SPECIFICATIONS TABLES

Operating mass	Cab	kg	4965
	Canopy	kg	4825
Rated output	Net (ISO 14396) kW/min^{-1}		29.5/2400
	Net (ISO 9249/SAEJ1349) kW/min^{-1}		28.4/2400
Bucket capacity	Heaped capacity	m^3	0.141
	Struck capacity	m^3	0.102

Performance

Standard loading mass		kg	184
Slew speed		min^{-1}	9.8
Travel speed	1st	km/h	2.8
	2nd	km/h	5.2
Maximum tractive force		kN	56.1
Gradeability		%	58
		degree	30
Ground Pressure	Cab	kPa	28.1
	Canopy	kPa	27.3
Noise Level	Sound-power level	dB(A)	LWA 96
	Sound-pressure level	dB(A)	LPA 77

Machine dimensions

Overall length in transport condition		mm	5470
Overall width		mm	1840
Overall width	Track retracted	mm	—
Overall working equipment height in transept position	Cab	mm	2515
	Canopy	mm	2515

Dimensions of base machine

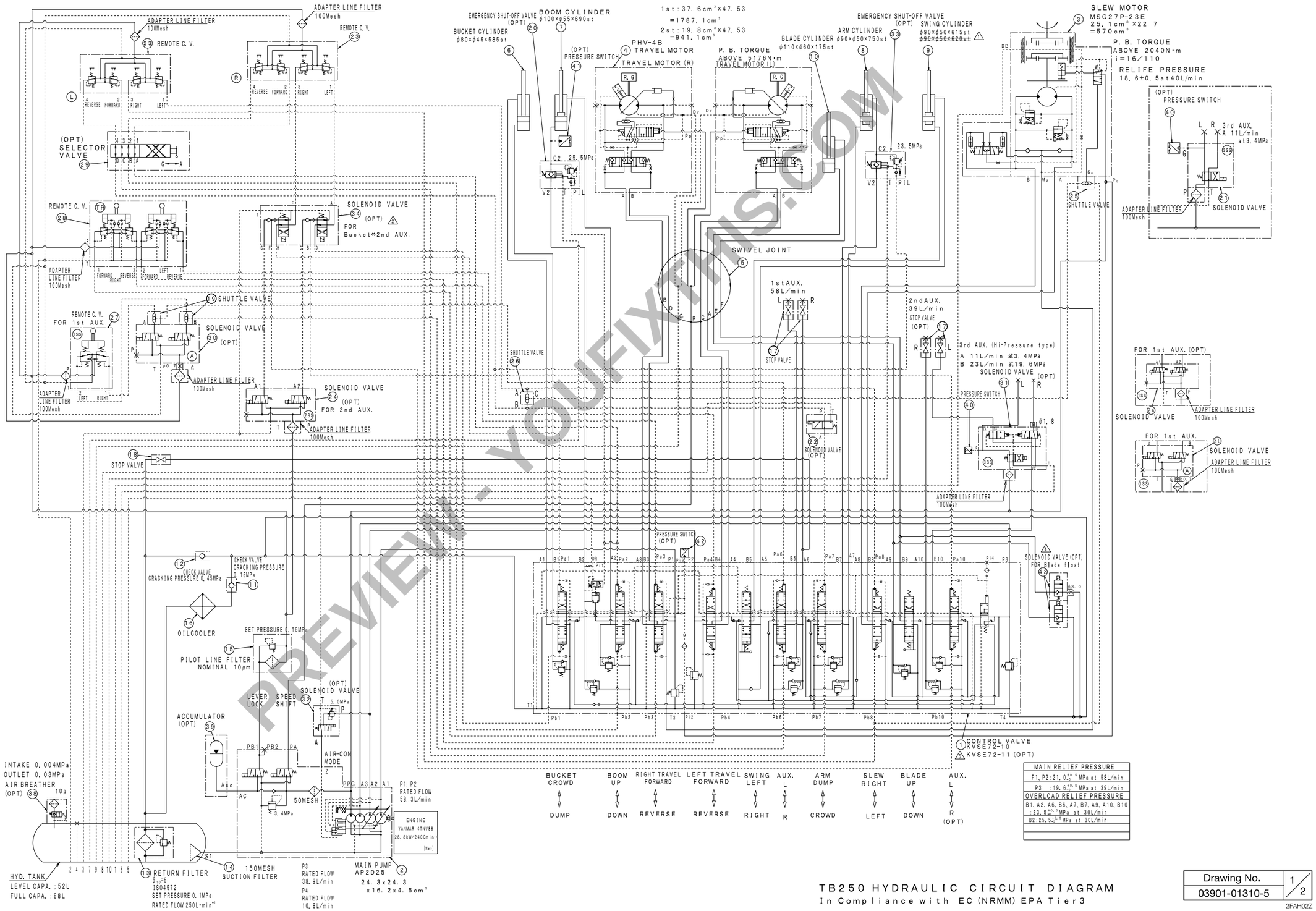
Overall length of base machine		mm	2965
Overall width of base machine		mm	1840
Overall width of base machine	Track retracted	mm	—
Upper structure overall width		mm	1690
Upper structure overall width	Left	mm	860
	Right	mm	830
Cab overall length		mm	1030
Overall height of base machine		mm	—
Slew radius		mm	1435
Upper structure rearmost distance from axis of rotation		mm	1400
Clearance height under upper structure		mm	630
Crawler base		mm	1985
Crawler overall length		mm	2500
Undercarriage overall width		mm	1840
Undercarriage overall width	Track retracted	mm	—
Track gauge		mm	1440
Track gauge	Track retracted	mm	—
Track shoe width		mm	400
Ground clearance of undercarriage		mm	335

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HYDRAULIC CIRCUIT DIAGRAM

Equipped with options 1/2



TB250 HYDRAULIC CIRCUIT DIAGRAM
In Compliance with EC (NRMM) EPA Tier3

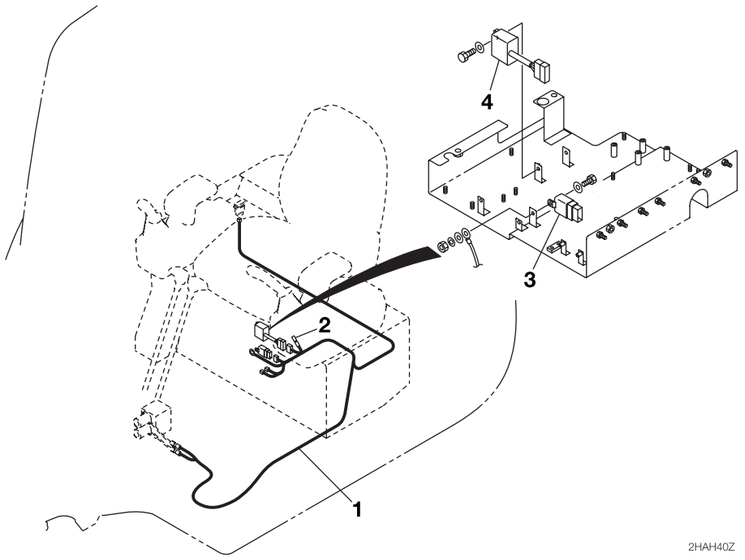
Drawing No. 03901-01310-5 1/2

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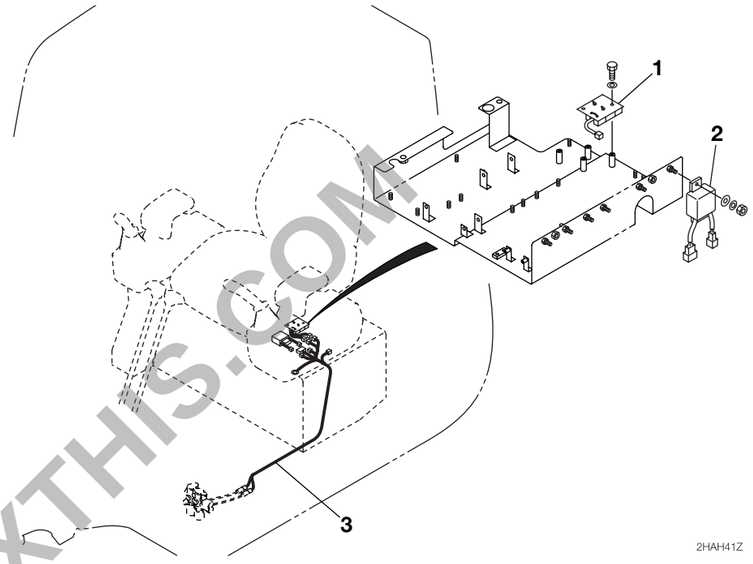
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Control unit (second auxiliary hydraulic piping with bucket select switch)



1. Wire harness (03570-15570)
2. Diode
3. Relay
4. Flip flop unit

Control unit (first auxiliary hydraulic piping with on/off switch)



1. Resistance
2. Relay
3. Wire harness (03942-26810)

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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 (piston pumps).

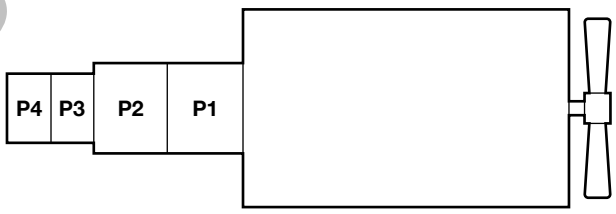
☞ "2. Service data, Performance criteria"

☞ "5. Troubleshooting, Piston pump"

- Check the pumps P3 and P4 (gear pumps).

☞ "2. Service data, Performance criteria"

☞ "5. Troubleshooting, Piston pump"



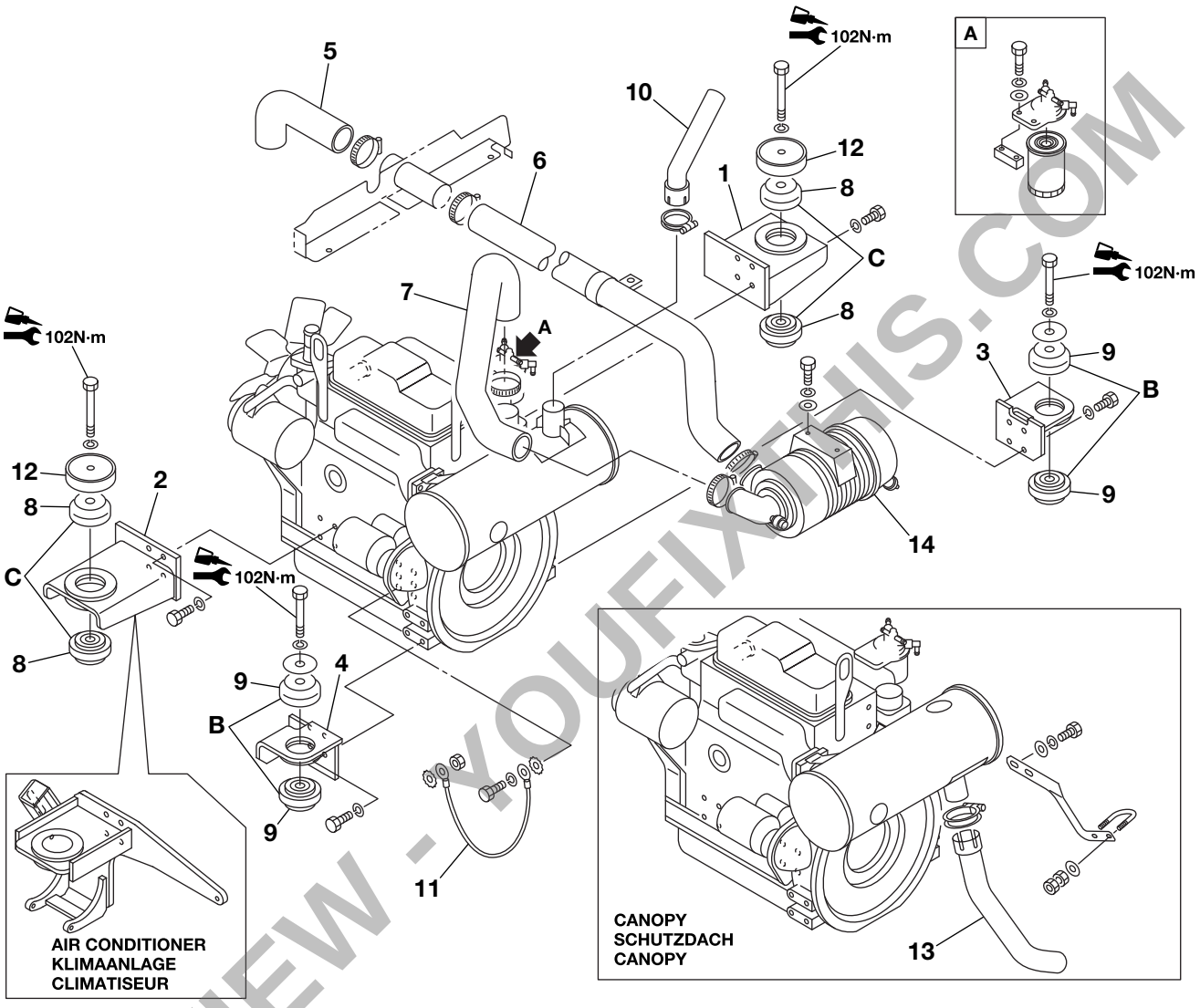
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DRIVE SYSTEM

Removing the engine



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B: With the marker “B”
C: With the marker “C”

1. Engine foot FR
2. Engine foot FL
3. Engine foot RR
4. Engine foot RL
5. Air hose
6. Air hose
7. Air hose
8. Cushion rubber
9. Cushion rubber
10. Tail pipe
11. Ground cable
12. Stopper
13. Exhaust pipe (Canopy type)
14. Air cleaner

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Engine

Model			YANMAR 4TNV88
Type			4-cycle, vertical, water-cooled, in-line, 4-cylinder diesel engine
Number of cylinders -bore×stroke		mm	4–88×90
Total displacement		mL	2185
Maximum torque		N·m	131.8 to 143.4
		min-1	1440
Specific fuel consumption (at rated output)		g/kW·h	243
Fuel/air washer			Centrifugal, filter paper
Cooling system type	Fan		Suction type
	Radiator		Pressure type
Starter motor	Voltage	V	12
	Output	kw	2.3
Generator	Voltage	V	12
	Output	kw	0.48
Battery	Voltage	V	12
	Capacity	A·h	92
	Qty.		1

Hydraulic system

Hydraulic pump drive system			Engine direct coupling
Hydraulic pump	Type		Variable displacement type double axial piston plus double gear
	Qty.		1
	Delivery	L/min	58.3×2+38.9+10.8
	Hydraulic pump control system		All horsepower control
Main relief valve pressure setting		MPa	21.0×2+19.6+3.4
Hydraulic tank pressure			Pressure tank
Control valve	Type		Directional control valve, 10 valves in series (standard spec.)
	Operation type		—
Hydraulic oil filter	Type		Glass fiber filter type
	Filter precision		BETA10=6
	Installing position		Return Circuit (In Hydraulic tank)
Hydraulic oil cooler	Cooling system type		Air cooling
	Radiation of heat area	m^2	

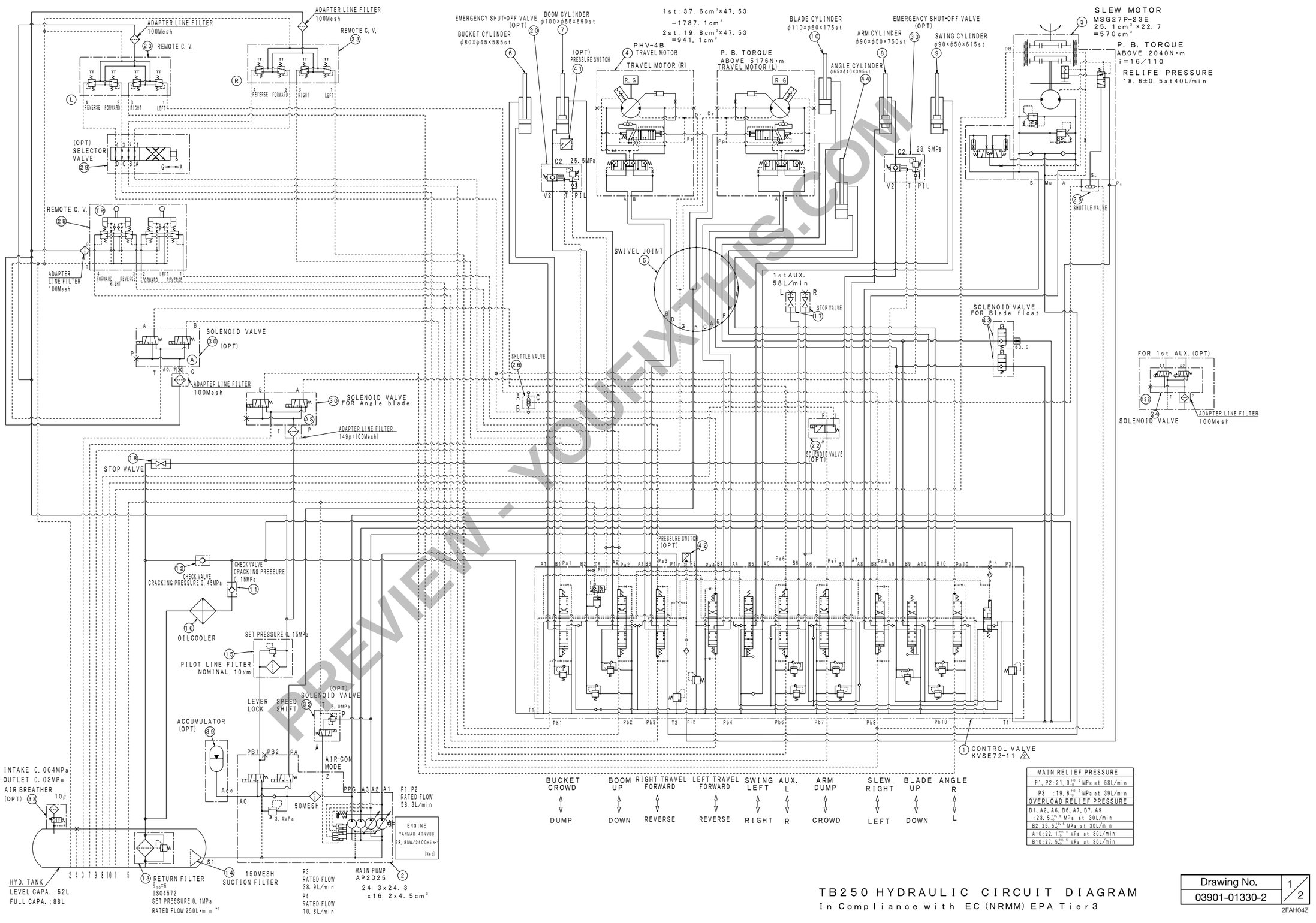
Operating equipment

Cab	Position		Left side
	Construction		Suspension seat, adjustable
Cab or canopy	Construction		Steel enclosed cabin with all glass doors tempered glass, Steel posts canopy
Operating lever and pedals	Shifting operation		Second travel speed switch
	Travel operation		Pilot operated (2 levers)
	Slew operation		Pilot operated
	Arm operation		Pilot operated
	Bucket operation		Pilot operated
	Boom operation		Pilot operated
	Boom swing operation		Mechanics, Pedal
	Others		Auxiliary hydraulics operating: Pilot operated and pedal
Instrument, switches	Cluster gauge		Water temperature gauge, Fuel gauge, Hour meter, Charge, Oil, Water temperature, Decel, Air cleaner, 2nd-speed pilot
Lighting installation	Head ligh	V-W	12V-55W H3-Halogen
	Boom light	V-W	12V-55W H3-Halogen
Warning, safety device			12V,110dB(A)
Others			Cab: Wiper, Heater, With defroster

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Equipped with angle blade and blade float 1/2



MAIN RELIEF PRESSURE
P1, P2 : 21. $0^{+0.5}_{-2}$ MPa at 58L/min
P3 : 19. $6^{+0.5}_{-2}$ MPa at 39L/min
OVERLOAD RELIEF PRESSURE
B1, A2, A6, B6, A7, B7, A9 : 23. $5^{+0.5}_{-2}$ MPa at 30L/min
B2. 25. $5^{+0.5}_{-2}$ MPa at 30L/min
A10. 22. $1^{+0.5}_{-2}$ MPa at 30L/min
B10. 27. $5^{+0.5}_{-2}$ MPa at 30L/min

TB250 HYDRAULIC CIRCUIT DIAGRAM
In Compliance with EC (NRMM) EPA Tier3

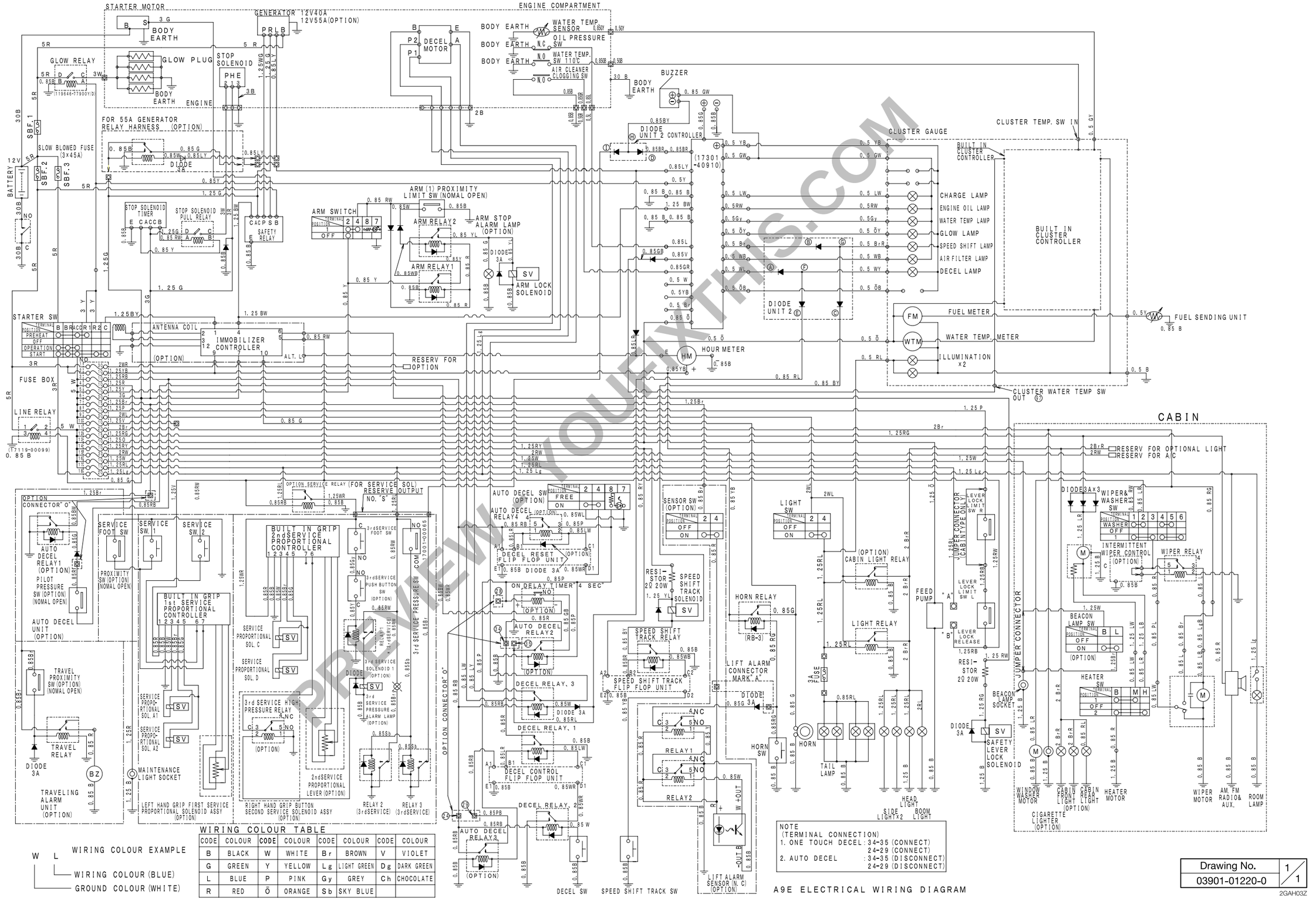
Drawing No.	1/2
03901-01330-2	

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First auxiliary hydraulic piping with proportional control



WIRING COLOUR TABLE

CODE	COLOUR	CODE	COLOUR	CODE	COLOUR	CODE	COLOUR
B	BLACK	W	WHITE	Br	BROWN	V	VIOLET
G	GREEN	Y	YELLOW	Lg	LIGHT GREEN	Dg	DARK GREEN
L	BLUE	P	PINK	Gy	GREY	Ch	CHOCOLATE
R	RED	Ō	ORANGE	Sb	SKY BLUE		

W L — WIRING COLOUR EXAMPLE
L — WIRING COLOUR (BLUE)
W — GROUND COLOUR (WHITE)

NOTE
(TERMINAL CONNECTION)
1. ONE TOUCH DECEL: 34-35 (CONNECT)
24-29 (CONNECT)
2. AUTO DECEL: 34-35 (DISCONNECT)
24-29 (DISCONNECT)

A9E ELECTRICAL WIRING DIAGRAM

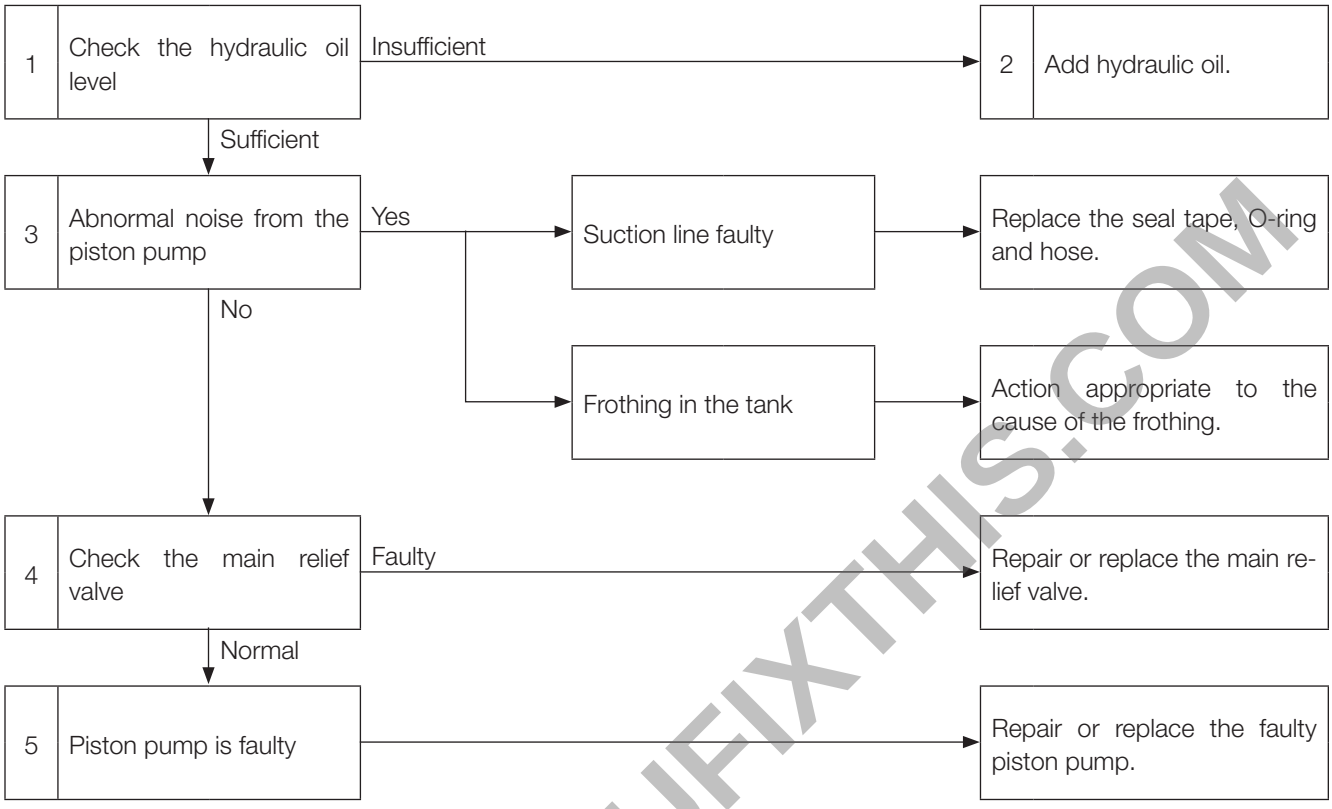
Drawing No.	1/1
03901-01220-0	

2GAH03Z

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All systems working, but insufficient force.



1. Check the hydraulic oil level.
☞ "4. Disassembly and assembly, Hydraulic oil tank"

2. Add hydraulic oil.
☞ "5-3"

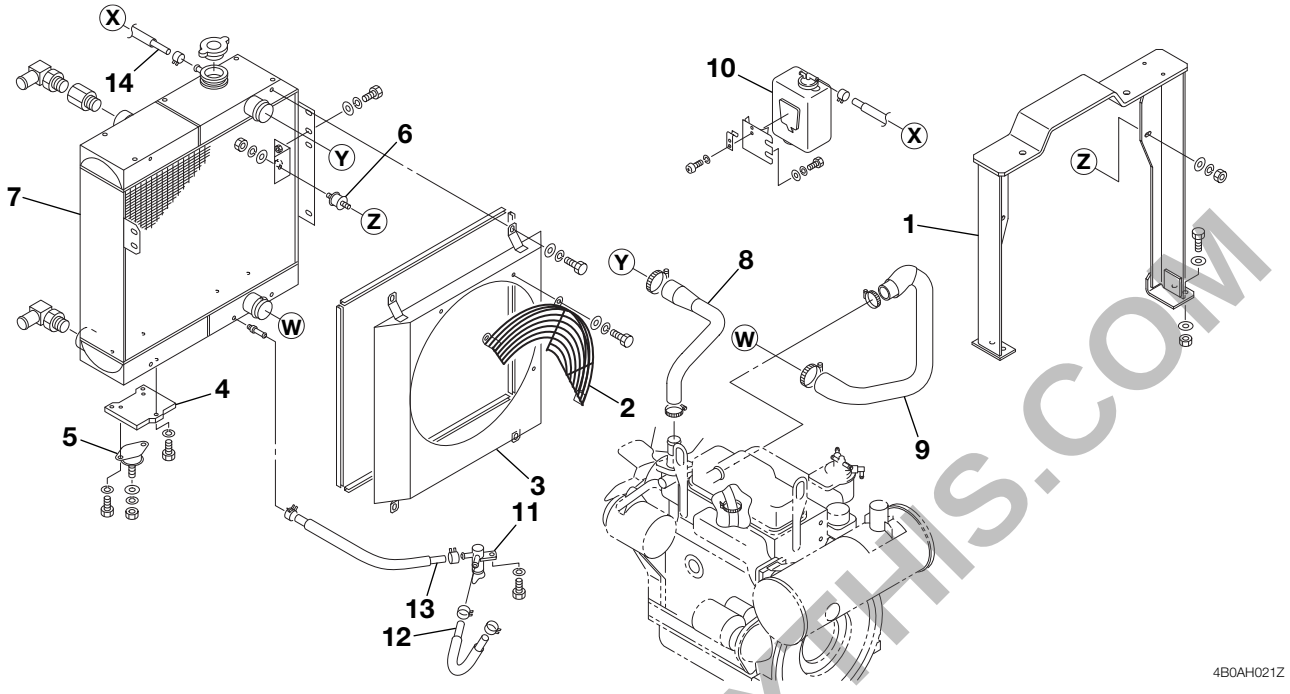
3. Abnormal noise from the piston pump.
The noise is likely to be caused by cavitation in the pump, due to a faulty suction line. Check the following.
a. The line for sucking the hydraulic oil
- Apply grease or oil on the suspected faulty sections and check for a change (check if air is being sucked).

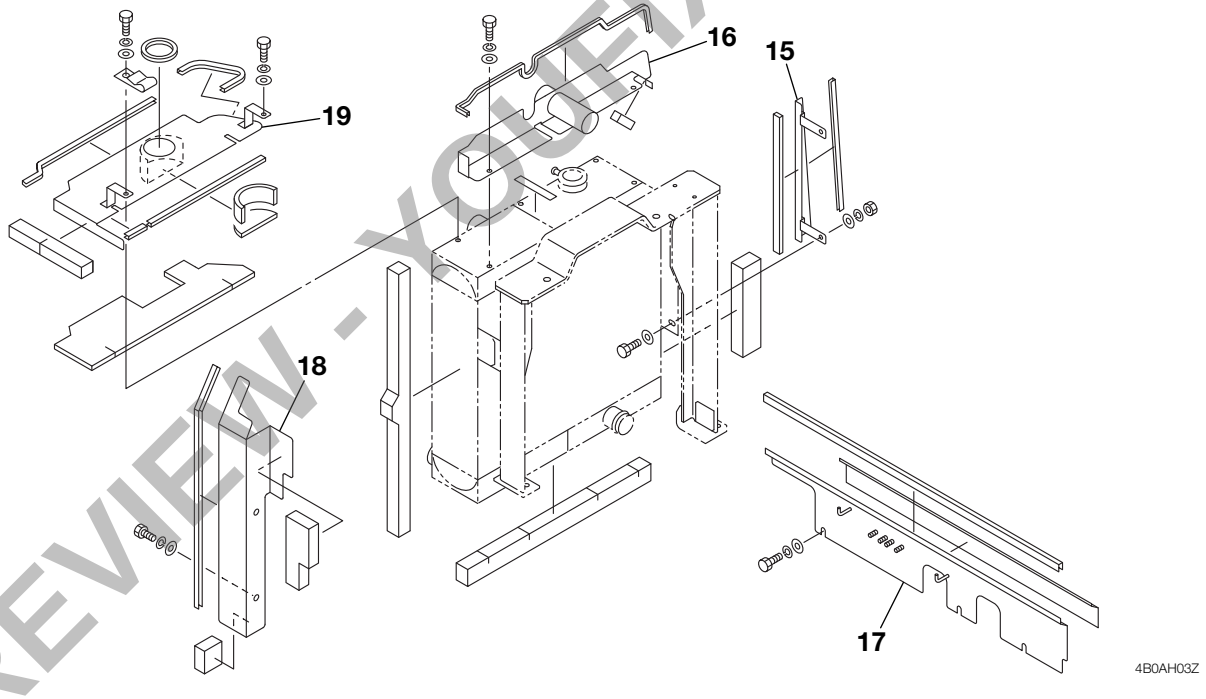
b. Clogging in the suction filter
c. Pressurize the hydraulic tank.
☞ "4. Disassembly and assembly, Hydraulic tank"

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Removing the radiator and oil cooler





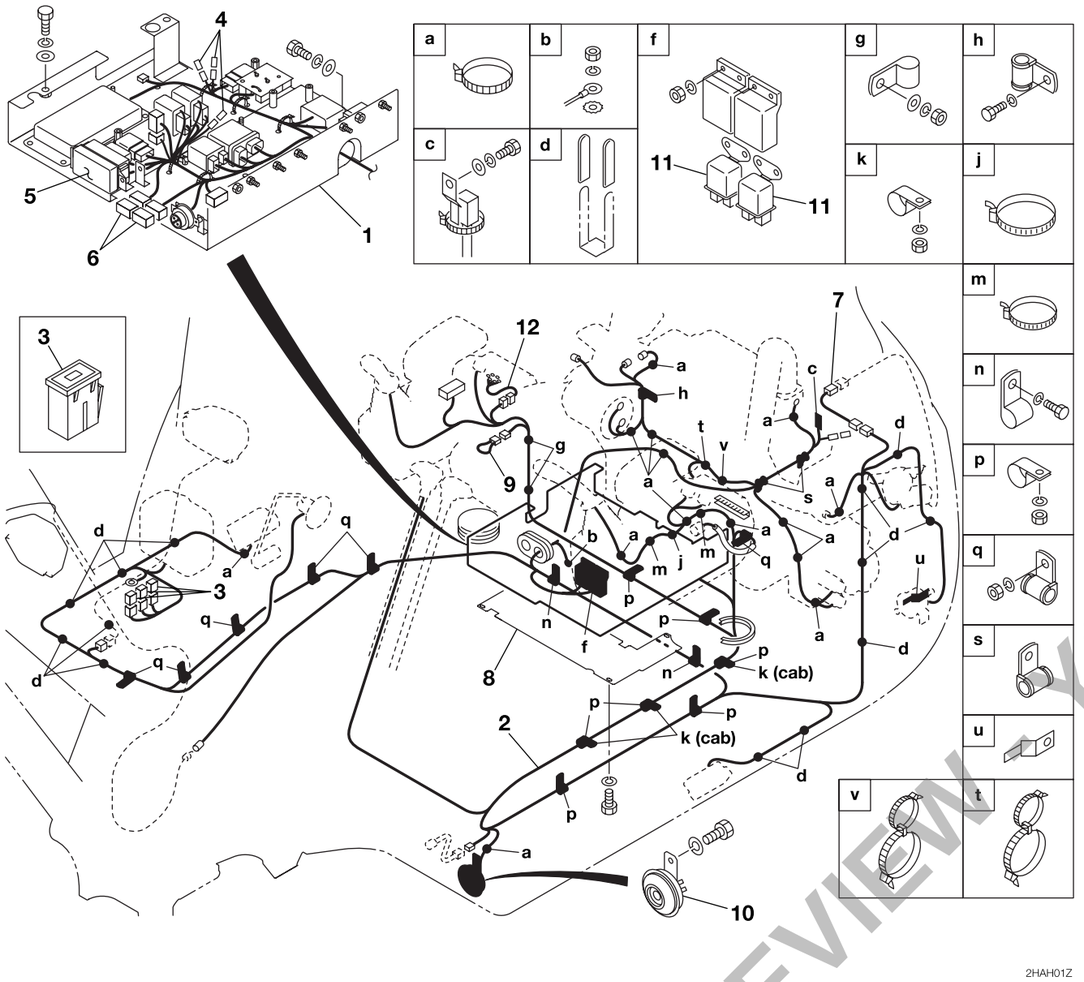
1. Bracket
2. Fan guard
3. Shroud
4. Plate
5. Cushion rubber
6. Cushion rubber
7. Radiator and oil cooler
8. Radiator hose (upper)
9. Radiator hose (lower)
10. Sub-tank
11. Drain valve
12. Hose
13. Hose
14. Hose
15. Plate
16. Plate
17. Plate
18. Plate
19. Plate

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WIRE HARNESS WIRING DIAGRAM

Upper frame wiring 1/2

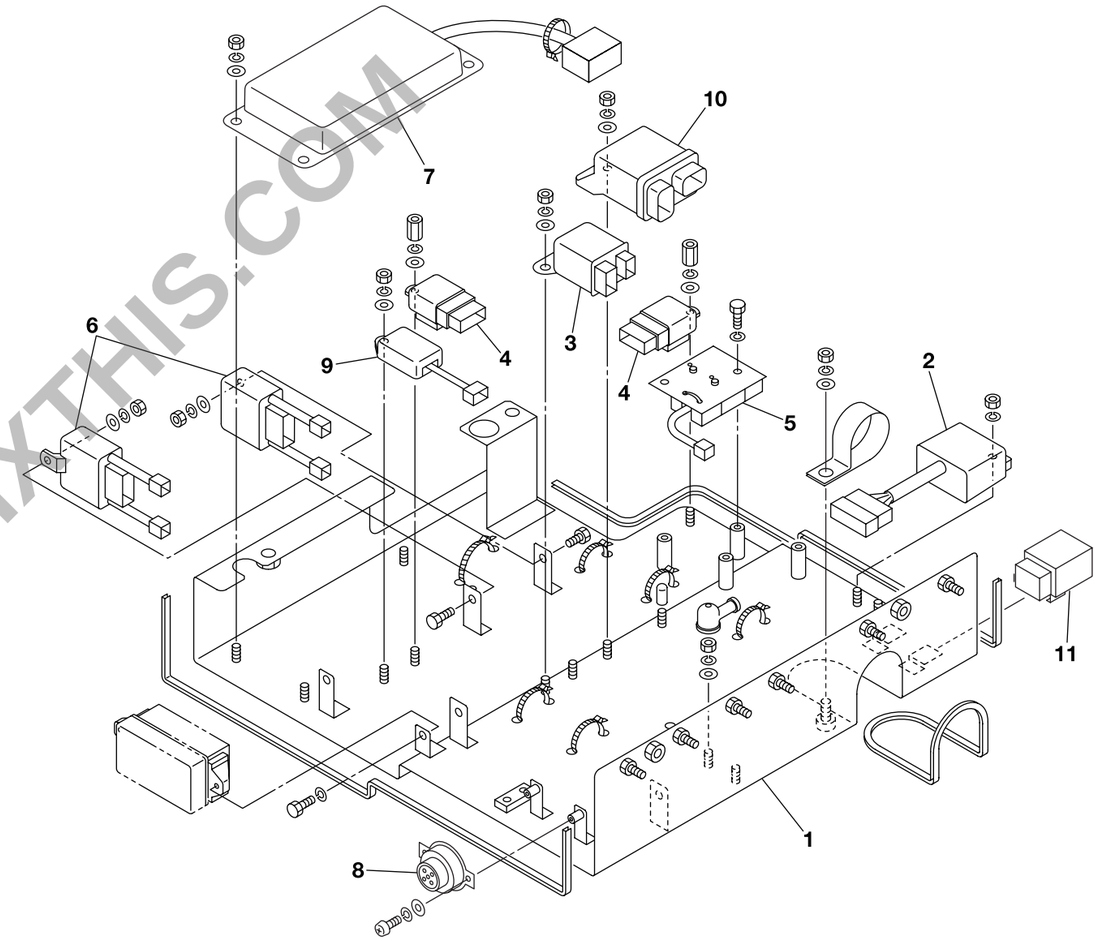


2HAH01Z

1. Control unit
2. Wire harness (03942-26630)
3. Fusible link
4. Diode
5. Fuse box
6. Short connector
7. Wire harness (03742-17070)
8. Plate
9. Short connector
10. Horn
11. Relay
12. Wire harness (03742-05600)

Upper frame wiring 2/2

Serial No. 125000001 to 125000849



2HAH02Z

1. Plate
2. Flip flop unit
3. Relay
4. Relay
5. Resistance
6. Relay
7. Controller
8. Buzzer
9. Timer
10. Safety relay
11. Diode unit

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Boom, bucket, slew and arm fail to move or are too slow.

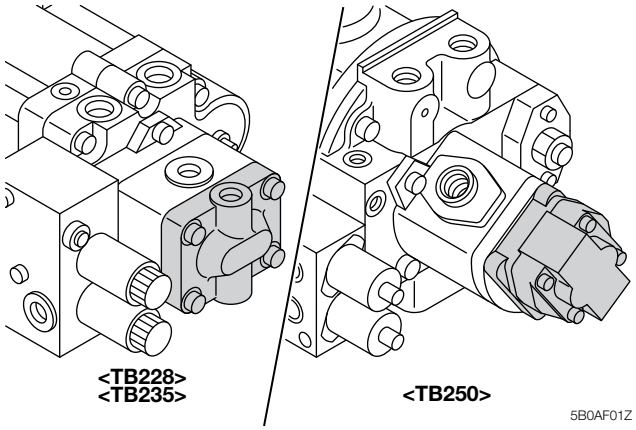
1	Check the gear pump	Faulty	• Repair or replace the gear pump • Replace the coupling
	Normal		
2	Check the fuse	Faulty	Replace the fuse
	Normal		
3	Check the limit switch	Faulty	Adjust or replace the limit switch
	Normal		
4	Check the lever lock solenoid valve	Faulty	Repair or replace the lever lock solenoid valve
	Normal		
5	Check the pilot relief valve	Faulty	Repair or replace the pilot relief valve
	Normal		
6	Check the pilot valve	Faulty	Repair or replace the pilot valve

1. Check the gear pump

Check the hydraulic pump (1) which supplies hydraulic pressure to the pilot valve.

- The inspection procedure is the same as for the piston.
  ☞ "5-3"

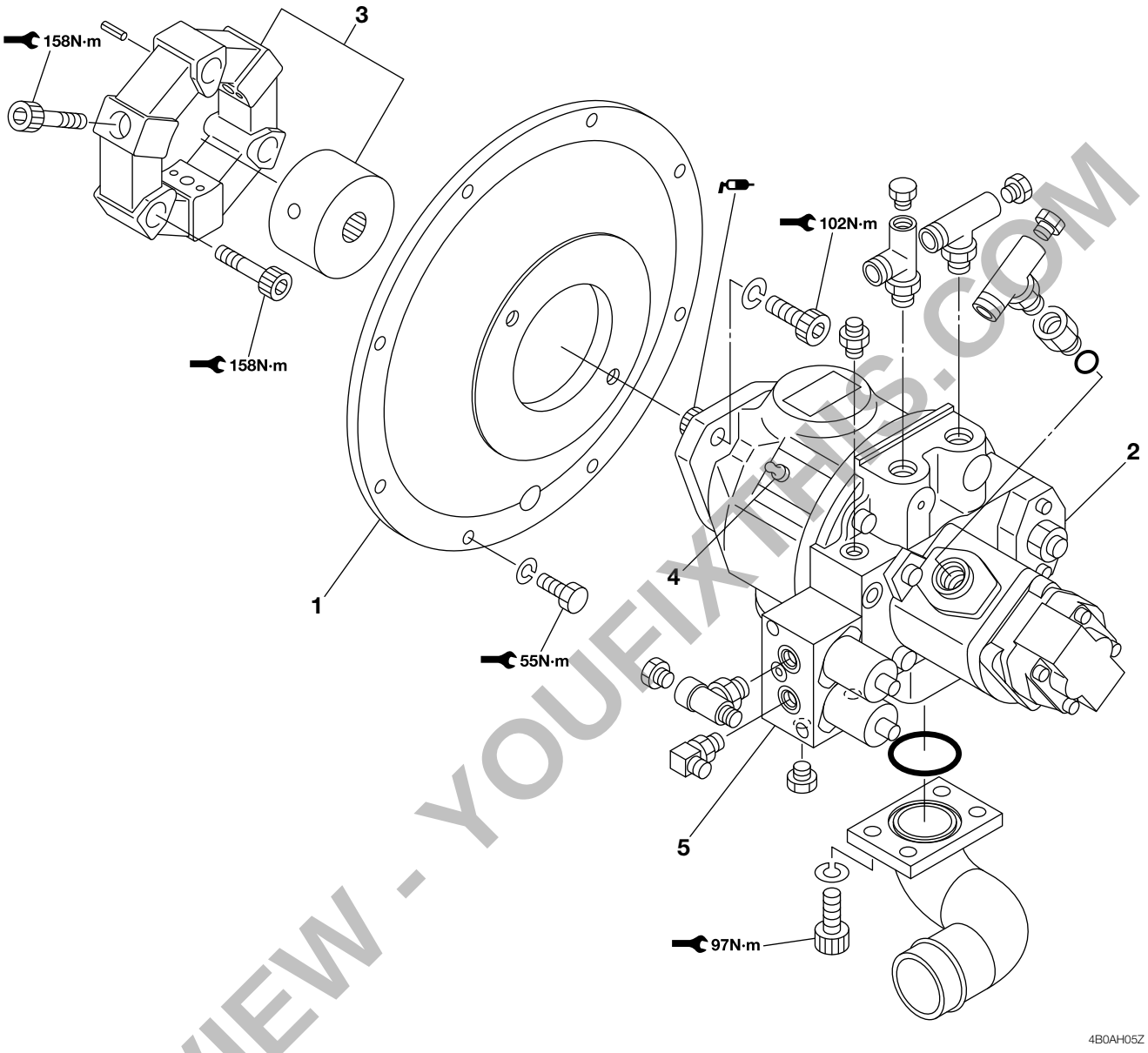
Also, check the line filter for clogging, and clean it as necessary.



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Removing the hydraulic pump



Apply molybdenum disulfide grease to the spline

1. Engine housing
2. Hydraulic pump
3. Coupling
4. Air-bleeding plug
5. Solenoid valve

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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 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. Engine

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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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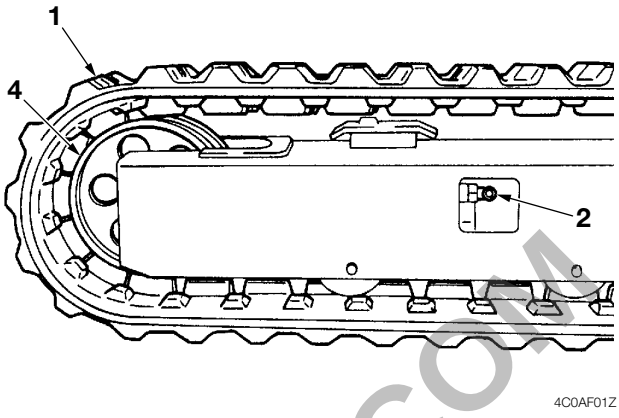
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TRAVEL SYSTEM

Removing the crawler belt

1. Loosen the tension of the crawler (1).
   - When loosening the check valve (2), do it slowly. When grease comes out, stop loosening it. If no grease comes out, slightly move the machine forward and backward.

   Check valve: 177 N·m



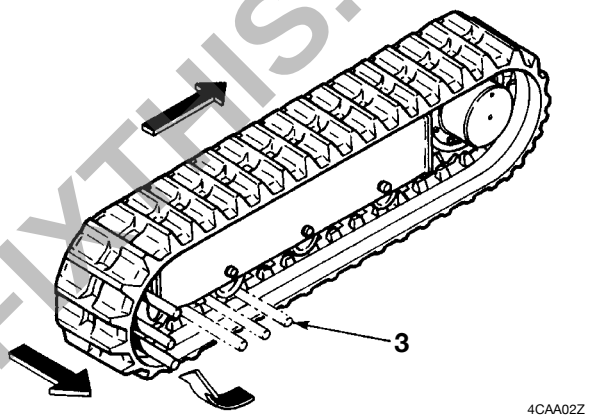
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2. Fit the iron pipe (3) in the crawler, and then rotate the sprocket in the reverse direction.

3. When the pipe reaches the side of the idler, stop the rotation of the sprocket.

4. Slide the crawler to the side and remove it.

   Crawler belt: 219 kg



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Installing the crawler belt

1. Raise the machine and place the crawler on the frame.
   - Set the crawler so that it is engaged with the sprocket.

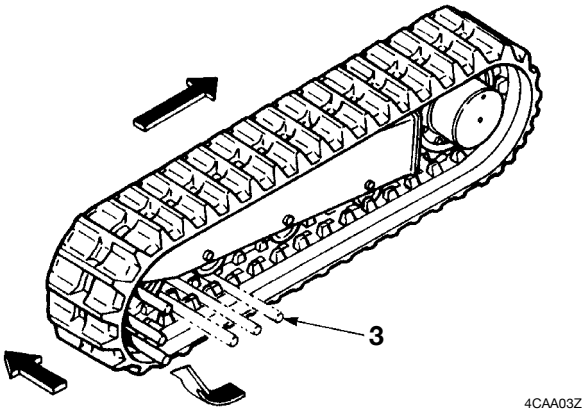
2. Fit the iron pipe (3) in the crawler, and then rotate the sprocket in the reverse direction.

3. When the pipe (3) reaches the side of the sprocket, stop the rotation of the sprocket.

4. Slide the crawler to a position where it can be properly fitted with the idler.

5. Securely engage the crawler with the sprocket and the idler, and then adjust the crawler tension.

   "2. Service data, Performance criteria"

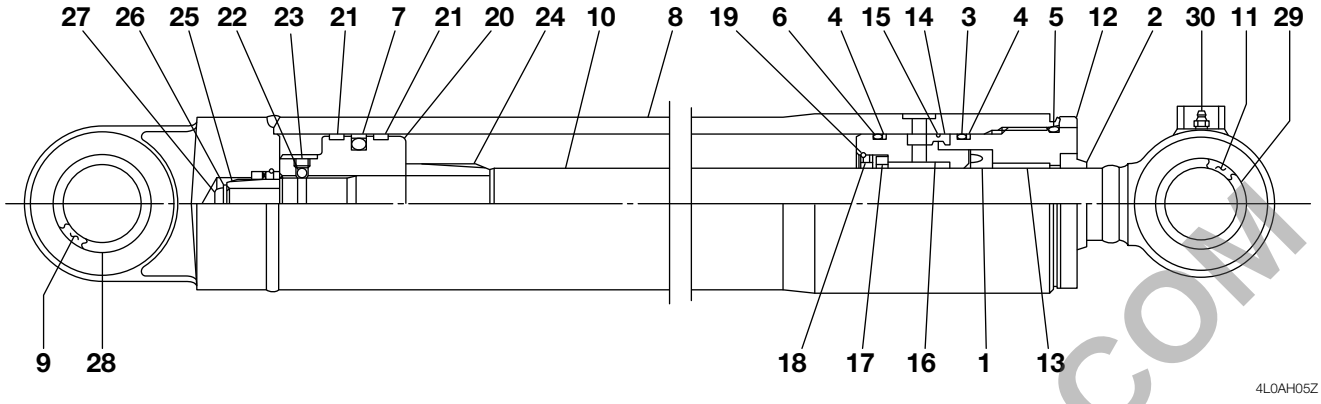


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Swing cylinder



1. Rod Packing
2. Dust seal
3. O-ring
4. Backup ring
5. O-ring
6. O-ring
7. Piston packing
8. Tube
9. Bushing
10. Piston rod
11. Bushing
12. Rod cover
13. Bushing
14. Connector
15. Stopper
16. Retainer
17. Cushion seal
18. Spacer
19. Stopper
20. Piston
21. Wear ring
22. Ball
23. Setscrew
24. Cushion bearing
25. Cushion bearing
26. Washer
27. Bolt
28. Dust seal
29. Dust seal
30. Grease fitting

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