SPECIFICATION TABLES

Operating mass	Rubber crawler	Canopy	kg (lb)	1150 (2535)
		Cab	kg (lb)	–
	Steel crawler	Canopy	kg (lb)	–
		Cab	kg (lb)	–
Rated output	Net (ISO 14396) kW/min^{-1} (hp/rpm)			8.8 (11.8) /2200 (2200)
	Net (ISO 9249/SAEJ 1349) kW/min^{-1}(hp/rpm)			8.7 (11.7) /2200 (2200)
Bucket capacity	Heaped capacity		m^3 (ft.^{3})	0.022 (0.76)
	Struck capacity		m^3 (ft.^{3})	0.016 (0.57)

Performance

Standard loading mass			kg (lb)	30 (64)
Slew speed			min^{-1} (rpm)	10 (10)
Travel speed	Rubber crawler	1st	km/h (mph)	2.0 (1.24)
		2nd	km/h (mph)	3.7 (2.3)
	Steel crawler	1st	km/h (mph)	–
		2nd	km/h (mph)	–
Maximum tractive force			kN (lbf)	12.8 (2880)
Gradeability			%	58
			deg.	30
Ground pressure	Rubber crawler	Canopy	kPa (psi)	28 (4.06)
		Cab	kPa (psi)	–
	Steel crawler	Canopy	kPa (psi)	–
		Cab	kPa (psi)	–
Noise level	Sound-power level		dB (A)	91
	Sound-pressure level*		dB (A)	–

*: At the operator location as stipulated by ISO 6396: 2008.

Dimensions of completed machine

Overall length	Standard arm		mm (in.)	–
	Middle arm		mm (in.)	–
	Long arm		mm (in.)	2955 (116.3)
Overall width	During normal operation		mm (in.)	1020 (40.2)
	Track retracted		mm (in.)	750 (29.5)
Overall height	Rubber crawler	Canopy	mm (in.)	2190 (86.2)
		Cab	mm (in.)	–
	Steel crawler	Canopy	mm (in.)	–
		Cab	mm (in.)	–

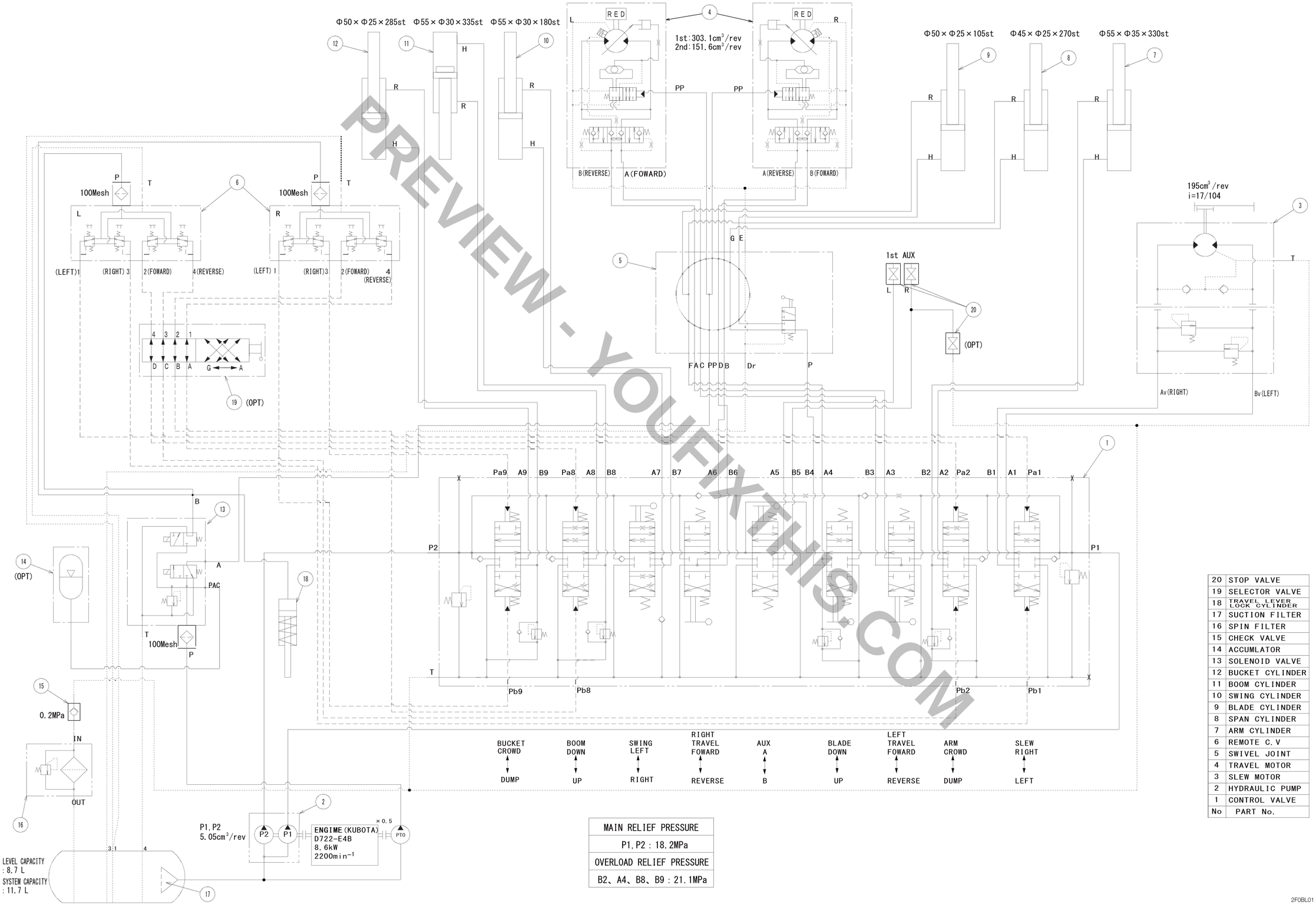
Dimensions of base machine

Overall length of base machine		mm (in.)	1230 (48.4)
Overall width of base machine	During normal operation	mm (in.)	1020 (40.2)
	Track retracted	mm (in.)	750 (29.5)
Upper structure overall width		mm (in.)	750 (29.5)
Upper structure overall width	Left	mm (in.)	375 (14.8)
	Right	mm (in.)	375 (14.8)
Cab overall width		mm (in.)	–

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HYDRAULIC CIRCUIT DIAGRAM



20	STOP VALVE
19	SELECTOR VALVE
18	TRAVEL LEVER LOCK CYLINDER
17	SUCTION FILTER
16	SPIN FILTER
15	CHECK VALVE
14	ACCUMLATOR
13	SOLENOID VALVE
12	BUCKET CYLINDER
11	BOOM CYLINDER
10	SWING CYLINDER
9	BLADE CYLINDER
8	SPAN CYLINDER
7	ARM CYLINDER
6	REMOTE C.V
5	SWIVEL JOINT
4	TRAVEL MOTOR
3	SLEW MOTOR
2	HYDRAULIC PUMP
1	CONTROL VALVE
No	PART No.

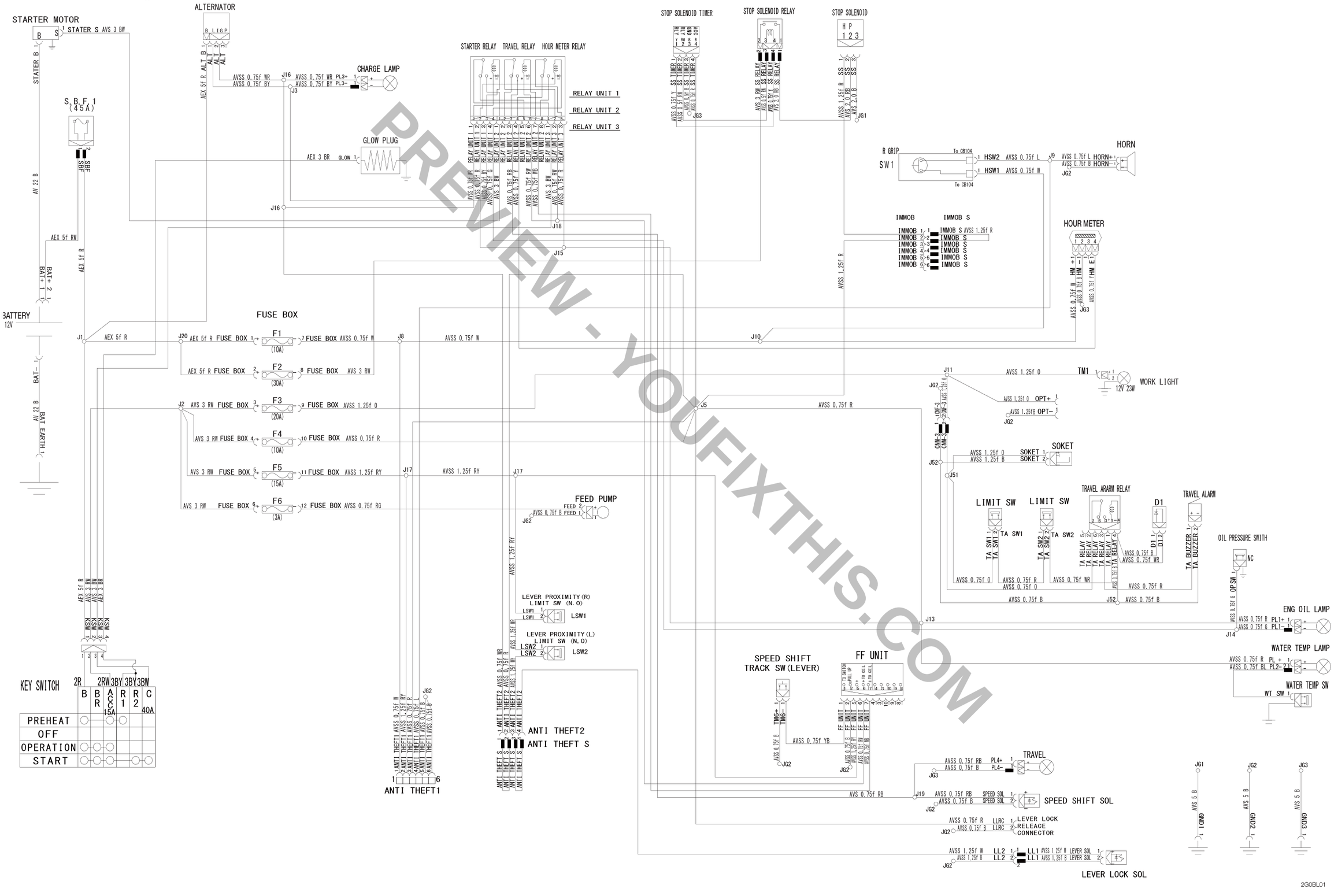
MAIN RELIEF PRESSURE
P1,P2 : 18.2MPa
OVERLOAD RELIEF PRESSURE
B2、A4、B8、B9 : 21.1MPa

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Electrical Schematic Diagram



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Removing the engine

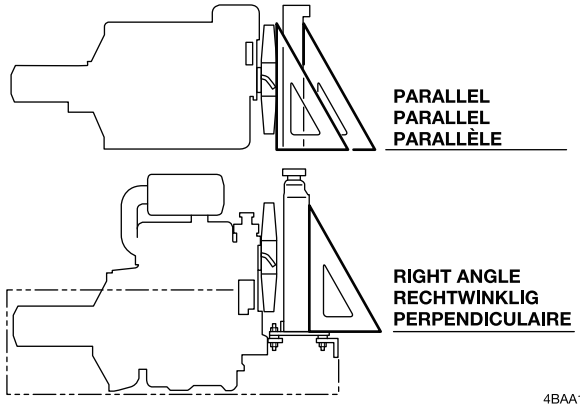
1. Remove the battery ground cable from the battery terminal.
2. Remove the covers.
   ☞ "Removing the covers"
3. Take out the battery.
   ☞ "Removing the battery"
4. Remove the hydraulic tank.
   ☞ "Removing the hydraulic tank"
5. Disconnect the hoses, and take out the air cleaner assembly (14).
6. Loosen the radiator cap, and bleed out the engine coolant from the drain valve (21).
   - Engine coolant volume: ☞ "Service data, Fuel and lubricant table"
7. Disconnect the hoses (11) and (12) from the radiator assembly (1).
8. Disconnect the hose from the drain valve (21).
9. Disconnect the hose from the sub-tank (15), and remove the sub-tank.
10. Remove the fan guard (20).
11. Remove the radiator assembly (1).
    - Slowly hoist up the radiator assembly while slowly pulling it forward so that the shroud does not strike the cooling fan.
12. Remove the hydraulic pump.
    ☞ "Removing the hydraulic pump"
13. Disconnect the fuel hoses on the engine side.
    ☞ "Removing the hydraulic tank"
14. Disconnect the battery cable and the engine electrical wiring on the engine side.
    - Attach an identification label to each wiring.

    ☞ "Removing the battery"
15. Disconnect the engine ground cable (18).
16. Remove the nuts and bolts, and suspend the engine.
    kg Engine: ☞ "Service data. Table of Masses"

Installing the engine

- For instructions on which tightening torque to use and where to apply thread-locking compound, refer to the construction diagram.

For installation of the engine, follow the same procedures as for removal but in the reverse order.
The radiator must be mounted at a right angle to the frame and parallel to the cooling fan.
Adjust the position to ensure that there is a clearance of 19 mm (0.7 in.) between the fan and shroud.



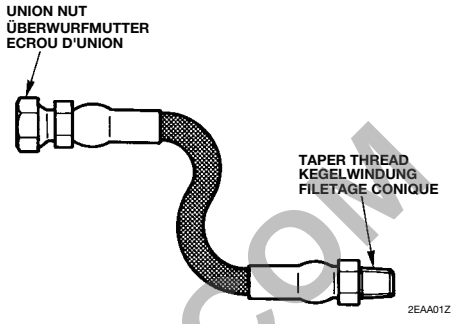
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TIGHTENING TORQUE

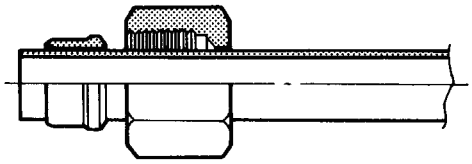
Hydraulic hose

Hose fitting size	Tightening torque			
	Union nut (G)		Taper thread (R)	
	N·m	ft.-lb	N·m	ft.-lb
1/8	$9.8^{+4.9}_{0}$	$7.3^{+3.5}_{0}$	11.8 ± 1.2	8.7 ± 0.8
1/4	$24.5^{+4.9}_{0}$	$18.1^{+3.5}_{0}$	29.4 ± 2.9	21.7 ± 2.1
3/8	$49.0^{+4.9}_{0}$	$36.2^{+3.5}_{0}$	53.9 ± 5.4	39.8 ± 3.9
1/2	$58.8^{+4.9}_{0}$	$43.4^{+3.5}_{0}$	88.3 ± 8.8	65.1 ± 6.4
3/4	$117.7^{+4.9}_{0}$	$86.8^{+3.5}_{0}$	147.1 ± 14.7	108.5 ± 10.7
1	$137.3^{+4.9}_{0}$	$101.3^{+3.5}_{0}$	196.1 ± 19.6	144.7 ± 14.3



Bite-type pipe fitting for steel pipe

Outer diameter of pipe (mm)	Tightening torque	
	N·m	ft.-lb
8	34.3 ± 4.9	23.5 ± 3.5
10	41.7 ± 2.5	30.7 ± 1.7
12	58.8 ± 4.9	43.4 ± 3.5
15	88.3 ± 4.9	65.1 ± 3.5
16	93.2 ± 4.9	68.7 ± 3.5
18	132.4 ± 4.9	97.6 ± 3.5
22	205.9 ± 9.8	151.8 ± 7.2
27.2	245.2 ± 9.8	181.0 ± 7.2
28	313.8 ± 19.6	231.4 ± 14.3
32	313.8 ± 19.6	231.4 ± 14.3
35	411.9 ± 19.6	303.7 ± 14.3



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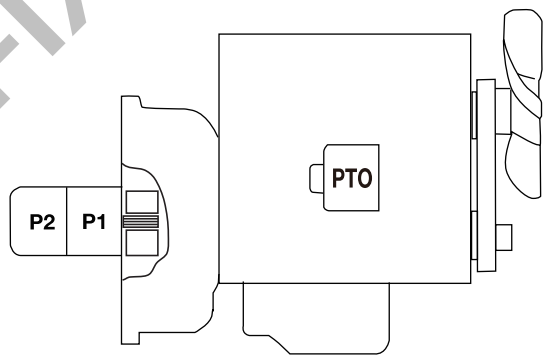
OVERALL MACHINE

No operation is possible.

1	Check the hydraulic oil level.	Insufficient	Add hydraulic oil.
	Sufficient		
2	Check the hydraulic pump.	Faulty	• Repair or replace the hydraulic pump. • Replace the coupling.

1. Check the hydraulic oil level.
   Check the hydraulic oil tank level.
   ☞ "4. Disassembly and assembly, Hydraulic oil tank"
   When adding, use the same brand of oil currently being used.
   ☞ "2. Service data, Fuel and lubricant table"

2. Check the hydraulic pump.
   • Check the discharge pressure of the pumps P1 and P2 (gear pumps).
   ☞ "2. Service data, Performance criteria"
   ☞ "5. Troubleshooting, Gear pump"



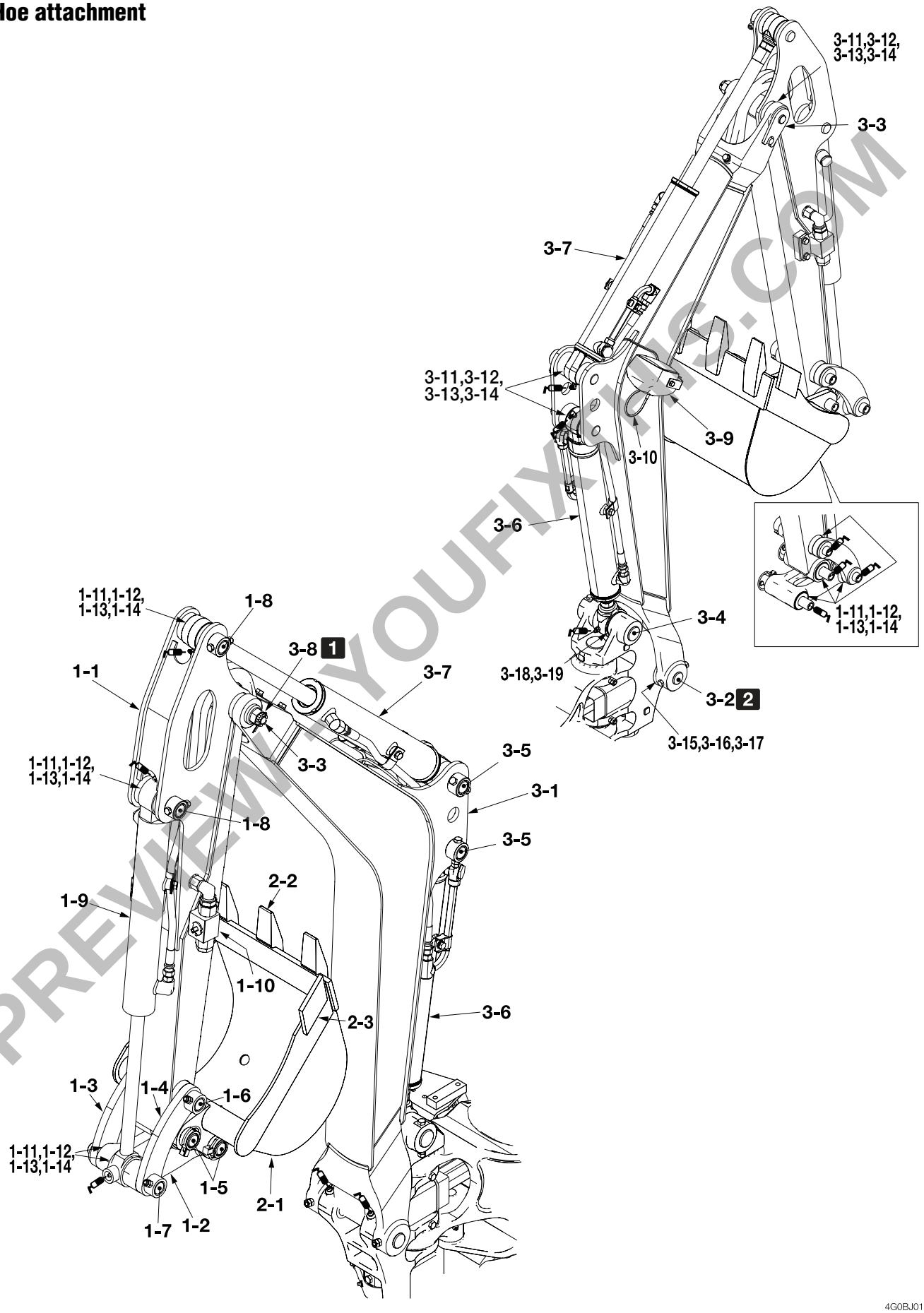
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ATTACHMENTS

Hoe attachment



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FOREWORD

This manual, which is written for engineers who service the machine, describes procedures for disassembly and assembly, inspection and maintenance, and troubleshooting, as well as maintenance reference values and an outline of the specifications. Refer to this manual during daily work to improve your services. Note that the information is subject to change without notice due to design modifications made to the machine from time to time by the manufacturer.

Directional terms: front, rear, left, right

In this manual, the “front” refers to the end of the machine where the dozer blade is mounted, while the “rear” refers to the other end where the travel motor is mounted. The “right” or “left” refers to the side viewed by a person sitting in the operator’s seat.

Machine serial number

The machine serial number is stamped on the identification plate. Be sure to include this number when sending a report or inquiry or when ordering parts.

Control of manual

Appoint a person in charge of keeping the manuals up to date in your company and inform us of the person’s name for our records. Any revisions or additions to this manual will be sent to the person.

Symbols used in this manual

The symbols used in this manual have the following meanings.

S/N Indicates the machine serial number.
☞ Means “Refer to the section quoted.”
kg Indicates the mass of the equipment or machine.
Means “Tighten to the torque specified here.”
Indicates the use of thread-locking compound.
Indicates the use of grease.

Manual structure

This manual consists of the following parts.
1. Safety
2. Service data
3. Function
4. Disassembly and assembly
5. Troubleshooting
6. Other

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SAFETY ALERT SYMBOL



This symbol represents the safety alert.
The message that follows the symbol contains important information regarding human safety.
Read and understand the message to avoid personal injury or death.

Safety label

Safety labels are used to alert operators or other people exposed to the risks of injury or damage. There are the following three types of labels.
Read the labels carefully as they are important for your safety.

⚠ DANGER

The word “DANGER” indicates an imminently hazardous situation which, if not avoided, is likely to result in serious injury or death.

⚠ WARNING

The word “WARNING” indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.

⚠ CAUTION

The word “CAUTION” indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

IMPORTANT: The word “IMPORTANT” is used to alert operators and maintenance personnel about situations which could result in damage to the machine and its components.

This manual is intended for trained and qualified personnel only. Warnings or cautions described in this manual do not necessarily cover all safety measures. It is also impossible to cover all hazards and risks which may be associated with the maintenance of the machine in every environment. For maintenance work, each person must take adequate safety precautions against possible hazards in the respective working environment.

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1 29.4 N·m (21.7 ft.-lb)
2 55 N·m (40.6 ft.-lb)
Bolt: ThreeBond #1324

1. Radiator assembly
2. Bracket
3. Pipe
4. Engine hood FR
5. Engine hood RR
6. Engine hood FL
7. Engine hood RL
8. Hose
9. Washer
10. Cushion rubber
11. Hose
12. Hose
13. Silencer
14. Air cleaner
15. Sub-tank
16. Gasket
17. Gasket
18. Earth ground cable
19. Drain valve
20. Fan guard

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Disassembly and assembly

General precautions

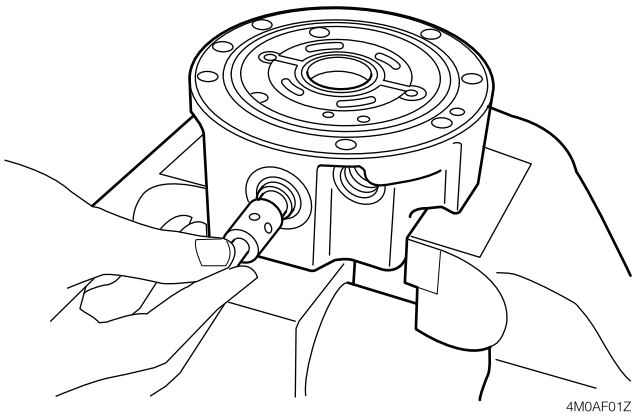
- Perform disassembly and assembly work in a clean place. Provide clean containers to store parts in during disassembly.
- Clean around the ports before disassembly. Remove paint around connectors with a wire brush.
- Clean the disassembled parts with wash oil.
- Put alignment marks on all parts to ensure that they are reassembled in the same positions.
- After each disassembly procedure, replace all seals and apply a thin layer of grease to each.
- Check each part for abnormal wear or seizing. Remove any burrs with sandpaper.
- Remove adhesive from screw holes that use the adhesive through the tap. Do not reuse mounting bolts or screws.
- Do not use cloth gloves during assembly. Fibers from the gloves could shed or fall off and clog valves, etc., which could cause parts to become faulty.
- During assembly, be sure to apply clean hydraulic oil to all moving parts in and sliding parts that come into contact with the hydraulic motor and valve parts before installing or attaching the part.
- Plug all ports once assembly has been completed in order to prevent dust and dirt from entering.

Assembly

The assembly procedures are given below. For disassembly, follow the same procedures as for assembly but in the reverse order by referring to the construction diagram.

Counter balance valve and hydraulic motor

1. Secure the valve body in a vise, and insert the spool into the valve body.
   - Insert an aluminum plate or the like between the motor and the vise to prevent the outer surface of the valve body from becoming damaged.
   - Do not further disassemble the spool assembly.


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