SEN02947-03

Shop Manual

BULLDOZER

D85EX-15R
D85PX-15R

SERIAL NUMBERS D85EX-20001 and up
D85PX-20001

KOMATSU®

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The contents of this shop manual are shown together with Form No. in a list.

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○: New issue (to be filed additionally) ●: Revision (to be replaced for each Form No.)

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Unit: kg

Machine name and type	D85EX-15R
Serial number	20001 and up
Pivot shaft assembly	82 × 2
Equalizer bar	158
Hydraulic tank assembly	95
Main control valve (blade lift + blade tilt + ripper lift + steering)	95
Engine underguard (front/rear)	80/89
Transmission underguard	160
Operator seat (excluding tilt and front-rear sliding device)	55
Power tilt dozer assembly	3,305
• Blade assembly (incl. edge etc.)	1,674
• Straight frame (left/right)	371/389
• Tilt brace	66
• Center brace	81 × 2
• Tilt cylinder assembly	130
Semi-U dozer assembly	3,575
• Semi-U blade assembly (incl. edge etc.)	1,860
• Straight frame (left/right)	371/389
• Center brace	66 × 2
• Tilt cylinder assembly	130
Radiator mask assembly	117
Blade lift cylinder assembly	115 × 2
Fixed multi-shank ripper assembly	2,500
• Mount bracket	124 × 2
• Ripper arm	368
• Ripper beam	1,038
• Upper link	54 × 2
• Shank (incl. protector)	168 × 3
• Lift cylinder assembly	81 × 2
Variable multi-shank ripper assembly	2,570
• Mount bracket	162 × 2
• Ripper arm	464
• Ripper beam	898
• Shank (incl. protector)	168 × 3
• Lift cylinder assembly	78 × 2
• Tilt cylinder assembly	74 × 2
ROPS assembly	371
Cab assembly	410
ROPS canopy	437
Dashboard (for machine with cab and air conditioner)	76
Floor frame assembly	350
Air conditioner assembly (incl. air conditioner unit assembly)	76
Operator seat assembly	68

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Failure code [DD13KB] Shift down switch: Short circuit

Action code	Failure code	Symptom of failure	Shift down switch: Short circuit (Steering and transmission controller system)
E02	DD13KB		
Failure content	• 2 circuit signals of shift down switch circuit were turned ON (CLOSE) at the same time.		
Controller's action	• Flashes warning lamp and turns on alarm buzzer. • Recognizes that switch is not pressed.		
Symptoms that appear on machine	• Cannot shift down. • Auto shift down function does not work.		
General information	• As for two circuit signals of switch, NO is for an operation detection and NC is for an error detection. • The input state (ON or OFF) from shift down switch can be checked in monitoring mode. (Code 40905: Transmission-related controller input signal 1) • Duplication of failure code: Turn starting switch ON → Operate shift down switch		

Possible causes and the standard values when normal		Causes	Standard values when normal and remarks for troubleshooting			
	1	Defective shift down switch (internal short circuit)	★ Prepare with starting switch OFF and diagnose with starting switch still OFF.			
			SFTD (female)	Shift down switch		
				OFF (Release)	ON (Press)	
			Resistance between (2) – (3)	Max. 1 Ω	Min. 1 MΩ	
			Resistance between (2) – (1)	Min. 1 MΩ	Max. 1 Ω	
	2	Defective harness grounding (contact with ground circuit)	★ Prepare with starting switch OFF and diagnose with starting switch still OFF.			
			Between ground and wiring harness between PTC1 (female) (24) – SFTD (male) (3)	Resis-tance	Min. 1 MΩ	
			Between ground and wiring harness between PTC1 (female) (18) – SFTD (male) (1)	Resis-tance	Min. 1 MΩ	
	3	Defective steering and transmission controller	★ Prepare with starting switch OFF and diagnose with starting switch ON.			
			PTC1	Shift down switch		
				OFF (Release)	ON (Press)	
			Voltage between PTC1 (24) – PTC1 (4)	Max. 1V	5 – 11 V	
			Voltage between PTC1 (18) – PTC1 (4)	5 – 11 V	Max. 1V	

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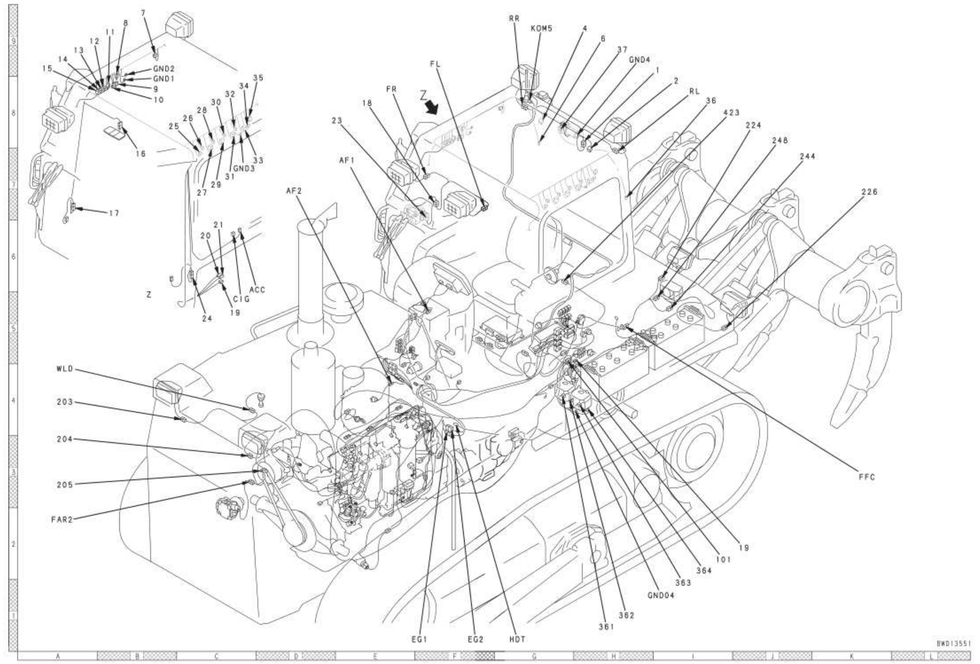
	Causes		Standard values when normal and remarks for troubleshooting		
Possible causes and the standard values when normal	7	Disconnection or short circuit with ground in wiring harness (Disconnection in wiring or defective contact of connectors or contact with ground circuit)	★ Prepare with starting switch OFF and diagnose with starting switch still OFF.		
			Wiring harness between CN14 (female) (4) – CN29 (female) (3)	Resistance	Max. 1 Ω
			Between ground and wiring harness between CN14 (female) (4) – CN29 (female) (3)	Resistance	Min. 1 MΩ
			Wiring harness between CN29 (female) (6) – CN28 (female) (4)	Resistance	Max. 1 Ω
			Between ground and wiring harness between CN29 (female) (6) – CN28 (female) (4)	Resistance	Min. 1 MΩ
			Wiring harnesses between fuse (5) – CN14 (female) (2) (3), fuse (5) – CN23 (female) (3) and fuse (5) – CN28 (female) (3)	Resistance	Max. 1 Ω
			Between ground and wiring harnesses between fuse (5)-CN14 (female) (2) (3), fuse (5)-CN23 (female) (3) and fuse (5)-CN28 (female) (3)	Resistance	Min. 1 MΩ
			Wiring harness between CN28 (female) (5) – CN23 (female) (6)	Resistance	Max. 1 Ω
			Between ground and wiring harness between CN28 (female) (5) – CN23 (female) (6)	Resistance	Min. 1 MΩ
			Wiring harness between CN28 (female) (6) and ground	Resistance	Max. 1 Ω
			Wiring harness between CN23 (female) (1) and ground	Resistance	Max. 1 Ω

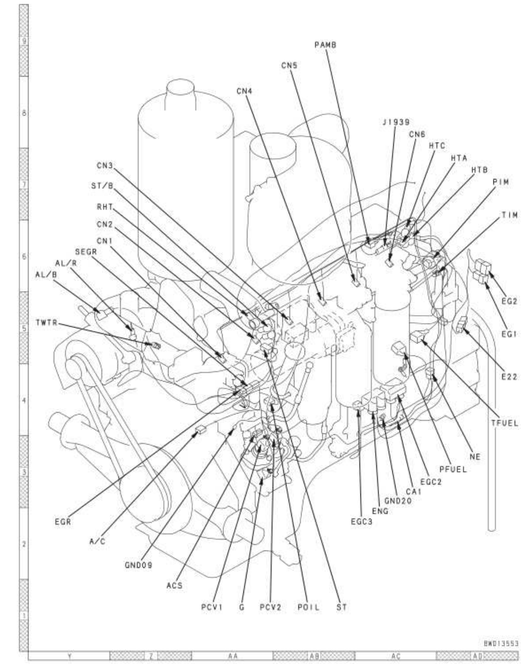
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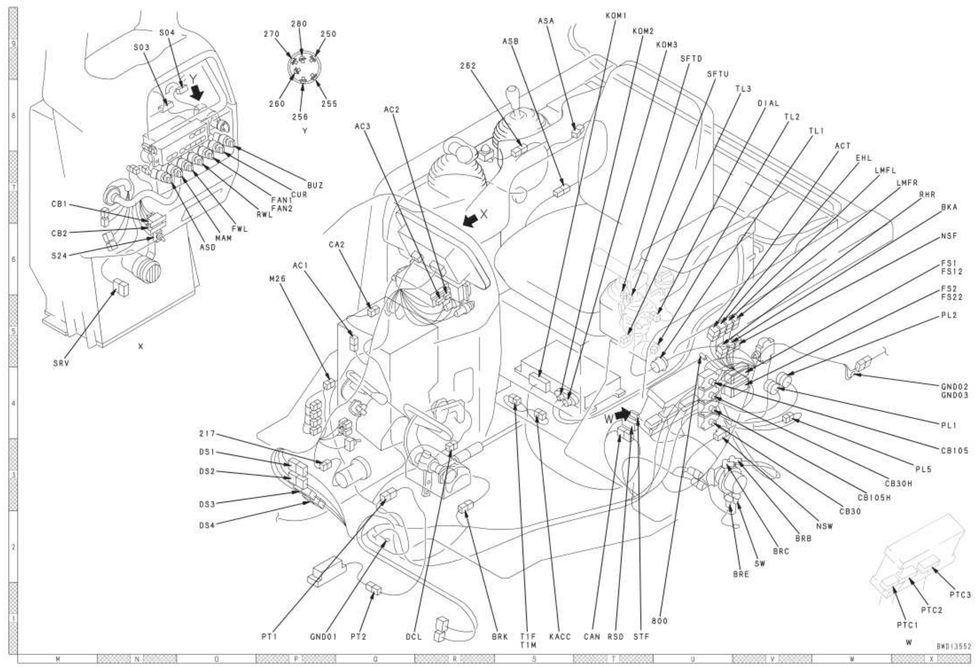
Connector list and stereogram D85EX, PX-15R

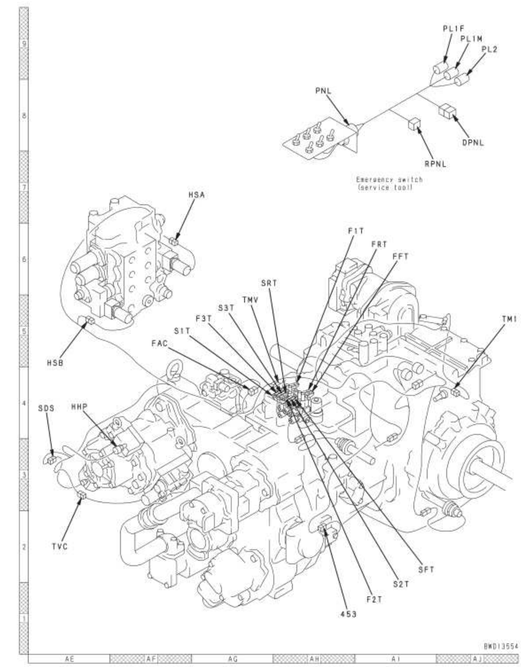
Connector No.	Type	Number of pins	Location	Arrangement drawing
1	DT	4	Intermediate connector [Cab specification]	I-9
2	KES1	2	Rear speaker (Left) [Cab specification]	I-8
4	KES1	2	Rear speaker (Right) [Cab specification]	H-9
6	One-pin connector	1	Heater wire glass [Cab specification]	H-9
7	PA	9	Radio [Cab specification]	B-9
8	DT	2	Accessory (12 V) [Cab specification]	B-9
9	YAZAKI	3	Heater wire glass switch [Cab specification]	B-8
10	M	2	Additional light switch [Cab specification]	B-8
11	M	2	Wiper intermittent switch [Cab specification]	B-9
12	KES1	6	Rear wiper switch [Cab specification]	A-9
13	KES1	6	Right door wiper switch [Cab specification]	A-9
14	KES1	6	Front wiper switch [Cab specification]	A-9
15	KES1	6	Left door wiper switch [Cab specification]	A-9
16	KES1	2	Room lamp [Cab specification]	B-7
17	DT	4	Right door wiper [Cab specification]	B-7
18	DT	4	Intermediate connector [Cab specification]	E-8
19	DT	4	Intermediate connector (Windshield washer motor) [Cab specification]	C-5, J-2
20	DTHD#8	1	Cab power supply [Cab specification]	C-6
21	DTHD#12	1	Cab power supply (Battery direct) [Cab specification]	C-6
23	DT	6	Front wiper [Cab specification]	E-8
24	DT	4	Left door wiper [Cab specification]	C-5
25	Relay (YAZAKI)	4	For light [Cab specification]	B-8
26	Relay (YAZAKI)	6	Left wiper intermittent relay [Cab specification]	C-8
27	Relay	5	Left wiper intermittent selector relay [Cab specification]	C-7
28	Relay (YAZAKI)	6	Front wiper intermittent relay [Cab specification]	C-8
29	Relay	5	Front wiper intermittent selector relay [Cab specification]	C-7
30	Relay (YAZAKI)	6	Right wiper intermittent relay [Cab specification]	C-8
31	Relay	5	Right wiper intermittent selector relay [Cab specification]	C-7
32	Relay (YAZAKI)	6	Rear wiper intermittent relay [Cab specification]	C-8
33	Relay	5	Rear wiper intermittent selector relay [Cab specification]	C-7
34	Relay	4	Heater wire glass relay [Cab specification]	C-8
35	M	4	Converter [Cab specification]	C-8
36	One-pin connector	1	Heater wire glass [Cab specification]	I-8
37	KES1	4	Rear wiper [Cab specification]	H-9
101	DT-A	8	Intermediate connector (Headlamp)	I-2
203	DT	2	Right head lamp	A-4
204	DT	2	Left head lamp	A-3
205	One-pin connector	1	Horn	A-3
217	DT	2	Caution buzzer	n-4
224	DT	2	Left rear lamp	J-8
226	DT	2	Ripper point lamp	K-7
244	DT	2	Backup alarm	J-7
248	DT	2	Intermediate connector (Ripper point lamp)	J-8
250	Terminal	1	Starting switch terminal B	P-9
255	Terminal	1	Starting switch terminal R1	P-8
256	Terminal	1	Starting switch terminal R2	P-8
260	Terminal	1	Starting switch terminal BR	P-8
262	DT	2	Horn switch	R-9
270	Terminal	1	Starting switch terminal ACC	P-9
280	Terminal	1	Starting switch terminal C	P-9
361	M	2	Left door washer motor [Cab specification]	H-1
362	M	2	Front window washer motor [Cab specification]	H-1
363	M	2	Right door washer motor [Cab specification]	I-1
364	M	2	Rear window washer motor [Cab specification]	I-2
423	DT	2	Fuel level sensor	I-8
453	DT	2	Torque converter oil temperature sensor	AH-1
800	—	1	Intermediate connector	U-1
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AC2	AMP	16	Air conditioner controller	Q-8
AC3	AMP	12	Air conditioner controller	Q-8
ACC	YAZAKI	2	Accessory socket [Cab specification]	C-6
ACS	DT	2	Diode	Z-1
ACT	Relay	5	ACC cut relay	W-8
AF1	DT	2	Intermediate connector (Air-flow switch)	E-7
AF2	DT	2	Air flow switch	D-7
AL/B	Terminal	1	Alternator terminal B	Y-6
AL/R	Terminal	1	Alternator terminal R	Y-6
ASA	DT	2	Intermediate connector (Air suspension seat)	S-9
ASB	DT	2	Air suspension seat	S-9
ASD	KES1	4	Auto shift-down switch	Q-6
BKA	Relay	5	Backup alarm relay	X-7
BRB	Terminal	1	Battery relay power supply inlet	V-2
BRC	Terminal	1	Battery relay power supply outlet	V-2
BRE	Terminal	1	Battery relay ground	V-2
BRK	DT	3	Brake pedal	S-1
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CA1	DT	3	CAN terminating resistor	AC-3
CA2	DT	3	CAN terminating resistor	Q-6
CAN	DT-A	12	Intermediate connector (KOMTRAX)	T-1
CB1	One-pin connector	2	Circuit breaker (Starting switch 20A)	M-7
CB105	—	—	Circuit breaker (Mainpower 105A)	X-3
B105H	—	—	Circuit breaker (Ribbon heater 105A)	W-3
CB2	One-pin connector	2	Circuit breaker (Air conditioner)	M-6
CB30	—	1	Circuit breaker (Constant power source 30A)	W-3
CB30H	—	1	Circuit breaker (Engine controller 30A)	W-3
CIG	YAZAKI	2	Cigarette lighter [Cab specification]	C-5
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CN2	DT	2	Engine No.2 injector	Z-6
CN3	DT	2	Engine No.3 injector	Z-7
CN4	DT	2	Engine No.4 injector	AA-9
CN5	DT	2	Engine No.5 injector	AB-9
CN6	DT	2	Engine No.6 injector	AC-8
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DCL	DT	3	Decelerator pedal	R-1
DIAL	DT	3	Fuel control dial potentiometer	V-8
DPNL	DT	2	Diode (Emergency switch)	AJ-8
DS1	DT-B	12	Intermediate connector	O-3
DS2	DT-A	12	Intermediate connector	O-3
DS3	DT-C	12	Intermediate connector	O-3
DS4	DT-D	12	Intermediate connector	O-2
E22	DT	6	Intermediate connector (Starting motor)	AD-4
EG1	DTP	2	Intermediate connector (Engine controller)	F-1, AD-5
EG2	DT-B	12	Intermediate connector	F-1, AD-5
EGC1	DRC-60	60	Engine controller	AC-2
EGC2	DRC-50	50	Engine controller	AC-3
EGC3	DTP	4	Engine controller	AC-2
EGR	DT	2	EGR valve (With EGR only)	Y-2
EHL	Relay	5	Engine hold relay	W-7
F1T	DT	2	1st clutch ECMV (Fill switch)	AH-6
F2T	DT	2	2nd clutch ECMV (Fill switch)	AI-1
F3T	DT	2	3rd clutch ECMV (Fill switch)	AG-5
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FR	DT	2	Front additional light (Right) [Cab specification]	E-8
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FS2	—	—	Fuse box	X-6
FS12	—	—	Fuse box	X-6
FS22	—	—	Fuse box	X-5
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G	SUMITOMO	3	Engine speed G sensor	AA-1
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HSB	DT	2	HSS-EPC solenoid (Right swing)	AE-5
HTA	Terminal	1	Heater relay (Terminal A)	AD-7
HTB	Terminal	1	Heater relay (Terminal B)	AD-7
HTC	Terminal	1	Heater relay (Terminal C)	AC-7
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KACC	DT	3	Intermediate connector (KOMTRAX)	S-1
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KOM2	GT5	1	KOMTRAX controller	T-9
KOM3	BNC	1	KOMTRAX controller	T-9
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LMFR	Relay	5	Right head lamp relay	X-7
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MAM	KES1	4	Manual mode switch	O-6
NE	FRAMATO-NE	3	Engine speed NE sensor	AD-3
NSF	Relay	5	Neutral safety relay	X-6
NSW	DT	3	Parking lock switch	W-2
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PCV1	SUMITOMO	2	Fuel supply pump (PCV1)	AA-1
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ST3	DT	2	3rd clutch ECMV (Solenoid)	AG-5
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T1M	DT	2	Check connector (KOMTRAX)	S-1
TIM	PACKARD	2	Boost temperature sensor	AD-6
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TL2	DT-B	8	Travel lever	V-8
TL3	DT	6	Intermediate connector [Shift switch]	V-8
TM1	DT	2	Transmission bevel speed sensor	AJ-5
TMV	HD-24	23	Intermediate connector (Transmission ECMV)	AG-5
TVC	DT	2	HSS.hydraulic pump	AE-2
TWTR	PACKARD	2	Engine coolant temperature sensor	Y-5
WLD	DT	2	Radiator coolant level sensor	A-4

★ The color symbols of the bodies of the heavy duty wire connectors (DT-8 poles, 12 poles) are as follows.
DT-A = Gray, DT-B = Black, DT-C = Green, DT-D = Brown









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