CASE

REPAIR MANUAL

Crawler Excavator

CX225SR

9-88322

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PRIMARY HYDRAULIC POWER SYSTEM - Special tools (A.10.A - D.20.A.40)

CX225SR WE

Digital tester assembly



CRIL03G253E00 1

DESCRIPTION	QUANTITY	CODE
Tester assembly for Multi-Handy 2051	-	E54444449
Multi-Handy 2051 tester	1	D5444448
Pressure sensor (**0 bar** to **600 bar**)	2	V5344460
Straight union for sensor	2	W5344461
Elbow union for sensor	1	X5344462
Engine speed sensor	1	Z5344463
Cable (length **5 m**)	3	E3144472
Electric plug **220 volts 50 Hz**	1	D5344467
Cigarette lighter cable	1	E5344468
Instruction Sheet	1	-
Carrying case	1	N5344476

The Multi-Handy tester is used to:
Check pressure (two pressure scales)
Check differential pressure (delta P)
Check temperature
Check engine rpm
Check the flow

600 litre turbine



CRIL03G254E00 2

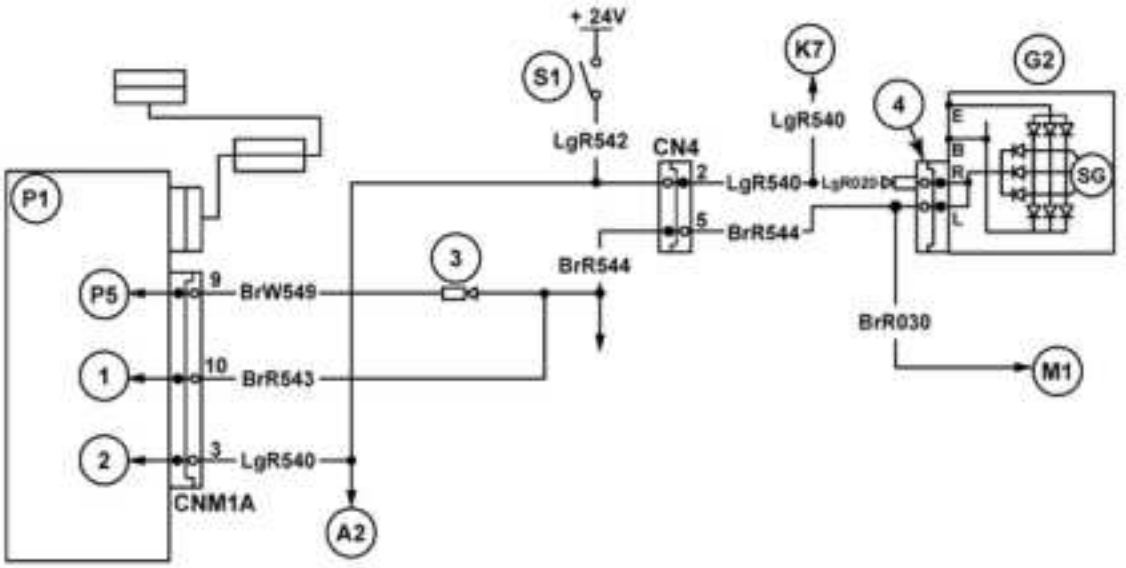
DESCRIPTION	QUANTITY	CODE
Turbine	1	RE3 Z5344486
Plates **M45x2**	2	D4323359
Flange diameter **24 mm**	2	B8230183

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Alternator - Testing (A.30.A.82 - G.40.A.20)

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N°	Test Point	Expected Result	Other Result (Possible Cause)
1	Hourmeter **(P5)** works. Measure the voltage between path10 on connector **(CNM1A)** and the earth.	The voltage is greater than or equal to **10 volts**. Poor connection on connector **(CNM1A)** or faulty instrument panel. Clean connector terminals or replace instrument panel **(P1)**.	The voltage is below **10 volts** Go to test **2**
2	Hourmeter **(P5)** does not work. Measure the voltage between the male terminal (wire **(BrR)**) of flat connector **(3)** and the earth.	The voltage is greater than or equal to **10 volts**. Repair the cut wires between connector **(CNM1A)** and connector **(3)**.	The voltage is below **10 volts** Go to test **3**
3	Disconnect connector **(CN4)** and measure the voltage between the male terminal (wire **(BrR)**) of flat connector **(3)** and the earth.	The voltage is greater than or equal to **10 volts**. Clean the terminals or repair cut wire **(BrR)** between connector **(CN4)** and connector **(3)**.	The voltage is below **10 volts** Go to test **4**
4	Disconnect connector **(4)** and measure the voltage between the male terminal (wire **(G2)**) of flat connector **(L)** and the earth.	The voltage is greater than or equal to **10 volts**. Clean the terminals or repair cut wire **(BrR)** between connector **(CN4)** and connector **(4)**.	The voltage is below **10 volts** Repair or replace alternator **(G2)**

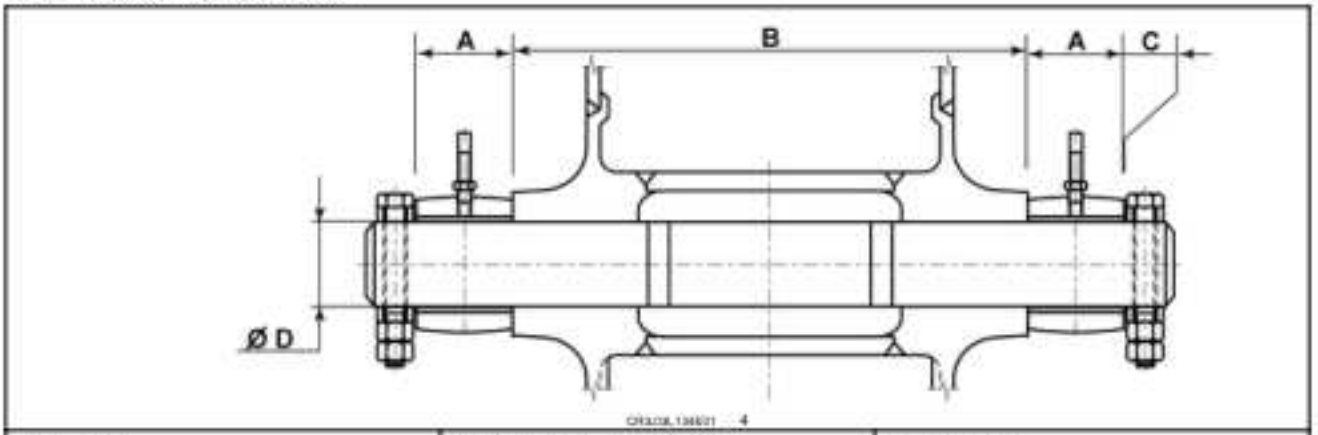


Faulty charge circuit - Wiring schematic

(1)	Battery charge indicator	**(2)**	Controlled 24 V
(3)	Connector	**(4)**	Alternator connector
(A2)	Engine electronic control box	**(G2)**	Alternator
(K7)	Battery relays	**(M1)**	Starter motor
(P1)	Instrument panel	**(P5)**	Hourmeter
(S1)	Starter switch		

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3. ***Boom cylinder head on boom***



MARKING	STANDARD DIMENSION	WEAR LIMIT
(A)	108 mm	106 mm
(B)	514 mm	501 mm
(C) clearance	1 - 2.5 mm	Shims
(D) pin diameter	90 mm	89 mm
(D) bushing diameter	90 mm	91.5 mm

Command valve Hand control valve - Torque (H.20.B.12.10 - D.20.A.10)

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NOTE: *Refer to* ***Command valve Hand command valve - Torque (F.40.C.12.10 - D.20.A.10)***

Cylinder - Special tools (H.20.B.26 - D.20.A.40)

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CRL33J014E 1

Repair bench 380000812.

Used for repairing cylinders.

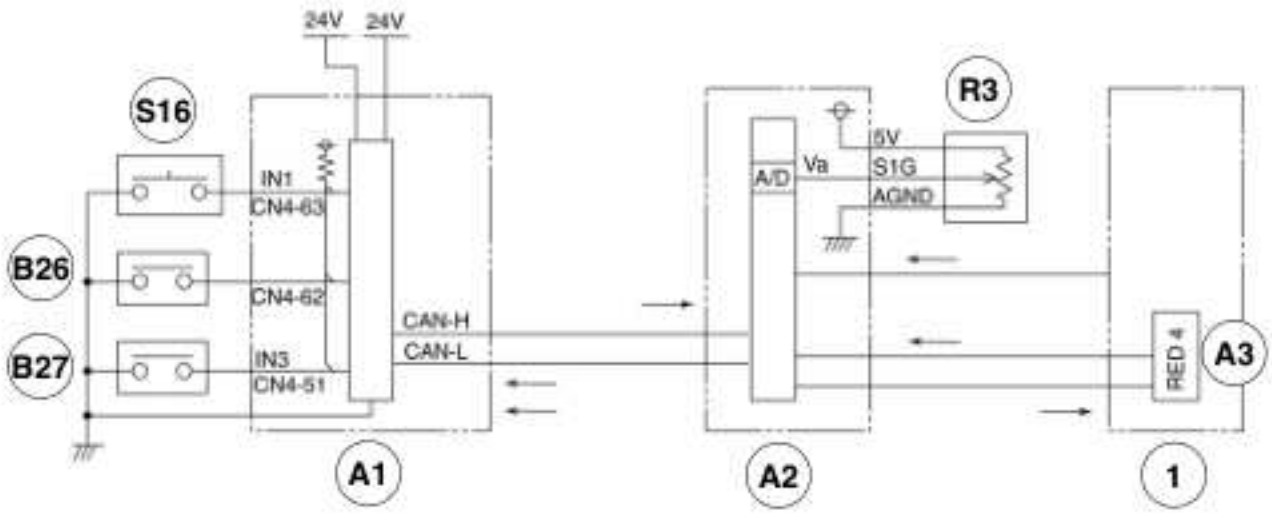
Piston screw flats (for information)

Nominal diameter	Flats in mm	Nominal diameter	Flats in mm
M45	70	M48	75
M52	80	M55	85
M58	85	M62	90
M65	95	M68	100
M70	100	M75	110
M80	115		

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Idling Start Control

CX225SR DC22U0208-...



CRSL06G003F01

Circuit layout

(1) Engine
(A1) Computer
(A2) Engine electronic control box
(A3) Electronic acceleration
(B26) Engine throttle control
(B27) Travel pilot pressure switch
(R3) Engine throttle control
(S16) One touch idle

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CX225SR EXCAVATOR - DOZER BLADE HYDRAULIC SCHEMATIC

ITEM	DESCRIPTION	PRESSURE SETTING
A =	MAIN RELIEF (STANDARD)	34.3 MPa / 343 bar / 4977 psi
A =	MAIN RELIEF (BOOST)	37.3 MPa / 373 bar / 5410 psi
B =	BOOM RAISING PORT SECONDARY RELIEF	39.2 MPa / 392 bar / 5685 psi
B1·B2 =	RELIEF ON BOOM HBCV	39.2 MPa / 392 bar / 5685 psi
C =	BOOM LOWERING PORT SECONDARY RELIEF	39.2 MPa / 392 bar / 5685 psi
D =	DIPPER OUT PORT SECONDARY RELIEF	39.2 MPa / 392 bar / 5685 psi
D1 =	RELIEF ON DIPPER HBCV	39.2 MPa / 392 bar / 5685 psi
E =	DIPPER IN PORT SECONDARY RELIEF	39.2 MPa / 392 bar / 5685 psi
F =	BUCKET OPEN PORT SECONDARY RELIEF	39.2 MPa / 392 bar / 5685 psi
G =	BUCKET CLOSE PORT SECONDARY RELIEF	39.2 MPa / 392 bar / 5685 psi
H =	PILOT PRESSURE RELIEF	3.9 MPa / 39 bar / 566 psi
I =	RIGHT-HAND SWING PORT SECONDARY RELIEF	30.4 MPa / 304 bar / 4409 psi
J =	LEFT-HAND SWING PORT SECONDARY RELIEF	30.4 MPa / 304 bar / 4409 psi
K1·K2 =	TRAVEL REVERSE PORT SECONDARY RELIEF	----- MPa / ---- bar / ---- psi
L1·L2 =	TRAVEL FORWARD PORT SECONDARY RELIEF	----- MPa / ---- bar / ---- psi
N1·N2 =	NEGATIVE CONTROL RELIEF	2.55 MPa / 25.5 bar / 370 psi
O·P =	SECONDARY RELIEF (Some OPTION)	23.5 MPa / 235 bar / 3408 psi
R =	MAIN RELIEF (Some OPTION)	20.6 MPa / 236 bar / 3422 psi
T =	DOZER BLADE LOWERING SECONDARY RELIEF	23.5 MPa / 235 bar / 3408 psi
U =	DOZER BLADE RAISING SECONDARY RELIEF	23.5 MPa / 235 bar / 3408 psi
Y1·Y2 =	SECONDARY RELIEF ON DOZER BLADE SAFETY VALVE	----- MPa / ---- bar / ---- psi
S1 =	ACCUMULATOR PRECHARGE	1.5 MPa / 15 bar / 218 psi

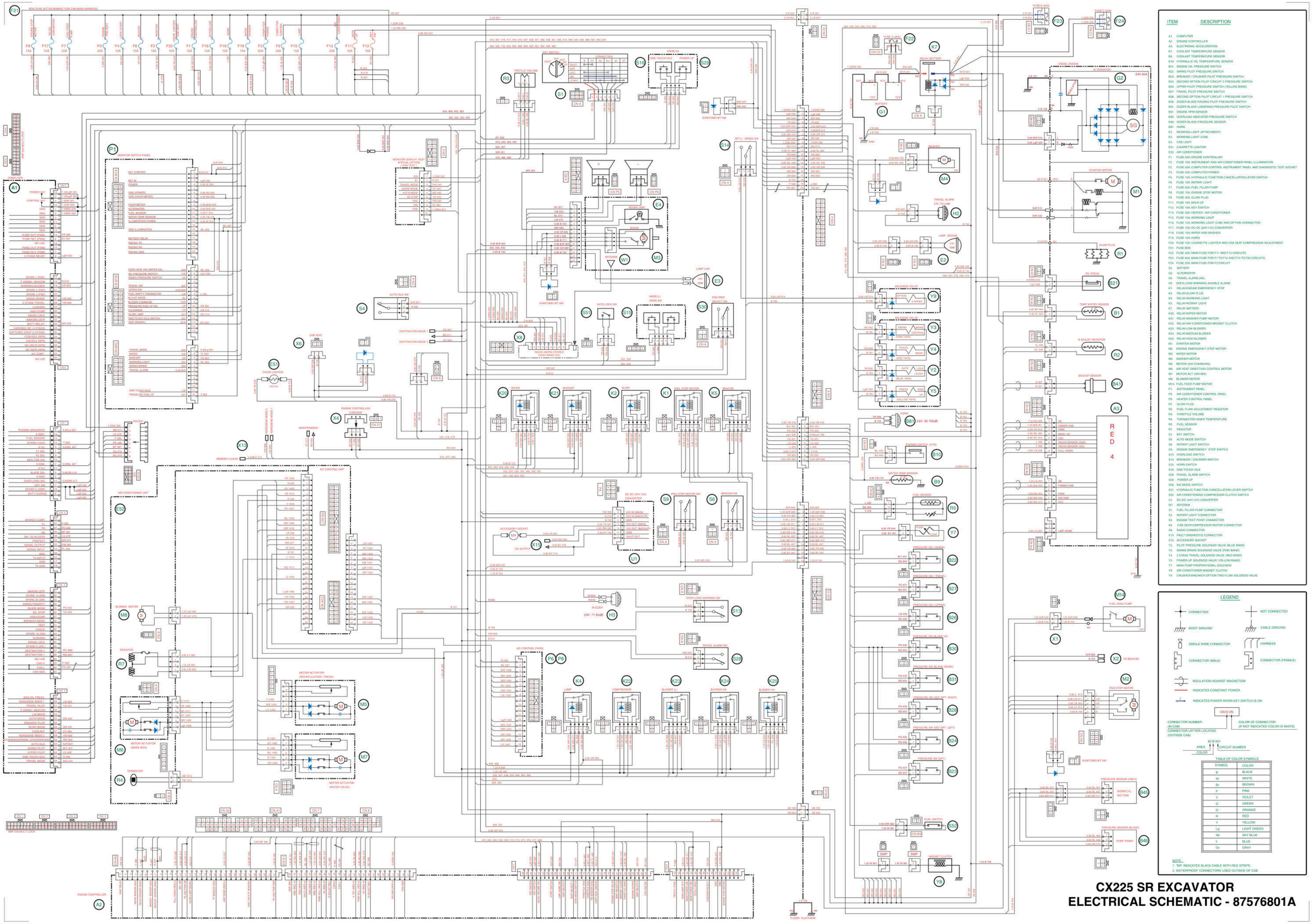
ITEM	DESCRIPTION
1.	HYDRAULIC RESERVOIR
2.	BREATHER
4.	BY-PASS VALVE
5.	SCREEN FILTER
6.	RETURN FILTER
10.	MAIN HYDRAULIC PUMP
15.	MAIN CONTROL VALVE
16.	HYDRAULIC SWIVEL
21.	TRAVEL MOTOR
22.	SWING MOTOR
23.	TRAVEL MOTOR BRAKE
25.	RIGHT BOOM CYLINDER
26.	LEFT BOOM CYLINDER
27.	DIPPER CYLINDER
28.	BUCKET CYLINDER
29.	BOOM SAFETY VALVE
30.	DIPPER SAFETY VALVE
31.	DIPPER LOAD HOLDING VALVE
32.	BOOM LOAD HOLDING VALVE
35.	DOZER BLADE LEFT-HAND CYLINDER (OPTIONAL)
36.	DOZER BLADE RIGHT-HAND CYLINDER (OPTIONAL)
37.	DOZER BLADE CONTROL VALVE (OPTIONAL)
41.	FILTER (ULTRA-CLEAN)
42.	OIL COOLER
43.	RETURN MANIFOLD
44.	OIL COOLER BY-PASS VALVE
45.	NON RETURN CHECK VALVE
51.	ACCUMULATOR
53.	BOOM & BUCKET CONTROL LEVER
54.	SWING & DIPPER CONTROL LEVER
55.	TRAVEL CONTROL PEDAL
56.	DIPPER CONTROL SHOCK ABSORBER
57.	BOOM & DIPPER CONTROL SHOCK ABSORBER
60.	PILOT SYSTEM MANIFOLD
70.	DOZER BLADE CONTROL PEDAL
71.	SECOND OPTION CONTROL VALVE
72.	CONTROL PEDAL (OPTIONAL)
73.	SECOND OPTION CONTROL VALVE
75.	FLOW RE-INJECTION BLOCK (OPTIONAL)
76.	3-WAY SELECTOR (OPTIONAL)
78.	RETURN FILTER (OPTIONAL)
79.	CONTROL SHUTTLE BLOCK (OPTIONAL)
81.	SWING SHUTTLE BLOCK
82.	PILOT CIRCUIT FILTER
83.	SHUT-OFF VALVE (OPTIONAL)
84.	T-SHUTTLE BLOCK (OPTIONAL)
85.	HANDS/FOOT CONTROL PILOT FILTER
86.	PILOT FILTER BY-PASS VALVE
93.	PILOT CIRCUIT SUPPLY MANIFOLD
94.	PILOT CIRCUIT RETURN MANIFOLD
96.	SWING PILOT CIRCUIT CUSHION VALVE
105.	4 ELECTROVALVE BLOCK
B22.	SWING PILOT PRESSURE SWITCH
B23.	BREAKER / CRUSHER PILOT PRESSURE SWITCH
B26.	UPPER PILOT PRESSURE SWITCH (YELLOW BAND)
B27.	TRAVEL PILOT PRESSURE SWITCH
Y2.	PILOT PRESSURE SOLENOID VALVE (BLUE BAND)
Y3.	SWING BRAKE SOLENOID VALVE (PINK BAND)
Y4.	2-STAGE TRAVEL SOLENOID VALVE (RED BAND)
Y5.	POWER-UP SOLENOID VALVE (YELLOW BAND)
Y9.	CRUSHER/BREAKER OPTION TWO FLOW SOLENOID VALVE

LEGEND

- PUMP 1
- PUMP 2
- PILOT SYSTEM PUMP
- RETURN TO RESERVOIR
- LEAK-OFF RETURN
- PILOT SYSTEM CIRCUIT
- COMPONENT BOUNDARY
- HOSE
- PIPING CONNECTION
- PIPING CROSS-OVER
- 41 COMPONENT ITEM NO.
- 15 Pb1 CONNECTION ITEM NO. / COMPONENT NUMBER
- ★ OPTION ITEM NO.

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HYDRAULIC SCHEMATIC
Number 87608327A

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