John Deere Agriculture

Compact Utility Tractor 2025R

TECHNICAL MANUAL

Compact Utility Tractor 2025R (010001-)

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TM127019, June 2013

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Section 10 - SAFETY

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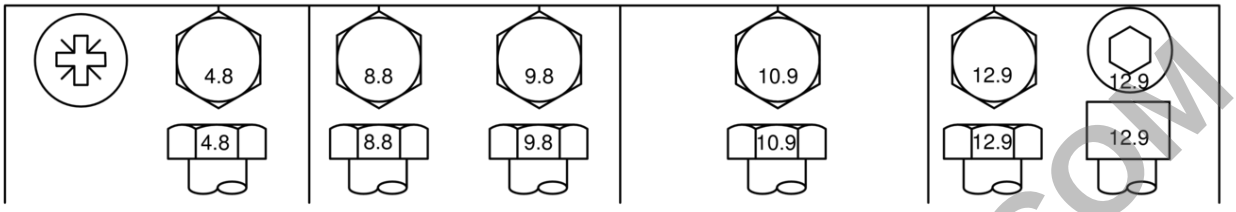
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Group 05 - General Specifications

Metric Bolt and Screw Torque Values



Metric Bolt and Screw

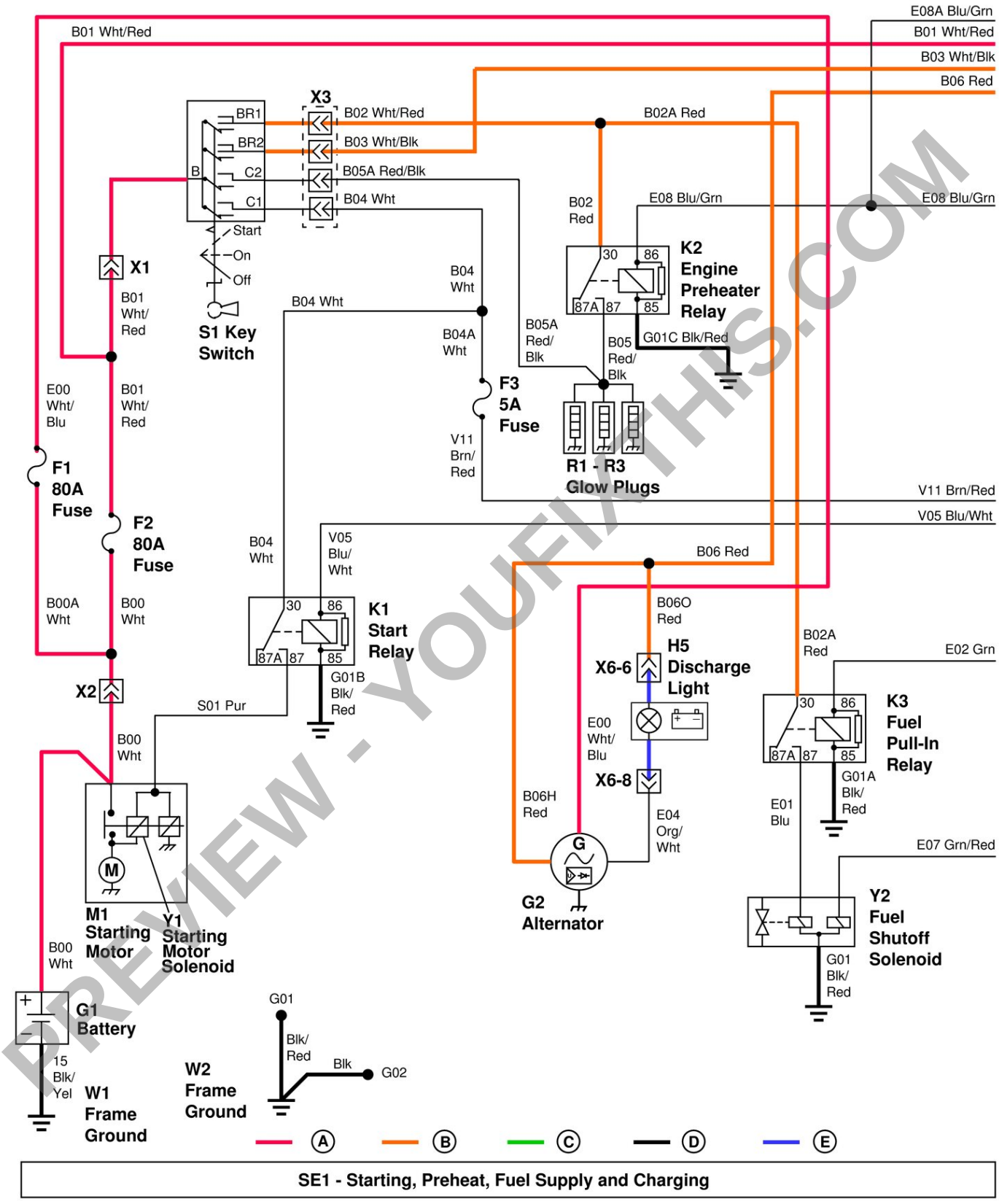
Metric Torque Values

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

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Electrical Schematic (1 of 6)



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Electrical Schematic (1 of 6)

LEGEND:

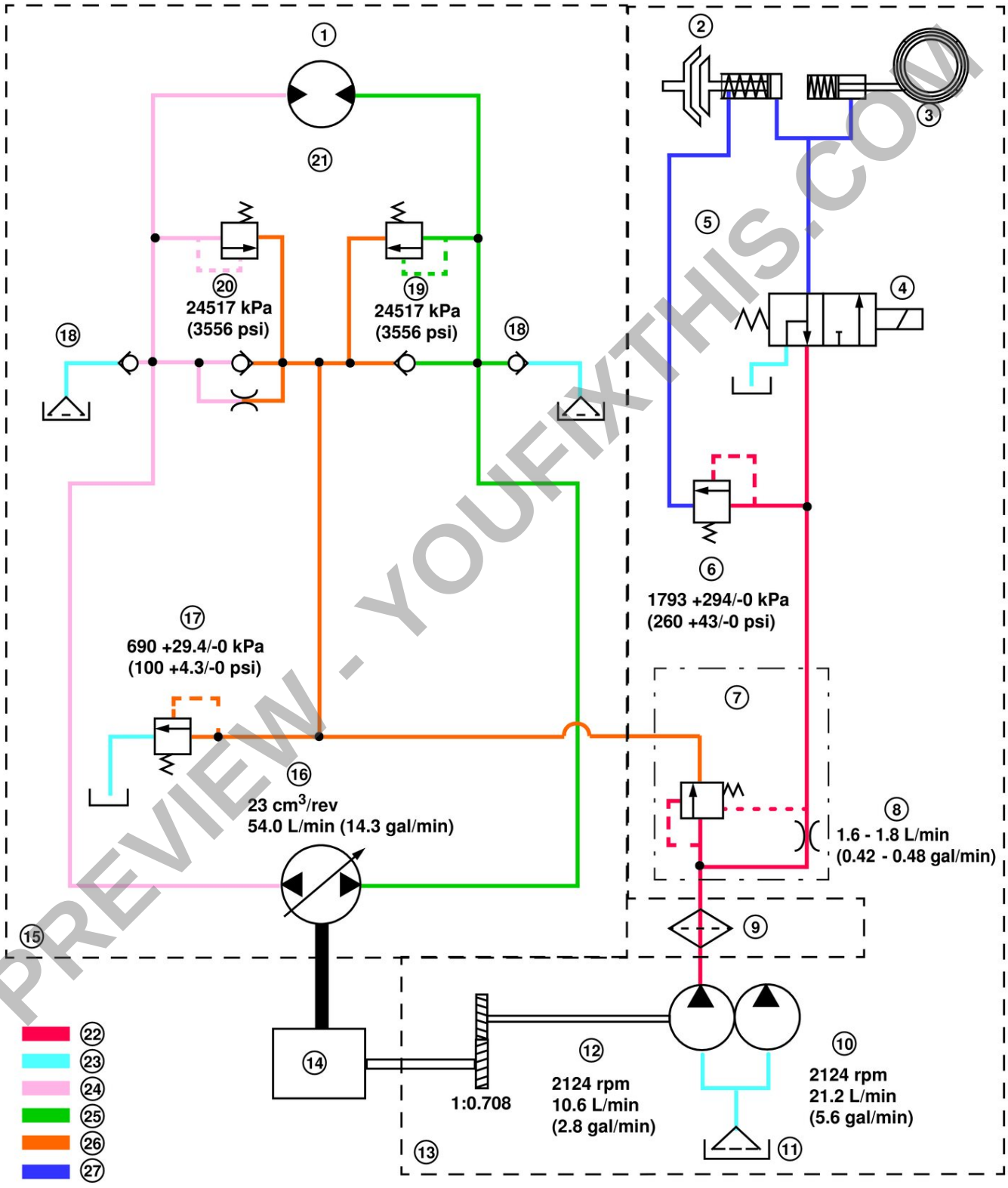
A Power Circuit (Unswitched)

B Power Circuit (Switched)

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Group 15 - Hydraulic Schematics

Drive and Rockshaft Hydraulic Schematic



Drive and Rockshaft Hydraulic Schematic

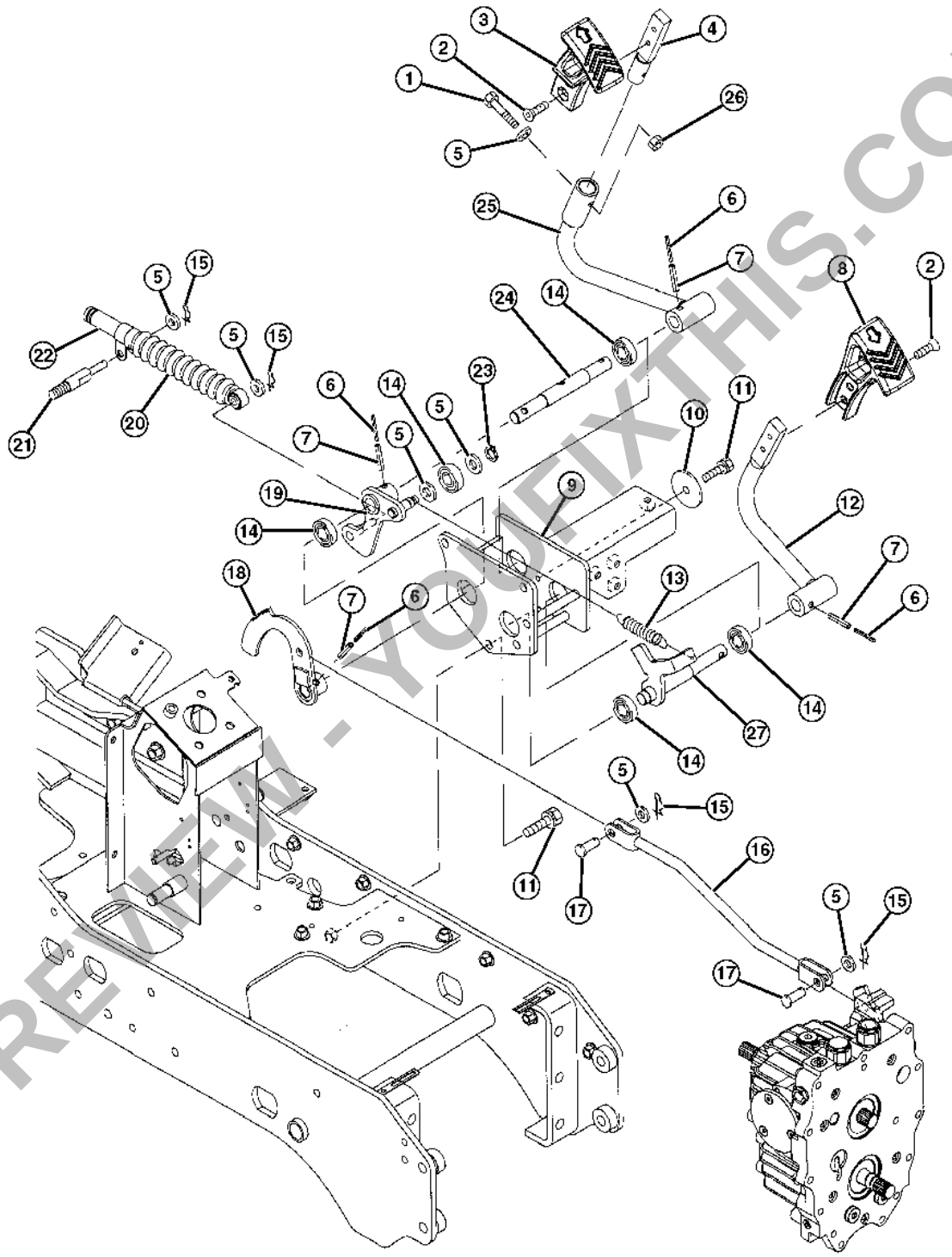
LEGEND:

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Group 10 - Component Location

Drive Pedals and Linkage Components



Drive Pedals and Linkage Components.

LEGEND:

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Group 25 - Tests and Adjustments

Cylinder Compression Test

Reason:

To determine the condition of the pistons, rings, cylinder walls and valves.

Equipment:

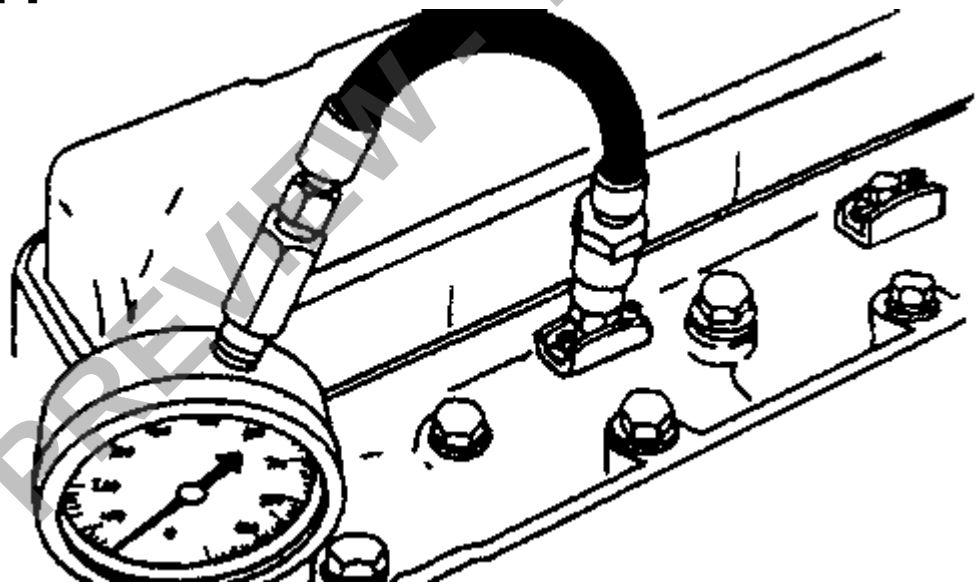
- JT01682 Compression Gauge Assembly
- JDG472 Adapter

Procedure:

[1] - Run engine for 5 minutes to bring to operating temperature. Shut off engine.

[2] - Remove injection nozzles.

[3] -



Cylinder Compression Test

Remove heat protector from end of fuel injection nozzle, and install on JDG472 adapter.

[4] - Install JT01682 Compression Gauge Assembly and JDG472 Adapter in injection port.

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Group 20 - Diagnostics

Starting Problems

⚠ CAUTION:

Avoid Injury! Keep away from all moving parts when testing. The engine may start to rotate at any time.

Symptom	Problem	Solution
Engine Does Not Crank	Starting procedure being used is not correct for conditions	Use correct procedure (i.e. operator on seat, machine in neutral). Check Operator's Manual.
	Battery voltage low	Charge and check battery. (See Battery - Charge Section 40, Group 30.)
		Battery is not being charged. Check charging system. (See Charging Circuit Diagnosis in Section 40, Group 25.)
	Open circuit in the wiring	Repair or replace as needed. (See Cranking Circuit Diagnosis in Section 40, Group 25.)
	Starting motor not functioning properly	Repair or replace starting motor.

Symptom	Problem	Solution
Engine Cranks But Does Not Start	No fuel	Faulty fuel shutoff solenoid circuit or fuel shutoff solenoid. Test electrical circuit, replace fuel shutoff solenoid.
	Fuel volume to injection pump low	Fuel filter plugged. Replace fuel filter.
		Clogged or cracked fuel lines. Clean or replace fuel lines.
		Air leak in fuel system.
		Incorrect volume of fuel being supplied to injection pump. Check or replace fuel transfer pump.
	Water in fuel.	Drain and replace fuel.
	Engine problem	Improper timing between injection pump, intake and exhaust valves. Adjust valve clearance. Check valve timing.
		Seized intake/exhaust valve. Replace valve and check valve guide.
		Cylinder, piston or piston rings worn, broken or seized. Replace rings and/or piston, bore or hone cylinder.
		Crankshaft pin or bearing seized. Regrind crank and replace bearings.

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Group 05 - Specifications

3-Point Hitch

Item	Measurement	Specification
3-Point Hitch		
3-Point Hitch	Type	Category One
Lift Capacity at Link Arm Lift Balls	Capacity	650 kg (1433 lb.)
Lift Capacity at 610 mm (24 in.) Behind Link Arms	Capacity	522 kg (1150 lb.)
Total Lift	Height	225.5 mm (8.87 in.)

Capacities

Item	Measurement	Specification
Miscellaneous Capacities		
Fuel Tank	Capacity	23.0 L (6.1 gal.)
Cooling System (includes coolant bottle)	Capacity	3.2 L (.83 gal.)

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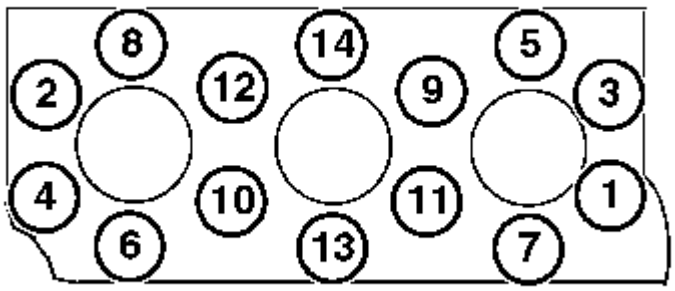
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Cylinder Head

LEGEND:

A Head Bolt

[6] -



Cylinder Head Bolt - Removal Order

Remove the cylinder head bolts (A) in the order shown.

[7] - Remove the cylinder head from the engine block.

[8] - Disassemble and inspect the cylinder head and valves.

Installation:

[1] - Reassemble the cylinder head and valves. (See Cylinder Head Recondition in Section 30, Group 30).

[2] -

IMPORTANT:

Avoid Damage! The oil passage in the gasket must be located over the oil passage in cylinder block.

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Crankshaft and Main Bearings

Removal:

[1] - Check crankshaft end play. (See Crankshaft End Play Check in Section 30, Group 30.)

[2] - Remove flywheel. (See Flywheel Removal and Installation in Section 30, Group 30.)

[3] - Remove rear oil seal case. (See Crankshaft Oil Seals in Section 30, Group 30.)

[4] - Remove timing gear cover, timing gears, timing gear housing, and flywheel of engine. (See Timing Gear Cover in Section 30, Group 30.)

[5] - Check crankshaft bearing clearance. (See Crankshaft Main Bearing Clearance Check in Section 30, Group 30.)

[6] -

IMPORTANT:

Avoid Damage! Connecting rod end caps must be installed on the same connecting rods from which they were removed. Note alignment marks on caps and rods.

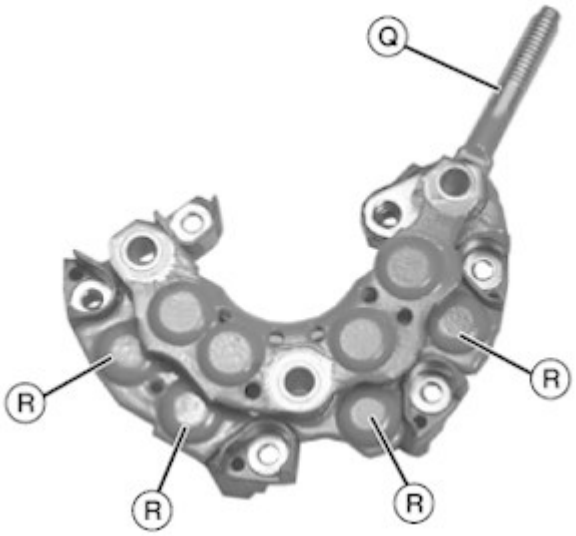
Remove connecting rod cap screws and end caps.

[7] - Push pistons and connecting rods away from crankshaft.

[8] -

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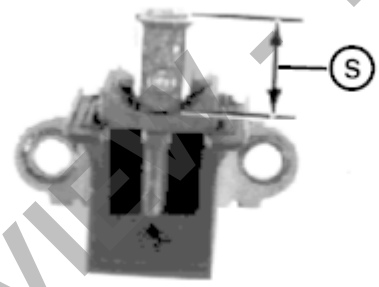
High Capacity Alternator Inspection

LEGEND:

Q Lead
R Diode Lead (4 used)

Check continuity between lead (Q) and each diode lead (R). Reverse ohmmeter leads and recheck. There should be continuity in one direction, but not the other. Replace diodes or rectifier plate if bad.

[9] -



High Capacity Alternator Inspection

LEGEND:

S Length of Brush

Measure length of brush (S) protruding from holder. Dimension should be within specification.

Item	Measurement	Specification
Exposed Brush (Minimum)	Length	4.5 mm (0.17 in.)
(Maximum)	Length	10.5 mm (0.41 in.)

Replace brushes if worn below minimum.

[10] -

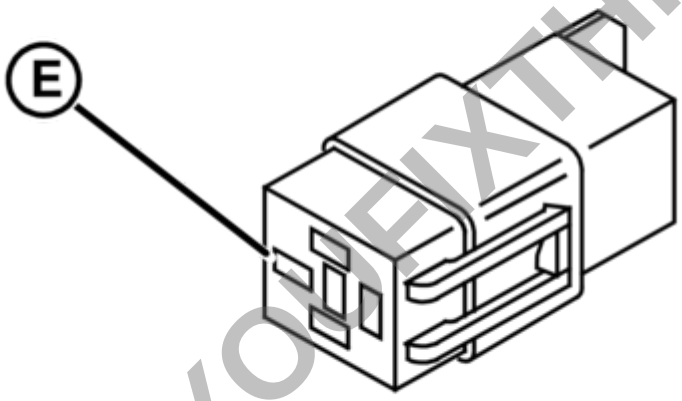
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- Key switch in Start position during each test, engine OFF
- Park brake LOCKED
- Transmission in NEUTRAL
- PTO OFF

Cranking Circuit - Start Position

(1) Step 1

Action:



Cranking Circuit - Start Position

LEGEND:
E K1 Start Relay

Is battery voltage present at the K1 start relay, B04 Wht wire (E)?

Result:

YES: Go to next step.

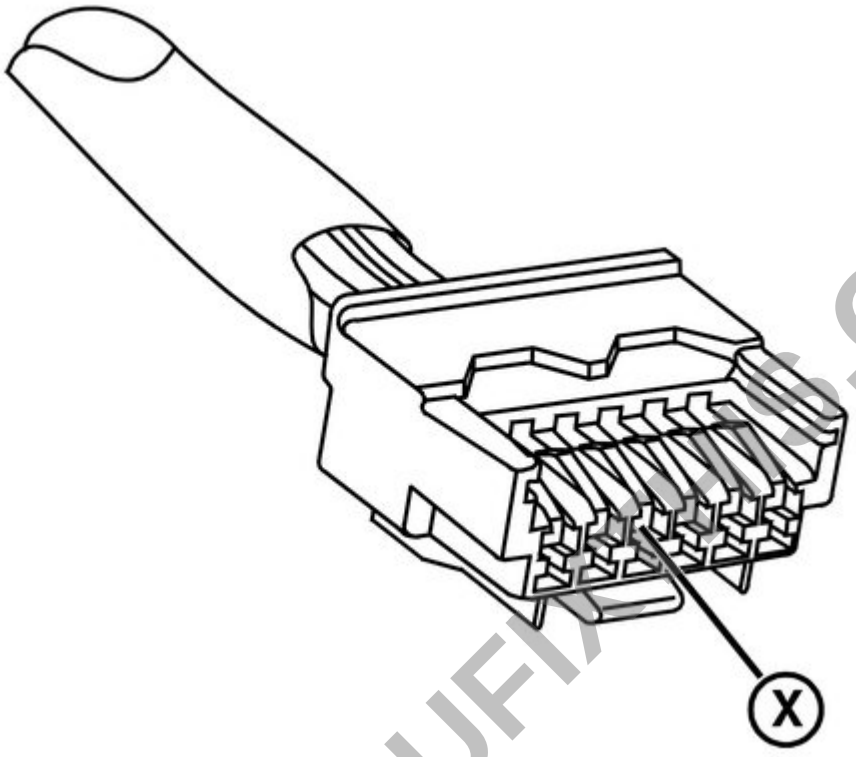
NO: Check B04 Wht wire and connections. If OK, replace key switch.

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(11) Step 11

Action:



Lights—Work Lights Circuit

LEGEND:

X X9 Connector Red/Wht Wire

Disconnect the X9 connector. Is battery voltage present at the X9 connector Red/Wht wire (X)?

Result:

YES: Replace the control panel. Go to next step.

NO: Test F5 fuse. Check 351, 152, and 151 Red/Wht wires and connections. If OK, replace light switch.

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LEGEND:

A Terminal A
B Terminal B
C Terminal C

Position Lights Switch Continuity

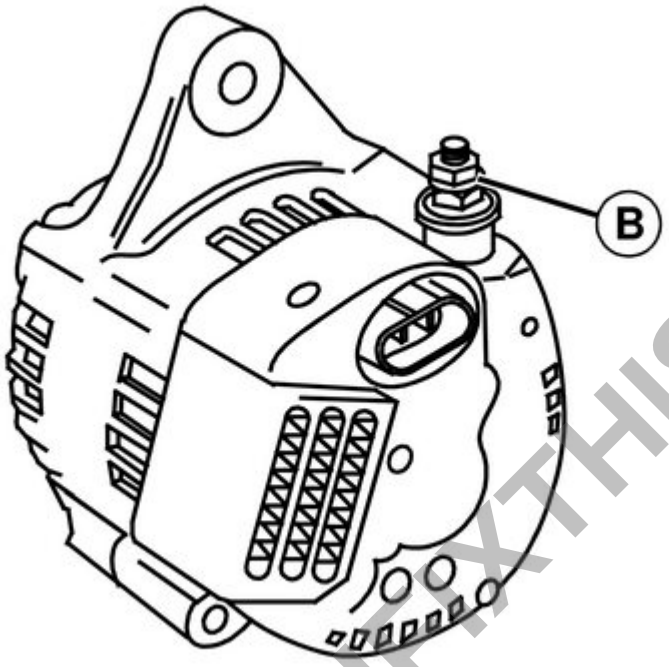
Position Lights Switch Continuity	
Switch Position	Terminal Continuity
OFF	A and B
ON	A and C

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(2) Step 2

Action:



Unswitched Power Circuit

LEGEND:

B B Terminal of Alternator

Is battery voltage present at the B terminal of the alternator (B)?

Result:

YES: Go to next step.

NO: Test F1 fuse. Check B00, B00A Wht, and E00 Wht/Blu wires and connections.

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switch is returned to the normally open position and the light goes out.

Engine Coolant Temperature Light

If the engine coolant temperature reaches specification, the B2 engine coolant temperature switch contacts close, providing a ground circuit path through the light. When ground is provided through the engine coolant temperature light, current flow through the light, illuminating the light. When the engine coolant temperature falls below specification, the B2 engine coolant temperature switch contacts open and the light goes out.

Item	Measurement	Specification
Engine Coolant	Temperature	110°C ± 3°C (230°F ± 5°F)

Engine Oil Pressure Light

With the engine off and key in ON position, engine oil pressure will be below specification. The oil pressure switch will be in the normally closed position, completing a circuit path to ground and illuminating the light. This informs the operator that the light is functional. With the engine running, the light goes out when the oil pressure is adequate to open the B3 engine oil pressure switch.

Item	Measurement	Specification
Engine Oil	Pressure	28 kPa (4 psi)

Fuel Gauge

The fuel level in the fuel tank is measured by the B4 fuel gauge sensor. The sensor is a variable resistor. The resistance is set by movement of a mechanical linkage connected to a float in the fuel tank. The approximate 5—110 Ohm resistance creates a variable voltage difference across the P1 fuel gauge.

Dash Lights

The dash lights are used to illuminate the control panel. When the S1 key switch is in the ON position, voltage is provided through the key switch and F3 fuse to the H4 dash lights (2, 4, 42, 40, and 39 Red wires).

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Group 25 - Tests and Adjustments

Hydrostatic High Pressure Relief Test

Reason

To ensure that internal parts of hydrostatic pump are not worn excessively, and the relief valves are operating properly.

Equipment

- JT03362 Pressure Gauge
- JT03364 Hose
- JT03349 Connector
- JT05483 Elbow

Procedure

IMPORTANT:

Avoid Damage! Make sure that the hydraulic fluid is between "ADD" and "FULL" marks on dipstick. Insufficient hydraulic fluid could cause system to run dry and damage pump and motor.

[1] - Park machine safely with park brake LOCKED. (See Park Machine Safely in Section 10, Group 05.)

[2] -

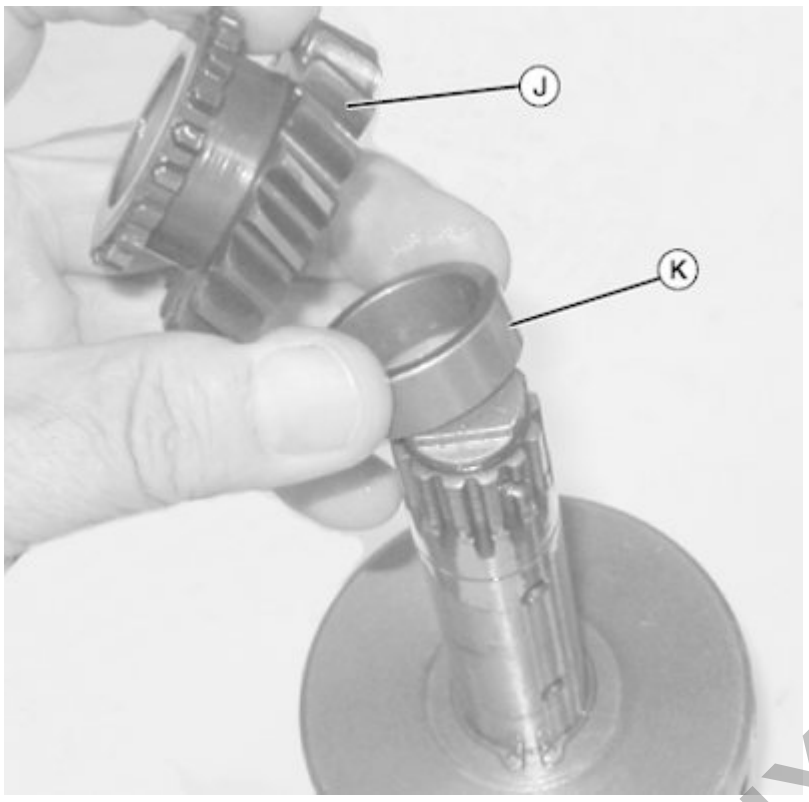
CAUTION:

Avoid Injury! Machine could move suddenly causing severe injury or damage to equipment during test procedure. Perform test in open area. Keep all personnel away from front or rear of machine.

Run machine until hydraulic oil is at operating temperature.

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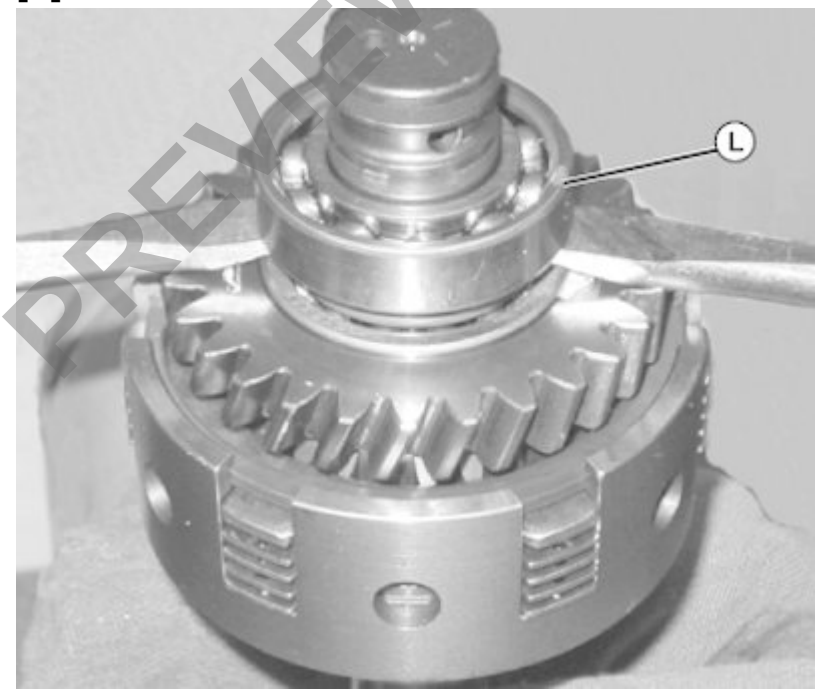
PTO Clutch Shaft Disassembly

LEGEND:

J 17T Gear
K Spacer

Remove 17T gear (J) and spacer (K).

[8] -



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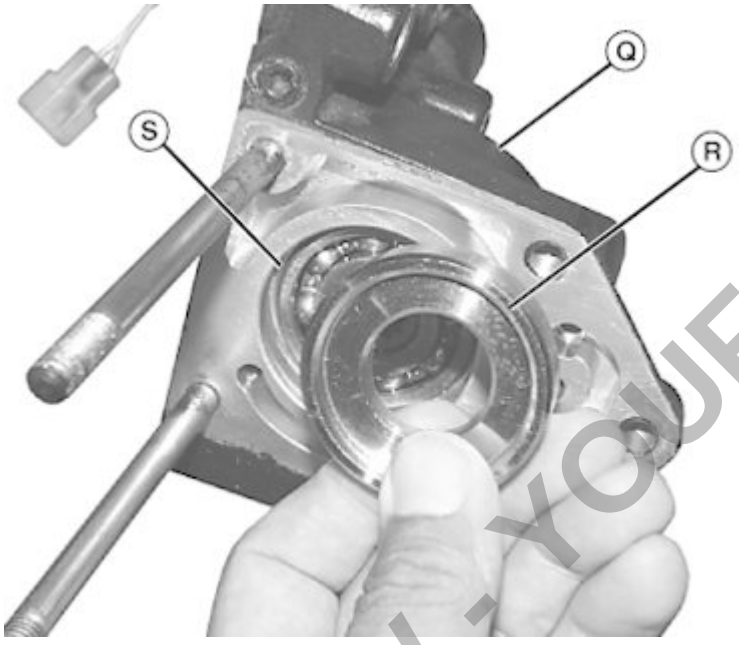
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O Gear Pump Case
P O-Ring

Remove three cap screws (J) and remove inlet fitting (K) from pump. Inspect O-ring (P) and replace if damaged.

[18] - Remove three cap screws (L) and two nuts with lock washers (M) retaining hydraulic pump (N) to gear pump case (O) and separate pump from case.

[19] -



Hydraulic Pump Removal (Export)—Separate Pump From Case

LEGEND:
Q Pump Case
R Bearing Spacer
S Pump Case Bearing Bore

When the pump is separated from the gear pump case, bearing spacer (R) may remain with either the pump or the pump case (Q). Ensure that the spacer is in place and correctly positioned prior to assembly. The spacer should be placed in the pump case bearing bore (S) and the counterbored end, shown, should be facing the pump.

Installation:

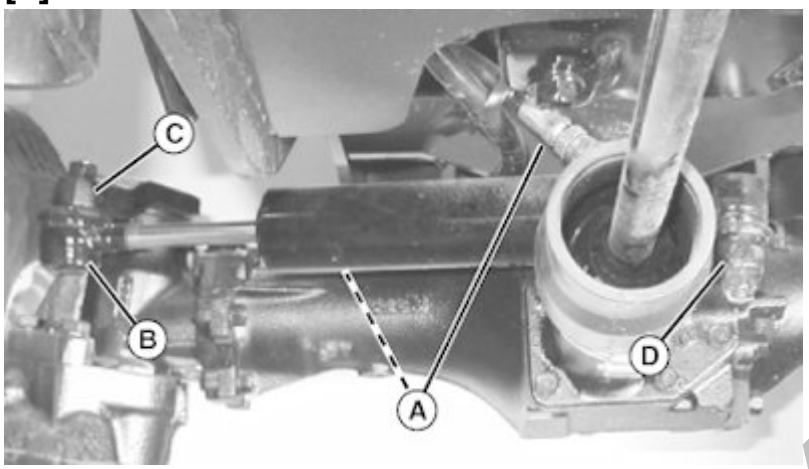
[1] - Reverse procedure to install. Clean gasket mating surfaces on hydraulic pump, gear pump case and transaxle housing and install new gaskets during assembly.

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Steering Cylinder Removal and Installation

Removal:

[1] -



Steering Cylinder Removal

LEGEND:

A	Steering Hose (2 used)
B	Steering Cylinder
C	Left Steering Arm
D	Differential Input Housing

Label and remove both steering hoses (A) from the steering cylinder.

[2] - Separate the steering cylinder (B) from the left steering arm (C).

[3] - Separate the steering cylinder from the differential input housing (D).

[4] -

→NOTE:

The steering cylinder has no serviceable components. If the cylinder leaks or does not meet specifications, the unit must be replaced.

Inspect the steering cylinder for leaks, cracks, straightness, and smooth operation.

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