SEN04162-07

Shop Manual

WHEEL LOADER

WA320 -6
WA320PZ-6

SERIAL NUMBERS WA320- 70001 and up
WA320PZ- 70001

ecot3

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Composition of shop manual

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

Note 1: Always keep the latest version of this manual in accordance with this list and utilize accordingly.
The marks shown to the right of Form No. denote the following:
○: New issue (to be filed additionally) ●: Revision (to be replaced for each Form No.)

Note 2: This shop manual can be supplied for each Form No.

Note 3: To file this shop manual in the special binder for management, handle it as follows:
- Place a divider on the top of each section in the file after matching the Tub No. with No. indicated next to each Section Name shown in the table below:
- File overview and other materials in sections in the order shown below and utilize them accordingly.

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Shop Manual, contents binder, binder label and tabs	SEN04162-07	
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100 Index	SEN04171-07	●
200 Foreword and general information	SEN04172-01	
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100 Specification and technical data	SEN04173-01	
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300 Steering system	SEN04176-01	
400 Brake system	SEN04177-00	
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Machine model							WA320-6	
Category	Item		Measurement conditions			Unit	Standard value for new machine	Service limit value
Work equipment control valve	Relief pressure		• Engine speed: High idle • Hydraulic oil temperature: 45 – 55°C			MPa {kg/cm²}	20.6 ± 0.4 {210 ± 4}	20.6 ± 2.0 {210 ± 20}
Work equipment	Speed	Lift arm	• Engine speed: High idle • Hydraulic oil temperature: 45 – 55°C • Steering valve: Neutral • Apply no load ★ For measuring posture, see Fig. E – Fig. H at the end of this section	RAISE	*1	Sec.	5.7 ± 0.5	Max. 8.6
				LOWER			3.5 ± 0.5	Max. 5.3
		Bucket		TILT	*2		1.9 ± 0.3	Max. 2.9
				DUMP			1.2 ± 0.3	Max. 1.8
				TILT	*3		1.2 ± 0.3	Max. 2
	Hydraulic drift	Lift arm cylinder	• Bucket no load • Position of work equipment: Lift arm and bucket in level position • Engine stopped • Hydraulic oil temperature: 45 – 55°C • Stop engine and leave for 5 minutes, then measure for 15 minutes. ★ For measuring posture, see Fig. J at the end of this section			mm	Max. 20	Max. 30
		Bucket cylinder					Max. 17	Max. 26
Hydraulic drive fan	Max. fan speed		• Engine speed: High idle • Engine coolant temperature: Min. 90°C • Boost temperature: Min. 70°C • HST oil temperature: Min. 95°C			rpm	1,690 ± 50	1,690 ± 200
	Fan drive pressure		• Engine speed: High idle • Engine coolant temperature: Min. 90°C • Boost temperature: Min. 70°C • HST oil temperature: Min. 95°C			MPa {kg/cm²}	14.7 ± 1.5 {150 ± 15}	14.7 ± 2.3 {150 ± 23}
Proximity switch	Clearance between bucket positioner switch		• Hydraulic oil temperature: 45 – 55°C			mm	3 – 5	—
	Clearance between boom kick-out switch						3 – 5	—

*1: Time taken to raise bucket from contact with ground (bottom of bucket horizontal) to max. height of lift arm.
*2: Time taken to move bucket from max. tilt to max. dump.
*3: Time taken to move bucket from horizontal position to max. tilt.

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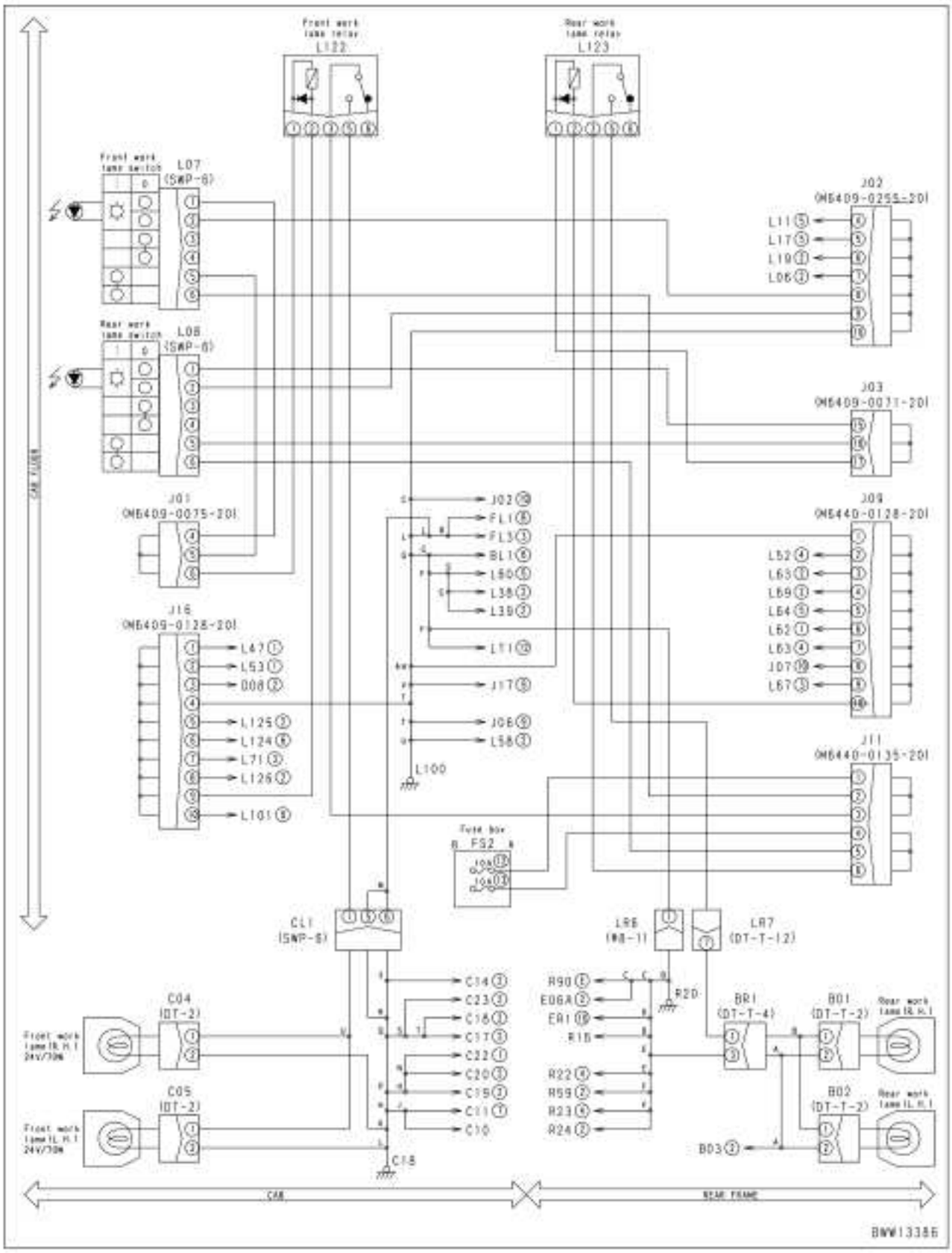
Failure code [DX20KY] Clutch EPC solenoid: Hot short

Action code	Failure code	Trouble	Clutch EPC solenoid: Hot short (HST controller system)
E03	DX20KY		
Contents of trouble	• Hot short was detected in clutch EPC solenoid circuit.		
Action of controller	• Turns clutch EPC solenoid output OFF. • Turns motor 1 solenoid output OFF. • Turns HST safety relay output OFF. • Even if trouble disappears, system does not reset itself until starting switch is turned OFF. • Turns the centralized warning lamp and alarm buzzer ON.		
Problem that appears on machine	• Traction force is decreased. • Travel speed is not limited with speed range selector switch and travel speed control dial. • If engine is stopped without applying parking brake securely on slope, machine moves down suddenly.		
Related information	• Following output command values can be checked with monitoring function. Motor 1 solenoid output: HST – 80000 – MOTOR SOL DIR (mA) HST safety relay output: HST – 40979 – D_OUT_15 (ON/OFF) Clutch EPC solenoid output: HST – 80100 – CLUTCH SOL DIR (mA) • [DX19KA], [DX19KY] or [DX20KA] may be also displayed, depending on condition when error was detected.		

	Causes		Standard value in normal state/Remarks on troubleshooting		
Possible causes and standard value in normal state	1	Defective clutch EPC solenoid (Internal defect)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.		
			T05 (male)	Resistance	
			Between (1) – (2)	5 – 15 Ω	
			Between (1), (2) – ground	Min. 1 MΩ	
	2	Hot short (Contact with 5 V, 24V circuit) in wiring harness	★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting.		
			Between wiring harness HST (female) (9) – T05 (female) (1) and ground	Voltage	Max. 1 V
			Between wiring harness L111 (female) (3) – T05 (female) (2)	Voltage	Max. 1 V
			★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting (Troubleshoot with traction switch OFF and machine is stopped (do not travel))		
			Between wiring harness HST (female) (9) – T05 (female) (1) and ground	Voltage	10 – 15 V
	3	Defective HST controller	• If causes 1 – 2 are not detected, HST controller may be defective. (Since trouble is in system, troubleshooting cannot be carried out.)		

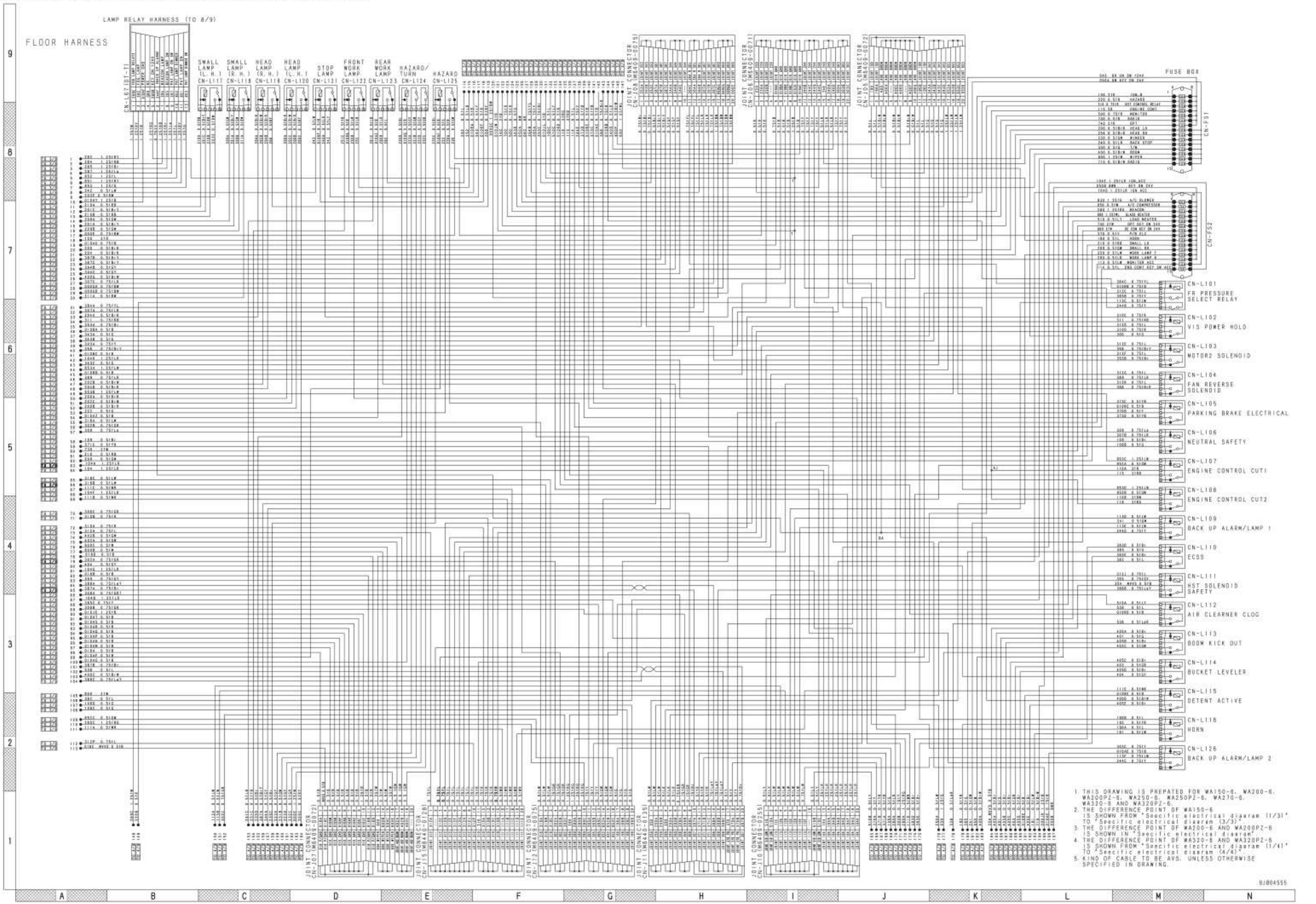
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Related circuit diagram



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★ This figure covers the equipment and devices that are unavailable as optional items in some areas.



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