444H, 544H Loader and TC44H, TC54H Tool Carrier Repair

TECHNICAL MANUAL
444H, 544H Loader TC44H, TC54H Tool Carrier Repair TM1638

tm1605 30SEP04 (ENGLISH)

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For complete service information also see:

444H, 544H Loader and TC44H, TC54H Tool Carrier Test	TM1604
4.5 L & 6.8 L 4045 and 6068 Diesel Engines Repair	CTM104
Alternators and Starting Motors	CTM77
TeamMate™ III Axles	CTM150

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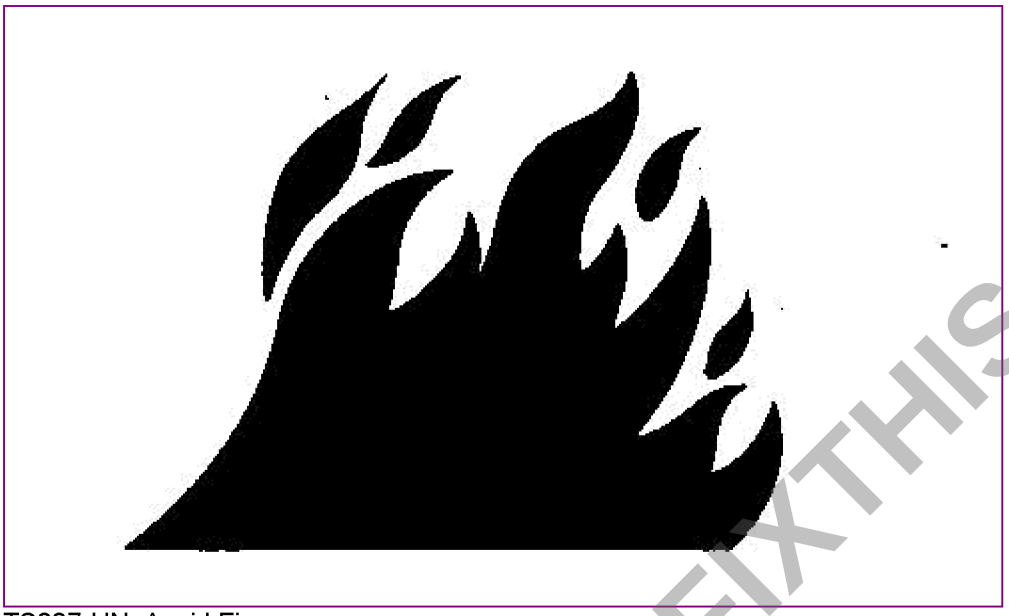
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Handle Fluids Safely-Avoid Fires

Handle Fluids Safely-Avoid Fires



TS227-UN: Avoid Fires

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.

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Reserve capacity	160 min.
Torque Converter	Single phase, single stage
Transmission	Countershaft, computer controlled powershift

Travel Speeds: [All travel speeds are with 17.5 x 25 12PR (L2) tires.]		
Forward Speeds:	**km/h**	**mph**
1	0-7.5	0-4.6
2	0-13.4	0-8.3
3	0-24.9	0-15.5
4	0-40.0	0-24.8
Reverse Speeds:	**km/h**	**mph**
1	0-7.9	0-4.9
2	0-14.1	0-8.7
3	0-26.3	0-16.3

-: Service Brake Specifications

Brakes, Service:
Hydraulically-actuated, 4-wheel, inboard-mounted, wet disk
Foot-operated, by either pedal
Left and right pedal also disconnects transmission (if selected by operator)
External inspection
Low brake pressure warning light and buzzer in monitor

Brakes, Park:
Multi wet disc
Spring applied, hydraulically released parking brake is bathed in cooling oil
Transmission disconnects with park brake applied
Warning light in monitor-Dual-level
Amber lights with transmission in neutral
Red STOP indicator lights, and buzzer sounds with transmission in gear

Steering:	
Fully hydraulic. Frame articulated 80° by two hydraulic cylinders	
Turning radius (to corner of bucket)	5,492 mm (18 ft 0 in.)

Tires
15.5x25 Bias (L2)
17.5x25 Bias (L2) and 17.5x25 Bias (L3)
17.5R25 Radial 1STAR

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Drain and Refill Capacities-444H

Drain and Refill Capacities-444H

Item	Measurement	Specification
Cooling System	Capacity	19 L (20 qt)
Fuel Tank	Capacity	180 L (48 gal)
Engine Crankcase and Filter	Capacity	12 L (13 qt)
Transmission Case and Filter	Capacity	20 L (21 qt)
Front and Rear Differential	Capacity	19.4 L (20.5 qt)
Hydraulic Reservoir and Filters	Capacity	106 L (28 gal)
Park Brake	Capacity	0.300 L (10 oz)

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tm1605 - 444H, 544H Loader and TC44H, TC54H Tool Carrier Repair
Metric Bolt and Cap Screw Torque Values

Metric Bolt and Cap Screw Torque Values

TORQ2

TORQ2-UN: Top, Property Class and Head Markings; Bottom, Property Class and Nut Markings

-: Metric Bolt and Cap Screw Torque Values, 1 of 2

	Class 4.8		Class 8.8 or 9.8		Class 10.9		Class 12.9	
Size	Lubricated[a] N·m(lb-ft)	Dry[b] N·m (lb-ft)	Lubricated[a] N·m(lb-ft)	Dry[b] N·m (lb-ft)	Lubricated[a] N·m(lb-ft)	Dry[b] N·m (lb-ft)	Lubricated[a] N·m(lb-ft)	Dry[b] N·m (lb-ft)
M6	4.7 (3.5)	6 (4.4)	9 (6.6)	11.5 (8.5)	13 (9.5)	16.5 (12.2)	15.5 (11.5)	19.5 (14.5)
M8	11.5 (8.5)	14.5 (10.7)	22 (16)	28 (20.5)	32 (23.5)	40 (29.5)	37 (27.5)	47 (35)
M10	23 (17)	29 (21)	43 (32)	55 (40)	63 (46)	80 (59)	75 (55)	95 (70)
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)

[a] *"Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings.*

[b] *"Dry" means plain or zinc plated without any lubrication.*

-: Metric Bolt and Cap Screw Torque Values, 2 of 2

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

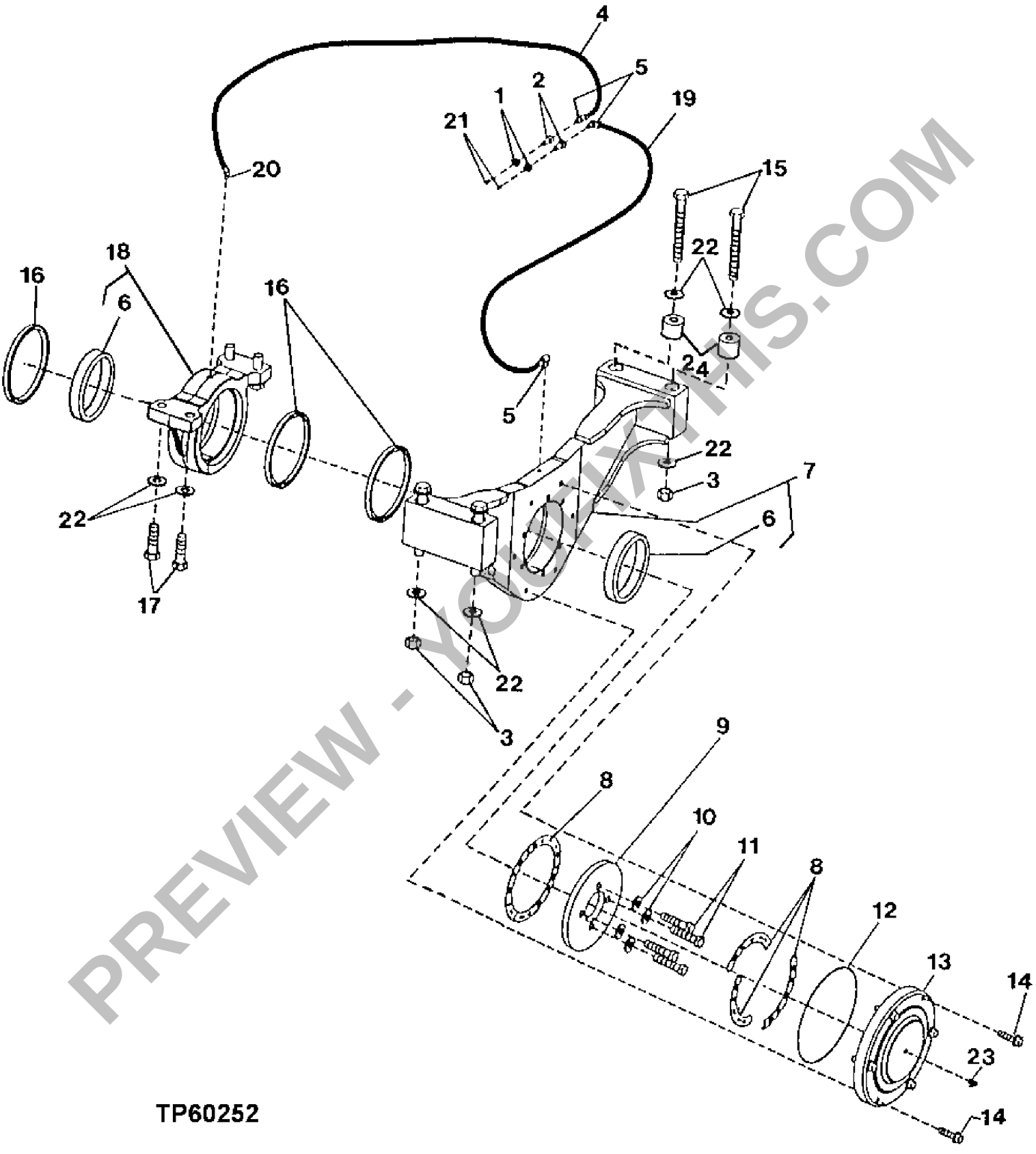
Make sure fastener threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

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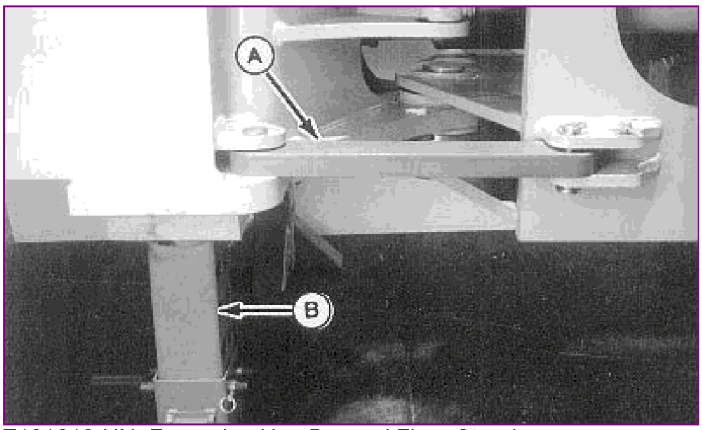
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Remove and Install Front Axle and Differential

Remove and Install Front Axle and Differential



T101610-UN: Frame Locking Bar and Floor Stands

LEGEND:

A - Locking Bar
B - 12-1/2 Ton Floor Stand

1. Apply park brake.
2. Install frame locking bar (A).
3.

CAUTION:

The approximate weight of machine is 444H-9734 kg (21,460 lb), TC44H-10 212 kg (22,517 lb), 544H-11 795 kg (26,000 lb), TC54H-12 044 kg (26,552 lb).

Item	Measurement	Specification
Front Axle and Differential:		
444H Loader	Weight	9734 kg (21,460 lb) approximate
TC44H Tool Carrier	Weight	10 212 kg (22,517 lb) approximate
544H Loader	Weight	11 795 kg (26,000 lb) approximate
TC54H Tool Carrier	Weight	12 044 kg (26,552 lb) approxiamte

Raise front of machine. Install floor stands (B) under loader frame.

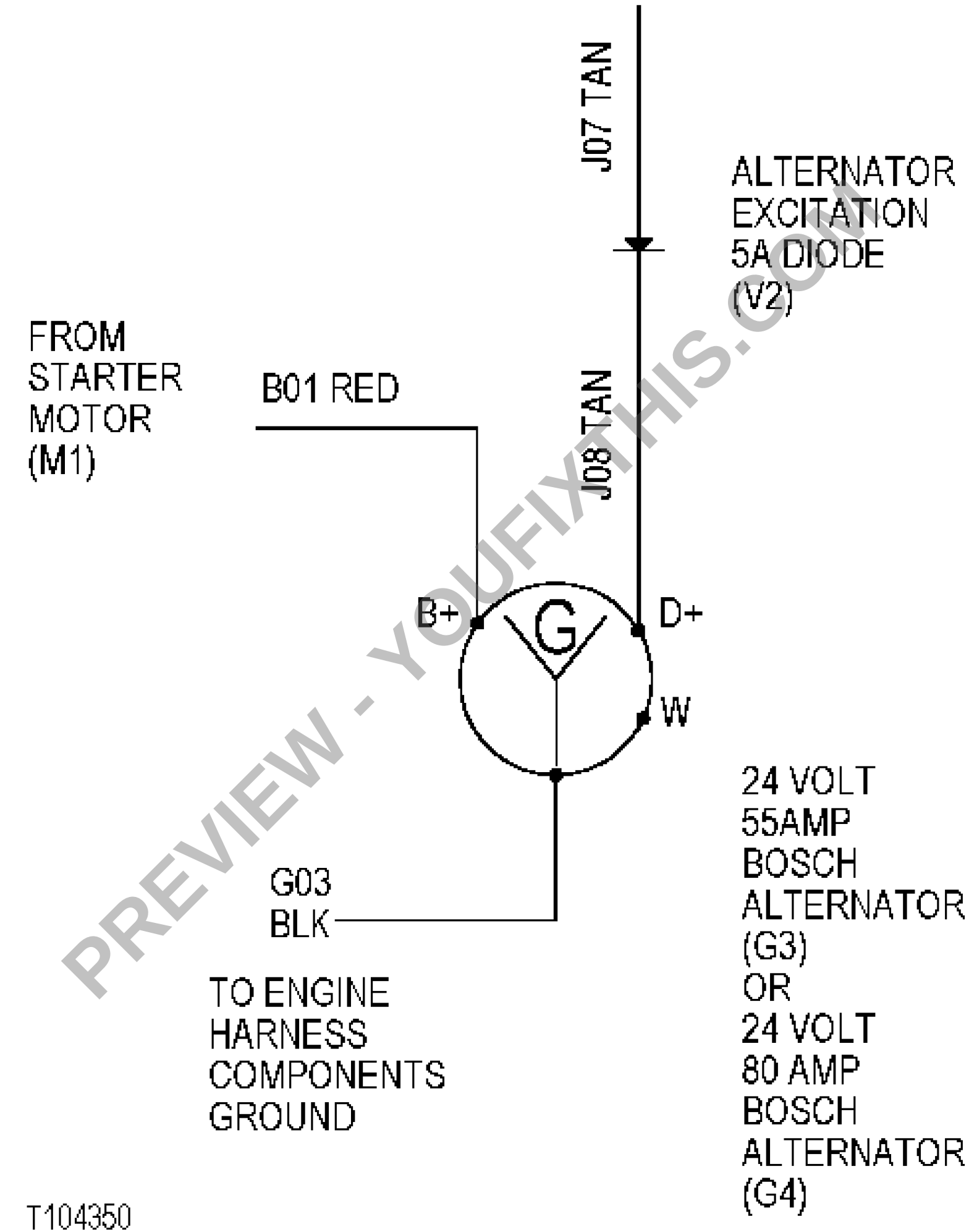
4. Install boom lock. Move bucket to dumped position and lower. This will provide clearance to remove cap screws.
5. Stop engine.
6.

CAUTION:

Prevent possible injury from unexpected boom or bucket movement when equipped with ride control. Ride control accumulator energy must be discharged when working on hydraulic components. With boom raised slightly, turn ignition switch to ON position. Cycle the ride control switch from OFF to ON (center position). Boom will jump up if ride control accumulator is energized. Press boom enable switch and move the control lever into the float position and hold for 5 seconds.

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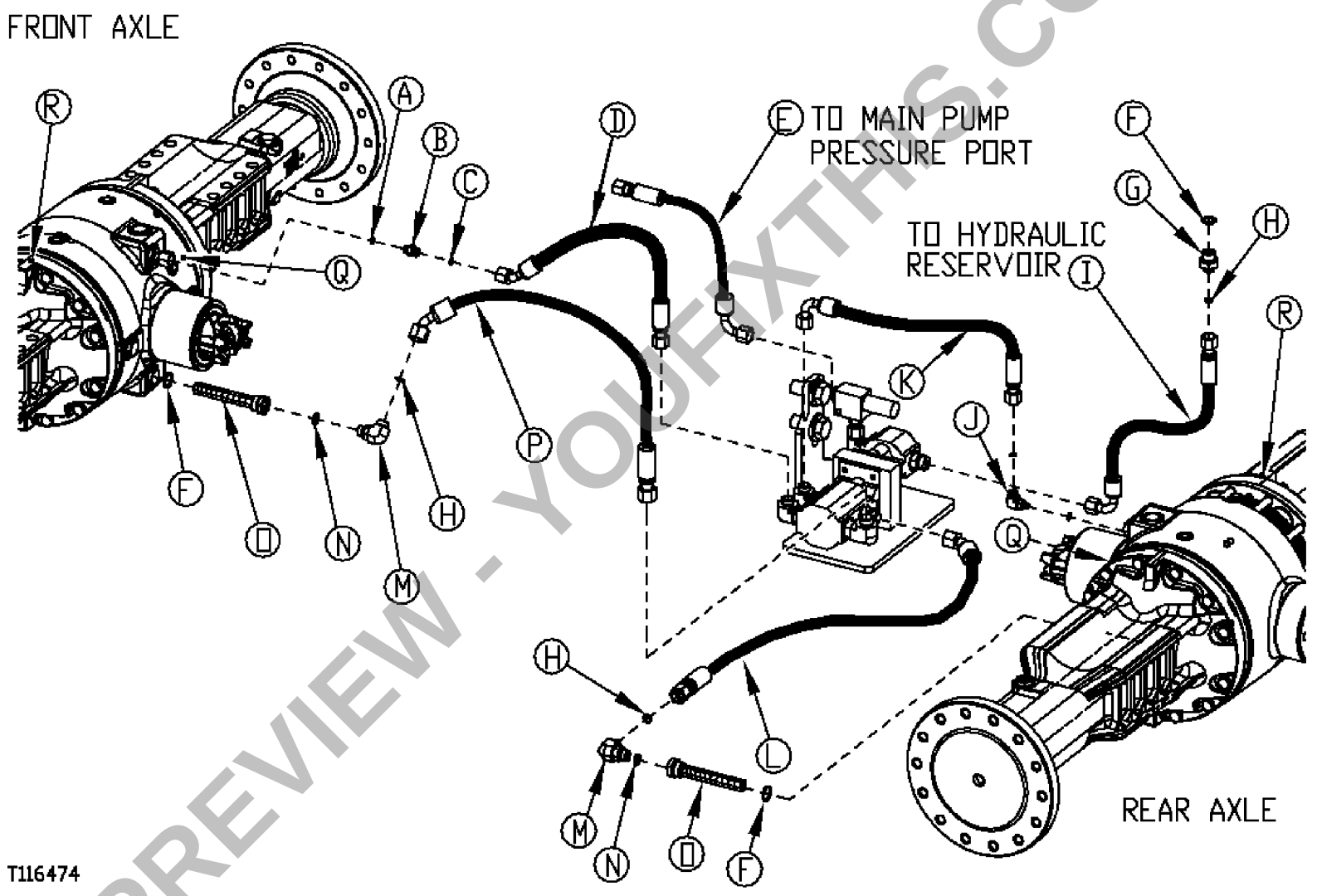
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Reprogram Monitor Display Unit

Reprogram Monitor Display Unit

When either the monitor display unit (MDU), transmission control unit (TCU), or chassis computer unit (CCU) is replaced or exchanged from another unit, the monitor display unit must be reprogrammed. Reprogramming is done in the Monitor Display Unit Service Menu using the following procedure.

NOTE:

See Monitor Display Unit Menu Structure in 9015-15 of operation and test manual for detailed information on how to access the Service Menu. The Service Menu is to be used only by service technicians. It can be accessed only through the Diagnostics menu.

1. Turn key switch On. At the Diagnostics Menu (d 01) Fault Codes mode, scroll through the fault codes until “F End” shows in the display window. Press and hold SELECT at least 6 seconds until “S” is displayed, which indicates Service Menu.

2. *NOTE:*

   The park brake must be set and the shifter switch must be in Neutral for the reprogramming procedure.

   Apply park brake. Move shifter lever to Neutral position. Press SELECT, and the Service Menu “S 01” Machine Model mode will be displayed.

3. At the “S 01” display, press SELECT again, to see the currently configured model. Press NEXT to scroll through the machine models until the desired model is displayed. Then press SELECT. If reprogramming is successful, done will be displayed. If programming is not successful, FAIL will be displayed, and procedure must be repeated. Press BACK to “S 01.”

4. Press NEXT to “S 03.” At the Service Menu “S 03” Tire Size mode, press SELECT and the currently configured tire size is displayed. Press NEXT to scroll through the tire size options until the desired size is displayed. Then press SELECT. Press BACK to “S 03.”

5. Press NEXT until “S 06” displays. At the Service Menu “S 06” Enable Options mode, press SELECT to display “S 061” option. Press SELECT again to enable (“On”) or disable (“Off”) each appropriate option installed on the machine. If reprogramming of the machine model has been successful, all options in this menu will be turned “Off”. These must be reset to “On.” If an option already shows “On” cycle it to “Off” then back to “On.”

6. *NOTE:*

   The deluxe monitor display unit includes a 12 character alpha-numeric message display window, as well as the basic display window.

   For machines with deluxe monitor display unit, turn “S 065” Engine Oil Pressure Sensor option “On.”

   If “S 065” is “On,” Fault Code “F0478” will be displayed in the Diagnostics Menu-Fault Codes (d 01) mode. Clear this fault code; press and hold SELECT for three seconds while fault is displayed.

7. **For machines with basic monitor display unit,** turn Engine Oil Pressure Sensor option “Off.” Machines with basic monitor display unit are equipped with an engine oil pressure switch, so mode must be turned “Off.”

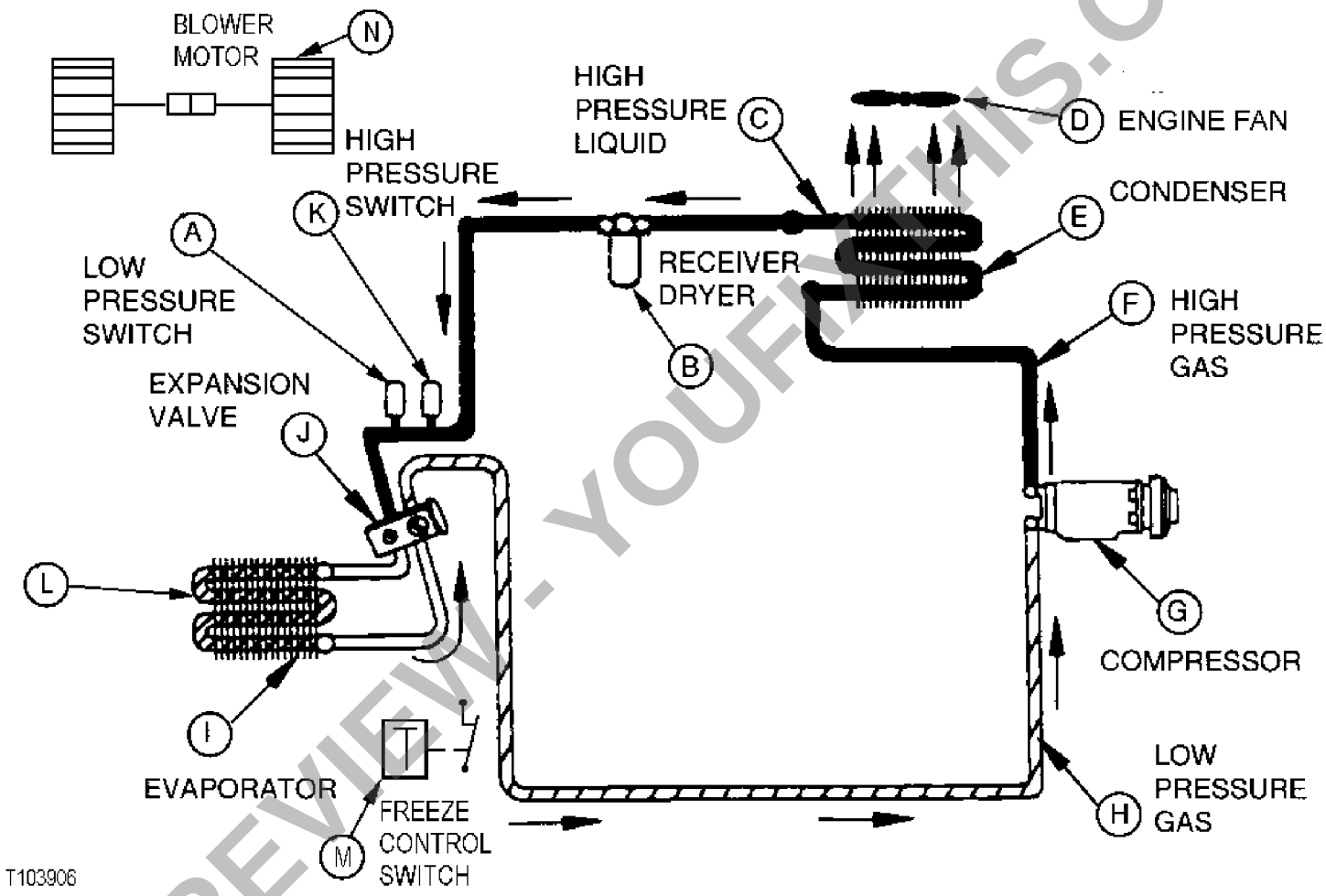
8. *NOTE:*

   When the monitor display unit is reprogrammed after a transmission control unit (TCU) replacement, Fault Code “F1699” may be displayed.

   If Fault Code “F1699” is displayed in the Diagnostics Menu-Fault Codes (d 01) mode, clear the fault. Press and hold SELECT for three seconds while fault is displayed.

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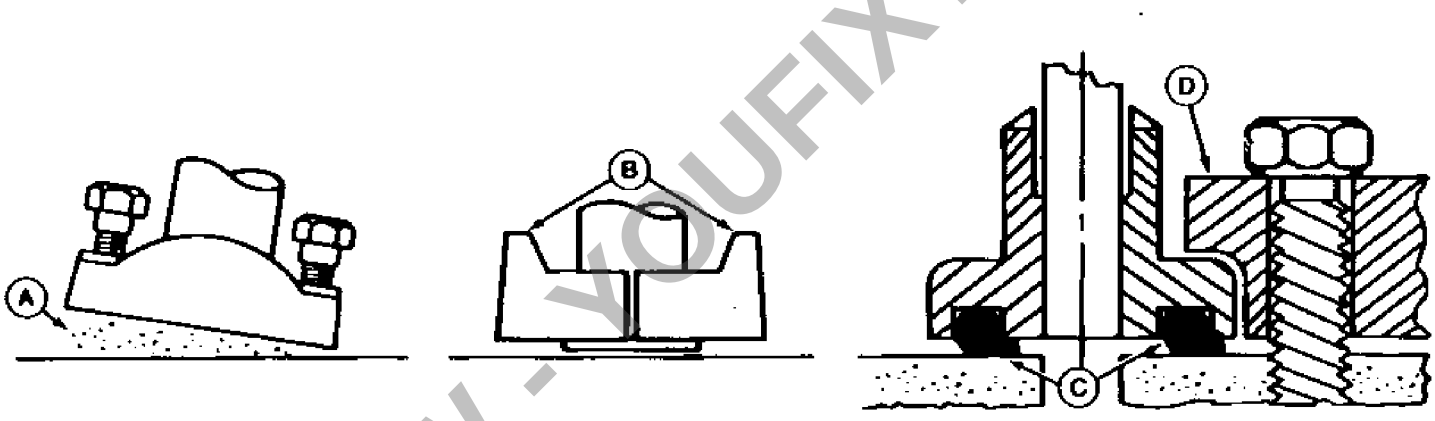
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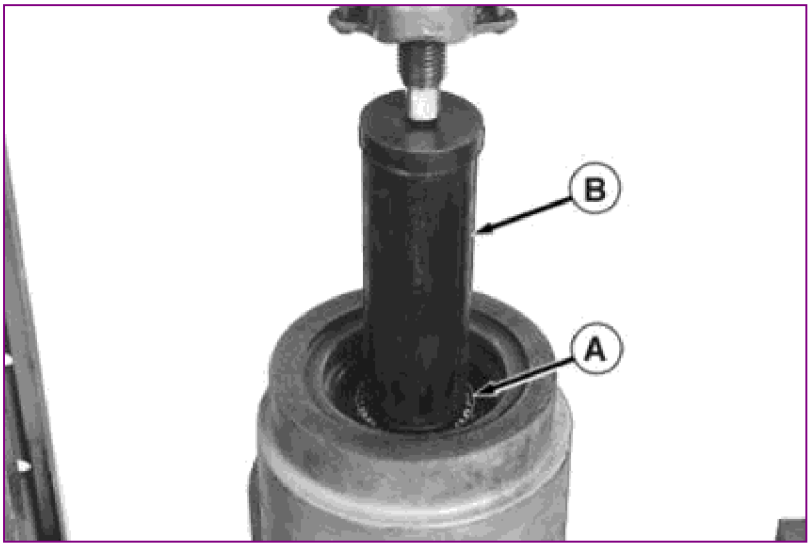
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RW36305-UN: JDG1141-2 Driver

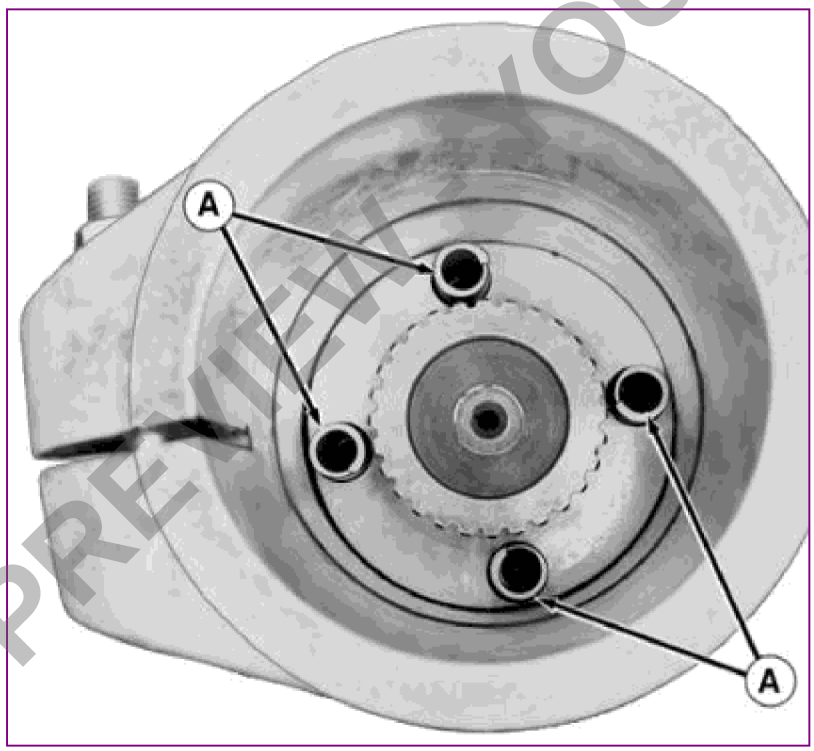
LEGEND:

A - Outer Bearing Cone
B - JDG1141-2 Driver

NOTE:

JDG1141-2 Driver is part of the JDG1141 Bearing Installer Set.

Install the outer bearing cone (A) onto the shaft using JDG1141-2 Driver (B).



RW36300-UN: Collar Engagement Springs

LEGEND:

A - Collar Engagement Spring (2 used)

Install collar engagement springs (A) into disconnect housing.

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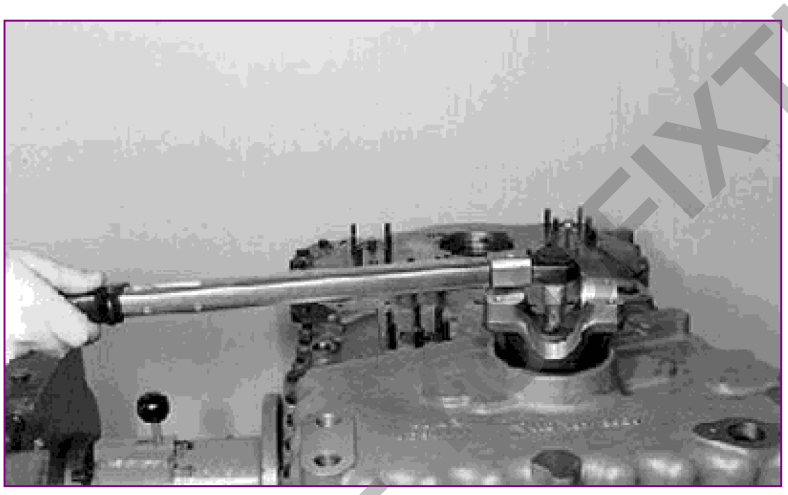
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T109079-UN: Install Shaft Seal

Install shaft seal with the seal lip facing inward, using proper driver. Drive until seated. Do not over drive.

31.



T109080-UN: Heat the Output Flange

Apply TY16021 High Flex Form-in-Place Gasket to contact area of washer.

32. Heat the output flange to maximum temperature.

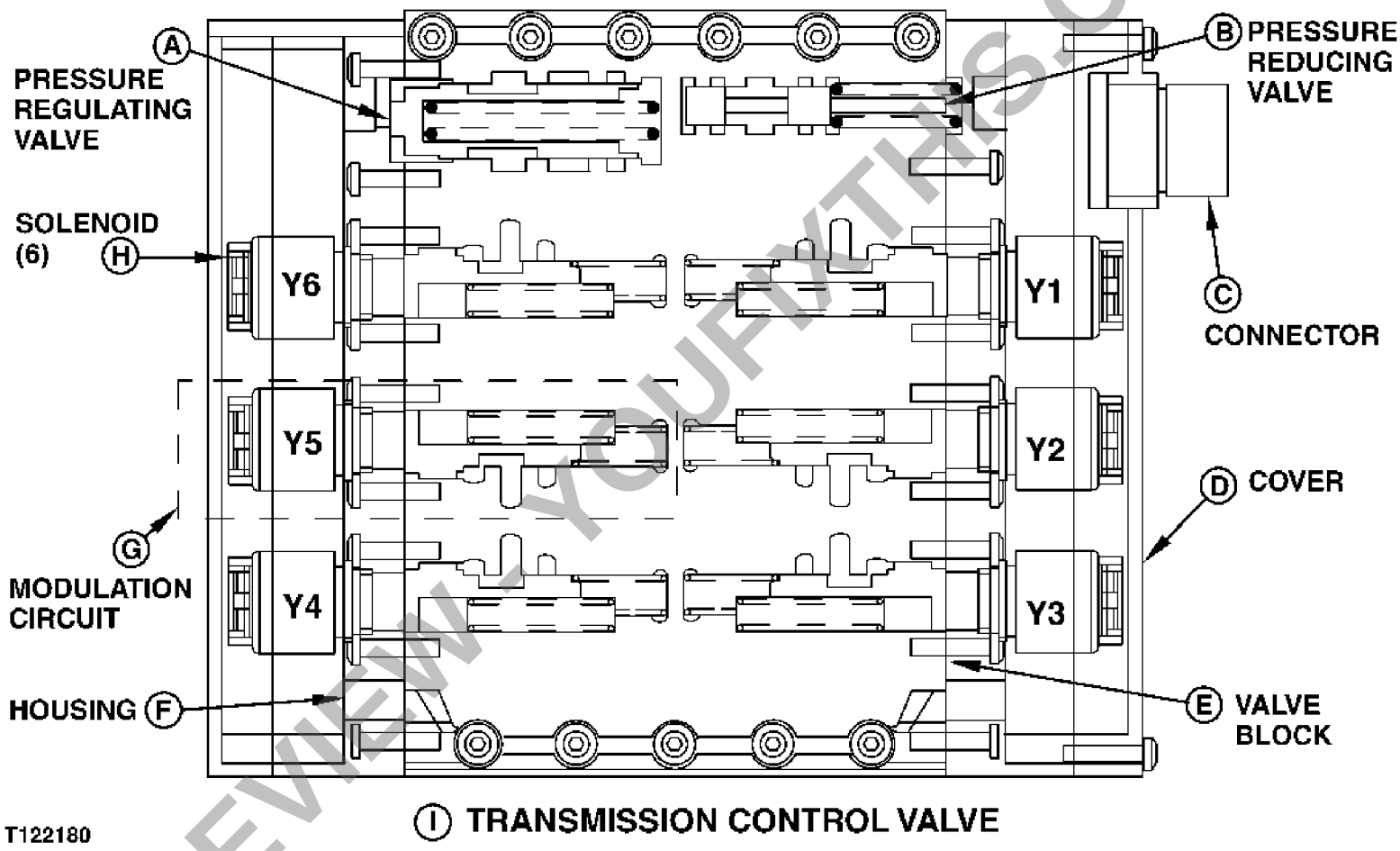
Item	Measurement	Specification
Clutches, Output and Input Shafts:		
Heat Output Flange	Temperature	90°C (194°F)

33. Install flange and washer with cap screws.

Item	Measurement	Specification
Clutches, Output and Input Shafts:		
Output Flange Cap Screw	Torque	34 N·m (25 lb-ft)

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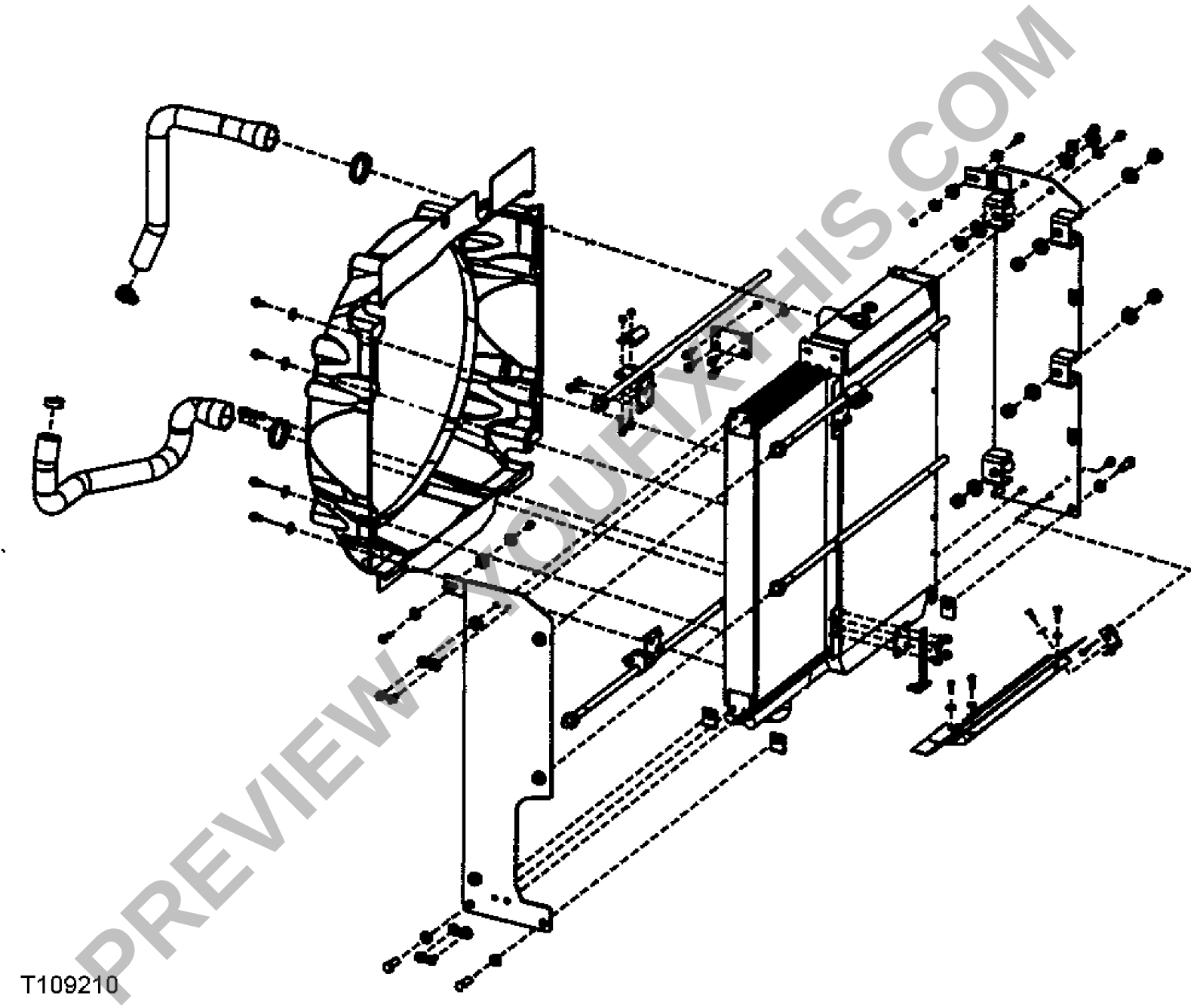
I TRANSMISSION CONTROL VALVE

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Disassembled Radiator/Oil Cooler [T109210]



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tm1605 - 444H, 544H Loader and TC44H, TC54H Tool Carrier Repair Specifications

Specifications

Item	Measurement	Specification
Cab	Weight	771 kg (1700 lb) approximate
Cab Mounting Cap Screw	Torque	1150 N·m (850 lb-ft)

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tm1605 - 444H, 544H Loader and TC44H, TC54H Tool Carrier Repair
Remove and Install Freeze Control Switch

Remove and Install Freeze Control Switch



T103844-UN: Freeze Control Switch

LEGEND:

A - Freeze Control Switch
B - Probe

1. Remove rear cover behind seat.
2. Remove probe (B) of freeze control switch (A) from heater/evaporator coil.
3. Disconnect wire leads from freeze control switch and remove switch from cover.
4. Test freeze control switch. (See Bench Test Freeze Control Switch in this group.)
5. Attach freeze control switch to heater/evaporator coil top cover.
6. Connect wiring leads to freeze control switch.
7. Insert freeze control switch probe into heater/evaporator coil.
8. Install rear cover behind seat.

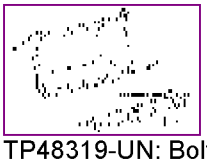
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tm1605 - 444H, 544H Loader and TC44H, TC54H Tool Carrier Repair
Remove and Install Bolt-On Cutting Edges and Wear Plates

Remove and Install Bolt-On Cutting Edges and Wear Plates



TP48319-UN: Bolt-On Cutting Edges

LEGEND:

1 - Nut (12 used)
2 - Cutting Edge (2 used)
3 - Cap Screw (12 used)
4 - Cutting Edge (2 used)

1.

CAUTION:

Use a lifting device for heavy components.



T109256-UN: Bolt-On Wear Plates

LEGEND:

1 - Wear Plate (2 used)
2 - Cap Screw (8 used)
3 - Washer (8 used)
4 - Nut (8 used)

Remove hardware and lift cutting edge from bucket.

Remove hardware from wear plates and install new wear plates and hardware.

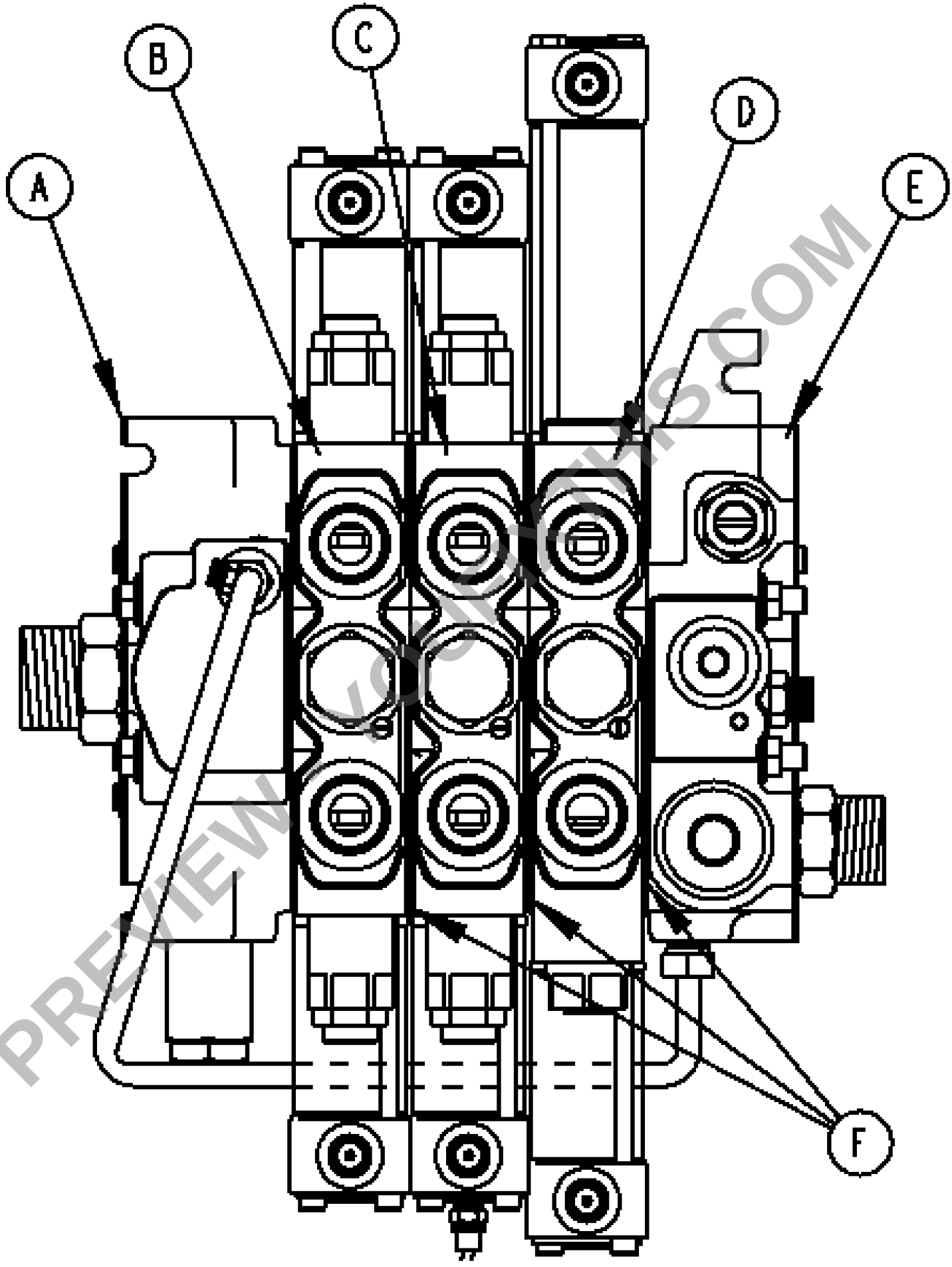
2. To install, hold cutting edge in position and install new hardware.

Item	Measurement	Specification
Bucket:		
Cutting Edge-to-Bucket Cap Screw	Torque	495 N·m (365 lb-ft)
Wear Plates-to-Bucket Cap Screw	Torque	300 N ·m (225 lb-ft)

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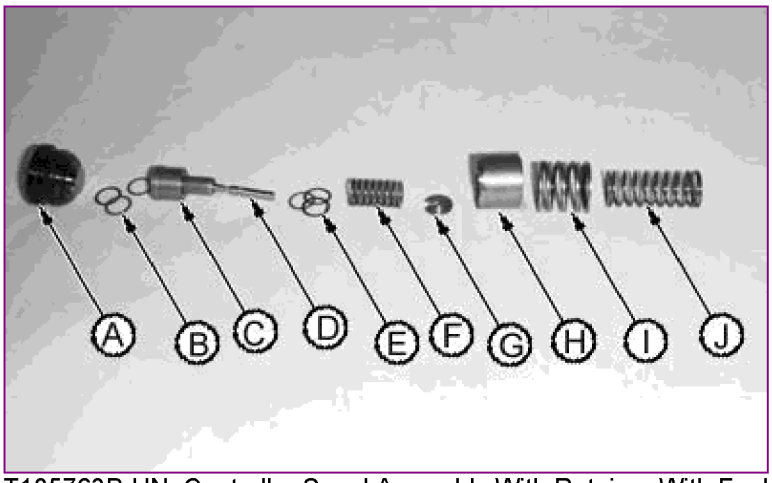


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T105763B-UN: Controller Spool Assembly With Retainer With Feel Position

LEGEND:

A - Retainer (With Seals)
B - Shims (Spool Positioning)
C - Guide (Spring)
D - Spool
E - Shims (Metering Adjustment)
F - Spring (Spool)
G - Retainer Plate (Spool Spring)
H - Feel Assembly
I - Spring (Feel Position)
J - Spring (Return)

Remove spool assembly and springs (B, C, D, E, F, G, I, and J). If equipped remove feel position assembly (H).

8. Inspect and replace parts as necessary

9. Apply KRYTOX™ GPL202 fluorinated grease to sliding surfaces of adjuster sleeves and push bar top where it contacts the adjusting screw.

10. Install spool assembly and retainer in same bores if using existing parts.

11. Install retainers and (coils if equipped).

12. Install lever housing assembly onto valve housing. Note index marks scribed when disassembly for proper alignment to proper ports. Tighten four allen screws to 8.5 N·m (75 lb-in.)

Item	Measurement	Specification
Pilot Controller Lever Hosing-to-Valve Housing Allen Screw	Torque	8.5 N·m (75 lb-in.)

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