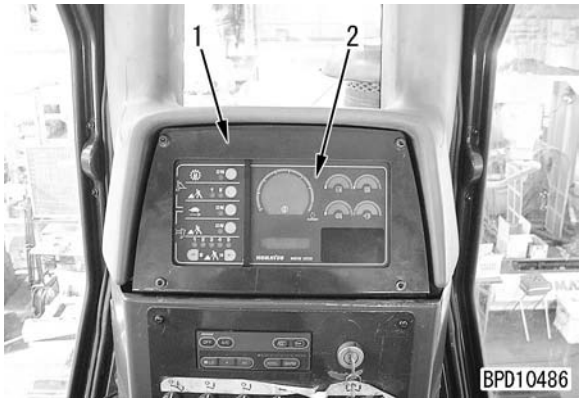
Preparation work for troubleshooting for electric system

★ When carrying out troubleshooting for an electric circuit related to the machine monitor, engine controller, transmission controller, or steering controller, expose the related connectors according to the following procedure.

1. Machine monitor

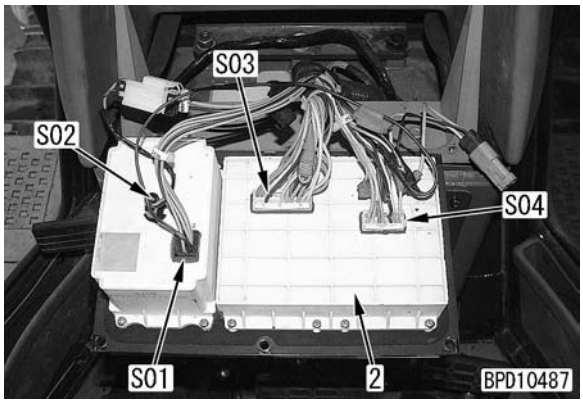
1) Remove cover (1).
2) Remove the 2 mounting bolts and pull out machine monitor (2) toward the operator's seat.

Serial No.: 30001 – 30131



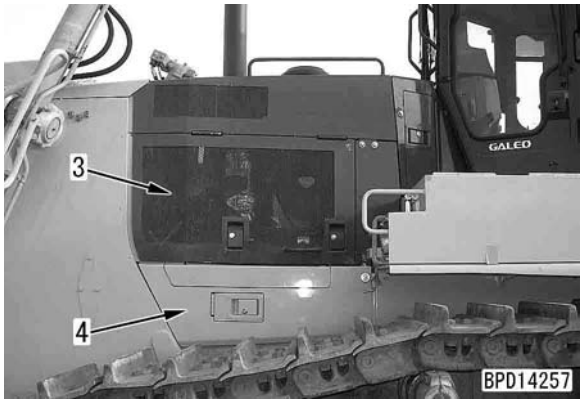
Serial No.: 30132 and up

3) Insert or connect T-adapters in or to connectors S01, S02, S03, and S04 of machine monitor (2).

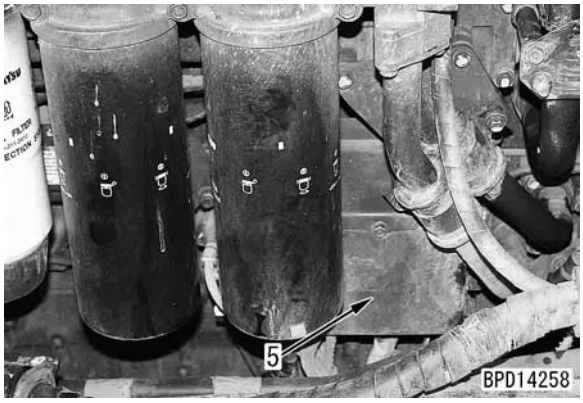


2. Engine controller

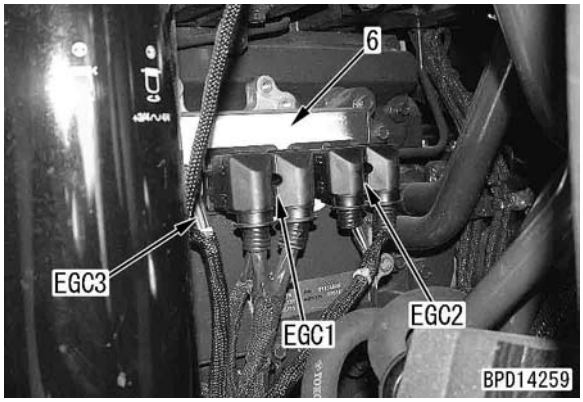
1) Open left engine side cover (3) and remove cover (4).



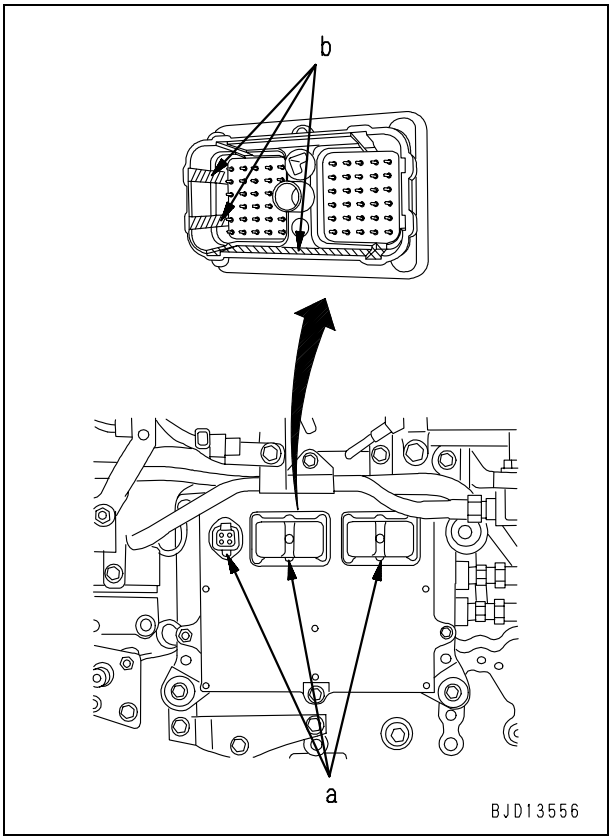
2) Remove the cover (5).



3) Insert or connect troubleshooting T-adapters in or to connectors EGC1, EGC2 and EGC3 of engine controller (6).
★ Since connectors EGC1 and EGC2 are fixed with screws, loosen those screws before disconnecting.
★ When connecting connectors EGC1 and EGC2, tighten the screws to the specified torque.
Screw: **3 ± 1 Nm {0.3 ± 0.1 kgm}**



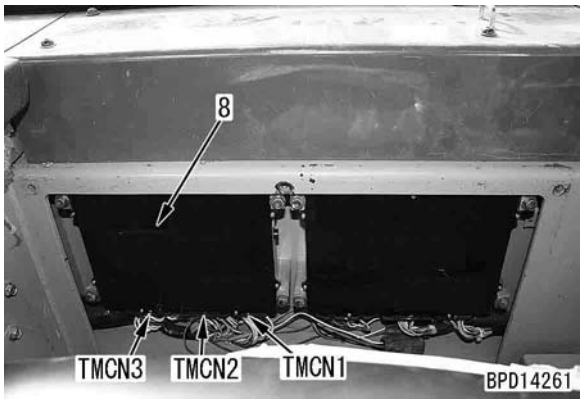
⚠ In order to prevent malfunction and mistaken system error warning, be sure to completely remove foreign object (b) such as sand, dust, water, etc., from inside of controller side connector (a) with air blow etc., before connecting to harness connector.



3. Transmission controller

1) Slide the operator's seat to the front end and fold the seat back forward.
2) Remove cover (7).

3) Insert or connect T-adapters in or to connectors TMCN1, TMCN2, and TMCN3 of transmission controller (8).
★ If the connectors cannot be disconnected and connected easily, remove the controller from the floor frame.
★ Since the connectors are secured with screws, loosen those screws before disconnecting.
★ When connecting the connectors, tighten the screws to the specified torque.
Screw: **2.82 Nm {0.288 kgm}**

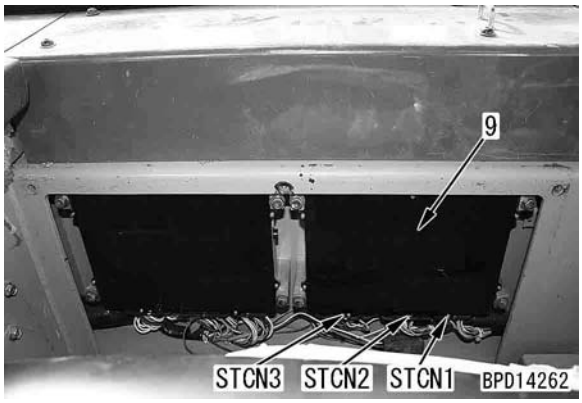


4. Steering controller

1) Slide the operator's seat to the front end and fold the seat back forward.
2) Remove cover (7).

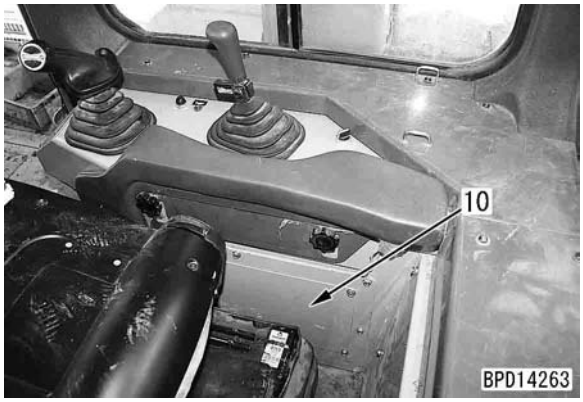
3) Insert or connect T-adapters in or to connectors STCN1, STCN2, and STCN3 of transmission controller (9).
   - ★ If the connectors cannot be disconnected and connected easily, remove the controller from the floor frame.
   - ★ Since the connectors are secured with screws, loosen those screws before disconnecting.
   - ★ When connecting the connectors, tighten the screws to the specified torque.

   Screw: **2.82 Nm {0.288 kgm}**



5. KOMTRAX terminal

1) Slide the operator's seat to the front end and fold the seat back forward.
2) Remove cover (10) from the right rear of the operator's seat.



3) Insert or connect a troubleshooting T-adapter in or to connector KOM1 of KOMTRAX terminal (11).
   - ★ If it is difficult to disconnect and connect the connector, remove the terminal from the floor frame.
   - ★ Since the connector is fixed with screws, loosen those screws before disconnecting.
   - ★ When connecting the connector, tighten the screws to the specified torque.

   Screw: **2.82 Nm {0.288 kgm}**

Handling of optional devices

★ This machine has connectors to install optional devices in its fuse box. When installing any optional device, receive the necessary signals and power through those connectors without modifying the wiring harness.

1. Taking out ACC signal of starting switch

If the ACC signal (ON signal) of the starting switch is necessary to an optional device such as the turbocharger timer, take it out through the following connector pin.

- Pin (B) of CN-ESD (3-pole heavy duty wire connector)

★ A 20-A fuse is installed on the upstream side of this connector pin.

2. Inputting engine stop signal

When it is required to stop the engine with an optional engine emergency stop function etc. while the starting switch is in the ON position, utilize the circuit of the following connectors and pins.

- Pin (A) of CN-ESD (3-pole heavy duty wire connector)

★ Before using, be sure to notify the Service Section.

3. Inputting engine low-idle command

When it is required to keep the engine speed at low idle with an optional engine protection function etc., utilize the circuit of the following connectors and pins.

- Pin (C) of CN-ESD (3-pole heavy duty wire connector)

★ Before using, be sure to notify the Service Section.

4. Taking out C signal of starting switch

If the C signal (starting signal) of the starting switch is necessary to an optional device such as the pre-lubricator, take it out through the following connector pin.

- CN-PRS (2-pole heavy duty wire connector)

★ Remove the connector installed when the machine is shipped and connect pin (1) to the starting signal to be output finally by the optional device and connect pin (2) to the starting switch signal to be input to the optional device.

5. Taking out external power source

If an external power source is necessary, take it through the following connectors.

- CN-800, CN-810 (Plug connectors)
- CN-801, CN-811 (Plug connectors)

★ A 20-A fuse is installed on the upstream side of each of these connectors.

★ CN-800 and CN-801 are prepared in the fuse box and CN-810 and CN-811 are prepared on the outside of the floor.

Pm Clinic service

Model	Serial No.	Service meter
D275AX-5E0		h

User name	Date of clinic	Serviceman
	/ /	

Specifications		
Blade	**Attachment**	**Shoe width**
☐ Semi U blade ☐ U blade ☐ Dual tilt blade ☐	☐ Multi-shank ripper ☐ Variable giant ripper ☐ Counterweight (kg) ☐	☐ 610 mm ☐ 710 mm ☐ 760 mm ☐

Operating conditions			
Quarry, mine	**Construction**	**Type of soil (specific gravity)**	**Type of work**
☐ Coal	☐ Construction, civil engineering	☐ Rock	☐ Dozing %
☐ Gold	☐ Roads	☐ Gravel	☐ Side cutting %
☐ Limestone	☐ Tunnels	☐ Sand	☐ Ripping %
☐	☐	☐ Clay	☐ Travel %

Existence of abnormalities		
Oil, coolant level check		
☐ Engine coolant level	When necessary	
☐ Engine oil level	☐ Power train	☐ Damper case
☐ Hydraulic oil level	☐ Final drive	☐ ( )

Ambient temperature	Height above sea level
Max. Min. °C	m

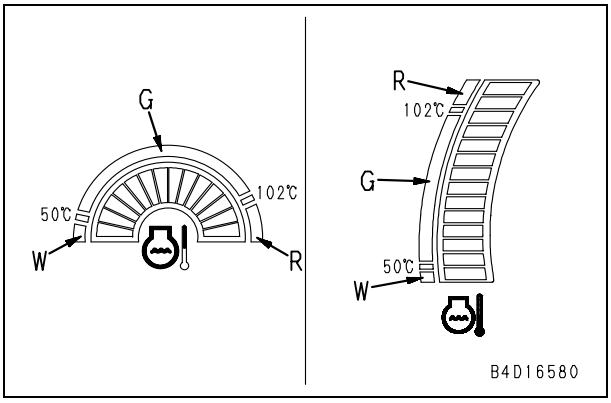
Operator's opinion

Visual check results

Failure code history	
[ ] h	[ ] h
Content:	Content:
[ ] h	[ ] h
Content:	Content:

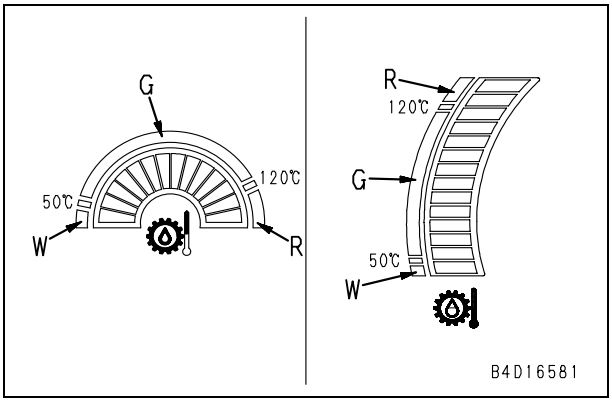
★ Engine coolant temperature: Max. range

Serial No.: 30001 – 30131 Serial No.: 30132 and up

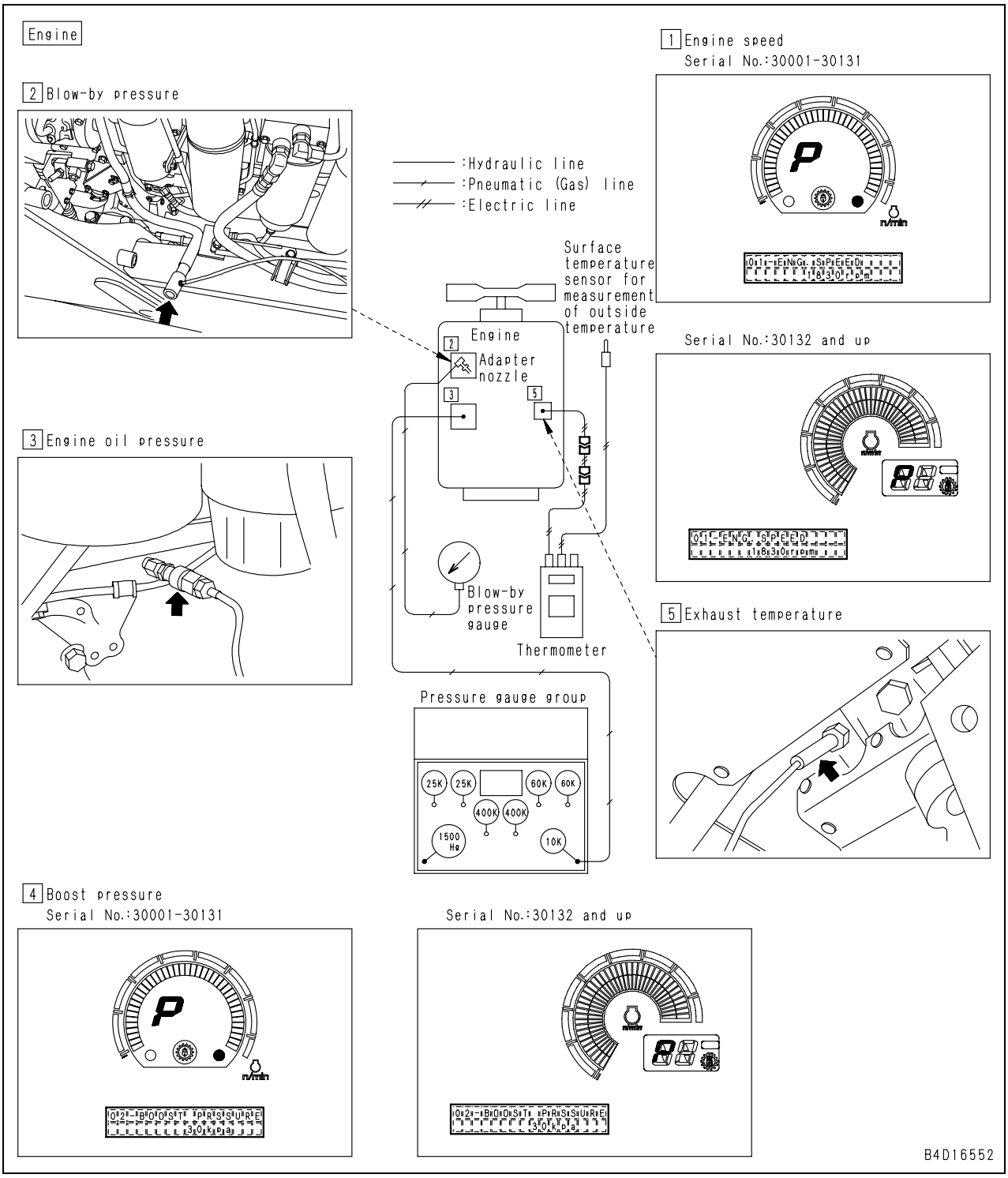


★ Power train oil temperature: Max. range

Serial No.: 30001 – 30131 Serial No.: 30132 and up



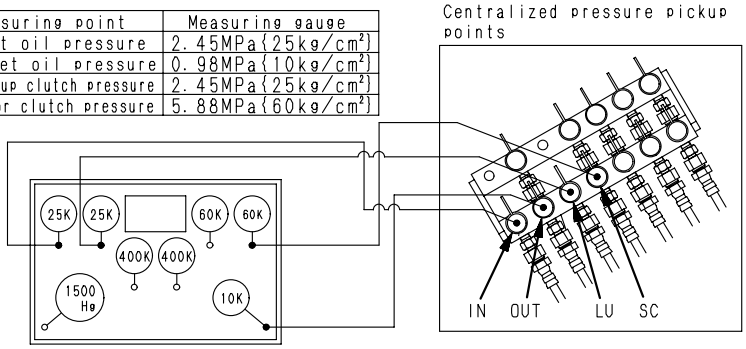
Check positions/Method 1



Check positions/Method 2

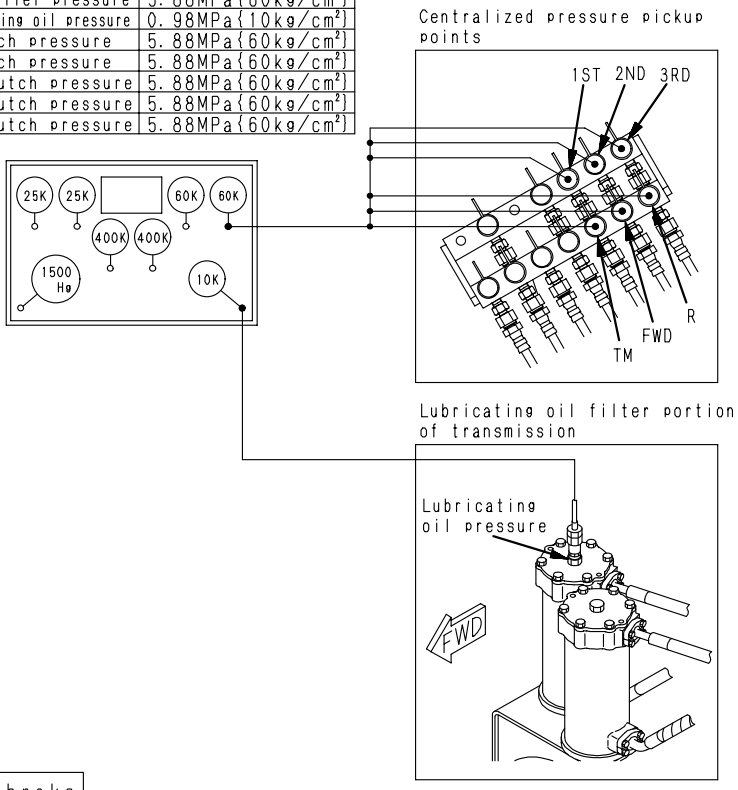
Torque converter

Mark	Measuring point	Measuring gauge
IN	Inlet oil pressure	2.45MPa{25kg/cm²}
OUT	Outlet oil pressure	0.98MPa{10kg/cm²}
LU	Lock-up clutch pressure	2.45MPa{25kg/cm²}
SC	Stator clutch pressure	5.88MPa{60kg/cm²}



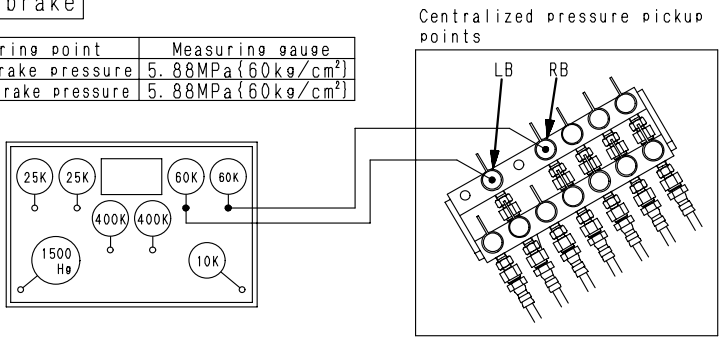
Transmission

Mark	Measuring point	Measuring gauge
TM	Main relief pressure	5.88MPa{60kg/cm²}
–	Lubricating oil pressure	0.98MPa{10kg/cm²}
FWD	F clutch pressure	5.88MPa{60kg/cm²}
R	R clutch pressure	5.88MPa{60kg/cm²}
1ST	1st clutch pressure	5.88MPa{60kg/cm²}
2ND	2nd clutch pressure	5.88MPa{60kg/cm²}
3RD	3rd clutch pressure	5.88MPa{60kg/cm²}



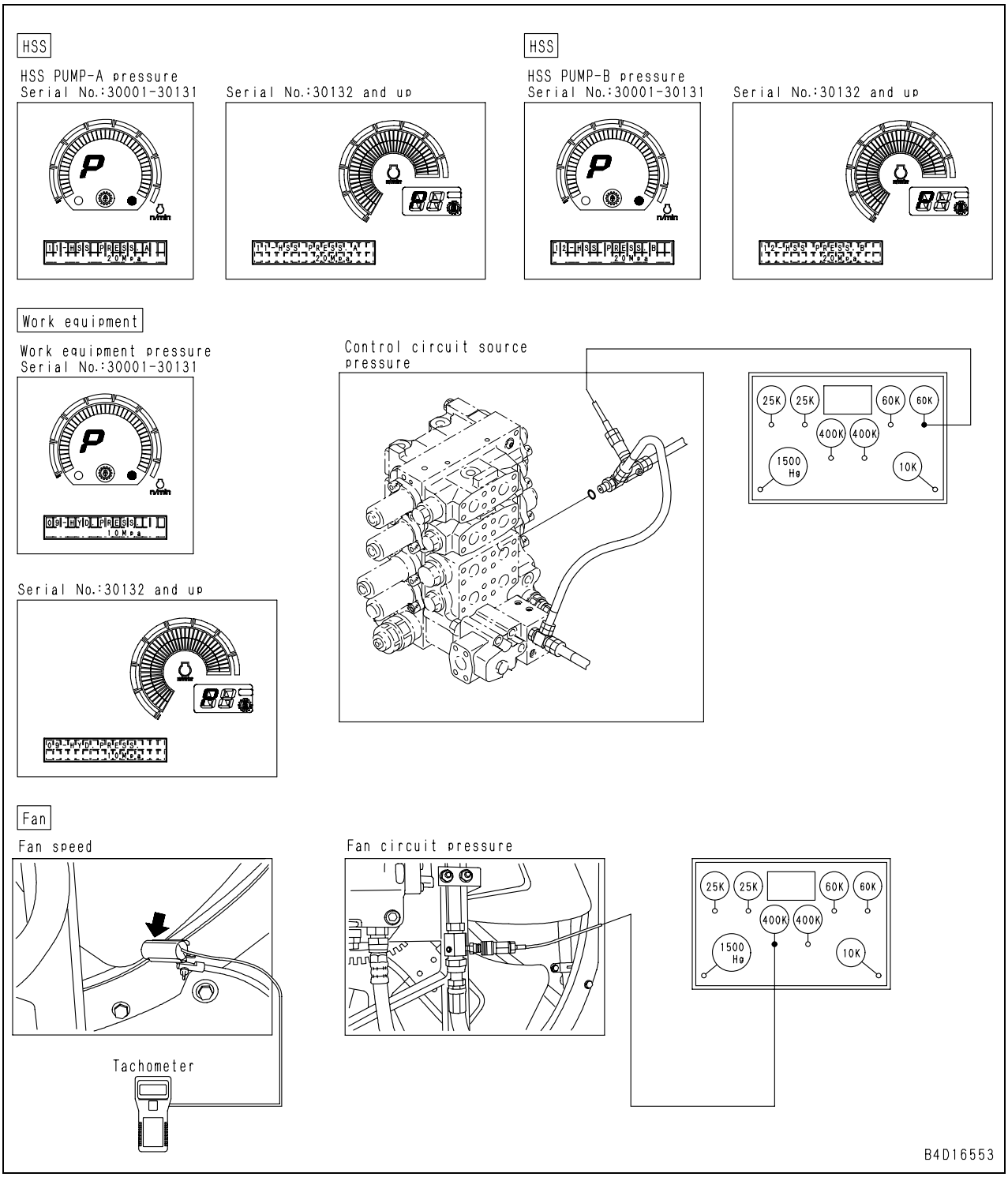
Steering brake

Mark	Measuring point	Measuring gauge
LB	Left brake pressure	5.88MPa{60kg/cm²}
RB	Right brake pressure	5.88MPa{60kg/cm²}



BJD14272

Check positions/Method 3



Pm Clinic check sheet

D275AX-5E0	Serial No

Work order No.	Date	Service meter	Serviceman
	／ ／	h	

	Item	Measurement conditions		Unit	Standard value for new machine	Service limit value	Test results	Pass	Fail
Engine	Engine speed	Low idle		rpm	650 - 750	650 - 750			
		High idle	Deceleration pedal depressed		850 - 950	850 - 950			
		High idle (Deceleration cut-off mode)			2,125 - 2,175	2,125 - 2,175			
		Torque converter stall			1,570 - 1,670	Min. 1,510			
		Torque converter stall + work equipment relief			1,530 - 1,630	Min. 1,450			
	Blow-by pressure	Torque converter stall		kPa {mmH_2O}	Max. 2.94 {Max. 300}	3.92 {400}			
	Engine oil pressure	High idle	SAE0W30E0S SAE5W40E0S SAE10W30DH SAE15W40DH SAE30DH Oil Oil temperature: Min. 80℃	MPa {kg/cm^2}	Min. 0.34 {Min. 3.5}	0.21 {2.1}			
		Low idle			Min. 0.10 {Min. 1.0}	0.08 {0.8}			
	Boost pressure	Torque converter stall		kPa {mmHg}	Min. 169 {Min. 1,270}	144 {1,080}			
	Exhaust temperature	Torque converter stall		℃	Max. 620	670			

⚠ **When measuring the oil pressure of the torque converter and transmission, use the adjustment mode of the monitor and set to "Both steering clutches release mode (Co mode)". (Check that the left and right steering clutches are released.) When measuring the pressure of each transmission clutch, check only with the engine at low idling to ensure safety.**

	Item	Measurement conditions		Unit	Standard value for new machine	Service limit value	Test results	Pass	Fail
Torque converter	Inlet oil pressure	Transmission: Neutral Oil temperature: 70-90 ℃	Low idle	MPa {kg/cm^2}	Max. 0.2 {Max. 2}	Max. 0.2 {Max. 2}			
	Outlet oil pressure				Max. 0.2 {Max. 2}	Max. 0.2 {Max. 2}			
	Lock-up clutch pressure				1.07 - 1.47 {11 - 15}	1.07 - 1.47 {11 - 15}			
	Stator clutch pressure				2.45 - 2.85 {25 - 29}	2.45 - 2.85 {25 - 29}			
	Inlet oil pressure		High idle		0.49 - 1.0 {5 - 10}	0.49 - 1.0 {5 - 10}			
	Outlet oil pressure				0.39 - 0.59 {4 - 6}	0.39 - 0.59 {4 - 6}			
	Lock-up clutch pressure				1.07 - 1.47 {11 - 15}	1.07 - 1.47 {11 - 15}			
	Stator clutch pressure				2.45 - 2.85 {25 - 29}	2.45 - 2.85 {25 - 29}			
	Lock-up clutch pressure	Transmission: F1	Raise engine speed, when lock-up lamp lights up		1.07 - 1.47 {11.0 - 15.0}	1.07 - 1.47 {11.0 - 15.0}			
	Stator clutch pressure				0 - 0 {0 - 0}	0 - 0 {0 - 0}			

	Item	Measurement conditions		Unit	Standard value for new machine	Service limit value	Test results	Pass	Fail
Transmission	Main relief pressure	Transmission: Neutral	Low idle	MPa {kg/cm^2}	2.74 - 3.06 {28 - 31.2}	Min. 2.65 {Min. 27}			
			High idle		3.04 - 3.30 {31 - 33.7}	Min. 2.94 {Min. 30}			
	Lubricating oil pressure (Reference)		Low idle		— —	— —			
			High idle		0.05 - 0.29 {0.5 - 3.0}	0.05 - 0.29 {0.5 - 3.0}			
	F clutch pressure	Transmission: F3	Low idle		2.84 - 3.14 {29 - 32}	Min. 2.65 {Min. 27}			
	R clutch pressure	Transmission: R3	Low idle		2.84 - 3.14 {29 - 32}	Min. 2.65 {Min. 27}			
	1st clutch pressure	Transmission: F1	Low idle		2.84 - 3.14 {29 - 32}	Min. 2.65 {Min. 27}			
	2nd clutch pressure	Transmission: F2	Low idle		2.84 - 3.14 {29 - 32}	Min. 2.65 {Min. 27}			
	3rd clutch pressure	Transmission: F3	Low idle		2.84 - 3.14 {29 - 32}	Min. 2.65 {Min. 27}			

	Item	Measurement conditions		Unit	Standard value for new machine	Service limit value	Test results	Pass	Fail
Steering brake	Left brake pressure	Transmission: Neutral	Low idle	MPa {kg/cm^2}	2.84 - 3.14 {29 - 32}	Min. 2.26 {Min. 23}			
			High idle		3.14 - 3.43 {32 - 35}	Min. 2.45 {Min. 25}			
	Right brake pressure	Transmission: Neutral	Low idle		2.84 - 3.14 {29 - 32}	Min. 2.26 {Min. 23}			
			High idle		3.14 - 3.43 {32 - 35}	Min. 2.45 {Min. 25}			
	Brake performance	High idle, F2, brake actuated			Machine must not move				

Pm Clinic check sheet

D275AX-5E0	Serial No

Work order No.	Date	Service meter	Serviceman
	／ ／	h	

Item		Measurement conditions		Unit	Standard value for new machine	Service limit value	Test results	Pass	Fail
HSS oil pressure	HSS main relief pressure	PCCS lever (for travel) right FULL	High idle	MPa {kg/cm²}	38.2 - 41.7 {390 - 425}	38.2 - 41.7 {390 - 425}			
		PCCS lever (for travel) left FULL			38.2 - 41.7 {390 - 425}	38.2 - 41.7 {390 - 425}			
	HSS charge relief pressure	PCCS lever (for travel) NEUTRAL			2.6 - 3.4 {27 - 35}	2.6 - 3.4 {27 - 35}			
	HSS servo charge pressure	Common use with work equipment PPC and fan pump control at control initial pressure			—	—			

Item		Measurement conditions		Unit	Standard value for new machine	Service limit value	Test results	Pass	Fail
Hydraulic components	Work equipment pump	Ripper lift relief	Low idle	MPa {kg/cm²}	26.1 - 28.8 {266 - 294}	26.1 - 28.8 {266 - 294}			
		Blade tilt relief (single tilt only)			26.1 - 28.8 {266 - 294}	26.1 - 28.8 {266 - 294}			
		Ripper lift relief	High idle		26.1 - 28.8 {266 - 294}	26.1 - 28.8 {266 - 294}			
		Blade tilt relief (single tilt only)			26.1 - 28.8 {266 - 294}	26.1 - 28.8 {266 - 294}			
	Control circuit basic pressure	Lever: Neutral			3.43 - 3.92 {35 - 40}	3.23 - 3.92 {33 - 40}			

Item		Measurement conditions	Unit	Standard value for new machine	Service limit value	Test results	Pass	Fail
Work equipment speed	Blade RAISE	Low idle	Sec.	8 - 15	20			
		High idle		3 - 5	6			
	Single tilt (left → right)	Low idle		3 - 5	7			
		High idle		2.3 - 3.3	3.5			
	Dual tilt (left → right)	Low idle		5 - 8	10			
		High idle		2.3 - 3.3	3.5			
	Ripper tilt (in → out)	Low idle		8 - 14	17			
		High idle		3 - 4	4.5			

Item		Measurement conditions	Unit	Standard value for new machine	Service limit value	Test results	Pass	Fail
Hydraulic drift	Hydraulic oil temperature	Engine stopped	℃	—	—			
	Blade lift drift level		mm/15 min.	Max. 150	Max. 300			
	Ripper lift drift level			Max. 80	Max. 160			

Item		Measurement conditions		Unit	Standard value for new machine	Service limit value	Test results	Pass	Fail
Fan	Fan speed	Fan 100% speed mode	Max rotation speed	rpm	420 - 480	400			
			Min rotation speed		1,400 - 1,500	1,350			
	Fan oil pressure		High idle	MPa {kg/cm²}	16.17 - 19.11 {165 - 195}	16.17 - 19.11 {165 - 195}			

Item	Measurement conditions	Unit	Standard value for new machine	Service limit value	Test results	Pass	Fail
Visual inspection of final drive drain plug	Engine stopped	—	There must be no excessive metal particles				

Always fill in the record when repairing, adjusting, or replacing main parts.

Date	Service meter	Repair record	Date	Service meter	Repair record

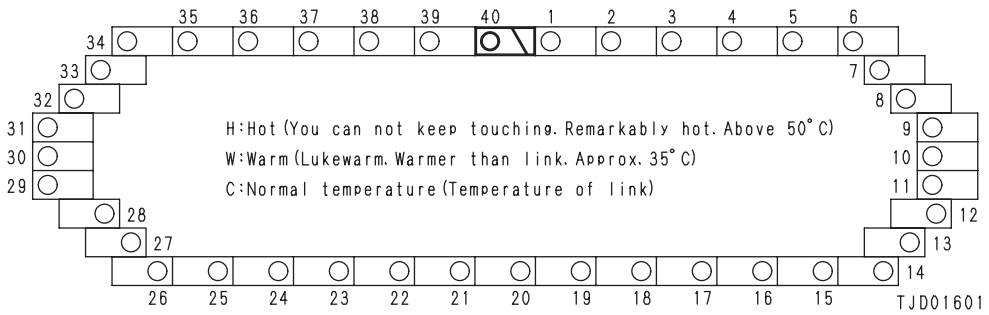
Pm Clinic undercarriage check sheet

D275AX-5E0	Serial No

Work order No.	Date	Service meter	Serviceman
	/ /	h	

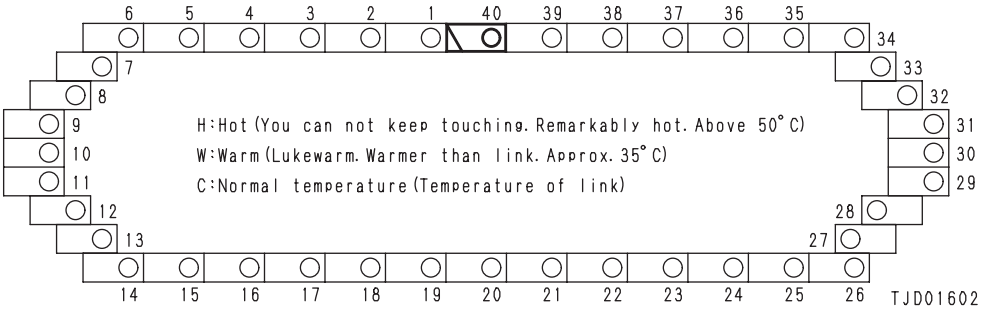
- **Measure the bushing temperature immediately after operations**

Left side of machine



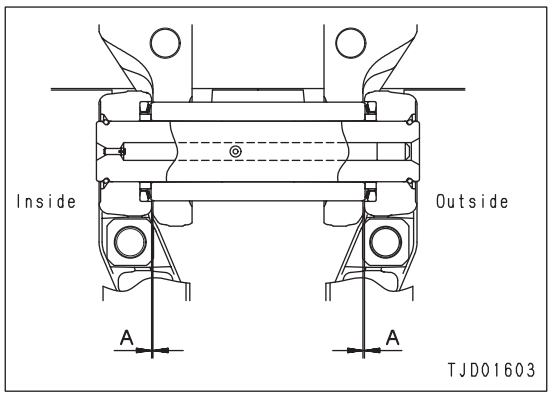
Measurement results	Pass	Fail

Right side of machine



Measurement results	Pass	Fail

- **Opening of track link**



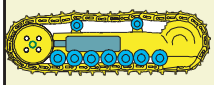
Left track Pin No.	A: Clearance between links 1.4

Right track Pin No.	A: Clearance between links 1.4

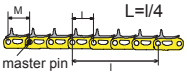
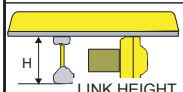
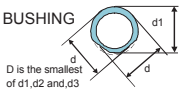
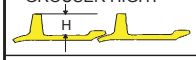
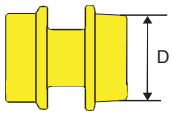
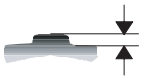
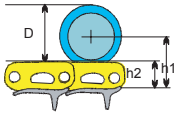
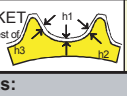
Undercarriage troubleshooting report (Normal)

(Program form No.: SELA195001)

Komatsu
Undercarriage Inspection



Customer name:					
Address:					
Model	D275AX-5E0	Serial#		Equip#	
Location		SMR			
Soil condition		Dealer			
Working condition		Inspector			
Insp.Date(yy/mm/dd)				(yyyy/m/d)	
Work Order No					
Wet,AR,HD or Dry	Wet				
Shoe width (mm)					
Shoe type	SINGLE				
Wear type	NORMAL				

			New	100% Wear	Measured mm	Wear %	SMR New	SMR Rebuilt	Hours on Parts:	Comments/Observation
LINK PITCH 	R	LH	1042.4	1054.4						
		RH	1042.4	1054.4						
	M	LH	260.60	263.60						
		RH	260.60	263.60						
		LH	166.0	148.0						
		RH	166.0	148.0						
BUSHING 		LH	90.5	82.0			New	Turned		
							New	Turned		
		RH	90.5	82.0						
GROUSER HIGHT 		LH	88.0	30.0						
		RH	88.0	30.0						
CARRIER 	Front	LH	200.0	175.0						
		RH	200.0	175.0						
	Rear	LH	200.0	175.0						
		RH	200.0	175.0						
IDLER 	Front	LH	21.0	33.5						
		RH	21.0	33.5						
	Rear	LH	21.0	33.5						
		RH	21.0	33.5						
TRACK ROLLER  D=2(h1-h2)	1	LH	255.0	195.0						
	2	LH	255.0	195.0						
	3	LH	255.0	195.0						
	4	LH	255.0	195.0						
	5	LH	255.0	195.0						
	6	LH	255.0	195.0						
	7	LH	255.0	195.0						
	8	LH	255.0	195.0						
	9	LH	255.0	195.0						
	10	LH	255.0	195.0						
	1	RH	255.0	195.0						
	2	RH	255.0	195.0						
	3	RH	255.0	195.0						
	4	RH	255.0	195.0						
	5	RH	255.0	195.0						
	6	RH	255.0	195.0						
	7	RH	255.0	195.0						
	8	RH	255.0	195.0						
	9	RH	255.0	195.0						
	10	RH	255.0	195.0						
SPROCKET 		LH	0.0	8.0						
		RH	0.0	8.0						

Remarks: