



Dealer Manual

Greens King™ IV with ROPS

62302 – 16 HP Briggs & Stratton®

62305 – 16 HP Briggs & Stratton®

Greens King™ IV Plus with ROPS

62303 – 18 HP Briggs & Stratton®

62304 – 17.7 HP Kubota®

62306 – 18 HP Briggs & Stratton®

 **WARNING**

WARNING: If incorrectly used this machine can cause severe injury. Those who use and maintain this machine should be trained in its proper use, warned of its dangers and should read the entire manual before attempting to set up, operate, adjust or service the machine.



When Performance Matters.™

FOREWORD

This manual contains safety and operating instructions for your new Jacobsen machine. This manual should be stored with the equipment for reference during operation.

Before you operate your machine, you and each operator you employ should read the manual carefully in its entirety. By following the safety, operating, and maintenance instructions, you will prolong the life of your equipment, and maintain its maximum efficiency.

If additional information is needed, contact your Jacobsen Dealer.

The serial plate is attached to the frame near the battery. Jacobsen recommends you record these numbers below for easy reference.



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NOTES

Proposition 65 Warning

This product contains or emits chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

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1.1 HOW TO OPERATE SAFELY



WARNING

EQUIPMENT OPERATED INCORRECTLY OR WITHOUT TRAINING CAN BE DANGEROUS.

Know the location and correct operation of controls. Operators without experience must receive instruction from another person that knows the correct operation of the equipment before you operate the mower.

Only use parts, accessories and attachments approved by Jacobsen.

SAFE OPERATION

- a Read the Operator's Manual and other training material. If the operator or technician can not read this manual, the owner is responsible to describe this material to the operators and technicians. Manuals in additional languages may be available on the Jacobsen or RansomesJacobsen website.
- a Read all of the instructions for this mower carefully. Know the controls and the correct operation of the equipment.
- b Children or persons who do not understand these instructions must not use the mower. The local regulations can limit the age of the operator.
- c Never use a mower near persons, including children or animals.
- d Remember that the operator or owner is responsible for accidents or hazards that occur to other persons or their property.
- e Never carry passengers.
- f Never allow persons to operate or service the mower or its attachments without correct instructions.
- g Do not operate equipment while tired, sick or after you use alcohol or drugs.

PREPARATION

- a When you operate the mower, wear correct clothing, slip resistant work shoes or boots, work gloves, hard hat, safety glasses and hearing protection. Long hair, loose clothing or jewelry can be caught in moving parts.
- b Do not operate the equipment with the Interlock System disconnected or the system does not operate correctly. Do not disconnect or prevent the operation of any switch.
- c Never operate equipment that is not in correct order or without decals, guards, shields, deflectors or other protective devices fastened.

- d Inspect the mower before you operate the mower. Check the tire pressure, engine oil level, the radiator coolant level and the air cleaner indicator. Fuel is flammable. Use caution when you add the fuel to the mower.
- e Operate the mower in daylight or in good artificial light. Use caution when you operate the mower during bad weather. Never operate the mower with lightning in the area.
- f Inspect the area to select the accessories and attachments that are needed to correctly and safely do the job. Only use parts, accessories and attachments approved by Jacobsen.
- g Be careful of holes in the terrain and other hazards that are not visible.
- h Inspect the area where the equipment is operated. Remove all objects you can find before you operate. Be careful of obstructions above the ground (low tree limbs, electrical wires) and also underground obstacles (sprinklers, pipes, tree roots). Enter a new area carefully. Look for possible hazards.
- i Inspect the cutting system before you start the mower. Make sure the blades are free to rotate. When you rotate one blade, other blades can rotate.

OPERATION

- a Never operate the engine without enough ventilation or in an enclosed area. The carbon monoxide in the exhaust fumes can increase to dangerous levels.
- b Never carry passengers. Keep other persons or animals away from the mower.
- c Disengage all drives and engage the parking brake before you start the engine. Only start the engine with the operator in the seat. Never start the engine with persons near the mower.
- d Keep your legs, arms and body inside the operator compartment while the mower is in operation. Keep your hands and feet away from the cutting units.
- e Do not use on the slopes greater than the safe slope limit for the equipment.
- f To guard against over turning or loss of control:

1 SAFETY

- Operate the mower up and down on the face of slopes (vertically), but not across the face (horizontally).
- Do not start or stop suddenly on slopes.
- Decrease the speed when you operate on slopes or when you must turn. Use caution when you change direction. Turf condition can change the mower stability.
- Use caution when you operate the mower near drop-offs, ditches or embankments.
- Be careful of holes in the terrain and other hazards that are not visible.
- g When you drive in the reverse direction, look behind you and down to make sure the path is clear. Do not operate the cutting units when you drive in the reverse direction.
- h Use caution when you go near corners, trees or other objects that can prevent a clear view.
- i Equipment must meet the current regulations to be driven on the public roads.
- j Before you move across or operate on the paths or roads, turn off the PTO switch, lift the mowers and travel at decreased speed. Look for traffic.
- k Stop the blades when the mower is on any surface that is not grass.
- l Do not release the cut grass in the direction of persons or allow persons near the mower while in operation.
- m Do not operate the mower with damaged guards or without safety devices in position.
- n Do not change the engine governor setting or over-speed the engine. Never change or tamper with adjusters that are closed with a seal for the engine speed control.
- o Before you leave the operator compartment, for any reason:
 - Disengage all the drives and lower attachments to the ground.
 - Engage the parking brake.
 - Stop the engine and remove the key.
- p When you hit an object or mower starts to cause the vibration that is not normal, inspect the mower for damage and make repairs.
- q Decrease the throttle setting before you stop the engine.

- r Do not use this equipment for uses that the mower was not made for.

ROPS

- a The ROPS is a safety device. Keep the ROPS in the vertical and locked position. Always use the seat belt when you operate the mower. Make sure the seat belt can be released quickly in an emergency.
- b Only operate the mower with the ROPS in the folded position on flat and level surfaces when necessary. Do not operate the mower with the ROPS in the folded position on slopes, near sharp edges or near water. There is no roll over protection with the ROPS in the folded position.
- c Check for clearance before you drive below objects. Do not contact tree branches, electrical wires or other objects with the ROPS.
- d Do not use the seat belt with the ROPS in the folded position.
- e Inspect the ROPS for damage. Keep the ROPS hardware fastened.
- f Do not weld, drill, change or bend the ROPS. Replace a damaged ROPS. Do not try to correct a damaged ROPS.
- g Do not remove the ROPS from the mower.
- h Jacobsen must approve any changes to the ROPS.

SAFE HANDLING OF FUELS

- a The fuel and the fuel vapors are flammable. Use caution when you add the fuel to the mower. The fuel vapors can cause an explosion.
- b Never use the containers that are not approved to keep or transfer fuel.
- c Never keep the mower or fuel containers near an open flame or any device that can cause the ignition of fuel or fuel vapors.
- d Never fill the fuel containers inside a vehicle or on a truck or trailer with a plastic liner. Always put the fuel container on the ground away from your vehicle before you fill the container.
- e Refuel the mower before you start the engine. When the engine is in operation or while the engine is hot, never remove the fuel cap or add fuel to the mower.
- f Refuel outdoors only and do not smoke when you add fuel. Extinguish all types of ignition.

- g The fuel nozzle must touch the rim of the fuel tank when you add fuel to the mower. Do not use a device to lock the fuel nozzle in the open position.
- h Do not over fill the fuel tank. Leave at least 1 inch (25 mm) below the filler neck.
- i Always tighten the fuel tank cap and container cap after you add fuel.
- j If the fuel spills on your clothing, change your clothing immediately.
- k Keep your hands and feet away from parts that move. Do not adjust the mower with the engine in operation, unless the adjustment needs the engine in operation.
- l Carefully release the pressure from components with stored energy.
- m To prevent injury from the hot, high pressure oil, never use your hands to check for oil leaks. Use the paper or cardboard to find leaks.

MAINTENANCE AND STORAGE

- a Before you clean, adjust or repair this equipment, push PTO switch to the OFF position, lower the cutting unit to the ground, engage the parking brake, stop the engine and remove the key.
- b Make sure the mower is parked on a solid and level surface.
- c Never work on a mower that is lifted only by the jack. Always use the jack stands.
- d Never allow persons to service the mower or its attachments without correct instructions.
- e When the mower is parked, put into storage or left without an operator, lower the cutting device unless a positive mechanical lock is used.
- f When you put the mower on a trailer or put the mower in storage, close the fuel valve. Do not keep fuel near flames or drain the fuel inside a building.
- g Disconnect the battery before you service the mower. Always disconnect the negative battery cable before the positive battery cable. Always connect the positive battery cable before the negative battery cable.
- h Charge the battery in an area with good airflow. The battery can release hydrogen gas that is explosive. To prevent an explosion, keep any device that can cause sparks or flames away from the battery.
- i Disconnect the battery charger from the power supply before you connect or disconnect the battery charger to the battery. Wear protective clothing and use insulated tools when you service the battery.
- j Be careful and wear gloves when you check or service the cutting unit blades. Replace any damaged blades, do not try to correct a damaged blade.
- n The hydraulic fluid pressure can have enough force to enter your skin. If hydraulic fluid has entered your skin, a doctor must remove the hydraulic fluid surgically within a few hours or gangrene can occur.
- o When you service the hydraulic system, make sure the hydraulic fittings, tubes and hoses are tightened to the correct torque. Make sure the hydraulic system is in good condition before you start the engine.
- p Keep the mower and the engine clean.
- q Allow the engine to become cool before storage and always remove the ignition key.
- r Keep all nuts, bolts and screws tight to make sure the equipment is in safe condition.
- s Replace worn or damaged parts for safety. Replace damaged or worn decals. Only use parts, accessories and attachments approved by Jacobsen.
- t To decrease the fire hazard, remove materials that burn from the engine, muffler, battery tray and fuel tank area.
- u Disconnect the battery and controller connectors before you weld on this mower.

WHEN YOU PUT THE MOWER ON A TRAILER

- a Be careful when you load or unload the mower on a trailer. Trailer must be wider than the mower and can carry the weight of the mower.
- b Use a full-width ramp to load or unload the mower on a trailer.
- c Use straps, chains, cables or ropes to fasten the mower to the trailer. Both front and rear straps must be sent down and toward sides of trailer.
- d Make sure that all latches are correctly fastened.

1 SAFETY

1.2 IMPORTANT SAFETY NOTES



This safety alert symbol is used to alert you to potential hazards.

DANGER - Indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

WARNING - Indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

CAUTION - Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury and property damage. It may also be used to alert against unsafe practices.

NOTICE - Indicates a potentially hazardous situation which, if not avoided, **MAY** result in property damage. It may also be used to alert against unsafe practices.

For pictorial clarity, some illustrations in this manual may show shields, guards, or plates open or removed. Under no circumstances should this equipment be operated without these devices securely fastened in place.



WARNING

The Interlock System on this mower prevents the mower from starting unless the parking brake is engaged, reel levers are off, and traction lever is in Neutral. The system will stop the engine if the operator leaves the seat without engaging the parking brake, setting the reel levers to off, and placing traction lever in Neutral.

NEVER operate mower unless the Interlock System is working.







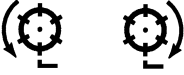






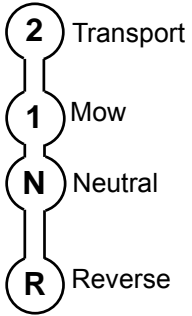
WARNING

1. Before leaving the operator's position for any reason:
 - a. Return traction lever to Neutral.
 - b. Disengage all drives.
 - c. Lower all implements to the ground.
 - d. Engage parking brake.
 - e. Stop engine and remove the ignition key.
2. Keep hands, feet, and clothing away from moving parts. Wait for all movement to stop before you clean, adjust, or service the machine.
3. Keep the area of operation clear of all bystanders and pets.
4. Never carry passengers.

By following all instructions in this manual, you will prolong the life of your machine and maintain its maximum efficiency. Adjustments and maintenance should always be performed by a qualified technician.

If additional information or service is needed, contact your authorized Jacobsen Dealer who is kept informed of the latest methods to service this equipment and can provide prompt and efficient service.

2.1 ICONS

<p>Read Manual</p> 	<p>Engine Throttle Fast Slow</p> 	<p>Service Foot Brake</p> 	<p>Parking Brake Engaged Disengaged</p> 
<p>Reel Rotation Forward Reverse</p> 	<p>Fuse</p> 	<p>Hour Meter</p> 	<p>Fuel</p> 
<p>Headlight</p> 	<p>Choke</p> 	<p>Engine Off Run Start</p> 	<p>Traction Lever</p>  <p>2 Transport 1 Mow N Neutral R Reverse</p>



WARNING

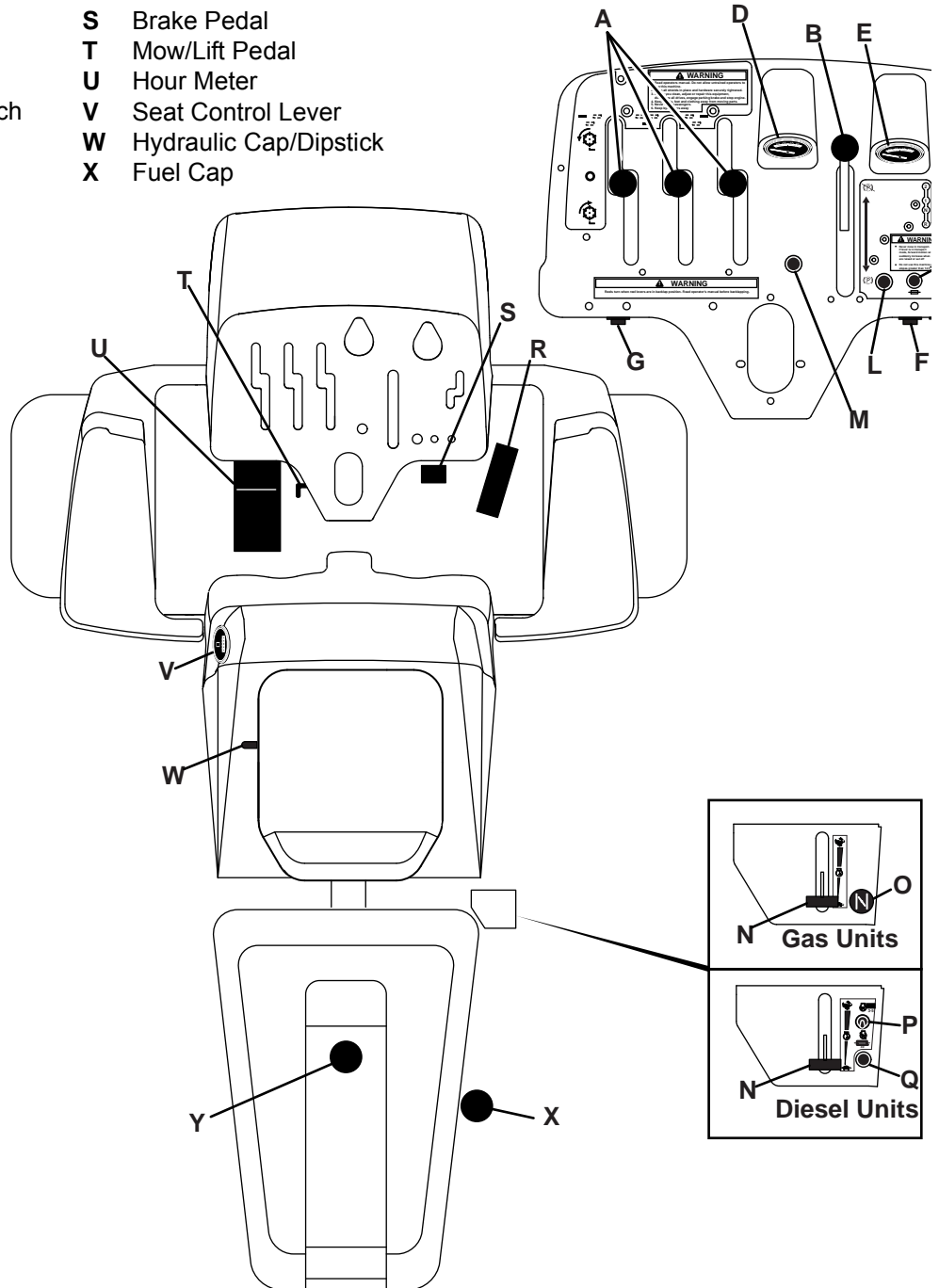
Never attempt to drive the mower unless you have read the Safety and Operation Manual and know how to operate all controls correctly.

Familiarize yourself with the icons shown above and what they represent. Learn the location and purpose of all of the controls and gauges before operating this mower.

2 CONTROLS

- A** Reel Control Levers
- B** Parking Brake Lever
- C** Traction Lever
- D** Volt Meter
- E** Ignition Switch
- F** Mechanics (Backlap) Switch
- G** Light Switch (Optional)
- H** Fuse, Lights (Optional)
- J** Fuse, Charging Circuit
- K** Fuse, Interlock System
- L** Parking Brake Light
- M** Engine Oil Pressure Light
- N** Throttle

- P** Choke
- R** Accelerator Pedal
- S** Brake Pedal
- T** Mow/Lift Pedal
- U** Hour Meter
- V** Seat Control Lever
- W** Hydraulic Cap/Dipstick
- X** Fuel Cap



2.2 CONTROL DESCRIPTIONS

- A. Reel Control Levers** - Used to operate the cutting units. Push lever(s) forward for forward rotation. Pull lever(s) back for Reverse rotation. All three levers must be in OFF position to start engine.



WARNING

Reels will rotate in the raised position with reel control lever(s) set for reverse rotation. Keep hands and feet away from the reels to prevent serious injury.

- B. Parking Brake Lever** - Pull lever back to engage and push lever forward to disengage parking brake. Always disengage parking brake slowly. Parking brake must be engaged to start engine.
- C. Traction Lever** - Four Positions: Transport (2), Mow (1), Neutral (N) and Reverse (R). Traction lever must be in Neutral position to start engine.
- D. Volt Meter** - Used to monitor battery condition. During normal operation, volt meter needle should never be in the red area.
- E. Ignition Switch** - Used to start the engine. To prevent unauthorized operation, remove the ignition key when mower is not in use.
- F. Mechanic's (Backlap) Switch** - Used to switch the mower to backlap mode to hone or sharpen the reel.



DANGER

Reels will turn with mechanics key in backlap position without an operator on the seat. Keep hands and feet away from the reels to prevent serious injury.

- G. Light Switch (Optional)** - Used to control operation of optional light kit.
- H. Fuse, Lights** - 20 Amp fuse, protecting light circuit.
- J. Fuse, Charging Circuit** - 20 Amp fuse, protecting charging circuit.
- K. Fuse, Interlock System** - 6 Amp fuse, protecting Interlock System.
- L. Parking Brake Light** - Light is always on when parking brake is engaged. Do not move traction lever out of Neutral, or press accelerator pedal when light is on.

- M. Engine Oil Pressure Light** - Indicator will light if engine oil pressure drops below a safe level. Stop engine immediately, determine the cause, and correct problem before restarting engine.

- N. Throttle** - Regulates Engine Speed. Push Lever forward to increase or pull lever back to decrease engine speed.

- P. Choke** - Pull the choke control knob upwards to close the choke plate when starting a cold engine. A warm engine may not require "Choking" to start.

- R. Accelerator Pedal** - Used to control speed of the mower. Do not depress pedal if parking brake light (L) is on.

Remove foot from pedal, the accelerator pedal will return to neutral, and the machine will stop. The self braking action is in forward direction only.

- S. Brake Pedal** - Used to stop mower when traveling in Reverse. Remove foot from accelerator and depress brake pedal.

- T. Mow/Lift Pedal** - Used to lift or lower the cutting units. Depress and hold front of pedal to lower cutting units, or depress and hold rear of pedal to raise cutting units.

NOTICE

When operating the mow/lift pedal, keep the pedal depressed until the cutting units have been fully lowered or raised, then release the pedal.

- U. Hour Meter** - Used to time maintenance intervals or mowing operations. The meter operates only when ignition key is in RUN position.

- V. Seat Control Lever** - Used to adjust position of seat. Pull lever forward and adjust seat to comfortable position, then release lever.

- W. Hydraulic Cap/Dipstick** - Used to check level of hydraulic fluid in tank. Level should always be at Full mark on dipstick.

- X. Fuel Cap** - Remove cap to add fuel, or check fuel level in tank. Always replace cap tightly.

3 SET-UP

3.1 GENERAL

The set-up and initial testing of the unit should always be performed by a trained technician, familiar with the operation of the equipment.

Read Each instruction completely and make sure you understand it before proceeding with the assembly. Stay alert for potential hazards and obey all safety precautions.

The RIGHT, LEFT, FRONT and REAR of the machine are references from the operator's seat facing forward.

Accessories not included with this product must be ordered separately. See instructions provided with accessory for installation and parts.

CAUTION

Do not attempt to drive this tractor unless you are familiar with this type of equipment and know how to operate all controls correctly.

3.2 INITIAL INSPECTION

CAUTION

The daily inspection should be performed only when the engine is off and all fluids are cold. Lower mowers to the ground, engage the parking brake, stop engine, and remove ignition key.

1. Perform a visual inspection of the entire unit, look for signs of wear, loose hardware, and components that may have been damaged during transport.
2. Inspect paint and decals for damage or scratches. Decals provide important safety and operating information. Replace all missing or hard to read decals.

3. All fluids must be at the full level mark with engine cold.

Check:

- a. Engine oil level
 - b. Hydraulic fluid level
4. Make sure air filter connections are tight and cover is securely in place.
 5. Check tires for proper inflation. Tires have been over inflated for transport. Correct tire pressure should be set to 10 psi.
 6. Check for fuel or oil leaks.
 7. Check lube points on reels and tractor for proper lubrication.

3.3 REEL MOTORS

1. Remove hardware from each of the mounting studs on the housing and remove cover plate (Not shown).
2. Move cutting unit to corresponding location and assemble motor to housing with hardware removed in Step 1. Gasket (A) must be between motor and housing.

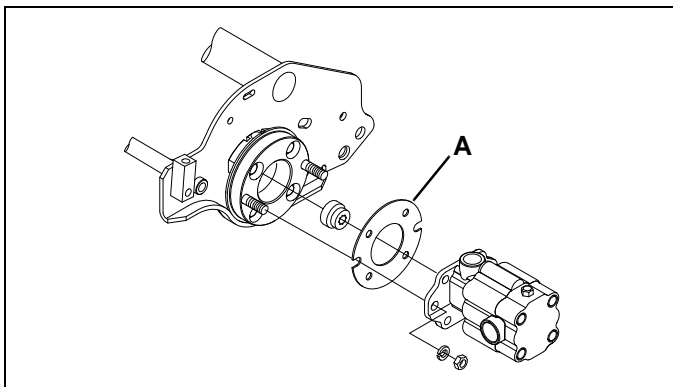


Figure 3A

3.4 TORSION SPRINGS

1. Slide one clamp (F) over each lift arm and secure with 5/16-18 x 1-1/4" carriage bolt and 5/16-18 locknut (G and E). Do not tighten.
2. Slide the right (J) and left (H) torsion spring over their respective lift arms. Insert end of springs between clamp ends.
3. Slide swivel housing (B) onto the lift arm and secure housing with pin (C). Hook ends of torsion spring over pin (C).

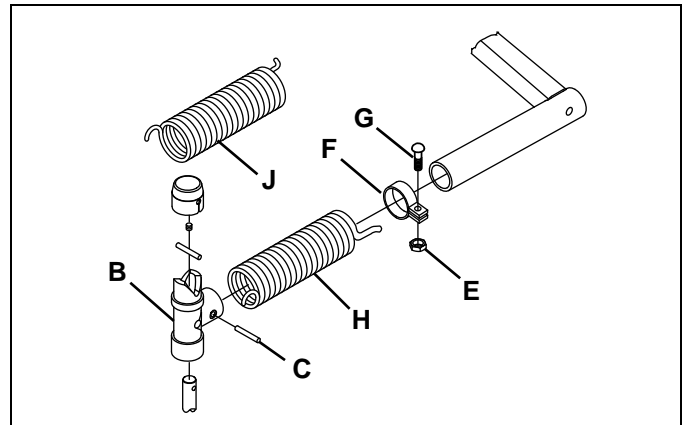


Figure 3B

3.5 ANTI-SWAY SPRINGS

1. Assemble one 1/2-13 hex jam nut (L) onto rod (M) then secure the rod to the bottom rear of frame with 1/2" lockwasher and 1/2-13 jam nut (K).
2. Assemble anti-sway spring to adjusting rod and then the rear lift yoke.
3. Adjust anti-sway spring. [Section 4.7]

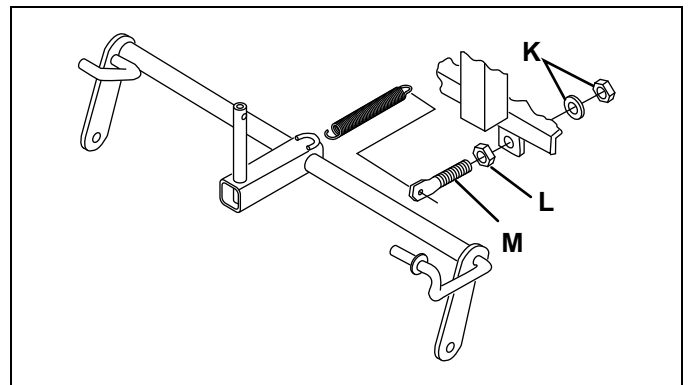


Figure 3C

3.6 GRASS CATCHERS

Install by hanging catcher hooks on mower lift yoke and letting catcher hang by its own weight.

Adjust as described in sheet included with grass catcher.

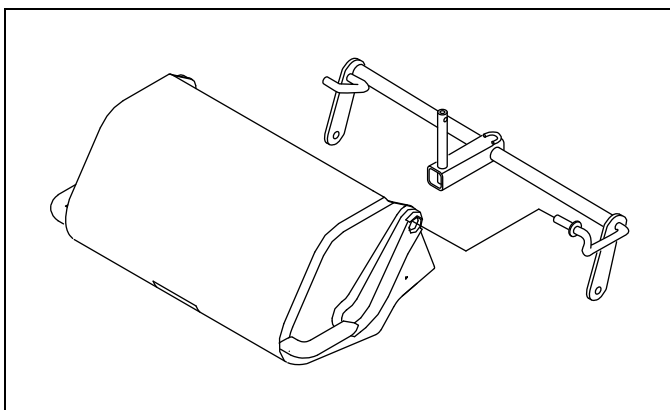


Figure 3D

3 SET-UP

3.7 STEERING WHEEL

1. Remove hex jam nut (**R**) from steering column.
2. Position the steering wheel over the shaft then reassemble the hex jam nut. Torque nut to 25-30 ft. lb. (34-41Nm) and install the steering wheel cap (**S**).

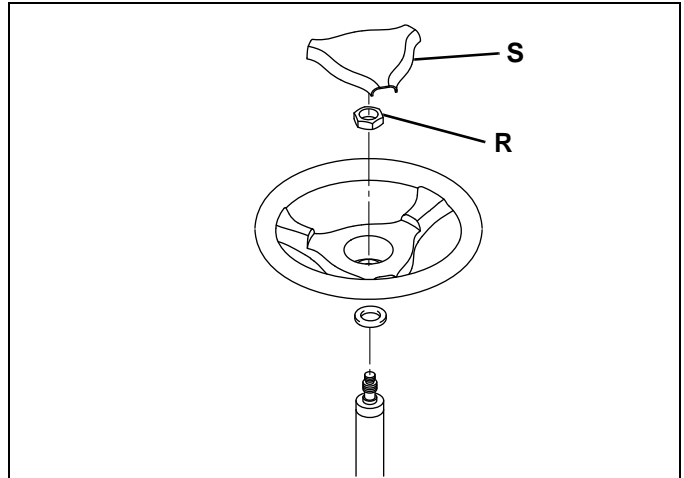


Figure 3E

3.8 ROPS

The ROPS mounting bracket (**Y**) has been assembled to the mower at the factory, but is shown unassembled for clarity.

1. Fully lower mowers to the ground.
2. Remove hardware (**T**) from one side of the ROPS. Separate the ROPS into left (**W**) and right (**X**) halves.
3. Remove hardware (**AB**) securing rear lift cylinder to lift arm.

NOTE: Leave ROPS hardware (**T**, **U** and **V**) loose until ROPS is completely installed, then tighten hardware.

4. Slide the ROPS halves into the mounting bracket (**Y**). Secure with 1/2-13 x 2-3/4" socket head screws, high collar lockwashers (**U**), and spacers (**AA**).

NOTE: Rear lift cylinder needs to be pivoted towards the left side of the machine to insert the left side bolt.

5. Secure tube plates to bracket with 3/8-16 x 1" screws and lockwashers (**V**).
6. Secure top portion of two halves of ROPS tubes with hardware (**T**).
7. Torque hardware (**U**) to 75 ft. lb. (101.7 Nm). Torque hardware (**T** and **V**) to 30 ft. lb. (40.7 Nm).
8. Assemble lift cylinder to lift arm with hardware (**AB**). Torque hardware to 75 ft. lb. (101.7 Nm).

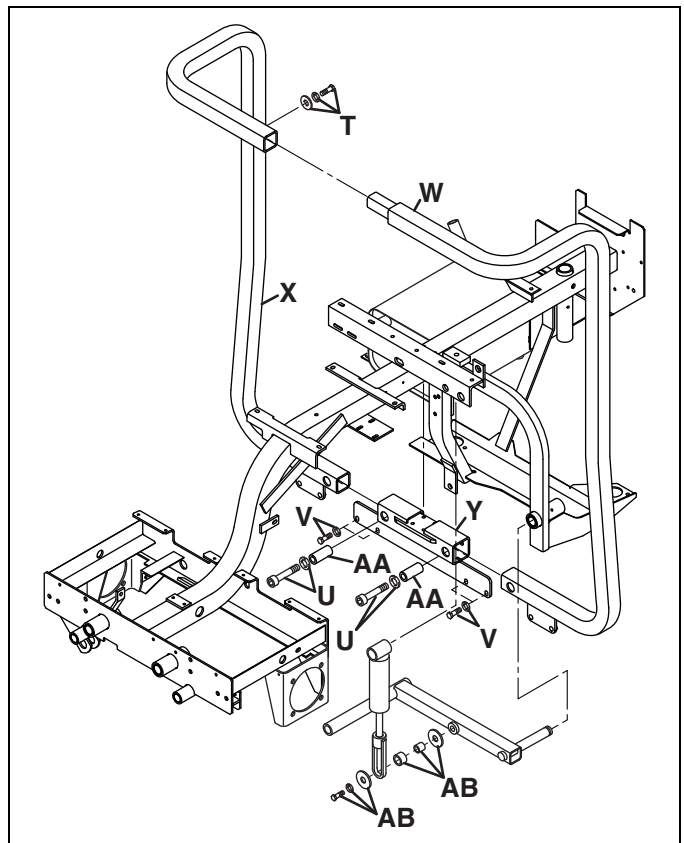


Figure 3F

3.9 FUEL HOSE ROUTING

Gas Units Only

1. Remove temporary hose from fitting in top right corner of tank to rollover valve.
2. Assemble goose neck tube (**BA**) to right side ROPS tube using four clamps (**BB**) and #10-24 x 1/2" thread cutting screws (**BC**).

NOTE: Adjust length of hoses as required to prevent droops (hose too long) or kinks (hose too short).

3. Assemble 13 in. (330 mm) hose (**BD**) to fitting and goose neck tube using two hose clamps (**BE**).
4. Assemble 5-1/2 in. (140 mm) hose (**BF**) to bottom port of rollover valve (**BG**) and goose neck tube (**BA**) using two clamps (**BE**).

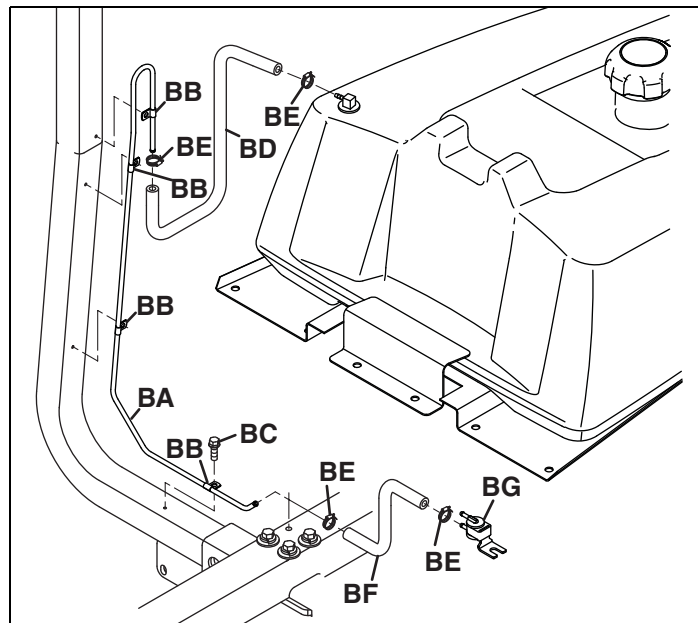


Figure 3G

3.10 SEAT

1. The seat belt has been assembled to the seat at the factory. To prevent interference with hand throttle operation, the retractable half of seat belt (**AC**) must be assembled to left side of seat as shown.

If retractable half of seat belt (**AC**) is on right side of seat, remove both seat belt halves. Assemble retractable half of seat belt to left side of seat, and latching half of seat belt to right side of seat.

2. Assemble the seat to the mower using 5/16 flat washers, lockwashers and nuts (**Z**). Connect seat switch wire harness to mower harness.

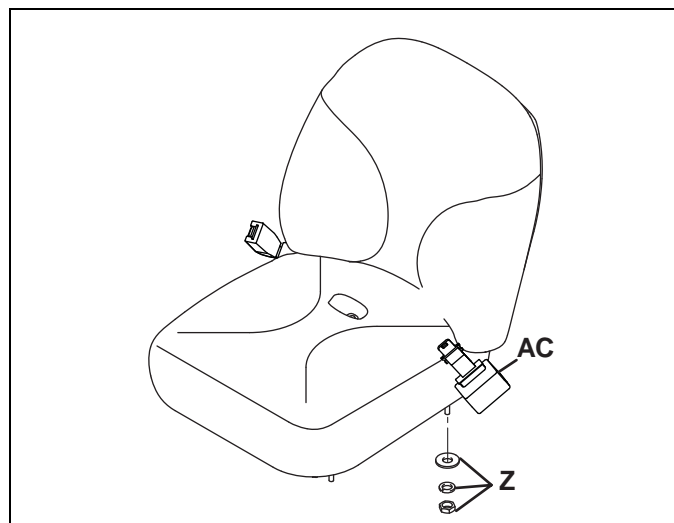


Figure 3H

3.11 REEL ADJUSTMENTS

The bedknives have been backed off the reels to prevent damage during shipment. Each reel must be adjusted before the unit is ready for delivery.

1. Install any special rollers or reel attachments following instructions included with them.
2. Set bedknife to reel adjustment. [Section 4.2, 4.3]
3. Adjust cutting height to customer specifications. [Section 4.4]

4. Level mowers. [Section 4.8]

3 SET-UP

3.12 OPERATING CHECKS

After the initial inspection and set-up of reels and accessories, test the tractor and implements for proper operation.

1. Test the Interlock System. [Section 3.13]
2. Start tractor and check that switches, gauges, pedals and controls operate as described. [Section 2.2]

3. Operate traction pedal and check that tractor operates smoothly in both directions. Check that tractor stops when traction pedal is released.
4. Check that the tractor does not drift with engine running and traction pedal in neutral.
5. After operation, stop tractor and inspect again for oil or hydraulic leaks.

3.13 INTERLOCK SYSTEM

1. The Interlock system prevents the engine from starting unless the parking brake is engaged, the traction lever is in Neutral and the reel levers are off. The system also stops the engine if the operator leaves the seat with the reel levers on, traction lever out of Neutral, or parking brake disengaged.



WARNING

Never operate equipment with the Interlock system disconnected or malfunctioning. Do not disconnect or bypass any switch.

2. Perform each of the following tests to insure the Interlock system is functioning properly. Stop the test and have the system inspected and repaired if any of the tests **fail** as listed below:
 - 1 the engine **does not** start in test 1;
 - 1 the engine **does** start during tests 2, 3 or 4;
 - 1 the engine **continues** to run during tests 5 or 6.
3. Refer to the chart below for each test and follow the check (4) marks across the chart. Shut engine off between each test.

Test 1: Represents normal starting procedure. The operator is seated, parking brake is engaged, the traction lever is in Neutral, and the reel levers are off. The engine should start.

Test 2: The engine must not start if the reel lever is in Forward or Reverse. Repeat test for each reel lever and lever position.

Test 3: The engine must not start if the parking brake is disengaged.

Test 4: The engine must not start if traction lever is not in Neutral. Repeat test for each position of lever.

Test 5: Start the engine in the normal manner then turn reel lever on and lift your weight off the seat. Repeat test for each reel lever and lever position. H

Test 6: Start the engine in the normal manner then disengage parking brake and lift your weight off the seat. H

Test 7: Start the engine in the normal manner then shift traction lever out of Neutral and lift your weight off the seat. Repeat test for each lever position. H

Test	Operator Seated		Parking Brake		Traction Lever in Neutral		Reel Levers		Engine Starts	
	Yes	No	Engaged	Disengaged	Yes	No	On	Off	Yes	No
1	4		4		4			4	4	
2	4		4		4		4			4
3	4			4	4			4		4
4	4		4			4		4		4
5	4	H	4		4		4		H	
6	4	H		4	4			4	H	
7	4	H	4			4		4	H	

H Lift your weight off seat. The engine will shut down.

4.1 GENERAL

WARNING

To prevent injury, lower implements to the ground, disengage all drives, engage parking brake, stop engine and remove key from ignition switch before making any adjustments or performing maintenance.

Make sure the mower is parked on a solid and level surface. Never work on a mower that is supported only by a jack. Always use jack stands.

If only the front or rear of the mower is raised, place chocks in front of and behind the wheels that are not raised.

1. Adjustments and maintenance should always be performed by a qualified technician. If proper

adjustment cannot be made, contact an authorized Jacobsen Dealer.

2. Replace, *do not adjust*, worn or damaged components.
3. Long hair, jewelry, or loose fitting clothing may get tangled in moving parts.

CAUTION

Be careful to prevent entrapment of the hands and fingers between moving and fixed components of the machine.

4. Do not change governor settings or overspeed the engine.

4.2 BEDKNIFE-TO-REEL
(Pre-adjustment Check)

1. Check the reel bearings for end play or radial play. There should be no end play or radial play. See **Section 4.5**.
2. Inspect the reel blades and bedknife to insure good sharp edges without bends or nicks.
 - a. The leading edge of the reel blades (**B**) must be sharp, free of burrs and show no signs of rounding off.
 - b. The bedknife and bedknife backing must be securely tightened. The bedknife must be straight and sharp.
 - c. A flat surface of at least 1/16 in. (1.5 mm) minimum must be maintained on the front face of the bedknife. Use a standard flat file to dress the bedknife.
3. If wear or damage is beyond the point where the reel or bedknife can be corrected by the lapping process, they must be reground.
4. Proper reel-to-bedknife adjustment is critical. A gap of 0.001 to 0.003 in. (0.025 to 0.076 mm) must be maintained across the entire length of the reel and bedknife.
5. The reel must be parallel to the bedknife. An improperly adjusted reel will lose its sharp edges prematurely and may result in serious damage to the reel and bedknife.
6. Grass conditions will also affect the adjustment.

- a. Dry, sparse conditions will require a wider gap to prevent heat buildup and damage to the reel and bedknife.
- b. High quality grass with a good moisture content requires a closer gap (near zero).

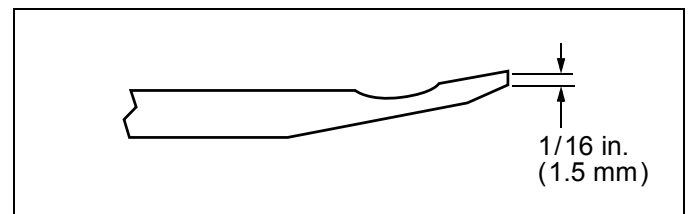


Figure 4A

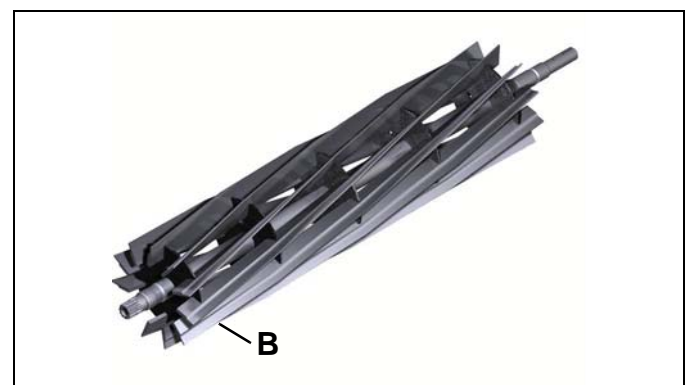


Figure 4B

4 ADJUSTMENTS

4.3 BEDKNIFE ADJUSTMENT

1. Read **Section 4.2** before making the adjustment.
2. Start adjustment at the leading end of the reel, followed by the trailing end. *The leading end of the reel blades is that end which passes over the bedknife first during normal reel rotation.*



CAUTION

To prevent personal injury and damage to the cutting edges, handle the reel with extreme care.

3. Use adjusters **(A and B)**, to adjust gap. Loosen bottom adjuster **(B)** and turn top adjuster **(A)** down (Clockwise) to close gap.
 - a. Slide a feeler gauge or shim stock 0.001 - 0.003 in. (0.025 - 0.076 mm) between the reel blade and the bedknife. Do not turn the reel.
 - b. Adjust the trailing end of the reel to the same gap in a similar manner then recheck the adjustment at the leading end.

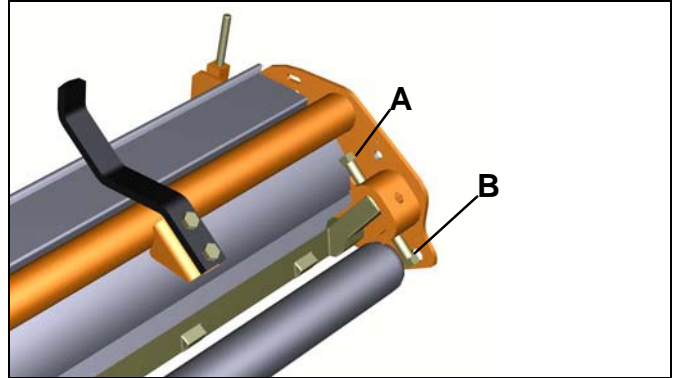


Figure 4C

Note: Avoid excessive tightening or serious damage may result to bedknife and reel blades. Reels must turn freely.

4.4 CUTTING HEIGHT

Note: Always make the bedknife to reel adjustment before adjusting height of cut. (See Sections 4.2 and 4.3).

1. Raise mowers to transport position then engage the parking brake, stop engine, and remove key from ignition switch.
2. Set desired cutting height on the gauge **(I)**.
 - a. Measure distance **(J)** between the underside of screw head and gauge block surface.
 - b. Adjust screw **(F)** to obtain desired height then tighten the wing nut.
3. Loosen the locknuts on the front roller brackets **(E)** just enough to allow the adjuster knob **(H)** to raise or lower the front roller.
4. Place gauge **(I)** across bottom of front and rear rollers near one end of roller.
5. Slide the head of gauge screw over the bedknife **(G)** and adjust the knob **(H)** to close the gap between the screw head and bedknife. Then tighten locknut **(E)**.
6. Repeat Steps 4 and 5 on opposite end. Complete adjustment to one end before adjusting opposite end.
7. Tighten locknuts **(E)** and recheck each end.

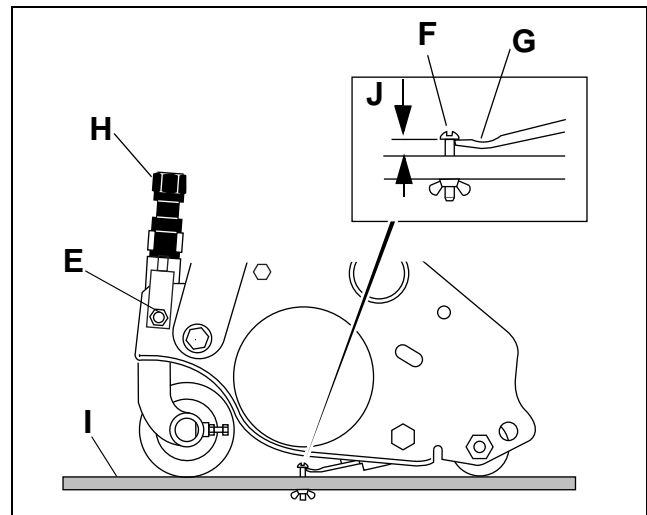


Figure 4D

4.5 REEL BEARING

Excessive end play or any radial play indicates bad bearings, a weak tension spring, or a backed off nut.

1. Check bearing housing mounting hardware. Tighten or replace components as required. Carefully clean threads with degreaser.
2. Apply a medium strength grade of Loctite to nut **(AA)**, then thread nut onto the reel shaft until the nut is 1-27/32 in. (46 mm) from the end of the reel shaft.
3. Fill reel bearing housings with NLGI - Grade O grease after adjusting spring.

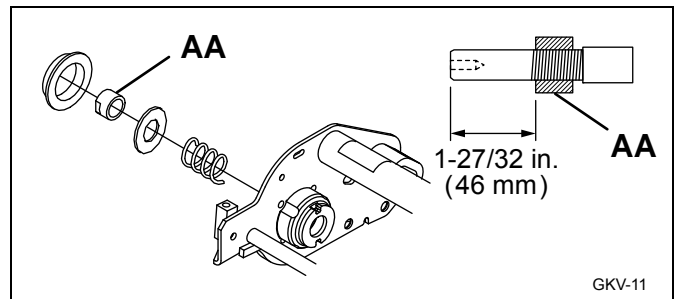


Figure 4E

4.6 LIFT CYLINDERS

1. Fully extend the front cylinder, then check spacing at the cam roller **(U)**. The dimension should be 7/16 to 9/16 in. (11.1 to 14.2 mm).
2. Loosen nut **(V)** then grip the very end of the cylinder rod, close to the adjusting nut **(point W)** and turn until spacing is correct. Tighten nut **(V)**.
3. Loosen nut **(X)** on the rear lift cylinder. Adjust the rod end **(Y)** until the lift arm **(O)** just touches the stop bracket when the cylinder is fully retracted.

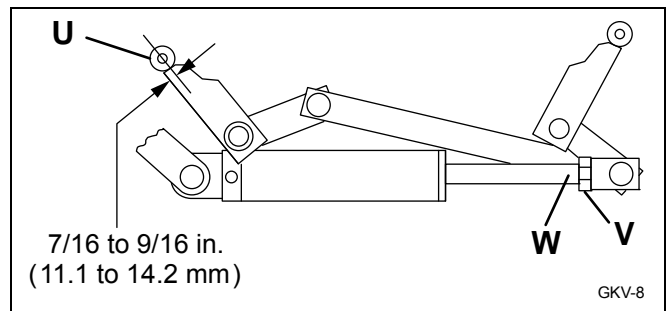


Figure 4F

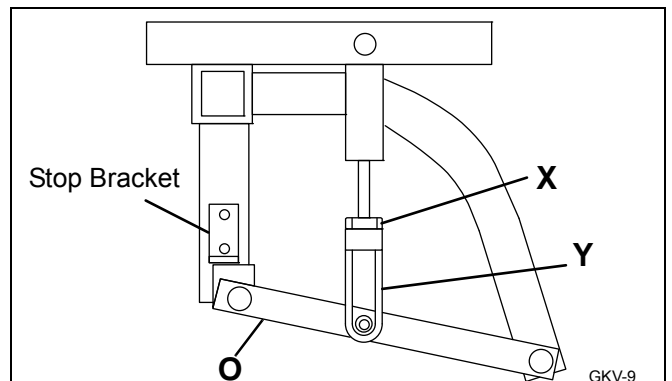


Figure 4G

4.7 ANTISWAY SPRING

1. The antisway spring **(C)** should be tight but not under stress.
2. Loosen both nuts on the adjusting rod then adjust the rear nut as necessary.
3. When properly adjusted, tighten nuts against stop bracket.

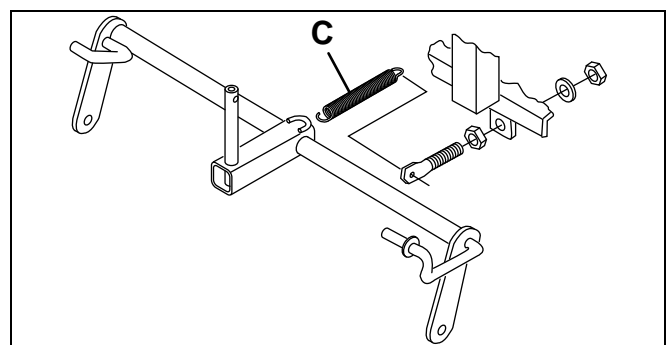


Figure 4H

4 ADJUSTMENTS

4.8 LEVELING PROCEDURE

1. Lower the implements until they are about 1/4 in. (6.35 mm) above the ground. If they are not level with the ground, adjust torsion spring (**Z**).

WARNING

The torsion spring is under extreme tension and will tend to uncoil very rapidly if the clamp is loosened. To prevent being cut by clamp or spring, unwind spring by tapping on clamp while slowly loosening nut.

2. Carefully loosen spring mounting clamp and slowly turn clamp until implement is level. Tighten clamp securely.

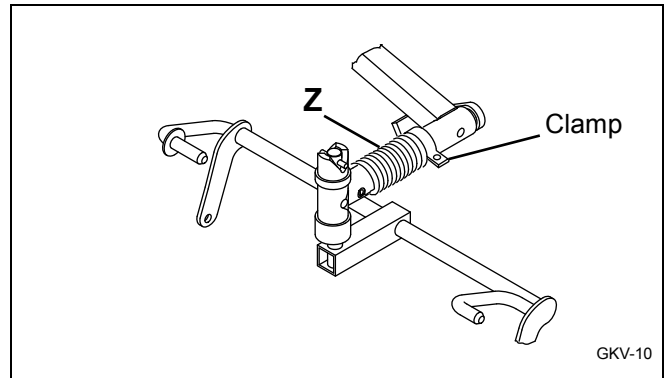


Figure 4J

4.9 ACCELERATOR PEDAL

1. The top of the pedal should not be less than 2-3/4 in. (70 mm) from the floorboard when pedal is fully depressed.
2. Loosen locknut (**D**) and adjust carriage bolt (**E**) to obtain the correct distance between pedal and floorboard.

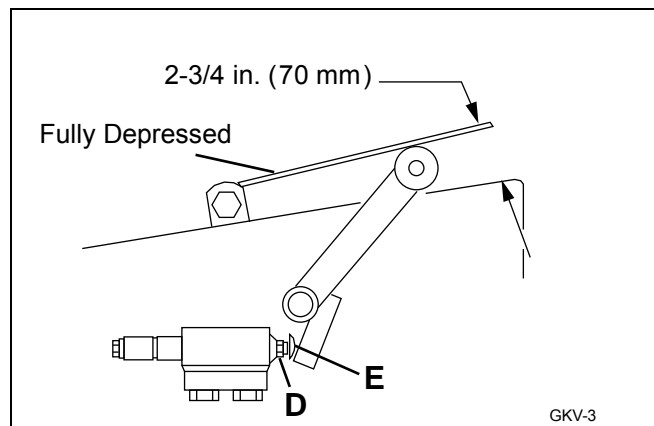


Figure 4K

4.10 BRAKE PEDAL

1. Drive straight forward with traction lever in MOW position and throttle in SLOW position. Depress Brake pedal. If the brake pedal comes too close to the floorboard, check the amount of brake lining left.
 - a. Replace lining.
 - b. Adjust nut (**F**) to obtain a distance of 3-5/16 in. (84 mm), between rod pivot points, (when brakes are new), and to compress spring to 31/32 in. (24 mm).
2. If machine pulls right, turn adjusting nut (**F**) on left side clockwise. If machine pulls left, turn adjusting nut (**F**) on left side counterclockwise. Do not compress either spring past 7/8 in. (22 mm).

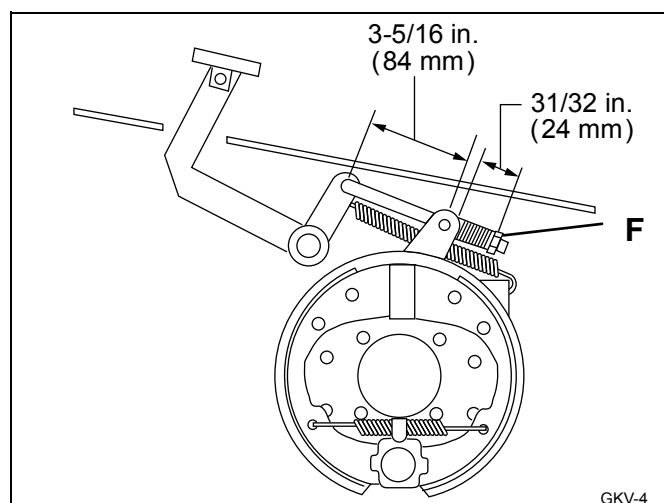


Figure 4L

4.11 PARKING BRAKE

Disengage brake lever and measure the distance between nut **(AB)** and bottom of pivot. Adjust nut so the distance is 3/16 in. (5 mm).

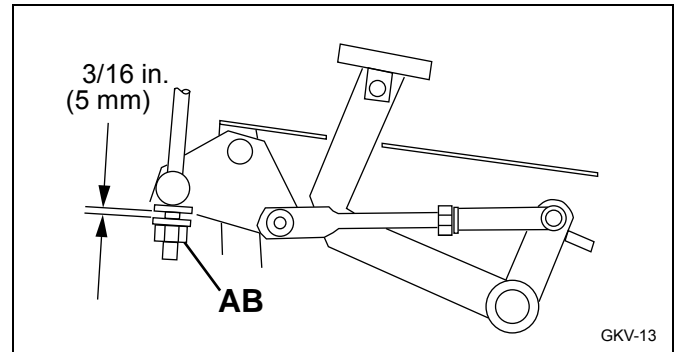


Figure 4M

4.12 INTERLOCK SWITCHES

1. Refer to the Interlock System check in your Safety & Operation manual. If the system **fails** any test listed, adjustment or replacement of the switches or levers is required.
2. Remove the front cowling and check the control linkages to be sure they are properly adjusted (Sections 4.11, 4.14 and 4.15).

3. Check switches to make sure they are working properly.

⚠ CAUTION

Never operate equipment with damaged switches. Replace faulty switches immediately.

4.13 REEL SWITCHES

The reel lever linkage actuates two electrical switches located under the levers. Check that both switches are closed when all reel levers are in their Neutral position.

1. Check and make sure switches are wired correctly. Refer to **Figure 4N** and labels attached to wires for correct terminal placement.
2. When any of the reel levers are moved to the forward position, Reel Switch (Wires A and B) should open, and Backlap Switch (Wires C and D) should remain closed.
3. When any of the reel levers are moved to the reverse position, Backlap Switch (Wires C and D) should open, and Reel Switch (Wires A and B) should remain closed.

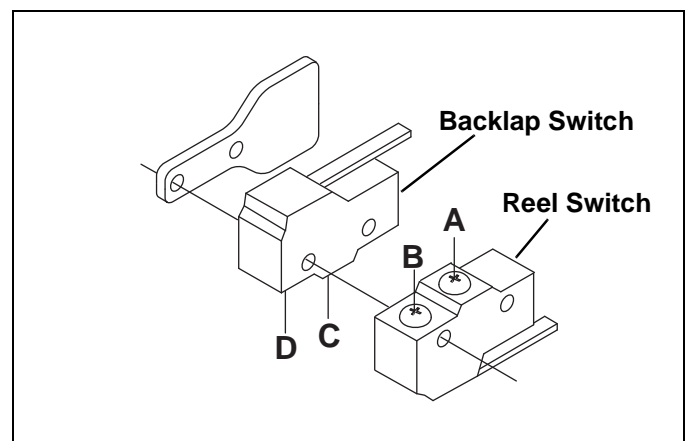


Figure 4N

4 ADJUSTMENTS

4.14 TRACTION LEVER

1. Remove front cowling and adjust lever to align with the four positions on the instrument panel.
2. Adjust ball joints (**AC**) on rod (**AD**) and/or adjust position and number of washers (**AE**) for proper alignment. The lever must engage neutral start switch in Neutral position only.

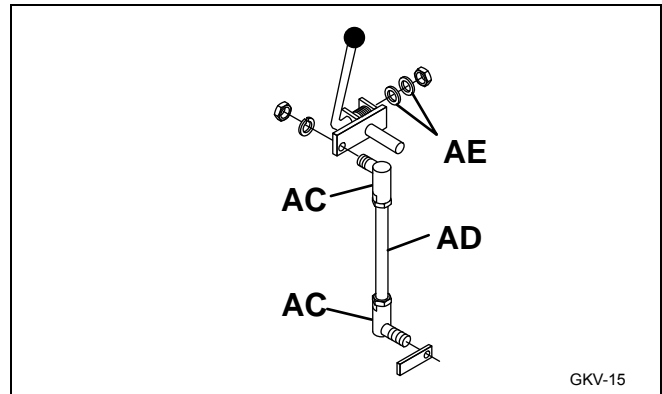


Figure 4P

4.15 REEL CONTROL

Adjust the reel control lever linkage so the reels disengage when they reach the raised position.

1. Remove front cowling and raise mowers. Shift all reel control levers to OFF and stop engine.
2. Adjust link (**AF**) so there is 1/32 to 1/16 in. (0.8 to 1.6 mm) clearance between the bottom of the shoulder bolt (**AG**) and the bottom of the slot in link (**AF**).
3. Remove all hardware holding link (**AF**) in place then loosen nut (**AH**) and adjust the link.
4. Tighten nut (**AH**) against the link. Reassemble all components and tighten hardware.

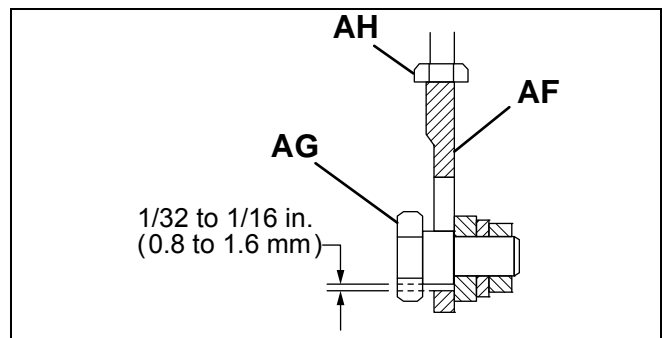


Figure 4R

4.16 STEERING CABLE ADJUSTMENT

1. Loosen cable mounting nut (**AJ**) or (**AK**) as necessary and tighten opposite nut until steering wheel is square with the frame and mower runs straight ahead.
2. After steering wheel is adjusted, adjust both cable mounting nuts until there is 1/2 to 5/8 in. (13 to 16 mm) deflection in center of cables with a 10 pound (4.5 Kg) pull.

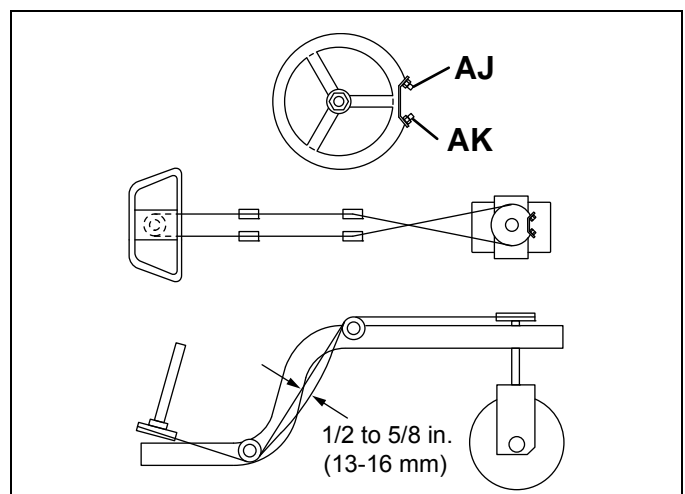


Figure 4S

4.17 CHOKE CONTROL

1. Push choke control knob to the OFF Position.
2. Set Choke lever at carburetor to OFF (butterfly open) position.
3. Adjust control wire (at the carburetor) then clamp wire housing in place while keeping choke butterfly open and the control knob in the OFF position.

4.18 SPECIFIC TORQUE REQUIREMENTS

1. Ball joints: 30 - 35 ft. lb. (40.5 - 47.2 Nm).
2. Bedknife shoe: 25 - 37 ft. lb. (34 - 50 Nm).
3. Brake drum and hub to wheel motor: 90 - 100 ft. lb. (122 - 135 Nm).
4. Wheel mounting hardware 65-85 ft. lb. (88 - 115 N.m). Check and retorque daily until torque is maintained.
5. Rear steering pulley: 50 - 60 ft. lb. (67.5 - 81 Nm).
6. Engine drain plug 22 ft. lb. (29.7 Nm).
7. ROPS:
 - ROPS Bracket to Frame: 40ft lb. (54.2 Nm)
 - ROPS Tube to Bracket: 75 ft. lb. (101.7 Nm)
 - ROPS Tube Plates: 30 ft. lb. (40.7 Nm)



4 ADJUSTMENTS



4.19 TORQUE SPECIFICATION






NOTICE

All torque values included in these charts are approximate and are for reference only. Use of these torque values is at your sole risk. Jacobsen is not responsible for any loss, claim, or damage arising from the use of these charts. **Extreme caution should always be used when using any torque value.**

Jacobsen uses Grade 5 bolts as standard, unless otherwise noted.

AMERICAN NATIONAL STANDARD FASTENERS			
SIZE	UNITS		
		GRADE 5	GRADE 8
#6-32	in-lbs (Nm)	20 (2.3)	–
#8-32	in-lbs (Nm)	24 (2.7)	30 (3.4)
#10-24	in-lbs (Nm)	35 (4.0)	45 (5.1)
#10-32	in-lbs (Nm)	40 (4.5)	50 (5.7)
#12-24	in-lbs (Nm)	50 (5.7)	65 (7.3)
1/4-20	in-lbs (Nm)	95 (10.7)	125 (14.1)
1/4-28	in-lbs (Nm)	95 (10.7)	150 (17.0)
5/16-18	in-lbs (Nm)	200 (22.6)	270 (30.5)
5/16-24	in-lbs (Nm)	240 (27.1)	300 (33.9)
3/8-16	ft-lbs (Nm)	30 (40.7)	40 (54.2)
3/8-24	ft-lbs (Nm)	35 (47.5)	45 (61.0)

AMERICAN NATIONAL STANDARD FASTENERS			
SIZE	UNITS		
		GRADE 5	GRADE 8
7/16-14	ft-lbs (Nm)	50 (67.8)	65 (88.1)
7/16-20	ft-lbs (Nm)	55 (74.6)	70 (94.9)
1/2-13	ft-lbs (Nm)	75 (101.7)	100 (135.6)
1/2-20	ft-lbs (Nm)	85 (115.3)	110 (149.2)
9/16-12	ft-lbs (Nm)	105 (142.4)	135 (183.1)
9/16-18	ft-lbs (Nm)	115 (155.9)	150 (203.4)
5/8-11	ft-lbs (Nm)	150 (203.4)	195 (264.4)
5/8-18	ft-lbs (Nm)	160 (217.0)	210 (284.8)
3/4-10	ft-lbs (Nm)	170 (230.5)	220 (298.3)
3/4-16	ft-lbs (Nm)	175 (237.3)	225 (305.1)
7/8-14	ft-lbs (Nm)	300 (406.8)	400 (542.4)

METRIC FASTENERS							
SIZE	UNITS						Non Critical Fasteners into Aluminum
		4.8	5.8	8.8	10.9	12.9	
M4	Nm (in-lbs)	1.2 (11)	1.7 (15)	2.9 (26)	4.1 (36)	5.0 (44)	2.0 (18)
M5	Nm (in-lbs)	2.5 (22)	3.2 (28)	5.8 (51)	8.1 (72)	9.7 (86)	4.0 (35)
M6	Nm (in-lbs)	4.3 (38)	5.7 (50)	9.9 (88)	14.0 (124)	16.5 (146)	6.8 (60)
M8	Nm (in-lbs)	10.5 (93)	13.6 (120)	24.4 (216)	33.9 (300)	40.7 (360)	17.0 (150)
M10	Nm (ft-lbs)	21.7 (16)	27.1 (20)	47.5 (35)	66.4 (49)	81.4 (60)	33.9 (25)
M12	Nm (ft-lbs)	36.6 (27)	47.5 (35)	82.7 (61)	116.6 (86)	139.7 (103)	61.0 (45)
M14	Nm (ft-lbs)	58.3 (43)	76.4 (55)	131.5 (97)	184.4 (136)	219.7 (162)	94.9 (70)

5.1 GENERAL

The troubleshooting chart below lists basic problems that may occur during start-up and operation. For more detailed information regarding the hydraulic and electrical systems contact your area Jacobsen Dealer.

Symptoms	Possible Causes	Action
Engine will not start.	<ol style="list-style-type: none"> 1. Parking brake disengaged, traction lever not in Neutral, or reel lever(s) on. 2. Battery low on charge or defective. 3. Fuel tank empty or dirty. Fuel shut off valve closed. 4. Fuse blown. 	<ol style="list-style-type: none"> 1. Check Interlock system and start-up procedure. 2. Inspect condition of battery and battery connections. 3. Fill with fresh fuel. Change fuel filter. Open fuel shut off valve. 4. Replace fuse.
Engine hard to start or runs poorly.	<ol style="list-style-type: none"> 1. Fuel level low, fuel or fuel filter dirty. 2. Air cleaner dirty. 3. Fuel pump. 4. Engine problem. 	<ol style="list-style-type: none"> 1. Fill with fresh fuel. Change fuel filter. Bleed fuel lines. 2. Inspect and replace air filter. 3. Consult engine manual. 4. Consult engine manual.
Engine stops.	<ol style="list-style-type: none"> 1. Fuel tank empty. 2. Interlocks not set before leaving operator's seat. 	<ol style="list-style-type: none"> 1. Fill with fresh fuel and bleed fuel lines. 2. Engage parking brake, set reel levers to Off, and set traction lever to Neutral before leaving seat.
Engine overheating.	<ol style="list-style-type: none"> 1. Air intake restricted. 2. Engine overload. 	<ol style="list-style-type: none"> 1. Clean cooling air intake. 2. Reduce forward speed.
Battery not holding charge.	<ol style="list-style-type: none"> 1. Loose or corroded battery terminals. 2. Low electrolyte. 3. Charging system defective. 	<ol style="list-style-type: none"> 1. Inspect and clean terminals. 2. Refill to correct level. 3. See engine manual.
Reels cut unevenly.	<ol style="list-style-type: none"> 1. Bedknife-to-reel not adjusted correctly. 2. Engine speed too low. 3. Reel Control lever set in reverse 4. Low hydraulic oil. 	<p>Inspect bedknife-to-reel adjustment.</p> <p>Check engine speed. Run engine at full throttle.</p> <p>Set reel lever to forward rotation.</p> <p>Check reservoir level and fill if needed.</p>
Mower does not react to traction pedal.	<ol style="list-style-type: none"> 1. Parking brake engaged. 2. Traction lever in Neutral. 3. Low hydraulic oil. 	<p>Disengage parking brake.</p> <p>Place lever in desired speed or direction.</p> <p>Check reservoir level and fill if needed.</p>
Gauges/Indicator not operating.	<ol style="list-style-type: none"> 1. Fuse blown, Bulb burnt out. 2. Loose wiring. 	<p>Replace fuse, check bulb.</p> <p>Check electrical connections.</p>

6 LUBRICATION CHART

6.1 GENERAL

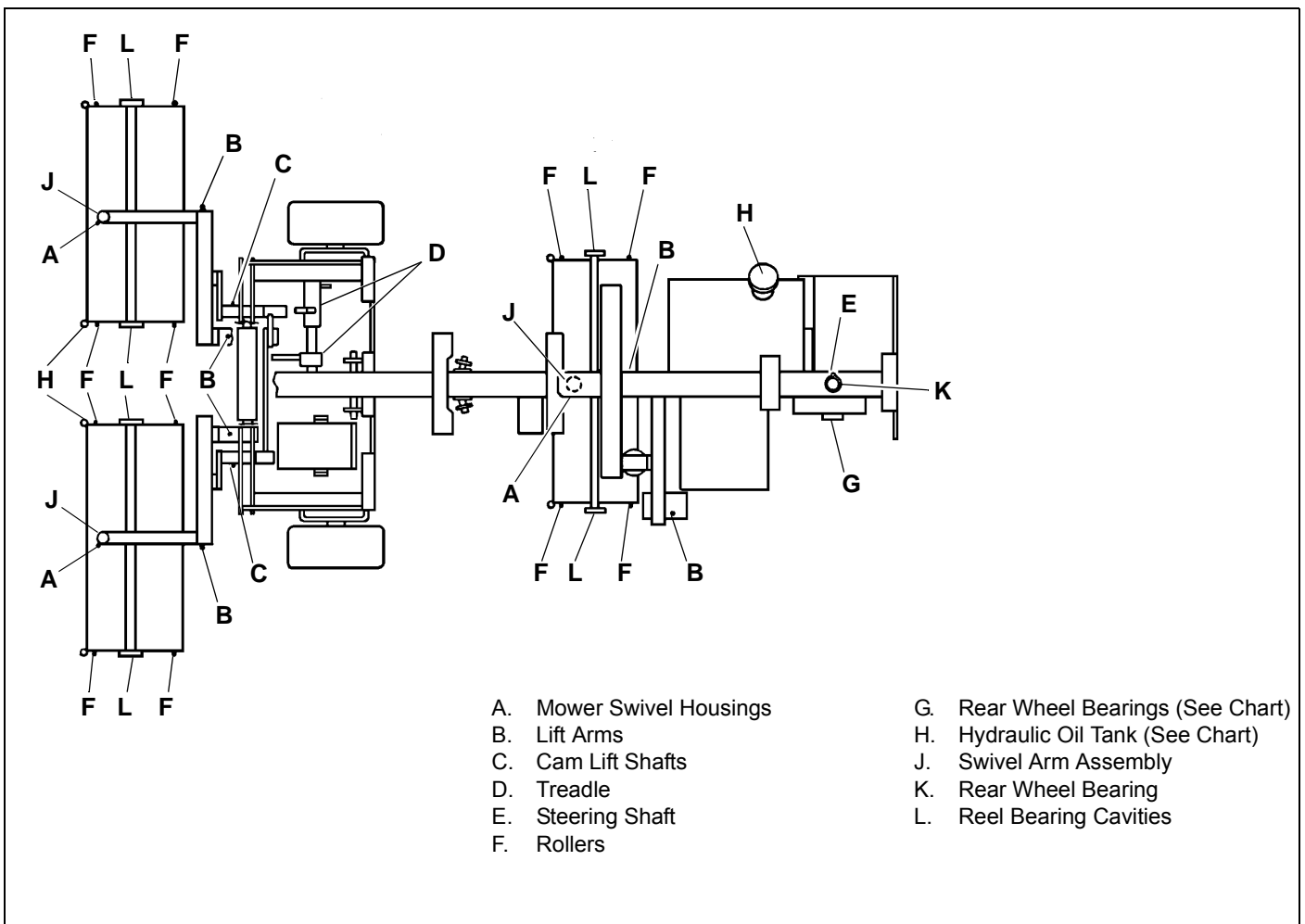
WARNING

Before you clean, adjust, or repair this equipment, disengage all drives, lower implements to the ground, engage parking brake, stop engine, and remove key from ignition switch to prevent injuries.

1. Always clean the grease fitting before and after lubricating.

2. Lubricate with grease that meets or exceeds NLGI Grade 2 LB specifications. Apply grease with a manual grease gun and fill slowly until grease begins to seep out. Do not use compressed air guns.
3. Periodically apply a small amount of lithium based grease to the seat runners.
4. For smooth operation of all levers, pivot points, and other friction points that are not shown on the lubrication chart apply several drops of SAE 30 oil every 40 hours or as required.
5. Grease roller fittings (**F**) every 100 hours and coat cam surfaces and pins of swivel housing (**J**) every 50 hours.

6.2 LUBRICATION CHART



7 NOTES

Pre-Delivery Checklist

Mower _____

Check:

- Wheel lug torque 85 -95 ft. lb. (115 - 128 N.m)
- Tire pressure should be:
 - 10 - 12 psi (0.69 - 0.83 BAR)
- Steering nut torque 25 - 30 ft. lb. (34 - 51 N.m)
- Traction pedal adjustment
- Traction lever adjustment
- Parking brake adjustment
- Operation of all switches
- Function of lift-lower pedal
- ROPS installed and hardware torqued

Engine _____

Check:

- Engine oil level
- Air cleaner element and connections
- Check choke adjustment

Cutting Units _____

Check:

- All hardware securely fastened
- Reel end play, there should be none
- Front roller bearing adjustment
- Offset in front roller brackets is towards the reel
- Adjust reel to bedknife 0.001" to 0.003" (0.025 - 0.08 mm)
- Adjust cutting height to customers' requirements

Support _____

If you encounter any problems while setting up this mower, contact the Jacobsen Customer Care department.

Problem Description

Distributor _____

Customer _____

Electrical System _____

Check:

- Interlock system (Section 3.13)
 - Reel Lever switches
 - Traction lever neutral start switch
 - Parking brake switch
 - Seat switch
 - Backlap Switch
- Panel gauges and warning lights
- For pinched or rubbing wires

Hydraulic System _____

Check:

- Hydraulic oil level
- For pinched or rubbing hoses
- For twisted or crimped hoses
- For oil leaks

Miscellaneous _____

- Check for loose or missing hardware
- All lubrication points
- Examine paint finish; touch up where necessary
- Check decals. In place and legible
- Make sure Safety & Operation Manual and Parts & Maintenance Manual are in the pouch

Jacobsen, A Textron Company
11108 Quality Drive
Charlotte, NC 28273
800-848-1636
<http://www.Jacobsen.com>

Inspected _____

Date _____

Europe & Rest of The World Except North & South America

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