

**JOHN DEERE**  
**WORLDWIDE COMMERCIAL & CONSUMER**  
**EQUIPMENT DIVISION**

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**Mid-Mount Z-Trak®**  
**777 and 797**

TM2077 FEB03

**TECHNICAL MANUAL**



**JOHN DEERE**

North American Version  
Litho in U.S.A.

# INTRODUCTION

## Manual Description

This technical manual is written for an experienced technician and contains sections that are specifically for this product. It is a part of a total product support program.

The manual is organized so that all the information on a particular system is kept together. The order of grouping is as follows:

- Table of Contents
- Specifications
- General Information
- Identification Numbers
- Tools and Materials
- Component Location
- Schematics and Harnesses
- Theory of Operation
- Operation and Diagnostics
- Diagnostics
- Tests and Adjustments
- Repair
- Other

***NOTE: Depending on the particular section or system being covered, not all of the above groups may be used.***

The bleed tabs for the pages of each section will align with the sections listed on this page. Page numbering is consecutive from the beginning of the Safety section through the last section.

We appreciate your input on this manual. If you find any errors or want to comment on the layout of the manual please contact us.

**Safety**

**Specifications and Information**

**Engine**

**Electrical**

**Hydrostatic Power Train**

**Brakes**

**Attachments**

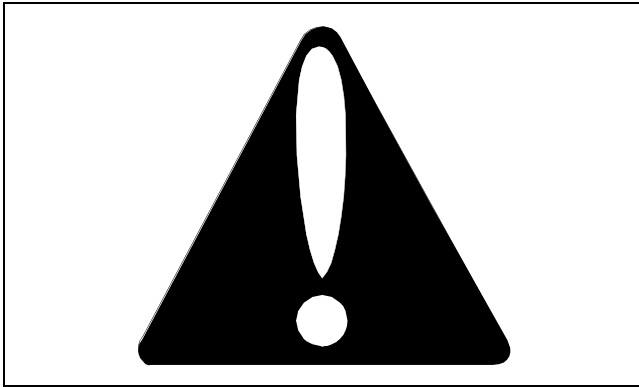
**Miscellaneous**

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

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Consumer Equipment Division  
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# SAFETY

## Recognize Safety Information



MIF

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

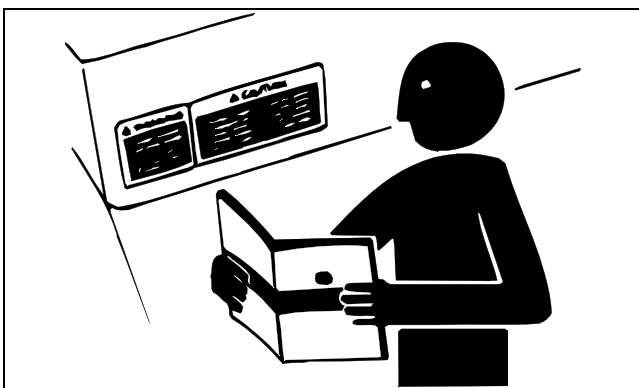
Follow recommended precautions and safe servicing practices.

## 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.

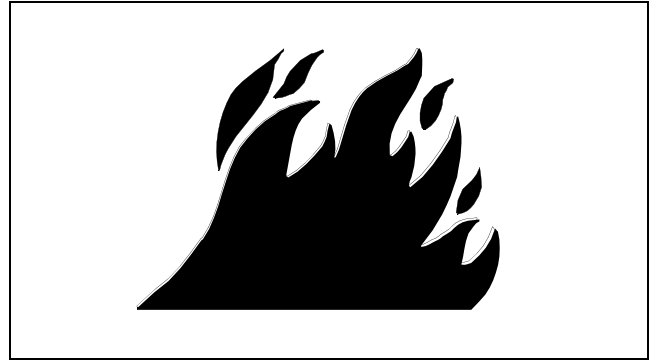
## Replace Safety Signs



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Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.

## Be Prepared for Emergencies



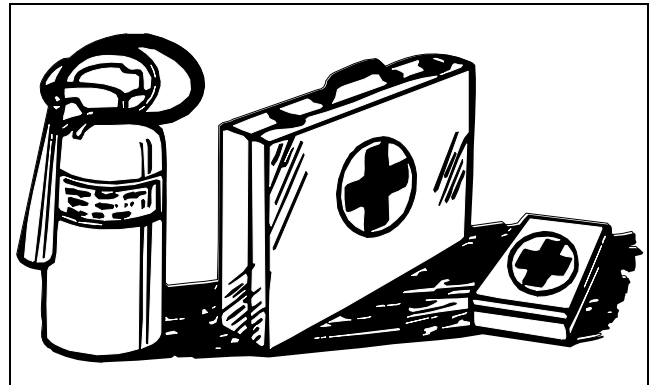
MIF

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.



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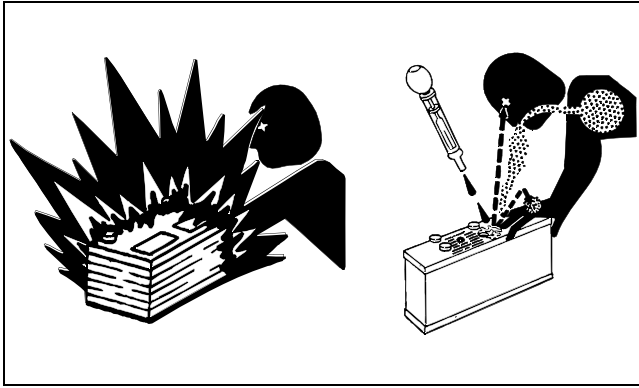
Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

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

# SAFETY

## Prevent Battery Explosions



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

## Prevent Acid Burns

- 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 acid burns by:**
  - a. Filling batteries in a well-ventilated area.
  - b. Wearing eye protection and rubber gloves.
  - c. Avoiding breathing fumes when electrolyte is added.
  - d. Avoiding spilling or dripping electrolyte.
  - e. Using proper jump start procedure.
- **If you spill acid on yourself:**
  - a. Flush your skin with water.
  - b. Apply baking soda or lime to help neutralize the acid.
  - c. Flush your eyes with water for 10-15 minutes.
  - d. Get medical attention immediately.
- **If acid is swallowed:**
  - a. Drink large amounts of water or milk.
  - b. Then drink milk of magnesia, beaten eggs, or vegetable oil.
  - c. Get medical attention immediately.

## Avoid High-Pressure Fluids



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

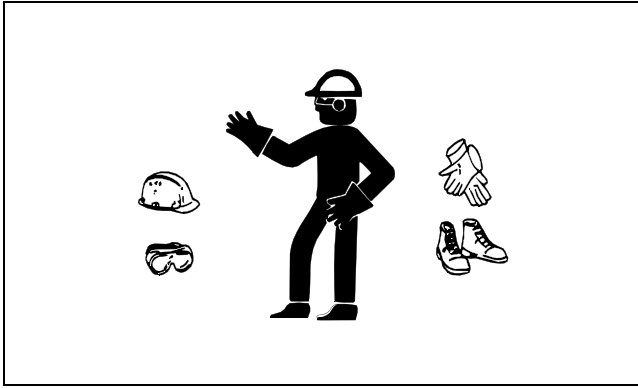
If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A. Information may be obtained in the United States and Canada only by calling 1-800-822-8262.

## 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 be accidentally cut when heat goes beyond the immediate flame area.

# SAFETY

## Wear Protective Clothing



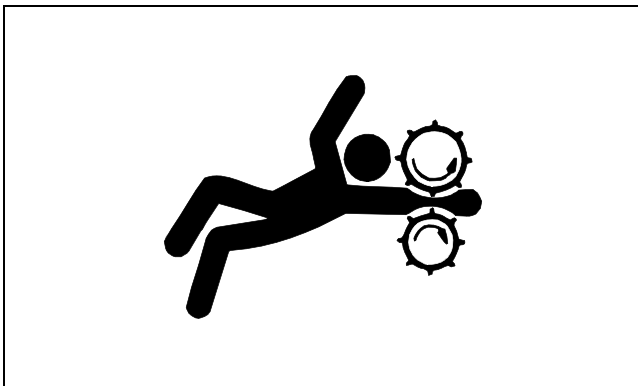
MIF

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.

## Service Machines Safely



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Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

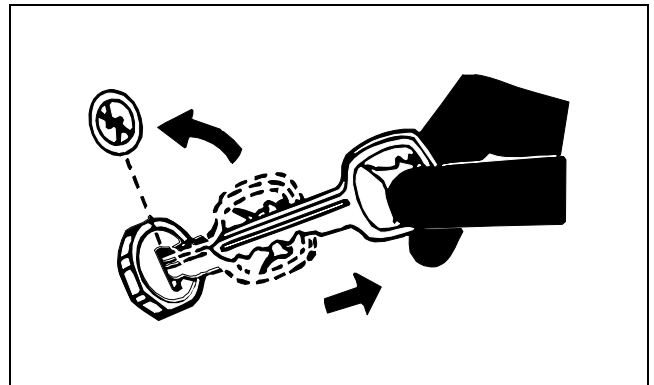
Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.

## Use Proper Tools

Use tools appropriate to the work. Makeshift tools and procedures can create safety hazards. Use power tools only to loosen threaded parts and fasteners. For loosening and tightening hardware, use the correct size tools. DO NOT use U.S. measurement tools on metric fasteners.

Avoid bodily injury caused by slipping wrenches. Use only service parts meeting John Deere specifications.

## Park Machine Safely

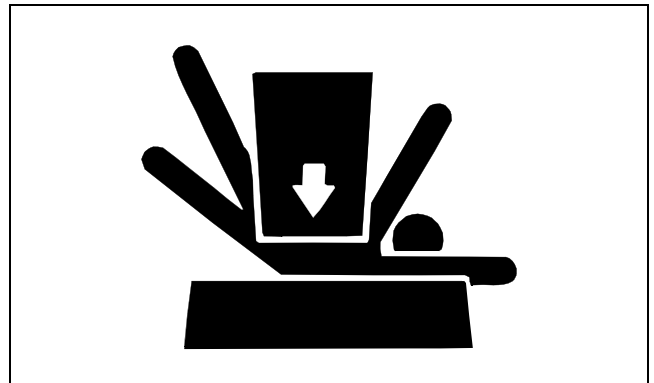


MIF

### Before working on the machine:

1. Lower all equipment to the ground.
2. Stop the engine and remove the key.
3. Disconnect the battery ground strap.
4. Hang a "DO NOT OPERATE" tag in operator station.

## Support Machine Properly and Use Proper Lifting Equipment



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If you must work on a lifted machine or attachment, securely support the machine or attachment.

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.

Lifting heavy components incorrectly can cause severe injury or machine damage. Follow recommended procedure for removal and installation of components in the manual.

# SAFETY

## Work in Clean Area

### Before starting a job:

1. Clean work area and machine.
2. Make sure you have all necessary tools to do your job.
3. Have the right parts on hand.
4. Read all instructions thoroughly; do not attempt shortcuts.

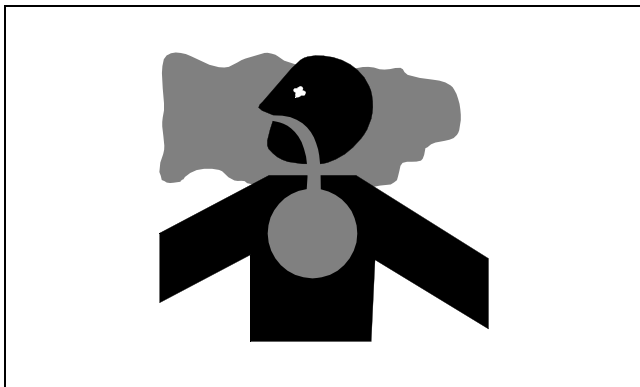
## Using High-Pressure Washers

Directing pressurized water at electronic/electrical components or connectors, bearings, 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.

## Illuminate Work Area Safely

Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.

## Work in Ventilated Area



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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.

## WARNING: California Proposition 65 Warning

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

## 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. Do all work outside or in a well-ventilated area. Dispose of paint and solvent properly. Remove paint before welding or heating. 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.

## Avoid Harmful Asbestos Dust

Avoid breathing dust that may be generated when handling components containing asbestos fibers. Inhaled asbestos fibers may cause lung cancer.

Components in products that may contain asbestos fibers are brake pads, brake band and lining assemblies, clutch plates, and some gaskets. The asbestos used in these components is usually found in a resin or sealed in some way. Normal handling is not hazardous as long as airborne dust containing asbestos is not generated.

Avoid creating dust. Never use compressed air for cleaning. Avoid brushing or grinding material containing asbestos. When servicing, wear an approved respirator. A special vacuum cleaner is recommended to clean asbestos. If not available, apply a mist of oil or water on the material containing asbestos. Keep bystanders away from the area.

## Service Tires Safely



MIF

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

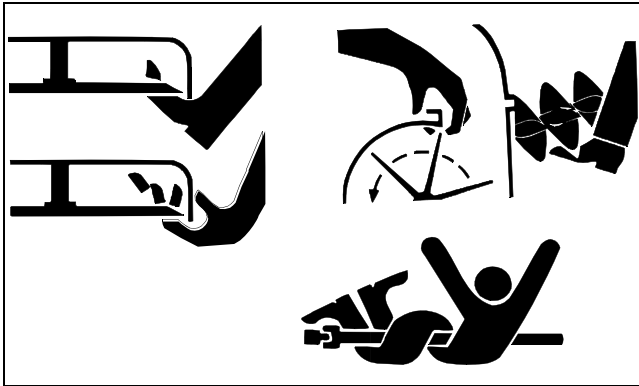
- Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.
- Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an

# SAFETY

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.

## Avoid Injury from Rotating Blades, Augers, and PTO Shafts



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Keep hands and feet away while machine is running. Shut off power to service, lubricate, or remove mower blades, augers, or PTO shafts.

## Handling Fuel Safely

**Fuel and fuel vapors are highly flammable:**



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- Do not refuel machine while you smoke, when machine is near an open flame or sparks, or when engine is running. Stop engine and allow to cool before filling.
- Never remove the fuel cap or add fuel with the engine running.
- Never fill fuel tank or drain fuel from a machine in an enclosed area. Fill fuel tank outdoors.

- Prevent fires. 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.
- Prevent fire and explosion caused by static electric discharge. Use only non-metal, portable fuel containers approved by the Underwriter's Laboratory (U.L.) or the American Society for Testing & Materials (ASTM). If using a funnel, make sure it is plastic and has no screen or filter.

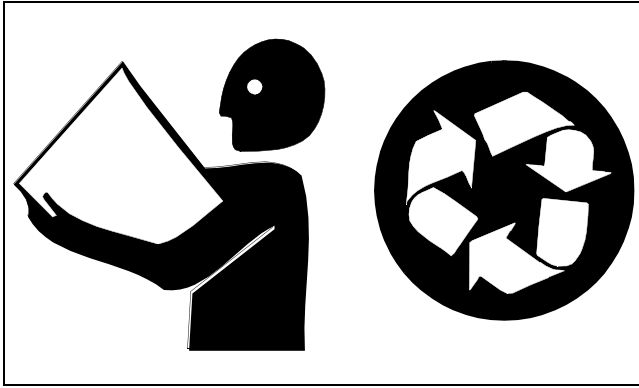


MIF

- Static electric discharge can ignite gasoline vapors in an ungrounded fuel container. Remove the fuel container from the bed of a vehicle or the trunk of a car and place on the ground away from the vehicle before filling. Keep nozzle in contact with container opening while filling.
- When practical, remove equipment from trailers or truck beds and refuel them on the ground. If this is not possible, use a portable, plastic fuel container to refuel equipment on a truck bed or trailer.
- For gasoline engines, do not use gas with methanol. Methanol is harmful to your health and to the environment.

# SAFETY

## Handle Chemical Products Safely



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Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with John Deere equipment include such items as lubricants, coolants, paints, and adhesives.

A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques. Check the MSDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then follow procedures and recommended equipment.

## Dispose of Waste Properly

Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment includes 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. Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer.

## Live with Safety



MIF

Before returning machine to customer, make sure machine is functioning properly, especially the safety systems. Install all guards and shields.



# HYDROSTATIC POWER TRAIN TESTS AND ADJUSTMENTS

## Symptom: Excessive Noise

### (9) Are the wheel motors operating properly?

**No** - Inspect wheel motors. (See “Disassemble and Assemble Wheel Motor” on page 305.)

## Tests and Adjustments

### Bleed Hydraulic System

#### Reason

To ensure that air is purged from the hydraulic system after the hydraulic hoses have been disconnected.

#### Procedure

1. Park machine safely.
2. Check level of hydraulic oil. Add oil as needed. (See “Hydrostatic Transmission and Hydraulic Oil” on page 22.)

**IMPORTANT: Avoid damage! To prevent damage to hydrostatic pumps, never bleed or purge a pump under load. Always bleed with drive wheels off the ground.**

3. Use a safe lifting device to raise the drive wheels off the ground. Support with jack stands.
4. Open both bypass valves one full turn.



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

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

**Always work in a well-ventilated area.**

5. Start engine and run at 3/4 speed.
6. Push both control levers to full forward and hold for 5 seconds. Pull both control levers to full reverse and hold for 5 seconds. Repeat 2 additional times.
7. With engine running at 3/4 speed, close both bypass valves and tighten to specification. Tighten jam nuts to specification.
8. Push both control levers to full forward and hold for 5 seconds. Pull both control levers to full reverse and hold for 5 seconds. Repeat 2 additional times.

**NOTE: It may be necessary to repeat steps 6-8 until all air has been purged from system.**

9. Adjust neutral and tracking. (See “Checking and Adjusting Motion Control Linkages” on page 279.)

10. Turn key switch to STOP position.

11. Remove jack stands.

12. Check oil level at hydraulic oil reservoir. Add oil as needed.

## Checking and Adjusting Motion Control Linkages

#### Reason

To ensure that the machine does not move when the control levers are in the NEUTRAL position while the engine is running.



**CAUTION: Avoid injury! Do not attempt this adjustment unless you are a qualified and properly trained technician.**

#### Checking Motion Control Linkages

**NOTE: Check and adjust motion control linkages with the machine parked on a hard, level surface.**



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

- If it is necessary to run an engine in an enclosed area, use an exhaust pipe extension to remove the fumes.
- Always try to work in a well ventilated area.

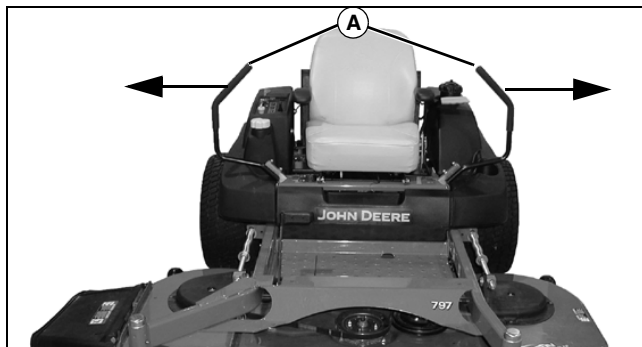
1. Start engine.
2. Set throttle lever to the fast position.
3. Unlock park brake.
4. If the rear drive wheels begin to creep, an adjustment is required.

# HYDROSTATIC POWER TRAIN TESTS AND ADJUSTMENTS

## Adjusting Motion Control Linkages

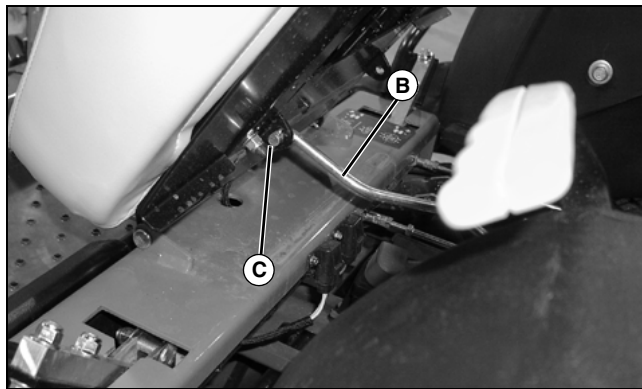
**NOTE:** Right and left control levers can be adjusted independently.

1. Stop engine and lock park brake.



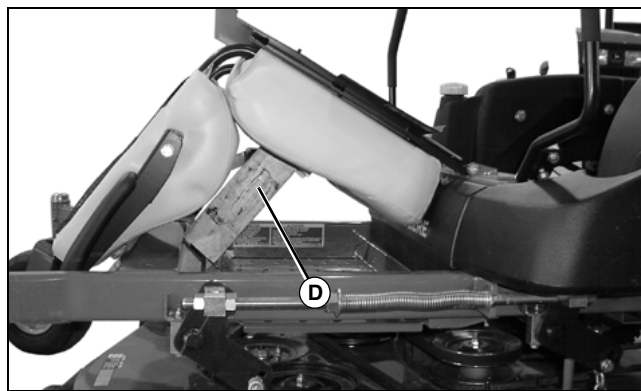
MX18041

2. Move both motion control levers (A) to the neutral lock position.
3. Adjust seat fully rearward.
4. Lift and secure operator seat in the raised position.



MX18076

5. Remove support rod (B) from side of seat frame.
  - Remove cotter pin and washer (C).
6. Tilt seat forward to rest on front frame.
7. Raise rear of machine with a safe lifting device.
  - Support with wood blocks or jackstands.
  - Rear drive wheels must have the ability to rotate freely.



MX18077

8. Activate operator seat safety switch.

**NOTE:** To prevent damage to the bottom of the operator seat, cover end of wood block with a rag.

- Place a wood block (D) approximately 33-38 cm (13-15 in.) long between the foot plate and the center of the seat.

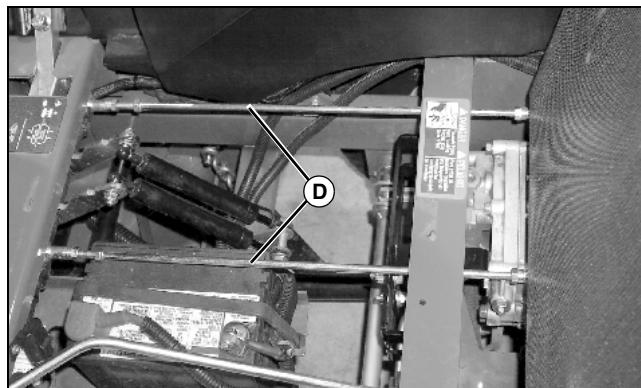
9. Start engine.

10. Set throttle to the fast position.



**CAUTION:** Avoid injury! Help prevent serious personal injury when performing this service procedure. Keep hands, feet and clothing away from rotating tires.

11. Unlock park brake.



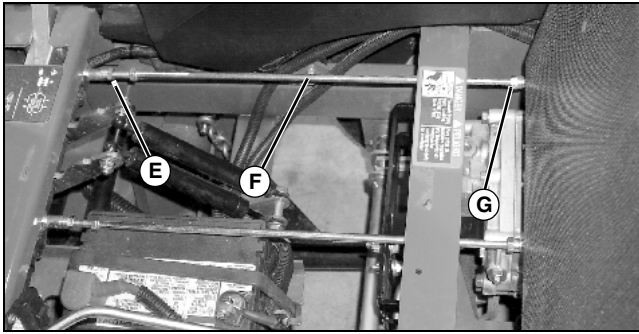
MX18078

12. Locate left and right motion control linkages (D).

13. Be sure the right motion control lever is in the neutral lock position.

- The right drive wheel must not turn. If it does turn, adjust the motion control linkage:

# HYDROSTATIC POWER TRAIN TESTS AND ADJUSTMENTS



MX18078

- a. Loosen hex nut (E) and hex nut (G) on each end of the center link (F).
- b. Adjust center link (F) until the wheel stops rotating completely.
- c. Tighten hex nuts (E and G).

14. Move the right motion control lever completely rearward in the slot and release lever. The lever should return to the neutral position (completely centered in the slot).

- The drive wheel must stop completely. If the drive wheel does not completely stop rotating, a damper mount adjustment is necessary:
- Adjust damper in slot as necessary; tighten nut to specifications.

15. Move the right motion control lever completely forward and rearward in the slot and then back to the neutral lock position.

- The drive wheel must stop completely. If the drive wheel does not completely stop rotating, repeat steps 12 and 13.

16. Repeat procedure to adjust the left motion control linkage.

**Result:** Drive wheels do not rotate when in neutral lock position or when motion control levers return to central position in slot.

17. Stop engine.

18. Move both motion control levers to the neutral lock position.

19. Remove wood block from between foot plate and the operator seat.

20. Lower machine.

21. Install support rod to side of seat frame with cotter pin and washer.

22. Lower seat.

## Specifications

**Damper Nut Torque** ..... 20 N•m (15 lb-ft)

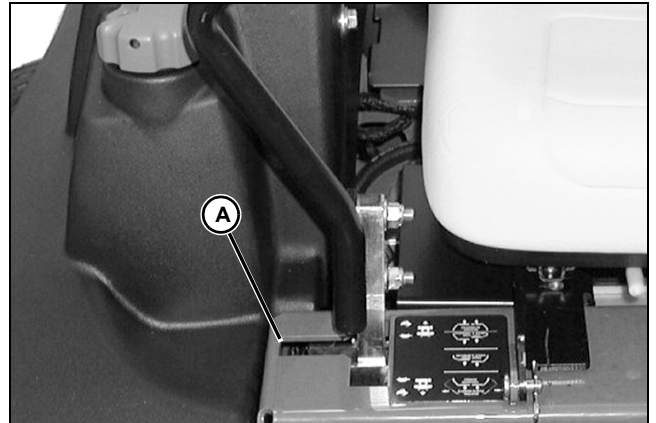
## Check and Adjust Control Damper Neutral

### Reason

To ensure that the control levers return to the NEUTRAL position.

### Check Procedure

1. Park machine safely.



MX10325

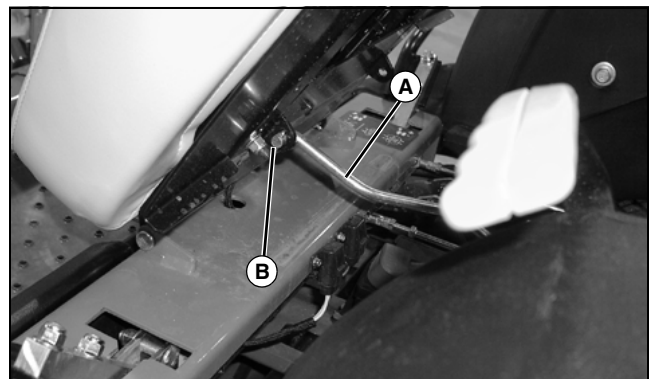
2. Pull both control levers back to the REVERSE position.
3. Release the levers. The levers should return to the NEUTRAL position (lever centered in the NEUTRAL LOCK slot [A]) where they can be moved to the NEUTRAL LOCK position without interference with the frame.

### Results

If control levers do not return as described, continue to Adjustment Procedure.

### Adjustment Procedure

1. Move control levers to NEUTRAL LOCK position.
2. Raise and latch seat platform.



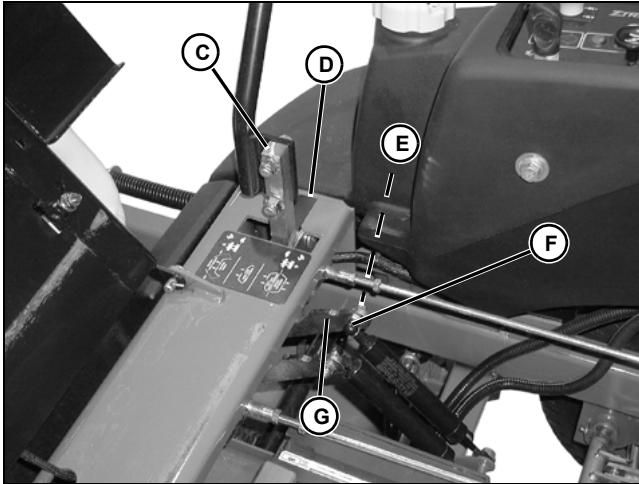
MX18076

3. Remove lock pin and washer (B) and support rod (A) from the seat bracket.
4. Tilt the seat forward and allow to rest against the vehicle frame.

# HYDROSTATIC POWER TRAIN TESTS AND ADJUSTMENTS

**NOTE:** Right and left control dampers can be adjusted independently.

5. Move the right control lever from the NEUTRAL LOCK to the NEUTRAL position.
6. Pull control lever to REVERSE position and release.



MX18169

7. Loosen lock nut (E). Move damper pivot (F) in slot of linkage lever (G) until control lever (C) is aligned with NEUTRAL LOCK position (D).
8. Tighten lock nut (E).
9. Pull control lever to REVERSE position and release. Control lever should return to NEUTRAL position.
10. Repeat adjustment as necessary.

**NOTE:** When properly adjusted, the control levers will return to the NEUTRAL position from the REVERSE position when the control levers are released, and reverse movement will stop.

11. Repeat adjustment procedure for the LEFT control lever.

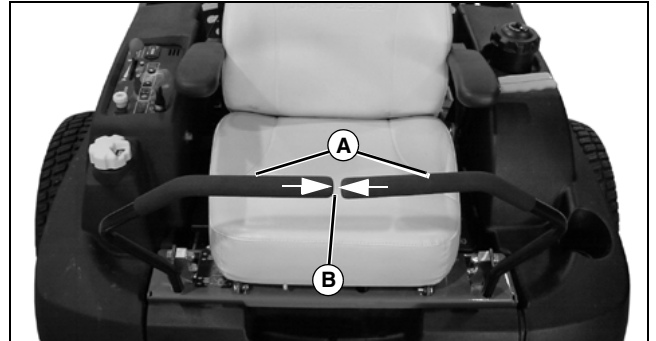
## Specifications

Damper Nut Torque ..... 20 N•m (15 lb-ft)

## Checking and Aligning Motion Control Levers

### Check Alignment

1. Park machine on a hard, level surface and set park brake.



MX18079

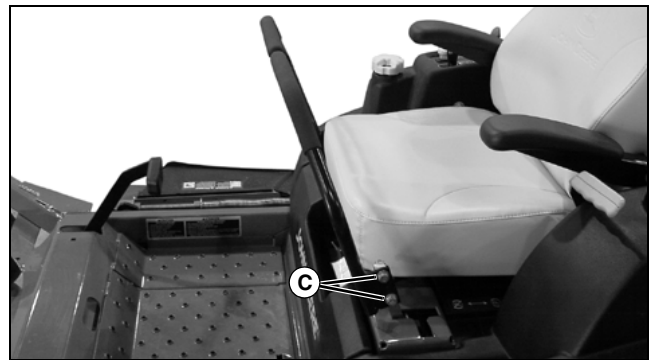
2. Move both motion control levers (A) forward.
3. Check levers for equal alignment.
  - Check gap (B) between the levers. The recommended gap is 3-6 mm (1/8-1/4 in.).

**NOTE:** If the ends of the levers strike against each other while in the neutral position, move the levers to the neutral lock position and carefully bend them outward. Move them back to the neutral position and check for the recommended gap of 3-6 mm (1/8-1/4 in.).

- If positions of the control levers are unequal, an adjustment is necessary.

### Alignment Procedure

1. Adjust position of motion control levers:



MX18080

- Loosen cap screws (C).
- Slide both levers forward or rearward to desired position within tab slots until levers are aligned.
- Tighten cap screws.

### Specifications

Control Lever Tip Clearance . . . . . 3-6 mm (1/8-1/4 in.)

# HYDROSTATIC POWER TRAIN TESTS AND ADJUSTMENTS

## Check and Adjust Neutral Lock Effort

### Reason

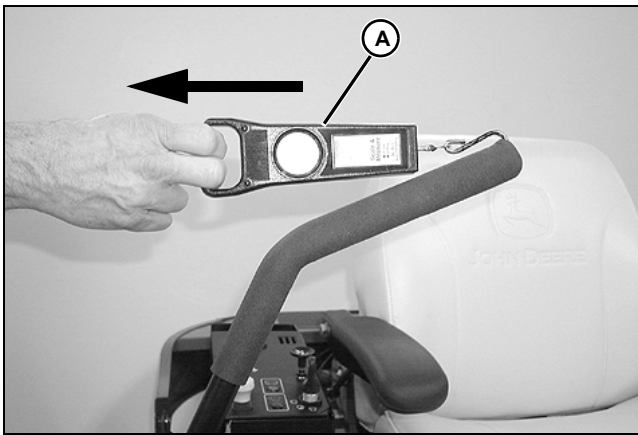
To ensure that control levers will lock into neutral position.

### Special or Required Tools

Tool Name	Tool No.	Tool Use
Spring Scale	NA	Used to check steering lever to neutral lock effort.

### Procedure

1. Park machine safely.
2. Move control levers to neutral position.



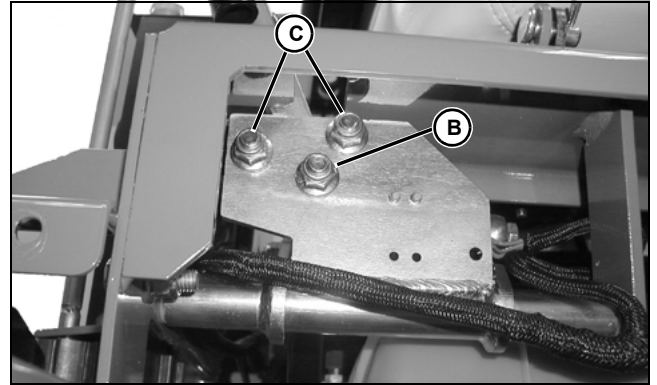
MX6179

3. Attach an appropriate spring scale (A) to the top of the control lever.
4. Using spring scale, slowly pull control lever outward toward NEUTRAL LOCK position. Read pull effort while lever is moving. Reading on spring scale should be within specification.

### Results

If reading is not within specified range, continue to Adjustment Procedure.

## Adjustment Procedure



MX6180

### Picture Note: Right Console and Fuel Tank Removed for Clarity of Photo

1. Tighten or loosen lock nut (B) to obtain an even pull within specification.
2. If effort adjustment cannot be achieved, tighten or loosen lock nuts (C) 1/8 turn and repeat step 1.

### Specifications

**Control Lever Pull Effort . . . . . 58-80 N (13-18 lb-force)**

# HYDROSTATIC POWER TRAIN TESTS AND ADJUSTMENTS

## Test Hydrostatic Pump Flow



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

**If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A. Information may be obtained in the United States and Canada only by calling 1-800-822-8262.**

**NOTE: Two persons may be required to perform this test. If unavailable, disconnect seat switch harness connector and install a jumper wire across seat switch terminals in main harness connector.**

### Reason

To determine if the hydrostatic pump or wheel motor is faulty. Proper operation of the hydrostatic pump indicates a faulty wheel motor.

### Special or Required Tools

Tool Name	Tool No.	Tool Use
Bi-Directional Pressure Flow Meter	Hydro Gear 70661 <sup>a</sup>	Used to measure hydrostatic pump flow and pressure.
Adapter Fitting (2 used)	38H1279	Used to connect test hoses to hydrostatic lines.
O-Ring (4 required)	T77857	Used on adapter fittings.

*a. See Service Bulletin 02-11-65-02 for additional information.*

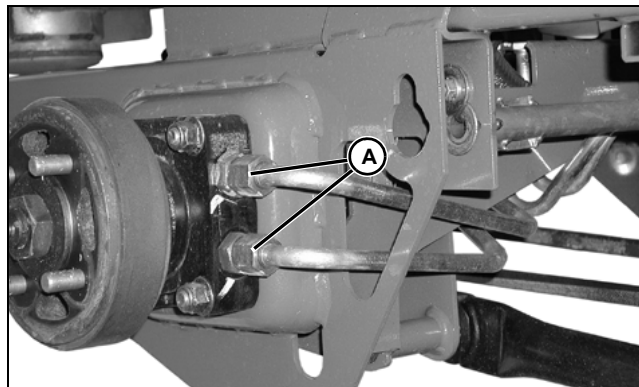
### Test Conditions:

- Drive wheels removed.
- Park brake released.
- Hydrostatic pump bypass valves fully closed.
- Engine at FAST idle.
- Directional control lever in FORWARD position.

### Procedure

1. Park machine safely.
2. Remove drive wheels. Block remaining tires to prevent machine from moving.

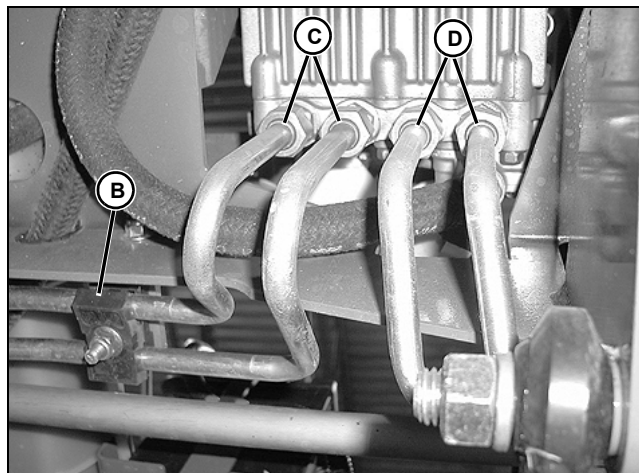
**NOTE: Note positions of lines to ensure correct installation.**



MX18172

3. Disconnect lines (A) at wheel motor for pump being tested.

**IMPORTANT: Avoid damage! Plug lines to the wheel motors to prevent system contamination.**



MX18173

4. **Right Pump:** Disconnect lines (D) from pump, and remove lines. DO NOT remove adapters from pump.

# HYDROSTATIC POWER TRAIN REPAIR

**Left Pump:** Remove line clamp (B) and disconnect lines (C) from pump. Remove lines. DO NOT remove adapters from pump.

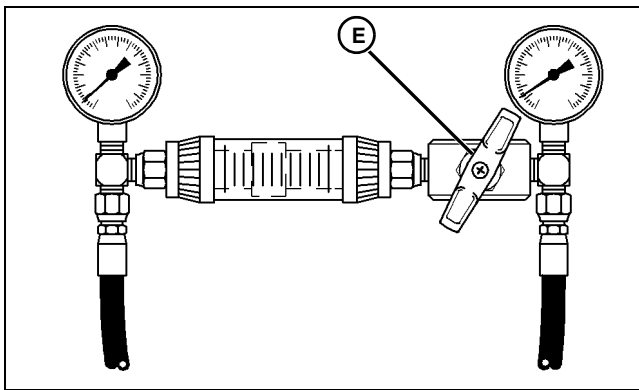
**CAUTION: Avoid injury! Ensure all fittings and hoses are attached securely. This test is being performed on the machine's high pressure system.**

**NOTE:** *Hydro Gear 70661 Bi-Directional Pressure Flow Meter can be connected to the pump for use in either direction.*

5. Connect hoses of Hydro Gear 70661 Bi-Directional Pressure Flow Meter to pump.

## Perform Test

1. Tighten all fittings.



MX18170

2. Turn load knob (E) on tester fully counterclockwise.

**CAUTION: Avoid injury! Engine exhaust fumes can cause sickness or death. If it is necessary to run machine in an enclosed area, use an exhaust pipe extension to remove the fumes.**

3. Start the engine and bring engine speed to FAST idle.

4. Operate hydrostatic drive until system is at normal operating temperature. Normal range is 70-90°C (158-194°F).

5. Move the control arm to the full FORWARD position.

6. Turn the load knob on the tester CLOCKWISE to increase pressure to 2068 kPa (300 psi). Record the tester reading.

7. Continue to turn load knob CLOCKWISE until pressure reading is at 7584 kPa (1100 psi). Again, record tester reading.

8. Move the control lever to neutral, stop engine, and turn load knob on tester fully counterclockwise.

9. Subtract the first reading from the second and record the difference. Compare your value to the specification.

## Results

- If pump flow is not within specification, repair or replace hydrostatic pump. (See "Remove and Install Hydrostatic Pump" on page 291.)
- If pump flow is within specification, repair or replace wheel motor. (See "Remove and Install Wheel Motor" on page 304.)

## Specifications

### Hydrostatic Pump Flow

Differential (Max) ..... 5.7 L/min (1.5 gpm)

## Repair

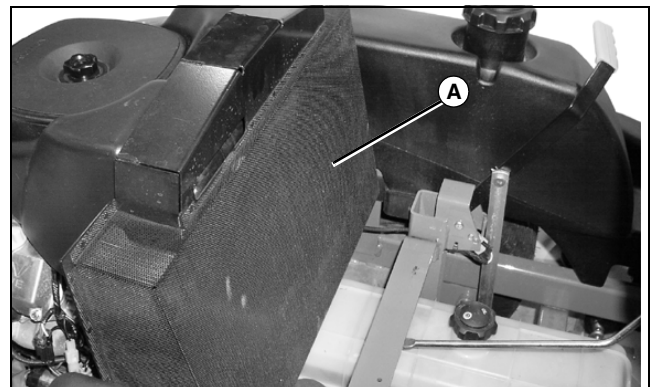
### Remove and Install Hydrostatic Pump Drive Belt

**CAUTION: Avoid injury! Help prevent bodily injury due to entanglement in a belt or sheave. Stop engine and wait for all moving parts to stop.**

**IMPORTANT: Avoid damage! Incorrect drive belt tension will cause reduced belt life or additional system noise.**

## Checking Belt

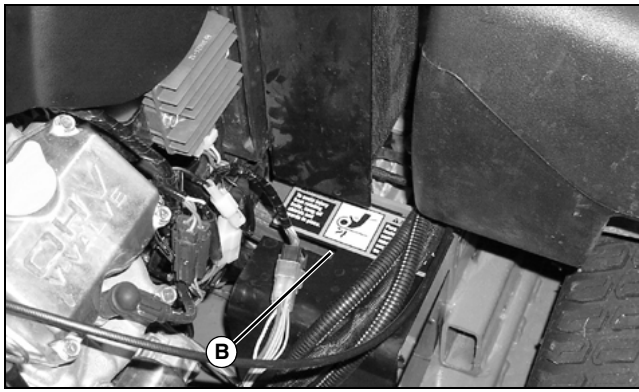
1. Stop engine and lock park brake.
2. Lift and secure operator seat in the raised position.



MX18072

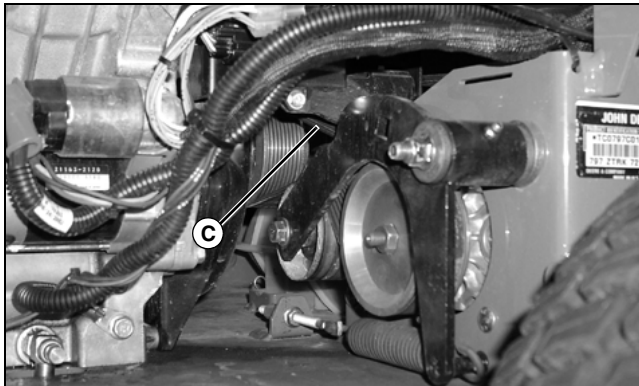
3. Lift and remove primary radiator screen (A).

# HYDROSTATIC POWER TRAIN REPAIR



MX18073

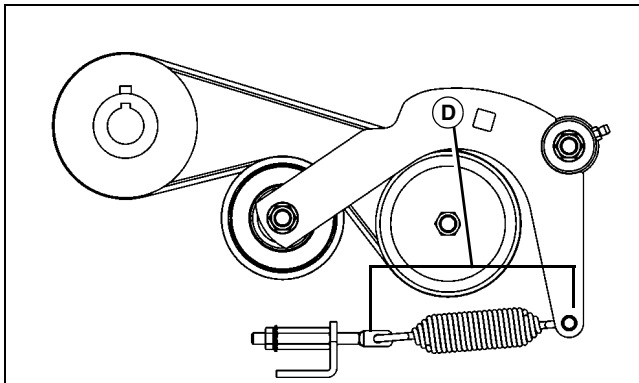
4. Remove drive belt guard (B).



MX18094

5. Inspect belt (C) for excessive wear, damage or stretching while in position on the transmission sheaves and drive belt tensioner sheave.

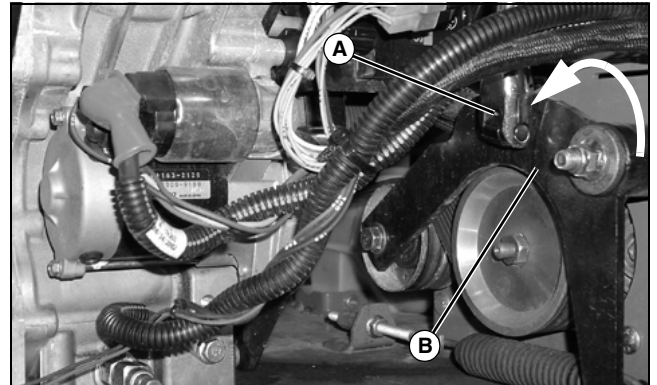
**NOTE:** Measure spring length from outside of one loop to the outside of the loop on the opposite end.



MX18114

6. Measure length of tension spring (D). Length should be within specifications. Adjust if necessary. (See "Adjust Drive Belt Tension" on page 286.)

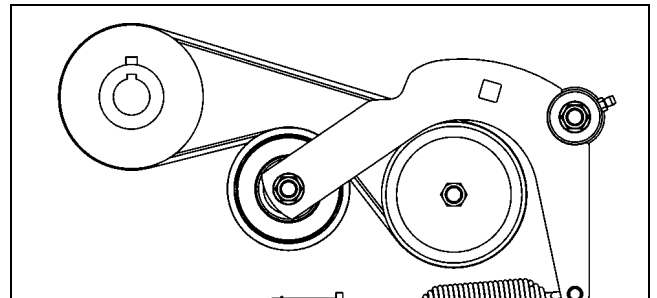
## Replacing Belt



MX18074

1. Place a 1/2-inch breaker bar (A) into square hole of idler bracket. Rotate idler bracket (B) to remove tension from drive belt.
2. Remove belt from drive sheaves and idler sheave.

**IMPORTANT:** Avoid damage! Be certain that belt is properly aligned with grooves in sheaves.



MX18114

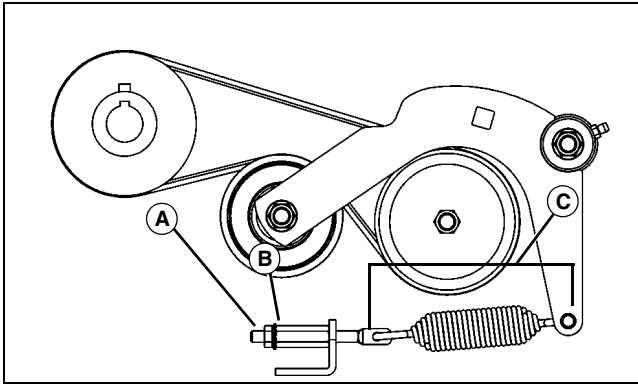
3. Install belt onto drive sheaves and idler sheave as shown.
4. Adjust tension spring length. (See "Adjust Drive Belt Tension" on page 286.)
5. Install drive belt guard and radiator screen.
6. Lower operator seat.

## Adjust Drive Belt Tension

1. Raise operator seat and secure with support rod.
2. Remove primary radiator screen and belt guard.



# HYDROSTATIC POWER TRAIN REPAIR



MX18114

3. Loosen jam nut (A).

**NOTE: Measure spring length from outside of one loop to the outside of the loop on the opposite end.**

4. Adjust stand-off nut (B) until length of spring (C) is to specifications.

5. Hold stand-off nut and tighten jam nut securely.

6. Install drive belt guard and radiator screen.

7. Lower operator seat.

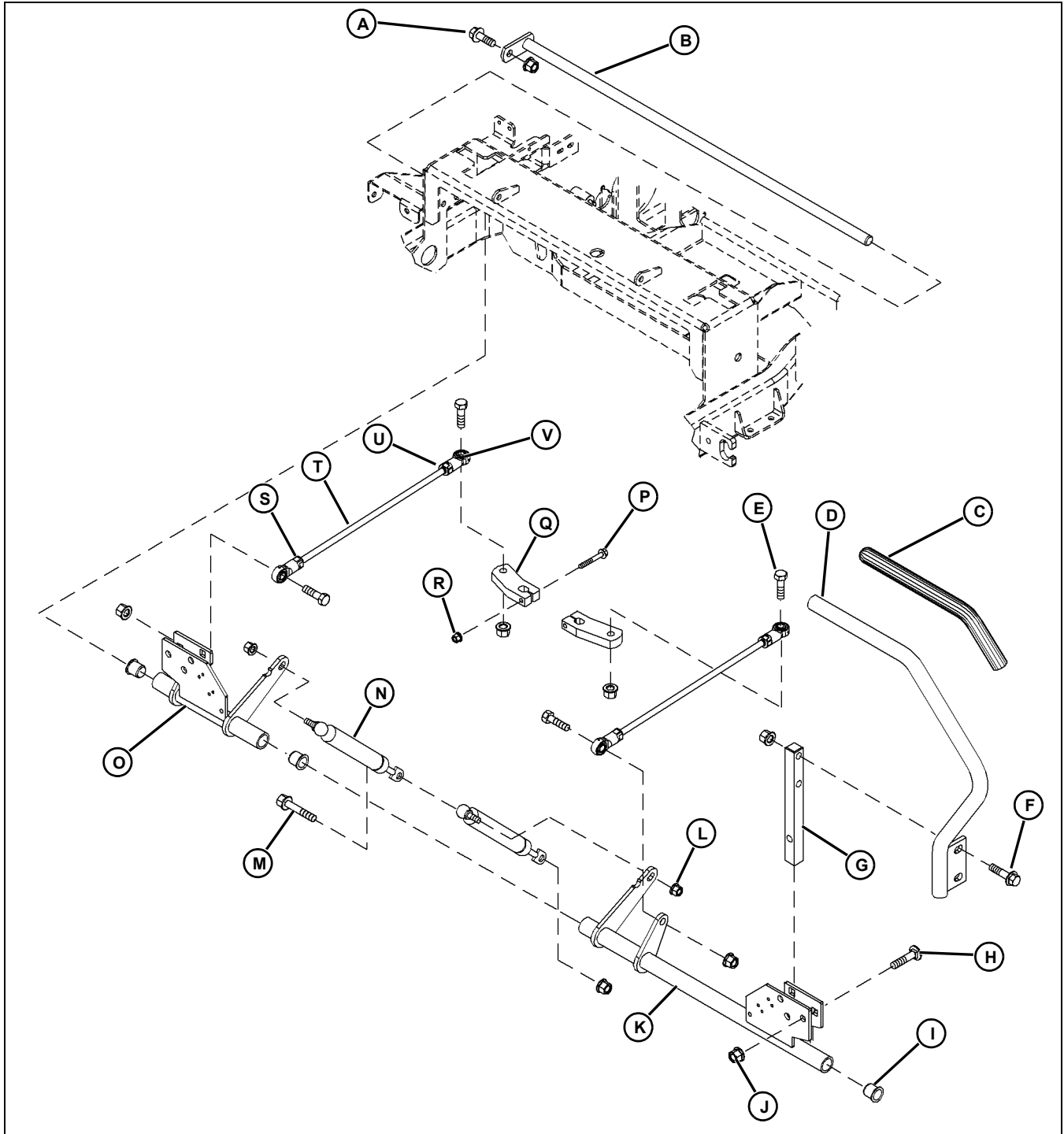
## Specifications

**Hydrostatic Pump Drive Belt**

**Tension Spring Length . . . . 188-192 mm (7.40-7.56 in.)**

# HYDROSTATIC POWER TRAIN REPAIR

## Repair Control Linkage



MX18214

Picture Note: Quantities Shown Are Per Side

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# HYDROSTATIC POWER TRAIN REPAIR

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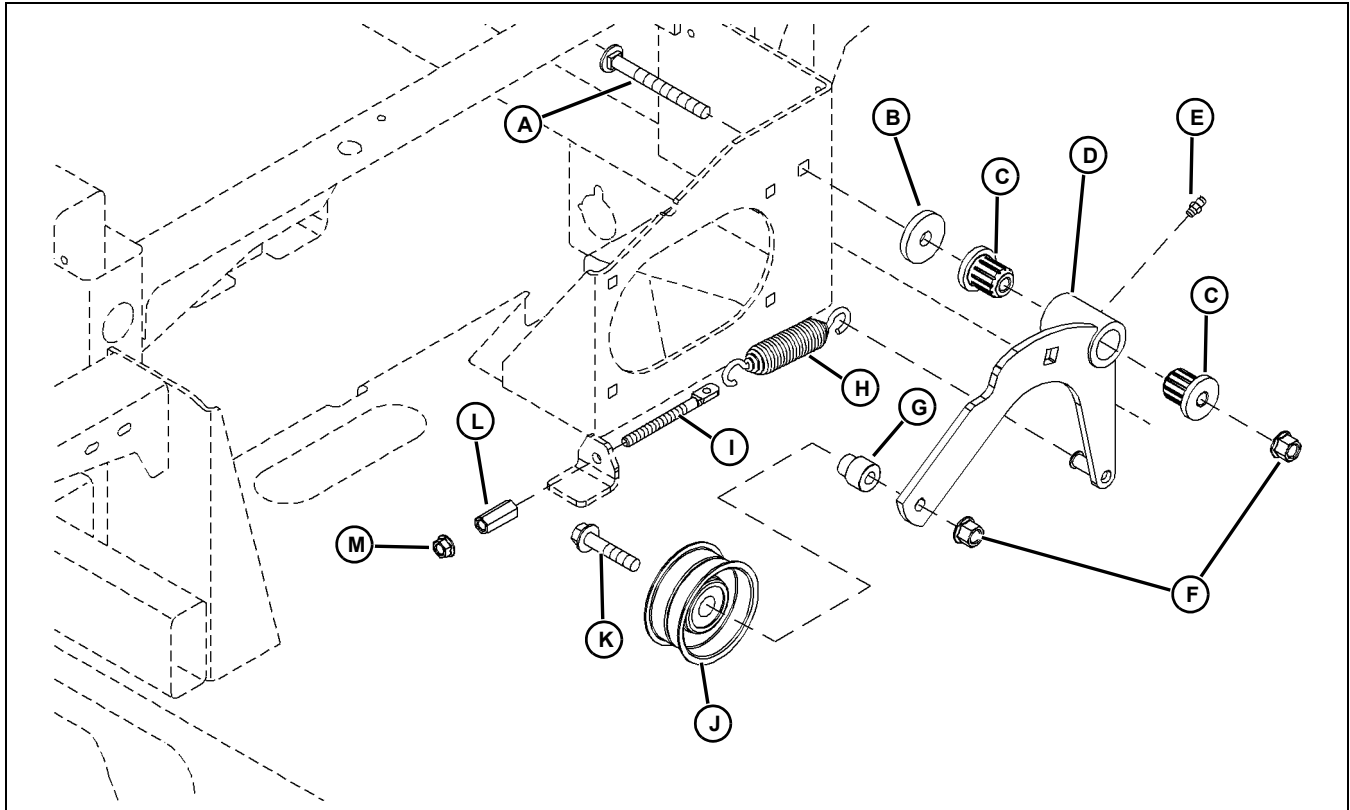
- A - Cap Screw
- B - Pivot Bar
- C - Grip
- D - Control Lever
- E - Cap Screw (2 used)
- F - Cap Screw (2 used)
- G - Arm
- H - Carriage Bolt (3 used)
- I - Bushing (4 used)
- J - Lock Nut (5 used)
- K - Left-Hand Bracket
- L - Lock Nut (2 used)
- M - Cap Screw
- N - Damper
- O - Right-Hand Bracket
- P - Cap Screw
- Q - Pump Arm
- R - Lock Nut
- S - Jam Nut (Right-Hand Thread)
- T - Rod
- U - Jam Nut (Left-Hand Thread)
- V - Ball Joint

***NOTE: Left control lever mechanism shown. Right control lever mechanism is the same.***

- Inspect all parts for wear or damage. Replace parts as needed.
- Adjust control lever height. (See “Checking and Aligning Motion Control Levers” on page 282.)
- Adjust control linkage. (See “Checking and Adjusting Motion Control Linkages” on page 279.)

# HYDROSTATIC POWER TRAIN REPAIR

## Repair Hydrostatic Pump Drive Belt Tensioner Assembly



MX18213

- A - Carriage Bolt**
- B - Spacer**
- C - Bearing (2 used)**
- D - Tension Bracket**
- E - Lubrication Fitting**
- F - Lock Nut (2 used)**
- G - Bushing**
- H - Spring**
- I - Tension Adjustment Bolt**
- J - Sheave**
- K - Cap Screw**
- L - Stand-Off Nut**
- M - Flange Nut**

- Inspect all parts for wear or damage. Replace parts as needed.
- Apply grease to lubrication fitting. (See "Grease" on page 22.)