KOBELCO

SERVICE MANUAL

HYDRAULIC EXCAVATOR

LK850-II

S5RJ0102E

APPLICABLE:
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SPECIFICATION

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KOBELCO LK 850-2
WITH FULL TANK
AND 200LB MAN
42,900 LBS

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4.5 EMERGENCY STEERING SYSTEM

The emergency steering system is to operate the emergency pump using the battery power in the event when the steering pump to operate the power steering fails to work due to the engine trouble and so on.

For electrical circuit, see "1. ELECTRIC SYSTEM DIAGRAM".

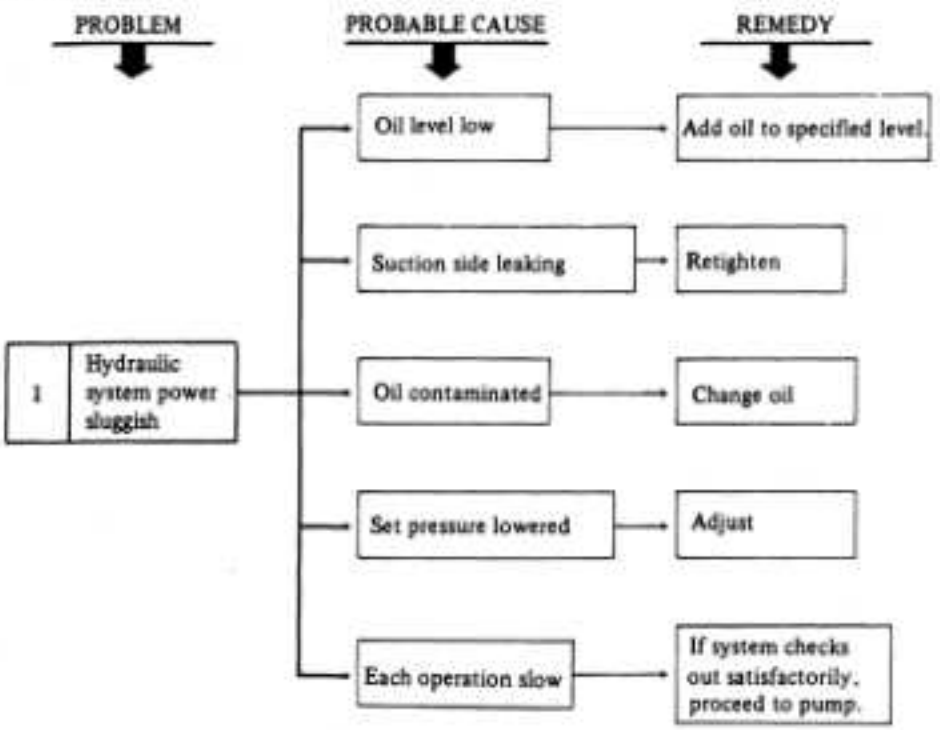
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7. TROUBLESHOOTING

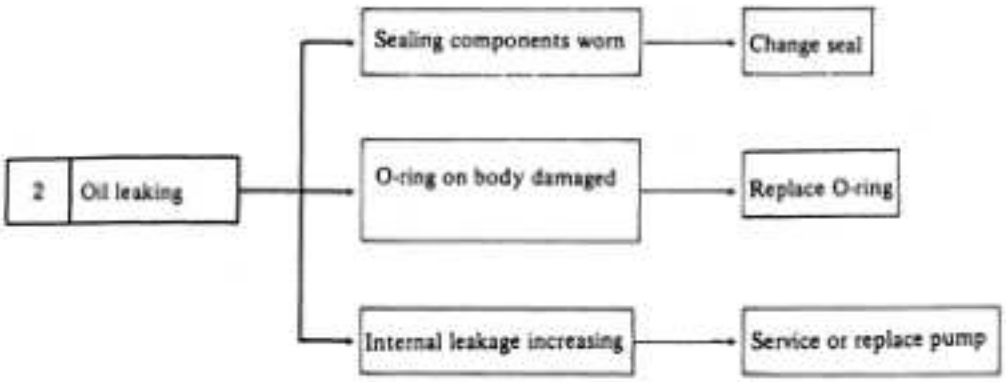
Probable causes of trouble include faulty system pressure and oil temperature, contaminated hydraulic oil, and leakage from the suction line. Below are some examples of problems that may occur and their causes.

If the cause of a problem lies with the pump, check the whole system and the control system as well. If the entire system checks out satisfactorily, use the following troubleshooting guide.

(1) System-related



(2) Pump-related



See box below dealing with reduced delivery.

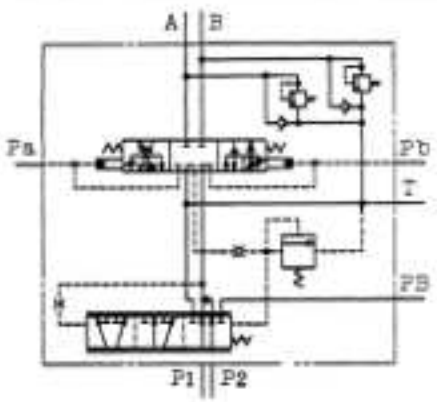
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2. SPECIFICATIONS

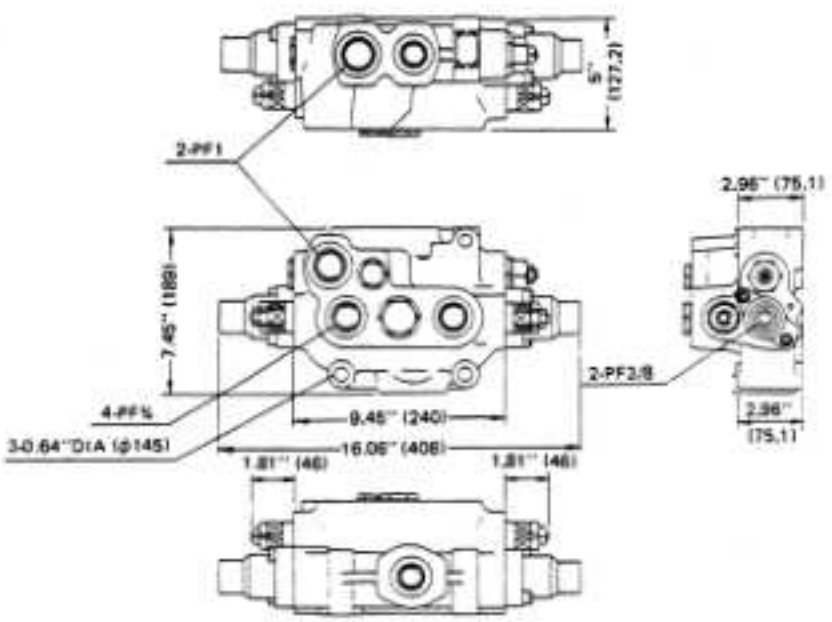
2.1 MAIN SPECIFICATIONS

Max. supply flow rate		P1 20gal/min (68ℓ/min) P2 44.4gal/min (168ℓ/min)	
Cylinder port flow rate		25gal/min (95ℓ/min) [Control flow rate]	
Set pressure	1) Main relief valve	3000psi at 25gal/min (210kg/cm² at 95ℓ/min)	
	2) "A" port relief valve	3270psi at 7.9gal/min (230kg/cm² at 30ℓ/min)	
	3) "B" port relief valve	3270psi at 7.9gal/min (230kg/cm² at 30ℓ/min)	
Set pressure variation per turn of adjuster		1) Main relief valve	Approx. 2574psi (181kg/cm²)
		2) "A" port relief valve	Approx. 2275psi (160kg/cm²)
		3) "B" port relief valve	Approx. 2275psi (160kg/cm²)
Weight		Approx. 517lb (235kg)	

2.2 HYDRAULIC CIRCUIT



2.3 MAIN DIMENSIONS



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1.2 WIRING TABLE

Table 1-1 shows a cable number, color code, function and cable type of the wiring.

No.	Color code	Function	Cable type	Remarks
1	Bk	Battery relay → alternator, starter	AV60	
	R	Battery relay → fuse	AV15, 8	
2	Bk	Battery → battery relay	AV60	
	Br	Battery relay → engine key SW	AV5	
3	G	Air heater relay → air heater	AV15	
4	R, Bl	Heater SW (SW-1) → air heater relay	AV0.85	
5	Bk, W	Engine key SW → neutral SW (SW-2)	AV0.85	
6	G, Bk	T/M controller → safety relay SW terminal	AV0.85	
7	Bk	Starter relay C terminal → safety relay terminal C	AV15	
8	Bk, R	Alternator N terminal → safety relay terminal N; C.S monitor terminal 24; T/M controller	AV0.85	
9	W, G	Safety relay N terminal → alternator terminal IG	AV0.85	
10	W, Bl	Engine key SW BR terminal → Battery relay; E/G stopper relay; Alternator terminal S	AV0.85	
11				
12				
13	W, Y	F-10 → hazard, parking light, horn, room light, service light	AV0.85	
14				
15				
16	Bl, W	SW-45 → T/M controller	AV0.85	
17	P, Bl	SW-40 → T/M controller	AV0.85	
18	SBl	SW-40 → T/M controller	AV0.85	
19	Bl, Y	SW-48 → T/M controller	AV0.85	
20	Y, R	Emergency SW → T/M controller	AV0.85	
21	Y, G	Light SW → front light (LH, RH)	AV0.85	
22	R, Bl	F1 → light SW	AV2	
23	R, Y	Light SW → front light (LH, RH), C.S monitor	AV0.85	
24	R, G	Flasher SW → rear tail light, C.S monitor, licence light, relay assembly	AV0.85	
25	G, Y	Relay assembly → front parking light	AV0.85	
26	Br, W	SW → flasher (LH), C.S monitor terminal 17	AV0.85	
27	Bl, Bk	SW → flasher (RH), C.S monitor terminal 15	AV0.85	
28	Y, W	Flasher unit → flasher SW	AV0.85	
29	Y, R	Hazard unit → flasher SW	AV0.85	
30	G, R	Horn → horn SW (SW-3)	AV0.85	
31	Bl, Y	Parking light SW (SW-4) → relay assembly, rear parking light	AV0.85	
32	LG	Work lamp SW (SW-6) → rear work lamp, C.S monitor terminal 23	AV0.85	
33	Bl, R	T/M controller → back lamp, back buzzer	AV0.85	
34	Br, R	SW-7 → T/M controller	AV0.85	
35	Y	F4 → flasher, SW-6, SW-7	AV0.85	
36				
37	G, Bk	F2 → work lamp SW (SW-5)	AV2	
38				
39	R, Y	SW-49 → back buzzer	AV0.85	
40	Y, W	T/M controller → SW-24	AV0.85	
41				
42				
43	P	F13 → wiper (R.H), wiper (L.H)	AV2	
44				
45	G	F5 → SW-9, SW-39, SW-10, Control valve	AV0.85	
46	R, W	F5 → SW-8	AV0.85	
47	Y, Bl	Pilot control valve → SW-9	AV0.85	
49	Bl	F12 → cigarette lighter resistor, F.R wiper	AV0.85 AV2	
50	R, Bk	Cigarette lighter resistor → cigarette lighter	AV2	

No.	Color code	Function	Cable type	Remarks
51	R, Y	Intermittent relay → front wiper	AV2	
52	R, Bk	Front wiper relay → front wiper	AV2	
53	Y, Bl	SW-14 → rear wiper	AV0.85	
54	G, Y	SW-14 → rear wiper	AV0.85	
55	G, Bl	SW-14 → rear window washer	AV0.85	
56	R	SW-38 → engine room service light	AV0.85	
57	Bl, R	Front window washer → SW-12	AV0.85	
58		Converter → AM, FM stereo	AV0.85	
59		SW-16 → fan	AV0.85	
60	G	SW-17 → fog lamp	AV0.85	
61	G, R	SW-5 → cab work lamp	AV0.85	
62	W, R	SW-19 → rotary lamp	AV0.85	
63		SW-20, SW-21 → SW22	AV0.85	
64		SW-22 → room lamp	AV0.85	
65	G, W	F3 → SW-17, SW-19	AV2 AV0.85	
66	Br, W	Wiper relay (R.H) → SW-44	AV0.85	
67	Br, R	Wiper relay (R.H) → wiper motor (R.H)	AV0.85	
68	O, Bl	SW-44 → window washer	AV0.85	
69	W	Wiper relay (LH, RH) → SW-44	AV0.85	
70	W	F13 → cooling unit, heater unit	AV2	
71	R, W	Rotary SW → cooling unit	AV2	
72	W, Bk	Rotary SW → cooling unit	AV0.85	
73	Br, Bl	Rotary SW → cooling unit	AV0.85	
74	Y, Bk	Rotary SW → cooling unit	AV0.85	
75	Y, W	Rotary SW → cooling unit	AV0.85	
76	W, R	Rotary SW → cooling unit	AV2	
77	LG	Cooling unit → condensor fan	AV2	
78	W, Bl	Cooling unit → Hi-Lo pressure SW	AV2	
79	Bl, Bk	Heater unit → changeover SW	AV0.85	
80	Br	Heater unit → changeover SW	AV0.85	
81	Y	Heater unit → changeover SW	AV0.85	
82	O, W	Hi-Lo pressure SW → compressor	AV0.85	
83				
84	O, W	SW-39 → emergency steering relay, light	AV0.85	
85		Emergency steering relay → emergency steering pump	AVS0	
86	Gr, Bl	Wiper relay (LH) → SW-46	AV0.85	
87	O	Wiper relay (LH) → wiper motor (LH)	AV0.85	
88	Gr	SW-46 → window washer	AV0.85	
89	W, Bl	Side wiper relay → side wiper (RH)	AV0.85	
90	Bk, R	Side wiper relay → side wiper (RH)	AV0.85	
91	Bl, W	F6 → buzzer, C.S monitor terminal 21 & 36	AV0.85	
92	W	Buzzer → pressure SW (SW-23)	AV0.85	
93	Y, Bk	C.S monitor terminal 1 → T/M controller	AV0.85	
94	G, W	C.S monitor terminal 20 → SW-25	AV0.85	
95	P, W	C.S monitor terminal 11 → SW-26	AV0.85	
96	W, Bk	C.S monitor terminal 19 → SW-27	AV0.85	
97	W, R	C.S monitor terminal 8 → T/M controller	AV0.85	
98	Bl	C.S monitor terminal 7 → SW-29	AV0.85	
99	R	C.S monitor terminal 9 → SW-30	AV0.85	
100	Gr, Bl	C.S monitor terminal 5 → SW-31	AV0.85	

No.	Color code	Function	Cable type	Remarks
101	P	C.S monitor terminal 2 → SW-32	AV0.85	
102	R, Bk	C.S monitor terminal 10 → SW-33	AV0.85	
103	Bk, Y	C.S monitor terminal 6 → SW-34	AV0.85	
104	P, Bl	C.S monitor terminal 3 → SW-35	AV0.85	
105	G, Bl	C.S monitor terminal 25 → SW-36	AV0.85	
106	O, Bl	C.S monitor terminal 4 → SW-37	AV0.85	
107	O	C.S monitor terminal 13 → fuel level sensor	AV0.85	
108	SBl	C.S monitor terminal 14 → engine coolant thermosensor	AV0.85	
109	Br, Bl	C.S monitor terminal 14 → torque converter oil thermosensor	AV0.85	
110	W	Speedosensor → C.S monitor terminal 28	3 core shield	
111	Bk	C.S monitor terminal 31 → speedosensor		
112	R	C.S monitor terminal 30 → speedosensor		
113	Br	Air pressure meter → air pressure sensor	AV0.85	
114				
115				
116				
117	G, R	F11 → E/G stopper	AV0.85	
118	R, W	E/G stopper relay → E/G stopper	AV0.85	
119	Y, G	E/G stopper relay → E/G stopper	AV0.85	
120	P, W	E/G stopper relay → E/G stopper	AV0.85	
121	Y, G	F7 → T/M controller	AV2 AV0.85	
122	Y, Bl	Shift lever (F) → T/M controller	AV0.85	
123	G, W	Shift lever (R) → T/M controller	AV0.85	
124	G, Y	Shift lever (1st) → T/M controller	AV0.85	
125	G, R	Shift lever (2nd) → T/M controller	AV0.85	
126	G, Bl	Shift lever (3rd) → T/M controller	AV0.85	
127	Br, W	Shift lever (4th) → T/M controller	AV0.85	
128	P, W	T/M controller → Sol-F	AV0.85	
129	O, Bl	T/M controller → Sol-R	AV0.85	
130	Gr, Bl	T/M controller → Sol-1st	AV0.85	
131	R	T/M controller → Sol-2nd	AV0.85	
132	G	T/M controller → Sol-3rd	AV0.85	
133	O	T/M controller → Sol-4th	AV0.85	
134	LG	T/M controller → Sol-TR	AV0.85	
135	Gr	T/M controller → Sol parking	AV0.85	
136	P	T/M controller → parking indicator	AV0.85	
137	SBl	SW-51 → D. damper relay	AV0.85	
138	O	D. damper relay → D. damper solenoid	AV0.85	
139	Bk, W	D. damper relay → D. damper solenoid	AV0.85	
140				
141	Y, G	Side wiper relay → side wiper (LH)	AV0.85	
142	R, G	Side wiper relay → side wiper (L.H)	AV0.85	
998	G, R	SW-5 → C.S monitor	AV0.85	
999	Bk	For shield wire	AV0.85	

Bk : Black Bl : Blue LG : Light Green
Br : Brown Gr : Gray
G : Green Y : Yellow SBl : Sky Blue

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