9007B
Excavator

Service Manual

Cre 7-22871GB

CASE

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WARNING: *This symbol is used in this manual to show important safety messages. Whenever you see this symbol, read the message which follows carefully, since there is a risk of serious injury.*

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SPECIFICATIONS

Electrical system	two 12 volts batteries connected in series, negative ground
System voltage	24 volts
Batteries	
Amp/hour rating	65
Alternator	24 volts, 40 amperes
Voltage regulator	solid state, not adjustable
Starter	24 volt, solenoid actuated

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SAFETY RULES

WARNING : *Never try to charge the battery if the electrolyte in the battery is frozen.*

WARNING : *Never cause sparks to occur or smoke near batteries that are charging or have been recently charged.*

WARNING : *Disconnect the ground cable first when the battery cables are disconnected from the battery.*
Connect the ground cable last when the battery cables are connected to the battery.

WARNING : *Some batteries have a ventilation tube. If there is battery acid in the ventilation tube, this battery acid can be released when the battery is turned upside down. If you turn the battery upside down, make sure that the end of the ventilation tube is away from you and away from any other people in the area. Battery acid can cause severe burns.*

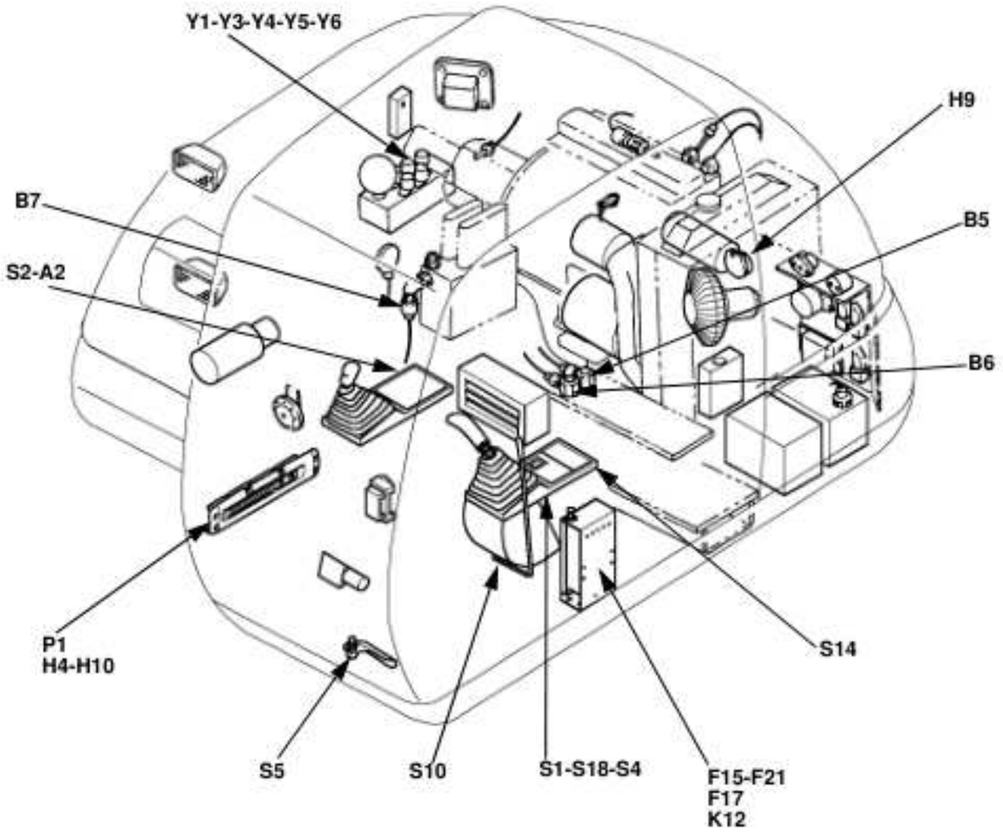
WARNING : *Battery acid causes severe burns. Batteries contain sulfuric acid. Avoid contact with skin, eyes, or clothing.*
Antidote : EXTERNAL - Flush with water. INTERNAL - Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call physician immediately. EYES - Flush water for 15 minutes and get prompt medical attention.

Batteries produce explosive gases. Keep sparks, flame and cigarettes away. Ventilate when charging or using in an enclosed area. Always shield eyes when working near batteries.

Keep batteries and battery acid out of the reach of children.

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ELECTRICAL SCHEMATIC (PLATE E)



C98N513

CAB

A2 CPU (right-hand switch panel)
H9 Alarm travel
P1 Monitor display
S1 Left-hand switch panel
S2 Right-hand switch panel
S14 Option solenoid switch

MONITOR DISPLAY

H4 Indicator light - swing lock
H10 Indicator light - control lock

UPPERSTRUCTURE

B5 Swing pilot pressure switch
B6 Swing pilot pressure switch
B7 Travel pilot pressure switch
B8 Option pilot pressure switch
Y1 Solenoid - swing lock
Y3 Solenoid - speed travel
Y4 Solenoid - swing brake
Y5 Solenoid - control lock
Y6 Solenoid - option

ENGINE

CAB FLOOR

F15 10A Relay K3, left-hand panel, swing lock, swing brake, travel speed and travel audible alarm
F17 10A Control lock
F21 15A Option solenoid
K12 Control lock relay
S5 Speed travel switch
S10 Control lock switch (lever)

LEFT-HAND SWITCH PANEL

S4 Swing lock switch
S18 Control lock switch (left-hand switch panel)

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Item	Symptom	Parts concerned	Problem	Solutions
1	Oil leak at piston rod sliding surface	Rod seals (Shock absorbing seal, Composite seal)	Seals have lost their elasticity, seals are decomposing.	**1.** Replace **2.** The age of the seals, deterioration of the hydraulic oil and high temperature may have caused the problem. - Replace the hydraulic oil. - Check temperature of hydraulic oil. (temperature preferably below 80°C). - Check for localised high temperatures.
			Defective lip over whole circumference	**1.** Replace. **2.** It is possible that abnormally high pressure is acting on seal. - Check operating pressure. - The shock absorbing seal part may be abnormal. Inspect complete shock absorbing seal.
		Back-up ring	Seal edge protrudes too far	- As a general rule, replace piston rod seal at the same time (we advise you to replace the shock absorbing seal also at the same time). - It may be that excessive pressure caused problem. Perform same checks as above (seal edge protrudes too far).
		Wiper seal	Lip attacked by foreign matter. Lip damaged.	Remove the foreign matter.
			Other abnormal damage	Replace.
		Gland (Bushing)	Excessive wear and play at piston rod in excess of authorised limits. (See maintenance)	Replace
			Deep scratch on sliding surface	- Replace. - At same time, inspect piston rod.
		Cylinder top	Scratches or rust found on seal retaining parts	- Use oil stone to remove scratch or rust. - Replace cylinder top if not reparable.

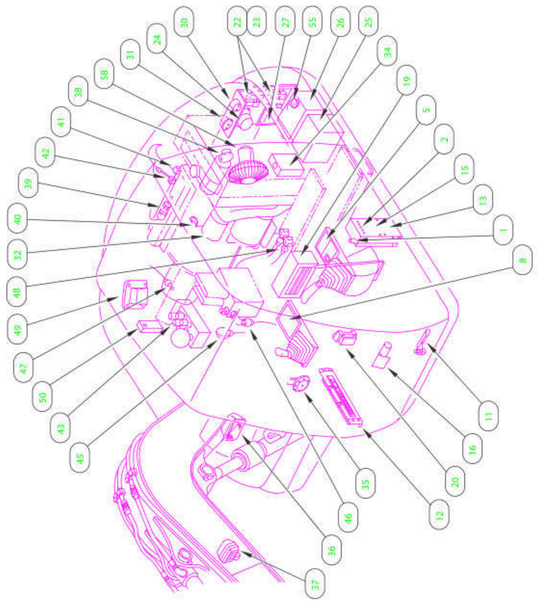
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SPECIFICATIONS

(1) Primary pressure	Max. 9.89 MPa (100 kgf/cm^2)	
(2) Secondary pressure	0 ~ 4.4 MPa (Stroke End Maximum Control Pressure)	
(3) Allowable back pressure	0.3 MPa (3kgf/cm^2) Momentary 0.7 MPa (7 kgf/cm^2)	
(4) Rated flow	10 l/min	
(5) Operation angle	± 12.4°	
(6) Hydraulic oil	Mineral hydraulic oil	
(7) Usable temperature range	- 20°C ~+ 90°C	
(8) Mass	RCV8C1 (no pedal)	3.2 kg
	RCV8C1 (with pedal)	4.8 kg
	RVV8C2 (with pedal)	11.6 kg
	RCV8C4 (no pedal)	8.6 kg
(9) Piping	In order to obtain good response, piping having an inner diameter of 8 mm and length of up to 3 m is most suitable. Also, so that the return oil is not influenced by the back pressure, return it directly to the tank.	
(10) Filter	To prevent the spool from sticking, use a filter of more than 40 mesh on the P port entrance.	

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9007B EXCAVATOR
HYDRAULIC/ELECTRICAL
SCHEMATIC



ITEM	DESCRIPTION
1	LIGHTER
2	SPEAKER
3	ANTENNA
4	RADIO
5	LEFT CONSOLE
6	LIMIT SWITCH GATE
7	HORN SWITCH
8	RIGHT CONSOLE
9	BREAKER/BOOM VARI PILOT PRESSURE
10	ASSIST SWITCH
11	TRAVEL SPEED SELECTOR
12	MONITOR
13	THROTTLE MOTOR DRIVER
14	ONE TOUCH IDLE
15	RELAY (1 INTERCHANGEABLE)
16	WIPER MOTOR
17	AIR CONDITIONING SWITCH
18	AIR CONDITIONER UNIT
19	HEATER
20	FUSE BOX
21	KEY SWITCH
22	FUSE
23	FUSE
24	BATTERY RELAY
25	BATTERY
26	BATTERY
27	SAFETY RELAY
28	ENGINE
29	ALTERNATOR
30	STARTER RELAY
31	HEATING RELAY
32	ASSIST CLUTCH
33	CLUTCH SWITCH
34	WASHER MOTOR
35	HORN
36	WORK LAMP UPPER
37	WORK LAMP BOOM
38	TRAVEL ALARM
39	ENGINE STOP
40	OIL PRESSURE
41	THERMO SWITCH (WATER)
42	WATER TEMP. SENSOR
43	5 SOLENOID VALVE BANK
44	SOLENOID (2ea)
45	FUEL SENSOR
46	TRAVEL PILOT PRESSURE SWITCH
47	THERMO SWITCH (HYDRAULIC)
48	SWING PILOT PRESSURE SWITCH
49	THROTTLE MOTOR
50	CAB LAMP
51	WIPER MOTOR DIODE
52	WASHER MOTOR DIODE
53	STARTER MOTOR
54	GLOW PLUG
55	ENGINE STOP RELAY SENSOR
56	STARTER RELAY DIODE
57	HEATING RELAY DIODE
58	FAN CAB
59	FAN SWITCH CAB
60	CONSOLE FAN

LEGEND

- CONNECTED
- NOT CONNECTED
- BOOT GROUND
- CABLE GROUND
- SINGLE WIRE CONNECTOR
- HARNESS
- CONNECTOR (MALE)
- CONNECTOR (FEMALE)
- INDICATES COLOR BAND ON LINE
- INDICATES CONSTANT POWER
- INDICATES POWER WHEN KEY SWITCH IS ON
- 40 B 001 — AREA / COLOR / CIRCUIT NUMBER
- CONNECTOR NUMBER (OUTSIDE CAB) CONNECTOR LETTER LOCATED ON CAB
- CN12/B
- COLOR OF CONNECTOR IF NOT INDICATED COLOR IS WHITE

SYMBOL	COLOR
B	BLACK
W	WHITE
Br	BROWN
P	PINK
V	VIOLET
G	GREEN
O	ORANGE
R	RED
Y	YELLOW
Lg	LIGHT GREEN
Sb	SKY BLUE
L	BLUE
Gr	GRAY

NOTE:

1. "BR" INDICATES BLACK CABLE WITH RED STRIPE
2. WATERPROOF CONNECT

9007B EXCAVATOR
ELECTRICAL SCHEMATIC
Part number 7-22611

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