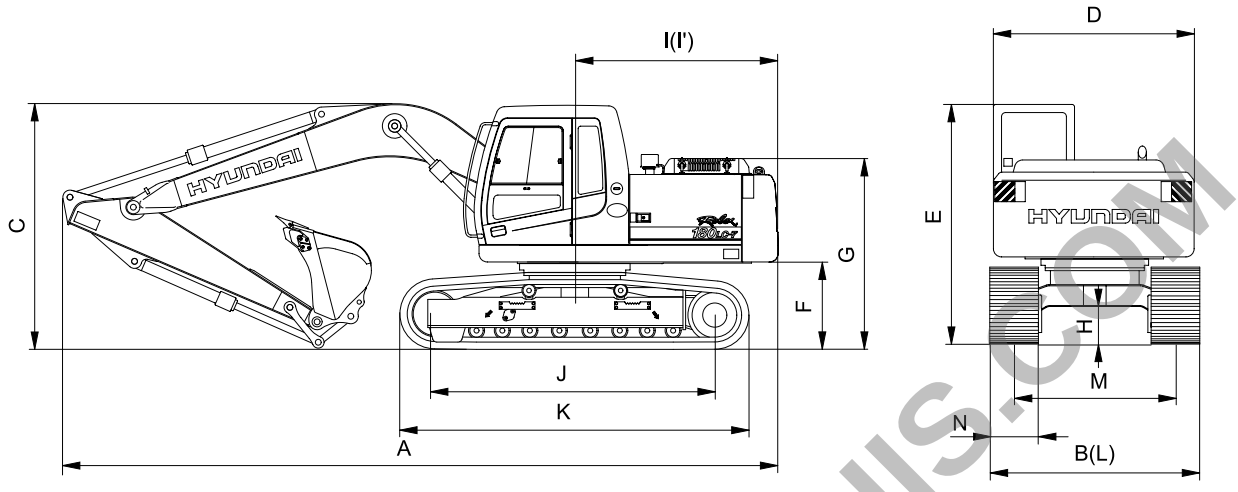
2. SPECIFICATIONS

1) 5.1m(16' 9") ONE PIECE BOOM, 2.6m(8' 6") ARM

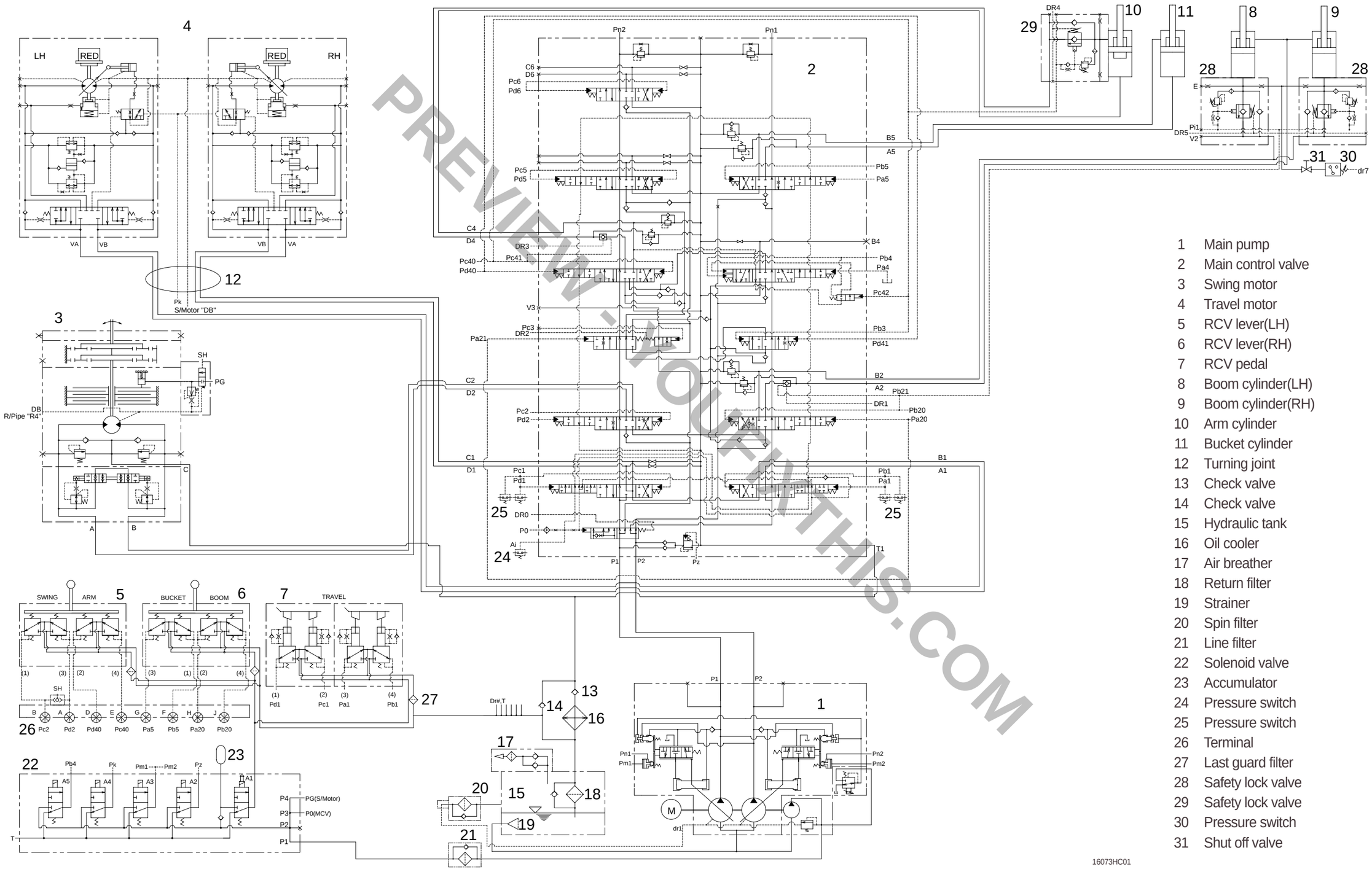


Description		Unit	Specification
Operating weight		kg(lb)	18200(40120)
Bucket capacity(SAE heaped), standard		$m^3(yd^3)$	0.76(0.99)
Overall length	A	mm(ft-in)	8600(28' 3")
Overall width, with 600mm shoe	B		2590(8' 6")
Overall height	C		2910(9' 7")
Superstructure width	D		2475(8' 1")
Overall height of cab	E		2915(9' 7")
Ground clearance of counterweight	F		1050(3' 5")
Engine cover height	G		2295(7' 6")
Minimum ground clearance	H		460(1' 6")
Rear-end distance	I		2530(8' 4")
Rear-end swing radius	I'		2480(8' 2")
Distance between tumblers	J		3360(11' 0")
Undercarriage length	K		4190(13' 9")
Undercarriage width	L		2590(8' 6")
Track gauge	M		2250(7' 5")
Track shoe width, standard	N		600(24")
Travel speed(Low/high)		km/hr(mph)	3.3/5.2(2.0/3.2)
Swing speed		rpm	12.0
Gradeability		Degree(%)	30(58)
Ground pressure(600mm shoe)		$kgf/cm^2(psi)$	0.42(5.97)

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GROUP 1 HYDRAULIC CIRCUIT

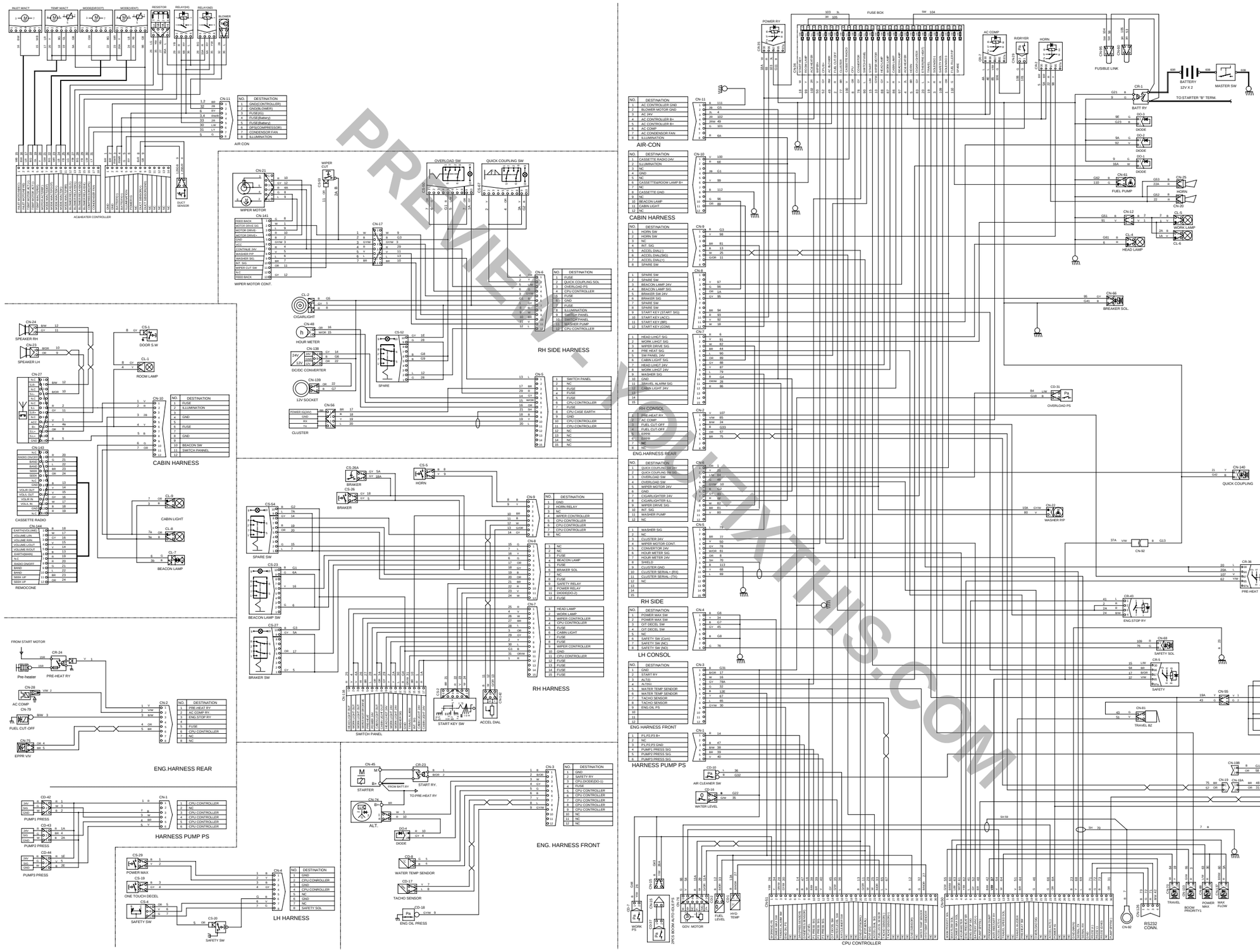


1 Main pump
2 Main control valve
3 Swing motor
4 Travel motor
5 RCV lever(LH)
6 RCV lever(RH)
7 RCV pedal
8 Boom cylinder(LH)
9 Boom cylinder(RH)
10 Arm cylinder
11 Bucket cylinder
12 Turning joint
13 Check valve
14 Check valve
15 Hydraulic tank
16 Oil cooler
17 Air breather
18 Return filter
19 Strainer
20 Spin filter
21 Line filter
22 Solenoid valve
23 Accumulator
24 Pressure switch
25 Pressure switch
26 Terminal
27 Last guard filter
28 Safety lock valve
29 Safety lock valve
30 Pressure switch
31 Shut off valve

16073HC01

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16074EL03

GROUP 3 PUMP DEVICE

1. REMOVAL AND INSTALL

1) REMOVAL

(1) Lower the work equipment to the ground and stop the engine.

(2) Operate the control levers and pedals several times to release the remaining pressure in the hydraulic piping

(3) Loosen the breather slowly to release the pressure inside the hydraulic tank.

⚠ Escaping fluid under pressure can penetrate the skin causing serious injury.

(4) Loosen the drain plug under the hydraulic tank and drain the oil from the hydraulic tank.

· Hydraulic tank quantity : 160 ℓ
(42.2 U.S.gal)

(5) Remove socket bolts(74) and disconnect pipe(9).

(6) Disconnect pilot line hoses(48, 49, 55, 58, 64, 69, 71, 78).

(7) Remove socket bolts(72) and disconnect pump suction tube(3).

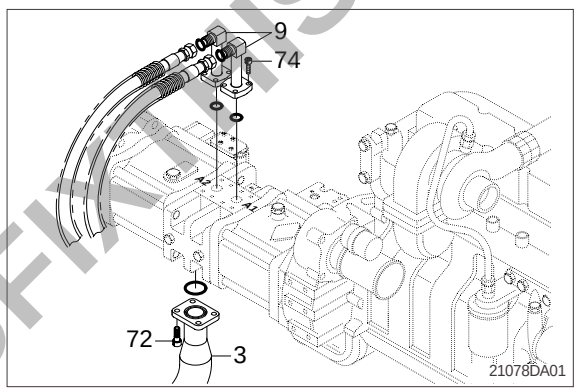
※ When pump suction tube is disconnected, the oil inside the piping will flow out, so catch it in oil pan.

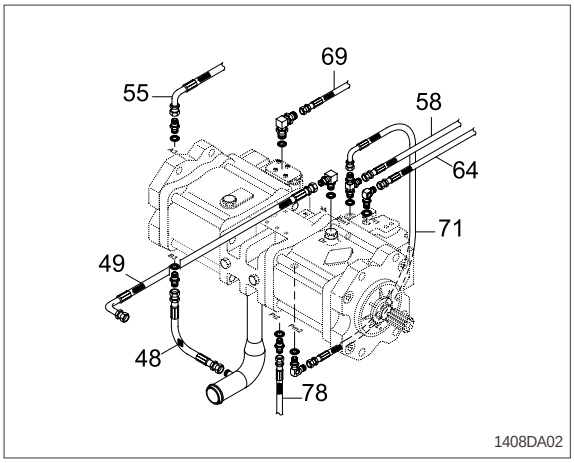
(8) Sling the pump assembly and remove the pump mounting bolts.

· Weight : 90kg(200lb)

※ Pull out the pump assembly from housing. When removing the pump assembly, check that all the hoses have been disconnected.







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GROUP 2 TIGHTENING TORQUE

1. MAJOR COMPONENTS

No.	Descriptions		Bolt size	Torque	
				kgf · m	lbf · ft
1	Engine	Engine mounting bolt(Engine-Bracket)	M12 × 1.75	10.0±0.5	72.3±3.6
2		Engine mounting bolt(Bracket-Frame)	M20 × 2.5	30±3.5	253±25.3
3		Radiator mounting bolt, nut	M12 × 1.75	12.2±1.3	88.2±9.4
4		Coupling mounting bolt	M16 × 2.0	22.1±2.4	159±17.3
5	Hydraulic system	Main pump mounting bolt	M16 × 2.0	22.1±2.4	159±17.3
6		Main control valve mounting bolt	M12 × 1.75	12.2±1.3	88.2±9.4
7		Fuel tank mounting bolt	M20 × 2.5	45±5.1	325±36.9
8		Hydraulic oil tank mounting bolt	M20 × 2.5	45±5.1	325±36.9
9		Turning joint mounting bolt, nut	M12 × 1.75	12.2±1.3	88.2±9.4
10	Power train system	Swing motor mounting bolt	M20 × 2.5	57.9±8.7	419±62.9
11		Swing bearing upper mounting bolt	M20 × 2.5	57.8±6.4	418±46.3
12		Swing bearing lower mounting bolt	M20 × 2.5	57.8±6.4	418±46.3
13		Travel motor mounting bolt	M16 × 2.5	23±2.5	166±18.1
14		Sprocket mounting bolt	M16 × 2.0	23±2.5	166±18.1
15		Carrier roller mounting bolt, nut	M20 × 2.5	54.7±6.0	396±43.4
16	Under carriage	Track roller mounting bolt	M20 × 2.5	54.7±6.0	396±43.4
17		Track tension cylinder mounting bolt	M16 × 2.0	29.7±4.5	215±32.5
18		Track shoe mounting bolt, nut	5/8-18UNF	40±4	289±28.9
19		Track guard mounting bolt	M20 × 2.5	57.9±8.7	419±62.9
20	Others	Counter weight mounting bolt	M30 × 3.9	199±30	1439±217
21		Cab mounting bolt, nut	M12 × 1.75	12.2±1.3	88.2±9.4
22		Operator's seat mounting bolt	M 8 × 1.25	1.17±0.1	8.5±0.7

※ For tightening torque of engine and hydraulic components, see each component disassembly and assembly.

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5. ERROR CODES TABLE

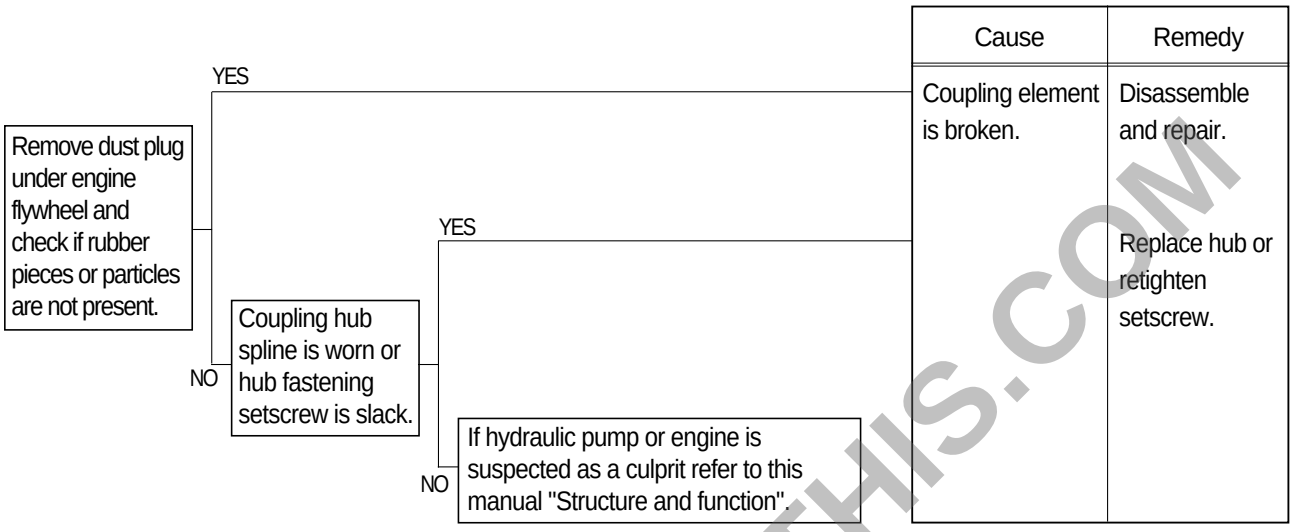
Fault code No.	Description
1	Short circuit in governor motor system
2	Potentiometer circuit is shorted to Vcc(5V) or battery +
3	Short circuit in pump EPPR valve system
5	Short circuit in travel speed solenoid system
6	Short circuit in power boost solenoid system
7	Short circuit in max flow solenoid system
10	Short circuit in hour-meter system
11	Accel dial circuit is shorted to Vcc(5V) or battery +
12	P1 pressure sensor circuit is shorted to power supply(24V) line
13	P2 pressure sensor circuit is shorted to power supply(24V) line
14	P3 pressure sensor circuit is shorted to power supply(24V) line
16	Governor motor circuit is open or shorted to ground
17	Potentiometer circuit is open or shorted to ground
18	Pump EPPR valve circuit is open or shorted to ground
20	Travel speed solenoid circuit is open or shorted to ground
21	Power boost solenoid circuit is open or shorted to ground
22	Max flow solenoid circuit is open or shorted to ground
25	Hour-meter circuit is open or shorted to ground
26	Accel dial circuit is open or shorted to ground
27	P1 pressure sensor circuit is open or shorted to ground
28	P2 pressure sensor circuit is open or shorted to ground
29	P3 pressure sensor circuit is open or shorted to ground
31	Engine preheater circuit is open or shorted to ground
32	Travel alarm buzzer circuit is open or shorted to ground
33	Alternator circuit is open or shorted to ground
34	Controller input voltage is below 18V
35	Controller input voltage is over 38V
36	Communication error with cluster
37	Engine speed sensor circuit is open or shorted to ground
39	Accel actuator does not stop at a target position
40	There is more than 500rpm difference between target speed and actual speed
41	Hydraulic oil temperature sensor circuit is shorted to ground
42	Fuel level sensor circuit is shorted to ground
43	Coolant temperature sensor circuit is shorted to ground
44	Boom up pressure sensor circuit is shorted to power supply(24V) line
45	Hydraulic oil temperature sensor circuit is open or shorted to battery +
46	Fuel level sensor circuit is open or shorted to battery +
47	Coolant temperature sensor circuit is open or shorted to battery +
48	Boom up pressure sensor circuit is open or shorted to ground
49	Engine preheater circuit is shorted to battery +
51	Boom priority solenoid circuit is open or shorted to ground
56	Travel alarm buzzer circuit is shorted to battery +
58	Boom priority solenoid circuit is shorted to battery +

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2. DRIVE SYSTEM

1) UNUSUAL NOISE COMES OUT OF PUMP CONNECTION



Cause	Remedy
Coupling element is broken.	Disassemble and repair.
	Replace hub or retighten setscrew.

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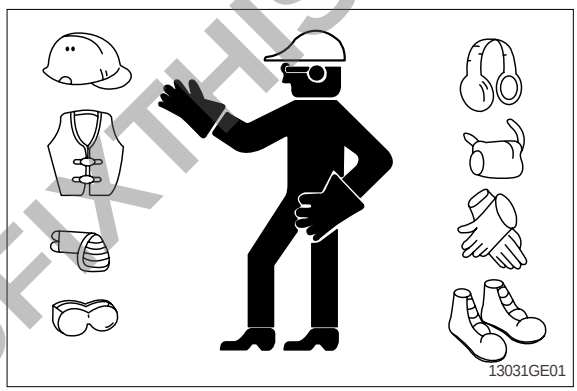
GROUP 1 SAFETY

FOLLOW SAFE PROCEDURE

Unsafe work practices are dangerous. Understand service procedure before doing work; Do not attempt shortcuts.

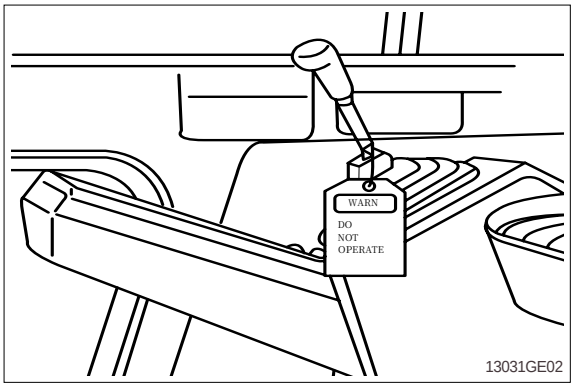
WEAR PROTECTIVE CLOTHING

Wear close fitting clothing and safety equipment appropriate to the job.



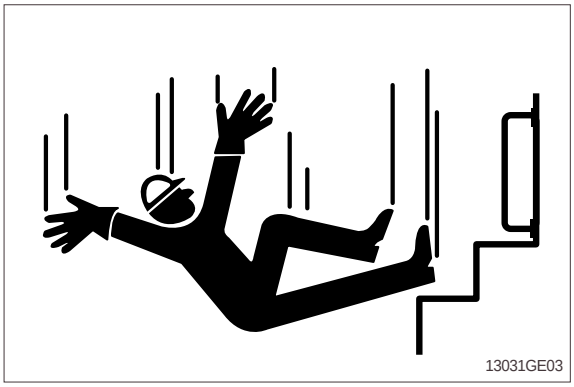
WARN OTHERS OF SERVICE WORK

Unexpected machine movement can cause serious injury.
Before performing any work on the excavator, attach a「**Do Not Operate**」tag on the right side control lever.



USE HANDHOLDS AND STEPS

Falling is one of the major causes of personal injury.
When you get on and off the machine, always maintain a three point contact with the steps and handrails and face the machine. Do not use any controls as handholds.
Never jump on or off the machine. Never mount or dismount a moving machine.
Be careful of slippery conditions on platforms, steps, and handrails when leaving the machine.



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Millimeters to inches

1mm = 0.03937in

	0	1	2	3	4	5	6	7	8	9
0		0.039	0.079	0.118	0.157	0.197	0.236	0.276	0.315	0.354
10	0.394	0.433	0.472	0.512	0.551	0.591	0.630	0.669	0.709	0.748
20	0.787	0.827	0.866	0.906	0.945	0.984	1.024	1.063	1.102	1.142
30	1.181	1.220	1.260	1.299	1.339	1.378	1.417	1.457	1.496	1.536
40	1.575	1.614	1.654	1.693	1.732	1.772	1.811	1.850	1.890	1.929
50	1.969	2.008	2.047	2.087	2.126	2.165	2.205	2.244	2.283	2.323
60	2.362	2.402	2.441	2.480	2.520	2.559	2.598	2.638	2.677	2.717
70	2.756	2.795	2.835	2.874	2.913	2.953	2.992	3.032	3.071	3.110
80	3.150	3.189	3.228	3.268	3.307	3.346	3.386	3.425	3.465	3.504
90	3.543	3.583	3.622	3.661	3.701	3.740	3.780	3.819	3.858	3.898

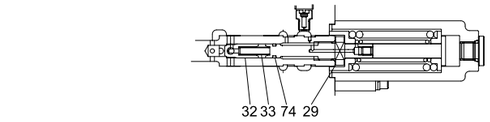
Kilogram to Pound

1kg = 2.2046lb

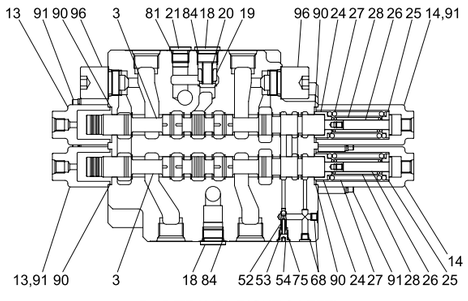
	0	1	2	3	4	5	6	7	8	9
0		2.20	4.41	6.61	8.82	11.02	13.23	15.43	17.64	19.84
10	22.05	24.25	26.46	28.66	30.86	33.07	35.27	37.48	39.68	41.89
20	44.09	46.30	48.50	50.71	51.91	55.12	57.32	59.5.	61.73	63.93
30	66.14	68.34	70.55	72.75	74.96	77.16	79.37	81.57	83.78	85.98
40	88.18	90.39	92.59	94.80	97.00	99.21	101.41	103.62	105.82	108.03
50	110.23	112.44	114.64	116.85	119.05	121.25	123.46	125.66	127.87	130.07
60	132.28	134.48	136.69	138.89	141.10	143.30	145.51	147.71	149.91	152.12
70	154.32	156.53	158.73	160.94	163.14	165.35	167.55	169.76	171.96	174.17
80	176.37	178.57	180.78	182.98	185.19	187.39	189.60	191.80	194.01	196.21
90	198.42	200.62	202.83	205.03	207.24	209.44	211.64	213.85	216.05	218.26

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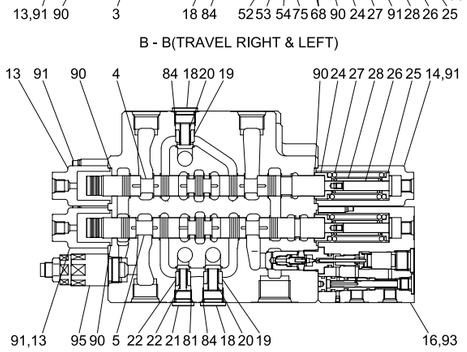
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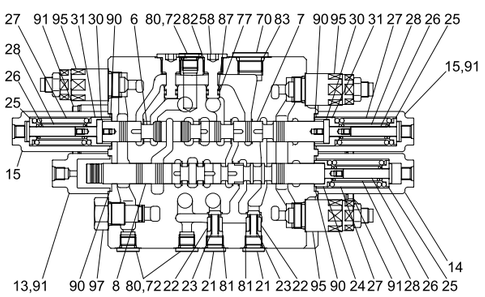
A - A(STRAIGHT-TRAVEL & SUPPLY)



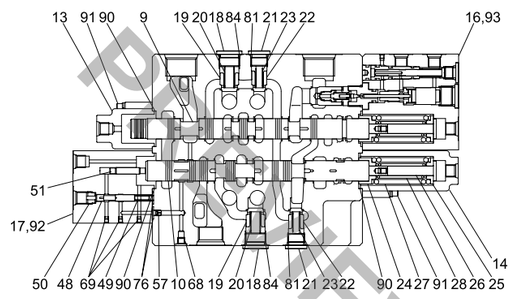
B - B(TRAVEL RIGHT & LEFT)



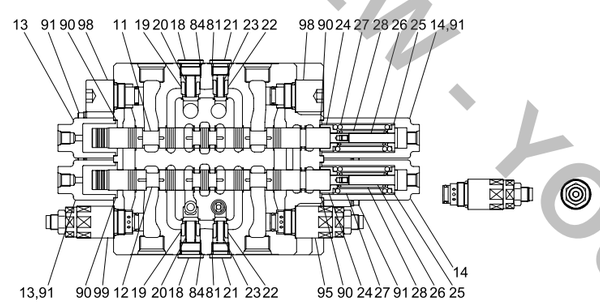
C - C(SWING & BOOM)



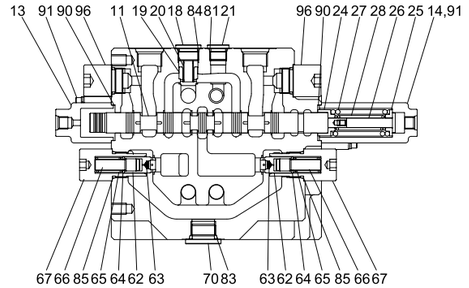
D - D(SWING PRIORITY & BOOM2 & ARM)



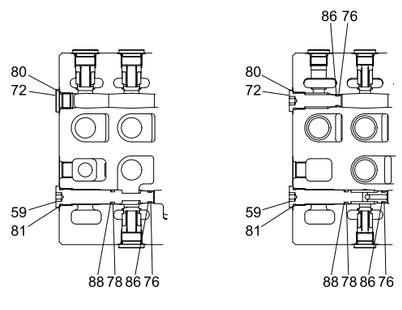
E - E(ARM & ARM REGENERATION /BREAKER)

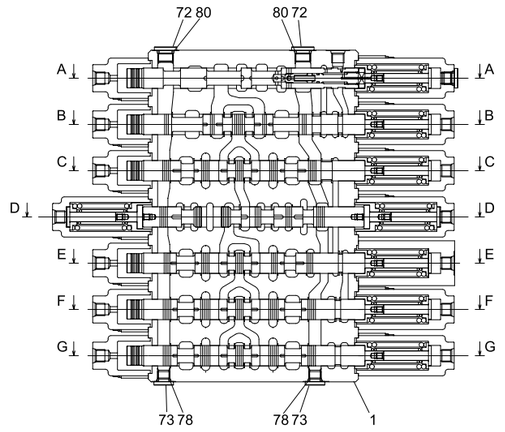


F - F(OPTION & BUCKET)

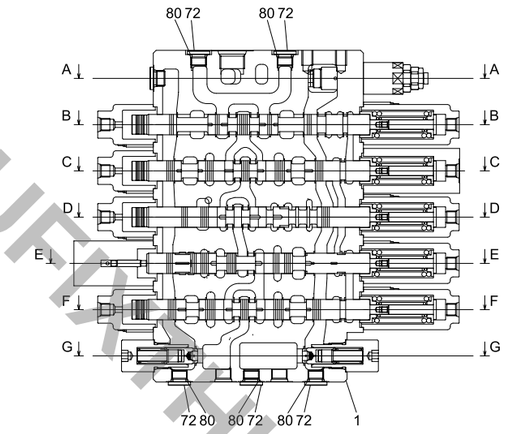


G - G(OPTION & NEGATIVE CONTROL)

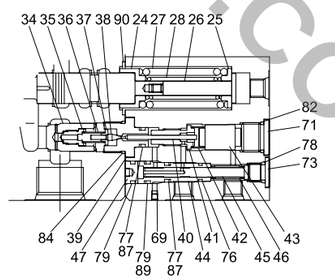




P2 SIDE



P1 SIDE



DETAIL OF LOCK VALVE(BOOM & ARM)

14072SF11

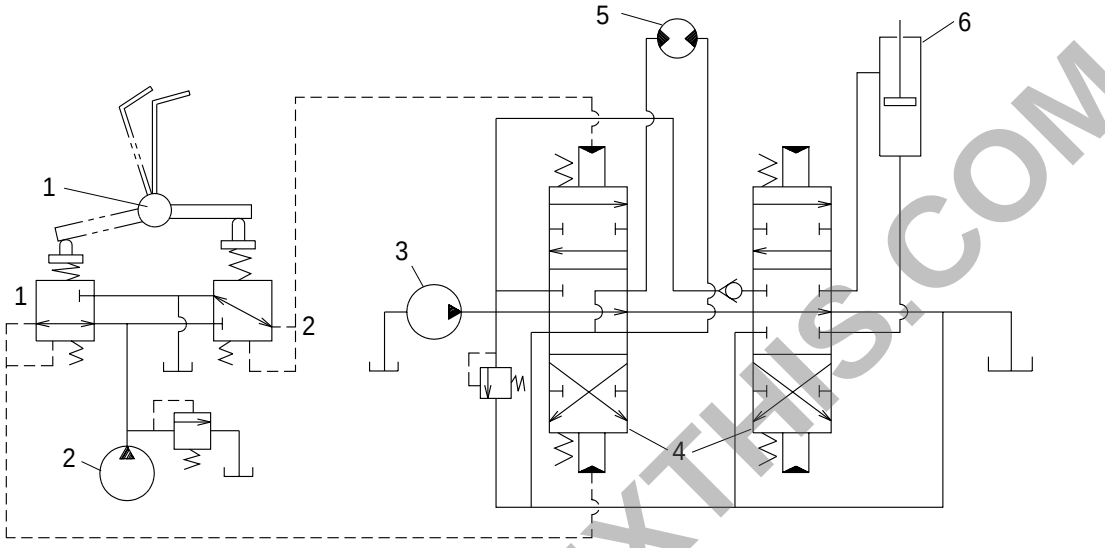
1	Body	50	Stopper-regeneration
2	Spool-straight travel	51	Piston-cut off
3	Spool-travel	52	Poppet-signal
4	Spool-swing	53	Spring-signal
5	Spool-boom	54	Plug
6	Spool-swing priority	55	Orifice-signal
7	Spool-boom2	56	Coin type filter
8	Spool-arm2	57	Orifice-plug
9	Spool-arm	58	Plug
10	Spool-arm regeneration & breaker	59	Plug
		60	Plug
11	Spool-option	61	Plug-orifice
12	Spool-bucket	62	Poppet-negative control
13	Cover-pilot A	63	Coin type filter
14	Cover-pilot B1	64	Spring seat
15	Cover-Pilot B2	65	Spring-negative control
16	Block-holding	66	Piston-negative control
17	Block-regeneration	67	Socket-negative control
18	Plug	68	Plug
19	Poppet1-check valve	69	Plug
20	Spring-check valve	70	Plug
21	Plug	71	Plug
22	Poppet2-check valve	72	Plug
23	Spring-check valve	73	Plug
24	Spring seat1	74	O-ring
25	Spring seat3	75	O-ring
26	Spacer bolt	76	O-ring
27	Spring-return(L)	77	O-ring
28	Spring-return(S)	78	O-ring
29	Stopper1-TS	79	O-ring
30	Stopper2-priority	80	O-ring
31	Spring seat2	81	O-ring
32	Poppet-TS check valve	82	O-ring
33	Spring-TS check valve	83	O-ring
34	Poppet-lock valve	84	O-ring
35	Restrictor-lock valve	85	O-ring
36	Spring-lock valve pilot	86	Back-up ring
37	Guide poppet	87	Back-up ring
38	Poppet-pilot	88	Back-up ring
39	Seat-poppet	89	Back-up ring
40	Piston1	90	O-ring
41	Guide-piston	91	Bolt with washer
42	Spring1-lock valve	92	Socket head bolt
43	Piston2	93	Socket head bolt
44	Socket-lock valve	94	Main relief valve
45	Spool-lock valve	95	Over load relief valve
46	Spring2-lock valve	96	Plug-relief valve
47	Stopper-lock valve	97	Plug-relief valve
48	Spool-regen selector	98	Plug-relief valve
49	Spring-regeneration	99	Over load relief valve

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3) OPERATION

The operation of the pilot valve will be described on the basis of the hydraulic circuit diagram shown below ant the attached operation explanation drawing.

The diagram shown below is the typical application example of the pilot valve.



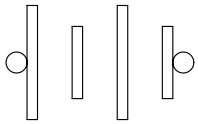
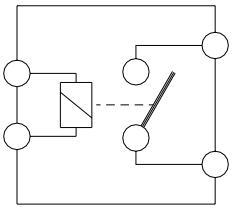
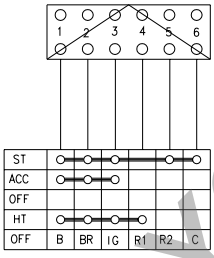
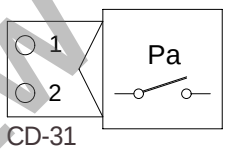
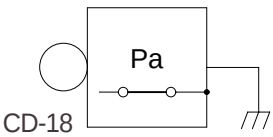
2-76 (140-7 TIER)

1	Pilot valve	3	Main pump	5	Hydraulic motor
2	Pilot pump	4	Main control valve	6	Hydraulic cylinder

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GROUP 3 ELECTRICAL COMPONENT SPECIFICATION

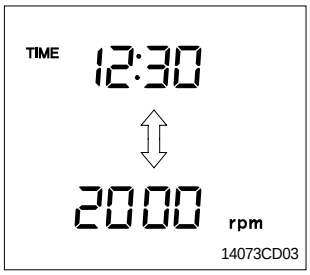
Part name	Symbol	Specification	Check
Battery		12V × 100Ah (2EA)	※ Check specific gravity 1.280 over : Over charged 1.280 ~ 1.250 : Normal 1.250 below : Recharging
Battery relay	 CR-1	Rated load : 24V 100A(continuity) 1000A(30second)	※ Check coil resistance (M4 to M4) Normal : About 50Ω ※ Check contact Normal : ∞Ω
Start key	 CS-2	24V 40A	※Check contact OFF : ∞Ω(For each terminal) ON : 0Ω(For terminal 1-3 and 1-2) START : 0Ω(For terminal 1-5)
Pressure switch (For overload)	 CD-31	3 ~ 6 kgf/cm^2 (N.O TYPE)	※ Check contact Normal : ∞(OPEN)
Pressure switch (For engine oil)	 CD-18	0.5 kgf/cm^2 (N.C TYPE)	※ Check resistance Normal : 0Ω(CLOSE)

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4. CLUSTER FUNCTION

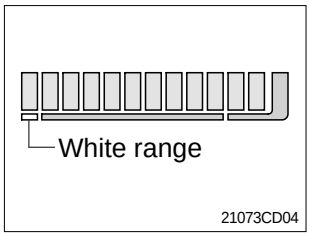
1) MONITORING DISPLAY



① This displays the current time and machine information such as engine rpm, coolant/hydraulic oil temperature, hydraulic oil pressure and also error codes.

※ **Refer to the page 5-33 for details.**

2) FUEL GAUGE

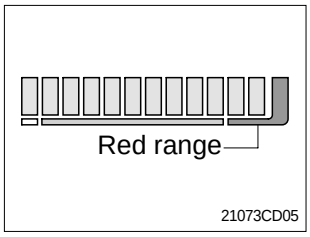


① This gauge indicates the amount of fuel in the fuel tank.

② Fill the fuel when the white range or warning lamp blinks.

※ **If the gauge illuminates the white range or warning lamp blinks even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.**

3) HYDRAULIC OIL TEMPERATURE GAUGE



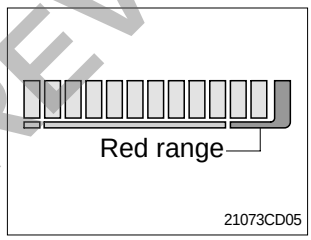
① This indicates the temperature of coolant.
- White range : 30°C(86°F) below
- Green range : 30-105 °C(86-221°F)
- Red range : 105°C(221°F) above

② The green range illuminates when operating.

③ Keep idling engine at low speed until the green range illuminates, before operation of machine.

④ When the red range illuminates, reduce the load on the system. If the gauge stays in the red range, stop the machine and check the cause of the problem.

4) ENGINE COOLANT TEMPERATURE GAUGE



① This indicates the temperature of coolant.
- White range : 30°C(86°F) below
- Green range : 30-105 °C(86-221°F)
- Red range : 105°C(221°F) above

② The green range illuminates when operating.

③ Keep idling engine at low speed until the green range illuminates, before operation of machine.

④ When the red range illuminates, turn OFF the engine, check the radiator and engine.

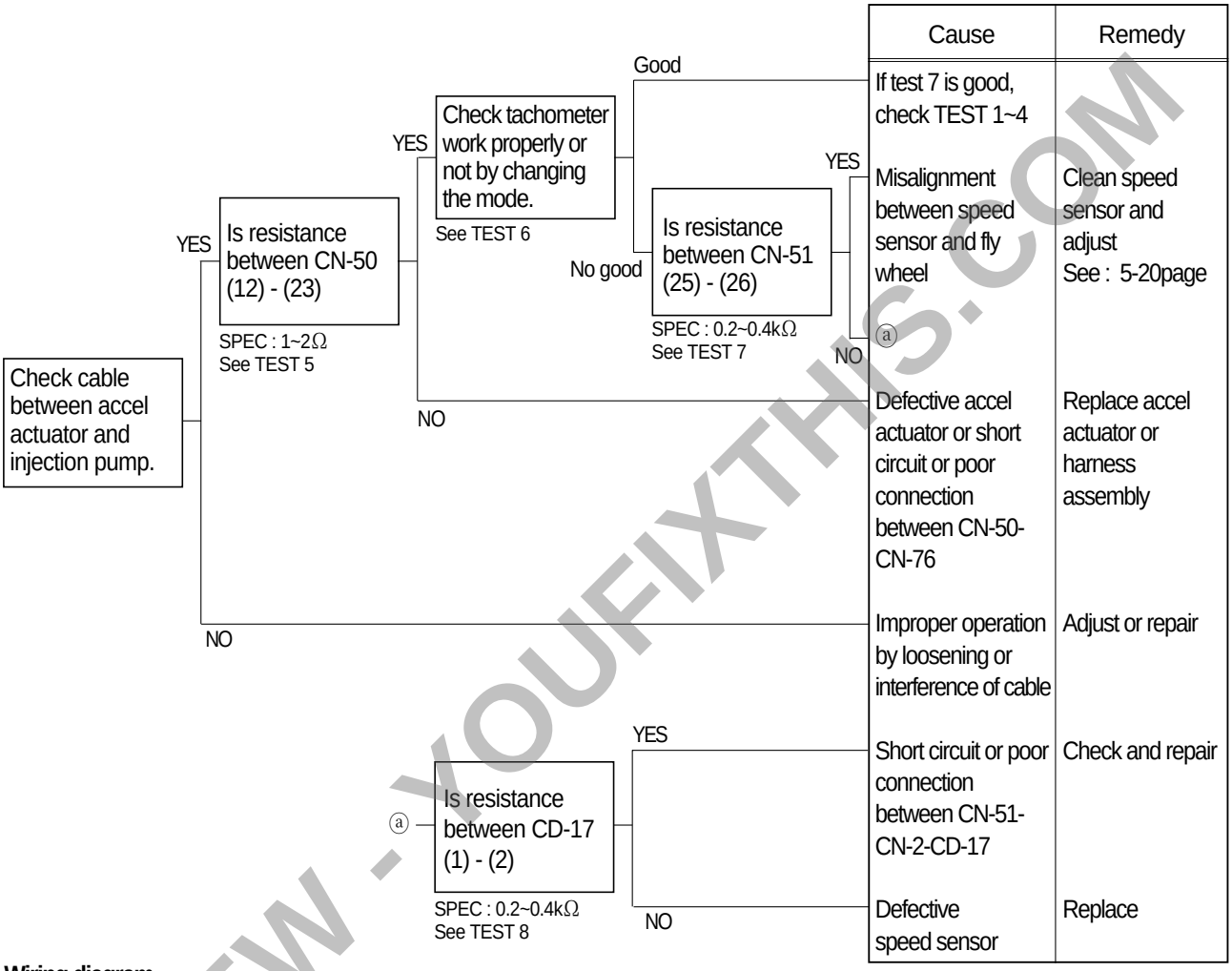
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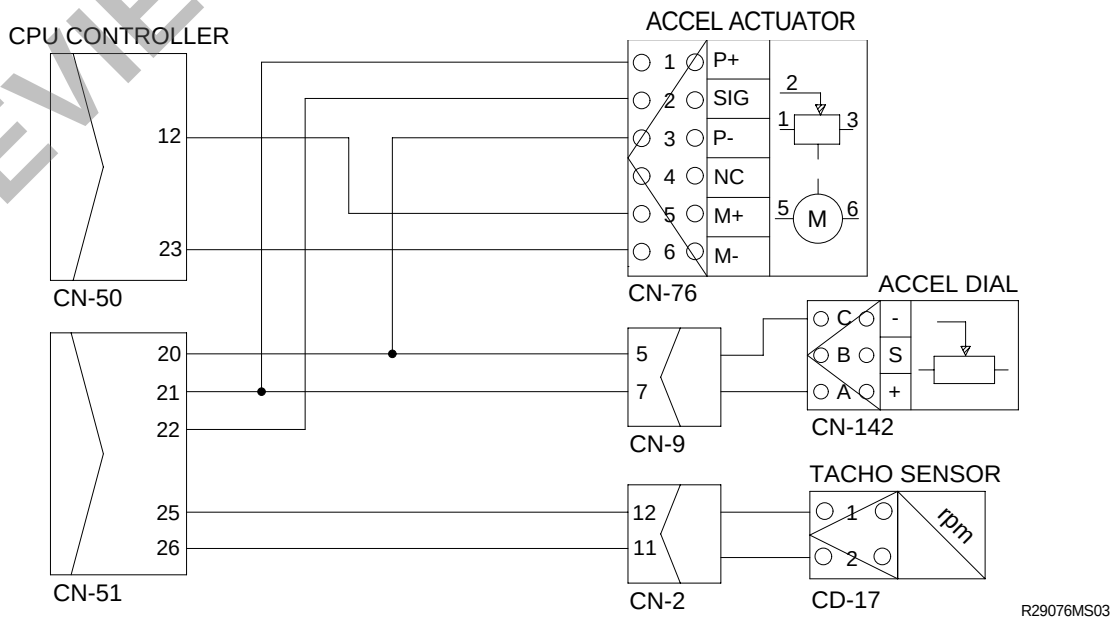
2. ENGINE SPEED IS SLOW AT ALL MODE

※ Before carrying out below procedure, check all the related connectors are properly inserted.

1) INSPECTION PROCEDURE



Wiring diagram



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3) PIPE AND HOSE

Thread size	Width across flat(mm)	kgf · m	lbf · ft
1/4"	19	3	21.7
3/8"	22	4	28.9
1/2"	27	5	36.2
3/4"	36	12	86.8
1"	41	14	101

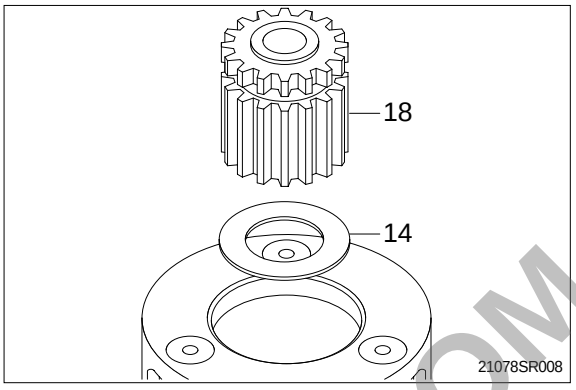
4) FITTING

Thread size	Width across flat(mm)	kgf · m	lbf · ft
1/4"	19	4	28.9
3/8"	22	5	36.2
1/2"	27	6	43.4
3/4"	36	13	94.0
1"	41	15	109

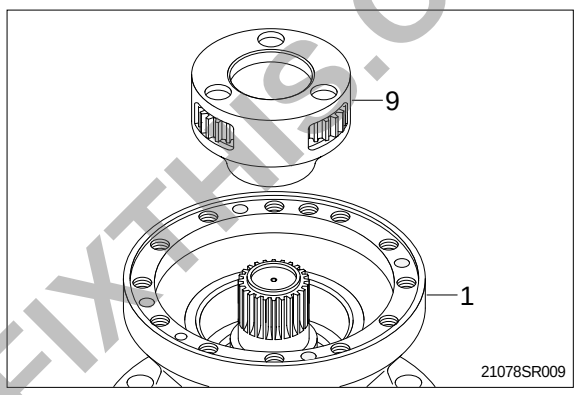
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(8) Remove sun gear2(18) and thrust washer (14).



(9) Remove carrier2(9) assembly from casing (1).



(10) Disassembling carrier2(9) assembly

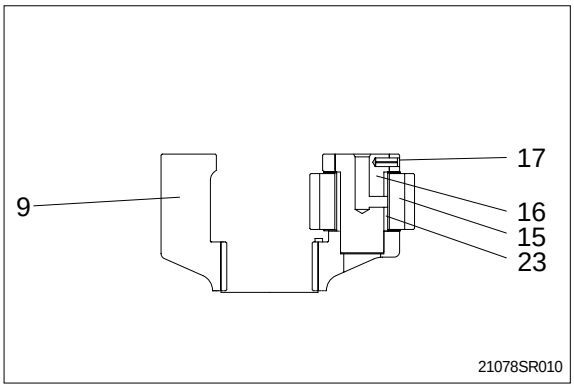
① Using M8 solid drill, crush spring pin(17) so that the pin2(16) can be removed.

※ Do not reuse spring pin(17).

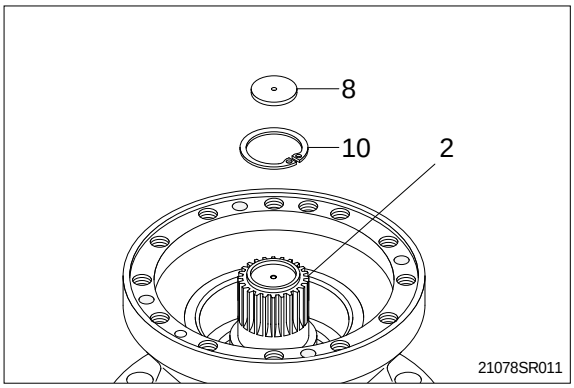
② Remove pin2(16), planet gear2(15) and bush2(23) from the carrier2(9).

※ Put matching marks on the planet gear2 (15) and the pin2(16) for easy reassembly.

※ Do not disassemble pin2(16), carrier2(9) and spring pin(17) but in case of replacement.

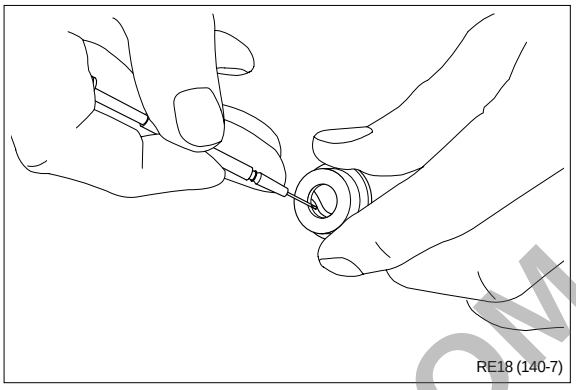


(11) Remove thrust plate(8) and stop ring (10) from the drive shaft(2).

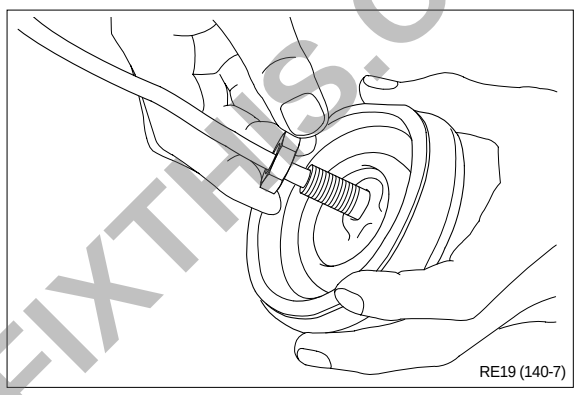


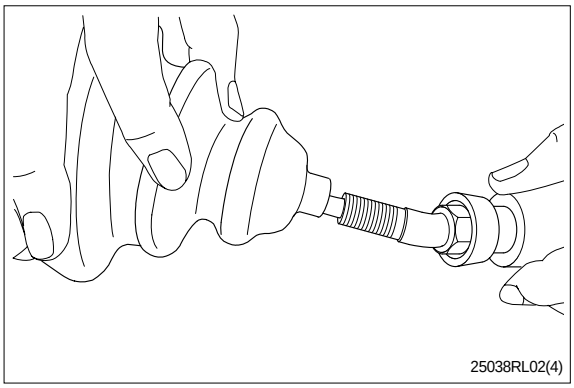
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RE18 (140-7)

(16) Remove lock nut(21) and then boot(26).


RE19 (140-7)


25038RL02(4)

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