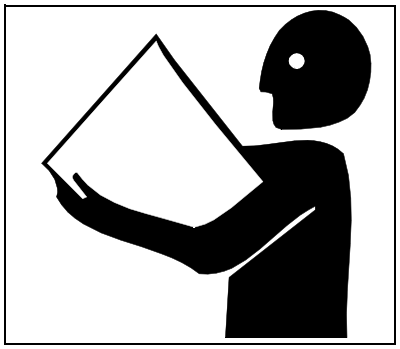
THANK YOU for purchasing a John Deere product.



Read this manual and your attachment manual thoroughly. Failure to do so could result in personal injury or equipment damage.

WARNING: The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

CALIFORNIA Proposition 65 Warning

This manual should be considered a permanent part of your machine and should remain with the machine when you sell it.

Product warranty is provided as part of John Deere's support program for customers who operate and maintain their equipment as described in this manual. The product warranty is explained on the warranty certificate you received from your dealer.

Measurements in this manual are metric units and their U.S. customary equivalents. RIGHT-HAND and LEFT-HAND sides are determined by facing in the direction the machine will travel when going forward. When you see a broken line arrow (------>), it indicates the part it is pointing to is hidden.

Record identification numbers below. Be sure to record all the numbers to help in tracing the machine if it is stolen. You also need to give these numbers to your dealer when you order parts.

DATE OF PURCHASE: _____

DEALER NAME: _____

DEALER PHONE: _____

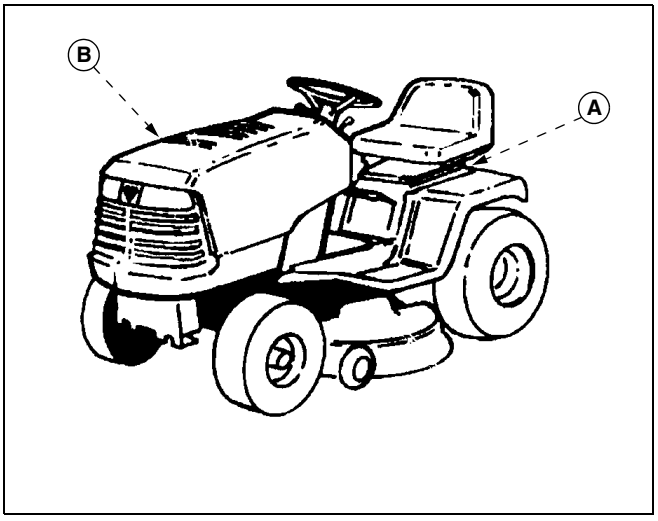
TRACTOR SERIAL NUMBER (A), (Under seat):

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

ENGINE SERIAL NUMBER (B), (Right side of engine):

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Sabre® is a registered trademark of Deere & Company



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OMGX10485 B9

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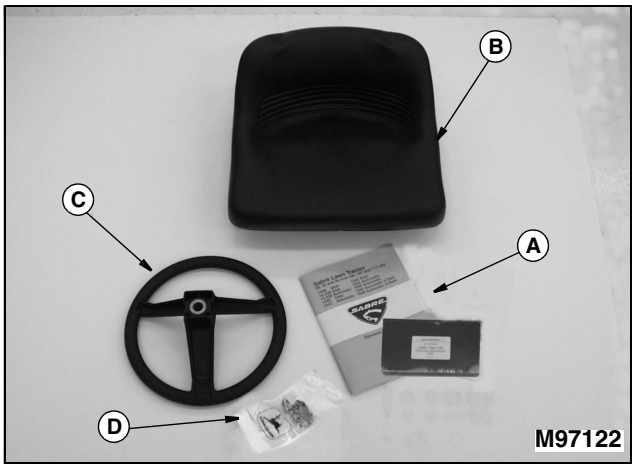
NOTES

Identify Parts

NOTE: If you are missing any parts see the Replacement Parts section for additional service part numbers.



A Operator's Manual
Safety Video

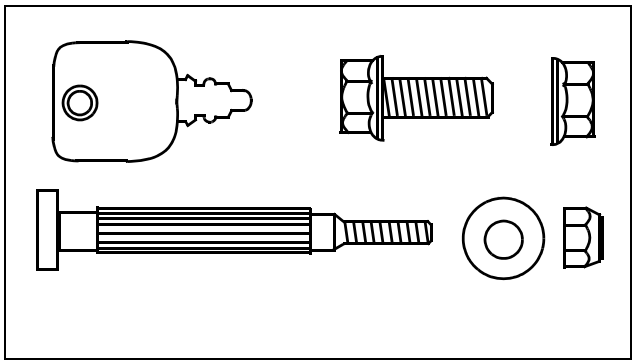
B Seat

C Steering Wheel

D Bag of Hardware

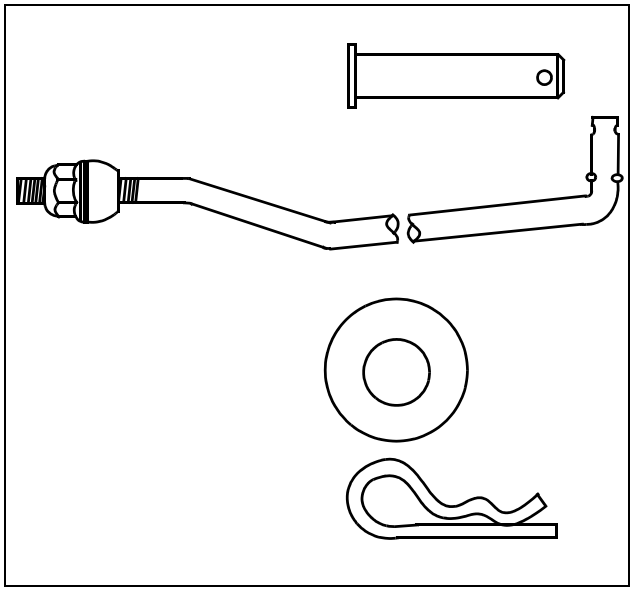
Common Hardware:

• 2 - Keys	M127340 and M40718
• 2 - M8x16 Bolts - Battery	19M7775
• 2 - M8x16 Nuts - Battery	14M7303
• 1 - Serrated Screw - Steering Wheel	M87404
• 1 - Flat Washer - Steering Wheel	24H1721
• 1 - M10-24 Nut - Steering Wheel	M63662



46-Inch Deck Mounting Hardware:

• 2 - Rear Draft Pins	H98765
• 2 - Front Draft Rod Assembly:	
Rod	Gx10093
Leveling Ball	M112982
Nut	14M7400
• 3- Flat Washers	24H1305
• 5 - Spring Locking Pins	J16931



Seat Hardware:

For Model 1846HMS:

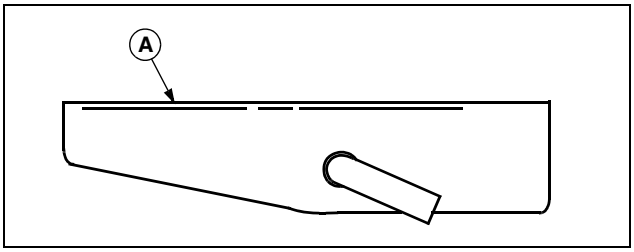
- 2 - Seat Knobs GX10425
- 2 - Seat Shoulder Bolts M96322
- 2 - Spacers (Serrated Washers) M120369
- 2 - Cupped Washers M120771

For All Other Models:

- 2 - Seat Capscrews 19H1813
- 2 - Seat Shoulder Bolts M96322
- 2 - Flat Washers 24M7024
- 2 - Cupped Washers M120771

Slide Adjuster Hardware:

- 4 - Seat Capscrews 19H2127
- 4 - Spring Washers M46935
- 2 - Flat Washers 24M7207
- 4 - Nylon Washers M123750
- 4 - Spacers M123751
- 1 - Seat Adjuster Assembly (A) AM121971



Remove Packaging

CAUTION: Avoid eye injury. Wear eye protection when removing wire bands. Wire bands are under tension and could snap when removed.

1. Remove plastic and paper.
2. Remove wire band (A) securing front axle.
3. Remove steering wheel, seat, and bag of parts from seat base.

Tractors With 38-Inch and 42-Inch Mower Decks Only

1. Lift the deck to the highest position. (See ADJUSTING CUTTING HEIGHT in Operating Mower section.)

2. Proceed to STEERING WHEEL INSTALLATION.

Removing 46-Inch Mower Deck From Packing

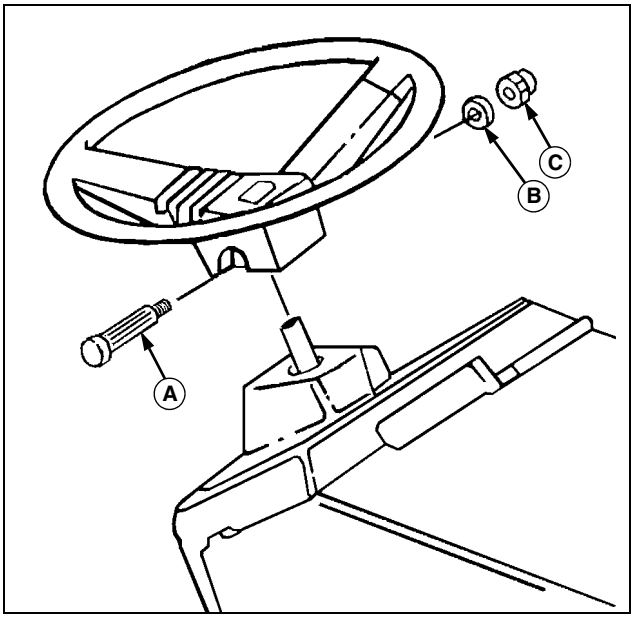
CAUTION: •Mower Deck is heavy. To avoid injury, use a hoist or safe lifting device when removing mower deck from crate.
•Mower Blades are sharp. Always wear gloves when handling mower deck.

1. Remove the banding securing the 46-Inch mower deck to the crate.

2. Using a hoist or a safe lifting device, carefully remove deck from crate.

3. Place the mower deck on flat surface with the blade side down.

Install Steering Wheel



1. Position the front tires so they are pointing in a straight ahead direction.

2. Remove the steering wheel from its packaging and place on the steering shaft with the center spoke pointing towards the rear of the tractor.

3. Remove the 2-1/4 in. serrated screw, flat washer and M10-24 nut from the parts bag.

4. Drive serrated screw (A) from the right hand side through the steering wheel and steering shaft with a hammer. Secure with the flat washer (B) and M10-24 nut (C) using a 3/8 in. (or 10 mm) socket and ratchet.

Remove Tractor From The Skid

CAUTION: TO AVOID INJURY, Do not start and drive tractor from the skid.

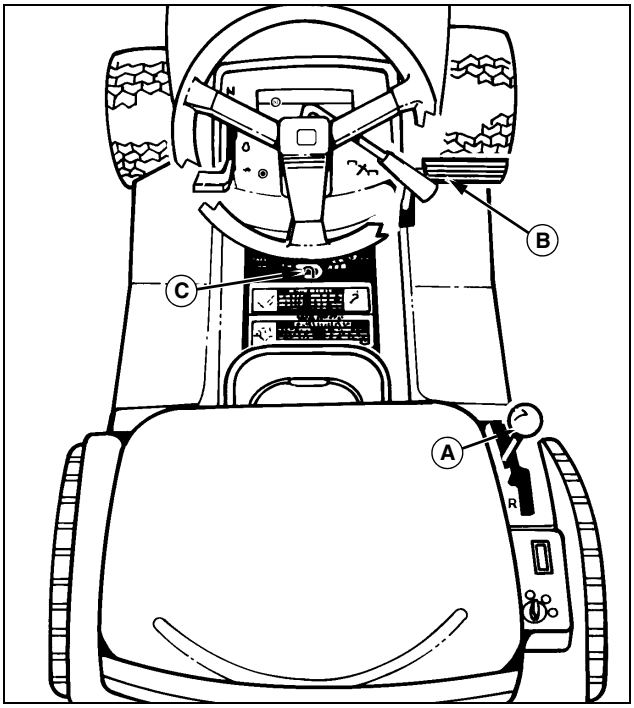
GEAR TRACTOR ONLY

1. Move the shift lever (A) to the neutral (N) position.

2. Depress brake pedal (B) and move the park brake lock lever (C) to the right and toward the rear to the UNLOCK position.

3. With one person in the front, and the other in the rear, steer straight, and gently push the tractor rearward off the skid to a level area.

4. Depress brake pedal and move park brake lock lever to locked position and release brake pedal.



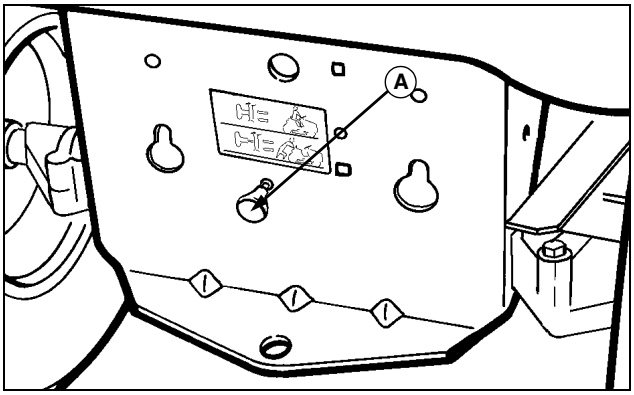
AUTOMATIC TRACTOR ONLY

1. Move to the rear of the tractor. On the rear of the tractor locate free-wheeling knob (A) and pull it rearward until it locks into a fully extended position. This releases the hydro lock in the transmission, allowing it to free-wheel in order to move tractor.

2. With one person in the front, and the other in the rear, steer straight, and gently push the tractor rearward off the skid to a level area.

3. Push the free-wheeling knob to its original position so that the knob is fully seated.

NOTE: Failure to push the free-wheeling knob forward to the drive position will result in the tractor not propelling itself when the shift lever is moved into forward or reverse.



Install Seat

Seat With Capscrew Adjuster

1. Stand seat on mower deck lift handle (A) allowing seat back to rest on steering wheel.

2. Raise seat pan so that it rests against seat bottom.

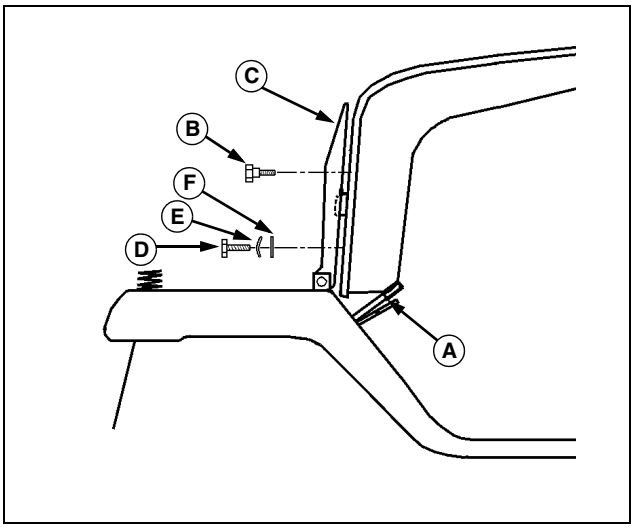
3. Remove hardware from parts bag:
   - 2 Shoulder Bolts
   - 2 Capscrews
   - 2 Cupped Washers
   - 2 Flat Washers

4. Install shoulder bolts (B) through seat pan (C) into top two holes in seat. Secure tightly.

5. Take one capscrew (D) and place one of the cupped washers (E) onto it so that cupped side of washer is away from capscrew head. Place one of the flat washers (F) onto capscrew with cupped washer. Repeat for other capscrew and washers.

6. Install capscrews with washers through seat pan into bottom holes of seat. Tighten finger tight.

7. Refer to ADJUSTING SEAT in the Operating Machine section for setting seat position. Securely tighten all hardware.



Seat With Knob Adjuster

1. Stand seat on mower deck lift handle (A) allowing seat back to rest on steering wheel.

2. Raise seat pan so that it rests against seat bottom.

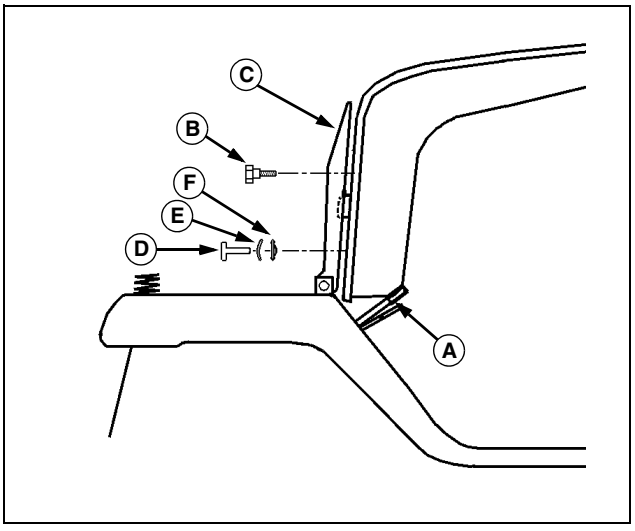
3. Remove hardware from parts bag:
   - 2 Shoulder Bolts
   - 2 Knobs
   - 2 Cupped Washers
   - 2 Spacers (Serrated Washers)

4. Install shoulder bolts (B) through seat pan (C) into top two holes in seat. Secure tightly.

5. Take one knob (D) and place one of the cupped washers (E) onto it so that cupped side of washer is away from capscrew head. Place one of the spacers (F), so that the protruded side of spacer is facing away from capscrew head, onto knob with cupped washer. Repeat for other knob, washers and spacers.

6. Install knobs with washers and spacers through seat pan into bottom holes of seat. Tighten finger tight.

7. Refer to ADJUSTING SEAT in the Operating Machine section for setting seat position. Securely tighten all hardware.



Install Slide Adjuster (46-Inch Deck Units Only)

1. Stand seat on mower deck lift handle (A) allowing seat back to rest on steering wheel.

2. Raise seat pan so that it rests against seat bottom.

3. Remove hardware from parts bag:
   - 4 Spacers
   - 4 Capscrews
   - 4 Spring Washers
   - 2 Flat Washers
   - Seat Adjustment Bracket
   - 4 Nylon Washers

4. Place flat washer, spacer, spring washer and nylon washer on capscrew. Repeat assembly for second capscrew.

5. Insert capscrew (B) with flat washer (C), spacer (D), spring washer (E) and nylon washer (F) through right hand edge of seat pan (G) into seat. Tighten finger tight.

6. Insert second capscrew with flat washer, spacer, spring washer and nylon washer through left hand side of seat pan into seat. Tighten finger tight.

7. Place one of the remaining two capscrews (H) through the seat adjustment bracket assembly (I).

8. Place a spacer (J), spring washer (K) and nylon washer (L) on the capscrew, and screw the capscrew into the seat pan finger tight.

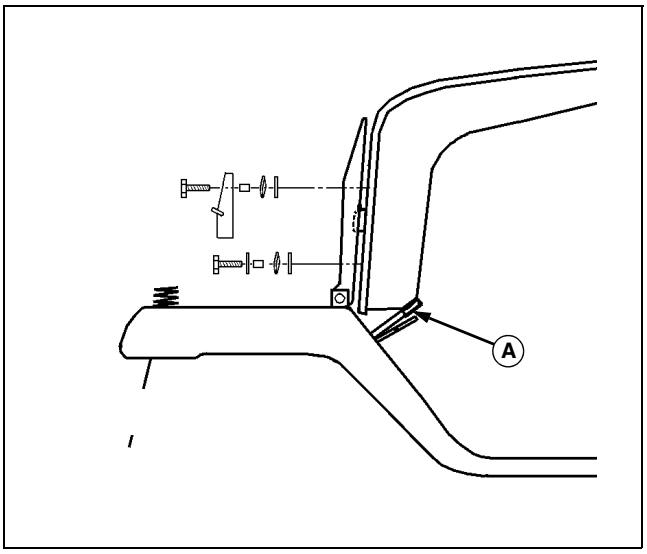
9. Pull pin in adjustment bracket assembly and rotate pin to the locked position.

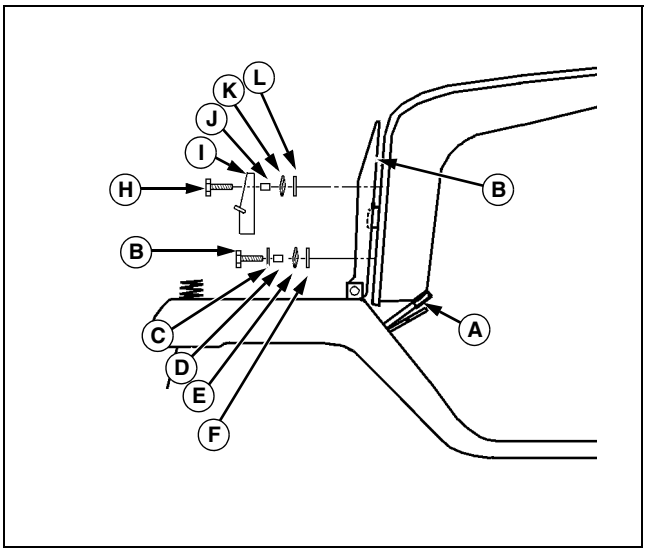
10. Place the remaining capscrew through the seat adjustment bracket assembly.

11. Place a spacer, spring washer and nylon washer on the capscrew, and screw the capscrew into the seat pan finger tight.

12. Tighten all four capscrews.

13. Refer to ADJUSTING SEAT in the Operating Machine section for setting seat position. Securely tighten all hardware.

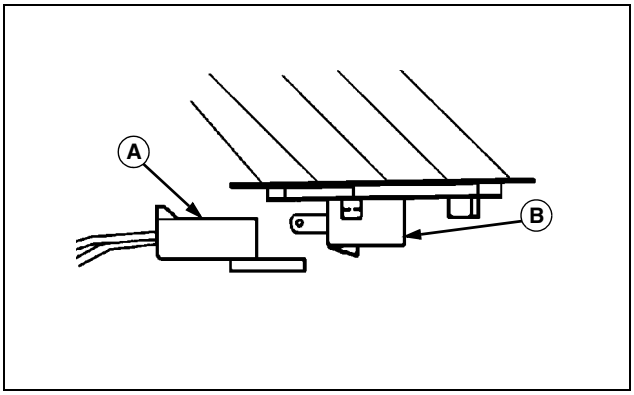




Connect Seat Switch

Connect the operator's seat switch connector (A) on to the switch (B) located on the bottom of the seat. Insure the connector locks onto the switch body.

NOTE: Failure to connect the seat switch will result in the tractor engine stopping when the clutch/brake pedal is released or when the PTO lever is engaged.



38-Inch And 42-Inch Mowers Only

CAUTION: TO AVOID INJURY, Never operate the mower without the discharge chute guard in place.

Remove and discard the tape holding the discharge guard up.

Install 46-Inch Mower Deck

CAUTION: Mower Blades are sharp. Always wear gloves when handling mower deck.

- Install mower deck to tractor. (See Installing Mower in the Installing Mower section.)

Connect and Check Battery

CAUTION: Prevent Battery Explosions:

- Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

- Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

- Do not charge a frozen battery; it may explode. Warm battery to 16° C (60° F)

IMPORTANT: This battery comes fully charged. If the mower is not used by the Service Expiration Date indicated on the battery, charge the battery. (See Charging the Battery in the Service - Electrical section.)

CAUTION: DO NOT attempt to open, add fluid or service battery. Any attempt to do so will void warranty and lead to possible injury.

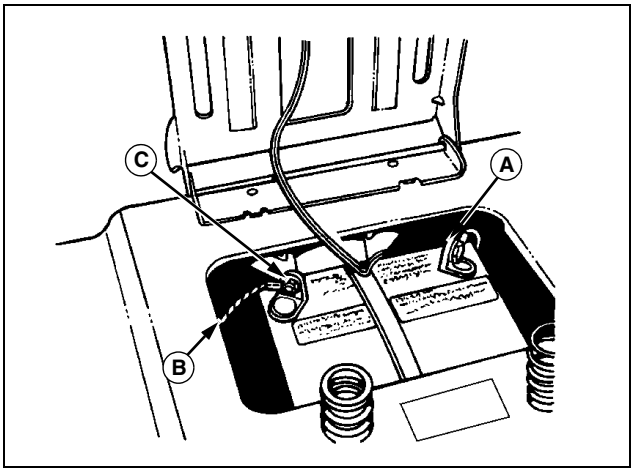
NOTE: Do not remove the BLACK negative (–) protective cap at this time.

1. Remove and discard the RED positive (+) protective cap from the positive (+) battery terminal.

2. Connect RED positive (+) cable (A) to battery with 6mm hex head bolt and 6 mm flange nut. Tighten securely. Apply petroleum jelly or silicone spray to terminal to prevent corrosion. Install the red terminal cover.

3. Remove and discard the BLACK (–) protective cap from the negative battery terminal.

4. Connect silver braided grounding cable (B) to the negative (–) terminal (C) with remaining 6 mm hex head bolt and 6 mm flange nut and tighten securely. Apply petroleum jelly or silicone spray to terminal to prevent corrosion.



Checking Tire Pressure

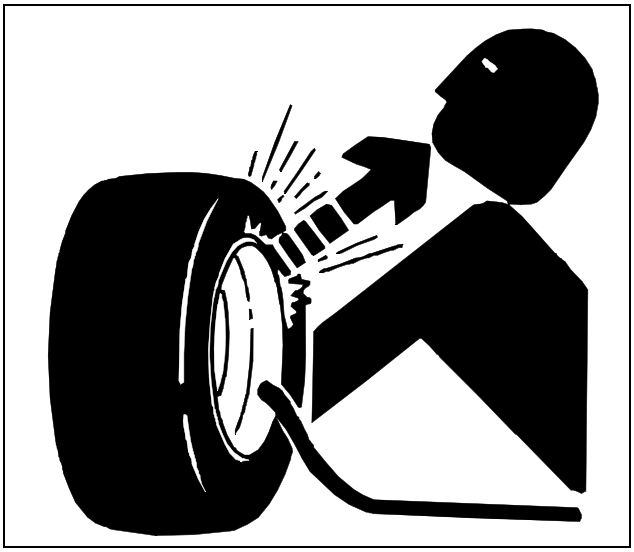
CAUTION: Explosive separation of a tire and rim parts can cause serious injury or death:

- Do not attempt to mount a tire without the proper equipment and experience to perform the job.

- Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

- When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly.

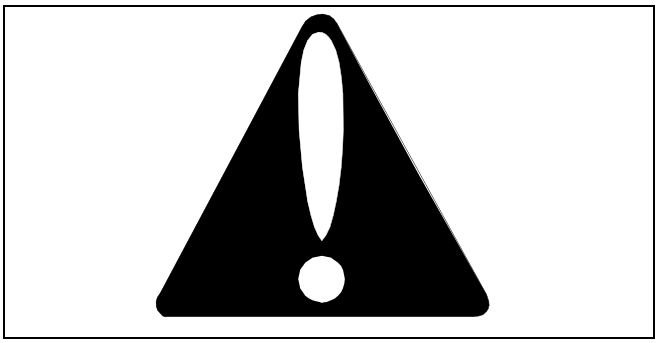
- Check tires for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.



1. Check tires for damage.
2. Check tire pressure with an accurate gauge.
3. Add or remove air, if necessary:

Tire Size	Pressure-kPa (psi)
Front: 15-Inch	97 kPa (14 psi)
Rear: 20-Inch	69 kPa (10 psi)

Safety-Alert Symbol



Read and recognize safety information. Be alert to the potential for personal injury when you see this safety-alert symbol.

On your machine safety labels, the words DANGER, WARNING, and CAUTION are used with this safety-alert symbol. DANGER identifies the most serious hazards.

In this manual, the word CAUTION and this symbol call attention to safety messages.

Certification

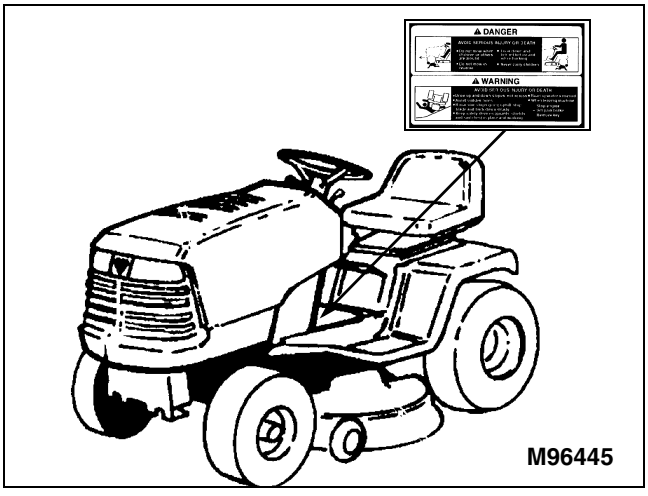
Your mower has been certified by an independent laboratory for compliance with American National Standard B-71.1-1996, “Safety Specifications” for Power Lawn Mowers, Lawn and Garden Tractors, and Lawn Tractors.

Machine Safety Labels

DANGER

AVOID SERIOUS INJURY OR DEATH

- Do not mow when children or others are around
- Do not mow in reverse
- Look down and behind before and while backing
- Never carry children



WARNING

AVOID SERIOUS INJURY OR DEATH

- Drive up and down slopes, not across
- Avoid sudden turns
- If machine stops going uphill, stop blade and back down slowly
- Keep safety devices (guards, shields, and switches) in place and working
- Read operator’s manual
- When leaving machine:

–Stop engine

–Set park brake

–Remove key

SAFETY SIGNS

DANGER/POISON

SHIELD EYES.

EXPLOSIVE GASES CAN CAUSE BLINDNESS OR INJURY.

NO

- SPARKS
- FLAMES
- SMOKING

SULFURIC ACID CAN CAUSE BLINDNESS OR SEVERE BURNS

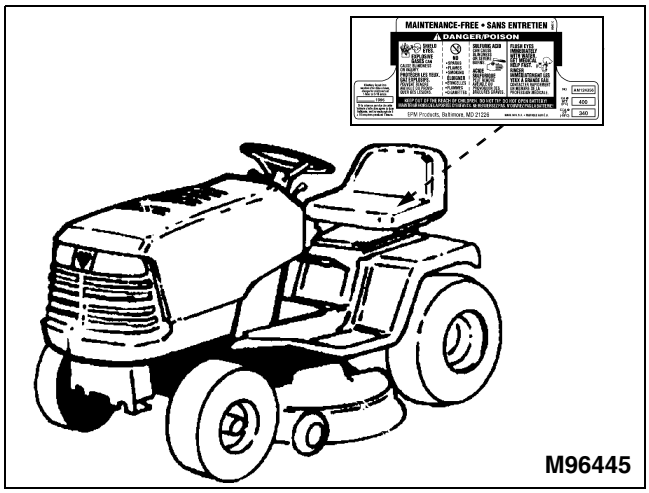
FLUSH EYES IMMEDIATELY WITH WATER.

GET MEDICAL HELP FAST.

MAINTENANCE-FREE

KEEP OUT OF THE REACH OF CHILDREN. DO NOT TIP. DO NOT OPEN BATTERY!

Picture Note: Located on Battery under seat



DANGER

ROTATING BLADE

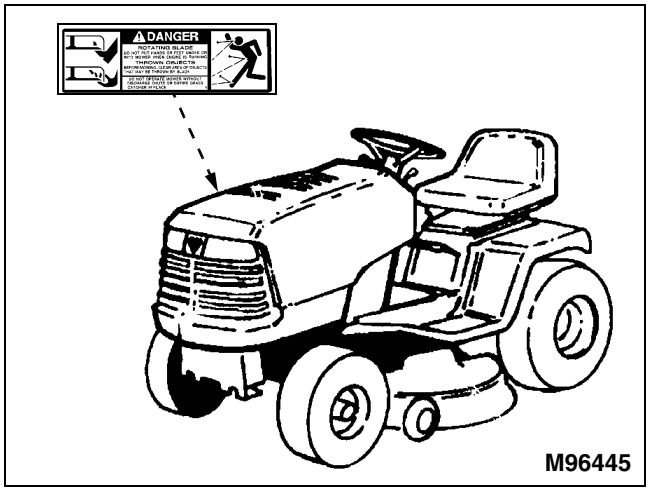
DO NOT PUT HANDS OR FEET UNDER OR INTO MOWER WHEN ENGINE IS RUNNING

THROWN OBJECTS

BEFORE MOWING, CLEAR AREA OF OBJECTS THAT MAY BE THROWN BY BLADE

DO NOT OPERATE MOWER WITHOUT DISCHARGE CHUTE OR ENTIRE GRASS CATCHER IN PLACE

Picture Note: Located on Right-Hand side of deck

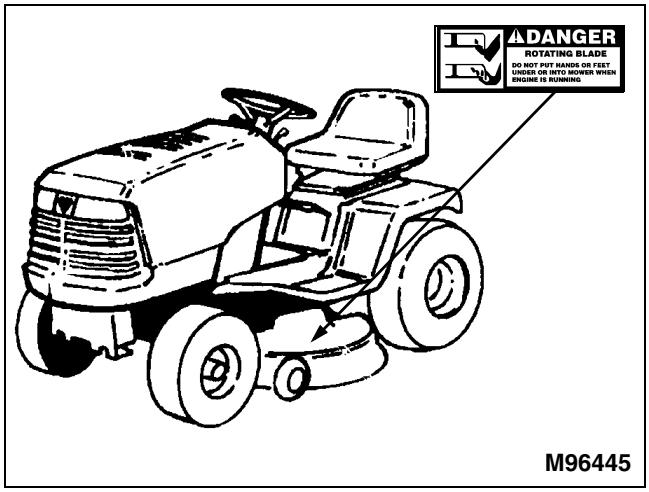


DANGER

ROTATING BLADE

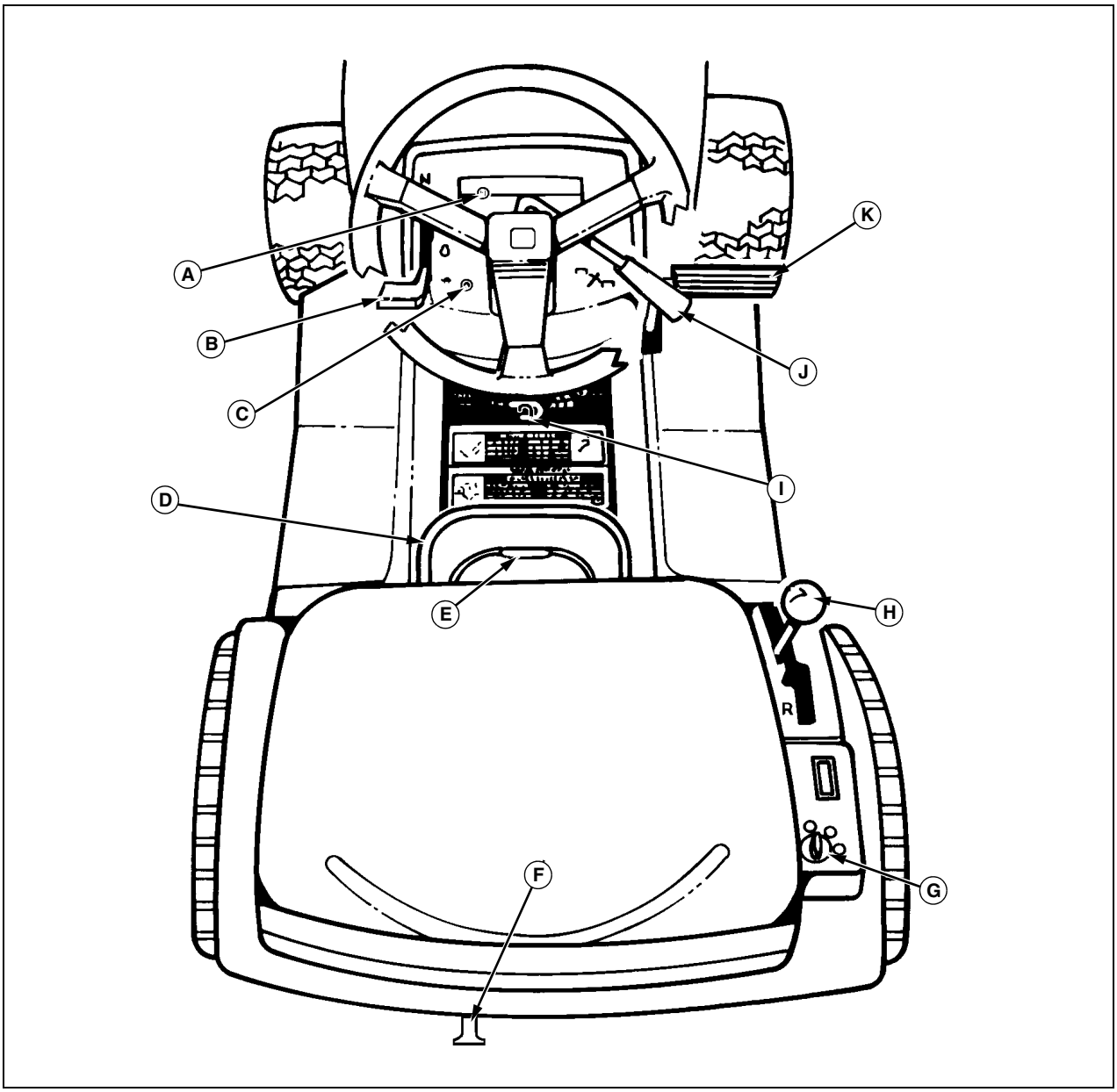
DO NOT PUT HANDS OR FEET UNDER OR INTO MOWER WHEN ENGINE IS RUNNING

Picture Note: Located on Left-Hand side of deck

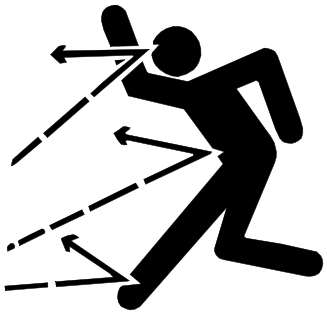


Tractor Controls

A - Choke Knob (V-Twin)
B - Throttle/Choke Control (Single Cylinder)
Throttle Control (V-Twin)
C - Reverse Implement Option Switch
D - Attachment Lift Lever
E - Locking Lever
F - Free Wheeling Knob (Automatic Only)
G - Ignition Switch
H - Transmission Shift Lever
I - Park Brake
J - PTO Drive Lever
K - Foot Pedal
Gear: Brake/Clutch
Automatic: Brake/Return to Neutral



Operate Safely

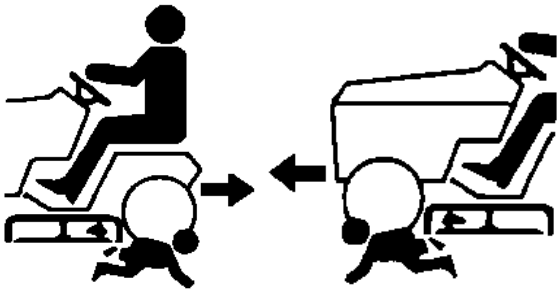


- In addition to reading your Operator's Manual, view your Mowing Safety Video.
- Check brake action before you operate. Adjust or service brakes as necessary.
- Inspect machine before you operate. Be sure hardware is tight. Repair or replace damaged, badly worn, or missing parts. Be sure guards and shields are in good condition and fastened in place. Make any necessary adjustments before you operate.
- Clear work area of objects that might be thrown. Keep people and pets out of the work area. Stop machine if anyone enters the area.
- If you hit an object, stop the machine and inspect it. Make repairs before you operate. Keep machine and attachments properly maintained and in good working order.
- DO NOT leave machine unattended when it is running.
- Only operate during daylight or with good artificial light.
- Be careful of traffic when operating near or crossing roadways.
- Do not wear radio or music headphones while operating the machine. Safe operation requires your full attention.

Park Safely

- Stop machine on a level surface, not on a slope.
- Disengage mower blades.
- Lower attachments to the ground.
- Engage park brake.
- STOP engine.
- Remove key.
- Before you leave the operator's seat, wait for engine and all moving parts to STOP.

Rotating Blades are Dangerous - Protect Children and Prevent Accidents



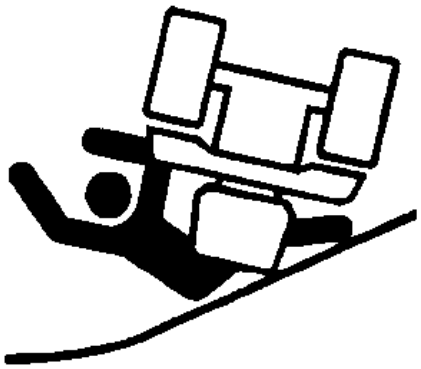
PROTECT CHILDREN:

- Never assume that children will remain where you last saw them. Children are attracted to mowing activity, stay alert to the presence of children.
- Keep children in the house when you are operating the machine.
- Turn machine off if a child enters the mowing area.
- Use extra care when you come to blind corners, shrubs, trees, or other objects that may block your vision.
- DO NOT let children or an untrained person operate the machine.
- DO NOT carry or let children ride on machine or any attachment. DO NOT tow children in a cart or trailer.

HELP PREVENT SERIOUS OR FATAL ACCIDENTS:

- Be alert at all times, drive forward carefully. People especially children can move quickly into the mowing area before you know it.
- Back carefully. Disengage mower blades and look behind the machine carefully, especially for children, before you back up.
- DO NOT mow in reverse unless it is absolutely necessary.
- Disengage mower blades when you are not mowing.
- DO NOT operate machine if you are under the influence of drugs or alcohol.

Avoid Tipping

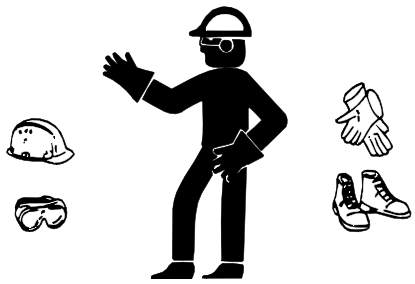


- DO NOT drive where machine could slip or tip.
- Stay alert for holes and other hidden hazards in the terrain.
- Keep away from drop-offs.
- Slow down before you make a sharp turn or operate on a slope.
- When pulling loads or using heavy equipment, use only approved hitches, limit loads to those you can safely control, and use counterweights or wheel weights when required per this manual or your attachment manual.
- Drive up and down a hill—not across. Be careful when you change direction on a slope.
- DO NOT stop when going up hill or down hill. If machine stops going up hill, DISENGAGE mower blades and back down slowly.
- DO NOT mow wet grass. Reduced traction could cause sliding.
- DO NOT try to stabilize the machine by putting your foot on the ground.

Keep Riders Off

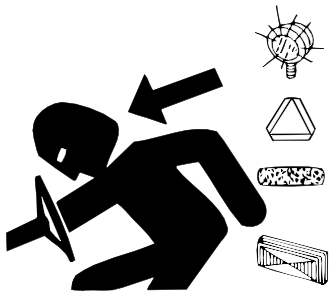
- Only allow the operator on the machine. Keep riders off.
- Riders on the machine or attachment may be struck by foreign objects or thrown off the machine causing serious injury.
- Riders obstruct the operator's view resulting in the machine being operated in an unsafe manner.

Wear Appropriate Clothing



- Wear close fitting clothing and safety equipment appropriate for the job.
- Loud noise can cause impairment or loss of hearing, wear a suitable protective device such as earplugs.

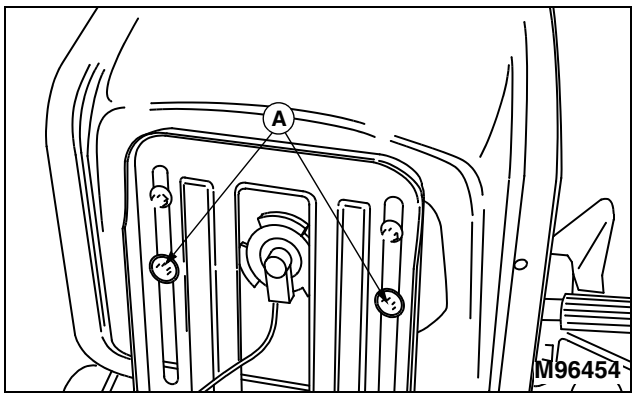
Transport Safely



- Use safety lights and devices. Slow moving machines when driven on public roads are hard to see, especially at night. Avoid personal injury or death resulting from a collision with a vehicle.
- Whenever driving on public roads, use flashing warning lights and turn signals according to local regulations. Extra flashing warning lights may need to be installed.

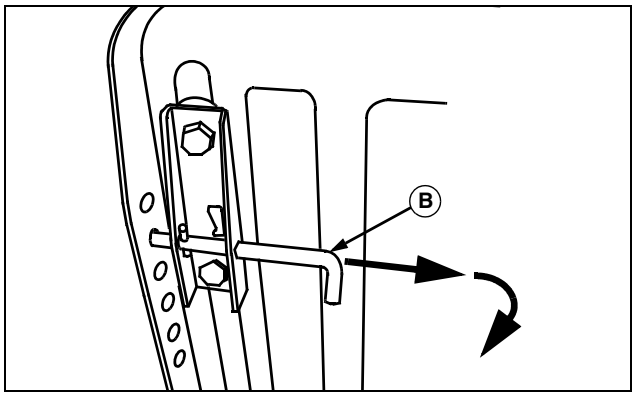
Adjusting Seat

Picture Note: Model with capscrew adjuster used for illustration.



1. Pivot seat forward on its mounting bracket.
2. Loosen two cap screws (A) two turns.
On Model 1846HMS: Loosen two knobs.
3. Slide forward or rearward on mounting bracket to desired position.
4. Tighten cap screws or knobs.
5. Lower seat.

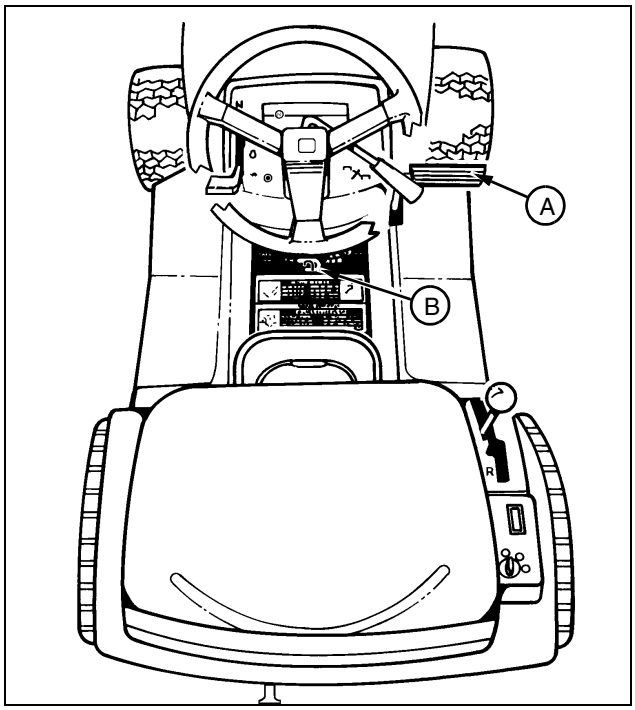
Using Slide Adjuster (46-Inch Deck Units Only)



1. Pivot seat forward on its mounting bracket.
2. Pull pin (B) and rotate pin to the locked position.
3. Slide seat forward or rearward to desired position.
4. Release pin, make sure pin engages in hole in frame.

Using the Park Brake

CAUTION: To avoid injury, always LOCK park brake before getting off tractor or leaving tractor unattended.



LOCKING PARK BRAKE:

1. Push and hold foot pedal (A) all the way down.
2. Move park brake lever (B) forward, then to the left to lock position.
3. Remove foot from pedal. Pedal should not return to the up position.

UNLOCKING PARK BRAKE

1. Push and hold foot pedal (A) all the way down.
2. Move park brake lever (B) to the right, then to the rear.
3. Remove foot from pedal. Pedal should return to the up position.

Starting Engine

CAUTION: Start engine ONLY outdoors or in a well ventilated place. Exhaust fumes are dangerous.

IMPORTANT: Do not operate starter more than 20 seconds at a time, or you may damage it. If engine does not start: Wait two minutes before you try again. See Troubleshooting section.

NOTE: Engine will not start unless: PTO lever is DISENGAGED, park brake is LOCKED or brake pedal pushed down. On GEAR model: The transmission shift lever should be in N (NEUTRAL) position.

1. Move transmission shift lever (A) to N (NEUTRAL) position.

2. Lock the park brake (B).

3. Pull PTO lever (C) all the way back to the rearward (OFF) position.

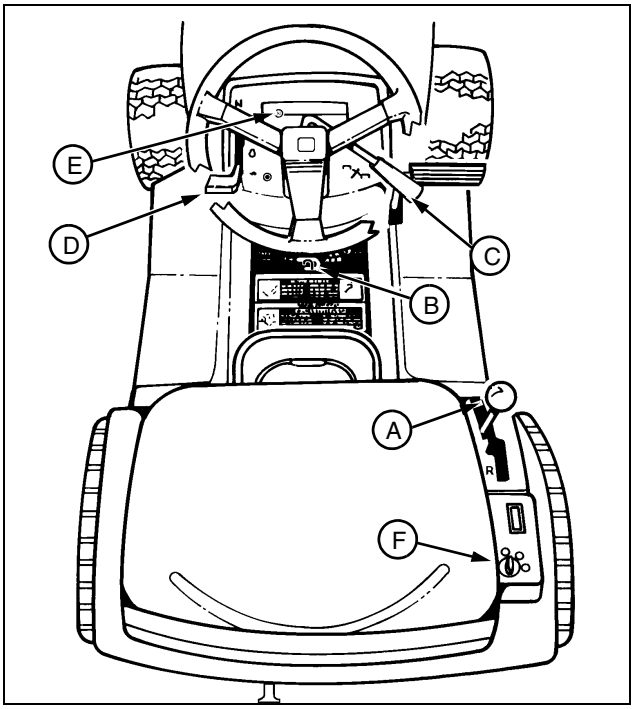
4. To start the engine:

   - Single Cylinder – Place the throttle lever (D) in the CHOKE (k) position. As the engine begins to run smoothly, lower the throttle lever in small steps, allowing the engine to accept changes in speed and load, until the throttle lever is in the FAST (r) position.
   - V-Twin - Place the throttle lever (D) in the FAST (r) position and pull choke knob (E) out. As the engine begins to run smoothly, push the choke knob in until fully seated.

5. Turn ignition key (F) to start position to crank the engine. Crank engine until it starts, but no longer than 5 seconds.

6. If engine starts, release key to run position. If engine does not start, release key to run position and wait 10 seconds before cranking the engine again.

7. Let engine run for a couple of minutes to warm-up before operating tractor.



Using Throttle Control

Always operate the engine at FULL (r)THROTTLE.

Operating the engine at less that full throttle reduces the battery charging rate and reduces fan cooling efficiency of the engine.

Full throttle offers the best bagging and mower performance.

Cold Weather Starting Tips

Always use fresh winter grade fuel.

Do not crank engine for more than 30 seconds in any single attempt.

During first minute of operation engine may be operated in partial choke to allow smoother running. As engine warms slowly reduce engine speed to the full throttle detent position.

On Automatic Transmission

Allow engine to run for a few minutes before using tractor to allow automatic transmission oil to warm. Sluggish transmission response in cold weather indicates that oil has not warmed to allow optimum performance.

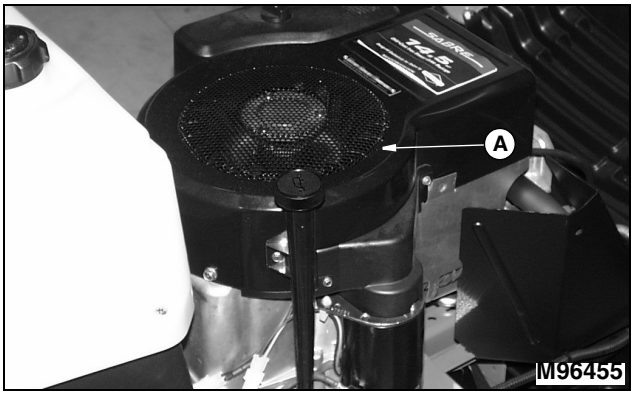
Warming and Idling Engine

WARMING ENGINE:

- Run Engine at half speed for 2–3 minutes.

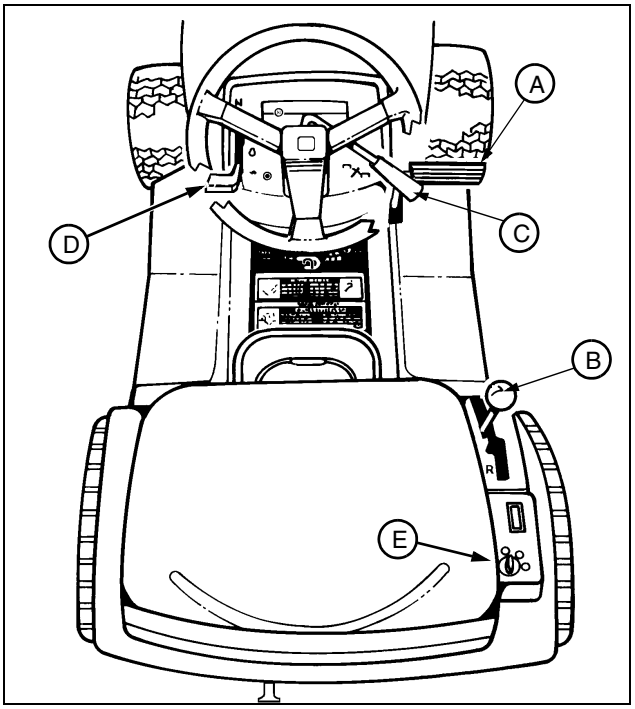
IDLING ENGINE:

- Engine is air-cooled and needs a large volume of air to keep cool. Keep air intake screen (A) on top of engine clean.
- Avoid unnecessary engine idling.



Stopping Engine

1. Push down on foot pedal (A).
2. Put gearshift lever (B) in NEUTRAL (N) position.
3. Pull PTO lever (C) all the way back to the rearward (OFF) position.
4. Move throttle lever (D) to SLOW (🐢) position. Let engine run at low throttle a few seconds.
5. Turn key (E) to OFF position.
6. Remove key.
7. LOCK the park brake.

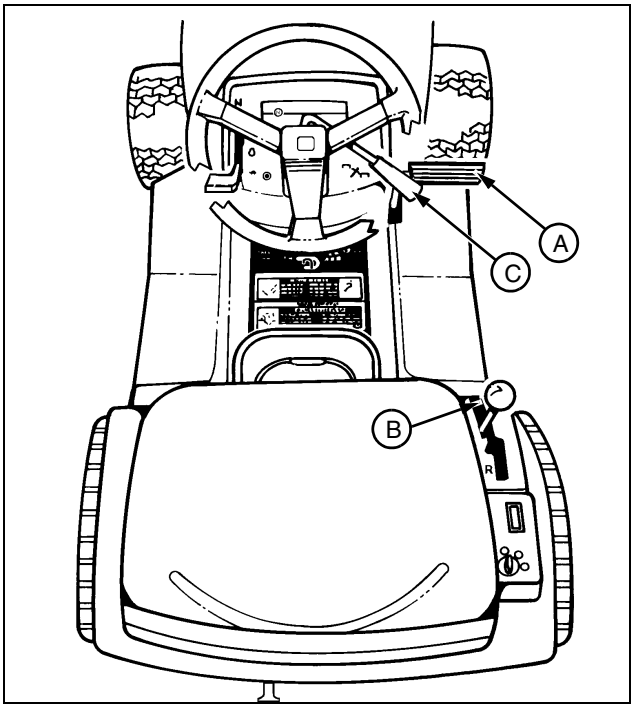


Using and Stopping Gear Transmission

CAUTION: TO AVOID INJURY: • Before moving forward or rearward, make sure area is clear of bystanders, especially children. • Disengage mower or attachment before backing up.

TO TRAVEL FORWARD:

1. Push foot pedal (A) all the way forward to the BRAKE position.
2. Move shift lever (B) to the right and forward to desired FORWARD position.
3. Slowly release foot pedal to engage machine drive.



TO TRAVEL IN REVERSE:

NOTE: **The engine and mower will stop as the shift lever is moved to the R (REVERSE) position with mower engaged.**

1. Push foot pedal (A) all the way down to STOP tractor.
2. Pull PTO lever (C) all the way back to the rearward (OFF) position.
3. Look behind the vehicle to be sure there are no bystanders nearby.
4. Move shift lever (B) to the right and rearward to the R (REVERSE) position.
5. Release foot pedal slowly.

FOR EMERGENCY STOPPING:

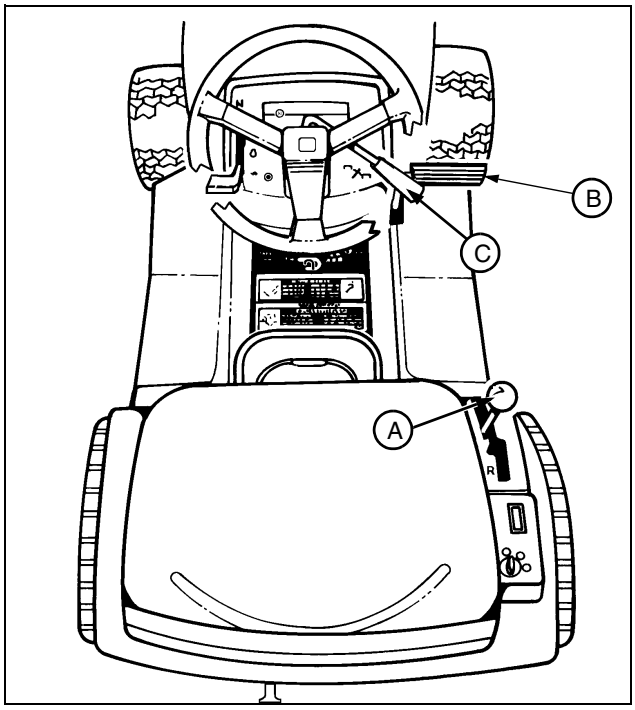
1. Push foot pedal (A) fully to stop machine.

Using and Stopping Automatic Transmission

CAUTION: TO AVOID INJURY: • Before moving forward or rearward, make sure area is clear of bystanders, especially children. • Disengage mower or attachment before backing up.

TO TRAVEL FORWARD:

1. Move transmission shift lever (A) to the right and forward. The speed of the tractor is determined by how far forward the shift lever is moved.



IMPORTANT: To prevent transmission damage, stop tractor movement before changing direction of travel.

TO TRAVEL IN REVERSE:

NOTE: **The engine and mower will stop as the drive lever is moved to the R (REVERSE) position with mower engaged.**

1. Push foot pedal (B) all the way down to STOP tractor.
2. Pull PTO lever (C) all the way back to the rearward (OFF) position.
3. Look behind the vehicle to be sure there are no bystanders nearby.
4. Move transmission shift lever (A) to the right and rearward to the R (Reverse) position.

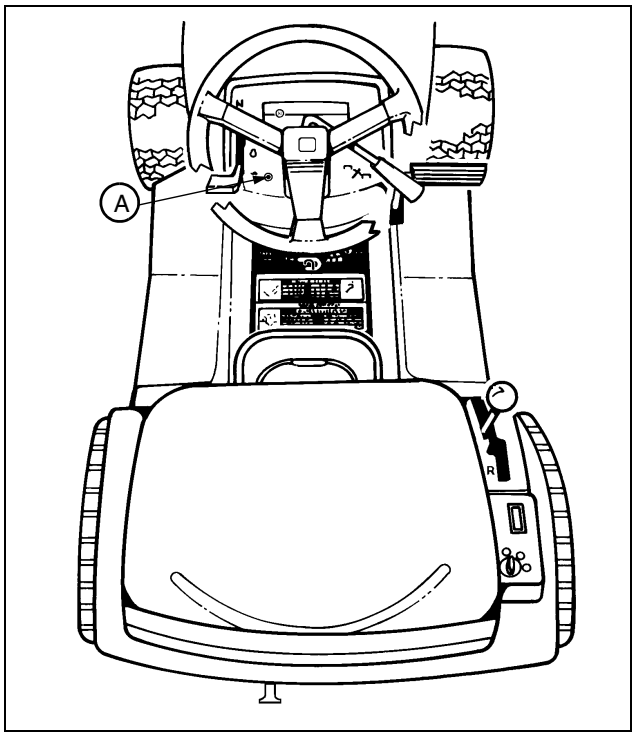
FOR EMERGENCY STOPPING:

1. Push down on foot pedal (B). Transmission shift lever (A) will return to NEUTRAL position.

Using Reverse Implement Option

CAUTION: TO AVOID INJURY: Before moving forward or rearward, make sure area is clear of bystanders, especially children.

NOTE: Operating the mower while backing up is strongly discouraged. The Reverse Implement Option should be used ONLY when operating another attachment or when the operator deems it necessary to reposition the machine with the mower engaged.



1. Stop the machine FORWARD travel with mower engaged.

2. Look behind the vehicle to be sure there are **no bystanders**.

3. Push and hold in the reverse implement switch (A) while:

- moving drive lever to the rear for Automatic Transmission
  OR
- moving the gear shift lever to the R (REVERSE) position for Gear Transmission.

NOTE: If the engine and mower stop while repositioning the machine, return mower engagement lever to the OFF position and restart the machine. (See Starting The Engine in this section.) Begin again with Step 2.

4. As the machine begins to move rearward, release the reverse implement switch and reposition the machine.

5. Resume FORWARD travel. The mower should continue operating.

6. Repeat Steps 1 through 5 to reposition the machine again.

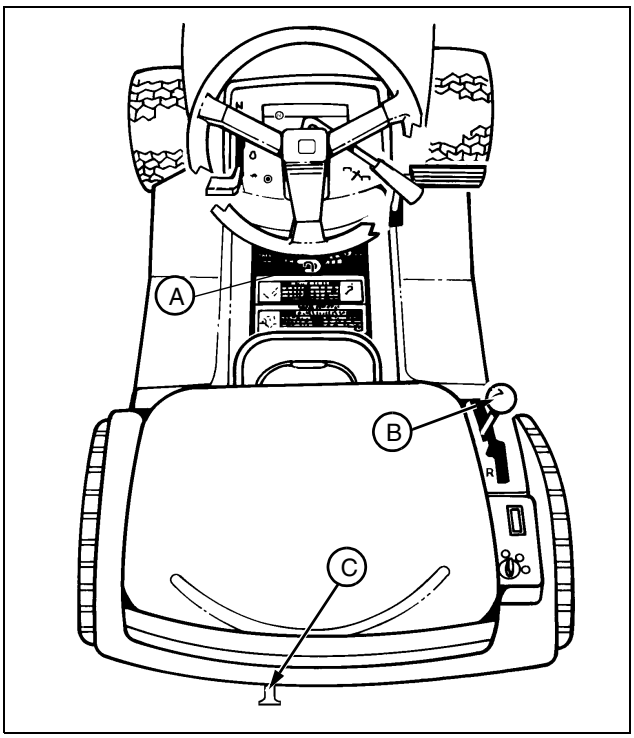
Pushing Machine

IMPORTANT: Avoid transmission damage, DO NOT tow machine.

To move machine when engine is STOPPED:

- Unlock the park brake (A).
- GEAR MODEL: Put transmission shift lever (B) in N (Neutral).
- AUTOMATIC MODEL: Pull out on free-wheeling lever (C).
- Push machine to desired location.

NOTE: AUTOMATIC MODEL: Push free-wheeling lever (C) IN before operating tractor.



Daily Operating Checklist

- Test safety systems.
- Check tire pressure.
- Check fuel level.
- Check engine oil level.
- Remove grass and debris from machine.

Testing Safety Systems

CAUTION: Engine exhaust fumes can cause sickness or death.

If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.

Use the following checkout procedure to check for normal operation of machine.

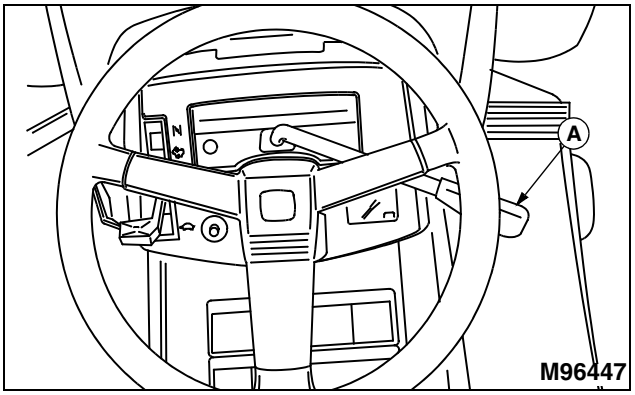
If there is a malfunction during one of these procedures, DO NOT operate machine. (See your Authorized Service Center for service.)

Perform these tests in a clear open area. Keep bystanders away .

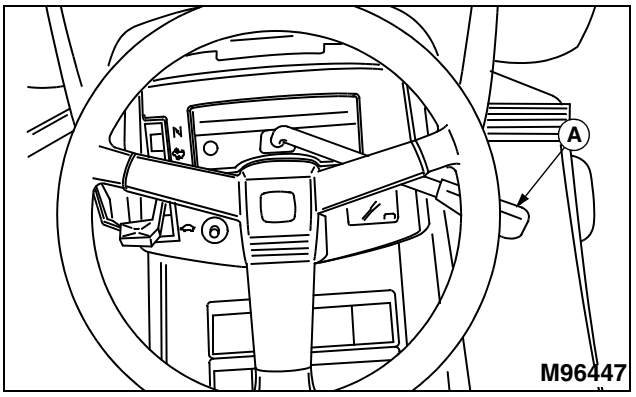
NOTE: **Your Lawn Tractor is equipped with a ELECTRONIC SAFETY INTERLOCK. Engine will not start unless: PTO lever is DISENGAGED. Brake pedal is depressed OR parking brake is set.**

Test 1

1. Operator on seat.
2. Unlock the park brake.
3. Pull PTO lever (A) back to DISENGAGE.
4. Try to start engine.
5. Engine MUST NOT start. If engine starts, there is a problem with your safety interlock circuit. (See your Authorized Service Center.)

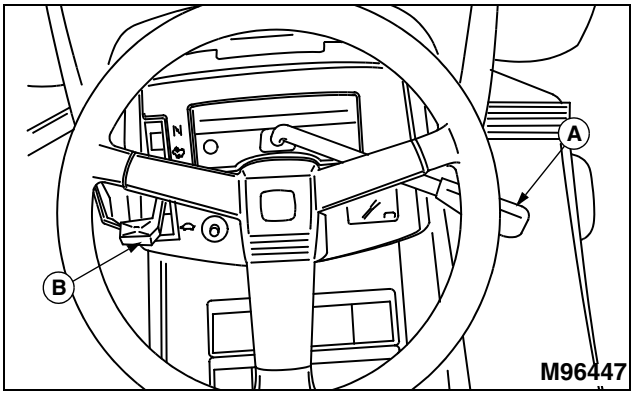


Test 2



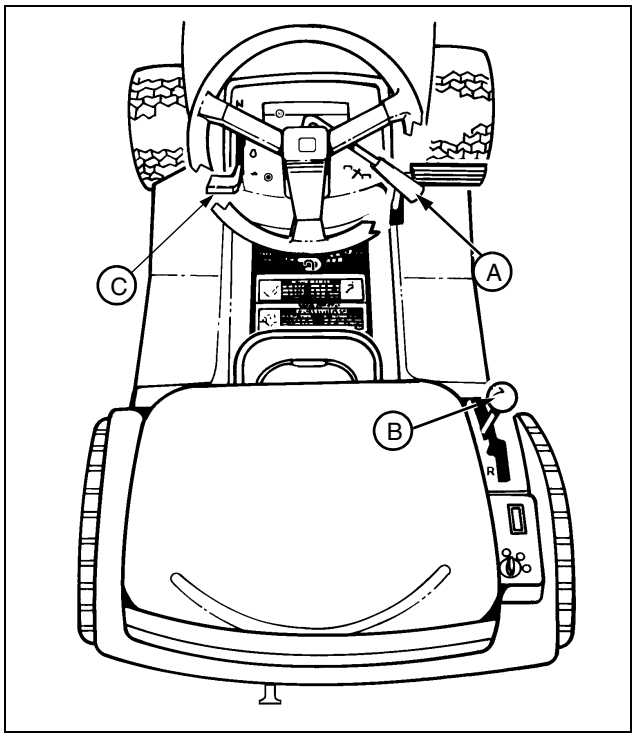
1. Operator on seat.
2. Lock the park brake.
3. Push PTO lever (A) forward to ENGAGE.
4. Try to start engine.
5. Engine MUST NOT start. If engine starts, there is a problem with your safety interlock circuit. (See your Authorized Service Center.)

Test 3



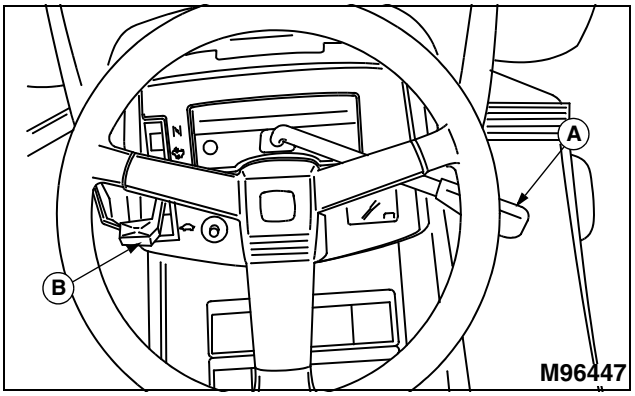
1. Operator on seat.
2. Lock the park brake.
3. Pull PTO lever (A) back to DISENGAGE.
4. Start engine and move throttle lever (B) to HALF-SPEED (R) position.
5. Push PTO lever (A) forward to ENGAGE.
6. Move throttle lever to FAST (r) speed position.
7. Raise up off of seat. DO NOT get off tractor.
8. Engine will begin to stop. If engine does not begin to stop, there is a problem with your safety interlock circuit. (See your Authorized Service Center.)

Test 4



1. Operator on seat.
2. Push brake pedal down.
3. Pull PTO lever (A) back to DISENGAGE.
4. Put transmission shift lever (B) in N (NEUTRAL) position.
5. Start engine and move throttle lever (C) to FAST (r) speed position.
6. Release brake slowly.
7. Raise up off of seat. DO NOT get off tractor.
8. Engine will begin to stop. If engine does not begin to stop, there is a problem with your safety interlock circuit. (See your Authorized Service Center.)

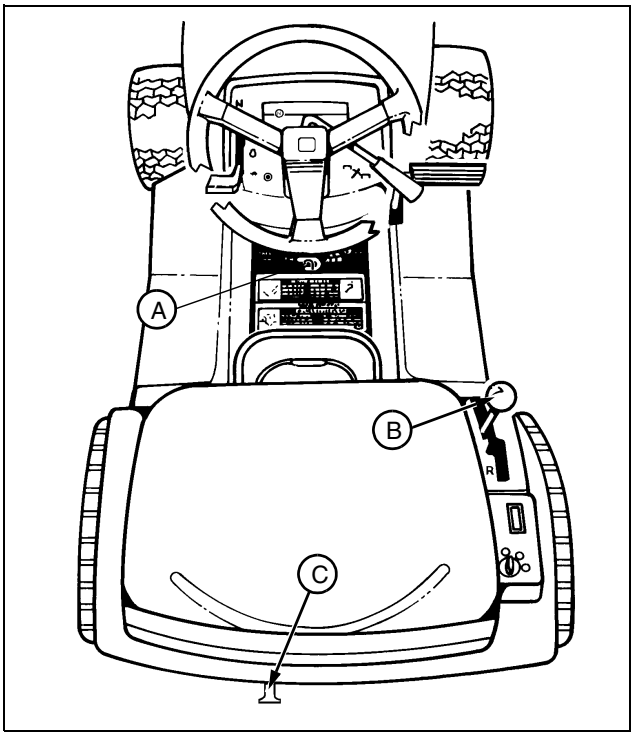
Test 5



1. Operator on seat.
2. Lock the park brake.
3. Pull PTO lever (A) back to DISENGAGE.
4. Start engine and move throttle lever (B) to FAST (r) speed position.
5. Raise up off of seat. DO NOT get off tractor.
6. Engine MUST remain running. If engine does stop, there is a problem with your safety interlock circuit. (See your Authorized Service Center.)

Test 6

IMPORTANT: On Automatic Transmission Models: Do Not operate tractor or start engine with the free-wheeling lever (C) out or transmission damage may occur.



1. Lock the park brake (A).

2. On Gear Models: Put transmission shift lever (B) in N (Neutral).

On Automatic Models: Pull out free- wheeling lever (C) to unlock.

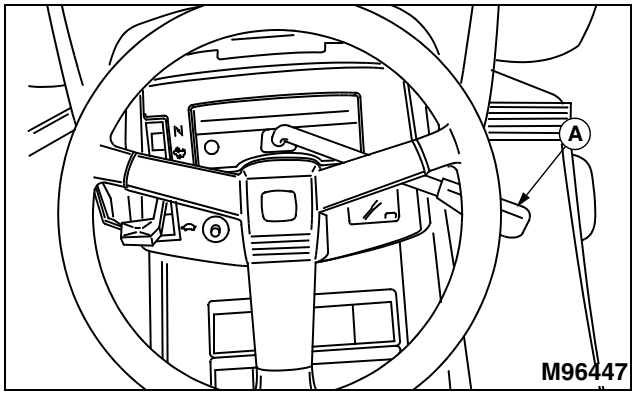
3. Try to push machine manually.

4. Park brake MUST prevent machine from moving. If machine moves, parking brake needs to be adjusted. (See your Authorized Service Center.)

5. On Automatic Models: Push free-wheeling lever back in.

Test 7

CAUTION: TO AVOID INJURY: Before moving rearward, make sure area is clear of bystanders, especially children.



Test Reverse Implement Option:

1. Start engine.

2. Push PTO lever (A) forward to ENGAGE.

3. Look behind the vehicle to be sure there are no bystanders.

4. Begin REVERSE travel by moving the drive lever for Automatic Model or gear shift lever for Gear Model to R (REVERSE) position.

Mower and engine should stop operation. If mower or engine continues to operate as tractor begins travel in REVERSE, do not continue to operate mower. (See your Authorized Service Center for service.)

Avoid Damage to Plastic and Painted Surfaces

- DO NOT wipe plastic parts unless rinsed first. (See Correct Cleaning Care in Service-Miscellaneous section.)
- Insect repellent spray may damage plastic and painted surfaces. Do not spray insect repellent near machine.
- Be careful not to spill fuel on machine. Fuel may damage surface. Wipe up spilled fuel immediately.

Avoid Using Ground Engaging Equipment

IMPORTANT: This tractor is NOT intended for use with ground engaging equipment. Use of such equipment could result in damage to transmission components.

This tractor is not intended for use with ground engaging equipment such as a rear tiller, disk, blade or plow.

Using Front Weights

CAUTION: Tractor front wheel weights improve stability in most slope operation. To avoid injury, add front wheel weights for better front-end stability and steering when using a rear mounted attachment.

Install front wheel weights, two required, for better stability and steering control when you use equipment such as the rear-mounted grass bagger or dumpcart.

See your Authorized Service Center for Front Weights.

Remove front wheel weights when not required.

Using Rear Wheel Weights

Use of rear wheel weights is recommended for improved traction when an attachment, such as snowthrower or blade is used.

See your Authorized Service Center for Rear Weights.

Using Tire Chains

Tire chains are recommended for use with snowthrower and, under certain conditions, the front blade.

See your Authorized Service Center for Tire Chains.

Transporting

Do not tow machine.

Use a heavy-duty trailer to transport your machine.

Raise mower deck to highest position when transporting to trailer.

Disengage PTO.

Drive forward onto trailer.

Lower mower or any attachment to trailer deck.

LOCK park brake.

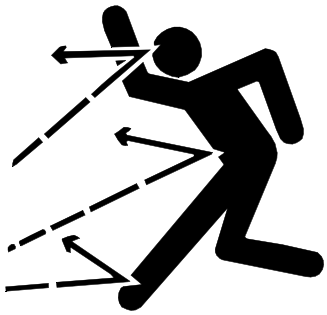
Be sure trailer has all the necessary lights and signs required by law.

Fasten machine to trailer with heavy-duty straps, chains, or cables. Both front and rear straps must be directed down and outward from tractor.

Operate Mower Safely

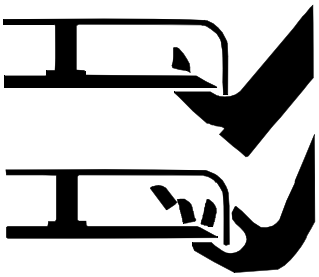
- In addition to reading your Operator's Manual, view your Mowing Safety Video.

Check Ground Conditions



- Clear mowing area of objects that might be thrown. Keep people and pets out of mowing area.
- Study mowing area. Set up safe mowing pattern. Do not mow under conditions where traction or stability is doubtful.
- First, test drive area with PTO lever DISENGAGED and mower lowered. Slow down when you travel over rough ground.

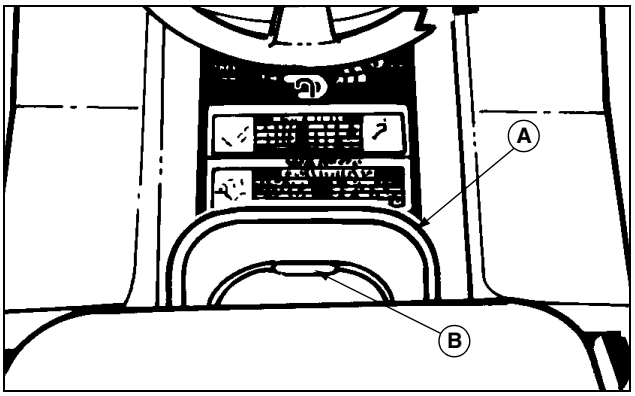
Avoid Injury From Contacting Blades



Before you dismount to unplug or adjust mower:

- DISENGAGE PTO lever to stop mower blades.
- STOP the engine.
- LOCK the park brake.
- Remove key.
- Wait for mower blades to STOP.
- Keep hands, feet and clothing away from mower deck when engine is running.
- DISENGAGE PTO lever to stop mower blades when you are not using mower.

Using Lift Lever to Raise and Lower Mower



1. Push down on lift lever (A) slightly and hold locking lever (B) down with thumb.
2. Move lift lever (A) DOWN to LOWER mower or UP to RAISE mower.
3. Release locking lever lock (B) to keep lift lever (A) in position.

Adjusting Cutting Height

Cutting height can be adjusted from 38 – 102 mm (1-1/2 – 4 in).

Check tractor tire pressure. (See Checking Tire Pressure in Service Miscellaneous section.)

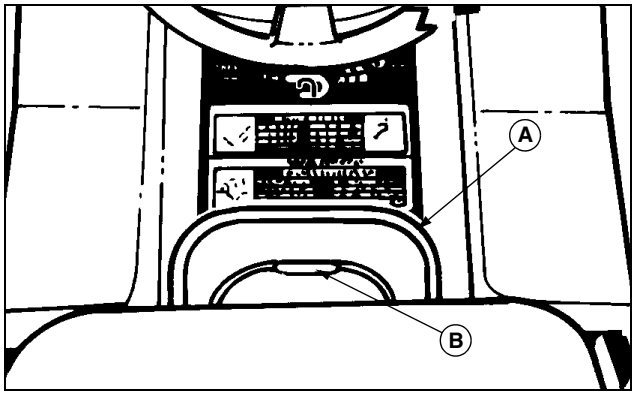
To adjust cutting height:

1. Push down on lift lever (A) slightly and hold locking lever (B) down with thumb.

1. Move lift lever (A) to desired cutting height.

2. Release locking lever (B) to keep lift lever (A) in position.

2. Adjust gage wheels to match cut height desired. (See Adjusting Mower Gage Wheels below.)



Adjusting Mower Gage Wheels

CAUTION: To avoid injury, before you adjust gage wheels: STOP engine, remove key, and wait for blades to STOP.

IMPORTANT: Mower gage wheels must not ride on ground to support mower weight. Adjust gage wheels each time you change cutting height.

1. Check tractor tire pressure. Inflate tires to the correct pressure. (See Checking Tire Pressure in Service - Miscellaneous section.)

2. Raise mower lift lever to TRANSPORT (upper) position and adjust cutting height. (See Adjusting Cutting Height in this section.)

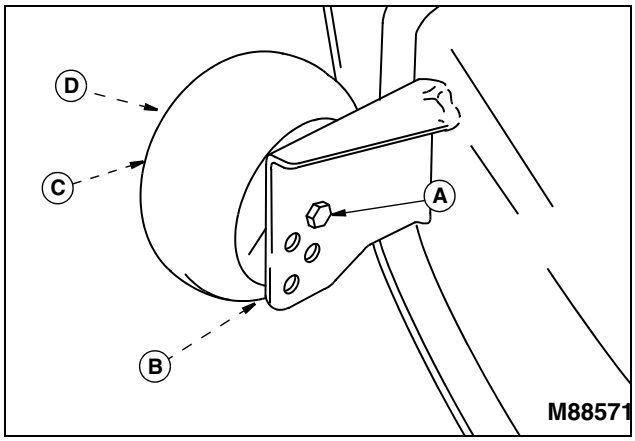
3. Remove bolt (A), bushing (B), washer (C), and nut (D).

4. Move lift lever down to desired MOWING position.

5. Move mower gage wheels, one on each side, to one of four holes for desired position. On 46-Inch Mower Deck, move front and rear gage wheels.

6. Bottom of gage wheels should be approximately 6-13 mm (1/4-1/2 in) from the ground when properly adjusted.

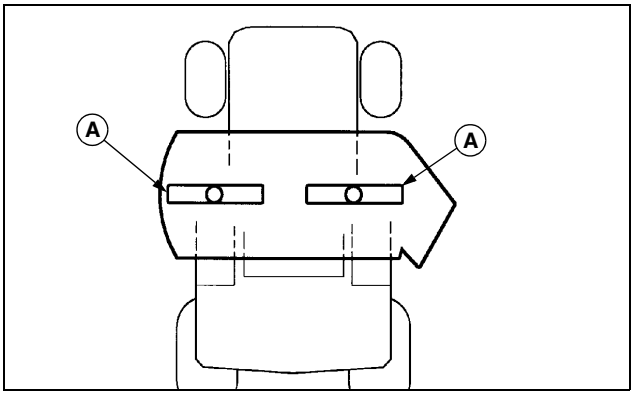
7. Install bolt and tighten with nut.



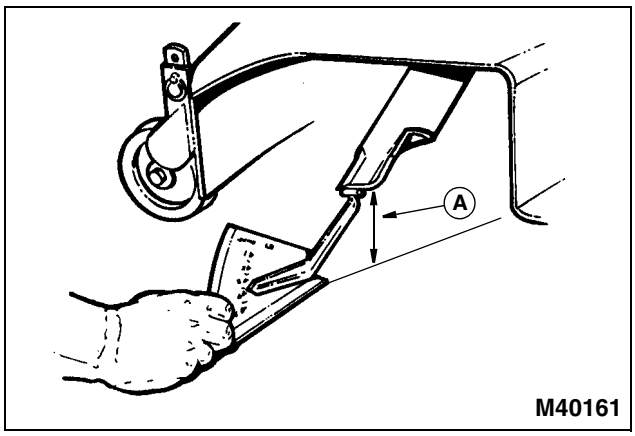
Adjusting Mower Level (Side-to-Side)

CAUTION: To avoid injury, before you adjust mower: STOP engine, remove key, and wait for blades to STOP.
Be careful, sharp edges on mower blades. Always wear gloves when handling mower blades.

NOTE: A deck leveling gauge (Part Number TY15272) to aid in deck leveling may be obtained through your local SABRE Service Center at a nominal cost.

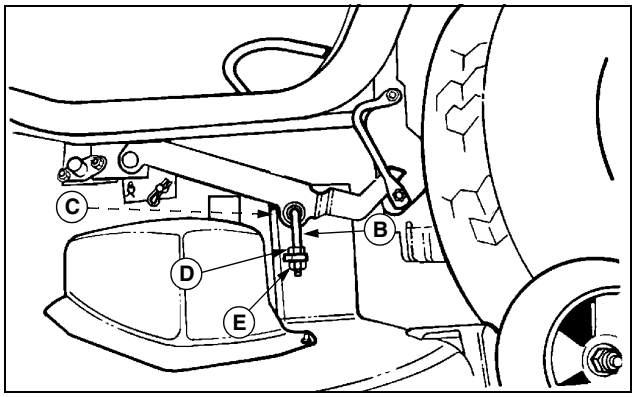


1. Park tractor on a hard, level surface.
2. Stop engine and remove key.
3. CHECK: Tire pressures must be correct. (See Checking Tire Pressure in Service – Miscellaneous section.)
4. Adjust cutting height to middle position.
5. Turn left blade parallel to tractor axle. Hold drive belt and turn right blade parallel to axle.
6. Measure from each outside blade tip (A) to the level surface. The difference between measurements must not be more than 3 mm (1/8 in).



NOTE: Adjustable J-bolts (B) are on both sides of mower. For minor side-to-side adjustments, do not alter factory preset of right hand side J-bolt. Reset left hand side J-bolt to obtain proper side-to-side adjustment.

7. Loosen top clamping nut (C) facing inside of mower, on left hand side J-bolt (B), approximately one turn.
8. Loosen upper adjusting nut (D).
9. Raise or lower left side of deck.
   - To raise: Turn lower adjusting nut (E) towards rear of tractor.
   - To lower: Turn lower adjusting nut (E) towards front of tractor.
10. Tighten upper adjusting nut.
11. Tighten clamping nut.
12. Check side-to-side measurements and readjust if necessary.



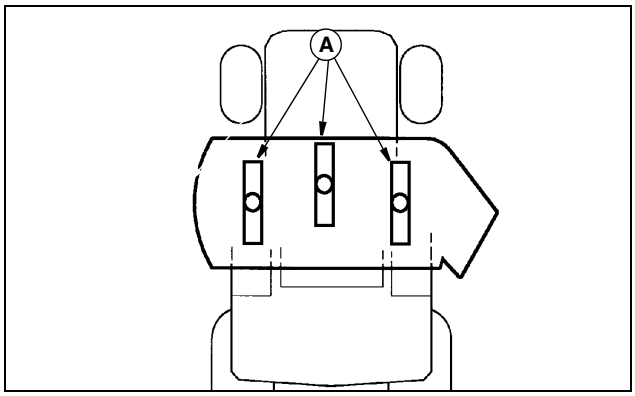
Adjusting Mower Level (Front-to-Rear)

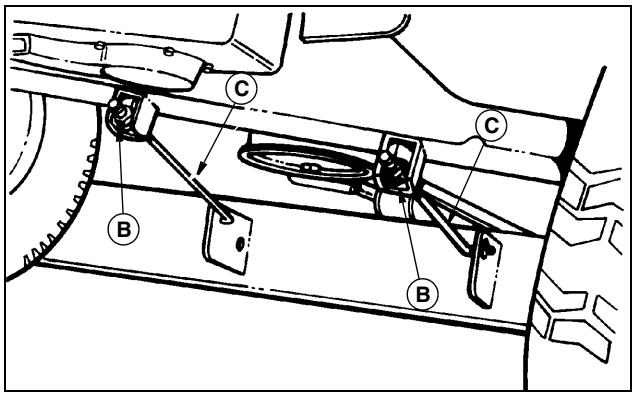
CAUTION: To avoid injury, before you adjust mower: STOP engine, remove key, and wait for blades to STOP.

Be careful, sharp edges on mower blades. Always wear gloves when handling mower blades.

IMPORTANT: Make sure each front draft rod is equally tensioned. The installed rods should exhibit identical amounts of movement between left and right rods. If one rod moves more freely than the other, the adjustment nut should be tightened until the movement of the assembly matches that of the other side.

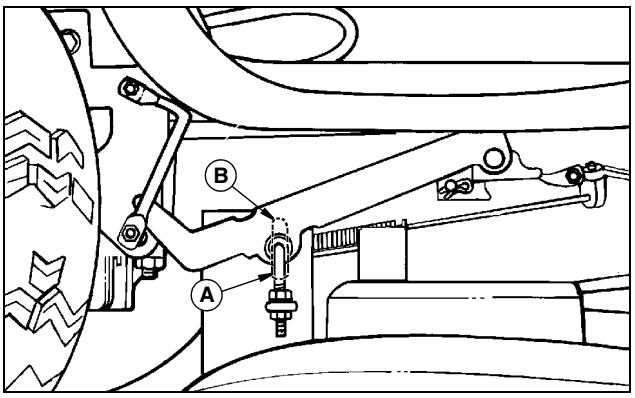
1. Park tractor on a hard, level surface.
2. Stop engine and remove key.
3. CHECK: Tire pressure must be correct. (See Checking Tire Pressure in Service – Miscellaneous section.)
4. Turn blades so front blade tips (A) point straight forward.
5. Measure from the front of each blade tip to the level surface. The front blade tips must be 6–9 mm (1/4–3/8 in.) lower than rear blade tips or blades will cut grass twice and grass tips will turn brown.
6. Turn nuts (B) on front draft rods (C) equally until adjustment is correct. Turn nut clockwise to RAISE front of mower deck or counterclockwise to LOWER front of mower deck.
7. Check front-to-rear deck measurements and readjust if necessary.





Adjusting Suspension

NOTE: Normal settling of the deck suspension after years of use may cause cut height range to shift downward. This may be readjusted by resetting the right hand J-bolt adjuster. Adjustments are easier to make in the lowest cutting position, while the 110 mm (4.25 in) dimension should be measured in the highest cutting position.



1. Loosen right hand side J-bolt (A) and move bolt downward in slot (B) on right hand side of mower deck bracket so the right hand rear blade tip is about 110 mm (4.25 in) from ground in the highest deck setting.

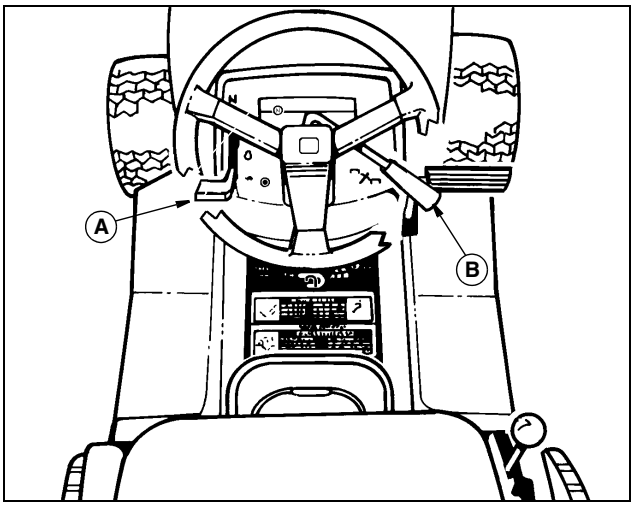
2. Retighten right hand J-bolt nuts securely in slot.

3. Repeat sequences described for minor adjustments detailed in Adjusting Mower Level (Side-to-Side) and Adjusting Mower Level (Front-to-Rear) in this section.

Engaging and Disengaging Mower

IMPORTANT: Operate engine at maximum speed when mowing or after mower blade is engaged. Machine may require 2–3 minutes warm-up period before engaging the mower deck.

Engaging Mower



1. START engine.

2. Move throttle lever (A) to the FAST (🐇) position.

3. Lower mower to cutting height.

4. Push PTO drive lever (B) forward to ENGAGE mower blades.

NOTE: The engine and mower will stop as the drive lever is moved rearward (Automatic Model) or the gear shift lever is moved to the R (REVERSE) position (Gear Model) with mower engaged.

5. Disengage PTO before shifting to REVERSE.

Disengaging Mower

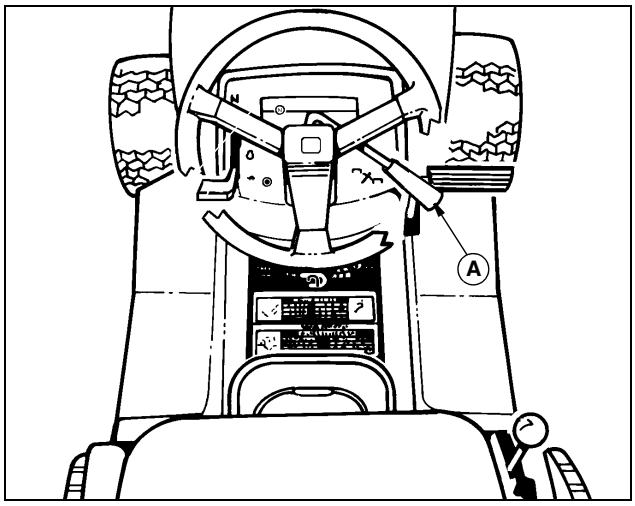
1. Pull PTO drive lever (A) back to DISENGAGE mower blades.

2. If you hit an object with mower while mowing, STOP mower and engine immediately. Inspect mower for damage.

Dismounting to Inspect or Unplug Mower or Optional Bagger

CAUTION: To help prevent personal injury, do the following steps before you dismount to inspect or unplug mower or bagger.

1. STOP machine.
2. Pull PTO drive lever (A) back to DISENGAGE mower blades.
3. Move throttle lever to SLOW (t) position.
4. Lower mower to the ground.
5. LOCK park brake.
6. STOP engine.
7. Remove key.
8. Wait for all moving parts to STOP.



REPLACEMENT PARTS

WE RECOMMEND JOHN DEERE quality parts and lubricants, available at your Authorized Service Center.
PART NUMBERS MAY CHANGE, use part numbers listed below when you order. If a number changes, your dealer will have the latest number.

WHEN YOU ORDER PARTS, your Authorized Service Center needs your machine serial number and engine serial number. These are the numbers that you have recorded on the inside front cover of this manual.

Parts for Tractor

ITEM	Tractors with 14, 14.5, 15, and 15.5 hp	Tractors with 16 hp	Tractors with 18V-Twin Vanguard	Tractors with 18V-Twin Intek
Air Cleaner Elements: Foam Paper	 LG272403S LG496894S	 LG272403S LG496894S	 LG272490S LG394018S	 LG691016 LG691007
Fuel Filter	AM38708	AM38708	LG691035	LG691035
Oil Filter	N/A	LG491056	AM125424	LG691041
Battery	TY21752	TY21752	TY21752	TY21752
Spark Plug	M78543 - Champion RC12YC	M78543 - Champion RC12YC	M78543 - Champion RC12YC	M78543 - Champion RC12YC
Fuse-15 amp	99M7065	99M7065	99M7065	99M7065
Headlight Bulb	AM106153	AM106153	AM106153	AM106153

Parts for Mower Decks

ITEM	38-Inch Deck	42-Inch Deck	46-Inch Deck
Blades: Standard Bagger Mulch	 GX00166 M83459 or GX00166 M112991 or GX00166	 M139802 M139803 M139802 or M139803	 M127466 N/A M119232
Mower Drive Belts	GX10064	M124895 (Single Cylinder Engine) or (Twin Cylinder Engine)	GX10063 (Single Cylinder Engine) GX10176 (V-Twin Engine)
Leveling Gauge	TY15272	TY15272	TY15272

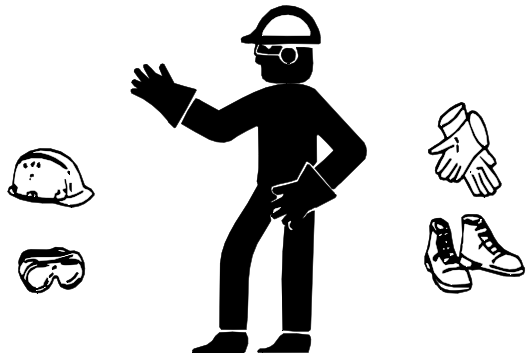
(Part numbers are subject to change without notice. Part Numbers may be different outside the U.S.A.)

If you would like a copy of the Parts Catalog for this machine, please use the Order Form in the SERVICE LITERATURE section.

Practice Safe Maintenance

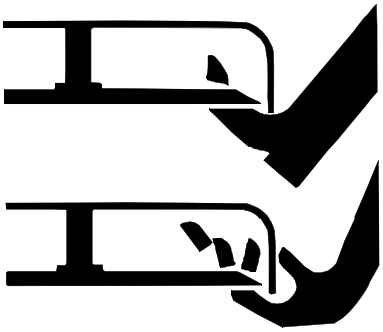
- Understand service procedure before doing work. Keep area clean and dry.
- Never lubricate, service, or adjust machine while it is moving. Keep safety devices in place and in working condition. Keep hardware tight.
- To prevent them from getting caught, keep hands, feet, clothing, jewelry, and long hair away from any moving parts.
- Before servicing machine, disengage all power and stop the engine. Lock park brake and remove the key. Let engine cool.
- Securely support any machine elements that must be raised for service work.
- Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.
- Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.
- Unauthorized modifications to the machine may impair its function and safety.

Wear Appropriate Clothing



- Wear close fitting clothing and safety equipment appropriate for the job.
- Loud noise can cause impairment or loss of hearing, wear a suitable protective device such as earplugs.
- Do not wear radio or music headphones while servicing the machine. Safe service requires your full attention.

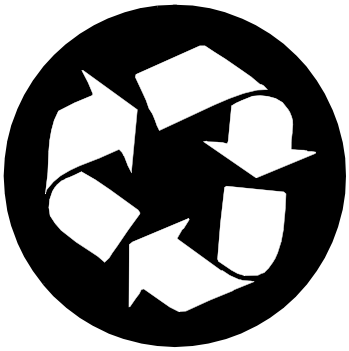
Avoid Injury From Contacting Blades



Before you unplug or adjust machine:

- STOP the engine.
- Remove key.
- Wait for blades to STOP.
- Keep hands, feet and clothing away from blades when engine is running.

Handling Waste Product and Chemicals



- Waste products such as used oil, fuel, coolant, brake fluid, and batteries, can harm the environment and people.
- DO NOT use beverage containers for waste fluids - someone may drink from them.
- See your local Recycling Center or John Deere dealer to learn how to recycle or get rid of waste products.
- A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques. See your John Deere dealer for the MSDS on chemical products used with your machine.

SERVICE INTERVAL CHART

Service Intervals

Please use the following timetables to perform routine maintenance on your machine. Service procedures included in this manual but not on this chart are to be performed on an as needed basis.

IMPORTANT: * If you operate mower in extreme heat, dust or other severe conditions, service more often than shown below.

Before Each Use	Check fuel level. Clean air intake screen. Test safety systems. Check tire pressure. Check/tighten loose hardware. Check engine oil level.
After First 2 Hours	Check blade belt tension.
After First 5 Hours	Change engine oil.
Every 8 Hours	Check oil level. Check brakes. Check tire pressure.
Every 25 Hours	Sharpen/replace blades. Lubricate front wheel spindles. Lubricate wheel bearings. Check battery and clean battery terminals. Check transaxle cooling. Change engine oil when operating under heavy load or in high temperatures.* Clean/Service air cleaner elements.*
Every 50 Hours	Change engine oil.*
Every 100 Hours	Check/tighten loose hardware. Adjust drive belt tension. Replace oil filter. Clean/Service air cleaner elements.* Replace spark plug. Replace fuel filter. (On models equipped)
Every Season	Adjust blade belt tension.
Before Storage	Check/tighten loose hardware. Lubricate front wheel spindles. Lubricate wheel bearings. Clean battery terminals.

SERVICE INTERVAL CHART

Service Record

DATE	SERVICE PERFORMED

Engine Warranty Maintenance Statement

Maintenance, repair, or replacement of the emission control devices and systems on this engine, which are being done at the customers expense, may be performed by any nonroad engine repair establishment or individual. Warranty repairs must be performed by an authorized John Deere dealer.

Adjusting Carburetor

NOTE: Carburetor is calibrated by the engine manufacturer and should not require any adjustments.

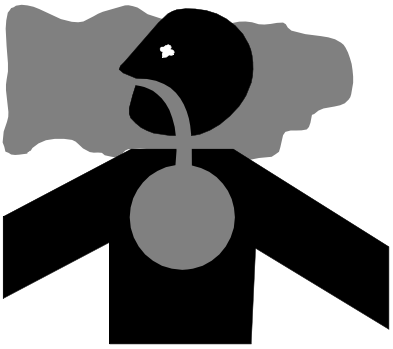
If engine is operated at altitudes above 1829 m (6,000 ft), some carburetors may require a special high altitude main jet. See your John Deere dealer.

Possible engine surging will occur at high rpm with no load (with transmission in "N" neutral and mower blade engagement lever disengaged). This is a normal condition due to the emission control system.

If engine is hard to start or runs rough, check the Troubleshooting section of this manual.

After performing the checks in the troubleshooting section and your engine is still not performing correctly, contact your John Deere dealer.

Avoid Fumes



CAUTION: Engine exhaust fumes can cause sickness or death:

- If it is necessary to run an engine in an enclosed area, use an exhaust pipe extension to remove the fumes.

- Always try to work in a well ventilated area.

Engine Oil

CAUTION: To prevent injury from accidental starting, always remove wire from spark plugs and disconnect battery at negative terminal before servicing engine.

Use oil viscosity based on the expected air temperature range during the period between oil changes.

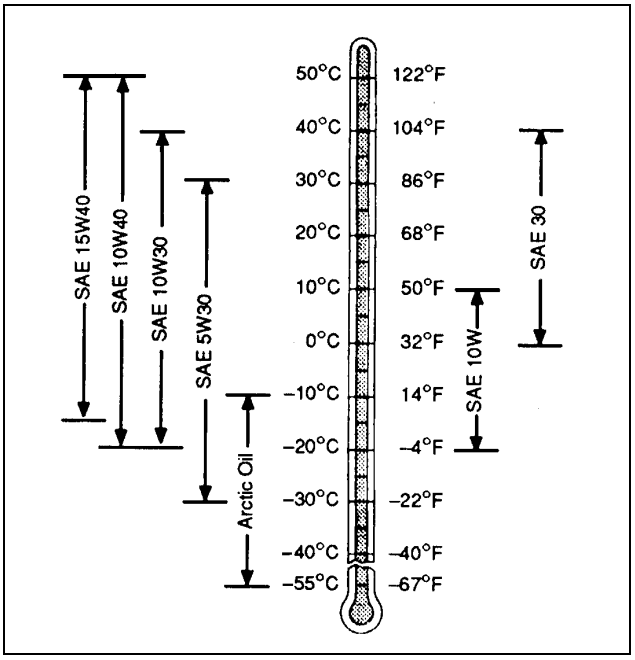
The following John Deere oils are preferred:

- John Deere PLUS-4®

Other oils may be used if they meet one of the following specifications:

- API Service Classification SG
- API Service Classification SF
- CCMC Specification G4

Oils meeting Military Specification MIL-L-46167B may be used as arctic oils.



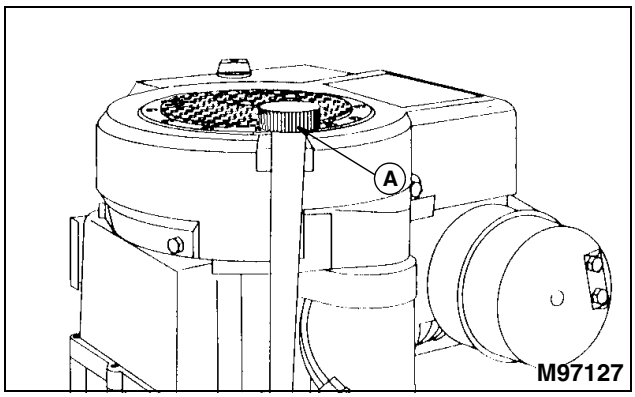
Checking Engine Oil

IMPORTANT: To avoid engine damage, DO NOT run engine if oil level is below ADD mark.

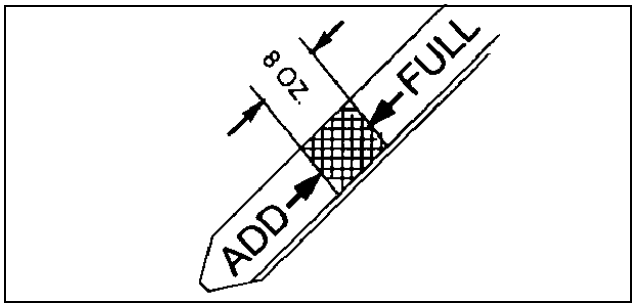
NOTE: Engine must not be running.

Make sure engine is COLD when checking engine oil level.

Picture Note: 14 hp engine shown.

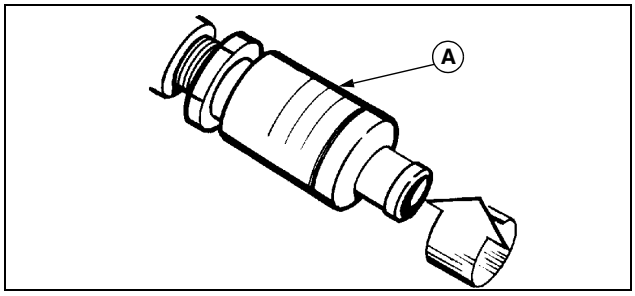


1. Park tractor on a level surface. STOP engine. Let engine cool.
2. Lift hood.
3. Clean area around dipstick to prevent debris from falling into crankcase.
4. Remove dipstick (A). Wipe with clean cloth.
5. Install dipstick in tube, tighten dipstick, remove dipstick, and check oil level.
6. Oil must be between ADD and FULL marks.
7. Add oil to FULL mark if necessary. DO NOT OVERFILL. (See Engine Oil in this section.)
8. Install and tighten dipstick. Lower hood.



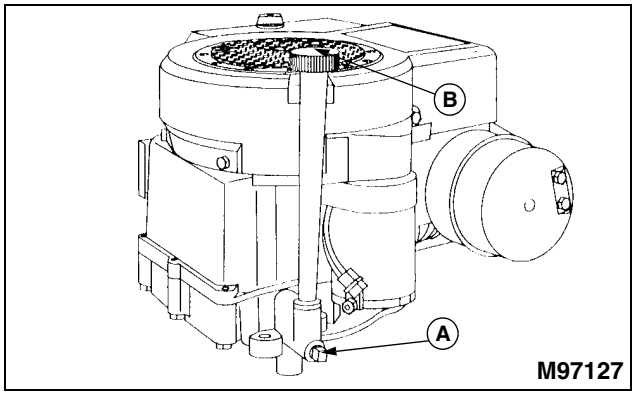
Changing Engine Oil

CAUTION: Avoid injury. Engine may be hot, be careful not to burn hands.



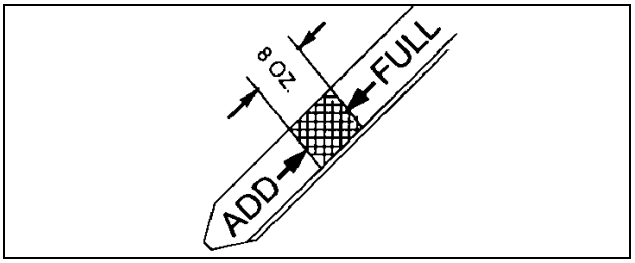
1. Run engine to warm oil.
2. Park tractor on level surface. STOP engine. LOCK park brake and remove key.
3. Lift hood.
4. Put drain pan under drain valve.

Picture Note: 14 hp engine shown.



5. Unsnap the dust cap, push and twist to open oil drain (A) and drain oil into oil drain pan.
6. Close drain cap.
7. Remove dipstick (B) and refill with new oil of recommended grade. DO NOT OVERFILL. (See Engine Oil in this section and Specifications section for crankcase capacity.)

8. Install dipstick and then remove to check oil level. Oil level must be between ADD and FULL marks. DO NOT OVERFILL.



9. Install and tighten dipstick. Lower hood.

10.Start engine and check for oil leaks. Correct any leaks before operating.

11.Run engine at idle for 30 seconds. Stop engine. Wait 30 seconds and check oil level.

12.If necessary, add oil to bring level to FULL mark on dipstick. DO NOT OVERFILL.

Changing Engine Oil Filter (Models 1646HS, 1846HV, and 1846HMS)

CAUTION: Avoid injury. Engine may be hot, be careful not to burn hands.

1. Run engine to warm oil.

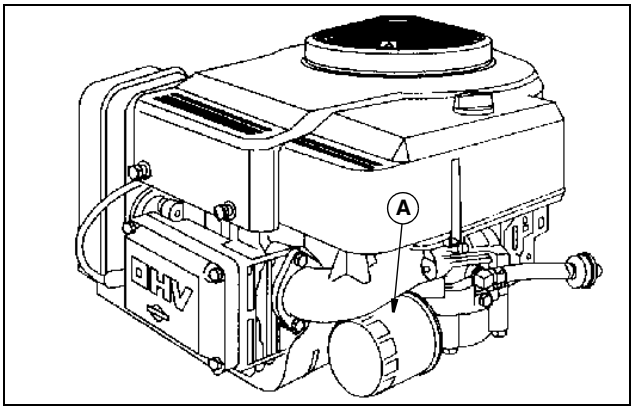
2. Park tractor on level surface. STOP engine. LOCK park brake and remove key.

3. Put a small shallow pan or funnel under oil filter (A) to catch oil drained from filter.

4. Drain engine oil.

5. Wipe debris and dirt from around oil filter.

6. Remove old filter (A) and wipe off filter tray with a clean cloth.



Picture Note: 16 hp engine shown for photo purposes.

7. Lightly oil filter gasket with fresh, clean oil.

8. Install replacement oil filter. Turn oil filter to the right (clockwise) until rubber gasket contacts filter adapter. Tighten filter an additional one-half turn.

9. Replace with fresh oil. (See Engine Oil in this section.)

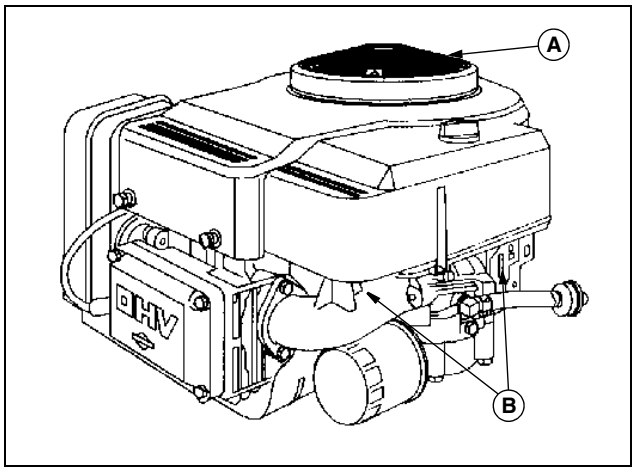
10.Start and run engine at idle to check for leaks. Stop engine.

11.Check oil level. (See Checking Engine Oil Level in this section.)

12.Add oil if required. (See Engine Oil in this section.)

Clean Air Intake Screen and Engine

IMPORTANT: To avoid overheating and damage to engine: Keep air intake screen free of dust and debris. Keep governor linkage, springs and controls free of dust and debris.

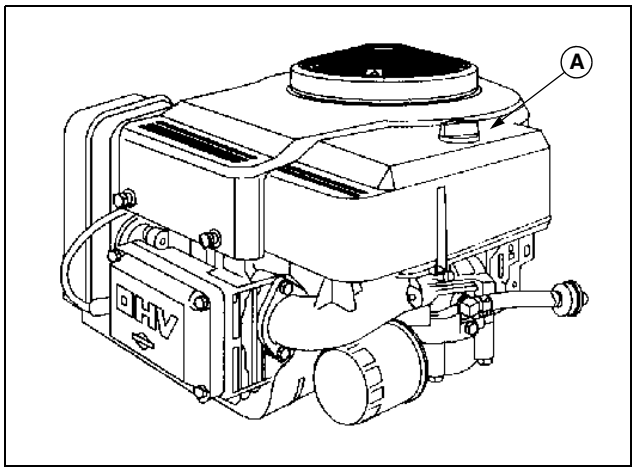


Picture Note: 16 hp engine shown for photo purposes.

1. STOP engine. LOCK park brake and remove key.
2. Lift hood.
3. Clean air intake screen (A), and external engine areas (B) with rag, brush, vacuum or compressed air.
4. Lower hood.

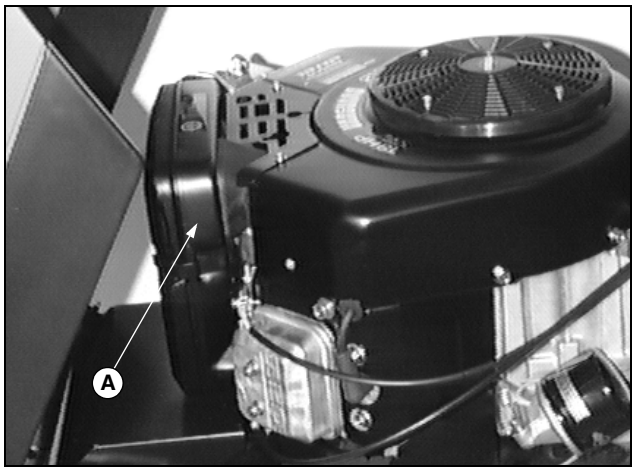
Checking and Cleaning Air Cleaner Elements (14hp, 15hp, 16hp and 18hp-Vanguard)

NOTE: It may be necessary to check the air filter more frequently if operating vehicle in dusty conditions.



1. Lift hood.
2. Clean any dirt and debris from the air cleaner before removing cover.
3. Remove cover (A).

Picture Note: 14hp, 15hp, and 16hp engine.



Picture Note: 18hp-Vanguard engine.

4. Inspect foam precleaner (B) and element (C) without removing.

5. If precleaner (B) is dirty, carefully remove from filter, leaving element (C) in the air cleaner housing.

NOTE: DO NOT wash paper element.

6. Wash precleaner (B) in a solution of warm water and liquid detergent.

7. Rinse precleaner thoroughly. Squeeze out excess water in a dry cloth until precleaner is completely dry.

8. Put approximately 30 ml. (1 oz.) of clean engine oil onto precleaner. Squeeze precleaner to distribute oil evenly. Squeeze out excess oil with a clean cloth.

IMPORTANT: A damaged paper element (C) can allow dirt into the carburetor and can cause poor engine performance, engine damage or failure:

- **DO NOT attempt to clean paper element by tapping against another object.**
- **Replace element ONLY if very dirty.**
- **DO NOT use pressurized air to clean element.**
- **If element is damaged or the seal is cracked, replace.**

9. Remove and replace filter element (C) ONLY if damaged or very dirty.

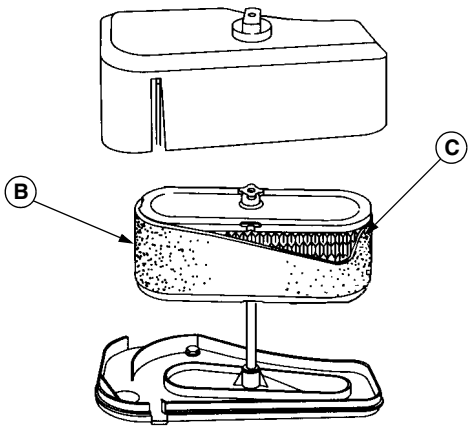
10. Carefully remove element (C) from air cleaner housing. Replace with a NEW element.

11. Carefully clean air cleaner housing. Prevent any dirt from falling into carburetor.

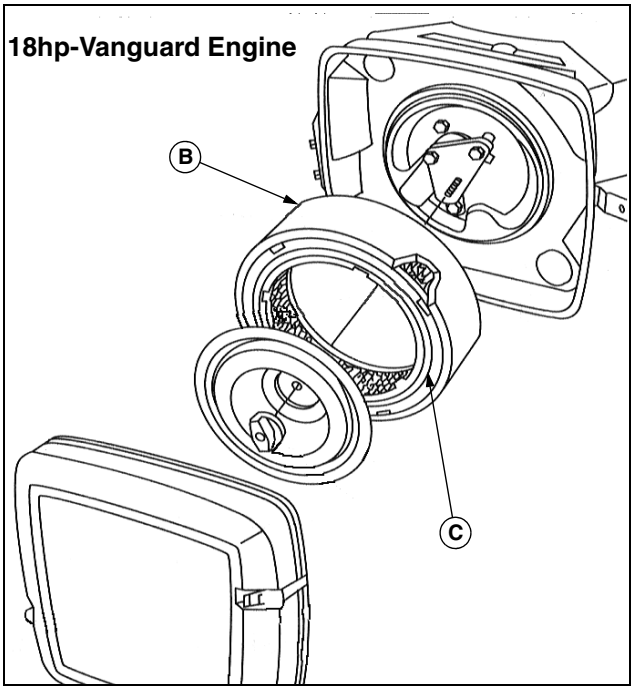
12. Install precleaner onto new filter element and install into air cleaner housing.

13. Install cover. Lower hood.

14hp, 15hp, and 16hp Engines

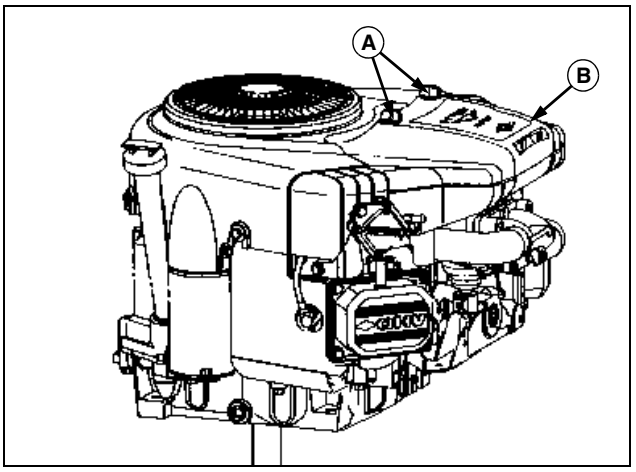


18hp-Vanguard Engine



Checking and Cleaning Air Cleaner Elements (18hp-Intek)

IMPORTANT: To extend engine life, when operating mower in extreme heat, dust or other severe conditions, it may be necessary to check/ replace air cleaner more frequently.

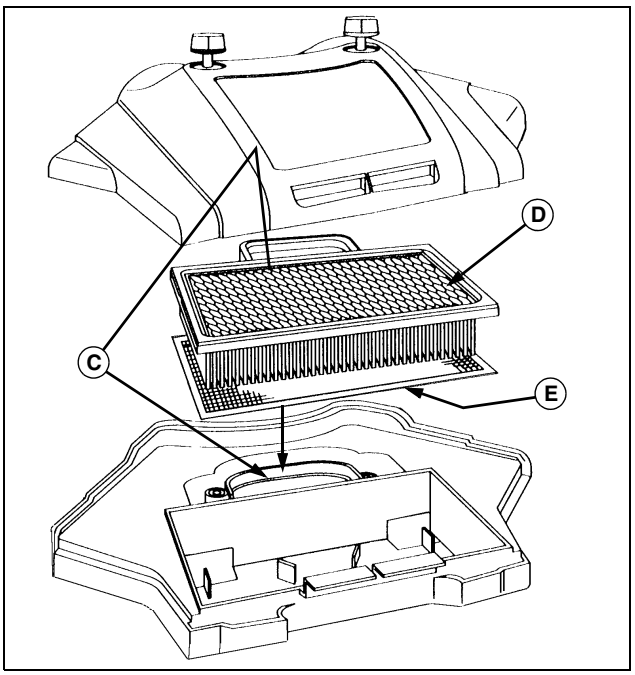


1. Lift hood.

2. Clean any dirt and debris from the air cleaner before removing cover.

3. Loosen knob (A) and remove cover (B).

IMPORTANT: To prevent engine damage, DO NOT allow any foreign objects to fall into the carburetor air intake (C).



4. Avoid dropping anything into the carburetor air intake (C). If anything falls into the carburetor air intake it MUST be remove.

5. Lift out filter cartridge (D) and foam precleaner (E).

6. Service precleaner:

- Wash precleaner in a solution of warm water and liquid detergent.
- Rinse precleaner thoroughly. Squeeze out excess water in a dry cloth until precleaner is completely dry.
- Put approximately 30 ml. (1 oz.) of clean engine oil onto precleaner. Squeeze precleaner to distribute oil evenly. Squeeze out excess oil with a clean cloth.

IMPORTANT: A damaged cartridge (D) can allow dirt into the carburetor and can cause poor engine performance, engine damage or failure:

• DO NOT attempt to clean cartridge by tapping against another object.
• Replace cartridge ONLY if very dirty.
• DO NOT use pressurized air to clean cartridge.
• If cartridge is damaged or the seal is cracked, replace.

7. Inspect cartridge for damage or excessive dirt. Replace if necessary.

8. Carefully clean air cleaner housing. Prevent any dirt from falling into carburetor.

9. Install foam precleaner (E) mesh side up.

10.Install cartridge. Make sure cartridge and seal are properly seated and sealing the carburetor air intake area.

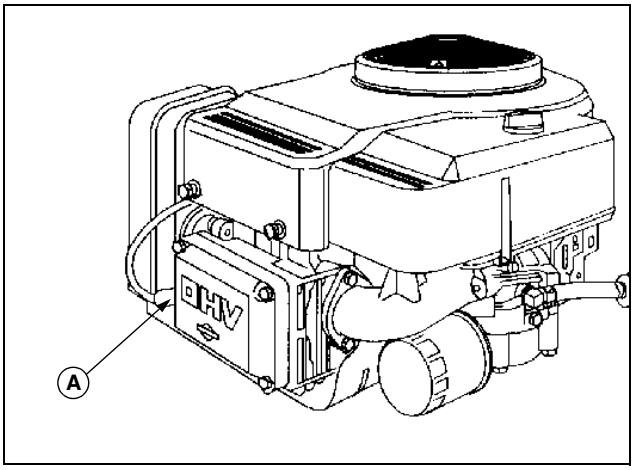
11.Install air cleaner cover and tighten knobs. DO NOT overtighten.

12.Lower hood.

Checking Spark Plugs

CAUTION: To avoid injury: Before you remove spark plugs, STOP engine and wait until engine is cool.

Picture Note: 16 hp engine shown for photo purposes.

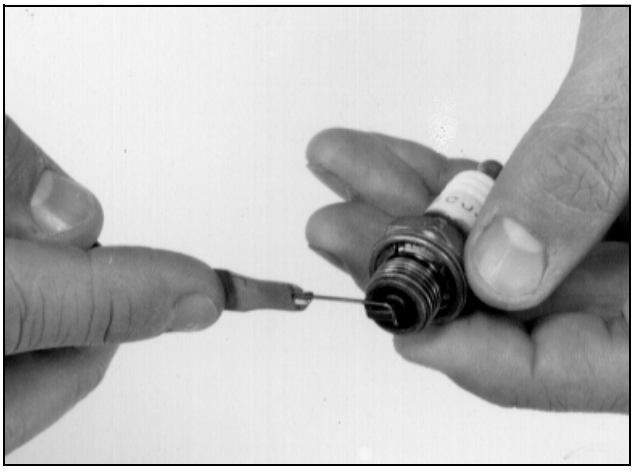


1. Stop engine. LOCK park brake. Remove key. Lift hood.

2. Disconnect spark plug wire(s) (A) and remove spark plug(s).
   - On 14hp, 15hp, and 16hp engines: ONE spark plug.
   - On 18hp engines: TWO spark plugs, one on each side.

3. Clean spark plug(s) carefully with a wire brush.

4. Inspect plug for:
   - Cracked porcelain.
   - Pitted or damaged electrodes.
   - Other wear or damage.



5. Replace spark plug(s) if necessary.

6. Check plug gap with a wire feeler gauge.
   - Gap should be 0.76 mm (0.030 in.)

7. To change gap, move the outer electrode.

8. Install and tighten spark plug(s).
   - If you have a torque wrench, tighten plug(s) to: 20 N•m (15 lb-ft).

9. Connect the spark plug wire(s).

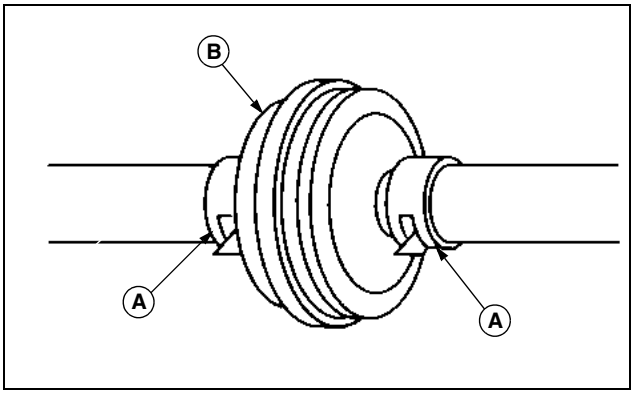
10.Lower hood.

Replacing Fuel Filter

CAUTION: Avoid injury: Keep cigarettes, sparks, and flames away from the fuel system. Make sure engine is cool to the touch.

IMPORTANT: When disconnecting fuel tank hose from filter, be sure to hold hose above fuel tank level so fuel does not run out.

NOTE: Change filter when fuel is low in fuel tank.



1. Park tractor on a level surface.
   Picture Note: Fuel filter type used on 14hp, 15hp, and 16hp engines shown for photo purposes.
2. STOP engine. LOCK park brake. Remove key. Let engine COOL.
3. Lift hood.
4. Using pliers, slide hose clamps (A) away from fuel filter (B).
5. Disconnect hoses from filter and remove filter.
6. Connect hoses to new filter.
7. Install clamps and check for leaks.
8. Lower hood.

Grease

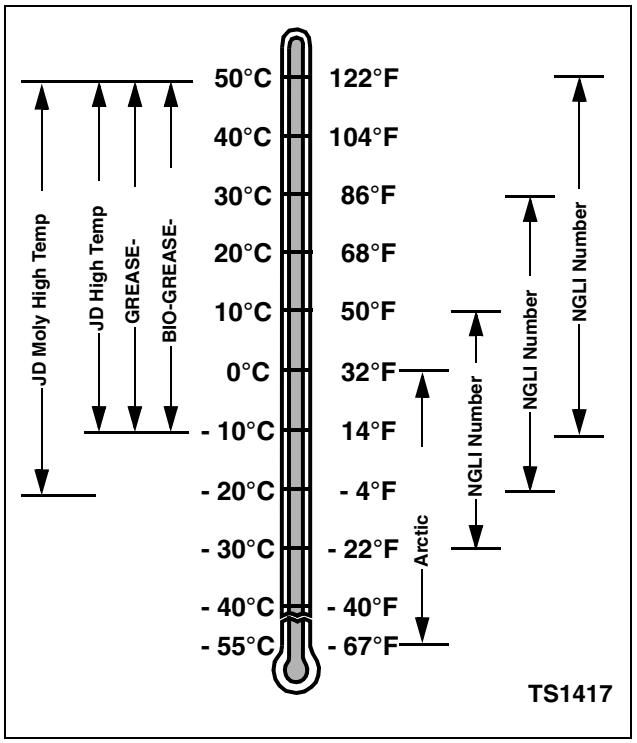
Use grease based on the expected air temperature range during the service interval.

The following greases are preferred:

- John Deere Moly High Temperature EP Grease.
- John Deere High Temperature EP Grease.
- John Deere GREASE-GARD™.

Other greases may be used are:

- SAE Multipurpose EP Grease with 3 to 5 percent molybdenum disulfide.
- SAE Multipurpose EP Grease.
- Greases meeting Military Specification MIL-G-10924C may be used as arctic grease.



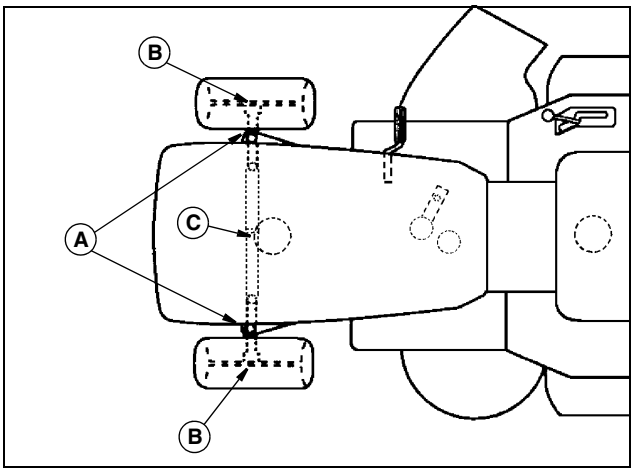
Lubricating Front Wheel Spindles, Wheel Bearings and Axle Pivot

1. Lubricate front wheel spindles (A) and wheel bearings (B), one on each side of tractor with one or two shots of multipurpose grease or an equivalent.

Turn wheels to distribute grease to spindles.

2. Lubricate axle pivot (C) with multipurpose grease or an equivalent.

Pivot axle up and down to distribute grease in pivot.



Adjusting Brakes (Gear Transaxle)

CAUTION: • Avoid injury, before adjusting brakes: STOP engine. Remove key. Wait for all moving parts to STOP.

1. Park tractor on flat, level surface. STOP engine, LOCK park brake, DISENGAGE PTO lever, turn key to the OFF position, and remove key.

2. Check if:

   • Brake disc (A) is contacting the case (B),

   AND/OR

   • Brake lever (C) is contacting its mounting bracket (D), top or bottom.

   If so, REPLACE friction pucks and brake disc BEFORE making adjustment. (See you Sabre Service Center.)

3. Block the front and rear wheels, and release the parking brake.

4. From the rear of the tractor, locate the brake disc (E), lock nut (F), and friction puck (G).

5. Insert a 0.25 mm (0.010 in.) shim gauge (H) between the disc and friction puck. The shim should slide with slight interference.

IF THE SHIM WILL NOT FIT:

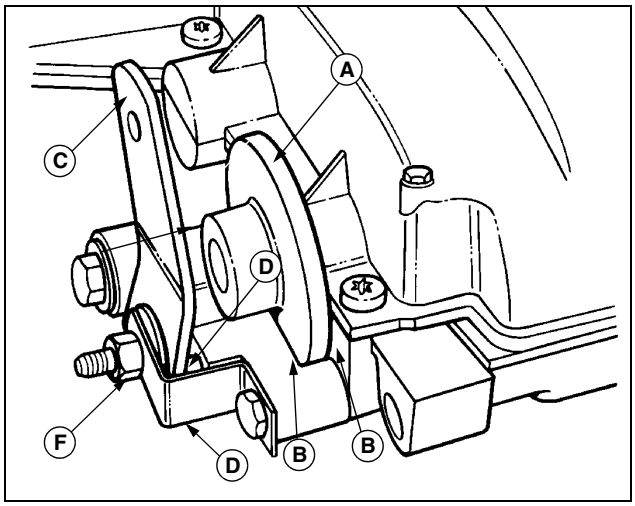
• Loosen lock nut (F) until the shim slides in. Tighten the lock nut until the shim has slight interference.

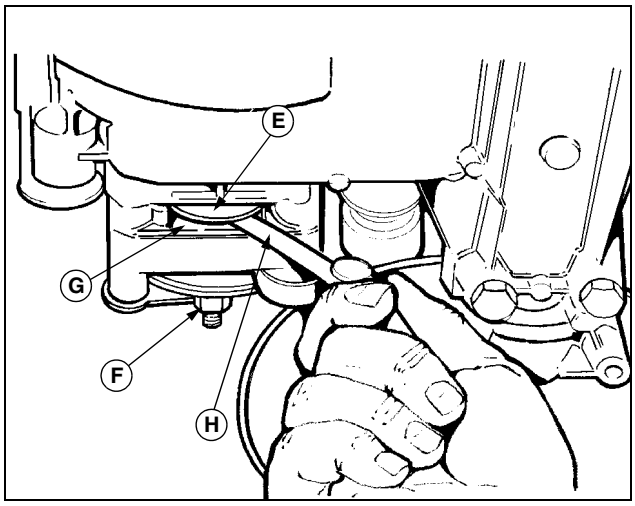
• Remove the shim and cycle the brake pedal. Readjust if needed.

IF THE SHIM SLIDES FREELY:

• Install the shim and tighten lock nut (F) until there is slight interference.

• Remove the shim and cycle the brake pedal. Readjust if needed.





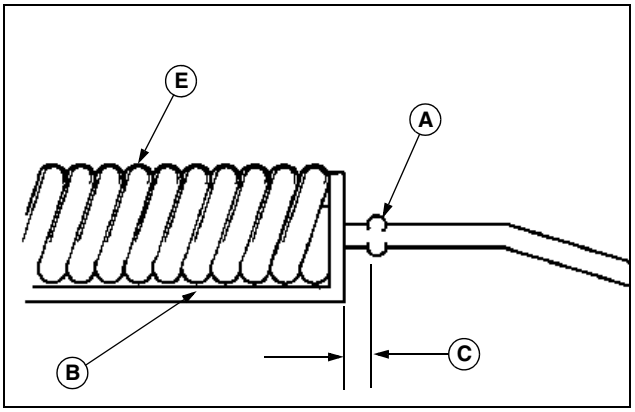
Adjusting Brakes (Automatic Transaxle)

CAUTION: • Avoid injury, before adjusting brakes: STOP engine. Remove key. Wait for all moving parts to STOP.

1. Park tractor on flat, level surface. STOP engine, turn key to the OFF position, and remove key.

2. UNLOCK the park brake and release brake pedal.

3. Measure distance from inside of brake rod stop tabs (A) to outside of compression spring bracket (B) (located below foot tread area on left-hand side of transmission). Distance (C) should be 2 – 10 mm (0.08 – 0.40 in).



4. If distance is less than or equal to 2 mm (0.08 in):

   • Gradually adjust jam nuts (D) until specified measurement is obtained.

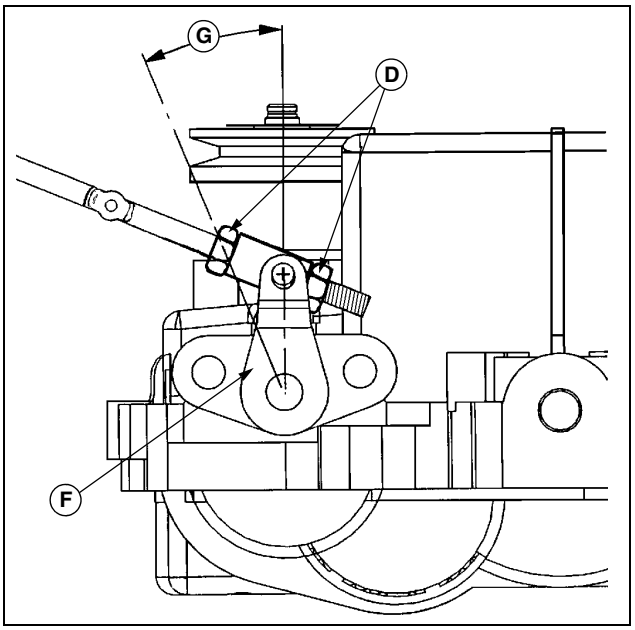
   • Depress brake pedal and LOCK park brake.

   • Measure the distance between edge of compression spring bracket and front edge of brake rod stop tabs. Gap should have a minimum distance of 2 mm (0.08 in).

   • Check brake rod compression spring (E). It should not be completely compressed when park brake is locked. A slight air gap should be visible between the coils when proper adjustment is reached.

   • Recycle park brake a few times and measure distances each time until specified measurements are obtained.

   • Brake lever (F) travel should not exceed 30° (G). If it does, measure brake components individually.



SPECIFICATIONS:

- Spring bracket to stop tabs (minimum): 2 mm (0.08 in)
- Brake lever travel (maximum): 30°

Avoid Injury From Contacting Blades

CAUTION: To avoid injury, before you unplug, adjust or service mower:

- DISENGAGE PTO switch to stop mower blades.

- Wait for mower blades to STOP.

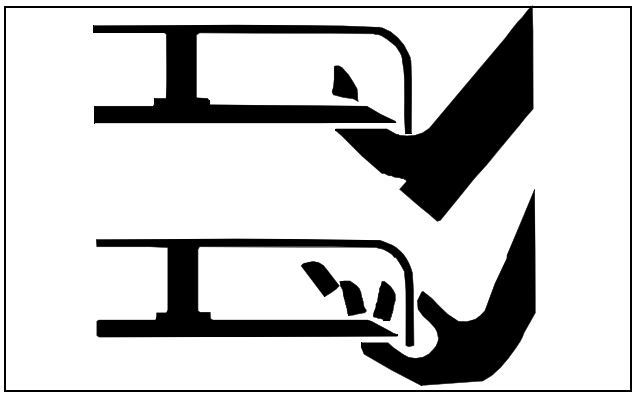
- LOCK the park brake.

- STOP the engine.

- Remove the key.

Clean unit by removing all grass clippings and dirt from mower deck.

Disconnect spark plug wire from spark plug.



Grease

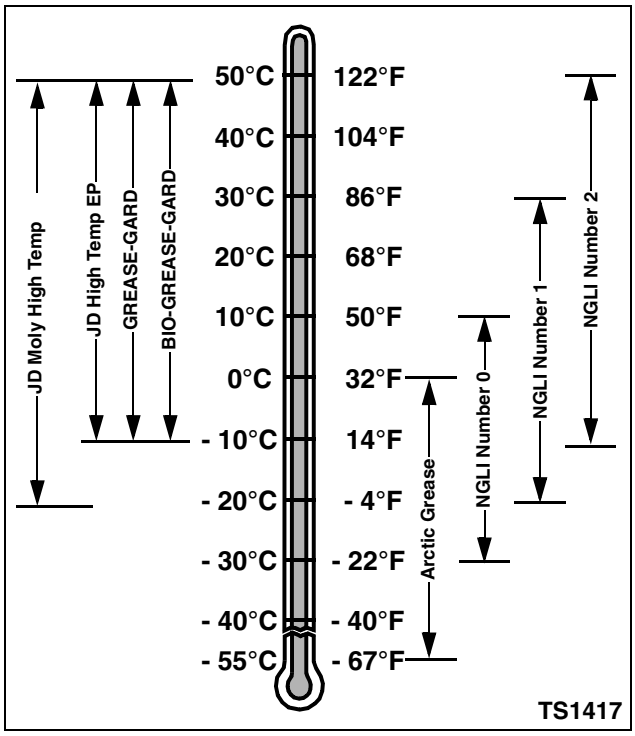
Use grease based on the expected air temperature range during the service interval.

The following greases are preferred:

- John Deere Moly High Temperature EP Grease.
- John Deere High Temperature EP Grease.
- John Deere GREASE-GARD™.

Other greases may be used are:

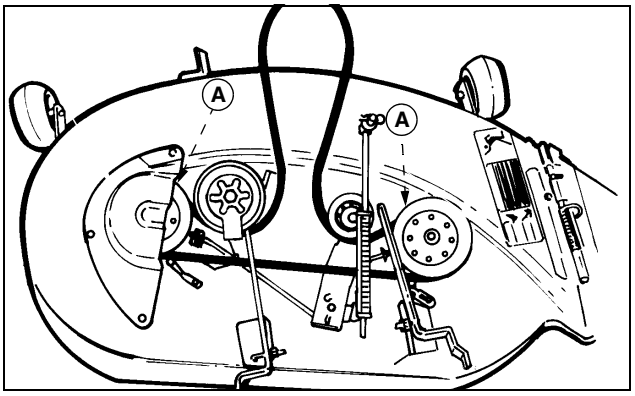
- SAE Multipurpose EP Grease with 3 to 5 percent molybdenum disulfide.
- SAE Multipurpose EP Grease.
- Greases meeting Military Specification MIL-G-10924C may be used as arctic grease.



Lubricating Mower Spindles

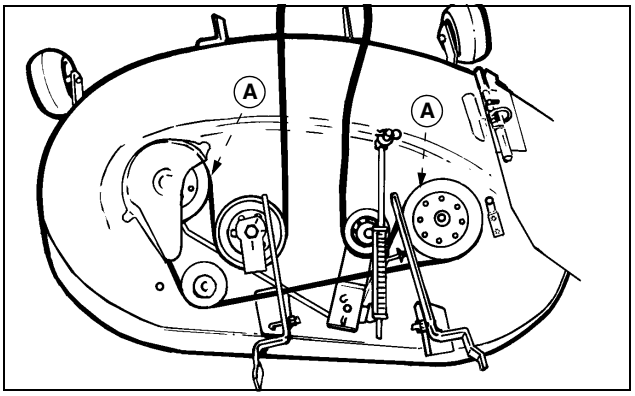
38-Inch Mower Deck

Lubricate two spindles (A) with four to six shots of Multipurpose EP Grease or an equivalent.



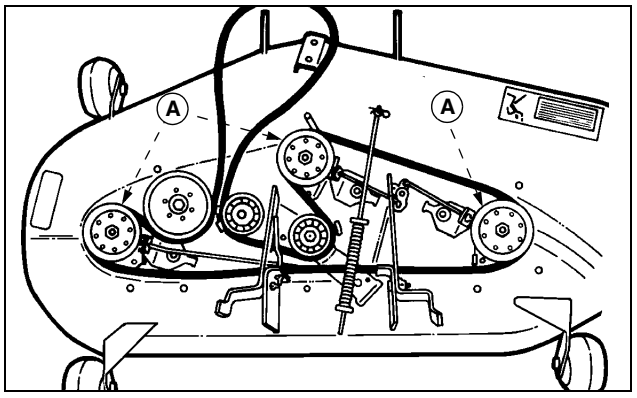
42-Inch Mower Deck

Lubricate both mower spindle grease fittings (A) with Multipurpose EP Grease or an equivalent.



46-Inch Mower Deck

Lubricate three mower spindle grease fittings (A) with Multipurpose EP Grease or an equivalent.



Replacing Mower Drive Belt

CAUTION: To avoid injury: Before replacing mower drive belt: STOP engine, remove key, wait for all moving parts to STOP, and wear gloves when replacing belt.

1. STOP engine, LOCK park brake, place gear shift lever in NEUTRAL (N) position, pull PTO drive lever back to DISENGAGE, turn key to the OFF position, and remove key.

2. Remove mower deck. (See Removing Mower in Removing Mower section.)

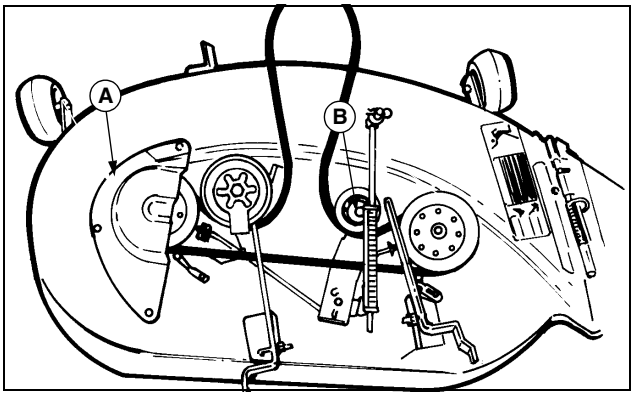
38-Inch Mower Deck

1. Remove three capscrews and belt guard (A).

2. Loosen pulley (B), move pulley to the right and remove mower drive belt from engine pulley and then remove from the mower.

3. Install belt in reverse order of removal.

4. Reinstall belt guard and tighten capscrews securely.



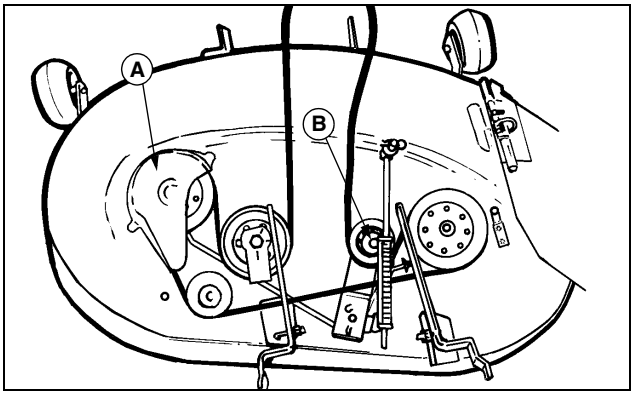
42-Inch Mower Deck

1. Remove two capscrews and belt guard (A).

2. Loosen pulley (B), move pulley to the right and remove mower drive belt from engine pulley and then remove from the mower.

3. Install belt in reverse order of removal.

4. Reinstall belt guard and tighten capscrews securely.



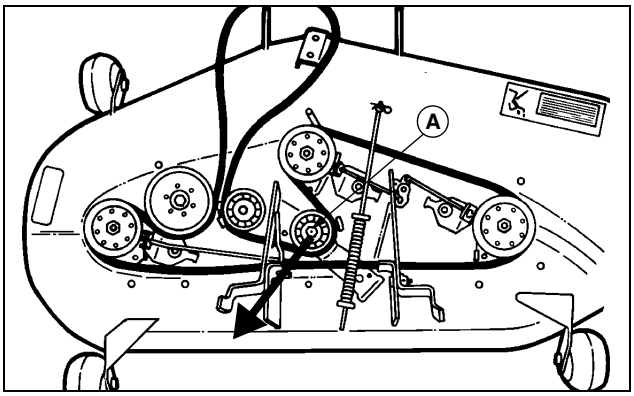
46-Inch Mower Deck

1. Remove six capscrews and left and right belt guards.

2. Pull pulley (A) to the left and remove mower drive belt from engine pulley and then remove from mower.

3. Install belt in reverse order of removal.

4. Reinstall belt guards and tighten capscrews securely.



Adjusting Mower Belt Tension

CAUTION: Before adjusting Mower Belt Tension: STOP engine. Remove key. Wait for all moving parts to STOP.

IMPORTANT: Spindle brake engagement must be checked every time the mower belt tension is adjusted or belt damage may occur.

1. Park tractor on a hard, level surface.

2. Stop the engine, remove key, wait for moving parts to stop.

3. Place mower deck in LOWEST setting.

4. Engage PTO drive lever.

5. Measure distance from bracket (A) to washer (B) on tension rod (C). Distance (D) should be: 20 – 25 mm (0.78 – 0.98 in).

6. If adjustment is required, continue with Step 7.

7. DISENGAGE PTO lever.

8. Remove spring locking pin and washer (E) and disconnect tension rod from blade drive arm.

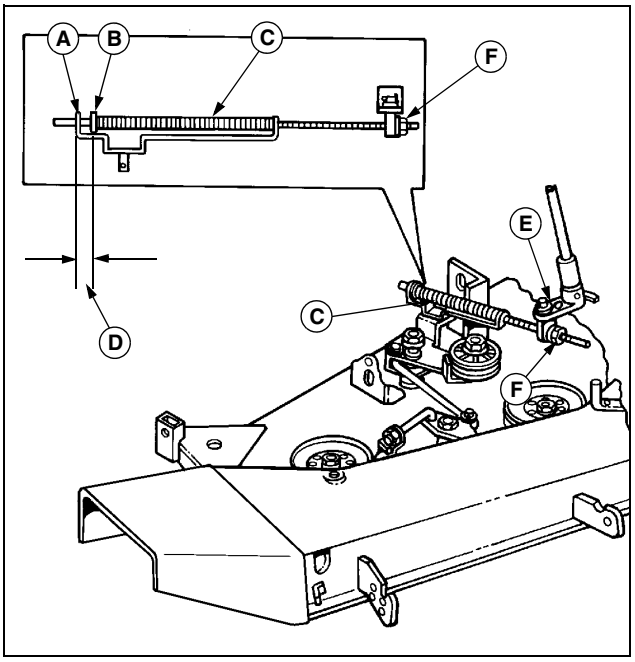
9. Loosen lock nut (F).

10.Turn fitting on tension rod clockwise to shorten and counterclockwise to lengthen effective rod length.

11.Tighten lock nut (F) to 27 N•m (20 lb-ft).

12.Assemble tension rod and recheck dimension (D).

13.Check brake clearance. (See Adjusting Spindle Brake in this section.

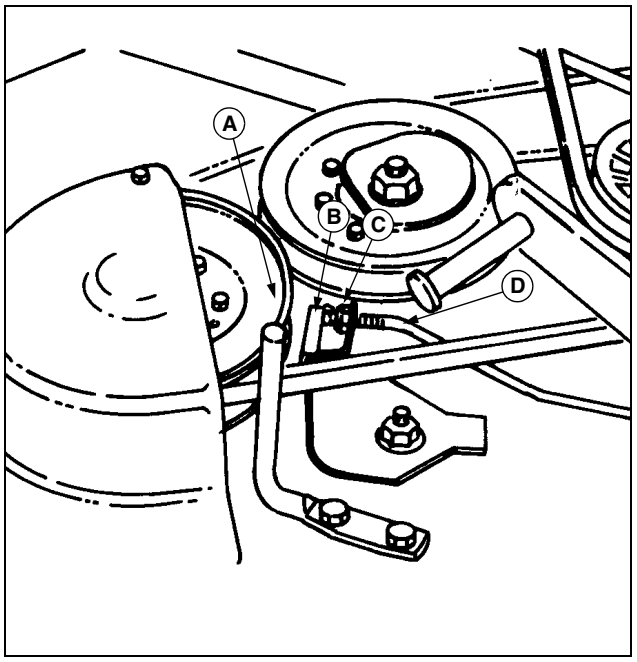


Adjusting Spindle Brake

CAUTION: Before adjusting Spindle Brake: STOP engine. Remove key. Wait for all moving parts to STOP.

IMPORTANT: Avoid belt damage.
Spindle brake engagement must be checked and corrected every time the mower belt tension is adjusted.
Mower belt tension should be adjusted, if required, BEFORE brakes are adjusted.

1. Park tractor on a hard, level surface.
2. Stop the engine, remove key, wait for moving parts to stop.
3. Place mower deck in LOWEST setting.
4. Engage PTO drive lever.
5. Check mower belt tension. (See Adjusting Mower Belt Tension in this section.)
6. Remove belt guard.



IMPORTANT: ALL brakes MUST be adjusted. There are TWO spindle brakes on the 38 and 42-Inch decks, and THREE spindle brakes on the 46-Inch deck.

7. Measure distance from brake surface (A) to pulley braking surface (B). Brake to Pulley Distance should be: 2 – 3 mm (0.08 – 0.12 in).
8. If adjustment is required, turn nut (C) on end of brake rod (D) in correct direction to set brake at proper distance from pulley.
9. Repeat on all brakes.
10. Install belt guard.

Checking Mower Blades

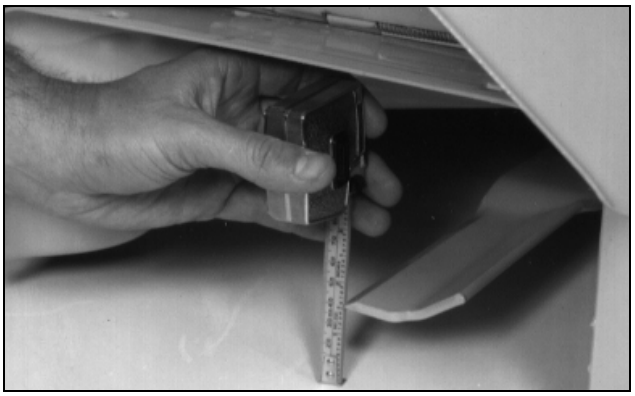
CAUTION: Before adjusting Mower Belt Tension: STOP engine. Remove key. Wait for all moving parts to STOP.

To check for a bent blade:

1. Lower mower. Measure distance between blade tip and flat ground surface.

2. Turn blade 180 degrees. Measure distance between blades other tip and flat ground surface.

3. If the distance between the two measurements is more than 3 mm (1/8 in), install new blade.



Servicing Mower Blades

38 and 46-Inch Mower Deck

CAUTION: Be careful, sharp edges on mower blades. Always wear gloves when handling mower blades.

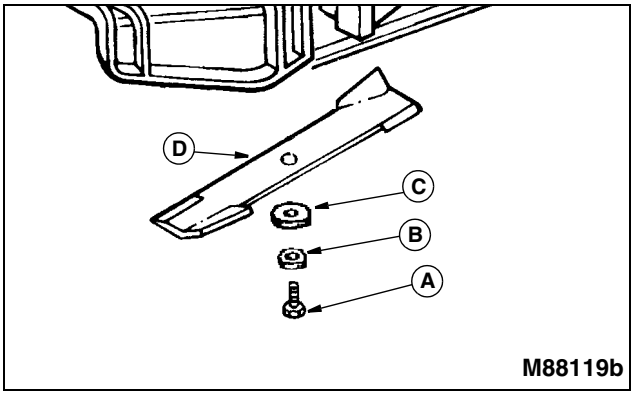
REMOVING MOWER BLADES

1. Raise mower deck to gain access to mower blades. If necessary, remove mower deck.

2. Using a wooden block, prevent mower blades from spinning.

3. Loosen and remove cap screw (A), hardened washer (B), cupped blade washer (C) and blade (D).

4. Inspect blades; sharpen/balance or replace as necessary.



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INSTALLING MOWER BLADES

1. Lightly lubricate cap screw threads with a general purpose grease or oil. This lubrication is to prevent rusting and seizing.

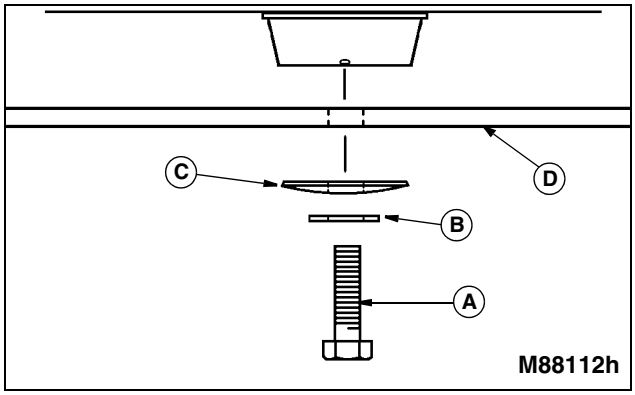
2. Position mower blade (D) with the cutting edge towards the ground onto the mower spindle.

3. Install cupped blade washer (C) with cup side toward the blade.

4. Install hardened washer (B).

5. Install and tighten cap screw (A) by hand until mower blade is in full contact (fully seated) with spindle.

6. With mower blade blocked, to prevent spinning, tighten cap screws to 56 N•m (41 lb-ft)).



42-Inch Mower Deck

CAUTION: Be careful, sharp edges on mower blades. Always wear gloves when handling mower blades.

REMOVING MOWER BLADES

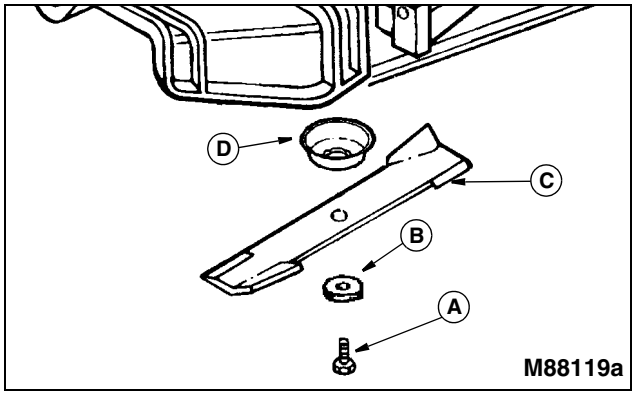
1. Raise mower deck to gain access to mower blades. If necessary, remove mower deck.

2. Using a wooden block, prevent mower blades from spinning.

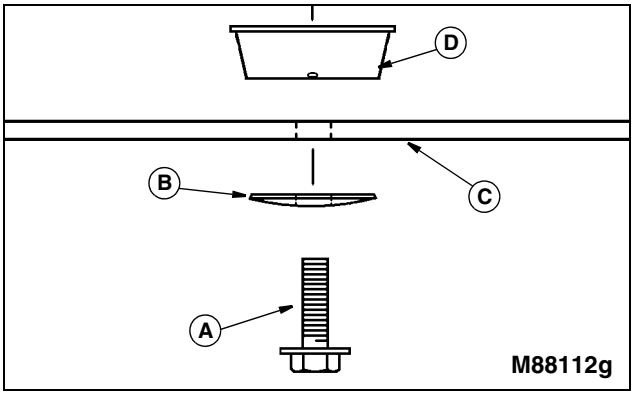
NOTE: Before removing hardware, note the orientation of the cupped blade washer (B) to ensure proper installation.

3. Loosen and remove cap screw (A), cupped blade washer (B), blade (C) and deflector cup (D).

4. Inspect blades; sharpen/balance or replace as necessary.



INSTALLING MOWER BLADES



1. Lightly lubricate cap screw threads with a general purpose grease or oil. This lubrication is to prevent rusting and seizing.

2. Install deflector cup (D) on spindle.

3. Position mower blade (C) with the cutting edge towards the ground onto the mower spindle.

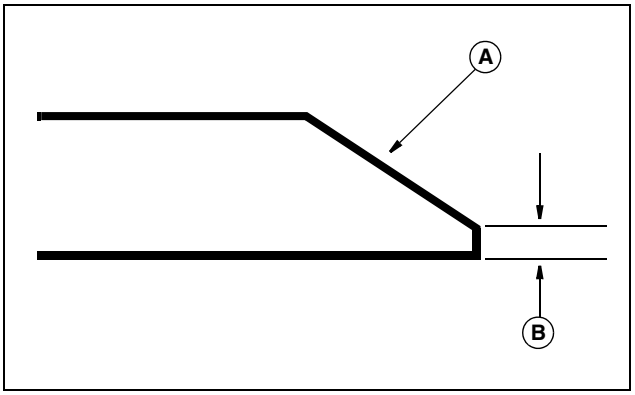
4. Install cupped blade washer (B) with CUPPED SIDE toward the blade.

5. Install and tighten cap screw (A) by hand until mower blade is in full contact (fully seated) with spindle.

6. With mower blade blocked, to prevent spinning, tighten bolt to 56 N•m (41 lb-ft).

Sharpening Blades

CAUTION: To avoid injury, wear goggles and gloves when you handle blades.



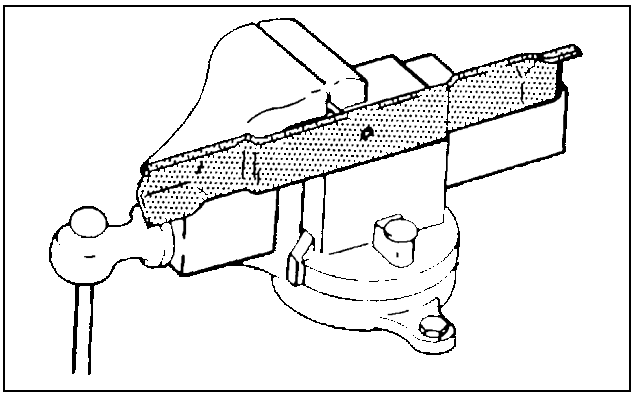
1. Sharpen blades with grinder, hand file or electric blade sharpener.

2. Keep original bevel (A) when you grind.

3. Blade should have 0.40 mm (1/64 in.) cutting edge (B).

Balancing Blades

CAUTION: To avoid injury, wear goggles and gloves when you handle blades.



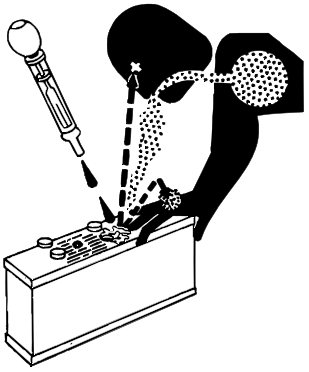
1. Clean blade.

2. Put blade on nail in vise or on vertical wall stud. Turn blade to horizontal position.

3. If blade is not balanced, heavy end of blade will drop.

4. Grind bevel of heavy end. Do not change bevel.

Checking the Battery



CAUTION: Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes. Wear eye protection and avoid spilling or dripping electrolyte.

Flush eyes with water for 15-30 minutes if acid is splashed into eyes.

If acid is swallowed, get medical attention immediately.

DO NOT attempt to open, add fluid or service battery. Any attempt to do so will void warranty and lead to possible injury.

•Keep battery and terminals clean.

•Keep battery bolts tight.

•Keep small vent holes open.

•Recharge, if necessary, at 6–10 amperes for 1 hour. (See Charging the Battery in this section.)

Removing and Installing the Battery

CAUTION: Always remove negative (–) battery cable first, and install it last, to prevent electrical short circuit to chassis.

1. Turn ignition key off and raise seat.

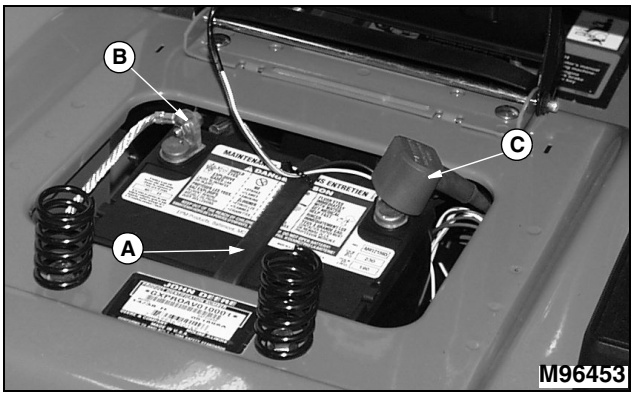
2. Remove rubber hold-down strap (A).

3. Disconnect negative (–) battery cable (B).

4. Remove red cover (C) from positive (+) battery terminal. Remove positive (+) cable from battery.

5. Remove battery.

6. Install the battery following these steps in reverse order. (See Connect the Battery in the Assembly section.)



Clean Battery and Terminals

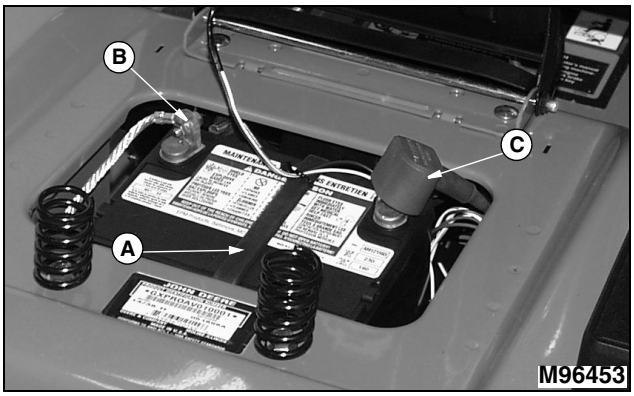
CAUTION: Battery gas can explode, to avoid injury:

- Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

- Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

- Always remove grounded (-) battery clamp first and replace it last.

1. Turn ignition key off and raise seat.
2. Remove rubber hold-down strap (A).
3. Disconnect BLACK (–) battery cable (B) first.
4. Disconnect RED (+) battery cable (C). Remove battery from mower.
5. Wash battery with solution of four tablespoons of baking soda to one gallon of water. Be careful not to get the soda solution into the cells.
6. Rinse the battery with clean water. Let dry.
7. Clean terminals and battery cable ends with wire brush until bright.
8. Apply petroleum jelly or silicone spray to terminal to prevent corrosion.
9. Install battery. (See Removing and Installing the Battery in this section and Connect the Battery in the Assembly section.)



Charging the Battery

CAUTION: BE VERY CAREFUL: Battery fluid (electrolyte), is a solution of water and sulfuric acid. It is very harmful to eyes, skin, or clothing.

- Wear goggles or an eye shield when you work with a battery.

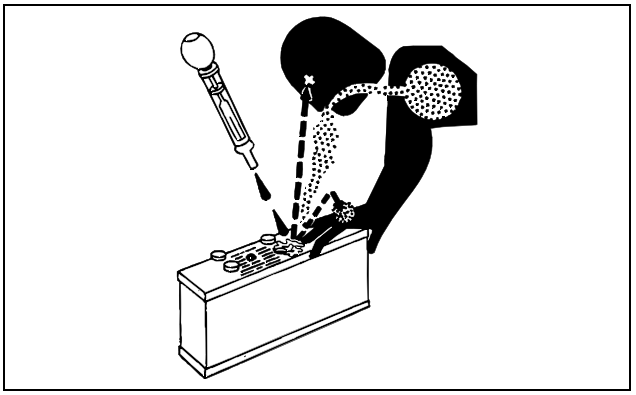
- If the acid contacts your eyes, skin, or clothing, flush the area immediately with water. Get medical help, if necessary.

A battery gives off gas which can explode. An exploding battery will spray sulfuric acid in all directions.

- Keep cigarettes, sparks, and flames away from the battery.

- Charge the battery in an area with good ventilation.

- DO NOT charge a frozen battery.



Before you charge a battery:

- Wait until the battery has warmed to room temperature. Do not charge a frozen battery.

Turn OFF and unplug the charger before you connect cables to the battery or disconnect cables from the battery.

If the battery becomes warm to touch during charging:

- Reduce the charging rate OR
- Stop charging the battery until it cools.

NOTE: Your charger may have an AUTOMATIC STOP to prevent charging the battery:

- When the battery is fully charged OR
- When the battery is not in condition to take a charge.

CAUTION: DO NOT attempt to open, add fluid or service battery. Any attempt to do so will void warranty and lead to possible injury.

Battery gas is explosive:

- DO NOT smoke while you charge battery.

- Keep all flames and sparks away.

- DO NOT charge frozen battery.

- DO NOT connect booster battery negative (-) cable to starting vehicle negative (-) terminal.

1. Remove battery from mower. (See Removing and Installing Battery in this section.)

2. Connect positive (+) charger cable to positive (+) battery terminal.

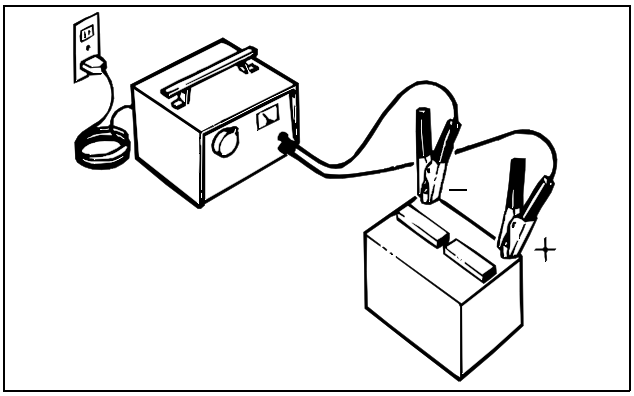
3. Connect negative (–) charger cable to negative (–) battery terminal.

4. Plug in charger cord.

5. Charge battery using a 12 Volt battery charger at a rate of 6–10 amperes for a minimum of 1 hour and no more than 2 hours.

6. Unplug charger cord. Remove charger cables.

7. Install battery. (See Removing and Installing Battery in this section.)



Using Booster Battery

CAUTION: Battery gas is explosive:

- DO NOT smoke while you charge battery.

- Keep all flames and sparks away.

- DO NOT charge frozen battery.

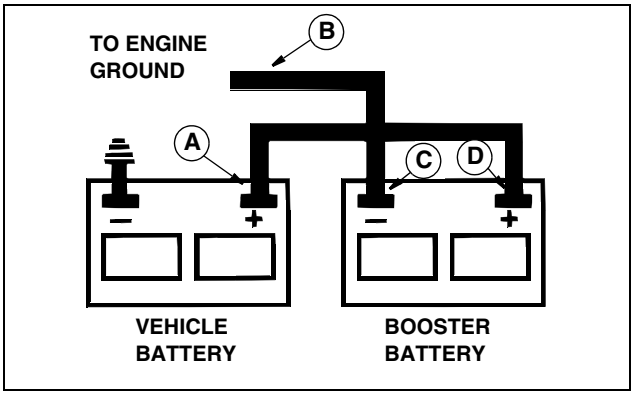
- DO NOT connect booster battery negative (-) cable to starting vehicle negative (-) terminal.

1. Connect positive (+) booster cable to booster battery positive (+) post (D).

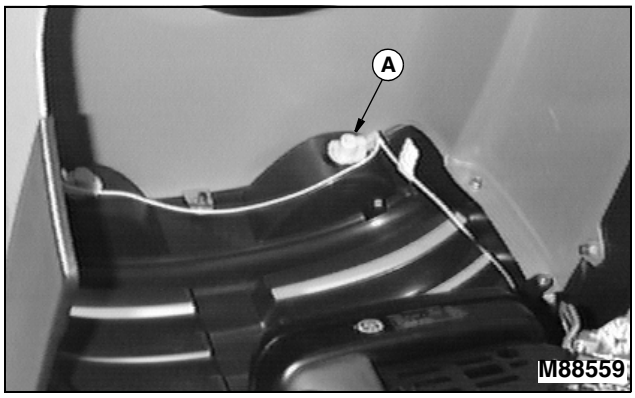
2. Connect the other end of positive (+) booster cable to vehicle battery positive (+) post (A).

3. Connect negative (–) booster cable to booster battery negative (–) post (C).

4. Connect the other end of negative (–) booster cable (B) to engine ground away from battery.

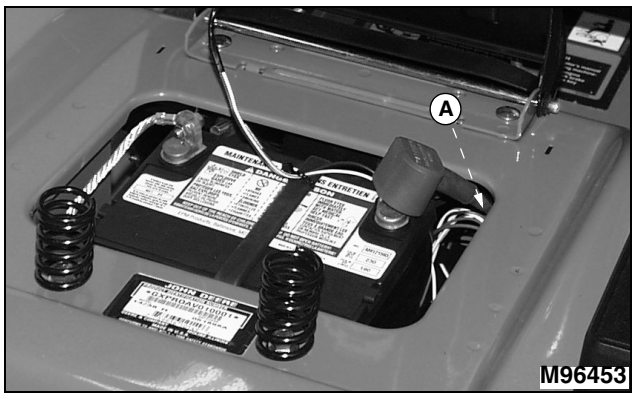


Replacing Headlight Bulb



1. Lift hood.
2. Push in and turn bulb socket (A) 1/4 turn counterclockwise to remove.
3. Replace defective bulb with a new bulb.
4. Insert bulb socket into housing, push in and turn 1/4 turn clockwise to install.
5. Lower hood.

Replacing Fuse



1. Lift seat.
2. Pull defective fuse (A) out of socket.
3. Check metal clip in fuse window and discard fuse if clip is broken.
4. Push new fuse into socket.
5. Lower seat.

Checking Tire Pressure

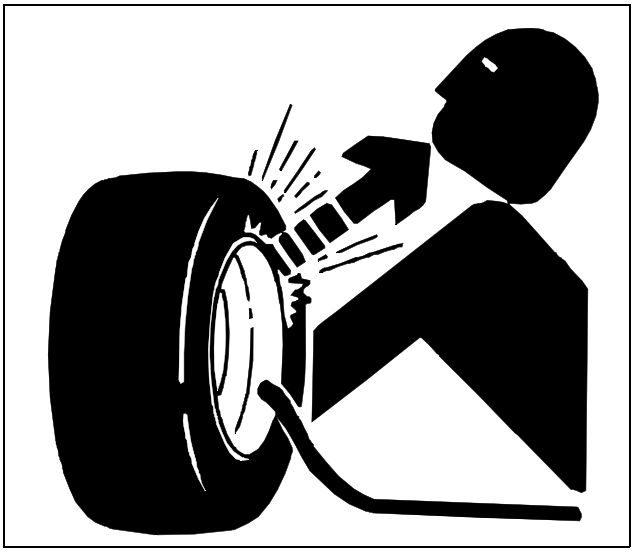
CAUTION: Explosive separation of a tire and rim parts can cause serious injury or death:

- Do not attempt to mount a tire without the proper equipment and experience to perform the job.

- Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

- When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly.

- Check tires for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.



1. Check tires for damage.
2. Check tire pressure with an accurate gauge.
3. Add or remove air, if necessary:

Tire Size	Pressure-kPa (psi)
Front: 15-Inch	97 kPa (14 psi)
Rear: 20-Inch	69 kPa (10 psi)

Fuel

CAUTION: Handle fuel with care, it is highly flammable and can cause serious injury or death:

- DO NOT refuel machine while you smoke, when machine is near an open flame or sparks, or when engine is running. STOP engine.

- Fill fuel tank outdoors.

- Prevent fires: clean oil, grease and dirt from machine. Clean up spilled fuel immediately.

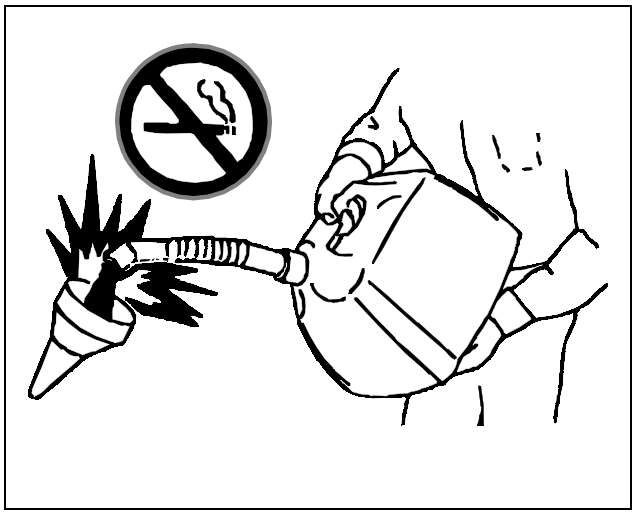
- Do not store machine with fuel in tank in a building where fumes may reach an open flame or spark.

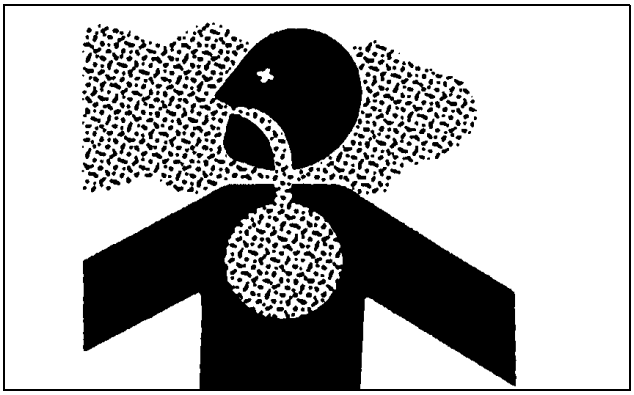
- To prevent fire and explosion caused by static electric discharge, while you fill tank, use a non-metal fuel container. If you use a funnel, MAKE SURE IT IS PLASTIC. Avoid using a funnel which has a metal screen or filter.

- Use only clean approved containers and funnels.

- Store oil and fuel in an area protected from dust, moisture and other contamination.

- DO NOT use METHANOL gasoline. METHANOL is harmful to the environment and to your health.





IMPORTANT: Avoid spilling fuel. Fuel can damage plastic and painted surfaces.

DO NOT mix oil with gasoline. Unleaded gasoline with an octane rating of 87 or higher is recommended.

Using Clean Fuels

Dirt in the fuel system is a major cause of performance problems. Be sure to clean any grass or trash from the top of the tank before removing lid. Use of a PLASTIC funnel with a plastic mesh strainer when filling the tank will prevent most foreign material from entering the tank.

Octane Rating

Regular grade 87 octane unleaded fuel is recommended for use in your tractor. Higher octane fuels will seldom make your tractor perform better. If your tractor develops a starting or performance problem immediately after use of new fuel, change supplier or fuel brand. If the problem still exists after switching fuel, see your John Deere dealer for service.

Fuel Blends

Fuels are blended to give peak performance during cold weather and warm weather. For cold weather, gasoline is specially blended to provide better starting capabilities. However, avoid prolonged storage of cold-weather blended fuel because it will evaporate more quickly. You may experience longer cranking times in cold weather with “old” fuel. Buy smaller amounts of cold-weather blended fuel in winter.

Fuels used during the summer are not required to provide improved starting properties so they are blended differently. As a result, you may experience hard starting or other performance problems during cold weather if you use fuel remaining from summer uses.

Oxygenated or Reformulated Fuels

Many areas are now required to add “oxygenates” (either alcohol or ether) which blend oxygen into the fuel to help reduce exhaust emissions. If you use oxygenated fuel be sure it is unleaded and meets the minimum octane rating requirement. DO NOT use fuel that contains methanol to avoid producing excess emissions.

Although fuels blended with alcohol or ether allow your engine to run cleaner, they may contribute to fuel system damage and performance problems by causing gum and varnish deposits, especially if fuel is stored for several weeks or more.

Using clean, fresh fuel will help to prevent damage to the fuel system and will help maintain peak engine performance. If engine performance problems occur, use fuel from another supplier before suspecting machine problems. Suppliers blend fuels differently and changing suppliers will generally solve any performance problems.

Using Fresh Fuel and Stabilizers

The best thing you can do to ensure peak performance of your engine is to use “fresh” fuel. Your tractor’s engine will perform well with most good-quality fresh fuels regardless of additives. Any fuel will begin to deteriorate and evaporate over time and begin to form gum and varnish deposits in the fuel system. Help to avoid this by buying only enough fuel to last approximately 30 days or add fuel stabilizer immediately.

Adding a fuel stabilizer to the fuel system is recommended any time the tractor will not be operated for more than 60 days. Varnish deposits may build up in the carburetor in as little as a few weeks by using stale, oxygenated fuel.

No stabilizer will work with “stale” fuel, any fuel that is more than 30 days old. (See **Preparing Your Engine For Storage** in this section for information on adding stabilizer to the fuel.)

Filling Fuel Tank

IMPORTANT: Dirt and water in fuel are major causes of engine performance problems. Prevent dirt and debris from entering the fuel tank when filling.

Fill the tank at the end of each day’s operation to help keep condensation out of the fuel tank.

Fuel tank capacity: 4.7 L (1.25 gal).

1. STOP engine. If engine is hot let it cool several minutes before you add fuel.
2. Lift hood.
3. Remove grass clippings and other trash from tank area.
4. Remove fuel tank cap (A).
5. Fill tank with fresh fuel only to bottom of filler neck.
6. Install fuel tank cap and lower hood.

Care for Plastic and Painted Surfaces

PLASTIC SURFACES

The plastic parts on your tractor are made of a blend of polycarbonate and polyester materials. These parts are extremely strong and durable. Unlike painted metal, the plastic parts will never dent or rust. If the plastic parts get scratched, the color will remain the same since the color goes through the entire part.

IMPORTANT: "Dry wiping" or wiping the plastic surface when it is dry will result in minor surface scratches. Always wet the surface before cleaning. Follow correct cleaning and waxing procedures.

Correct Cleaning Care:

NOTE: Follow cleaning procedure every time plastic surfaces are cleaned. DO NOT wipe dry plastic surface with hand or towel.

1. Before washing, rinse hood and entire machine with clean water to remove dirt and dust that may scratch the surface.

2. Wash plastic surface with clean water and a mild liquid automotive washing soap. Use a SOFT, CLEAN cloth (bath towel or automotive mitt) when washing.

3. Dry thoroughly with a SOFT, CLEAN cloth (diaper or bath towel).

4. Wax the surface with a liquid automotive wax. Use products that specifically say "contains no abrasives".

5. Remove applied wax by hand using a clean, soft cloth.

Avoid Damage:

- "Dry wiping" or wiping the plastic surface when it is dry is a major source of minor surface scratches.
- DO NOT wipe hood or other plastic parts unless wetted first.
- DO NOT apply wax unless plastic surface has been thoroughly cleaned first.
- DO NOT use abrasive materials, such as polishing compounds, to clean or to wax plastic surface.
- DO NOT wax plastic surfaces without drying first. Hard-to-remove water spots will be left.
- DO NOT use solvents or commercial cleaners.
- DO NOT use power buffers to remove wax.
- DO NOT spray insect repellent near machine. Insect repellent spray may damage plastic or painted surfaces.
- Be careful not to spill fuel on any plastic or painted surfaces. Wipe up fuel immediately.

Repair:

- Your John Deere dealer has the professional materials needed to properly remove surface scratches from any plastic surfaces.
- DO NOT attempt to paint over marks or scratches in plastic parts.
- DO NOT use polishing compounds to attempt to remove scratches.

PAINTED METAL SURFACES

Correct Cleaning Care:

Follow automotive practices to care for your tractor painted metal surfaces. Use a high-quality automotive wax regularly to maintain the factory look of your tractor's painted surfaces.

Repair:

Minor Scratches (surface scratch):

1. Clean area thoroughly to be repaired.

2. Use automotive polishing compound to remove surface scratches.

   - DO NOT use rubbing compound to avoid removing paint.

3. Apply wax to entire surface.

Deep Scratches (bare metal or primer showing):

1. Clean area to be repaired with rubbing alcohol or mineral spirits.

2. Use paint stick with factory-matched colors available from your John Deere dealer to fill scratches. Follow directions for use and for drying.

   - Apply sparingly to scratch without getting on surrounding painted surface. Fill in scratch to level of surrounding painted area.

   - Allow to dry 48 hours in warm weather and up to 30 days in colder temperatures.

3. Use automotive polishing compound to smooth out surface. Do not use power buffer.

4. Apply wax to surface.

Removing Mower

CAUTION: • Avoid injury, before removing mower on machine: STOP engine. Remove key. Wait for all moving parts to STOP.

• Mower lift lever under tension. To avoid injury, grasp lift lever securely and release lock slowly.

1. STOP engine, LOCK park brake, DISENGAGE PTO lever, turn key to the OFF position, and remove key.

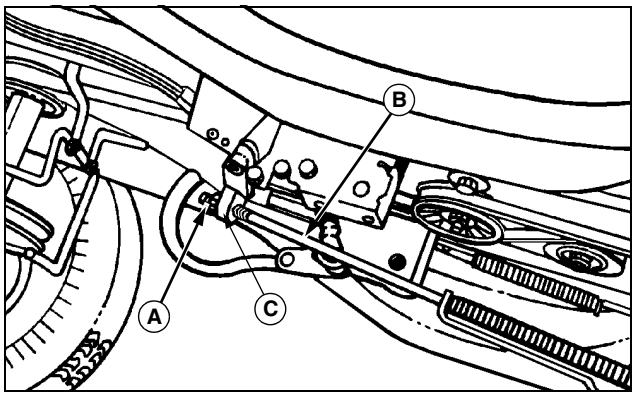
2. Raise mower lift lever to highest position.

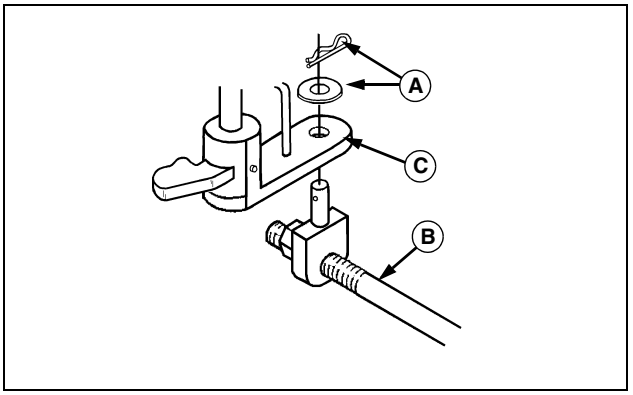
3. Put wood blocks under each side of mower.

4. Lower mower lift lever to lowest position, bringing deck down onto blocks.

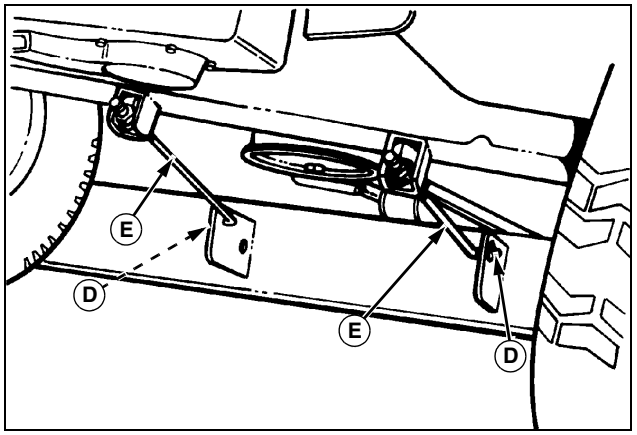
5. Remove mower deck drive belt from tractor engine pulley.

6. Remove spring locking pin and washer (A) holding tension rod (B) to blade drive arm (C).





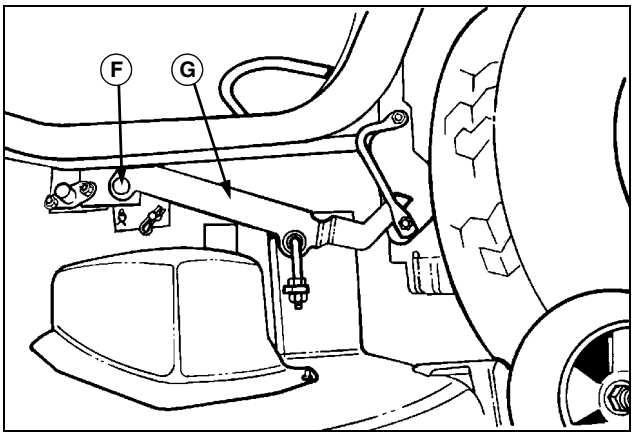
7. Remove spring locking pins and washers (D) from front draft rods (E) and remove draft arms from front axle brackets. Store draft arms with mower.



8. Remove spring locking pins and rear draft pins (F), one on each side, from rear draft brackets (G).

9. Raise mower deck lift lever to highest position and remove wood blocks.

10.Pull deck out from under tractor.



Installing Mower

CAUTION: • Avoid injury, before installing mower on machine: STOP engine. Remove key. Wait for all moving parts to STOP.
• Mower blades are sharp. To avoid injury, always wear gloves when handling mower deck.
• Mower lift lever under tension. To avoid injury, grasp lift lever securely and release lock slowly.

1. STOP engine, LOCK park brake, DISENGAGE PTO lever, turn key to the OFF position, and remove key.

2. Raise mower deck lift lever to the UPPER position.

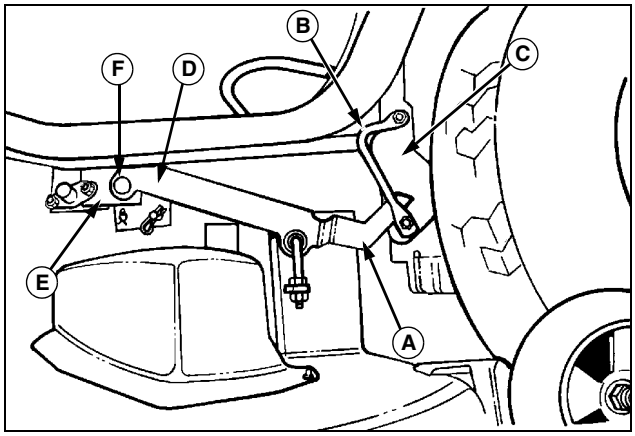
3. Turn steering wheel fully to the left. Carefully slide the mower deck under the right side of the tractor (with the mower discharge to tractors right side) taking care to avoid interference of the rear draft arms with the underside of the tractor.

4. Lower mower lift lever to the LOWEST position.
Picture Note: Left side of tractor shown.

5. Position the deck so the rear draft arms (A) are between the guide rods (B) and the lift arms (C).

6. Lift the mower deck. Place wood blocks under each side of mower deck and align the holes in the front of the rear draft brackets (D) with the holes in the frame bracket (E).

7. Insert rear draft pins (F) through rear draft arms and frame bracket from the outboard side. Secure with spring locking pins.
Picture Note: Front of left hand front wheel shown.

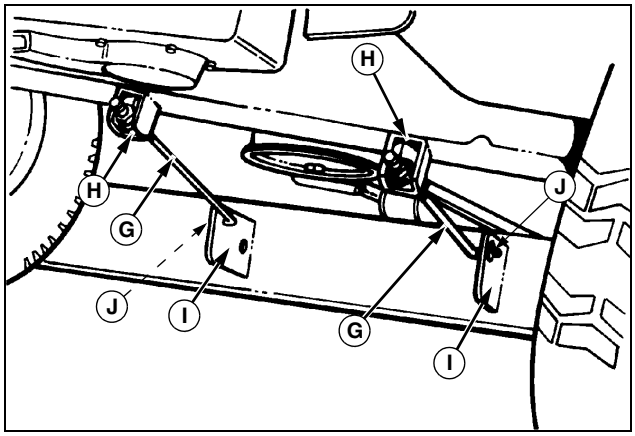


8. Insert angled end of front draft rod assemblies (G) through holes in front axle brackets (H).

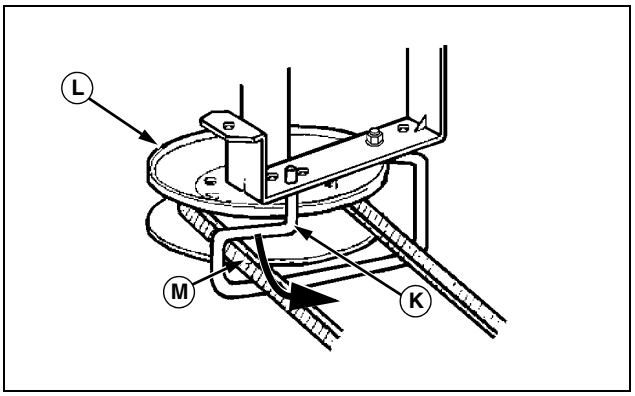
NOTE: The draft rod assemblies are inserted from the inside of the mower deck brackets toward the outside of the bracket.

9. Raise front of deck and block. Insert angled end of front draft rods into forward holes on the front brackets (I) of the mower deck.

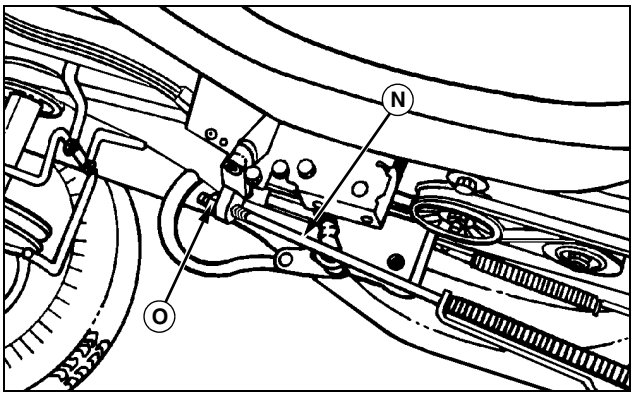
10.Secure each draft rod with flat washer and spring locking pin (J).



Picture Note: Shown from behind L.H. front wheel.



11.Pull down on left-hand side of belt guide (K) and rotate away from engine pulley (L). Install belt (M) onto pulley and return guide to original position. Insure that the guide is seated into the hole.

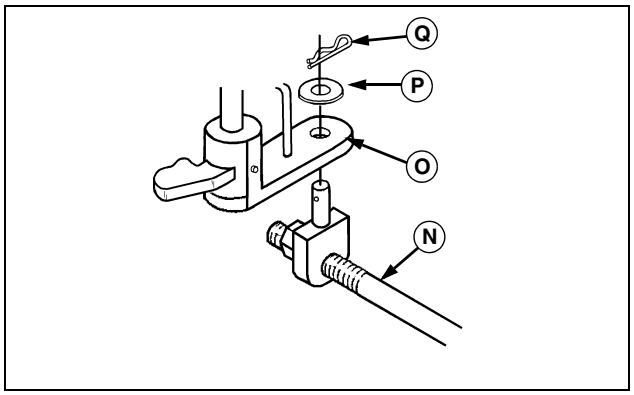


12.Raise tension rod (N) and attach to blade drive arm (O) using flat washer (P) and spring locking pin (Q).

13.Raise deck by pressing the lift lever lock and pulling the mower deck lift lever to its highest point.

14.Remove wood blocks from under deck.

15.Check for proper routing and position of all belts.



16.Level mower. (See Adjusting Mower Level (Side-to-Side and Front-to-Rear) in the Operating Mower section.)

17.Adjust gage wheels. (See Adjusting Mower Gage Wheels in the Operating Mower section.)

Using Troubleshooting Chart

If you are experiencing a problem that is not listed in this chart, see your Authorized Service Center for service.

When you have checked all the possible causes listed and you are still experiencing the problem, see your Authorized SABRE Service Center.

Engine

IF	CHECK
Engine will not start	Out of fuel.
	Loose or corroded electrical connections.
	PTO drive lever is in ON position.
	Fuse is blown.
	Spark plug wire is loose or disconnected.
	Brake switch not engaged.
	Engine flooded.
	Dirty air filter.
	Dirty fuel filter.
	Water in fuel.
	Bad starter solenoid.
	Carburetor out of adjustment.
	Engine valves out of adjustment.
Engine clicks but will not start	Weak or dead battery.
	Corroded battery terminals.
	Loose or damaged wiring.
	Faulty solenoid or starter.

IF	CHECK
Engine Hard To Start	Dirty air filter.
	Bad spark plug.
	Weak or dead battery.
	Dirty fuel filter.
	Stale or dirty fuel.
	Loose or damaged wiring.
	Carburetor out of adjustment.
	Engine valves out of adjustment.
	Below 32°F (0°C)
Loss of power	Cutting too much grass /too fast.
	Throttle in “CHOKE” position.
	Buildup of grass, leaves and trash under mower.
	Dirty air filter.
	Low oil/dirty oil.
	Faulty spark plug.
	Dirty fuel filter.
	Stale or dirty fuel.
	Water in fuel.
	Spark plug wire loose.
	Dirty engine air screen/fins.
	Dirty/clogged muffler.
	Loose or damaged wiring.
	Carburetor out of adjustment.
Engine continues to run when operator leaves seat	Faulty operator-presence safety switch.
Engine Backfires When Turning Engine “OFF”	Engine throttle control not set at “SLOW” position for 30 seconds before stopping engine.

IF	CHECK
Engine will not turn over	Clutch/brake pedal not depressed.
	Attachment clutch is engaged.
	Weak or dead battery.
	Blown fuse.
	Corroded battery terminals.
	Loose or damaged wiring.
	Faulty ignition switch.
	Faulty solenoid or starter.
	Faulty operator presence switch.
Headlight not working	Bulb(s) burned out.
	Loose or damaged wiring.
	Blown fuse.
Battery will not charge	Bad battery cell(s).
	Poor cable connections.
	Faulty regulator/rectifier.
Mower blades will not rotate	Obstruction in clutch mechanism, or blades.
	Worn/damaged mower drive belt.
	Frozen idler pulley.
	Frozen blade mandrel.
Engine Stops When Shift Lever Is Moved Rearward and Mower Is Engaged (Hydrostatic)	Normal condition. (See Using Reverse Implement Option in the OPERATING section.)
Engine Stops When Gear Shift Lever Is Moved To The R (REVERSE) Position and Attachment Is Engaged (Gear)	Normal condition. (See Using Reverse Implement Option in the OPERATING section.)

Mower

IF	CHECK
Discharge Chute Plugging	Belt worn or installed incorrectly.
	Grass too wet.
	Buildup of grass, leaves and trash under mower.
	Worn, bent or loose blade.
	Mower deck not level.
	Engine rpm too low.
	Travel speed too fast.
	Low/uneven tire pressure.
	Blades improperly installed.
	Improper blades used.
Patches Of Grass Uncut	Travel speed too fast.
	Engine rpm too low.
Belt Slipping	Debris in sheaves.
	Worn belt.
Too Much Vibration	Worn, bent or loose blade(s).
	Bent blade spindle.
	Damaged drive belt.
Blades Scalping Grass	Cutting too low.
	Turning speed too fast.
	Ridges in terrain.
	Rough or uneven terrain.
	Low tire pressure.
	Mower gauge wheels not adjusted correctly.
	Bent blade(s).

IF	CHECK
Uneven Cut	Mower not level.
	Travel speed too fast.
	Blades dull, bent or loose.
	Mower gauge wheels not adjusted correctly.
	Buildup of grass, leaves, and trash under mower.
	Bent blade spindle.
Grass Tips Are Jagged And Turn Grayish Brown After Mowing	Dull mower blades.
	Bent blades.
	Front-to-rear blade adjustment not set properly.
Mower Stops When Shift Lever Is Moved Rearward and Mower Is Engaged (Hydrostatic)	Normal condition. (See Using Reverse Implement Option in the OPERATING section.)
Mower Stops When Gear Shift Lever Is Moved To The R (REVERSE) Position and Mower Is Engaged (Gear)	Normal condition. (See Using Reverse Implement Option in the OPERATING section.)

STORING MACHINE

Storing Safely

CAUTION: Engine exhaust fumes can cause sickness or death.

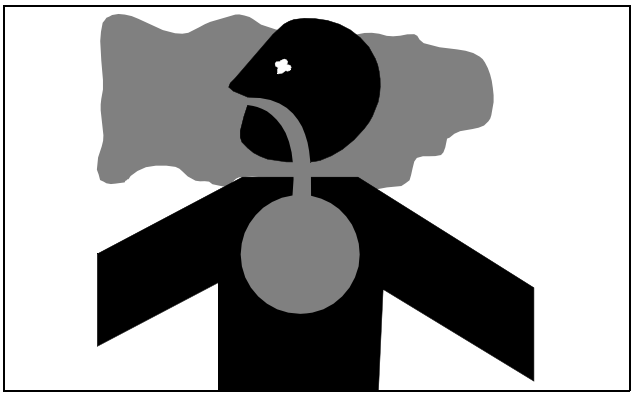
- If it is necessary to run an engine in an enclosed area, use an exhaust pipe extension to remove the fumes.

- Always try to work in a well ventilated area.

- DO NOT store vehicle with fuel in the tank inside a building where fumes may reach an open flame or spark.

- Allow engine to cool before storing in an enclosure.

- Remove the battery and store it in a cool dry place where it will not freeze, and where children cannot reach it.



Preparing Machine for Storage

1. Repair any worn or damaged parts. Replace parts if necessary. Tighten loose hardware.

2. Clean under the deck.

3. Paint scratched or chipped metal surfaces to prevent rust.

4. Wash the machine and apply wax to metal and plastic surfaces. (See SERVICE-MISCELLANEOUS section for care of plastic and metal surfaces.)

5. Run machine for five minutes to dry belts and pulleys.

6. Apply light coat of engine oil to pivot and wear points to prevent rust.

7. Lubricate grease points.

8. Make sure tires are properly inflated.

Preparing Engine For Storage

NOTE: Properly preparing your tractor engine for storage will make it easier to start the following season. Engine storage procedure should be used if vehicle is not used for longer than 60 days.

There are two satisfactory methods of preparing the engine for storage: running the engine completely dry of fuel, or filling the fuel tank with a mixture of fresh fuel and fuel stabilizer.

Running engine dry of fuel:

NOTE: Try to anticipate the last time the tractor will be used for the season so very little fuel is left in the fuel tank.

1. Park tractor in a well-ventilated area.
2. Engage park brake and disengage PTO.
3. Turn on engine and allow to run until it runs out of fuel.
4. Turn key to OFF position.
5. Continue with Preparing Engine.

Add fuel and stabilizer mixture to tank:

1. Park tractor in a well-ventilated area.

IMPORTANT: Be sure fuel is fresh when adding fuel stabilizer. Fuel stabilizers are ineffective when added to fuels that are more than 30 days old.

2. Mix fresh fuel and fuel stabilizer in separate container. Follow stabilizer instructions for mixing.

NOTE: Filling the fuel tank reduces the amount of air in the fuel tank and helps reduce deterioration of fuel.

3. Fill fuel tank with stabilized fuel.
4. Run engine for a few minutes to allow fuel mixture to circulate through carburetor.
5. Continue with Preparing Engine.

Preparing Engine

1. Change engine oil and filter while engine is warm.
2. Service air filter if necessary.
3. Clean debris from engine air intake screen.

4. Remove spark plugs. Put 30 mL (1 oz.) of clean engine oil in cylinders.

5. Install spark plugs, but DO NOT connect spark plug wires.

6. Crank the engine for approximately five seconds to allow oil to be distributed.

7. Clean the engine and engine compartment.

8. Remove battery.

9. Clean the battery and battery posts.

NOTE: The stored battery should be recharged every 90 days.

10.Charge the battery. (See **Charging Battery** in the SERVICE - ELECTRICAL section.)

11.Store the battery in a cool, dry place where it will not freeze.

12.Store the vehicle in a dry, protected place. If vehicle is stored outside, put a waterproof cover over it.

Removing Machine From Storage

1. Check tire pressure. (See Checking Tire Pressure in Service - Miscellaneous section.)

2. Fill fuel tank. Check engine oil level.

3. Take machine off of blocks or support stands.

4. Charge battery if necessary. Install battery. (See Removing and Installing the Battery in the SERVICE-ELECTRICAL section.)

5. Check spark plug gap. Install and tighten spark plug(S) to 20 N•m (15 lb-ft).

6. Lubricate all grease points.

7. Check automatic transmission oil level.

8. Run the engine 5 minutes without the mower or any attachments running to allow oil to be distributed throughout engine.

9. Be sure all shields and guards are in place.

Gear Model 1438GS

Engine Manufacturer . . . . . Briggs & Stratton
Horsepower (SAE1349) . . . . . 10.8 kW (14.5 hp)
Displacement . . . . . 465 cc (28.4 cu.in.)
Crankcase Capacity (Without Filter) . . . . . 1.4 L (1 1/2 qt.)
Spark Plug-Gap . . . . . 0.76 mm (0.030 in.)
Cylinders . . . . . One
Oil Filter . . . . . None
Air Filter . . . . . Paper with Foam
Transmission . . . . . Gear Transaxle
Transaxle Manufacturer . . . . . Dana 4360
Travel Speeds 5
Gear Speed Range-Forward . . . . . 1st: 2.4 km/h (1.5 mph)
. . . . . 2nd: 3.2 km/h (2.0 mph)
. . . . . 3rd: 5.0 km/h (3.1 mph)
. . . . . 4th: 6.4km/h (4.0 mph)
. . . . . 5th: 8.0 km/h (5.0 mph)
Gear Speed - Reverse . . . . . 3.7 km/h (2.3 mph)

Automatic Models 1438HS, 1538HS, 1542HS, 1642HS, and 1646HS

Engine Manufacturer . . . . . Briggs & Stratton
Horsepower (SAE1349):
1438HS . . . . . 10.8 kW (14.5 hp)
1538HS and 1542HS . . . . . 11.6 kW (15.5 hp)
1642HS and 1646HS . . . . . 11.9 kW (16 hp)
Displacement . . . . . 465 cc (28.4 cu.in.)
Crankcase Capacity (Without Filter) . . . . . 1.4 L (1 1/2 qt.)
Crankcase Capacity (With Filter) . . . . . 1.7 L (1 3/4 qt.)
Spark Plug-Gap . . . . . 0.76 mm (0.030 in.)
Cylinders . . . . . One
Oil Filter:
1438HS, 1538HS, and 1542HS . . . . . None
1642HS and 1646HS . . . . . Yes
Air Filter . . . . . Paper with Foam
Transmission . . . . . Hydrostatic
Transaxle Manufacturer . . . . . Tuff Torq™ K51
Travel Speed - Forward . . . . . 9.3 km/h (0 - 5.8 mph)
Travel Speed - Reverse . . . . . 4.7 km/h (0 - 2.9 mph)

Automatic Model 1846HV-Vanguard

Engine Manufacturer	Briggs & Stratton
Horsepower (SAE1349)	13.4 kW (18 hp)
Displacement	570 cc (34.8 cu.in.)
Crankcase Capacity (Without Filter)	1.19 L (1.25 qt.)
Crankcase Capacity (With Filter)	1.66 L (1.75 qt.)
Spark Plug-Gap	0.76 mm (0.030 in.)
Cylinders	Two
Oil Filter	Yes
Air Filter	Dry, Replaceable Foam
Transmission	Hydrostatic
Transaxle Manufacturer	Tuff Torq™ K51
Travel Speed - Forward	9.3 km/h (0 - 5.8 mph)
Travel Speed - Reverse	4.7 km/h (0 - 2.9 mph)

Automatic Model 1846HMS-Intek

Engine Manufacturer	Briggs & Stratton
Horsepower (SAE1349)	13.4 kW (18 hp)
Displacement	656 cc (40 cu.in.)
Crankcase Capacity (Without Filter)	1.42 L (1.50 qt.)
Crankcase Capacity (With Filter)	1.9 L (2 qt.)
Spark Plug-Gap	0.76 mm (0.030 in.)
Cylinders	Two
Oil Filter	Yes
Air Filter	Dry, Replaceable Foam
Transmission	Hydrostatic
Transaxle Manufacturer	Tuff Torq™ K51
Travel Speed - Forward	9.3 km/h (0 - 5.8 mph)
Travel Speed - Reverse	4.7 km/h (0 - 2.9 mph)

Electrical System (All Models)

Charging System	Dual Circuit AC/DC
Charging System Capacity	2-4 Amp
Battery Voltage	12 Volts
Battery Type	BCI Group U1

SPECIFICATIONS

Fuel (All Models)

Fuel Type	**See Fuel in the Service Miscellaneous section**
Fuel Tank Capacity	**4.7 L (1.25 Gal)**

Dimensions (All Models)

Height	**98 cm (38.6 in)**
Length (Overall)	**152.4 cm (60 in)**
Width (Overall)	**91 cm (36 in)**
Weight:	
1438GS, 1438HS, and 1538HS	**176 kg (388 lb)**
1542HS	**179 kg (396 lb)**
1642HS	**180 kg (398 lb)**
1646HS	**191 kg (422 lb)**
1846HV	**200 kg (452 lb)**
1842HVI	**200 kg (452 lb)**
1846HVI	**200 kg (452 lb)**

Tires (All Models)

Size (Front)	**15 x 6.50 - 6**
Size (Rear)	**20 x 8.0 - 8**
Tire Pressure (Front)	**97 kPa (14 psi)**
Tire Pressure (Rear)	**69 kPa (10 psi)**

Mower Deck (38-Inch)

Blades-Rotary	**2**
Blade Bolt Torque	**56 N•m (41 lb-ft)**
Cutting Height-Approx.	**25–102 mm (1–4 in.)**
Cutting Width	**965 mm (38 in.)**

SPECIFICATIONS

Mower Deck (42-Inch)

Blades-Rotary 2
Blade Bolt Torque . . . . . 56 N•m (41 lb-ft)
Cutting Height-Approx. . . . . 25–102 mm (1–4 in.)
Cutting Width . . . . . 1067 mm (42 in.)

Mower Deck (46-Inch)

Blades-Rotary 3
Blade Bolt Torque . . . . . 56 N•m (41 lb-ft)
Cutting Height-Approx. . . . . 25–102 mm (1–4 in.)
Cutting Width . . . . . 1168 mm (46 in.)

Recommended Lubricants

Engine Oil . . . . . John Deere PLUS-4 ®
Grease. . . . . John Deere MOLY HIGH Temperature ® EP

(Specifications and design subject to change without notice.)

WARRANTY

Product Warranty

The warranties described below are provided by John Deere Company (“John Deere”) to the original purchasers of new Sabre Products. Product warranty is provided as part of John Deere’s support program for customers who operate and maintain their equipment as described in this manual. The following warranties are in addition to the product warranty you received from your dealer at the time of sale.

All parts of any new Sabre product, except tires and batteries, are warranted for the number of months / days specified below:

SABRE PRODUCTS	WARRANTY TERM
IN RESIDENTIAL (Private Homeowner) APPLICATION	24 Months
IN ANY OTHER APPLICATION	90 Days

Tire Warranty

John Deere warranty applies for tires available through the John Deere parts system. For tires not available through the John Deere parts system, the tire manufacturer’s warranty applicable to your machine may not apply outside the U.S. (See your John Deere dealer for specific information.

Limited Engine Warranty

FEDERAL AND CALIFORNIA EMISSION CONTROL DEFECTS WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The United States Environmental Protection Agency (EPA), the California Air Resources Board (CARB) and Deere & Company (John Deere) are pleased to explain the emission control system warranty on your 1995 and later utility or lawn and garden equipment engine. In California new utility and lawn and garden equipment engines must be designed, built and equipped to meet the State’s stringent anti-smog standards. In other states, new 1997 and later model year equipment engines must be designed, built and equipped, at the time of sale, to meet the U.S. EPA regulations for small non-road engines. The engine must be free from defects in materials and workmanship which cause it to fail to conform with U.S. EPA standards for the first two years of engine use from the date of sale to the ultimate purchaser. John Deere must warrant the emission control system on your utility or lawn and garden equipment engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your utility or lawn and garden equipment engine.

Your emission control system may include parts such as the carburetor or fuel-injection system, the ignition system, and catalytic converter. Also included may be hoses, belts, connectors and other emission related assemblies.

Where a warrantable condition exists, John Deere will repair your utility or lawn and garden equipment engine at no cost to you including diagnosis, parts and labor.

MANUFACTURER’S WARRANTY COVERAGE

In California, the 1995 and later utility and lawn and garden equipment engines are warranted for two years. In other states, 1997 and later model year equipment engines are warranted for two years. If any emission related part on your engine is defective, the part will be repaired or replaced by John Deere.

OWNER'S WARRANTY RESPONSIBILITIES

As the utility or lawn and garden equipment engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. John Deere recommends that you retain all receipts covering maintenance on your utility or lawn and garden equipment engine, but John Deere cannot deny warranty solely for lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the utility or lawn and garden equipment engine owner, you should however be aware that John Deere may deny you warranty coverage if your utility or lawn and garden equipment engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your utility or lawn and garden equipment engine to an authorized John Deere Commercial and Consumer Equipment Retailer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact your John Deere Commercial and Consumer Equipment Retailer, or the John Deere Customer Communications Center,
1-800-537-8233.

JOHN DEERE EMISSION CONTROL SYSTEM WARRANTY COVERAGE

LENGTH OF WARRANTY COVERAGE

John Deere warrants to the initial owner and each subsequent purchaser that the lawn and garden equipment engine is:

- Designed, built and equipped so as to conform with all applicable regulations adopted by the California Air Resources Board (CARB) pursuant to its authority in Chapters 1 and 2, Part 5, Division 26 of the Health and Safety Code for 1995 and later equipment engines, and all applicable regulations of the United States Environmental Protection Agency (EPA) for 1997 and later equipment engines; and
- Free from defects in materials and workmanship which can cause the failure of an emission warranted part for a period of two years after the engine is delivered to the initial retail purchaser. John Deere is liable for damages to other engine components caused by the failure of a warranted part during the warranty period. If any emission related part on your engine is defective, the part will be repaired or replaced by John Deere.

WARRANTED PARTS

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

Fuel Metering System:	Fuel Metering System:
	Carburetor and internal parts (or fuel injection system).
	Cold start enrichment system.
	Air/fuel ratio feedback and control system.
Air Induction System:	Air Cleaner
	Controlled hot air intake system.
	Intake manifold.
Particulate Controls:	Traps, filters, precipitators, and any other device used to capture particulate emissions.

Exhaust Gas Recirculation (EGR) System:	EGR valve body and carburetor spacer if applicable.
	EGR rate feedback and control system.
Ignition System:	Spark plugs.
	Magneto or electronic ignition system.
	Spark advance/retard system.
Air Injection System:	Air pump or pulse valve.
	Valves affecting distribution of flow.
	Distribution manifold.
Catalyst or Thermal Reactor System:	Catalytic converter.
	Thermal reactor.
	Exhaust manifold.
Miscellaneous Items Used in Above Systems	Vacuum, temperature, and time sensitive valves and switches.
	Electronic controls.
	Hoses, belts, connectors, and assemblies.

Since emission related parts may vary slightly from model to model, certain models may not contain all of these parts and certain models may contain functionally equivalent parts.

WARRANTY SERVICE AND CHARGES

Warranty service shall be provided during customary business hours at any authorized John Deere Commercial and Consumer Equipment Retailer located within the United States of America. Repair or replacement of any warranted part will be performed at no charge to the owner, including diagnostic labor which leads to the determination that a warranted part is defective, if the diagnostic work is performed at an authorized John Deere Commercial and Consumer Equipment Retailer. Any parts replaced under this warranty shall become the property of John Deere.

MAINTENANCE WARRANTY COVERAGE

a) Any warranted part which is not scheduled for replacement as required maintenance shall be warranted as to defects for the warranty period. Any such part repaired or replaced under the warranty shall be warranted for the remaining warranty period.

b) Any warranted part which is scheduled only for regular inspection to the effect of “repair or replace as necessary” shall be warranted as to defects for the warranty period. Any such part repaired or replaced under the warranty shall be warranted for the remaining warranty period.

c) Any warranted part which is scheduled for replacement as required maintenance shall be warranted as to defects only for the period of time up to the first scheduled replacement for that part. Any such part repaired or replaced under the warranty shall be warranted for the remainder of the period prior to the first scheduled replacement point for that part.

d) Normal maintenance, replacement or repair of emission control devices and systems, which are being done at the customers expense, may be performed by any repair establishment or individual; however, warranty repairs must be performed by an authorized John Deere Commercial and Consumer Equipment Retailer.

e) Any replacement part that is equivalent in performance and durability may be used in the performance of any non-warranty maintenance or repairs, and shall not reduce the warranty obligations of John Deere.

CONSEQUENTIAL WARRANTY COVERAGE

Warranty coverage shall extend to the failure of any engine components caused by the failure of any warranted part still under warranty.

LIMITATIONS

This Emission Control System Warranty shall NOT cover any of the following:

a) Repair or replacement required as a result of (i) misuse or neglect, (ii) improper maintenance or unapproved modifications, (iii) repairs improperly performed or replacements improperly installed, (iv) use of replacement parts or accessories not conforming to John Deere specifications which adversely affect performance and/or durability, (v) alterations or modifications not recommended or approved in writing by John Deere.

b) Replacement parts, other services and adjustments necessary for normal maintenance.

c) Transportation to and from the John Deere Commercial and Consumer Equipment Retailer, or service calls made by the Retailer.

LIMITED LIABILITY

a) The liability of John Deere under this Emission Control System Warranty is limited solely to the remedying of defects in materials or workmanship. This warranty does not cover inconvenience or loss of use of the utility or lawn and garden equipment engine or transportation of the engine to or from the John Deere Commercial and Consumer Equipment Retailer. JOHN DEERE SHALL NOT BE LIABLE FOR ANY OTHER EXPENSE, LOSS, OR DAMAGE, WHETHER DIRECT, INCIDENTAL, CONSEQUENTIAL (EXCEPT AS LISTED ABOVE UNDER “COVERAGE”) OR EXEMPLARY ARISING IN CONNECTION WITH THE SALE OR USE OF OR INABILITY TO USE THE UTILITY OR LAWN AND GARDEN ENGINE FOR ANY OTHER PURPOSE.

b) NO EXPRESS EMISSION CONTROL SYSTEM WARRANTY IS GIVEN BY JOHN DEERE WITH RESPECT TO THE ENGINE EXCEPT AS SPECIFICALLY SET FORTH IN THIS DOCUMENT. ANY EMISSION CONTROL SYSTEM WARRANTY IMPLIED BY LAW, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS EXPRESSLY LIMITED TO THE EMISSION CONTROL SYSTEM WARRANTY TERMS SET FORTH IN THIS DOCUMENT.

c) No dealer is authorized to modify this Federal, California and John Deere Emission Control System Warranty.

LEGAL RIGHTS

This Warranty gives you specific legal rights. You may also have other rights in the State of California for 1995 and later equipment engines and in other states for 1997 and later equipment engines.

THIS FEDERAL AND CALIFORNIA EMISSION CONTROL SYSTEM WARRANTY IS IN ADDITION TO THE JOHN DEERE LIMITED ENGINE WARRANTY.

Limited Battery Warranty

NOTE: Applicable in North American only. For complete machine warranty, reference a copy of the John Deere warranty statement. Contact your John Deere dealer to obtain a copy.

TO SECURE WARRANTY SERVICE

The purchaser must request warranty service from a John Deere dealer authorized to sell John Deere batteries, and present the battery to the dealer with the top cover plate codes intact.

FREE REPLACEMENT

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship within 90 days of purchase will be replaced free of charge. Installation costs will be covered by warranty if (1) the unserviceable battery was installed by a John Deere factory or dealer, (2) failure occurs within 90 days of purchase, and (3) the replacement battery is installed by a John Deere dealer.

PRO RATA ADJUSTMENT

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship more than 90 days after purchase, but before the expiration of the applicable adjustment period, will be replaced upon payment of the battery's current list price less a pro rata credit for unused months of service. The applicable adjustment period is determined from the Warranty Code printed at the top of the battery and chart below. Installation costs are not covered by warranty after 90 days from the date of purchase.

THIS WARRANTY DOES NOT COVER

A. Breakage of the container, cover, or terminals.

B. Depreciation or damage caused by lack of reasonable and necessary maintenance or by improper maintenance.

C. Transportation, mailing, or service call charges for warranty service.

LIMITATION OF IMPLIED WARRANTIES AND PURCHASER'S REMEDIES

To the extent permitted by law, neither John Deere nor any company affiliated with it makes any warranties, representations, or promises as to the quality, performance or freedom from defect of the products covered by this warranty. IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT APPLICABLE, SHALL BE LIMITED IN DURATION TO THE APPLICABLE ADJUSTMENT PERIOD SET FORTH HERE. THE PURCHASER'S ONLY REMEDIES IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ON JOHN DEERE BATTERIES ARE THOSE SET FORTH HERE. IN NO EVENT WILL THE DEALER, JOHN DEERE OR ANY COMPANY AFFILIATED WITH JOHN DEERE BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. (Note: Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages. So these limitations and exclusions may not apply to you.) This warranty gives you specific legal rights, and you may also have some rights which vary from state to state.

NO DEALER WARRANTY

The selling dealer makes no warranty of it's own and the dealer has no authority to make any representation or promise on behalf of John Deere, or to modify the terms or limitations of this warranty in any way.

PRO RATA MONTHS OF ADJUSTMENT

NOTE: If your battery is not labeled with a warranty code, it is a warranty code "B".

Warranty Code	Warranty Period
A	40 Months
B	36 Months
C	24 Months

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SABRE SERVICE LITERATURE

Order Form

John Deere Distribution Center - Department S/P P.O. Box 186, Moline, IL 61266-0186

To order these publications, call 1-800-522-7448. If you want manuals or catalogs for equipment not shown on this list, provide the model number, serial number, and name of the product when you call. Make checks payable to John Deere.

Name _____

Address _____

City _____

State _____

Zip _____ **Phone**: ( ) _____

Title	Number	Price	Qty	Total
Parts Catalog: 1438GS/1438HS 1538HS 1542HS 1642HS 1646HS 1846HV	 PC2675 PC2676 PC2677 PC2678 PC2679 PC2713	(Call 1-800-522-7448 for current prices.)		
Operator's Manual	OMGX10485			
Technical Manual	TM1769			
Sub-total				
State Sales Tax (Illinois & Iowa only)				
Shipping & Handling				
Total				
Method of Payment __ Check/Money Order Enclosed __ John Deere Credit Card __ MasterCard __ Visa __ American Express __ Discover __ Farm Plan				
Credit Card Acct. No. (13 or 16 digits) _____ - _____ - _____ - _____		Expiration Date: _____		Signature: _____

NOTES