5085E, 5090E, 5090EL and 5100E (FT4) Tractors Repair

TECHNICAL REPAIR MANUAL

5085E, 5090E, 5090EL, 5100E (North America)

TM134519 16FEB16 (ENGLISH)

For complete service information also see:

5085E, 5090E, 5090EL, and 5100E (FT4) Tractors (Diagnostics)	TM134419
JDPS Master Tool Manual	TM111119
PowrReverser Transmission - John Deere Pune Works (Sr. No. PY1068XXXXXXX, LV12363, LV12364, PY10678, PY10953, LV12781 and PY10952)	CTM900519
725, 730, 733, 735, 740, 745, 750, 755 and 755HD Front Drive Axles, 2-Piece DANA	CTM4820
Service ADVISOR Machine Connection Information	CTM441
4045 PowerTech OEM Diesel Engines (Final Tier 4/Stage IV platform)	CTM120119
Engine Application List	CTM106819

John Deere Agriculture

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Group 05 - Safety

Prevent Battery Explosions



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).

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Group 10 - General Specifications

Features and Accessories

The information in this block pertains to the features of the machines covered in this technical manual. It can be used in addition to the normal advertising literature or may help in determining which specific feature requires service.

→NOTE:

Design, features, accessories, and specifications are subject to change without notice.

Features marked “X” are available for that particular model number machine. Features marked “—” are not available for that model number machine.

Features and Accessories

Features and Accessories		
	5085E	5100E
North America	X	X
Cab	X	X
Open Operator Station (OOS)	X	X
Air Conditioning and Heater (Cab)	X	X
Mechanical Suspension Seat	X	X
Air Suspension Seat	X	X
4-Cylinder Final Tier 4 Engine	X	X
Electronic Fuel Injection System with HPCR	X	X
Electronic Throttle Control	X	X
Turbocharged	X	X
Charge Air Cooler (CAC)	X	X
Fan Drive (Viscous)	X	X
Water Separator	X	X
Fuel Filter (Dual)	X	X
Fuel Cooler	X	X
Air Cleaner (Radial)	X	X
Air Conditioner Condenser (Cab)	X	X
Hydraulic/Transmission Oil Cooler	X	X
Cold Weather Start Aid (Glow Plug)	X	X
Engine Coolant Heater	X	X
Wet Traction Clutch	X	X
12x12 PowrReverser™ Transmission	X	X
24x12 PowrReverser Plus™ Transmission	X	X
Creeper	X	X
Open Center Hydraulics	X	X
Tandem Hydraulic Pump [Steering—24.9 lpm (6.6 gpm); Implement—60.1 lpm (15.9 gpm)]	X	X
Greased Rear Axle (Standard)	X	X
Greased MFWD Front Axle (Standard)	X	X
Mechanical Differential Lock	X	X
Mechanical MFWD	X	X
Electrohydraulic Rear Power Take-Off (PTO)	X	X
Wet PTO Clutch	X	X
Dual (540/540E) Speed PTO	X	X

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Machine General Specifications

→NOTE:

Specifications and design are subject to change without notice.

Specification Table

	5085E	5100E
ENGINE		
Type	4045H	4045H
Aspiration	Turbocharged	Turbocharged
Engine Power at 2400 rpm	63.6 kW (85 hp.)	74.5 kW (100 hp.)
PTO Power at 2400 rpm [Observed in factory.]	52.2 kW (70 hp.)	63.3 kW (85 hp.)
Maximum Torque	245 N·m	298 N·m
Cylinders	4	4
Bore	106 mm (4.19 in.)	106 mm (4.19 in.)
Stroke	127 mm (5.00 in.)	127 mm (5.00 in.)
Displacement	4.5 L (278 cu. in.)	4.5 L (278 cu. in.)
Compression Ratio	19:1	19:1
Firing Order (#1 cylinder in front)	1-3-4-2	1-3-4-2
Intake Valve Clearance	0.35 mm (0.014 in.)	0.35 mm (0.014 in.)
Exhaust Valve Clearance	0.45 mm (0.018 in.)	0.45 mm (0.018 in.)
Slow Idle	900 rpm	900 rpm
Fast Idle	2500 rpm	2500 rpm
Operating Speed Range	1600—2400 rpm	1600—2400 rpm
FUEL SYSTEM		
Type	Electronically Controlled High Pressure Common Rail Fuel System	Electronically Controlled High Pressure Common Rail Fuel System
Fuel Filter	FuelGard (2 used)	FuelGard (2 used)
ELECTRICAL SYSTEM		
Type	12 V Negative Ground	12 V Negative Ground
Battery	12 V 925 CCA Cold Cranking Amps	12 V 925 CCA Cold Cranking Amps
Specifications		
BCI Group	31	31
Alternator (OOS)	90 A	90 A
Alternator (Cab)	120 A	120 A
Starting Motor	12 V, 2.5 kW	12 V, 2.5 kW
TRANSMISSION		
Standard	12/12 PowrReverser™ with Mechanical Hitch, Electrohydraulic PTO (1 speed or shiftable 540/540E)	12/12 PowrReverser™ with Mechanical Hitch, Electrohydraulic PTO (1 speed or shiftable 540/540E)
Optional (Cab Only)	24/12 PowrReverser™ with Mechanical Hitch, Electro-Hydraulic PTO (1 speed or shiftable 540/540E)	24/12 PowrReverser™ with Mechanical Hitch, Electro-Hydraulic PTO (1 speed or shiftable 540/540E)
Gear Selections	Lever	Lever
Shifting	Manual	Manual
BRAKES		
Type	Hydraulically Operated Wet Disk	Hydraulically Operated Wet Disk
POWER TAKE-OFF		
Type (Standard)	540/540E, Fully Independent	540/540E, Fully Independent

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Drain and Refill Capacities

→NOTE:

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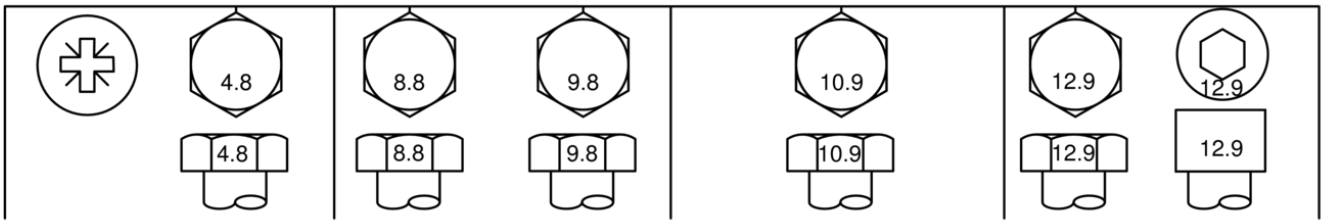
Specification Table

CAPACITIES	5085E and 5100E
Fuel Tank	115L (30 U.S. gal)
Cooling System	11.4 L (3 U.S. gal)
Crankcase (including filter)	12.1 L (3.2 U.S. gal)
Transmission and Hydraulic System	43.5 L (11.5 gal)
MFWD Wheel Hubs	0.7 L (0.74 U.S. qt.)
MFWD Axle Housing	5 L (1.3 U.S. gal)

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Metric Bolt and Screw Torque Values



Metric Bolt and Screw

Metric Torque Values

Bolt or Screw Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated ["Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.]		**Dry** ["Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B, F13E or F13H zinc flake coating.]		**Lubricated** ["Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.]		**Dry** ["Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B, F13E or F13H zinc flake coating.]		**Lubricated** ["Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.]		**Dry** ["Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B, F13E or F13H zinc flake coating.]		**Lubricated** ["Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.]		**Dry** ["Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B, F13E or F13H zinc flake coating.]	
	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.

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Engine Oil and Filter Service Intervals — Interim Tier 4, Final Tier 4, Stage IIIB, and Stage IV Engines

Recommended oil and filter service intervals are based on a combination of oil pan capacity, type of engine oil and filter used, and sulfur content of the diesel fuel. Actual service intervals also depend on operation and maintenance practices.

Use oil analysis to evaluate the condition of the oil and to aid in selection of the proper oil and filter service interval. Contact your John Deere dealer for more information on engine oil analysis.

Change the oil and oil filter at least once every 12 months even if the hours of operation are fewer than the otherwise recommended service interval.

Diesel fuel sulfur content affects engine oil and filter service intervals. Higher fuel sulfur levels reduce oil and filter service intervals.

Use of diesel fuel with sulfur content less than 15 mg/kg (15 ppm) is REQUIRED.

IMPORTANT:

To avoid engine damage:

- ***Reduce oil and filter service intervals by 50% when using BioDiesel blends greater than B20. Oil analysis may allow longer service intervals.***
- ***Use only approved oil types.***

Approved Oil Types:

- John Deere Plus-50 ™ II
- “Other Oils” include API CJ-4, ACEA E9, and ACEA E6

→NOTE:

The 500 hour extended oil and filter change interval is only allowed if all of the following conditions are met:

- **Use of diesel fuel with sulfur content less than 15 mg/kg (15 ppm)**
- **Use of John Deere Plus-50™ II oil**
- **Use of an approved John Deere oil filter**

Interim Tier 4, Final Tier 4, Stage IIIB, and Stage IV Service Intervals

Engine Oil and Filter Service Intervals	
John Deere Plus-50™ II	500 hours
Other Oils	250 hours
Oil analysis may extend the service interval of “Other Oils” to a maximum not to exceed the interval of Plus-50™ II oils.	

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Remove Engine

[1] - Remove battery. (See Remove and Install Battery in Section 40, Group 05.)

[2] - Remove hood. (See Remove and Install Hood in Section 80, Group 25.)

[3] - Remove toolbox and fan guards.

[4] - Remove front weights and support, if equipped.

[5] - Drain coolant from engine. (See Drain Coolant in Section 20, Group 10.)

[6] - Remove radiator. (See Remove and Inspect Radiator in Section 20, Group 10.)

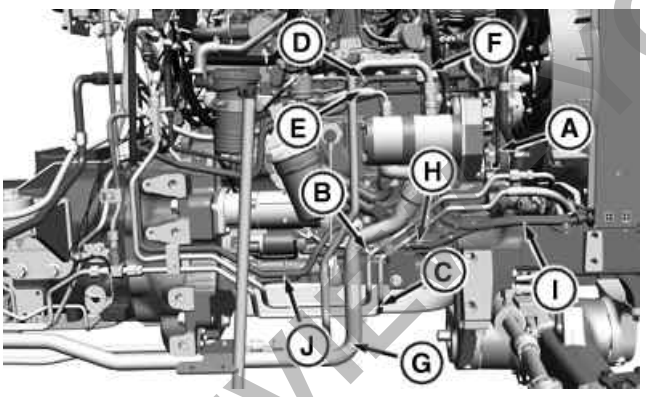
[7] - Remove exhaust pipe. (See Remove and Install Exhaust Pipe in Section 30, Group 20.)

[8] - Remove MFWD drive shaft, if equipped. (See Remove, Inspect and Install MFWD Drive Shaft in Section 50, Group 35.)

[9] -

→NOTE:

Close all openings with caps or plugs. Tag or label hydraulic hoses/lines to aid during installation.



LEGEND:

A	Doser Injector Coolant Return Line
B	Oil Cooler Supply Line
C	Oil Cooler Return Line
D	Heater Line (if equipped)
E	Steering Supply Line
F	Rockshaft Supply Line
G	Pump Supply Line
H	Starter Cable (+)
I	Alternator Cable (+)
J	DEF Tank Heater Line

Right Side of Tractor Shown

Disconnect and remove hydraulic lines (A—J). Close all openings with caps or plugs.

[10] - Remove line-retaining clamps and hardware from engine.

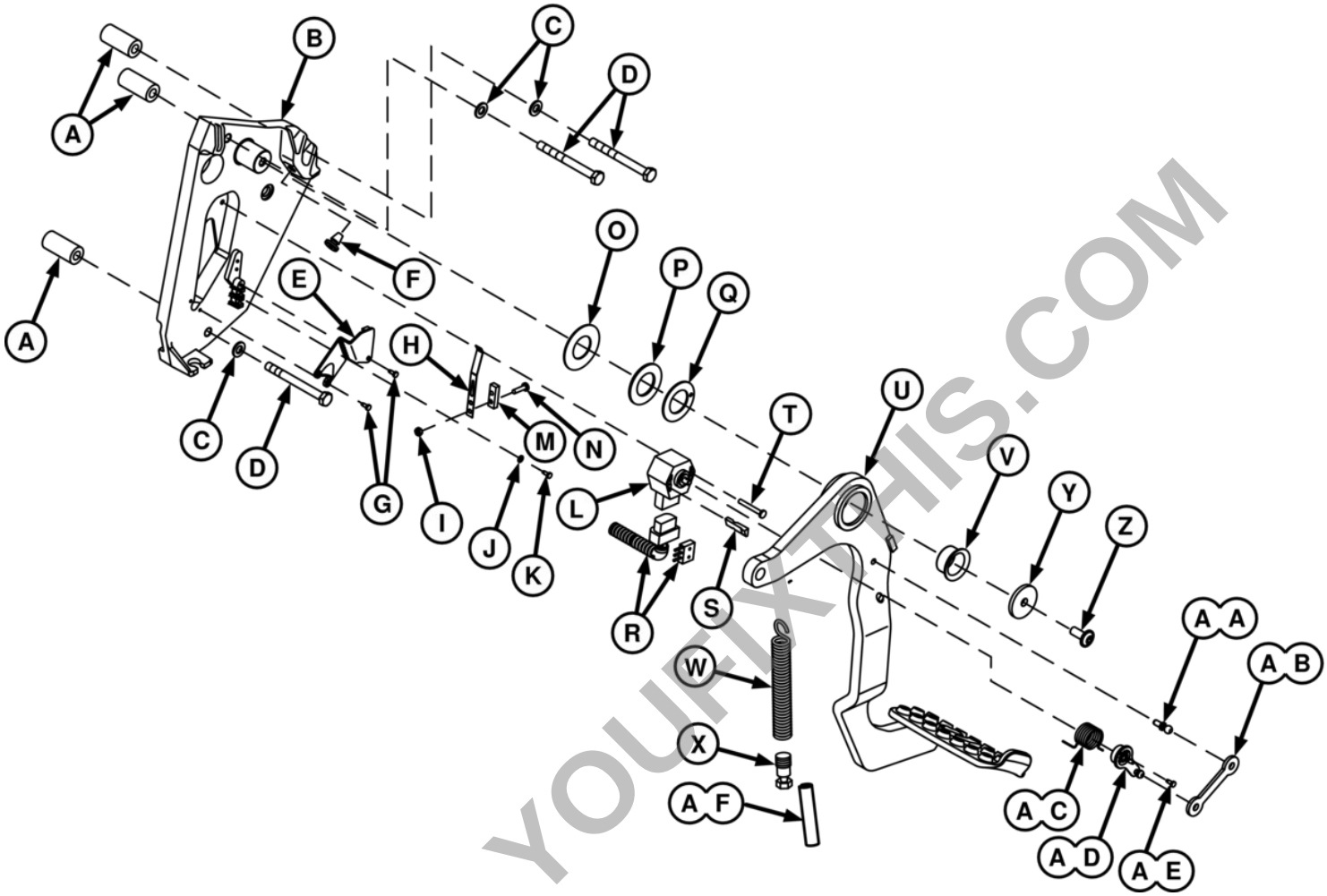
[11] -

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Inspect and Repair Clutch Pedal and Linkage—(PowrReverser™ Transmissions)

[1] -



Clutch Pedal Assembly

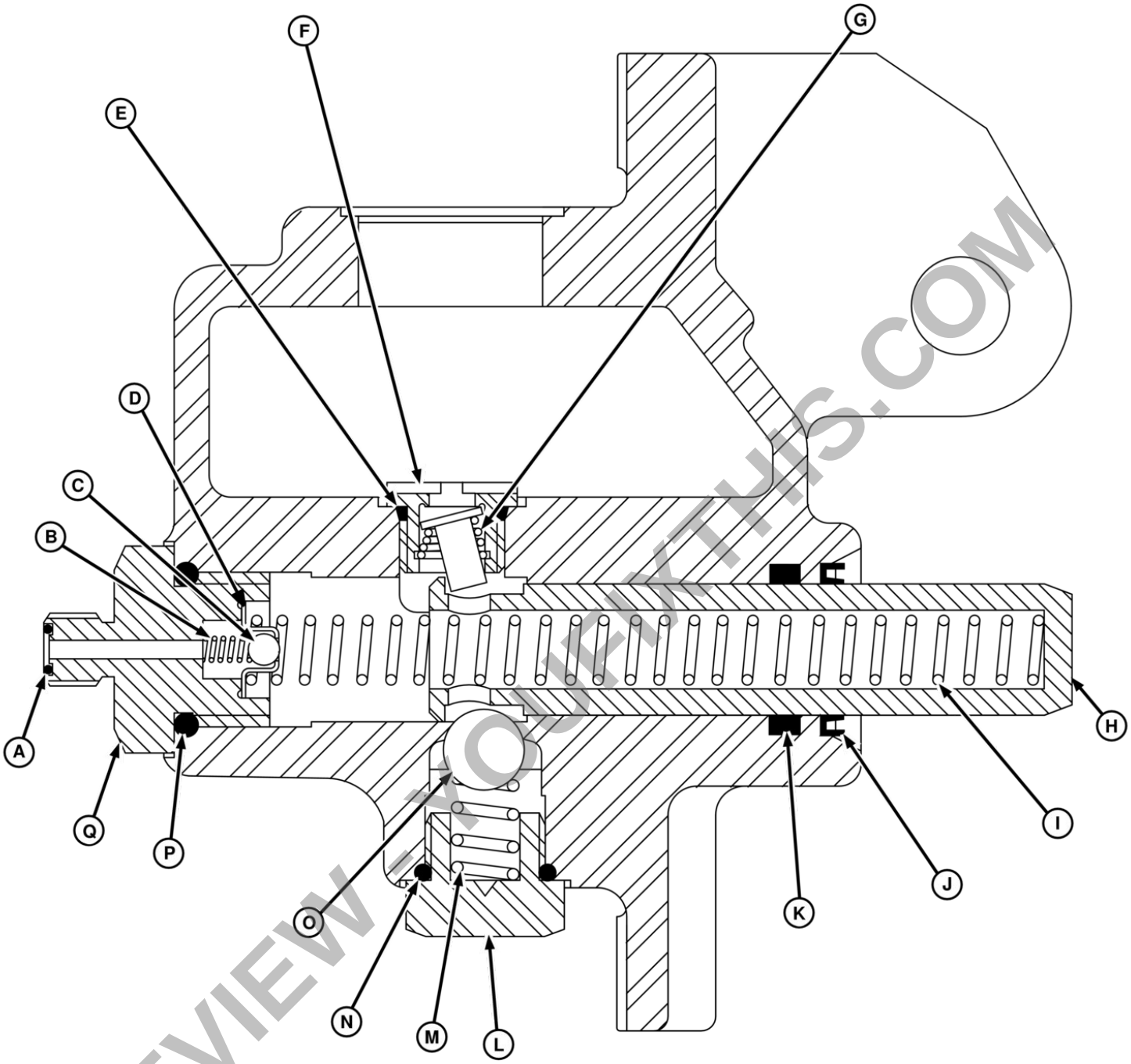
LEGEND:

A	Spacers
B	Mounting Bracket
C	Washers
D	Cap Screws
E	Bracket
F	Stop
G	Cap Screw (3 used)
H	Leaf Spring
I	Nut (2 used)
J	Washer
K	Cap Screw
L	Potentiometer
M	Block
N	Cap Screw (2 used)
O	Spring Washer
P	Washer
Q	Washer
R	Wiring Harness and Connector
S	Stop
T	Cap Screw (2 used)
U	Pedal
V	Bushing
W	Spring
X	Spring Mount
Y	Washer

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Brake Valve Cross Section



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Brake Valve Cross Section

LEGEND:

A	O-Ring (2 used)
B	Spring (2 used)
C	Outlet Check Ball (2 used)
D	Retainer (2 used)
E	O-Ring (2 used)
F	Inlet Check Valve Seat (2 used)
G	Spring (2 used)
H	Brake Piston (2 used)
I	Spring (2 used)
J	Seal (2 used)
K	O-Ring (2 used)
L	Plug (2 used)
M	Spring (2 used)

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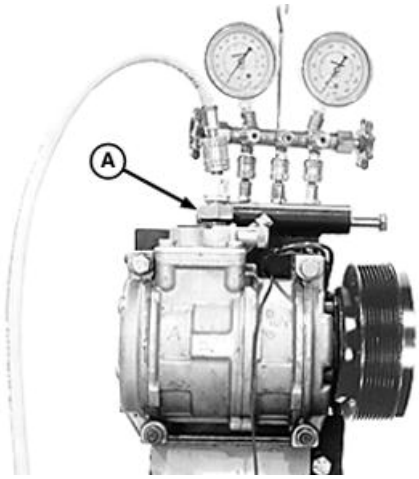
[8] - Rotate compressor drive shaft with speed wrench to obtain peak vacuum on low-side gauge. Check for even suction (no pulsing) while turning wrench at a slow rate to maintain peak vacuum at 63.5 cm Hg (25 in. Hg) minimum.

[9] - Stop rotating shaft and check leak-down time. Compressor should hold peak vacuum for three seconds minimum.

If compressor does not hold peak vacuum for three seconds, inspect compressor valve plates and cylinder walls for damage. Repair compressor.

[10] - Open suction port of compressor to atmosphere.

[11] -



LEGEND:

A	Discharge Port

A/C compressor volumetric test

Connect gauge set suction hose to discharge port (A) using adapters and hose in JT02098 kit.

Air Conditioning R12/R134a Fitting Kit

JT02098

90 Cab/Open Operator Station

[12] - Close gauge set suction side valve.

[13] - Rotate drive shaft no faster than two turns per second for six turns.

[14] - Record pressure after six complete turns. Pressure should be 380 kPa (3.8 bar) (55 psi) minimum.

[15] -

→NOTE:

Pressure normally leaks down when rotation stops.

Continue to rotate compressor at a uniform speed to obtain peak pressure. Compression pressure should increase smoothly and should not vary more than 34 kPa (0.34 bar) (5 psi) at peak pressure. Bleed off pressure and repeat steps 12—15 four times.

[16] -

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Clutch hub clearance

Check pulley-to-clutch-hub clearance using a dial indicator. Mount the gauge to the pulley as shown and connect a set of jumper wires from the compressor to a 12-volt battery.

[2] - Rotate the pulley and check for proper clearance specification in three equally spaced locations around the clutch hub. Add or remove shims as required.

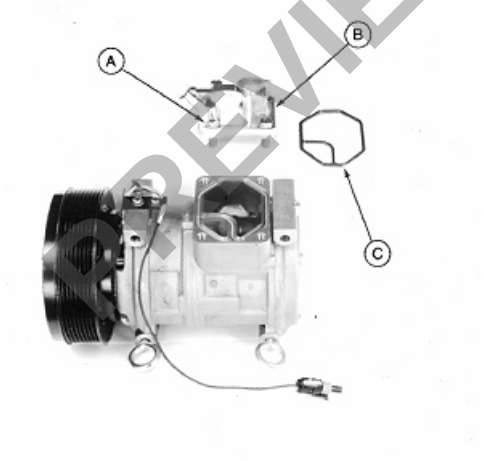
Item	Measurement	Specification
Hub-to-Pulley	Clearance	0.35—0.65 mm (0.014—0.026 in.)

[3] - Tighten clutch hub retaining cap screw to specification after correct clearance is obtained.

Item	Measurement	Specification
Clutch Hub Retaining Cap Screw	Torque	14 N·m (10 lb.-ft.)

Inspect Compressor Manifold

[1] -



LEGEND:

A	Cap Screws (4 used)
B	Manifold
C	Manifold Seal

Manifold assembly

Remove cap screws (A) and manifold (B).

[2] - Remove and discard manifold seal (C). Inspect porting surfaces.

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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.

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Water Quality for Mixing with Coolant Concentrate

Engine coolants are a combination of three chemical components: ethylene glycol (EG) or propylene glycol (PG) antifreeze, inhibiting coolant additives, and quality water.

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.

All water used in the cooling system should meet the following minimum specifications for quality:

Water Quality

Chlorides	<40 mg/L
Sulfates	<100 mg/L
Total solids	<340 mg/L
Total dissolved I hardness	<170 mg/L
pH	5.5—9.0

IMPORTANT:

Do not use bottled drinking water because it often contains higher concentrations of total dissolved solids.

Freeze Protection

The relative concentrations of glycol and water in the engine coolant determine its freeze protection limit.

Freeze Protection

Ethylene Glycol	**Freeze Protection Limit**
40%	-24 °C (-12 °F)
50%	-37 °C (-34 °F)
60%	-52 °C (-62 °F)
Propylene Glycol	**Freeze Protection Limit**
40%	-21 °C (-6 °F)
50%	-33 °C (-27 °F)
60%	-49 °C (-56 °F)

DO NOT use a coolant-water mixture greater than 60% ethylene glycol or 60% propylene glycol.

Diesel Exhaust Fluid (DEF) — Use in Selective Catalytic Reduction (SCR) Equipped Engines

Diesel exhaust fluid (DEF) is a high purity liquid that is injected into the exhaust system of engines equipped with selective catalytic reduction (SCR) systems. Maintaining the purity of DEF is important to avoid malfunctions in the SCR system. Engines requiring DEF shall use a product that meets the requirements for aqueous urea solution 32 (AUS 32) according to ISO 22241-1.

The use of John Deere Diesel Exhaust Fluid is recommended. John Deere Diesel Exhaust Fluid is available at your John Deere dealer in a variety of package sizes to suit your operational needs.

If John Deere Diesel Exhaust Fluid is not available, use DEF that is certified by the American Petroleum Institute (API) Diesel Exhaust Fluid Certification Program or by the AdBlue ™ Diesel Exhaust Fluid Certification Program. Look for the API certification symbol or the AdBlue™ name on the container.

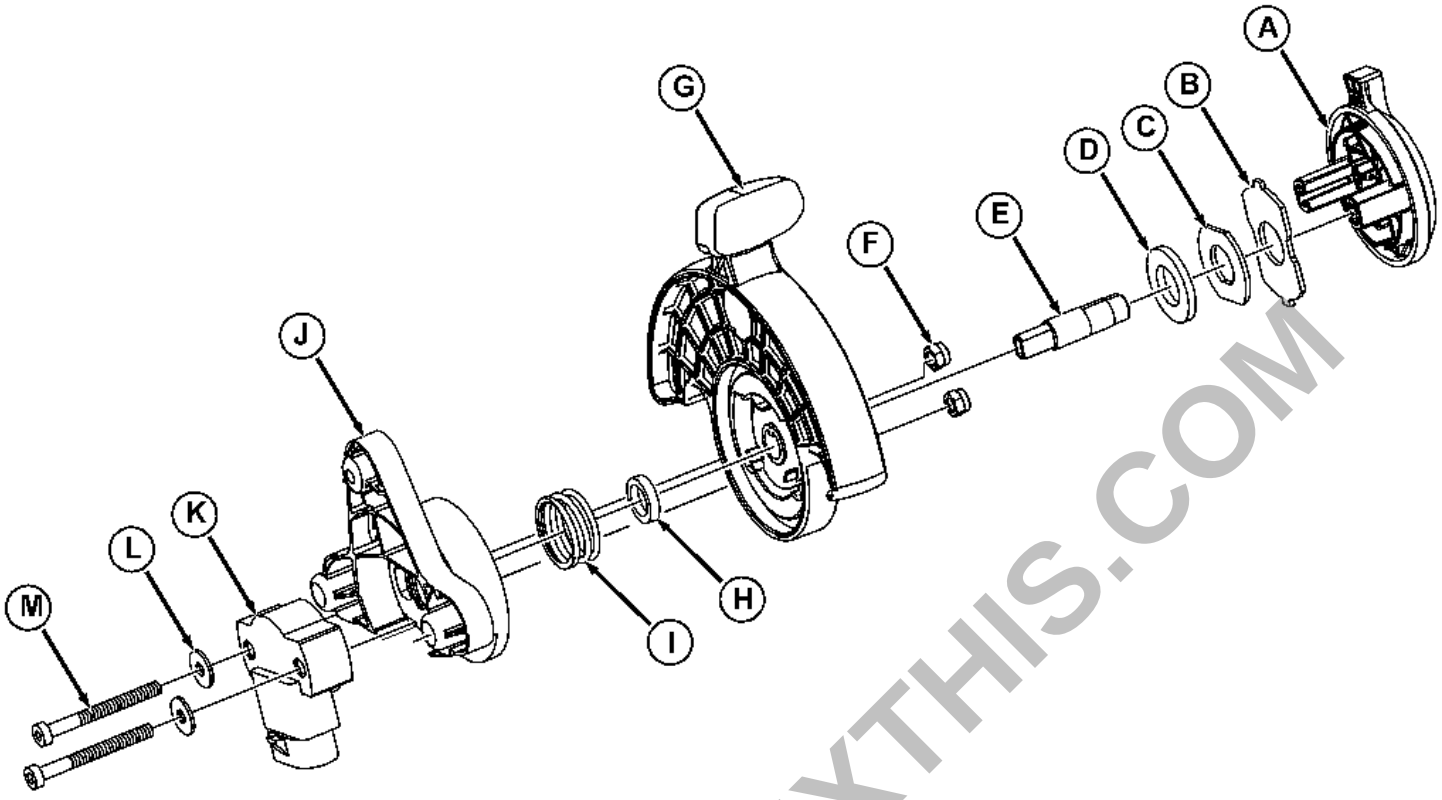
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[9] - Lower hood.

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Hand Throttle Control

LEGEND:

A	Flange
B	Washer
C	Washer
D	Washer
E	Shaft
F	Lock Nuts (2 used)
G	Lever
H	Seal
I	Compression Spring
J	Support
K	Sensor
L	Washers
M	Screws (2 used)

Remove parts (A—M).

[6] - Replace hand throttle position sensor (K).

[7] - Install parts (A—M).

[8] -

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Item	Measurement	Specification
Transmission Forward (High) Solenoid Valve	Torque	14.2 N·m (125 lb.-in.)

[6] - Connect wire connector.

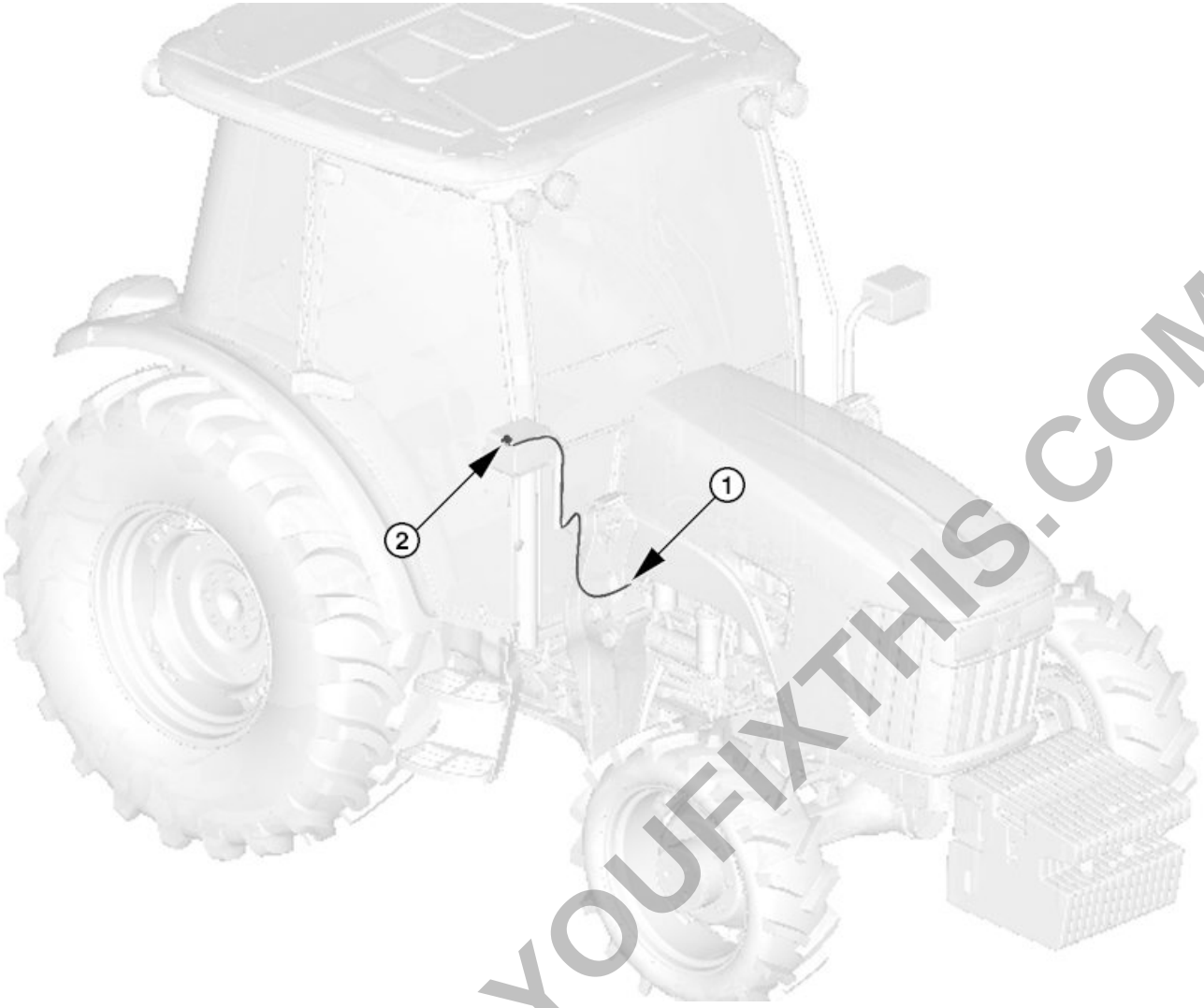
[7] - Install shield (B) and cap screws (A).

[8] - Connect battery negative (—) cable.

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Replace W102 Right Loader Light Harness



W102 Right Loader Light Harness RE198929-C

LEGEND:

1	X106 Loader Light Switch to Right Loader Light Harness
2	E16 Right Front Loader Light

[1] - Disconnect battery negative (—) cable.

[2] - Remove right loader light (2) back cover.

[3] - Disconnect right front loader light (2) connector.

[4] - Disconnect loader light switch to right loader light harness connector (1). Use a pin extractor to remove connector from wire harness. Retain for new harness.

→NOTE:

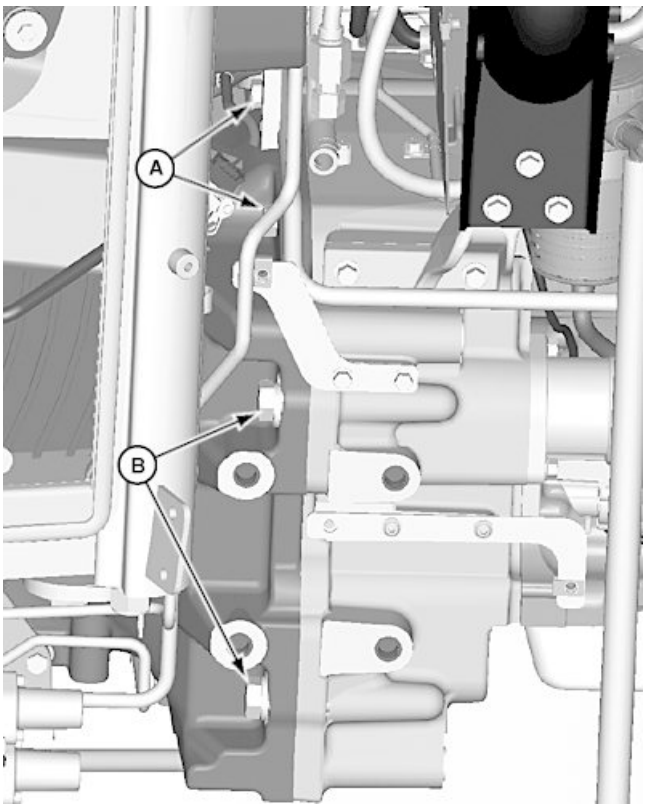
Note locations of tie straps and clamps.

[5] - Replace wire harness.

[6] - Install loader light switch-to-right loader light harness connector (1) onto end of wire harness.

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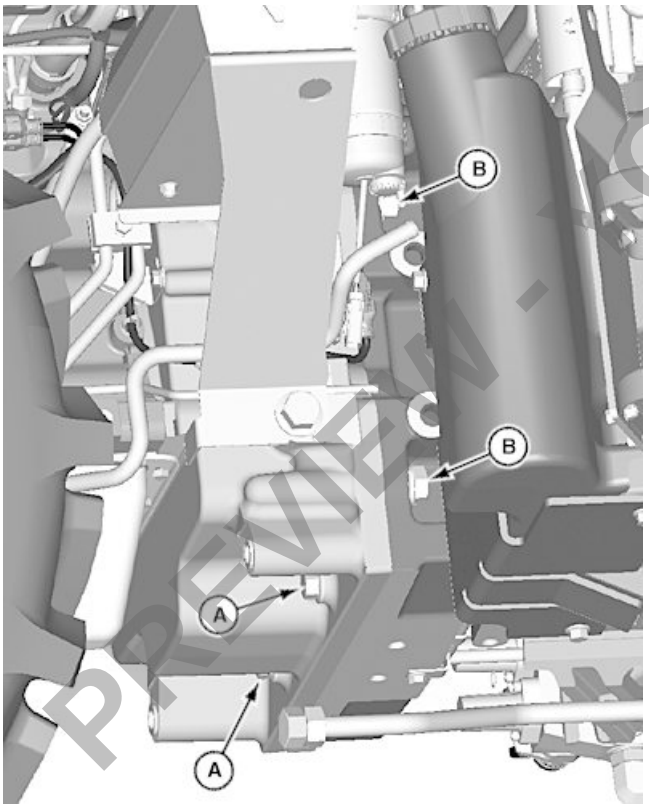


LEGEND:

A Engine/Flywheel Housing-to-Clutch Housing Cap Screw M16 (4 used)

B Clutch Housing-to-Engine Cap Screw M20 (4 used)

Engine-to-Clutch Housing Hardware—Right-Hand Side



Engine-to-Clutch Housing Hardware—Left-Hand Side

Remove front weights and weight support, if equipped.

[28] -

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Assemble Brake Valve

[1] -

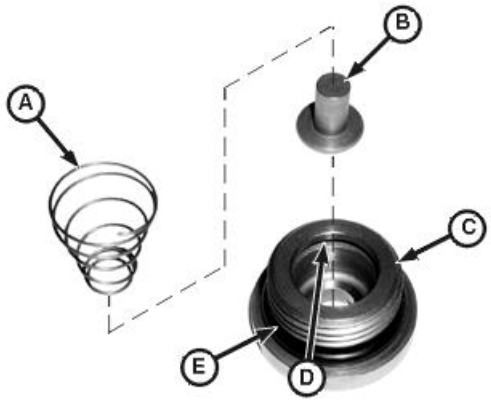
IMPORTANT:

Replace all O-rings. Damaged or used O-rings will leak.

Inlet check valves must be installed before brake pistons to ensure proper position of check valve in relation to piston.

→NOTE:

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



LEGEND:

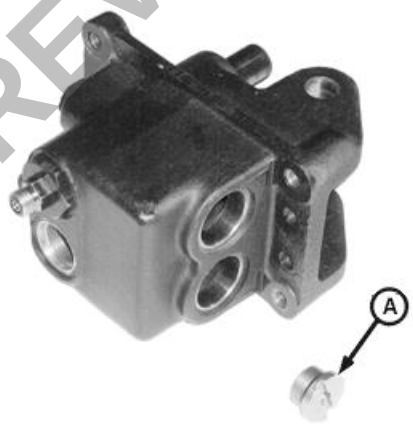
A	Spring
B	Check Valve
C	Seat
D	Groove
E	O-Ring

Inlet Check Valve Components

Install check valve (B) and spring (A) into seat (C). Ensure spring is seated in groove (D).

[2] - Install new O-ring (E) on check valve seat.

[3] -



LEGEND:

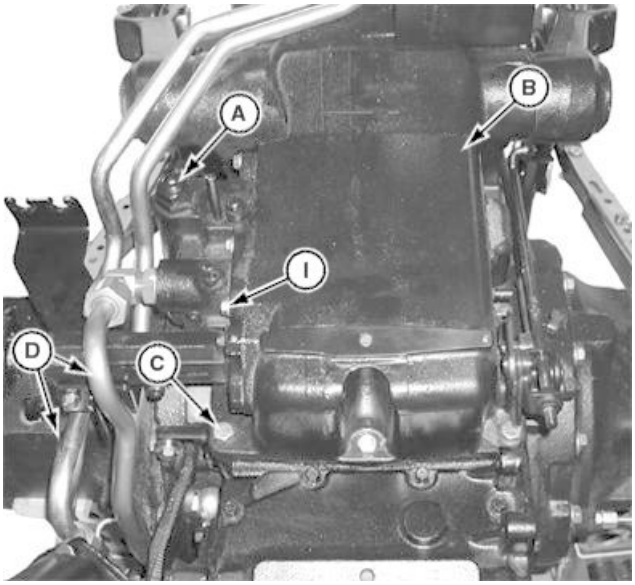
A	Inlet Check Valve Assembly

Inlet Check Valve

Install inlet check valve assembly (A) and tighten to specification.

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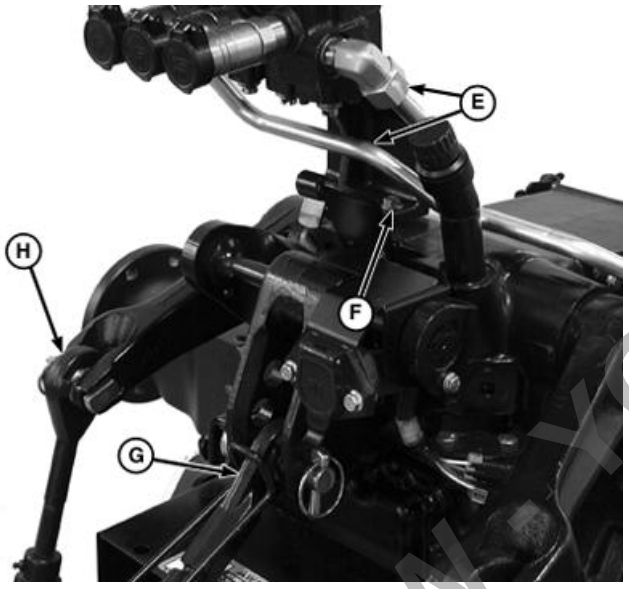
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LEGEND:

A	Valve Housing
B	Rockshaft Case Assembly
C	Cap Screw (11 used)
D	Hydraulic Lines
E	Hydraulic Lines
F	Cap Screw (3 used)
G	Center Link
H	Lift Link (2 used)
I	Cap Screw (6 used)

Rockshaft Case—OOS Shown



Hitch Links and SCV Lines

Tag and disconnect all hydraulic lines (D) from valve housing (A). Close all openings using caps and plugs.

[4] - Remove rear hydraulic lines (E), if equipped.

[5] - Remove three cap screws (F) and rear SCV bracket, if equipped.

[6] - Disconnect lift links (H) and remove center link (G).

[7] - Remove rate-of-drop knob from valve stem.

[8] - Remove cap screws (I) and valve housing (A).

[9] -

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E	Work Port Load Check Valve Poppet
F	Compression Spring
G	O-Ring
H	Work Port Load Check Valve Plug
I	Cap Screw (M06 x 16 mm) (2 used)
J	O-Ring (2 used)
K	End Plate
L	O-Ring
M	Spool (V44)
N	O-Ring
O	O-Ring (2 used)
P	O-Ring
Q	Washer
R	Positioner Assembly
S	End Cap
T	Cap Screw (M06 x 42 mm) (2 used)
U	O-Ring
V	Power Beyond Passage Plug

1. Remove load check valve components (B—D) and work port load check valve components (F—H).
2. Remove cap screws (I) and end plate (K) with O-rings (J and L).
3. Remove cap screws (T) and end cap (S).
4. Remove positioner assembly (R), washer (Q), and O-ring (P) from spool (M).
5. Remove spool (M) from valve body (A).
6. Remove inspect components (A—V). Repair or replace components as necessary

IMPORTANT: Always use new seals and O-rings. Damaged or used seals and O-rings will leak.Apply clean hydraulic oil to all internal parts before assembly.

Apply PM37418 Loctite ™ Thread Lock (medium strength)

Number	Name	Use
◦ PM37418 (us)	242 Thread Lock (medium strength)	70 Hydraulic Repair

to positioner assembly (R) threads and install with washer (Q) and O-rings (P) to spool (M). Tighten positioner assembly to specification.

Item	Measurement	Specification
Positioner Assembly	Torque	10—15 N·m (88.5—132.8 lb.-in.)

8. Apply TY6333 Multi-Purpose Grease

Number	Name	Use
◦ TY6333 (us)	Multi-Purpose Grease	70 Hydraulic Repair

to positioner assembly (R) and install end cap (S) and cap screws (T). Tighten cap screws to specification.

Item	Measurement	Specification
End Cap—Cap Screw	Torque	10 N·m (88.5 lb.-in.)

IMPORTANT: Remove oil from valve body and spool cavity before installation of end plate.

Install O-rings (L and M) on end plate (K) and install to valve body (A) using cap screws (J). Tighten cap screws to specification.

Item	Measurement	Specification
End Plate—Cap Screw	Torque	10 N·m (88.5 lb.-in.)

10. Install load check valve components (B—D) and work port load check valve components (E—H). Tighten to specification.

Item	Measurement	Specification
Load Check Valve	Torque	35 N·m (26 lb.-ft.)
Work Port Load Check Valve Plug	Torque	55 N·m (41 lb.-ft.)

11. Install power beyond passage plug (B). Tighten to specification.

Item	Measurement	Specification
Power Beyond Passage Plug	Torque	35 N·m (26 lb.-ft.)

12. Check that the valve is functioning properly. Manually actuate the valve.

Electric Hydraulic (EH) Section Disassemble, Inspect, and Assemble

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[5] - Remove screws (G) and (H).

[6] - Rotate bottom cowl (I) up and away from center control console (F).

[7] - Disconnect harness from light and starting switches.

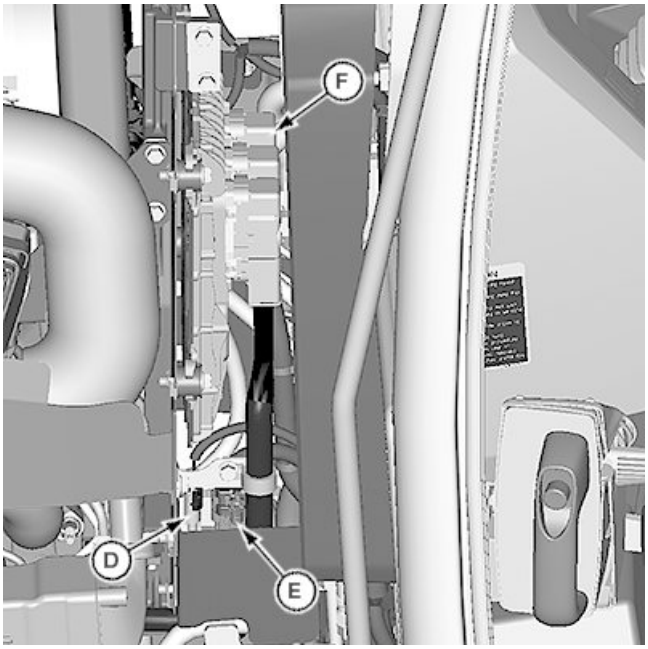
[8] - Disconnect harness from center control console (F) and remove.

[9] - Make repairs as necessary.

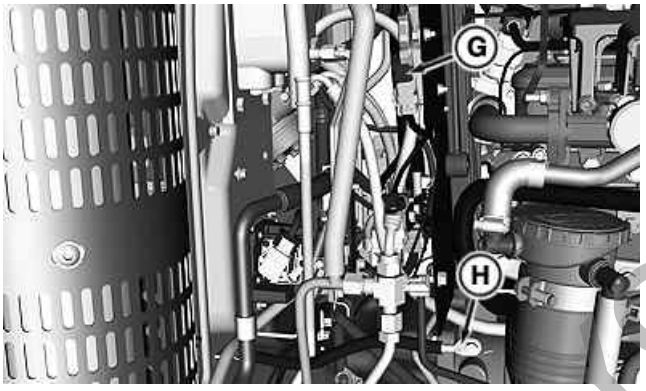
[10] - Install center control console in reverse order of removal.

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#3 ECU Connector



Right Side Connections

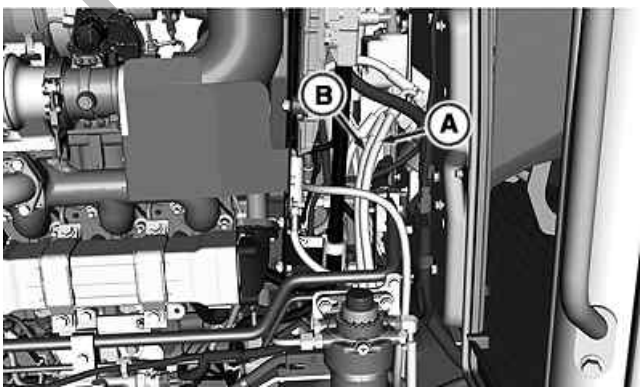
Connect wire harness connectors, cables, and wires (A—H).

[24] -

IMPORTANT:

When installing hydraulic lines, always support line adapter and fittings with a backup wrench to keep fittings stationary and prevent damage to line, valve, and pump housings.

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



LEGEND:

A	Left Turn Steering Hose
B	Right Turn Steering Hose
C	Side Panel
D	Cap Screws (2 used)
E	Steering Valve Supply Hose
F	Brake Valve Return Hose
G	Brake Valve Supply Hose
H	Left Service Brake Line
I	Right Service Brake Line
J	Steering Valve Return Hose
K	Foot Throttle Position Sensor (TPS)

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