

85F and 100F Orchard and Vineyard Tractors



DCY

OPERATOR'S MANUAL 85F and 100F Orchard and Vineyard Tractors OMRE280705 ISSUE K0 (ENGLISH)

CALIFORNIA Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

If this product contains a gasoline engine:

WARNING

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

The State of California requires the above two warnings.

Additional Proposition 65 Warnings can be found in this manual.

John Deere Augusta Works
PRINTED IN U.S.A.



OMRE280705

Introduction

Foreword

READ THIS MANUAL carefully to learn how to operate and service your machine correctly. Failure to do so could result in personal injury or equipment damage. This manual and safety signs on your machine may also be available in other languages. (See your John Deere dealer to order.)

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your machine and should remain with the machine.

MEASUREMENTS in this manual are given in both metric and customary U.S. unit equivalents. Use only correct replacement parts and fasteners. Metric and inch fasteners may require a specific metric or inch wrench.

RIGHT-HAND AND LEFT-HAND sides are determined by facing the direction of forward travel.

WRITE TRACTOR SERIAL (CHASSIS) NUMBER in the Specification or Identification Numbers section. Accurately record all the numbers to help in tracing the machine should it be stolen. Your dealer also needs these numbers when you order parts. File the identification numbers in a secure place off the machine.

SETTING FUEL DELIVERY BEYOND PUBLISHED factory specifications or otherwise overpowering will result in loss of warranty protection for this machine.

BEFORE DELIVERING THIS MACHINE, your dealer preforms a predelivery inspection. After operating for the first 100 hours, schedule an after-sale inspection with your dealer to ensure best performance.

THIS TRACTOR IS DESIGNED SOLELY for use in customary agricultural or similar operations ("INTENDED USE"). Use in any other way is considered as contrary to the intended use. The manufacturer accepts no liability for damage or injury resulting from this misuse, and these risks must be borne solely by the user. Compliance with and strict adherence to the conditions of operation, service and repair as specified by the manufacturer also constitute essential elements for the intended use.

THIS TRACTOR SHOULD BE OPERATED, serviced and repaired only by persons familiar with all its particular characteristics and acquainted with the relevant safety rules (accident prevention). The accident prevention regulations, all other generally recognized regulations on safety and occupational medicine and the road traffic regulations must be observed at all times. Any arbitrary modifications carried out on this tractor will relieve the manufacturer of all liability for any resulting damage or injury.

SS40167,000063B -19-28AUG07-1/1

Identification View



FH1216

Orchards and Vineyard 85F Tractors

FH1216—UN—30OCT07



Orchards and Vineyard 100F Tractors

FH1215—UN—30OCT07

NOTE: Tractors shown may have optional equipment.

SS40167,0000D4F -19-22APR08-1/1

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Original Instructions. All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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50, 100 to 150, 150 and 250 Hour

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Safety

Recognize Safety Information

This is a safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.



T81389 —UN—07DEC88

DX,ALERT -19-29SEP98-1/1

Understand Signal Words

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

 **DANGER**

 **WARNING**

 **CAUTION**

TS187 —19—30SEP88

DX,SIGNAL -19-03MAR93-1/1

Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.



TS201 —UN—23AUG88

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.

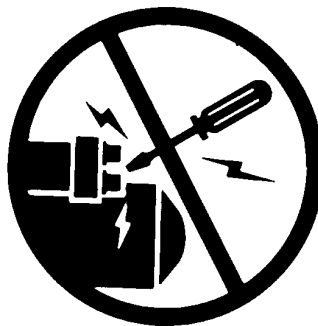
DX,READ -19-16JUN09-1/1

Prevent Machine Runaway

Avoid possible injury or death from machinery runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral or park.



TS177 —UN—11JAN89

DX,BYPAS1 -19-29SEP98-1/1

Use Foldable ROPS and Seat Belt Properly

If this tractor is equipped with a foldable ROPS, keep the ROPS in the fully extended and locked position. If the tractor is ever operated with ROPS folded (e.g., to enter a low building), drive with extreme caution. Do NOT use seat belt with the ROPS folded.

Return the ROPS to the raised, fully extended and locked position as soon as the tractor is operated under normal conditions. Always fasten your seat belt when the ROPS is fully extended and locked.



TS205 —UN—23AUG88

DX,FOLDROPS -19-31AUG99-1/1

Operate Tractor Safely

Features designed into your tractor make operation safer and let it perform a wide variety of jobs. Use your tractor only for specified jobs it was designed to perform: implement carrier, load mover, remote power source, or transport unit—not a recreational vehicle.

Careless use or misuse can result in unnecessary accidents. Be alert to hazards of tractor operation. Understand causes of accidents and take every precaution to avoid them. Most common accidents are caused from:

- Tractor upsets
- Improper starting procedures
- Crushing and pinching during hitching
- Collisions with other motor vehicles
- Getting entangled in PTO shafts
- Falls from tractors

Avoid accidents by taking the following precautions:

Engage the PARK brake lever before dismounting. Leaving transmission in gear with engine stopped will NOT prevent the tractor from moving.

Be sure everyone is clear of tractor and attached equipment before starting engine.

Never try to get on or off a moving tractor.

When tractor is left unattended, engage PARK brake lever, lower implements to the ground, stop the engine, and remove the key.

CAUTION

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Read Operator's Manual before operating this tractor. 2. Keep all shields in place. 3. Hitch towed loads only to drawbar to avoid rearward upset. 4. Make certain everyone is clear of machine before starting engine or operation. 5. Keep all riders off tractor and equipment. 6. Keep hands, feet and clothing away from power-driven parts. 7. Reduce speed when turning or applying individual | <ol style="list-style-type: none"> brakes or operating around hazards, on rough ground or steep slopes. 8. Couple brake pedals together for road travel. 9. Use flashing warning lights on highway unless prohibited by law. 10. Stop engine, lower implement to ground and shift to "PARK" or set brakes(s) securely before dismounting. 11. Wait for all movement to stop before servicing machinery. 12. Remove key if leaving tractor unattended. |
|---|---|



M47224A —19—02JUN97

TS276 —UN—23AUG88

NR25796,000027F -19-24JUL06-1/1

Use Caution on Hillsides

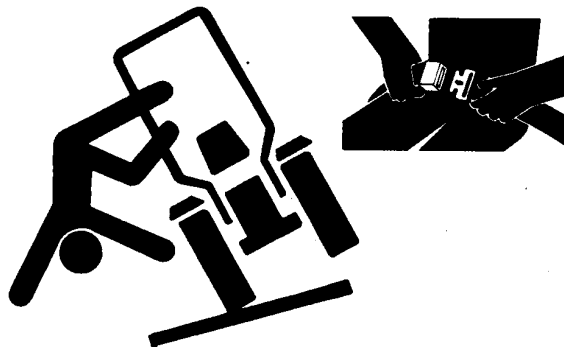
Always wear seat belt with ROPS in upper position.

Avoid holes, ditches, and obstructions which cause the tractor to tip, especially on hillsides. Avoid sharp, uphill turns.

Never drive near the edge of a gully or steep embankment -- it might cave in.

Driving forward out of a ditch or mired condition or up a steep slope could cause tractor to tip over rearward. Back out of these situations if possible.

⚠ CAUTION: While mechanical front wheel drive greatly increases traction, it **DOES NOT** increase stability of the tractor. With mechanical front wheel drive engaged, the tractor can climb steeper slopes but it does not become more stable. When this option is used, extra caution is needed on slopes. Compared to a 2-wheel drive, a front-wheel drive tractor maintains traction on steeper slopes, increasing the possibility of a tip over.



TS205—UN—23AUG88

Danger of overturn increases greatly with narrow tread setting, at high speed.

Hitch towed loads only to drawbar. When using a chain, take up the slack slowly.

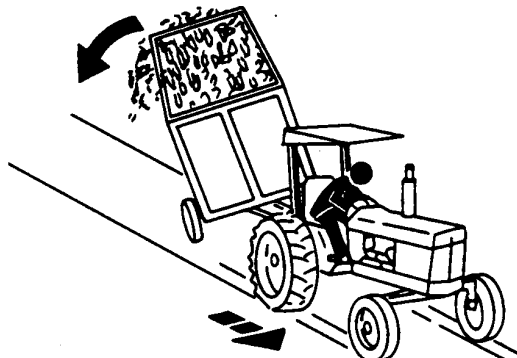
NR25796,00004AE -19-06OCT06-1/1

Shift to Low Gear on Hills

Shift to a low gear before descending a steep hill to improve your control of the tractor with little or no braking. Use engine braking to reduce speed before applying tractor brakes. Run-away tractors often tip over. Never coast downhill.

When driving on icy, wet or graveled surfaces, reduce speed and be sure tractor is properly ballasted to avoid skidding and loss of steering control. For best control, engage mechanical front wheel drive (if equipped).

Additional ballast may be needed for transporting heavy hitch mounted implements. When implement is raised, drive slowly over rough ground, regardless of how much ballast is used.



TS216—UN—23AUG88

NR25796,0000281 -19-24JUL06-1/1

Avoid Tipping

Always wear seat belt with ROPS in upper position.

Do not drive where machine could slip or tip.

Stay alert for holes, rocks, and roots in the terrain, and other hidden hazards. Keep away from drop-offs.

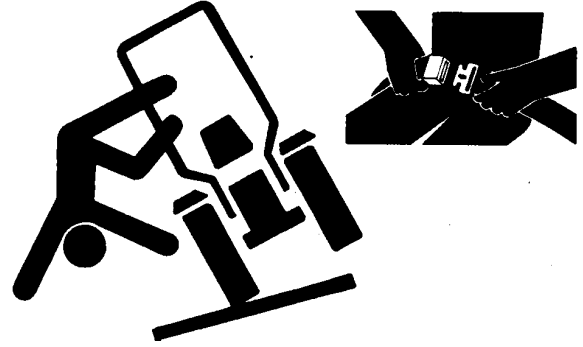
Slow down before you make a sharp turn.

Use care when pulling loads or using heavy equipment:

- Use only approved drawbar hitch points.
- Limit loads to those you can safely control.
- Use counterweights or wheel weights when suggested in this operator's manual.

Reduce speed and exercise extreme caution on slopes and in sharp turns to prevent tipping or loss of control. Be especially cautious when changing direction on slopes.

Do not stop or start suddenly when going uphill or downhill.



If machine stops going up hill:

- STOP the Tractor.
- Back Down Slowly.

NR25796,0000282 -19-24JUL06-1/1

TS205 —UN—23AUG88

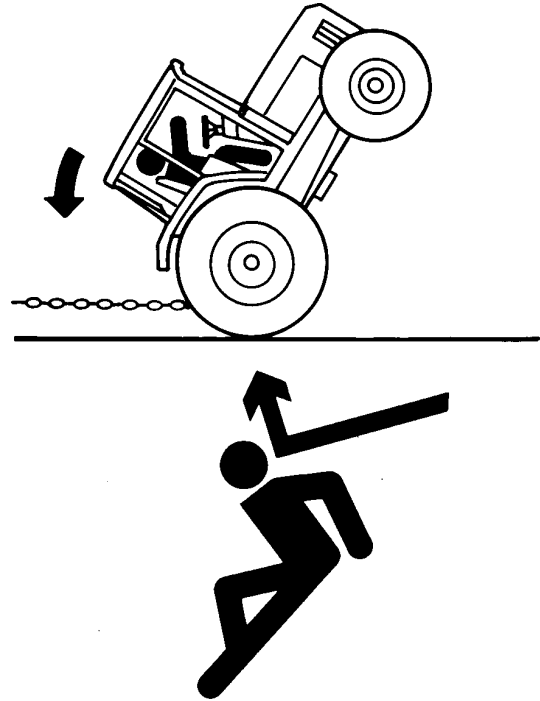
Freeing a Mired Machine

Attempting to free a mired machine can involve safety hazards such as the mired tractor tipping rearward, the towing tractor overturning, and the tow chain or tow bar (a cable is not recommended) failing and recoiling from its stretched condition.

Back your tractor out if it gets mired down in mud. Unhitch any towed implements. Dig mud from behind the rear wheels. Place boards behind the wheels to provide a solid base and try to back out slowly. If necessary, dig mud from the front of all wheels and drive slowly ahead.

If necessary to tow with another unit, use a tow bar or a long chain (a cable is not recommended). Inspect the chain for flaws. Make sure all parts of towing devices are of adequate size and strong enough to handle the load.

Always hitch to the drawbar of the towing unit. Do not hitch to the front pushbar attachment point. Before moving, clear the area of people. Apply power smoothly to take up the slack: a sudden pull could snap any towing device causing it to whip or recoil dangerously.



DX,MIREDD -19-07JUL99-1/1

TS1645 —UN—15SEP95

TS263 —UN—23AUG88

Work In Ventilated Area

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

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



TS220 —UN—23AUG88

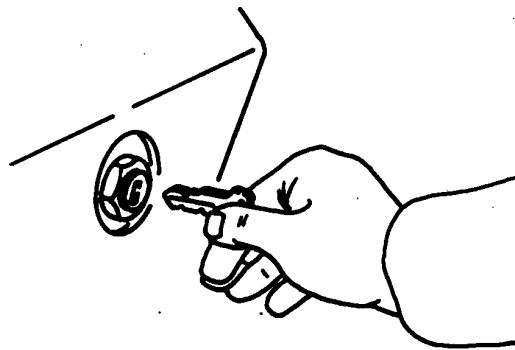
DX,AIR -19-17FEB99-1/1

Park Tractor Safely

To park tractor safely:

- Disengage PTO.
- Lower equipment to the ground.
- Engage the PARK brake lever.
- STOP the engine.
- Remove key.

Before you leave the operator's seat, wait for engine and attachment parts to stop moving.



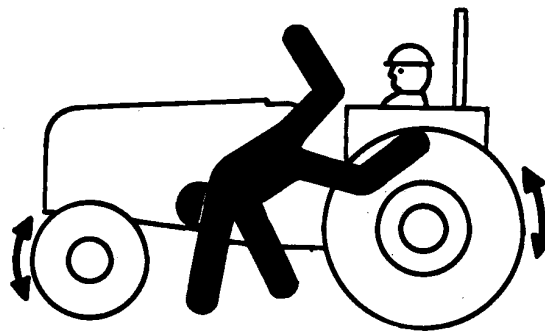
M35691 —UN—26APR89

NR25796,0000285 -19-24JUL06-1/1

Keep Riders Off Machine

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

Riders on machine are subject to injury such as being struck by foreign objects and being thrown off of the machine. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.



TS290 —UN—23AUG88

DX,RIDER -19-03MAR93-1/1

Handle Fuel Safely—Avoid Fires

Handle fuel with care: it is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.

Prevent fires by keeping machine clean of accumulated trash, grease, and debris. Always clean up spilled fuel.



TS202 —UN—23AUG88

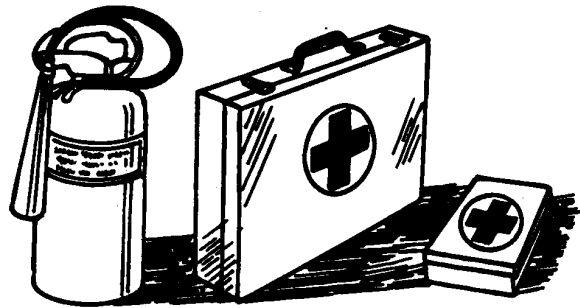
DX,FIRE1 -19-03MAR93-1/1

Prepare for Emergencies

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



TS291 —UN—23AUG88

DX,FIRE2 -19-03MAR93-1/1

Do Not Use Starting Fluid

DO NOT use starting fluid in tractors equipped with an intake air heater system. (See your John Deere dealer for a complete list of other starting aids available.)

Tractors are equipped with an intake air heater system.



LV611 —UN—22APR94

NR25796,0000289 -19-06OCT06-1/1

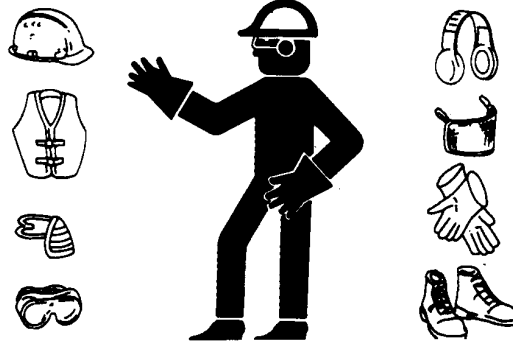
Wear Protective Clothing

Wear close fitting clothing and safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.



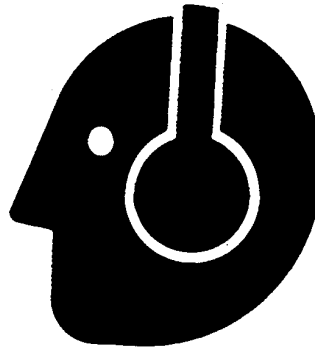
TS206 —UN—23AUG88

DX,WEAR -19-10SEP90-1/1

Protect Against Noise

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



TS207 —UN—23AUG88

DX,NOISE -19-03MAR93-1/1

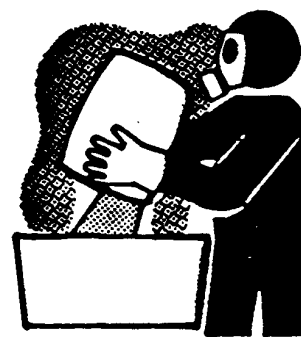
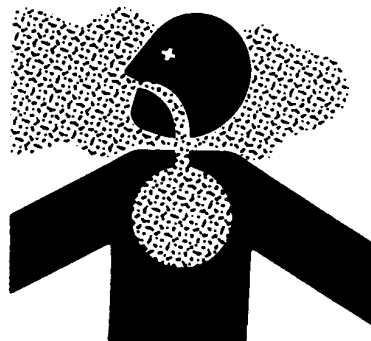
Handle Agricultural Chemicals Safely

Chemicals used in agricultural applications such as fungicides, herbicides, insecticides, pesticides, rodenticides, and fertilizers can be harmful to your health or the environment if not used carefully.

Always follow all label directions for effective, safe, and legal use of agricultural chemicals.

Reduce risk of exposure and injury:

- Wear appropriate personal protective equipment as recommended by the manufacturer. In the absence of manufacturer's instructions, follow these general guidelines:
 - Chemicals labeled '**Danger**': Most toxic. Generally require use of goggles, respirator, gloves, and skin protection.
 - Chemicals labeled '**Warning**': Less toxic. Generally require use of goggles, gloves, and skin protections.
 - Chemicals labeled '**Caution**': Least toxic. Generally require use of gloves and skin protection.
- Avoid inhaling vapor, aerosol or dust.
- Always have soap, water, and towel available when working with chemicals. If chemical contacts skin, hands, or face, wash immediately with soap and water. If chemical gets into eyes, flush immediately with water.
- Wash hands and face after using chemicals and before eating, drinking, smoking, or urination.
- Do not smoke or eat while applying chemicals.
- After handling chemicals, always bathe or shower and change clothes. Wash clothing before wearing again.
- Seek medical attention immediately if illness occurs during or shortly after use of chemicals.
- Keep chemicals in original containers. Do not transfer chemicals to unmarked containers or to containers used for food or drink.
- Store chemicals in a secure, locked area away from human or livestock food. Keep children away.
- Always dispose of containers properly. Triple rinse empty containers and puncture or crush containers and dispose of properly.



A34471

T5220 —UN—23AUG88

A34471 —UN—11OCT88

DX,WW,CHEM01 -19-24AUG10-1/1

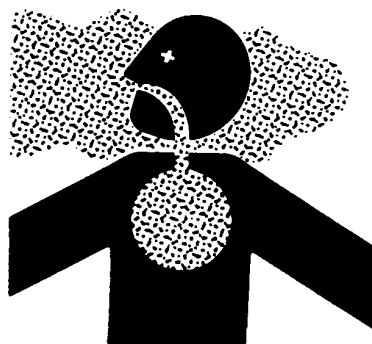
Service and Operate Chemical Sprayers Safely

Chemicals used in agricultural sprayers can be harmful to your health or the environment if not used carefully.

Always follow all label directions for effective, safe, and legal use of agricultural chemicals.

Reduce risk of exposure and injury:

- Wear appropriate personal protective equipment as recommended by the manufacturer. (See 'Handle agricultural chemicals safely' found in the Safety Section.)
- Fill, flush, calibrate, and decontaminate sprayer in an area where runoff will not reach ponds, lakes or streams, livestock areas, or gardens, or near other people.
- Keep children away from the chemicals, chemical solutions, and rinsates.
- If spray or chemical concentrate contacts skin, hands, or face, wash immediately with soap and water. If spray or chemical concentrate gets into eyes, flush immediately with water.
- If nozzle clogs or system malfunctions, stop engine and relieve spray pressure from system.
- Do not place nozzle tips or other components to the mouth to clear obstructions. Keep spare tips on hand for replacement.
- Minimize risk of spray drift.
 - Use large nozzle tips operated at lower pressures
 - Do not operate solution delivery system at pressures exceeding 345kPa (3.5 bar) (50 psi).
 - Do not spray when winds exceed 16 km/h (10 mph).
 - Do not spray when wind is blowing towards a nearby sensitive crop, garden, or populated area.



- Properly dispose of unused chemicals, flushing solution, and empty chemical containers.
- Decontaminate equipment used in mixing, transferring, and applying chemicals after use.

TS272 —UN—23AUG88

TS220 —UN—23AUG88

DX,WW,CHEM02 -19-05APR04-1/1

Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death.

Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.

Wear close fitting clothing. Stop the engine and be sure that PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.

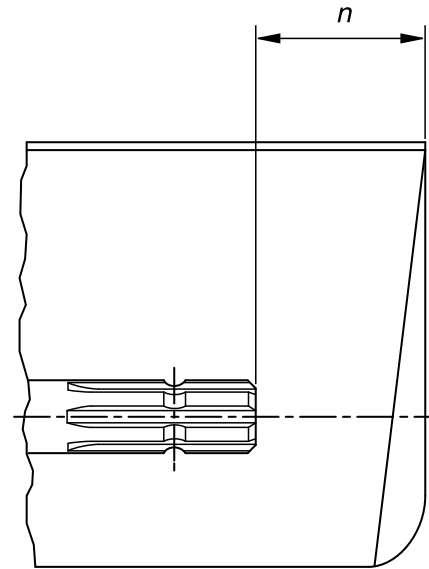
Do not install any adapter device between the tractor and the primary implement PTO drive shaft that will allow a 1000 rpm tractor shaft to power a 540 rpm implement at speeds higher than 540 rpm.

Do not install any adapter device that results in a portion of the rotating implement shaft, tractor shaft, or the adapter to be unguarded. The tractor master shield shall overlap the end of the splined shaft and the added adaptor device as outlined in the table.

PTO Type	Diameter	Splines	$n \pm 5 \text{ mm (0.20 in.)}$
1	35 mm (1.378 in.)	6	85 mm (3.35 in.)
2	35 mm (1.378 in.)	21	85 mm (3.35 in.)
3	45 mm (1.772 in.)	20	100 mm (4.00 in.)



TS1644 —UN—22AUG95



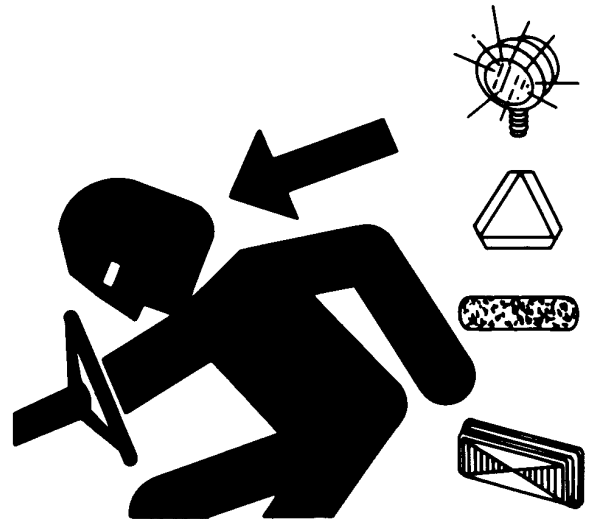
H96219 —UN—29APR10

DX,PTO -19-30JUN10-1/1

Use Safety Lights and Devices

Prevent collisions between other road users, slow moving tractors with attachments or towed equipment, and self-propelled machines on public roads. Frequently check for traffic from the rear, especially in turns, and use turn signal lights.

Use headlights, flashing warning lights, and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible, clean, and in good working order. Replace or repair lighting and marking that has been damaged or lost. An implement safety lighting kit is available from your John Deere dealer.



TS951 —UN—12APR90

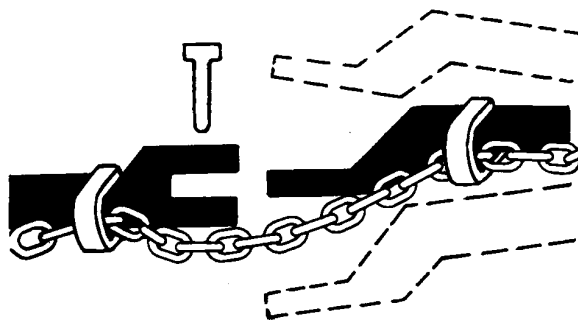
DX,FLASH -19-07JUL99-1/1

Use a Safety Chain

A safety chain will help control drawn equipment should it accidentally separate from the drawbar.

Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning.

See your John Deere dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine. Do not use safety chain for towing.



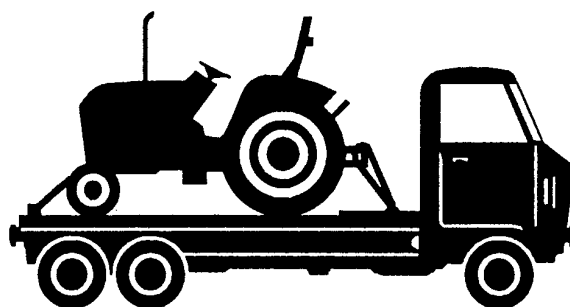
TS217 —UN—23AUG88

DX,CHAIN -19-03MAR93-1/1

Safely Transporting the Tractor

A disabled tractor is best transported on a flatbed carrier. Use chains to secure the tractor to the carrier.

Never tow a tractor at a speed greater than 16 km/h (10 mph). An operator must steer and brake the tractor under tow.



LV610 —UN—22APR94

NR25796,0000291 -19-24JUL06-1/1

Transport Towed Equipment at Safe Speeds

Do not exceed the maximum transport speed. This tractor is capable of operating at transport speeds that exceed the maximum allowable transport speed for most towed implements.

Before transporting a towed implement, determine from signs on the implement or information provided in the implement's operator manual the maximum transport speed. Never transport at speeds that exceed the implement's maximum transport speed. Exceeding the implement's maximum transport speed can result in:

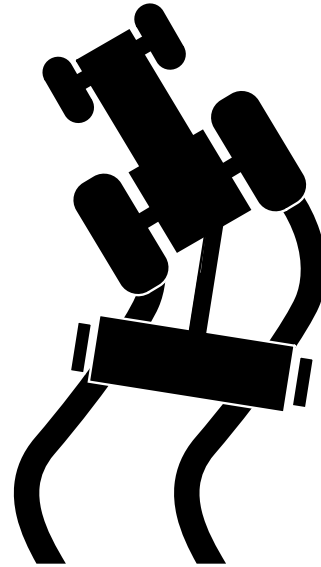
- Loss of control of the tractor/implement combination
- Reduced or no ability to stop during braking
- Implement tire failure
- Damage to the implement structure or its components

Implements without brakes:

- Do not transport at speeds greater than 32 km/h (20 mph).
- Must weigh less than 1.5 times the tractor weight or less than 1.5 t (3300 lb) when fully loaded.

Implements with brakes:

- If the manufacturer does not specify a maximum transport speed, do not tow at speeds greater than 40 km/h (25 mph).
- When transporting at speeds up to 40 km/h (25 mph) the fully loaded implement must weigh less than 4.5 times the tractor weight.



TS1686 —UN—27SEP06

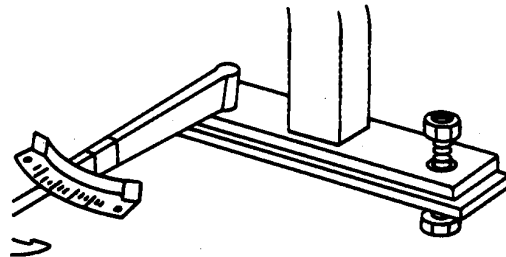
- When transporting at speeds between 40—50 km/h (25—31 mph) the fully loaded implement must weigh less than 3.0 times the tractor weight.

DX,TOW1 -19-14SEP06-1/1

Keep ROPS Installed Properly

Make certain all parts are reinstalled correctly if the roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused.



TS212 —UN—23AUG88

DX,ROPS3 -19-03MAR93-1/1

Practice Safe Maintenance

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is moving. Keep hands, feet, and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

On self-propelled equipment, disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

On towed implements, disconnect wiring harnesses from tractor before servicing electrical system components or welding on machine.



TS218 —UN—23AUG88

DX.SERV -19-17FEB99-1/1

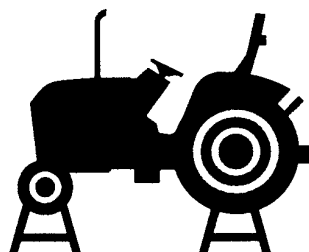
Service Tractor Safely

Do not service the tractor while it is in motion or while the engine is running.

When servicing front-wheel drive equipped tractor with rear wheels supported off ground and rotating wheels by engine power, always support front wheels in a similar manner. Engaging front-wheel drive will pull rear wheels off support if front wheels are not raised.

Tighten wheel hardware to correct torque as specified in Wheels, Tires and Tread section. Torque at intervals shown in Break-In Period and Lubrication and Maintenance sections, to ensure that wheel hardware does not loosen.

Reinstall shields removed during service.



LV828 —UN—08AUG94

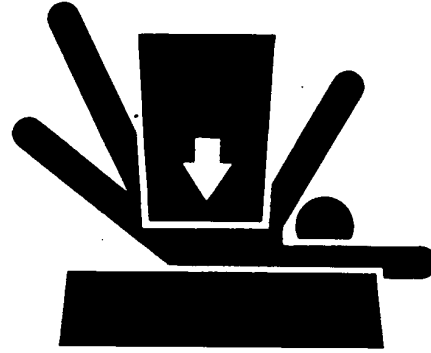
AH98466,000045B -19-23AUG07-1/1

Support Machine Properly

Always lower the attachment or implement to the ground before you work on the machine. If the work requires that the machine or attachment be lifted, provide secure support for them. If left in a raised position, hydraulically supported devices can settle or leak down.

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.

When implements or attachments are used with a machine, always follow safety precautions listed in the implement or attachment operator's manual.



TS229 —UN—23AUG88

DX,LOWER -19-24FEB00-1/1

Remove Paint Before Welding or Heating

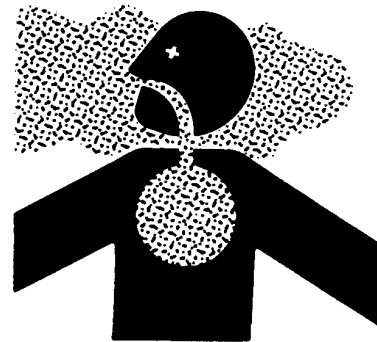
Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Remove paint before heating:

- Remove paint a minimum of 100 mm (4 in.) from area to be affected by heating. If paint cannot be removed, wear an approved respirator before heating or welding.
- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

Do not use a chlorinated solvent in areas where welding will take place.



TS220 —UN—23AUG88

Do all work in an area that is well ventilated to carry toxic fumes and dust away.

Dispose of paint and solvent properly.

DX,PAINT -19-24JUL02-1/1

Avoid Heating Near Pressurized Fluid Lines

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can accidentally burst when heat goes beyond the immediate flame area.



TS953 —UN—15MAY90

DX,TORCH -19-10DEC04-1/1

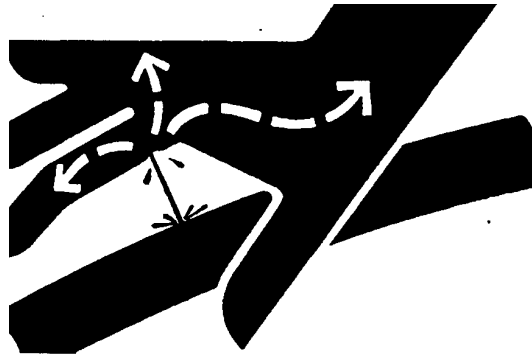
Avoid High-Pressure Fluids

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 in English from Deere & Company Medical Department in



X9811—UN—23AUG88

Moline, Illinois, U.S.A., by calling 1-800-822-8262 or +1 309-748-5636.

DX,FLUID -19-20AUG09-1/1

Service Cooling System Safely

Explosive release of fluids from pressurized cooling system can cause serious burns.

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



TS281—UN—23AUG88

DX,RCAP -19-04JUN90-1/1

Store Attachments Safely

Stored attachments such as dual wheels, cage wheels, and loaders can fall and cause serious injury or death.

Securely store attachments and implements to prevent falling. Keep playing children and bystanders away from storage area.



TS219—UN—23AUG88

DX,STORE -19-03MAR93-1/1

Handling Batteries Safely

CAUTION: Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check electrolyte level.

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

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

Sulfuric acid in battery electrolyte is poisonous and strong enough to burn skin, eat holes in clothing and cause blindness if flashed into eyes.

Avoid hazards by:

- Filling batteries in a well-ventilated area
- Wearing eye protection and rubber gloves
- Avoiding use of air pressure to clean batteries
- Avoiding breathing fumes when electrolyte is added
- Avoiding spilling or dripping electrolyte
- Using correct jump start procedure

If acid is spilled on skin or in eye:

1. Flush skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 15—30 minutes. Get medical attention immediately.

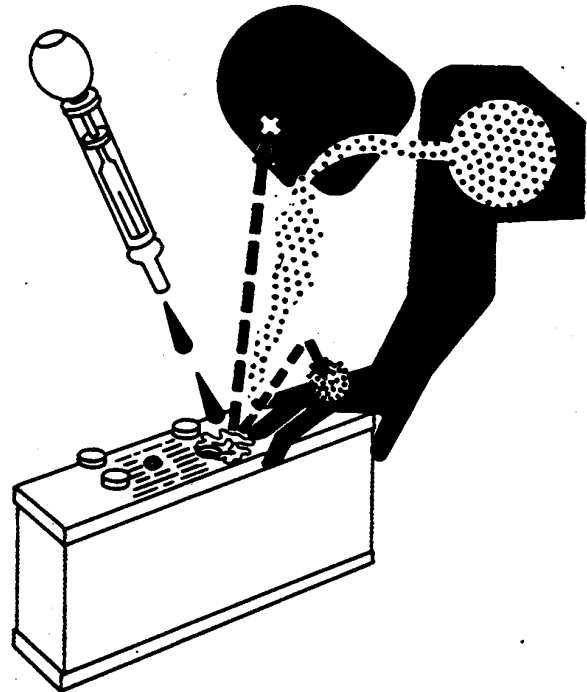
If acid is swallowed:

1. Do not induce vomiting.
2. Drink large amounts of water or milk, but do not exceed 2 L (2 quarts).
3. Get medical attention immediately.

WARNING: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. **Wash hands after handling.**



TS204 —UN—23AUG88



TS203 —UN—23AUG88

SS40167,000091C -19-17NOV07-1/1

Service Tires Safely

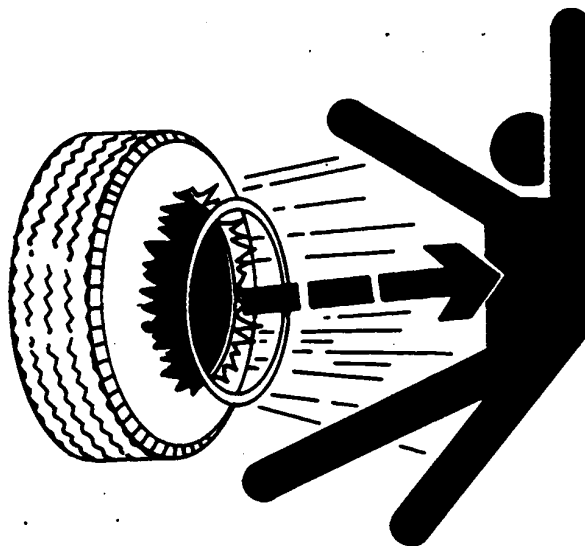
Explosive separation of a tire and rim parts can cause serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

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

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

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



TS211 —UN—23AUG88

DX,RIM -19-24AUG90-1/1

Dispose of Waste Properly

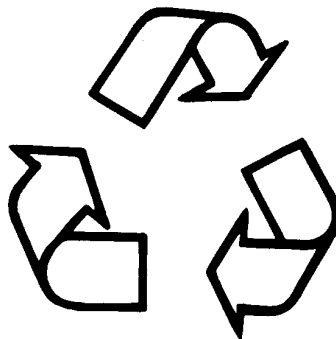
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer.



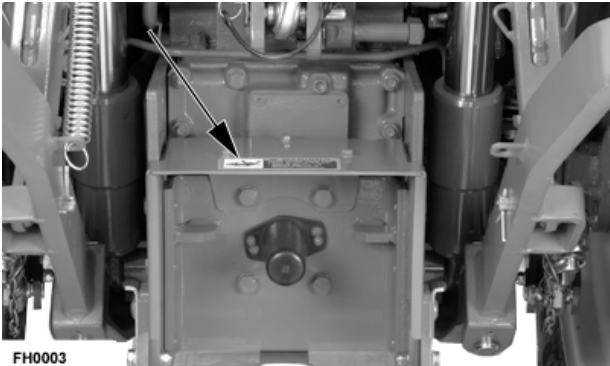
TS1133 —UN—26NOV90

DX,DRAIN -19-03MAR93-1/1

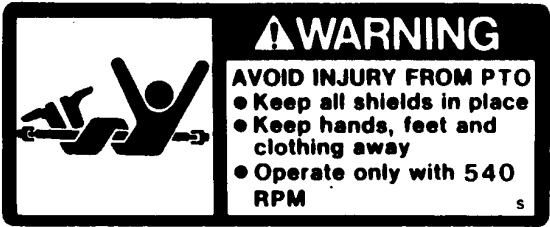
Safety Signs

Warning Labels

Keep warning labels in good condition, replace if not in readable condition.



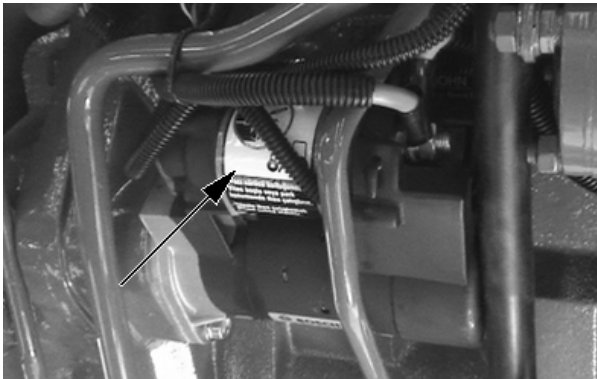
Top Surface of PTO Shield



Warning

SS40167,0000F52 -19-17SEP09-1/7

M71026 —19—02JUL90



On Starter Body



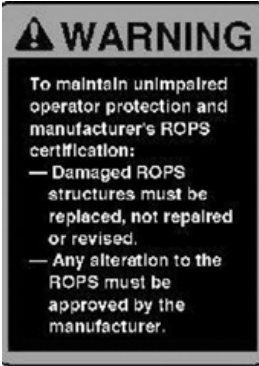
Danger

SS40167,0000F52 -19-17SEP09-2/7

PY6611 —19—21NOV06



ROPS



Warning

Continued on next page

SS40167,0000F52 -19-17SEP09-3/7

FH1727 —19—16APR08



FH1728

FH1728 —UN—16APR08

Without Cab



FH1592

FH1592 —UN—30NOV07

With Cab

CAUTION

1. Read Operator's Manual before operating this tractor.
2. Keep all shields in place.
3. Hitch towed loads only to drawbar to avoid rearward upset.
4. Make certain everyone is clear of machine before starting engine operation.
5. Keep all riders off tractor and equipment.
6. Keep hands, feet and clothing away from power-driven parts.
7. Reduce speed when turning or applying individual brakes or operating around hazards, on rough ground or steep slopes.
8. Couple brake pedals together for road travel.
9. Use flashing warning lights on highway unless prohibited by law.
10. Stop engine, lower implement to ground and shift to "PARK" or set brakes(s) securely before dismounting.
11. Wait for all movement to stop before servicing machinery.
12. Remove key if leaving tractor unattended.

Caution

LV4307 —19—04NOV05

Continued on next page

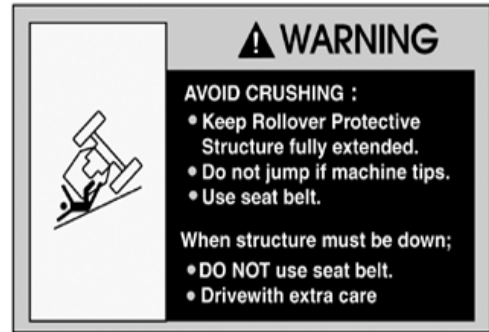
SS40167,0000F52 -19-17SEP09-4/7



Without Cab



With Cab



Warning

SS40167,0000F52 -19-17SEP09-5/7



Right Fender OOS only



Warning

Continued on next page

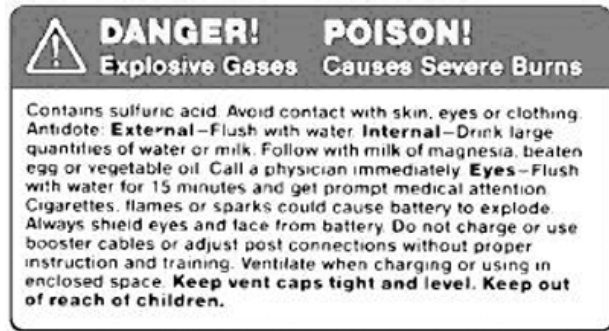
SS40167,0000F52 -19-17SEP09-6/7



FH1576

FH1576 —UN—20NOV07

Battery



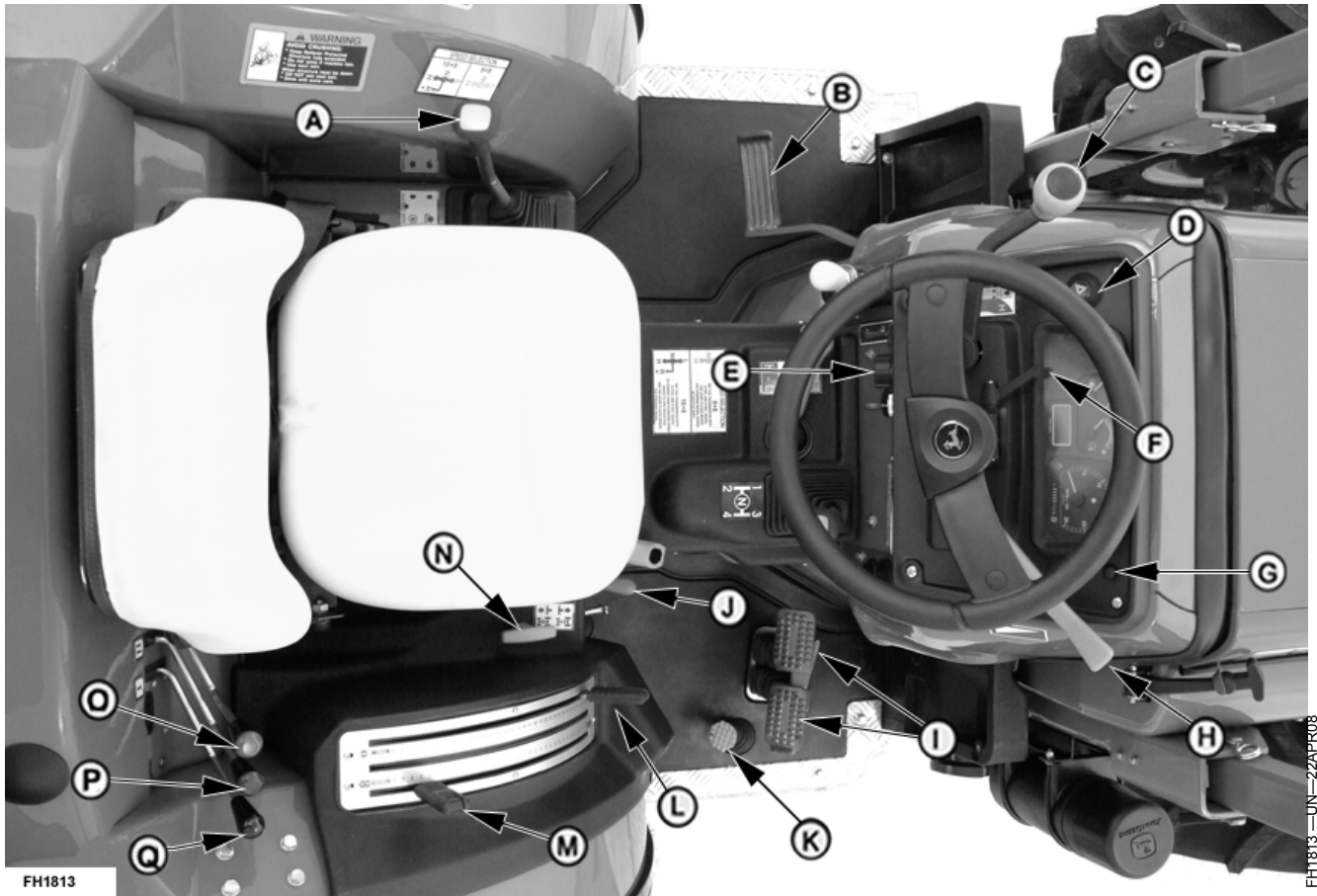
FH1577 —19—21NOV07

Danger/Poison

SS40167,0000F52 -19-17SEP09-7/7

Controls and Instruments

Tractor Controls



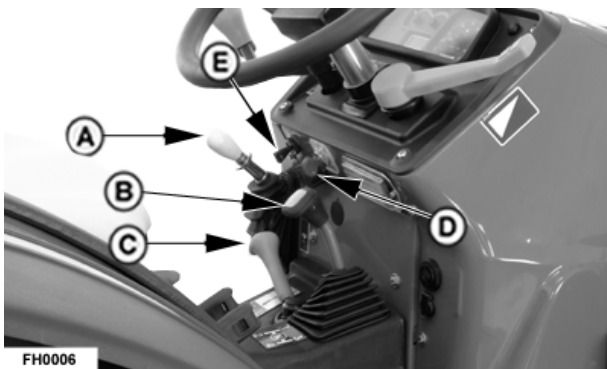
A—Range Shift Lever
B—Clutch Pedal
C—20% Power Reduction and Reverse Lever
D—Hazard Switch
E—Light Switch

F—Steering Wheel Adjustment Lever
G—Calibration Switch
H—Hand Throttle
I—Brake Pedals
J—Seat Adjusting Lever

K—Foot Throttle
L—Draft Control Lever
M—Position Control Lever
N—MFWD Engage Lever
O—Third SCV Lever

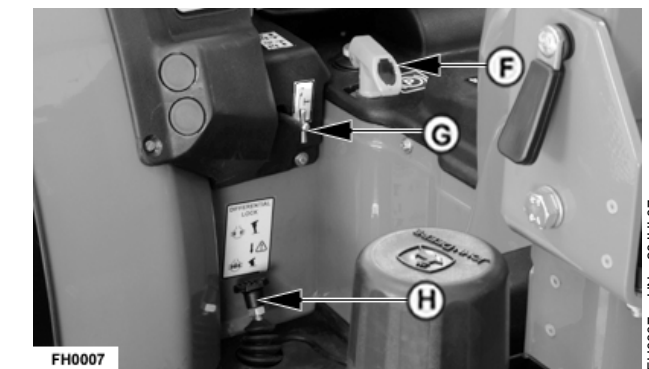
P—Second SCV Lever
Q—First SCV Lever

AH98466,000043E -19-22APR08-1/2



A—PTO Lever
B—Gear Shift Lever

C—Mode Selection Lever
D—Key Switch

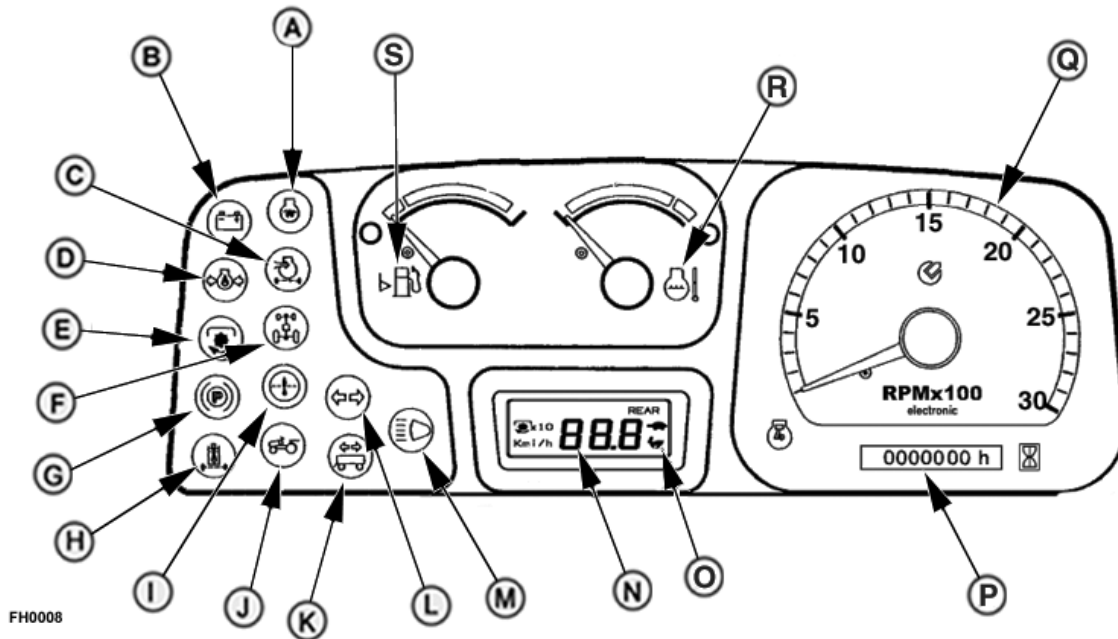


E—Turn Signal Switch
F—Parking Brake

G—Rate-of-Drop Valve
H—Differential Lock

AH98466,000043E -19-22APR08-2/2

Instrument Panel



FH0008

FH0008—UN—20JUL07

- | | | | |
|---------------------------------|---------------------------------------|---------------------------------|-----------------------------|
| A—Preheat Indicator | F—Front Wheel Drive Engage Indicator | K—Trailer Turn Signal Indicator | P—Hours Meter |
| B—Charging System Indicator | G—Parking Indicator | L—Turn Signal Indicator | Q—Tachometer |
| C—Air Restriction Indicator | H—Hydraulic Oil Restriction Indicator | M—High Beam Light | R—Coolant Temperature Gauge |
| D—Engine Oil Pressure Indicator | I—Free Indicator (Not in used) | N—Speedometer | S—Fuel Gauge |
| E—PTO Engage Indicator | J—ROPS Indicator | O—Rear PTO Rate Indicator | |

MK41968,00001A7 -19-29APR08-1/1

Lights

Light Switch Positions

Tractor light switch has five positions:

P- Turns on warning lights only. For driving on highway during daytime.

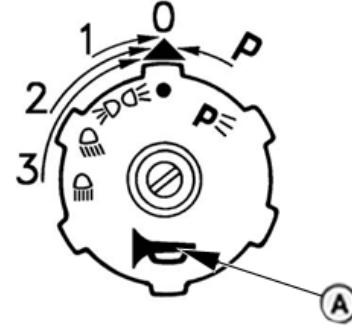
0- Turns off all lights.

1- Field position, turn on bright front headlights.

2- Turns on dim headlights, tail lights, and warning lights. Turn switch to this position before meeting other vehicles. For highway driving during day time and night time.

3- Turns on bright headlights, tail lights, and warning lights. For highway driving during day time and night time.

A-Push knob for horn.



FH0801

P—Warning Lights Position
0—Turns Off
1—Field Light

2—Low-Beam Headlights, Tail Lights and Warning Lights Position
3—High-Beam Headlights, Tail Lights and Warning Lights Position
A—Horn

FH0801 —UN—24SEP07

SS40167,00009E7 -19-16APR08-1/1

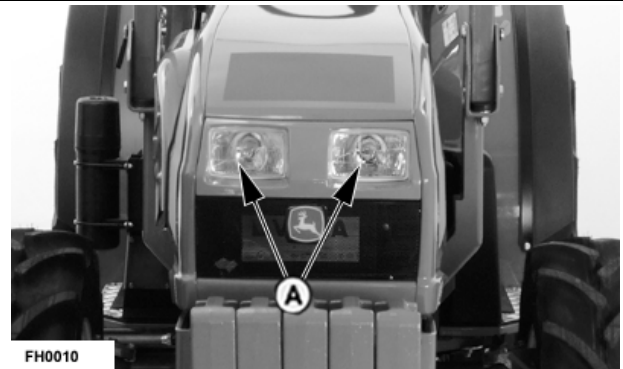
Use Headlights

Dual-beam headlights (A) are switched on by either “Low Beam ” (2), or “High Beam” (3) light switch positions.

Always dim lights before meeting another vehicle.

Keep headlights adjusted properly, (See Adjust Headlights in Service Section).

A—Headlights	3—Bright Headlights, Tail Lights and Warning Lights Position
1—Work Lights	0—Turns Off
2—Dim Headlights, Tail Lights and Warning Lights Position	



FH0010

FH0010 —UN—20JUL07



FH0009

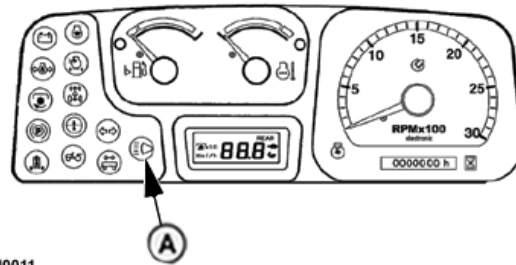
FH0009 —UN—20JUL07

AH98466,000043C -19-23AUG07-1/1

High Beam Indicator

High beam indicator (A) should glow when light switch is turned to "Bright Headlight" position.

A—High Beam Indicator



FH0011

FH0011 —UN—20JUL07

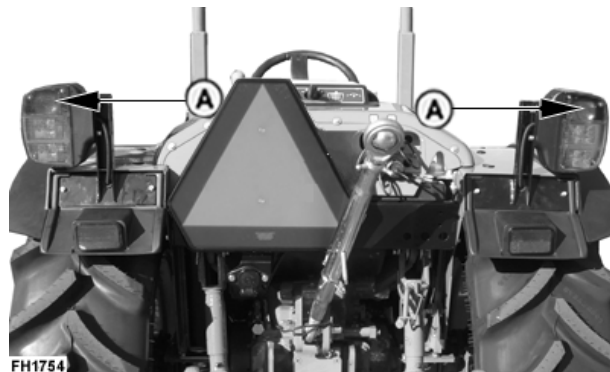
SS40167,0000259 -19-26JUL07-1/1

Use Tail Lights

Red tail lights (A) are switched on by either bright headlight, or dim headlight light switch position.

Be sure tail light lenses are clean before driving on a road, so other drivers can see it easily.

A—Red Tail Lights



FH1754

Without Cab

FH1754 —UN—28MAY08



FH1819

With Cab

FH1819 —UN—29APR08

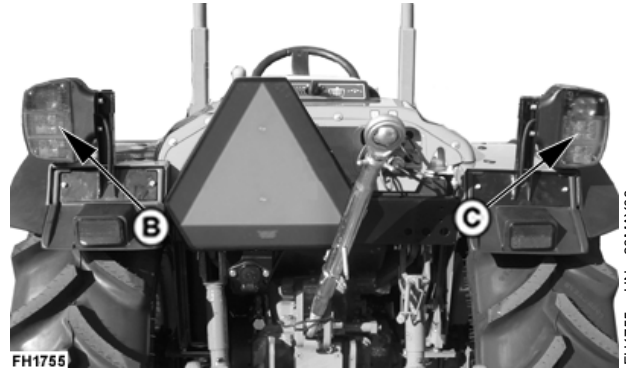
SS40167,00006A4 -19-29APR08-1/1

Use Turn Signals



FH0153

FH0153 —UN—20JUL07



FH1755

FH1755 —UN—28MAY08

Without Cab

Move turn signal switch (A) left side to indicate left-hand turn or right for right-hand turn. Indicator light (D) will flash to signal turn direction.

When turn signal switch is right side, front and rear facing lights on right-hand side (C) will flash while left-hand lights (B) glow steady. Left-hand lights flash and right-hand lights glow steady when switch is left side.

NOTE: Be sure to manually return lever to center position after turning.

A—Turn Signal Switch
B—Left-Hand Turn Light

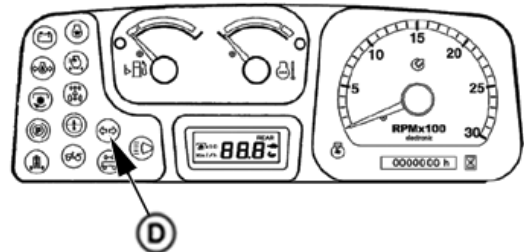
C—Right-Hand Turn Light
D—Turn Indicator Lights



FH1820

FH1820 —UN—29APR08

With Cab



FH0155

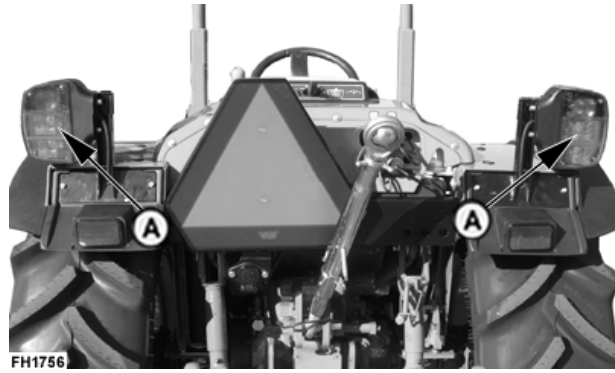
FH0155 —UN—25JUL07

AH98466,000043D -19-23AUG07-1/1

Use Hazard Lights

All 4 turn signal lights (2 front and 2 rear) start to blink when hazard light switch (C) is pressed. Use hazard lights to warn approaching vehicles when tractor is stopped on the road.

A—Turn Signal Light on Rear Side B—Hazard Light Switch



FH1756

Without Cab

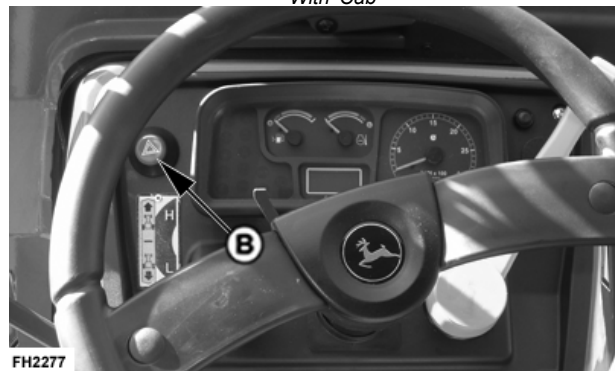
FH1756 —UN—28MAY08



FH1822

With Cab

FH1822 —UN—29APR08



FH2277

FH2277 —UN—18AUG09

SS40167,0000F56 -19-18AUG09-1/1

Using Seven-Terminal Outlet

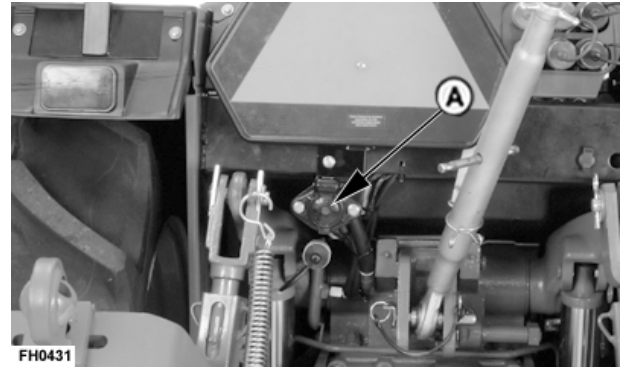
Seven Terminal Outlet (A) is used to connect lights, turn signals and remote electrical equipment on trailers or implements. Always use auxiliary light on towed implements when tractor rear signals and other lights are obscured.

Solid state circuits are rated for a fixed value. If any additional electrical devices need to be added to the tractor, we recommend a power strip or convenience outlets should be used in conjunction with an off/on switch. Splicing into a wire in the wrong location could cause the circuit to overload and shut circuit down.

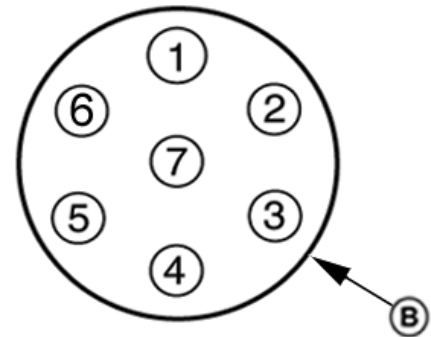
If extra implement lights and controls, such as switches are needed contact your John Deere dealer. He can provide information on methods to be in the light switch with one of the accessory wires located in the Seven Terminal Outlet on the back of the tractor.

NOTE: Matching plug is available through your John Deere dealer.

Terminal Numbers (B)	Function
1	Ground
2	No Connection
3	Right Turn Signal
4	No Connection
5	Left Turn Signal
6	Tail Light
7	Accessory



FH0431 —UN—27AUG07



FH1587 —UN—28NOV07

A—Seven-Terminal Outlet

B—Terminal Numbers

SS40167,0000F59 -19-18AUG09-1/1

Operator's Platform

Operate Foldable ROPS

CAUTION: Make certain all parts are installed correctly if roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, as in an overturn incident, or is in anyway altered by welding, bending, drilling or cutting. A damaged ROPS should be replaced, not reused. Any alteration to the ROPS must be approved by the manufacturer.

Always keep upper part of ROPS pinned in vertical position (as pictured) when operating tractor. If tractor is operated with ROPS folded (e.g. to enter a low building) drive with extreme caution and **DO NOT** use seat belt.

Fold the ROPS up again as soon as the tractor is operated under normal conditions.

To Lower ROPS Crossbar (C):

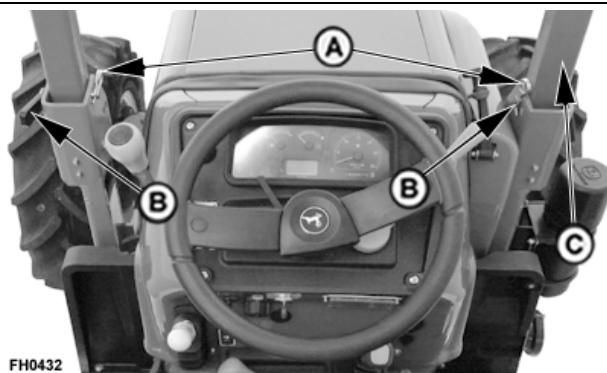
1. Remove quick-lock pins (A) and headed pins (B) from both sides of ROPS cross bar (C).
2. Lower ROPS crossbar (C) onto stops.
3. Reinstall pins (A and B) into holes of ROPS crossbar (C) to lock it down.

To Put ROPS in Operating Position:

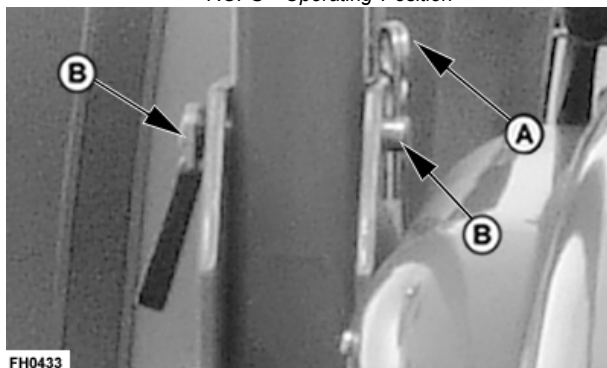
1. Remove pins (A and B) from ROPS crossbar (C).
2. Lift ROPS crossbar (C) to position shown.
3. Reinstall pins (A and B) into bottom holes of ROPS crossbar (C) to lock in position.

A—Quick-Lock Pins
B—Headed Pins

C—ROPS Crossbar



ROPS—Operating Position



Reinstall Pins



ROPS—Folded

Use Seat Belt

CAUTION: Use a seat belt when you operate with a roll-over protective structure (ROPS) to minimize chance of injury from an accident such as an overturn. **DO NOT** use seat belt when ROPS is folded down.

To properly retain operator, seat belt (A) must fit snugly across abdomen.

A—Seat Belt



SS40167,0000F5A -19-18AUG09-1/1

Select Seat Position

There are two seat adjustments available:

Move lever (A) and slide seat closer to or away from dash panel and controls.

To raise or lower seat: Use seat height regulating knob (B).

**A—Seat Adjustment
Lever—Fore or Aft**

**B—Seat Adjustment
Knob—Lower or Raise**



FH0158 —UN—20JUL07

FH0159 —UN—20JUL07

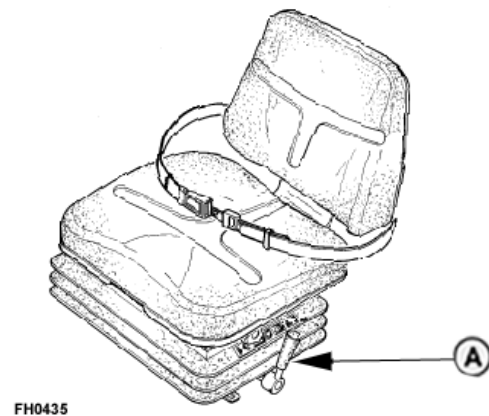
AH98466,000043F -19-23AUG07-1/1

Adjust Ride Comfort

Adjustment knob is located behind seat.

Weight markings are given on the right side of seat. Turn adjustment knob (A) for a firm or soft ride. Weight markings on the right side of seat are suggested adjustment settings where the seat suspension will function properly relative to operator's weight.

A—Adjustment Knob



FH0435

FH0435 —UN—18AUG07

SS40167,00006A9 -19-20AUG07-1/1

Operator Station—Cab

Using Emergency Exit

Right door (A) provides a large exit path if cab doors are blocked in an emergency situation.

A—Right Door



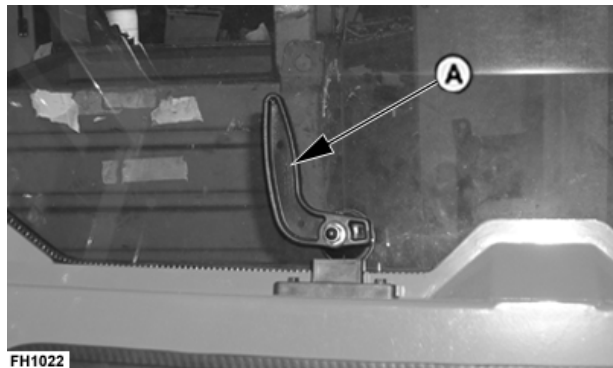
FH1863

FH1863—UN—28MAY08

NR25796,0000F16 -19-28MAY08-1/1

Opening Windows

Rear window can be opened. Release latch and push window out to open.



FH1022

FH1022—UN—26SEP07

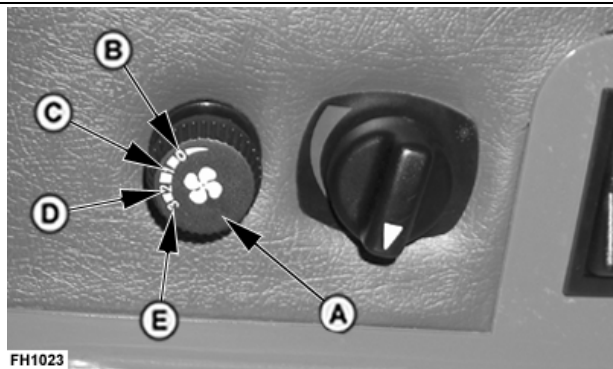
Right Door Latch

NR25796,0000F17 -19-28MAY08-1/1

Adjusting Blower Speed

Turn blower speed control knob (A) to desired setting (B—E).

A—Blower Speed Control Knob D—Medium
B—Off E—High
C—Low



FH1023

FH1023—UN—26SEP07

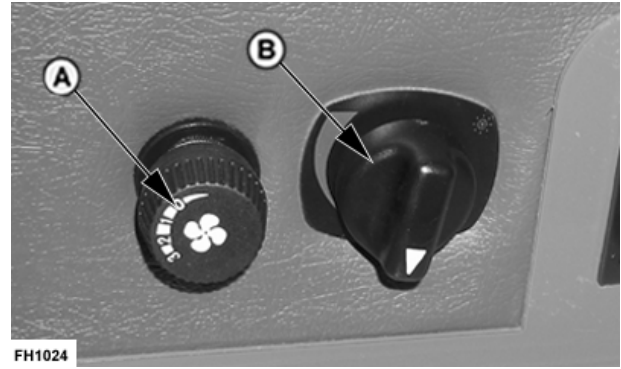
NR25796,0000F19 -19-27SEP07-1/1

Controlling Temperature

Blower speed control knob (A) turns blower on and controls blower speed. (See ADJUSTING BLOWER SPEED in this section.)

Adjusting Air Conditioning Temperature: Turn air conditioning temperature control knob (B) clockwise to circulate warmer air through vents and counterclockwise to circulate cooler air through vents.

A—Blower Speed Control Knob B—Temperature Control Knob

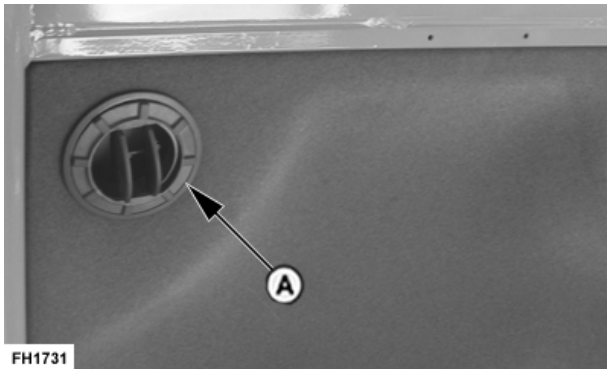


FH1024

FH1024 —UN—27SEP07

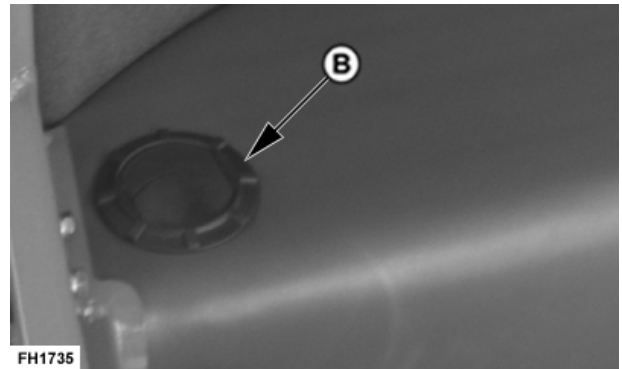
NR25796,0000F1A -19-28SEP07-1/1

Optimizing A/C and Heater Performance



FH1731

FH1731 —UN—16APR08



FH1735

FH1735 —UN—16APR08

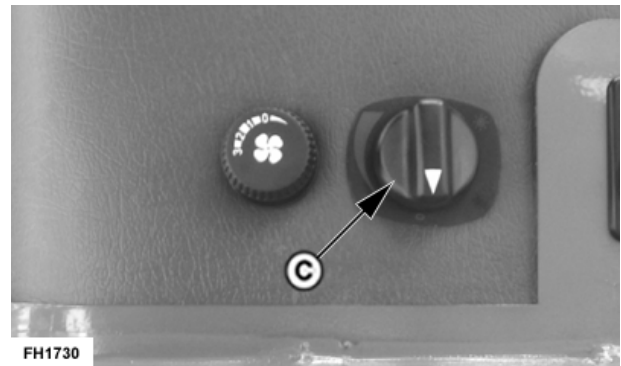
To heat or cool your body more efficiently, aim individual vents, on each side of headliner, to different parts of your body.

- Aim front vents (A) toward your head.
- Aim rear vents (B) toward your back.

NOTE: For maximum cooling effect, turn temperature control knob (C) to full counterclockwise position.

A—Front Vent
B—Rear Vent

C—Temperature Control Knob



FH1730

FH1730 —UN—16APR08

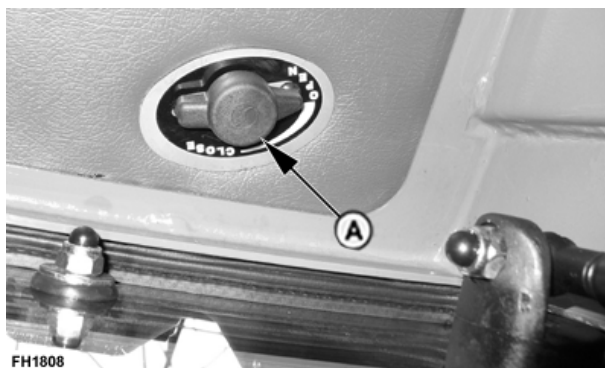
NR25796,0000F1C -19-22APR08-1/1

Control Fresh Air

To control amount of fresh air enter into cab a fresh air control knob (A) is provided on left of rear side.

If operator wants fresh air, tap must be in "CLOSE" position otherwise air continue to flow at high temperature or at least mixed with the fresh air provided by the conditioning system.

A—Fresh Air Control Knob



FH1808 —UN—20APR08

SS40167,0000D5F -19-21APR08-1/1

Operating Windshield Wiper and Washer

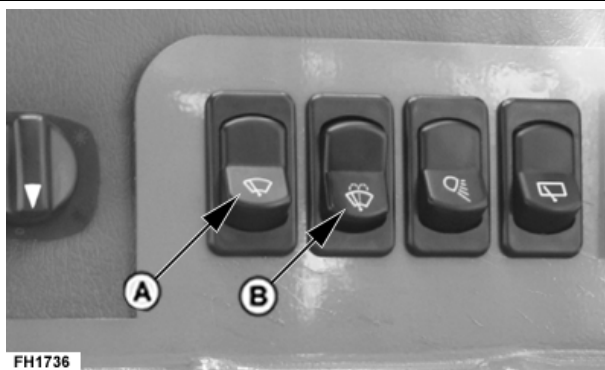
Push washer switch (B) to operate windshield washer.

Push wiper switch (A) to activate windshield wiper.

Fill reservoir (C) with non-freezing windshield washer fluid. Reservoir is located inside cab.

A—Windshield Wiper Switch
B—Windshield Washer Switch

C—Washer Fluid Reservoir



FH1736 —UN—16APR08



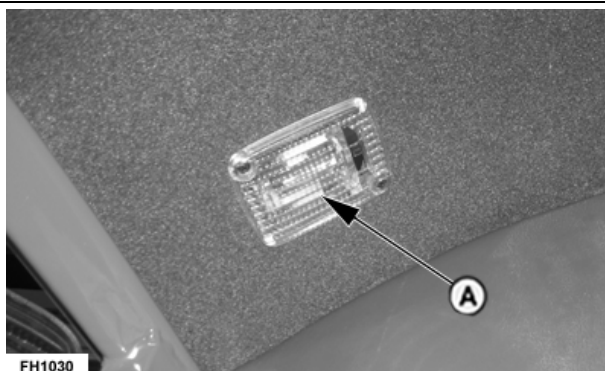
FH1737 —UN—16APR08

NR25796,0000F1D -19-27SEP07-1/1

Using Control Illumination Light

Control illumination light (A) comes on with front grille headlights, when light switch is placed in Work Light, Transport 1 or Transport 2 positions.

A—Control Illumination Light



FH1030 —UN—26SEP07

NR25796,0000F20 -19-27SEP07-1/1

Break-In Period

Observe Engine Operation Closely

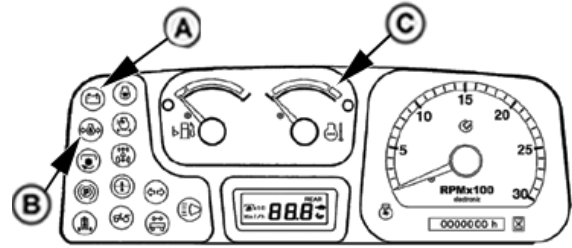
IMPORTANT: The engine is ready for normal operation. Be extra cautious during the first 100 hours, until you become thoroughly familiar with the sound and feel of your new tractor. Stay extra attentive and alert.

Warm up tractor carefully. Check charging (A) and oil pressure (B) warning indicator light and coolant temperature gauge (C).

Avoid unnecessary engine idling.

Check engine oil, coolant, transmission/hydraulic and fluid levels frequently. Watch for fluid leaks.

NOTE: If engine oil must be added, use seasonal viscosity grade oil. Use only lubricants meeting specifications given in the Fuels, Lubricants, and Coolant section.



FH0160

A—Charging Indicator
B—Oil Pressure Indicator

C—Coolant Temperature Indicator

FH0160 —UN—25JUL07

SS40167,0000F79 -19-20AUG09-1/1

Break-In Service

IMPORTANT: Keep wheel hardware tight to avoid tractor damage. Check wheel hardware torque before operating, twice during first 10 hours of operation, after 50 hours of operation, and periodically thereafter.

During the First 10 Hours of Operation:

Perform daily or 10 hours service. (See Service Intervals in Lubrication and Maintenance section.)

Tighten wheel hardware. (See Wheels, Tires, and Treads section.)

¹ See Engine Break-In Oil in Service section for additional information.

After the First 50 Hours of Operation:

Tighten wheel hardware. (See Wheels, Tires, and Treads section.)

Tighten air intake and cooling system hose clamps

Change engine oil and filter¹

Perform 50 Hours Service

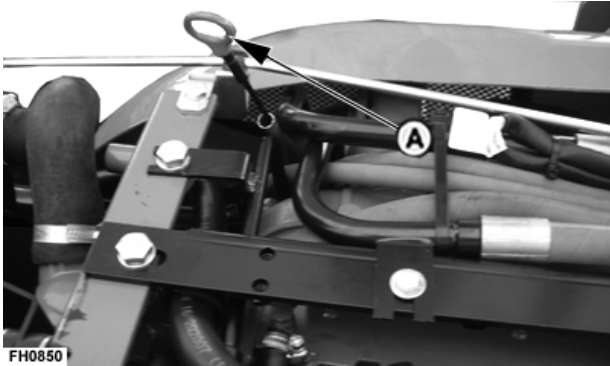
After the First 100 Hours of Operation:

Replace transmission-hydraulic filter element

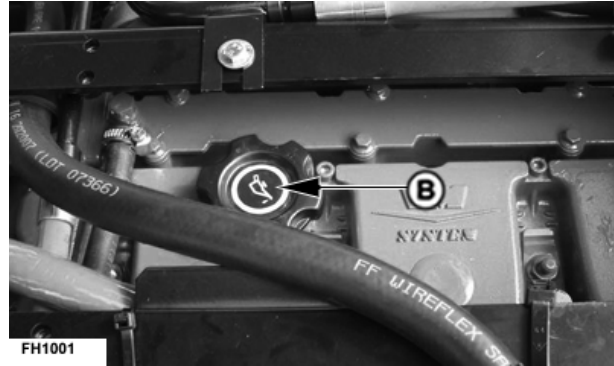
NR25796,0001AAE -19-17AUG09-1/1

Prestarting Checks

Daily Service Before Starting Engine



FH0850 —UN—25SEP07



FH1001

FH1001 —UN—25SEP07

NOTE: Park tractor on level ground before executing checks.

1. Check the engine oil level. Wipe dipstick (A) off and reinsert it fully. Remove and locate oil level.

Safe operating range is between two marks on dipstick. Do not operate engine when oil level is below oil low mark (D) on dipstick. Add seasonal viscosity grade oil through filler hole (B). (See Fuels, Lubricants, Coolant section for oil specifications.)

2. Check coolant level of coolant recovery tank (E). If the engine is cold and coolant level is below LOW, add coolant to coolant recovery tank (E) until level reaches LOW mark.

NOTE: With engine cold, coolant level should be at LOW mark. At operating temperature coolant level of a tractor should be at FULL mark.

3. Lubricate the following points every 50 hours if operating the tractor in extremely wet or excessively muddy conditions.

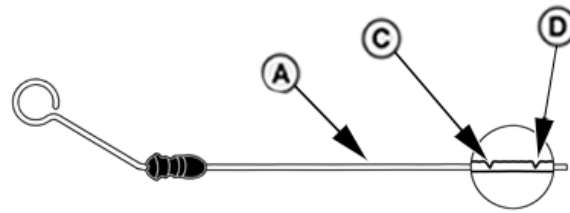
- Front axle pivot pins
- Steering transmission axle
- Ends of coupling bar
- Brake pedal pin
- 3 Point hitch arms
- Lift links

4. Check hydraulic oil level of transmission. Remove dipstick and clean it. Insert dipstick fully. Oil level should be between the marks on the dipstick. If level is low add oil.

5. Make sure the hose of the rocker arm cover ventilation is not pinched. Remove any dirt from the hose end.

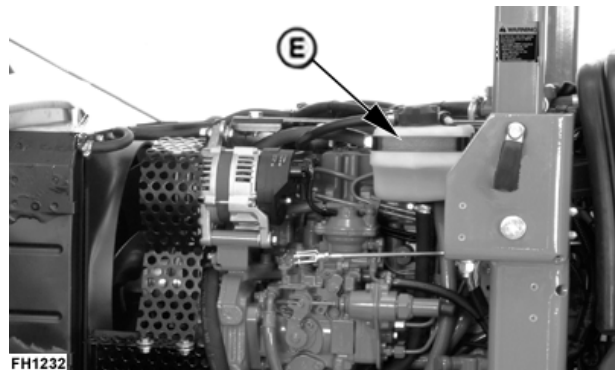
A—Engine Dipstick
B—Oil Filler Cap
C—Oil Full Mark

D—Oil Low Mark
E—Coolant Recovery Tank
F—Crankcase Vent Tube



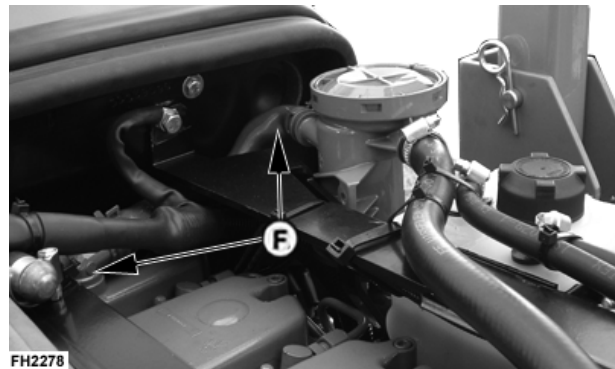
FH0412

FH0412 —UN—06AUG07



FH1232

FH1232 —UN—28MAY08



FH2278

FH2278 —UN—18AUG09

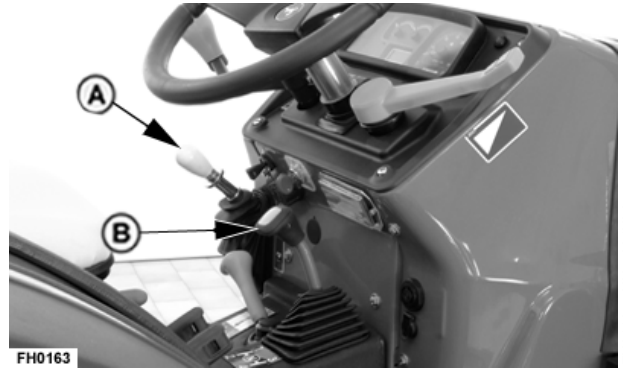
SS40167,0000F5B -19-18AUG09-1/1

Operating the Engine

Before Start the Engine



TS220 —UN—23AUG68



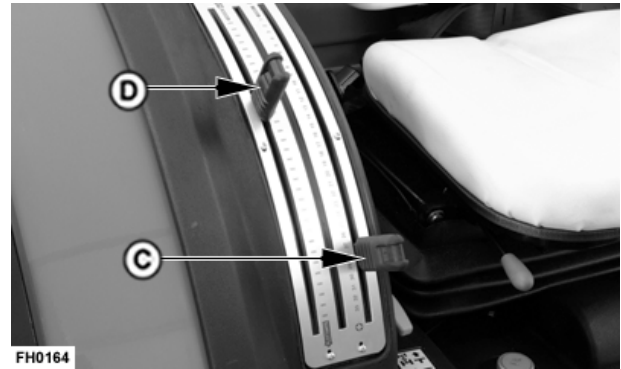
FH0163 —UN—20JUL07

CAUTION: Prevent asphyxiation. Engine exhaust fumes can cause sickness or death to you or someone else.

If you operate engine in a building, be positive there is adequate ventilation. Either use an exhaust pipe extension to remove the exhaust fumes or open doors and windows to bring enough outside air into the area.

1. Check fuel gauge to be sure tractor has plenty of fuel.
2. Place gear shift lever (B) in "NEUTRAL" and PTO lever (A) in "OFF" position. Starter will not operate if gear shift lever and PTO lever are not in these positions.
3. Place rockshaft control levers (C and D) in lowered position.
4. Check indicator lights. Indicators should illuminate when key switch is turned to the "ON" position.

If any indicator does not function properly, see your John Deere dealer.



FH0164 —UN—20JUL07

A—PTO Lever
B—Gear Shift Lever

C—Rockshaft Draft Control Lever
D—Rockshaft Position Control Lever

SS40167,0000F5C -19-18AUG09-1/1

Start the Engine

1. Push hand throttle (A) rearward off idle position (approximately 1/3 of full throttle). Engine may not start with throttle pulled completely down.

CAUTION: Avoid possible injury or death from a machine runaway.

Do NOT start engine by shorting across starter terminals. Machine will start in gear and move if normal circuitry is bypassed.

Start engine only from operator's seat with transmission in "NEUTRAL" and PTO in "OFF" position.

NEVER start engine while standing on ground.

IMPORTANT: DO NOT run a cold engine at full throttle.

2. Turn key (B) as follows:

0: Engine OFF

1: Turn Engine off and switch on instruments and indicator light. Preheat position: Hold the key in this position until preheat indicator goes out.

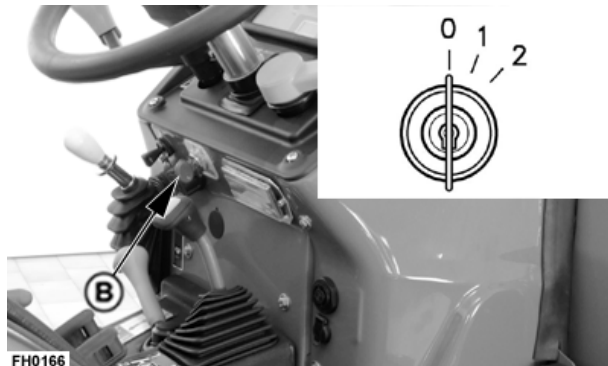
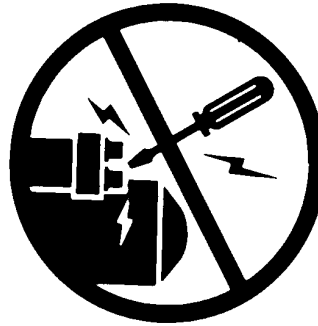
2: Press the key and then turn engine ON.

Release key when engine starts. If key is released before engine starts, wait until starter and engine stop turning before trying again.

IMPORTANT: DO NOT operate starter more than 20 seconds at a time. If engine does not start, wait at least 2 minutes for the starter motor to cool before trying again. If engine does not start in four attempts, refer to "Troubleshooting" section.

A—Hand Throttle

B—Key



TS177—UN—11JAN89

FH0165—UN—20JUL07

FH0166—UN—20JUL07

SS40167,00009EF -19-26MAY08-1/1

Check Engine Indicators and Gauges

IMPORTANT: If charging system or oil pressure indicators (D or E) fail to go out, or temperature gauge (A) indicates hot, stop engine and determine the cause.

Coolant Temperature Gauge (A)

The needle on the temperature gauge (A) rises as engine warms up. If needle reaches red zone, stop engine and determine the cause.

Check coolant level in recovery tank and radiator when engine cools. Also check grille, radiator and radiator screen for plugging. Check fan belt tension. If problem is not corrected, see your John Deere dealer.

Fuel Level Gauge (B)

Refuel the vehicle when fuel gauge light turns red.

IMPORTANT: Use diesel fuel only. See Fuel, Lubricants and Coolant section for fuel specifications.

Should tractor run out of fuel and not start in several tries, air must be bled from fuel system. (See BLEED FUEL SYSTEM in Maintenance—Fuel System section.)

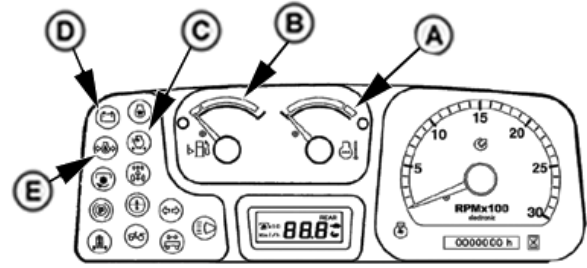
Air Restriction Indicator (C)

Air restriction indicator (C) will light if air cleaner becomes plugged. Service air cleaner as soon as possible. (See procedure in General Maintenance and Inspection section.)

Charge System Indicator (D)

Charging system indicator (D) will light when alternator output is low. Indicator should light when key is turned to "1" position, and go out when engine starts at "2" position.

If indicator stays lit for longer than five seconds in normal operation, stop engine and check for cause. If loose or



FH0167

- A—Coolant Temperature Gauge
- B—Fuel Level Gauge
- C—Air Restriction Indicator
- D—Charging System Indicator
- E—Oil Pressure Indicator

broken fan belt is not the cause, see your John Deere dealer.

Oil Pressure Indicator (E)

Oil pressure indicator (E) will light if engine oil pressure is low. Indicator should light when key is turned to RUN position and go out when engine starts.

IMPORTANT: NEVER operate engine without sufficient oil pressure. If indicator stays lit for longer than 5 seconds under normal operating conditions, stop engine and check for cause.

If low oil level is not the problem, see your John Deere dealer.

AH98466,000049E -19-28AUG07-1/1

Change Engine Speeds

To increase speed, pull hand throttle (A) rearward.

A—Hand Throttle



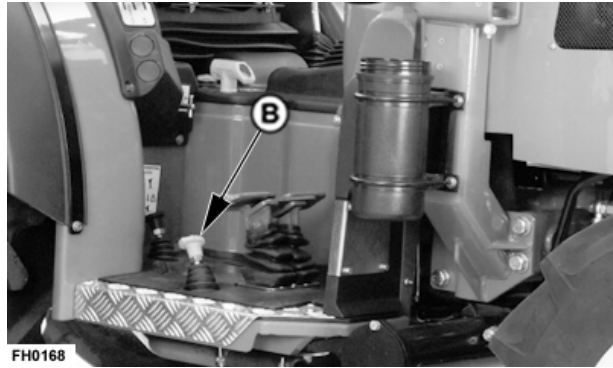
FH0165

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SS40167,00006AD -19-07AUG07-1/2

To temporarily increase engine speed above hand throttle setting, depress foot throttle (B).

B—Foot Throttle



FH0168

FH0168—UN—20JUL07

SS40167,00006AD -19-07AUG07-2/2

Recommended Engine Speeds and Operating Procedures

Tachometer (A) shows engine rpm, read in hundreds.

Warm Up Engine

Do not place tractor under full load until it is properly warmed up.

1. Idle engine at 1200 -1500 rpm for several minutes.
2. Run engine at about 1900 rpm and under light load until engine reaches normal operation condition.

Avoid Idling Engine

Allowing engine to idle at low rpm uses fuel inefficiently, and can cause a build-up of carbon in the engine.

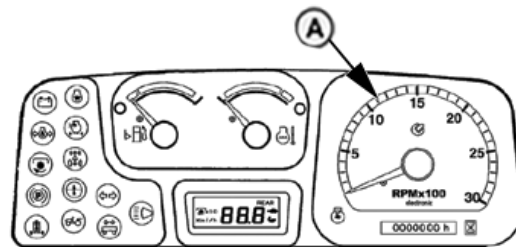
If tractor must be left with the engine running more than 3 or 4 minutes, minimum engine speed should be 1200 rpm.

Observe Engine Work and Idle Speeds Consistency

Slow idle speed should be 900 ± 50 rpm. At light or no load, full throttle speed will increase to 2625 ± 25 rpm.

Normal working speed is 1600-2400 rpm rated speed. Within these limits engine can be put under full load.

For correct PTO speed.



FH0169

A—Tachometer

FH0169—UN—25JUL07

PTO Speed		
Select	PTO rpm	Engine
540	540	2430

Restart Stalled Engine

Should the engine stall when operating under load, depress clutch and restart it immediately to prevent abnormal heat build-up and continue with normal operation, or operate at slow idle for 1 or 2 minutes before stopping.

SS40167,0000931 -19-20NOV07-1/1

Work With Speed/Hour Meter

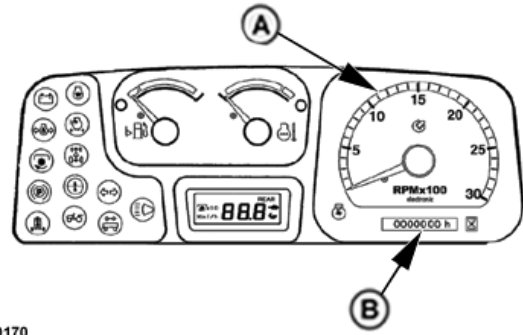
Tachometer (A) shows engine rpm, read in hundreds.

For correct PTO speed, run engine at 2400 rpm for standard 540 rpm operation.

Hour meter (B) shows hours of operation in full hours and tenths.

A—Tachometer

B—Hour Meter



FH0170

FH0170 —UN—20JUL07

SS40167,00006AF -19-07AUG07-1/1

Engines with Turbocharger

IMPORTANT: If the engine “stalls” when in operation, restart it **IMMEDIATELY**. This will prevent the turbocharger from overheating.

Most damage to the turbocharger is caused by not following the correct procedure when starting and shutting off the engine. After starting and before shutting off, idle the engine without load for at least 30 seconds.

SS40167,000065D -19-25JUL07-1/1

Stop the Engine

1. Push hand throttle (A) forward to slow idle position. Allow engine to idle for 1 to 2 minutes.

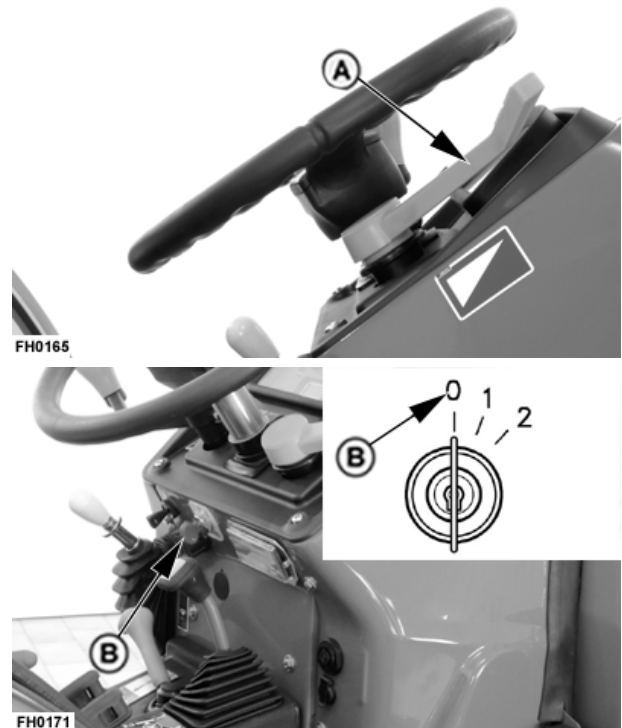
IMPORTANT: Cooling of certain engine parts is provided by engine oil. Stopping a hot engine suddenly could cause damage to these parts by overheating or lack of lubrication.

2. Turn key switch to the “OFF” position i.e. “0” position on key switch.

CAUTION: Remove key from key switch to prevent operation by untrained personnel.

A—Hand Throttle

B—Key Switch Off Position



FH0165

FH0171

FH0165 —UN—20JUL07

FH0171 —UN—20JUL07

AH98466,0000443 -19-23AUG07-1/1

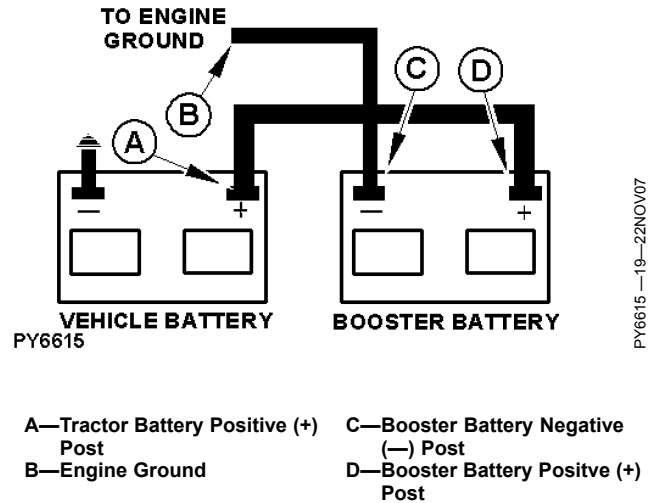
Use Booster Battery

CAUTION:

Battery gas is explosive:

- DO NOT smoke while you charge battery.
- Keep all flames and sparks away.
- DO NOT charge frozen battery.
- DO NOT connect booster battery negative (—) cable to starting vehicle negative (—) terminal.

1. Access battery. (See procedure in Service section.)
2. Connect positive (+) booster cable to booster battery positive (+) post (D).
3. Connect the other end of positive (+) booster cable to tractor battery positive (+) post (A).
4. Connect negative (—) booster cable to booster battery negative (—) post (C).
5. Connect the other end of negative (—) booster cable to engine ground (B), away from battery or starter.



AH98466,0000445 -19-23AUG07-1/1

Driving the Tractor

Operator Training Required

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

SS40167,000026F -19-20JUL07-1/1

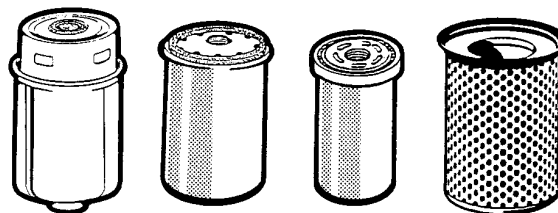
Reduce Fuel Consumption

Service Correctly

Replace air cleaner element and fuel, engine oil and transmission/hydraulic filter elements at specified service intervals (see Service section).

Use only John Deere filters!

Use recommended oils and lubricants only (see Fuel, Lubricants, Hydraulic Oil and Coolant section).

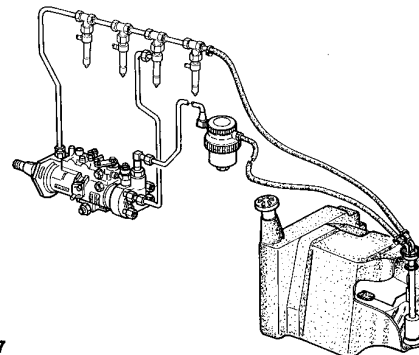


LX007829

LX007829 —UN—15AUG94

SS40167,0000270 -19-29APR08-1/6

Have the fuel system checked regularly by your John Deere dealer.

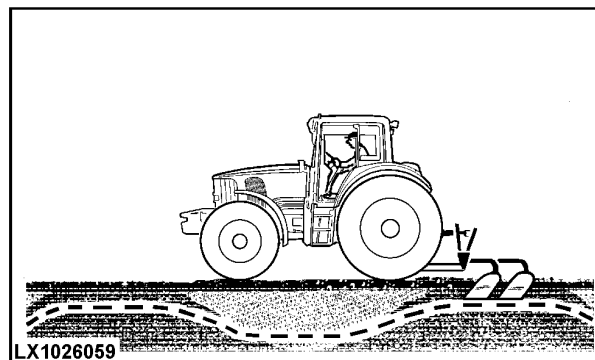


LX000347

LX000347 —UN—15AUG94

SS40167,0000270 -19-29APR08-2/6

Have function of rockshaft control checked regularly by your John Deere dealer.



LX1026059

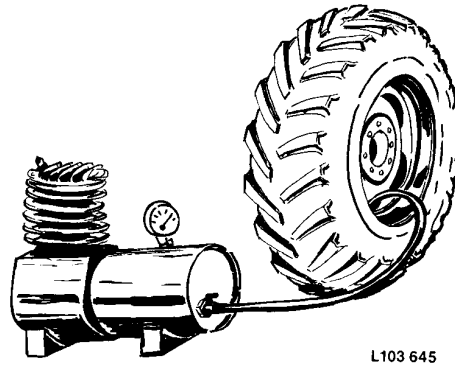
LX1026059 —UN—18MAY01

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SS40167,0000270 -19-29APR08-3/6

Drive with Correct Tire Pressures

Adapt tire pressures to type of work and ground conditions (consult your John Deere dealer or local tire agent).



L103 645

L103645 —UN—15AUG94

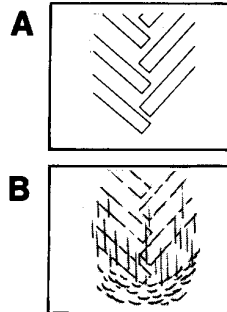
SS40167,0000270 -19-29APR08-4/6

Choose Correct Ballast

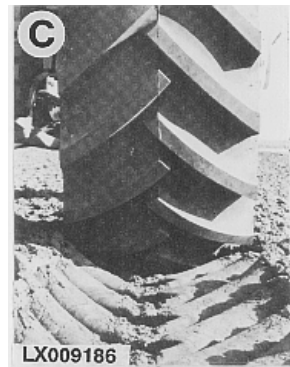
Choose ballast to obtain 10 to 15% wheel slip. Use no more ballast than necessary, reduce ballast for light work.

A—Too Much Ballast
B—Too Little Ballast

C—Correct Ballast



LX009185



LX009186

LX009185 —UN—01SEP94

LX009186 —UN—01SEP94

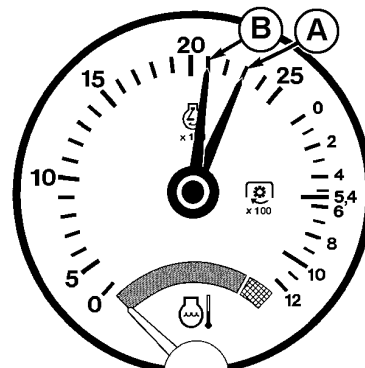
SS40167,0000270 -19-29APR08-5/6

Select Correct Gear

Always drive in the highest possible gear with reduced engine speed.

Choose a gear so that engine speed (A) with engine not under load drops 150 to 250 rpm when the tractor is operating and the engine is under load (B).

NOTE: For light work, reduce engine speed below 2000 rpm. Select a gear so that engine speed drops 200 to 300 rpm when operating.



LX1017710

LX1017710 —UN—01OCT97

SS40167,0000270 -19-29APR08-6/6

Drive on Public Roads

CAUTION: When transporting on a public road or highway, use accessory lights and devices for adequate warning to operators of other vehicles. Check local governmental regulations. Various safety devices are available from your John Deere dealer. Keep safety items in good condition. Replace missing or damaged items.

Observe the following precautions when operating the tractor on the road:

CAUTION: Before operating tractor on a road, lock brake pedals together. Use brake lightly and cautiously at transport speeds.

1. Couple brake pedals together using brake locking bar (A). Avoid hard applications of brakes. Reduce speed if towed load weighs more than the tractor and is not equipped with brakes.

Use additional caution when transporting towed loads under adverse surface conditions and when turning or braking on inclines. Be sure wheel tread is adjusted wide to provide maximum stability.

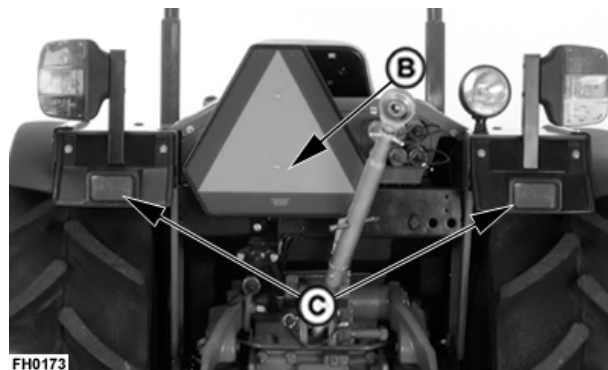
IMPORTANT: To prevent unnecessary wear, never ride the brakes by resting a foot on the pedals.

2. Check local laws and regulations for lighting requirements. Be sure Slow Moving Vehicle (SMV) emblem (C) and warning lamps are clean and visible. If towed or rear-mounted equipment obstructs these safety devices, install SMV emblem and warning lamps on equipment. (See your John Deere dealer.)
3. Turn light switch to position (E).

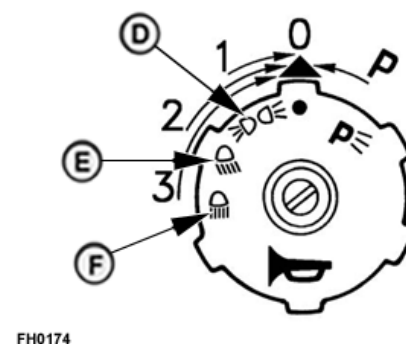
Always turn light switch to dim lights position (E) when meeting another vehicle. Never use any other lights which could blind or confuse other drivers.



FH0172 —UN—20JUL07



FH0173 —UN—02MAY08



FH0174 —UN—20JUL07

A—Brake Locking Bar
B—Reflex Reflector
C—SMV Emblem

D—Work Light
E—Dim Headlights, Tail Lights and Warning Light Position
F—Bright Headlights, Tail Lights and Warning Light Position

Continued on next page

SS40167,00006B2 -19-20AUG07-1/2

4. Use turn signal when turning. Be sure to return lever (G) to center position after turning.
5. Drive slowly enough to maintain safe control at all times. Before descending a hill, shift to a gear low enough to control speed without using brakes. Slow down for rough ground, and sharp turns, especially when transporting heavy, rear mounted equipment.

G—Turn Signal Levers



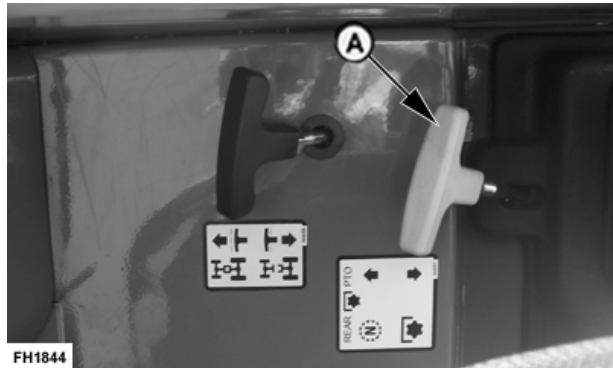
FH0175—UN—20JUL07

SS40167,00006B2 -19-20AUG07-2/2

Operate Transmission

NOTE: PTO engagement lever (A) must be in "NEUTRAL" position.

A—PTO Engagement Lever



FH1844—UN—26MAY08

Left Side of Operator Seat

Continued on next page

SS40167,0000D69 -19-04JUN08-1/3

For Models with Dual Power and Reverser

The F-Series John Deere tractors are equipped with a dual mode transmission, offering operators a choice of 8+8 transmission, or a 16+8 transmission.

(16+8) Modes

The 16+8 transmission gives operators 16 forward speeds, and 8 reverse speeds. The 16+8 transmission is ideal for slow speeds when ground engaging implements are being used.

Select the 16+8 transmission with transmission mode selection lever (C). Operator will use the forward/reverse lever (D) to select forward direction, and forward direction with a speed reduction of 20%. The 20% speed reduction will decrease the speed of the tractor, while not decreasing the rpm of the engine. This will allow the operators to slow down the tractor sending additional power to implements. Range shift lever (A) will select Hi or Low speeds. In 16+8 transmission range shift lever (A) will also select reverse if reverse direction is needed.

A—Range Shift Lever
B—Gear Shift Lever

C—Transmission Mode
Selection Lever
D—Forward/Reverse Lever



FH0176 —UN—20JUL07



FH0178 —UN—20JUL07

SS40167,0000D69 -19-04JUN08-2/3

(8+8) Modes

The 8+8 transmission gives operators 8 forward speeds, and 8 reverse speeds. The 8+8 transmission is ideal for use when both forward and reverse directions will be used throughout the task.

When selecting the 8+8 transmission with transmission mode selection lever (C), operator will use the forward/reverse lever (D) to select forward or reverse directions. Range shift lever (A) will select Hi or Low speeds, and the gear shift lever (B) will select speeds 1-4.

A—Range Shift Lever
B—Gear Shift Lever

C—Transmission Mode
Selection Lever
D—Forward/Reverse Lever



FH0176 —UN—20JUL07



FH0178 —UN—20JUL07

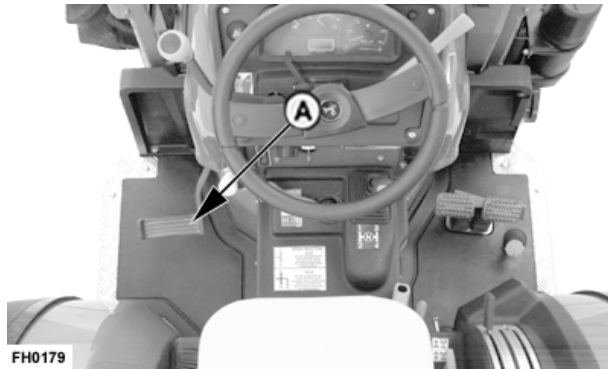
SS40167,0000D69 -19-04JUN08-3/3

Shift Transmission

IMPORTANT: To prevent transmission damage, do not use speed shift on-the-go. To prevent unnecessary wear, never ride the clutch by resting a foot on the pedal.

Depress clutch pedal (A) and stop tractor before shifting either range shift lever or gear shift lever. Release clutch pedal gradually to take up load smoothly.

A—Clutch Pedal



FH0179—UN—20JUL07

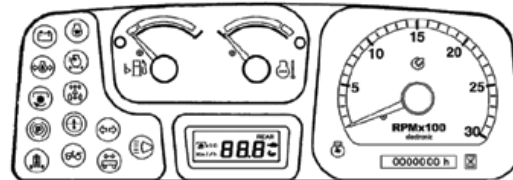
SS40167,00006B3 -19-07AUG07-1/1

Select a Gear

IMPORTANT: To extend drive train life and avoid excessive soil compaction and rolling resistance when using ballast, operate one gear lower than normal.

The tractor may be operated in any gear with engine speeds between 1700 rpm and 2300 rated engine rpm. Within these limits the engine can be put under full load. For light load operation, use a higher gear and lower engine speed. This saves fuel and reduces wear.

Ground Speed Estimates for different tire sizes are located in Specifications section.



FH0180

FH0180—UN—25JUL07

AH98466,00004A1 -19-28AUG07-1/1

Use Brakes

CAUTION: Before operating tractor on a road, lock pedals together. Use brake lightly and cautiously at transport speeds.

Use individual brakes to assist in making sharp turns. Disengage brake pedal locking bar (A) and depress only one brake pedal.

To stop tractor, depress both brake pedals.

IMPORTANT: To prevent unnecessary wear, never ride the brakes by resting a foot on the pedals.

Reduce speed if towed load is not equipped with brakes and weighs more than the tractor. Avoid hard braking applications.

Use additional caution when transporting towed loads under adverse conditions, when turning or stopping on inclines.



FH0172

A—Brake Pedal Locking Bar

FH0172—UN—20JUL07

SS40167,0000275 -19-20JUL07-1/1

Use Differential Lock

CAUTION: Only use the differential lock with creep gear range. **DO NOT** operate tractor at high speed or attempt to turn with differential lock engaged.

IMPORTANT: To prevent damage to drive train, **DO NOT** engage differential lock when one wheel is spinning and the other is completely stopped by the respective brake.

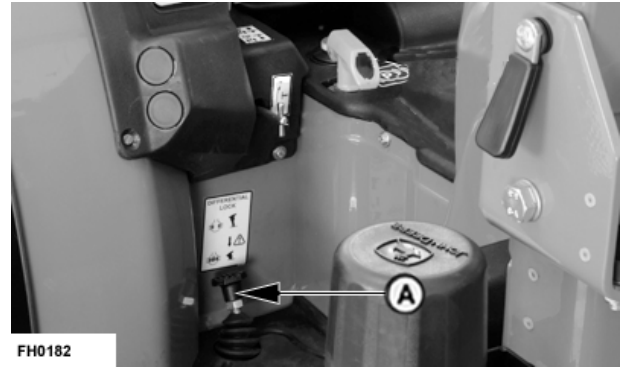
When one wheel starts to lose traction, engage differential lock by depressing pedal (A) down and indicator (B) light.

Keep the pedal pressed till the traction at both the tires equalizes and tractor comes out of the ditch. If lock does not disengage, depress one brake pedal and then the other.

If tires repeatedly slip, then get to traction, then slip again, hold pedal in the engaged position.

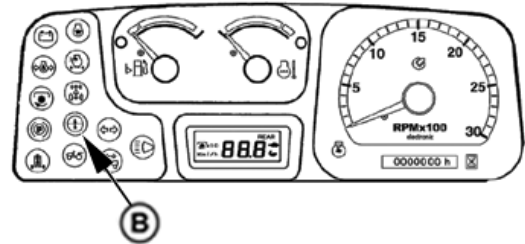
A—Differential Lock Pedal

B—Differential Lock Indicator



FH0182

FH0182 —UN—17AUG07



FH0292

FH0292 —UN—08AUG07

SS40167,00006CA -19-20AUG07-1/1

Use Park Brake

CAUTION: Do not operate tractor with park brake engaged.

When tractor is stopped pull park brake lever and for starting the tractor push park brake lever (A).

Park brake indicator (B) will light when engine starts with park brake engage.

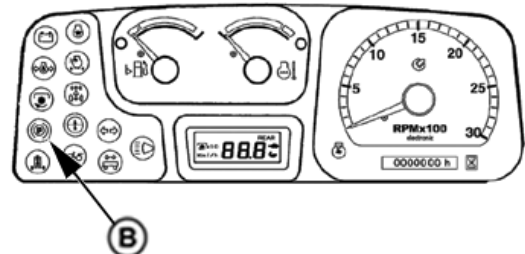
A—Park Brake Lever

B—Park Brake Indicator



FH0294

FH0294 —UN—26JUL07



FH0295

FH0295 —UN—08AUG07

SS40167,0000F5E -19-18AUG09-1/1

Operate Mechanical Front Wheel Drive

Use mechanical front wheel drive (MFWD) as required for better traction.

CAUTION: Mechanical front wheel drive greatly increase traction. When this option is used, extra caution is needed on slopes. Compared to 2-wheel drive, a mechanical front wheel drive tractor maintains traction on steeper slopes, increase the possibility of a tip over.

When driving on icy, wet or graveled surfaces, reduce speed and be sure tractor is properly ballasted to avoid skidding and loss of steering controls. For best control, engage mechanical front wheel drive.

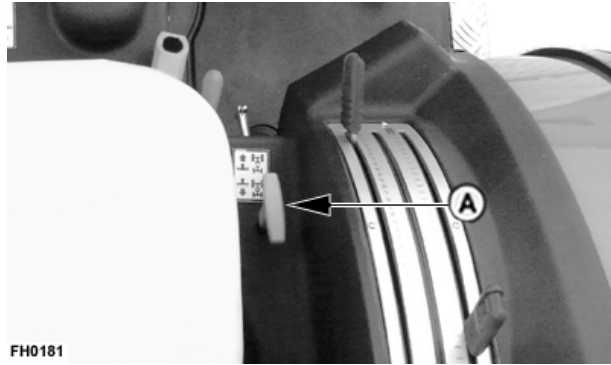
IMPORTANT: To extend tire life engage mechanical front wheel drive when needed. DO NOT engage when driving on hard surfaces.

DO NOT install tire chains on tractor front wheels, chains will strike and damage tractor.

To prevent transmission damage, **DO NOT** engage or disengage mechanical front wheel drive on the go.

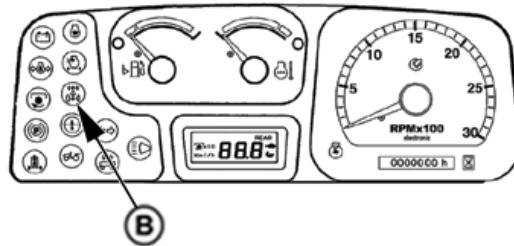
Depress clutch pedal and stop tractor before engaging or disengaging MFWD. Push shift lever (A) forward to engage, and pull lever back to disengage MFWD.

MFWD indicator (B) will light, if MFWD lever is engage.



FH0181

FH0181 —UN—20JUL07



FH0293

FH0293 —UN—08AUG07

A—MFWD Lever

B—MFWD Indicator

SS40167,0000F60 -19-18AUG09-1/1

Stopping Tractor

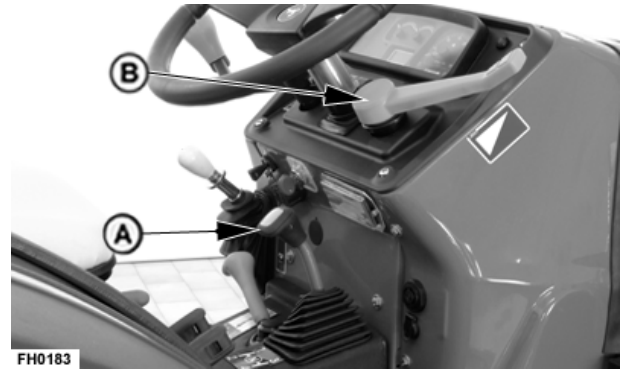
CAUTION: Always place the gear shift lever in **NEUTRAL** and pull the parking brake before dismounting. Leaving transmission in gear with engine OFF may not prevent tractor from moving .

1. Stop the tractor and place gear shift lever (A) in NEUTRAL position.
2. Lower all equipment to ground using rockshaft position control lever (D) and rockshaft draft control lever (C).
3. Push hand throttle (B) up to slow idle position or release accelerator pedal. Allow engine to idle for one to two minutes.
4. Pull up parking brake (E).
5. Turn key switch to OFF position i.e. 0 position on key switch

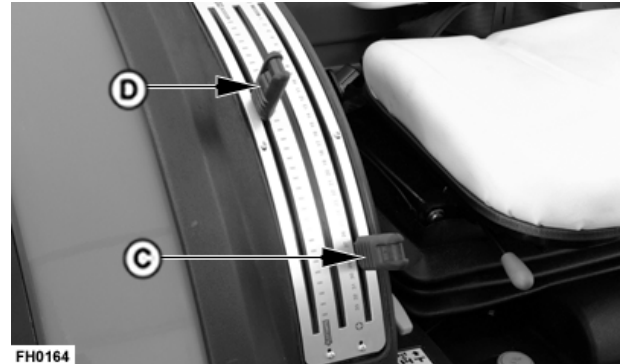
IMPORTANT: Cooling of certain engine parts is provided by engine oil. Stopping a hot engine suddenly could cause damage to these parts by overheating or lack of lubrication.

CAUTION: Remove the key from key switch to prevent operation by untrained personnel.

A—Gear Shift Lever	D—Rockshaft Position Control Lever
B—Hand Throttle	E—Park Brake Lever
C—Rockshaft Draft Control Lever	



FH0183 —UN—20JUL07



FH0164 —UN—20JUL07



FH0296 —UN—08AUG07

SS40167,0000F62 -19-18AUG09-1/1

Rockshaft and 3-Point Hitch

Match Tractor Power to Implement

IMPORTANT: Tractor power should be matched to the size of certain implements. Excessive power can damage an implement, and too

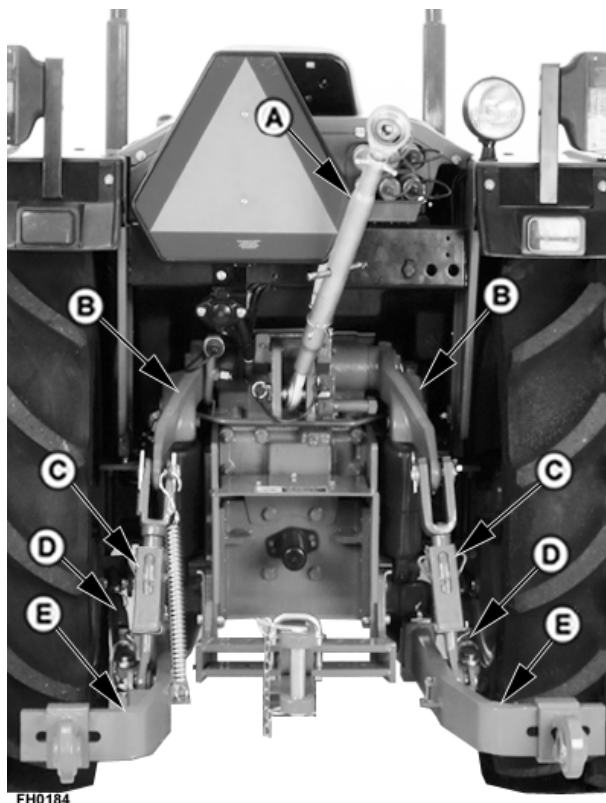
large an implement can damage the tractor. (Refer to your implement operator's manual for minimum and maximum power requirements before attaching an implement.)

SS40167,000063D -19-25JUL07-1/1

3-Point Hitch Components

A—Center Link
B—Lift Arms
C—Lift Links

D—Sway Chains
E—Draft Links



FH0184—UN—20JUL07

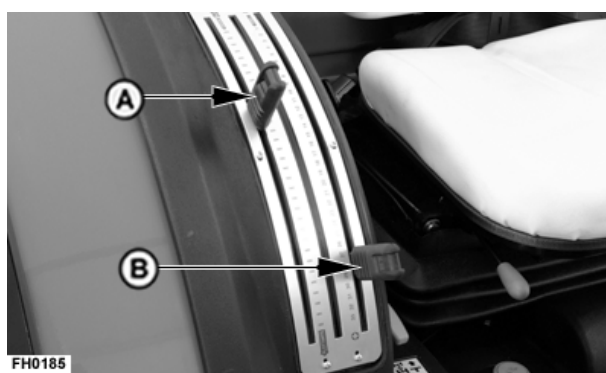
SS40167,000063E -19-25JUL07-1/1

Rockshaft Control Levers

The rockshaft position is controlled by two levers, the rockshaft position control lever (A) and the rockshaft draft control lever (B).

The rockshaft position control lever (A) raises the hitch when pulled rearward, and lowers the hitch when moved forward. See Using Rockshaft Position Control in this section for more information.

The rockshaft draft control lever (B), controls hitch position relative to draft loads. See Using Draft Control in this section for more information.



FH0185—UN—17AUG07

A—Rockshaft Position Control
Lever

B—Rockshaft Draft Control
Lever

SS40167,000063F -19-25JUL07-1/1

Use Rockshaft Position Control

CAUTION: To prevent unexpected movement of rockshaft, place draft control lever (B), in a full forward position before attaching an implement.

Put draft control lever (B), forward when you DO NOT want rockshaft to adjust automatically to draft load, such as attaching implement to tractor.

Use position control lever (A) to control hitch movement and depth. Position control should be used for the following applications:

TRANSPORT of implements and end of field turn-around. Position control lever should be moved fully rearward (C) for transport for both load and non-load sensing usage.

CONSTANT DEPTH of implements on level terrain and for non-ground engaging implements such as spreaders or sprayers. Place position control lever at depth desired (D).

FLOAT operation for implements with skids or depth gauge wheels designed to carry full implement weight. Push both levers all the way forward (E) so implement can follow the ground contour.

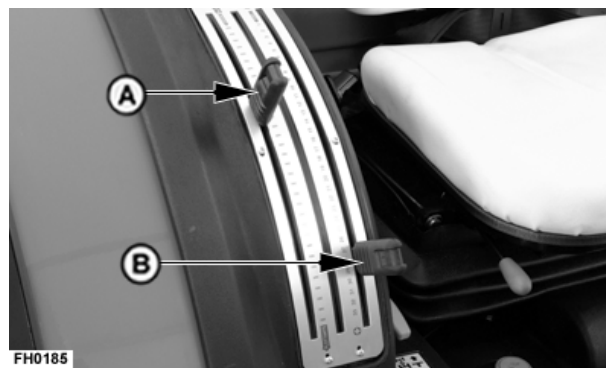
A—Rockshaft Position Control Lever

B—Rockshaft Draft Control Lever

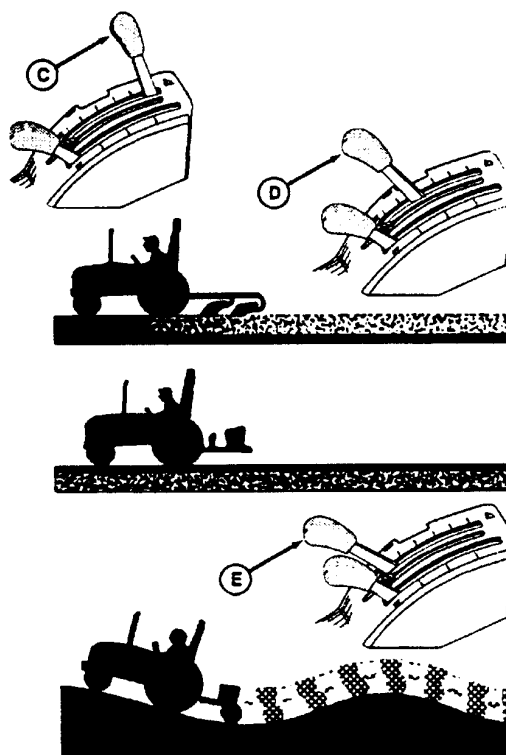
C—Position Control Lever In Rearward Position

D—Position Control Lever In Desired Depth Position

E—Position Control Lever And Draft Control Lever In Float Position



FH0185 —UN—17AUG07



M47168 —UN—31JAN92

SS40167,0000640 -19-26JUL07-1/1

Use Draft Control

The rockshaft is equipped with variable draft control system.

Use draft load sensing when:

- Operating with a fully mounted implement in hill and swale terrain. The implement will raise and lower to follow the ground contours while maintaining a nearly constant depth.
- Operating in varying soil conditions. The implement is raised slightly to get through tough spots so you do not have to shift to a lower gear.

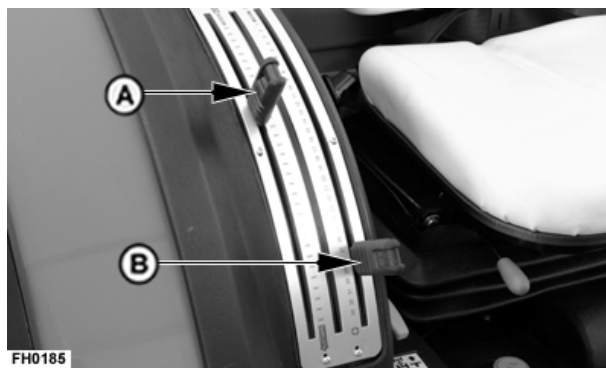
Draft control lever (B) controls amount of load required before hitch responds. With lever placed fully forward to the position marked "+33" (C), there is no draft sensing. Placing the lever toward the rear position reduces the amount of draft load required to override the position setting set by the position control lever (A) and raise the rockshaft.

Draft sensitivity ranges can be changed by repositioning the center link. (See Positioning Center Link in this section for additional information.)

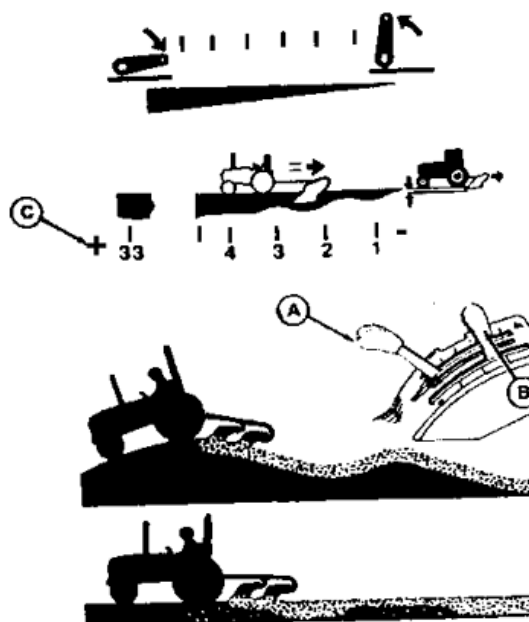
For draft load sensing operation:

- Initially place position control lever (A) in its fully rearward position and the draft control lever (B) in the fully forward (least draft) position.
- With tractor moving, push position control lever (A) forward to set implement operating depth. The operating depth set-up will prevent the rockshaft from lowering all the way when the tractor begins to slip. Then pull draft sensing lever (B) rearward until desired draft sensing sensitivity is obtained.
- The position control lever (A) can also be raised slightly to override the draft control setting to help get through slippery spots without getting stuck.
- The position control lever (A) can be moved fully rearward to raise the hitch at the end of the field.

A—Rockshaft Position Control Lever
B—Rockshaft Draft Control Lever
C—Draft Sensing "+33" Position



FH0185—UN—17AUG07



FH0186

FH0186—UN—25JUL07

SS40167,00006BF -19-08AUG07-1/1

Adjust Rockshaft Rate-of-Drop/ Implement Lock

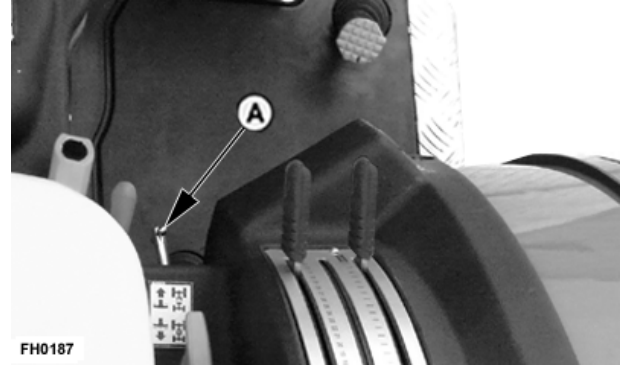
CAUTION: Excessive rate-of-drop may cause damage or injury. Fully lowering implement should require at least two seconds.

Rockshaft drops faster when a heavy implement is attached. Adjust rate-of-drop knob so that it is slow enough to be safe and prevent implement damage.

Turn rockshaft rate-of-drop knob (A), located under the seat, clockwise to slow rockshaft drop.

Turn knob counterclockwise to increase rate-of-drop.

Rate-of-drop knob is also called implement lock. When knob is fully screw in, implement will not lower down even if position control lever is fully down. Use implement lock while transporting implement.



A—Rockshaft Rate-of-Drop Knob/ Implement Lock

SS40167,0000642 -19-26JUL07-1/1

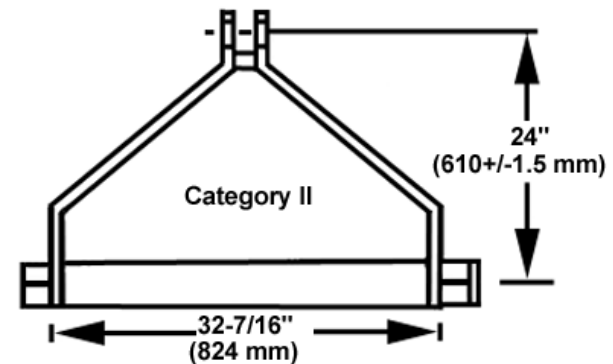
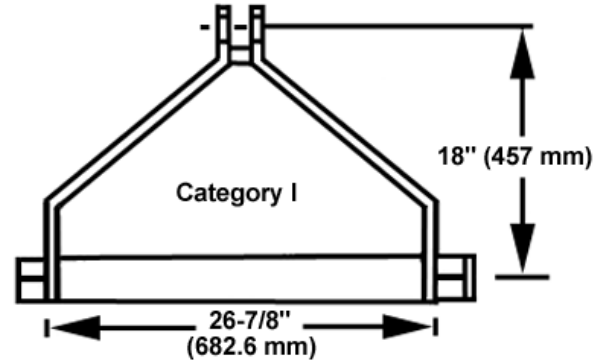
Prepare Implement

IMPORTANT: When attaching Category I implements to the tractor, sway chains may need lengthening to prevent binding and limiting full raise of the hitch. (See Adjust Hitch Side Sway in this section.)

Category I 3 Point Hitch is narrower and is used on smaller implements than Category II implements. Refer to the chart below to identify implement category.

Category II implements should have the top hole of the implement mast located 610 mm (24 in.) above the lower pins. Drill another hole in top mast or extend top mast if necessary.

Category	Mast Height	Width Between Lower Pins	Pin Size (Diameter)	
			Lower	Upper
I	457 mm (18 in.)	682.6 mm (26-7/8 in.)	22 mm (7/8 in.)	19 mm (3/4 in.)
II	610+/-1.5 mm (24 in.)	824 mm (32-7/16 in.)	28.7+0.3 mm (1-1/8 in.)	25.5 mm (1 in.)



FH1823

FH1823 —UN—30APR08

SS40167,00006CF -19-30APR08-1/1

Convert Category II Hitch to Category I

If Category I implements are to be used, the Category II hitch can be converted as follows:

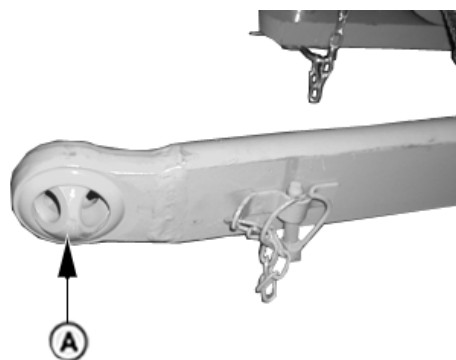
1. Rotate draft link balls (A) in draft link ends to reduce diameter of draft link ends to fit over implement pins.
2. Rotate center link ball (B) in center link end to reduce diameter of center link end to fit over implement pin.

See your John Deere dealer for parts.

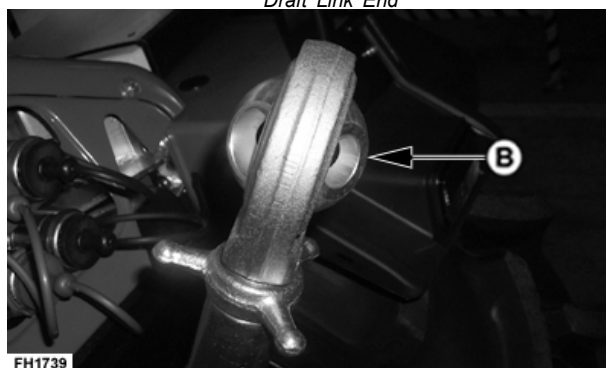
A—Draft Link Ball (2 used)

B—Center Link Ball

FH1738



Draft Link End



FH1739

Center Link End

FH1738—UN—17APR08

FH1739—UN—17APR08

SS40167,0000644 -19-02MAY08-1/1

Position Center Link

The draft sensing rockshaft center link attaching bracket has holes which allow three different positions for attaching the center link. The position effects the draft sensing sensitivity.

Standard position is (C).

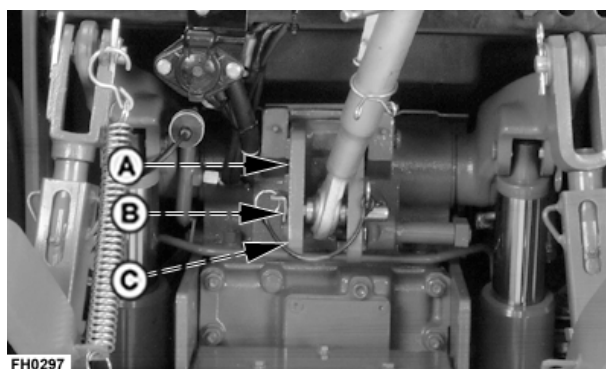
Move the center link attachment to holes (B) if:

- Excessive hitch activity or hunting occurs in draft control operation.
- The rear of the implement raises too much when lifted. The implement weight which can be lifted is reduced slightly with the center link attachment in the lower holes.
- The draft control lever range is too small.

Move the center link attachment to holes (C) if:

- The hitch seems unresponsive in draft control operation and allows the engine speed to drop too far before raising the rockshaft.
- The rear of the implement droops and drags the ground as the implement is lifted.

Upper hole (A) eliminates nearly all draft sensing.



FH0297

A—Upper Hole
B—Middle Hole

C—Lower Hole

FH0297—UN—08AUG07

NOTE: Implements with Category I mast height 457 mm (18 in.) will normally use the upper two attaching holes. Implements with Category II mast height 610 mm (24 in.) will normally use the upper two attaching holes.

SS40167,00006C9 -19-08AUG07-1/1

Attach Implements to 3-Point Hitch

1. Be sure drawbar will not interfere. If necessary, move drawbar ahead, or remove it. Check for any other potential interference.

CAUTION: Prevent unexpected movement of rockshaft by placing draft sensing lever in the forward or OFF position before attaching implement to hitch.

2. Back tractor up to implement (A) so that hitch points align. Engage parking brake and stop the engine BEFORE leaving the tractor seat.

3. Slip draft links over implement hitch pins (B), and retain with quick-lock pins.

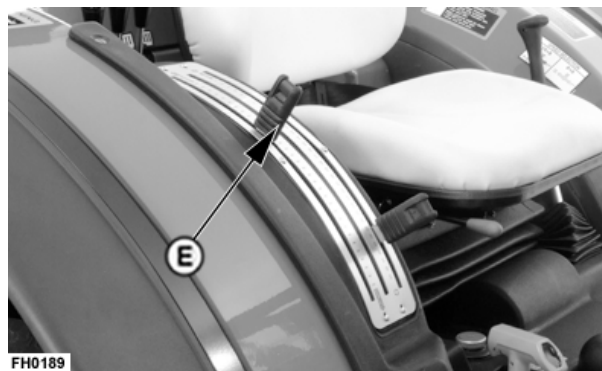
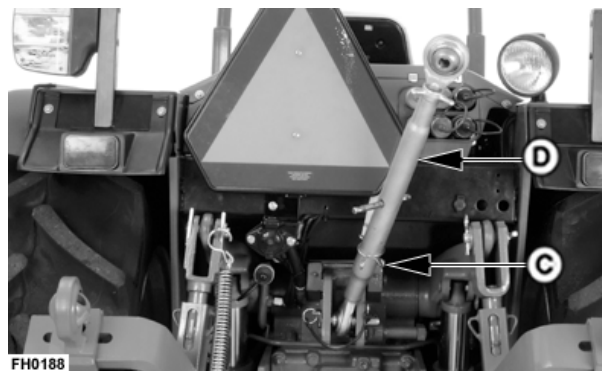
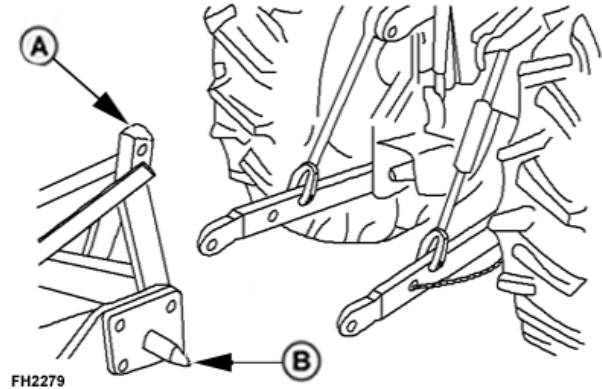
NOTE: Locking pins can be stored on draft links (through holes in sway chain ears) when not in use.

4. Press locking pin (C) to remove central link (D) from transport hook.
5. Attach center link to implement top mast.
6. Adjust center link and lift links as necessary. (See Leveling the Hitch in this section.)

CAUTION: To avoid bodily injury or machine damage whenever an implement, implement quick coupler, or other attachment is connected to the tractor 3-Point Hitch, check full range of operation for interference, binding or PTO separation.

7. Using rockshaft position control lever (E), lower and raise implement slowly and check for any point of interference.

A—Implement
B—Implement Hitch Pins
C—Center Link Locking Clip
D—Central Link
E—Rockshaft Position Control Lever



FH2279 —UN—18AUG09

FH0188 —UN—20JUL07

FH0189 —UN—20JUL07

SS40167,0000F63 -19-18AUG09-1/1

Recommended Implements

CAUTION: Oversized implements can damage or make machine unsafe.

NOTE: Recommended implements means John Deere implements.

Operators are recommend to use recommended weight kits provided by John Deere for ballast.

Below table shows recommended implements for different operations.

Implement	85F	100F
Rotary Cutting	MX6, RC1072	MX6, RC1072
Tillage	RT1270	RT1270
Finishing Mower	GM2190R	GM2190R
Rear Blades	RB1072	RB1072
Disc Harrow	DH1396	DH1396
Box Blade	BB1072	BB1072
Sprayer	500g pull type	500g pull type
Flail Mower	Not recommended	Not recommended

SS40167,0000D63 -19-28MAY08-1/1

Adjust Hitch Side Sway

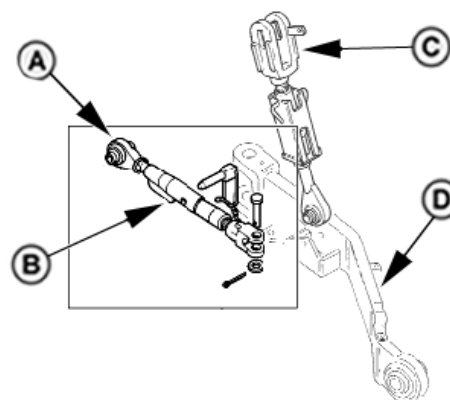
NOTE: Check implement operator's manual for instruction on whether to allow side sway.

IMPORTANT: DO NOT shorten chains so short that they do not allow hitch to be raised completely. If chain prevents hitch from raising, hydraulic relief valve will open, causing excessive oil heating, pump damage or equipment damage.

NOTE: Use spring or rubber strap to keep draft links out of rear tires when draft links are not attached to implement.

Implement side sway should be adjusted when the rockshaft is raised for transport by rotating the center body (B) to increase or decrease the length of sway.

FH0440



A—Sway Link
B—Center Body

C—Draft Link
D—Lift Link

FH0440—UN—06AUG07

SS40167,00006C1 -19-20AUG07-1/1

Leveling Hitch

1. Lower implement to take weight off hitch.

IMPORTANT: DO NOT attempt to overextend center link beyond limits of locking clip or lift links past the stops. Link body threads could be damaged.

NOTE: Maximum adjustment range of the center link can only be obtained if the ends are positioned equally within the body when attached to an implement.

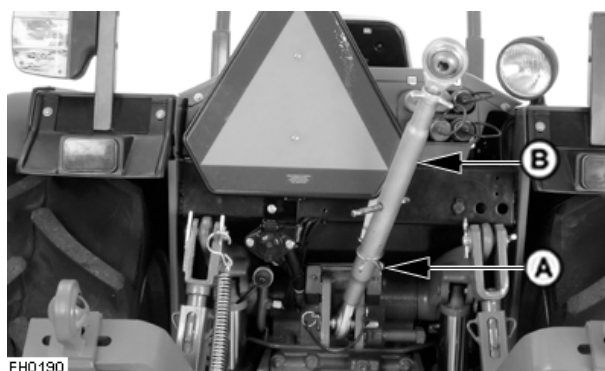
2. Adjust center link to level implement front-to-rear. Unlatch locking clip (A). Rotate center link body (B) clockwise to lengthen center link or counterclockwise to shorten it. Be sure to latch the locking clip.
3. Adjust right-hand link to level implement side-to-side. Lift locking handle (C) and turn 1/4 turn to engage onto roll-pin in the center portion of the lift link.

Turn locking handle (C) clockwise to raise draft link.

Turn locking handle (C) counterclockwise to lower draft link.

After adjustment, lift locking handle (C) and turn to engage bracket (D) onto the lower body to prevent change of adjustment during operation.

4. Follow step 3 to adjust length of left-hand lift link to accommodate different tires sizes.



FH0190

A—Locking Clip
B—Center Link Body

C—Locking Handle
D—Bracket

FH0190—UN—20JUL07

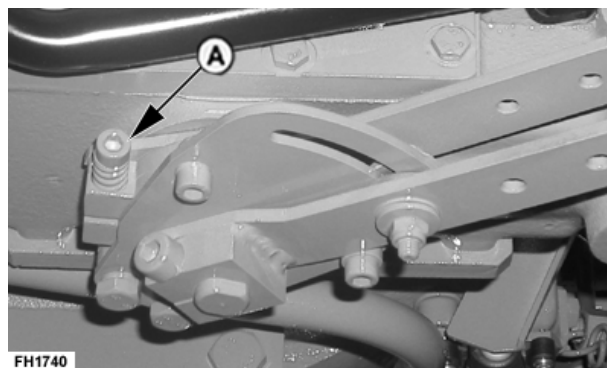
Adjust left-hand and right-hand lift links to accommodate various tires sizes. Set the lift links to have fully-lowered draft link balls approximately seven inches off the ground for greatest range of usable hitch motion.

SS40167,0000F64 -19-19AUG09-1/1

Adjust Rockshaft Control Lever Friction

If the rockshaft position control lever or rockshaft draft control lever do not stay in set position, increase lever friction by tightening the set screw (A) for the appropriate lever until the proper friction is obtained.

A—Adjustment Set Screw of Control Lever



FH1740 —UN—17APR08

SS40167,0000649 -19-17APR08-1/1

Warm Hydraulic System Oil

Hydraulic system may be slow to function when tractor is started in cold weather. This is because cold oil will not flow easily through the filter screen or hydraulic system filter (A).

Steering will slow until system warms up.

Hydraulic system will function normally when oil warms up.

IMPORTANT: To prevent damaging hydraulic pump or relief valve, DO NOT exceed 2 to 3 minutes warm up time.

1. Depress clutch pedal and put gear shift lever in neutral. Start engine and idle at about 1000 rpm.
2. Turn and hold steering wheel in full left or right turn.



A—Hydraulic Oil Filter

FH0441 —UN—08AUG07

AH98466,000044C -19-17APR08-1/1

Remote Hydraulic Cylinders

Use Correct Hose Tips

If your tractor is equipped with a selective control valve (SCV), the couplers receptacles accept a standard hose

¹International Standards Organization

²Society of Automotive Engineers

tip as recommended by ISO¹ and SAE². Adapters are available to allow connecting the older John Deere hose tips to the ISO couplers on your tractor.

SS40167,000064D -19-25JUL07-1/1

Control Lever and Coupler Identification

Movement of SCV I lever (A) fore and aft operates coupler I receptacles (D).

Movement of SCV II lever (B) fore and aft operates coupler II receptacles (E).

Movement of SCV III lever (C) fore and aft operates coupler III receptacles (F).

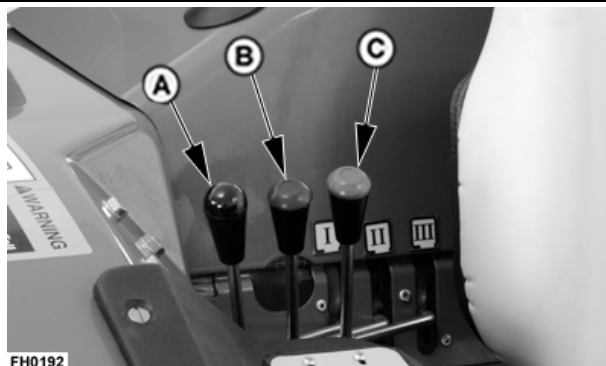
Coupler I has a detented float position when lever (A) is moved in the fully forward direction.

Coupler II has a regenerative position when lever (B) is moved in the fully forward direction.

Coupler III has a regenerative position when lever (C) is moved in the fully forward direction.

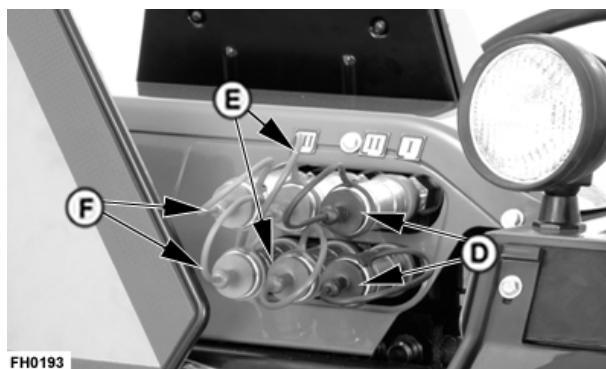
A—SCV I Lever
B—SCV II Lever
C—SCV III Lever

D—SCV I Receptacles
E—SCV II Receptacles
F—SCV III Receptacles



FH0192

FH0192 —UN—17AUG07



FH0193

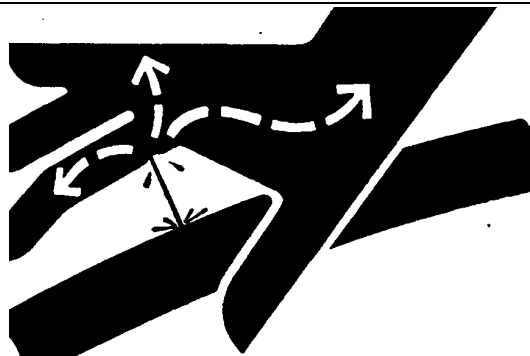
FH0193 —UN—17AUG07

AH98466,000044D -19-23AUG07-1/1

Connect Cylinder Hoses

CAUTION: 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.



X9811 —UN—23AUG88

1. Remove dust caps from hose end.

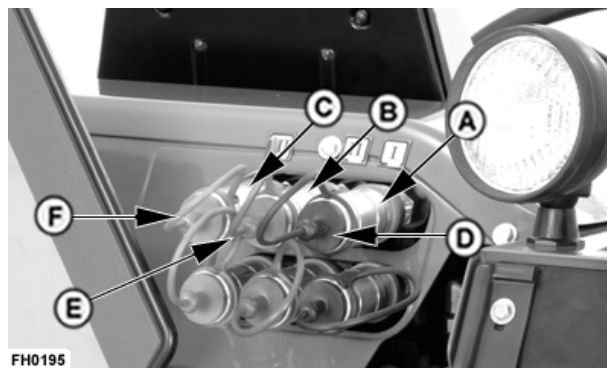
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AH98466,00004A3 -19-28AUG07-1/3

2. Pull dust plug (D), (E) or (F) from couplers.
3. Make sure hose end and coupler receptacles are clean.
4. Check hoses to see which is used for extending cylinder. This hose must be connected to a coupler receptacle (A), (B) or (C) in order for cylinder to extend when SCV levers are moved rearward or inward.

A—Coupler I Receptacle
B—Coupler II Receptacle
C—Coupler III Receptacle

D—Black Dust Plug
E—Blue Dust Plug
F—Green Dust Plug



FH0195

FH0195—UN—20JUL07

AH98466,00004A3 -19-28AUG07-2/3

CAUTION: Hydraulic hoses can fail due to physical damage, kinks, age and exposure. Check hoses regularly. Replace damaged hoses. See your John Deere dealer.

5. To connect each hose, push hose tip firmly into coupler receptacle. Pull lightly on hose to make sure positive connection was made.

A—Dust Plug



FH0196

FH0196—UN—20JUL07

AH98466,00004A3 -19-28AUG07-3/3

Connect Single-Acting Cylinder

In order for lever (A) to work properly, a single-acting cylinder should be connected only to SCV I outlet in the extend position (top coupler) (B).

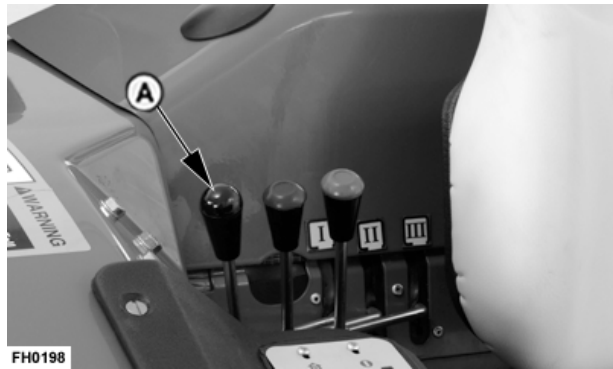
IMPORTANT: Volume of oil required to extend cylinder must not lower transmission-hydraulic oil level below lower sight glass. Check oil level with cylinder fully extended. (See Check Transmission-Hydraulic Oil Level in Service - 50 Hours section.)

Push SCV I control lever full forward to use “float” position to lower single-acting cylinder.

“Float” position allows a cylinder to extend and retract freely and uses no engine power.

A—SCV I Control Lever

B—SCV I Outlet



FH0198 —UN—20JUL07

FH0197 —UN—20JUL07

AH98466,000044F -19-23AUG07-1/1

Correct Reversed Cylinder Response

CAUTION: If cylinder response is reversed, extending when it should retract, reverse cylinder hose connections at coupler.

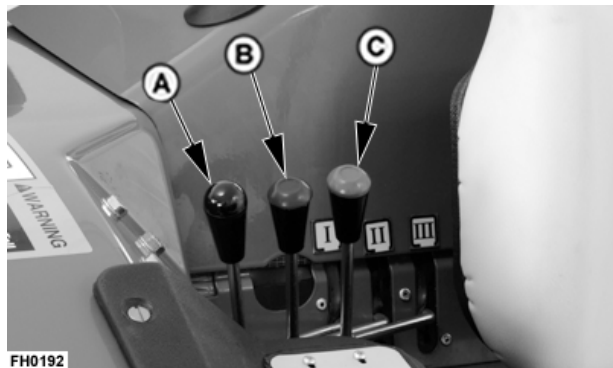
SS40167,0000651 -19-25JUL07-1/1

Neutral Lever Position

SCV I lever, SCV II lever or SCV III Lever, spring pressure returns lever (A, B or C) to a centered position (except when lever is fully forward in the “Float” position). When the control levers are in the centered position, the remote cylinder is hydraulically locked in position.

A—SCV I Lever
B—SCV II Lever

C—SCV III Lever



FH0192 —UN—17AUG07

SS40167,0000652 -19-25JUL07-1/1

Extend/Retract Cylinder—SCV I, SCV II and SCV III

Extending Cylinder

Pull lever (A, B or C) to the rear of neutral and hold it against spring pressure. This extends cylinder (D) (up arrow) connected to (SCV I, SCV II or SCV III) coupler and in most cases raises implement. Lever returns to neutral when released.

Retracting Cylinder

Push lever (A, B or C) forward and hold it against spring pressure. This retracts cylinder (D) connected to (SCV I, SCV II or SCV III) coupler and in most cases lowers implement. Lever returns to neutral when released.

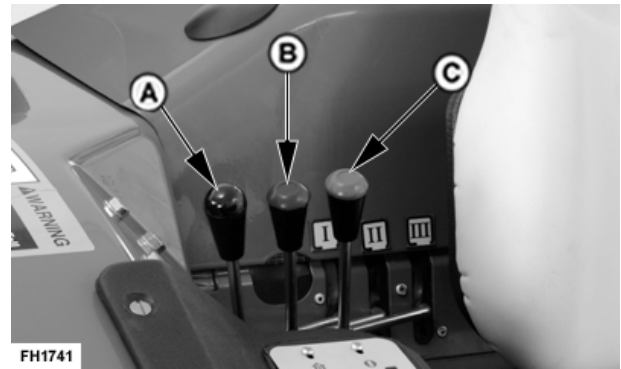
Float Position

Push lever full forward into detent to operate Float feature. Float operation allows cylinder to extend and retract freely, such as when an implement follows ground contour.

IMPORTANT: When “Float” is not needed, manually move lever back to neutral position to prevent accidental use of “Float”.

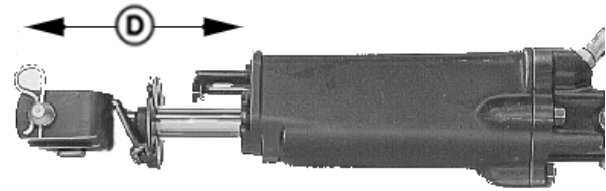
A—SCV I Control Lever
B—SCV II Control Lever

C—SCV III Control Lever
D—Extend and Retract Cylinder



FH1741

FH1741 —UN—17APR08



FH1742

FH1742 —UN—17APR08

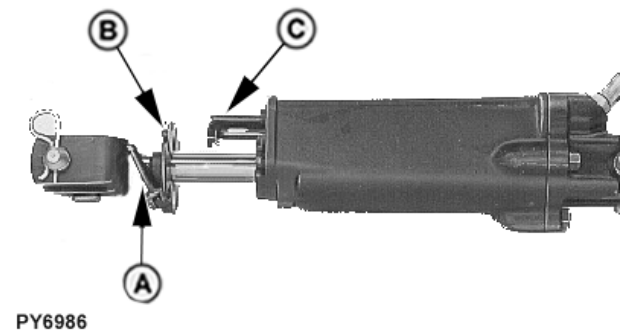
SS40167,0000653 -19-17APR08-1/1

Adjust Cylinder Stop

Working stroke of remote cylinder is adjustable. Cylinder retracts only until it contacts movable stop, then stops automatically.

1. Lift lever (A).
2. Slide adjustable stop (B) to desired position.
3. Push lever down firmly. Be sure lever will not contact stop rod arm (C).

IMPORTANT: Be sure stop clamps securely on rod. If it does not, lift lever and rotate it clockwise, then push it down firmly.



PY6986

A—Lever
B—Adjustable Stop

C—Stop Rod Arm

PY6986 —UN—17MAY07

SS40167,0000655 -19-27JUL07-1/1

Disconnect Cylinder Hoses

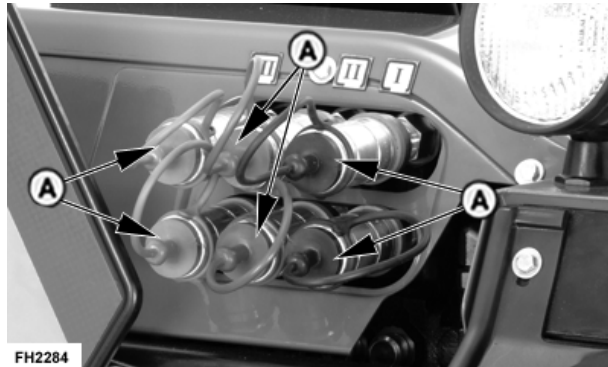
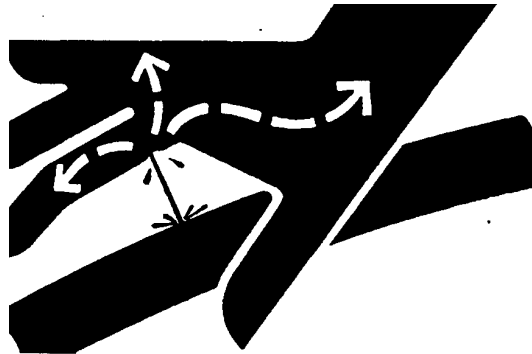
1. If possible, retract remote cylinder as much as possible to protect cylinder rod from damage.

CAUTION: 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.

2. With as much hydraulic pressure relieved as possible from hoses, pull hoses from couplers.
3. Make sure dust plugs (A) for receptacles and dust caps for hoses are clean, then install dust plugs.

A—Dust Plug



X9811 —UN—23AUG88

FH2284 —UN—19AUG09

SS40167,0000F6A -19-19AUG09-1/1

Drawbar and PTO

Observe Drawbar / Wagon Hitch Load Limitations

IMPORTANT: Certain heavy equipment, such as a loaded single-axle trailer, can place excessive strain on drawbar. Strain is greatly increased by speed and rough ground.

Static vertical load on drawbar/wagon hitch should not exceed 500 kg (1102 lb).

Drive slowly with heavy loads.

SS40167,0000D50 -19-17APR08-1/1

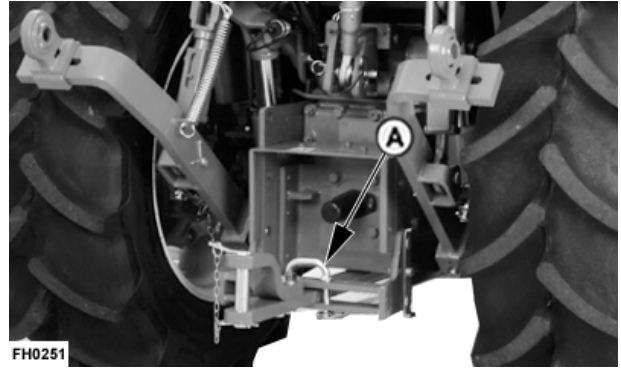
Use Swinging Drawbar

Drawbar retainer yoke (A) can be removed to let drawbar swing free. This is helpful when turning under load.

Drawbar cap screws should be installed and tightened at all other times.

IMPORTANT: Install drawbar cap screws to prevent drawbar from swinging free during transport of towed loads.

A—Drawbar Retainer Yoke



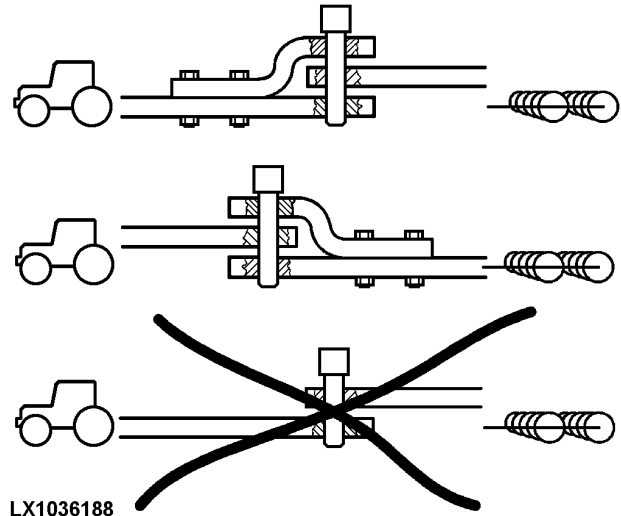
FH0251

FH0251 —UN—20JUL07

AH98466,00004A5 -19-28AUG07-1/1

Proper Use of Drawbar

IMPORTANT: Comply with local traffic regulations when using the drawbar. Use suitable, approved hitch pins only. Combine drawbars as shown only.



LX1036188

LX1036188 —UN—02MAY05

SS40167,00002A5 -19-20JUL07-1/1

Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death.

Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.

Wear close fitting clothing. Stop the engine and be sure that PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.

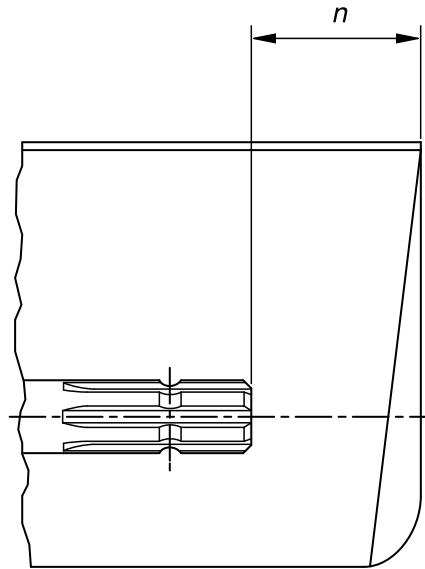
Do not install any adapter device between the tractor and the primary implement PTO drive shaft that will allow a 1000 rpm tractor shaft to power a 540 rpm implement at speeds higher than 540 rpm.

Do not install any adapter device that results in a portion of the rotating implement shaft, tractor shaft, or the adapter to be unguarded. The tractor master shield shall overlap the end of the splined shaft and the added adaptor device as outlined in the table.

PTO Type	Diameter	Splines	$n \pm 5 \text{ mm (0.20 in.)}$
1	35 mm (1.378 in.)	6	85 mm (3.35 in.)
2	35 mm (1.378 in.)	21	85 mm (3.35 in.)
3	45 mm (1.772 in.)	20	100 mm (4.00 in.)



TS1644—UN—22AUG95



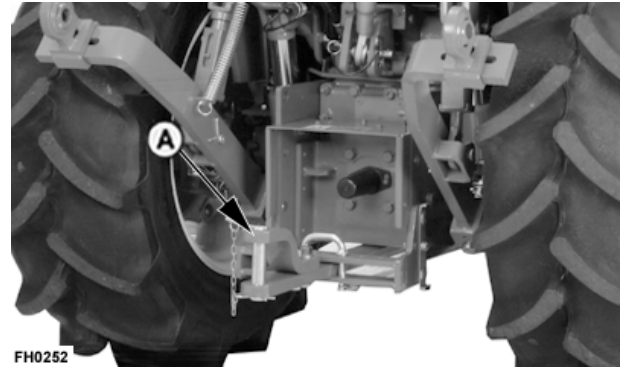
H96219—UN—29APR10

DX,PTO -19-30JUN10-1/1

Attach PTO-Driven Implement

CAUTION: Stop engine before attaching implement or working in area of implement hitch.

1. Turn key to OFF position to turn off engine.
2. If PTO driven implement will be attached to drawbar (A), the drawbar must be positioned between end of PTO shaft and center of drawbar pin hole. Make sure drawbar locking pins and spring pins are in place. If implement will be connected to 3-Point Hitch, be sure drawbar will not interfere. Remove it if necessary.
3. Attach implement to tractor before connecting PTO drive line. Raise hitch to upward position if it is not to be used.
4. Rotate PTO shield upward for clearance. With engine off, turn shaft slightly by hand if necessary to line up splines. Connect drive line to PTO shaft. Pull out on shaft to be sure drive line is locked to PTO shaft. Place PTO shield in downward position.
5. Be sure all shields are in place and in good condition. Never operate PTO unless master shield is properly



A—Drawbar

installed. WITH ENGINE STOPPED, check integral shields on drive line by making sure they rotate freely on shaft. Lubricate or repair as necessary.

6. Check carefully for any interference, make sure hitch is raised to the upper position if it is not used.

AH98466,0000453 -19-21APR08-1/1

Operate Tractor PTO

1. Push PTO clutch lever (B) in down position. Warning buzzer will sound once PTO clutch lever (B) is in down position. PTO dash indicator light (C) will come on. The tractor foot clutch does not need to be engaged when using the PTO clutch lever (B).
2. Push PTO engagement lever (A) in down position. Some slight grinding may occur but this is normal.
3. Lift PTO clutch lever (B) to up position. Warning buzzer will stop and PTO will engage and begin turning. PTO dash indicator light (C) will turn off.

IMPORTANT: A warning alarm will sound if operator leaves seat with PTO engaged.

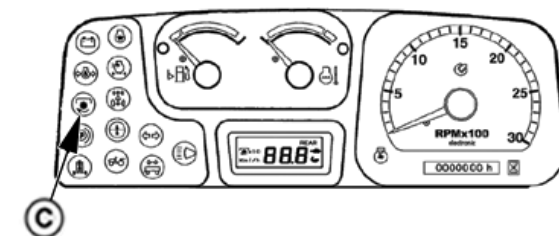
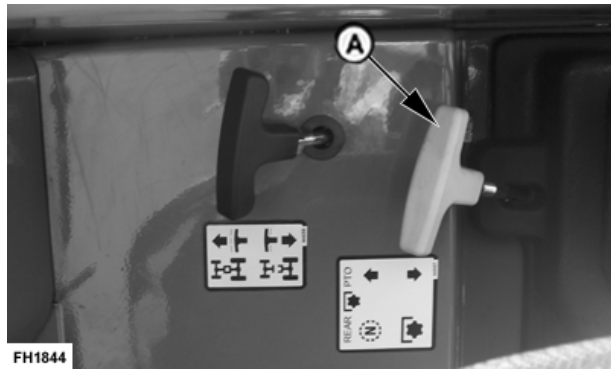
4. Push PTO clutch lever (B) in down position to disengage PTO. Warning buzzer will sound once PTO clutch lever (B) is in down position. PTO dash indicator light (C) will come on.
5. Pull PTO engagement lever (A) to "NEUTRAL" position.

CAUTION: Turn key OFF to stop engine and make sure all mechanisms have stopped before cleaning out machine or making any adjustments to PTO driven implement.

NOTE: Tractor will not start if PTO engagement lever (A) is in down position. If tractor will not start, ensure PTO engagement lever (A) is in the "NEUTRAL" position, gear shift is in neutral, and parking brake is engaged.

6. Lift PTO clutch lever (B) to up position.

A—PTO Engagement Lever C—PTO Engaged Indicator
B—PTO Clutch Lever



FH1844 —UN—26MAY08

FH1848 —UN—26MAY08

FH1846 —UN—26MAY08

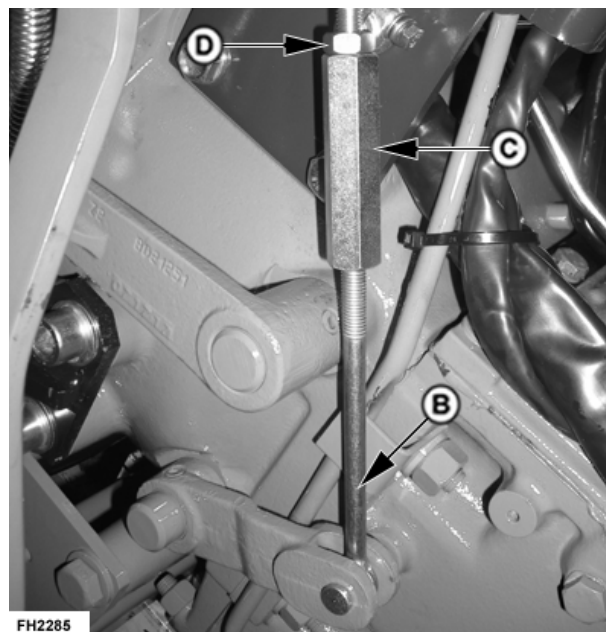
SS40167,00002A8 -19-05JUN08-1/1

Adjust PTO Clutch Selection Rod

1. Move PTO lever (A) to downward (disengaged) position.
2. Remove outer guard.
3. Loose lock nut (C) from clevis (C).
4. Adjust length of rod (B). Lengthen the rod (B) by turn of clevis (C) to provide slight amount of lever free play.
5. After the adjustment of PTO free play tighten lock nut (D).

A—PTO
B—Rod

C—Clevis
D—Lock Nut



FH0253 —UN—20JUL07

FH2285 —UN—19AUG09

SS40167,0000F6B -19-19AUG09-1/1

Ballast

Plan for Maximum Productivity

Proper ballasting is an important factor in tractor performance. maximum productivity can be achieved only if tractor weight is appropriate for the job.

John Deere FMO (Fundamentals of Machine Operations) Tractors, discusses methods of determining correct

tractor weight and ballast selection. FMO-Machinery Management includes information on tractor and implement matching and increasing productivity. (These publications may be ordered using the form in the back of this manual.)

Your John Deere dealer can assist you with information on these subjects.

AH98466,0000454 -19-23AUG07-1/1

Select Ballast Carefully

Match amount of ballast needed for each job. What is right for one job may be wrong for another job. Ballast for traction and stability.

Factors determining amount of ballast:

- Soil surface-loose or firm.

- Type of implement-integral/semi-integral or towed.
- Travel speed-slow or fast.
- Tractor power output-partial or full load.
- Tires-single, oversize, or dual.
- Type of front axle.

AH98466,0000455 -19-23AUG07-1/1

Match Ballast to Load Work

Use no more ballast than necessary, and remove ballast when it is no longer needed.

Rather than weighing tractor down to pull heavy loads, try to reduce load. Pulling a lighter load at a higher speed is more economical and more efficient.

Too Little Ballast		Too Much Ballast	
1.	Excessive wheel slip	1.	Increased load
2.	Power loss due to churning soil	2.	Power loss due to carrying extra weight
3.	Tire wear	3.	Tire strain
4.	Fuel waste	4.	Soil compaction
5.	Lower productivity	5.	Fuel waste
		6.	Lower productivity

AH98466,0000456 -19-23AUG07-1/1

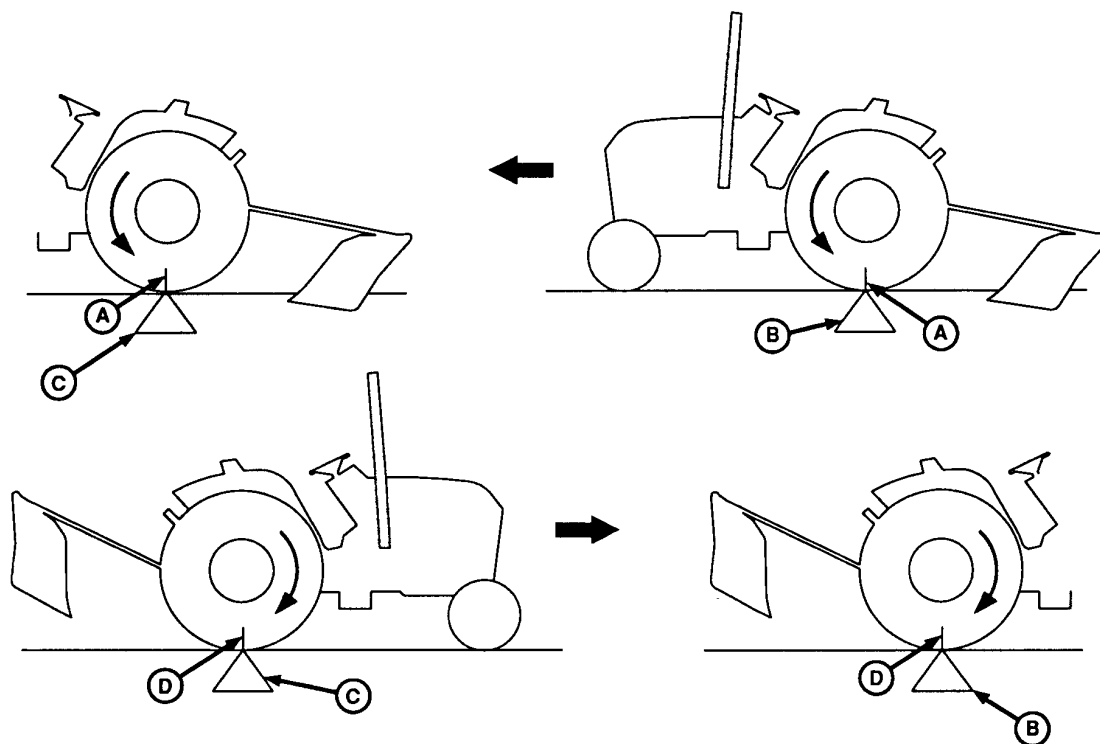
Check for Correct Ballast

The best way to check for correct ballast is to measure amount of travel reduction (% slip) of the drive wheels. Under normal field conditions, travel reduction should be 10-15 percent.

Add more weight to drive wheels if slip is excessive. If there is less than 10 percent slip, weight should be removed.

AH98466,0000457 -19-23AUG07-1/1

Measure Wheel Slip— Manually



A—First Mark on Rear Tire

B—Starting Point on Ground

C—Second Point on Ground

D—Second Mark on Rear Tire

1. Place a mark (A) on a rear tire which is easily observed (a chalk mark is recommended).
2. With tractor working, mark a starting point (B) on the ground at the place where the tire mark (A) meets the ground.
3. Mark the ground again where the tire mark (A) completes 10 full revolutions (C).
4. With implement raised, return in the opposite direction. At the second mark on the ground (C) remark the tire (D).
5. While driving the tractor along the same path (implement raised), count the tire revolutions required to reach the starting point (B).
6. Use the return tire revolutions count and Wheel Slippage Chart to determine slippage. 10-15% for

two-wheel drive or 8-12% for MFWD engaged tractors is ideal.

7. Adjust ballast or load to give correct slippage.

NOTE: Available horsepower is greatly reduced when wheel slip drops below 10%.

WHEEL SLIPPAGE CHART		
Non-Loaded Wheel Revolutions (Step 5)	Estimated % Slip	Recommended Action
10	0	Remove Ballast
9-1/2	5	Remove Ballast
9	10	Proper Ballast
8-1/2	15	Proper Ballast
8	20	Add Ballast
7-1/2	25	Add Ballast
7	30	Add Ballast

AH98466,00004A6 -19-28AUG07-1/1

Ballast Limitations

Ballast should be limited by either tire capacity or tractor capacity. Each tire has a recommended carrying capacity which should not be exceeded (see Wheels, Tires and

Treads section). If a greater amount of weight is needed for traction, a larger single tire should be considered.

Ballast can be added as either liquid or cast iron.

MX,BAIP,QA2 -19-24JUL95-1/1

Ballast Front End for Transport

CAUTION: Additional front ballast may be needed for transporting rear-mounted implements. When implement is raised, drive slowly over rough ground, regardless of how much ballast is used.

CAUTION: Weights are heavy. Use proper lifting equipment. Approximate weight of starter weight (D) is : 20 kg (44 lb). Approximate weight of weights (B) are 20 kg (44 lb).

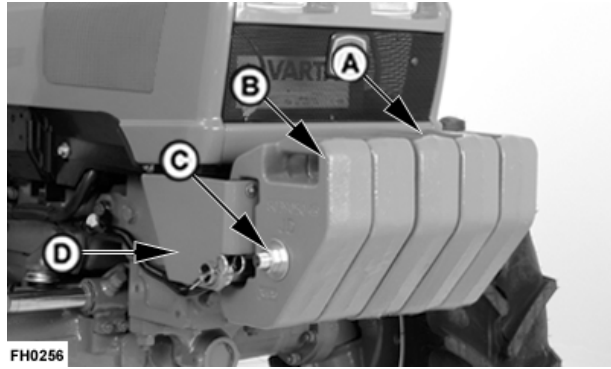
Specification

Starter Weight
(Ballast)—Weight..... 20 kg (44 lb) Each
Front Weight
(Ballast)—Weight..... 20 kg (44 lb) Each

1. Install weights in pairs, one on each side of center (A).
2. To hold weights in place, run retaining bolts (C) through holes from side-to-side. Tighten to specification.

Specification

Ballast Weights Retaining
Nut—Torque..... 245 N·m (180 lb-ft)



A—Ballast Center
B—Front Weights

C—Ballast Retaining Bolts
D—Starter Weight

Starter Weight
Bolts—Torque..... 260 N·m (190 lb-ft)

SS40167,00002B0 -19-02MAY08-1/1

Ballast Tractors

Add weight to front end if needed for stability. Heavy pulling and heavy rear-mounted implements tend to lift front wheels. Add enough ballast to maintain steering control and prevent tip-over.

Refer to the implement operator's manual, along with "Using Implement Codes" in this section, to determine the minimum number of front weights that are required for your tractor model.

SS40167,00002B1 -19-20JUL07-1/1

Determine Maximum Rear Ballast

IMPORTANT: DO NOT overload tires. If maximum weight shown in chart is not enough for safety, reduce load or install heavier ply tires.

To extend drive train life, avoid excessive soil compaction and rolling resistance, avoid adding too much ballast. Ballast should never exceed the weight required to provide traction for continuous full power loads in 3rd gear for 2-WD tractors. Remove ballast if tractor engine labors when pulling heavy loads in the first three gears.

When using mechanical front-wheel drive, ballasting to one gear slower is appropriate.

Chart shows carrying capacity per tire.

MAXIMUM LOAD PER WHEEL		
Tire Size	Type	Capacity kg (lb)
360/70 X 24	122 A8	3000 (6614)
380/70 X 20	112 A8	1500 (7275)

AH98466,0000459 -19-30APR08-1/1

Determine Maximum Front Ballast

Use appropriate front ballast for a particular operating condition. Two-wheel drive tractors should only have enough ballast to maintain safe steering control. MFWD equipped tractors should have adequate ballast to properly load front wheels. Remove ballast when it is no longer needed.

Chart shows carrying capacity per tire.

IMPORTANT: DO NOT overload tires. If maximum weight shown in chart is not enough for

safety, reduce load or install tires with a higher load rating.

MFWD		
Tire Size	Ply Rating	Capacity kg (lb)
240/70 X 16	104 A8	1854 (4089)
260/70 X 16	109 A8	2060 (4542)

SS40167,00002B3 -19-28SEP07-1/1

Use Cast Iron Weights

Cast iron weights are available in a 33.5 kg (73.9 lb) size. Weights can be installed on the inside or outside of wheel. See your John Deere dealer for more information and recommendations on weight use and placement.

Specification

Cast Iron

Weights—Weight..... 33.5 kg (73.9 lb)

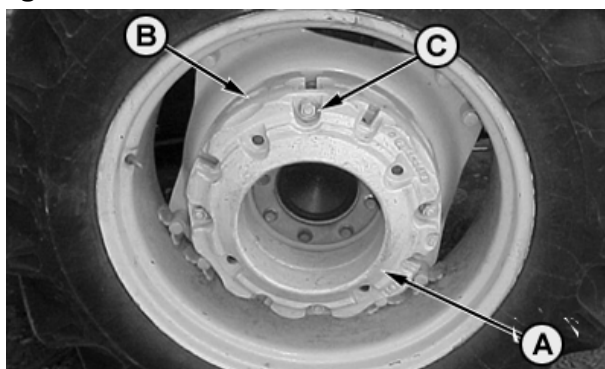


PY6488

PY6488 —UN—13MAR07

SS40167,0000D6A -19-22APR08-1/1

Install Rear Cast Iron Weights



A—Additional Weight

B—Weight

C—Weight Holes

CAUTION: Optional cast iron weight weighs 33.5 kg (73.9 lb). Handle with care! Use appropriate equipment or have the job done by your John Deere dealer.

1. To install weights on wheel, it is necessary to remove wheel. (See Wheels, Tires and Treads section.)
2. Attach first weight to wheel disks.
3. To install additional weights (A), install bolts in previous weight (B). Rotate the added weight to align bolts with weight holes (C).
4. Tighten attaching bolts securely. Tighten again after a few hours service. Check tightness regularly.

AH98466,000045A -19-17APR08-1/1

PY1635 —UN—17FEB06

Use Liquid Weight

CAUTION: Installing liquid ballast requires special equipment and training. Have the job done by your John Deere dealer or a tire service store.

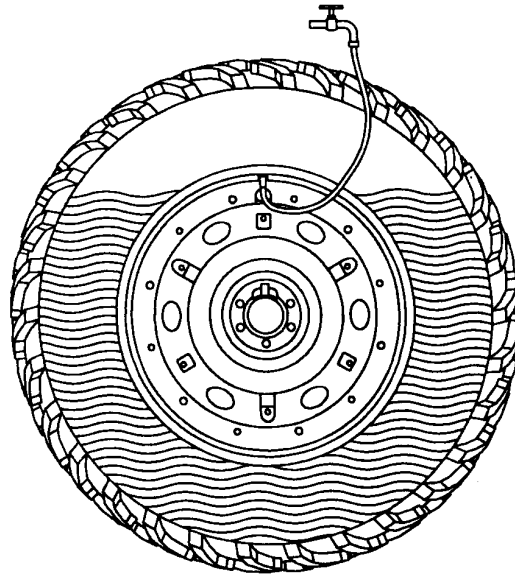
IMPORTANT: NEVER fill tire to more than 75 percent full. More solution would leave too little air space to absorb shocks. Damage to tire could occur.

A solution of water and calcium chloride provides safe, economical ballast. Used properly, it will not damage tires, tubes, or rims.

Use calcium chloride to prevent water from freezing. A mixture of 0.4 kg per liter (3.5 lb of calcium chloride per gal) will not freeze solid above - 45°C (-50°F).

NOTE: Use of alcohol as liquid ballast is not recommended. Calcium chloride solution is heavier and more economical.

Fill tubeless tires slightly above valve level (minimum 75 percent full). Less solution would expose part of rim, possibly causing corrosion. Tube-type tires may be filled to any level below 75 percent.



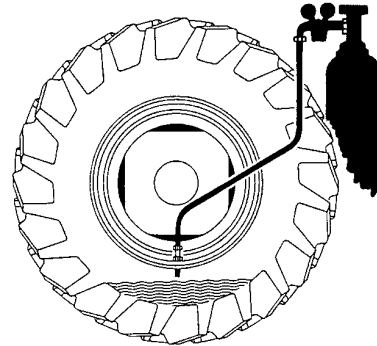
RW25003 —UN—07JUL93

NR25796,0000A78 -19-20AUG07-1/1

Drain Tires

Jack up wheel. Remove air valve and allow water to drain out.

To clear the remainder of the water from the tire, insert the drain tube with the hose extension and pump air into the tire. The air pressure will push the remaining water out of the tire.



LX009451

LX009451 —UN—03JAN95

SS40167,00002B7 -19-20AUG07-1/1

Using Implement Codes

⚠ CAUTION: DO NOT attempt to transport an implement without adequate front ballast. Lack of steering control may result.

John Deere engineers have developed a code to determine how much front ballast is needed for stability and steering control.

1. Find implement code in implement operators manual.
2. Use the following chart to determine how many QUIK-TATCH™ front weights are required on your tractor model.

To use chart, find the implement code range in the left-hand column into which your implement code fits. Then move to the right until you are beneath the column which identifies your tractor configuration. The number you find at this point in the chart is the number of QUIK-TATCH™ weights needed.

QUIK-TATCH is a trademark of Deere & Company.

For example, an implement with a code 100 to be used on an MFWD tractor with a quick-coupler, but without liquid in the front tires, requires 4 front weights.

With maximum front ballast, do not attempt to transport an implement whose code exceeds:

- 137 for MFWD Tractor

NUMBER OF QUIK-TATCH™ WEIGHTS NEEDED		
MFWD		
Implement Code	Without Liquid in Front Tires	With Liquid in Front Tires
0—87	0	—
88—97	2	0
98—107	4	2
108—117	6	4
118—127	8	6
128—137	—	8

SS40167,00006C4 -19-08AUG07-1/1

Wheels, Tires and Treads

Service Tires Safely

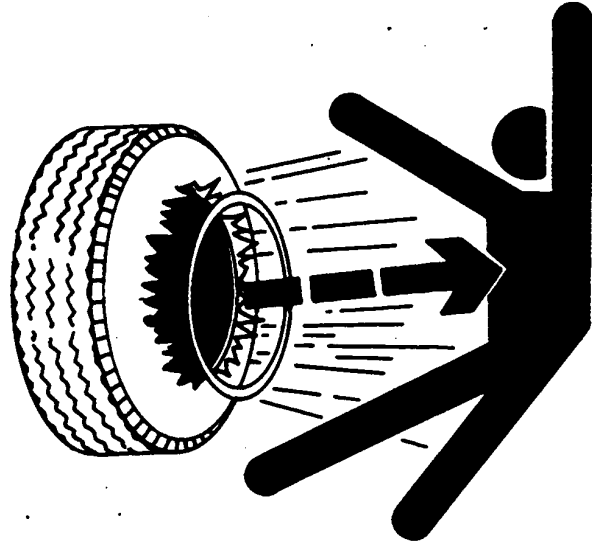
Explosive separation of a tire and rim parts can cause serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

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

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

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



TS211 —UN—23AUG88

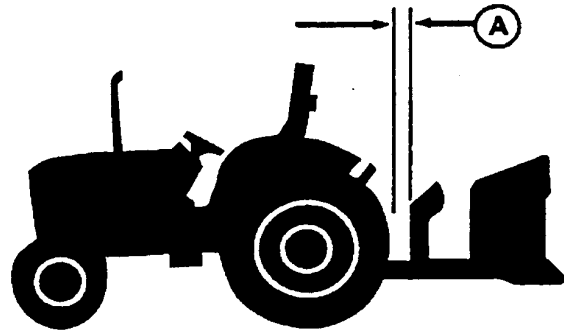
DX,RIM -19-24AUG90-1/1

Check Implement-to-Tire Clearance

IMPORTANT: Check for adequate clearance (A) between outside diameter of the tire and implement with hitch in raised position.

When large diameter rear tires are installed on a tractor with a 3-Point Hitch, a quick coupler or similar device is required to provide adequate implement-to-tire clearance.

A—Clearance



M47177 —UN—31JAN92

SS40167,00002BA -19-20JUL07-1/1

Check Tire Inflation Pressure

Check tires daily for damage or noticeably low pressure.

At least every 100 hours of operation, check inflation pressure with a gauge. Use an accurate gauge having 10 kPa (0.1 bar) (1 psi) graduations.

If tires contain liquid ballast, use a special air-water gauge and measure with valve stem at bottom.

NOTE: When furrow plowing or during hillside operation, tire pressure can be increased 28 kPa (0.28 bar) (4 psi) ABOVE maximum to prevent tire wrinkling or buckling.

IMPORTANT: Always check inflation pressure with an accurate tire gauge to prevent over-inflation. Over-inflation reduces performance and increases strain of both tire and rim.

NOTE: Following inflation information applies to both front and rear tires and Tire Inflation Pressure Chart.

1. All inflation pressures are calculated for 29 km/h (18 mph) travel speeds for both diagonal (bias) ply and radial ply tires.
2. Operation of tires at the inflation pressures listed on chart will result in optimum tractive performance of the tire/vehicle system. Correctly inflated radial tires will show a large deflection of the sidewall or "cheeks". This is normal and will not hurt the tire if the inflation pressure is maintained.
3. Inflation pressures less than 80 kPa (12 psi) should be monitored regularly because of the increased risk of low pressure air leaks (especially due to leaking valve cores).
4. Tractors operating on steep side slopes should increase inflation pressures 28 kPa (4 psi) above the values listed to compensate for lateral weight transfer.
5. Tires run as singles in high traction conditions sometimes experience bead slip if the bead was not fully seated or if too much lubricant was used to mount the tire. Increasing the inflation pressure will compensate for this condition but will not cause reduced traction. Consult your tire dealer if this problem occurs.
6. If higher load capacities are needed, contact your John Deere dealer for tire manufacturers load and inflation table information.

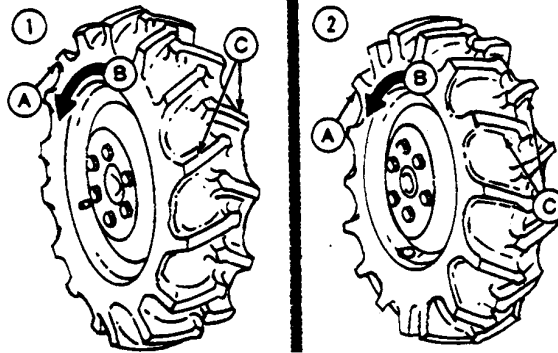
SS40167,00002BB -19-20JUL07-1/1

Tire Inflation Pressure Chart

Front Tires		With Little or No Added Weight			With Maximum Ballast or Heavy Mounted Implement
Tire Size	Type	kPa	(bar)	(psi)	N.A.
240/70 X 16	104 A8	240	(2.4)	(34)	N.A.
260/70 X 16	109 A8	240	(2.4)	(34)	N.A.
Rear Tires		With Little or No Added Weight			With Maximum Ballast or Heavy Mounted Implement
Tire Size	Type	kPa	(bar)	(psi)	kPa
360/70 X 24	122 A8	160	(1.6)	(23)	N.A.
380/70 X 20	112 A8	160	(1.6)	(23)	N.A.

SS40167,00002BC -19-30APR08-1/1

Select Front Tire Rolling Direction



A—Left-Hand Tire Viewed From Rear B—Rolling Direction Of Tire

C—Tire Lugs

- Under most conditions, front tires should be mounted with the direction of the tire lugs the same as the tire rolling direction.
- If tractor is mainly used for loader operations, lug direction may be reversed on the MFWD axle for improved tire wear.

SS40167,00002BD -19-20JUL07-1/1

RW510—UN—06APR89

Tighten Wheel/Axle Hardware Correctly

CAUTION: NEVER operate tractor with a loose rim, wheel, hub, or axle.

Any time hardware is loosened, tighten to specified torque.

NOTE: Follow checking procedure when a new tractor is first used, or wheels have been off.

- After driving tractor about 100 m (109 yd), and before placing it under load, tighten hardware to specified torque.
- Check hardware after working three hours and again after 10 hours.
- Check all hardware frequently and keep it tight.

SS40167,00002BE -19-20JUL07-1/1

Tighten Bolts—Front Axle

Tighten hardware in the following locations to specification:

Specification	
Front Wheel Disk-to-Hub Bolts—Torque.....	167 N.m (124 lb.ft)

A—Front Wheel Rim-to-Disk Nuts

B—Front Wheel Disk-to-Hub Bolts



FH0257

FH0257—UN—20JUL07

AH98466,00004A7 -19-28AUG07-1/1

Tighten Bolts—Rear Axle

Tighten bolts in the following locations to specifications:

	Specification
Rear Axle Disk-to-Flange	
—Torque.....	245 N·m (180 lb-ft)

A—Rim-To-Disk Bolts

B—Disk-To-Flange Bolts



FH0258

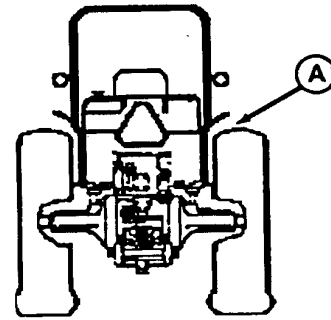
FH0258 —UN—20JUL07

AH98466,00004A8 -19-28AUG07-1/1

Observe Rear Wheel Tread Width Limitations

IMPORTANT: Tires must have at least 25 mm (1 in.) clearance with fenders (A). When large diameter rear tires are installed, check clearance between tire and fenders.

A—Fenders

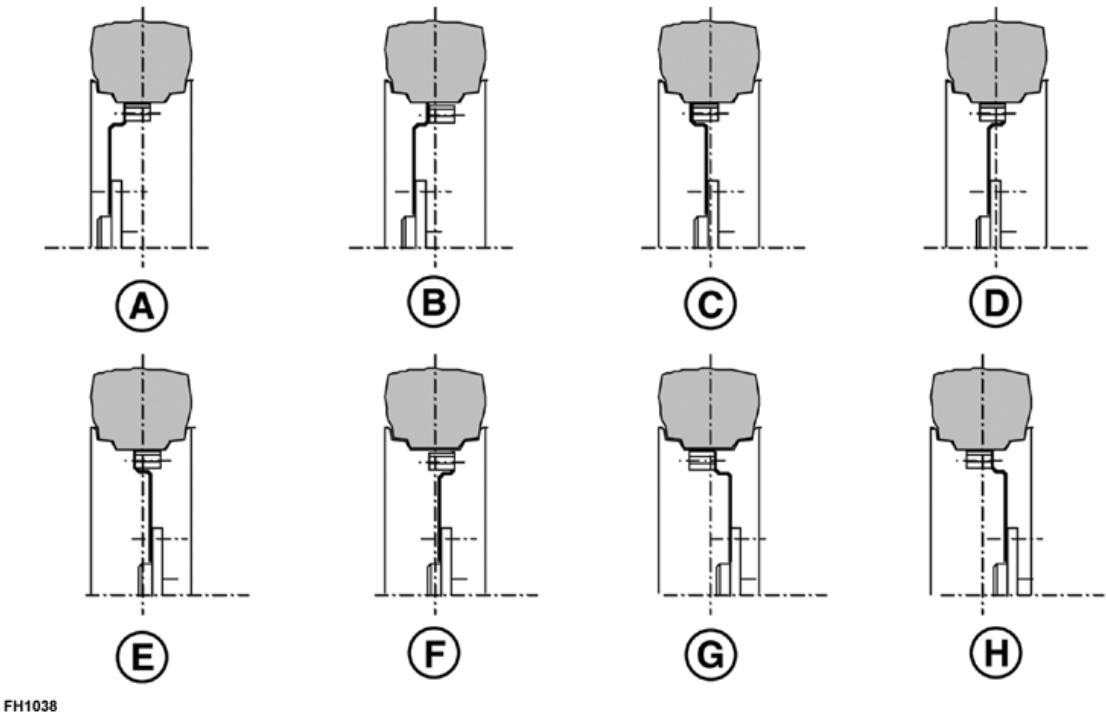


M47179 —UN—31JAN92

SS40167,00002C1 -19-20AUG07-1/1

Tread Settings—Multi-Position Rear Wheels

Wheel tread on rear axle with multi-position wheels can be adjusted by repositioning or exchanging the rims or by reversing the wheel disks.



Tread Settings—Multi-Position Rear Wheels

Wheel tread can also be adjusted by exchanging the complete wheel to the opposite side of the tractor. (This maneuver permits the change from disk-dished-in to disk-dished-out operations without disassembling the wheel). When changing rear wheels from one side to the other, the arrow on side wall of tire points in the direction of forward rotation.

The relationship of the wheel disk and rim in obtaining the different tread settings is shown in the diagrams, on the facing page.

NOTE: A1 is a steel disk and A2 is a cast disk (unless otherwise noted).

A study of these diagrams, before attempting to change tread settings, will save unnecessary labor.

IMPORTANT: After setting wheel spacing, tighten rim-to-disk and disk-to-flange bolts. Drive tractor 100 m (109 yd) and tighten again.

Item	Measurement	Specification
Rear Wheel-Specification		
Rear Wheel Disk-to- Flange Bolts	Torque	245 N·m (180 lb-ft)
Tread Setting		
85F and 100F	Tread Setting	56- 74.5 inch. (1420-1890 mm)

NOTE: Tread settings are measured at bottom of centerline.

SS40167,0000D64 -19-22APR08-1/1

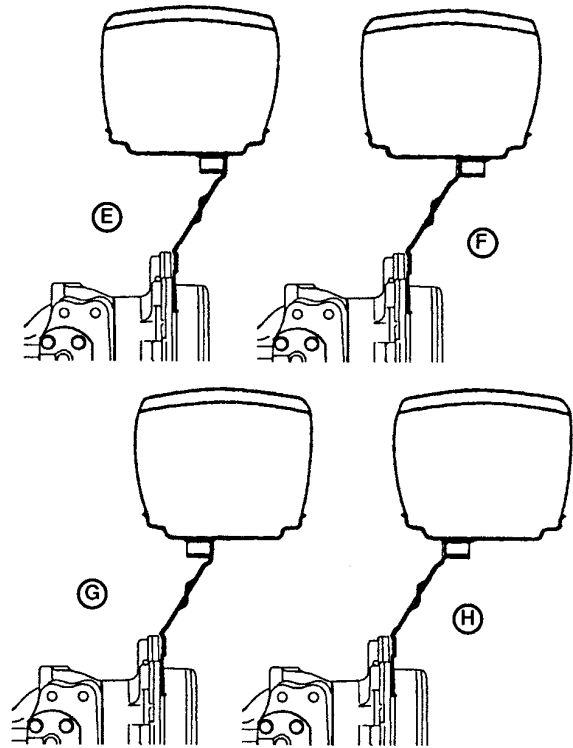
Tread Setting—Multi-Position MFWD Wheels

Wheel tread on MFWD axle with multi-position wheels can be adjusted by repositioning or exchanging the rims or by reversing the wheel disks.

Wheel tread can also be adjusted by exchanging the complete wheel to the opposite side of the tractor. (This maneuver permits the change from disk-dished-in to disk-dished out operations without disassembling the wheel). When Changing MFWD wheels from one side to other, the arrow on side wall of tire points in the direction of forward rotation. In certain applications, MFWD equipped tractors may operate with the arrows in the opposite direction. See Selecting Front Tire Rolling Direction.

The relationship of the wheel disk and rim in obtaining the different tread setting is shown in the diagrams, before attempting to change tread settings, will save unnecessary labour.

IMPORTANT: After setting wheel spacing, tighten MFWD wheel rim-to-disk bolts and MFWD wheel disk-to-hub nuts to specification. Drive tractor 100 m (109 yd) and tighten again.



Tread Setting—Multi-Position MFWD Wheels

Item	Measurement	Specification
MFWD Wheels		
MFWD Wheel Disk-to-Hub Nuts	Torque	167 N•m (124 lb-ft)
Tread Setting		
85 F	Tread Setting	46.5—56.6 in (1182—1438 mm)
100 F	Tread Setting	46.1—57.7 (1172—1468 mm)

NOTE: Tread settings are measured at bottom centerline of tire.

LV602 —UN—22APR94

SS40167,0000F6D -19-19AUG09-1/1

Check Toe-In

1. Disengage MFWD and park tractor on smooth, level surface. Steer front wheels straight ahead. Turn off engine.
2. Measure distance (A) between centerline of tires at hub level in front of axle, using an outside bar of each tire or an inside bar of each tire. Record measurement and mark the tires.
3. Move tractor back about 1 m (3 ft), so mark is at hub level behind the axle. Again, measure distance between tires at same point on tire. Record measurement.
4. Determine the difference between front and rear measurements. If the front measurement is smaller, toe is "in". If the rear is smaller, toe is "out". The difference may be in either direction (toe-in or toe-out), but should be less than 2.5 mm. Adjust toe-in if necessary. (See procedure in this section.)



FH0259

A—Front Axle Toe-In Distance

FH0259—UN—20JUL07

AH98466,000045F -19-23AUG07-1/1

Adjust Toe-In

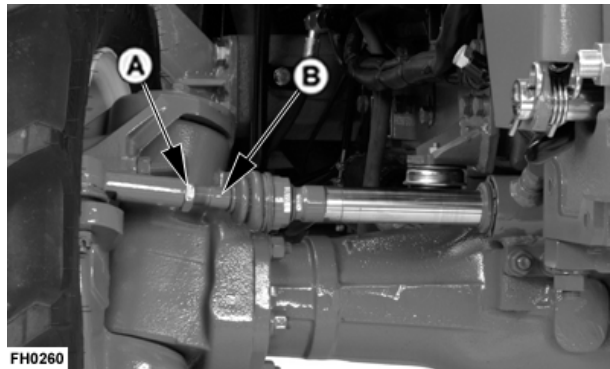
1. Loosen jam nuts (A) on both ends of tie rod.
2. Adjust both sides equally by rotating the inner rod (B) to lengthen or shorten tie rod, as needed to obtain toe-in of less than 2.5 mm .
3. Tighten jam nuts to specification.

Specification

MFWD Tie Rod Jam
Nuts—Torque..... 80 N·m (59 lb-ft)

A—Tie Rod Jam Nuts

B—Inner Rod



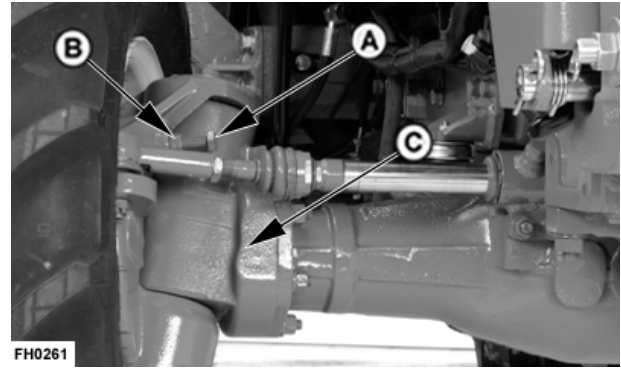
FH0260

FH0260—UN—20JUL07

SS40167,00002C5 -19-20JUL07-1/1

Set Steering Stops Turning Radius

1. Raise and support the front of the tractor so the MFWD axle can be oscillated to its stops.
2. Slowly turn the steering wheel to the left until the steering cylinder travel has reached its limit, the steering stops, or the tires are within 25 mm (1 in.) of the grille screen or the side panels.
3. Raise the left side of the axle against its stop and measure the clearance between the tire and the nearest tractor component. The distance should not be less than 25 mm (1 in.).
4. Loosen the locking nut (A) on the steering stop and adjust the steering stop bolt (B) so it touches the steering stop (C). It may be necessary to shorten the stop bolt (B) in order to obtain the maximum turning angle.
5. Tighten steering stop bolt retaining lock nut (A) as per specification.
6. Turn wheel fully to the left. Impact knuckle housing to steering stop five times.
7. Tighten steering stop bolt retaining nuts again to specification.



A—Steering Stop Locking Nut C—Steering Stop
B—Steering Stop Bolt

Specification

Steering Stop Bolt	
Retaining Lock	
Nut—Torque.....	80 N·m (59 lb-ft)

8. Repeat above steps for the right side.

NOTE: Wide tread settings and large tire sizes will increase turn radius slightly.

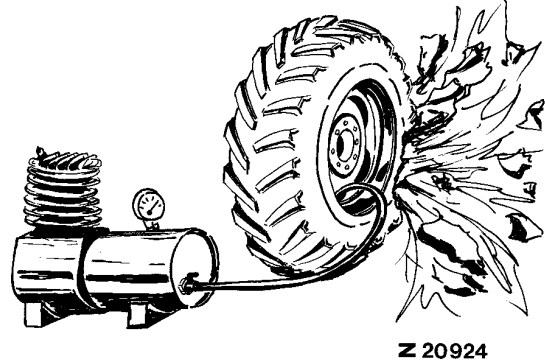
SS40167,00002C6 -19-27SEP07-1/1

Mount Tires

Do NOT attempt to mount a tire unless you have the proper equipment and experience to perform the job safely. Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion. Serious injury may be the result. Have the job done by your John Deere dealer or a qualified tire repair service.

When seating tire beads on rims, never exceed maximum inflation pressures specified by tire manufacturers for mounting tires. Inflation beyond this maximum pressure may break the bead, or even the rim, with dangerous explosive force. If both beads are not seated when the maximum recommended pressure is reached, deflate, reposition tire, relubricate bead and reinflate.

Detailed agricultural tire mounting instructions, including the necessary safety precautions, are available from your local tire manufacturer agents.



SS40167,00002C7 -19-20AUG07-1/1

Use Correct Tire Combinations

In order to achieve maximum drawbar pull, maintain proper steerability, reduce tire wear and fuel consumption, comply with the correct tire combinations shown on Tire Compatibility Chart.

Should mechanical front wheel drive front tires show excessive wear in comparison with rear tire, the front tires must be replaced in order to maintain the predetermined tire ratio.

IMPORTANT: When replacing tires, consult your tire dealer. Mixing worn and new tires, bias

and radial or tires of different diameters or loaded radii can reduce tire life and overall tractor performance.

Using any tire combination, other than those listed on the Tire Compatibility Chart, could result in premature tire and driveline wear due to excessive underspeed or overspeed.

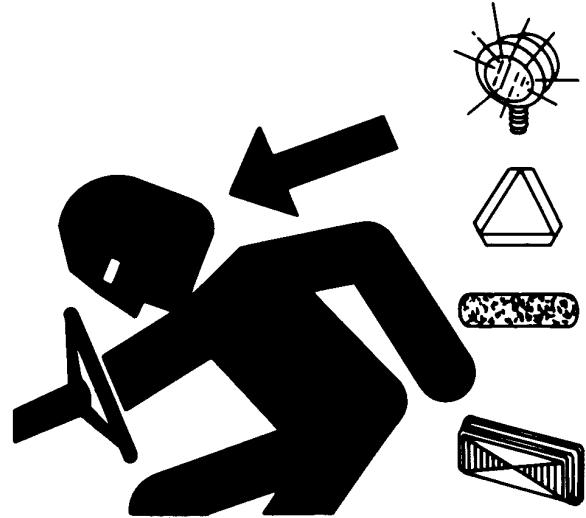
SS40167,00002C8 -19-20JUL07-1/1

Transporting

Use Safety Lights and Devices

Prevent collisions between other road users, slow moving tractors with attachments or towed equipment, and self-propelled machines on public roads. Frequently check for traffic from the rear, especially in turns, and use turn signal lights.

Use headlights, flashing warning lights, and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible, clean, and in good working order. Replace or repair lighting and marking that has been damaged or lost. An implement safety lighting kit is available from your John Deere dealer.



TS951 —UN—12APR90

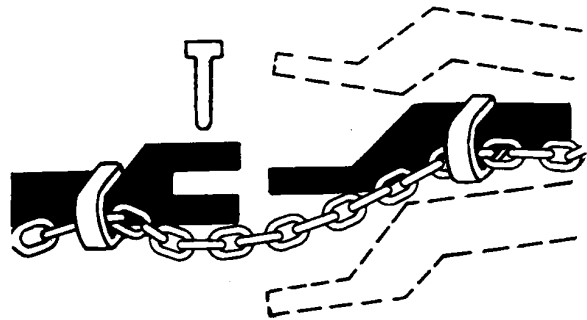
DX,FLASH -19-07JUL99-1/1

Use a Safety Chain

A safety chain will help control drawn equipment should it accidentally separate from the drawbar.

Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning.

See your John Deere dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine. Do not use safety chain for towing.



TS217 —UN—23AUG88

DX,CHAIN -19-03MAR93-1/1

Drive Tractor on Roads

CAUTION: Observe the following precautions when operating on a road.

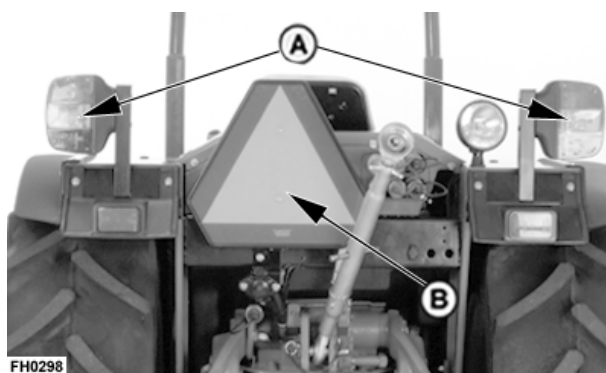
1. Before operating tractor on highway be sure flashing warning lights (A) work properly. Install and use Slow Moving Vehicle (SMV) emblems (B), reflectors, and auxiliary lighting to equipment as required for safety and by local regulations. Clean the SMV emblem for the best visibility.

IMPORTANT: Refer to Lights section for detailed descriptions of lighting operations and functions.

2. Turn light switch (D) to warning, high beam headlights or low beam headlights position. Never use bright lights which are visible from the rear. Always dim headlights before meeting another vehicle. Keep headlights properly adjusted.
3. Use turn signals when turning. Be sure to return control lever (C) to center position after turning.
4. Couple brake pedals (E) together before driving on a road. Avoid hard applications of brakes.
5. Disengage mechanical front wheel drive lever (F) when transporting on hard surface with the MFWD engaged.

A—Warning Lights
B—Slow Moving Vehicle Emblem
C—Turn Signal Control Lever

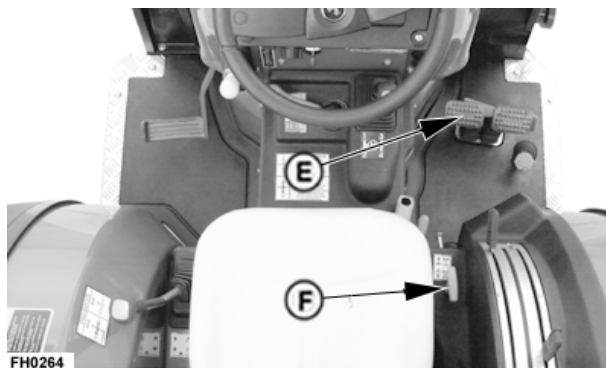
D—Light Switch
E—Brake Pedals
F—MFWD Lever



FH0298—UN—18AUG07



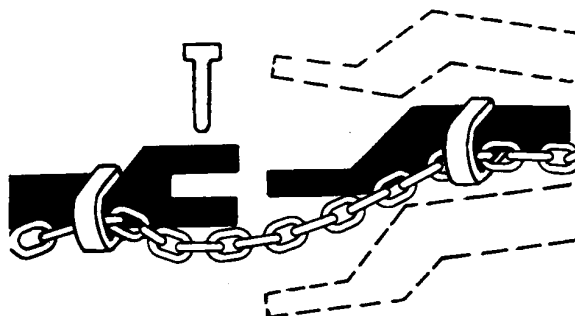
FH0263—UN—20JUL07



FH0264—UN—20JUL07

SS40167,000092D -19-20NOV07-1/3

6. Drive slowly enough to maintain safety control at all times. Slow down for hillsides, rough ground, and sharp turns, especially when transporting heavy, rear-mounted equipment.
7. Before going down a hill, shift to a gear low enough to control speed without using brakes. Never coast down hill.
8. When transporting downhill on icy or graveled grades, be alert for skids which could result in loss of steering control. To decrease chance of skids, reduce speed and be sure tractor has proper ballast.



TS217—UN—23AUG88

Continued on next page

SS40167,000092D -19-20NOV07-2/3

CAUTION: A safety chain will help drawn equipment should it accidentally separate from the drawbar. Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning. See your John Deere dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine. **DO NOT** use safety chain for towing.

IMPORTANT: Safety chain is provided for transport only. It must not be used for pulling or towing implements, or other items, not attached to drawbar, or damage to your tractor may result.

NOTE: Attach trailer brakes (if equipped) and check for proper operation.

9. Transporting Towed Loads:

Lock drawbar pin in place, and use safety chain to help control drawn equipment should it accidentally separate from drawbar while transporting.

Do not exceed the maximum transport speed. This tractor is capable of operating at transport speeds that exceed the maximum allowable transport speed for most towed implements.

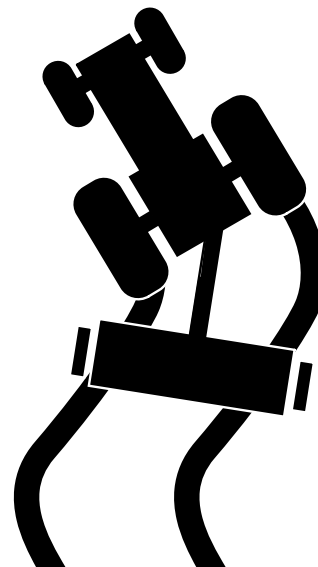
Before transporting a towed implement, determine from signs on the implement or information provided in the implement's operator manual the maximum transport speed. Never transport at speeds that exceed the implement's maximum transport speed. Exceeding the implement's maximum transport speed can result in:

- Loss of control of the tractor/implement combination
- Reduced or no ability to stop during braking
- Implement tire failure
- Damage to the implement structure or its components

Implements without brakes:

- Do not transport at speeds greater than 32 km/h (20 mph).
- Must weigh less than 1.5 times the tractor weight or less than 1.5 t (3300 lb) when fully loaded.

Implements with brakes:



TS1686 —UN—27SEP06

- If the manufacturer does not specify a maximum transport speed, do not tow at speeds greater than 40 km/h (25 mph).
- When transporting at speeds up to 40 km/h (25 mph) the fully loaded implement must weigh less than 4.5 times the tractor weight.
- When transporting at speeds between 40—50 km/h (25—31 mph) the fully loaded implement must weigh less than 3.0 times the tractor weight.

10. Use caution when operating tractor at transport speeds. Reduce speed if towed load weighs more than tractor and is not equipped with brakes. (See Towed Equipment operator's manual for recommended transport speeds.)
11. Use additional caution when transporting towed loads under adverse surface conditions, when turning and on inclines.
12. Heavy towed or rear mounted implements may start swaying in transport. Excessive swaying will result in loss of steering control. Drive slowly and avoid quick turns of steering wheel. Refer to your implement operator's manual regarding maximum travel speed limitations.

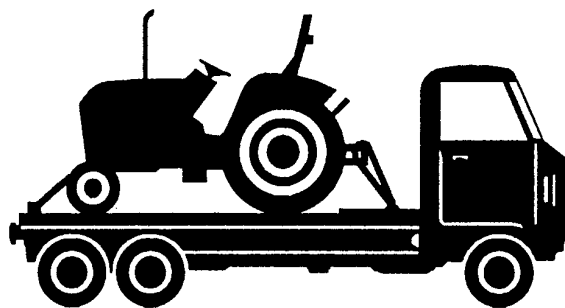
SS40167,000092D -19-20NOV07-3/3

Transport on Carrier

CAUTION: Chain tractor to carrier securely.
Drive carrier slowly.

The best method of transporting a disabled tractor is to haul it on a flatbed carrier.

IMPORTANT: Seal exhaust to prevent dirt from entering and damaging engine and/or turbocharger.



LV610 —UN—22APR94

MX,TRIP,FA2 -19-24JUL95-1/1

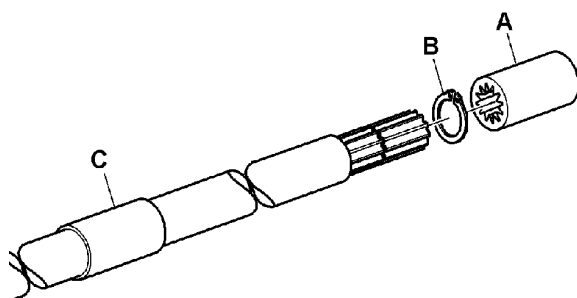
Tow Tractor

CAUTION: Avoid personal injury or death.
Remove MFWD drive shaft if towing tractor with front wheels on a carrier. Loss of electrical power or transmission-hydraulic system pressure will engage the MFWD and pull tractor off carrier, even with switch in the DISENGAGED position.

IMPORTANT: Avoid transmission and drive train component damage:

- NEVER attempt to start tractor by towing. Engine will not start.
- If possible, operate engine above 1250 rpm to provide lubrication, power steering and power brakes. Have an operator steer and brake tractor.
- Do not tow a tractor faster than 8 km/h (5 mph). Do not exceed 3 km/h (2 mph) for the first ten minutes in below freezing temperatures.
- Check transmission-hydraulic oil level. Add 1 L (1 qt) for each 90 mm (3-1/2 in.) front wheels are raised off the ground. DO NOT raise wheels more than 305 mm (12 in.). Drain excess oil after transporting.

1. If equipped with MFWD, remove drive shaft if towing tractor with front wheels on a carrier:
 - a. Remove three cap screws and slide drive shaft shield (C) away from drop housing. Repeat on opposite end.
 - b. Remove snap ring (B) using a punch and hammer.
 - c. Support drive shaft and slide coupler (A) toward drop housing.
 - d. Remove drive shaft, shields and couplers.
2. If the tractor is to be towed with the front wheels raised, add 1 liter of oil to hydraulic fill port for each 90



FH1227

MFWD Drive Shaft-to-Drop Housing

A—Coupler
B—Snap Ring

C—Drive Shaft Shield

mm (3-1/2 in.) the wheels are raised. DO NOT raise front wheels more than 305 mm (12 in.) above ground.

NOTE: After transporting tractor, drain oil that was added for towing.

3. Tap brake pedals to make sure differential lock is not engaged.
4. Make sure PTO is disengaged.
5. Place range and gear shift levers in NEUTRAL.

After Towing

If equipped with MFWD: Apply multipurpose grease to couplers and shaft splines and install drive shaft assembly.

Drain excess transmission-hydraulic oil to lower level back to full.

FH1227 —UN—22OCT07

AH98466,0000492 -19-02MAY08-1/1

Fuels, Lubricants, and Coolant

Handle Fuel Safely—Avoid Fires

Use only diesel fuel.

Handle fuel with care, it is highly flammable.

DO NOT refuel machine:

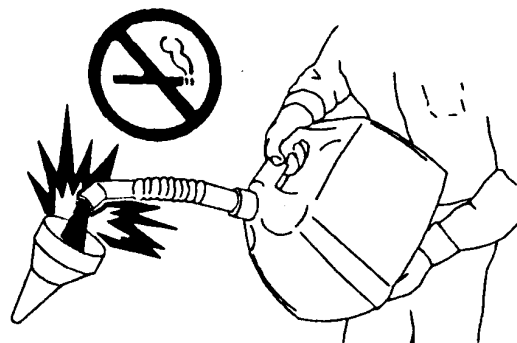
- While you smoke.
- When machine is near open flame or sparks.
- When engine is running. STOP engine.

Fill fuel tank outdoors.

Help prevent fires:

- Clean oil, grease and dirt from machine.
- Clean up spilled fuel immediately.

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



M73115 —UN—09MAR90

MX,FIRE,5A1 -19-22JUL94-1/1

Handle Fluids Safely—Avoid Fires

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.



TS227 —UN—23AUG88

DX,FLAME -19-29SEP98-1/1

Fuel Storage

Buy good quality, clean fuel from a reputable supplier.

Proper fuel storage is critically important. Use clean storage and transfer tanks. Periodically drain water and sediment from bottom.

Avoid storing fuel over long periods of time. If there is a very slow turnover of fuel in the fuel tank or supply tank, it may be necessary to add John Deere Diesel Fuel Conditioner to prevent water condensation. (See your

John Deere dealer for proper service or maintenance recommendations.)

Store fuel in a convenient place away from buildings.

NOTE: To reduce fuel gelling and control wax separation during cold weather, John Deere Fuel Flow Improver, or equivalent, may be added to fuel or bulk storage tank.

PU00210,00001CC -19-29APR08-1/1

Cold Weather Operation

Additional information on cold weather operation is available from your John Deere dealer.

MX,FLIP,B -19-18MAR92-1/1

Handling and Storing Diesel Fuel

⚠ CAUTION: Handle fuel carefully. Do not fill the fuel tank when engine is running.

DO NOT smoke while you fill the fuel tank or service the fuel system.

Fill the fuel tank at the end of each day's operation to prevent water condensation and freezing during cold weather.

Keep all storage tanks as full as practicable to minimize condensation.

Ensure that all fuel tank caps and covers are installed properly to prevent moisture from entering.

Monitor water content of the fuel regularly.

When using bio-diesel fuel, the fuel filter may require more frequent replacement due to premature plugging.

Check engine oil level daily prior to starting engine. A rising oil level may indicate fuel dilution of the engine oil.

IMPORTANT: The fuel tank is vented through the filler cap. If a new filler cap is required, always replace it with an original vented cap.

When fuel is stored for an extended period or if there is a slow turnover of fuel, add a fuel conditioner to stabilize the fuel and prevent water condensation. Contact your fuel supplier for recommendations.

SS40167,0000938 -19-21NOV07-1/1

Diesel Fuel

Consult your local fuel distributor for properties of the diesel fuel available in your area.

In general, diesel fuels are blended to satisfy the low temperature requirements of the geographical area in which they are marketed.

Diesel fuels specified to EN 590 or ASTM D975 are recommended. Renewable diesel fuel produced by hydrotreating animal fats and vegetable oils is basically identical to petroleum diesel fuel. Renewable diesel that meets EN 590 or ASTM D975 is acceptable for use at all percentage mixture levels.

Required Fuel Properties

In all cases, the fuel shall meet the following properties:

Cetane number of 43 minimum. Cetane number greater than 47 is preferred, especially for temperatures below -20°C (-4°F) or elevations above 1500 m (5000 ft).

Cold Filter Plugging Point (CFPP) should be at least 5°C (9°F) below the expected lowest temperature or **Cloud Point** below the expected lowest ambient temperature.

Fuel lubricity should pass a maximum scar diameter of 0.45 mm as measured by ASTM D6079 or ISO 12156-1.

Sulfur Content for Interim Tier 4 and EU Stage IIIB Engines

- Diesel fuel quality and fuel sulfur content must comply with all existing emissions regulations for the area in which the engine operates.
- Use ONLY ultra low sulfur diesel (ULSD) fuel with a maximum of 0.0015% (15 mg/kg) sulfur content.

Sulfur Content for Other Engines

- Diesel fuel quality and fuel sulfur content must comply with all existing emissions regulations for the area in which the engine operates.
- Use of diesel fuel with sulfur content less than 0.10% (1000 mg/kg) is STRONGLY recommended.
- Use of diesel fuel with sulfur content 0.10% (1000 mg/kg) to 0.50% (5000 mg/kg) may result in REDUCED oil and filter change intervals. Refer to table in Diesel Engine Oil and Filter Service Intervals.
- BEFORE using diesel fuel with sulfur content greater than 0.50% (5000 mg/kg), contact your John Deere dealer.

IMPORTANT: Do not mix used diesel engine oil or any other type of lubricating oil with diesel fuel.

Improper fuel additive usage may cause damage on fuel injection equipment of diesel engines.

DX,FUEL1 -19-03AUG09-1/1

Minimizing the Effect of Cold Weather on Diesel Engines

John Deere diesel engines are designed to operate effectively in cold weather.

However, for effective starting and cold weather operation, a little extra care is necessary. The information below outlines steps that can minimize the effect that cold weather may have on starting and operation of your engine. See your John Deere dealer for additional information and local availability of cold weather aids.

Use Winter Blend Diesel Fuel

When temperatures fall below -10C (14F), winter blend diesel fuel is best suited for cold weather operation. Winter blend diesel fuel has a lower cloud point and a lower pour point.

Cloud point is the temperature at which wax will begin to form in the fuel and this wax causes fuel filters to plug.

Pour point is the lowest temperature at which movement of the fuel is observed.

NOTE: On an average, winter blend diesel fuel has a lower BTU (heat content) rating. Using winter blend diesel fuel may reduce power and fuel efficiency, but should not cause any other engine performance effects. Check the grade of fuel being used before troubleshooting for low power complaints in cold weather operation.

Ether

An ether port on the intake is available to aid cold weather starting.

CAUTION: Do not use ether when (1) starting with an engine equipped with glow plugs or (2) when starting with an air intake heater.

Seasonal Viscosity Oil and Proper Coolant Concentration

Use seasonal grade viscosity engine oil based on the expected air temperature range between oil changes and a proper concentration of low silicate antifreeze as recommended. (See DIESEL ENGINE OIL and ENGINE COOLANT requirements this section.)

Diesel Fuel Flow Additive

Use John Deere Premium Diesel Fuel Conditioner (winter formula) which contains anti-gel chemistry, or equivalent to treat Grade No.2-D fuel during the cold weather season. This generally extends operability about 10C (18F) below

its Cloud Point. For operability at temperatures further below, winter grade fuel (a blend of No.2-D and No.1-D, or straight No.1-D fuel) is best suited for cold weather operation.

IMPORTANT: Treat fuel when outside temperature drops below 0C (32F). For best results, use with untreated fuel. Follow all recommended instructions on label.

CAUTION: Do not use ether when starting with an air intake heater.

Biodiesel

When running with BIODIESEL blends wax formation can generate at warmer temperatures. Begin to use John Deere Premium Biodiesel Conditioner (winter) at 5C (40F) to treat biodiesel fuels during the cold weather season. Below 0C (32F) John Deere requires the use of B5 or lower blends. Below -10C (14F) John Deere requires the use of winter blend diesel fuel.

Winterfronts

Use of fabric, cardboard, or solid winterfronts is not recommended with any John Deere engine. Their use can result in excessive engine coolant, oil, and charge air temperatures. This can lead to reduced engine life, loss of power and poor fuel economy. Winterfronts may also put abnormal stress on fan and fan drive components potentially causing premature failures.

If winterfronts are used, they should never totally close off the grill frontal area. Approximately 25% area in the center of the grill should remain open at all times. At no time should the air blockage device be applied directly to the radiator core.

Radiator Shutters

If equipped with a thermostatically controlled radiator shutter system, this system should be regulated in such a way that the shutters are completely open by the time the coolant reaches 93C (200F) to prevent excessive intake manifold temperatures. Manually controlled systems are not recommended.

If air-to-air aftercooling is used, the shutters must be completely open by the time the intake manifold air temperature reaches the maximum allowable temperature out of the charge air cooler.

For more information, see your John Deere dealer.

SS40167,0000D53 -19-17APR08-1/1

Fill Fuel Tank

CAUTION: Handle fuel with care: It is highly flammable. **DO NOT** refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine.
Fill fuel tank outdoors.

Prevent fires by keeping machine clean
of accumulated trash, grease and debris.
Always clean up spilled fuel.

Fill fuel tank at end of each days operation. This prevents condensation in tank as moist air cools.

Specification

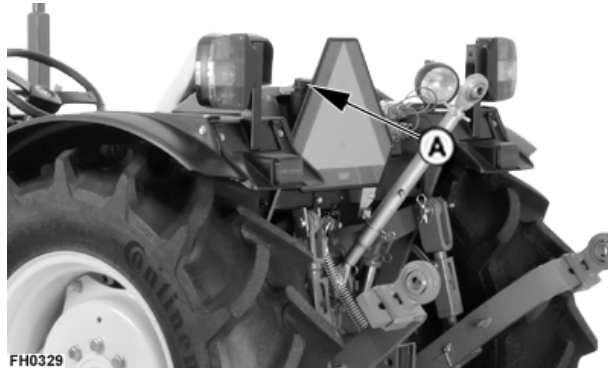
85 F Fuel	
Tank—Capacity.....	60 L (16 gal)
100 F Fuel	
Tank—Capacity.....	60 L (16 gal)

IMPORTANT: The fuel tank is vented through the filler cap. If a new filler cap is required, always replace it with an original vented cap.

NOTE: To reduce fuel gelling and control wax separation during cold weather, John Deere Fuel Flow Improver, or equivalent, may be added to fuel or bulk storage tank.



TS202 —UN—23AUG88



FH0329

FH0329 —UN—08AUG07

A—Fuel Tank Cap

SS40167.00009AB -19-22NOV07-1/1

Alternative and Synthetic Lubricants

Conditions in certain geographical areas may require lubricant recommendations different from those printed in this manual.

Some John Deere brand coolants and lubricants may not be available in your location.

Synthetic lubricants may be used if they meet the performance requirements as shown in this manual.

The temperature limits and service intervals shown in this manual apply to both conventional and synthetic oils.

Re-refined base stock products may be used if the finished lubricant meets the performance requirements.

Avoid mixing different brands or types of oils. Oil manufacturers blend base stock and additives to create their oils and to meet certain specifications and performance requirements. Mixing different oils can interfere with proper functioning of these formulations and degrade lubricant performance.

Consult your authorized John Deere dealer to obtain specific information and recommendations.

DX,ALTER -19-11NOV09-1/1

Lubricant Storage

Your equipment can operate at top efficiency only when clean lubricants are used.

Use clean containers to handle all lubricants.

Whenever possible, store lubricants and containers in an area protected from dust, moisture, and other

contamination. Store containers on their side to avoid water and dirt accumulation.

Make certain that all containers are properly marked to identify their contents.

Properly dispose of all old containers and any residual lubricant they may contain.

DX,LUBST -19-18MAR96-1/1

Oil Filters

Filtration of oils is critical to proper operation and lubrication.

Always change filters regularly as specified in this manual.

Use filters meeting John Deere performance specifications.

DX,FILT -19-18MAR96-1/1

VM Diesel Engine Oil

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

John Deere PLUS-50™ oil is preferred.

Oil meeting one of the following specifications are also recommended:

- ACEA Oil Sequence E2
- ACEA Oil Sequence B2

Extended service intervals may apply when John Deere PLUS-50™, AGIP SUPERDIESEL MULTIGRADE 15W40 specifications API CF-4/SG ACEA E2,B2 MIL-L-46152 DIE engine oils are used. Consult your John Deere dealer for more information.

In the countries where AGIP product are not available, use oil API SJ/CF for diesel engine oil or oil corresponding to the military specification MIL-L-46152 DIE.

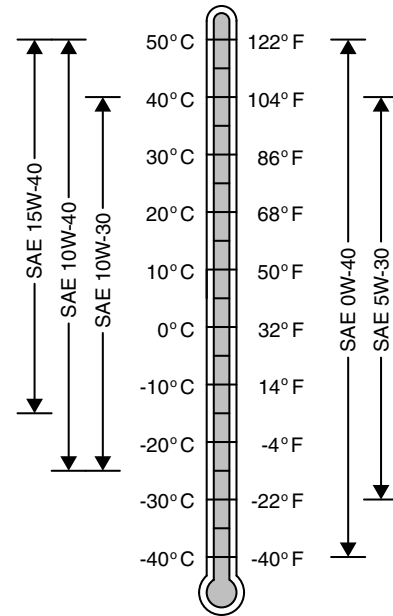
Other oils may be used if they meet one or more of the following:

- API Service Category SJ
- API Service Category CF

Multi-viscosity diesel engine oils are preferred.

Diesel fuel quality and fuel sulfur content must comply with all existing emissions regulations for the area in which the engine operates.

PLUS-50 is a trademark of Deere & Company



Oil Viscosities for Air Temperature Ranges

DO NOT use diesel fuel with sulfur content greater than 1.0% (10 000 ppm).

TS1689 —UN—18JUL07

NR25796,00012BA -19-30APR08-1/1

Diesel Engine Coolant

The engine cooling system is filled to provide year-round protection against corrosion and cylinder liner pitting, and winter freeze protection to -37°C (-34°F).

John Deere COOL-GARD is preferred for service.

If John Deere COOL-GARD is not available, use a low silicate ethylene glycol or propylene glycol base coolant concentrate in a 50% mixture of concentrate with quality water.

The coolant concentrate shall be of a quality that provides cavitation protection to cast iron and aluminum parts in the cooling system. John Deere COOL-GARD meets this requirement.

Freeze protection

A 50% mixture of ethylene glycol engine coolant in water provides freeze protection to -37°C (-34°F).

A 50% mixture of propylene glycol engine coolant in water provides freeze protection to -33°C (-27°F).

If protection at lower temperatures is required, consult your John Deere dealer for recommendations.

Water quality

Water quality is important to the performance of the cooling system. Distilled, deionized, or demineralized water is recommended for mixing with ethylene glycol and propylene glycol base engine coolant concentrate.

IMPORTANT: Do not use cooling system sealing additives or antifreeze that contains sealing additives.

IMPORTANT: Do not mix ethylene glycol and propylene glycol base coolants.

DX,COOL8 -19-16NOV01-1/1

Liquid Coolant Conditioner

John Deere Liquid Coolant Conditioner (part number RE23182) is recommended for wet-sleeve diesel engines not having a coolant filter option. Other conditioners may be used if they contain non-chromate inhibitors.

CAUTION: Coolant conditioner contains alkali. **AVOID** contact with eyes. **Avoid** prolonged or repeated contact with skin. **DO NOT** take internally. In case of contact, immediately wash skin with soap and water. For eyes, flush with large amounts of water for at least 15 minutes. Call physician. Keep out of reach of children.

DO NOT remove radiator cap or drain coolant until coolant is cold. Always loosen radiator cap slowly to relieve any excess pressure.

IMPORTANT: DO NOT use liquid conditioner if engine is equipped with a John Deere Coolant Filter Conditioner, since the correct inhibitors are already contained inside the filter. If both are used, a gel-type deposit is created which could inhibit heat transfer and block coolant flow. John Deere Liquid Coolant Conditioner does not protect against freezing.



RG4690 —UN—14DEC88

Add 30 ml of John Deere Liquid Coolant Conditioner for every liter of coolant added (4 fluid ounces per gallon). When servicing cooling system at 750 hours, only 1/2 of the original charge is required.

Coolant Conditioner Required			
Model	Coolant Capacity	With Fresh Coolant	At 750 Hour Service
85F and 100F	11 L	330 mL (11.16 oz)	165 mL (6 oz)

AH98466,000032F -19-22APR08-1/1

Anti-Chatter Transmission/Hydraulic Oil

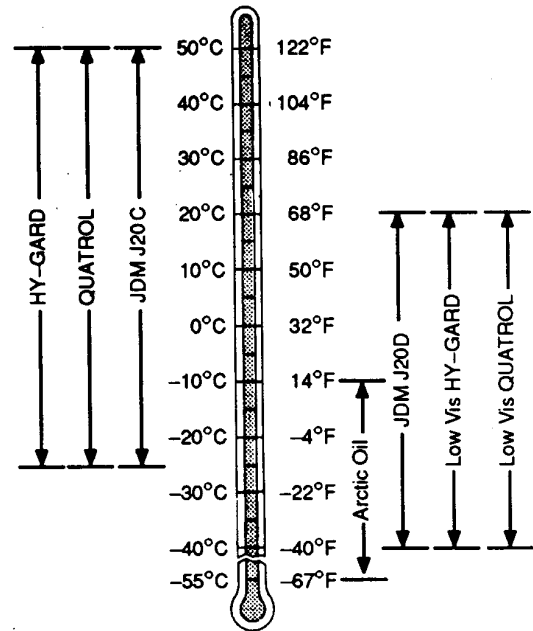
Depending upon the expected air temperature range during the drain interval, use oil viscosity shown on the adjoining temperature chart.

John Deere HY-GARD® Transmission/Hydraulic Oil is recommended. HY-GARD® oil is specially formulated to minimize wet brake chatter and to provide maximum protection against mechanical wear, corrosion, and foaming.

Other oils may be used if they meet John Deere Standard JDM J20C or J20D.

Oils meeting Military Specification MIL-L-46167A may be used as arctic oils for temperatures below -40°C (-40°F).

For operation below -25°C (-13°F) use of J20D oil is required to protect hydraulic system. Be sure to drain and fill system with a regular viscosity oil at temperature indicated on chart. Steering circuit should be drained when changing oils to avoid mixing oils of different viscosities.



LV1939 —UN—02MAY97

HY-GARD is a registered trademark of Deere & Company.

LV,5010FLC,C -19-03JUN97-1/1

Use Correct Hydraulic-Transmission Filter Element

To protect systems, replace transmission-hydraulic oil filter with a John Deere service filter element. Minimum and maximum performance specifications are printed on

John Deere filters. Other filters may be used if they meet these performance specifications.

See Lubrication and Maintenance section for recommended filter change intervals.

MX,FLIP,H -19-18MAR92-1/1

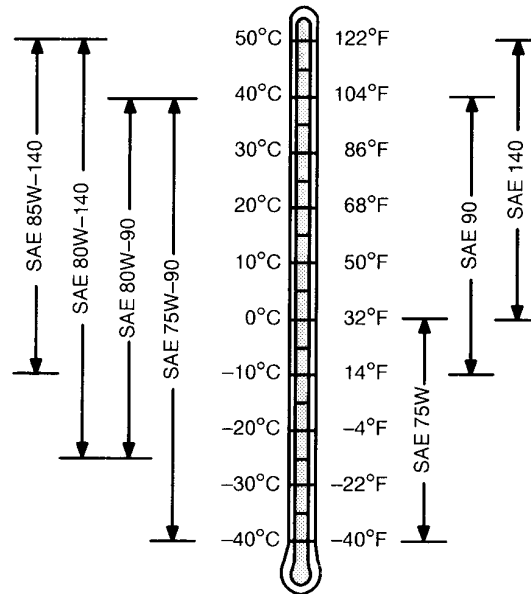
Gear Oil

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

The following oils are preferred:

- John Deere GL-5 GEAR LUBRICANT
- John Deere EXTREME-GARD™

Other oils may be used if they meet API Service Classification GL-5.



TS1653—UN—14MAR96

EXTREME-GARD is a trademark of Deere & Company.

DX,GEOIL -19-07JUL99-1/1

Grease

Use grease based on NLGI consistency numbers and the expected air temperature range during the service interval.

John Deere SD POLYUREA GREASE is preferred.

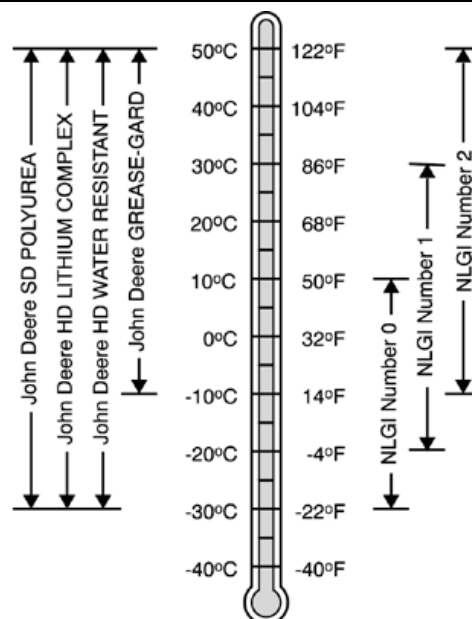
The following greases are also recommended

- John Deere HD LITHIUM COMPLEX GREASE
- John Deere HD WATER RESISTANT GREASE
- John Deere GREASE-GARD™

Other greases may be used if they meet the following:

NLGI Performance Classification GC-LB

IMPORTANT: Some types of grease thickeners are not compatible with others. Consult your grease supplier before mixing different types of grease.



TS1673—UN—31OCT03

GREASE-GARD is a trademark of Deere & Company

DX,GREA1 -19-07NOV03-1/1

Lubrication and Maintenance

Avoid Heating Near Pressurized Fluid Lines

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can accidentally burst when heat goes beyond the immediate flame area.



TSS953 —UN—15MAY90

DX,TORCH -19-10DEC04-1/1

Clean Vehicle of Hazardous Pesticides

CAUTION: During application of hazardous pesticides, pesticide residue can build up on the inside or outside of the vehicle. Clean vehicle according to use instructions of hazardous pesticides.

When exposed to hazardous pesticides, clean exterior and interior of vehicle daily to keep free of the accumulation of visible dirt and contamination.

1. Sweep or vacuum the floor of cab.
2. Clean headliners and inside cowlings of cab.
3. Wash entire exterior of vehicle.
4. Dispose of any wash water with hazardous concentrations of active or non-active ingredients according to published regulations or directives.

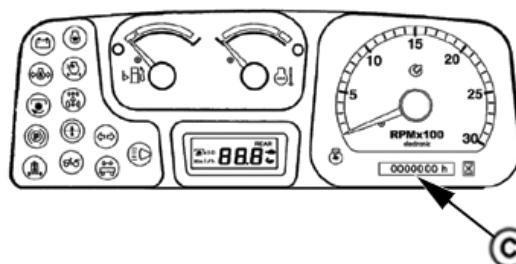
DX,CABS2 -19-24JUL01-1/1

Observe Service Intervals

Using hour meter (C) as a guide, perform all services at the hourly intervals indicated on the following pages. Keep a service record on charts provided in the Lubrication and Maintenance Record Charts section.

IMPORTANT: Recommended service intervals are for average conditions. Service **MORE OFTEN** if tractor is operated under adverse conditions.

C—Hour Meter



FH0012

FH0012 —UN—25JUL07

AH98466,0000464 -19-27AUG07-1/1

Use Correct Lubricant

IMPORTANT: Use only lubricants meeting specifications outlined in Fuels, Lubricants, and Coolant section when performing tractor service.

SS40167,00002E5 -19-20JUL07-1/1

Break-In Service

IMPORTANT: Keep wheel hardware tight to avoid tractor damage. Check wheel hardware torque before operating, twice during first 10 hours of operation, after 50 hours of operation, and periodically thereafter.

During the First 10 Hours of Operation:

Perform daily or 10 hours service. (See Service Intervals in Lubrication and Maintenance section.)

Tighten wheel hardware. (See Wheels, Tires, and Treads section.)

¹ See Engine Break-In Oil in Service section for additional information.

After the First 50 Hours of Operation:

Tighten wheel hardware. (See Wheels, Tires, and Treads section.)

Check alternator/fan belt tension and tighten air intake and cooling system hose clamps.

Change engine oil and filter.¹

Perform 50 Hours Service

After the First 100 Hours of Operation:

Replace transmission-hydraulic filter element.

NR25796,0001AAF -19-17AUG09-1/1

Service Intervals

Every 10 Hours

- Check engine oil level
- Check coolant level
- Check radiator
- Lubricate tie rod ends¹
- Check and Clean cab filter

First 50 Hours

- Change engine oil and filter²
- Check coolant
- Clean hydraulic filter
- Check engine belt

Every 50 Hours

- Check transmission-hydraulic system oil level
- Lubricate front axle pivot pins
- Lubricate brake pedal pins
- Lubricate 3-point hitch
- Check MFWD axle oil level
- Clean and check battery
- Inspect all tires
- Inspect tractor for loose nuts and bolts

Every 100 to 150 Hours

- Check clutch pedal free travel
- Clean fuel filter
- Check belt wear and tension

Every 250 Hours

- Change engine oil and filter³
- Clean hydraulic filter³
- Clean and check battery³

- Lubricate 3-point hitch³
- Check neutral start system
- Check and adjust brake pedal free play
- Adjusting PTO clutch operating rod
- Tighten fuel lines
- Change fuel filter
- Check belt wear and tension³

Every 500 Hours

- Change coolant
- Check and tighten all hoses and hose clamps
- Change coolant and check cooling system for leaks

Every 1000 Hours

- Clean fuel tank
- Change alternator drive belt
- Change oil in MFWD axle housing
- Change transmission-hydraulic oil and filter

Every 2 Years or 2000 Hours (Whichever Comes First)

- Flush cooling system
- Check starter motor brushes
- Check turbocharger

Service As Required

- Service Air Cleaner
- Clean Cab Air Filters⁴
- Service Air-Conditioning System⁵
- Check injectors
- Change hydraulic filter
- Drain water and sediment from fuel tank and fuel filter
- Adjust throttle friction

¹ Only necessary when operating in extremely wet and muddy conditions.

² See Engine Break-In Oil in Service section for additional information.

³ See a previous interval for procedure.

⁸ Service more often if operated in extremely dusty conditions.

⁹ See your John Deere dealer for service.

JS91872,0000A33 -19-25OCT10-1/1

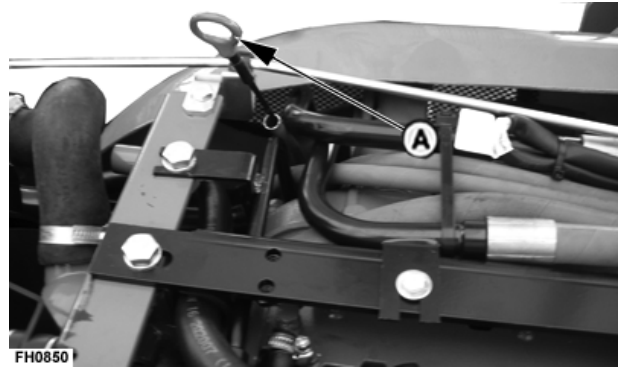
Service—10 Hours

Check Engine Oil Level

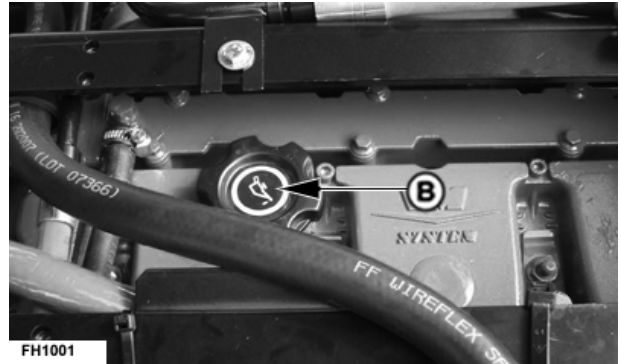
1. Park tractor on level ground and pull out dipstick (A). Oil level should be between two marks on dipstick. DO NOT operate engine when oil level is below low mark on dipstick.
2. If level is low, add oil through oil filler hole (B) until even with upper mark. DO NOT over fill. Use seasonal viscosity grade oil. (See Fuels, Lubricants and Coolant section.)

A—Engine Oil Dipstick

B—Engine Oil Filler Hole



FH0850 —UN—25SEP07



FH1001 —UN—25SEP07

SS01820,0000B66 -19-25SEP07-1/1

Check Coolant Level

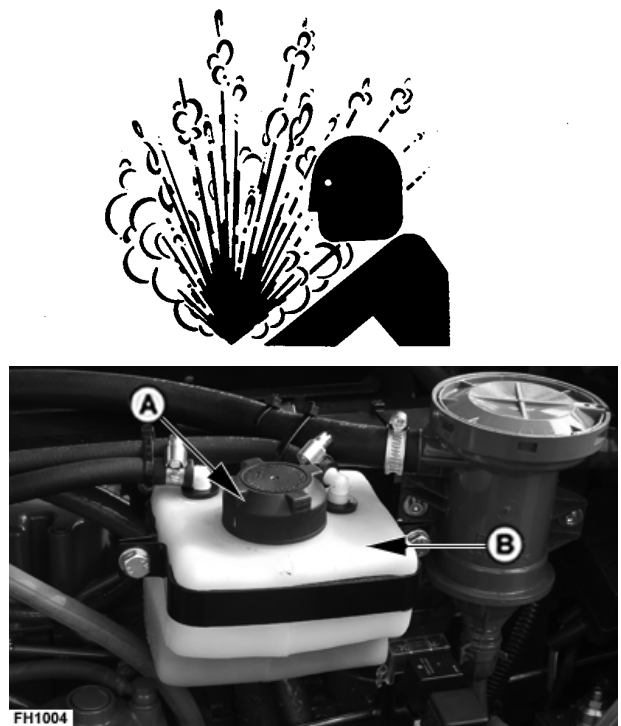
CAUTION: Only remove radiator cap (A) when engine is cold. Slowly loosen cap to first stop to relieve pressure before removing completely.

IMPORTANT: Periodically check coolant level in radiator. If cap should become defective, coolant would not be drawn from recovery tank, and could cause the engine to overheat. Replace cap as necessary.

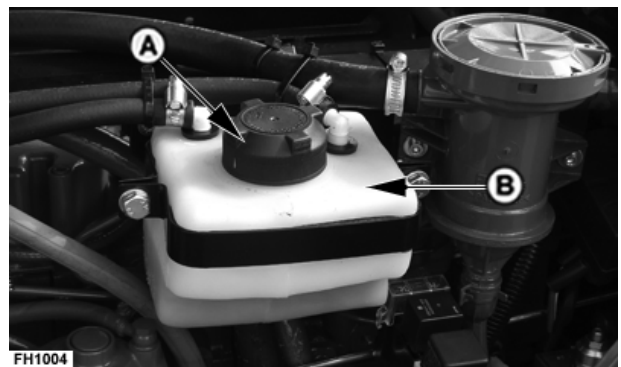
1. Check level in coolant tank (B).
2. If engine is cool and level is below “LOW” add coolant to recovery tank to bring to “LOW”. (See Fuels, Lubricants and Coolant section.)

A—Radiator Cap

B—Coolant Tank



TS281 —UN—23AUG88



FH1004 —UN—25SEP07

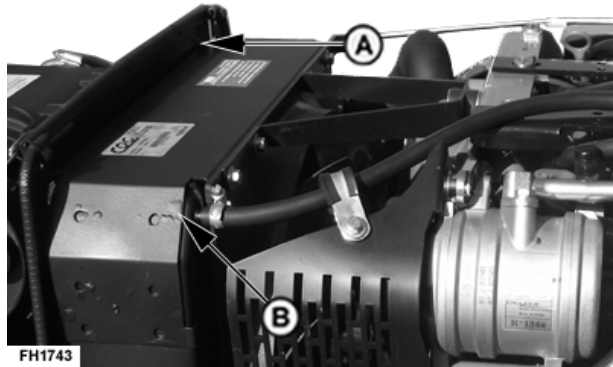
SS01820,0000B67 -19-25SEP07-1/1

Check Radiator

Remove radiator front protection cover (A). Clean radiator (B) by compressed air blow from front side of radiator.

A—Protection Cover

B—Radiator



FH1743

FH1743 —UN—18APR08

SS40167,0000D54 -19-17APR08-1/1

Lubricate as Necessary

Lubrication required only when operating in extremely wet and muddy conditions. Lubricate with several shots of multipurpose grease specified in Fuels, Lubricants and Coolant section.

- Tie rod ends
- Front axle pivot pin(s) (See Service—50 Hours)
- Rear axle bearings (See Service—600 Hours)

NR25796,0000E7C -19-18AUG07-1/1

Clean Cab Air Filters

CAUTION: The air quality system air filters are not designed to filter out harmful chemicals. Follow the instructions in the implement operator's manual and those given by the chemical manufacturer when using agricultural chemicals.

Remove filter cover (A) and filter (B). Clean filters with compressed air. Cleaning filters may be required more often in dusty conditions.

Inspect filters for damage. Replace as necessary.

A—Filter Cover

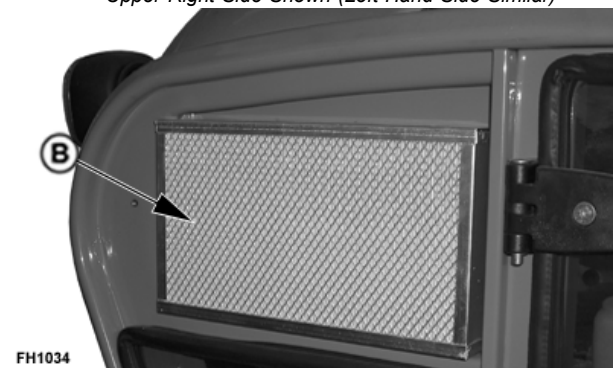
B—Air Filter



FH1033

Upper Right Side Shown (Left-Hand Side Similar)

FH1033 —UN—28MAY08



FH1034

FH1034 —UN—26SEP07

NR25796,0000F2C -19-29SEP07-1/1

Service—50 Hours

Change Engine Oil and Filter

NOTE: Change oil and filter a minimum of once a year.

1. Run engine to heat oil.

NOTE: The approximate engine crankcase oil capacity is 6.4 L (1.69 gal).

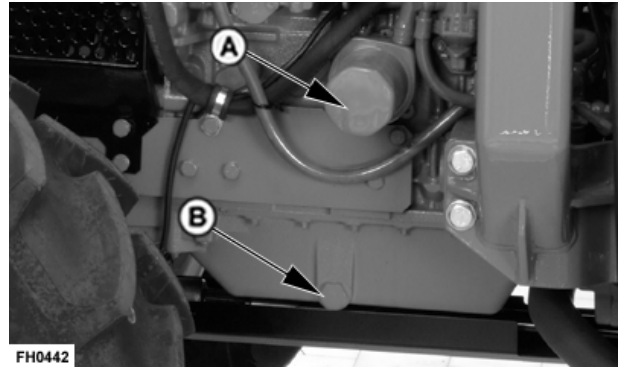
2. Remove oil drain plug (B) and drain oil.
3. Replace engine oil filter (A) while changing oil. Apply a film of oil on the new oil filter gasket and install new filter. Hand tighten plus 1/2 turn.
4. Install drain plug (B).
5. Add seasonal viscosity grade oil. (See Fuels, Lubricants and Coolant section.)

Specification

Engine Crankcase

Oil—Capacity..... 6.4 L (1.69 gal)

NOTE: Engine oil should be changed annually as a minimum.



A—Engine Oil Filter

B—Engine Oil Drain Plug

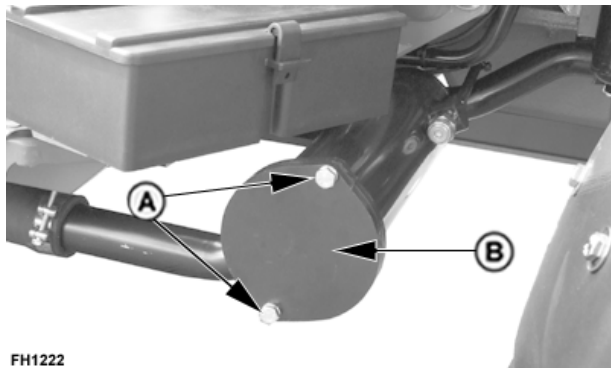
AH98466,00004B6 -19-20JAN10-1/1

Check Coolant

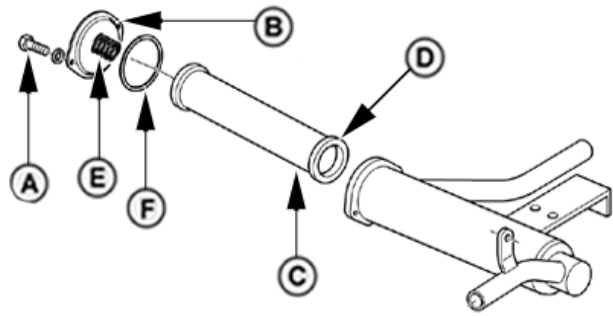
For checking coolant see Fuel, Lubricant and Coolant section.

SS01820,0000B6E -19-14AUG07-1/1

Clean Hydraulic Filter



FH1222 —UN—20OCT07



FH1223

FH1223 —UN—20OCT07

1. Remove drain plug and drain oil.
2. Remove cap screw (A) and plate (B).
3. Remove and clean filter (C).

IMPORTANT: Replace seal and O-ring. Damaged or used seals and O-rings will leak.

4. While assembling filter check position of seal (D) spring (E) and O-ring (F).
5. Assemble filter in reverse order.
6. Install drain plug
7. Fill system with transmission-hydraulic oil. (See Fuels, Lubricants and Coolants section.)
8. Check oil level at dipstick (G) after filling, and again after operating for 5 minutes.



FH1224

FH1224 —UN—20OCT07

A—Cap Screws (2 used)
B—Plate
C—Filter
D—Seal

E—Spring
F—O-Ring
G—Oil Dipstick

SS40167,0000D55 -19-02MAY08-1/1

Check Belt Wear and Tension

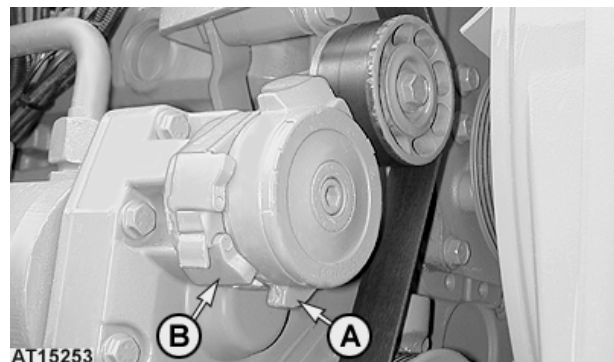
Tractor with automatic tensioner

NOTE: Belt drive systems, equipped with automatic (spring) belt tensioners, cannot be adjusted or repaired.

The automatic belt tensioner is designed to maintain proper belt tension over the life of belt. If tensioner spring tension is not within specification, replace tensioner assembly. This has to be checked by your John Deere Dealer.

Checking the belt for wear:

- The belt tensioner is designed to operate within the limit of arm movement provided by the cast stops (A) and (B), provided the belt is the correct length and is following the correct path.
- Visually inspect cast stops (A) and (B) on belt tensioner assembly.
- If the tensioner stop (A) on the swing arm is hitting the fixed stop (B), check mounting brackets (alternator, belt tensioner, idler pulley, etc.) and belt length. Replace belt if necessary.



AT15253

AT15253 —UN—13JUL04

NR25796,00012A6 -19-29APR08-1/1

Check Transmission-Hydraulic System Oil Level

NOTE: While checking the oil level keep engine in OFF position.

1. Remove dipstick (A) and wipe it clean. Insert dipstick fully. Oil level should be between full mark and end of dipstick.
2. Add oil if level is low as per specification.

Specification

Transmission and Hydraulic Oil Capacity—Capacity..... 35 Liter (9.25 gal.)



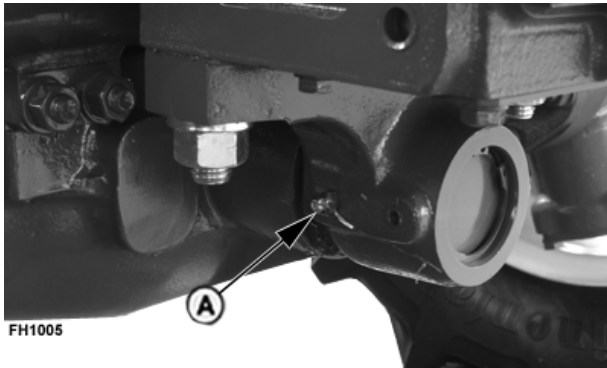
FH0032

A—Transmission-Hydraulic Oil Dipstick

FH0032 —UN—17AUG07

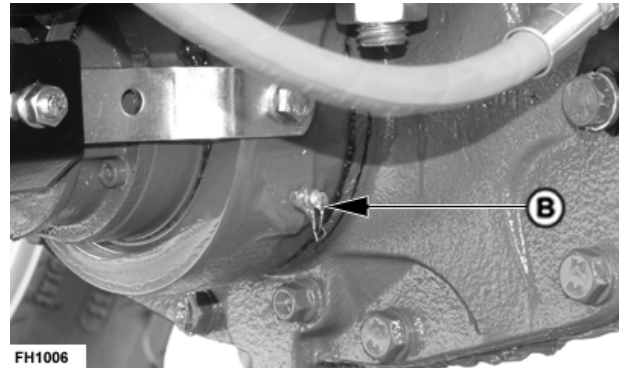
SS40167,0000D5B -19-25OCT10-1/1

Lubricate Front Axle Pivot Pins



FH1005

FH1005 —UN—26SEP07



FH1006

FH1006 —UN—26SEP07

A—MFWD Front Pivot Zerk

B—MFWD Rear Pivot Zerk

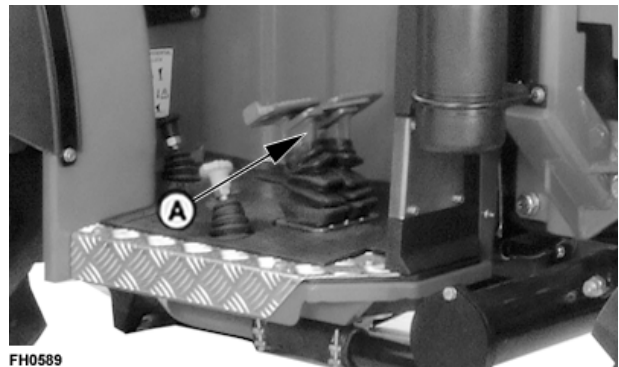
Lubricate front pivot (A) and rear pivot with several shots of multipurpose grease. (See Fuels, Lubricants and Coolant section.)

SS01820,0000B6F -19-29SEP07-1/1

Lubricate Brake Pedal Pins

Apply several shots of general purpose grease to brake pedal shaft under foot rest.

A—Brake Pedal



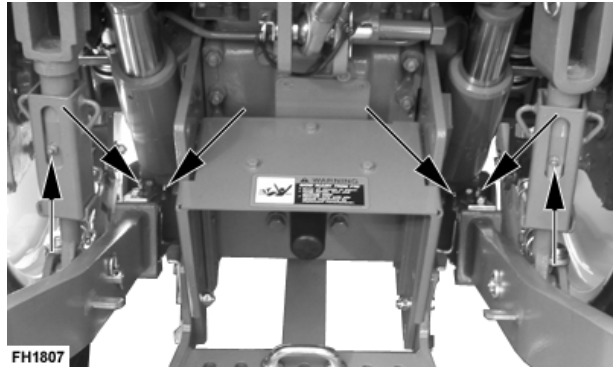
FH0589

FH0589 —UN—13AUG07

SS01820,0000B70 -19-14AUG07-1/1

Lubricate 3-Point Hitch

Lubricate right lift link and left lift link with several shots of multipurpose grease. (See Fuels, Lubricants and Coolant section.)



FH1807

FH1807—UN—20APR08

SS01820,0000B71 -19-02MAY08-1/1

Check MFWD Axle Oil Level

1. Park tractor so that oil fill mark (A) on MFWD hub is level with the ground.
2. Remove plug (A) to check oil level in axle housing. Oil level should be even with bottom of hole.
3. If level is low, add John Deere GL-5 GEAR LUBRICANT or John Deere EXTREME-GARD™ Gear Lubricant or its equivalent. (See Fuels, Lubricants and Coolant section.)

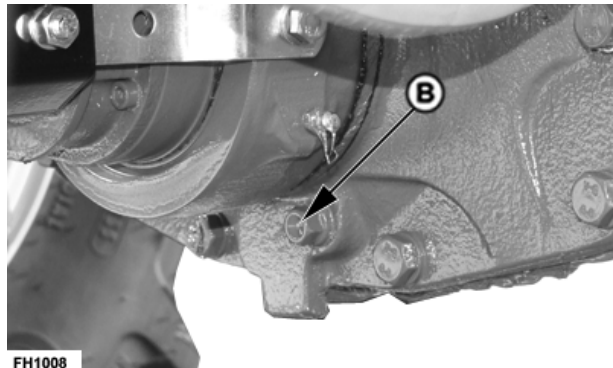
A—Oil Fill Plug

B—Oil Drain Plug



FH1007

FH1007—UN—25SEP07



FH1008

FH1008—UN—25SEP07

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SS01820,0000B73 -19-21APR08-1/1

Clean and Check Battery

To access battery, see procedure in Service section.

Engage PARKING brake, set brakes and pull fuel shut-off knob to turn engine OFF. Wipe battery with a damp cloth. Clean and tighten connections if needed. Check fluid level in each cell, fill to bottom of filler neck with clean mineral-free water. (See Servicing Battery in Service section.)

A—Negative Terminal B—Positive Terminal



SS01820,0000B74 -19-23OCT07-1/1

Inspect All Tires

Inspect tires and check inflation pressures. (See Wheels, Tires and Treads section.)

SS01820,0000B76 -19-14AUG07-1/1

Inspect Tractor for Loose Hardware

Item	Measurement	Specification
Ballast Weights Retaining Bolts	Torque	230 N·m (170 lb-ft)
MFWD Axle Disk-to-Hub Nuts	Torque	167 N·m (124 lb-ft)
Rear Axle Disk-to-Flange Bolts	Torque	245 N·m (178 lb-ft)
ROPS Mounting Bolts	Torque	240 N·m (177 lb-ft)

NR25796,0000E7D -19-18APR08-1/1

Service 100 to 150 Hours

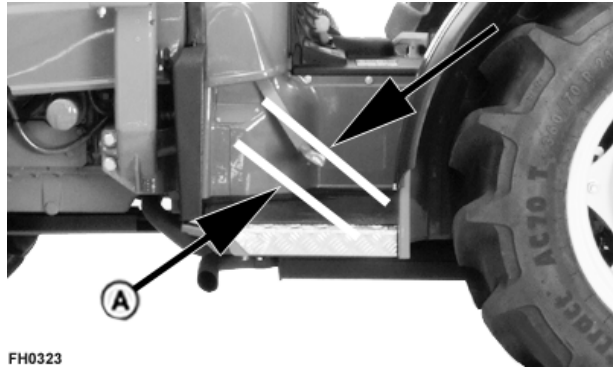
Check and Adjust Clutch Pedal Free Play

Measure free play (A) at top of pedal stroke. The free play of clutch pedal must be 30 mm (1.18 in.).

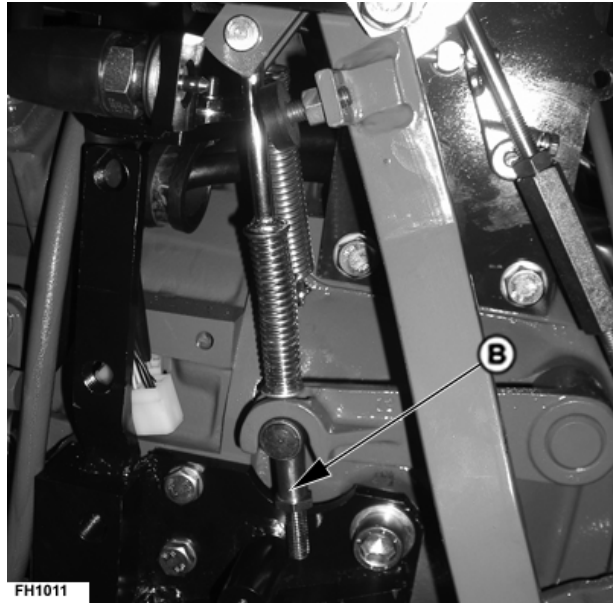
Remove guard and loosen the adjustment screw (B) to adjust the free travel of the pedal. Tighten the screw to reduce the free play and loosen screw for increasing play. Make the pedal free play 30 mm (1.18 in.) and install the guard.

A—Clutch Pedal Free Play

B—Lock Nut



FH0323—UN—03AUG07



FH1011—UN—25SEP07

AH98466,000046F -19-25SEP07-1/1

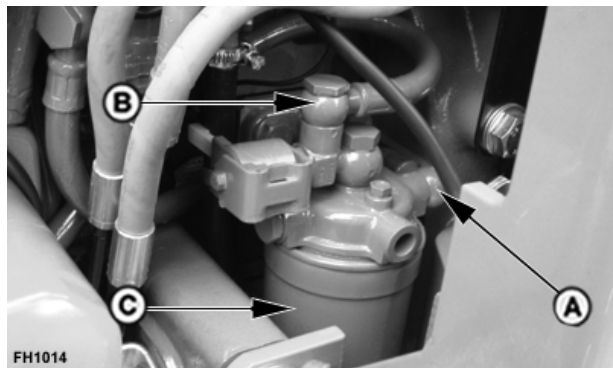
Clean Fuel Filter

Replace fuel filter (C) at least once a year.

1. Remove fuel inlet line (A) and outlet line (B).
2. Rotate fuel filter (C) and outlet (B) and remove it.
3. Clean and install filter (C).
4. Connect fuel inlet line (A) and outlet line (B).

A—Fuel Inlet Line
B—Fuel Outlet Line

C—Fuel Filter



FH1014—UN—25SEP07

SS40167,0000D57 -19-18APR08-1/1

Check Belt Wear and Tension

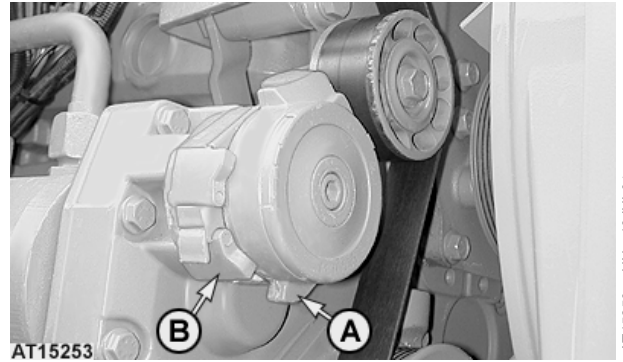
Tractor with automatic tensioner

NOTE: Belt drive systems, equipped with automatic (spring) belt tensioners, cannot be adjusted or repaired.

The automatic belt tensioner is designed to maintain proper belt tension over the life of belt. If tensioner spring tension is not within specification, replace tensioner assembly. This has to be checked by your John Deere Dealer.

Checking the belt for wear:

- The belt tensioner is designed to operate within the limit of arm movement provided by the cast stops (A) and (B), provided the belt is the correct length and is following the correct path.
- Visually inspect cast stops (A) and (B) on belt tensioner assembly.
- If the tensioner stop (A) on the swing arm is hitting the fixed stop (B), check mounting brackets (alternator, belt tensioner, idler pulley, etc.) and belt length. Replace belt if necessary.



AT15253 —UN—13JUL04

NR25796,00012A6 -19-29APR08-1/1

Service—250 Hours

Check Neutral Start System

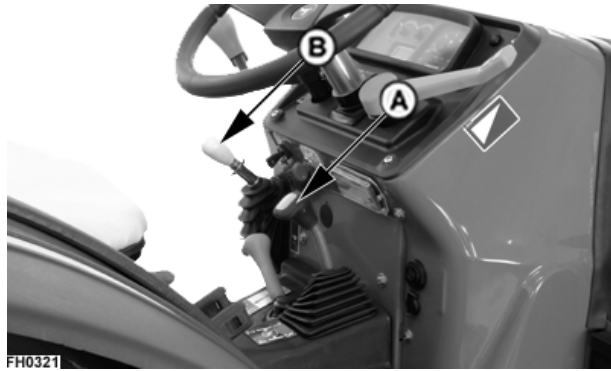
Your John Deere tractor is equipped with interlocks to prevent inadvertent movement when the engine is started. Turning the key switch should crank the engine if all of the following conditions exist:

- Gear shift lever (A) in NEUTRAL
- PTO lever (B) in disengaged position

CAUTION: If starter turns engine in any of the following steps, have the neutral start system repaired by your John Deere dealer.

Turning the key switch to the start position should NOT start the engine, if either of the following exist:

- Gear shift lever (A) in gear (not in NEUTRAL)
- PTO lever (B) in engaged position



A—Gear Shift Lever

B—PTO Control Lever

FH0321—UN—03AUG07

SS40167,0000F71 -19-20AUG09-1/1

Check and Adjust Brake Pedal Free Play

1. Park on level surface. Chock wheels to prevent machine movement.
2. Unlock brake pedals.
3. Check free play (A) of each brake pedal at top of stroke.
4. Brake pedal free play must be to specification.

Specification

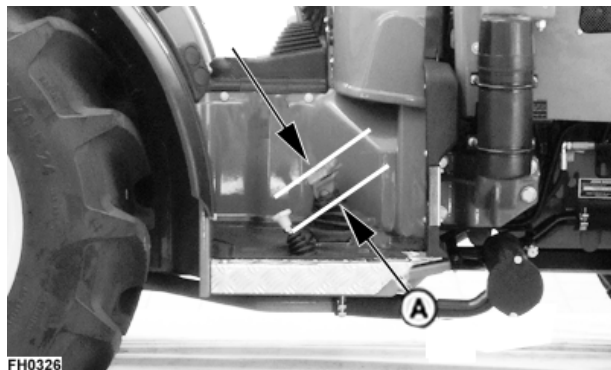
Brake Pedal—Free Play.....30-35 mm (1.18-1.37 in.)

NOTE: Brake pedal must be adjusted while they are exactly same height.

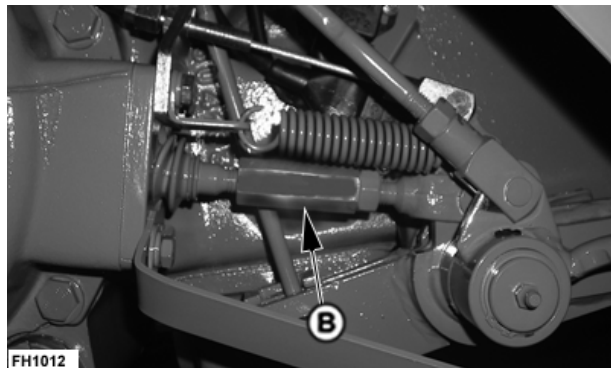
5. Adjust brake pedal free play by loosening and tightening three hexagonal stud bolt (B).
6. Tighten bolt to reduce free play and loosen bolt to increase free play.

A—Brake Pedal Free Play

B—Hexagonal Stud Bolt



FH0326—UN—08AUG07



FH1012—UN—25SEP07

AH98466,0000470 -19-25SEP07-1/1

Adjusting PTO Clutch Operating Rod

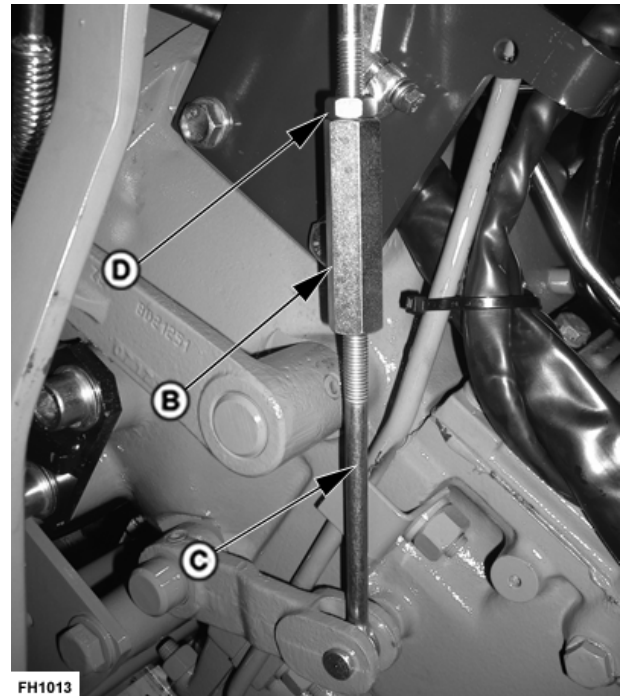
Keep PTO lever at disengage position while adjustment.

Measure free play from center of lever. Free travel of PTO must be 10 mm (0.39 in.).

Remove guard. Adjust the PTO lever free play by loosening or tightening the jam nut (D) and install the guard.

A—PTO Clutch Lever
B—Clevis

C—PTO Operating Rod
D—Jam Nut



FH0327 —UN—08AUG07

FH1013 —UN—25SEP07

AH98466,0000496 -19-29SEP07-1/1

Tighten Fuel Lines

Check fuel lines for leakage and retighten them.

SS40167,0000F7D -19-21AUG09-1/1

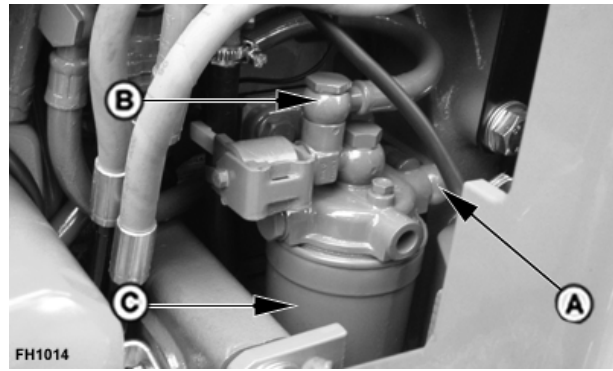
Change Fuel Filter

Replace fuel filter (C) at least once a year.

1. Remove fuel inlet line (A) and outlet line (B).
2. Rotate fuel filter (C) and outlet (B) and remove it.
3. Install new filter (C).
4. Connect fuel inlet line (A) and outlet line (B).

A—Fuel Inlet Line
B—Fuel Outlet Line

C—Fuel Filter

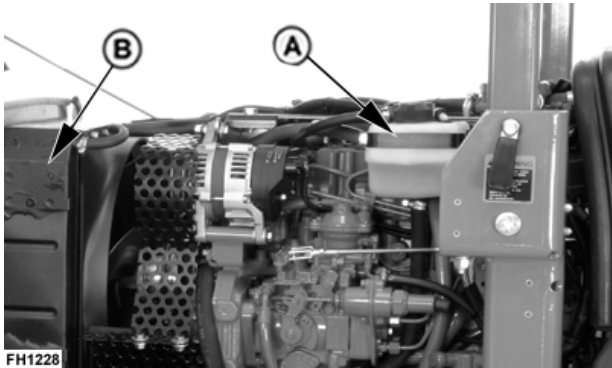


FH1014 —UN—25SEP07

AH98466,0000473 -19-29SEP07-1/1

Service—500 Hours

Change Coolant



A—Coolant Recovery Tank

B—Radiator

Drain the coolant from radiator, engine and coolant recovery tank.

IMPORTANT: Never pour cold water into the cooling system of a hot engine, as it might crack cylinder block or head. DO NOT operate engine without coolant for even a few minutes.



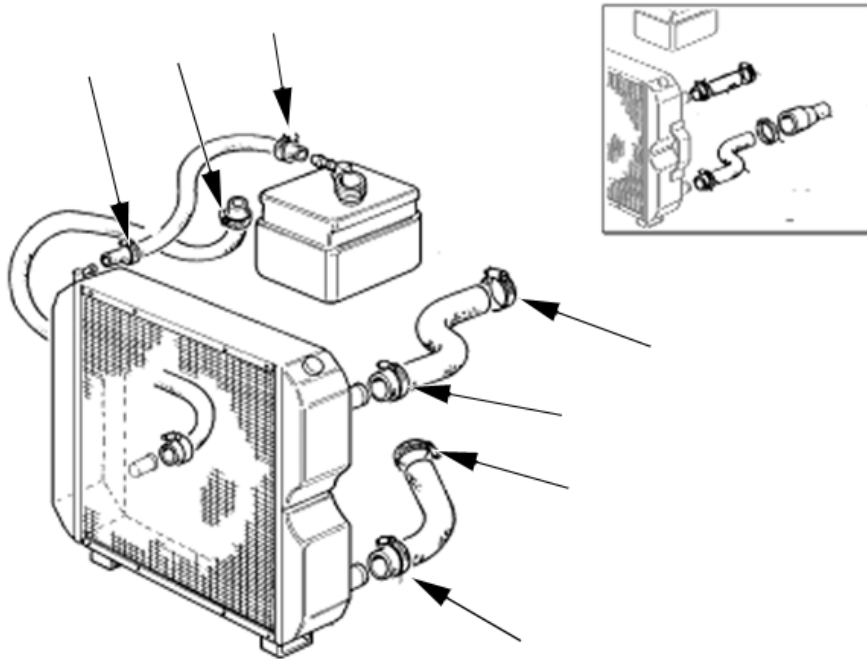
C—Thermostat Housing

Close all opening of radiator and fill new coolant to specification.

Item	Measurement	Specification
85 F and 100 F	Coolant Capacity	11 L (2.90 gal)

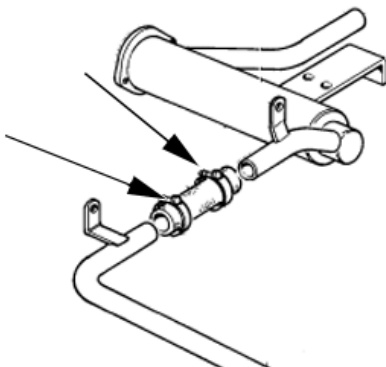
SS40167,0000D5A -19-17APR08-1/1

Check Hoses and Hose Clamps for Tightness



FH0443

FH0443 —UN—27AUG07



FH0444

FH0444 —UN—08AUG07



FH1744

FH1744 —UN—18APR08

Check the following systems hose clamps for tightness:

- Air Cleaner to engine intake or turbocharger
- Engine Cooling
- Hydraulics
- Fuel

The hoses vary depending on engine type.

Check all hoses for cracks which could cause leaks or possible failure. Replace as necessary.

Leaking or damaged hoses are the cause of dirt entering the engine.

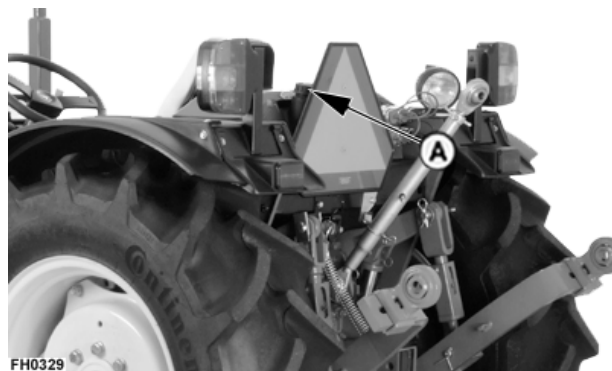
SS40167,0000F74 -19-20AUG09-1/1

Service—1000 Hours

Clean Fuel Tank

Drain the fuel from fuel tank and remove all fuel lines from fuel tank. Remove fuel tank from engine and clean it by means of fuel. Dry out the fuel tank and then install.

A—Fuel Tank Cap



FH0329 —UN—08AUG07

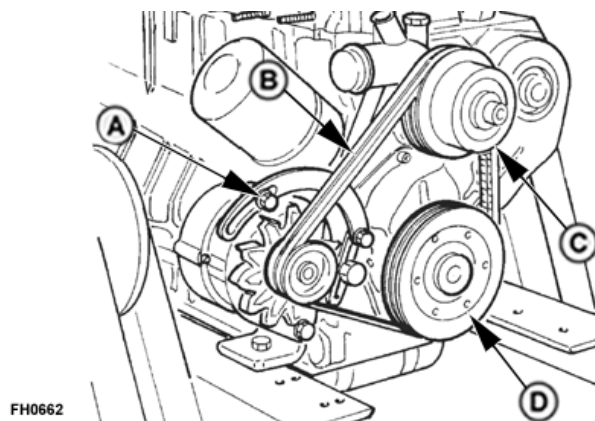
AH98466,0000475 -19-27AUG07-1/1

Change Alternator Drive Belt

1. Loosen alternator cap screw (A). It will release the pressure of belt (B).
2. Remove Belt from water pump pulley (C) and crankshaft pulley (D).
3. Install new belt and check tension by pressing belt midway between pulleys. Belt should reflect about 10 mm at 79 Nm (17.75 lb-ft).

A—Cap Screw
B—Belt

C—Water Pump Pulley
D—Crankshaft Pulley



FH0662 —UN—17AUG07

AH98466,0000490 -19-27AUG07-1/1

Change Oil in MFWD Axle Housing

1. Tractor should be positioned on level ground to assure correct oil levels when filling.
2. Remove drain plug (B) and drain the oil.
3. Fill differential housing from oil filler plug (A) with John Deere GL-5 GEAR LUBRICANT or John Deere EXTREME-GARD™ Gear Lubricant. (See Fuels, Lubricants and Coolant section.).

Specification

MFWD Differential

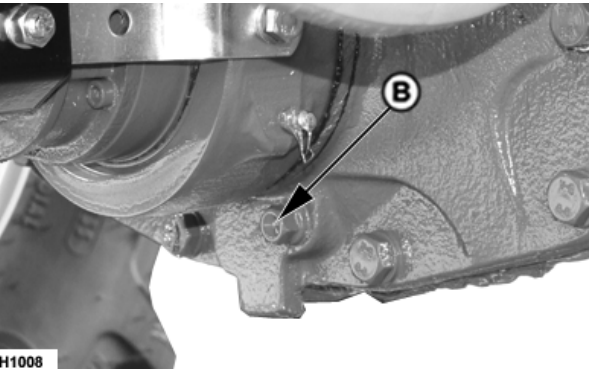
Housing Axle

Oil—Capacity.....3.6 L (0.95 gal) Approximate

IMPORTANT: Check oil level after 30 minutes. Oil flows very slowly through bearings and axle housings. Fill through hub port on both sides and differential housing port to reduce fill time.

A—Oil Filler Plug

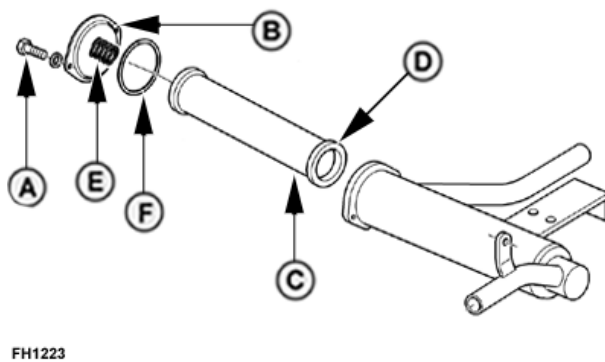
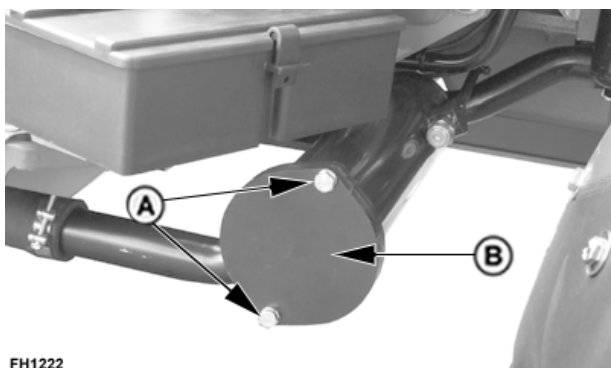
B—Oil Drain Plug



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NR25796,0000E89 -19-29APR08-1/1

Change Transmission-Hydraulic Oil and Filter



1. Remove oil drain plug and drain oil.
2. Remove cap screw (A) and plate (B).
3. Remove filter (C) and replace with new filter.
4. While assembling filter check position of seal (D) spring (E) and O-ring (F).
5. Assemble filter in reverse order.
6. Install drain plug
7. Fill system with transmission-hydraulic oil as per specification

Specification

Transmission and Hydraulic Oil
Capacity—Capacity..... 35 Liter (9.25 gal.)

8. Check oil level at dipstick (G) after filling, and again after operating for 5 minutes.



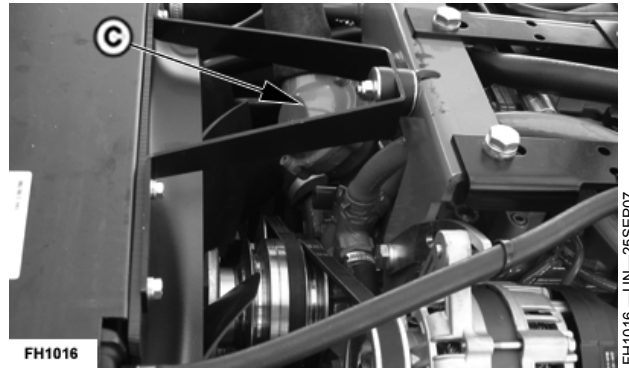
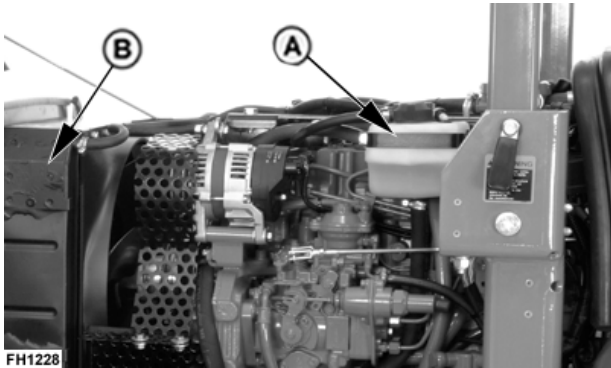
A—Cap Screws (2 used)
B—Plate
C—Filter
D—Seal

E—Spring
F—O-Ring
G—Oil Dipstick

NR25796,0000F3F -19-25OCT10-1/1

Service—2 Years/2000 Hours

Flush Cooling System



A—Coolant Recovery Tank

B—Radiator

C—Thermostat Cover

For efficient operation, drain old coolant, flush the entire system, and fill with clean antifreeze solution at least once every 2 years.

CAUTION: DO NOT remove radiator cap or drain coolant until coolant is cold (temperature gauge should be below the green striped zone). Always loosen radiator cap or drain cock slowly to relieve any excess pressure.

1. Drain coolant - Remove radiator cap. Open drain valve on radiator and drain coolant from radiator (B). Drain coolant from engine block.

IMPORTANT: Thermostat must be removed to ensure a thorough flush.

2. Remove thermostat cover (C), remove thermostat, and install cover (without thermostat). Tighten cap screws to specification.

Specification

Thermostat Cover Cap

Screws—Torque..... 47 N·m (35 lb-ft)

3. Flush system with water - Close all drain valves/plugs and fill system with clean water. Run engine about 10 minutes to stir up possible rust or sediment. Stop engine and drain water from system before rust and sediment settle.
4. Flush system with radiator cleaner - Close all drain valve/plugs and fill the cooling system with a good commercial radiator cleaner and water. Follow instructions provided with cleaner. Stop engine and immediately drain system.
5. Flush system with water - Close all drain valves/plugs and fill with clean water to flush the system. Run the engine about 10 minutes, then drain out flushing water.

Continued on next page

AH98466,000049C -19-22OCT07-1/2

6. Remove thermostat cover (C) and clean off the gasket material. Apply gasket sealant to new gasket and install thermostat and cover. Tighten cap screws to specification.

Specification

Thermostat Cover Cap

Screws—Torque..... 47 N·m (35 lb·ft)

7. Fill with fresh coolant - Close all drain valves/plugs and fill with a mixture of antifreeze, soft water, and coolant conditioner as specified in the Fuels, Lubricants, and Coolant section.
8. Check coolant level - Fill radiator to the top of the filler neck and fill the recovery tank to the “LOW” mark. Run the engine until operating temperature is reached. Let the engine cool (preferably overnight) and recheck the coolant level. Coolant level with a cold engine should be at the “LOW” mark. An engine at operating temperature should have a coolant level at the “FULL” mark. When filling the cooling system it may require several operating/cooling periods to stabilize the



C—Thermostat Cover

coolant level in the system. Add make-up coolant to the recovery tank as needed to bring the coolant level to the correct mark.

AH98466,000049C -19-22OCT07-2/2

Check Starter Motor Brushes

If the starting motor fails to operate after the starter switch has been operated, check battery cables and connections. Charge the battery if essential.

Still starter motor fails to operate, the complete starter system must be thoroughly checked. Check specific gravity of battery with an hydrometer and make sure that

none of the cables are broken or worn through and that none of the cable connections are loose or corroded. Check starter motor brushes. Clean brushes and guides of brush holders.

Due to special tooling and highly specialized personnel required, starter motor can be serviced only by an authorized workshop.

SS40167,0000F95 -19-04SEP09-1/1

Check Turbocharger

If turbocharger not work properly check the following:

- Restriction in the air cleaner
- Leak in air intake system between turbocharger and cylinder head
- Defective turbocharger

Due to special tooling and highly specialized personnel required, turbochargers can be serviced only by an authorized workshop. Only complete turbochargers are available through service parts channel. Individual components for repair are not available.

SS40167,0000F96 -19-02SEP09-1/1

Service As Required

Service Air Cleaner

If a air restriction indicator is lamp then the air cleaner's primary element must be taken out and cleaned.

The service interval may be extended briefly, e.g. until the next suitable opportunity. Provided the cleaner is serviced properly, this will not adversely affect its performance.

The primary element can be cleaned up to five times. Thereafter, or at the latest after 1500 hours of operation (or 2 years), it must be replaced.

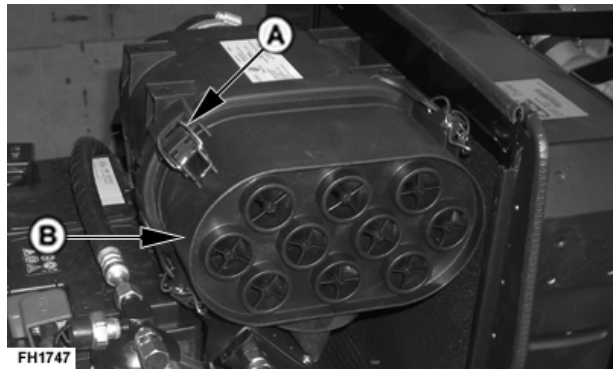
The primary element can be cleaned up to five times. Thereafter, or at the latest after 1500 hours of operation (or 2 years), it must be replaced.

Open the hood, remove straps (A). Remove cover (B) and pull the primary filter element (C) out of the cleaner housing.

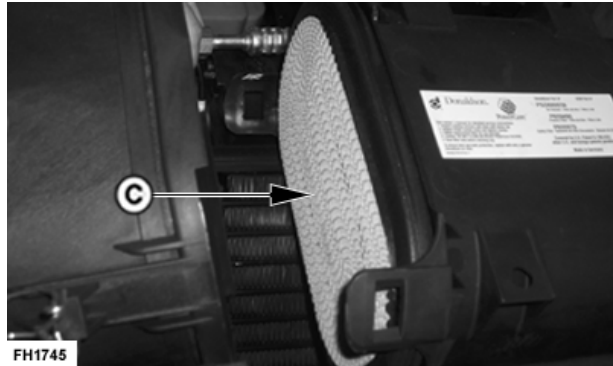
IMPORTANT: Never run the engine without the primary filter element!

A—Strap (4 used)
B—Cover

C—Primary Filter Element



FH1747—UN—18APR08



FH1745—UN—18APR08

SS40167,00001C4 -19-30APR08-1/1

Clean the Primary Filter Element

When the element must be serviced in the field, tap it on the palm of your hand as a temporary measure.

IMPORTANT: The guide ring must not be damaged or deformed.

When you return to your service area, clean the filter element thoroughly, or replace it with a new one.



FH1748—UN—18APR08

NR25796,000106E -19-18APR08-1/1

Clean a Dusty Element

If tapping element does not remove dust, blow out dust with compressed air (not exceeding 600 kPa; 6 bar; 90 psi) by inserting nozzle inside the element and blowing from the inside of the filter to the outside.

Replace element if air cleaner indicator light continues glowing after the element has been cleaned.



FH1748—UN—18APR08

NR25796,000106F -19-18APR08-1/1

Secondary (Safety) Element

This filter must be changed if it becomes damaged. Change it at every fifth change of the air cleaner primary element, and at the latest after 1500 hours of operation.

IMPORTANT: Always replace secondary (safety) filter element, do not attempt to clean it.



FH1746

FH1746 —UN—18APR08

NR25796,0001070 -19-18APR08-1/1

Installation

With the rubber seal first (arrows on decal pointing into the filter housing), slide a serviced or new primary filter element as far as it will go into the filter housing. Fold down the cover and let the catch click into place.

IMPORTANT: Never close the hood or start the engine unless the filter is locked securely.

NR25796,0001071 -19-22OCT07-1/1

Clean Cab Air Filters

CAUTION: The air quality system air filters are not designed to filter out harmful chemicals. Follow the instructions in the implement operator's manual and those given by the chemical manufacturer when using agricultural chemicals.

Remove filter cover (A) and filter (B). Clean filters with compressed air. Cleaning filters may be required more often in dusty conditions.

Inspect filters for damage. Replace as necessary.

A—Filter Cover

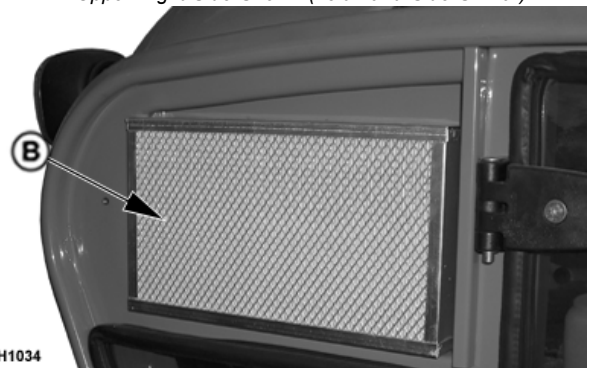
B—Air Filter



FH1033

Upper Right Side Shown (Left-Hand Side Similar)

FH1033 —UN—28MAY08



FH1034

FH1034 —UN—26SEP07

NR25796,0000F2D -19-29SEP07-1/1

Servicing Air Conditioner (Cab)

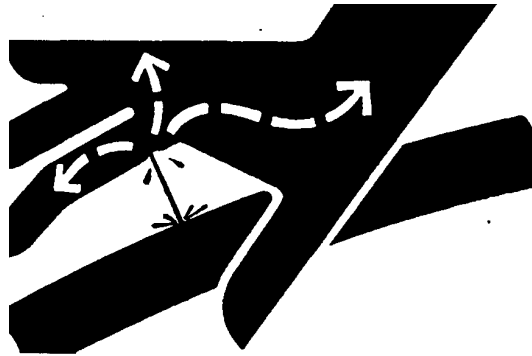
CAUTION: Refrigerant under pressure. Improper servicing may cause refrigerant to penetrate eyes and skin or cause burns.

IMPORTANT: R134a refrigerant must be used. This requires special equipment and procedures. See your John Deere dealer.

NOTE: Some oil seepage from compressor shaft seal, on the lower front, is normal.

Check the following if air conditioner will not cool, or if cooling is intermittent:

1. If air conditioner clutch slips after tractor has been in storage, compressor may be stuck.
 - a. Stop engine and turn ignition switch to STOP (off) position.



X9811—UN—23AUG88

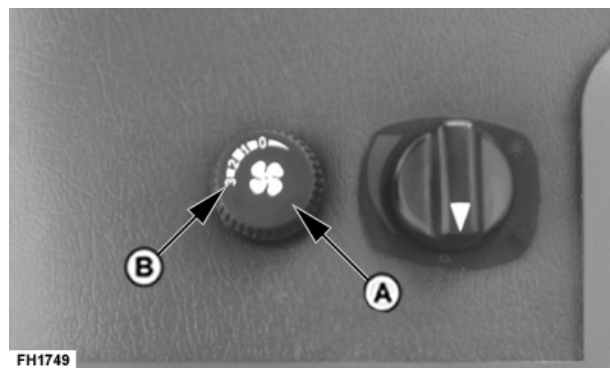
- b. Raise hood and rotate clutch hub back and forth to free compressor.

NR25796,0000F2E -19-18APR08-1/2

2. Run engine at 2000 rpm. Set blower control knob (A) to HIGH position (B). If cooling is intermittent, clean front grille, radiator and condenser. (See procedure in this section.) If problem is not solved, see your John Deere dealer.
3. Inspect operator enclosure (cab) filters for restriction. Clean filters. (See procedure in this section.) If problem persists, see your John Deere dealer to have evaporator core cleaned.

A—Blower Control Knob

B—High Position



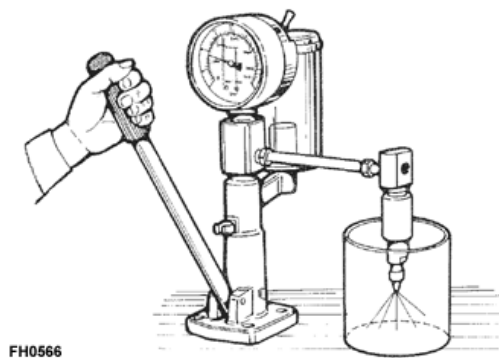
FH1749

FH1749—UN—18APR08

NR25796,0000F2E -19-18APR08-2/2

Check Injectors

- Connect the injector to a hand pump and check that setting pressure is 250-258 bars.
- Do the necessary adjustment by changing shim over the spring.
- Clean the injector by pressurized air.

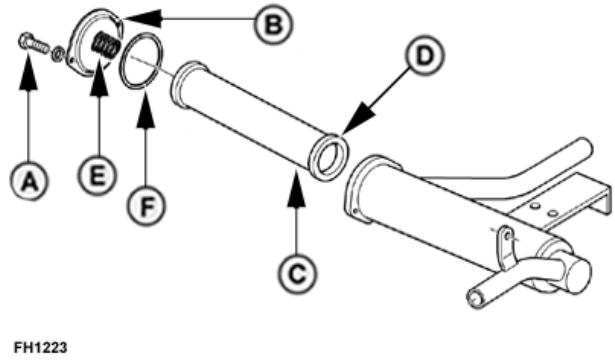
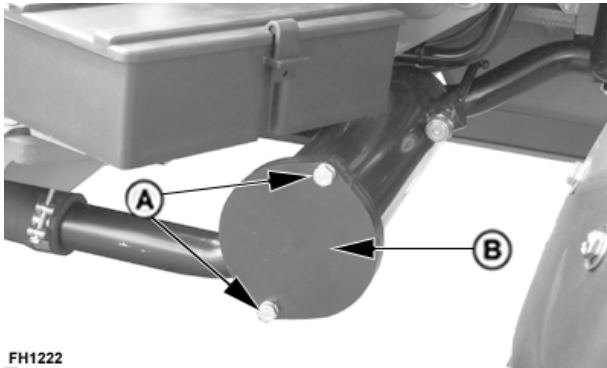


FH0566

FH0566—UN—09AUG07

SS01820,0000B5A -19-14AUG07-1/1

Change Hydraulic Filter



1. Remove oil drain plug and drain oil.
2. Remove cap screw (A) and plate (B).
3. Remove filter (C) and replace with new filter.
4. While assembling filter check position of seal (D) spring (E) and O-ring (F).
5. Assemble filter in reverse order.
6. Install drain plug
7. Fill system with transmission-hydraulic oil as per specification.

Specification

Transmission and
Hydraulic Oil—Capacity..... 35 L (9.25 gal.)



A—Cap Screws (2 used)
B—Plate
C—Filter
D—Seal

E—Spring
F—O-Ring
G—Oil Dipstick

8. Check oil level at dipstick (G) after filling, and again after operating for 5 minutes.

SS40167,0000F93 -19-25OCT10-1/1

Drain Water and Sediment From Fuel Tank and Fuel Filter

NOTE: Place a small container under drain fitting to catch draining fuel. Dispose of waste properly.

1. Open fuel tank fitting to bleed accumulated moisture and sediment from the fuel tank. Tighten fitting closed when clear fuel runs from fitting.

2. Open fuel filter drain to bleed accumulated moisture and sediment from filter. Tighten drain when clear fuel runs from drain.

NR25796,0000E7B -19-18AUG07-1/1

Adjust Throttle Friction

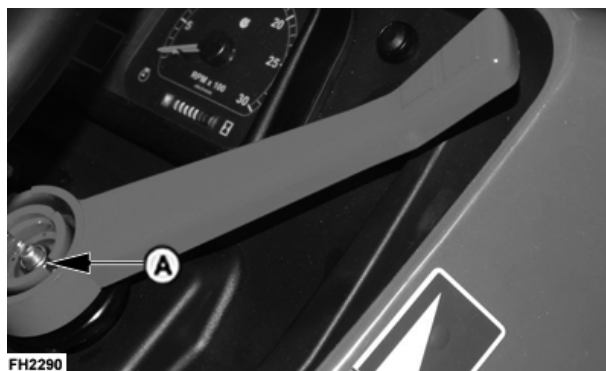
REASON: To achieve smooth throttle lever movement with a slight drag.

PROCEDURE:

When throttle linkage becomes loose and does not stay in set position, adjust it as follows:

1. Adjust tension by loosening or tightening lock nut (A) until throttle lever movement is smooth throughout range of travel with only slight drag.

A—Lock Nut



FH2290—UN—02SEP09

SS40167,0000F94 -19-12OCT09-1/1

Service

Service Tractor Safely



FH0001

FH0001—UN—18AUG07

Disengage power to attachments and stop engine before making any repairs or adjustments.

Do not change engine governor setting or overspeed engine.

Keep the vehicle and attachments in good operating condition.

Keep safety devices in place and in working condition.

Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.

Before you work on any part of the engine, stop the engine, and let it cool. Hot engine parts can burn skin on contact.

Be careful to prevent clothing, jewelry, or long hair from getting caught in the fan blades, drive belts, or any other moving engine parts.

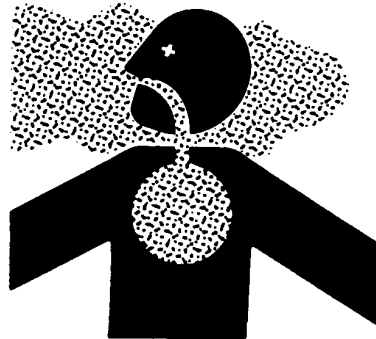
Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

SS40167,00001C6 -19-27JUL07-1/1

Work In Ventilated Area

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

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



TSZ20—UN—23AUG88

DX,AIR -19-17FEB99-1/1

Clean Vehicle of Hazardous Pesticides

CAUTION: During application of hazardous pesticides, pesticide residue can build up on the inside or outside of the vehicle. Clean vehicle according to use instructions of hazardous pesticides.

When exposed to hazardous pesticides, clean exterior and interior of vehicle daily to keep free of the accumulation of visible dirt and contamination.

1. Sweep or vacuum the floor of cab.
2. Clean headliners and inside cowlings of cab.
3. Wash entire exterior of vehicle.
4. Dispose of any wash water with hazardous concentrations of active or non-active ingredients according to published regulations or directives.

DX,CABS2 -19-24JUL01-1/1

Engine Break-In Oil

New engines are filled at the factory with John Deere ENGINE BREAK-IN OIL. During the break-in period, add John Deere ENGINE BREAK-IN OIL as needed to maintain the specified oil level.

Change the oil and filter after the first 100 hours of operation of a new or rebuilt engine.

If engine has been under light load during the first 100 hours of operation, continue to use ENGINE BREAK-IN OIL for the first 2—3 oil changes.

If John Deere ENGINE BREAK-IN OIL is not available, use a diesel engine oil with oil viscosity based on the expected air temperature range, and meeting one of the following:

IMPORTANT: IMPORTANT: These oils are not ENGINE BREAK-IN OIL's and should only be used as a

last resort to maintain the specified oil level. Change the filter and oil at the first opportunity and refill with John Deere ENGINE BREAK-IN OIL to continue the break-in period.

- API Service Classification CG-4
- API Service Classification CF-4
- ACEA Specification E3
- ACEA Specification E2

After the break-in period, use John Deere PLUS-50® oil or other diesel engine oil as recommended in this manual.

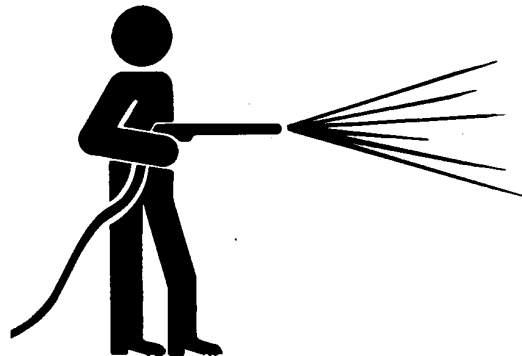
IMPORTANT: Do not use John Deere PLUS-50® oil or engine oils meeting API CG4 or API CF4 during the first 100 hours of operation of a new or rebuilt engine. These oils will not allow the engine to break-in properly.

PLUS-50 is a trademark of Deere & Company

SS40167,00001C9 -19-29APR08-1/1

Using High-Pressure Washers

IMPORTANT: Directing pressurized water at electronic/electrical components or connectors, cab air inlet filter, bearings and hydraulic seals, fuel injection pumps or other sensitive parts and components may cause product malfunctions. Reduce pressure, and spray at a 45 to 90 degree angle.



T6642EJ—UN—18OCT88

SS40167,0000D66 -19-22APR08-1/1

Additional Service Information

This is not a detailed service manual. It contains only information needed for operation and routine

maintenance. If you want more detailed service information, use the form in the back of this manual to order a Parts Catalog and/or a Technical Manual.

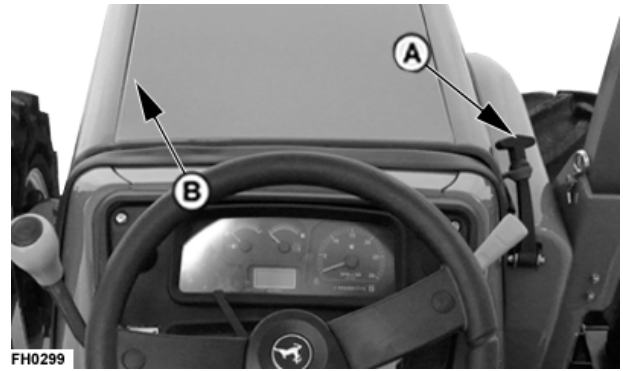
SS40167,00001CB -19-18JUL07-1/1

Open Hood

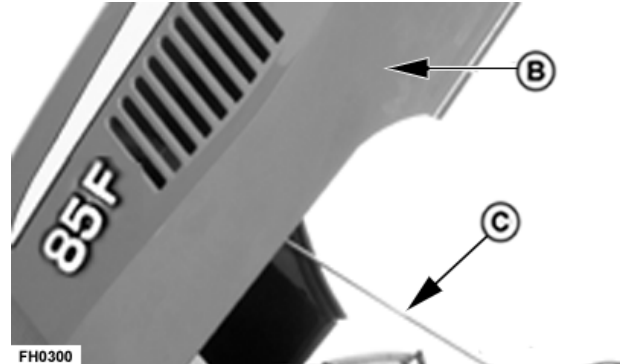
1. Unlock the hood from hood latch release (A).
2. Open the hood (B) by turning it to front side.
3. Support the hood (B) in open state by support rod (C).

A—Hood Latch Release
B—Hood

C—Support Rod



FH0299 —UN—03AUG07



FH0300 —UN—23OCT07

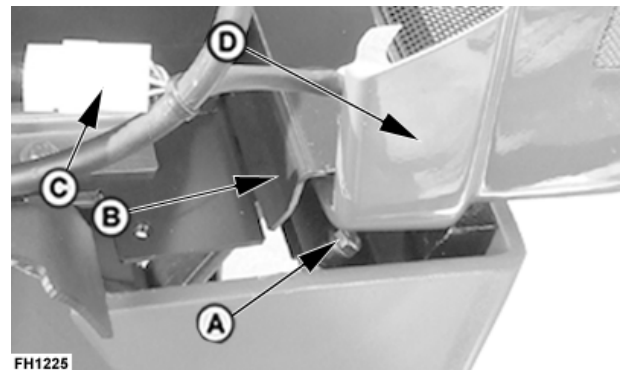
AH98466,0000479 -19-27AUG07-1/1

Remove Hood

1. Unlock the hood from hood latch release.
2. Tilt the hood to the front side.
3. Disconnect electrical connector (C)
4. Open the cap screw (A) with bracket (B), from the hood.
5. Now detach the hood (D) from the front support.

A—Cap Screw
B—Plate

C—Electrical Connector
D—Hood



FH1225 —UN—14JAN08

SS40167,0000D67 -19-22APR08-1/1

Cleaning Grille Screens, Radiator, Oil Cooler (If Equipped) or A/C Condenser (Cab)

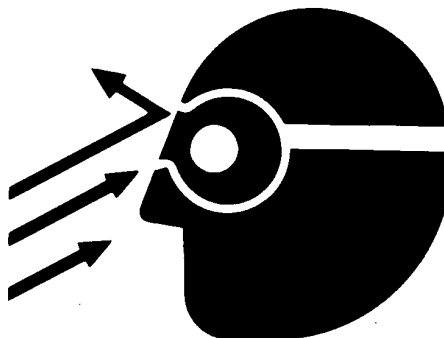
1. Whenever trash builds up on front grille (A), stop engine and brush clean.

CAUTION: Reduce compressed air to less than 210 kPa (2 bar) (30 psi) when using for cleaning purposes. Clear area of bystanders, guard against flying chips, and wear personal protection equipment including eye protection.

2. Raise hood and see if trash has built up on radiator (B), oil cooler (if equipped), or A/C condenser (cab) (C). If so, remove it using a brush or compressed air.
3. If a more thorough cleaning is necessary, clean radiator from behind with compressed air or water. Straighten any bent fins.

A—Grille
B—Radiator

C—A/C Condenser (Cab)

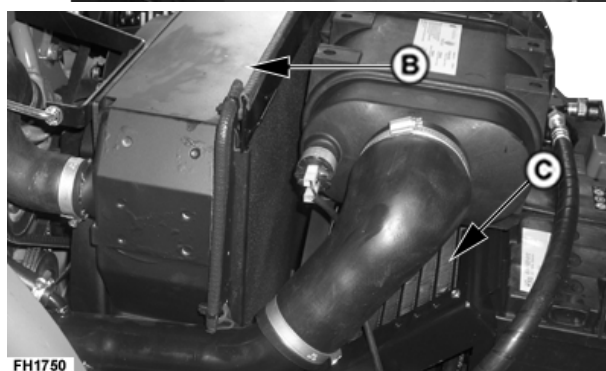


TS266 —UN—23AUG88



FH1031

FH1031 —UN—26SEP07



FH1750

FH1750 —UN—18APR08

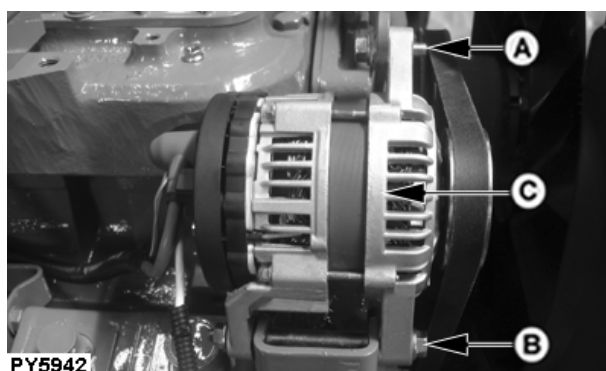
SS40167,0000A6B -19-03DEC07-1/1

Replace Alternator/Fan Belt

1. Loosen cap screw (A) and bolt (B) and rotate the alternator (C) to free the belt.
2. Remove belt from drive pulley.
3. Belt can be pulled around fan to remove.
4. Install new belt in reverse order of removal.
5. Adjust belt tension. (See Inspect and Adjust Alternator/Fan Belt in Service—250 Hours section.)

A—Alternator Cap Screw
B—Alternator Bolt

C—Alternator



PY5942

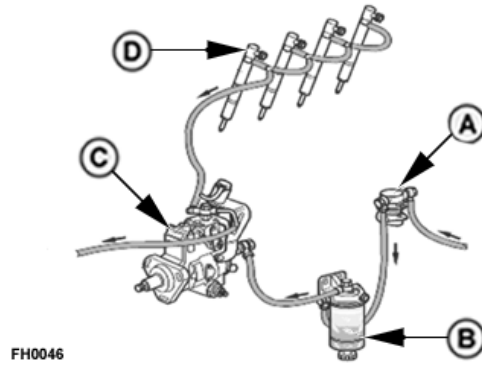
PY5942 —UN—18JUL06

AH98466,000033B -19-09AUG07-1/1

Fuel System Components

A—Feed Pump
B—Fuel Filter

C—Fuel Injection Pump
D—Injectors



FH0046

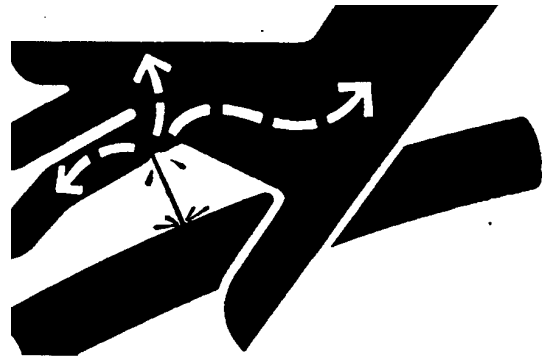
AH98466,000033C -19-09AUG07-1/1

FH0046 —UN—17AUG07

Bleed Fuel System

CAUTION: 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.



X9811 —UN—23AUG88

1. Fuel tank must have enough fuel.

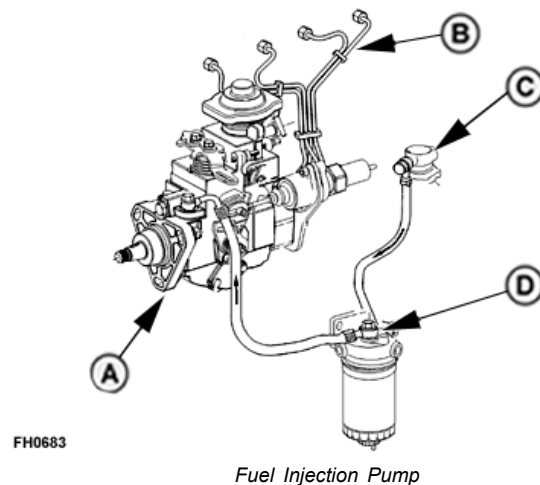
SS40167,0000D5C -19-18APR08-1/2

IMPORTANT: To avoid injection pump damage, DO NOT attempt to start the engine while bleeding the fuel system.

2. Loosen filter base bleed screw (D). Operate feed pump (C) until fuel runs out smoothly without spitting, then tighten bleed screw (D).
3. Injection pump is self purgine.
4. Remove fuel supply lines of injector.
5. Turn the engine over by means of starter motor until the air-free fuel runs from the injector.
6. Install fuel supply line and start engine.

A—Fuel Injection Pump
B—Fuel Supply Line

C—Feed Pump
D—Bleed Screw



FH0683

Fuel Injection Pump

SS40167,0000D5C -19-18APR08-2/2

FH0683 —UN—02SEP07

Do Not Modify Fuel System

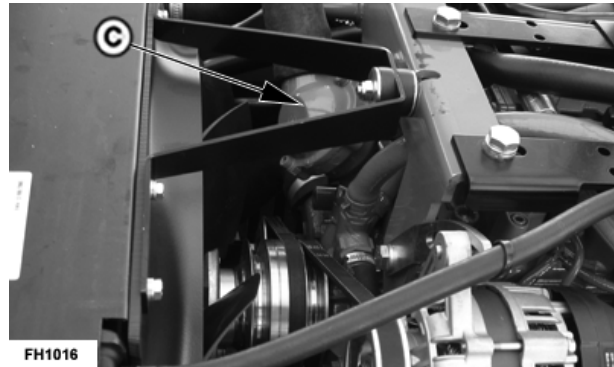
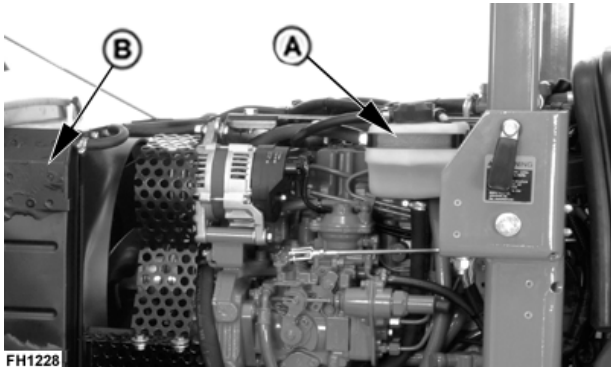
IMPORTANT: Modification or alteration of the injection pump, the injection pump timing, or the fuel injectors in ways not recommended by the manufacturer will terminate the warranty

obligation to the purchaser. (See warranty information inside front cover.)

DO NOT attempt to service injection pump or fuel injectors yourself. Special training and special tools are required. (See your John Deere dealer.)

SS40167,00001DA -19-18JUL07-1/1

Engine Cooling System Components



A—Coolant Recovery Tank B—Radiator

C—Thermostat Housing

IMPORTANT: Never pour cold water into the cooling system of a hot engine, as it might crack cylinder block or head. **DO NOT** operate engine without coolant for even a few minutes.

The tractors utilize a remote coolant recovery tank. Make-up coolant is added to the coolant recovery tank rather than directly to the radiator.

AH98466,00004B7 -19-22OCT07-1/1

Flush Cooling System

For efficient operation, drain old coolant, flush the entire system, and fill with clean antifreeze solution at least

once every two years. (See procedure in Service—2 Years/2000 Hours section.)

SS40167,00001DD -19-18JUL07-1/1

Winterize Cooling System

IMPORTANT: Draining cooling system **WILL NOT** protect against freezing if antifreeze is weak, since system does not drain completely.

1. Prior to cold weather, be sure cooling system contains 50 to 67 percent antifreeze. (See Engine Coolant in Fuels, Lubricants, and Coolant section.)

2. After adding antifreeze, run engine until it reaches operating temperature. This mixes solution uniformly and circulates it through the entire system.

SS40167,00001DE -19-18JUL07-1/1

Prevent Battery Explosions

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

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

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



TS204 —UN—23AUG88

DX,SPARKS -19-03MAR93-1/1

Observe Electrical Service Precautions

CAUTION: Keep all sparks and flames away from batteries, as gas given off by electrolyte is explosive. To avoid sparks, connect negative (ground) cable (A) last and disconnect it first. When using a booster battery, follow instructions in “Operating the Engine” section.

To avoid shocks and burns, disconnect battery negative (ground) cable (A) before servicing any part of the electrical system, then remove positive cable (B) if removing battery.

Keep all electrical shields in place.

A—Negative (-) Battery Cable B—Positive (+) Battery Cable



TS204 —UN—23AUG88



FH1233

FH1233 —UN—23OCT07

SS40167,00001E0 -19-23OCT07-1/1

Battery Access

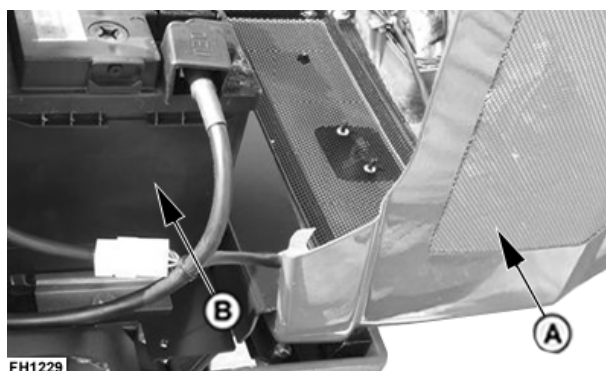
Battery is located in front of the radiator.

To gain access:

Raise the hood (A) and access the battery (B).

A—Hood

B—Battery



FH1229

FH1229—UN—22OCT07

AH98466,000047E -19-22OCT07-1/1

Remove Battery

CAUTION: To avoid sparks, disconnect negative (ground) cable first and connect it last.

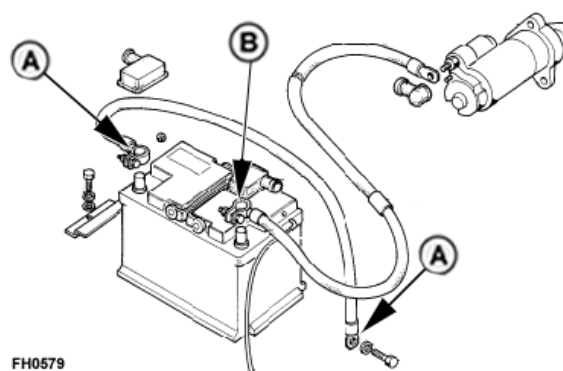
1. Remove negative (ground) battery cable (A) and remove the cable connection. Then remove positive cable (B) and connection.

Loosen nuts securing battery hold-down and rotate the holder down, freeing the battery.

2. Lift and slide the battery from the battery tray.

A—Negative (—) Cable Nut

B—Positive (+) Cable Nut



FH0579

FH0579—UN—21JAN08

AH98466,00004B8 -19-29AUG07-1/1

Check Battery Condition

CAUTION: Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

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

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

1. Use a battery hydrometer to check specific gravity of electrolyte in each cell. Charge battery if reading is below 1.215. Replace battery if difference between cells is more than 0.050 or if battery will not charge above 1.225.
2. Always correct specific gravity reading for electrolyte temperature variation. Add 0.004 to the reading obtained in step one for every 10°F above 80°F (add 0.007 to the reading for every 10° above 27°C). Subtract at same rate if electrolyte temperature is



TS204 —UN—23AUG88

below 80°F (27°C). Corrected specific gravity of a fully charged battery is from 1.265 to 1.280.

3. A battery is considered fully charged when three consecutive hydrometer readings, taken at hourly intervals, show no rise in specific gravity.

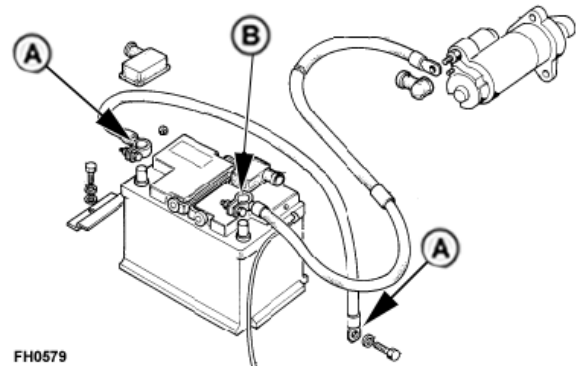
AH98466,00003B8 -19-10AUG07-1/1

Service Battery

1. Keep battery clean by wiping with a damp cloth. Keep all connections (A and B) clean and tight. To remove any corrosion, wash terminals with a solution of four parts water to one part baking soda.

CAUTION: To avoid sparks, connect negative (ground) (—) cable last and disconnect it first.

2. Keep battery fully charged, especially during cold weather. If a battery charger is connected, attach a positive cable to the positive battery terminal (B). Connect the negative battery charger lead to a good ground on tractor frame.



FH0579

A—Negative (—) Battery Terminal

B—Positive (+) Battery Terminal

FH0579 —UN—21JAN08

Continued on next page

AH98466,000047F -19-02MAY08-1/2

CAUTION: Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

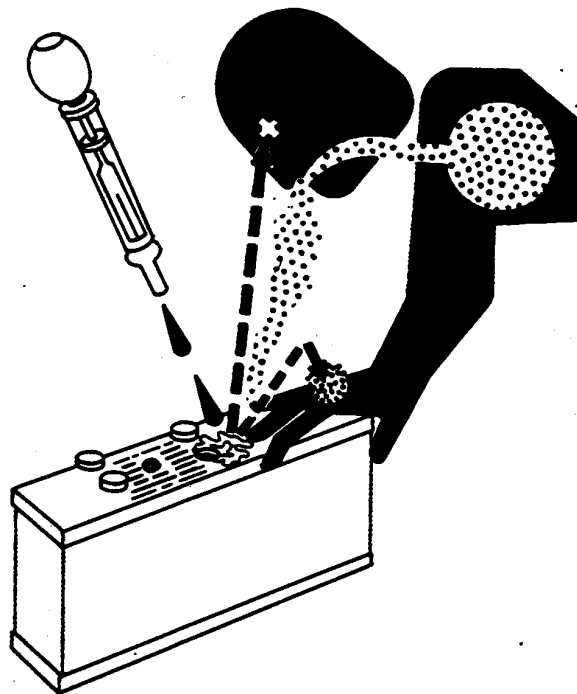
1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 15—30 minutes. Get medical attention immediately.

If acid is swallowed:

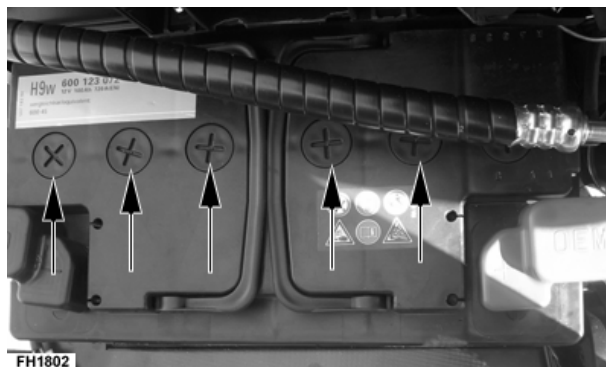
1. Do not induce vomiting.
2. Drink large amounts of water or milk, but do not exceed 2 L (2 quarts).
3. Get medical attention immediately.

IMPORTANT: DO NOT add water in freezing weather unless tractor will be run at least 30 minutes to assure thorough mixing.

3. Check level of electrolyte in each cell (A) at least every 250 hours. If low, fill to bottom of filler necks with CLEAN, SOFT water. DO NOT OVERFILL.
4. Coat terminals with a small amount of grease.



TS203—UN—23AUG88



FH1802

FH1802—UN—18APR08

AH98466,000047F -19-02MAY08-2/2

Charge Battery

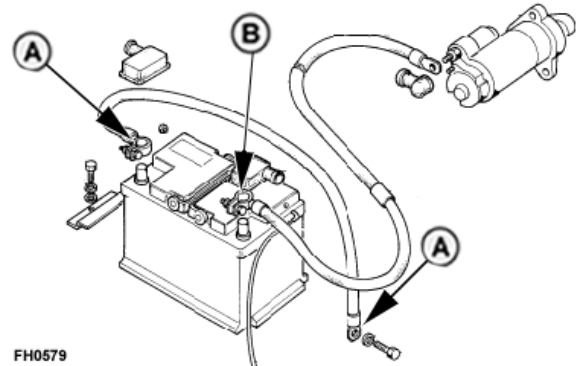
Keep battery fully charged, especially during cold weather.

CAUTION: Gas given off by battery is explosive. Keep sparks and flames away from battery. Before connecting or disconnecting a battery charger, turn charger off. Make last connection and disconnection at a point away from battery.

1. With charger off, attach positive battery charger lead to positive (+) battery terminal (B). Attach negative charger lead to tractor frame away from the battery.
2. Turn charger on and recharge the battery following battery manufacturer's instructions for using charger. Check battery condition as described below.
3. To disconnect battery charger, turn charger off. Remove negative charger lead first, follow by positive charger lead.

A—Negative (—) Battery Terminal

B—Positive (+) Battery Terminal



FH0579

AH98466,00004B9 -19-29AUG07-1/1

TS204 —UN—23AUG88

FH0579 —UN—21JAN08

Battery Replacement Specifications

When replacing battery, use recommended battery. See your John Deere dealer.

Specification	
Battery—Volts.....	12 Volts
100F and 85F Ampere	
Rating	100 AH

SS40167,0000D65 -19-22APR08-1/1

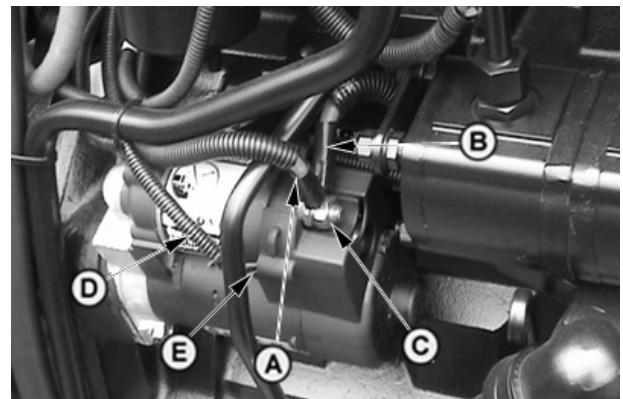
Connect Starter Wiring

IMPORTANT: Disconnect battery negative (ground) cable before servicing any part of electrical system. Make all other connections before connecting ground cable.

Connect large battery cable (A) and alternator cable (B) to large solenoid post (C). Connect the small white wire (D) to solenoid terminal (E).

A—Large Battery Cable
B—Alternator Cable
C—Large Solenoid Post

D—Small White Wire
E—Solenoid Terminal



AH98466,00003BC -19-10AUG07-1/1

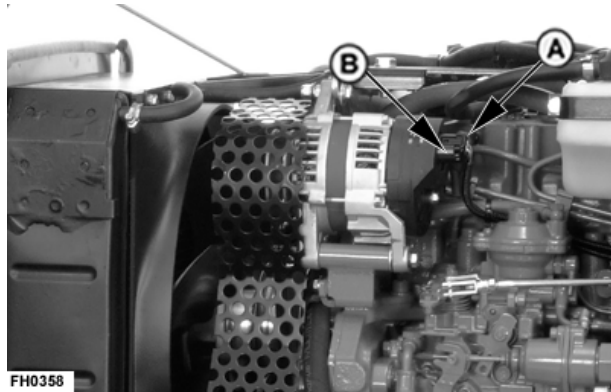
PY4037 —UN—17JUL04

Connect Alternator Wiring

IMPORTANT: Disconnect battery negative (ground) cable before servicing any part of electrical system. Make all other connections before connecting ground cable.

To prevent damage to electrical system, disconnect alternator before making any electrical weld repairs. If an attached implement needs weld repair, disconnect it from tractor before welding, to prevent damage to tractor electrical system.

If alternator is disconnected for any reason, connect wires (A) and (B) as shown at right.



A—Alternator Wire

B—Alternator Wire

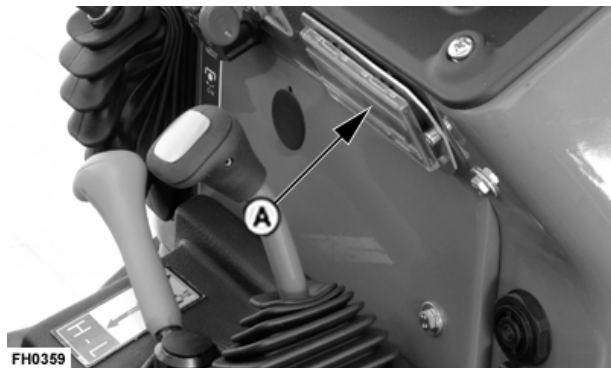
AH98466,00003BD -19-10AUG07-1/1

Locate Fuses

All electrical circuits are protected by fuses. Amperage rating is marked on each fuse, plus fuses are color coded to ensure proper replacement.

IMPORTANT: DO NOT replace original fuse with higher rated fuse or machine damage may occur. If original size fuse will not carry electrical load and continues to blow, have the electrical system checked by your John Deere dealer.

A—Fuse Box



AH98466,00003BE -19-10AUG07-1/1

Locating Fuses—Cab

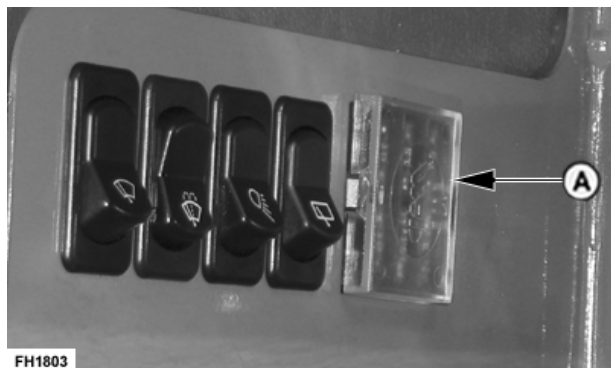
NOTE: A fuse and relay reference label is provided inside cover.

1. Remove portable "Field Office", if equipped.
2. Remove cover (A) to access fuses/relay block.

All electrical circuits are protected by fuses. Amperage rating is marked on each fuse, plus fuses are color coded to ensure proper replacement.

Fuse Rating	Color
5 Amp	Orange
10 Amp	Sky Blue
15 Amp	Blue
20 Amp	Yellow

IMPORTANT: DO NOT replace original fuse with higher rated fuse or machine damage may occur. If original size fuse will not carry electrical



A—Cover

load and continues to blow, have the electrical system checked by your John Deere dealer.

NR25796,0000F2F -19-27SEP07-1/1

Fuse Size and Function

1 =15A = Right Hand Rear, Left Hand Front Light, Right Hand Licence Plate Light, 7-Pin Power Socket , Side Sight Indicator Light and Front Lights, Right Hand Licence Plate Light, 7-Pin Power Socket , Side Light Indicator Light.

2 =15A = Left Hand Rear, Right Hand Front Light, Left Hand Licence Plate Light, 7-Pin Socket.

3 =15A = 4WD Switch (Hazard Switch), Parking Brake Switch.

4 =20A = 4WD Realy Enabeling Relay.

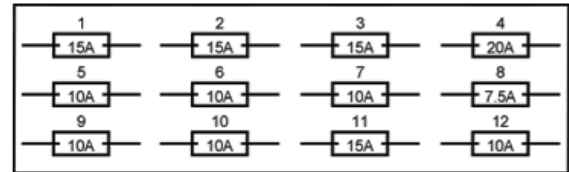
5 =10A = Right Hand Dipped Beam.

6 =10A = Left Hand Dipped Beam.

7 =10A = Differential Lock Switch Optional Power Supply Connection.

8 =7.5A = Lead Variator Relay, Motor Stop Solenoid, EXC Alternator.

9 = 10A = Right Hand and Left Hand Driving Beam, Turn Indicator Switch.



FH1230

Fuse Box

10 =10A = Hazard Switch, 2- Pin Socket, Driving Beam Blinker.

11 =15A = 7-Pin Socket, Light Switch.

12 =10A = 1-Pin Socket Power Supply.

AH98466,00004AE -19-22OCT07-1/1

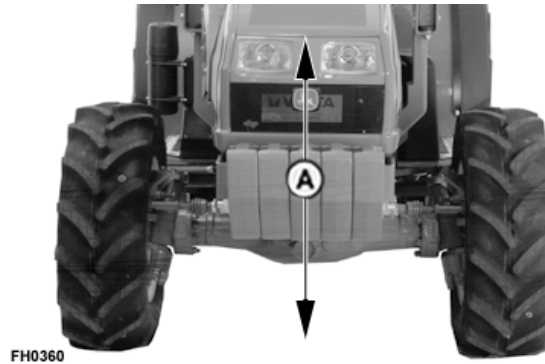
FH1230 —UN—22OCT07

Aim Headlights

1. Park tractor on level ground, with lights 8 m (25 ft) from a wall.
2. Measure from top of hood to the ground (A). Place a strip of masking tape (B) on the wall at the same height.
3. Place a piece of tape, folded in the middle to make a point, on the top front center of the hood.
4. Using the hood tape as a guide, sight across steering wheel and hood to locate tractor centerline. Mark tractor centerline (C) on wall.
5. From tractor centerline (C), mark a point 130 mm (5 in.) out in each direction (D). This mark locates a point directly in front of center of each headlight.
6. Turn light switch to dim position.
7. Locate small zone of bright light projected by each lamp. Cover other lamps if necessary. Top of zone (E) should be 130 mm (5 in.) below the tape. Left edge of zone (F) should be 130 mm (5 in.) left of lamp location marked (D).
8. To adjust headlights, see Adjusting Headlights in this section.

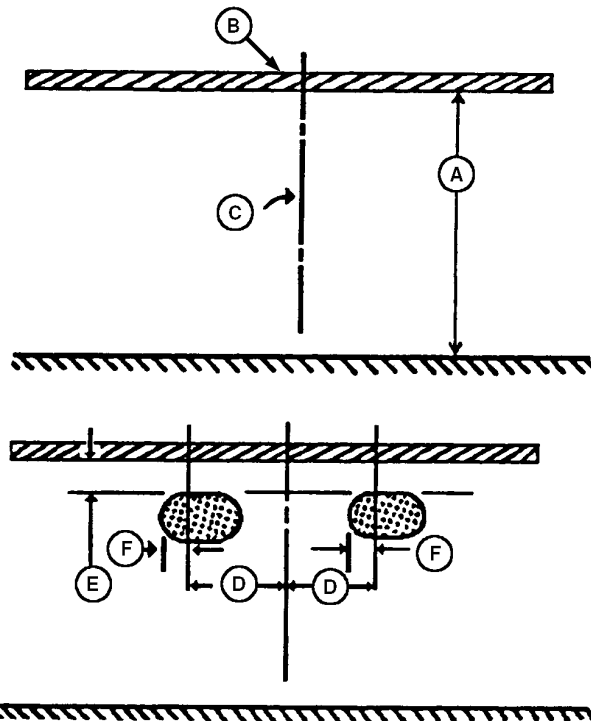
A—Distance from Ground to
Top of Hood
B—Masking Tape
C—Tractor Centerline

D—Distance from Tractor
Centerline to Headlight
Center
E—Top of Zone
F—Left Edge of Zone



FH0360

FH0360—UN—27AUG07



LV3020—UN—10JUN99

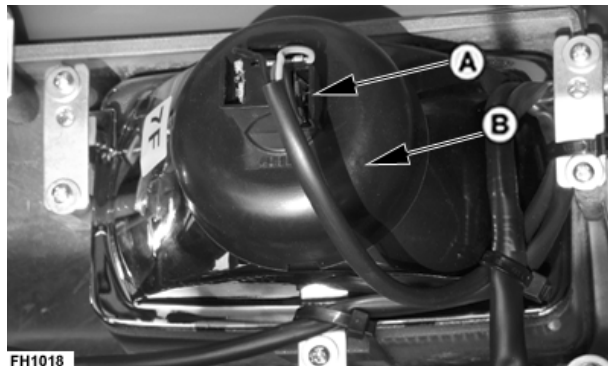
AH98466,00004B2 -19-29AUG07-1/1

Replace Headlight Bulb

1. Remove headlight connector (A).
2. Remove dust boot (B).

A—Headlight Connector

B—Dust Boot



FH1018

FH1018—UN—26SEP07

Continued on next page

SS40167,00001EE -19-27SEP07-1/2

3. Twist collar (C).
4. Remove bulb (D).

CAUTION: A halogen bulb is pressurized and may shatter. Protect bulb against abrasions and scratches.

To guard against personal injury, wear protective eyeglasses and clothing when handling bulb. Turn power off when installing and before removing bulb. Dispose of bulb with care.

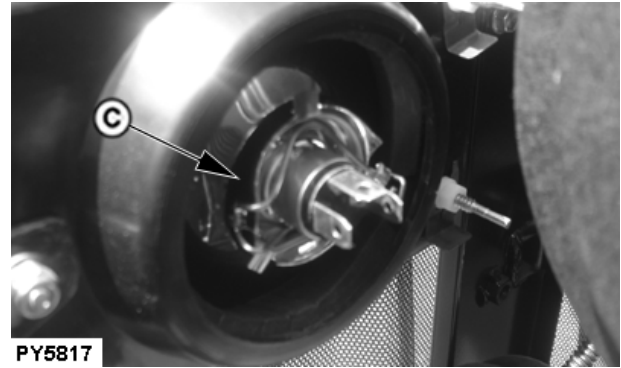
Allow bulb to cool before removing.

Read and follow all bulb manufacturers installation instructions.

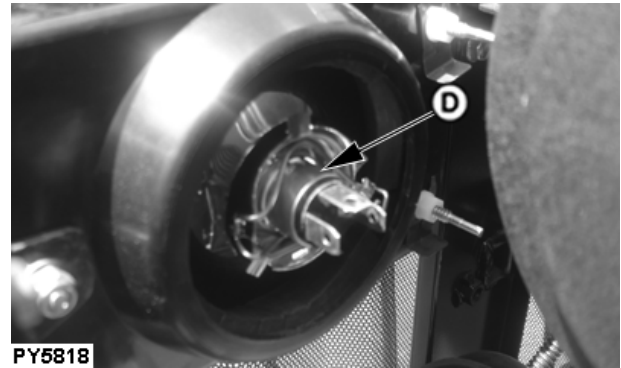
5. Install bulb, collar, seal and connector in reverse order.

C—Collar

D—Bulb



PY5817 —UN—16JUN06



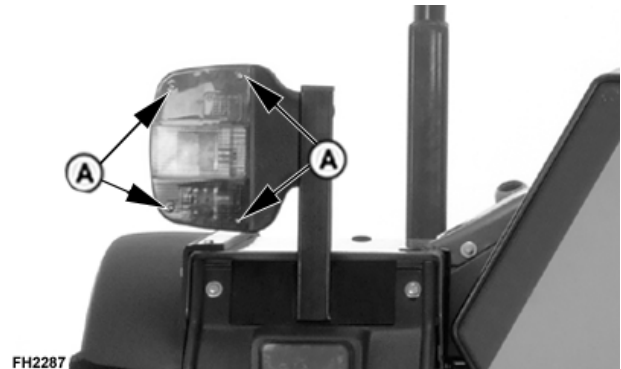
PY5818 —UN—19JUN06

SS40167,00001EE -19-27SEP07-2/2

Replace Tail Light and Warning Light Bulbs

1. Remove screws (A).
2. Remove lens.
3. Push and twist to release bulb from socket.
4. Reverse this procedure to reassemble light.

A—Cap Screw



FH2287 —UN—20AUG09

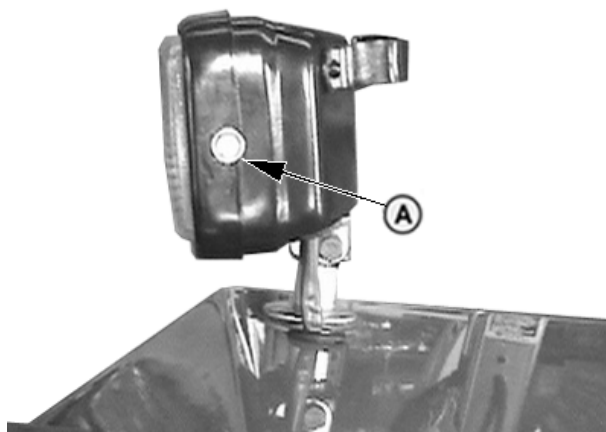
Tail Lights and Warning Lights

SS40167,0000F75 -19-20AUG09-1/1

Replace Flood Lamp Bulb

1. Loosen mounting hardware (A) and rotate flood lamp up to access cover fastening screw.
2. Remove screw, lamp cover and lamp from housing.
3. Disconnect wiring leads from bulb.
4. Rotate bulb counterclockwise and remove.
5. Reverse the procedure to reassemble the flood lamp.

A—Mounting Hardware



PY4506—UN—17JAN05

AH98466,0000483 -19-27AUG07-1/1

Check Tires

1. Check tires daily for damage or noticeably low pressure.
2. Have any cuts or breaks repaired as soon as possible.
3. Protect tires from exposure to sunlight, petroleum products and chemicals.
4. Drive carefully. Try to avoid rocks and sharp objects.
5. At least every 100 hours of operation, check tires with an accurate gauge having 10 kPa (0.1 bar) (1 psi) graduations. If tires contain liquid ballast, use a special air-water gauge and measure with valve stem at bottom.

IMPORTANT: Minimum pressures may be used only for light loads and only if tractor has

no added weight. If you install ballast or mounted implements, or if you pull heavy loads, increase pressure.

Refer to Tire Inflation Pressure Chart in Wheels, Tires and Treads section.

AH98466,00003C0 -19-10AUG07-1/1

Tubeless Tire Repair

Certain sizes of tires are tubeless. Small tubeless tire punctures can be temporarily repaired without dismounting tire, avoiding down time during busy season.

(See your John Deere dealer or tire service store for repair kits and instructions.)

IMPORTANT: A permanent, inside-out repair should be made as soon as possible to prevent tire damage.

SS40167,00001F2 -19-18JUL07-1/1

Keep ROPS Installed Properly

CAUTION: Make certain all parts are installed correctly if roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, as in an overturn incident, or is in anyway altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused. Any alteration to the ROPS must be approved by the manufacturer.

When installation of equipment on a machine necessitates loosening or removing Roll-Over Protective Structure (ROPS) (C), mounting bolts (D) should be tightened to specification.

Specification

ROPS Mounting

Bolts—Torque..... 240N·m (177 lb-ft)

Inspect ROPS mounting hardware every 250 hours for proper torque or replacement.

TO LOWER ROPS CROSSBAR (A):

1. Remove quick-lock pins (A) and headed pins (B) on both side of ROPS.
2. Lower crossbar (C) of ROPS onto stops.
3. Reinstall pins (A and B) into bottom holes in ROPS to lock crossbar down.

CAUTION: Always keep upper part of ROPS pinned in vertical position (as pictured) when operating tractor. If tractor is operated with ROPS folded (e.g. to enter a low building) drive with extreme caution and DO NOT use seat belt.

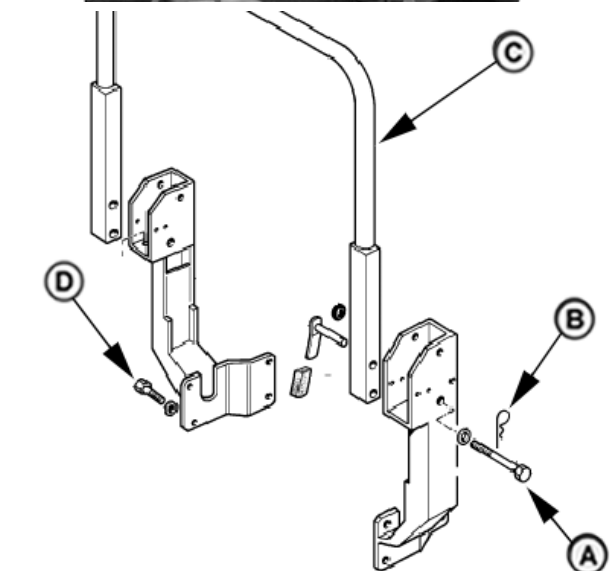
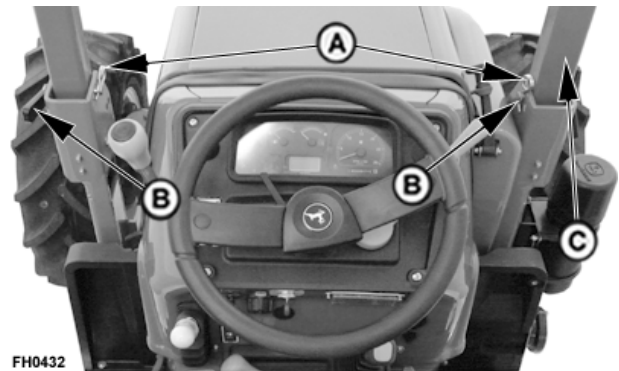
Fold the ROPS up again as soon as the tractor is operated under normal conditions.

TO PUT ROPS IN OPERATING POSITION:

Lift crossbar (A) of ROPS to vertical position. Install pins (B) and quick-lock pins (A) into bottom holes in ROPS to lock in position.

A—Quick-Lock Pins (2 used)
B—Headed Pins (2 used)

C—ROPS Crossbar
D—Mounting Bolts (8 used)



Troubleshooting

Engine Troubleshooting

Symptom	Problem	Solution
Engine hard to start or will not start	Improper starting procedure.	Reviewing starting procedure.
	No fuel.	Check fuel tank.
	Air in fuel tank.	Bleed fuel tank.
	Hand primer left raised.	Push primer down.
	Cold weather.	Use cold weather starting procedure.
	Slow starter speed.	See "Starter Cranks Slowly".
	Crankcase oil too heavy.	Use oil of proper viscosity.
	Improper type of fuel.	Consult fuel supplier; use proper type fuel for operating conditions.
	Water, dirt, or air in fuel system.	Drain, flush, fill and bleed system.
	Clogged fuel filter.	Replace filter element.
	Dirty or faulty injectors.	Have John Deere dealer check injectors.
	Injection pump shut-off not reset.	Turn key switch to OFF then to ON.
	Fuel shut-off valve closed.	Open fuel shut-off valve.
Engine knocks	Insufficient oil.	Add oil.
	Injection pump out of time.	See your John Deere dealer.
	Low coolant temperature.	See your John Deere dealer.
	Engine overheating.	See "Engine Overheats".
Engine runs irregularly or stalls frequently	Low coolant temperature.	See your John Deere dealer.
	Clogged fuel filter.	Replace filter element.
	Water, dirt, or air in fuel system.	Drain, flush, fill, and bleed system.
	Dirty or faulty injectors.	Have John Deere dealer check injectors.
	Improper type of fuel.	Use proper fuel.
Below normal engine temperature	Defective temperature gauge or sender.	Check gauge, sender, and conditions.
Lack of power	Engine overloaded.	Reduce load or shift to lower gear.

Continued on next page

AH98466,0000484 -19-27AUG07-1/4

Symptom	Problem	Solution
	Low fast idle speed.	See your John Deere dealer.
	Intake air restriction.	Service air cleaner.
	Clogged fuel filter.	Replace filter element.
	Improper type of fuel.	Use proper fuel.
	Overheated engine.	See "Engine Overheats".
	Below normal engine temperature.	See your John Deere dealer.
	Improper valve clearance.	See your John Deere dealer.
	Dirty or faulty injectors.	Have John Deere dealer check injectors.
	Injection pump out of time.	See your John Deere dealer.
	Turbocharger not functioning .	See your John Deere dealer.
	Leaking exhaust manifold gasket .	See your John Deere dealer.
	Implement improperly adjusted.	See implement operator's manual.
	Restricted fuel line.	See your John Deere dealer.
	Restricted return line.	See your John Deere dealer.
	Improper ballast.	Adjust ballast to load.
Low oil pressure	Low oil level.	Add oil.
	Improper type of oil.	Drain, fill crankcase with oil of proper viscosity and quality.
High oil consumption	Crankcase oil too light.	Use proper viscosity oil.
	Oil leaks.	Check for leaks in lines, around gaskets and drain plugs.
	Restricted crankcase vent tube.	Clean vent tube.
	Defective turbocharger .	See your John Deere dealer.
Engine emits white smoke	Improper type fuel.	Use proper fuel.
	Low engine temperature.	Warm up engine to normal operating temperature.
	Defective thermostat.	See your John Deere dealer.

Continued on next page

AH98466,0000484 -19-27AUG07-2/4

Symptom	Problem	Solution
Engine emits black or gray exhaust smoke	Defective injection nozzles.	See your John Deere dealer.
	Engine out of time.	See your John Deere dealer.
	Cold start advance or light load advance not functioning.	See your John Deere dealer.
	Improper type of fuel.	Use proper fuel.
	Clogged or dirty air cleaner.	Service air cleaner.
	Engine overloaded.	Reduce load or shift to a low gear.
	Injection nozzles dirty.	See your John Deere dealer.
Engine overheats	Engine out of time.	See your John Deere dealer.
	Turbocharger not functioning.	See your John Deere dealer.
	Dirty radiator core, or grille screens.	Remove all trash.
	Engine overloaded.	Shift to lower gear or reduce load.
	Low engine oil level.	Check oil level. Add oil as required.
	Low coolant level.	Fill radiator to proper level, check radiator, coolant recovery tank, and hoses for loose connection or leaks.
	Faulty radiator cap.	Replace cap.
	Loose or defective fan belts.	Adjust belt tensions.
	Cooling system needs flushing.	Flush cooling system.
	Defective thermostat.	See your John Deere dealer.
	Defective temperature gauge or sender.	See your John Deere dealer.
	Incorrect grade of fuel.	Use proper fuel.
High fuel consumption	Improper type of fuel.	Use proper fuel.
	Clogged or dirty air cleaner.	Service air cleaner.
	Engine overloaded.	Reduce load or shift to a lower gear.
	Improper valve clearance.	See your John Deere dealer.
	Injection nozzles dirty.	See your John Deere dealer.
	Engine out of time.	See your John Deere dealer.

Continued on next page

AH98466,0000484 -19-27AUG07-3/4

Troubleshooting

Symptom	Problem	Solution
	Implement improperly adjusted.	See implement operator's manual.
	Low engine temperature.	See your John Deere dealer.
	Excessive ballast.	Adjust ballast to load.
	Defective turbocharger .	See your John Deere dealer.
	Restricted air intake system.	Check system.
	Plugged crankcase vent tube.	Clean vent tube.

AH98466,0000484 -19-27AUG07-4/4

Transmission Troubleshooting

Symptom	Problem	Solution
Transmission oil overheats	Low oil supply.	Fill system with correct oil.
	Clogged transmission-hydraulic oil filter.	Replace filter.
	Internal hydraulic leak.	See your John Deere dealer.
	Hitch feedback linkage improperly adjusted.	Reset linkage. See your John Deere dealer.
	Hydraulic motor not plumbed correctly.	See your John Deere dealer.
Low transmission pressure	Low oil supply.	Fill system with correct oil.
	Clogged transmission-hydraulic oil filter.	Replace filter.

AH98466,0000485 -19-27AUG07-1/1

Hydraulic System Troubleshooting

Symptom	Problem	Solution
Entire hydraulic system fails to function	Low oil supply.	Fill system with correct oil.
	Clogged transmission-hydraulic filter.	Replace filter.
	Clogged transmission-hydraulic pickup screen.	Clean pickup screen.
	High-pressure internal leak.	See your John Deere dealer.
Hydraulic oil overheats	Low oil supply.	Fill system with correct oil.
	Clogged transmission-hydraulic oil filter.	Replace filter.
	Internal hydraulic leak.	See your John Deere dealer.
	Hitch feedback linkage improperly adjusted.	Reset linkage. See your John Deere dealer.
	Hydraulic motor not plumbed correctly.	See your John Deere dealer.

SS40167,00001F6 -19-18JUL07-1/1

Brakes Troubleshooting

Symptom	Problem	Solution
No solid pedal feel	Air in system.	See your John Deere dealer.
Pedal settles	Rear brake piston seal leaking.	See your John Deere dealer.
Excessive pedal travel	Air in system.	See your John Deere dealer.
Brakes drag during transport	Brakes out of adjustment.	See your John Deere dealer.

SS40167,00001F7 -19-18JUL07-1/1

Rockshaft and Quick-Coupler 3-Point Hitch Troubleshooting

Symptom	Problem	Solution
Insufficient transport clearance	Center link too long.	Adjust center link.
	Lift links too long.	Adjust lift links.
	Implement not level.	Level implement.
	Implement not properly adjusted.	See implement operator's manual.
	Front of center link in upper holes.	Move center link to lower holes.
	Sway chains adjusted to short.	Lengthen sway chains.
Hitch drops slowly	Rockshaft rate-of-drop control not properly set.	Adjust rate-of-drop knob.
Hitch fails to lift or lifts slowly	Excessive load on hitch.	Reduce load.
	Low oil level.	Fill system with proper oil.
	Hydraulic oil too cold.	Allow oil to warm.
	Transmission-hydraulic oil filter clogged.	Replace filter.
Implement will not operate at desired depth	Transmission-hydraulic pickup screen clogged.	Clean or replace pickup screen.
	Lift links too short.	Adjust lift links.
	Lack of penetration.	See implement operator's manual.
	Improper setting of limit stop.	Reset position limit.
	Improper setting of draft lever.	See Rockshaft and 3-Point Hitch section.
Insufficient or no hitch response to draft load	Front attachment of center link in upper holes.	Move center link attachment to lower bracket holes.
	Draft control lever in "Off" position.	Move lever rearward.
	Lift links too short.	Adjust lift links.
	Lack of penetration.	See implement operator's manual.
	Rate-of-drop too slow.	Adjust rate-of-drop valve.
Hitch too responsive	Front attachment on center link in lower bracket holes.	Move center link attachment to upper bracket holes.
	Improper draft sensing adjustment.	Move lever forward.

Continued on next page

SS40167,00001F8 -19-18JUL07-1/2

Troubleshooting

Symptom	Problem	Solution
Hitch drops too fast	Rate-of-drop set too fast.	Adjust rate-of-drop.
Rockshaft control levers “drift”. Levers too loose.	Friction disks are loose.	Adjust rockshaft control lever friction. See procedures in “Rockshaft and 3-Point Hitch” section or see your John Deere dealer.

SS40167,00001F8 -19-18JUL07-2/2

Remote Hydraulic Cylinders Troubleshooting

Symptom	Problem	Solution
Direction of remote cylinder travel is reversed	Improper hose connections.	Reverse hose connections
Hoses will not couple	Improper hose male tips.	Replace tip with ISO standard tips.
Remote cylinder will not lift load	Excessive load.	Reduce load.
	Hoses not completely installed.	Attach hoses correctly.
	Incorrect remote cylinder size.	Use correct size cylinder.
Direction of travel reverses on SCV II	SCV lever moved to regenerate position.	Reverse hose couplings.

AH98466,0000486 -19-27AUG07-1/1

Electrical System Troubleshooting

Symptom	Problem	Solution
Battery will not charge	Loose or corroded connections.	Clean and tighten connections.
	Sulfated or worn-out battery.	Check electrolyte level and specific gravity.
	Loose or defective alternator/fan belt.	Adjust belt tension or replace belt.
Charging system indicator glows with engine running	Low engine speed.	Increase speed.
	Defective battery.	Check electrolyte level and specific gravity.
	Defective alternator.	See your John Deere dealer.
	Slipping alternator/fan belt.	Adjust belt tension.
Starter cranks slowly	Low battery output.	Check electrolyte level and specific gravity.
	Crankcase oil too heavy.	Use proper viscosity oil.
	Loose or corroded connections.	Clean and tighten loose connections.
Light system does not function; rest of electrical system functions Entire electrical system does not function	Blown fuse.	Replace fuse.
	Faulty battery connections.	Clean and tighten connections.
	Sulfated or worn-out battery.	Check electrolyte level and specific gravity.
	Blown fuse.	Replace fuse.
Relays sticking or nonfunctional; repeated failures	Diode to protect circuit from arcing has failed.	See your John Deere dealer.

AH98466,0000487 -19-27AUG07-1/1

Heater and A/C System Troubleshooting (Cab)

Symptom	Problem	Solution
All cab electrical switches do not work	Loose, defective or blown fusible link.	See your John Deere dealer.
Blower malfunctioning	Blower does not work.	Check both blower fuses.
Blower operates only in purge position	One of two fuses blown.	Replace fuse.
	Blown blower resistance assembly.	See your John Deere dealer.
Heater does not work	Low coolant level.	Check coolant level; add if necessary.
	Faulty thermostat.	See your John Deere dealer.
	Heater control valve not functioning properly.	See your John Deere dealer.
	Heater core or hoses clogged or damaged.	Flush cooling system. (See your John Deere dealer.) Replace heater core or hoses. (See your John Deere dealer.)
Air conditioning does not work	Fan belt loose or slipping.	Check belt tension. Replace belt if necessary.
	Blown fuse.	Replace fuse.
	Defective switch.	See your John Deere dealer.
	Faulty wiring or loose connections.	See your John Deere dealer.
	Defective compressor clutch.	See your John Deere dealer.
Drafts	Poor air distribution	Adjust directional air louvers.
		Set blower switch to medium or low positions.
Inadequate air flow	Clogged air filters.	Clean filters.
	Evaporator core air flow restricted.	Clean evaporator and housing with compressed air.
	Faulty blower fan motors.	See your John Deere dealer.
	Defective blower switch.	See your John Deere dealer.
	Faulty wiring or loose connections.	See your John Deere dealer.
Water leaking or dripping from evaporator core compartment	Loose hose clamp.	Tighten clamp.
	A/C drip pan dirty.	Clean evaporator pan and outlet with compressed air.

Continued on next page

NR25796,0000F30 -19-27SEP07-1/3

Symptom	Problem	Solution
Strange odors inside operator's cab	A/C drain tubes plugged.	Clean drain tubes.
	Dirty air filters.	Clean filters.
	Evaporator condenser pan dirty.	Clean pan and outlet with compressed air.
Partial frosting and sweating of lines combined with poor cooling	Drain tubes plugged.	Clean drain tubes.
	Tobacco smoke and tar on evaporator exterior.	Clean filters.
	Fan belt slipping.	Check belt tension. Replace belt if necessary.
	Loss of refrigerant.	Check system for leaks. See your John Deere dealer.
	Restricted or clogged liquid line.	See your John Deere dealer.
Ice flecks blowing from evaporator	Expansion valve malfunctioning.	See your John Deere dealer.
	Control dial set too low.	Adjust the temperature control to a warmer position.
Failure to cool	Insufficient blower speed.	Increase blower speed.
	Dirty air filters.	Clean filters.
	Debris on front grille.	Clean front grille.
	Lint or dirt on condenser fins.	Blow out condenser fins with compressed air.
	Refrigerant is lost or extremely low.	See your John Deere dealer.
	Loose fan belt.	Check belt tension. Replace belt if necessary.
	Compressor clutch not engaging.	See your John Deere dealer.
	Expansion valve not functioning.	See your John Deere dealer.
	Restriction in refrigerant system.	See your John Deere dealer.
	Faulty wiring or loose connections.	See your John Deere dealer.
	Defective temperature control switch.	See your John Deere dealer.
	Outside temperature too low, below 21°C (70°F).	Wait until day gets warmer. If there is a malfunction in system, see your John Deere dealer.

Continued on next page

NR25796,0000F30 -19-27SEP07-2/3

Troubleshooting

Symptom	Problem	Solution
Hissing noise at expansion valve	Condenser is overheating.	Clean condenser screens, cores and fins of condenser and radiator.
	Severe restriction in high side.	See your John Deere dealer.
	Burned out clutch field or faulty field.	See your John Deere dealer.
	Short circuit in control circuit or failure of a switch in circuit.	See your John Deere dealer.
	Loss of refrigerant.	Check system for leaks. See your John Deere dealer.
	Restriction in refrigerant system.	Check for kinks in hoses. Check receiver-dryer for uniformity of temperature. (See your John Deere dealer.)

NR25796,0000F30 -19-27SEP07-3/3

Wipers, Work Lights, Dome Light and Radio Troubleshooting (Cab)

Symptom	Problem	Solution
All cab electrical switches do not work Window wiper(s) and washer will not run	Loose, defective or blown fusible link.	See your John Deere dealer.
	Blown fuse.	Replace fuse.
	Defective switch(es).	See your John Deere dealer.
	Defective motor(s).	See your John Deere dealer.
Work lights do not work	Faulty wiring or loose connections.	See your John Deere dealer.
	Blown fuse.	Replace fuse.
	Defective bulb or switch.	Replace bulb or see your John Deere dealer.
Radio does not work	Faulty wiring or loose connections.	See your John Deere dealer.
	Blown fuse.	Replace fuse.

NR25796,0000F31 -19-27SEP07-1/1

Tractor Storage

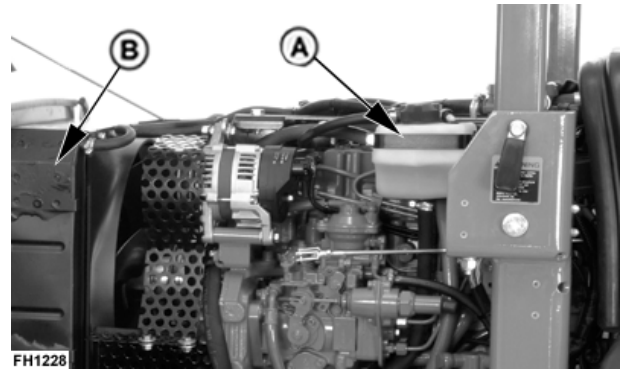
Tractor Storage

IMPORTANT: Any time tractor will not be used for several months, use this procedure to minimize corrosion and deterioration.

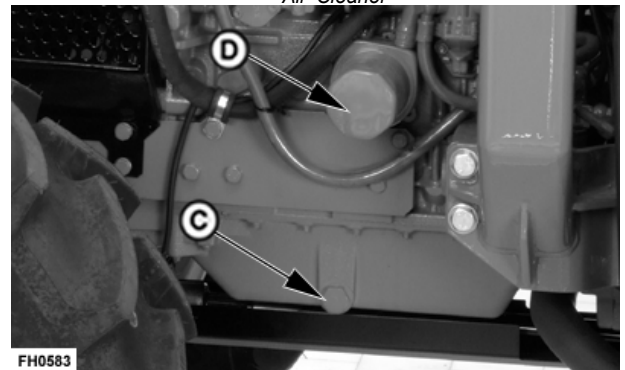
1. If coolant has been in tractor for two years, flush cooling system (B). (See Flushing Cooling System in Service section.) Add 50 percent antifreeze water mixture. Test coolant for adequate cold weather protection.
2. Change engine oil and filter (D). (See Change Engine Oil and Filter in Service-250 Hours section.)
3. Drain fuel and add back 4 L (1 gal) of fuel. Then add 0.4 (13 oz) L of corrosion inhibitor.

A—Coolant Recovery Tank
B—Cooling System

C—Engine Oil Drain Plug
D—Engine Oil Filter



FH1228 —UN—22OCT07



FH0583 —UN—13AUG07

Air Cleaner

Engine Oil and Filter

AH98466,00004BA -19-29AUG07-1/5

4. Add 0.25 L (9 oz) of corrosion inhibitor to transmission-hydraulic system fill port (E).
5. Depress clutch and start engine. Run engine until it reaches operating temperature. Also raise and lower rockshaft several times. Shut off engine.

E—Transmission-Hydraulic
System Fill Port



FH0584 —UN—13AUG07

Hydraulic Fill Port

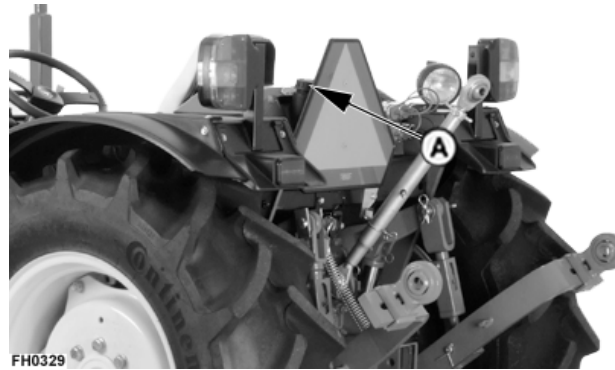
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AH98466,00004BA -19-29AUG07-2/5

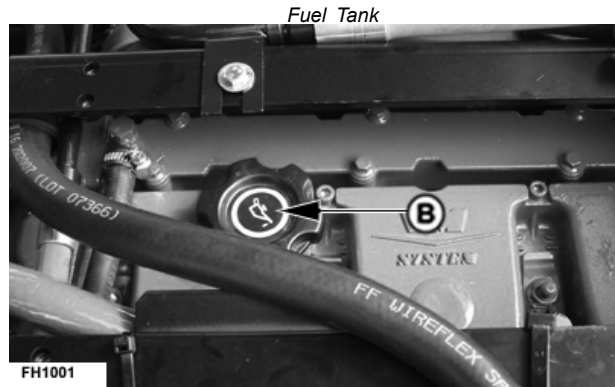
6. Add 0.5 L (16 oz) more inhibitor to fuel tank at filler cap (A).
7. Add 0.5 L (16 oz) inhibitor to engine oil at filler (B).
8. Disconnect fuel shut-off solenoid wiring lead (D). This will prevent engine from starting while cranking.
9. Remove air intake hose at manifold. Pour 0.1 L (3 oz) inhibitor into manifold and replace hose. Pull hand throttle back to slow idle position. Crank engine only a few revolutions.
10. Loosen alternator/fan belt after they have cooled.
11. Remove and clean battery. Store in a cool, dry place. Keep it charged.¹
12. Tie or block clutch pedal in the disengaged position.
13. Coat exposed bare (no paint) metal surfaces with grease or a corrosion inhibitor.

A—Fuel Tank Filler Cap
B—Engine Oil Filler

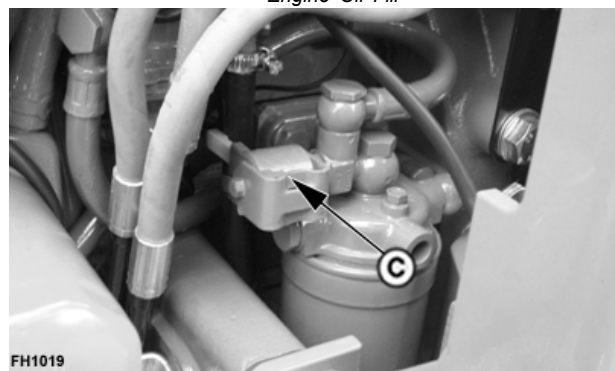
C—Fuel Shut-off Solenoid
Wiring Lead



FH0329 —UN—08AUG07



FH1001 —UN—25SEP07



FH1019 —UN—26SEP07

Fuel Injection Pump

¹Disconnect battery ground cable for short-term storage periods (20 to 90 days).

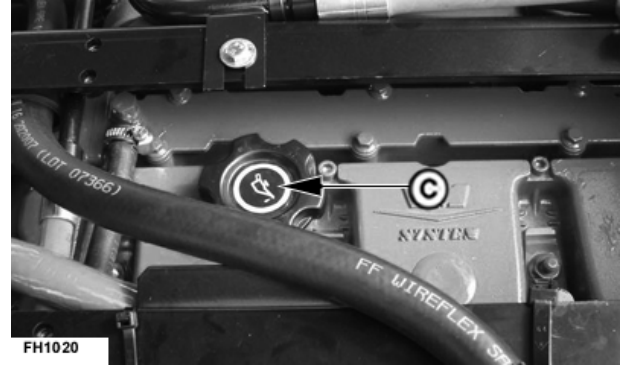
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AH98466,00004BA -19-29AUG07-3/5

14. Use tape to seal engine oil filler cap (C), exhaust pipe, fuel caps, and transmission-hydraulic system filler cap (D).
15. Cover dash with opaque material to prevent gauges from fading.
16. Raise tires off ground. Protect them from heat and sunlight.
17. Thoroughly clean tractor. Touch up any painted surfaces that are scratched or chipped.
18. If tractor must be stored outside, cover it with a waterproof material.

C—Engine Oil Filler Cap

D—Hydraulic Oil Filler Port



FH1020

Engine Oil Fill

FH1020 —UN—26SEP07



FH0684

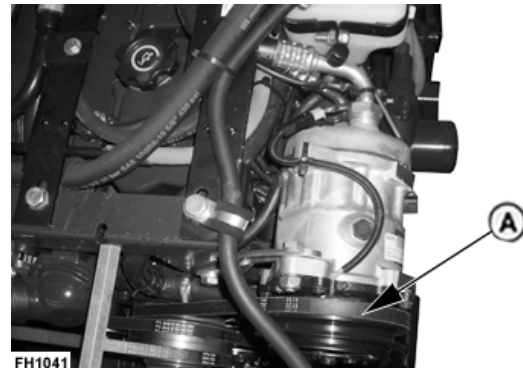
Hydraulic Fill Port

FH0684 —UN—02SEP07

AH98466,00004BA -19-29AUG07-4/5

19. **Cab:** Rotate A/C compressor pulley (A) several turns once a month to prevent seizure of compressor.

A—A/C Compressor Pulley



FH1041

FH1041 —UN—27SEP07

AH98466,00004BA -19-29AUG07-5/5

Remove Tractor From Storage

1. Check tire inflation pressure. (See Wheels, Tires and Treads section.) Lower tires to ground.
2. Unseal all openings sealed in Storing Tractor.
3. Install battery.
4. Remove ties or block which secured clutch pedal down.
5. Check levels of engine oil, transmission-hydraulic oil, and engine coolant, Add if necessary.
6. Drain a small amount of fuel from fuel tank to purge any moisture condensation that has collected.
7. Fill fuel tank.
8. Perform all appropriate 10-hour, 50-hour, 250-hour, and 600-hour services as instructed in Lubrication and Maintenance section.
9. Check all instruments and indicators by turning key switch to ON position.

IMPORTANT: DO NOT operate starter more than 20 seconds at a time, and wait at least two minutes for starter to cool before trying again.

10. Pull hand throttle (A) all the way down, depress clutch pedal, and crank engine until oil pressure rises.



A—Hand Throttle

11. Connect wiring lead to fuel injection pump shut-off solenoid.
12. Depress clutch pedal and start engine. Operate engine at slow idle for several minutes. Warm up carefully and check all systems before placing tractor under load.

AH98466,00004B0 -19-28AUG07-1/1

Specifications

Machine Specifications

Item	Measurement	Specification
85F—VM Engine, Turbocharged		
Factory Observed Engine	Power	60 kW (81.6 hp) at 2300 rpm
Engine Torque	Torque	290 N.m
Cylinders	Quantity	4
Bore	Distance	94 mm (3.70 in.)
Stroke	Distance	100 mm (3.94 in.)
Displacement	Volume	2.776 L (169.4 cu in.)
Cylinder Firing	Order	1—3—4—2
Intake Valve	Clearance	0.30 mm (0.011 in)
Exhaust Valve	Clearance	0.30 mm (0.011 in)
Slow Idle	Speed	1000 ± 50 rpm
Fast Idle	Speed	3000 rpm
Operating Range	Speed	1400—2600 rpm
Injection Pump Timing	Position	12.5° BTDC

100F—VM Engine Turbocharged

Factory Observed Engine	Power	70 kW (95.2 hp) at 2300 rpm
Engine Torque	Torque	339 N.m at 1300 rpm
Cylinders	Quantity	4
Bore	Distance	94 mm (3.70 in.)
Stroke	Distance	107 mm (4.21 in.)
Displacement	Volume	2.97 L (181 cu. in.)
Cylinder Firing	Order	1—3—4—2
Intake Valve	Clearance	0.30 mm (0.011 in)
Exhaust Valve	Clearance	0.30 mm (0.011 in)
Slow Idle	Speed	900 ± 50 rpm
Fast Idle	Speed	3000 rpm
Operating Range	Speed	1400—2600 rpm
Injection Pump Timing	Position	14° BTDC

Electrical System—12-Volt, Negative Ground

Battery	Voltage	12-volt
Alternator	Amperage	100 amps
Starting Motor	Voltage	12 volts

Transmission:

- Synchronized Reverser Transmission
- 8+8/16+8 Gears
- Reverser Available
- Ongoing Shifting
- Dry Clutch
- Creeper

Continued on next page

SS40167,0000D5D -19-29APR08-1/2

Specifications

Brakes:

- Hydraulic
- Wet Disk

Power Take-Off:

- Standard Rear Fully Independent PTO 540 rpm

- Lever Operated Clutch

Hydraulic System:

- Open Center Type
- Single Gear Pump

Item	Measurement	Specification
Hydraulic System		
Pump Displacement	Displacement	19 L/ min (5 Gpm)
Steering ¹	Pressure	90 bar (9000 kpa)
Implement ¹	Pressure	125 bar (12500 kpa)
Hydraulic Lift- 85F	Capacity	2500 kg (5511 lb)
Hydraulic Lift- 100F	Capacity	2500 kg (5511 lb)

¹Flow rate at 90% pump efficiency and engine at rated speed.

SS40167,0000D5D -19-29APR08-2/2

Drain and Refill Capacities

Item	Measurement	Specification
Fuel Tank		
85 F and 100 F	Capacity	60 L (16 gal)
Cooling System		
85 F and 100 F	Capacity	11 L (2.90 gal)
Transmission and Hydraulic Oil System		
85 F and 100 F	Capacity	35 L (9.25 gal)

AH98466,00003C5 -19-25OCT10-1/1

Machine Dimensions

NOTE: (Specifications and design subject to change without notice.)

Item	Measurement	Specification
Overall Dimension		
Wheelbase		
85 F	Distance	1944 mm (76.5 in.)
100 F	Distance	1959 mm (77.1 in.)
Front Trade Range		
85 F	Distance	1182 - 1438 mm (46.5 - 56.6 in.)
100 F	Distance	1172 - 1438 mm (46.1 - 57.7 in.)
Front Axle		
85 F	Clearance	277 mm (10.9 in.)
100 F	Clearance	323 mm (12.7 in.)
Turning Radius with Brake		
85F	Distance	2896 mm (114 in.)
100 F	Distance	2896 mm (114 in.)

AH98466,000048B -19-29APR08-1/1

Permissible Load Specifications

NOTE: (Specifications and design subject to change without notice.)

Item	Measurement	Specification
Maximum Permissible Axle Loads		
Front Tires: 240/70 X 16	Capacity	1854 kg (4088 lb)
Front Tires: 260/70 X 16	Capacity	2060 kg (4542 lb)
Maximum Permissible Rear Axle Loads		
Rear Tires: 320/70 X 24	Capacity	2575 kg (5677 lb)
Rear Tires: 360/70 X 24	Capacity	3000 kg (6614 lb)
Rear Tires: 380/70 X 20	Capacity	1500 kg (3306 lb)

SS40167,0000200 -19-13OCT07-1/1

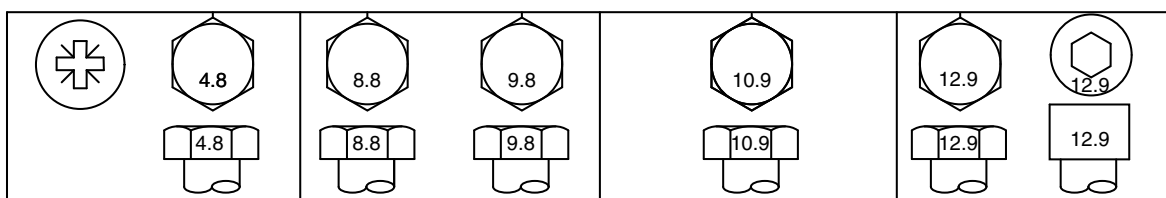
Ground Speed Estimates

16+8; 8+8 Duel Power+Reverser Shuttle Transmission			
No-Load Ground Speed with Engine at Top Rate (2300 rpm)			
Speeds With Tire as Shown (K/h)			
Gears	320/70 R24	360/70 R24	380/70 R20
Normal Speeds			
F1	1.41	1.48	1.39
F2	2.32	2.43	2.30
F3	4.00	4.20	3.96
F4	5.79	6.07	5.73
F5	8.04	8.43	7.96
F6	13.23	13.88	13.10
F7	22.84	23.95	22.62
F8	33.05	34.65	32.73
R1	3.36	3.53	3.33
R2	5.54	5.81	5.49
R3	9.56	10.03	9.47
R4	13.83	14.50	13.70
FINAL DRIVE 20%			
F1	1.06	1.11	1.05
F2	1.74	1.82	1.72
F3	3.00	3.15	2.97
F4	4.34	4.55	4.30
F5	6.03	6.32	5.97
F6	9.92	10.41	9.83
F7	17.13	17.96	16.97
F8	24.78	25.99	24.54
R1	2.52	2.65	2.50
R2	4.15	4.36	4.11
R3	7.17	7.52	7.10
R4	10.38	10.88	10.27
REVERSE SHUTTLE			
F1	1.14	1.48	1.39
F2	2.32	2.43	2.30
F3	4.00	4.20	3.96
F4	5.79	6.07	5.73
F5	8.04	8.43	7.96
F6	13.23	13.88	13.10
F7	22.84	23.95	22.62
F8	33.05	34.65	32.73
R1	1.20	1.26	1.19
R2	1.97	2.07	1.95
R3	3.40	3.57	3.37
R4	4.92	5.16	4.87
R5	6.83	7.16	6.77
R6	11.25	11.79	11.14
R7	19.42	20.36	19.23
R8	28.09	29.45	27.82

SS40167,0000201 -19-28SEP07-1/1

Metric Bolt and Screw Torque Values

TS1670 —UN—01MAY03



Bolt or Screw	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated ^a		Dry ^b		Lubricated ^a		Dry ^b		Lubricated ^a		Dry ^b		Lubricated ^a		Dry ^b	
Size	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.
M6	4.7	42	6	53	8.9	79	11.3	100	13	115	16.5	146	15.5	137	19.5	172
									N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.
M8	11.5	102	14.5	128	22	194	27.5	243	32	23.5	40	29.5	37	27.5	47	35
			N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.								
M10	23	204	29	21	43	32	55	40	63	46	80	59	75	55	95	70
	N·m	lb.-ft.														
M12	40	29.5	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	46	80	59	120	88	150	110	175	130	220	165	205	150	260	190
M16	100	74	125	92	190	140	240	175	275	200	350	255	320	235	400	300
M18	135	100	170	125	265	195	330	245	375	275	475	350	440	325	560	410
M20	190	140	245	180	375	275	475	350	530	390	675	500	625	460	790	580
M22	265	195	330	245	510	375	650	480	725	535	920	680	850	625	1080	800
M24	330	245	425	315	650	480	820	600	920	680	1150	850	1080	800	1350	1000
M27	490	360	625	460	950	700	1200	885	1350	1000	1700	1250	1580	1160	2000	1475
M30	660	490	850	625	1290	950	1630	1200	1850	1350	2300	1700	2140	1580	2700	2000
M33	900	665	1150	850	1750	1300	2200	1625	2500	1850	3150	2325	2900	2150	3700	2730
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2770	4750	3500

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For stainless steel fasteners or for nuts on U-bolts, see the tightening instructions for the specific application. Tighten plastic insert or crimped steel type lock nuts by turning the nut to the dry torque shown in the chart, unless different instructions are given for the specific application.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class. Replace fasteners with the same or higher property class. If higher property class fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

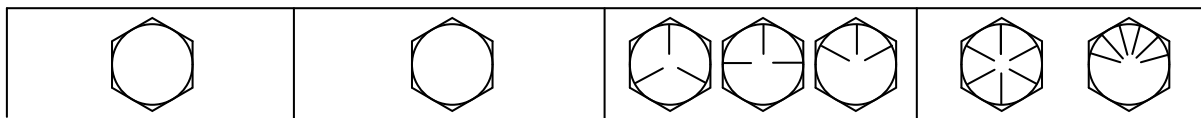
^a"Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C zinc flake coating.

^b"Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B zinc flake coating.

DX,TORQ2 -19-08DEC09-1/1

Unified Inch Bolt and Screw Torque Values

TS1671 —UN—01MAY03



Bolt or Screw Size	SAE Grade 1				SAE Grade 2 ^a				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Lubricated ^b		Dry ^c		Lubricated ^b		Dry ^c		Lubricated ^b		Dry ^c		Lubricated ^b		Dry ^c	
	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.	N·m	lb.-in.
1/4	3.7	33	4.7	42	6	53	7.5	66	9.5	84	12	106	13.5	120	17	150
													N·m	lb.-ft.	N·m	lb.-ft.
5/16	7.7	68	9.8	86	12	106	15.5	137	19.5	172	25	221	28	20.5	35	26
									N·m	lb.-ft.	N·m	lb.-ft.				
3/8	13.5	120	17.5	155	22	194	27	240	35	26	44	32.5	49	36	63	46
			N·m	lb.-ft.	N·m	lb.-ft.	N·m	lb.-ft.								
7/16	22	194	28	20.5	35	26	44	32.5	56	41	70	52	80	59	100	74
	N·m	lb.-ft.														
1/2	34	25	42	31	53	39	67	49	85	63	110	80	120	88	155	115
9/16	48	35.5	60	45	76	56	95	70	125	92	155	115	175	130	220	165
5/8	67	49	85	63	105	77	135	100	170	125	215	160	240	175	305	225
3/4	120	88	150	110	190	140	240	175	300	220	380	280	425	315	540	400
7/8	190	140	240	175	190	140	240	175	490	360	615	455	690	510	870	640
1	285	210	360	265	285	210	360	265	730	540	920	680	1030	760	1300	960
1-1/8	400	300	510	375	400	300	510	375	910	670	1150	850	1450	1075	1850	1350
1-1/4	570	420	725	535	570	420	725	535	1280	945	1630	1200	2050	1500	2600	1920
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2140	1580	2700	2000	3400	2500
1-1/2	990	730	1250	930	990	730	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For plastic insert or crimped steel type lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application. Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Replace fasteners with the same or higher grade. If higher grade fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

^aGrade 2 applies for hex cap screws (not hex bolts) up to 6 in (152 mm) long. Grade 1 applies for hex cap screws over 6 in (152 mm) long, and for all other types of bolts and screws of any length.

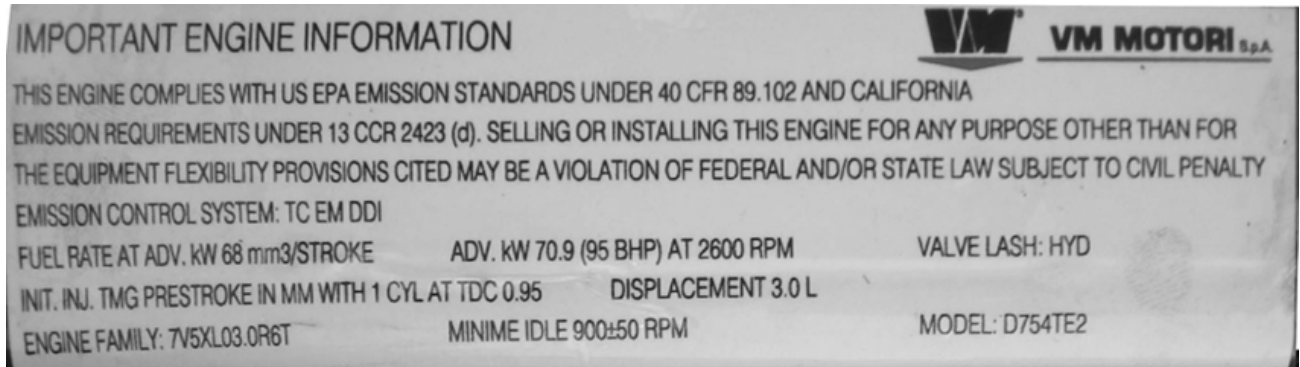
^b"Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8

in. and larger fasteners with JDM F13C zinc flake coating.

^c"Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B zinc flake coating.

DX,TORQ1 -19-08DEC09-1/1

Emissions Control System Certification Label



Emission Label

WARNING: Statutes providing severe penalties for tampering with emissions controls may apply at the user's location.

The emissions warranty described below applies only to those engines marketed by John Deere that have been certified by the United States Environmental Protection Agency (EPA); and used in the United States in non-road mobile (self-propelled or portable/transportable¹) equipment. The presence of an emissions label like the one shown signifies that the engine has been certified with

the EPA. The EPA warranties only apply to new engines having the certification label affixed to the engine and sold as stated above in the geographic areas governed by the regulating agencies.

NOTE: The hp/kW rating on the engine emissions certification label specifies the gross engine hp/kW, which is flywheel power without fan. In most applications this will not be the same rating as the advertised vehicle hp/kW rating.

¹Equipment moved at least once every 12 months.

Limited Battery Warranty

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

To Secure Warranty Service

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

Free Replacement

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

Pro Rata Adjustment

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

This Warranty Does Not Cover

Breakage of the container, cover, or terminals.

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

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

Limitation of Implied Warranties and Purchaser's Remedies

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

No Dealer Warranty

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

Pro Rata Months of Adjustment

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

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

DX,BATWAR,NA -19-16APR92-1/1

Identification Numbers

Identification Plates

Each tractor has the identification plates shown on these pages. The letters and numbers stamped on the plates identify a component or assembly. ALL these characters are needed when ordering parts or identifying a tractor or

component for any John Deere product support program. Also, they are needed for law enforcement to trace your tractor if it is ever stolen. ACCURATELY record these characters in the spaces provided in each of the following photographs.

SS40167,0000206 -19-18JUL07-1/1

Record Tractor Serial Number

Serial number plate (A) is located to the left side of tractor on engine, near the transmission/hydraulic oil filter.

Tractor Serial Number _____



FH1039

FH1039 —UN—27SEP07

AH98466,000049D -19-27SEP07-1/1

Record Engine Serial Number

Serial number plate (A) is located on the front of the engine block .

Engine Serial Number _____



FH1040

FH1040 —UN—27SEP07

SS40167,000020A -19-27SEP07-1/1

Record Cab Serial Number

Cab Serial number label is located on inside of rear left-hand post.

Cab Serial Number _____



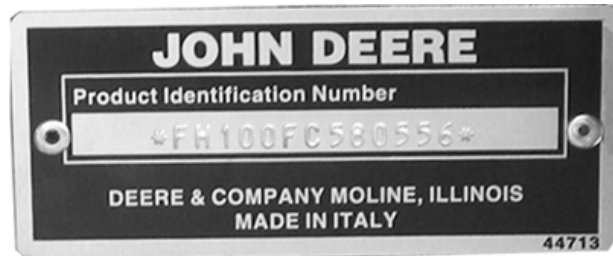
FH1042

FH1042 —UN—14NOV07

SS40167,000020B -19-18JUL07-1/1

Keep Proof of Ownership

1. Maintain in a secure location an up-to-date inventory of all product and component serial numbers.
2. Regularly verify that identification plates have not been removed. Report any evidence of tampering to law enforcement agencies and order duplicate plates.
3. Other steps you can take:
 - Mark your machine with your own numbering system
 - Take color photographs from several angles of each machine

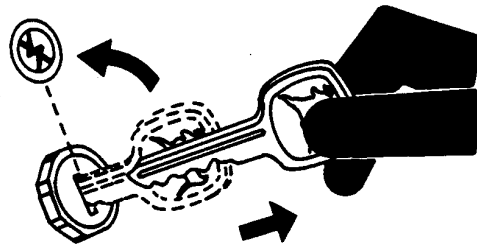


FH1810 —UN—21APR08

SS40167,0000D5E -19-21APR08-1/1

Keep Machines Secure

1. Install vandal-proof devices.
2. When machine is in storage:
 - Lower equipment to the ground
 - Set wheels to widest position to make loading more difficult
 - Remove any keys and batteries
3. When parking indoors, put large equipment in front of exits and lock your storage buildings.
4. When parking outdoors, store in a well-lighted and fenced area.
5. Make note of suspicious activity and report any thefts immediately to law enforcement agencies.
6. Notify your John Deere dealer of any losses.



TS230 —UN—24MAY89

DX,SECURE2 -19-18NOV03-1/1

Lubrication Maintenance Record Charts

50, 100 to 150, 150 and 250 Hour Service Chart

First 50 Hours

- Change engine oil and filter
- Check coolant
- Clean hydraulic filter
- Check engine belt

Every 50 Hours

- Check transmission-hydraulic system oil level
- Lubricate front axle pivot pins
- Lubricate brake pedal pins
- Lubricate 3-point hitch
- Check MFWD axle oil level
- Clean and check battery
- Inspect all tires
- Inspect tractor for loose nuts and bolts

Every 100 - 150 Hours

- Check clutch pedal free travel
- Clean fuel filter
- Check belt wear and tension

Every 150 Hours

- Check or tighten engine head bolts

Every 250 Hours

- Change engine oil and filter
- Clean transmission-hydraulic filter
- Clean and check battery
- Lubricate 3-point hitch
- Check neutral start system
- Check and adjust brake pedal free play
- Adjusting PTO clutch operating rod
- Tighten fuel lines
- Change fuel filter
- Check belt wear and tension

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SS40167,0000F7B -19-21AUG09-1/1

500 Hour Service Chart

Every 500 Hours

- Change coolant
- Check and tighten all hoses and hose clamps
- Check cooling system for leaks

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NR25796,0000E8D -19-21APR08-1/1

1000 Hour Service Chart

Every 1000 Hours

- Clean fuel tank
- Change alternator drive belt

- Change oil in MFWD axle housing
- Change transmission-hydraulic oil and filter

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SS40167,0000210 -19-18JUL07-1/1

2000 Hour Service Chart

- Every 2 Years or 2000 Hours (Whichever Comes First)**
- Check starter motor brushes
 - Check turbocharger
 - Flush cooling system

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SS40167,0000F7C -19-21AUG09-1/1

As Required Service Chart

Service as Required

- Service Air Cleaner
- Clean Cab Air Filters
- Service Air-Conditioning System

- Check injectors
- Change hydraulic filter
- Drain water and sediment from fuel tank and fuel filter
- Adjust throttle friction

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SS40167,0000F7E -19-02SEP09-1/1

John Deere Service

John Deere Parts

We help minimize downtime by putting genuine John Deere parts in your hands in a hurry.

That's why we maintain a large and varied inventory—to stay a jump ahead of your needs.



TS100 —UN—23AUG88

DX,IBC,A -19-04JUN90-1/1

The Right Tools

Precision tools and testing equipment enable our Service Department to locate and correct troubles quickly . . . to save you time and money.



TS101 —UN—23AUG88

DX,IBC,B -19-04JUN90-1/1

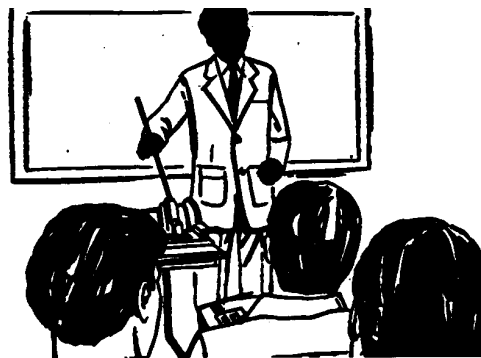
Well-Trained Technicians

School is never out for John Deere service technicians.

Training schools are held regularly to be sure our personnel know your equipment and how to maintain it.

Result?

Experience you can count on!



TS102 —UN—23AUG88

DX,IBC,C -19-04JUN90-1/1

Prompt Service

Our goal is to provide prompt, efficient care when you want it and where you want it.

We can make repairs at your place or at ours, depending on the circumstances: see us, depend on us.

JOHN DEERE SERVICE SUPERIORITY: We'll be around when you need us.



TS103 —UN—23AUG88

DX,IBC,D -19-04JUN90-1/1

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