130G Excavator Repair

(PIN: 1FF130GX_ _F040608—)

REPAIR TECHNICAL MANUAL

130G Excavator (PIN: 1FF130GX_ _ F040608—)

TM13348X19 23APR18 (ENGLISH)

Worldwide Construction And Forestry Division
PRINTED IN U.S.A.

Inspect Machine

Inspect machine carefully each day by walking around it before starting.

Keep all guards and shields in good condition and properly installed. Fix damage and replace worn or broken parts immediately. Pay special attention to hydraulic hoses and electrical wiring.

T6607AQ —UN—15APR13

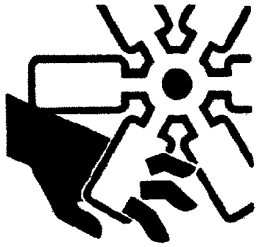
TX,INSPECT -19-08SEP10-1/1

Stay Clear of Moving Parts

Entanglements in moving parts can cause serious injury.

Stop engine before examining, adjusting, or maintaining any part of machine with moving parts.

Keep guards and shields in place. Replace any guard or shield that has been removed for access as soon as service or repair is complete.



T133592 —UN—15APR13

TX,MOVING,PARTS -19-20JAN11-1/1

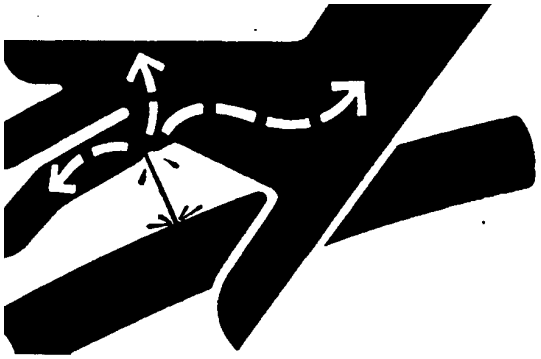
Avoid High-Pressure Fluids

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high-pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.



X9811 —UN—23AUG88

DX,FLUID -19-06OCT16-1/1

Travel Safely

When working on steep slopes, travel as straight up and down as possible to prevent roll-over.

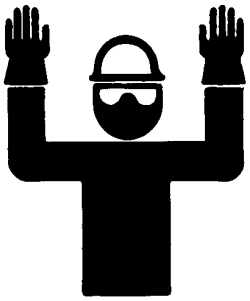
DO NOT PARK ON A HILLSIDE OR AN INCLINE.

Always park the machine on level ground.

Know the location of bystanders before moving the machine.

Always keep the reverse warning alarm in working condition. The alarm warns bystanders when the machine starts to move in reverse.

Use a signal person when moving the machine in congested areas. Coordinate hand signals before starting the machine.



T6964AD —UN—20DEC88

Travel Safely

CN93077,00000B3 -19-01JUL15-1/1

Prevent Acid Burns

Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

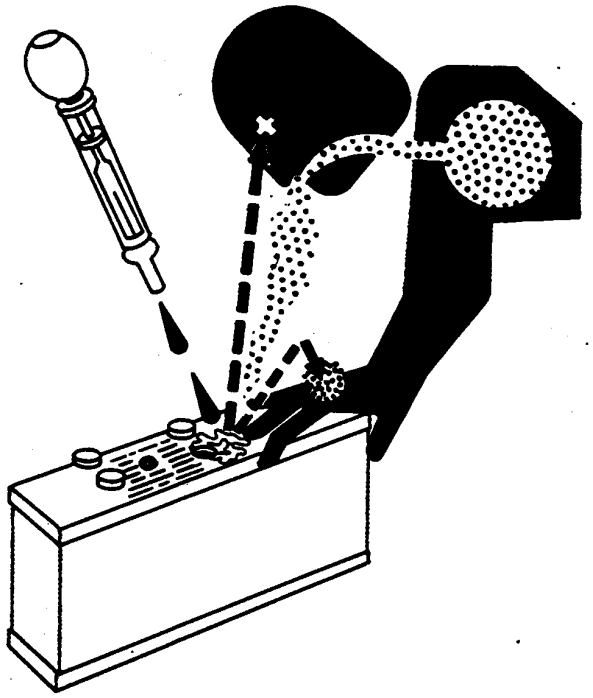
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 15—30 minutes. Get medical attention immediately.

If acid is swallowed:

1. Do not induce vomiting.
2. Drink large amounts of water or milk, but do not exceed 2 L (2 quarts).
3. Get medical attention immediately.



TS203 —UN—23AUG88

DX,POISON -19-21APR93-1/1

Add and Operate Attachments Safely

Always verify compatibility of attachments by contacting your authorized dealer. Adding unapproved attachments could affect machine stability or reliability and could create a hazard for others near the machine.

Ensure that a qualified person is involved in attachment installation. Add guards to machine if operator protection is required or recommended. Verify that all connections are secure and attachment responds properly to controls.

Carefully read attachment manual and follow all instructions and warnings. In an area free of bystanders and obstructions, carefully operate attachment to learn its characteristics and range of motion.

TX,ATTACH -19-20JAN11-1/1

Service Recommendations for Flat Face O-Ring Seal Fittings

1. Inspect the fitting sealing surfaces and O-ring. They must be free of dirt or defects.
2. Lubricate O-rings and install into grove using petroleum jelly to hold in place.
3. Index angle fittings and tighten by hand pressing joint together to ensure O-ring remains in place.
4. Tighten fitting or nut to torque value shown on the chart. Do not allow hoses to twist when tightening fittings, use backup wrench on straight hose couplings.

IMPORTANT: Tighten fittings to 150% of listed torque value if indexing is necessary or if fitting is attached to an actuating devise.

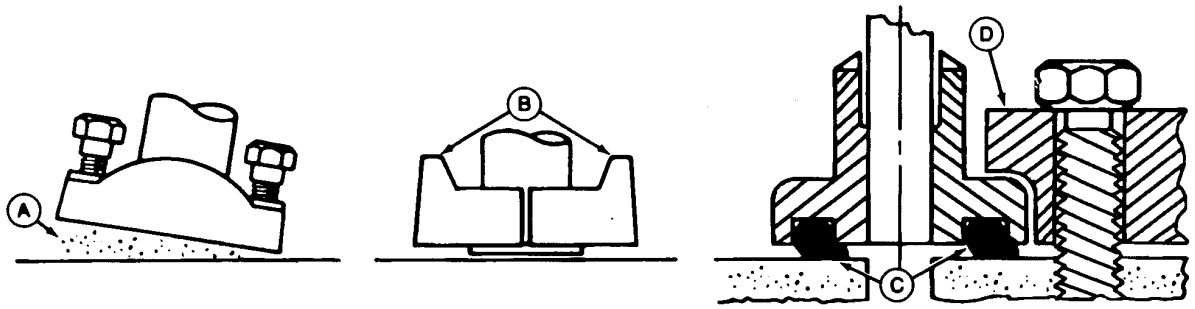
Tighten fittings to 50% of listed torque value if used in aluminum housing.

FLAT FACE O-RING SEAL FITTING TORQUE*						
Nominal Tube OD		Thread Size	Swivel Nut		Bulkhead Nut	
mm	in	in	N·m	lb·ft	N·m	lb·ft
6.35	0.250	9/16-18	16	12	12	9
9.52	0.375	11/16-16	24	18	24	18
12.70	0.500	13/16-16	50	37	46	34
15.88	0.625	1-14	69	51	62	46
19.05	0.750	1-3/16-12	102	75	102	75
22.22	0.875	1-3/16-12	102	75	102	75
25.40	1.000	1-7/16-12	142	105	142	105
31.75	1.250	1-11/16-12	190	140	190	140
38.10	1.500	2-12	217	160	217	160
*Torque tolerance is +15 -20% unless otherwise specified.						

Stud End O-ring Seal Torque for Straight and Adjustable Fittings*				
Thread Size	Straight Hex Size	Locknut Hex Size	Straight Fitting or Locknut Toque	
in	in	in	N·m	lb·ft
3/8-24	5/8	9/16	12	9
7/16-20	5/8	5/8	21	15
1/2-20	3/4	11/16	26	19
9/16-18	3/4	3/4	34	25
3/4-16	7/8	15/16	73	55
7/8-14	1-1/16	1-1/16	104	76
1-1/16-12	1-1/4	1-3/8	176	130
1-3/16-12	1-3/8	1-1/2	230	170
1-5/16-12	1-1/2	1-5/8	285	210
*Torque tolerance is +15 -20% unless otherwise specified.				

OUO6092,00010A4 -19-04MAR16-1/1

Service Recommendations For Inch Series Four Bolt Flange Fittings



T6890BB —UN—15APR13

Flange Fittings

A—Sealing Surface
B—Split Flange
C—Pinched O-Ring
D—Single Piece Flange

1. Clean sealing surfaces (A). Inspect. Scratches cause leaks. Roughness causes seal wear. Out-of-flat causes seal extrusion. If defects cannot be polished out, replace component.
2. Install O-ring (and backup washer if required) into groove using petroleum jelly to hold it in place.
3. Split flange: Loosely assemble split flange (B) halves. Make sure split is centrally located and perpendicular to port. Hand tighten cap screws to hold parts in place. Do not pinch O-ring (C).
4. Single piece flange (D): Place hydraulic line in center of flange and install cap screws. Flange must be centrally located on port. Hand tighten cap screws to hold flange in place. Do not pinch O-ring.
5. Tighten one cap screw, then tighten the diagonally opposite cap screw. Tighten two remaining cap screws. Tighten all cap screws as specified in the chart below.

   DO NOT use air wrenches. DO NOT tighten one cap screw fully before tightening the others. DO NOT over tighten.

TORQUE CHART

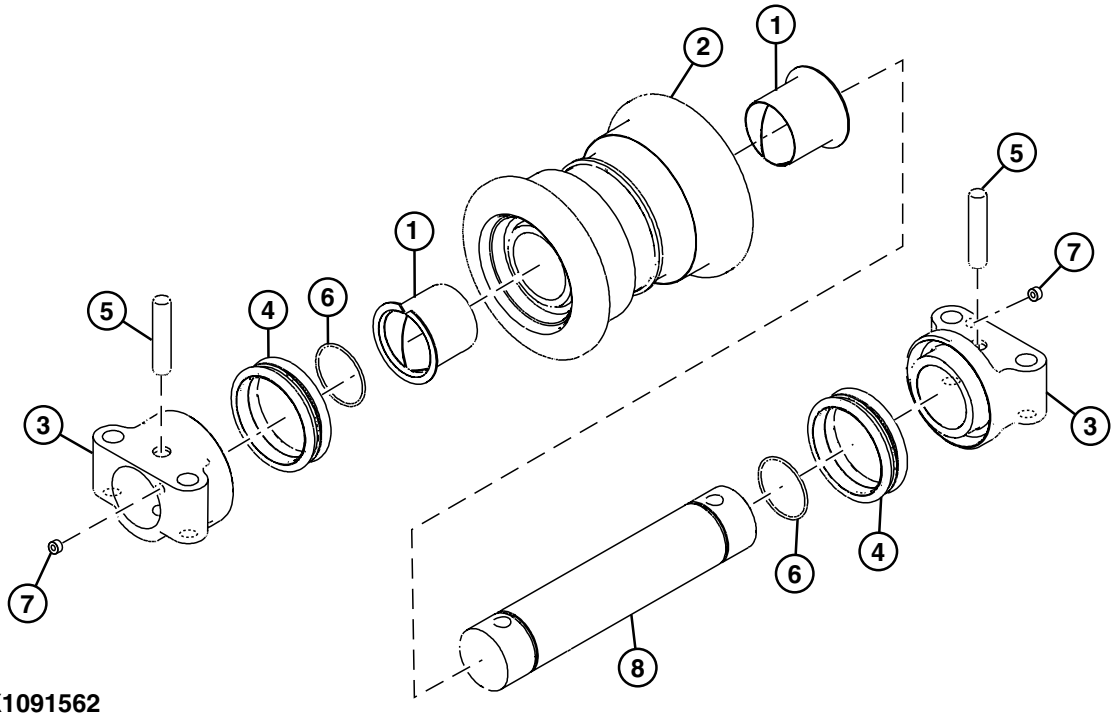
		N·m		lb·ft	
Nominal Flange Size	**Cap Screw Size**	**Min**	**Max**	**Min**	**Max**
1/2	5/16-18 UNC	20	31	15	23
3/4	3/8-16 UNC	28	54	21	40
1	3/8-16 UNC	37	54	27	40
1-1/4	7/16-14 UNC	47	85	35	63
1-1/2	1/2-13 UNC	62	131	46	97
2	1/2-13 UNC	73	131	54	97
2-1/2	1/2-13 UNC	107	131	79	97
3	5/8-11 UNC	158	264	117	195
3-1/2	5/8-11 UNC	158	264	117	195
4	5/8-11 UNC	158	264	117	195
5	5/8-11 UNC	158	264	117	195

04T,90,K174 -19-01AUG94-1/1

Track Roller Disassemble and Assemble

SPECIFICATIONS	
Lower Track Roller Capacity	200 mL 6.8 fl oz
Fill Plug Torque	30 N·m 22 lb·ft

OTHER MATERIAL
NEVER-SEEZ® Anti-Seize Lubricant
Loctite® Klean 'N Prime™ Primer
Loctite® 592™ PST® Thread Sealant (slow cure)



TX1091562

TX1091562 —UN—03JUN11

Track Roller Components

1— Bushing (2 used)
2— Roller
3— Bracket (2 used)
4— Metal Face Seal (2 used)
5— Pin (2 used)
6— O-Ring (2 used)
7— Plug (2 used)
8— Axle

1. Remove plugs (7) and drain oil.
2. Remove pins (5).
3. Remove brackets (3).

NOTE: Metal face seals can be reused if they are not worn or damaged. A used seal must be kept together as a set because of wear patterns on seal ring face.

4. Remove metal face seals (4) from roller and bracket. Keep seal rings together as a matched set with seal ring faces together to protect surfaces.

NOTE: For seals that are reused, insert a piece of cardboard between seal rings to protect seal face.

5. Inspect metal face seals. See Metal Face Seals Repair. (Group 0130.)
6. Remove axle (8) and O-rings (6).

NOTE: Bushings should only be removed if replacement is necessary.

7. If necessary, remove bushings (1) using a press.
8. Inspect and replace parts as necessary. See 130G Track Roller Tread Diameter. (SP326VOL1 Undercarriage Appraisal Manual.)
9. Apply a thin film of oil to new bushings. Install bushings so flange is tight against shoulder of idler.

IMPORTANT: Avoid damage to metal face seals. Metal face seals and seat surfaces must be clean, dry, and oil free so they do not slip when roller is turning.

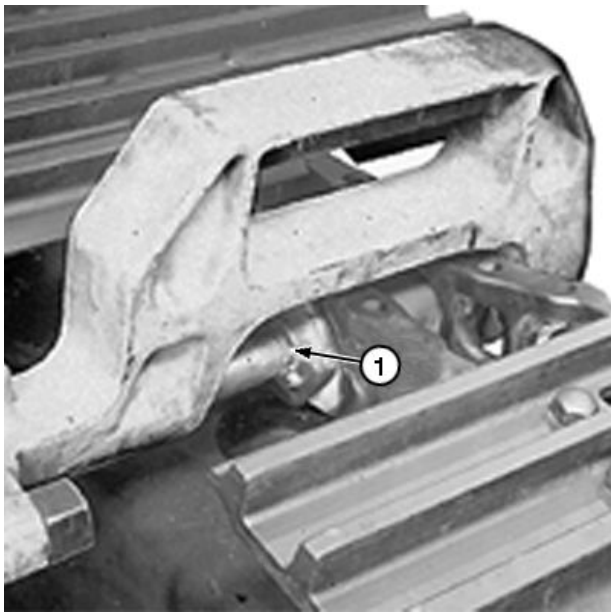
NOTE: A volatile, non-petroleum base solvent or talcum powder may be used as a lubricant.

10. Thoroughly clean seat surfaces in idler, brackets, and metal face seals using volatile, non-petroleum base solvent and lint-free tissues.

Continued on next page

14. Remove master pin (1) using 50-ton track press.

1— Master Pin

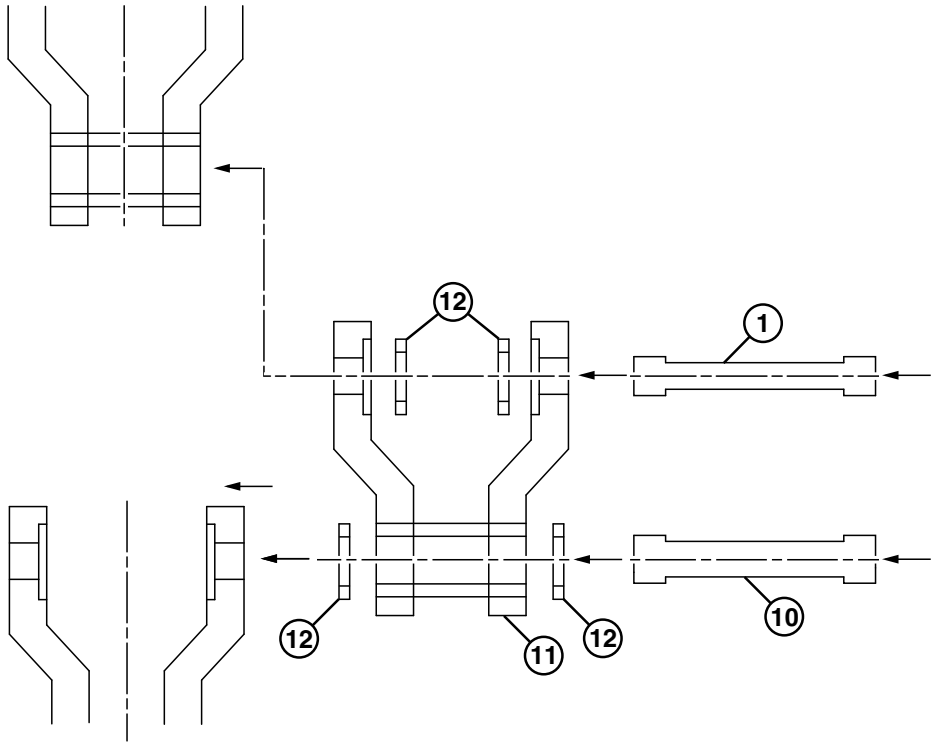


TX1098806A —UN—27SEP11

Master Pin Removal Using Track Press

Continued on next page

JB51320,00000A3 -19-19OCT15-7/8



TX1098003 —UN—16SEP11

TX1098003

Track Link Assembly

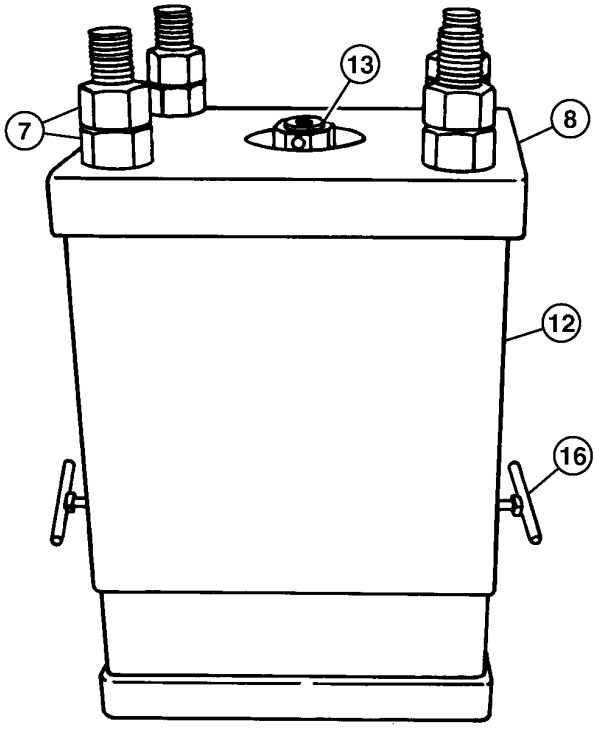
1— Replacement Track Pin
10— Replacement Track Pin
11— Replacement Track Link Assembly
12— Collar (4 used)

8. Install replacement track link assembly (11) and collars (12).
9. Install replacement track pin (10).
10. Install replacement track pin (1).
11. Install three track shoes surrounding damaged area. See Track Shoe Remove and Install. (Group 0130.)

BG71631,0000252 -19-12JUL12-6/6

16. Raise upper half of DFT1087 Track Recoil Spring Disassembly and Assembly Guard Tool and tighten T-handles (16).
17. Extend 20-ton hydraulic jack ram to release pressure on nut (13).
18. Remove nut (13).
19. Lower 20-ton hydraulic jack ram to release recoil spring tension.
20. Remove nuts (7), top plate, and DFT1087 Track Recoil Spring Disassembly and Assembly Guard Tool.

7— Nut (8 used)
8— Top Plate
12— DFT1087 Track Recoil Spring Disassembly and Assembly Guard Tool
13— Nut
16— T-Handles



TX1123092 —UN—25SEP12

DFT1087 Track Recoil Spring Disassembly and Assembly Guard Tool

Continued on next page

MM16284,0001E75 -19-30NOV15-5/7

1. Remove travel gear case. See Travel Gear Case Remove and Install. (Group 0250.)

Specification

Travel Gear Case Assembly—Weight (approximate)	230 kg 507 lb

2. Drain gear oil. See Drain and Refill Travel Gear Case Oil. (Operator's Manual.)
3. Place travel gear case assembly on workbench with travel motor (20) side facing down.
4. Apply alignment marks at mating positions of cover (17), ring gear (15), and drum (24).
5. Remove cap screws (18) and cover.
6. Apply alignment marks at mating positions and remove shaft (14), spacer (13), and first stage planetary carrier (12) from ring gear (15).
7. Apply alignment marks at mating positions and remove spring pins (9), pin fasteners (8), thrust plates (29), needle bearings (7), and planetary gears (6) from first stage planetary carrier (12).
8. Apply alignment marks at mating positions and remove second stage sun gear (11) from second stage planetary carrier (10).

CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

9. Install JT01748 Lifting Brackets to ring gear. Apply alignment marks at mating positions. Remove cap screws (23) and ring gear.

Specification

Ring Gear—Weight (approximate)	34 kg 75 lb

CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

10. Using ST0916 Lifting Tool, remove second stage planetary carrier (10) from drum (24).

Specification

Second Stage Planetary Carrier—Weight (approximate)	30 kg 66 lb

11. Apply alignment marks at mating positions and remove spring pins (5), pin fasteners (4), thrust plates (1), needle bearings (2), and planetary gears (3) from second stage planetary carrier (10).
12. Remove bearing nut (27) using DFT1036A Travel Gear Case Nut Wrench and DFT1109 Holding Bar. See DFT1036A Travel Gear Case Nut Wrench and see DFT1109 Holding Bar. (Group 9900.)

CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

13. Remove drum and sprocket assembly using JT01748 Lifting Brackets.

Specification

Drum and Sprocket Assembly—Weight (approximate)	63 kg 139 lb
Drum—Weight (approximate)	25 kg 55 lb

IMPORTANT: Avoid damage to metal face seal. Seal must be kept together as a set because of wear patterns. Metal face seal can be reused if seal is not worn or damaged.

14. Remove and inspect metal face seal (21).

NOTE: Further disassembly is not necessary unless bearing replacement is required. Bearing will be destroyed during removal and must be replaced with a new bearing.

15. Inspect tapered roller bearings (22) and races inside drum (24).

CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

16. Using appropriate lifting device, remove cap screws (26) and sprocket (25).

Specification

Sprocket—Weight (approximate)	38 kg 84 lb

17. Clean, inspect, and replace parts as necessary.

Continued on next page

CAUTION: Prevent possible injury from components under pressure. Park brake piston (6) may come out quickly with considerable force. Use only regulated air pressure and stand clear of brake piston when removing.

9. Carefully apply specified air pressure to brake release passage (29) to remove park brake piston (6).

Specification	
Specified Air—Pressure	100—300 kPa 1—3 bar 15—44 psi

IMPORTANT: Prevent possible damage due to improper handling. Position piston with seating surface facing up.

10. Remove O-rings (5 and 7) from brake piston.
11. Remove plates (8) and friction plates (9) from park brake housing (28).

IMPORTANT: Pistons (15) must be installed into the same bores because of wear patterns. Mark location of pistons with respect to bores for proper assembly.

12. Remove rotor (19), springs (18), bushing (17), retainer (16), and pistons (15).
13. Inspect parts for wear or damage. Compare to specification.

Specification	
Disc Spring—Height	6.40—6.50 mm 0.252—0.256 in
Friction Plate—Height	2.35—2.40 mm 0.093—0.094 in
Plate—Height	1.35—1.40 mm 0.053—0.055 in

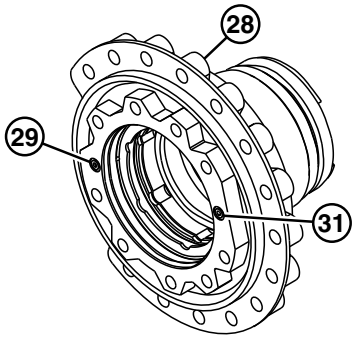
CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

IMPORTANT: Prevent possible damage due to improper handling. Prevent swash plate (14) from falling out while park brake housing is positioned horizontally.

14. Using appropriate lifting device, position housing with brake release oil passage facing downward.

Specification	
Park Brake Housing—Weight (approximate)	38 kg 84 lb

15. Remove swash plate (14). If swash plate can not be easily removed, apply air pressure to piston oil passage (31). Cover pistons (13) with cloth to prevent ejection.



TX1205243 —UN—09NOV15

Travel Motor and Park Brake Housing

28— Park Brake Housing
29— Brake Release Passage
31— Piston Oil Passage

Specification	
Specified Air—Pressure	100—300 kPa 1—3 bar 15—44 psi

16. Remove pistons (13) and balls (12) using a magnet.
17. Remove retaining ring (23).
18. Remove shaft and roller bearing (24) from housing.
19. Remove and discard oil seal (25).
20. Remove retaining ring (30) and roller bearing from shaft.
21. Repair or replace parts as necessary.
22. Using appropriate lifting device, position park brake housing (28) with park brake valve (2) mounting surface facing up.
23. Apply multipurpose grease to lip of oil seal and apply Loctite® 277™ Threadlocker (high strength) to outer surface of oil seal.
24. Install oil seal using D01044AA Bushing, Bearing, and Seal Driver Set.
25. Install roller bearing to shaft using D01044AA Bushing, Bearing, and Seal Driver Set. Install retaining rings (23 and 30).
26. Apply multipurpose grease to balls (12). Install balls into housing.
27. Install pistons (13) to housing with stepped side facing inside.

IMPORTANT: Prevent damage to surface of shaft during installation. Surface damage of shaft may cause damage to needle bearing inner race. Wrap tape around shaft during installation of components.

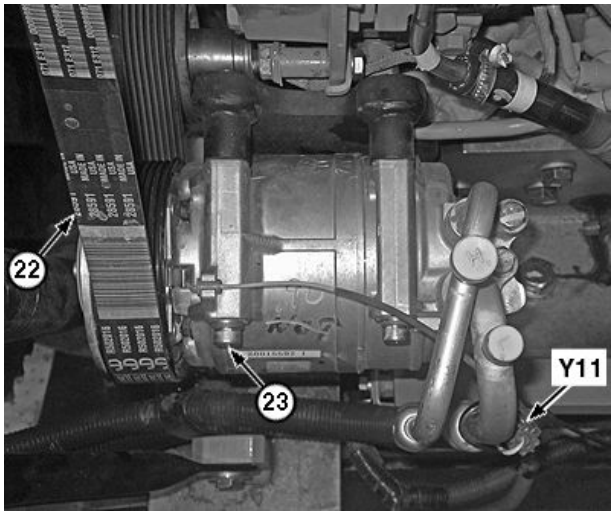
28. Install shaft and roller bearing assembly into housing.

Continued on next page

MM16284,0001E7C -19-11DEC15-4/5

NOTE: It is not necessary to evacuate air conditioning system during engine removal.

16. Install identification tags and disconnect air conditioner compressor clutch (Y11) connector. See Machine Harness (W2) Component Location. (Group 9015-10.)
17. Remove serpentine belt (22). See Inspect Serpentine Belt. (Operator's Manual.)
18. Remove cap screws (23) and set air conditioner compressor aside.
19. Remove dosing injector. See Diesel Exhaust Fluid (DEF) Dosing Injector Remove and Install. (Group 0530.)
20. Remove decomposition tube. See Diesel Exhaust Fluid (DEF) Decomposition Tube Remove and Install. (Group 0530.)
21. Remove exhaust tube. See Exhaust Tube Remove and Install. (Group 0530.)
22. Remove diesel particulate filter (DPF). See Diesel Particulate Filter (DPF) Remove and Install. (Group 0530.)
23. Remove selective catalyst reduction (SCR). See Selective Catalyst Reduction (SCR) Remove and Install. (Group 0530.)



TX1115636A —UN—13JUN12

Air Conditioner Compressor

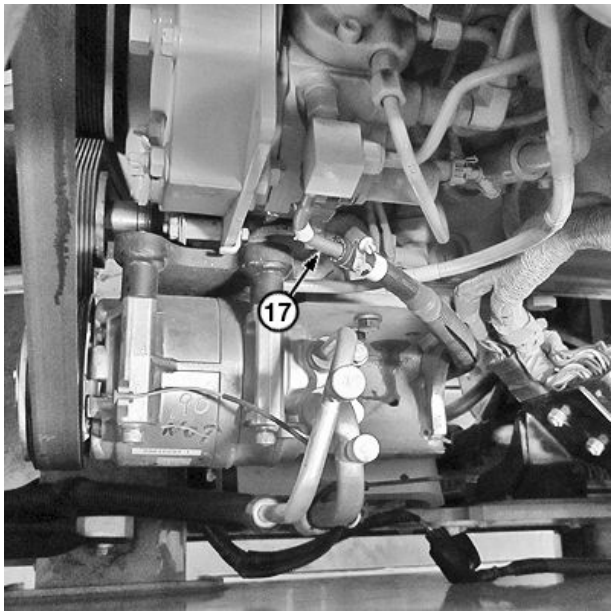
22— Serpentine Belt
23— Cap Screw (4 used)
Y11— Air Conditioner Compressor Clutch

JB51320,00000B1 -19-15JAN18-4/11

IMPORTANT: Prevent possible fuel spill. On machines without a fuel shutoff valve, install clamp on fuel hose to prevent the release of fuel.

24. Install clamp on fuel supply hose (17). Install identification tags and disconnect fuel supply hose. Close all openings using caps and plugs.

17— Fuel Supply Hose



TX1115621A —UN—13JUN12

Fuel Supply Hose

Continued on next page

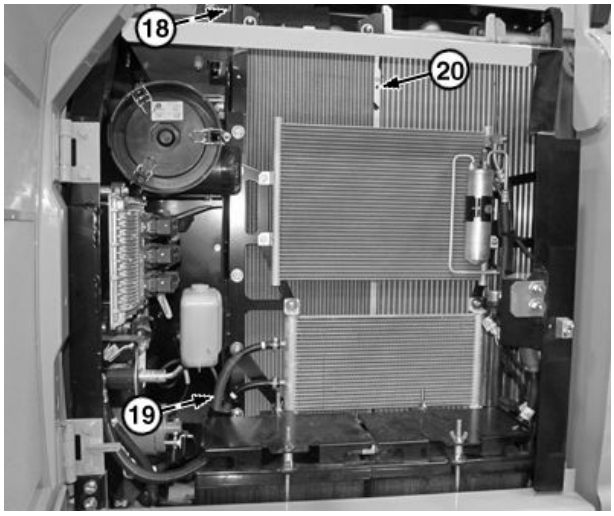
JB51320,00000B1 -19-15JAN18-5/11

10. Remove cap screws (18 and 19) and radiator (20).
11. Repair or replace parts as necessary.

INSTALLATION

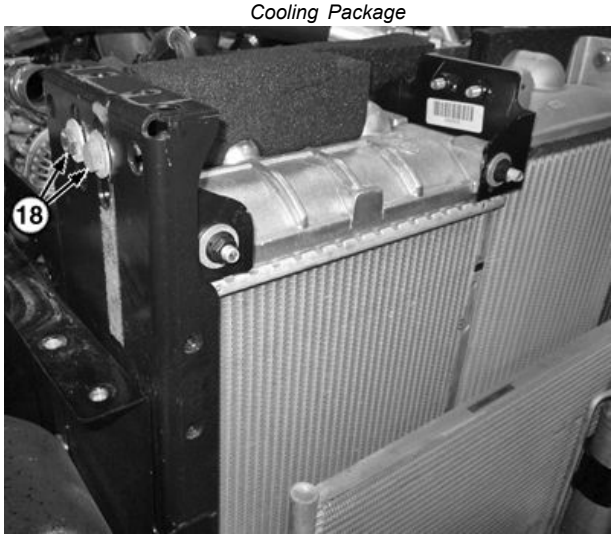
Installation is reverse of removal procedure.

18— Cap Screw (2 used)
19— Cap Screw (2 used)
20— Radiator



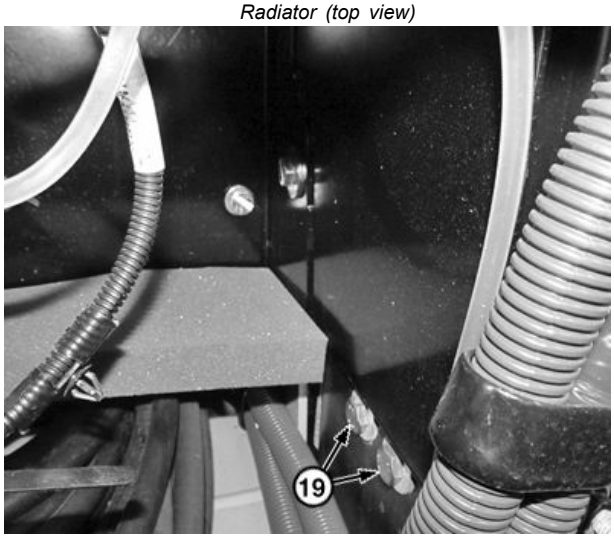
TX1205763A —UN—19NOV15

Cooling Package



TX1205764A —UN—19NOV15

Radiator (top view)



TX1205765A —UN—19NOV15

Radiator (bottom view)

JB51320,00000B3 -19-10DEC15-4/4

Exhaust Tube Remove and Install

SPECIFICATIONS	
Exhaust Tube Clamp Torque	20 N·m 177 lb·in

1. Park and prepare machine for service safely. See Park and Prepare for Service Safely. (Group 0001.)

IMPORTANT: Avoid machine damage. After turning key switch to OFF position, only turn battery disconnect switch to OFF position when indicator light no longer illuminates.

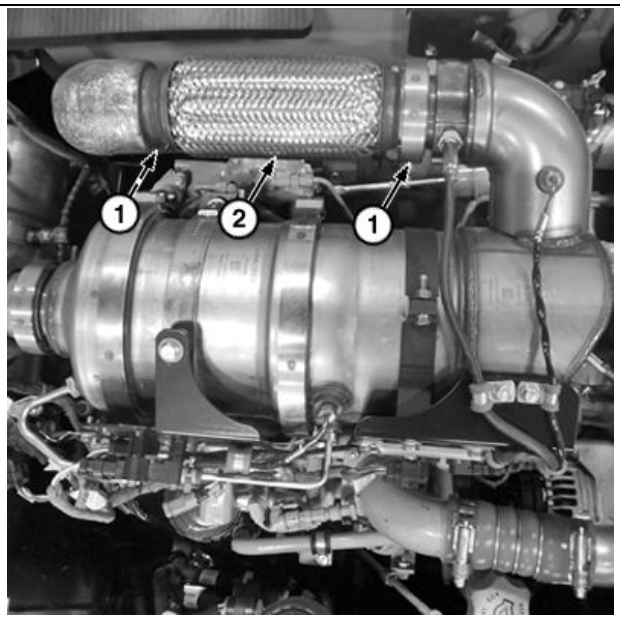
2. Turn battery disconnect switch to OFF position. See Battery Disconnect Switch. (Operator's Manual.)
3. Remove clamps (1) and exhaust tube (2).
4. Inspect and replace parts as necessary.
5. Install exhaust tube and clamps.

IMPORTANT: The life of the exhaust bellows is dependant on being properly aligned. If not aligned correctly, the life of the exhaust bellows will significantly decrease and may risk unfiltered exhaust into the atmosphere.

6. Perform exhaust bellows alignment procedure. See Exhaust Bellows Alignment Procedure. (Group 0530.)
7. Tighten exhaust tube clamps to specification.

Specification

Exhaust Tube
Clamp—Torque.....20 N·m
177 lb·in



Exhaust Tube

TX1203954A —UN—27OCT15

1— Clamp (2 used) **2— Exhaust Tube**

8. Turn battery disconnect switch to ON position. See Battery Disconnect Switch. (Operator's Manual.)
9. Operate machine and check for leaks.

DB95148,00023E7 -19-23NOV15-1/1

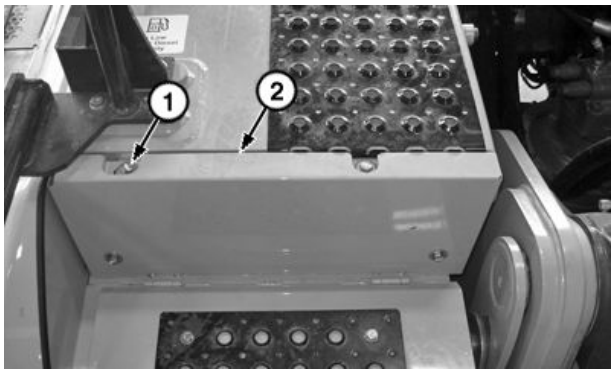
Diesel Exhaust Fluid (DEF) Tank Remove and Install

SPECIFICATIONS	
Diesel Exhaust Fluid (DEF) Tank Capacity (S.N. —041330)	26.7 L 7.1 gal
Diesel Exhaust Fluid (DEF) Tank Capacity (S.N. 041331—)	24.6 L 6.5 gal
Toolbox Weight (approximate)	32 kg 71 lb
Diesel Exhaust Fluid (DEF) Tank Cover Weight (approximate)	34 kg 75 lb

1. Park and prepare machine for service safely. See Park and Prepare for Service Safely. (Group 0001.)
2. Drain or pump diesel exhaust fluid (DEF) from DEF tank into approved container.

Specification	
Diesel Exhaust Fluid (DEF) Tank—Capacity (S.N. —041330)	26.7 L 7.1 gal
Diesel Exhaust Fluid (DEF) Tank—Capacity (S.N. 041331—)	24.6 L 6.5 gal

3. Remove cap screws (1) and top cover (2).



TX1165844A —UN—22JUL14

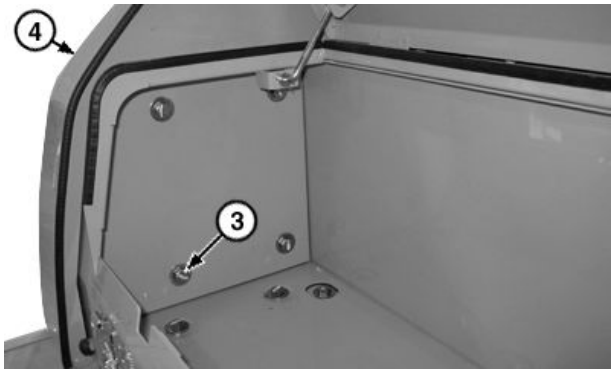
Top Cover

1— Cap Screw (4 used) **2— Top Cover**

TW62213,0000483 -19-19OCT17-1/9

4. Remove cap screws (3) and side cover (4).

3— Cap Screw (4 used) **4— Side Cover**



TX1165845A —UN—18AUG14

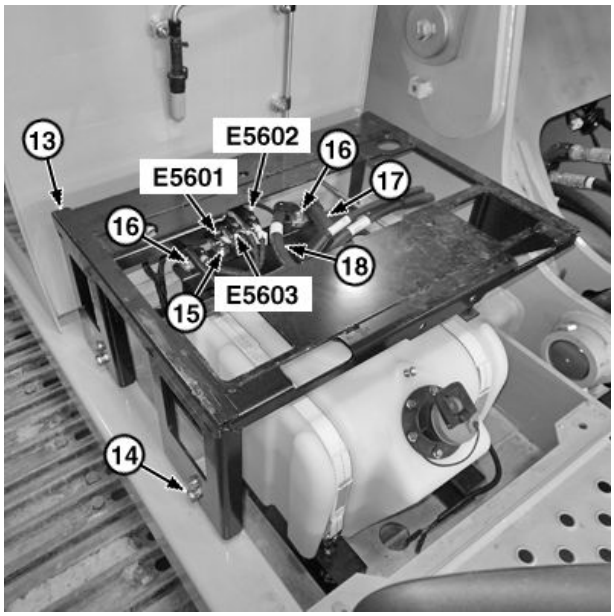
Side Cover

Continued on next page

TW62213,0000483 -19-19OCT17-2/9

12. Remove cap screws (14) and bracket (13).
13. Install identification tags and disconnect heater connectors (E5601—E5603).
14. Remove cap screws (15) and electrical connectors.
15. Remove cap screws (16) and set coolant lines (17 and 18) aside.

13— Bracket
14— Cap Screw (6 used)
15— Cap Screw (3 used)
16— Cap Screw (2 used)
17— Coolant Line
18— Coolant Line
E5601—Diesel Exhaust Fluid (DEF) Unit Pressure Line Heater
E5602—Diesel Exhaust Fluid (DEF) Unit Supply Line Heater
E5603—Diesel Exhaust Fluid (DEF) Unit Return Line Heater



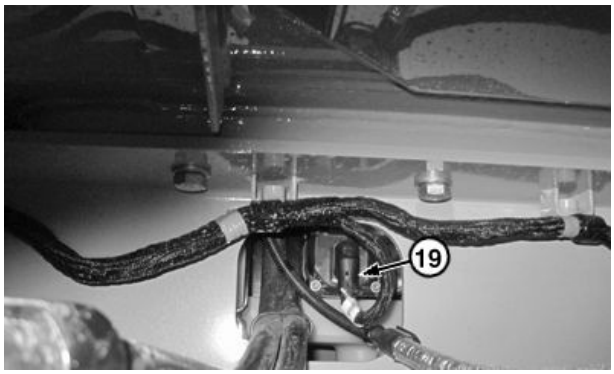
TX1197481A —UN—15JUL15

Diesel Exhaust Fluid (DEF) Dosing Unit

DB95148,00023F1 -19-30NOV15-6/10

16. Disconnect electrical connector (19).

19— Electrical Connector



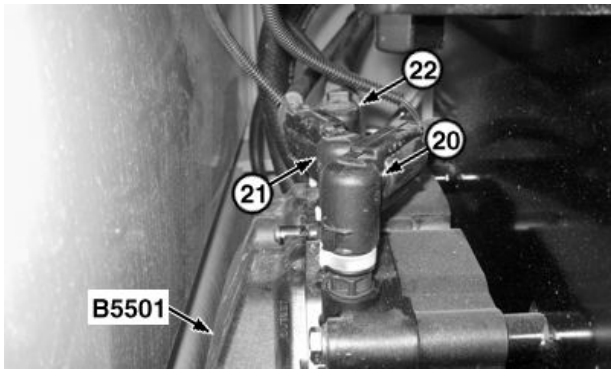
TX1166569A —UN—29JUL14

Electrical Connector (bottom)

DB95148,00023F1 -19-30NOV15-7/10

17. Install identification tags and disconnect DEF lines (20—22) from DEF dosing unit (B5501). Close all openings using caps and plugs.

20— Diesel Exhaust Fluid (DEF) Line
21— Diesel Exhaust Fluid (DEF) Line
22— Diesel Exhaust Fluid (DEF) Line
B5501—Diesel Exhaust Fluid (DEF) Dosing Unit



TX1166570A —UN—29JUL14

Diesel Exhaust Fluid (DEF) Lines

Continued on next page

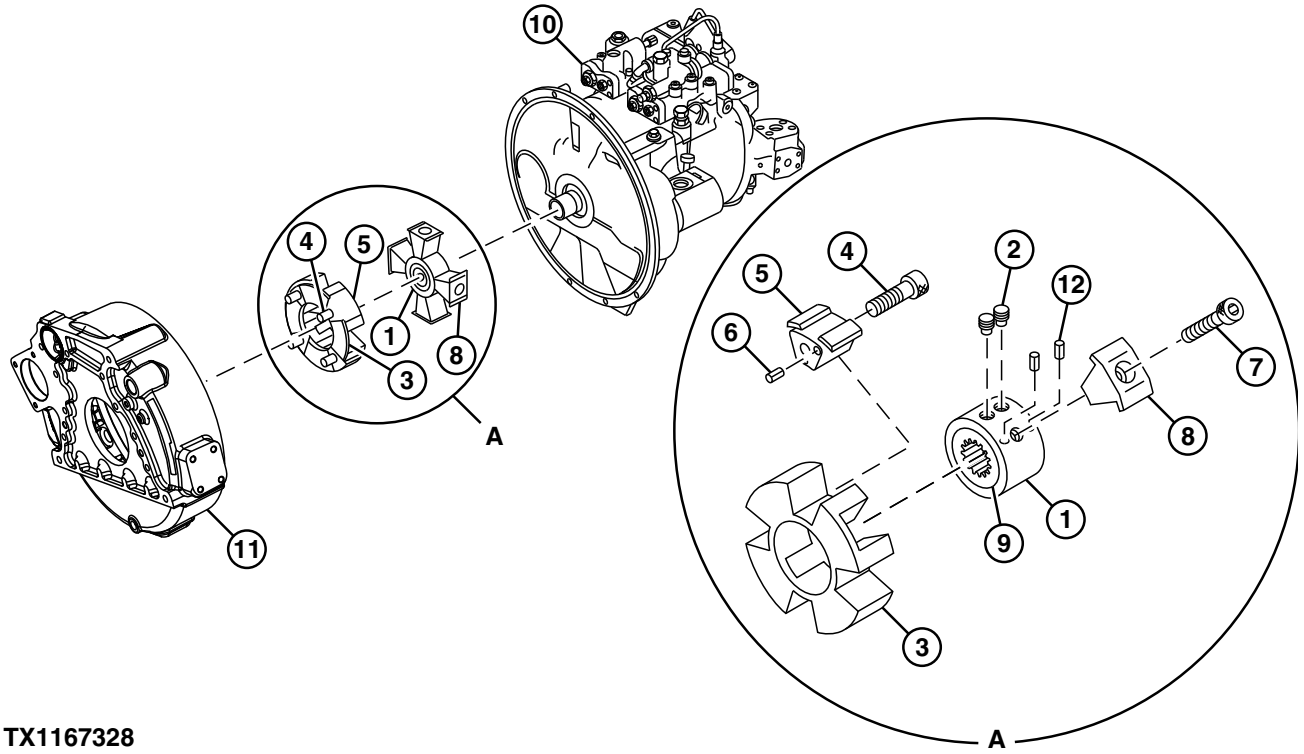
DB95148,00023F1 -19-30NOV15-8/10

Damper Drive (Flex Coupling) Remove and Install

OTHER MATERIAL
Loctite® 242® Threadlocker (medium strength)

SPECIFICATIONS	
Coupling-to-Flywheel Cap Screw Torque	220 N·m 162 lb·ft
Spline Hub-to-Pump Shaft Set Screw Torque	50 N·m 37 lb·ft
Coupling-to-Spline Hub Cap Screw Torque	220 N·m 162 lb·ft

1. Park and prepare machine for service safely. See Park and Prepare for Service Safely. (Group 0001.)



TX1167328

Damper Drive (flex coupling)

1— Spline Hub
2— Set Screw (2 used)
3— Coupling
4— Cap Screw (4 used)
5— Flywheel Insert (4 used)
6— Flywheel Guide Pin (4 used)
7— Cap Screw (4 used)
8— Hub Insert (4 used)
9— Groove Mark
10— Hydraulic Pump
11— Flywheel Housing
12— Hub Guide Pin (8 used)
A—Damper Drive (flex coupling)

NOTE: Coupling (3) may come off with pump or stay on flywheel.

2. Remove hydraulic pump (10). See Pump 1 and 2 Remove and Install. (Group 3360.)

Loctite and its related brand marks are trademarks of Henkel Corporation

Continued on next page

JL58967,0000144 -19-27JUL15-1/2

Cab Remove and Install

SPECIFICATIONS	
Cooling System Capacity	23.5 L 6.2 gal
Hydraulic Oil Tank Capacity	69 L 18.2 gal
Cab Weight (approximate)	658 kg 1451 lb
Cab Mount Cap Screw Torque	550 N·m 406 lb·ft
Cab Isolator Lock Nut Torque	206 N·m 152 lb·ft
100-Pin Connector (X3) Cap Screw Torque	10 N·m 89 lb·in

1. Park and prepare machine for service safely. See Park and Prepare for Service Safely. (Group 0001.)

IMPORTANT: Avoid machine damage. After turning key switch to OFF position, only turn battery disconnect switch to OFF position when indicator light no longer illuminates.

2. Turn battery disconnect switch to OFF position. See Battery Disconnect Switch. (Operator's Manual.)

CAUTION: Prevent possible injury. Explosive release of fluids from pressurized cooling system can cause serious burns. Shut off engine. Remove filler cap when cool to touch. Slowly loosen filler cap to relieve the pressure, then remove.

3. Drain cooling system. See Drain Cooling System. (Operator's Manual.)

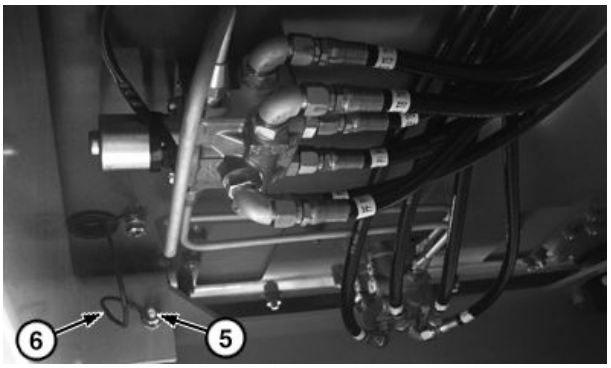
Specification

Cooling System—Capacity..... 23.5 L
6.2 gal

CAUTION: Avoid personal injury from high-pressure fluid. High-pressure release of hydraulic oil from pressurized system can cause serious burns or penetrating injury. Relieve pressure from hydraulic system before servicing.

4. Release hydraulic oil tank pressure by pressing pressure release button at top of hydraulic oil tank. See Hydraulic Oil Tank Pressure Release Procedure. (Group 9025-25.)

5. Apply vacuum or drain hydraulic oil tank. See Apply Vacuum to Hydraulic Oil Tank. (Group 3360.) See Drain and Refill Hydraulic Tank Oil. (Operator's Manual.)



TX1169482A —UN—27AUG14

Electrical Connectors

5— Cap Screw (4 used)

6— Electrical Connector (4 used)

Specification

Hydraulic Oil Tank—Capacity..... 69 L
18.2 gal

6. Remove cap screws (5) and disconnect electrical connectors (6).

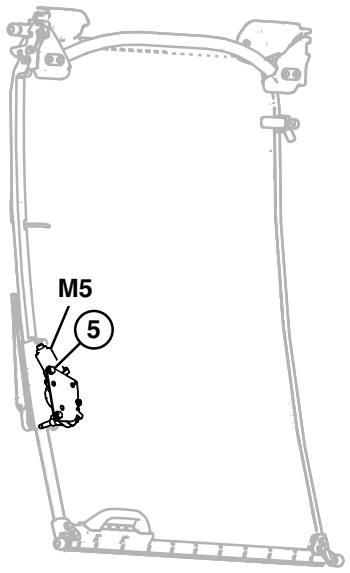
7. Recover refrigerant from air conditioning system. See Recover R134a Refrigerant. (Group 1830.)

Continued on next page

SA65494,0000099 -19-04DEC15-1/13

3. Remove cap screws (5) and windshield wiper motor (M5).

5— Cap Screw (2 used) **M5—Windshield Wiper Motor**



TX1097953 —UN—16SEP11

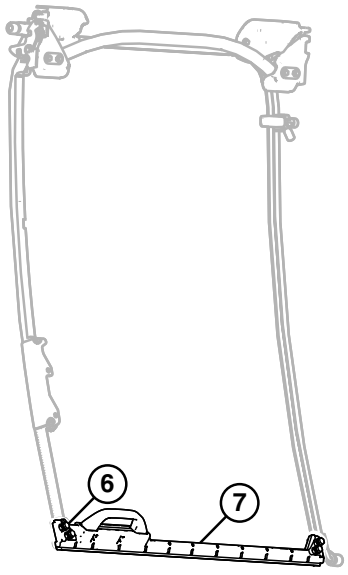
Windshield Wiper Motor

JS20420,0001353 -19-21AUG15-3/9

IMPORTANT: Avoid windshield damage. Isolator (7) is attached to windshield with adhesive. Avoid too much pressure to windshield when removing isolator from windshield.

4. Remove cap screws (6) and isolator (7).

6— Cap Screw (4 used) **7— Isolator**

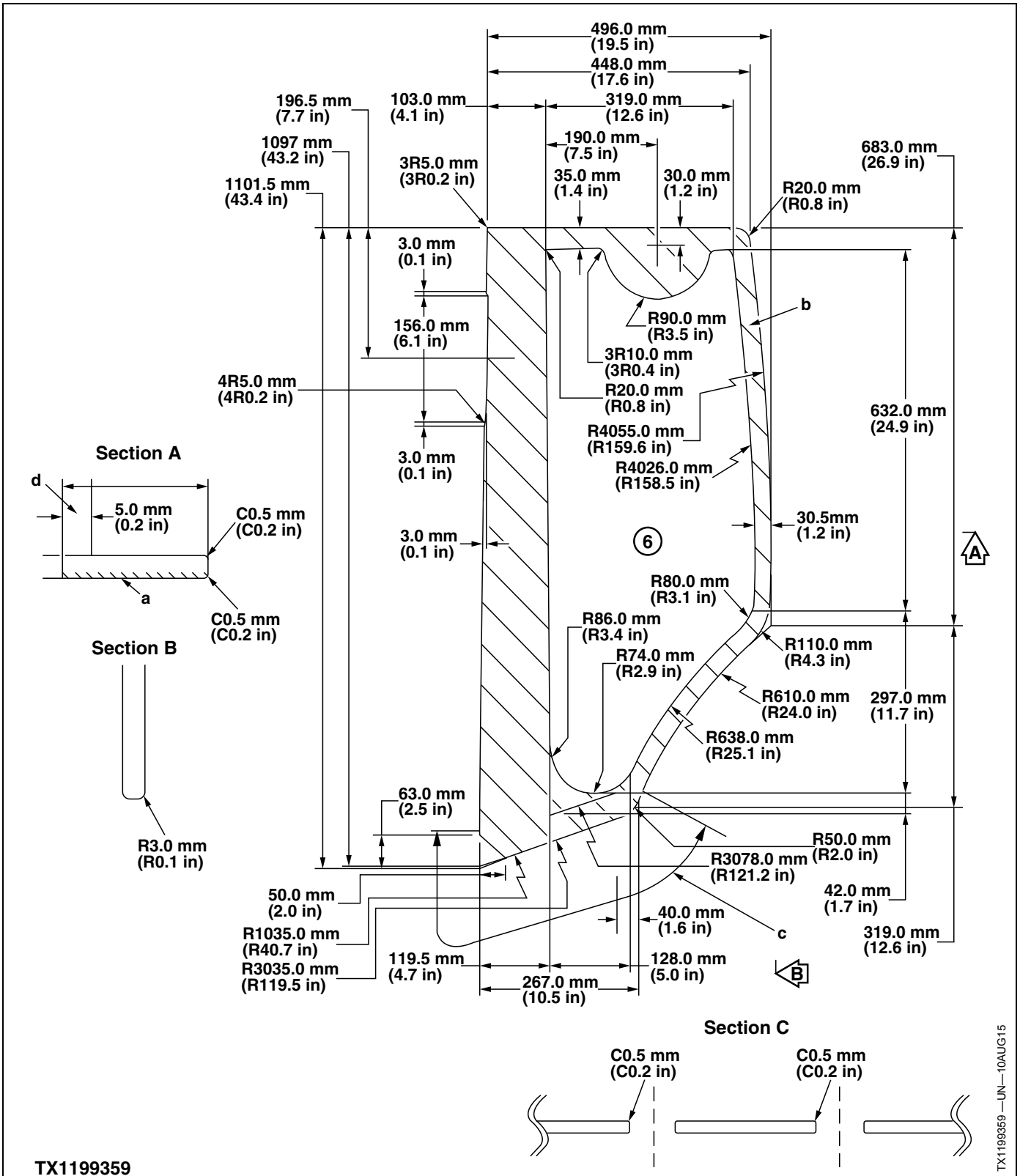


TX1097954 —UN—16SEP11

Isolator

Continued on next page

JS20420,0001353 -19-21AUG15-4/9



Rear Left Side Glass

6— Rear Left Side Glass
a— Black Ceramic Painted Surface
b— Black Ceramic Painted Range
c— Chamfer Here
d— Shaded Paint Along Periphery

Continued on next page

DS35042,0000522 -19-10AUG15-7/9

Seat and Seat Belt

1— T4 Upper Seat Assembly
2— Back Rest Cover
3— Back Rest Foam
4— Bottom Seat Cover
5— Bottom Seat Foam
6— Seat Frame
7— Seat Spring (4 used)
8— Seat Directional Handle (2 used)
9— Seat Height Riser
10— Air Lumber Support
11— Up Stop Bump Stop Kit
12— 51 Suspension Kit
13— Fore and Aft Adjuster Kit
14— Damper Kit
15— Weight Adjuster Kit
16— Suspension Cover
17— Lever and Center Pivot
18— Tether Strap (2 used)
19— Headrest
20— Adjustment Cable
21— Bearing Kit

MD03584,000006A -19-04SEP12-2/2

R134a Refrigerant Cautions and Proper Handling

SERVICE EQUIPMENT AND TOOLS
Refrigerant Identifier

CAUTION: DO NOT allow liquid refrigerant to contact eyes or skin. Liquid refrigerant will freeze eyes or skin on contact. Wear goggles, gloves, and protective clothing.

If liquid refrigerant contacts eyes or skin, DO NOT rub the area. Splash large amounts of COOL water on affected area. Go to a physician or hospital immediately for treatment.

DO NOT allow refrigerant to contact open flames or very hot surfaces such as electric welding arc, electric heating element, and lighted smoking materials.

DO NOT heat refrigerant over 52°C (125°F) in a closed container. Heated refrigerant will develop high pressure which can burst the container.

Keep refrigerant containers away from heat sources. Store refrigerant in a cool place.

DO NOT handle damp refrigerant container with bare hands. Skin may freeze to container. Wear gloves.

If skin freezes to container, pour COOL water over container to free the skin. Go to a physician or hospital immediately for treatment.

IMPORTANT: To meet government standards relating to the use of refrigerants, R134a is used in the air conditioning system. Because it does not contain chlorine, R134a is not detrimental to the ozone in the atmosphere. However, it is illegal to discharge any refrigerant into the atmosphere. It must be recovered using the appropriate recovery stations.

Use correct refrigerant recovery, recycling, and charging stations. Do not mix refrigerants, hoses, fittings, components, or refrigerant oils.

Use only John Deere approved R134a refrigerant products. Mixing of products not compatible will cause system damage and contaminate recovery, recycling, and charging station equipment. Care must be taken to identify and use equipment, refrigerant oil, and refrigerant designed only for R134a refrigerant systems. Refrigerant should be tested for type and purity before recovery, recycling, or charging of system. Refrigerant identifier should be used before any testing or repair to system is performed.

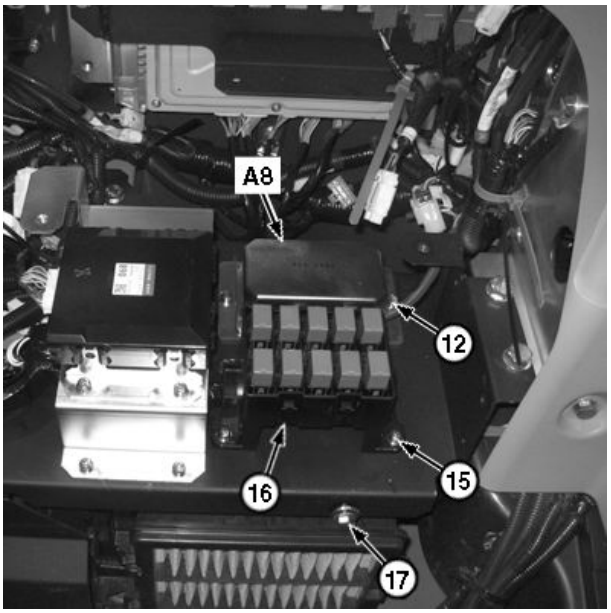
AS79221,00005A0 -19-03MAR16-1/2

Refrigerant Identifier	Used to safely and correctly identify type and check purity of refrigerant prior to recovery, recycling, and charging of air conditioning systems.

AS79221,00005A0 -19-03MAR16-2/2

10. Remove cap screws (12) and set 12-volt power converter (A8) aside.
11. Remove cap screws (15 and 17).

12— Cap Screw (2 used)
15— Cap Screw (4 used)
16— Relay Block
17— Cap Screw (3 used)
A8—12-Volt Power Converter



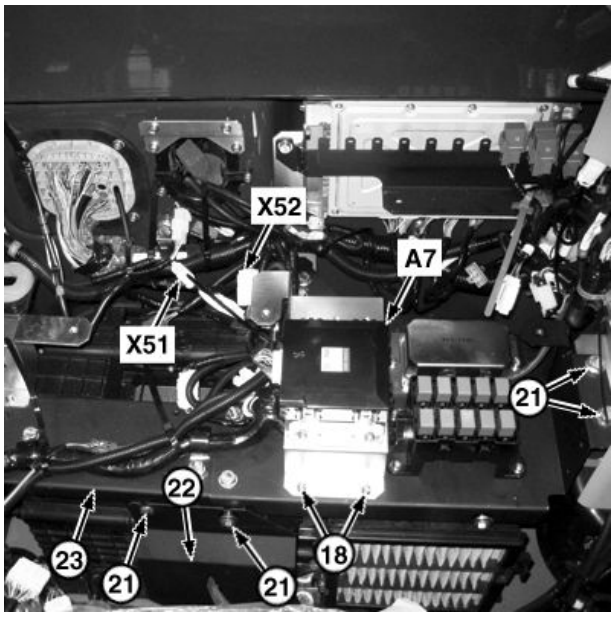
TX1125662A —UN—09NOV12

Heater and Air Conditioner Connections

JB51320,00000E0 -19-12OCT15-3/6

12. Remove cap screws (18) and set air conditioner controller (ACF) (A7) aside. See Cab Harness (W1) Component Location. (Group 9015-10.)
13. Install identification tags and disconnect air conditioner 4-pin connector (X51) and air conditioner 10-pin connector (X52). See Heater and Air Conditioner Harness (W41) Component Location. (Group 9015-10.)
14. Remove cap screws (21), cover (22), and panel (23).

18— Cap Screw (4 used)
21— Cap Screw (7 used)
22— Cover
23— Panel
A7—Air Conditioner Controller (ACF)
X51— Air Conditioner 4-Pin Connector
X52— Air Conditioner 10-Pin Connector



TX1126671A —UN—27NOV12

Heater and Air Conditioner Panel

Continued on next page

JB51320,00000E0 -19-12OCT15-4/6

Bucket Remove and Install

For additional information, see Bucket Remove and Install. (Operator's Manual.)

BE78919,000073D -19-01FEB18-1/1

Adjust Bucket Pivot End Play

SPECIFICATIONS	
Bucket Pivot Bushing-to-Arm Clearance (as close to but not less than)	0.5 mm 0.020 in

1. Park and prepare machine for service safely. See Park and Prepare for Service Safely. (Group 0001.)
2. Remove nuts (2) and cap screw (1).
3. Measure clearance between bushing and arm. Adjust clearance to specification.

Specification

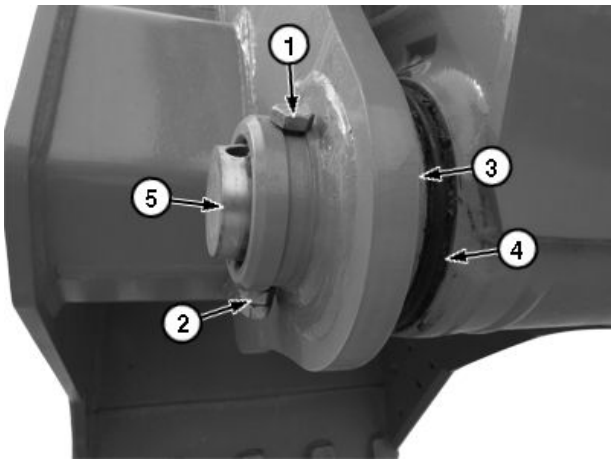
Bucket Pivot Bushing-to-Arm—Clearance (as close to but not less than)..... 0.5 mm
0.020 in

NOTE: Alternate buckets may have different adjustment procedures.

4. Slide pin (5) out of bucket to edge of seal (4).
5. Inspect bushings and seals. See Inspect Pins, Bushings, and Bosses—Front Attachment and see Bushings and Seal Remove and Install. (Group 3340.)
6. Remove or add shims (3) on each side of joint to get a minimal amount of clearance. There must be some clearance in the joint.
7. Push pin back into place. Align pin bores and install cap screw.

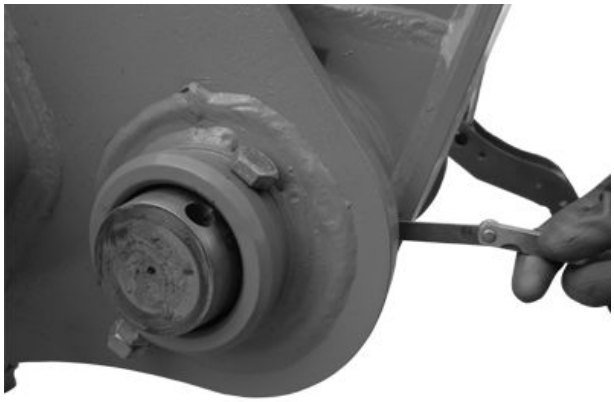
IMPORTANT: Avoid possible damage to pins. Cap screws must be free to turn in hole to allow movement of pins. Tighten nuts against each other, not against retainer.

8. Install cap screw and tighten nuts against each other.



TX1113143A —UN—27APR12

Bucket Pivot Shims

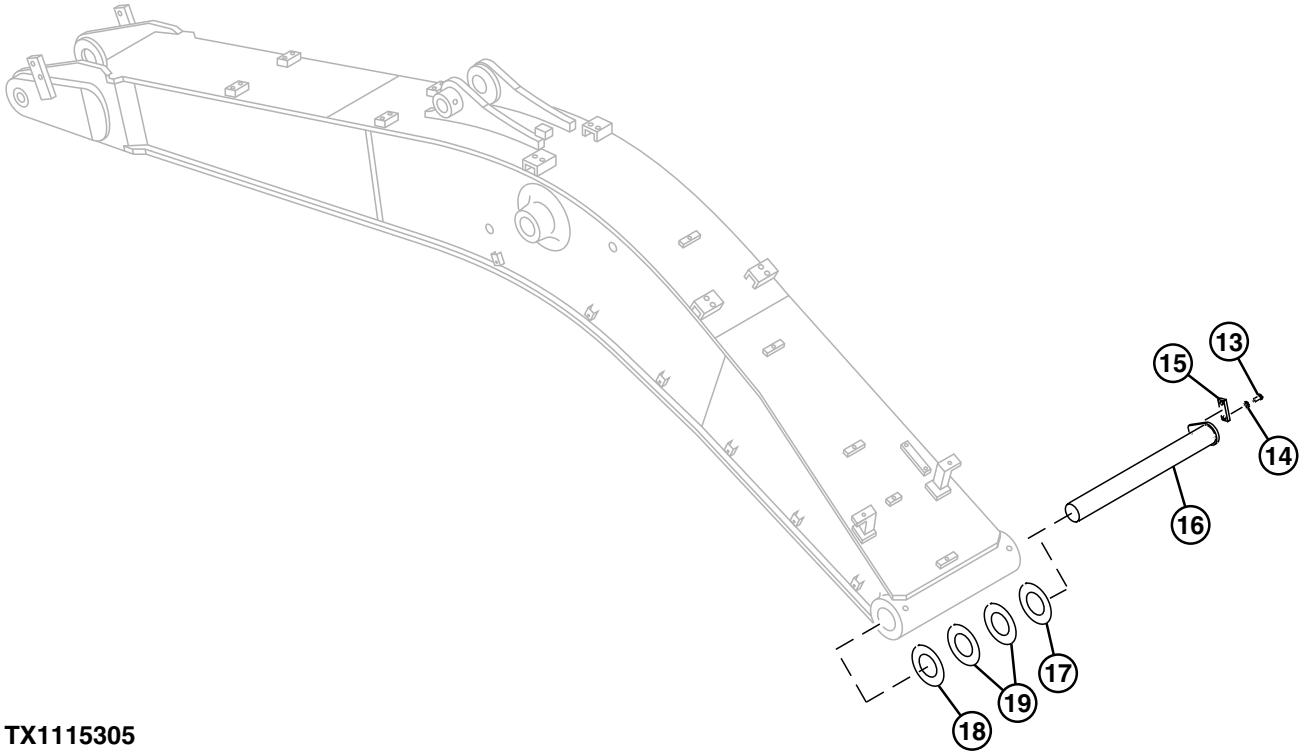


TX1113142A —UN—27APR12

Measuring Bushing to Arm Clearance

1— Cap Screw
2— Nut (2 used)
3— Shim (as needed)
4— Seal
5— Pin

DB95148,0002327 -19-01DEC15-1/1



TX1115305

Boom Foot Pin

13— Cap Screw
14— Washer
15— Retaining Plate
16— Boom Foot Pin
17— Thrust Plate
18— Thrust Plate
19— Shim (2 used)

16. Remove cap screw (13), washer (14), and retaining plate (15).

CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

NOTE: Location of shims (19) should be recorded to aid in assembly procedure.

17. Support boom with appropriate lifting device and remove boom foot pin (16), thrust plates (17 and 18), and shims (19).

Specification

Boom With Arm Cylinder—Weight (approximate)	1172 kg 2584 lb
Boom Foot Pin—Weight (approximate)	23 kg 51 lb

18. Remove boom.

19. Inspect pins and bushings for wear. See Inspect Pins, Bushings, and Bosses—Front Attachment. (Group 3340.)

20. Repair or replace parts as necessary.

21. Clean pins and bores.

22. Apply grease to pins and bores.

CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

23. Support boom with appropriate lifting device. Install boom foot pin and thrust plates equally on each side. Add shims to attain specified boom thrust plate clearance.

Specification

Boom Thrust Plate—Clearance	0—1.5 mm 0—0.06 in
Boom Foot Pin—Weight (approximate)	23 kg 51 lb

24. Install retaining plate, washer, and cap screw (13). Tighten cap screw to specification.

Specification

Boom Foot Pin Cap Screw—Torque	400 N·m 295 lb·ft

CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

Continued on next page

JB51320,00000E9 -19-09DEC15-6/7

25. Connect hoses. See Pump 1, Pump 2, and Pilot Pump Line Identification. (Group 9025-15.)
26. Connect solenoids. See Pump Harness (W8) Component Location. (Group 9015-10.)
27. Connect sensors. See Pump Harness (W8) Component Location. (Group 9015-10.)
28. Install suction hose and clamps.
29. Fill hydraulic oil tank. See Drain and Refill Hydraulic Tank Oil. (Operator's Manual.)

CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

30. Install SCR. See Selective Catalyst Reduction (SCR) Remove and Install. (Group 0530.)
31. Install hood. See Hood Remove and Install. (Group 1910.)
32. Turn battery disconnect switch to ON position. See Battery Disconnect Switch. (Operator's Manual.)

IMPORTANT: Hydraulic pump will be damaged if not filled with oil before starting. Procedure must be performed to fill pump housing whenever oil has been drained from the pump or hydraulic oil tank.

33. Perform pump 1 and 2 start-up procedure. See Pump 1 and 2 Start-Up Procedure. (Group 3360.)

CAUTION: Prevent possible injury from unexpected machine movement. Clear all personnel from area before operating machine.

34. Operate machine and check for leaks. Verify all machine functions operate correctly. See Operational Checkout. (Group 9005-10.)
35. Check pump regulator adjustments.

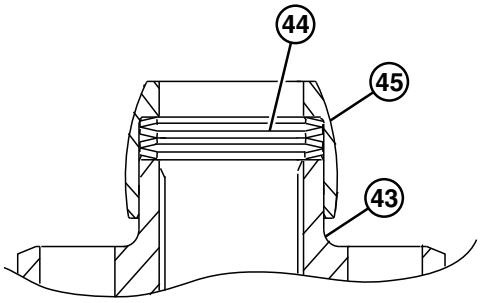
For minimum flow:
- See Pump Regulator Test and Adjustment—Minimum Flow. (Group 9025-25.)

For maximum flow:
- See Pump Regulator Test and Adjustment—Maximum Flow. (Group 9025-25.)

JJ03229,0001183 -19-08DEC15-4/4

62. Install disc springs (44) onto pump 1 cylinder block (43) as shown. Install bushing (45), retainer (46), and pistons (69).

43— Pump 1 Cylinder Block
44— Disc Spring (2 used)
45— Bushing



TX1207047 —UN—08DEC15

Disc Spring and Bushing Installation

Continued on next page

MM16284,0001E7A -19-10DEC15-13/15

1— Housing
2— Sleeve B
3— Spool B
5— Cylinder B
6— Load Piston
7— O-Ring
8— Backup Ring
9— O-Ring
10— Stop B
12— Stop (2 used)
14— O-Ring
15— Stop O-Ring (2 used)
16— Nut (2 used)
17— Nut (2 used)
20— Piston A
22— Cylinder A
24— Stop A
27— Sleeve A
28— Spool A
29— Set Screw
34— Nut
35— Cover
36— Piston B
37— Cap Screw (8 used)
38— Cover
39— Pipe Plug
41— O-Ring
43— Screw (4 used)
47— Outer Compression Spring
48— Inner Compression Spring
49— Compression Spring
52— O-Ring
58— Pipe Plug
59— O-Ring
B36— Pump 1 Control Pressure Sensor

SPECIFICATIONS	
Pump 1 and Pump 2 Cover-to-Housing Cap Screw Torque	20 N·m 177 lb·in

NOTE: Pump 1 and pump 2 regulators are similar. Pump 1 regulator is used in this procedure.

1. Remove pump 1 and 2 regulator. See Pump 1 and 2 Regulator Remove and Install. (Group 3360.)

IMPORTANT: Avoid possible housing damage. Some parts from housing port A are different from port B. Parts for each port must be kept together and installed into the same port from which they were removed.

NOTE: Removal of stops (10, 12, and 24) and set screw (29) from covers (35 and 38) will require the adjustment of pump regulators. Only remove parts from covers if replacement is necessary.

2. Remove cap screws (37) and covers (35 and 38) with set screw (29) and stops (10, 12, and 24) attached.
3. Remove stop O-rings (15) and compression springs (47—49).

NOTE: Note direction of sleeve B (2) and spool B (3).

4. Remove cylinder B (5), load piston (6), sleeve B, and spool B from housing (1).
5. Remove load piston, O-rings (7 and 9), and backup ring (8) from cylinder B.

NOTE: Note direction of piston A (20), sleeve A (27), and spool A (28).

6. Remove cylinder A (22), piston A, sleeve A, and spool A from housing.
7. Remove piston A and O-ring (14) from cylinder.
8. Remove pump 1 control pressure sensor (B36) and O-ring (52).
9. Remove pipe plug (39) and O-ring (41).
10. Repair or replace parts as necessary.
11. Install pipe plug (39) and O-ring (41).
12. Install pump 1 control pressure sensor (B36) and O-ring (52).

IMPORTANT: Avoid possible regulator damage. Apply clean hydraulic oil to parts prior to installation.

NOTE: Note direction of piston, sleeve, and spool A.

13. Insert spool A into sleeve A and install into center of housing.
14. Install O-ring (14) and insert piston A into cylinder A.
15. Install cylinder A into housing.

NOTE: Note direction of sleeve B (2) and spool B (3).

16. Insert spool B into sleeve B and install into center of housing.
17. Install O-rings (7 and 9), backup ring (8), and load piston and insert piston B into cylinder B.
18. Install cylinder B into housing.
19. Install O-rings (15) and compression springs (47—49).
20. Install covers with set screw and stops attached.
21. Install cap screws (37) and tighten to specification.

Specification	
Pump 1 and Pump 2 Cover-to-Housing Cap Screw—Torque	20 N·m 177 lb·in

22. Install pump 1 and 2 regulator. See Pump 1 and 2 Regulator Remove and Install. (Group 3360.)

IMPORTANT: Prevent possible pump 1 and 2 damage. Fill hydraulic pumps with oil before starting engine.

23. After installing regulator, perform pump 1 and pump 2 start-up procedure. See Pump 1 and 2 Start-Up Procedure. (Group 3360.)
24. Operate machine and check for leaks. Check pump regulator for adjustments.

For minimum flow:
- See Pump Regulator Test and Adjustment—Minimum Flow. (Group 9025-25.)

For maximum flow:
- See Pump Regulator Test and Adjustment—Maximum Flow. (Group 9025-25.)

JJ03229,0001184 -19-23NOV15-2/2

1. Apply alignment marks on pilot shutoff solenoid valve (3) and solenoid (6) to aid in assembly.
2. Clamp pilot shutoff solenoid valve in vise.
3. Remove cap screws (9), solenoid, and O-ring (11).
4. Remove plugs (8), O-rings (12), spring (1), and spool (4).
5. Remove screen (5).
6. Clean and inspect all parts. Replace worn or damaged parts as necessary. Use new O-rings when assembling.

IMPORTANT: To prevent seizing, apply clean hydraulic oil to parts before assembling.

7. Install screen.
8. Install spool, spring, O-rings, and plugs. Tighten plug to specification.

Specification

Plug—Torque.....28 N·m
21 lb·ft

9. Install O-ring and solenoid.
10. Align marks made during disassembly. Install cap screws and tighten to specification.

Specification

Solenoid-to-Pilot
Shutoff Valve Cap
Screw—Torque.....4 N·m
35 lb·in

JJ03229,000118B -19-02DEC15-3/2

31. Install snap rings (11) to ST4144 Snap Ring Holder (26).
32. Install snap rings (11) into groove on head of spools remaining out of spring compressor.

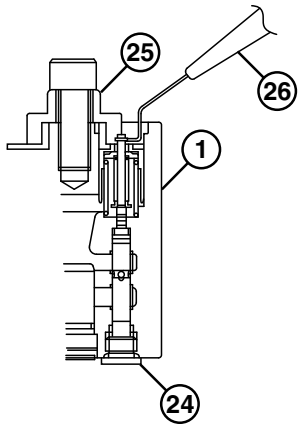
IMPORTANT: Avoid possible component damage. Ports 1 and 3 use pushers with one outer groove. Ports 2 and 4 use pushers with two outer grooves.

33. Install pushers into housing by hand.
34. Verify snap rings (11) and balance springs are installed correctly.
35. Install pushers to housing.
36. Apply TY6341 Multipurpose SD Polyurea Grease to ball at ends of pushers.
37. Apply TY6341 Multipurpose SD Polyurea Grease to joint of universal joint and to inner surface of sleeve seals.
38. Apply TY6341 Multipurpose SD Polyurea Grease to inner surface of oil seals.
39. Install O-rings (6) and sleeves.
40. Apply Loctite® 271™ Threadlocker (high strength) to the threads of universal joint.
41. Secure plate by aligning cap screw holes in plate with cap screw holes in housing and install universal joint. Tighten universal joint to specification.

Specification	
Universal Joint—Torque	25 N·m 221 lb·in

42. Install cam onto universal joint. Check clearance between cam and pushers.

Loctite and its related brand marks are trademarks of Henkel Corporation



TX1096326 —UN—24AUG11

Snap Ring Installation Tool

1— Housing
24— ST4145 Spool Holder
25— ST4146 Spring Compressor
26— ST4144 Snap Ring Holder

Specification	
Cam-to-Pusher—Clearance	0—0.2 mm 0—0.008 in

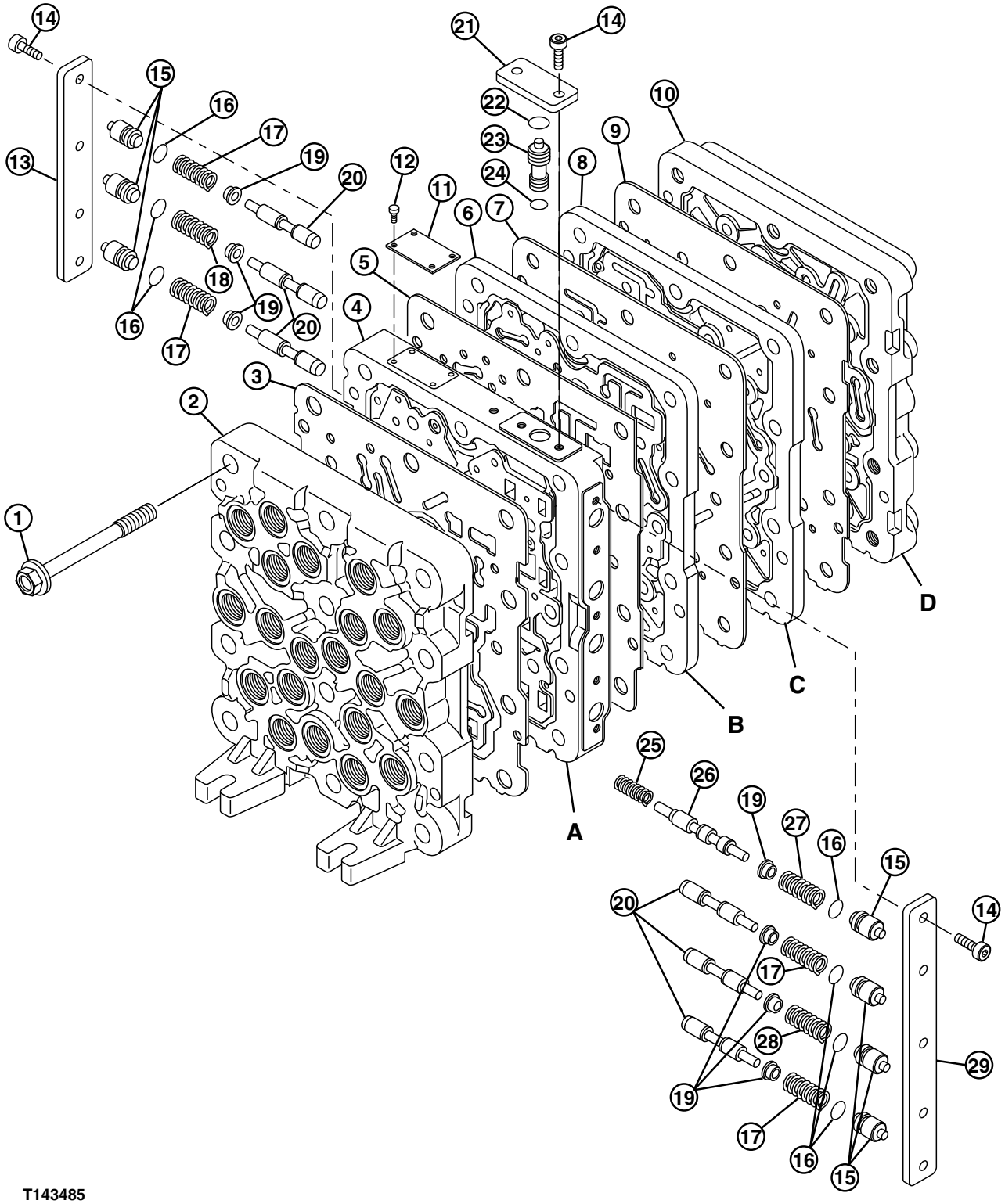
43. Hold cam and tighten coupling to specification.

Specification	
Coupling-to-Cam and Universal Joint—Torque	70 N·m 52 lb·ft

44. Install pilot valve (left and right). See Pilot Valve (Left and Right) Remove and Install. (Group 3360.)

JJ03229,0001191 -19-10NOV15-8/7

Pilot Signal Manifold Disassemble and Assemble



Pilot Signal Manifold (1 of 2)

Continued on next page

JJ03229,0001195 -19-10NOV15-1/3

1— Control Valve
2— Pilot Housing
3— Pilot Housing Cap Screw (4 used)
4— Plug
5— O-Ring
6— Plug (3 used)
7— Plug
9— Plug
10— O-Ring
11— Spring
12— Boom Lower Meter-In Cut Valve
13— Boom 1 Spool Bolt (upper)
14— Spring Seat (2 used)
15— Spring
16— Boom 1 Spool
17— Valve
18— Spring
19— O-Ring
20— Boom 1 Spool Bolt (lower)
21— O-Ring (2 used)
22— Boom 2 Spool Bolt
23— Spring Seat (2 used)
24— Spring
25— Boom 2 Spool
26— Backup Ring
27— O-Ring
28— Piston
29— Boom Anti-Drift Valve (selector valve)
30— Boom Anti-Drift Valve (check valve)
31— Valve
32— Plug
33— Overload Relief Valve (Boom Bottom Side)
34— O-Ring
35— Backup Ring
36— O-Ring
37— Backup Ring (2 used)
38— O-Ring (3 used)
39— Orifice
164— Boom Lower Meter-In Cut Valve Assemble
165— Boom 2 Spool Assemble
166— Boom 1 Spool Assemble
167— Boom Anti-Drift Valve (selector valve)
168— Boom Anti-Drift Valve (check valve)
182— Backup Ring (2 used)
183— O-Ring (2 used)
184— Washer
185— Spring
186— Plug
187— O-Ring
188— Plug

Control Valve Remove

NOTE: Not all parts are serviceable. Disassembly is for inspection only.

1. Remove control valve. See Control Valve Remove and Install. (Group 3360.)

IMPORTANT: Prevent control valve damage from contamination. Clean dirt and debris from control valve before disassembly.

2. Clean control valve of any dirt or debris before disassembly.

JJ03229,0001197 -19-09DEC15-3/33

Boom Lower Meter-In Cut Valve Assembly (164) Disassemble and Assemble

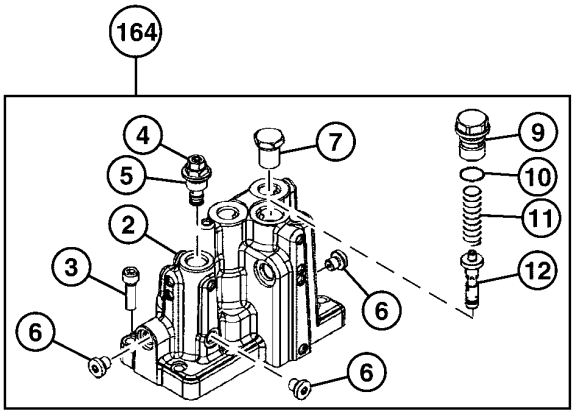
1. Remove pilot housing cap screws (3) and pilot housing (2).

NOTE: Pilot housing should be installed last if inspection of other parts in this section are needed. If no other parts in this section are being inspected, install pilot housing.

2. Remove plugs (4, 6, 7, and 9) and O-ring (5).
3. Remove O-ring (10), spring (11), and boom lower meter-in cut valve (12).

NOTE: O-rings (21 and 38), backup ring (37), and orifice (39) are shown on main control valve (top front) graphic.

4. Remove O-rings (21 and 38), backup ring (37), and orifice (39).
5. Inspect parts and replace as necessary.
6. Install orifice (39), backup ring (37), and O-rings (21 and 38).
7. Install boom lower meter-in cut valve, spring, and O-ring (10).
8. Install O-ring (5) and plugs into housing.
9. Install pilot housing and pilot housing cap screws. Tighten to specification.



TX1121769 —UN—04SEP12

Boom Lower Meter-In Cut Valve

2— Pilot Housing
3— Pilot Housing Cap Screw (4 used)
4— Plug
5— O-Ring
6— Plug (3 used)
7— Plug
9— Plug
10— O-Ring
11— Spring
12— Boom Lower Meter-In Cut Valve
164— Boom Lower Meter-In Cut Valve Assembly

Specification

Pilot Housing Cap Screw—Torque	50 N·m 37 lb·ft

Continued on next page

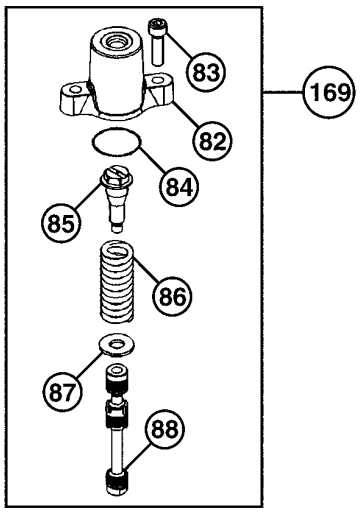
JJ03229,0001197 -19-09DEC15-4/33

Digging Regenerative Valve Assembly (169) Disassemble

NOTE: Not all parts are serviceable. Disassembly is for inspection only.

1. Remove cover cap screws (83) and cover (82).
2. Remove digging regenerative valve assembly (169) from pilot plate.
3. Secure digging regenerative valve (88) in a vise using wood blocks. Remove digging regenerative valve bolt (85), spring (86), and washer (87).
4. Inspect for wear and damage.

82— Cover
83— Cover Cap Screw (2 used)
84— O-Ring
85— Digging Regenerative Valve Bolt
86— Spring
87— Washer
88— Digging Regenerative Valve
169— Digging Regenerative Valve Assembly



TX1121775 —UN—06SEP12

Digging Regenerative Valve

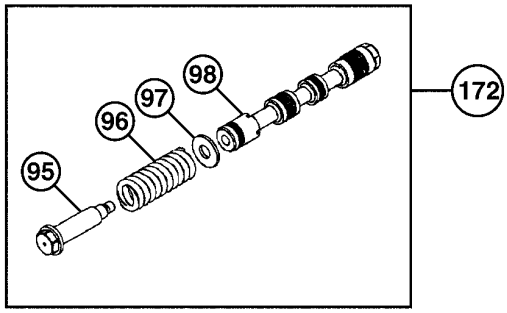
JJ03229,0001197 -19-09DEC15-21/33

Bypass Shut-Out Valve Assembly (172) Disassemble

NOTE: Not all parts are serviceable. Disassembly is for inspection only.

1. Remove bypass shut-out valve assembly (172).
2. Secure bypass shut-out valve (98) in a vise using wood blocks. Remove bypass shut-out valve bolt (95), spring (96), and washer (97).
3. Inspect for wear and damage.

95— Bypass Shut-Out Valve Bolt
96— Spring
97— Washer
98— Bypass Shut-Out Valve
172— Bypass Shut-Out Valve Assembly

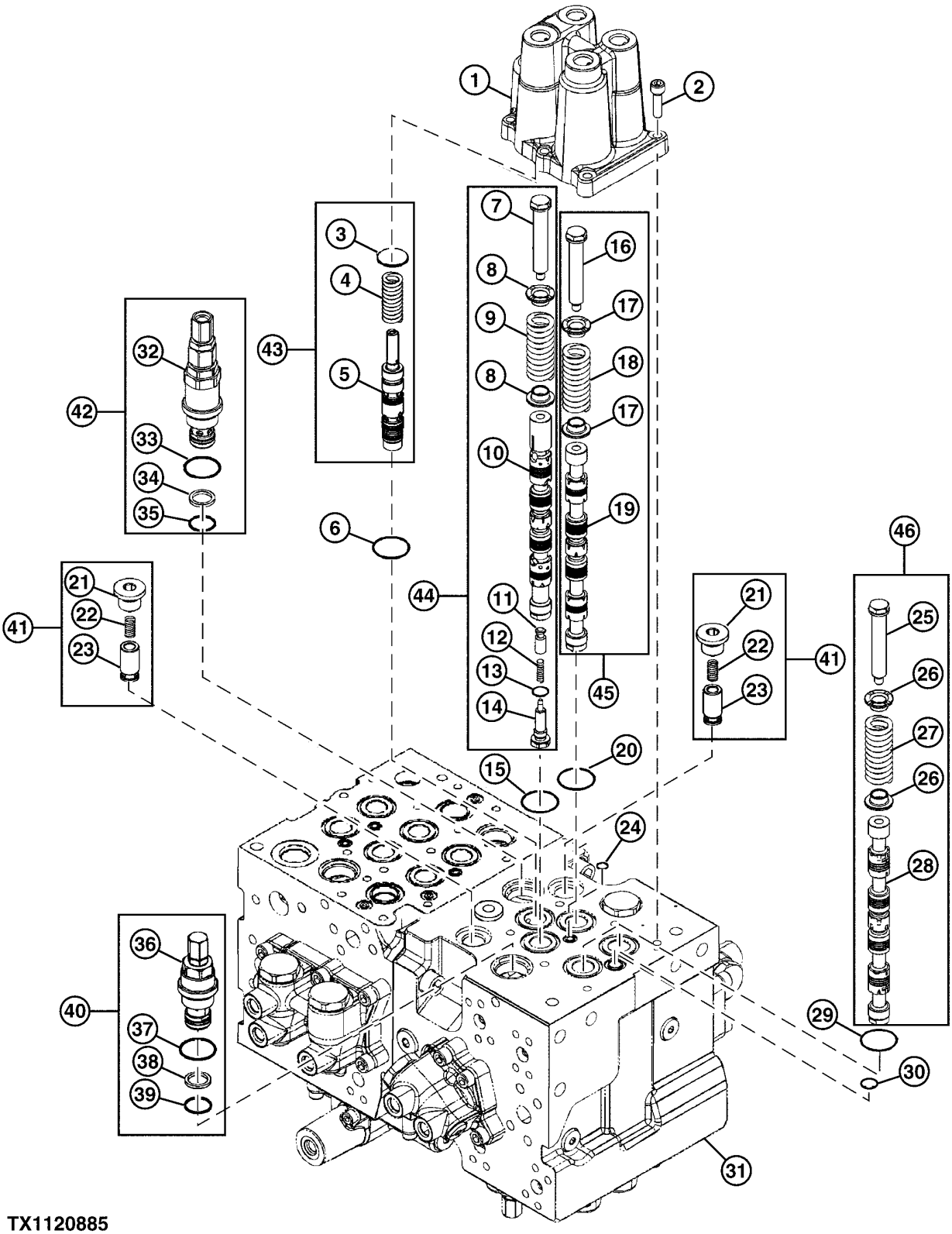


TX1121776 —UN—06SEP12

Bypass Shut-Out Valve

Continued on next page

JJ03229,0001197 -19-09DEC15-22/33



Control Valve (housing-B) (top side)

Continued on next page

JJ03229,0001198 -19-09DEC15-2/26

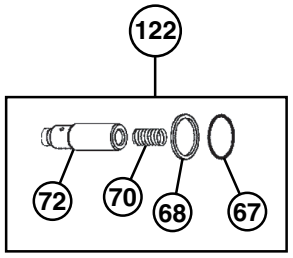
Load Check Valve Assembly (Travel Left Parallel Circuit and Travel Left Tandem Circuit) (122 and 123) Disassemble and Assemble

1. Remove O-rings (67) and backup rings (68).

NOTE: Load check valves (71 and 72) are similar. Disassemble and assemble are the same.

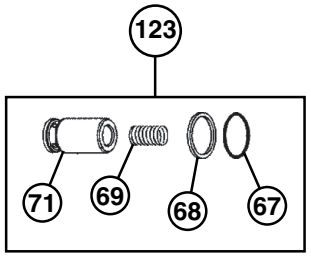
2. Remove springs (69 and 70) and load check valves (71 and 72).
3. Inspect parts and replace as necessary.
4. Install load check valves, springs, backup rings, and O-rings.

67— O-Ring (2 used)
68— Backup Ring (2 used)
69— Spring
70— Spring
71— Load Check Valve (travel left tandem circuit)
72— Load Check Valve (travel left parallel circuit)
122— Load Check Valve Assembly (travel left parallel circuit)
123— Load Check Valve Assembly (travel left tandem circuit)



TX1121677 —UN—31AUG12

Load Check Valve (travel left parallel circuit)



TX1121678 —UN—31AUG12

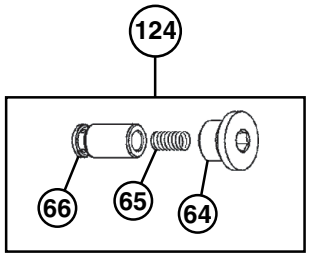
Load Check Valve (travel left tandem circuit)

JJ03229,0001198 -19-09DEC15-19/26

Check Valve Assembly (Auxiliary Flow Combiner Circuit) (124) Dissemble and Assemble

1. Remove plug (64).
2. Remove spring (65) and check valve (66).
3. Inspect parts and replace as necessary.
4. Install check valve, spring, and plug.

64— Plug
65— Spring
66— Check Valve (auxiliary flow combiner circuit)
124— Check Valve Assembly (auxiliary flow combiner circuit)

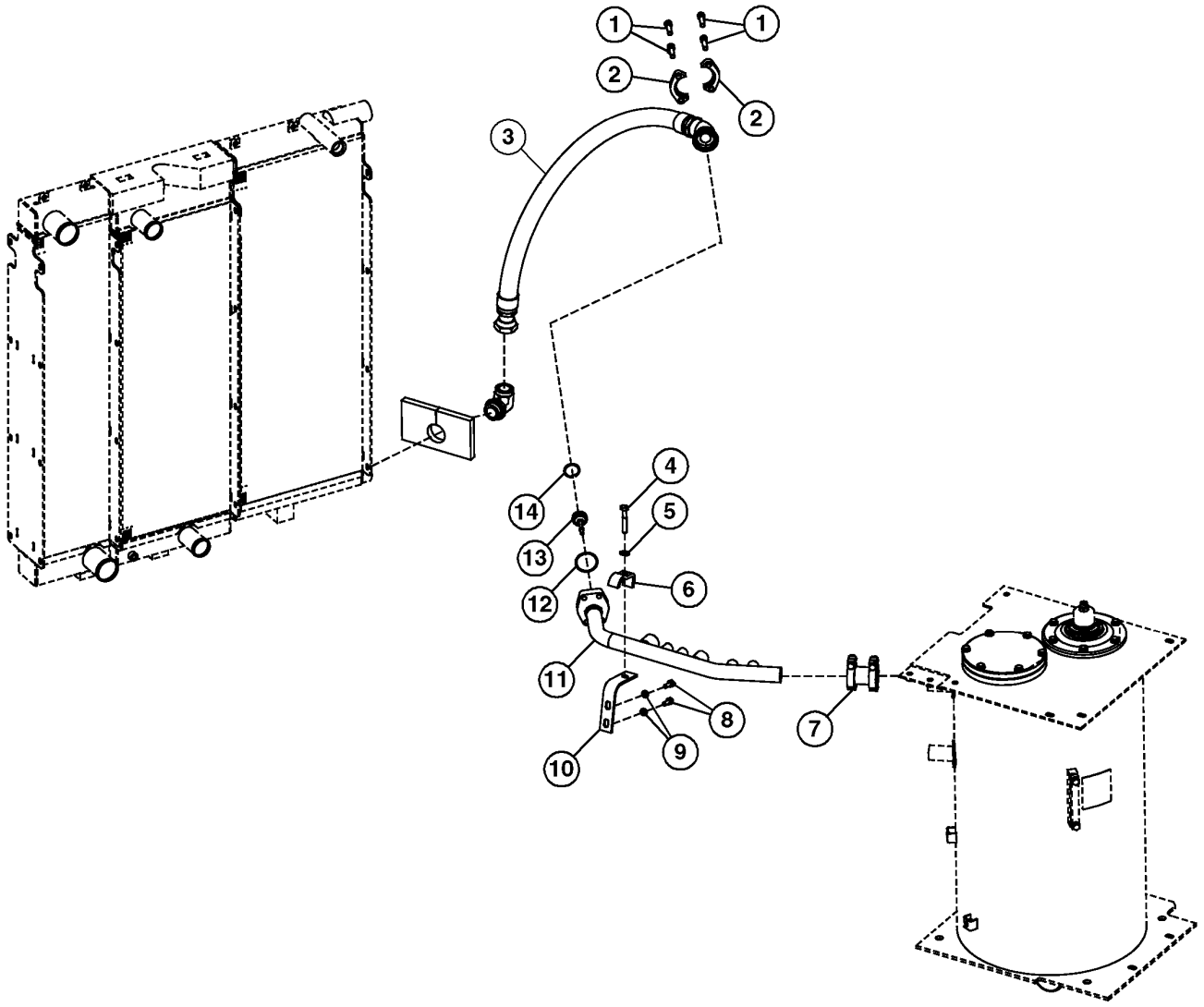


TX1121679 —UN—31AUG12

Check Valve (auxiliary flow combiner circuit)

Continued on next page

JJ03229,0001198 -19-09DEC15-20/26



TX1020509

TX1020509 —UN—30MAR07

Restriction Valve

JJ03229,000119A -19-10DEC15-2/2

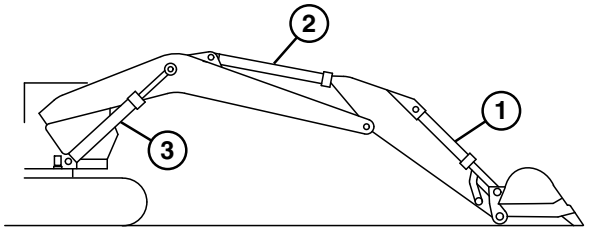
Arm Cylinder Remove and Install

SPECIFICATIONS	
Arm Cylinder Weight (approximate)	160 kg 353 lb

1. Park and prepare machine for service safely. See Park and Prepare for Service Safely. (Group 0001.)
2. Position machine as shown. Fully retract bucket cylinder (1) and arm cylinder (2). Lower bucket to ground.

CAUTION: Avoid personal injury from high-pressure fluid. High-pressure release of oil from pressurized system can cause serious burns or penetrating injury. Relieve pressure from hydraulic system before servicing.

3. Release hydraulic oil tank pressure by pressing the button on top of hydraulic oil tank. See Hydraulic Oil Tank Pressure Release Procedure. (Group 9025-25.)
4. Apply vacuum to hydraulic oil tank to minimize hydraulic oil loss. See Apply Vacuum to Hydraulic Oil Tank. (Group 3360.)



TX1098619 —UN—23SEP11

Machine Position

1— Bucket Cylinder
2— Arm Cylinder
3— Boom Cylinder

CK90142,0000073 -19-03DEC15-1/3

5. Install identification tags and disconnect hydraulic lines (4 and 5) and lubrication line (6) from arm cylinder. Close all openings using caps and plugs.

CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

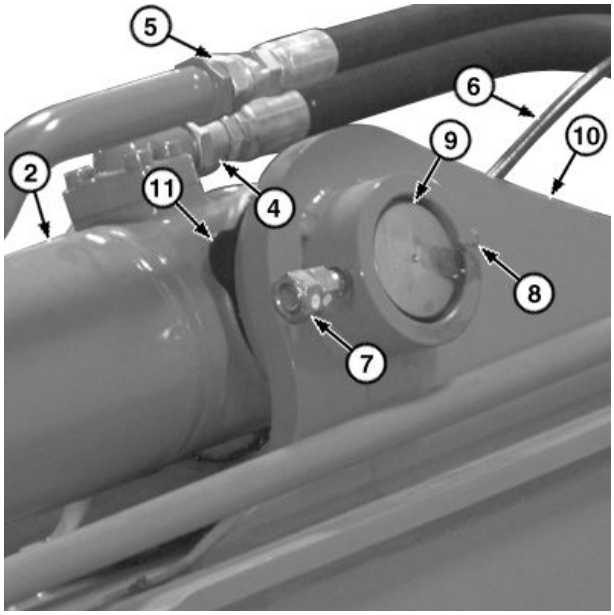
6. Support arm cylinder using appropriate lifting device.

Specification	
Arm Cylinder—Weight (approximate)	160 kg 353 lb

NOTE: Location of shims (11) should be recorded to aid in assembly.

7. Remove nuts (7), cap screw (8), pin (9), and shims (11) from head end of arm cylinder.

2— Arm Cylinder
4— Hydraulic Line (to head end)
5— Hydraulic Line (to rod end)
6— Lubrication Line
7— Nut (2 used)
8— Cap Screw
9— Pin (head end)
10— Boom
11— Shim (as needed)

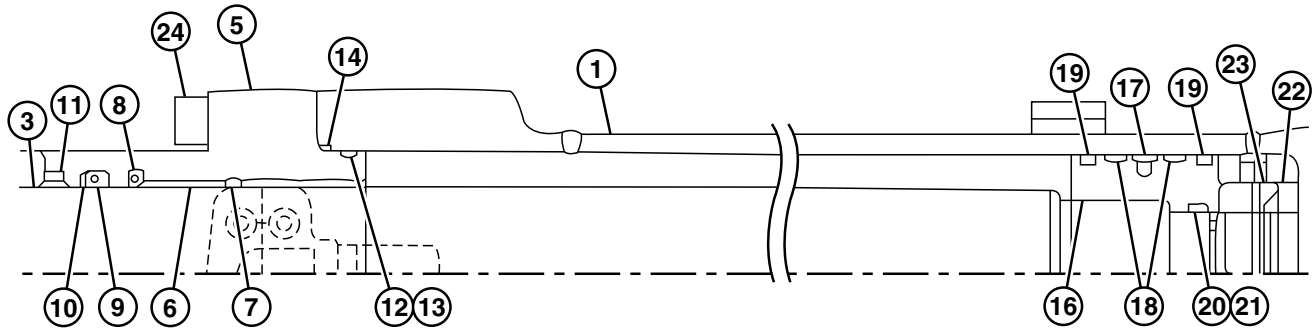


TX1126674A —UN—29NOV12

Arm Cylinder (head end)

Continued on next page

CK90142,0000073 -19-03DEC15-2/3



TX1134169 —UN—04APR13

TX1134169

Bucket Cylinder Seal Identification

1— Barrel
3— Rod
5— Cylinder Head
6— Bushing
7— Retaining Ring
8— Seal
9— U-Ring
10— Backup Ring
11— Dust Seal
12— O-Ring
13— Backup Ring
14— O-Ring
16— Piston
17— Seal Ring
18— Wear Ring (2 used)
19— Wear Ring (2 used)
20— O-Ring
21— Backup Ring (2 used)
22— Piston Nut
23— Set Screw (2 used)
24— Socket Head Cap Screw (10 used)

CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

1. Attach appropriate lifting device and secure cylinder to a work bench. Drain hydraulic oil from cylinder.

Specification	
Bucket Cylinder—Weight (approximate)	94 kg 207 lb

2. Pull rod (3) out so piston (16) is against cylinder head (5).

CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

3. Connect rod to appropriate lifting device using a lifting strap.

Specification	
Bucket Cylinder Rod—Weight (approximate)	55 kg 121 lb

4. Remove socket head cap screws (24) from cylinder head.

IMPORTANT: Prevent damage to sliding surface of rod. Be sure to pull rod and piston assembly straight out of barrel (1).

5. Remove rod, cylinder head, piston, and piston nut (22) from barrel (1).
6. Secure rod in ST5908 Hydraulic Cylinder Disassembly/Assembly Device.
7. Apply alignment mark on piston nut and rod.
8. Remove staked material from set screw (23) holes using a small air grinder or a drill and bit.
9. Remove set screws.
10. Remove piston nut using ST3262 Piston Nut Tool.
11. Remove piston using ST3370 Piston Tool.
12. Remove seal ring (17), wear rings (18 and 19), O-ring (20), and backup rings (21) from piston.
13. Remove cylinder head from rod.

CK90142,000006F -19-09DEC15-3/3

1— Swing Motor
2— First Stage Sun Gear
3— Thrust Plate
4— Pin (3 used)
5— Spring Pin (3 used)
6— Needle Bearing (3 used)
7— First Stage Planetary Gear (3 used)
8— Thrust Plate (3 used)
9— Pin (3 used)
10— Spring Pin (3 used)
11— Needle Bearing (6 used)
12— Second Stage Planetary Gear (3 used)
13— Thrust Plate (3 used)
14— Upper Roller Bearing
15— Bearing Nut
16— Lock Plate
17— Cap Screw (2 used)
18— Second Stage Carrier
19— Thrust Plate
20— Second Stage Sun Gear
21— First Stage Carrier
23— Cap Screw (8 used)
24— Ring Gear Cap Screw (12 used)
25— Ring Gear
26— Housing
27— Lower Roller Bearing
28— Seal
29— Sleeve
30— O-Ring
31— Shaft
32— Drain Plug
33— Drain Line

1. Remove drain plug (32). Drain oil from swing gear case. See Drain and Refill Swing Gear Case Oil. (Operator's Manual.)
2. Disconnect drain line (33) from housing (26).
3. Install alignment marks between swing motor (1), ring gear (25), housing (26), and upperstructure to aid in assembly.
4. Remove swing motor and park brake. See Swing Motor and Park Brake Remove and Install. (Group 4360.)

NOTE: First stage sun gear (2) and thrust plate (3) can be removed with the swing motor.

5. Remove first stage carrier (21) and disassemble parts (4—8).
6. Remove ring gear cap screws (24) and ring gear (25).
7. Remove second stage sun gear (20) and thrust plate (19) from second stage carrier (18). Disassemble parts (9—13) from second stage carrier.

NOTE: Second stage sun gear (20) may be removed separately or with carrier.

8. Remove cap screws (17) and lock plate (16).

CK90142,0000066 -19-04DEC17-3/7

9. Remove bearing nut (15) from shaft (31) using DFT1237 Swing Gear Case Nut Spanner Wrench. See DFT1237 Swing Gear Case Nut Spanner Wrench. (Group 9900.)

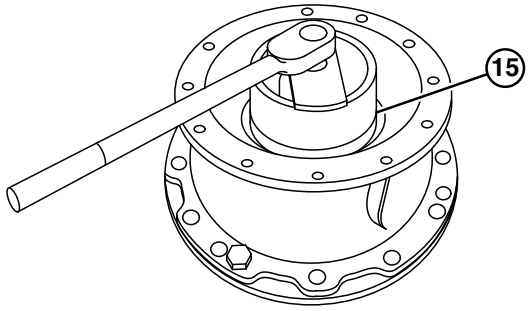
NOTE: Bearing and sleeve are pressed onto shaft.

10. Remove upper roller bearing (14).

⚠ CAUTION: Avoid possible crushing injury from heavy component. Use appropriate lifting device.

11. Remove housing (26) using appropriate lifting device.

Specification	
Housing Assembly—Weight (approximate)	59 kg 130 lb



TX1110936 —UN—26MAR12

Bearing Nut

15— Bearing Nut

Continued on next page

CK90142,0000066 -19-04DEC17-4/7

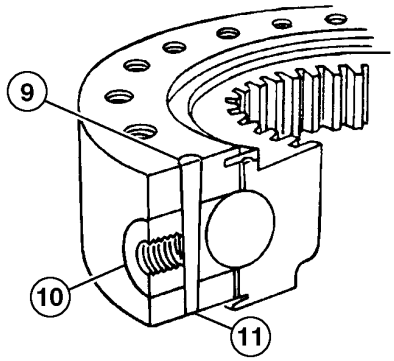
1— Outer Race
2— Inner Race
3— Steel Ball (99 used)
4— Lubrication Fitting (2 used)
5— Lower Seal
6— Upper Seal
7— Spacer (99 used)

1. Park and prepare machine for service safely. See Park and Prepare for Service Safely. (Group 0001.)
2. Inspect swing bearing upper seal (6) and lower seal (5). Replace if damaged. See Swing Bearing Upper Seal Install or see Swing Bearing Lower Seal Install. (Group 4350.)

CK90142,000006A -19-17NOV15-2/4

3. Grind tack weld (9) off top of taper pin (11).
4. Drive taper pin out from bottom side of bearing.
5. Remove loading plug (10) using an M10-1.5 cap screw.

9— Tack Weld
10— Loading Plug
11— Taper Pin



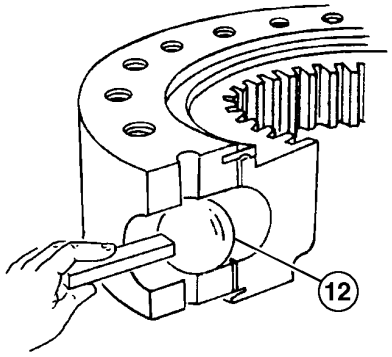
TX1092921 —UN—06JUN11

Swing Bearing Cross Section

CK90142,000006A -19-17NOV15-3/4

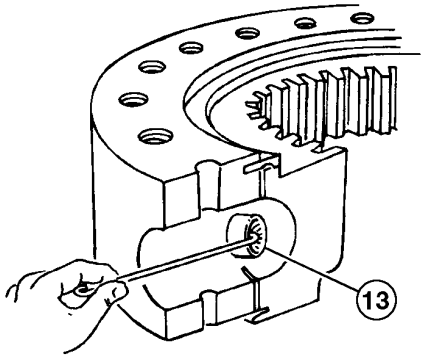
6. Remove steel balls (12) and spacers (13).
7. Turn inner race to remove remaining steel balls and spacers.
8. Lift outer race off inner race.
9. Replace parts as necessary.
10. Install spacers and steel balls. Turn inner race as needed to install spacers and steel balls.
11. Install loading plug.
12. Install taper pin even with top of swing bearing.
13. Tack weld pin to swing bearing. See Welding On Machine. (Group 1740.)
14. Add multipurpose grease to swing bearing through lubrication fittings. See Track Adjuster, Working Tool Pivot, Swing Bearing, and Swing Bearing Gear Grease. (Operator's Manual.)
15. If upper or lower seals are damaged, replace seals. See Swing Bearing Upper Seal Install and see Swing Bearing Lower Seal Install. (Group 4350.)

12— Steel Ball (99 used)
13— Spacer (99 used)



TX1092922 —UN—06JUN11

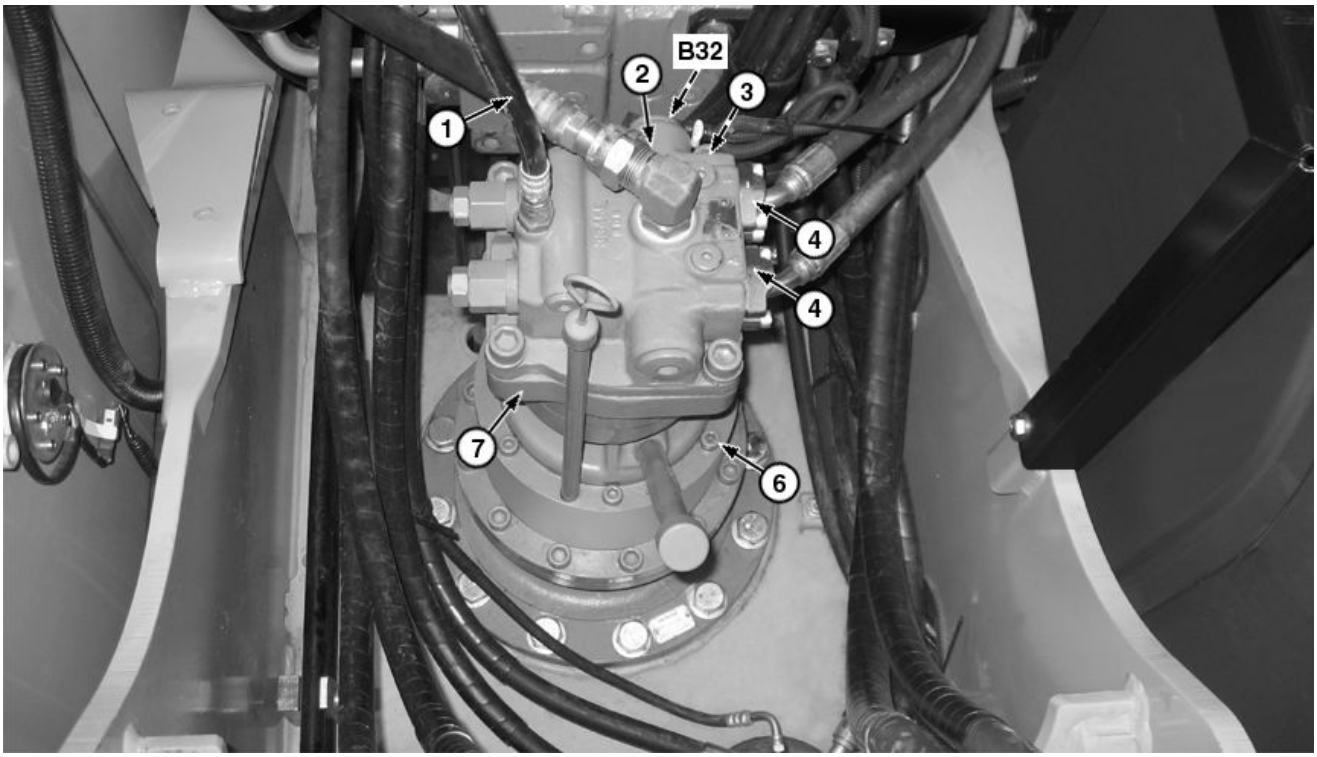
Swing Bearing Cross Section



TX1092924 —UN—06JUN11

Swing Bearing Cross Section

CK90142,000006A -19-17NOV15-4/4



Swing Gear Case Assembly

1— Hydraulic Oil Tank Return Line
2— Control Valve Hydraulic Line
3— Pilot Signal Manifold Hydraulic Line
4— Swing Damper Valve Hydraulic Line (2 used)
6— Swing Motor Cap Screw (7 used)
7— Swing Motor and Park Brake
B32— Front Attachment Pressure Sensor

6. Install identification tags and disconnect hydraulic lines (1—4). Close all openings using caps and plugs.
7. Install identification tag and disconnect front attachment pressure sensor (B32).

⚠ CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

8. Support swing motor and park brake (7) using appropriate lifting device.

Specification	
Swing Motor and Park Brake—Weight (approximate)	34 kg 75 lb

9. Remove swing motor cap screws (6). Remove swing motor and park brake.
10. Inspect and repair or replace parts as necessary. See Swing Motor and Park Brake Disassemble. (Group 4360.)
11. Install swing motor and park brake. Install swing motor cap screws. Tighten to specification.

Specification	
Swing Motor Cap Screw—Torque	64 N·m 47 lb·ft

12. Connect front attachment pressure sensor (B32).
13. Connect hydraulic lines (1—4). See Hydraulic System Line Connections. (Group 9025-15.)
14. Perform swing motor and park brake start-up procedure. See Swing Motor and Park Brake Start-Up Procedure. (Group 4360.)
15. Remove vacuum or fill hydraulic oil tank. See Apply Vacuum to Hydraulic Oil Tank. (Group 3360.) See Drain and Refill Hydraulic Tank Oil. (Operator's Manual.)

Specification	
Hydraulic Oil Tank—Capacity	69 L 18.2 gal

16. If hydraulic oil tank was drained, perform pump start-up procedure. See Pump 1 and 2 Start-Up Procedure. (Group 3360.)
17. Check hydraulic oil level. See Check Hydraulic Tank Oil Level. (Operator's Manual.)

Continued on next page

1— Swing Motor Gear Case
2— Oil Seal
3— Roller Bearing
4— Shaft
5— Shoe Plate
6— Plunger (9 used)
7— Plate
8— Snap Ring
9— Rotor
10— Plate (4 used)
11— Friction Plate (4 used)
12— Cap Screw (4 used)
13— O-Ring (2 used)
14— Plug (2 used)
15— Make-Up Check Valve Plug (2 used)
16— O-Ring (2 used)
17— Spring (2 used)
18— Poppet (2 used)
19— Park Brake Valve Casing
20— Crossover Relief Valve (2 used)
21— O-Ring
22— Roller Bearing
23— Valve Plate
24— Spring Plate
25— Brake Piston
26— O-Ring
27— O-Ring
28— O-Ring (3 used)
29— Piston
30— Spring
31— Ball
32— Plug (3 used)
33— Snap Ring
34— O-Ring
35— Bushing
36— O-Ring (2 used)
37— O-Ring (2 used)
38— Backup Ring (2 used)
39— Backup Ring (2 used)
40— O-Ring (2 used)
41— O-Ring
42— Plug
43— Pin (2 used)
45— Poppet
46— Spring

SPECIFICATIONS	
Park Brake Valve Casing Cap Screw Torque	265 N·m 195 lb
Poppet Plug Torque	235 N·m 173 lb·ft
Swing Motor Crossover Relief Valve Torque	235 N·m 173 lb·ft

1. Install inner race of roller bearings (3 and 22) to shaft (4) using press.
2. Install oil seal (2) to swing motor gear case (1).
3. Install outer race of roller bearing (3) to swing motor gear case.

IMPORTANT: Prevent possible oil seal damage. Wrap tape around shaft splines during installation.

4. Install shaft (4) and snap rings (33 and 8) to swing motor gear case.
5. Install shoe plate (5) to case with chamfered side toward swing motor gear case.
6. Install plate (7) to plungers (6) with notch on retainer facing the shoe plate (5) side.
7. Align notch and install plate.
8. Install plungers to rotor (9).
9. Install rotor to shaft (4).
10. Starting with a plate (10), alternately install plates and friction plates (11) to swing motor gear case and rotor, aligning the four notches on the outer side of friction plates and on the spline side of plates respectively.
11. Install O-rings (26 and 27) to case.
12. Align matching mark and install brake piston (25) into case.
13. Install spring plate (24) to brake piston.
14. Install ball (31), spring (30), and piston (29) to case.
15. Install outer race of roller bearing (22) to park brake valve casing (19).
16. Install O-ring (21) to park brake valve casing. Apply grease to valve plate (23). Install plate and guide pins (43) to park brake valve casing with notch on port facing toward the rotor (9).
17. Apply grease to needle part of roller bearing (22).
18. Install O-rings (28 and 41).
19. Install poppet (45) and spring (46) into case. Install plugs (32).
20. Install O-ring (41) and plug (42) into swing motor gear case.
21. Install park brake valve casing to swing motor gear case. Tighten cap screws (12) to specification.

Specification

Park Brake Valve Casing Cap Screw—Torque.....265 N·m 195 lb

22. Install poppets (18), springs (17), O-rings (16), and make-up check valve plugs (15). Tighten to specification.

Specification

Poppet Plug—Torque.....235 N·m 173 lb·ft

23. Install crossover relief valves (20) to park brake valve casing. Tighten to specification.

Specification

Swing Motor Crossover Relief Valve—Torque.....235 N·m 173 lb·ft

JB51320,0000122 -19-29JUN16-2/2

ST4920 Track Recoil Spring Disassembly and Assembly Tool

NOTE: It is recommended that DFT1087 Track Recoil Spring Disassembly and Assembly Guard Tool be used with track recoil spring disassembly and assembly tool. See DFT1087 Track Recoil Spring Disassembly and Assembly Guard Tool. (Group 9900.)

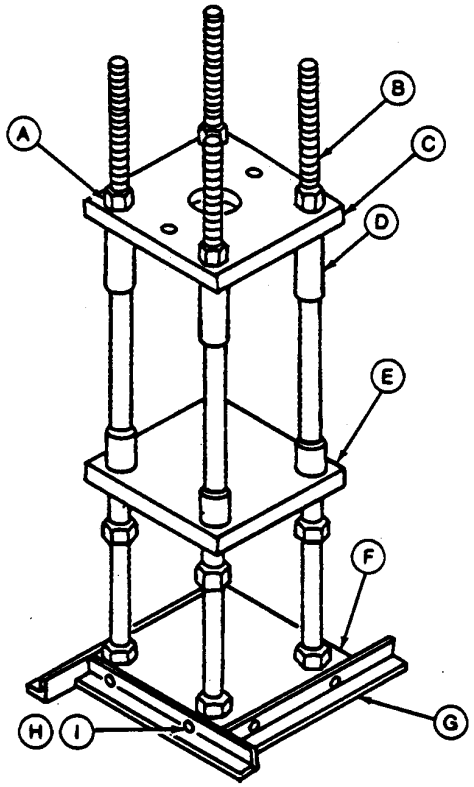
Dimensions given are metric.

Tool is the same as used on other machines except the holder (C). For each track adjuster use the holder with the correct size hole for the nut on that track adjuster.

Track Recoil Spring Disassembly and Assembly Tool (compression tool) is used with hydraulic jack to compress recoil spring in track adjuster repair.

Material required:
- 1020 HR Steel for Holder (C), Supporting Plate (E), Base Plate (F), and Base (G).
- "D" Grade (SAE Grade 5) for Eyebolts (D), Nuts (A), and Cap Screws (H).
- "F" Grade (SAE Grade 8) for Studs (B).

Print Numbers:
- A-ST4050 Nut
- B-ST4045 Bolt
- C-ST4035 Holder (Plate)
- C-ST4036 Holder (Plate)
- C-ST4037 Holder (Plate)
- D-ST4047 Eyebolt
- E-ST4040 Supporting Base
- F-ST4042 Base Plate
- G-ST4041 Base
- H-ST4046 Cap Screw
- I-ST4049 Lock Washer



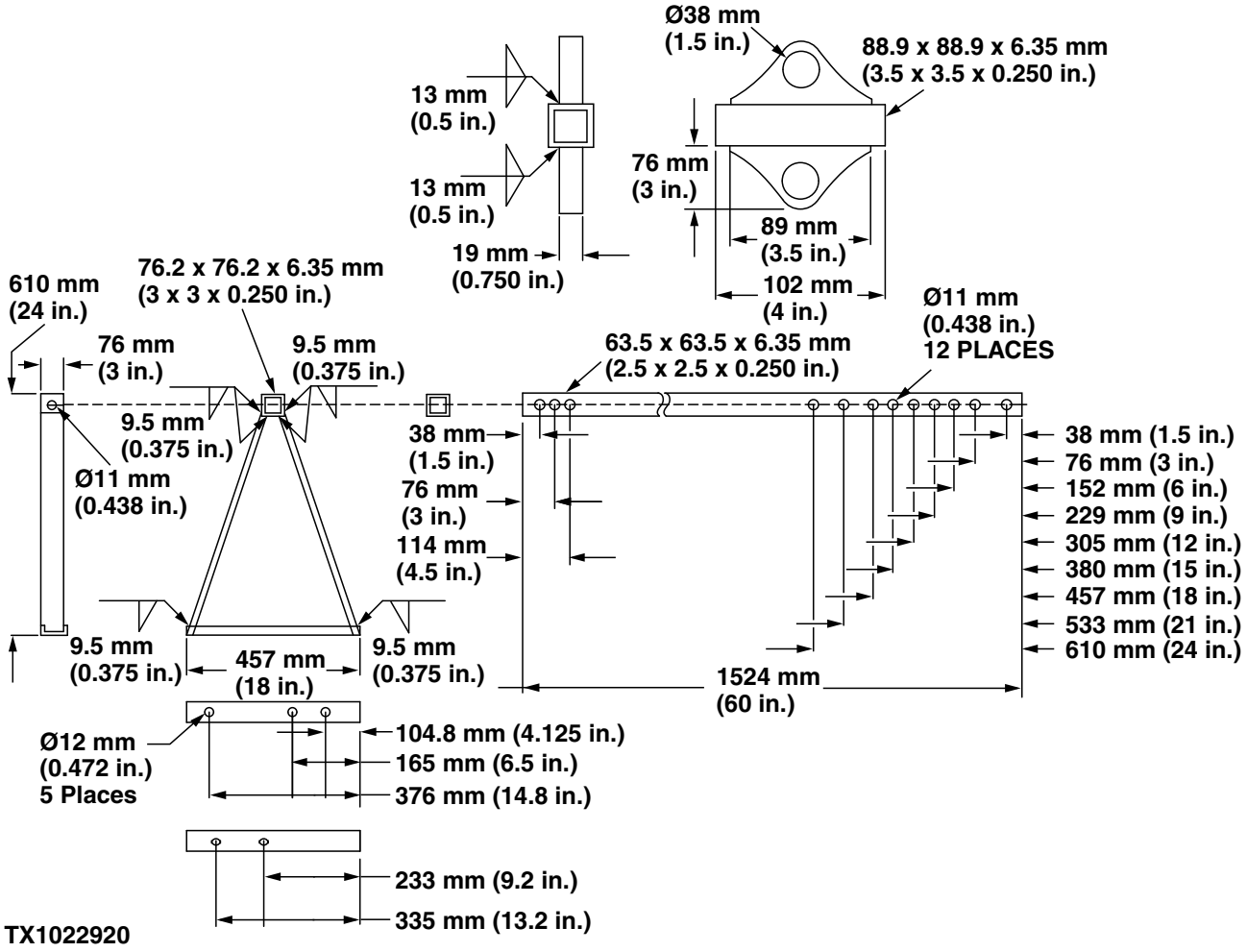
T6585UY —UN—24MAR98

A—Nut (12 used)
B—Stud (4 used)
C—Holder
D—Eyebolt (2 used)
E—Supporting Plate
F—Base Plate
G—Base (4 used)
H—Cap Screw (4 used)
I— Lock Washer (8 used)

Continued on next page

DV53278,0000362 -19-08OCT12-1/4

DFT1119 Pump Support



Pump support is used with a hand hoist to support a pump(s) when an engine is removed.

Two end stands are needed.

Drill the holes through the square steel tubing so they are centered.

Material required:

- C3 x 5 Steel Channel
- 88.9 x 88.9 x 6.35 mm (3.5 x 3.5 x 0.250 in.) Square Steel Tubing
- 76.2 x 76.2 x 6.35 mm (3 x 3 x 0.250 in.) Square Steel Tubing
- 63.5 x 63.5 x 6.35 mm (2.5 x 2.5 x 0.250 in.) Square Steel Tubing
- 19 mm (3/4 in.) Flat Bar Stock
- M10 x 89 mm or 3/8 x 3-1/2 in. D Grade (SAE Grade 5) Cap Screw (2 used)
- M10 or 3/8 in. D Grade (SAE Grade 5) Nut (2 used)

DV53278,0000369 -19-08OCT12-1/1