CRAWLER EXCAVATOR

SERVICE MANUAL

HX1000AL

HYUNDAI

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ENGINE SPECIFICATION

Items			Specification
Engine	Rated Horse Power (ISO 14396, Gross)		470 kW (639.2 PS) @ 2,100 rpm
	Max. Torque		301.1 kg.m @ 1,200 - 1,300 rpm 2,951 Nm / 1,200 - 1,300 rpm
	Fuel Consumption		208.6 g/kw.hr @ 1,800 rpm
	Type		Turbocharged after Water-cooled, MEUI Unit Injection
	Displacement		18.1 L
	No. Of Cylinder		6
	Bore Dia. & Stroke		Ø 145 X 183 mm
	Compression Ratio		16 : 1
	High Idle Speed		1,800 ±10 rpm
	Low Idle Speed		800 ±10 rpm
	Starting Motor		24 V x 9 kW
Alternator	Voltage		24 V
	Rating Amperes		115 A
Battery	System Voltage		24 V
	Quantity		12 V x 2
	Capacity (AMP)		200 AH
Pump Drive	Drive Type		Flexible Coupling Joint
	Nominal Torque & rpm		438.7 kg.m, 2,500 rpm
Air Cleaner	Type		Double Element with Precleaner
	Filtration Area		16.5 m^2 (Outer), 2.58 m^2 (Inner)
	Size (Dia. x Length)		Ø 440.4 mm x 897.2 mm
Muffler	Type		DOC + DPF + SCR
Fan	For Radiator	Type	Sucker, 8-blade, Plastic
		Size	Ø 1,168 mm
		At Rated Engine rpm	250 –1,100 rpm (STD)
		Pulley Ratio	Controlled by Hydraulic Motor
	For Oil Cooler	Type	Sucker, 5-blade, Plastic
		Size	Ø 940 mm
		At Rated Engine rpm	360 – 1,540 rpm (STD)
		Pulley Ratio	Controlled by Hydraulic Motor
Radiator	Type		Square Wave Fin
	Total Front Area		1.6 m^2
Oil Cooler	Type		Square Wave Fin
	Total Front Area		0.69 m^2
Charge Air Cooler	Type		Square Wave Fin
	Total Front Area		1.14 m^2
Fuel Cooler	Type		Square Wave Fin
	Total Front Area		0.06 m^2

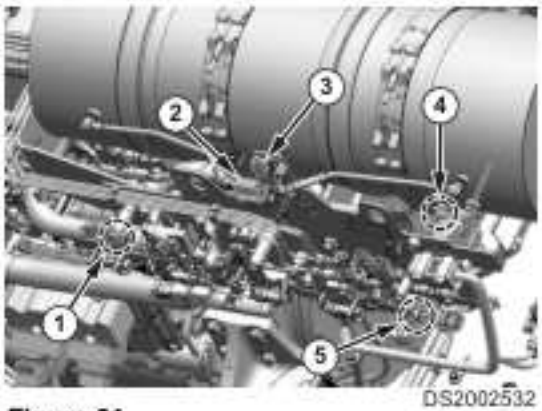
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Wiring Harness

1. Disconnect wiring harness connector from sensors.

   NOTE: *Be careful not to let water get into electrical components (sensor, connectors).*
   If water gets into electrical system, his will cause an electrical short circuit and result in improper machine operation.

   - Sensor connectors location
     - DOC temperature sensor (1).
     - Differential pressure sensor (2).
     - DPF pressure sensor (3).
     - DOC temperature sensor (4).
     - SCR temperature sensor (5).



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Figure 21

Engine Sensors - After Treatment System

1. Remove DOC temperature sensor (1).
   - Torque: 45 N.m (4.58 kg.m, 33 ft lb)

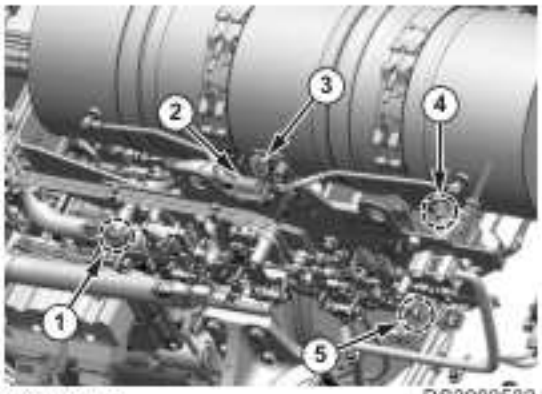
   NOTE: *Apply adhesive (Loctite #771) to the mounting bolt.*

2. Remove bolts and differential pressure sensor (2) with O-ring.
   - Torque: 1.7 N.m (0.17 kg.m, 1.25 ft lb)
3. Remove DPF pressure sensor (3) and O-ring from manifold
   - Tool: 27 mm ( )
   - Torque: 10 N.m (1 kg.m, 7.37 ft lb)
4. Remove DOC temperature sensor (4) from DOC.
   - Tool: 17 mm ( )
   - Torque: 45 N.m (4.58 kg.m, 33 ft lb)

   NOTE: *Apply adhesive (Loctite #771) to the mounting bolt.*

   NOTE: *Use a brand new cable tie.*

   NOTE: *Check the location of the connectors before disconnecting.*



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Figure 22

Upstream NOx Sensor

Downstream NOx Sensor

SCR Temperature Sensor

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EPOS ERROR CODE

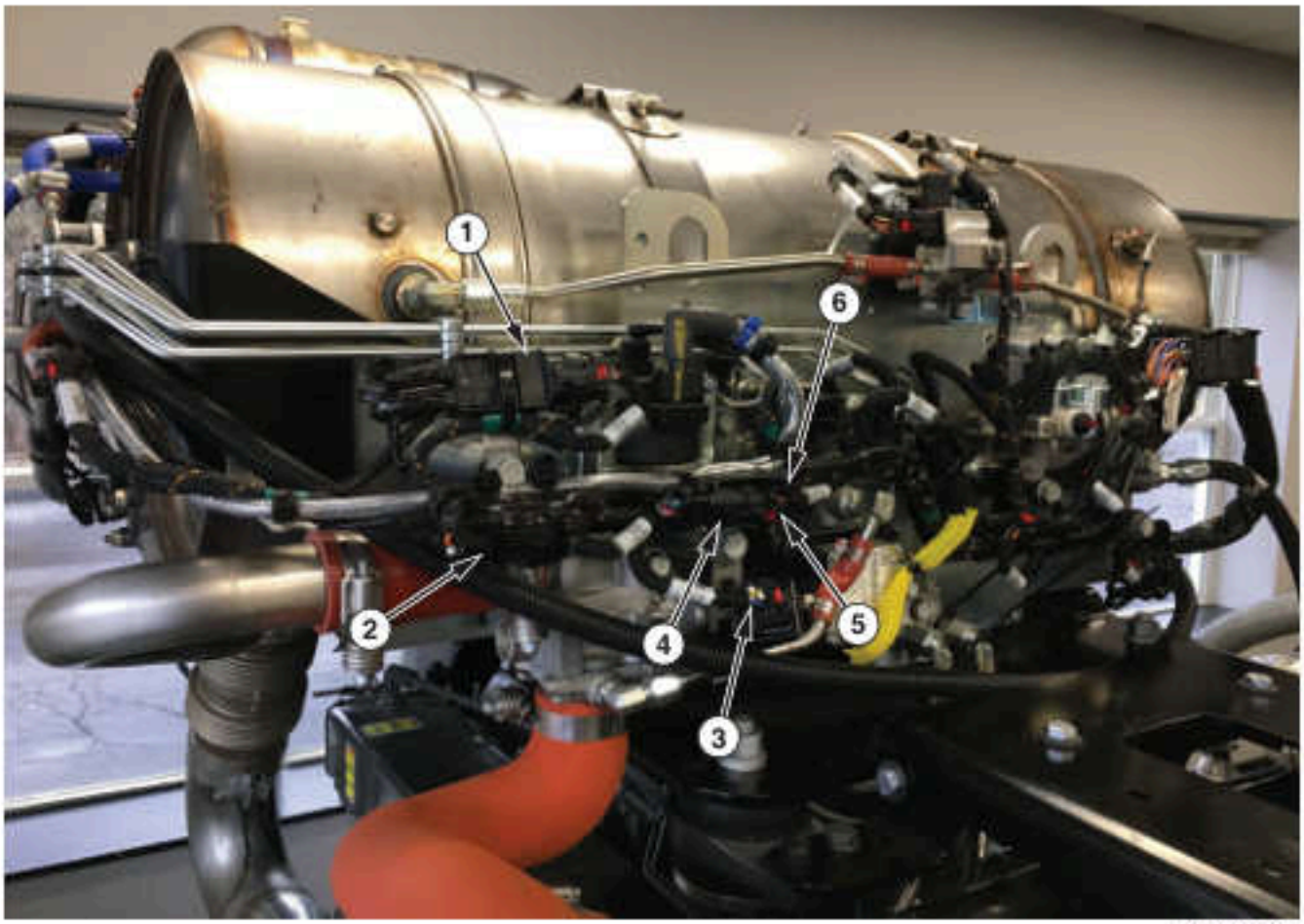
Information Mentioned in Troubleshooting Table

- The following information is summarized in the troubleshooting table and the related circuit diagram. Before performing troubleshooting, understand that information fully.

No.	Description of the Problems
1. VCO001	Gauge Panel
2. VCO002	E-ECU
3. VPV001	Pump Proportional Valve (A)
4. VPV002	Pump Proportional Valve (B)
5. VPV004	Fan Control Proportional Valve (J)
6. VPV025	Bypass Cut-off (A) Proportional Valve
7. VPV026	Bypass Cut-off (B) Proportional Valve
8. VPV027	Boom Up Summation Proportional Reducing Valve
9. VPV028	Arm Crowd summation Proportional Reducing Valve
10. VPV029	Bucket Crowd summation Proportional Reducing Valve
11. VPV030	Arm Lock Proportional Reducing Valve
12. VPV031	Pump Proportional Valve (C)_(P3)
13. VSV001	Breaker Operating Solenoid Valve
14. VSV003	High-speed Solenoid Valve (C)
15. VSV004	Reverse Fan Solenoid Valve
16. VSV006	Swing Brake Release Solenoid Valve (K)
17. VSV007	Option Safety Solenoid Valve
18. VSV011	2 Pump Select Solenoid Valve (I)
19. VSV018	Two Way RH-Open Solenoid Valve
20. VSV019	Two Way RH-Close Solenoid Valve
21. VSV020	Breaker Select Solenoid Valve
22. VSV034	Travel Straight Solenoid Valve
23. VSV035	Free Boom Up Solenoid Valve
24. VSV037	Quick Coupler Solenoid Valve
25. VSV038	MCV Proportional Reducing Cutoff Solenoid Valve
26. VRY002	Back Buzzer Relay
27. VRY007	Starter Relay
28. VRY016	Auto Shut Off Relay
29. VRY018	ACC Relay
30. VRY019	DES (Delayed Engine Shutdown) Override Relay
31. VGC002	Urea Overcharging Warning Signal
32. VSP001	Front Pump Pressure Sensor
33. VSP002	Rear Pump Pressure Sensor
34. VSP003	Overload Warning Pressure Sensor

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CEM Electronic Components



DS2002823

Figure 73

DPF Intake Temperature and Flame Detection sensor (1):

- The DPF Intake Temperature sensor measures the temperature entering the DPF.
- The ARD Flame Detection Temperature sensor is primarily used to determine if the flame was successfully lit during the ARD ignition process. It is used along with the DPF Intake Temperature sensor to determine if the flame has gone out during regeneration.

ARD Fuel Nozzle Heater (2)

Aftertreatment Identification (3):

- Used to sync the Aftertreatment ECM and the Engine ECM in the first 100 hours.

ARD Ignition Primary sensor (4)

ARD Flow Control Actuator (5)

Aftertreatment Secondary Air Pressure sensor (6)

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Lower Wiper Arm and Blade

1. Disconnect washer hose from lower wiper arm and blade.
2. Remove lower wiper arm and blade (1) from the cabin.

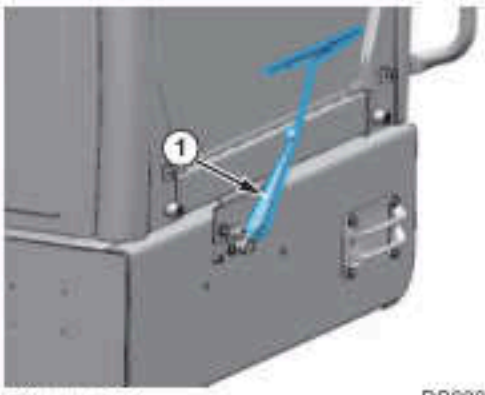


Figure 125 DS2002745

Cabin Photo Sensor

1. Pull up cabin photo sensor (1) by using a flat-head screwdriver.

   NOTE: *The cabin photo sensor is located behind the display monitor.*

   NOTE: *Please find the service groove.*
2. Disconnect wiring harness (2) from cabin photo sensor.
3. Remove cabin photo sensor (1).

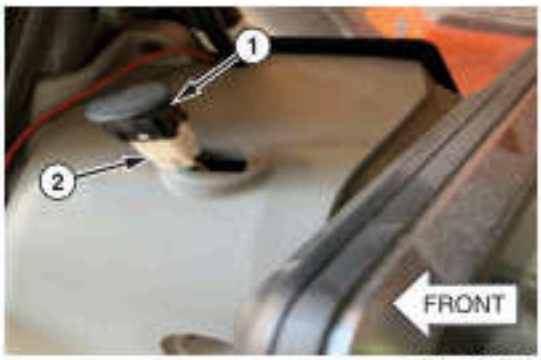


Figure 126 DS1901316

Cabin Side Cover

1. Put away the floor rubber mat (1).
2. Remove the plug cap and screws (2) from cabin side cover.

   NOTE: *Please find the service groove.*

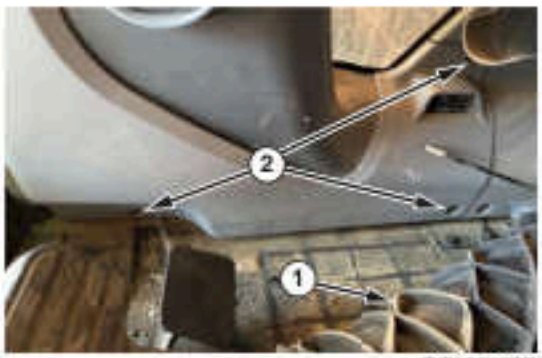


Figure 127 DS1901327

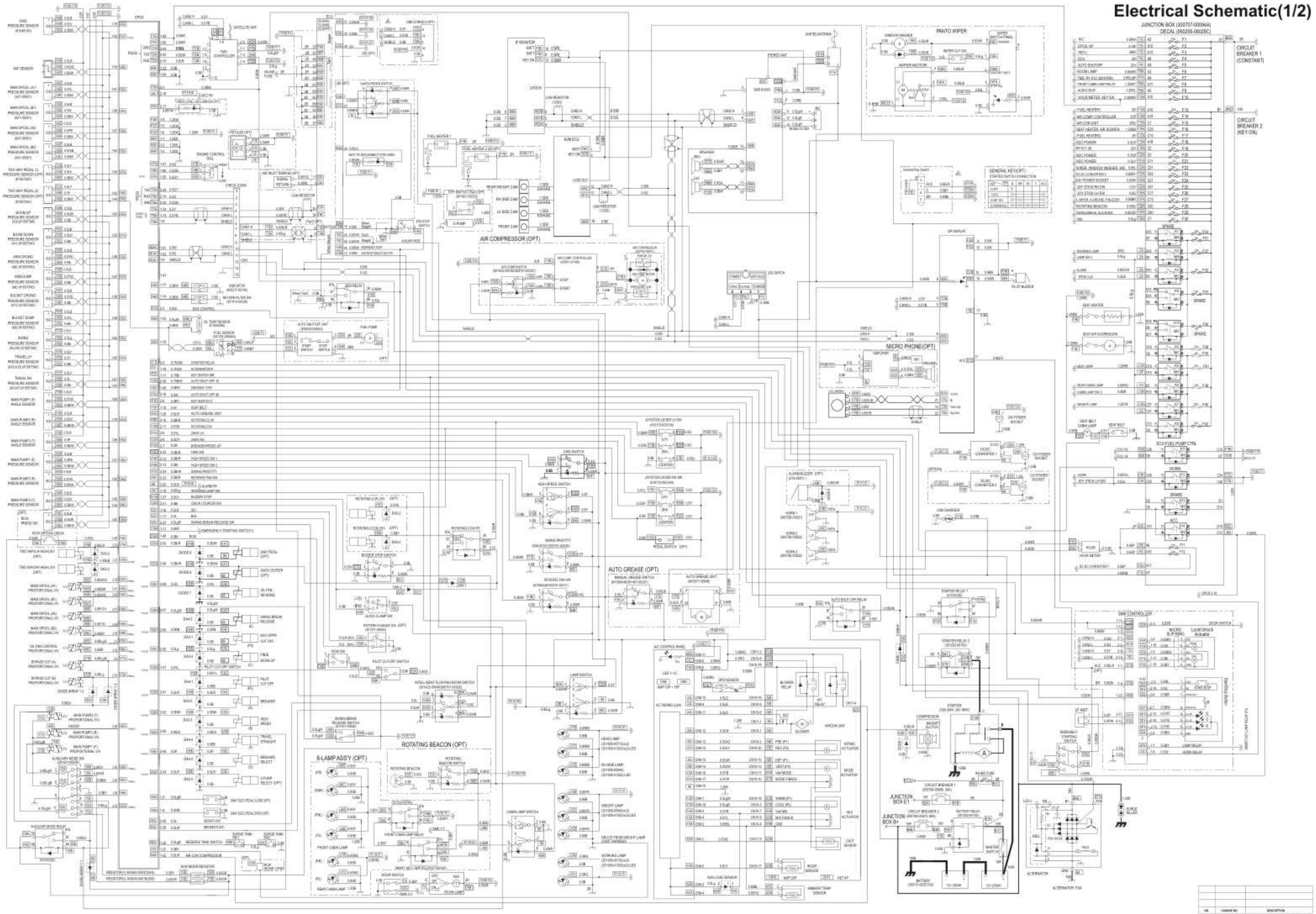
3. Remove the plug cap and screws (1) from cabin side cover.
4. Remove the cabin side cover (2).



Figure 128 DS1901328

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HX1000A L
Electrical Schematic(1/2)



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