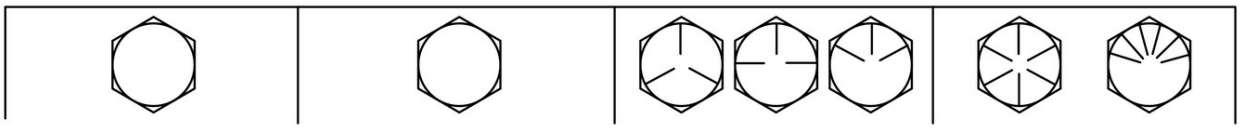
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Unified Inch Bolt and Screw Torque Values



Bolt or Screw	SAE Grade 1				SAE Grade 2 [Grade 2 applies for hex cap screws (not hex bolts) up to 6. in (152 mm) long. Grade 1 applies for hex cap screws over 6 in. (152 mm) long, and for all other types of bolts and screws of any length.]				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Lubricated ["Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C zinc flake coating.]		**Dry** ["Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. 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 7/8 in. and larger fasteners with JDM F13C zinc flake coating.]		**Dry** ["Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. 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 7/8 in. and larger fasteners with JDM F13C zinc flake coating.]		**Dry** ["Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. 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 7/8 in. and larger fasteners with JDM F13C zinc flake coating.]		**Dry** ["Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. 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.**
1/4	3.7	33	4.7	42	6	53	7.5	66	9.5	84	12	106	13.5	120	17	150
													N˙m	**lb.-ft.**	**N˙m**	**lb.-ft.**
5/16	7.7	68	9.8	86	12	106	15.5	137	19.5	172	25	221	28	20.5	35	26
									N˙m	**lb.-ft.**	**N˙m**	**lb.-ft.**				
3/8	13.5	120	17.5	155	22	194	27	240	35	26	44	32.5	49	36	63	46
			N˙m	**lb.-ft.**	**N˙m**	**lb.-ft.**	**N˙m**	**lb.-ft.**								
7/16	22	194	28	20.5	35	26	44	32.5	56	41	70	52	80	59	100	74
	N˙m	**lb.-ft.**														
1/2	34	25	42	31	53	39	67	49	85	63	110	80	120	88	155	115
9/16	48	35.5	60	45	76	56	95	70	125	92	155	115	175	130	220	165
5/8	67	49	85	63	105	77	135	100	170	125	215	160	240	175	305	225
3/4	120	88	150	110	190	140	240	175	300	220	380	280	425	315	540	400
7/8	190	140	240	175	190	140	240	175	490	360	615	455	690	510	870	640
1	285	210	360	265	285	210	360	265	730	540	920	680	1030	760	1300	960
1-1/8	400	300	510	375	400	300	510	375	910	670	1150	850	1450	1075	1850	1350
1-1/4	570	420	725	535	570	420	725	535	1280	945	1630	1200	2050	1500	2600	1920
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2140	1580	2700	2000	3400	2500
1-1/2	990	730	1250	930	990	730	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

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 plastic insert or crimped steel type lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application. Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Replace fasteners with the same or higher grade. If higher grade 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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LEGEND:

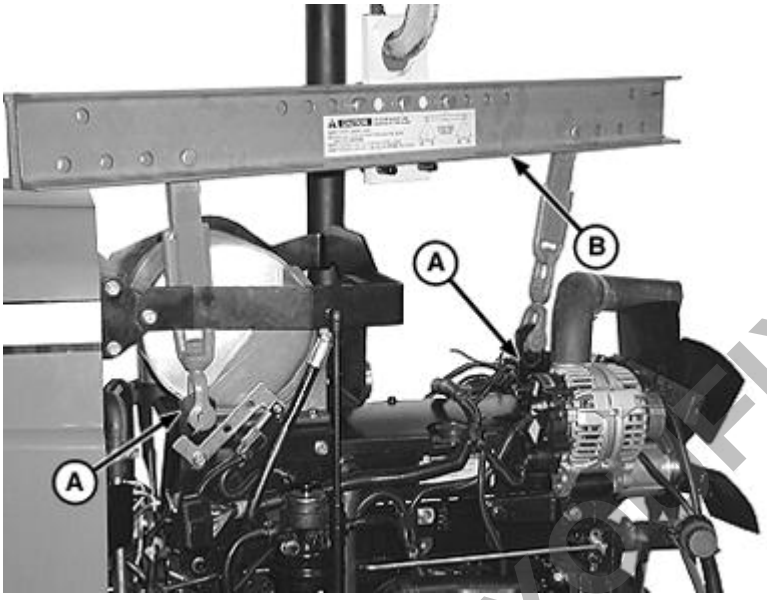
A	Cap Screw (6 used)
B	Plate

Remove front weights and support, if equipped.

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

[28] - Remove front axle assembly. (See Remove and Install Front Axle—2WD in Section 80, Group 05 or Remove and Install MFWD Axle Housing Assembly in Section 50, Group 35.)

[29] -



LEGEND:

A	Engine Lift Bracket (2 used)
B	Engine Lift Sling

Install lift brackets (A) such as JDG19 or JT01748 Lifting Brackets.

Lifting Bracket

JDG19

Used to remove and install engine.

Lifting Bracket

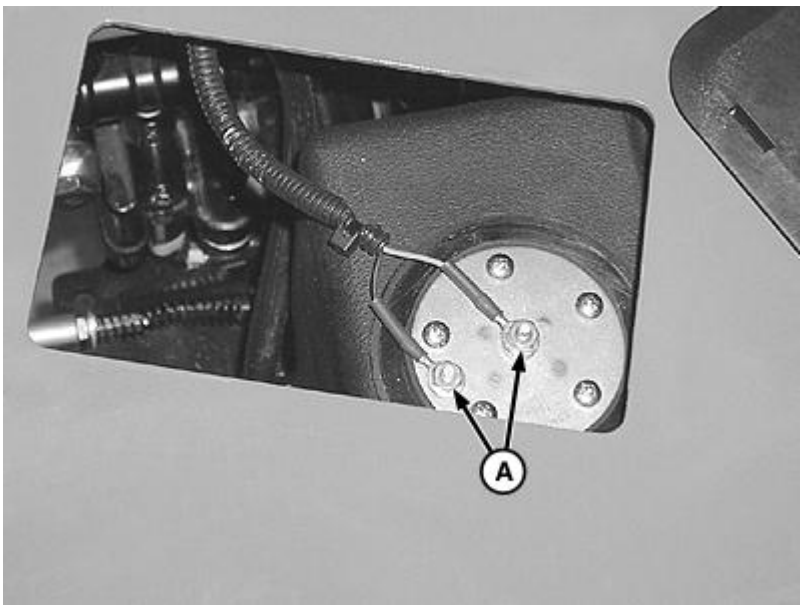
JT01748

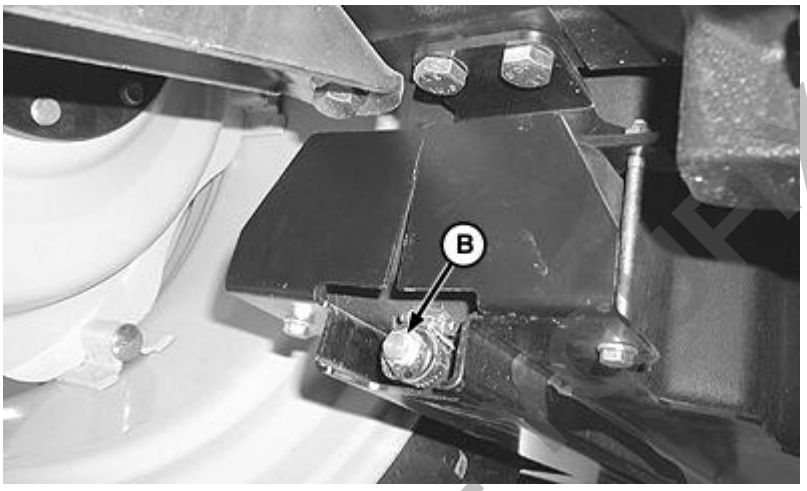
Used to remove and install engine.

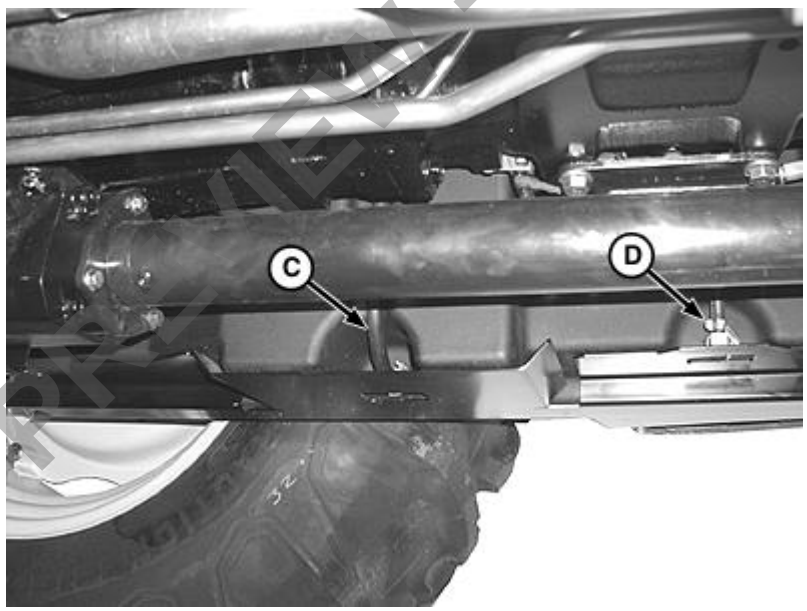
[30] - Attach engine lift sling (B) and hoist to engine.

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[6] - Replace alternator/regulator.

[7] - Install cap screws (D and C).

[8] - Install belt on alternator/regulator pulley.

[9] - Connect wire connector (F) and cable (B).

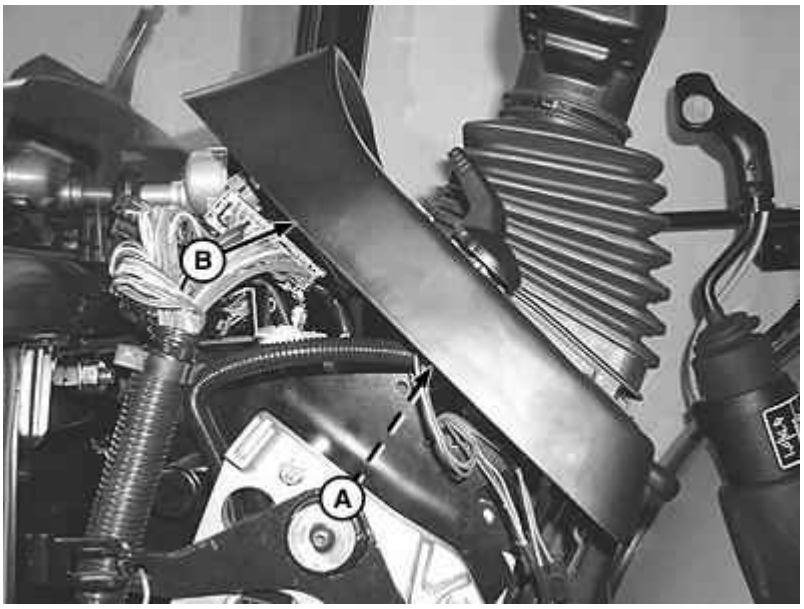
[10] - Install fan guard (A).

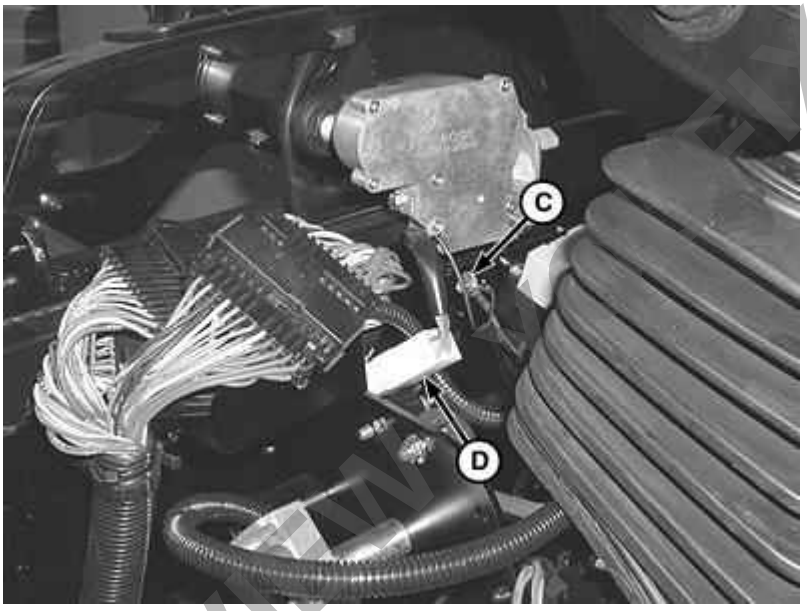
[11] - Connect negative (—) battery cable.

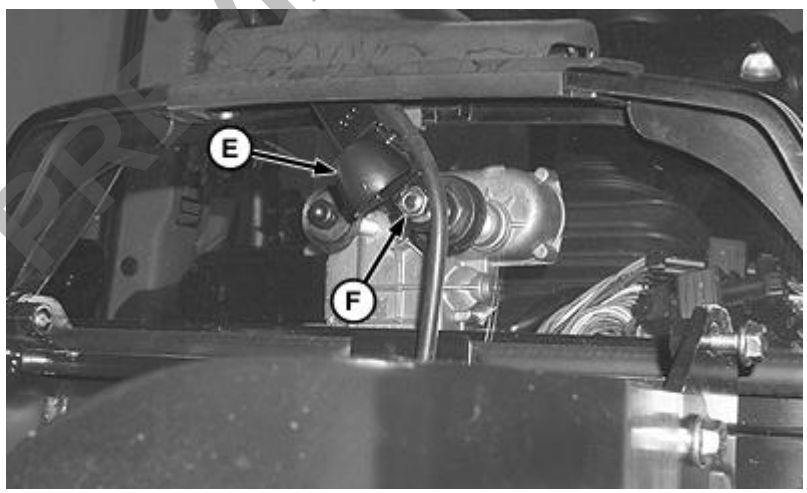
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Replace Wiper Motor







LEGEND:

A	Turn Signal Electrical Connector
B	Instrument Panel

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L	Washer
M	Nut
N	Cap Screw
O	Wire Connector
P	Directional Reverser Assembly and Boot
Q	Wiring Harness
R	Channel

Route wiring harness (Q) through channel (R).

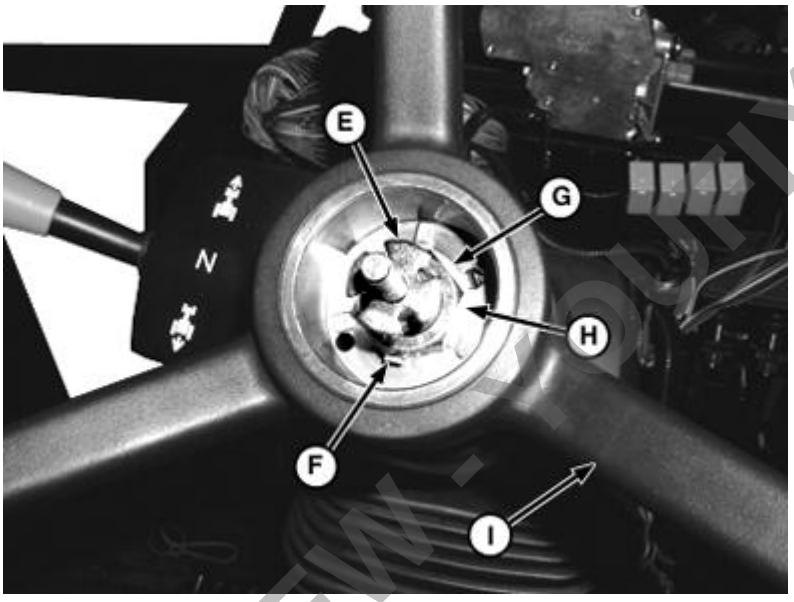
[19] - Install directional reverser assembly and boot (P).

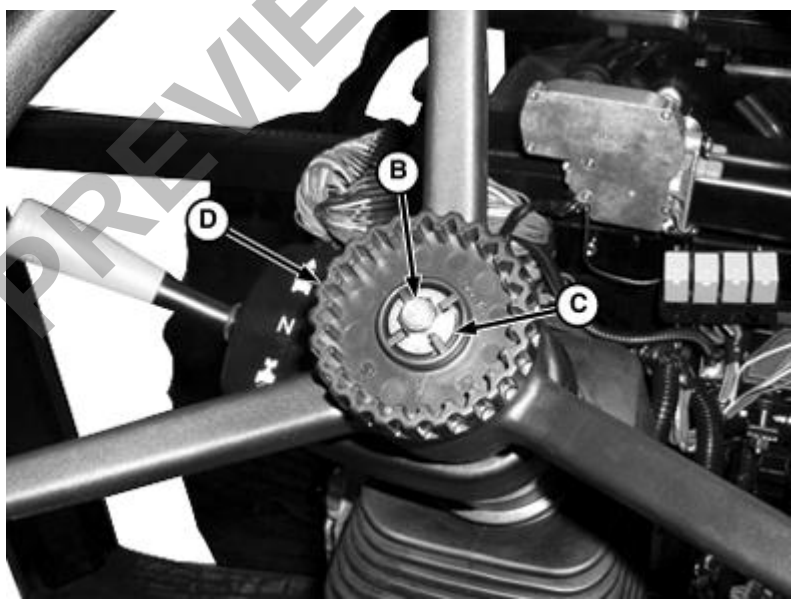
[20] - Connect wire connector (O).

[21] - Install wiring harness to console using a cap screw (N) and nut (M).

[22] - Install washer (L), spacer (K) and snap ring (J).

[23] -





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M Console Harness-to-Rear Harness Connector
N Console Harness-to-Rear Harness Connector
O Front Wiper Motor Connector
P Key Switch Connector
Q Turn Signal Switch Connector
R Horn Switch Connector
S Warning Horn Connector
T Start Relay Leads
U Console Harness-to-Front Harness Connector

Disconnect battery negative (—) cable.

[2] - Remove instrument panel. (See Replace Instrument Panel—Isolated Open Operator Station and Cab Tractors in Section 40, Group 10.)

[3] - Remove key switch. (See Replace Key Switch—5225, 5325, 5425, 5525 and 5625 Tractors in Section 40, Group 10.)

[4] - Cut all tie straps.

[5] - Remove all hold-down clamps.

[6] - Disconnect wire connectors and leads (A—U).

[7] - Replace wire harness.

[8] - Connect wire connectors and leads (A—U).

[9] - Install hold-down clamps.

[10] - Install tie straps as necessary.

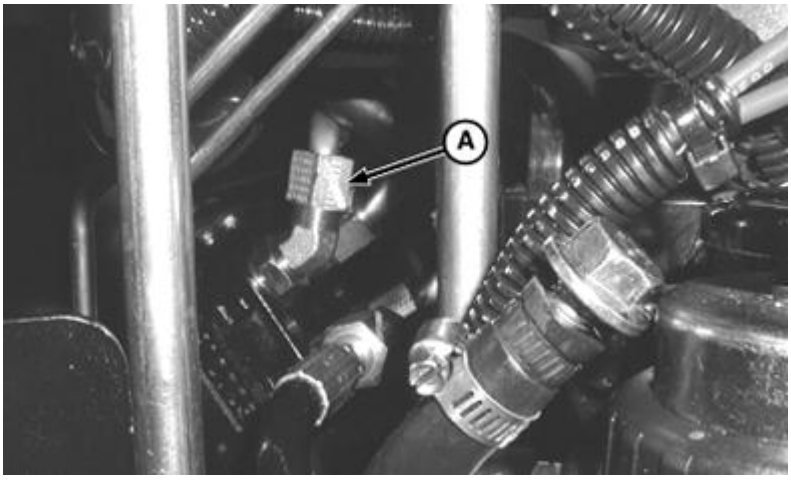
[11] - Install key switch. (See Replace Key Switch—5225, 5325, 5425, 5525 and 5625 Tractors in Section 40, Group 10.)

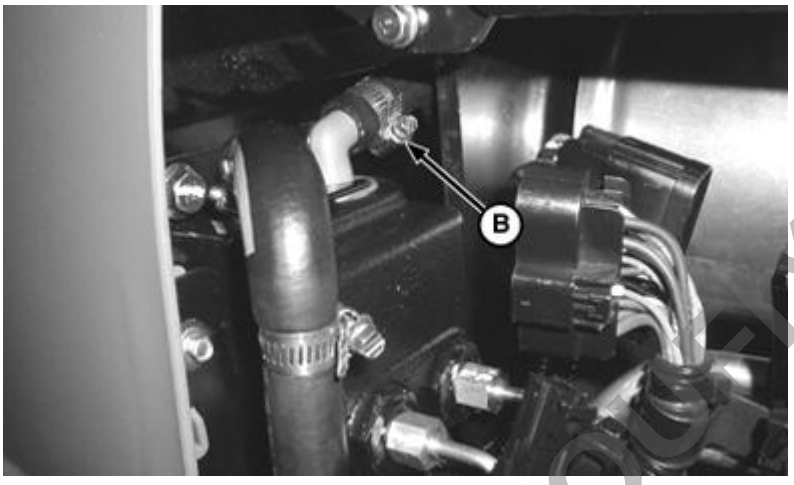
[12] - Install instrument panel. (See Replace Instrument Panel—Isolated Open Operator Station and Cab Tractors in Section 40, Group 10.)

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

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LEGEND:

A	Steering Hose
B	Hydraulic Hose

Connect hydraulic hose (B) to brake valve.

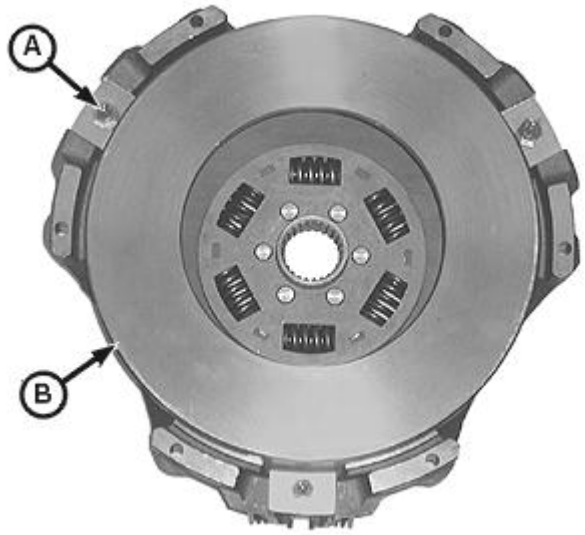
[14] - Connect steering hose (A) to steering valve.

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Disassemble and Inspect Clutch Assembly

[1] -



LEGEND:

A	Lock Nut (3 used)
B	Pressure Plate

Remove lock nuts (A) and discard.

[2] - Remove pressure plate (B) and inspect for wear or damage. Machine drive surfaces of pressure plate, if necessary, until surface is free of scores, cracks, and heat discoloration.

[3] -

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

→NOTE:

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

[4] - Install all parts and bearings (C and E) using a bearing, bushing, and seal driver set and a press.

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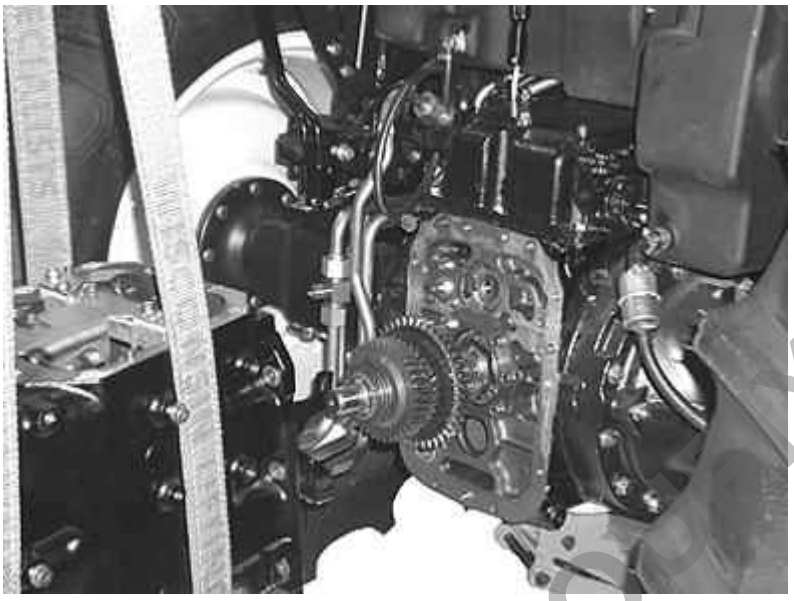
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[15] - Remove shift fork (D).

[16] -

IMPORTANT:

Before separating the transmission from rear differential housing, rotate park pawl until it rests against the park arm inside of transmission housing. If park pawl is not rotated, damage to gears may result when transmission is separated from the rear differential housing.



Rotate park pawl fully outward to side of transmission case.

[17] - Position a jack stand under drawbar assembly.

[18] - Attach hoist and chains to transmission housing.

[19] - Remove PTO shaft.

[20] -

→NOTE:

Differential drive shaft and gear cluster assembly will stay with the differential during transmission removal.

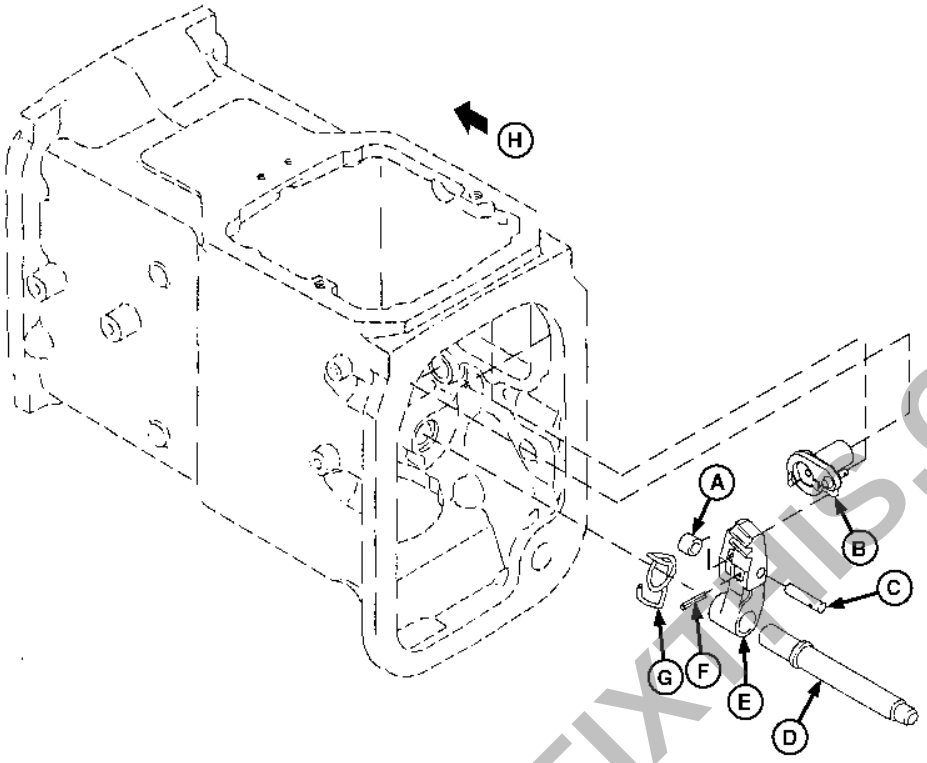
Remove twelve cap screws retaining transmission to differential housing. Remove transmission.

[21] - Make repairs as necessary. (See procedures in Section 50, Group 15.)

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[22] -



LEGEND:

A	Roller
B	Cam
C	Pin
D	Park Shaft
E	Park Pawl
F	Pin
G	Spring
H	Front of Tractor

Remove and inspect parts (A—G). Replace if necessary.

[23] - Inspect transmission case for cracks or damage. Replace if necessary.

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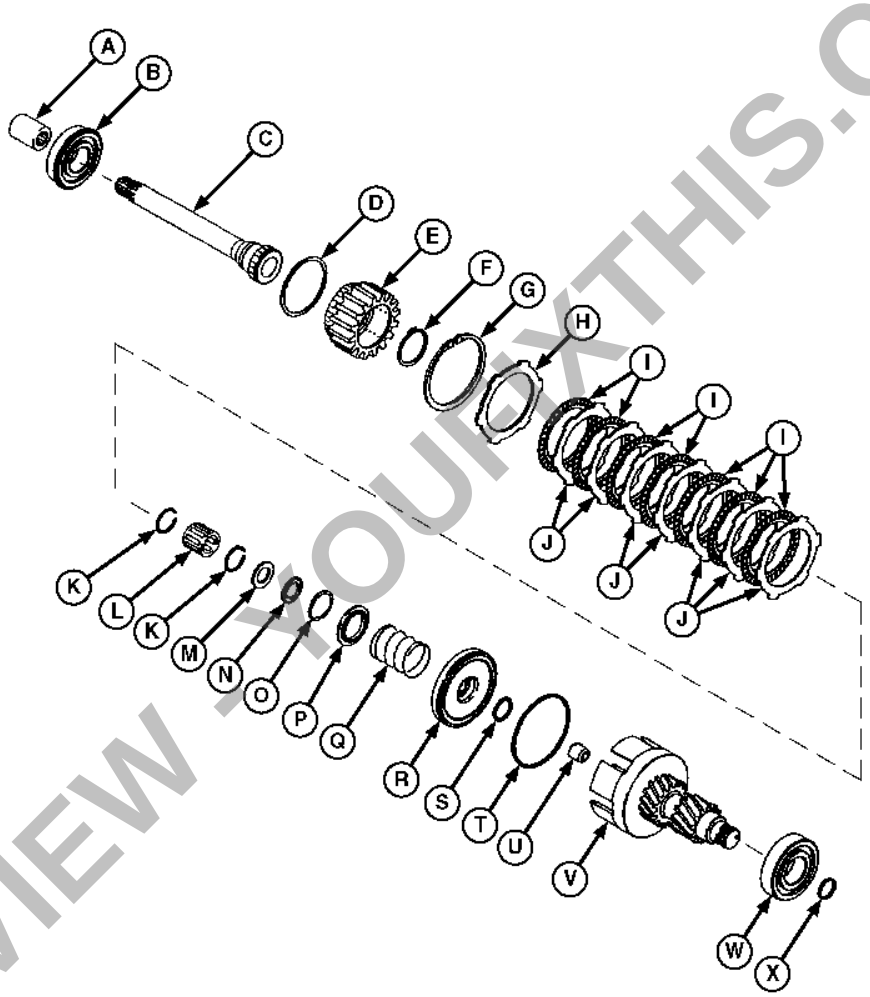
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Disassemble, Inspect, and Assemble Rear 540/540E Electro-Hydraulic and 540/1000 Electro-Hydraulic Pinion Shaft

[1] -

→NOTE:

Bearing (B) is press fit on shaft. Remove only if replacement is necessary.

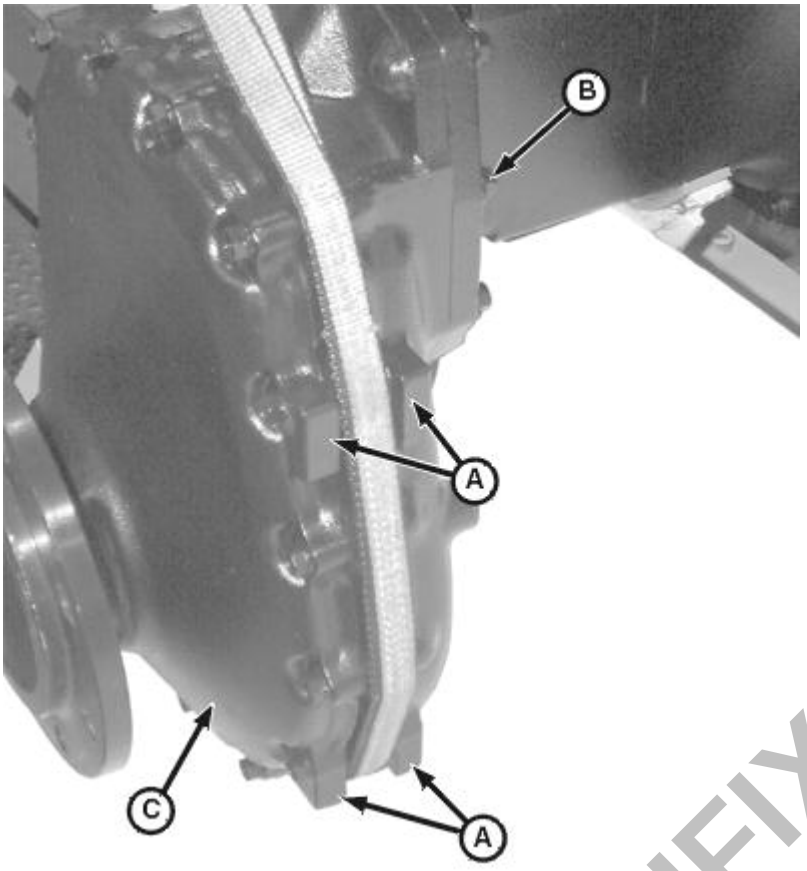


LEGEND:

A	Coupler
B	Bearing
C	Shaft
D	Ring
E	Gear
F	Snap Ring
G	Snap Ring
H	End Plate
I	EH PTO Disk (7 used)
J	Plate (7 used)
K	Snap Ring (2 used)

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LEGEND:

A	Flanges
B	Cap Screw (11 used)
C	Final Drive Assembly

Install and position a lifting strap using the choker method around final drive assembly (C) between flanges (A) and attach a suitable hoist to lifting strap as shown.

[6] - Remove eleven cap screws (B) and final drive assembly (C).

[7] -

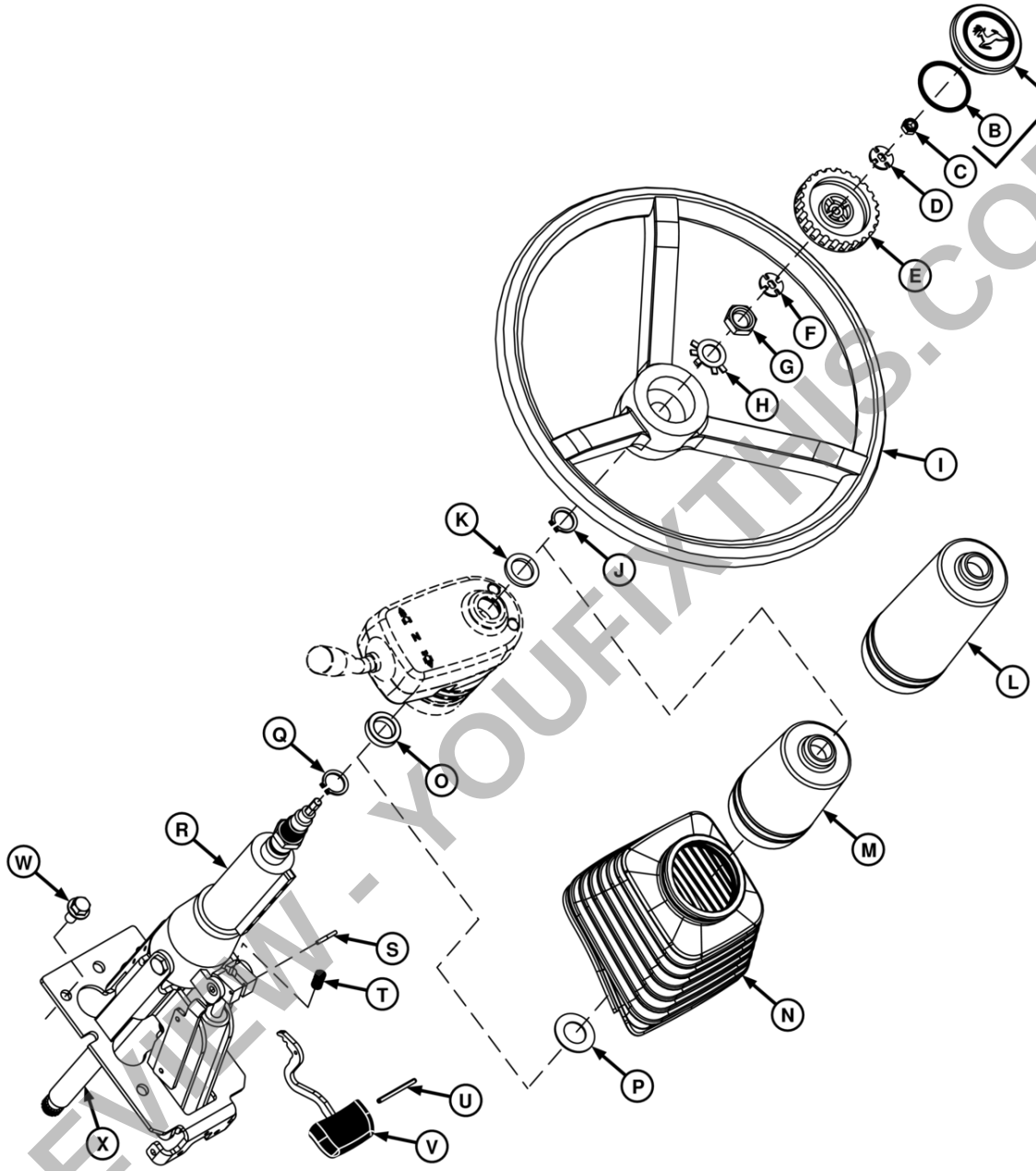
→NOTE:

During removal of final drive assembly from axle housing; the axle drive shaft coupler may stay with axle housing or come off with final drive assembly.

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Remove and Install Tilt/Telescoping Steering Column

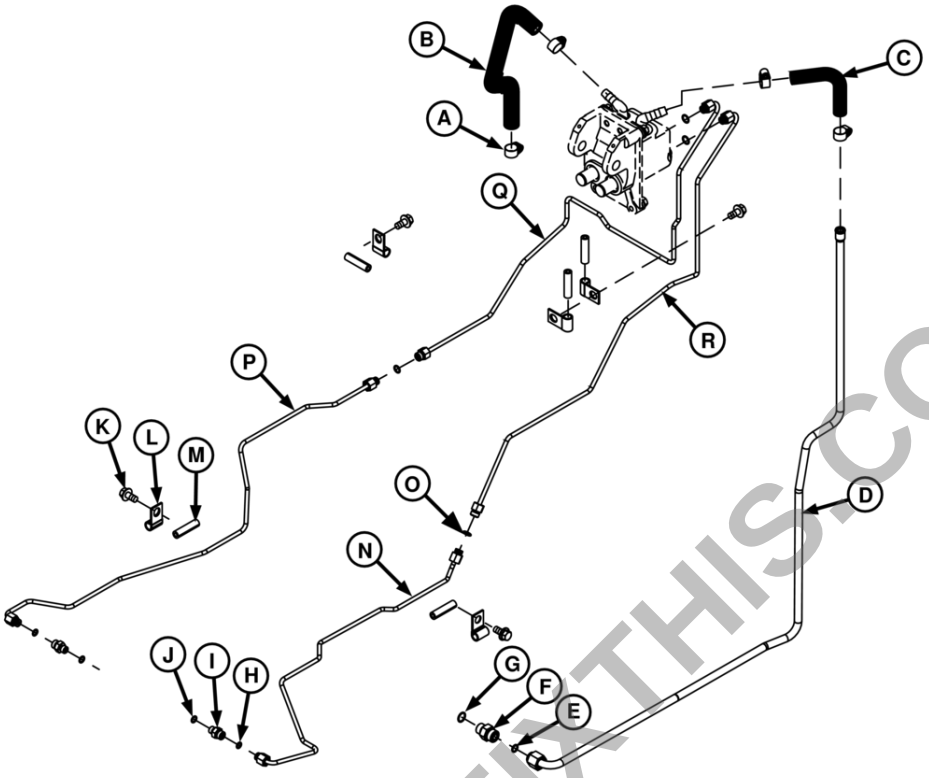


LEGEND:

A	Cover
B	O-Ring
C	Lock Nut
D	Washer
E	Knob
F	Washer
G	Nut
H	Lock Washer
I	Steering Wheel
J	Snap Ring
K	Washer
L	Cap (SYNCSHUTTLE ™)

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Cab/Isolated Open Operator Station

LEGEND:

A	Clamp (4 used)
B	Hose, Return
C	Hose, Supply
D	Brake Valve-to-Transmission Return Line
E	O-Ring
F	Adapter
G	O-Ring
H	O-Ring (2 used)
I	Adapter (2 used)
J	O-Ring (2 used)
K	Screw (3 used)
L	Clamp (5 used)
M	Isolator (5 used)
N	Pressure Line-to-Right Brake
O	O-Ring
P	Pressure Line-to-Left Brake
Q	Pressure Line from Brake Valve (Left)
R	Pressure Line from Brake Valve (Right)

[1] - Inspect hydraulic lines and hoses for wear or damage. Replace as necessary.

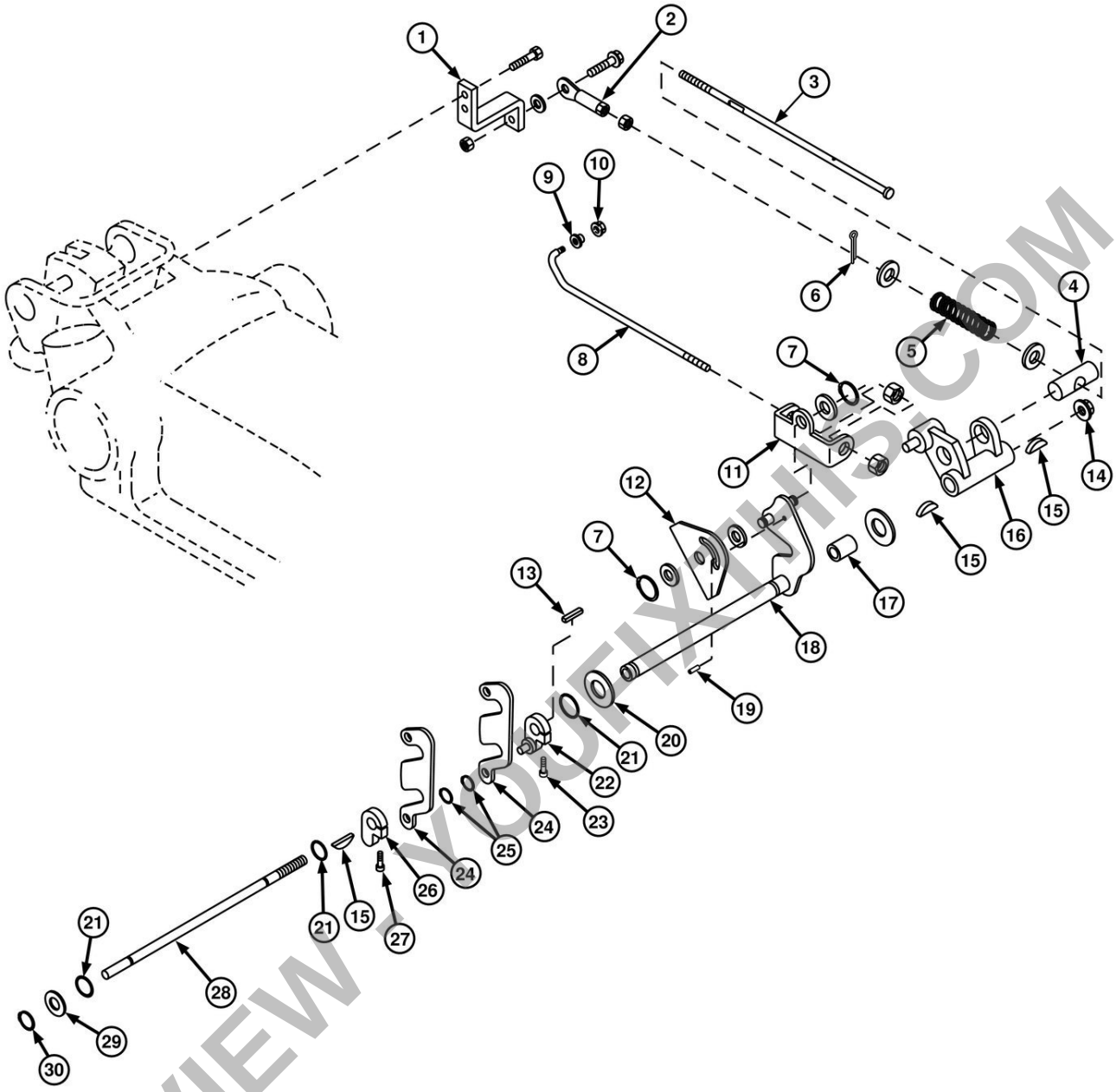
[2] -

IMPORTANT:

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

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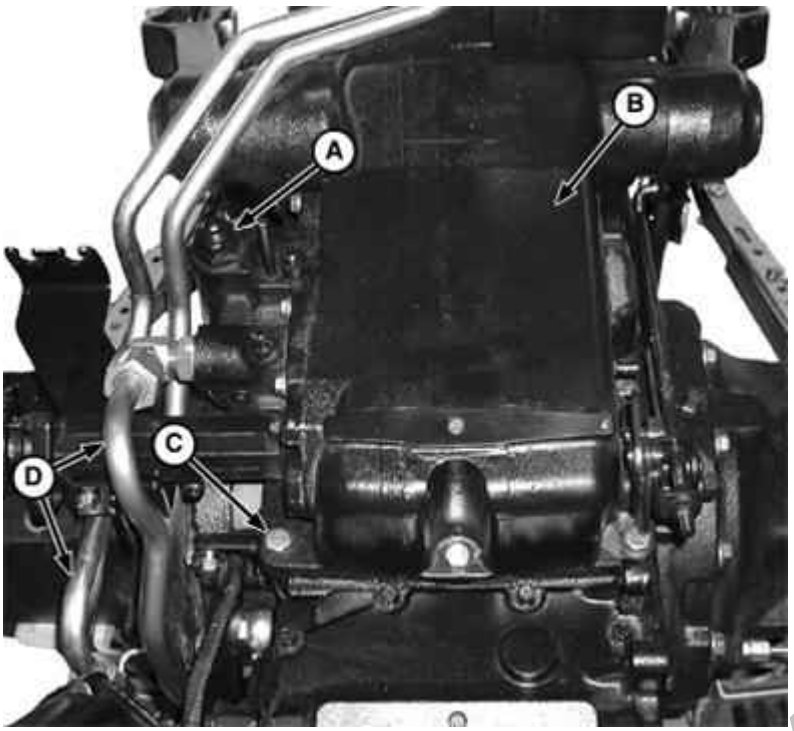
Rockshaft Control Linkage

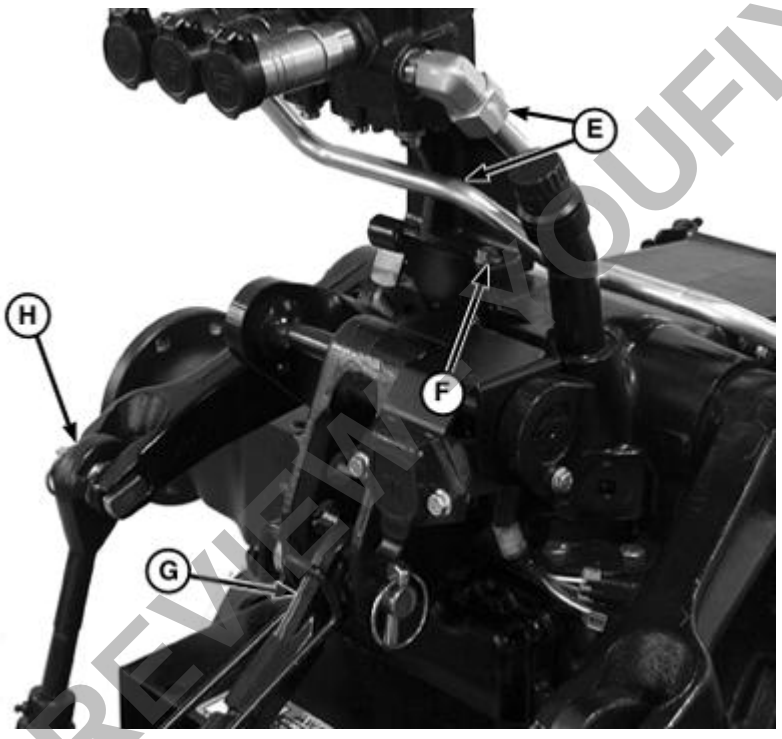
LEGEND:

1	Bracket
2	Clevis
3	Draft Sensing Rod
4	Pin
5	Compression Spring
6	Cotter Pin
7	E-Clip (2 used)
8	Position Control Feedback Rod
9	Bushing
10	Nut
11	Bracket

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LEGEND:

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

Install rockshaft case assembly (B) and cap screws (C). Tighten cap screws to specification.

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O	O-Ring
P	Detent Spring
Q	SCV Housing
R	O-Ring
S	Spool

Install parts (H—J). Tighten socket head cap screw (I) to specification.

Item	Measurement	Specification
Socket Head Cap Screw	Torque	26—30 N˙m (19—22 lb-ft)

[18] -

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.

Install new O-rings (R and O) and backup ring (N).

[19] - Install seal plate (E).

[20] - Coat spool and bore with clean transmission/hydraulic oil.

[21] - Install spool.

[22] - Lightly coat detent assembly with multipurpose grease.

[23] - Apply MT1247 Locking Liquid, supplied with repair kit, to threads of socket head cap screws (F).

Number	Name	Use
• MT1247 (us)	Locking Liquid	Used on threads of SCV socket head cap screws.

[24] - Install cap (G) using socket head cap screws (F). Tighten screws to specification.

Item	Measurement	Specification
Spool Cap Socket Head Cap Screw	Torque	12—15 N˙m (106—133 lb-in.)

[25] - Install parts (A—D). Tighten cap (A) to specification.

Item	Measurement	Specification
Load Check Cap	Torque	34—41 N˙m (25—30 lb-ft)

[26] - Install new O-ring (C) on load check cap (A).

[27] - Lubricate O-ring and install load check valve (D), spring (B), and load check cap. Tighten to specification.

Item	Measurement	Specification
Load Check Cap	Torque	34—41 N˙m (25—30 lb-ft)

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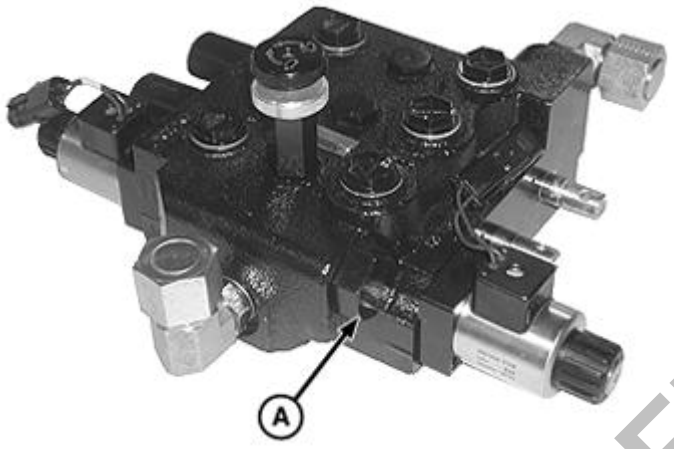
[11] - Lubricate O-ring and install load check flow control assembly. Tighten to specification.

Item	Measurement	Specification
Load Check Flow Control Valve	Torque	34—41 N˙m (25—30 lb-ft)

[12] -

→NOTE:

Individual seals on compensator valve are non-replaceable. If seal replacement is required, replace compensator valve assembly.



LEGEND:

A	Compensator Valve

Remove compensator valve (A).

[13] - Lubricate O-ring and seals with clean oil and install compensator valve. Tighten to specification.

Item	Measurement	Specification
Compensator Valve	Torque	20—27 N˙m (15—20 lb-ft)

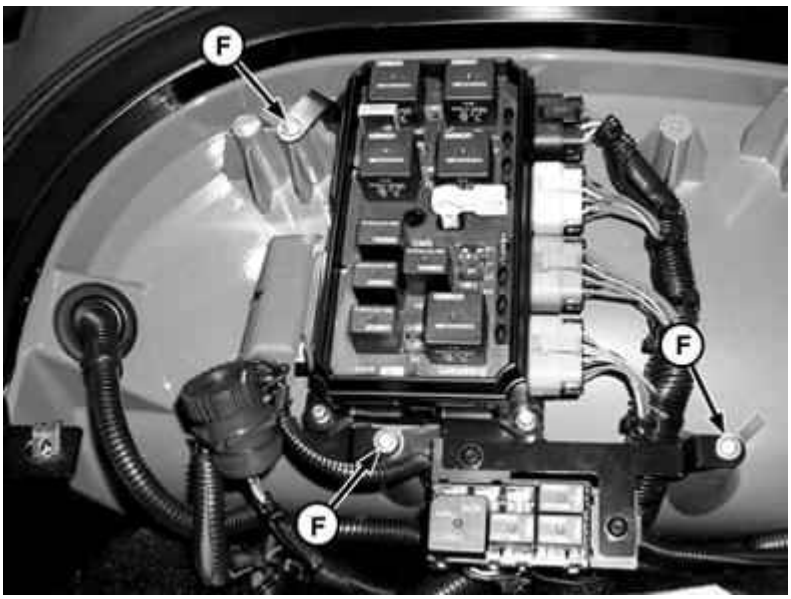
[14] - Remove internal hex-head plug from rear of valve block and install new O-ring.

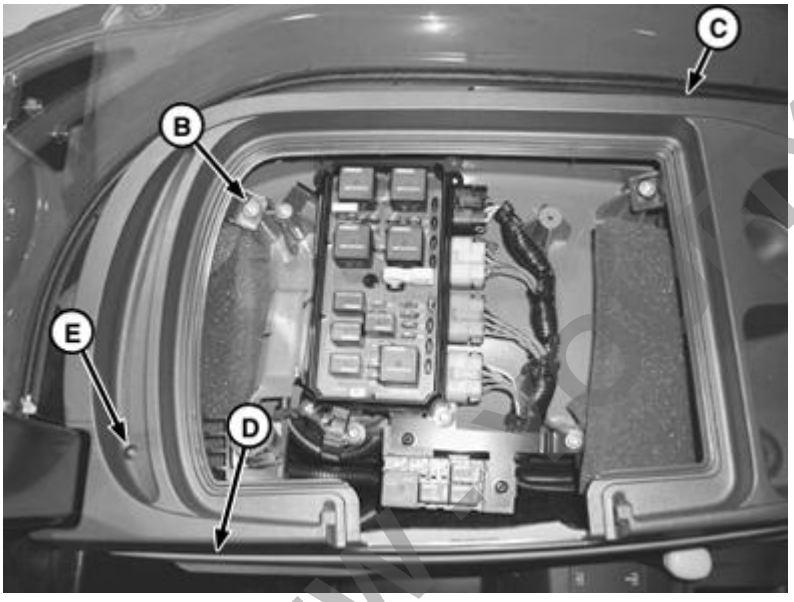
[15] - Lubricate O-ring and install plug. Tighten to specification.

Item	Measurement	Specification
Housing Plug	Torque	20—27 N˙m (15 lb-ft)

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LEGEND:

A	Cover

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Remove and Install Headliner

[1] -





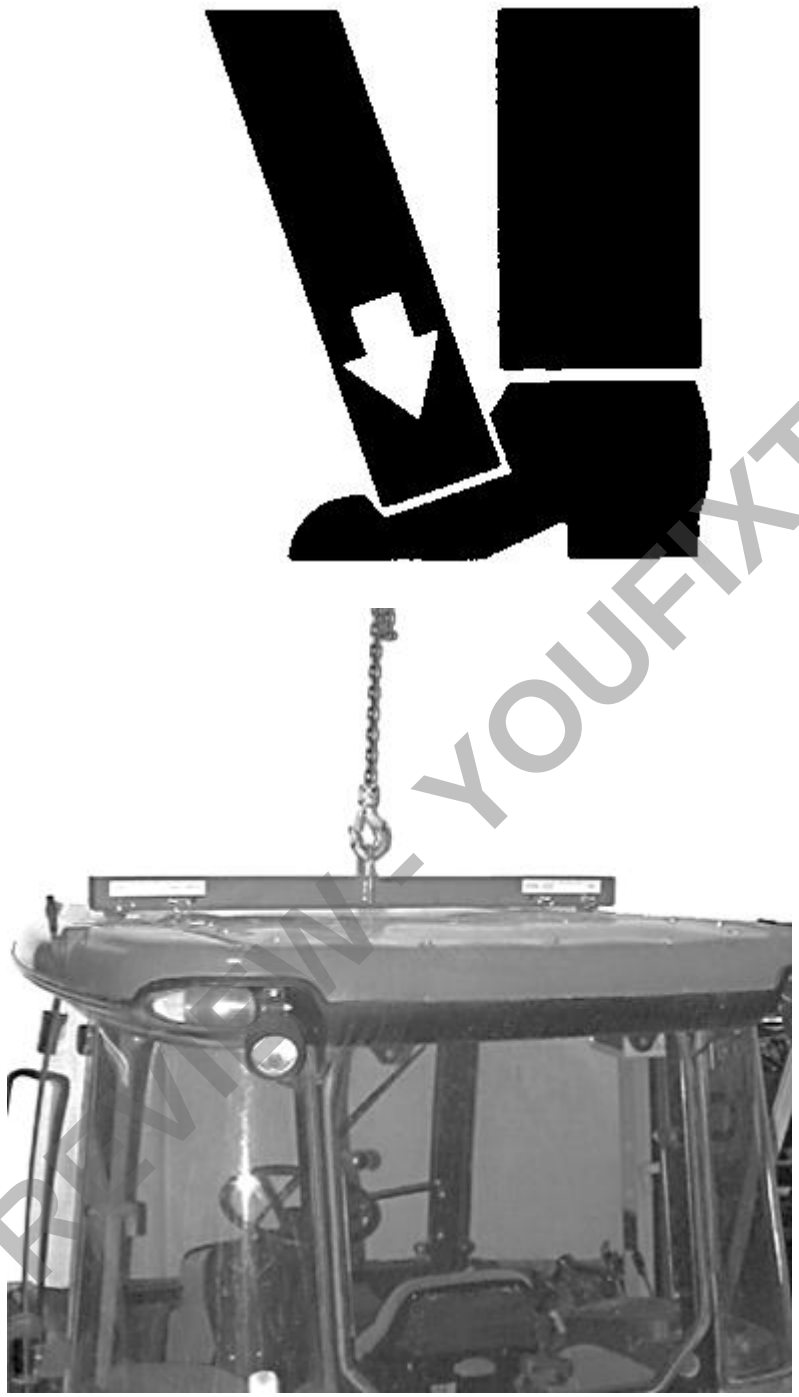
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Install Cab

[1] -

CAUTION:



Use proper lifting equipment. Lifting the cab without using JDG1580 Cab Lifting Bar could cause personal injury.

Lower cab into position, be sure all hardware is correctly located.

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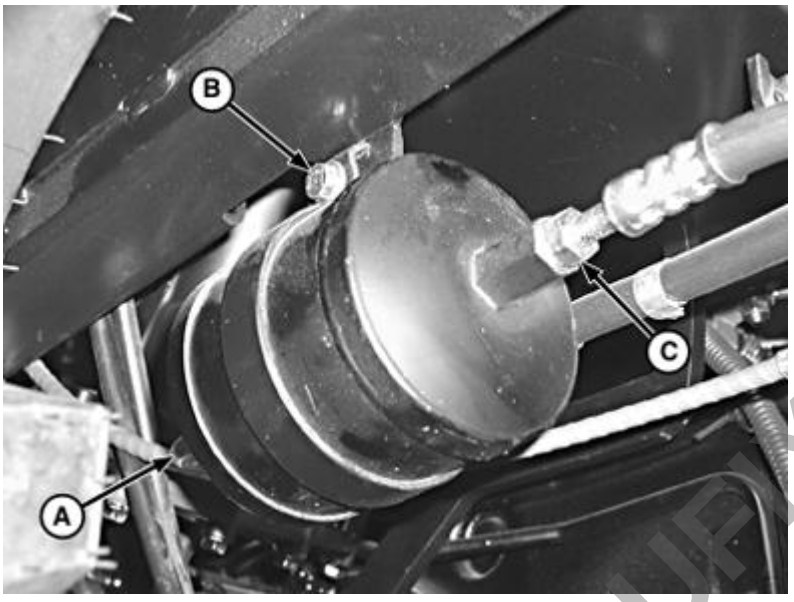
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Replace Air Conditioning Receiver/Dryer

[1] -

→NOTE:

The receiver/dryer is not serviceable. If malfunction is suspected, install new receiver/dryer.



LEGEND:

A	Line to Evaporator
B	Cap Screw and Nut
C	Line from Condenser

Recover/recycle air conditioning refrigerant. (See Recover/Recycle Air Conditioning Refrigerant in Section 90, Group 20.)

[2] -

→NOTE:

Receiver/dryer is located along the right side of transmission.

Disconnect lines (A and C) from receiver/dryer. Cap or plug all lines to prevent contamination.

[3] - Remove cap screw and nut (B).

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