Section 10 - GENERAL INFORMATION

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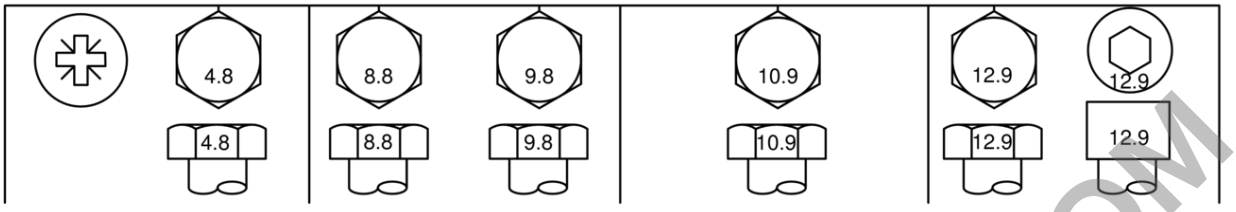
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Group 10 - Service Recommendations

Metric Bolt and Screw Torque Values



Bolt or	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
Screw	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 zinc flake coating.]		Dry ["Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B 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 zinc flake coating.]		Dry ["Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B 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 zinc flake coating.]		Dry ["Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B 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 zinc flake coating.]		Dry ["Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B zinc flake coating.]	
Size	**N˙m**	**lb-in**	**N˙m**	**lb-in**	**N˙m**	**lb-in**	**N˙m**	**lb-in**	**N˙m**	**lb-in**	**N˙m**	**lb-in**	**N˙m**	**lb-in**	**N˙m**	**lb-in**
M6	4.7	42	6	53	8.9	79	11.3	100	13	115	16.5	146	15.5	137	19.5	172
									N˙m	**lb-ft**	**N˙m**	**lb-ft**	**N˙m**	**lb-ft**	**N˙m**	**lb-ft**
M8	11.5	102	14.5	128	22	194	27.5	243	32	23.5	40	29.5	37	27.5	47	35
			N˙m	**lb-ft**	**N˙m**	**lb-ft**	**N˙m**	**lb-ft**								
M10	23	204	29	21	43	32	55	40	63	46	80	59	75	55	95	70
	N˙m	**lb-ft**														
M12	40	29.5	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	46	80	59	120	88	150	110	175	130	220	165	205	150	260	190
M16	100	74	125	92	190	140	240	175	275	200	350	255	320	235	400	300
M18	135	100	170	125	265	195	330	245	375	275	475	350	440	325	560	410
M20	190	140	245	180	375	275	475	350	530	390	675	500	625	460	790	580
M22	265	195	330	245	510	375	650	480	725	535	920	680	850	625	1080	800
M24	330	245	425	315	650	480	820	600	920	680	1150	850	1080	800	1350	1000
M27	490	360	625	460	950	700	1200	885	1350	1000	1700	1250	1580	1160	2000	1475
M30	660	490	850	625	1290	950	1630	1200	1850	1350	2300	1700	2140	1580	2700	2000
M33	900	665	1150	850	1750	1300	2200	1625	2500	1850	3150	2325	2900	2150	3700	2730
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2770	4750	3500

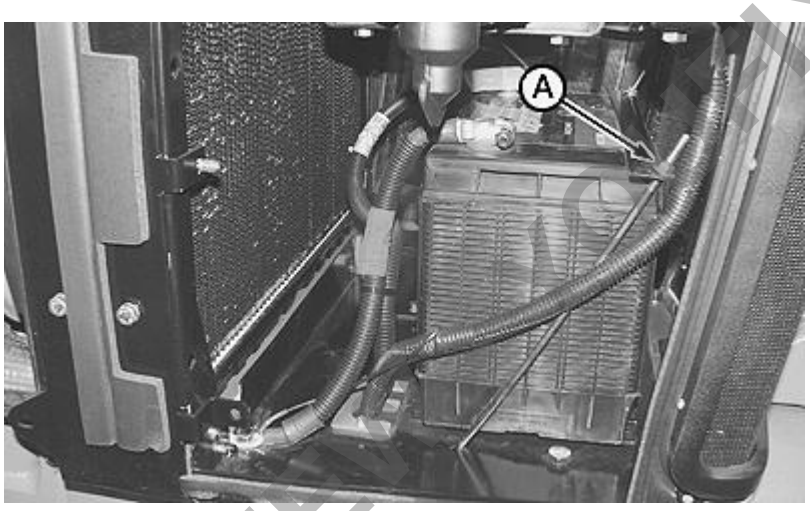
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Group 05 - Battery, Starter Motor and Alternator

Removing and Installing Battery





LEGEND:

A	Nut

CAUTION:

Keep sparks, lit matches and uncovered flames away from upper part of battery. Battery gas may explode.

Never check battery charge by shorting terminals with metal object. Use a voltmeter or densimeter.

[1] - First disconnect negative (—) cable followed by positive cable (+).

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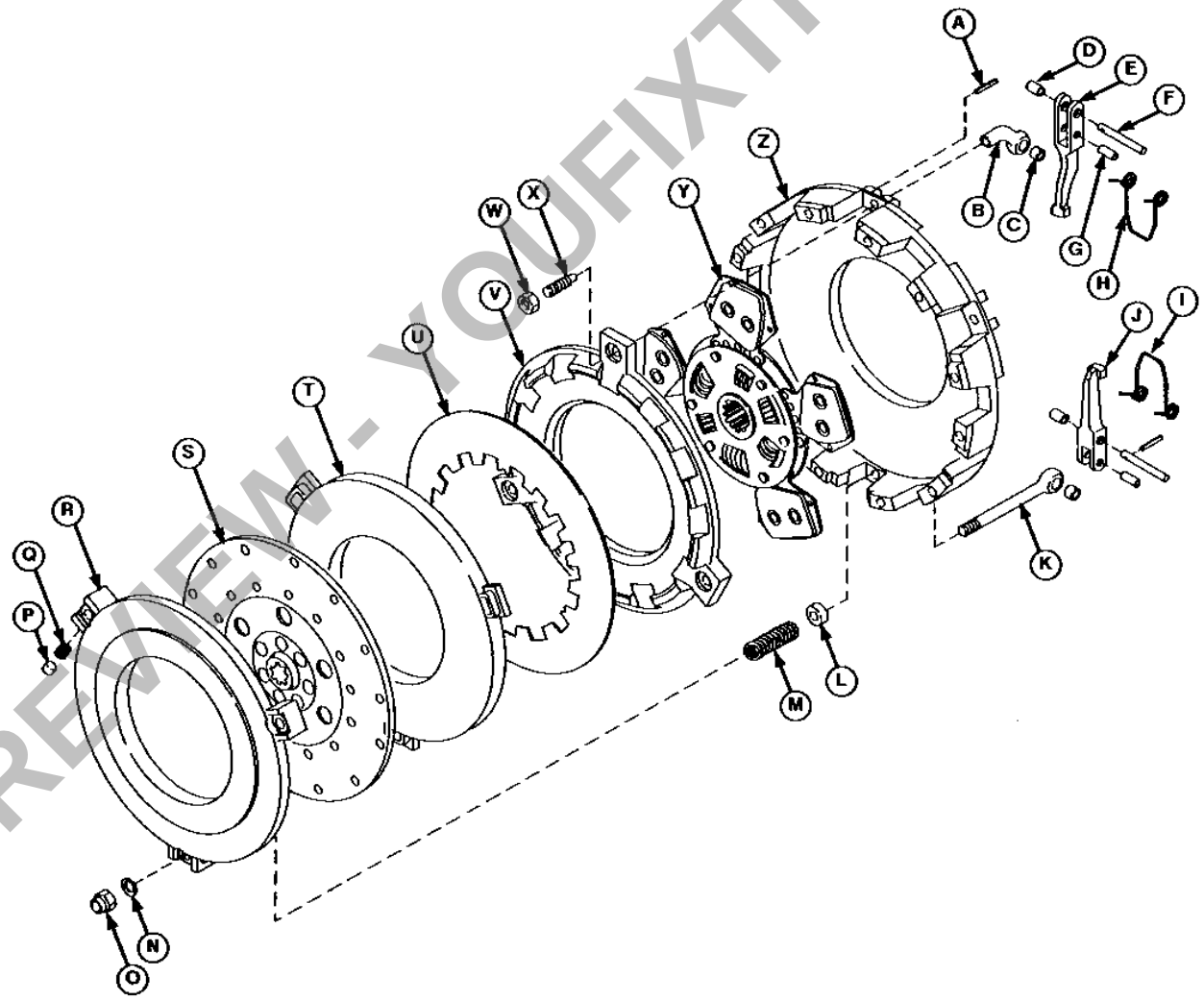
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Disassembling and Inspecting Clutch Assembly



1. Put marks (A) on pressure plates to help when assembling.

→NOTE: Spring pins (A) should be pulled from bore to be removed.



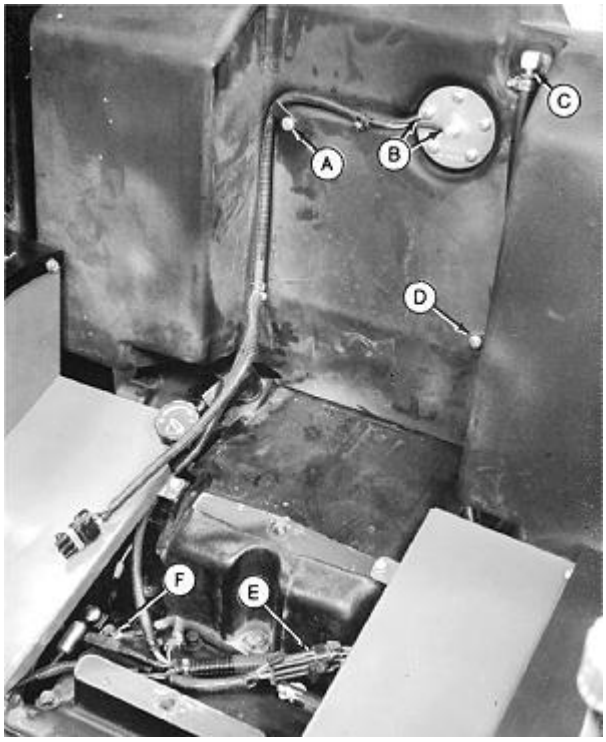
LEGEND:

A	Spring pin (6 used)
B	Adjustment cap (3 used)
C	Bushing (6 used)
D	Bushing (6 used)

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Separating Clutch Housing from Transmission



LEGEND:

A	Clamp
B	Wiring harness
C	Fuel return line
D	Clamp
E	Connector
F	Grounding Cable

→NOTE:

Approximate transmission capacity is 38 liters.

1. Drain transmission.
2. Remove seat.
3. Remove clamps (A and D).
4. Disconnect electric cable (B).
5. Disconnect fuel line (C).
6. Disconnect electric cable (F).
7. Disconnect connector (E).

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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.

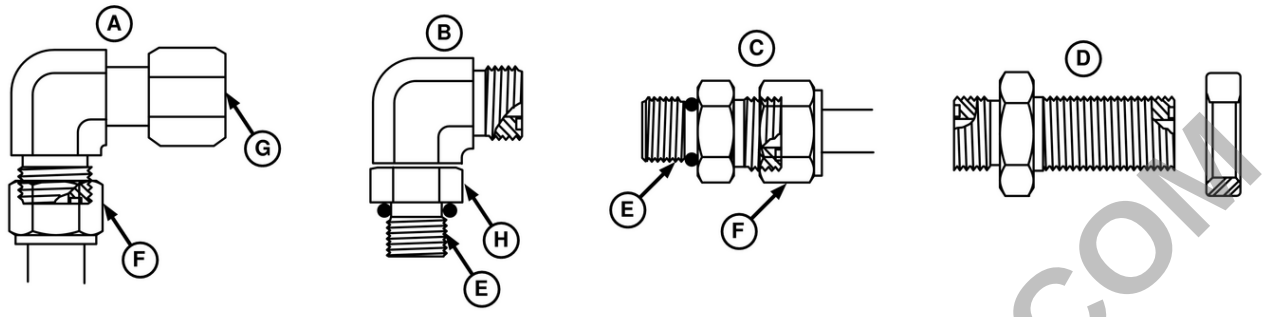
Technical Manuals are concise guides for specific machines. They are on-the-job guides containing only the vital information needed for diagnosis, analysis, testing, and repair.

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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SAE Face Seal Fitting Torque Chart—High Pressure Applications



LEGEND:

A	90° Swivel Elbow and Tube Nut
B	90° Adjustable stud elbow
C	Stud straight and tube nut
D	Bulkhead union and bulkhead locknut
E	Stud end
F	Tube nut
G	Swivel nut
H	Self locking nut

SAE Inch Face Seal Fitting Torque Chart—High Pressure—Above 27.6 MPA (4,000 PSI), Working Pressure-41.3 MPA (6,000 PSI)

Nominal Tube OD/Hose ID				Face Seal Tube/Hose End					O-Ring Stud Ends		
Metric tube	Tube in inches			Thread	Tube Nut/Swivel Nut Torque [Tolerance is +15%, minus 20% of mean tightening torque unless otherwise specified.]		Bulkhead Lock Nut Torque [Tolerance is +15%, minus 20% of mean tightening torque unless otherwise specified.]		Thread	Straight Fitting or Lock Nut Torque [Tolerance is +15%, minus 20% of mean tightening torque unless otherwise specified.]	
mm	Dash Size	in.	mm	in.	N˙m	lb-ft	N˙m	lb-ft	in.	N˙m	lb-ft
5	-3	0.188	3.76	—	—	—	—	—	3/8-24	—	—
6	-4	0.250	6.35	9/16-18	16	12	12	9	7/16-20	21	15
8	-5	0.312	7.94	—	—	—	—	—	1/2-20	—	—
10	-6	0.375	9.52	11/16-16	24	18	24	18	9/16-18	34	25
12	-8	0.500	12.70	13/16-16	50	37	46	34	3/4-16	73	55
16	-10	0.625	15.88	1-14	69	51	62	46	7/8-14	104	76
20	-12	0.750	19.05	1-3/16-12	102	75	102	75	1-1/16-12	176	130
22	-14	0.875	22.22	1-3/16-12	102	75	102	75	1-3/16-12	230	170
25	-16	1.000	25.40	1-7/16-12	142	105	142	105	1-5/16-12	285	210

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N Bushing (4 used)

6. Remove left-hand platform.
7. Remove parts (A)—(M).

→NOTE: Bearing (G) and bushing (N) are pressure mounted. Remove rings and bearings only if replacement is necessary. Bearing (J) is slide adjustable.

Replace bearing (G) using a press.Replace bushing (N) using a retainer, bearing and bushing installation set. Install bushings so they are flush with clutch housing.

8. Check if parts are worn or damaged. Replace if necessary.

IMPORTANT: Replace all seals. Damaged or used retainers will leak.

9. Remove retainer (I). Install retainer in shaft bore with edges pointing towards rear of clutch housing until seated, using a retainer, bearing and bushing installation set.

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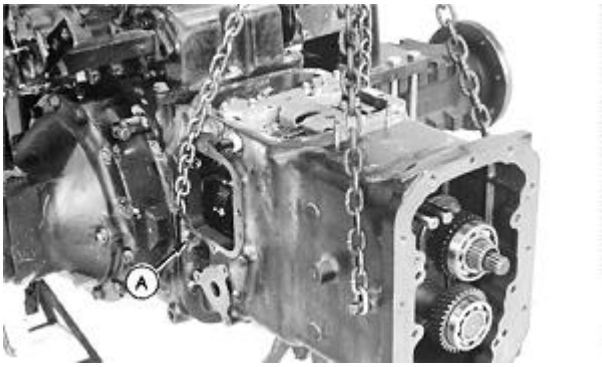
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5. Repeat procedure for two remaining fingers.

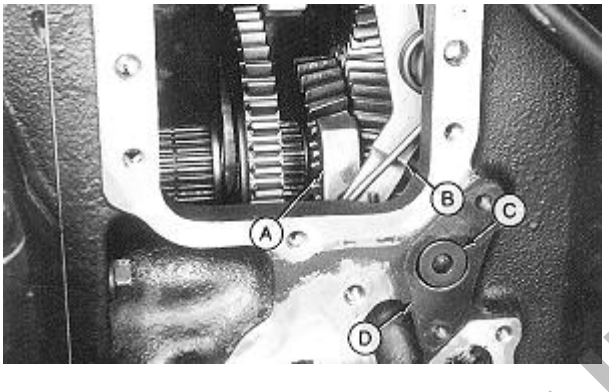
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7. Install transmission. Make sure parking brake shaft (A) is aligned with bore on housing differential. Push parking ratchet (F) in after positioning gear (E).

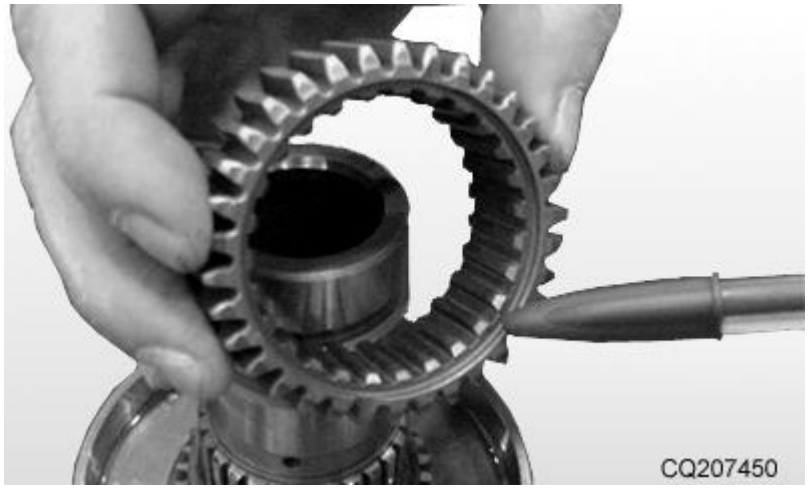


8. Install ten bolts (A). Tighten to 88 N.m (65 lbf-ft).

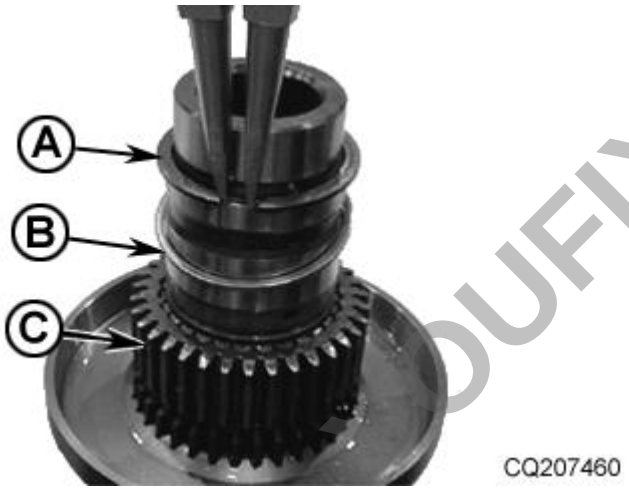


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Install grooved coupler to shaft, observing position of recess which should face downwards.



LEGEND:

A	Snap ring
B	Ring
C	Grooved coupler

Install ring (B) and snap ring (A) on the shaft so that the splined coupling remains attached to shaft.

Check that snap ring (A) is well fitted in the slot.

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Disassembling, Inspecting and Assembling PTO Drive Shaft Assembly

→NOTE:

Shaft assemblies are slip fit in cover.

[1] -



LEGEND:

A	Assembling PTO pinion shaft
B	Assembling PTO output shaft

Remove PTO output shaft assembly (B) from cover, with a rubber hammer.

[2] - Remove PTO pinion shaft assembly (A).

[3] -

→NOTE:

Brake (A) is installed to differential box. Coupler (B) is held in place by brake. If replacement is necessary, remove hydraulic hitch. (See Section 70, Group 10).

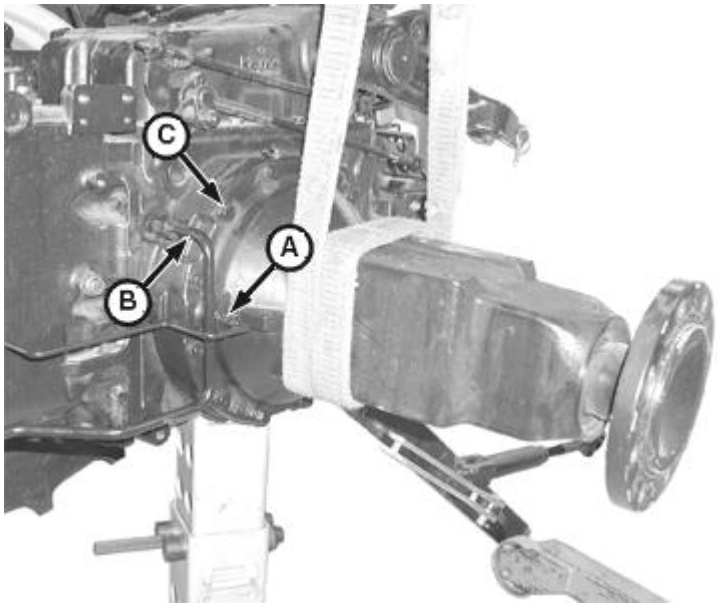
IMPORTANT:

Replace retainers. Damaged or used retainers will leak.

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Removing and Installing Final Drive Assembly



LEGEND:

A	Hydraulic line
B	Hydraulic line
C	Bolts (12 used)

[1] - Remove ROPS (See Section 90, Group 10).

[2] - Drain transmission/differential.

[3] - Disconnect differential housing stabilizer bars.

[4] -

→NOTE:

Close off all openings with plugs.

Hydraulic line (B) is on left-hand side only.

Disconnect hydraulic lines (A and B).

[5] - Install lift chains or slings to drive housing.

[6] - Remove twelve bolts (C).

[7] - Remove planetary drive assembly.

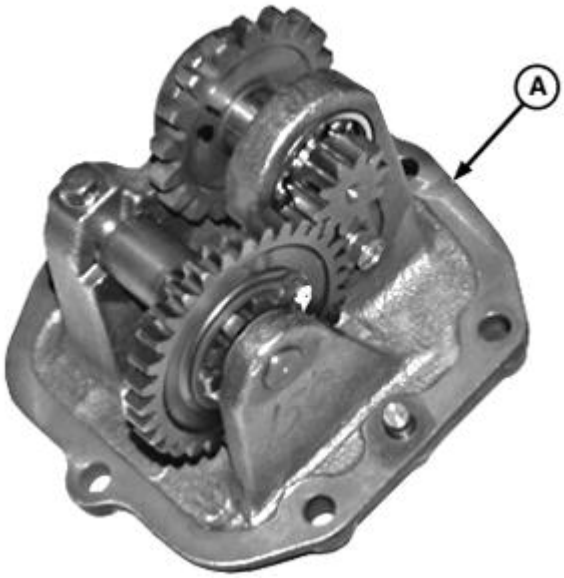
→NOTE:

To inspect or remove final drive pinion shaft, brakes must be removed. (See Removing and Inspecting Brakes in Section 60, Group 10 .)

[8] - Make repairs if necessary. (See procedure in this group).

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Clean creeper transmission assembly surfaces (A) and gear box using TY16285 Repair Remover. Apply TY6304 Form-In-Place Gasket to surfaces.

Install creeper transmission assembly (A) to transmission housing.

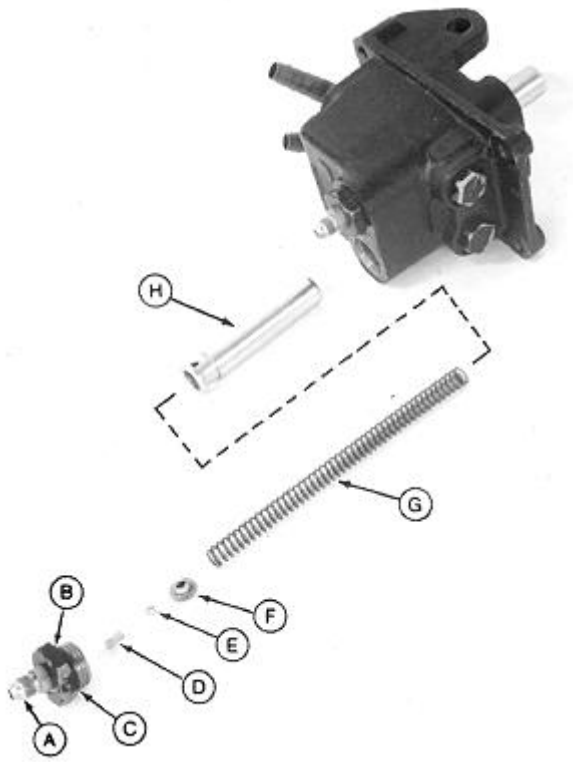
Attach creeper transmission assembly using six bolts. Tighten bolts to specification.

Item	Measurement	Specification
Creeper Transmission Bolt	Torque	50 N˙m (37 lb-ft)

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[8] -



LEGEND:

A	Outlet fitting (2 used)
B	O-ring (2 used)
C	Spring seat (2 used)
D	Spring (2 used)
E	Outlet check valve ball (2 used)
F	Outlet check valve (2 used)
G	Spring (2 used)
H	Brake cylinder (2 used)

Install new O-ring (B).

[9] - Install parts (C-H). Tighten spring seat (C) to 92 N.m (68 lb-ft).

[10] -

→NOTE:

Install fittings (A) and leave them loose. Fittings are removed in order to install brake valve.

Install new O-rings and fitting (A). Tighten connecting finger firmly.

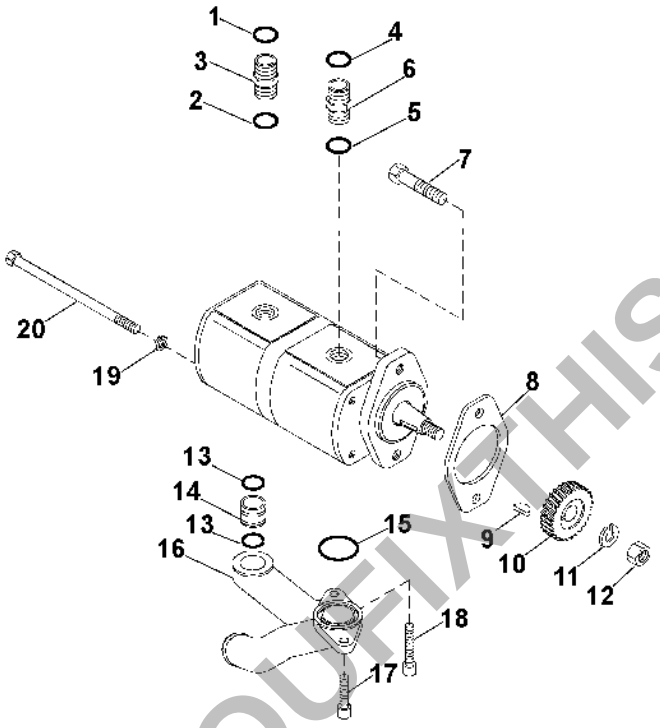
[11] - Install brake pedals, shaft and cotter pin.

[12] - Brake pedal adjust. (See procedure in 260, Group 15 .)

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Installing External Components of Hema Hydraulic Pump — up to 19867 Series



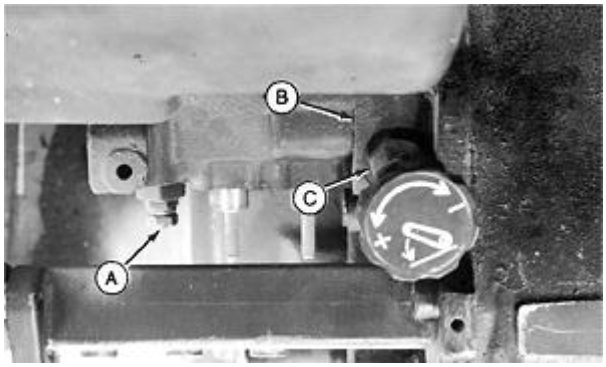
LEGEND:

1	O-ring
2	O-ring
3	Adapter
4	O-ring
5	O-ring
6	Adapter
7	Bolt (2 used)
8	Gasket
9	Shaft key
10	Gear
11	Spring washer
12	Nut
13	Ring (2 used)
14	Tube
15	O-ring
16	Manifold
17	Bolt
18	Bolt
19	Spring washer (4 used)
20	Bolt (4 used)
21	Hydraulic pump

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Replacing Main Relief Valve





LEGEND:

A	Main relief valve
B	Housing
C	Rate-of-drop valve
D	O-ring
E	Ring
F	Ring
G	O-ring

→NOTE:

Right-hand side control panel removed to show location of valve.

[1] - Lower hitch arms completely.

[2] -

→NOTE:

Main relief valve can be accessed from either behind or under tractor, between right rear fender and hydraulic hitch housing.

Remove main relief valve (A) from housing or double SCV, if equipped.

[3] -

IMPORTANT:

Always use new O-rings. Used or damaged O-rings will cause leaks.

Install O-rings (D and G) and rings (E and F).

[4] - Install main relief valve. Tighten to torque of 51 N.m (38 lb-ft).

[5] - Operate tractor hydraulic system. Check and adjust hydraulic/transmission oil level.

Replacing Hydraulic Hitch Overpressure Relief Valve

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