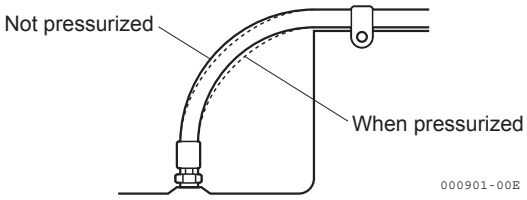
YANMAR®

SERVICE MANUAL

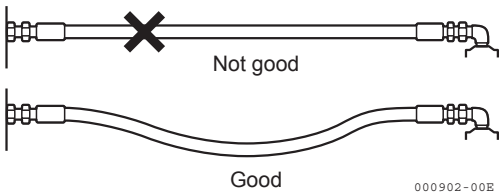
EXCAVATOR

MODEL SV05

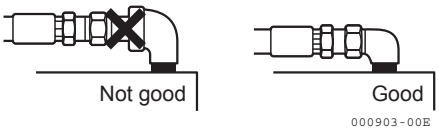
(3) When the hose is pressurized, the hose length varies slightly at the bend. Allow this change to occur and do not try to fasten the bend.



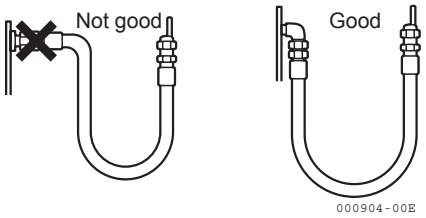
(4) It is necessary for the hose to have ample slackness for elongation and contraction, because its length will change by +2 % to -4 % when used at high pressure.



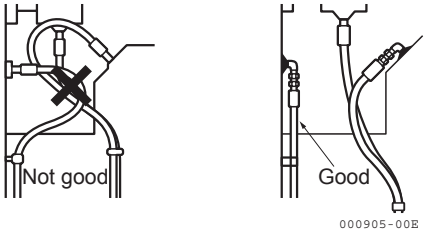
(5) Use the proper adapters, not pipes, in order to reduce the number and length of joints and improve the external appearance.



(6) Use an elbow to prevent excessive twisting or bending of the hose.



(7) Use adapters to make the hose as straight as possible. The outside appearance can be improved by avoiding the use of hoses that are too long.

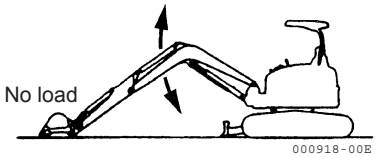
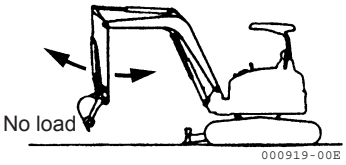
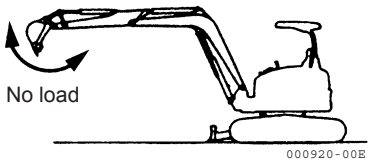
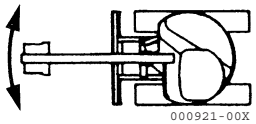
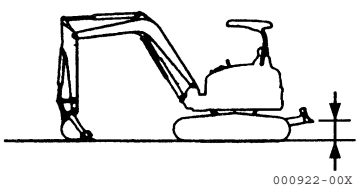


2. TECHNICAL DATA

Item					Unit	SV05
Main specifications of machine						
Blade						
	Blade	Width × Height (Side open/close)			mm	580×170
		Capacity (Side open/close)			m³	0.017
		Lift above ground level			mm	150
		Digging depth			mm	130
Mean contact pressure						
	JIS	Steel crawler	Cabin		KPa (kgf/cm²)	-
			Canopy		KPa (kgf/cm²)	-
		Rubber crawler	Cabin		KPa (kgf/cm²)	-
			Canopy		KPa (kgf/cm²)	27.2 (0.277)
Mass						
	Operating mass	Steel crawler	Cabin		kg	-
			Canopy		kg	-
		Rubber crawler	Cabin		kg	-
			Canopy		kg	550
	Base machine dry mass	Steel crawler	Cabin		kg	-
			Canopy		kg	-
		Rubber crawler	Cabin		kg	-
			Canopy		kg	450
Hydraulic equipment						
Hydraulic pump						
	Drive method					Engine → Coupling → Pump (Direct drive)
	Type of main pump					External gear pump
	Number of pumps				pcs.	2
	Theoretical discharge volume				cc/rev	3.46/3.46
	Maximum allowable pressure				MPa (kgf/cm²)	-
Control valve						
	Number of connected valves				pcs.	9
	System relief set pressure				MPa (kgf/cm²)	16.7 (170)
	Circuit relief set pressure	Boom (at rod end)			MPa (kgf/cm²)	19.6 (200)
		Boom (at bottom end)			MPa (kgf/cm²)	-
		Arm (at rod end)			MPa (kgf/cm²)	-
		Arm (at bottom end)			MPa (kgf/cm²)	19.6 (200)
		Bucket (at rod end)			MPa (kgf/cm²)	-
		Bucket (at bottom end)			MPa (kgf/cm²)	-
		Boom swing (at rod end)			MPa (kgf/cm²)	-
		Boom swing (at bottom end)			MPa (kgf/cm²)	-
		Blade (at rod end)			MPa (kgf/cm²)	-
		Blade (at bottom end)			MPa (kgf/cm²)	-
		Swing brake (right)			MPa (kgf/cm²)	6.9 (70)
		Swing brake (left)			MPa (kgf/cm²)	6.9 (70)

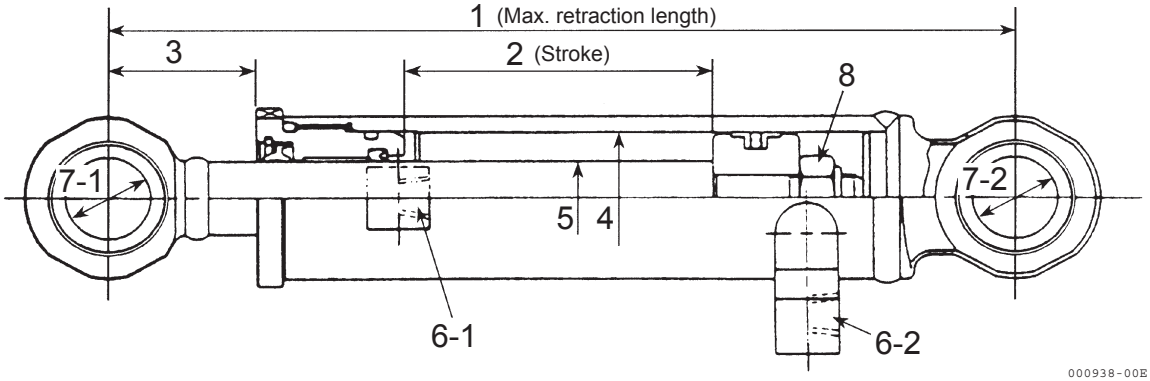
3. Service Standards

3-1 Machine Performance

Applicable model				SV05	
Item	Measuring condition		Unit	Standard	Allowance
Machine performance					
Working speed					
Boom speed Max. cylinder extension ↕ Bucket teeth grounded	Machine position  • Engine : rated speed • Hydraulic oil temp. : 50 to 60 °C • Site : Firm, flat ground • Excluding cushion	Up	sec.	1.7	1.9
		Down		1.7	1.9
Arm speed Max. cylinder retraction ↕ Max. cylinder extension	Machine position  • Engine : rated speed • Hydraulic oil temp. : 50 to 60 °C • Site : Firm, flat ground	Extend	sec.	1.9	2.1
		Retract		2.7	2.9
Bucket speed Max. cylinder retraction ↕ Max. cylinder extension	Machine position  • Engine : rated speed • Hydraulic oil temp. : 50 to 60 °C • Site : Firm, flat ground	Dump	sec.	1.7	1.9
		Curl		2.5	2.7
Boom offset speed Max. cylinder retraction ↕ Max. cylinder extension	Machine position  • Engine : rated speed • Hydraulic oil temp. : 50 to 60 °C • Site : Firm, flat ground • Full stroke	Right swing	sec.	2.2	2.4
		Left swing		2.9	3.1
Blade speed Max. cylinder retraction ↕ Blade grounded	Machine position  • Engine : rated speed • Hydraulic oil temp. : 50 to 60 °C • Site : Firm, flat ground	Up	sec.	0.7	0.9
		Down		0.5	0.7

3-5 Hydraulic Equipment

3-5-1 Hydraulic Cylinders



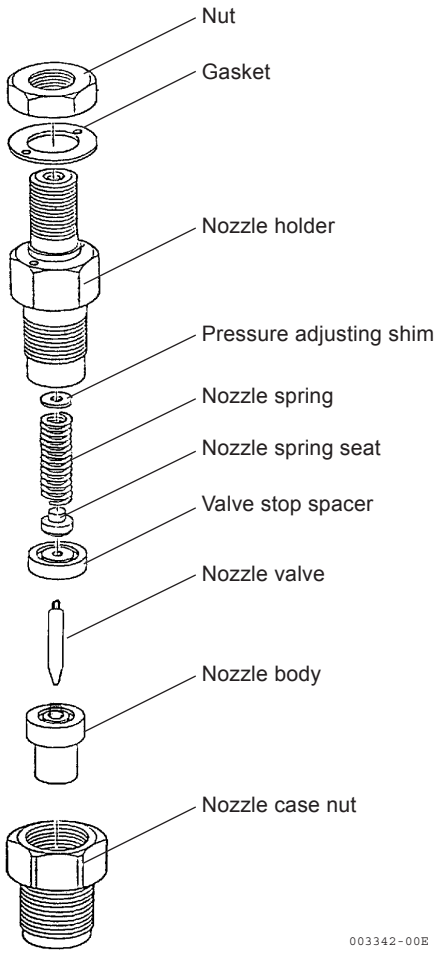
Unit : mm

No. / Cylinder	1	2	3	4	5	6-1 / 6-2	7-1 / 7-2		8	
							Standard	Allowable limit	Nut size	Tightening torque N•m (kgf•m)
Boom	445	251	44	Ø40	Ø22.4	G1/4	Ø25	Ø25.5	M14	88 to 108 (9 to 11)
Arm	440	260	45	Ø40	Ø22.4	G1/4 / Rc1/4	Ø25	Ø25.5	M14	88 to 108 (9 to 11)
Bucket	409	230	44	Ø40	Ø22.4	G1/4 / Rc1/4	Ø25	Ø25.5	M14	88 to 108 (9 to 11)
Boom swing	470	285	50	Ø40	Ø22.4	G1/4	Ø30	Ø30.5	M14	88 to 108 (9 to 11)
Blade	300	61	104	Ø40	Ø22.4	Rc1/4	Ø25	Ø25.5	M14	88 to 108 (9 to 11)
Track gauge change	–	–	–	–	–	–	–	–	–	–

Nut for pipe

Symbol	Name
G (PF)	Straight pipe thread
R (PT)	Taper pipe thread (male)
Rc (PT)	Taper pipe thread (female)

[Reference : Structure of fuel injection valve]

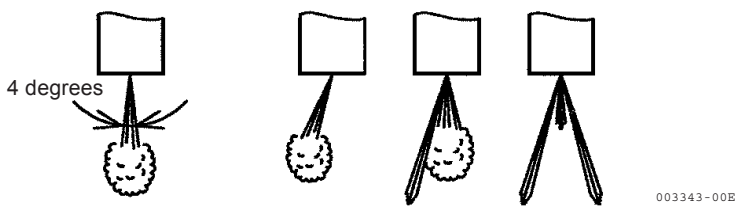


2) Checking the Spray Pattern

While pumping the lever of the nozzle tester once or twice per second at the specified fuel injection pressure (Refer to Section "2-1 Specifications"), check the spray pattern. If the spray pattern is not normal, clean or replace the nozzle.

(1) Check that the pattern is neither like a stream nor slivered.
(2) Check that fuel is sprayed conically around the nozzle center line and that the spray angle is 4 degrees.

[Normal spray pattern] **[Abnormal spray pattern]**

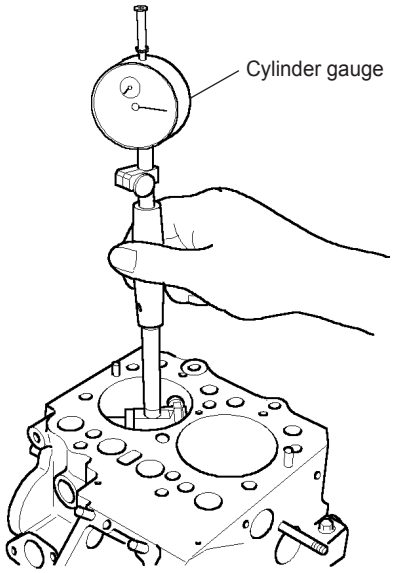


(3) Spray fuel on a sheet of white paper placed about 30 cm below the nozzle. The injection spray should form a perfect circle.
(4) No fuel should drip from the nozzle after injection.
(5) Fuel should not ooze from the nozzle hole when the fuel injection pressure rises to a value that is a little lower than the specified value : 2.0 MPa (20 kgf/cm^2).
(6) Test the injection with a nozzle tester ; retighten the nozzle holder and test it again if there is excessive fuel leak from the overflow coupling. Replace the nozzle as a set if the fuel leak is still excessive.

4-2-2 Cylinder Block

1) Checking the Cylinder Block

(1) Visually check if the cylinder block is free from water leak, oil leak and cracks. If any portion of the cylinder block might be cracked, check the portion by color check.
(2) Replace the cylinder block if badly damaged and unreparable.
(3) Thoroughly clean each oil hole. Make sure that it is not clogged.



(Measuring the cylinder bore diameter)

003367-00E

2) Measuring the Cylinder Bore and the Distortion of the Cylinder

Measure each cylinder bore with a cylinder gauge. Measure the cylinder bore diameters at the point a, approx. 0.79 in. (20 mm) below the crest of the liner, and at the points b and c at equal intervals.

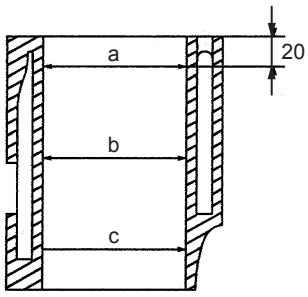
Obtain the distortion of the cylinder (the roundness and cylindricity of each cylinder) from the following measured values :

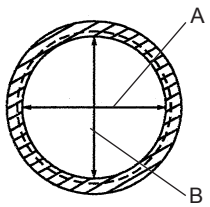
- Roundness :
  Difference between the max. and min. bore values on the same cross section of each liner.
- Cylindricity :
  Difference between the max. and min. bore values in the same direction of each liner.

Apply honing (honing and boring) if any measured value exceeds the allowable limit.

Note :

For oversized pistons and piston rings, refer to Section "4-2-4 Piston and Piston Rings".





Note : *Measurement should be made at the points a, b and c in the directions of A and B*

(Cylinder bore measuring points)

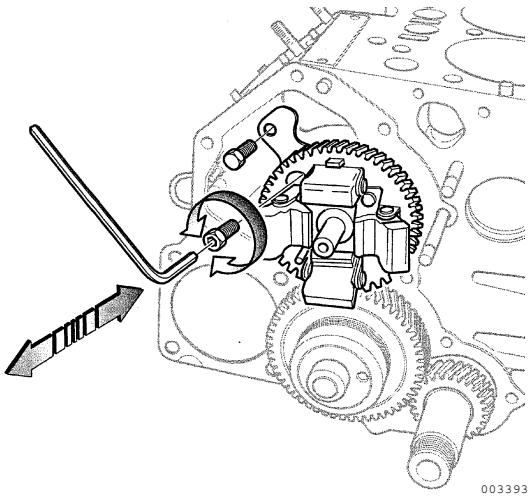
003368-00E

	Standard	Wear limit
Cylinder bore dia.	Refer to Section "3-2 1) Nominal and Allowable Values".	
Roundness of cylinder		
Cylindricity of cylinder		

4-2-6 Camshaft

1) Removing the Camshaft

Remove the tappets and fuel oil injection pump, and loosen two cap screws (M6) inside of the camshaft gear to remove the camshaft.


003393-00X

2) Checking the Camshaft Appearance

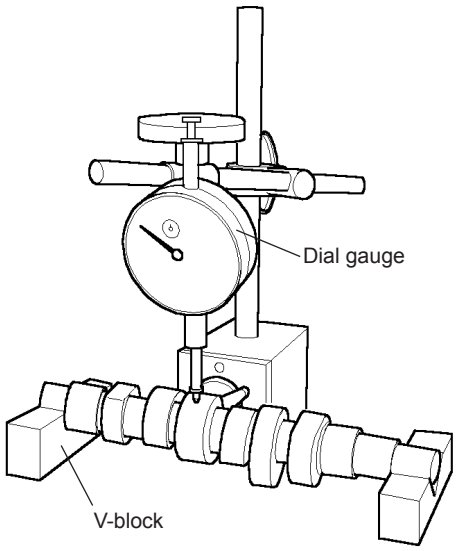
Check the camshaft for the contact surface of the cam with the tappet, seizure and wear of the bearing, and damage of the cam gear.

3) Measuring the Bend of the Camshaft

Support the camshaft with V-blocks. Using a dial gauge, measure the runout of the journal at the center of the camshaft while rotating the camshaft.

Take 50 % of the measured runout as bend.

	Standard	Wear limit
Camshaft bend	Refer to Section "3-2 1) Nominal and Allowable Values".	

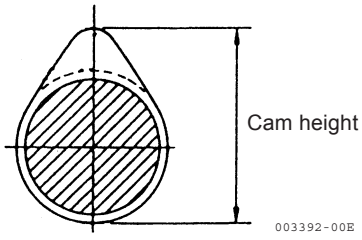


(Measuring the camshaft bend)

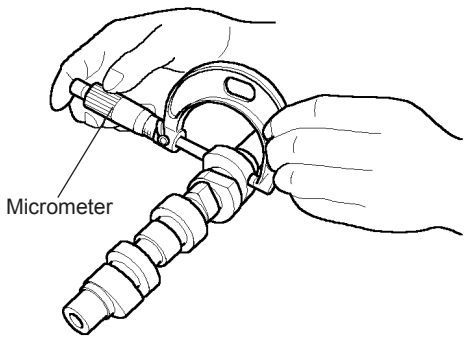
003394-00E

4) Measuring the Intake / Exhaust Cam Height

		Standard	Wear limit
Cam height	Intake cam	Refer to Section "3-2 1) Nominal and Allowable Values".	
	Exhaust cam		



003392-00E



(Measuring the cam height)

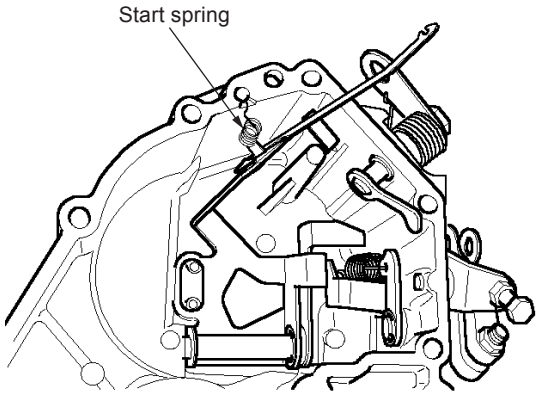
003395-00E

4) Smoke Set and Start Spring

Smoke set **1** is installed on the cylinder block. It restricts fuel oil injection in high speed range and the angleich spring is installed in it so as to increase fuel oil injection to gain a big torque in mid speed range.

The start spring is installed on gear case and governor link to increase fuel oil injection when the engine is started.

The smoke set is preset by the factory and sealed by a cap **3** not to be readjusted locally.



003414-00E

5) Adjusting the High Idling Speed (Refer to 4-1-7)

The set screw **2** is preset by the factory and sealed, however, the idling speed can be readjusted.

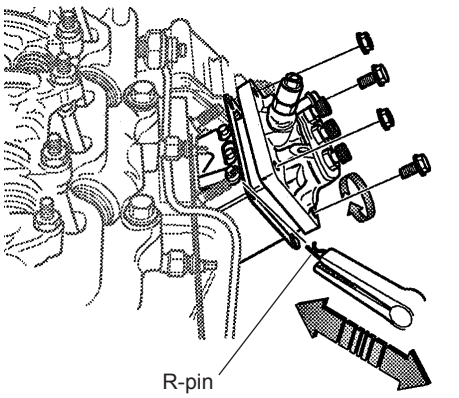
(1) Screw in the left hand side screw of the governor lever to decrease high idling speed.
(2) Screw in and out the right hand side screw of the governor lever to increase and decrease low idling speed respectively.

4-4-2 Disassembling Procedures

(1) Remove the engine stop solenoid.
(2) Remove the fuel oil injection pump holding screws and 4 nuts.
(3) Pull up the injection pump a little and remove R-pin that connects the control rack and governor link to remove the timing gear case.

Note :

Remove the gear case after covering the key groove for crankshaft pulley with a friction tape or something so as not to damage the oil seal of the timing gear case.



003415-00E

4-5-3 Glow Plug

The glow plug installed on the cylinder head is a starting aid in cold weather, which serves to warm the air in the combustion chamber to start the engine easily at low ambient temperature.
The glow plug is operated to warm the air in the combustion chamber by setting the starter switch key to "GLOW" and supplying electricity for about 4 to 5 seconds.

(1) Specifications

Yanmar code	165000-15620
Rating	DC11 V / 0.5 Ω
Rated operating time	4 to 5 sec.
Applicable models	2TN67-BV

Tightening torque	
Glow plug body	14.7 to 19.6 N•m (1.5 to 2.0 kgf•m)
Terminal mounting nut	0.98 to 1.5 N•m (0.1 to 0.15 kgf•m)

The glow plug is ceramic glow. Be careful of its handling.

(1) When removing
Loosen by a specified tool and remove by hand.
No air tool is allowed.

(2) When installing

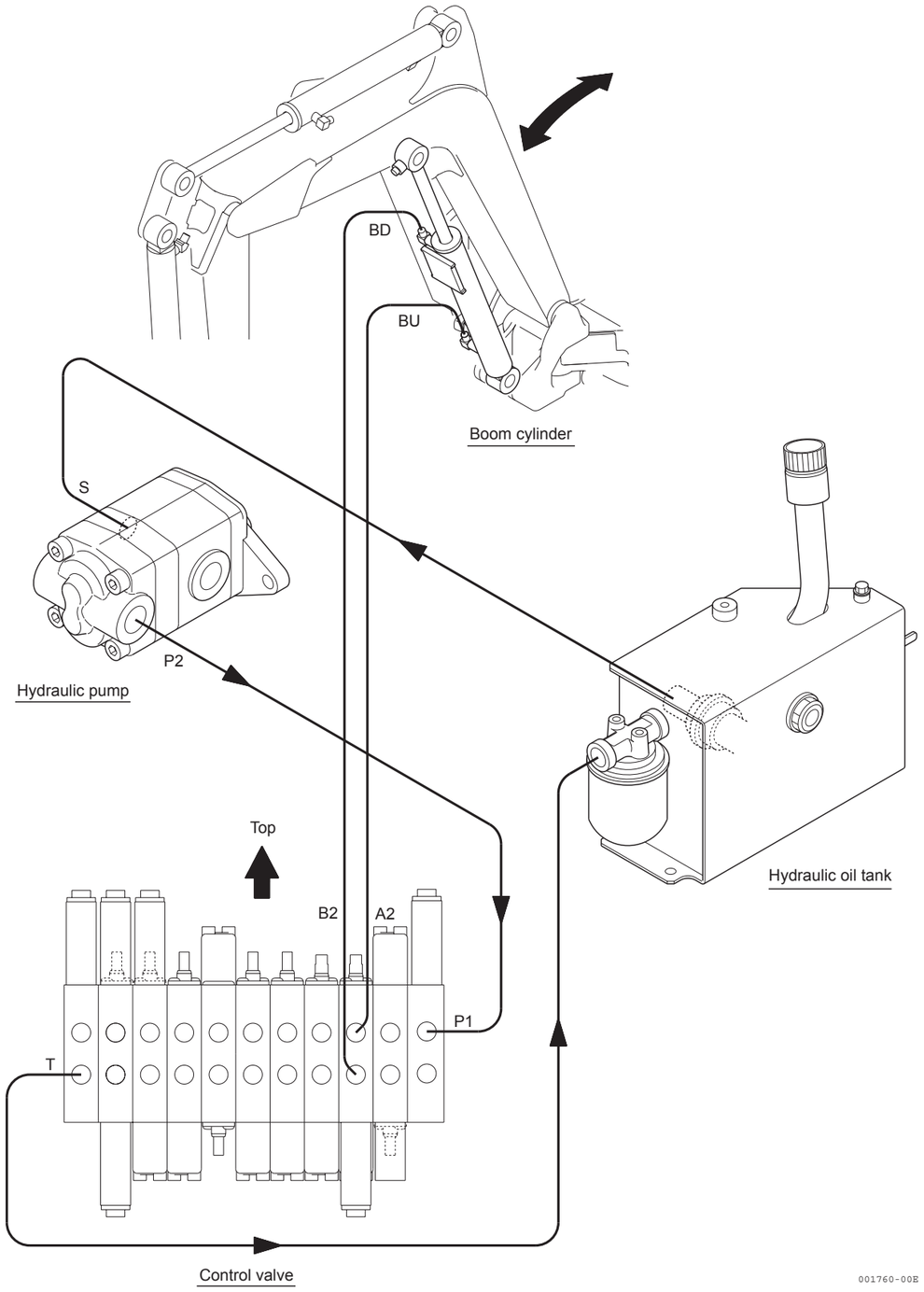
[1] Screw in the plug for 2 - 3 threads by hand.

[2] No air tool is allowed.

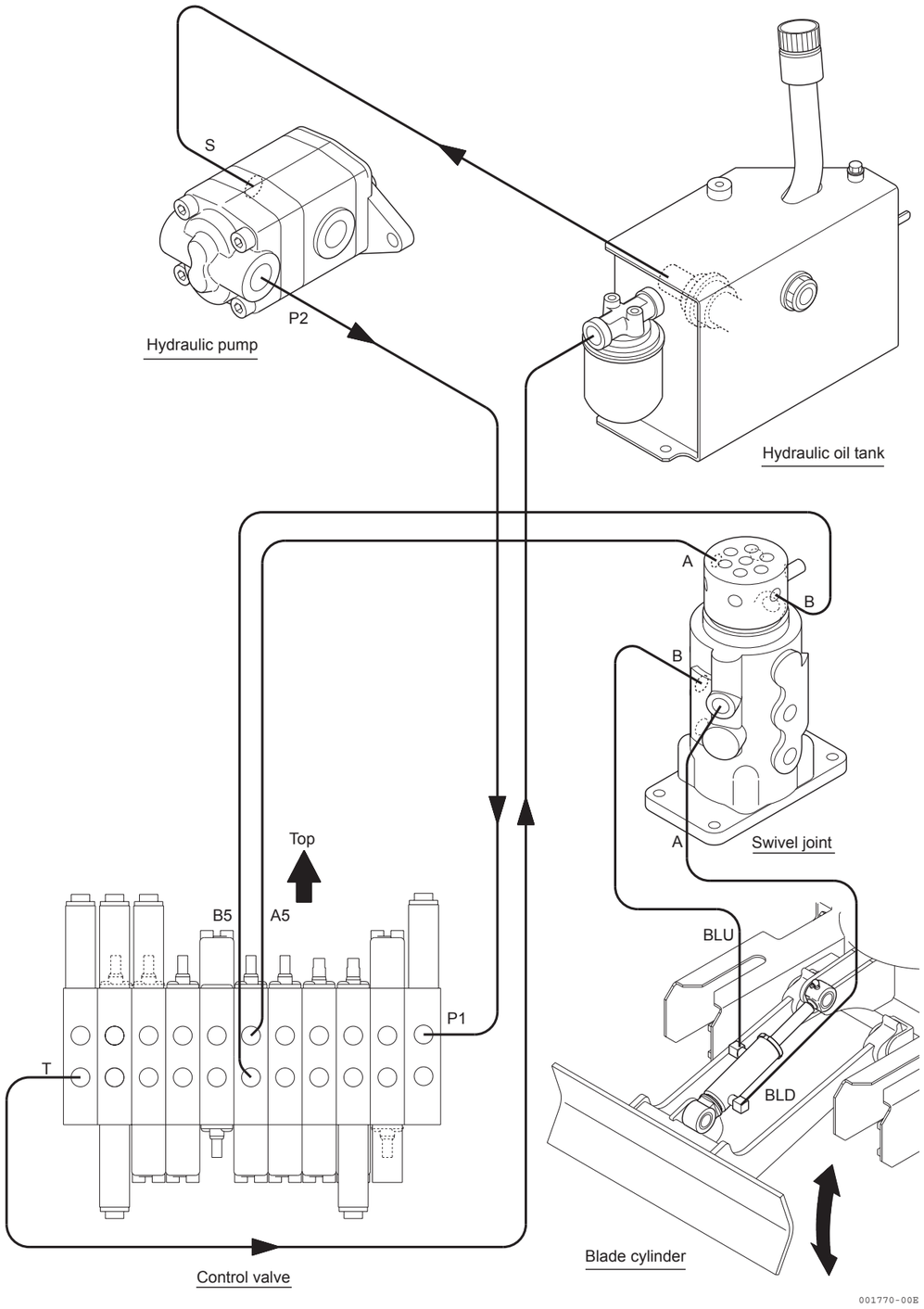
[3] Tighten it to 15 to 20 N•m (1.5 to 2.0 kgf•m) by a torque wrench.

(3) If a glow plug is dropped, never use it again.

5. HYDRAULIC SYSTEM



5. HYDRAULIC SYSTEM



5-4-2 Circuit Relief Valves

1) Measurement Procedure

(1) Arm cylinder bottom 1

Extend the arm cylinder to its stroke end, and holding the control lever in that position, read the pressure gauge.

If the relief pressure of the circuit relief valve is lower than the set pressure of the system relief valve, adjust the pressure.

(2) Boom cylinder rod 2

Retract the boom cylinder to its stroke end, and holding the control lever in that position, read the pressure gauge.

If the relief pressure of the circuit relief valve is lower than the set pressure of the system relief valve, adjust the pressure.

2) Adjustment Procedure

(1) Arm cylinder bottom 1

Loosen the nut (M14) **3** of the circuit relief valve and turn the adjust screw (with a hexagon socket head) **4** to adjust the pressure to the set value.

After adjustment, be sure to tighten the nut (M14) **3**.

(2) Boom cylinder rod 2

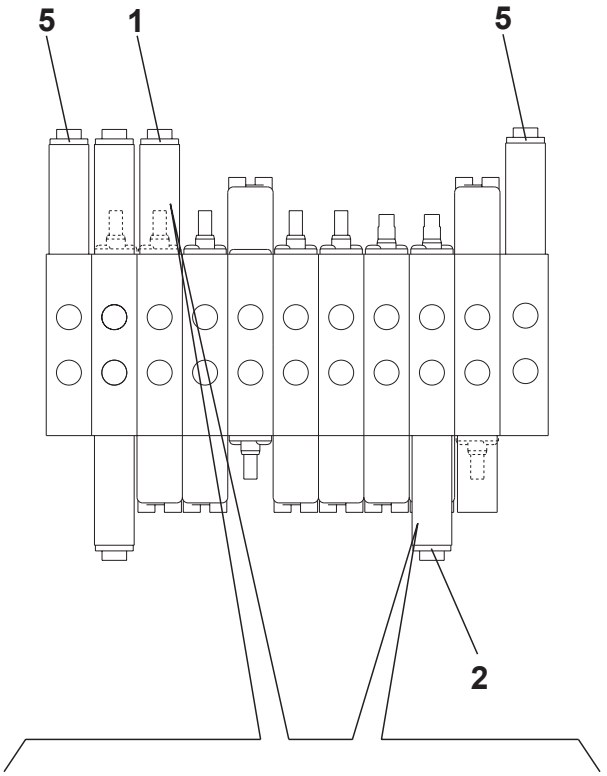
Loosen the nut (M14) **3** of the circuit relief valve and turn the adjust screw (with a hexagon socket head) **4** to adjust the pressure to the set value.

After adjustment, be sure to tighten the nut (M14) **3**.

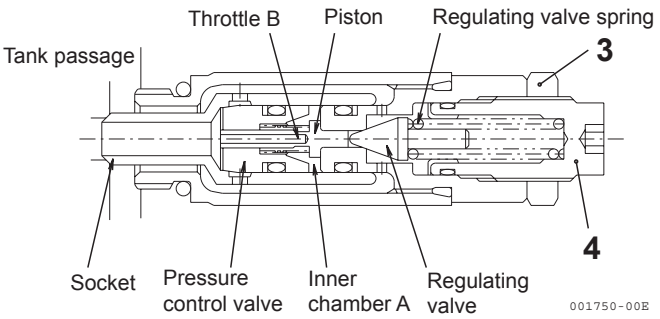
Notes :

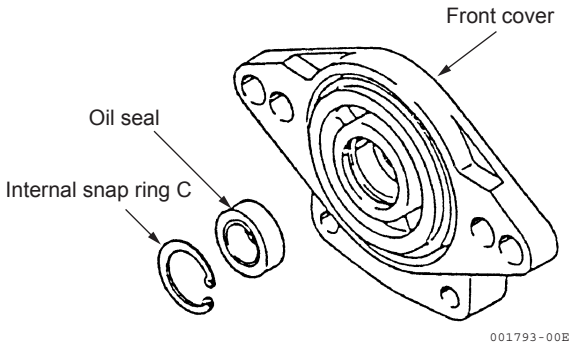
1. *To adjust the pressure of the circuit relief valve, increase the pressure of the circuit relief valve and that of the system relief valve **5** by turns.*
2. *Do not increase the pressure of the system relief valve **5** beyond that of the circuit relief valve.*
3. *After adjusting the pressure, lower the pressure of the system relief valves **5** to the specified value.*

Tightening torque for nut (M14)	Pressure change by one turn of adjust screw
19.6 N·m (2 kgf·m)	12.2 MPa (124 kgf/cm^2)



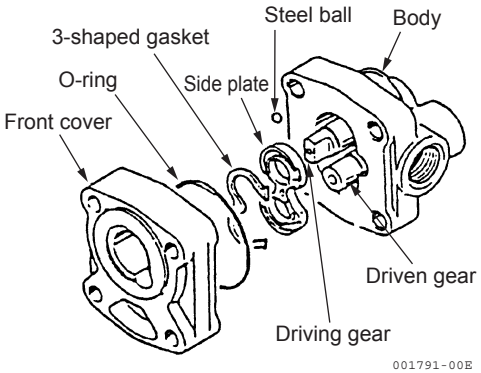
Circuit relief valve (Arm cylinder bottom end)
(Boom cylinder rod end)

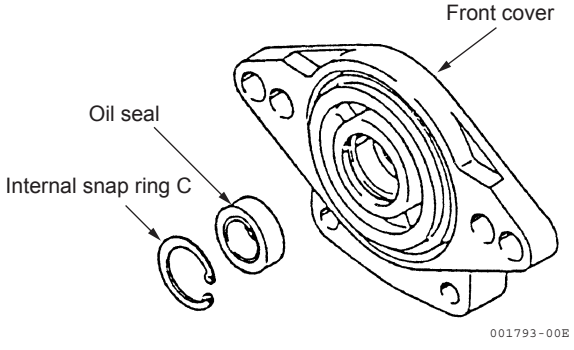


Procedure	
(5) Remove the internal snap ring C, and then remove the oil seal from the front cover.	

4) Reassembly

Procedure	
• Clean the parts and replace the seals and the snap ring with new ones. • Apply grease thinly to the seals. (For the oil seal, apply grease to the lip surface.)	

(1) Reassemble the hydraulic pump P2. a) Install the 3-shaped gasket to the side plate. b) Install the side plate, the driving gear, the driven gear and the side plate into the body. c) Remove oil from the mating surfaces of the front cover and body. d) Install the O-ring into the front cover. e) Based on the positions of the steel balls, install the front cover to the body.	

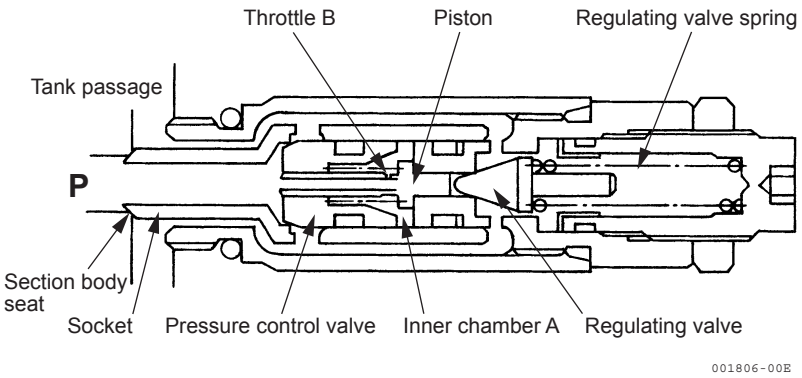
(2) Using an oil seal guide and an oil seal snap, tap the oil seal into the hole of the front cover until it is fully seated in the hole. Then install the internal snap ring into the front cover.	

4. Circuit Relief Valves (Combination Valve)

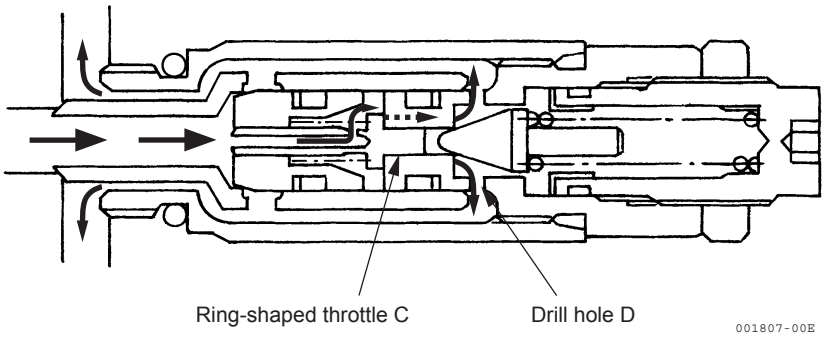
These circuit relief valves are of a balance piston type and also cartridge type. The circuit relief valves are located between the actuator port P and the tank port T in the section. It operates as follows :
(It is installed at the rod end of the boom cylinder, at the bottom end of the arm cylinder and swing motor.)

1) Relief Operation

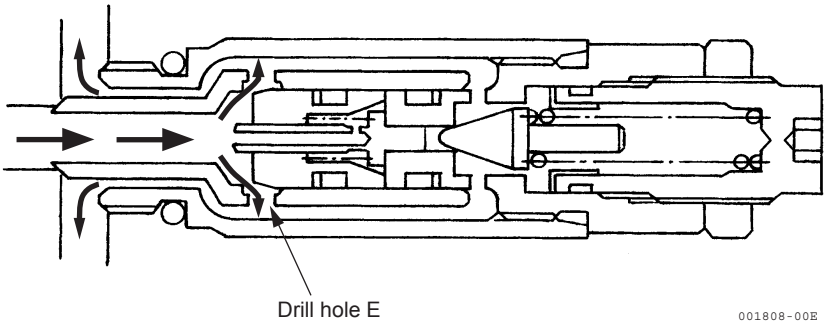
(1) Pressure oil flows through the inside of the piston installed in the pressure control valve (the parent valve) and the throttle B to the inner chamber A, so that it is filled with oil. The pressure control valve and the socket are securely seated, and so are the socket and the section body seat.



(2) When the oil pressure in the port P reaches the set pressure of the regulating valve spring, the regulating valve is opened.
At this time, the pressure oil passes through the inside of the piston, the throttle B, the inner chamber A, the ring-shaped throttle C and the drill hole D in sequence, and flows outside the socket to the tank passage.

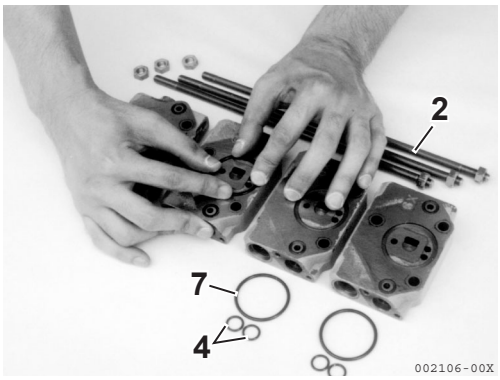
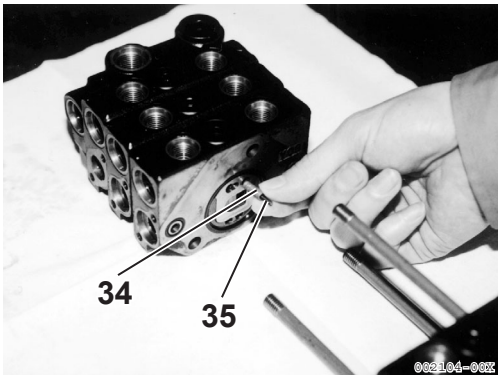
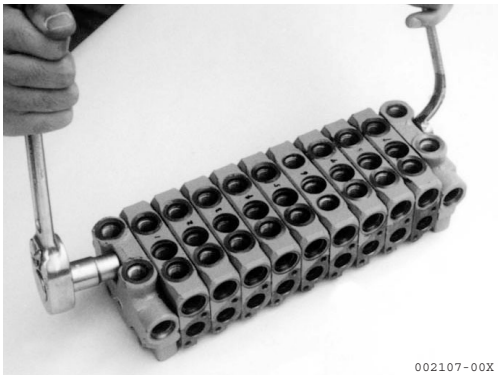
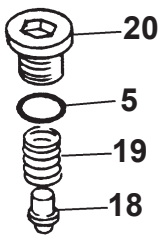
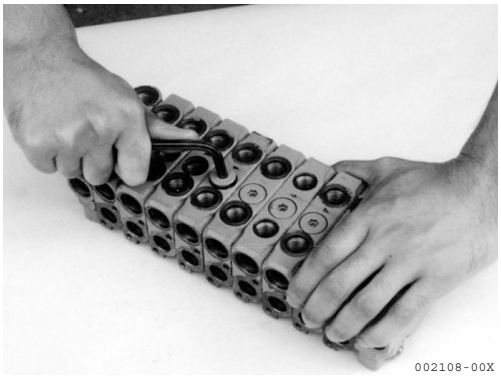


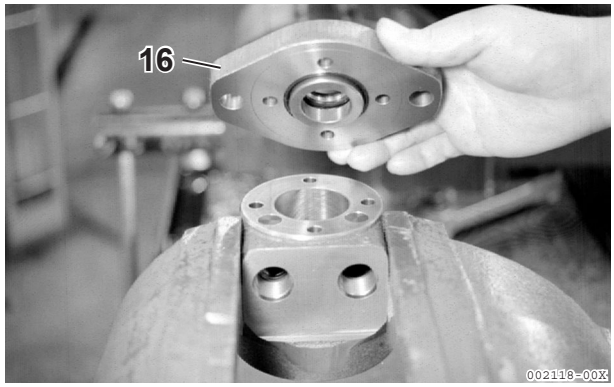
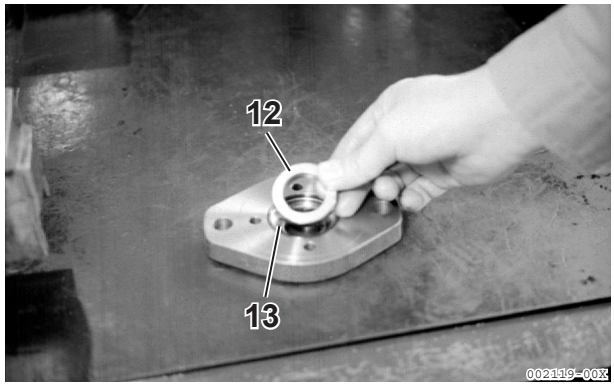
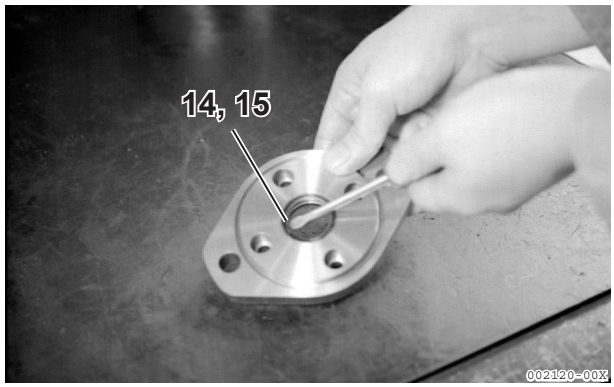
(3) When the regulating valve opens, the pressure in the inner chamber A is lowered, and consequently, the pressure control valve is opened and the pressure oil in the port P flows directly to the tank passage through the drill hole E.



(4) When the pressure in the port P lowers to less than the set pressure of the regulating valve spring, the regulating valve is pressed on the seat with the force of the regulating valve spring and the pressure in the inner chamber A becomes equal to that in the port P. Therefore, the pressure control valve is also pressed on the seat portion of the socket and returned to the original state.

5) Reassembly

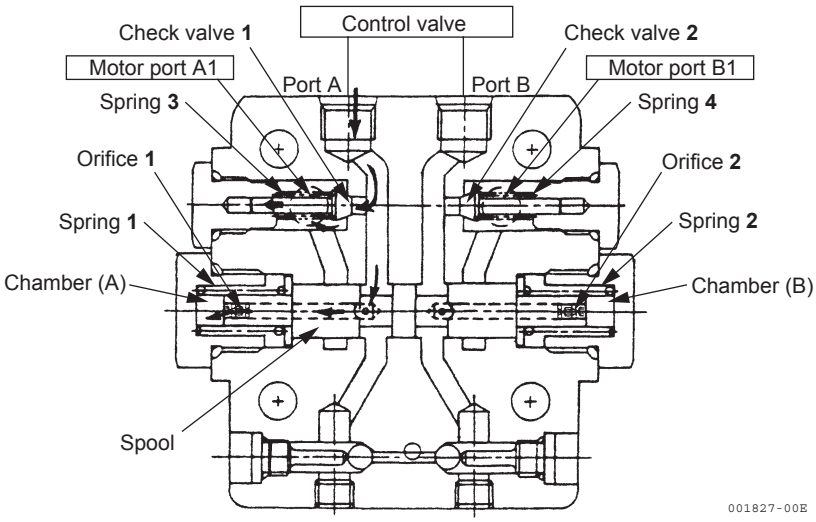
Procedure	
(1) After installing the O-rings **4** and **7** to each section, put the sections in the specified order and insert bolts **2** into them. ***Note :*** *Do not apply grease to the O-rings.*	
(2) Install the check valve **34** and the check valve spring **35** into the bucket section.	
(3) Put all the sections together and tighten the nuts at a specified tightening torque. **Tightening torque :** **13.7 to 14.7 N·m (1.4 to 1.5 kgf·m)**	
(4) Install the check valve **18**, the check valve spring **19** and the check valve holder **20** (with the O-ring **5**) to each section, and tighten the check valve holder at a specified tightening torque. **Tightening torque :** **24.5 to 29.4 N·m (2.5 to 3.0 kgf·m)** ***Note :*** *The right and left travel sections do not have the check valve **18** and the check valve spring **19**.* 	

Procedure	
(9) Remove the flange **16**.	
(10) Remove the bearing race **12** and the O-ring **13**.	
(11) Remove the oil seal **14** and the backup washer **15**.	
(12) Remove the dust seal **17**.	

2) Counter Balance Valve

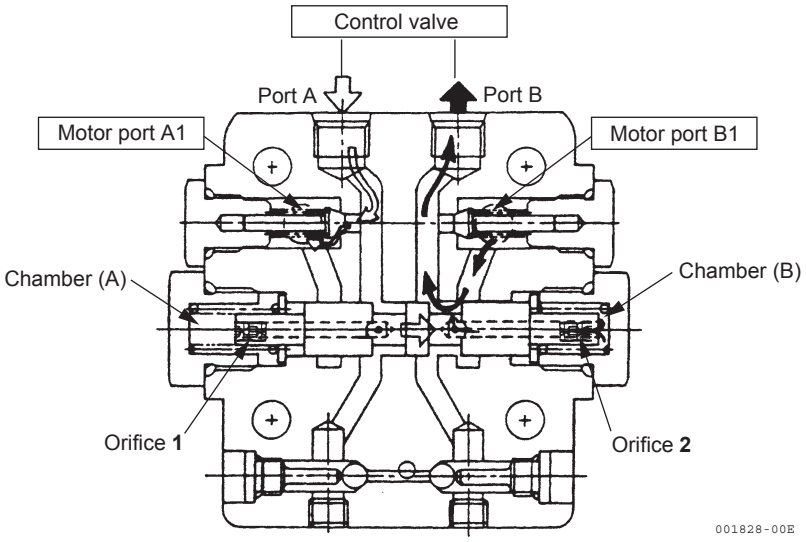
When the control valve spool is in neutral, the spool of the counter balance valve (brake valve) is placed in the neutral position by the force of the springs **1** and **2** on both sides, and the check valves **1** and **2** are seated by the springs **3** and **4**, respectively. Therefore, the oil in the port A1 and that in the port B1 are blocked to prevent the motor from rotating.

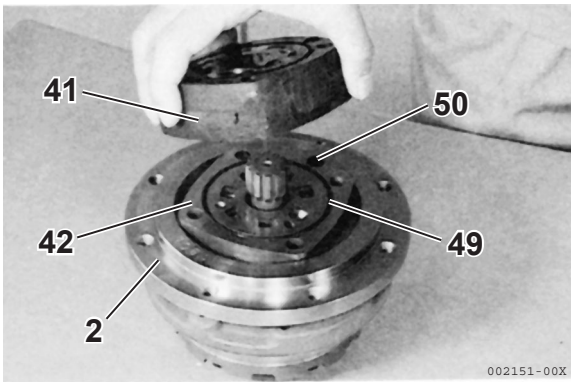
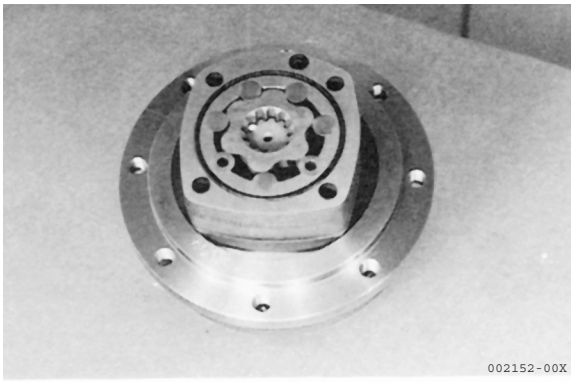
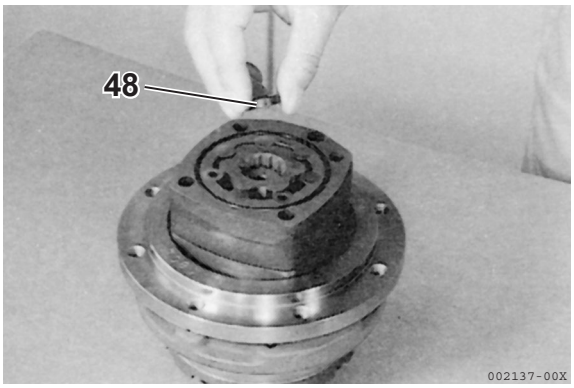
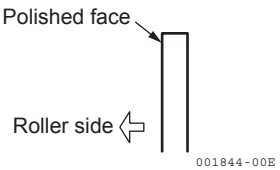
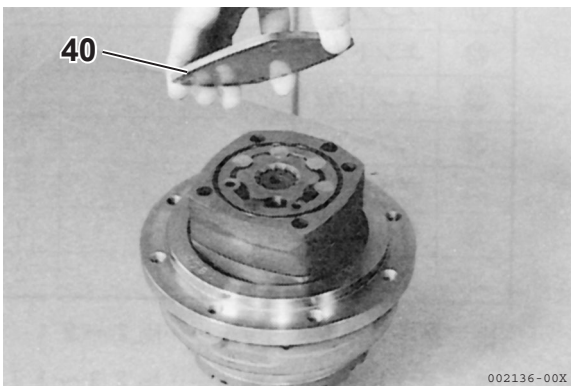
Normally, when the oil is fed from the port A, it flows through the orifice **1** of the spool to the chamber (A). Meanwhile, it opens the check valve **1** and flows to the motor port A1. While the check valve **2** is closed, and the return oil from the motor port B1 is blocked by the check valve **2** and the spool of the counter balance valve (brake valve).

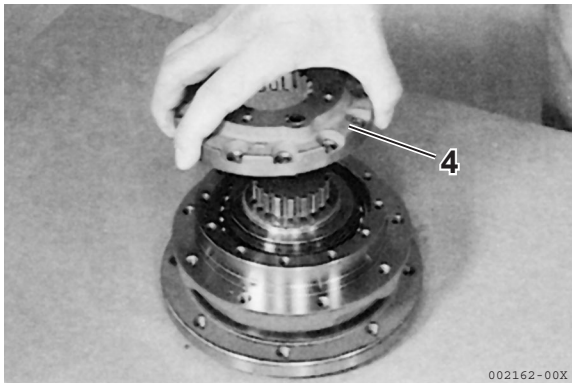
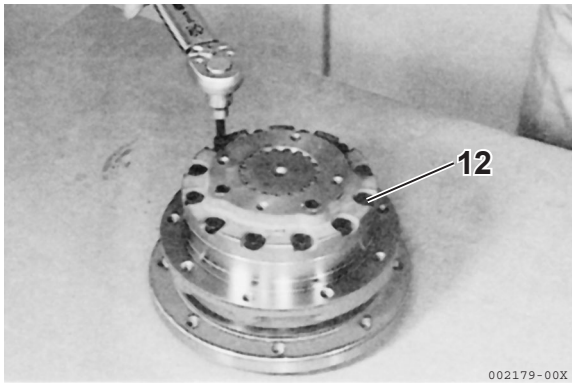
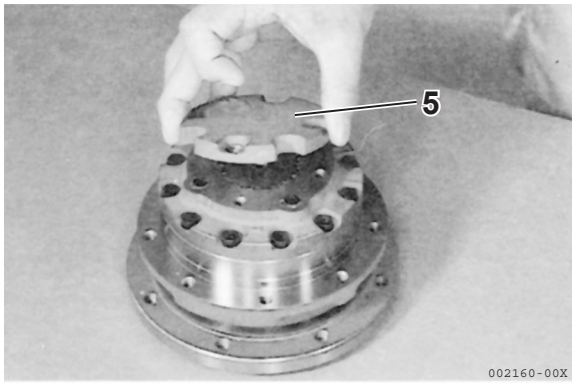
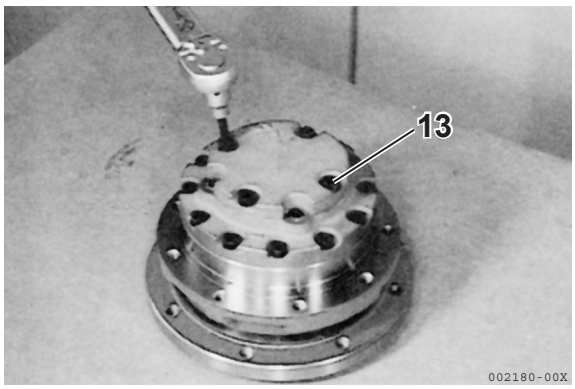


When the port A side is pressurized, the pressure oil in the chamber (A) slides the spool to the right. This spool movement connects the motor port B1 and the port B, and then the return oil from the hydraulic motor flows out to the control valve.

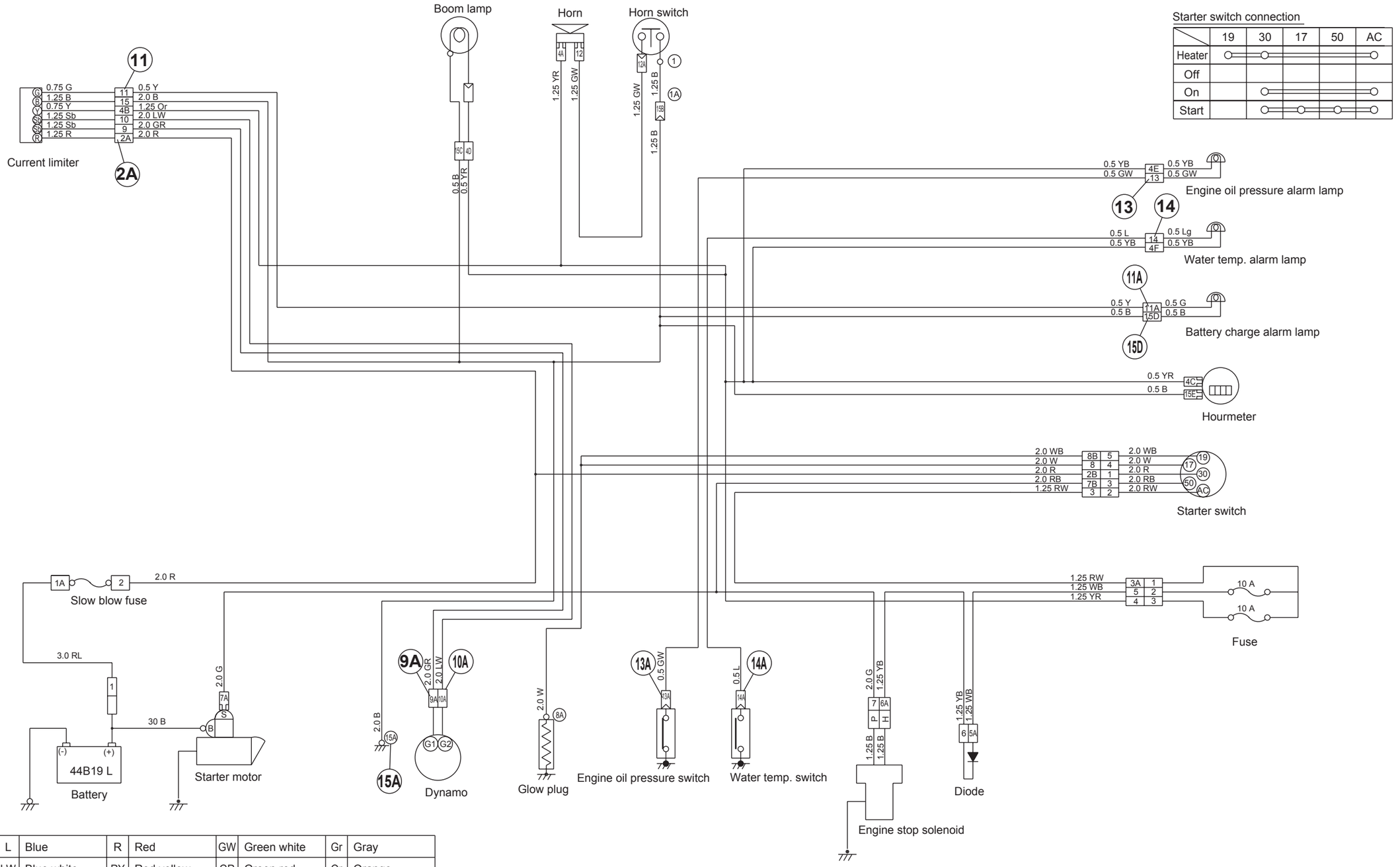
As the pressure oil in the port A slides the spool, the chamber (B) is pressurized. The pressure oil in the chamber (B) flows through the orifice **2** to the port B, so that the spool slowly moved to the right releasing the pressure.



Procedure	
(8) Install the O-rings **49** and **50** to the valve plate **42** and the roller **41** each, and then install them to the casing **2** while aligning their bolt holes and drain holes with each other. ***Note :*** *Install the roller while aligning any one of the external gear teeth of the star with the mark of the spline.*	 
(9) Install the spacer **48**.	
(10) Install the spacer plate **40**. ***Note :*** *Place the punching side of the spacer plate on the roller side.* 	

Procedure	
(9) Install the cover A **4** with the O-ring **19** installed.	
(10) Tighten the hexagon socket head bolts **12**. **Adhesive :** **Apply Three Bond 1323 N or its equivalent.** **Tighten torque :** **13.7 N·m (1.4 kgf·m)**	
(11) Install the cover B **5** with the O-ring **20** installed.	
(12) Tighten the hexagon socket head bolts **13**. **Adhesive :** **Apply Three Bond 1323 N or its equivalent.** **Tighten torque :** **13.7 N·m (1.4 kgf·m)**	

7-1-3 Wiring Diagram



Y	Yellow	L	Blue	R	Red	GW	Green white	Gr	Gray
YB	Yellow black	LW	Blue white	RY	Red yellow	GR	Green red	Or	Orange
YR	Yellow red	LR	Blue red	RW	Red white	B	Black	Br	Brown
YL	Yellow blue	LB	Blue black	RB	Red black	BR	Black red	Sb	Sky blue
W	White	LG	Blue green	RG	Red green	BW	Black white		
WB	White black	Lg	Light green	G	Green	LgR	Light green red		

2) Reinstallation

Reinstall the radiator in the reverse order of the removal procedure.

Hose clip 25 and 35	
Tightening torque	2.45 to 2.94 N·m (0.25 to 0.3 kgf·m)

Table of mixing ratio of anti-freeze to water

Lowest temperature (°C)	–5	–10	–15	–20	–25	–30	–35	–40
Amount of anti-freeze (L)	0.3	0.5	0.6	0.7	0.8	0.9	1.0	1.1
Amount of water (L)	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.9

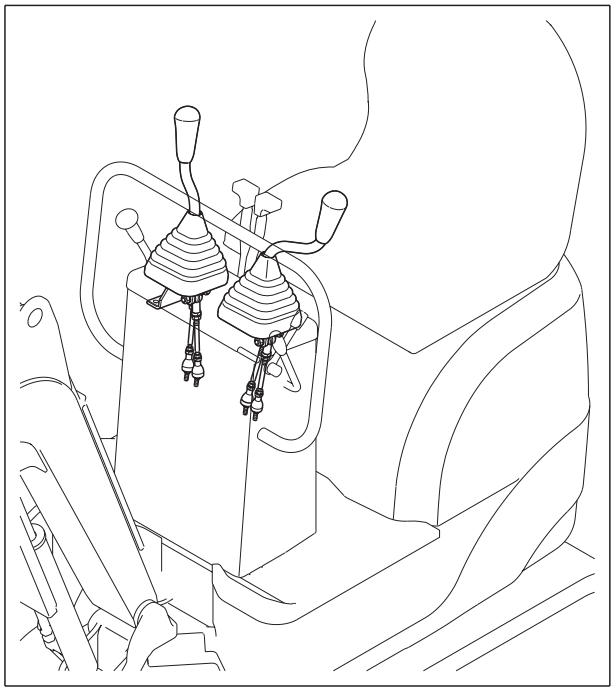
Note :

At the delivery from the factory, water and anti-freeze are mixed in the ratio shown above for the temperature of –15 degrees Celsius.

7-3 Controls

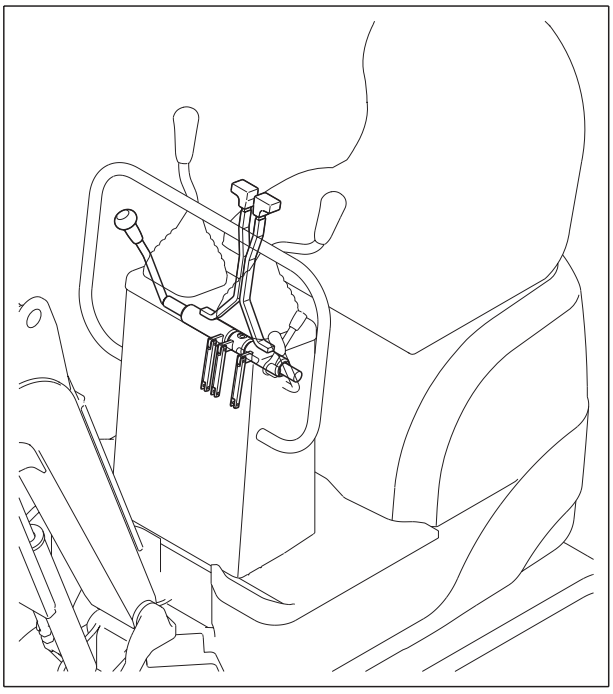
7-3-1 Control Train

1) Control Lever (R) : Boom and Bucket
Control Lever (L) : Arm and Swing



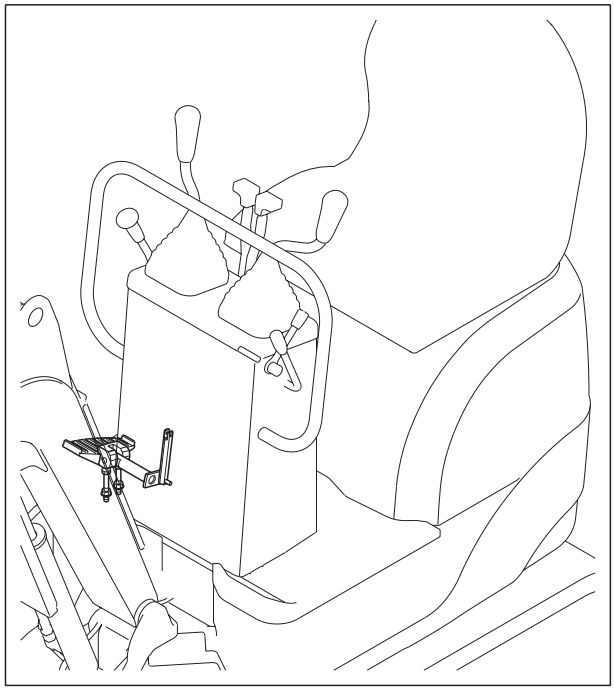
001897-00X

2) Travel and Blade Levers



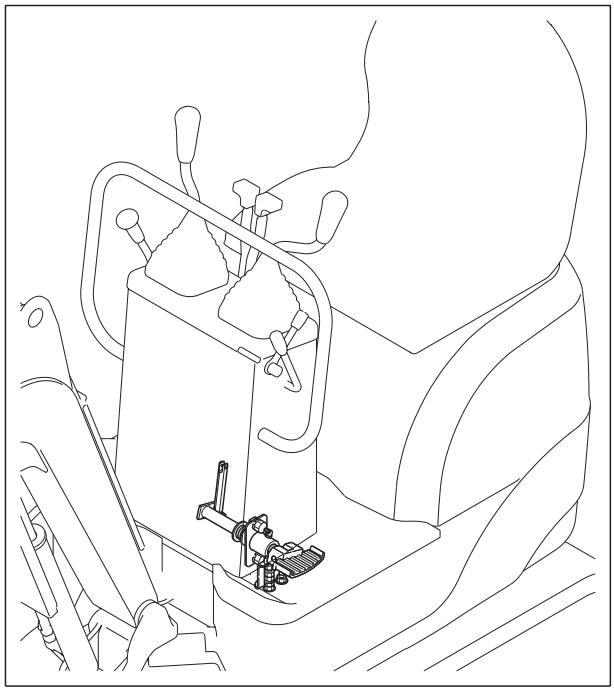
001899-00X

3) Boom Swing Pedal

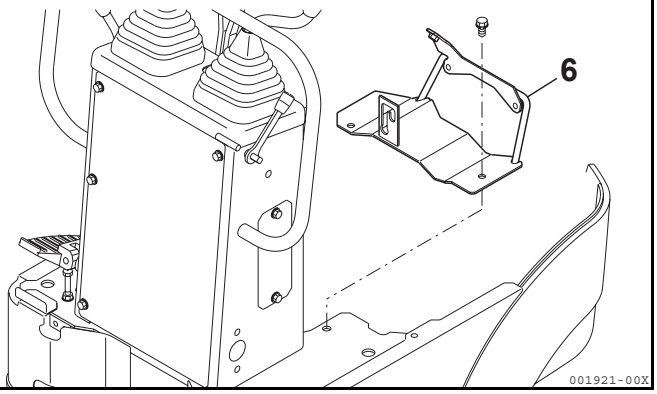


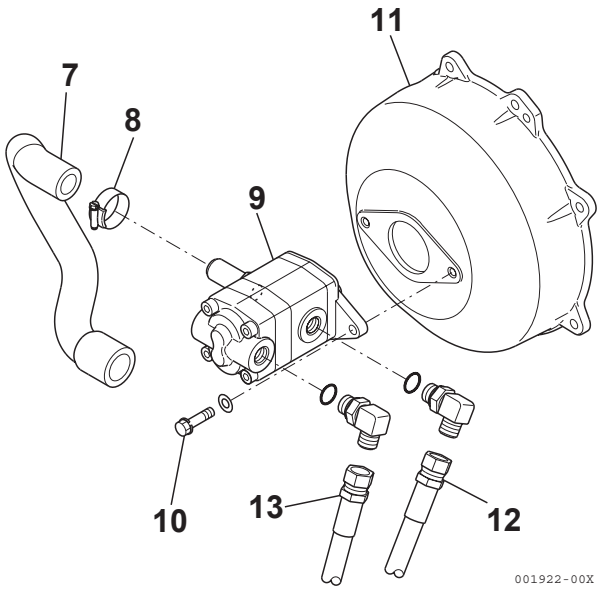
001898-00X

4) P.T.O. Pedal



001900-00X

Procedure	
(5) Remove the step **6**.	

(6) Loosen the hose band **8** and remove the suction hose **7**. (7) Remove the mounting bolts **10** and move the hydraulic pump **9** to the front to remove it from the pump mount **11**. (8) Disconnect the connectors of the hoses P1 **12** and P2 **13**, and then remove the hydraulic pump.	

2) Reinstallation

Reinstall the hydraulic pump in the reverse order of the removal procedure.

Notes :

1. *Apply heavy-duty grease to the spline shaft of the hydraulic pump.*
2. *Remove the air release plug on the top of the hydraulic oil tank when replenishing hydraulic oil into the hydraulic oil tank.*
   [Air release plug tightening torque: 11.8 N·m (0.12 kgf·m)]
3. *After the installation of the hydraulic pump, make a test run and operate the relief valves to check for oil leak or other abnormality.*

3) Precautions for Handling and Storing Seals

(1) O-rings are packed in the package that is suitable for storage.
(2) Do not leave O-rings outside the packages.
(3) For storing, put O-rings in the packages and place them in a dark and cool place (in a parts box or cardboard box) under 40°C to avoid direct sunlight. If the storage condition is proper, they can be stored for four or five years.
(4) Do not put anything on O-rings, or they may be distorted.

4) How to Fit O-rings (for Inner Side)

• Fitting

(1) Confirm that the seal groove and the seal ring surface is dry.
(2) Use lithium soap base multipurpose grease (cone penetration No.1 or No.2).
(3) To fit a seal ring, make it heart-shaped as shown in the figures at the right and press one end of it into the groove. Then, fit the whole seal ring, pressing it with your finger (Figs. 1 and 2).
(4) When using a jig for fitting seal rings, use a jig with round edges to avoid damaging the seal rings. (Fig. 3)
(5) If the seal ring is distorted after fitted, correct the distortion with a jig before assembly. (Fig. 4)

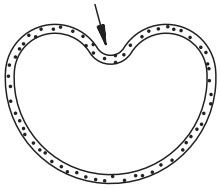


Fig. 1

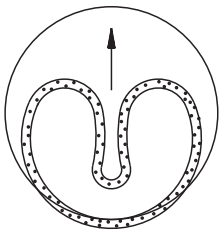


Fig. 2

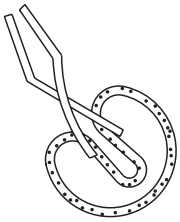


Fig. 3

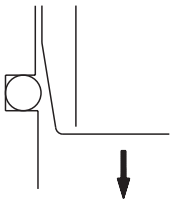


Fig. 4

001940-00E

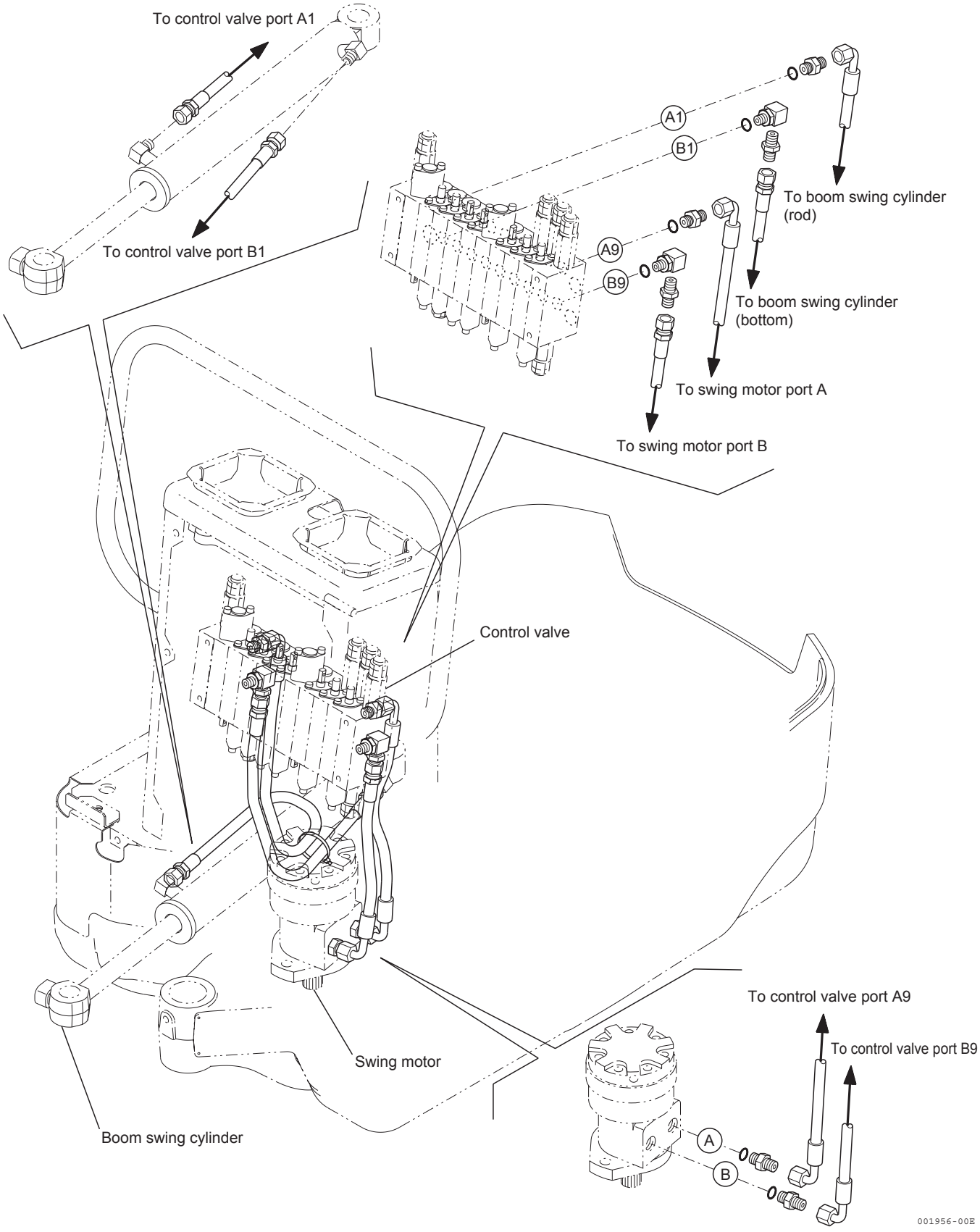
5) Repair and Replacement of Parts

(1) Disassemble and reassemble at a place free from dust.
(2) Completely remove the contamination, foreign matter (sludge), etc. from the removed parts.
(3) Check the seal surface of the shaft for flaws and nicks.
Repair or replace the shaft when necessary.
(4) Replace the shaft if it is worn.
(5) Replace all seals with new ones in reassembly.

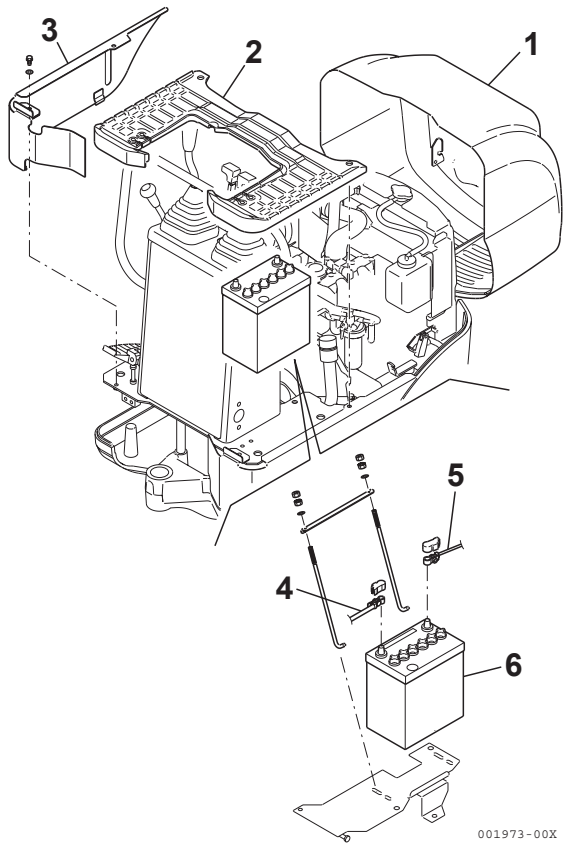
2) Upperstructure

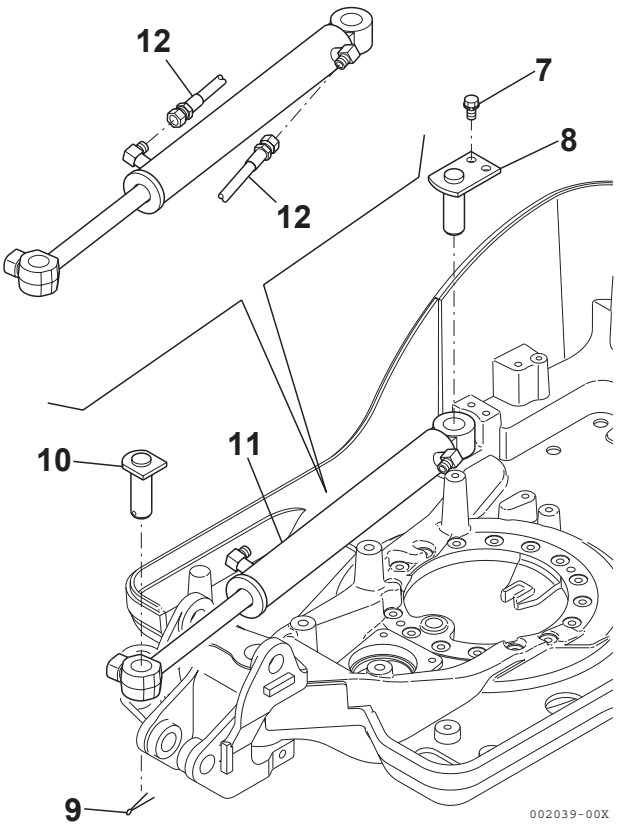
(Control valve - Swing motor)

(Control valve - Boom swing cylinder)



6) Removal of Boom Swing Cylinder

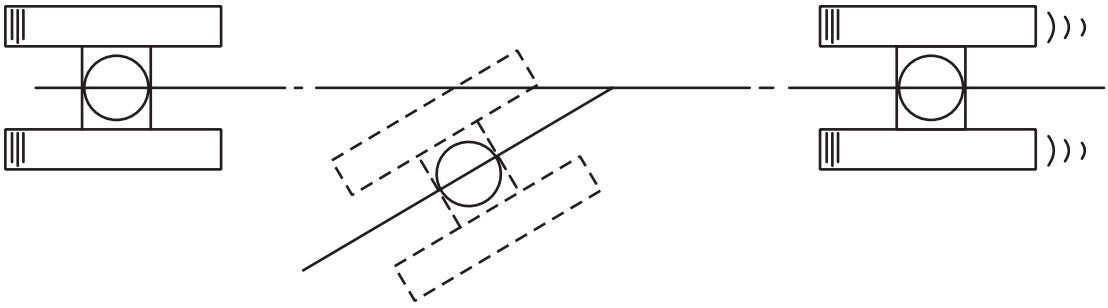
Procedure	
(1) Open the engine hood **1** and remove the floor mat **2** and the side cover R **3**. (2) Disconnect the positive battery cable **5** and the negative battery cable **4**. Then remove the battery **6**.	

(3) Remove the bolts **7** to pull out the pin **8**. (4) Remove the split pin **9** to pull out the pin **10**. (5) Pull the boom swing cylinder **11** out of the frame and remove the hydraulic hoses **12**. ***Note :*** *Take care not to drop the cylinder on your foot.*	

10-1-4 Thermal Shock of Travel Motor

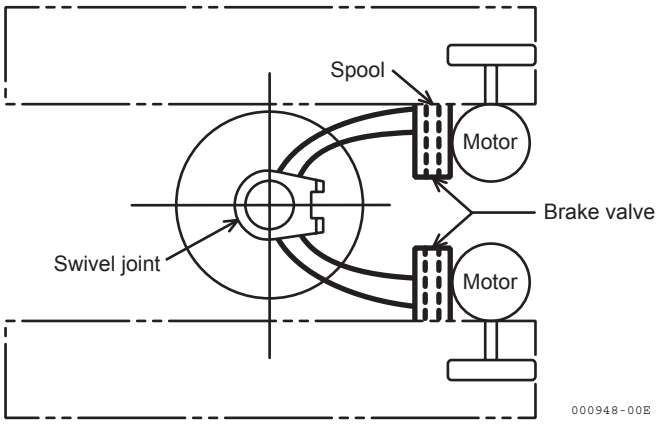
Phenomenon

When the travelling operation is made for pivot turning in cold temperatures after raising the hydraulic oil to more than 140°F (60°C) higher than the ambient temp. through relief valve operation, etc., without travelling after starting the engine, the machine may travel straight instead of making a pivot turn.



(Travel straight in spite of turning operation.) 000947-00E

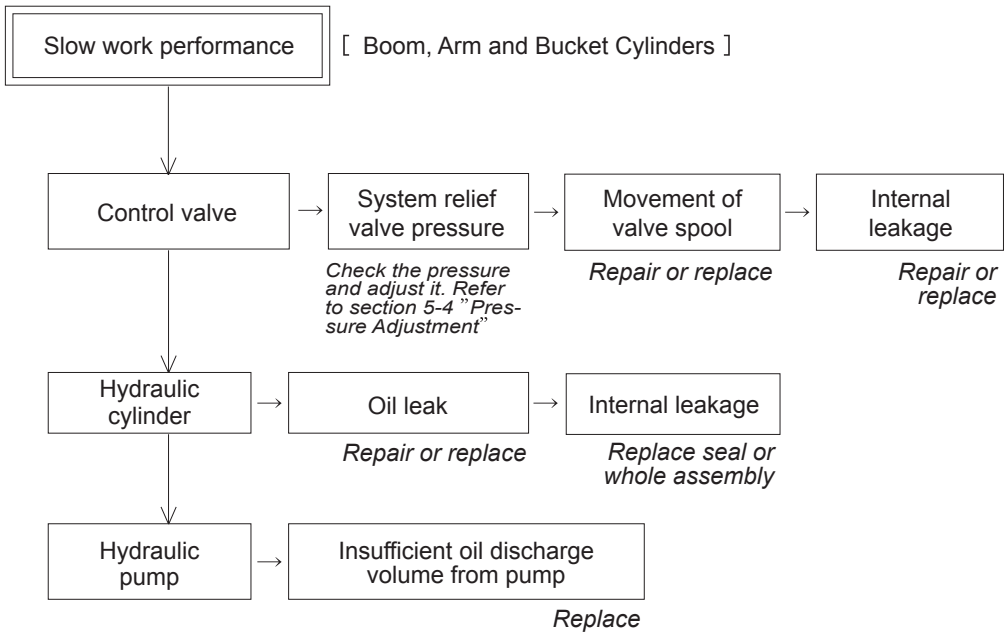
Reason

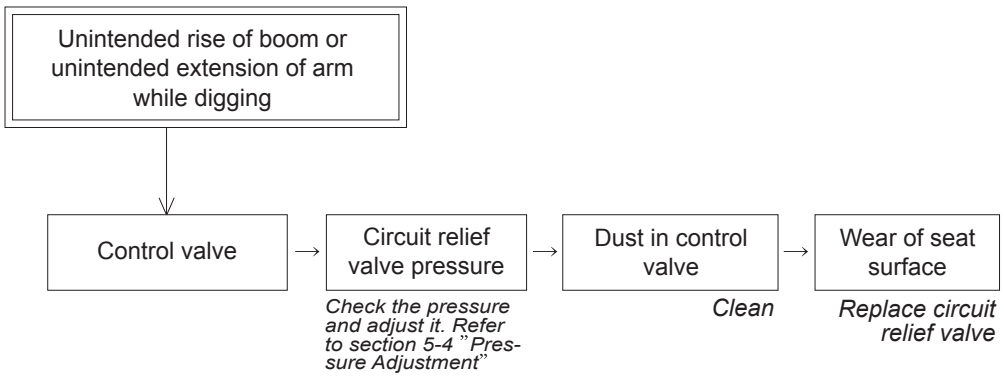


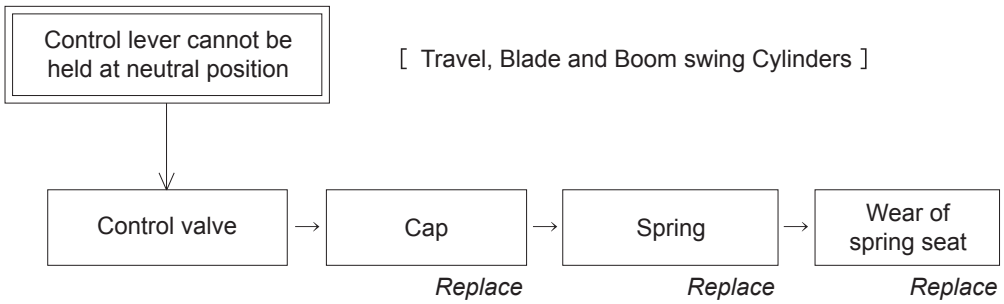
When the hot hydraulic oil is suddenly fed to the cold brake valve and motor, the spool in the brake valve sticks momentarily due to thermal expansion, canceling the braking force.

Evaluation

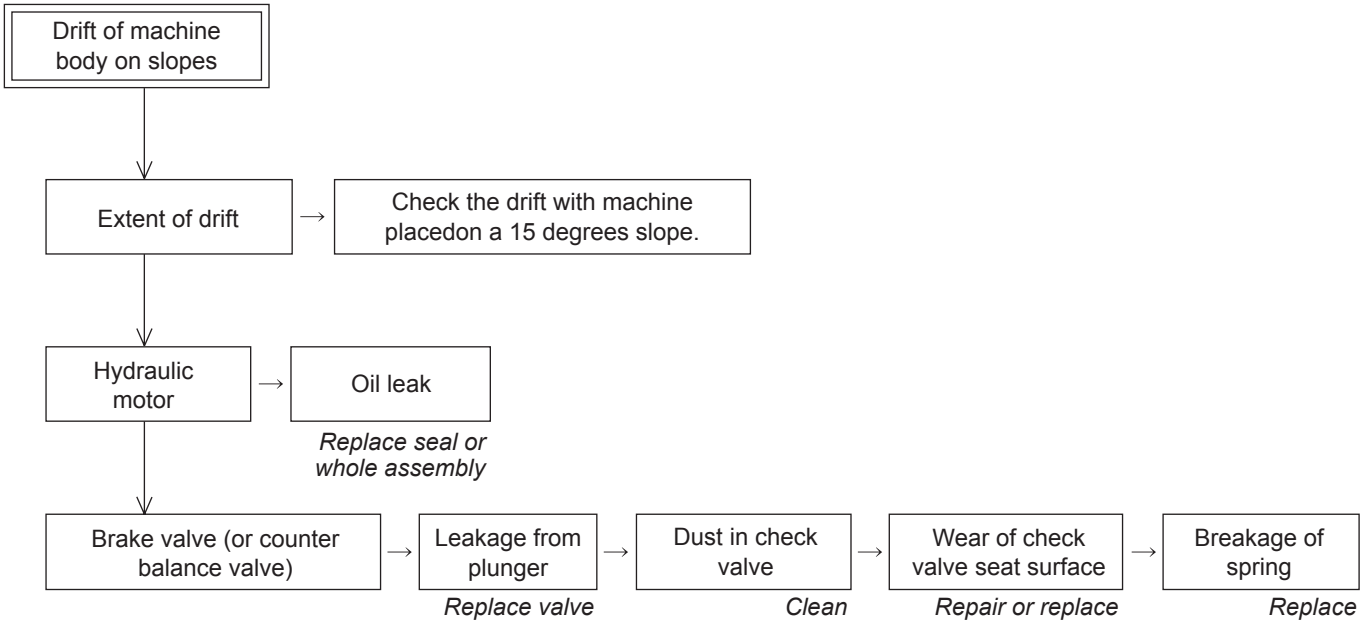
Since the phenomenon disappears in 20 to 30 seconds and this situation is generally rare, this phenomenon presents no problem.


Slow work performance
[Boom, Arm and Bucket Cylinders]
Control valve
System relief valve pressure
Movement of valve spool
Internal leakage
Check the pressure and adjust it. Refer to section 5-4 "Pressure Adjustment"
Repair or replace
Repair or replace
Hydraulic cylinder
Oil leak
Internal leakage
Repair or replace
Replace seal or whole assembly
Hydraulic pump
Insufficient oil discharge volume from pump
Replace


Unintended rise of boom or unintended extension of arm while digging
Control valve
Circuit relief valve pressure
Dust in control valve
Wear of seat surface
Check the pressure and adjust it. Refer to section 5-4 "Pressure Adjustment"
Clean
Replace circuit relief valve


Control lever cannot be held at neutral position
[Travel, Blade and Boom swing Cylinders]
Control valve
Cap
Spring
Wear of spring seat
Replace
Replace
Replace

001162-00E



Inspection procedures

Check the drift with the machine placed on a slope with an inclination angle below 15 degrees.

[1] Continuous drift : Brake valve (or counter balance valve) is faulty.

[2] Discontinuous drift : Hydraulic motor is faulty.