CASE

REPAIR MANUAL

Crawler Excavator

CX210
CX230
CX240

9-93540

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CX210 - CX230 - CX240 Crawler Excavators
Table of Contents

DIVISION/SECTION		SECTION N°	REFERENCE N°
1	**GENERAL INFORMATION**		
	Safety, general information and standard torque data	1001	7-27690GB
	General specifications and special torque setting	1002	7-29361GB
2	**ENGINE**		
	Removal and installation of the engine	2000	7-28230GB
	Radiator and oil-cooler	2001	7-28050GB
	Engine specifications	*	
	Disassembly and assembly of the engine	*	
3	**FUEL SYSTEM**		
	Fuel tank	3001	7-27970GB
	Fuel engine system	*	
4	**ELECTRICAL SYSTEM**		
	Electrical system, electrical and electronic troubleshooting	4001	7-27724GB
	Inspection and maintenance of batteries and connecting a booster battery	4002	7-27921GB
	Main and engine electronic control boxes	4003	7-27933GB
5	**UNDERCARRIAGE**		
	Removal and installation of tracks	5001	7-27750GB
	Rollers	5003	7-27772GB
	Sprocket	5004	7-27781GB
	Idler wheel and tension shock absorber	5005	7-27803GB
6	**DRIVE TRAIN**		
	Drive motor and final drive transmission removal and installation	6001	7-27841GB
	Drive motor and final drive transmission disassembly and assembly	6002	7-28090GB
	Swing reduction gear, removal and installation	6003	7-27820GB
	Swing reduction gear, disassembly and assembly (CX210 - CX230)	6004	7-28371GB
	Swing reduction gear, disassembly and assembly (CX240)	6004	7-28391GB
7	**UNDERCARRIAGE HYDRAULICS**		
8	**UPPERSTRUCTURE HYDRAULICS**		
	Depressurising and decontaminating the hydraulic system, use of the vacuum pump and bleeding the components	8000	7-27952GB
	Specifications, troubleshooting, checks and hydraulic pressure settings	8001	7-27704GB
	Hydraulic reservoir removal and installation	8002	7-27990GB
	Main and pilot pumps, removal and installation	8003	7-27860GB
	Main hydraulic control valve, removal and installation	8004	7-27890GB
	Attachment cylinders, removal and installation	8005	7-27791GB
	Hydraulic swivel, removal and installation	8006	7-27811GB
	Pilot blocs, removal and installation	8007	7-28130GB
	Swing motor, removal and installation (CX210 - CX230)	8008	7-28071GB
	Swing motor, removal and installation (CX240)	8008	[redacted]
	Main hydraulic pump, disassembly and assembly	8010	7-35490GB
	Main hydraulic control valve, disassembly and assembly	8011	9-36270GB
	Attachment cylinders, disassembly and assembly	8012	7-27902GB
	Hand control levers, disassembly and assembly	8013	7-28110GB
	Foot control levers, disassembly and assembly	8014	7-28210GB
	Six-solenoid valves, disassembly and assembly	8015	7-27911GB
	Caution valve, disassembly and assembly	8016	7-27942GB
	Safety valve	8017	7-29631GB
	Hydraulic swivel, disassembly and assembly	8018	7-28080GB
	Swing motor, disassembly and assembly (CX210 - CX230)	8019	7-28011GB
	Swing motor, disassembly and assembly (CX240)	8019	7-29760GB
	Hydraulic functions	8020	7-28490GB

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Troubleshooting

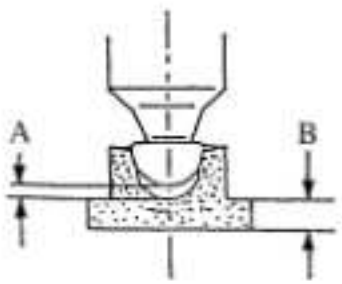
The following table draws up a list of common problems, reasons for them and action that needs to be taken. However, in most cases, the problems are not due to the malfunction of only a single component but the malfunction of this and other related components. It is important to note that this list of measures is not exhaustive.

Problem	Cause	Action to be taken
The secondary coolant pressure does not increase.	1. Insufficient primary coolant pressure.	1. Getting the correct primary coolant pressure.
	2. Secondary coolant pressure control spring is worn or broken.	2. Use a new component.
	3. Excessive play between the spool and the guides.	3. Replace the spool or the guides assembly.
	4. End play in working component.	4. Removal, installation and replacement of parts.
The secondary coolant pressure is unstable.	1. The sliding parts are jammed.	1. Repair the jammed part.
	2. Variation in the line pressure at the reservoir.	2. Return directly to the reservoir.
	3. Mixture of air in the line.	3. Operate several times to drain the air.
The secondary coolant pressure is high.	1. Line pressure at the reservoir is too high.	1. Return directly to the reservoir.
	2. The sliding parts are jammed.	2. Repair the jammed part.
No discharge function.	1. Air trapped in the piston.	1. Operate several times and release the air.
	2. Sliding parts seized up.	2. Repair or replace the defective part.
	3. The seat of the springs (13) and (16) is defective (see section).	3. Replace the part.
	4. Gap between the discharge spring and the housing is abnormally large.	4. Replace the spring as well as the housing.
	5. Malfunction of the non-return check valve.	5. Repair or replace the non-return check valve.
	6. Calibrated port of the discharge piston is abnormally large.	6. Replace the discharge piston.
Discharge pressure is too high.	1. Sliding parts are seized up.	1. Repair or replace the defective part.
	2. Calibrated port of the discharge piston is blocked.	2. Repair or replace the piston.

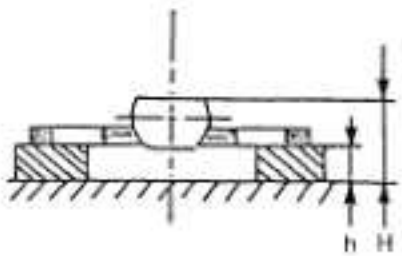
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Wear limit

Description	Standard dimensions (mm)	Minimum dimensions (mm)	Solution
Play between piston and barrel bore	0.027	0.052	Replace the barrel and the pistons
Play between piston and shoe (A)	0	0.3	Replace the pistons and the shoes
Thickness of shoes (B)	5.5	5.3	Replace the pistons and the shoes
Assembled height of the thrust pad and the spherical bearing (H - h)	6	5.5	Replace the thrust pad and the spherical bearing
Thickness of the friction plate	1.8	1.6	Replace the plate



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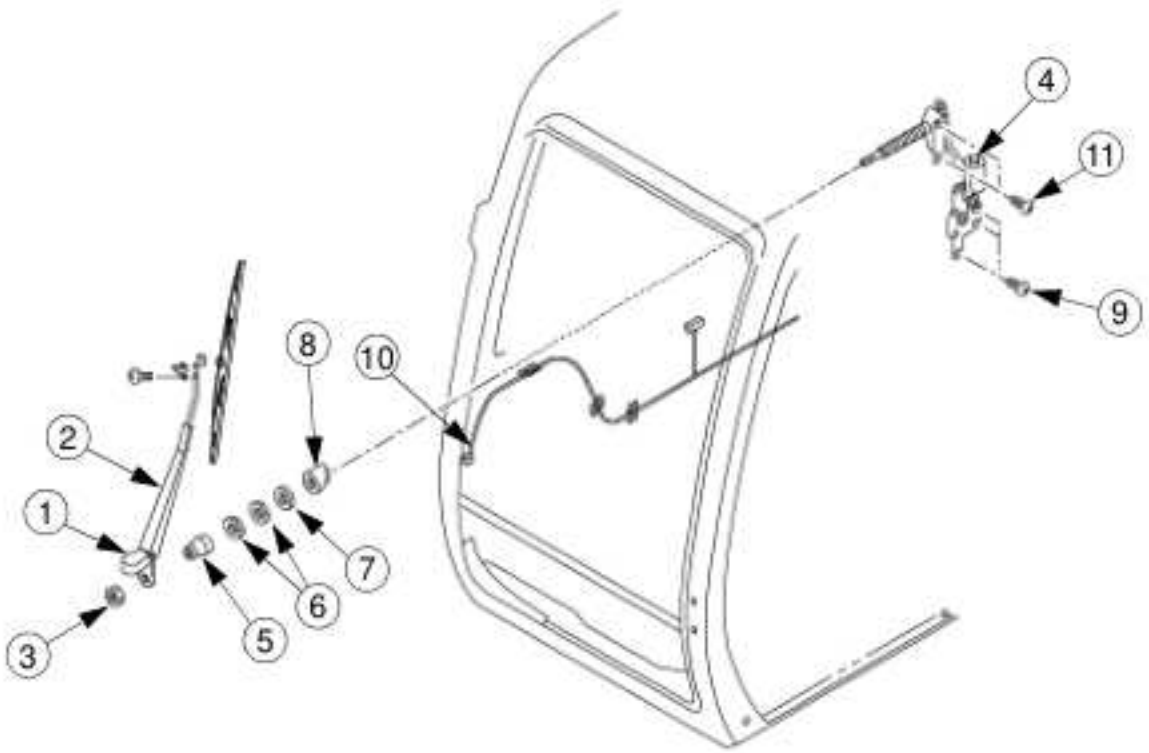


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WINDSHIELD WIPER MOTOR

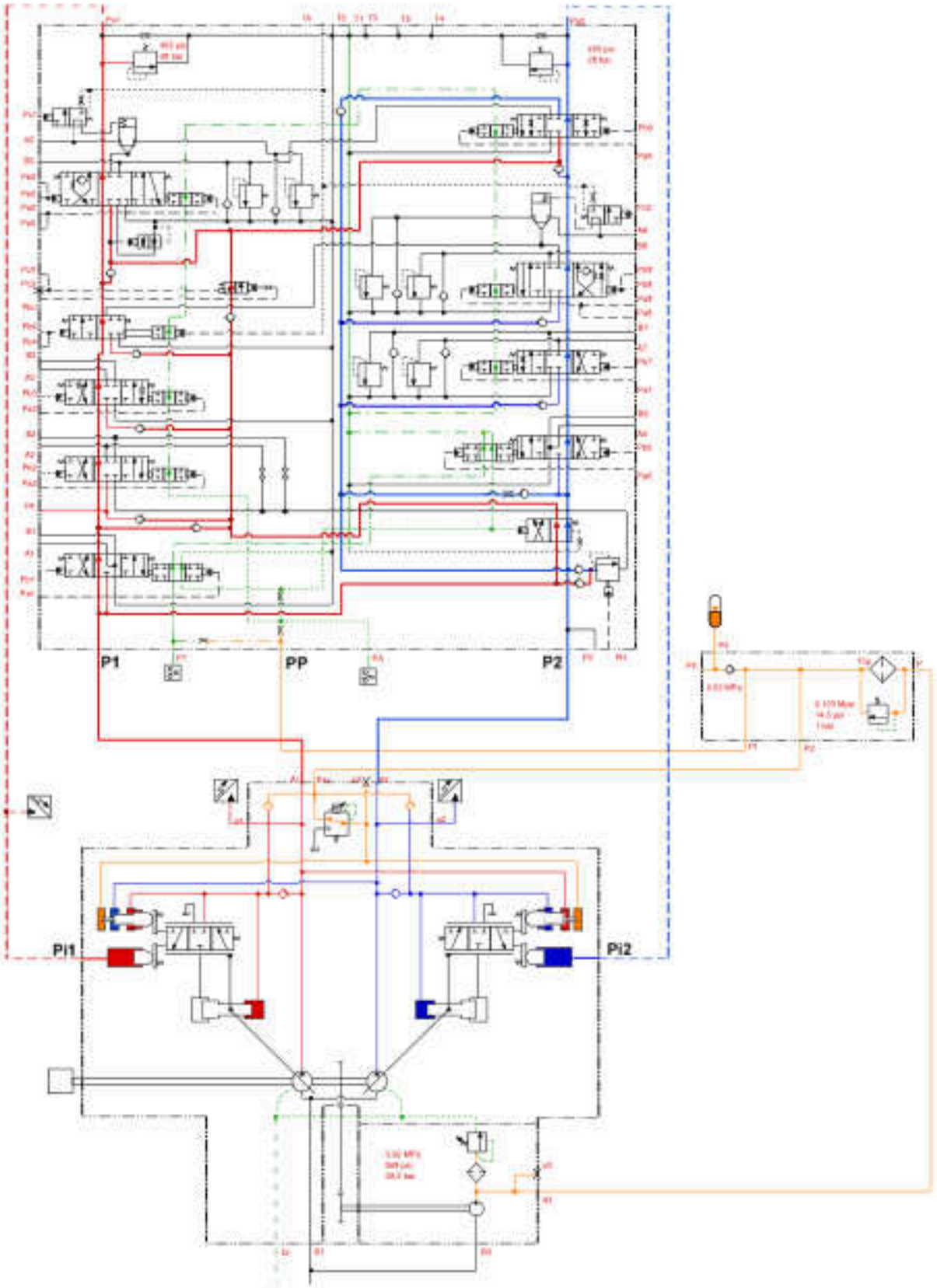
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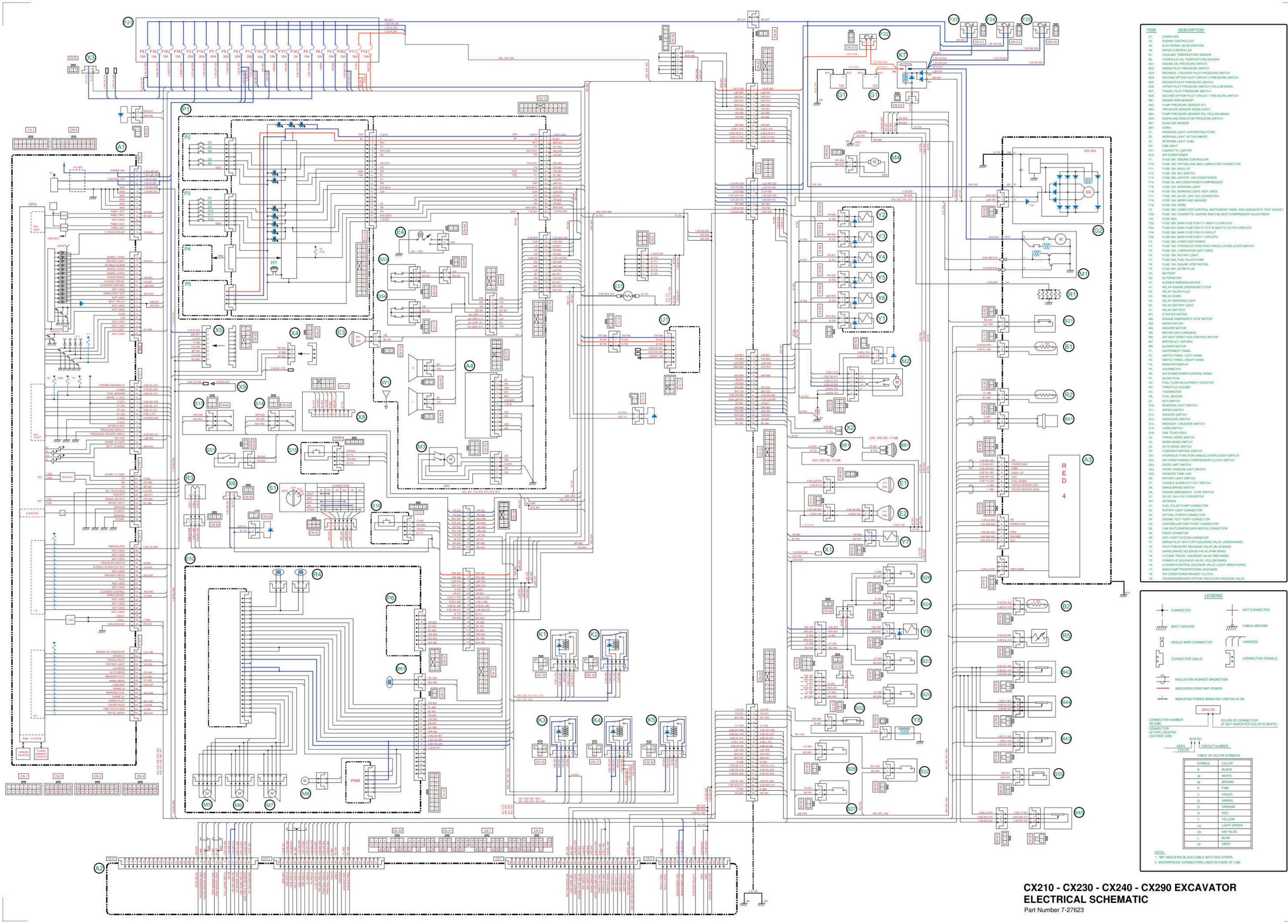
1 PROTECTIVE FLAP
2 WINDSHIELD WIPER ARM
3 NUT
4 WINDSHIELD WIPER MOTOR
5 RUBBER CAP
6 NUT
7 FLAT WASHER
8 PLASTIC SUPPORT
9 SCREW
10 ELECTRICAL HARNESS
11 SCREW

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ITEM	DESCRIPTION
A1.	COMPUTER
A2.	ENGINE CONTROLLER
A3.	ELECTRONIC ACCELERATOR
A4.	WIPER CONTROLLER
B1.	COOLANT TEMPERATURE SENSOR
B2.	HYDRAULIC OIL TEMPERATURE SENSOR
B21.	ENGINE OIL PRESSURE SWITCH
B22.	SWING PILOT PRESSURE SWITCH
B23.	BREAKER / CRUSHER PILOT PRESSURE SWITCH
B24.	SECOND OPTION PILOT CIRCUIT 2 PRESSURE SWITCH
B25.	BREAKER PILOT PRESSURE SWITCH
B26.	UPPER PILOT PRESSURE SWITCH (YELLOW BAND)
B27.	TRAVEL PILOT PRESSURE SWITCH
B28.	SECOND OPTION PILOT CIRCUIT 1 PRESSURE SWITCH
B41.	ENGINE RPM SENSOR
B42.	PUMP PRESSURE SENSOR (P1)
B43.	PRESSURE SENSOR (NEGA CONT)
B44.	PUMP PRESSURE SENSOR (P2) (YELLOW BAND)
B45.	OVERLOAD INDICATOR PRESSURE SWITCH
B61.	SUNLOAD SENSOR
B91.	HORN
E1.	WORKING LIGHT (UPPERSTRUCTURE)
E2.	WORKING LIGHT (ATTACHMENT)
E3.	WORKING LIGHT (CAB)
E4.	CAB LIGHT
E51.	CIGARETTE LIGHTER
E52.	AIR CONDITIONER
F1.	FUSE 30A: ENGINE CONTROLLER
F18.	FUSE 10A: OPTION LINE AND LUBRICATOR CONNECTOR
F11.	FUSE 10A: BACK-UP
F12.	FUSE 15A: KEY SWITCH
F13.	FUSE 20A: HEATER / AIR CONDITIONER
F14.	FUSE 5A: AIR CONDITIONER COMPRESSOR
F15.	FUSE 15A: WORKING LIGHT
F16.	FUSE 15A: WORKING LIGHT (NOT USED)
F17.	FUSE 10A: DC-DC (24V-12V) CONVERTER
F18.	FUSE 10A: WIPER AND WASHER
F19.	FUSE 10A: HORN
F2.	FUSE 20A: COMPUTER CONTROL INSTRUMENT PANEL AND DIAGNOSTIC TEST SOCKET
F28.	FUSE 10A: CIGARETTE LIGHTER AND CAB SEAT COMPRESSOR ADJUSTMENT
F21.	FUSE BOX
F22.	FUSE 20A: MAIN FUSE FOR F11 AND F12 CIRCUITS
F23.	FUSE 60A: MAIN FUSE FOR F3 TO F10 AND F13 TO F20 CIRCUITS
F24.	FUSE 20A: MAIN FUSE FOR F2 CIRCUIT
F25.	FUSE 20A: MAIN FUSE FOR F1 CIRCUITS
F3.	FUSE 20A: COMPUTER POWER
F4.	FUSE 10A: HYDRAULIC FUNCTION CANCELLATION LEVER SWITCH
F5.	FUSE 15A: LUBRICATOR (NOT USED)
F6.	FUSE 10A: ROTARY LIGHT
F7.	FUSE 20A: FUEL FILLER PUMP
F8.	FUSE 15A: ENGINE STOP MOTOR
F9.	FUSE 30A: GLOW PLUG
G1.	BATTERY
G2.	ALTERNATOR
H1.	AUDIBLE WARNING DEVICE
K1.	RELAY-ENGINE EMERGENCY STOP
K2.	RELAY-GLOW PLUG
K3.	RELAY-HORN
K4.	RELAY-WORKING LIGHT
K5.	RELAY-ROTARY LIGHT
K7.	RELAY BATTERY
M1.	STARTER MOTOR
M2.	ENGINE EMERGENCY STOP MOTOR
M3.	WIPER MOTOR
M4.	WASHER MOTOR
M5.	MOTOR (AIR CHANGING)
M6.	AIR VENT DIRECTION CONTROL MOTOR
M7.	MOTOR ACT (AIR MIX)
M8.	BLOWER MOTOR
P1.	INSTRUMENT PANEL
P2.	SWITCH PANEL (LEFT HAND)
P3.	SWITCH PANEL (RIGHT HAND)
P4.	MONITOR DISPLAY
P5.	HOURMETER
P6.	AIR CONDITIONER CONTROL PANEL
R1.	GLOW PLUG
R2.	FUEL FLOW ADJUSTMENT RESISTOR
R3.	THROTTLE VOLUME
R4.	THERMISTOR
R5.	FUEL SENSOR
S1.	KEY SWITCH
S10.	WORKING LIGHT SWITCH
S11.	WIPER SWITCH
S12.	WASHER SWITCH
S13.	OVERLOAD SWITCH
S14.	BREAKER / CRUSHER SWITCH
S15.	HORN SWITCH
S16.	ONE TOUCH IDLE
S2.	TRAVEL MODE SWITCH
S3.	WORK MODE SWITCH
S4.	AUTO MODE SWITCH
S5.	CUSHION CONTROL SWITCH
S51.	HYDRAULIC FUNCTION CANCELLATION LEVER SWITCH
S52.	AIR CONDITIONING COMPRESSOR CLUTCH SWITCH
S53.	DOOR LIMIT SWITCH
S54.	FRONT WINDOW LIMIT SWITCH
S55.	RESERVE TANK LSW
S6.	ROTARY LIGHT SWITCH
S7.	AUDIBLE ALARM CUT OUT SWITCH
S8.	SWING BRAKE SWITCH
S9.	ENGINE EMERGENCY STOP SWITCH
U1.	DC DC (24V-12V) CONVERTER
W1.	ANTENNA
X1.	FUEL FILLER PUMP CONNECTOR
X2.	ROTARY LIGHT CONNECTOR
X3.	OPTINAL POWER CONNECTOR
X4.	ENGINE TEST POINT CONNECTOR
X5.	CONTROLLER TEST POINT CONNECTOR
X6.	CAB SEATCOMPRESSOR MOTOR CONNECTOR
X8.	RADIO CONNETOR
X9.	ANTI-THEFT SYSTEM CONNETOR
Y1.	SWING PILOT SHUT-OFF SOLENOID VALVE (GREEN BAND)
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)
Y6.	CUSHION CONTROL SOLENOID VALVE (LIGHT GREEN BAND)
Y7.	MAIN PUMP PROPORTIONAL SOLENOID
Y8.	AIR CONDITIONER MAGNET CLUTCH
Y9.	CRUSHER/BREAKER OPTION TWO FLOW SOLENOID VALVE

LEGEND

- CONNECTED
- NOT CONNECTED
- BOOT GROUND
- CABLE GROUND
- SINGLE WIRE CONNECTOR
- HARNESS
- CONNECTOR (MALE)
- CONNECTOR (FEMALE)
- INSULATION AGAINST MAGNETISM
- INDICATES CONSTANT POWER
- INDICATES POWER WHEN KEY SWITCH IS ON

CN32 (R)

CONNECTOR NUMBER (IN CAB) — COLOR OF CONNECTOR (IF NOT INDICATED COLOR IS WHITE)

CONNECTOR LETTER LOCATED (OUTSIDE CAB)

60 B 203 — AREA / COLOR — CIRCUIT NUMBER

TABLE OF COLOR SYMBOLS

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 CONNECTORS USED OUTSIDE OF CAB.

CX210 - CX230 - CX240 - CX290 EXCAVATOR ELECTRICAL SCHEMATIC

Part Number 7-27623

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