AL140
AL240
AL340

Articulated Loader





GEHL®

Form No.
918274
Revison B
Dec. 2011

Service Manual

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CHAPTER 1 — SAFETY

This manual and decals on the machine warn of safety hazards and should be read and observed closely.

Before operating the machine, first read and study the safety information in this manual, and the safety information in the Operator's Manual. Additionally, anyone who operates or works on the machine must be familiar with these safety precautions.



This safety alert symbol means ATTENTION! ALWAYS BE ALERT! YOUR SAFETY IS INVOLVED! This symbol is used throughout this manual and on the decals on the machine.

DANGER

"DANGER" indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

WARNING

"WARNING" indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION

"CAUTION" indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury or property damage. It is also used to alert users of unsafe practices.

It is essential that operators are thoroughly trained in the safe operation of the machine and handling loads. Operators must not be physically or mentally impaired. Do not allow minors or unqualified personnel to operate the machine, or to be near the machine unless they are properly supervised. It is recommended that the operator be capable of obtaining a valid motor vehicle operator's license.

Use of this machine is subject to certain hazards that cannot be eliminated by mechanical means, but only by exercising intelligence, care and common sense. Such hazards include: hillside operation, overloading, load instability, poor maintenance, and using the machine for a purpose for which it was not intended or designed.

Gehl Company always takes operator's safety into consideration during the design process. Guards and shields are provided, which protect the operator and bystanders from moving parts and other hazards. Operators must be alert, however, because some areas cannot be guarded or shielded without preventing or interfering with proper operation.

WARNING

The machine must be equipped with a Falling-Object Protective Structure (FOPS) when the machine is intended for applications where there is a risk of falling objects.

Different applications may require optional safety equipment. Be sure you know the work site hazards and equip the machine and the operator as necessary. The information in this manual does not replace any applicable safety rules and laws. Before operating the machine, learn the rules and laws for your area. Make sure the machine is equipped as required according to these rules/laws.

Some photographs in this manual may show doors, guards and shields open or removed for the purposes of illustration only. Be sure that all doors, guards and shields are in the proper operating positions before starting the engine to operate the machine.

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CHAPTER 2 — SPECIFICATIONS

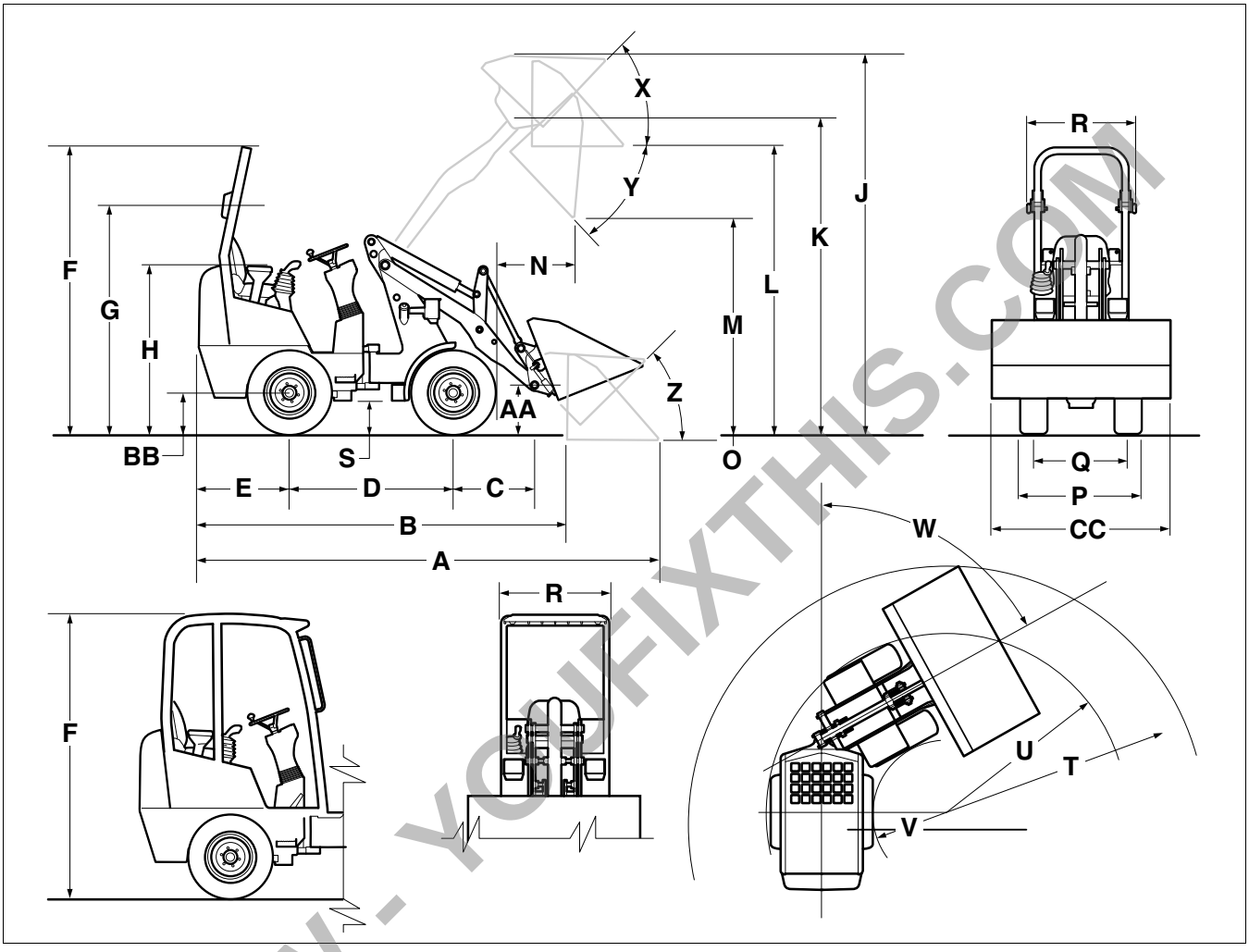
Fluid Capacities/Lubricants

Application	AL 100 Series	AL 200 Series	AL 300 Series
Diesel Engine Oil			
Specification	API CD or Higher (United States) ACEA E-3, E-4, E-5 (European Union)		
Season/Temp. Range	SAE 10W-30: -20°C (-4°F) to 30°C (86°F) SAE 15W-40: -15°C (5°F) to 40°C (104°F) SAE 20W-50: -10°C (14°F) to 50°C (122°F)		
Capacity	4.4 L (4.6 qts.)	6.7 L (7.2 qts.)	7.4 L (7.8 qts.)
Axle Oil	75W90 gear oil or UTTO Fluid (Mobil 424 or equivalent)		UTTO Fluid (Mobil 424 or equivalent
Hubs (each)			0.4 L (0.4 qt.)
Front Center	3.78 L (4 qt.)		2.5 L (2.6 qt.)
Rear Center			3.2 L (3.4 qt.)
Grease			
Specification	KF2K-25 Lithium		
Season/Temp. Range	Year-Round		
Capacity	As Required		
Engine Coolant System/Radiator			
Specification	Long-life coolant ASTM D4985, D6210 (United States) SAE J814D, J1941, J1034 or J2036 (International)		
Season/Temp. Range	Year-Round		
Capacity	5.3 L (5.6 qts.)		
Windshield Washer			
Specification	Windshield Washer Fluid		
Season/Temp. Range	Year-Round		
Capacity	N/A		1.3 L (1.4 qts.)
Brake Fluid	N/A		Automatic Transmis-sion Fluid

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Dimensions - AL 100 Series



Ref.	Description	Millimeters (Inches) unless otherwise noted	
		2-Post ROPS	4-Post ROPS
A	Length with Bucket on Ground	3419 (134.6)	
B	Shipping Length (without bucket)	2741 (107.9)	
C	Front Wheel Center to Pivot Pin	489 (19.3)	
D	Wheelbase	1348 (53.1)	
E	Rear Overhang	738 (29.1)	
F	Height to Top of ROPS/Cab	2340 (92.1)	2190 (86.2)
G	Folded 2-Post ROPS Height	1863 (73.3)	—
H	Hood Height	1359 (53.5)	
J	Maximum Reach Height	3277 (129.0)	
K	Bucket Hinge Pin Height	2705 (106.5)	
L	Ground Plant to Bucket Edge Height	2504 (98.6)	
M	Dump Clearance at Full Height	1969 (77.5)	
Ref.	Description	Millimeters (Inches) unless otherwise noted	
		2-Post ROPS	4-Post ROPS

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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.

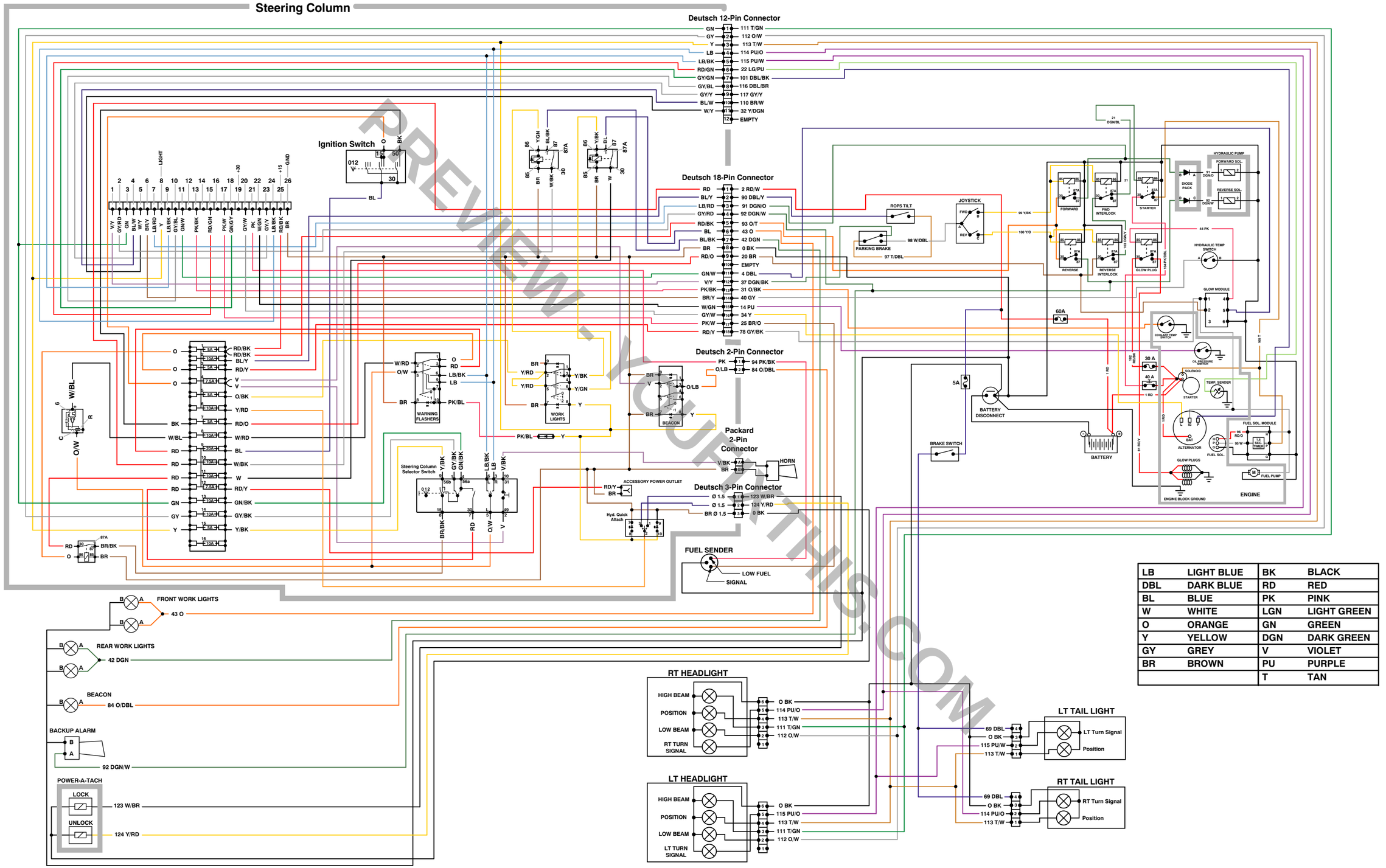
Hydraulic fittings with various seals (light application). All torque values are in lb.-ft. (N•m) unless marked otherwise.					
Thread	Straight pipe fitting with thread and screwed plug (GE)			Non-return valve with elastic seal	Identification aid outside Ø
	Sealing washer	Elastic seal	O-ring		
M10X1.0	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. (33.25 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. (N•m) 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. (33.25 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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AL100 and 200 Series Complete Electrical Schematic – With Road Homologation (AL100 Series - SN 10254 and Before; 200 Series - SN 20234 and Before)

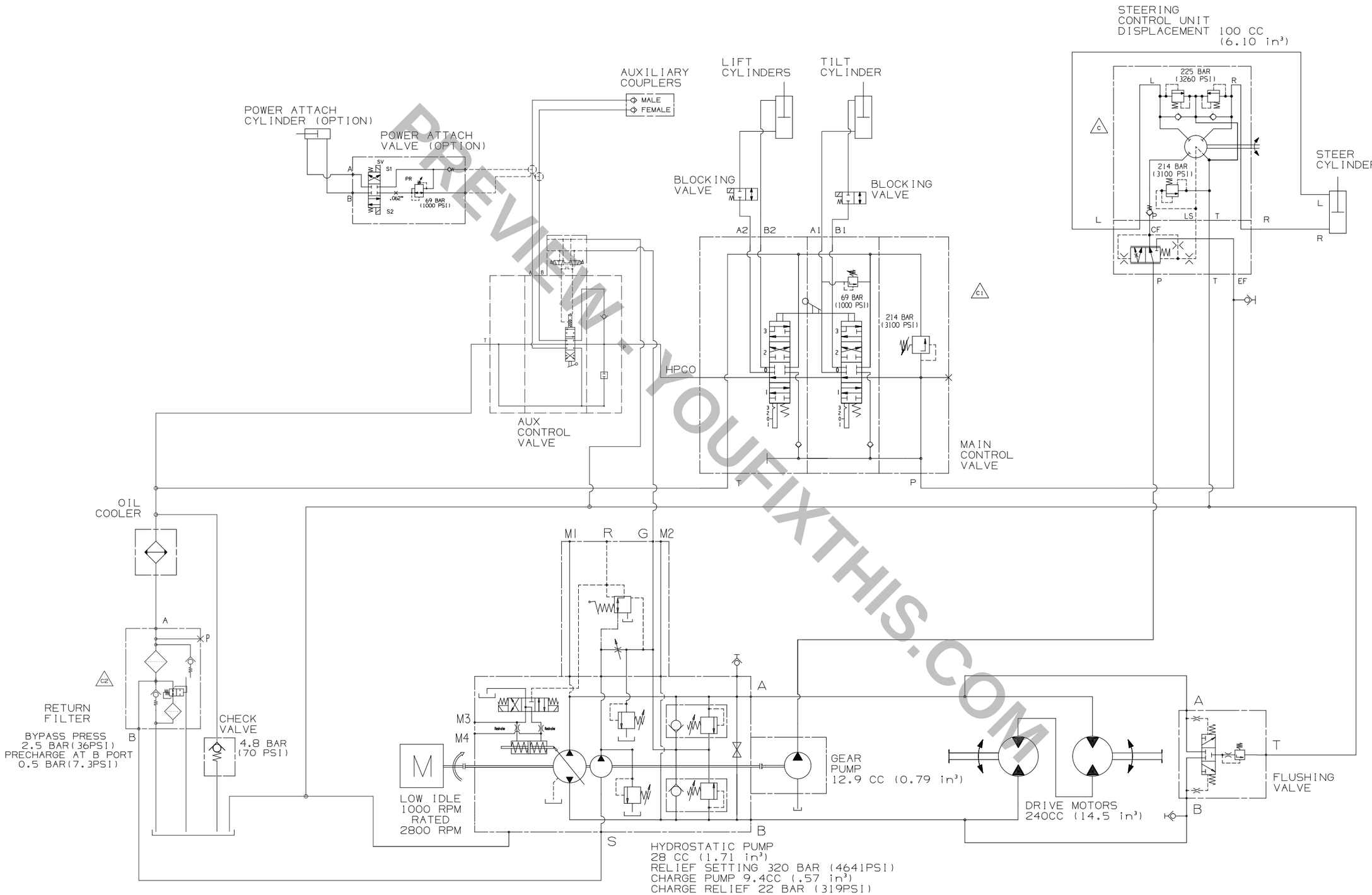


LB	LIGHT BLUE	BK	BLACK
DBL	DARK BLUE	RD	RED
BL	BLUE	PK	PINK
W	WHITE	LGN	LIGHT GREEN
O	ORANGE	GN	GREEN
Y	YELLOW	DGN	DARK GREEN
GY	GREY	V	VIOLET
BR	BROWN	PU	PURPLE
		T	TAN

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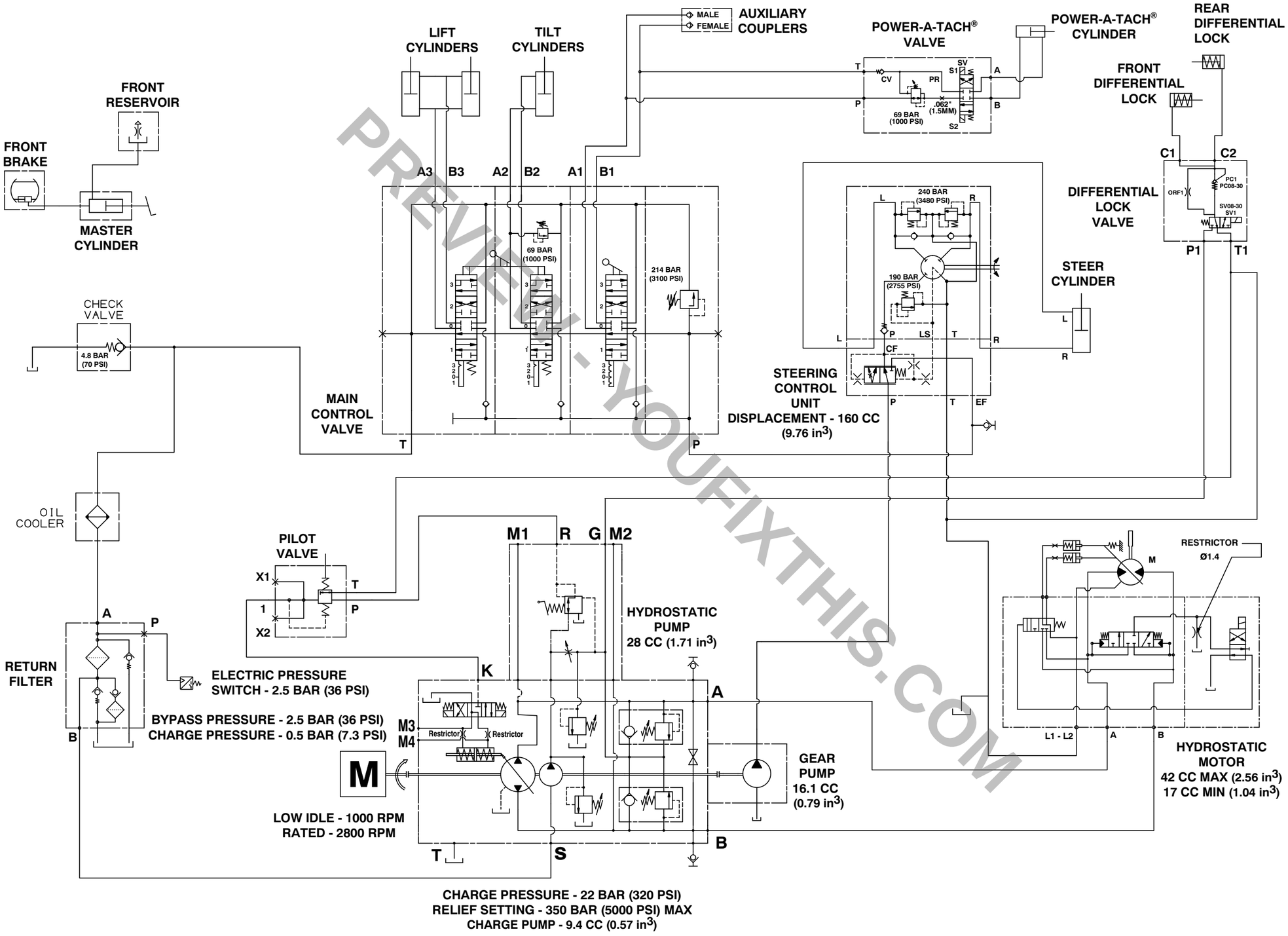
AL100 Series Hydraulic Schematic – SN 11257 and Up



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AL300 Series Hydraulic Schematic – SN 31364 and Before



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Engine Maintenance

WARNING

Allow engine and hydraulic system components to cool before performing maintenance.

Engine Oil

Engine Oil Level Check

1. Position the machine on a level surface.
2. Perform the "Mandatory Safety Shutdown Procedure" on page 4.
3. Wait until the machine has cooled. See "Service Safety Practices" on page 7.
4. Open engine cover.

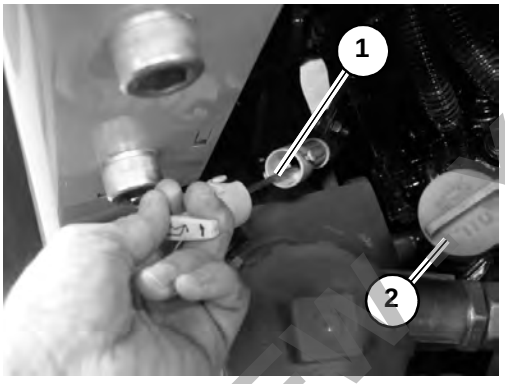


Figure 1 – Oil Dipstick and Fill Cap (AL300 Series shown)

1. Oil Dipstick
2. Oil Fill Cap

1. Remove the dipstick (1, Figure 1). Wipe dipstick with a clean cloth.
2. Insert the dipstick (1, Figure 1) until it is fully inserted, and remove.
3. Read markings on the dipstick. Markings represent FULL and LOW (add oil) levels.

See *"Maintenance Schedule" on page 24* for the service interval for replacing the engine oil and filter.

Changing Engine Oil and Filter

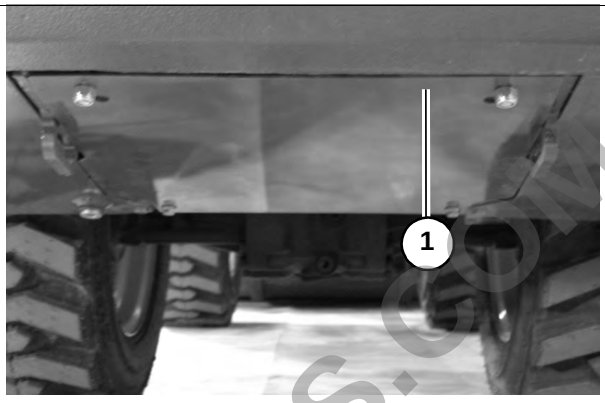


Figure 2 – Engine Access Panel (AL300 Series shown)

1. Engine Access Panel

Change the engine oil and filter after the first 50 hours of use; every 250 hours thereafter.

1. Position the machine on a level surface.
2. Perform the "Mandatory Safety Shutdown Procedure" on page 4.
3. Wait until the machine has cooled. See "Service Safety Practices" on page 7.
4. Remove the engine access panel (1, Figure 2).

NOTE: *Removing engine access panel requires two people.*

5. Position a waste oil collection container to catch draining oil (2, Figure 3).

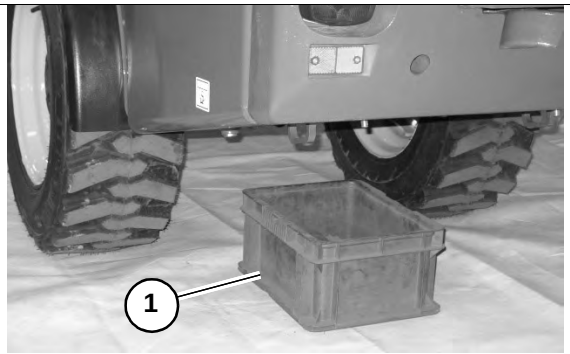


Figure 3 – Waste Oil Collection Container (AL300 Series shown)

1. Waste Oil Collection Container

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Air Cleaner

IMPORTANT: *Do not operate the engine without the air cleaner components installed or damage to the engine could occur. Failure to follow air cleaner servicing instructions can also cause engine damage.*

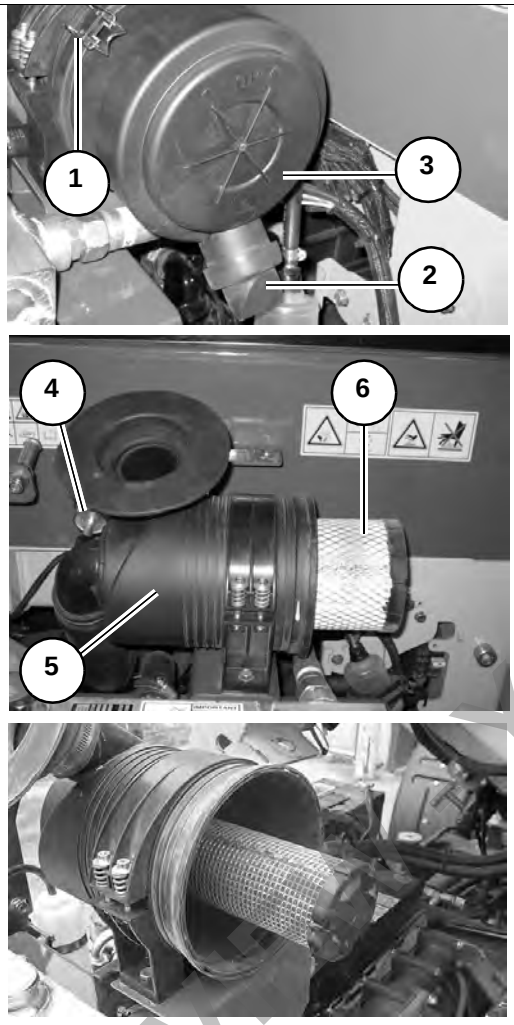


Figure 5 – Dual-Element Air Cleaner (AL300 Series shown)

1. Clamp
2. Dust Valve
3. Element Cover
4. Air Filter Restriction Indicator
5. Element Housing
6. Outer Filter Element
7. Inner Filter Element

The air cleaner consists of an outer (primary) filter element and an inner (secondary) filter element. If the air cleaner becomes restricted, the air filter restriction indicator (4, Figure 5) turns red to warn the operator that the element(s) require service. Push the reset button located on the end of the indicator after installing clean filter element(s). Pinching the dust valve (2) opens a slit at the end of the valve, allowing accumulated dust in the end of the element cover to drop out without removing the cover.

Only replace the inner element every third time the outer element is replaced, unless the outer element is damaged or the inner element is dirty.

Be sure that the restriction indicator, air cleaner intake hose, clamps and mounting bracket hardware are properly tightened.

Accessing the Outer and Inner Filter Elements

1. Perform the "Mandatory Safety Shutdown Procedure" on page 4.
2. Open the engine cover.
3. Unlatch clamps (1, Figure 5) on the air cleaner and remove cover (3).
4. Clean any debris from the cover (3).

Changing the Outer Filter Element

1. Complete all steps in "Accessing the Outer and Inner Filter Elements" on page 28.
2. Carefully remove the outer filter element (6). Do not remove the inner filter element (7) unless it is to be replaced. See "Changing the Inner Filter Element" on page 29.

NOTE: *Gehl does not recommend cleaning the filter elements.*

3. Clean dust and debris from housing (5) and cover (3). Leave the inner filter element (7) installed during this step to prevent debris from entering the engine intake manifold.
4. Check the inside of the housing for any damage that may interfere with the elements.
5. Install new outer filter element (6).
6. Replace cover (3) and latch clamps (1) to secure cover (3).

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Standard Steering Column

AL100 and 200 Series only.

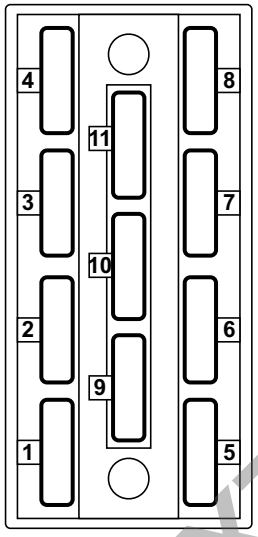


Figure 31 – Fuse Panel, Standard Steering Column

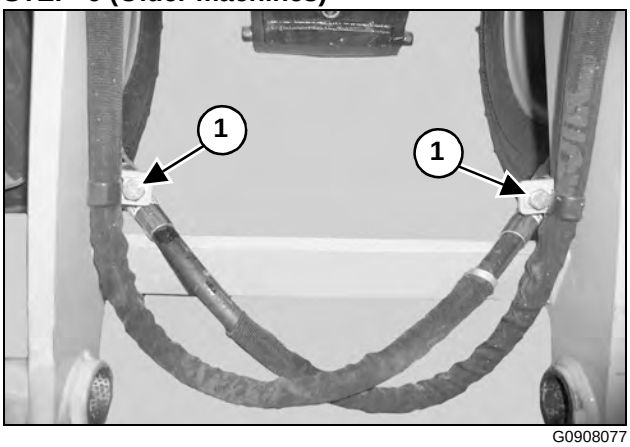
Fuse No.	Rated Current (Amp)	Protected Circuit
1	5	Instrument panel, forward and reverse relays
2	5	Joystick
3	5	Fuel pump, glow module, fuel solenoid hold
4	7.5	Horn, beacon
5	5	Steering column switch lights
6	10	Power-A-Tach® System
7	5	Starter relay
8	20	Ignition switch
9	10	Rear work light
10	10	Front work light
11	7.5	12V accessory power outlet

Figure 32

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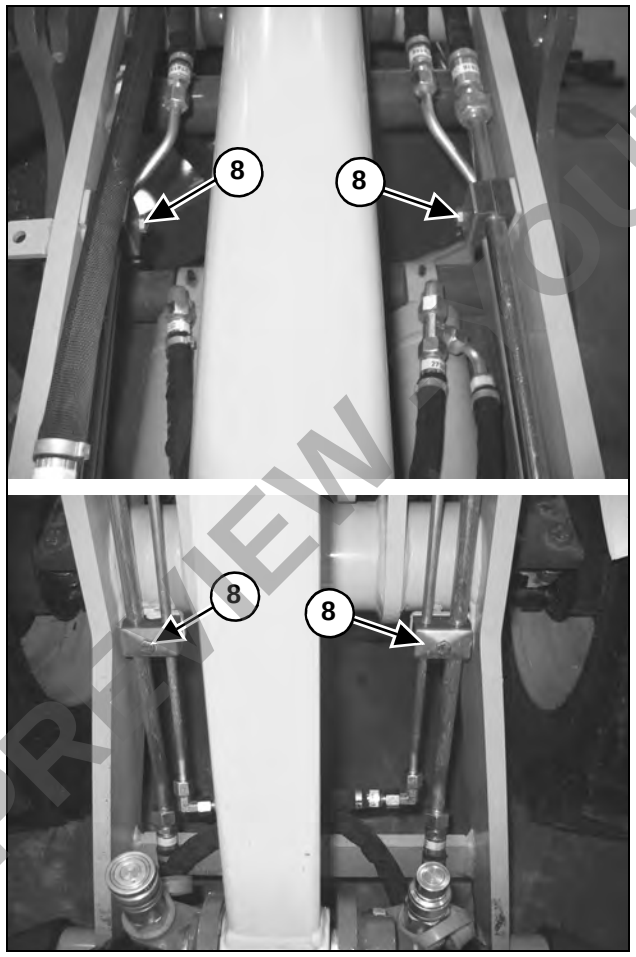
STEP 9 (Older machines)



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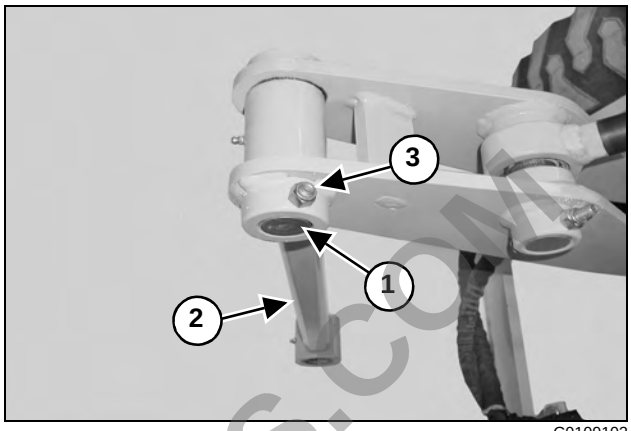
Install the two lower P-clamps, mounting bolts and nuts (1) on the lift arm linkage as shown.

(Newer machines AL300 Series machine shown, others similar)



Secure the hydraulic tubes to the lift arm using hardware and clamps (8).

STEP 10



G0109103

Align the stabilizer arm (1) with the lift arm linkage. Install the stabilizer arm pin (2). Install the retaining bolt and nut (3) and tighten to 33 lb-ft. (45 N•m).

STEP 11

Install the attachment plate according to "Attachment Plate Installation" on page 100.

STEP 12

Start the machine and bleed air out of the tilt cylinder by cycling the cylinder through full extension and retraction three times.

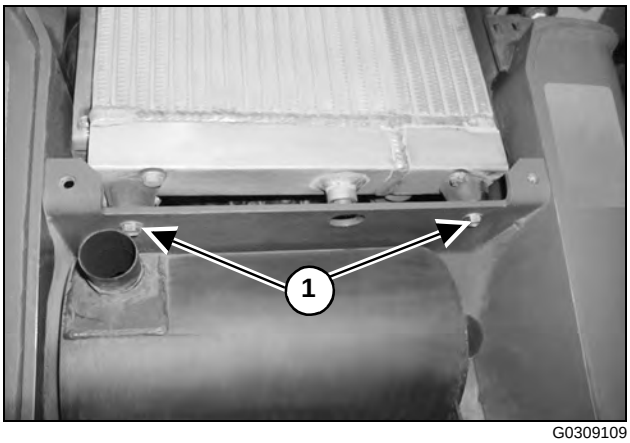
STEP 13

Check the hydraulic fluid level and fill as required. Refer to "Fluid Capacities/Lubricants" on page 11 for hydraulic fluid specifications.

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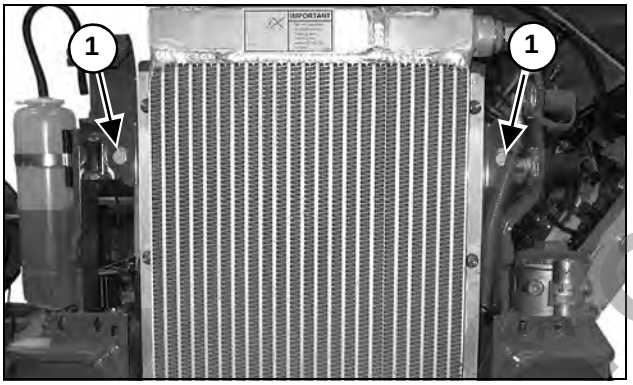
STEP 3



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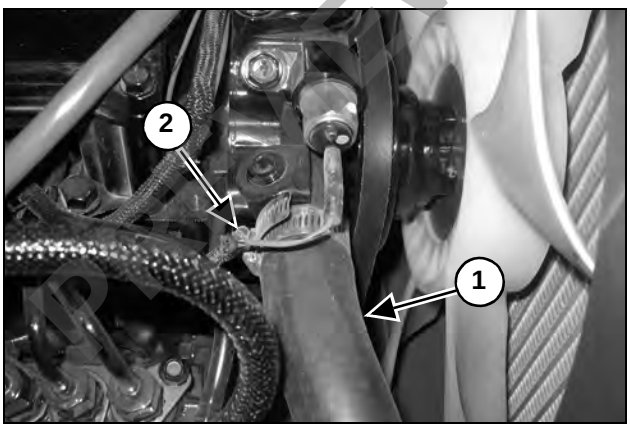
Tighten the two lower radiator / oil cooler mounting bolts (1) to 18 lb.-ft. (25 N•m).

STEP 4



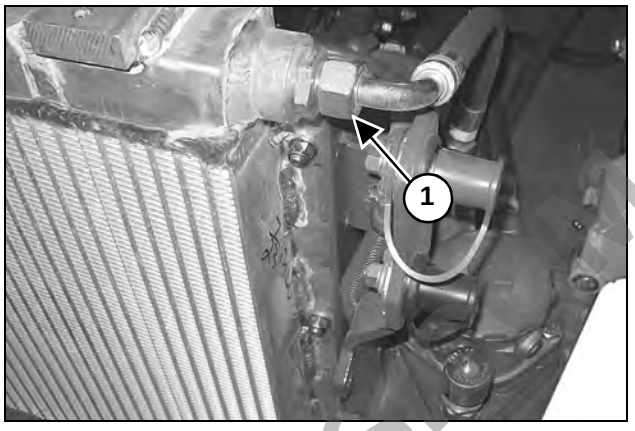
Install and tighten the two upper radiator/oil cooler mounting bolts (1) to 33 lb.-ft. (45 N•m).

STEP 5



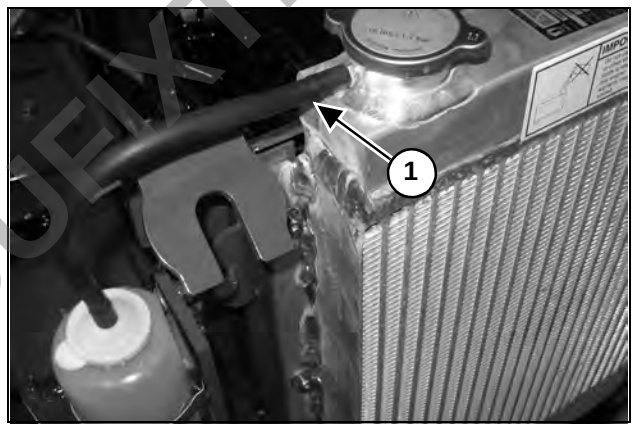
Install the lower radiator hose (1) on the engine. Tighten the hose clamp (2).

STEP 6



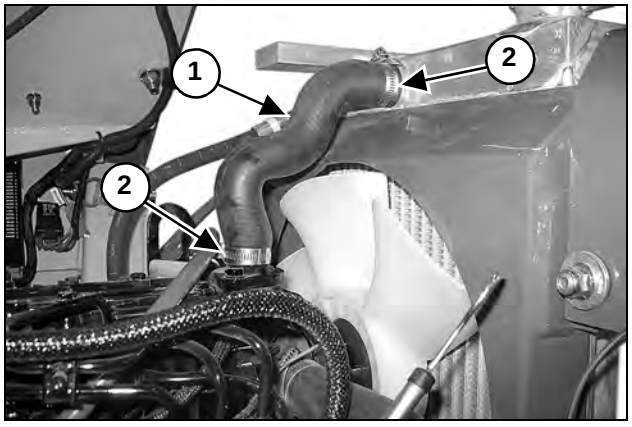
Remove the cap and plug. Install and tighten the upper hydraulic hose (1).

STEP 7



Install the overflow hose (1) on the radiator.

STEP 8

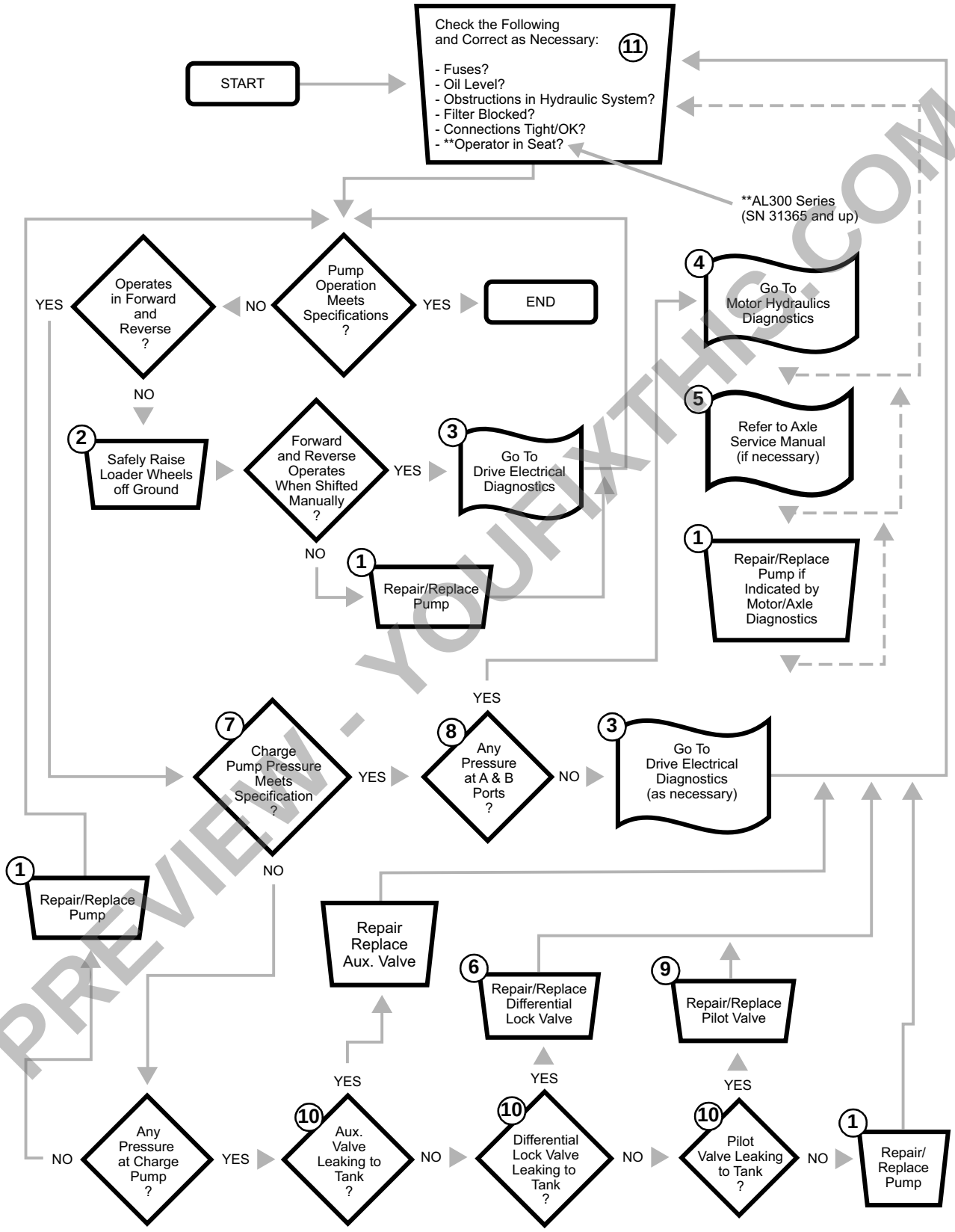


Install the upper radiator hose (1). Tighten hose clamps (2)

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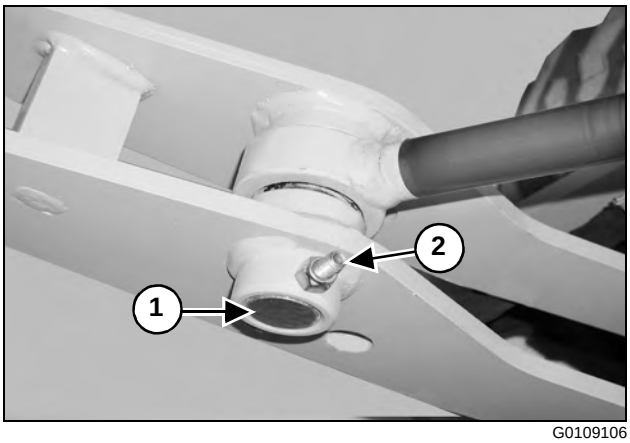
Hydraulic Piston/Drive Pump Diagnostics – AL300 Series



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STEP 3



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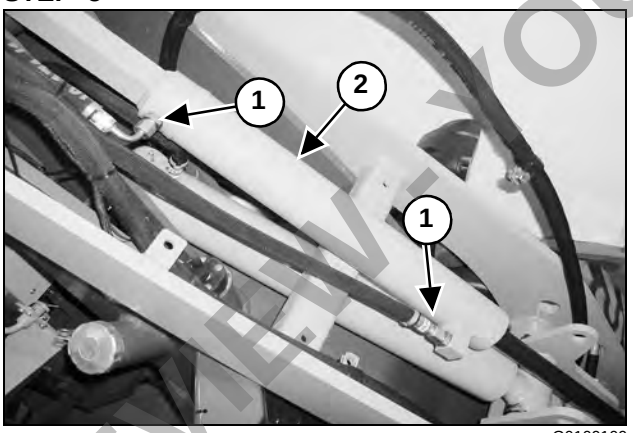
Install the rod end cylinder pin (1) using the retainer bolt (2) and nut. Tighten the bolt and nut to 33 lb.-ft. (45 N•m).

NOTE: *Cylinder plugs will need to be removed to move rod for alignment with pin.*

STEP 4

Remove the lifting device and lifting strap.

STEP 5



G0109109

Remove caps and plugs. Install the two hydraulic hoses (1) on the cylinder (2).

STEP 6

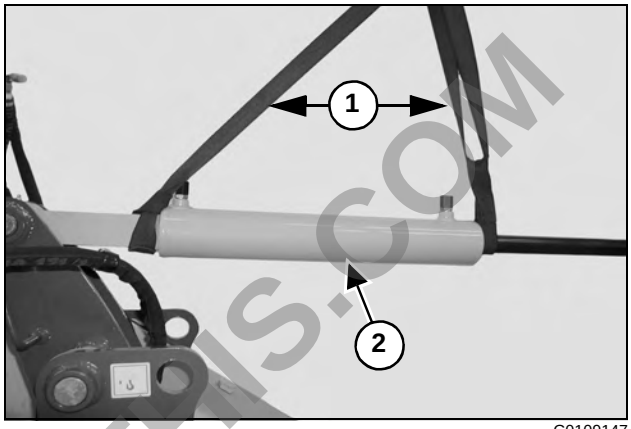
Start the machine and bleed the air out of the cylinder by cycling the cylinder through full extension and retraction three times.

STEP 7

Check the hydraulic fluid level and fill as needed. Refer to "Fluid Capacities/Lubricants" on page 11 for hydraulic fluid specifications.

AL200 and 300 Series Tilt Cylinder Installation

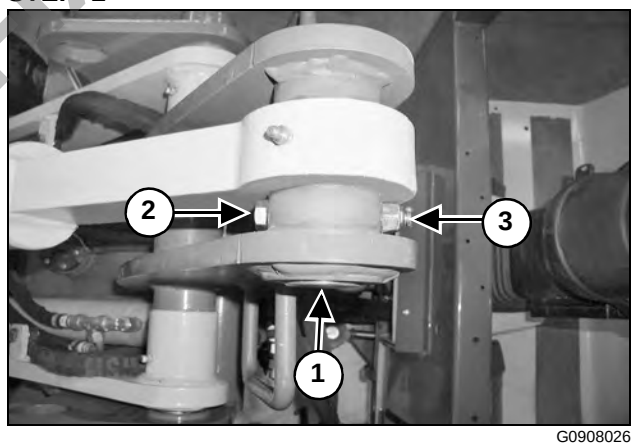
STEP 1



G0109147

Install a lifting strap (1) on the tilt cylinder (2). Use a proper lifting device to lift the cylinder into place.

STEP 2



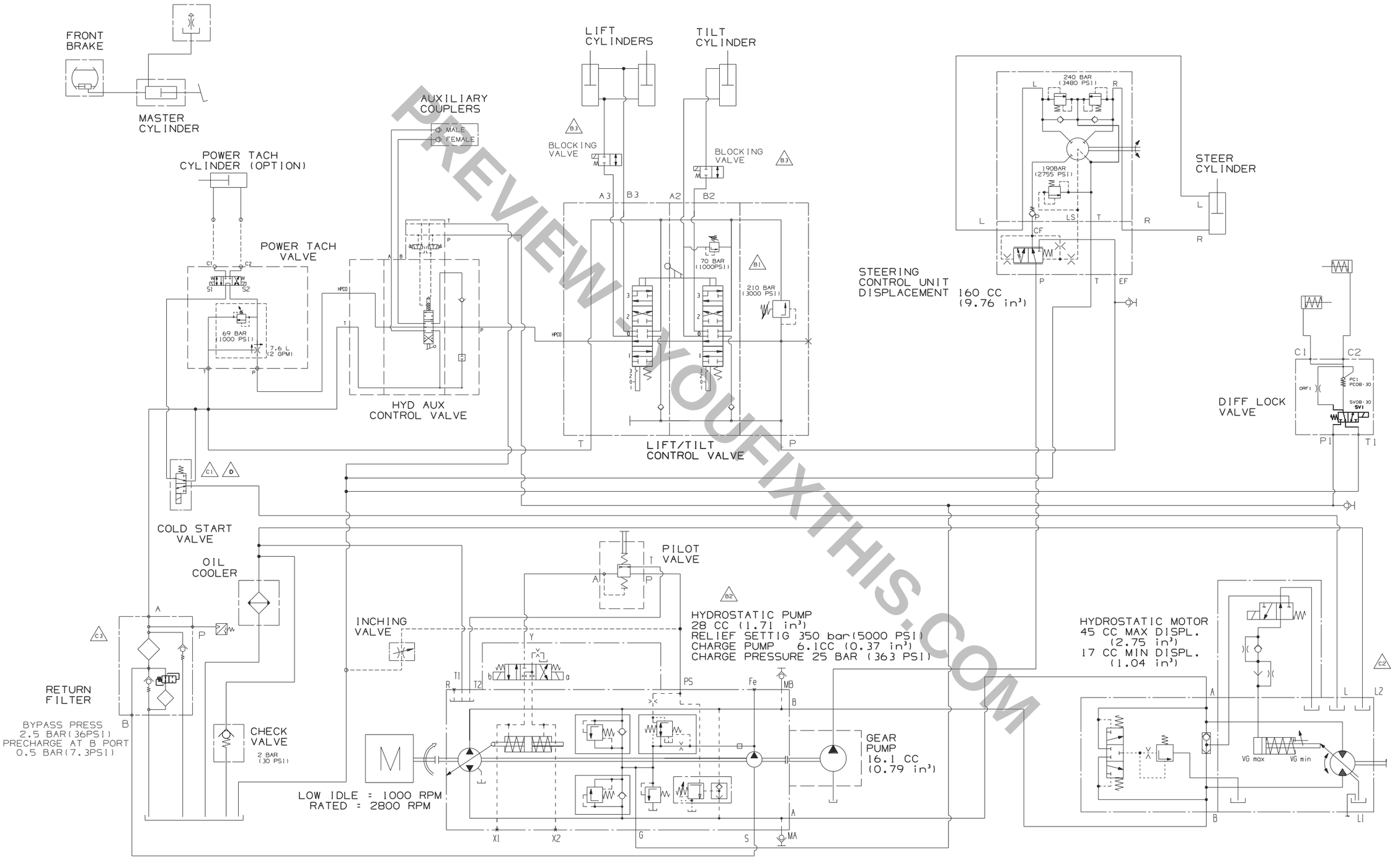
G0908026

Install the base end cylinder pin (1) using the retainer bolt (2) and nut (3). Tighten the bolt and nut to 33 lb.-ft. (45 N•m).

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AL300 Series Hydraulic Schematic – SN 31365 and Up



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