CRAWLER EXCAVATOR

SERVICE MANUAL

RB160LC-9S

HYUNDAI

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8. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Cummins 6BT5.9
Type	4-cycle turbocharged diesel engine, low emission
Cooling method	Water cooling
Number of cylinders and arrangement	6 cylinders, in-line
Firing order	1-5-3-6-2-4
Combustion chamber type	Direct injection type
Cylinder bore × stroke	102 × 120 mm (4.02" × 4.72")
Piston displacement	5880 cc (359 cu in)
Compression ratio	17.3 : 1
Rated gross horse power (SAE J1995)	126Hp (94 kW) at 2100 rpm
Maximum torque	53.6 kgf · m (388 lbf · ft) at 1600 rpm
Engine oil quantity	24 ℓ (6.34 U.S. gal)
Dry weight	432 kg (952 lb)
High idling speed	2100 ± 50 rpm
Low idling speed	800 ± 100 rpm
Rated fuel consumption	170 g/Hp · hr at 2100 rpm
Starting motor	24 V-4.5 kW
Alternator	24 V-70 A
Battery	2 × 12 V × 100 Ah

2) MAIN PUMP

Item	Specification
Type	Variable displacement tandem axis piston pumps
Capacity	2 × 80 cc/rev
Maximum pressure	350 kgf/cm² (4980 psi) [380 kgf/cm² (5400 psi)]
Rated oil flow	2 × 160 ℓ/min (42.3 U.S. gpm / 35.2 U.K. gpm)
Rated speed	2000 rpm

[ ] : Power boost

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Error code		Description
HCESPN	FMI	
138	0	Attachment pilot pressure sensor data above normal range.
	1	Attachment pilot pressure sensor data below normal range.
	2	Attachment pilot pressure sensor data error.
	4	Attachment pilot pressure sensor circuit - Voltage below normal, or shorted to low source.
140	5	Pump EPPR valve circuit - Current below normal, or open circuit.
	6	Pump EPPR valve circuit - Current above normal.
141	5	Boom priority EPPR valve circuit - Current below normal, or open circuit.
	6	Boom priority EPPR valve circuit - Current above normal.
144	5	Attachment flow EPPR valve circuit - Current below normal, or open circuit.
	6	Attachment flow EPPR valve circuit - Current above normal.
150	5	Left rotate EPPR valve circuit - Current below normal, or open circuit.
	6	Left rotate EPPR valve circuit - Current above normal.
151	5	Right rotate EPPR valve circuit - Current below normal, or open circuit.
	6	Right rotate EPPR valve circuit - Current above normal.
152	5	Left tilt EPPR valve circuit - Current below normal, or open circuit.
	6	Left tilt EPPR valve circuit - Current above normal.
153	5	Right tilt EPPR valve circuit - Current below normal, or open circuit.
	6	Right tilt EPPR valve circuit - Current above normal.
166	5	Power max solenoid circuit - Current below normal, or open circuit.
	6	Power max solenoid circuit - Current above normal.
167	5	Travel speed solenoid circuit - Current below normal, or open circuit.
	6	Travel speed solenoid circuit - Current above normal.
168	5	Attachment pressure solenoid circuit - Current below normal, or open circuit.
	6	Attachment pressure solenoid circuit - Current above normal.
169	5	Attachment conflux solenoid circuit - Current below normal, or open circuit.
	6	Attachment conflux solenoid circuit - Current above normal.
170	5	Arm regeneration solenoid circuit - Current below normal, or open circuit.
	6	Arm regeneration solenoid circuit - Current above normal.
171	5	Attachment safety solenoid circuit - Current below normal, or open circuit.
	6	Attachment safety solenoid circuit - Current above normal.
181	5	Remote cooling fan reverse solenoid circuit - Current below normal, or open circuit.
	6	Remote cooling fan reverse solenoid circuit - Current above normal.
301	5	Fuel level sender circuit - Voltage above normal, or shorted to high source.
	6	Fuel level sender circuit - Voltage below normal, or shorted to low source.
304	3	Engine coolant temperature sensor circuit - Voltage above normal, or shorted to high source.
	4	Engine coolant temperature sensor circuit - Voltage below normal, or shorted to low source.
310	8	Engine speed signal error - Abnormal frequency or pulse width.
322	3	Engine preheat relay circuit - Voltage above normal, or shorted to high source.
	4	Engine preheat relay circuit - Voltage below normal, or shorted to low source.
325	3	Fuel warmer relay circuit - Voltage above normal, or shorted to high source.
	4	Fuel warmer relay circuit - Voltage below normal, or shorted to low source.

※ Some error codes are not applied to this machine.

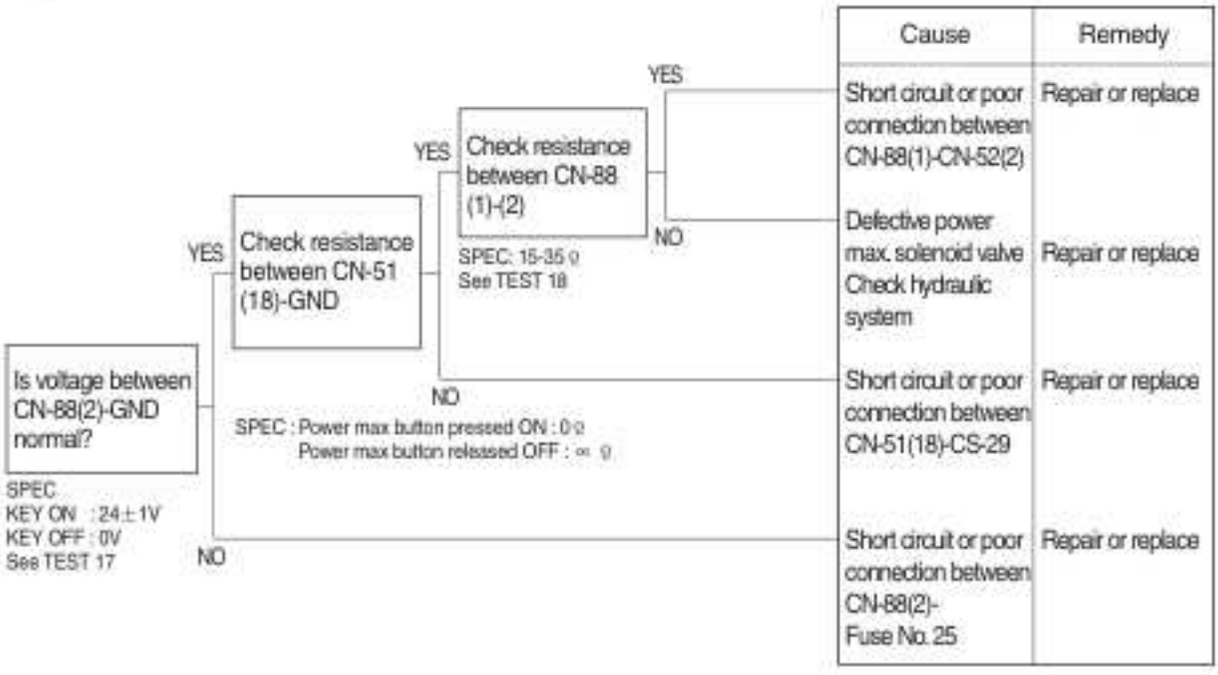
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11. MALFUNCTION OF POWER MAX

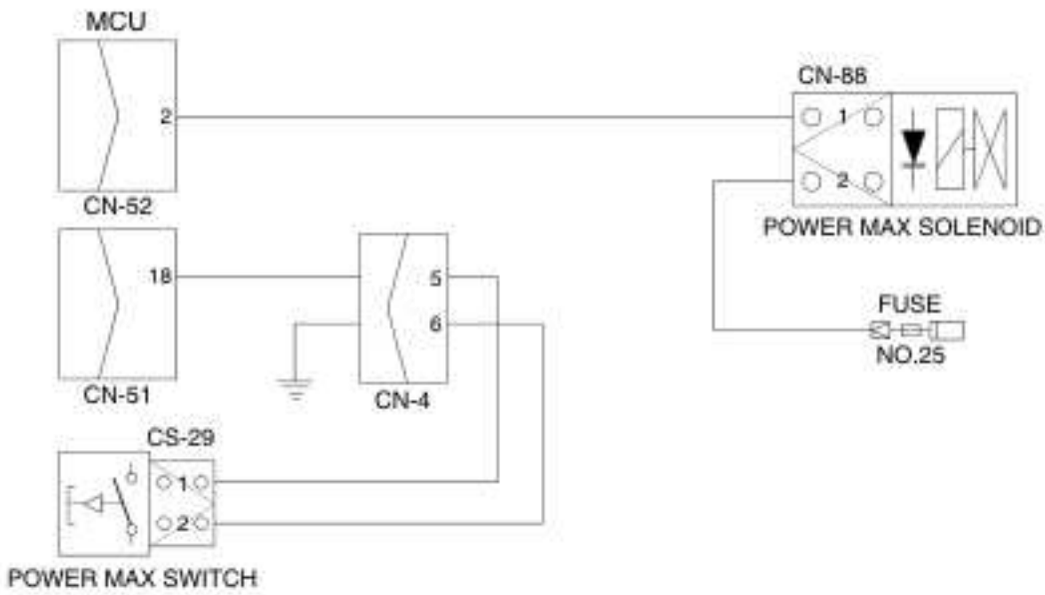
- Fault code : HCESPN 166, FMI 5 or 6

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

1) INSPECTION PROCEDURE



Wiring diagram



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■ Disassemble cylinder sub.

9) Disassemble cylinder block assembly, piston assembly (9) and seat plate (M).





10) Disassemble ball guide (16), ring and pin (15) from cylinder block, respectively.

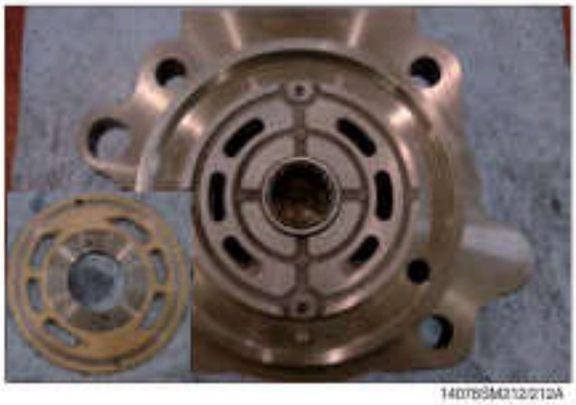




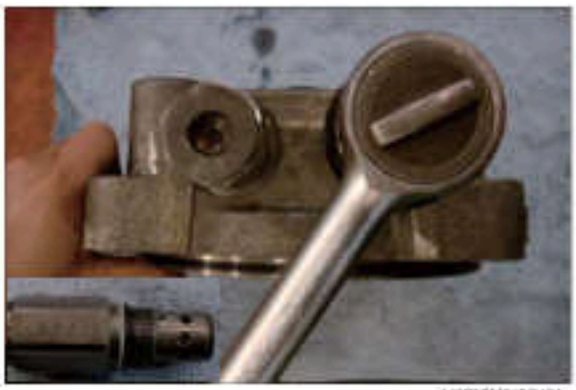
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(3) Disassemble rear cover assy sub

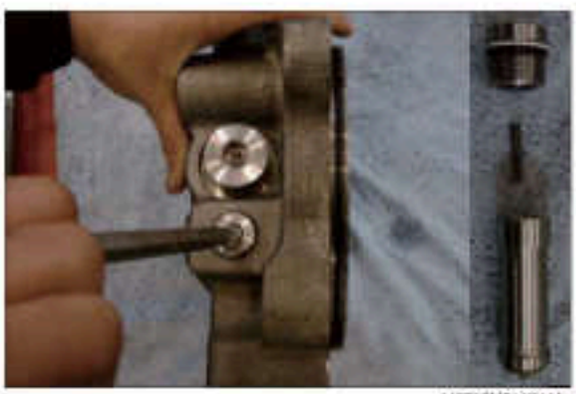
① Disassemble pin (8, 23), valve plate (24) from rear cover (21).



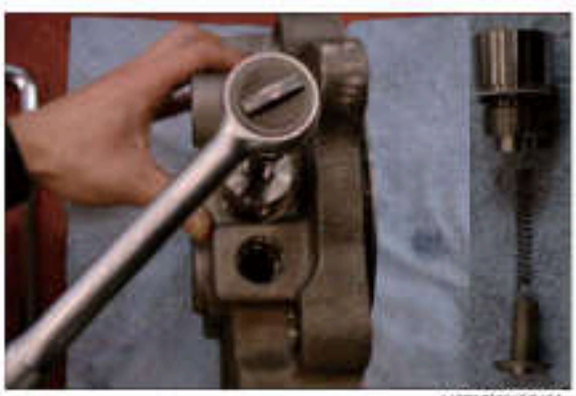
② Using a torque wrench, disassemble relief valve assy (31) 2 set from rear cover (21).



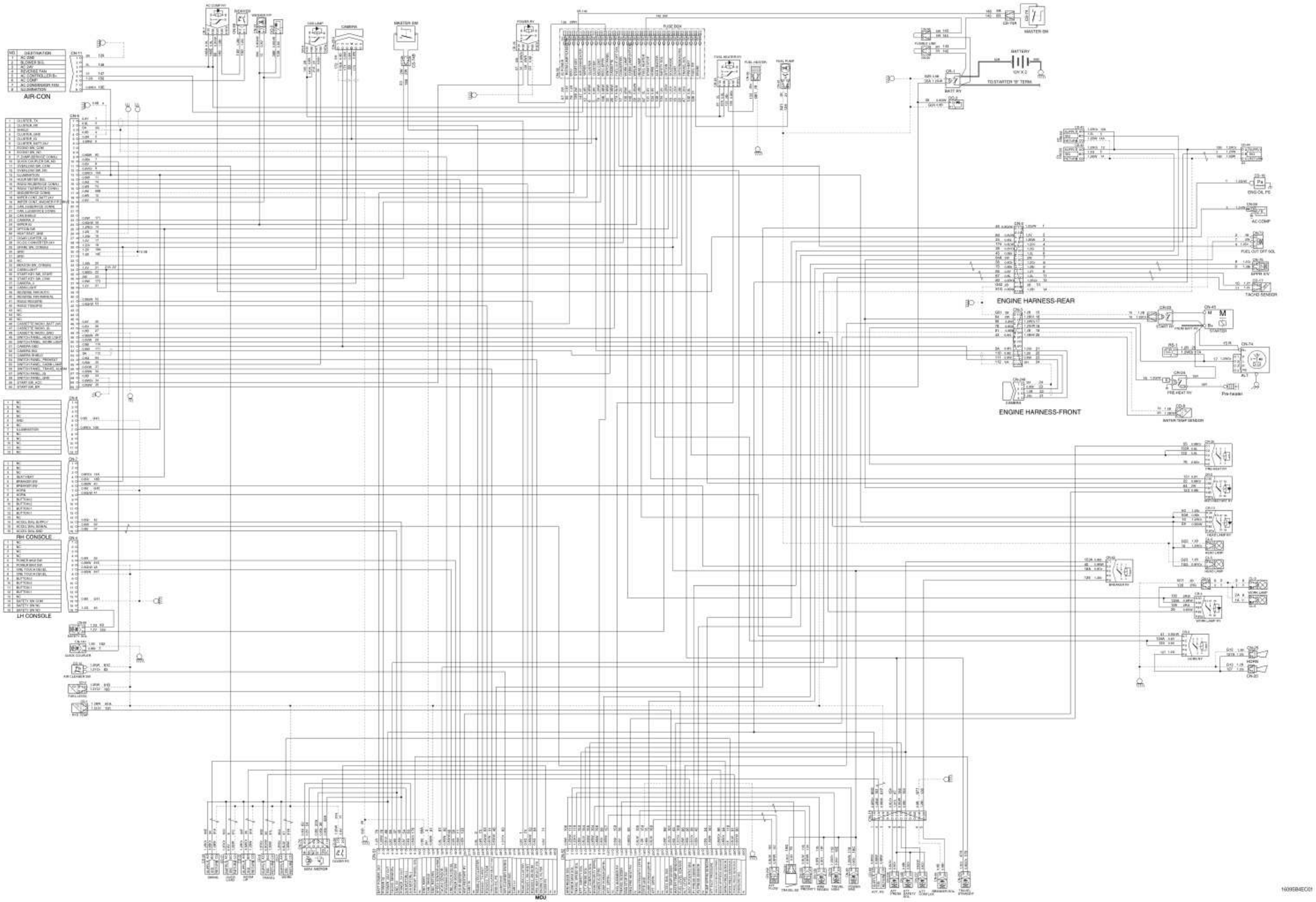
③ After disassembling plug with a L-wrench from rear cover (21), disassemble respectively back up ring, O-ring, O-ring, spring, anti-inversion valve assy (32)



④ Disassemble make up check valve assy with a torque wrench from rear cover (21).



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