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DIMENSIONS / Performance

>> Starting with Serial.No.		0001105/98
Dimensions (H x W x L)		8' 3" (2570 mm) / 7' 1" (2150 mm) / 13' 6" (3800 mm)
Transport length		21' 7" (6570 mm)
Boom swing angle	Left / right	80° / 50°
Front boom swing radius	min	5' 6" (1670 mm)
Tilt angle uppercarriage		N
Ground clearance	max	15" (390 mm)
Undercarriage width		2' 7" (2150 mm)
Track width	Standard	18" (450 mm)
Max. Dump height	Standard	17' 0" (5180 mm)
Max. Dump height / Option	Dipper arm long	N
Max. Dig height	Standard	23' 8" (7220 mm)
Max. Dig height / Option	Dipper arm long	N
Max. Dig radius	Standard	23' 9" (7240 mm)
Max. vertical dig depth	Standard	11' 7" (3520 mm)
Max. vertical digging depth / Opt.	Dipper arm long	N
Max. dig depth	Standard	14' 5" (4400 mm)
Max. dig depth / Option	Dipper arm long	N
Min. tail swing radius		5' 3" (1590 mm)
Dozer blade dimensions (W x H)	Standard	7' 1" (2150 mm) / 21" (540 mm)
Dozer blade dimensions (W x H)	Extension	N
Dozer blade max. lift .. Ground	above / below	21" (540 mm) / 18" (450 mm)
Dipper arm length	Standard	6' 1" (1850 mm)
Dipper arm "long"	Option	N
Track rollers / guide rollers	per side	5 / 1

Operation weight with	Cab	17417 lbs. (7900 kg)
Operation weight with	Canopy	N
Ground pressure	Standard	0.37 kg/cm^2
Ground pressure	Option	Steel Track 600 mm

Gradability		30° / 58%
Noise level	L_{WA}	95 dB (A)
Noise level	L_{PA}	75 dB (A)
Travel speed	Drive	2.4 mph (3,8 km/h) /3.5 mph (5,6 km/h)
Tear out force per	Bucket tooth	719 psi (4960 kp)
Max. dipper arm tear out force	Standard	525 psi (3620 kp)
Slew (swivel-) speed	Uppercarriage	9.5 rpm
Tractive effort	Undercarriage	17 lbs. (7.700 kg)

Explaination:
F... Missing information
O... Option
N... No / Not

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6. DIESEL ENGINE SPECIFICATIONS

1	Diesel engine model	Yanmar **4TNE98-NSR**	
2	**Starting with Serial.No.:**		**0001105/98**
3	Type	Vertical, 4-Cyl. Water-cooled diesel engine	
4	Suction system	Natural suction	
5	Combustion system	Direct injection	
6	Glow system	Preheater	
7	Direction of rotation	Counter-clockwise	
8	Governor	Mechical Centrifugal	
9	Lubrication system	Forced lubrication with trochoid pump	
10	Starting system	Electrical	
11	Cooling system	Suction fan	

DATA:

12	Max. revolution speed (no load)	2200 rpm +50 / -50
13	Max. rev.speed with load	F
14	Rated revolution speed	2100 rpm +25 / -25
15	Min. revolution speed (no load)	1100 rpm +50 / -50
16	Displacement (Bore x Stroke)	202.5 cu. in. (3319 cc) (98x110)
17	Output (at rev. Speed 14)	58.7 hp (43.8 kW)
18	Max. engine output	69.1 hp (51.5 kW)
19	No. of cylinders	4
20	Valve clearance (Intake / exhaust)	0.006 – 0.010 in (0.15 – 0.25 mm)
21	Compression ratio	18.0
22	Fuel injection timing	11° +/-1°
23	Fuel injection pressure	3191 - 3336 psi (220 - 230 bar)
24	Compression pressure	508 psi (35 bar) ->250 rpm
25	Engine oil pressure (rev. speed level)	43.5 - 58 psi (3.0 - 4.0 bar)
26	Pressure switch engine oil pump	5.8 - 8.7 psi (0.4 - 0.6 bar)

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1. MAINTENANCE CHART

Servicing activity component	every 10 h (daily)	every 50 h (weekly)	every 250 h (6 months)	every 500 h (12 months)	every 1000 h (18 months)	annually
ENGINE						
Oil level	O					
Fuel level	O					
Leakage	O					
Visual check	O					
Air filter	O/X			<>		<>
Tightness of mounting bolts		O				
Coolant	O					
Engine speed regulation			O			
Exhaust system			O			
Engine oil	O	<>(1)	<>			<>
Oil filter		<>(1)	<>			<>
V-belt: condition and tension		O				
Cooler fins		X				
Valve clearance		O			O	
Alternator, starter					O	
Fuel tank					X	
Water pump					O	
Fuel filter		O	<>			<>
Cooling system and hoses				O		
Electrical connections				O		
Pre-glow system				O		
Coolant thermostat				O		
Battery fluid		O				

O - Check
X - Clean
<> - Change/Replace
<> (1) - Change/Replace the first time

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Quantities

Engine			Coolant	Hydraulic Oil System Fill	Hydraulic Transmission	
Type	Power Output	Engine Oil			Turning Trans-mission	Driving Trans-mission
Yanmar 4TNE98-NSR	61.2 HP (45.6 kW)	10.8 qts. (10.2 L)	9.2 qts. (8.7 L)	128 qts. (122 L)	2.64 qts. (2.5 L)	1.32 qts. (1.25 L)

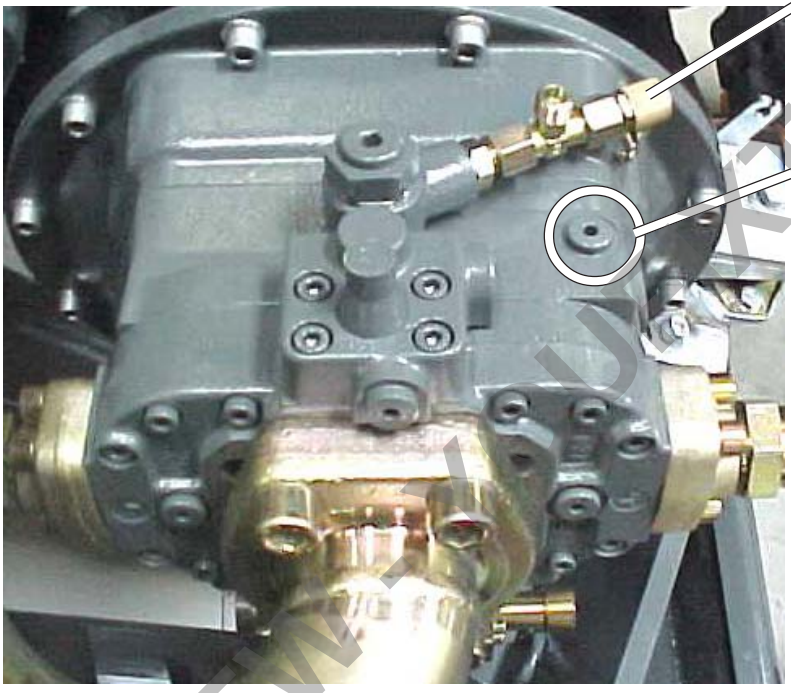
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3. HYDRAULIC PUMP

Bleeding of hydraulic pump

- Shut down device
- Open the breathing / bleeding filter
- Open screw plug air bleed screw
- Drain a small amount of hydraulic oil via the air bleed screw



Bleeding of Suction Line

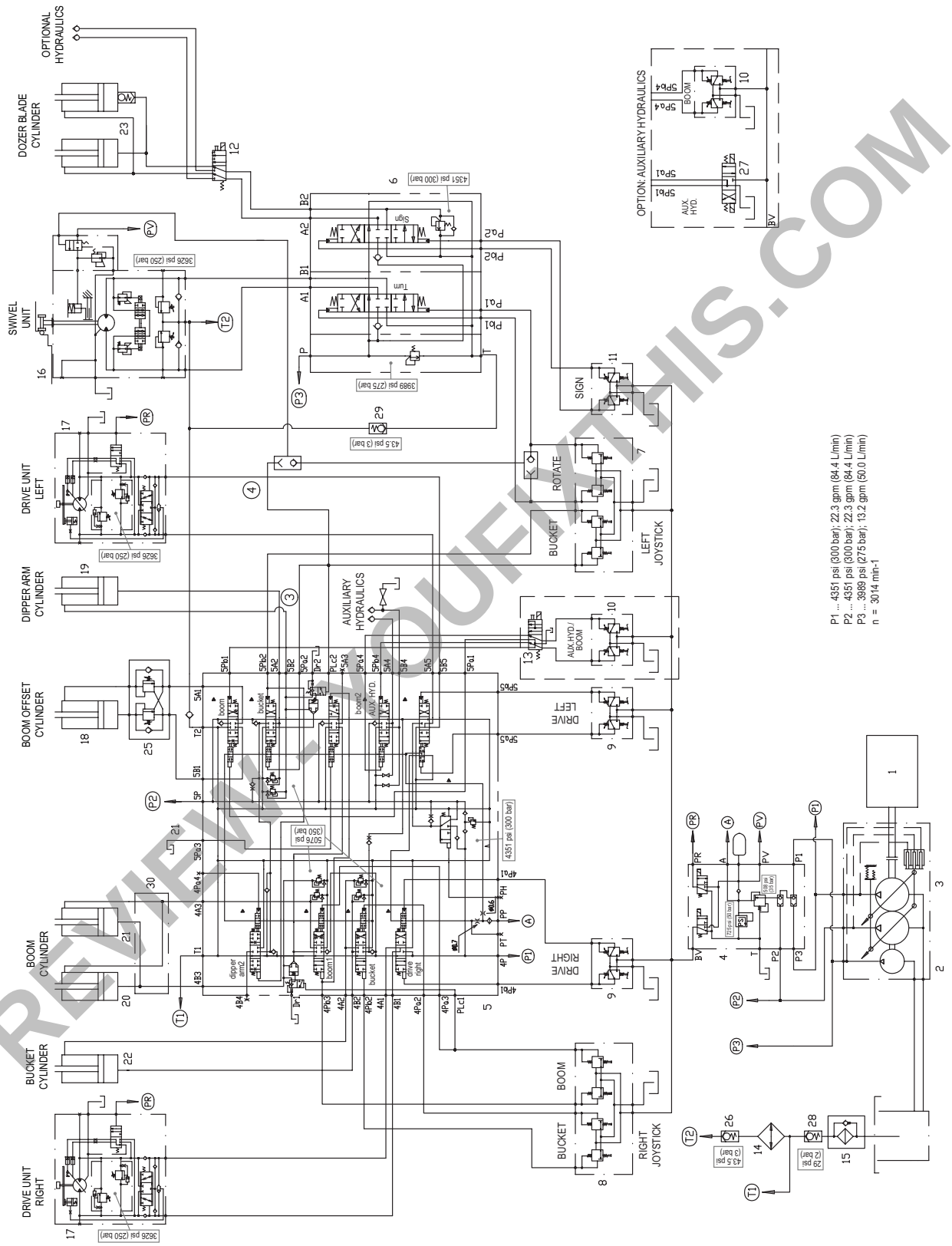


The measuring port mounted on the pump suction line (in the engine compartment) is provided for venting the pump suction line.

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Pict.: Hydraulic diagram (7011093)



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Service News

Issue: (Pilot) System pressure drop
Solution: Return line with non-return valve

Possible problem:

The pilot system pressure drops during low engine idle.
This is caused by low pressure in the hydraulic system -- minimum 145 – 174 psi (10 – 12 bar).
The hydraulic functions do not react, or react with little control.

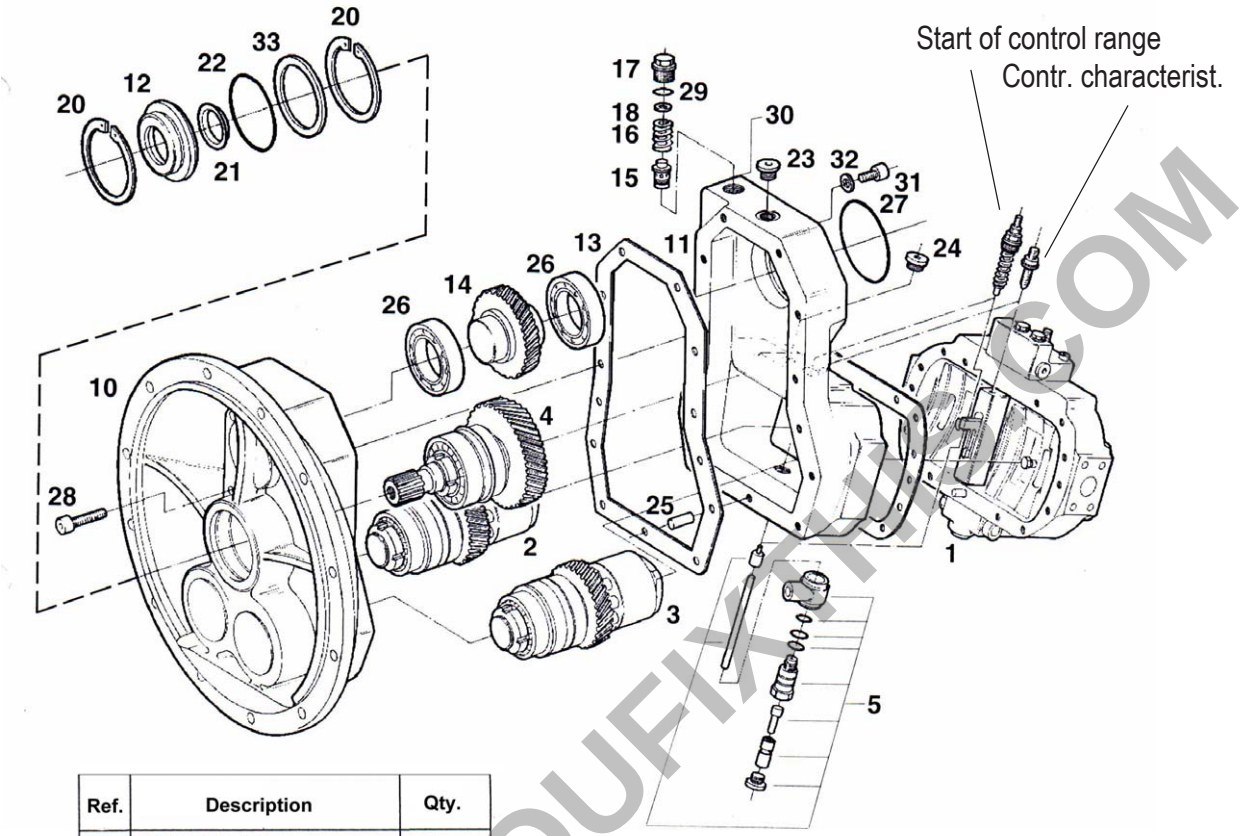
Measures to do:

An additional non-return valve was added to the return line, increasing hydraulic system pressure.

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Pict.: Part group structure double variable-displacement pump (7008303) -

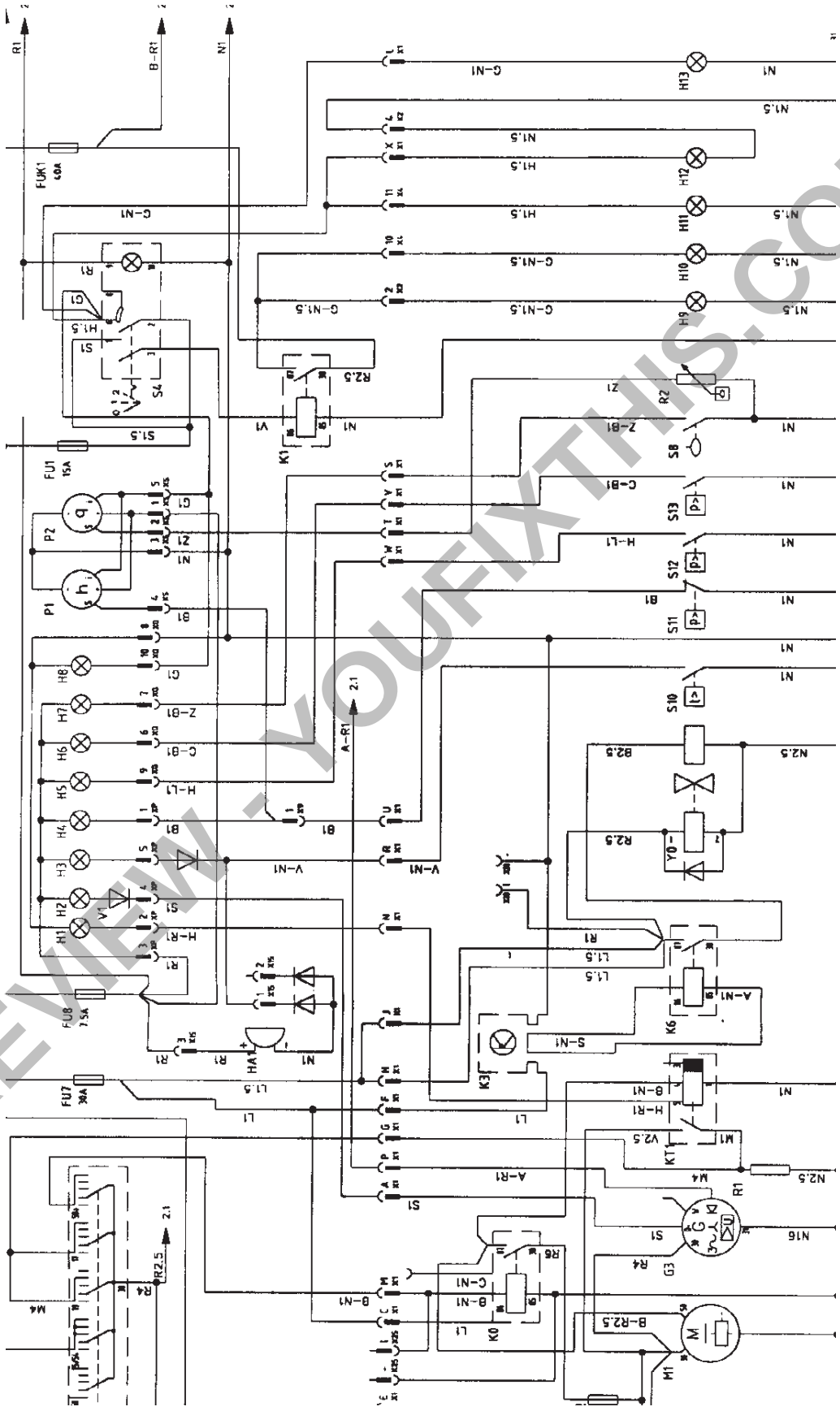


Ref.	Description	Qty.
1	Control device	1
2	Rotary group	1
3	Rotary group	1
4	Rotary group	1
5	3-circuit control valve	1
10	Gearbox housing	1
11	Rotary group housing	1
12	Front cover	1
13	Seal	1
14	Gear	1
15	Valve piston	1
16	Pressure spring	1
17	Locking screw	1
18	Disc	2
20	Retaining ring	2
21	Radial seal ring	1
22	O- ring	1
23	Locking screw	1
24	Locking screw	2
25	Pin	2
26	Deep groove	2
27	O- ring	1
28	Socket screw	12
29	O- ring	1
30	Doulble-breakaway plug	1
31	Socket screw	2
32	Disc	2
33	Thrust disc	1

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Pict.: Electrical wiring diagram (from Serial No.: 0001105/98 to AB00473)



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TORQUE SPECIFICATIONS

Note: Use these torque values when tightening hardware (excluding: locknuts and self-tapping, thread forming and sheet metal screws) unless specified otherwise.

Hydraulic fittings with various seals (light application). All torque values are in lb.-ft. (Nm) unless marked otherwise.

Thread	Straight pipe fitting with thread and screwed plug (GE)			Non-return valve with elastic seal	Identification aid outside Ø
	Sealing washer	Elastic seal	O-ring		
M10X1.0	7 (9)	13 (18)	11 (15)	13 (18)	0.4 in. (10 mm)
M12X1.5	15 (20)	18 (25)	18 (25)	18 (25)	0.5 in. (12 mm)
M14X1.5	26 (35)	33 (45)	26 (35)	26 (35)	0.6 in. (14 mm)
M16X1.5	33 (45)	41 (55)	30 (40)	37 (50)	0.6 in. (16 mm)
M18X1.5	41 (55)	52 (70)	33 (45)	52 (70)	0.7 in. (18 mm)
M22X1.5	48 (65)	92 (125)	44 (60)	92 (125)	0.9 in. (22 mm)
M27X2.0	66 (90)	133 (180)	74 (100)	107 (145)	1.0 in. (27 mm)
M33X2.0	111 (150)	229 (310)	118 (160)	155 (210)	1.3 in. (33 mm)
M42X2.0	177 (240)	332 (450)	155 (210)	266 (360)	1.7 in. (42 mm)
M48X2.0	214 (290)	398 (540)	192 (260)	398 (540)	1.9 in. (48 mm)
G1/8A	7 (9)	13 (18)	11 (15)	13 (18)	0.4 in. (9.73 mm)
G1/4A	26 (35)	26 (35)	22 (30)	26 (35)	0.5 in. (13.16 mm)
G3/8A	33 (45)	52 (70)	33 (45)	37 (50)	0.7 in. (16.66 mm)
G1/2A	48 (65)	66 (90)	41 (55)	48 (65)	0.8 in. (20.96 mm)
G3/4A	66 (90)	133 (180)	74 (100)	103 (140)	1.0 in. (26.44 mm)
G1A	111 (150)	229 (310)	118 (160)	140 (190)	1.3 in. (33 mm)
G1 1/4A	177 (240)	332 (450)	155 (210)	266 (360)	1.7 in. (41.91 mm)
G1 1/2A	214 (290)	398 (540)	192 (260)	398 (540)	1.9 in. (47.80 mm)

Hydraulic fittings with various seals (heavy application). All torque values are in lb.-ft. (Nm) unless marked otherwise.

Thread	Straight pipe fitting with thread and screwed plug (GE)			Non-return valve with elastic seal	Identification aid outside Ø
	Sealing washer	Elastic seal	O-ring		
M12X1.5	15 (20)	26 (35)	26 (35)	26 (35)	0.5 in. (12 mm)
M14X1.5	26 (35)	41 (55)	33 (45)	33 (45)	0.6 in. (14 mm)
M16X1.5	33 (45)	52 (70)	41 (55)	41 (55)	0.6 in. (16 mm)
M18X1.5	41 (55)	66 (90)	52 (70)	52 (70)	0.7 in. (18 mm)
M20X1.5	41 (55)	92 (125)	59 (80)	74 (100)	0.8 in. (20 mm)
M22X1.5	48 (65)	100 (135)	74 (100)	92 (125)	0.9 in. (22 mm)
M27X2.0	66 (90)	133 (180)	125 (170)	100 (135)	1.0 in. (27 mm)
M33X2.0	111 (150)	229 (310)	229 (310)	155 (210)	1.3 in. (33 mm)
M42X2.0	177 (240)	332 (450)	243 (330)	266 (360)	1.7 in. (42 mm)
M48X2.0	214 (290)	398 (540)	310 (420)	398 (540)	1.9 in. (48 mm)
G1/8A	26 (35)	41 (55)	33 (45)	33 (45)	0.5 in. (13.16 mm)
G1/4A	33 (45)	59 (80)	44 (60)	44 (60)	0.7 in. (16.66 mm)
G3/8A	48 (65)	85 (115)	55 (75)	74 (100)	0.8 in. (20.96 mm)
G1/2A	66 (90)	133 (180)	125 (170)	107 (145)	1.0 in. (26.44 mm)
G3/4A	111 (150)	229 (310)	229 (310)	192 (260)	1.3 in. (33 mm)
G1A	177 (240)	332 (450)	243 (330)	266 (360)	1.7 in. (41.91 mm)
G1 1/4A	214 (290)	398 (540)	310 (420)	398 (540)	1.9 in. (47.80 mm)

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