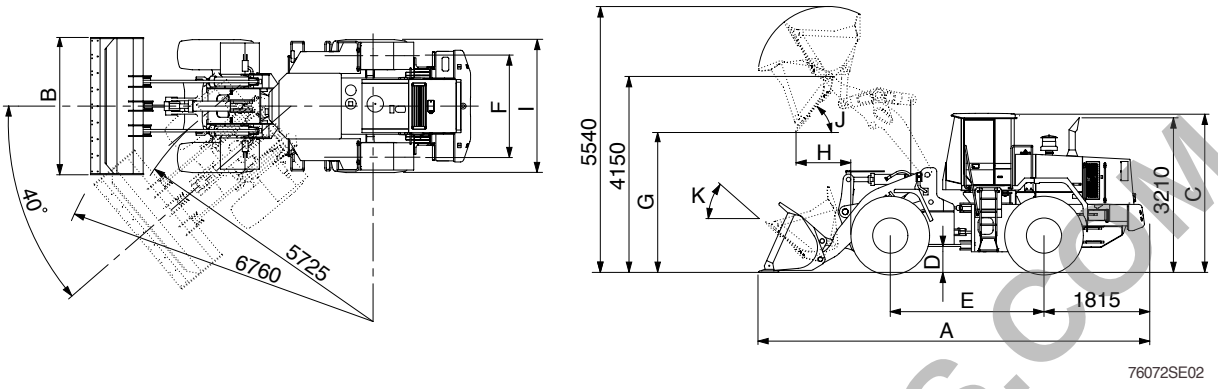
2. SPECIFICATIONS

1) WITHOUT TOOTH AND CUTTING EDGE TYPE BUCKET

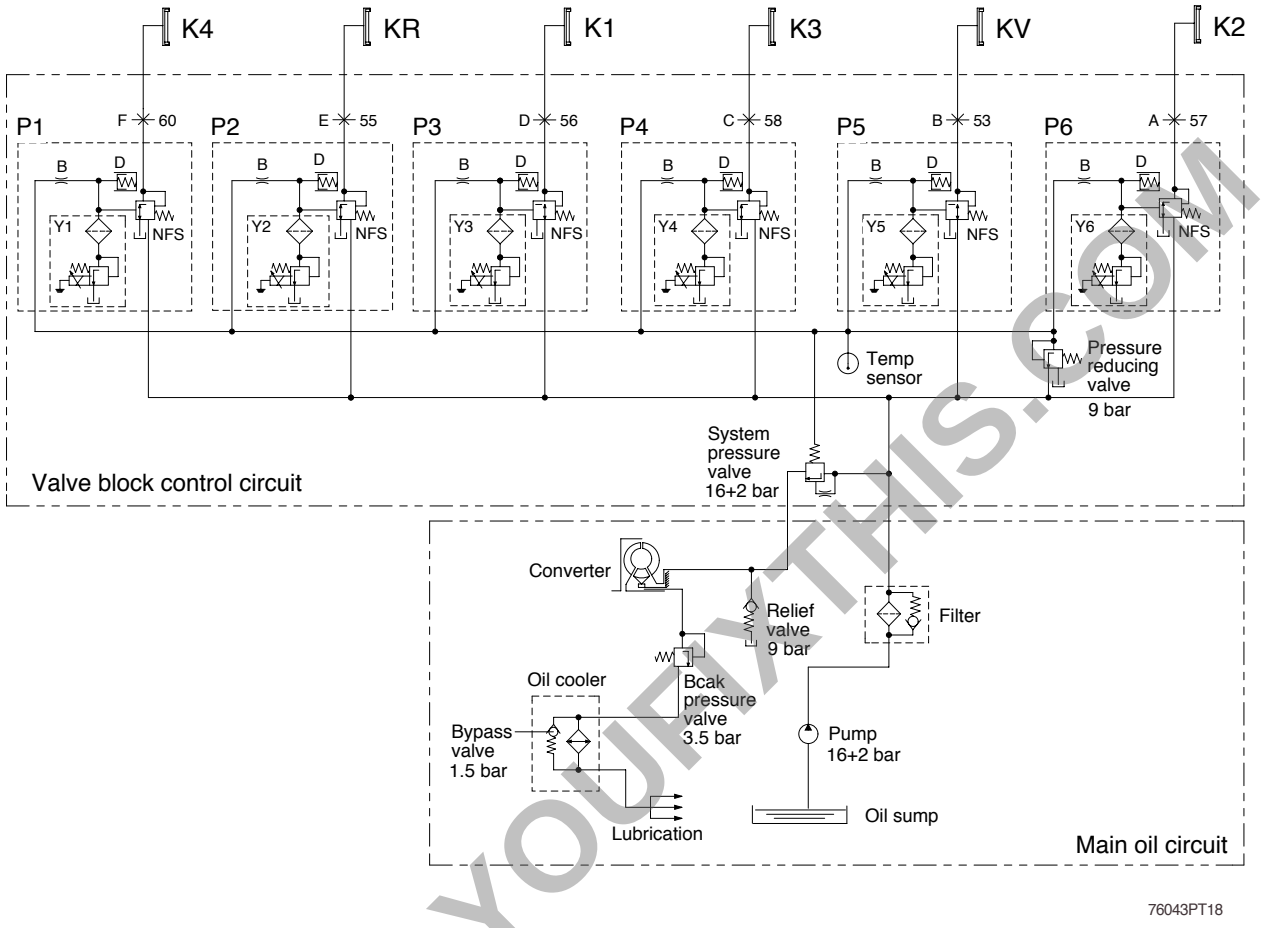


Description		Unit	Specification
Operating weight		kg(lb)	17660(38930)
Bucket capacity	Struck	$m^3(yd^3)$	2.6(3.4)
	Heaped		3.0(3.9)
Overall length	A	mm(ft-in)	7960(26' 1")
Overall width	B		2900(9' 6")
Overall height	C		3440(11' 3")
Ground clearance	D		420(1' 5")
Wheelbase	E		3300(10'10")
Tread	F		2160(7' 1")
Dump clearance at 45°	G		3075(10' 1")
Dump reach(Full lift)	H		1155(3'10")
Width over tires	I		2770(9' 1")
Dump angle	J	Degree (°)	47
Roll back angle(Carry position)	K		47
Cycle time	Lift(With load)	sec	6.2
	Dump(With load)		1.3
	Lower(Empty)		3.0
Maximum travel speed		km/hr(mph)	36.4(22.7)
Braking distance		m(ft-in)	11(36' 1")
Minimum turning radius(Center of outside tire)			5.73(18' 9")
Gradability		Degree (°)	30
Travel speed	Forward - First gear	km/hr(mph)	7.6(4.7)
	Forward - Second gear		12.8(8.0)
	Forward - Third gear		23.6(14.7)
	Forward - Fourth gear		36.4(22.7)
	Reverse - First gear		8.0(5.0)
	Reverse - Second gear		13.5(8.4)
	Reverse - Third gear		24.7(15.4)

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HYDRAULIC CIRCUIT



NFS	Follow-on slide	P3	Proportional valve clutch K1
D	Oscillation damper	P4	Proportional valve clutch K3
B	Orifice	P5	Proportional valve clutch KV
P1	Proportional valve clutch K4	P6	Proportional valve clutch K2
P2	Proportional valve clutch KR	Y1~Y6	Pressure regulator

Speed	Forward				Reverse			Neutral	Engaged clutch	Positions on the valve block	Current No. of the measuring points
	1	2	3	4	1	2	3				
Y1				X					K4	F	60
Y2					X	X	X		KR	E	55
Y3	X				X				K1	D	56
Y4			X	X			X		K3	C	58
Y5	X	X	X						KV	B	53
Y6		X							K2	A	57
Engaged clutch	K1,KV	KV,K2	K3,KV	K4,K3	KR,K1	KR,K2	KR, K3		-	-	-

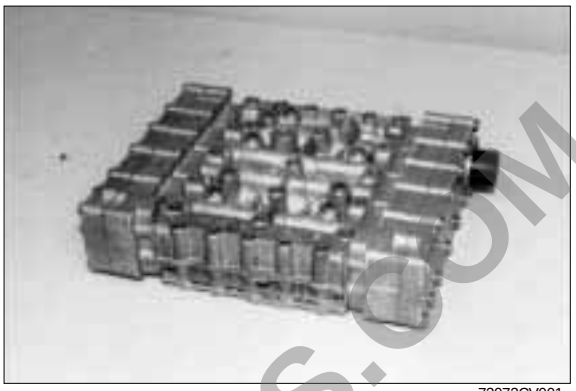
X : Pressure regulator under voltage

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1. CONTROL VALVE

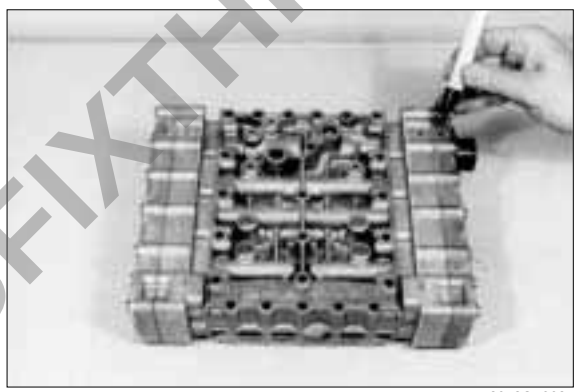
1) DISASSEMBLY

(1) Illustration on the right shows the complete control unit.



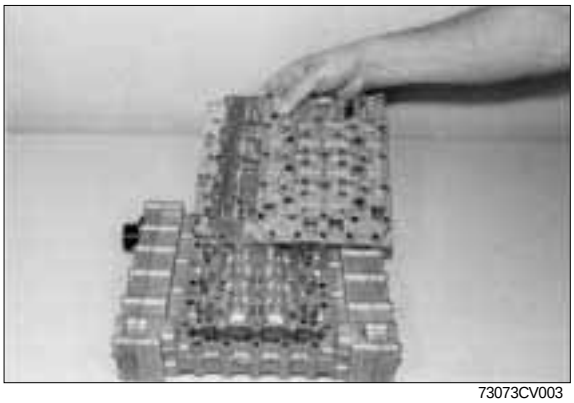
73073CV001

(2) Mark the installation position of the different covers, the housing and cable harness with the valve housing.



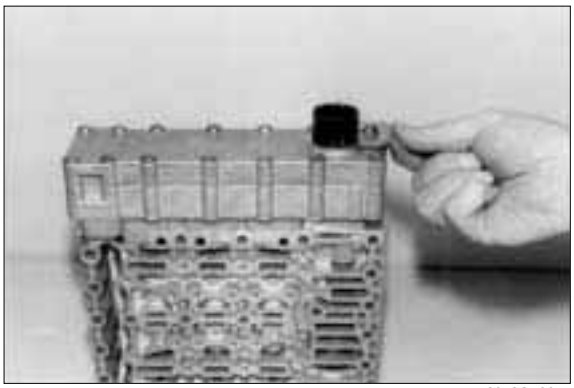
73073CV002

(3) Loosen socket head screws.
Separate duct plate, 1st gasket, intermediate plate and 2nd gasket from the valve housing.
Box spanner 5873 042 002



73073CV003

(4) Remove retaining clip.



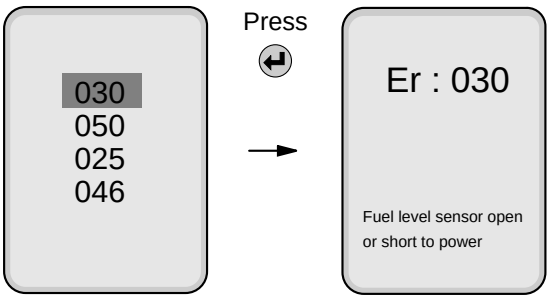
73073CV004

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(3) Machine fault codes

When selecting the fault code menu, it shows all of the fault codes which mean abnormal conditions of present time.



77073CD60

※ To go out from fault explanation window, press ▲ button.
(Press ↵ , M to go out to first menu.)

※ **No error** will be indicated in case that there's no fault.

Description	Code	Meaning	Remark
Electrical system	010	Power input voltage low	Below 18V
	011	Power input voltage high	Above 38V
	012	Alternator voltage low	Below 5V
	013	Alternator voltage high	Above 36V
	014	Buzzer circuit open or short to ground	
	015	Buzzer circuit short to power	
Hydraulic system	020	Hydraulic oil temperature sensor open or short to power	
	021	Hydraulic oil temperature sensor short to ground	
Engine system	030	Fuel level sensor open or short to power	
	031	Fuel level sensor short to ground	
	034	Cooling fan driving valve open or short to ground	
	035	Cooling fan driving valve short to power	
T/M system	050	Auto select switch supply power open or short to power	
	051	Auto select switch supply power short to ground	
	052	Clutch cutoff supply power open or short to power	
	053	Clutch cutoff supply power short to ground	
Steering system	060	Emergency steering relay open or short to ground	Option
	061	Emergency steering relay short to power	Option
Communication	070	MCU communication error	
	071	TCU communication error	
	072	ECM communication error	

MCU : Machine control unit TCU : Transmission control unit ECM : Engine control module

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5. TIGHTENING TORQUE OF MAJOR COMPONENT

No	Items		Size	kgf · m	lbf · ft
1	Engine	Engine mounting bolt(2EA)	M20×2.5	57.9±8.7	419±62.9
2		Engine mounting bolt(Bracket)	M12×1.75	10.7±1.6	77.4±11.6
3		Radiator mounting bolt	M16×2.0	29.7±4.5	215±32.5
4		Fuel tank mounting bolt	M16×2.0	29.7±4.5	215±32.5
5		Air cleaner mounting bolt	M10×1.5	6.9±1.4	50.0±10.1
6	Hydraulic system	Main pump housing mounting bolt	M12×1.75	12.8±3.0	92.6±21.7
7		Main control valve mounting bolt	M12×1.75	12.8±3.0	92.6±21.7
8		Steering unit mounting bolt	M10×1.5	6.9±1.4	49.9±10.1
9		Flow amplifier valve mounting bolt	M 8×1.25	2.5±0.5	18.1±3.6
10		Brake valve mounting bolt	M 8×1.25	2.5±0.5	18.1±3.6
11		Fan and brake pump mounting bolt	M10×1.5	6.9±1.4	49.9±10.1
12		Cut-off valve mounting bolt	M12×1.75	12.8±3.0	92.6±21.7
13		Remote control lever mounting bolt	M 6×1.0	1.1±0.2	8.0±1.4
14		Pilot supply unit mounting bolt	M 8×1.25	2.5±0.5	18.1±3.6
15		Safety valve	M 8×1.25	2.5±0.5	18.1±3.6
16		Hydraulic oil tank mounting bolt	M16×2.0	29.7±4.5	215±32.5
17	Power train system	Transmission mounting bolt	M24×3.0	100±15	723±109
18		Transmission mounting bolt(Bracket)	M20×2.5	46.3±7.0	335±50.6
19		Torque converter housing mounting bolt	M10×1.5	4.6±0.7	33.3±5.1
20		Front axle mounting bolt, nut	M24×2.0	100±15	723±109
21		Rear axle support mounting bolt, nut	M36×3.0	308±46.2	2228±334
22		Tire mounting nut	M22×1.5	61±2.0	441±14.5
23		Drive shaft joint mounting bolt	1/2-20UNF	15.5±0.5	112±3.6
24	Others	Counterweight mounting bolt	M30×2.0	199±29.9	1439±216
25		Operator's seat mounting bolt	M 8×1.25	3.4±0.8	24.6±5
26		ROPS Cab mounting bolt(4EA)	M27×2.0	124	900

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2. TROUBLESHOOTING

1) TRANSMISSION

※ **Diagnose malfunction charts are arranged from most probable and simplest to verify, to least likely, more difficult to verify. Remember the following steps when troubleshooting a problem :**

Step 1. Operational check out procedure(See group 3 in section 1.)
Step 2. Operational checks(In this group.)
Step 3. Troubleshooting
Step 4. Tests and/or adjustments(See group 3.)

Problem	Cause	Remedy
Transmission slippage	Low oil level.	Add oil.
	Wrong oil grade.	Change oil.
	Restricted transmission pump suction screen.	Remove and clean screen.
	Leak in transmission control valve or gasket.	Remove valve and inspect gaskets.
	Low transmission pump flow due to worn pump.	Do transmission pump flow test.
	Weak or broken pressure regulating valve spring.	Do transmission system pressure test.
Error code on display	Something wrong in transmission.	Go to transmission error code group at page 3-25~3-53.

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Fault code (Hex)	Int. code (Dec)	Meaning of the fault code possible reason for fault detection	Reaction of the TCU	Possible steps to repair	Remarks
F1	51	**General EEPROM fault** TCU can't read non volatile memory • TCU is defective	No reaction OP mode : Normal	• Replace TCU	Often shown together with fault code F2
F2	56	**Configuration lost** TCU has lost the correct configuration and can't control the transmission • Interference during saving data on non volatile memory • TCU is brand new or from another vehicle	Transmission stay neutral OP mode : TCU shutdown	• Reprogram the correct configuration for the vehicle (e.g. with cluster controller,...)	
F3	59	**Application error** Something of this application is wrong	Transmission stay neutral OP mode : TCU shutdown	• Replace TCU	This fault occurs only if an test engineer did something wrong in the application of the vehicle
F5	173	**Clutch failure** AEB was not able to adjust clutch filling parameters • One of the AEB-Values is out of limit	Transmission stay neutral OP mode : TCU shutdown	• Check clutch	TCU shows also the affected clutch on the display
F6	174	**Clutch adjustment data lost** TCU was not able to read correct clutch adjustment parameters • Interference during saving data on non volatile memory • TCU is brand new	No reaction, Default values : 0 for AEB Offsets used OP mode : Normal	• Execute AEB	

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CONTENTS

SECTION 1 GENERAL

Group 1 Safety Hints ---------- 1-1
Group 2 Specifications ---------- 1-10
Group 3 Operational Checkout Record Sheet ---------- 1-22

SECTION 2 ENGINE

Group 1 Structure and Function ---------- 2-1

SECTION 3 POWER TRAIN SYSTEM

Group 1 Structure and Function ---------- 3-1
Group 2 Operational Checks and Troubleshooting ---------- 3-66
Group 3 Test and Adjustments ---------- 3-77
Group 4 Disassembly and Assembly ---------- 3-80

SECTION 4 BRAKE SYSTEM

Group 1 Structure and Function ---------- 4-1
Group 2 Operational Checks and Troubleshooting ---------- 4-24
Group 3 Tests and Adjustments ---------- 4-32
Group 4 Disassembly and Assembly ---------- 4-34

SECTION 5 STEERING SYSTEM

Group 1 Structure and Function ---------- 5-1
Group 2 Operational Checks and Troubleshooting ---------- 5-15
Group 3 Tests and Adjustments ---------- 5-23
Group 4 Disassembly and Assembly ---------- 5-30

SECTION 6 WORK EQUIPMENT

Group 1 Structure and Function ---------- 6-1
Group 2 Operational Checks and Troubleshooting ---------- 6-35
Group 3 Tests and Adjustments ---------- 6-46
Group 4 Disassembly and Assembly ---------- 6-62

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GROUP 1 SAFETY HINTS

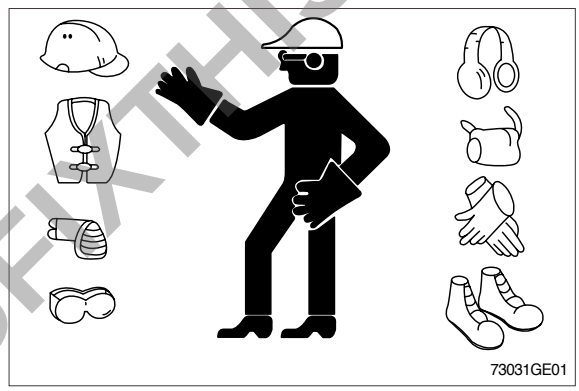
FOLLOW SAFE PROCEDURE

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



WEAR PROTECTIVE CLOTHING

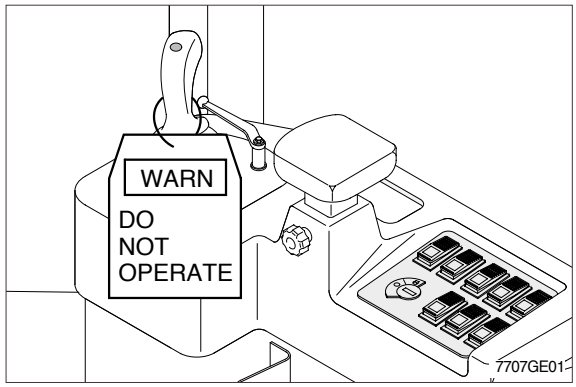
Wear close fitting clothing and safety equipment appropriate to the job.



WARN OTHERS OF SERVICE WORK

Unexpected machine movement can cause serious injury.

Before performing any work on the wheel loader, attach a 「**Do Not Operate**」 tag on the right side controller lever.

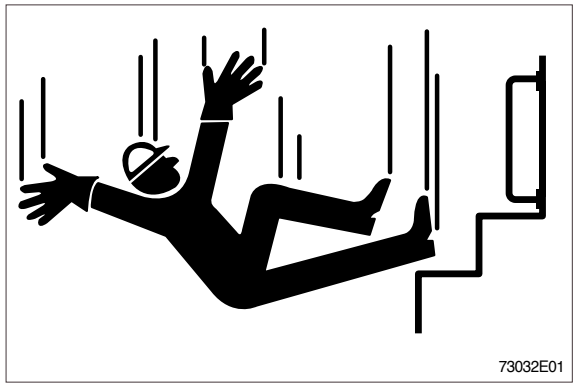


USE HANDHOLDS AND STEPS

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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(4) Engine fault code information

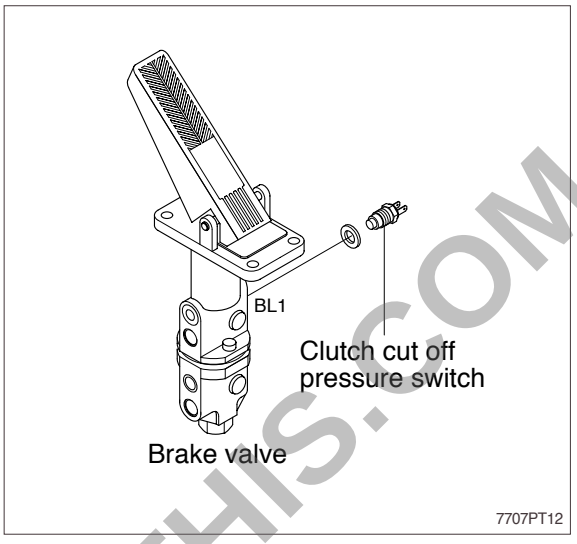
Fault code No.	Reason	Effect(only when fault code is active)
111	ECM internal hardware error.	Possible no effect or engine may run rough or not start.
115	No engine speed or position signal detected at pin 17 of the engine harness.	Engine power derate. Possible white smoke.
121	No engine speed or position signal detected at pin 9 of the engine harness	No engine speed and position backup for main speed/position sensor.
122	High voltage detected at the boost pressure sensor signal pin 45 of the engine harness.	Engine will derate to no-boost fueling.
123	Low voltage detected at boost pressure sensor signal pin 45 of the engine harness.	Engine will derate to no-boost fueling.
131	High voltage detected at throttle position signal pin 30 of the machine harness.	Engine idles when idle validation switch indicates idle and ramps up to a default set speed when the idle validation switch indicates off-idle.
132	Low voltage detected at throttle position signal pin 30 of the machine harness.	Engine idles when idle validation switch indicates idle and ramps up to a default set speed when the idle validation switch indicates off-idle.
133	High voltage detected at remote throttle position signal pin 9 of the machine harness.	Engine will **not** respond to remote throttle input.
134	Low voltage detected at remote throttle position signal pin 9 of the machine harness.	Engine will **not** respond to remote throttle input.
135	High voltage detected at oil pressure signal pin 33 of the engine harness.	Default value used for oil pressure. No engine protection for oil pressure.
141	Low voltage detected at oil pressure signal pin 33 of the engine harness.	Default value used for oil pressure. No engine protection for oil pressure.
143	Oil pressure signal indicates oil pressure below the low engine protection limit.	Power and/or speed derate and possible engine shutdown if engine protection shutdown feature is enabled.
144	High voltage detected at coolant temperature signal pin 23 of the engine harness.	Default value used for coolant temperature. No engine protection for coolant temperature.
145	Low voltage detected at coolant temperature signal pin 23 of the engine harness.	Default value used for coolant temperature. No engine protection for coolant temperature.
146	Coolant temperature signal indicates coolant temperature has exceeded the minimum engine protection limit.	Power derate and possible engine shutdown feature is enabled.
151	Coolant temperature signal indicates coolant temperature has exceeded the maximum engine protection limit.	Speed derate and possible engine shutdown if engine protection shutdown feature is enabled.
153	High voltage detected at intake manifold temperature signal pin 34 of the engine harness.	Default value used for intake manifold temperature. No engine protection for intake manifold temperature.
154	Low voltage detected at intake manifold temperature signal pin 34 of the engine harness.	Default value used for intake manifold temperature. No engine protection for intake manifold temperature.
155	Intake manifold air temperature signal indicates intake manifold air temperature is above the maximum engine protection limit.	Speed derate and possible engine shutdown if engine protection shutdown feature is enabled.
191	Air conditioner clutch driver signal indicates a short to ground when commanded on.	Air conditioner clutch will **not** operate.
211	Machine specific fault code has occurred.	No effect on engine performance.
221	High voltage detected at ambient air pressure signal pin 32 of the engine harness.	Engine power derate.
234	Engine speed signal indicates engine speed has exceeded the overspeed limit.	Fuel to injectors disabled until engine speed falls below the overspeed limit.
235	Coolant level signal at pin 37 of the engine harness indicates coolant level is low.	Power and/or speed derate and possible engine shutdown if engine protection shutdown feature is enabled.

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1. CLUTCH CUT-OFF PRESSURE SWITCH TEST

The setting pressure of the clutch cut-off pressure switch should be suited with the specification. The rated pressure is 25kgf/cm^2.
For the detailed method for pressure adjusting, refer to page 4-22.



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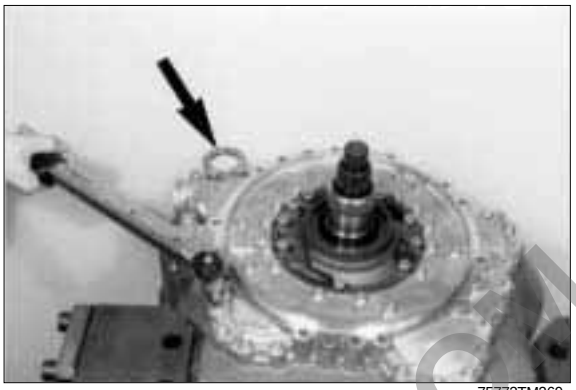
⑧ Fasten oil feed housing by means of socket head screws and hexagon head screws(2 pieces).

· Torque limit

- Socket head screw : 2.3kgf · m (16.6bf · ft)
- Hexagon head screw : 4.7kgf · m (33.9bf · ft)

※ Pay attention to the position of the fixing plate, see Arrow.

Box spanner(Torx, TX-40) 5873 042 004



75773TM269

(12) Engine connection-Converter

① Fasten converter bell by means of hexagon head screws.

· Torque limit(M10/10.9) : 6.9kgf · m (50.1bf · ft)



75773TM270

② Screw drive shaft and diaphragm together.

· Torque limit(M12/10.9) : 11.7kgf · m (84.8bf · ft)

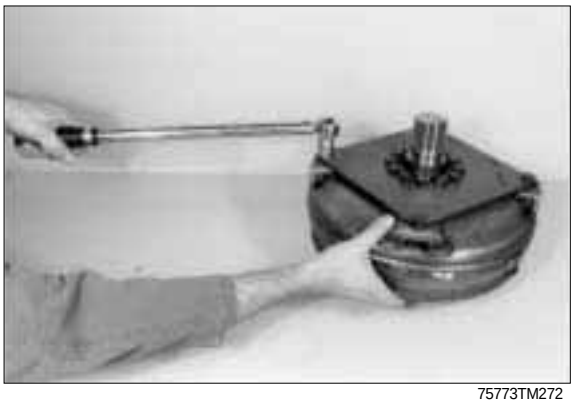


75773TM271

③ Fasten diaphragm by means of hexagon head screws on the converter.

· Torque limit(M12/10.9) : 11.7kgf · m (84.8bf · ft)

※ Insert hexagon head screws with loctite (Type No.262).



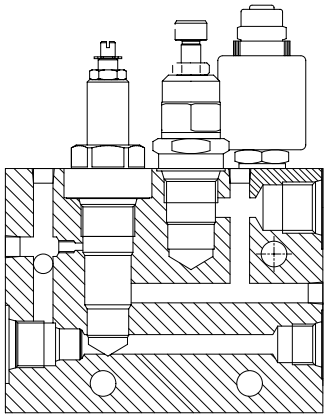
75773TM272

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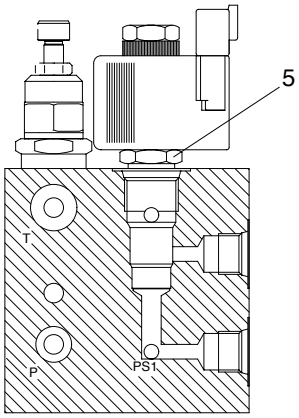
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5. CUT-OFF VALVE

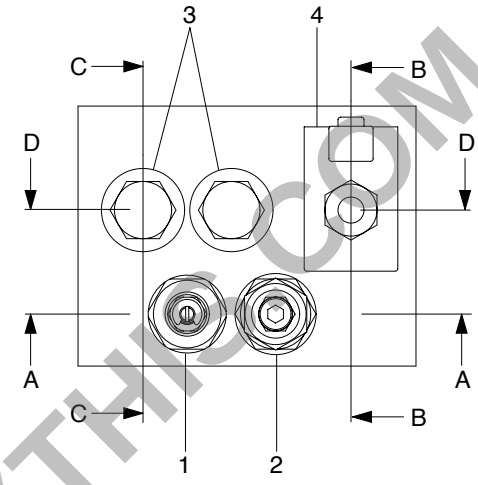
1) STRUCTURE

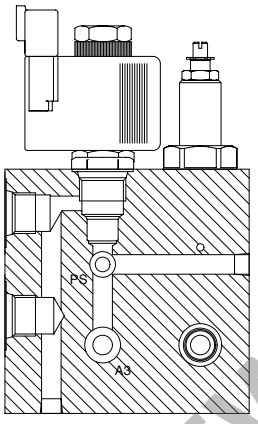


SECTION A - A

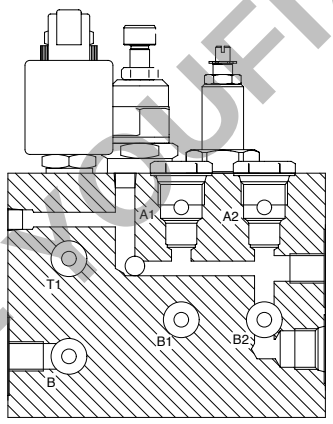


SECTION B - B



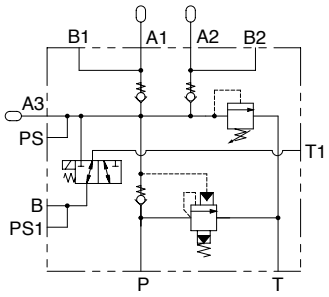


SECTION C - C



SECTION D - D

HYDRAULIC SYMBOL



7707BS06

1 Cut-off valve
2 Relief valve
3 Check valve
4 Coil
5 Solenoid valve

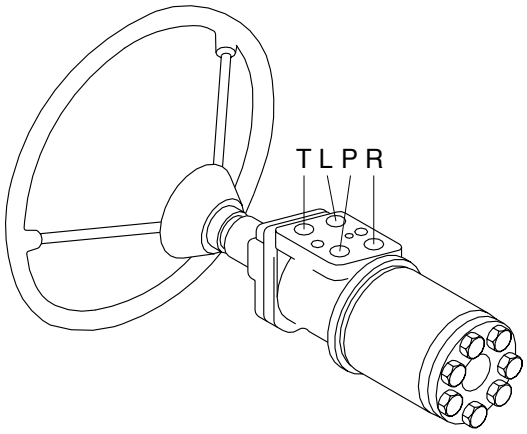
2) OPERATION

When the pump works, the oil under the pressure flows into P port.
The oil in P port is stored in the accumulator on A3 port.
As the pressure on P line rises to 150bar, the cut off valve(1) starts cut-offing and the oil in the P port is unloaded. The pressure on P line goes down 120bar by the minute leakage from valve and other factors.
At this pressure, the cut-off valve starts cut-ining.
This process is repeated in the regular period of 30~40 seconds.

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3) TIGHTENING TORQUE AND HYDRAULIC CONNECTIONS

(1) Hydraulic connections



L : Left port
R : Right port
T : Tank
P : Pump

(780-3A) 5-71

(2) Tightening torque

Screwed connection	Max. tightening torque [kgf · m(lbf · ft)]			
	With cutting edge	With copper washer	With aluminum washer	With O - ring
1/4 BSP.F	4.1(29.7)	2.0(14.5)	3.1(22.4)	-
3/8 BSP.F	6.1(44.1)	2.0(14.5)	5.1(36.9)	-
1/2 BSP.F	10.2(73.8)	3.1(22.4)	8.2(59.3)	-
7/16-20 UNF	-	2.0(14.5)	-	-
3/4-16 UNF	-	6.1(44.1)	-	-
M 12×1.5	4.1(29.7)	2.0(14.5)	3.1(22.4)	2.0(14.5)
M 18×1.5	7.1(51.4)	2.0(14.5)	5.1(36.9)	5.1(36.9)
M 22×1.5	10.2(73.8)	3.1(22.4)	8.2(59.3)	7.1(51.4)

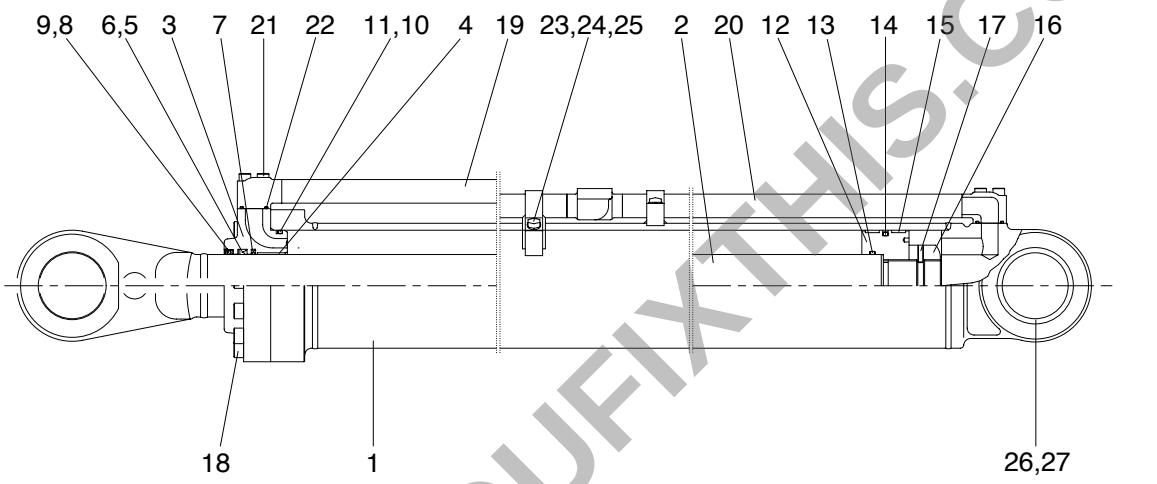
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8. BOOM AND BUCKET CYLINDER

The boom cylinders are two unit and the bucket cylinder is one unit. They use a bolt on rod guide.
The piston(12) threads on to the rod(2) and is retained by a nut(16) and set screw(17).
The piston seals against the tube(1) with piston seal(14). Two wear rings(15) are located on each side of the piston seal.
The gland(3, the rod guide) seals against the tube with an O-ring(10). The cylinder thread seals against the rod with a lip type buffer ring(7) and a rod seal(5). A dust wiper(8) cleans the rod when it is retracted.

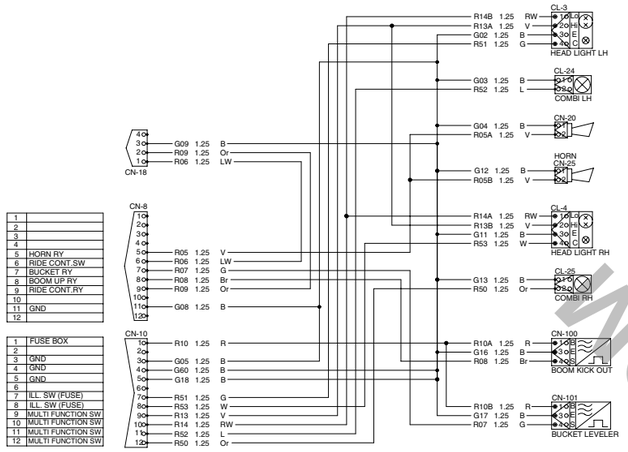
1) BOOM CYLINDER



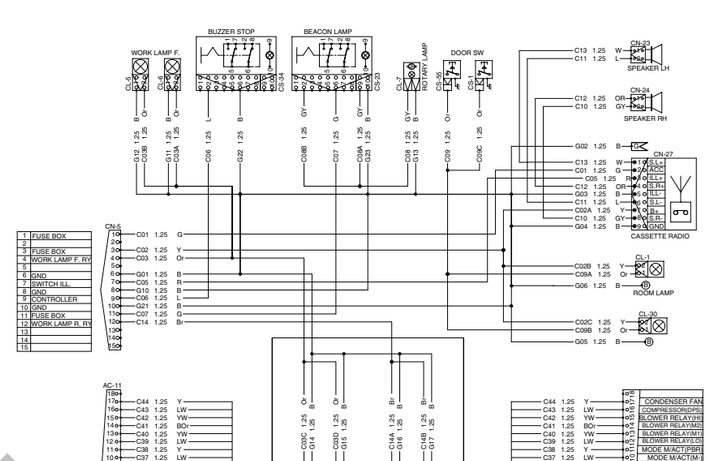
1	Tube assembly	11	Back up ring	20	Pipe assembly
2	Rod assembly	12	Piston	21	Bolt
3	Gland	13	O-ring	22	O-ring
4	Bushing	14	Piston seal	23	Spring washer
5	Rod seal	15	Wear ring	24	Bolt
6	Back up ring	16	Piston nut	25	Pipe clamp
7	Buffer ring	17	Set screw	26	Bushing
8	Dust wiper	18	Bolt	27	Dust seal
9	Snap ring	19	Pipe assembly		
10	O-ring				

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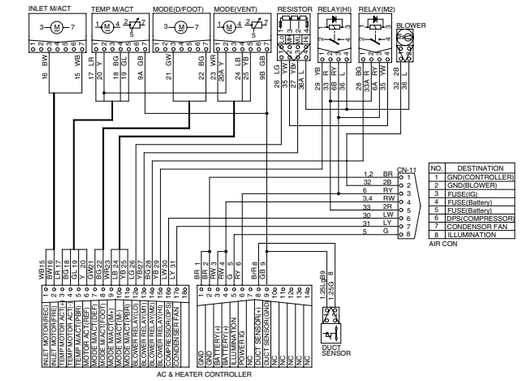
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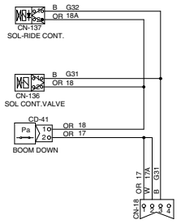
FRONT HARNESS



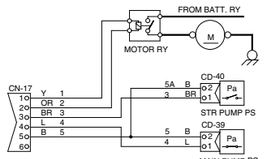
CABIN HARNESS



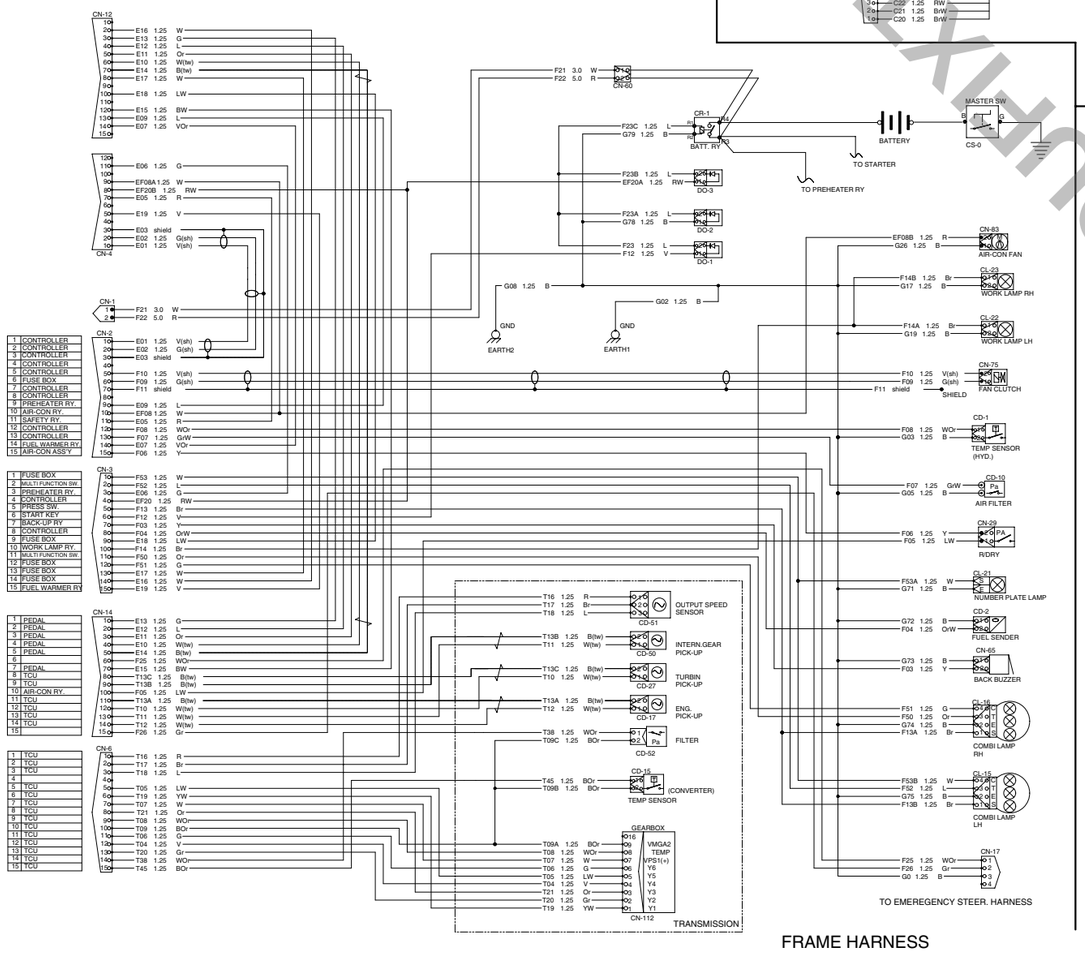
AIR-CON HARNESS



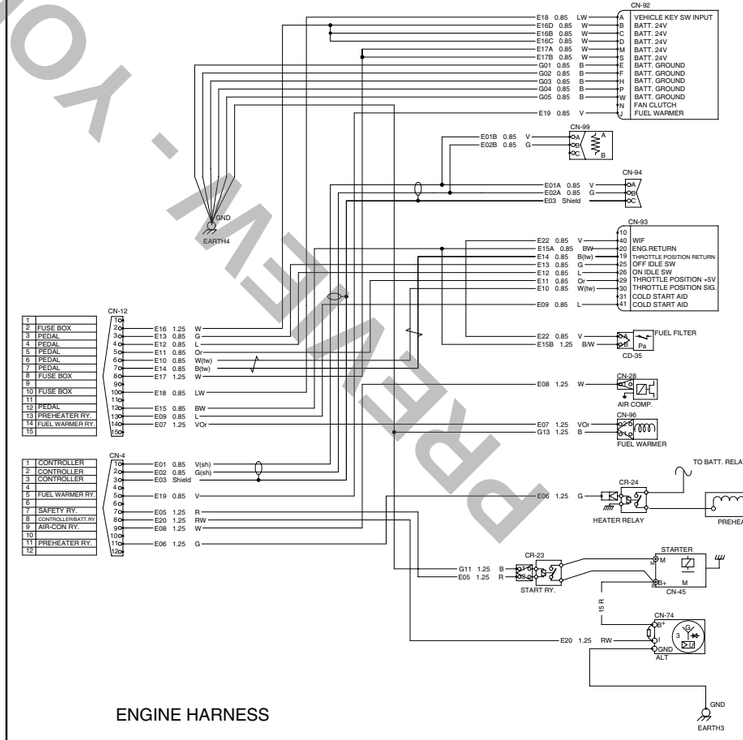
RIDE CONTROL HARNESS



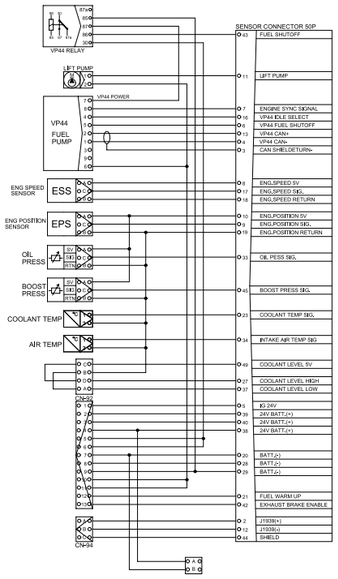
EMERGENCY HARNESS



FRAME HARNESS



ENGINE HARNESS



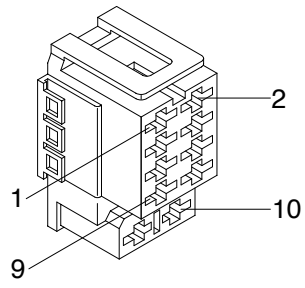
ENGINE(CUMMINS) HARNESS

7607EL01

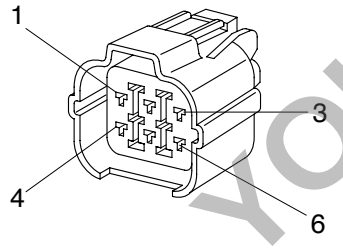
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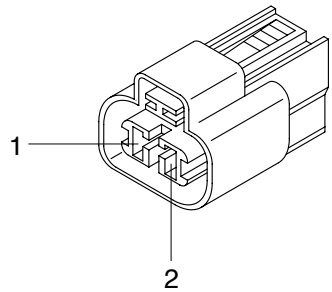
6) ITT SWF CONNECTOR

No. of pin	Receptacle connector(Female)	Plug connector(Male)
10	 SWF593757	

7) HW090 SEALED CONNECTOR

No. of pin	Receptacle connector(Female)	Plug connector(Male)
6	 6189-0133	

8) MWP02F-B CONNECTOR

No. of pin	Receptacle connector(Female)	Plug connector(Male)
2	 PH805-02028	

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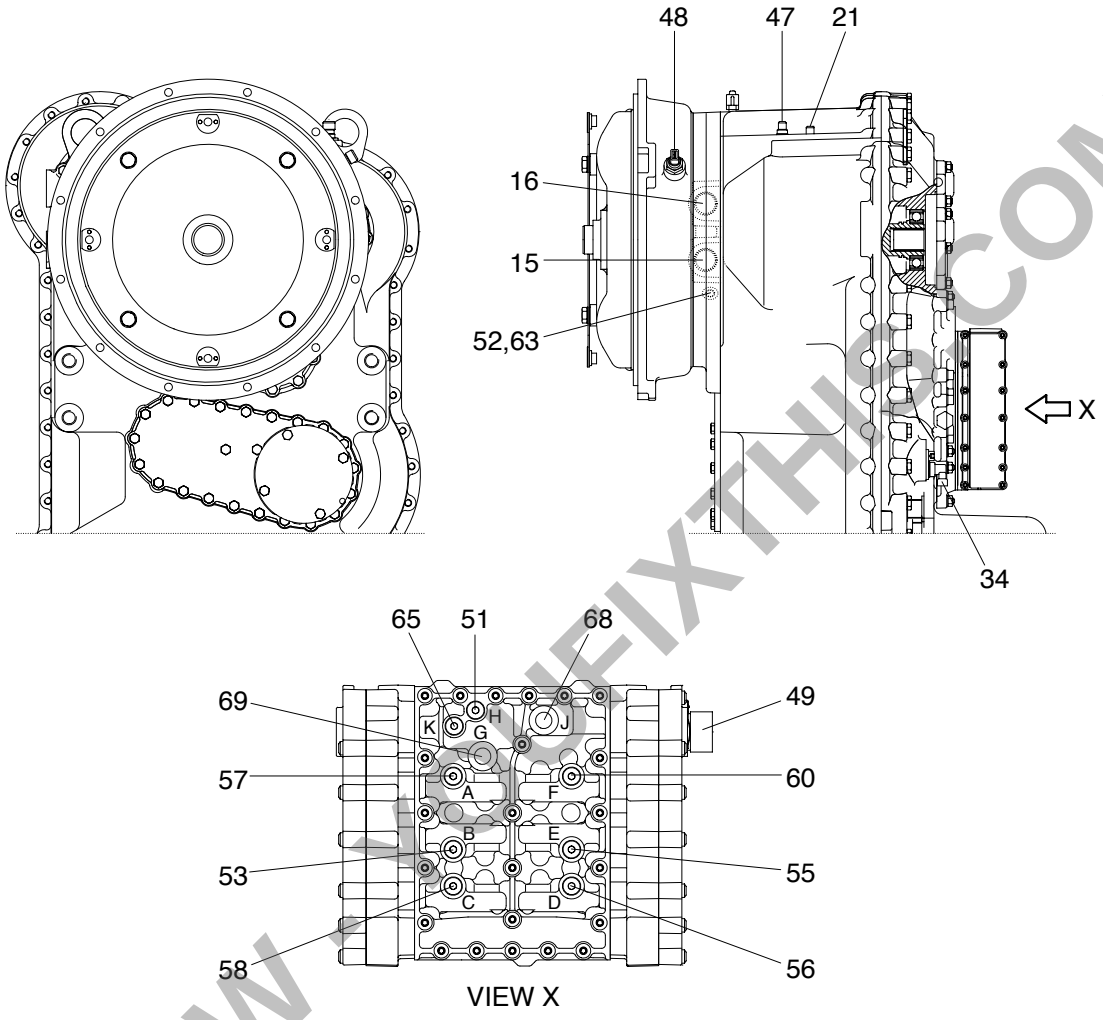
Fault code No.	Reason	Effect(only when fault code is active)
241	Vehicle speed signal on pins 8 and 18 of the machine harness has been lost.	EEngine speed limited to "Max. Engine Speed without VSS". Cruise control, gear-down protection and the road speed governor will **not** work. Trip information data that is based on mileage will be incorrect.
242	Possible tampering has been detected on the vehicle speed circuit pins 8 and 18 of the machine harness	Engine speed limited to " Max. Engine Speed without VSS". Cruise control, gear-down protection and the road speed governor will **not** work. Trip information data that is based on mileage will be incorrect.
243	Error detected in the exhaust brake relay enable circuit at pin 42 of the engine harness.	Exhaust brake will **not** work.
245	Error detected in fan clutch relay enable circuit at pin 41 of the engine harness.	Electronic control; module(ECM) can **not** control the engine cooling fan. Fan will remain on or off.
263	High voltage detected at the fuel temperature sensor signal pin 35 of the engine harness.	Default value used for fuel temperature. Possible low power.
261	Fuel pump control module indicates the fuel temperature has exceeded the pump protection limit.	Power derate.
264	High or low voltage detected at the fuel temperature sensor signal circuit inside the pump controller.	Default value used for fuel temperature. Possible low power.
283	High voltage detected at main engine speed/position sensor voltage supply pin 8 of the engine harness.	ECM will use the engine position signal as a backup. Possible white smoke and power loss.
284	Low voltage detected at main engine speed/ position sensor voltage supply pin 8 of the engine harness.	ECM will use the engine position signal as a backup. Possible white smoke and power loss.
285	The ECM expected information from a multiplexed device but did not receive it soon enough or did not receive it at all.	At least one multiplexed device will not operate properly.
286	The ECM expected info from a multiplexed device but only received a portion of the necessary information	At least on multiplexed device will not operate properly.
287	The machine vehicle electronic control unit (VECU) detected a fault with its throttle pedal.	The engine will only idle.
288	The machine vehicle electronic control unit (VECU) detected a fault with its remote throttle.	The engine will not respond to the remote throttle.
297	High voltage detected at machine pressure signal pin 48 of the machine harness.	Default value used for machine pressure. Lose ability to control machine pressure.
298	Low voltage detected at machine pressure signal pin 48 of the machine harness.	Default value used for machine pressure. Lose ability to control machine pressure.
299	Engine shutdown by device other than key switch before proper engine cool down resulting in filtered load factor above maximum shutdown threshold.	No action taken by the ECM.
319	Power to the real time clock has been interrupted and its setting is no longer valid	Time stamp in ECM powerdown data will be incorrect.
349	Auxiliary speed signal frequency indicates the frequency is above a calibrated threshold value.	Engine will go to idle and lose ability to control speed of the auxiliary device.
352	Low voltage detected at engine position sensor +5 VDC supply, pin 10 of the engine harness.	Default value used for sensors connected to this +5 VDC supply. Engine will derate to no-boost fueling and loss of engine protection for oil pressure, intake manifold pressure, and ambient air pressure.

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2. TRANSMISSION MEASURING POINTS AND CONNECTIONS

The measurements have to be carried out at hot transmission(About 80~95。C).



7607PT14

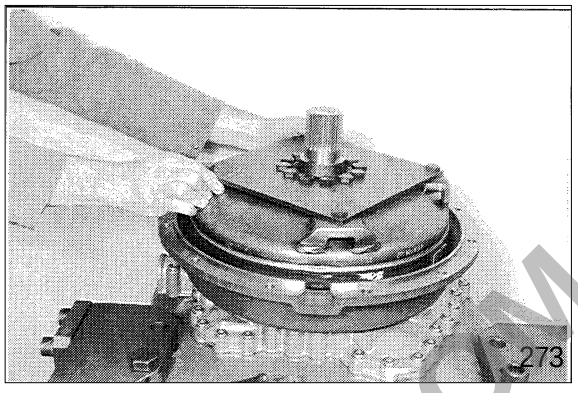
1) OIL PRESSURE AND TEMPERATURE

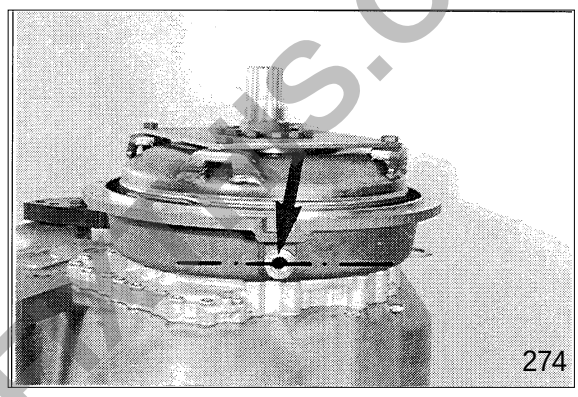
Port	Description			Size
51	Converter inlet-opening pressure(9bar)		H	M10×1.0
52	Converter outlet-opening pressure(3.5bar)			M14×1.5
53	Forward clutch(16+2bar)	KV	B	M10×1.0
55	Reverse clutch(16+2bar)	KR	F	M10×1.0
56	1st clutch(16+2bar)	K1	D	M10×1.0
57	2nd clutch(16+2bar)	K2	A	M10×1.0
58	3rd clutch(16+2bar)	K3	C	M10×1.0
60	4th clutch(16+2barr)	K4	E	M10×1.0
63	Converter outlet temperature 100。C, short-time 120。C			M14×1.5
65	System pressure(16+2bar)		K	M10×1.0

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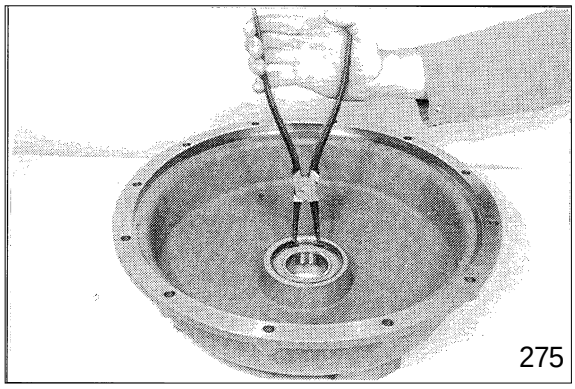
④ Introduce converter until contact is obtained.

※ Pulse disk of the converter must be positioned centrally to the bore of the inductive transmitter, see Arrow.
Only in this way will be ensured that the converter is perfectly introduced.


273

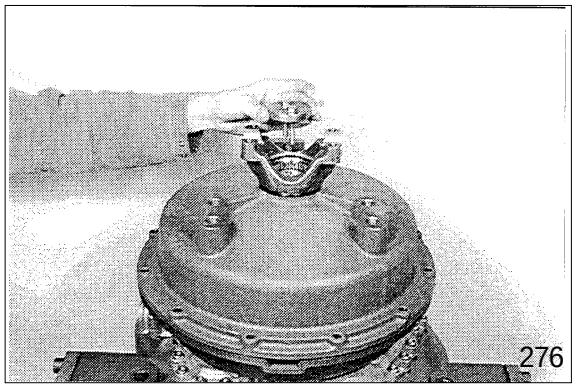

274

⑤ Insert ball bearing until contact is obtained and fix it by means of circlip.


275

⑥ Assemble housing cover.
Install drive flange, lay on disk an pull cover by means of hexagon head screws evenly against shoulder.
· Torque limit(M8/10.9) : 3.5kgf · m
(25.1bf · ft)

※ Pay attention to the radial installation position of the cover, see figure.

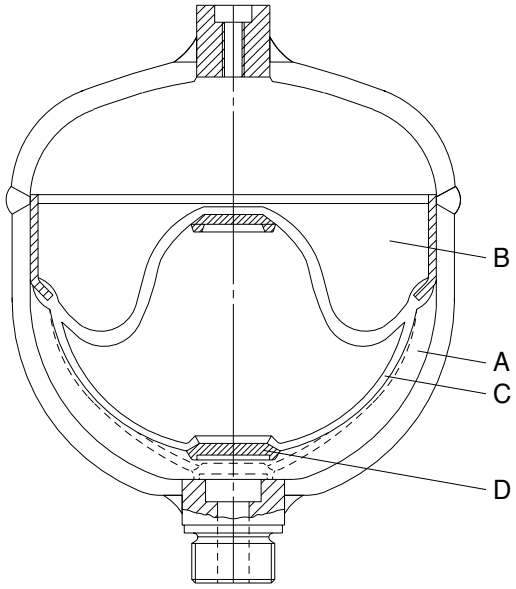

276

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6. BRAKE ACCUMULATOR

1) STRUCTURE



(770-3ATM) 4-22

Item	81L1-0004 (Item16)	81L1-0003 (Item17)
Diameter	121mm	136mm
Mounting height	146mm	160mm
Norminal volume	0.75m^3	1.0m^3
Priming pressure	50kgf/cm^2	50kgf/cm^2
Operating medium	Oil	Oil
Operating pressure	Max 210kgf/cm^2	Max 200kgf/cm^2
Thread	M18×1.5	M18×1.5
Priming gas	Nitrogen	Nitrogen

A Fluid portion C Diaphragm
B Gas portion D Valve disk

2) OPERATION

(1) Purpose

Fluids are practically incompressible and are thus incapable of accumulating pressure energy. In hydropneumatic accumulators, the compressibility of a gas is utilized to accumulate fluid. The compressible medium used in the accumulators is nitrogen.

In braking systems, the purpose of the accumulators is to store the energy supplied by the hydraulic pump. They are also used as an energy reserve when the pump is not working, as a compensator for any losses through leakage, and as oscillation dampers.

(2) Operation

The accumulator consists of a fluid portion (A) and a gas portion (B) with a diaphragm (C) as a gas-tight dividing element. The fluid portion (A) is connected to the hydraulic circuit, causing the diaphragm accumulator to be filled and the gas volume to be compressed as the pressure rises.

When the pressure falls, the compressed gas volume will expand, thus displacing the accumulated pressure fluid into the circuit.

The diaphragm bottom contains a valve disk (D) which, if the diaphragm accumulator is completely empty, closes the hydraulic outlet, thus preventing damage to the diaphragm.

(3) Installation requirements

The accumulators can be fitted in the hydraulic circuit, directly on a component or in blocks on suitable consoles.

They should be fitted in as cool a location as possible.

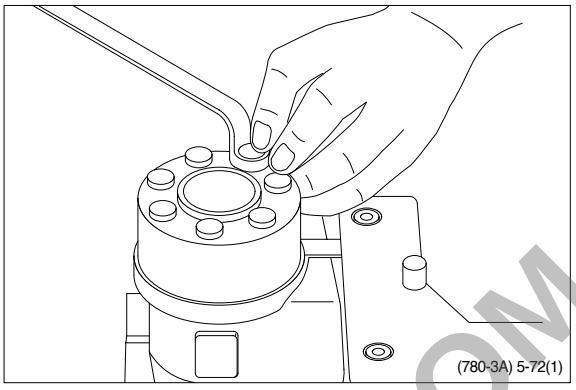
Installation can be in any position.

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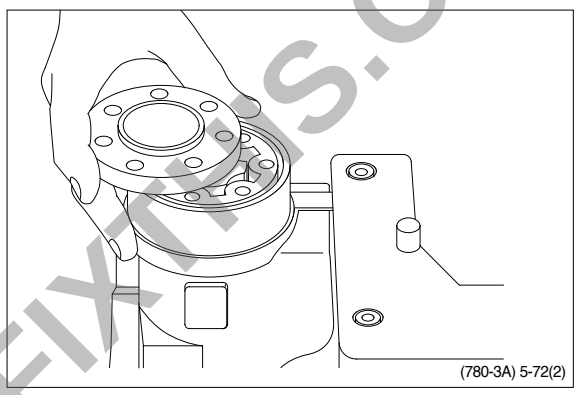
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4) DISASSEMBLY

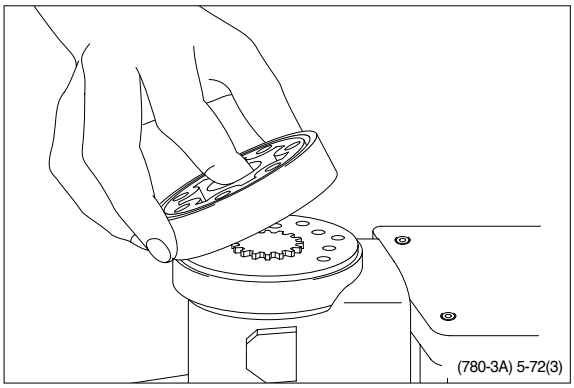
(1) Disassemble steering column from steering unit and place the steering unit in the holding tool.
Screw out the screws in the end cover(6-off plus one special screw).


(780-3A) 5-72(1)

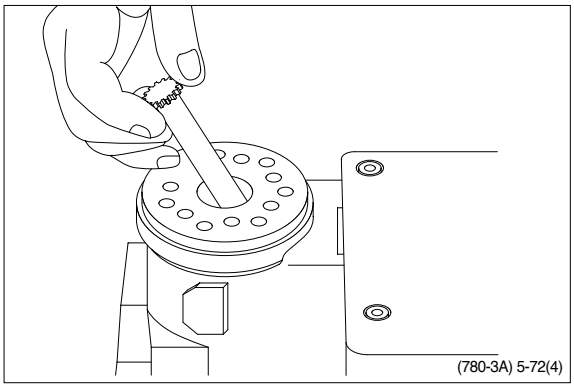
(2) Remove the end cover, sideways.


(780-3A) 5-72(2)

(3) Lift the gearwheel set (With spacer if fitted) off the unit.
Take out the two O-rings.


(780-3A) 5-72(3)

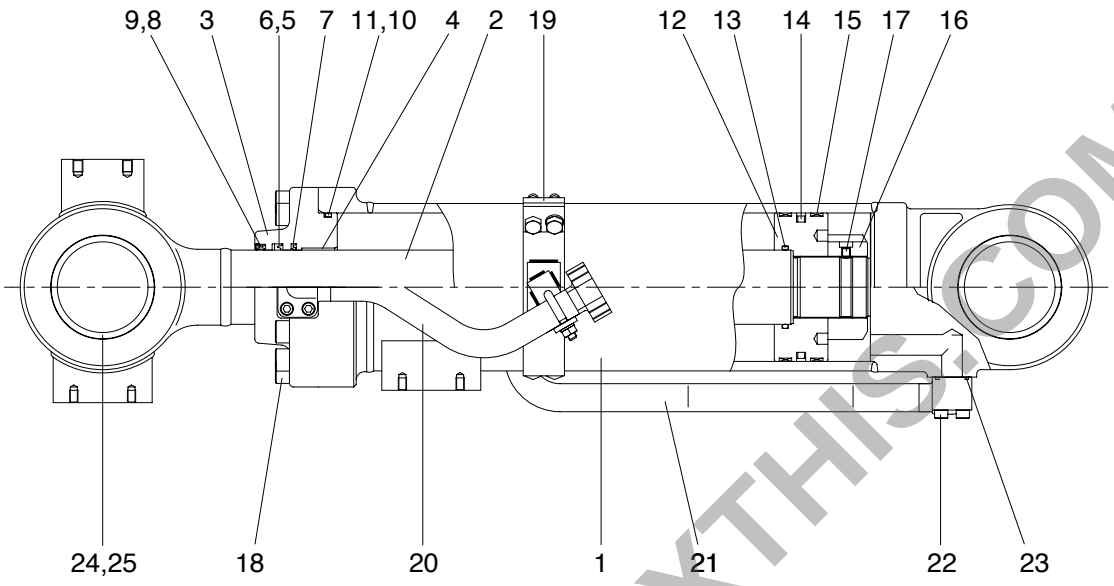
(4) Remove cardan shaft.


(780-3A) 5-72(4)

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2) BUCKET CYLINDER



7607WE27

1	Tube assembly	10	O-ring	18	Bolt
2	Rod assembly	11	Back up ring	19	Band assembly
3	Gland	12	Piston	20	Pipe assembly
4	Bushing	13	O-ring	21	Pipe assembly
5	Rod seal	14	Piston seal	22	Bolt
6	Back up ring	15	Wear ring	23	O-ring
7	Buffer ring	16	Piston nut	24	Bushing
8	Dust wiper	17	Set screw	25	Dust seal
9	Snap ring				

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1. ILLUMINATION CIRCUIT

1) OPERATING FLOW

Fuse box (No.2) → Illumination switch [CS-39(1)] → Switch ON, 1st step

- I/conn [CS-39(7)] → All switch indicator lamp ON
- I/conn [CS-39(5)] → Fuse box(27)
  - I/conn [CN-3(12)] → RH Combi clearance lamp ON [CL-16(4)]
  - I/conn [CN-10(7)] → LH Head lamp ON [CL-3(4)]
  - I/conn [CN-12(10)]
    - Cluster [CN-51(17)] → All cluster gauge and LCD lamp ON
    - Hazard switch indicator lamp ON
- Fuse box(28)
  - I/conn [CN-3(1)
    - Number plate lamp ON [CL-21(S)]
    - LH Combi clearance lamp ON [CL-15(4)]
  - I/conn [CN-10(8)] → RH Head lamp ON [CL-4(4)]

2) CHECK POINT

Engine	Key switch	Check point	Voltage
OFF	ON	① - GND (Switch input) ② - GND (Switch output) ③ - GND (To light) ④ - GND (To cluster)	20~25V

※ GND : Ground

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