CRAWLER EXCAVATOR

SERVICE MANUAL

HX220NL EPFC

HYUNDAI

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4. WEIGHT

1) HX220 NL

Item	HX220 NL	
	kg	lb
Upper structure assembly		
· Main frame weld assembly	1720	3800
· Engine assembly	1485	3270
· Main pump assembly	136 ★140	300 ★310
· Main control valve assembly	220 ★230	490 ★507
· Swing motor assembly	250	550
· Hydraulic oil tank assembly	165	360
· Fuel tank assembly	138	304
· Counterweight	4700	10360
· Cab assembly	500	1100
Lower chassis assembly		
· Track frame weld assembly	2525	5570
· Swing bearing	290	640
· Travel motor assembly	300	660
· Turning joint	57	126
· Track recoil spring	140	310
· Idler	151	333
· Carrier roller	20	45
· Track roller	48	106
· Sprocket	56	123
· Track-chain assembly (500 mm standard triple grouser shoe)	1309	2886
Front attachment assembly		
· 5.65 m boom assembly	1370	3020
· 2.92 m arm assembly	760	1680
· 0.87 m^3 SAE heaped bucket	800	1760
· Boom cylinder assembly	180/1EA	400/1EA
· Arm cylinder assembly	290	640
· Bucket cylinder assembly	175	390
· Bucket control link assembly	170	370

★ : Machine serial no : #0101-, EPFC

※ This information is different with operating and transportation weight because it is not including harness, pipe, oil, fuel so on.

※ Refer to Transportation for actual weight information and Specifications for operating weight.

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5. ENGINE FAULT CODE

Fault code J1939 SPN J1939 FMI	Reason	Effect (only when fault code is active)
111 629 12	Engine control module critical internal failure - Bad intelligent device or component. Error internal to the ECM related to memory hardware failures or internal ECM voltage supply circuits.	Possible no noticeable performance effects, engine dying, or hard starting.
115 612 2	Engine magnetic crankshaft speed/position lost both of two signals - Data erratic, intermittent, or incorrect. The ECM has detected the primary and backup speed sensor signals are connected backwards.	The engine will shut down or will not start.
122 102 3	Intake manifold 1 pressure sensor circuit - Voltage above normal, or shorted to high source. High signal voltage detected at the intake manifold pressure circuit.	Engine power derate.
123 102 4	Intake manifold 1 pressure sensor circuit - Voltage below normal, or shorted to low Source. Low signal voltage or open circuit detected at the intake manifold pressure circuit.	Engine power derate.
124 102 16	Intake manifold 1 pressure - Data valid but above normal operational range - Moderately severe level. Intake manifold pressure is above the maximum operating limit.	Engine power derate.
125 102 18	Intake Manifold 1 Pressure - Data valid but below normal operating range - Moderately severe level. Intake manifold pressure is below the minimum operating limit.	Engine power derate.
131 91 3	Accelerator pedal or lever position sensor 1 circuit - Voltage above normal, or shorted to high source. High voltage detected at accelerator pedal position number 1 circuit.	The engine will operate in limp home mode.
132 91 4	Accelerator pedal or lever position sensor 1 circuit - Voltage below normal, or shorted to low source. Low voltage detected at accelerator pedal position number 1 signal circuit.	The engine will operate in limp home mode.
133 974 3	Remote accelerator pedal or lever position sensor 1 circuit - Voltage above normal, or shorted to high source. High voltage detected at remote accelerator pedal position signal circuit.	Remote accelerator will not operate.
134 974 4	Remote accelerator pedal or lever position sensor 1 circuit - Voltage below normal, or shorted to low source. Low voltage detected at remote accelerator pedal position signal circuit.	Remote accelerator will not operate.
143 100 18	Engine oil rifle pressure - Data valid but below normal operational range - Moderately severe level. Engine oil pressure signal indicates engine oil pressure is below the engine protection warning limit.	Engine power derate.

※ Some fault codes are not applied to this machine.

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15. MALFUNCTION OF BOOM PRIORITY EPPR VALVE

- Fault code : HCESPN 141, FMI 5 or 6

※ Before carrying out below procedure, check all the related connectors are properly inserted.

1) INSPECTION PROCEDURE

Check resistance between CN-509 (1)-(2) or CN-510 (1)-(2)

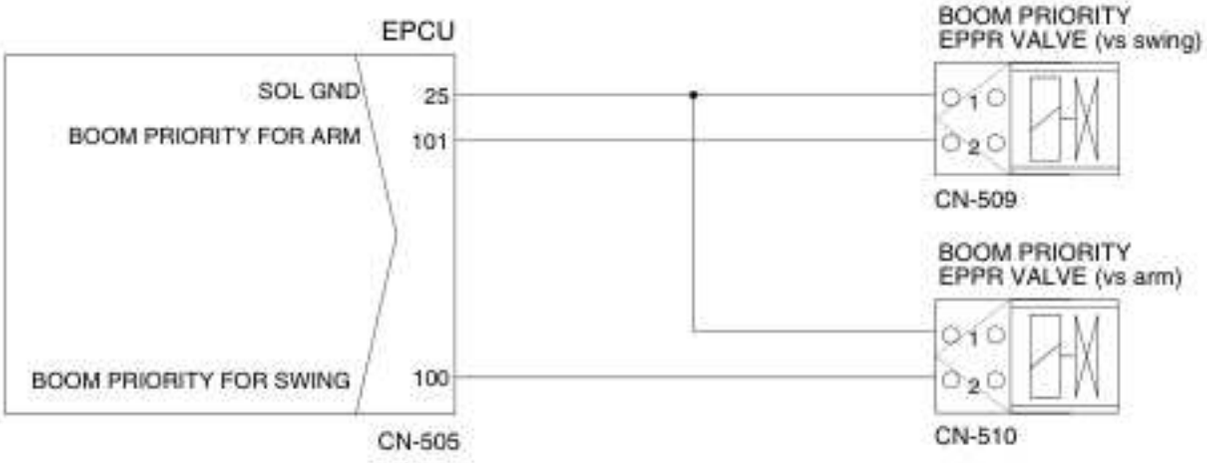
SPEC : 20~30V
Starting switch ON

YES

NO

Cause	Remedy
Short circuit or poor connection between CN-505 (25)-CN-509 (1) or CN-505 (101)-CN-509 (2) or CN-505 (25)-CN-510 (1) or CN-505 (100)-CN-510 (2)	Repair or replace
Defective EPPR valve	Repair or replace

Wiring diagram



220FBMS120

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3) ASSEMBLING PINION GEAR SUB ASSY

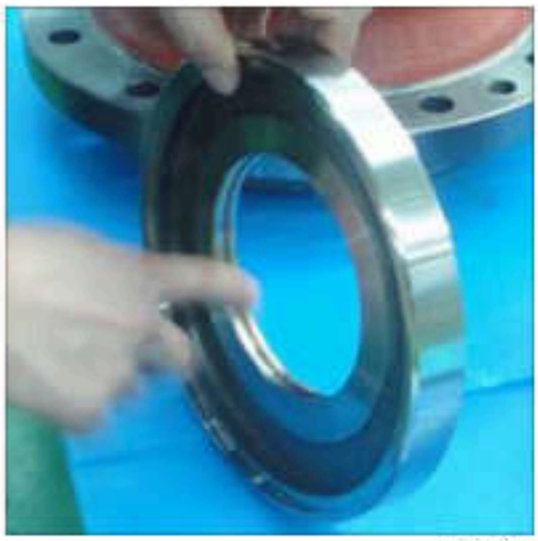
(1) Prepare drive shaft pinion gear vertical with ground.



(2) Fully apply grease (albania EP02) to O-ring groove of sleeve.

※ Be sure to maintain it vertical with ground when assembling it.

(3) Put O-ring into O-ring groove of sleeve. Fully apply grease on O-ring.



(4) Assemble taper bearing and sleeve into drive shaft using press jig.
Use special jig for pressing. Leave no space between sleeve and taper bearing.



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3) DISASSEMBLY

The figure in ( ) shown after the part name in the explanation sentence shows its number in the structure figures (8-34~37).

(1) Place control valve on working bench.

※ Disassemble it in clean place and pay attention not to damage flange faces and plate faces.



(2) Disassembling of main spools

· Travel (301), bucket (304), swing (305), option (309), arm 2 (306), boom 2 (307), swing priority (311).

① Loosen the hexagon the socket head screw (273) and remove the spring cover (201, 202) and the O-ring (261).

· Hexagon key wrench : 6 mm



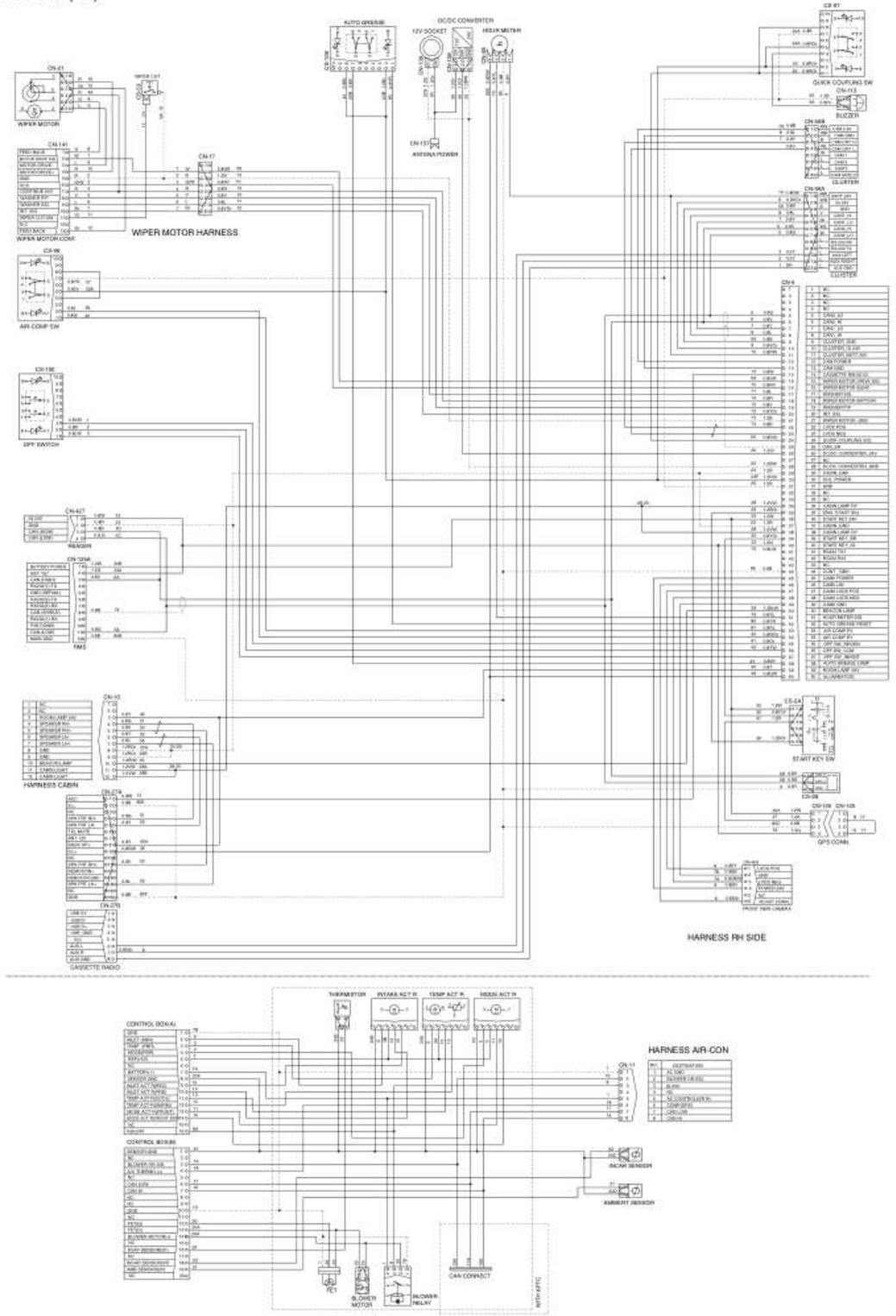
② Pull out the spool, spring, spring seats (331 or 332), stopper (335 or 339) and spacer bolt (336) in the spool assembly condition from the casing.

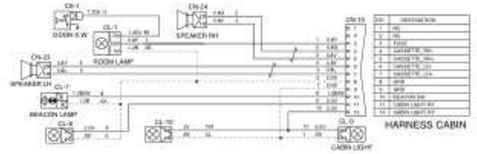
※ When pulling out the spool assembly from casing, pay attention not to damage the casing.

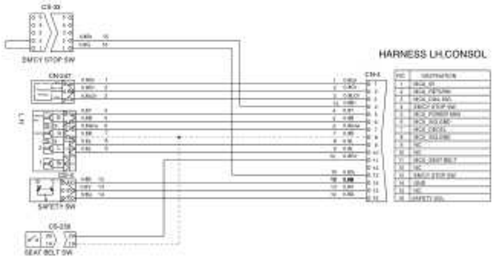


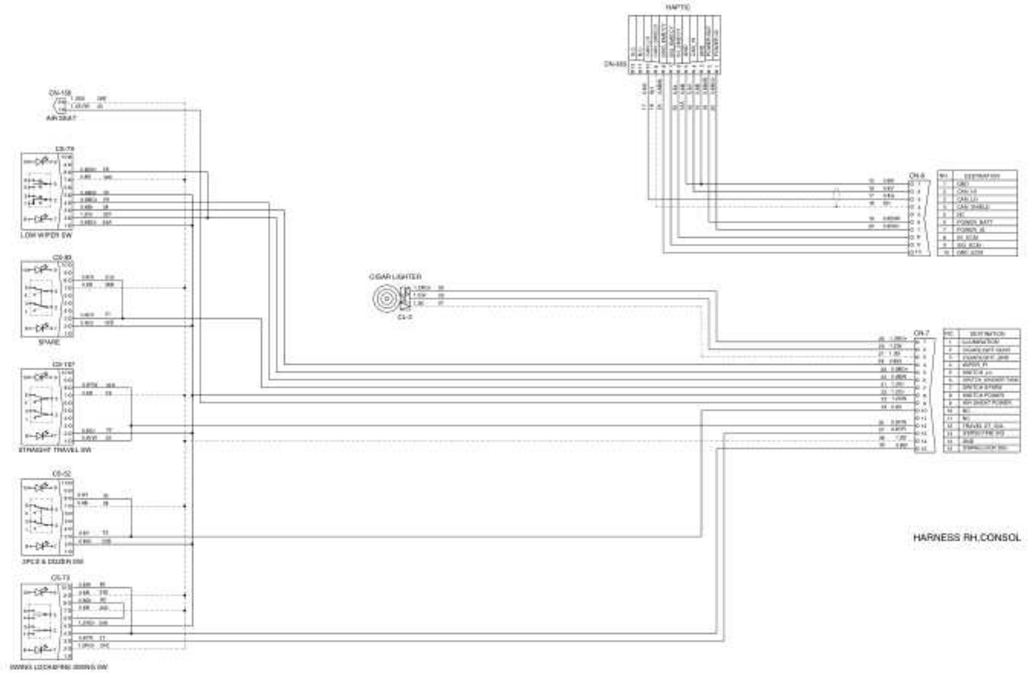
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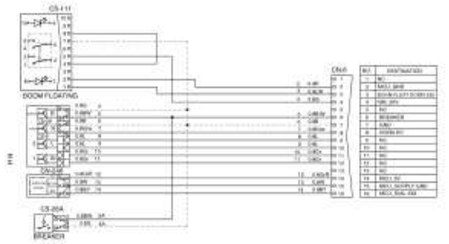
ELECTRICAL CIRCUIT (2/3)











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