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SAFETY

SAFETY NOTICE

IMPORTANT SAFETY NOTICE

Proper service and repair is extremely important for safe machine operation. The service and repair techniques recommended by Komatsu and described in this manual are both effective and safe. Some of these techniques require the use of tools specially designed by Komatsu for the specific purpose.

To prevent injury to workers, the symbol  is used to mark safety precautions in this manual. The cautions accompanying these symbols should always be followed carefully. If any dangerous situation arises or may possibly arise, first consider safety, and take the necessary actions to deal with the situation.

GENERAL PRECAUTIONS

Mistakes in operation are extremely dangerous. Read the Operation and Maintenance Manual carefully BEFORE operating the machine.

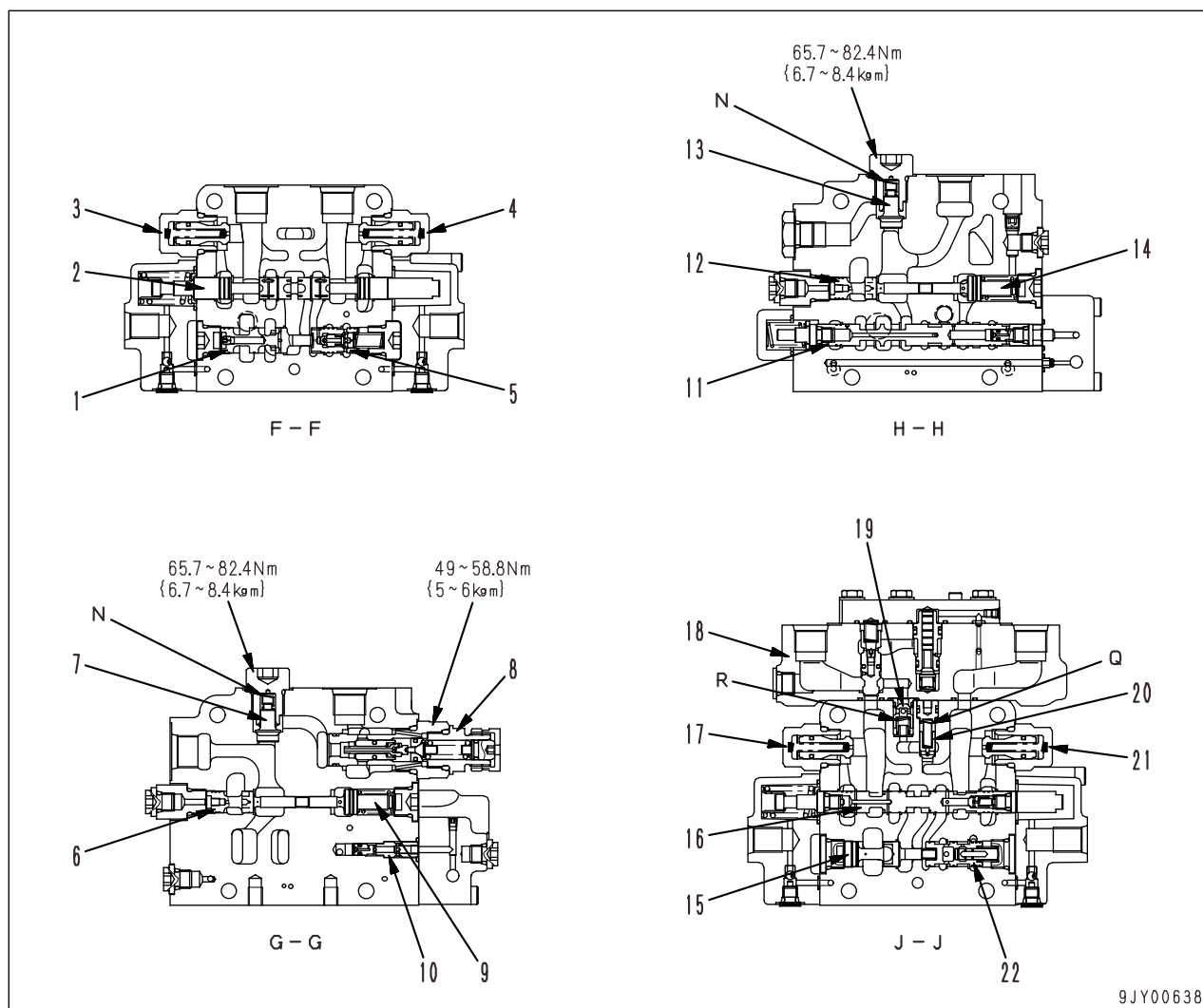
1. Before carrying out any greasing or repairs, read all the precautions given on the decals which are fixed to the machine.
2. When carrying out any operation, always wear safety shoes and helmet. Do not wear loose work clothes, or clothes with buttons missing.
 - Always wear safety glasses when hitting parts with a hammer.
 - Always wear safety glasses when grinding parts with a grinder, etc.
3. If welding repairs are needed, always have a trained, experienced welder carry out the work. When carrying out welding work, always wear welding gloves, apron, hand shield, cap and other clothes suited for welding work.
4. When carrying out any operation with two or more workers, always agree on the operating procedure before starting. Always inform your fellow workers before starting any step of the operation. Before starting work, hang UNDER REPAIR signs on the controls in the operator's compartment.
5. Keep all tools in good condition and learn the correct way to use them.

6. Decide a place in the repair workshop to keep tools and removed parts. Always keep the tools and parts in their correct places. Always keep the work area clean and make sure that there is no dirt or oil on the floor. Smoke only in the areas provided for smoking. Never smoke while working.

PREPARATIONS FOR WORK

7. Before adding oil or making any repairs, park the machine on hard, level ground, and block the wheels or tracks to prevent the machine from moving.
8. Before starting work, lower blade, ripper, bucket or any other work equipment to the ground. If this is not possible, insert the safety pin or use blocks to prevent the work equipment from falling. In addition, be sure to lock all the control levers and hang warning signs on them.
9. When disassembling or assembling, support the machine with blocks, jacks or stands before starting work.
10. Remove all mud and oil from the steps or other places used to get on and off the machine. Always use the handrails, ladders or steps when getting on or off the machine. Never jump on or off the machine. If it is impossible to use the handrails, ladders or steps, use a stand to provide safe footing.

Machine Model			PC58UU-3		
Serial Number			22001 – 22300		
Specifications			Canopy specification	Cab specification	
Engine	Model		4D88E-5XBB		
	Type		4-cycle, water cooled, vertical, direct injection		
	No. of cylinders-bore x stroke		mm	4 – 88 x 90	
	Piston displacement		ℓ {cc}	2.189 {2,189}	
	Performance	Flywheel horsepower	kW/rpm {HP/rpm}	29.4/2,400 {40/2, 400}	
		Maximum torque	Nm/rpm {kgm/rpm}	140/1,400 {14.3/1,400}	
		High idling speed	rpm	2,550	
		Low idling speed	rpm	1,150	
		Min. fuel consumption ratio	g/kWh {g/HPh}	238 {175}	
	Starting motor			12 V, 2.3 kw	
	Alternator			12V, 40A	
	Battery			12 V, 72 Ah x 1	
	Radiator type			CF27-2	
Undercarriage	Carrier roller			1 on each side	
	Track roller			5 on each side	
	Track shoe (road liner shoe)			Assembly-type road liner, 38 pieces for one side	
	(rubber shoe)			Integrated rubber shoe	
Hydraulic system	Hydraulic pump	Type x No.	ℓ/min	Variable displacement piston type x 1, Gear type x 2	
		Discharge		51 x 2 + 33 + 10	
		Set pressures		26.0 {265}	
		(for work equipment, travel)		20.6 {210}	
	Control valve	Type x no.		8-spool type x 1	
		Control method		Hydraulically assisted (boom, arm, bucket, offset, swing, travel), Direct (blade)	
	Hydraulic motor	Travel motor		Variable displacement piston type	
		Swing motor		(with brake valve, parking brake) x 2	
				Fixed displacement piston type	
			(with shockless safety valve, holding brake) x 1		
Hydraulic tank			Box-shaped, open		
Hydraulic filter			Tank return side		
Hydraulic oil cooler			Air cooled (AL-CFT-1)		



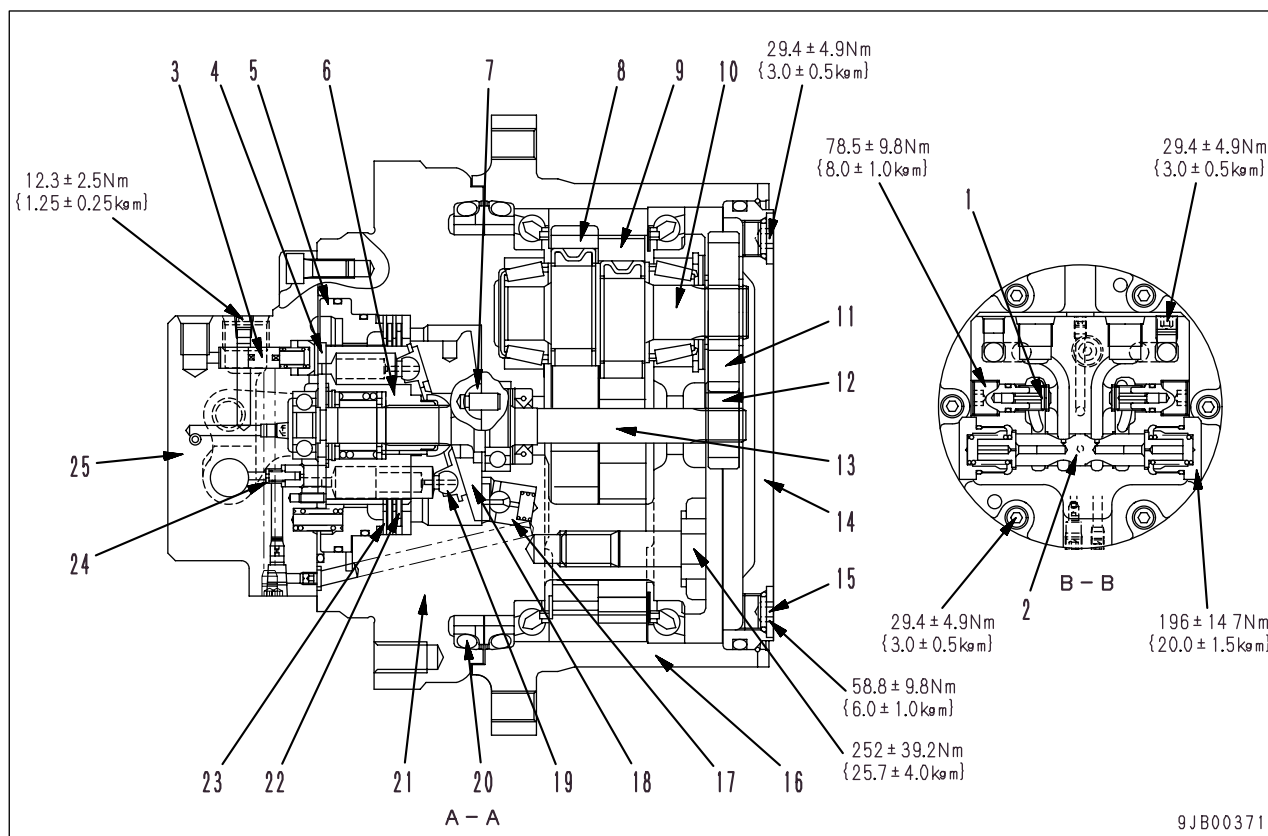
1. Pressure compensation valve F (R.H. travel)
2. Spool (R.H. travel)
3. Suction valve
4. Suction valve
5. Pressure compensation valve R (R.H. travel)
6. Unload valve
7. Check valve
8. Main relief valve
9. Unload valve
10. LS bypass plug (LS2)
11. Spool (pump merge-divider valve)
12. Unload valve
13. Check valve

14. Unload valve
15. Pressure compensation valve F (boom)
16. Spool (boom)
17. Suction valve
18. Boom hydraulic drift prevention valve
19. Check valve
20. Check valve
21. Suction valve
22. Pressure compensation valve R (boom)

★ The above F and R means the following valves:

F: Flow control valve

R: Pressure reducing valve



- | | |
|-------------------------|--------------------|
| 1. Check valve | 13. Shaft |
| 2. Counterbalance valve | 14. Cover |
| 3. Regulator valve | 15. Drain plug |
| 4. Valve plate | 16. Case |
| 5. Brake piston | 17. Regular piston |
| 6. Cylinder | 18. Swash plate |
| 7. Pivot | 19. Piston |
| 8. RV gear | 20. Floating seal |
| 9. RV gear | 21. Spindle |
| 10. Spring | 22. Disc |
| 11. Driven gear | 23. Plate |
| 12. Drive gear | 24. Check valve |
| | 25. End cover |

SPECIFICATION

Type : GMO6VN

Theoretical delivery (Hi) : 15.3 cm³/rev {15.3 cc/rev}

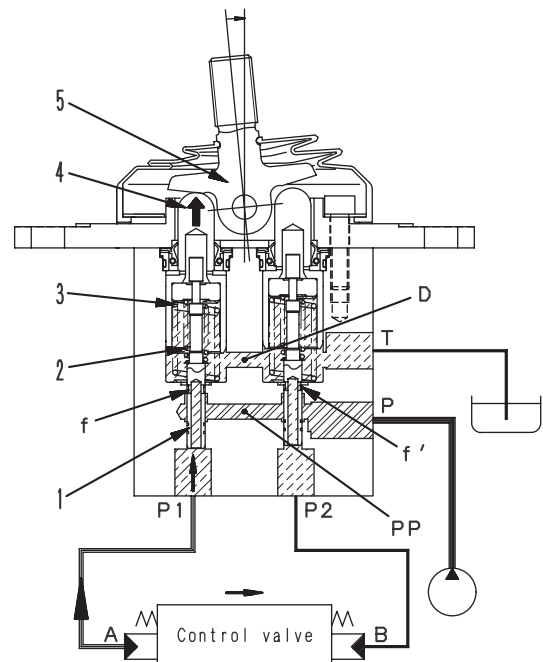
(Lo) : 26.4 cm³/rev {26.4 cc/rev}

Speed change pressure : 1.96 - 4.41 MPa {20-45 kg/cm²}

Reduction ratio : 57.9

3. In the fine control mode (when the operation lever is shifted back to its original position)

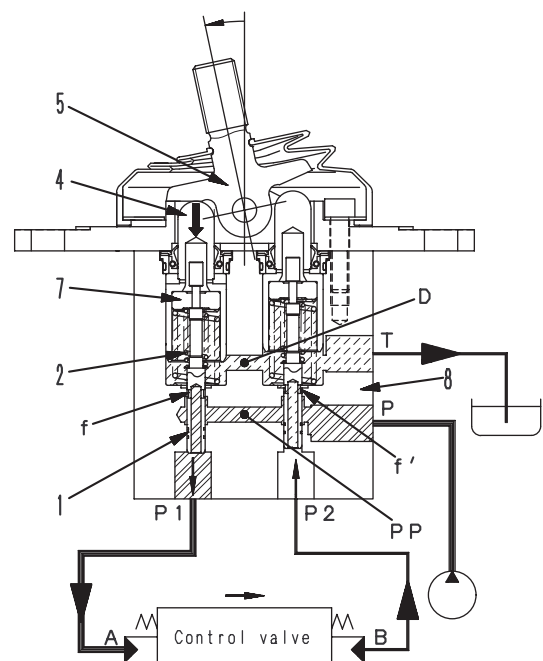
- As the lever (5) starts returning, the spool (1) is pushed up by the force of the centering spring (3) and port **P1** pressure. By this move, the fine control hole **f** is connected to the drain chamber **D** and relieves pressurized oil of port **P1** to it.
- If port **P1** pressure goes excessively low, the spool (1) is pushed down by the metering spring (2) and passage between the fine control hole **f** and the drain chamber **D** is shut down. Almost at the same time, the hole is connected to the pump pressure chamber **PP** and starts supplying pump pressure. This supply continues until the **P1** port pressure recovers to the level equivalent to the lever position.
- When the operation valve spool returns, oil in the drain chamber **D** flows in through the fine control hole **f'** on the non moving side valve. Oil is then conducted via port **P2** to fill up the chamber **B**.



SJP10047

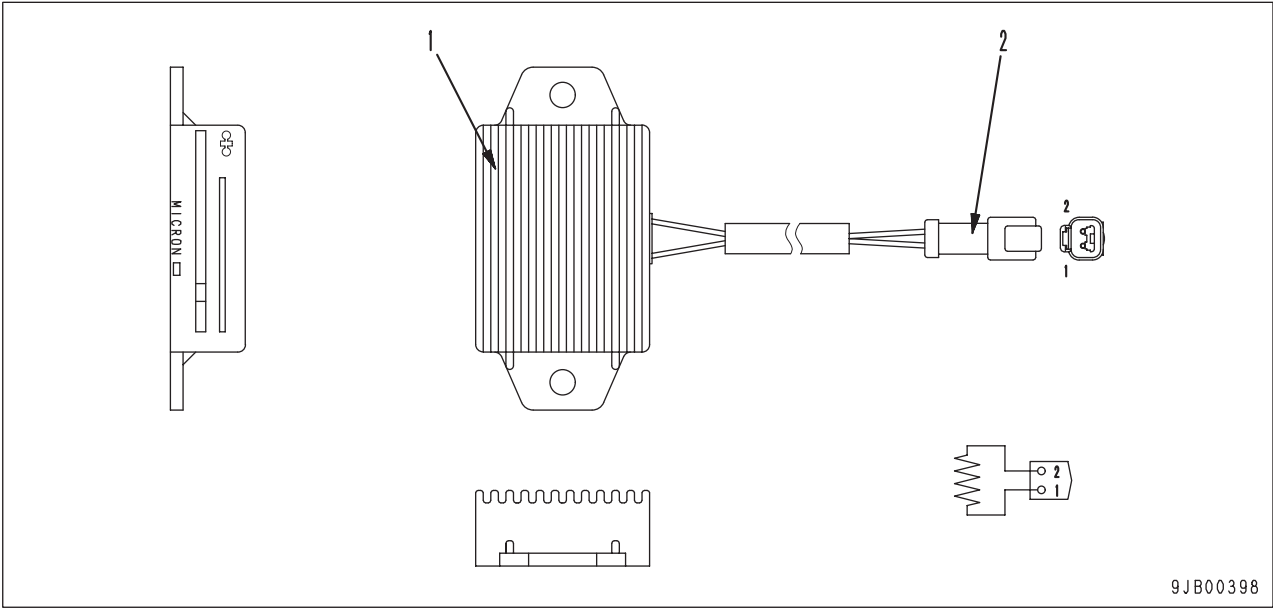
4. In the full stroke mode

- When the disk (5) pushes down the piston (4) and the retainer (7) pushes down the spool (1), connection of the fine control hole **f** is switched from the drain chamber **D** to the pump pressure chamber **PP**.
- Thus, pilot pressurized oil from the control pump passes through the fine control hole **f** and is conducted to chamber **A** via port **P1** to push the operation valve spool.
- Return oil from chamber **B** is conducted from port **P2** to the drain chamber **D** via the fine control hole **f'**.



SJP10048

RESISTOR



- 1. Resistor
- 2. Connector

Specification

System	Resistance Value (Ω)
For boom RAISE stop EPC valve For arm IN EPC valve	3
For main pump TVC-EPC valve	10

Function

- This resistor supplies a proper current to each EPC valve according to the condition when the emergency work equipment operation switch or the emergency pump drive switch is turned "ON".

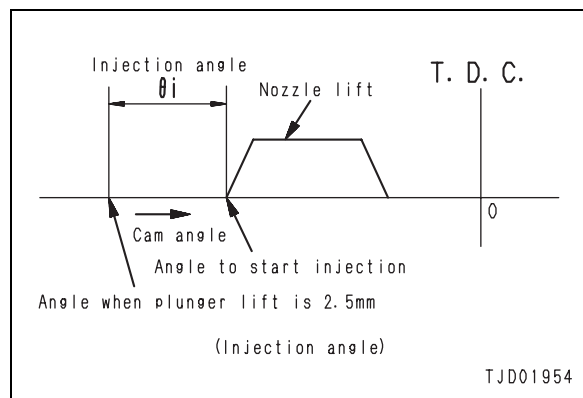
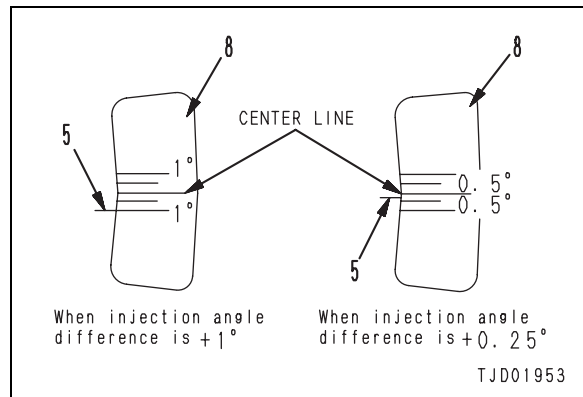
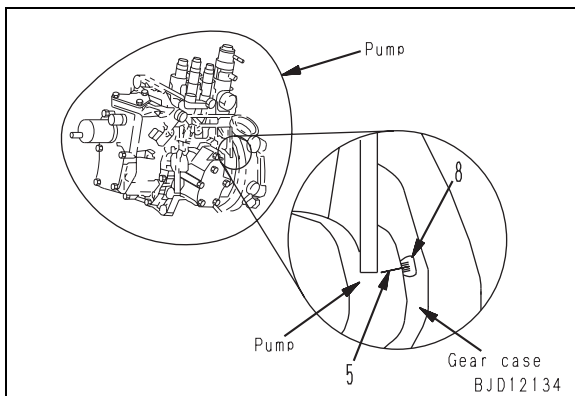
- Boom RAISE stop EPC valve
- Arm IN stop EPC valve
- Offset left stop solenoid valve
- PPC lock solenoid valve
- 2nd speed travel selector solenoid valve
- ★ (See the "(EPC) solenoid valve".)
- ★ "See the Monitor panel".

5. Read the "injection angle" recorded on the fuel injection pump to be installed and calculate the difference between it and the "injection angle" of the removed fuel injection pump.
 - ★ When the same fuel injection pump is installed again, the angle difference is 0.
 - ★ Injection angle difference (cam angle) = (injection angle of fuel injection pump to be installed) – (injection angle of removed fuel injection pump)

CAUTION

If the injection angle of the fuel injection pump is difficult to read, notify YAMMAR of the fuel injection pump No. and ask the injection angle.

6. Install the fuel injection pump temporarily and tighten the nut at the shaft end.
 - ★ See REMOVAL AND INSTALLATION of fuel injection pump.
7. Read the injection angle difference calculated in step 5 above by the scale of the adjustment seal (Minimum division: 0.5° of cam angle) and adjust the installed angle of the fuel injection pump.
 - ★ If the injection angle difference is +1°, lean the fuel injection pump away from the cylinder block by 1°. If the injection angle difference is –1°, lean the fuel injection pump toward the cylinder block by 1°.
8. Tighten the fuel injection pump mounting nut.



REFERENCE

Standard installed angle θ of fuel injection pump :
12°.

REMARK

Injection angle θ_i (cam angle) is the difference between the angle at which injection is started and the angle at which the plunger lift of the fuel injection pump is 2.5 mm while the fuel injection pump unit is driven with a motor.

Actual injection angle θ_i is measured for each fuel injection pump and recorded on the pump body.

- 3) Connect the power supply terminal (1) and left and right reset terminal (3).
 - ★ The mode selection switch can be in any position.
 - ★ Reset power supply terminal (1) is a female 1-pin connector (red wiring harness).
 - Left and right reset terminal (3) is a male 1-pin connector (green/white wiring harness with yellow tape).



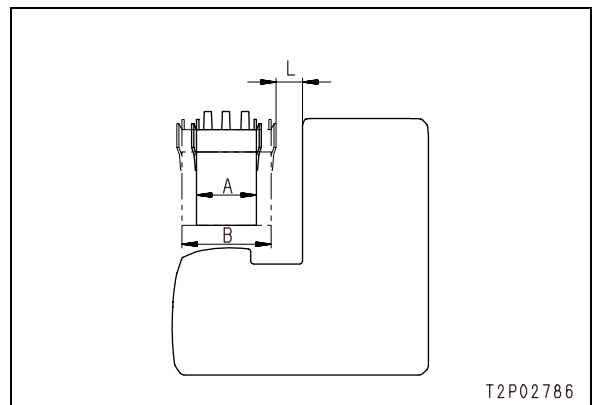
- 4) Check that the electrical system caution lamp on the monitor panel starts to flash 2 seconds later in a 1-second cycle.
 - ★ If abnormality display code [01] is given carry out the operation again from "1. Reset potentiometer input signal".
- 5) Disconnect terminals (1) and (3), then turn the starting switch OFF.
- 6) When the starting switch is turned ON again, the resetting operation is completed.
 - ★ Run the engine at full throttle, carry out the automatic stop and check stopping distance L.
- 7) After finishing the operation, tape the reset terminals to their original position.

If the bucket has been replaced with a bucket of a different width and clearance between the bucket and the cab has become larger:

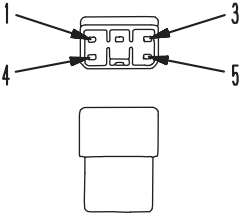
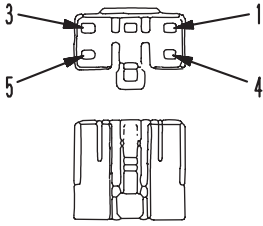
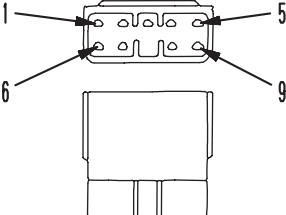
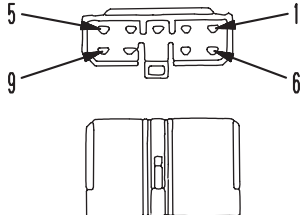
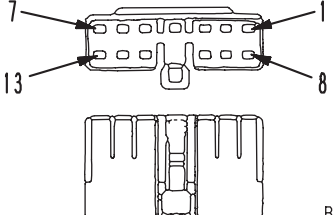
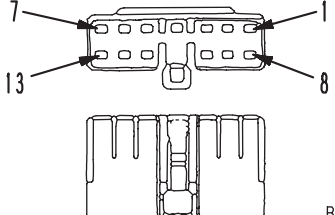
- 8) As a basic rule, it is prohibited to reset the compensation when a narrow bucket has been installed. If the controller has been replaced and it is necessary to reset the compensation, set distance L.

$$L = 260 + \frac{B-A}{2} \quad (\text{mm})$$

A: Width of narrow bucket
B: Width of standard bucket



- 9) Perform the above procedure from 2) to 7).

No. of pins	MIC type connector		
	Male (female housing)	Female (male housing)	T-adapter Part No.
7	Housing part No.: 79A-222-2640 Qty.: 5	Housing part No.: 79A-222-2630 Qty.: 5	—
11	Housing part No.: 79A-222-2680 Qty.: 5	Housing part No.: 79A-222-2670 Qty.: 5	—
5	 BWP04741	 BWP04742	799-601-2710
	Housing part No.: 79A-222-2620 Qty.: 5	Housing part No.: 79A-222-2610 Qty.: 5	
9	 BWP04743	 BWP04744	799-601-2950
	Housing part No.: 79A-222-2660 Qty.: 5	Housing part No.: 79A-222-2650 Qty.: 5	
13	 BWP04746	 BWP04746	799-601-2720
	Housing part No.: 79A-222-2710 Qty.: 2	Housing part No.: 79A-222-2690 Qty.: 2	

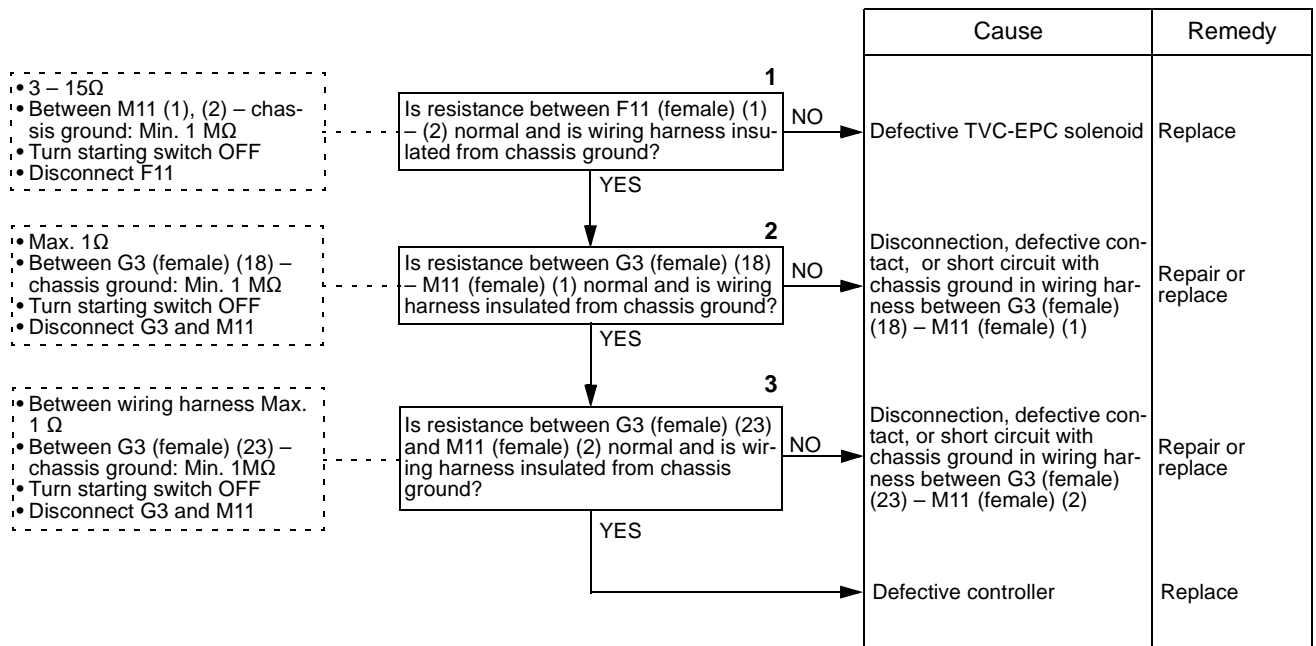
CHECK OF OPERATION OF ELECTRIC SYSTEM

★ The boom (RAISE) end cushion and arm (IN) end cushion functions are not checked.

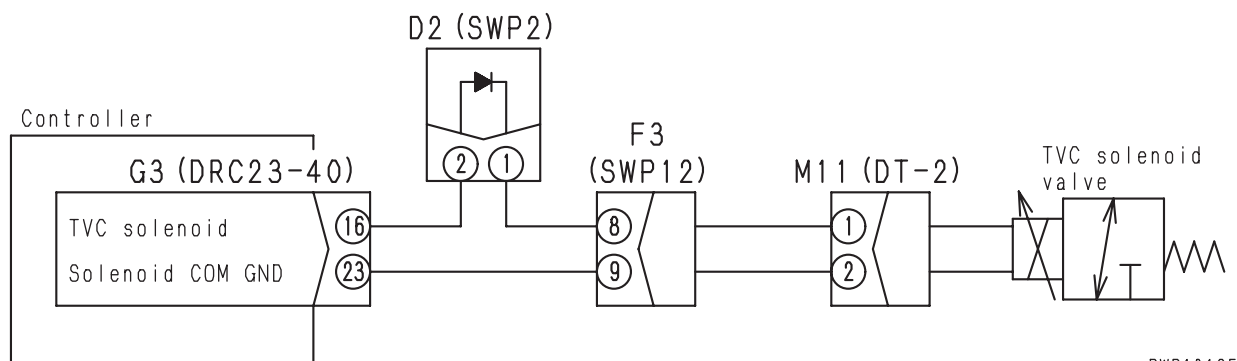
When the following operations are executed according to the given procedure, if the monitor panel and controller operate as shown below, the input and output signals, monitor panel, and controller are normal.

Operation procedure and condition of machine			Check item (When normal)	
			Monitor panel	Controller
①	Turn OFF starting switch.		• All segments go OFF.	• All segments go OFF.
②	Turn ON starting switch.	ON → 3 sec	• All segments light up for about 3 sec. • Buzzer sounds for about 1 sec.	• [0.0] is displayed in self-diagnosis display section.
		3 sec → 5 sec	• Engine oil pressure and charge level lamps light up.	
		After 5 sec	• If bucket is above ground, [UP] is displayed. If below ground, [depth] is displayed.	
③	Run engine (at slow speed).		• All caution lamps go OFF.	• Work equipment can be operated. • Buzzer does not sound.
④	Bring bucket from front and side to near cab (canopy).			• Work equipment stops at specified position. • Buzzer sounds at intervals of about 1 sec.
⑤	Move bucket away from cab (canopy).			• Work equipment can be moved away from cab (Arm DUMP, RIGHT offset). • Buzzer sounds continuously until work equipment is moved away sufficiently, then sound stops.
⑥	Turn ON emergency work equipment operation switch. ↓		• Electric system lamp blinks at intervals of about 1 sec.	• Buzzer sounds for about 7 sec.
	Perform ④ and ⑤ above. ↓		• Electric system lamp blinks at intervals of about 1 sec	• Work equipment can be operated (It does not stop automatically, however).
	Turn OFF emergency work equipment operation switch.		• Electric system lamp goes off.	
⑦	Raise work equipment to 1 m above ground and set mode selector switch to [HEIGHT] and turn setting switch to SET. ↓		• Height mode indicator lights up.	• Buzzer sounds twice.
	Lower boom once, then raise it.			• Work equipment stops near set position. • Buzzer sounds twice.
⑧	Set boom to LEFT offset and mode selector switch to OFFSET, then turn setting switch to SET. ↓		• Offset mode indicator lights up.	• Buzzer sounds twice.
	Offset arm to right once, then to left.			• Work equipment stops near set position. • Buzzer sounds twice.
⑨	Push up machine body with work equipment.		• Depth indicator displays [0.0] (ground level).	•
			• Displayed depth increases from [0.1].	
⑩	Turn OFF starting switch.		• All segments go OFF.	• All segments go OFF.

E-10 Error code [54] (Trouble in TVC-EPC solenoid system) is displayed



E-10 Related electrical circuit diagram



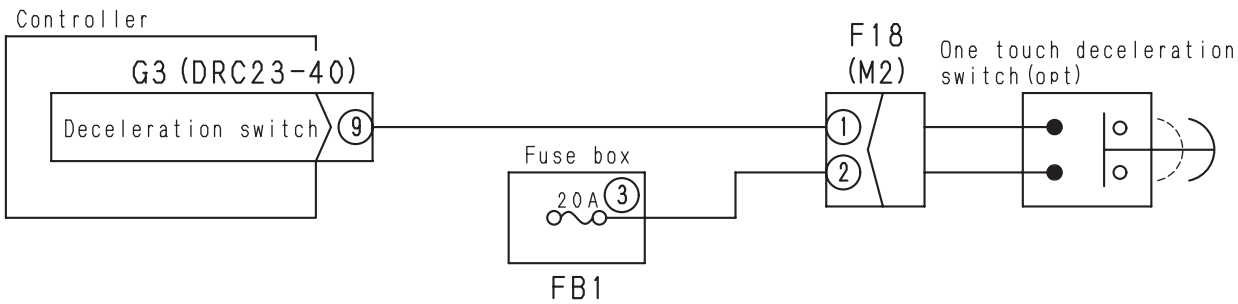
BWP10195

F-1 Controller does not display [26 (2)] (One-touch deceleration)

★ This code is displayed in only the display unit of the controller.

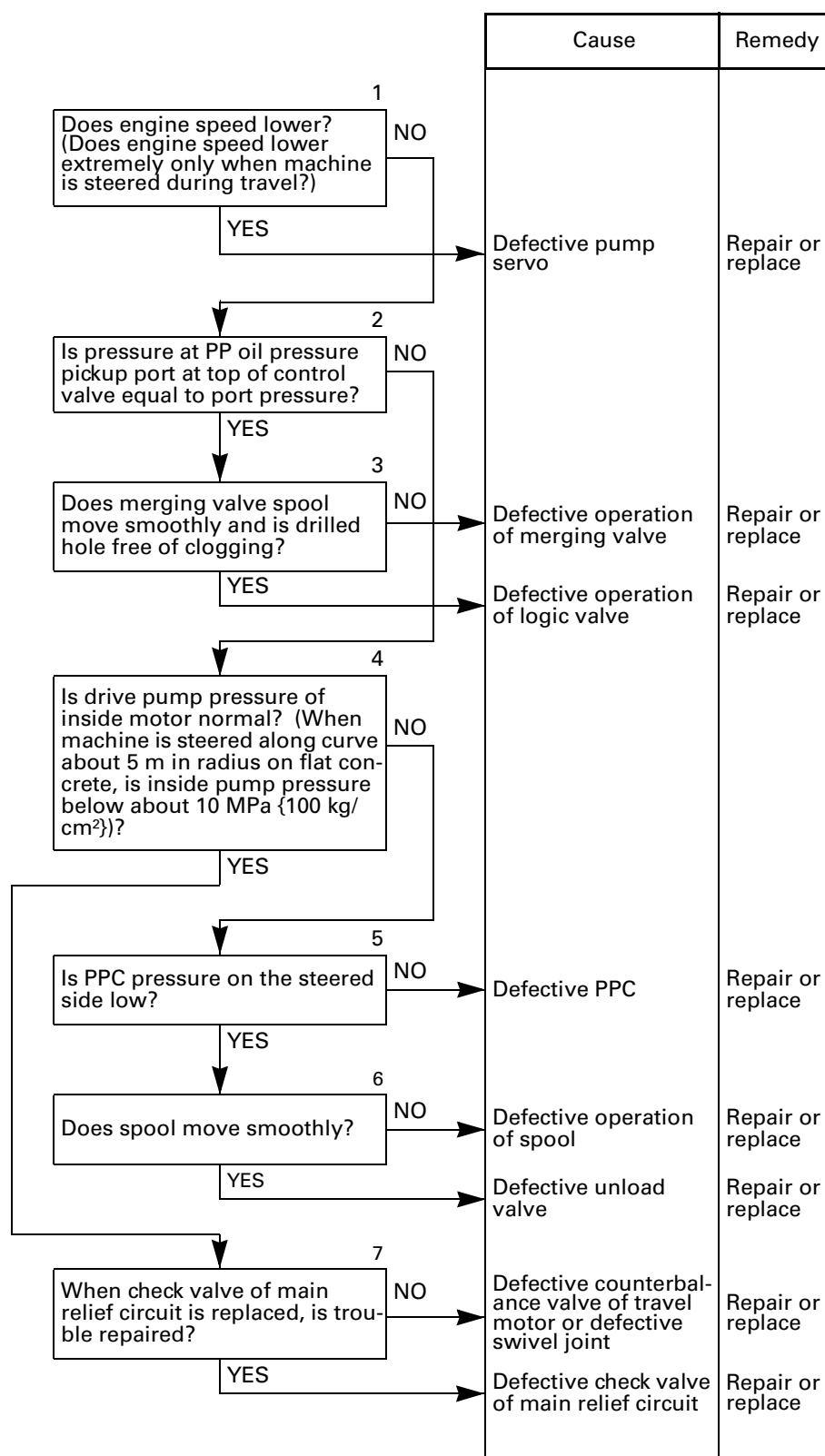
		Cause	Remedy
<div> <ul style="list-style-type: none"> • Turn one-touch decelerator switch ON: Max. 1 V • Turn one-touch decelerator switch OFF: 3 – 4 V • Turn starting switch ON. </div> <div> <ul style="list-style-type: none"> • Turn one-touch decelerator switch ON: Max. 1 Ω • Turn one-touch decelerator switch OFF: Min. 1 MΩ • Turn starting switch OFF. • Disconnect F18. </div> <div> <ul style="list-style-type: none"> • Max. 1 Ω • Turn starting switch OFF. • Disconnect F18. </div>	<div> <div>1</div> <div>Is voltage between G3 (9) – chassis normal?</div> <div>NO</div> <div>YES</div> </div>	Defective controller	Replace
	<div> <div>2</div> <div>Is resistance of one-touch decelerator switch normal?</div> <div>NO</div> <div>YES</div> </div>	Defective one-touch decelerator switch	Replace
	<div> <div>3</div> <div>Is resistance between F18 (2) – chassis ground normal?</div> <div>NO</div> <div>YES</div> </div>	Defective fuse (3) Disconnection or defective contact in wiring harness between F18 (1) – G3 (9)	Replace Replace wiring harness

F-1 Related electrical circuit diagram

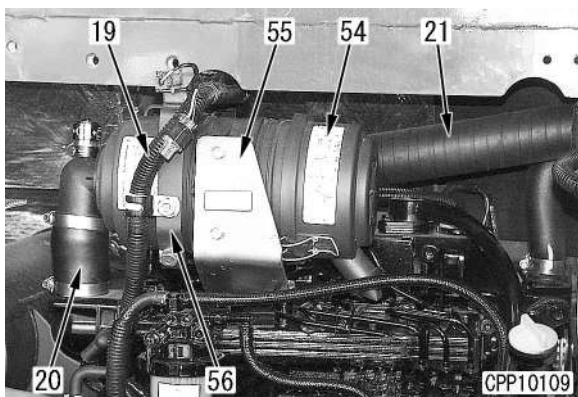


BWP10196

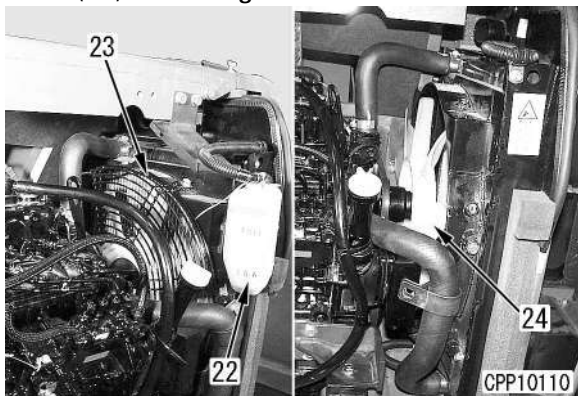
H-22 Machine cannot be steered sharply or steering force is insufficient



9. Remove the clamps from the electrical harness (19). Loosen the clamps on the air intake hoses (20) and (21) and disconnect the hoses. Remove the air cleaner (54) and remove brackets (55) and (56).



10. Remove the radiator reservoir tank (22) with its bracket. Remove the fan guard (23) mounting bolt and remove the guard. Remove the fan (24) mounting bolt and remove the fan.



11. Loosen the upper radiator hose (25) and the lower radiator hose (26) clamps from the radiator on the engine side and disconnect the hoses. Remove the intermediate clamp (27) of the lower hose.



12. Loosen the ground cable (28) mounting bolt from the engine and disconnect it.



13. Disconnect the electrical harness and remove the connectors and harnesses from the work equipment pump solenoid (29), the engine speed sensor (30), the fuel pump, the stop motor, the air heater, the oil pressure gauge, etc.

