SEN00986-15

Shop Manual

BULLDOZER

D375A-5E0

SERIAL NUMBERS 50001 and up

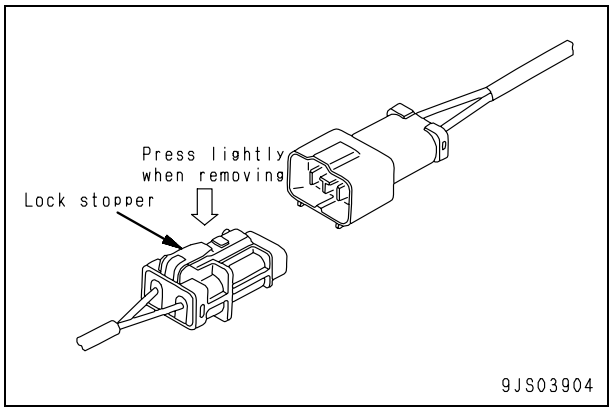
ecot3

KOMATSU

3. Removing, installing, and drying connectors and wiring harnesses

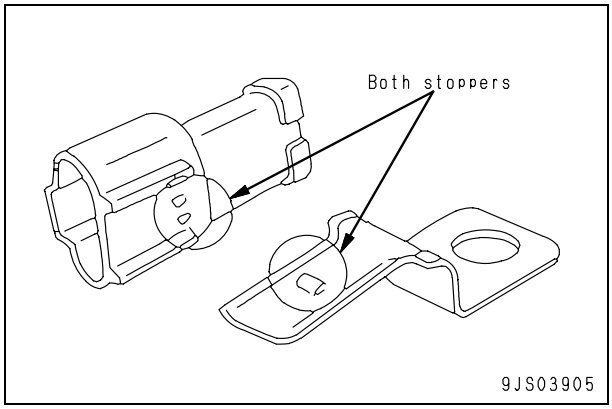
1) Disconnecting connectors

1] Hold the connectors when disconnecting.
When disconnecting the connectors, hold the connectors. For connectors held by a screw, loosen the screw fully, then hold the male and female connectors in each hand and pull apart. For connectors which have a lock stopper, press down the stopper with your thumb and pull the connectors apart.
★ Never pull with one hand.

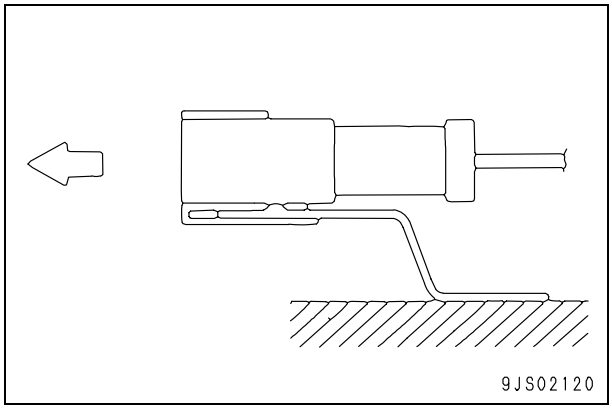


2] When removing from clips

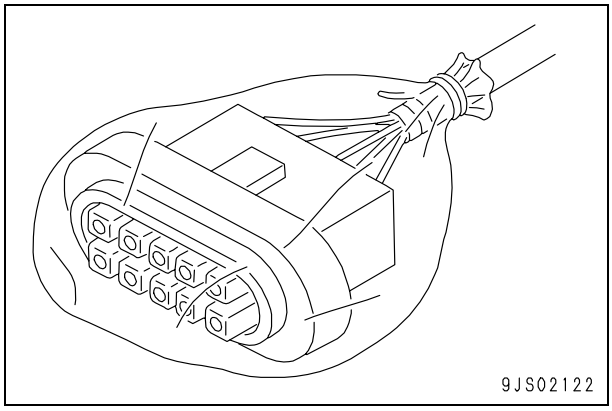
- Both of the connector and clip have stoppers, which are engaged with each other when the connector is installed.



- When removing a connector from a clip, pull the connector in a parallel direction to the clip for removing stoppers.
★ If the connector is twisted up and down or to the left or right, the housing may break.



3] Action to take after removing connectors
After removing any connector, cover it with a vinyl bag to prevent any dust, dirt, oil, or water from getting in the connector portion.
★ If the machine is left disassembled for a long time, it is particularly easy for improper contact to occur, so always cover the connector.



Method of disassembling and connecting push-pull type coupler

⚠ Before carrying out the following work, loosen the oil filler cap of the hydraulic tank gradually to release the residual pressure from the hydraulic tank.

⚠ Even if the residual pressure is released from the hydraulic tank, some hydraulic oil flows out when the hose is disconnected. Accordingly, prepare an oil receiving container.

Type 1

1. Disconnection

1) Hold adapter (1) and push hose joint (2) into mating adapter (3). (Fig. 1)
   - ★ The adapter can be pushed in about 3.5 mm.
   - ★ Do not hold rubber cap portion (4).
2) After hose joint (2) is pushed into adapter (3), press rubber cap portion (4) against adapter (3) until it clicks. (Fig. 2)
3) Hold hose adapter (1) or hose (5) and pull it out. (Fig. 3)
   - ★ Since some hydraulic oil flows out, prepare an oil receiving container.

Fig. 1

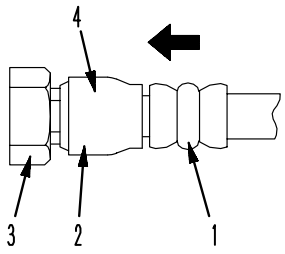


Fig. 2

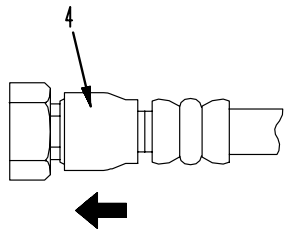
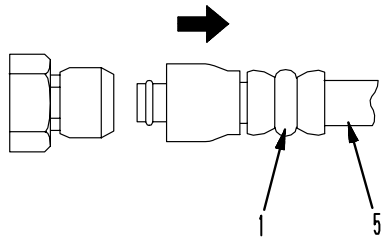


Fig. 3



9JS02109

2. Connection

1) Hold hose adapter (1) or hose (5) and insert it in mating adapter (3), aligning them with each other. (Fig. 4)
   - ★ Do not hold rubber cap portion (4).
2) After inserting the hose in the mating adapter perfectly, pull it back to check its connecting condition. (Fig. 5)
   - ★ When the hose is pulled back, the rubber cap portion moves toward the hose about 3.5 mm. This does not indicate abnormality, however.

Fig. 4

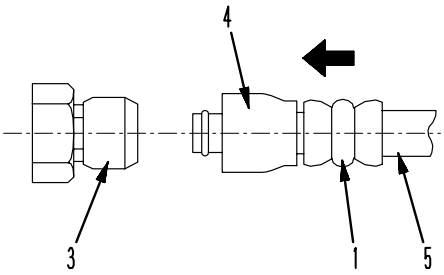
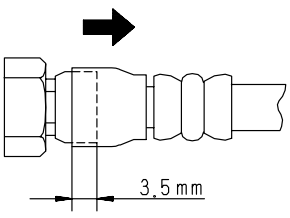


Fig. 5



9JS02110

Specifications

Machine model				D375A-5E0
Serial number				50001 and up
Weight	Machine weight • Bare tractor with semi U-dozer • Ditto with variable multi-shank ripper • Ditto with ROPS cab + Air conditioner + Seat belt + Perforated side cover + SSC		kg	52,280 62,820 69,540 70,800
Performance	Minimum turning radius		m	4.2
	Gradeability		deg.	30
	Stability (front, rear, left, right)		deg.	35
	Transmission speed ranges	Forward 1st speed 2nd speed 3rd speed	km/h	0 – 3.5 0 – 6.8 0 – 11.8
		Reverse 1st speed 2nd speed 3rd speed	km/h	0 – 4.6 0 – 9.2 0 – 15.8
	Ground pressure	Bare tractor With semi U-dozer With semi U-dozer + Variable multi-shank ripper Ditto with ROPS cab + air conditioner + Seat belt + Perforated side cover + SSC	kPa {kg/cm^2}	104.53 {1.07} 126.55 {1.29} 140.11 {1.43} 142.89 {1.46}
Dimensions	Overall length	Bare tractor With semi U-dozer With semi U-dozer + Variable multi-shank ripper With U dozer + Variable multi-shank ripper	mm	5,905 7,715 10,120 10,535
	Overall width	Bare tractor With semi U-dozer With U-dozer	mm	3,240 4,695 5,140
	Overall height	To top of exhaust pipe To top of air intake duct	mm	4,265 3,525
	Track gauge		mm	2,500
	Length of track on ground			3,980
	Track shoe width			610
	Minimum ground clearance			662

IM : Control current input connector
P1C : Pump pressure pickup plug
PA1 : Pump discharge port
PA2 : Pump discharge port
PAEPC1 : EPC output pressure pickup plug
PAEPC2 : EPC output pressure pickup plug
PD1 : Drain port
PD2 : Drain port
PDA1 : Air bleeder
PDA2 : Air bleeder
PEN : Control pressure pickup plug
PEPC1 : EPC valve basic pressure input port
PEPC2 : EPC valve basic pressure input port
PS1 : Pump suction port
PS2 : Pump suction port
T0 : Drain port

1. LPV90 Cooling fan pump
2. LPV30 Cooling fan pump
3. EPC valve

1. Outer body
2. Engine flywheel
3. Output shaft
4. Coupling
5. Universal joint
6. Flange
7. Rubber coupling
8. Cover
9. Breather
10. Oil level gauge tube

Outline

- The damper protects the power train (such as the torque converter and transmission) by buffering torsional vibrations resulting from fluctuations in engine torque or impact torque resulting from sudden acceleration or heavy-duty operation.
- The rubber coupling on the damper efficiently absorbs vibrations by rubber material's internal damping effects and deformation as well as frictional damping effects of the rubber material. This arrangement also helps reducing number of components used.

Operation

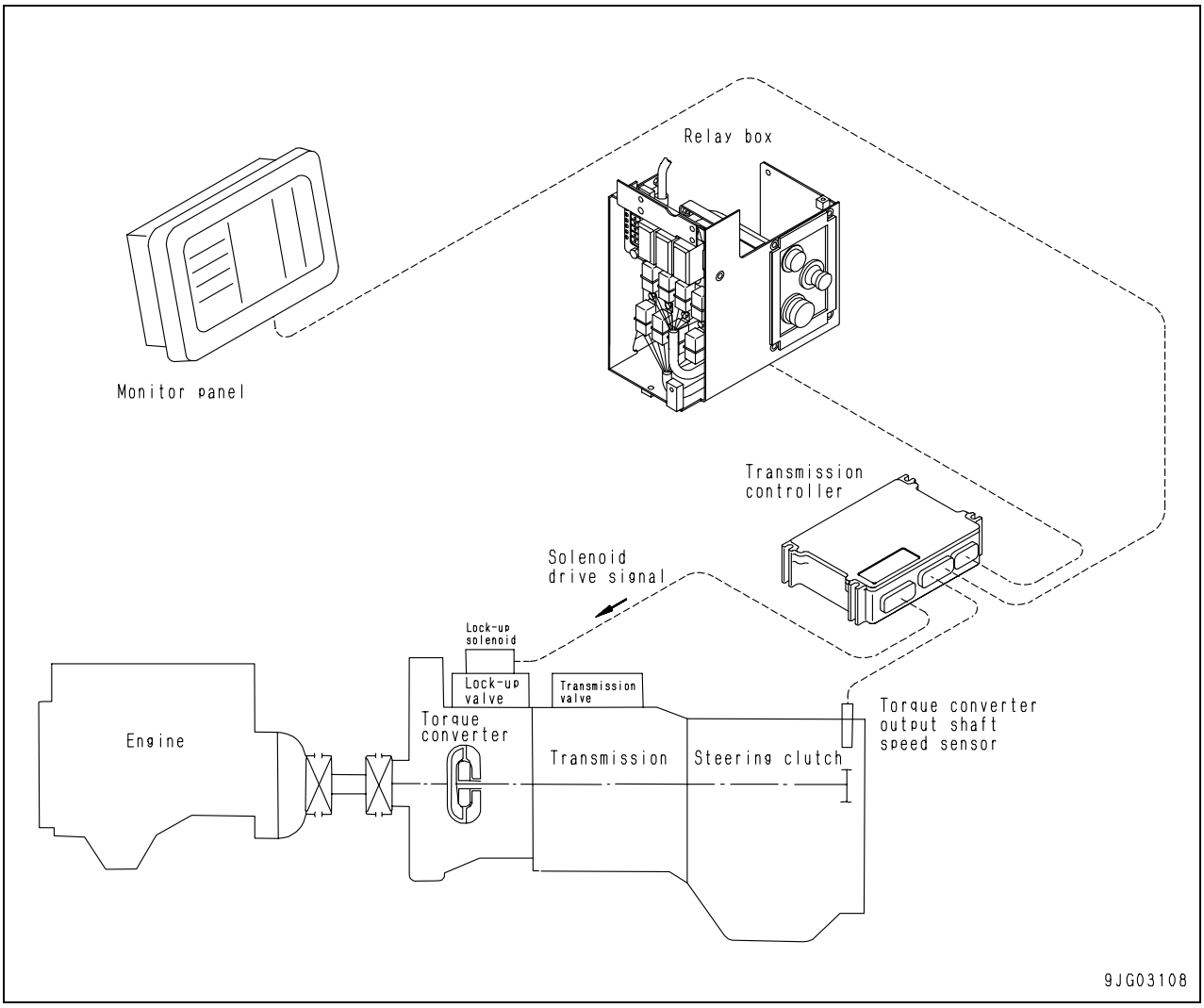
- Motive power of engine is transmitted to the flywheel (2) and outer body (1) through the rubber coupling (7). After absorption of torsional vibrations of the engine by the rubber coupling, power is then transmitted to the coupling (4) via the output shaft (3).
  Then, power is further transmitted from the coupling to the universal joint (5) up to the torque converter input shaft.

Unit: mm

<table>
<tr><th>No.</th><th>Check item</th><th colspan="5">Criteria</th><th>Remedy</th></tr>
<tr><td rowspan="2">11</td><td rowspan="2">Clearance between the flywheel housing and cover</td><td rowspan="2">Standard size</td><td colspan="2">Tolerance</td><td rowspan="2">Standard clearance</td><td rowspan="2">Clearance limit</td><td rowspan="6">Replace</td></tr>
<tr><td>Shaft</td><td>Hole</td></tr>
<tr><td>647.7</td><td>–0.024
–0.105</td><td>+0.080
0</td><td>0.024 –
0.185</td><td>0.2</td></tr>
<tr><td>12</td><td>Clearance between the flywheel and damper</td><td>546.0</td><td>–0.022
–0.092</td><td>+0.110
0</td><td>0.022 –
0.202</td><td>0.25</td></tr>
<tr><td rowspan="2">13</td><td rowspan="2">Outside diameter of the coupling’s oil seal contact surface</td><td colspan="3">Standard size</td><td colspan="2">Repair limit</td></tr>
<tr><td colspan="3">0
110 – 0.035</td><td colspan="2">109.9</td></tr>
<tr><td>14</td><td>Outside diameter of the output shaft’s oil seal contact surface</td><td colspan="3">0
110 – 0.035</td><td colspan="2">109.9</td></tr>
<tr><td>15</td><td>Dimension between the bearing and holder</td><td colspan="3">53 ± 0.1</td><td colspan="2">52.7</td></tr>
</table>

Torque Converter Lock-up Control System

System diagram



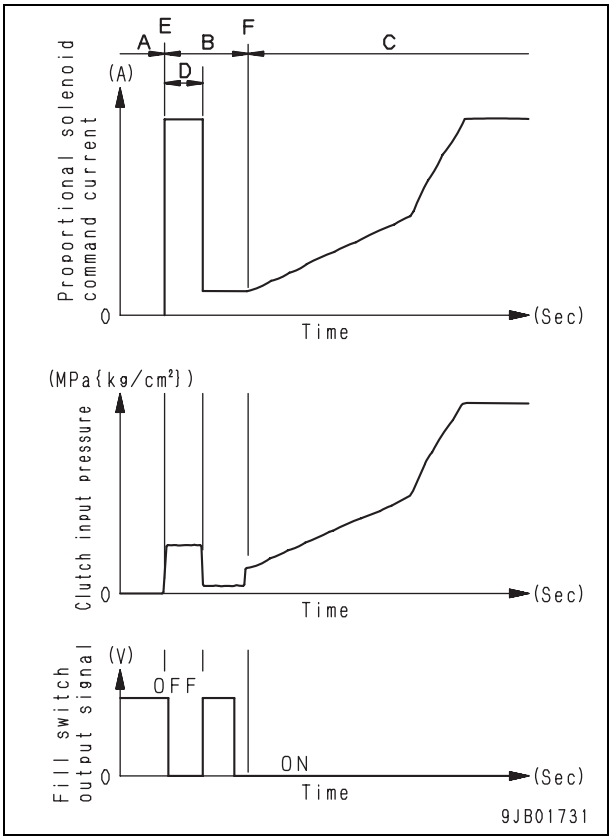
Operation

- The torque converter lock-up control system automatically locks up the torque converter depending on the load of a machine by one sensor signal and controller. When the torque converter is locked up, the indicator lamp on the monitor panel lights up.
- The transmission output shaft rotation sensor signal is input to the transmission controller.
- Set the lock-up mode on the mode selection panel.
- The machine body controller receives the transmission controller gear speed information, and the transmission output shaft rotation sensor signal which is sent to connect or disconnect the lock-up solenoid and indicator lamp, performing the ON/OFF of the lock-up.

Outline of ECMV

- The ECMV consists of 1 pressure control valve and 1 fill switch.
- **Pressure control valve**
  This valve receives the current sent from the transmission controller with a proportional solenoid, and then converts it into oil pressure.
- **Fill switch**
  This switch detects that the clutch is filled with oil and has the following functions.

1. Outputs a signal (a fill signal) to the controller to notify that filling is completed when the clutch is filled with oil.
2. Keeps outputting signals (fill signals) to the controller to notify whether oil pressure is applied or not while oil pressure is applied to the clutch.



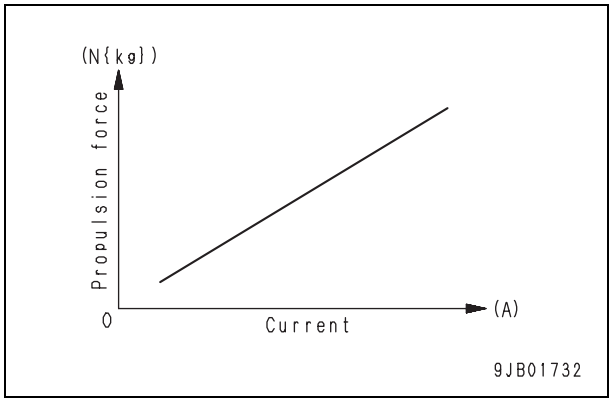
Range A: Before shifting gear (When draining)
Range B: During filling
Range C: Pressure regulation
Range D: During filling (During triggering)
Range E: Start of filling
Range F: Finish of filling

★ The logic is so made that the controller will not recognize completion of filling even if the fill switch is turned "ON" during triggering (Range D).

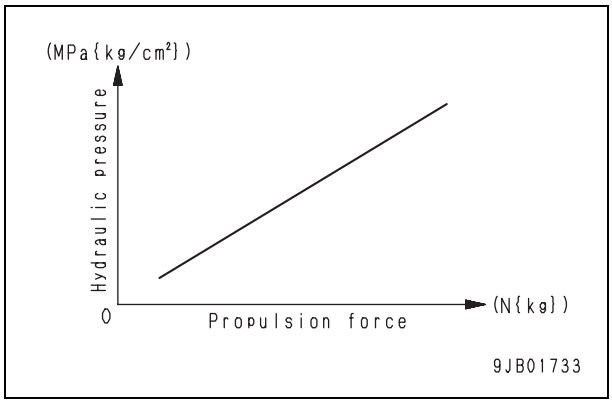
ECMV and proportional solenoid

- For each ECMV, 1 proportional solenoid is installed.
  The proportional solonoid generates thrust shown below according to the command current from the controller.
  The thrust generated by the proportional solenoid is applied to the pressure control valve spool to generate oil pressure as shown in the figure below. Accordingly, the thrust is changed by controlling the command current to operate the pressure control valve to control the flow and pressure of the oil.

Current – propulsion force characteristics of proportional solonoid



Propulsion force – Hydraulic pressure characteristics of proportional solenoid



ECMV and fill switch

- For each ECMV, 1 fill switch is installed.
  If the clutch is filled with oil, the fill switch is turned "ON" by the pressure of the clutch. The oil pressure is built up according to this signal.

Unit: mm

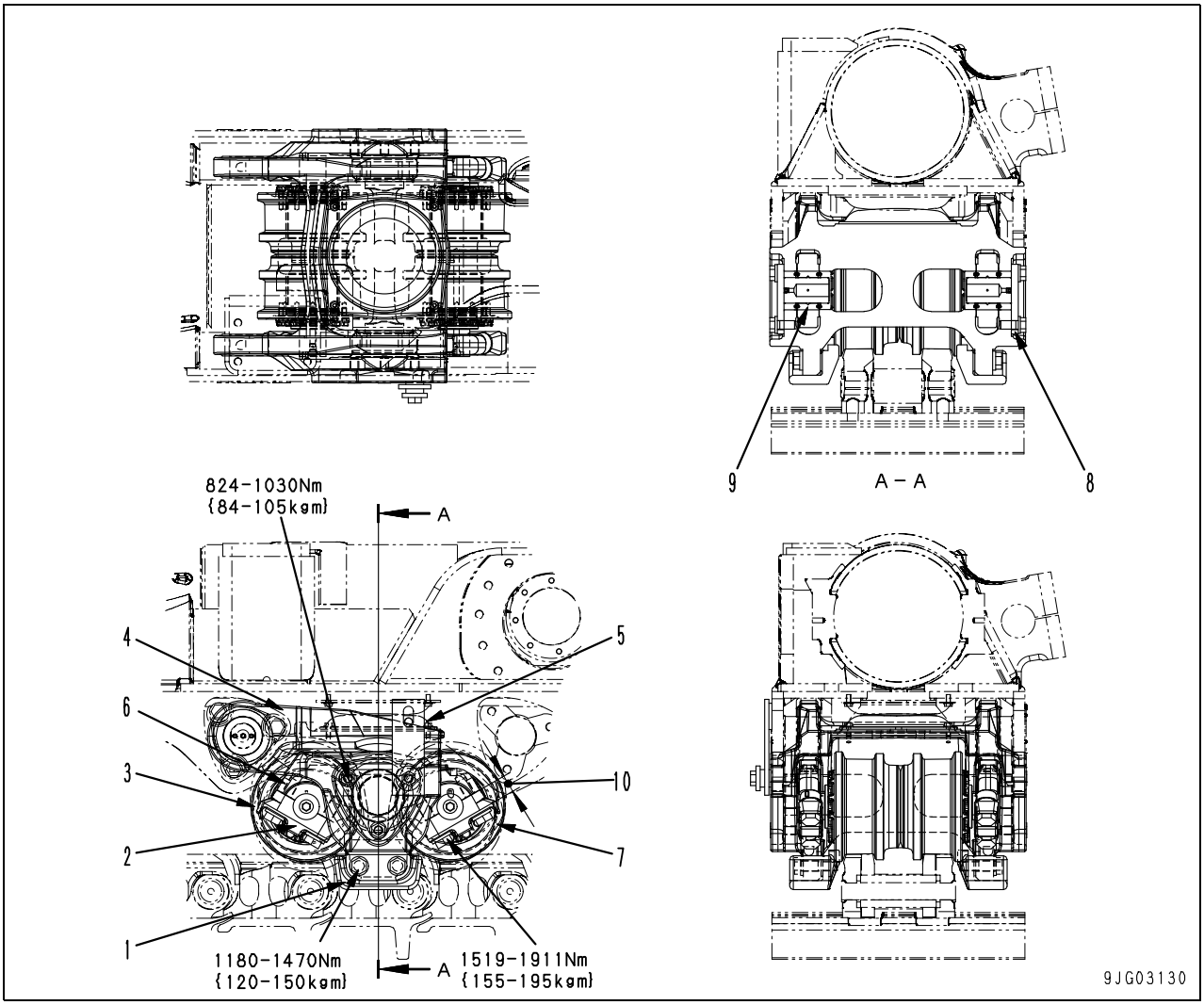
<table>
<tr><th>No.</th><th>Check item</th><th colspan="6">Criteria</th><th>Remedy</th></tr>
<tr><td rowspan="4">1</td><td rowspan="2">Thickness of brake, clutch plate</td><td colspan="3">Standard size</td><td colspan="2">Repair limit</td><td rowspan="2">Replace</td></tr>
<tr><td colspan="3">2.9</td><td colspan="2">2.6</td></tr>
<tr><td rowspan="2">Distortion of brake, clutch plate</td><td colspan="3">Tolerance</td><td colspan="2">Repair limit</td><td rowspan="2">Repair or replace</td></tr>
<tr><td colspan="3">Less than 0.3</td><td colspan="2">0.4</td></tr>
<tr><td rowspan="4">2</td><td rowspan="2">Thickness of brake, clutch disc</td><td colspan="3">Standard size</td><td colspan="2">Repair limit</td><td rowspan="2">Replace</td></tr>
<tr><td colspan="3">4.7</td><td colspan="2">4.2</td></tr>
<tr><td rowspan="2">Distortion of brake, clutch</td><td colspan="3">Tolerance</td><td colspan="2">Repair limit</td><td rowspan="2">Repair or replace</td></tr>
<tr><td colspan="3">Less than 0.3</td><td colspan="2">0.4</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Overall assembled thickness of brake plates and discs</td><td colspan="3">Standard size</td><td colspan="2">Repair limit</td><td rowspan="5">Replace</td></tr>
<tr><td colspan="3">68.4</td><td colspan="2">64.7</td></tr>
<tr><td>4</td><td>Overall assembled thickness of clutch plates and discs</td><td colspan="3">68.4</td><td colspan="2">65.4</td></tr>
<tr><td rowspan="2">5</td><td rowspan="2">Backlash between brake, clutch disc and brake hub</td><td colspan="3">Standard clearance</td><td colspan="2">Repair limit</td></tr>
<tr><td colspan="3">0.17 – 0.52</td><td colspan="2">1.0</td></tr>
<tr><td>6</td><td>Backlash between bevel gear and pinion</td><td colspan="3">0.3 – 0.4</td><td colspan="2">0.75</td><td>Adjust or replace</td></tr>
<tr><td rowspan="2">7</td><td rowspan="2">Inside diameter of cage seal ring contact surface</td><td rowspan="2">Standard size</td><td colspan="2">Tolerance</td><td rowspan="2">Standard clearance</td><td rowspan="2">Clearance limit</td><td rowspan="5">Replace</td></tr>
<tr><td>Shaft</td><td>Hole</td></tr>
<tr><td>290</td><td>–0.5
–0.7</td><td>+0.081
0</td><td>0.5 –
0.781</td><td></td></tr>
<tr><td>8</td><td>Inside diameter of piston seal ring contact surface</td><td>245</td><td>–0.050
–0.122</td><td>+0.046
0</td><td>0.050 –
0.168</td><td></td></tr>
<tr><td rowspan="3">9</td><td rowspan="3">Brake spring</td><td colspan="3">Standard size</td><td colspan="2">Repair limit</td></tr>
<tr><td>Free length</td><td>Installed length</td><td>Installed load</td><td>Free length</td><td>Installed load</td></tr>
<tr><td>17.1</td><td>11.2</td><td>38.7 kN
{3,950 kg}</td><td>16.5</td><td>33.9 kN
{3,460 kg}</td></tr>
<tr><td>10</td><td>Clutch spring</td><td>17.6</td><td>11.6</td><td>37.9 kN
{3,860 kg}</td><td>17.0</td><td>36.0 kN
{3,670 kg}</td></tr>
<tr><td rowspan="3">11</td><td rowspan="3">Interference between bevel gear and reamer bolt</td><td rowspan="2">Standard size</td><td colspan="2">Tolerance</td><td rowspan="2">Standard interfer-ence</td><td rowspan="2">Interfer-ence limit</td></tr>
<tr><td>Shaft</td><td>Hole</td></tr>
<tr><td>16</td><td>+0.019
+0.001</td><td>+0.027
0</td><td>–0.026 –
0.019</td><td>0.019
or less</td></tr>
<tr><td>12</td><td>Runout of back face of bevel gear</td><td colspan="6">Repair limit: 0.05 (measure after installing to bevel gear)</td><td>Repair or replace</td></tr>
<tr><td>13</td><td>Preload of bevel gear shaft taper roller bearing</td><td colspan="6">Standard rotating torque: 4.9 – 5.9 Nm {0.5 – 0.6 kgm}
(At tip of bevel gear teeth with bevel pinion and gear not meshed: 23.5 – 28.4 N {2.4 – 2.9 kg})</td><td>Adjust</td></tr>
<tr><td>14</td><td>Standard shim thickness for bearing cage</td><td colspan="6">2.0</td><td>Adjust shim</td></tr>
</table>

1. Floating seal
2. Sun gear
3. Carrier
4. Hub
5. Cover
6. Sprocket boss
7. Sprocket teeth
8. Floating seal guard
9. Cover
10. Planetary pinion
11. Ring gear
12. Cover
13. First gear
14. First gear hub
15. First pinion
16. Final drive case
17. Bearing cage
18. Boss
19. Shaft
20. Wear guard
21. Pivot shaft

Unit: mm

<table>
<tr><th>No.</th><th>Check item</th><th colspan="5">Criteria</th><th>Remedy</th></tr>
<tr><td rowspan="2">22</td><td rowspan="2">Backlash between first pinion and first gear</td><td colspan="3">Standard clearance</td><td colspan="2">Clearance limit</td><td rowspan="11">Replace</td></tr>
<tr><td colspan="3">0.25 – 0.99</td><td colspan="2">1.5</td></tr>
<tr><td>23</td><td>Backlash between sun gear and planetary pinion</td><td colspan="3">0.22 – 0.81</td><td colspan="2">1.5</td></tr>
<tr><td>24</td><td>Backlash between planetary pinion and ring gear</td><td colspan="3">0.25 – 0.81</td><td colspan="2">1.5</td></tr>
<tr><td rowspan="2">25</td><td rowspan="2">Outside diameter of oil seal contact surface of first pinion</td><td colspan="3">Standard size</td><td colspan="2">Repair limit</td></tr>
<tr><td colspan="3">115.0</td><td colspan="2">114.9</td></tr>
<tr><td>26</td><td>Thickness of thrust collar in roller bearing of inner body</td><td colspan="3">25.14</td><td colspan="2">24.9</td></tr>
<tr><td>27</td><td>Thickness of thrust collar in roller bearing of first gear boss</td><td colspan="3">10.0</td><td colspan="2">9.5</td></tr>
<tr><td>28</td><td>Dimensions from cover mounting face to button head</td><td colspan="3">24.0</td><td colspan="2">22.5</td></tr>
<tr><td rowspan="2">29</td><td rowspan="2">Clearance between pinion shaft and carrier</td><td rowspan="2">Standard size</td><td colspan="2">Tolerance</td><td rowspan="2">Standard clearance</td><td rowspan="2">Clearance limit</td></tr>
<tr><td>Shaft</td><td>Hole</td></tr>
<tr><td>85</td><td>–0.036
–0.058</td><td>–0.024
–0.059</td><td>–0.023 –
0.034</td><td>0.1</td></tr>
<tr><td>30</td><td>Standard shim thickness of first pinion bearing cage</td><td colspan="5">2</td><td rowspan="3">Adjust</td></tr>
<tr><td>31</td><td>Dimensions of final cover end surface and bearing end surface</td><td colspan="5">$7^{\ 0}_{-0.2}$</td></tr>
<tr><td>32</td><td>Clearance of floating seal guard</td><td colspan="5">4.1 – 5.3</td></tr>
<tr><td rowspan="2">33</td><td rowspan="2">Amount of wear out of wear guard</td><td colspan="3">Standard size</td><td colspan="2">Repair limit</td><td rowspan="2">Rebuild or replace</td></tr>
<tr><td colspan="3">47</td><td colspan="2">18</td></tr>
</table>

Track roller bogie



1. Guide
2. Gap
3. Track roller assembly (Double)
4. Large bogie
5. Rubber mount
6. Small bogie
7. Track roller assembly
8. Cover

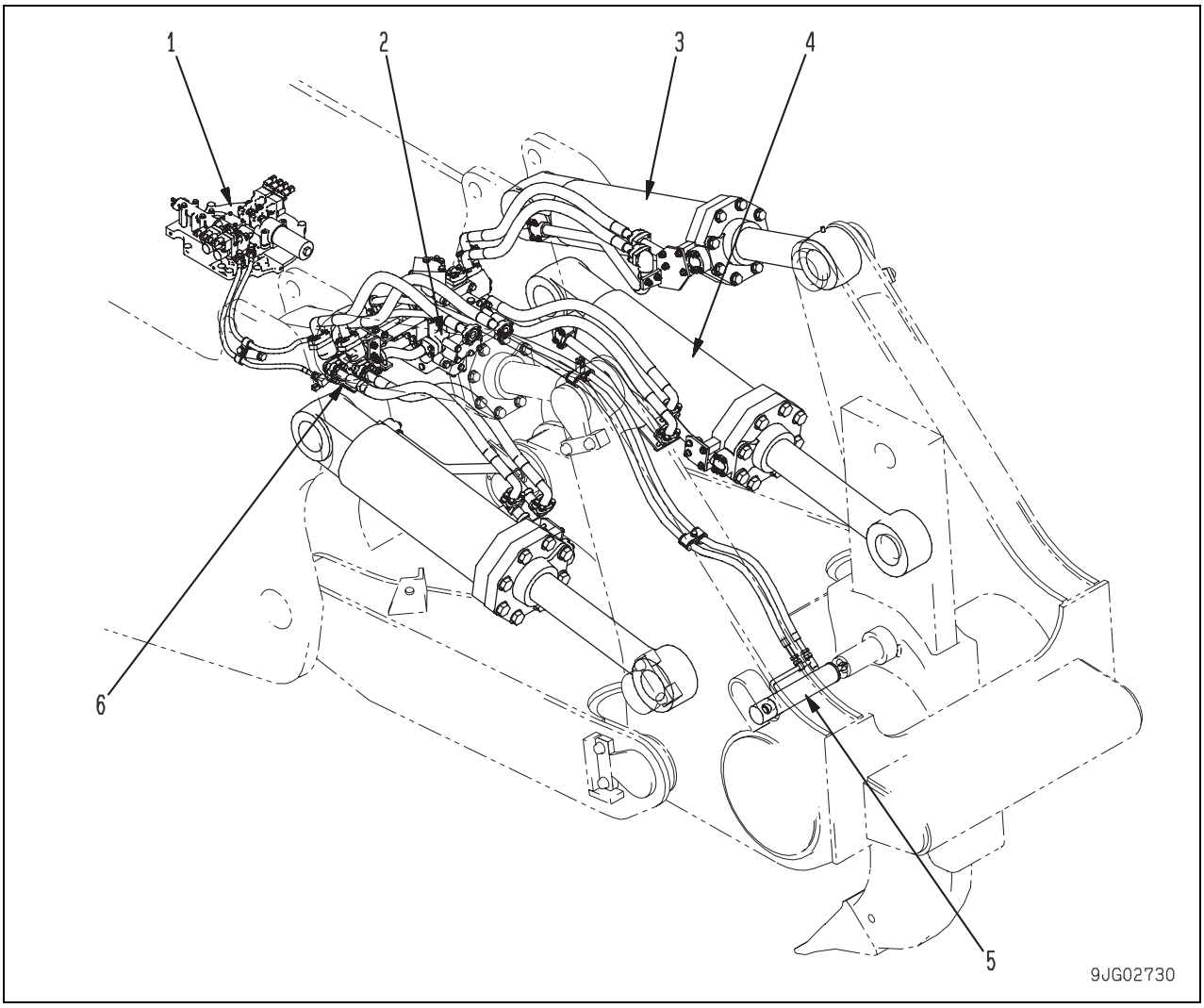
Outline

- The track roller is mounted on the small bogie (6) respectively so that the track roller and track shoe can be touched constantly.
- The vehicle body vibration from a road surface is absorbed by the rubber mount (5).

Unit: mm

No.	Check item	Criteria		Remedy
9	Press fit force of cartridge pin	245 – 441 kN {25 – 45 ton}		—
10	Clearance between bogie and cap	Standard clearance	Clearance limit	Replace
		0.42 – 1.4	0.05	

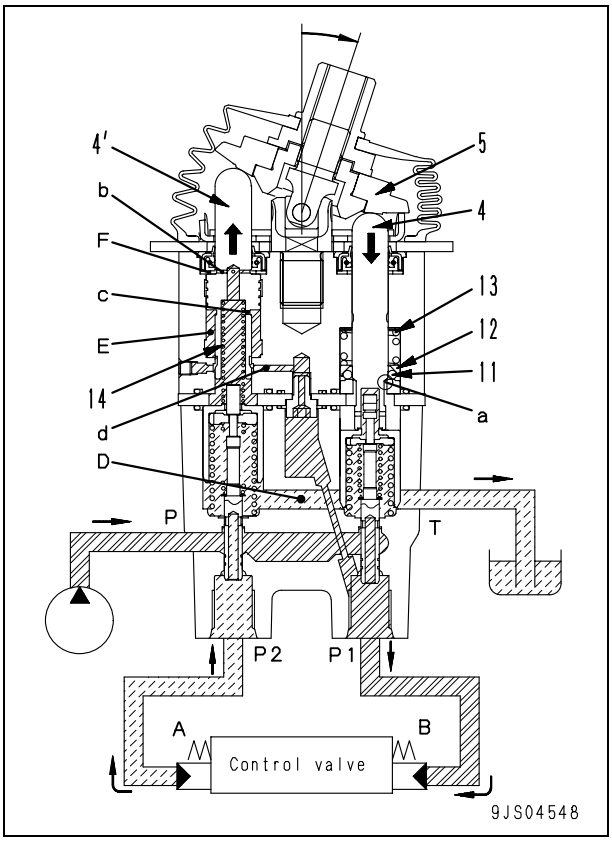
- **Giant ripper**



1. Steering control valve
2. Ripper Hi valve
3. Ripper tilt cylinder
4. Ripper lift cylinder
5. Pin puller cylinder
   (from power train hydraulic circuit)
6. Solenoid valve (for pin-puller)

5) When blade is "floated"

- If piston (4) on the "lower" side of port (P1) is pushed down by disc (5), ball (11) touches projection (a) of the piston in the middle of the stroke (The detent starts to operate).
- If piston (4) is pushed in further, ball (11) pushes up collar (12) supported on detent spring (13) and escapes out to go over projection (a) of the piston.
- At this time, piston (4') on the opposite side is pushed up by spring (14).
- As a result, the oil in chamber (F) flows through (b) and (c) to chamber (E) and piston (4') follows disc (5). Since passage (d) is connected to port (P1), almost the same pressure is applied to passage (d) and port (P1).
- Chamber (E) is normally connected to drain chamber (D). If ball (11) goes over projection (a) of the piston, passage (d) and chamber (E) are connected and the oil starts flowing.
- At this time, the control valve moves to the "float" position and the blade is floated.
- Since piston (4') is pushed up by the pressure in chamber (E) the "float" state is kept even if the lever is released.



6) When "float" state of blade reset

- Disc (5) is pushed down with a force large than the oil pressure in chamber (E) to return from the "float" position.
- As a result, chamber (E) is disconnected from passage (d) and connected to the drain chamber. Accordingly, the oil pressure in chamber (E) is lost and the "float" state is reset.

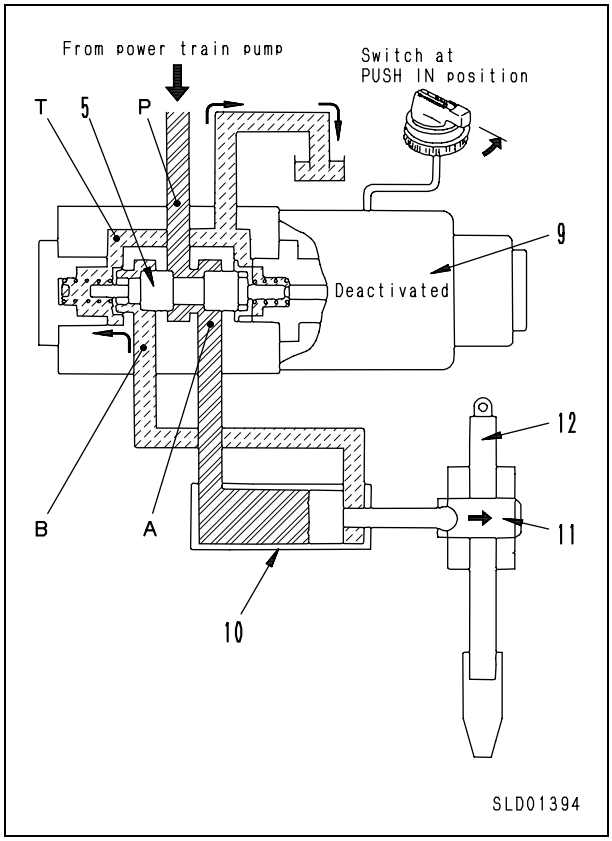
Operation

1. Pin puller switch at PUSH IN position

When the pin puller switch is set to the PUSH IN position, no electric current flows to solenoid (9) and it is deenergized.

Then, ports (P) and (A) and ports (B) and (T) of spool (5) open, and the oil from the power train pump flows from port (P) to port (A), and enters the bottom end of pin puller cylinder (10).

When the oil enters the bottom end of the cylinder and the pressure in the circuit starts to rise, the cylinder extends and pushes shank mounting pin (11) into shank (12).



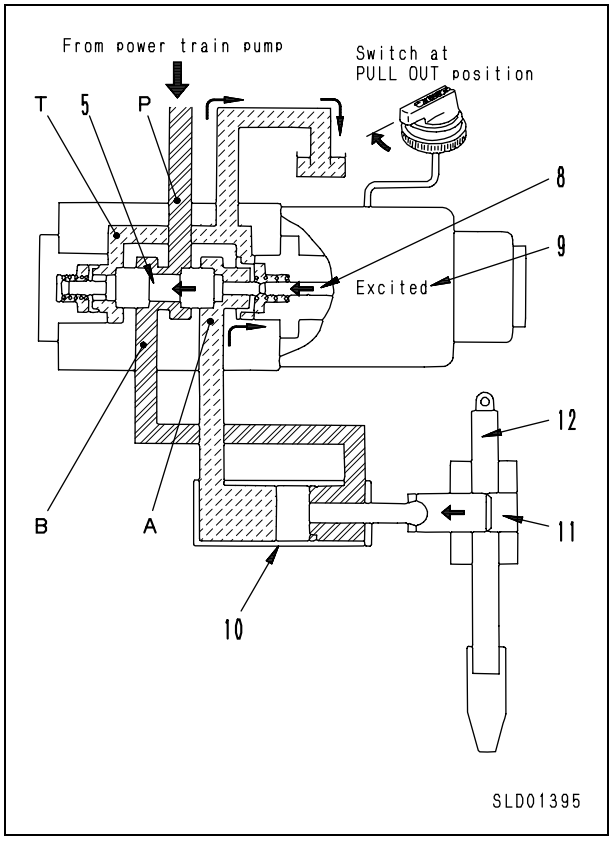
2. Pin puller switch at PULL OUT position

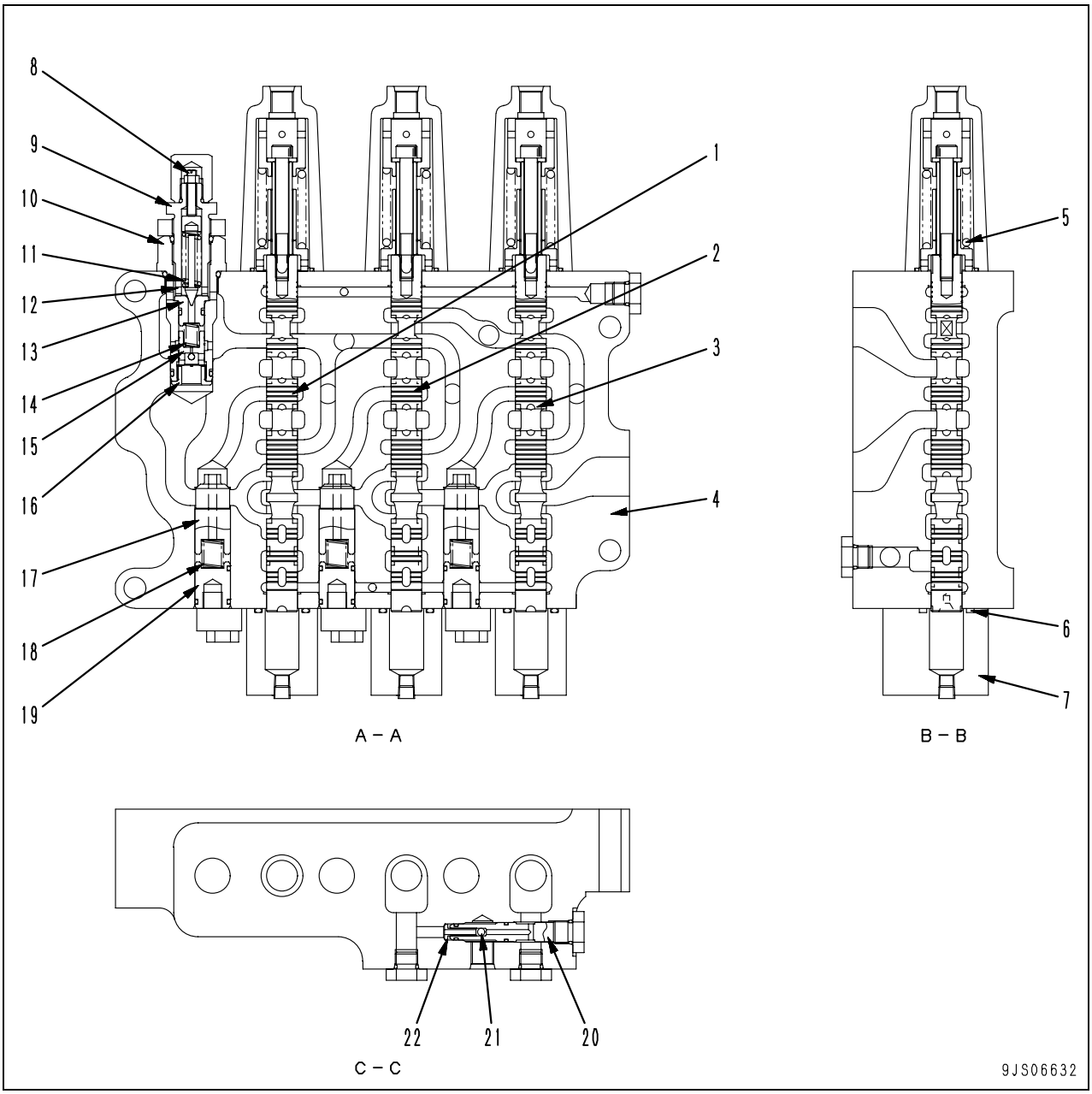
When the pin puller switch is set to the PULL OUT position, electricity flows to solenoid (9) and it is excited.

Then, the solenoid pushes out push pin (8) and spool (5) moves to the left in the arrow direction.

At this point, ports (P) and (A) and ports (B) and (T) close, and ports (P) and (B) and ports (A) and (T) open, so the oil from the power train pump flows from port (P) to port (B) and enters the head end of pin puller cylinder (10).

When the oil enters the cylinder head end and the pressure in the circuit rises, the cylinder retracts and pulls shank mounting pin (11) out of shank (12).

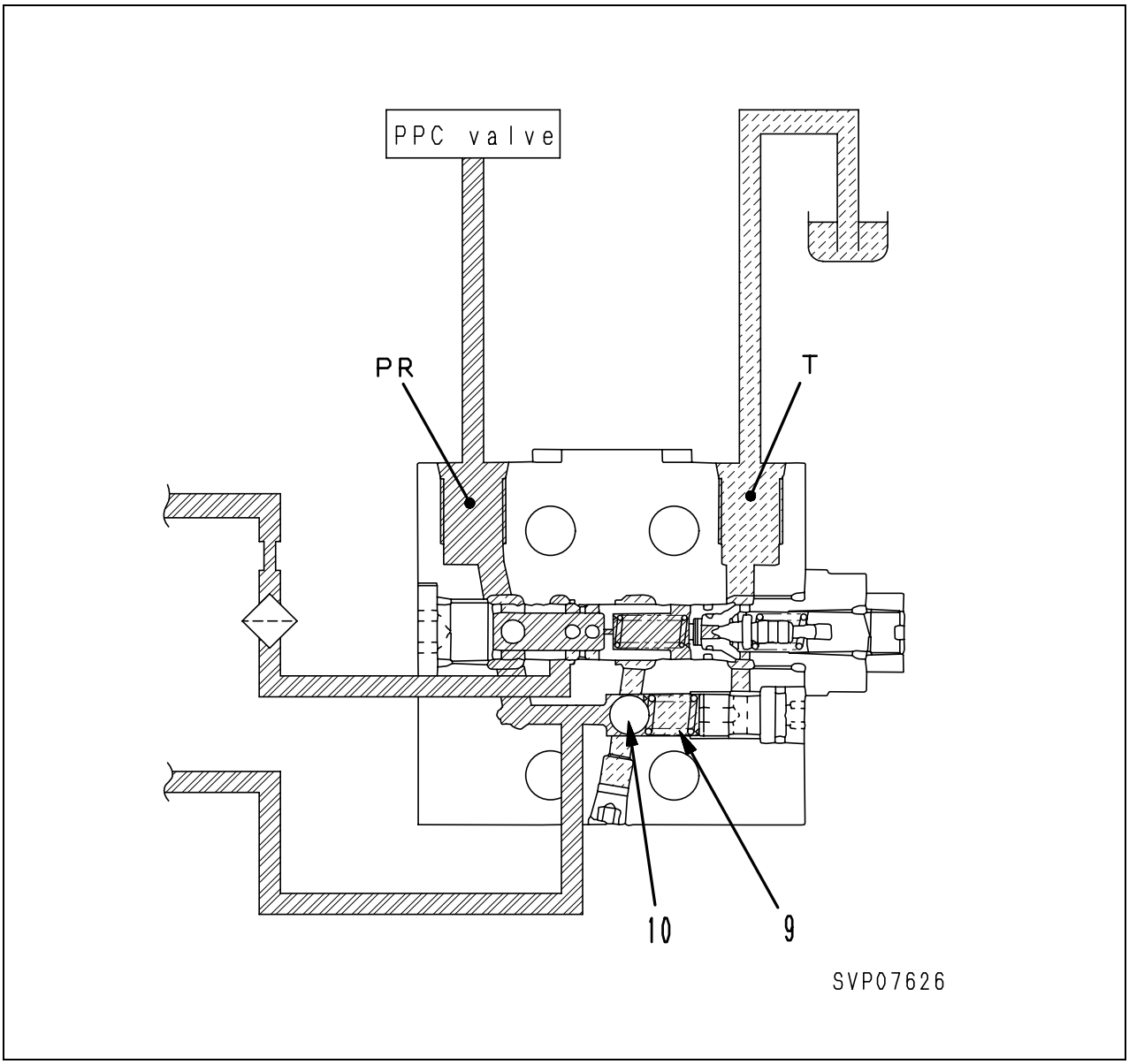




1. Blade tilt valve
2. Ripper tilt valve
3. Ripper lift valve
4. Valve body
5. Return spring
6. O-ring
7. Case
8. Main relief pressure adjustment screw
9. Sleeve
10. Main relief valve body
11. Poppet spring
12. Main relief valve poppet
13. Valve seat
14. Main relief valve spring
15. Main relief valve
16. Valve seat
17. Check valve
18. Check valve spring
19. Valve seat
20. Shuttle valve seat (plug)
21. Shuttle valve ball
22. Shuttle valve seat

- When the ripper lever is moved to the TILT IN position, the spool of the PPC valve directly connected to the control lever is actuated. When this happens, the pilot pressure entering the PPC valve from the PPC pump is sent to port (PA2) of the ripper Lo valve. This pilot pressure moves spool (19) down, opens the circuits between ports (B4) and (C4), and ports (D4) and (F4), and ports (A3) and (G4), and closes the circuit between ports (A3) and (A4).
  When this happens, the oil from the small pump enters ports (A2) and (A3). Some of the oil pushes open check valve (18), flows from port (B4) into port (C4), and the flows to port (H2) of the ripper Hi valve. The rest of the oil passes through the groove in spool (19), enters port (G4), pushes shuttle valve (22) down fully, then flows from port (H5) to port (S) of shuttle valve (10).
  The oil entering port (S) passes through orifice (b), and pushes piston (11). The reaction moves shuttle valve (10) to the left, closes the circuit between ports (N) and (O), and opens the circuit between ports (S) and (O).
  The oil entering port (O) from port (S) then passes through orifice (c), and enters ports (P) and (Q). It becomes the pilot pressure of demand valve (1), and moves the demand valve to the right.
  When this happens, the circuit between ports (A) and (E') is closed, so the oil from the large pump is not drained to the hydraulic tank.
  The whole amount of the oil flows to port (A1) of the ripper Hi valve.

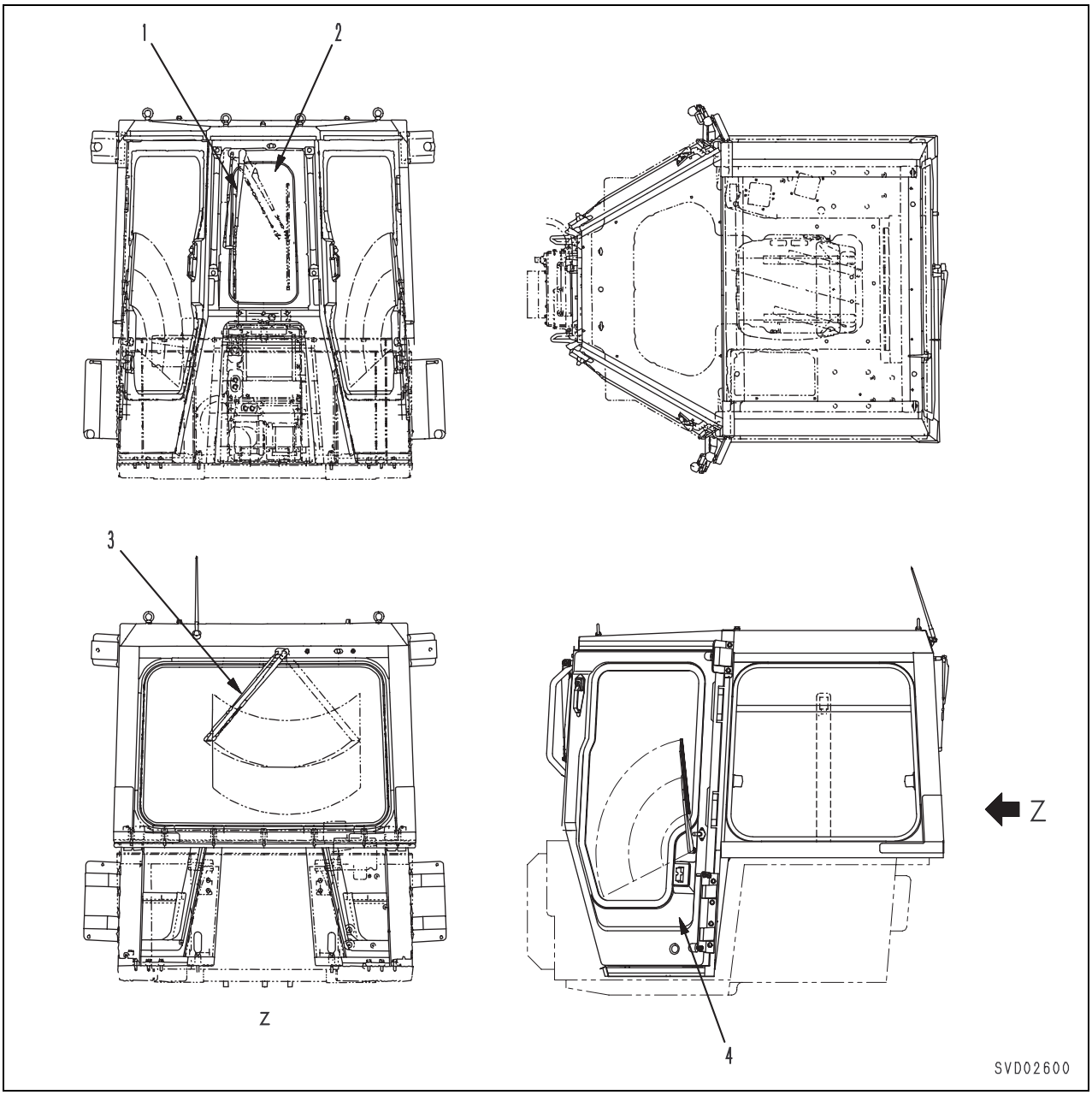
4. In the case of abnormal high pressure



- When (PR) pressure of the self pressure reducing valve rises abnormally high, ball (10) will separate from the seat against spring (9) force to flow the hydraulic oil to output ports (PR) → (T) so as to reduce (PR) pressure. As a result, the equipment [PPC valve, EPC valve, etc.], to which the oil pressure is supplied, is protected from the abnormal high pressure.

Cab

Cab assembly



1. Front wiper
2. Front glass
3. Rear wiper
4. Door

1. NE speed sensor
2. Engine throttle controller
3. Injector assembly
   3A. Orifice
   3B. Control chamber
   3C. Hydraulic piston
   3D. Injector
   3E. Nozzle
4. Fuel cooler
5. Fuel tank
6. Strainer
7. Pre fuel filter (with water separator)
8. Priming pump (main)
9. Fuel filter
10. Engine throttle controller cooler
11. Pressure limiter
12. Flow damper
13. High pressure injection pipe
14. Common rail
15. Fuel supply pump assembly
    15A. PCV
    15B. High pressure pump
    15C. Priming pump
    15D. Feed pump
    15E. Bypass valve
    15F. Bkup speed sensor (G sensor)
16. Overflow valve

Outline

- The signals detected by various sensors are input to the engine controller.
- The input signals are processed by the controller and output to each actuator to control the fuel injection rate and fuel injection timing.

System configuration

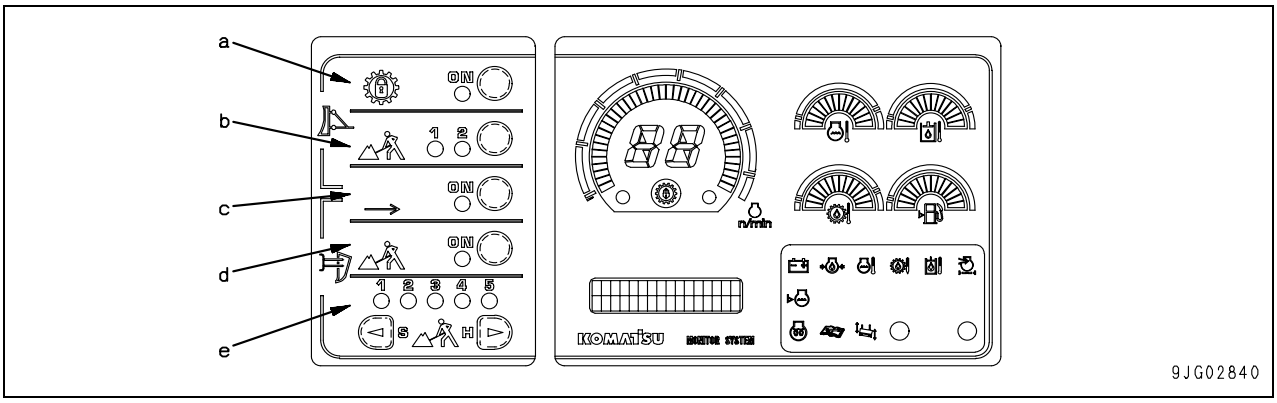
- The CRI system consists of fuel supply pump (15), common rail (14), injector (3), engine throttle controller (2) to control them, and sensors.
- The fuel supply pump generates fuel pressure in the common rail. The fuel pressure is controlled by the fuel discharge rate of the supply pump. The discharge rate is controlled by turning on and off PCV (discharge control valve) (15A) of the fuel supply pump according to the electric signals from the engine throttle controller.
  The common rail receives the pressurized fuel from the fuel supply pump and distributes it to the cylinders.
  The fuel pressure is sensed by the common rail fuel pressure sensor installed to the common rail and controlled by the feedback method so that the actual fuel pressure will match to the command pressure set according to the engine speed and the load on the engine.
  The fuel pressure in the common rail is applied to the nozzle (3E) side of the injector and control chamber (3B) through the fuel injection pipe of each cylinder.
- The injector controls the fuel injection rate and fuel injection timing by turning on and off the TWV (2-way solenoid valve). If the TWV is turned on, the fuel circuit is so changed that the high-pressure fuel in the control chamber will flow through orifice (3A). The needle valve is raised to start fuel injection by the nozzle cracking pressure applied as the high-pressure fuel on the nozzle side. If the TWV is turned off, the fuel circuit is so change that the high-pressure fuel will be applied to the control chamber through the orifice. As a result, the needle valve lowers and finishes fuel injection. Accordingly, the fuel injection timing and fuel injection rate are controlled respectively by the timing to turn on the TWV and the length of the turn-on time of the TWV.

1. Switch functions

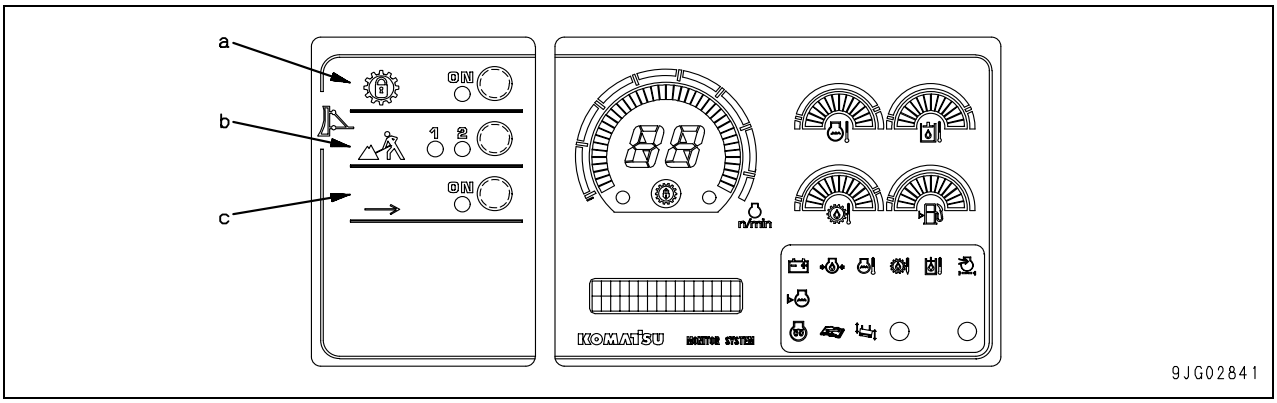
a) ON-OFF switching in lock-up mode
b) Economy mode setting - OFF, mode 1, mode 2
c) ON-OFF switching in reverse slow mode
d) ON-OFF switching in SSC mode
e) SSC mode level setting - Mode 1 to 5

(a), (b), and (c) are mounted for all specifications and (d) and (e) are mounted for the SSC specifications.

- **SSC specifications**



- **Without SSC specifications**



2. Initial setup at key ON

Since the operator will select the necessary functions depending on the condition of the job site, all the functions are turned OFF when the machine is shipped from the plant (when the machine is new), as a rule.

Sensors

Engine oil temperature sensor

Specifications

Type of sensor: Thermistor

Measurement range: 40 – 130°C
80 – 130°C
(Assured accuracy: ±2°C)

Max. power consumption: 0.5 mW

Pressure resistance: 4.9 MPa {50 kg/cm^2}

Using temperature: –30°C to +140°C

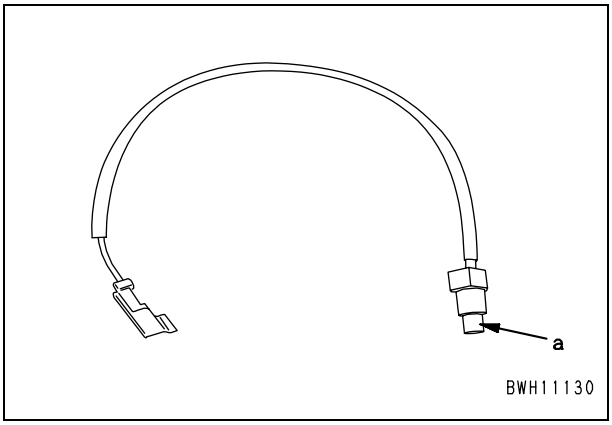
Performance table

Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)
30	35.27	80	6.571	110	2.887
40	24.28	85	5.682	115	2.544
50	17.05	90	4.931	120	2.248
60	12.20	95	4.293	125	1.992
70	8.884	100	3.750	130	1.769

a: Heat sensing part of sensor – Outside diameter of mounting part: R1/4

Function

The engine oil temperature sensor is installed to the engine oil filter. It inputs the change of the temperature as the change of the thermistor resistance to the VHMS controller.



Exhaust temperature sensor/amplifier

Specifications

Rated voltage: DC 24 V

Sensed temperature range: 100 – 1,000°C
300 – 800°C
(Assured accuracy: ±10°C)

Output voltage characteristics
(Ambient temperature: 20°C)
– Reference values

Sensed temperature (°C)	50	100	400	700	800
Output voltage (V)	1.191	1.397	2.626	3.899	4.316

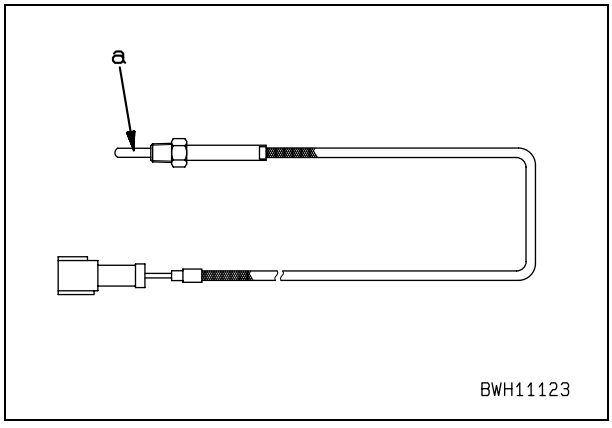
Operating temperature range: –40 to +110°C

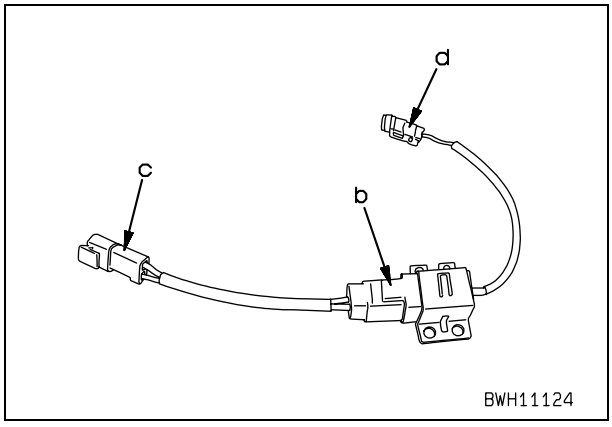
Current consumption: Max. 30 mA

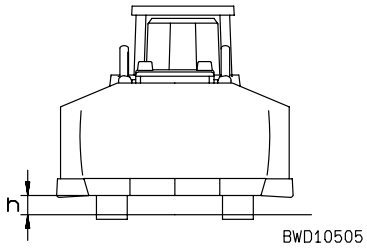
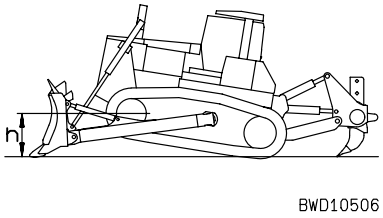
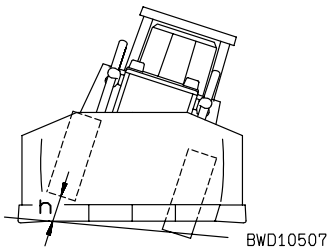
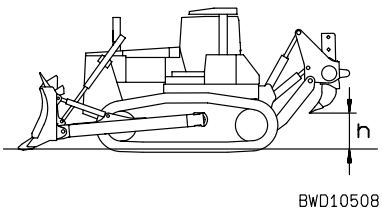
a: Heat sensing part of sensor – Outside diameter of mounting part: R1/8
b: Amplifier
c: Connector (Power supply side)
d: Connector (Sensor side)

Function

The exhaust temperature sensor/amplifier is a thermocouple-type temperature sensor, which is installed to the turbocharger inlet. It outputs the exhaust temperature data to the VHMS controller.





Machine model					D375A-5E0	
Cate-gory	Item		Measurement conditions	Unit	Standard value for new machine	Service limit value
Work equipment	Hydraulic drift	Blade lift	 • Hydraulic oil temperature: 45 – 55°C • Engine stopped • Hydraulic drift for 15 minutes at bottom edge of blade (Change in height h)	mm	Max. 200/15 min	400/15 min
		Hydraulic drift of chassis (Blade lift)	 • Hydraulic oil temperature: 45 – 55°C • Engine stopped • Hydraulic drift for 5 minutes at center of idler (Change in height h)	mm	Max. 50/5 min	100/5 min
		Blade tilt	 • Hydraulic oil temperature: 45 – 55°C • Engine stopped • Retraction h of tilt cylinder	mm	Max. 50/5 min	80/5 min
		Ripper lift	 • Hydraulic oil temperature: 45 – 55°C • Engine: Stopped • Hydraulic drift for 15 minutes at tip of shank (Change in height h)	mm	Max. 80/15 min	160/15 min

Testing exhaust gas color

★ Tools for testing exhaust color

Symbol		Part No.	Part name
C	1	799-201-9001	Handy smoke checker
	2	Commercially available	Smoke meter

⚠ **Be careful not to touch any hot parts when removing or installing the testing tools.**

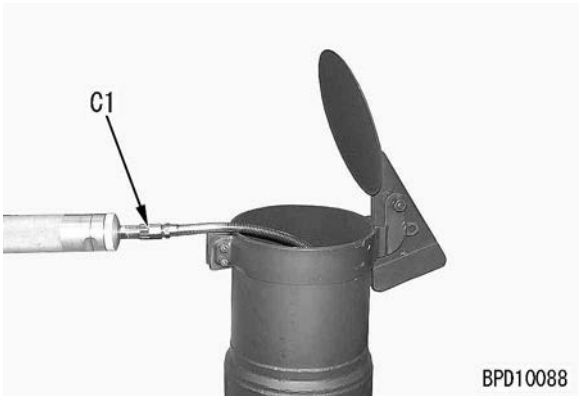
★ When testing in the field where there is no air or electric power supply, use handy smoke checker **C1**; when recording formal data, use smoke meter **C2**.

★ Test the exhaust color under the following conditions.

- Coolant temperature:
  Within operating range

1. Testing with handy smoke checker C1

1) Install filter paper to handy smoke checker **C1**.
2) Insert the exhaust gas suction port into the exhaust pipe.
3) Start the engine.
4) Accelerate the engine suddenly or run at high idle, and operate the handle of handy smoke checker **C1** at the same time to collect the exhaust gas on the filter paper.

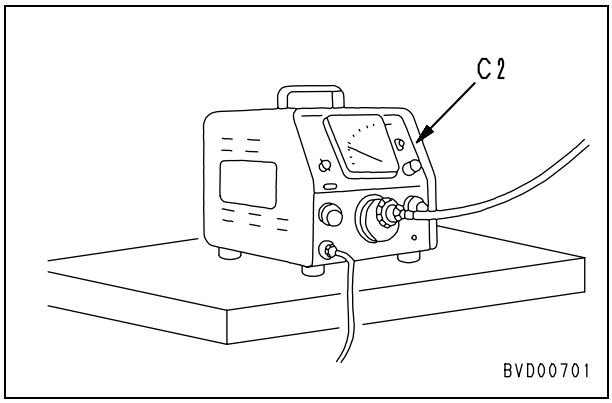


5) Remove the filter paper and compare it with the scale supplied to judge the condition.
6) After completing the test, remove the testing equipment and set to the original condition.

2. Testing with smoke meter C2

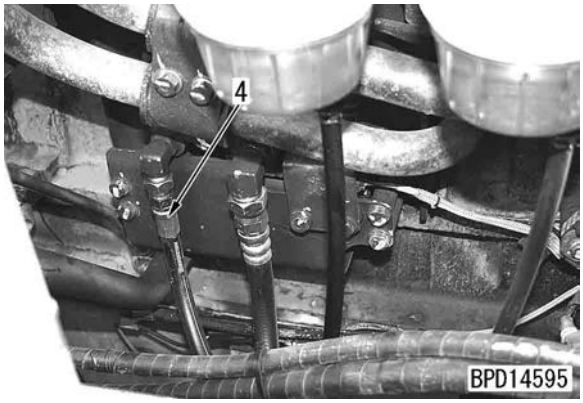
1) Insert probe [1] of smoke meter **C2** into the outlet port of the exhaust pipe, and tighten the clip to secure it to the exhaust pipe.

2) Connect the air hose and the socket of the probe hose and accelerator switch to smoke meter **C2**.
   ★ Keep the pressure of the air supply below 1.5 MPa (15 kg/cm^2).
3) Connect the power cord to the AC100V socket.
   ★ Before connecting the cord, check that the power switch of the smoke meter is OFF.
4) Loosen the cap nut of the suction pump and fit the filter paper.
   ★ Fit the filter paper securely so that the exhaust gas cannot leak.
5) Turn the power switch of smoke meter **C2** ON.



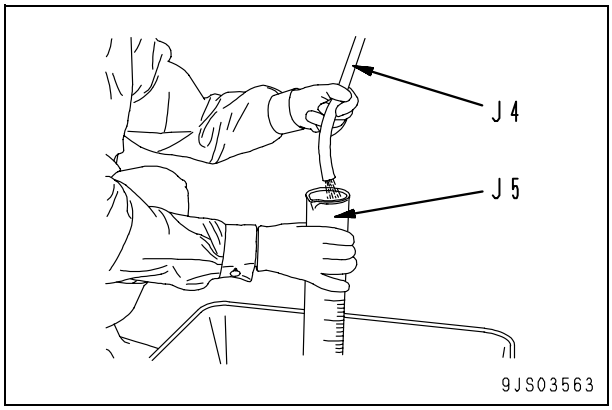
3. Testing return rate from injector

1) Remove the hose (4) at spill outlet and connect inspection hose **J4** in stead. Then insert the hose end to the oil pan (saucer).



2) Set the mode that allows confirming the engine speed with the real time monitoring function. For details, see "Special functions of monitor panel".
3) Run the engine at the rated output (under the torque converter stall load).
4) After making sure the engine speed is stabilized, test leakage volume per minute using measuring cylinder **J5**.
   - ★ You may test for 20 seconds and judge by multiplying the result by 3.
   - ★ If the supply pump is not supplying fuel, the engine speed may not rise. In this case, record the engine speed, too, during the test.
   - ★ If the return rate (spill) from the injector is in the following range, it is normal.

Rated output speed (rpm)	Limit of return rate (spill) (cc/min)
1,600	960
1,700	1,020
1,800	1,080
1,900	1,140
2,000	1,200



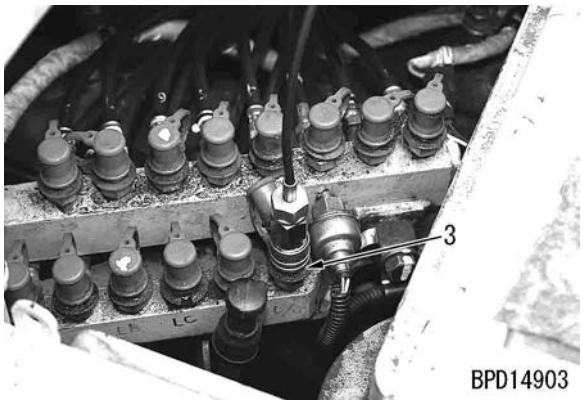
5) After finishing testing, stop the engine.

4. Work after finishing testing

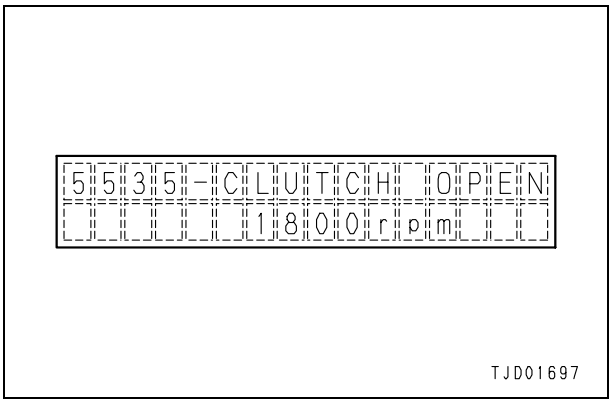
After finishing all testing, remove the testing tools and return the removed parts.

3. Testing torque converter lock-up clutch pressure (LU)

1) Connect oil pressure gauge [1] of hydraulic tester **K1** to oil pressure test nipple (3).
   ★ Use a 2.5 MPa {25 kg/cm^2} oil pressure gauge.

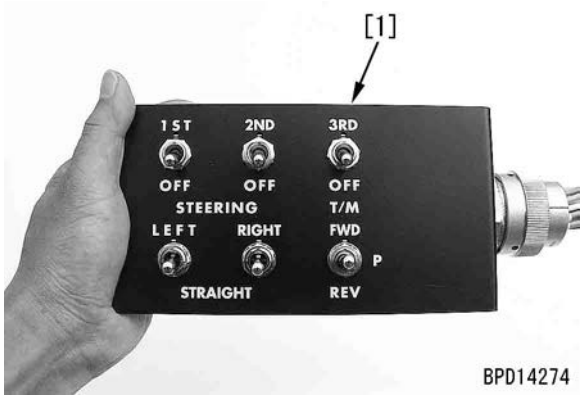


2) Start the engine and set the monitor panel in the "Adjustment mode" and disengage both steering clutches.
   ★ For the operating method, see "Special functions of monitor panel (EMMS)".
   ★ Adjustment code: **5535** (Disengagement of both steering clutches)
   ★ The travel speed (Unit: 1 rpm) is displayed on the lower line of the message display.



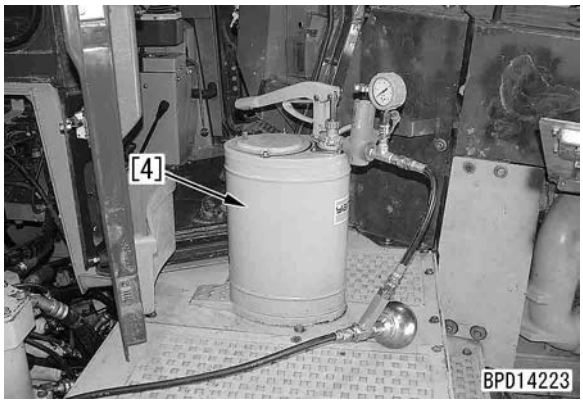
3) Set the parking brake lever in the FREE position and turn the lock-up mode switch ON.
4) Set the PCCS lever direction to F and the speed to the 1st, and rotate the transmission under no load.
5) Gradually raise the engine speed, and test the oil pressure when the lock-up pilot lamp lights up.
6) After completing the test, remove the testing equipment and set to the original condition.

4) Start the engine and set the parking brake lever to the FREE position.
5) Operate switch assembly [1] and move the machine to a safe place.
   ★ The speed switch has an electric circuit that gives priority to operation of the low speed switch.
   ⚠ **Take care when the machine travels in reverse, since the steering direction is reversed.**

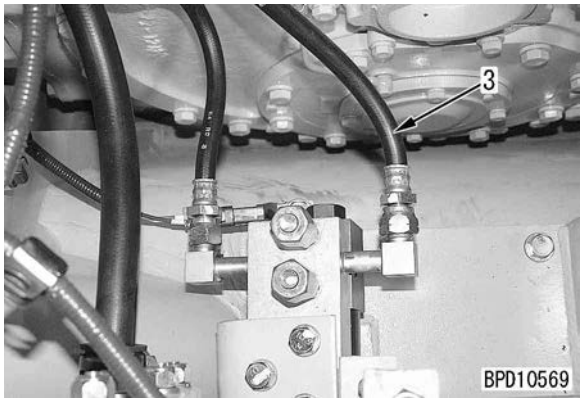


2. Emergency escape method with brake releasing device (Use L2)
   ★ If the engine cannot be started and the parking brake cannot be released, escape according to the following procedure.
1) Assemble pump assembly **L2**.

2) Install volume pump [4] of pump assembly **L2** to the outside of the operator's cab.



3) Remove the fuel tank undercover and disconnect supply hose (3) of the pin puller solenoid valve.



4) Connect end hose of pump assembly **L2** to the supply hose. (Use the nipple of face seal type.)
   ★ Block the solenoid valve side with plug.
   Plug: 02789-00315
5) Turn the starting switch ON and set the parking brake lever in the FREE position.
6) Operate the volume pump to raise the brake releasing oil pressure to the initial pressure.
   ● Initial pressure:
   Approx. 2.74 MPa {28 kg/cm^2}
   ★ Since an accumulator is installed in the circuit, the handle must be operated 30 – 50 times to raise the oil pressure.
   ★ If the oil pressure does not rise above a certain level, the relief valve may be set to low pressure. In this case, adjust the set pressure of the relief valve.

Testing and adjusting operator's cab

Check after installing cab assembly

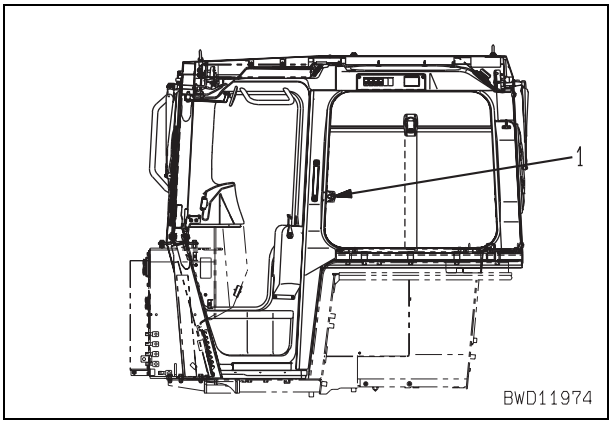
1. Testing pressure in cab

- Criterion:
  Tested value ≧ 98.1 Pa {10 mmH_2O}
- Engine speed: High idle
- Blower speed: High (Hi)
- Fresh/Recirculation switch: Fresh air position
- Fan: Adjustment code:**1005** (Fan 100% mode)

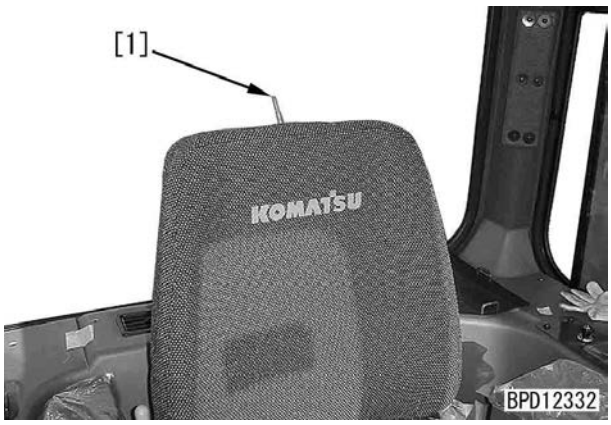
★ If the tested value is lower than the standard value, check the following.
(1) Plug of control box
(2) Air filters (recirculated air filter and fresh air filter) of air conditioner for clogging

1) A simple method of testing the internal pressure is as follows.
1] Prepare a transparent vinyl hose.
- Outside diameter: 10 mm, Length: 3,000 mm

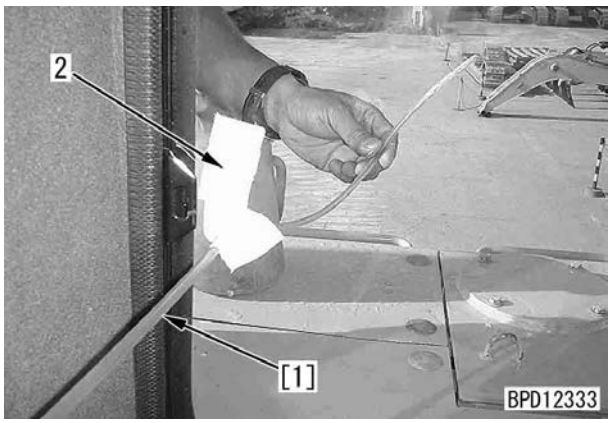
2] Secure the end of hose [1] to the top of the back of operator's seat with a tape.
3] Pour coolant in the hose up to about half.
4] Remove slide glass lever lock (1) and insert the other end of vinyl hose [1].



★ Secure the end of hose [1] to the operator's seat with tape.

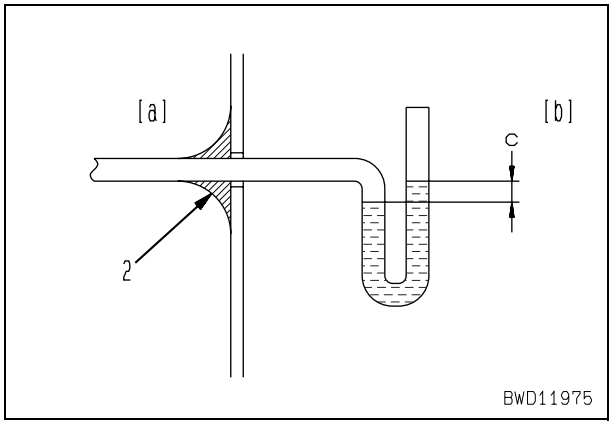


5] Seal the mounting holes of lock lever (1) with tape (2).



6] Set the coolant level in the vinyl hose out of the cab to that in the cab.
7] Run the engine at high idle and test coolant level difference (c).
(Value (c): Pa {mmH_2O})

★ [a] side: Inside of cab (Pressurized)
[b] side: Out of cab (Atmospheric pressure)



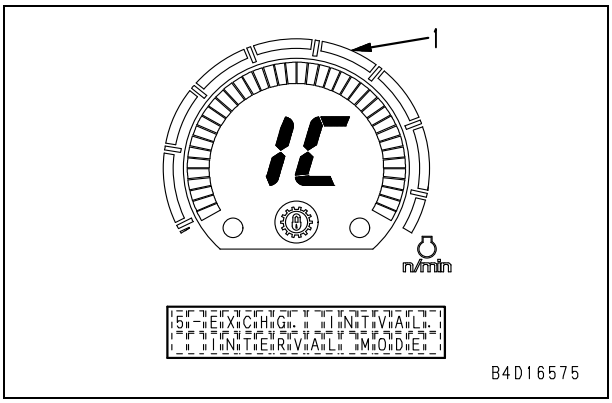
Operation and display in service mode

Method of changing to service mode

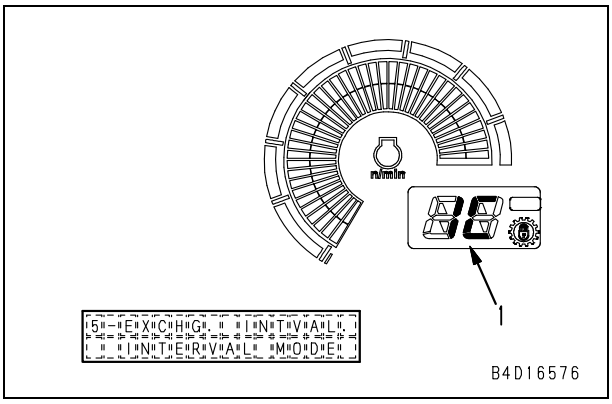
★ When using the service mode, change the screen by the following special operation.

1) Special operation of switches
Set the monitor panel in the service mode by operating service switch (3) and buzzer cancel switch (4).
★ Keeping the service switch in the ON position, hold the buzzer cancel switch in the [◇] position for 3 seconds.
★ If the monitor panel is set in the service mode, [1C] or [55] is displayed on the gear speed display section (1).

Serial No.: 50001 – 50090



Serial No.: 50091 and up



Order	Gear speed display	Display and item
1	**1C**	**5-EXCHG. INTVAL. INTERVAL MODE**
		Maintenance interval change mode
2	**EE**	**6-ELEC. FAULT CODE MODE**
		Electrical system failure code display mode
3	**bE**	**7-MACHINE CHECK CODE MODE**
		Mechanical system failure code display mode
4	**Cb**	**8-SERVICE ADJUST MODE**
		Adjustment mode
5	**Ld**	**9-LOAD MAP DISPLEY MODE**
		Load memory display mode
6	**5R**	**10-REAL TIME MONITORING MODE**
		Real time monitoring mode
7	**dR**	**11-DUAL DISPLAY MONITORING MODE**
		Dual display monitoring mode
8	**55**	**12-SNAP SHOT MODE**
		Snap shot mode *

* VHMS specification only

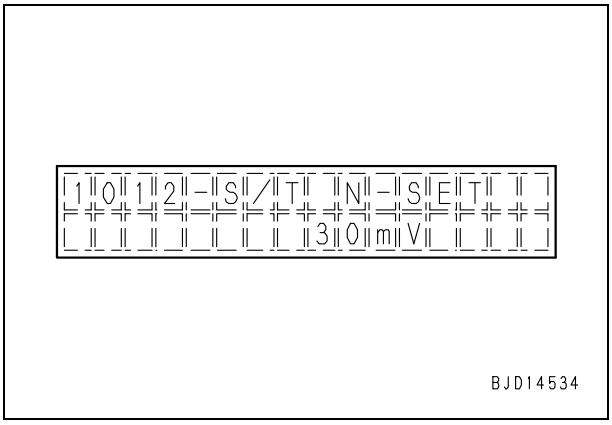
2) Selecting and executing mode to be used
Select the mode to be used with information switch (5) and execute it with buzzer cancel switch (4).
- [>]: Next mode No.
- [<]: Previous mode No.
- [◇]: Execute mode.

★ For the details of operation in each mode, see the following pages.

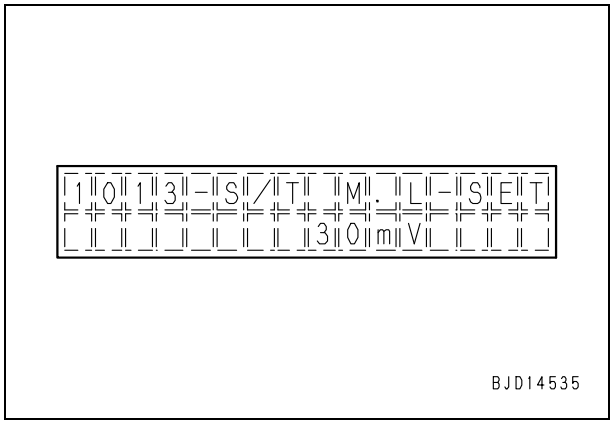
3) Finishing mode and function
The current mode and function can be finished by either of the following method, regardless of the current mode and hierarchy.
1] When continuing the operation in another mode or function or in the operator mode:
Return to the mode screen or function screen to be used next by operating buzzer cancel switch (4).
- [■]: Screen returns.

2] When finishing the all operation:
Turn off the starting switch.

[13] **1012**: Steering lever neutral set
- This code is used to adjust the steering neutral position of the PCCS lever.
- The deviation of the steering potentiometer from the standard neutral position is displayed by voltage on the lower line (Display range: -2500 – 2500 mV).
- Adjustment method:
  1) Set the PCCS lever to the neutral position.
  2) Set buzzer cancel switch (4) in the [◇] position and check that the caution buzzer sounds.
  - ★ Even if adjustment is carried out, the display on the lower line does not change.
  - ★ Even if this code is turned off, the setting is effective.
  - ★ This code is not for adjusting the steering performance.

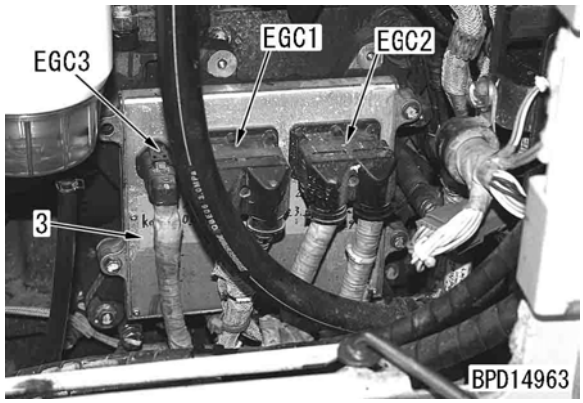


[14] **1013**: Steering lever left set
- This code is used to adjust the maximum left steering position of the PCCS lever.
- The deviation of the steering potentiometer from the standard maximum left position is displayed by voltage on the lower line (Display range: -2500 – 2500 mV).
- Adjustment method:
  1) Set the PCCS lever to the left steering stroke end.
  2) Set buzzer cancel switch (4) in the [◇] position and check that the caution buzzer sounds.
  - ★ Even if adjustment is carried out, the display on the lower line does not change.
  - ★ Even if this code is turned off, the setting is effective.
  - ★ This code is not for adjusting the steering performance.

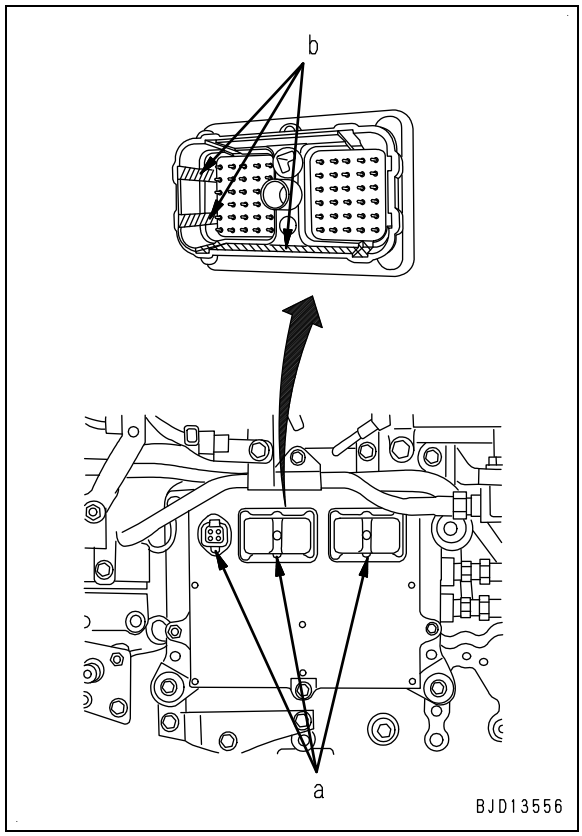


No.	Code	Monitoring item		Unit	Remarks	Auto-matic selection
118	**50201**	**T/M LEVR 2**	Directional lever potentiometer 2 voltage	mV		18
119	**50300**	**S/T LEVR 1**	Steering potentiometer 1 voltage	mV		19
120	**50301**	**S/T LEVR 2**	Steering potentiometer 2 voltage	mV		20
121	**50400**	**BRAKE PEDL**	Brake pedal potentiometer voltage	mV		21
122	**50900**	**N-SAFTY**	Neutral safety relay drive voltage	mV		36
123	**51000**	**ENG REG**	Regulation command speed	rpm		—
124	**51100**	**FUEL DIAL**	Fuel control dial command speed	rpm		
125	**60000**	**TRACTION**	Traction force (Theoretical value)	W		4
126	**60100**	**BODY ANGLE**	Machine pitch angle sensor voltage	mV		—
127	**60200**	**ACCELERATN**	Acceleration sensor voltage	mV		—
128	**60300**	**SSC ORDER**	SSC command speed	rpm		—
129	**60400**	**S/T-SW6**	Steering controller input signal 6	bit	(See detailed information)	—
130	**60500**	**ENG.CON. PW**	Engine controller drive voltage	mV	—	—
131	**60600**	**BR HOLD**	Battery relay drive voltage	mV	—	—
132	**60700**	**S/T MODE**	Steering state code	Letter	—	—
133	**60800**	**FILL MODE**	Fill condition setting variable	Letter	—	—
134	**60909**	**MOD MODE**	Modulation condition setting variable	Letter	—	—
135	**70000**	**CHG.P. MODE**	Gearshift point condition setting variable	Letter	—	—
136	**70200**	**T/M OUT**	Transmission output speed sensor voltage	mV	—	—
137	**70300**	**B. KNOB SW**	Transmission controller blade lever knob switch input signal	bit	(See detailed information)	—
138	**70304**	**T/M SOL. 1**	Transmission controller ON/OFF output 1	bit	(See detailed information)	—
139	**70305**	**T/M RIPER2**	Transmission controller ripper lever oil pressure switch input signal	bit	(See detailed information)	—
140	**70400**	**BACK ALARM**	Backup alarm relay drive voltage	mV	—	—
141	**70600**	**DUAL SOL.**	Dual tilt solenoid drive current	mA	—	—
142	**70700**	**HYD. PUMP 1**	Work equipment pump oil pressure 1	MPa	—	14
143	**70701**	**HYD. PUMP 1**	Work equipment oil pressure sensor 1 voltage	mV	—	—
144	**70702**	**HYD. PUMP 2**	Work equipment pump oil pressure 2	MPa	—	15
145	**70703**	**HYD. PUMP 2**	Work equipment oil pressure sensor 2 voltage	mV	—	—
146	**90600**	**S/T CLT LH**	Left clutch ECMV output feedback current	mA	—	27
147	**90601**	**S/T CLT RH**	Right clutch ECMV output feedback current	mA	—	28
148	**90602**	**S/T CLT LH**	Left clutch ECMV current command	mA	—	—
149	**90603**	**S/T CLT RH**	Right clutch ECMV current command	mA	—	—
150	**92100**	**F1 SMR**	F1 integrated travel hours	h	—	—
151	**92101**	**F2 SMR**	F2 integrated travel hours	h	—	—
152	**92102**	**F3 SMR**	F3 integrated travel hours	h	—	—
153	**92200**	**R1 SMR**	R1 integrated travel hours	h	—	—
154	**92201**	**R2 SMR**	R2 integrated travel hours	h	—	—
155	**92202**	**R3 SMR**	R3 integrated travel hours	h	—	—
156	**99901**	**TRIG T F**	Trigger time F	msec	—	—
157	**99902**	**TRIG T R**	Trigger time R	msec	—	—
158	**99903**	**TRIG T 1**	Trigger time 1	msec	—	—
159	**99904**	**TRIG T 2**	Trigger time 2	msec	—	—

3) Insert or connect the diagnostic T-adapter in or to the connector (EGC1, EGC2, EGC3) of engine controller (3).
   ★ When disconnecting the connector, loosen its screw.
   ★ When connecting the connectors , tighten its screw to the specified torque.
   Screw: **3 ± 1 Nm {0.3 ± 0.1 kgm}**

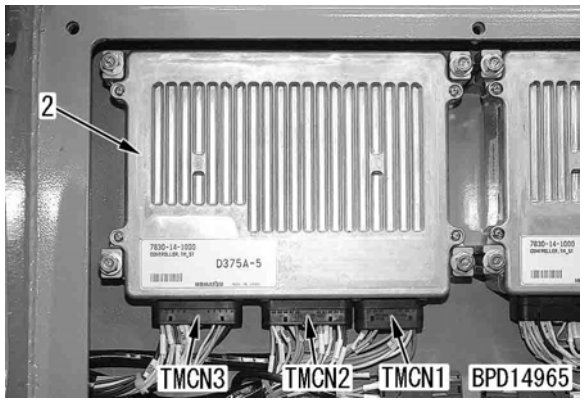


⚠ In order to prevent malfunction and mistaken system error warning, be sure to completely remove foreign object (b) such as sand, dust, water, etc., from inside of controller side connector (a) with air blow etc., before connecting to harness connector.

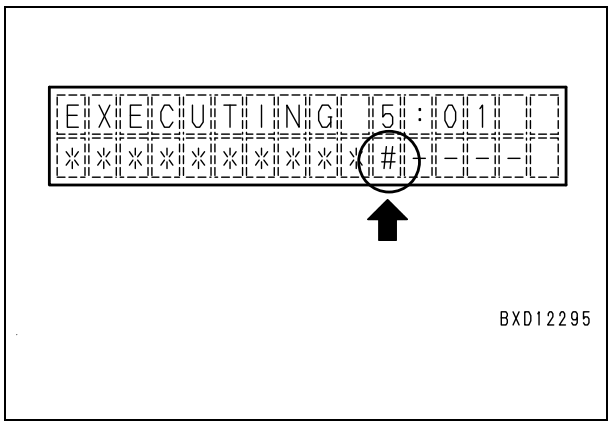


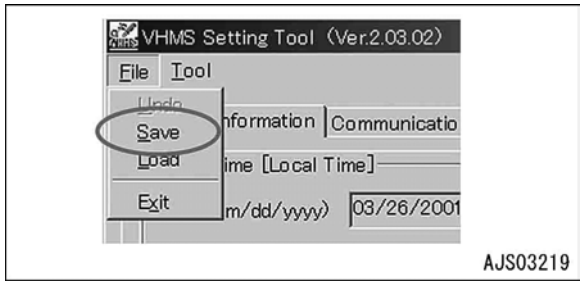
3. **Transmission controller**
   1) Slide the operator's seat to the front end and fold the seat back forward.
   2) Remove cover (1).

   3) Insert or connect T-adapters in or to connectors **TMCN1**, **TMCN2**, and **TMCN3** of transmission controller (2).
      ★ If the connectors cannot be disconnected and connected easily, remove the controller from the floor flame.
      ★ Since the connectors are secured with screws, loosen those screws before disconnecting.
      ★ When connecting the connectors again, tighten their screws to the specified torque.
      Screw: **3 ± 1 Nm {0.3 ± 0.1 kgm}**

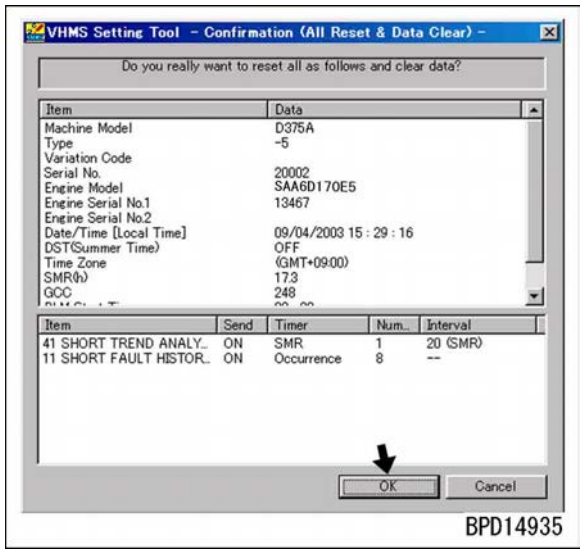


5] After starting the snap shot operation, operate the machine according to Table 1.
★ Check that the engine coolant temperature and torque converter oil temperature are in the operating range.
★ After 10 "*" are displayed (After 5 minutes), "#" is added up to 5.
- "*": The data sampling interval is 10 seconds.
- "#": The data sampling interval is 1 second.





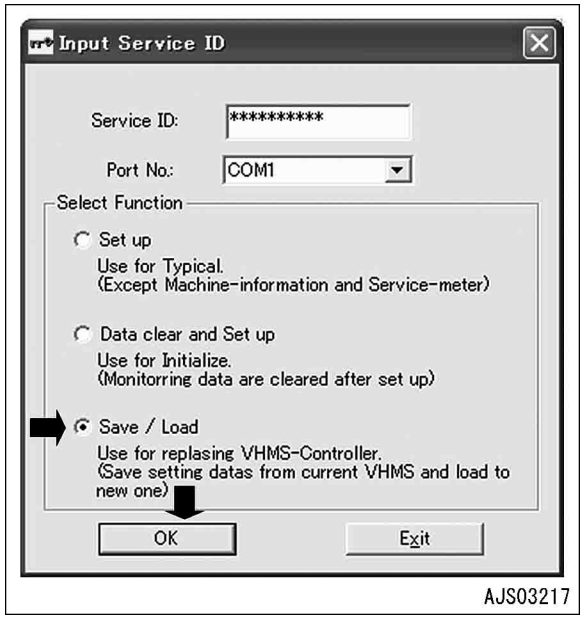
5) Check the information again and press the "OK" button to save it.



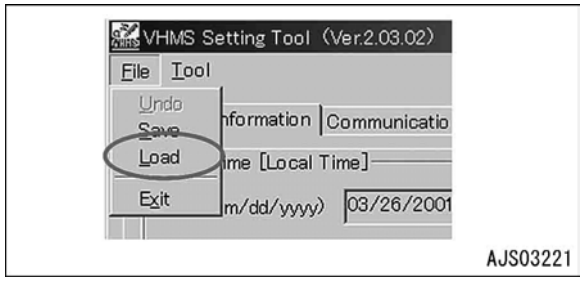
6) Select [Exit] from [File] in the menu to finish the VHMS setting tool.
7) Disconnect the personal computer.
   ★ See Initialization procedures for VHMS controller, "9. Disconnection of Personal Computer".
8) Turn the personal computer OFF.
9) Replace the VHMS controller.

2-2. Writing of set information in new VHMS controller

1) Connect the personal computer again and start the VHMS technical analysis tool.
   ★ See "Initialization procedures for VHMS controller".
2) Select "Save/Load" and press the "OK" button.



3) Select [Load] from [File] in the menu.

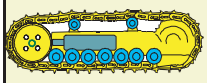


UNDERCARRIAGE TROUBLESHOOTING REPORT (NORMAL)
(8-roller specification machin)

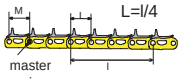
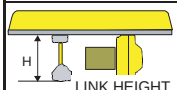
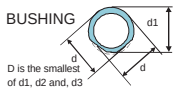
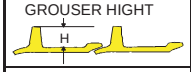
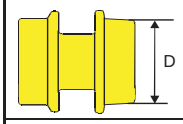
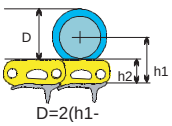
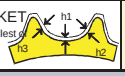
(Program form No.: SELA195001)

KUC

Komatsu
Undercarriage Inspection

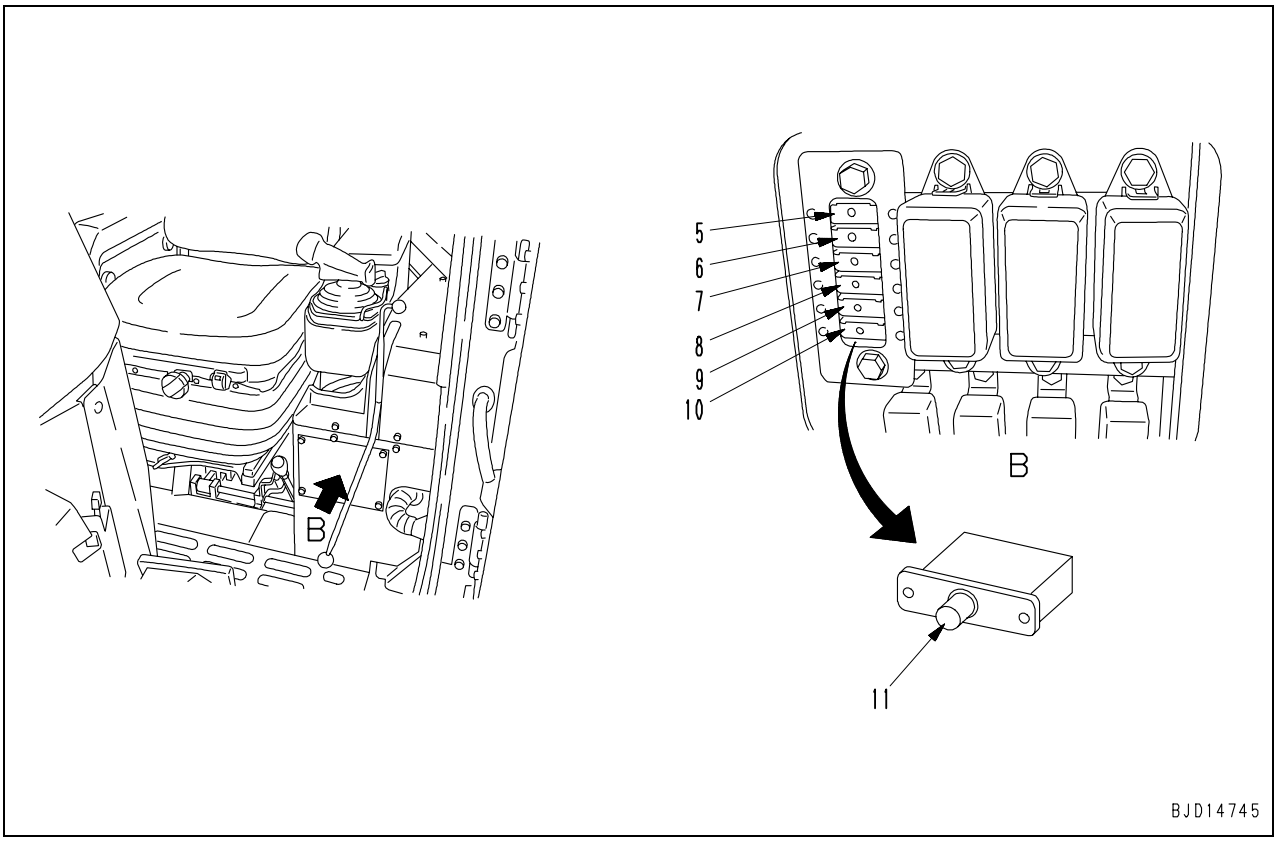


Customer name:							
Address:							
Model	D375A-5E0	Serial#		Equip#		Work Order No	
Location		SMR				Wet,AR,HD or Dry	Wet
Soil condition		Dealer				Shoe width (mm)	
Working condition		Inspector				Shoe type	SINGLE
		Insp.Date(yy/mm/dd)			(yyyy/m/d)	Wear type	NORMAL

			New	100% Wear	Measured mm	Wear %	SMR New	SMR Rebuilt	Hours on Parts:	Comments/Observation
LINK PITCH 	R	LH	1121.2	1141.2						
		RH	1121.2	1141.2						
	M	LH	280.30	285.30						
		RH	280.30	285.30						
		LH	181.0	163.0						
		RH	181.0	163.0						
BUSHING 		LH	98.5	90.0			New	Turned		
		RH	98.5	90.0			New	Turned		
GROUSER HIGHT 		LH	93.0	30.0						
		RH	93.0	30.0						
CARRIER 	Front	LH	210.0	185.0						
		RH	210.0	185.0						
	Rear	LH	210.0	185.0						
		RH	210.0	185.0						
IDLER 	Front	LH	23.5	36.0						
		RH	23.5	36.0						
	Rear	LH	23.5	36.0						
		RH	23.5	36.0						
TRACK ROLLER 	1	LH	280.0	205.0						
	2	LH	270.0	200.0						
	3	LH	270.0	200.0						
	4	LH	270.0	200.0						
	5	LH	270.0	200.0						
	6	LH	270.0	200.0						
	7	LH	270.0	200.0						
	8	LH	280.0	205.0						
	9	LH								
	10	LH								
	1	RH	280.0	205.0						
	2	RH	270.0	200.0						
	3	RH	270.0	200.0						
	4	RH	270.0	200.0						
	5	RH	270.0	200.0						
	6	RH	270.0	200.0						
	7	RH	270.0	200.0						
	8	RH	280.0	205.0						
	9	RH								
	10	RH								
SPROCKET 		LH	0.0	8.0						
		RH	0.0	8.0						

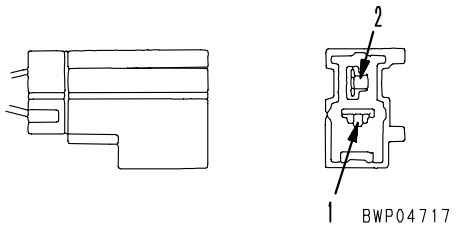
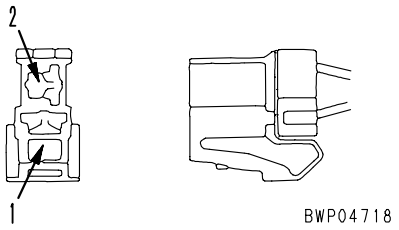
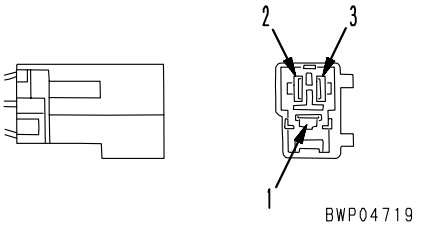
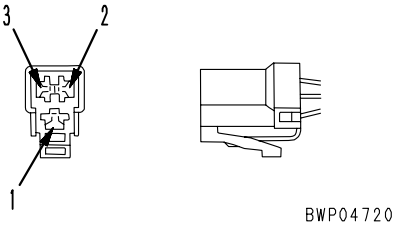
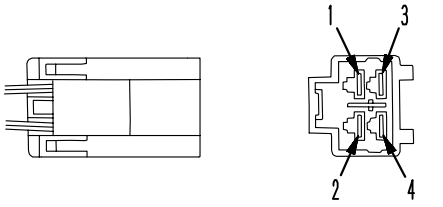
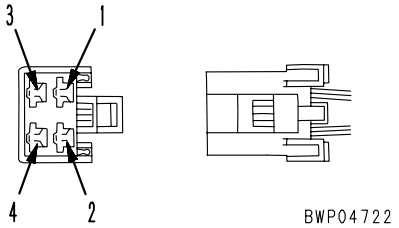
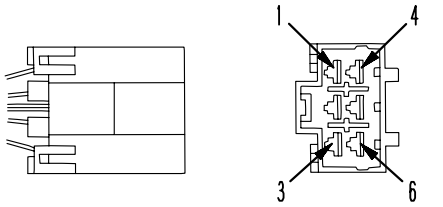
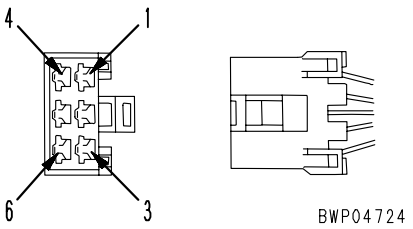
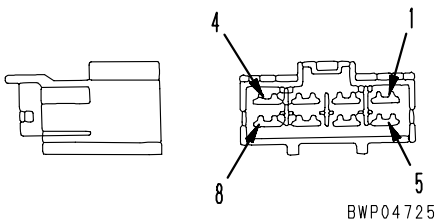
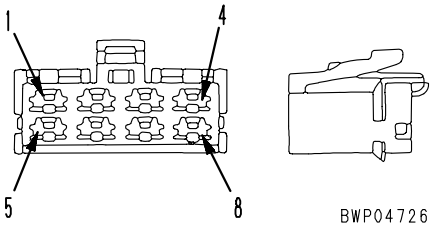
Remarks:

Locations of circuit breakers (5) – (10)



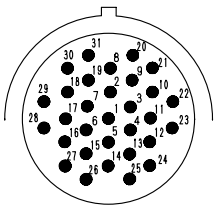
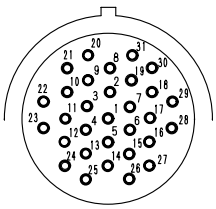
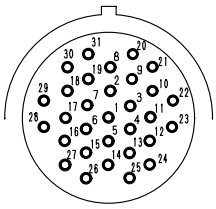
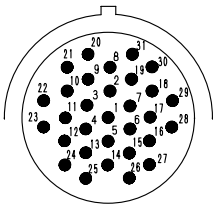
Circuit breaker

	Power suplly breaker (Type of power supply)	Capacity (A)	Circuit breaker No.	Destination of power
1	(Switched power supply)	105	CB105	Main power supply
2	(Unswitched power supply)	30	CB30	Unswitched power supply
3	(Switched power supply)	105	CBH1	Preheater relay
4	(Unswitched power supply)	30	CB7	Unswitched power supply for engine controller Electrically-operated priming pump timer power supply
5	CB105 (Switched power supply)	20	CB1	Steering controller
6	Starting switch (Accessory power supply)	20	CB2	Machine monitor (ACC)
7	CB105 (Switched power supply)	20	CB3	Transmission controller
8		20	CB4	Air conditioner
9		20	CB5	Front lamp
10	CB30 (Unswitched power supply)	20	CB6	Unswitched power supply for starting switch

No. of pins	M type connector		
	Male (female housing)	Female (male housing)	T-adapter Part No.
1	Part No. : 08056-00171	Part No. : 08056-00181	799-601-7080
2	 BWP04717	 BWP04718	799-601-7090
	Part No. : 08056-00271	Part No. : 08056-00281	
3	 BWP04719	 BWP04720	799-601-7110
	Part No. : 08056-00371	Part No. : 08056-00381	
4	 BWP04721	 BWP04722	799-601-7120
	Part No. : 08056-00471	Part No. : 08056-00481	
6	 BWP04723	 BWP04724	799-601-7130
	Part No. : 08056-00671	Part No. : 08056-00681	
8	 BWP04725	 BWP04726	799-601-7340
	Part No. : 08056-00871	Part No. : 08056-00881	

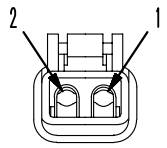
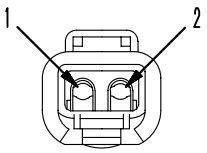
9JS04893

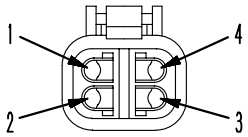
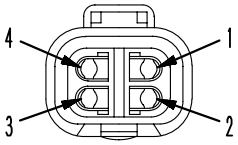
[The pin No. is also marked on the connector (electric wire insertion end)]

Type (shell size code)	HD30 Series connector		
	Body (plug)	Body (receptacle)	T-adapter Part No.
24-31 (9)	Pin (male terminal)	Socket (female terminal)	799-601-9290
	 BWP05033	 BWP05034	
	Part No. :08191-91203, 08191-91204, 08191-91205, 08191-91206	Part No. :08191-94103, 08191-94104, 08191-94105, 08191-94106	
	Socket (female terminal)	Pin (male termial)	799-601-9290
	 BWP05035	 BWP05036	
	Part No. :08191-92203, 08191-92204, 08191-92205, 08191-92206	Part No. :08191-93103, 08191-93104, 08191-93105, 08191-93106	

9JS04908

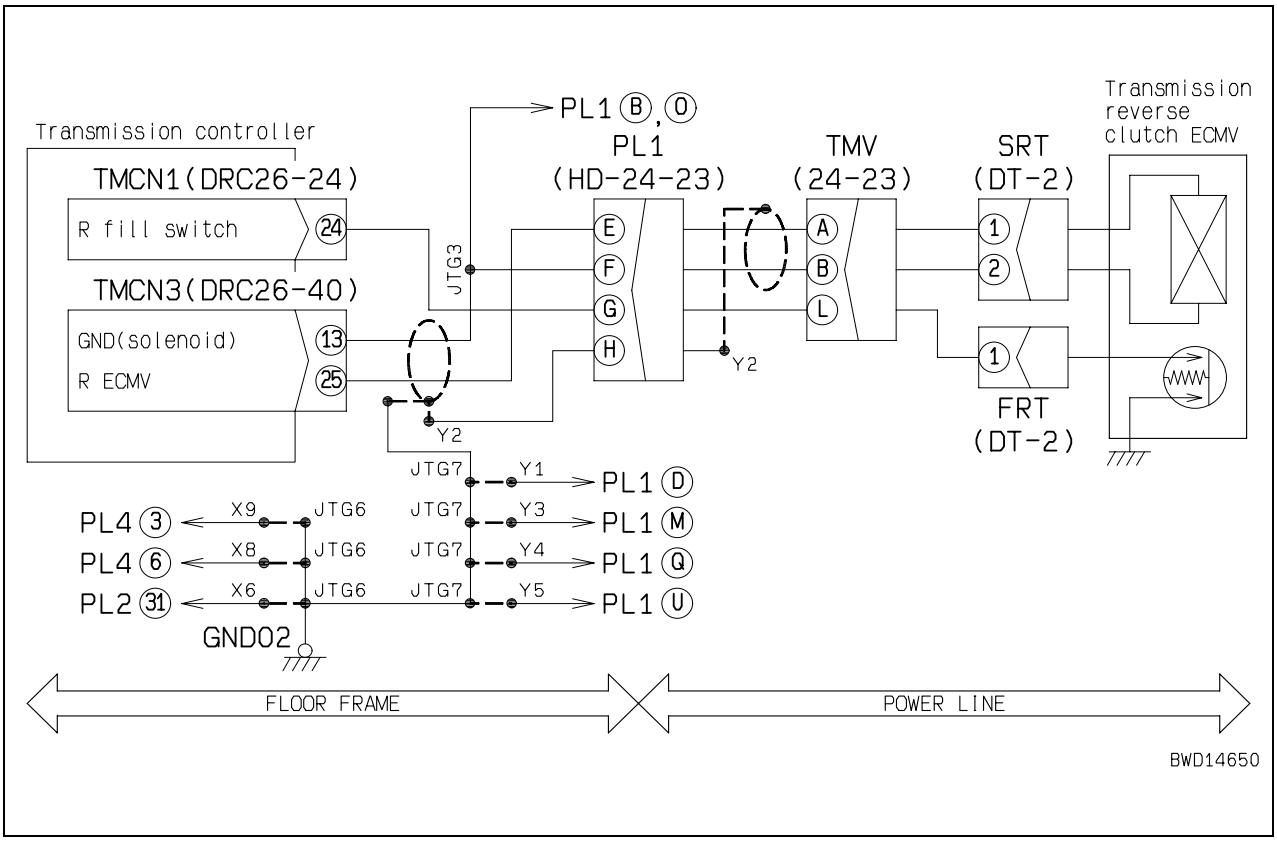
DT series connector for engine

No. of pins	WIF (water in fuel) sensor (107, 114 engine)		
	Body (plug)	Body (receptacle)	T-adapter Part No.
2	 BWP05037	 BWP05038	799-601-9020 (kit:799-601-4101) (kit:799-601-4201)
	Part No. :08192-12200 (normal type) 08192-22200 (fine wire type)	Part No. :08192-12100 (normal type) 08192-22100 (fine wire type)	

No. of pins	EGR (by pass) valve stroke sensor (125, 140, 170 engine)		
	Body (plug)	Body (receptacle)	T-adapter Part No.
4	 BWP05041	 BWP05042	799-601-9040 (kit:799-601-4101) (kit:799-601-4201)
	Part No. :08192-14200 (normal type) 08192-24200 (fine wire type)	Part No. :08192-14100 (normal type) 08192-24100 (fine wire type)	

B3W14066

Circuit diagram related



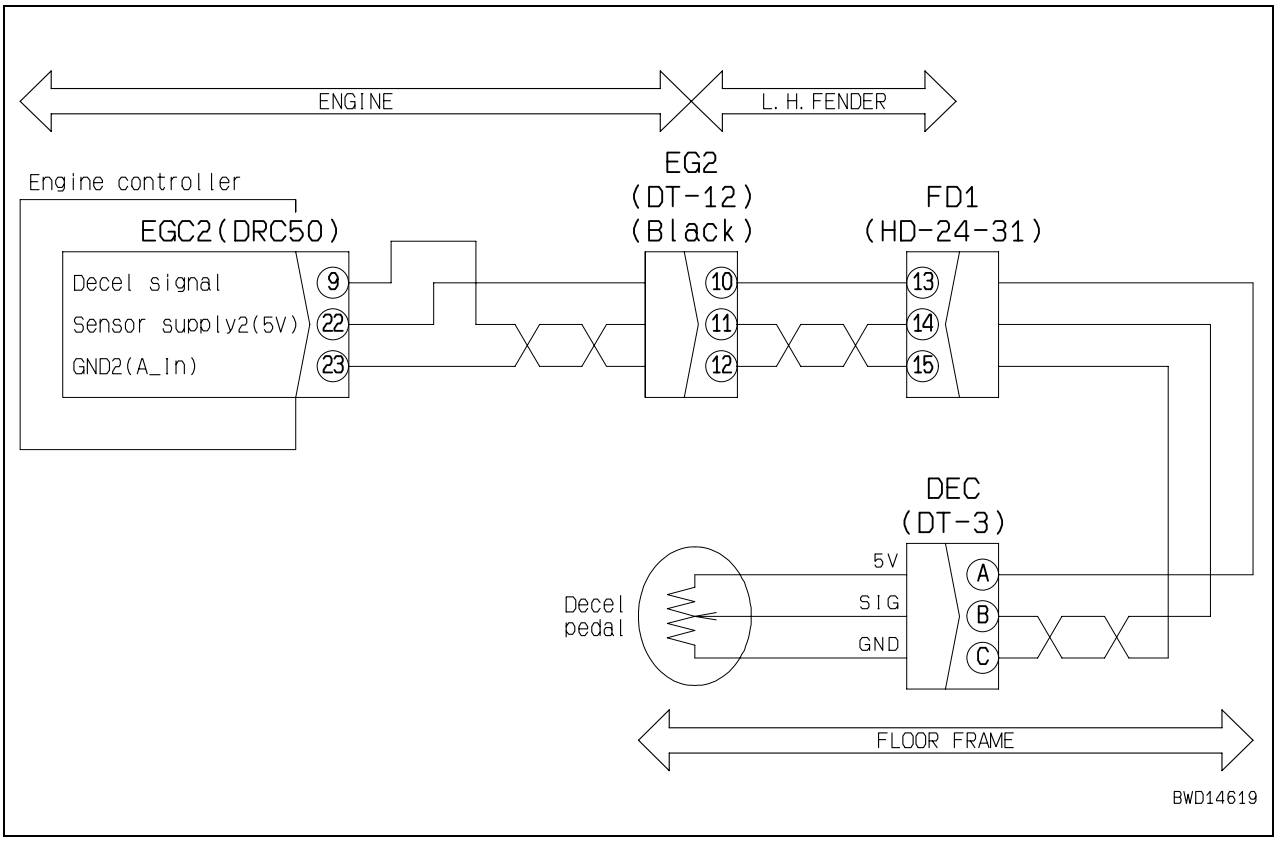
Failure code [B@CHZG] HSS charge oil pressure reduction

Action code	Failure code	Trouble	HSS charge oil pressure reduction
—	**B@CHZG**		
Contents of trouble	• HSS charge oil pressure reduced.		
Action of controller	• None in particular.		
Problem that appears on machine	• HSS charge oil pressure caution lamp lights up.		
Related information	• Since above caution lamp is not set on this machine, above failure code does not occur. Above failure code is listed up in mechanical system failure code table, however.		

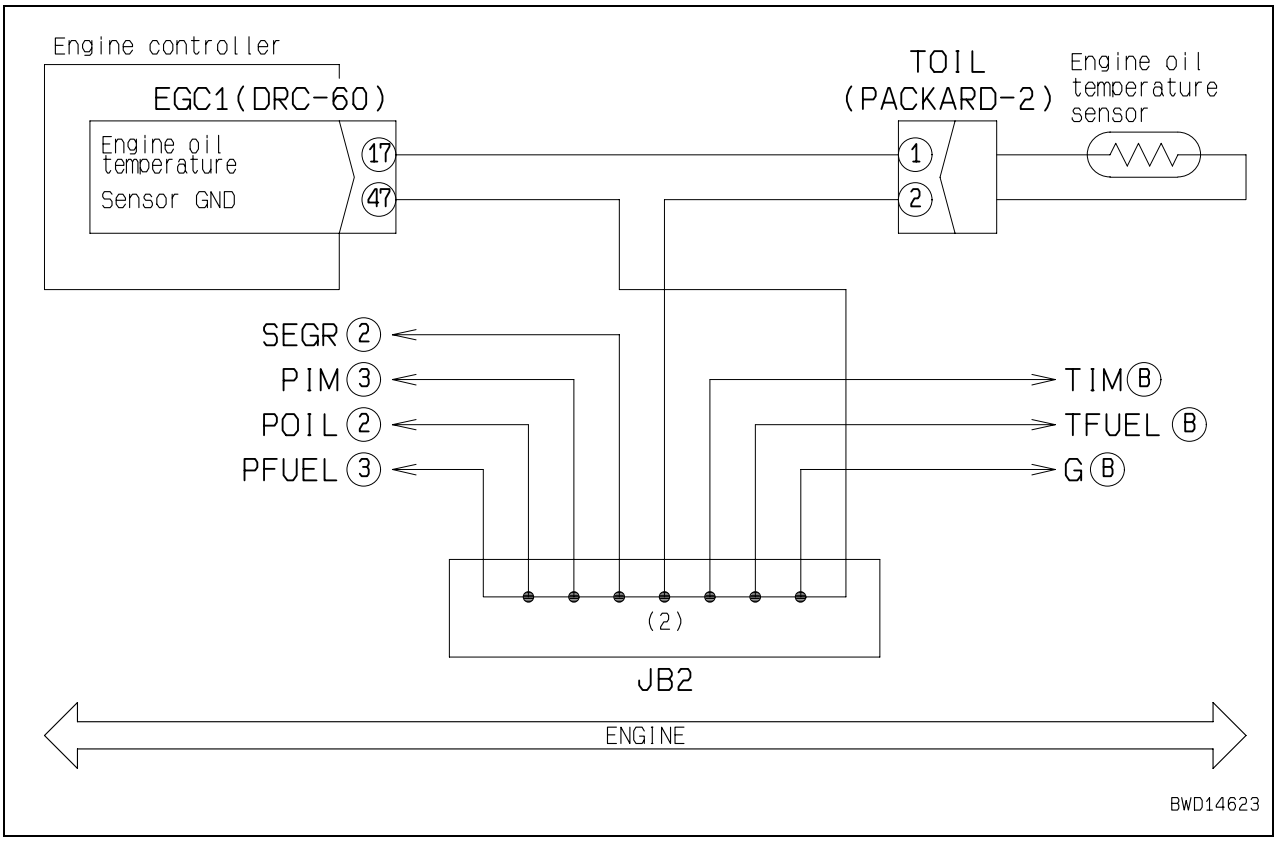
Failure code [B@CHZK] Power train oil level reduction

Action code	Failure code	Trouble	Power train oil level reduction
—	**B@CHZK**		
Contents of trouble	• While engine was running, power train oil caution lamp blinked.		
Action of controller	• None in particular.		
Problem that appears on machine	• None in particular.		
Related information	• Since above caution lamp is not set on this machine, above failure code does not occur. Above failure code is listed up in mechanical system failure code table, however.		

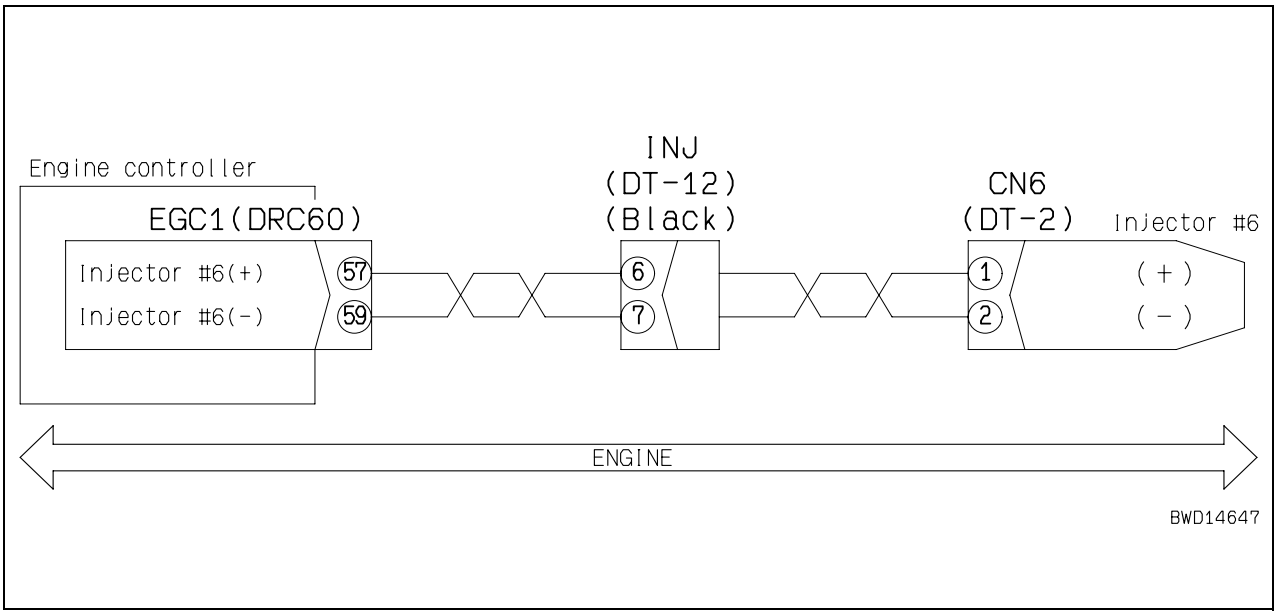
Circuit diagram related



Circuit diagram related

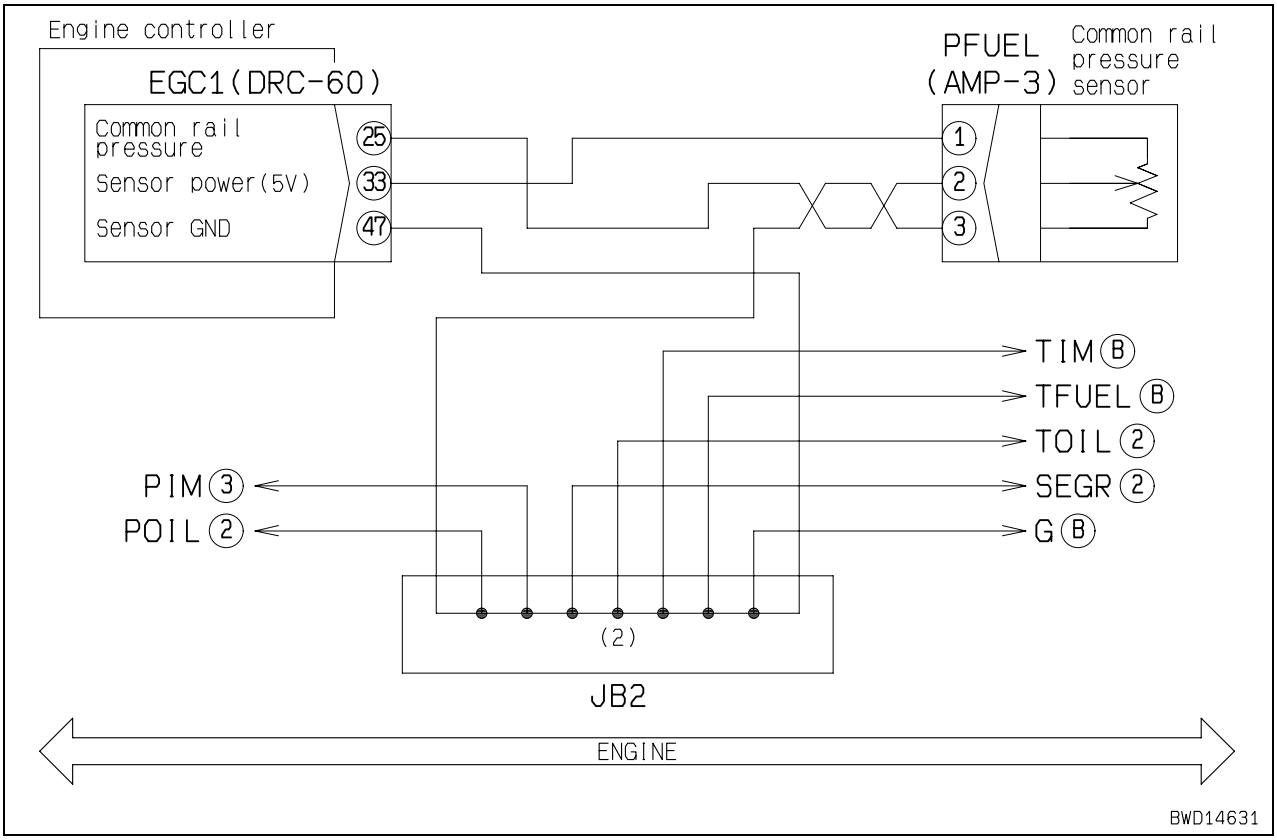


Circuit diagram related



<table>
<tr><td rowspan="6">Possible causes and standard value in normal state</td><td colspan="2">Cause</td><td colspan="4">Standard value in normal state/Remarks on troubleshooting</td></tr>
<tr><td rowspan="4">5</td><td rowspan="4">Short circuit in wiring harness
(with another wiring harness)</td><td colspan="4">★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.</td></tr>
<tr><td colspan="2">Wiring harness between EGC1 (female) (33) – PFUEL (female) (1) and between EGC1 (female) (25) – PFUEL (female) (2)</td><td>Resis-tance</td><td>Min. 1 MΩ</td></tr>
<tr><td colspan="2">Wiring harness between EGC1 (female) (33) – PFUEL (female) (1) and between EGC1 (female) (47) – PFUEL (female) (3)</td><td>Resis-tance</td><td>Min. 1 MΩ</td></tr>
<tr><td colspan="2">Wiring harness between EGC1 (female) (25) – PFUEL (female) (2) and between EGC1 (female) (47) – PFUEL (female) (3)</td><td>Resis-tance</td><td>Min. 1 MΩ</td></tr>
<tr><td rowspan="4">6</td><td rowspan="4">Defective engine controller</td><td colspan="4">★ Prepare with starting switch OFF, then turn starting switch ON or start engine and carry out troubleshooting.</td></tr>
<tr><td colspan="2">EGC1</td><td colspan="2">Voltage</td></tr>
<tr><td colspan="2">Between (33) and (47)</td><td colspan="2">4.75 – 5.25 V</td></tr>
<tr><td colspan="2">Between (25) and (47)</td><td colspan="2">0.25 – 4.6 V</td></tr>
</table>

Circuit diagram related



BULLDOZER

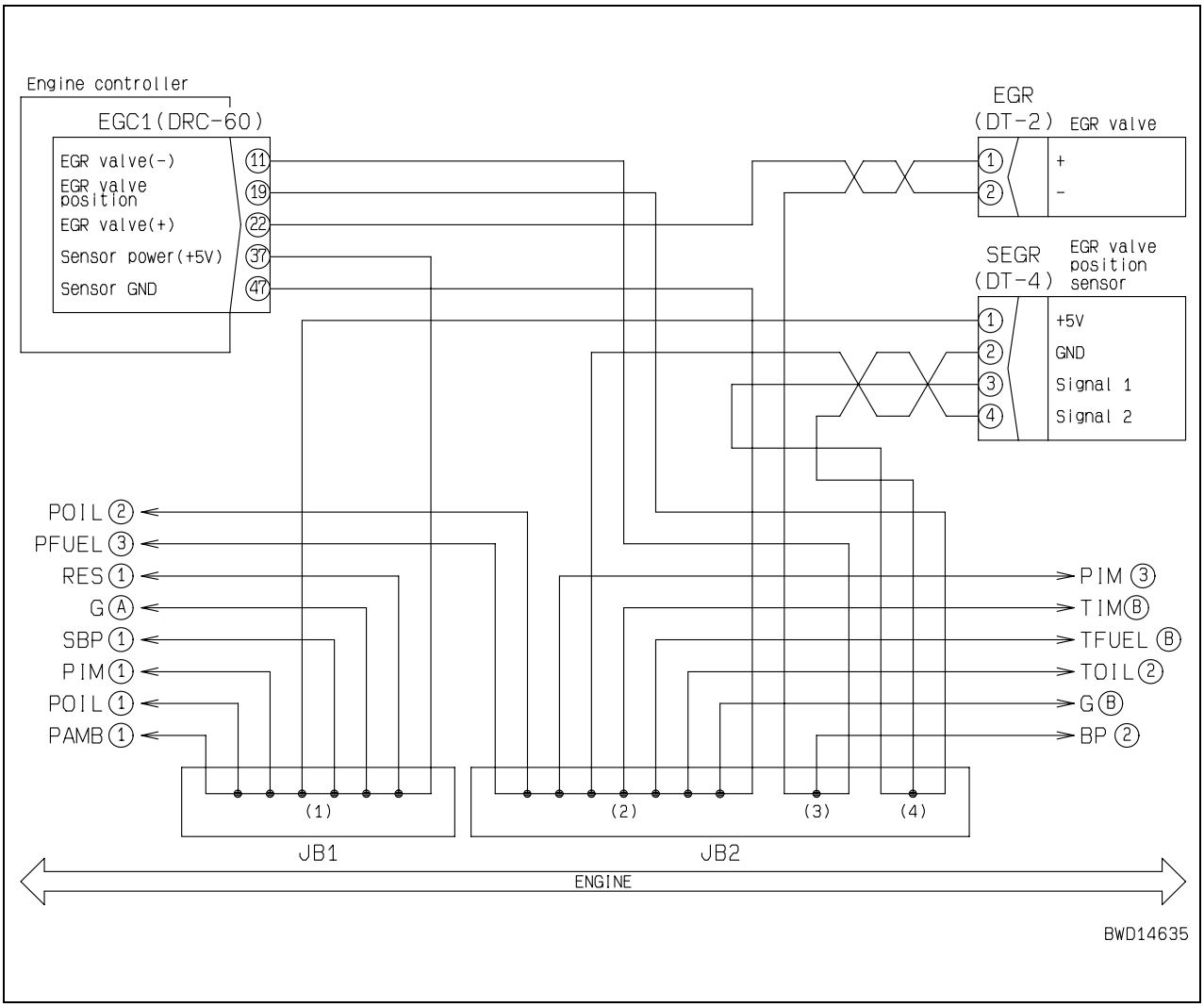
D375A-5E0

Machine model	Serial number
D375A-5E0	50001 and up

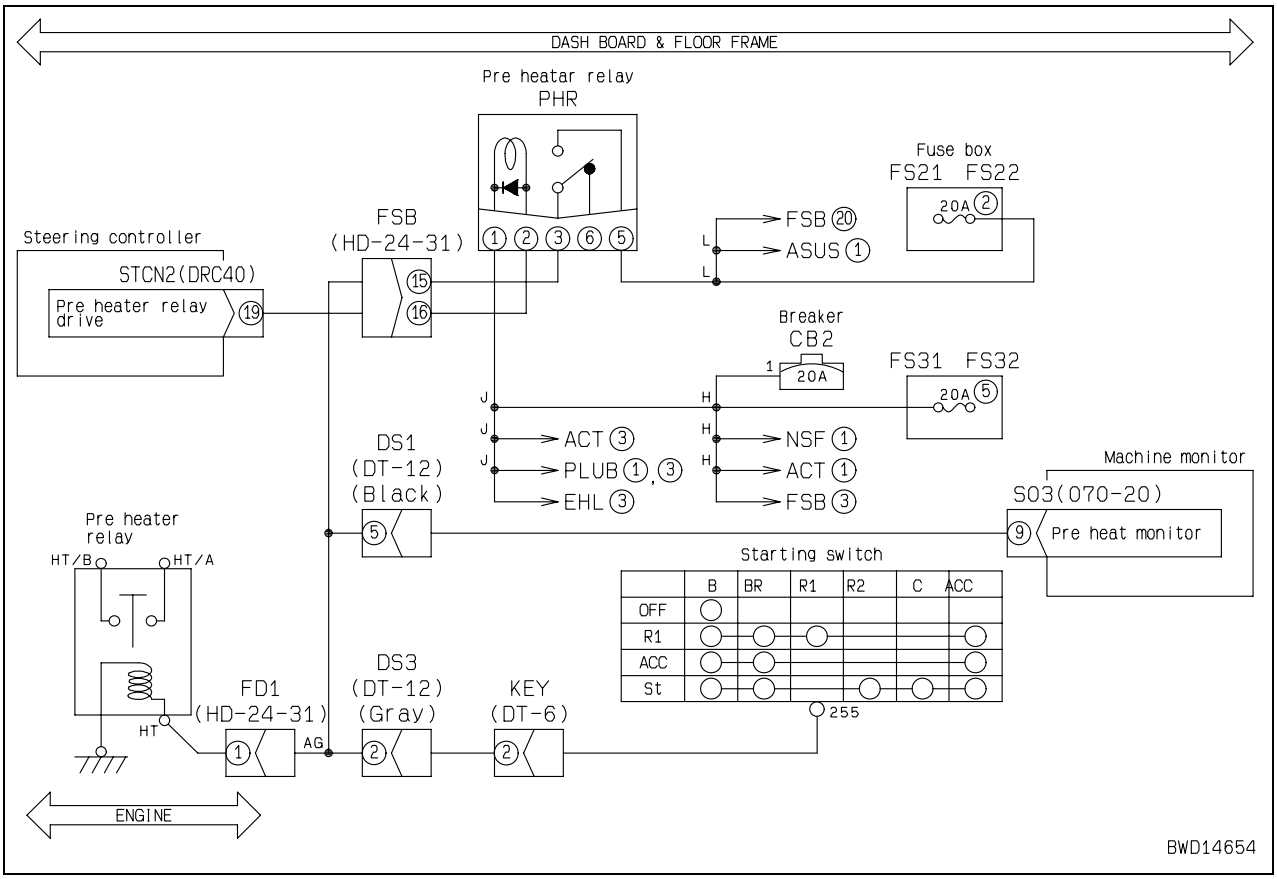
40 Troubleshooting

Troubleshooting by failure code, Part 3

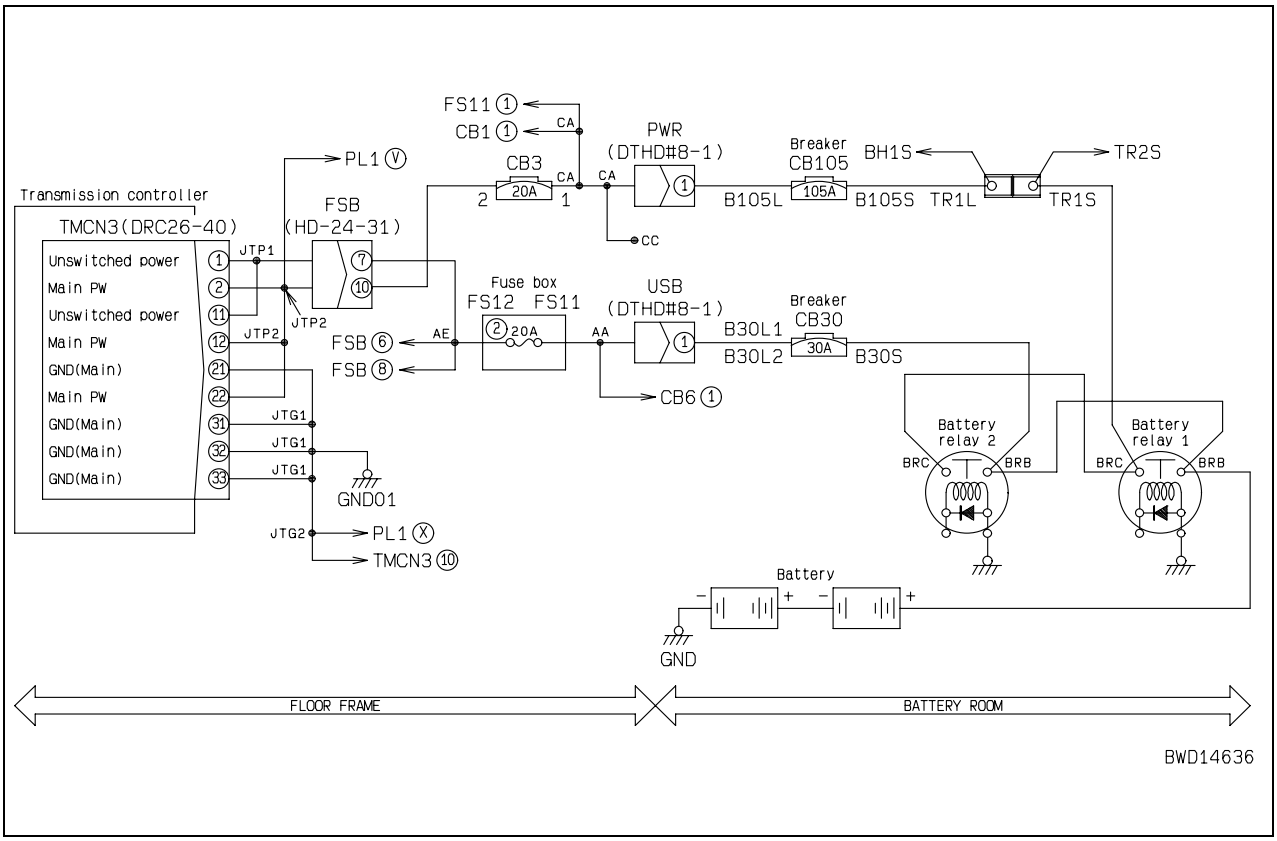
Circuit diagram related



Circuit diagram related



Circuit diagram related



BULLDOZER

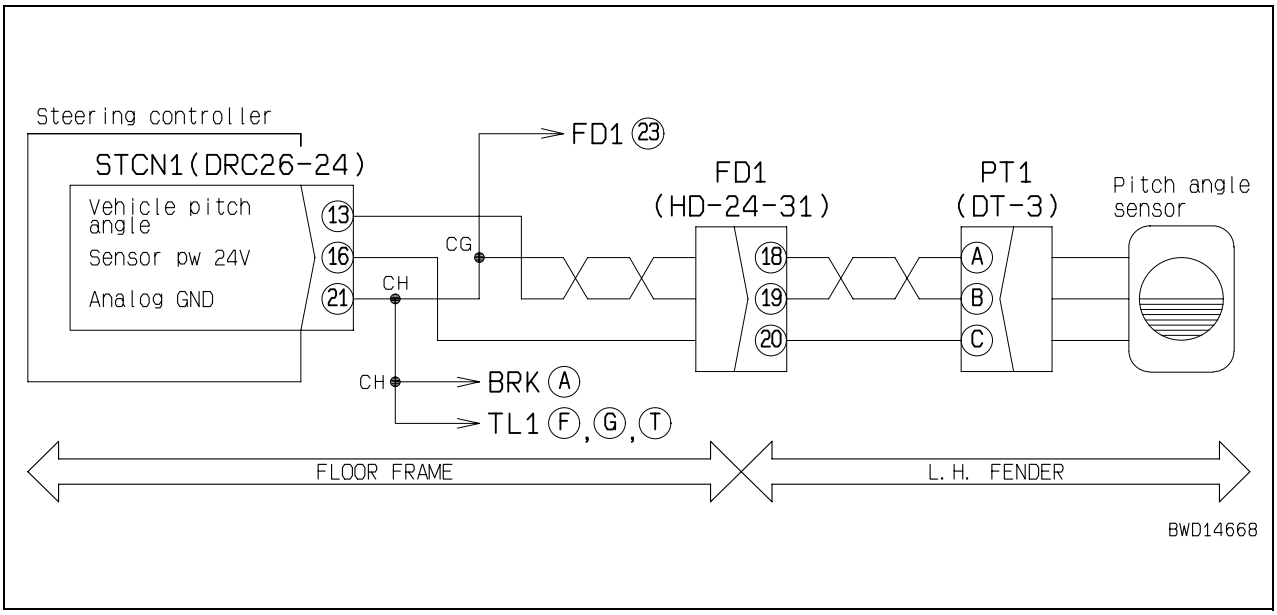
D375A-5E0

Machine model	Serial number
D375A-5E0	50001 and up

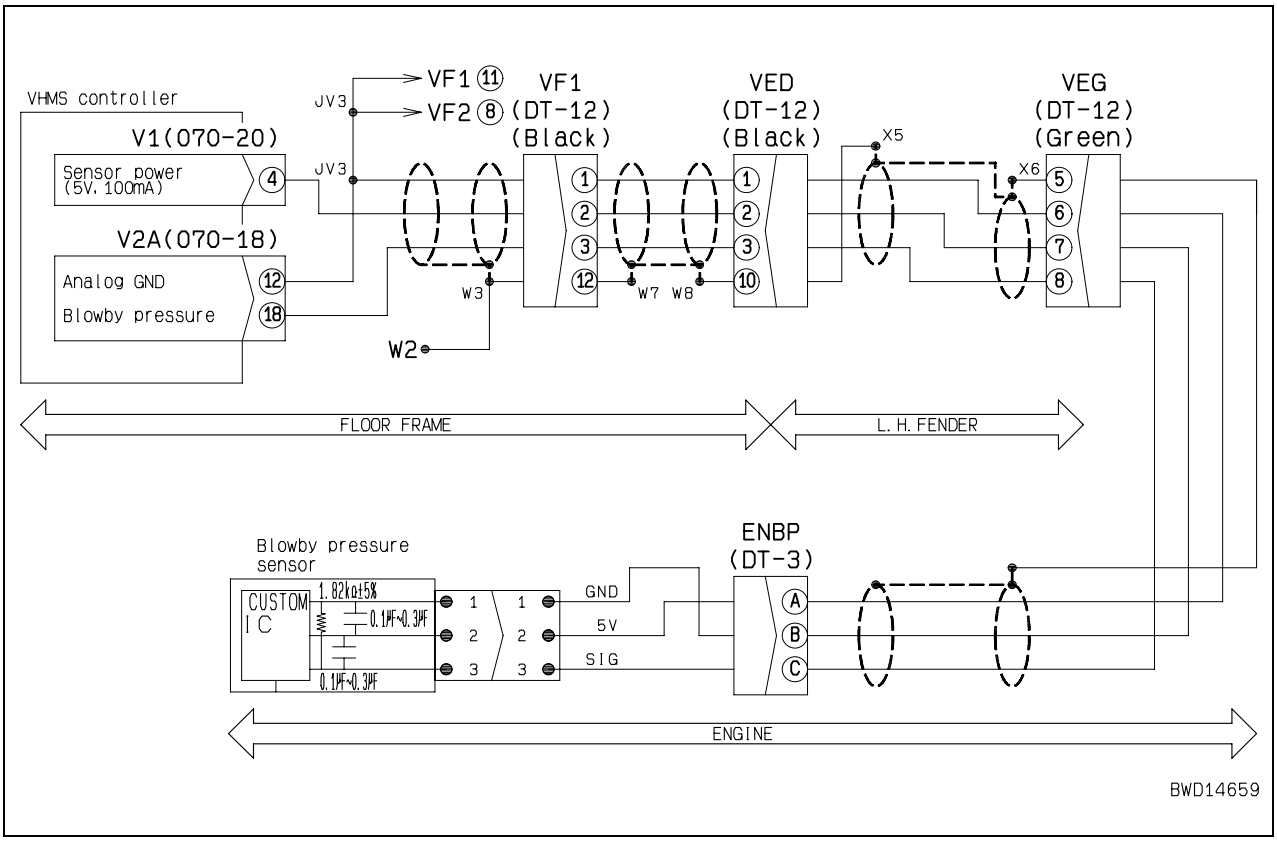
40 Troubleshooting

Troubleshooting by failure code, Part 4

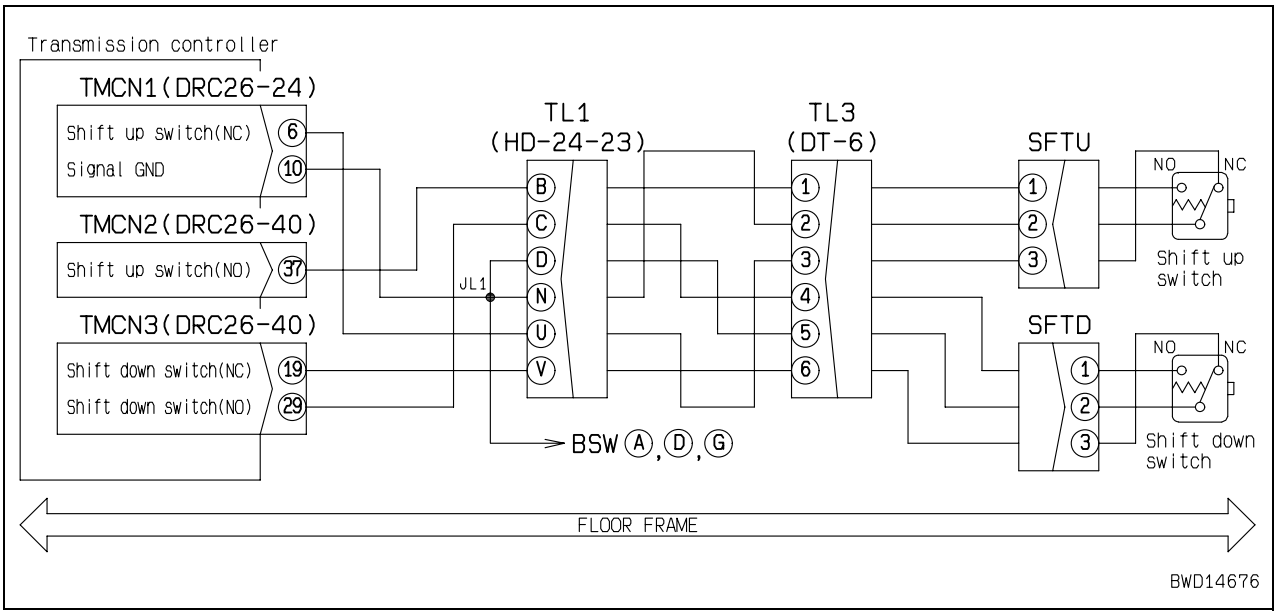
Circuit diagram related



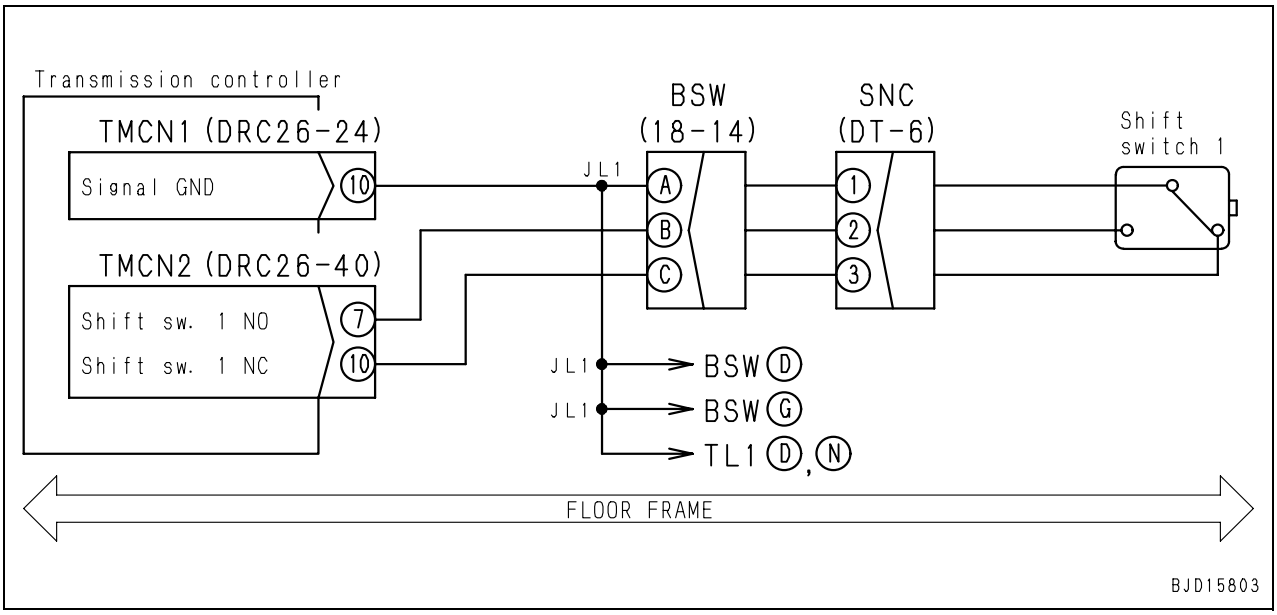
Circuit diagram related



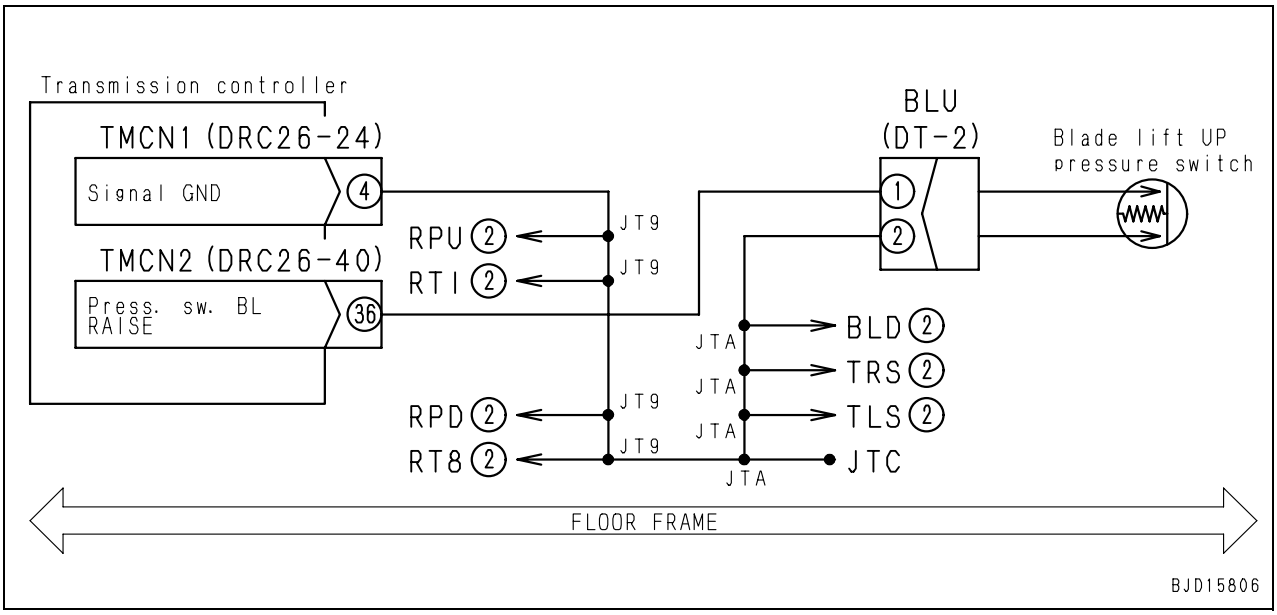
Circuit diagram related



Circuit diagram related



Circuit diagram related



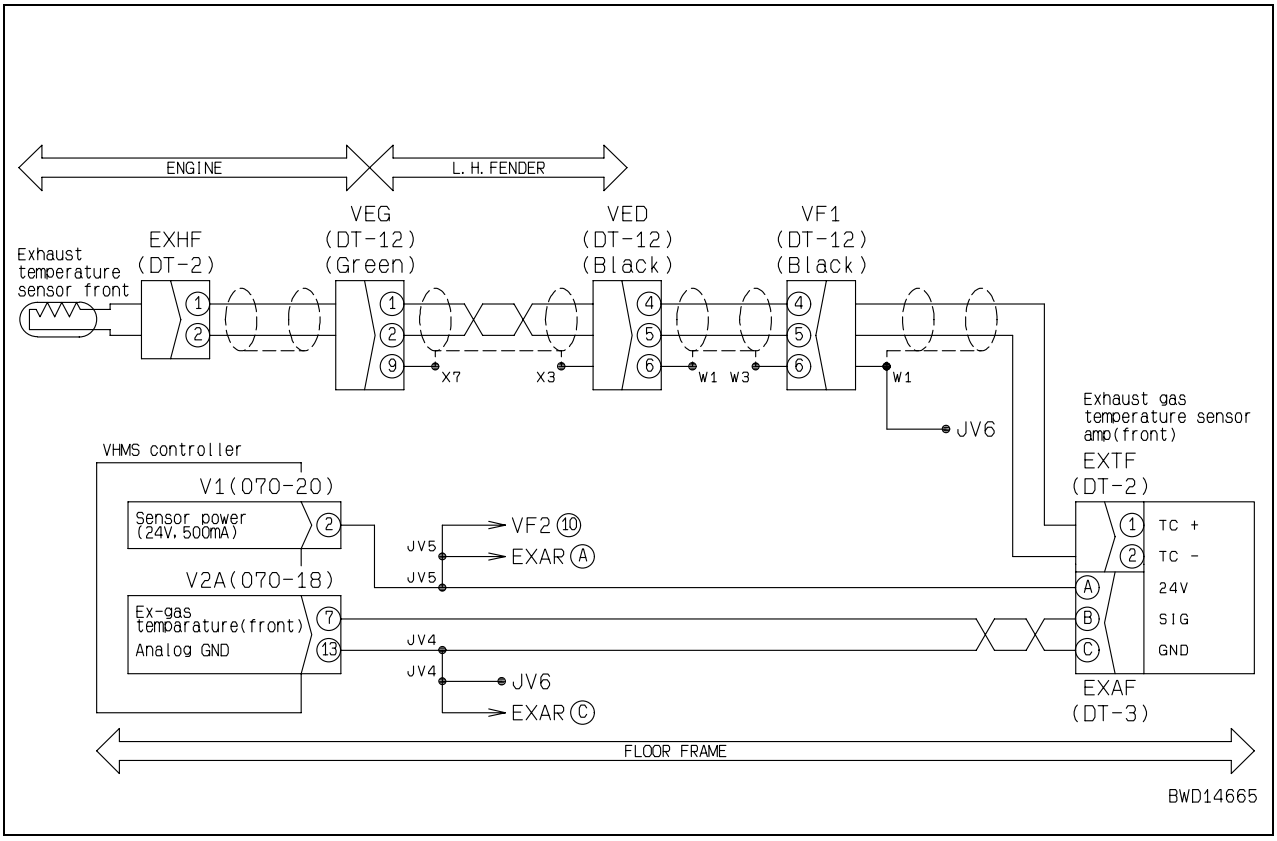
Failure code [dDQ2L4] Parking brake lever switch ON/OFF signal disagreement

Action code	Failure code	Trouble	Parking brake lever switch ON/OFF signal disagreement (Transmission controller system)
CALL E03	**dDQ2L4**		
Contents of trouble	• Switch input signal of steering controller disagrees with communication signal from transmission controller.		
Action of controller	• Flashes caution lamp and turns on caution buzzer. • Limits operation of engine and transmission.		
Problem that appears on machine	• Once machine is stopped, engine speed is limited to medium (half). • Once machine is stopped, travel is limited to F1 and R1.		
Related information	★ Since parking brake switch signal is used by both transmission controller and steering controller and information is exchanged by CAN communication, related codes may be displayed simultaneously, depending on troubled part. (Related codes: **DAFRKR**, **DBBQKR**, **dB3RKR**, **DAQRKR**, **DD14KA**, **DD14KB**, **DDQ2KA**, **DDQ2KB**) • Inputting from parking brake switch (ON • OFF) can be checked in real-time moniitoring mode. (Code **40905**: Transmission controller input signal 1) • Method of reproducing failure code: Turn starting switch ON and operate parking brake lever.		

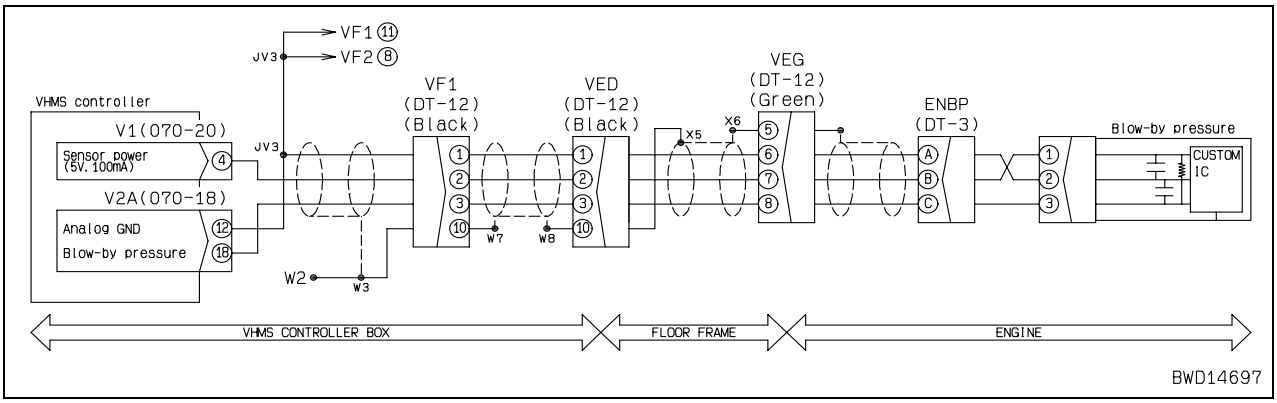
Possible causes and standard value in normal state	Cause		Standard value in normal state/Remarks on troubleshooting
	1	Defective CAN communication signal system	See if failure codes [**DAFRKR**], [**DBBQKR**], [**dB3RKR**], and [**DAQRKR**] are displayed. If they are displayed, carry out troubleshooting for them first.
	2	Defective parking brake lever switch signal system	See if failure codes [**DD14KA**], [**DD14KB**], [**DDQ2KA**], and [**DDQ2KB**] are displayed. If they are displayed, carry out troubleshooting for them first.
	3	Defective transmission controller	Since trouble is in system, troubleshooting cannot be carried out.

Possible causes and standard value in normal state	Cause		Standard value in normal state/Remarks on troubleshooting			
	5	Defective VHMS controller	1) Turn starting switch OFF. 2) Disconnect connectors V1 and V2A. 3) Insert T-adapter. 4) Connect connectors. 5) Start engine.			
			Between V1 (2) – V2A (13)		Voltage	20 – 30 V
			Between V2A (7) – (13)	20 °C	Voltage	Approx. 0.9 – 1.2 V
				500 °C	Voltage	Approx. 2.6 – 3.5 V

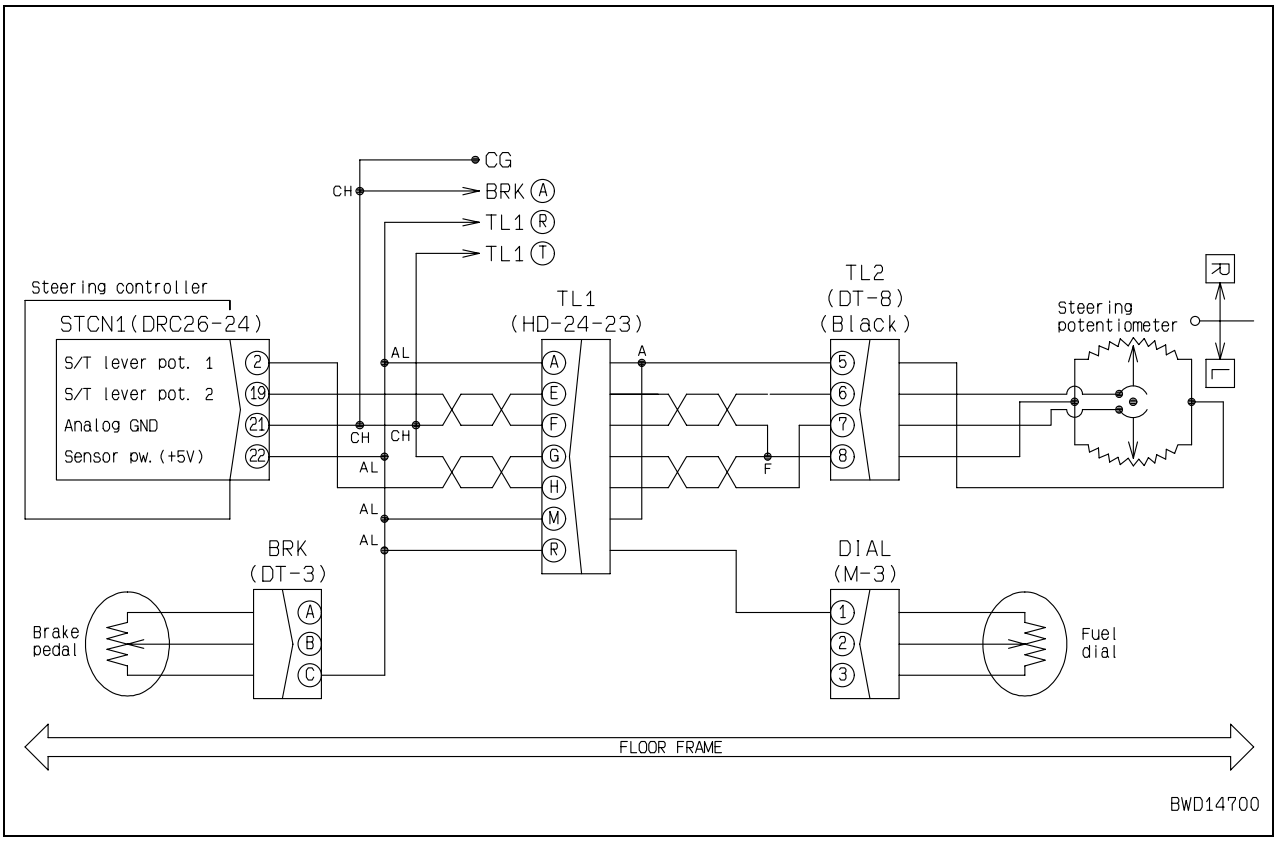
Circuit diagram related



Circuit diagram related



Circuit diagram related

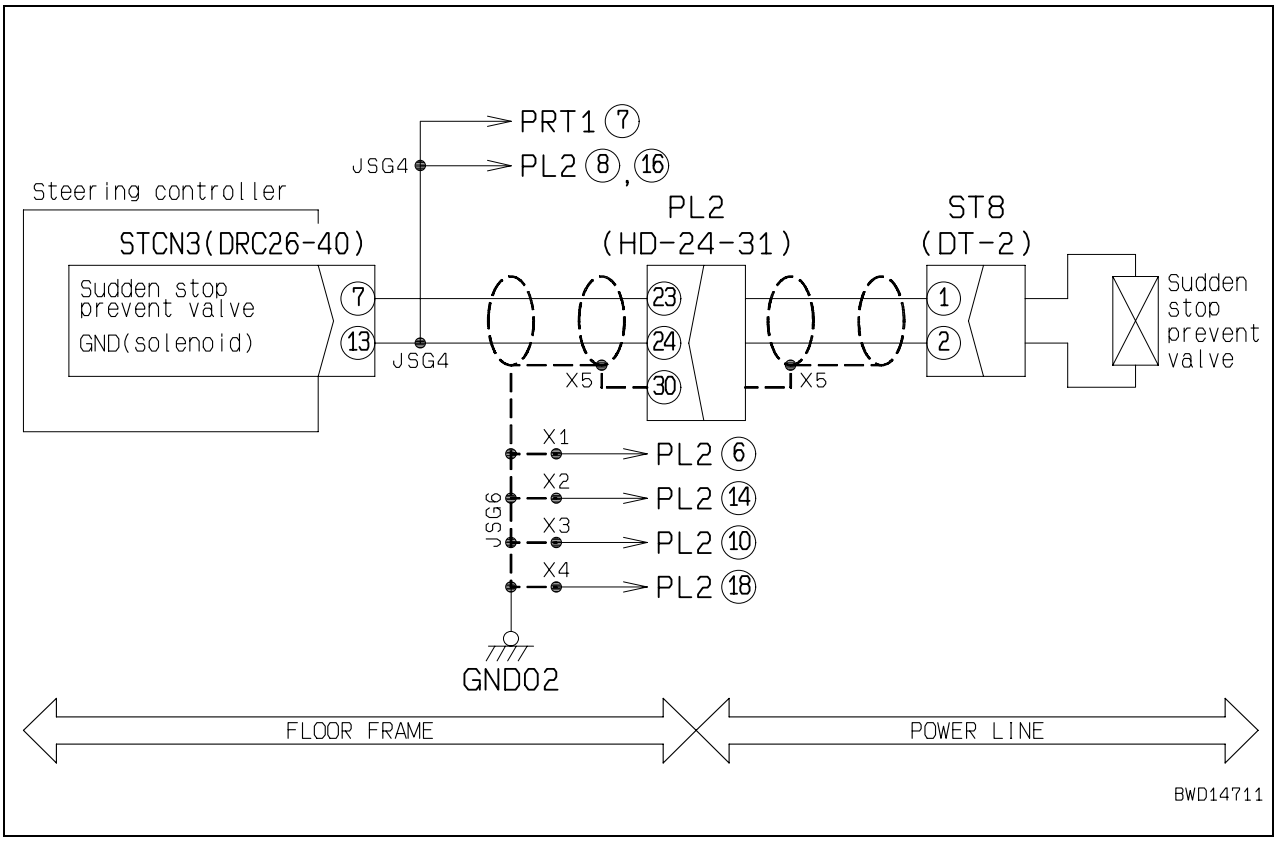


Failure code [DKH1KX] Pitch angle sensor input signal out of range

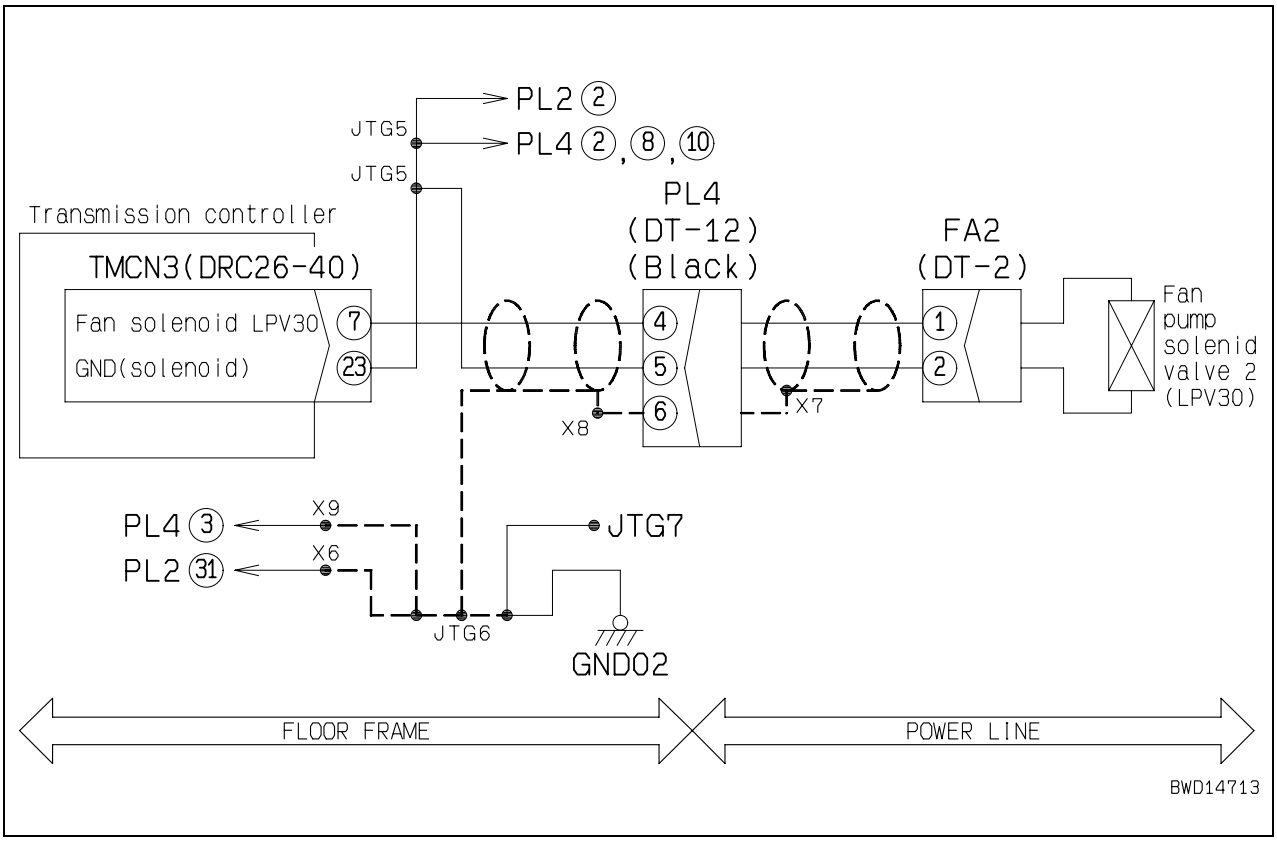
Action code	Failure code	Trouble	Pitch angle sensor input signal out of range (Transmission controller system)
CALL E01	**DKH1KX**		
Contents of trouble	• Either of pitch angle sensor errors [DKH1KA] and [DKH1KB] occurred or steering controller CAN communication error [DB3RKR] occurred.		
Action of controller	• Cannot recognize pitch angle.		
Problem that appears on machine	• Automatic gearshift system does not work.		
Related information	• Input voltage from pitch angle sensor can be checked in real-time moniitoring mode. (Code **60100**: Voltage of pitch angle sensor) • Method of reproducing failure code: Turn starting switch ON.		

Possible causes and standard value in normal state	Cause	Standard value in normal state/Remarks on troubleshooting
	If failure code [**DKH1KA**], [**DKH1KB**] or [**DB3RKR**] is displayed, carry out troubleshooting for it.	

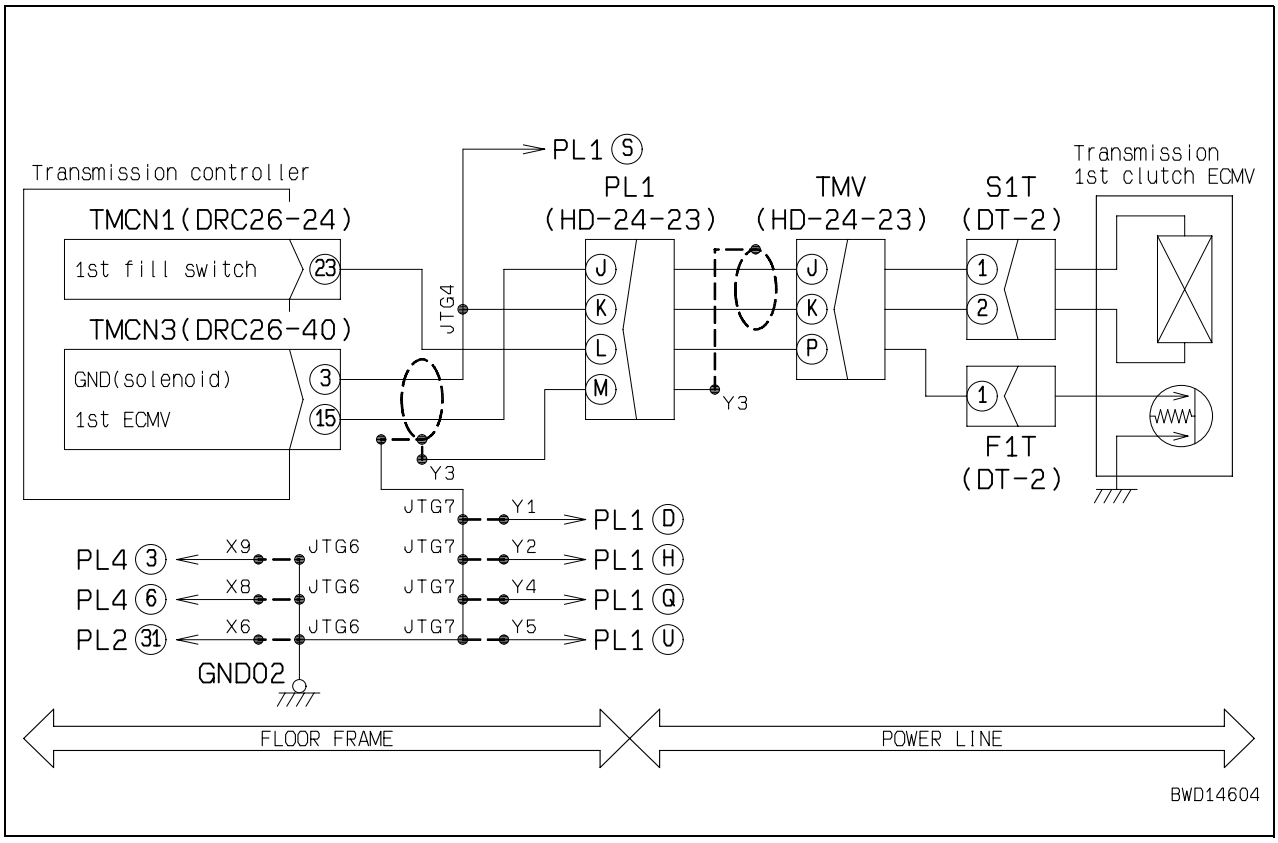
Circuit diagram related



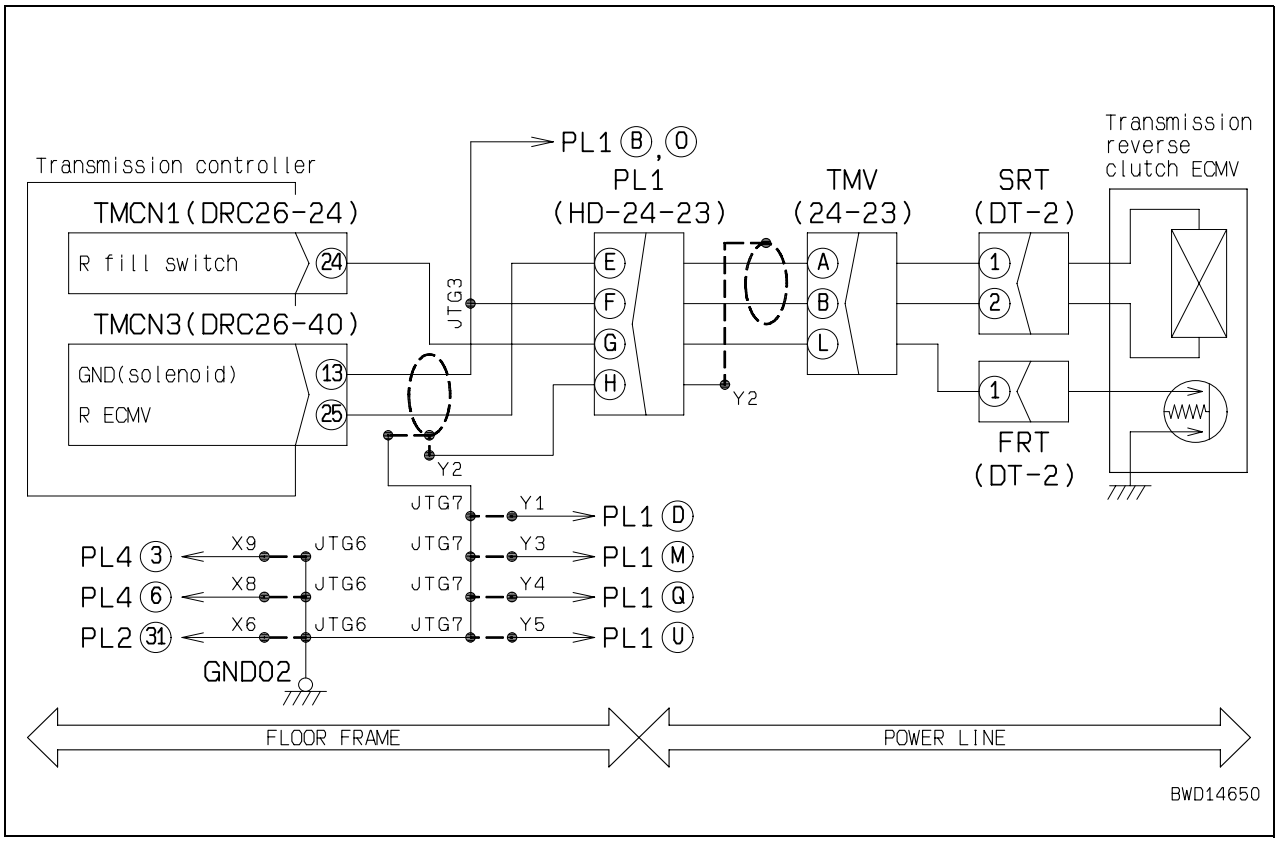
Circuit diagram related



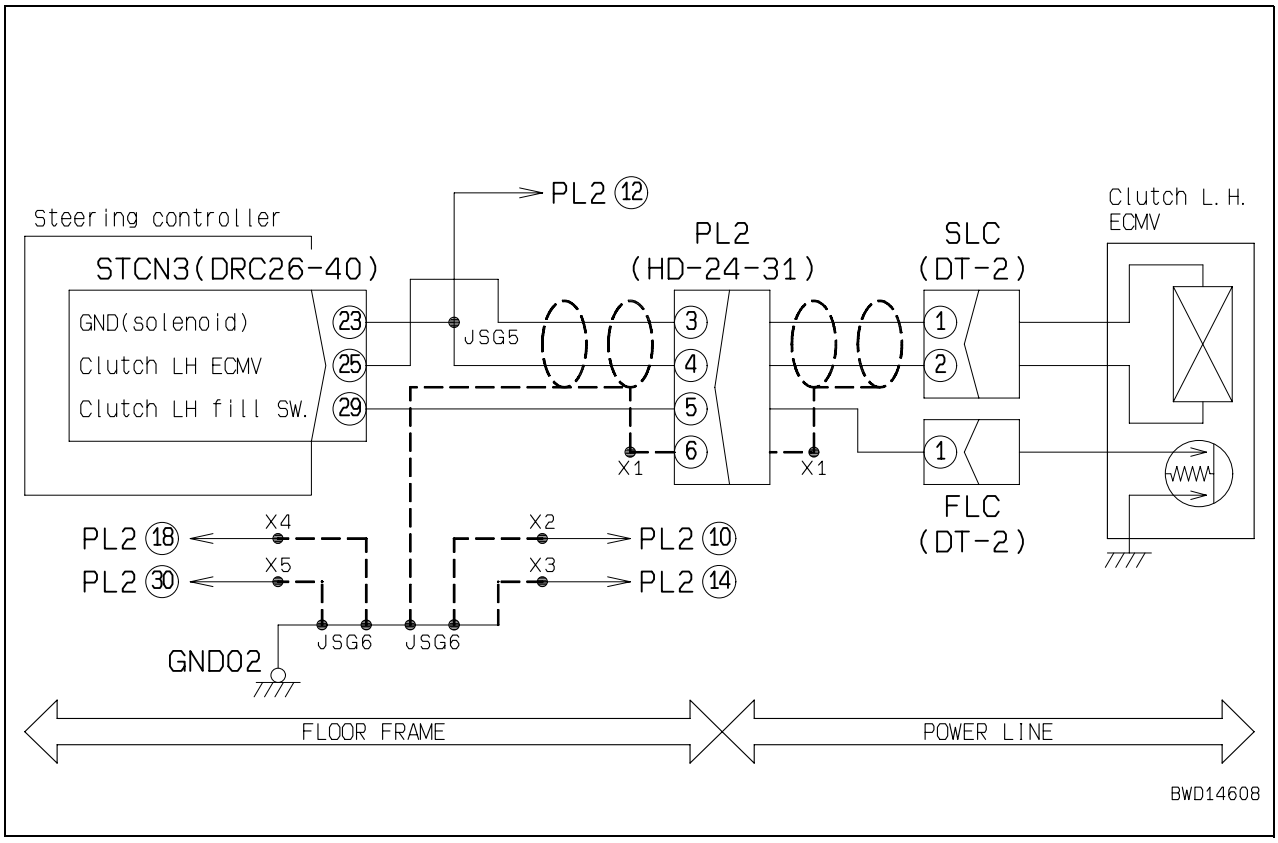
Circuit diagram related



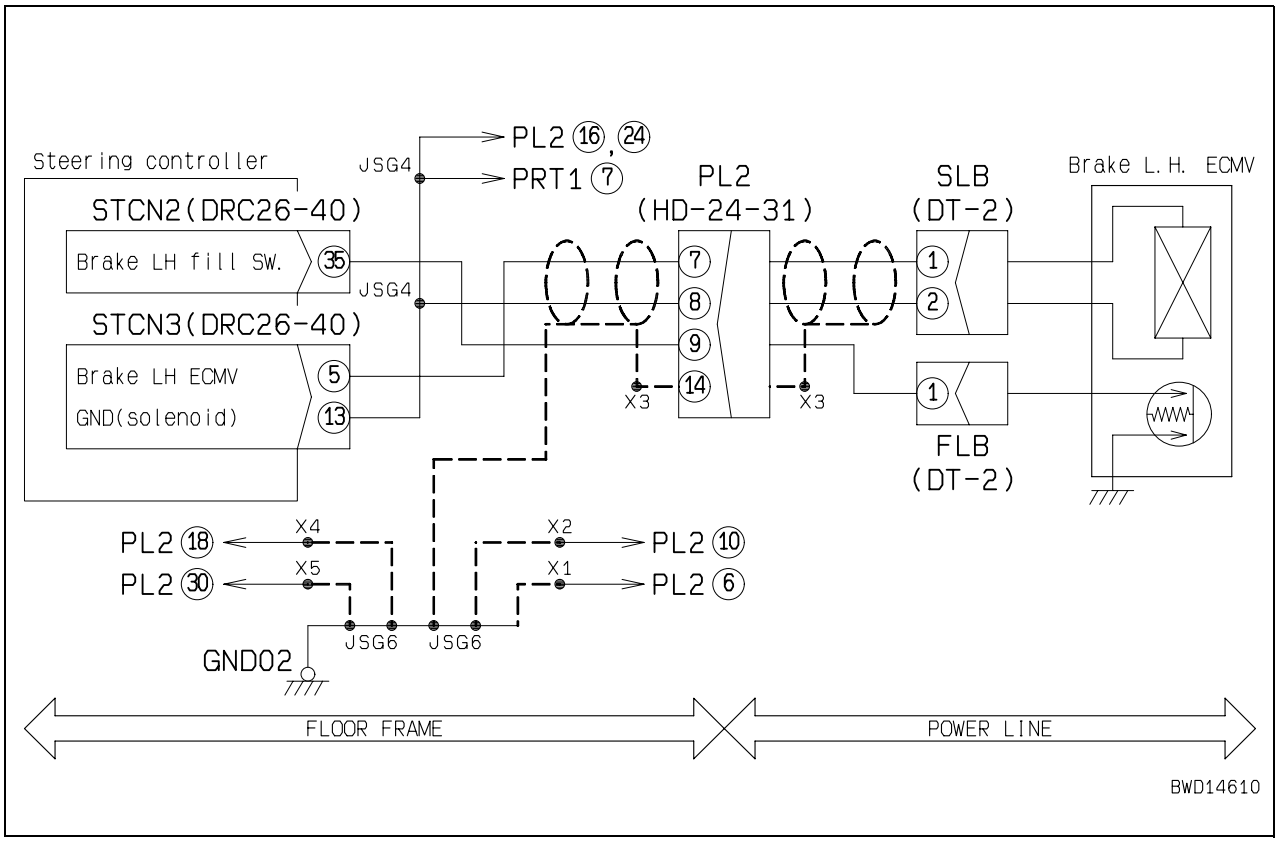
Circuit diagram related



Circuit diagram related

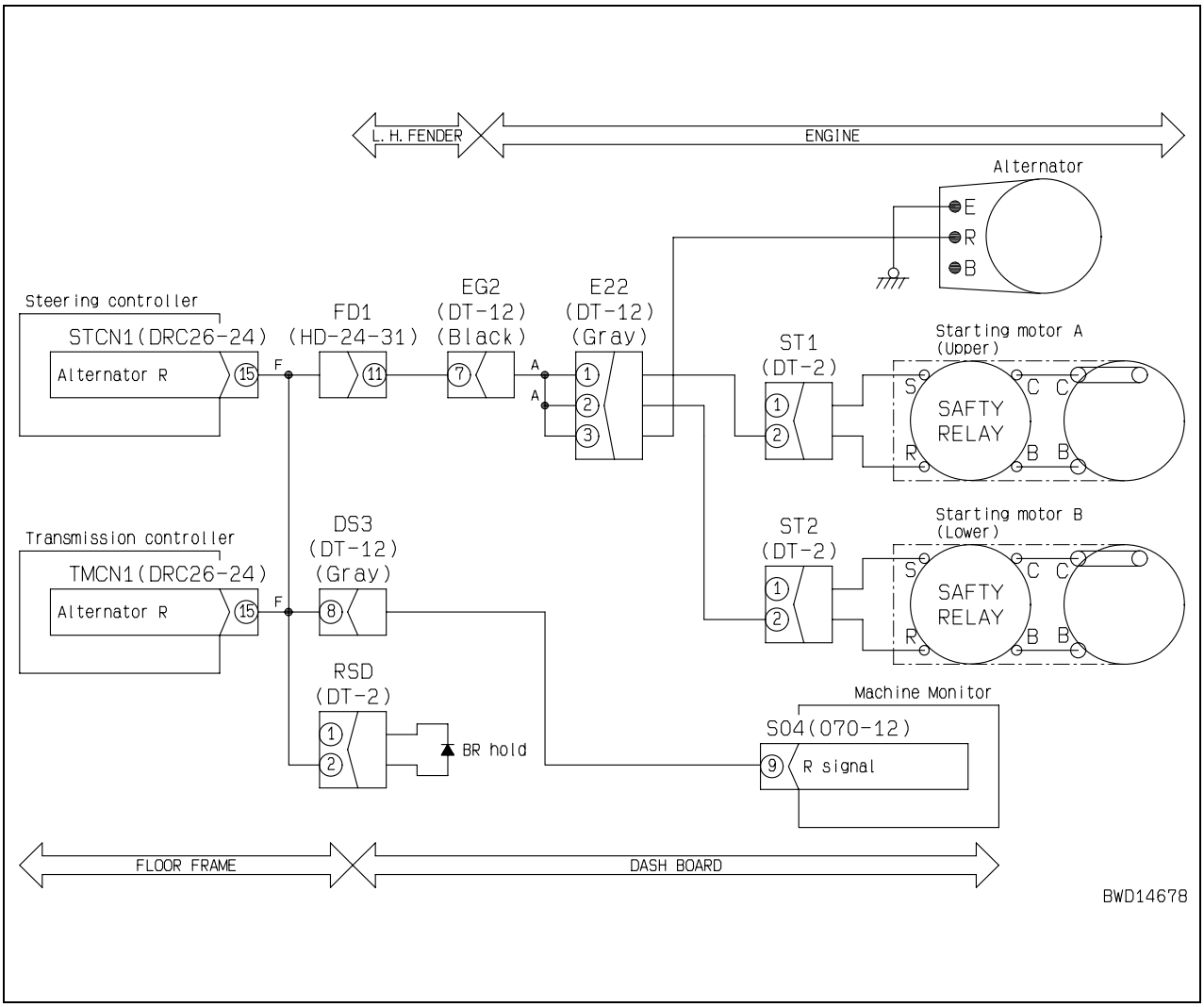


Circuit diagram related



Possible causes and standard value in normal state	Cause		Standard value in normal state/Remarks on troubleshooting		
	7	Hot short in wiring harness (Contact with 24 V circuit)	★ Prepare with the starting switch OFF, then turn the starting switch ON and carry out troubleshooting.		
			Hot short of wiring harness between alternator R terminal and starting motor R terminal or TMCN1 (female) (15) or S04 (female) (9) or STCN1 (female) (15) or RSD (female) (2) with ground (Note: While a hot short occurs, the battery charge level lamp comes on when the starting switch is turned ON.)	Voltage	Max. 1 V
	8	Defective diode (Internal short circuit)	If diode RSD is shorted, voltage at starting motor terminal R is 20 – 30 V and starting motor does not operate.		
	9	Ground fault in wiring harness (Contact with GND circuit)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.		
			Wiring harness between NSF (female) (5) – ST1 (female) (1) or ST2 (female) (1) and chassis ground	Resistance	Min. 1 MΩ
			Wiring harness between terminal 280 – NSF (female) (3) and chassis ground	Resistance	Min. 1 MΩ

Circuit diagram related



E-18 The switch module cannot be operated

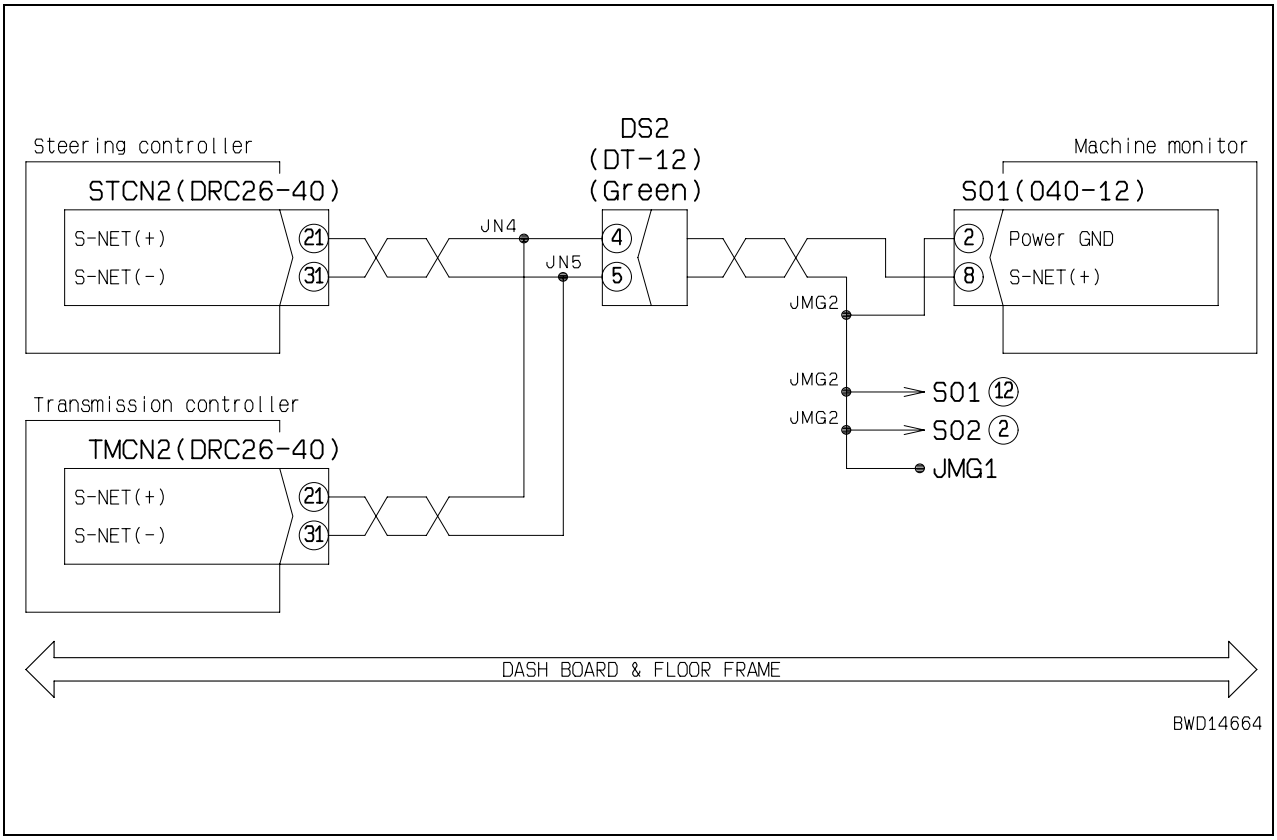
Trouble (1)	• Though the switch is used, lamps do not change.
Related information	—

Possible causes and standard value in normal state		Cause	Standard value in normal state/Remarks on troubleshooting
	1	Defective machine monitor (Switch module)	This is an internal defect, which cannot be troubleshot.

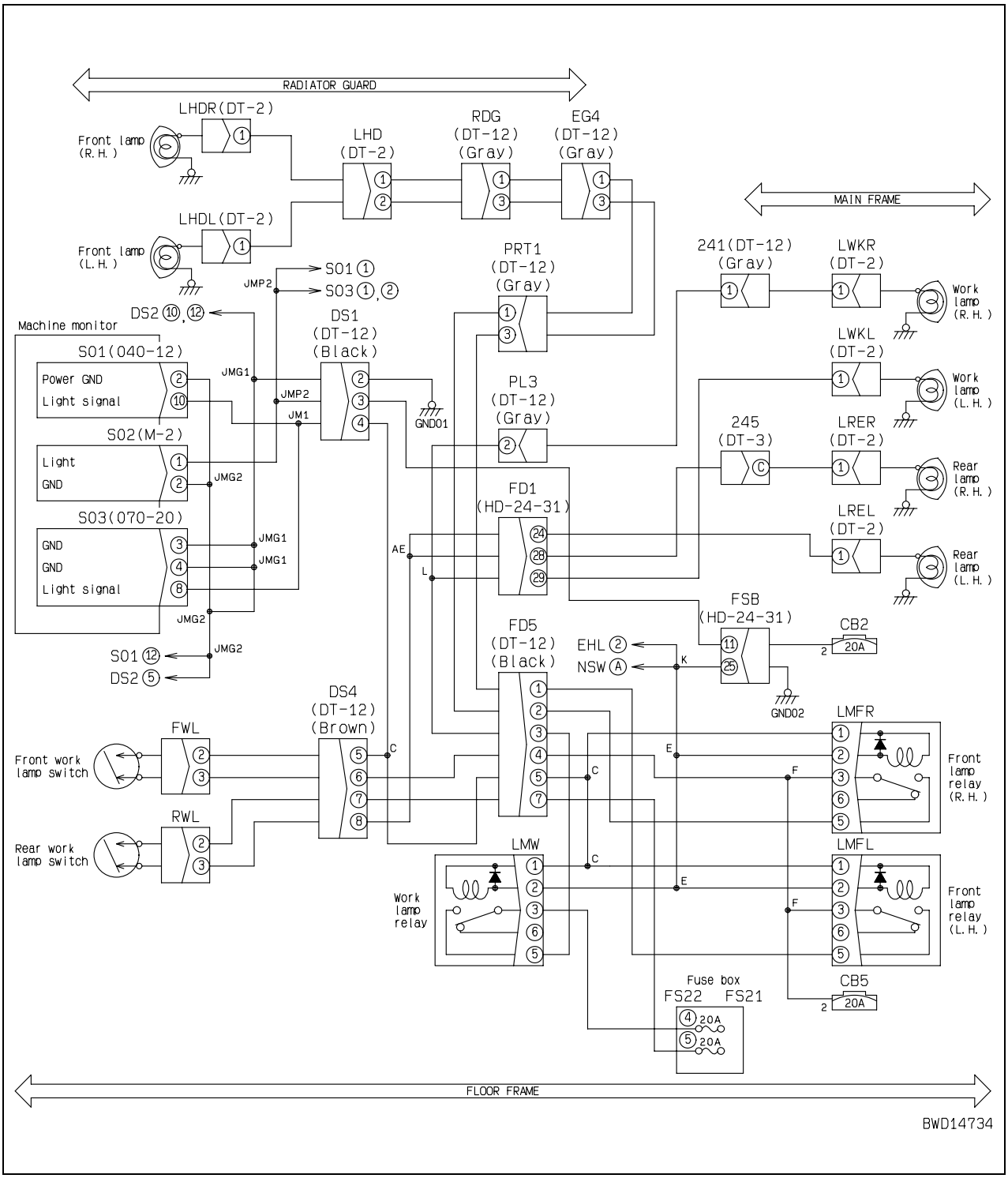
Trouble (2)	• Though the switch is used, the system setting does not change.
Related information	• Switch module signals are transmitted to each controller through communication.

Possible causes and standard value in normal state		Cause	Standard value in normal state/Remarks on troubleshooting		
	1	Disconnection in wiring harness (Disconnection in wiring or defective contact in connector)	★ Prepare with the starting switch OFF, then carry out troubleshooting without turning the starting switch ON.		
			Wiring harness between S01 (female) (8) – STCN2 (female) (21), – TMCN2 (female) (21)	Resistance	Max. 1 Ω
	2	Defective machine monitor (Switch module)	★ Prepare with the starting switch OFF, then start the engine and carry out the troubleshooting.		
			S01	Voltage	
			Between (8) and ground	6 – 9 V	

Circuit diagram related



Circuit diagram related



Information in troubleshooting table

★ The following information is summarized in the troubleshooting table and the related electrical circuit diagram. Before carrying out troubleshooting, understand that information fully.

Trouble	Trouble in machine
Related information	Information related to detected trouble or troubleshooting

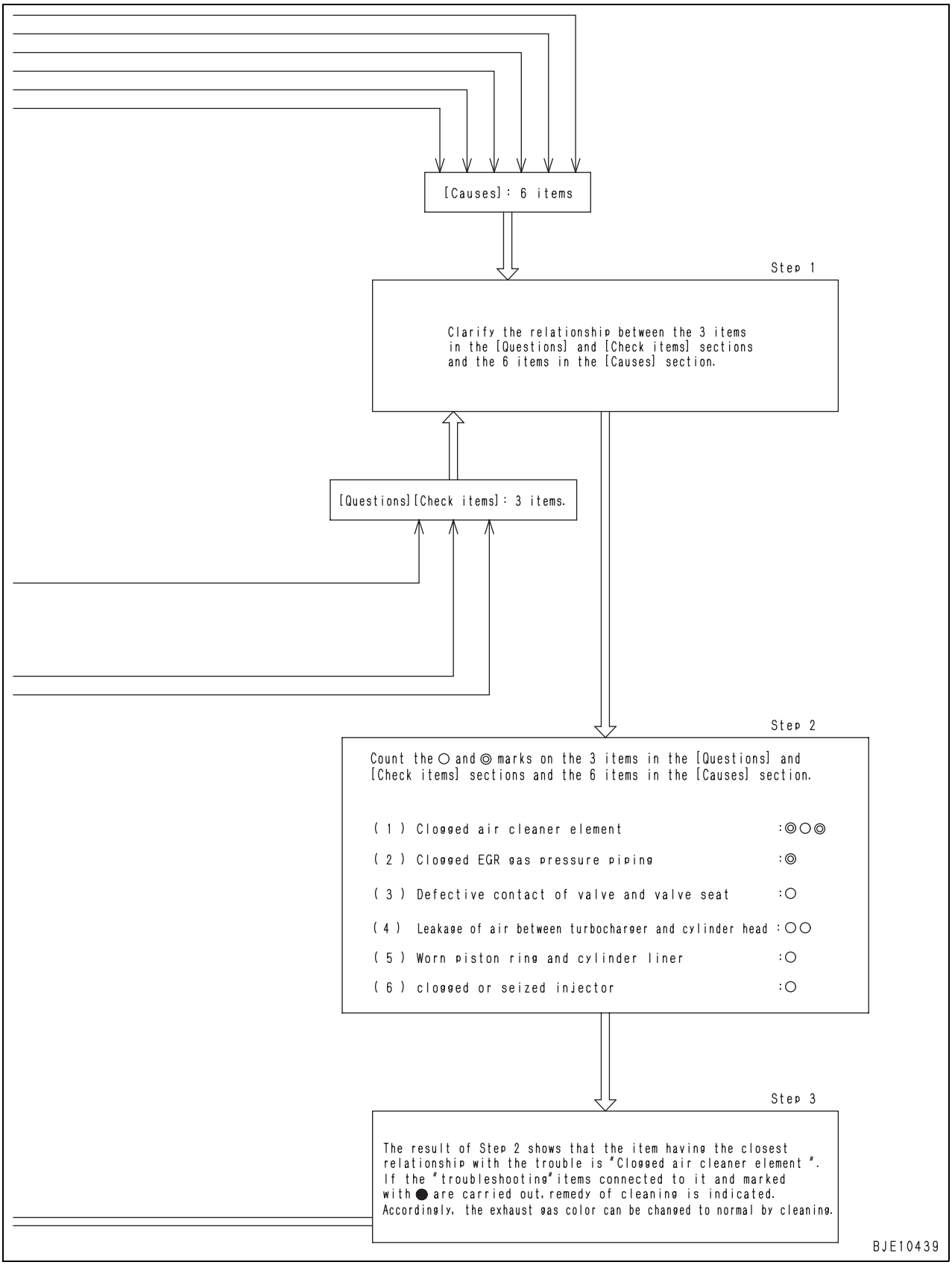
	Cause		Standard value in normal state/Remarks on troubleshooting
Possible causes and standard value in normal state	1	Possible causes of trouble (Given numbers are reference numbers, which do not indicate priority)	<Contents of description> • Standard value in normal state to judge possible causes • Remarks on judgment
	2		
	3		
	4		

H-13 All work equipment does not operate

Trouble	• All work equipment does not operate.
Related information	• Before troubleshooting, check that the hydraulic tank oil level is normal.

	Cause		Standard value in normal state/Remarks on troubleshooting	
Possible causes and standard value in normal state	1	Defective PTO (work equipment pump drive)	The work equipment pump drive of the PTO is supposed to be defective. Check it directly.	
	2	Defective work equipment large pump	The work equipment large pump is supposed to be defective. Check it directly.	
	3	Defective work equipment small pump	The work equipment small pump is supposed to be defective. Check it directly.	
	4	Improper pressure set to main relief valve for blade lift valve	★ Set the starting switch to OFF for preparation and idle the engine at a high speed for troubleshooting.	
			Blade lever	Main relief pressure
			Raise	Min. 19.6 MPa {Min. 200 kg/cm^2}
	5	Internal defect of main relief valve for blade lift valve	The inside of the main relief valve for blade lift valve is supposed to be defective. Check it directly.	
	6	Improper pressure set to main relief valve for blade tilt ripper Lo valve	★ Set the starting switch to OFF for preparation and idle the engine at a high speed for troubleshooting.	
			Blade lever	Main relief pressure
			Raise	Min. 19.6 MPa {Min. 200 kg/cm^2}
	7	Internal defect of main relief valve for blade tilt ripper Lo valve	The inside of the main relief valve for blade tilt ripper Lo valve is supposed to be defective. Check it directly.	
	8	Malfunction of self pressure reducing valve (PPC basic pressure)	★ Set the starting switch to OFF for preparation and idle the engine at a high speed for troubleshooting.	
			Work equipment lever	Control relief pressure
			Full neutral	Min. 3.1 MPa {Min. 32 kg/cm^2}
	9	Defective operation of PPC lock valve	The PPC lock valve is supposed to operate abnormally. Check the lever linkage or the lock valve directly.	

There is a causal relationship between 3 items in the [Questions] and [Check items] sections and 6 items in the [Causes] section.
The method of pinpointing the [Causes] from the causal relationship and approaching the [troubleshooting] is explained according to Step 1 - Step 3 shown below.



S-10 Fuel consumption is excessive

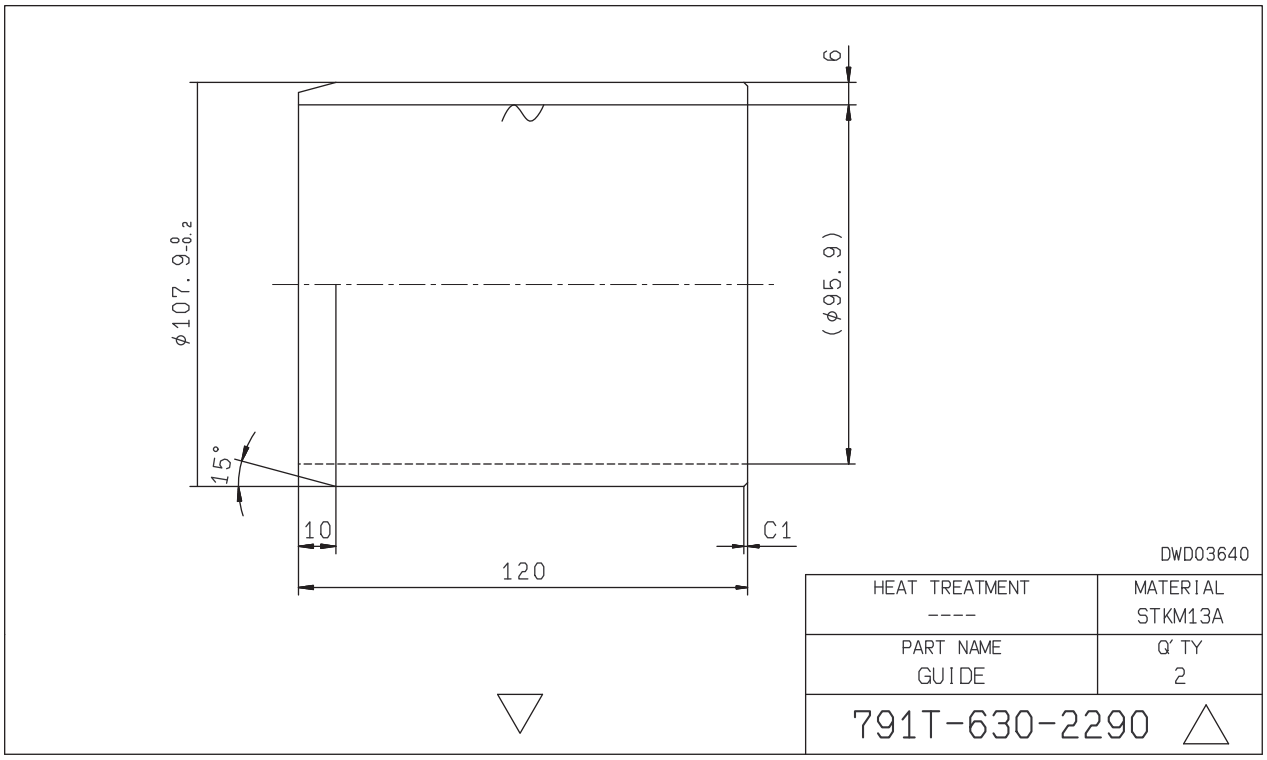
General causes why fuel consumption is excessive
- Leakage of fuel
- Fuel injection condition (fuel pressure and injection timing) not normal
- Excessive fuel injection

			Cause									
			Leakage of fuel inside head cover	Fuel leakage from fuel filter, piping, etc.	Defective feed pump oil seal	Defective supply pump plunger	Defective common rail fuel pressure	Defective injector spray	Defective injector operation	Improper fuel injection timing	Defective coolant temperature sensor or defective wiring harness
Questions	Confirm recent repair history										
	Degree of use of machine	Operated for long period			△	△		△			
	Condition of fuel consumption	More than for other machines of same model					○		○	○	○
		Gradually increased				○		○			
		Suddenly increased	○	○							
Check items	Fuel leakage to outside			◎							
	There is irregular combustion							◎			
	Oil increasing, smelling of diesel oil		◎		◎						
	When exhaust manifold is touched immediately after starting engine, temperature of some cylinders is low							◎			
	Low idle speed is too high								○		
	Torque converter stall or hydraulic pump relief speed is high								○		
	Color of exhaust gas	Black					○	○		○	○
		White	○								
Troubleshooting	Remove head cover and inspect directly		●								
	Inspect feed pump oil seal directly				●						
	Carry out troubleshoot by "Rail Press Very Low Error (*1)"					●					
	Speed of some cylinders does not change when operated in reduced cylinder mode							●			
	Spill flow is excessive when spill hose is separated from injector								●		
	Carry out troubleshoot by "Coolant Temp Sensor Error (*2)"										●
	Confirm with real-time monitoring mode						●			●	
		Remedy	Correct	Correct	Replace	Replace	Correct	Replace	Replace	Correct	Correct

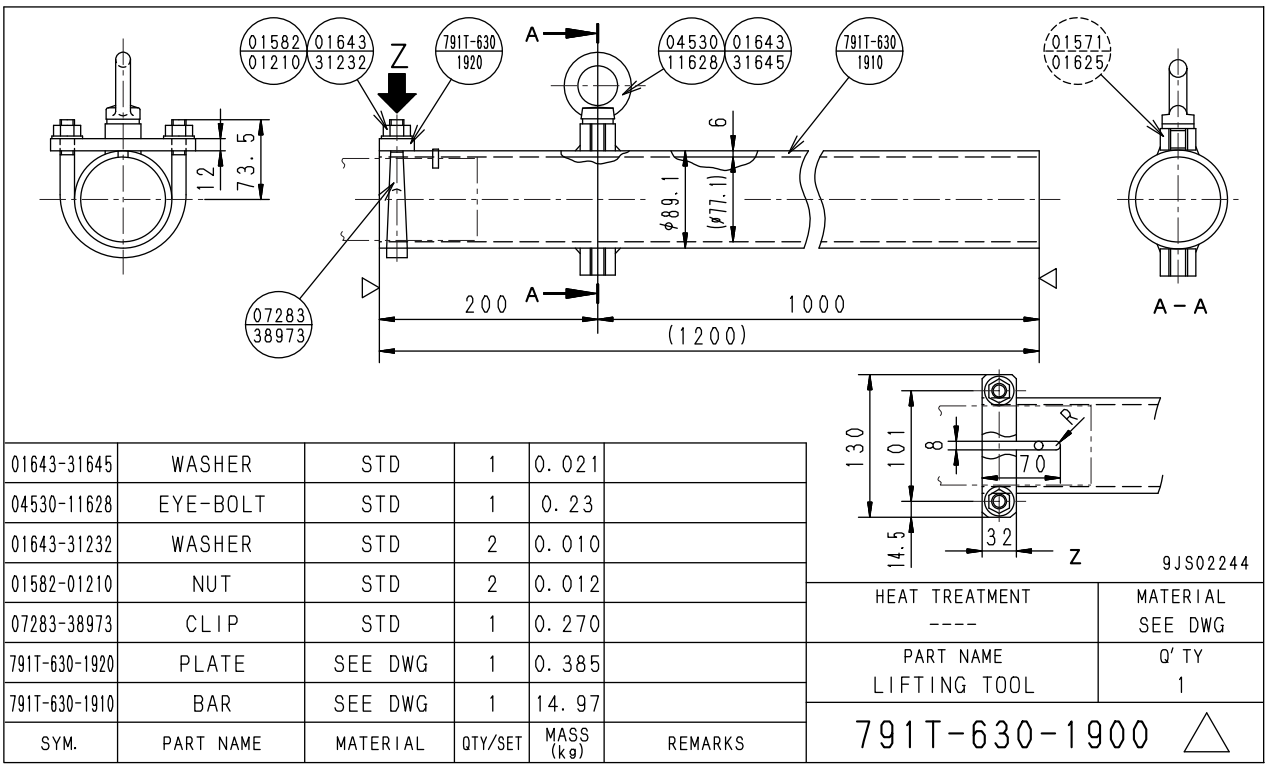
*1: Troubleshooting by failure code (Display of code), Code [**CA559**], and Code [**CA2249**]
*2: Troubleshooting by failure code (Display of code), Code [**CA144**], and Code [**CA145**]

Category	Komatsu code	Part number	Q'ty	Container	Main features and applications
Gasket sealant	LG-10 ThreeBond 1206E	790-129-9320	200 g	Tube	• Used as lubricant/sealant when the radiator hoses are inserted. • Can be coated with paint.
	LG-11 ThreeBond 1121	790-129-9330	200 g	Tube	• Feature: Can be used together with gaskets. • Used for covers of the transmission case and steering case etc.
	ThreeBond 1211	790-129-9090	100 g	Tube	• Gasket sealant used to repair engine.
Molybdenum disulfide lubricant	LM-P	09940-00040	200 g	Tube	• Used to prevent scuffing and seizure of press-fitted portions, shrink-fitted portions, and threaded portions. • Used to lubricate linkages, bearings, etc.
	—	09995-00250	190 g	Can	• Spray type • Thin molybdenum disulphide films are made on metal surfaces to prevent the metals from scuffing each other. • Applicable for the propeller shaft splines, needle bearings, pins and bolts of various links, etc.
Seizure prevention compound	LC-G NEVER-SEEZ	—	—	Can	• Feature: Seizure and scuffing prevention compound with metallic super-fine-grain, etc. • Used for the mounting bolt in the high temperature area of the exhaust manifold and the turbocharger, etc.
Grease	G2-LI G0-LI *: For cold district	SYG2-400LI SYG2-350LI SYG2-400LI-A SYG2-160LI SYGA-160CNLI SYG0-400LI-A (*) SYG0-160CNLI (*)	Various	Various	• Feature: Lithium grease with extreme pressure lubrication performance. • General purpose type.
	Molybdenum disulfide grease LM-G (G2-M)	SYG2-400M SYG2-400M-A SYGA-16CNM	400 g x 10 400 g x 20 16 kg	Bellows-type container Can	• Used for parts under heavy load. Caution: • Do not apply grease to rolling bearings like swing circle bearings, etc. and spline. • The grease should be applied to work equipment pins at their assembly only, not applied for greasing afterwards.
	Hyper White Grease G2-T, G0-T (*) *: For cold district	SYG2-400T-A SYG2-16CNT SYG0-400T-A (*) SYG0-16CNT (*)	400 g 16 kg	Bellows-type container Can	• Seizure resistance, heat resistance and water resistance higher than molybdenum disulfide grease. • Not conspicuous on machine since color is white.
	Biogrease G2-B, G2-BT (*) *: For use at high temperature and under high load	SYG2-400B SYGA-16CNB SYG2-400BT (*) SYGA-16CNBT (*)	400 g 16 kg	Bellows-type container Can	• Since this grease is decomposed by natural bacteria in short period, it has less effects on micro-organisms, animals, and plants.
	G2-S ThreeBond 1855	—	200 g	Tube	• Feature: Silicone grease with wide using temperature range, high resistance to thermal-oxidative degradation and performance to prevent deterioration of rubber and plastic parts. • Used for oil seals of the transmission, etc.
	G2-U-S ENS grease	427-12-11871	2 kg	Can	• Feature: Urea (organic system) grease with heat resistance and long life. Enclosed type. • Used for rubber, bearing and oil seal in damper. Caution: Do not mix with lithium grease.

L17 Guide



L21 Sling tool

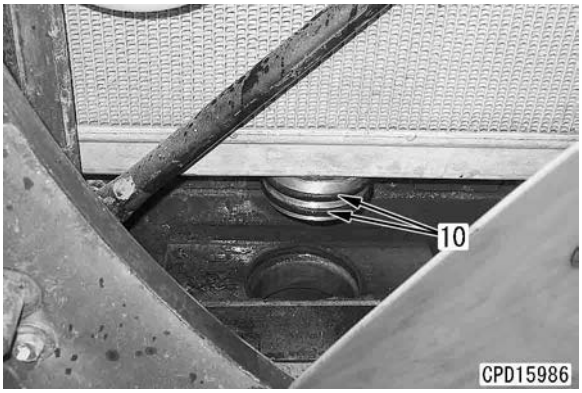


SYM.	PART NAME	MATERIAL	QTY/SET	MASS (kg)	REMARKS
01643-31645	WASHER	STD	1	0.021	
04530-11628	EYE-BOLT	STD	1	0.23	
01643-31232	WASHER	STD	2	0.010	
01582-01210	NUT	STD	2	0.012	
07283-38973	CLIP	STD	1	0.270	
791T-630-1920	PLATE	SEE DWG	1	0.385	
791T-630-1910	BAR	SEE DWG	1	14.97	

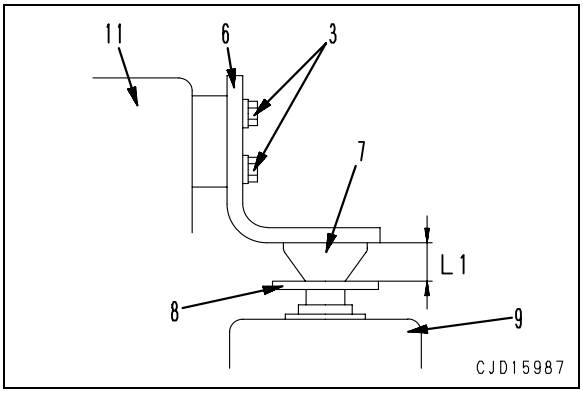
HEAT TREATMENT	MATERIAL
----	SEE DWG
PART NAME	Q'TY
LIFTING TOOL	1
791T-630-1900	

Installation

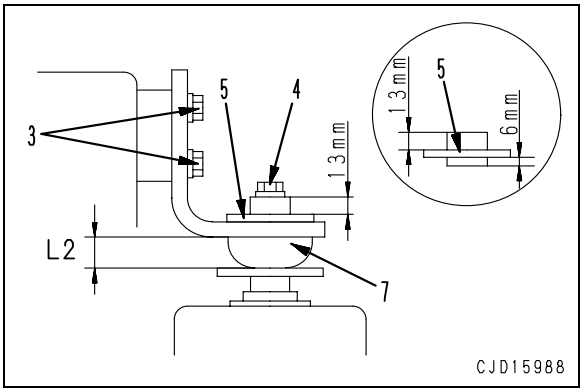
1. Install radiator unit.
★ Replace O-ring (10) with new one.
★ Apply detergent (undiluted) to the O-ring.
★ Remove fan net and check the installation condition and set the O-ring securely.



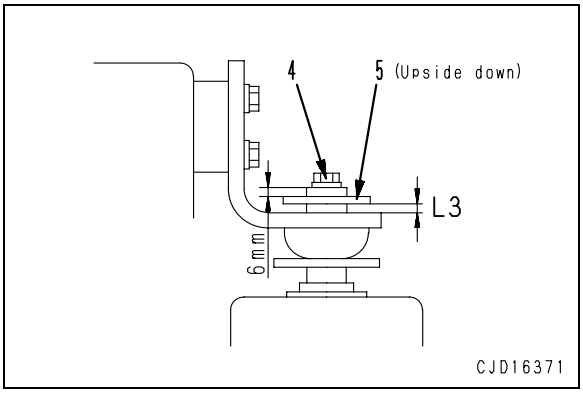
2. Install radiator mounting brackets (6) and cushion (19) according to the following procedure.
   1) Set plate (18), cushion (19) and brackets (6) on the mounting boss of radiator (7).
      ★ At this time, fit brackets (6) to the mounting seat of upper tank (17).
   (You may tighten bracket mounting bolts (3) temporarily.)



   2) Install collar (5) upside down (with the dimension 13 mm side up) and tighten mounting bolt (4).
      ★ Compress cushion (19). (L1 → L2)
   3) With mounting bolt (4) tightened, tighten mounting bolts (3) of brackets (6).
   4) Once remove mounting bolt (4).



   5) Install collar (5) again in the normal direction (with the dimension 6 mm side up).
   6) Tighten mounting bolt (4).
   7) Check clearance (L3) (approx. 7 mm).



3. Carry out the following installation in the reverse order to removal.

- **Refilling with coolant**
  Add water through coolant filler to the specified level. Run the engine to circulate the coolant through the system. Then check the coolant level again.
  Coolant: **120 ℓ**

BULLDOZER

D375A-5E0

Machine model	Serial number
D375A-5E0	50001 and up

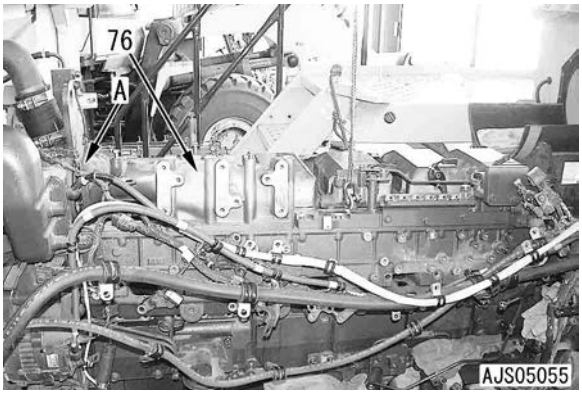
50 Disassembly and assembly

Engine

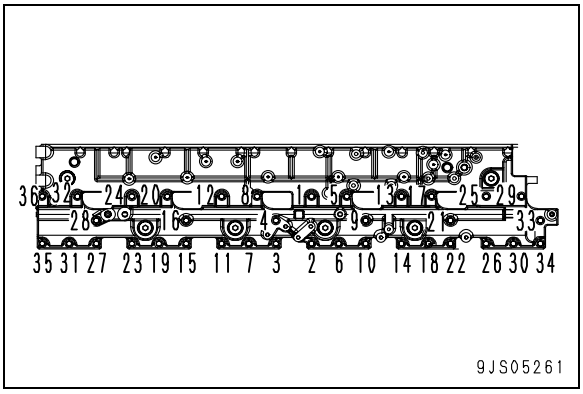
Air intake manifold assembly

13. Place connector (76) on air intake manifold assembly (72) being lifted.
    ★ Take care a convexed tube bites into the inner face of the connector (indicatered as A).

    Air intake manifold and connector assembly: **135 kg**



14. Install air intake manifold assembly (72).
    ★ Tighten the mounting bolts in the following order.



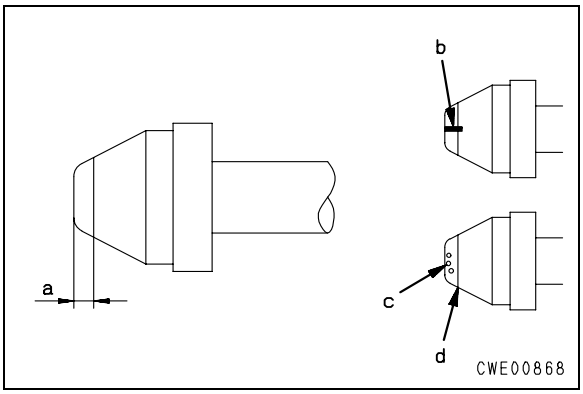
High-pressure piping

⚠ **When handing the high-pressure piping and clamp, pay attention to the following.**

- It is strictly prohibited to bend the high-pressure piping to use it again or using it in other locations.
- Install the specified clamp securely in the specified position with the specified torque.
- Don't apply lubricant and the like to the high-pressure piping sleeve nut and the threaded portion of the mating side.
  ★ **Axial force in the tightening can be excessive, potentially damaging the high-pressure piping.**

⚠ **Before installing the high-pressure piping, check it for the following defects. If there is any of these defects, it can cause fuel leakage. Accordingly, replace the high-pressure piping.**

- Check the taper seal of the connecting part (Part (a): Part of 2 mm from the end) for visible lengthwise slit (b) and dent (c).
- Check part (d) (end of the taper seal: Part at 2 mm from the end) for stepped-type wear (fatigue) which your nail can feel.

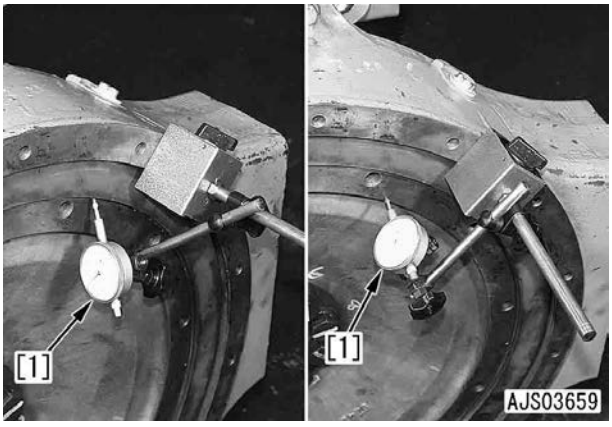


- Measure radial runout or facial runout of the flywheel using dial gauge [1].

★ Standard radial and facial runout:

Measuring items	Tolerance (mm)
Radial runout	0.13
Facial runout	0.0005 × Diameter of measuring point

★ When the measured value is out of the standard, determine the cause by disassembling the flywheel again.

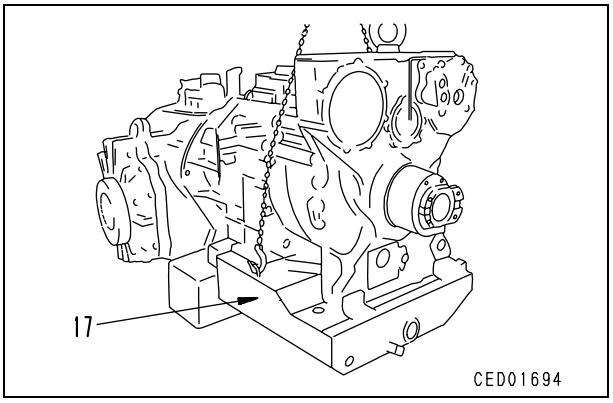


16. Remove block from under oil pan, and sling oil pan (17).

17. Remove mounting bolts, then remove oil pan (17).

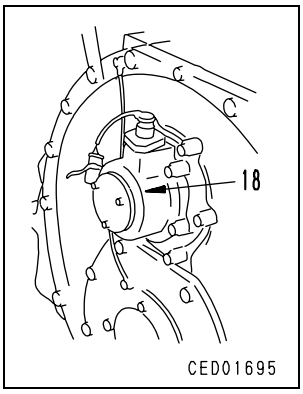
★ In addition to the mounting bolts at the front, rear, left, and right, there are also bolts installed inside the holes at 4 places under the oil pan.

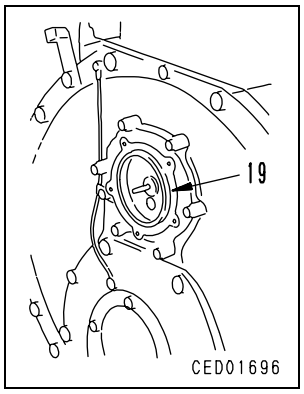
Oil pan: **110 kg**



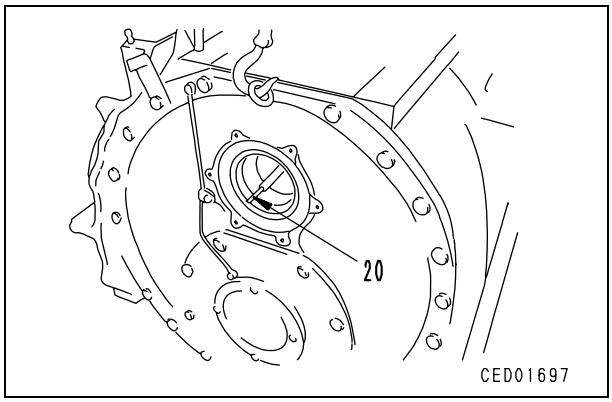
18. Remove bearing cage (18) together with torque converter speed sensor.

19. Remove case (19).



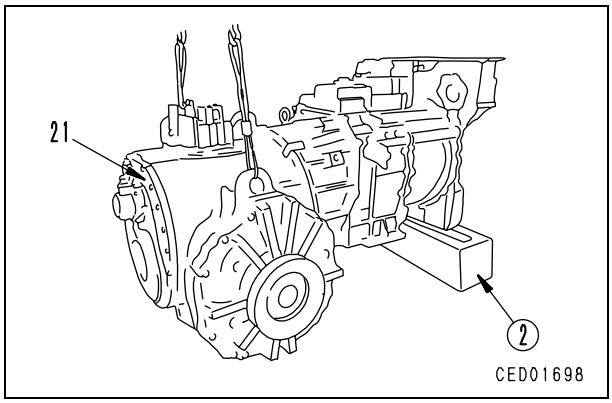


20. Remove shaft (20).



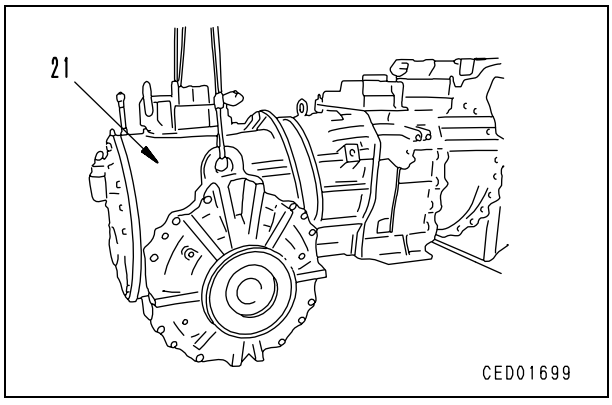
21. Set block [2] under PTO.

22. Sling steering case assembly (21), and remove block from under steering case.



23. Remove mounting bolts, then remove steering case assembly (21).

Steering case assembly: **1,750 kg**



7. Stator clutch housing

Install stator clutch housing (32).

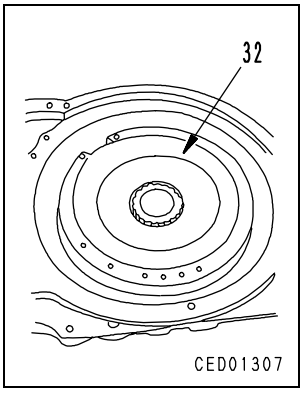
★ Check that the spring is fitted securely in the piston and housing holes.

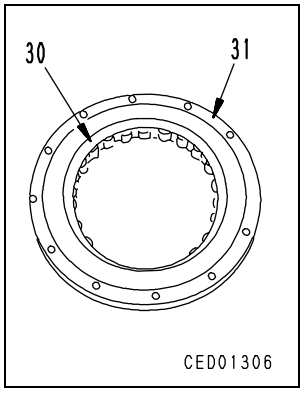
Mounting bolt: **Adhesive (LT-2)**

Mounting bolt:
110.35 ± 12.25 Nm {11.25 ± 1.25 kgm}

8. Pump assembly

1) Assemble pump assembly as follows.
   1] Using push tool, press fit bearing outer race (30) to guide (31).
   ★ Drop approx.6 cc of power train oil (TO10 or TO30) on the bearing, and rotate it 10 times.



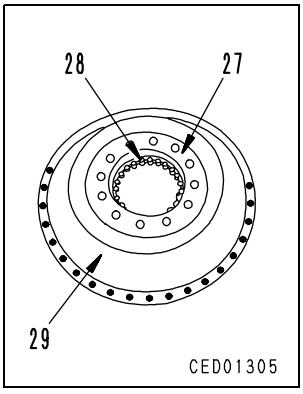


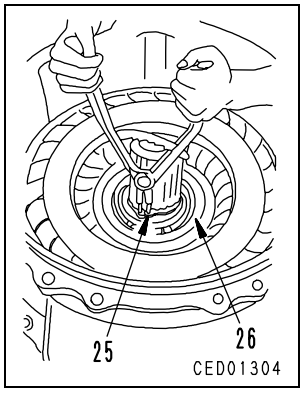
   2] Set bearing and guide assembly (28) to pump (29), then tap with plastic hammer to press fit bearing portion.
   3] Install retainer (27).

Mounting bolt: **Adhesive (LT-2)**

Mounting bolt:
66.15 ± 7.35 Nm {6.75 ± 0.75 kgm}

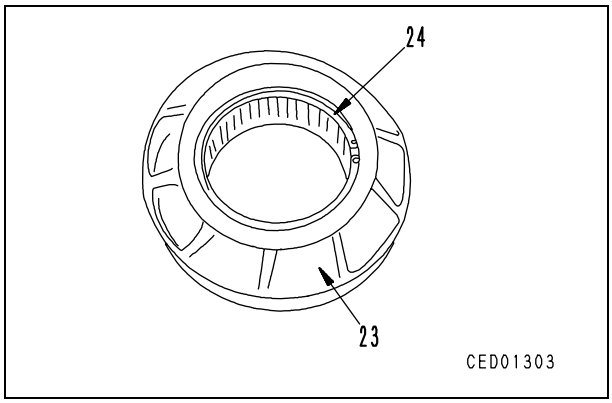
2) Install pump assembly (26).
   ★ When installing the pump, be careful not to damage the seal ring assembled to the shaft.
3) Install snap ring (25).



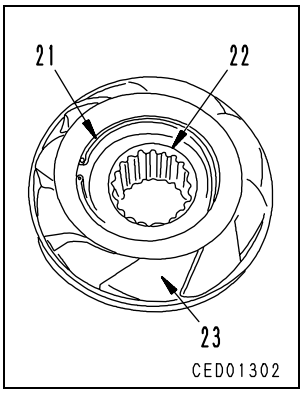


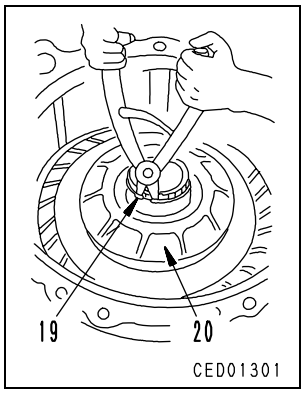
9. Stator assembly

1) Assemble stator assembly as follows.
   1] Install snap ring (24) to stator (23).



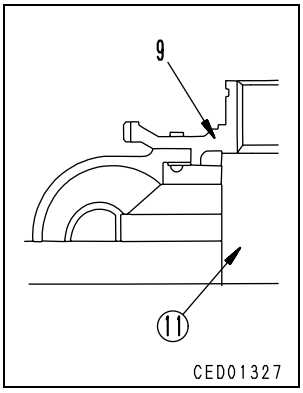
   2] Assemble race (22) in stator (23), then secure with snap ring (21).
2) Install stator assembly (20) to stator shaft, then secure with snap ring (19).

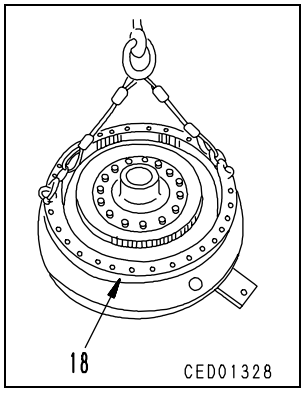




10. Lock-up clutch, drive case assembly

1) Assemble lock-up clutch and drive case assembly as follows.
   1] Set turbine (9) to block [11], then set drive case (18) to turbine.



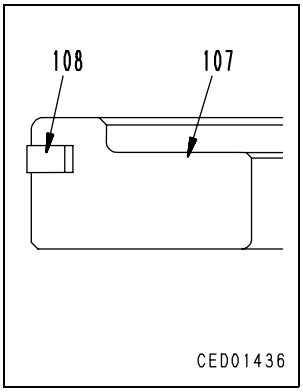


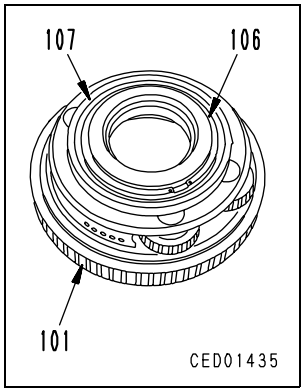
5] Install seal ring (108) to collar (107).

Seal ring: **Grease (G2-LI)**

6] Align collar (107) with dowel pin, then install No. 3 ring gear and No. 4 carrier assembly (101) and secure with snap ring (106).

★ Knock in the dowel pin portion with a plastic hammer until there is no clearance at the mating surface.



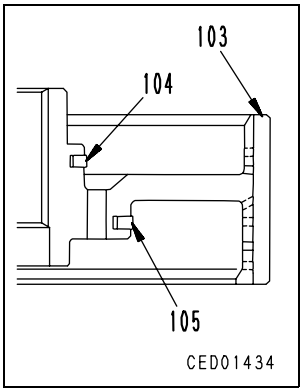


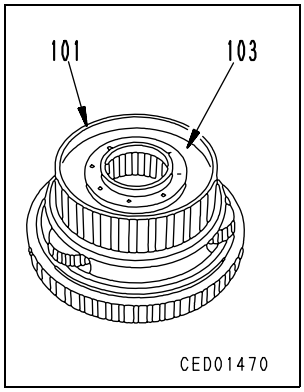
7] Install seal rings (105) and (104) to hub (103).

Seal ring: **Grease (G2-LI)**

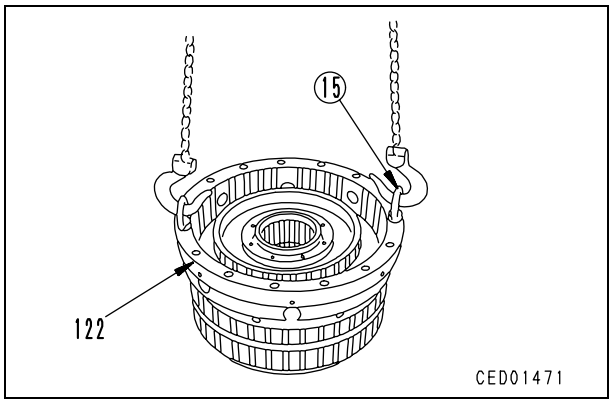
8] Install hub (103) to No. 3 ring gear and No. 4 carrier assembly (101).

★ Be careful not to get the seal ring caught.

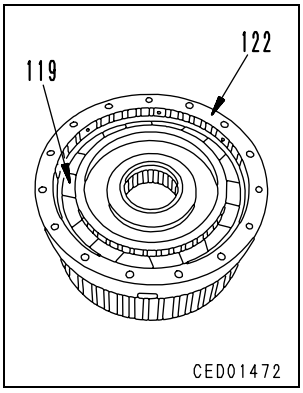


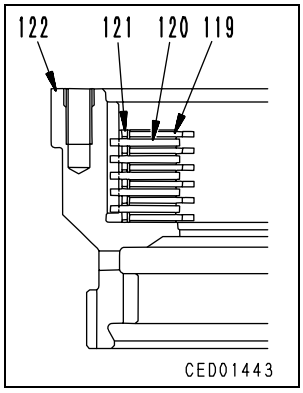


9] Using eyebolts [15], install housing (122) to No. 3 ring gear and No. 4 carrier assembly.

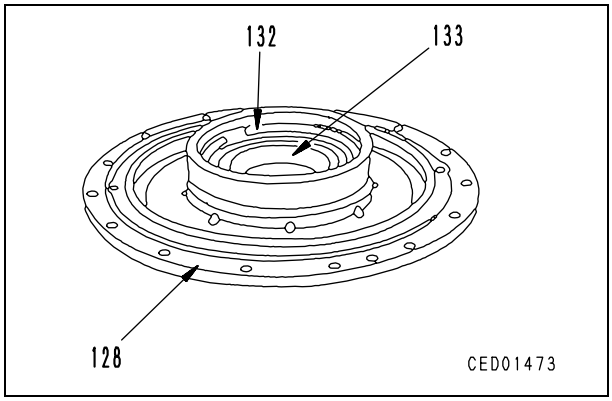


10] Install 6 discs (119), 6 springs (121), and 5 plates (120) in turn.



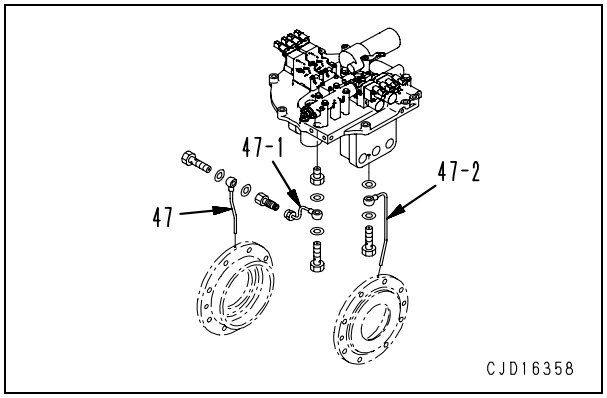


11] Using push tool, press fit ball bearing (133) to housing (128), and secure with snap ring (132).



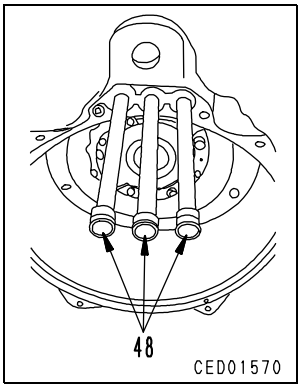
3. Lubrication tube

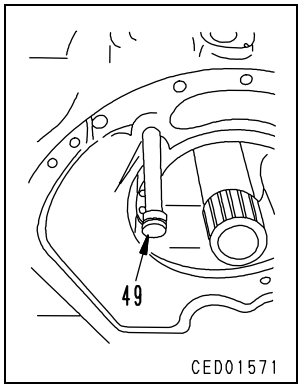
Remove lubrication tubes (47), (47-1) and (47-2).



4. Pipes

1) Remove left and right pipes (48).
2) Remove pipe (49).



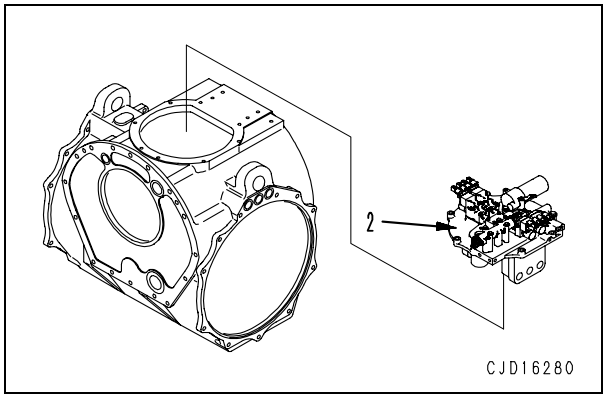


5. Steering control valve and seat assembly

Remove steering control valve and seat assembly (2).

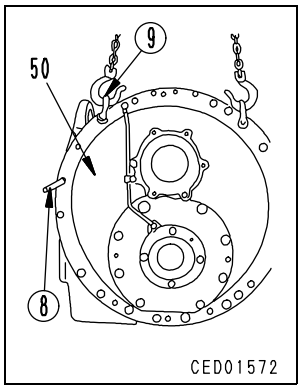
Steering control valve and seat assembly: **75 kg**

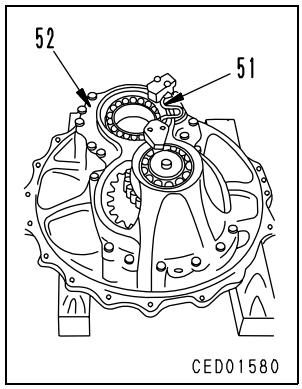
★ Confirm removal of lubrication tubes.



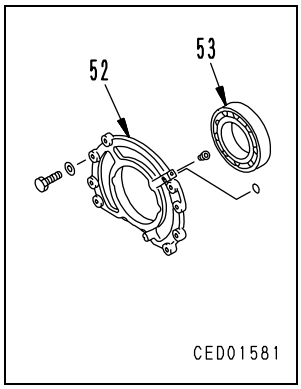
6. Transfer, gear housing assembly

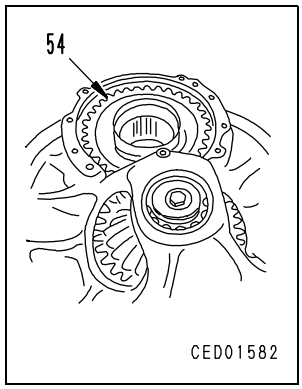
1) Fit guide bolt [8], raise with eyebolts [9], then remove housing assembly (50).
2) Disassemble transfer gear housing assembly as follows.
   1] Set transfer gear housing assembly on block.
   2] Remove lubrication tube (51).



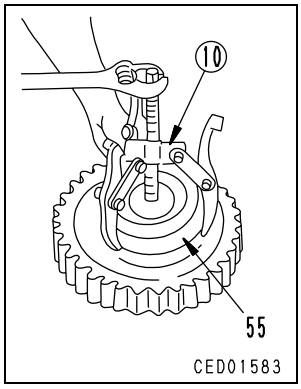


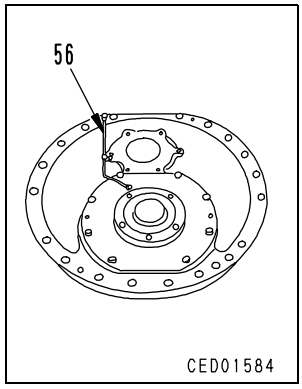
   3] Using push tool, remove bearing (53).
   4] Remove drive gear (54).





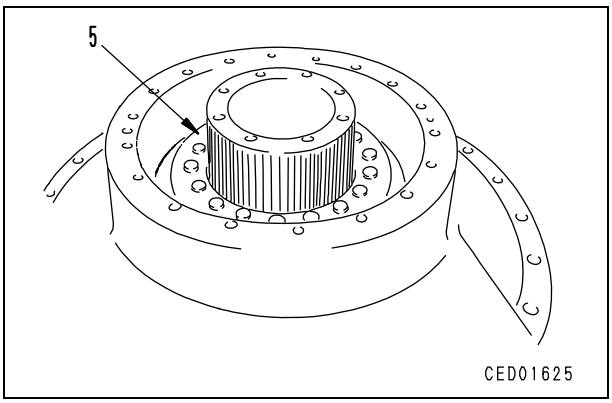
   5] Using puller [10], remove both bearing inner races (55).
   6] Remove lubrication tube (56).



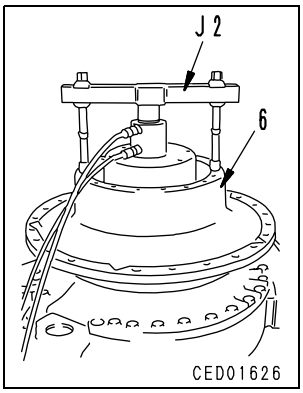


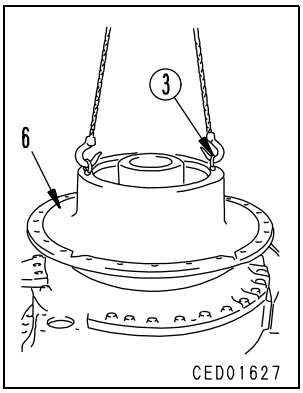
5. Sprocket hub assembly

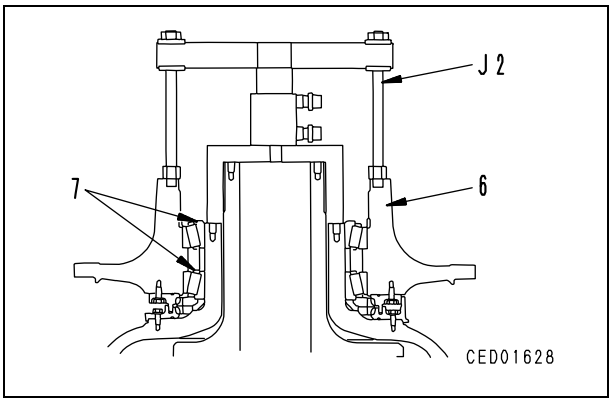
1) Remove holder (5).



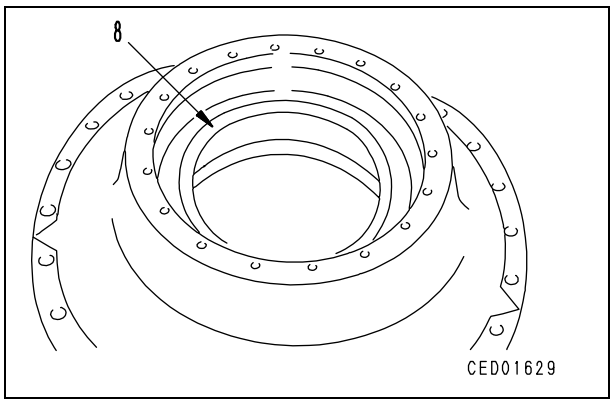
2) Using tool **J2,** disconnect sprocket hub assembly (6) and bearing (7).
3) Using eyebolts [3], remove sprocket hub assembly (6).



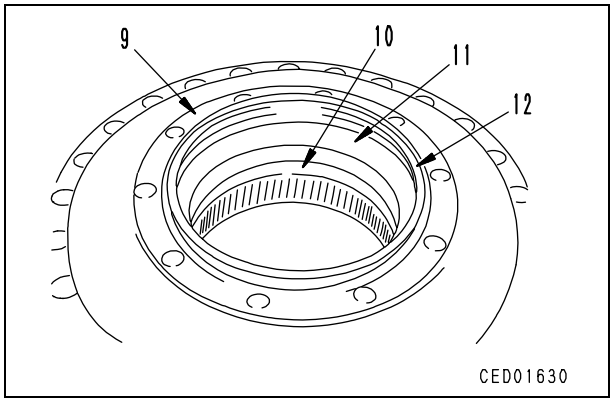




4) Remove bearing inner race (8) from sprocket hub assembly.



5) Turn over sprocket hub assembly, and remove floating seal cover (9) and bearing outer races (10) and (11).
6) Remove floating seal (12) from floating seal cover.
   ★ Be careful not to damage the floating seal and keep it in a safe place.

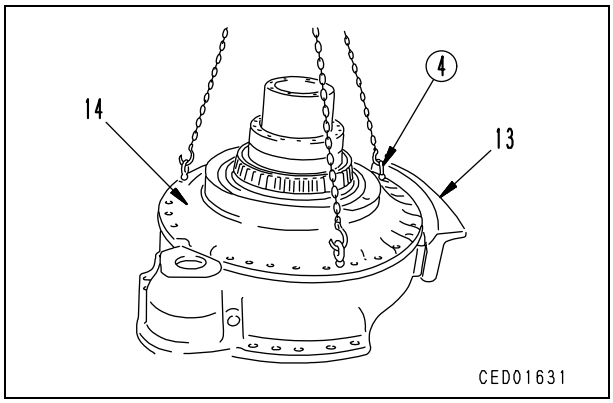


6. Wear guard

Lift off wear guard (13).

7. Cover assembly

1) Using eyebolts [4], lift off cover assembly (14).



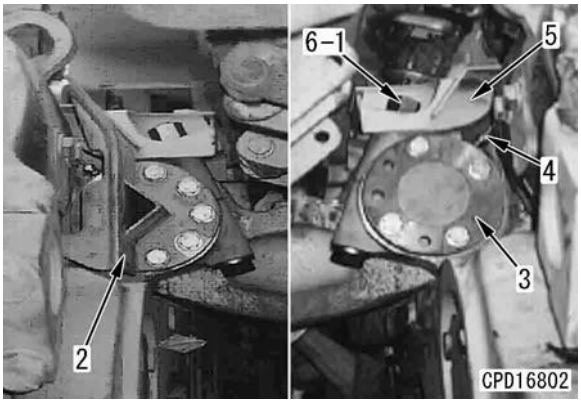
7. Remove cover (2). [*1]

8. Remove grease tube (4).

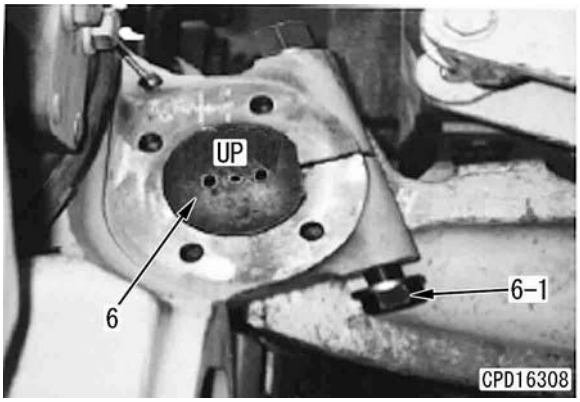
9. Remove cover (3). [*1]

10. Loosen front and rear bolts (6-1). [*2]
    ★ Bolt: M30, socket: 46 mm

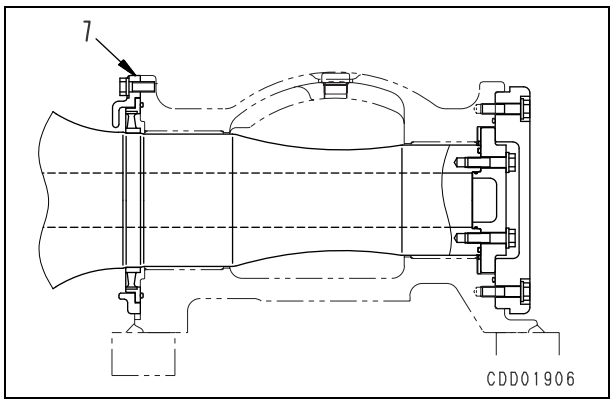
11. Remove cover (5).



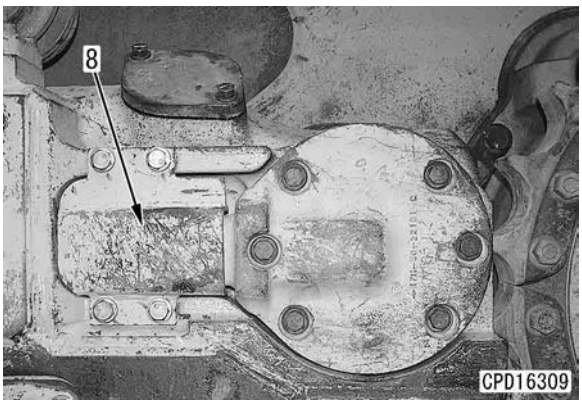
12. Apply a pad to pin (6) from rear and drive out the pin with a hammer. [*3]
    ⚠ **Support the track frame assembly on the opposite side with a block as it lowers when the pin is pulled out.**
    ★ If the equalizer bar hole and track frame hole are not aligned, the pin cannot be removed easily. Adjust the hanging height of the track frame properly.
    ★ Mark "UP" is put on the upper part of the pin.



13. Remove the mounting bolts and cover (7) from the track frame.

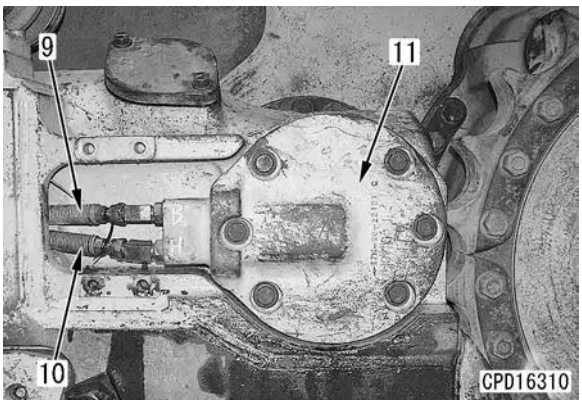


14. Remove cover (8).



15. Disconnect hose (9) on the bottom side of the blade cylinder and hose (10) on the head side.
    ★ Perform this step for only the right side of the single tilt specification or both track frames of the dual tilt specification.

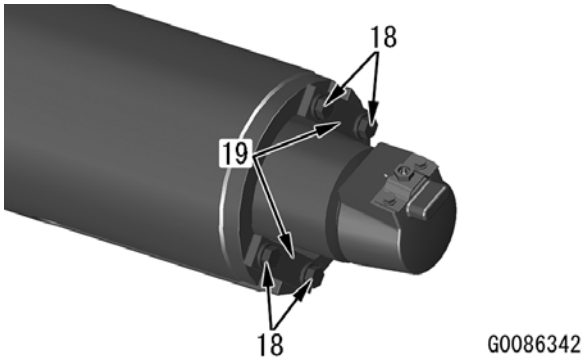
16. Remove the mounting bolts and pull out cover (11).
    ★ Take care since hoses are connected inside the cover.



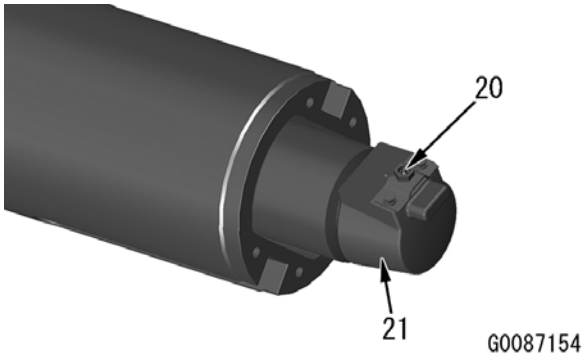
5) Remove the bolt (L), nut (M), washer (N), special bolt (Q), special nut (O), and disconnect the idler yoke assembly (13).
Tool: Ratchet handle, socket, grinder (R)
Bolt (L): Width across flats 41 mm, M27
Nut (M): Width across flats 41 mm
Special bolt (Q): Width across flats 36 mm, M24

Cylinder assembly

13. Remove the 4 bolts (18), and remove the 2 plates (19).
Tool: Ratchet handle, socket
Bolt (18): Width across flats 30 mm, M20

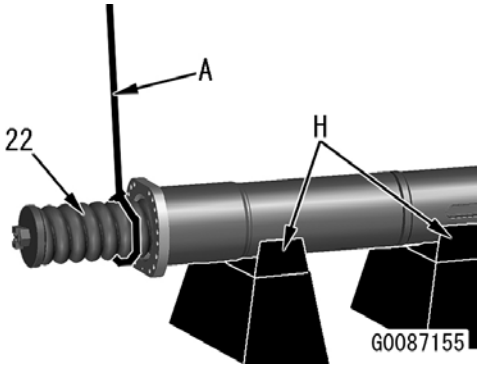


14. Add grease through the lubricator (20), and remove the cylinder assembly (21).
Lubricator (20): **Grease (G2-LI)**



Recoil spring assembly

15. Lift the recoil spring assembly (22), and remove it.
Tool: Webbing sling (A)
Recoil spring assembly (22): **550 kg**

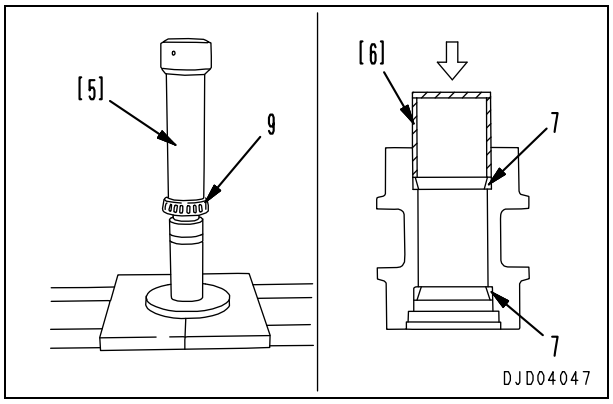


Assembly

★ Clean the all parts and check them for dirt or damage.

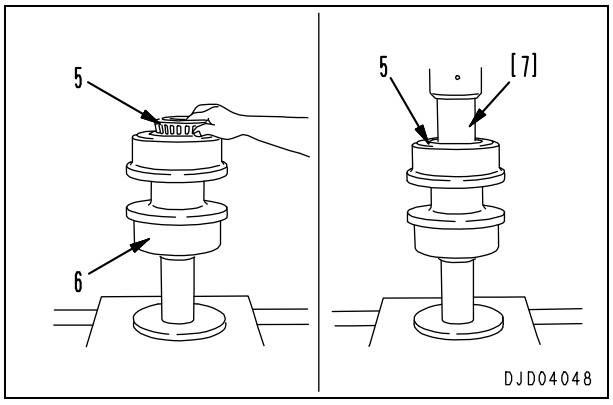
1. Using push tool [5], press fit bearing inner race (9).

2. Using push tool [6], press fit bearing outer race (7).



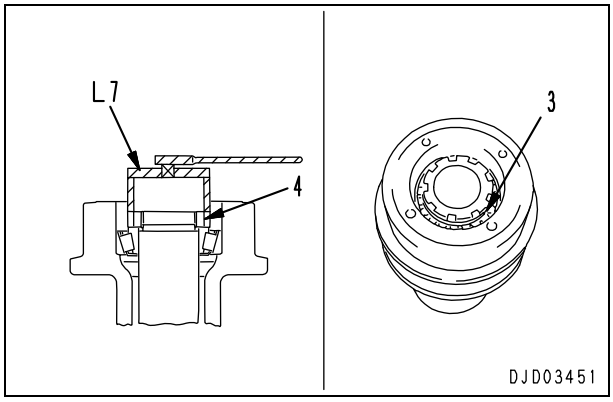
3. Set roller (6) and bearing inner race (5) to the shaft.

4. Using push tool [7], press fit bearing inner race (5) to the shaft.
   ★ Press fit the bearing inner race, turning the roller. Continue press fitting until the roller becomes heavy to turn.

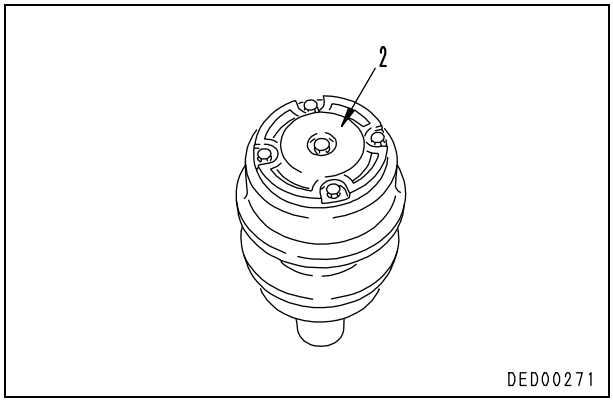


5. Using tool **L7**, tighten nut (4).
   Nut: **98 Nm {10 kgm}**
   ★ After the nut is tightened, if the nut hole is not aligned with the shaft hole, align them by loosening the nut.

6. Install ring (3).
   ★ Check that the end play (the clearance between the bearing and nut) is 0.01 – 0.22 mm.

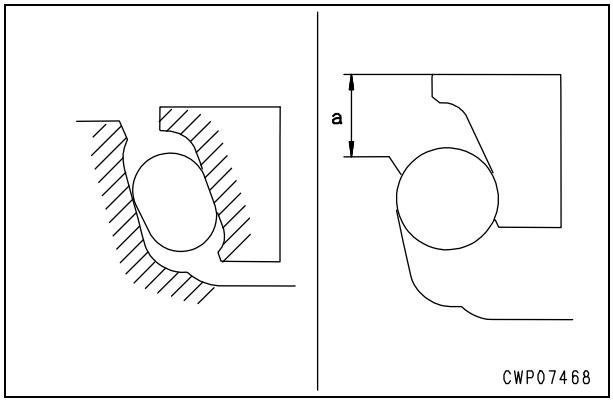


7. Fit the O-ring and install cover (2).



8. Using tool **L5**, install floating seal (10) to seal guide (8).
   ★ When installing the floating seals, thoroughly degrease and dry the contact surfaces of them and O-rings (hatched portion). Take care that dirt will not stick to the contact surfaces of the floating seals.
   ★ After installing each floating seal, check that its slant is within 1mm and its projection (a) is 7 – 11 mm.

9. Fit the O-ring and install seal guide (8), matching it to the dowel pin.



BULLDOZER

D375A-5E0

Machine model	Serial number
D375A-5E0	50001 and up

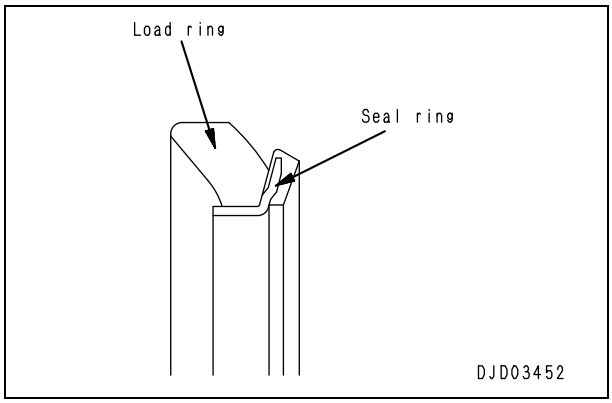
50 Disassembly and assembly

Undercarriage and frame, Part 2

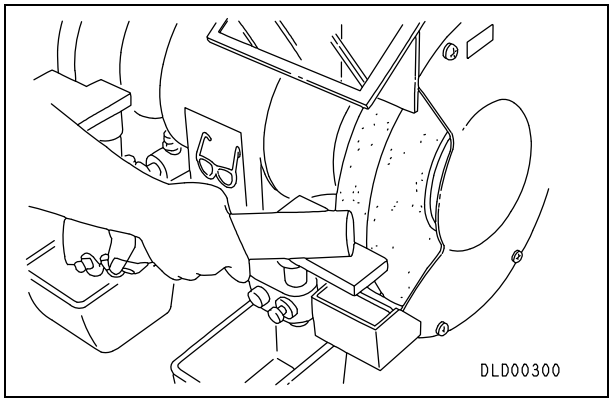
2. When recycling for grease filled track

1. Preparation work

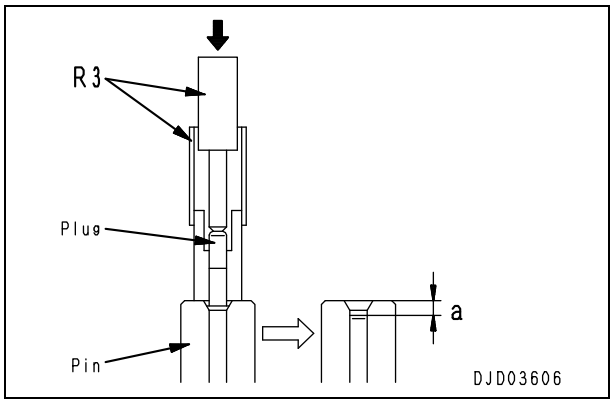
1) Cleaning seal assembly
   - Remove the seal assembly from the link and divide it into the seal ling and load ring, then clean them.
     ★ Since the seal ring and load ring are deteriorated easily by the cleaning liquid, clean them quickly. After cleaning them, wipe off the cleaning agent from them.



2) When reusing the pin, chamfer its end corners carefully with a grinder so that it will be press fitted smoothly.



3) Drive in the large and small plugs by using tools **R3** and **R5**.
   1] Insert each plug through the plug insertion window into the guide hole (Apply oil to the plug).
   2] Push the bar with the hand until the plug stops.
   3] Push the plug with the bar to press the guide against the pin.
   4] Drive in the bar with a hammer.
      ★ Driving distance (a) from pin end:
      Small plug: **7.5 ± 1 mm**
      Large plug: **11 ± 2 mm**
      ★ If the plugs were not pulled out when the shoe was disassembled, reuse them as they are.



Removal and installation of equalizer bar

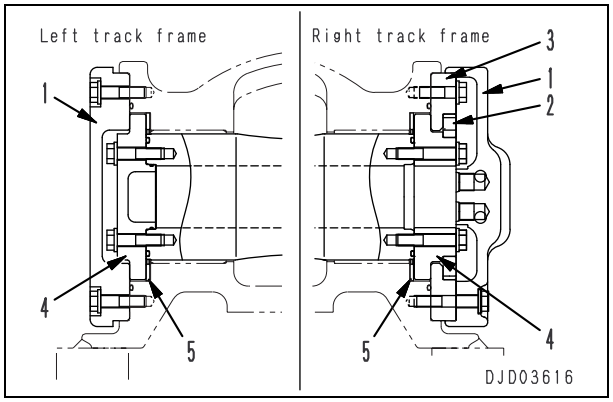
Special tools

Sym-bol		Part No.	Part name	Necessity	Q'ty	New/remodel	Sketch
N	1	791-650-1300	Remover	●	1		
		791-735-1123	• Sleeve		1		
		790-434-1050	• Screw		1		
		01580-02419	• Nut		1		
		01643-32460	• Washer				
		790-101-2102	Puller (294kN {ton})	●	1		
		790-101-1102	Pump	●	1		

Removal

1. Remove the engine underguard and power train underguard (front).
   Engine underguard: **290 kg**
   Power train underguard (front): **280 kg**

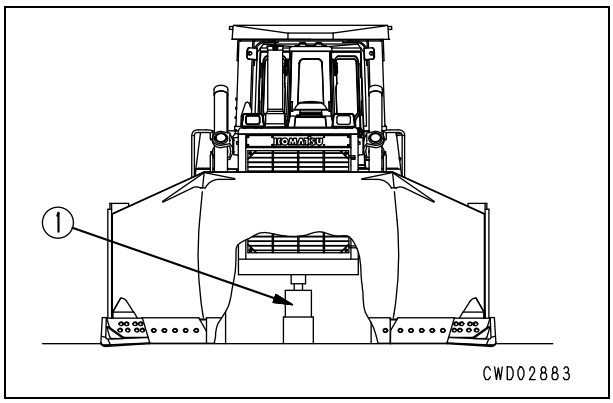
2. Remove pivot shaft cover (1) at pivot shaft part.
   ★ For the right track frame, disconnect the 4 hoses for the blade tilt cylinder.
   ★ Since the whole machine body will be raised by using the blade, plug the hoses on the tilt cylinder side securely.



3. Remove seal (2) and washer (3) together. [*1]
   ★ Perform this procedure for only the right track frame.

4. Remove washer (4) and spacer (5).
   ★ Receive the oil flowing out of the pivot case with an oil pan, etc.
   Pivot case: **18 ℓ**

5. Set hydraulic jack [1] (490 kN (50 tons}) under the radiator guard.



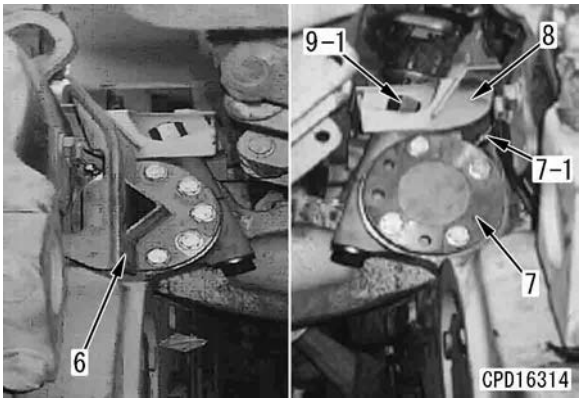
6. Remove cover (6). [*2]

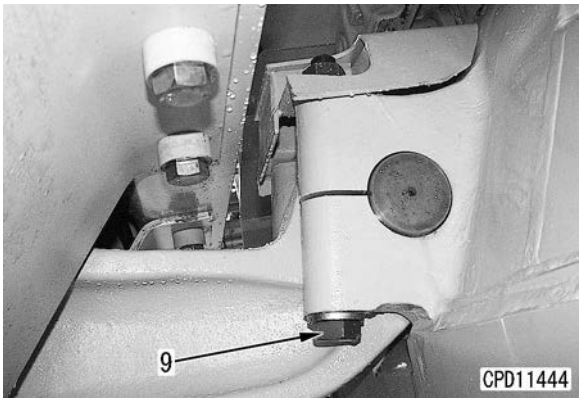
7. Remove grease tube (7-1).

8. Remove cover (7). [*2]

9. Loosen clamping bolt (9-1) and (9) of the equalizer bar side pin. [*3]
   ★ Bolt: M30, socket 46 mm

10. Remove cover (8).





Installation

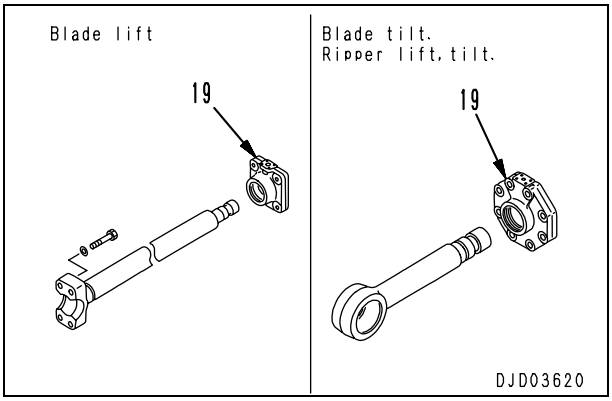
- Carry out installation in the reverse order to removal.

- **Oil filling**
  Replenish oil to the hydraulic tank to the specified level.
  Hydraulic tank: **130 ℓ**

- **Bleeding air**

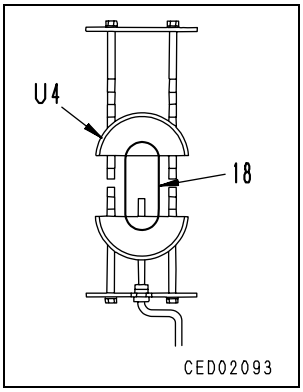
★ Bleeding the air. For details, see Testing and adjusting, "Bleeding air from fan pump".

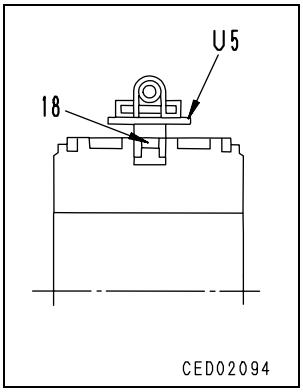
2) Install cylinder head assembly (19) to the piston rod.



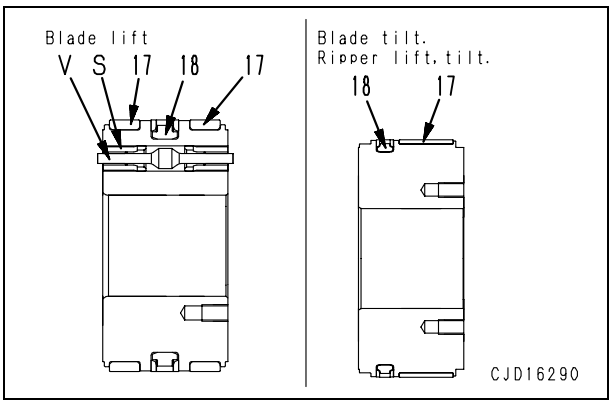
2. Piston assembly

1) Assemble the piston assembly according to the following procedure.
   1] Using tool **U4**, expand piston ring (18).
      ★ Set the piston ring to the tool and turn the handle of the tool by 8 – 10 turns to expand the piston ring.
   2] Remove piston ring (18) from tool **U4** and install it to the piston.
   3] Set tool **U5** and shrink piston ring (18).
   4] Install wear ring (17) to the piston.





★ Valve (V) and seat (S) are not supplied respectively.



2) Install retainer (16).
3) Install the O-ring and backup rings (14) and (13).
   ★ Apply grease to the O-ring and backup rings so that the backup rings will not open.
4) Install piston assembly (12).
5) Install spacer (11) and tighten the mounting bolts.

   Mounting bolt:

   Adhesive LOCTITE No.262 or equivalent.

   Mounting bolt:
   Blade lift:
   66.5 ± 7.5 Nm {6.75 ± 0.75 kgm}
   Blade tilt, ripper lift, ripper tilt:
   176.5 ± 19.5 Nm {18 ± 2 kgm}

   ★ Leave piston and piston rod assembly for about 30 minute because of the hardening of the adhesive.