CEBM005806

Shop Manual

KOMATSU®

PC200LC-7L
PC220LC-7L

HYDRAULIC EXCAVATOR

SERIAL NUMBERS **PC200LC-7L** **PC220LC-7L** **A86001** and UP

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SPECIFICATIONS

Machine model				PC200LC-7L	PC220LC-7L
Serial Number				A86001 and up	
Bucket capacity			m³	0.8	1.0
Operating weight			kg	20,700	24,130
Performance	Working ranges	Max. digging depth	mm	6,620	6,920
		Max. vertical wall depth	mm	5,980	6,010
		Max. digging reach	mm	9,875	10,180
		Max. reach at ground level	mm	9,700	10,020
		Max. digging height	mm	10,000	10,000
		Max. dumping height	mm	7,110	7,035
	Max. digging force (using power max. function)		kN {kg}	138.3 {14,100} (149.1 {15,200})	158.9 {16,200} (171.6 {17,500})
	Swing speed		rpm	12.4	11.7
	Swing max. slope angle		deg.	20	25
	Travel speed		km/h	Lo: 3.0 Hi: 5.5	Lo: 3.1 Hi: 5.5
	Gradeability		deg.	35	35
	Ground pressure [standard shoe width]		kPa {kg/cm²} [mm]	36.3 {0.37} [700]	41.2 {0.42} [700]
Dimensions	Overall length (for transport)		mm	9,425	9,885
	Overall width		mm	3,080	3,280
	Overall width of track		mm	3,080	3,280
	Overall height (for transport)		mm	3,000	3,160
	Overall height to chassis		mm	3,000	3,015
	Ground clearance to bottom of upper structure		mm	1,085	1,110
	Min. ground clearance		mm	440	440
	Tail swing radius		mm	2,750	2,940
	Min. swing radius of work equipment		mm	3,040	3,450
	Height of work equipment at min. swing radius		mm	8,005	8,110
	Length of track on ground		mm	3,640	3,845
	Track gauge		mm	2,380	2,580
	Height of machine cab		mm	2,335	2,390

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Machine model				PC200LC-7L	PC220LC-7L
Serial Number				A86001 and up	
Engine	Model			SAA6D102E-2	
	Type			4-cycle, water-cooled, in-line, vertical, direct injection, with turbo charger	
	No. of cylinders - bore x stroke		mm	6 - 102 x 120	
	Piston displacement		L{cc}	5.883 {5,883}	
	Performance	Flywheel horsepower	kW/rpm {HP/rpm}	106.7/1,950 {143/1,950}	125/2,000 {167/2,000}
		Max. torque	Nm/rpm {kgm/rpm}	610.0/1,500 {62.2/1,500}	686/1,500 {70/1,500}
		Max. speed at no load	rpm	2,150	2,260
		Min. speed at no load	rpm	1,030	1,060
		Min. fuel consumption	g/kWh {g/HPh}	215 {160}	212 {153}
	Starting motor			24V, 5.5 kW	
	Alternator			24V, 50 A	
	Battery			12V, 110 Ah x 2	
	Radiator core type			Corrugated CWX-4	Corrugated CF19-5
Under-carriage	Carrier roller			2 on each side	
	Track roller			9 on each side	10 on each side
	Track shoe			Assembly-type triple grouser, 49 on each side	Assembly-type triple grouser, 51 on each side
Hydraulic system	Hydraulic pump	Type x No.		HPV95+95, variable displacement	
		Delivery	L/min	Piston type: 214 x 2	
		Set pressure	MPa (kg/cm²)	Piston type: 37.2 {380}	
	Control valve	Type x No.		6-spool type x 1	
		Control method		Hydraulic	
	Hydraulic motor	Travel motor		HMV110ADT-2, Piston type (with brake valve, parking brake): x 2	
		Swing motor		KMF125ABE-5, Piston type (with safety valve, holding brake): x 1	
	Hydraulic cylinder	Type		Boom / Arm / Bucket / Boom / Arm / Bucket	
				Double acting piston	
		Inside diameter of cylinder	mm	120 / 135 / 115 / 130 / 140 / 130	
		Diameter of piston rod	mm	85 / 95 / 80 / 90 / 100 / 90	
		Stroke	mm	1,334.5 / 1,490 / 1,120 / 1,335 / 1,635 / 1,020	
		Max. distance between pins	mm	3,204.5 / 3,565 / 2,800 / 3,205 / 2,235 / 2,625	
		Min. distance between pins	mm	1,870 / 2,075 / 1,680 / 1,870 / 3,870 / 1,605	
	Hrdraulic tank			Closed box type	
	Hydraulic filter			Tank return side	
	Hydraulic cooler			CF40-1 (Air cooled)	

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WEIGHT TABLE

WARNING! This weight table is for use when handling components or transporting the machine.

Unit: kg

Machine model	PC200LC-7L	PC220LC-7L
Serial Number	A86001 and up	
Engine assembly	749	749
• Engine	598	598
• Damper	6	6
• Hydraulic pump	145	145
Radiator oil cooler assembly	110	119
Hydraulic tank, filter assembly (excluding hydraulic oil)	123	123
Fuel tank (excluding fuel)	121	121
Revolving frame	1,729	2,048
Operator's cab	278	278
Operator's seat	35	35
Counterweight	3,735	5,056
Swing machinery	160	237
Control valve	263	263
Swing motor	60	60
Travel motor	98 x 2	98 x 2
Center swivel joint	36	36
Track frame assembly	4,712	5,460
• Track frame	2,534	3,046
• Swing circle	273	293
• Idler	99 x 2	99 x 2
• Idler cushion	135 x 2	135 x 2
• Carrier roller	16 x 4	16 x 4
• Track roller	36 x 18	36 x 20
• Final drive (including travel motor)	343 x 2	362 x 2
Track shoe assembly		
• Triple grouser shoe (700 mm)	1,530 x 2	1,595 x 2
• Triple grouser shoe (800 mm)	1,670 x 2	1,735 x 2
Boom assembly	1,408	1,825
Arm assembly	653	1,213
Bucket assembly	628	722
Boom cylinder assembly	172 x 2	195 x 2
Arm cylinder assembly	226	262
Bucket cylinder assembly	136	161
Link assembly (large)	81	82

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4. Inspection of hydraulic circuit

#	Part to be checked	Condition Setting						① 600 kg/cm² (F Main Pump)	② 600 kg/cm² (R Main Pump)	③ 600 kg/cm² (F Pump LS)	④ 600 kg/cm² (R Pump LS)	⑤ 60 kg/cm² (Control Circuit)	Remarks
		Pwr/Dful	Working Mode	Auto Decel	One Touch Power Max Switch	Work Equipment Operation							
1	Self decompression valve	Full	A	OFF	OFF	Arm dumping relief				→	→		Circuit pressure 33 kg/cm²
2	Main relief valve							→	→	→	→		355 to 380 kg/cm²
3	When power increased				ON								
4	LS Valve (LS differential pressure valve)					Neutral	Travel with load, engine at hi idle and control lever at half stroke	Right					Main - LS = 40 kg/cm² (LS differential pressure = Unload pressure)
								Left					Main - LS = 22 kg/cm² (LS pressure)
5	Swing safety valve					Swing lock switch on	Right relief						315 kg/cm²
							Left relief						
6	Main relief valve, Travel safety valve Travel interlocking valve					Track shoe locked	Right reverse						395 kg/cm²
							Right travel						
							Left travel						
							Left reverse						

→ Connection to be changed to hoses ③ and ④

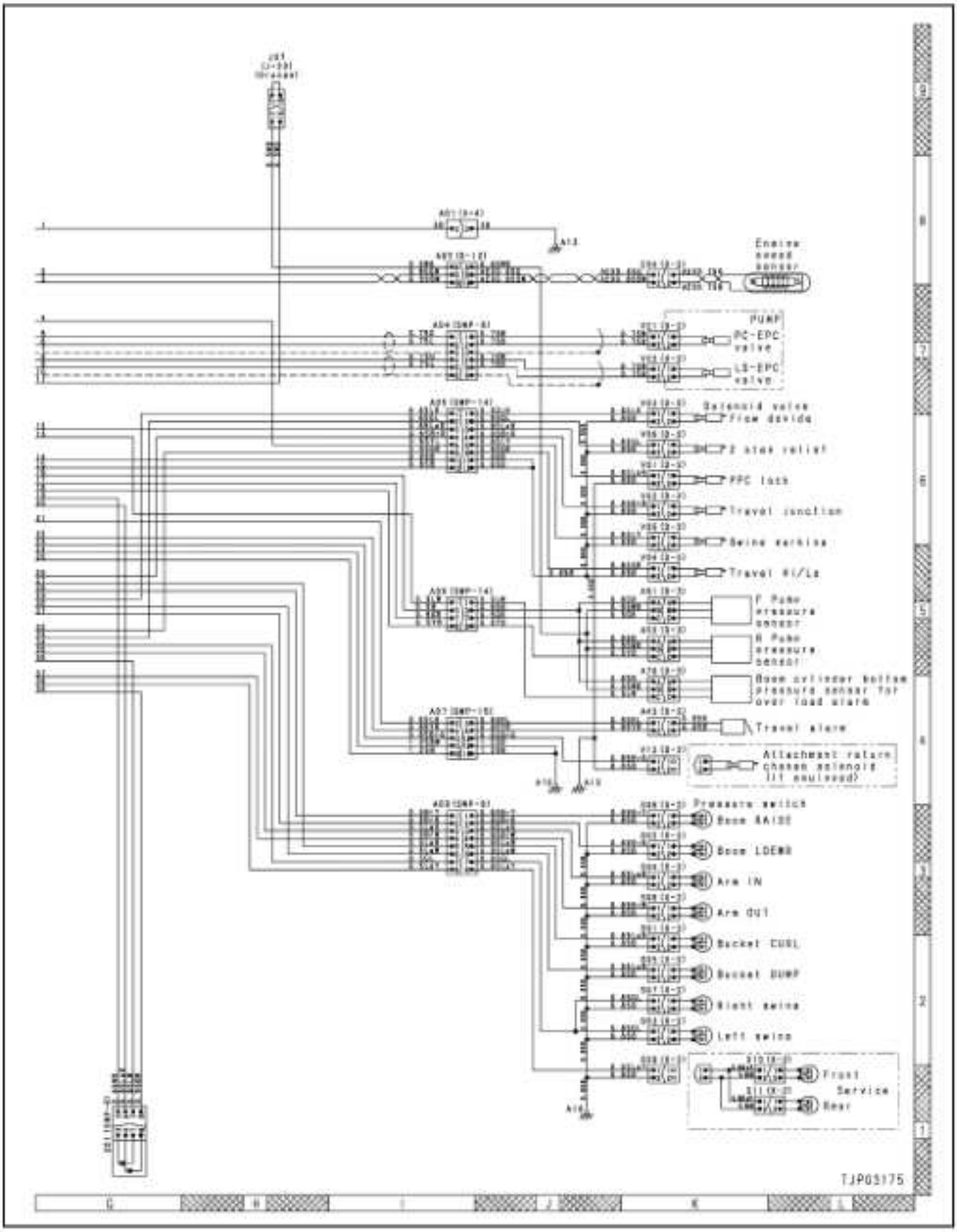
#	Part to be checked	Condition Setting					① 600 kg/cm² (F Main Pump)	② 600 kg/cm² (R Main Pump)	③ 600 kg/cm² (F Pump LS)	④ 600 kg/cm² (R Pump LS)	⑤ 60 kg/cm² (Control Circuit)	Remarks
		Pwr/Dful	Working Mode	Auto Decel	One Touch Power Max Switch	Work Equipment Operation						
7	Servo	Full	A	OFF	OFF	Arm dumping relief						Main servo pressure balance ③/①=④/②=3/5

→ Connection to be changed to hoses ③ and ④ and gauge to be replaced with 60 kg/cm² capacity

#	Part to be checked	Condition Setting					① 600 kg/cm² (F Main Pump)	② 600 kg/cm² (R Main Pump)	③ 60 kg/cm² (PC EPC)	④ 60 kg/cm² (LS EPC)	⑤ 60 kg/cm² (Control Circuit)	Remarks <Reference valve: kg/cm²>
		Pwr/Dful	Working Mode	Auto Decel	One Touch Power Max Switch	Work Equipment Operation						
8	PC-EPC valve	Low	A	OFF	OFF	Arm dumping relief						<34>Delivery variance by switching modes <3> <14> <21> <16>
		Full	E									
			L									
			B									
9	LS-EPC valve	Full	A	OFF	OFF	Neutral						At neutral: 30 kg/cm²
			L			Arm dumping relief						When 2 pumps relief: 0 kg/cm²
												When 1 pump relief: 15 kg/cm²

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★ This circuit diagram has been compiled by extracting the governor pump controller system (pump control), PPC lock system and backup alarm system from the overall electrical circuit diagram



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E-27 SWING NOT CORRECTLY DISPLAYED ON MONITOR

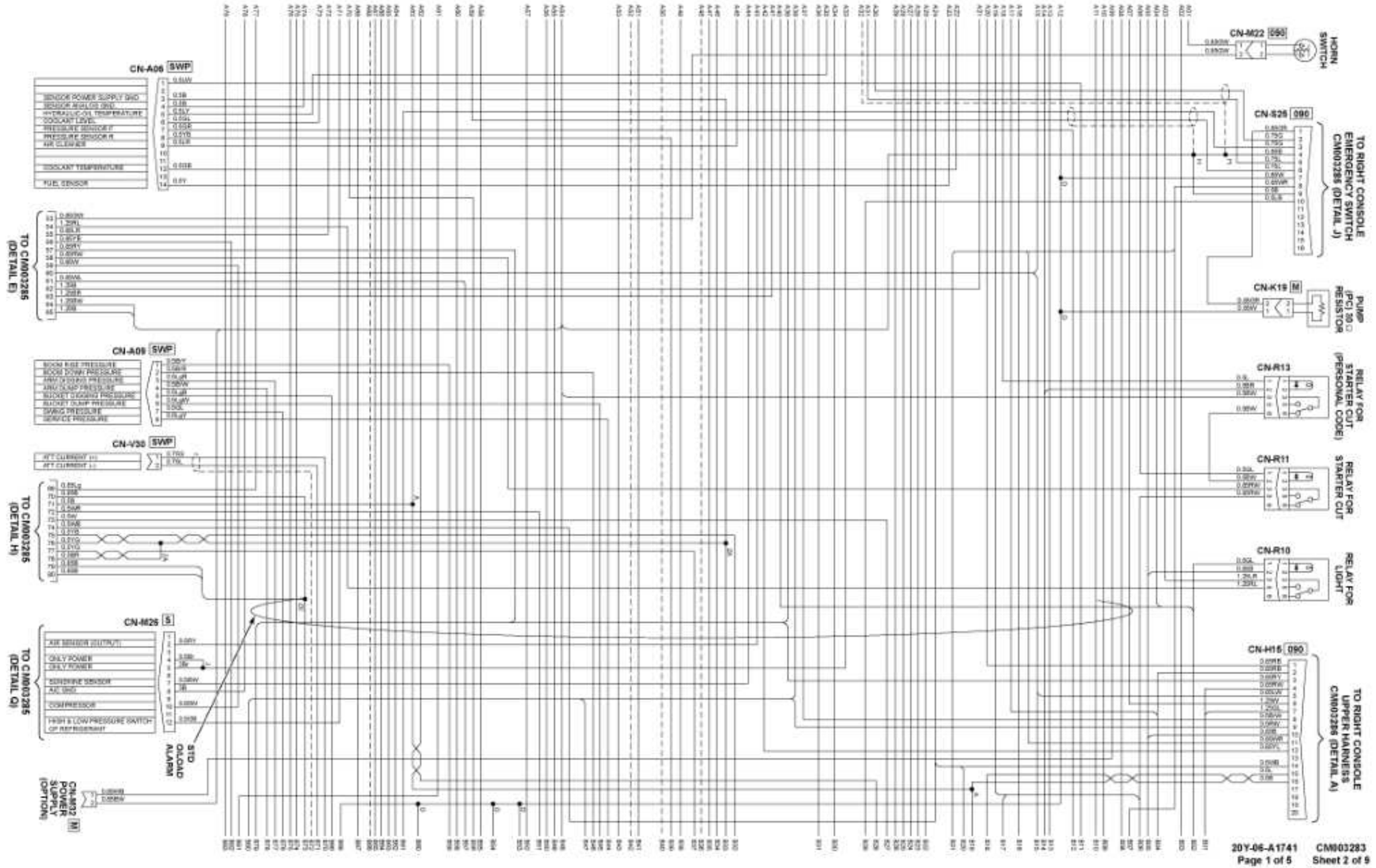
Contents Of Trouble	• Swing not correctly displayed on monitor. • Failure code none displayed. • Swing not displayed correctly.

Tools and Procedures	• Digital Volt Ohm Meter. T-adapter kit. • Do not mark on original page of service manual. Remove this page from the service manual and make a copy for recording information while performing these tests. • If you are unable to copy this page, record readings on a separate paper referring to the (**No.**) numbers listed on the right of the procedure. • Follow each step throughout this procedure, do not skip steps, jump ahead or stop when a fault is found unless otherwise instructed to in the procedure. It is important to complete all steps and record information for final analyzing.

Steps	Circuit Diagnostic Procedures For Service Code [E-27]		Specifications	No.	Readings
1.	**Swing Right Switch** • With ignition switch in the "OFF" position. • Disconnect (S07) connector from switch. • Zero meter leads for proper Ω readings.				
	A. Switch test	Resistance Ω	At switch S07, between (1) and (2), no swing.	(OL) open	**1**	
			At switch S07, between (1) and (2), swinging right.	0.0 to 1.0Ω	**2**	
2.	**Swing Left Switch** • With ignition switch in the "OFF" position. • Disconnect (S03) connector from switch. • Zero meter leads for proper Ω readings.				
	A. Switch test	Resistance Ω	At switch S03, between (1) and (2), no swing.	(OL) open	**3**	
			At switch S03, between (1) and (2), swinging left.	0.0 to 1.0Ω	**4**	
3.	**Wiring Harness Assembly Test** • With ignition switch in the "OFF" position. • Disconnect (S07) and (S03) connectors from switches. • Disconnect (C03) connector from controller and install T-adapter on (C03) wiring harness connector only				
	A. Open or high resistance	Resistance Ω	At connector S07, between (2) and chassis ground.	0.0 to 1.0Ω	**5**	
			Between connectors S07, (1) and C03, (29)	0.0 to 1.0Ω	**6**	
			At connector S03, between (2) and chassis ground.	0.0 to 1.0Ω	**7**	
			Between connectors S03, (1) and C03, (29)	0.0 to 1.0Ω	**8**	
	B. Short to chassis ground or within harness	Resistance Ω	At connector S07, between (1) and chassis ground.	(OL) open	**9**	
			At connector S07, between (1) and (2)	(OL) open	**10**	
			At connector S03, between (1) and chassis ground.	(OL) open	**11**	
			At connector S03, between (1) and (2)	(OL) open	**12**	
4.	**Governor Pump Controller Test** • With ignition switch in the "OFF" position. • Disconnect (C03) connector from governor pump controller and install T-adapter between (C03) wiring harness connector and controller. • Turn ignition switch to the "ON" position.				
	A. Controller	Voltage	At connector C03, between (29) and chassis ground, no swing.	20 to 30V	**13**	
			At connector C03, between (29) and chassis ground, swing left or right.	0V	**14**	

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CIRCUIT DIAGRAM SHEET 2 OF 9



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