(FOR TRAVEL)

REVERSE FORWARD

B

B A AS T P

52
SOLENOID VALVE
FOR Angle blade,
(OPT)

34
LV12-25
CHECK VALVE
CRACKING PRESSURE
0.25MPa

LV08-10
CHECK VALVE
CRACKING PRESSURE
0.10MPa

27

OIL COOLER
30

INTAKE 0.005MPa
OUTLET 0.03MPa
AIR BREATHER
37
MESH 10μ

SET PRESSURE
0.1MPa
RATED240L•min⁻¹
RELIEF VALVE
28 29
RETURN FILTER
β10=6 (MINIMUM)
ISO4572

1.4MPa
0.32L
43 ACCUMULATOR
(OPT)

21 SOLENOID
VALVE

ACC T B
LEVER
LOCK
A
SPEED
SHIFT
TRAVEL
P
C

HYDRAULIC TANK
LEVEL CAPACITY:72.7L
ALL CAPACITY:110.6L

32 SUCTION FILTER
150MESH

PPS P1 Pb1 B1 A1
(Rod) (Bottom)
T1 PP12 Pa1
PP11
1.4MPa(NO)
44 PRESSUF
SWITCH

PILOT LINE
FILTER
33

CROWD
DUMP
ARM

P1
RATED
160.0L/min
80cm³
P2
RATED
60.6L/min
30.3cm³
P3
RATED
16.0L/min
8.0cm³

MAIN R
P1:27.5
P2 : 24.
P3 :3.5
OVERLOAD
A1、B1、A3 :33.3±0
A2、B2、A9、B9 :20.6±0.5
A10:29.5
B10:19.0
UNLOAD
2.5±0.

ENGINE
4TNV98T(A14G)
49.6kW/2000min⁻¹
4JJ1T(A14F)
51.4kW/2000min⁻¹[Net]

PLUNGER PUMP
K3VL80
3

A1 A3 A4
Dr B1 B2
4 GEAR PUMP

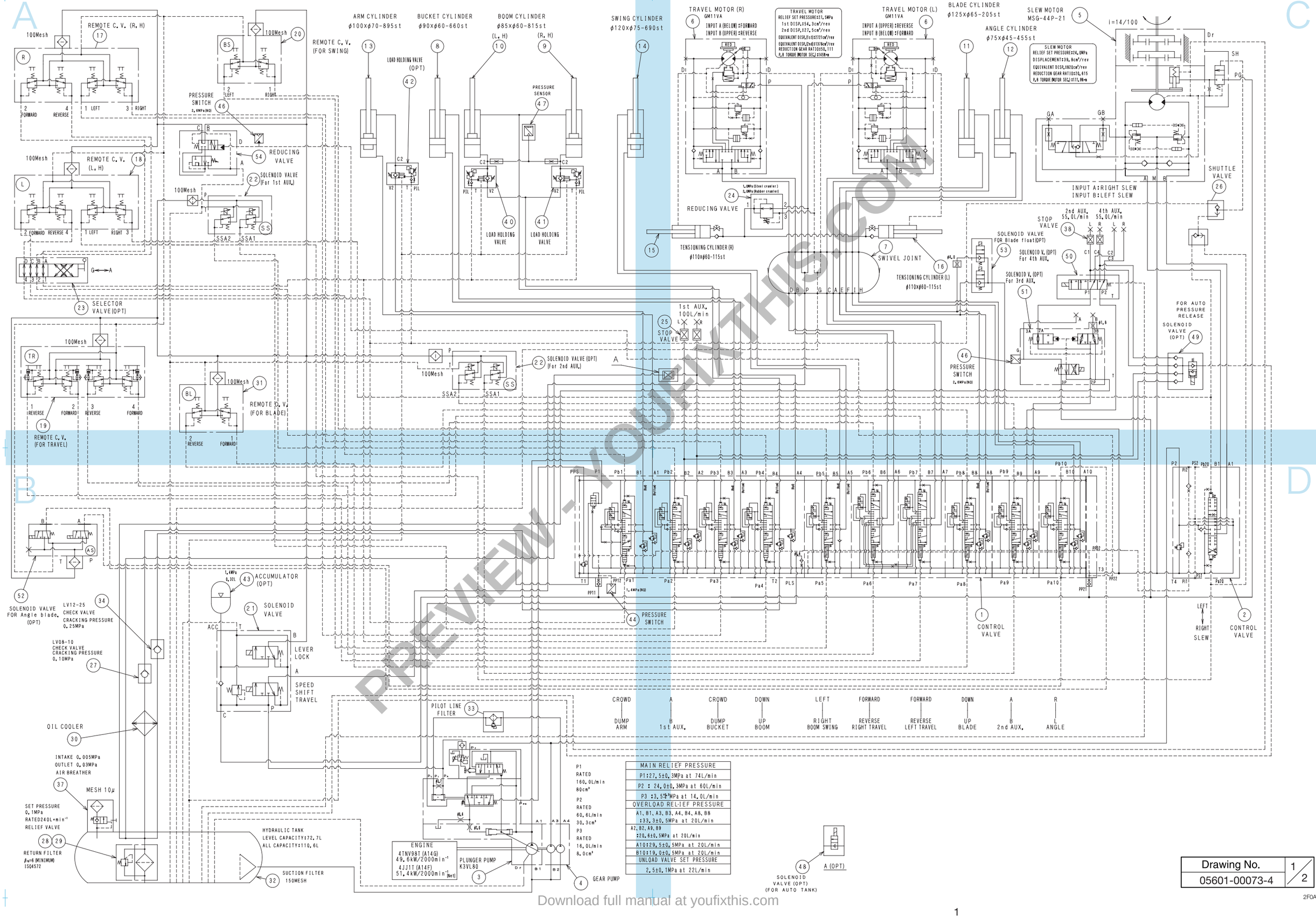
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HYDRAULIC CIRCUIT DIAGRAM

Mono-boom



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Drawing No.	1/2
05601-00073-4	

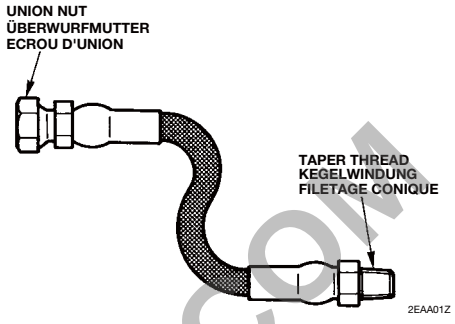
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TIGHTENING TORQUE

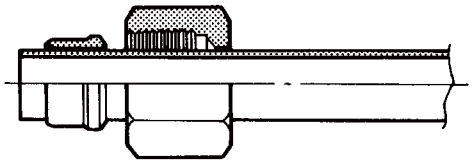
Hydraulic hose

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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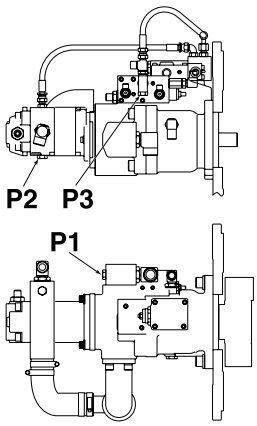
OVERALL MACHINE

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. Checking the hydraulic pump.
   • Check the pressure of pump P1.
   ☞ "2. Service data, Performance criteria"
   ☞ "5. Troubleshooting, Piston pump"
   • Check the pressure of pump P3.
   ☞ "2. Service data, Performance criteria"
   ☞ "5. Troubleshooting, Gear pump"



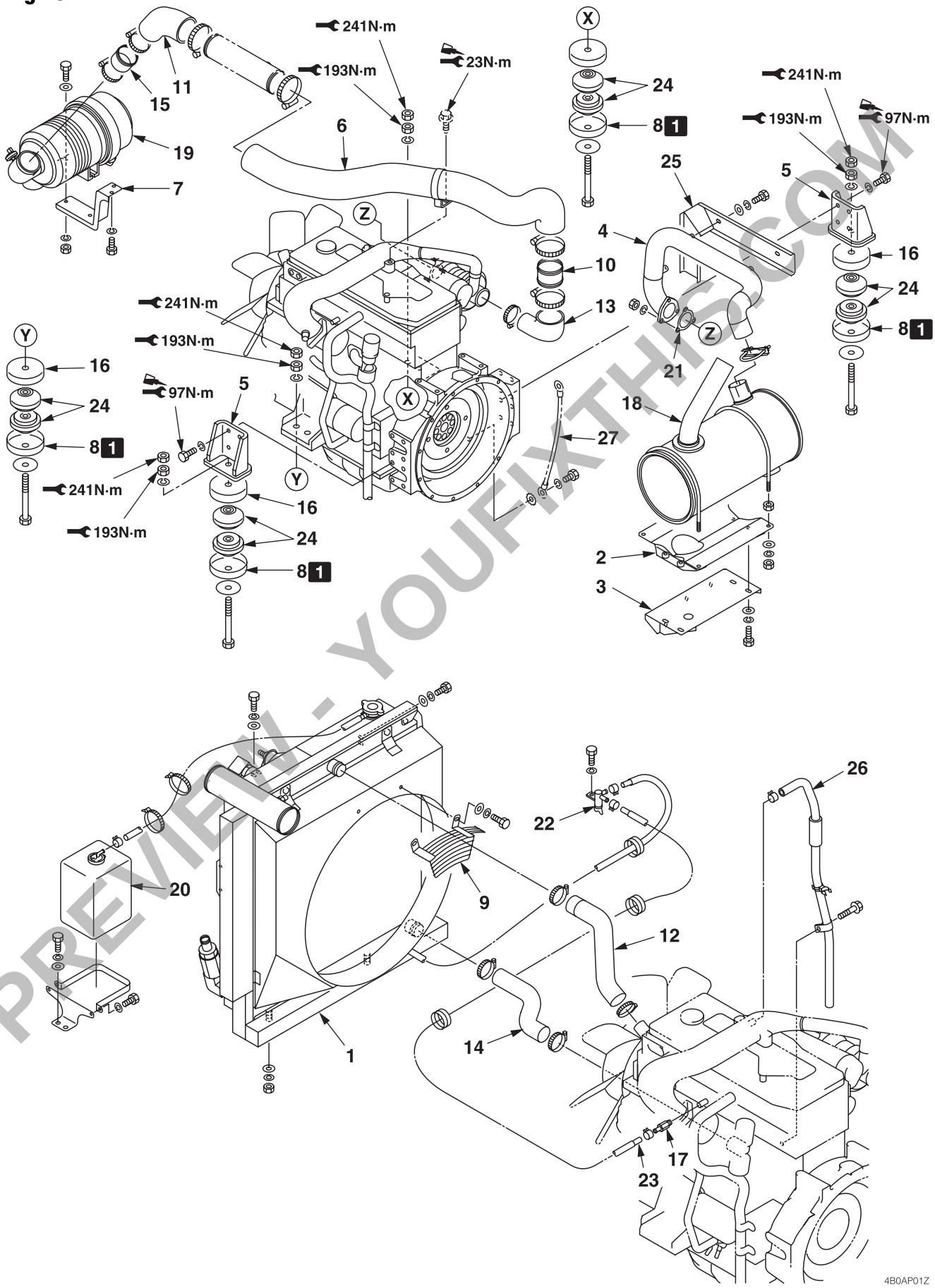
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DRIVE SYSTEM

Engine



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SPECIFICATION TABLES

Operating mass	Rubber crawler	Canopy	kg (lb)	–
		Cab	kg (lb)	8515 (18770)
	Steel crawler	Canopy	kg (lb)	–
		Cab	kg (lb)	8750 (19295)
Rated output	Net (ISO 14396)		kW/min^{-1}(hp/rpm)	54.0/2000(72.4/2000)
	Net (ISO 9249/SAEJ1349)		kW/min^{-1}(hp/rpm)	51.4/2000(68.9/2000)
Bucket capacity	Heaped capacity		m^3 (ft.^{3})	0.245 (8.65)
	Struck capacity		m^3 (ft.^{3})	0.185 (6.53)

Performance

Standard loading mass			kg (lb)	440 (972)
Slew speed			min^{-1} (rpm)	10.3 (10.3)
Travel speed	Rubber crawler	1st	km/h (mph)	2.6 (1.62)
		2nd	km/h (mph)	5.0 (3.11)
	Steel crawler	1st	km/h (mph)	2.5 (1.55)
		2nd	km/h (mph)	4.8 (2.98)
Maximum tractive force			kN (lbf)	88.0 (19780)
Gradeability			%	58
			deg.	30
Ground pressure	Rubber crawler	Canopy	kPa (psi)	–
		Cab	kPa (psi)	37.9 (5.5)
	Steel crawler	Canopy	kPa (psi)	–
		Cab	kPa (psi)	39.4 (5.71)
Noise level	Sound-power level		dB (A)	99
	Sound-pressure level		dB (A)	74

Machine dimensions

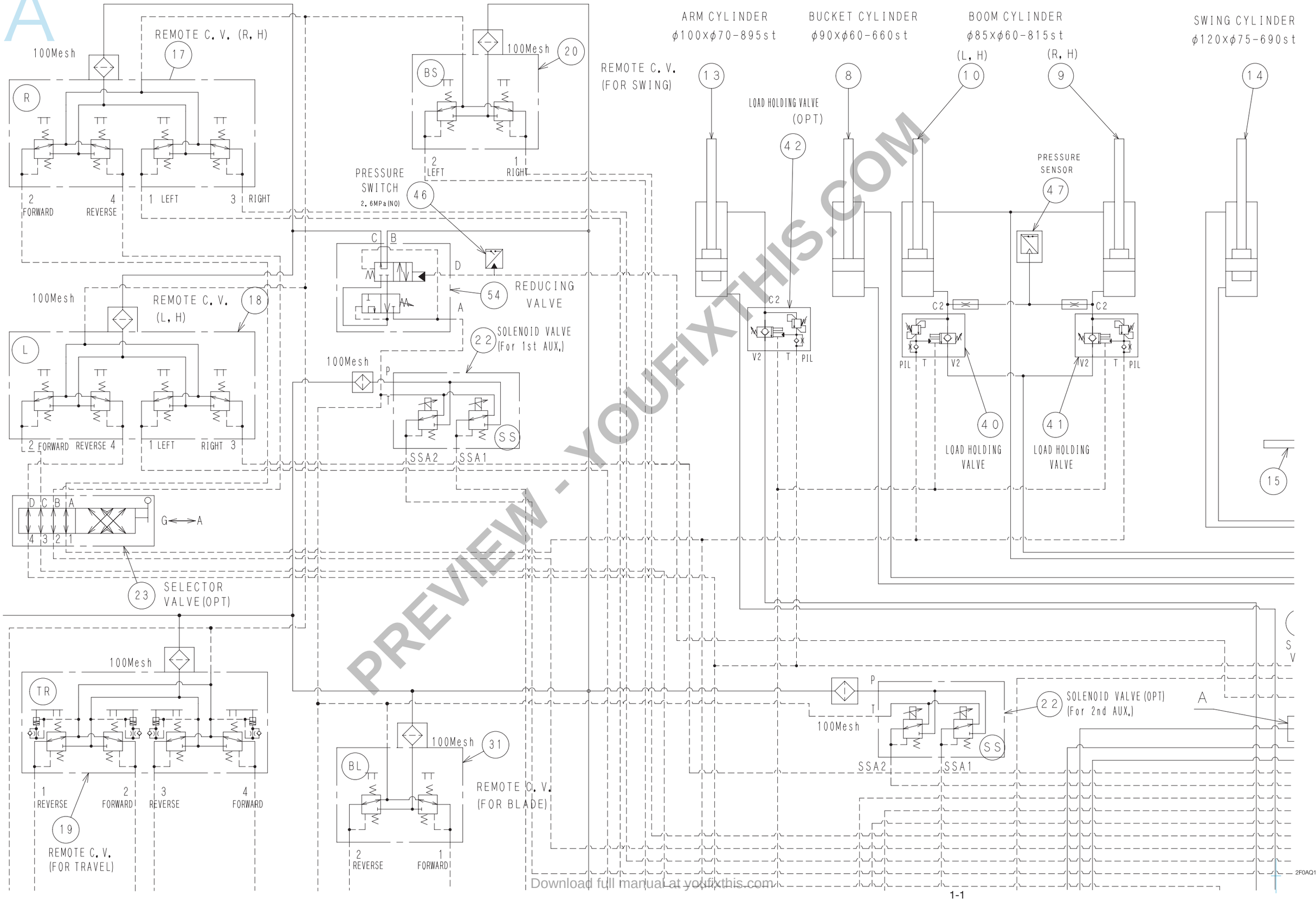
Overall length in transport condition	Standard arm		mm (in.)	6530 (257.1)
	Middle arm		mm (in.)	6575 (258.9)
	Long arm		mm (in.)	6660 (262.3)
Overall width	During normal operation		mm (in.)	2200 (86.6)
	Track retracted		mm (in.)	–
Overall working equipment height in transept position	Rubber crawler	Canopy	mm (in.)	–
		Cab	mm (in.)	2565 (100.9)
	Steel crawler	Canopy	mm (in.)	–
		Cab	mm (in.)	2560 (100.8)

Dimensions of base machine

Overall length of base machine		mm (in.)	3460 (136.3)
Overall width of base machine	During normal operation	mm (in.)	2200 (86.6)
	Track retracted	mm (in.)	–
Upper structure overall width		mm (in.)	2140 (84.3)
Upper structure overall width	Left	mm (in.)	1100 (43.3)
	Right	mm (in.)	1040 (40.9)
Cab overall width		mm (in.)	1050 (41.3)

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A

ENG : 4JJ1T (ISUZU) DC12V

2.4Ω×4 GLOW PLUG

SENSOR: BOOST PRESSURE
SENSOR: BOOST TEMP
SENSOR: CRANK ANGLE
SENSOR: CAM ANGLE
SENSOR: COMMON RAIL PRESSURE
SENSOR: OIL PRESSURE
SENSOR: WATER TEMP.
SENSOR: FUEL LEAKAGE TEMP.
SENSOR: FUEL FILTER PRESSURE
SENSOR: EGR BRUSH-LESS DC MOTOR POSITION
MOTOR: EGR BRUSH-LESS DC
VALVE: SUCTION CONTROL
INJECTION ORDER 1
INJECTION ORDER 3
INJECTION ORDER 2
INJECTION ORDER 4

ECM

OS-GLOWR
OS-GLOWL
OS-STARTR
IS-IGKEY
IS-START
OS-MAINR
OS-MAINR
PS-+B
PS-+B
SP-5V1
IA-ACCEL1
IA-ACCEL2
SG-5VRT1
SG-SLD1
IS-ENGSTP
SP-5V2
IA-BARO
SG-5VRT2
IA-IAT
PG-POWER
PG-POWER
PG-POWER
PG-SIGN
PG-SIGN
PG-CASE
CC-CAN-H
CC-CAN-L
CC-KW2000
IS-DIAG

ISUZU E

STARTER DC12V-2.5KW
ALTERNATOR DC12V-110A
RELAY: STARTER 17001-00097
RELAY: GLOW 897011-9490
RELAY: STARTER CUT 582550-0290
RELAY: MAIN 582550-0290
100Ω 3W
BARO PRESS
INTAKE AIR TEMP
ACCELERATOR VOL. FOR SERVICE TOOL
ENG. STOP
BAT-RELAY 19102-74126 (8970261600 MSY)
75A S.B.F.1
65A S.B.F.2
45A S.B.F.3
CR1 LOAD DUMP
LIGHT F1 (25A)
WIPER F2 (10A)
SOL. F3 (20A)
CONTROLLER (ACC) F4 (10A)
CAB ELECTRICAL EQUIPMENT (ACC) F5 (20A)
ALARM F6 (10A)
BLOWER F7 (25A)
COMPRESSOR F8 (10A)
SERVOMOTOR F9 (5A)
AIR-SUS F10 (25A)

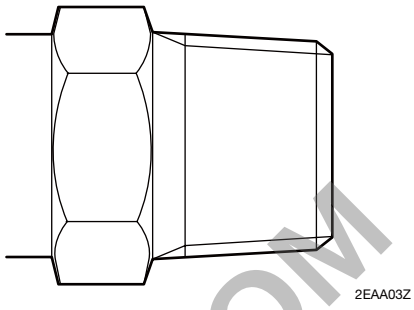
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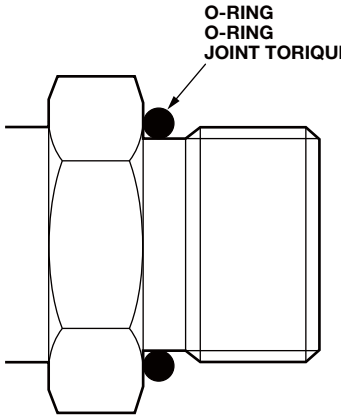
Joint for piping

Nominal thread diameter (R)	Tightening torque			
	Steel		Cast steel	
	N·m	ft.-lb	N·m	ft.-lb
1/8	11.8 ± 1.2	8.7 ± 0.8	10.8 ± 1.1	8.0 ± 0.7
1/4	29.4 ± 2.9	21.7 ± 2.1	24.5 ± 2.5	18.1 ± 1.7
3/8	53.9 ± 5.4	39.8 ± 3.9	49.0 ± 4.9	36.2 ± 3.5
1/2	88.3 ± 8.8	65.1 ± 6.4	73.5 ± 7.4	54.3 ± 5.3
3/4	147.1 ± 14.7	108.5 ± 10.7	127.5 ± 12.7	94.1 ± 9.3
1	196.1 ± 19.2	144.7 ± 14.3	171.6 ± 17.2	126.6 ± 12.5


2EAA03Z

Joint for piping (O-ring seal type)

Nominal thread diameter (G)	Tightening torque	
	N·m	ft.-lb
1/8	19.6 ± 2.0	14.5 ± 1.4
1/4	34.3 ± 4.9	25.3 ± 3.5
3/8	53.9 ± 4.9	39.8 ± 3.5
1/2	63.7 ± 4.9	47.0 ± 3.5
3/4	93.2 ± 4.9	68.7 ± 3.5
1	107.9 ± 9.8	79.5 ± 7.2
1–1/4	117.7 ± 9.8	86.8 ± 7.2
1–1/2	137.3 ± 9.8	101.2 ± 7.2

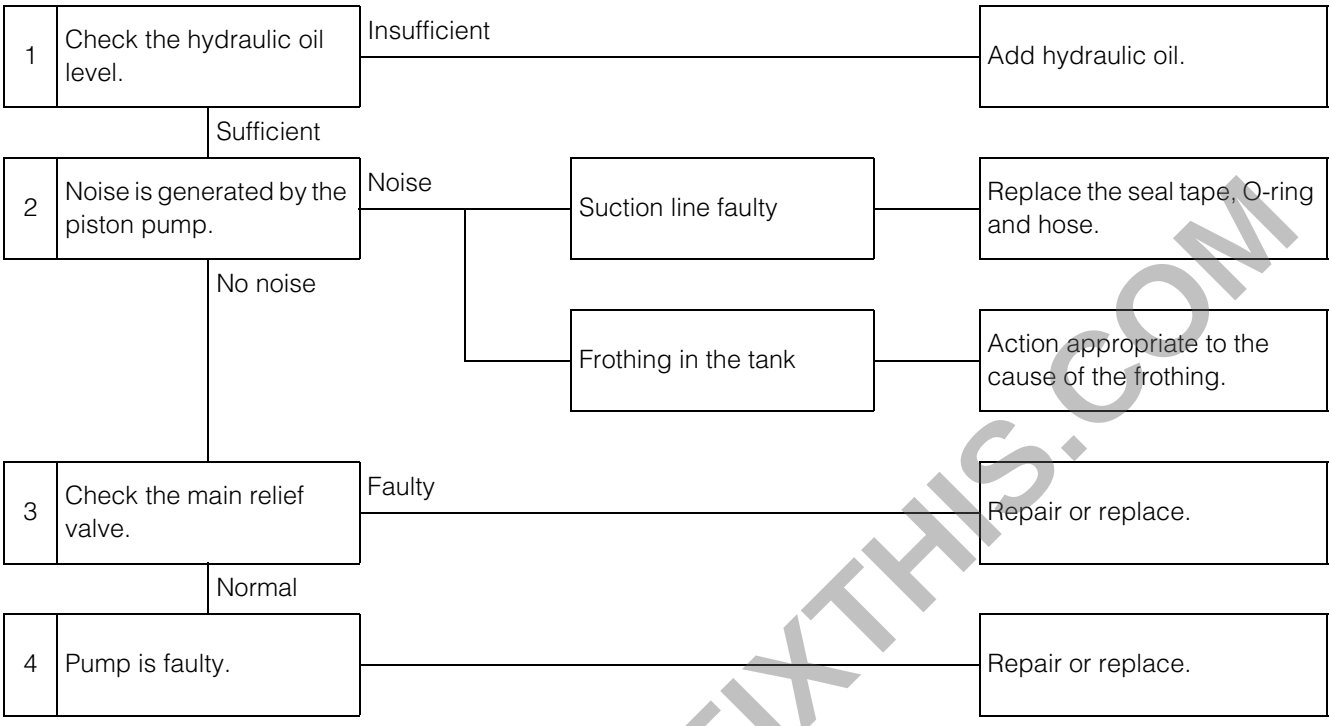


Nominal thread diameter (UNF)	Tightening torque	
	N·m	ft.-lb
7/19–20	16.7 ± 2.0	12.3 ± 1.4
1/2–20	22.6 ± 2.0	16.6 ± 1.4
9/16–18	31.4 ± 2.9	23.1 ± 2.1
3/4–16	59.8 ± 4.9	44.1 ± 3.5
1–1/16–12	102.0 ± 5.9	75.2 ± 4.4
1–5/16–12	135.3 ± 7.8	99.8 ± 5.8
1–5/8–20	181.4 ± 9.8	133.8 ± 7.2

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All systems working, but insufficient power.



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"

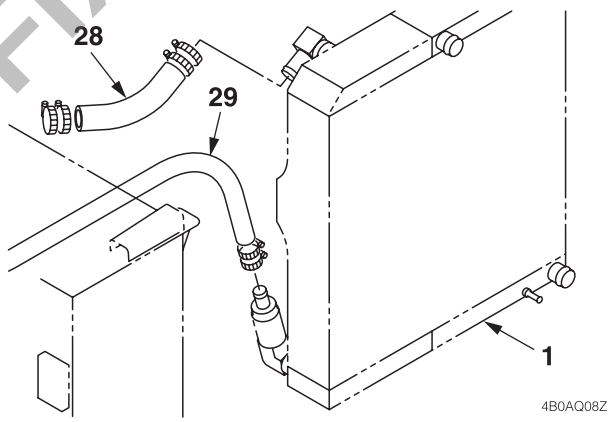
2. Noise is generated by the piston pump.
   The noise is likely to be caused by cavitation in the pump, due to a faulty suction line. Check the following.
   a. The lines for sucking the hydraulic oil.
      - Apply grease or oil on the suspected faulty sections and check for a change. (check if air is being sucked)
   b. Clogging in the suction filter.
   c. Apply pressure to the hydraulic oil tank.
   ☞ "4. Disassembly and assembly, Hydraulic oil tank"

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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. Disconnect the hoses and the electrical wiring from the air cleaner (19).
4. Loosen the radiator cap, and bleed out the engine coolant from the drain valve (22).
   • Engine coolant volume: 16 L
5. Disconnect the hoses (12) and (14) from the radiator assembly (1).
6. Disconnect the hose from the drain valve (19).
7. Disconnect the hose from the sub-tank (20), and remove the sub-tank.
8. Bleed out the gas from the air conditioner unit, and remove the hose from the condenser.
   ☞ "Air conditioner"
9. Drain the hydraulic oil from the tank.
   ☞ "Removing the hydraulic tank"
10. Disconnect the hoses (28) and (29) from the radiator assembly (1).
11. Remove the fan guard (9).
12. Take out the fixing nuts holding the cushion rubber in place, and 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.
    kg : 54 kg
13. Remove the hydraulic pump.
    ☞ "Removing the hydraulic pump"
14. Disconnect the fuel hoses on the engine side.
    ☞ "Removing the hydraulic tank"
15. Disconnect the battery cable and the engine electrical wiring on the engine side.
    • Attach an identification label to each wiring.
16. Disconnect the engine ground cable (27).
17. Take out the nuts, and suspend the engine.
    Upper nut: 241 N·m
    Lower nut: 193 N·m
    kg : 305 kg



Installing the engine

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 17.5 mm for the fan and shroud.

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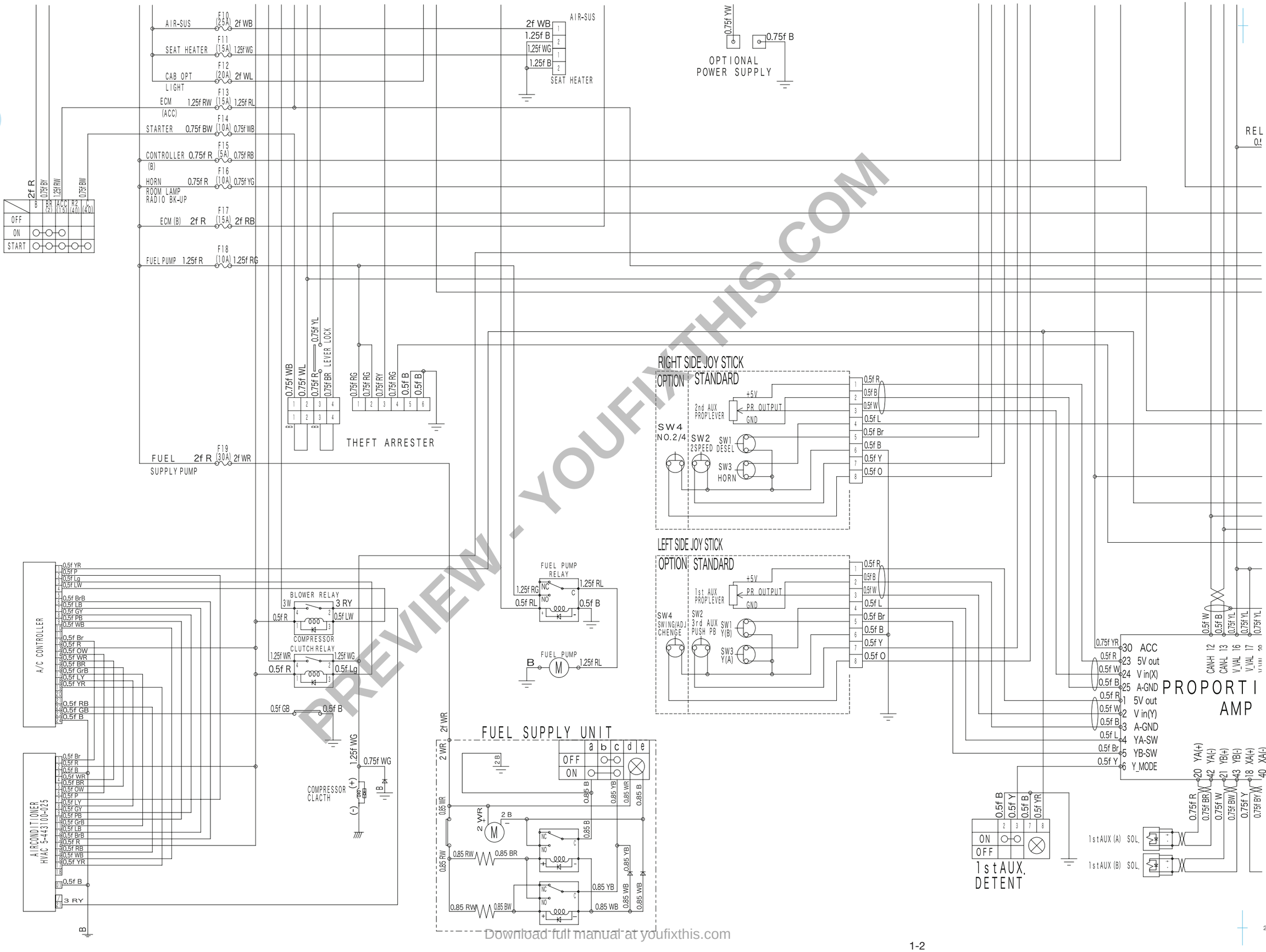
Overall height of base machine	Rubber crawler	Canopy	mm (in.)	–
		Cab	mm (in.)	2565 (100.9)
	Steel crawler	Canopy	mm (in.)	–
		Cab	mm (in.)	2560 (100.8)
Swing radius			mm (in.)	1650 (65.0)
Overall height of base machine			mm (in.)	1640 (64.6)
Clearance height under upper structure			mm (in.)	785 (30.9)
Crawler base	Rubber crawler		mm (in.)	2210 (87.0)
	Steel crawler		mm (in.)	2180 (85.8)
Crawler overall length	Rubber crawler		mm (in.)	2855 (112.4)
	Steel crawler		mm (in.)	2830 (111.4)
Undercarriage overall width	During normal operation		mm (in.)	2200 (86.6)
	Track retracted		mm (in.)	–
Track gauge	During normal operation		mm (in.)	1750 (68.9)
	Track retracted		mm (in.)	–
Track shoe width			mm (in.)	450 (17.7)
Ground clearance of undercarriage	Rubber crawler		mm (in.)	385 (15.1)
	Steel crawler		mm (in.)	360 (14.2)

Engine

Model			ISUZU AU-4JJ1TYSB-03
Type			4-cycle, vertical, water-cooled, in-line, 4-cylinder, direct-injection, exhaust turbo super-charged
Number of cylinders -bore × stroke		mm (in.)	4-95.4×104.9 (3.76×4.13)
Total displacement		L (cu. in.)	3.0 (183.1)
Maximum torque		N·m (ft.-lb.)	268 (198)
		min^{-1} (rpm)	1500 (1500)
Specific fuel consumption (at rated output)		g/kW·h (lb./hp-hr.)	239 (0.393)
Fuel/air cleaner			Centrifugal, filter paper-type
Cooling system	Fan		Suction
	Radiator		Pressurized
Starting system	Voltage	V	12
	Output	kW	2.5
Generator	Voltage	V	12
	Output	kW	1.32
Battery	Voltage	V	12
	Capacity	A·h	72
	Quantity		1

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Bolts and nuts (JIS strength category 10.9)

Thread	Size × pitch	Tightening torque			
		General tightening points		Special tightening points	
		N·m	ft.-lb	N·m	ft.-lb
Coarse·	M6 × 1.0	9.8 ± 0.5	7.2 ± 0.4	11.8 ± 1.1	8.7± 0.4
	M8 × 1.25	22.6 ± 1.1	16.6 ± 0.8	26.5 ± 2.5	19.5 ± 0.9
	M10 × 1.5	47.1 ± 2.4	34.7 ± 1.7	54.9 ± 4.9	40.5 ± 2.0
	M12 × 1.75	83.4 ± 4.1	61.5 ± 3.0	97.1 ± 7.4	71.6 ± 3.5
	M14 × 2.0	134.4 ± 6.7	99.1 ± 4.9	155.9 ± 12.7	115.0 ± 5.7
	M16 × 2.0	207.9 ± 10.4	153.3 ± 7.7	241.2 ± 17.2	177.9 ± 8.9
	M20 × 2.5	410.9 ± 20.5	303.1 ± 15.1	475.6 ± 23.7	350.8 ± 17.5
Fine	M8 × 1.0	24.5 ± 1.2	18.1 ± 0.9	28.4 ± 1.4	21.0 ± 1.0
	M10 × 1.25	50.0 ± 2.5	36.9 ± 1.8	58.8 ± 2.9	43.4 ± 2.2
	M12 × 1.5	87.3 ± 4.3	64.4 ± 3.2	102.0 ± 5.1	75.2 ± 3.8
	M14 × 1.5	135.3 ± 6.8	99.9 ± 5.0	157.9 ± 7.8	116.5 ± 5.8
	M16 × 1.5	220.6 ± 11.0	162.7 ± 8.1	256.0 ± 12.7	188.8 ± 9.4
	M20 × 1.5	452.1 ± 22.6	333.4 ± 16.6	524.7 ± 26.1	387.0 ± 19.2

1. General tightening points (non-lubricated)
   All securing points that have no special tightening torque specified in this manual and that are not special tightening points.
2. Special tightening points (grease with molybdenum disulfide applied)
   Points where a specific tightening torque is specified in this manual.
3. Points where thread-locking compound should be applied (ThreeBond #1324).
4. If a tightening torque value is specified in this manual for a point not listed in the table above, follow the specification in the manual.
5. To tighten multiple bolts and nuts evenly, tighten opposite bolts/nuts alternately as a pair.

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3. Check the main relief valve.
   Measure the relief pressure of the main relief valve.
   - If the measured value is within the specifications, the main relief valve is normal.

   ☞ "2. Service data, Performance criteria"
   If the measured value is below the specifications, adjust it to the set value by gradually tightening the set screw.
   - If the pressure does not become higher after 1/4 turns, the relief valve is faulty.
   - Check the line filter.
   - Remove the case and take out the filter element to check for any clogging.

4. Pump is faulty.
   If the inside of the pump is excessively worn or damaged, it is likely that metal pieces are in the hydraulic oil. If this is the case, do the following.
   - Replace the elements of the line filter and the spin filter.
   - Replace the hydraulic oil or perform flushing.
   - When replacing the hydraulic oil, clean the tank and the suction strainer.

   If the pump seal is damaged, replace it.
   ☞ "4. Disassembly and assembly, Piston pump"

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Removing the hydraulic pump

1. Remove the battery ground cable from the battery terminal.
2. Remove the covers.
   ☞ "Removing the covers"
3. Drain the hydraulic oil from the tank.
   ☞ "Removing the hydraulic tank"
4. Disconnect the electrical wiring from the hydraulic pump.
5. Disconnect the suction hose from the hydraulic pump.
6. Disconnect the discharge hose from the hydraulic pump.
7. Take out the bolts, and remove the hydraulic pump assembly.
   Apply molybdenum disulfide grease on the spline.
   Bolt: 256 N·m
   : 94 kg

Installing the hydraulic pump

For installation, follow the same procedures as for removal but in the reverse order.

Cautions on starting the hydraulic pump

a. Fill the pump housing with hydraulic oil before starting.
   - Fill the pump housing with hydraulic oil from the air vent port "Dr".
b. Start the engine, let it run at a low idling speed for ten minutes, and then extend and retract each cylinder 4 or 5 times, without letting them reach the stroke end.
c. Run the engine at high speed, and then extend and retract each cylinder 4 or 5 times, without letting them reach the stroke end.
d. Return the engine speed to low idle, and then extend and retract each cylinder 4 or 5 times, without letting them reach the stroke end.

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Hydraulic system

Hydraulic pump drive system			Engine-linked
Hydraulic pump	Type		Variable discharge piston plus double gear
	Quantity		1
	Delivery	L/min. (US gal./min.)	160 (42.27)
		L/min. (US gal./min.)	60.6 (16.01)
		L/min. (US gal./min.)	16.0 (4.23)
		L/min. (US gal./min.)	–
	Hydraulic pump control system		Load-sensing control
Main relief valve pressure setting		MPa (psi)	27.5 (3990)
		MPa (psi)	24.0 (3480)
		MPa (psi)	3.4 (490)
		MPa (psi)	–
Hydraulic tank pressure			Pressure tank
Control valve	Type		Directional control valve, with 9 valves in series (standard specifications)
	Operation type		–
Hydraulic oil filter	Type		Glass fiber filter paper-type
	Filter precision		BETA10=6
	Installing position		Return circuit (inside tank)
Hydraulic oil cooler	Cooling system		Air-cooled
	Radiation of heat area	m^2 ($ft.^2$)	–

Operating device

Cab	Position		Left-side
	Construction		Suspension seat, adjustable
Cab or canopy	Construction		Steel enclosed cab with fully reinforced glass windows
Operating lever and pedals	Shifting operation		Variable travel speed switch (operating lever handle grip)
	Travel operation		Hydraulic pilot operated, 2 levers
	Slew operation		Hydraulic pilot operated
	Arm operation		Hydraulic pilot operated
	Bucket operation		Hydraulic pilot operated
	Boom operation		Hydraulic pilot operated
	Boom swing operation		Hydraulic pilot operated
	Other		Dozer blade operation: Hydraulic pilot operated, Auxiliary line hydraulic piping operation: Switch operated
Instrument, switches	Cluster gauge		Water temperature gauge, fuel gauge, hour meter, charge, oil, water temperature, deceleration, glow, water separator, air cleaner, lift alarm, 2nd-speed travel, eco mode
Lighting device	Headlight, Boom light	V-W	12 V-55 W, H3-halogen
	Side light	V-W	12 V-20 W ×2
Warning, safety devices			12 V, 108 dB
Others			With wiper, heater, and defroster

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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

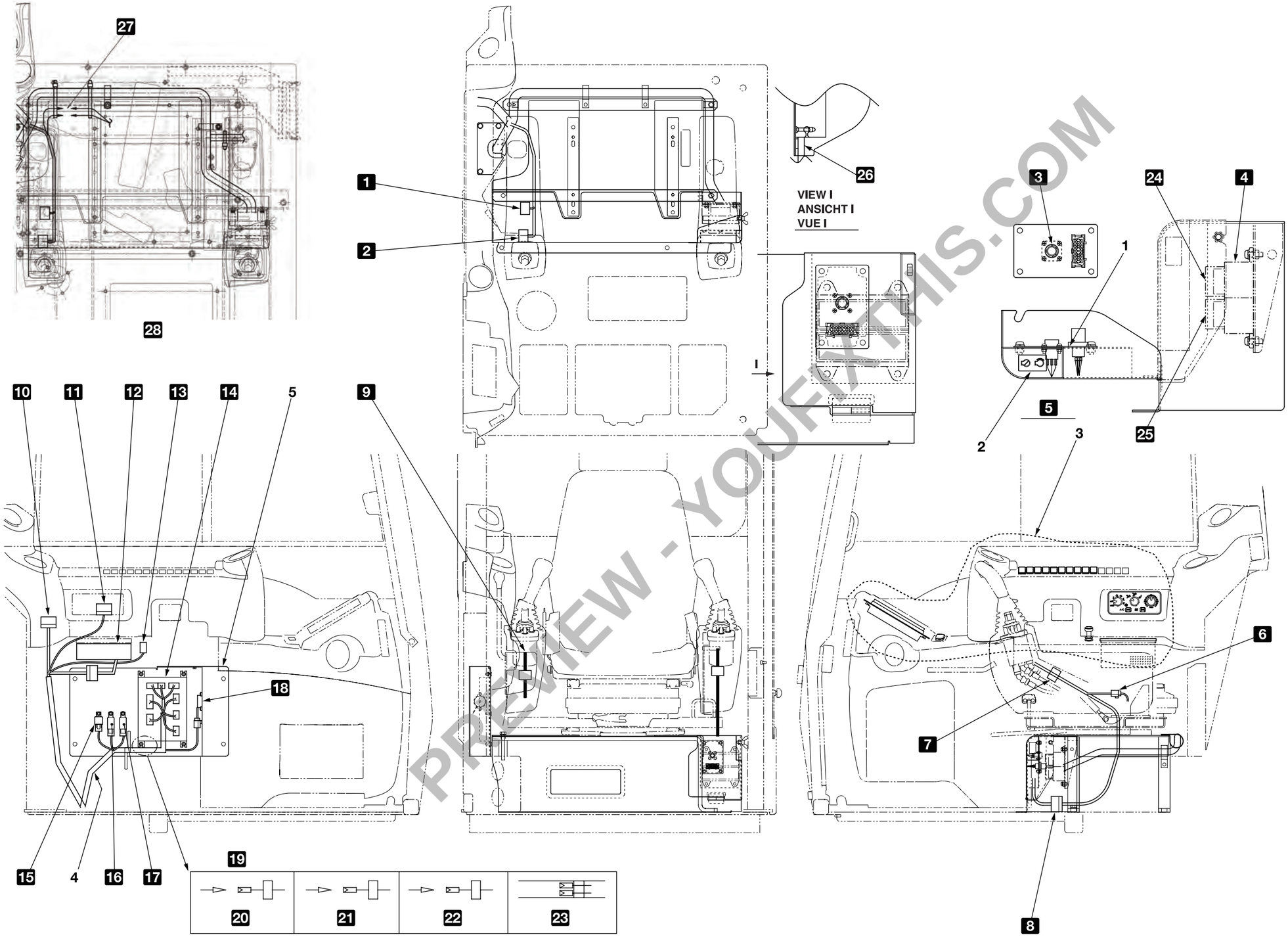
The word “CAUTION” indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

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 To key switch
2 To accelerator control dial
3 485 maintenance connecting port
4 Fuse, relay box
5 Details of electronic products on the left side of the ground
6 To lever lock switch
7 To left pilot valve
8 Mark tube: “CN44”
1 Connected to plate for electronic parts
9 To right pilot valve
10 Cab harness
Connected to switch harness
11 Air conditioner control panel
12 Radio
13 Cigar socket
14 Controller
15 Optional light relay
16 Blower relay
17 Compressor relay
18 Buzzer
19 Connector wiring by specifications model
20 Engine identification
TB285 (Yanmar engine) to be connected
21 4th auxiliary line hydraulic piping specifications
4th auxiliary line hydraulic piping to be connected
22 2-piece boom specifications
2-piece boom to be connected
23 Secure any unused connectors to the main line using tape to prevent short-circuiting.
24 Fuse
25 Relay
26 Harness to the engine stop switch
27 Connected to air suspension and seat heater
[CN37] Air suspension
[CN38] Seat heater
28 Detailed air suspension specifications diagram

1. Plate for electronic parts
2. Engine stop switch
3. Switch panel assembly
4. Main harness
5. Cover assembly for electronic parts

Drawing No.	2/3
05642-64000-5	

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14. Remove the O-ring from the plug.


4K4AF16Z

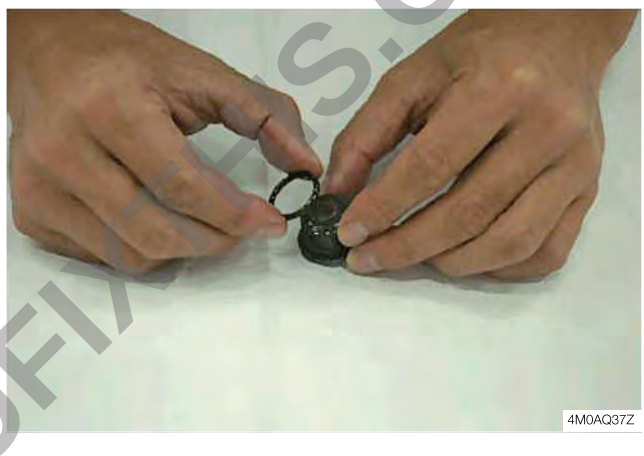
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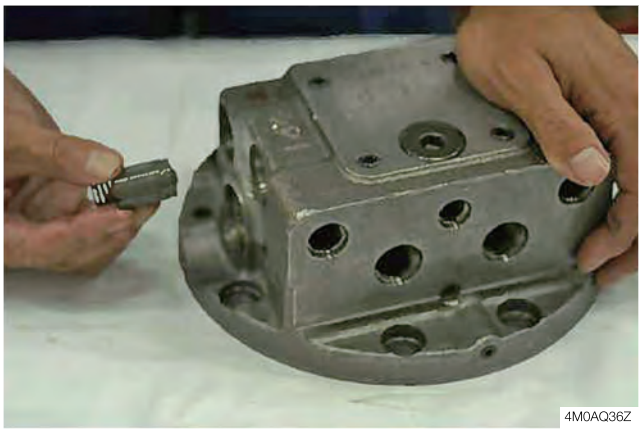
g. Check to ensure that the piston (112) is the same as the surface in contact with the spindle (2).


4M0AQ63Z

6. Reassembling the brake valve section parts inside the rear flange
   a. Attach the two O-rings (338) to the two plugs (382).
   b. Insert the valve (327) and the spring (330) into the rear flange (301). Apply grease to the parts during this step, and couple the valve (327) and the spring (330) together.

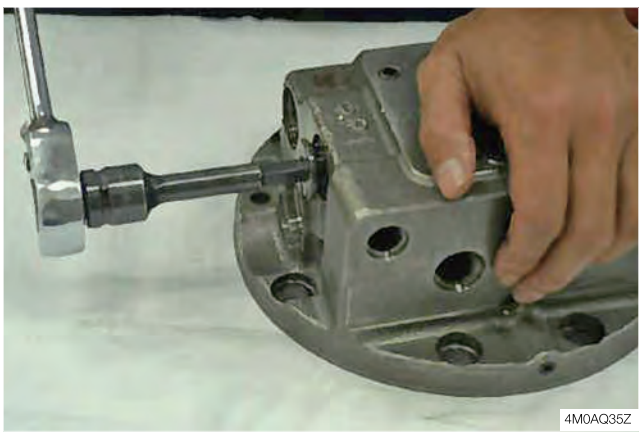

4M0AQ37Z

   c. Screw the plug (382) into the rear flange (301).
      - When inserting the plug (382), place the screw surface for mounting the plugs on the rear flange (301) upward, place the rear flange (301) onto the workbench, and line up the screw section center with the plug center.
        This not only prevents the O-ring from becoming damaged but also prevents the spring (330) from popping out of the valve (327) due to surface contact between the inner surface of the rear flange and the hub.


4M0AQ36Z

Important: Take precautions when the spring (330) is removed from the valve (327) as the valve may no longer touch the seating surface of the rear flange (301) properly, which could cause oil leakage to occur.

   d. After inserting the two plugs (382), temporarily tighten down the rear flange (301).


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Symptoms	Major causes	Remedies
Spool's neutral position cannot be maintained (cylinder drops)	• There are cases of a large oil leak inside the cylinder.	• Check if the cylinder drops spontaneously when it is held. If the cylinder is faulty, disassemble and repair it.
	• Since the clearance between the spool and the body is too large, oil is leaking from the clearance.	• Replace the spool and the valve block assembly.
	• Spool is not completely back in the neutral position.	• Manual: Check if the link mechanism is interfering with others. Hydraulic operation: Check the pilot pressure.
	• Foreign matter is caught in the seat of the port relief valve or of the anti-cavitation valve, and thus the oil is bypassing the section. Or the seat is damaged.	• Disassemble, overhaul or replace.
Load cannot be moved (pressure cannot be increased)	• Foreign matter is caught in the seat of the port relief valve, and thus the oil is bypassing the section. Or the seat is damaged.	• Disassemble, overhaul or replace.
	• Adjuster screw on the relief valve is loose.	• Screw in the adjuster screw. If loose, set the adjustment again and fasten with a lock nut.
	• Foreign matter is caught in the seat of the port relief valve or of the anti-cavitation valve, and thus the oil is bypassing the section. Or the seat is damaged.	• Disassemble, overhaul or replace.
	• Spool stroke is out-of-spec.	• Manual: Check if the link mechanism is interfering with others. Check if the pin or pin hole on the linking section is worn out.
	• Oil supply from the pump is insufficient, because the pump is damaged.	• Hydraulic operation: Check the pilot pressure. Check for any abnormality in the pump. If the pump is faulty, replace it and find the cause of the abnormality (e.g., faulty air sucking or oil degradation).
Load cannot be moved (pressure is being increased)	• Overloading	• Compare with a one with standard load.
	• Mechanical resistance of related parts/devices (unrelated to the hydraulic pressure of the hydraulic oil) is large.	• Check and add oil, modify or repair the parts/devices.
	• Large resistance is generated, because the circuit is clogged with large foreign matter or the piping is bent.	• Repair if the location of clogging or bent is known.
	• Spool stroke is out-of-spec.	• Check if the link mechanism is interfering with others and if the pin or pin hole on the linking section is worn out.

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