GENERAL SPECIFICATIONS

Shipping Weight	35.2 metric tons (77,600 lb), includes 10% fuel, boom, 3,200 mm (10' 6") arm, 1,410 mm (4' 7") backhoe bucket and standard shoes
Operating Weight	Add weight of full fuel tank and operator.
Shipping Weights With Optional	Subtract 760 (1,676 lb) for 600 mm (23.6") shoes
	Subtract 380 kg (838 lb) for 700 mm (27.6") shoes

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SAFETY PRECAUTIONS

⚠ CAUTION

Follow all safety recommendations and safe shop practices outlined in the front of this manual or those contained within this section.

Always use tools and equipment that are in good working order.

Use lifting and hoisting equipment capable of safely handling load.

Remember, that ultimately safety is your own personal responsibility.

APPLICABLE MODELS

The contents of this section apply to the following models and serial number ranges.

MODEL	SERIAL NUMBER RANGE
DX300LC	7440 and Up
DX340LC	5980 and Up
DX350LC	5980 and Up
DX420LC	5327 and Up
DX480LC	5221 and Up
DX520LC	5117 and Up

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The following General Torque Values must be used in all cases where **SPECIAL TORQUE VALUES** are not given.

NOTE: *Torque values listed throughout this manual are lubricated (wet) threads; values should be increased 1/3 for nonlubricated (dry) threads.*

Thread Size	Heat Treated Material Grade 5 and Grade 8			
	Grade 5 (3 Radial Dashes On Head)		Grade 8 (6 Radial Dashes On Head)	
	Foot Pounds (ft lb)	Newton Meter (Nm)	Foot Pounds (ft lb)	Newton Meter (Nm)
1/4" - 20	6	8	9	12
1/4" - 28	7	9	11	15
5/16" - 18	13	18	18	24
5/16" - 24	15	20	21	28
3/8" - 16	24	33	34	46
3/8" - 24	27	37	38	52
7/16" - 14	38	52	54	73
7/16" - 20	42	57	60	81
1/2" - 13	58	79	82	111
1/2" - 20	65	88	90	122
9/16" - 12	84	114	120	163
9/16" - 18	93	126	132	179
5/8" - 11	115	156	165	224
5/8" - 18	130	176	185	251
3/4" - 10	205	278	290	393
3/4" - 16	240	312	320	434
7/8" - 9	305	414	455	617
7/8" - 14	334	454	515	698
1" - 8	455	617	695	942
1" - 14	510	691	785	1064
1 1/8" - 7	610	827	990	1342
1 1/8" - 12	685	929	1110	1505
1 1/4" - 7	860	1166	1400	1898
1 1/4" - 12	955	1295	1550	2102
1 3/8" - 6	1130	1532	1830	2481
1 3/8" - 12	1290	1749	2085	2827
1 1/2" - 6	1400	2034	2430	3295
1 1/2" - 12	1690	2291	2730	3701
1 3/4" - 5	2370	3213	3810	5166
2" - 4 1/2	3550	4813	5760	7810

NOTE: *If any bolts and nuts are found loose or at values less than what the chart states, it is recommended that the loose bolt and/or nut be replaced with a new one.*

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REMOVAL

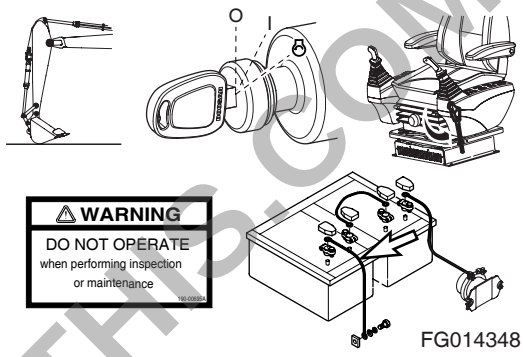
CAUTION

Avoid disassembling cabin if there are strong wind gusts, which could catch large surface area of cabin shell and push it sideways during lift.

1. Park on firm and level ground.
2. Lower front attachment (bucket) to ground.
3. Shut down engine.
4. Set safety lever on "RELEASED" position.
5. Turn starter switch to "I" (ON) position.

WARNING

If engine must be run while performing maintenance, use extreme care. Always have one person in the cabin at all times. Never leave the cabin with the engine running.



FG014348

Figure 1

6. Fully stroke work levers (joysticks) in all directions to relieve pressure from accumulators.
7. Set safety lever on "LOCK" position.
8. Turn key to "O" (OFF) position and remove from starter switch.
9. Hang maintenance warning tag on controls.
10. Disconnect the battery cable from the negative (-) battery terminal.
11. Prepare cabin shell for removal by disconnecting wiring connectors for:
    A. Cabin interior lighting.
    B. External light wiring.
    C. Radio antenna and connections.
    D. Wiper/washer connections.

NOTE: *Control console wiring harnesses and hydraulic piping lines that pass through the floor of the cabin do not need to be disassembled.*

NOTE: *If unit is equipped with a cabin protective structure (for forestry, or hazardous working conditions), it must be removed.*

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Reference Number	Description
1	Counterweight
2	Hood
3	Muffler
4	Hydraulic Oil Tank
5	Fuel Tank
6	Engine
7	Fuel Tank Fill Cap
8	Radiator and Oil Cooler
9	Control Valves
10	Swing Motor
11	Precleaner
12	Air Cleaner
13	Swing Bearing
14	Cabin
15	Seat
16	Boom Cylinder
17	Work Lever (Joystick) Controls
18	Arm Cylinder
19	Boom
20	Travel Lever

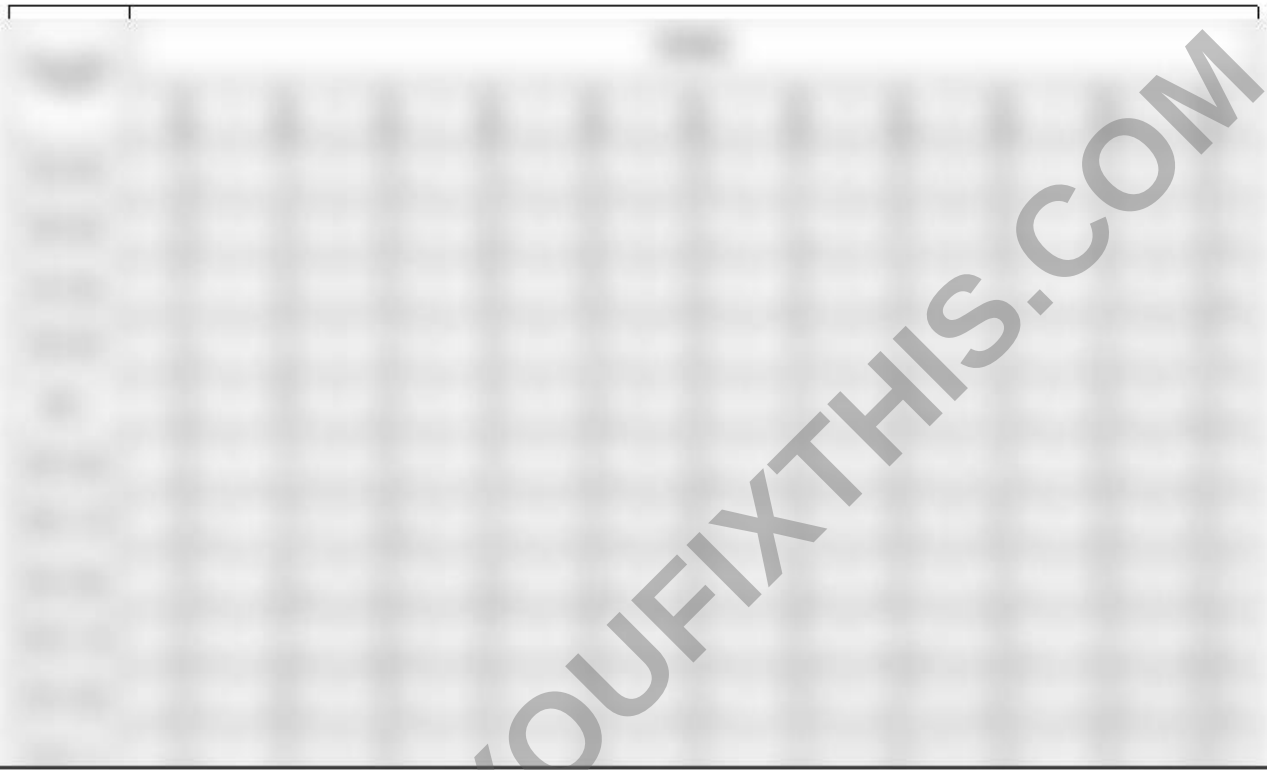
Reference Number	Description
21	Arm
22	Bucket Cylinder
23	Guide Link
24	Bucket
25	Push Link
26	Tooth Point
27	Side Cutter
28	Idler
29	Track Adjuster
30	Track Guide
31	Battery
32	Lower Roller
33	Center Joint
34	Upper Roller
35	Sprocket
36	Travel Motor
37	Track Link and Shoe
38	Suction Filter
39	Return Filter
40	Pumps

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TORQUE VALUES FOR STANDARD METRIC FASTENERS

NOTE: *The units for the torque values are kg•m (ft lb).*



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SAFETY PRECAUTIONS

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Center Joint (Swivel) SP000181
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REMOVAL

1. Look at fuel level display (Figure 2) on instrument panel in operator's cabin to see what it displays. The display is divided into ten separated segments, each representing 10 percent of total fuel supply. Also, look at level gauge on side of tank to estimate volume of fuel left in tank.

   NOTE: *If possible, work excavator until available fuel supply in tank has been run down as far as possible.*

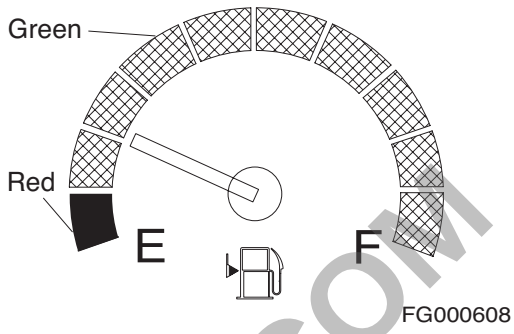


Figure 2

2. Park on firm and level ground and swing turntable to approximately a 90° with respect to tracks. See Figure 3.

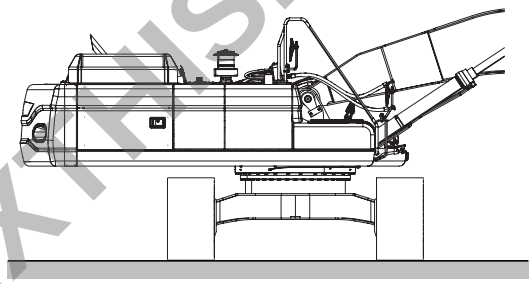


Figure 3

3. Lower front attachment (bucket) to ground.
4. Shut down engine.
5. Set safety lever on "RELEASED" position.
6. Turn starter switch to "I" (ON) position.

WARNING

If engine must be run while performing maintenance, use extreme care. Always have one person in the cabin at all times. Never leave the cabin with the engine running.

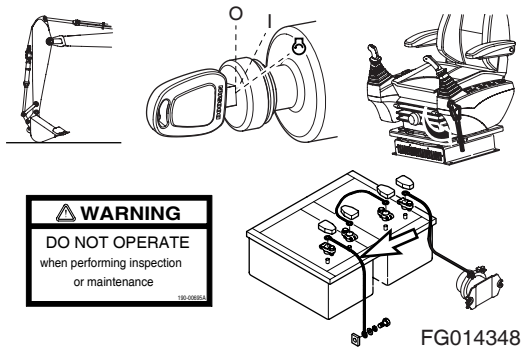


Figure 4

7. Fully stroke work levers (joysticks) in all directions to relieve any pressure from accumulators.
8. Set safety lever on "LOCK" position.
9. Turn key to "O" (OFF) position and remove from starter switch.
10. Hang maintenance warning tag on controls.
11. Disconnect negative (-) battery cable leading to frame from battery.

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8. Engage the snap ring (for ϕ 40 axis) to each thread of the pin 1 and turn the gear to check if it rotates smooth.



Figure 30



Figure 31

Assembly of the Carrier Subassembly 2

1. Put the carrier No.2 on the assembly die as shown in the figure below.

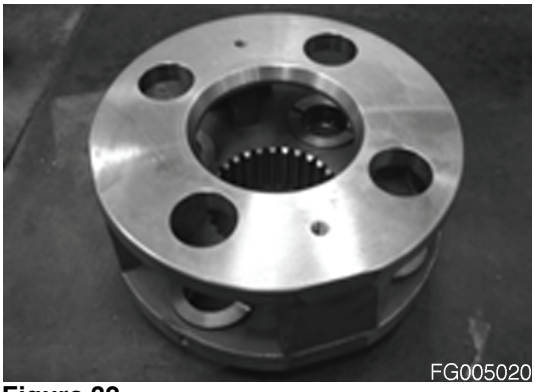


Figure 32

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FRONT IDLER ROLLER

Parts List

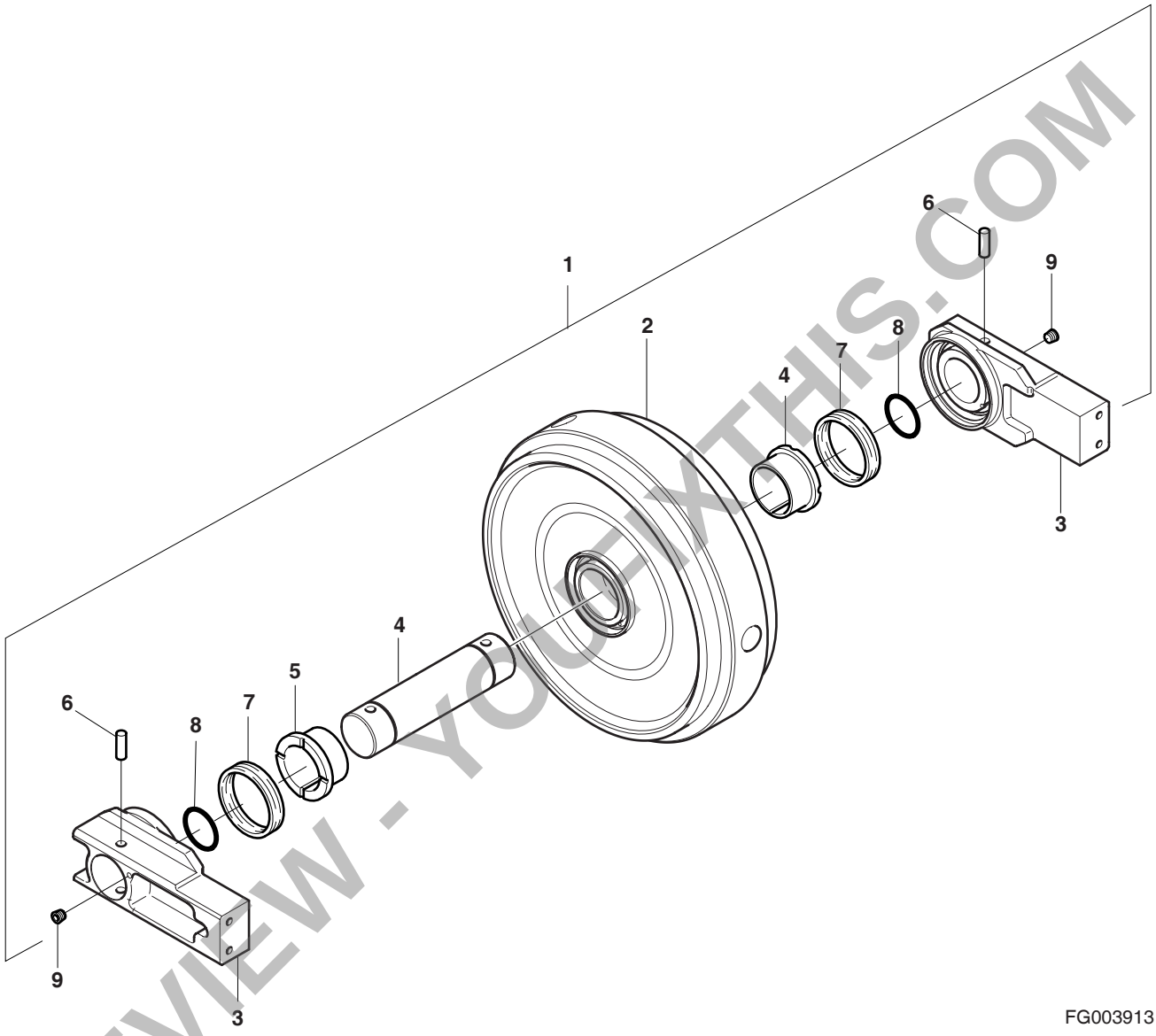


Figure 14

Reference Number	Description
1	Idler Assembly
2	Idler
3	Bearing
4	Shaft
5	Bushing

Reference Number	Description
6	Pin
7	Floating Seal
8	O-ring
9	Plug

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FLOW METER AND FLOW METER KIT INSTALLATION AND TESTING

Checking regulator and pump output, to assess the output balance between the front and rear pumps and to verify operating adjustment of each regulator, will require installation of a flow meter.

The After Sales Service department of the nearest local *DOOSAN* dealer can assist you with these tests or, if you prefer carrying out your own testing, they should be able to help in putting together a hose and fitting kit (or the required dimensions and specifications for hoses and fittings) to allow you to install a flow meter downstream from the main pump assembly.

Installation and Testing Procedure

- Shut down engine and operate controls to release hydraulic pressure from the accumulator.
- Vent the reservoir to release all pressure from the hydraulic system.
- Remove guard panels from around the main pump assembly.
- Disconnect the main pump discharge output line. Install the input flange of the flow meter on the pump end of the output line.
- Cap off the unused (input) end of the pump discharge line with a blocking flange.
- Connect a premeasured length of hydraulic hose, between the output end of the flow meter assembly and the top of the reservoir. Use appropriate fittings and adapter flanges to guarantee a pressure tight seal.

  NOTE: *Be sure to maintain even tightening torque on all flange fittings. Use Loctite brand "PST 545" (or an alternate manufacturer's hydraulic system joint seal) if required, to give an airtight seal.*

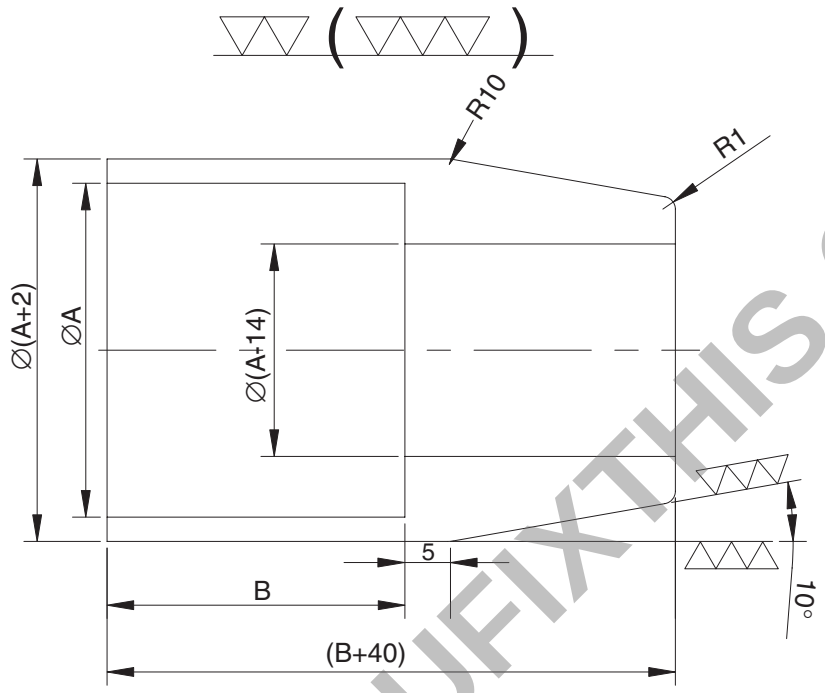
- An assistant – who must remain at the operator's control station at all times – should restart the engine and run it long enough (at minimum rpm) to de-aerate the system and warm up the engine and hydraulic system to operating temperature.

Record the values of all test results in three columns, comparing 1) pump pressure (from the instrument panel display) with 2) measured flow, in gallons or liters per minute, from the installed flow meter. The third column of test results should provide a record of engine rpm measured during each of the following tests – with the engine speed control dial set at maximum, the

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Slipper Seal Jig



ARS4770L

Figure 10

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13. Assemble plug, relief valve (35), and decompression valve (351) into valve casing subassembly to specified torque.

    NOTE: *Tightening torque:*

    Relief valve (35): 1800 kgf•cm

    Decompression valve (351): 450 kgf•cm



Figure 80

14. Install adjustment cover (352).



Figure 81

15. Loosen bolts for releasing brake and then assemble plug (564).

    NOTE: *Tightening torque for plug (564): 220 kgf•cm.*



Figure 82

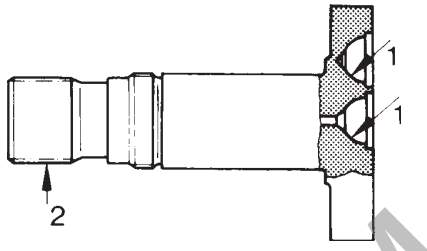
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5. Drive shafts:

   Check to ensure that cups are free of scores and that there is no pitting (1. Figure 70).

   Check to see that there is no evidence of corrosion and wear steps (2, Figure 70).

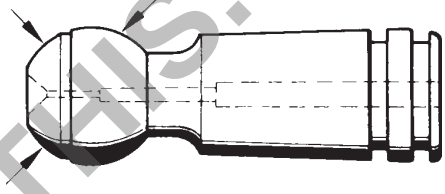


ASS0690L

Figure 70

6. Piston:

   Check to ensure that they are free of scores and that there is no pitting.

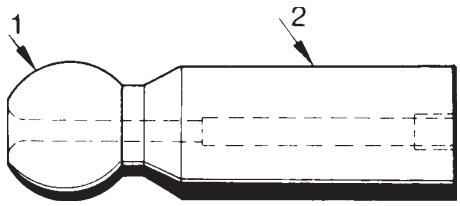


ASS0700L

Figure 71

7. Central pin:

   Check to ensure that it is free of scores and that there is no pitting.

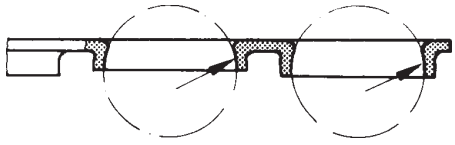


ASS071L

Figure 72

8. Retaining plate:

   Check to ensure that it is free of scores and that there is no evidence of wear.



ASS0720L

Figure 73

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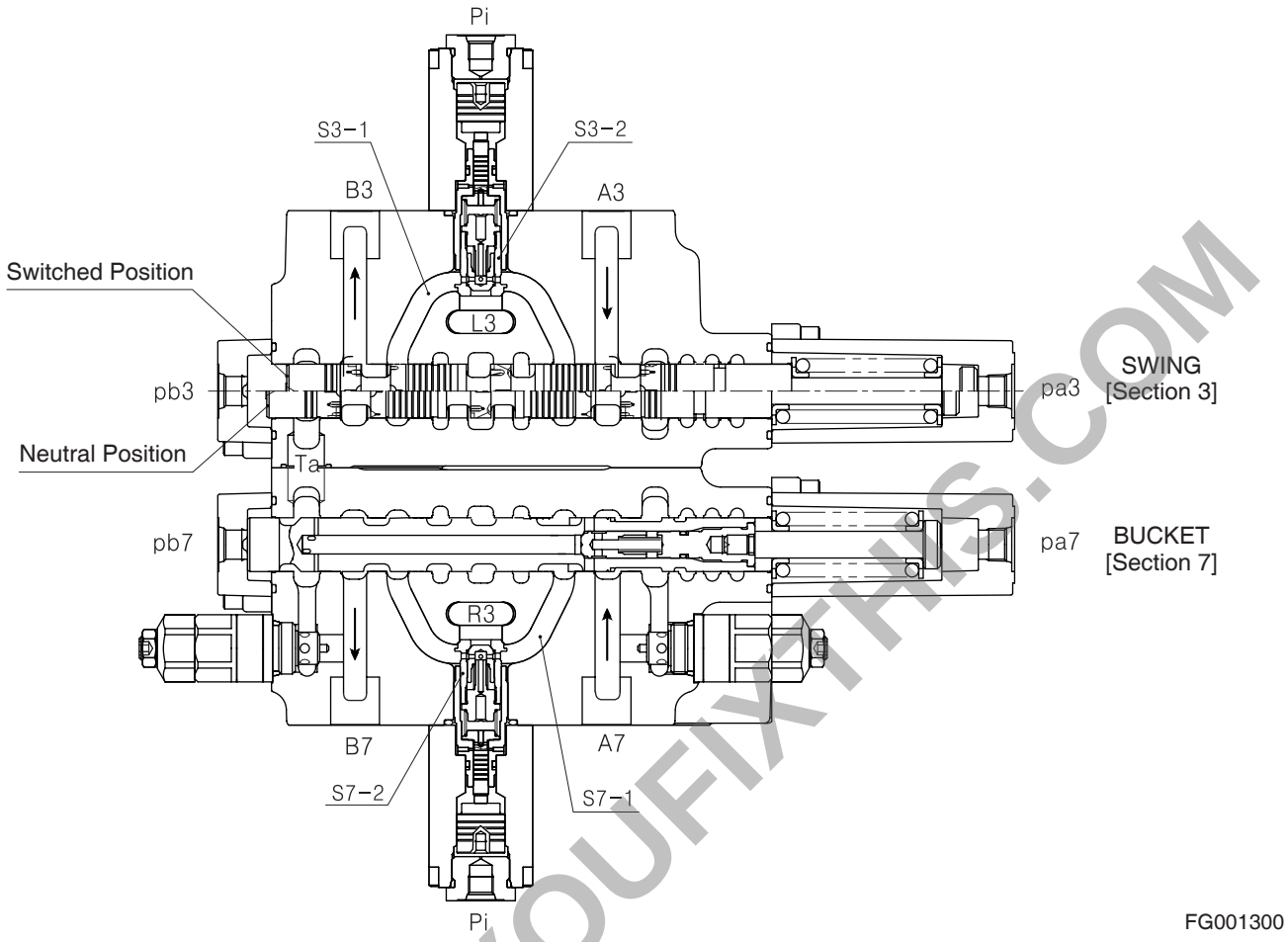


Figure 6

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Assembly of Arm 1 Para-turn Spool

1. Install spool subassembly (19) into valve housing.

CAUTION

After inserting spool, check to see if it slides easily.

2. Install O-ring (23) on cap (18) and fasten it in place with socket head bolt (78). Tightening torque: 0.90 - 1.10 kg•m (6.49 - 7.97 ft lb).

Assembly of Main Spool

1. Install O-ring (7, twenty places) on mating surface of valve housing cap.
2. Install spool of subassembly condition (2-6 and 14-17) in same positions that they were remove from during disassembly

CAUTION

Align spool with hole and insert it slowly.

After inserting spool, check to see if it slides easily.

If spool is inserted when it is in a poor operating condition with a scratch, it can cause a malfunction of the spool.

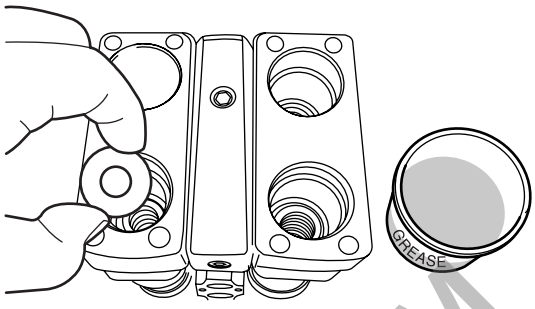
3. Install cap (12, ten places) and fasten it in place with socket head bolt (74). Tightening torque: 3.98 - 4.49 kg•m (29 - 32 ft lb).
4. Install cap (8, ten places) and fasten it in place with socket head bolt (74). Tightening torque: 3.98 - 4.49 kg•m (29 - 32 ft lb).
5. Install O-ring on plug assembly (72) and tighten it to two sides of cap of travel straight section (Section H-H). Tightening torque: 3.98 - 4.49 kg•m (29 - 32 ft lb).
6. Install O-ring (62) on plug assembly (91) and install it on long cap of spare section (Section G-G). Install O-ring (62) on plug assembly (105). Install plug assembly on short cap of spare section (Section G-G). Tightening torque: 3.98 - 4.49 kg•m (29 - 32 ft lb).

CAUTION

When tightening plug to cap, be careful not to over tighten. If it is over tighten, threads of cap can be damaged.

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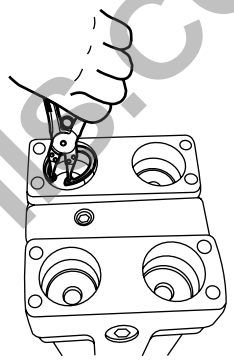
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FG000993

Figure 31

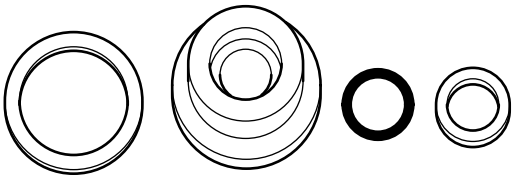
6. Install retaining ring (13). Make sure that it is properly seated.



FG000991

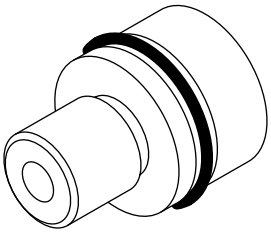
Figure 32

7. Assemble rod seal (23), dust seal (24), and O-ring (22) into plug (21).



FG001001

Figure 33



FG001002

Figure 34

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SAFETY PRECAUTIONS

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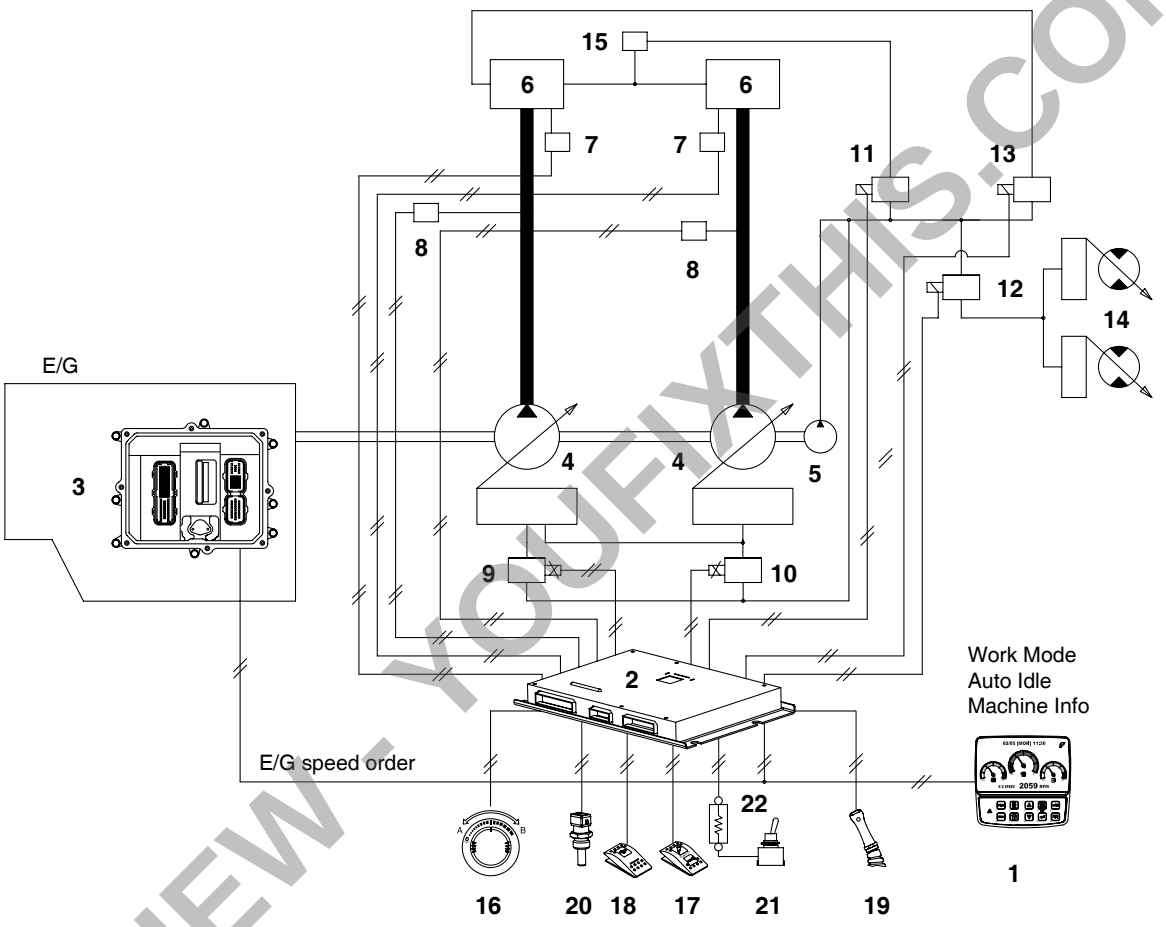
MODEL	SERIAL NUMBER RANGE
DX350LC	5980 and Up

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ELECTRONIC HYDRAULIC CONTROL SYSTEM (e-EPOS)

Control System Schematic



FG013630

Figure 51

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3. Do not over tighten connections when working on refrigerant system.
4. The new refrigerant system standards require new tools, equipment and parts. DO NOT attempt to use equipment use in servicing the old refrigerant system.
5. The new refrigerant oil (PAG type) has a high moisture absorption characteristic. When the refrigerant system vacuum seal has been broken, immediately plug up all openings to prevent moisture from entering into the system.
6. When joining unions which use O-ring seals, lightly coat O-rings with refrigerant oil. Be careful not to drip oil on the threads of the nut.
7. Be certain the O-rings are seated properly on the refrigerant line lip. Always use new O-rings when reassembling parts. Do not reuse old O-rings.
8. Use a vacuum pump to evacuate refrigerant system of air.
9. When charging the refrigerant system with the engine running, do not open the high-pressure valve on the manifold gauge as the reverse flow of high-pressure refrigerant will rupture the hose.
10. When releasing the high-pressure hose after completing the charging process, quickly disconnect the hose to minimize refrigerant released to the air.

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