CX145CSR
Tier 4
Crawler Excavator

SERVICE MANUAL

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CASE CONSTRUCTION

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Large fuel consumption

1. Large fuel consumption Description of Symptom
   Fuel consumption is significantly larger than indicated in the machine manual.
2. Large fuel consumption Diagnostics
   - Preliminary inspection
     Before using this section, perform a functional inspection and OBD system check to check all of the following.
     Since fuel consumption widely varies depending on handling of the machine, check the reference fuel consumption (A) specified by the machine manufacturer. Reference fuel consumption (L {qts}/hour)
     Check the actual fuel consumption (B). Actual fuel consumption (L {qts}/hour)
     If B is higher than A, confirm the machine setting by referring the manual of the relevant machine.
     Check the machine for excessive load.
     Conduct an inspection of the machine in accordance with the operating time by referring the inspection and maintenance list of the instruction manual.
     For any machine that has been operated for longer than 3,000 hours, conduct an inspection by referring the manual of the relevant machine.
     The ECM and monitor are operating correctly.
     Check DTC.
     Check the machine status, and locate the appropriate symptom.
     Check with the customer whether they are using the specified engine oil and fuel.
     Check whether engine oil replacement and regular maintenance of air cleaner filter and fuel filter are performed.
   - Visual inspection
     Careful visual inspection is required for several symptom procedures. This can lead to correcting a problem without further inspections, and can save valuable time.
     The inspection includes the following.
     Correct wiring connections, tightening, and disconnection.
     Whether the ECM ground is clean and securely installed in the correct location.
     Correct connections, cracks, and twists in the pipes and hoses related to fuel, air or oil. Extensively check for any leaks or blockage.
     Whether there is any fuel leaks or pipe damage in the fuel system.
     Air intake system parts abnormalities
     Exhaust system parts abnormalities
   - Diagnostic aids
     Fuel out, fuel freezing, mixture of air into the fuel piping, filter defect, pipe defect, fuel quality and failure of fuel system such as fuel tank
     Air intake system abnormalities such as EGR valve failure
     Injector failure such as excessive fuel injection
     Engine unit abnormalities such as seizure, insufficient compression pressure and other mechanical failures
     Failure related to machine measurement devices such as oil pressure pump
     ECM failure
     Inspect the connector for connection failures and the harness for abnormalities such as abrasions or bends. Inspect that the wire inside the harness has not caused a short circuit with other circuits.
     Perform inspections for functional diagnosis, and confirm the operation and control of each part. Repair if abnormalities are found.
     Inspection locations of air intake/exhaust system of the engine
     Inspect the air intake/exhaust system for abnormalities such as clogging, collapsing and damage.
     Inspect the air cleaner, intercooler and muffler in addition to the inspection locations of the engine body.

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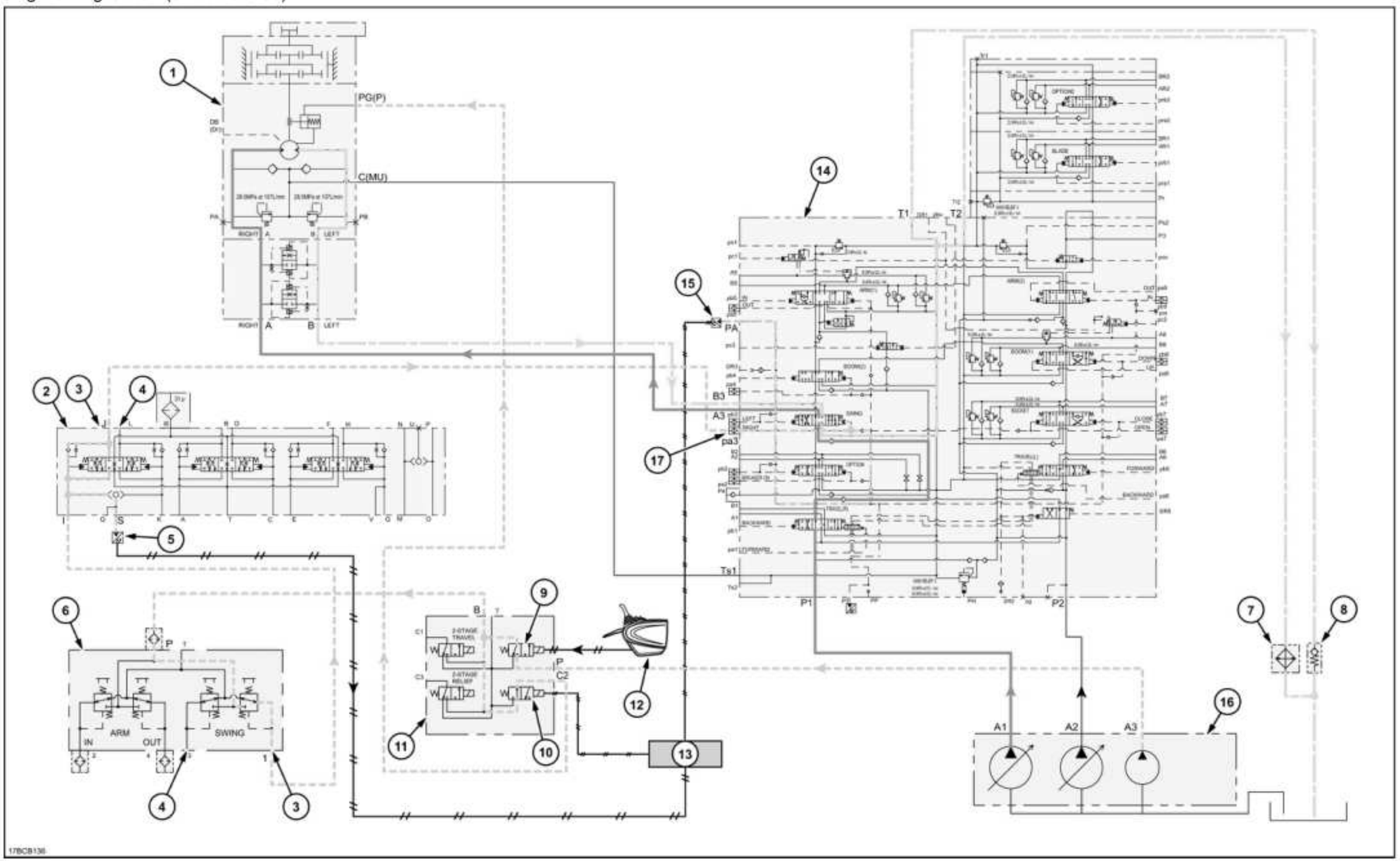
Tightening Torque

Table 5 indicates tightening torque for each fastening section.

Title number	Part name	Nominal size	Bolt width [mm (in)]	Tightening torque
30357	Plug	PF1/2	10 (0.394)	127 - 147 N·m (93.69 - 108.44 lbf·ft)
35	Hexagon socket head bolt	M10 (P1.5)	8 (0.315)	98 - 118 N·m (72.30 - 87.04 lbf·ft)
203	Sleeve (relief valve attachment)	PF1/2	24 (0.94)(socket)	353 - 393 N·m (260.41 - 289.91 lbf·ft)
205	Plug	PF1/4	6 (0.23)	8.8 - 10.8 N·m (6.492 - 7.967 lbf·ft)
324	Plug	M36 (P1.5)	41 (1.61)(socket)	112 - 124 N·m (82.63 - 91.47 lbf·ft)
343	Hexagon socket head bolt	M12 (P1.75)	10 (0.394)	112 - 124 N·m (82.63 - 91.47 lbf·ft)
352	Plug	PF1/8	5 (0.197)	1.96 - 2.94 N·m (1.4459 - 2.1688 lbf·ft)
354	Hexagon socket head bolt	NPTF1/16	4 (0.157)	1.96 - 2.94 N·m (1.4459 - 2.1688 lbf·ft)
380	Plug	PF3/8	8 (0.315)	1.96 - 2.94 N·m (1.45 - 2.16 lbf·ft)
396	Hexagon socket head bolt	PT1/4	6 (0.236)	34.3 - 39.3 N·m (25.303 - 28.991 lbf·ft)
398	Hexagon socket head bolt	PT1/8	5 (0.197)	195 - 215 N·m (143.85 - 158.60 lbf·ft)

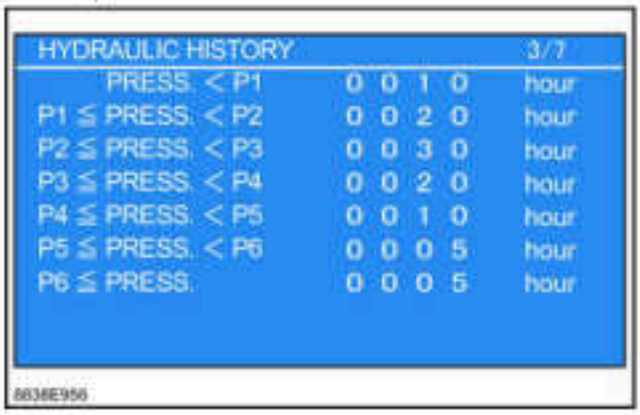
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Swing Parking Circuit (brake release)



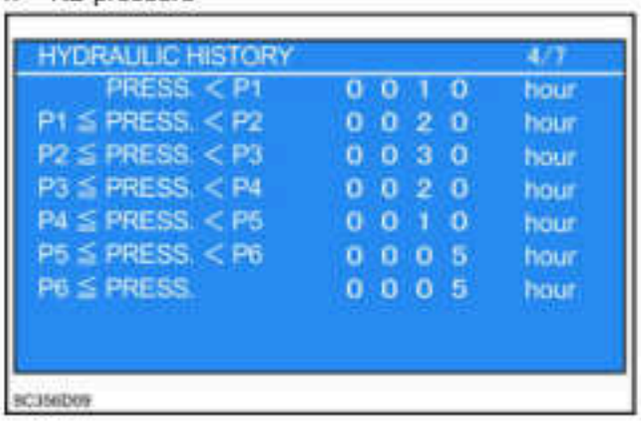
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3. N1 pressure



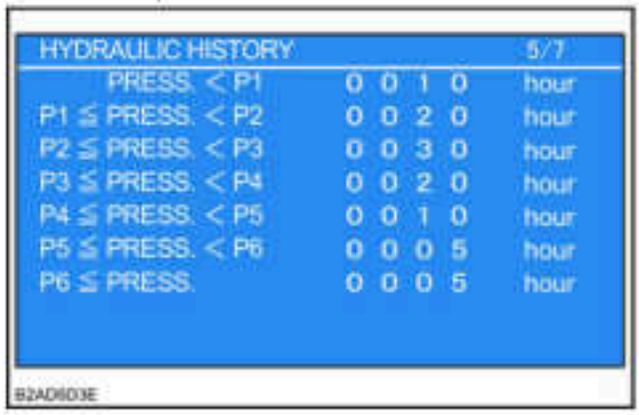
PRESS. < P1	hour	P < 1.0
P1 ≤ PRESS. < P2	hour	1.0 ≤ P < 1.5
P2 ≤ PRESS. < P3	hour	1.5 ≤ P < 2.0
P3 ≤ PRESS. < P4	hour	2.0 ≤ P < 2.5
P4 ≤ PRESS. < P5	hour	2.5 ≤ P < 3.0
P5 ≤ PRESS. < P6	hour	3.0 ≤ P < 3.5
P6 ≤ PRESS.	hour	3.5 ≤ P

4. N2 pressure



PRESS. < P1	hour	P < 1.0
P1 ≤ PRESS. < P2	hour	1.0 ≤ P < 1.5
P2 ≤ PRESS. < P3	hour	1.5 ≤ P < 2.0
P3 ≤ PRESS. < P4	hour	2.0 ≤ P < 2.5
P4 ≤ PRESS. < P5	hour	2.5 ≤ P < 3.0
P5 ≤ PRESS. < P6	hour	3.0 ≤ P < 3.5
P6 ≤ PRESS.	hour	3.5 ≤ P

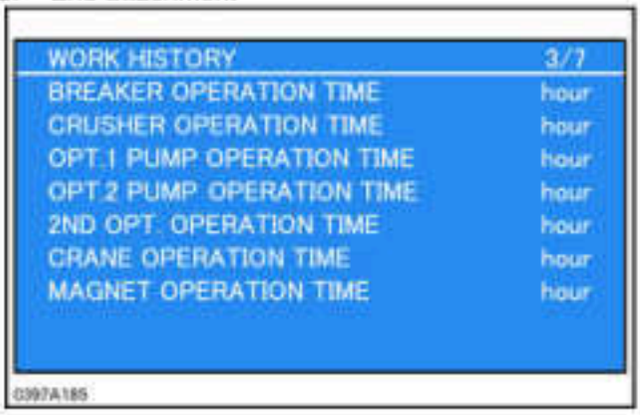
5. P1 + P2 pressure



PRESS. < P1	hour	P < 20
P1 ≤ PRESS. < P2	hour	20 ≤ P < 30
P2 ≤ PRESS. < P3	hour	30 ≤ P < 40
P3 ≤ PRESS. < P4	hour	40 ≤ P < 50
P4 ≤ PRESS. < P5	hour	50 ≤ P < 60
P5 ≤ PRESS. < P6	hour	60 ≤ P < 70
P6 ≤ PRESS.	hour	70 ≤ P

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3. End attachment



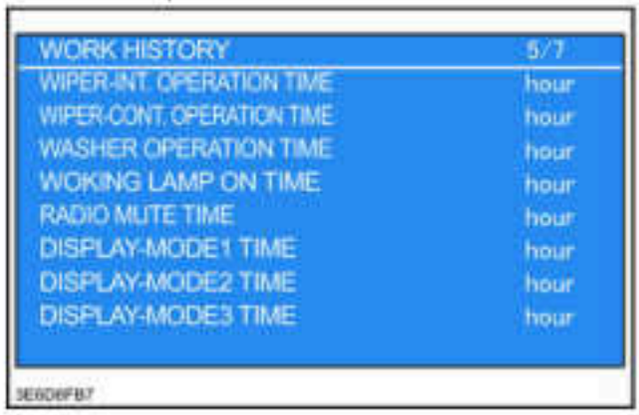
BREAKER OPERATION TIME	hour	Breaker operation time
CRUSHER OPERATION TIME	hour	Crusher operation time
OPT.1 PUMP OPERATION TIME	hour	1st option operation time
OPT.2 PUMP OPERATION TIME	hour	2nd option operation time
2ND OPT. OPERATION TIME	hour	2 pumps flow operation time
CRANE OPERATION TIME	hour	Liftcrane operation time
MAGNET OPERATION TIME	hour	Lifting magnet operation time

4. Electrical part



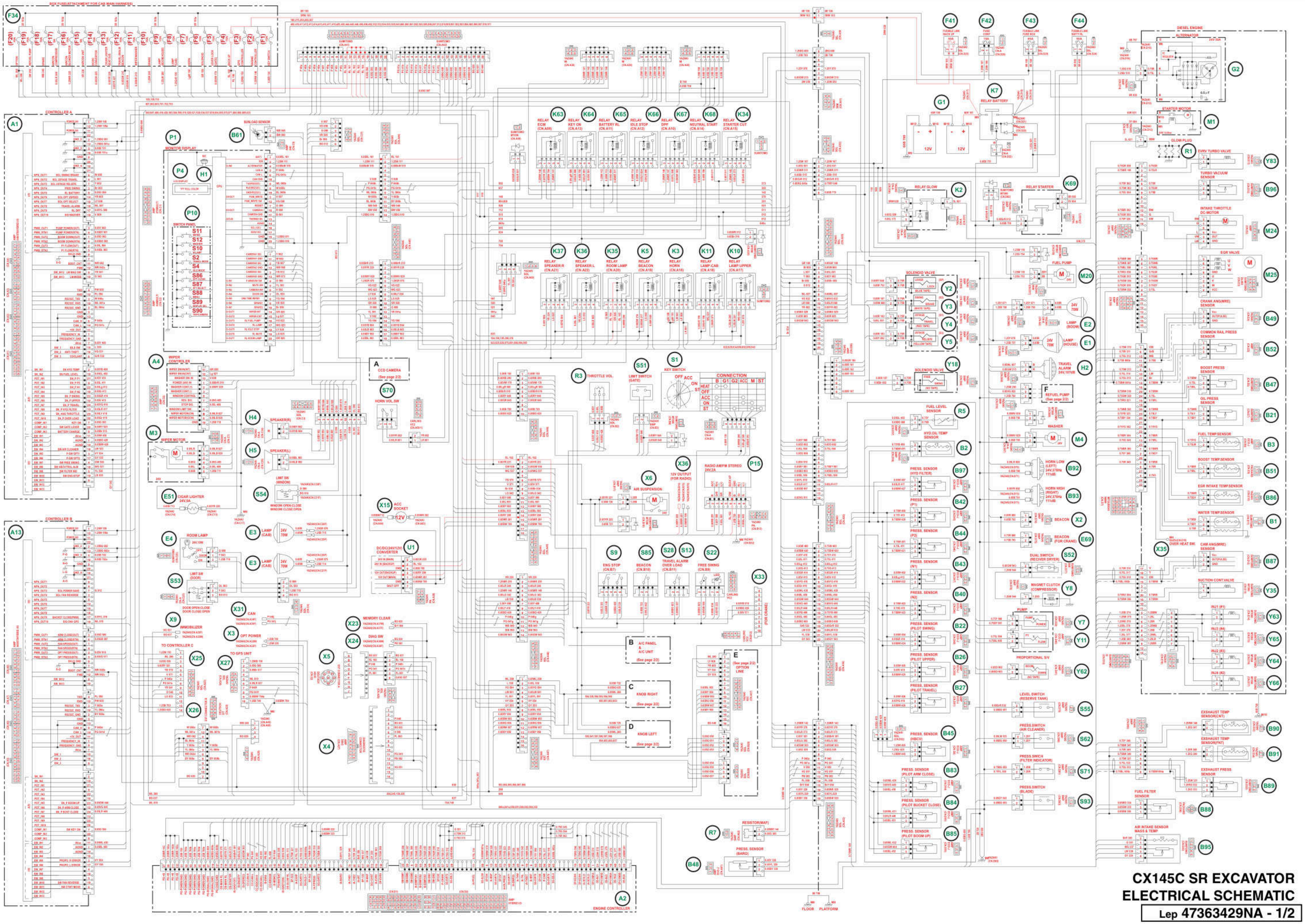
KEY-ON COUNT	10 times	Key ON count
ENGINE-START COUNT	10 times	Engine ON count
IDLE SHUT DOWN COUNT	times	Front window open count
WINDOW OPEN TIME	hour	Door open count
COUNT	10 times	Idle stop time
DOOR OPEN TIME	hour	Front window open time
COUNT	10 times	Door open time

5. Electrical part



WIPER-INT. OPERATION TIME	hour	Wiper (INT) time
WIPER-CNT. OPERATION TIME	hour	Wiper (CNT) time
WASHER OPERATION TIME	hour	Washer operation time
WORKING LAMP ON TIME	hour	Working light ON time
RADIO MUTE TIME	hour	Radio mute time
DISPLAY-MODE1 TIME	hour	No camera screen selection time
DISPLAY-MODE2 TIME	hour	Camera screen display 1 selection time
DISPLAY-MODE3 TIME	hour	Camera screen display 2 selection time

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