

# Shop Manual

BULLDOZER

***D61EXi-23***  
***D61PXi-23***

SERIAL NUMBERS    D61EXi-30324    and up  
                                 D61PXi-30324

**KOMATSU**

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.


CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Do not use twisted or kinked wire ropes.
- When slinging up a load, observe the following.
  1. Wind up the rope slowly until the wire rope tensions. When putting your hands on the wire ropes, do not grasp them but press them down from above. If you grasp them, your fingers may be caught.
  2. After the wire ropes are stretched, stop the crane and check the condition of the slung load, wire ropes, and pads.
  3. If the load is unstable or the wire rope or chains are twisted, lower the load and lift it up again.
  4. Do not lift up the load at an angle.
- When lowering a load, pay attention to the following.
  1. When lifting down a load, stop it temporarily at 30 cm above the floor, and then lower it slowly.
  2. Check that the load is stable, and then remove the sling.
  3. Remove kinks and dirt from the wire ropes and chains used for the sling work, and put them in the specified place.
- Do not drag a sling.
- When lifting up a load, stop it just after it leaves the ground and check safety, and then lift it up.
- Consider the travel route in advance and lift up a load to a safe height.
- Place the control switch in a position where it will not be an obstacle to work and passage.
- After operating the hoist, do not swing the control switch.
- Remember the position of the main switch so that you can turn off the power immediately in an emergency.
- Shut down the main switch when the hoist stops because of a blackout. When turning on a switch which is turned OFF by the ground fault circuit interrupter for electric shock prevention, check that the devices related to that switch are not in operating condition.
- If you find an obstacle around the hoist, stop the operation.
- After finishing the work, stop the hoist at the specified position and raise the hook to at least 2 meters above the floor. Do not leave the sling attached to the hook.

**Precautions for using mobile crane**

- ★ Read the Operation and Maintenance Manual of the crane carefully in advance and operate the crane safely.

**Precautions for using overhead traveling crane**

**⚠ The hoist or crane must be used to sling the components weighing 25 kg or heavier. A part weighing 25 kg or heavier in "disassembly and assembly" section is indicated with the symbol of .**

- Before starting work, check the wire ropes, brake, clutch, controller, rails, over winding prevention device, ground fault circuit interrupter for electric shock prevention, crane collision prevention device, and energizing warning lamp, and check the following safety items.
- Be sure not to touch the lifting tool and lifted load directly. Use push-pull sticks or tagline ropes.
- Observe the signals for sling work.
- Operate the hoist at a safe place.
- Be sure to check the directions of the direction indication plate (north, south, east and west) and the operating button.
- Do not sling a load at an angle. Do not move the crane while the slung load is swinging.
- Do not raise or lower a load while the crane is moving longitudinally or laterally.

**Selecting wire ropes**

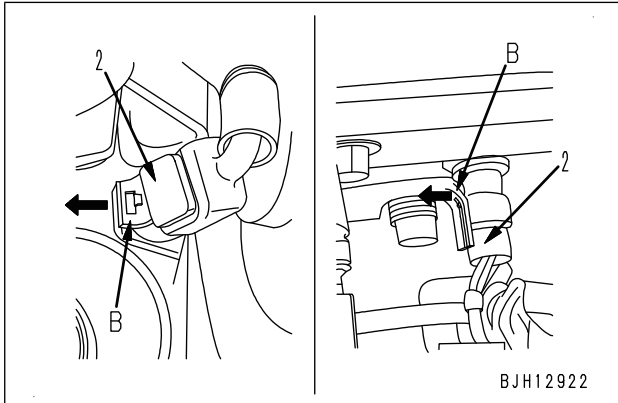
- Select adequate ropes depending on the weight of the parts to be hoisted, referring to the table below

Wire rope (JIS G3525, 6 x 37 - Type A)

(Standard Z twist wire ropes without galvanizing)

Nominal diameter of rope	Allowable load	
	kN	ton
mm		
10	8.8	0.9
12	12.7	1.3
14	17.3	1.7
16	22.6	2.3
18	28.6	2.9
20	35.3	3.6
25	55.3	5.6
30	79.6	8.1
40	141.6	14.4
50	221.6	22.6
60	318.3	32.4

- ★ The allowable load is calculated as one sixth of the breaking load of the rope to be used (safety coefficient: 6).



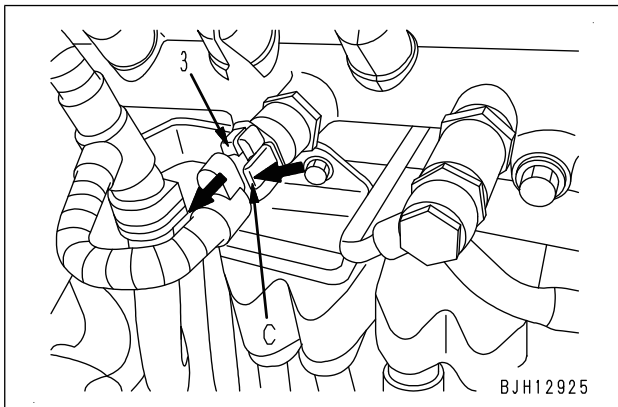
Connection

1. Insert the connector securely until a click is heard.

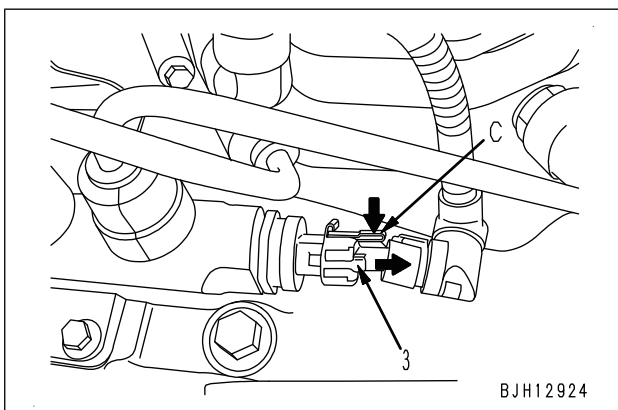
**Push lock type (BOSCH-3)**

Disconnection

1. While pressing lock (C), pull out connector (3) in the direction of the arrow.
  - 114 series

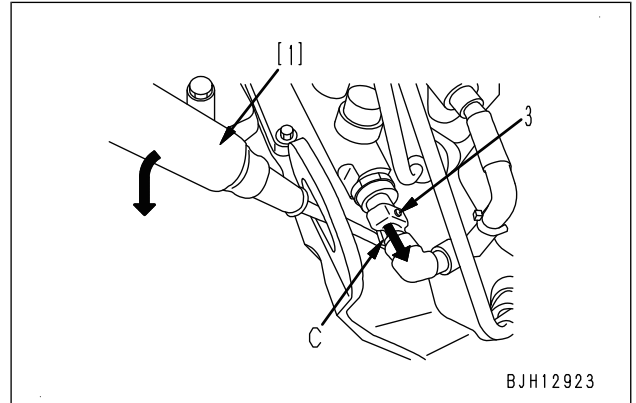


- 107 series



- ★ If the lock is located on the underside, use flat-head screwdriver [1] since you cannot insert your fingers.

While pushing up lock (C) of the connector with flat-head screwdriver [1], pull out connector (3) in the direction of the arrow.



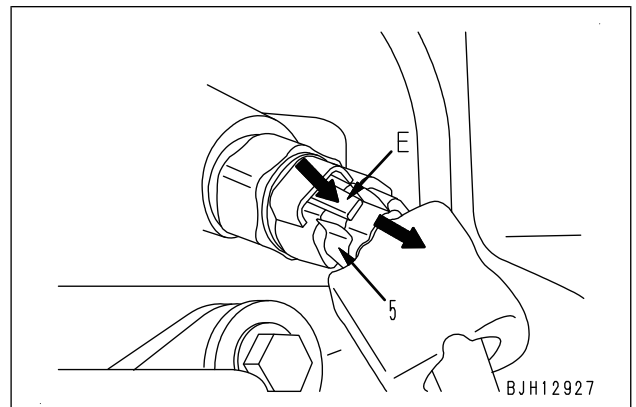
Connection

1. Insert the connector securely until a click is heard.

**(AMP-3)**

Disconnection

1. While pressing lock (E), pull out connector (5) in the direction of the arrow.



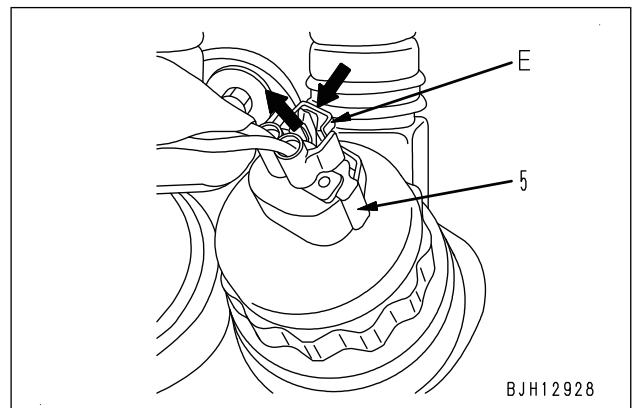
Connection

1. Insert the connector securely until a click is heard.

**(SUMITOMO-2)**

Disconnection

1. While pressing lock (E), pull out connector (5) in the direction of the arrow.



Connection

1. Insert the connector securely until a click is heard.

Abbreviation	Actual word spelled out	Purpose of use (major applicable machine (*), or equipment/device)	Explanation
KCSF	Komatsu Catalyzed Soot Filter	Engine	This filter captures soot in exhaust gas. It is built in to KDPF.
KDOC	Komatsu Diesel Oxidation Catalyst	Engine	The catalyst used for purifying exhaust gas. This is built in KDPF or assembled with the muffler.
KDPF	Komatsu Diesel Particulate Filter	Engine	This component is used to purify the exhaust gas. KDOC (catalyst) and KCSF (filter to capture soot) are built-in it. It is installed in place of the conventional muffler.
KTCS	Komatsu Traction Control System	Travel and brake (HM system)	This function recovers the drive force of the wheels by braking automatically with the optimum force and at the same time activates the inter-axle differential lock when the wheels idle while the machine travels on the soft ground road.
VGT	Komatsu Variable Geometry Turbocharger	Engine	The turbocharger on which the cross-section area of the exhaust passage is made variable.
LCD	Liquid Crystal Display	Machine monitor	Image display equipment such as a monitor which assembles in the liquid crystal element.
LED	Light Emitting Diode	Electronic parts	It refers to semiconductor element that emits light when the voltage is applied in forward direction.
LIN	Local Interconnect Network	Communication and electronic control	One of communication standards that is used in the network on the machine
LS	Load Sensing	Hydraulic system	Function that detects differential pressure of pump and controls discharge amount corresponding to load.
LVDS	Low Voltage Differential Signaling	Communication and electronic control	One of communication standards that is used in the network on the machine
MAF	Mass Air Flow	Engine	This indicates engine intake air flow. It is not used independently but it is used as combined with sensor. Mass air flow sensor can be called as MAF sensor.
MMS	Multimedia Messaging Service	Communication	Service that allows transmission and reception of short messages consisting of characters or voice or images between cell phones.
NC	Normally Closed	Electric and hydraulic systems	Device actuated to open electric or hydraulic circuits that are normally closed if not actuated.
NO	Normally Open	Electric and hydraulic systems	Device actuated to close electric or hydraulic circuits that are normally open if not actuated.
OLSS	Open-center Load Sensing System	Hydraulic system	Hydraulic system that can operate multiple actuators at the same time, regardless of the load.
PC	Pressure Compensation	Hydraulic system	A function used to correct oil pressure.
PCCS	Palm command control system	Steering (D)	System in which a controller instantly analyses data from each lever, pedal, and dial, and performs optimum electronic control of the engine and transmission.
PCV	Pre-stroke Control Valve	Engine	This valve is installed at inlet port of pump and it adjusts fuel intake amount in order to control fuel discharge amount of supply pump.

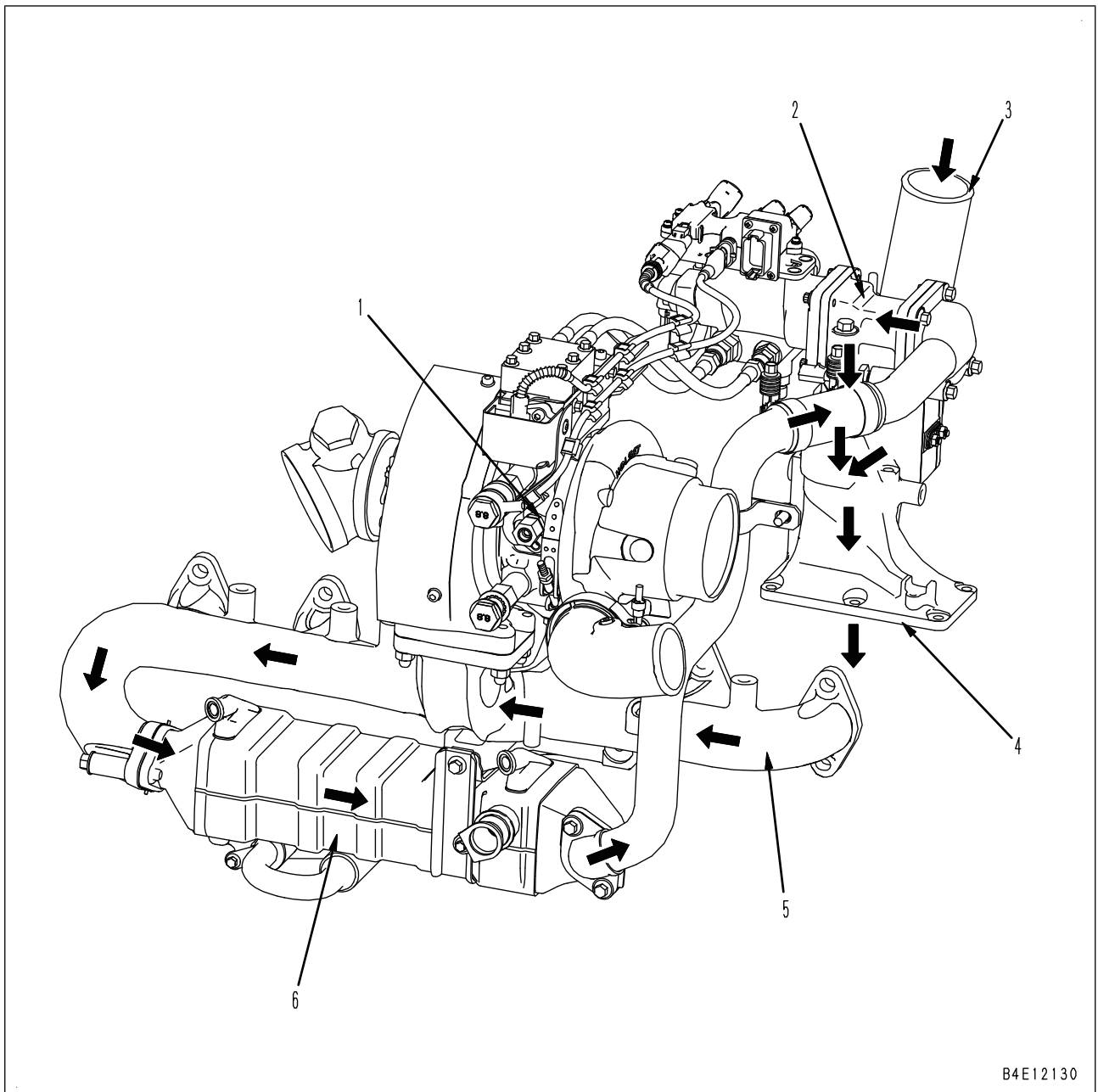
Machine model	Unit	D61PXI-23
Serial No.		860 mm single grouser shoe 30324 and up

**Work equipment hydraulic system**

Work equipment and cooling fan pump		
Type x quantity	—	Variable displacement swash plate piston type x 1
Discharge	cm <sup>3</sup> /rev	90
Max. discharge pressure	MPa {kg/cm <sup>2</sup> }	27.4 {280}
Cooling fan motor		
Type	—	Fixed displacement swash plate type piston motor
Motor capacity	cm <sup>3</sup> /rev	28
Control valve		
Type x quantity	—	4-spool valve x 1
Operating method	—	Hydraulic pilot type
Lift cylinder		
Type	—	Double-acting piston type
Cylinder bore	mm	100
Piston rod outside diameter	mm	55
Piston stroke	mm	461
Max. distance between pins	mm	1,317
Min. distance between pins	mm	856
Lift cylinder with stroke and reset sensor		
Type	—	Double-acting piston type
Cylinder bore	mm	100
Piston rod outside diameter	mm	55
Piston stroke	mm	461
Max. distance between pins	mm	1,317
Min. distance between pins	mm	856
Tilt cylinder with stroke sensor		
Type	—	Double-acting piston type
Cylinder bore	mm	120
Piston rod outside diameter	mm	70
Piston stroke	mm	164
Max. distance between pins	mm	919
Min. distance between pins	mm	755
Angle cylinder		
Type	—	Double-acting piston type
Cylinder bore	mm	110
Piston rod outside diameter	mm	65
Piston stroke (max.)/(effective)	mm	452/448(*4) 467/463(*5)
Max. distance between pins (max.)/(effective)	mm	1,345/1,343(*4) 1,366/1,364(*5)
Min. distance between pins (min.)/(effective)	mm	893/895(*4) 899/901(*5)

**EGR system piping drawing** (WA380-A9J0-04D-K-00-A)

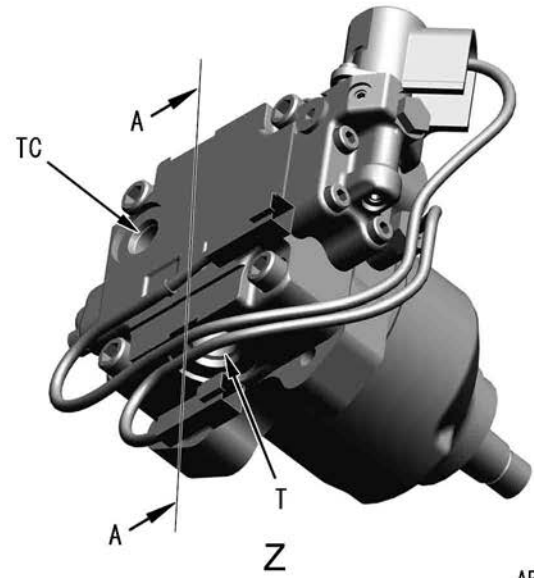
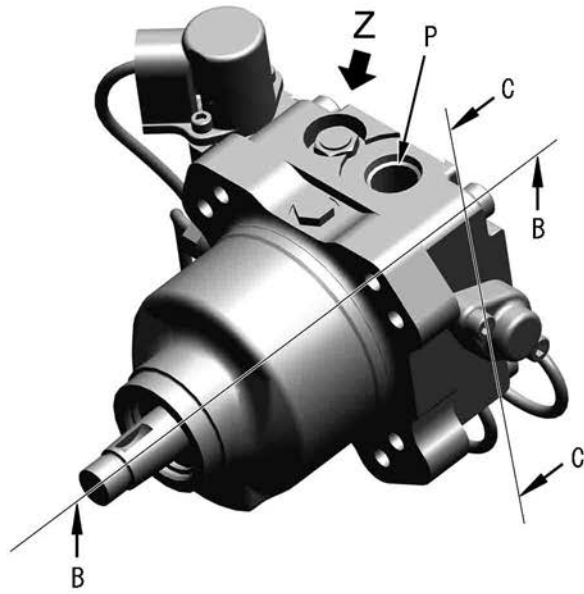
- ★ EGR: Abbreviation for Exhaust Gas Recirculation
- ★ The shape is subject to machine models.



B4E12130

1. KVGT
2. EGR valve
3. Air intake pipe
4. Air intake connector
5. Exhaust manifold
6. EGR cooler

Cooling fan motor (D61-B5L0-041-K-00-A)

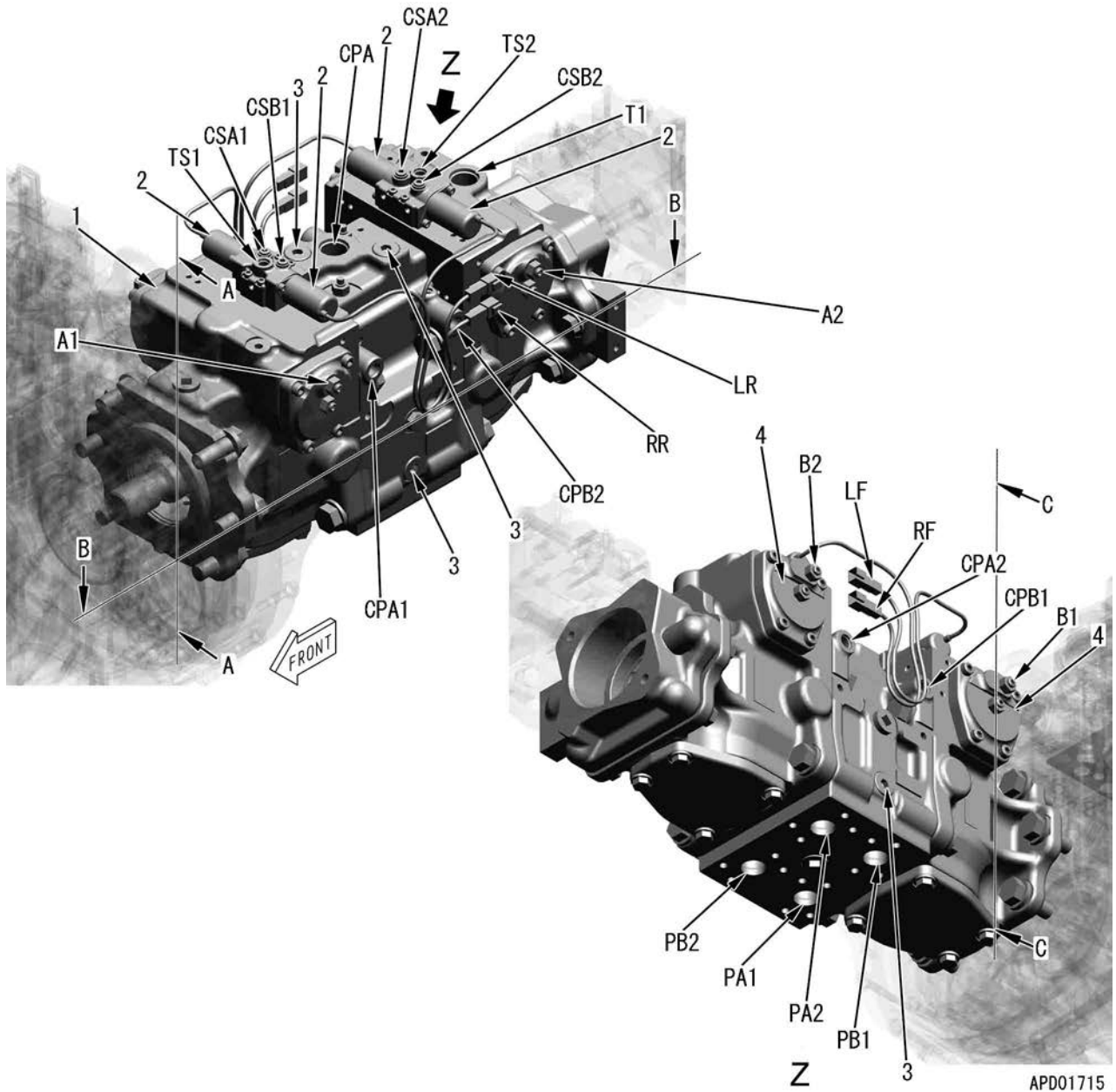


APD01702

- P: From cooling fan pump
- T: To oil cooler
- TC: To hydraulic tank

**HST pump** (D61-C172-041-K-00-A)

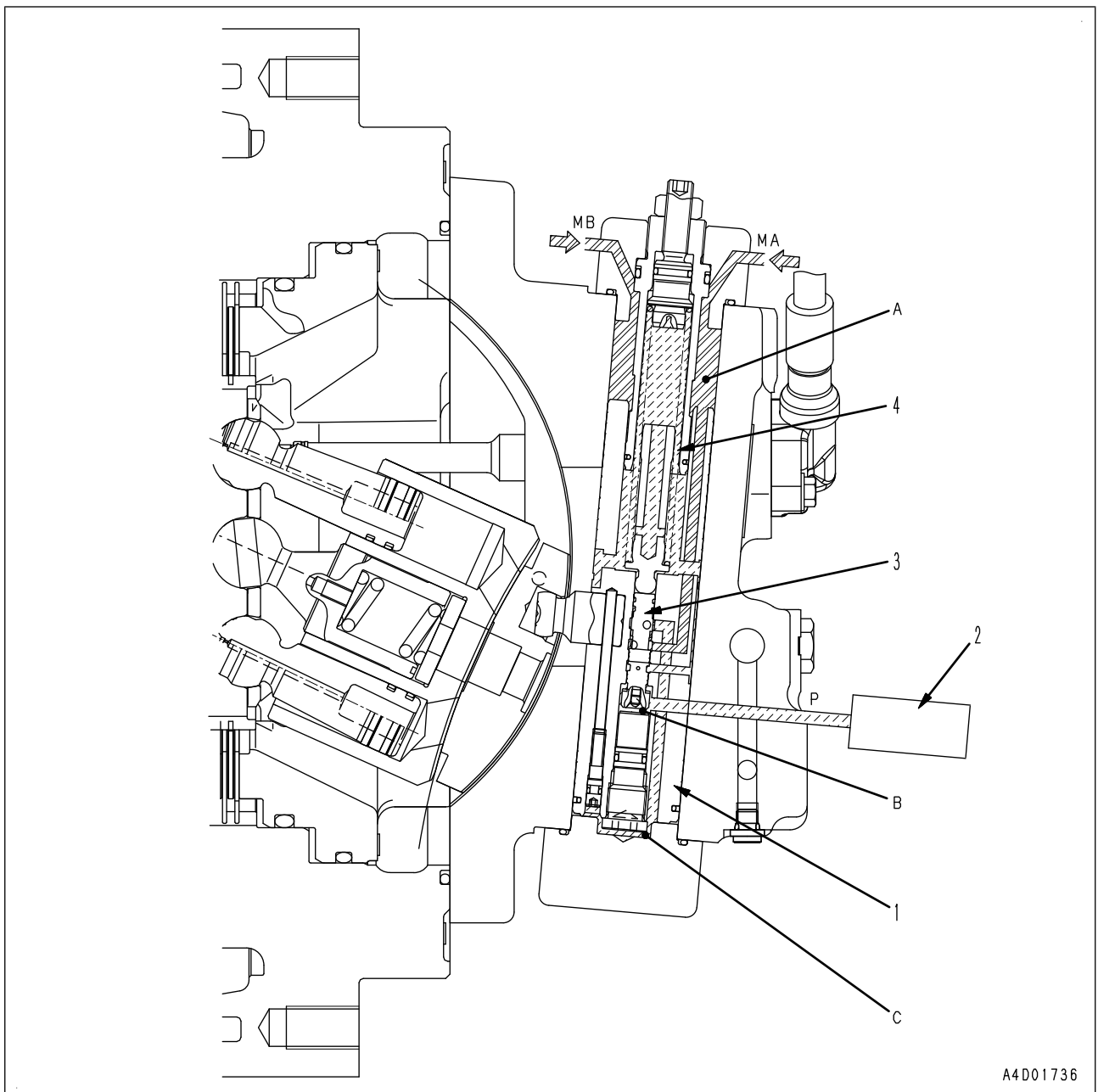
★ HST: Abbreviation for Hydrostatic Transmission



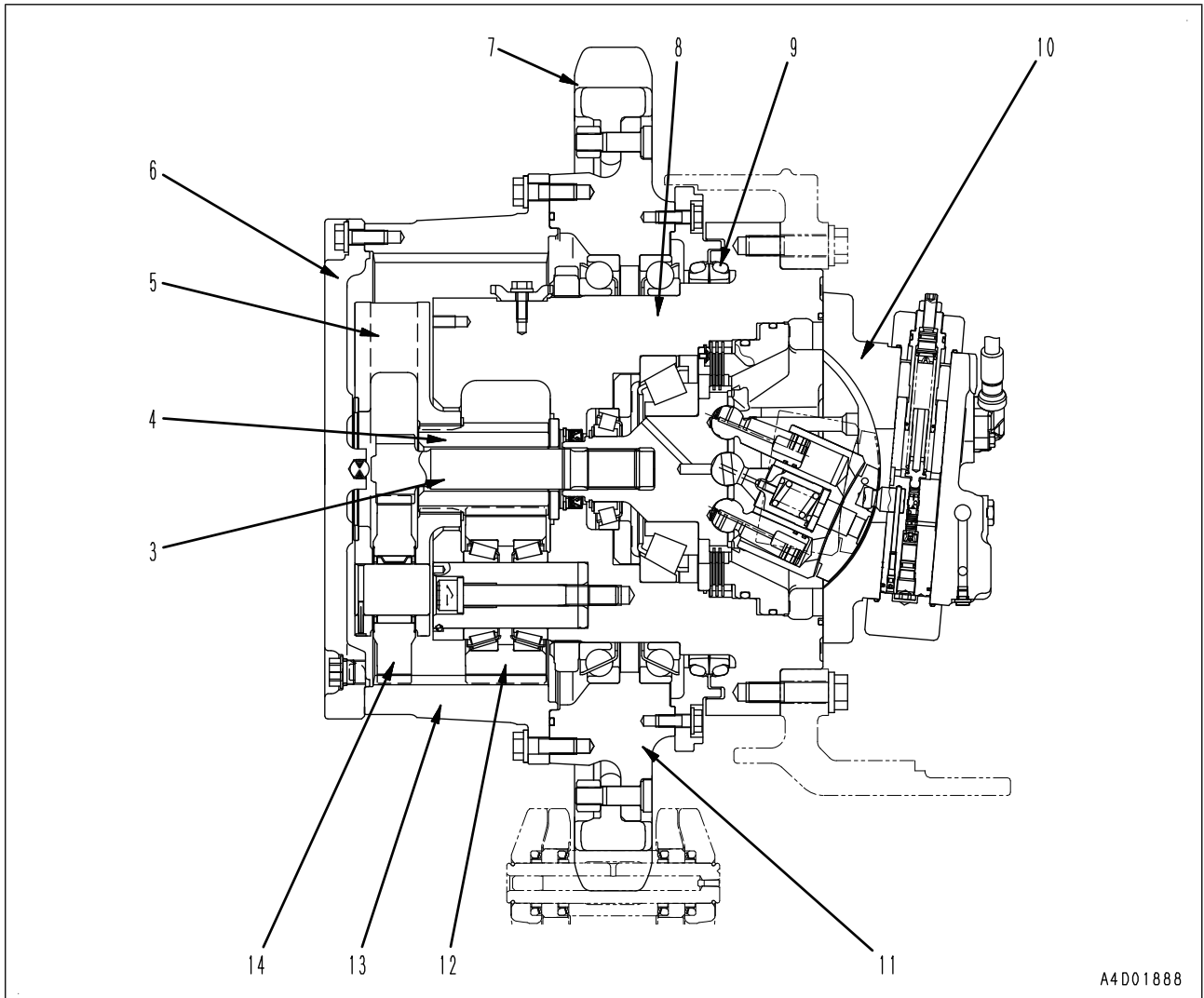
**Change of steplessly-variable type motor capacity** (D61-C400-042-K-01-A)

- The servo mechanism portion has chambers (A), (B), and (C).
- The self pressures in chambers (A) and (C) act on their respective pressure receiving areas, and servo piston (1) operates according to the balance of the forces acting on the chambers.
- When the output pressure from EPC valve (2) is 0 MPa {0 kg/cm<sup>2</sup>}, servo piston (1) is at the lowest position. (Max. side)
- The capacity control pressure is supplied from EPC valve (2) to chamber (B) according to the command current to EPC valve (2).
- Servo spool (3) leads the self pressure into chamber (C) up to the set motor capacity, according to the balance of the force generated by the capacity control pressure in chamber (B) and the force of servo spring (4).

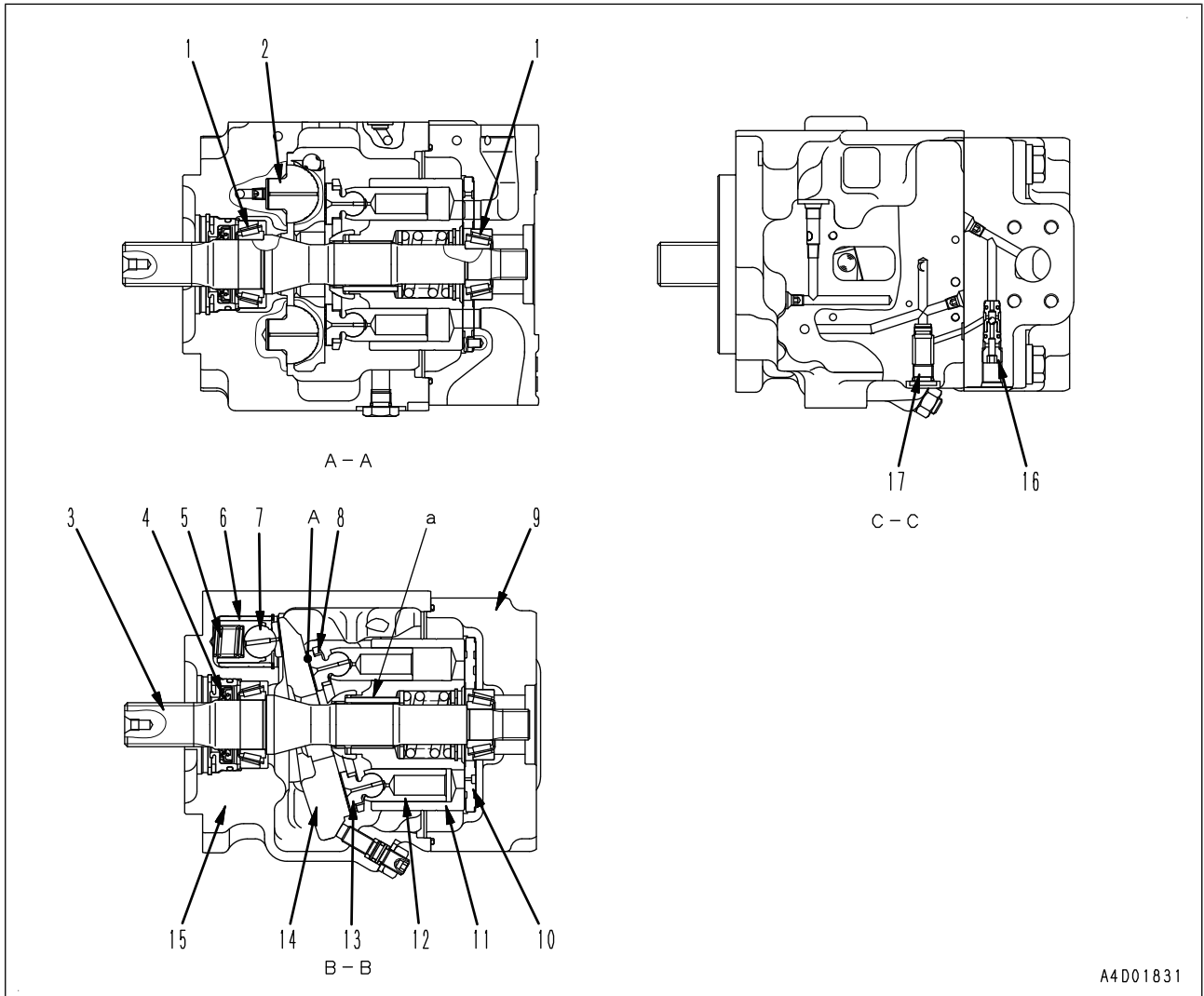
**When motor capacity is maximum**



★ Figure shows D61EX-23, D61EXI-23 equipped with PLUS type track shoes.



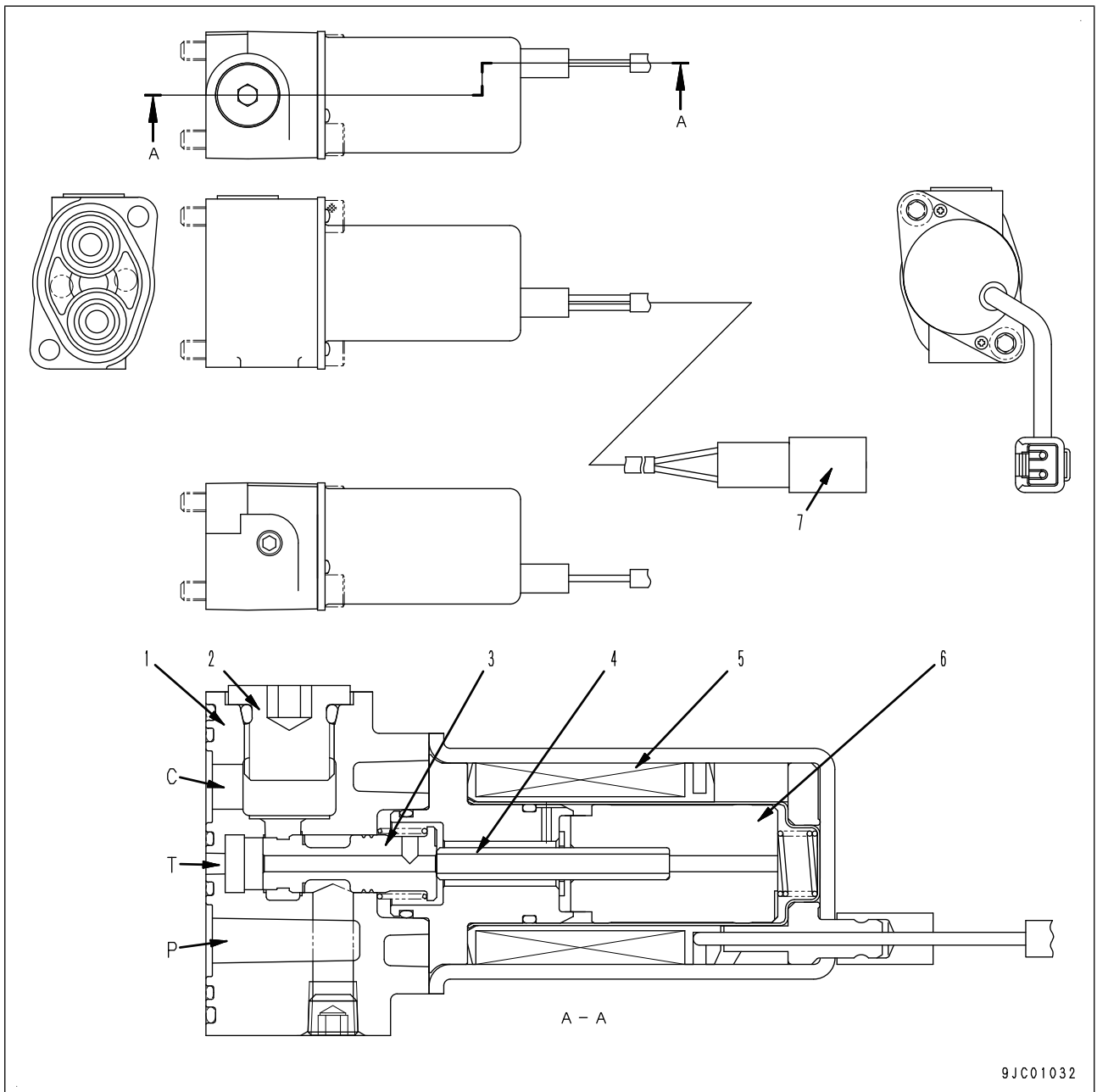
1. Oil level plug
2. Drain plug
3. No. 1 sun gear (number of teeth: 15)
4. No. 2 sun gear (number of teeth: 21)
5. No. 1 planetary carrier
6. Cover
7. Sprocket
8. No. 2 planetary carrier
9. Floating seal
10. HST motor
11. Hub
12. No. 2 planetary pinion (number of teeth: 43)
13. Ring gear (number of teeth: 108)
14. No. 1 planetary pinion (number of teeth: 46)



1. Bearing
2. Ball retainer
3. Shaft
4. Oil seal
5. Spring
6. Sleeve
7. Servo piston
8. Shoe retainer
9. End cap
10. Valve plate
11. Cylinder block
12. Piston
13. Shoe
14. Rocker cam
15. Case
16. Shuttle valve
17. Filter

1. Unload valve  
Set pressure: 3.4 MPa {34.5 kg/cm<sup>2</sup>}
2. Main relief valve  
Set pressure: 27.4 MPa {280 kg/cm<sup>2</sup>}
3. Pressure compensation valve
4. Suction valve
5. Fan port relief valve
6. Centralized safety valve (for work equipment valve)  
Set pressure: 31.4 MPa {320 kg/cm<sup>2</sup>}
7. Cooling fan valve
8. Lift valve
9. Tilt valve
10. Angle valve
11. Ripper valve
12. Back pressure valve
13. LS bypass valve

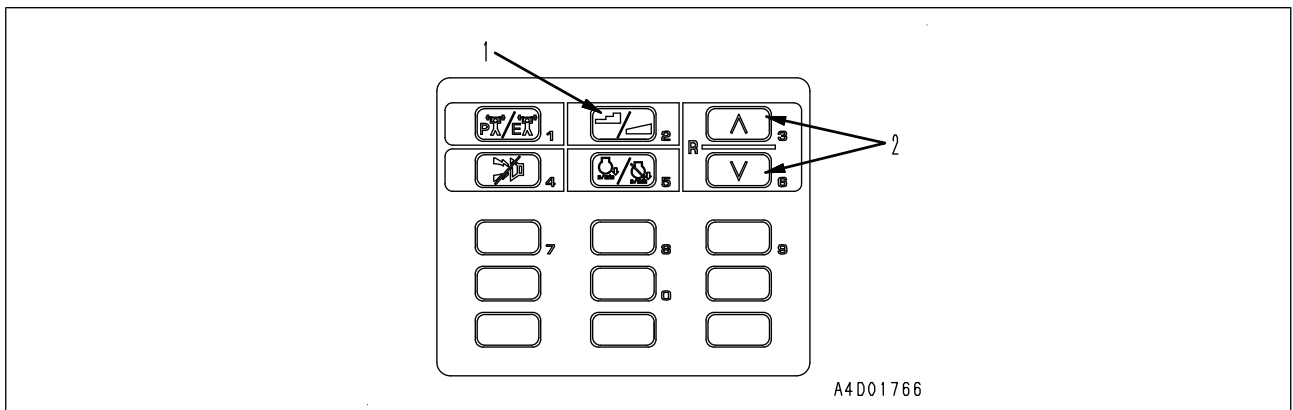
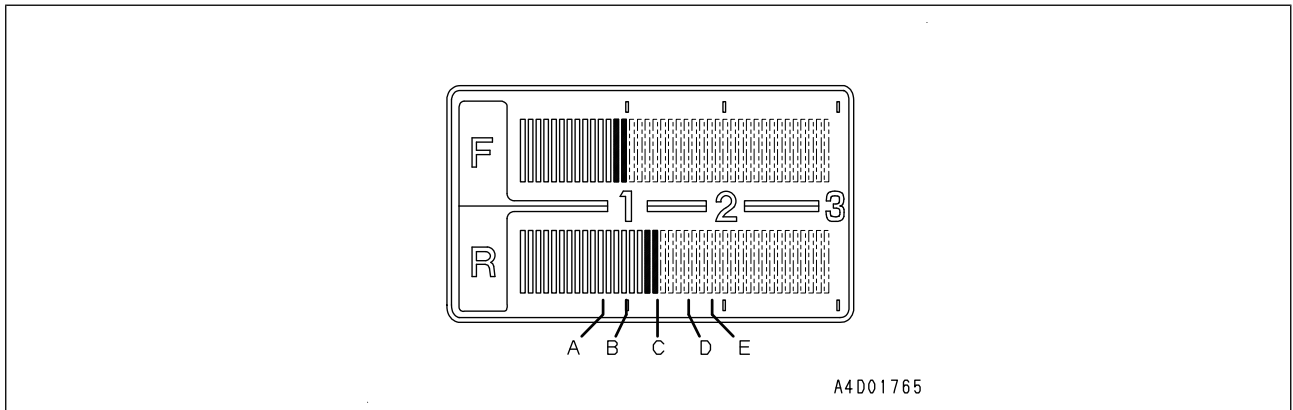
Angle control EPC valve (D65-LSLH-041-K-00-A)



P: From pump  
C: To control valve (angle port)  
T: To hydraulic tank

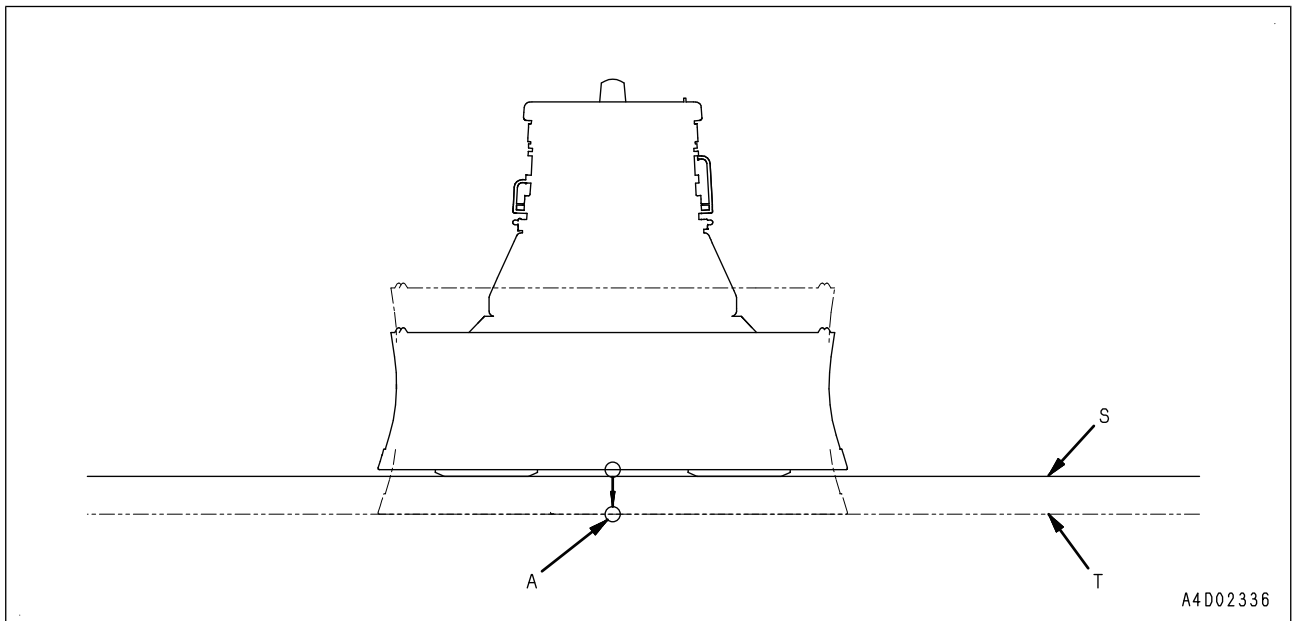
1. Body
2. Plug
3. Spool
4. Push pin
5. Coil
6. Plunger
7. Connector

- When the joystick (steering, directional and gear shift lever) is in "NEUTRAL", the set travel speed is 0 km/h.
  - The 1st, 2nd, and 3rd travel speed settings can be changed with "1st Travel Speed Setting", "2nd Travel Speed Setting", and "3rd Travel Speed Setting" of the quick shift mode in the customize menu (5 levels each in the 1st and 2nd, and 3 levels in the 3rd).
- ★ The following figure shows the setting of reverse travel speed (C) in the 1st gear speed (default).



### Blade height adjustment

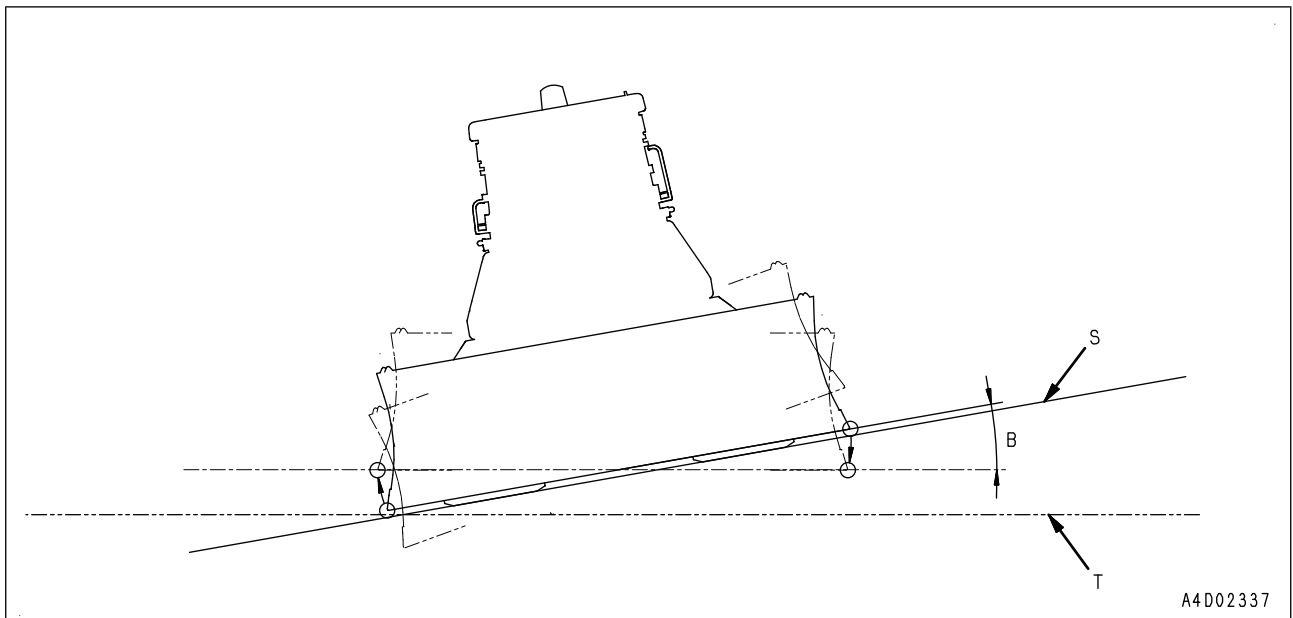
- In the leveling mode as shown in the following figure, blade height is adjusted by operating the lift cylinder and the blade is controlled so that its tip center position (A) follows the earthmoving operation design surface (T).



- A: The center position of blade tip
- S: Current surface
- T: Earthmoving operation design surface

### Blade angle adjustment

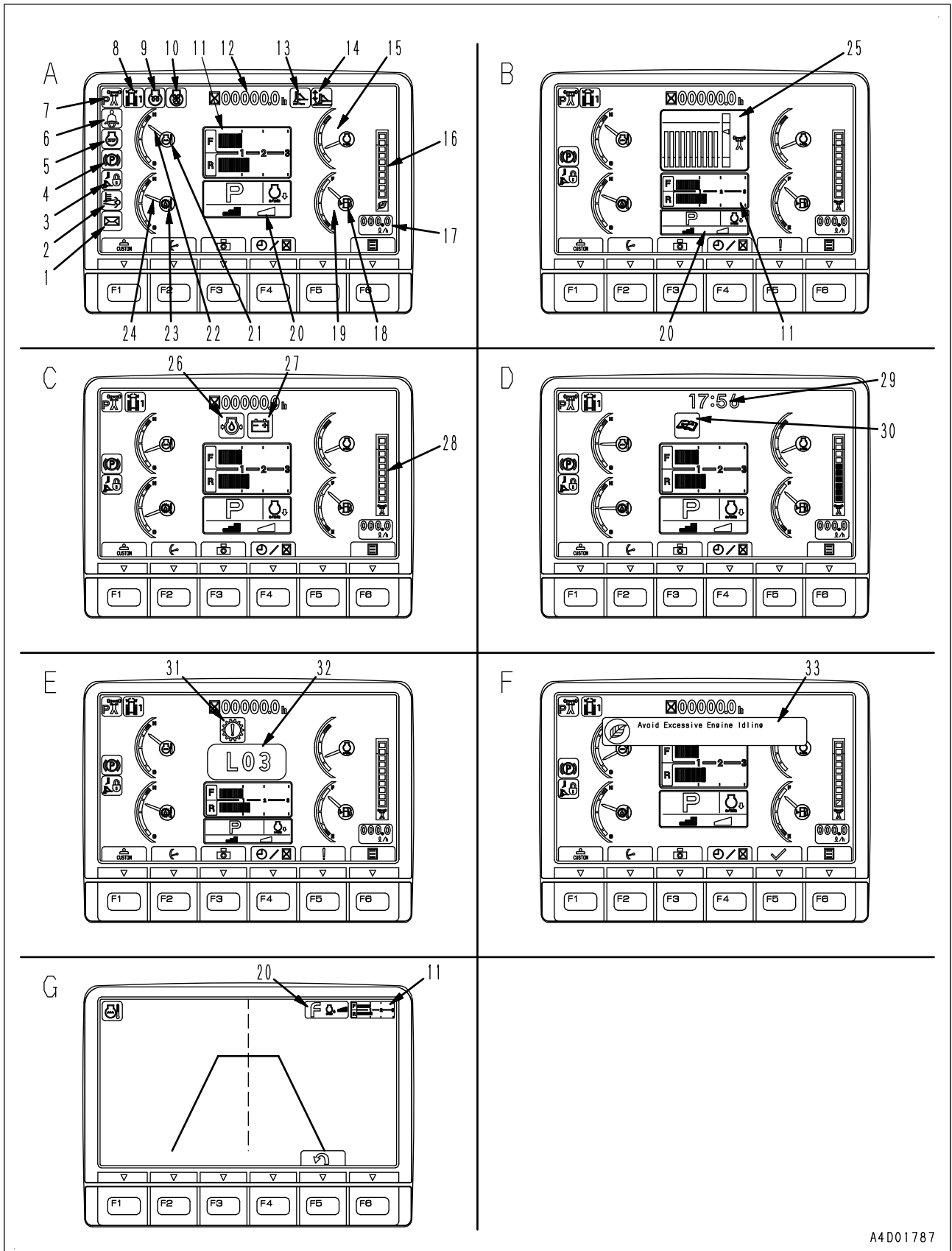
- In the leveling mode as shown in the following figure, blade angle is adjusted by operating the tilt cylinder and the blade is controlled so that blade angle (B) follows the earthmoving operation design surface (T).



- B: Blade angle
- S: Current surface
- T: Earthmoving operation design surface

**Display** (D61-Q1LA-042-K-00-A)

★ All caution monitor symbols are not shown in this figure.



A4D01787

**Input and output signals of KOMTRAX terminal** (D61-Q220-03C-K-00-A)  
070-18P [CN-CK01]

Pin No.	Signal name	Input/Output Signal
1	(*1)	—
2	(*1)	—
3	(*1)	—
4	(*1)	—
5	(*1)	—
6	(*1)	—
7	(*1)	—
8	(*1)	—
9	(*1)	—
10	CAN_H (KOMNET/c)	Input/Output
11	CAN_L (KOMNET/c)	Input/Output
12	(*1)	—
13	(*1)	—
14	External starting signal	Input/Output
15	System operation lamp	Output
16	(*1)	—
17	(*1)	—
18	(*1)	—

\*1: Never connect these pins. Malfunctions or failures may occur.

070-12P [CN-CK02]

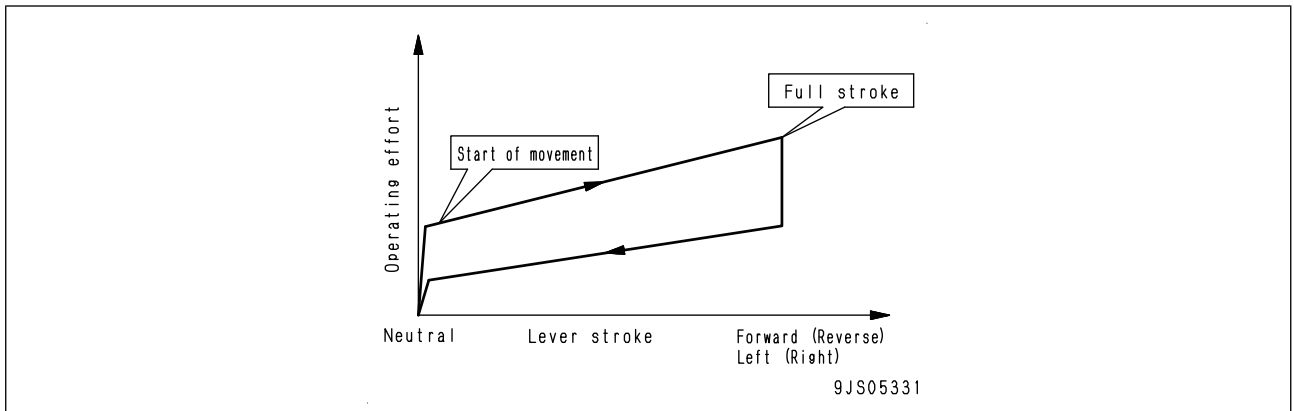
Pin No.	Signal name	Input/Output Signal
1	GND	—
2	GND	—
3	Starting switch ACC signal	Input
4	Alternator R signal	Input
5	(*1)	—
6	Power supply	Input
7	Power supply	Input
8	(*1)	—
9	(*1)	—
10	(*1)	—
11	Starting switch C signal	Input
12	(*1)	—

\*1: Never connect these pins. Malfunctions or failures may occur.

**Function** (D61-PK80-042-K-00-A)

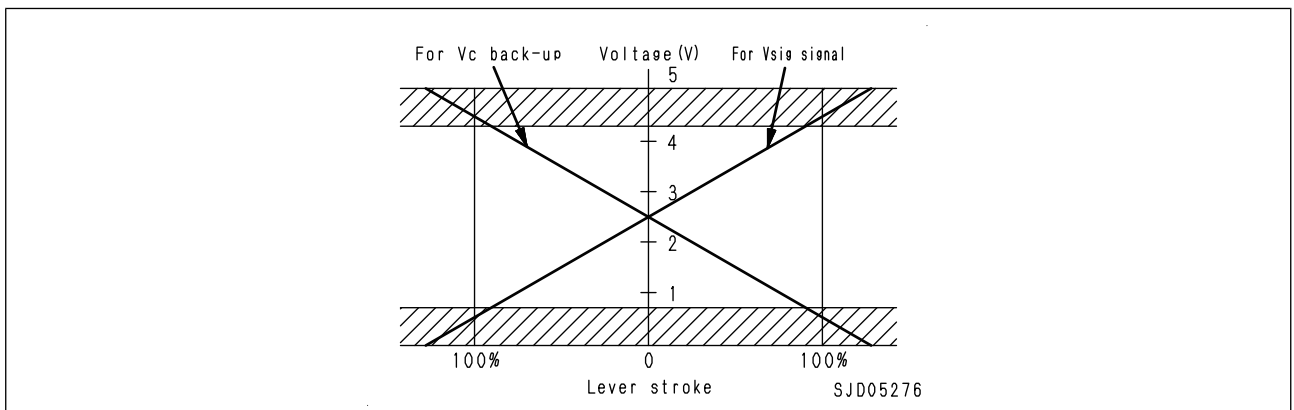
**Operating effort characteristics**

- The characteristics in all of the forward, reverse, rightward, and leftward directions are as follows.
- Free return (operating effort characteristic curve)

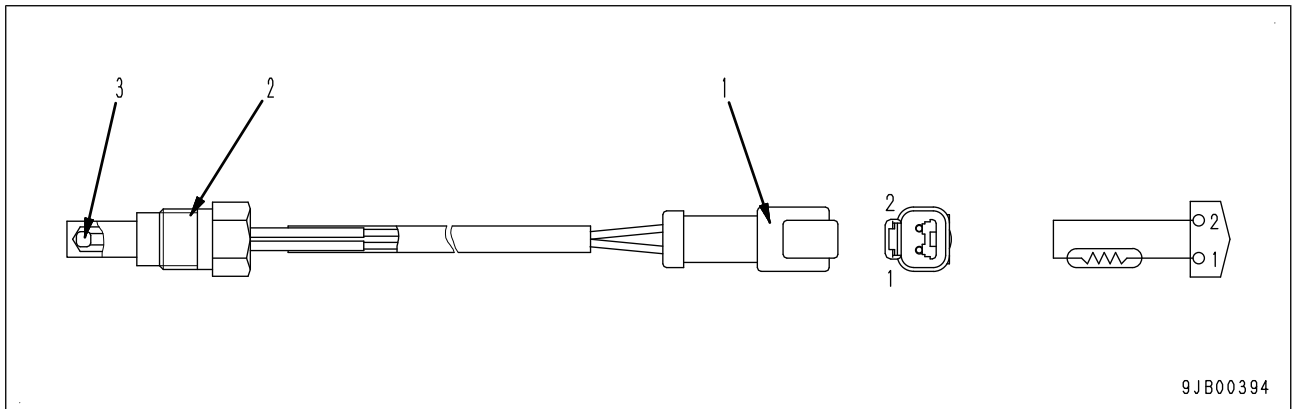


**Output voltage characteristics**

- This lever is installed to the right control stand and the control lever is fixed directly onto it.
- The operating angle (stroke) of the control lever is detected with the potentiometer and signal voltages are output to the controller.
- A potentiometer is installed to detect each of longitudinal displacement and lateral displacement. Each potentiometer outputs two signal voltages which are opposite in phase as shown in the figure on the right.



**Hydraulic oil temperature sensor** (D65-PMT1-041-K-00-A)



1. Connector
2. Plug
3. Thermistor

**Function** (D65-PMT1-042-K-00-A)

- This sensor is installed to the hydraulic tank.
- This sensor detects the oil temperature and converts it into corresponding electric signals, and outputs the signals.

**Standard service value table** (ALL-A000-001-K-00-A)

**Standard value table for engine** (D61\_23-A000-033-K-01-A)

Machine model				D61EXI-23, D61PXI-23			
Engine				SAA6D107E-2			
Classifi- cation	Item	Measurement condition		Unit	Standard value for new machine	Repair limit	
Engine	speed	<ul style="list-style-type: none"> <li>Coolant temperature: 60 to 100 °C</li> <li>HST oil temperature (hydraulic oil temperature): 40 to 60 °C</li> </ul>	High idle	P mode	rpm	1,995 ± 50	1,995 ± 50
				E mode			1,670 ± 50
			Low idle		rpm	975 ± 25	975 ± 50
		Rated speed		rpm	2,200	2,200	
	Boost pressure	<ul style="list-style-type: none"> <li>Aftercooler inlet</li> <li>Coolant temperature: 60 to 100 °C</li> <li>HST oil temperature (hydraulic oil temperature): 40 to 60 °C</li> <li>HST stall (*1) and work equipment relief</li> </ul>		kPa {mmHg}	Min. 113 {850}	Min. 87 {650}	
	Exhaust gas color	<ul style="list-style-type: none"> <li>Coolant temperature: 60 to 100°C</li> <li>HST oil temperature (hydraulic oil temperature): 40 to 60 °C</li> <li>HST stall (*1) and work equipment relief</li> <li>After kept for 5 seconds at normal condition</li> </ul>	Engine outlet (between turbocharger and KDPF inlet)	Bosch index	—	Max. 2.7	
			KDPF outlet (exhaust pipe outlet)	Bosch index	—	Max. 0.5	
	Valve clearance	<ul style="list-style-type: none"> <li>Coolant temperature: Normal temperature</li> </ul>	Intake valve	mm	0.25	0.152 to 0.381	
			Exhaust valve	mm	0.51	0.381 to 0.762	
	Compression pressure	<ul style="list-style-type: none"> <li>Engine oil temperature: 40 to 60 °C</li> <li>Engine speed: 250 to 280 rpm</li> </ul>		MPa {kg/cm <sup>2</sup> }	Min. 2.41 {24.6}	Min. 1.69 {17.2}	
	Blowby pressure	<ul style="list-style-type: none"> <li>Coolant temperature: 60 to 100°C</li> <li>HST oil temperature (hydraulic oil temperature): 40 to 60 °C</li> <li>HST stall (*1) and work equipment relief</li> <li>KCCV circuit disconnected</li> </ul>		kPa {mmH <sub>2</sub> O}	Max. 0.98 {100}	Max. 1.96 {200}	
	Engine oil pressure	<ul style="list-style-type: none"> <li>Coolant temperature: 60 to 100 °C</li> <li>EO15W40-LA</li> </ul>	High idle	MPa {kg/cm <sup>2</sup> }	Min. 0.29 {3.0}	Min. 0.25 {2.5}	
			Low idle	MPa {kg/cm <sup>2</sup> }	Min. 0.10 {1.0}	Min. 0.07 {0.7}	
	EGR valve and KVGT drive oil pressure	<ul style="list-style-type: none"> <li>Coolant temperature: 60 to 100°C</li> <li>HST oil temperature (hydraulic oil temperature): 40 to 60 °C</li> </ul>	Low idle	MPa {kg/cm <sup>2</sup> }	Min. 1.2 {12.2}	Min. 1.2 {12.2}	
KVGT control oil pressure	MPa {kg/cm <sup>2</sup> }			0.3 to 1.0 {3.1 to 10.2}	0.3 to 1.0 {3.1 to 10.2}		
Engine oil temperature	<ul style="list-style-type: none"> <li>Whole speed range (inside oil pan)</li> </ul>		°C	80 to 110	Max. 120		
Alternator belt tension	—		mm	Automatic adjustment (Auto-tensioner)	Automatic adjustment (Auto-tensioner)		

\*1: Measure with "Stall pressure test mode" of the adjustment menu No. 21.

**Machine monitor** (D61-Q170-033-K-00-A)

Equipment name	Procedure, measuring location, criteria and remarks			
Defective power generation of alternator (when system is normal)	1. Turn starting switch to OFF position. 2. Remove T16 terminal cover. 3. Start engine.			
	Voltage	Between T16 (2) and ground	Engine speed: Medium or above	27.5 to 29.5 V
Preheating	1. Turn starting switch to OFF position. 2. Insert T-adapter into connector CM01. 3. Disconnect heater relay terminal T6. ★ To prevent current from flowing through heater when starting switch is turned to HEAT position			
	Voltage	Between CM01 (12) and (3)	20 to 30 V	
Fuel level sensor	1. Turn starting switch to OFF position. 2. Disconnect connector 13, and connect T-adapter to male side.			
	Resistance	Between 13 (male) (1) and (2)	FULL	Approx. 12 Ω
		★ Fuel level sensor characteristics	EMPTY	Approx. 85 Ω
		Between 13 (male) (2) and ground	Max. 1 Ω	

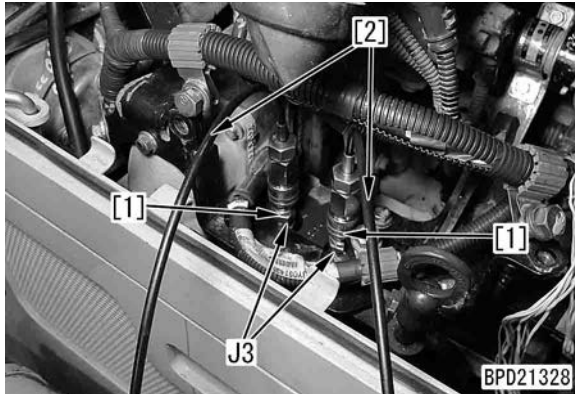
its stroke end while fuel control dial is set in high idle (MAX) position.

- ★ The parking brake lever and work equipment lock lever may be kept in LOCK position.

 **Adapter J2:**

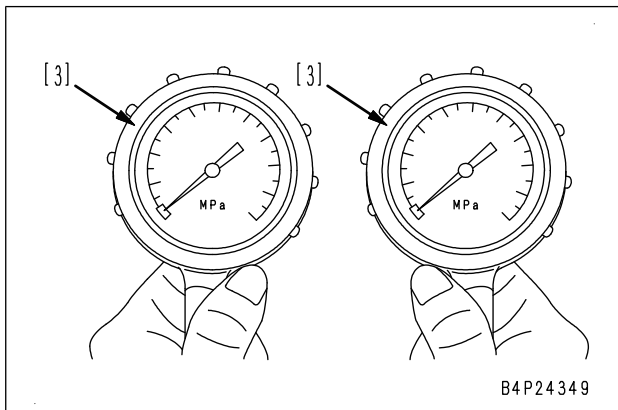
**$32 \pm 4 \text{ Nm}$  { $3.26 \pm 0.41 \text{ kgm}$ }**

- ★ Use gauge [3] of 2.5 MPa [25 kg/cm<sup>2</sup>].
- ★ The nipple and hose of digital hydraulic tester J1 can also be used.



3. Start the engine and measure the pressure on the inlet side and outlet side of the low-pressure circuit with the engine at high idle.

- ★ If the engine cannot be started, you can measure the fuel pressure while rotating the engine using the starting motor. However, to protect the starting motor, do not rotate the engine for more than 20 seconds continuously.



4. Calculate the pressure difference in the low-pressure circuit.

- ★ Pressure difference in low-pressure circuit =  
Pressure on main fuel filter inlet side -  
Pressure on main fuel filter outlet side
- ★ For standard values, see "Standard value table for engine".
- ★ If the pressure exceeds the standard value, the fuel main filter may be clogged. In this case, replace the fuel main filter and measure the pressure again.

5. After finishing the test, remove the testing tools and restore the machine.

 **Fuel pressure pickup plugs (1), (2):**

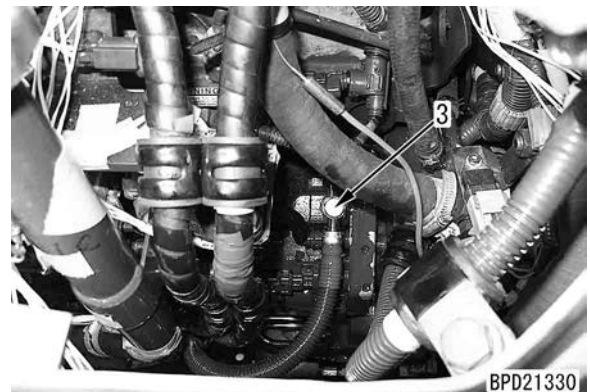
**$32 \pm 4 \text{ Nm}$  { $3.26 \pm 0.41 \text{ kgm}$ }**

**Testing return circuit**

1. Open left side cover (1).
2. Remove left side cover (2).



3. Remove joint bolt (3) of the fuel return hose between the supply pump and fuel cooler.



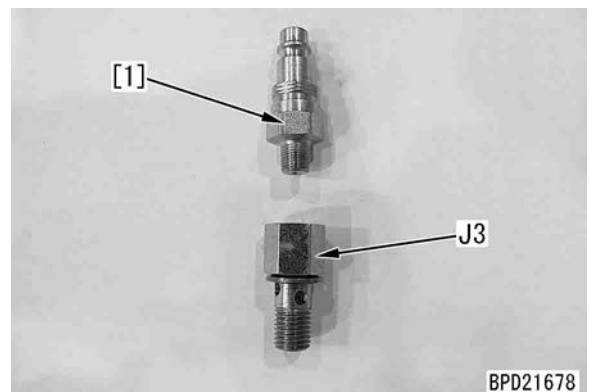
4. Install screw J3, and nipple [1] and hose [2] of hydraulic tester J1 instead of joint bolt (3), and connect gauge J4 to the hose.

- ★ When installing screw J3, be sure to install the seal washer.

 **Screw J3:**

**$24 \pm 4 \text{ Nm}$  { $2.45 \pm 0.41 \text{ kgm}$ }**

- ★ The nipple and hose of digital hydraulic tester J2 can also be used.



## Writing compensation amount for soot accumulation caused by ash on engine controller (D61-AP70-001-K-00-A)

**⚠ Check that there is no person or combustible material around the machine (particularly in the direction of the exhaust gas flows).**

- When starting the engine, ash contained in engine oil accumulates in KCSF and increases filter differential pressure.
- Since filter differential pressure is used for calculation of soot accumulation in the engine controller, increase amount of differential pressure by ash needs to be corrected.
- Correction amount of filter differential pressure increased by ash is calculated in the engine controller as "Soot Correction by Ash Influence".
- When engine controller is replaced with the new one, "Soot Correction by Ash Influence" becomes default value, 0 g / ℓ .
- When engine controller is replaced with the new one, perform applicable operation to obtain correct "Soot Correction by Ash Influence".

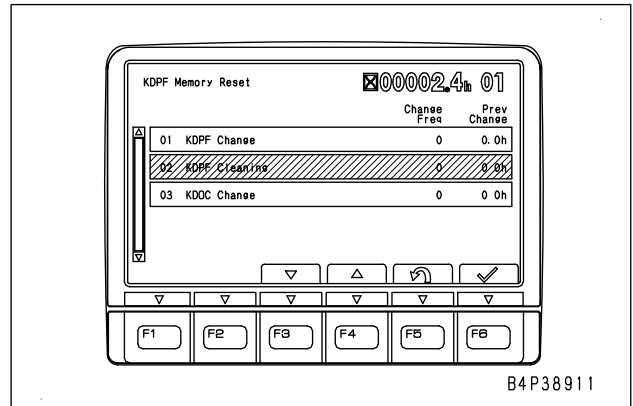
## Method for writing compensation amount for soot accumulation caused by ash on engine controller (D61-AP70-360-K-00-A)

- ★ This item is not necessary to perform when engine controller and KCSF are both replaced. (Since ash accumulation value and ash accumulation in KCSF which are displayed on the machine monitor are 0 g/ℓ)

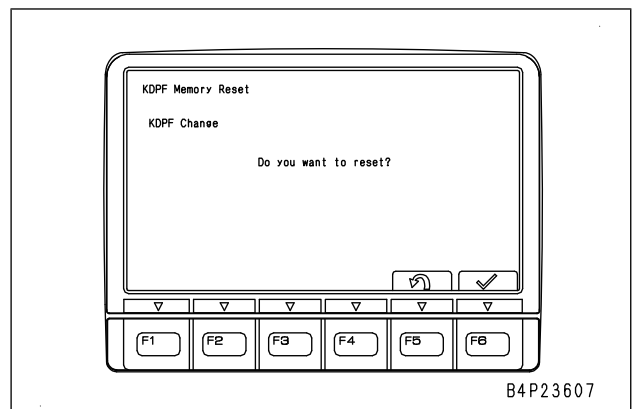
Perform this operation according to the following when only the engine controller is replaced.

1. Check the soot accumulation
  - 1) Ensure the safety of the surrounding. Turn the starting switch to ON position to start the engine. Check the soot accumulation level.
    - If the soot accumulation level is 3 and higher (the level which the automatic regeneration starts at and higher), perform Active Regeneration for Service, and perform Step 2.
    - If the soot accumulation level is 2 and lower, perform Step 2.
2. Perform the resetting for ash correction value.
  - 1) Perform "KDPF change" once on the "KDPF Memory Reset" screen by referring to TESTING AND ADJUSTING, "Diagnostic Tests (KDPF Memory Reset)". Check that the number of "KDPF Change" times increased by one after performing.
  - 2) Shut down the engine controller.
    - ★ Turn the starting switch to OFF position, wait for the system operation lamp going out or 2 minutes passing.

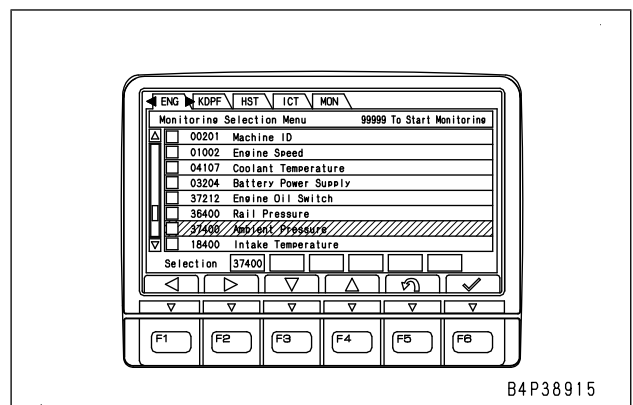
3. Performing the manual ash correction
  - 1) Select "KDPF cleaning", and enter with the function switches.

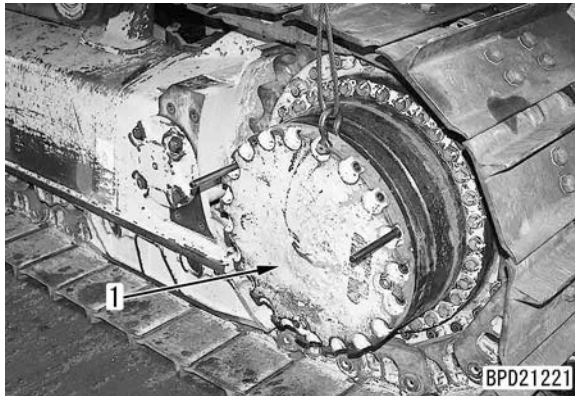


- 2) After "Do you want to reset?" is displayed, enter the reset with the function switch.



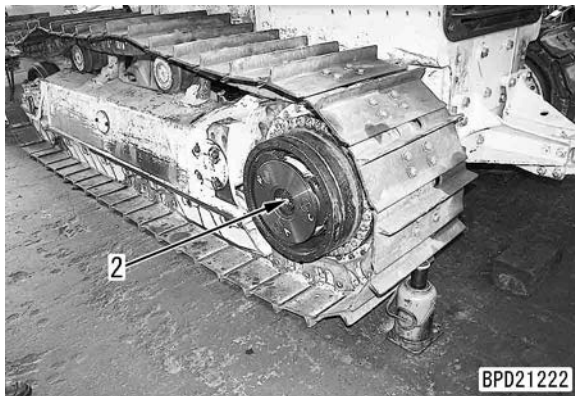
- 3) After the resetting is finished correctly, "KDPF Memory Reset completed" is displayed.
- 4) Repeat above Steps 1) to 3) for 3 times.
  - ★ Check that the number of "KDPF Cleaning" times increased by three.
- 5) Check the displayed value of the ambient pressure on the monitor screen while the engine is running.





3. Remove sun gear (drive shaft) (2).

- ★ Rotate the track by using a jack to find a position for sun gear to be removed smoothly. Then remove it.

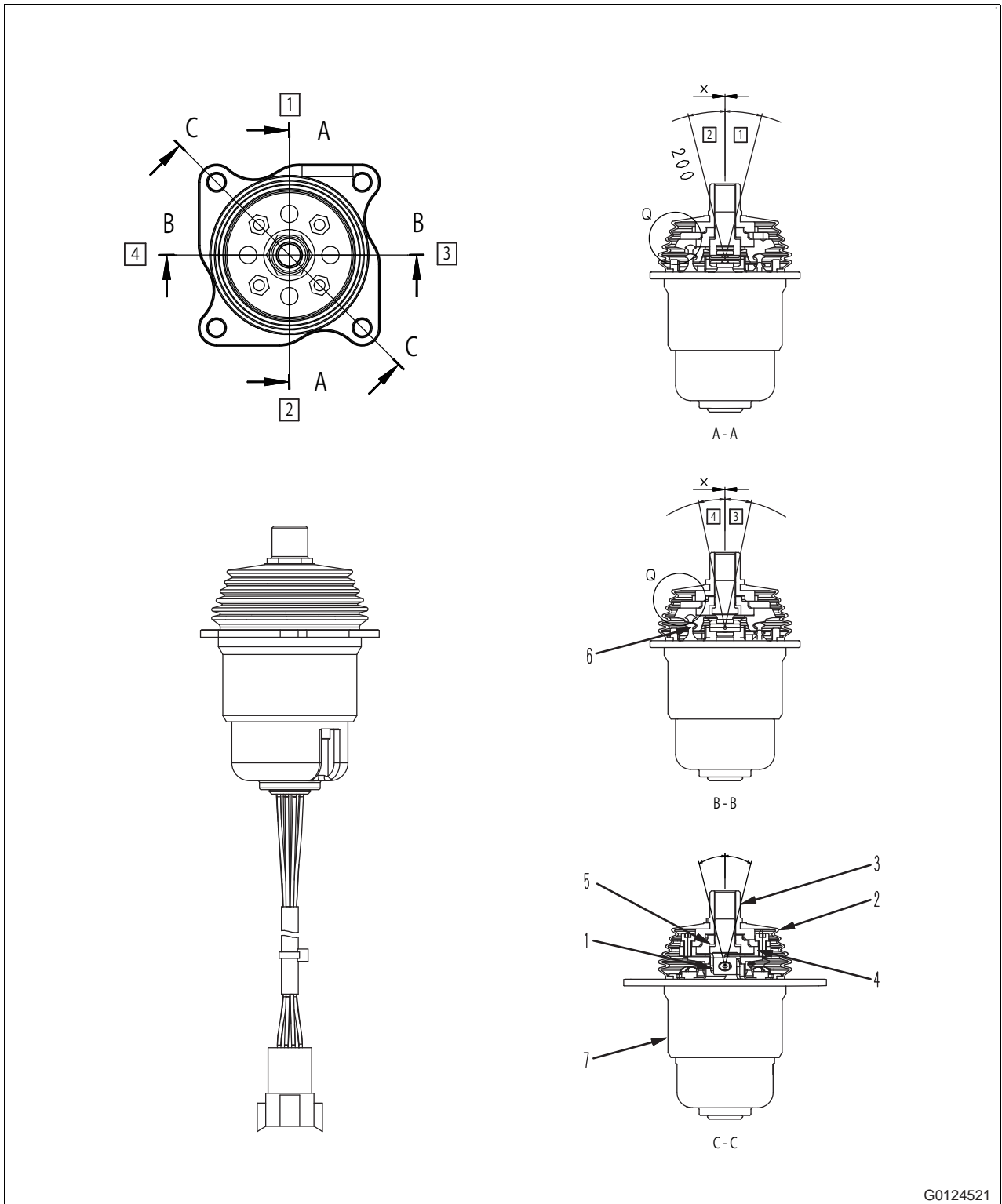


4. Install cover (1) of the final drive.

5. Remove blocks put under the track shoe, tow the machine to a safe place.

- ★ After finishing towing, restore the machine.

The figure is a structural drawing for test and adjustment.



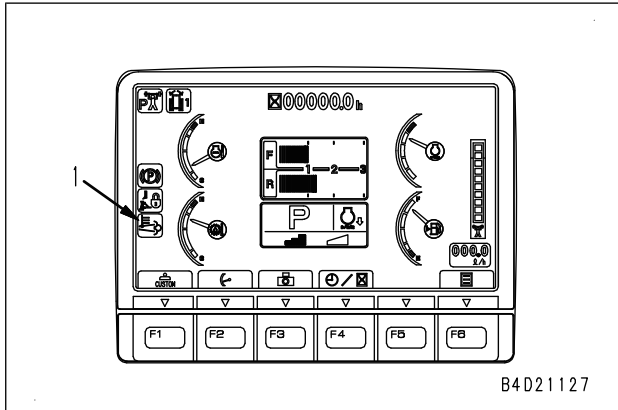
G0124521

1. Universal joint
2. Boot
3. Nut
4. Disc

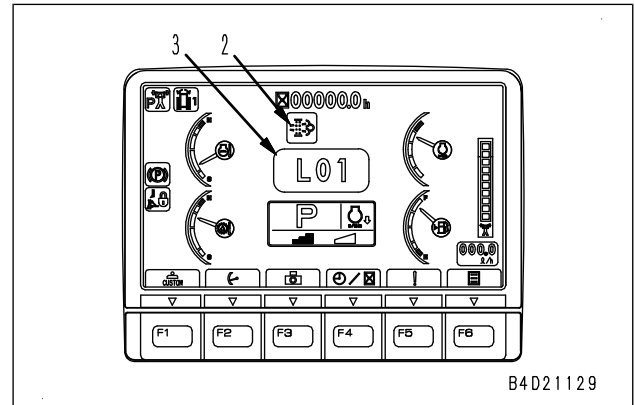
5. Nut
6. Rod
7. Valve body

**⚠ Stop the machine on a level ground, lower the work equipment to the ground fully, stop the engine, and set the parking lever and work equipment lock lever to the LOCK position.**

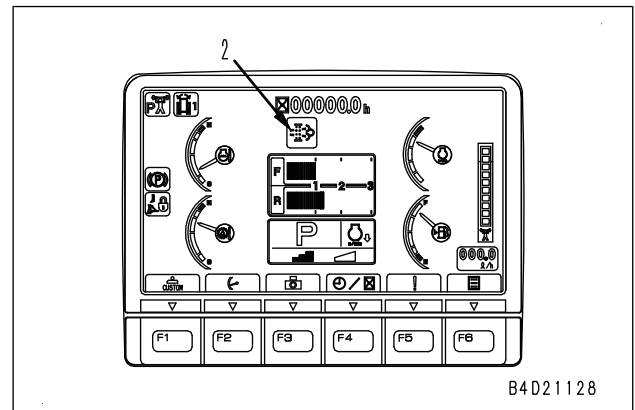
- ★ Even if KDPF regeneration monitor (1) appears, you can continue your work without stopping the machine unless the alarm monitor lights up at the center of the standard screen.



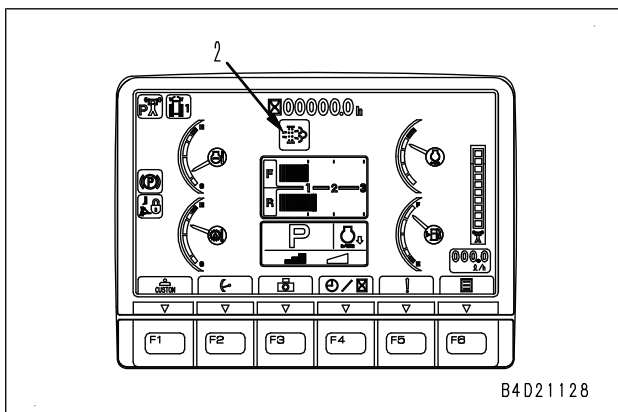
Although KDPF regeneration is normally performed automatically, soot may not be burnt or the filtering function may not be recovered sufficiently, depending on the operating condition. In such case, the KDPF soot accumulation monitor (2) appears, so stop the machine in a safe place and perform the manual stationary regeneration process. For details of the procedure, see the Operation and Maintenance Manual.



The action level disappears in 2 seconds and the following standard screen appears.



If the parking brake lever and work equipment lock lever are set to the LOCK position, or joystick (steering, directional and gear shift lever) is set to the NEUTRAL position, the screen changes to KDPF regeneration screen after 3 seconds only the first time. If the manual stationary regeneration is not performed, the screen returns to standard screen after 30 seconds.

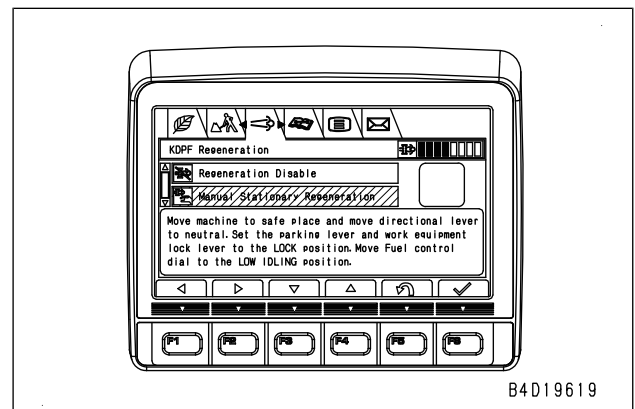


## 2. Manual stationary regeneration

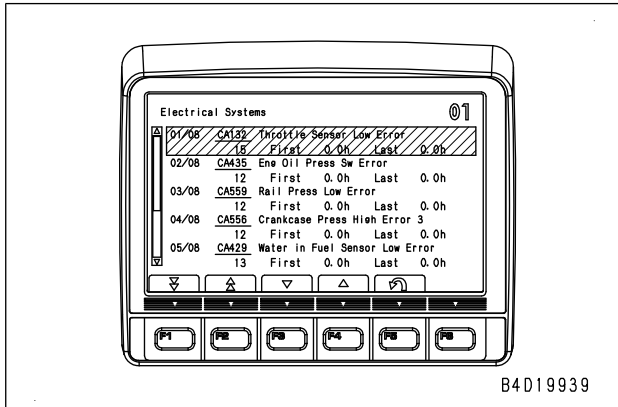
There are two levels of monitor displays to require the manual stationary regeneration, depending on the degree of emergency.

- ⚠ **If you continue your work with KDPF soot accumulation monitor (2) displayed in red, it may cause the damage of the KDPF and engine. Be sure to perform the manual stationary regeneration whenever KDPF soot accumulation monitor (2) appears.**

- 1) When the degree of emergency is low  
When KDPF soot accumulation monitor (2) is displayed in yellow (Action Level (3): L01), the following screen is displayed first.

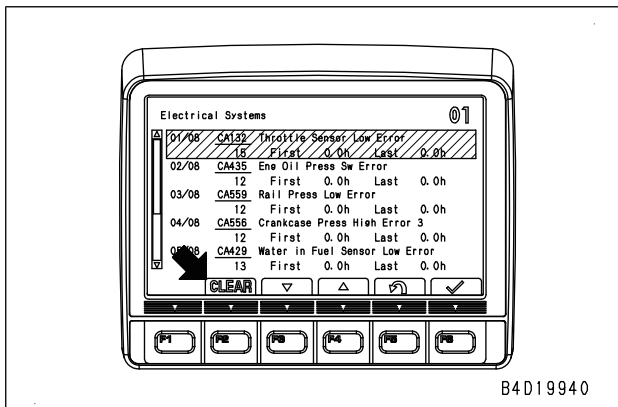


- ★ Operate the switches similarly to the procedure for changing the ordinary display to the service mode.



- 2) Check that the display on the screen becomes the clear mode, then clear the individual information one by one or all together by using the function switches.

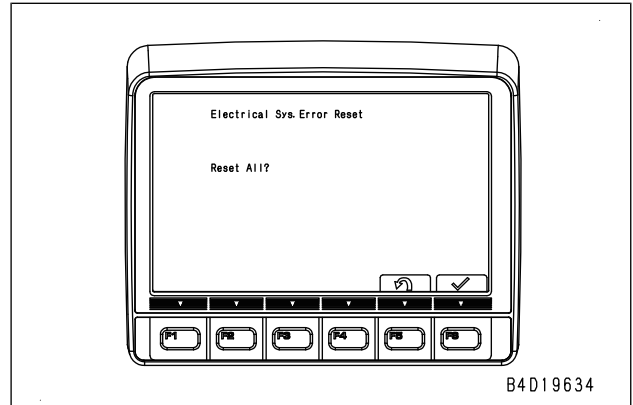
- ★ If the screen is set in the clear mode, graphic mark [CLEAR] is indicated above [F2].
- [F2]: Clears all items
- [F3]: Moves selection downward
- [F4]: Moves selection upward
- [F5]: Returns the display to "Abnormality Record" screen
- [F6]: Clears items one by one
- ★ To clear items one by one: Select the item to be cleared with [F3] or [F4] and press [F6].
- ★ To clear all items together: Press [F2], and all the items are cleared, regardless of selection of the items.
- ★ If [E] is displayed on the left of a failure code, the clearing operation is accepted but the item is not cleared.



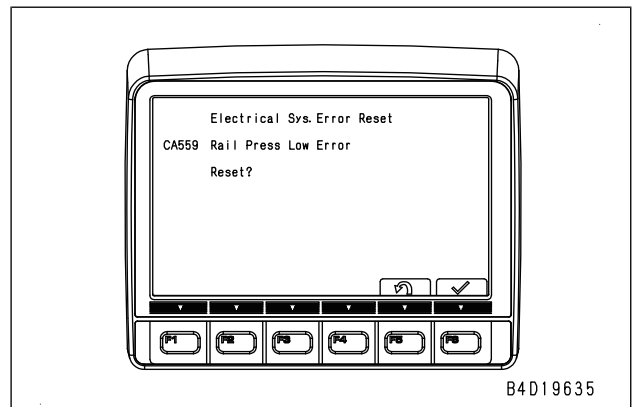
- 3) After "Electrical Sys. Error Reset" screen is displayed, operate the function switches.

- [F5]: Returns to "Electrical Systems" screen (clear mode)  
Return

- [F6]: Executes clearing
- ★ The screens for clearing all information and clearing selected information slightly differ.  
(Deleting all information)

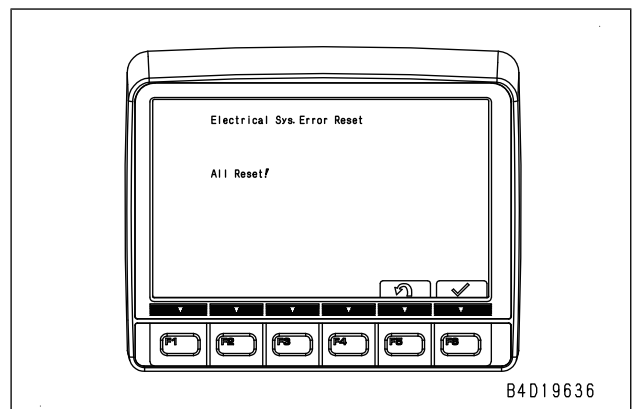


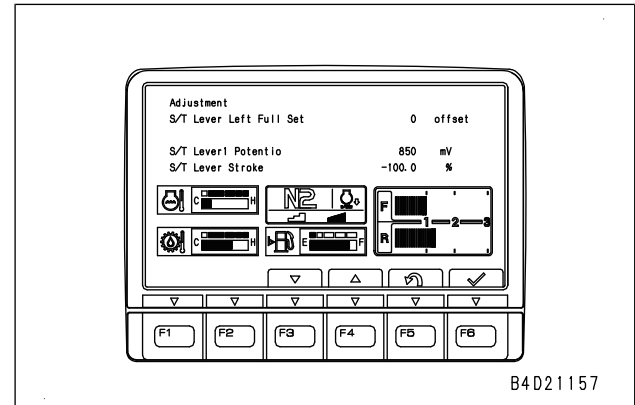
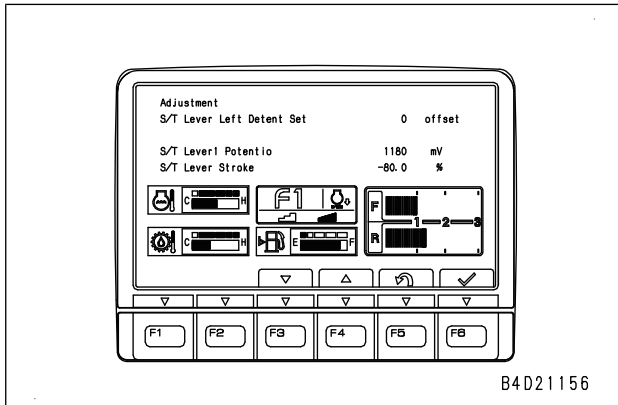
(Deleting selected information)



- 4) If the screen to notify completion of clearing is displayed and then the "Electrical System Abnormality Record" (clear mode) screen is displayed, the clearing of the abnormality record is complete.

- ★ After a while, the screen returns to "Electrical Systems" abnormality record screen.





- This adjustment code is the function to save the voltage of left operating effort change point of the steering potentiometer of joystick (steering, directional and gearshift lever) in HST controller.
- ★ When the HST controller or joystick (steering, directional and gearshift lever) is replaced, be sure to perform this adjustment once.
- Functions of function switches
  - [F3]: No use
  - [F4]: No use
  - [F5]: Returns to adjustment item selection screen
  - [F6]: Saves adjustment value
- Operating method:
  1. Operate the joystick (steering, directional and gearshift lever) to the operating effort change point (pivot turn) of left steering, and keep it in that position.
  2. Press [F6] and check that the alarm buzzer sounds.
- ★ After this adjustment, HST controller saves the potentiometer voltage when [F6] is pressed as the left operating effort change point (S/T lever ratio = -80%) in the steering direction.
- ★ Even if the adjustment is performed, the displayed value of the potentiometer voltage does not change.
- ★ After this adjustment code is finished (starting switch is turned OFF), the adjustment is effective.
- ★ This adjustment code is the function to save the voltage of left operating effort change point of the steering potentiometer of joystick (steering, directional and gearshift lever) in HST controller. It is not used to adjust the steering performance.

**Adjustment (S/T Lever Left Full Set)** (D61-C8X6-270-K-02-A)

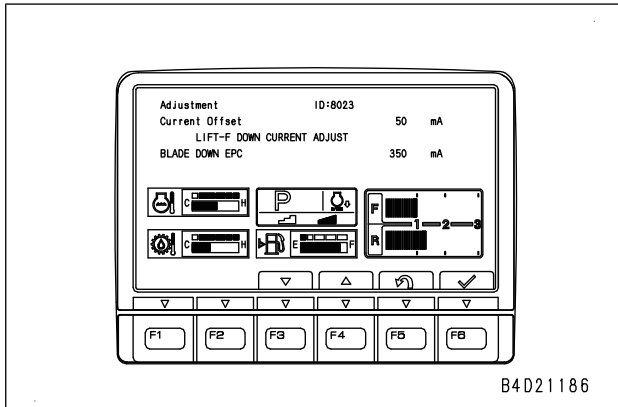
- ★ Menu No.07

- This adjustment code is the function to save the voltage of left full set of the steering potentiometer of joystick (steering, directional and gearshift lever) in HST controller.
- ★ When the HST controller or joystick (steering, directional and gearshift lever) is replaced, be sure to perform this adjustment once.
- Functions of function switches
  - [F3]: No use
  - [F4]: No use
  - [F5]: Returns to adjustment item selection screen
  - [F6]: Saves adjustment value
- Operating method:
  1. Operate the joystick (steering, directional and gearshift lever) to stroke end of left steering, and keep it in that position.
  2. Press [F6] and check that the alarm buzzer sounds.
- ★ After this adjustment, HST controller saves the potentiometer voltage when [F6] is pressed as the left operating effort change point (S/T lever ratio = -100%) in the steering direction.
- ★ Even if the adjustment is performed, the displayed value of the potentiometer voltage does not change.
- ★ After this adjustment code is finished (starting switch is turned OFF), the adjustment is effective.
- ★ This adjustment code is the function to save the voltage of left full set of the steering potentiometer of joystick (steering, directional and gearshift lever) in HST controller. It is not used to adjust the steering performance.

**Adjustment (S/T Lever Right Detent Set)** (D61-C8X6-270-K-03-A)

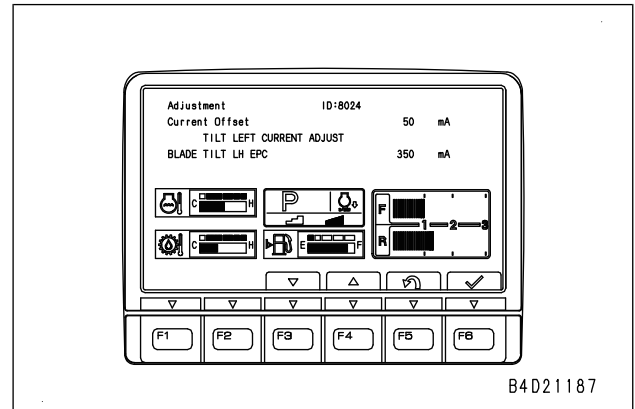
- ★ Menu No.08

**Adjustment ID: 8023 (Blade lift LOWER current value correction (fine control mode))** (D61-LTL0-270-K-06-A)

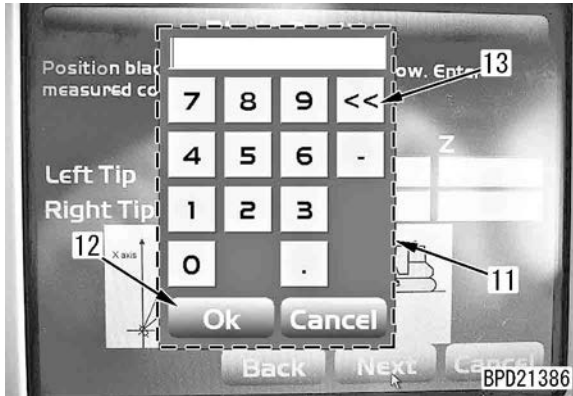


- This adjustment code is used to adjust the sensitivity of blade movement at start when the blade control lever is operated in LOWER direction with the blade fine control mode ON.
- ★ Use this adjustment code for work as needed.
- Functions of function switches
  - [F3]: Decreases adjustment value "Current offset"
  - [F4]: Increases adjustment value "Current offset"
  - [F5]: Returns the display to ID input screen
  - [F6]: Saves adjustment value
- Operating method:
  1. Increase or decrease the adjustment value by pressing [F3] or [F4].
  2. Press [F6] and check that the alarm buzzer sounds.
- ★ If an adjustment has been performed, the adjustment value is displayed. However, it can be adjusted repeatedly.
- ★ It is not necessary to move the blade during adjustment. After finishing adjustment, lower the blade and check that there is no problem in the actual operation feeling. (Check with the blade fine control mode ON.)
- ★ Even if this adjustment code is turned off, the adjustment is effective.

**Adjustment ID: 8024 (Blade tilt LEFT current value correction)** (D61-LTL3-270-K-03-A)



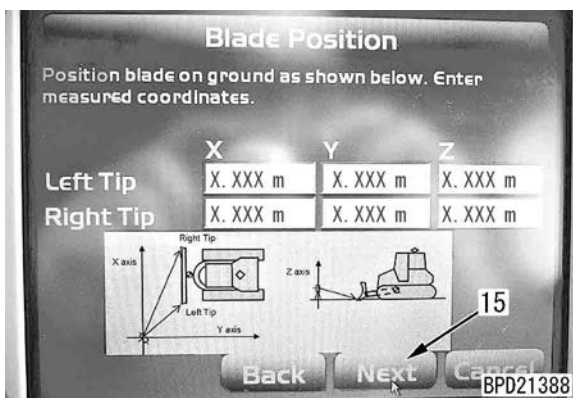
- This adjustment code is used to adjust the sensitivity of blade movement at start when the blade control lever is operated in LEFT tilting direction.
- ★ Use this adjustment code for work as needed.
- Functions of function switches
  - [F3]: Decreases adjustment value "Current Offset"
  - [F4]: Increases adjustment value "Current Offset"
  - [F5]: Returns the display to ID input screen
  - [F6]: Saves adjustment value
- Operating method:
  1. Increase or decrease the adjustment value by pressing [F3] or [F4].
  2. Press [F6] and check that the alarm buzzer sounds.
- ★ If an adjustment has been performed, the adjustment value is displayed. However, it can be adjusted repeatedly.
- ★ It is not necessary to move the blade during adjustment. After finishing adjustment, tilt the blade to LEFT and check that there is no problem in the actual operation feeling.
- ★ Even if this adjustment code is turned off, the adjustment is effective.



- ★ When measuring the coordinates by using a prism, measure them by pushing the tip of pole (14) against the edge of blade. Input the compensation value of the height of prism to the total station and perform measurement.



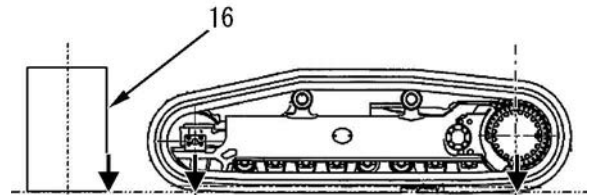
13. After the input value is displayed on the next screen, press "Next" (15). The input is complete.



14. Measure the coordinates (X, Y, Z) on the ground of the centers of idler and of sprocket (side of track).

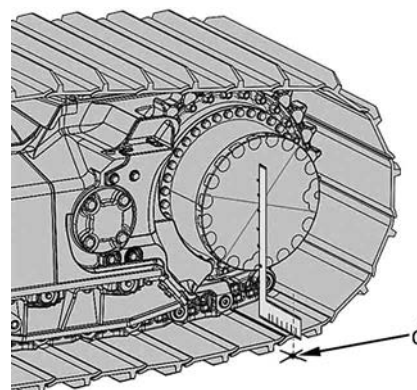
- ★ Measure in prism mode.
  - Measure them accurately because they become a basis to calculate the longitudinal direction of machine and the height of ground.
- ★ It is not a problem if the center of idler slightly deviates in longitudinal direction.

- ★ When measuring the coordinates by using a prism, measure them by pushing the side face of pole against the side of track (16).
- ★ Measure the center of sprocket accurately because it becomes a basis to calculate the position of machine.
- ★ Measure the coordinates in millimeters.



BPD21389

- ★ Procedure for measuring the coordinates of the center of sprocket
  - 1) Draw 2 or more lines on the diameter of final drive case and calculate the intersection point (center of sprocket).
  - 2) Apply an L-square perpendicularly through the intersection point (center of sprocket) on the parallel to the lengthwise direction of a track shoe.
  - 3) Measure the coordinates of the point (d) on the ground where a perpendicular line reaches from the intersection point of L-square and track shoe end.
- Reference information  
Diameter of final drive case: 497 mm



BPD21390

15. Press input column (17) on the next screen.

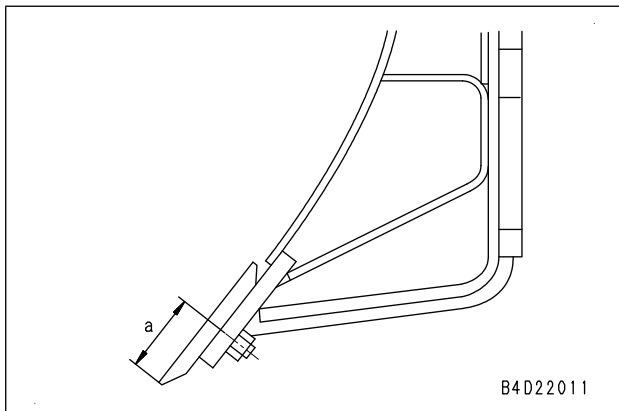
## Inputting wear amount of blade edge, track roller and track shoe (D61-LL80-100-K-16-A)

If the wear of cutting edge of the blade and links of track rollers and tracks develops, accuracy in automatic control of the blade and terrain display of control box is not obtained. To correct these inaccuracy, measure the wear amount and input it into the controller and save it according to the following procedure.

Inputting the wear amount is always required when replacing cutting edge, track rollers and track shoes.

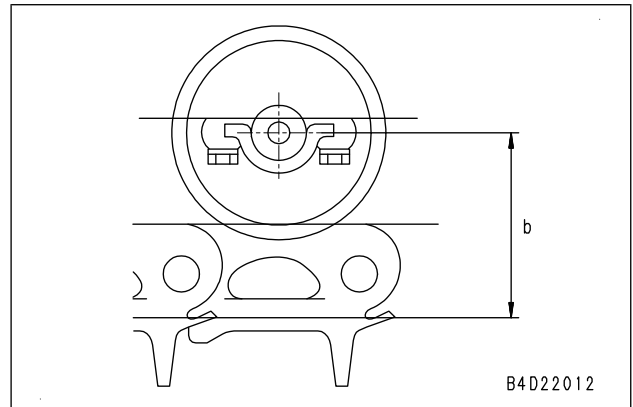
1. Place the machine on a level ground and lower the work equipment to the ground.
2. Stop the engine, and set the parking brake lever and work equipment lock lever to LOCK position.
3. Measure the distance (a) from cutting edge to the center of the mounting bolt, and record the value. (write down on a paper)

- ★ Measure the distance (a) in millimeters from cutting edge to the center of mounting bolt.
- ★ If the distance (a) is out of judgment criteria described in maintenance standard, perform the remedy, and measure it again.
- Distance when the cutting edge is new: 0.102 m

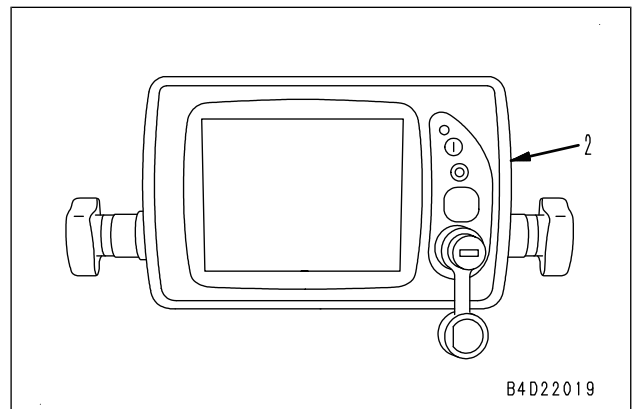


4. Measure the distance (b) from track shoe plate to the center of the track roller, and record the value. (write down on a paper)

- ★ Measure the distance (b) from track shoe plate to the center of the track roller in millimeters.
- ★ If the distance (b) is out of judgment criteria described in maintenance standard, perform the repair or replacement, and measure it again.
- Distance when track rollers and track shoes are new: 0.224 m



5. Turn ON the power supply of control box (2).
  - Inputting work can be continued without turning OFF the power supply of base station and starting switch of the machine.
  - ★ "Komatsu controller not connected!" is displayed, but inputting is available.



6. Press "Control" → "Wear Adjustment" in order on the main screen of control box.



- ★ When "Control" is not displayed, press "iB Logo Key" to display it.

## KOMTRAX terminal start-up procedure (HB380-Q210-110-K-00-A)

Observe the following procedure when using KOMTRAX.

- Inside Japan:  
KOMTRAX-Keyperson performs "Machine registration" by using KOMTRAX screen.
- Outside Japan:  
KOMTRAX-Keyperson performs "Machine registration" and operation related to communication startup by using KOMTRAX screen.

### When KOMTRAX terminal is replaced.

Observe the following procedure when using KOMTRAX after replacement of KOMTRAX terminal.

- Inside Japan:
  1. Our technician provides a new terminal, and records the part number and serial number.
  2. Our technician replaces the terminal, and perform "Machine side inspection for KOMTRAX Communication opening". Our technician notifies KOMTRAX-Keyperson of the completion of inspection work and new terminal information.
  3. KOMTRAX-Keyperson performs "Terminal Replacement" by using KOMTRAX screen.
  4. KOMTRAX-Keyperson fills in required items on "End of the Use Sheet", and send it to KOMTRAX support center.
- Outside Japan:
  1. Our technician provides a new terminal, and records the part number and serial number. Our technician notifies KOMTRAX-Keyperson of the new terminal information.
  2. KOMTRAX-Keyperson performs "Terminal Replacement" and operation related to communication startup by using KOMTRAX screen.
  3. KOMTRAX-Keyperson fills in required items on "Terminal Replacement Sheet", and send it by email to KOMTRAX support center via KOMTRAX administrator in the subsidiary.
  4. KOMTRAX-Keyperson confirms that communication has started on KOMTRAX screen, and notifies to the site that the terminal has been replaced.
  5. Our technician replaces the terminal, and perform "Machine side inspection for KOMTRAX Communication opening". Our technician notifies KOMTRAX-Keyperson of the completion of inspection of the work.
  6. KOMTRAX-Keyperson handles communication startup operation on KOMTRAX screen.

- ★ KOMTRAX-Keyperson is a specially educated administrator who performs operation and setting for KOMTRAX in the distributor full-time.

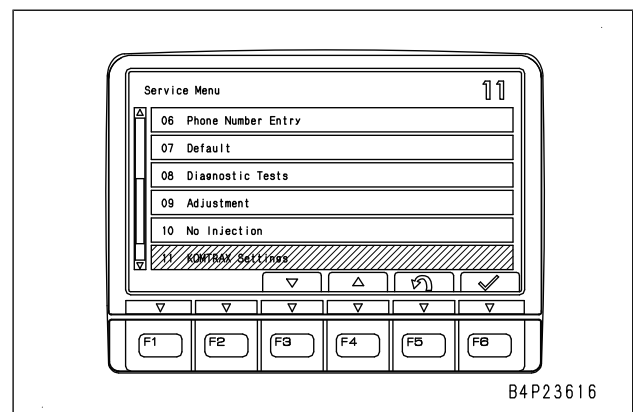
### Machine side inspection for KOMTRAX Communication opening

When the KOMTRAX terminal is replaced, KOMTRAX Communication opening must be done to check whether normal communication is available from the terminal.

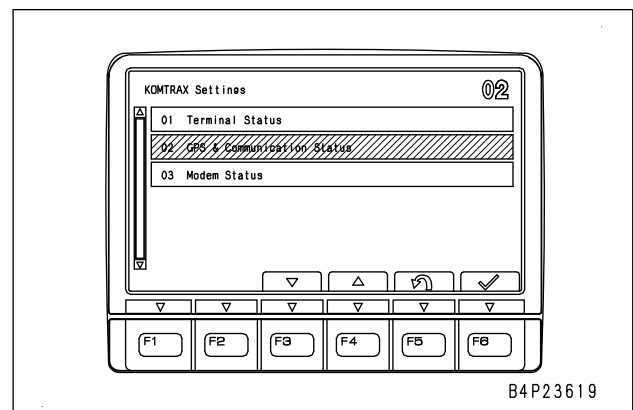
The above KOMTRAX Communication opening can be performed on the machine monitor.

- ★ To perform GPS and data communication check when communication opening, the machine should be desirably placed outside under an open sky. The KOMTRAX Communication opening may not be completed when the machine is placed indoor where radio wave from the satellite is blocked.

1. Selecting menu  
Select "KOMTRAX Settings" on "Service Menu" screen.

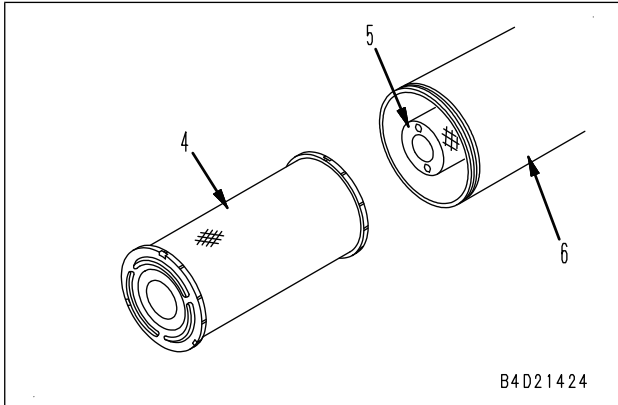


2. Selecting sub menu  
After "KOMTRAX Settings" screen is displayed, select "GPS & Communication State."

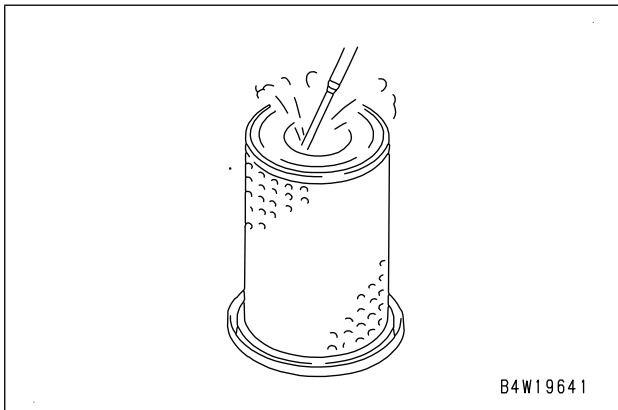


3. Implementation of KOMTRAX Communication opening
  - 1) After "GPS & Communication State" screen is displayed, perform the following operation.

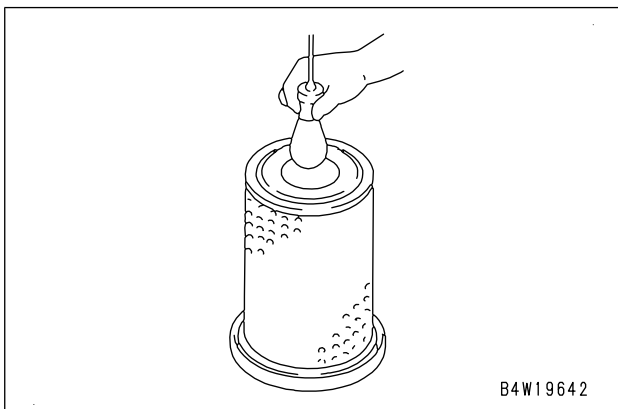
Failure code [DAJ2KK] HST controller: Output voltage low .....	40-421
Failure code [DAJ5KK] HST: Sensor volt 5V (0) Out of normal range .....	40-423
Failure code [DAJ6KK] HST: Sensor volt 5V (1) Out of normal range .....	40-425
Failure code [DAJLKA] Operating Lamp Open Circuit (HST Con) .....	40-427
Failure code [DAJLKB] Operating Lamp Short Circuit (HST Con) .....	40-429
Failure code [DAJPMA] Inconsistency of Option Selection (HST) .....	40-430
Failure code [DAJQKR] CAN2 Discon ( HST Con) .....	40-431
Failure code [DAJRKR] CAN1 Discon ( HST Con) .....	40-432
Failure code [DB2QKR] CAN2 Discon (Engine Con) .....	40-433
Failure code [DB2RKR] CAN1 Discon (Engine Con) .....	40-438
Failure code [DBR0KT] ICT Controller: Abnormality in controller .....	40-443
Failure code [DBR0MC] ICT Con Error.....	40-444
Failure code [DBR1KK] ICT controller: Source voltage low .....	40-445
Failure code [DBR2KK] ICT controller: Output voltage low .....	40-447
Failure code [DBR5KK] ICT: Sensor volt 5V (0) Out of normal range.....	40-449
Failure code [DBRLKA] Operating Lamp Open Circuit (ICT Con).....	40-451
Failure code [DBRLKB] Operating Lamp Short Circuit (ICT Con).....	40-453
Failure code [DBRPMA] Inconsistency of Option Selection (ICT).....	40-454
Failure code [DBRQKR] CAN2 Discon (ICT Con).....	40-455
Failure code [DBRRKR] CAN1 Discon (ICT Con).....	40-458
Failure code [DBTSKR] LAN Discon (iB Monitor) .....	40-459
Failure code [DBUTKA] GNSS Antenna Open Circuit.....	40-461
Failure code [DD12KA] Shift up SW: Open .....	40-462
Failure code [DD12KB] Shift up SW: Short Circuit .....	40-464
Failure code [DD13KA] Shift down SW: Open.....	40-466
Failure code [DD13KB] Shift down SW: Short Circuit.....	40-468
Failure code [DD14KA] Parking lever SW: Open.....	40-470
Failure code [DD14KB] Parking lever SW: Short circuit.....	40-472
Failure code [DDKAKA] Blade float Sw: Open .....	40-474
Failure code [DDKAKB] Blade float Sw: Short circuit .....	40-476
Failure code [DDKFL4] Left Angle Sw: Signal mismatch .....	40-478
Failure code [DDKGL4] Right Angle Sw: Signal mismatch .....	40-480
Failure code [DDKHKA] iB Sw: Open .....	40-482
Failure code [DDKHKB] iB Sw: Short circuit.....	40-484
Failure code [DDNLKA] Weq lock Sw: Open.....	40-486
Failure code [DDNLKB] Weq lock Sw: Short circuit .....	40-488
Failure code [DDP6KA] Brake Pressure Sensor: Open.....	40-490
Failure code [DDP6KB] Brake Pressure Sensor: Hot Short .....	40-492
Failure code [DDP6MA] Brake pressure sensor: Malfunction .....	40-494
Failure code [DDU1FS] Parking lever Switch 2: Signal mismatch .....	40-496
Failure code [DDU1KA] Parking lever Sw2: Open .....	40-498
Failure code [DDU1KY] Parking lever Sw2: Hot Short .....	40-500
Failure code [DFA4KX] Blade lift lever: Main and Sub Error .....	40-502
Failure code [DFA4KZ] Blade lift lever: Main and Sub Error.....	40-503
Failure code [DFA4L8] Blade lift lever: Signal mismatch .....	40-504
Failure code [DFA5KA] Blade lift lever1: Open .....	40-505
Failure code [DFA5KB] Blade lift lever1: Hot Short .....	40-508
Failure code [DFA6KA] Blade lift lever2: Open .....	40-510
Failure code [DFA6KB] Blade lift lever2: Hot Short .....	40-512
Failure code [DFA7KX] Blade tilt lever: Main and Sub Error .....	40-514
Failure code [DFA7KZ] Blade tilt lever: Main and Sub Error.....	40-515
Failure code [DFA7L8] Blade tilt lever: Signal mismatch .....	40-516
Failure code [DFA8KA] Blade tilt lever1: Open .....	40-517
Failure code [DFA8KB] Blade tilt lever1: Hot Short .....	40-520
Failure code [DFA9KA] Blade tilt lever2: Open .....	40-522
Failure code [DFA9KB] Blade tilt lever2: Hot Short .....	40-525
Failure code [DGS1KA] HST oil temp sensor: Open .....	40-527
Failure code [DGS1KX] HST oil temp sensor: Out of normal range .....	40-529
Failure code [DH21KA] Weq pressure sensor: Open .....	40-530



5. Blow dry compressed air (Max. 196 kPa {Max. 2 kg/cm<sup>2</sup>}) from the inside of the outer element along the folds.
6. Then blow it from outside along the folds, and finally blow it from the inside again.

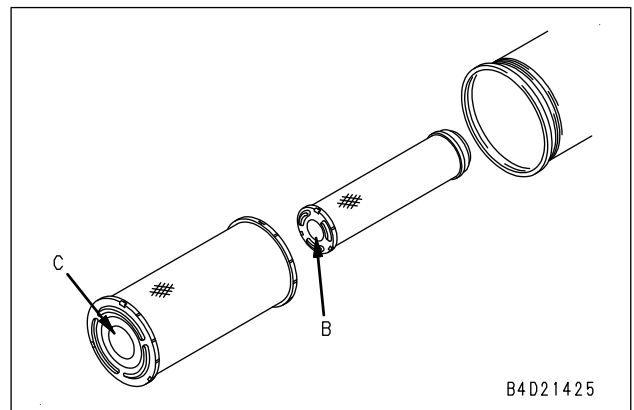


- ★ After clearing the element, throw light on its inside using a light bulb to check it. If it has a small hole or thin part, replace it.



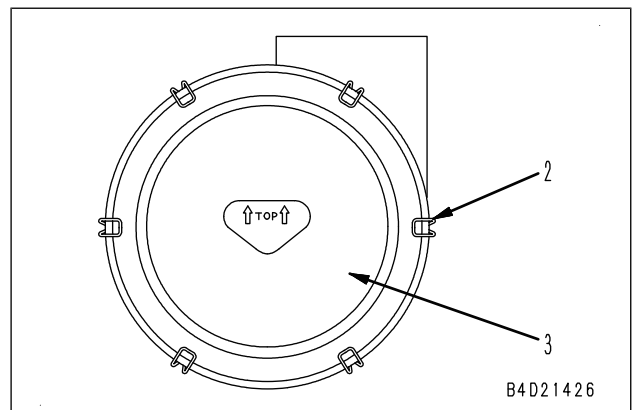
7. Remove the cover of cloth or tape attached to inner element (6).
  8. Check the seal of the cleaned or new element for adhesion of dusts and oil and wipe them off, if any.
- ★ Do not use an element or O-ring that has been in service for a year since trying to use them after cleaning most probably induces troubles.

- ★ Do not use the element if its folds or gasket or seal are damaged.
9. Push the outer element straight backward into the air cleaner body with your hands while moving it up and down, right and left.
- ★ When installing the air cleaner elements, set it in such that their cylinder bottoms (side without a hole) B and C come to cover (3) side.
- Installing them in an opposite direction can induce serious troubles including damage on the air cleaner elements and engine.



10. Install cover (3) according to the following procedure.

- 1) Align cover (3) with the element.



- 2) Lock the tip of hook (2) on the protrusion of the air cleaner body.

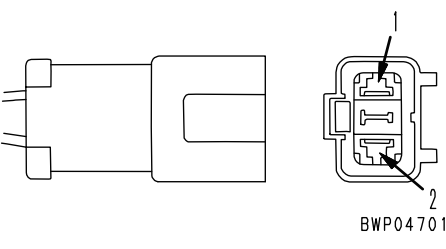
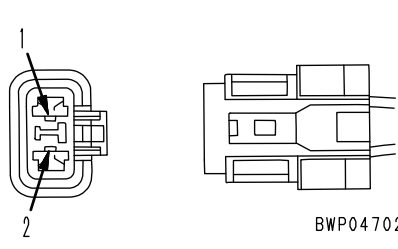
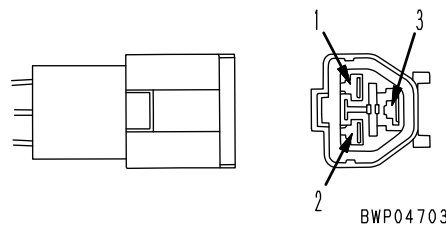
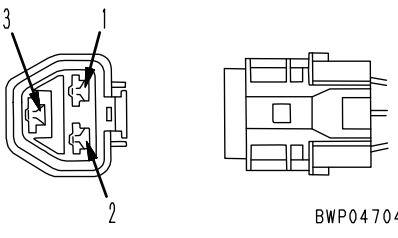
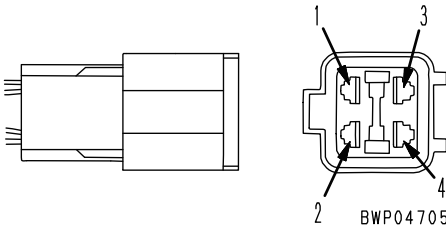
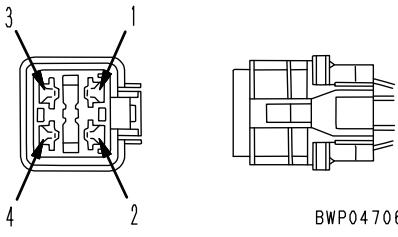
- ★ Lock the tip of hooks (2) diagonally (top and bottom, and right and left).
- ★ After installing cover (3), check presence of clearance between the air cleaner body and cover (3). If any, install the cover again.

No.	Symptom of failure	Troubleshooting
		Index
126	When starting switch is turned to ON position, reverse mode switch LED does not light up or does not go out.	E-78
127	When reverse leveling mode switch is pressed, buzzer does not sound. (machine does not switch to reverse leveling mode)	E-79

Connector contact identification (ALL-5310-030-A-00-A)

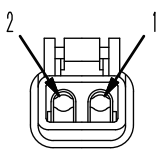
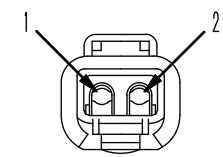
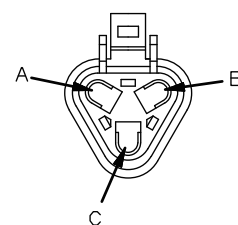
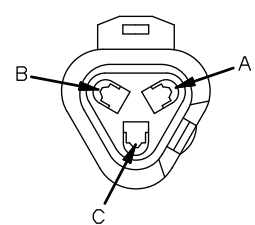
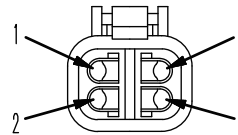
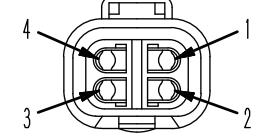
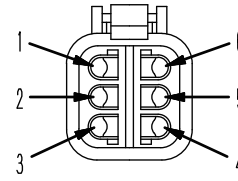
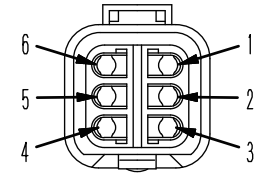
(Rev. 2014. 08)

★ The terms of male and female refer to the pins, while the terms of male housing and female housing refer to the mating portion of the housing.

No. of pins	X type connector		
	Male (female housing)	Female (male housing)	Testing connection use special tool Part No.
1	Part No. : 08055-00181	Part No. : 08055-00191	99-601-7010 (T-adapter)
2	 <p>BWP04701</p>	 <p>BWP04702</p>	799-601-7020 (T-adapter)
	Part No. : 08055-00282	Part No. : 08055-00292	
3	 <p>BWP04703</p>	 <p>BWP04704</p>	799-601-7030 (T-adapter)
	Part No. : 08055-00381	Part No. : 08055-00391	
4	 <p>BWP04705</p>	 <p>BWP04706</p>	799-601-7040 (T-adapter)
	Part No. : 08055-00481	Part No. : 08055-00491	
—	Terminal part No. : 79A-222-3370 ·Electric wire size: 0.85 ·Grommet:Black ·Q'ty: 20	Terminal part No. : 79A-222-3390 ·Electric wire size: 0.85 ·Grommet:Black ·Q'ty: 20	—
—	Terminal part No. : 79A-222-3380 ·Electric wire size: 2.0 ·Grommet:Red ·Q'ty: 20	Terminal part No. : 79A-222-3410 ·Electric wire size: 2.0 ·Grommet:Red ·Q'ty: 20	—

B4D18190

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

No. of pins	DT Series connector		
	Body (plug)	Body (receptacle)	Testing connection use special tool Part No.
2	 BWP05037	 BWP05038	799-601-9020 (T-adapter) 799-601-9890 (T-adapter)
	Part No. :08192-12200 (normal type) 08192-22200 (fine wire type)	Part No. :08192-12100 (normal type) 08192-22100 (fine wire type)	
3	 BWP05039	 BWP05040	799-601-9030 (T-adapter) 799-601-9890 (T-adapter)
	Part No. :08192-1A200 (normal type) 08192-2A200 (fine wire type)	Part No. :08192-13100 (normal type) 08192-23100 (fine wire type)	
4	 BWP05041	 BWP05042	799-601-9040 (T-adapter) 799-601-9890 (T-adapter)
	Part No. :08192-14200 (normal type) 08192-24200 (fine wire type)	Part No. :08192-14100 (normal type) 08192-24100 (fine wire type)	
6	 BWP05043	 BWP05044	799-601-9050 (T-adapter)
	Part No. :08192-16200 (normal type) 08192-26200 (fine wire type)	Part No. :08192-16100 (normal type) 08192-26100 (fine wire type)	

B4D18410



Failure code	Failure (Displayed on screen)	Controller	Action level	Category history	Remarks
DBRLKB	Failure code [DBRLKB] Operating Lamp Short Circuit (ICT Con)(PAGE 40-453)	ICT	L01	Electrical system	*
DBRPMA	Failure code [DBRPMA] Inconsistency of Option Selection (ICT)(PAGE 40-454)	ICT	L01	Electrical system	*
DBRQKR	Failure code [DBRQKR] CAN2 Discon (ICT Con)(PAGE 40-455)	ICT	L01	Electrical system	*
DBRRKR	Failure code [DBRRKR] CAN1 Discon (ICT Con)(PAGE 40-458)	ICT	L01	Electrical system	*
DBTSKR	Failure code [DBTSKR] LAN Discon (iB Monitor) (PAGE 40-459)	ICT	L01	Electrical system	*
DBUTKA	Failure code [DBUTKA] GNSS Antenna Open Circuit(PAGE 40-461)	ICT	L01	Electrical system	*
DD12KA	Failure code [DD12KA] Shift up SW: Open (PAGE 40-462)	HST	L03	Electrical system	*
DD12KB	Failure code [DD12KB] Shift up SW: Short Circuit(PAGE 40-464)	HST	L03	Electrical system	*
DD13KA	Failure code [DD13KA] Shift down SW: Open (PAGE 40-466)	HST	L03	Electrical system	*
DD13KB	Failure code [DD13KB] Shift down SW: Short Circuit(PAGE 40-468)	HST	L03	Electrical system	*
DD14KA	Failure code [DD14KA] Parking lever SW: Open (PAGE 40-470)	HST	L03	Electrical system	*
DD14KB	Failure code [DD14KB] Parking lever SW: Short circuit(PAGE 40-472)	HST	L03	Electrical system	*
DDKAKA	Failure code [DDKAKA] Blade float Sw: Open (PAGE 40-474)	HST	L01	Electrical system	
DDKAKB	Failure code [DDKAKB] Blade float Sw: Short circuit(PAGE 40-476)	HST	L01	Electrical system	
DDKFL4	Failure code [DDKFL4] Left Angle Sw: Signal mismatch(PAGE 40-478)	HST	L01	Electrical system	
DDKGL4	Failure code [DDKGL4] Right Angle Sw: Signal mismatch(PAGE 40-480)	HST	L01	Electrical system	
DDKHKA	Failure code [DDKHKA] iB Sw: Open(PAGE 40-482)	HST	L01	Electrical system	*
DDKHKB	Failure code [DDKHKB] iB Sw: Short circuit (PAGE 40-484)	HST	L01	Electrical system	*
DDNLKA	Failure code [DDNLKA] Weq lock Sw: Open (PAGE 40-486)	HST	L03	Electrical system	*
DDNLKB	Failure code [DDNLKB] Weq lock Sw: Short circuit(PAGE 40-488)	HST	L03	Electrical system	*
DDP6KA	Failure code [DDP6KA] Brake Pressure Sensor: Open(PAGE 40-490)	HST	L03	Electrical system	*
DDP6KB	Failure code [DDP6KB] Brake Pressure Sensor: Hot Short(PAGE 40-492)	HST	L03	Electrical system	*
DDP6MA	Failure code [DDP6MA] Brake pressure sensor: Malfunction(PAGE 40-494)	HST	L03	Electrical system	*
DDU1FS	Failure code [DDU1FS] Parking lever Switch 2: Signal mismatch(PAGE 40-496)	HST	L03	Electrical system	*
DDU1KA	Failure code [DDU1KA] Parking lever Sw2: Open(PAGE 40-498)	HST	L03	Electrical system	*
DDU1KY	Failure code [DDU1KY] Parking lever Sw2: Hot Short(PAGE 40-500)	HST	L03	Electrical system	*
DFA4KX	Failure code [DFA4KX] Blade lift lever: Main and Sub Error(PAGE 40-502)	HST	L01	Electrical system	*
DFA4KZ	Failure code [DFA4KZ] Blade lift lever: Main and Sub Error(PAGE 40-503)	HST	L01	Electrical system	*

**Failure code [B@BCNS] Eng Water Overheat** (PC400-BaBCNS-400-A-Z0-A)

Action level	Failure code	Failure	Engine Water Overheat (Engine controller system)
L02	B@BCNS		
Detail of failure	<ul style="list-style-type: none"> <li>While engine is running, voltage from engine coolant temperature sensor drops, so engine controller determines that engine coolant is overheated.</li> </ul>		
Action of controller	<ul style="list-style-type: none"> <li>Displays engine coolant temperature monitor red on machine monitor.</li> </ul>		
Problem on machine	<ul style="list-style-type: none"> <li>If machine is operated as it is, engine may seize up.</li> </ul>		
Related information	<ul style="list-style-type: none"> <li>Signal voltage of engine coolant temperature sensor is input to engine controller that transmits information to machine monitor through CAN communication system.</li> <li>Engine coolant temperature can be checked with monitoring function (Code: 04107 Engine coolant temperature)</li> <li>Method of reproducing failure code: Start engine.</li> </ul>		

No.	Cause	Procedure, measuring location, criteria and remarks
1	Overheating of engine coolant (when system is normal)	Engine coolant may overheat. Check it and remove cause if it overheats.
2	Defective engine coolant temperature sensor system	If no failure is found by checks on cause 1, engine coolant temperature sensor system may be defective. Carry out troubleshooting for failure codes [CA144] and [CA145].

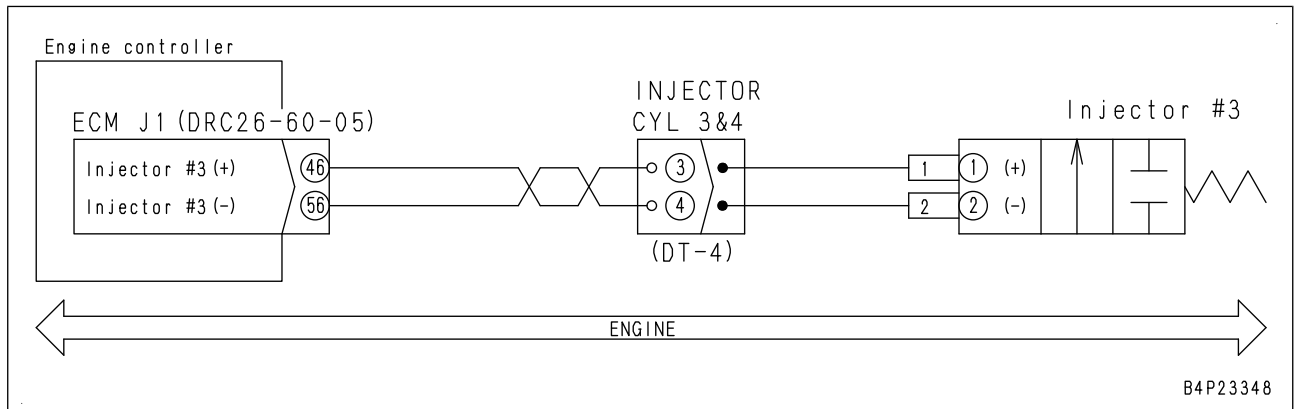
**Failure code [CA187] Sensor 2 Supply Volt Low Error** (PC200LC\_10-CA187-400-A-Z0-A)

Action level	Failure code	Failure	Sensor 2 Supply Voltage Low Error (Engine controller system)
L03	CA187		
Detail of failure	<ul style="list-style-type: none"> <li>Low voltage appears in sensor power supply 2 (5 V) circuit.</li> </ul>		
Action of controller	<ul style="list-style-type: none"> <li>Ignores signals from Bkup speed sensor and controls engine by using Ne speed sensor signals.</li> <li>Ignores signals from ambient pressure sensor and allows engine to run taking it that ambient pressure is at fixed value (52.44 kPa {0.53 kg/cm<sup>2</sup>}).</li> <li>Ignores signals from boost pressure sensor and allows engine to run taking it that boost pressure is at calculated value.</li> <li>Ignores signals from crankcase pressure sensor and allows engine to run taking it that crankcase pressure is at fixed value (0 kPa).</li> <li>Closes EGR valve.</li> <li>Limits engine output and allows engine to run.</li> <li>Stops KDPF regeneration control.</li> </ul>		
Problem on machine	<ul style="list-style-type: none"> <li>Engine output decreases.</li> </ul>		
Related information	<ul style="list-style-type: none"> <li>Method of reproducing failure code: Turn starting switch to ON position.</li> </ul>		

No.	Cause	Procedure, measuring location, criteria and remarks			
1	Defective wiring harness connector	1. See descriptions of wiring harness and connectors in "c: Electrical equipment" in "Checks before troubleshooting" of "General information on troubleshooting", and check it. 2. Turn starting switch to ON position.			
		If this failure code disappears, harness connector is defective. ★ If this failure code appears, perform following checks.			
2	Defective sensor or wiring harness	1. Turn starting switch to OFF position. 2. Disconnect following connectors one by one and turn starting switch to ON position each time. 3. Each time troubleshooting is finished, return to step 1.			
		If this failure code is not displayed, disconnected sensor or engine wiring harness is defective. ★ Other failure codes (many codes) are also displayed. They are generated because of disconnection of connector. Ignore failure codes other than [CA187].			
		Connector	Sensor and wiring harness	Connector	
			Cam (Bkup speed) sensor	CAM SENSOR	
			Boost pressure sensor	BOOST PRESS & IMT	
			Ambient pressure sensor	AMB. AIR PRESSURE	
			Crankcase pressure sensor	P57	
Engine harness	ECM J1				
3	Defective relevant system	If failure codes other than this code are displayed, perform troubleshooting for them.			
4	Defective engine controller	1. Turn starting switch to OFF position. 2. Disconnect connector ECM J1 and connect T-adapters to male side. 3. Turn starting switch to ON position with connector ECM J1 disconnected.			
		Voltage	Between ECM J1 (male) (60) and (59)	4.75 to 5.25 V	

No.	Cause	Procedure, measuring location, criteria and remarks	
6	Short circuit in wiring harness	1. Turn starting switch to OFF position. 2. Disconnect connectors ECM J1 and INJECTOR CYL 3 & 4, and connect T-adapters to female side of ECM J1.  ★ Check by using multimeter in continuity mode.	
		Continuity Between ECM J1 (female) (46) and each pin other than pin (46)	No continuity (No sound is heard)
		Between ECM J1 (female) (56) and each pin other than pin (56)	No continuity (No sound is heard)
7	Defective injector of other cylinder	If failure codes of other injectors are displayed, perform troubleshooting for them first.	
8	Defective injector harness of other cylinder	If failure codes of other injectors are displayed, perform troubleshooting for them first.	
9	Defective engine controller	If no failure is found by above checks, engine controller is defective. (Since this is an internal defect, troubleshooting cannot be performed.)	

**Circuit diagram related to injector #3**

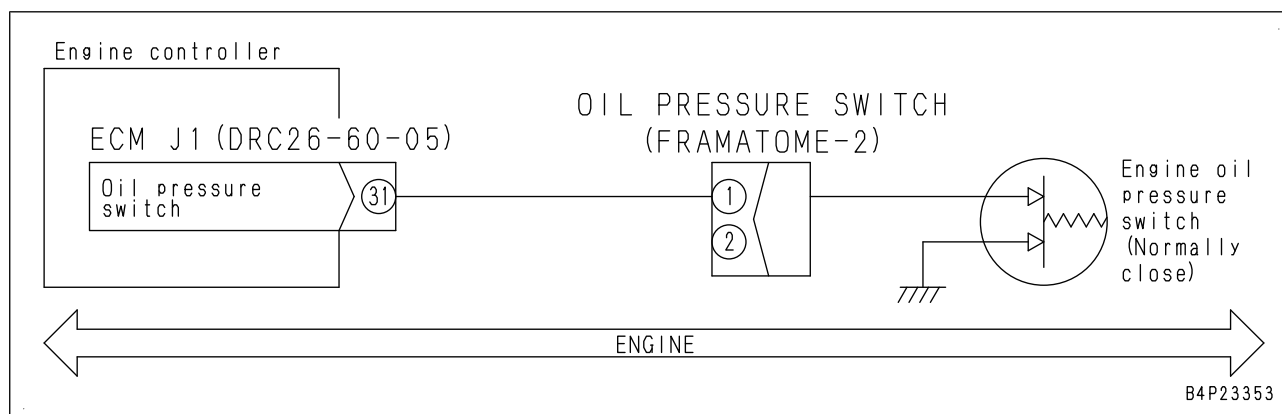


**Failure code [CA435] Eng Oil Press Sw Error** (D65-CA435-400-A-Z0-A)

Action level	Failure code	Failure	Engine Oil Pressure Switch Error (Engine controller system)
L01	CA435		
Detail of failure	<ul style="list-style-type: none"> <li>Failure occurs in engine oil pressure switch signal circuit.</li> </ul>		
Action of controller	<ul style="list-style-type: none"> <li>None in particular.</li> </ul>		
Problem on machine	<ul style="list-style-type: none"> <li>Protection function based on engine oil pressure does not work.</li> <li>Engine oil pressure monitor is not displayed normally.</li> </ul>		
Related information	<ul style="list-style-type: none"> <li>Method of reproducing failure code: Turn starting switch to ON position or start engine.</li> <li>Engine oil pressure switch is in CLOSED (ON) when oil pressure is low (when engine is stopped), but is in OPEN (OFF) when oil pressure is high (when engine is running).</li> <li>To generate this failure code, engine controller checks whether engine oil pressure switch is in CLOSED (ON) only when engine is stopped, that is, whether signal voltage is zero or not.</li> <li>Failure of engine oil pressure switch when engine is running is indicated by failure code [B@BAZG].</li> </ul> <p><b>⚠ When performing checking and replacement of engine oil pressure switch, open oil filler port, and check that engine oil temperature cools down enough not to get scalded.</b></p>		

No.	Cause	Procedure, measuring location, criteria and remarks		
1	Defective harness connector	1. See descriptions of wiring harness and connectors in "c: Electrical equipment" in "Checks before troubleshooting" of "General information on troubleshooting", and check it. 2. Turn starting switch to ON position.		
		If this failure code disappears, harness connector is defective. ★ If this failure code appears, perform following checks.		
2	Defective engine oil pressure switch	1. Turn starting switch to OFF position. 2. Disconnect connector OIL PRESSURE SWITCH and connect T-adapters to male side.		
		Resistance	Between OIL PRESSURE SWITCH (male) (1) and ground	Max. 10 Ω
3	Open circuit or ground fault in wiring harness	1. Turn starting switch to OFF position. 2. Disconnect connector ECM J1 and connect T-adapters to female side.		
		Resistance	Between ECM J1 (female) (31) and ground	Max. 10 Ω
4	Defective engine controller	If no failure is found by above checks, engine controller is defective. (Since this is an internal defect, troubleshooting cannot be performed.)		

**Circuit diagram related to engine oil pressure switch**

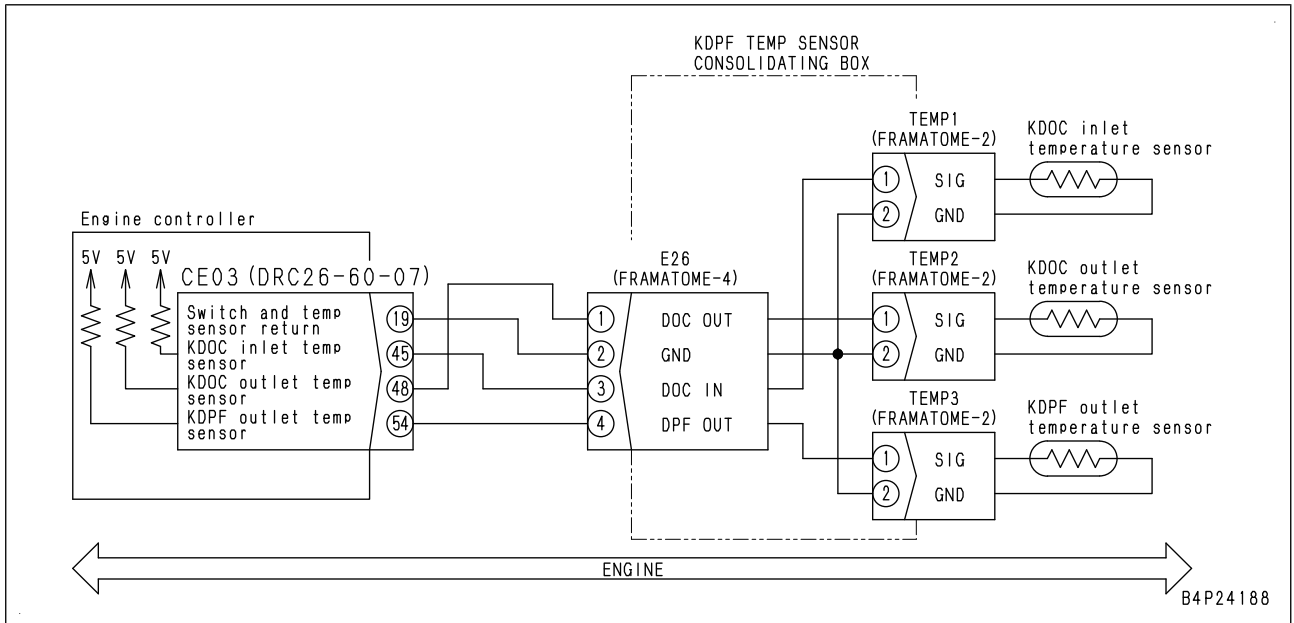


**Failure code [CA687] Turbo Speed Low Error** (D65-CA687-400-A-Z0-A)

Action level	Failure code	Failure	Turbocharger Speed Low Error (Engine controller system)
L01	CA687		
Details of failure	<ul style="list-style-type: none"> <li>Turbocharger turbine blade rotates at abnormally low speed.</li> </ul>		
Action of controller	Runs turbocharger speed at fixed value of 125000.		
Phenomenon on machine			
Related information	<ul style="list-style-type: none"> <li>Because sensor output is pulse waveform, it is not measured by using multimeter.</li> <li>Turbocharger speed in turbocharger speed sensor can be checked with monitoring function. (Code: 48100 (rpm))</li> <li>Engine speed can be checked by monitoring function. (Code: 01002 (rpm))</li> <li>Pressure (boost pressure) by charge pressure sensor (boost pressure sensor) can be checked by monitoring function. (Code: 36500 (kPa))</li> <li>This failure code is displayed if VGT speed sensor connector is disconnected.</li> <li>After repairing, check if the failure code is cleared by the following procedure.            Procedure: Start engine and sets engine speed to 1200 or higher, and set charge pressure sensor (boost pressure sensor) to approximately 120 or higher.</li> </ul>		

No.	Cause	Procedure, measuring location, criteria and remarks		
1	Defective VGT	If regeneration is defective or unusual noise is heard from VGT, perform following checks.		
		1. Move VGT vanes with hand in axial and radial directions to make judgement.		
		If VGTshaft does not rotate, KVGT is defective.		
2	Defective harness connector	1. See descriptions of wiring harness and connectors in "c: Electrical equipment" in "Checks before troubleshooting" of "General information on troubleshooting", and check it.		
		2. Turn starting switch to ON position.		
		If this failure code disappears, harness connector is defective.		
		★ If this failure code appears, perform following checks.		
3	Defective turbocharger speed sensor (internal defect)	1. Turn starting switch to OFF position.		
		2. Disconnect connector VGT_REV and connect T-adapters to female side.		
		Resistance	Between VGT_REV (female) (1) and (2)	600 to 1,600 Ω
4	Open or short circuit in wiring harness (short circuit, wire breakage or defective contact of connector)	1. Turn starting switch to OFF position.		
		2. Disconnect connector ECM J2 and connect T-adapters to female side.		
		Resistance	Between ECM J2 (female) (32) and (33)	600 to 1,600 Ω
5	Ground fault in wiring harness (contact with ground circuit)	1. Turn starting switch to OFF position.		
		2. Disconnect connectors ECM J2 and VGT_REV, and connect T-adapters to either female side.		
		Resistance	Between ground and ECM J2 (female) (32) or VGT_REV (female) (1)	Min. 100 kΩ
		Resistance	Between ground and ECM J2 (female) (33) or VGT_REV (female) (2)	Min. 100 kΩ
6	Short circuit in wiring harness (contact with ground circuit)	1. Turn starting switch to OFF position.		
		2. Disconnect connectors ECM J2 and VGT_REV, and connect T-adapters to either female side.		
		Resistance	Between ECM J2 (female) (32) and (33), or between VGT_REV (female) (1) and (2)	Min. 100 kΩ
7	Defective installation of sensor or defective speed sensing part	Turbocharger speed sensor may be installed incorrectly (loose fitting) or speed sensor parts (internal parts of KVGT) may be defective (due to thermal deformation). Check them.		

Circuit diagram related to KDOC and KDPF temperature sensors



Related information	<p>Factors for excessive soot accumulation</p> <ol style="list-style-type: none"> <li>1. Engine runs with light loads and cannot keep exhaust gas temperature high enough to burn soot in KDPF. <ul style="list-style-type: none"> <li>• If temperature of the gas entered into after-treatment system (KDPF) is low, a large amount of soot may accumulate.</li> <li>• To avoid the soot accumulation in KDPF, the engine must run under high load.</li> </ul> </li> <li>2. Engine has failure that leads to excessive black smoke.</li> <li>3. "Regeneration Disable" is set from the screen monitor. <ul style="list-style-type: none"> <li>• Even if the soot is accumulated, regeneration does not start automatically. You must move the machine to a safe place to release the "Regeneration Disable", and perform the regeneration.</li> </ul> </li> </ol> <p>★ Releasing method of "Regeneration Disable"  Select the "Cancel of Regeneration Disable" from the "KDPF Regeneration" screen and execute.  (For details, see Operation and Maintenance Manual, "Operation", "Handling KDPF", "Operation procedure of KDPF Regeneration Disable".)</p> <p>★ If another failure code is displayed (including when manual stationary regeneration is in progress), perform troubleshooting for it first.</p> <p>★ If failure code [CA1922] has been displayed originally, it changes to [CA1921] during troubleshooting process of [CA1922]. In such case, refer to failure code [CA1922].</p> <ul style="list-style-type: none"> <li>• Method of reproducing failure code: Turn starting switch to the ON position.</li> </ul>
---------------------	---

No.	Cause	Procedure, measuring location, criteria and remarks
1	Excessive KDPF (KCSF) soot accumulation level	<ol style="list-style-type: none"> <li>1. Check if the regeneration stop button is pressed down from the machine monitor. <ul style="list-style-type: none"> <li>★ If the regeneration stop button is pressed down, release it.</li> </ul> </li> <li>2. Start the engine.</li> <li>3. Make sure that machine is in safe condition.</li> <li>4. Perform manual stationary regeneration from user mode. <ul style="list-style-type: none"> <li>★ When the manual stationary regeneration is finished correctly, the repair is completed.</li> <li>★ If the regeneration does not complete within 3 hours, perform the troubleshooting of [CA2639].</li> <li>★ Check that failure code is not displayed after manual stationary regeneration is completed.</li> <li>★ If failure code [CA1922] or [CA2639] is displayed after manual stationary regeneration is completed, proceed to checks on cause 2.</li> </ul> </li> </ol>
2	Unusual exhaust gas color	<ul style="list-style-type: none"> <li>★ If failure code [CA1921], or [CA2639] is displayed after manual stationary regeneration is completed, perform following.</li> <li>★ For check of the exhaust gas color, see "30 Testing and adjusting", "Testing exhaust gas color".</li> <li>★ When checking the exhaust gas color, perform the "Regeneration Disable" from the machine monitor.</li> </ul> <ol style="list-style-type: none"> <li>1. Rapidly accelerate engine from low idle to high idle two times, and then keep engine running at high idle for 5 seconds. <ul style="list-style-type: none"> <li>• If excessive black smoke is exhausted when accelerating engine or running it at high idle, perform troubleshooting for "S-9 KDPF gets clogged in a short time".</li> </ul> </li> </ol> <ul style="list-style-type: none"> <li>★ It does not matter that black smoke particles are exhausted during engine acceleration but are not exhausted during running at high idle.</li> <li>★ Check that no failure code appears.</li> </ul>

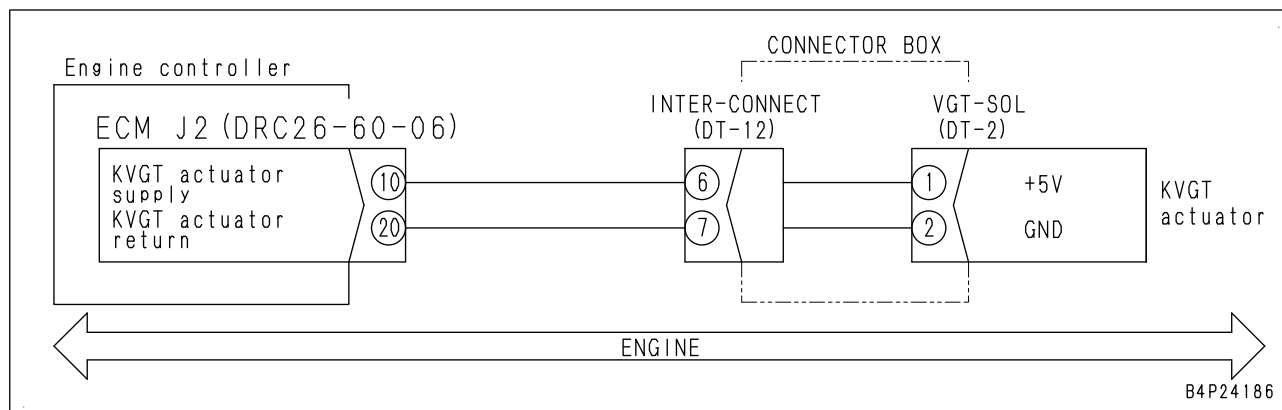
**Failure code [CA2311] IMV Solenoid Error** (D65-CA2311-400-A-Z0-A)

Action level	Failure code	Failure	Defective IMV solenoid (Engine controller system)
L03	CA2311		
Detail of failure	<ul style="list-style-type: none"> <li>Resistance value of supply pump actuator circuit is unusually high or low. Or rail pressure error.</li> </ul>		
Action of controller	<ul style="list-style-type: none"> <li>None in particular</li> </ul>		
Problem on machine	<ul style="list-style-type: none"> <li>Engine output lowers.</li> </ul>		
Related information	<ul style="list-style-type: none"> <li>Method of reproducing failure code: Start engine.</li> </ul>		

No.	Cause	Procedure, measuring location, criteria, and remarks
1	Defective IMV solenoid	Perform troubleshooting for failure codes [CA271] and [CA272].
2	Rail pressure error	Perform troubleshooting for failure code [CA449].

No.	Cause	Procedure, measuring location, criteria and remarks						
7	Open circuit in wiring harness (wire breakage or defective contact of connector)	★ If no failure is found by check on cause 3, this check is not required. 1. Turn starting switch to OFF position. 2. Disconnect connectors ECM J2 and INTER-CONNECT, and connect T-adapters to each female side.						
		<table border="1" style="width: 100%;"> <tr> <td style="width: 15%;">Resistance</td> <td style="width: 60%;">Between ECM J2 (female) (10) and INTER-CONNECT (female) (6)</td> <td style="width: 25%;">Max. 10 Ω</td> </tr> <tr> <td></td> <td>Between ECM J2 (female) (20) and INTER-CONNECT (female) (7)</td> <td>Max. 10 Ω</td> </tr> </table>	Resistance	Between ECM J2 (female) (10) and INTER-CONNECT (female) (6)	Max. 10 Ω		Between ECM J2 (female) (20) and INTER-CONNECT (female) (7)	Max. 10 Ω
		Resistance	Between ECM J2 (female) (10) and INTER-CONNECT (female) (6)	Max. 10 Ω				
	Between ECM J2 (female) (20) and INTER-CONNECT (female) (7)	Max. 10 Ω						
8	Ground fault in wiring harness (contact with ground circuit)	★ If no failure is found by check on cause 4, this check is not required. 1. Turn starting switch to OFF position. 2. Disconnect connectors ECM J2 and INTER-CONNECT, and connect T-adapters to each female side.						
		<table border="1" style="width: 100%;"> <tr> <td style="width: 15%;">Resistance</td> <td style="width: 60%;">Between ground and ECM J2 (female) (10) or INTER-CONNECT (female) (6)</td> <td style="width: 25%;">Min. 100 kΩ</td> </tr> </table>	Resistance	Between ground and ECM J2 (female) (10) or INTER-CONNECT (female) (6)	Min. 100 kΩ			
Resistance	Between ground and ECM J2 (female) (10) or INTER-CONNECT (female) (6)	Min. 100 kΩ						
9	Short circuit in wiring harness	1. Turn starting switch to OFF position. 2. Disconnect connectors ECM J2 and VGT-SOL, and connect T-adapters to female side of ECM J2.  ★ Check by using multimeter in continuity mode.						
		<table border="1" style="width: 100%;"> <tr> <td style="width: 15%;">Continuity</td> <td style="width: 60%;">Between ECM J2 (female) (10) and each pin other than pin (10)</td> <td style="width: 25%;">No continuity (No sound is heard)</td> </tr> </table>	Continuity	Between ECM J2 (female) (10) and each pin other than pin (10)	No continuity (No sound is heard)			
Continuity	Between ECM J2 (female) (10) and each pin other than pin (10)	No continuity (No sound is heard)						
10	Defective engine controller	If no failure is found by above checks, engine controller is defective. (Since this is an internal defect, troubleshooting cannot be performed.)						

**Circuit diagram related to KVGT solenoid**



**Failure code [CA2961] EGR Orifice Temp High Error 1** (D65-CA2961-400-A-Z0-A)

Action level	Failure code	Failure	EGR Orifice Temperature High Error 1 (Engine controller system)
L03	CA2961		
Detail of failure	<ul style="list-style-type: none"> <li>Output signal from EGR orifice temperature sensor exceeds upper control limit or it indicates value out of normal range.</li> </ul>		
Action of controller	<ul style="list-style-type: none"> <li>Limits engine output and allows engine to run.</li> </ul>		
Problem on machine	<ul style="list-style-type: none"> <li>Engine output decreases.</li> </ul>		
Related information	<ul style="list-style-type: none"> <li>Signal voltage from EGR orifice temperature sensor can be checked with monitoring function. (Code: 48501(V))</li> <li>Temperature sensed by EGR orifice temperature sensor can be checked with monitoring function. (Code: 48500 (°C))</li> <li>This failure code appears if sensor connector is disconnected.</li> <li>Method of reproducing failure code: Turn starting switch to ON position.</li> </ul>		

No.	Cause	Procedure, measuring location, criteria and remarks
1	Defective relevant system	If other failure codes are also displayed, perform troubleshooting for them.
2	Increasing of EGR gas temperature	EGR gas temperature may rise excessively. Perform troubleshooting for it.
3	Defective EGR orifice temperature sensor	EGR orifice temperature sensor system may be defective. Perform troubleshooting for failure codes [CA2375] and [CA2376].

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

## Failure code [CA3255] KDPF Temp Error - Non Regeneration (D61-CA3255-400-A-Z0-

A)

Action level	Failure code	Failure	KDPF Temperature Error - Non Regeneration (Engine controller system)
L03	CA3255		
Detail of failure	<ul style="list-style-type: none"> <li>KDPF outlet temperature remains at high level when active regeneration is not performed.</li> </ul>		
Action of controller	<ul style="list-style-type: none"> <li>Closes EGR valve</li> <li>Limits engine output and allows engine to run.</li> <li>Stops KDPF regeneration control.</li> </ul> <p>★ You can cancel above measures by "turning starting switch to OFF position once, then turning starting switch to ON position" after failure code is generated.</p>		
Problem on machine	<ul style="list-style-type: none"> <li>Engine output decreases.</li> </ul>		
Related information	<p><b>⚠ Since KDPF and KDOC are heated to 500°C or above, take care not to get burn injury.</b></p> <ul style="list-style-type: none"> <li>Temperature sensed by KDOC inlet temperature sensor can be checked with monitoring function. (Code: 47300 (°C))</li> <li>Temperature sensed by KDOC outlet temperature sensor can be checked with monitoring function. (Code: 47400 (°C))</li> <li>Temperature sensed by KDPF outlet temperature sensor can be checked with monitoring function. (Code: 47200 (°C))</li> <li>Temperature sensed by torque converter oil temperature sensor can be checked with monitoring function. (Code: 30100 (°C))</li> <li>As to procedure for accessing KDPF temperature sensor, see 50 Disassembly and assembly, "Removal and installation of KDPF assembly" and "Disassembly and assembly of KDPF".</li> <li>Engine controller stops approximately 30 seconds after starting switch is turned to OFF position. So when you restart engine, wait 1 minute minimum before turning starting switch to ON position again.</li> </ul> <p>★ If this failure code is displayed, it indicates that KCSF may be damaged. After completing the repair of the problem, check the exhaust gas color according to the following procedure. Replace the KCSF if the black smoke comes out of the exhaust pipe outlet.</p> <ol style="list-style-type: none"> <li>Start the engine, perform the quick acceleration from low idle to high idle two times, and then keep the engine running at high idle for 5 seconds.</li> <li>Check that the black smoke does not come out of the exhaust pipe outlet during this quick acceleration and high idling.</li> </ol>		
Machine operation for clearing failure code	<ul style="list-style-type: none"> <li>When this failure code appears, perform troubleshooting according to following work flow.</li> </ul> <p>A. Identification of cause and repair  ↓  B. Machine operation for clearing failure code</p> <p>★ This failure code does not disappear by simply turning starting switch to ON position from OFF position after repair. You must perform machine operation for clearing failure code after repair trouble.</p>		

### A. Identification of cause and repair

No.	Cause	Procedure, measuring location, criteria and remarks
1	Defective KDPF outlet temperature sensor	If failure code [CA3319], [CA3321] or [CA3322] is also displayed, perform troubleshooting for [CA3319], [CA3321] or [CA3322] first.
2	Defective wiring harness connector	1. See descriptions of wiring harness and connectors in "c: Electrical equipment" in "Checks before troubleshooting" of "General information on troubleshooting", and check it and fix trouble as needed.
3	Short circuit in wiring harness	<ol style="list-style-type: none"> <li>Turn starting switch to OFF position.</li> <li>Disconnect connectors CE03 and TEMP3 (KDPF outlet temperature sensor), and connect T-adaptor to female side of CE03.</li> </ol> <p>★ Check by using multimeter in continuity mode.</p>

No.	Cause	Procedure, measuring location, criteria and remarks			
2	Defective KDOC inlet temperature sensor	1. Turn starting switch to OFF position. 2. Disconnect connector TEMP1 (KDOC inlet temperature sensor) and connect T-adapter to male side. 3. Connect T-box to T-adapter and connect pins (1) and (2) of T-box with jumper cable. ★ To connect ground line to signal line 4. Turn starting switch to ON position.			
		If this failure code changes to [CA3313], KDOC inlet temperature sensor is defective. ★ If this failure code remains displayed, wiring harness or engine controller is defective.			
		• Reference 1. Turn starting switch to OFF position. 2. Disconnect connector TEMP1 and connect T-adapter to female side.			
		Resistance	Between TEMP1 (female) (1) and (2) ★ Temperature-Resistance characteristics	-10°C	33 to 65 kΩ
				0°C	25 to 47 kΩ
				50°C	7.8 to 12.2 kΩ
				100°C	3.2 to 4.5 kΩ
400°C	200 to 240 Ω				
700°C	64 to 69 Ω				
3	Open or short circuit in wiring harness (including wiring harness in KDPF temperature sensor consolidating box)	1. Turn starting switch to OFF position. 2. Disconnect connector CE03, and connect T-adapter to female side.			
		Resistance	Between CE03 (female) (45) and (19) ★ Use above Temperature-Resistance characteristics as resistance criteria.	64 Ω to 65 kΩ	
4	Open circuit in wiring harness (wire breakage or defective contact of connector) (including wiring harness in KDPF temperature sensor consolidating box)	★ If no failure is found by check on cause 3, this check is not required. 1. Turn starting switch to OFF position. 2. Disconnect connectors CE03 and TEMP1, and connect T-adapters to female side of CE03 and male side of TEMP1.			
		Resistance	Between CE03 (female) (45) and TEMP1 (male) (1)	Max. 10 Ω	
			Between CE03 (female) (19) and TEMP1 (male) (2)	Max. 10 Ω	
5	Short circuit in wiring harness (including wiring harness in KDPF temperature sensor consolidating box)	1. Turn starting switch to OFF position. 2. Disconnect connectors CE03 and TEMP 1, and connect T-adapter to female side of CE03. ★ Check by using multimeter in continuity mode.			
		Continuity	Between CE03 (female) (45) and each pin other than pin (45)	No continuity (No sound is heard)	

No.	Cause	Procedure, measuring location, criteria and remarks		
6	Defective KDPF temperature sensor consolidating box	★ If no failure is found by checks on causes 3 to 5, this check is not required. 1. Turn starting switch to OFF position. 2. Disconnect connector E26 and connect T-adaptor to male side. 3. Disconnect connectors TEMP1, TEMP2, and TEMP3, and connect T-adaptor to male side of TEMP3.		
		Resistance	★ If no failure is found by check on cause 3 or 4, this check is not required. Between E26 (male) (2) and TEMP3 (male) (2)	Max. 10 Ω
			★ If no failure is found by check on cause 3 or 4, this check is not required. Between E26 (male) (4) and TEMP3 (male) (1)	Max. 10 Ω
			★ If no failure is found by check on cause 5, this check is not required. Between E26 (male) (4) and each pin other than pin (4)	Min. 100 kΩ
7	Open circuit in wiring harness (wire breakage or defective contact of connector)	★ If no failure is found by check on cause 3 or 4, this check is not required. 1. Turn starting switch to OFF position. 2. Disconnect connectors CE03 and E26, and connect T-adaptor to each female side.		
		Resistance	Between CE03 (female) (54) and E26 (female) (4)	Max. 10 Ω
			Between CE03 (female) (19) and E26 (female) (2)	Max. 10 Ω
8	Short circuit in wiring harness	★ If no failure is found by check on cause 5, this check is not required. 1. Turn starting switch to OFF position. 2. Disconnect connectors CE03 and E26, and connect T-adaptor to female side of CE03.  ★ Check by using multimeter in continuity mode.		
		Continuity	Between CE03 (female) (54) and each pin other than pin (54)	No continuity (No sound is heard)
9	Defective engine controller	1. Turn starting switch to ON position. 2. If this failure code appears, perform procedure for <How to clear failure code> in "Related information".		
		If this failure code is still displayed and no failure is found by above checks, engine controller is defective. (Since this is an internal defect, troubleshooting cannot be performed.)		

**Failure code [D19JKZ] Personal Code Relay Abnormality** (D61-D19JKZ-400-A-Z0-A)

Action level	Failure code	Failure	Personal Code Relay Abnormality (Machine monitor system)
L03	D19JKZ		
Detail of failure	<ul style="list-style-type: none"> <li>Open error or short circuit occurs in primary (coil) circuit of personal code relay.</li> </ul>		
Action of machine monitor	<ul style="list-style-type: none"> <li>None in particular (when open error occurred)</li> <li>Stops driving personal code relay (when short circuit occurred).</li> <li>If cause of failure disappears, machine becomes normal by itself (when open error occurred).</li> <li>Even if cause of failure disappears, machine does not become normal until starting switch is turned to OFF position (when short circuit occurred).</li> </ul>		
Problem on machine			
Related information	<ul style="list-style-type: none"> <li>This failure code is displayed only when engine lock function is enabled.</li> <li>Method of reproducing failure code: Turn starting switch to ON position (when open circuit occurred). Failure code cannot be reproduced on the machine (when short circuit occurred).</li> <li>Troubleshooting for this failure code covers circuits from fuse No. 5 in fuse box F01 through primary (coil) circuit of personal code relay PLR to machine monitor.</li> </ul>		

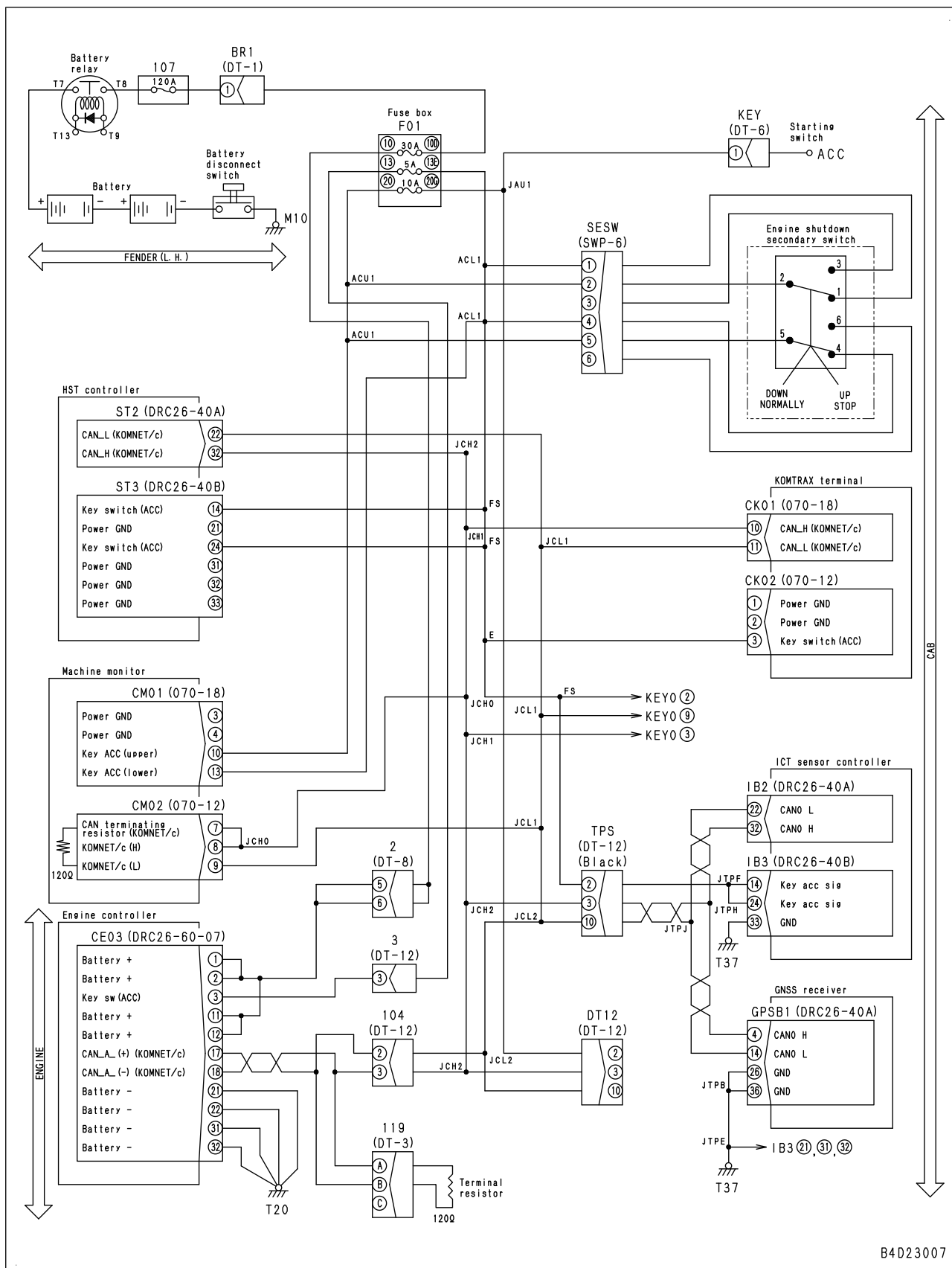
No.	Cause	Procedure, measuring location, criteria and remarks	
1	Defective No.5 in fuse box F01	If fuse is blown, circuit may have ground fault.	
2	Defective personal code relay PLR	1. Turn starting switch to OFF position. 2. Disconnect relay PLR and connect T-adapter to male side.	
		Resistance	Between PLR (male) (1) and (2) 200 to 600 Ω
3	Open circuit, short circuit, or ground fault in wiring harness	1. Turn starting switch to OFF position. 2. Remove fuse No. 5 in fuse box F01. 3. Disconnect connector CM01, and connect T-adapter to female side.	
		Resistance	Between F01-5 and CM01 (female) (6) Between ground and F01-5 or CM01 (female) (6) 200 to 600 Ω Min. 1 MΩ
4	Open circuit in wiring harness	★ If no failure is found by check on cause 3, this check is not required. 1. Turn starting switch to OFF position. 2. Remove fuse No. 5 in fuse box F01. 3. Remove connector CM01 and relay PLR, and connect T-adapter to each female side.	
		Resistance	Between F01-5 and PLR (female) (1) Between PLR (female) (2) and CM01 (female) (6) Max. 1 Ω Max. 1 Ω
5	Ground fault in wiring harness	★ If no failure is found by check on cause 3, this check is not required. 1. Turn starting switch to OFF position. 2. Remove fuse No. 5 in fuse box F01. 3. Remove connector CM01 and relay PLR, and connect T-adapter to either female side.	
		Resistance	Between ground and F01-5 or PLR (female) (1) Between ground and PLR (female) (2) or CM01 (female) (6) Min. 1 MΩ Min. 1 MΩ

**Failure code [DAJ0KT] HST controller: Abnormality in controller** (D61-DAJ0KT-

400-A-Z0-A)

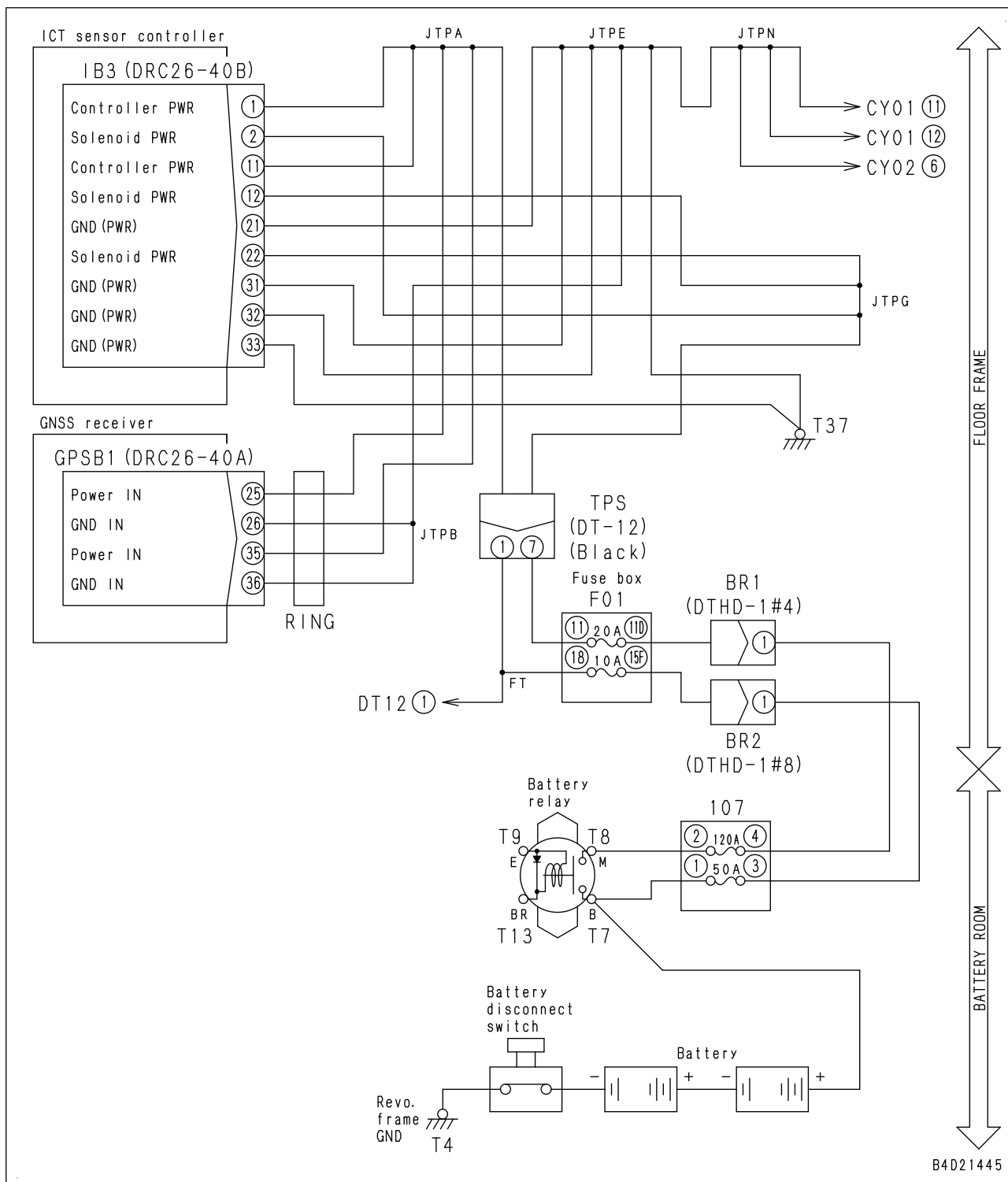
Action level	Failure code	Failure	HST controller: Abnormality in controller (HST controller system)
L03	DAJ000		
Detail of failure	<ul style="list-style-type: none"> <li>Information in ROM (non-volatile memory) of HST controller is abnormal. (Both of main area memory and backup area data are abnormal.)</li> </ul>		
Action of controller	<ul style="list-style-type: none"> <li>Displays the system abnormality on the machine monitor.</li> <li>Restrict the throttle to the 50% upper limit.</li> <li>Restrict the gear speed to the second gear.</li> <li>Clears the entire memory, and uses the default values.</li> </ul>		
Problem on machine	<ul style="list-style-type: none"> <li>System may not function normally.</li> <li>The machine may not reach the top speed.</li> <li>The straight movement may fail when the machine starts.</li> <li>When steered, the pivot turn and counter-rotation turn may have a displacement.</li> <li>When breaking, the breaking start point and the breaking pedal position may differ from each other.</li> <li>Since the machine model setting is also cleared, failure code [DAJ0KQ] is also generated.</li> </ul>		
Related information	<ul style="list-style-type: none"> <li>Method of reproducing failure code: Turn starting switch to ON position.</li> </ul>		
No.	Cause	Procedure, measuring location, criteria and remarks	
1	Defective HST controller	Since this is internal defect, troubleshooting cannot be performed. (If there is no visible failure on machine after machine model setting and initial adjustment, controller may be used as it is.)	
2	Open circuit or ground fault in wiring harness	Since the power voltage (VB) of HST controller may drop during data writing in memory, perform troubleshooting for failure code [DAJ1KK].	

Circuit diagram related CAN2 communication



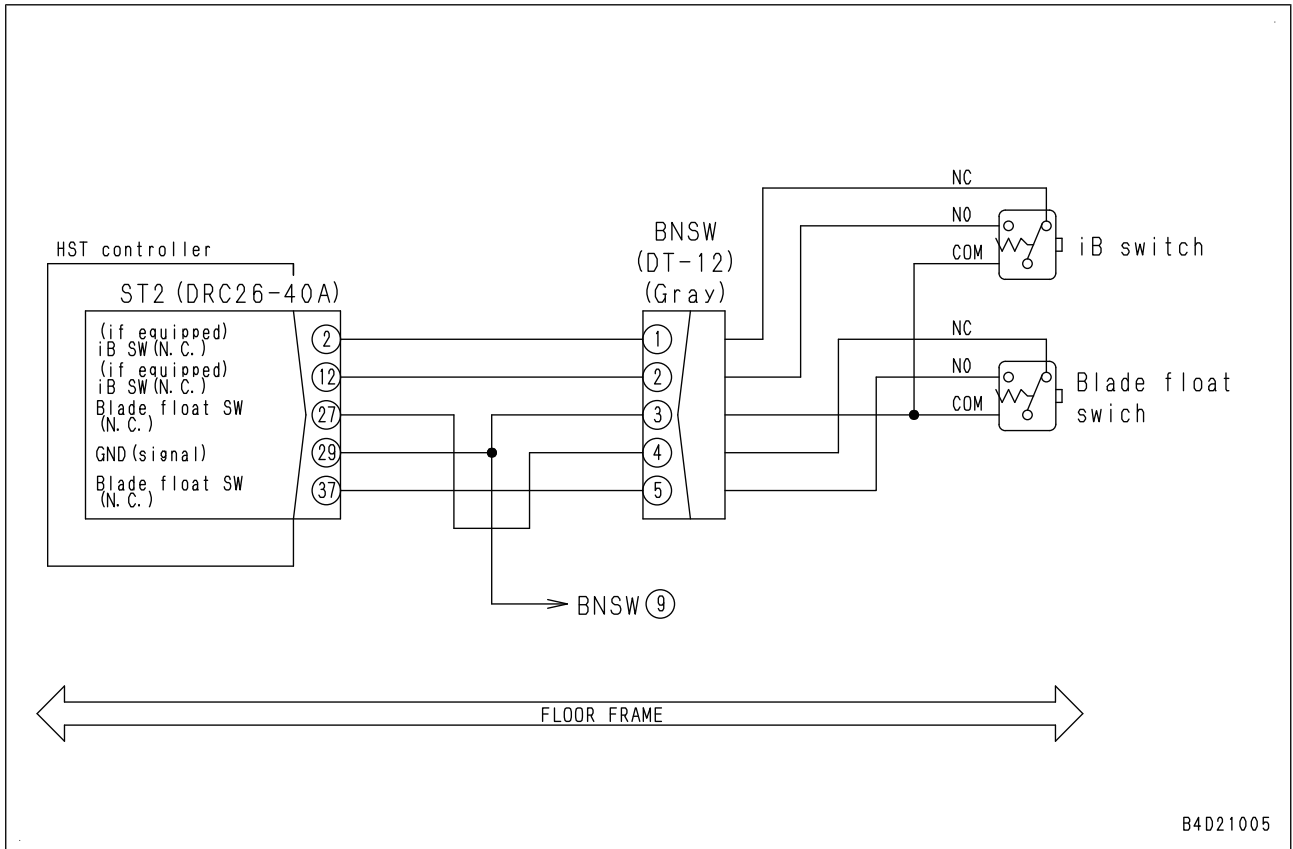
B4D23007

Circuit diagram related to ICT sensor controller solenoid power supply



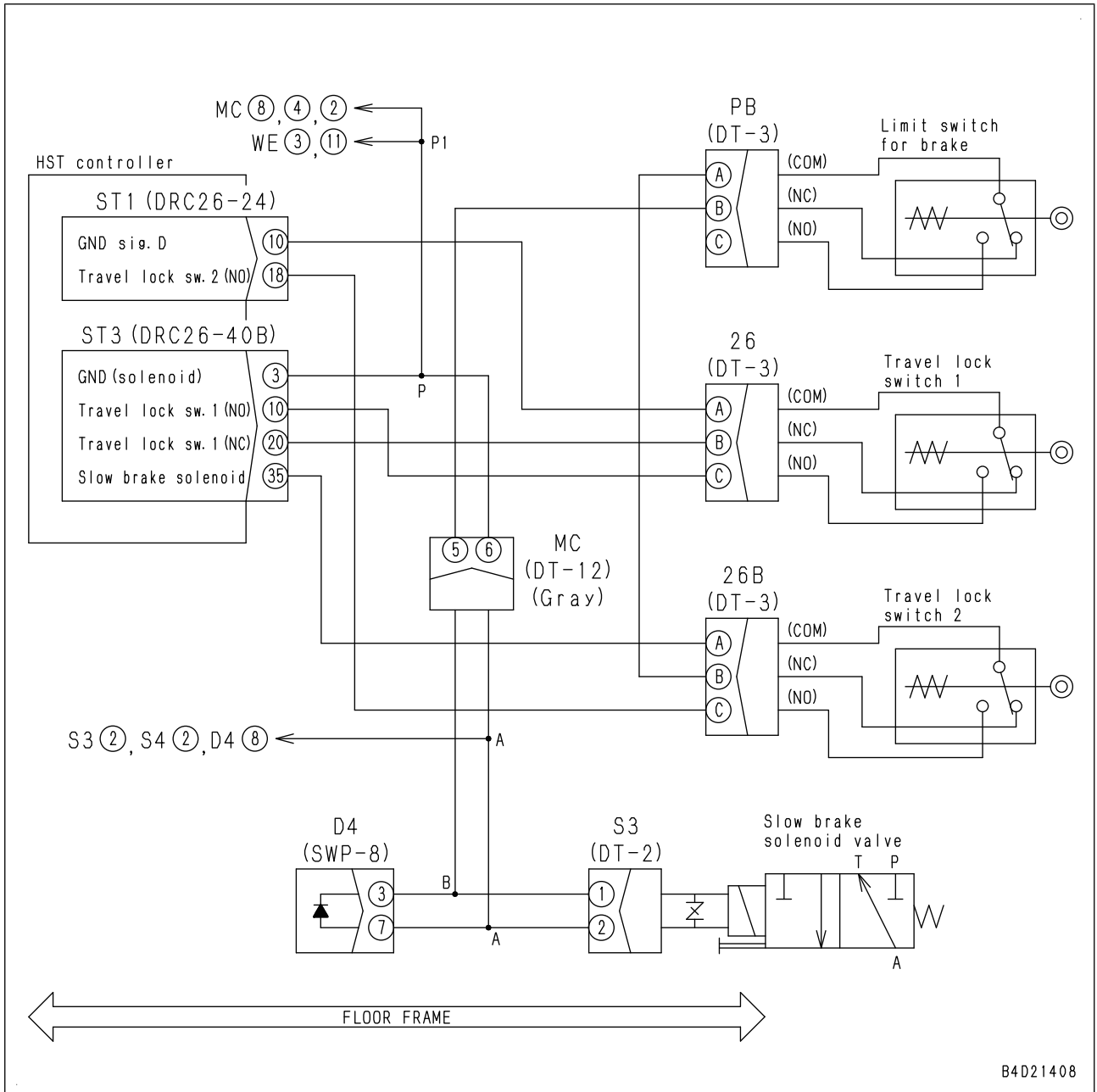
B4D21445

Circuit diagram related to blade float switch



B4D21005

Circuit diagram related to parking brake lever switch



B4D21408

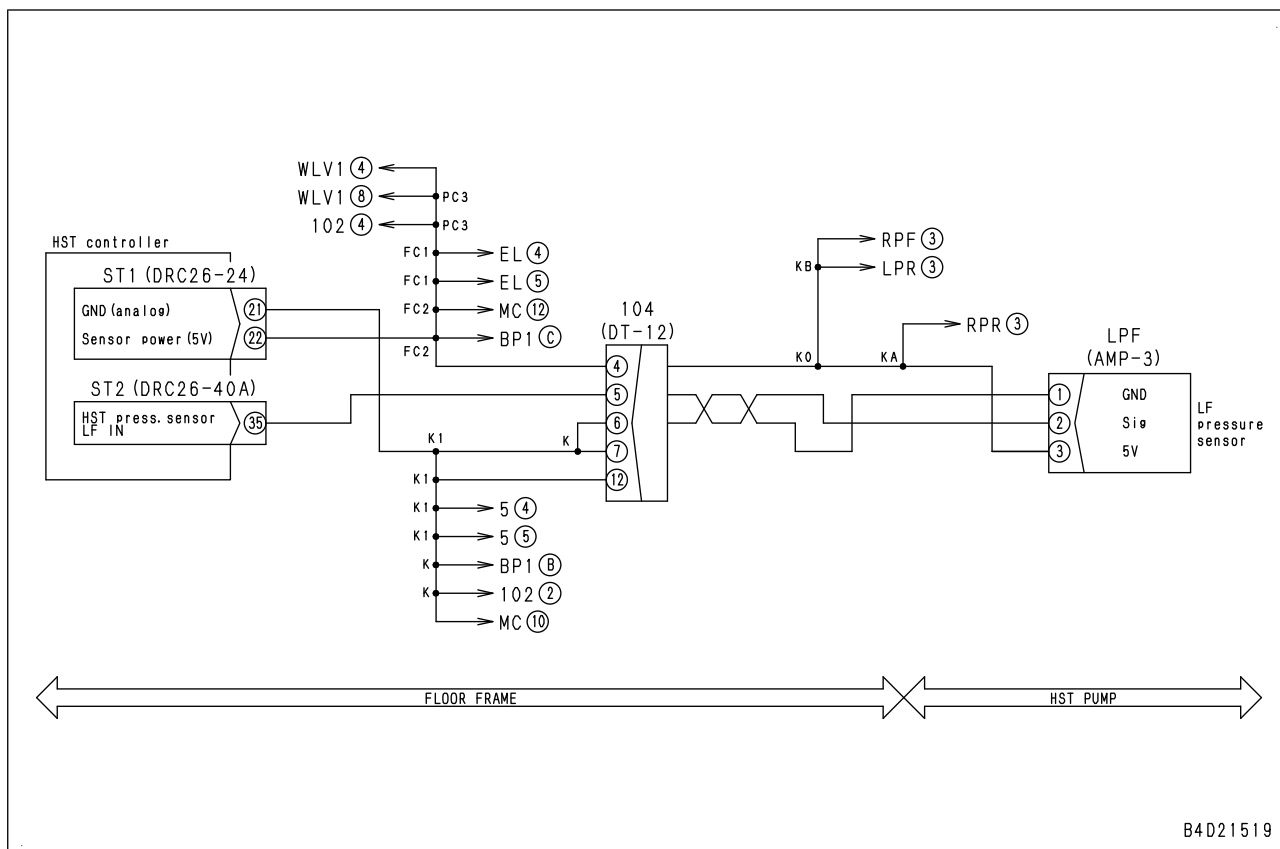
**Failure code [DFA8KA] Blade tilt lever1: Open** (D61-DFA8KA-400-A-Z0-A)

Action level	Failure code	Failure	Blade tilt lever 1: Open (HST controller system)
L01	DFA8KA		
Detail of failure	<ul style="list-style-type: none"> <li>Signal voltage of blade tilt lever potentiometer system 1 is 0.5 V or lower.</li> </ul>		
Action of controller	<ul style="list-style-type: none"> <li>Continues blade control with signal from blade tilt lever potentiometer system 2.</li> </ul>		
Problem on machine	<ul style="list-style-type: none"> <li>None</li> </ul>		
Related information	<ul style="list-style-type: none"> <li>Signal voltage of blade tilt lever potentiometer 1 can be checked with monitoring function. (Code: 73500 "Blade Tilt Lever 1 Potentio")</li> <li>Method of reproducing failure code: Turn starting switch to ON position and operate blade lever (tilting).</li> </ul>		

No.	Cause	Procedure, measuring location, criteria and remarks			
1	Defective 5 V sensor power supply system	If failure code [DAJ6KK] is also displayed, perform troubleshooting for it first. 1. Turn starting switch to OFF position. 2. Disconnect connector WLV1 and connect T-adapter to female side. 3. Turn starting switch to ON position. ★ If power supply voltage is abnormal, go to check on cause 3 and after.			
		Voltage	Between WLV1 (female) (8) and (5)	Power supply	4.5 to 5.5 V
2	Defective blade tilt lever potentiometer 1 (internal open circuit or ground fault)	1. Turn starting switch to OFF position. 2. Insert T-adapter into connector WLV1. 3. Turn starting switch to ON position. 4. Operate blade control lever (in TILT direction) to perform troubleshooting. ★ If power supply voltage is normal and potentiometer output voltage is abnormal (0.5 V or lower), it cannot be determined whether ground fault or defective potentiometer is the cause. In this case, go to check on cause 4. If no failure is found by check on cause 4, blade tilt lever potentiometer 1 is defective.			
		Voltage	Between WLV1 (7) and (5)		0.96 to 4.04 V
3	Open circuit in wiring harness (wire breakage or defective contact of connector)	1. Turn starting switch to OFF position. 2. Disconnect connectors ST1, ST2 and WLV1, and connect T-adapters to each female side.			
		Resistance	★ If power supply voltage in check on cause 1 is normal, this check is not required. Between ST1 (female) (22) and WLV1 (female) (8)	Max. 1 Ω	
			★ If power supply voltage in check on cause 1 is normal, this check is not required. Between ST1 (female) (4) and WLV1 (female) (5)	Max. 1 Ω	
		Between ST2 (female) (16) and WLV1 (female) (7)	Max. 1 Ω		

No.	Cause	Procedure, measuring location, criteria and remarks		
4	Ground fault in wiring harness (contact with ground circuit)	★ If no failure is found by check on cause 2, this check is not required. 1. Turn starting switch to OFF position. 2. Disconnect connectors ST1, ST2 and LPF, and connect T-adapter to each female side.		
		Resistance	Between ST2 (female) (35) and ST1 (female) (21), or between LPF (female) (2) and (1)	Min. 1 MΩ
			Between ST1 (female) (35) and ground, or between LPF (female) (2) and ground	Min. 1 MΩ
5	Defective HST controller	If no failure is found by above checks, HST controller is defective. • Reference 1. Turn starting switch to OFF position. 2. Insert T-adapter into connectors ST1 and ST2. 3. Turn starting switch to ON position.		
		Voltage	Between ST2 (35) and ST1 (21)	0.5 to 4.5 V

**Circuit diagram related to left forward HST pressure sensor**



**Failure code [DK30KZ] ST lever: Main and Sub Error** (D61-DK30KZ-400-A-Z0-A)

Action level	Failure code	Failure	Steering lever: Main and Sub Error (HST controller)
L04	DK30KZ		
Detail of failure	<ul style="list-style-type: none"> <li>In joystick (steering, directional, and gear shift lever) potentiometers 1 (ST lever 1) or 2 (ST lever 2), starting switch is turned to ON position, only one side malfunctions and then either of failure codes [DK30KA] and [DK30KB], and either of failure codes [DK31KA] and [DK31KB] are displayed at the same time.</li> </ul>		
Action of controller	<ul style="list-style-type: none"> <li>Restricts the engine brake operation.</li> </ul>		
Problem on machine	<ul style="list-style-type: none"> <li>Once machine stops, engine speed is restricted to medium (half) speed.</li> <li>Once machine stops, it cannot travel at all.</li> </ul>		
Related information	<ul style="list-style-type: none"> <li>Signal voltage of joystick (steering, directional, and gear shift lever) potentiometers can be checked with monitoring function. (Code: 50300"S/T Lever1 Potentio") (Code: 50301"S/T Lever2 Potentio")</li> <li>Method of reproducing failure code: Turn starting switch to ON position and operate joystick (steering, directional, and gear shift levers) (for steering).</li> </ul>		
Cause		Procedure, measuring location, criteria and remarks	
		Perform troubleshoot for failure codes [DK30KA], [DK30KB], [DK31KA] and [DK31KB].	

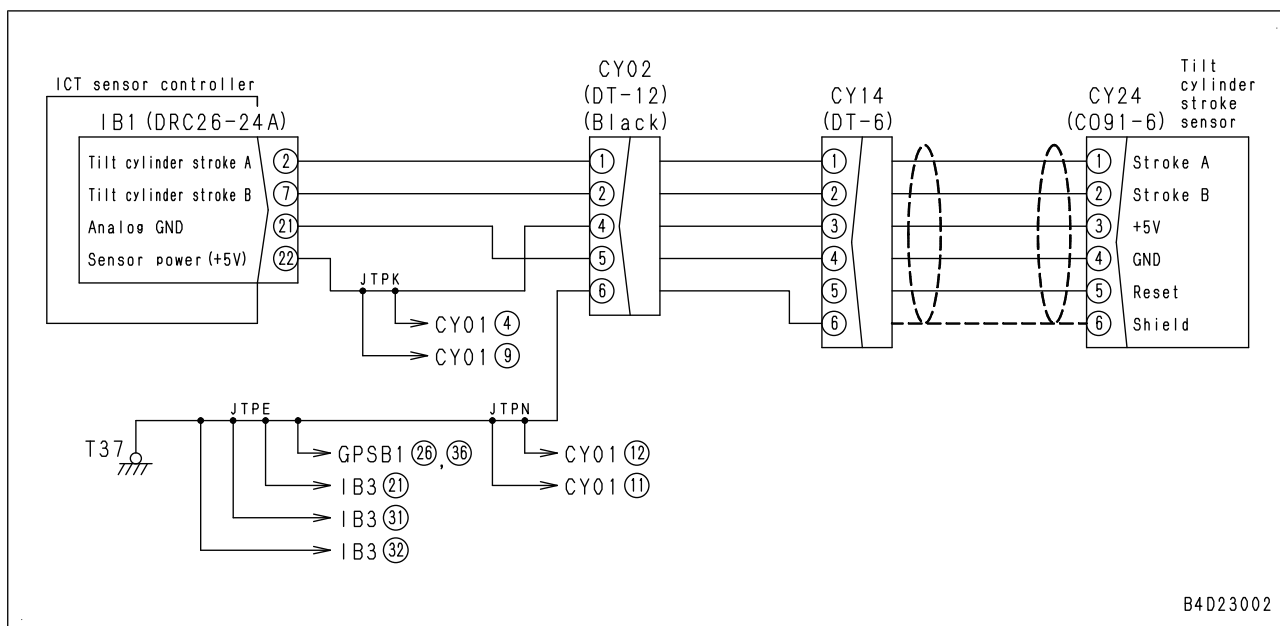
**Failure code [DK57KB] FR lever2: Hot Short** (D61-DK57KB-400-A-Z0-A)

Action level	Failure code	Failure	FR lever 2: Hot Short (HST controller system)
L03	DK57KB		
Detail of failure	<ul style="list-style-type: none"> <li>Signal voltage of joystick (steering, directional, and gear shift lever) potentiometer 2 (FR2) is 4.5 V or more.</li> </ul>		
Action of controller	<ul style="list-style-type: none"> <li>Continues to control with signals of joystick (steering, directional, and gear shift lever) potentiometer 1 (FR1).</li> <li>Restricts engine operation.</li> </ul>		
Problem on machine	<ul style="list-style-type: none"> <li>Once machine stops, engine speed is restricted to medium (half) speed.</li> <li>Once machine stops, travel is restricted to F1 and R1.</li> </ul>		
Related information	<ul style="list-style-type: none"> <li>Signal voltage of joystick (steering, directional, and gear shift lever) potentiometer 2 can be checked with monitoring function. (Code: 50203 "FR Lever2 Potentio")</li> <li>Method of reproducing failure code: Turn starting switch to ON position and operate joystick (steering, directional, and gear shift lever) (directional shifting).</li> </ul>		

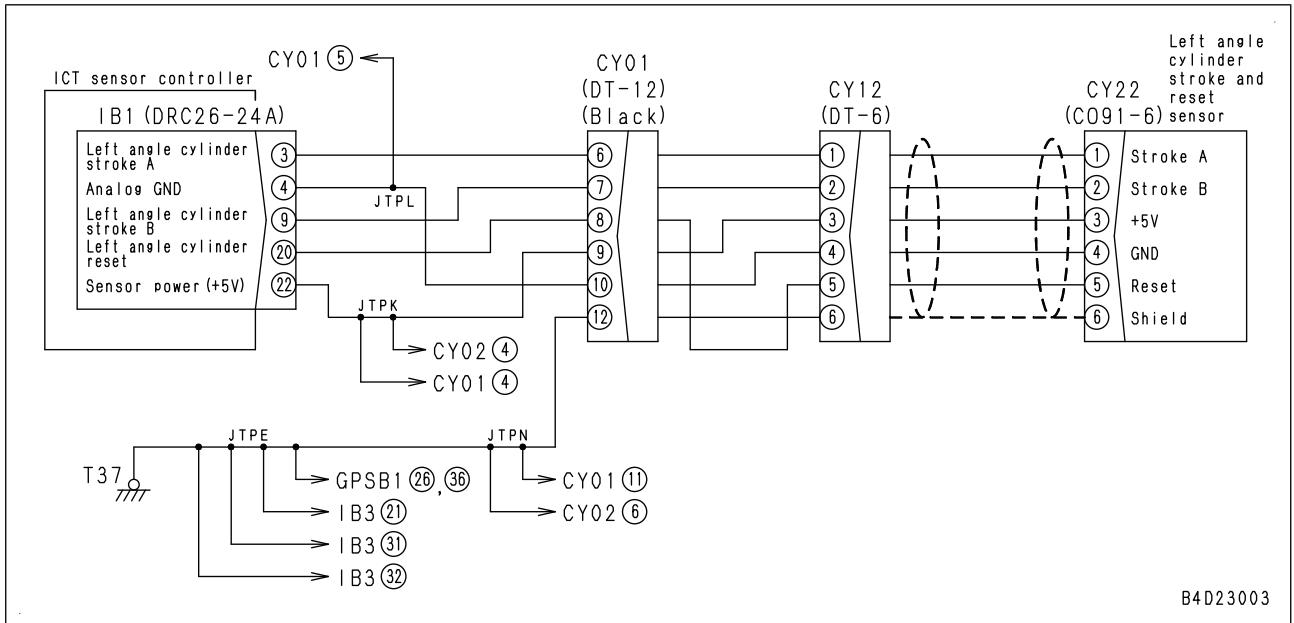
No.	Cause	Procedure, measuring location, criteria and remarks		
1	Defective 5 V sensor power supply system	If failure code [DAJ6KK] is also displayed, perform troubleshooting for it first.		
2	Defective joystick (steering, directional, and gear shift lever) potentiometer 2 (internal short circuit) or ground fault	<ol style="list-style-type: none"> <li>Turn starting switch to OFF position.</li> <li>Disconnect connector EL.</li> <li>Turn starting switch to ON position.</li> <li>Perform troubleshooting by operating joystick (steering, directional, and gear shift lever) (directional).</li> </ol>		
		If failure code [DK57KB] disappears, joystick (steering, directional, and gear shift lever) potentiometer is defective. (If failure code is still displayed, wiring harness or HST controller is defective.) ★ Since connector EL is disconnected, many failure codes appear. Ignore failure codes other than [DK57KB].		
3	Hot short circuit in wiring harness	<ol style="list-style-type: none"> <li>Turn starting switch to OFF position.</li> <li>Disconnect connector EL and connect T-adapter to female side.</li> <li>Turn starting switch to ON position.</li> </ol>		
		Voltage	Between EL (female) (2) and (1) or ground	7 to 11 V
4	Short circuit in wiring harness	<ol style="list-style-type: none"> <li>Turn starting switch to OFF position.</li> <li>Disconnect connectors ST1 and EL, and connect T-adapter to female side of ST1.</li> </ol> ★ Check by using multimeter in continuity mode.		
		Continuity	Between ST1 (female) (1) and each pin other than pin (1)	No continuity (No sound is heard)
5	Defective HST controller	If no failure is found by above checks, HST controller is defective. <ul style="list-style-type: none"> <li>Reference</li> <li>Turn starting switch to OFF position.</li> <li>Insert T-adapter into connector ST1.</li> <li>Turn starting switch to ON position.</li> <li>Perform troubleshooting by operating joystick (steering, directional, and gear shift lever) (directional).</li> </ul>		
		Voltage	Between ST1 (1) and (4)	0.5 to 4.5 V

No.	Cause	Procedure, measuring location, criteria, and remarks	
5	ICT sensor controller error	If no failure is found by preceding checks, ICT sensor controller is defective. <ul style="list-style-type: none"> <li>• Reference</li> <li>1. Turn starting switch to OFF position.</li> <li>2. Insert T-adapter into connector IB1.</li> <li>3. Turn starting switch to ON position.</li> </ul>	
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Voltage</td> <td style="width: 50%;">Between IB1 (2) and (21)</td> <td style="width: 25%;">0.5 to 4.5V</td> </tr> </table>	Voltage
Voltage	Between IB1 (2) and (21)	0.5 to 4.5V	

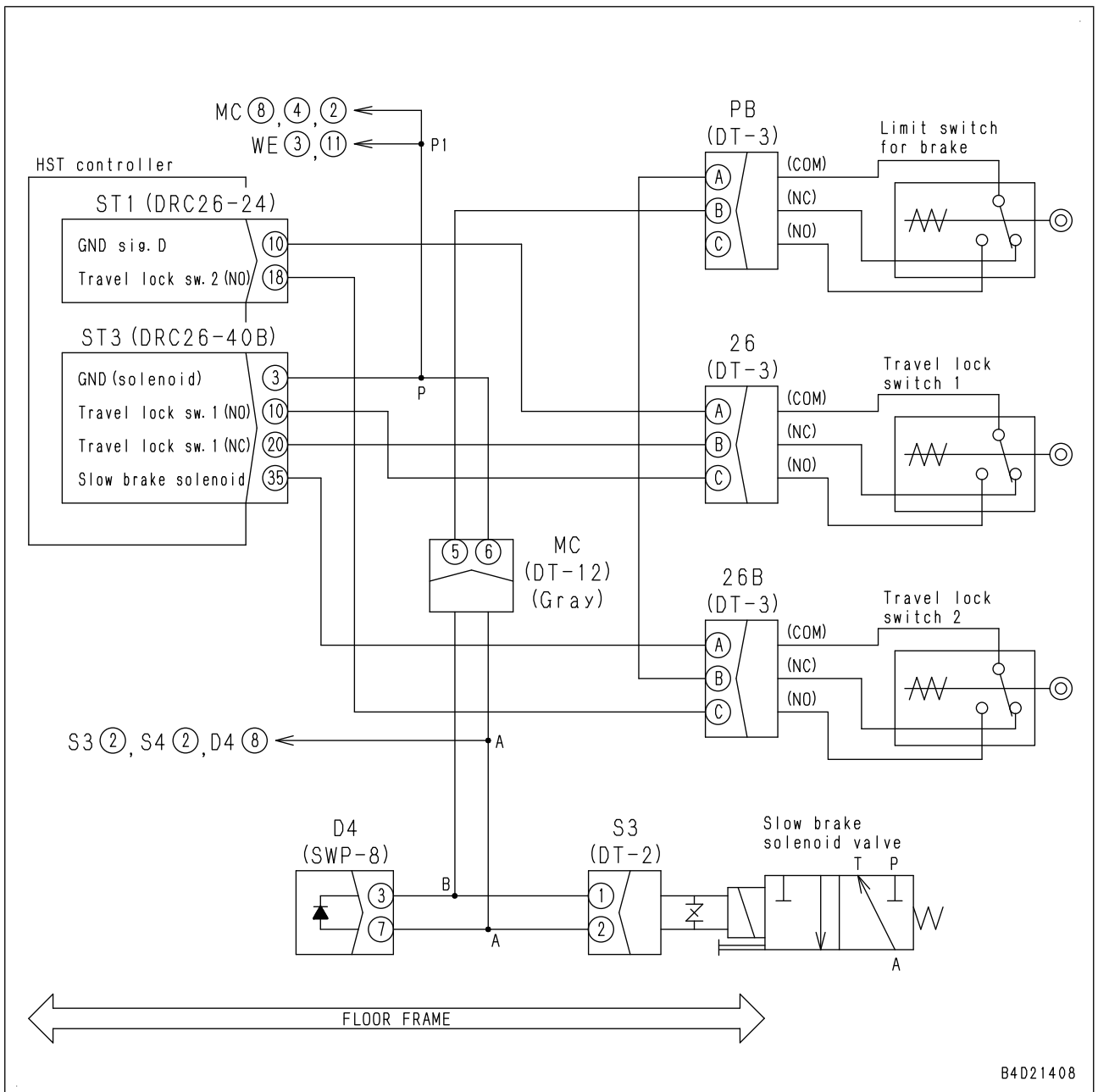
**Circuit diagram related to blade tilt cylinder stroke sensor**



Circuit diagram related to left angle cylinder stroke sensor



Circuit diagram related to decelerator/brake pedal control



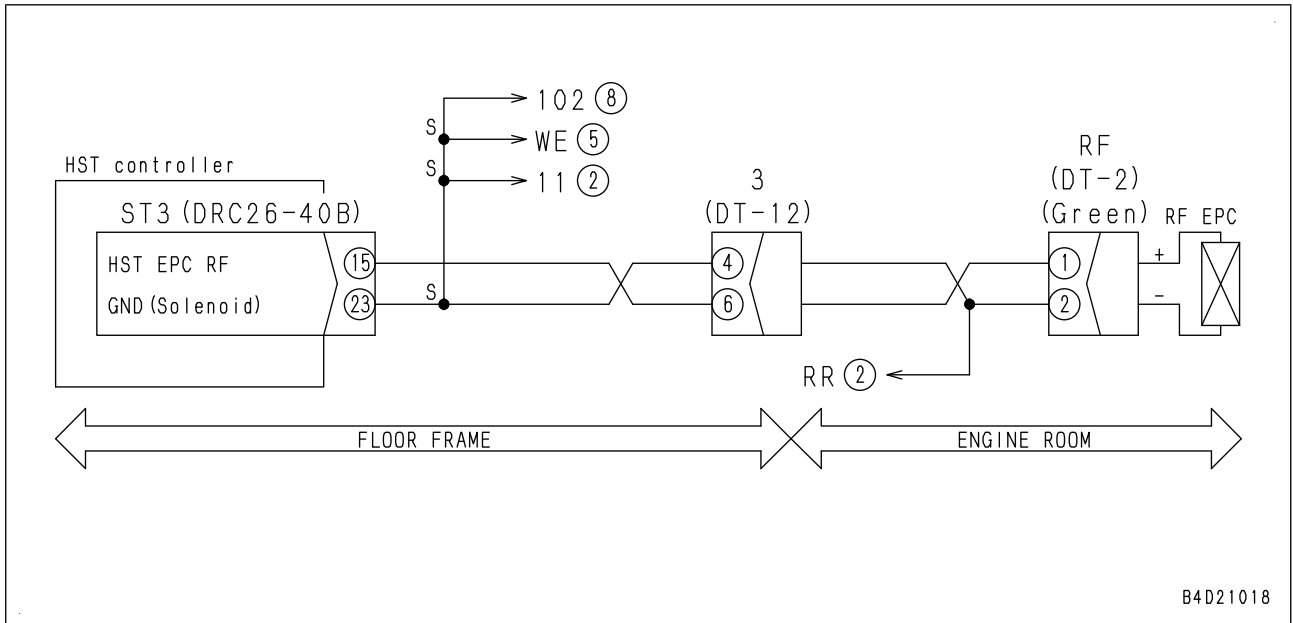
B4D21408

**Failure code [DWN5KA] Fan EPC: Open** (D61-DWN5KA-400-A-Z0-A)

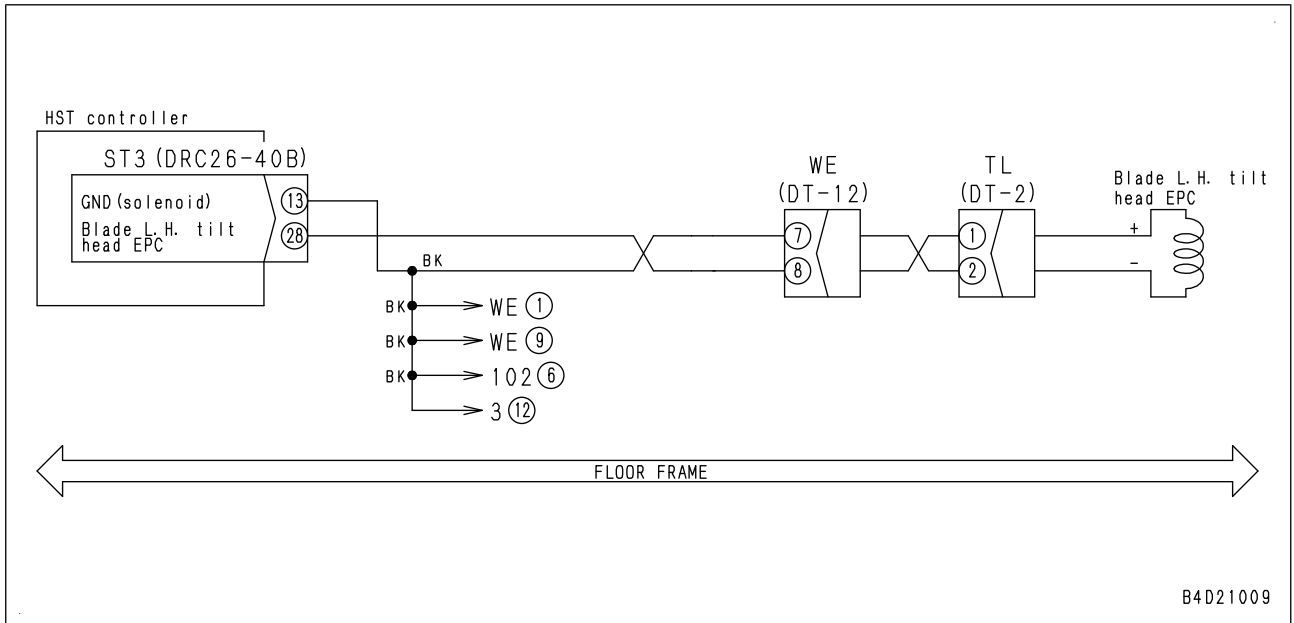
Action level	Failure code	Failure	Fan EPC: Open (HST controller system)
L03	DWN5KA		
Detail of failure	<ul style="list-style-type: none"> <li>When controller drives fan EPC solenoid, no current flows through circuit.</li> </ul>		
Action of controller	<ul style="list-style-type: none"> <li>Stops driving fan EPC solenoid.</li> </ul>		
Problem on machine	<ul style="list-style-type: none"> <li>Fan speed is always maximum.</li> <li>Once machine stops, engine speed is restricted to medium (half) speed.</li> <li>Once machine stops, travel is restricted to F1 and R1.</li> </ul>		
Related information	<ul style="list-style-type: none"> <li>Output condition to fan EPC solenoid can be checked with monitoring function. (Code: 31624 "FAN EPC(F/B)")</li> <li>Method of reproducing failure code: Turn starting switch to ON position.</li> </ul>		

No.	Cause	Procedure, measuring location, criteria and remarks		
1	Defective fan EPC solenoid (internal open circuit)	1. Turn starting switch to OFF position. 2. Disconnect connector FAC and connect T-adaptor to male side.		
		Resistance	Between FAC (male) (1) and (2)	2 to 12 Ω
2	Open circuit, short circuit, ground fault, hot short circuit of wiring harness, or defective HST controller	1. Turn starting switch to OFF position. 2. Disconnect connector FAC and connect T-adaptor to female side. 3. Turn starting switch to ON position. ★ Shake the wiring harness by hand while measuring the voltage. If the voltage drops to approximately 0 V during shaking, circuit is open around this point. ★ Voltage becomes approximately 24 V for approximately 0.5 sec. immediately after the starting switch is turned to ON position.		
		Voltage	Between FAC (female) (1) and (2)	1 to 4.5 V
3	Open or short circuit in wiring harness	★ If no failure is found by check on cause 2, this check is not required. 1. Turn starting switch to OFF position. 2. Disconnect connector ST3 and connect T-adaptor to female side. ★ Solenoid coil resistance		
		Resistance	Between ST3 (female) (25) and (23)	2 to 12 Ω
4	Open circuit in wiring harness (wire breakage or defective contact of connector)	★ If no failure is found by check on cause 2, this check is not required. 1. Turn starting switch to OFF position. 2. Disconnect connectors ST3 and FAC, and connect T-adaptor to each female side.		
		Resistance	Between ST3 (female) (25) and FAC (female) (1)	Max. 1 Ω
			Between ST3 (female) (23) and FAC (female) (2)	Max. 1 Ω
5	Defective HST controller	If no failure is found by above checks, HST controller may be defective. (Since this is an internal defect, troubleshooting cannot be performed.)		

**Circuit diagram related to right forward HST pump EPC solenoid**



Circuit diagram related to blade tilt left EPC solenoid

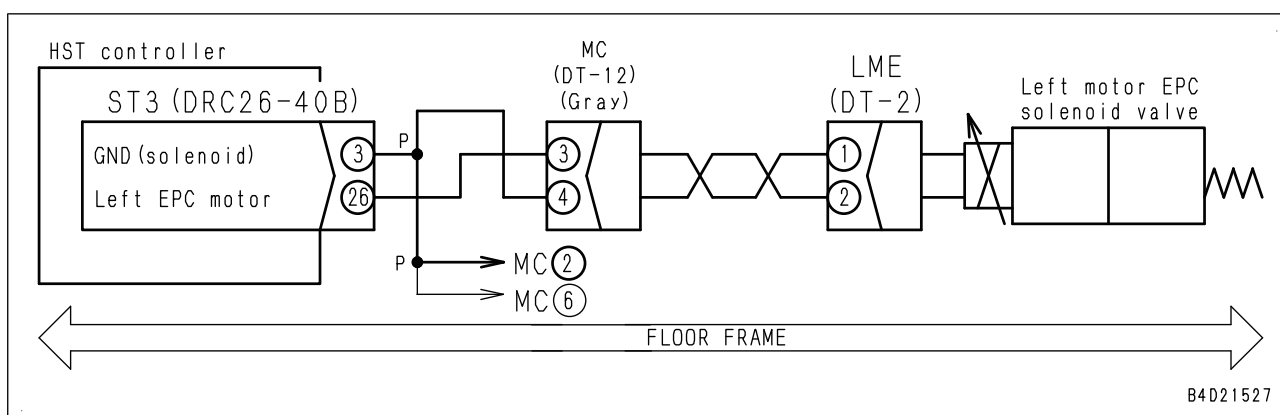


**Failure code [DXK1KB] Left HST motor EPC: Short circuit** (D61-DXK1KB-400-A-Z0-A)

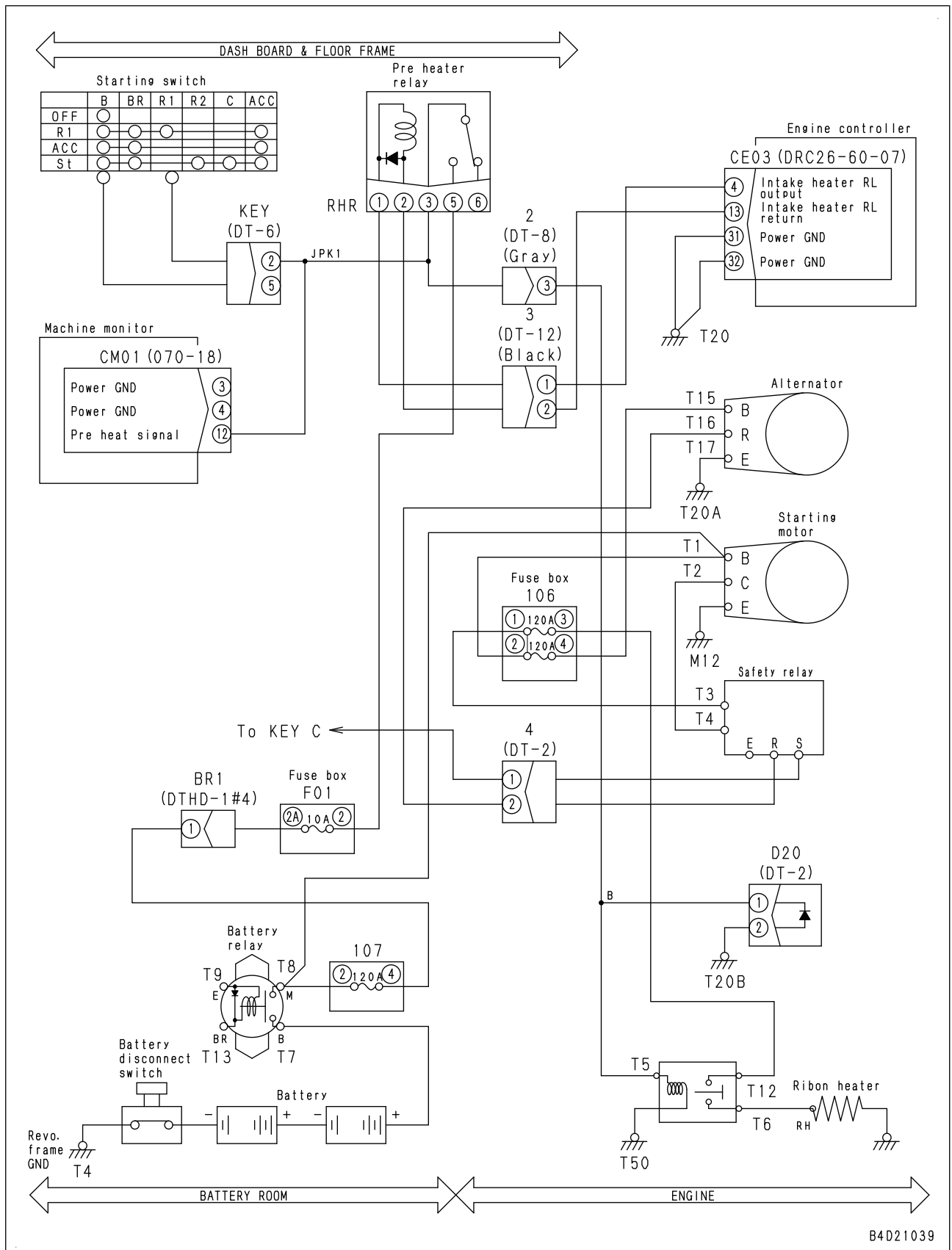
Action level	Failure code	Failure	Left HST motor EPC: Short circuit (HST controller system)
L03	DXK1KB		
Detail of failure	<ul style="list-style-type: none"> <li>When controller drives left HST motor EPC solenoid valve, unusual current flows through circuit.</li> </ul>		
Action of controller	<ul style="list-style-type: none"> <li>Stops driving left HST motor EPC solenoid valve.</li> <li>Stops driving right HST motor EPC solenoid valve as well.</li> <li>Even if cause of failure disappears, machine does not become normal until starting switch is turned to the OFF position.</li> </ul>		
Problem on machine	<ul style="list-style-type: none"> <li>Machine decelerates during traveling.</li> <li>Machine cannot travel at high speed.</li> </ul>		
Related information	<ul style="list-style-type: none"> <li>Output current to left HST motor EPC solenoid valve can be checked with monitoring function. (Code: 52304 "Left Motor EPC(F/B)")</li> <li>Method of reproducing failure code: Turn starting switch to ON position and run the machine at high speed.</li> </ul>		

No.	Cause	Procedure, measuring location, criteria and remarks			
1	Defective left HST motor EPC solenoid (internal open circuit)	1. Turn starting switch to OFF position. 2. Disconnect connector LME and connect T-adapter to male side.			
		Resistance	<table border="1" style="width: 100%;"> <tr> <td>Between LME (male) (1) and (2)</td> <td>5 to 15 Ω</td> </tr> <tr> <td>Between LME (male) (1) and ground</td> <td>Min. 1 MΩ</td> </tr> </table>	Between LME (male) (1) and (2)	5 to 15 Ω
Between LME (male) (1) and (2)	5 to 15 Ω				
Between LME (male) (1) and ground	Min. 1 MΩ				
2	Ground fault in wiring harness (contact with ground circuit)	1. Turn starting switch to OFF position. 2. Disconnect connectors ST3 and LME, and connect T-adapter to female side of either connector.			
		Resistance	<table border="1" style="width: 100%;"> <tr> <td>Between ground and either ST3 (female) (26) or LME (female) (1)</td> <td>Min. 1 MΩ</td> </tr> </table>	Between ground and either ST3 (female) (26) or LME (female) (1)	Min. 1 MΩ
Between ground and either ST3 (female) (26) or LME (female) (1)	Min. 1 MΩ				
3	Short circuit in wiring harness	1. Turn starting switch to OFF position. 2. Disconnect connectors ST3 and LME, and connect T-adapter to female side of either connector.			
		Resistance	<table border="1" style="width: 100%;"> <tr> <td>Between ST3 (female) (26) and (3), or between LME (female) (1) and (2)</td> <td>Min. 1 MΩ</td> </tr> </table>	Between ST3 (female) (26) and (3), or between LME (female) (1) and (2)	Min. 1 MΩ
Between ST3 (female) (26) and (3), or between LME (female) (1) and (2)	Min. 1 MΩ				
4	Defective HST controller	If no failure is found by above checks, HST controller may be defective. (Since this is an internal defect, troubleshooting cannot be performed.)			

**Circuit diagram related to left HST motor EPC solenoid**



Circuit diagram related to engine preheating system



**E-20 Modifying setting on customize screen does not change setting of machine** (D61-FH4-400-A-Z0-A)

Failure	When setting is changed on customize screen, setting of machine is not changed	
Related information		
No.	Cause	Procedure, measuring location, criteria and remarks
1	Defective machine monitor	Machine monitor may be defective. (Since this is an internal defect, troubleshooting cannot be performed.)
2	Defective engine controller or defective HST controller	Engine controller or HST controller may be defective. (Since this is an internal defect, troubleshooting cannot be performed.)

**E-30 No wiper operates continuously or intermittently** (D61-FH6-400-A-Z0-A)

Failure	No wiper operates continuously or intermittently.
Related information	<ul style="list-style-type: none"> <li>★ If fuse -5 of fuse box (in cab) is defective, front and rear wipers do not operate.</li> <li>★ If fuse -6 of fuse box (in cab) is defective, right door and left door wipers do not operate.</li> </ul>

No.	Cause	Procedure, measuring location, criteria and remarks		
1	Defective fuse -7 or -8 in fuse box F01	If fuse shown at left is broken, the circuit probably has ground fault. In this case, perform check on cause 3 first. <ul style="list-style-type: none"> <li>• If both fuses -7 and -8 in fuse box F01 are defective, no wiper operates.</li> </ul>		
2	Open circuit in wiring harness (wire breakage or defective contact of connector)	1. Turn starting switch to OFF position. 2. Remove fuses -7 and -8 in fuse box F01. 3. Remove fuse -5 in fuse box (in cab).		
		Resis- tance	Between F01-7 and FUSE box-B Between F01-8 and FUSE box -B	Max. 1 Ω Max. 1 Ω
3	Ground fault in wiring harness (contact with ground circuit)	1. Turn starting switch to OFF position. 2. Remove fuses -7 and -8 in fuse box F01. 3. Remove fuse -5 in fuse box (in cab).		
		Resis- tance	Between FUSE box -B and F01-7 or F01-8	Min. 1 MΩ

**E-38 Right door washer does not operate** (D61-FHX-400-A-Z0-A)

Failure	Right door washer does not operate.			
Related information	<ul style="list-style-type: none"> <li>• If fuse -6 in fuse box (in cab) is blown, all of right door wiper, left door wiper, right door washer and left door washer do not operate.</li> <li>• If wiper does not operate either, see troubleshooting for E-34.</li> <li>• T-adapter is not provided for connectors of washer motor (troubleshooting is performed without using T-adapter).</li> </ul>			
No.	Cause	Procedure, measuring location, criteria and remarks		
1	Defective right door washer motor (internal open circuit)	★ Check that left door washer fluid flows. 1. Turn starting switch to OFF position. 2. Interchange connectors 361 and 363 with each other. 3. Turn starting switch to ON position. 4. Turn right door washer switch to ON position.		
		If fluid of left door washer flows, original right door washer motor is defective.		
2	Defective right door wiper switch	1. Turn starting switch to OFF position. 2. Disconnect connector CB13, and connect T-adapter to male side. 3. Turn R.H. door wiper switch ON and OFF, and perform troubleshooting. ★ Measure it with diode range of multimeter.		
		Resistance	Between CB13 (male) (5) and (6)	R.H. door wiper switch: OFF Min. 1 MΩ
				R.H. door wiper switch: WASH position Max. 1 Ω
3	Open circuit in wiring harness (wire breakage or defective contact of connector)	1. Turn starting switch to OFF position. 2. Disconnect connector CB13, and connect T-adapter to female side.		
		Continuity	Between CB13 (female) (6) and ground	Continuity
		1. Turn starting switch to OFF position. 2. Remove fuse -6 of fuse box. 3. Disconnect connector CB13, and connect T-adapter to female side.		
	Resistance	Between CB13 (female) (5) and fuse terminal -6 of fuse box	Max. 1 Ω	
4	Ground fault in wiring harness (contact with ground circuit)	1. Turn starting switch to OFF position. 2. Remove fuse -6 of fuse box. 3. Disconnect connectors 363 and CB13, and connect T-adapter to each female side.		
		Resistance	Between CB13 (female) (6) and ground	Min. 1 MΩ

**E-50 Control box displays the message [System Initializing...]** *(D61-JB0-400-A-Z0-A)*

Failure	• Control box displays the message [System Initializing...].	
Message display location	System Initializing (red)	Slope Control Key
Related information	<ul style="list-style-type: none"> <li>• Perform troubleshooting outdoors or at a place open to the sky to acquire a sufficient number of satellites.</li> <li>• Before performing troubleshooting, check that "MACHINE SETUP setting" is performed correctly as specified in the Operation and Maintenance Manual.</li> <li>• Restart control box. If the displayed message is changed, perform troubleshooting for it.</li> </ul>	
No.	Cause	Procedure, measuring location, criteria, and remarks
1	System initializing	System will be initialized and reset in several minutes.

**E-70 Finished surface is inaccurate (The finished surface is not smooth)** (D61-JY0-400-A-Z0-A)

Failure	<ul style="list-style-type: none"> <li>Finished surface is inaccurate (The finished surface is not smooth).</li> </ul>
Related information	<ul style="list-style-type: none"> <li>Perform troubleshooting outdoors or at a place open to the sky to acquire a sufficient number of satellites.</li> <li>Before performing troubleshooting, check that "Project file setting" are performed correctly as specified in the Operation and Maintenance Manual.</li> <li>Before performing troubleshooting, check that "Elevation Control Key" and "Slope Control Key" are green on control box.</li> </ul>

No.	Cause	Procedure, measuring location, criteria, and remarks
1	Hydraulic oil temperature is low.	The response of blade automatic control is poor because hydraulic oil temperature is low. Increase hydraulic oil temperature to operating range level.
2	Blade automatic control not suitable for operation	Blade automatic control is not suitable for performing the following operations and may cause degrade in blade response: <ul style="list-style-type: none"> <li>Digging and ditching of hard or frozen ground</li> <li>If the ground has various type of soil, the surface may undulate at where the hardness of the soil varies.</li> </ul>
3	Defective setting of dozing mode	When a long distance digging operation is performed in other mode than "Cutting & Carry", ground surface after digging may not be smooth due to the change in load. In this case, drive machine in reverse and do it again.
4	Sharp turning on slope	After machine is turned sharp on slope or its direction is changed by stumbling over rocks, etc., the accuracy may become worse.
5	The set travel speed is too fast.	<ul style="list-style-type: none"> <li>According to type of soil (especially on sand ground) , if machine travels too fast, the finished surface may undulate. In this case, downshift the speed range.</li> </ul>
6	Setting of Blade Auto Control Gain Adjustment is faulty.	Setting of Blade Auto Control Gain Adjustment is not compatible with the soil type. A corrugated ground surface may occur. Check the contents of the setting for gain adjustment. See "Blade Auto Control Gain Adjustment" in Operation and Maintenance Manual.
7	Defective "iB W/E VALVE AUTO SET MODE"	"iB W/E VALVE AUTO SET MODE" may be defective. Adjust it again. (Adjustment ID: 8041)
8	GNSS receiver is not receiving signals from a sufficient number of effective satellites.	<ol style="list-style-type: none"> <li>Check if visibility in the sky above GNSS antenna is sufficient.</li> <li>Make sure there are no trees, buildings, vehicles, cliffs, or other obstacles that may block or reflect satellite signals.</li> </ol>

**Failure mode and cause table** (D61-5340-40D-A-00-A)

	Component causing failure	Pump and motor													Troubleshooting No.								
		Engine system	Air leakage from air supply pipe	Rear damper	Hydraulic tank strainer	Pump suction piping (ECMV)	Charge filler	Hydraulic oil cooler (including bypass valve)	Pump suction piping (air suction)	Piping between pump and motor	Hydraulic oil (oil temperature and oil type)	HST pump (pump body)	HST pump (initial adjustment)	HST pump (air bleeding)		HST pump EPC valve (including incorrect connection of connectors)	HST pump servo valve	HST pump safety valve with suction	Work equipment (fan) pump (body)	Work equipment pump PC valve	Work equipment pump LS valve		
Power train system	Directional travel is not available for both L.H. and R.H. systems (both systems do not work for travel).	●		●			●	●														H-1	
	Directional travel is not available for L.H. or R.H. system (travel is available only for L.H. or R.H. system).														●	●						H-2	
	Forward or reverse travel is not available for L.H. or R.H. system (travel is available only for a single system).														●	●	●					H-3	
	Travel speed or power is low.	●	●	●			●	●									●					H-4	
	Gear speed does not change.																					H-5	
	Large shocks are made when work equipment starts or stops.										●		●	●									H-6
	Travel deviation is large.											●	●	●			●						H-7
	Machine drift on a slope is large.											●					●	●					H-8
	Engine to stall or engine speed to lower significantly during travel.	●										●			●	●							H-9
	Unusual noise is heard from around HST pump or motor.				●		●	●	●	●	●	●		●									H-10
Work equipment system	All work equipment do not operate.			●			●	●											●			H-11	
	All work equipment speed or power is low.						●	●											●	●	●	H-12	
	Blade lift speed or power is low.				●	●																H-13	
	Blade tilt speed or power is low.				●	●																H-14	
	Blade angle speed or power is low.				●	●																H-15	
	Time lag of blade lift is large.																					H-16	
	Hydraulic drift of blade lift is large.																					H-17	
	Hydraulic drift of blade tilt is large.																					H-18	
	Unusual noise is heard from around work equipment pump and control valve.				●			●		●										●			H-19
	HST oil temperature (hydraulic oil temperature) rises too high	●					●			●	●						●	●					H-20

**H-13 Blade lift speed or power is low** (D61-FT8-400-A-Z0-A)

Failure	<ul style="list-style-type: none"> <li>Blade lift speed or power is low.</li> </ul>
Related information	<ul style="list-style-type: none"> <li>Check that oil level in hydraulic tank is normal before performing troubleshooting.</li> <li>Check that blade is not modified before starting troubleshooting.</li> <li>Blade RAISE EPC current can also be checked on monitor (monitoring code: 71001).</li> <li>Work equipment pump pressure can be checked on monitor (monitoring code: 94700).</li> </ul>

No.	Cause	Procedure, measuring location, criteria and remarks			
1	Defective strainer of work equipment pump	Check strainer for clogging.			
	Air sucked in on suction side of work equipment pump	Check suction piping for cracks, etc.			
3	Malfunction of blade LIFT EPC valve	★ Be ready with engine stopped, then perform troubleshooting with engine at high idle.			
		Output pressure of EPC valve (For reference)	Blade lift control lever	LIFT	3.23 MPa {33 g/cm <sup>2</sup> }
		If EPC current command is normal and outlet pressure is low, check EPC valve for sticking.			
4	Defective work equipment main relief valve	★ Be ready with engine stopped, then perform troubleshooting with engine at high idle.			
		Work equipment main relief pressure	Blade lift cylinder	During relief	27.5 MPa {280 ± 10 kg/cm <sup>2</sup> }
		If relief pressure is not increased to normal level after main relief valve is adjusted, unload valve or safety valve may be defective. Replace defective unload or safety valve since they cannot be adjusted.			
5	Malfunction of blade lift control valve spool	When no failure is found by checks on causes 3 and 4 but main circuit pressure in boom RAISE operation does not rise beyond set pressure of unload valve, work equipment valve spool may malfunction. Check spool for sticking.			
6	Malfunction of pressure compensation valve of blade lift control valve	When tilt moves normally and blade can rise while tilt is not operated but cannot rise while tilt is operated, pressure compensation valve of blade lift control valve may be defective.			
7	Malfunction of blade lift control valve (suction valve)	Suction valve of blade control valve may malfunction. Check brake for defective sealing. Judgment may be made by checking a change of phenomenon after exchanging suction valves of angle circuit.			
8	Internal defect of work equipment pump (pump body)	★ Be ready with engine stopped, then perform troubleshooting with engine at high idle.			
		Cylinder internal oil leakage	Blade lift cylinder	LOWER to relief	8 cc/min
		If measured relief pressure is low, disconnect hydraulic hose from blade lift cylinder head end, and relieve blade lift cylinder at its stroke end. If oil flows out from cylinder, cylinder piston ring is defective.			

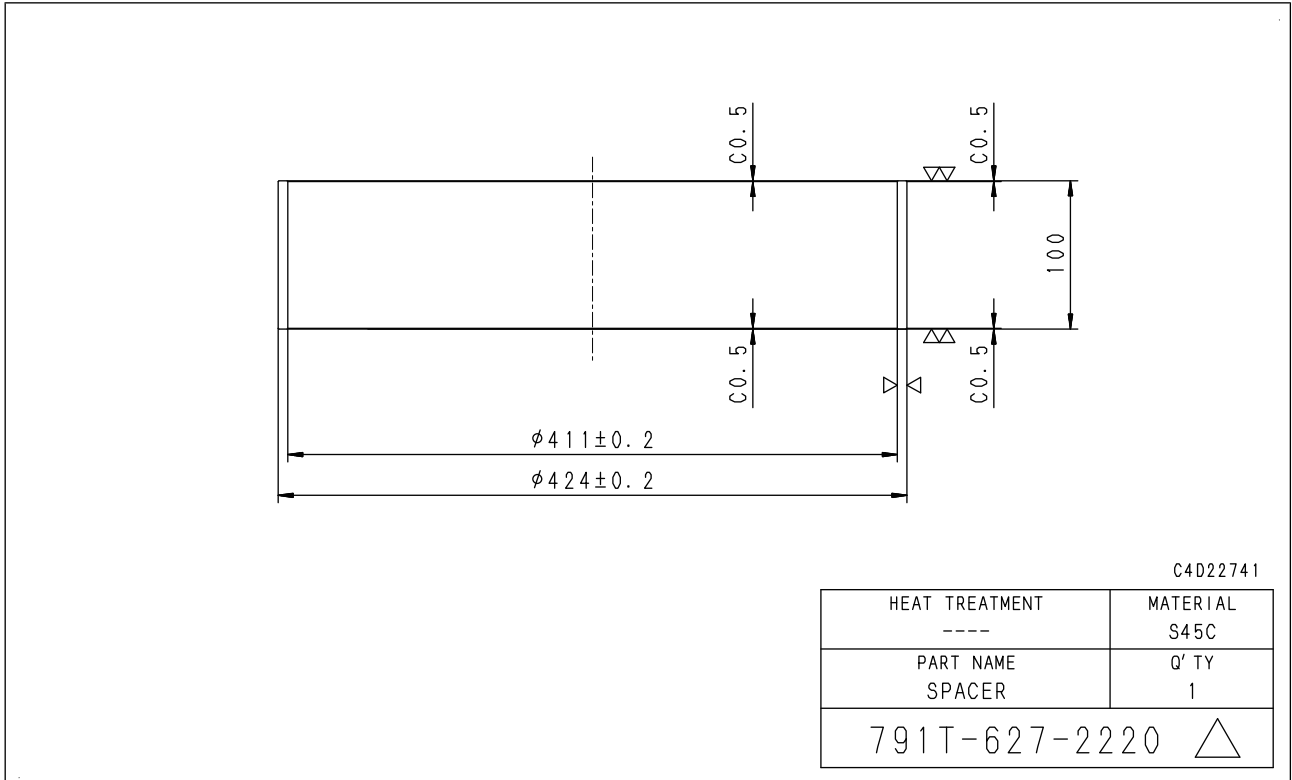
**S-6 Engine stops during operation** (D61-AF0-400-A-Z0-A)

Failure	Engine stops during operation.		
Related information	<ul style="list-style-type: none"> <li>If any failure code is displayed, perform troubleshooting for that code first.</li> </ul>		
No.	Cause	Point to check, remarks	Remedy
1	Insufficient fuel in tank	<ul style="list-style-type: none"> <li>Fuel tank is empty.</li> </ul>	Add fuel.
2	Clogged air breather hole in fuel tank cap	<ul style="list-style-type: none"> <li>Air breather hole in fuel tank cap is clogged.</li> </ul>	Flush air breather hole in fuel tank cap and clean surrounding area.
3	Clogged fuel filter element	<ul style="list-style-type: none"> <li>Check used hours of fuel filter. If used beyond specified hours, fuel filter element may be clogged.</li> </ul>	Replace fuel filter element.
4	Foreign material in fuel	<ul style="list-style-type: none"> <li>Rust and water are found in fuel drained from fuel tank.</li> </ul>	Replace fuel.
5	Air in fuel piping system	<ul style="list-style-type: none"> <li>Air is bled during air bleeding of fuel system. (Reference: See Testing and adjusting, "Bleeding air from fuel system".)</li> </ul>	Perform air bleeding. Repair or replace fuel piping.
6	Leakage from fuel piping system	<ul style="list-style-type: none"> <li>Fuel leaks from fuel piping. (Reference: See Testing and adjusting, "Checking fuel circuit for leakage".)</li> </ul>	Repair or replace fuel piping related parts.
7	Defective priming pump	<ul style="list-style-type: none"> <li>No resistance is felt or large effort is required when operating priming pump.</li> </ul>	Replace priming pump.
8	Defective supply pump	<ul style="list-style-type: none"> <li>See Testing and adjusting, "Measuring fuel discharge, return and leakage".</li> </ul>	Replace supply pump or pressure limiter.
9	Defective air intake hose (Between air cleaner and KVGT inlet)	<ul style="list-style-type: none"> <li>Visually check air intake hose for breakage.</li> </ul>	Replace air intake hose.
10	Defective air intake manifold	<ul style="list-style-type: none"> <li>Check air intake manifold for internal breakage.</li> </ul>	Replace air intake manifold.
11	Defective boost piping and connections (Between KVGT outlet and air intake manifold)	<ul style="list-style-type: none"> <li>Air leaks from boost piping.</li> </ul>	Repair or replace boost piping.
12	Defective exhaust gas piping (Between exhaust manifold and KDPF inlet)	<ul style="list-style-type: none"> <li>Check exhaust gas piping for damage and exhaust gas leakage. (Check soot on heat insulation cover and heat insulation plate.)</li> </ul>	Replace exhaust gas piping.
13	Damaged valve or rocker arm	<ul style="list-style-type: none"> <li>Check valve and rocker arm. (Unusual noise is heard and engine stops suddenly.)</li> </ul>	Replace valve or rocker arm.
14	Broken or seized piston connecting rod	<ul style="list-style-type: none"> <li>Metal particles are found in oil drained from oil pan.</li> <li>Remove oil pan and check piston and connecting rod. (Reference: Unusual noise is heard and engine stops suddenly, or stops due to overheat..)</li> </ul>	Replace piston and connecting rod.
15	Broken or seized crankshaft bearing	<ul style="list-style-type: none"> <li>Metal particles are found in oil drained from oil pan.</li> <li>Remove oil pan and check crankshaft main bearing.</li> </ul>	Replace crankshaft main bearing.
16	Defective wiring harness of engine controller power supply	<ul style="list-style-type: none"> <li>Check wiring harness of engine controller power supply. (Reference: See Troubleshooting, "Failure code [CA343]".)</li> </ul>	Repair wiring harness of engine controller power supply.

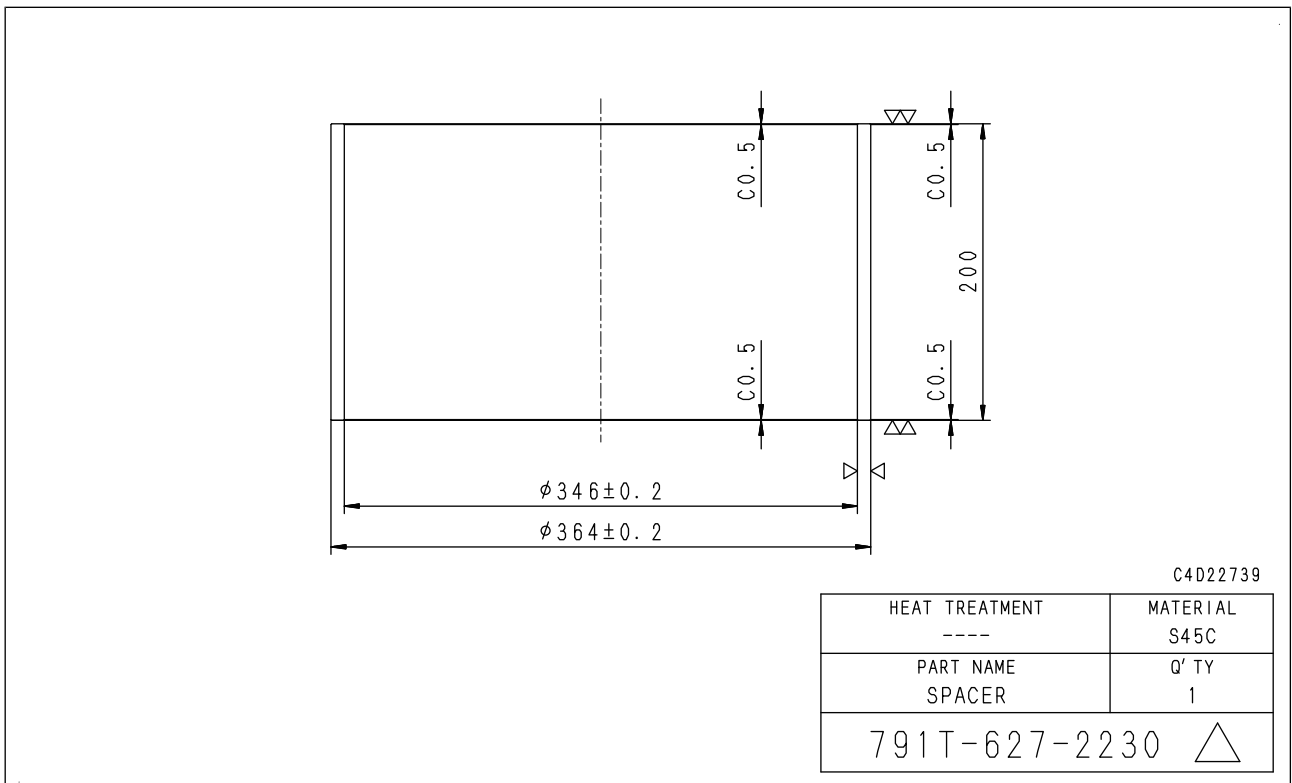
**S-23 White smoke is exhausted during active regeneration** (PC400-AQ2-400-A-Z0-A)

Failure	White smoke is exhausted during active regeneration.		
Related information	<ul style="list-style-type: none"> <li>• White smoke may be observed for a short time immediately after engine is started in cold weather or during regeneration, but this is normal.</li> <li>• If any failure code is displayed, perform troubleshooting for that code first.</li> </ul>		
No.	Cause	Point to check, remarks	Remedy
1	Coolant leaking into exhaust system	<ul style="list-style-type: none"> <li>• Check for low coolant level.</li> </ul>	Perform troubleshooting for "S-16 Water mixes into engine oil (milky)".
2	Plugged KDOC due to coolant leaking into exhaust system	<ul style="list-style-type: none"> <li>• If white smoke problem is not resolved after remedies for cause 1 are taken, KDOC is plugged.</li> </ul>	Clean or replace KDOC.
3	Improper fuel used	<ul style="list-style-type: none"> <li>• Fuel other than specified one is used.</li> </ul>	Use proper fuel specified in Operation and Maintenance Manual.
4	Deteriorated KDOC due to use of improper fuel	<ul style="list-style-type: none"> <li>• KDOC is deteriorated by high sulfur content. (If white smoke problem is not resolved after remedies for causes 1 to 3 are taken, KDOC is deteriorated.)</li> </ul>	Replace KDOC.
5	Plugged KDOC	<ul style="list-style-type: none"> <li>• If white smoke problem is not resolved after remedies for causes 1 to 4 are taken, KDOC is plugged.</li> </ul>	Clean KDOC.
6	Damaged KDOC	<ul style="list-style-type: none"> <li>• Check KDOC for damage.</li> </ul>	Replace KDOC.
7	Damaged KCSF	<ul style="list-style-type: none"> <li>• Check KCSF for damage.</li> </ul>	Replace KCSF.

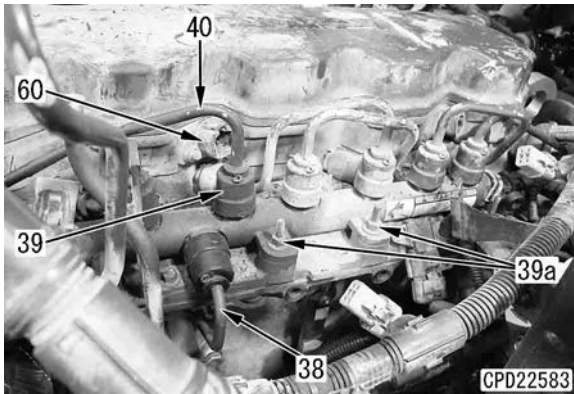
Note: Komatsu does not take any responsibility for special tools manufactured according to these sketches.  
 C5: Spacer



C6: Spacer

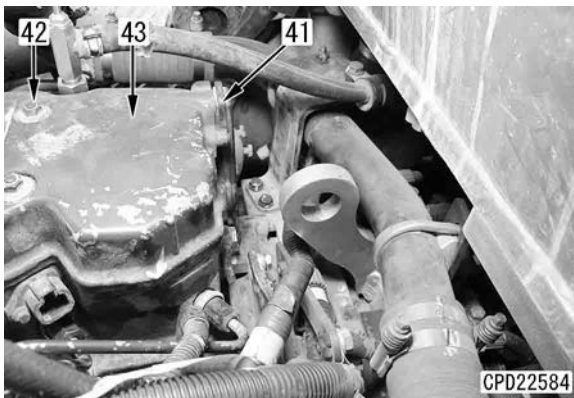


26. Loosen common rail mounting nuts and bolts (39a) (4 pieces).



27. Remove blowby duct (41) from rear of the engine.

28. Remove mounting nuts (42) (6 pieces), and remove cylinder head cover (43).



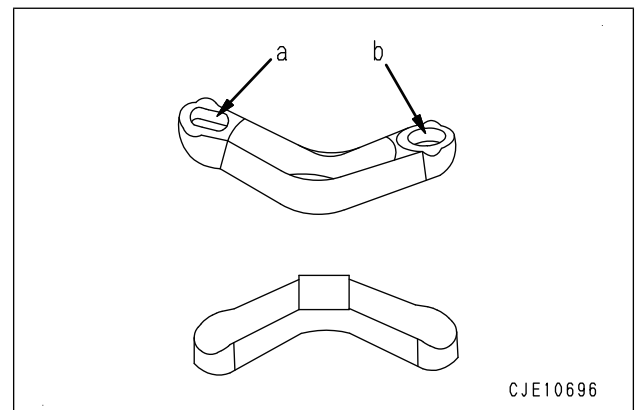
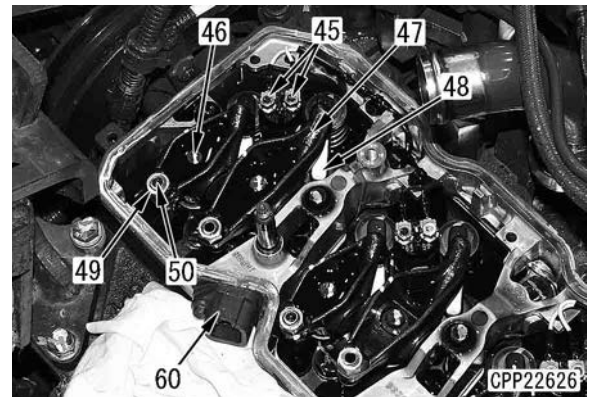
29. Remove wiring harness nut (45) from the fuel injector assembly.

Color of wiring harness	Cylinder No.
White	1, 3, 5
Black	2, 4, 6

- ★ Remove fuel injector wiring harness connector (60) from the rocker housing only when required.

30. Remove mounting bolts (46) (12 pieces), then remove rocker arm assembly (47), crosshead (48), and the rocker arm support.

- ★ Loosen lock nuts (49), and then loosen adjustment screws (50) a few turns each so that excessive force does not apply to the push rods when the rocker arms are installed.
- ★ Record the installed positions and directions of the crossheads (shapes of holes at portions (a) and (b)). (This is necessary to reinstall them in the original directions.)



31. Remove retaining nuts (51), then remove inlet connectors (52) (6 pieces).

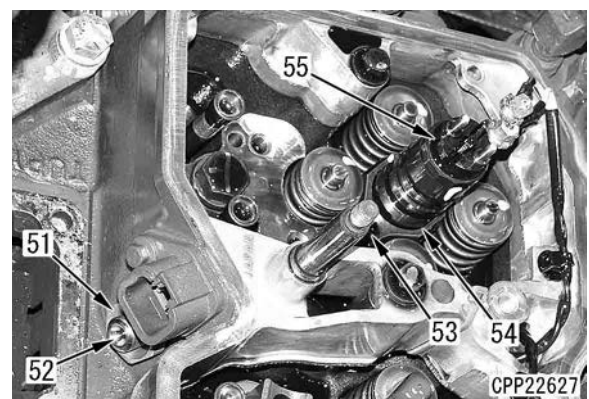
- ★ Clean the surrounding area to remove mud and other contamination in advance to prevent them from entering the connector hole.

- ★ Use tool A4 to remove inlet connector (52).

32. Remove mounting bolts (53) of fuel injector assembly (55), then remove holder (54).

33. Remove fuel injector assembly (55) by using tool A2.

- ★ Be careful that dirt and foreign material do not enter the fuel injector assembly mounting area.



[\*14]

Tube (54): Width across flats 24 mm

 **Tube (54):**

**40 ± 5 Nm {4 ± 0.5 kgfm}**

Tube (55): Width across flats 14 mm

 **Tube (55):**

**12 ± 2 Nm {1.2 ± 0.2 kgfm}**

Tube (56): Width across flats 24 mm

 **Tube (56):**

**40 ± 5 Nm {4 ± 0.5 kgfm}**

[\*15]

★ Replace the gasket with a new one.

Drain tube (57): Width across flats 10 mm

 **Drain tube (57):**


**24 ± 4 Nm {2.5 ± 0.4 kgfm}**

[\*16]

★ Replace the O-rings on tubes (61) and (64) with new ones.


★ Replace the gasket on tube (62) with a new one.

Tube (62) mounting bolt: Width across flats 10 mm

 **Tube (62) mounting bolt:**


**24 ± 4 Nm {2.5 ± 0.4 kgfm}**

Tube (64) mounting bolt: Width across flats 8 mm

 **Tube (64) mounting bolt:**

**9.5 ± 2 Nm {0.97 ± 0.20 kgfm}**

Tube (63) joint bolt: Width across flats 14 mm

 **Tube (63) joint bolt:**

**24 ± 4 Nm {2.5 ± 0.4 kgfm}**

[\*17]

EGR cooler mounting bolt (65): Width across flats 12 mm

 **EGR cooler mounting bolt (65):**

**24 ± 4 Nm {2.5 ± 0.4 kgfm}**

[\*18]

★ Replace the gasket on EGR cooler (67) with a new one.

Mounting bolt (66): Width across flats 13 mm

 **Mounting bolt (66):**

**43 ± 6 Nm {4.4 ± 0.6 kgfm}**

[\*19]

★ Temporarily install and adjust the position of all U-bolts before tightening to the specified torque.

U-bolt (69): Width across flats 19 mm

 **U-bolt (69):**

**14.7 to 44.1 Nm {1.5 to 4.5 kgfm}**

[\*20], [\*21], [\*22]

★ Replace the gasket on the tube with a new one.

★ Tighten V-clamps (70) and (73) by using tool A12 (long socket).

★ V-clamps (70) and (73) must be oriented so that the marks placed before removal are aligned.

★ Width across flats of V-clamp fastening nut: 7/16 in. (11.1 mm)


★ After fastening V-clamps (70) and (73), make sure trunnions and bands are not contacting each other.

V-clamps (70) and (73): Width across flats 10.8 mm

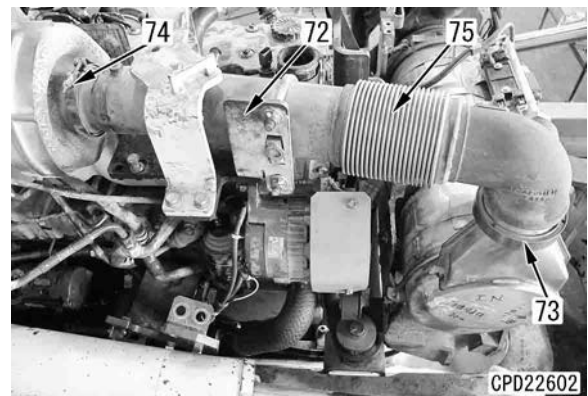
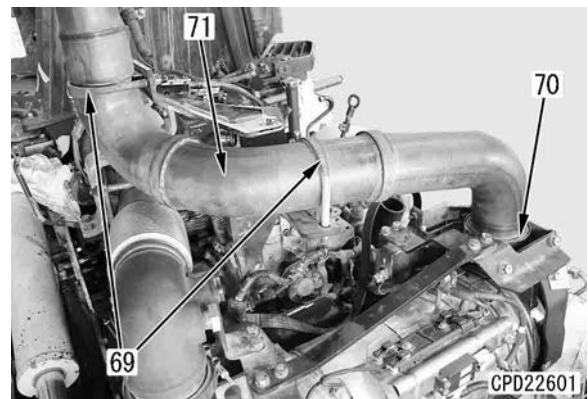
 **V-clamps (70) and (73):**

**6.3 to 8.3 Nm {0.64 to 0.84 kgfm}**

Bracket (72) mounting U-bolt: Width across flats 19 mm

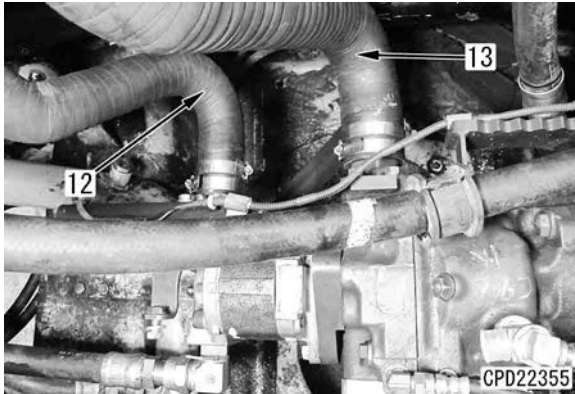
 **Bracket (72) mounting U-bolt:**

**14.7 to 44.1 Nm {1.5 to 4.5 kgfm}**



★ Although V-clamp can be reused, replace it with a new one when it is under the following condition.

- V-clamp is deformed
- Threads of T-bolt are crushed
- V-groove is cracked
- V-groove is flaking

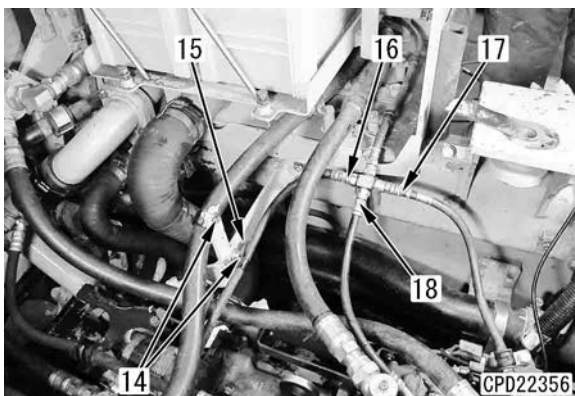


13. Remove hose clamps (14) (2 pieces), and remove bracket (15).

14. Disconnect the following hydraulic hoses.

- Hose (16)
- Hose (17)
- Hose (18)

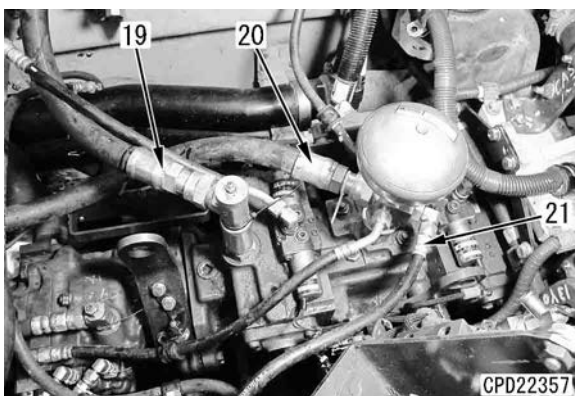
★ Plug the disconnected hose and the mounting port to prevent oil leakage.



15. Disconnect the following hydraulic hoses.

- Hose (19)
- Hose (20)
- Hose (21)

★ Plug the disconnected hose and the mounting port to prevent oil leakage.

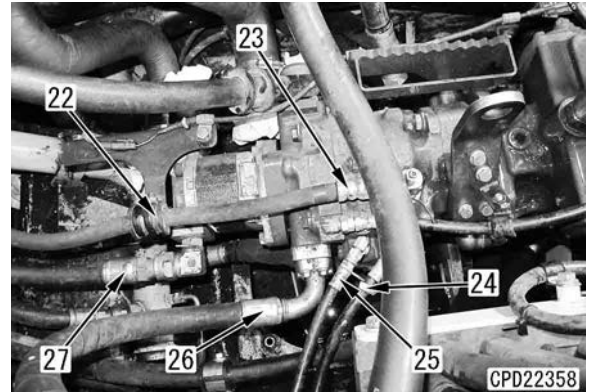


16. Remove hose clamp (22), and disconnect the following hoses.

- Hose (23)
- Hose (24)

- Hose (25)
- Hose (26)
- Hose (27)

★ Plug the disconnected hose and the mounting port to prevent oil leakage.

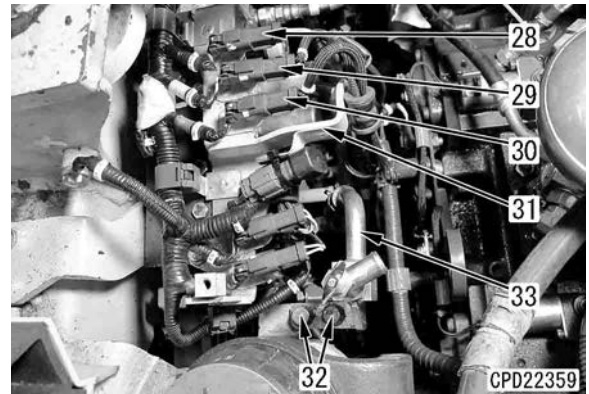


17. Disconnect the following wiring harness connectors.

- Connector PSL (28)
- Connector RME (29)
- Connector LME (30)

18. Remove bracket (31), and fix it to the HST Pump side together with the wiring harness.

19. Remove mounting bolts (32) (2 pieces), and leave heater pipe (33) free.

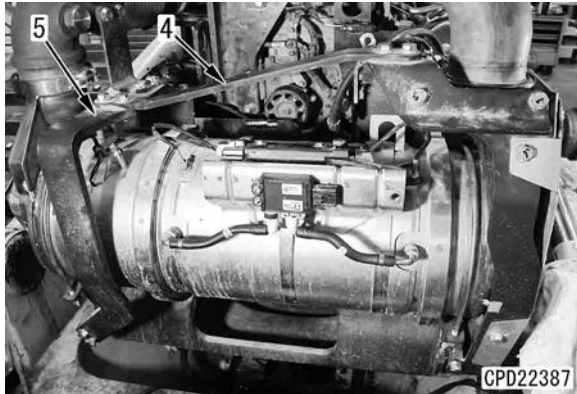


20. Disconnect hydraulic hose (34).

★ Plug the disconnected hose and the mounting port to prevent oil leakage.




21. Close fuel valves (34a) and (34b).

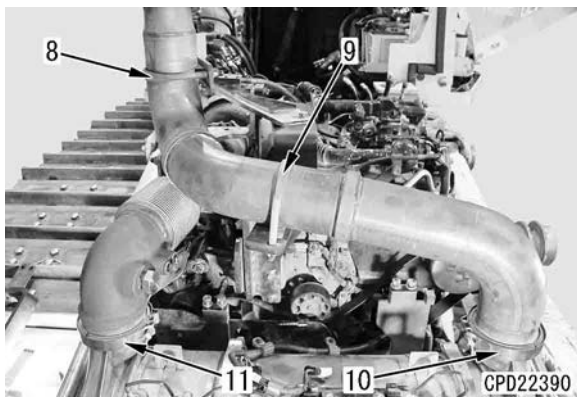


[\*2], [\*3]

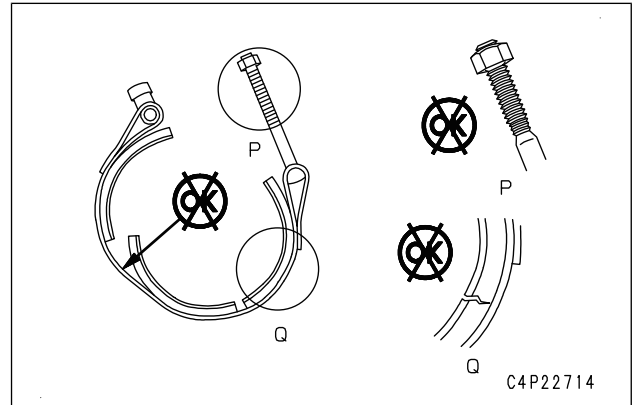
- ★ Replace the gasket on the joint portion of the tube with a new one.
- ★ Temporarily install U-bolts (8) and (9), adjust the position of them, and tighten them to the specified torque.
- ★ Fasten V-clamps (10) and (11) by using tool A12 (long socket).
- ★ V-clamps (10) and (11) must be placed to match to the marks put before removal.
- ★ Width across flats of V-clamp fastening nut: 7/16 in. (11.1 mm)
- ★ After fastening V-clamps (10) and (11), make sure trunnions and bands are not contacting each other.

V-clamps (10) and (11): Width across flats 10.8 mm



 **V-clamps (10) and (11):**  
**6.3 to 8.3 Nm {0.64 to 0.84 kgfm}**

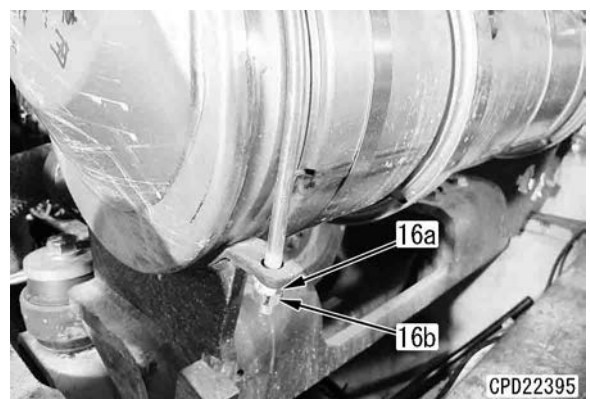
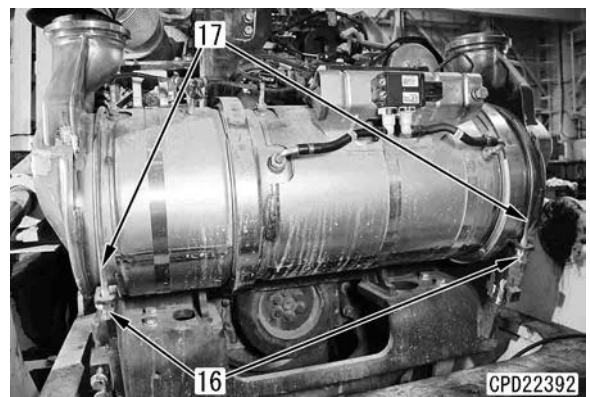


- ★ Although V-clamp can be reused, replace it with a new one when it is under the following condition.
  - V-clamp is deformed
  - Threads of T-bolt are crushed
  - V-groove is cracked
  - V-groove is flaking



[\*4]

- ★ Tighten double nuts (16) according to the following procedure.
  1. Tighten double nuts (16a) at 4 places alternately.  
Double nut (16a): Width across flats 17 mm  
 **Double nut (16a):**  
**9.8 to 13.3 Nm {1.0 to 1.3 kgfm}**
  2. Tighten double nuts (16b) at 4 places alternately.  
Double nut (16b): Width across flats 17 mm  
 **Double nut (16b):**  
**19.6 to 29.4 Nm {2.0 to 3.0 kgfm}**



## Removal and installation of air cleaner assembly (D61-A910-924-K-00-A)

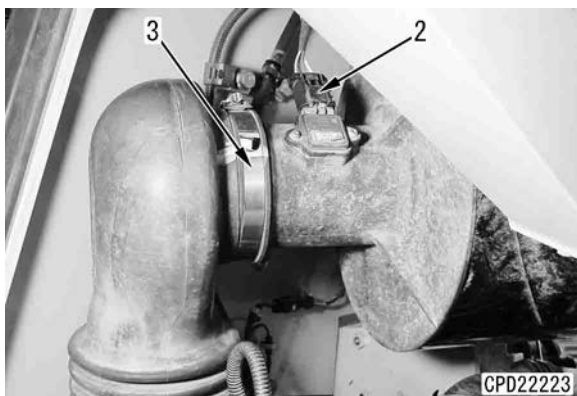
- ⚠ Place machine on a level ground and set parking brake lever to LOCK position.
- ⚠ Lower the work equipment to the ground, and set the work equipment lock lever to LOCK position.
- ⚠ Turn the starting switch to OFF position, and stop the engine.
- ⚠ Turn the battery disconnect switch to OFF position and remove the key. (For details, see Testing and adjusting, "Handling of battery disconnect switch".)

### Removal (D61-A910-520-K-00-A)

1. Remove engine hood right side cover (1).



2. Disconnect mass air flow and temperature sensor connector (2).
3. Remove band (3). [\*1]



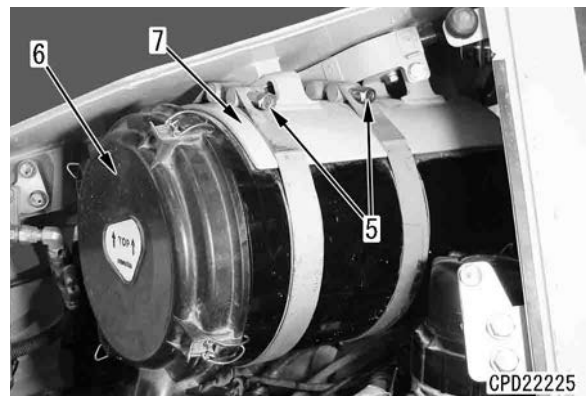
4. Remove inside cover (4).

- ★ This is because the cover may interfere with the air cleaner when removing it.

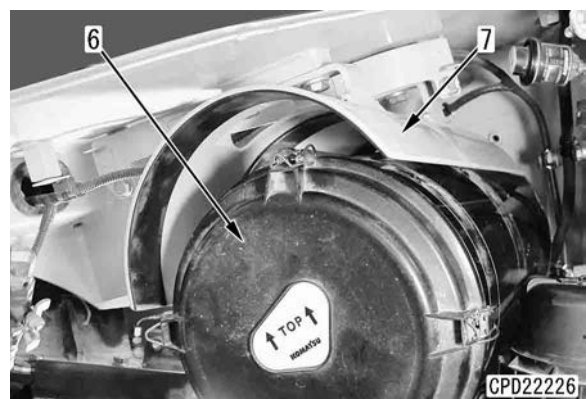


5. Open the left side inspection window in the engine hood.
6. Remove bands (5) (2 pieces) and lower air cleaner assembly (6). [\*2]

- ★ This is to loosen the mounting bolts of bracket (7).



7. Loosen mounting bolts of bracket (7), and remove bracket (7) and air cleaner (6) together.




### Installation (D61-A910-720-K-00-A)

- Perform installation in the reverse order to removal.

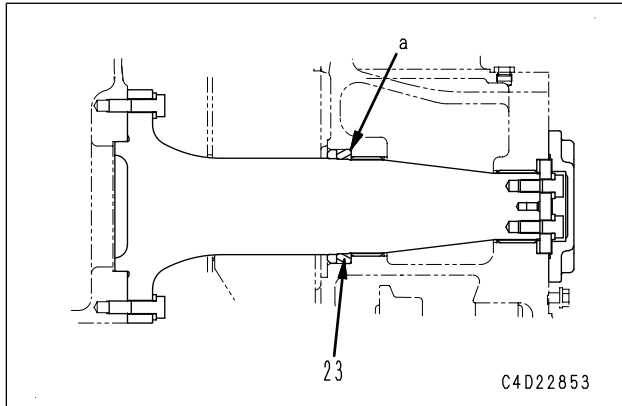
[\*1]

Band (3) mounting clamp: Width across flats 9.5 mm

 **Band (3) mounting clamp:**  
10.5 ± 0.5 Nm {1.07 ± 0.05 kgfm}

[\*8]

- ★ Apply power train oil (TO30) to (a) surface of track frame (9) when installing the track frame assembly.
- ★ When installing seal (23), see "Removal and installation of pivot shaft assembly".



- Refilling with oil (pivot shaft case)



**Pivot shaft case:**

**4.5 l (power line oil: TO30)**

- Refilling with oil (hydraulic tank)  
Refill with oil to the specified level through the oil filler port. Run the engine to circulate the oil through the system. Then check the oil level again.



**Hydraulic tank:**

**Only necessary quantity**

**(For details, see "Table of fuel, coolant and lubricants")**

- Bleeding air
  - ★ Bleed air from the hydraulic circuit. For details, see Testing and adjusting, "Bleeding air from hydraulic system".

**Disassembly and assembly of carrier roller assembly** (D61-DTJ0-926-K-00-A)

★ Special tools

Symbol	Part No.	Part name	Necessity	Q'ty
L	7	796T-267-1180	■	1
	8	796T-667-1120	■	1
	9	796-230-1110	■	1
	10	790-201-2730	■	1

**Disassembly** (D61-DTJ0-530-K-00-A)

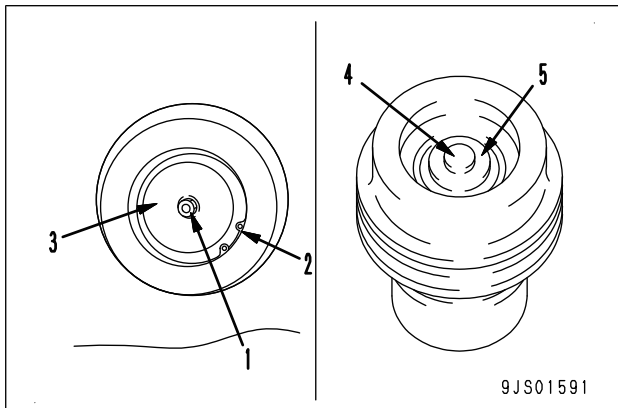
1. Remove plug (1) and drain oil.



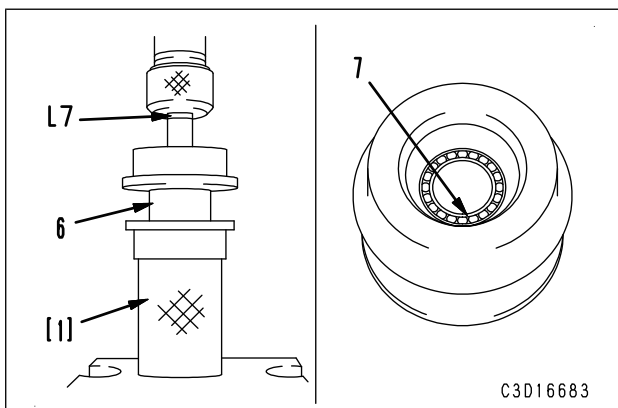
**Carrier roller:**

0.22 ℓ

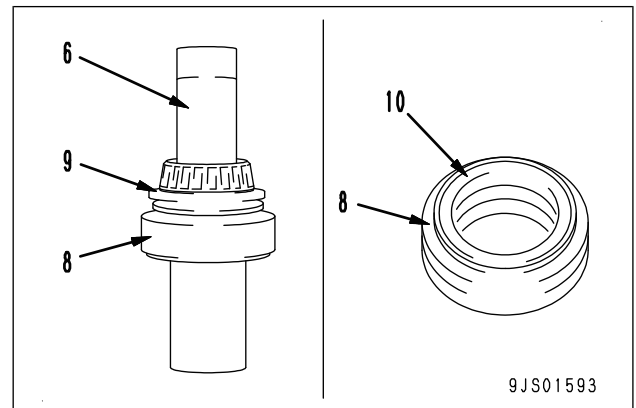
2. Remove snap ring (2), then remove cover (3).
3. Remove bolt (4) to remove spacer (5).



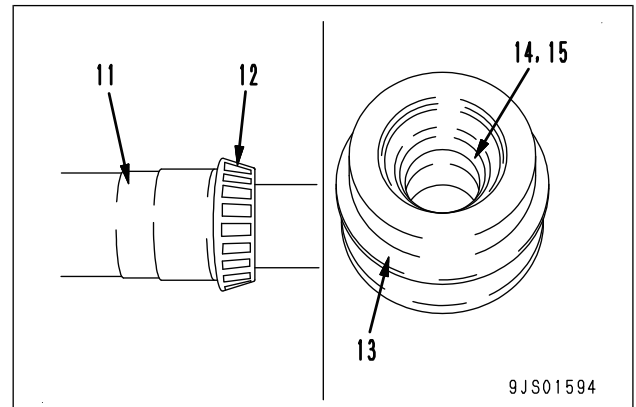
4. Set the carrier roller assembly on block [1].
5. Remove shaft assembly (6) by using press and tool L7.
6. Remove bearing (7).



7. Disassemble the shaft assembly according to the following procedure.
  - 1) Remove collar (8) from shaft assembly (6).
  - 2) Remove floating seal (9).
  - 3) Remove floating seal (10) from collar (8).

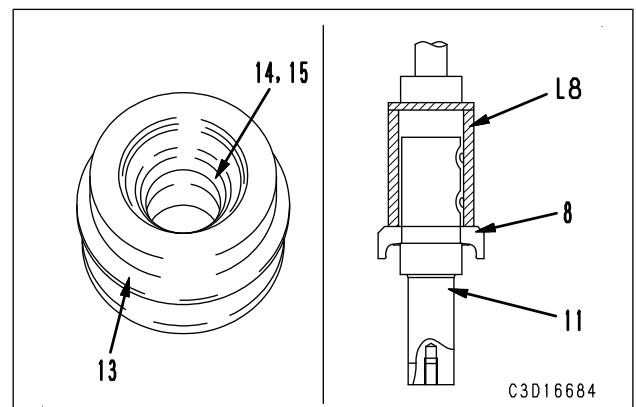


- 4) Remove bearing (12) from shaft (11).
8. Remove outer race (14) from roller (13). Turn over roller (13) and remove outer race (15).



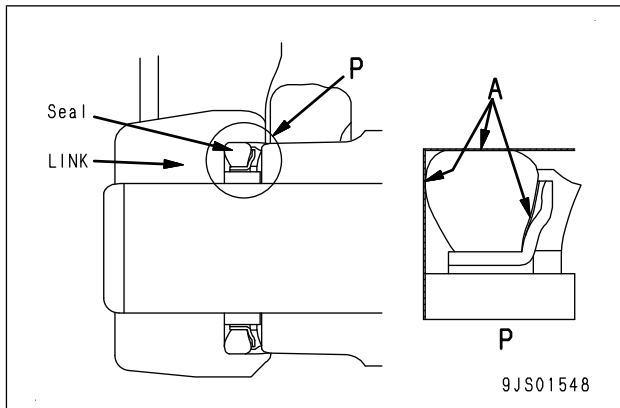
**Assembly** (D61-DTJ0-710-K-00-A)

1. Press fit outer races (15) and (14) to roller (13).
2. Assemble the shaft assembly according to the following procedure.
  - 1) Press fit collar (8) to shaft (11) by using tool L8.



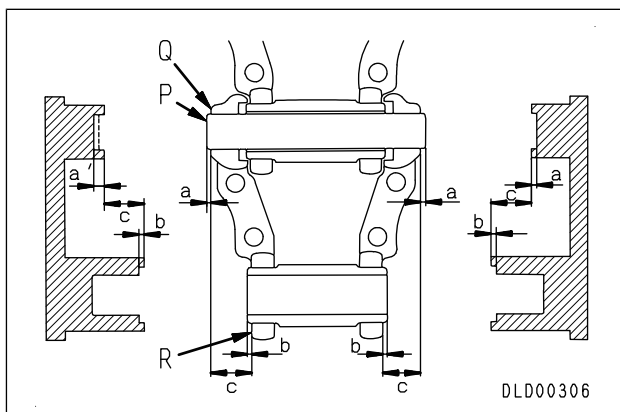
- 2) Install floating seal (10) by using tool L6.

★ When installing the floating seal, degrease and dry the parts indicated with thick line (O-ring and mating face of the O-ring).



8] Adjust the installed dimensions of the link press press-fitting jigs to keep the protrusion of the pin and bushing constant and to keep the installed dimensions of the seal within the standard range.

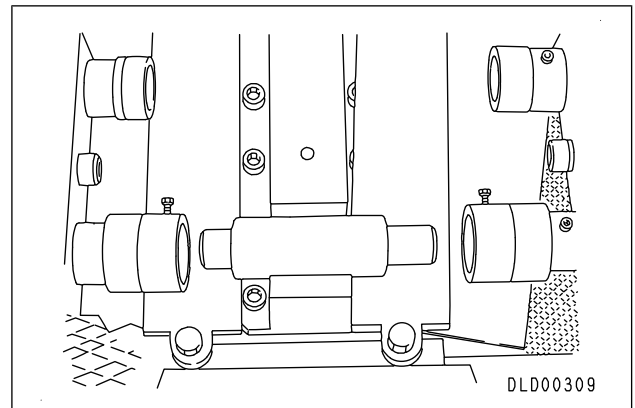
- ★ For the standard dimensions of the link press press-fitting jigs, see "Link press press-fitting jig dimensions."
- ★ If the pin end face (portion P) or link side faces (portions Q and R) are worn, add the wear reduction to the standard installed dimensions of the press-fitting jigs so that the right and left projections of the pins and bushings on both sides are even.



2) Assembly of link

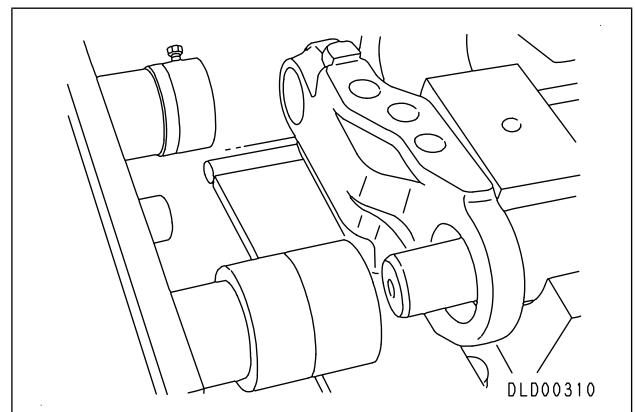
1] Apply lithium grease (G2-LI) to the mating surfaces of the pin and bushing and assemble them, then set them on the bushing jaw of the link press.

- ★ When reusing the bushing (by turning it 180 degree), set it with the worn outside surface facing the shoe mounting face of the link (set the bushing on the link press with the face up).



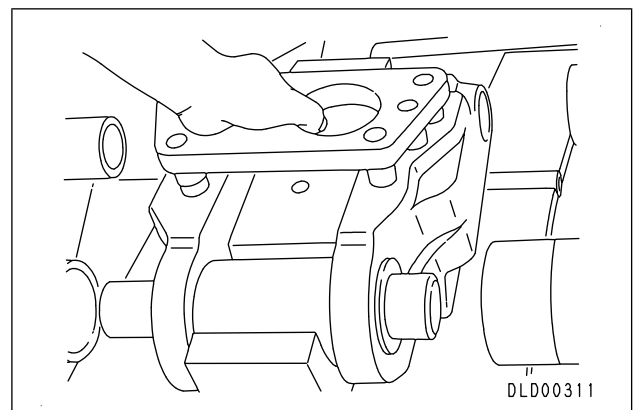
2] Set the right and left master links having bushing-bore with their shoe mounting faces up, and press fit them to the bushing.

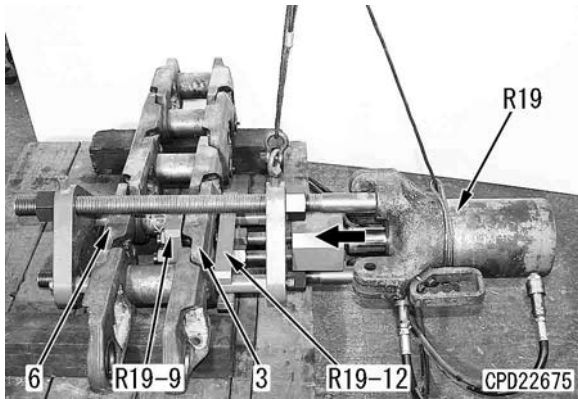
- ★ At this time, use the master links having pin-bore as supports.
- ★ Bushing press-fitting force: 49 to 196 kN {5 to 20 ton}



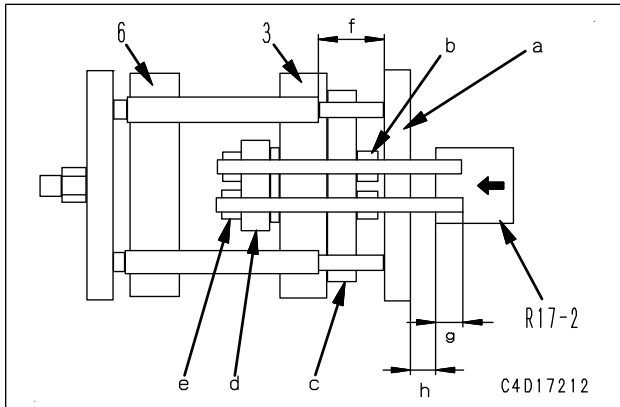
3] While checking the distance between the shoe bolt holes of the right and left master links by using the shoe bolt pitch gage, press fit the master links to the bushing until the distance is the standard value.

- ★ Remove all steel chips generated by the press-fitting process completely with compressed air.

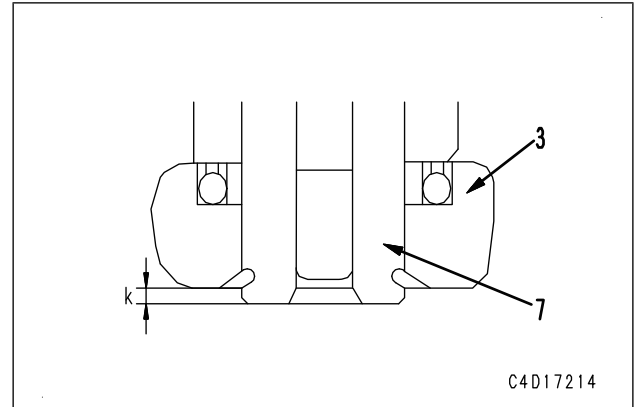




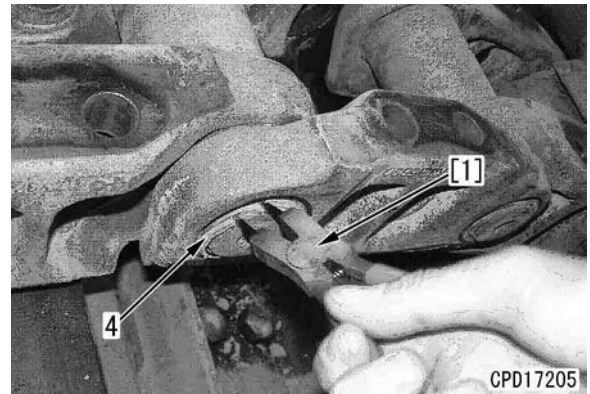
- Assembly condition (See the tool table)  
Thickness of tool R19-4: 36 mm  
Thickness of tool R19-13: 22 mm  
Thickness of tool R19-12: 36 mm  
Thickness of tool R19-9:  $32 \pm 6$  mm  
Thickness of tool R19-13: 22 mm  
Dimension: 74.5 mm  
Dimension: 35 mm  
Draft: 25 mm  
Arrow: Cylinder moving direction of tool R19-2  
(3) Outer link  
(6) Outer link



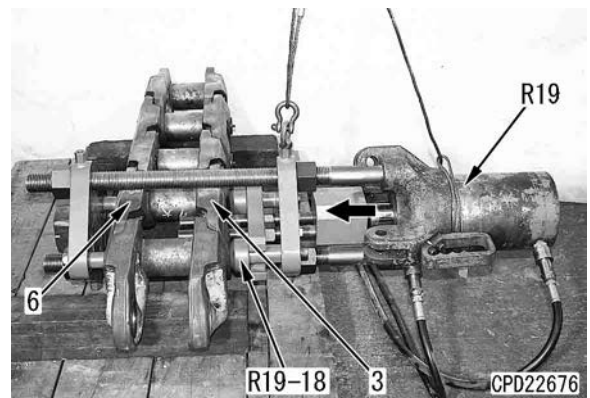
- 6) Use depth gauge [2] to measure pin protrusion (k) of pin (7) from outer link (3).  
Standard protrusion (k):  $4.7 \pm 0.2$  mm



- 7) Install wedge ring (4) by using snap ring pliers [1].
- ★ Install wedge ring (4) with its opening facing the shoe mounting face of the link.
  - ★ Install the wedge ring so that its height is the same as the link side face.

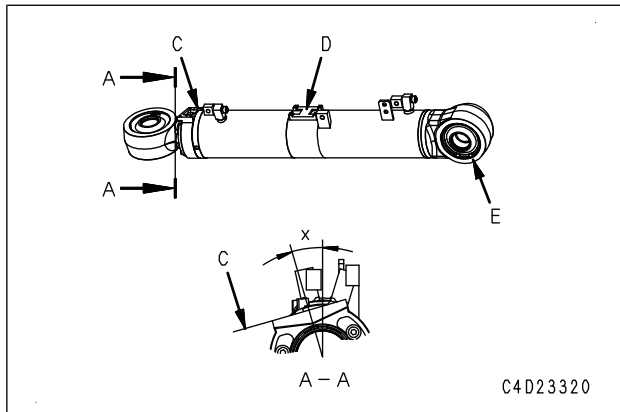


- 8) Sling tool R19, and set to the link.  
9) With tool R19 slung, align the tool with the center position of the pin.  
10) Operate tool R19-1 (see the tools table) to push tool R19-18 to the direction of arrow with the following specified pressure, to contact the pin with wedge ring tightly.  
Specified force: 118 to 236 kN {12 to 24 ton}  
11) Remove tool R19.



- For the subsequent assembly, perform in the reverse order of disassembly.
4. Oil refilling

★ Blade angle cylinder



★ Blade tilt cylinder

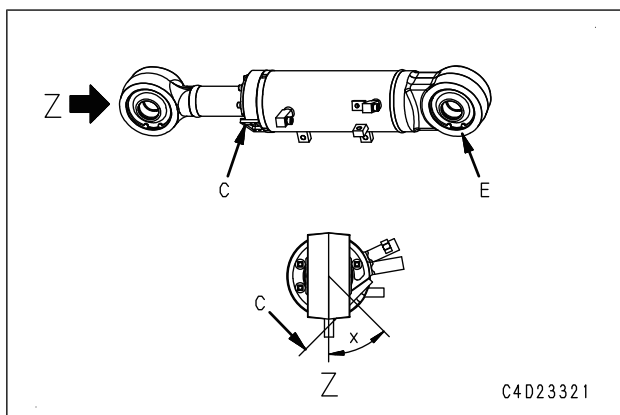


Table 2

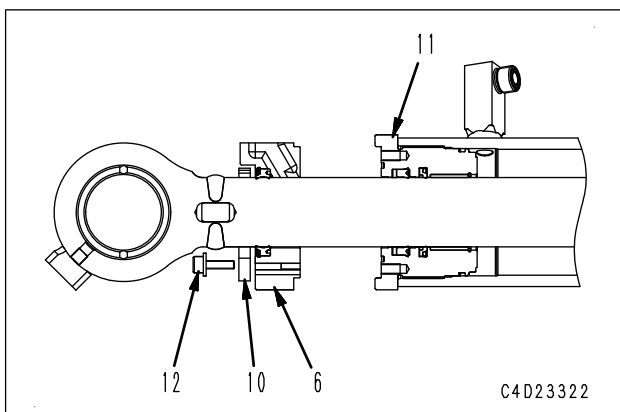
Cylinder name	Housing installed angle (x)
Blade lift	0 deg.±2 deg.
Blade angle	16.9 deg.±2 deg.
Blade tilt	45 deg.±2 deg.

10) Install housing assembly (6) and plate (10) to cylinder head assembly (11) with mounting bolt (12).

Bolt (12): Width across flats 6 mm

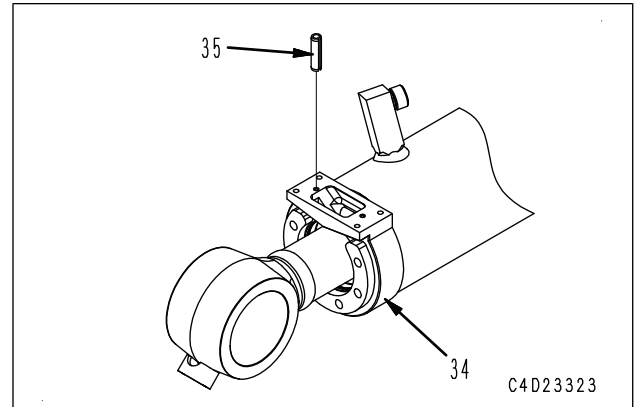
**Bolt (12):**

**27 to 34 Nm {2.8 to 3.5 kgfm}**



11) Drive locating pins (35) (2 pieces) into housing (34).

★ Replacement of locating pins (35) are not necessary when reusing housing (34).



5. Stroke and reset sensor assembly

1) Install stroke and reset sensor assembly (2).

★ Clean housing end surface (C) and H shaped plate (D) of cylinder thoroughly, and degrease them before installing sensor assembly.

★ Align hole of stroke sensor (5) to locating pin (35) of housing end surface (C) before installing sensor assembly.

★ Be careful that the wiring does not protrude between stroke sensor (5) and elbow (8) when installing.

2) Fix stroke and reset sensor assembly (2) with mounting bolts (3) and (4).

★ Check that O-ring (7) is not caught in the end surface of stroke sensor (5) when tightening mounting bolts (3) and (4).

★ Clean mounting bolts (3) and (4) thoroughly and degrease them.

★ Tighten mounting bolts (3) and (4) diagonally.

**Mounting bolts (3) and (4):**

**Adhesive (ThreeBond TB1344 or equivalent)**

Mounting bolts (3) and (4): Width across flats 5 mm

**Mounting bolts (3) and (4):**

**11.8 to 14.7 Nm {1.2 to 1.5 kgfm}**

3) Check that union (36) and sleeve nut (37) are not loosen.

Union (36): Width across flats 24 mm

**Union (36):**

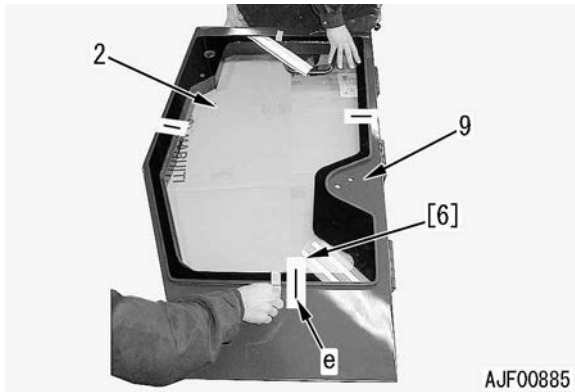
**59 to 90 Nm {6.0 to 10.0 kgfm}**

Sleeve nut (37): Width across flats 27 mm

**Sleeve nut (37):**

**84 to 123 Nm {8.5 to 12.5 kgfm}**

- ★ Press the corners of the window glass firmly.



8. Fix window glass (9).

- 1) Fix the front window glass securely to cure it by using styrene foam blocks [10] and rubber bands [11].

- ★ Or secure it with adhesive tapes.  
(The figure shows the operator's cab for a hydraulic excavator.)



9. Clean the remaining primer and adhesive on the window glass and operator's cab after completing the installation of the window glass.

- ★ Wipe off adhesives before it is dried up by using white gasoline.
- ★ When cleaning the glass, do not give an impact to it.

10. Cure the adhered window glass.

- 1) Keep the stopper rubbers, styrene foam blocks, and rubber bands installed for 10 hours of curing period.  
(Ambient temperature 20°C/ Humidity 65 %)
- 2) After applying adhesives, cure the windows for 24 hours. Then, start the machine.

## Removal and installation of GNSS receiver (D61-LL85-924-K-00-A)

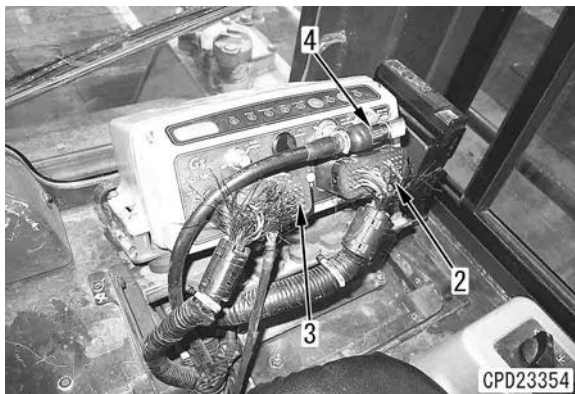
- ⚠ Place the machine on a level ground, and set the parking brake lever to LOCK position.
- ⚠ Lower the work equipment to the ground, and set the work equipment lock lever to LOCK position.
- ⚠ Turn the power supply of control box OFF.
- ⚠ Turn the starting switch to OFF position, and stop the engine.
- ⚠ Turn the battery disconnect switch to OFF position, and remove the key. (For details, see Testing and adjusting, "Handling battery disconnect switch".)

### Removal (D61-LL85-520-K-00-A)

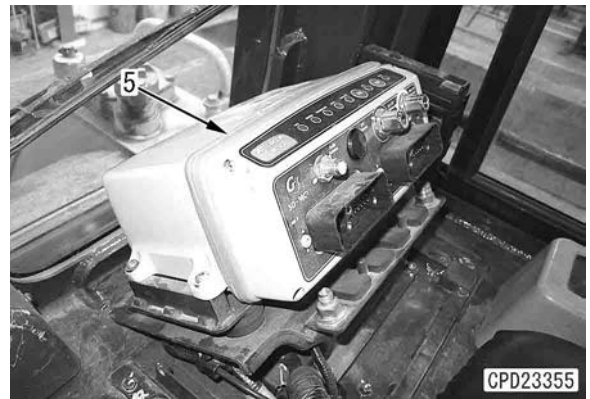
1. Remove cover (1) of GNSS receiver on the rear left of the cab.



2. Disconnect wiring harness connectors GPSB1 (2), GPSB2 (3), and MGA1 (4). [\*1]
  - ★ Remove dirt, etc. sticking to each wiring harness connector, and disconnect them.
  - ★ Loosen hexagonal socket head bolts (width across flat 4mm) at the center of wiring harness connectors GPSB1 (2) and GPSB2 (3), and remove them.



3. Remove GNSS receiver (5).



### Installation (D61-LL85-720-K-00-A)

- Perform installation in the reverse order to removal.

[\*1]

- ★ Remove dirt, etc. sticking to each wiring harness connector, and connect them.

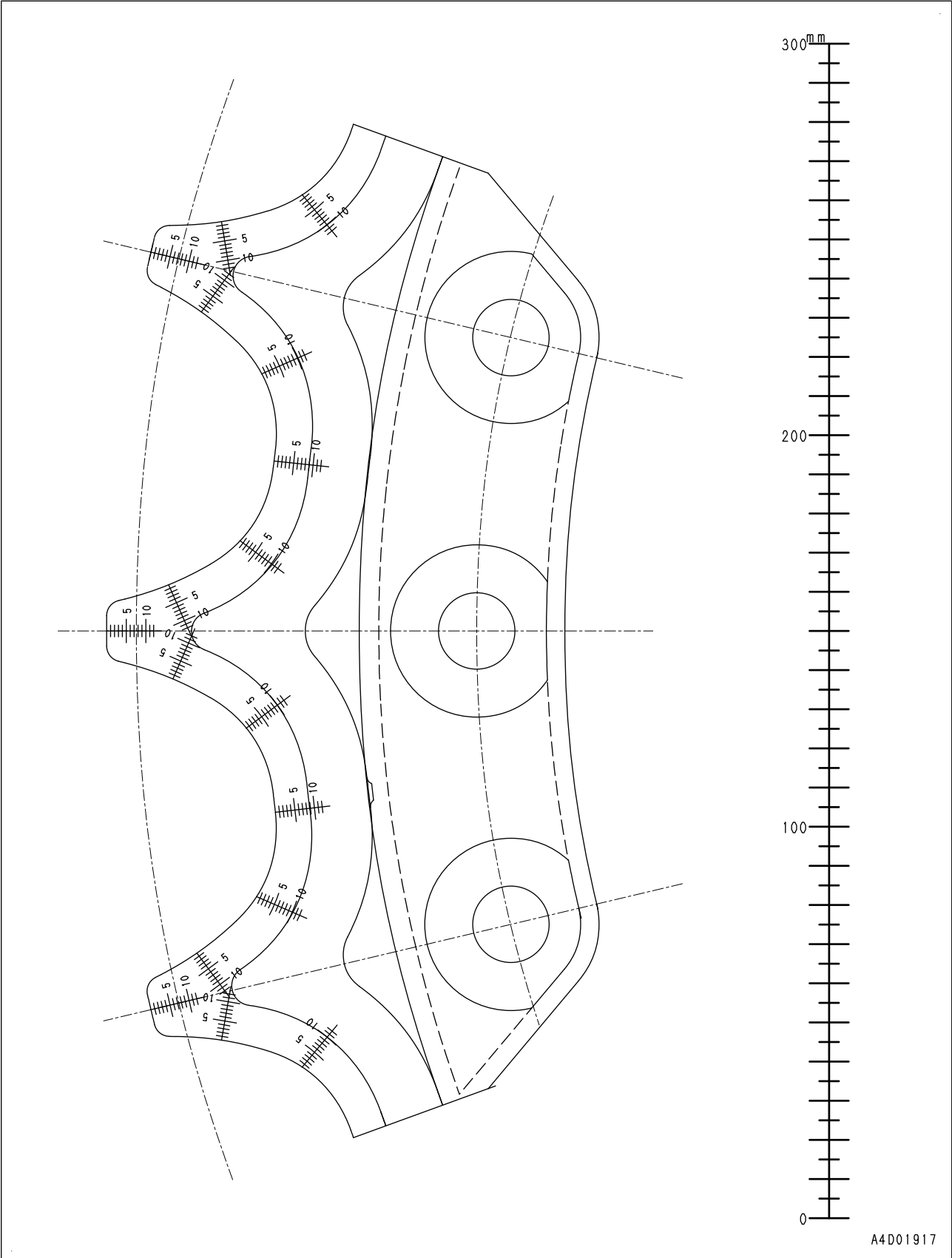
Hexagonal socket head bolt (width across flats 4mm) at center of each wiring harness connector:  
Width across flats 4 mm

- ⚙ Hexagonal socket head bolt (width across flats 4mm) at center of each wiring harness connector:  
2.82 Nm {0.288 kgfm}

**Full-scale drawing of sprocket tooth profile** (D61-DT60-034-K-01-A)

For conventional type track shoes

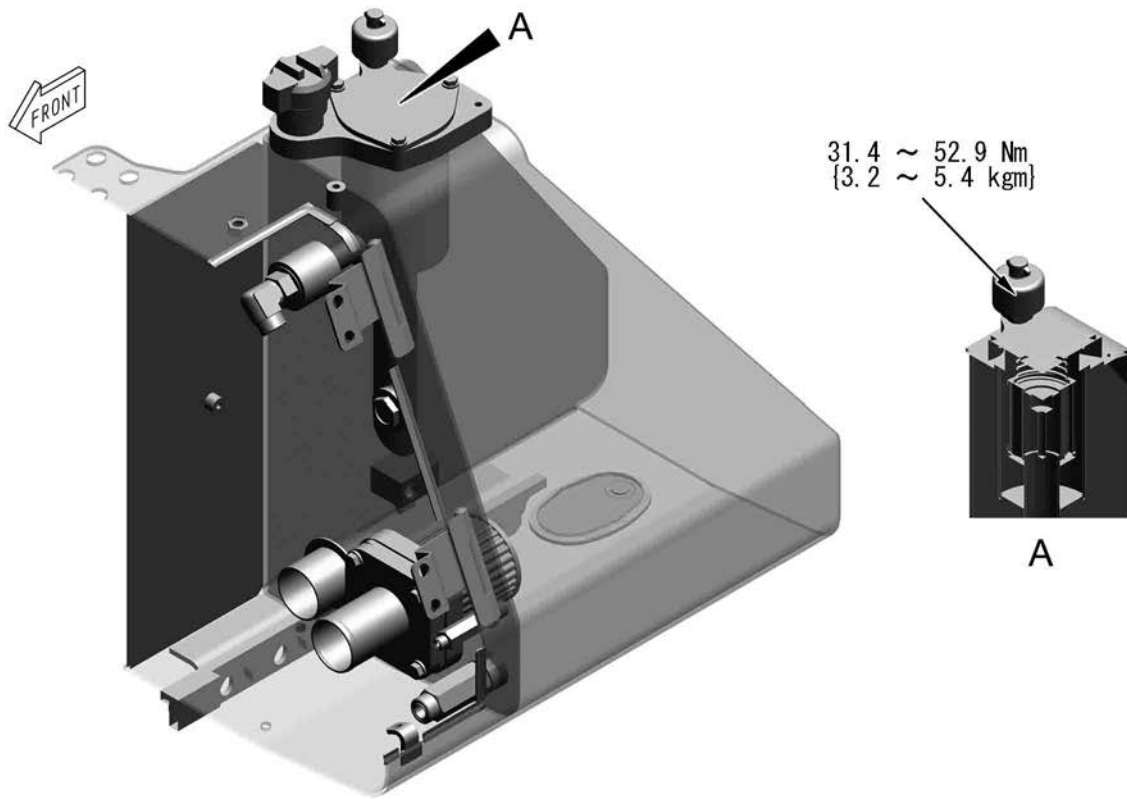
★ Duplicate the full-scale drawing onto an OHP sheet.



A4D01917

**Hydraulic system** (ALL-C000-001-K-00-A)

**Hydraulic tank** (D61-PM30-034-K-00-A)

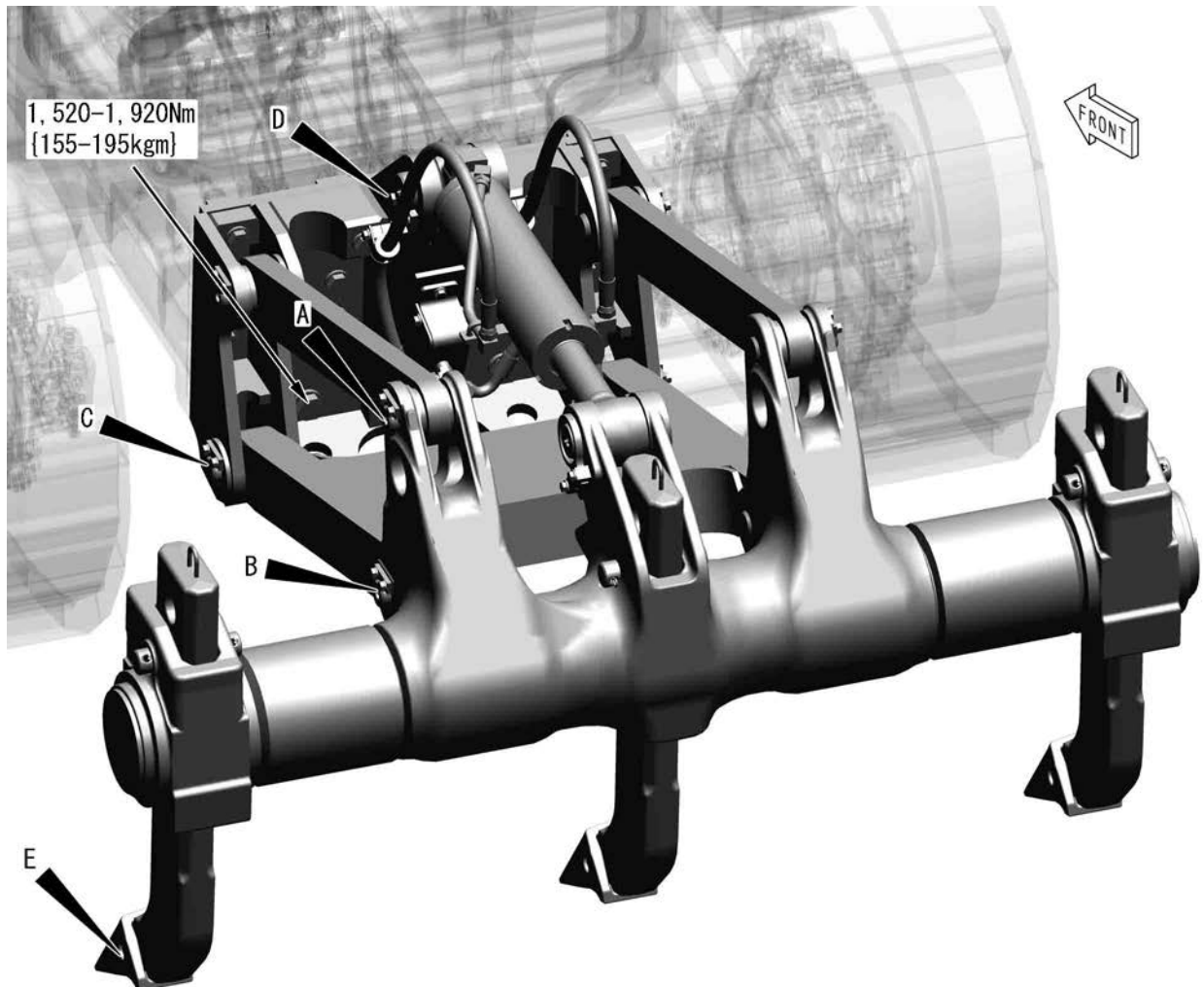


APD01903

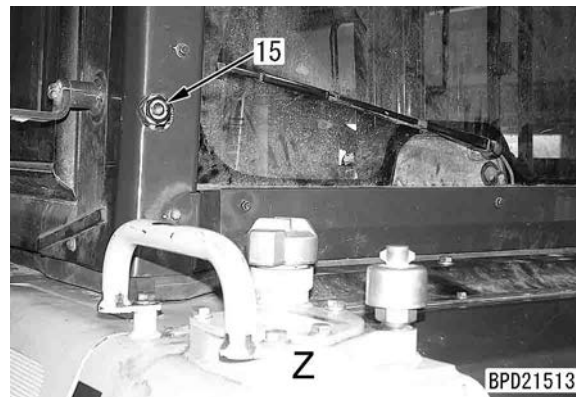
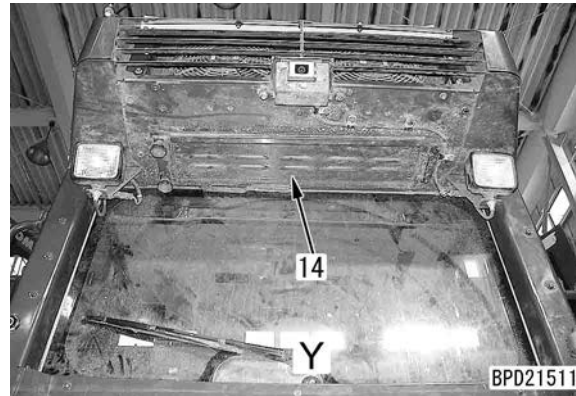
**Ripper** (D61-M100-034-K-00-A)

D61EX-23, D61EXI-23

(if equipped)



APD01869



1. Compressor
2. Air conditioner unit
3. Condenser
4. Receiver drier
5. Refrigerant discharge piping
6. Refrigerant suction piping
7. Heater unit (floor)
8. Hot water valve
9. Hot water piping
10. Hot water return piping
11. Dual pressure switch
12. Pressure switch
13. Recirculation air filter
14. Fresh air filter
15. Sight glass

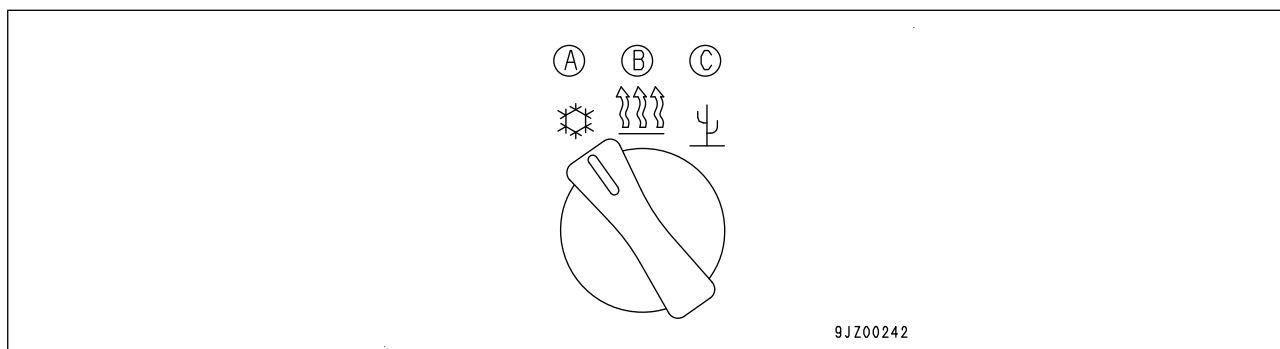
### Control method of air conditioner

★ Self-diagnosis function is not provided.

1. Air conditioner unit is controlled by respective switches input.
2. Operation of fan switch varies air flow by switching the terminal connected to resistor.
3. Fan switch functions as ON/OFF switch of air conditioner as well. Setting fan switch to any position other than OFF (1 to 4) starts supplying power to mode selector switch and relays (ACR1 to ACR3).
4. Turning fan switch to any position other than OFF (1 to 4), and mode selector switch to AIR CONDITIONING (A) normally turns compressor clutch relay (ACR2) and condenser fan relay (ACR3) to ON. Thermostat and dual pressure switch are provided in primary side of compressor clutch relay (ACR2). They controls compressor to be turned OFF when freezing evaporator is frozen or abnormality in refrigerant pressure (abnormally high or low) is detected. Pressure switch is provided in primary side of condenser fan relay (ACR3). It controls condenser fan to be turned OFF if abnormality in refrigerant pressure (abnormally high or low) is detected.
5. By turning mode selector switch to AIR CONDITIONER (A), power is supplied to temperature adjustment switch (potentiometer) through diode (AC9). By operating temperature adjustment switch, volume of hot water supplied from hot water valve to air conditioner varies and temperature is adjusted.

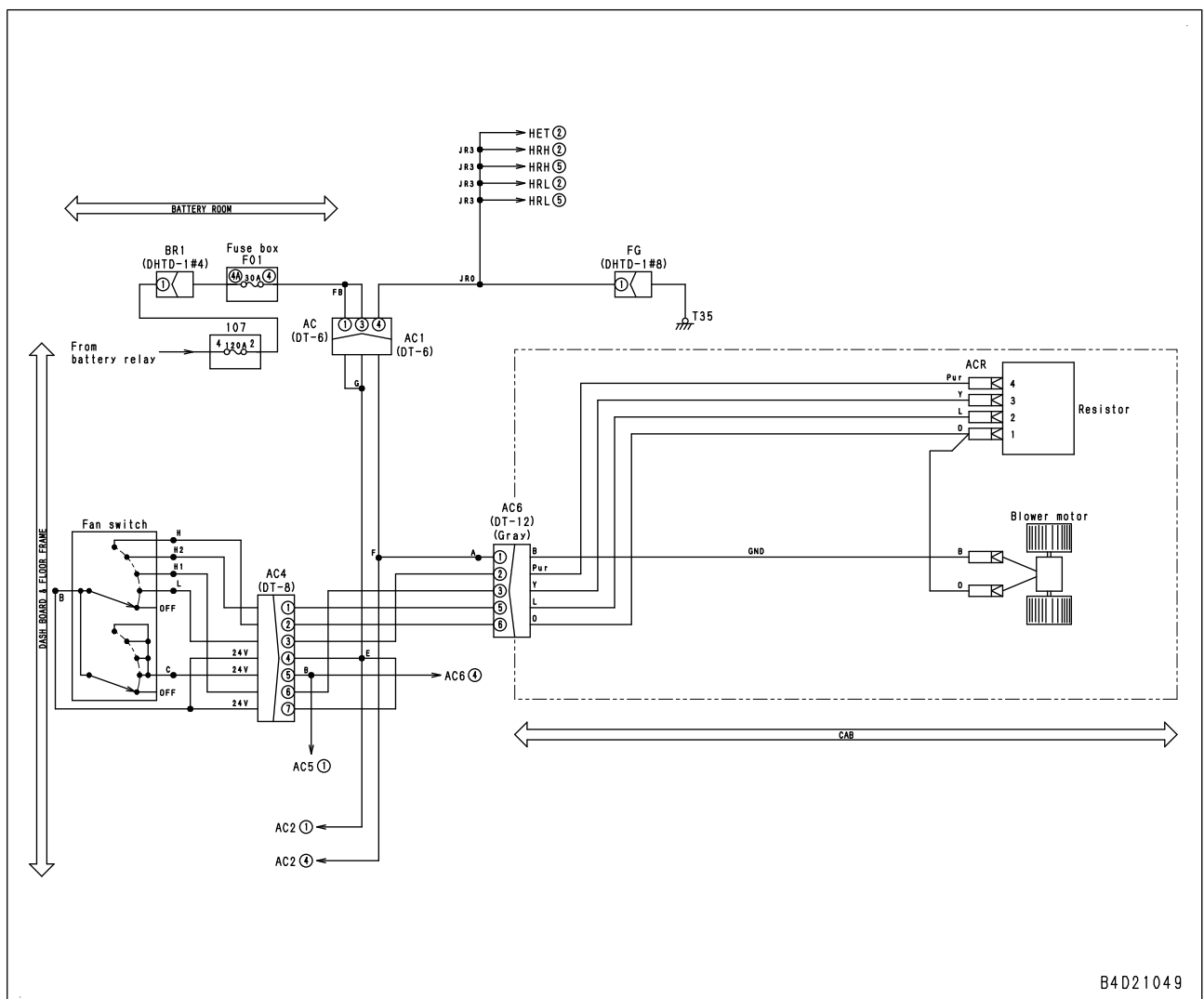
★ Temperature adjustment switch is operable even after foot heater switch is turned on.

6. By turning mode selector switch to HEATER (B), heater mode relay (ACR1) is actuated and compressor clutch relay (ACR2) and condenser fan relay (ACR3) are turned OFF. As a result, operation of compressor and condenser fan is stopped.
- Mode selector switch



No.	Cause	Procedure, measuring location, criteria and remarks		
7	Open circuit in wiring harness (wire breakage or defective contact of connector)	★ If no failure is found by check on cause 3, this check is not required. 1. Turn starting switch to OFF position. 2. Remove fuse F01-4. 3. Disconnect connectors AC4 and AC6, and connect T-adapters to each female side.		
		Resistance	Between F01 (4) and AC4 (female) (4)	Max. 1 Ω
			Between F01 (4) and AC4 (female) (7)	Max. 1 Ω
			Between AC4 (female) (2) and AC6 (female) (6)	Max. 1 Ω
			Between AC4 (female) (1) and AC6 (female) (5)	Max. 1 Ω
			Between AC4 (female) (6) and AC6 (female) (3)	Max. 1 Ω
			Between AC4 (female) (3) and AC6 (female) (2)	Max. 1 Ω
	Between AC6 (female) (1) and ground	Max. 1 Ω		
8	Short circuit in wiring harness	1. Turn starting switch to OFF position. 2. Disconnect connector AC6 and connect T-adaptor to male side. ★ Since above is to measure resistance of resistor, value does not exceed 1MΩ		
		Resistance	Between AC6 (male) (1) and (2)	1 to 20 Ω
			Between AC6 (male) (1) and (3)	1 to 20 Ω
			Between AC6 (male) (1) and (5)	1 to 20 Ω
			Between AC6 (male) (1) and (6)	1 to 20 Ω

Circuit diagram related to blower motor



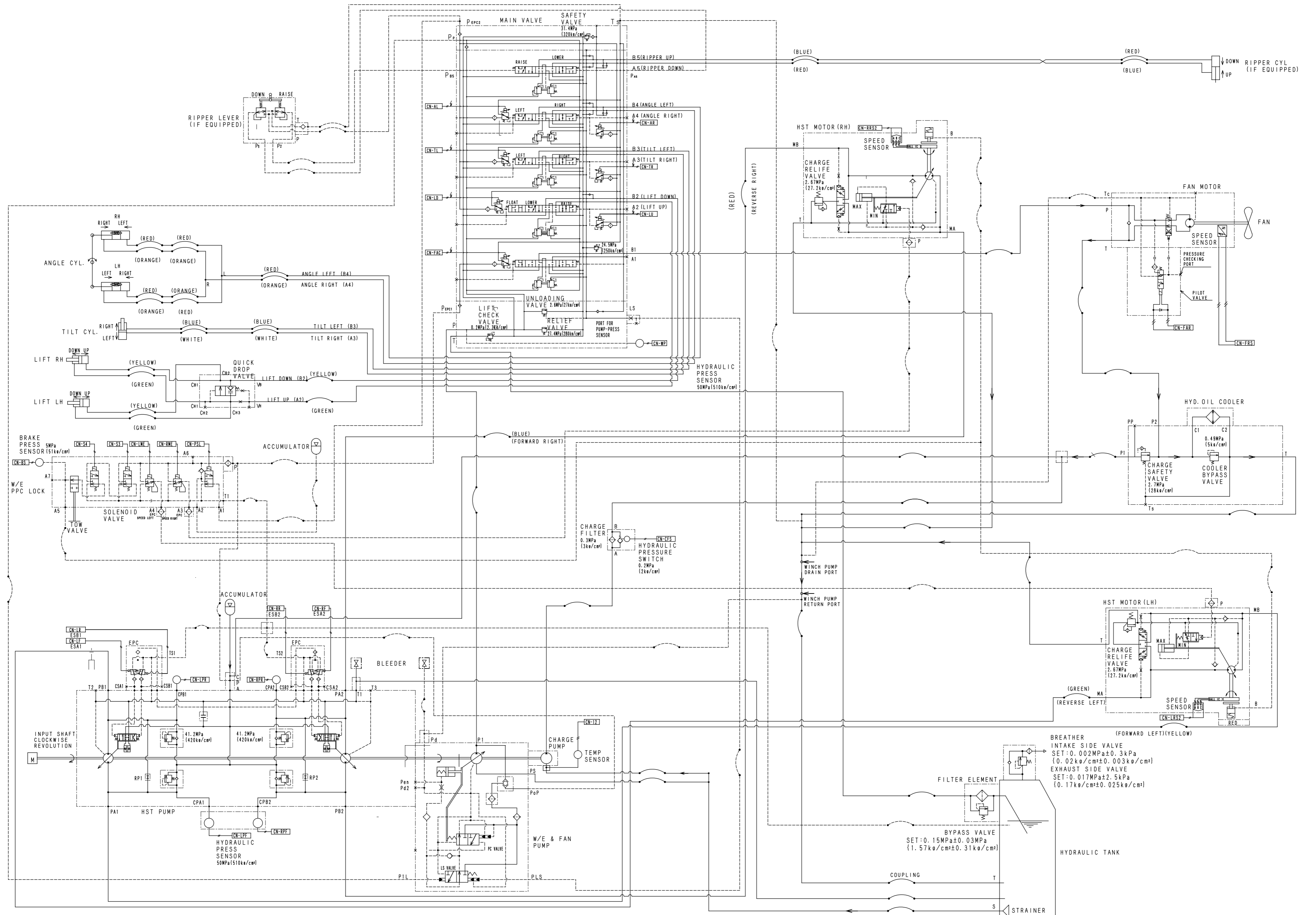
B4D21049

# Hydraulic circuit diagram

D61EXI-23, D61PXI-23

★ This diagram covers optional components that are unavailable in some areas.

Hydraulic circuit diagram  
D61EXI-23, D61PXI-23



CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL