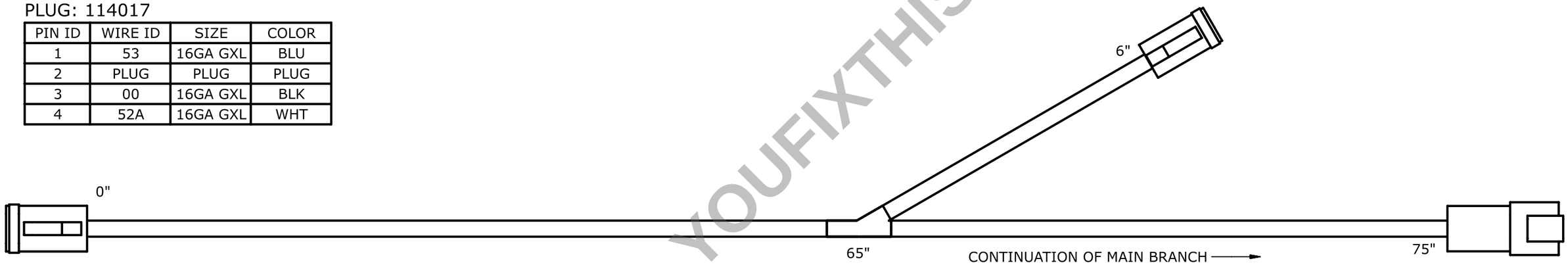
Door Harness Wiring Diagram

1: SENSOR
CONNECTOR: TE DT06-4S
TERMINAL: 1062-16-0122
LOCK: W4S
PLUG: 114017

PIN ID	WIRE ID	SIZE	COLOR
1	53	16GA GXL	BLU
2	PLUG	PLUG	PLUG
3	00	16GA GXL	BLK
4	52A	16GA GXL	WHT

3: SENSOR
CONNECTOR: TE DTM06-2S
TERMINAL: TE 1062-20-0122
LOCK: WM-2SX

PIN ID	WIRE ID	SIZE	COLOR
1	54F	16GA GXL	RED
2	53	16GA GXL	BLU



2: ROPS CONNECTOR
CONNECTOR: TE DT04-4P
TERMINAL: 1060-16-0122
PLUG: 114017

PIN ID	WIRE ID	SIZE	COLOR
1	54F	16GA GXL	RED
2	52A	16GA GXL	WHT
3	00	16GA GXL	BLK
4	PLUG	-	-

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Problem	*Possible Cause*	*Corrective Action*
Slow or no response for bucket tilt, lift works properly (Hand/Foot machines only)	Pilot control lines have air in them	Bleed pilot control lines from the main control valve.
	Low charge pressure	Contact your dealer.
	Linkage mis-adjusted between right foot pedal and pilot valve	Readjust for full travel without restriction.
Lift arm does not raise, bucket tilt work properly	Lift solenoid valve cold be malfunctioning	Check electrical connections to the ift solenoid and repair connections as needed. If ift solenoid valve is still not functioning properly, contact your dealer.
	Lift spool in control valve not actuated or leaking.	Contact your dealer.
Lift arm doesn't maintain raised position with lift control in neutral	Oil leaking past lift cylinder seals (internal or external)	Contact your dealer.
	Oil leaking past lift spool in control valve	Contact your dealer.
	Self-leveling valve malfunctioning	Contact your dealer.
	Leaking hydraulic hoses, tubes or fittings between control valve and cylinders.	Inspect hoses and tubes, tighten fittings as needed. Replace as needed.
Lift arm will not lower or raise	Lift arm support device engaged	Raise lift arm and disengage support device.
	Lift solenoid valve malfunctioning	Check electrical connections to solenoid. Repair or replaced as needed.
	Restraint bar not lowered.	Lower the restraint bar.
	Seat or restraint bar switch malfunction	Check electrical connections to the switch. Replace switch as needed.

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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 Nm (lb.-ft.) 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	9 (7)	18 (13)	15 (11)	18 (13)	10 mm (0.4 in.)
M12X1.5	20 (15)	25 (18)	25 (18)	25 (18)	12 mm (0.5 in.)
M14X1.5	35 (26)	45 (33)	26 (35)	35 (26)	14 mm (0.6 in.)
M16X1.5	45 (33)	55 (41)	40 (30)	50 (37)	16 mm (0.6 in.)
M18X1.5	55 (41)	70 (52)	45 (33)	70 (52)	18 mm (0.7 in.)
M22X1.5	65 (48)	125 (92)	60 (44)	125 (92)	22 mm (0.9 in.)
M27X2.0	90 (66)	180 (133)	100 (74)	145 (107)	27 mm (1.0 in.)
M33X2.0	150 (111)	310 (229)	160 (118)	210 (155)	33 mm (1.3 in.)
M42X2.0	240 (177)	450 (332)	210 (155)	360 (266)	42 mm (1.7 in.)
M48X2.0	290 (214)	540 (398)	260 (192)	540 (398)	48 mm (1.9 in.)
G1/8A	9 (7)	13 (18)	15 (11)	18 (13)	9.73 mm (0.4 in.)
G1/4A	35 (26)	35 (26)	30 (22)	35 (26)	13.16 mm (0.5 in.)
G3/8A	45 (33)	70 (52)	45 (33)	50 (37)	16.66 mm (0.7 in.)
G1/2A	65 (48)	90 (66)	55 (41)	65 (48)	20.96 mm (0.8 in.)
G3/4A	90 (66)	180 (133)	100 (74)	140 (103)	26.44 mm (1.0 in.)
G1A	150 (111)	310 (229)	160 (118)	190 (140)	33.25 mm (1.3 in.)
G1 1/4A	240 (177)	450 (332)	210 (155)	360 (266)	41.91 mm (1.7 in.)
G1 1/2A	290 (214)	540 (398)	260 (192)	540 (398)	47.80 mm (1.9 in.)

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DTC code				Number of the lamp flashes	Error item		Reference page	
P code	SPN		FMI		Part	State	Description	Failure diagnosis
	Decimal number	Hexadecimal number	Decimal number					
P0193	157	9D	3	MIL + RSL	Rail pressure sensor	Rail pressure sensor fault (High voltage)	P70	P322
P0192			4	MIL + RSL		Rail pressure sensor fault (Low voltage)	P72	P322
P2455	3251	CB3	3	MIL + RSL	DPF differential pressure sensor	DPF differential pressure sensor fault (High voltage)	P74	P325
P2454			4	MIL + RSL		DPF differential pressure sensor fault (Low voltage)	P76	P325
P2452			0	MIL + RSL		DPF differential pressure sensor differential pressure abnormal high	P78	P325
P2453			13	MIL + RSL		DPF differential pressure sensor (Abnormal learning value)	P80	P325
P1455	3609	E19	3	MIL + RSL	DPF high pressure side sensor	DPF high pressure side sensor fault (High voltage)	P82	P325
P1454			4	MIL + RSL		DPF high pressure side sensor fault (Low voltage)	P84	P325
P1428	3242	CAA	3	MIL + RSL	DPF inlet temperature sensor	DPF inlet temperature sensor fault (High voltage)	P86	P329
P1427			4	MIL + RSL		DPF inlet temperature sensor fault (Low voltage)	P88	P329
P1436			0	MIL + AWL		DPF inlet temperature sensor temperature abnormal high	P90	P329
P1434	3250	CB2	3	MIL + RSL	DPF intermediate temperature sensor	DPF intermediate temperature sensor fault (High voltage)	P91	P333
P1435			4	MIL + RSL		DPF intermediate temperature sensor fault (Low voltage)	P93	P333
P0420			1	MIL + AWL		DPF intermediate temperature sensor temperature abnormal low temperature	P95	P333
P1426			0	MIL + RSL		DPF intermediate temperature sensor temperature abnormal high (Post-injection failure)	P96	P333
P2229	108	6C	3	MIL + AWL	Atmospheric pressure sensor	Atmospheric pressure sensor fault (High voltage)	P97	P390
P2228			4	MIL + AWL		Atmospheric pressure sensor fault (Low voltage)	P98	P390
P1231			10	MIL + AWL		Atmospheric pressure sensor characteristic fault	P99	P390
P041D	412	19C	3	MIL + AWL	EGR gas temperature sensor	EGR gas temperature sensor fault (High voltage)	P101	P337
P041C			4	MIL + AWL		EGR gas temperature sensor fault (Low voltage)	P103	P337
P040D	105	69	3	MIL + RSL	Intake manifold temperature sensor	Intake manifold temperature sensor fault (High voltage)	P105	P341
P040C			4	MIL + RSL		Intake manifold temperature sensor fault (Low voltage)	P107	P341
P0546	173	AD	3	MIL + AWL	Exhaust manifold temperature sensor	Exhaust manifold temperature sensor fault (High voltage)	P109	P345
P0545			4	MIL + AWL		Exhaust manifold temperature sensor fault (Low voltage)	P111	P345
P068B	1485	5CD	7	MIL + AWL	Main relay	Main relay contact stuck	P113	P349
P068A			2	MIL + AWL		Main relay early opening	P115	P349
P0543	522243	7F803	5	MIL + AWL	Startup assist relay	Startup assist relay interrupted	P117	P353
P0541			6	MIL + AWL		Startup assist relay GND interrupted	P119	P353
P0204 (4TNV), P0203 (3TNV)	651 (4TNV), 652 (3TNV)	28B (4TNV), 28C (3TNV)	5	MIL + RSL	Injector 1 4TNV: Cyl No. 4 3TNV: Cyl No. 3 Corresponding port 4TNV: 1 - 2 3TNV: 1 - 3	Injector 1 open circuit (Inherent location of the injector)	P121	P364
P0271 (4TNV), P0268 (3TNV)			6	MIL + RSL		Injector 1 coil short circuit	P123	P364
P1271 (4TNV), P1262 (3TNV)			3	MIL + RSL		Injector 1 short circuit	P125	P368
P0202	653	28D	5	MIL + RSL	Injector 2 4TNV: Cyl No. 2 3TNV: Cyl No. 2 Corresponding port 4TNV: 2 - 1 3TNV: 1 - 2	Injector 2 open circuit (Inherent location of the injector)	P127	P364
P0265			6	MIL + RSL		Injector 2 coil short circuit	P129	P364
P1265			3	MIL + RSL		Injector 2 short circuit	P131	P368

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Adjustments

Fan Belt Adjustment

⚠ WARNING

BEFORE beginning this service procedure, perform the following SAFETY procedure:

- **Shut off the engine and allow to cool.**

(For detailed instructions, refer to the Safety chapter of this manual.)

1. Open the engine access cover and lock open the rear door.
2. Test the fan belt tension by pushing on the belt (B, Fig. 68) midway between the alternator and the engine crankshaft pulley. The belt should deflect about ½" (13 mm) under a load of 20 lbs. (90 N). If adjustment is needed, follow the next steps.

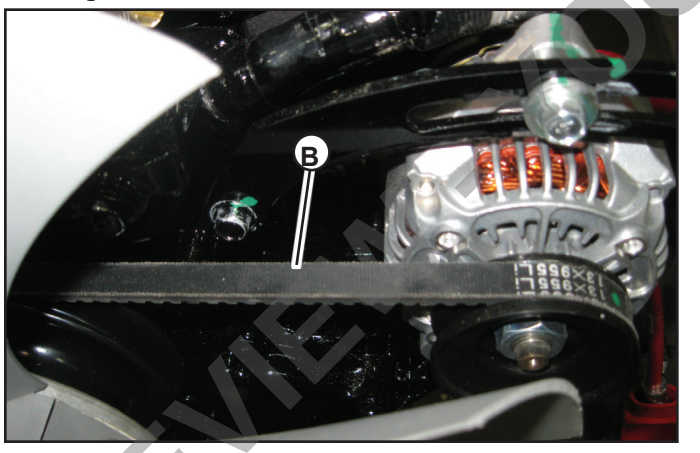


Fig. 68 - Fan Belt Tension test area

3. Loosen the two bolts (C, Fig. 69) on the alternator, one at the low pivot area and one on top in the slide bracket.

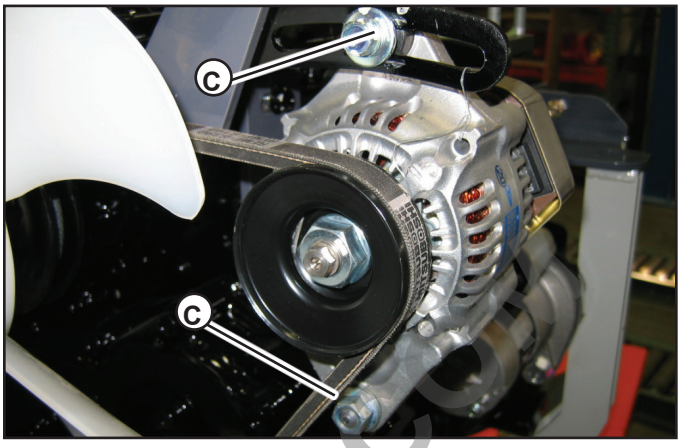


Fig. 69 - Adjustments Bolts on alternator

4. Rotate the alternator in a clockwise direction (viewed from the engine end) until the correct belt tension is achieved.
5. Re-tighten the bolts.

Fan Shroud Adjustment

⚠ WARNING

BEFORE beginning this service procedure, perform the following SAFETY procedure:

- **Shut off the engine and allow to cool.**

(For detailed instructions, refer to the Safety chapter of this manual.)

1. Loosen, but do not remove, the two locking capscrews (D, Fig. 70)on the shroud support connected to the shroud.

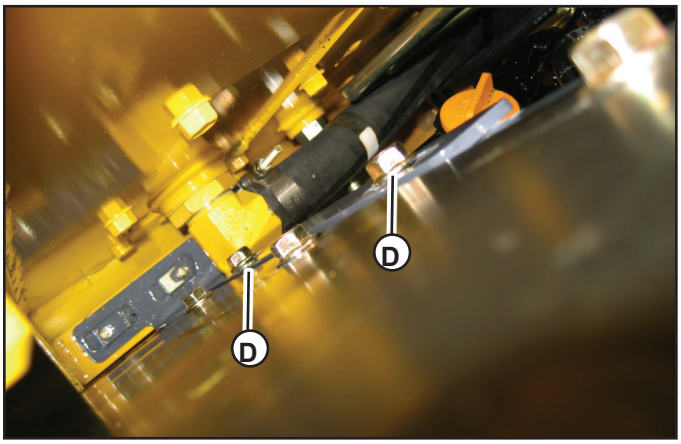


Fig. 70 - Shroud support capscrews

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Chapter 4

MAINTENANCE

Proper care and service improves machine operational readiness and service life.

Perform maintenance as indicated in the "Maintenance Schedule" on page 34, or earlier if required by conditions.

⚠ WARNING

Read and understand the "Safety" Chapter in this manual, starting on page 7, before servicing the machine. Follow all applicable warnings and instructions. Check for correct function after performing maintenance. Failure to follow instructions can result in injury or death.

BEFORE performing any maintenance, perform the "Mandatory Safety Shutdown Procedure" on page 8.

Fluid leaks from hydraulic hoses or pressurized components can be difficult to see, but pressurized oil can have enough force to pierce the skin and cause serious injury. Always use a piece of wood or cardboard to check for suspected hydraulic leaks. Never use your hands. Obtain immediate medical attention if pressurized oil pierces the skin. Failure to obtain prompt medical assistance could result in gangrene or other serious damage to tissue.

Do not smoke or allow any open flames in the area while checking or servicing the hydraulic, battery and fuel systems because all contain highly flammable liquids or explosive gases, which can cause an explosion or fire if ignited.

Wear a face shield when disassembling spring loaded components or working with battery acid. Always wear eye protection to protect eyes from electric arcs from shorts, fluids under pressure, and flying debris or loose material. Wear a helmet or goggles with special lenses when welding or cutting with a torch.

⚠ WARNING

When working beneath a raised machine, always use blocks, jack-stands or other rigid and stable supports. Wear appropriate protective clothing, gloves and shoes. Keep feet, clothing, hands, and hair away from moving parts.

Always apply the lift arm support when maintenance work requires the lift arm in the raised position See "Lift Arm Support" on page 183.

NEVER weld on the machine without consulting the manufacturer. Parts may be designed so that they should not be welded and/or special metals may be used which require special welding techniques. NEVER cut or weld on fuel lines or tanks.

If repair welding is ever required, remove the positive (+) battery terminal connection before starting to weld. Be sure to attach the ground (-) cable from the welder as close as possible to the area to be repaired.

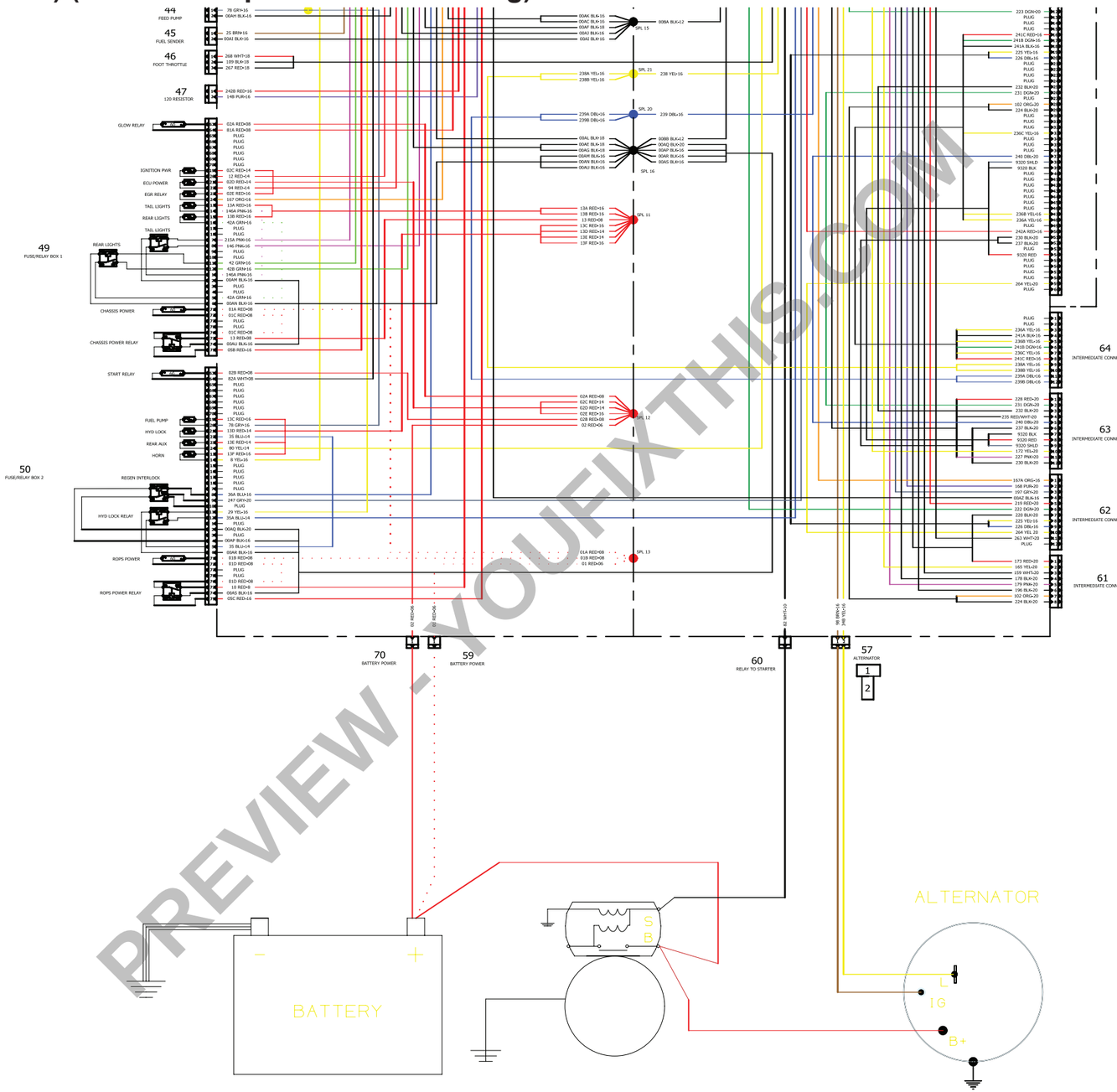
Allow only trained and authorized personnel, with full knowledge of safe procedures, to perform machine maintenance and service.

If any guards, shields, and covers were removed during maintenance, BE SURE to replace them in their original positions BEFORE starting the machine.

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Chassis Electrical Schematic (2 of 2) (some overlap with 1 of 2 drawing)



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⚠ CAUTION

Hydraulic oil contamination can severely damage the hydraulic system, which may not be covered under the product warranty.

Hydraulic Hoses/Tubes

- Be careful not to twist hoses. Use the hose marking as a guide so hoses aren't twisted. Use two wrenches during removal/installation to prevent twisting.
- To prevent twisting, bends in a hose should all be in the same direction.
- Support hoses having to bend along two different planes, to prevent twisting.
- Be sure hoses do not contact each other after tightening.
- Except when using seal tape, tighten hoses to specified torque, loosen, and then re-tighten to specified torque.
- When installing tubing, tighten nuts 1/4 to 1/2 turn after reaching a sharp torque rise point.
- Use elbows on hoses, as required, to avoid sharp bends, especially at bends with a minimum bending radius.
- Use adapters to make the hoses as straight as possible.
- Hose length varies slightly at bends when pressurized; allow for this by not fastening hoses at bends.
- Hose lengths should be slightly longer than necessary. Hoses need ample slack to compensate for elongation/retraction of +2% to -4% when pressurized.

Seals

- Clean O-ring grooves and remove burrs, dirt/dust from seals/O-rings.
- Do not twist O-rings. Hand-correct twists in o-rings; do not use tools, which can damage o-rings.
- Use care to prevent damage to seals during installation.
- Apply grease to the tip of oil seals to prevent wear.
- Floating seals:
- Wipe oil from O-rings and housings after detaching floating seals.
- Before installation, apply gear oil to the matching face of the housing.
- To improve seating, rotate seals 2/3 revolution after installation.

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Hydraulic fittings with various seals (heavy application). All torque values are in Nm (lb.-ft.) 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	20 (15)	35 (26)	35 (26)	35 (26)	12 mm (0.5 in.)
M14X1.5	35 (26)	55 (41)	45 (33)	45 (33)	14 mm (0.6 in.)
M16X1.5	45 (33)	70 (52)	55 (41)	55 (41)	16 mm (0.6 in.)
M18X1.5	55 (41)	90 (66)	70 (52)	70 (52)	18 mm (0.7 in.)
M20X1.5	55 (41)	125 (92)	80 (59)	100 (74)	20 mm (0.8 in.)
M22X1.5	65 (48)	135 (100)	100 (74)	125 (92)	22 mm (0.9 in.)
M27X2.0	90 (66)	180 (133)	170 (125)	135 (100)	27 mm (1.0 in.)
M33X2.0	150 (111)	310 (229)	310 (229)	210 (155)	33 mm (1.3 in.)
M42X2.0	240 (177)	450 (332)	330 (243)	360 (266)	42 mm (1.7 in.)
M48X2.0	290 (214)	540 (398)	420 (310)	540 (398)	48 mm (1.9 in.)
G1/8A	35 (26)	55 (41)	45 (33)	45 (33)	13.16 mm (0.5 in.)
G1/4A	45 (33)	80 (59)	60 (44)	60 (44)	16.66 mm (0.7 in.)
G3/8A	65 (48)	115 (85)	75 (55)	100 (74)	20.96 mm (0.8 in.)
G1/2A	90 (66)	180 (133)	170 (125)	145 (107)	26.44 mm (1.0 in.)
G3/4A	150 (111)	310 (229)	310 (229)	260 (192)	33.25 mm (1.3 in.)
G1A	240 (177)	450 (332)	330 (243)	360 (266)	41.91 mm (1.7 in.)
G1 1/4A	290 (214)	540 (398)	420 (310)	540 (398)	47.80 mm (1.9 in.)

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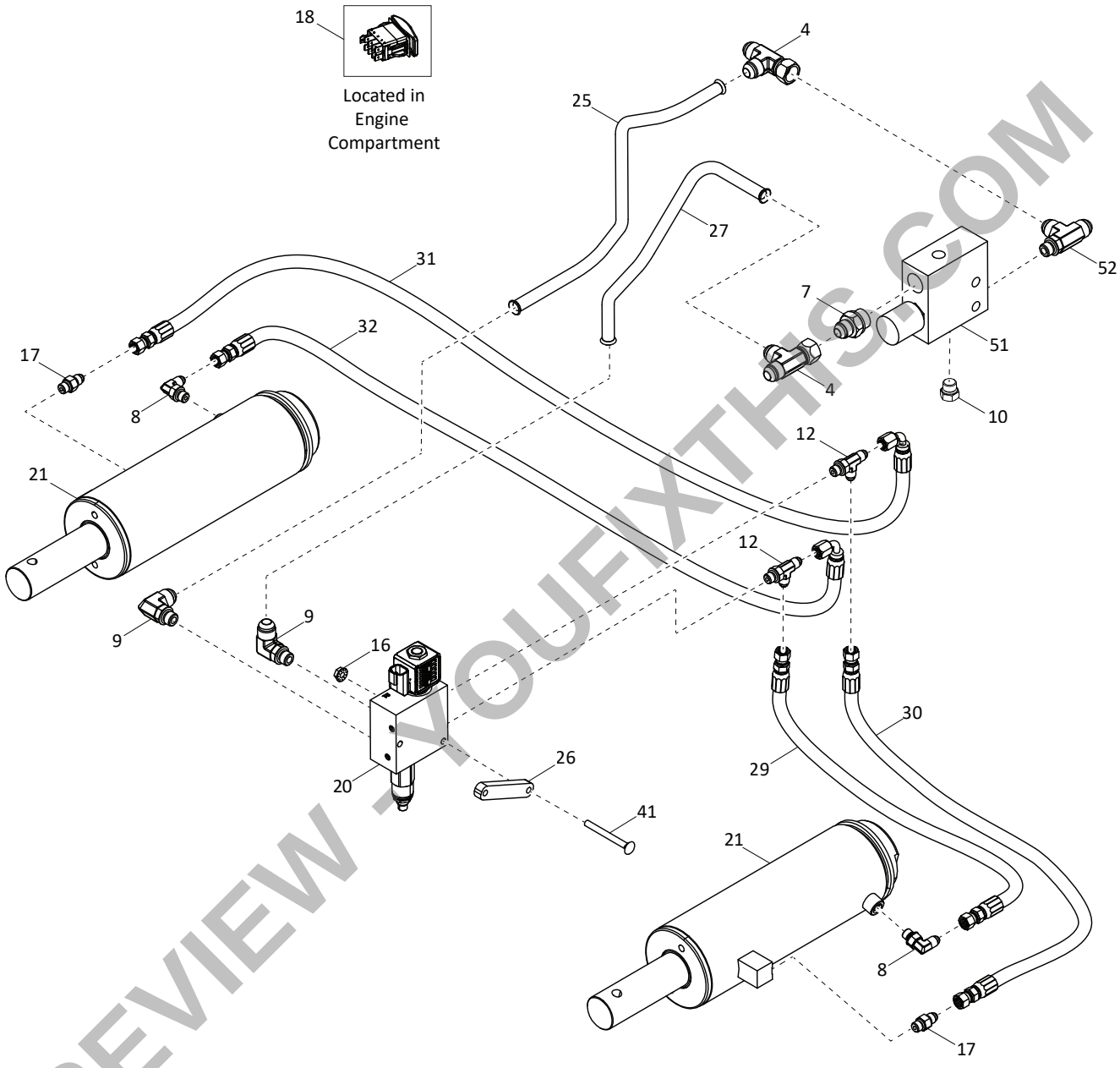
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DTC code				Number of the lamp flashes	Error item		Reference page	
P code	SPN		FMI		Part	State	Description	Failure diagnosis
	Decimal number	Hexadecimal number	Decimal number					
P0201	654	28E	5	MIL + RSL	Injector 3 4TNV: Cyl No. 1 3TNV: Cyl No. 1 Corresponding port 4TNV: 2 - 2 3TNV: 1 - 1	Injector 3 open circuit (Inherent location of the injector)	*P133*	*P364*
P0262			6	MIL + RSL		Injector 3 coil short circuit	*P135*	*P364*
P1262			3	MIL + RSL		Injector 3 short circuit	*P137*	*P368*
P0203	652	28C	5	MIL + RSL	Injector 4 4TNV: Cyl No. 3 Corresponding port 4TNV: 1 - 1	Injector 4 open circuit (Inherent location of the injector)	*P139*	*P364*
P0268			6	MIL + RSL		Injector 4 coil short circuit	*P141*	*P364*
P1268			3	MIL + RSL		Injector 4 short circuit	*P143*	*P368*
P0611	4257	10A1	12	MIL + RSL	Injector (common)	Injector drive IC error	*P145*	–
P1146	2797	AED	6	MIL + RSL		Injector drive circuit (Bank1) short circuit (4TN: Common circuit for No. 1, No. 4 and all 3TN cylinders)	*P146*	*P368*
P1149	2798	AEE	6	MIL + RSL		Injector drive circuit (Bank 2) short circuit (4TN: Circuit for No. 2 and No. 3 cylinders)	*P148*	*P368*
P1648	523462	7FCC6	13	MIL + RSL	Injector (correction value)	IQA corrected injection amount for injector 1 error	*P150*	–
P1649	523463	7FCC7	13	MIL + RSL		IQA corrected injection amount for injector 2 error	*P151*	–
P1650	523464	7FCC8	13	MIL + RSL		IQA corrected injection amount for injector 3 error	*P152*	–
P1651	523465	7FCC9	13	MIL + RSL		IQA corrected injection amount for injector 4 error	*P153*	–
P1641	522571	7F94B	3	MIL + RSL	SCV (MPROP)	High-pressure pump drive circuit (Low side VB short-circuit)	*P154*	*P370*
P1643			6	MIL + RSL		High-pressure pump drive circuit (Low side GND short-circuit)	*P155*	*P370*
P0629	633	279	3	MIL + RSL		High-pressure pump drive circuit (High side VB short-circuit)	*P157*	*P370*
P1642			6	MIL + RSL		High-pressure pump drive circuit (High side GND short-circuit)	*P159*	*P370*
P0627			5	MIL + RSL		High-pressure pump drive circuit (Open circuit)	*P160*	*P370*
P062A	522572	7F94C	6	MIL + RSL		High-pressure pump drive circuit (Drive current (high level))	*P161*	*P370*
P1645			11	MIL + RSL		High-pressure pump drive circuit (Pump overload error)	*P163*	*P370*
P0088	157	9D	0	MIL + RSL	Abnormal rail pressure	Actual rail pressure rise error	*P165*	–
P0094			18	MIL + RSL		Rail pressure deviation error during the actual rail pressure drop	*P167*	–
P0093			15	MIL + RSL		Rail pressure deviation error during the actual rail pressure rise	*P169*	–
P000F			16	MIL + RSL	PLV (Common rail pressure limit valve)	PLV open valve	*P171*	–
P1666	523469	7FCCD	0	MIL + RSL		Rail pressure fault (The times of PLV valve opening error)	*P173*	–
P1667	523470	7FCCE	0	MIL + RSL		Rail pressure fault (The time of PLV valve opening error)	*P175*	–
P1668	523489	7FCE1	0	MIL + RSL		Rail pressure fault (The actual rail pressure is too high during PRV limp home)	*P177*	–
P1665	523468	7FCCC	9	MIL + RSL		Rail pressure fault (Controlled rail pressure error after PLV valve opening)	*P179*	–
P1669	523491	7FCE3	0	MIL + RSL	Rail pressure control	Rail pressure fault (Injector B/F temperature error during PLV4 limp home)	*P181*	–
P1670	523460	7FCC4	7	MIL + RSL		Rail pressure fault (Operation time error during RPS limp home)	*P183*	–
P0219	190	BE	16	MIL + RSL	Overspeed	Overspeed	*P285*	*P393*
P0660	2950	B86	5	MIL + AWL	Intake throttle drive circuit	No-load of throttle valve drive H bridge circuit	*P184*	*P373*
P1658			3	MIL + AWL		Power short circuit of throttle valve drive H bridge output 1	*P185*	*P373*
P1659			4	MIL + AWL		GND short circuit of throttle valve drive H bridge output 1	*P186*	*P373*
P1660			6	MIL + AWL		Overload on the drive H bridge circuit of throttle valve	*P187*	*P373*
P1661	2951	B87	3	MIL + AWL		VB Power short circuit of throttle valve drive H bridge output 2	*P188*	*P373*
P1662			4	MIL + AWL		GND short circuit of throttle valve drive H bridge output 2	*P189*	*P373*

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Track Tension Circuit



4	Tee MJ08-FJS08-MJ08	17	ST MJ04-MORB04	29	Hose/Hyd -04 X 22.5 in
7	ST MJ08-MORB10	18	Switch/Track Tension	30	Hose/Hyd -04 X 29 in
8	90 MJ04-MAORB04	20	Valve/Tensioner	31	Hose/Hyd -04 x 47 in
9	90 MJ08-MAORB06	21	Cylinder/3.25 X 1.50/Tension	32	Hose/Hyd -04 X 41 in
10	Plug MORB06	25	Tube/Hyd -08 Tension Drain	41	CB 1/4x2-1/2 C5ZY
12	Tee RUN MJ04-MAORB04-MJ04	26	Spacer/Valve	51	Valve Package
16	LN FL SERR 1/4 CZY	27	Tube/Hyd -08 Valve Pressure	52	Tee RUN MJ08-MAORB06-MJ08

Fig. 222 - Track Tension Circuit

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⚠ CAUTION

Do not use the machine when maintenance is due. Postponed maintenance can result in a serious reduction of the service life of the machine, costly equipment failures, and contribute to unsafe operating conditions.

Do not perform maintenance or service not included in this manual. Maintenance and service not included in this manual should only be performed by a authorized repair shop.

Maintenance Schedule

⚠ CAUTION

Do not postpone scheduled maintenance. Postponing maintenance can reduce the service life of the machine, cause more serious and costly equipment failures, and contribute to unsafe operating conditions. Maintenance intervals apply to average operating conditions and loads. More frequent maintenance may be required depending upon the level and type of use.

IMPORTANT: *When washing the machine using water, do not direct the water onto any electrical connection, electrical component, or electronic component. Water may cause malfunction or damage. Power washing or other high-pressure jets may cause physical damage.*

NOTE: *Accumulated operation time is shown on the multi-function display.*

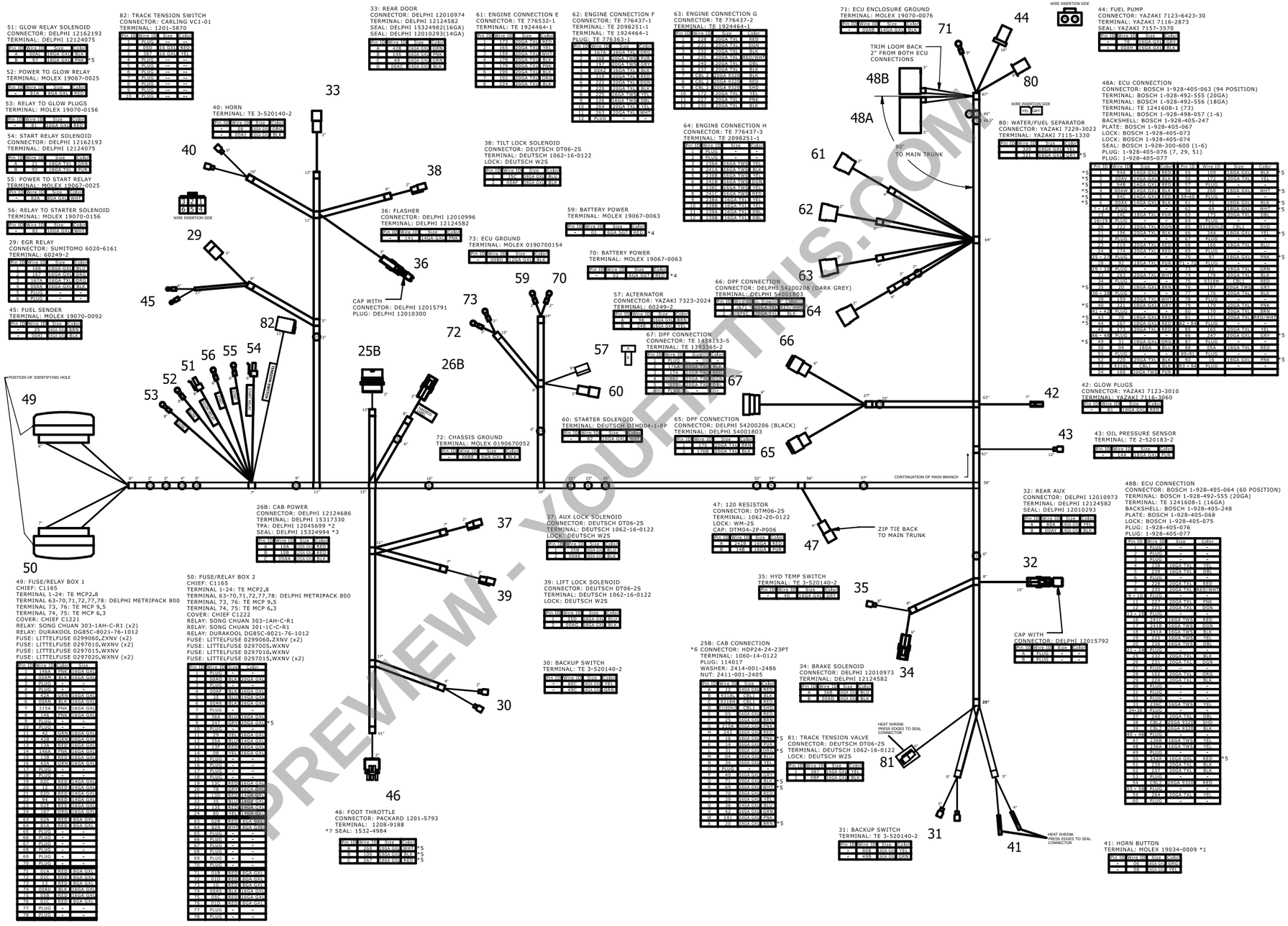
Checks, Cleaning, and Inspection

Table 2 - Checks, Cleaning, and Inspection

Service Procedure	Maximum Interval		
	10 Hours (or Daily)	250 Hours (or every 6 months)	500 Hours (or Yearly)
Clean machine	X		
Inspect machine for general wear/damage	X		
Check bucket cutting edge	X		
Check safety interlock system	X		
Inspect tracks for damage/wear	X		
Check automatic track tensioning	X		
Check engine oil level and condition	X		
Check coolant level and condition	X		
Check hydraulic fluid level and condition	X		

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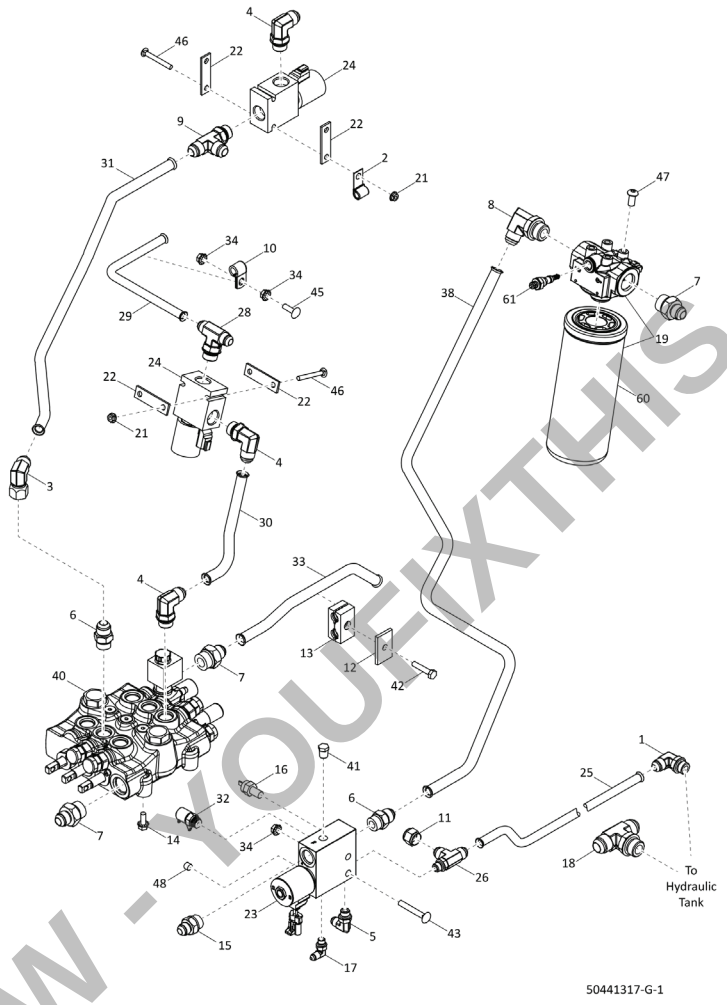
Chassis Harness Wiring Diagram - DPF Models



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Hydraulic System Components

Control Valve Circuit (Part 1 of 2)



1	90 MJ08-MAORB08	16	Oil Temp Switch	33	Tube/Tank Return
2	Clamp/Hose .50 x .41 Hole	17	90 MJ04-MAORB04	34	LN FL SERR 5/16 CZY
3	90 MJ10-FJS10	18	TEE BR MJ12-MJ12-MAORB12	38	Tube/Oil Filter
4	90 MJ10-MAORB10	19	Filter Assembly	40	Valve/Control 3 Spool
5	90 MJ06-MAORB06	21	LN FL SPIRALOCK 1/4 CZY	41	Plug/Pipe HS 1/4
6	ST MJ10-MORB10	22	Strap	42	CS 5/16x1-1/2 C5ZY
7	ST MJ10-MORB12	23	Valve Package	43	CB 5/16x2-1/4 C5ZY
8	90 MJ10-MAORB12	24	Valve/Sol SV10-24 10T	45	CB SN 5/16x1 C5ZY
9	Tee RUN MJ10-MAORB10-MJ10	25	Tube/Tank-brake	46	CB 1/4x2-1/4 C5ZY
10	Clamp/Hose .50 x .41 Hole	26	Tee RUN MJ08-MAORB06-MJ08	47	BHSCS 3/8x3/4 C8 OCG
11	Cap FJ08	28	Tee BR MJ08-MJ08-MAORB10	48	Plug/Pipe Sq Hd 1/8
12	Plate/Top Size 2 Twin Flat	29	Tube/Valve To Lift/Right	60	Filter Element
13	Clamp/Tube .62 Twin	30	Tube/Main Control/Lift	61	Assy/Filter Indicator
14	CS FL LOCK 5/16x3/4 C5ZY	31	Tube/Tilt Upper		
15	ST MJ08-MORB10	32	TEST PORT-9/16-18 UNF		

Fig. 299 - Control Valve Circuit (1 of 2) Components

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With coarse-pitch thread. All torque values are in Nm (lb.-ft.) unless marked otherwise.					
Thread	Threads according to DIN 912, DIN 931, DIN 933, etc.			Threads according to DIN 7984	
	8.8	10.9	12.9	8.8	10.9
M5	5.5 (4.1)	8 (6)	10 (7)	5 (4)	7 (5)
M6	10 (7)	14 (10)	17 (13)	8.5 (6.3)	12 (9)
M8	25 (18)	35 (26)	42 (31)	20 (15)	30 (22)
M10	45 (33)	65 (48)	80 (59)	40 (30)	59 (44)
M12	87 (64)	110 (81)	147 (108)	69 (51)	100 (74)
M14	135 (100)	180 (133)	230 (170)	110 (81)	160 (118)
M16	210 (155)	275 (203)	350 (258)	170 (125)	250 (184)
M18	280 (207)	410 (302)	480 (354)	245 (181)	345 (254)
M20	410 (302)	570 (420)	690 (509)	340 (251)	490 (361)
M22	550 (406)	780 (575)	930 (686)	460 (339)	660 (487)
M24	710 (524)	1000 (738)	1190 (878)	590 (435)	840 (620)
M27	1040 (767)	1480 (1092)	1770 (1305)	870 (642)	1250 (922)
M30	1420 (1047)	2010 (1482)	2400 (1770)	1200 (885)	1700 (1254)

With fine-pitch thread. All torque values are in Nm (lb.-ft.) unless marked otherwise.					
Thread	Threads according to DIN 912, DIN 931, DIN 933, etc.			Threads according to DIN 7984	
	8.8	10.9	12.9	8.8	10.9
M8X1.0	25 (18)	37 (27)	32 (43)	22 (16)	32 (24)
M10X1.0	50 (37)	75 (55)	88 (65)	43 (32)	65 (48)
M10X1.25	49 (36)	71 (52)	83 (61)	42 (31)	62 (46)
M12X1.25	87 (64)	130 (96)	150 (111)	75 (55)	110 (81)
M12X1.5	83 (61)	125 (92)	145 (107)	72 (53)	105 (77)
M14X1.5	135 (100)	200 (148)	173 (235)	120 (89)	175 (129)
M16X1.5	210 (155)	310 (229)	360 (266)	180 (133)	265 (195)
M18X1.5	315 (232)	450 (332)	530 (391)	270 (199)	385 (284)
M20X1.5	440 (325)	630 (465)	730 (538)	375 (277)	530 (391)
M22X1.5	590 (435)	840 (620)	980 (723)	500 (369)	710 (524)
M24X2.0	740 (546)	1070 (789)	1250 (922)	630 (465)	900 (664)
M27X2.0	1100 (811)	1550 (1143)	1800 (1328)	920 (679)	1300 (959)
M30X2.0	1500 (1106)	2150 (1586)	2500 (1844)	1300 (959)	1850 (1364)

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Main Pressure Test and Adjustment

Main Pressure Test

IMPORTANT: *This procedure requires two people.*

1. Remove any attachments from the attachment hitch and lower the lift arm to the ground.
2. Run the machine until the hydraulic oil reaches operating temperature (approximately 60°C/140°F).
3. If necessary, use the hand throttle to set engine speed to low idle (1000 rpm).
4. Have an assistant connect a pressure gauge with a minimum capacity of 414 bar (6000 psi) into male auxiliary hydraulics coupler (X, Fig. 308) on the left lift arm.

⚠ CAUTION

A pressure gauge with a minimum of 414 bar (6000 psi) is required. Damage may result to gages if they are of insufficient capacity.

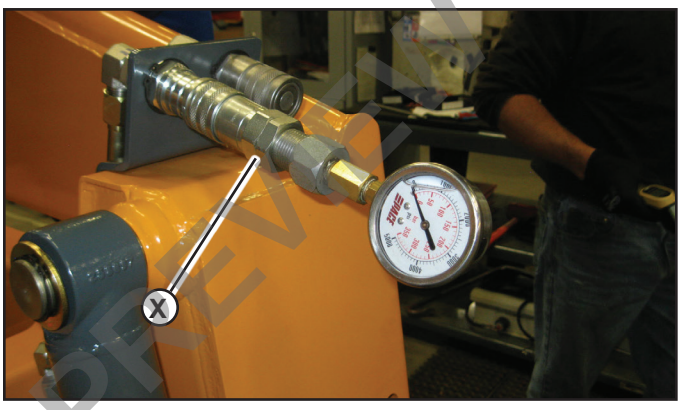


Fig. 308 - Auxiliary Hydraulic Circuit Connections

5. Move the auxiliary control on the right joystick to the full open to pressurize the circuit.
6. Have the assistant observe the pressure reading on the gauge. The pressure reading should be within the range of 190-200 bar (2756-2901 psi) with the engine at low idle (1000 rpm).
7. If the pressure reading is NOT within the specified pressures, adjust the pressure according to “Main Pressure Adjustment” on page 178.

Main Pressure Adjustment

⚠ WARNING

BEFORE beginning this service procedure, shut down the machine according to “Mandatory Safety Shutdown Procedure” on page 16.

1. Raise the ROPS/FOPS according to “Raising ROPS/FOPS” on page 281.
2. Locate the relief valve adjuster (T, Fig. 309) at the front of the main control valve.

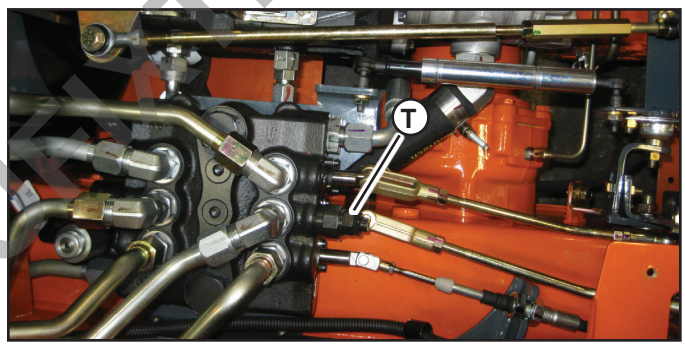


Fig. 309 - Main Control Valve/Pressure Relief Adjuster

NOTE: *The main control valve is located under the ROPS/FOPS on the front of the firewall on the right side.*

3. Remove cap on relief valve adjuster screw.
4. Loosen the small lock nut threaded on the valve.

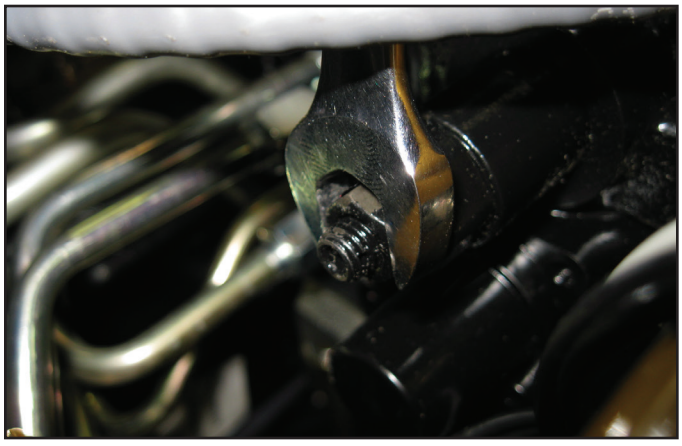


Fig. 310 - Loosen lock nut on relief valve

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Service Procedure	Maximum Interval		
	10 Hours (or Daily)	250 Hours (or every 6 months)	500 Hours (or Yearly)
Check fuel level and fill if necessary	X		
Check windshield washer system and wiper blade, if applicable	X		
Check exhaust for excessive smoke emission	X		
Check hydraulic cylinder piston rods for damage/wear; clean if necessary	X		
Check ROPS structure (all fasteners must be installed and tightly secured)	X		
Check water separator and drain water, if present	X[1]		
Check coolant system for leaks, dirt and debris	X		
Check hydraulic hoses and tubes for cracks, leaks and/or debris	X		
Check hydraulic tank, valves and cylinders for leaks and/or damage	X		
Check coolant anti-freeze mixture		X	
Check belt tension and condition		X	
Check engine cover lock		X	
Check engine idle		X	
Clean radiator/oil cooler fins		X	
Check hinge pins, joint bushings, pivot bolts and bearings			X
Check engine mounts			X
Check exhaust system for damage			X
Clean battery terminals			X
Check timing belt			X
Check fuel injectors			X
Check electrical system for damage, wire routing			X

1. An engine error code displays if water is present in the water separator. Refer to “Yanmar Engine Diagnostic Trouble Codes (DTC)” on page 88.

Leakage Check

Table 3 - Leakage Checks

Service Procedure	Maximum Interval		
	10 Hours (or Daily)	250 Hours (or every 6 months)	500 Hours (or Yearly)
Check engine for oil/coolant leaks	X		
Check cooling system for leaks	X		
Check hydraulic system for leaks	X		

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TABLE OF CONTENTS

Introduction 9
Contents and Use of this Manual 9
Machine Orientation 9
Machine Controls and Operation 9
Component Identification 10
Machine Model and Serial Number Locations 11
Indicator and Operation Symbols 13
Safety 15
Safety Symbol and Signal Words 15
Mandatory Safety Shutdown Procedure 16
Before Starting 16
During Operation 18
Applications with Load-Handling Devices 20
Parking the Machine 21
Electrical Energy 21
Maintenance and Service Safety Practices 21
Battery Hazards 24
Fire Hazards 24
Additional Safety Equipment 25
Crystalline Silica Exposure 25
Transporting the Machine 25
Lifting the Machine with a Crane 26
Loading and Transporting the Machine 26
Safety Decals and Locations 26

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