KOBELCO

SERVICE MANUAL

HYDRAULIC EXCAVATOR

SK15SR

SK20SR

S5PM0101E 02

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PM01

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LOCATION AND WEIGHT OF COMPONENTS

PM03

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MAINTENANCE STANDARD AND TEST PROCEDURE

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PM04

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■SK20SR Applicable Machines PM03052~PM03500
PM03501~

Unit : mm (in)

Pos.	Item		Standard dimension		Shim adjusted clearance X (total of both sides)			Pin length		Remedy
			Code	Dimension	Standard value	Reference value for remedy	Serviceability limit	Code	Dimension	
A	Boom foot	Boom	L1	$154^{-0.2}_{-0.4}$ ($6.063^{-0.008}_{-0.016}$)	0.2~0.7 (0.008~0.028) w/out Shim	1.0 (0.039)	1.5 (0.059)	ℓ1	[272(10.71)] 278(10.94)	Shim adjustment
		Swing bracket		$154^{+0.3}_{0}$ ($6.063^{+0.012}_{0}$)						
B	Boom cylinder (Head side)	Boom cylinder	L2	$50^{0}_{-0.5}$ ($1.969^{0}_{-0.020}$)	0.6~1.0 (0.024~0.039)	1.5 (0.059)	2.0 (0.079)	ℓ2	[159(6.26)] 165(6.50)	
		Swing bracket		$51^{+2.0}_{0}$ ($2.008^{+0.079}_{0}$)						
C	Arm cylinder (Head side)	Arm cylinder	L3	$50^{0}_{-0.5}$ ($1.969^{0}_{-0.020}$)				ℓ3	[140(5.51)] 144(5.67)	
		Boom		$51^{+1.0}_{0}$ ($2.008^{+0.039}_{0}$)						
D	Boom cylinder (Rod side)	Boom cylinder	L4	$50^{0}_{-0.5}$ ($1.969^{0}_{-0.039}$)	0.6~2.0 (0.024~0.079)	2.5 (0.098)	3.0 (0.118)	ℓ4	[140(5.51)] 144(5.67)	
		Boom		$51^{+1.0}_{0}$ ($2.008^{+0.039}_{0}$)						

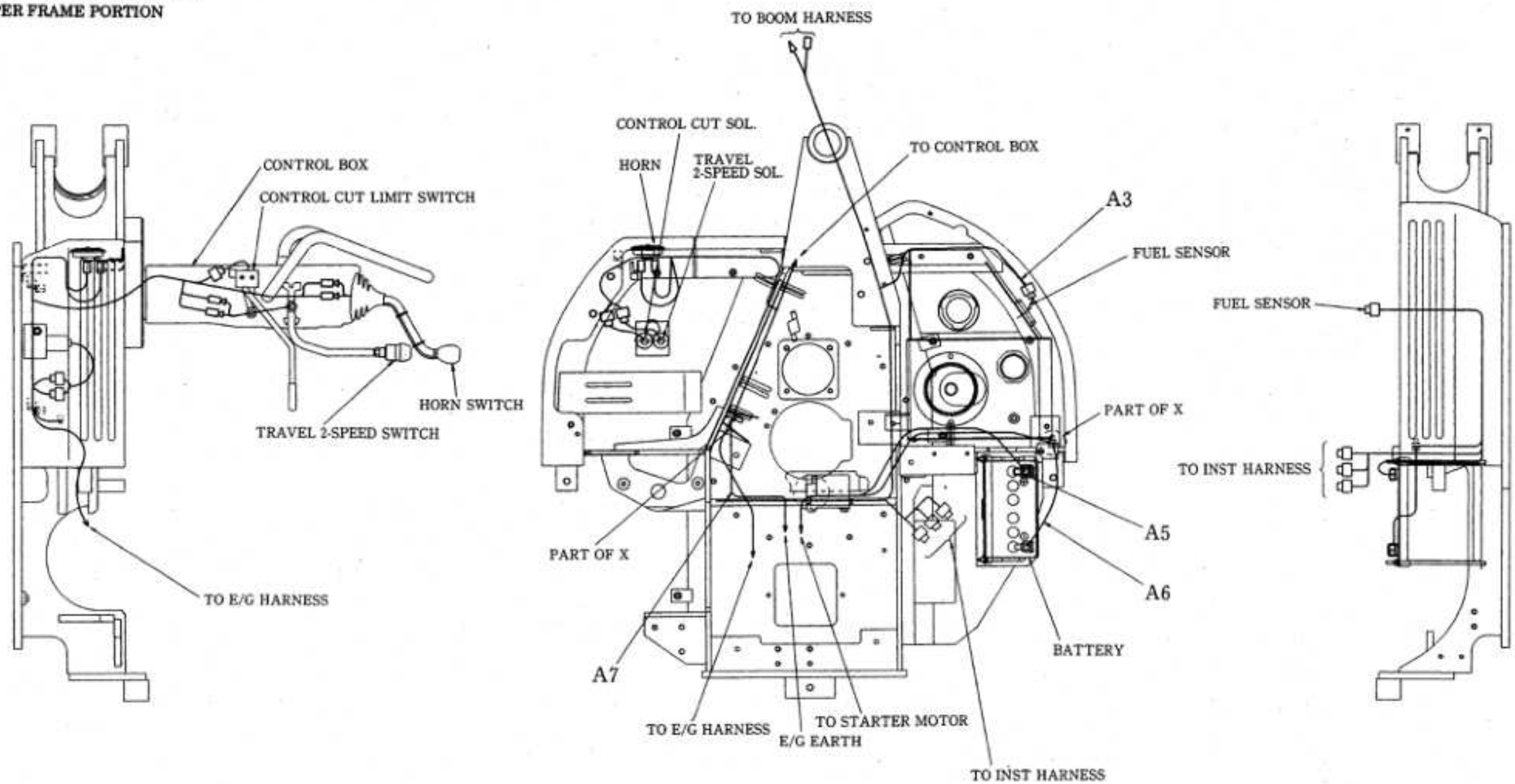
(Note) The dimensions in [ ] are applicable for the machine numbers PM03052~03500.

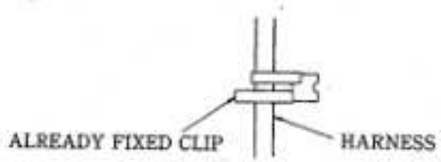
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3. HARNESS ASSY (FOR MAIN)

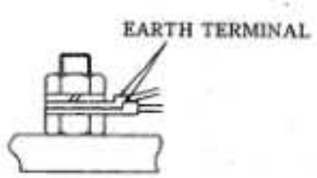
3.1 COMPONENTS ARRANGEMENT

(1) UPPER FRAME PORTION





HOW TO FIX HARNESS



DETAIL OF X

No.	NAME	Q'ty
A2	ENGINE HARNESS	1
A3	MAIN HARNESS	1
A5	CABLE (BATTERY-STARTER)	1
A6	CABLE (BATTERY-EARTH)	1
A7	CABLE (E/G EARTH)	1
B1	INSTRUMENT PANEL HARNESS	1

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Problem	Possible Causes	Remedy
The motor does not turn.	• Insufficient oil in the hydraulic oil tank. • Relief valve operation is faulty or its set pressure is low. • There is a short circuit inside the hydraulic motor. • Replace the hydraulic pump. • Disassemble and check the hydraulic motor and replace the faulty parts.	• Hydraulic oil pump is damaged. • The hydraulic motor is abnormally worn or grinding of parts. • Add hydraulic oil to the hydraulic oil tank to the proper level. • Disassemble and clean the relief valve and set it at the proper pressure. • Check for damage to the face seal or damage to parts. Replace them If they are abnormal.
Turning is not stable.	• The relief valve's set pressure is low. • Air is being sucked in on the hydraulic pump's suction side.	• Set the relief valve at the proper pressure. • Check the piping on the hydraulic pump's suction side and tighten it if necessary.
Direction of rotation is backwards.	• Reverse the piping. • Reverse the timing of the valves in the hydraulic motor.	• Repair the pipes. • Switch the valve timing to the correct timing.
Oil is leaking from joints.	• Tightening bolts are loose. • Tighten at the proper tightening torque.	• O-rings are being pinched or are damaged. • Replace the O-rings.
Brake torque is low.	• Wear on friction plates. • The pressure in pilot line has not released completely.	• Replace friction plates. • Check pipings for pilot line.

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INSTRUMENT HARNESS CONNECTION TABLE

線番 WIRE NO.	線色 WIRE COLOR	線種・サイズ WIRE SIZE	FROM	接続 CONNECTION	TO	機能 FUNCTION
1	R	AVS1.25sq	CN-314F		CN-303M	FUSE BOX → E/R
2A	Y	AVS50.75sq	CN-309F		CN-341F	TRAVEL 2-SPEED RELAY → J/C-BLUE
2B	Y	AVS50.75sq	CN-309F		CN-341F	TRAVEL 2-SPEED RELAY → J/C-BLUE
2C	Y	AVS50.75sq	CN-301M		CN-341F	CONTROL CUT LS → J/C-BLUE
2D	Y	AVS50.75sq	CN-313F		CN-341F	DECELE RELAY → J/C-BLUE
2E	Y	AVS0.75sq	CN-330F		CN-341F	BUZZER → J/C-BLUE
2F	Y	AVS1.25sq	CN-314F		CN-341F	FUSE BOX → J/C-BLUE
2G	Y	AVS50.75sq	CN-320F		-	DIODE → JOINT SPLICE
2H	Y	AVS50.75sq	CN-320F	JOINT SPLICE	CN-310F	LIGHT RELAY → DIODE
3A	RW	AVS50.75sq	CN-310F		CN-341F	LIGHT RELAY → J/C-BLUE
3B	RW	AVS50.75sq	CN-301M		CN-341F	DECELE MOTOR → J/C-BLUE
3C	RW	AVS1.25sq	CN-314F		CN-341F	FUSE BOX → J/C-BLUE
4	R	AVS50.75sq	CN-314F		CN-301M	FUSE BOX → HORN SWITCH
5A	RL	AVS50.75sq	CN-306F		CN-341F	TIMER UNIT → J/C-BLUE
5B	RL	AVS50.75sq	CN-301M		CN-341F	E/G STOP SOL → J/C-BLUE
5C	RL	AVS2sq	CN-308F		CN-341F	E/G STOP RELAY → J/C-BLUE
5D	RL	AVS2sq	CN-315F		CN-341F	FUSE BOX → J/C-BLUE
6A	WG	AVS50.75sq	CN-311F		CN-341F	BATTERY RELAY → J/C-BLUE
6B	WG	AVS50.75sq	CN-318F		CN-341F	CURRENT LIMITER → J/C-BLUE
6C	WG	AVS50.75sq	CN-312F		CN-341F	CHARGE INDICATOR RELAY → J/C-BLUE
6D	WG	AVS50.75sq	CN-1F		CN-341F	CLUSTER GAUGE → J/C-BLUE
6E	WG	AVS50.75sq	CN-3M		CN-341F	CLUSTER GAUGE → J/C-BLUE
6F	WG	AVS50.75sq	CN-314F		CN-341F	FUSE BOX → J/C-BLUE
6G	WG	AVS50.75sq	CN-314F		-	DIODE → JOINT SPLICE
7	RB	AVS3sq	CN-317F		CN-315F	KEY SWITCH → FUSE BOX
8A	R	AVS2sq	CN-311F		CN-316F	BATTERY RELAY → KEY SWITCH
8B	R	AVS2sq	CN-315F		CN-316F	FUSE BOX → KEY SWITCH
8C	R	AVS2sq	-		CN-318F	JOINT SPLICE → CURRENT LIMITER
8D	R	AVS5sq	CN-302M		CN-317F	KEY SWITCH → FUSIBLE LINK
13	BW	AVS50.75sq	CN-316F		CN-305F	KEY SWITCH → SAFETY RELAY
14	W	AVS2sq	CN-305F		CN-302M	SAFETY RELAY → STARTER MOTOR
15A	Y	AVS50.75sq	CN-319F	JOINT SPLICE	CN-306F	DIODE → TIMER UNIT
15B	Y	AVS50.75sq	CN-308F		CN-306F	E/G STOP RELAY → TIMER UNIT
16A	RW	AVS50.75sq	CN-319F	JOINT SPLICE	CN-306F	DIODE → TIMER UNIT
16B	RW	AVS50.75sq	CN-308F		CN-306F	E/G STOP RELAY → TIMER UNIT
33A	O	AVS1.25sq	CN-310F		CN-340F	LIGHT RELAY → J/C-BLUE
33B	O	AVS50.75sq	CN-1F		CN-340F	CLUSTER GAUGE → J/C-BLUE
33C	O	AVS1.25sq	CN-303M		CN-340F	WORKING LIGHT → J/C-BLUE
40A	BR	AVS50.75sq	CN-2M		CN-310F	DIODE → CLUSTER GAUGE
40B	BR	AVS50.75sq	CN-310F		CN-320F	DIODE → LIGHT RELAY
41	BrW	AVS50.75sq	CN-309F		CN-301M	TRAVEL 2-SPEED RELAY → TRAVEL 2-SPEED SOL
43	LG	AVS50.75sq	CN-2M		CN-309F	CLUSTER GAUGE → TRAVEL 2-SPEED RELAY
45	BW	AVS50.75sq	CN-3M		CN-301M	CLUSTER GAUGE → TRAVEL 2-SPEED SWITCH
46	WB	AVS50.75sq	CN-3M		CN-301M	CLUSTER GAUGE → TRAVEL 2-SPEED SWITCH
47A	L	AVS5sq	CN-307F		-	GLOW RESISTER → JOINT SPLICE
47B	L	AVS3sq	CN-317F	JOINT SPLICE	CN-302M	KEY SWITCH → GLOW PLUG
47C	L	AVS50.75sq	CN-317F		CN-1F	KEY SWITCH → CLUSTER GAUGE
48	LgB	AVS50.75sq	CN-2M		CN-312F	CLUSTER GAUGE → INDICATER RELAY
50	GB	AVS50.75sq	CN-1F		CN-301M	CLUSTER GAUGE → HYD SWITCH
51	YB	AVS50.75sq	CN-1F		CN-301M	CLUSTER GAUGE → E/G THERMO SWITCH
52	YR	AVS50.75sq	CN-1F		CN-301M	CLUSTER GAUGE → E/G THERMO SENSOR
53	RG	AVS50.75sq	CN-1F		CN-301M	CLUSTER GAUGE → AIR CLEANER ALARM SWITCH
55A	YW	AVS50.75sq	CN-301M		CN-340F	FUEL SENSOR → J/C-BLUE
55B	YW	AVS50.75sq	CN-1F		CN-340F	CLUSTER GAUGE → J/C-BLUE
55C	YW	AVS50.75sq	CN-330F		CN-340F	BUZZER → J/C-BLUE
56	YG	AVS50.75sq	CN-1F		CN-301M	CLUSTER GAUGE → FUEL SENSOR
60	GL	AVS50.75sq	CN-301M		CN-313F	DECELE MOTOR → DECEL RELAY

線番 WIRE NO.	線色 WIRE COLOR	線種・サイズ WIRE SIZE	FROM	接続 CONNECTOR	TO	機能 FUNCTION
61	LB	AVS50.75sq	CN-2M		CN-313F	CLUSTER GAUGE → DECEL RELAY
63	BY	AVS50.75sq	CN-301M		CN-313F	DECELE MOTOR → DECEL RELAY
64	L	AVS50.75sq	CN-301M		CN-313F	DECELE MOTOR → DECEL RELAY
70	R	AVS2sq	CN-308F		CN-302M	E/G STOP RELAY → E/G STOP SOL
71	RW	AVS2sq	CN-315F		CN-311F	FUSE BOX → BATTERY RELAY
72	LGR	AVS1.25sq	CN-316F		CN-315F	KEY SWITCH → FUSE BOX
81	Y	AVS50.75sq	CN-312F		M-1	CHARGE INDICATER RELAY → CURRENT LIMITER
82	Bf	AVS50.75sq	CN-305F		CN-318F	SAFETY RELAY → CURRENT LIMITER
83	Sb	AVS2sq	CN-318F		CN-303M	CURRENT LIMITER → GENERATER
84	W	AVS2sq	CN-318F		CN-303M	CURRENT LIMITER → GENERATER
85	BY	AVS5sq	CN-317F		CN-307F	KEY SWITCH → GLOW RESISTER
E1	B	AVS50.75sq	CN-305F		CN-340F	SAFETY RELAY → J/C-BLUE
E2	B	AVS50.75sq	CN-306F		CN-340F	TIMER UNIT → J/C-BLUE
E3	B	AVS50.75sq	CN-311F		CN-340F	BATTERY RELAY → J/C-BLUE
E4	B	AVS50.75sq	CN-312F		CN-340F	CHARGE INDICATER RELAY → J/C-BLUE
E5	B	AVS50.75sq	CN-312F		CN-340F	CHARGE INDICATER RELAY → J/C-BLUE
E7	B	AVS50.75sq	CN-1F		CN-340F	CLUSTER GAUGE → J/C-BLUE
E8	B	AVS50.75sq	CN-3M		CN-340F	CLUSTER GAUGE → J/C-BLUE
E9	B	AVS50.75sq	CN-318F		CN-340F	CURRENT LIMITER → J/C-BLUE
E10	B	AVS1.25sq	CN-303M		CN-340F	BODY EARTH → J/C-BLUE
E11	B	AVS1.25sq	CN-303M		CN-340F	BODY EARTH → J/C-BLUE
E12	B	AVS1.25sq	CN-330F		CN-340F	BUZZER → J/C-BLUE
E13	B	AVS1.25sq	CN-321F		CN-340F	DIODE → J/C-BLUE

CONNECTORS SELECTION TABLE

コネクタ名（ピン数） CONNECTOR NAME (PINS NUM.)	メーカー MANUFAC.	部品番号 (PART NUMBER) ハウジング HOUSING	ターミナル TERMINAL	ハーネスシール HARNESS SEAL	リテーナ RETAINER ロックプレート LOCK PLATE	ウメ栓	クリップ CLIP
2PAF-D	YAZAKI	7116-3250	7116-3250	7157-6421-80			
2PAF-Y	YAZAKI	7123-3020	7116-3060				
3PAF	YAZAKI	7123-2237	7116-2090				
4PAF	YAZAKI	7123-2446	7116-2090				
4PAW-312	YAZAKI	7282-3040	7114-6041 7116-6042				
4PAF-312	YAZAKI	7283-3040	7116-6041 7116-6042				
4PAF-P&B	P&B	YCF7-1000					
	AMP		42281-1				
5PAF-P&B	P&B	YCF4-1003					
	PACKARD		12015865				
5PAW-MIC (BLACK)	AMP	172494-2	172777-1				
5PAW-MIC	AMP	172504-1	172777-1				
6PAF	YAZAKI	7123-2262	7116-2090				
15PAF-MIC	AMP	172497-1	172773-1				
CA104	YAZAKI	7120-8012	7113-1020				
J/C-BLUE	SUMITOMO	6400-0014 6409-0073	8240-4422				
20PAM	SUMITOMO	6240-1035	8230-4502				

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