proceeding with a claim to receive compensation for damage.

Tire Installation (Tractor)

- Install the drive tires using the eight (8) lug bolts that are supplied with the owner's packet of materials. Drive tires are 18 x 6.50-8, 4-ply; rear tire is 13 x 6.50-6, 4-ply.
- Check and adjust the inflation of the tires. The tire inflation recommendations are:

Drive = 15 PSI (103 kPa)
Rear = 20 PSI (137 kPa)

Battery Service

Tilt mower body up (lift on rear of body) for battery access. Check the battery for electrolyte level and charge. The electrolyte level should be at the bottom of the vent wells [1/4 to 1/2 in. (6 to 13 mm) above plates]. If the specific gravity is less than 1.225, the battery needs charging. If the battery has been shipped dry, or is wet but needs service, refer to the following instructions.

IMPORTANT: Make sure battery is securely mounted in the frame. A loose battery may cause damage to the case resulting in acid leakage and severe damage to the machine. A hazard may be created by damage to critical working parts and safety systems.

Wet Battery Service

If the battery has been shipped wet, but the electrolyte level is low or the battery needs to be charged then:

1. Fill each battery cell with drinking water to the bottom of the vent wells.
2. Charge battery. Refer to *Battery Charging* in this section.

Dry Battery Service



DANGER

Activating a battery can be dangerous. The battery should be taken to a reliable service station, battery store, or power equipment dealer where a trained technician can activate the battery safely. DO NOT attempt to activate the battery unless you are experienced in battery service work. The following activation and charging instructions are provided for use by a trained battery technician.



DANGER

Battery electrolyte is a poisonous and corrosive sulfuric acid solution.

- **Avoid spillage and contact with skin, eyes, and clothing - causes severe burns.**
- **To prevent accidents, wear safety goggles and rubber gloves when working with electrolyte.**
- **Neutralize acid spills with baking soda and water solution.**

To fill (activate) battery with electrolyte (if battery has been shipped dry):

1. Remove the battery hold down bar, disconnect the battery cables and lift the battery out of the tray.

IMPORTANT: Battery must be removed from the mower before filling with electrolyte.

IMPORTANT: Obtain and use only battery grade sulfuric acid electrolyte with a 1.265 specific gravity to activate the battery. **DO NOT** use water or any other liquid during initial activation.

2. Remove the filler caps and carefully fill each cell until the electrolyte is just above the plates.
3. After the battery is filled with electrolyte, replace the filler caps and charge the battery. Refer to *Battery Charging*.

Assembly Instructions

Battery Charging



DANGER

BATTERIES PRODUCE EXPLOSIVE GASES

- Charge the battery in a well-ventilated area, so that gases produced while charging can dissipate.
- Keep sparks, flames, and smoking materials away from the battery at all times.
- Make sure the battery cap vents are open after the battery is filled with acid (check manifold vent on each cap).
- Make sure the battery charger is unplugged before connecting or disconnecting cables to the battery.

1. Charge the battery at 15 amps for 10 minutes. **DO NOT** exceed 20 amps maximum recommended charging rate. Charge until specific gravity is at least 1.250. Total charging time should not exceed one (1) hour.
2. After charging the battery, adjust the electrolyte level to the bottom of the vent wells [1/4 to 1/2 in. (6 to 13 mm) above the plates].

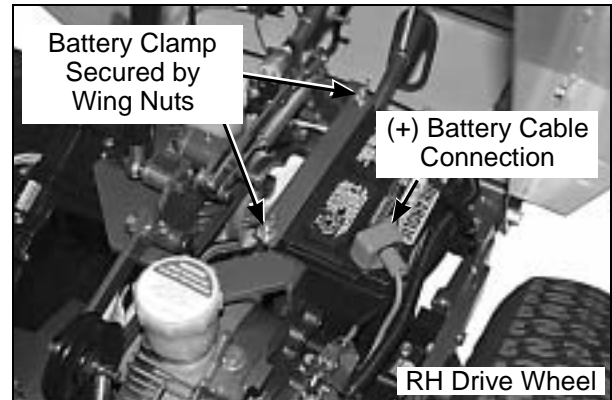
IMPORTANT: DO NOT overfill the battery. Electrolyte will overflow through the vented caps onto parts of the machine and **WILL** result in severe corrosion.

3. Install battery.

Battery Installation

IMPORTANT: Make sure battery is securely mounted in the frame. A loose battery may cause damage to the case resulting in acid leakage and severe damage to the machine. A hazard may be created by damage to critical working parts and safety systems.

Install the battery in the mower as shown in **Battery Installation** photo. Connect the positive and negative cables to the proper battery terminal [**red cable and boot connects to the positive (+) terminal**]. Slide the rubber boot up and over the battery post, making sure it covers the post completely **to prevent an electrical short**.



Battery Installation

Mower Deck Assembly

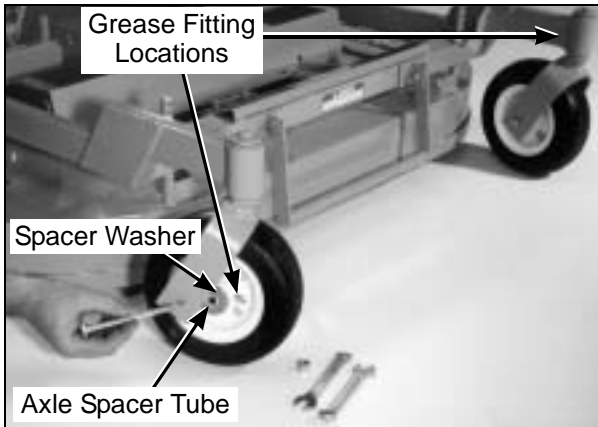
Deck Caster Wheels Installation

1. Remove the bolt, nut, axle spacer tube, and spacer washers from each deck caster wheel fork.

NOTE: Spacer washers are used only when the optional semi-pneumatic deck wheels (8.25 x 2.75) are installed.

2. Fit the axle spacer tube through the wheel hub, position the spacer washer on each side of the hub (if used), and fit the assembly into the wheel fork.
3. Insert the 3/8-16 x 4-1/2 in. bolt through the wheel fork with the bolt head to the outside and install the 3/8-16 in. Keps nut.
4. Tighten the bolt and nut until the axle spacer tube bottoms against the inside of the wheel fork (will not turn) while the wheel and spacer washers (if used) spin freely without binding.

Assembly Instructions



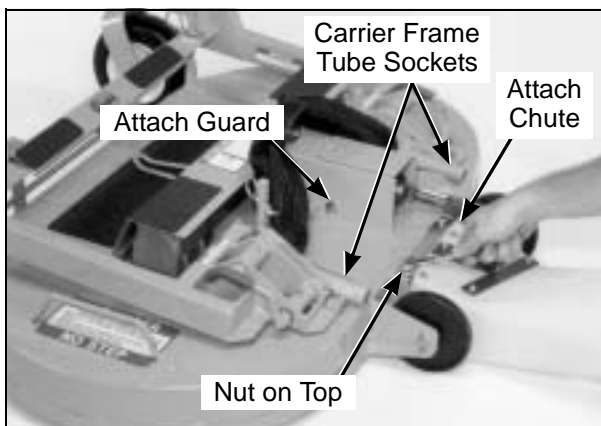
Deck Caster Wheel Installation

NOTE: If semi-pneumatic wheels are installed, make sure the spacer washers fit over the spacer tube and are not caught between the fork and the end of the tube. The washers should move freely on the axle spacer tube.

5. Grease the caster wheel bearings and caster pivot bearings - one grease fitting for each wheel and each pivot.

Deck Discharge Chute Installation (GHS Rear Discharge Models Only)

Mount the discharge chute hinge on top of the deck discharge opening using the 1/4-20 x 1/2 in. socket button head bolt and 1/4-20 ESNA nut. Position the bolt with the head inside of the chute and the nut on the outside.



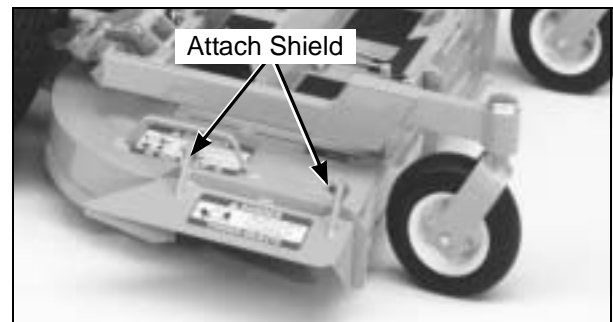
Discharge Chute and PTO Shaft Guard Installation on Rear Discharge Deck

Deck Discharge Shield Installation (Side Discharge Models Only)

Attach the deck side discharge shield by positioning the shield hinge lug in **front** of the deck mount and fastening with two (2) 3/8-16 x 1-1/4 in. bolts, 3/8-16 ESNA nuts, and 3/8 in. wave spring washers. The wave washers fit between the two hinging surfaces. Tighten the nuts until the shield moves freely but is not loose.

WARNING

DO NOT operate the machine without the grass deflector chute attached and in the lowest possible position.



Discharge Shield Installation on Side Discharge Deck

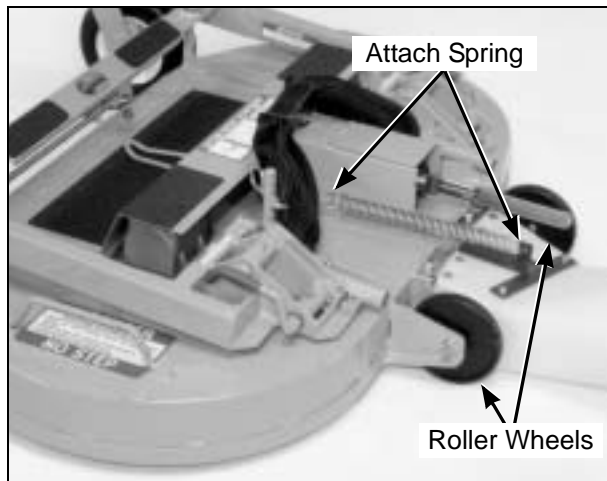
PTO Shaft Guard Installation

Position the shaft guard as shown and mount with two 1/4-20 x 1/2 in. bolts.

Tilt-Up Roller Wheel Installation

Mount the two (2) tilt-up roller wheels on the brackets on the rear skirt of the deck housing using the P/N 8490 axle bolt, 3/8 in. wave spring washer and 3/8-16 in. Whiz locknut. Tighten the axle bolt until the wheel rolls freely, but is not loose.

Assembly Instructions



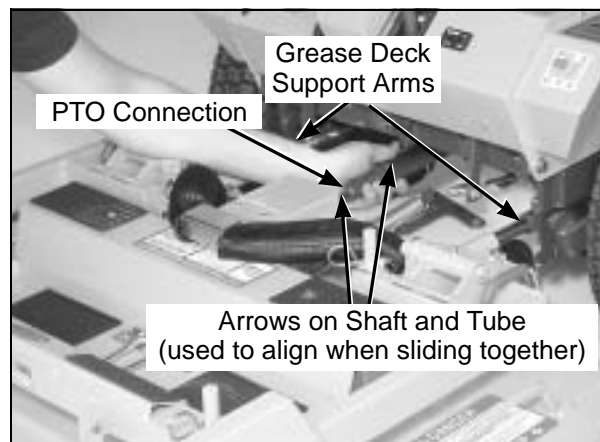
Tilt-Up Spring and Roller Wheel Installation on Rear Discharge Deck

Mower Deck Installation on Tractor

Deck Installation

1. Lightly grease each deck support arm (2) on the tractor. Refer to **Mower Deck Installation** photo for location of deck support arm.
2. Engage the deck carrier frame tube sockets on the tractor support arms (refer to **Discharge Chute and PTO Shaft Guard Installation** photo for socket location). Slide the deck onto the support arms approximately 3 in. (76 mm).
3. Align and connect the splined PTO shaft and socket halves, as shown in Mower Deck Installation photo. The PTO shaft has a pilot end to ease alignment of shaft; fit shaft end into socket and rotate shaft until the splines line up as indicated by arrows, then slide together.
4. If the deck is rear discharge (GHS equipped model), the rear discharge chute will need to be **aligned** and connected to the blower inlet during the last 2 in. (51 mm) of slide action on the support arms.

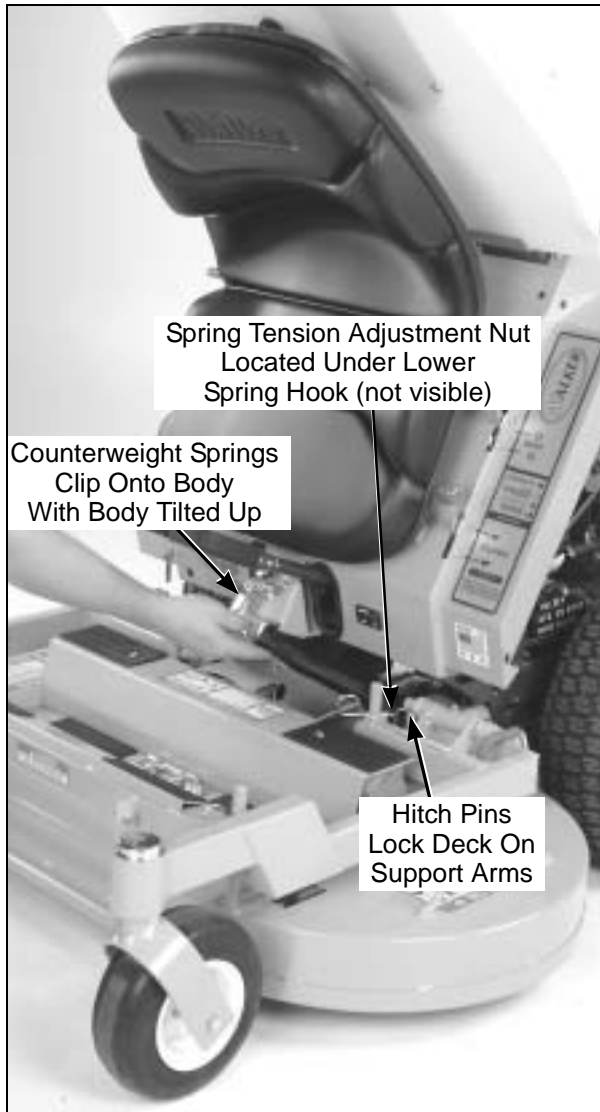
NOTE: Raising the mower body may be helpful in fitting and guiding the deck chute into the blower.



Mower Deck Installation/PTO Shaft Connection

5. Install the hitch pin through the hole on the end of each support arm to lock the deck in place (refer to **Deck Counterweight Spring Installation** photo). Two (2) hitch pins are included in the owner's packet of materials.

Assembly Instructions



Deck Counterweight Spring Installation

6. Raise mower body (instead of lifting the front of deck) and clip the counterweight springs to the receptacle on front of body. Lower the body to tension the springs. (Refer to **Deck Counterweight Spring Installation** photo.)
7. With the counterweight springs connected, the weight on the deck caster wheels should be 15 to 25 lb (6.8 to 11.3 kg). Check this weight by lifting on the front of the deck carrier frame. If required, the spring tension can be adjusted by tightening or loosening the elastic stop nuts located underneath the lower spring hook. Refer to **Deck Counterweight Spring Installation** photo.

Assembly Instructions

Deck Leveling

1. Position mower on a smooth, level surface. Set the cutting height to the highest position - 4 in. (102 mm) - for easy access under the deck to measure blade height. Refer to **ADJUSTING CUTTING HEIGHT** in **Operating Instructions**.

NOTE: A block of wood cut **4 in. (102 mm)** high is a convenient gauge to measure blade height above ground during the leveling process.

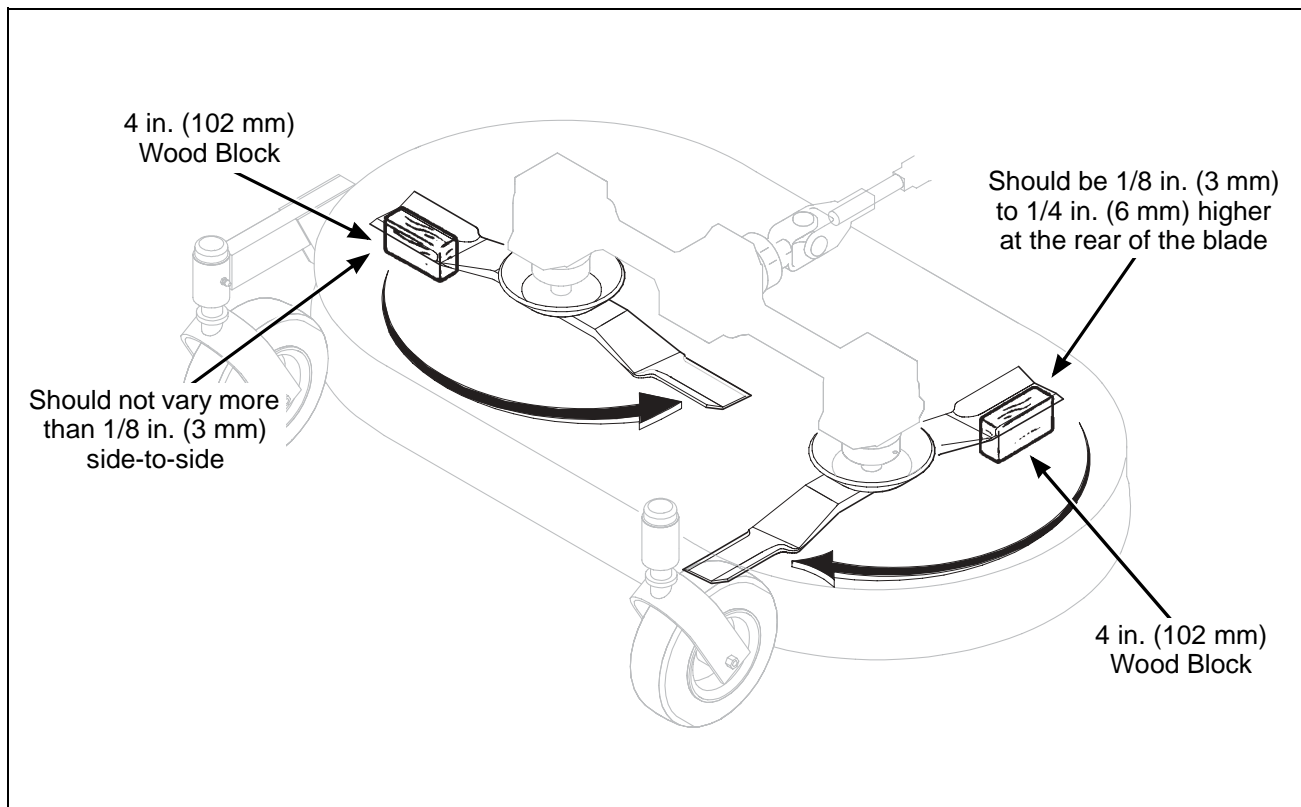


WARNING

The machine must be shut off during this procedure.

2. Check the side-to-side level. **Rotate each blade sideways** and measure the distance from blade tip to ground on each side. If measurements vary more than 1/8 in. (3 mm), add a washer shim under the deck support pins on the low side to level the deck.
3. Check the front-to-rear level. **Rotate the blades to point forward**. Measure the distance from blade tip to ground on the front and rear. The rear of the blade should be 1/8 to 1/4 in. (3 to 6 mm) higher than the front of the blade; shim the rear (or front) deck support pins equally to achieve **at least** 1/8 in. (3 mm) difference.

NOTE: The mower deck and support frame are jig welded; within normal tolerances, very little, if any, shimming should be required to level the deck. Tire pressure will influence the levelness of the deck. Check the tire pressure as a possible cause of the deck not being level.



Deck Leveling

Assembly Instructions

PREOPERATING CHECKLIST

Before operating the mower for the first time, and as a routine before daily operations, it is important to make sure the mower is properly prepared and ready for operation. The following is a list of items to be checked. (For a mower with frequent operation, some of these items will not need to be checked every day, but the operator should be aware of the condition of each.)

For proper fuel and lubricants refer to **Specifications**.

FILL FUEL TANK

Raise the mower body and locate the fuel tank on top of the engine, between the muffler and the air cleaner assembly.

Fill the fuel tank using clean, fresh, automotive grade **unleaded** gasoline (87 octane rating minimum).



DANGER

Handle gasoline with care. Gasoline is highly flammable and its vapors are explosive. Use safe refueling procedures:

- **DO NOT** fill fuel tank with the engine running.
- If the engine is hot, allow to cool before refueling.
- Use an approved fuel container.
- Fuel the mower outdoors.
- **DO NOT** smoke while refueling.
- Avoid spilling fuel; use a funnel or spout.
- **DO NOT** overfill the fuel tank; fill up to about 1 in. (25 mm) below the top of tank.

IMPORTANT: DO NOT permit dirt or other foreign matter to enter the fuel tank. Wipe dirt from around the filler cap before removing. Use a clean fuel storage container and funnel.

IMPORTANT: DO NOT mix oil with gasoline. Always use fresh, automotive grade unleaded gasoline. **DO NOT** use premium, white, or high-test gasoline. **DO NOT** use additives, such as carburetor cleaners, deicers, or moisture removing agents. **DO NOT** use gasoline blended with methyl alcohol.

CHECK ENGINE CRANKCASE OIL LEVEL

Check the engine crankcase oil level before use and **after each 5 hours** of continuous operation. Refer to **LUBRICATION** for *Checking Engine Crankcase Oil Level* in **Maintenance Instructions**.

CHECK AND SERVICE ENGINE AIR CLEANER SYSTEM

- Check air restriction gauge to make sure there is no red indication showing.
- Check condition, cleanliness, and security of the complete air filter element (clean air filter **every 100 hours**). For detailed procedures, refer to **CLEANING** the **Engine Air Cleaner System** in **Maintenance Instructions**.

ADJUST CARBURETOR (Initial Start-up Only)

Refer to **ADJUSTMENTS** of **Carburetor** in **Maintenance Instructions**.

CHECK ENGINE COOLING SYSTEM

Check that the engine cooling air intake screen is free of obstruction by grass clippings or debris and clean if required. Also, cylinder head cooling fins should be inspected and cleaned if any build-up of debris is noted (remove cylinder head shroud to clean).

Check performance of the cooling system by starting the engine, holding a hand adjacent to the cylinder head, and feeling the cooling airflow.



DANGER

Make sure to keep hands clear of exhaust pipe, muffler, and moving parts when checking airflow.

Assembly Instructions

- CHECK GEAR AXLE OIL LEVEL (if equipped)

Refer to **Gear Axle Lubrication** in **Maintenance Instructions**.

- INSPECT THREE (3) DRIVE BELTS

Engine, PTO, and Hydrostatic Ground Drive.

- CHECK HYDROSTATIC TRANSMISSION OIL LEVEL

Refer to **LUBRICATION** for *Checking Hydrostatic Transmission Fluid Level* in **Maintenance Instructions**.

- CHECK BATTERY ELECTROLYTE LEVEL

Refer to **CHECKING/SERVICING** the **Battery** in **Maintenance Instructions**.

- CHECK TIRE PRESSURE

Deck Caster Wheel = 20 PSI (137 kPa)
Drive = 15 PSI (103 kPa)
Rear = 20 PSI (137 kPa)

- CHECK AND CLEAN GRASS BUILDUP UNDERNEATH MOWER DECK (and inside GHS blower, if equipped)

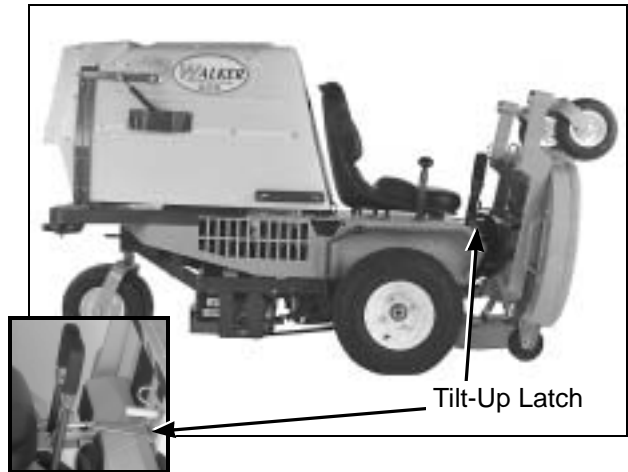
Refer to **CLEANING** the **GHS Blower** in **Maintenance Instructions** for blower cleaning information.



DANGER

Never operate cutter blades with deck in raised position because it is hazardous.

The tilt-up deck can be secured in the raised position by unlocking the deck lock levers on each side of the carrier frame and inserting the deck hook into the tilt-up latch on the tractor body. Before operating the tractor, make sure to re-engage the deck lock levers after lowering the deck to the normal operating position.



Deck Secured in Tilt-Up Position



CAUTION

Do not operate machine with deck tilt-up pivot joint unlocked.



DANGER

Do not operate the mower with deck in tilt-up position. Do not move the tractor with the deck in the tilt-up position.

- CHECK MOWER BLADE CONDITION, SHARPNESS, AND SECURITY OF MOUNTING

The blade mounting nut should be tightened to 60 ft-lb (81.3 N·m). If blade sharpening is required, refer to **CHECKING/SERVICING** for **Sharpen Mower Blades** in **Maintenance Instructions**.

- ADJUST MOWER CUTTING HEIGHT, IF REQUIRED

Position the hitch pins in the four deck support pins. Refer to the "Cutting Height Adjustment" decal on the deck gearbox cover.

- PERFORM ANY ADDITIONAL PROCEDURES called for on the **MAINTENANCE SCHEDULE CHART** in **Maintenance Instructions**.

Operating Instructions

CONTROL IDENTIFICATION, LOCATION, AND FUNCTION

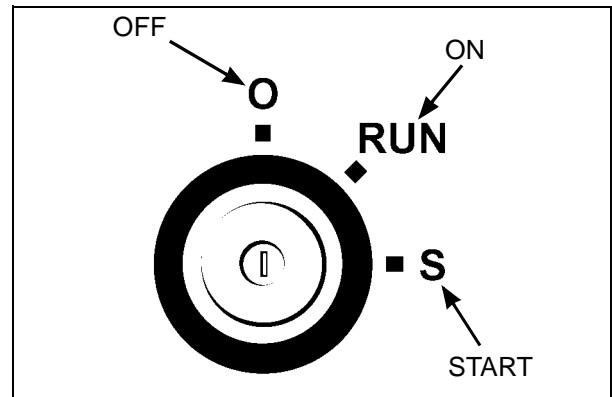
CAUTION

Before operating the mower, become familiar with the location and function of all operator controls. Knowing the location, function, and operation of these controls is important for safe and efficient operation of the mower.

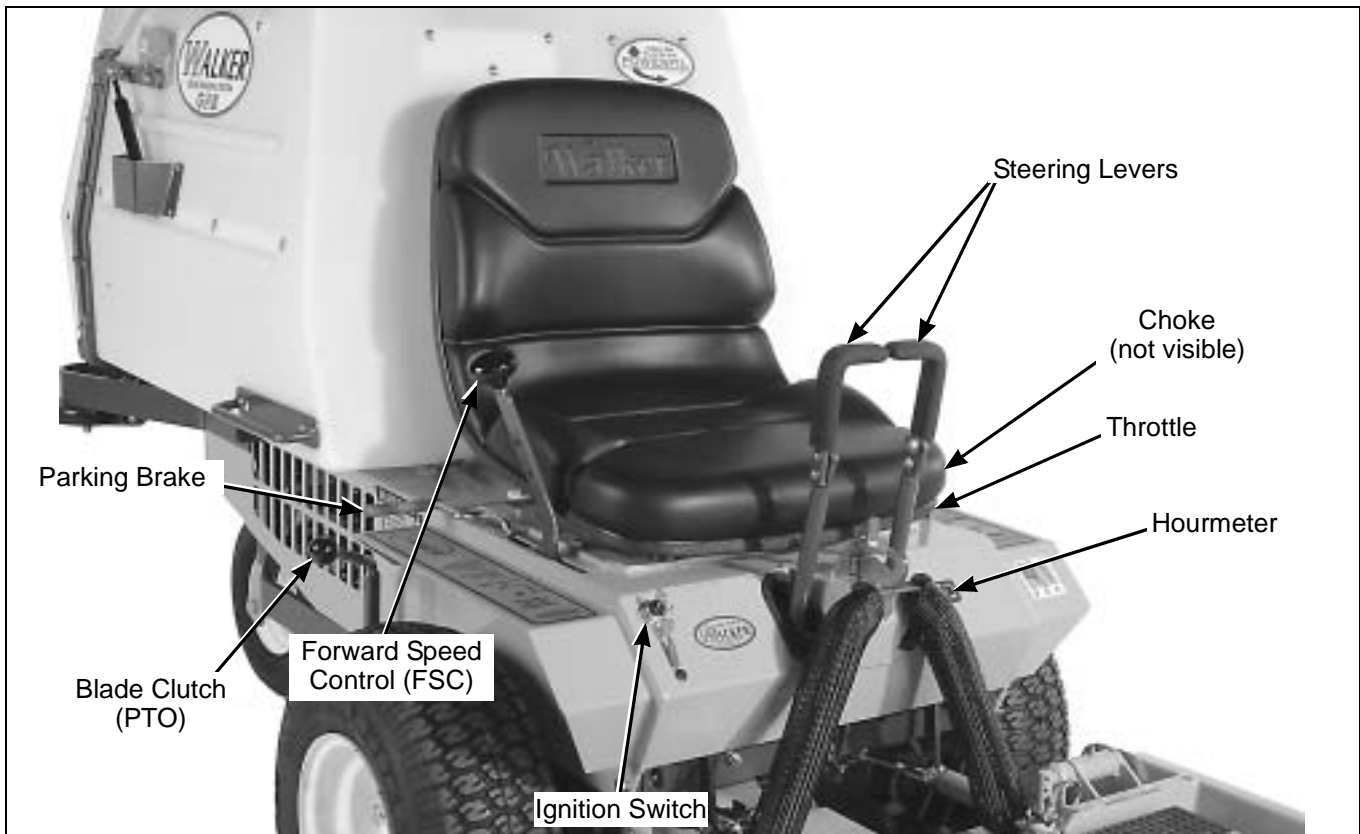
Ignition Switch

The ignition switch is located on the right front of the body and is used to start and stop the engine. The switch has three positions: "O" is the **OFF** position, **RUN** is the position the key returns to after starting, and "S" is the **START** position. When starting the engine, turn the key clockwise to the "S" position. Do not hold the key in the "S" position longer than 10

seconds. If the engine does not start, return the key to the "O" position for at least 60 seconds before making a restart attempt. Prolonged cranking can damage the starter motor and shorten battery life. Release the key when the engine starts, and it will return to the **RUN** position. To stop the engine, rotate the key counterclockwise to the "O" position.



Ignition Switch



Operating Controls

Operating Instructions

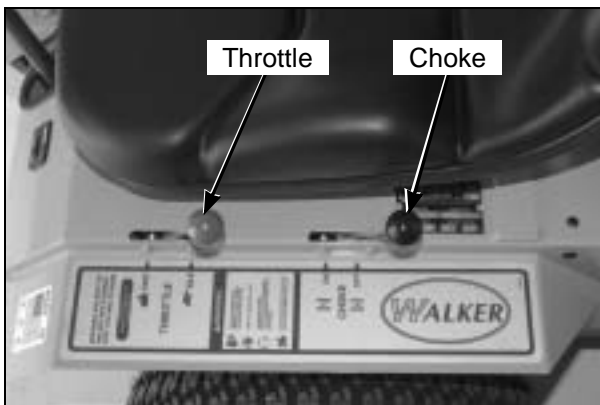
Engine Choke

The choke control lever (black knob) is located on the left side of the seat. To start a cold engine, move the choke control forward to the **ON** position. After engine starts, move choke control toward the **OFF** position, keeping enough choke to allow the engine to run smoothly as it warms up. As soon as possible, move the choke to the **OFF** position. A warm engine requires little or no choke for starting.

IMPORTANT: Make sure the choke is in the **OFF** position during normal engine operation; running with the choke in the **ON** position **CAN** damage the engine.

Engine Throttle

The throttle control lever (red knob) is located on the left side of the seat and is used to control engine speed. Moving the lever **forward** toward the **FAST** position **increases** engine speed; moving it **backward** toward the **IDLE** position **decreases** engine speed.



Choke and Throttle Location

Forward Speed Control (FSC)

Forward Speed Control (FSC) has two functions: One is to set forward travel speed, and the other is to establish the **NEUTRAL-PARK** position. When the FSC lever is moved into the **FORWARD** position, a friction lock holds any forward speed setting from 0 to 5 mph (0 to 8 km/h). The ground speed is proportional to the lever position; the further the lever is advanced forward, the faster the tractor moves. It is not necessary to hold the FSC in position since the friction lock maintains the selected lever position. Pulling back on the steering levers overrides the FSC setting and slows or stops forward travel. Releasing the steering levers allows the tractor to resume forward travel at the speed set by the FSC lever. To stop and park the machine, the FSC lever is moved backward to the **NEUTRAL-PARK** position.

Steering Levers

Each drive wheel is controlled by its own independent steering lever, for both steering function and **FORWARD/REVERSE** motion. The FSC lever sets the maximum forward speed, and also sets the forward position of the steering levers. The steering levers operate **only with a backward pulling** movement of the lever, which causes the drive wheel for that lever to first slow down, stop, and then reverse with a full backward lever stroke. The levers are released to the **FORWARD** position for "straight-ahead" ground travel.

NOTE: Pushing forward on the steering levers will not cause **any** change in tractor motion - there will be no steering lever reaction and there will be no machine damage.

Blade Clutch (PTO)

The blade clutch lever is located on the right side of the seat behind the right fender and is used to engage and disengage the mower blades. The blade clutch has two positions. Pushing the lever **BACKWARD engages** the PTO that drives the mower blades. Pulling the lever **FORWARD disengages** the PTO and engages the blade brake.

NOTE: On GHS equipped models, the Powerfil[®] motor and Grass-Pak[®] full signal switch are activated by engaging the blade clutch. Refer to **Using the GHS Catcher** in this section for a complete description of GHS operation.

Operating Instructions

Parking Brake

The parking brake functions by locking a pin into the hydrostatic transmission pinion gear teeth. Moving the lever **FORWARD engages** the parking brake; moving the lever **BACKWARD releases** the brake.

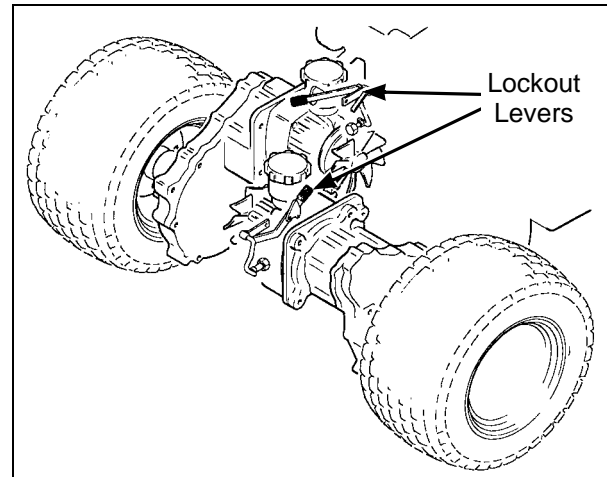
IMPORTANT: Stop the tractor completely before engaging the parking brake. The parking brake uses a positive mechanical lock similar to the **PARK** position on an automotive automatic transmission. If the tractor is moving when the brake is engaged, it will result in sudden stoppage and possible internal damage to the axle drive.

NOTE: If pressure on the parking brake pin (e.g. parked on a hill) makes it impossible to release the parking brake with the parking brake lever, move the mower gently forward or backward to release the pin.

Transmission Lockout Levers

The transmission lockout levers disengage the hydrostatic transmissions. By **lifting** the lever on top of the transmission and locking it into place with the lockout cam, the hydrostatic transmissions are released to permit freewheeling. By releasing the cam and **lowering** the lever, the transmissions are engaged for normal operation. The transmission lever in the **LOCKOUT** position is used to enable moving the machine without the engine running (e.g., for service). Refer to **TRANSMISSION LOCKOUT** in this section for operating instructions.

NOTE: The transmission plunger on the side of the transmission case (activated by the **LOCKOUT LEVER**) must be completely released during operation of the mower, otherwise operation of the transmission will be erratic.



Lockout Lever Location

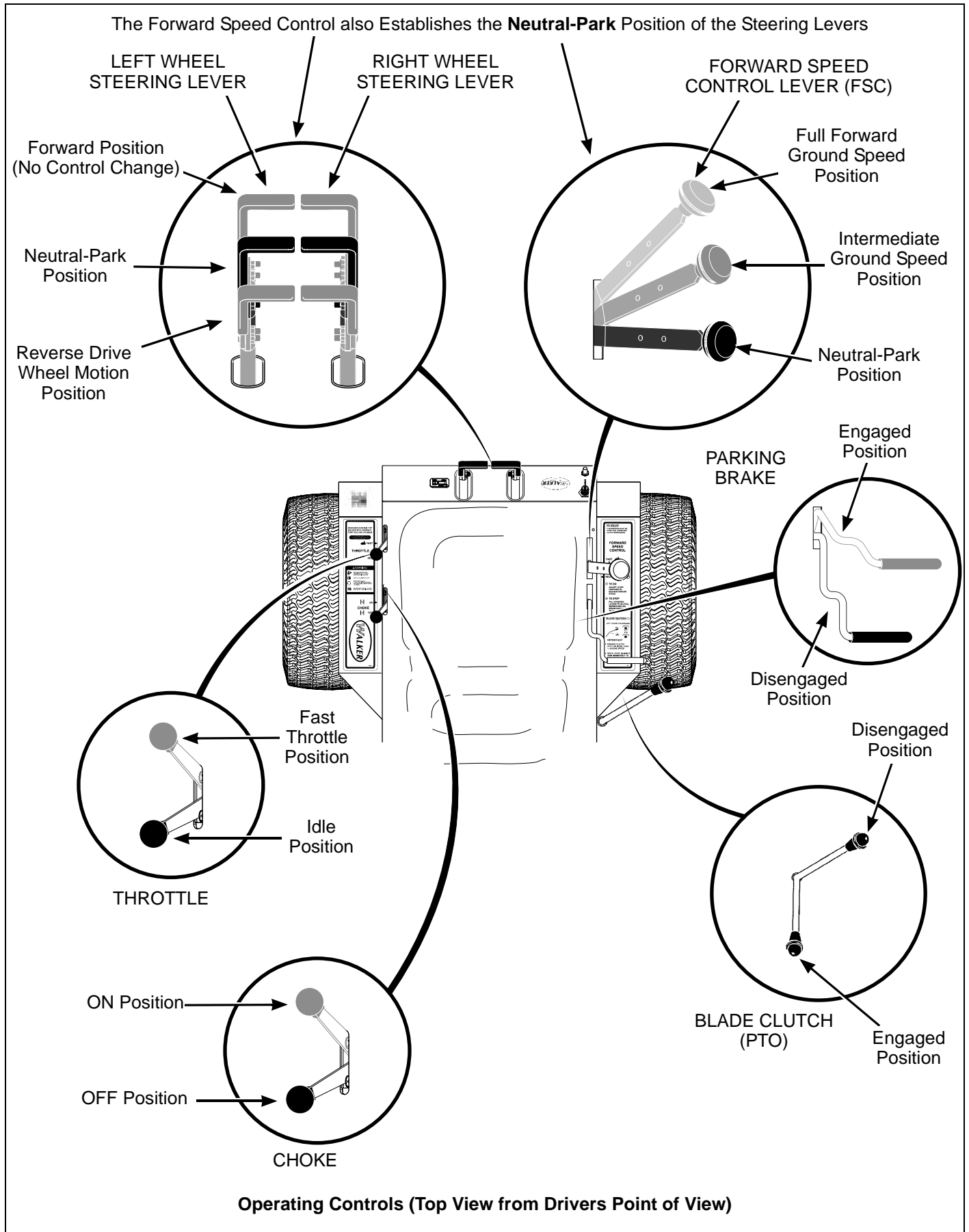
Hourmeter

The hourmeter, which is located on the left front of the body, displays **operating time** accumulated while the ignition switch is in the **ON** position.

Light Switch (For Optional Lights)

Operates headlights (when installed).

Operating Instructions



Operating Instructions

STARTING THE ENGINE



CAUTION

Before operating the mower, read and understand all Safety Instructions and Operating Instructions.



WARNING

NEVER run the engine in an enclosed or poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.

1. Before attempting to start the engine, make sure the operator is in the seat, the Forward Speed Control is in **NEUTRAL-PARK** position, and the blade clutch and parking brake are **DISENGAGED**.

NOTE: Release parking brake to prevent extra load on the starter if the transmission neutral is slightly out of adjustment.



CAUTION

A safety interlock switch system **PREVENTS CRANKING** the engine with either the Forward Speed Control or the blade clutch (PTO) out of neutral. If the engine cranks otherwise, the safety system is not working and should be repaired or adjusted before operating the mower. **DO NOT** disconnect safety switches; they are for the operator's protection.

2. Move the choke lever to the **ON** position and move the throttle 1/4 to 1/2 open (toward **FAST**). Turn the ignition switch to the **START** position to start the engine. Release the key to **RUN** position as soon as the engine starts.

NOTE: The choke may not be required if the engine is warm.

IMPORTANT: **DO NOT** crank the engine continuously for more than 10 seconds at a time. If the engine does not start, turn the key to the **OFF** position and allow a 60 second cool-down period between starting attempts. Failure to follow these guidelines can damage the starter motor and shorten battery life.

3. After the engine starts, gradually move the choke to the **OFF** position, keeping enough choke on to allow the engine to run smoothly as it warms up. As soon as possible, move the choke to the **OFF** position.

IMPORTANT: Make sure the choke is in the **OFF** position during normal engine operation; running with the choke in the **ON** position **CAN** damage the engine.

ADJUSTING GROUND SPEED AND STEERING



CAUTION

Learn to **START, STOP, and MANEUVER** the mower in a large, open area.

If the operator has not operated a machine with **LEVER STEERING OR DUAL HYDRO-STATIC TRANSMISSIONS**, steering and ground operation should be learned and practiced until the operator is completely comfortable handling the machine **BEFORE ATTEMPTING TO MOW**.



DANGER

Keep feet on footrest at all times when the machine is moving.

Operating Instructions

Beginning Recommendations are:

- ◆ Learn operation of the mower in an open area away from buildings, fences, and obstructions. Learn operation on flat ground **BEFORE** operating on slopes.
- ◆ Start maneuvering the mower with **SLOW** engine speed and **SLOW Forward Speed Control** setting until familiar with all operating characteristics.
- ◆ Remember it is not necessary to hold the steering levers forward (a unique Walker feature); always **PULL** on the levers for steering or for reverse motion of the mower.
- ◆ Learn to operate the mower with your left hand on the steering levers and right hand on Forward Speed Control. The use of two hands on the steering levers tends to cause overcontrol.
- ◆ Learn to operate the steering levers with smooth action. Jerky movements are hard on the transmission and lawn. For sharp turns, do not allow the inside wheel to stop and twist on the grass. Pull the steering lever controlling the inside wheel into reverse for a smooth “rolling” turn (one wheel rolling forward while the other rolls backward).
- ◆ Practice maneuvering the mower until you can make it go exactly where you are aiming.
- ◆ Remember, for an emergency stop, or in case of loss of control, machine movement can always be stopped quickly by pulling the Forward Speed Control into the **NEUTRAL-PARK** position.

1. Move the FSC out of **NEUTRAL-PARK** position to the desired forward speed. **DO NOT** hold forward on steering levers. It is not necessary to hold the FSC lever in position since a friction lock maintains the selected lever position (and forward travel speed).

WARNING

In case either of the transmission drive belts break during operation, and if the machine is on a slope, the machine will freewheel down the slope. To maintain control, immediately (1) Release the steering levers and simultaneously (2) Move the FSC to the **NEUTRAL-PARK** position. When the machine is stopped or moving slowly, engage the parking brake.

NOTE: This is exactly the same procedure used to normally stop and park the machine.

NOTE: If the FSC lever will not stay in the selected position, the friction lock needs to be adjusted. Refer to **ADJUSTMENTS of Forward Speed Control Friction Lock** in **Maintenance Instructions**.

2. Steer by pulling the lever on the side of desired direction of turn, e.g., pull the **LH** lever to **turn left**. To minimize the possibility of overcontrol, use only one hand on both steering levers.



Correct Operator Hand Position on the Controls

3. Reverse direction of the mower by pulling both levers backward.

Operating Instructions

NOTE: Smooth action on the steering levers will produce smooth mower operation. Remember to keep the engine and ground speed slow until learning the control response.

4. The FSC may be adjusted forward for faster ground speed and backward for slower ground speed. When mowing, ground speed should be adjusted to match the load on the cutter blades, i.e., as the engine pulls down in heavy cutting, pull back on the FSC lever to reduce ground speed. Adjusting ground speed helps maintain a balance between engine power and blade speed for high-quality cutting action.
5. Stop ground travel by pulling both steering levers backward to the **NEUTRAL-PARK** position (tractor not moving) and then moving the FSC lever to the **NEUTRAL-PARK** position.

NOTE: If the tractor creeps forward or backward with the FSC lever in the **NEUTRAL-PARK** position, the transmission control needs to be adjusted. Refer to **ADJUSTMENTS of Transmission Control** in **Maintenance Instructions**.

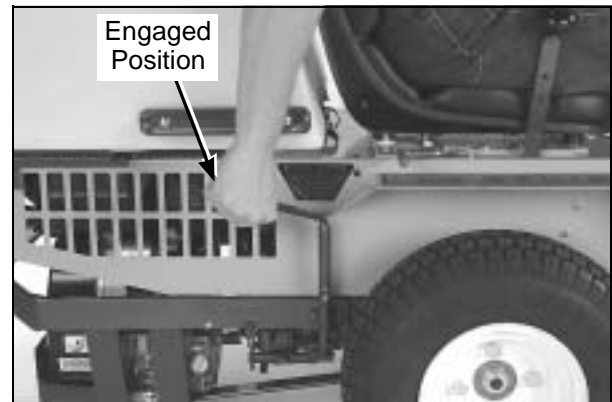
ENGAGING THE MOWER

1. Set the engine throttle at about 1/2 speed. **DO NOT attempt to engage the blade clutch at high engine speeds.** This will drastically shorten drive belt life. Use only moderate engine speed when engaging the blade clutch.
2. Push the blade clutch lever **SLOWLY** back to engage the mower blades.

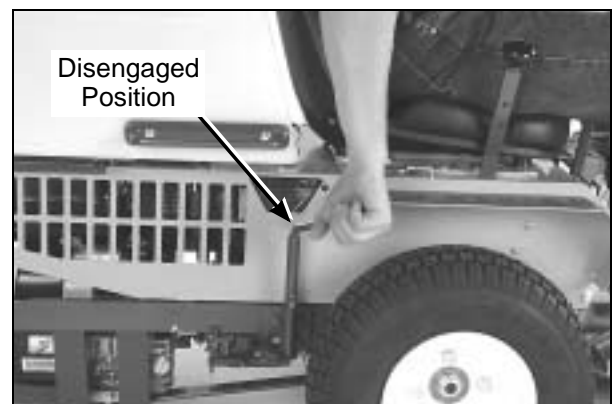
CAUTION

A safety interlock switch (seat switch) will cause the engine to stop if the blade clutch is engaged and the operator is not in the seat. The function of this switch should be checked by the operator raising off the seat and engaging the blade clutch; the engine should stop. If the switch is not working, it should be repaired or replaced before operating the mower. **DO NOT** disconnect the safety switches; they are for the operator's protection.

IMPORTANT: DO NOT engage the blade clutch when transporting the mower across drives, sidewalks, loose materials, etc. **DO NOT engage the blade clutch with the PTO shaft disconnected** (the mower deck removed from tractor).



Blade Clutch Engaged



Blade Clutch Disengaged

CAUTION

If the cutting blades strike a stationary object while mowing, stop the mower immediately, disconnect the spark plug wire, lift the deck, and inspect the deck and blades thoroughly for damage. Make sure that the blade timing has not been disturbed (the blades should be at 90 degrees to each other). Refer to **REPLACING/REPAIRING the Blade Overload Shear Bolts** in **Maintenance Instructions** if blades are out of time. Also, make sure the blade retaining nuts are torqued to 60 ft-lb (81.3 N·m).

Operating Instructions

STOPPING THE MACHINE

1. Slow the engine to idle; put the throttle in the **IDLE** position.
2. Pull the steering levers to the **NEUTRAL-PARK** position and then move the FSC lever backward to the **NEUTRAL-PARK** position.
3. Disengage the blade clutch.

IMPORTANT: DO NOT disengage the blade clutch with high engine speed (above 1/2 throttle) since the brake action on the blade drive will cause premature wear of the PTO Drive Belt.

WARNING

A brake stops the cutter blades (and blower on GHS equipped models) from free-wheeling within five (5) seconds after disengaging the clutch. If the brake system malfunctions and the blades do not stop within five (5) seconds, the brake should be adjusted or repaired before operating the mower. Refer to **ADJUSTMENTS of Blade Clutch (PTO)** in Maintenance Instructions.

4. Turn the ignition switch **OFF**.

WARNING

Remove the key from the ignition switch when leaving the mower unattended. This will prevent children and inexperienced operators from starting the engine.

5. Engage the parking brake.

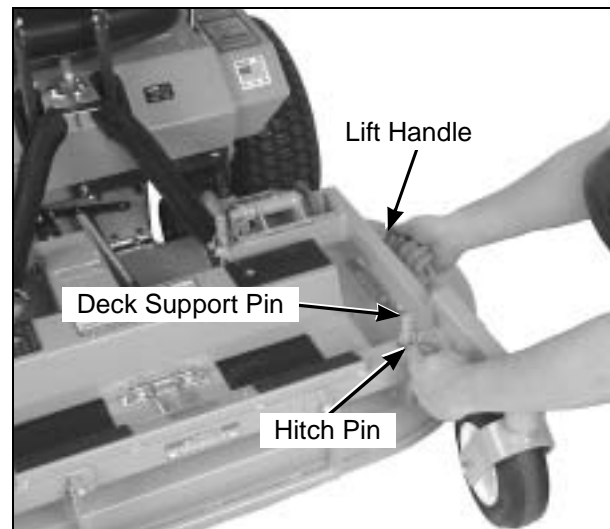
IMPORTANT: The hydrostatic transmissions lock to prevent the mower from rolling freely with the engine stopped. However, if the mower is parked on a slope, it is necessary to **ENGAGE** the parking **BRAKE** to prevent the mower from creeping. This is due to a small amount of slippage in the hydrostatic transmissions, especially when transmission fluid is warm.

ADJUSTING CUTTING HEIGHT

WARNING

The engine must be stopped before adjusting cutting height. Disengage the blade clutch (PTO), stop the engine, and remove the ignition key. Wait for all movement to stop before getting off the seat.

Cutting height is adjusted by positioning the four retainer hitch pins in a series of seven vertical holes on the deck support pins. Lift handles have been provided on each end of the deck to assist in raising the deck while positioning the hitch pins. Cutting heights range from 1 in. (25 mm) [top holes] to 4 in. (102 mm) [bottom holes] in 1/2 in. (13 mm) increments.



Cutting Height Adjustment

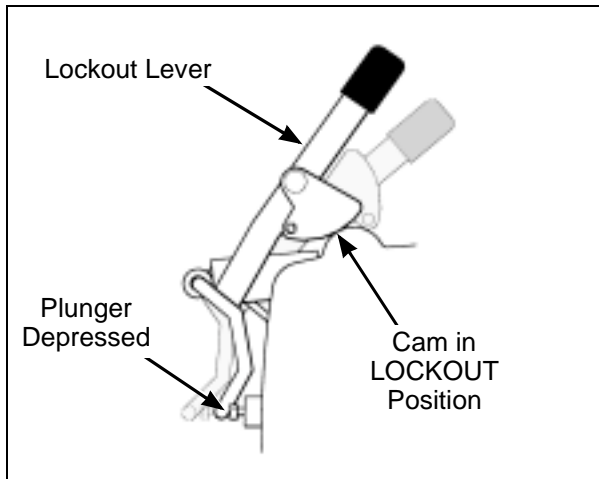
Operating Instructions

TRANSMISSION LOCKOUT

IMPORTANT: DO NOT TOW this mower with the transmission lockout engaged. Towing can produce excessive internal pressure and damage the transmission.

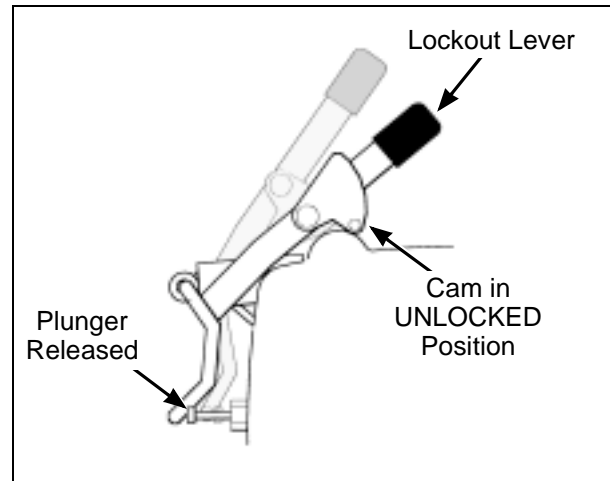
To move the mower with the engine **NOT** running (dead battery, maintenance, etc.), the hydrostatic transmissions are unlocked (released).

1. Raise the body.
2. Lift the transmission lockout lever on both the RH and LH transmissions and secure into place with the locking cam.
3. The mower will “freewheel” with the levers in the **LOCKOUT** position. The levers must be in the highest position to completely unlock the transmissions.



Lockout Lever - Freewheel Position

4. After moving the mower, release the locking cam, placing the lever **DOWN** in the normal **OPERATING** position. Make sure the transmission lockout plunger on the side of the transmission case (activated by the lockout lever) is **completely released**, otherwise the transmission operation will be erratic.



Lockout Lever - Normal Operating Position

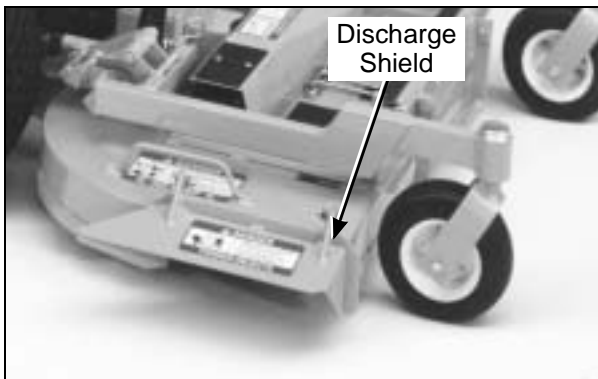
RECOMMENDATIONS FOR MOWING

IMPORTANT: Operate the engine at **full speed** when mowing, to allow the engine to produce full horsepower and to increase efficiency of the engine cooling system.

- Keep the mower deck and discharge chute clean.
- Mow with **sharp blades**. A dull blade tears the grass (resulting in poor lawn appearance) and uses extra power (slowing the mowing speed).
- It is preferable to cut grass when it is **dry** and **not too tall**. Mow frequently and do not cut grass too short. (For best appearance, cut off 1/3 or less of existing grass height.)
- When mowing, operate the engine at or near **full throttle** for the best cutting action and performance of the grass handling system (GHS). Mowing with a lower engine RPM causes the mowing blade to not cut clean and tear the grass. The engine is **designed to be operated at full speed**.
- When mowing in adverse conditions (tall and/or wet grass), mow the grass twice. Raise the mower to the highest setting - 4 in. (102 mm) - for the first pass and then make a second pass cutting to the desired height.
- Use a **slow** setting on the FSC for **trimming** operations.

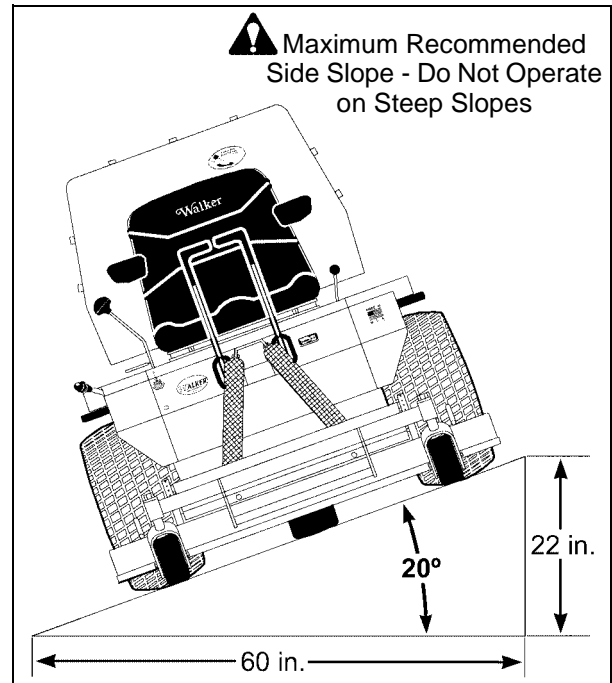
Operating Instructions

- Make sure the mower is **leveled properly** for a smooth cut. Refer to *Deck Leveling* in *Assembly Instructions*.
- Use an alternating **stripe mowing pattern** for **best appearance** and vary the direction of the stripe each time the grass is mowed to avoid wear patterns in the grass.
- Avoid damage to the grass by slipping and skidding of the drive tires. Use **smooth control movements** of the steering levers since the hydrostatic transmissions are “power boosted controls” and jerking the levers can easily slip the tires. For sharp turns, do not allow the inside wheel to stop and twist on grass; pull inside steering lever into reverse for a smooth “rolling” turn (one wheel rolling forward while the other rolls backward).
- When using a side discharge mower deck, the side discharge shield **must not be removed** and must be kept in the lowest possible position to deflect grass clippings and thrown objects downward. Orient the side discharge away from sidewalks or streets to minimize cleanup of clippings. When mowing close to obstacles, orient the side discharge away from obstacles to reduce the chance of damage to property by thrown objects.



Side Discharge Shield in Lowest Position

- When operating on a slope, **reduce speed and use caution** to start, stop, and maneuver. Avoid sharp turns or sudden changes in direction. The **maximum recommended side slope operating angle is 20 degrees or 33% grade.**



Maximum Recommended Side Slope

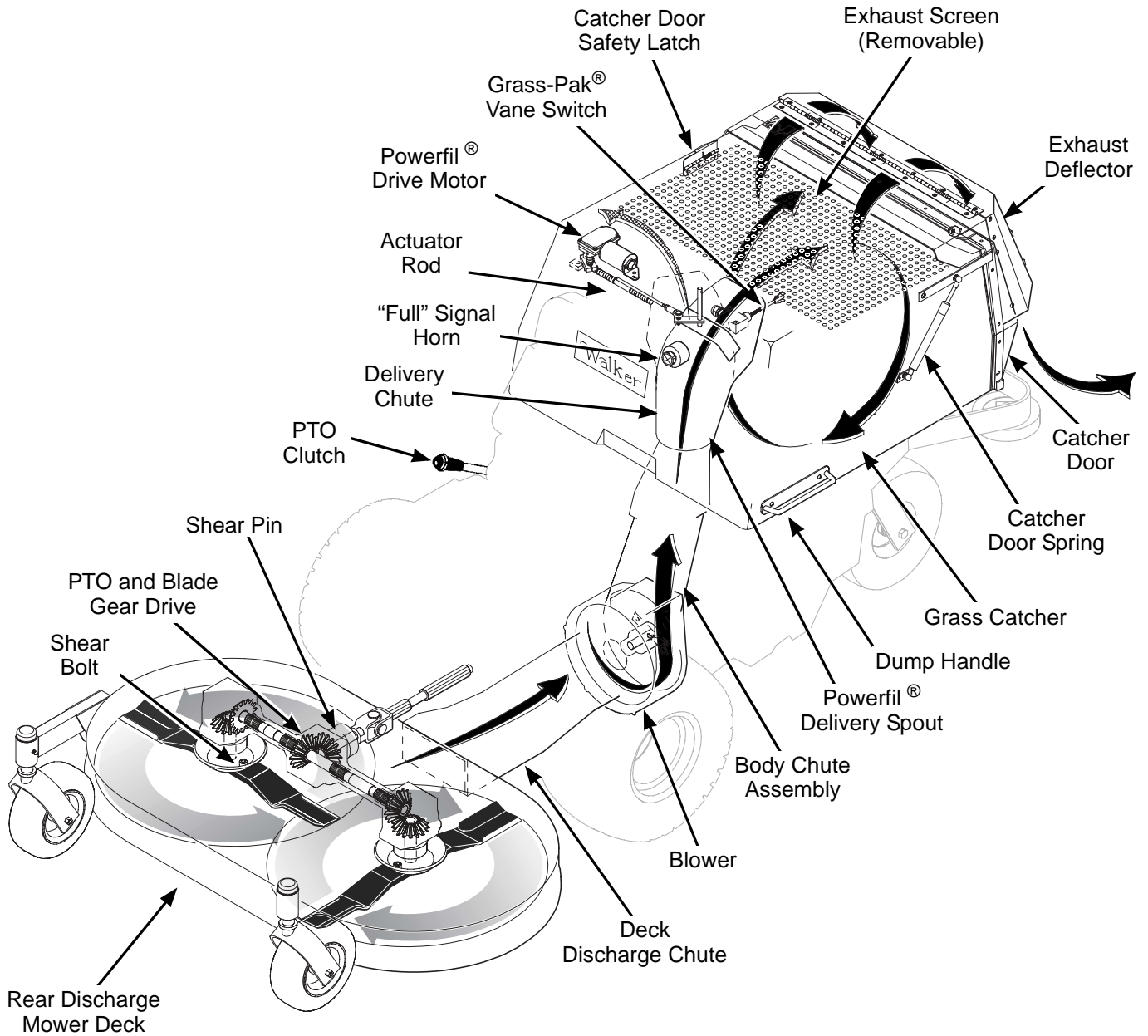
RECOMMENDATIONS FOR TILT-UP DECK OPERATION/TRANSPORT

To avoid potential deck and/or tractor damage while using the tilt-up deck, the following recommendations are offered:

- **Do not move the tractor** with the deck in the tilt-up position since both the roller wheels (on the back of the deck) and the GHS discharge chute may be damaged by moving the tractor. The tilt-up configuration should only be used when the tractor is parked.
- The tractor **body should never be tilted forward** with the deck in the tilt-up position. This can cause the deck to unhook from the tractor and fall with considerable force, potentially causing deck or tractor damage and/or bodily injury.
- When transporting a tractor with the deck in the tilt-up position (on a truck or trailer), the **deck should be secured** to the vehicle with a strap or rope (stop vertical movement). This will prevent the deck from bouncing on the rear roller wheels (causing breakage). This will also prevent the deck from unhooking from the tractor and falling, potentially causing deck or tractor damage. Damage to other items parked in front of the deck may also occur.

Operating Instructions

GRASS HANDLING SYSTEM (GHS) GHS Model Only



GHS Flow and Components

Operating Instructions

General Information

The Grass Handling System (GHS) consists of a rear discharge mower deck connected to a 9 in. (23 cm) blower and a rear mounted grass catcher with 6.7 bushel (238 liters) capacity. The GHS blower operates any time the mower blade clutch is engaged and moves grass through the rear discharge deck chute into the grass catcher. Blower airflow is exhausted out the back of the grass catcher, through a filtering screen. When the grass catcher is full and needs to be emptied, a “full” signal horn alerts the operator. When the “full” signal horn sounds, it is important to stop mowing to prevent overfilling and clogging of the blower system.

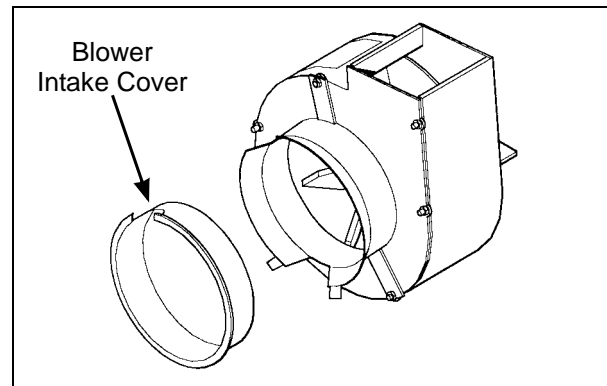
IMPORTANT: Normally, the GHS blower operates with no maintenance or cleaning required. However, under certain operating conditions, the inside of the blower housing may accumulate a deposit of dirt, causing wear and binding of the blower wheel. Normally, dirt buildup occurs when mowing a combination of dirty and damp grass, especially in the springtime. When operating in these conditions, check the blower wheel frequently for binding and clean the blower housing as required. Refer to **CLEANING the GHS Blower** in **Maintenance Instructions**.

NOTE: In Autumn, when using the GHS mower to vacuum leaves, it is recommended to raise the front of the mower deck 2 to 3 notches [1 to 1-1/2 in. (25 to 38 mm)] higher than the rear. This will avoid “bulldozing” leaves, particularly when the leaves are piled in a thick layer. To make this adjustment, the hitch pins in the two (2) front deck support pins are repositioned 2 to 3 notches higher while leaving the rear pins in their original position.

DANGER

NEVER operate the GHS catcher with the back door open. Objects may be thrown out the back of the catcher with sufficient force to cause serious injury to bystanders or to damage property.

NOTE: When a side discharge or mulching mower deck is installed on the GHS model, a blower intake cover should be installed in the blower intake tube. This cover “unloads” the blower and seals the intake to effectively eliminate power loss and blower noise when the blower is not being used.



Blower Intake Cover

DANGER

ROTATING BLOWER BLADES

NEVER operate the GHS blower with the blower discharge chute uncovered (grass catcher in the dump position) since dangerous projectiles may be thrown. **NEVER** put hands into the blower discharge chute for any reason. Use a stick or similar instrument to remove any material if clogging has occurred.

CAUTION

NEVER leave grass clippings in the grass catcher after mowing. Damp clippings generate heat as they decompose. This **MAY** cause spontaneous combustion.

Operating Instructions

Clogging Checklist

In case of clogging, there will be a **distinct change in the sound** of the blower, i.e., the blower sound will stop. Also, the mower deck will begin to leave a trail of grass clippings. When this occurs, stop the engine, disconnect the spark plug wire, and make sure **all movement has stopped before attempting to unclog**.

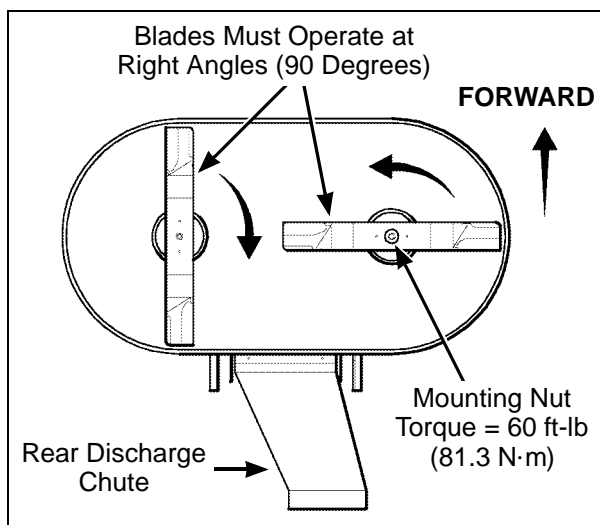


DANGER

NEVER place hands under the mower deck or in the GHS blower discharge chute. Use a stick or similar tool to remove any clogged material.

Normally, any clogging will first develop at the back of the mower deck in the discharge opening into the blower chute. Clogging at this point **does not indicate a particular problem in this part of the system, but is a symptom of something restricting the flow of material** throughout the entire system. The following list of items should be checked if a pattern of clogging begins to develop. All of these items are capable of causing clogging at the back of the deck.

- Check to see if the RH and LH mower blades are installed **for the correct rotation** - install the blades so the cutting edges move toward each other.



**Blade Rotation for GHS Mower Deck
(View from Underneath)**

- Check the amount of **flat section** remaining at blade tip. This is the area that is ground away (removed) when the blades are sharpened. If too much of the flat section is removed, the “air lift” performance or “shovel” effect of the blade deteriorates to the point that discharge of grass clippings into the blower chute is marginal. Replace cutter blades if less than 3/4 in. (19 mm) flat section remains at the blade tip.

- Check that the interior of the deck housing and baffling is reasonably **clean and free of grass and dirt buildup**. While some degree of material buildup can be tolerated, a point is finally reached where the flow of air and grass clippings is restricted.

NOTE: One condition that quickly causes a buildup of material in the deck housing is mowing grass and/or weeds which are “juicy”. The material collects under the deck with sticky, green juice. Clover and weeds are especially a problem. The mower deck will need to be cleaned frequently when operating in these conditions.

- Check the deck cutting height setting. When working in thick, tall grass, **lower deck settings [1 to 2 in. (25 to 51 mm) cutting heights] tend to restrict airflow** from moving into and under the deck. Raising the deck cutting height will significantly increase airflow and reduce clogging when working in thick, tall grass.

- Check the interior of the chute connecting the mower deck to the blower for **smoothness and freedom from obstruction**.

- Check the blower wheel for **bent blades and excessive clearance** between the blade tip and the blower housing. A clearance greater than 1/8 in. (3 mm) will cause a significant loss of blower performance.

- Check the blower discharge chute into the grass catcher for **smoothness and freedom from obstruction**.

- Check the elbow inside the grass catcher for a **buildup of material in the radius** of the elbow. In certain conditions (damp/dirty grass) a considerable “clump” of material can accumulate at this point, greatly restricting material and airflow.

Operating Instructions

- Check that the **openings in the air exhaust screen** in the grass catcher are not plugged. If the screen is clogged, refer to **Cleaning the GHS Exhaust Screen** in this section.

Remember, anything that restricts airflow or material flow along the entire path from the mower deck to the grass catcher can cause clogging.

Using the Tilt-Up Deck

Refer to **CLEANING of Grass Buildup in Mower Housing** in **Maintenance Instructions**.

Using the GHS Catcher

Powerfil®

The GHS catcher has an oscillating grass delivery spout (**POWERFIL®**) which is designed to spread grass clippings throughout the interior of the grass catcher (even when mowing wet, heavy grass). The oscillating action may be checked by turning the ignition switch to the **ON** position and moving the blade clutch to the **ENGAGED** position. The spout should oscillate approximately 25 cycles per minute.

NOTE: If the grass spout fails to oscillate, the clutch switch should be checked for function (the switch closure is adjustable).

“Full” Signal Horn

The GHS catcher has a **“full” signal horn** to alert the operator to **dump the catcher when it is full** (to prevent overfilling and clogging). The “full” signal horn is activated by a vane switch (Grass-Pak® switch) mounted on the grass delivery spout. Oscillating action of the spout triggers the vane switch as grass begins to fill in around the spout when the catcher is almost full.

The “full” signal function may be checked by turning the ignition switch **ON**, engaging the blade clutch (engine not running), opening the catcher back door, and triggering the Grass-Pak® vane by hand as it oscillates. The horn should sound as the switch is moved in both directions.



WARNING

DO NOT test the Grass-Pak® switch with the engine running. Projectiles may be thrown out of the grass delivery spout, and COULD cause serious injury.

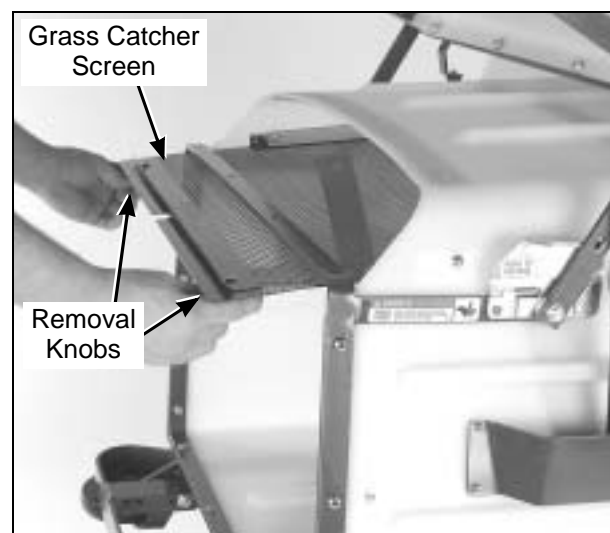
The “full” signal horn is designed to operate (sound) when the grass catcher is **almost full**. The timing of the signal is adjustable by changing the position of the vane on the Grass-Pak® switch. If the signal is coming on too soon (catcher not completely full) or too late (grass clogging in catcher spout and delivery chute), refer to **ADJUSTMENTS of GHS “Full” Signal Horn** in **Maintenance Instructions**.

NOTE: The horn signal should be adjusted to sound **BEFORE the catcher is completely full** to give the operator time to react and stop mowing. An indication the horn signal is coming on too late (delayed too much) is if grass clippings are falling out of the grass catcher delivery chute when the catcher is dumped.

Cleaning the GHS Exhaust Screen

To remove the grass catcher screen for cleaning, open the catcher door, push forward and pull down on the grass catcher screen knobs (on either side of the screen), and slide the screen out. Use a high pressure washer or water spray and brush to clean the screen.

Keeping the catcher exhaust screen clean and open is essential to good performance of the catching system. In some mowing conditions, e.g., wet and dirty, it will be necessary to clean the screen frequently to avoid clogging the mower deck, blower, and chutes due to airflow restriction.



Grass Catcher Screen Removal for Cleaning

Operating Instructions

Dumping the Catcher

For dumping, the catcher either tailgate dumps into a disposal area or dumps into the optional dump bag. The dump bag is a **reusable** nylon fabric bag designed to conveniently move grass clippings from the catcher to a remote disposal area or container.

Tailgate Dumping

1. Open the back door by lifting on the door handle.

NOTE: To prevent accidental door closure, a **safety latch locks the door open** in the fully opened position while the catcher is being dumped.

2. Tilt the catcher back to dump by lifting on the handle on the front of the catcher.
3. Lower the catcher smoothly down to the normal operating position. **DO NOT allow the catcher to drop down.**
4. Close the door by holding the door handle with the left hand and releasing the safety latch on the door hinge mechanism with the right hand. The safety latch is released by pressing in on the top of the latch. Then, the door should close smoothly with the assistance of the gas springs.



Catcher Door Safety Latch

Using the Dump Bag

1. Open the back door by lifting on the door handle.

NOTE: To prevent accidental door closure, a **safety latch locks the door open** in the fully opened position while the catcher is being dumped.

2. Orient the dump bag with one of the handle straps on the bag opening facing up.
3. Hook the bottom of the bag over the rear bumper while lifting on the handle strap.
4. Tilt the catcher back to dump into the bag by **lifting on the handle** on the front of the catcher **with one hand** while continuing to **hold up on the bag strap with the other hand**. Refer to photos for positioning the bag and dumping.
5. Lower the catcher smoothly down to the normal operating position. **DO NOT allow the catcher to drop down.**

Operating Instructions



Positioning Dump Bag on Catcher

6. Close the door by holding the door handle with the left hand and releasing the safety latch on the door hinge mechanism with the right hand. The safety latch is released by pressing in on the top of the latch. Then, the door should close smoothly with the assistance of the gas springs.



Dumping Catcher into Dump Bag

Maintenance Instructions



CAUTION

Maintenance procedures requiring special training or tools should be performed by a trained technician.

MAINTENANCE SCHEDULE CHART - RECOMMENDED SERVICE INTERVALS - MODEL MS

Service Item	Daily	25 Hours	50 Hours	100 Hours	Yearly	Every 2Years	Ref. Page
Check Engine Crankcase Oil Level	X						42
Check/Clean Engine Air Cooling System*	X						50
Clean Grass Buildup Under Deck	X						52
Clean GHS Exhaust Screen*	X						37
Clean GHS Blower*	X						52
Service Mower Blades	X						55
Check Security of Air Filtration Components	X						54
Check Air Filter Restriction Gauge	X						49
Lubricate Grease Fittings and Oil Points*		X					43
Check Battery Electrolyte Level		X					54
Check Hydrostatic Transmission Fluid		X					47
Check Tire Pressure		X					55
Check Drive Belts (Engine, PTO, Ground Drive)		X					56
Check PTO and Deck Gearbox Oil Seals		X					56
Change Engine Crankcase Oil**			X				43
Clean Fuel Filter			X				50
Change Engine Oil Filter				X			43
Clean Air Filter Element*				X			48
Check Gear Axle Oil Level				X			47
Clean Hydrostatic Transmission Cooling Fins				X			53
Clean and Regap Spark Plug				X			56
Clean Engine Cooling Fins					X		51
Check Fuel Lines and Clamps					X		56
Replace Air Filter Element and Vacuator™ Valve***					X		48
Service Battery					X		54
Check/Adjust Blade/Brake Action					X		57
Check/Adjust FSC Friction Lock					X		68
Change Gear Axle Oil ^Δ						X	47
Change Hydrostatic Transmission Fluid ^Δ						X	48
Replace Fuel Lines and Clamps						X	56

- * More often in extremely dusty or dirty conditions (see notes about air cleaner element under IMPORTANT TIPS FOR CARE OF KAWASAKI ENGINE)
- ** Change engine oil and filter after first 8 hours of operation of a new engine (break-in period)
- *** Replace every year or after 6 cleanings
- Δ Change every 2 years or 1000 hours



CAUTION

When performing maintenance with the mower body raised, a safety prop should be installed from back of body to chassis frame (fail-safe protection in case of failure of body lift support). For GHS Model, empty grass catcher before raising body.

IMPORTANT TIPS FOR CARE OF THE KAWASAKI ENGINE

Fuel System

- Fuel must be clean - free from water, dirt, and organic material.
- Clean the fuel filter on a regular basis and when contamination is suspected or found in the fuel.

Starting

- Start engine with the throttle advanced off idle (1/4 to 1/2 throttle). This will aid starting, especially in cold weather.
- Keep the battery fully charged.
- Match crankcase oil viscosity to the ambient temperature, allowing the engine to crank faster and start easier.
- Allow engine to run at idle for a few seconds before stopping engine to avoid run-on or backfiring.

Cooling System

- Keep engine air intake screen and cylinder head fins free of grass clippings, chaff, and dirt. Inspect intake screen and cooling fins for cleanliness and damage.
- Check performance of the cooling system by starting the engine, holding a hand adjacent to the cylinder head, and feeling the cooling airflow.



DANGER

Make sure to keep hands clear of exhaust pipe, muffler, and moving parts when checking airflow.

- Operate the engine at full speed when mowing. This will allow the engine to produce full horsepower and move more cooling air through the engine cooling fins.

Air Cleaner

- Use **only** Donaldson air cleaner elements. Aftermarket elements may not seal in the air cleaner housing, allowing dirt to enter the engine. Also, aftermarket filters often skimp on the filtration media and require more frequent cleaning and replacement (see instructions below).

- Use the air flow restriction gauge to indicate the need to service the air filter.

- **DO NOT overservice** or frequently “disturb” the **air filter**. A dirty air filter actually cleans better than a new one. Changing and cleaning the filter too often can actually reduce filter efficiency and increase the opportunity for traces of dust to enter the engine. Wait until the element really needs servicing as indicated by the loss of engine power.

- When the air filter element is removed or replaced, make sure all **dust is cleaned out of the air cleaner housing and hose**. Use a damp cloth and wipe the interior of the canister and hose clean (a little dirt left here will be sucked into the engine and reduce engine life). When the filter is reinstalled, make sure the **element is held tight and straight** in the canister for proper seating and sealing.

- Periodically check the air intake hose for cuts, nicks, etc., and the hose clamps for tightness.

Oil

- **DO NOT** screw filler cap into crankcase when checking oil level.

- Single viscosity or multi-viscosity oils may be used with the viscosity matching ambient temperatures for the engine operating conditions. This will **aid starting** in cold weather and assure proper lubrication in hot weather.

- Use only Kawasaki oil filters. **Aftermarket filters may not seal properly** and/or have the incorrect pressure relief valve for proper lubrication.

LUBRICATION

 **WARNING**

DO NOT attempt to lubricate the machine with the engine running. Disengage the PTO clutch, shut off the machine, and remove the ignition key.

Proper lubrication is an important maintenance procedure. It reduces wear and makes the machine quieter and easier to operate.

Engine Oil

Engine Break-In Oil

No special break-in oil is required. The engine is serviced with 10W-30, Service Class SG oil from the factory. The oil should be changed after the initial engine **break-in period** of **8 hours**. Thereafter, change oil **after every 50 hours** of operation.

Checking Engine Crankcase Oil Level

Check the engine crankcase oil level before use and **after each 5 hours** of continuous operation.

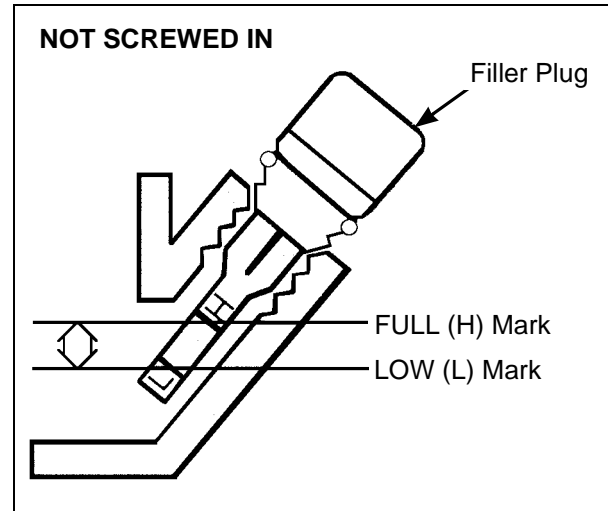
IMPORTANT: The importance of checking and maintaining the proper crankcase oil level cannot be overemphasized. Check the oil level **BEFORE EACH USE**.

1. Park the mower on a **level surface with the engine stopped**. Also, make sure the engine is cool and oil has had time to drain into the sump [allow **at least five (5) minutes** after stopping the engine].

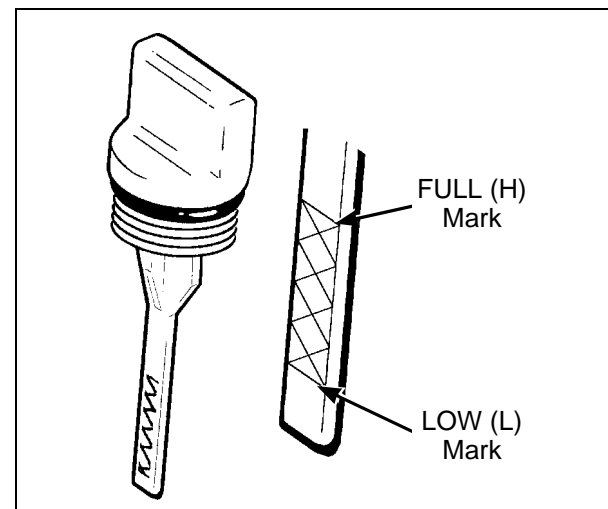
IMPORTANT: NEVER check or add oil with the engine running.

2. Before removing the dipstick, clean the area around the dipstick opening in the engine block to keep any dirt or debris out of the engine.
3. Unscrew and remove the filler plug/dipstick and wipe off with a clean rag. Insert dipstick into filler hole but **DO NOT screw it in** to check the oil level. Remove the dipstick and check the level. The oil level should be within the safe range (between the **H** and **L** marks on the dipstick).

IMPORTANT: DO NOT operate engine without sufficient oil supply in the crankcase. **DO NOT** operate with oil level below the **LOW (L)** mark or above the **FULL (H)** mark on the dipstick.



Dipstick Position for Checking Oil Level



Dipstick Operating Range

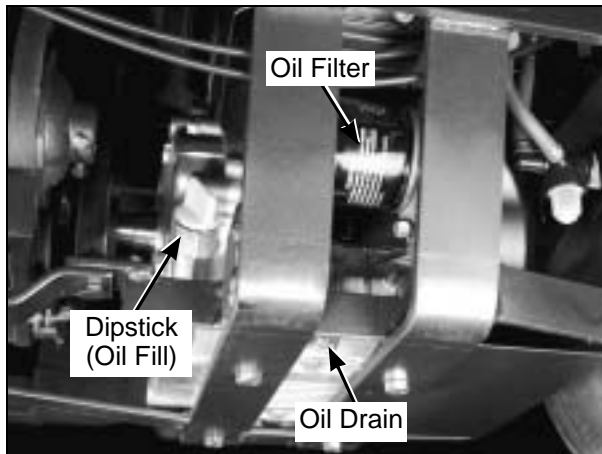
4. If additional oil is needed, refer to **Specifications** for proper crankcase lubricant. **Fill to the FULL (H) mark.**

IMPORTANT: DO NOT overfill crankcase [oil above **FULL (H)** level] as this **CAN** result in engine overheating, loss of power, and possible engine damage.

Changing Engine Crankcase Oil/Oil Filter

Change the engine crankcase oil **after every 50 hours** of operation and the oil filter **after every 100 hours** of operation as follows:

1. Park the mower on a **level surface with the engine stopped**. The engine oil should be warm before draining. If not warm from operation, start the engine and run a few minutes to warm the oil.
2. Before removing the dipstick, clean the area around it to keep any dirt or debris out of the engine.
3. Remove the dipstick and oil drain plug, and drain oil into a suitable container. Be sure to allow ample time for complete drainage.
4. Before removing the oil filter, clean the area around the filter to keep dirt and debris out of the engine.
5. Remove the old oil filter and wipe off the filter mounting surface on the engine.



**Oil Drain, Dipstick (Oil Fill),
and Oil Filter Locations
(view from lower left side of tractor)**

6. Apply a thin coating of new oil to the rubber gasket on the replacement oil filter.

IMPORTANT: Use **ONLY** oil filters from the engine manufacturer. Aftermarket oil filters may not seal properly and/or may not have the correct pressure relief valve for proper lubrication.

7. Install the new oil filter on the engine. Turn the oil filter clockwise until the rubber gasket contacts the sealing surface, then tighten the filter an additional **3/4 turn**.
 8. Reinstall the drain plug. Make sure it is tightened to 16.5 ft-lb (23 N·m).
 9. Fill the crankcase (through the dipstick opening) with oil using only crankcase lubricants supplied by the engine manufacturer. Refer to **Specifications** in this manual or the engine owner's manual. Use the recommended oil viscosity for the expected ambient temperature. Oil with the correct viscosity will aid starting in cold weather and assure proper lubrication in hot weather. **Fill to FULL (H) mark** on the dipstick; crankcase capacity is 2.7 pints (1.3 liters).
- IMPORTANT:** Check the dipstick reading before pouring in the last 1/2 pint of oil and **fill only to the FULL (H) mark**. The oil level should never be over the **FULL (H)** mark on the dipstick; overfilling can result in engine overheating and loss of power.
10. Start the engine and check for oil leaks around the oil filter. Stop the engine, recheck the oil level, and add oil if necessary. (When the engine is first operated with a new oil filter, the oil level will drop slightly as the filter is filled with oil.)

Grease Fitting and Oil Point Lubrication

Lubricate the grease fittings and oil points after **every 25 hours** of operation. Lubricate **more often** when operating in **dusty or dirty conditions**. Use SAE general purpose lithium or molybdenum base grease for grease fittings and light machine oil (SAE 10) to lubricate oil points. **Lubricate the locations shown in the Chassis and Deck Lubrication Points illustration.**

NOTE: PTO universal joints (on the deck and tractor) require routine lubrication **after every 8 hours** of running time.

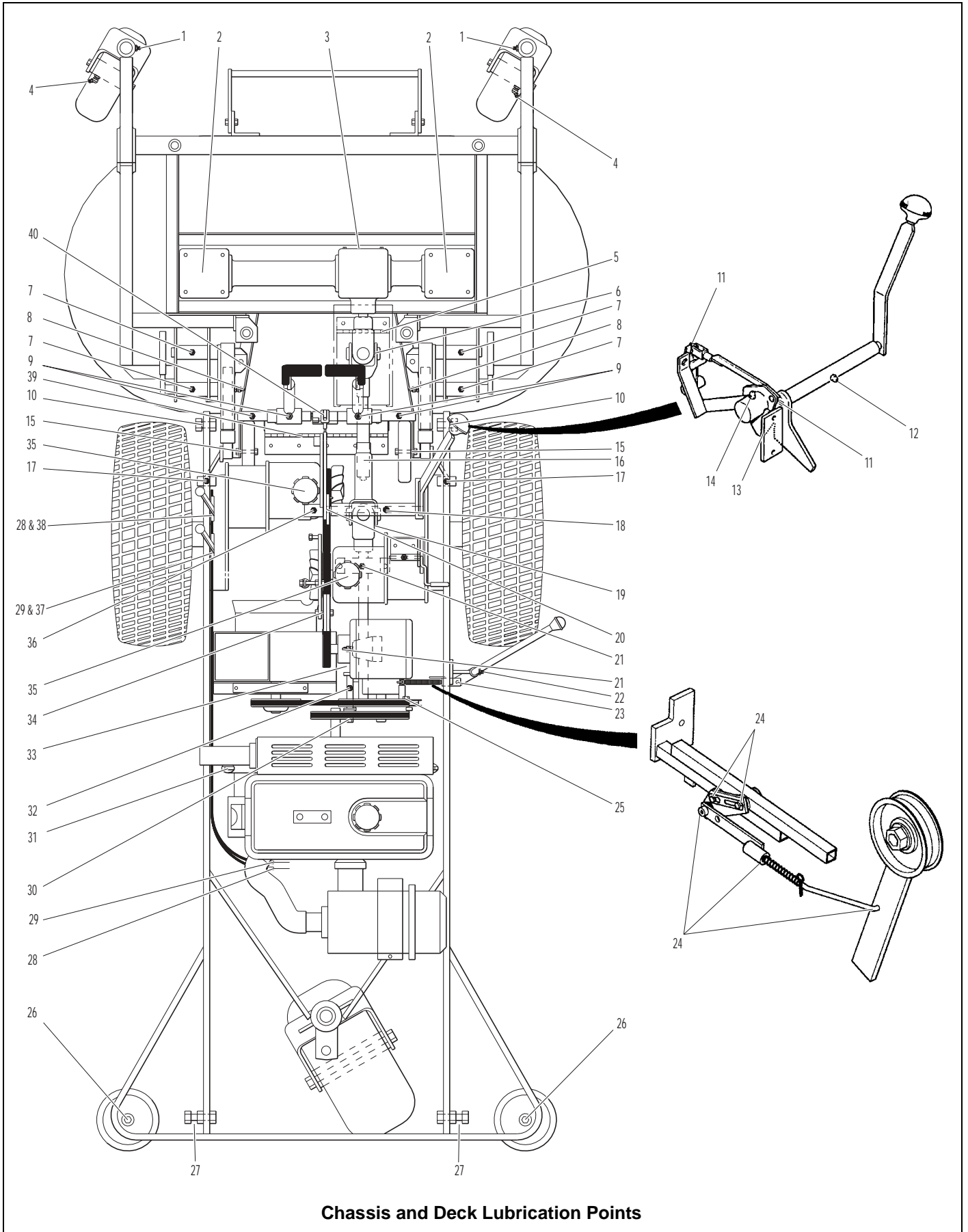
NOTE: The pillowblock bearings on the PTO drive shaft are a sealed, relubricatable-type bearing. Grease lightly **once per year** using care to not over-lubricate and damage the seals.

Ident No.	Location	Lubrication Type	No. Places	Ident No.	Location	Lubrication Type	No. Places
1	Deck Caster Wheel Fork Pivot	Grease	2	32	Engine Belt Tightener Assembly	Grease	1
2	Blade Drive Gearbox	Oil*	2	33	Right Angle Gearbox, Tractor	Oil***	1
3	Tee Gearbox, Deck	Oil*	1	34	Ground Drive Idler Pulley	Oil	2
4	Deck Caster Wheel Bearing	Grease	2	35	Hydrostatic Drive	Oil*	2
5	PTO Shaft Guard Hinge	Oil	1	36	(FSC) Friction Body Pivot	Grease	1
6	Universal Joint Shaft Assembly	Grease**	1	37	Throttle Control Pivot	Oil	1
7	Pivot Assembly, Tilt-Up Deck	Grease	4	38	Choke Control Pivot	Oil	1
8	Deck Support Arm Socket	Grease	2	39	Discharge Chute Hinge	Oil	1
9	Steering Lever Pivot	Grease	4	40	FSC Actuator Rod Pivot Pins	Oil	2
10	Body Hinge Point	Oil	2				
11	FSC Actuator Rod Pivot Pins	Oil	2				
12	Forward Speed Control Lever Pivot	Grease	1				
13	Forward Speed Control Lever Fork (Grease Slide Area)	Grease	1				
14	(FSC) Friction Body Pivot	Grease	1				
15	Deck Roller Wheel	Oil	2				
16	Deck-to-PTO Coupling	Grease	1				
17	Deck Support Arm Pivot	Grease	2				
18	FSC Lever Pivot	Grease	1				
19	Universal Joint Tube Assembly	Grease**	1				
20	FSC Lever Fork (Grease Slide Area)	Grease	1				
21	Pillowblock Bearing, Drive Shaft	Grease***	2				
22	Clutch Control Lever	Grease	1				
23	Clutch Control Clevis Pin	Oil	1				
24	Scrubber Brake Linkage (GHS Model Only)	Oil	5				
25	PTO Idler Pulley	Oil	1				
26	Rear Bumper Roller Wheel	Oil	2				
27	Catcher Hinge Point	Oil	2				
28	Throttle Control Cable Ends	Oil	2				
29	Choke Control Cable Ends	Oil	2				
30	Engine Belt Idler Pulley	Oil	1				
31	Engine Dipstick / Oil Filler	Oil*	1				

* Gearboxes are permanently lubricated and sealed requiring no scheduled lubrication. Oil level should be checked only when an oil leak is noted. Refer to **Mower Deck Gearbox Lubrication** in this section.

** Grease every eight (8) hours.

*** Refer to **Gear Axle Lubrication, Engine Oil, Tractor PTO Gearbox Lubrication, and Hydrostatic Transmission Fluid** in this section.

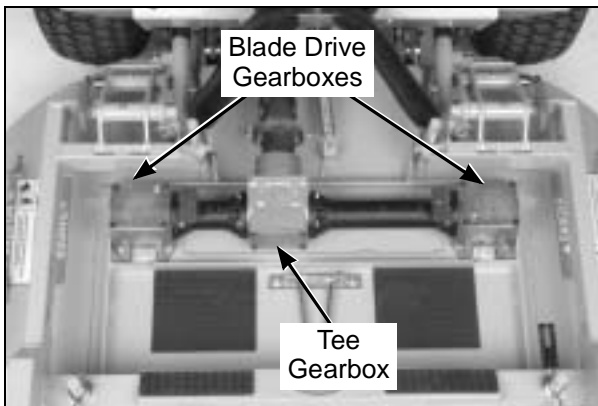


Chassis and Deck Lubrication Points

Mower Deck Gearbox Lubrication

The mower deck gearboxes (tee gearbox and blade drive gearboxes) are connected as a unitized assembly, and oil flows freely between them. The gearboxes are permanently lubricated (oil filled) and sealed requiring no scheduled lubrication. However, the gearbox oil seals should be checked **every 25 hours** for indication of an oil leak; **particularly the lower seals** on the blade drive gearboxes should be inspected, since they operate in a dirty environment. If an oil leak is noted, replace the oil seal and relubricate the gearbox assembly as follows:

1. Remove gearbox cover (footrest). Deck orientation should be the normal operating position.



Mower Deck Gearboxes
(shown with gearbox cover removed for clarity)

2. Clean the area around the individual gearbox cover plates to prevent contaminants from entering the gearcase.
3. Remove the screws securing the cover plates on the blade drive gearboxes.
4. Check the level of lubricant in the gearboxes. If the lubricant is low, add SAE E.P. (Extreme Pressure) 90W oil until the oil level is up to (submerges) the horizontal shaft in the gearbox (shaft parallel to cover plate).

NOTE: In case the gearboxes are completely drained of oil, approximately 5 fl. oz. (15 cl) of oil per gearbox is required to refill the gear drive assembly.

NOTE: Since the gearboxes are connected as a unit by connector tubes, it is necessary to add oil slowly. Allow a few minutes after adding oil for the oil to flow throughout the assembly and the oil level to stabilize before reassembly.

IMPORTANT: DO NOT overfill the deck gearboxes. The gearbox assembly is not vented, and overfilling with oil will cause excessive pressure and result in oil leaks.

5. Check condition of the cover gasket and replace if worn or damaged. Reinstall gearbox cover plates; torque screws to 24 in-lb (2.7 N·m).

Tractor PTO Gearbox Lubrication

The tractor PTO gearbox is permanently lubricated (oil filled) and sealed requiring no scheduled lubrication. However, the gearbox oil seals should be checked **every 25 hours** for indication of oil leaks. If evidence of an oil leak is noted, replace the oil seal and relubricate the gearbox. The gearbox will need to be removed from the tractor to be serviced. Refill with SAE E.P. (extreme pressure) 90W oil until oil level is up to (submerges) horizontal shaft of gearbox (shaft parallel to cover). **DO NOT** overfill.

NOTE: In case the gearboxes are completely drained of oil, approximately 5 fl. oz. (15 cl) of oil per gearbox is required to refill the gear drive assembly.



Tractor PTO Gearbox

Gear Axle Lubrication

- The gear axle oil lubrication is SAE 80W-90 (API GL-5) gear lube.
- Check the axle oil level **after every 100 hours** of operation by removing the oil level plug. If additional oil is needed, remove the breather vent on top of axle and fill until oil is at the level plug.
- Change axle oil **every 1000 hours** or **two (2) years**.

Hydrostatic Transmission Fluid

Checking Hydrostatic Transmission Fluid Level

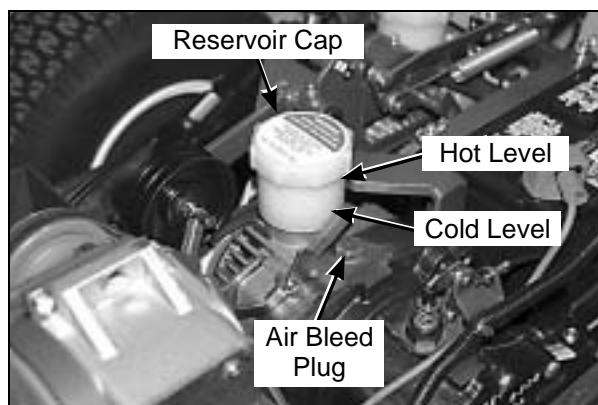
Hydrostatic transmission fluid level should be checked **every 25 hours** of machine operation. It is preferable to **check the fluid level when fluid is cold**. Check fluid level as follows:

1. Park the mower on a **level surface**. Stop the engine and wipe dirt and contaminants from around the reservoir cap and air bleed plug.

IMPORTANT: Before removing the reservoir cap, clean any dirt from around it. Any dirt or contaminants entering the transmission will accelerate wear and eventually cause loss of power to the drive wheels.

2. Remove the reservoir cap and check the level of the fluid. The reservoir has a fluid level **COLD** mark and **HOT** mark. The reservoir **oil level should ALWAYS be at or above the COLD mark and NEVER above the HOT mark**.
3. If the fluid is below the **COLD** mark (or the transmission is not performing properly), **loosen the air bleed plug** (located on the top of transmission case next to the plastic reservoir).
 - a. If a small amount of fluid leaks from around the air bleed plug:
 - * The transmission is full of fluid.
 - * Tighten the plug and fill the reservoir to the **COLD** level mark.
 - b. If no fluid leaks from around the air bleed plug:

- * Slowly add fluid into the reservoir until fluid starts to leak from around the plug. (Transmissions are serviced from the factory with Mobil DTE 18M hydraulic oil. When it is necessary to add fluid, refer to **Specifications** for the proper fluid. Use any of the fluids listed.)
- * As soon as there is fluid leaking from around the air bleed plug, tighten the plug and fill the reservoir to the **COLD** level mark. Wipe any excess oil off of the transmission housing.



Transmission Reservoir and Air Bleed Plug Location

IMPORTANT: DO NOT overfill the transmission reservoir. This will result in oil leaking out of the reservoir cap vent when the transmission warms up. It is preferable to add fluid to the transmission when it is cold and **make sure the oil is not above or below the COLD level mark**.

IMPORTANT: The transmission reservoir has a fine mesh screen in the bottom to trap dirt and foreign particles from entering the transmission. When filling the reservoir, fluid will **flow quite slowly** through this screen; so it is essential that there is fluid at the bleed plug before the transmission is considered full.

IMPORTANT: Any attempt to remove or in any way alter the filtering screen in the transmission reservoir could cause damage to the transmission and will **VOID** any transmission warranty.

Changing Hydrostatic Transmission Fluid

The hydrostatic fluid should be changed **every 1000 hours or two (2) years**. Also, the fluid should be changed if the natural **color** of the fluid has become **black or milky** (indicating possible overheating or water contamination of fluid). The transmission may be refilled using any of the fluids listed in **Specifications**. The fluid is changed as follows:

1. Park the mower on a **level surface** and stop the engine.
2. Remove the lower drain plug and the air bleed plug. Allow the fluid to drain out.

IMPORTANT: Clean any dirt from around the plugs and reservoir cap **before** removing them.

3. Reinstall the lower drain plug, making sure the rubber O-ring on the plug is in place and in **good condition**.
4. Refill the transmission through the air bleed plug hole until it is as full as possible.

IMPORTANT: Avoid fluid contamination when filling the transmission. Use clean container, spout, funnel, etc. when pouring the fluid into the air bleed opening and reservoir.

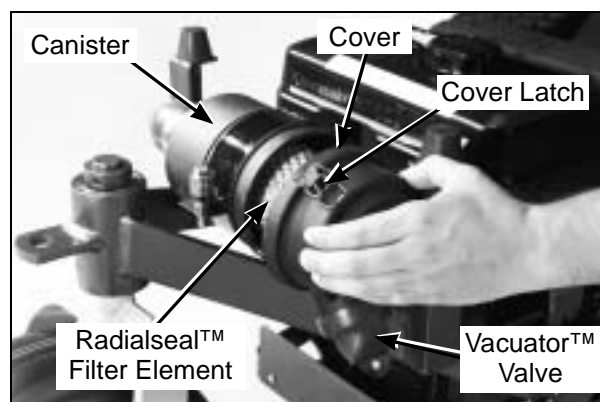
5. Rotate the transmission input shaft about five (5) revolutions to allow any trapped air to escape.
6. Before installing the air bleed plug, fill the reservoir with fluid allowing a small amount to leak out of the air bleed plug hole.
7. Install the air bleed plug and fill the **reservoir** to the **COLD** level line.

CLEANING

Engine Air Cleaner System

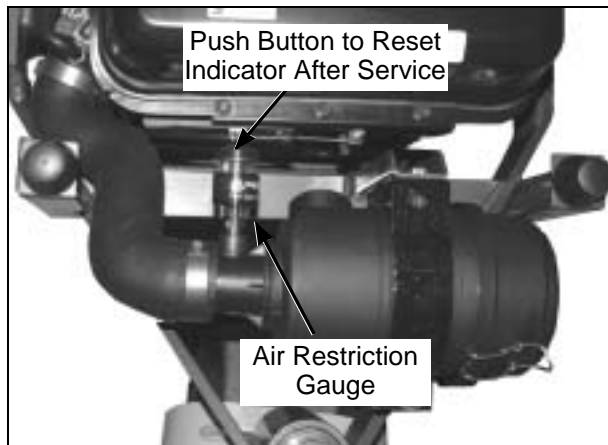
Donaldson Radialseal™ Air Cleaner

A remote mounted Donaldson Radialseal™ air cleaner provides the air filtering function. The paper filter element slides over an outlet tube inside the air cleaner canister with **radial** sealing action, eliminating the possibility of dust leaks due to improper filter installation. Intake design, internal baffling, and a Vacuator™ valve provide dust separation and automatic precleaning action. Daily or frequent servicing of the air cleaner **is not required**. Use the air restriction gauge on the air cleaner outlet to indicate when the air filter needs servicing -- a red flag will appear when the filter is overly restricting airflow into the engine. **IMPORTANT:** Use **only** Donaldson air filter elements for replacement (Donaldson P822686 or Walker 5090-1). Aftermarket filters may not seal properly or filter efficiently.



**Air Cleaner Components
(shown with cover being removed)**

IMPORTANT: The Donaldson air cleaner uses a dry paper-type air filter element. **NEVER** apply oil to the paper element.



Air Restriction Gauge Location

Clean and inspect the paper element **after every 100 hours** of service and **replace** the element **yearly** or **after six (6) cleanings** (or when dirty or damaged). More frequent cleaning may be required when operating in extremely dusty conditions as indicated by a loss of engine power. Service the air cleaner as follows:

1. Release the top and bottom cover latches and remove the air cleaner cover. Wash the cover and Vacuator™ valve. Check that these components are in good condition. The Vacuator™ valve is subject to wear and deterioration and should be replaced **yearly** or when damaged. The lips of the valve should close and fit together; any cracks, deformation, or wear in the valve is cause for replacement.
2. Remove the filter element by pulling it out of the canister. There will be some initial resistance as the filter seal breaks loose and slides off of the outlet tube. **Gently** move the end of the filter up and down and side to side or twist to loosen the seal. Use gentle action to minimize the amount of dust dislodged as the filter is removed.
3. Clean the filter element using **low pressure** compressed air [less than 100 PSI (689 kPa)]. Blow out the filter from the interior of the element while turning the element.

NOTE: Washing the element in water or cleaning solution is **not recommended**. Replace the element if it does not clean up with compressed air.

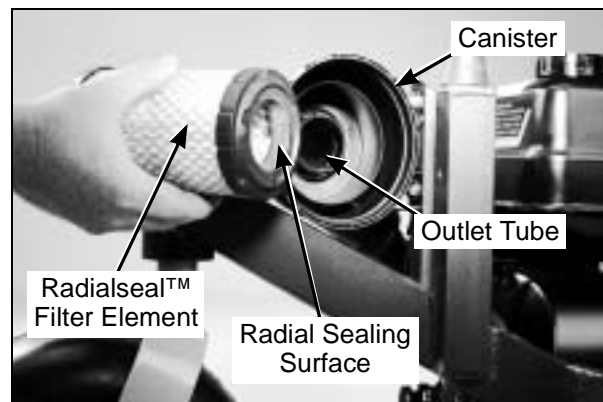
4. Use a bright light inside the element to inspect for damage. Check the element very carefully for **pin holes or other damage** that will allow dirt to leak through the paper media. Replace element if necessary.
5. Check the condition and resilience of the radial sealing surface (inside of the open end) of the filter. Replace the filter if any cracks, tears, or other damage to the sealing surface are noted.
6. Use a clean, damp cloth and wipe the interior of the air cleaner canister clean. Use special care to clean **both the inside and outside** surfaces of the outlet tube.

IMPORTANT: Any dust left on the inside of the outlet tube will go into the engine and cause wear.

7. Check the outside surface of the outlet tube for smoothness and cleanness (this is the sealing surface).
8. Insert and seat the filter element carefully into the canister, applying pressure at the outer rim of the filter; not at the flexible center. Make sure the filter element is completely in place before installing the cover.

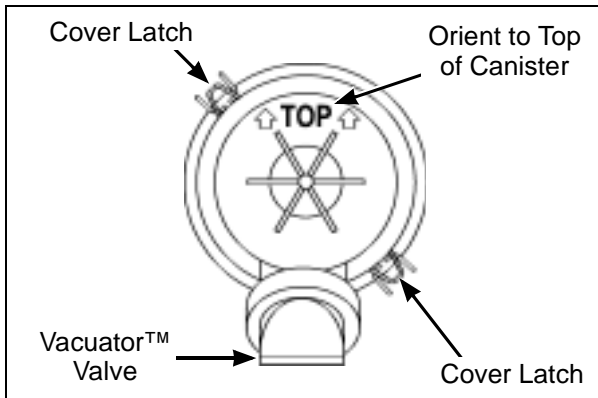
IMPORTANT: DO NOT use the **cover latches** to force the filter into the canister -- the cover should fit on with **no extra force**.

NOTE: DO NOT use petroleum based lubricants on the sealing surfaces of the filter; use talcum powder or dry silicone lubricants if required for filter installation.



Air Filter Element Replacement

- Install the cover with the word "TOP" properly oriented to the top of the canister. Give the cover a slight twist as it reaches the canister to make sure the tab inside the cover goes into a slot, otherwise the cover will not fit properly. Make sure both the top and bottom cover latches are securing the cover in place.

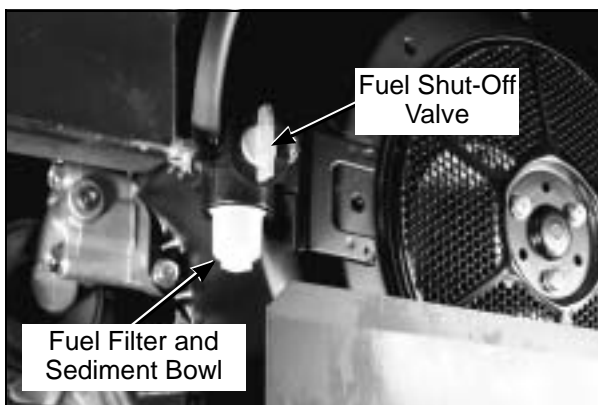


Proper Orientation of Air Cleaner Cover

- Check the air intake hose for cuts, nicks, etc., and the hose clamps for tightness.
- Reset the air restriction indicator (press button on bottom).

Fuel Filter

Clean and inspect the fuel filter screen **after every 50 hours** of service. Replace if damaged. Service the fuel filter as follows:



Fuel Filter and Fuel Shut-off Valve Location

IMPORTANT: Service the fuel filter screen only in a clean area where the fuel filter components will not be contaminated by any dust and dirt.

DANGER

Gasoline is extremely flammable and can be highly explosive. To minimize danger:

- Use an approved fuel container for gasoline.
- **DO NOT** allow open flames or sparks while performing maintenance or refueling; **DO NOT** smoke while working with fuel.
- **Wipe up spilled gasoline immediately and completely.**

- Close the fuel shut-off valve.
- Loosen sediment bowl and remove filter screen and gasket. Replace filter screen, if damaged (use only Kawasaki replacement filter #49019-2095).
- Remove any sediment, wipe clean and reinstall assembly.
- Open the fuel shut-off valve.

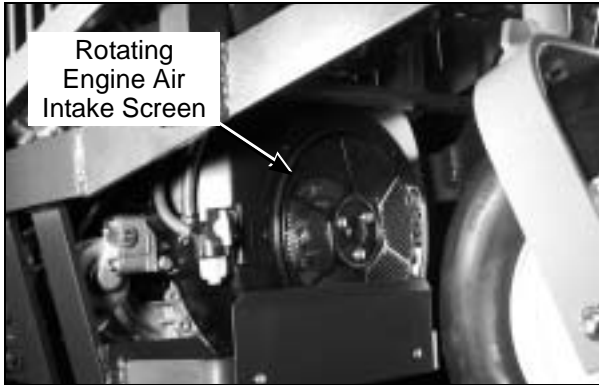
Engine Cooling System

Air Intake Screen

To prevent engine overheating and possible engine damage, clean grass clippings, chaff, and dirt from the rotating engine air intake screen **after every 8 hours** of operation. In certain mowing conditions (dry grass, leaves, tree "cotton", etc.) it may be necessary to check and clean this area several times each day to prevent engine overheating.

CAUTION

Operating the engine with a blocked air intake screen, dirty or plugged cooling fins, and/or cooling shrouds removed will cause engine damage from overheating.



Engine Air Intake Screen

Cylinder Head Cooling Fins

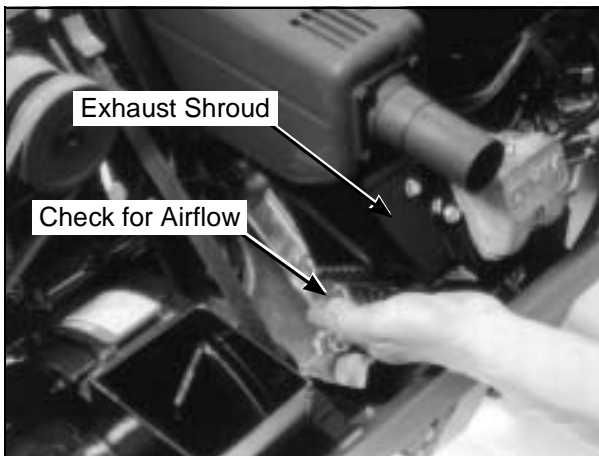
It is essential for performance and longevity of the air-cooled engine to keep the cylinder head cooling fins clean and free of obstruction. **After every 8 hours** of operation, check the performance of the cooling system by starting the engine, holding a hand adjacent to the cylinder head, and feeling the cooling airflow. If there is little or no airflow, clean the cooling fins as follows:



DANGER

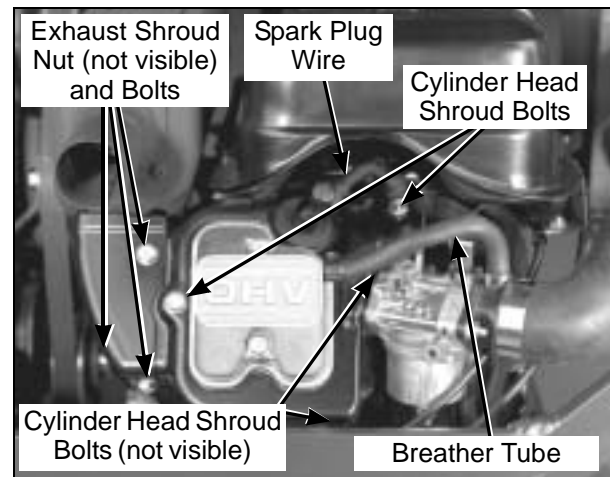
Make sure to keep hands clear of exhaust pipe, muffler, and moving parts when checking airflow.

NOTE: The planned maintenance schedule calls for cleaning the cylinder head cooling fins **yearly or every 300 hours** as a minimum.



Cooling System Airflow

1. Remove the exhaust shroud by removing the two (2) bolts and one (1) nut as shown in the **Inspect and Clean Cylinder Head Cooling Fins** photo on the following page. Clean the accessible cooling fins by blowing with compressed air. If the buildup is excessive, refer to step 2; if the buildup is not excessive, reinstall the exhaust shroud.
2. Remove the spark plug wire and disconnect the breather tube on the valve cover. **Do not** disconnect the breather tube from the carburetor side. Remove the cylinder head shroud by removing the four (4) bolts, as shown in the **Inspect and Clean Cylinder Head Cooling Fins** photo. Cover the breather tube end and spark plug boot before cleaning out the cooling fins. Clean the cooling fins by blowing with compressed air. If the buildup is excessive, use a piece of wire to probe into the fins for cleaning.
3. Reinstall the shrouds by reversing the preceding steps. Start the engine and confirm the cooling airflow.



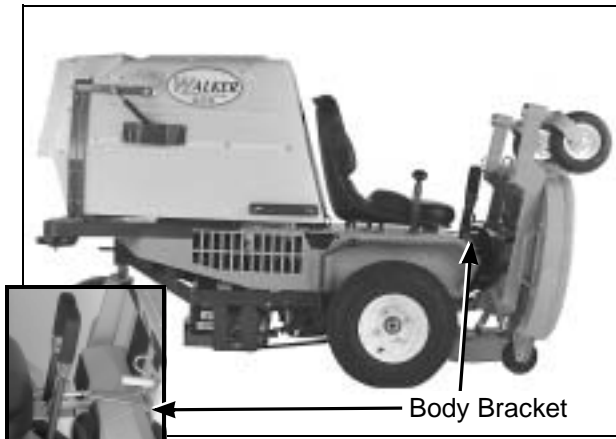
**Inspect and Clean
Cylinder Head Cooling Fins
(viewed from left side of tractor)**

Grass Buildup in Mower Housing

⚠ DANGER

Before raising or removing the mower deck for cleaning, stop the engine, remove the ignition key, and disconnect the spark plug wire.

1. **Raise** the deck lock lever handle on each side of the carrier frame **and pull out** to release carrier frame for tilting action.
2. Using the carrier frame lift handle, raise deck to the **TILT-UP** position and insert the deck hook into the tilt-up latch on the tractor body.



Deck Secured in Tilt-Up Position

3. Clean grass buildup underneath the deck using a pressure washer (and scraper if required).

NOTE: If the buildup is severe, it may be easier to clean the deck by removing the deck assembly from the tractor and standing the deck assembly on its “nose”.

NOTE: While some degree of material buildup in the mower deck housing can be tolerated, a point is finally reached **where cutting quality deteriorates and clogging begins to occur** because of too much buildup on the baffling and housing.

4. Lower the deck to the normal operating position and re-engage the deck lock levers.

⚠ CAUTION

Do not operate machine with deck tilt-up pivot joint unlocked.

GHS Blower

Normally, the GHS blower operates with no maintenance or cleaning. However, when mowing **grass that is dirty and damp** (especially springtime mowing), a deposit of dirt may accumulate inside the blower housing, causing wear and binding of the blower wheel. When operating in these conditions, **inspect the blower frequently for dirt buildup.**

NOTE: A visual clue of binding of the blower wheel is the blower **blade tips are polished** from rubbing on dirt.

When a dirt deposit is found, use a high pressure washer or water spray to clean the inside of the housing as follows:

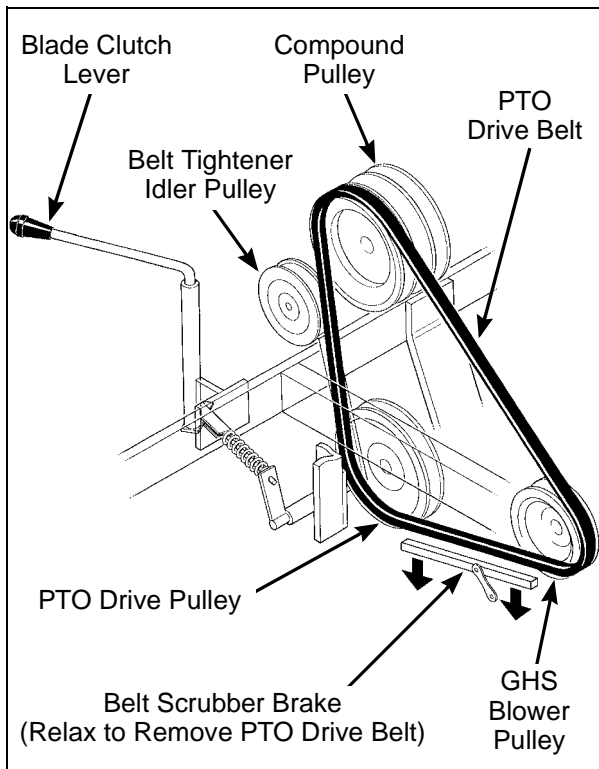
⚠ DANGER

Before attempting to wash the blower, stop the engine, remove the ignition key, and disconnect the spark plug wire.

1. Remove the PTO drive belt from the GHS blower pulley as follows: Move the blade clutch (in direction of engagement) far enough to relax the belt scrubber brake without tightening the PTO drive belt. Roll the belt off of the blower pulley, then move blade clutch to full “engagement” position. Both the drive belt and scrubber brake bar should be clear of blower pulley, allowing **free movement** of the blower wheel.

IMPORTANT: With the belt removed, the blower wheel **must spin freely**. Any binding or dragging of the wheel is an indication of dirt buildup. This **buildup must be cleaned** to avoid abrasive wear of the blower blades, excessive power loss and eventual loss of blower performance (clogging).

- Use a pressure washer or water spray, and direct the spray inside the blower housing against the blower blades. Water pressure will cause the blower wheel to begin to spin, and the combination of spinning action and water will effectively wash the inside of the housing. Spray may be directed against the blower blades vertically and horizontally to cause rotation in both directions for thorough washing action. **Wash blower until the blower wheel spins freely in both directions.**



**PTO Drive Belt Removal
for Cleaning GHS Blower**

- Reinstall the PTO drive belt by reversing the removal procedure.

GHS Exhaust Screen

Refer to **Cleaning the GHS Exhaust Screen** in **Operating Instructions**.

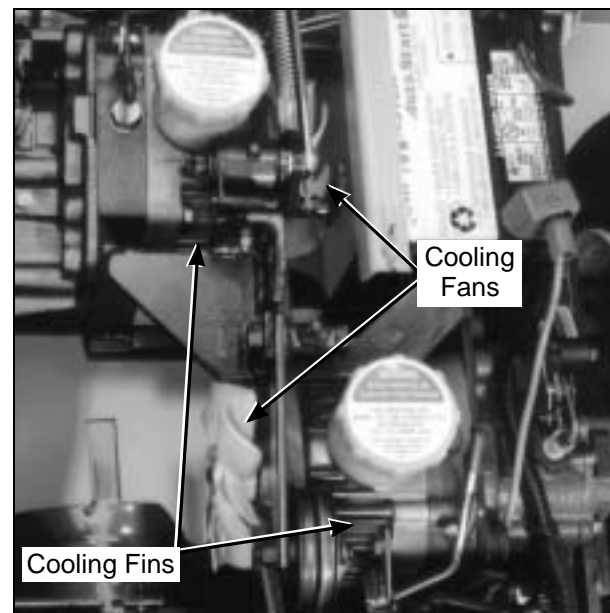
Hydrostatic Transmission Cooling Fins

Keeping the cooling fins on the hydrostatic transmissions clean and free of obstruction is **essential to avoid overheating** the transmission fluid and shortening transmission life. The cooling fins should be checked **every 100 hours**; and cleaned if necessary.

To clean the fins, use compressed air and/or a pressure washer. The cooling fins extend all the way around the housing -- the fins underneath need to be clean as well as the more visible fins above. Also, pay close attention to the area under the drive pulley.

IMPORTANT: In case an oil leak develops on the input shaft, the cooling fan blowing dusty air and oil on the transmission will **quickly** pack the cooling fins with **oily dirt**. If this condition occurs, replace the seal immediately to avoid overheating and damaging the transmission. The input shaft assembly and seal are easily replaced without removing the transmission from the machine.

An additional procedure in maintaining transmission cooling is to inspect the cooling fans. Replace the fan(s) if blades are missing or damaged.



Hydrostatic Transmission Cooling Fins

CHECKING/SERVICING



DANGER

To prevent accidental starting of the engine when servicing or adjusting the machine, remove the key from the ignition switch and disconnect the spark plug wire.

Security of Air Filtration Components

NOTE: The following inspection is **only an external inspection** and should be done without “**disturbing**” the filtration components.

On a daily basis, visually inspect the external condition of the complete air cleaner system. The following items should be inspected:

1. Check the Donaldson Radialseal™ air cleaner canister for damage. Make sure the cover is in place and the cover latches are secure - do not run the engine without the air cleaner cover in place and secure.
2. Inspect the air intake hose for cracks, nicks, cuts, etc., and check the hose clamps for tightness.

Battery

NOTE: For initial battery service during setup, refer to **Battery Service** in **Assembly Instructions**.

IMPORTANT: Make sure battery is securely mounted in the frame. A loose battery may cause damage to the case resulting in acid leakage and severe damage to the machine. A hazard may be created by damage to critical working parts and safety systems.

Electrolyte Level

The battery electrolyte level should be checked **after every 25 hours** of operation. To check electrolyte level:

1. Remove battery cell filler caps.
2. Check the electrolyte level. If the level is below the bottom of the vent well, fill with drinking water to the bottom of the vent wells [1/4 to 1/2 in. (6 to 13 mm) above the plates].

3. Replace filler caps.

IMPORTANT: DO NOT overfill the battery. Electrolyte will overflow through the vent tube onto parts of the machine and **WILL** result in severe corrosion.

Cleaning the Terminals

If battery terminals are corroded, **remove battery** from the mower. Using a wire brush, remove corrosion with a solution of **one part baking soda and four parts water**. Rinse with clean water. Coat the terminals with petroleum jelly or terminal protector spray to retard further corrosion.

Charging the Battery



DANGER

BATTERIES PRODUCE EXPLOSIVE GASES

- **Charge the battery in a well-ventilated area, so that gases produced while charging can dissipate.**
- **Keep sparks, flames, and smoking materials away from the battery at all times.**
- **Make sure the battery cap vents are open (check manifold vent on each cap).**
- **Make sure the battery charger is unplugged before connecting or disconnecting cables to the battery.**

Check the battery charge by measuring the specific gravity of electrolyte; if specific gravity is less than 1.225, the battery will need to be charged as follows:

1. Charge the battery at 15 amps for 10 minutes. **DO NOT** exceed 20 amps maximum recommended charging rate. Charge until specific gravity is at least 1.250. Total charging time should not exceed one (1) hour.
2. After charging the battery, use drinking water to adjust the electrolyte level to the bottom of the vent wells [1/4 to 1/2 in. (6 to 13 mm) above the plates].

Tire Pressure

Inflate tires to pressures shown below:

Deck Caster Wheel = 20 PSI (137 kPa)
Drive = 15 PSI (103 kPa)
Rear = 20 PSI (137 kPa)

Sharpen Mower Blades

Check mower blade(s) for **straightness, sharpness, condition of the cutting edge**, and **balance every 10 hours** of operation (or more often when mowing abrasive type grass or operating on sandy soils). **Replace blades if worn, bent, cracked, or otherwise damaged** (refer to **REPLACING/REPAIRING the Mower Blades** in this section). Use the following procedure to check and sharpen blades:

NOTE: Keep blades sharp - cutting with dull blades not only yields a poor mowing job but slows the cutting speed of the mower and causes extra wear on the engine and blade drive by pulling hard.

1. Stop the engine, remove ignition key, and disconnect the spark plug wire **before** raising the mower deck to service blades.
2. Raise the deck and **secure it** in the **tilt-up** position (refer to **Deck Secured in Tilt-Up Position** photo in **CLEANING of Grass Buildup in Mower Housing** in this section).



DANGER

NEVER operate cutter blades with the deck in the raised position.

3. Check the blades for **straightness** by marking the blade tip position inside the deck housing, and then rotating the opposite end of the blade to the same position and comparing. If the difference in blade tip track is **more than 1/8 in. (3 mm)**, the blade is bent and **should be replaced**.



WARNING

DO NOT try to straighten a blade that is bent. NEVER weld a broken or cracked blade. ALWAYS replace with a new blade to assure safety.

4. If the blade cutting edge is **dull or nicked**, it should be sharpened. Remove blades for sharpening by grasping the end of the blade using a rag or a thick, padded glove, while loosening and removing the nut, lock washer, and flat washer that mounts the blade.
5. Grind cutting edge at the same bevel as the original. Sharpen only the top of the cutting edge to maintain sharpness.

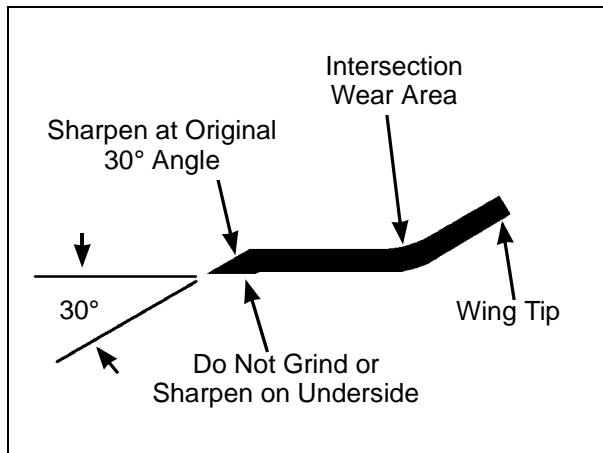
NOTE: Blades can be sharpened with an electric blade sharpener, conventional electric grinder, or a hand file.



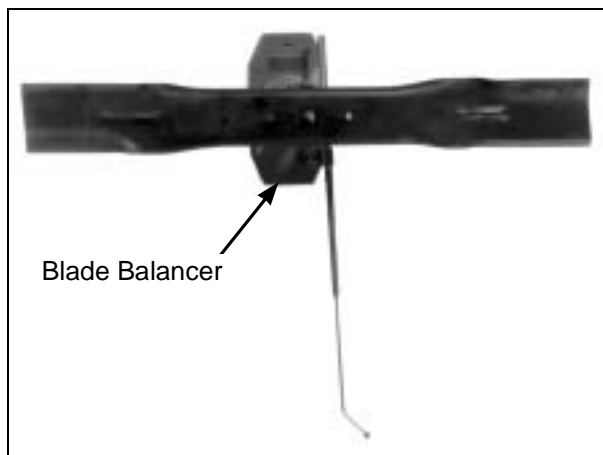
CAUTION

ALWAYS wear eye protection and gloves when sharpening a blade.

6. Check blade balance by positioning the blade **horizontally** on a blade balancer or use a nail or shaft through the center hole. If either end of the blade rotates downward, grind (remove) metal on that end until the blade will balance. The blade is properly balanced when neither end drops. Balance of a blade is generally maintained by removing an equal amount of material from each end of the blade when sharpening.



Mower Blade Profile For Sharpening



Blade Balanced on Magnetic Wall-Mounted Balancer

7. Mount the blade with wing tips pointing up into the housing. Reinstall the blade, washer, lock washer, and nut. **Tighten the nut to 60 ft-lb (81.3 N·m).**

NOTE: When reinstalling blades on **GHS** models, remember, the **blades turn toward each other** (counter-rotate) and the RH and LH blade cannot be switched. Check for proper blade rotation before installing blades on the deck. Refer to **Blade Rotation for GHS Mower Deck** illustration shown in **Clogging Checklist** in **Operating Instructions** for correct blade rotation.

Drive Belts

Raise the body and inspect the condition of the three (3) drive belts **after every 25 hours** of operation -- engine, PTO drive, and ground drive. If the belts show **signs of cracking or deteriorating**, the belts should be **replaced**. Refer to **REPLACING/REPAIRING the Drive Belts** in this section.

Mower Deck Gearbox Oil Seals

The mower deck gearbox seals should be inspected **every 25 hours** for evidence of oil leaking; **particularly the lower oil seal on the blade drive gearbox**. This seal is protected by the trash guard on the blade hub and seal protector plate on the housing, but is still vulnerable to seal damage due to operating in an adverse environment. The mower blade must be removed for inspection of the seal, so it is recommended to **inspect the gearbox seals when blades are removed for sharpening**. If an oil leak is noted, the seal should be replaced and the gearbox assembly relubricated. Refer to **Mower Deck Gearbox Lubrication** in this section.

Spark Plug

Every 100 hours, remove the spark plug, inspect, clean, and reset the gap (or replace with a **new plug**). Clean spark plug with a wire brush. If the electrodes are burned short or pitted, replace the plug (refer to **Specifications** for the proper type of replacement plug). Check the spark plug gap with a wire-type feeler gauge and set the gap between 0.028 and 0.032 in. (0.7 and 0.8 mm). Reinstall and tighten to 17 ft-lb (23 N·m).

Breaker Points

The Kawasaki engine is equipped with electronic ignition. No breaker points, maintenance, or adjustments are necessary with this system. Contact an authorized Kawasaki engine dealer in case of ignition failure.

Fuel Lines and Clamps

Every year, inspect the fuel line from the tank to engine for deterioration or damage. Also, inspect the fuel line **clamps for tightness**. Good preventive maintenance calls for complete **replacement** of fuel lines and clamps **every two (2) years**.

Blade Brake Action

WARNING

It is important to check and maintain blade brake action for safe operation of the machine.

Check the function of the cutter blade brake (and blower brake on GHS models) by engaging the blade clutch (PTO), operating the engine at full throttle, then disengaging the clutch and measuring how quickly the blades stop. Watch the rotation of the blade drive shaft and blower pulley as a visual indication that movement has stopped. If the brake is **working properly, all rotation will stop five (5) seconds after disengagement** of the clutch. If the brake system malfunctions -- blades do not stop in five (5) seconds -- adjust or repair the brake before operating the mower. Refer to **ADJUSTMENTS of Blade Clutch (PTO)** in this section.

REPLACING/REPAIRING

DANGER

To prevent accidental starting of the engine when replacing parts or repairing the machine, remove the key from the ignition switch and disconnect the spark plug wire.

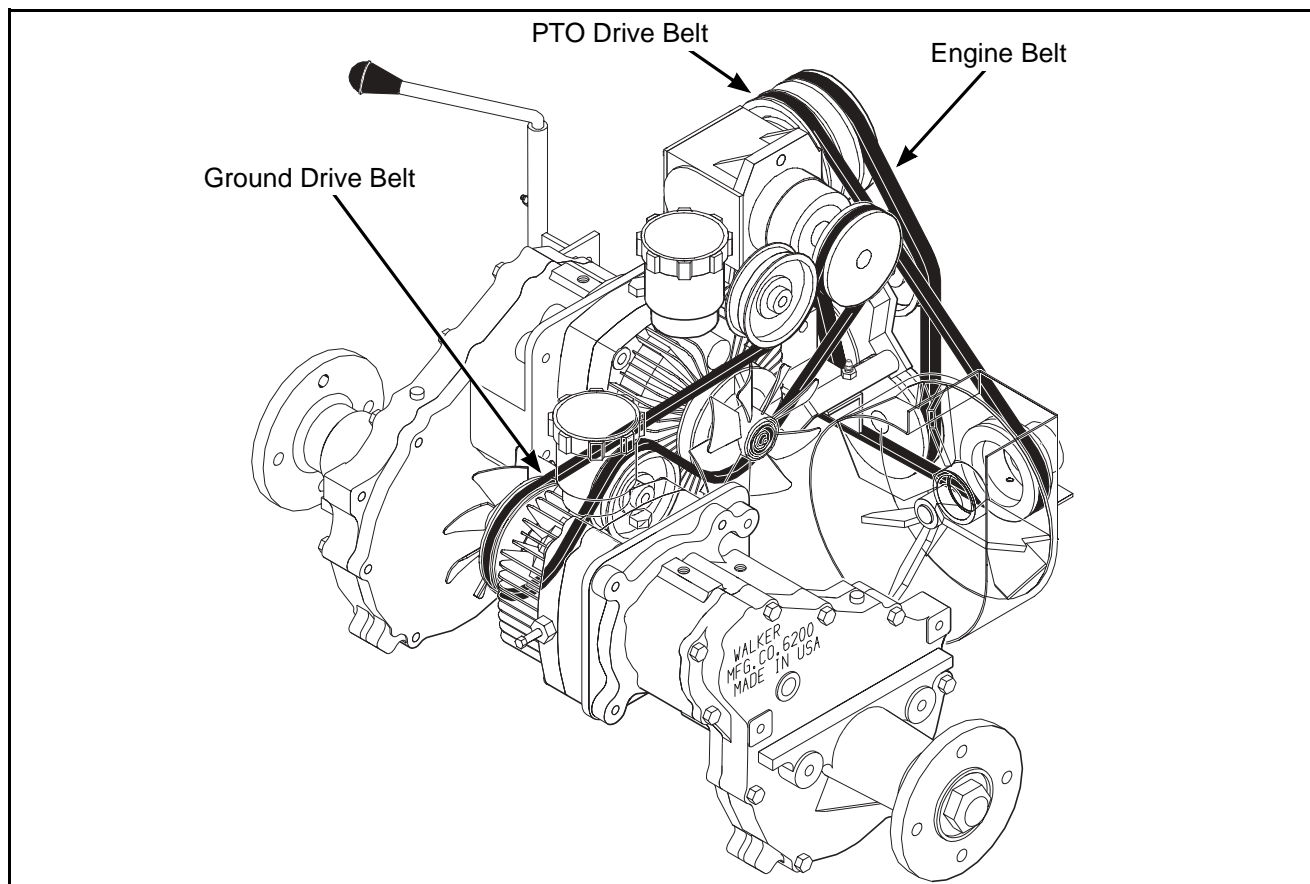
IMPORTANT: ALWAYS use genuine factory replacement parts. Substitute parts **CAN** result in product malfunction and possible injury to the operator and/or others.

Drive Belts

There are **three (3) individual belts** on the machine:

- Engine Belt
- PTO Drive Belt
- Ground Drive Belt

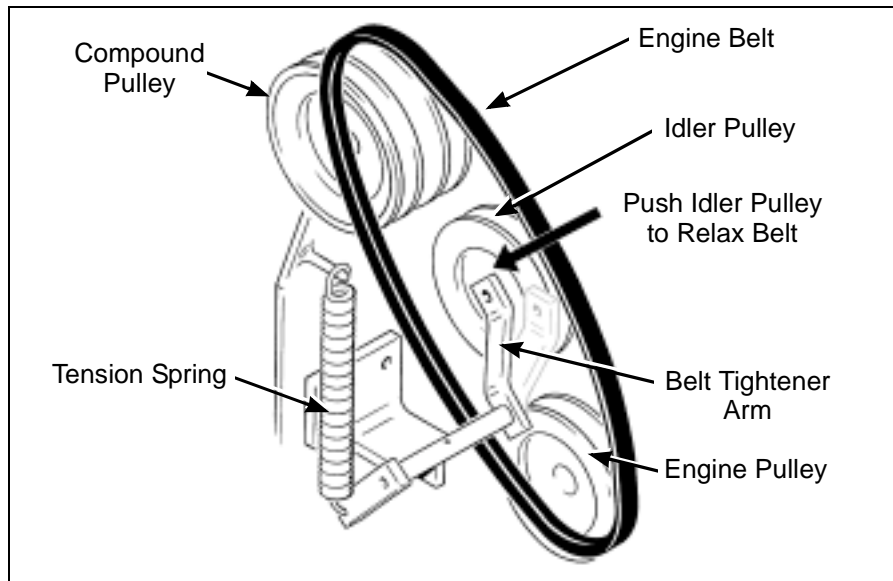
The belts may be removed and replaced using the **procedures described on the following pages.**



Belt Locations

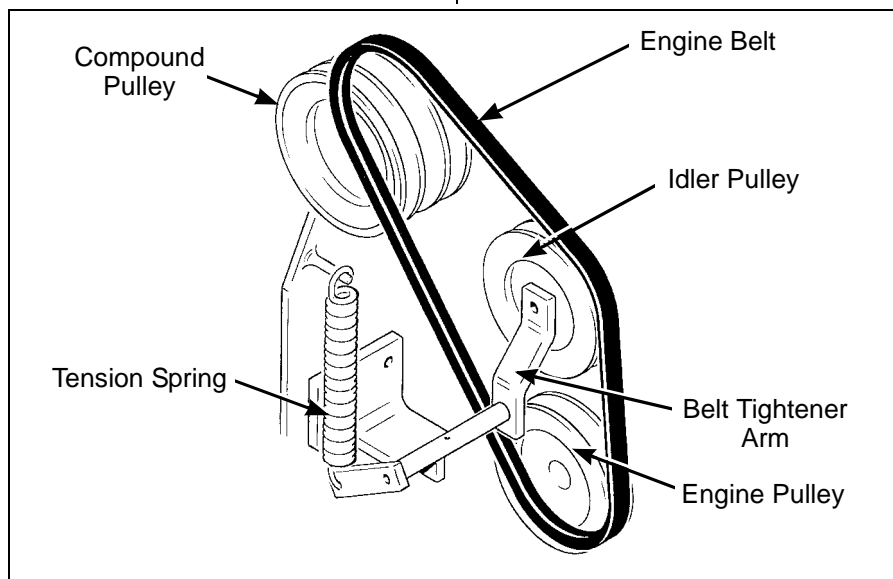
Engine Belt

1. To remove the engine belt:
 - a. Relax the belt by depressing the spring-loaded idler arm.
 - b. Roll the belt off the compound pulley and remove the belt.



Engine Belt (Disengaged)

2. Reverse the removal procedure to replace the engine belt.

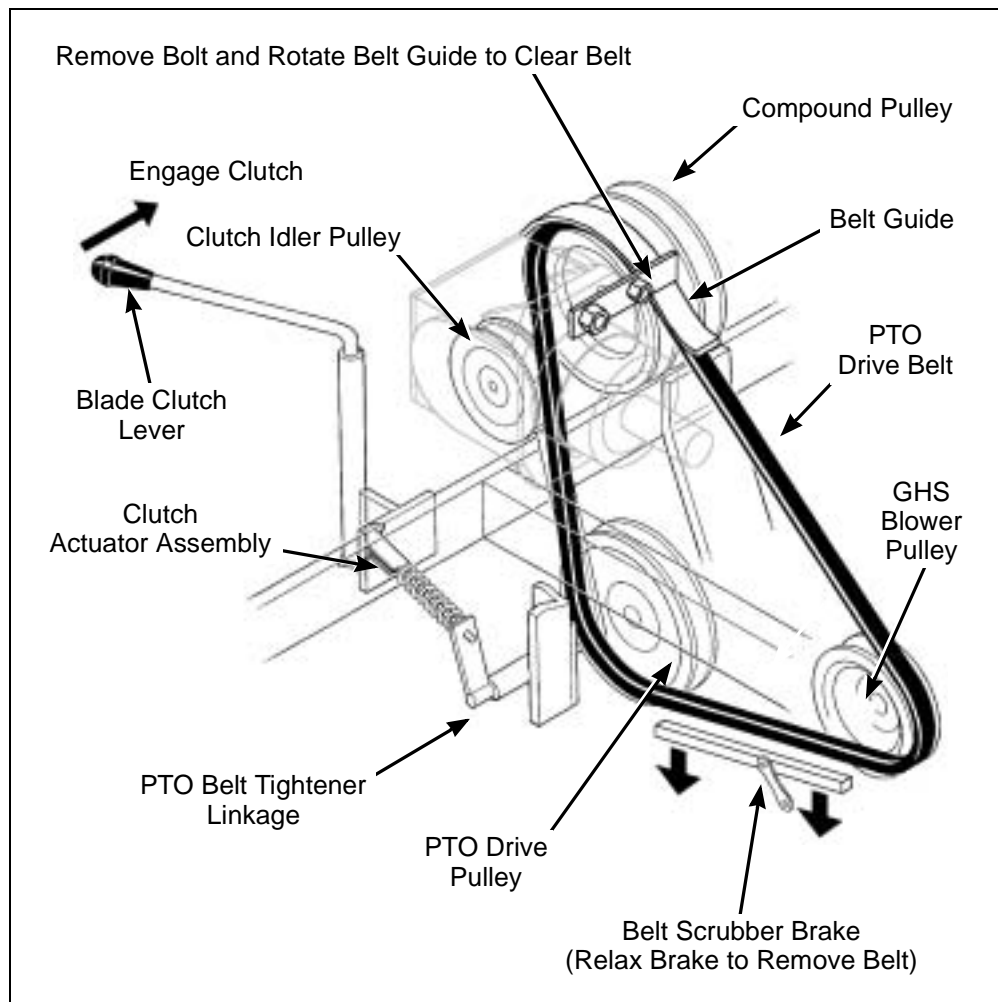


Engine Belt (Engaged)

PTO Drive Belt

1. To remove the PTO drive belt:
 - a. Remove the engine belt, as described in previous section.
 - b. Remove 1/4-20 x 3/4 bolt locating belt guide on gearbox pulley and rotate guide to clear belt.

- c. Move blade clutch (in direction of engagement) far enough to relax belt scrubber brake without tightening the PTO drive belt. Roll belt off PTO drive pulley and GHS blower pulley (GHS model only).
2. Install the PTO drive belt by reversing the removal procedure. Refer to **ADJUSTMENTS of Blade Brake (PTO)** in this section to check scrubber brake adjustment and brake action.



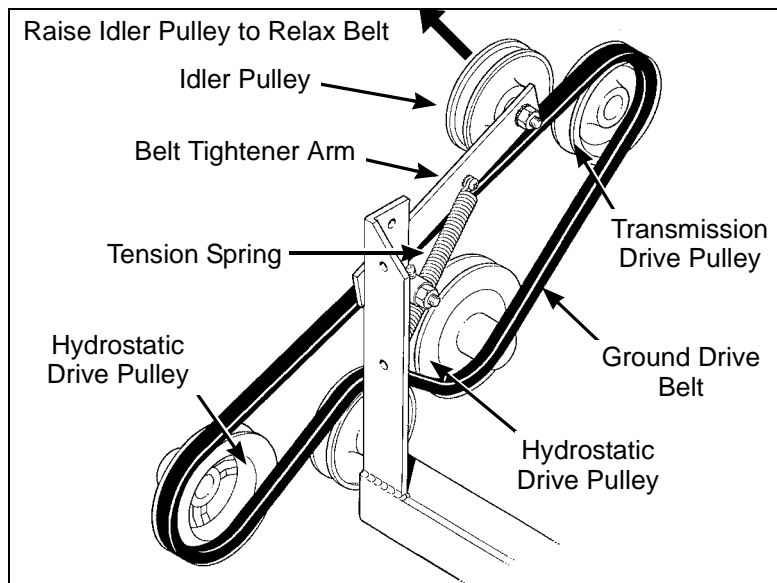
PTO Drive Belt Removal

Ground Drive Belt

1. To remove the ground drive belt:

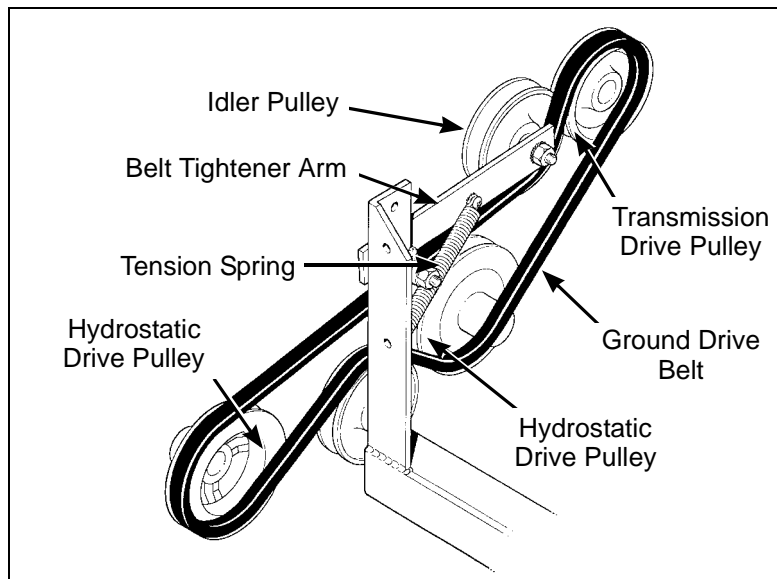
a. Raise the spring-loaded idler to relax belt.

b. Slide belt off pulleys, then release the idler.



Ground Drive Belt Assembly (Disengaged)

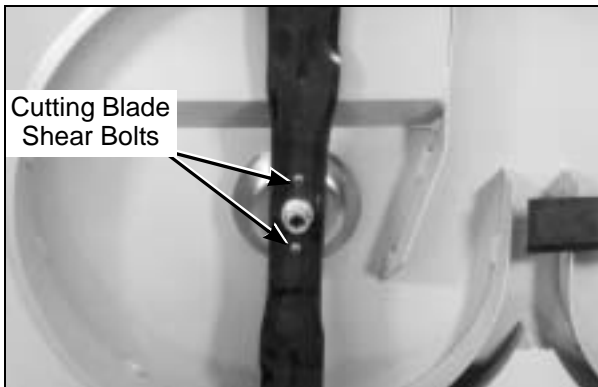
2. Reverse the procedure to install the ground drive belt.



Ground Drive Belt Assembly (Engaged)

Blade Overload Shear Bolts

The cutting blade is keyed to the blade hub by **two (2) shear bolts** (10-24 x 5/8 in. stainless steel machine screws). These bolts are designed to shear and protect the blade drive gearbox from damage if the blade encounters a shock load.



Cutting Blade Shear Bolts

NOTE: Tightening the **5/8-18 blade mounting nut to 60 ft-lb (81.3 N·m)** is also important for proper shock load protection. It is important to **not over-tighten** the mounting nut since this defeats (over-rides) the function of the shear bolts.

If these bolts shear, remove the blade and install new bolts. Refer to **CHECKING/SERVICING** in this section for **Sharpen Mower Blades** which describes the blade removal and installation procedure.

After reinstalling the blade, check blade timing by moving blades through **one (1) complete revolution**. Make sure blade tips pass clear of each other. If timing is incorrect, refer to **Mower Deck Gearbox Replacement** in this section.

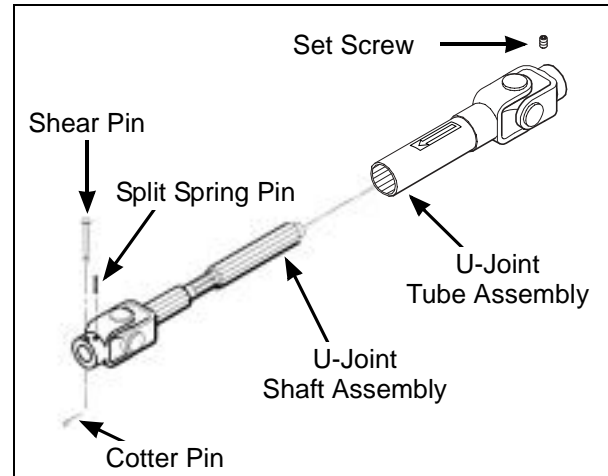
PTO Shear Pin

The PTO drive shaft connection to the deck gearbox has a shear pin to provide shock load protection to the mower deck drive. This system provides **primary shock protection** in case of blade impact and will normally shear before the individual shear bolts on the blade hub.

When the PTO pin has sheared, use the following procedure to replace it:

1. Loosen the two bolts securing the PTO shaft guard on the deck; lift the guard off. (Holes in guard are slotted for easy removal.)

2. Rotate U-joint on shaft to align the shear pin hole with the hole (and shear pin fragment) in the shaft. Use a punch to drive the remaining portion of the old shear pin out.
3. Install new shear pin and secure with cotter pin.



PTO Shear Pin

IMPORTANT: Use only Walker P/N 8067-13 shear pins for replacement to provide proper shock protection -- these pins are hardened to shear under a specific amount of load.

4. Reinstall the PTO shaft guard.

Before operating the deck, inspect the blade overload shear bolts and also check blade timing (on gear driven decks) by moving blades through **one (1) complete revolution**. Make sure blade tips pass clear of each other. If timing is incorrect, refer to **Mower Deck Gearbox Replacement** in this section.

Mower Blades

Mower blades are removed and remounted as described in the **Sharpen Mower Blades** instructions. During the course of sharpening and inspecting mower blades, if there are **any of the following conditions of wear or damage, blades should be replaced** for reasons of safety and performance of the machine:

- An excessive amount of the **flat section** of the blade has been **ground away** (removed) when the blade is sharpened. Replace the blade **when less than a 3/4 in. (19 mm) flat section remains** at the blade tip.

- Examine ends of the blade carefully, especially the intersection where the flat section of the blade turns up to form the “wing tip” (refer to **Mower Blade Profile for Sharpening** illustration in **Sharpen Mower Blades** instructions). Since sand and abrasive material can wear metal away in this area, the blade should be **replaced when metal thickness has worn to 1/16 in. (1.6 mm) or less.**



DANGER

When blades are operated over sandy soil, and if blades are allowed to wear, a “slot” may be worn into the wing tip of blade. Eventually a piece of the blade may break off creating a serious potential for injury or damage.

- Check the blades for **straightness** by marking blade tip position inside the deck housing and then rotating the opposite end of the blade to the same position and comparing. If the difference in blade tip track is **more than 1/8 in. (3 mm)**, the blade is bent and **should be replaced.**
- Inspect the blade surface, especially in formed areas, for **cracks**. Replace the blade if any cracks are found.



WARNING

DO NOT try to straighten a blade that is bent. NEVER weld a broken or cracked blade. ALWAYS replace with a new blade to assure safety.

Reinstall the blades following procedure from **Sharpen Mower Blades** instructions. If blades are replaced, always use **Walker original equipment blades** to ensure safety and optimum performance. The quality and performance of **replacement blades offered by other manufacturers** cannot be guaranteed, they **could be dangerous.**



CAUTION

ALWAYS use genuine factory replacement parts. Substitute parts CAN result in product malfunction and possible injury to the operator.

Mower Deck Gearbox Replacement

NOTE: Deck gearbox(es) may be changed with the deck mounted on the tractor. However, the deck may be removed from the tractor making the overall job of removing the gearbox assembly easier. Refer to *Deck Installation* in **Assembly Instructions** and reverse the procedure to remove the deck.

To replace the mower deck gearbox(es), use the following procedure:

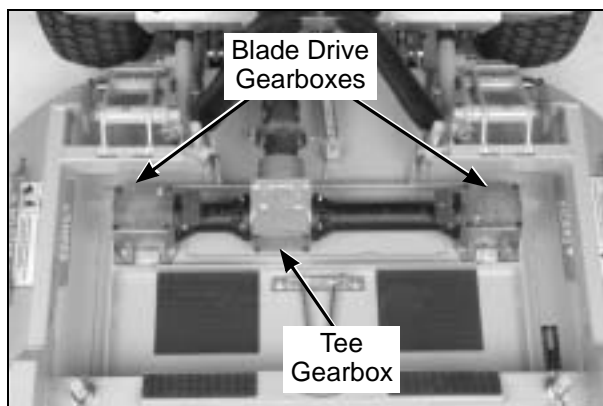
1. Remove mower blades. Refer to procedure in **Sharpen Mower Blades** instructions.
2. Remove gearbox cover (two machine screws) and PTO shaft guard (two 1/4-20 bolts).
3. Remove two (2) 3/8-16 mounting bolts from each blade drive gearbox and lift the entire gearbox assembly from the deck (including PTO drive shaft).
4. Remove the screws securing the cover plates on the gearboxes and remove the covers. Remove all covers to be sure oil is completely drained from all gearboxes.

NOTE: With oil flow throughout the unitized gear drive assembly; if one gearbox has internal damage or excessive wear, the remaining gearboxes and connector tubes should be completely disassembled and thoroughly flushed out with solvent before reassembly.
5. Drain and properly dispose of oil.
6. Remove the four (4) bolts mounting the gearbox to the connector tube and slide the gearbox off the splined drive shaft coupling.
7. Install the new gearbox on the spline coupling of the drive shaft. Establish correct timing of the blade drive gearboxes by setting flats on the output shaft at 90 degrees when connecting the gearbox(es) to the spline coupling. Make sure the timing is correct before proceeding with assembly.
8. Reinstall the four (4) bolts mounting the gearbox to the connector tube but **do not tighten** them at this time; leave connector tube bolts finger-tight.

9. Position the gear drive assembly on the deck and install the 3/8-16 bolts mounting the entire assembly. Leave the mount bolts finger-tight.
10. Torque all the connector tube bolts to 80 in-lb (9 N·m); then tighten the deck mount bolts.

NOTE: This fastener tightening sequence aligns the gearbox assembly with the deck housing and eliminates the possibility of mounting the unitized assembly in a bind.

11. Fill gearbox assembly with oil. Refer to **Mower Deck Gearbox Lubrication** in this section for instructions.
12. Reassemble remaining items onto deck to complete installation. After installing the blades, check that the blade timing is correct by moving the blades through **one (1) complete revolution**. Make sure blade tips pass clear of each other.

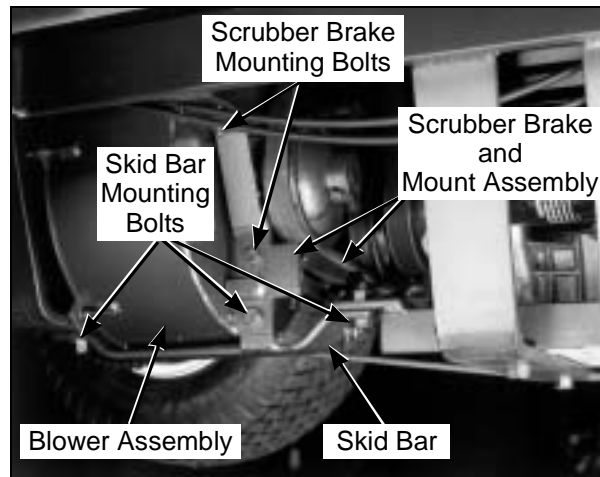


Mower Deck Gearboxes
(shown with gearbox cover removed for clarity)

GHS Blower Assembly (and/or Blower Wheel)

GHS Blower Assembly Removal

1. Remove the mower deck. Refer to *Deck Installation* in **Assembly Instructions** and reverse the procedure to remove the deck.
2. Remove the blower faceplate by removing six (6) 1/4-20 nuts.



Remove Skid Bar and Scrubber Brake
for GHS Blower Removal

3. Remove the blower assembly from the chassis as follows:
 - a. Remove the blower skid bar by removing front and rear mounting bolts from the skid bar (underneath the blower) and removing the bolt connecting the blower housing to the skid bar.
 - b. Remove two (2) bolts mounting the blower housing to the frame and the bolt mounting the scrubber brake assembly on the blower housing.
 - c. Remove scrubber brake assembly, and roll the blower drive belt off of blower pulley.
 - d. Lower the blower assembly **straight down** out of the chassis frame and remove.

Blower Wheel Removal

When required, replace the blower wheel using the following procedure:

1. Loosen blower pulley set screws and remove the pulley using a wheel puller.
2. Remove the **locking collar** from the back bearing (closest to the pulley) by loosening the **set screw** and rotating the collar counterclockwise (use punch to drive).

3. Press blower wheel out of the housing using a wheel puller hooked to lugs on the bearing housing. The bearings have been secured in the housing with a retaining compound - Loctite® RC/680, and **considerable force** will be required to break this bond. After the bearings have “broken loose” from the housing, only light pressure should be required to remove the wheel assembly out of the housing.

NOTE: It may or may not be possible to remove the front bearing from the blower wheel without damaging it. If the bearing is damaged, it will need to be replaced along with the wheel.



Pressing Blower Wheel Out of Housing

Blower Wheel Installation

1. To install the blower wheel, **reverse the removal procedures**. The front bearing is mounted on the blower wheel shaft, secured by a locking collar. Drive the locking collar clockwise with a punch, and tighten the set screw.
2. Press blower wheel and front bearing into the blower housing. Use Loctite® RC/680 retaining compound on the outer bearing race and inside the bearing housing.

3. Press the rear bearing into place, using Loctite® on both the outer bearing race and the housing.
4. Install the locking collar on the rear bearing and install the blower pulley to complete the blower assembly. Torque the blower pulley set screws to 250 in-lb (28.3 N-m).

GHS Blower Assembly Installation

Reinstall the blower assembly into the mower using the reverse procedures of *GHS Blower Assembly Removal*.

ADJUSTMENTS



If the engine must be running to perform a maintenance adjustment, keep hands, feet, and clothing from moving parts. DO NOT wear jewelry or loose clothing.

Safety Switches

There are four (4) safety interlock switches (and one control switch if GHS equipped) on the tractor. Use the panel nuts on the switch body to position each switch for proper activation of the switch. The adjustment procedure for each switch is:

Seat Switch

Adjust switch position in body panel to achieve a 1/32 to 1/16 in. (.79 mm to 1.59 mm) air gap between the switch plunger and seat frame with no weight on the seat. Test for proper operation.

FSC Neutral-Park Switch

1. Place the FSC in **NEUTRAL-PARK** position.
2. Adjust switch to the point where the starter engages when the ignition switch is turned to the start position.
3. Adjust switch position forward an additional 1/2 to 1 turn of the panel nuts.

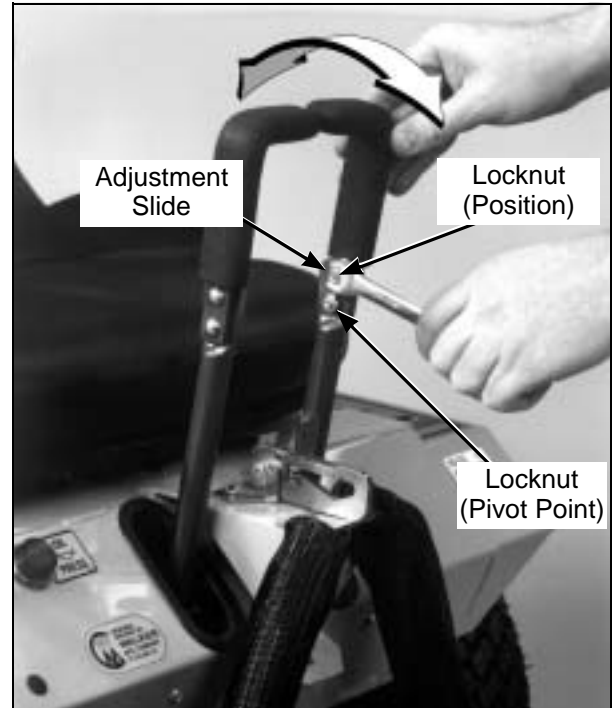
NOTE: If the switch cannot be adjusted forward enough to achieve proper function, it may be necessary to bend the switch mounting bracket slightly.

PTO Switch(es)

With the PTO engaged, adjust two (2) switches [three (3) if GHS equipped] to the point of activation plus 1 or two 2 turns of the panel nuts. Normally 1/8 to 3/16 in. (3 mm to 5 mm) of plunger travel will activate these switches. Make sure the switches are adjusted so the actuator plate **is not** bottoming out the plunger and striking the switch body.

Steering Levers

An adjustment range of approximately 3 inches is available on the steering levers - the levers can be adjusted forward or aft depending on the arm length of the operator. The levers can be adjusted by loosening the locknut at the pivot point and the locknut holding the lever in position in the adjustment slide. Adjust levers into most comfortable position and tighten both locknuts.



Steering Lever Adjustment

Blade Brake

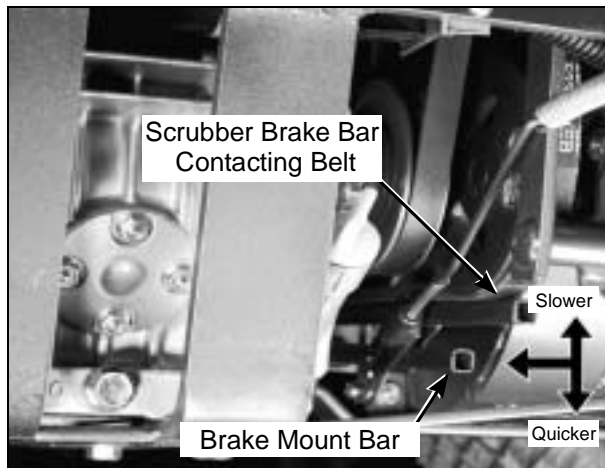


It is important to check and maintain blade brake action for safe operation of the machine.

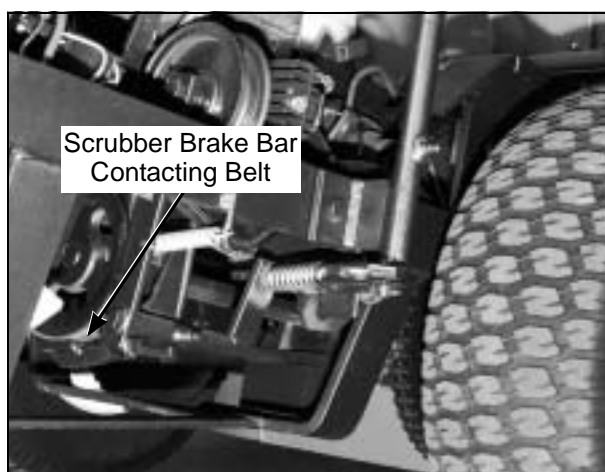
The mower blade drive (and blower on GHS models) is equipped with a brake system to stop blades within five (5) seconds after disengaging the clutch. A belt scrubber brake acting on the PTO drive belt provides braking action. The brake action is adjusted by **springing or bending the scrubber mount** on GHS models and **bending the scrubber** on SD models. If the brake system malfunctions - blades do not stop within five (5) seconds - adjust or repair the brake as follows:

Desired Brake Action	GHS Model Direction of Mount Bend	SD Model Direction of Scrubber Bend
Stronger (Quicker)	Bend Down	Bend Up
Weaker (Slower)	Bend Up	Bend Down

Braking Action Adjustment



Scrubber Brake Adjustment - GHS



Scrubber Brake Adjustment - SD

Use “trial and error” to adjust scrubber braking action and achieve a stopping time of approximately 4 to 5 seconds after disengaging clutch with full throttle. **Do not exceed five (5) seconds.** Avoid having the brake stop too quickly, as this will reduce PTO drive belt life (burns belt).

Also check for alignment of the brake bar (scrubber) on the belt and make sure bar is **only contacting the back of belt** and not the edges of the pulley(s). For GHS models, it may be necessary to spring the brake mount bar to shift (align) the brake bar on the belt; likewise, the scrubber on SD models is bent for alignment with the belt.

Transmission Control

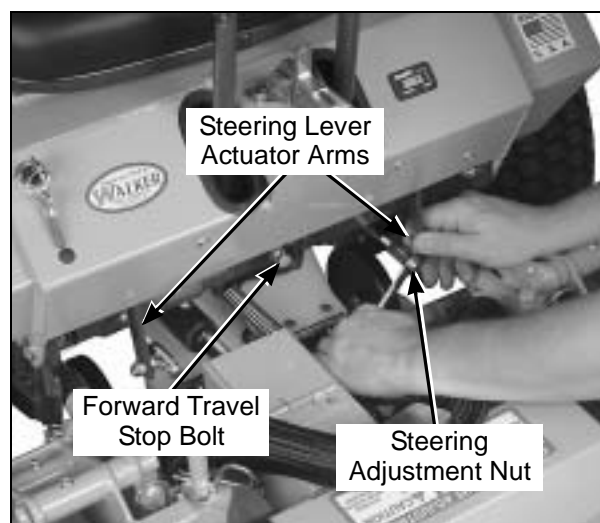
IMPORTANT: The proper adjustment of the transmission control stops is **essential** for efficient operation and life of the transmission. These stops are properly adjusted at the factory and should only require readjustment if the transmission or related control linkage is removed or changed.

NOTE: It would not be unusual for a new machine, after initial 5 or 10 hours of operation, to begin to not travel straight (this is due to the break-in of the transmissions). In this case, proceed to *Straight Ground Travel Adjustment - Step 4.*

IMPORTANT: The following adjustment procedures are sequential. Check and adjust each function in the order given.

Set Forward Travel Limit (Stop) - Step 1

1. Move the Forward Speed Control (FSC) lever to the most **FORWARD** position.
2. Check clearance of the RH and LH steering lever actuator arms with the frame and **adjust forward stop bolt** so each lever clears the frame by at least 1/16 in. (1.6 mm). Clearance of the arm to the frame should be checked while **applying pressure back** on the arm to remove any slack in the linkage.
3. Tighten the jam nut on the forward travel stop adjusting bolt.



Forward Speed Control Stop and Steering Lever Adjustment

Steering Lever End Play Adjustment - Step 2

1. Position the FSC lever to the most **FORWARD** position.
2. Loosen the adjustment nut on each steering lever actuator until end play develops between the lever actuator and the adjustment nut (sliding on transmission control rod).
3. Hold the actuator back as shown (against the spring pressure) and tighten the nut to the point where the end play is removed and **then tighten two additional turns**.

IMPORTANT: If the **adjustment nut is too loose** (end play exists), excessive loads are placed on transmission internal control stops. If the **adjustment nut is too tight** (preferred condition), the maximum forward travel speed is reduced.

Neutral Function Adjustment - Step 3

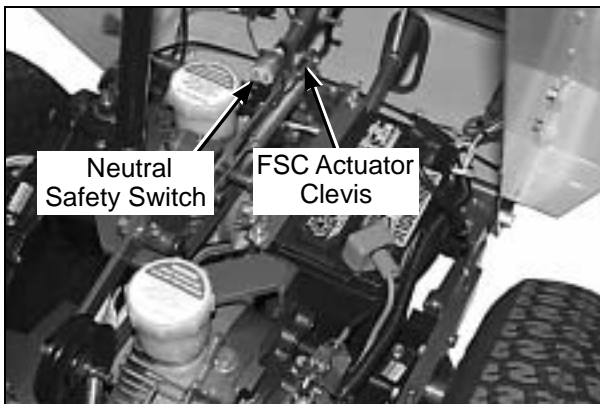
1. Move the FSC lever to the **NEUTRAL-PARK** position (rear travel limit).
2. Start the engine (operate first at idle and then normal operating speeds) and **check for movement of the drive wheels**.

NOTE: If the engine will not start, check and adjust the neutral safety switch (see item 4 below).



CAUTION

NEVER attempt to disconnect any safety devices or defeat the purpose of these safety devices.



Neutral Function Adjustment

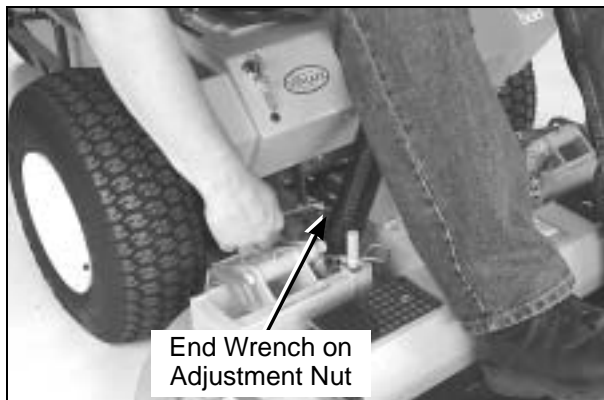
3. If drive wheels are moving, stop the engine and **adjust the FSC neutral stop** by adjusting the FSC actuator clevis (refer to **Neutral Function Adjustment** photo for clevis location). If the drive wheels are moving backward, remove the cotter pin and clevis pin and screw the clevis forward. If the drive wheels are moving forward, screw the clevis backward. Restart the engine and check for wheel movement (several "trial and error" adjustments may be required). At this point it may **not be possible** to adjust **both** wheels stationary since the differential adjustment has not been made. (This is covered by the *Straight Ground Travel Adjustment - Step 4*.) In this case, the neutral adjustment should be made for one wheel stationary and the other moving **forward** slightly.
4. Check and **adjust the neutral safety switch** for closure and function with the FSC in neutral (the engine will not start when the switch is open). Use the panel nuts on the switch body to adjust switch position for closure in neutral. Refer to adjustment description for **Safety Switches** in this section.

Straight Ground Travel Adjustment - Step 4

1. Sit in the seat, start the engine (operate at normal speed), and with the FSC in the **NEUTRAL-PARK** position check for **forward movement** of either drive wheel (if either wheel moves **backward**, refer back to *Neutral Function Adjustment - Step 3* and readjust). **Tighten the steering lever adjustment nut on the side of the mower with the wheel moving forward** until wheel movement stops.
2. Check for straight ground track on a **level surface** (with **hands off** the steering levers). Set the FSC at several different speeds and observe if the mower moves in a straight line (use cement joint or other line on ground for reference).

NOTE: The final tracking adjustment is made with the mower moving, since the adjustment is quite sensitive and is more easily "fine tuned" when moving.

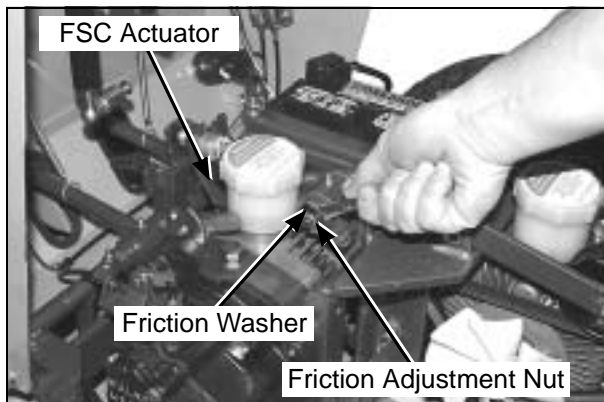
3. If travel is not straight, **tighten the adjustment nut that is on the same side of the mower as the wheel that is moving too fast**, e.g., the mower tracks to the right, indicating the LH wheel is moving too fast, tighten the LH adjustment nut.



Straight Ground Travel Adjustment

Forward Speed Control Friction Lock

The FSC friction lock is adjusted to **hold the selected forward speed** when the steering levers are moved and yet the friction is not too heavy to make **moving the control difficult** (too much friction). The procedure for checking and adjusting the FSC friction lock is as follows:



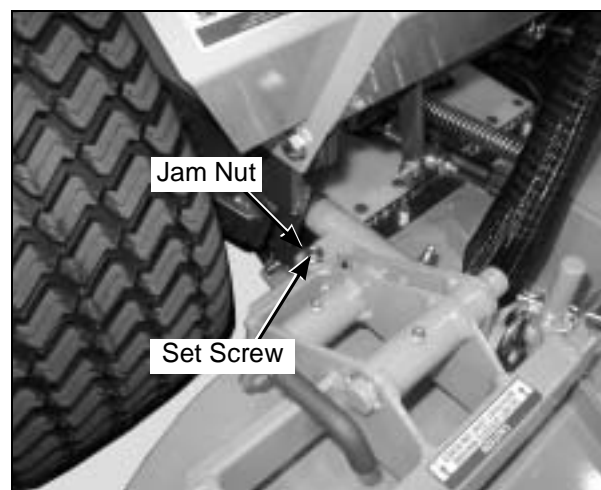
Forward Speed Control Friction Lock

1. Place the FSC in the full **FORWARD** position and pull both steering levers back; the FSC lever should not move. If the FSC lever moves back when the steering levers are pulled back, the **friction needs to be increased**.
2. With the steering levers held back, move the FSC lever back from the **FORWARD** position. With a proper amount of friction adjusted, the FSC lever should move back with a slight amount of resistance (friction). If the FSC lever movement is "stiff", the **friction needs to be decreased**.

3. The FSC friction is **increased** or **decreased** by **tightening** or **loosening** the **friction adjustment nut**. Loosen or tighten the nut and check the control function until conditions of both steps 1 and 2 (above) are met.

Tilt-Up Deck Adjustable Stop

When the carrier frame hinge joint is properly adjusted, the deck lock levers should move in and out of the engaged and disengaged positions freely. All four hitch pins used for height adjustment should sit flush on the washers above the deck pin bushing. On a level surface, if any pin is sticking up (likely the front pins), tighten the opposite side or loosen the same side to lower the pin. Adjustments are made by loosening the jam nut and tightening or loosening the set screws on the Deck Mount Pivot Brackets. Retighten the jam nut when the adjustment is complete.



Tilt-Up Deck Adjustable Stop

Carburetor

CAUTION

DO NOT change the engine governor settings or overspeed the engine. The governor has been factory-set for maximum safe engine operating speed.

Carburetor adjustments are required to compensate for differences in altitude, temperature, and fuel. Once the carburetor has been set, no further adjustments should be required. However, if the engine exhibits any of the following symptoms, the carburetor adjustment should be checked: black, sooty exhaust smoke, lack of power, engine miss or backfire, hard to start, rough running or idle.

NOTE: Also refer to the Kawasaki Service Manual for detailed carburetor adjustment information.

CAUTION

ALWAYS use the proper engine service manual when working on the engine. Unauthorized maintenance operations or modifications to the engine **MAY** result in unsafe operating conditions.

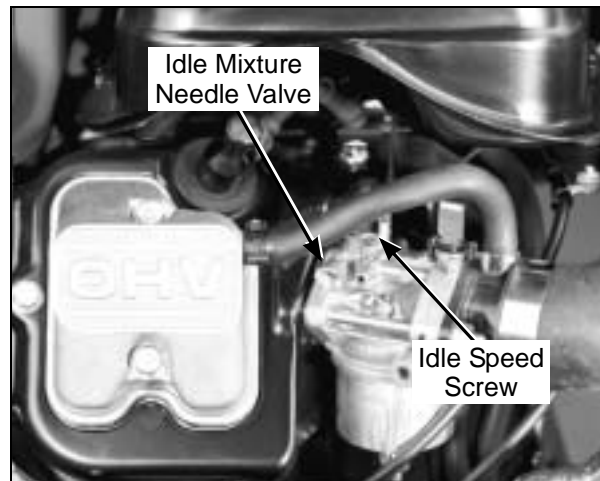
NOTE: The air cleaner and air intake hose must be connected to the carburetor when adjusting the carburetion.

The carburetor main jet is **fixed** (non-adjustable). For operation above 5,000 ft (1,524 m) above sea level, the carburetor main jet should be changed for best fuel economy and power. Contact an authorized Kawasaki engine dealer to change the carburetor main jet.

To adjust the carburetor for engine idle, use the following procedure:

1. Gently close the idle mixture needle valve by turning it **clockwise** until it bottoms lightly.

IMPORTANT: The needle valve and carburetor seat may be **damaged** by turning the adjustment screw **too tight**.



Carburetor Adjustment

2. Preliminary Setting: Turn the idle mixture needle valve out (counterclockwise) 2 turns from the closed position. This **initial adjustment** will allow the engine to be started and warmed up prior to the final adjustment.

DANGER

The engine must be running to adjust the carburetor for engine idle. To guard against injury, keep hands, feet, face, and other parts of body away from the muffler/exhaust pipe, other hot parts of the engine, and moving or rotating parts of the engine.

3. Start the engine and allow it to warm up for approximately five (5) minutes.
4. Move throttle to the **IDLE** position. Adjust idle speed for 1300 RPM by adjusting the idle speed screw. Check the idle speed using a tachometer.
5. With the engine idling, adjust the idle mixture by turning the needle valve until the engine slows (clockwise - lean mixture). Then turn the needle valve out past the smooth operating point until the engine slows again (counterclockwise - rich mixture). Now turn the needle valve to the mid-point between rich and lean mixture. Check engine acceleration from the idle. If the engine will not accelerate properly, readjust the idle mixture, usually to a slightly richer mixture (open the valve).

6. Recheck idle speed after the final idle mixture adjustment.

GHS “Full” Signal Horn with Grass-Pak® Switch

If the GHS “full” signal horn is not sounding or is not adjusted to sound when the catcher is full, the following troubleshooting and adjustment instructions apply:

Troubleshooting (When Horn Fails to Operate)

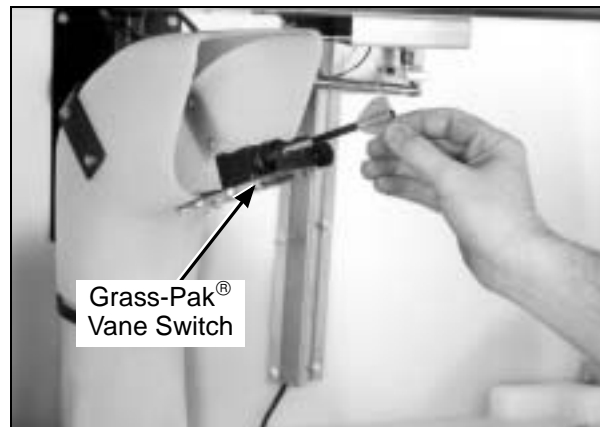
1. Check the horn.
 - a. Disconnect the two wires from the Grass-Pak® switch electric connector plug and make a jumper wire connection between these wires (bypassing switch).
 - b. Turn the ignition switch **ON** and move the blade clutch to the **ENGAGED** position (engine not running) to make the horn sound.
 - c. If the horn does not sound, the horn is bad and needs to be replaced.
 - d. If the horn does sound, proceed to step 2.
2. Check the Grass-Pak® switch.
 - a. Reconnect the wires to the Grass-Pak® switch electric connector plug.
 - b. Turn the ignition switch **ON** and move the blade clutch to the **ENGAGED** position (engine not running).
 - c. Open the catcher back door and trigger the Grass-Pak® vane by hand as it oscillates.



WARNING

DO NOT test the Grass-Pak® switch with the engine running. Projectiles CAN be thrown out of the grass delivery spout and CAN cause serious injury to bystanders or property damage.

- d. The horn should sound as the switch is moved in both directions. If the horn does not sound, the switch is bad and needs to be replaced.



Grass-Pak®
Vane Switch

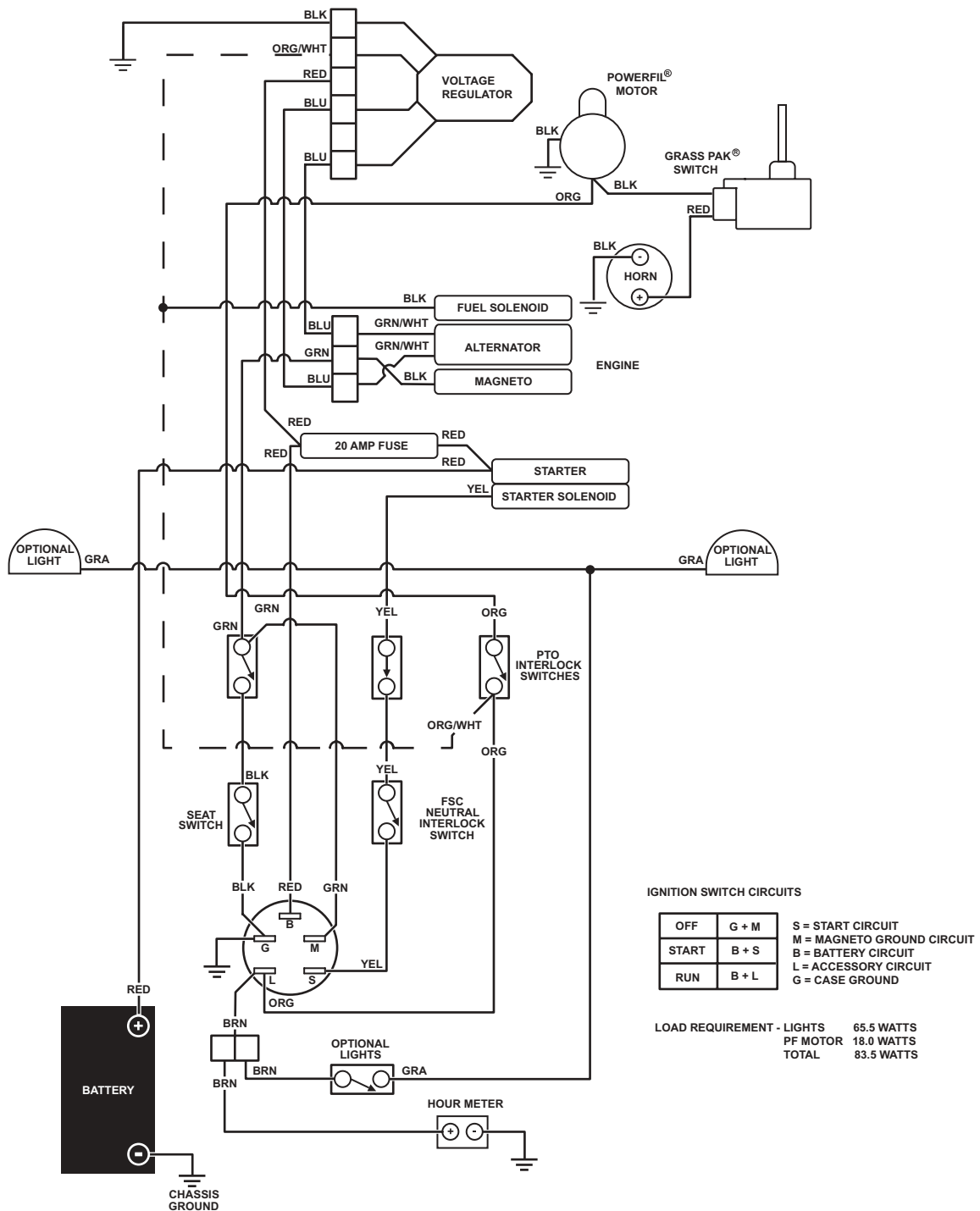
Checking the Grass-Pak® Switch

ELECTRICAL SYSTEM

For troubleshooting, refer to the **Wiring Diagram**.

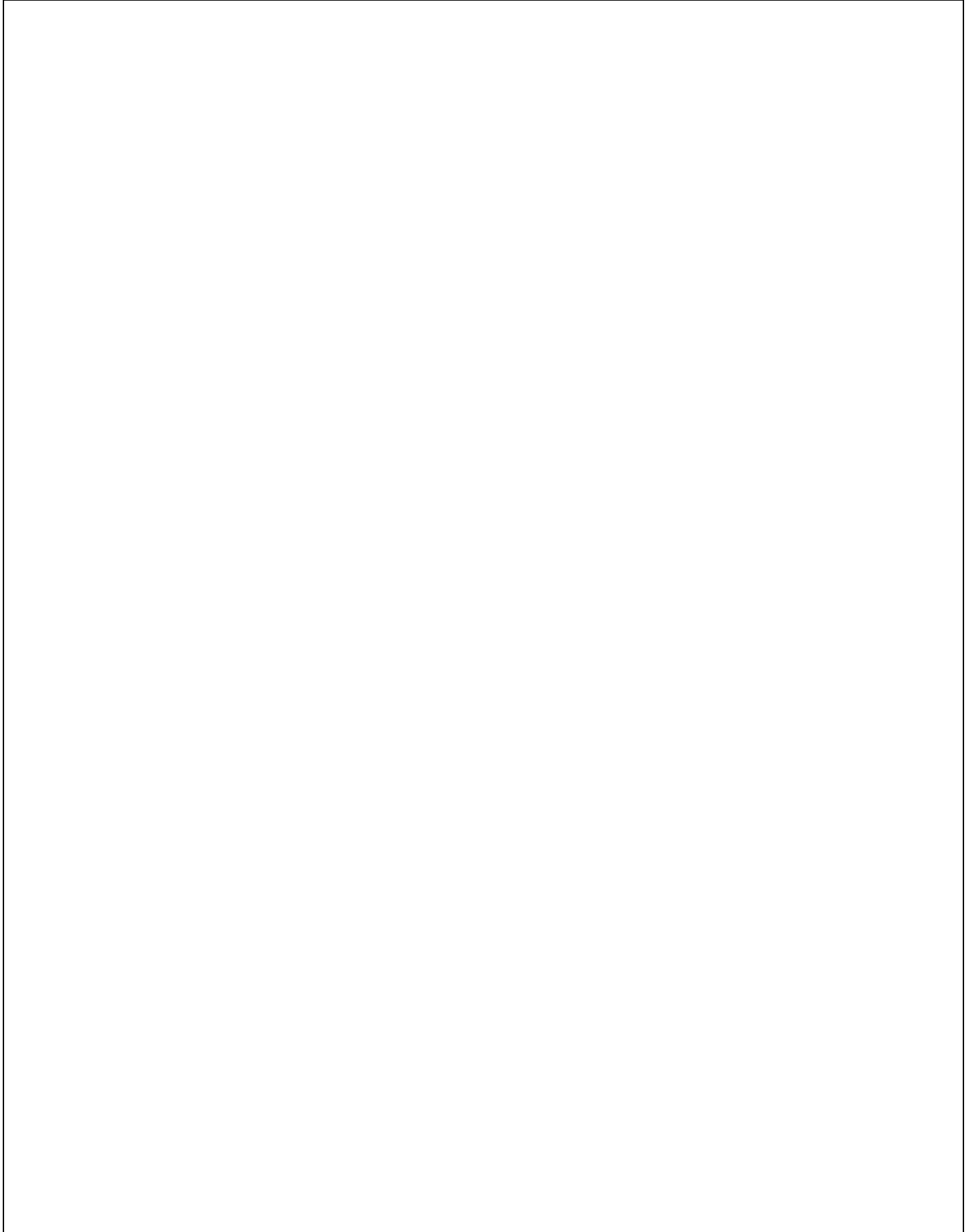
IMPORTANT: Disconnect both battery cables before unplugging any wiring connectors or making repairs on the electrical system.

Wiring Diagram



Operator's Notes

Operator's Notes

A large, empty rectangular box with a thin black border, intended for the operator to write notes. The box occupies most of the page below the header.

LIMITED WARRANTY FOR WALKER COMMERCIAL RIDER MOWER

1. WHAT THIS WARRANTY COVERS, AND FOR HOW LONG:

Walker Manufacturing company will, at its option, repair or replace, without charge, any part covered by this warranty which is found to be defective in material and/or workmanship within one (1) year* after date of sale to the original retail purchaser unless the product is used for rental purposes, in which case this warranty is limited to ninety (90) days. At Walker's request, customer will make the defective part available for inspection by Walker and/or return the defective part to Walker, transportation charges prepaid. All parts and components of the Walker Mower are covered by this warranty **except** the following components which are warranted separately by their respective manufacturers:

Kohler Engine
Kubota Engine
Kawasaki Engine
Eaton Hydraulic Transmission
Peerless Gearboxes
Battery
Tires

The available warranties covering these items are furnished with each mower. Walker does not assume any warranty obligation, liability or modification for these items, which are covered exclusively by the stated warranty of the respective manufacturers noted above.

* An extended three (3) year warranty is offered on the Walker P/N 6200-9 Gear Axle Assembly.

2. WHAT THIS WARRANTY DOES NOT COVER:

- A. This warranty does not cover defects caused by depreciation or damage caused by normal wear, accidents, improper maintenance, improper use or abuse of the product, alterations, or failure to follow the instructions contained in the Owner's Manual for operation and maintenance.
- B. The customer shall pay any charges for making service calls and/or for transporting the mower to and from the place where the inspection and/or warranty work is performed.

3. HOW TO OBTAIN SERVICE UNDER THIS WARRANTY:

Warranty service can be arranged by contacting the dealer where you purchased the mower or by contacting Walker Manufacturing Company, 5925 East Harmony Road, Ft. Collins, CO 80525. Proof of the date of purchase may be required to verify warranty coverage.

4. WARRANTY LIMITATION:

- A. **THERE IS NO OTHER EXPRESS WARRANTY. ANY WARRANTY THAT MAY BE IMPLIED FROM THIS PURCHASE INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IS HEREBY LIMITED TO THE DURATION OF THIS WARRANTY AND TO THE EXTENT PERMITTED BY LAW ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED.** Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.
- B. **WALKER WILL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES AND/OR EXPENSES IN CONNECTION WITH THE PURCHASE OR USE OF THE MOWER.** Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation(s) or exclusion(s) may not apply to you.
- C. Only the warranty expressed in this limited warranty shall apply and no dealer, distributor, or individual is authorized to amend, modify, or extend this warranty in any way. Accordingly, additional statements such as dealer advertising or presentations, whether oral or written, do not constitute warranties by Walker, and should not be relied upon.
- D. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Sound - Model MS

Sound Test

**Lwa
99**

Sound test conducted was in accordance with 79/113/EEC and was performed on 22 March 96 under the conditions listed:

**LpA
93**

OPERATOR

General Condition: Clear

Temperature: 50 (F)°10 (C)°

Wind Speed: < 5 mph (< 8 kmh)

Humidity: 52%

Barometric Pressure: 24.9" HG (759 mm Hg)

Vibration - Model MS

Vibration Level

0.4g

Vibration levels at the operators handles were measured in the vertical, lateral, and longitudinal directions using calibrated vibration test equipment.

Tests were performed on 22 March 96 under the conditions listed:

General Condition: Clear

Temperature: 50 (F)°10 (C)°

Wind Speed: < 5 mph (< 8 kmh)

Humidity: 52%

Barometric Pressure: 24.9" HG (759 mm Hg)

WALKER MOWERS™

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