

Foreword

This manual is written for an experienced technician. Essential tools required in performing certain service work are identified in this manual and are recommended for use.

Live with safety: Read the safety messages in the introduction of this manual and the cautions presented throughout the text of the manual.

CAUTION:

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

Technical manuals are divided in two parts: repair and operation and tests. Repair sections tell how to repair the components. Operation and tests sections help you identify the majority of routine failures quickly.

Information is organized in groups for the various components requiring service instruction. At the beginning of each group are summary listings of all applicable essential tools, service equipment and tools, other materials needed to do the job, service parts kits, specifications, wear tolerances, and torque values.

Technical Manuals are concise guides for specific machines. They are on-the-job guides containing only the vital information needed for diagnosis, analysis, testing, and repair.

Fundamental service information is available from other sources covering basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of failures and their causes.



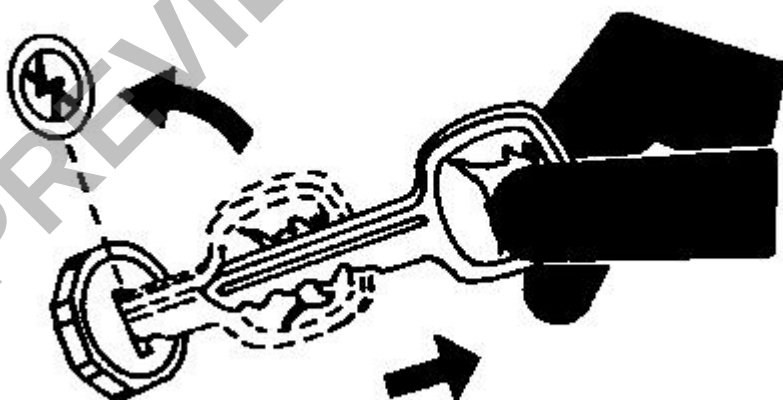
Machinery Runaway

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.

Park Machine Safely



Remove the Key

IMPORTANT:

Make sure the diesel fuel used in your machine demonstrates good lubricity characteristics.

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

If fuel of low or unknown lubricity is used, add John Deere Fuel-Protect Diesel Fuel Conditioner (or equivalent) at the specified concentration.

Lubricity of Biodiesel Fuel

Fuel lubricity can improve significantly with biodiesel blends up to B20 (20% biodiesel). Further increase in lubricity is limited for biodiesel blends greater than B20.

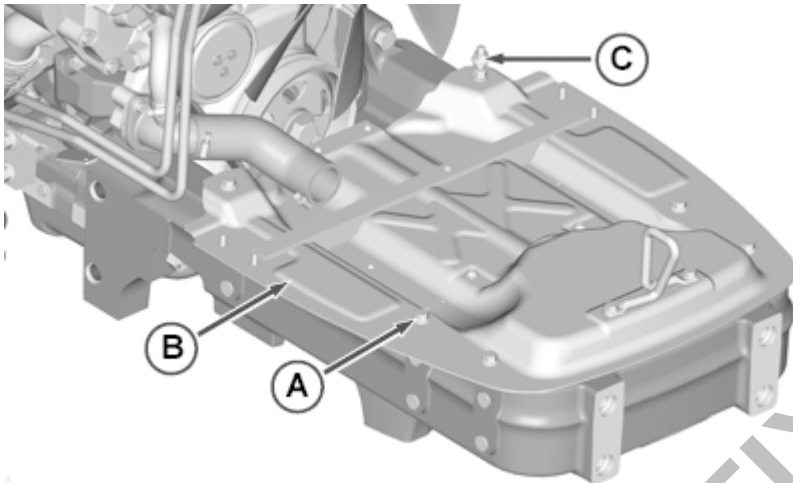
Testing Diesel Fuel

A fuel analysis program can help to monitor the quality of diesel fuel. The fuel analysis can provide critical data such as cetane number, fuel type, sulfur content, water content, appearance, suitability for cold weather operations, bacteria, cloud point, acid number, particulate contamination, and whether the fuel meets specification.

Contact your John Deere dealer for more information on diesel fuel analysis.

⚠ CAUTION:

Make sure front weights and front weight support are removed from tractor, if equipped, before removing any frame-to-engine mounting hardware.



Front Plate

LEGEND:

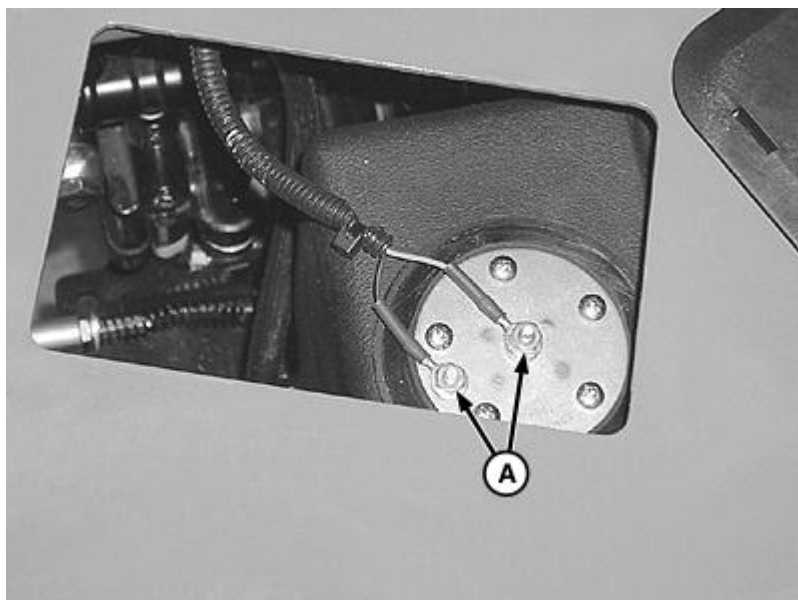
- A Cap Screw (5 used)
- B Plate
- C Cap Screw

Remove front weights and support, if equipped.

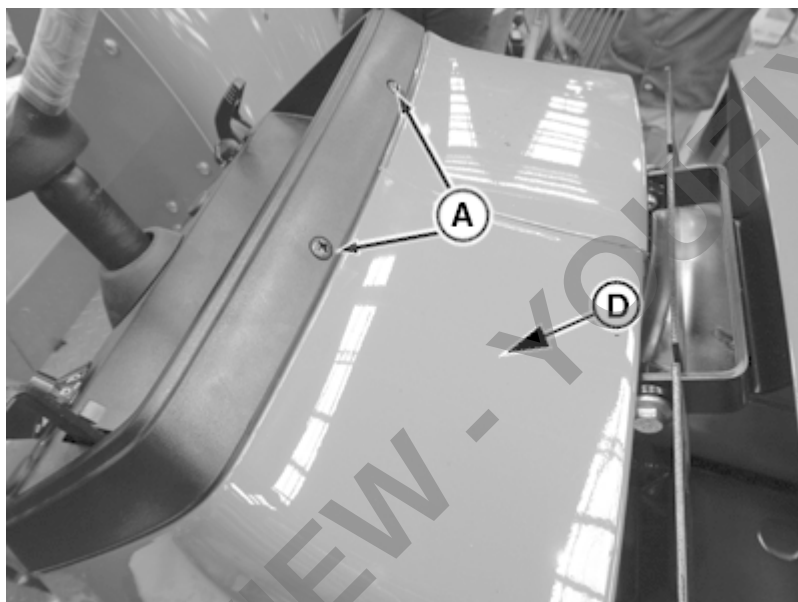
[26] - Remove cap screws (A and C) and plate (B).

[27] - Remove front axle assembly. (See [Remove and Install MFWD Axle Housing Assembly](#) in Section 50, Group 35.)

[28] -

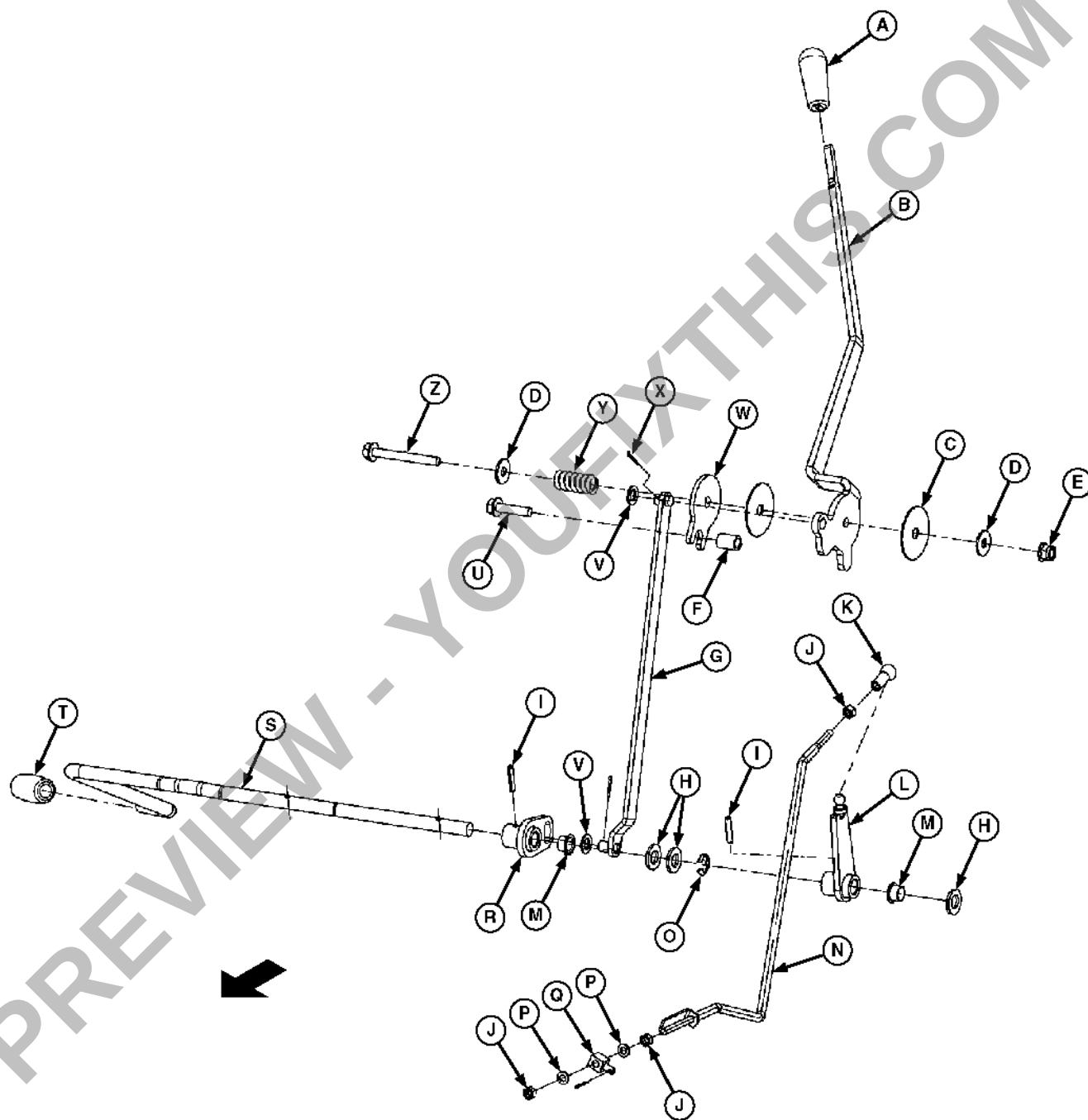


Fuel Sender Wires (-009999)



Fuel Sender Wires (010000-)

Inspect and Repair Speed Control Linkage - OOS/Cab (-009999)

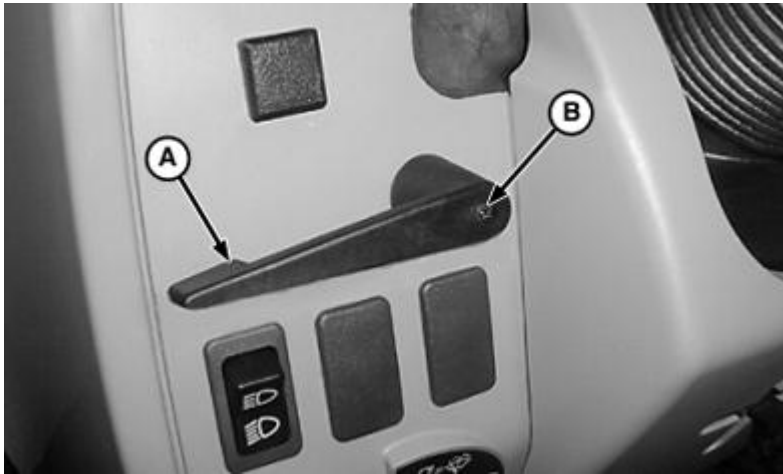


Limited Speed Control Linkage

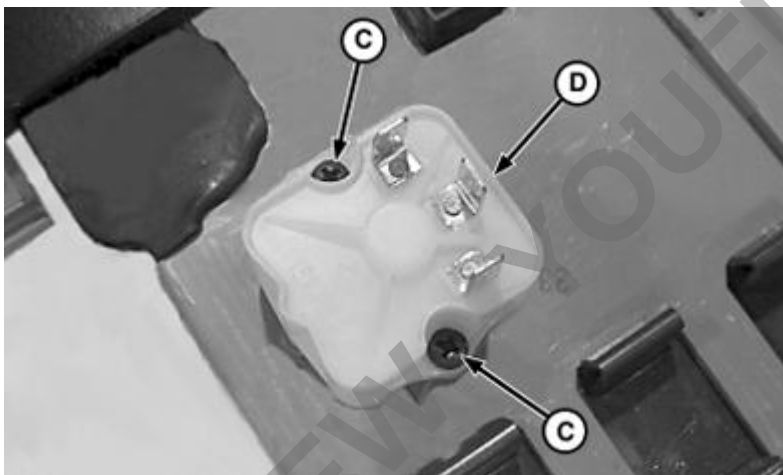
LEGEND:

Replace Turn Signal Switch — Cab (-009999)

[1] -



Turn Signal Switch



Turn Signal Switch

LEGEND:

- A Screw
- B Turn Signal Lever
- C Screw (2 used)
- D Turn Signal Switch

Disconnect battery negative (—) cable.

[2] - Remove center control console. (See [Remove and Install Center Control Console—Cab \(-009999\)](#) in Section 90, Group 06.)

- B Screw
- C Harness Connector
- D Harness Connector
- E Harness Connector
- F Controller
- G Screws

Disconnect battery negative (—) cable.

[2] - Remove screws (B) and cover (A).

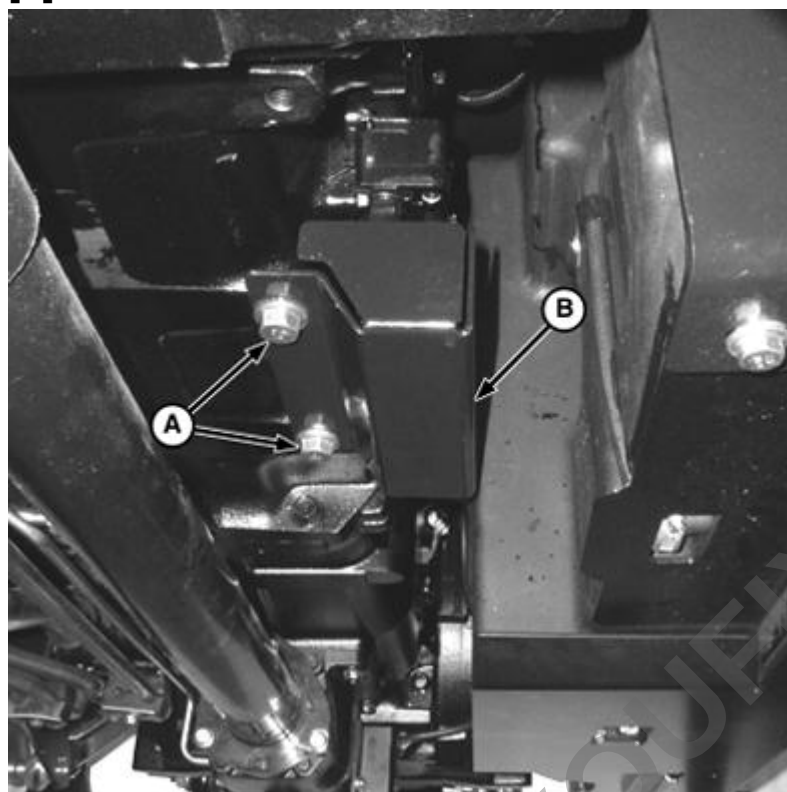
[3] - Disconnect wiring harness connector (C, D and E)

[4] - Remove screws (G) and controller (F).

[5] - Re-assemble all parts in reverse order.

Replace Trans Reverse Solenoid (-009999)

[1] -



Remove Shield

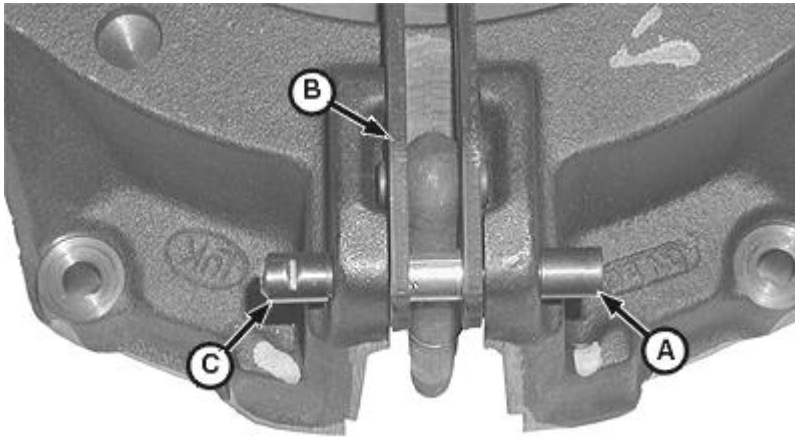
Rear Wiring Harness OOS

LEGEND:

- 1 Ground Lead
- 2 Transmission Forward Solenoid Connector
- 3 Enable Pressure Sensor Connector
- 4 Transmission Reverse Solenoid Connector
- 5 Clutch Enable Solenoid Connector
- 6 PTO Switch Connector
- 7 Hand Brake Switch Connector
- 8 Warning Lights Jumper
- 9 Jumper Connector
- 10 Load Center Connector
- 11 Backup Alarm Connector
- 12 7 Pin Trailer Connector
- 13 7 Pin Trailer Connector
- 14 7 Pin Trailer Connector
- 15 7 Pin Trailer Connector
- 16 Left Turn/Warning Light Connector
- 17 Beacon Lamp Lead
- 18 Right Turn/Warning Light Connector
- 19 Right Turn Light Connector
- 20 Fuel Level Sender Connector
- 21 Seat Switch Connector
- 22 Junction Block Connector
- 23 Hydraulic Oil Temperature Connector
- 24 Controller Connector (J3)
- 25 Controller Connector (J2)
- 26 Controller Connector (J1)
- 27 Service Advisor Connector
- 28 Top Shaft Speed Sensor
- 29 Engine Harness Connector
- 30 Head Lamp Connector
- 31 Power Connector
- 32 Power Connector
- 33 Flasher Relay Connector
- 34 Ground Lead
- 35 Key Switch Connector
- 36 Diode Module Connector
- 37 Natural Latch Relay Connector
- 38 Fuel Flow Relay Connector
- 39 Position Relay Connector
- 40 Rear Work Light Switch Connector
- 41 Beacon Light Switch Connector
- 42 Light Switch Connectors
- 43 Instrument Cluster Connector (J1)
- 44 Instrument Cluster Connector (J2)
- 45 Instrument Cluster Connector (J3)
- 46 Turn/Warning Light Relay Connector
- 47 Accessory Relay Connector
- 48 Brake Pedal Switch Connector

Assemble PTO Clutch (PM Transmission)(-009999)

[1] -



Pin Installation

LEGEND:

- A Pin (3 used)
- B Clutch Finger (3 used)
- C Retaining Sleeve (3 used)

Install pin (A) through clutch finger (B). Finger must pivot freely on pin.

[2] - Install a new retaining sleeve (C) over pin.

[3] - Using a blunt chisel, notch sleeve into pin groove at two places, 180 degrees apart.

[4] -

- 2 Shaft
- 3 Key
- 4 Key
- 5 Ball (4 used)
- 6 Washer (2 used)
- 7 Seal
- 8 Bearing
- 9 Snap Ring
- 10 Ball Bearing
- 11 Snap Ring (2 used)
- 12 Bearing (2 used)
- 13 Snap Ring
- 14 Hub
- 15 Washer
- 16 Seal
- 17 Snap Ring (2 used)
- 18 Support (2 used)
- 19 Spring (2 used)
- 20 Retaining Ring (2 used)
- 21 PR Clutch End Plate (2 used)
- 22 PR Clutch Disk (8 used)
- 23 PR Clutch Plate (8 used)
- 24 Piston (2 used)
- 25 Seal (2 used)
- 26 Clutch Cylinder
- 27 Ball Bearing

Remove seals (1) and key (3).

[2] -

→NOTE:

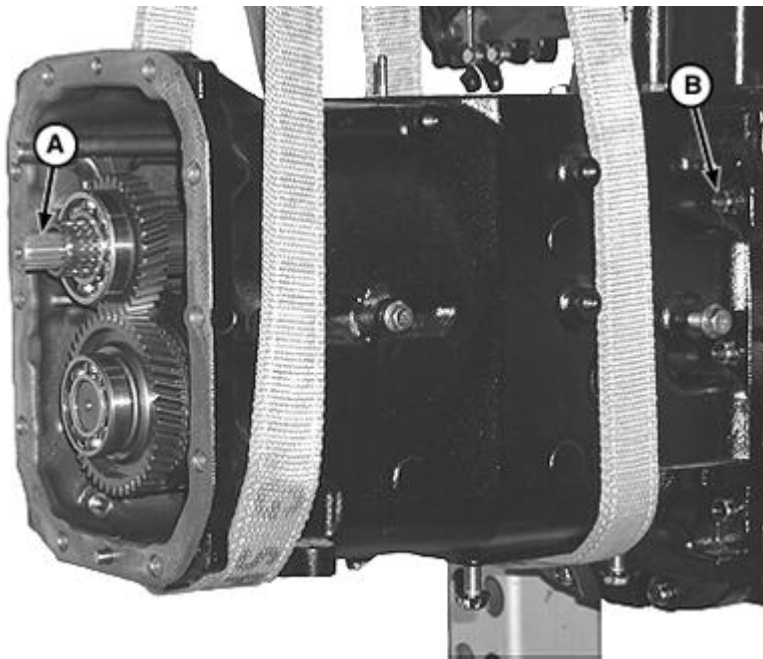
Bearing (27) is press fit on shaft (2).

Remove bearing (27) using a knife-edged puller.

[3] - Remove retaining ring (20) and parts (21—23) on both sides of clutch cylinder (26).

[4] - Inspect disks (22) and plates (21 and 23) for cracks or damage. Replace if necessary. Measure disk and plate thickness. Replace if less than specifications.

Item	Measurement	Specification
PR Clutch Disk	Minimum Thickness	2.7 mm (0.106 in.)



PTO Shaft

LEGEND:

- A PTO Shaft
- B Cap Screw (12 used)

Install twelve cap screws (B) and tighten to specification.

Item	Measurement	Specification
Transmission-to-Differential Cap Screw	Torque	140 N·m (105 lb-ft)

[5] - Install PTO shaft (A).

[6] -

- H Bearing Cone
- I Differential Drive Shaft

Remove shaft (I) from quill (D) using a knife-edged puller and a press.

[9] - Remove parts (B, E, F, and H).

[10] - Inspect all parts for wear or damage. Replace as necessary.

→NOTE:

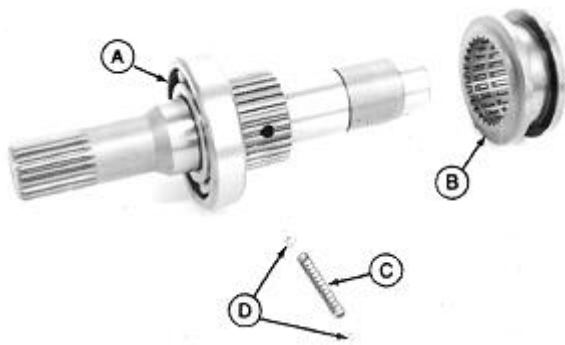
Bearing cups (C and G) are press fit in quill (D). Remove cups only if replacement is necessary.

[11] - Remove bearing cups using a small punch and hammer.

IMPORTANT:

Differential drive shaft and differential ring gear are a matched set. If shaft was replaced, ring gear must be replaced also.

Assemble MFWD Drop Gearbox



Shift Collar

LEGEND:

- A Bearing
- B Shift Collar
- C Spring
- D Balls

IMPORTANT:

Use new seals and O-rings during assembly. Damaged or used seals and O-rings will leak

→NOTE:

Lubricate all internal parts with clean transmission/hydraulic oil during assembly.

[1] - Install bearing (A), if removed, using a piece of pipe and a press.

[2] - Apply multipurpose grease to balls (D) and spring (C).

[3] - Install balls and spring in hole in shaft.

[4] - Install collar (B) over balls with shoulder of collar facing bearing (A).

Group 10 - Brake Repair

Brake Repair - Summary of References

- [Remove and Install Brake Valve and Pedals](#)
- [Disassemble and Inspect Brake Pedals and Valve](#)
- [Brake Valve Cross Section](#)
- [Assemble Brake Valve](#)
- [Remove and Inspect Brakes](#)
- [Install Brakes](#)
- [Inspect and Replace Brake Hydraulic Lines](#)

Service Equipment and Tools

→NOTE:

Order tools according to information given in the U.S. SERVICEGARD™ Catalog or from the European Microfiche Tool Catalog (MTC). Some tools may be available from a local supplier.

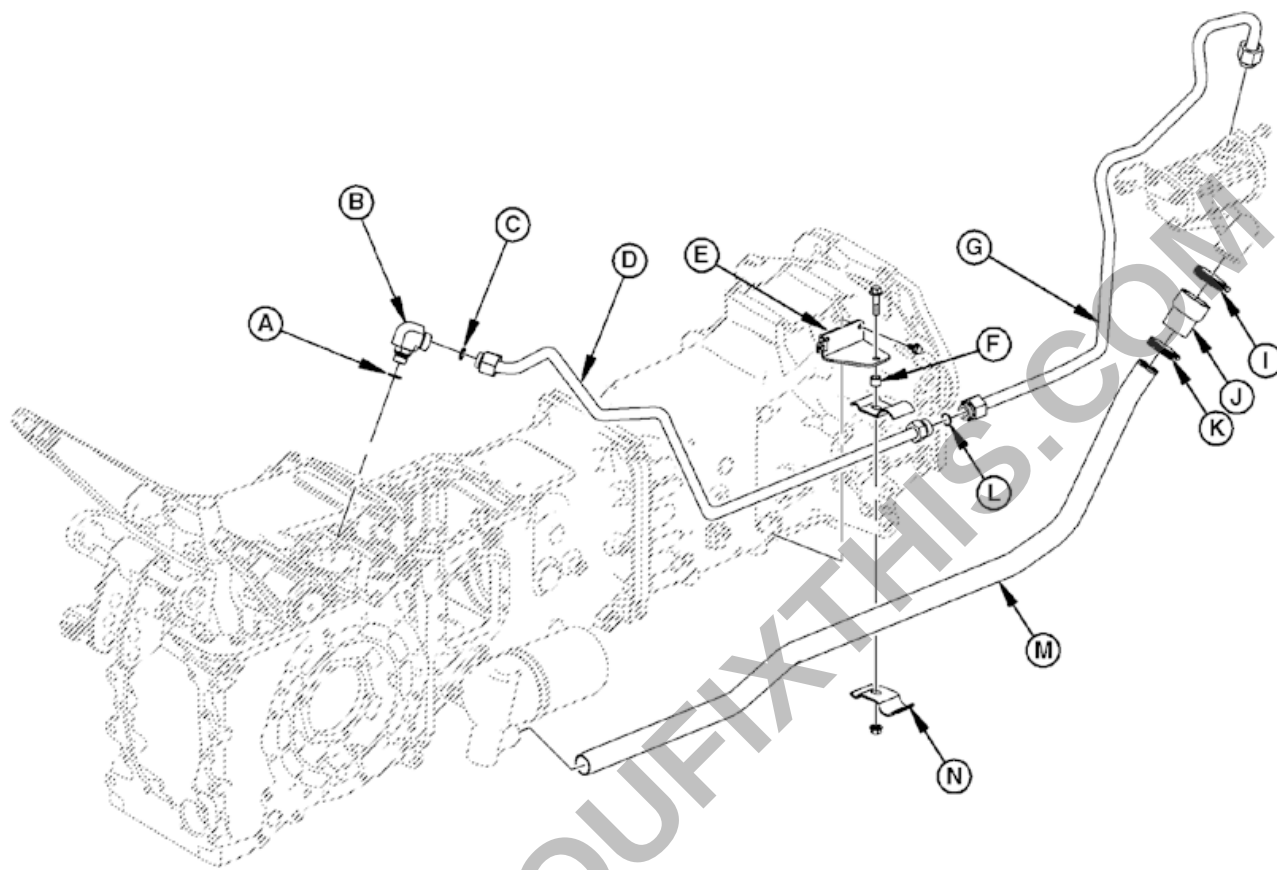
Other Material

Number	Name	Use
<ul style="list-style-type: none"> • PM38654 (us) • PM38624 (canadian) • 271 Loctite™ (loctite) 	Thread Lock and Sealer (High Strength)	Apply to threads of brake return compression spring assemblies.

Specifications

Item	Measurement	Specification
Brake Valve Mounting Cap Screw	Torque	70 N·m (52 lb-ft)
Brake Valve Inlet Check Valve	Torque	73 N·m (54 lb-ft)
Pressure Equalizing Valve Plug	Torque	37 N·m (27 lb-ft)
Outlet Check Valve Spring Seat Fitting	Torque	92 N·m (68 lb-ft)
Retractor Spring-to-Piston	Torque	15 N·m (133 lb-in.)
Piston-to-Final Drive Housing Surface	Distance	12.4—12.8 mm (0.48—0.50 in.)

Inspect and Replace Hydraulic Supply/Return Lines



PY9807

Hydraulic Supply and Return Lines

LEGEND:

- A O-Ring
- B Fitting
- C O-Ring
- D Pump to Inlet Housing Pressure Line
- E Bracket
- F Spacer
- G Pump to Inlet Housing Supply Line
- H Clamp
- I Clamp
- J Suction Line to Pump Hose
- K Clamp
- L O-Ring
- M Filter Manifold to Pump Suction Line
- N Clamp (2 used)

[1] - Remove right rear wheel and fender.

→NOTE:

Main relief valve can be accessed from rear or underneath tractor, between right rear fender and rockshaft housing.

[2] - Remove main relief valve (A) from SCV body.

IMPORTANT:

Always use new O-rings. Damaged or used O-rings will leak.

[3] - Install O-rings (D and G) and back-up rings (E and F).

[4] - Install main relief valve. Tighten relief valve to specification.

Item	Measurement	Specification
Main Relief Valve	Torque	51 N·m (38 lb-ft)

[5] - Operate machine hydraulics. Check and adjust transmission/hydraulic oil level.

- B Hydraulic Line (Pressure)
- C Mid-Mount Control Valve Hydraulic Line (Return)
- D Mid-Mount Control Valve Hydraulic Line (Power Beyond)
- E Mid-Mount Control Valve Hydraulic Line (Pressure)
- F Hydraulic Hose (Retract)
- G Hydraulic Hose (Extend)
- H Screw (4 used)
- I SCV
- J Inlet Housing

Disconnect control cable (A) at SCV end.

[4] - Tag and disconnect hydraulic line (B), from inlet housing.

[5] - If equipped, tag and disconnect hydraulic lines (C, D and E).

[6] - Tag and disconnect hydraulic hoses (F and G) from SCV (I).

[7] - Remove screws (H) to remove SCV (I) from inlet housing (J).

[8] - Repair or replace SCV. (See [Disassemble, Inspect, and Assemble Selective Control Valve \(SCV\)](#) in Section 70, Group 15.)

[9] -

IMPORTANT:

Replace all O-rings and seals. Used or damaged O-rings and seals will leak.

[29] - Repeat steps 16—28 for other solenoid coil.

Mid-Mount SCV II and III Repair

[1] -

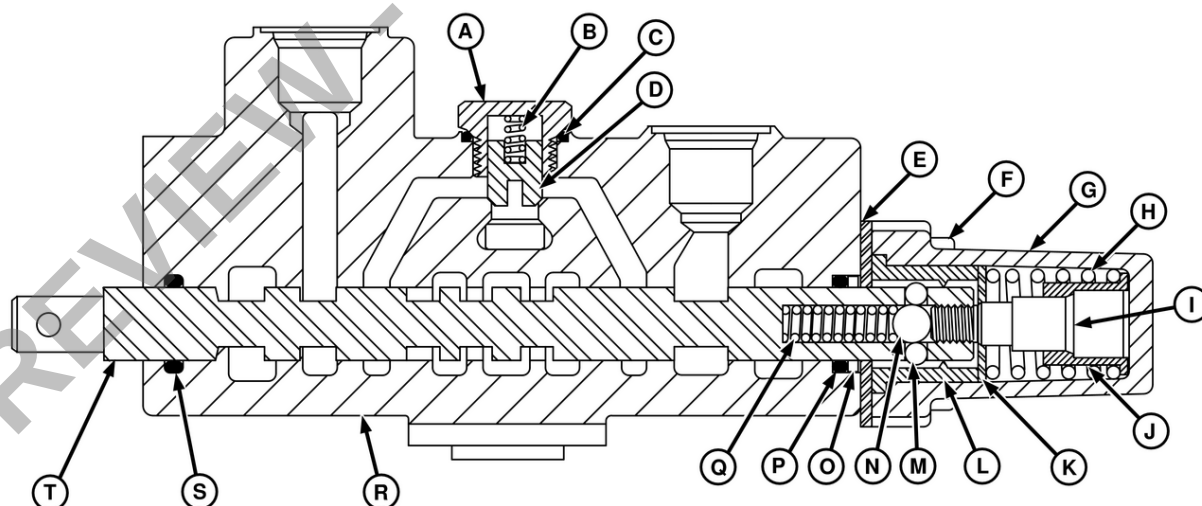
IMPORTANT:

Spools and housing are matched and must be replaced as a unit. Make sure spools are installed in their original bores to ensure proper operation.

Spacers are matched to spool type. Spacers must be installed with the spools they are removed from.

→NOTE:

Parts (A—D) and (E—P) are serviced as separate assemblies and are replaced as kits only.



Spools 2 and 3 sectional view

LEGEND:

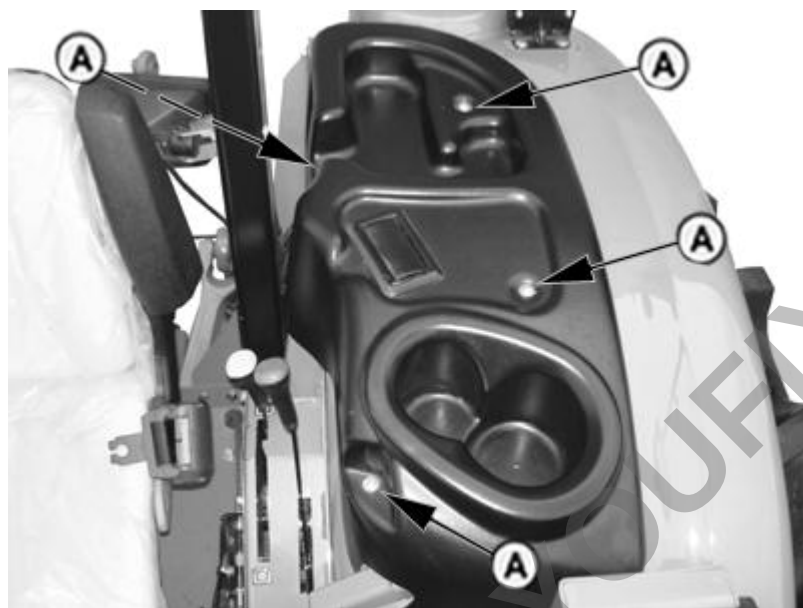
- A Cap
- B Spring

Remove and Install Fenders — OOS

[1] -

→NOTE:

Left-side fender shown; right-side fender removal is similar.



Cover

LEGEND:

A Screws

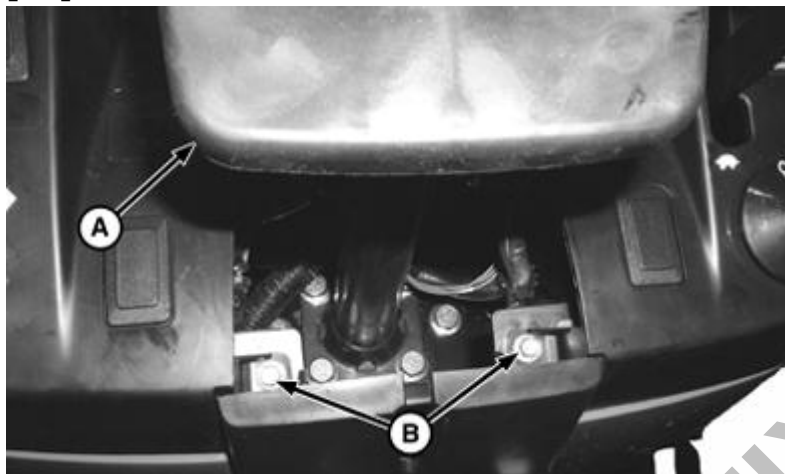
Remove screws (A).

[2] -

[8] - Remove cowl cover

[9] - Make repairs as necessary.

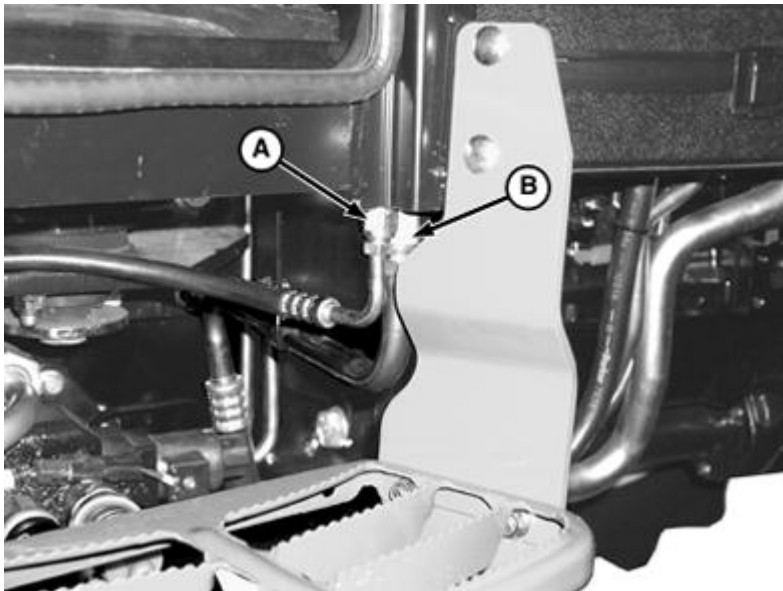
[10] -



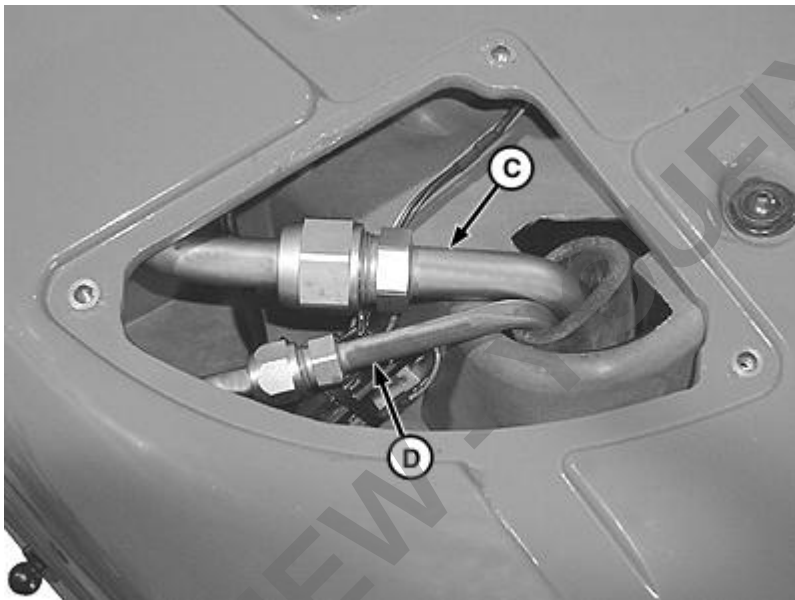
Steering Column Boot



Cowl Cover Cap Screws



Disconnect A/C Lines



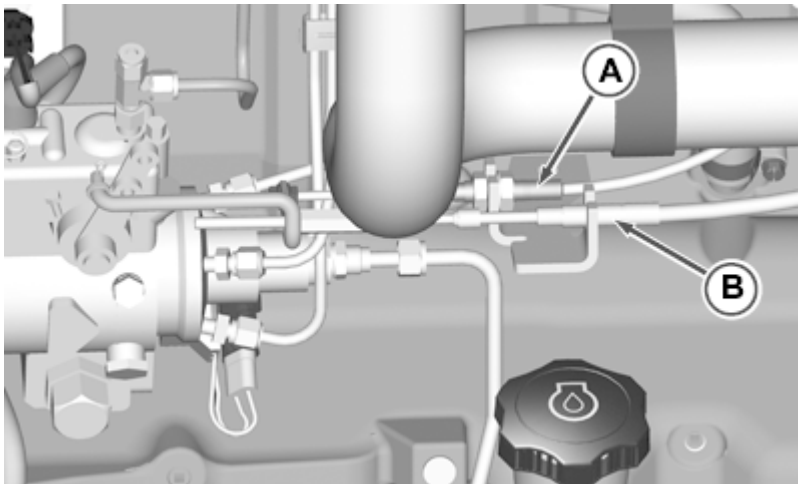
A/C Lines On Top of Cab

LEGEND:

- A A/C Line
- B A/C Line
- C A/C Line
- D A/C Line

Disconnect A/C lines (A and B). Close lines using caps or plugs to prevent contamination.

[11] - Disconnect A/C lines (C and D) at right front corner of cab roof and remove both lines from tractor. Close all open lines using caps or plugs to prevent contamination.



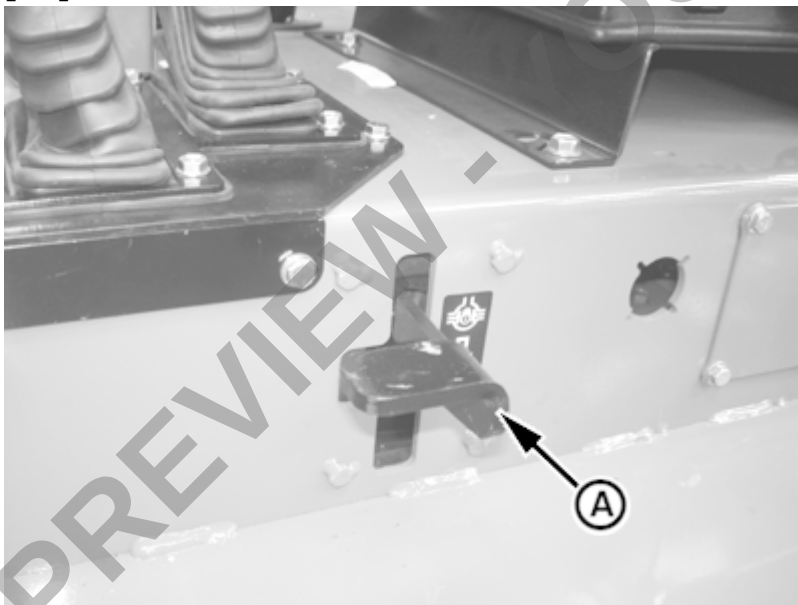
Throttle Control Cable

LEGEND:

- A Cable
- B Cable

Connect throttle control cable (A) and cable (B). Adjust throttle control cable. (See Throttle Lever Adjustment in Diagnostic Manual Section 220, Group 15.)

[19] -



Diff Lock Pedal

IMPORTANT:

To prevent damage, flush the complete air conditioning system and install a new receiver-dryer.

Flush the complete system before installing repaired compressor. (See [Flush Air Conditioning System](#) in this group.)

[19] - Install a new receiver-dryer. (See [Replace Air Conditioning Receiver/Dryer](#) in this group.)

[20] - Add correct amount of oil before installing compressor. (See [Refrigerant Oil Information](#) in Section 90, Group 20.)

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