

http://manuals.deere.com/cceomview/OMMT6354_A9/Output/OMMT6354_A914.html

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Introduction

THANK YOU for purchasing a John Deere product.

MIF

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

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

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:

PRODUCT IDENTIFICATION NUMBER (A):

ENGINE SERIAL NUMBER (B):

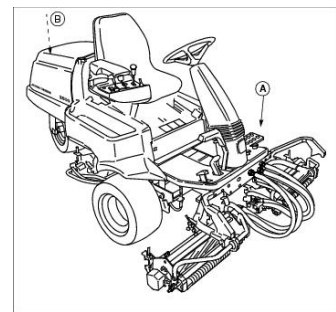
OMMT6354

Issue A9

2500 Professional Greensmower

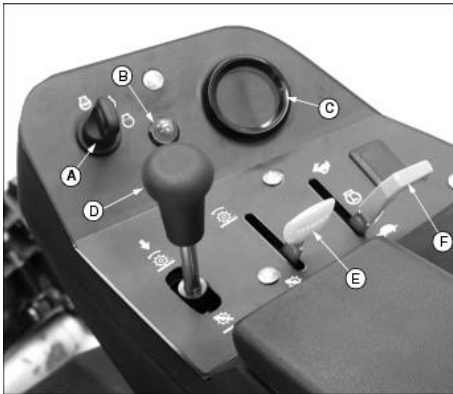
Gas PIN (010001-)

Diesel PIN (010001-)



Controls

Console Controls-Diesel Model



M97365

A - Key Switch

B - Glow Plug Indicator Light

C - Indicator Lights

D - Raise/Lower Lever

E - Mow/Transport Lever

F - Throttle Control Lever

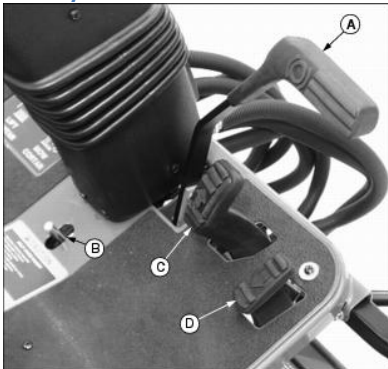
Pedestal Controls-Diesel Model



M97366

A - Tilt Steering Adjustment Handle

Foot/Platform Controls



M97302

A - Park Brake Pedal/Emergency Brake

B - Park Brake Lock

C - Forward Travel Pedal

D - Reverse Travel Pedal

Miscellaneous Controls



M97305

A - Seat Adjustment Lever

B - Fuel Gauge

M97389



Operating Machine

Operate Safely

MIF

- 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.

Mount And Dismount Safely

M97417

- Do not step on pedals when mounting or dismounting.
- Keep step area and platform clean.
- Stop machine, move Mow/Transport lever to transport position, lower cutting units to the ground, lock park brake, stop engine, remove key, and wait for all moving parts to stop before dismounting.

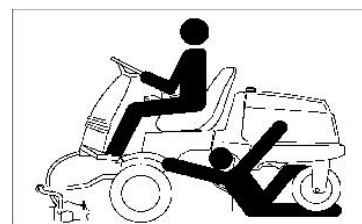
Park Safely

- Stop machine on a level surface, not on a slope.
- Move the Mow/Transport lever to the TRANSPORT) position.
- Engage and lock park brake.
- STOP engine.
- Remove key.
- Before you leave the operator's location, wait for engine and all moving parts to STOP.

Keep Riders Off

M97416

- Only allow the operator on the machine. Keep riders off the machine.
- Riders on the machine 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.

Operator Training Required

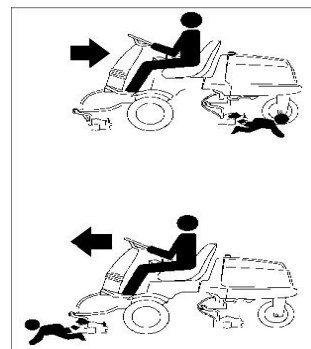
- Study operation section of this manual before operating the machine.
- Operate machine in an open, unobstructed area under the direction of an experienced operator.
- Learn the use of all controls before operating on a green.
- Operator experience is required to learn the moving, stopping, turning and other operating characteristics of the machine.

Rotating Blades are Dangerous - Protect Children and Prevent Accidents

M97410

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:

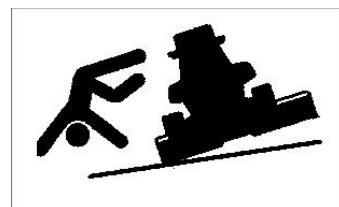
- Be alert at all times, drive forward carefully. People especially children can move quickly into the mowing area before you know it.
- Back carefully. Shut off cutting units and look behind the machine carefully, especially for children, before you back up.
- DO NOT mow in reverse.
- Shut off cutting units 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.

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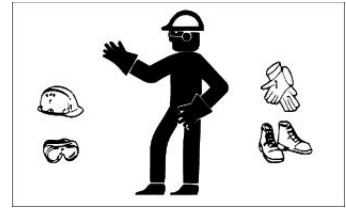
- Stay alert for holes and other hidden hazards in the terrain while driving to the work site.
- Keep away from drop-offs.
- Slow down before you make a sharp turn or operate on a slope.
- MOW UP AND DOWN A HILL-NOT ACROSS. Use caution when changing direction on a slope.



Wear Appropriate Clothing

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- 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.



Check Wheel Bolts

- A serious accident could occur causing serious injury if wheel bolts are not tight.
- Check wheel bolt tightness often during the first 100 hours of operation.

Transport Safely

MIF

- 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.
- Flashing warning lights are recommended whenever driving on public roads to increase visibility. Extra flashing warning lights may need to be installed.

Avoid Neutral Creep

- The machine may creep forward or backward while in neutral with engine running.
- After engine has started, release parking brake and with directional speed control speed pedals centered, machine should not move.
- If movement is evident, neutral return mechanism is adjusted incorrectly. (See **Adjusting Transmission Neutral** and **Adjust Neutral Lock** in the **Service-Hydraulics and Transmission** section).

Avoid High Pressure Fluids

- Hydraulic hoses and lines can fail due to physical damage, kinks, age, and exposure. Check hoses and lines regularly. Replace damaged hoses and lines.

MIF

- Hydraulic fluid connections can loosen due to physical damage and vibration. Check connections regularly. Tighten loose connections.
- Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.
- Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.
- If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors



unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A. Information may be obtained in the United States and Canada only by calling 1-800-822-8262.

Adjusting Operator Seat

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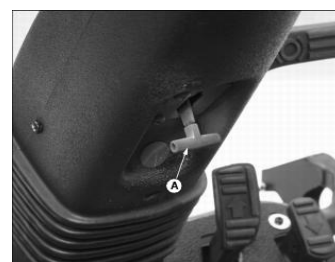
1. Sit on the operator's seat.
2. Pull and hold lever (A) to the left.
3. Slide seat forward or backward to desired position.
4. Release lever.

Adjusting Tilt Steering Wheel

M97365

Picture Note: Tilt steering wheel adjustment T-handle on diesel model shown.

1. Sit on the operator's seat.
2. Raise and hold adjustment T-handle (A).
3. Move steering wheel to desirable operating position.
4. Lower T-handle to lock steering wheel in position.

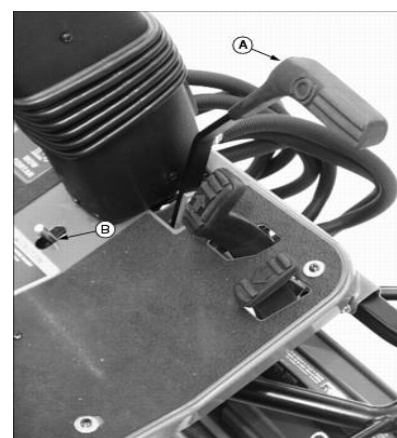


Using the Park Brake

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Locking the Park Brake

1. Depress and hold brake pedal (A) down with right foot.
2. Depress park brake lock (B) with left foot.
3. Release park brake pedal.
4. Release park brake lock. Park brake pedal and park brake lock should remain locked in the down position.



NOTE: Forward and reverse travel pedals are not operational when park brake is locked.

Unlocking the Park Brake

1. Depress park brake pedal (A). Park brake lock (B) should release immediately.

Glow Plug (Diesel Model)

NOTE: Glow plugs preheat the combustion chamber for better starting performance.

1. Turn key switch to the RUN position.

- The amber glow plug indicator light (A) should go on.

M97365

- The indicator light should go off in approximately three seconds after the key switch is turned to the RUN position.

2. Turn the key switch to the START position.

- When the engine starts, release key switch to the RUN position.



Using the Raise/Lower Lever

M97301

Picture Note: Console controls on gas (petrol) model shown.

1. Push Raise/Lower lever (A) forward to lower cutting reels.

- If the Mow/Transport lever (B) is in the MOW position the cutting reels will begin to rotate.

- If the Mow/Transport lever is in the TRANSPORT position, cutting units will lower but will not engage.

2. Pull lever (A) rearward to raise cutting units.

- If the Mow/Transport lever is in the MOW position cutting reel rotation will stop.



Using the Mow/Transport Lever

M97301

Picture Note: Console controls on gas (petrol) model shown.

1. Pull the Raise/Lower lever (A) rearward to raise cutting units.

2. Move the Mow/Transport lever (B) to the MOW position.

3. Push the Raise/Lower lever forward to lower cutting units.

- Cutting reels will begin to rotate when the cutting units are lowered.

4. Pull Raise/Lower lever rearward to raise cutting units.

- Cutting reels will stop rotating when the cutting units are raised.

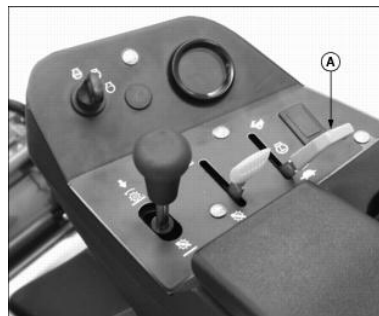
5. Move the Mow/Transport lever to the TRANSPORT position to disengage reel drive for cutting units.

Using the Throttle Lever

M97301

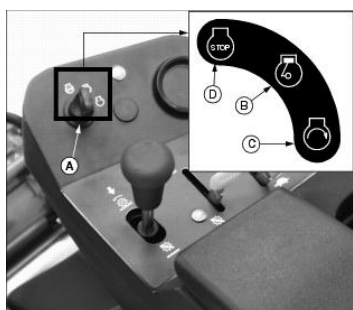
Picture Note: Console controls on gas (petrol) model shown.

- Push throttle lever (A) all the way forward to the FAST (r) position when mowing.
- Move lever (A) to the half throttle (R) position when starting and warming the engine.
- Pull lever (A) all the way rearward to the SLOW (t) position. Do not run engine at SLOW (t) idle any longer than necessary.



Using the Key Switch

NOTE: To help prevent engine backfiring, the engine will continue to run approximately two seconds after keyswitch is turned to the "STOP" position. After engine has stopped, an approximate two-second delay will prevent the engine from immediately being restarted.

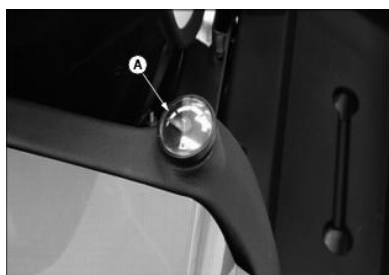


M97301

Picture Note: Console controls on gas (petrol) model shown.

- Turn key switch (A) to the RUN position (B). The engine oil pressure indicator light and battery indicator light should come on. Engine is ready to start.
- Turn key switch to the START position (C) to start engine.
- Turn key switch to the STOP position (D) to stop engine.

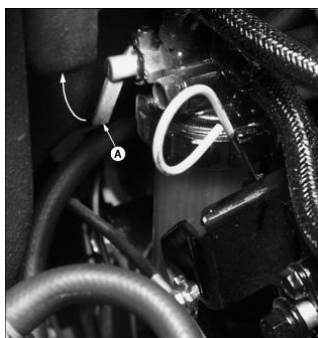
Using the Fuel Gauge



- Fuel gauge (A) indicates fuel level.

M97389

Using Fuel Shut-Off Valve (Diesel Model)



M97370

Picture Note: Fuel shut-off valve shown in the open position.

1. Open rear engine cowling.
2. Locate fuel filter sediment bowl assembly on the left side of the engine.
3. Rotate two position fuel shut-off valve lever (A) to the "O" (open) position or "C" (closed) position.

"C" (Closed) position:

- When performing any type of engine service.
- When transporting.
- During periods of extended storage.

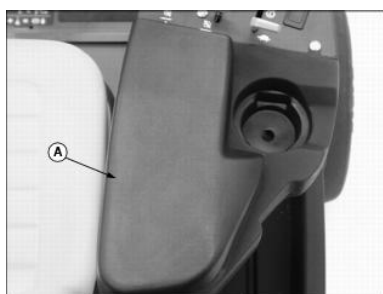
"O" (Open) position:

- Fuel shut-off valve must be in the full OPEN position for proper fuel delivery to the engine.

Using the Hour Meter

NOTE: Hour meter will continue to run when key switch is left in the RUN position.

- Open hinged console control armrest (A) to locate hour meter.



M97367



M97368

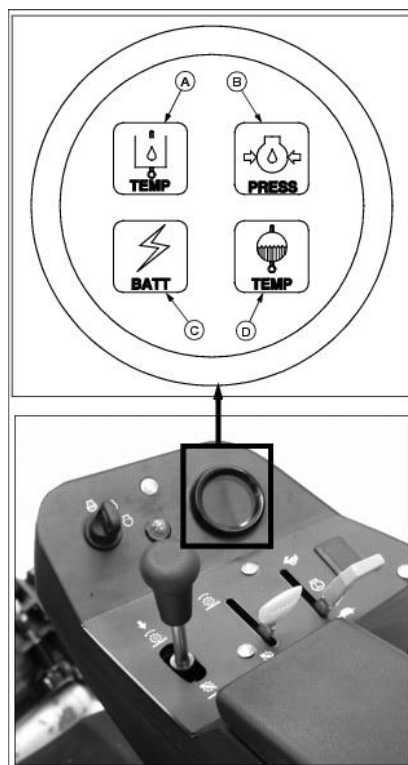
- The hour meter (B) shows the approximate number of hours the greensmower has run.
- The service interval chart provides information on necessary service intervals. Use the hour meter and Service Interval Chart to determine when the greensmower will need service. (See **Service Interval Chart**.)

Indicator Lights

M97365

Picture Note: Console controls on diesel model shown.

- When the key switch is turned to the **RUN** position, the battery discharge indicator light (C) and the engine oil pressure indicator light (B) should come on in light assembly module.
- When the key switch is turned to the **START** position, the hydraulic oil temperature indicator light (A), the engine oil pressure indicator light (B), the battery discharge indicator light (C) and the engine coolant temperature indicator light (D) should all come on in the light assembly module.
- After the engine starts, all four indicator lights should go out.
- If any or all indicator lights remain lit after engine has been started, stop engine immediately. Diagnose and correct problem.



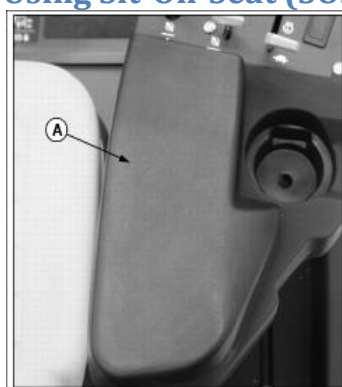
Hydraulic Oil Temperature Indicator (A) will glow when hydraulic oil temperature is high. Stop all hydraulic function immediately. Let hydraulic oil temperature cool by allowing greensmower engine to idle under a no load situation. This keeps the oil flowing through the oil cooler and cool the oil. Check oil level and make sure oil cooler coils are clean. Continued operation may cause higher temperatures resulting in damage.

Engine Oil Pressure Indicator (B) will glow when engine oil pressure is low. If lamp glows when engine is running, stop engine immediately. See your John Deere distributor.

Battery Discharge Indicator (C) will glow when alternator is not producing adequate current. Stop engine and determine cause.

Engine Coolant Temperature Indicator (D) will glow if engine temperature becomes excessive. Stop engine and determine cause.

Using Sit-On-Seat (SOS) Indicator Light Diagnostics

	CODES: -2 Brake not engaged -3 Mow engaged -2 Backlap engaged HARNESS TROUBLE CODES FOR CHECKING SOFTWARE: 1-1 Over voltage 1-2 Internal harness failure 1-3 Output short 1-4 Fuel solenoid circuit failure SEE OPERATOR'S MANUAL FOR MORE DETAIL	FALLA CON ASIENTO OCUPADO: 1-2 Freno no aplicado 1-3 Unidad de corte engranada 2-2 Función de contralapidado engranada CODIGOS DE AVERIA DE ARNES PARA COMPROBACION DE SOFTWARE: 3-1 Sobrevoltaje 3-2 Falla interna de arnés 3-3 Cortocircuito en salida 3-4 Falla del circuito del solenoide de combustible VER EL MANUAL DEL OPERADOR PARA MAS INFORMACION
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NOTE: Sit-on-seat diagnostic code label is located under hinged console control armrest (A).

To energize the starter solenoid and engage the starter motor the following conditions must be met:

- Key switch must be turned to the START position.
- Park brake must be depressed which mechanically neutralizes the transmission linkage.
- The Mow/Transport lever must be in the TRANSPORT position (x).
- Backlap valve cannot be in the backlap position.

If one or more of these conditions is not met, the greensmower engine will not start.

"SOS" or Sit-On-Seat indicator light diagnostics are provided to assist the operator in getting the greensmower started.

- Sit on operator seat.
- Turn and hold key switch in the START position.
- If engine does not crank, the oil pressure indicator light should remain lit and the battery discharge light will begin to flash.
- The **PARK BRAKE** light pattern is one flash, a short pause and two additional flashes. This flash code sequence indicates that the park brake switch has not been activated. Engage park brake to start engine.

- (See **Starting the Engine** in this section and **Backlapping Cutting Units** in the **Service-Cutting Units** section.)

For the starter to engage, the following conditions must be met:

- Operator can be on or off the seat.
- Parking brake engaged.
- Mow/Transport lever in the TRANSPORT)position.
- Backlap valve not engaged.

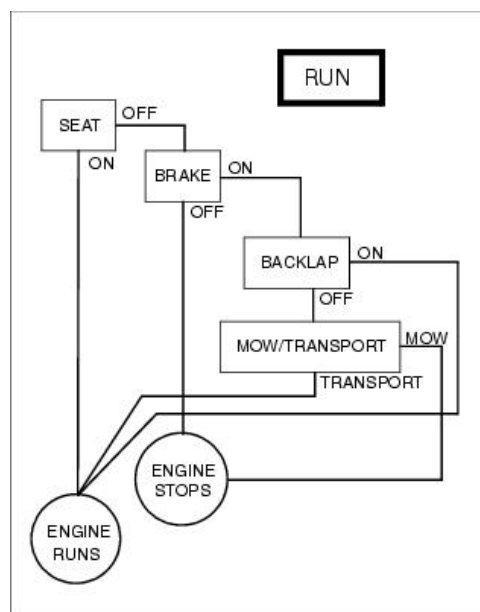
- Operator must be on the seat or the park brake must be engaged.

If the Mow/Transport lever is in the MOW) position with the park brake engaged and the operator raises off the seat, the engine will stop.

· In order to mow, the following conditions must be met:

- Operator in the operator seat.
- Throttle lever moved to the FAST) position.
- Mow/Transport lever in the MOW) position.
- Cutting units lowered to the ground.
- Parking brake not engaged.
- Backlap valve not engaged.

If the operator is mowing and engages the backlapping valve while on the operator seat, the cutting reels will stop rotating.



If the operator attempts to backlap the cutting units with the operator seat occupied, the cutting reels will not rotate.

If the operator is backlapping the cutting units with the operator seat not occupied and the park brake is disengaged, the engine will stop.

Starting the Engine



CAUTION: Avoid injury! Start engine in a well ventilated location.
· Exhaust fumes are dangerous.

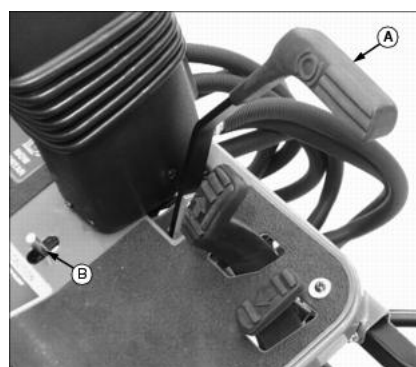
1. **Diesel Model:** Open fuel shut-off valve. (See **Using Fuel Shut-Off Valve** in this section.)

2. Adjust operator seat to most comfortable position. (See **Adjusting Operator Seat** in this section.)

NOTE: Greensmower has an ignition interlock switch. Engine will not start unless the park brake is engaged and the Mow/Transport lever is in the TRANSPORT) position.

3. Engage park brake (A).

M97302



4. Put Mow/Transport lever (C) in the TRANSPORT) position.

M97301

Picture Note: Console controls on gas (petrol) model shown.



5. Move throttle lever (D) to the half speed position (R).

M97301

Picture Note: Console controls on gas (petrol) model shown.



6. **Gas (petrol) Model:** Position choke knob (E) (not on diesel model).

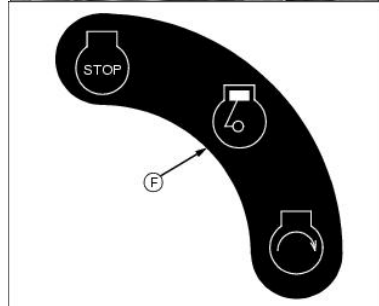
M97303

- Cold engine: Pull knob out to the CHOKE (k) position.
- Warm/hot engine: If necessary, pull knob out to the CHOKE (k) position.



7. Turn key switch to the RUN position (F).

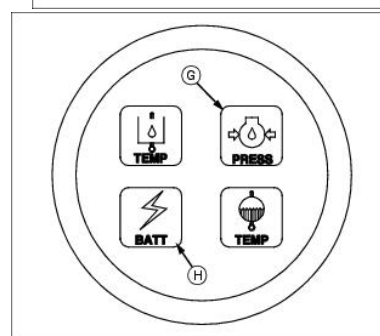
MIF



8. Check that both engine indicator lights go on.

MIF

- Engine oil pressure (G).
- Battery Discharge (H).



9. **Diesel Model:** Glow plug preheat indicator light (I) should go on.

M97365

- After approximately three seconds indicator light will go off. Engine is now ready to start.



IMPORTANT: Avoid damage! DO NOT operate starter more than 20 seconds at a time or damage may occur.

If engine does not start, wait 2 minutes before trying again. If engine will not start, see Ignition interlock System or Sit-on-Seat Diagnostics in this section or the Troubleshooting section.

10. Turn key switch to the start position (J).

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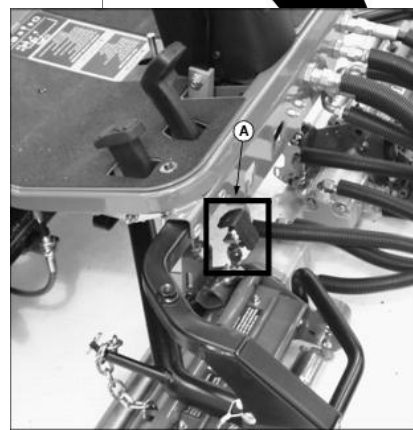
11. When engine starts, release key to the RUN position.

12. Move throttle lever to HALF SPEED position).

13. Release parking brake.

Warming and Idling Engine

Warming Engine:



- Run engine at the half throttle speed position (R) for 2-3 minutes.

Idling Engine:

- The engine needs a large volume of air to keep cool. Keep grill screen, oil cooler coils and radiator cooling fins clean. DO NOT idle engine for long periods of time.

Stopping Engine

M97301

Picture Note: Console controls on gas (petrol) model shown.

1. Move throttle lever (A) to SLOW) position. Let engine idle before stopping.
2. Move Mow/Transport lever (B) to the TRANSPORT) position.
3. Push raise/lower lever (C) forward to lower cutting reels. Wait until the center cutting reel is fully lowered.
4. Lock the park brake. (See **Using the Park Brake** in this section.)

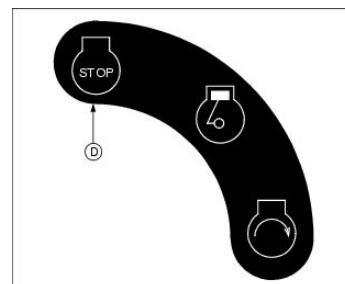


NOTE: To help prevent engine backfiring, the engine will continue to run approximately two seconds after keyswitch is turned to the "STOP" position. After engine has stopped, an approximate two second delay will prevent the engine from immediately being restarted.

5. Turn key switch to "STOP" position (D).

MIF

6. Remove key.

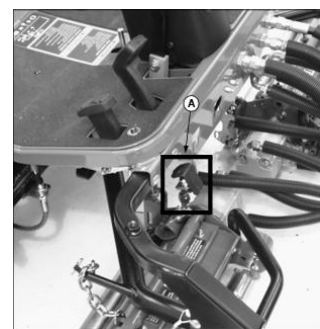


Adjust Mowing Speed

NOTE: Greensmower is preset at the factory to operate at approximately 7.1 km/h (4.4 mph).

Wheel RPM's necessary to meet the preset mow speed specification are 18012. Wheel RPM's have been preset at the factory to assure proper forward mow speed regardless of tire size.

1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake.
3. Locate mow speed adjustment (A).



M97395

4. Move Mow/Transport lever to the MOW (X) position.

NOTE: Preliminary dimension (B) between top of mow speed adjustment and bottom of forward travel pedal linkage is 22 mm (.87 in.)

When mow speed adjustments change, record any dimension (B) changes for future reference.

5. Loosen jam nuts (C).
- Turn threaded adjustment down for increased mowing speed.

- Turn threaded adjustment up for decreased mowing speed.

M97396

6. Tighten jam nuts.

7. Move Mow/Transport lever to the TRANSPORT) position.

8. Measure off 30.5 m (100 ft.)

9. Start engine.

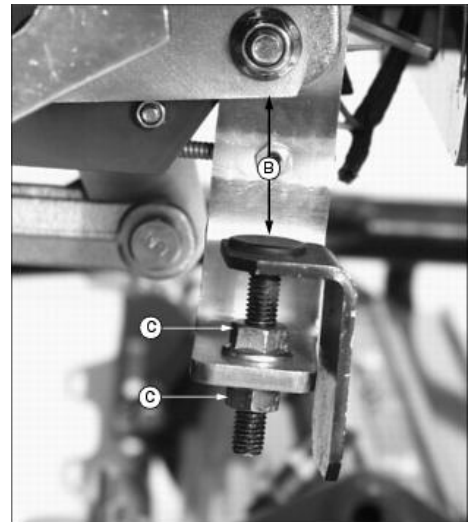
10. Move Mow/Transport lever to the MOW) position.

11. Move throttle lever to the FAST) position.
Depress FORWARD travel pedal fully.

- Record the number of seconds it takes to travel the 30.5 m (100 ft.) length.

- Refer to applicable cutting ratio table to determine ground speed and frequency of cut.

12. Continue adjustment process until desired mowing speed and frequency of cut is achieved.



Cutting Ratios

Cutting Ratios-7 Blade Cutting Reels

Ground Speed	4 km/h (2.5 mph)	4.8 km/h (3.0 mph)	5.6 km/h (3.5 mph)	6.4 km/h (4.0 mph)	7.2 km/h (4.5 mph)
Seconds to Travel 30.48 m (100 ft.)	27.2	22.7	19.5	17.0	15.2
Frequency of Cut	4.37 mm (.172 in.)	5.23 mm (.206 in.)	6.1 mm (.240 in.)	6.98 mm (.275 in.)	7.85 mm (.309 in.)

Cutting Ratios-11 Blade Cutting Reels

Ground Speed	4 km/h (2.5 mph)	4.8 km/h (3.0 mph)	5.6 km/h (3.5 mph)	6.4 km/h (4.0 mph)	7.2 km/h (4.5 mph)
Seconds to Travel 30.48 m (100 ft.)	27.2	22.7	19.5	17.0	15.2
Frequency of Cut	2.77 mm (.109 in.)	3.33 mm (.131 in.)	3.89 mm (.153 in.)	4.45 mm (.175 in.)	4.98 mm (.196 in.)

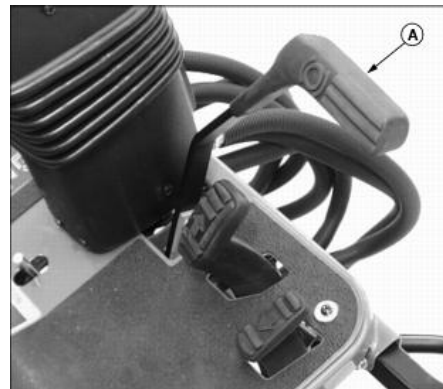
Emergency Stopping-Greensmower



CAUTION: Avoid injury! To prevent personal injury, avoid sudden stops.

- Push hard on park brake pedal (A).

M97302



Using Hydrostatic Transmission

IMPORTANT: Avoid damage! Run engine at full throttle for best performance.

1. Unlock parking brake.

M97301

Picture Note: Console controls on gas (petrol) model shown.

2. Move Mow/Transport lever (A) to the TRANSPORT) position.

NOTE: Front cutting units will cycle into the raised position before the center cutting unit.

3. Pull Raise/Lower lever (B) rearward to raise cutting reels.

4. Move throttle lever (C) all the way forward to the FAST) position.



To Travel Forward:

M97302

- Slowly depress speed control pedal (D) down to travel forward. The farther the pedal is pushed down the faster the mower will travel.
- Remove foot from pedal, pedal will return to the NEUTRAL position and greensmower will stop.
- Forward travel speed range is 0-13.7km/h (0-8.5 mph).



To Travel In Reverse:

M97302

- Allow speed control pedal (D) to slowly return to the NEUTRAL position to stop forward travel.



CAUTION: Avoid injury! Help prevent serious injury. Before traveling in reverse, carefully check area behind greensmower for bystanders.



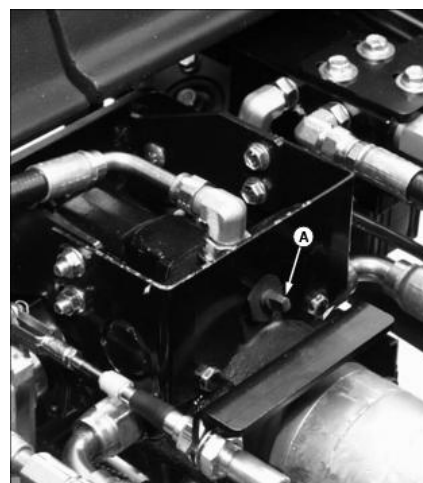
- Slowly depress speed control pedal (E) down to travel in reverse. The farther the pedal is pushed down, the faster the mower will travel.
- Remove foot from pedal, pedal will return to the NEUTRAL position and greensmower will stop.
- Reverse travel speed range is 0-4.8km/h (0-3 mph).

Using Free-Wheeling Tow Valve

IMPORTANT: Avoid damage! To prevent hydrostatic damage, NEVER tow the greensmower. Push or pull greensmower by hand only. Do not use another vehicle to push or pull greensmower.

When movement of greensmower is required without starting the engine, use the free-wheeling tow valve.

1. Lock the park brake.
2. Lift and secure operator seat in the raised position. (See **Raising and Lowering Operator Seat** in the **Service-Engine** section.)
3. Turn free-wheeling tow valve (A) counterclockwise approximately two revolutions.
4. Lower operator seat.



CAUTION: Avoid injury! Help prevent injury to the operator or bystanders, Greensmower will free-wheel if moved up or down an incline.

5. Unlock park brake.
6. Push greensmower to desired location.

NOTE: Before starting engine, turn free-wheeling tow valve clockwise to the operating position.

Daily Operating Checklist

- o Test safety systems.
- o Check tire pressure.
- o Check fuel level.

- o Check engine oil level.
- o Check hydraulic oil level.

Testing Safety Systems



CAUTION: Avoid injury! Engine exhaust fumes can cause sickness or death.

- If it is necessary to run an engine in an enclosed area, remove the exhaust fumes for 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 greensmower.

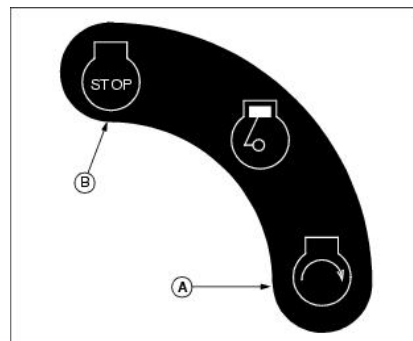
If there is a malfunction during one of these procedures, DO NOT operate greensmower. (See your John Deere distributor for service.)

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

Test 1

MIF

1. Operator on seat.
2. Engage the park brake.
3. Hydrostatic travel pedals in a NEUTRAL position.
4. Move Mow/Transport lever to the MOW (X) position.
5. Turn key switch to the START position (A). Engine must not crank.
6. Turn key switch to the "STOP" position (B).
7. Move Mow/Transport lever to the TRANSPORT (x) position.
8. Turn key switch to the START position (A). Engine should crank.



Test 2

1. Operator on seat.
2. Lock the park brake.
3. Hydrostatic travel pedals in a NEUTRAL position.
4. Operator not on seat.
5. Start engine.
6. Lower cutting units to the ground.
7. Move Mow/Transport lever to the MOW (X) position.
8. Engine must stop in two seconds with no rotation of cutting reels.

Test 3

1. Operator on seat.
2. Engage the park brake.
3. Move Mow/Transport lever to the TRANSPORT (x) position.

4. Start engine.
5. Disengage the park brake.
6. Hydrostatic travel pedals in a NEUTRAL position.
7. With engine running, move Mow/Transport lever to the MOW (X) position.



c CAUTION: Avoid injury! Avoid injury from rotating blades. Keep hands and feet away from cutting reels while greensmower is running.

8. Push the Raise/Lower lever forward. Cutting reels should start rotating.
9. Operator raise off seat.
10. Engine must stop within two seconds.

Test 4

1. Operator on seat.
2. Lock the park brake.
3. Start engine.
4. Unlock the park brake.
5. Hydrostatic travel pedals in a NEUTRAL position.
6. Move mow/transport lever to the TRANSPORT) position.
7. With engine running at idle, raise off seat.
8. Engine must stop within two seconds.

Test 5

1. Operator on seat.
2. Lock the park brake.
3. Move Mow/Transport lever to the TRANSPORT) position.
4. Start engine.
5. Unlock the park brake.
6. Hydrostatic travel pedals in a NEUTRAL position.
7. Lower cutting units with the Raise/Lower lever.
8. Move Mow/Transport lever to the MOW (X) position.
9. Cutting reels must not rotate.
10. Raise and lower cutting units.



c CAUTION: Avoid injury! Avoid injury from rotating blades. Keep hands and feet away from cutting reels while greensmower is running.

11. Cutting reels should begin to rotate.

Avoid Damage to Plastic and Painted Surfaces

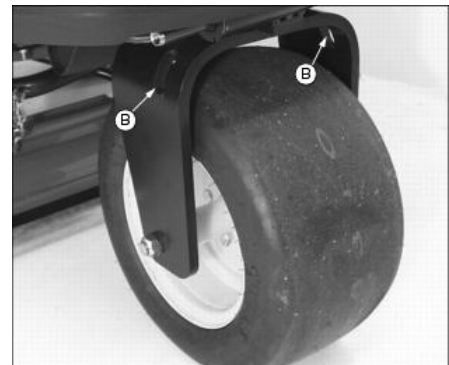
- Insect repellent spray may damage plastic and painted surfaces. Do not spray insect repellent near machine.
- Be careful not to spill fuel on machine. Fuel may damage surface. Wipe up spilled fuel immediately.

Transporting the Greensmower

IMPORTANT: Avoid damage! NEVER TOW the greensmower. Damage to hydrostatic pump and transaxle will occur if towed.

Transport greensmower on a trailer or truck.

- DO NOT tow machine.
- Use a heavy-duty trailer designed to carry 909 kg (2000 lb), or a truck box to transport the machine.
- Back machine onto trailer.
- If the machine is transported facing forward, the rear engine cowling should be secured to the machine at the front to avoid the hood opening accidentally during transporting.
- Lock the parking brake.
- Lower the cutting units to the deck.
- Fasten machine with straps, chains, or cables.
- The tie downs should be attached to slots (A) provided on both sides of the operator's station in the main frame and slots (B) on both sides of the rear wheel yoke.
- When transporting the machine on a road or highway, use accessory lights and devices for adequate warning to operators of other vehicles. Check local, state, provincial, or federal laws.



Operating Cutting Units

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 CUTTING UNITS OFF but lowered. Slow down when you travel over rough ground.

Avoid Injury From Contacting Blades

BEFORE YOU DISMOUNT TO UNPLUG OR ADJUST CUTTING UNITS:

- STOP the machine.
- DISENGAGE reel drive by moving the mow/transport lever to the TRANSPORT position.
- LOWER the cutting units to the ground.
- LOCK the park brake.
- STOP the engine.
- Remove key.
- Wait for reels and all moving parts to STOP.

BLOCKED OR STALLED CUTTING CYLINDERS:

- Keep all parts of the body away from the cutting edges. Residual hydraulic pressure in the system can cause cutting cylinder rotation when the blockage is released.



Adjust Bed Knife-to-Reel



CAUTION: Avoid injury! Always wear protective gloves when performing a service function on or near a cutting reel or bed knife. Severe injury can result from contact with sharp cutting edges.

IMPORTANT: Avoid damage! When adjusting bed knife-to-reel, lower and raise the bed knife evenly. **DO NOT** adjust more than one flat on the adjuster nut at a time, alternating side to side.

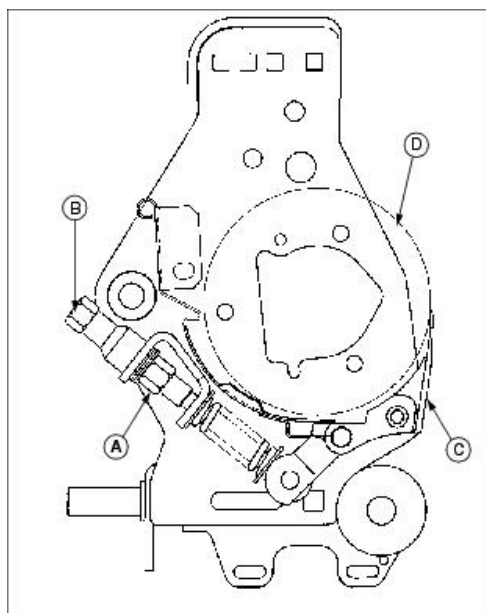
1. Remove cutting reels from greensmower. (See **Removing and Installing Cutting Units** in the **Service-Cutting Units** section.)
2. Position cutting unit upright on workbench as shown.
3. On both sides of cutting unit, loosen jam nut (A) and turn bed knife tower adjuster (B) counterclockwise until bed knife (C) is tight against cutting reel (D).

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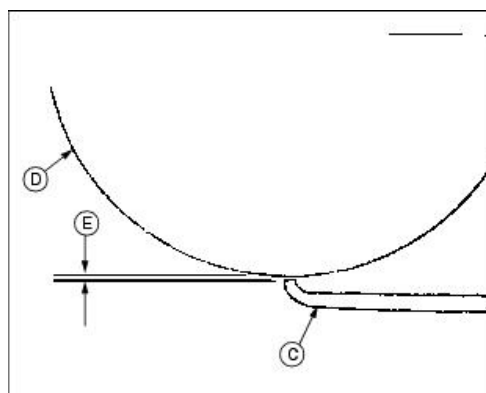
4. Slowly tighten tower adjuster (B) clockwise, alternating from side to side until bed knife begins to pull away from the cutting reel. Cutting reel should rotate freely.

NOTE: Make sure that the final adjustment to the bed knife is pulling the bed knife away from the cutting reel.

5. With the use of a feeler gauge, alternately turn adjusters (B) no more than one flat at a time until bed knife to reel clearance (E) measures .025 mm to .050 mm (.001 in. to .002 in.).



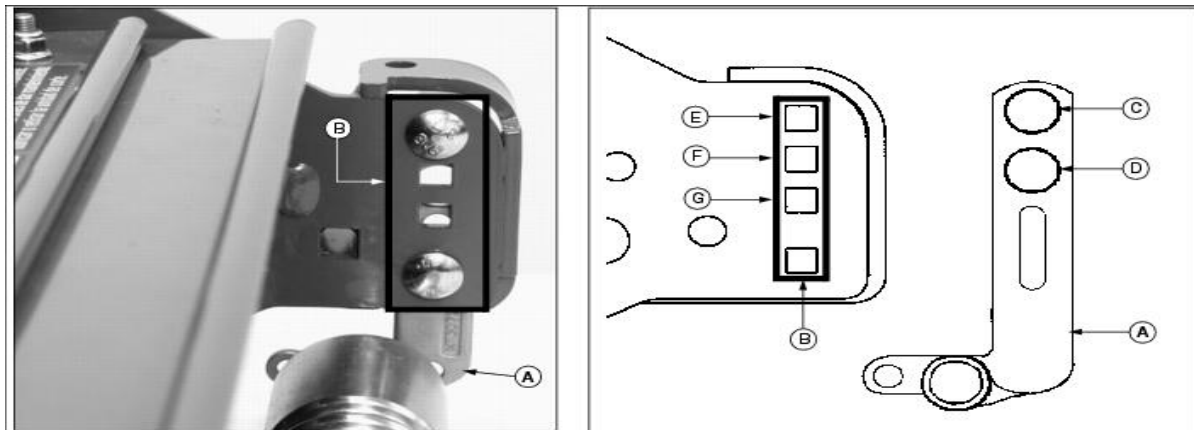
6. Tighten jam nuts (A). Check the bed knife-to-reel clearance (E). Adjust again if necessary.



Adjust Height Of Cut Range

Adjust front roller brackets for the height of cut (HOC) range desired.

- Select height-of-cut (HOC) adjustment range by adjusting the position of both front roller brackets.
- Alignment of roller bracket (A) and cutting unit frame adjustment holes (B) on each side of the cutting unit will determine the HOC adjustment range.



M97431, M96838d

- Refer to chart for desired setting.

Height of Cut		Roller Bracket Hole	Cutting Unit Frame Hole
Millimeters	Inches		
0-9.53	0-3/8	Top (C)	Top (E)
6.35-15.88	1/4-5/8	Bottom (D)	Bottom (G)
12.70-22.23	1/2-7/8	Top (C)	Middle (F)
0-6.35 ¹	0-1/4	Bottom (D)	Middle (F)

¹

This setting is used when the diameter of the cutting reel has worn down to 120 mm (4.7") or less.

Adjust Front Roller Parallel with Bed Knife



CAUTION: Avoid injury! Always wear protective gloves when performing a service function on or near a cutting reel or bed knife. Severe injury can result from contact with sharp cutting edges.

NOTE: Use of a bench plate or a two or three bolt height-of-cut gauge bar is recommended when adjusting front roller parallel with the bed knife.

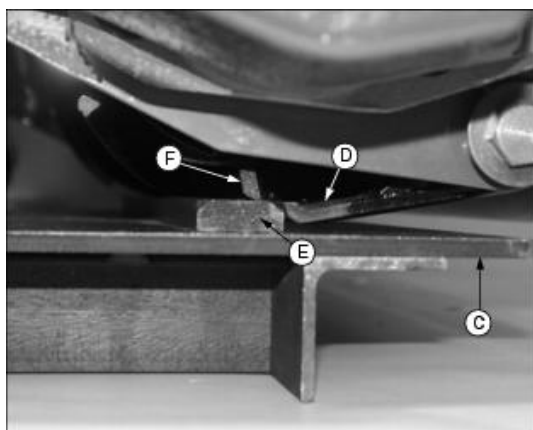
Always adjust bed knife-to-reel before adjusting front roller for parallelism.

Always make parallelism adjustment after adjusting front roller height of cut range.

Parallelism Adjustment with Bench Plate

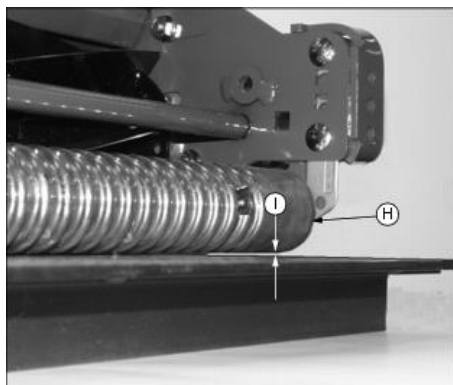
1. Position cutting unit upright on flat surface or workbench.
2. Loosen hex nut (A) and hex nut (B) on the left roller bracket.

M97008



3. Set bench plate on a level surface. Set cutting unit on top of bench plate (C). Bed knife (D) must rest firmly against plate stop (E) with cutting reel blade (F) on top of plate stop.

4. Rotate eccentric adjuster (G) until the front roller (H) sits flat and parallel with the bench plate. Gap (I) should not exceed .050 mm (.002 in.) maximum.

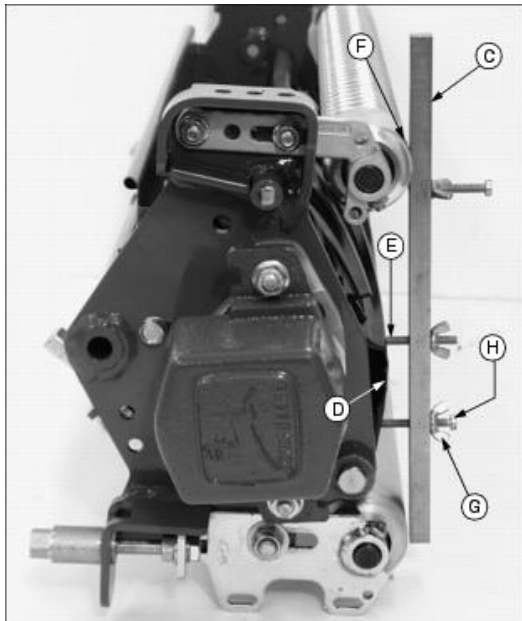


5. Tighten left roller bracket hex nut (A).
6. Tighten left roller bracket hex lock nut (B).

Parallelism Adjustment with HOC Gauge Bar

1. Position cutting unit upright on flat surface or workbench.
2. Loosen hex nut (A) and hex nut (B) on the left roller bracket.

NOTE: HOC gauge bar should not contact the bottom of the rear roller.



3. Rest HOC gauge bar (C) approximately 51 mm (2 in.) from the RIGHT end of the bed knife (D).

4. Hook the center gauge screw (E) on the edge of the bed knife. Hold end of gauge bar against the bottom of front roller (F).

5. Loosen wing nut (G). Turn lower gauge screw (H) clockwise until top of screw makes contact with flat edge of bed knife.

6. Tighten wing nut (G).

NOTE: HOC gauge bar should not contact the bottom of the rear roller.

7. Rest HOC gauge bar (C) approximately 51 mm (2 in.) from the LEFT end of the bed knife (D).

8. Hook the center gauge screw (E) on the edge of the bed knife. Hold end of gauge bar against the bottom of front roller (F).

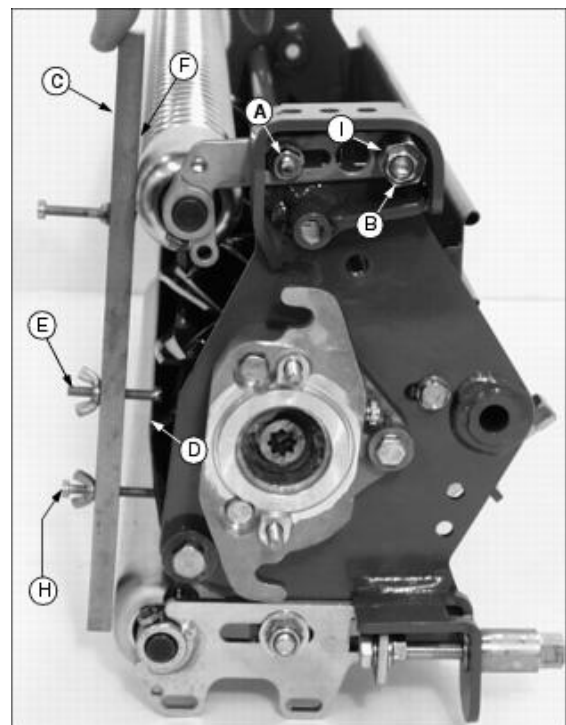
9. Adjust position of front roller.

- Rotate eccentric adjuster (I) until top of lower gauge screw (H) makes contact with the bed knife.

10. Tighten left roller bracket hex nut (A).

11. Tighten left roller bracket hex lock nut (B).

12. Check adjustment using HOC gauge bar.



Adjust Height of Cut

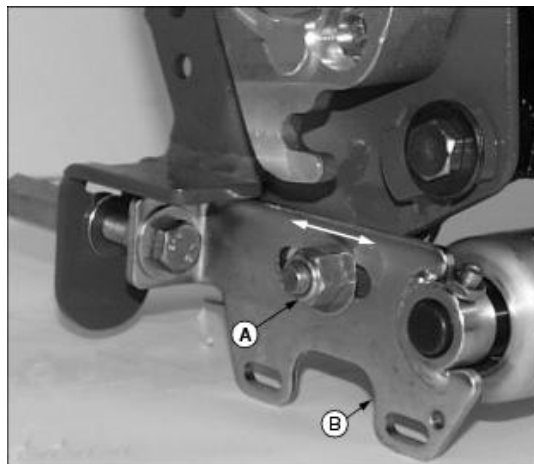
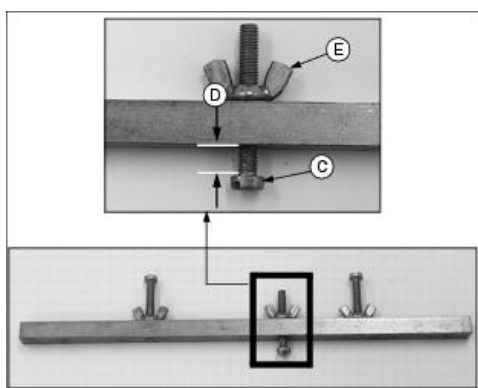


CAUTION: Avoid injury! Always wear protective gloves when performing a service function on or near a cutting reel or bed knife. Severe injury can result from contact with sharp cutting edges.

1. Position cutting unit upright resting on the rear roller brackets.

2. On both sides of rear roller, loosen lock nut (A) just enough for the height-of-cut (HOC) bracket (B) to slide.

NOTE: If greensmower is equipped with the optional rear roller powered brush, the idler gear pivot lock nut and pivot bracket lock nuts must be loosened. (See Adjusting (Optional) Rear Roller Powered Brush in this section.)

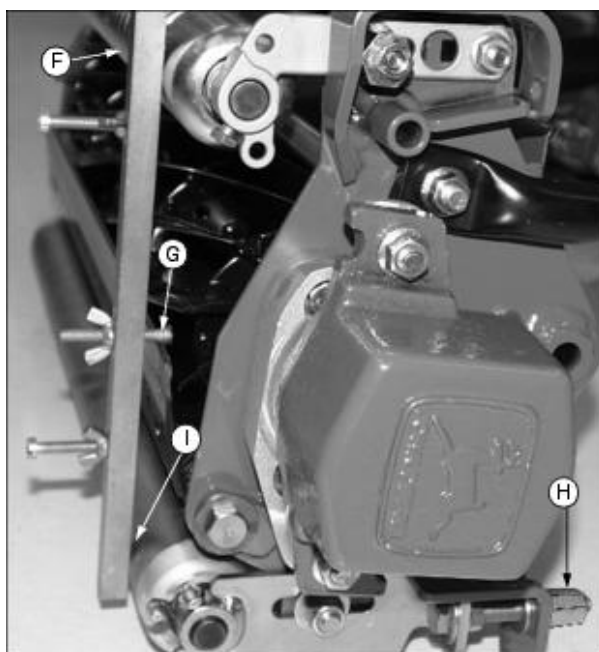


3. On the height-of-cut (HOC) gauge bar, set center adjustment bolt head (C) at the desired height of cut (D). Lock wing nut (E).

4. Rest HOC gauge bar against front roller (F) approximately 51 mm (2 in.) from the end of the bed knife. Set the inside of the bolt head (G) against the edge of the bed knife.

5. Turn tower adjuster (H) until the rear roller (I) contacts the HOC gauge bar. Repeat for the other side of the cutting reel.

6. Check HOC adjustment setting from side to side and adjust if necessary. Tighten lock nut (A) on both sides of cutting unit.



Adjust Cutting Unit Lift Height

NOTE: All cutting unit lift chains must be adjusted equally.

The cutting unit lift chains (A) can be adjusted if a different cutting unit lift height is desired.

For initial set up, attach the seventh chain link to each cutting unit lift arm pin (B). Most normal mowing applications will use the seven chain link set up.

- For applications with level greens and wanting more ground clearance for cutting unit transport, use a six chain link or less set up. This set up will restrict float on greens with extreme undulations and contours.

- For applications with extreme undulations and contours on greens, use a eight or nine chain link set up. Cutting unit ground clearance will be limited for transport.



Adjust Reel Speed

IMPORTANT: Avoid damage! It is recommended to use the highest speed necessary to avoid marcelling. Reduced reel speed may help reduce bed knife and reel wear.

1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake.
3. Open service access panel (A) below operator seat platform.
4. Locate reel speed control knob (B) behind service access panel.



M97409

5. Adjust reel speed:

- Reel speed can be adjusted depending on the type of application for the greensmower, which type of cutting units are used, and grass height and conditions.
- It may be appropriate to reduce reel speed when cutting taller grass to prevent grass from being blown over and not being cut. Faster reel speeds with dry grass may cause grass clippings to be thrown over the grasscatcher.
- **For mowing greens,** set the speed control knob (A) to the highest setting (fully counterclockwise) for best cutting performance.
- **For mowing approaches and fairways,** reel speed may be reduced by turning the speed control knob clockwise.

6. Close service access panel.



Engaging Reel Drive



CAUTION: Avoid injury! Help avoid serious personal injury. Keep hands and feet away from cutting reels while greensmower is running.

Before engaging cutting reels, clear area of bystanders, **ESPECIALLY CHILDREN**.

IMPORTANT: Avoid damage! Operate engine at full throttle so cutting units can operate at the correct speed.

NOTE: The center cutting unit will raise and lower to the ground after the front cutting units.

1. Pull Raise/Lower lever (A) rearward to raise cutting units.

NOTE: If the cutting units are lowered to the ground before the Mow/Transport lever is moved to the MOW) position, the cutting reels will not rotate.

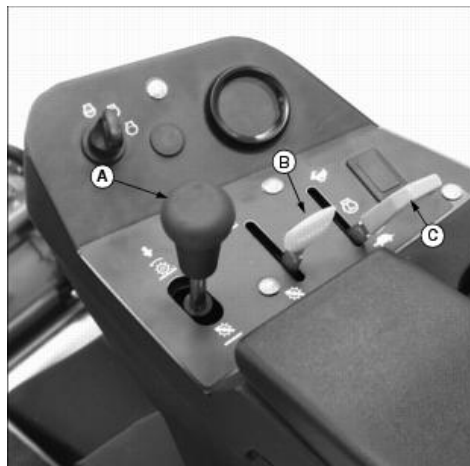
Raise the cutting units, move the Mow/Transport lever to the MOW) position. Lower cutting units to start reel rotation.

2. Move the Mow/Transport lever (B) forward to the MOW) position.
3. Move the throttle lever (C) forward to the FAST) position.
4. Slowly begin forward travel.

NOTE: The front cutting units lower to the ground before the center cutting unit.

Moving the Mow/Transport lever to the MOW) position activates a switch so the cutting units automatically engage when lowered.

5. Push Raise/Lower lever forward to lower cutting units and start cutting reel rotation.
6. When the front cutting units reach the opposite edge of the green or fairway, pull back the Raise/Lower lever. The cutting units will raise to transport lift height and automatically turn off.



Emergency Stopping-Cutting Reels

1. Depress park brake pedal.
 - Cutting reel rotation will stop.

To begin cutting reel rotation:

- Raise and lower cutting units.

2. Move the Mow/Transport lever to the TRANSPORT) position.

- Cutting reel rotation will stop.

To begin cutting reel rotation:

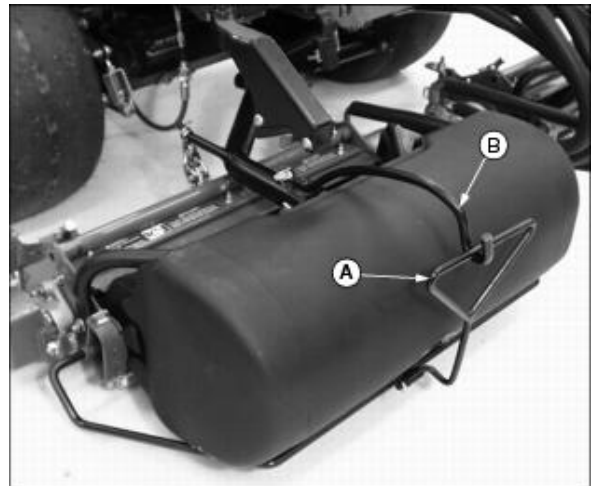
- Move the Mow/Transport lever to the Mow) position.
- Raise and lower cutting units.

Removing and Emptying Grasscatchers

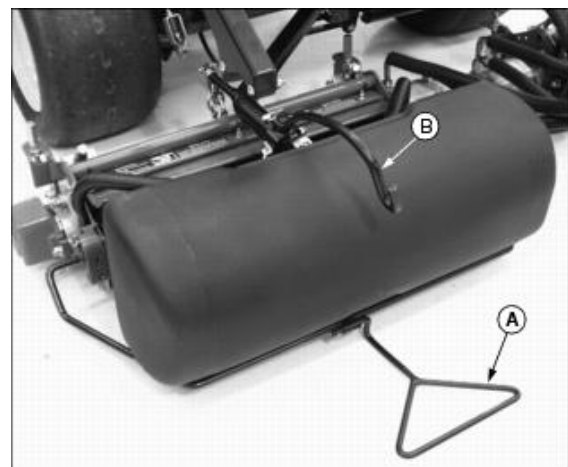
NOTE: Remove center grasscatcher from left side of greensmower.

1. Raise and remove link handle (A) from catcher bracket support hook (B).

Picture Note: Top photo shows grasscatcher installed onto the frame assembly.



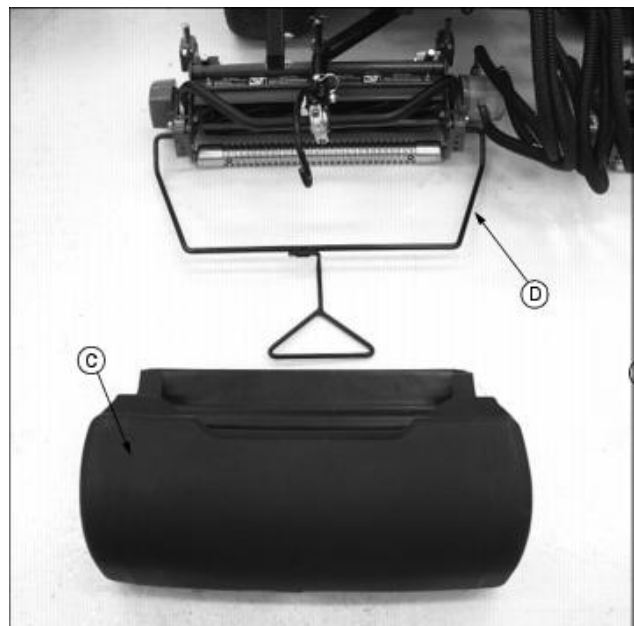
Picture Note: Bottom photo shows the link handle removed from the catcher bracket support hook with the grasscatcher ready for removal from the frame assembly.



2. Remove grasscatcher (C) from frame assembly (D) and empty.

3. Install grasscatcher onto the frame assembly.

4. Attach link handle to catcher bracket support hook.



Replacement Parts

John Deere Parts

WE RECOMMEND JOHN DEERE quality parts and lubricants, available at your John Deere dealer.

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 John Deere dealer needs your machine serial number. This is the number you have recorded in the **INTRODUCTION** section in the front of this manual.

ITEM	PART NUMBER
Gas (petrol) Unit - Air Cleaner Assembly: · Foam Element · Paper Element	M76076 M117254
Diesel Unit - Air Cleaner Assembly: · Primary Element · Secondary Element	M113621 M123378
Engine Oil Filter - Gas (petrol) Unit	AM107423
Engine Oil Filter - Diesel Unit	AM101378
Hydraulic Oil Filter - Gas (petrol) Unit	AM102723
Hydraulic Oil Filter - Diesel Unit	AM102723
Spark Plug - Gas (petrol) Unit	AM101194
Battery	AM125463
Fuel Filter - Gas (petrol) Unit	AM116304
Fuel Filter - Diesel Unit	M801101
Engine Indicator Light Bulb	ET16095
Fuse - · 15 amp	99M7065
Fan Belt - Gas (petrol) Unit Alternator Belt - Diesel Unit	M138626 M800313
Cutting Unit (Mower Reel): 7 Blade 11 Blade	AET11237 AMT538
Bed Knives: Standard Fairway (H.O.C. > .25") Tournament (H.O.C. < .130")	ET 17533 ET17532 ET17534

(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 JOHN DEERE SERVICE LITERATURE SECTION.

Service Interval

Servicing Your Machine

Please use the following timetables to perform routine maintenance on your machine.

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

Daily-Greensmower

- Check fuel tank, fill if necessary.
- Check engine oil level.
- Check hydraulic oil level.
- Check coolant levels.
- Check and clean grill screen.
- Check for oil leaks.
- Check brake pedal operation.
- Check forward/reverse travel pedal operation.
- Diesel Model: Check air restriction indicator.
- Diesel Model: Check rubber dust unloading valve.
- Diesel Model: Check fuel sediment bowl.
- Test safety systems.

Daily-Cutting Units

- Lubricate front and rear rollers (12 places).
- Lubricate cutting reel roller bearings (6 places).

Break In - After First 20 Hours

- Check for loose hardware.
- Check tire pressure.

Every 25 Hours

- Gas (petrol) Model: Clean air cleaner element-foam precleaner.

Break In - After First 50 Hours

- Change engine oil and filter.
- Tighten wheel nuts and bolts.
- Change hydraulic oil filter.

Every 50 Hours

- Check tire pressure.
- Lubricate cutting unit yoke pivots (3 places).
- Lubricate lift arm pivots (3 places).
- Lubricate rear axle pivot spindle (1 place).
- Lubricate rear axle wheel bearings (1 place).
- Lubricate neutral eccentric (1 place).

Every 100 Hours

- Tighten wheel bolts and nuts.

Every 200 Hours

- Change engine oil and filter.
- Diesel Model: Clean fuel sediment bowl.
- Diesel Model: Check alternator belt wear and tension.
- Gas (petrol) Model: Check fan belt wear and tension.
- Check air intake and cooling hose clamps.
- Clean radiator cooling fins and oil cooler coils.
- Gas (petrol) Model: Replace air cleaner paper element.

Every 600 Hours

- Change hydraulic oil and filter.
- Clean hydraulic suction line strainer.
- Change coolant¹.
- Gas (petrol) Model: Check spark plugs.
- Diesel Model: Replace fuel filter and clean sediment bowl.
- Check park brake adjustment.
- Check fuel injectors. (See your John Deere dealer.)
- Check valve clearance. (See your John Deere dealer.)

As Needed

- Adjust transmission neutral.
- Adjust neutral lock.
- Gas (petrol) Model: Replace spark plugs.
- Gas (petrol) Model: Replace fan belt.
- Diesel Model: Replace alternator belt.
- Diesel Model: Replace primary air cleaner element.
- Diesel Model: Replace secondary air cleaner element.
- Replace battery.
- Replace indicator light bulbs.
- Replace fuse.
- Replace radiator hoses.
- Adjust park brake.

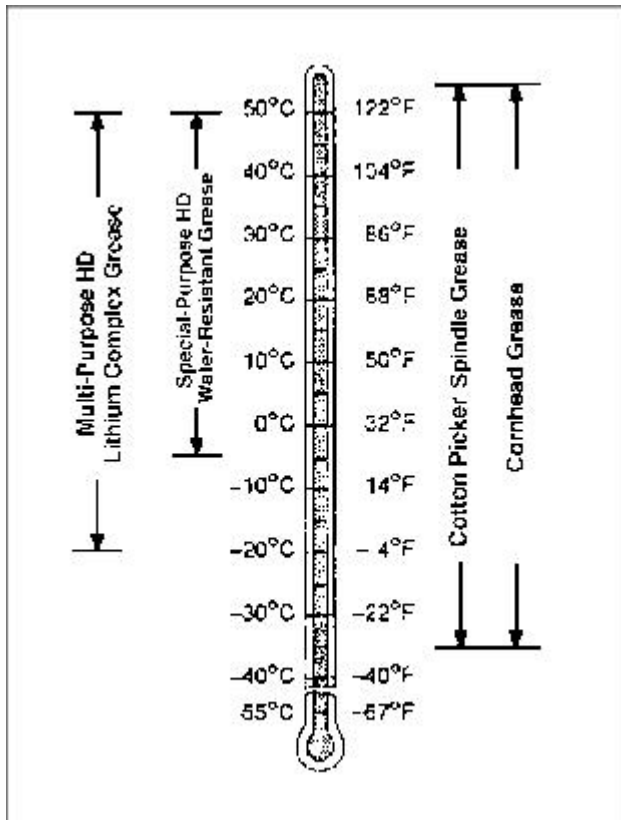
Yearly

- Check coolant freeze point and clarity.
- Gas (petrol) Model: Replace fuel filter.
- Clean battery.

¹

Not necessary if using John Deere PRE-DILUTED DIESEL ENGINE ANTI-FREEZE/SUMMER COOLANT (TY16036) or DIESEL ENGINE ANTI-FREEZE/SUMMER COOLANT CONCENTRATE (TY16034).

Grease



MIF

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

The following greases are preferred:

Chassis and Rollers

- John Deere Special Purpose HD Water Resistant Grease.
- John Deere Multi-Purpose HD Lithium Complex Grease.

Cutting Units

- John Deere Cotton Picker Spindle Grease.
- John Deere Cornhead Grease.

Other greases that can be used:

- SAE Multi-Purpose EP Grease with 3 to 5 percent molybdenum disulfide.
- SAE Multi-Purpose EP Grease.

Lubricate Greensmower



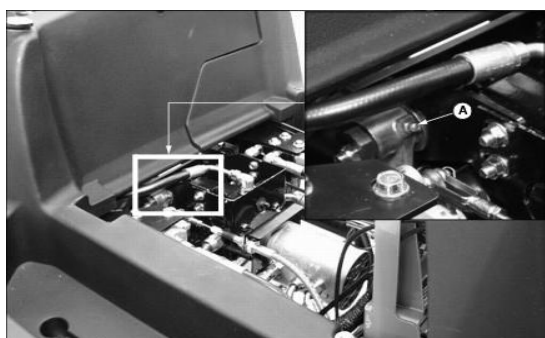
CAUTION: Avoid injury! To avoid injury, DO NOT clean, lubricate, or adjust machine while it is running.

NOTE: DO NOT over lubricate. Excess grease could fall from mower during operation.

Clean grease fitting before lubricating. Replace missing or broken grease fittings immediately.

Lubricate Rear Steering Wheel

- Lubricate rear axle pivot spindle grease fitting (A) with John Deere Special Purpose HD Water Resistant Grease or John Deere Multi-Purpose HD Lithium Complex Grease.
- Lubricate rear wheel bearings grease fitting (B) with John Deere Multi-Purpose HD Lithium Complex Grease.



Lubricate Neutral Eccentric

- Raise operator seat and secure in the open position.
- Lubricate neutral eccentric grease fitting (A) with John Deere Multi-Purpose HD Lithium Complex Grease.

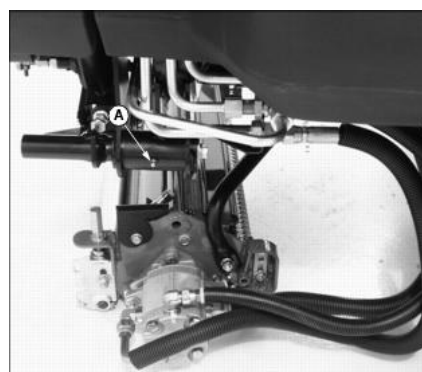


Lubricate Front Lift Arm Pivots

- Lubricate right and left lift arm pivot grease fittings (A) with John Deere Special Purpose HD Water Resistant Grease or John Deere Multi-Purpose HD Lithium Complex Grease.

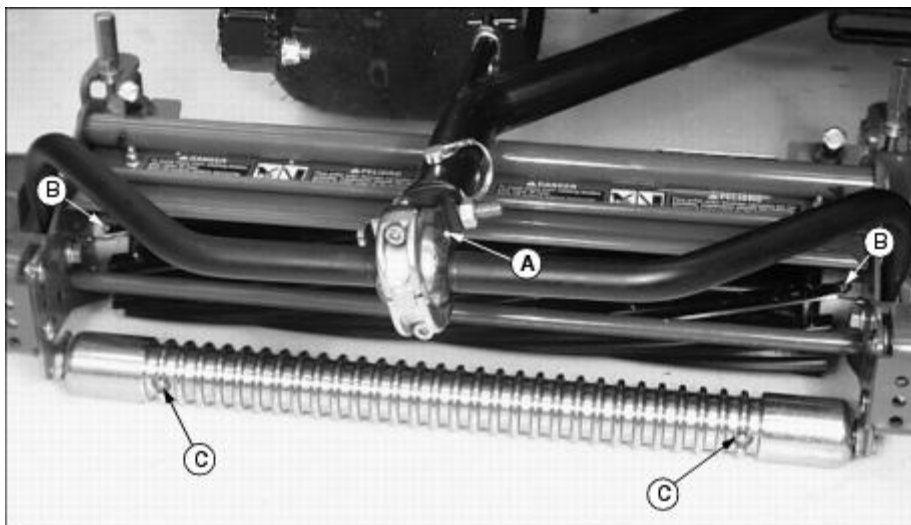
Lubricate Center Lift Arm Pivot

- Lubricate center lift arm pivot grease fitting (A) with John Deere Special Purpose HD Water Resistant Grease or John Deere Multi-Purpose HD Lithium Complex Grease.



Lubricate Cutting Units

Lubricate Yoke Pivot, Roller Bearings and Front Roller



M97985

- Lubricate yoke pivot grease fitting (A) with John Deere Special Purpose HD Water Resistant Grease or John Deere Multi-Purpose HD Lithium Complex Grease.
- Lubricate reel roller bearing grease fittings (B) with John Deere Special Purpose HD Cornhead Grease.
- Lubricate front roller grease fittings (C) with John Deere Special Purpose HD Water Resistant Grease or John Deere Multi-Purpose HD Lithium Complex Grease.
- Repeat procedure for other cutting units.

Lubricate Rear Roller

M97321

- Lubricate rear roller grease fittings (A) with John Deere Special Purpose HD Water Resistant Grease or John Deere Multi-Purpose HD Lithium Complex Grease.
- Repeat procedure for other cutting units.



Service Engine - Diesel Units

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.

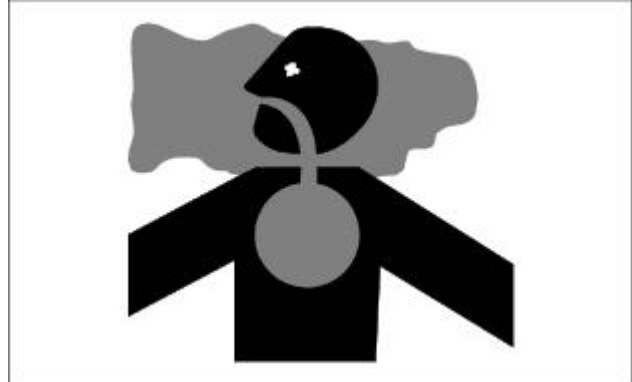
Avoid Fumes

MIF



CAUTION: Avoid injury!
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

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

The following John Deere oils are preferred:

TS1411

- PLUS-50® - SAE 15W40

The following John Deere oils are also recommended:

- PLUS-4® - SAE 10W30
- TORQ-GARD SUPREME® - SAE 5W30
- TORQ-GARD SUPREME® - Europe
- UNI-GARD - Europe

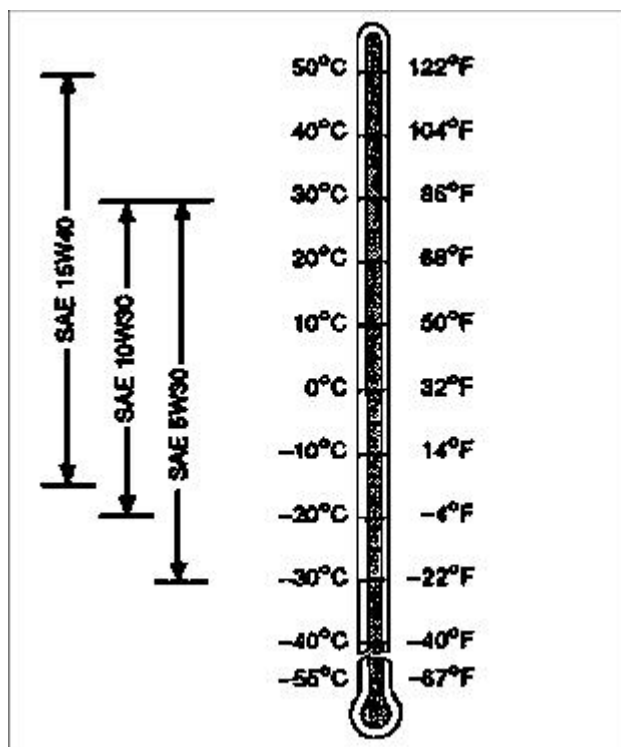
If John Deere PLUS-50 engine oil and a John Deere oil filter are used, the oil and filter service interval may be extended by 50 hours.

Other oils may be used if above John Deere oils are not available, provided they meet one of the following specifications:

- SAE 15W40 - API Service Classification CG-4, CF-4, CF or MIL-L-46152B
- SAE 10W30 - API Service Classification CF-4, CF, or Military Specification MIL-L-2104F
- SAE 5W30 - API Service Classification CF
- CCMC Specification D5
- CCMC Specification D4

If diesel fuel exceeding 0.5% sulfur content is used, reduce the service interval for engine oil and filter by 50%.

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



Raising and Lowering Engine Cowling



CAUTION: Avoid injury! Engine cowling is heavy. Handle weight safely. Carefully raise and lower the cowling to avoid pinching hands.

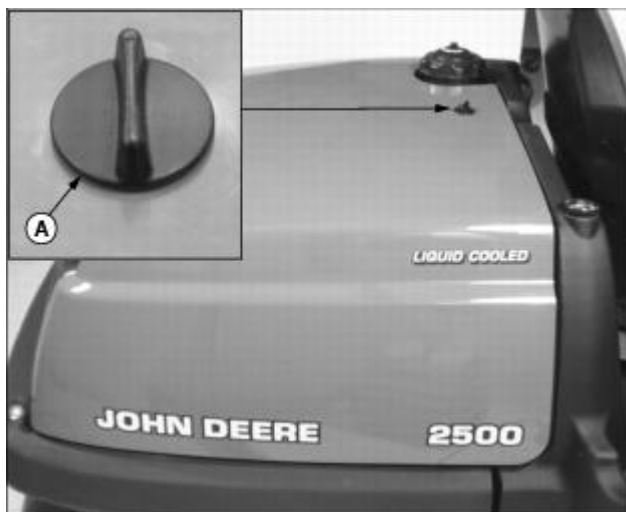
IMPORTANT: Avoid damage! To avoid damage to the greens mower, Do Not operate the machine with the cowling in the raised position.

1. Park greensmower on a hard, level surface.
2. Stop the engine and engage park brake.



Picture Note: Rear engine cowling on liquid cooled gas (petrol) model shown.

3. Open rear engine cowling.
 - Turn button (A) clockwise to unlock cowling.
 - Pull cowling up to open.
4. Lower rear engine cowling.



- Turn button (A) counterclockwise to lock cowling in the lowered position.

Raising and Lowering Operator Seat



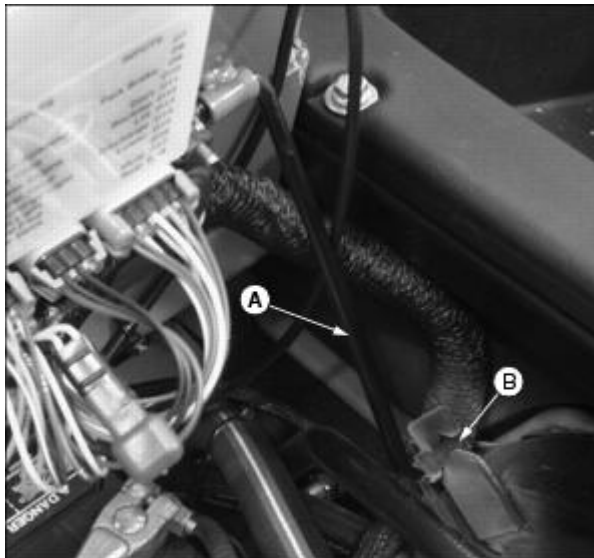
c CAUTION: Avoid injury! To help prevent injury:
Carefully raise and lower the seat to avoid pinching fingers.

NOTE: Adjust operator seat rearward as far as possible. See Adjusting Seat in the Operating section.

Raising the Seat

- Raise and tilt operator seat forward.

M97382



M97383

- Remove prop rod (A) secured in stored position under operator seat platform.
- Install prop rod in channel slot (B).

Lowering the Seat

- Push up on seat.
- Remove prop rod from channel slot.
- Secure prop rod in stored position under operator seat platform.
- Lower operator seat.

Checking Engine Oil

IMPORTANT: Avoid damage! DO NOT check or add oil while engine is running.

To prevent extensive engine wear or damage, always maintain the proper engine oil level.

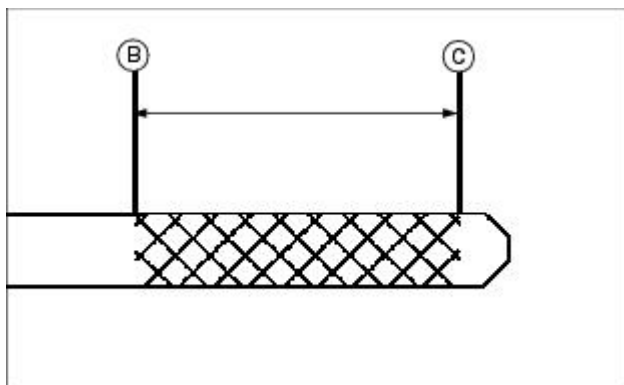
1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake.
3. Open rear engine cowling.

IMPORTANT: Avoid damage! Help prevent dirt and other contaminants from entering the oil dipstick tube location. Clean area around dipstick before removing.

4. Remove dipstick (A). Wipe with a clean cloth.

M95815

5. Install dipstick in tube.
6. Remove dipstick. Check oil level on dipstick; oil level should be between levels (B) and (C) on the dipstick.



M71680

- If oil is low, add oil to bring oil level no higher than level (B) on the dipstick. (See **Engine Oil** in this section for correct oil application.)
- If oil level is above level (B) on the dipstick, drain to proper level.

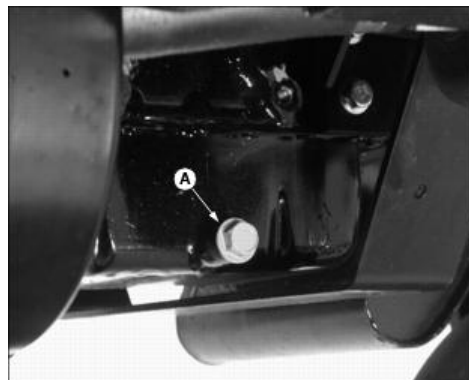
7. Install dipstick.
8. Close rear engine cowling.

MODEL	Without Filter	With Filter
2500 Diesel	1.9 L (2 qt)	2.2 L (2.3 qt)

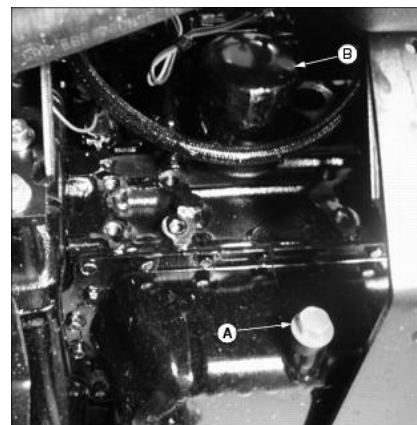
Changing Engine Oil and Filter

NOTE: Change engine oil and filter after the first 50 hours of break-in operation.

1. Run engine to warm the oil.
2. Park greensmower on a hard, level surface.
3. Stop engine and engage park brake.
4. Open rear engine cowling.
5. Drain oil.
 - Place container under oil drain location.
 - Remove drain plug (A) located under left side of engine.



6. Remove oil filter (B).
 - Locate filter under left side of engine.
 - Turn filter counterclockwise to remove.
7. Apply a film of clean engine oil on gasket of new filter.
8. Install oil filter.

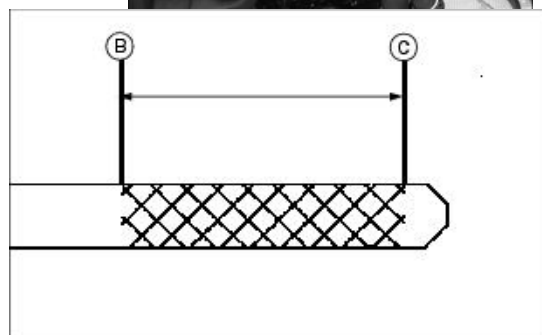


9. Install oil drain plug (A). DO NOT overtighten.
10. Remove oil fill cap (C).
11. Add approximately 2.2 L (2.3 qt.) of engine oil. (See **Engine Oil** in this section for the correct application.)
12. Install oil fill cap.
13. Start engine.
 - Run engine at a slow "t" throttle speed for approximate two minutes.
 - Check area under engine for oil leaks.
14. Stop engine.
15. After approximately two minutes check engine oil level.

IMPORTANT: Avoid damage! Help prevent dirt and other contaminants from entering the oil dipstick tube location. Clean area around dipstick before removing.

16. Remove dipstick (D). Wipe with a clean cloth.
17. Install dipstick in tube.
18. Remove dipstick. Check oil level on dipstick; oil level should be between levels (B) and (C) on the dipstick.

- If oil is low, add oil to bring oil level no higher than level (B) on the dipstick.



(See **Engine Oil** in this section for correct oil application.)

· If oil level is above level (B) on the dipstick, drain to proper level. DO NOT overfill.

19. Install dipstick.

20. Close rear engine cowling.

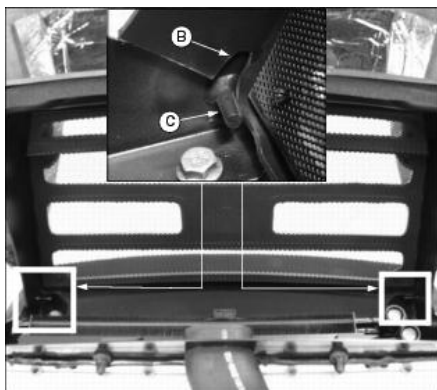
Cleaning Rear Grill Screen



c CAUTION: Avoid injury! Help prevent personal injury. Wear personal eye protection when using compressed air for cleaning purposes.

IMPORTANT: Avoid damage! The rear grill screen must be clean to prevent engine from overheating and to allow adequate air intake.

1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake.
3. Open rear engine cowling.
4. Remove rear grill screen (A) from position behind engine radiator.
5. Clean screen with compressed air.
6. Install grill screen.



· Install grill screen notches (B) onto each bracket mounting pin (C).

7. Close rear engine cowling.

Cleaning Oil Cooler Coils and Radiator Cooling Fins



c CAUTION: Avoid injury! Help prevent personal injury. Wear personal eye protection when using compressed air for cleaning purposes.

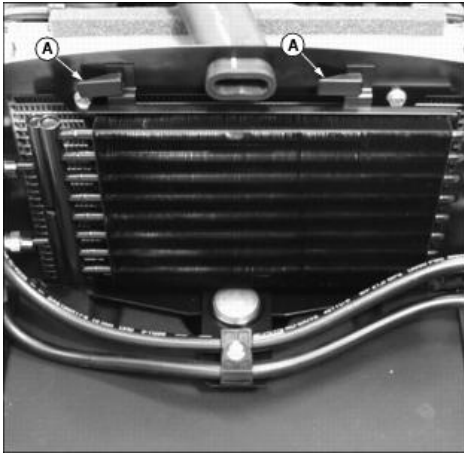
IMPORTANT: Avoid damage! Oil cooler coils and radiator cooling fins must be clean to prevent overheating.

1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake. Allow engine to cool.
3. Open rear engine cowling.
4. Remove rear grill screen. (See **Cleaning Rear Grill Screen** in this section.)
5. Release latches (A) securing oil cooler to the radiator mounting bracket.

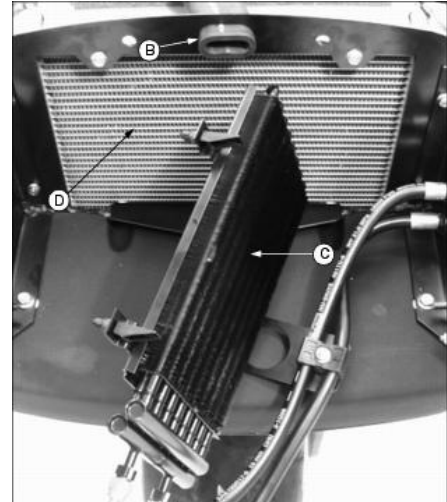
- Carefully move oil cooler away from the radiator.

IMPORTANT: Avoid damage! Help prevent unnecessary damage to the engine. When cleaning oil cooler coils and radiator fins take precautions to prevent water and debris from entering the air intake hose (B).

6. Remove dirt and debris from oil cooler coils (C) and radiator fins (D) using compressed air or water.



M97329



- Check oil cooler coils and radiator fins for damage.

7. Install oil cooler.
8. Install grill screen.
9. Close rear engine cowling.

Checking Air Restriction Indicator

1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake. Allow engine to cool.
3. Open rear engine cowling.

NOTE: Indicator will not function correctly if plastic indicator housing is damaged.

4. Locate and check air restriction indicator (A).

- When yellow plunger (A) inside indicator is visible inside the green zone, no air cleaner service is required.
 - When yellow plunger (A) inside indicator is visible inside the red zone, air cleaner requires immediate service. (See **Servicing Air Cleaner Element** in this section.)
5. Close rear engine cowling.

Servicing Air Cleaner Element

IMPORTANT: Avoid damage! DO NOT attempt to clean a primary or secondary air filter element when yellow plunger inside air restriction indicator is visible inside the green zone.



Primary Air Filter Element

1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake. Allow engine to cool.
3. Open rear engine cowling.
4. Release latches (A) and remove air cleaner canister cover (B).
5. Remove and discard primary element (C). Replace with a new primary filter element.



M97358

6. Install air cleaner canister cover (B).



M97357

- Check instruction molded into canister cover for proper installation.
 - Rubber dust unloading valve (D) should be pointed downward when the cover is properly installed.
 - Engage latches (A).
7. Push reset button (E) on air restriction indicator.

8. Start engine. Allow engine to run approximately one minute at maximum throttle speed.
9. Stop engine. Check air restriction indicator. If yellow plunger inside air restriction indicator is visible inside the red zone, replace secondary air filter element.

Secondary Air Filter Element

1. Remove air cleaner canister cover.
2. Remove primary air filter element.
3. Remove and discard secondary air filter element (F). Replace with a new secondary air filter element.
4. Install primary air filter element.
5. Replace air cleaner canister cover.
6. Close rear engine cowling.



Clean Rubber Dust Unloading Valve

IMPORTANT: Avoid damage! Never operate engine without air cleaner element and rubber dust unloading valve installed.

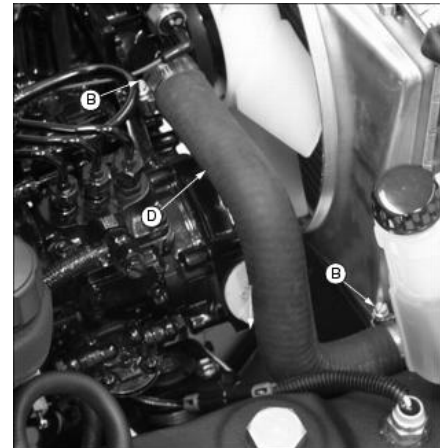
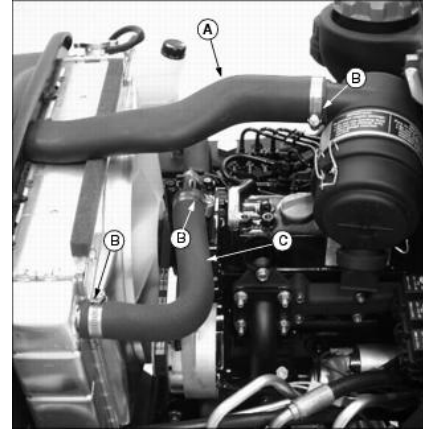
1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake. Allow engine to cool.
3. Open rear engine cowling.
4. Remove dust unloading valve (A) and clean. Replace if damaged.
5. Install dust unloading valve.
6. Close rear engine cowling.



Check Radiator Hoses, Air Intake Hose and Clamps

1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake. Allow engine to cool.
3. Open rear engine cowling.
4. Check air intake hose (A).

- Tighten hose clamp (B).
 - Check hose for cracks or damage.
 - Replace if necessary.
5. Check upper radiator hose (C).
- Tighten hose clamps (B).
 - Check hose for cracks or damage.
 - Replace if necessary.
6. Check lower radiator hose (D).
- Tighten hose clamps (B).
 - Check hose for cracks or damage.
 - Replace if necessary.
7. Close rear engine cowling.



Service Cooling System Safely



MIF



CAUTION: Avoid injury! Explosive release of fluids from pressurized cooling system can cause serious burns:

- Shut off engine.
- Only remove filler cap when radiator is cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

Engine Coolant

The following John Deere coolant is preferred:

- PRE-DILUTED DIESEL ENGINE ANTI-FREEZE/SUMMER COOLANT (TY16036).

If preferred pre-diluted coolant is not available, the following John Deere concentrate is recommended:

- DIESEL ENGINE ANTI-FREEZE/SUMMER COOLANT CONCENTRATE (TY16034).

These coolants exceed industry specifications: ASTM D5345, D4656, D4985, D3306, and GM6038. They are designed with 5-year or 5000 hour long life formulation (subject to testing annually for conditioner level) for use in all heavy duty diesel engines. These coolants have a coolant conditioner added to help protect against liner pitting and cavitation.

If neither of the above coolants is available, use an ethylene glycol base coolant that meets the following specification:

- ASTM D4985 (JDM H24A2).

Check container label before using to be sure it has the appropriate specifications for your machine. Use coolant with conditioner or add conditioner to coolant before using.

IMPORTANT: Avoid damage! To prevent engine damage, DO NOT use pure antifreeze or more than 50% antifreeze in the cooling system. DO NOT mix or add any other type additives to the cooling system.

If using concentrate, mix approximately 50 percent antifreeze with 50 percent distilled or deionized water before adding to cooling system. This mixture will provide freeze protection to -37 degrees C (-34 degrees F).

Certain geographical areas may require lower temperature protection. See the label on your antifreeze container or consult your John Deere dealer to obtain the latest information and recommendations.

The preferred antifreeze provides:

- Adequate heat transfer.
- Corrosion-resistant environment within the cooling system.
- Protection against liner pitting and cavitation.
- Compatibility with cooling system hose and seal material.
- Protection during cold and hot weather operations.

Engine Coolant Drain Interval

When using PRE-DILUTED DIESEL ENGINE ANTI-FREEZE/SUMMER COOLANT or DIESEL ENGINE ANTI-FREEZE/SUMMER COOLANT CONCENTRATE (TY16034) coolants, drain and flush the cooling system and refill with fresh coolant mixture every 60 months or 5,000 hours of operation, whichever comes first.

If above John Deere Service coolants are not being used: drain, flush, and refill the cooling system with fresh coolant mixture every 24 months or 600 hours of operation, whichever comes first.

Checking Coolant Level

IMPORTANT: Avoid damage! To prevent engine damage:

- DO NOT operate engine without coolant.
- DO NOT pour coolant into the radiator when the engine is hot.
- Use antifreeze approved for use in aluminum engine.
- To prevent engine overheating, do not exceed more than 50 percent antifreeze in cooling system.
- Cooling system capacity is 3.5 L (3.7 U.S. qt).

1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake. Allow engine to cool.
3. Open rear engine cowl.

4. Check recovery tank (A) coolant level:

- If engine is warm, coolant level should be between the "H" (HIGH) line (B) and the "L" (LOW) line (C).

- If engine is cold, coolant level should be at the "L" (LOW) line (C) on the recovery tank.

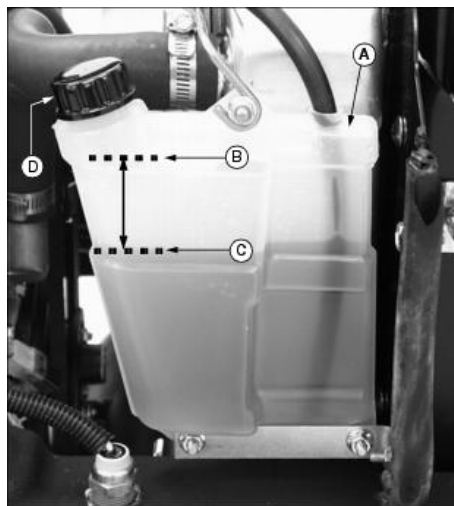
5. Remove recovery tank cap (D) to add coolant.

6. If coolant is low, add specified ratio of antifreeze and water. (See **Engine Coolant** in this section for the correct application.)

7. Install and tighten recovery tank cap.

8. Clean debris from rear grill screen, oil cooler coils and radiator cooling fins. (See **Cleaning Rear Grill Screen and Cleaning Oil Cooler Coils and Radiator Cooling Fins** in this section.)

9. Check condition of hoses. Check for leaks or loose connections. (See **Check Radiator Hoses, Air Intake Hose and Clamps** in this section.)



Draining Cooling System



c CAUTION: Avoid injury! DO NOT remove the radiator cap unless the engine is cool. Slowly loosen cap to the first stop. Release all pressure before removing cap. When the engine is hot the explosive release of fluids from the pressurized cooling system could cause serious burns. Antifreeze is hazardous to the environment. Dispose of antifreeze in a proper container.

IMPORTANT: Avoid damage! Help prevent damage to the engine:

- DO NOT operate engine without coolant.
- DO NOT pour coolant into the radiator when the engine is hot.

1. Park greensmower on a hard, level surface.

2. Stop engine and engage park brake. Allow engine to cool.

3. Open rear engine cowl.

4. Slowly open radiator cap (A) to the first stop to release all pressure.

5. Close radiator cap tightly.

NOTE: A section of plastic or rubber hose can be used to divert fluid away from the greensmower.

6. Open radiator petcock (B). Drain coolant into a pan.

7. When coolant drains from the recovery tank, remove radiator cap.

8. After all coolant has drained, close radiator petcock.

9. Flush cooling system. (See **Flushing Cooling System** in this section.)



Flushing Cooling System



c CAUTION: Avoid injury! Engine and coolant will be hot. Turn radiator cap using a thick rag or glove to protect your hand.

IMPORTANT: Avoid damage! To prevent engine damage:

- DO NOT pour water into radiator when engine is hot.
- DO NOT operate engine without coolant.

1. Fill cooling system with clean water and John Deere Cooling System Cleaner, or John Deere Cooling System Quick Flush or an equivalent. Follow directions on the can.

2. Install and tighten radiator cap (A).

3. Start and run engine until it reaches operating temperature.

4. Stop engine.

5. Open radiator petcock (B).



M97373

• Drain cooling system immediately before rust and dirt settle. (See **Draining Cooling System** in this section).

6. Close radiator petcock.

Filling Cooling System

IMPORTANT: Avoid damage! To prevent engine damage:

- DO NOT use straight antifreeze or more than 50% antifreeze in the cooling system.
- DO NOT mix or add any other type additives to the cooling system.

Cooling system capacity is 3.5 L (3.7 qt).

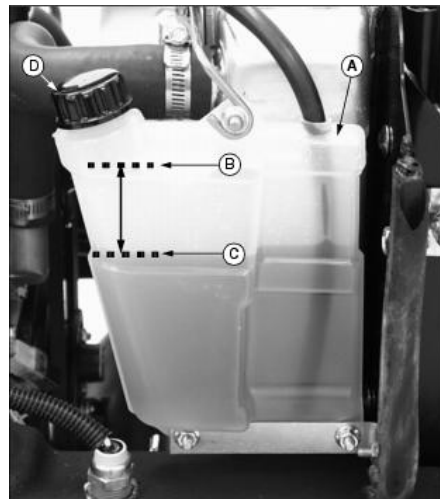
1. Fill cooling system. (See **Engine Coolant** in this section for proper antifreeze application.)

- Certain geographical areas may require lower temperature protection. See the label on your antifreeze container or consult your John Deere distributor to obtain the latest information and recommendations.
- John Deere Cooling System Sealer or its equivalent may be added to the radiator to seal leaks. Do not use any other additives in the cooling system.

2. Install and tighten radiator cap.

3. Run engine until it reaches operating temperature.

4. Stop engine.
5. Check recovery tank (A) coolant level:
 - If engine is warm, coolant level should be between the "H" (HIGH) line (B) and the "L" (LOW) line (C).
 - If engine is cold, coolant level should be at the "L" (LOW) line (C) on the recovery tank.
6. Remove cap (D) from recovery tank to add coolant if necessary.
7. Check condition of coolant system hoses and clamps. (See **Check Radiator Hoses, Air Intake Hose and Clamps** in this section.)
8. Close rear engine cowling.



Checking Fuel Filter Sediment Bowl



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

1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake. Allow engine to cool.
3. Open rear engine cowling.
4. Check for water in sediment bowl (A):
 - Orange ring will float on top of the water.
5. If necessary, clean bowl and replace filter. (See **Cleaning Fuel Filter Sediment Bowl**).

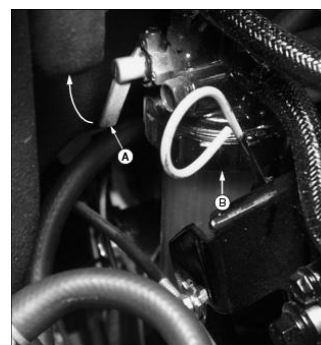


Cleaning Fuel Filter Sediment Bowl



c CAUTION: Avoid injury! Wait until fuel is low before replacing fuel filter OR be prepared to drain fuel into a safe container when disconnecting fuel line.

1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake. Allow engine to cool.
3. Open rear engine cowling.
4. Close fuel shut-off valve (A).
5. Turn collar (B) to remove bowl and filter. Discard filter.
6. Clean bowl.
7. Install new filter and bowl.
8. Tighten collar.
9. Open fuel shut-off valve.
10. Close rear engine cowling.



Using the Fuel Pump Primer

NOTE: The following procedure should be used when the greensmower needs to be restarted after completely running out of fuel.



CAUTION: Avoid injury! Help prevent serious personal injury. DO NOT refuel greensmower while smoking or when near open flames or sparks. Allow engine to cool before refueling.

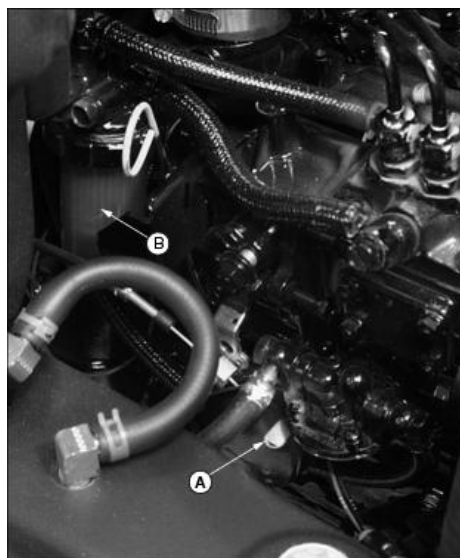
1. Engage park brake. Allow engine to cool.
2. Check fuel gauge and fill as required. (See **Fuel** and **Filling Fuel Tank** in the **Service-Miscellaneous** section.)
3. Open rear engine cowling.
4. Locate fuel priming lever (A) on left side of engine.

NOTE: Make sure fuel shut-off valve is in the "O" (open) position. (See Using Fuel Shut-Off Valve in the Operating section.)

5. Pump fuel priming lever until fuel is visible in the fuel filter sediment bowl (B).

IMPORTANT: Avoid damage! Fuel system is self bleeding. Crank engine to allow system to bleed itself.

Help prevent possible damage to the starter. DO NOT operate starter more than twenty seconds. If engine will not start, wait two minutes before trying again.



6. Start engine.

Checking and Adjusting Alternator Belt

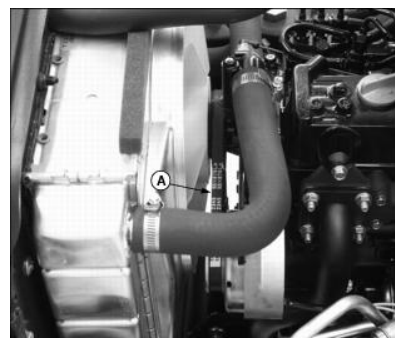


CAUTION: Avoid injury! Help prevent serious bodily injury due to entanglement in a belt, pulley or contact with a rotating fan blade. Stop engine and wait for all moving parts to stop.

Check Belt Tension

1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake. Allow engine to cool.
3. Open rear engine cowling.
4. Check alternator belt (A):

- Inspect belt for excessive wear, damage or stretching while in position on the fan, alternator and flywheel sheaves.
- Apply thumb pressure to the belt approximately halfway between the sheaves. Belt should deflect inward approximately 9.5 mm (3/8 in.).



Adjusting Belt Tension

1. Loosen adjustment bolt (B).

Picture Note: Alternator located on right side of engine.

2. Loosen alternator mounting bolt (C).
3. Apply outward pressure to the alternator housing.
4. Tighten alternator adjustment bolt (B) and mounting bolt (C).
5. Check belt tension:

- Apply thumb pressure to the belt approximately halfway between the sheaves. Belt should deflect inward approximately 9.5 mm (3/8 in.).

6. Close rear engine cowling.



Replacing Alternator Belt



CAUTION: Avoid injury! Help prevent serious bodily injury due to entanglement in a belt, pulley or contact with a rotating fan blade. Stop engine and wait for all moving parts to stop.

1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake. Allow engine to cool.
3. Open rear engine cowling.
4. Loosen adjustment bolt (A).

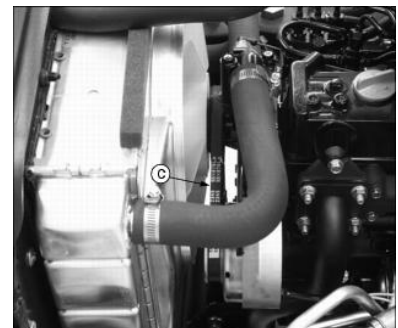
Picture Note: Alternator located on right side of engine.

5. Loosen alternator mounting bolt (B).
6. Apply inward pressure to the alternator housing.
7. Remove worn belt from alternator, fan and flywheel sheaves.
8. Install new belt.
9. Apply outward pressure to the alternator housing.
10. Tighten alternator adjustment bolt (A) and mounting bolt (B).

11. Check belt tension:

- Apply thumb pressure to the belt (C) approximately halfway between the sheaves. Belt should deflect inward approximately 9.5 mm (3/8 in.).

12. Close rear engine cowling.



Service Hydraulics & Transmission

Transmission and Hydraulic Oil

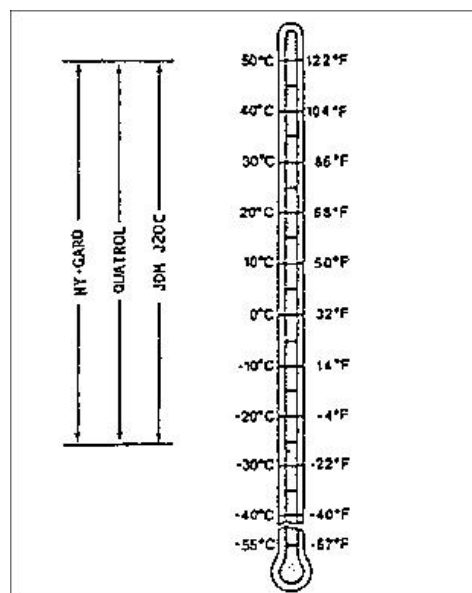
NOTE: Greensmower is filled with John Deere HY-GARD→ (J20C) Transmission and Hydraulic Oil at the factory. DO NOT mix oils. DO NOT use type "F" automatic transmission fluid or J20D Low Viscosity HY-GARD→.

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

John Deere HY-GARD® Transmission/Hydraulic Oil is recommended.

Other oils may be used if they are QUATROL® oils or if they meet John Deere Standard JDM J20C.

John Deere HY-GARD→ (J20C) oil is specially formulated to provide maximum protection against mechanical wear, corrosion and foaming.



Checking Hydraulic Oil Level

IMPORTANT: Avoid damage! Check oil level in reservoir tank when oil is cold. Engine must not be running.

1. Park greensmower on a hard, level surface.
2. Lower cutting units to ground.
3. Stop engine and engage park brake.
4. Open rear engine cowl.

NOTE: Check hydraulic oil level when oil is cold.

5. Check oil level.

• Check oil level on sight glass (A). Oil should be maintained to a mid-level range (B) on the sight glass.

Picture Note: Engine area of liquid cooled gas (petrol) model greensmower shown.



IMPORTANT: Avoid damage! Help prevent dirt and other contaminants from entering the hydraulic oil tank reservoir. Clean area around fill cap before removing.

DO NOT overfill oil reservoir tank. Oil will expand during operation and could overflow.

6. If oil level is low:

• Carefully clean area around oil reservoir fill cap (C).

• Remove reservoir cap. Add oil at reservoir fill cap location until oil level reaches mid-level range on the sight glass. (**See Transmission and Hydraulic Oil** in this section for the proper oil application.)

7. Install and tighten reservoir cap.

8. Close rear engine cowling.

Check Hydraulic Oil Filter Status Indicator

IMPORTANT: Avoid damage! Severe or unusual conditions may require a more frequent service interval. (See Service Interval Chart for reference.)

1. Park greensmower on a hard, level surface.

2. Lower cutting units to the ground.

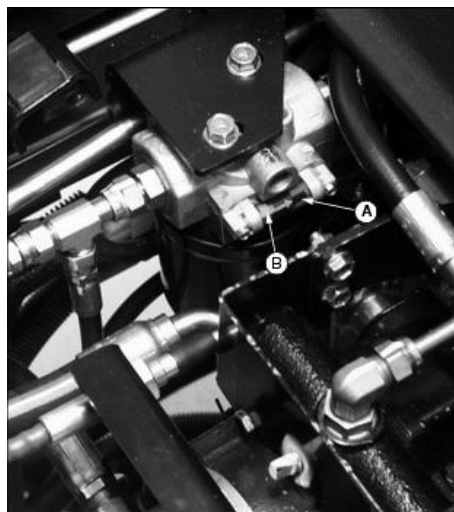
3. Stop engine and engage park brake.

4. Lift and secure operator seat in the raised position.

5. Locate and check hydraulic oil filter status indicator (A) just above oil filter.

• When plunger (B) inside indicator moves in direction shown by arrow and is visible inside the indicator red zone, hydraulic oil filter requires immediate service. (See **Changing Hydraulic Oil Filter** in this section.)

6. Lower operator seat.



Changing Hydraulic Oil



CAUTION: Avoid injury! Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic and other lines. Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

Use caution when filling and draining hydraulic oil. During periods of machine operation the hydraulic oil reservoir can get hot. Allow engine and oil reservoir to cool before servicing.

IMPORTANT: Avoid damage! Contamination of hydraulic fluid could cause premature transmission damage or failure. DO NOT open oil reservoir cap unless absolutely necessary.

Severe or unusual conditions may require a more frequent service interval. (See Service Interval Chart section for reference.)

NOTE: Refer to Service Interval Chart for break-in and routine oil change intervals.

1. Park greensmower on a hard, level surface.

2. Stop engine and engage park brake.

• Allow engine and hydraulic oil reservoirs to cool.

3. Open rear engine cowling.

4. Locate drain plug (A) under left side of main oil reservoir. Locate drain plug (B) under left side of auxiliary oil reservoir.

Picture Note: Engine area of liquid cooled gas (petrol) model greensmower shown.

- Remove main drain plug and auxiliary tank drain plug.
- Allow oil to drain into a drain pan with at least a 20.4 L (5.4 gal) capacity.

NOTE: Apply LOCTITE→¹ Thread Sealant to drain plug threads.

5. Install and tighten drain plug (A) and drain plug (B).

NOTE: Total oil capacity of hydrostatic and reel drive system is 28.8 L (7.6 gal). Capacity of hydraulic oil reservoir ONLY is 20.4 L (5.4 gal).

6. Fill main oil reservoir.

Picture Note: Engine area of liquid cooled gas (petrol) model greensmower shown.

- Clean area around reservoir fill plug (C).
- Remove fill plug (C). Fill reservoir with oil. DO NOT overfill.
- Apply LOCTITE→ Thread Sealant to main fill plug threads.
- Install and tighten fill plug.

7. Fill auxiliary oil reservoir.

- Clean area around auxiliary oil reservoir fill cap (D). Remove cap.
- Add oil at reservoir fill cap location until oil level reaches mid-level range (E) on the sight glass (F).
- Install fill cap.

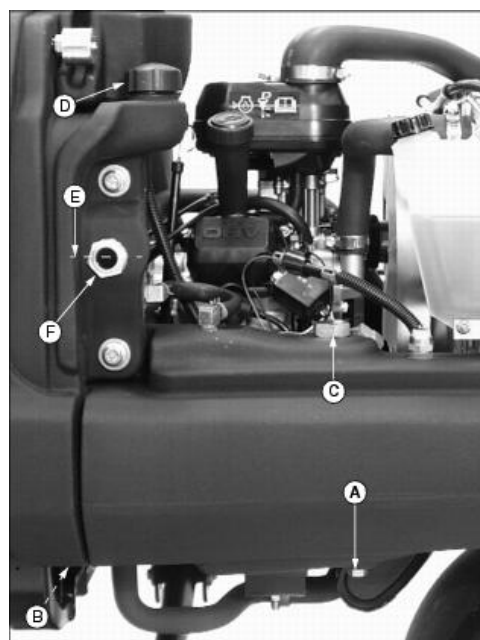
8. Start engine.

9. Cycle hydraulic controls for approximately one or two minutes. Check for leaks.

10. Stop engine.

11. Check oil level. Add oil as necessary. (See **Checking Hydraulic Oil Level** in this section.)

12. Close rear engine cowling.



Changing Hydraulic Oil Filter

NOTE: Refer to Service Interval Chart for break-in and routine oil change intervals.

1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake.

- Allow engine and hydraulic oil filter to cool.
3. Lift and secure operator seat in the raised position.
 4. Locate hydraulic oil filter (A) under right side of greensmower.
 5. Remove filter.
 - Turn filter counterclockwise to remove.
 6. Install new filter.
 - Apply a film of clean oil on gasket of new filter.
 - Turn filter clockwise until gasket makes contact with the mounting surface. Tighten 1/2 to 3/4 turn after gasket contact.
 7. Start engine.
 8. Cycle hydraulic controls for approximately one or two minutes. Check for leaks.
 9. Stop engine.
 10. Check oil level. Add oil as necessary. (See **Checking Hydraulic Oil Level** in this section.)
 11. Lower operator seat.



Clean Hydraulic Oil Reservoir Strainer



CAUTION: Avoid injury! Use caution when performing this service procedure. During periods of machine operation the hydraulic oil reservoir can get hot. Allow engine and oil reservoir to cool before servicing.

NOTE: Routinely clean hydraulic oil reservoir strainer when changing the hydraulic oil and filter. Strainer should be serviced when the hydraulic oil reservoir is EMPTY. Refer to Service Interval Chart for recommended service interval.

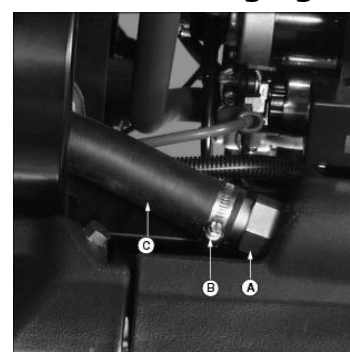
1. Change hydraulic oil and filter. (See **Changing Hydraulic Oil** and **Changing Hydraulic Oil Filter** in this section.)

2. Locate hydraulic oil reservoir strainer (A) under left side of greensmower.

- Loosen adjustable hose clamp (B).

NOTE: Use drain pan to catch dripping oil.

- Remove rubber hose (C) from strainer.
- Loosen and remove strainer from reservoir housing.

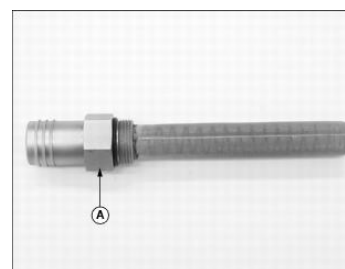


3. Clean strainer (A) with solvent or mineral spirits.

- Allow strainer to dry.

4. Install strainer.

- Apply LOCTITE[®] Thread Sealant to strainer threads.
- Install strainer into reservoir housing and tighten.
- Install rubber hose (C) onto strainer.
- Install and tighten adjustable hose clamp (B).



Adjusting Transmission Neutral

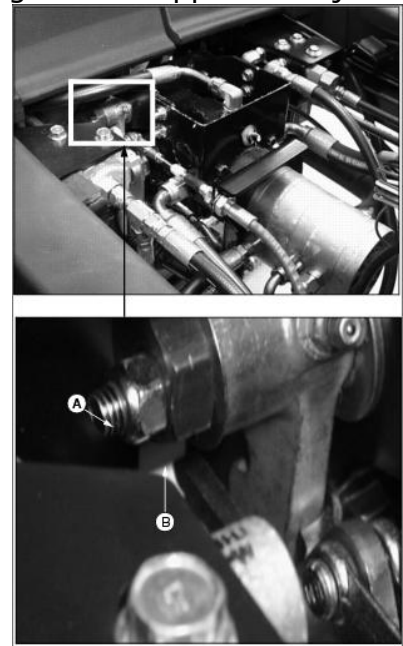
NOTE: The neutral lock adjustment should be done after the transmission neutral adjustment.

Check Transmission Neutral Adjustment

- The greensmower may creep forward or backward while in neutral with engine running.
- After engine has started, release parking brake with directional speed control pedals centered. The greensmower should not move.
- If movement is detected, neutral return mechanism is adjusted incorrectly. Adjust until greensmower does not move when directional speed control pedals are in neutral position.

Transmission Neutral Adjustment

1. Park greensmower on a hard, level surface.
 2. Move mow/transport lever to the TRANSPORT) position.
 3. Lower cutting units to the ground.
 4. Stop engine and engage park brake.
 5. Lift and secure operator seat in the raised position.
 6. Lift front of greensmower so drive wheels are off the ground. Support with jack stands or wooden blocks.
 7. Start engine.
 8. Adjust throttle level to SLOW) idle.
 9. Disengage park brake.
 10. Loosen eccentric jam nut (A).
 11. Slowly turn eccentric cam (B) clockwise or counterclockwise to stop any drive wheel rotation.
 12. Hold eccentric cam and tighten eccentric jam nut.
 13. Check adjustment.
- Depress and release forward and reverse travel pedals.
 - Check turning motion of drive wheels.
 - Repeat adjustment until the greensmower does not creep.



Adjust Neutral Lock

IMPORTANT: Avoid damage! Transmission neutral adjustment must be completed prior to doing this service adjustment.

Check Position of Neutral Lock Pin

- Locate neutral lock linkage under the right side of the operator platform.
- Depress and lock park brake pedal in the first engaged position.

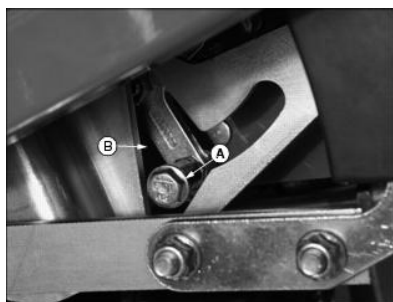


- The neutral lock pin (A) should be engaged into the NARROW opening of slot (B) in the FORWARD travel pedal linkage.



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- Disengage park brake.
- When the park brake is disengaged, the neutral lock pin (A) should be in the WIDE opening of slot (B). The FORWARD travel pedal should have full forward and full reverse motion within the pedal linkage opening.



- If both of these conditions are not met, an adjustment is required.

Adjust Position of Neutral Lock Pin

1. Locate neutral lock adjustment mechanism under the right side of the operator platform.
2. Loosen jam nut (C) on the

neutral lock rod.

3. Remove cotter pin (D) and flat washer (E) from the neutral lock driver arm.

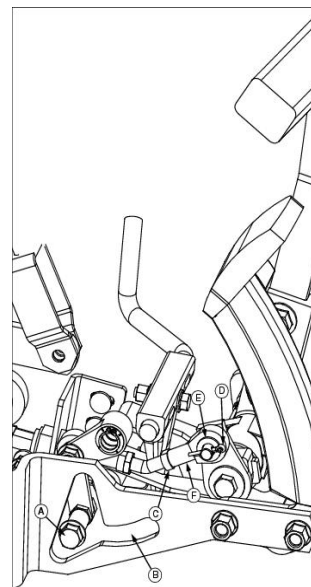
4. Disconnect rod end (F) off of driver arm.

- Rotate rod end to adjust.

5. Install rod end (F), flat washer (E) and cotter pin (D) onto driver arm.

6. Tighten jam nut (C).

7. Recheck neutral lock pin engagement.



Checking and Adjusting Park Brake Neutral

Check Adjustment

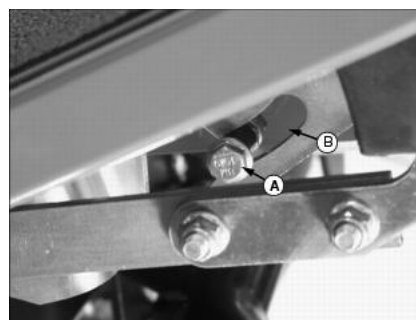
1. Depress and lock park brake pedal in the first engaged position.

- The neutral lock pin (A) should be engaged into the NARROW opening of slot (B) in the FORWARD travel pedal linkage.

- The forward travel pedal should not move or should lift up slightly when the brake is engaged.

2. Start engine.

- If the drive wheels begin to creep when the brake is set, adjustment is required.



Adjust Park Brake Neutral

1. Stop engine.
2. Lift front of greensmower so drive wheels are off the ground. Support with jack stands or wooden blocks.
3. Lift and secure operator seat in the raised position.

NOTE: Park brake pedal should be depressed and locked in the first engaged position.

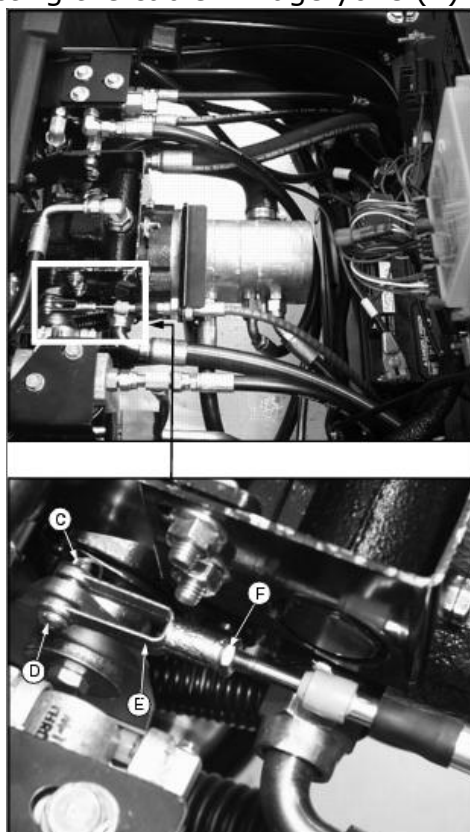
4. Start engine.
5. Remove cotter pin (C) and clevis pin (D) connecting the cable linkage yoke (E) to the hydraulic pump lever.
6. Loosen jam nut (F).
7. Rotate yoke (E) to adjust.
8. Replace clevis pin (D).
- If the drive wheels begin to creep with the brake pedal locked in the first engaged position, additional adjustment is necessary. Continue adjustment process until creep is gone.
9. Hold yoke (E) and tighten jam nut (F).
10. Install clevis pin (D) and cotter pin (C).

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Service - Cutting Units

Avoid Injury From Contacting Blades



CAUTION: Avoid injury! Before dismounting to unplug or service cutting units:

- STOP the machine.
- DISENGAGE reel drive by moving the Mow/Transport lever to the Transport position.
- LOWER cutting units to the ground.
- LOCK the park brake.
- STOP the engine.
- Remove key.
- Wait for reels and all moving parts to STOP.

Blocked or stalled cutting cylinders:

- Keep all parts of the body away from the cutting edges. Residual hydraulic pressure in the system can cause cutting cylinder rotation when the blockage is released.

Removing and Installing Cutting Units



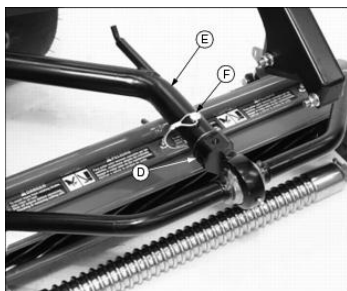
CAUTION: Avoid injury! Help avoid serious personal injury. Wear protective gloves when handling cutting units with sharp blades.

Removing Cutting Units

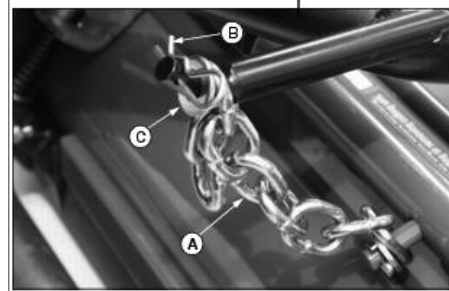
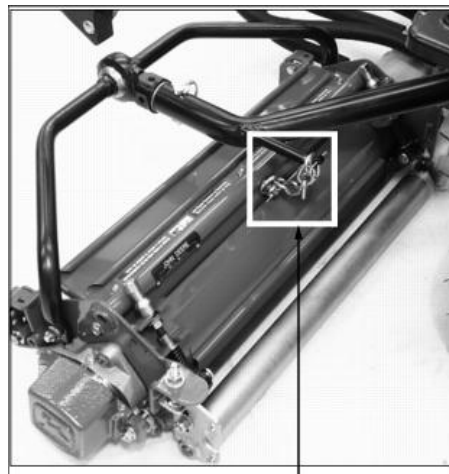
1. Park greensmower on a hard, level surface.
2. Stop engine and engage park brake.
3. Disconnect lift chain (A).

Picture Note: Photo shows front left cutting unit.

- Remove spring locking pin (B) and flat washer (C).
 - Remove chain from lift arm pin.
4. Disconnect yoke (D) from lift arm (E).

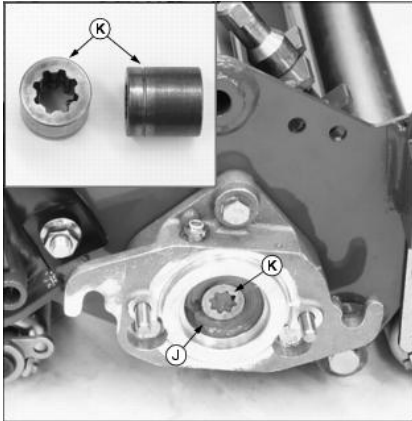


- Remove quick-lock pin (F).
 - Roll cutting unit forward away from lift arm.
5. Remove hydraulic motor (G).



- Loosen locking assembly hardware (H).
- Rotate motor from reel bearing housing slots (I).

6. Inspect inside of reel bearing housing (J) for grease. Add John Deere Special Purpose HD Cornhead Grease to housing if additional lubrication is needed.



7. Check splined motor/reel coupling (K) for wear. Replace if necessary. Make sure coupling is lubricated with grease and remains in position on reel shaft.

8. Repeat procedure for other cutting units if necessary.

Installing Cutting Units

NOTE: Center cutting unit has the upstop bracket. Right front cutting unit has the steering limiter bracket.

1. Install hydraulic motor (G) onto the reel bearing housing.

- Align splined reel coupling with splined motor drive shaft.
- Align locking assembly hardware with reel bearing housing slots (I).
- Tighten assembly locknuts (H).

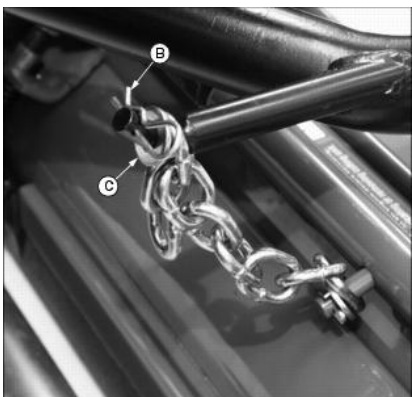
NOTE: Yoke with steering limiter bracket must be installed to the right front cutting unit.

2. Install yoke (D) to lift arm (E).

- Align yoke pin and lift arm mounting holes.
- Fasten cutting reel in position with quick-lock pin (F).

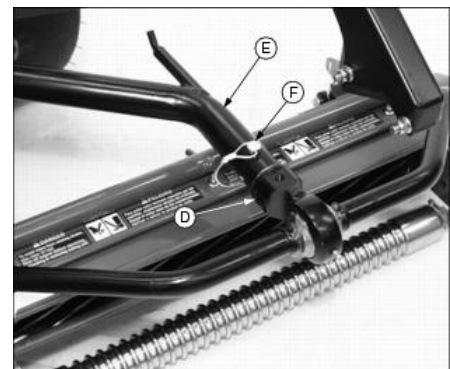
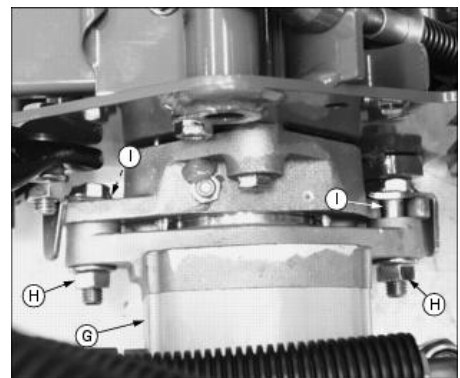
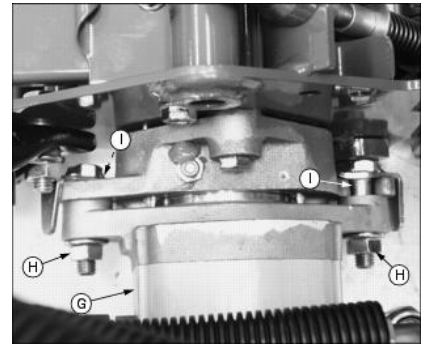
NOTE: The lift chain has nine links. Assemble seventh link onto lift arm pin.

3. Install lift chain (A) onto lift arm pin.



- Install flat washer (C) and spring locking pin (B).
- Make sure chain is not kinked.

4. Repeat procedure for other cutting units if necessary.

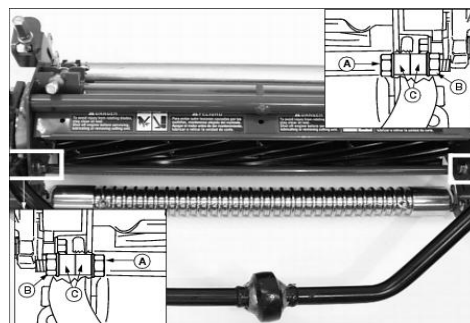


Removing Cutting Unit Yokes

NOTE: When performing some service and operational procedures it may be desirable to remove the cutting unit yokes.

1. Remove flange head bolt (A), lock nut (B) and two pivot bushings (C) from each end of cutting unit yoke.
2. Install in reverse order of removal.

NOTE: Yoke with steering limiter bracket must be installed to the right front cutting unit.



Removing and Installing Front Roller

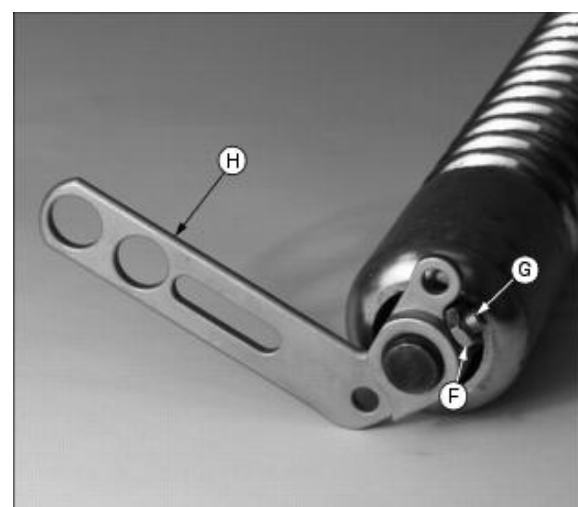
Removing Front Roller

1. Remove cutting unit from greensmower.
(See **Removing and Installing Cutting Units** in this section.)
2. Position cutting unit upright on a flat surface or workbench.
3. Loosen and remove hardware from left roller bracket.
 - Remove flange nut (A) and carriage bolt from lower hole.
 - Remove lock nut (B), eccentric adjuster (C), serrated washer (D) and carriage bolt.
4. Loosen and remove hardware from right roller bracket.
 - Remove flange nuts (E) and carriage bolts.



5. Remove roller and bracket assembly from cutting unit frame.
6. Remove roller brackets.

Picture Note:
Photo shows left roller



bracket being removed.

- Loosen jam nut (F) and set screw (G).
 - Remove bracket (H) from each bearing spindle shaft end.
7. Replace roller.

Installing Front Roller

NOTE: Roller brackets are offset. For standard use, the bracket should be installed to the roller with the offset to the rear of the base cutting unit to allow close proximity of front roller to rear roller. If Greens Tender Conditioner (GTC) is being installed, offset should be to the front to allow the GTC to be installed behind the front roller.

Install the roller bracket with the larger holes and adjustment slot on the left side of the cutting unit, in the direction of travel.

The roller bearing spindle shaft has holes drilled in each end. DO NOT tighten set screws near the holes.

1. Install roller brackets (A) onto each bearing spindle shaft end.

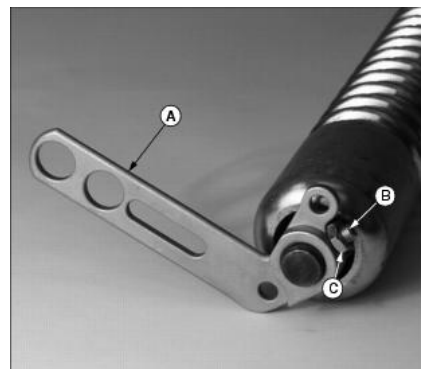
Picture Note: Photo shows left roller bracket being installed.

- Install set screws (B) and lock nuts (C) loosely. DO NOT tighten.

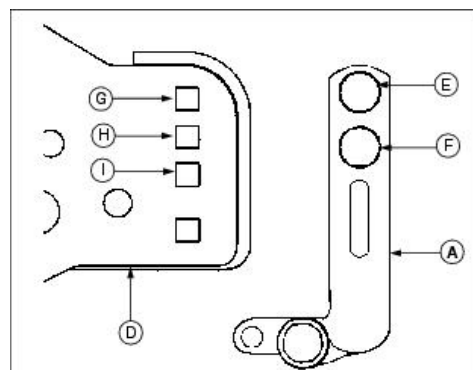
2. Select Height-of-Cut (HOC) adjustment range.

- Alignment of roller bracket (A) and cutting unit frame (D) adjustment holes will determine HOC adjustment range.

- Refer to chart for desired setting.



Height of Cut		Roller Bracket Hole	Cutting Unit Frame Hole
Millimeters	Inches		
0-9.53	0-3/8	Top (E)	Top (G)
6.35-15.88	1/4-5/8	Bottom (F)	Bottom (I)
12.70-22.23	1/2-7/8	Top (E)	Middle (H)
0-6.53 ¹	0-1/4	Bottom (F)	Middle (H)



¹

This setting is used when the diameter of the cutting reel has worn down to 120 mm (4.7") or less.

3. Install front roller and roller bracket assembly.

- Slide assembly roller brackets (A) into cutting unit frame slots.
- Align selected HOC adjustment holes.

NOTE: Install carriage bolts from the inside.

- Fasten bottom of LEFT roller bracket to frame using one M8 x 20 carriage bolt and one M8 flange nut (E).

Picture Note: Top photo shows installation of left roller bracket.

NOTE: Install serrated washer with cupped side facing cutting unit frame.

- Fasten top of LEFT roller bracket to frame using one M8 x 40 carriage bolt, one serrated washer (F), one eccentric adjuster (G) and one M8 lock nut (H).
- Fasten RIGHT roller bracket to frame using two M8 x 20 carriage bolts and two M8 flange nuts (I).

Picture Note: Bottom photo shows installation of right roller bracket.

- Tighten roller bracket attaching hardware.

NOTE: Make sure the roller bracket set screw locations are not aligned with the holes in each bearing spindle shaft end. Set screws must engage the bearing spindle shaft at each end.

- Center front roller. Tighten set screws (B) and jam nuts (C) on both roller brackets.

4. Adjust front roller for parallelism (See **Adjust Front Roller Parallel with Bed Knife** in the **Operating-Cutting Units** section.)

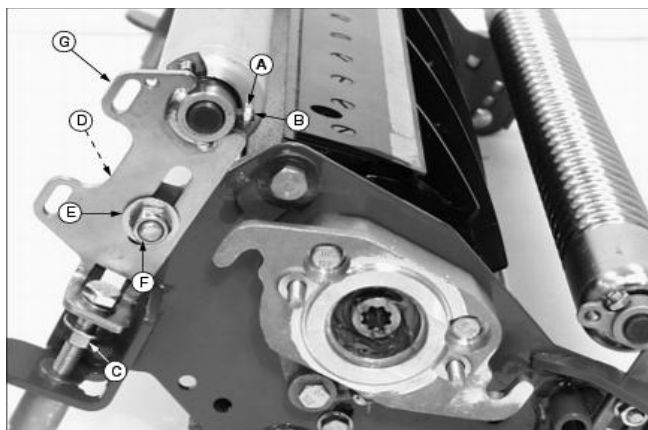
5. Adjust height-of-cut. (See **Adjust Height of Cut** in the **Operating-Cutting Units** section.)



Removing and Installing Rear Roller

Removing Rear Roller

1. Remove cutting unit from greensmower. (See **Removing and Installing Cutting Units** in this section.)
2. Position cutting unit on a flat surface or workbench.
3. On each side of rear roller, loosen jam nut (A) and set screw (B).



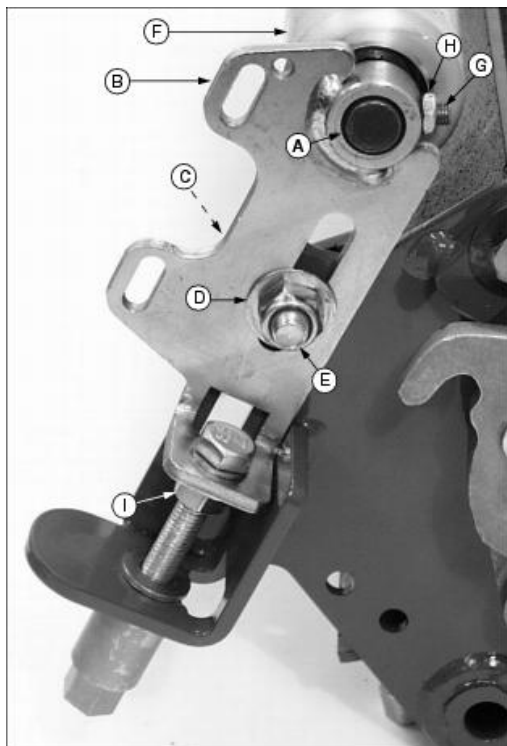
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4. Loosen jam nut (C) on each adjuster tower.

5. Remove carriage bolt (D), flat washer (E) and lock nut (F) attaching each height-of-cut (HOC) adjustment bracket (G) to the cutting unit frame.
6. Move height-of-cut (HOC) brackets (G) away from each bearing spindle shaft end.
7. Remove rear roller (H).

Installing Rear Roller

1. Install roller bearing spindle shafts (A) into each height-of-cut (HOC) bracket (B).



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2. Attach both height-of-cut brackets to cutting unit frame.

NOTE: Install carriage bolts from the inside.

- Install carriage bolt (C), flat washer (D) and lock nut (E).
- Tighten hardware.

3. Center rear roller (F) inside HOC brackets.

4. Tighten set screws (G) and jam nuts (H).

5. Loosen lock nuts (E) approximately 1/4 turn.

6. Tighten jam nut (I) on each adjuster tower.

7. Tighten lock nuts (E).

8. Adjust height-of-cut. (See **Adjust Height of Cut** in the **Operating-Cutting Units** section.)

Replacing Bed Knife



CAUTION: Avoid injury! Help avoid serious personal injury. Bed knives and cutting reels are sharp. Always wear gloves when performing this service function.

Removing Bed Knife

1. Remove cutting unit from greensmower. (See **Removing and Installing Cutting Units** in this section.)

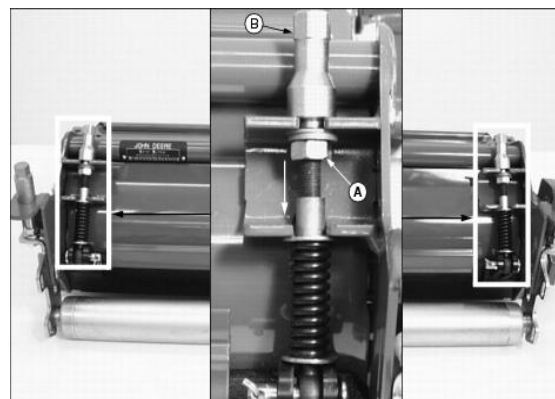
2. Position cutting unit on a flat surface or workbench.

3. Relieve tension from bed knife tension springs on both sides of cutting unit.

- Turn jam nuts (A) counterclockwise until springs are completely compressed.

4. Loosen each adjuster (B).

5. Rotate each adjustment assembly away from reel housing bracket (C).



6. Position cutting unit on flat surface or workbench as shown.

7. Remove shoulder bolt (D) from each end of cutting unit.

8. Slide bed knife assembly (E) out of the cutting unit housing.



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NOTE: Remove debris, corrosion, and rust from bottom surface of bed knife support.

9. Install new bed knife.

- Remove and discard thirteen screws attaching bed knife to assembly support. Discard bed knife.

- Install bed knife using new screws. Alternate tightening by starting with center screws.

10. Put bed knife support and bed knife in a suitable grinder and grind until material is removed from the entire top surface of the bed knife lip. (See **Grinding the Bed Knife** in this section.)

Installing Bed Knife

1. Slide bed knife and support assembly (E) into position inside locator shoe (F).

2. Install both shoulder bolts (D).

• Tighten hardware to 55 N·m (40 lb-ft).

3. Position cutting unit on flat surface or workbench.

4. Install each adjustment assembly inside housing mounting bracket.

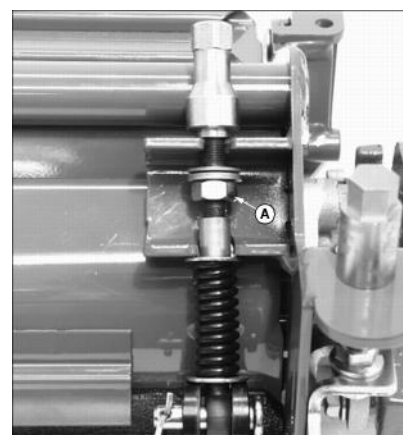
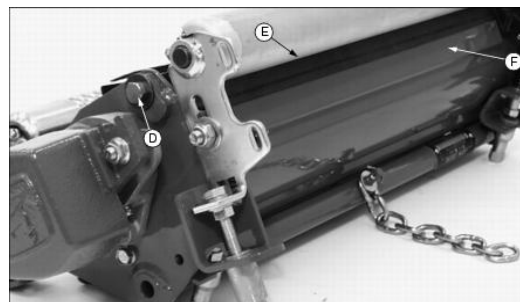
• Restore bed knife spring tension by turning jam nuts (A) clockwise. Turn jam nuts only midway up the threaded adjustment.

5. Adjust bed knife-to-reel. (See **Adjusting Bed Knife-to Reel** in **Operating-Cutting Units** section.)

6. Set height-of-cut. (See **Adjusting Height-Of-Cut in Operating -Cutting Units** section.)

7. Backlap reel. (See **Backlapping Cutting Units** in this section.)

8. Check height-of-cut and adjust as necessary. (See **Adjusting Height-Of-Cut in Operating -Cutting Units** section.)



Grinding the Bed Knife

NOTE: Bed knife and support assembly can be ground as a complete unit.

When grinding the bed knife, it is important to have a 6.5° relief angle on the top surface (A) and a 5° relief angle on the front surface (B).

Adjusting Cutting Unit Shield

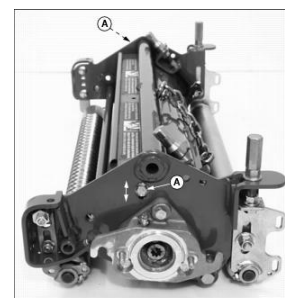
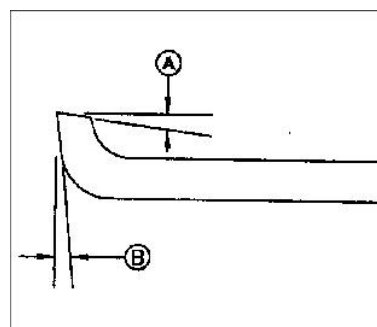
NOTE: Keeping the shield close to the cutting blades improves the performance of the grass catcher in most conditions.

1. Loosen two bolts (A) and lock nuts on each side of cutting unit.

2. Raise or lower shield to desired position.

• Maintain an approximate 1.5 mm (0.06 in.) clearance between the bottom of the shield and the top of the cutting blades.

3. Tighten bolts.



Backlapping Cutting Units



c CAUTION: Avoid injury! Disengage GREENS AND TURF CONDITIONER before backlapping.

Avoid injury from rotating blades. Keep hands and feet away while greensmower is running.

IMPORTANT: Avoid damage! Backlapping cutting units should be done by trained personnel on a routine basis approximately every 25 hours. Backlap intervals will vary depending on conditions. Backlapping is done to prolong reel life, prevent downtime and provide a consistently sharp cutting action.

NOTE: To help maintain sharp edges required on cutting reels, bed knife-to-reel clearance should be checked before the backlapping function begins. The bed knife must be adjusted properly to ensure light, even contact over the length of the cutting blades.

Cutting reels are all backlapped at the same time.

1. Check bed knife-to-reel clearance on all three cutting reels. Adjust if necessary. (See **Adjusting Bed Knife-To-Reel** in the **Operating-Cutting Units** section.)
2. Operator on seat and start engine.
3. Move mow/transport (yellow) lever to the TRANSPORT) position.
4. Lock park brake.
5. Lower cutting units to the ground.
6. Operator off seat.

NOTE: Operator must be off the seat for the backlapping valve to function.

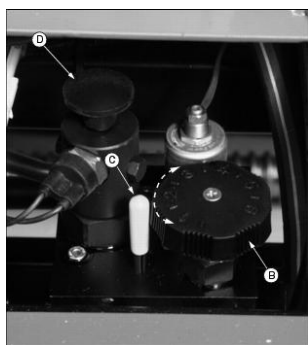
7. Open service access panel (A) below operator seat platform.

8. Locate backlapping valve (B) to the left of the battery.

9. Start engine, if not running.

• Position throttle lever between mid-range) and SLOW) idle.

10. Adjust reel speed.



• Turn reel speed control knob (B) clockwise until indicator (C) is aligned with a number between "1" and "3".

11. Engage backlapping valve.

• Press red centre button and pull Forward/Reverse control knob (D) (yellow disk) UP until a click is heard.



NOTE: Forward/Reverse control knob must be pulled up completely past first detent for the backlapping valve to function properly.

12. Move the Mow/Transport lever to MOW) position.



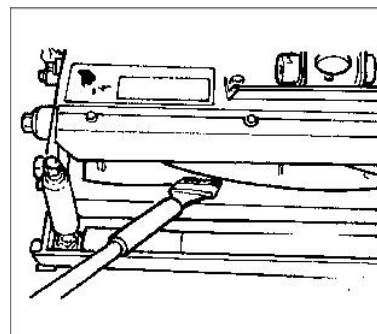
c CAUTION: Avoid injury! Avoid injury from rotating blades. Keep hands and feet away while greensmower is operating.

13. Activate Raise/Lower (black) lever.

- Move and hold lever forward.
- When cutting reels begin turning in REVERSE, release lever.

NOTE: Adjust reel speed slow enough so reel sharpening compound is not thrown off during the backlapping procedure.

14. Using a LONG HANDLED BRUSH, carefully apply reel sharpening compound, uniformly, from one end of the cutting reel to the other. Repeat application in opposite direction. Allow cutting reel to continue running backwards until reel is quiet.



c CAUTION: Avoid injury! DO NOT attempt to disengage the cutting units using the reel speed control knob. This is not a shut-off valve. Reels may turn if engine is running.

15. Periodically disengage cutting units by moving the Mow/Transport lever to the TRANSPORT) position and turn key switch to the "STOP" position. Visually check blade appearance.

NOTE: Forward/Reverse control knob must be pushed down to restart engine.

- Check for uniform clearance across entire bed knife. If clearance is not uniform, repeat backlapping procedure until clearance is uniform across entire bed knife.

IMPORTANT: Avoid damage! Do not operate cutting reels in the forward direction until reel sharpening compound is washed from the unit. Unless properly washed, the reels can be dulled by the compound.

16. Use water to thoroughly wash off all reel sharpening compound while cutting reels are turning in reverse.

17. Move Mow/Transport lever to the TRANSPORT) position.

18. Push down Forward/Reverse control knob.

19. Adjust cutting reels to desired operating speed. (See **Adjusting Cutting Reel Speed** in the **Operating -Cutting Units** section.)