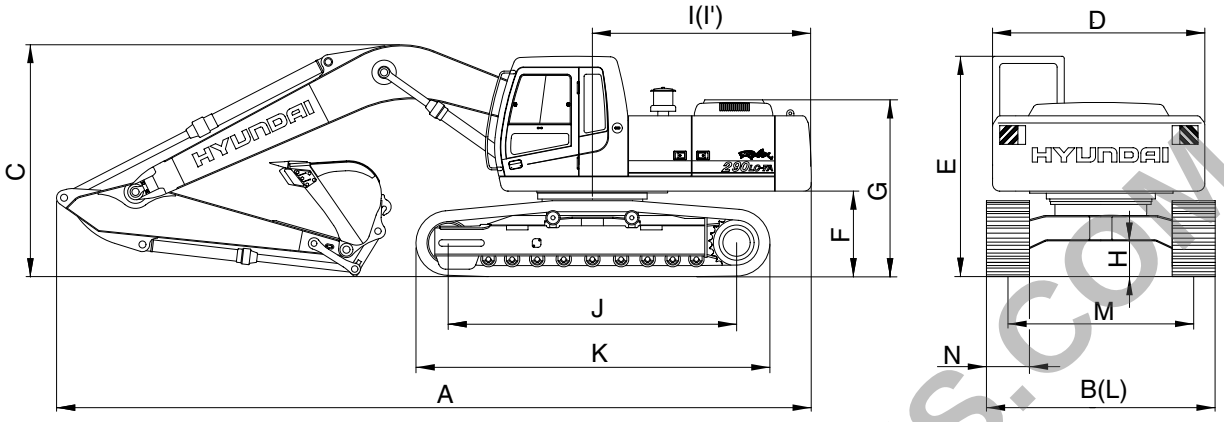
2. SPECIFICATIONS

1) R290LC-7A



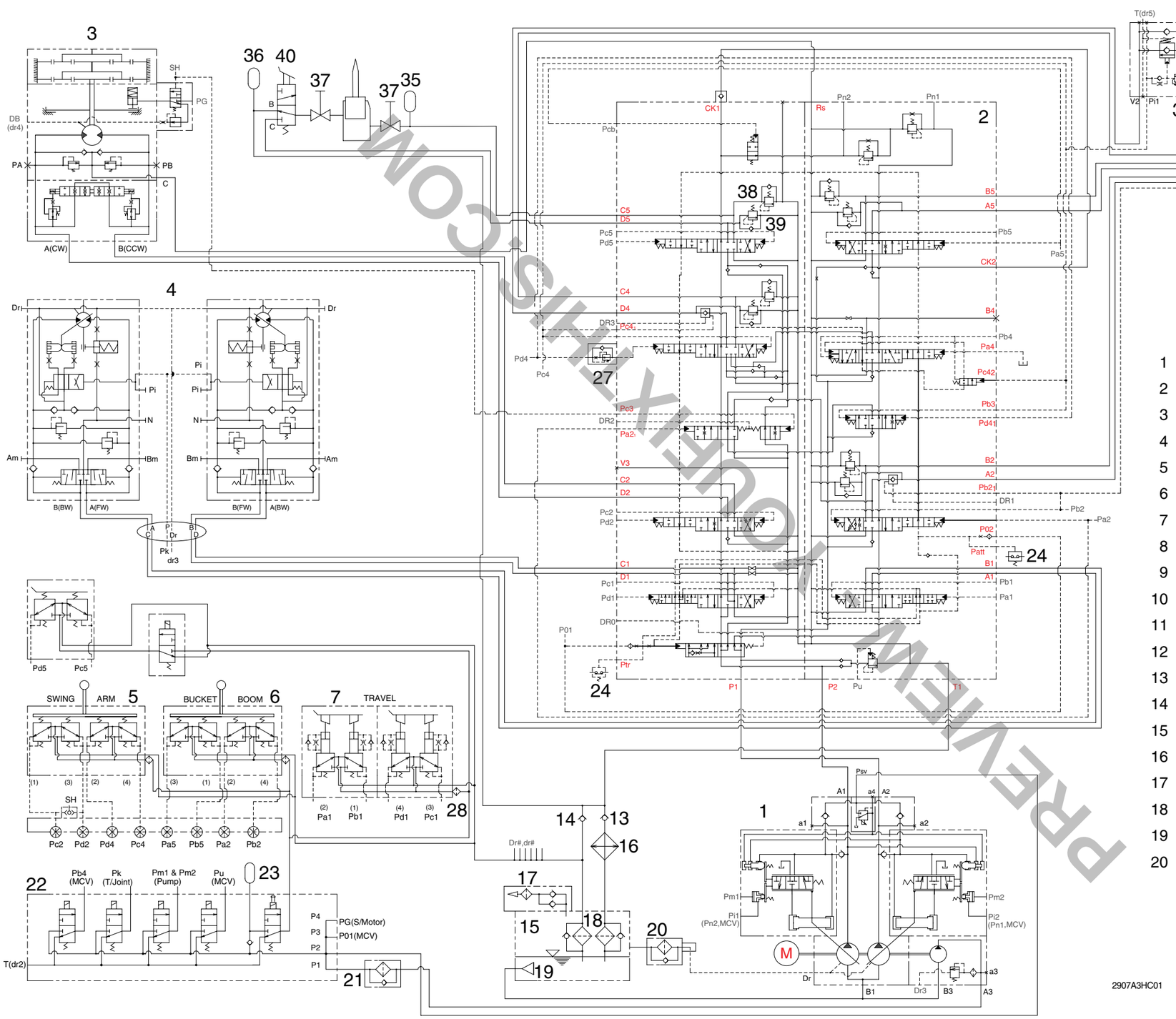
2907A2SP01

Description		Unit	Specification
Operating weight		kg(lb)	29300(64600)
Bucket capacity(SAE heaped), standard		$m^3(yd^3)$	1.27(1.66)
Overall length	A	mm(ft-in)	10560(34' 8")
Overall width, with 600mm shoe	B		3200(10' 6")
Overall height	C		3290(10' 10")
Superstructure width	D		2980(9' 9")
Overall height of cab	E		3010(9' 11")
Ground clearance of counterweight	F		1190(3' 11")
Engine cover height	G		3190(10' 6")
Minimum ground clearance	H		500(1' 8")
Rear-end distance	I		3200(10' 6")
Rear-end swing radius	I'		3120(10' 3")
Distance between tumblers	J		4030(13' 3")
Undercarriage length	K		4940(16' 2")
Undercarriage width	L		3200(10' 6")
Track gauge	M		2600(8' 6")
Track shoe width, standard	N		600(24")
Travel speed(Low/high)		km/hr(mph)	3.1/5.2(1.9/3.2)
Swing speed		rpm	10.2
Gradeability		Degree(%)	35(70)
Ground pressure(600mm shoe)		$kgf/cm^2(psi)$	0.56(7.97)

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GROUP 1 HYDRAULIC CIRCUIT

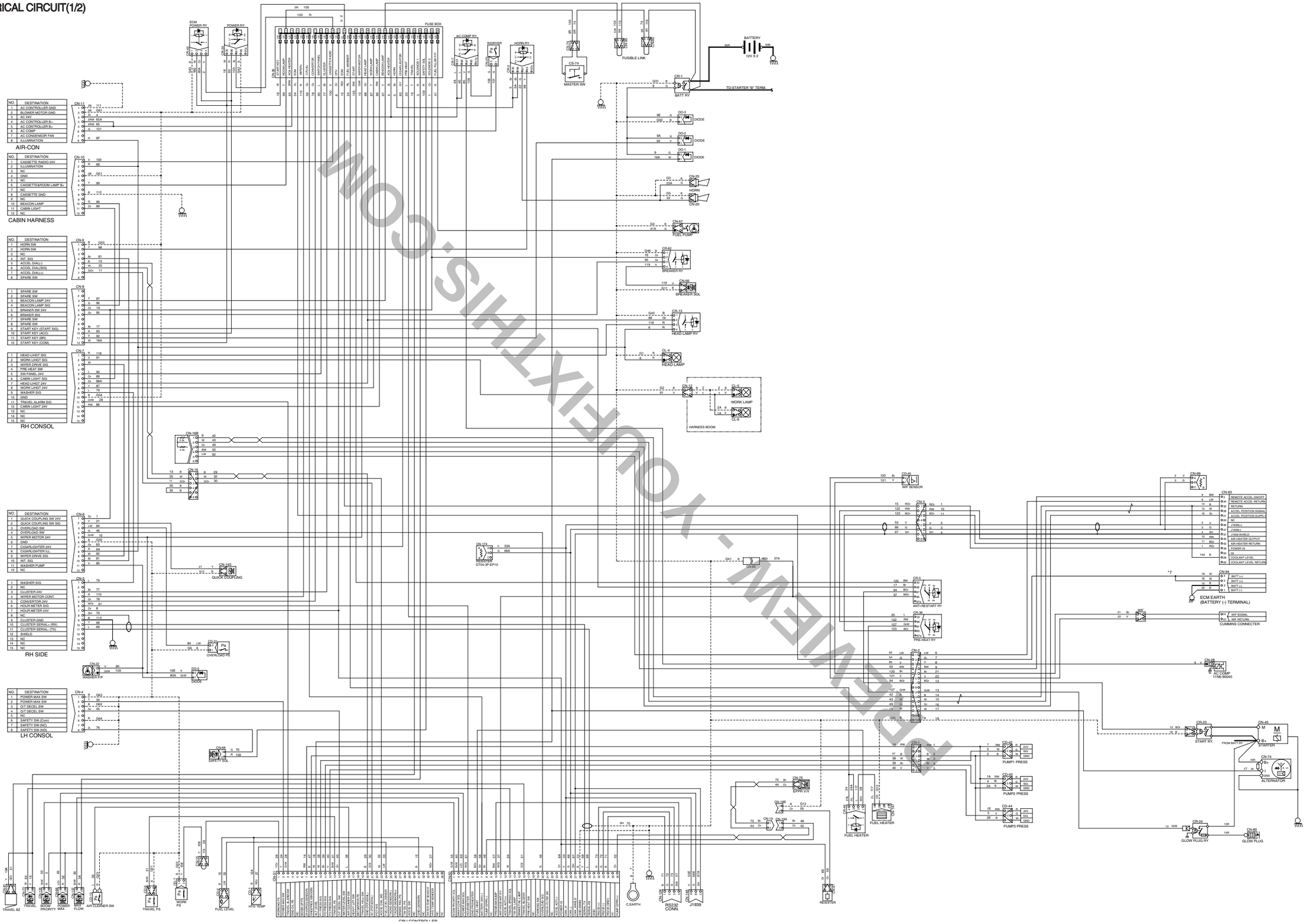


1	Main pump	21	Line filter
2	Main control valve	22	Solenoid valve
3	Swing motor	23	Accumulator
4	Travel motor	24	Pressure switch
5	RCV lever(LH)	25	Shuttle valve
6	RCV lever(RH)	26	Last guard filter
7	Rcv pedal	27	Rcv pedal
8	Boom cylinder(LH)	28	Shockless valve
9	Boom cylinder(RH)	29	Solenoid valve
10	Arm cylinder	30	Safety valve
11	Bucket cylinder	31	Safety valve
12	Turning joint	32	Press switch
13	Check valve	33	Shut off valve
14	Check valve	34	Pedal
15	Hydraulic tank	35	Accumulator
16	Oil cooler	36	Accumulator
17	Air breather	37	Stop valve
18	Bypass valve	38	Port relief valve
19	Return element	39	Port relief valve
20	Strainer	40	Selector valve

2907A3HC01

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• ELECTRICAL CIRCUIT(1/2)



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6. ECM FAULT CODES DISPLAY

If any fault code is received from ECM, cluster turns ON the “Engine check warning lamp” and sound the buzzer.

The fault codes are displayed on the cluster as the same as current error display.

ex) CHECK Er : 143

7. ERROR CODES TABLE

Error code No.	Description
1	Short circuit in accel actuator system
2	Potentiometer circuit is shorted to Vcc(5V) or battery +
3	Short circuit in pump EPPR valve system
4	Short circuit in boom down 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(24) line
15	Boom down pressure circuit is shorted to power supply(24V) line
16	Accel actuator 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
19	Boom down 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
30	Boom down 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

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1. REMOVAL AND INSTALL

1) REMOVAL

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

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

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

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

· Hydraulic tank quantity : 210 ℓ

(4) Remove bolts(13) and disconnect pipe (1,2).

(5) Disconnect pilot line hoses(4, 5, 6, 7, 8, 9, 10, 11).

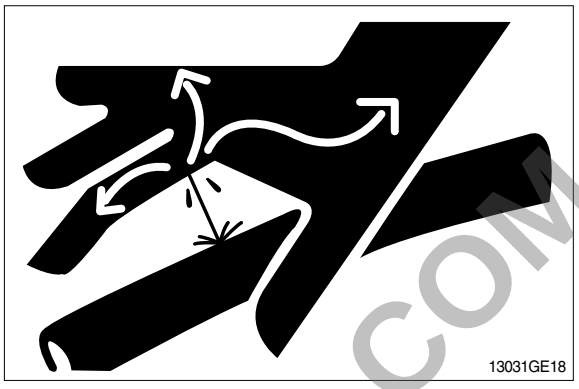
(6) Remove bolts(12) and disconnect pump suction tube (3).

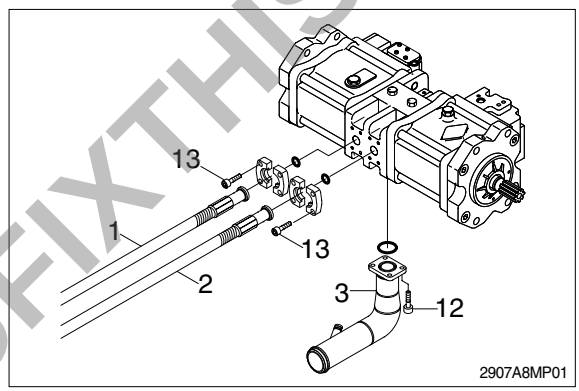
※ When pump suction tube is disconnected, the oil inside the piping will flow out, so catch it in oil pan.

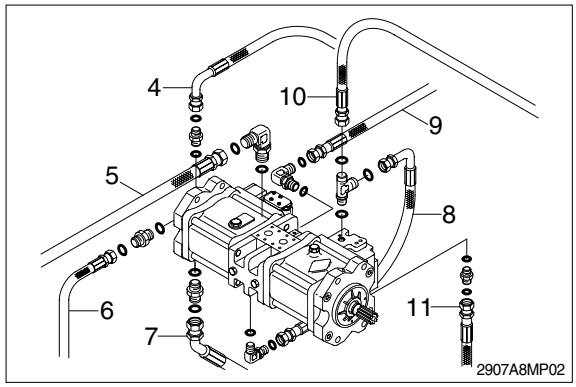
(7) Sling the pump assembly and remove the pump mounting bolts.

· Weight : 130kg(286lb)

※ 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

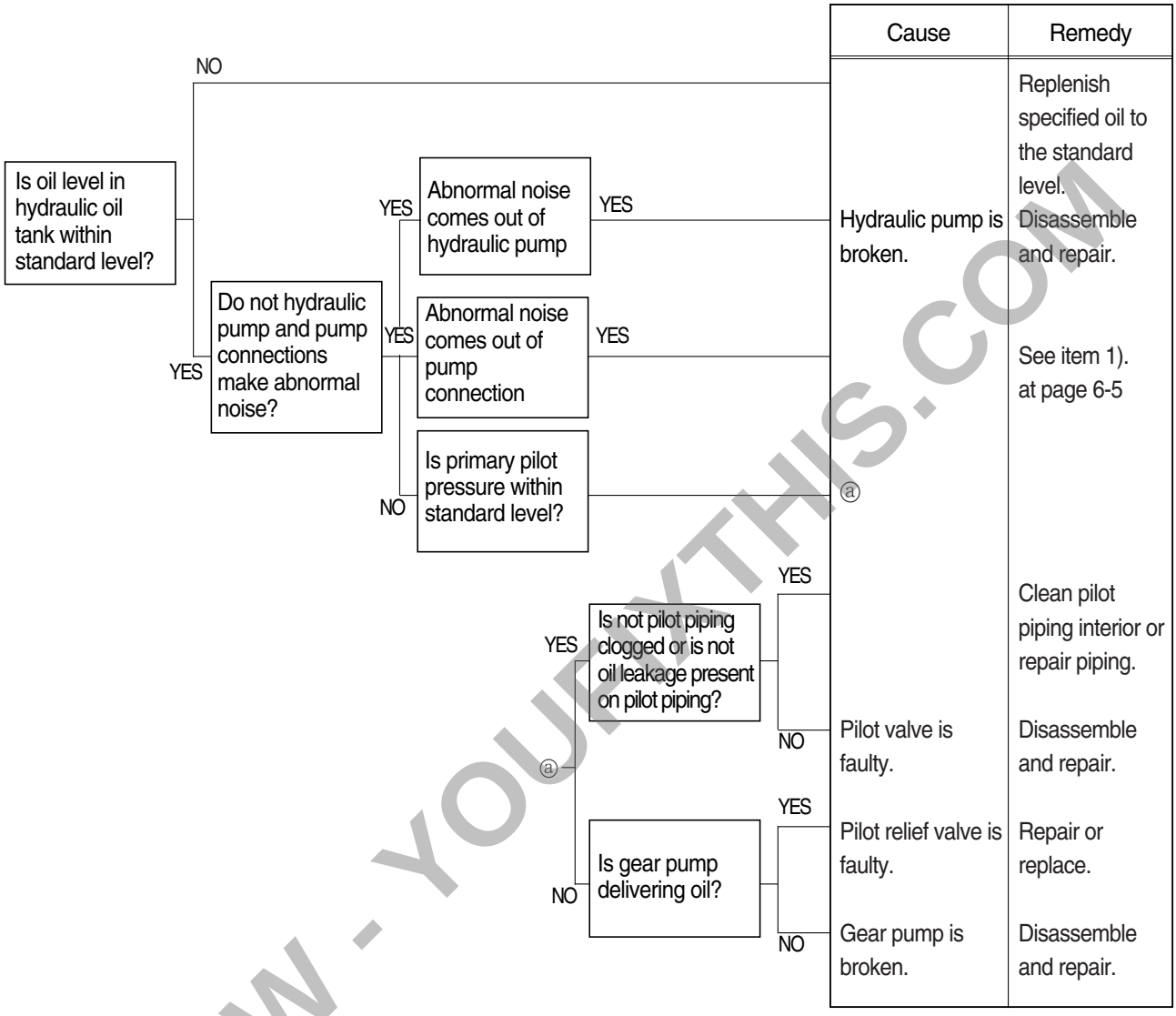
No.	Descriptions		Bolt size	Torque	
				kgf · m	lbf · ft
1	Engine	Engine mounting bolt, nut(Front)	M20 × 2.5	55 ± 3.5	398 ± 25
2		Engine mounting bolt, nut(Rear)	M24 × 3.0	90 ± 7.0	651 ± 51
3		Radiator mounting bolt	M16 × 2.0	25.7 ± 4.0	186 ± 29
4		Coupling mounting socket bolt	M20 × 2.5	46.5 ± 2.5	336 ± 18
5		Main pump housing mounting bolt	M10 × 1.5	4.8 ± 0.3	34.7 ± 2.2
6	Hydraulic system	Main pump mounting socket bolt	M20 × 2.5	42 ± 4.5	304 ± 32.5
7		Main control valve mounting nut	M12 × 1.75	12.2 ± 1.3	88.2 ± 9.4
8		Fuel tank mounting bolt	M20 × 2.5	46 ± 5.0	333 ± 36
9		Hydraulic oil tank mounting bolt	M20 × 2.5	46 ± 5.0	333 ± 36
10		Turning joint mounting bolt, nut	M12 × 1.75	12.3 ± 1.3	88.9 ± 9.4
11	Power train system	Swing motor mounting bolt	M20 × 2.5	58.4 ± 6.4	422 ± 46.2
12		Swing bearing upper part mounting bolt	M24 × 3.0	97.8 ± 10	707 ± 72.3
13		Swing bearing lower part mounting bolt	M24 × 3.0	97.8 ± 10	707 ± 72.3
14		Travel motor mounting bolt	M24 × 3.0	84 ± 8.0	607 ± 57.8
15		Sprocket mounting bolt	M20 × 2.5	51 ± 4.0	369 ± 28.9
16	Under carriage	Carrier roller mounting bolt, nut	M16 × 2.0	29.7 ± 4.4	126 ± 31.8
17		Track roller mounting bolt	M20 × 2.5	57.9 ± 8.6	419 ± 62.2
18		Track tension cylinder mounting bolt	M12 × 1.25	15 ± 0.5	108 ± 3.6
19		Track shoe mounting bolt, nut	M22 × 1.5	115 ± 5.0	831 ± 36
20		Track guard mounting bolt	M20 × 2.5	57.9 ± 8.7	419 ± 63
21	Others	Counterweight mounting bolt	M36 × 3.0	308 ± 46	2228 ± 333
22		Cab mounting bolt	M12 × 1.75	12.2 ± 1.3	88.2 ± 9.4
23		Operator's seat mounting bolt	M 8 × 1.25	2.5 ± 0.5	18.1 ± 3.6

※ For tightening torque of engine and hydraulic components, see engine maintenance guide and service manual.

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2) ENGINE STARTS BUT MACHINE DOES NOT OPERATE AT ALL



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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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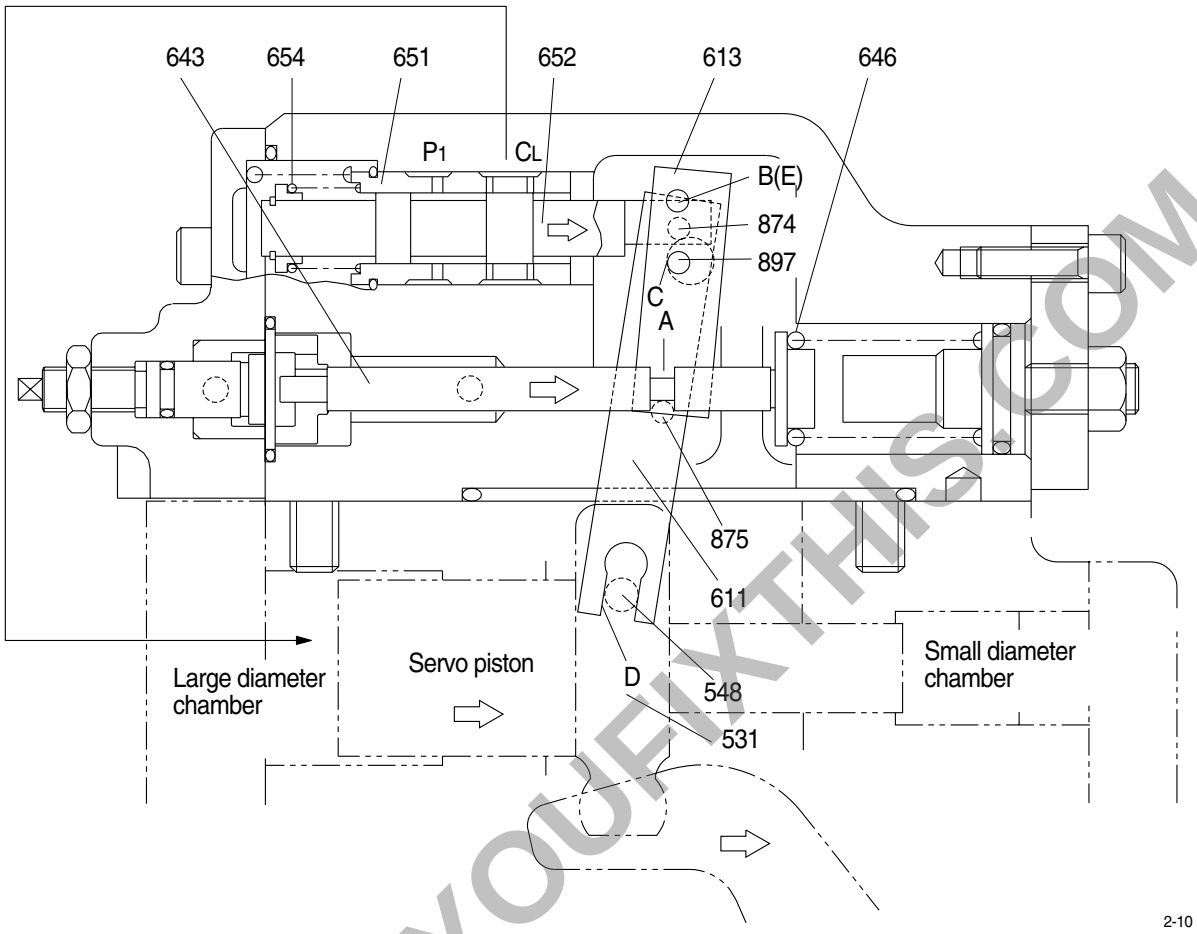
(4) 6.25m(20' 6") boom, 3.75m(12' 4") arm equipped with 1.27m³(SAE heaped) bucket and 600mm (24") triple grouser shoe.

Load point height		Load radius												At max. reach		
		1.5m(5ft)		3.0m(10ft)		4.5m(15ft)		6.0m(20ft)		7.5m(25ft)		9.0m(30ft)		Capacity		Reach
																m(ft)
7.5m (25ft)	kg													*3930	3310	9.67
	lb													*8660	7300	(31.7)
6.0m (20ft)	kg									*4160	*4160	*2370	*2370	*4090	2770	10.40
	lb									*9170	*9170	*5220	*5220	*9020	6110	(34.1)
4.5m (15ft)	kg									*4710	*4710	*3720	3550	4160	2460	10.83
	lb									*10380	*10380	*8200	7830	9170	5420	(35.5)
3.0m (10ft)	kg			*13490	*13490	*8320	*8320	*6410	*6410	*5470	4760	*4740	3400	3950	2300	11.02
	lb			*29740	*29740	*18340	*18340	*14130	*14130	*12060	10490	*10450	7500	8710	5070	(36.2)
1.5m (5ft)	kg			*9980	*9980	*11050	10090	*7850	6420	*6300	4470	*5440	3240	3920	2260	10.97
	lb			*22000	*22000	*24360	22240	*17310	14150	*13890	9850	*11990	7140	8640	4980	(36.0)
Ground Line	kg	*6470	*6470	*10300	*10300	*12890	9400	*9020	6010	*7030	4220	5300	3100	4050	2330	10.68
	lb	*14260	*14260	*22710	*22710	*28420	20720	*19890	13250	*15500	9300	11680	6830	8930	5140	(35.0)
-1.5m (-5ft)	kg	*9310	*9310	*12760	*12760	*13720	9090	*9730	5770	6970	4070	5210	3020	4410	2560	10.12
	lb	*20530	*20530	*28130	*28130	*30250	20040	*21450	12720	15370	8970	11490	6660	9720	5640	(33.2)
-3.0m (-10ft)	kg	*12290	*12290	*16240	*16240	*13690	9040	*9880	5700	6920	4020			5140	3030	9.25
	lb	*27090	*27090	*35800	*35800	*30180	19930	*21780	12570	15260	8360			11330	6680	(30.3)
-4.5m (-15ft)	kg	*15740	*15740	*18940	18940	*12770	9190	*9310	5780					*5780	4030	7.92
	lb	*34700	*34700	*41760	41760	*28150	20260	*20530	12740					*12740	8880	(26.0)

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① Flow reducing function



As the pilot pressure Pi rises, the pilot piston(643) moves to the right to a position where the force of the pilot spring(646) balances with the hydraulic force.

The groove(A) in the pilot piston is fitted with the pin(875) that is fixed to lever 2(613). Therefore, when the pilot piston moves, lever 2 rotates around the fulcrum of point B [Fixed by the fulcrum plug(614) and pin(875)]. Since the large hole section(C) of lever 2 contains a protruding pin(897) fixed to the feedback lever(611), the pin(897) moves to the right as lever 2 rotates. Since the opposing-flat section(D) of the feedback lever is fitted with the pin(548) fixed by the tilting pin(531) that swings the swash plate, the feedback lever rotates around the fulcrum of point D, as the pin(897) moves.

Since the feedback lever is connected with the spool(652) via the pin(874), the spool moves to the right.

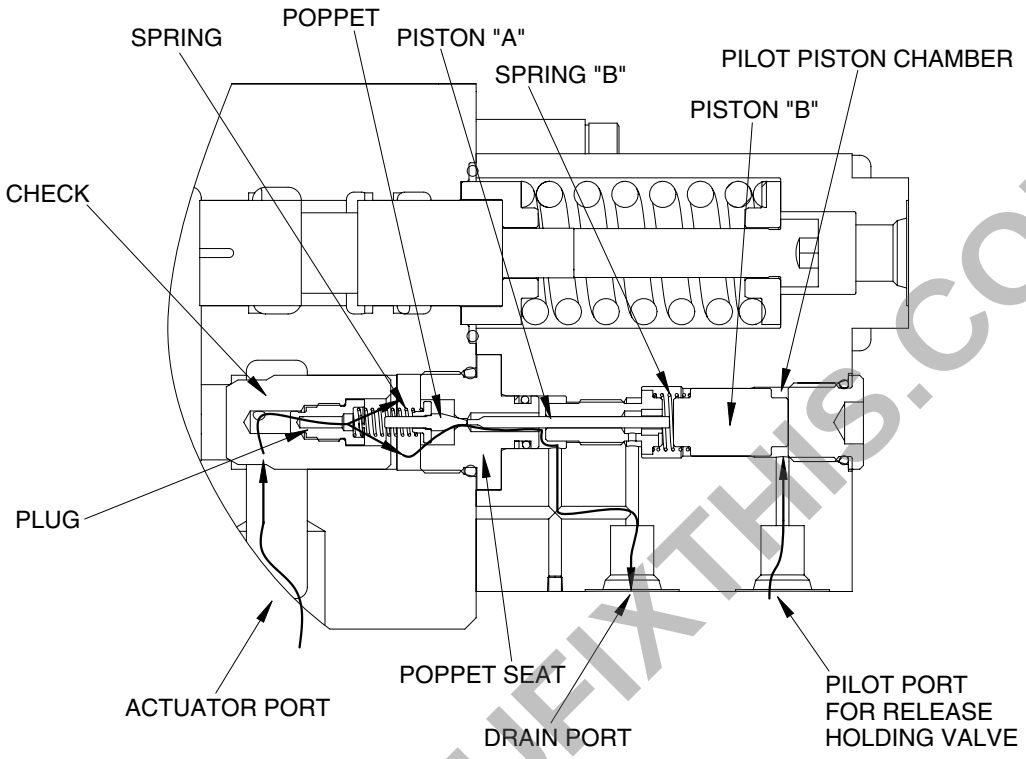
The movement of the spool causes the delivery pressure P1 to connect to port CL through the spool and to be admitted to the large diameter section of the servo piston. The delivery pressure P1 that is constantly admitted to the small diameter section of the servo piston moves the servo piston to the right due to the area difference, resulting in decrease of the tilting angle.

When the servo piston moves to the right, point D also moves to the right. The spool is fitted with the return spring(654) and is tensioned to the left at all times, and so the pin(897) is pressed against the large hole section(C) of lever 2.

Therefore, as point D moves, the feedback lever rotates around the fulcrum of point C, and the spool is shifted to the left. This causes the opening between the sleeve(651) and spool(652) to close slowly, and the servo piston comes to a complete stop when it closes completely.

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② Release holding operation



29072MC73

The pilot pressure is supplied to the pilot port for release holding valve and shifts the piston "B" in the left direction against the spring "B", and shifts the poppet in the left direction through piston "B" and piston "A" against spring "B" and shifts the spool in the left side.

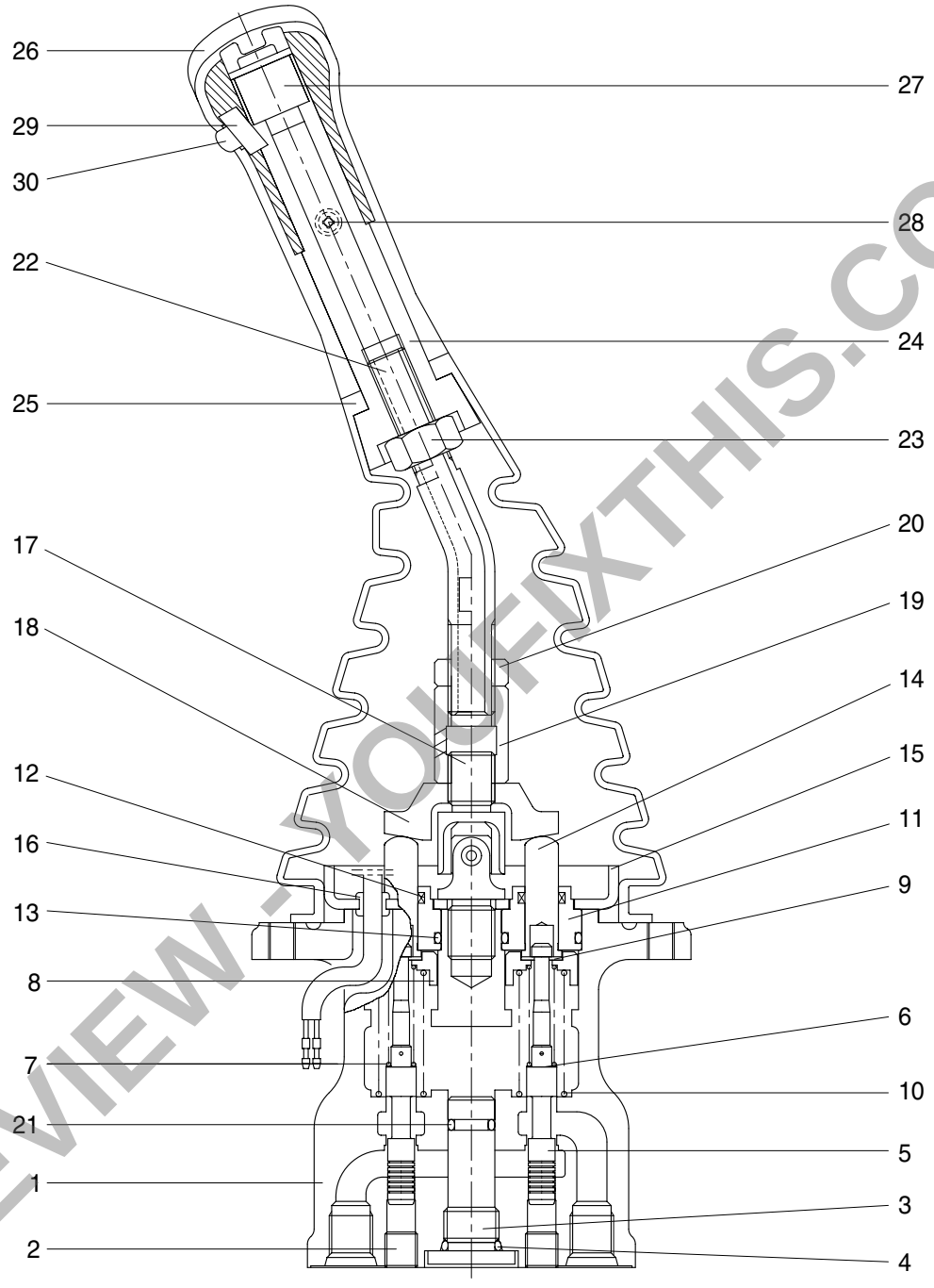
At same time, the return fluid from actuator returns to the drain port through the periphery hole of check, crevice of the check and the plug, the periphery hole of the plug, in side of holding valve, crevice of the poppet and the poppet seat, the periphery hole of the poppet seat.

When the poppet is opened, pressure of inside of holding valve is decreased and the return fluid from actuator returns to the tank passage through the notch of spool.

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CROSS SECTION

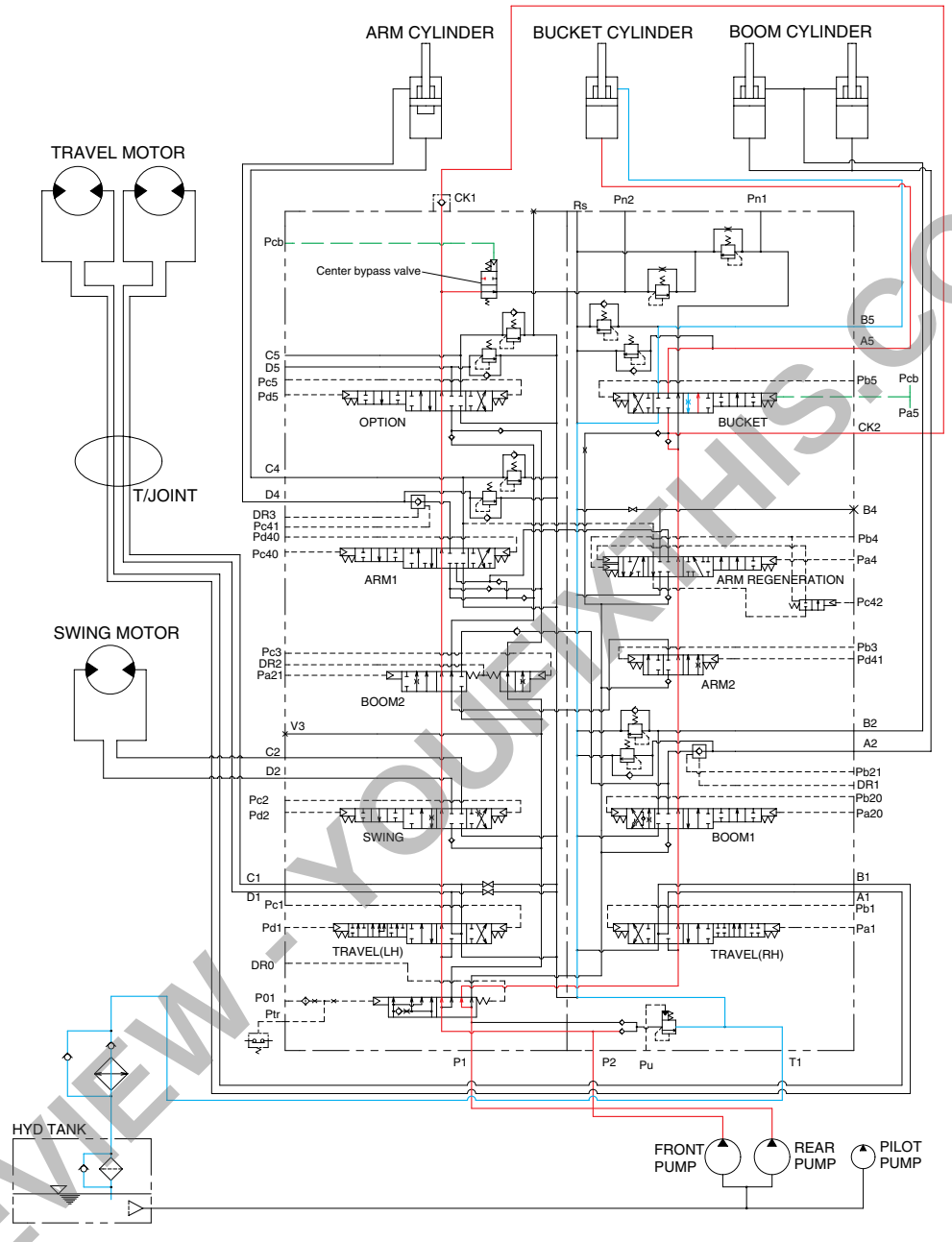


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5. BUCKET ROLL IN OPERATION



2907A3HC14

When the RH control lever is manually placed in the bucket roll in position. Then the oil flows from pilot pump through the pilot valve to bucket section of the main control valve. Here the spool position is moved to bucket roll in position.

The center bypass valve is change over by the pilot pressure(Pcb) and then the oil from front pump is joint to the flow of rear pump via check 1 and external piping.

The oil flows from both pump through rod end of the cylinder through the bucket section returned to the hydraulic tank.

The cavitation which will happen to the bottom of the bucket cylinder is prevented by a make up valve, on other hand. The excessive pressure is also prevented by an overload relief valve in the main control valve.

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5. BEACON LAMP AND CAB LIGHT CIRCUIT

1) OPERATING FLOW

Fuse box (No.19) → I/conn 〔CN-8(3)〕 → Beacon lamp switch 〔CN-23(6)〕
Fuse box (No.18) → I/conn 〔CN-7(12)〕 → Switch panel 〔CN-116(16, 17)〕

(1) Beacon lamp switch ON

Beacon lamp switch ON 〔CS-23(2)〕 → Switch Indicator lamp ON 〔CS-23(9)〕
→ I/conn 〔CN-8(4)〕 → I/conn 〔CN-10(10)〕
→ Beacon lamp ON 〔CL-7〕

(2) Cab light switch ON

Cab light switch ON 〔CN-116(7, 8)〕 → I/conn 〔CN-7(6)〕 → I/conn 〔CN-10(11)〕
→ Cab light ON 〔CL-8(2), CL-9(2)〕

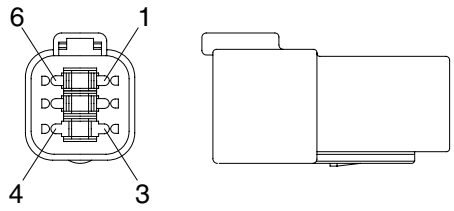
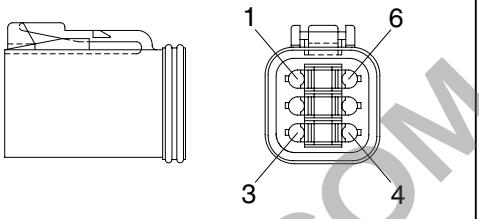
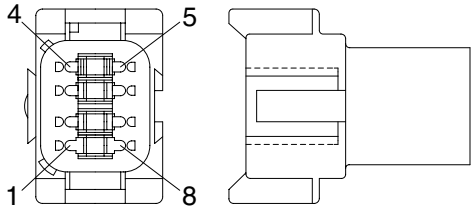
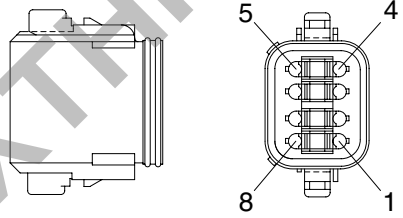
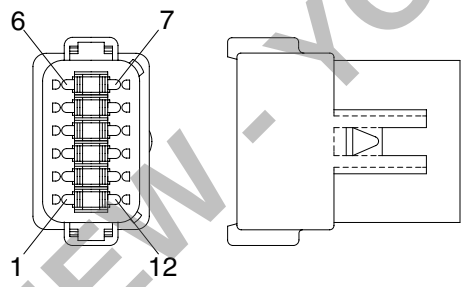
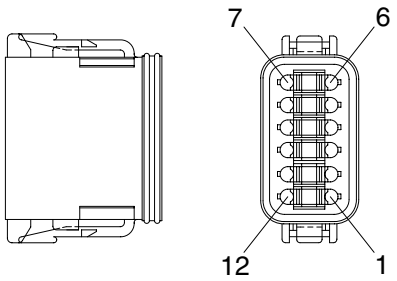
2) CHECK POINT

Engine	Start switch	Check point	Voltage
STOP	ON	① - GND(Fuse box) ② - GND(Switch power input) ③ - GND(Switch power output) ④ - GND(Beacon lamp)	20~25V
STOP	ON	⑤ - GND(Fuse box) ⑥ - GND(Switch power input) ⑦ - GND(Switch power output) ⑧ - GND(Cab light)	20~25V

※ GND : Ground

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No. of pin	Receptacle connector(Female)	Plug connector(Male)
6	 DT06-6S	 DT04-6P
8	 DT06-8S	 DT04-8P
12	 DT06-12S	 DT04-12P

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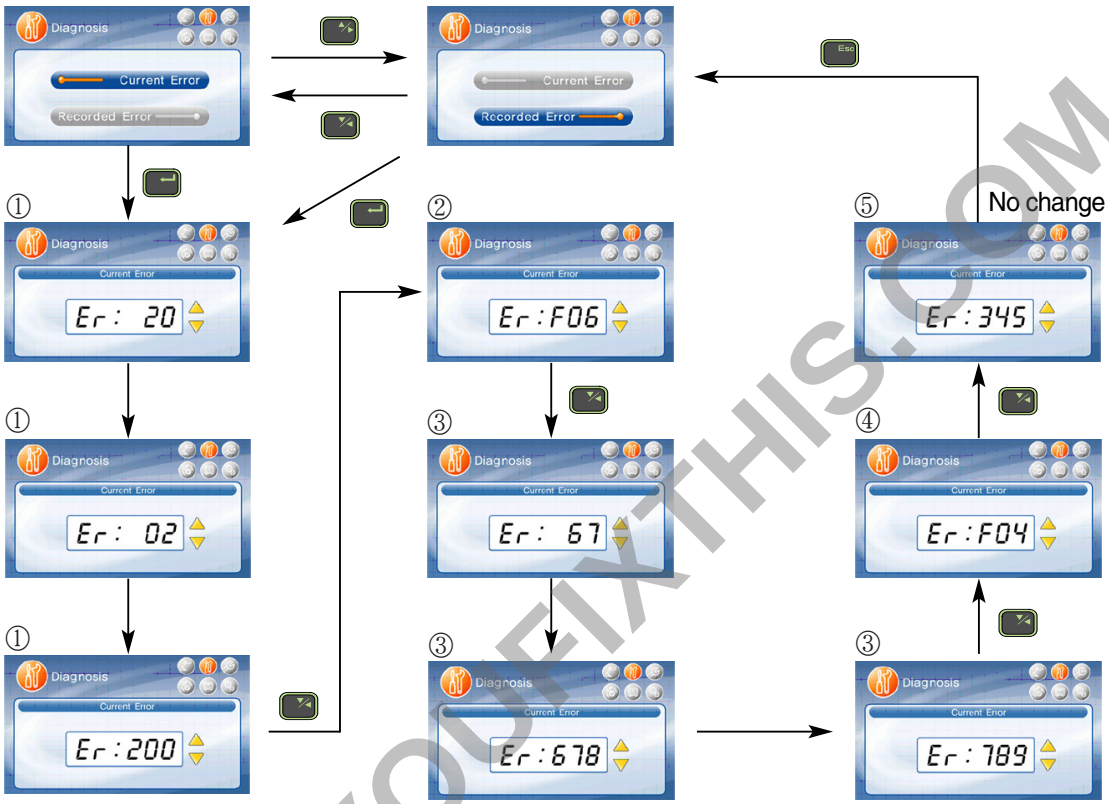
Fault code J1939 SPN J1939 FMI	Reason	Effect (only when fault code is active)
1117 627 2	Power supply lost with ignition on - Data erratic, intermittent, or incorrect. Supply voltage to the ECM fell below 6.2 volts momentarily, or the ECM was not allowed to power down correctly (retain battery voltage for 30 seconds after key OFF).	Engine will shut down.
1633 625 2	OEM datalink cannot transmit - Data erratic, intermittent, or incorrect. Communications within the OEM datalink network is intermittent.	Engine will only idle.
2185 520197 3	Sensor supply 4 circuit - Voltage above normal, or shorted to high source. High voltage detected at +5 volt sensor supply circuit to the accelerator pedal position sensor.	Engine will only idle.
2186 520197 4	Sensor supply 4 circuit - Voltage below normal, or shorted to low source. Low voltage detected at +5 volt sensor supply circuit to the accelerator pedal position sensor.	Possibly hard to start, low power, or engine smoke.
2249 157 1	Injector metering rail 1 pressure - Data valid but below normal operational range - Most severe level. The ECM has detected that fuel pressure is lower than commanded pressure.	Engine may be difficult to start.
2265 1075 3	Electric lift pump for engine fuel supply circuit - Voltage above normal, or shorted to high source. High voltage or open detected at the fuel lift pump signal circuit.	Engine may be difficult to start.
2266 1075 4	Electric lift pump for engine fuel supply circuit - Voltage below normal, or shorted to low source. Low signal voltage detected at the fuel lift pump circuit.	Possible low power.
2311 633 31	Electronic fuel injection control valve circuit - Condition exists. Fuel pump actuator circuit resistance too high or too low.	Engine may exhibit misfire as control switches from the primary to the backup speed sensor. Engine power is reduced while the engine operates on the backup speed sensor.
2321 190 2	Engine crankshaft speed/position - Data erratic, intermittent, or incorrect. crankshaft engine speed sensor intermittent synchronization.	Possible low power.
2322 723 2	Engine camshaft speed / position sensor - Data erratic, intermittent, or incorrect. Camshaft engine speed sensor intermittent synchronization.	Engine power derate.
2345 103 10	Turbocharger 1 Speed - Abnormal rate of change. The turbocharger speed sensor has detected an erroneous speed value.	Engine power derate.
2346 2789 15	Turbocharger turbine inlet temperature (Calculated) - Data valid but above normal operational range - Least severe level. Turbocharger turbine inlet temperature has exceeded the engine protection limit.	Engine power derate.
2347 2790 15	Turbocharger compressor outlet temperature (Calculated) - Data valid but above normal operational range - Least severe level.	Engine brake on cylinders 1, 2, and 3 can not be activated or exhaust brake will not operate.
2377 647 3	Fan control circuit - Voltage above normal, or shorted to high source. Open circuit or high voltage detected at the fan control circuit.	Variable geometry turbocharger will go to the open position.

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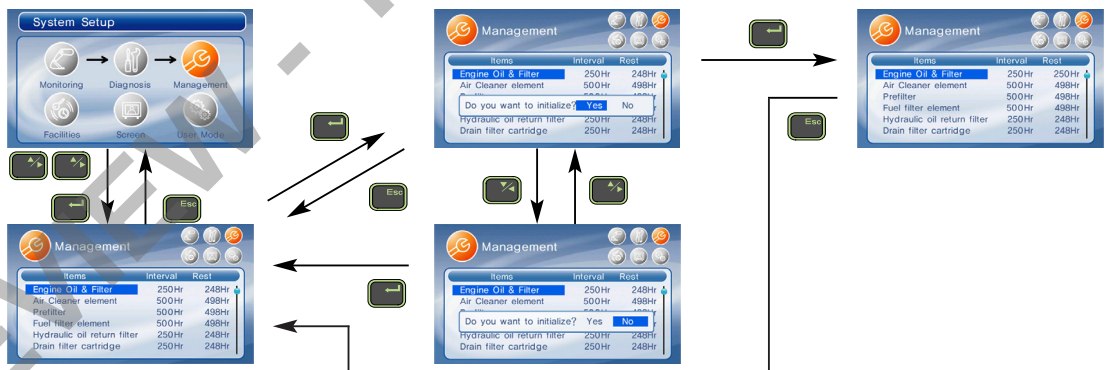
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b. Protocol type 2

- If there are more than 2 error codes, each one can be displayed by pressing or switch respectively.
- 3 error codes (①SPN200200, ②FMI06, ③SPN6789, ④FMI04, ⑤345) display.

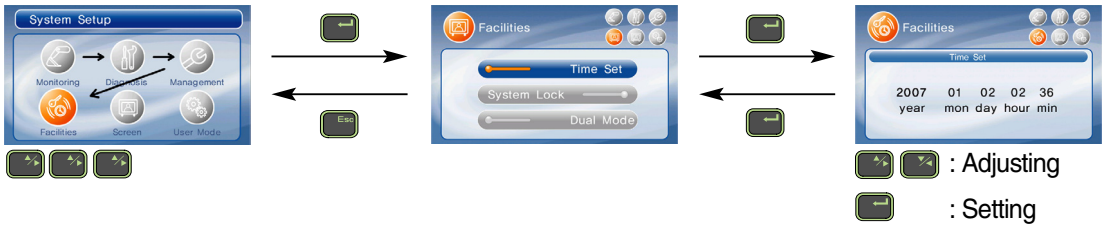


③ Maintenance



④ Setting

a. Time set



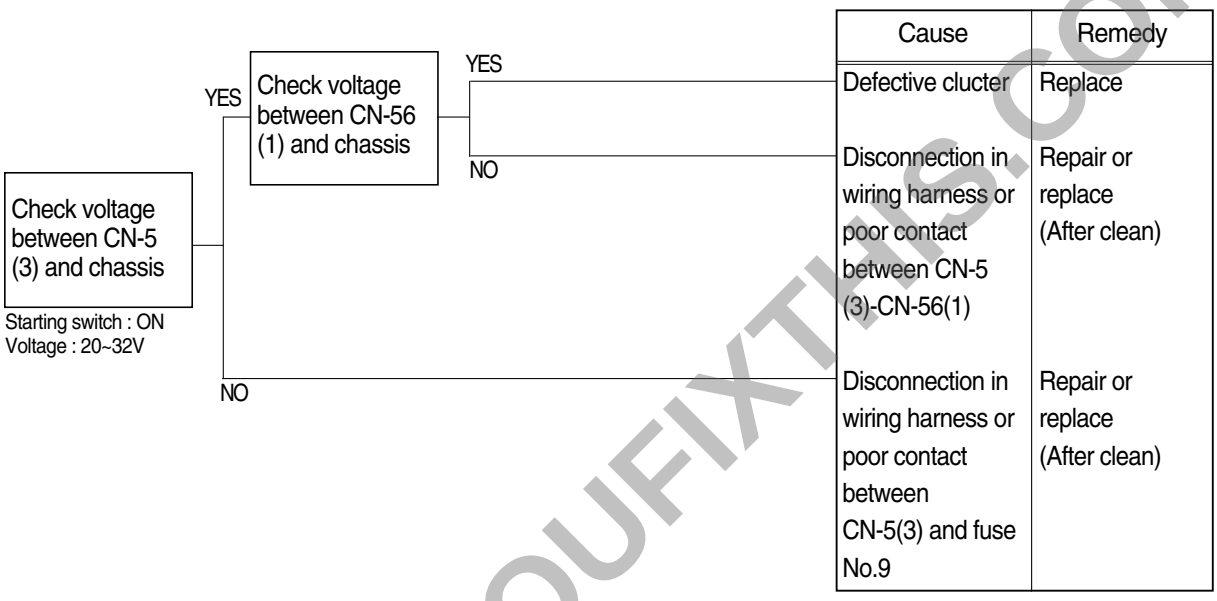
b. System lock - Reserved

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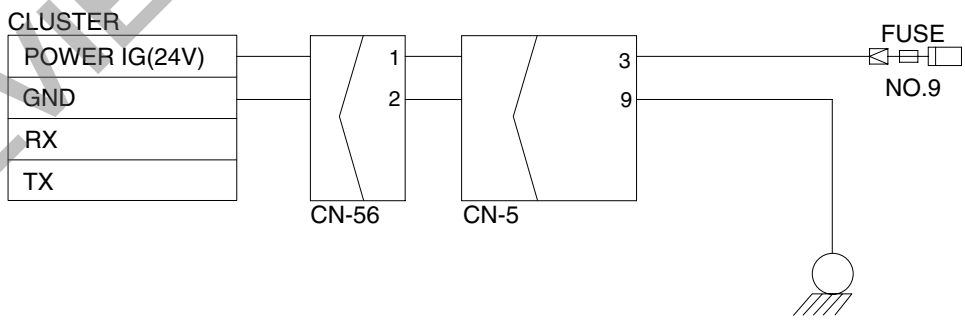
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1. WHEN STARTING SWITCH IS TURNED ON, MONITOR PANEL DISPLAY DOES NOT APPEAR

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted and short of fuse No.9.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



Cause	Remedy
Defective clucter	Replace
Disconnection in wiring harness or poor contact between CN-5 (3)-CN-56(1)	Repair or replace (After clean)
Disconnection in wiring harness or poor contact between CN-5(3) and fuse No.9	Repair or replace (After clean)



Check voltage

YES	20 ~ 32V
NO	0V

4507A6ES01

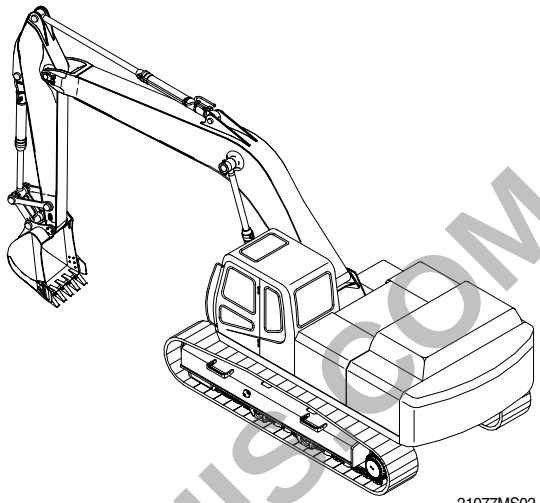
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2. TERMINOLOGY

1) STANDARD

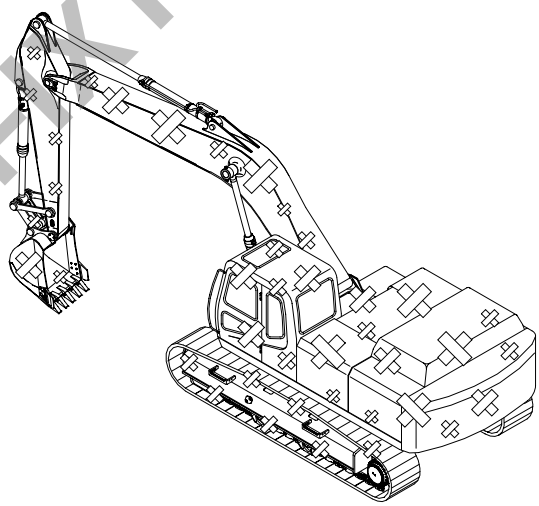
Specifications applied to the brand-new machine, components and parts.



21077MS02

2) SERVICE LIMIT

The lowest acceptable performance level. When the performance level of the machine falls below this level, the machine must be removed from work and repaired.
Necessary parts and components must be replaced.

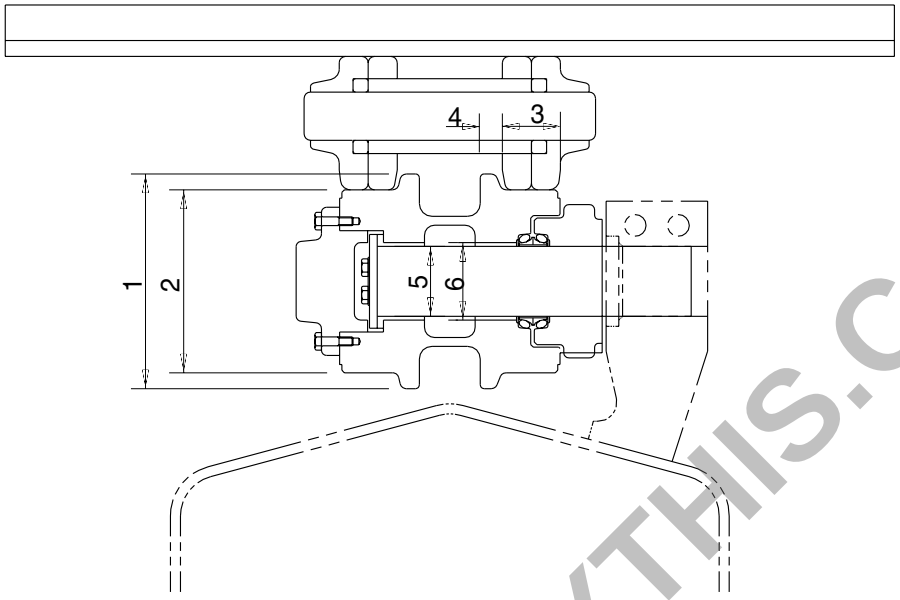


21077MS03

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2) CARRIER ROLLER



32037MA37

Unit : mm

No.	Check item	Criteria				Remedy
1	Outside diameter of flange	Standard size		Repair limit		Rebuild or replace
		ø 200		-		
2	Outside diameter of tread	ø 168		ø 158		
3	Width of tread	54		59		
4	Width of flange	19		-		
5	Clearance between shaft and bushing	Standard size & tolerance		Standard clearance	Clearance limit	Replace bushing
		Shaft	Hole			
		ø 55 +0.085 +0.066	ø 55 +0.37 +0.33	0.245 to 0.304	2.0	
6	Clearance between shaft and support	ø 58 0 -0.1	ø 58 +0.5 +0.3	0.3 to 0.6	1.2	Replace

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3) DISASSEMBLY

Since the regulator consists of small precision finished parts, disassembly and assembly are rather complicated.

For this reason, replacement of a regulator assembly is not recommended, unless there is a special reason, but in case disassembly is necessary for an unavoidable reason, read through this manual to the end before starting disassembly.

(1) Choose a place for disassembly.

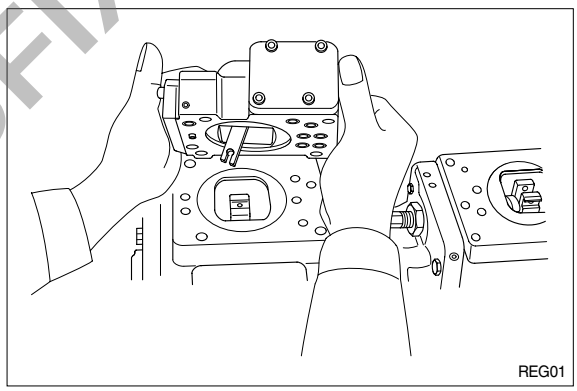
※ Choose a clean place.

※ Spread rubber sheet, cloth, or so on on top of work-bench to prevent parts from being damaged.

(2) Remove dust, rust, etc. from surfaces of regulator with clean oil.

(3) Remove hexagon socket head screw (412, 413) and remove regulator main body from pump main body.

※ Take care not to lose O-ring.

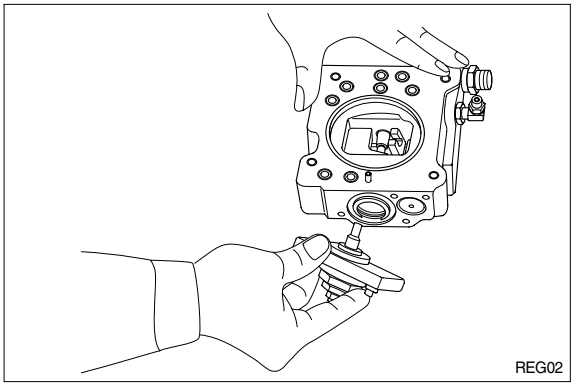

REG01

(4) Remove hexagon socket head screw (438) and remove cover(C,629).

※ Cover(C) is fitted with adjusting screw (C,QI)(628, 925), adjusting ring(C, 627), lock nut(630), hexagon nut(801) and adjusting screw(924).

Do not loosen these screws and nuts.

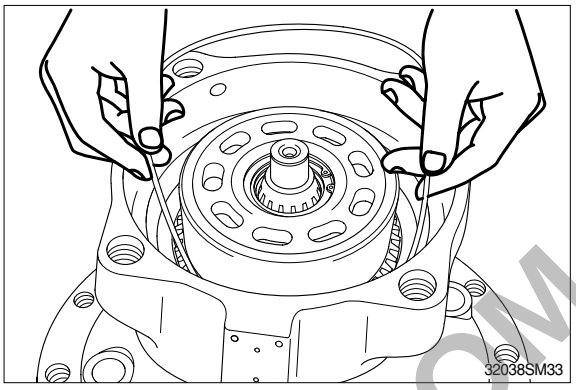
If they are loosened, adjusted pressure-flow setting will vary.


REG02

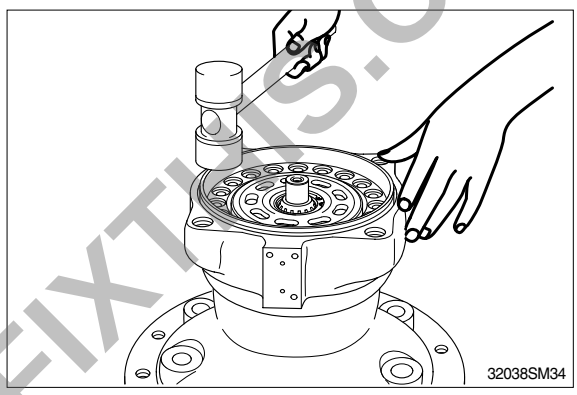
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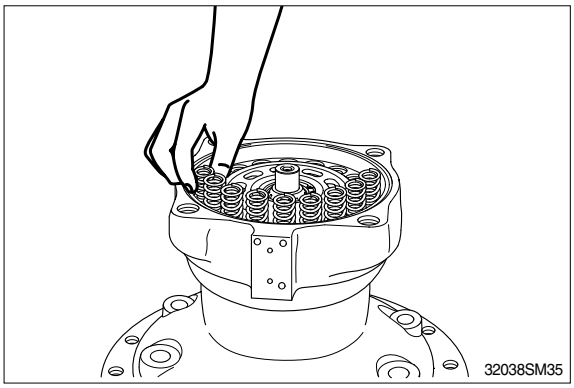
(12) Insert O-ring(706, 707) inside the casing (301).



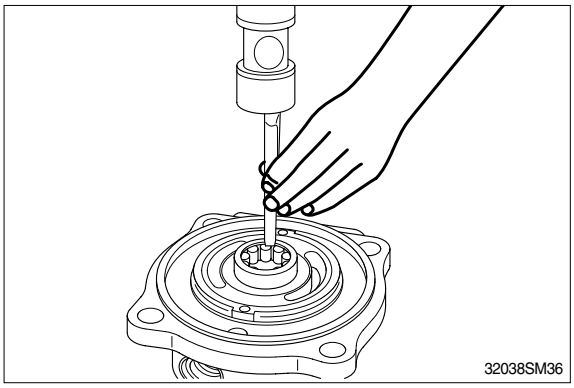
(13) Reassemble brake piston(702) to the casing(301).



(14) Reassemble brake spring(712) to the brake piston(702).



(15) When assembling the roller bearing(444), insert the roller bearing(444) into valve casing(303) by hammering.



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(20) Using a hammer and a handle, compress pin(5, 6).

① Pin(5) : Set the height as 10㎜ from the contact surface of a plate supporter. - 2pieces.

Pin(6) : Set the height as 19㎜ from the manufactured surface of shaft casing. - 4pieces.



300072TM70 300072TM70A

(21) Assemble sub of a turning axis.



300072TM71

(22) Assemble plate supporter(15) with M12 bolt.

※ Be careful of the direction of plate supporter driven.



300072TM72

(23) Assemble plate(16) into plate supporter.

① Spread grease in moisturized copper part of plate.

② Confirm the soft movement of plate.



300072TM73

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(16) Cleaning of parts

① Put all parts in rough cleaning vessel filled with kerosene and clean them (Rough cleaning).

※ If dirty part is cleaned with kerosene just after putting it in vessel, it may be damaged. Leave it in kerosene for a while to loosen dust and dirty oil.

※ If this kerosene is polluted, parts will be damaged and functions of reassembled valve will be degraded.
Therefore, control cleanliness of kerosene fully.

② Put parts in final cleaning vessel filled with kerosene, turning it slowly to clean them even to their insides(Finish cleaning).

※ Do not dry parts with compressed air, since they will be damaged and/or rusted by dust and moisture in air.

(17) Rust prevention of parts.

Apply rust-preventives to all parts.

※ If left as they after being cleaned, they will be rusted and will not display their functions fully after being reassembled.

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1. TRACK LINK

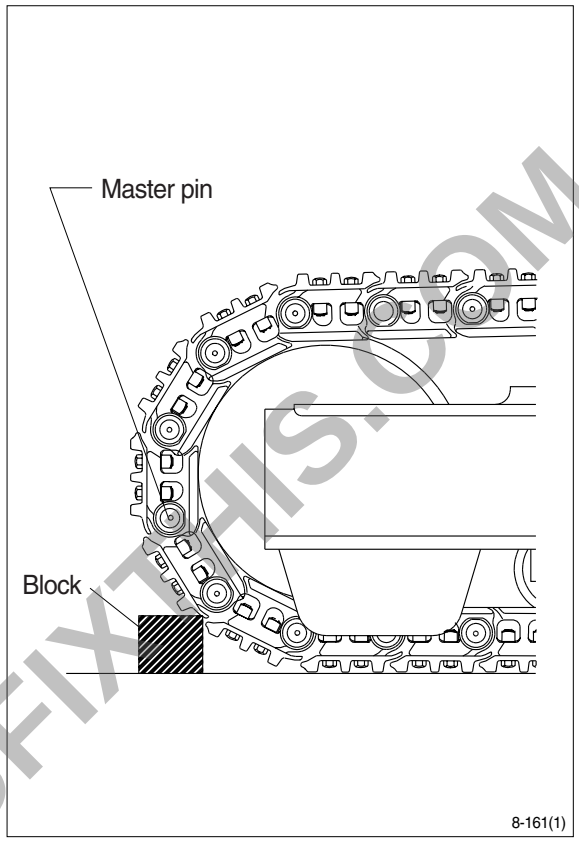
1) REMOVAL

(1) Move track link until master pin is over front idler in the position put wooden block as shown.

(2) Loosen tension of the track link.

※ If track tension is not relieved when the grease valve is loosened, move the machine backwards and forwards.

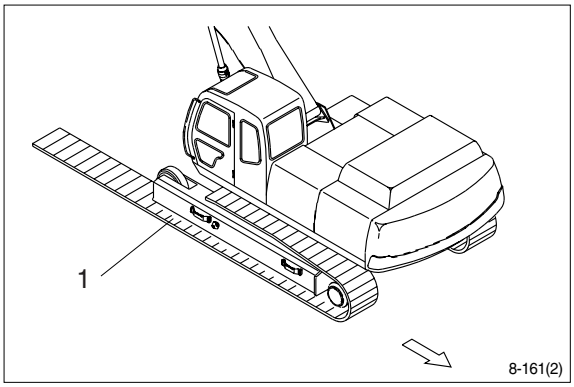
(3) Push out master pin by using a suitable tool.



(4) Move the machine slowly in reverse, and lay out track link assembly (1).

※ Jack up the machine and put wooden block under the machine.

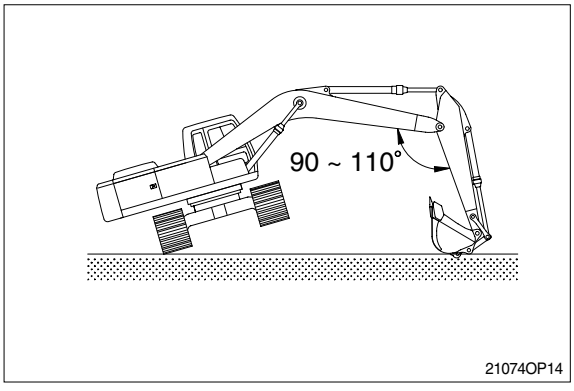
※ Don't get close to the sprocket side as the track shoe plate may fall down on your feet.



2) INSTALL

(1) Carry out installation in the reverse order to removal.

※ Adjust the tension of the track link.



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