

WALKER MOWERS™

OPERATOR'S MANUAL

Safety, Assembly, Operating, and Maintenance Instructions

Model MBSY



Please Read and Save These Instructions

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

Beginning S/N: 112057
P/N 2000-4
Effective Date: 05-23-11



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 your local dealer. 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 contact your local authorized dealer or call our service department, at (970) 221-5614, for clarification before operating or servicing this mower.

This manual covers Model MBSY with the Yanmar (23.6 HP) diesel 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 for a tractor with standard equipment. Some optional equipment such as headlights and ROPS are shown in photos and diagrams in this manual, and may affect the standard specifications listed.

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

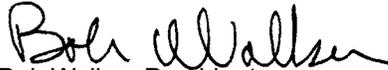

Bob Walker, President

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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 spindles, and cutter blades.
- **FORWARD SPEED CONTROL (FSC)** controls the maximum forward speed of the tractor; functioning as a cruise control.
- **GROUND DRIVE** refers to the dual transaxles which drive the main wheels.
- **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.
- **REAR DISCHARGE (RD)** discharges mowed material from the back of the mower deck.
- **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)** discharges mowed material from the right side of the mower deck.

- **STEERING LEVERS** steer the tractor by controlling the two transaxles.
- **TRACTOR** is the prime mover, including the engine, drive train, operator seat, and controls to operate the mower.
- **TRANSAXLE** transmits and controls power from the ground drive belt to the main drive wheel.
- **TRANSAXLE LOCKOUT RODS** release the transaxles to permit freewheeling the tractor.

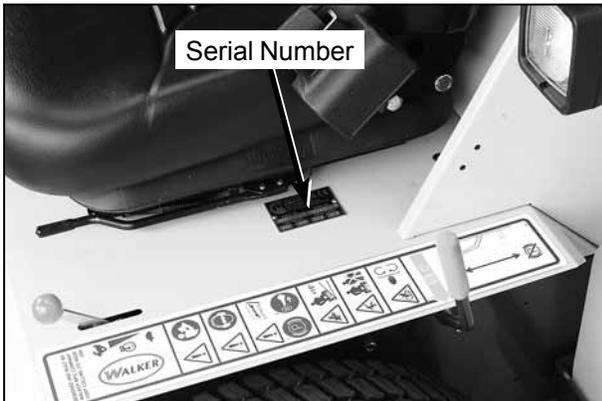
IDENTIFYING NUMBER LOCATIONS

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 LH side of the LH 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



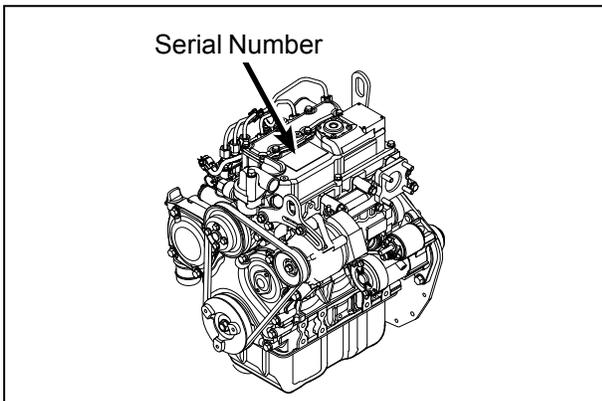
Tractor Serial Number Location



Mower Deck Serial Number Location

ENGINE SERIAL NUMBER LOCATION

Refer to the engine manual that accompanies this manual or the diagram below for the location of the engine serial number.



Engine Serial Number Location

SERVICING OF ENGINE AND DRIVETRAIN COMPONENTS

The detailed servicing and repair of the engine and transaxle 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:

Yanmar Engines

Yanmar America Corporation
101 International Parkway
Adairsville, GA 30103
770-877-9894
www.yanmar.com

Transaxles

Hydro-Gear
1411 South Hamilton St.
Sullivan, IL 61951

Specifications

MODEL	MBSY
ENGINE	
Manufacturer/Model	Yanmar 3TNM72, 3 Cyl., Diesel (Liquid Cooled)
Displacement	55.1 cu. in. (904 cc)
Max. Power HP (kW)	23.6 (17.4) @ 3600 RPM
Governed RPM	3600
Max. Torque ft-lb (N·m)	40.9 (55.5) @ 2600 RPM
Idle RPM	1100 ± 25
Crankcase Capacity	3.1 qts (2.9 liters)
Crankcase Lubricant	API CD or Higher Grade Oil with 10W-30 Viscosity or 15W-40 Above 86° F (30° C)
Oil Filter	P/N 119305-35151
Fuel Tank Capacity	9.4 Gallons (35.6 liters), Two Independent 4.7 Gallon Tanks with Selector Valve
Fuel	Diesel Fuel 2-D
Cooling System Capacity	7.0 qts (6.6 liters)
Cooling Fan	Electric radiator cooling fan with reversible self-cleaning action
Coolant	50/50 Pre-Mix Antifreeze/Water
Air Cleaner	Remote mounted Enginaire™ VLR (Walker P/N 5090-1 Primary/5090-3 Safety Filter)
ELECTRICAL SYSTEM	
Battery	12 Volt, 41AH, 340 CCA (Interstate U1-SP40)
Charging System	Automotive Type Alternator
Charging Output	40 Amp DC (Regulated)
System Polarity	Negative Ground
Ignition	Diesel with Glow Plugs
Starter	12 Volt Electric Ring-Gear Type, Solenoid Shift
Interlock Switches	Ignition Lockout by Seat Switch, Transmission Neutral and Blade Clutch
Circuit Breaker(s)	Auto Reset (One 40A, Two 30A)
TRANSMISSION	
Manufacturer/Model	Dual Hydrostatic Hydro-Gear® ZT3400 Integrated Transaxles
Steering	Hand Lever Control / Individual Drive Wheel
Forward Speed Control	Precision Friction Lock Lever, Cruise Control, with Neutral-Park Position
Service Brake	Dynamic Braking through Transaxles
Parking Brake	Internal Mechanical Cog Lock for each Transaxle (Single Lever Control)
Neutral	Transmission Release by Manual Dump Valve
Final Drive	Transaxle Direct to Drive Wheel

Specifications

MODEL	MBSY
TRANSMISSION (continued)	
Transmission Fluid	
Factory Service	20W-50 Multi-Viscosity Motor Oil (Minimum SL Grade Oil)
Transmission Capacity	79 fl oz (2336 ml)
Transmission Cooling	Cooling Fan Mounted on Drive Pulley
Oil Filter	P/N 52114 (Walker 2026-6)
Ground Travel Speed	
Forward m.p.h. (km/h)	0-10 (0-16) 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 (3) Mounts Directly on Belt Driven Spindles
Blade Drive Clutch and Brake	Manual Belt Tightener Clutch and Band Brake [Stops Blades within Five (5) Seconds of Disengagement]
TIRE SIZE	
Deck Caster Wheel	13 x 5.00-6 Pneumatic (4-Ply)
Drive	22 x 10.50-12 (4-Ply Low-Profile)
Rear	13 x 5.00-6 (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	
Tractor Only	68-1/2 in. (174 cm)
Wheel Base (Tractor)	44-7/8 in. (114 cm)
With DRD52	105-1/2 in. (267 cm)
With DSD60	107 in. (272 cm)
Tractor w/Tilted Deck	83-1/2 in. (212 cm)
Width	
With DRD52	54-1/4 in. (138 cm)
With DSD60 (Deflector Up)	64 in. (163 cm)
Tread Width	36-1/2 in. (93 cm)
Height	
Standard Tractor	46-3/4 in. (119 cm)
With ROPS (Optional)	66-5/8 in. (169 cm)
With ROPS (Optional) Lowered	51-1/2 in. (131 cm)

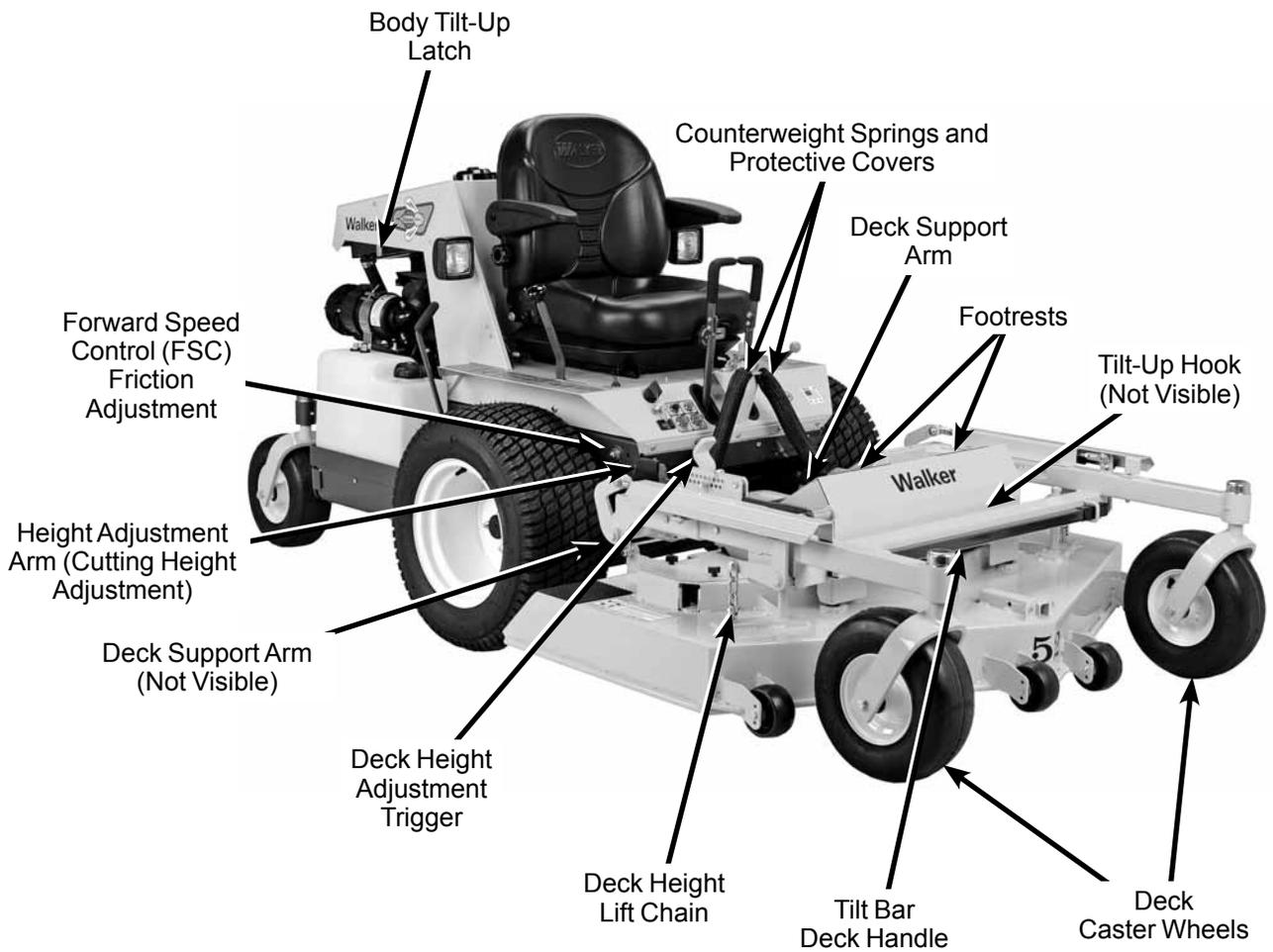
Specifications

MODEL	MBSY	
CURB WEIGHT (No Fuel)		
Tractor Only	927 lb (420 kg)	
Tractor with DRD52 Deck	1317 lb (597 kg)	
Tractor with DSD60 Deck	1372 lb (622 kg)	
DRIVE BELTS		
Engine PTO	Walker P/N 2230 (Matched Set of 3)	
Ground Drive	Walker P/N 2248	
SEAT	Contour-Molded, with Nylon Backed Vinyl Cover and Integral Foam Cushion (Suspension)	
FRAME/BODY CONSTRUCTION		
Frame/Body	3/16 Plate Steel/14 Gauge Sheet Steel	
Deck	11 Gauge Steel	
DECK	DRD52	DSD60
Type	Belt Driven, Rear Discharge	Belt Driven, Side Discharge
Width of Cut	52 in. (132 cm)	60 in. (152 cm)
Cutting Height	1 to 5 in. (3 to 13 cm)	
Height Adjustment	17 Positions - 1/4 in. (0.6 cm) Increments	
Blade Size	18.4 in. (47 cm)	20.5 in. (52 cm)
Number of Blades	3	
Direction of Rotation (Viewed from top of deck)	Clockwise	
Deck Suspension	Torsion-Flex Frame with Caster Wheels and Counterweight Springs	
Maximum Blade RPM	3840	3330
Maximum Blade Tip Speed	18500 ft/min (5640 m/min)	17870 ft/min (5460 m/min)

NOTE: The manufacturer reserves the right to make changes in specifications shown herein at any time without notice or obligation. The specifications listed are for a standard configuration tractor, and may change with the addition of optional equipment.

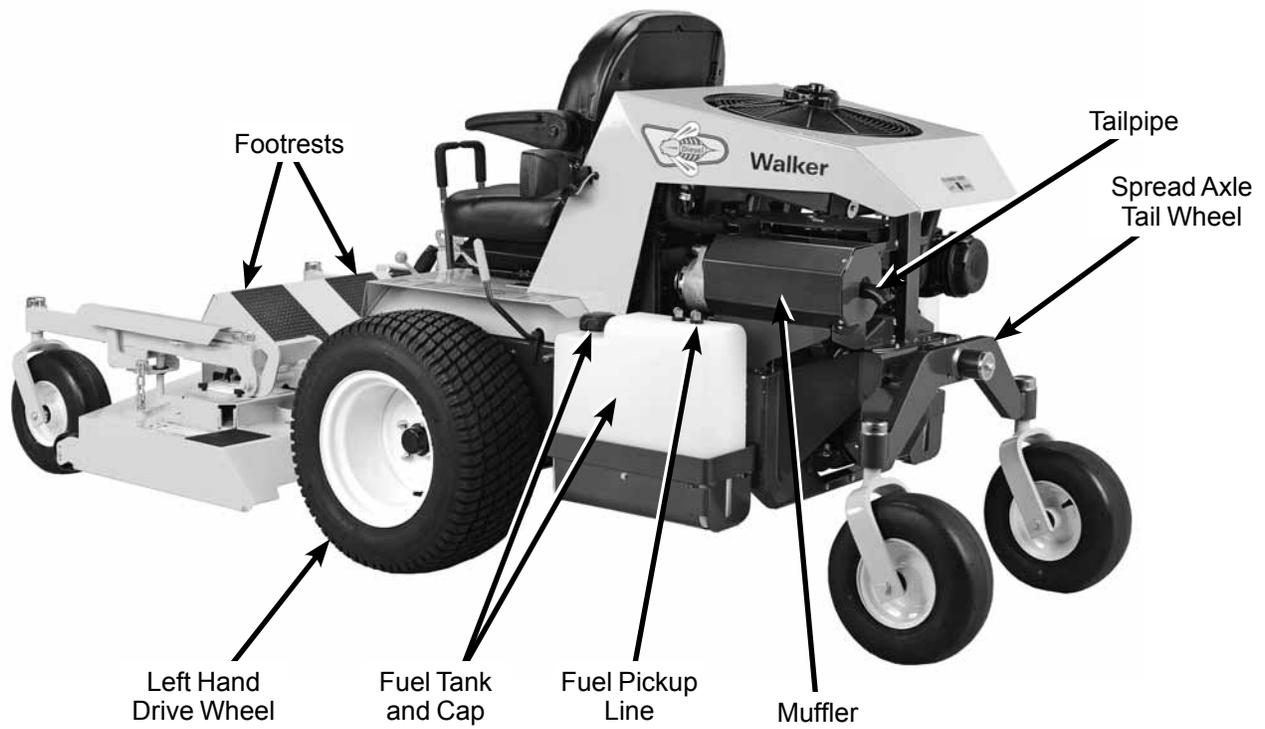
Component Identification

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



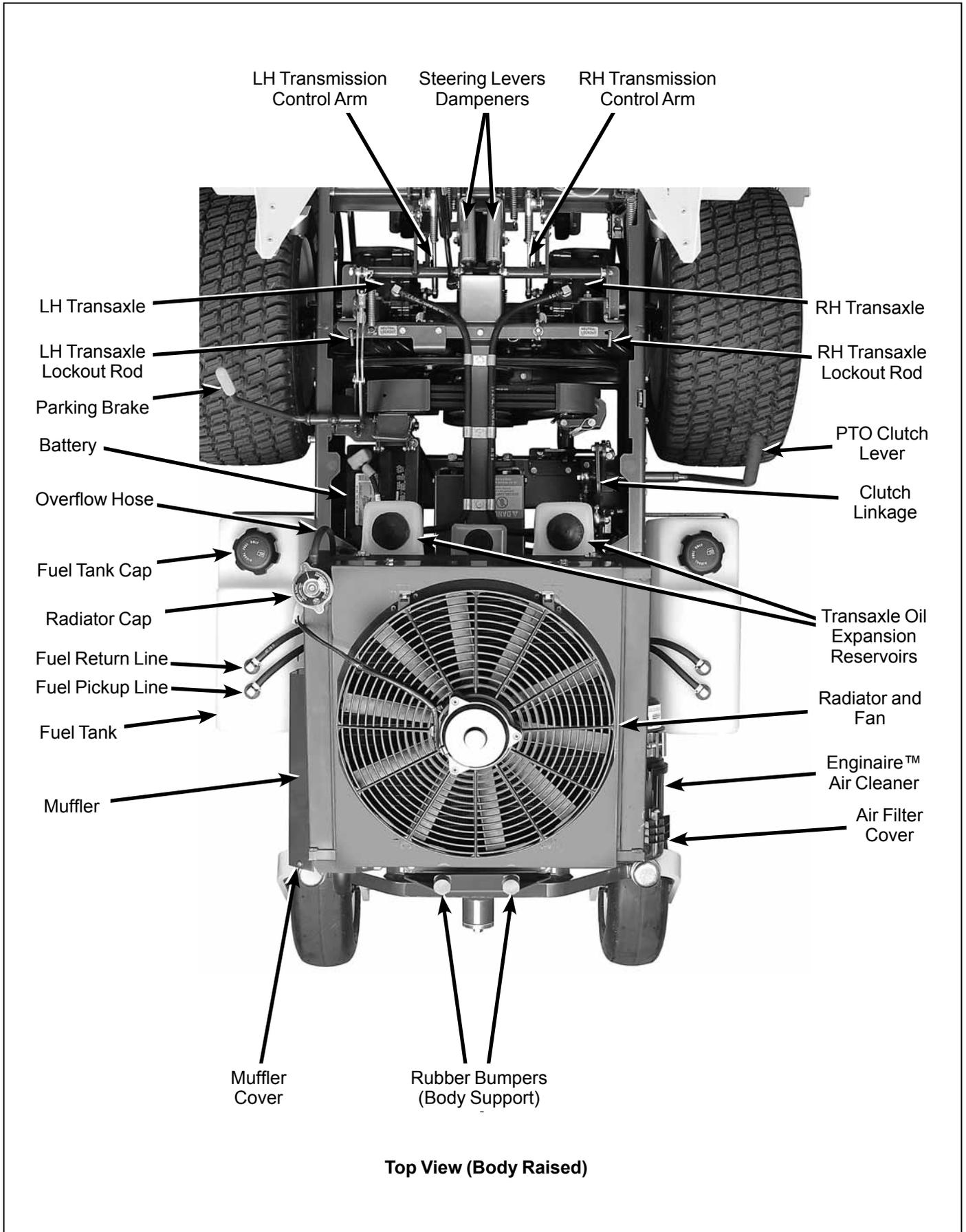
Front View and Right Side View

Component Identification



Rear View and Left Side View

Component Identification



Safety Instructions - Before Operating

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 Operator'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 Operator'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 - Before Operating

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.** 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 either the Forward Speed Control (FSC) out of the **NEUTRAL-PARK** position or the PTO clutch in the **ENGAGED** position.

NOTE: There is a 1/2 second time delay function on the seat switch to avoid engine power interruption when driving over bumps.

10. **Handle diesel with care:**
 - 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 tanks and fuel container.
 - d. Always fill the fuel tank(s) 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(s) 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.



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

Safety Instructions - Operating



WARNING

If equipped with optional ROPS:

- Always keep the ROPS roll bar in the upright and locked position when operating.
- Always use the seat belt when the roll bar is upright.
- Only lower the roll bar when absolutely necessary for overhead clearance.
- Never use the seat belt when the roll bar is lowered.

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. **Never operate the tractor without a deck or implement installed.**
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.



DANGER

Do not mow around overhanging tree branches or bushes at the same height as the operator's torso and head where inadvertent contact may cause injury.

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 the transmission drive belt breaks 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 operate machine if the operator presence safety switch system is not working.** Verify proper operation by having the operator lift off the seat with the engine running and moving two controls, one at a time; (1) Move the FSC lever out of the **NEUTRAL-PARK** position, and (2) Engage the PTO Clutch. Moving either control should stop the engine after a 1/2 second delay.
8. **Do not run the engine in a confined area without adequate ventilation.** Exhaust fumes are hazardous and can be deadly.
9. **Do not carry passengers** - maximum seating capacity is one (1) person.
10. 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.
11. **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.
12. Disengage the blade drive when transporting the machine across drives, sidewalks, etc. **Never raise the mower deck while blades are rotating.**

Safety Instructions - Operating



Do not mow or drive the tractor within 5 feet (1.5 meters) of an embankment or retaining wall with drop off.

13. **The maximum recommended side slope operating angle is 15 degrees or 26% 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.

14. **Never adjust cutting height while the mower is moving. Before** adjusting cutting height or servicing, move the Forward Speed Control (FSC) into the **NEUTRAL-PARK** position, engage the parking brake, and disengage the blade clutch (PTO). Tractor should **not** be moving while adjusting cutting height.

NOTE: The clutch brake should normally stop drive line rotation within five (5) seconds of disengaging the PTO clutch.

15. For side discharge mower decks, **do not operate with the grass deflector chute removed.** Keep the deflector in the lowest possible position.

16. When using the 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.

17. **In case of a clogged or plugged mower deck:**

- a. Disengage the blade clutch (PTO), set the parking brake, and turn the engine off before leaving the seat.
- b. **LOOK** to make sure blade drive shaft movement has stopped before trying to unclog the system.
- c. Never place hands under the deck - use a stick or similar tool to remove clogged material.

18. 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.** 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 bolts are torqued to 64 ft-lb (87 N·m).

19. **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.

20. **Never remove the radiator pressure cap when the engine is hot** (hot water may spray and cause burns).

21. **Do not use ether or any starting fluid** to assist starting the engine in cold weather.

22. When leaving the machine unattended, **disengage the blade clutch (PTO), stop the engine, and remove the key.**

Safety Instructions - Maintenance

1. To prevent accidental starting of the engine when servicing or adjusting the machine, remove the key from the ignition switch.
2. **To reduce fire hazards**, keep the engine free of grass, leaves, excessive grease, and dirt.
3. Keep all nuts, bolts, and screws tight to ensure the machine is in a safe, working condition. Check the blade mounting bolts 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. The fuel oil injection system operates under high pressure and can penetrate the skin and result in serious injury. Unqualified persons should not remove or attempt to adjust a pump injector, nozzle, or any part of the fuel injection system.
8. 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.
9. Never attempt to disconnect any safety devices or defeat the purpose of these safety devices.
10. Do not change the engine governor settings or overspeed the engine. The governor has been factory-set for maximum-safe engine operating speed.
11. **Use genuine factory replacement parts.** Substitute parts may result in product malfunction and possible injury to the operator and/or others.
12. **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.



Location: Each End of Mower Deck
Part Number: 8600-8

- Warning – rotating mower blades are a cutting/dismemberment hazard to hands and feet.
 - Keep all body parts away from rotating mower blades.
 - Do not step on end of deck.
- Warning – thrown object hazard
 - Keep bystanders away from the machine when operating.
 - Clear lawn of debris before operating.
 - Keep any discharge deflector in place and in the lowest position.



Location: Deck Carrier Frame
Part Number: 8600-14

- Warning – do not operate the machine with the deck tilted up.



Location: Chassis Member Behind Transaxles
Part Number: 9804-1

- Neutral Lock
 - Lift and move into slot to unlock transmission and allow machine to freewheel.



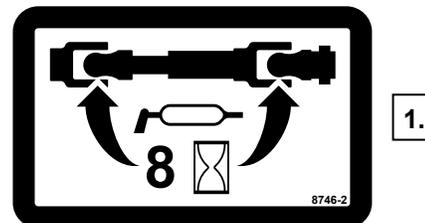
Location: Engine
Part Number: 8600-12

- Warning – carbon monoxide (CO) poisoning hazard
 - CO emitted by a running engine can be deadly.
 - Do not operate indoors or in other enclosed areas.



Location: Deck Carrier Frame
Part Number: 8600-15

- Warning – lock deck tilt-up hinge before operating the machine.



Location: PTO Guard on Deck
Part Number: 8746-2

- Grease PTO shaft joints every 8 hours.



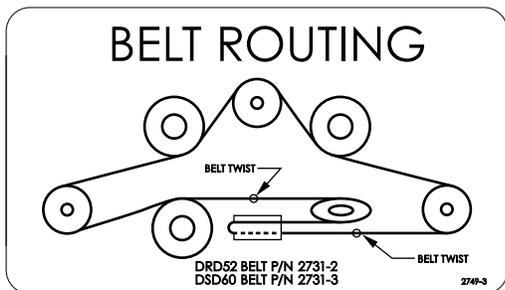
Location: Rear Body Near Muffler
Part Number: 8600-5

- Warning – hot surface, do not touch

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.



1.

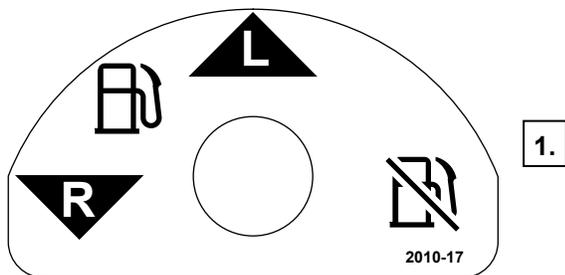
Location: Deck Housing Under Footrest
Part Number: 2749-3

1. Deck drive belt routing



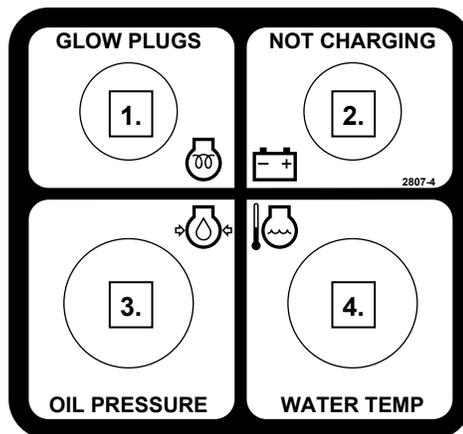
Location: Deck Discharge Shield (DSD60)
Part Number: 5848-2

1. Warning – thrown object hazard
 - Always keep the discharge shield in the lowest position when operating.
 - Do not remove the discharge shield.



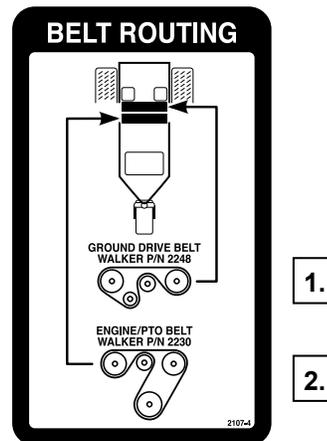
Location: Adjacent to Right Fuel Tank
Part Number: 2010-17

1. Fuel tank selector/fuel shut-off valve



Location: Front of Body on Right Side
Part Number: 2807-4

1. Glow plugs activation indicator light
2. Battery charging system malfunction indicator light
3. Low engine oil pressure warning light
4. High engine coolant temperature warning light



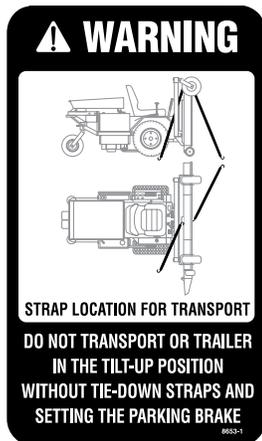
Location: Underside of Rear Body
Part Number: 2107-4

1. Ground drive belt routing
2. PTO clutch belt routing

Safety Instructions

SAFETY, CONTROL, AND INSTRUCTION DECALS

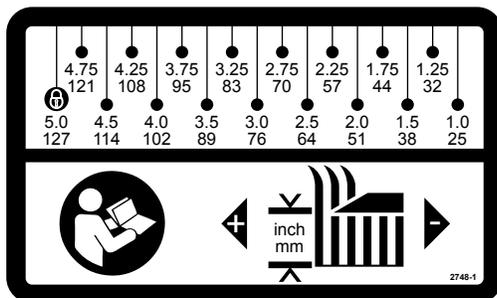
Safety, Control, and Instruction Decals are installed on the machine; if any are missing, illegible, or damaged, a replacement should be ordered and installed before putting the machine into operation. The Decal Part Number is listed below and in the Parts Manual.



1.

Location: Top of Deck Housing
Part Number: 8653-1

1. Warning – secure deck with straps and engage parking brake before transporting or trailering with deck tilted up.



1.

Location: Deck Height Adjuster
Part Number: 2748-1

1. Move pin to desired height of cut.



1.

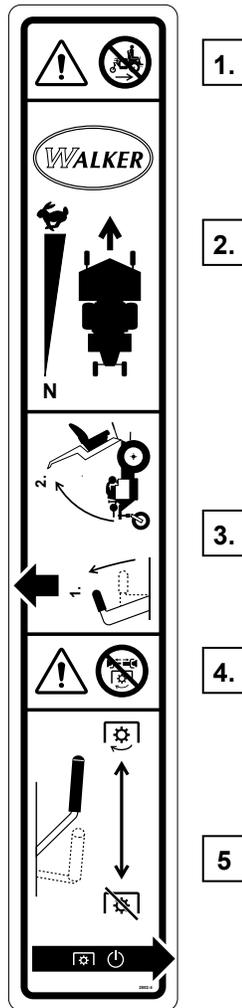
Location: Flex Coupler Guard in Front of Engine
Part Number: 8600-2

1. Warning – entanglement and cutting/dismemberment hazards
 - Keep away from rotating shafts, belts, and other components.

Safety Instructions

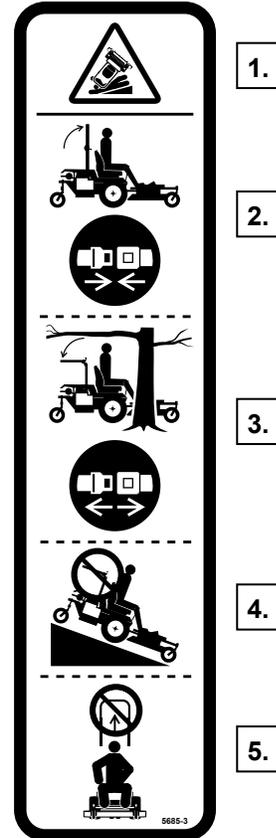
SAFETY, CONTROL, AND INSTRUCTION DECALS

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.



Location: Right Fender
Part Number: 2802-4

1. Warning – do not operate the machine without a deck or other implement attached.
2. Forward Speed Control
 - Move lever forward to increase speed; back to stop.
3. Body Tilt Latch
 - Raise lever to release.
 - Lift at back of body to raise.
4. Warning – do not engage PTO clutch with PTO shaft disconnected.
5. PTO Clutch Lever
 - Move lever forward to engage PTO clutch; back to disengage.



Location: ROPS Roll Bar (Optional)
Part Number: 5685-3

1. Warning – roll-over/crushing hazard
 - Do not operate the machine on steep slopes or near drop-offs.
 - Avoid quick and/or sharp turns when operating on slopes.
2. During normal operation always keep the ROPS locked fully upright and use the seat belt.
3. Never use the seat belt if the ROPS is not locked fully upright.
4. Do not operate the machine on slopes if the ROPS is not locked fully upright.
5. Do not remove the ROPS.

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.



Location: Left Fender
Part Number: 2802-5

1. Throttle
2. Warning – read Operator’s Manual before operating the machine.
3. Warning – wear eye and ear protection when operating the machine.
4. Warning – read Operator’s Manual before servicing or performing maintenance.
 - Engage parking brake.
 - Remove ignition key.
5. Warning – roll-over hazard
 - Do not operate on slopes greater than 15 degrees.
6. Warning – thrown object hazard
 - Keep bystanders away from the machine when operating.
7. Warning – entanglement hazard
 - Keep all guards in place while engine is running.
8. Parking brake
 - Move lever forward to engage Parking Brake; back to disengage.

Assembly Instructions

SETUP INSTRUCTIONS

Walker Mowers are shipped partially assembled to our distribution network, and are typically assembled by the selling dealer. For any additional assembly besides the following, contact your Walker dealer.

Battery Service

Raise mower body up 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



BATTERIES PRODUCE EXPLOSIVE GASES

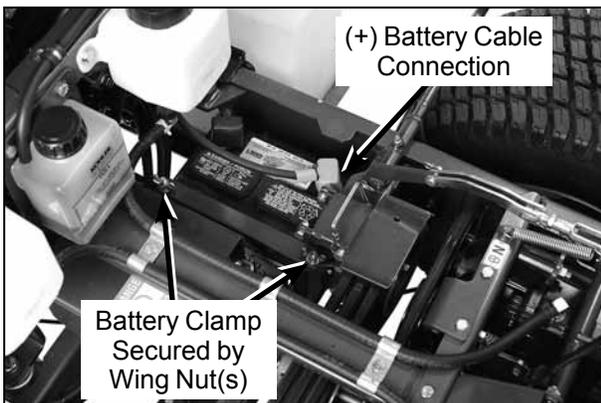
- Charge the battery in a well-ventilated area, so that gases produced while charging can dissipate.
- Keep sparks, flames, and smoking materials away from the battery at all times.
- Make sure the battery cap vents are open after the battery is filled with acid (check manifold vent on each cap).
- Make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

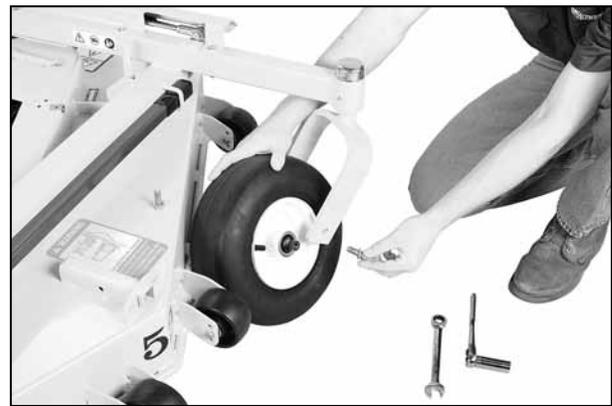
Mower Deck Assembly

Deck Caster Wheels Installation

1. Remove the bolts and washers from each deck caster wheel.
2. Install wheel on fork using bolts and washers.

NOTE: Valve stem and grease zerk should face to the inside of machine.

3. Tighten the bolts and washers.



Deck Caster Wheel Installation

Deck Discharge Shield Installation (DSD60)

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.



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

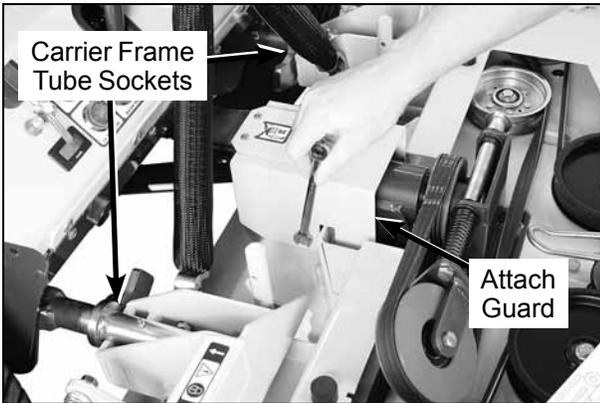
Assembly Instructions



Deck Discharge Shield Installation

PTO Shaft Guard Installation

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



PTO Shaft Guard Installation

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.

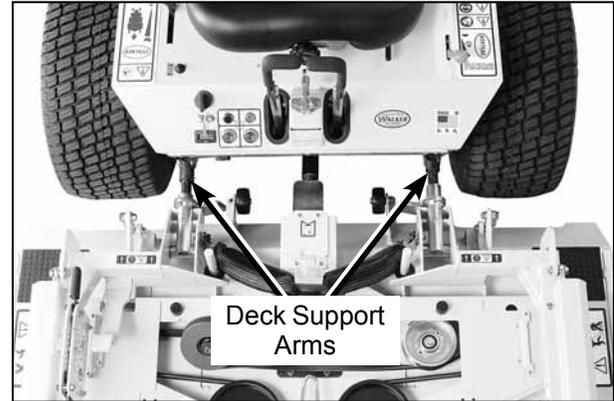


Roller Wheel Installation (DSD60 Shown)

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.



Mower Deck Installation

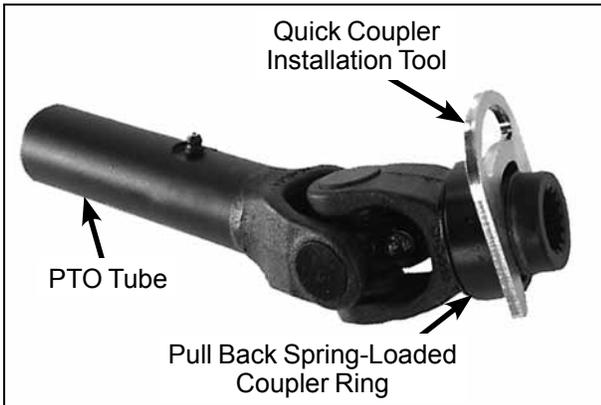
2. Engage the LH deck carrier frame tube socket first on the tractor support arms and then the RH tube socket. Slide the deck onto the support arms and install lynch pins to secure deck.



Retract Coupler Ring

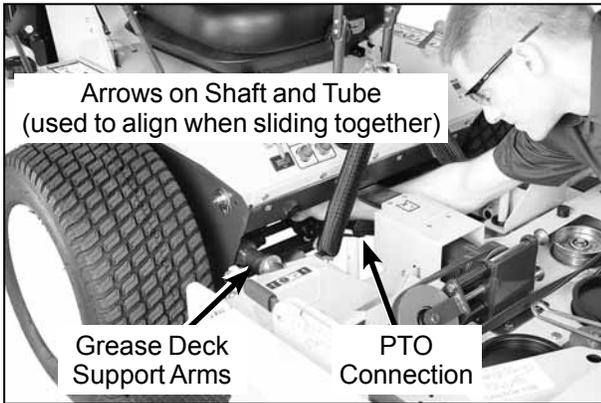
3. Retract spring-loaded coupler ring on the PTO Tube (provided in Owner's Packet) and insert coupler tool. Refer to **Quick Coupler Installation Tool** photo.

Assembly Instructions



Quick Coupler Installation Tool

- Reaching under the tractor, join the PTO tube to the PTO shaft (align arrow decals). Slide the PTO tube onto the spline shaft on the tractor PTO drive shaft.



Mower Deck Installation (PTO Shaft Connection)

- Remove Installation Tool from coupler ring and make sure the ring has “snapped” securely on the spline shaft.

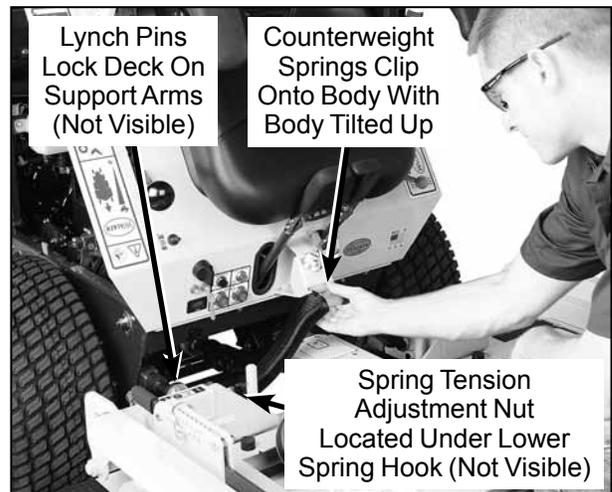
IMPORTANT: DO NOT operate tractor with Quick Coupler Installation Tool installed.

IMPORTANT: To prevent damage to the mower, make sure the PTO shaft assembly is securely locked on the tractor, with the locking balls fully seated in the groove and the ring in the full forward position (refer to the **Coupler Ring “Locked” Position** photo). After installation, pull on the shaft to check for security.



Coupler Ring “Locked” Position

- Raise the 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.)
- With the counterweight springs connected, the weight on the deck caster wheels should be 200 to 250 lb (90.7 to 113.4 kg); this adjustment is preset at the factory. If required, the spring tension can be adjusted by tightening or loosening the elastic stop nuts located underneath the lower spring hook, or contact your local dealer if additional help is required. Refer to **Deck Counterweight Spring Installation** photo.



Deck Counterweight Spring Installation

Assembly Instructions

Deck Leveling

1. Position mower on a smooth, level surface. Set the cutting height to the highest position - 5 in. (127 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 **5 in. (127 mm)** high is a convenient gauge to measure blade height above ground during the leveling process.

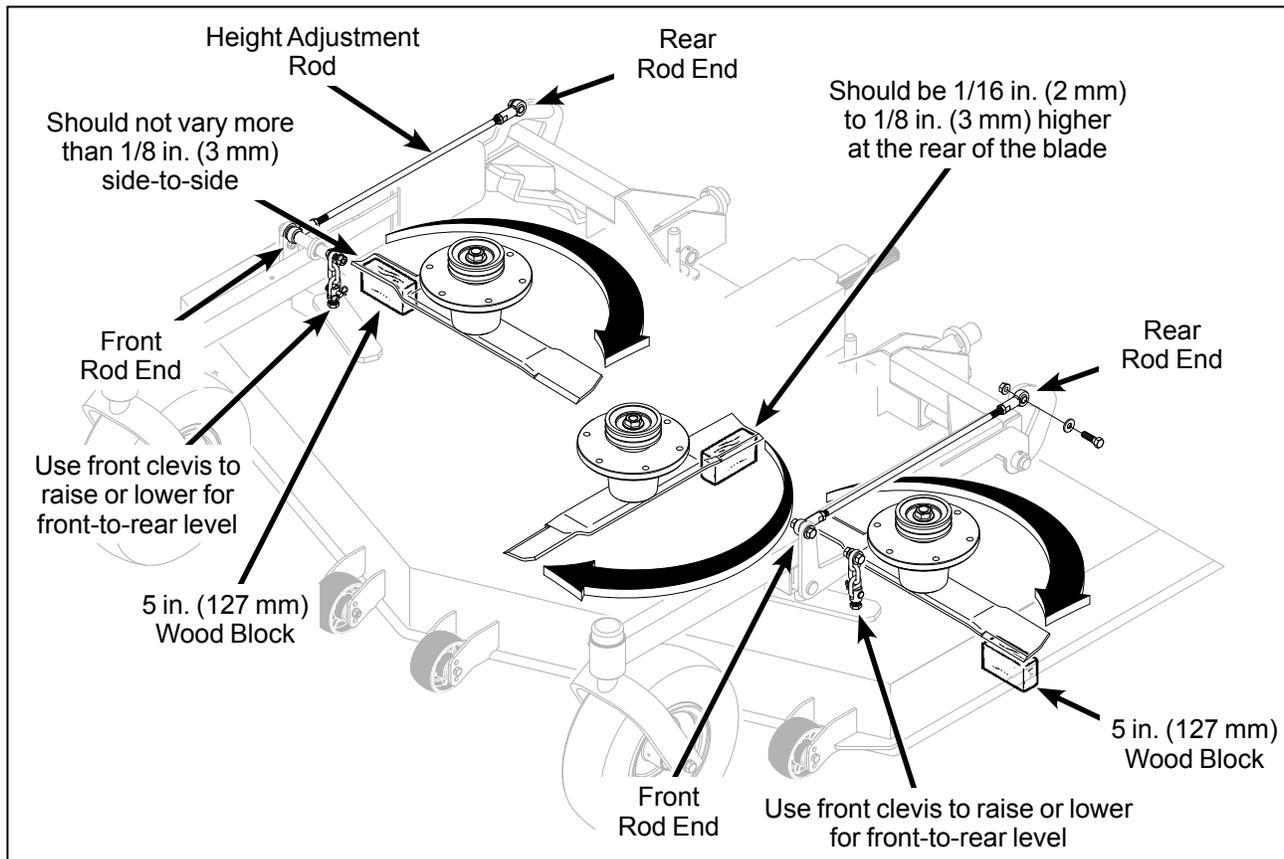


WARNING

The machine must be shut off during this procedure.

2. Check the side-to-side level. **Rotate the outside blades sideways** and measure the distance from blade tip to ground on each side. If measurements vary more than 1/8 in. (3 mm), adjust the height adjustment rod on the high side to level the deck.
3. Check the front-to-rear level. **Rotate the center blade to point forward.** Measure the distance from blade tip to ground on the front and rear. The rear of the blade should be 1/16 to 1/8 in. (2 to 3 mm) higher than the front of the blade; remove the chain from the deck height adjuster clevis and adjust equally to achieve **at least** 1/16 in. (2 mm) difference. Reinstall chains.

NOTE: The mower deck and support frame are jig welded; within normal tolerances, very little, if any, adjustments 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

Fill the fuel tank with clean, fresh fuel. Clean diesel fuel is particularly important since contaminated fuel will damage the fuel injectors and injection pump.

NOTE: It may be necessary to use the fuel pump primer to bleed (purge out air bubbles) the diesel fuel injector system when initially filling an empty tank. Refer to **Fuel Pump Priming** instructions in the **Operating Instructions**.



DANGER

Handle diesel fuel with care. Use safe refueling procedures:

- **DO NOT** fill fuel tanks 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 tanks; 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 tanks. Wipe dirt from around the filler cap(s) before removing. Use a clean fuel storage container and funnel.

CHECK ENGINE CRANKCASE OIL LEVEL

Check the engine crankcase oil level before use and **after each 8 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 filter restriction gauge to make sure the yellow indicator disk is in the safe operating (green) range.
- Check condition, cleanliness, and security of the complete air cleaner system (inspect air filter **every 100 hours**). For detailed procedures, refer to **CLEANING** the **Engine Air Cleaner System** in **Maintenance Instructions**.

CHECK ENGINE COOLING SYSTEM

- Check the radiator air intake screen to make sure the screen is clean and free of obstruction. Also, the radiator cooling fins should be inspected and cleaned if there is any buildup of dirt or debris. (Remove the intake screen assembly to inspect and clean.)
- Check the coolant levels in the radiator and overflow tank. If additional coolant is needed, refer to **CHECKING/SERVICING** the **Engine Cooling System** in **Maintenance Instructions**.



WARNING

DO NOT remove the radiator pressure cap when engine is hot.

CHECK HYDROSTATIC TRANSAXLE OIL LEVEL

Refer to **LUBRICATION** for **Transaxle Lubrication** in **Maintenance Instructions**.

CHECK SECURITY OF DRIVE TIRE MOUNTING NUTS

The eight (8) Drive Tire mounting nuts should each be torqued to 75 to 85 ft-lbs. (102 to 115 N·m).

INSPECT FIVE (5) DRIVE BELTS

Engine Alternator, PTO (3) and Ground Drive.

CHECK TIRE PRESSURE

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

Assembly Instructions

- CHECK FUNCTIONS OF WARNING LIGHTS AND WARNING HORN

Turn the ignition key to the **RUN** position. Low Engine Oil Pressure Warning Light, Battery Charging System Malfunction Indicator Light, and Warning Horn should all operate, indicating normal function.

- CHECK FUNCTION OF SAFETY INTERLOCK SWITCHES

Refer to **Operating Instructions** to check for proper operation of safety switches, both during engine starting and with the operator leaving the seat with tractor moving forward or with mower blades engaged.

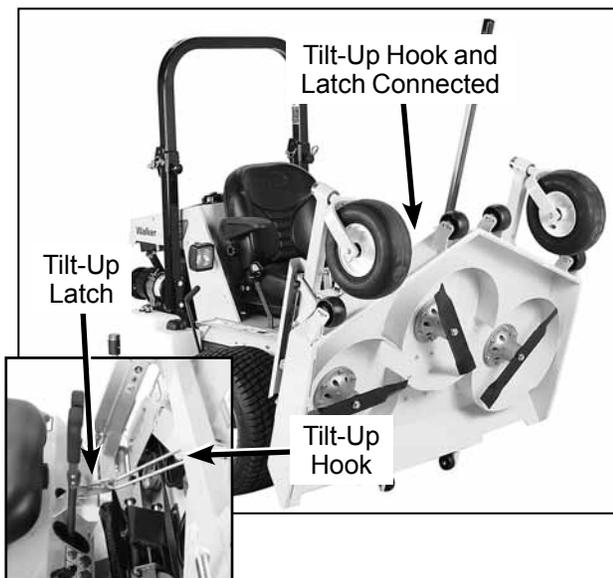
- CHECK AND CLEAN GRASS BUILDUP UNDERNEATH MOWER DECK

Refer to **CLEANING the Grass Buildup in Mower Housing** in **Maintenance Instructions** for deck tilt-up and deck 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 disengaging the locking arms 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 locking arms after lowering the deck to the normal operating position.



Deck Secured in Tilt-Up Position

CAUTION

Do not operate machine with locking arms disengaged.

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, BALANCE, AND SECURITY OF MOUNTING

The blade mounting bolt should be tightened to 64 ft-lb (87 N·m). If blade sharpening is required, refer to **CHECKING/SERVICING for Sharpen Mower Blades** in **Maintenance Instructions**.

- ADJUST MOWER CUTTING HEIGHT, IF REQUIRED

Refer to **ADJUSTING CUTTING HEIGHT** in **Operating Instructions**.

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

Operating Instructions

CONTROL IDENTIFICATION, LOCATION, AND FUNCTION

CAUTION

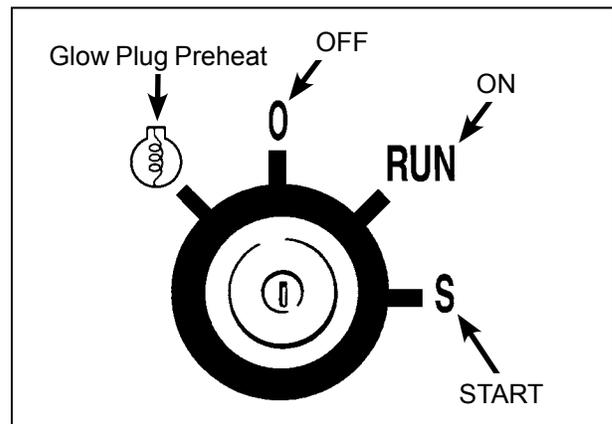
Before operating the mower, become familiar with the location and function of all operator controls. Knowing the location, function, and operation of these controls is important for safe and efficient operation of the mower.

Ignition Switch

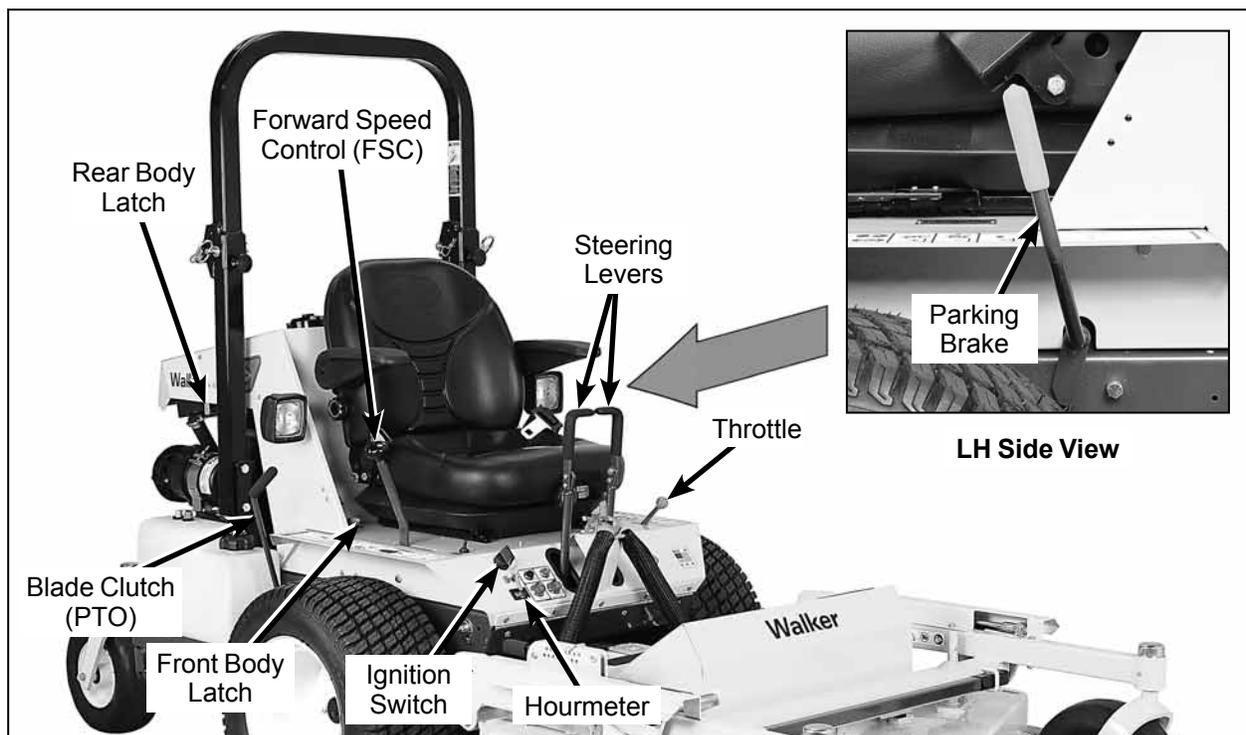
The ignition switch is used to start and stop the engine (and preheat the diesel engine). The switch has four positions:  is the glow plug preheat position; "O" is the **OFF** position, **RUN** is the position the key returns to after starting; "S" is the **START** position. When starting the engine, 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.

NOTE: When starting the engine, turn and hold the ignition key in the glow plug preheat position. The time required is approximately 5 to 15 seconds, depending on engine temperature. Refer to **STARTING THE ENGINE** in this section.



Ignition Switch

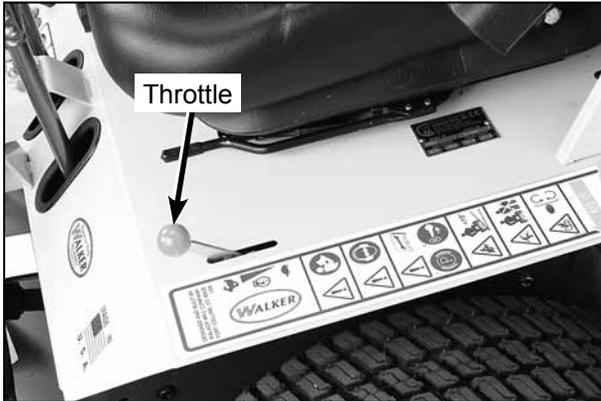


Operating Controls

Operating Instructions

Engine Throttle

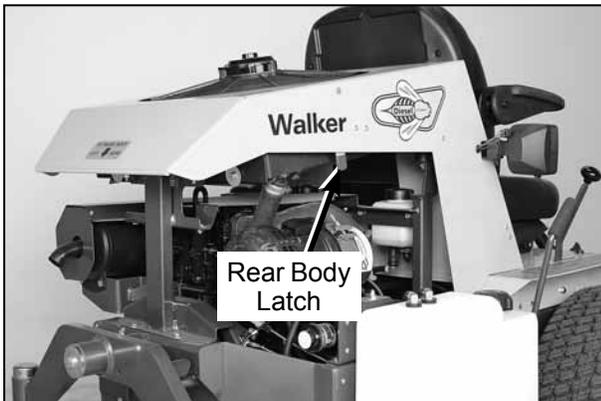
The throttle control lever (red knob) is located on the left side of the seat and is used to control engine speed. Moving the lever **forward** toward the **FAST** position **increases** engine speed; moving it **backward** toward the **IDLE** position **decreases** engine speed.



Throttle Location

Body Latch

The tractor body hinges forward for maintenance access and is latched down in the **OPERATING** position. To raise the body, pull back on body latch and lift body from the rear of the machine.



Rear Body Latch

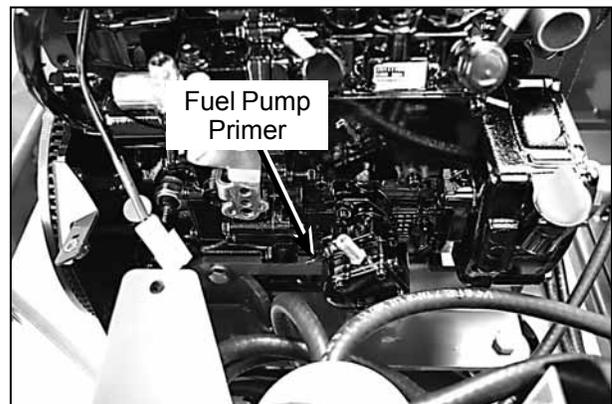
Forward Speed Control (FSC)

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 10 mph (0 to 16 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.

Fuel Pump Priming

Engine is equipped with a mechanical fuel pump and the fuel system will need to be primed in certain conditions (after running out of fuel or after fuel system maintenance). Move priming lever on fuel pump until the clear cup on the fuel filter/water separator shows filled with fuel before attempting to crank the engine.

NOTE: DO NOT crank the engine to prime the fuel system as this may damage the starter from prolonged cranking.



Fuel Pump Primer

Operating Instructions

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)

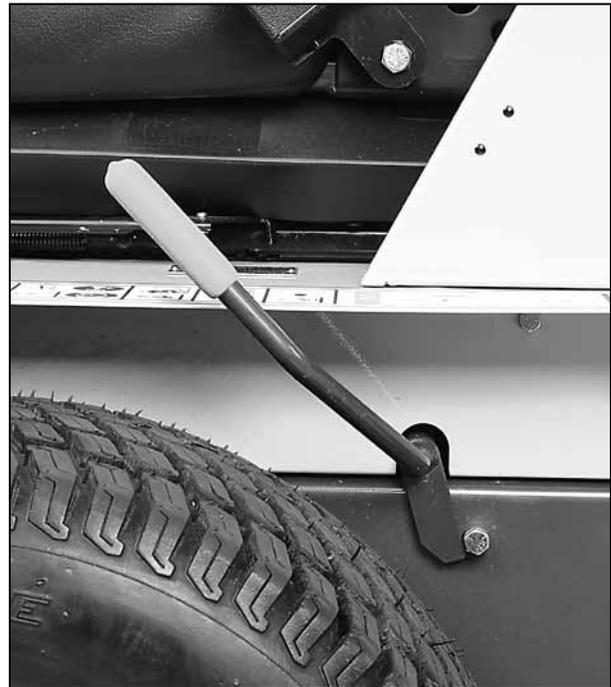
The blade clutch lever has two positions. Pulling the lever **FORWARD engages** the PTO that drives the mower blades. Pulling the lever **BACKWARD disengages** the PTO and engages the blade brake.

Parking Brake

The parking brake functions by locking a detent arm internally into the transaxle. 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 transaxle.

NOTE: If pressure on the parking brake (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 allow the brake detent to release.



Parking Brake Engaged



Parking Brake Disengaged

Operating Instructions

Circuit Breakers

Two manual reset circuit breakers are located on the front body. Each has a button that pops out if the circuit breaker trips. The 10 amp circuit breaker protects the safety and ignition circuits. The 7 amp protects the indicator lamps and hourmeter.

Glow Plug Warning Light

The glow plug warning light indicates the glow plug function is in use.

Battery/Charge Light

The charge light indicates the electric system is not being charged.

Oil Pressure Warning Light

The oil pressure warning light indicates that engine oil pressure is below the safe operating level [below 7 PSI (48 kPa)]. This **light (and warning horn)** will come on when the ignition is turned **ON**, but should go off after the engine is started. If the light fails to come on when the ignition switch is turned **ON**, it would indicate a burned out bulb, or the inline 7 amp circuit breaker could also be tripped. If the light comes on during engine operation, stop the engine immediately and correct the source of the problem before further engine operation.

IMPORTANT: Continued operation of the engine with an illuminated oil pressure warning light **MAY** cause severe engine damage (if a low oil pressure condition exists).

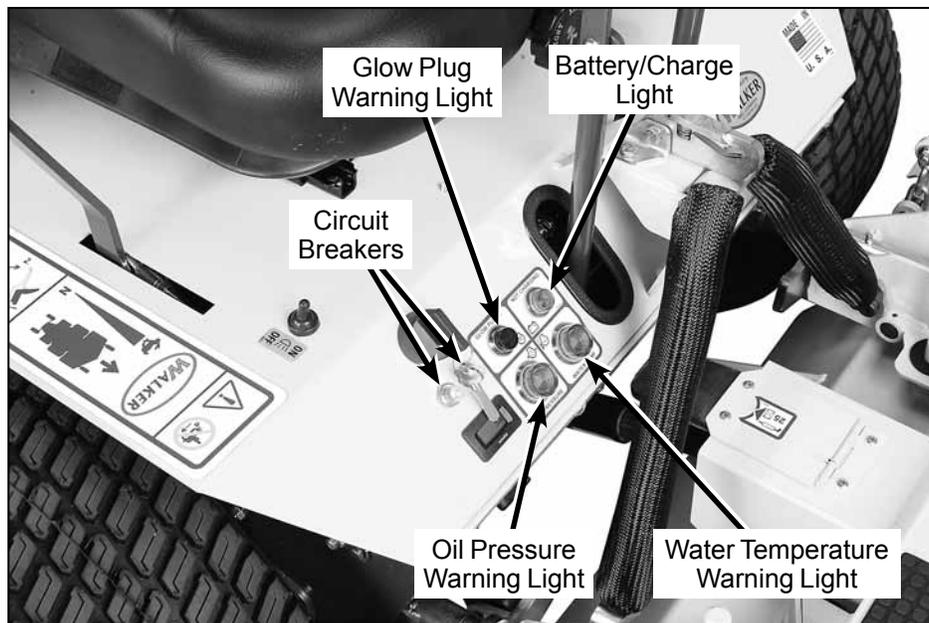
Water Temperature Warning Light

The water temperature warning light indicates that engine coolant temperature is above the safe operating limit and the **engine is overheating**. If this light comes on, there may be a problem with:

- Radiator cooling air flow (material packed into radiator cooling fins, clogged air intake screen)
- Low coolant quantity in cooling system
- Engine alternator belt
- Thermostat function

Stop the engine and correct the problem before further operation.

IMPORTANT: Continued operation of the engine with an illuminated water temperature warning light **MAY** result in severe engine damage.



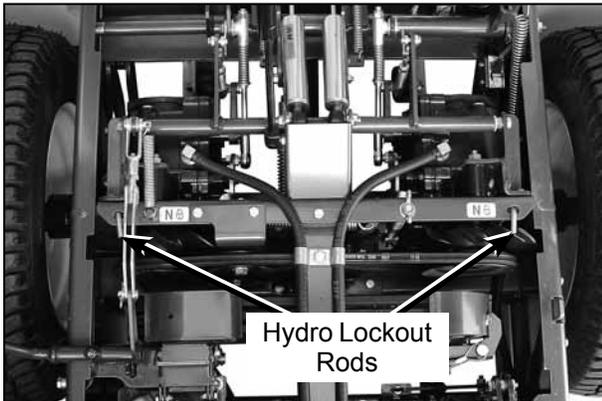
Engine Warning Lights

Operating Instructions

Transaxle Lockout Rods

The transaxle lockout rods disengage the transaxles. By **lifting** the rods up and locking them into place with the shoulder on the rod in the chassis notch, the transaxles are released to permit free-wheeling. By releasing the rods and **recessing** them back toward the chassis, the transaxles are engaged for normal operation. The transaxle rods in the **LOCKOUT** position are used to enable moving the machine without the engine running (e.g., for service). Refer to **TRANSAXLE LOCKOUTS** in this section for operating instructions.

NOTE: The transaxle lockout rods ends should be completely retracted against the chassis, otherwise operation of the transaxle may be erratic.



Hydro Lockout Rod Location

Hourmeter

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

The hourmeter provides maintenance reminders after certain hours of operation. The hourmeter screen will start flashing the reminder one hour prior to the recommended interval and will continue until one hour after the recommended interval (two hours). The hourmeter **does not have a manual reset function**.

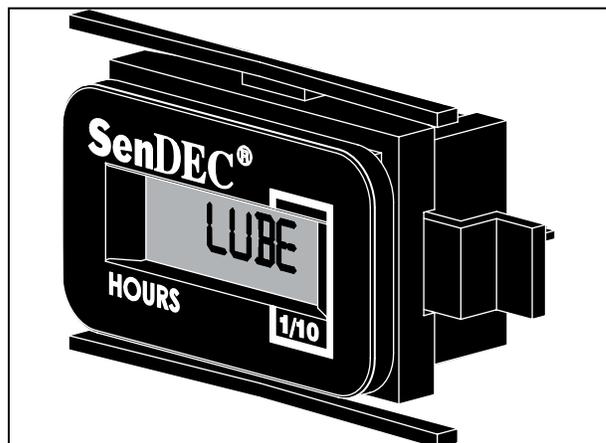
Procedure	Interval*	Reminder
Oil Change (Break-In)**	4-6 Hours	C H G OIL
Lubricate and Check Levels	24-26 Hours	LUBE
Oil Change	49-51 Hours***	C H G OIL

* These intervals reflect the actual time that the reminder will flash (one hour prior to and one hour after the recommended interval).

** This reminder is only used one time.

*** In normal operating conditions, oil changes in 100-hour intervals are acceptable. Walker and the engine manufacturers recommend engine oil changes every 50 hours in extremely dirty or dusty conditions or for units with less than 100 hours annual use.

NOTE: The blinking hour glass on the display means that the meter is operating properly.



Hourmeter

Operating Instructions

Optional Roll-Over Protection System (ROPS)

WARNING

The ROPS may offer enhanced operator protection in the event of a roll-over type accident, but only if used correctly. Failure to comply with the following ROPS instructions can result in serious injury or death if a roll-over occurs. Read and understand the following ROPS instructions before operating the machine.

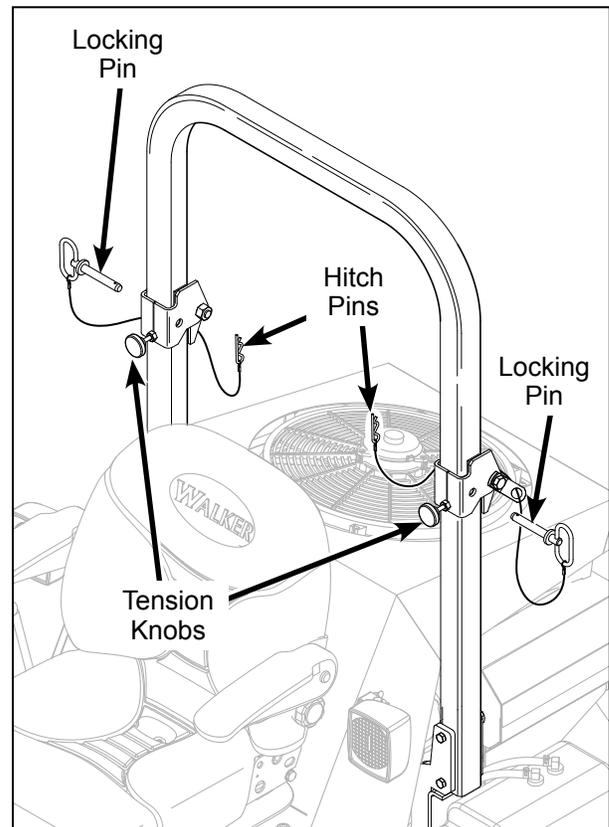
- Keep the ROPS roll bar in the upright and locked position when operating the machine.
 - Always use the seat belt when the ROPS roll bar is in the upright position.
 - Make sure that the seat belt can be released quickly in the event of an emergency.
 - Make sure that the mower body hold-down latch is engaged.
- Lower the ROPS roll bar only when absolutely necessary for overhead clearance reasons.
 - Never use the seat belt if the ROPS roll bar is not in the fully upright and locked position.
 - Never lower the ROPS roll bar when operating in areas where there are slopes, drop offs, or other roll-over hazards.
 - Be aware there is no roll-over protection when the roll bar is lowered.
 - Raise and lock the ROPS roll bar as soon as overhead clearance permits.
- Check for overhead clearance (i.e. branches, doorways, electrical wires) before driving under any objects and be careful to avoid contact.

To Lower the ROPS Roll Bar:

1. Loosen the two (2) tension knobs.
2. Remove the two (2) hitch pins.
3. Remove the two (2) locking pins.
4. Lower the roll bar.
5. Replace the locking pins and secure them with the hitch pins.

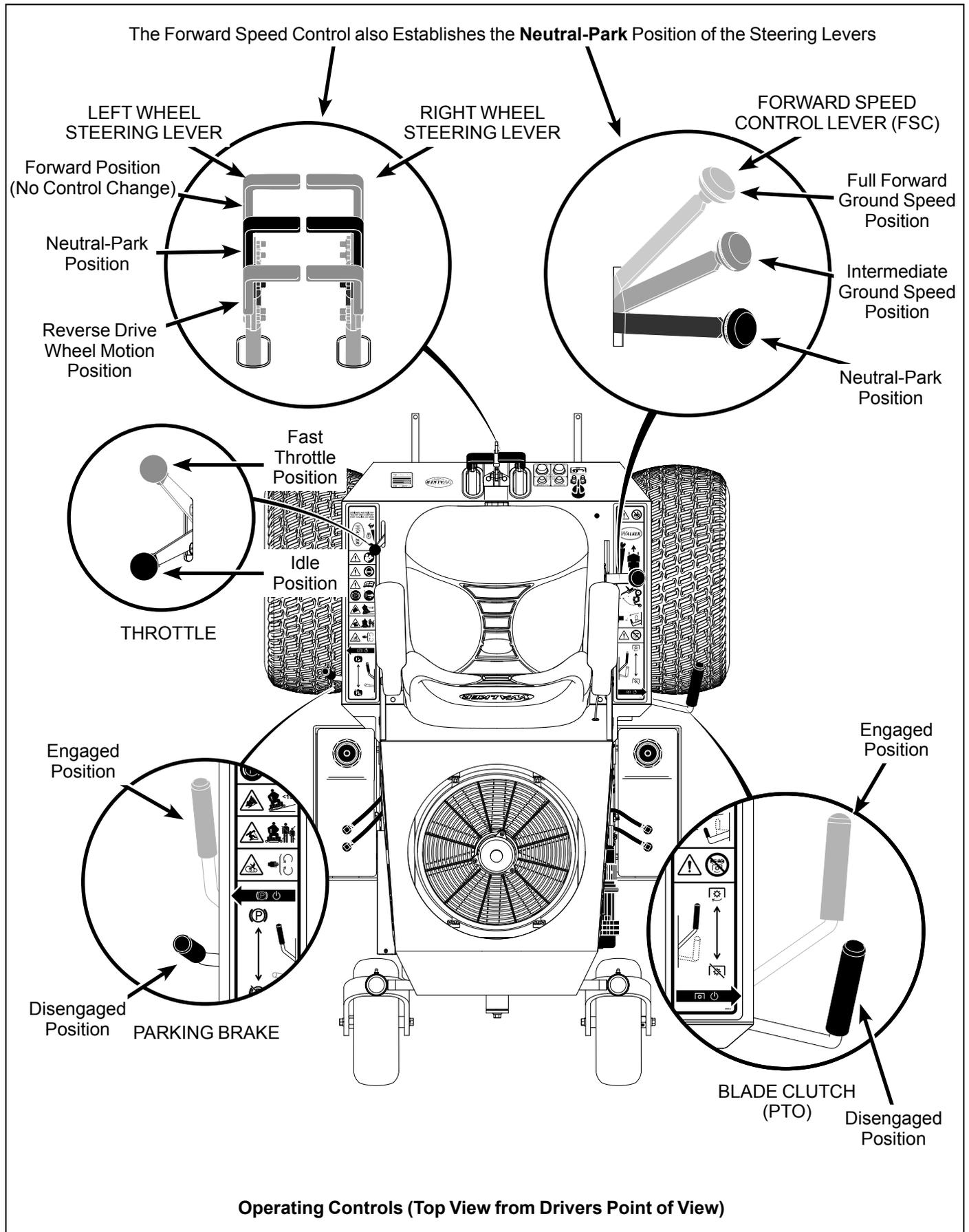
To Raise and Lock the ROPS Roll Bar:

1. Remove the two (2) hitch pins.
2. Remove the two (2) locking pins.
3. Raise the roll bar to the upright position.
4. Install the two (2) locking pins and secure them with the two (2) hitch pins.
5. Tighten the two (2) tension knobs to prevent the roll bar from rattling.



Roll-Over Protection System (ROPS)

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. Turn and hold the ignition key in the **PREHEAT** position to preheat the engine glow plugs. For temperatures below 35° F (2° C), the time required is approximately 10 to 15 seconds. For temperatures 35° F (2° C) or higher, the time required is approximately 5 to 10 seconds.
3. 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.

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. Contact your Walker dealer or authorized Yanmar dealer for additional help.

TROUBLESHOOTING NOTE: If the engine cranks but does not start, check the following:

- Engine is equipped with a mechanical fuel pump and the fuel system will need to be primed in certain conditions (after running out of fuel or after fuel system maintenance). Move priming lever on fuel pump until the clear cup on the fuel filter/water separator shows filled with fuel before attempting to crank the engine.
 - Is the fuel valve solenoid operating? Look at the exhaust pipe when cranking the engine - no smoke indicates no fuel is reaching the cylinder. If the solenoid is not operating, contact your Walker dealer.
 - Are the glow plugs operating? Look at the exhaust pipe when cranking the engine - white smoke indicates improper glow plug operation and inadequate preheat. Consult the Yanmar Manual to check glow plug function.
4. After the engine starts, make sure the oil pressure light goes off. If not, stop the engine immediately and find the cause of the problem. Make sure the oil pressure light is off prior to engaging the mower blades and beginning operation.

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 TRANSAXLES**, steering and ground operation should be learned and practiced until the operator is completely comfortable handling the machine **BEFORE ATTEMPTING TO MOW**.

Operating Instructions

DANGER

Keep feet on footrest at all times when the machine is moving. Never operate the tractor without a deck or implement installed.

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 the transmission drive belt breaks 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** for **Step 7 - Forward Speed Control Friction Adjustment** in the Maintenance Instructions.

CAUTION

A safety interlock switch (seat switch) will cause the engine to stop if the FSC is out of the **NEUTRAL-PARK** position and the operator is not in the seat. The function of this switch should be checked by the operator raising off the seat with the tractor moving forward (allow a 1/2 second off the seat for the time delay function); the engine should stop. If the safety system 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.

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.

Operating Instructions



Correct Operator Hand Position on the Controls

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

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.

- 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.
- 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** for **Step 3 - Neutral Position Adjustment** in the **Maintenance Instructions**.

ENGAGING THE MOWER

- Set the engine throttle at about 1/3 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.
- Engage the blade clutch by moving the blade clutch lever forward **SLOWLY**. For disengagement, move the blade clutch lever backward **SLOWLY**.

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

Operating Instructions



Blade Clutch Disengaged

CAUTION

If the cutting blades strike a stationary object while mowing, stop the mower immediately, disconnect the electrical plug on the fuel shut-off solenoid, lift the deck, and inspect the deck and blades thoroughly for damage. Also, make sure the blade retaining bolts are torqued to 64 ft-lb (87 N·m).

STOPPING THE MACHINE

1. Pull the steering levers to the **NEUTRAL-PARK** position and then move the FSC lever backward to the **NEUTRAL-PARK** position.
2. Slow the engine to idle; put the throttle in the **IDLE** 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 increased wear of the brake band.

WARNING

A brake stops the cutter blades 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 repaired or replaced before operating the mower. Contact your Walker dealer.

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. Also, engaging the parking brake is recommended when stopping or parking the machine in a confined space with little tolerance for movement.

IMPORTANT: The transaxles 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 transaxles, especially when transmission fluid is warm.

WARNING

In case the transmission drive belt breaks 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: The emergency stop procedure is exactly the same procedure as used to normally stop and park the machine.

Operating Instructions

FUEL SELECTOR VALVE

The tractor is equipped with dual fuel tanks. A fuel selector valve regulates which tank is being utilized. The valve is located on the right hand side of the engine. The valve switches between the LH and RH fuel tanks. **DO NOT** run tank dry before switching tanks.



Fuel Selector Valve

ADJUSTING CUTTING HEIGHT

WARNING

Never adjust cutting height while the mower is moving. Before adjusting cutting height or servicing, move the Forward Speed Control (FSC) into the NEUTRAL-PARK position, engage the parking brake, and disengage the blade clutch (PTO). Tractor should not be moving while adjusting cutting height.

Cutting height is adjusted from operators seat using the height pedal to assist in raising the deck while positioning the height adjustment lever and hitch pin.

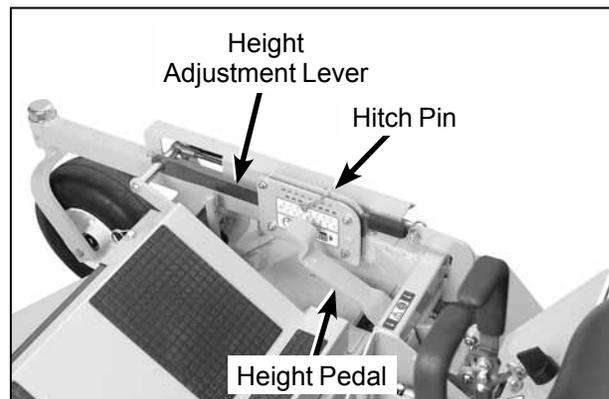
1. Disengage PTO and stop tractor.
2. Push down on height pedal until it latches in the full up position.
3. Select desired height by moving the hitch pin to the desired height.
4. Push down on the height pedal and lift up on the height adjustment lever. Slowly release the height pedal while lifting the lever until there is no pressure on the pedal.



Cutting Height Adjustment

Transport Position

1. Disengage the PTO.
2. Push down on height pedal until it latches in the full up position.



Cutting Height Adjustment Components

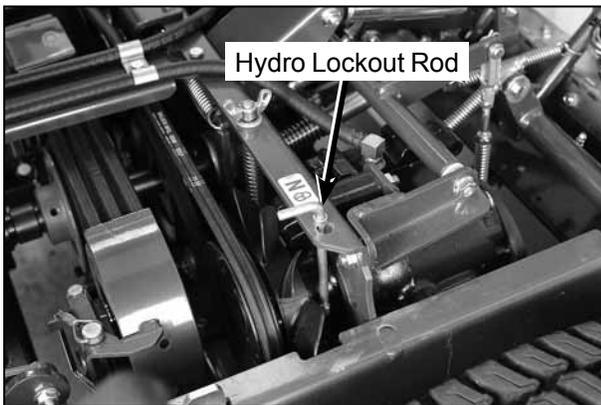
Operating Instructions

TRANSAXLE LOCKOUTS

IMPORTANT: DO NOT TOW this mower faster than 2 mph (3.2 km/h) with the transmission lockout engaged. Towing can produce excessive internal pressure and damage the transaxle(s).

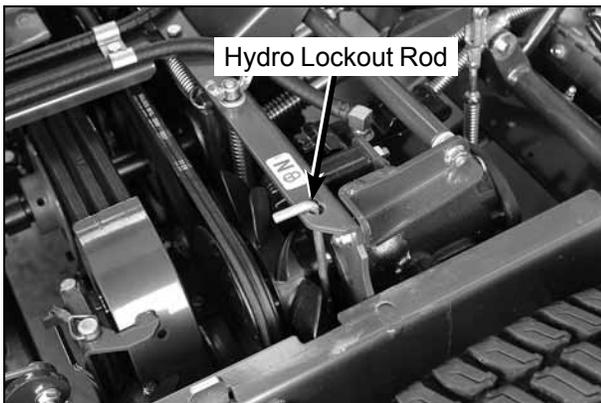
To move the mower with the engine **NOT** running (dead battery, maintenance, etc.), the transaxles should be unlocked (released).

1. Raise the body.
2. Pull up the transaxle lockout rods on both the RH and LH transaxles and secure into place by shouldering both rods in the chassis notch area.
3. The mower will “freewheel” with the rods in the **LOCKOUT** position. The levers must be in the highest position to completely unlock the transmissions.



Hydro Lockout Rod - Freewheel Position

4. After moving the mower, release the rods, placing them in the normal **OPERATING** position. The transmission rod ends should be completely retracted against the chassis, otherwise operation of the transmission may be erratic.

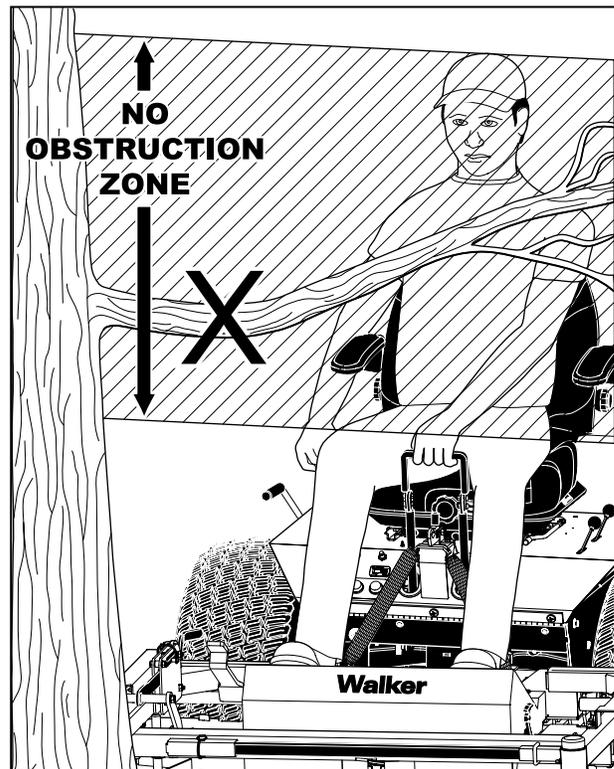


Hydro Lockout Rod - Normal Operating Position

RECOMMENDATIONS FOR MOWING



Do not mow around overhanging tree branches or bushes at the same height as the operator's torso and head where inadvertent contact may cause injury.



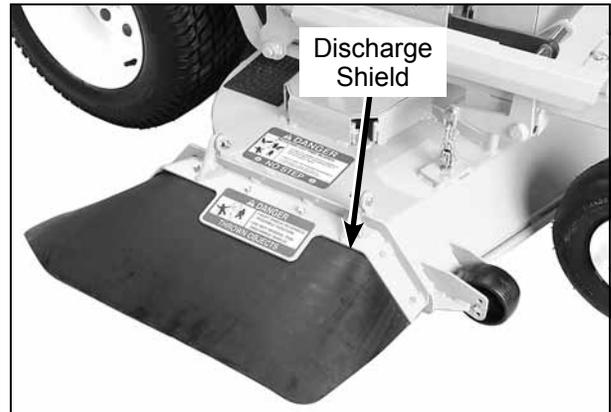
Avoid Low Hanging Branches

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

- Keep the mower deck 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.)

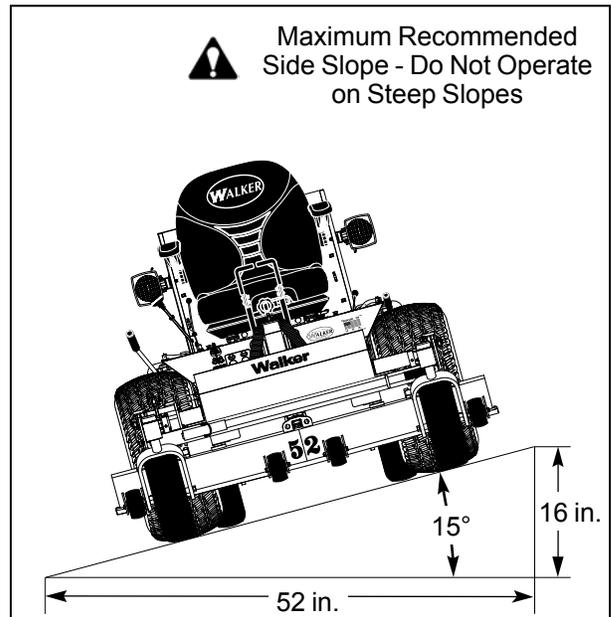
Operating Instructions

- When mowing, operate the engine at **full throttle** for the best cutting action. 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 - 5 in. (127 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.
- 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 transaxles 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 the DSD60 deck, or other side discharge decks, 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 15 degrees or 26% grade**.



Maximum Recommended Side Slope

Operating Instructions

DANGER

Do not mow or drive the tractor within 5 feet (1.5 meters) of an embankment or retaining wall with drop off.

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) 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.



No Driving Zone

Maintenance Instructions



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

MAINTENANCE SCHEDULE CHART - RECOMMENDED SERVICE INTERVALS - MODEL MBSY

Service Item	Daily	25 Hours	100 Hours	200 Hours	400 Hours	Yearly	Every 2 Years	Ref. Page
Check Engine Crankcase Oil Level	x							43
Check Coolant Level in Radiator and Overflow Tank	x							55
Clean Radiator Screen and Cooling Fins*	x							51
Check Security of Air Filtration Components	x							56
Check Air Filter Restriction Gauge	x							49
Clean Grass Buildup Under Deck	x							52
Check Transaxle Cooling Fan Condition	x							54
Service Mower Blades	x							57
Check Function of Warning Lights and Horn	x							25
Lubricate Grease Fittings and Oil Points*		x						45
Check Battery Electrolyte Level		x						56
Check Transaxle Oil Level (in Reservoir)		x						45
Check Tire Pressure		x						56
Check Drive Belts (Engine Alternator, Engine PTO, Ground Drive)		x						58
Check Operation of Safety Interlock Switches		x						59
Check Operation of Turbine Precleaner Fan*			x					49
Check Air Filter Element**			x					50
Change Engine Crankcase Oil***			x					44
Check Engine Alternator Belt Tension			x					55
Check Blade Brake Action			x					58
Check Security of Drive Tire Mounting Nuts (75 to 85 ft-lbs.)			x					24
Check FSC Friction Lock			x					59
Change Engine Oil Filter				x				44
Check Radiator Hoses and Clamps				x				58
Change Transaxle Oil and Filter					x			48
Replace Fuel Filters (2)/Clean Water Separator					x			65
Replace Air Filter Element and Dust Ejection Valve**					x			50
Check Fuel Lines and Clamps						x		58
Flush Radiator and Change Coolant						x		52
Service Battery						x		56
Check PTO U-Joints for Wear/Looseness						x		58
Adjust Engine Intake/Exhaust Valve Clearance						x		Δ
Replace Radiator Hoses and Clamps							x	58
Replace Fuel Lines and Clamps							x	58
Lap Engine Intake/Exhaust Valve Seats (if required)							x	Δ

- * More often in extremely dusty or dirty conditions (Refer to notes about air cleaner element in IMPORTANT TIPS FOR CARE OF THE YANMAR ENGINE)
- ** Air cleaner is remote mounted Engineaire™ unit, replace filter(s) every 400 hours and dust ejection valve every two years or when worn or damaged
- *** Change engine oil and filter after first 35 hours of operation of a new engine (break-in period)
- Δ See Authorized Yanmar Engine Dealer for this service



When performing maintenance with the tractor 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).

IMPORTANT TIPS FOR CARE OF THE YANMAR ENGINE

Fuel System

- Fuel must be clean--free from water, dirt and organic material. Fuel contamination will greatly shorten the life of the fuel injector pump and injectors.
- Use of (B5) Bio-Diesel fuel is approved when purchased from recognized and authorized diesel fuel supplier.
- Engine is equipped with a mechanical fuel pump and the fuel system will need to be primed in certain conditions (after running out of fuel or after fuel system maintenance). Move priming lever on fuel pump until the clear cup on the fuel filter/water separator shows filled with fuel before attempting to crank the engine.
- **DO NOT** crank the engine to prime the fuel system as this may damage the starter from prolonged cranking.
- **DO NOT** open the air vent valve or loosen fuel lines on the injector pump to bleed the fuel system. The fuel filter has an internal air bleed port connected to the fuel return line to the fuel tank.

Starting/Stopping

- **DO NOT use ether or any starting fluid** in the air intake. This will **damage the engine**.
- To aid starting in cold weather (below 40° F (4° C)), release the hydrostatic transmission drive belt to reduce the engine starter cranking load. Reinstall belt after the engine has been warmed up.
- Start the engine with the throttle advanced off idle to a mid-point (1/4 to 1/2) throttle setting. 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.
- For maximum engine life, allow the engine to run at idle and cool down for one or two minutes before stopping the engine.

Cooling System

- Fill the cooling system with a **pre-mixed** solution of 50/50 antifreeze (ethylene glycol) and distilled water.

IMPORTANT: Solution must be pre-mixed before putting it in the engine (adding pure antifreeze into the radiator may cause damage to the engine by causing overheating).

- Never mix different types/colors of coolants.
- **Maintain proper fluid levels** in the radiator and overflow tank.

Air Cleaner System

- Use **only Enginaire™** 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 following instructions).
- Use the air filter 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 air 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 air filter restriction gauge.
- Do frequently check the **Turbine Precleaner** (located in the end cap of the air cleaner assembly) for free movement of the internal fan. Shine light into end cap to verify movement of fan with engine running.
- 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

- Use any top quality oil with an API classification of CD or greater. **DO NOT** use oil that is rated for gasoline engines only (API SE/SF) as this will cause problems with a diesel engine.
- Single viscosity or multi-viscosity oils may be used as specified by the Yanmar Operation Manual, using the viscosity recommended to match ambient temperature range for the engine operation. This will **aid starting** in cold weather and assure proper lubrication in hot weather.
- Use only Yanmar 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 **35 hours**. Thereafter, change oil **after every 100 hours** of operation.

Checking Engine Crankcase Oil Level

Check the engine crankcase oil level before use and **after each 8 hours** of continuous operation.

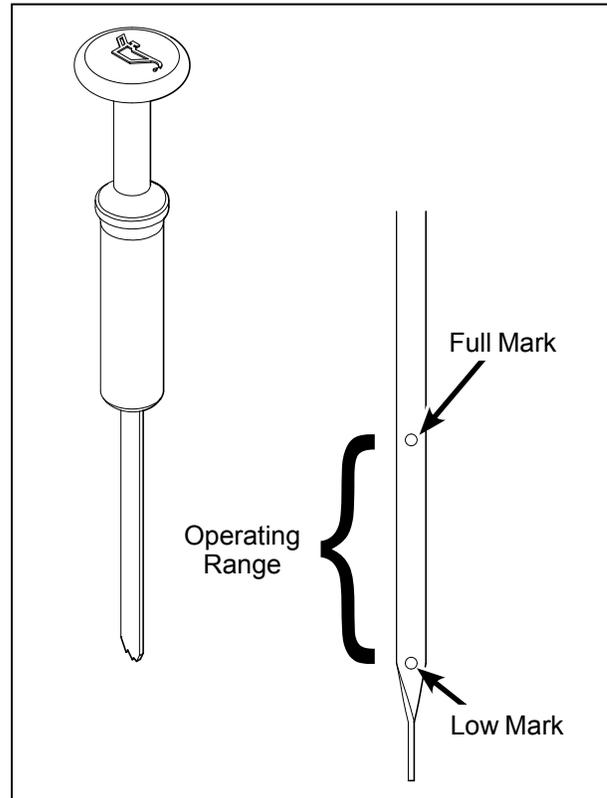
IMPORTANT: The importance of checking and maintaining the proper crankcase oil level cannot be overemphasized. Check the oil level **BEFORE EACH USE**.

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 to keep any dirt or debris out of the engine.
3. Remove the dipstick, wipe off with a clean rag, then reinsert the dipstick into the tube and tighten.
4. Remove the dipstick again and check the oil level on the dipstick. The oil level should be within the "Operating Range" on the dipstick (between the **LOW** mark and the **FULL** mark).

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



Dipstick Operating Range

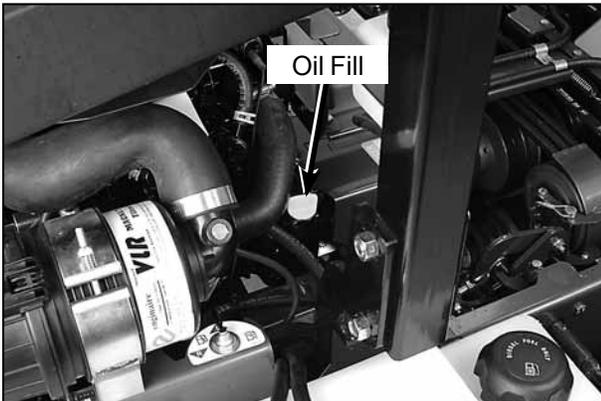
5. If additional oil is needed, refer to **Specifications** for proper crankcase lubricant. **Fill to the FULL mark**.

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

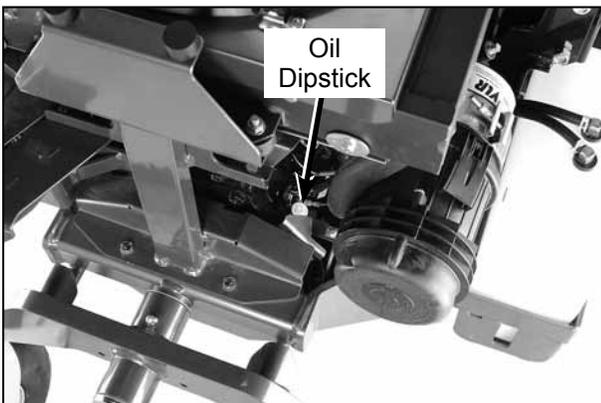
Changing Engine Crankcase Oil/Oil Filter

Change the engine crankcase oil **after every 100 hours** of operation and the oil filter **after every 200 hours** of operation as follows:

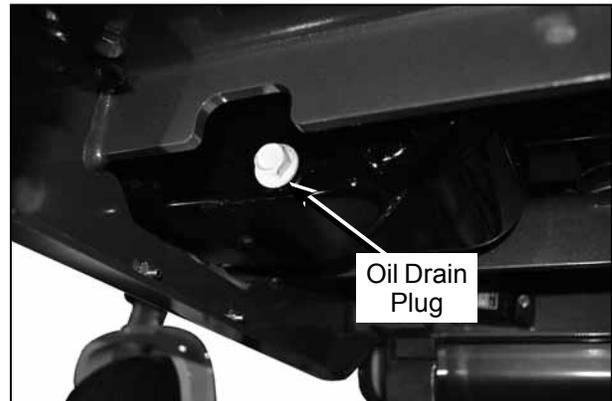
1. Park the mower on a **level surface with the engine stopped**. The engine oil should be warm before draining. If not warm from operation, start the engine and run a few minutes to warm the oil.
2. Before removing the dipstick, clean the area around it to keep any dirt or debris out of the engine.
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 Fill
(View from Above Right Side of Tractor)



Oil Dipstick
(View from Above Right Side of Tractor)



Oil Drain Plug Location
(View from Underneath Mower)

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 **1/2 to 3/4 turn**.
8. Reinstall the drain plug.
9. Fill the crankcase with new, clean oil. Use only crankcase lubricants recommended 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 mark** on the dipstick; crankcase capacity is 3.1. quarts (2.9 liters) when changing oil and filter.

IMPORTANT: Check the dipstick reading before pouring in the last 1/2 pint of oil and **fill only to the FULL mark**. The oil level should never be over the **FULL** 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.)

Mower Deck Spindle Lubrication

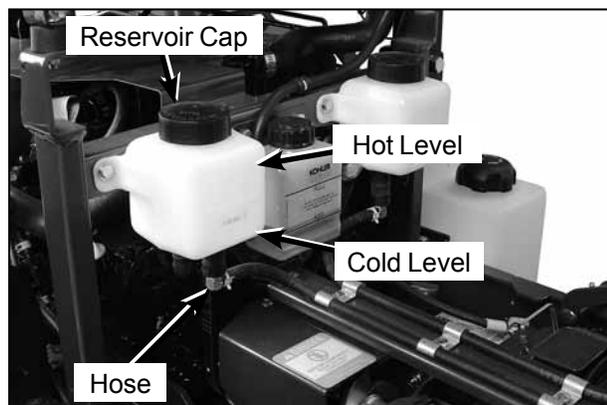
Lubricate each deck spindle grease fitting **every 25 hours**. Use SAE general purpose lithium or molybdenum base grease for grease fittings.

DRD52 or DSD60 Mower Deck Lubrication

Lubricate the U-Joint in the drive shaft **every 8 hours** with SAE general purpose lithium or molybdenum base grease.

Transaxle Lubrication

- The transaxle oil lubrication is SAE 20W-50 (API Service Class SL or higher) engine oil.
- Inspect both transaxle cases and hoses **after every 100 hours** of operation for visible leaks.
- The fluid levels for each transaxle can be checked visually by looking at the fluid levels in each expansion reservoir. When the transaxles are cold, the fluid level in the expansion reservoirs should be between 1/4 and 1/2 in. (0.64 cm and 1.27 cm).



Expansion Reservoir Location

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 best way to lubricate the PTO tube half of the universal joint assembly is to remove it from the tractor. See instructions for removing and installing PTO quick coupler, refer to *Deck Installation* in **Mower Deck Installation on Tractor** in the **Assembly Instructions**.

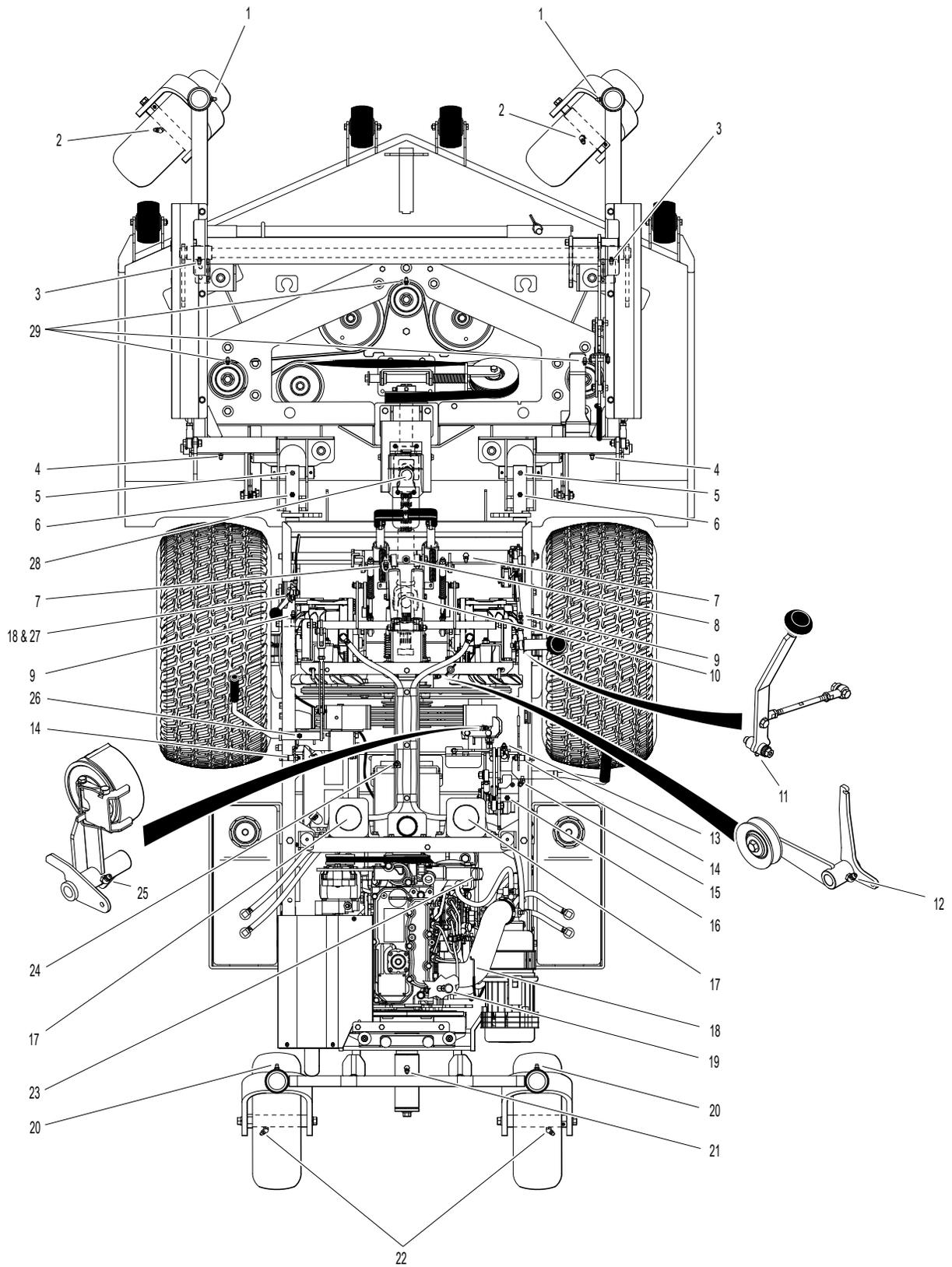
Maintenance Instructions

LUBRICATION

Ident No.	Location	Lubrication Type	No. Places	Ident No.	Location	Lubrication Type	No. Places
1	Deck Caster Wheel Fork Pivot	Grease	2	16	Clutch Arm Pivot	Grease	1
2	Deck Caster Wheel Bearing	Grease	2	17	Transaxle Oil Reservoir	Oil	2
3	Front Deck Lift Pivot	Grease	2	18	Throttle Control Cable Ends	Oil	2
4	Rear Deck Lift Pivot	Grease	2	19	Engine Dipstick	Oil**	1
5	Pivot Assembly, Tilt-Up Deck	Grease	2	20	Tail Wheel Caster Fork Pivot	Grease	2
6	Deck Support Arm Socket	Grease	2	21	Rear Wheel Pivot	Grease	1
7	Steering Lever Pivot	Grease	2	22	Rear Wheel Bearing	Grease	2
8	Deck-to-PTO Coupling (Grease Spline Slide Area)	Grease	1	23	Engine / Oil Filler	Oil**	1
9	Deck Support Arm Pivot	Grease	2	24	Rear Flanged Bearing	Grease	1
10	Universal Joint Tube Assembly	Grease*	1	25	PTO Belt Tightener Pivot	Grease	1
11	FSC Lever Pivot	Grease	1	26	Parking Brake Pivot	Grease	1
12	Hydro Idler Arm Pivot	Grease	1	27	Throttle Control Pivot	Oil	1
13	Clutch Actuator Push Rod	Grease	1	28	Universal Joint Shaft Assembly	Grease*	1
14	Body Latch Pivot	Oil	2	29	Blade Spindle	Grease	3
15	PTO Clutch Lever Pivot	Grease	1				

* Grease every eight (8) hours.

** Refer to **Engine Oil** located on page 43.

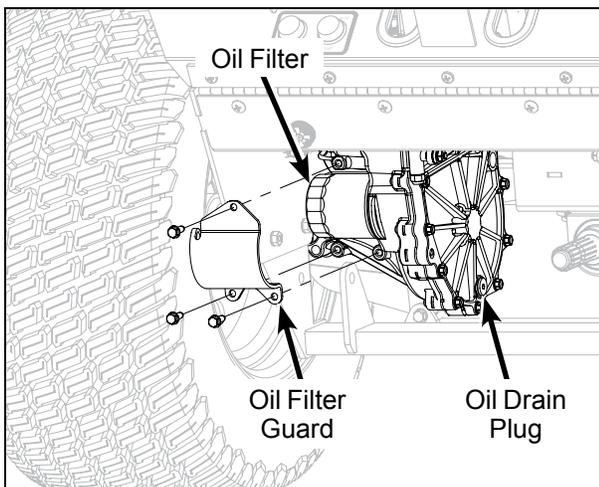


Chassis and Deck Lubrication Points

Transaxle Oil and Filter Change

Change the transaxle oil after the initial **break-in period** of **75-100 hours**. Thereafter, change oil **every 400 hours** of operation as follows:

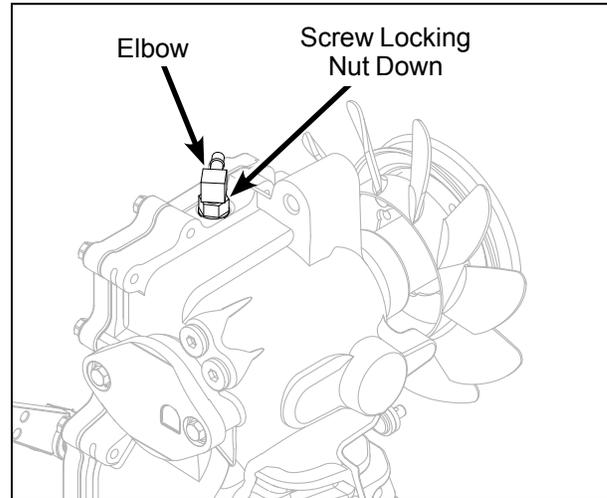
1. Thoroughly clean the exterior of the transmission housing before servicing. Remove expansion tank cap to allow venting. Using a 1/4 in. hex wrench, remove the plug on the lower inside of each transaxle allowing the oil to drain.
2. Remove the oil filter guard, remove and replace the oil filter using an oil filter wrench. Tighten filter by turning filter 3/4 to 1 turn after gasket contacts the filter base surface. Reinstall the oil filter guard. (Refer to **Transaxle Oil Drain Plug, Filter, and Guard Location** illustration.)



**Transaxle Oil Drain Plug, Filter, and Guard Location
(Shown with Deck Support Arms Removed for Clarity)**

3. Reinstall drain plug.
4. Remove the oil reservoir hose attached to the elbow on top of the transaxle. Remove the elbow to access the oil fill opening.
5. Fill the transaxles with 20W-50 (API Service Class SL or higher) oil through the opening where the elbows were. Fill up to the opening.

6. Before reinstalling the elbows, screw the locking nut on the elbows down until they are snug (the o-ring on the elbow will be to the bottom of the o-ring groove).



Reinstall Transaxle Elbows

7. Reinstall the elbows. When the elbow begins to be snug, position the elbow as it was when removed and tighten the locknut. Reinstall reservoir hoses to elbows.
8. Fill both reservoirs 1/4-1/2 in. (6-13 mm) using 20W-50 (API Service Class SL or higher) oil.
9. Start and drive the unit for 1-2 minutes.
10. If the transaxle sounds noisy or has poor steering response, there may be air trapped in the transaxle. Follow purge instructions below.
11. To purge air from transaxle, raise unit and block with tires off the ground. With engine running, slowly move Forward Speed Control forward and backward 5 to 6 times. Turn off engine and check oil level and add if needed. Repeat procedure until transaxle operate at normal noise levels and move smoothly in forward and reverse.

CLEANING



If a pressure washer is used on the exposed working parts, avoid water on the electrical parts and the engine cooling system.

Engine Air Cleaner System

Turbine Precleaner

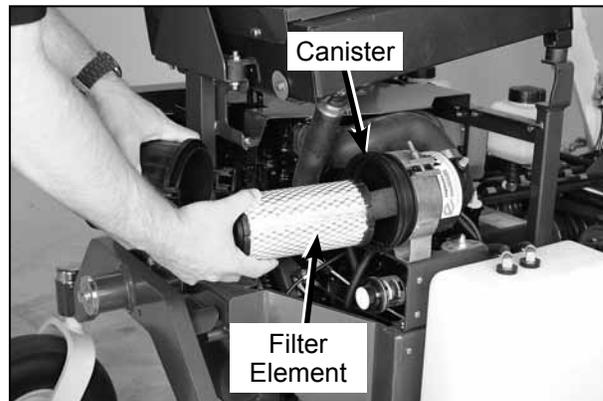
Do frequently check the **Turbine Precleaner** (located in the end cap of the air cleaner assembly) for free movement of the internal fan. Shine light into end cap to verify movement of fan with engine running.

Enginaire™ Air Cleaner

A remote mounted Enginaire™ 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 dust ejection valve provide dust separation and automatic precleaning action. Daily or frequent

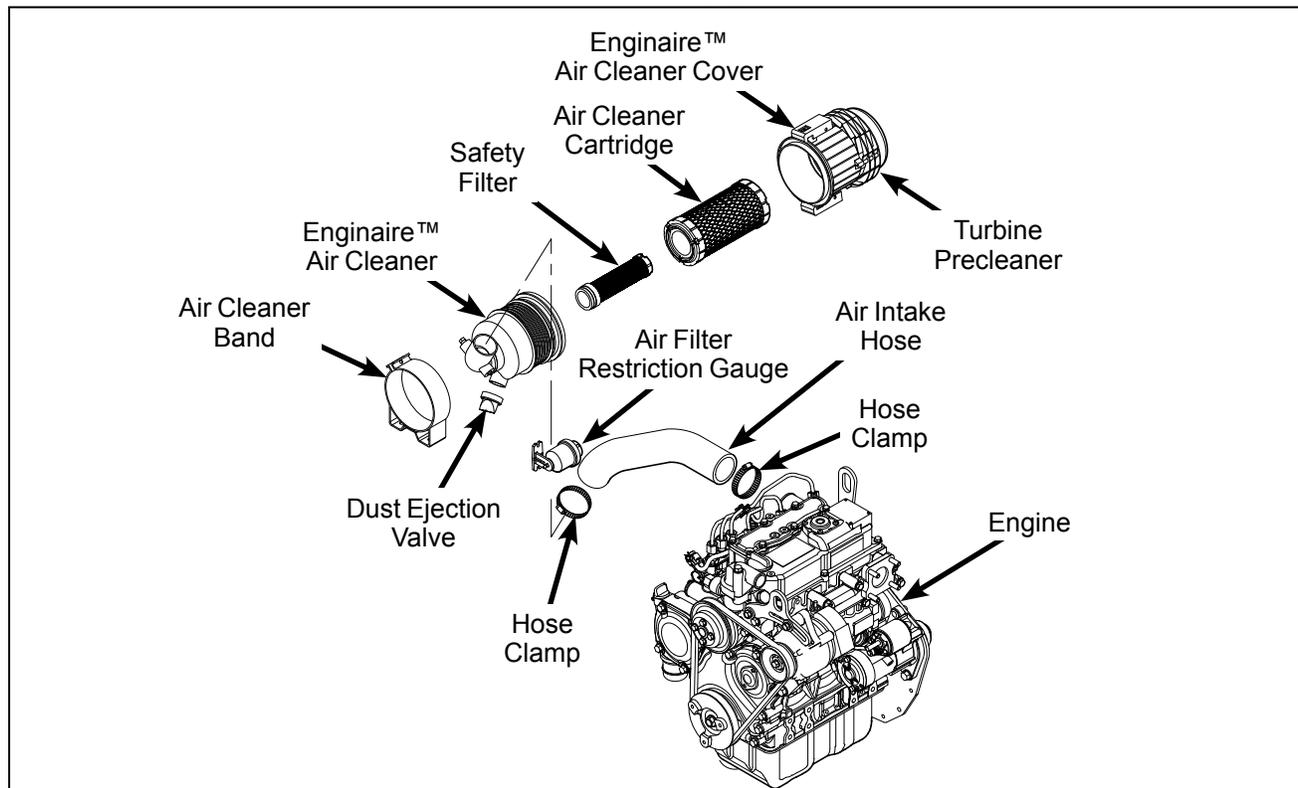
servicing of the air cleaner **is not required**. Use the air filter restriction gauge on the air cleaner outlet to determine when the air filter needs servicing -- a yellow indicator will show when the filter is overly restricting airflow into the engine.

IMPORTANT: Use **only** Enginaire™ air filter elements for replacement (Walker 5090-1 or 5090-3). Aftermarket filters may not seal properly or filter efficiently.

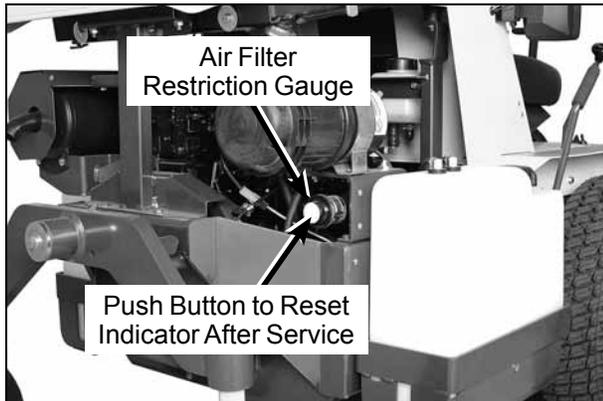


**Air Cleaner Components
(Shown with Cover Removed)**

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



Engine Air Cleaner System Components



Air Filter Restriction Gauge Location

Inspect the paper element **after every 100 hours** of service and **replace** the element and safety filter **every 400 hours** (or when dirty or damaged). More frequent replacement may be required when operating in extremely dusty conditions as indicated by the air filter restriction gauge. Service the air cleaner as follows:

1. Unlatch and remove Enginaire™ air cleaner cover. Wash the cover and dust ejection valve. Check that these components are in good condition. The dust ejection valve is subject to wear and deterioration and should be inspected carefully and replaced every **2 years** 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. Discard the filter element if excessive air flow restriction has been indicated by the air filter restriction gauge and proceed to Step 6. Clean the filter element by **gently tapping** on a **flat, hard surface**. If excessive restriction still exists after cleaning the element, it should be replaced.

NOTE: Use care when cleaning the filter element. The filter element and/or seal surface may be damaged by tapping too hard or hitting on an uneven surface or sharp edge. Washing the element in water or cleaning solution is **not recommended**. Do not try to clean the element with compressed air. Remember replacing a filter is less expensive than replacing a dusted engine.

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. Without removing, visually inspect the condition of the safety filter for damage or holes. The safety filter should only be removed for replacement every 400 hours (or when dirty or damaged).

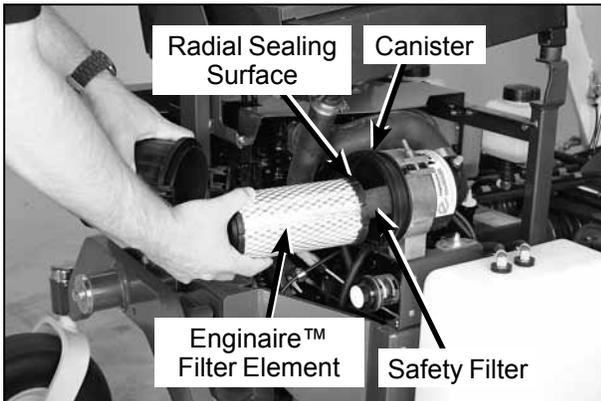
IMPORTANT: Prior to removing the safety filter, make sure the inside surface of the air cleaner canister is clean. This will minimize the risk of dirt entering the outlet tube which can cause premature engine wear.

7. After removing the safety filter, 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.

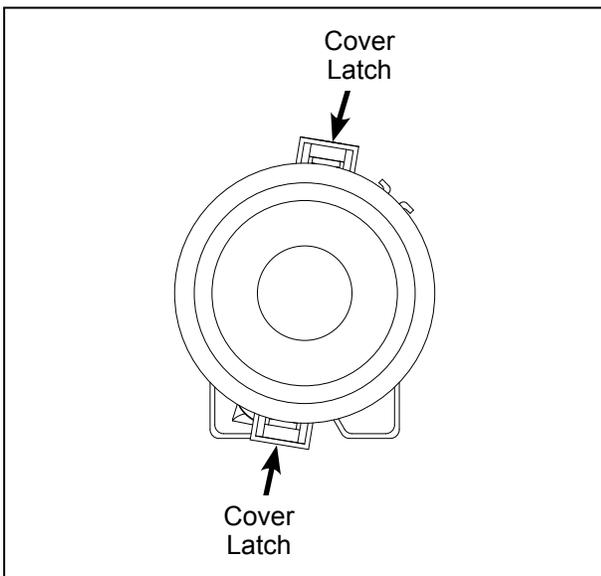
8. Check the outside surface of the outlet tube for smoothness and cleanness (this is the sealing surface).
9. Insert and seat the safety filter and primary filter element carefully into the canister, applying pressure at the outer rim of the filter; not at the flexible center. Make sure the filter element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

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

10. Install the Enginaire™ air cleaner cover. Latch the two (2) cover latches.



Proper Orientation of Air Cleaner Cover

11. Check the air intake hose for cuts, nicks, cracks, etc., and the hose clamps for tightness.
12. Reset the air filter restriction gauge (press button on the end of the indicator).

Engine Cooling System

Radiator Screen and Cooling Fins

To prevent the engine from overheating and possible engine damage, clean grass clippings, chaff, and dirt from the fine mesh radiator intake screen **daily**. In certain mowing conditions (dry grass, leaves, tree “cotton”, etc.), it may be necessary to check and clean the screen several times during use to prevent engine overheating.

1. Slide screen out from underside of radiator. To clean the screen, wash with soapy water or blow out with compressed air.



Radiator Screen

2. Inspect the radiator cooling fins for material lodged in this area which would restrict cooling airflow. Use pressurized air or water to clean. **DO NOT use any tool, like a screwdriver or knife**, to clean material out of the fins as this may damage the cooling fins. **DO NOT** use cold water on a hot radiator.

NOTE: Directing pressurized air or water from the fan side of the radiator outward is recommended to dislodge material packed on the outside of the cooling fins. **DO NOT** use cold water on a hot radiator.

WARNING

Radiator and engine parts can become extremely hot during operation. Wear gloves and avoid touching hot parts while cleaning the radiator screen and cleaning debris away from the engine and cooling system.

Flushing Radiator and Changing Coolant

Change engine coolant **every year**. Drain the coolant from the engine and radiator:

1. Remove the radiator cap.
2. Open the drain cocks on the engine block and radiator (see the Yanmar Owner's Manual for location of the drain cocks). Also, drain the coolant recovery tank.
3. If there is any **indication of deposits** or scaling inside the radiator, use a commercial scale remover and **flush the cooling system** thoroughly before adding fresh coolant.

Use a pre-mixed 50/50 solution of antifreeze (ethylene glycol) and distilled water to refill the cooling system.

IMPORTANT: The solution of antifreeze and water must be thoroughly pre-mixed before putting it in the engine. Adding pure antifreeze into the radiator may cause damage to the engine from overheating.

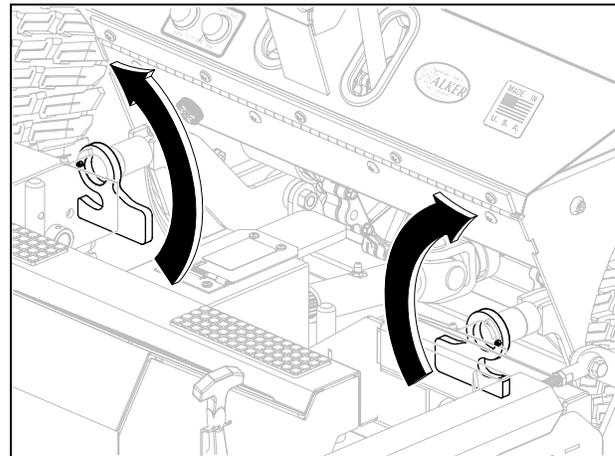
IMPORTANT: Maintain **proper coolant level** in the radiator and coolant recovery tank. The coolant level should be maintained between **FULL** and **LOW** marks on the coolant recovery tank. **Recheck** the coolant level after the first time the engine has been operated after filling the coolant system (it would be normal to add a little coolant after initial operation).

Grass Buildup in Mower Housing



Before raising or removing the mower deck for cleaning, stop the engine, remove the ignition key, and disconnect the electrical plug on the fuel shut-off solenoid.

1. Release hood latch assembly (2) and remove footrest.
2. Rotate locking arms **upward** on each side of the carrier frame to release carrier frame for tilting action.



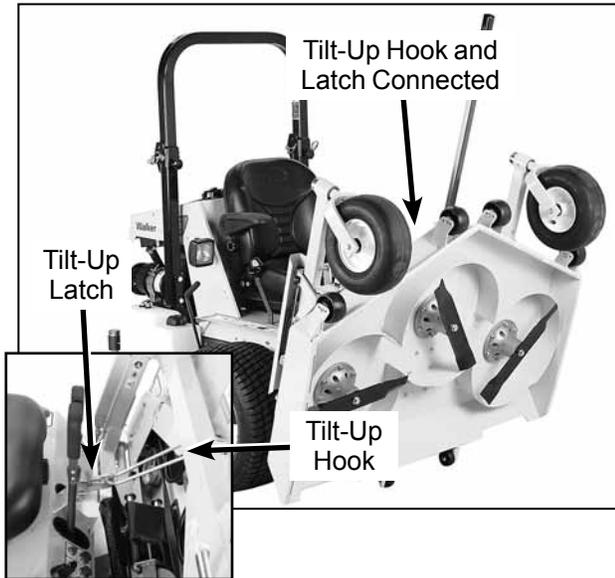
Locking Arm Rotation

3. Install tilt bar into front of deck.



Tilt Bar Installed

4. Using the tilt bar, 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

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

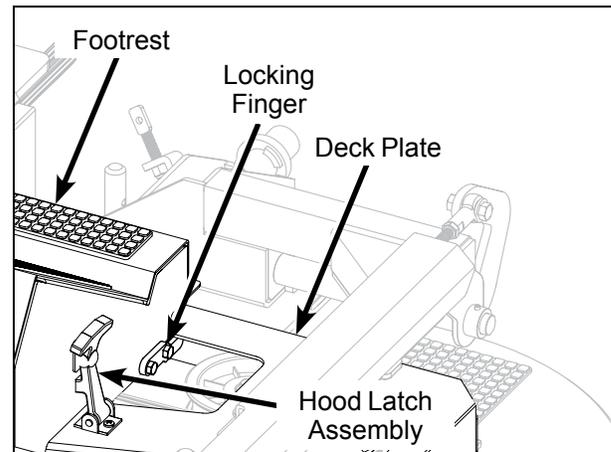
NOTE: If the buildup is severe, it may be easier to clean the deck by removing the deck assembly from the tractor and standing the deck assembly on its “nose”.

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.

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.

6. Lower the deck to the normal operating position and rotate locking arms **downward**.
7. Remove tilt bar and store on carrier frame.
8. Reinstall footrest by inserting locking fingers under deck plate and reattaching hood latch assembly.



Footrest Installation

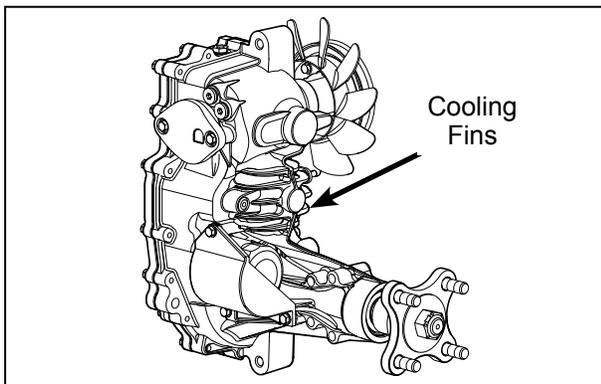
CAUTION

Do not operate machine with deck locking arms disengaged.

Transaxle Housing

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

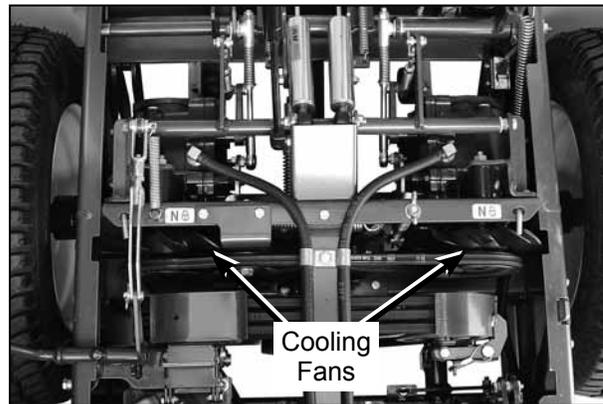
To clean the housing, use compressed air and/or a pressure washer. Pay close attention to any oily dirt build up on the transaxle housings. This may be the result of an oil leak. If an oil leak is noticed, contact your local Walker dealer.



Transaxle Housing and Cooling Fins

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, contact your dealer immediately to avoid overheating and damaging the transaxle.

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



Transaxle Cooling Fans

CHECKING/SERVICING



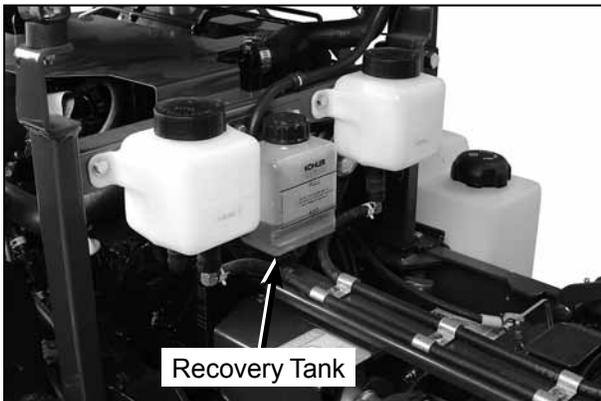
To prevent accidental starting of the engine when servicing or adjusting the machine, remove the key from the ignition switch and disconnect the electrical plug on the fuel shut-off solenoid.

Engine Cooling System

Coolant Level



NEVER remove the radiator pressure cap when the engine is hot — hot water could spray and cause a burn if the cap is taken off too soon.



Overflow Tank

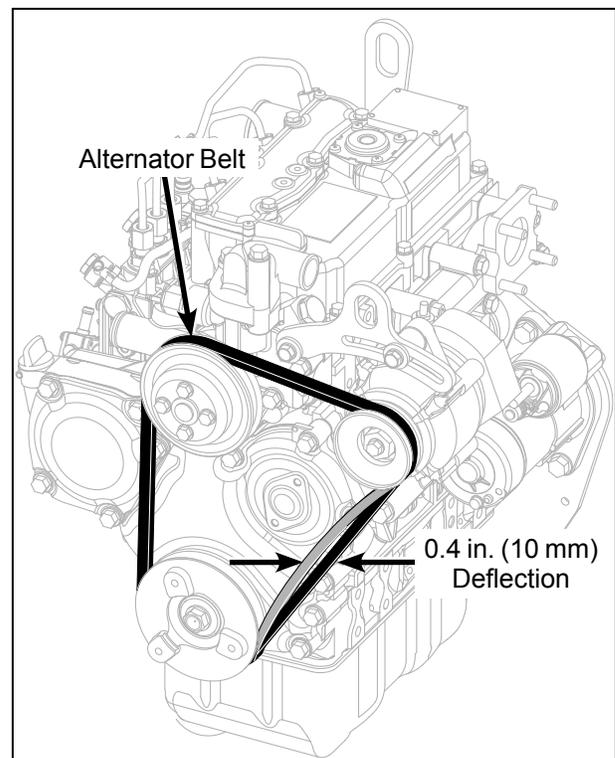
Check the coolant level in the coolant recovery tank and **maintain the coolant level between the FULL and LOW marks on the recovery tank.** When the engine is cold, the coolant level should be at or slightly above the **LOW** mark on the recovery tank.

If the coolant level is low, remove the radiator cap and fill to the overflow port level and then fill the recovery tank above the **LOW** mark. Use a pre-mixed 50/50 solution of antifreeze (ethylene glycol) and distilled water to fill the cooling system.

IMPORTANT: The coolant solution of antifreeze and distilled water must be thoroughly pre-mixed before putting it in the engine (adding pure antifreeze into the radiator may cause damage to the engine by causing overheating).

Alternator Belt Tension

Check and adjust the belt tension to **avoid engine overheating and insufficient battery charging.** Push on the belt in the middle of the span between the alternator and crankshaft. If properly tensioned, it should deflect about **0.4 in. (10 mm).** Also check the belt for cracks or deterioration.



Alternator Belt Tension

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 Enginaire™ air cleaner canister for damage. Make sure the cover is in place and the cover latch is 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.
3. Check to make sure the air filter restriction gauge is in place and tight.

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 vented caps 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



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 distilled 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)

Wheel Nuts Torque

Check the eight (8) Drive Tire mounting nuts. **Every 100 hours** they should each be torqued to 75 to 85 ft-lbs. (102 to 115 N·m).

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 electrical plug on the fuel shut-off solenoid 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).



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

NOTE: PTO shaft must be **disconnected** before checking blades for straightness.

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**.



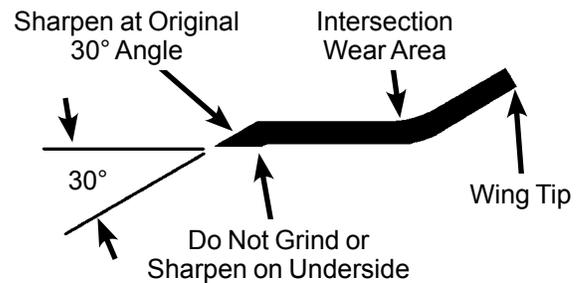
DO NOT try to straighten a blade that is bent. NEVER weld a broken or cracked blade. ALWAYS replace with a new blade to assure safety.

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 bolt and 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.

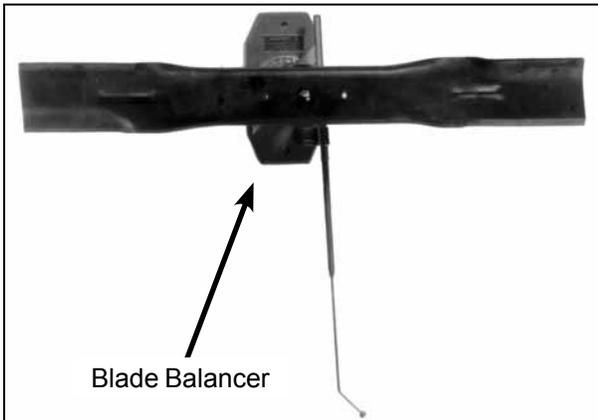


ALWAYS wear eye protection and gloves when sharpening a blade.



Mower Blade Profile for Sharpening

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.



**Blade Balanced on Magnetic
Wall-Mounted Balancer**

7. Mount the blade with wing tips pointing up into the housing. Reinstall the blade, washer, and bolt. **Tighten the bolt to 64 ft-lb (87 N·m).**

Drive Belts

Raise the body and inspect the condition of the five (5) drive belts **after every 25 hours** of operation -- engine alternator (1), PTO drive (3), ground drive (1). If the belts show **signs of cracking or deteriorating**, the belts should be **replaced**. Refer to **REPLACING/REPAIRING the Drive Belts** in this section.

Fuel Lines and Clamps

Every year, inspect the fuel lines from the tanks 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**.

NOTE: This procedure is of special importance for the diesel engine due to poor performance when air is injected with the fuel.

Radiator Hoses and Clamps

Inspect the radiator hoses **every 200 hours** for deterioration or damage. Also check the tightness of the hose clamps. Good preventive maintenance calls for complete **replacement** of the radiator hoses and clamps **every two (2) years**.

PTO U-Joints

The PTO U-joints should be inspected **yearly** for looseness and wear. If either is noticed, the respective shaft or tube should be replaced. A worn U-joint can cause vibration and extensive damage to the PTO and the whole machine.

Blade Brake Action



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

Check the function of the cutter blade brake 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 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. Contact your Walker dealer for this service or refer to the Walker Service Manual.

Safety Switch System



It is important to check and maintain the safety switch system for safe operation of the machine.

There are three (3) safety interlock switches on the tractor; Seat Switch, FSC Neutral - Park Switch, and PTO Switch.

NOTE: There is a 1/2 second time delay function on the seat switch to avoid engine power interruption when driving over bumps.

If any of the following conditions occur during starting or operating, a safety interlock switch may be malfunctioning. Contact your Walker dealer for troubleshooting and/or replacement.

- With an operator in the seat, the engine starts with the Forward Speed Control (FSC) and/or the PTO engaged.
- With an operator in the seat, the engine starts but dies soon after the Forward Speed Control (FSC) or PTO is engaged.
- **Without** an operator on the seat, the engine starts and continues to run with the Forward Speed Control (FSC) and/or PTO engaged.
- With an operator in the seat, the Forward Speed Control (FSC) and PTO disengaged and horn works, but the starter is not engaging.

Forward Speed Control Friction Lock

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

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**.

If the FSC friction lock needs to be adjusted, refer to **ADJUSTMENTS** for **Step 7 - Forward Speed Control Friction Adjustment** 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 electrical plug on the fuel shut-off solenoid.

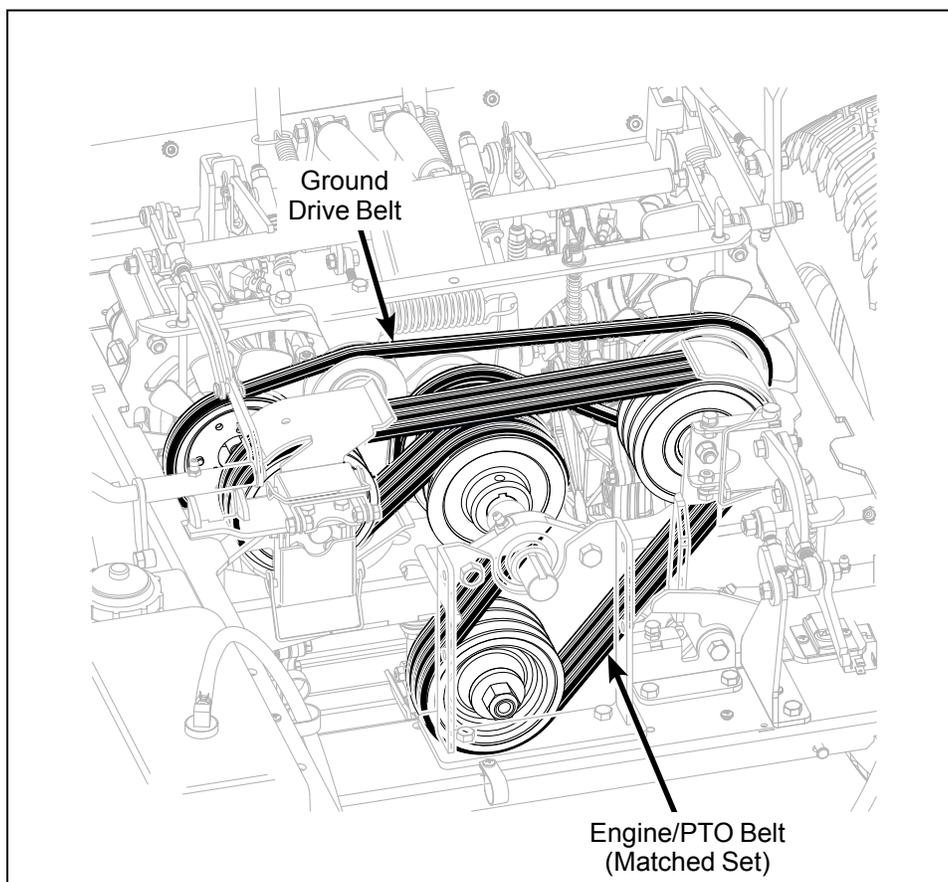
IMPORTANT: ALWAYS use genuine factory replacement parts. Substitute parts **CAN** result in product malfunction and possible injury to the operator and/or others.

Drive Belts

There are **five (5) individual drive belts** on the machine:

- Engine/PTO Belt (Matched Set of 3)
- Ground Drive Belt
- Alternator Belt (Engine)

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



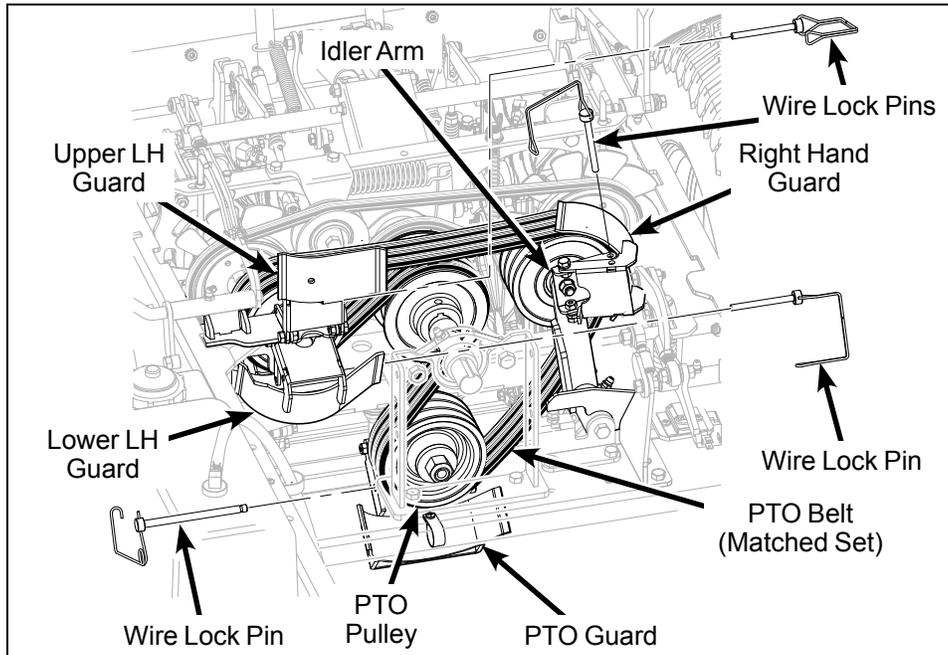
Belt Locations (Engine Hidden for Clarity)

PTO Belt

1. To remove the PTO belt:

a. Remove wire lock pins (4), open belt guards.

b. Roll the belt off the pulley and remove the belt.

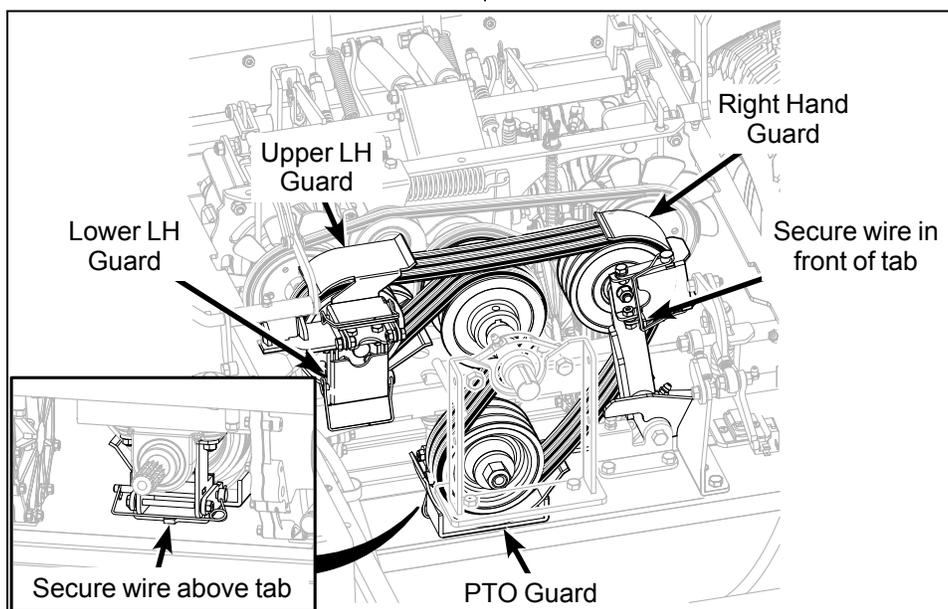


PTO Belt (Belt Guards Open) (Engine Hidden for Clarity)

2. To replace the PTO belt:

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

b. Secure wire on lock pin above tab on lower PTO guard and right hand guard.



PTO Belt (Belt Guards Closed) (Engine Hidden for Clarity)

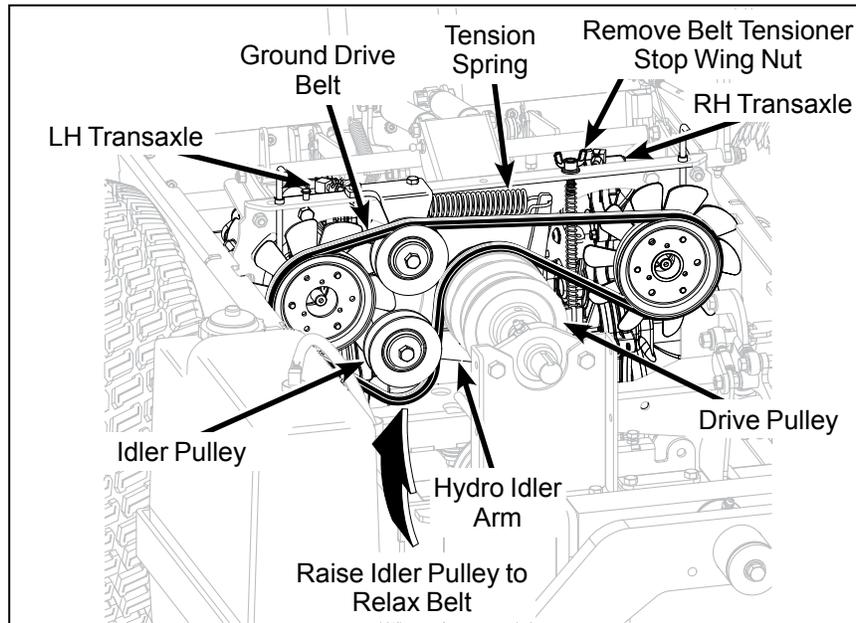
Ground Drive Belt

1. To remove the ground drive belt:

a. Remove belt tensioner stop wing nut.

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

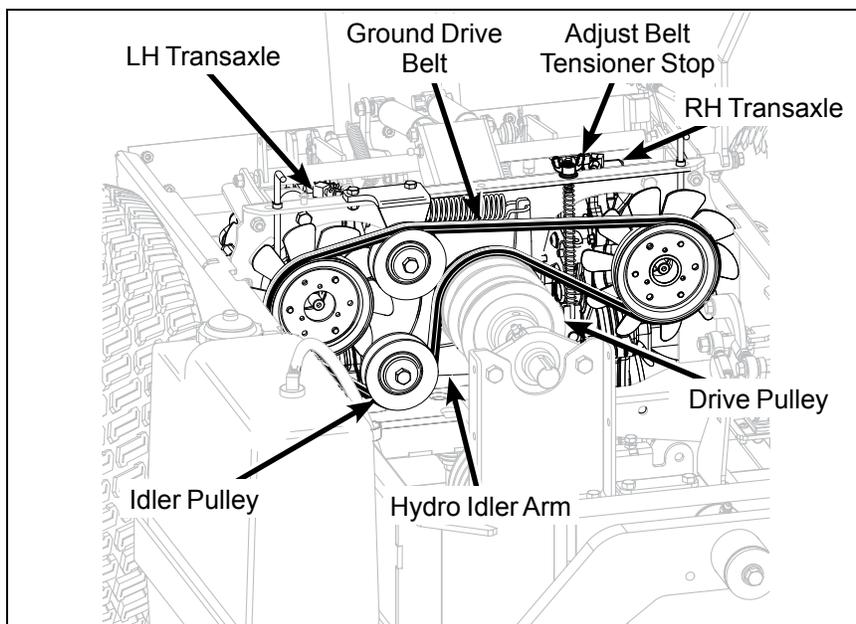
c. Slide belt off pulleys, then release the idler.



Ground Drive Belt Assembly (Disengaged)

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

b. Make sure the belt tensioner stop bolt and assembly is in place as shown. Adjust Belt Tensioner Stop by tightening wing nut until it touches the washer then back off one (1) turn.



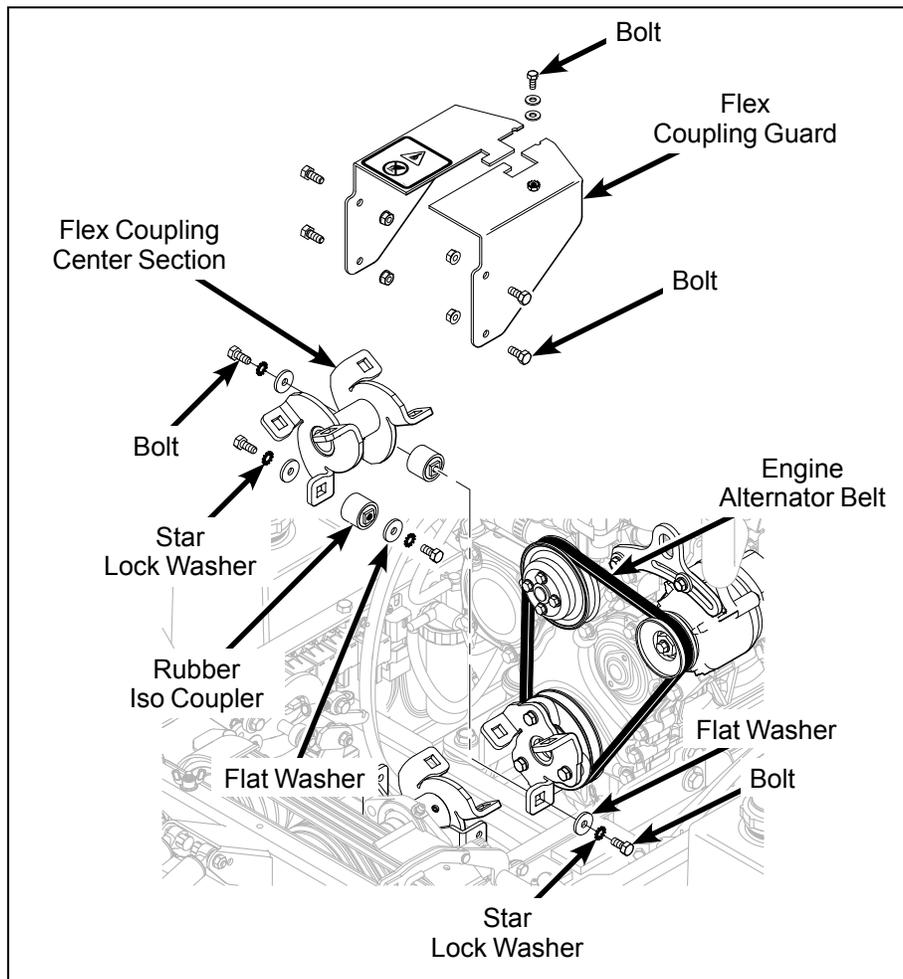
Ground Drive Belt Assembly (Engaged)

Alternator Belt

1. To remove the engine alternator belt:

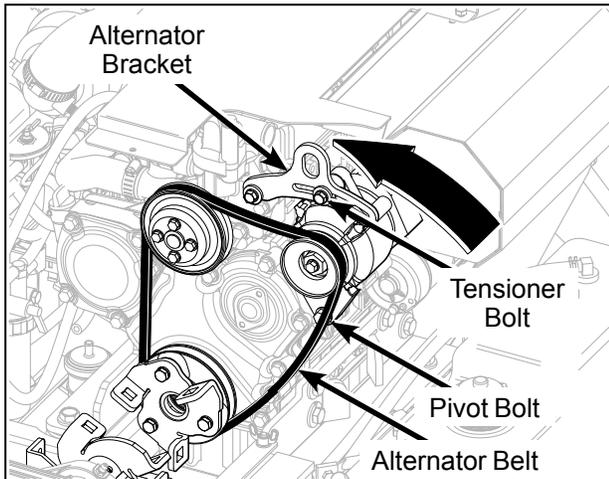
a. Remove the flex coupling guard (5 bolts).

b. Remove the flex coupling center section (P/N 2351-4) by removing the six (6) rubber iso couplers (12 bolts, flat washers, star lock washers).



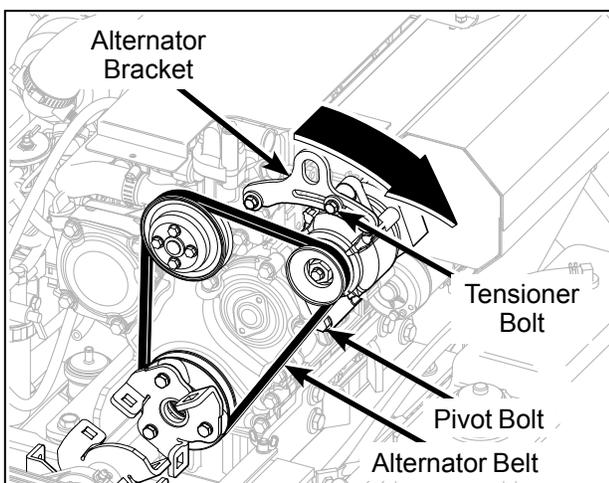
Flex Coupling Removal

- c. Loosen the alternator mounting pivot bolt and the alternator bracket tensioner bolt.
- d. Pivot the alternator as shown to relax and remove belt.



Alternator Belt (Loose)

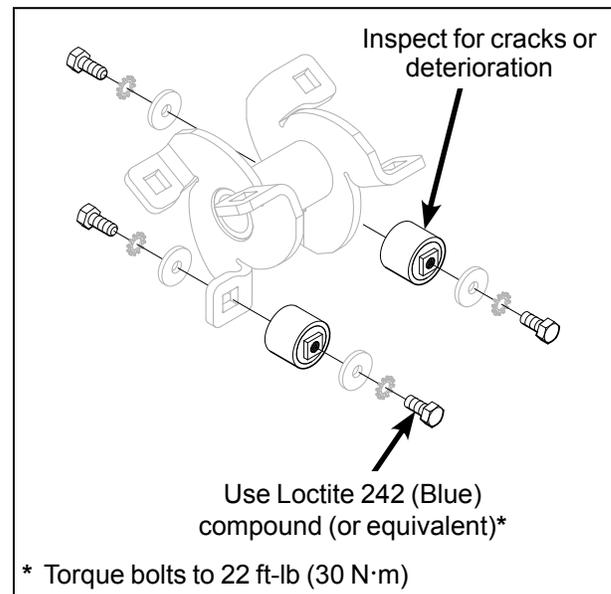
2. Reverse the procedure to install the belt:
 - a. Adjust and check the belt tension by referring to **CHECKING/SERVICING** the *Alternator Belt Tension* in this section.
 - b. Reinstall the flex coupling center section and rubber iso mounts.



Alternator Belt (Tight)

NOTES:

- Inspect the rubber iso mounts (P/N 2351-1) for cracking or signs of deterioration and replace as needed. Good preventative maintenance would recommend replacing the rubber mounts at the same time as the alternator belt.
- When installing the bolts into the rubber iso mounts, make sure the flat washer and star lock washer are in place on each bolt.
- Use Loctite 242 (Blue) Threadlocker compound (or equivalent) on each bolt.
- Install all twelve (12) of the rubber iso mount bolts and tighten only finger tight **before** tightening any bolts with a wrench.
- Torque bolts to 22 ft-lb (30 N·m).



Flex Coupling Maintenance

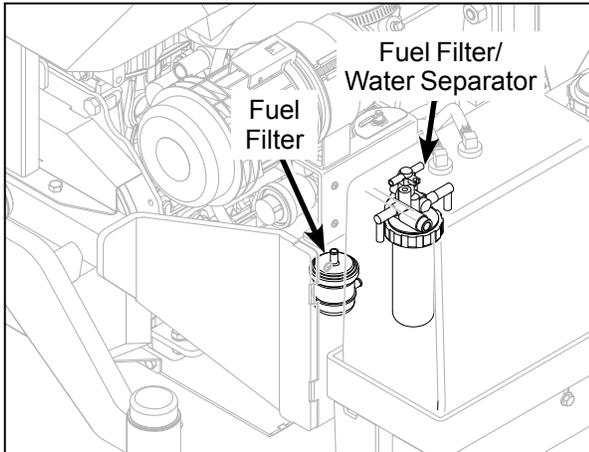
- c. Reinstall the flex coupler guard.

⚠ DANGER

The flex coupler guard must be in place before running the engine.

Fuel Filter

Model MBSY has **two (2) fuel filters**. Replace both the in-line filter and the Yanmar filter element **every 400 hours** of operation.



Fuel Filter Location

IMPORTANT: Replace the fuel filters only in a clean area where the fuel line and connections will not be contaminated by dust and dirt.

1. Close the Yanmar fuel filter cock.
2. Remove and replace the in-line filter; expand and slide clamps on either side of the filter away from filter and pull fuel lines off filter.
3. Loosen the ring screw on the Yanmar filter assembly, remove the filter pot and filter element.
4. Clean the filter pot and reassemble the filter assembly with a new filter element (use only a Yanmar replacement filter).
5. Open the fuel filter cock.

Mower Blades

Mower blades are removed and remounted as described in the **Sharpen Mower Blades** instructions (refer to **CHECKING/SERVICING to Sharpen Mower Blades** in this section). 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**.



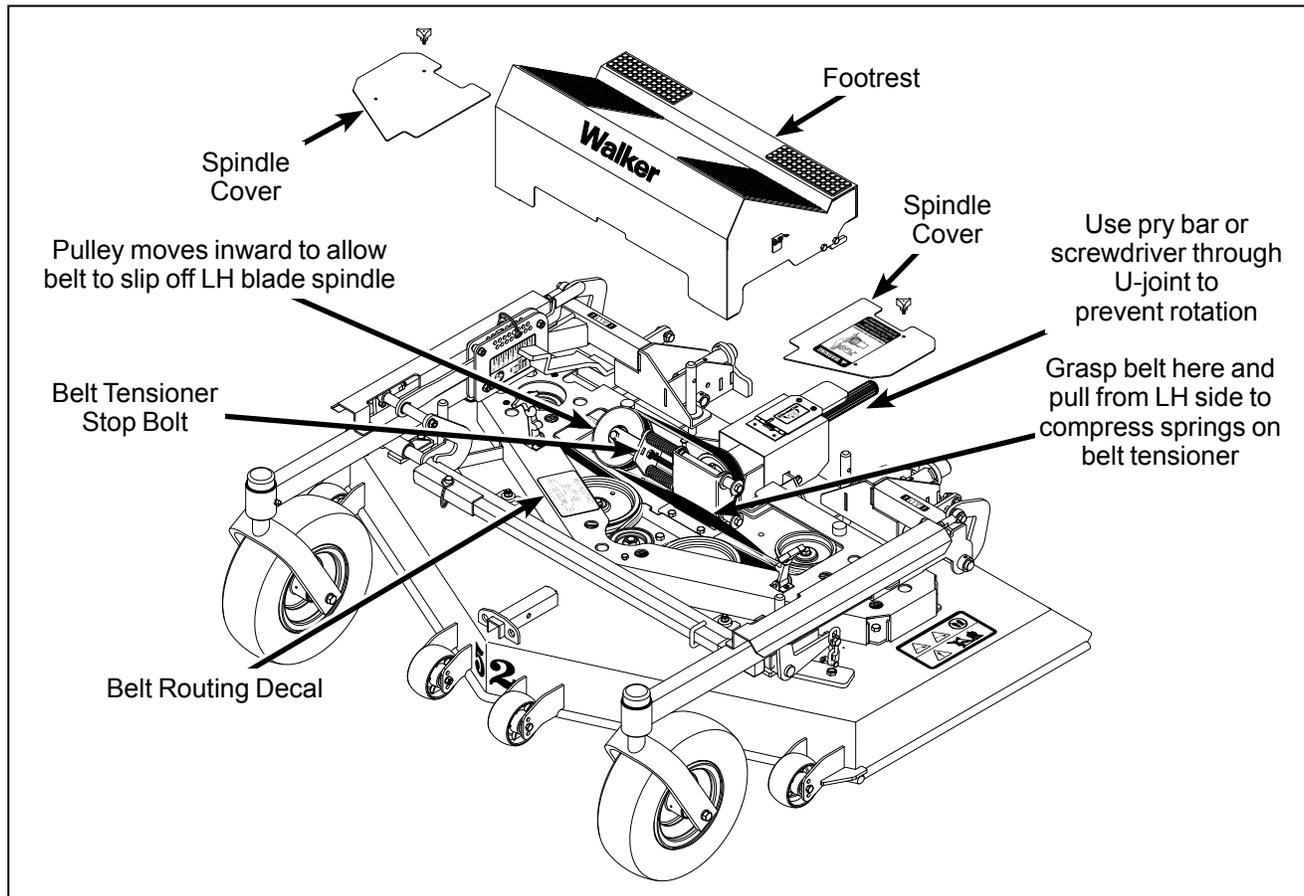
CAUTION

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

Replacing Deck Drive Belt

1. To remove the deck drive belt:
 - a. Remove deck footrest and two (2) covers over the RH and LH blade spindles.
 - b. Loosen belt tensioner stop bolt and turn inward until retracted 1 in. (2.5 cm) from the operating position.
 - c. Lock drive pulley so that it can not rotate.
 - * If deck is installed on tractor, the PTO blade brake will prevent the drive pulley from rotating.
 - * If deck is detached from tractor, use pry bar or large screwdriver positioned through the drive shaft U-joint to hold shaft and prevent rotation.

- d. From a position on the LH side of the deck, grasp belt midsection and pull to compress the belt tensioner springs and move the tensioning pulley inward. The belt will then slip off the LH spindle pulley and can be completely removed.
2. Install the deck drive belt by reversing the removal procedure:
 - a. Route the belt as shown on the belt routing decal (located on the deck housing). Leave the belt loose at the LH spindle and then install the belt by compressing the belt tensioner as noted above.
 - b. After the belt is in place, reset the belt tensioner stop bolt by turning outward until contacting the pulley bracket and then making one (1) additional turn.
 - c. Reinstall spindle covers and footrest.



Deck Drive Belt Replacement

ADJUSTMENTS

Transmission Control

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

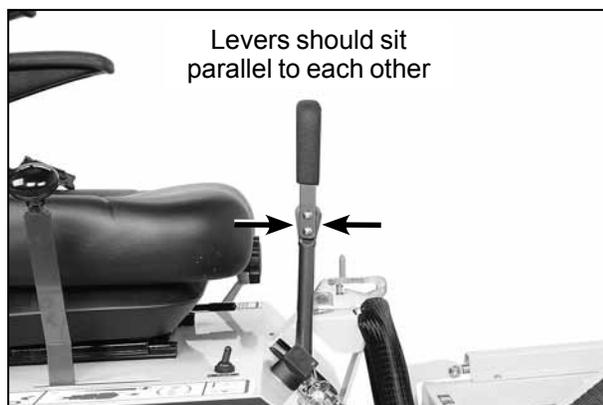
NOTE: It would not be unusual for a new machine, after initial 5 or 10 hours of operation, to begin to not travel straight (this is due to the break-in of the transaxles).

Step 1 - Steering Lever Position Adjustment

NOTE: For proper operation, the steering levers should be adjusted to sit evenly using the following procedure.

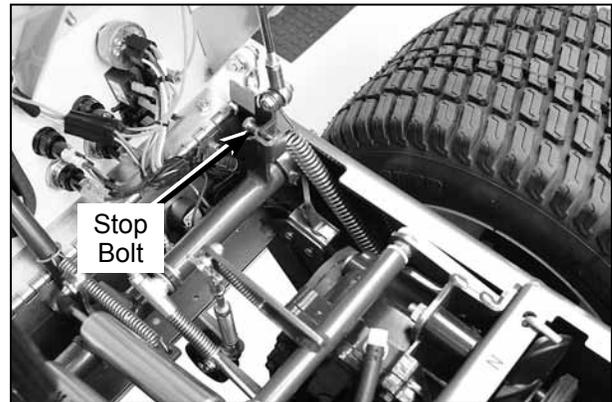
1. Examine the steering levers to make sure they are **parallel front to back** in relation to one another. If they are not equal, adjust accordingly. (The handles may or may not be even at this point.)

NOTE: The **LH steering lever is non-adjustable**. This procedure will require adjustment of the RH lever to make it even with the LH lever.



Lever Alignment

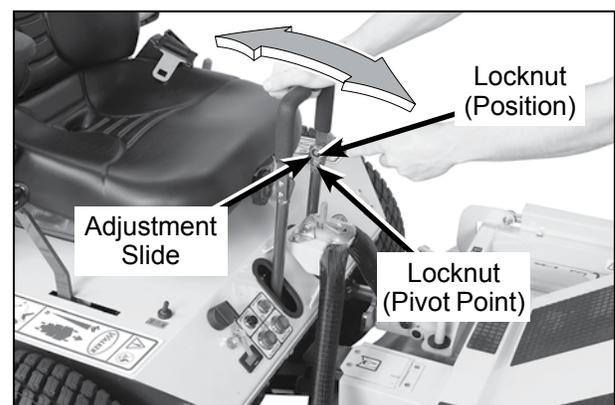
2. Adjust the position of the RH lever by turning the stop bolt in the Speed Control Actuator in or out. Turning the stop bolt in will make the RH lever move back, and turning it out will make it move forward. Tighten the locknut.



Stop Bolt Location

Step 2 - Steering Handles Adjustment

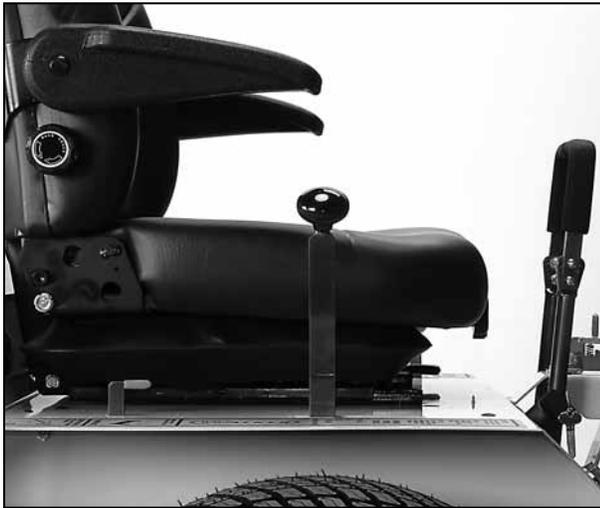
1. An adjustment range of approximately 3 in. (76.2 mm) is available on the steering handles - the handles can be adjusted forward or aft depending on the arm length of the operator. The handles can be adjusted by loosening the locknut at the pivot point and the locknut holding the handle in position in the adjustment slide. Adjust the handles into the most comfortable position and tighten both locknuts.



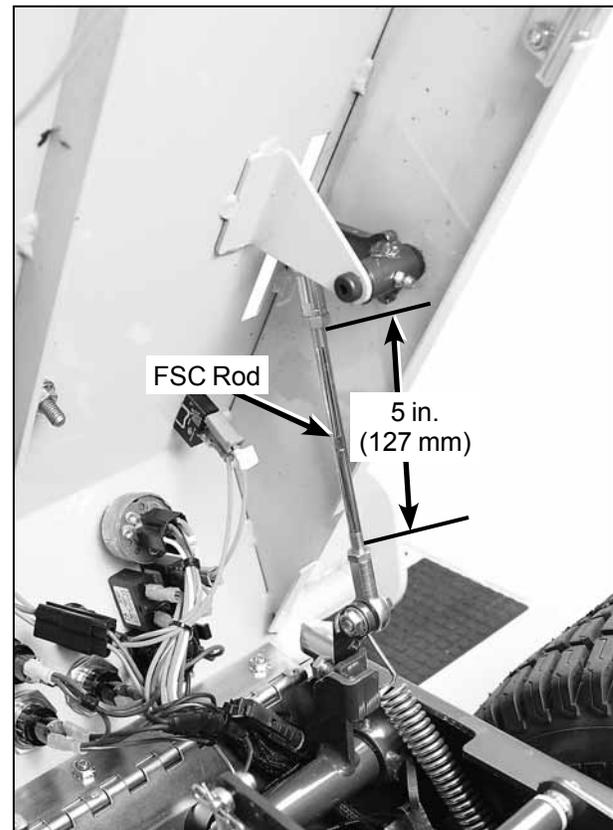
Steering Handles Adjustment

Step 3 - Neutral Position Adjustment

1. With the Forward Speed Control (FSC) in **NEUTRAL-PARK**, the lever should be straight up. Adjust by loosening the jam nuts on the FSC Rod and turn the rod to attain the straight up position. Tighten the jam nuts.



FSC Position



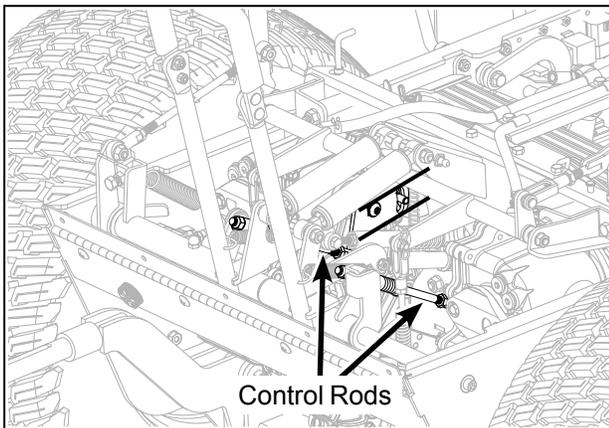
FSC Lever Adjust

2. The initial adjustment for neutral is to loosen the jam nuts on each end of the Control Rod and turn the rod to achieve a measurement of 5 in. (127 mm) between the jam nuts. Be sure to tighten jam nuts before making the measurement.
3. Block the tractor up so the drive tires are off the ground.

- With the FSC in **NEUTRAL-PARK**, start the engine. (Operate first at idle and then normal operating speed) and **check for movement of drive wheels**.

NOTE: If the engine will not start, check and adjust the neutral safety switch (refer to **Step 6 - FSC Switch - Neutral Adjustment**).

- With the FSC in the **NEUTRAL-PARK** position and the engine running, the wheels should not move. If a drive tire is moving, the Control Rod on that side is out of adjustment. Adjust that side to achieve neutral. Now both transaxles are in the neutral window.

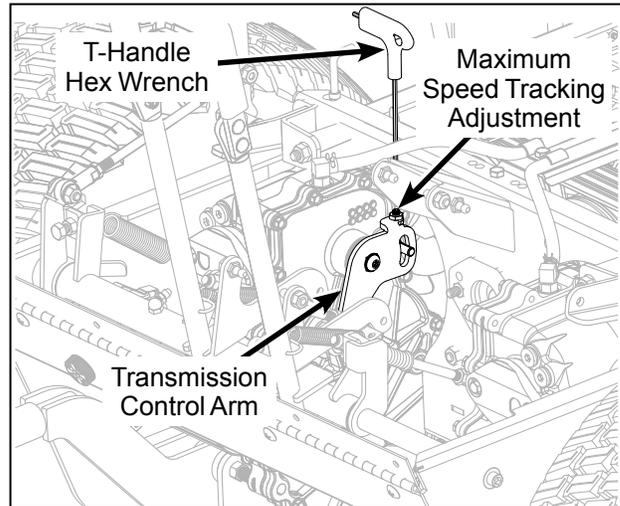


**Neutral Window
(Front Body Hidden for Clarity)**

- One at a time adjust the left and right Control Rods to find the center of the neutral window. Shorten the rods until the drive tire turns forward then lengthen it until the drive tire turns in reverse (approximately 1 turn). Position the rods halfway between forward and reverse.
- Lower drive tires onto ground.

Step 4 - Full Forward Speed Adjustment

- Move the FSC to the full **FORWARD** speed position.
- Raise the body. The set screws in the left and right Transmission Control Arms should not be contacting the locating stud in the transaxle. If they are, back the set screws out until they do not touch.



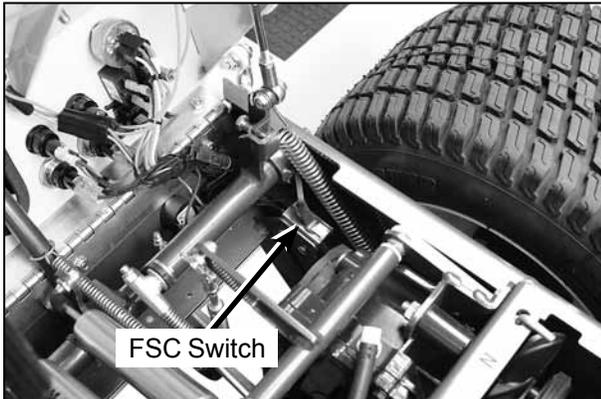
**Maximum Speed Tracking Adjustment
(Shown with Parts Removed for Clarity)**

Step 5 - Straight Tracking Adjustment

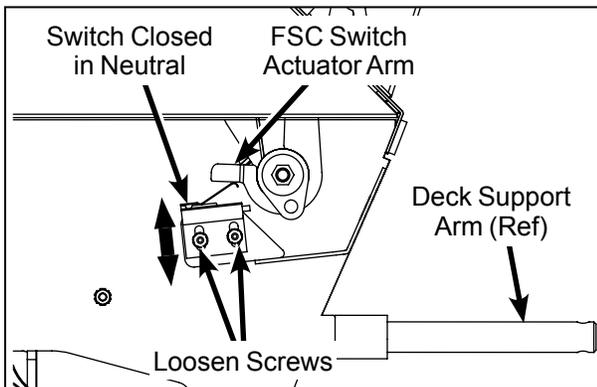
- Sit in the seat, start the engine, set throttle at full speed, and with the FSC in the **NEUTRAL-PARK** position check for movement of either drive wheel (if either wheel moves backward or forward, refer to the **Step 3 - Neutral Position Adjustment** and readjust).
- Check for straight ground tracking 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).
- If travel is not straight, shorten the control rod on the slow side by turning the adjuster nut clockwise. If straight tracking and neutral can not be achieved, turn the adjuster nut counterclockwise until neutral can be achieved.
- Lengthen the control rod of the faster side by turning the adjuster nut counterclockwise to match the slower side while maintaining the neutral position.
- If the forward travel is straight throughout the speed range, except at maximum speed - place the FSC in full **FORWARD**, turn the set screw in the Transmission Control Arm, of the faster side, in until it contacts the hydro stud. (Turning the set screw in slows the wheel.) **Turn the set screw in an additional 1/8 turn**. Recheck for equal full forward speed. Adjust this set screw until equal full forward speed is achieved. Tighten the jam nut.

Step 6 - FSC Switch - Neutral Adjustment

1. Place the FSC in **NEUTRAL-PARK** position. Loosen mounting screws and adjust switch up or down accordingly.



FSC Switch Location



**FSC Switch Adjustment
(Side View Through Chassis)**

Step 7 - Forward Speed Control Friction Adjustment



FSC Position with Levers

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 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 the conditions of both steps 1 and 2 (above) are met.



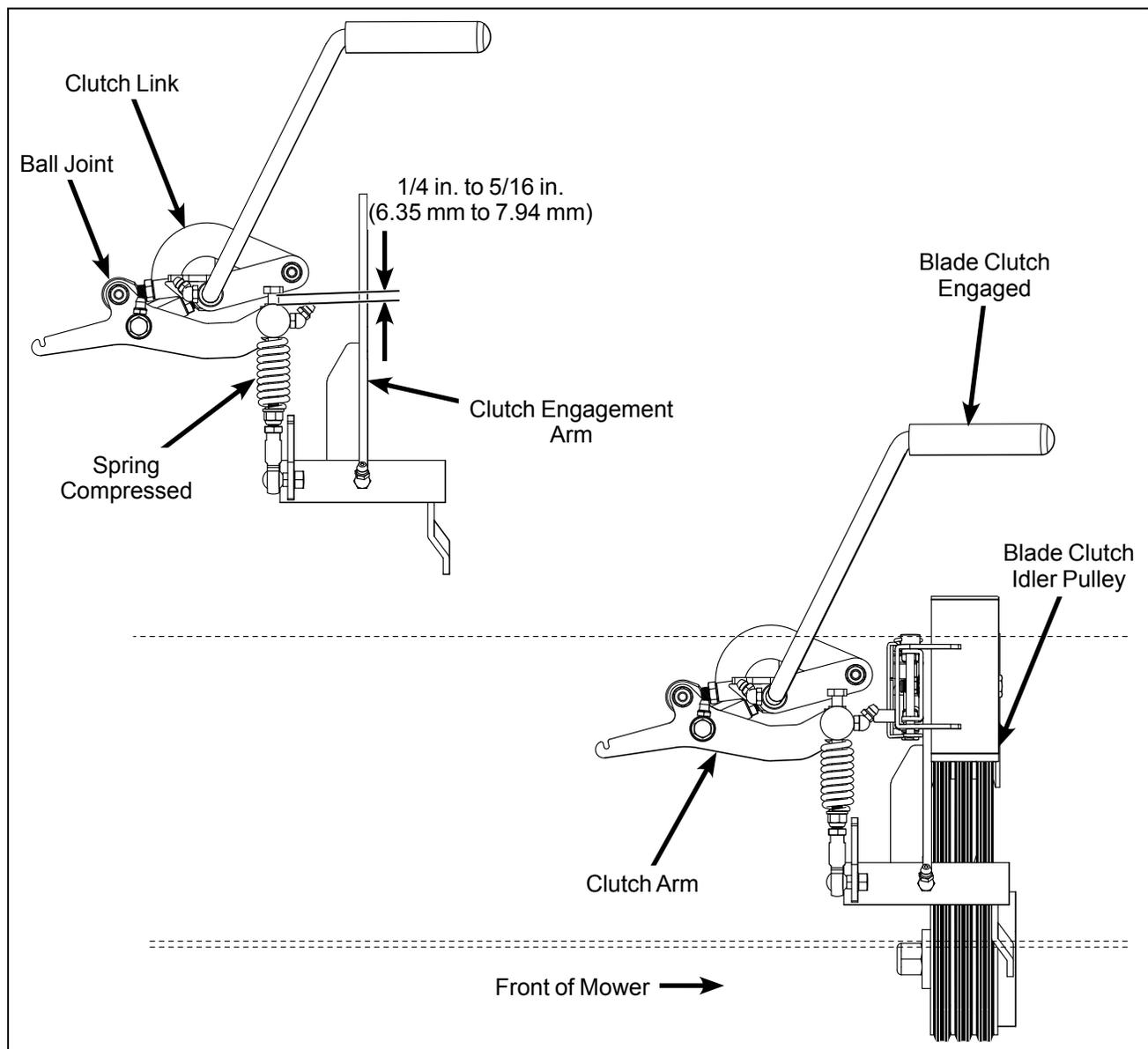
FSC Adjustment Friction Nut

Blade Clutch (PTO)

Clutch Engagement/Belt Tension

The clutch engagement and PTO belt tension are adjusted using the clutch link. Initially, after installing new PTO belts, **after 10 hours and every 100 hours** thereafter, check and adjust for the dimensions as shown in the **PTO Clutch Engaged** and **PTO Clutch Disengaged** illustrations.

Adjust the length of the clutch link to achieve a bolt head clearance of 1/4 in. to 5/16 in. (6.35 mm to 7.94 mm) with the clutch engaged. To adjust length: remove ball joint from clutch arm, **shorten** the clutch link to **increase** this measurement or **lengthen** the clutch link to **decrease** this measurement. If adjustments are needed more frequently than every 100 hours to maintain dimensions, it may suggest problems with pulley wear or belt misalignment.



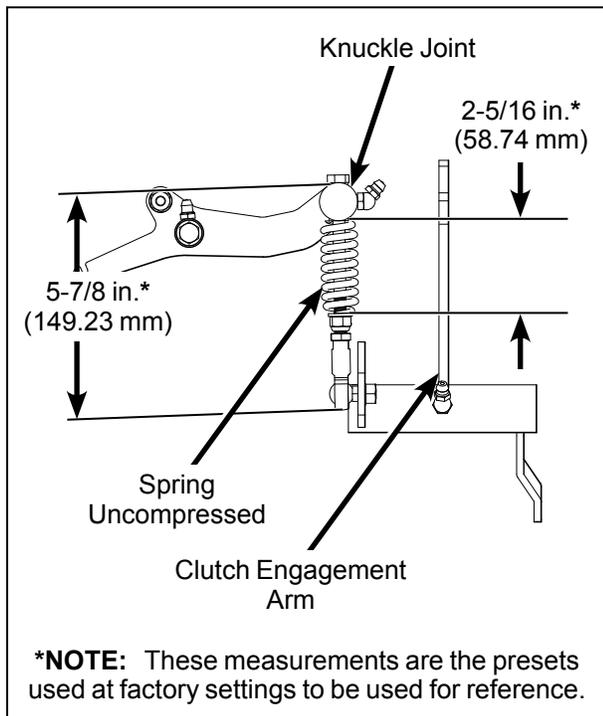
PTO Clutch Engaged

Clutch Disengagement/Brake Action

WARNING

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

The **declutched or disengaged position** of the blade clutch idler pulley is adjustable and is set to give belt release **without excessive slack** and to apply the blade brake. The blade brake is activated by the brake band connected to the clutch engagement arm. The brake is designed to stop the blades within five (5) seconds after disengaging the clutch.



PTO Clutch Disengaged

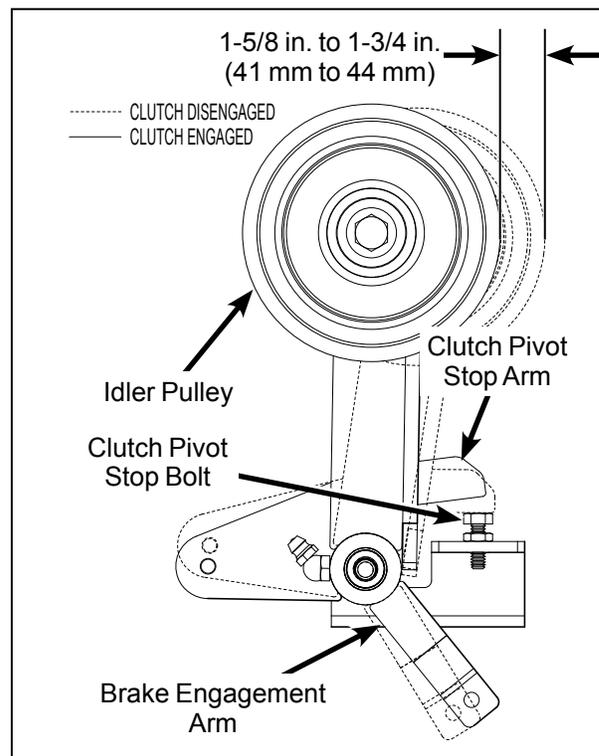
Use the following procedures to check and adjust clutch disengagement and brake action:

Step 1 - Idler Pulley Maximum Travel Adjustment

Loosen the brake band adjustment nut allowing clutch pivot stop arm and stop bolt to make contact (refer to **Blade Brake Band Adjustment** illustration).

1. Adjust the pivot stop bolt to give 1-5/8 in. to 1-3/4 in. (41 mm to 44 mm) pulley travel from “clutch engaged” to “clutch disengaged”.
2. Check and adjust the pulley travel, first engage the clutch, then measure the distance the pulley travels as the clutch is disengaged and the stop arm contacts the stop bolt.

NOTE: This adjustment will prevent excessive pulley travel that can cause belts to develop too much slack, causing possible belt derailment upon disengagement.



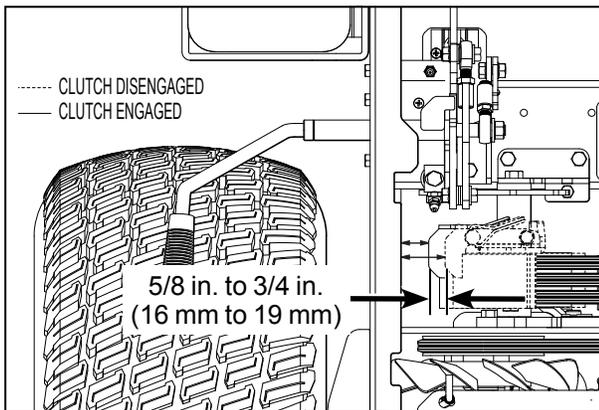
Clutch Idler Pulley Travel

Step 2 - Blade Brake Band Adjustment

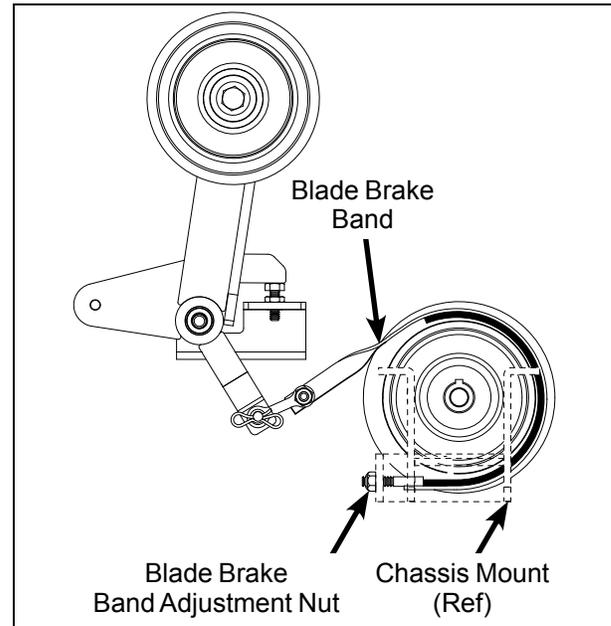
After the maximum pulley travel is set, adjust the working travel of the clutch idler pulley by adjusting the brake band nut and make the following adjustment as needed:

1. Adjust the blade brake band, using the adjustment nut until pulley travel is approximately 5/8 in. to 3/4 in. (16 mm to 19 mm) from engaged to disengaged.

NOTE: As blade brake band/drum wears, pulley travel will increase and it will be necessary to adjust the blade brake band nut to maintain these dimensions.



Clutch Idler Pulley Travel Adjustment



Blade Brake Band Adjustment

2. After adjustments are complete, check blade brake action as described in **CHECKING/SERVICING** the **Blade Brake Action** in this section. If blades do not stop within five (5) seconds, check the following:
 - a. Make sure clutch and brake linkage are working freely (no binding).
 - b. Check the brake band lining for wear.
 - c. Check the brake drum on the pulley. If excessive wear is present, it will be necessary to replace worn parts.

LIMITED WARRANTY FOR WALKER MODEL MBSY 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:

Yanmar Engine
Hydro-Gear Transaxles
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.

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 Operator'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 80528. 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.

WALKER MOWERS™

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