

Component Procedures: Ignition System

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Component Procedures: Ignition System

Parts and Labor (itype_189)

Parts

Qualifier	Part #	Name	Price	Note
Ignition System	273002E601	Ignition Coil	138.94	

Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Remove & Replace	Ignition System > Ignition Coil, R&R > All	B	0.7	0.0
Remove & Replace	Ignition System > Ignition Coil, R&R > One	B	0.4	0.0
Remove & Replace	Ignition System > Spark Plugs, R&R	C	1.0	0.0
Diagnosis	Ignition System > System, Diagnosis	B	0.6	0.0
Remove & Install	Ignition System > Spark Plugs, R&I	C	1.0	0.0

Specifications Quick Reference (itype_439)

Quick Specifications

- item

Ignition System - Description and Operation (Article 44012)

- Description


Ignition System - Repair Procedures (Article 44013)

- On-vehicle Inspection

Inspect ignition coil assembly and Perform spark test

- Check for DTCs. If a DTC is present, perform troubleshooting in accordance with the procedure for that DTC. (Refer to DTC guide)

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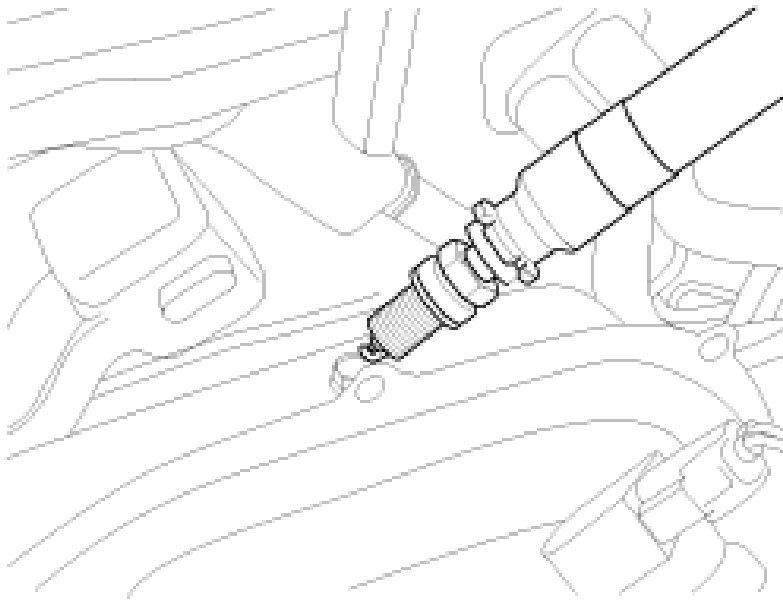


NOTICE

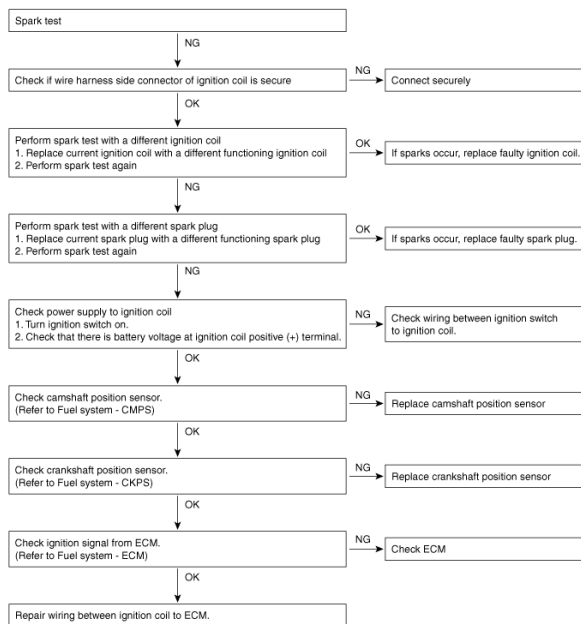
- If a DTC is present, perform troubleshooting in accordance with the procedure for that DTC. (Refer to DTC guide)

- Check if sparks occur. Remove the engine cover. Remove the ignition coils . Using a spark plug wrench, remove the spark plugs . Disconnect the injector extension connectors. Ground the spark plug to the engine. Check if sparks occur at each spark plug while engine is being cranked. Do not crank the engine for more then 5 seonds.

- Remove the engine cover.
- Remove the ignition coils .
- Using a spark plug wrench, remove the spark plugs .
- Disconnect the injector extension connectors.
- Ground the spark plug to the engine.



- Check if sparks occur at each spark plug while engine is being cranked.
- Do not crank the engine for more than 5 seconds.
- Do not crank the engine for more than 5 seconds.
- If sparks do not occur, perform the following test.



- Using a spark plug wrench, install spark plugs.
- Install the ignition coils.
- Install the engine cover.

Engine Electrical System - Specifications (Article 44000)

- Specification

Ignition System

Item Specification

Primary Coil Resistance (Ω) $0.61 \pm 15\%$ [20°C (68°F)]

Secondary Coil Resistance ($k\Omega$) $7.5 \pm 15\%$ [20°C (68°F)]

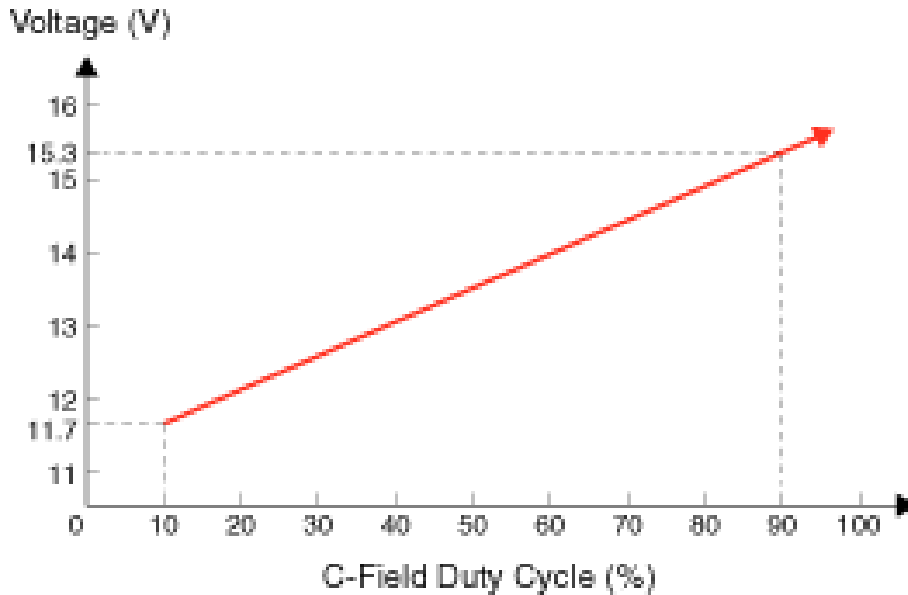
Type ELR9IQP9+

Gap 0.8 - 0.9 mm (0.0314 - 0.0354 in.)

Charging System

Rated voltage 13.5V, 150A

Speed in use 1,000 - 18,000 rpm
Voltage regulator IC Regulator built-in type
Regulator Setting Voltage External mode Refer to below graph
Internal mode $14.55 \pm 0.3V$
Temperature Gradient External mode $0 \pm 3 \text{ mV} / ^\circ\text{C}$
Internal mode $-3.5 \pm 2\text{mV} / ^\circ\text{C}$



Model type AGM60L-DIN
Capacity [20HR/5HR] (AH) 60 / 48
Cold Cranking Amperage (A) 640 (SAE) / 512 (EN)
Reserve Capacity (Min) 100

Model type description Cold Cranking Ampere (CCA) : Cold Cranking Amps is a rating used in the battery industry to define a battery's ability to start an engine in cold temperatures. The rating is the number of amps a new, fully charged battery can deliver at -18°C (-0.4°F) for 30 seconds, while maintaining a voltage of at least 7.2 volts for a 12 volt battery. The higher the CCA rating, the greater the starting power of the battery. RESERVE CAPACITY (RC) : Reserve Capacity is a battery industry rating, defining a battery's ability to power a vehicle with an inoperative alternator or fan belt. The rating is the number of minutes a battery at 26.7°C (80°F) can be discharged at 25 amps and maintain a voltage of 10.5 volts for a 12 volt battery. The higher the reserve rating, the longer your vehicle can operate should your alternator or fan belt fail.



Information

- Model type description

• Battery type notation : $\frac{\square\square\square}{\textcircled{1}} \frac{\square\square}{\textcircled{2}} \frac{\square}{\textcircled{3}} - \frac{\square\square\square}{\textcircled{4}}$

- ① : Battery specification
 - CMF : Closed Maintenance Free
 - MF : Maintenance Free
 - AGM : Absorbent Glass Mat
- ② : Battery capacity (20HR)
 - 68 : 68AH
- ③ : Terminal location
 - L : Positive terminal is left
 - R : Positive terminal is right
- ④ : Battery type
 - DIN: Deutsche Industric Normen
 - BCI: Battery Council International

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Starting System

Rated voltage 12V, 1.2 kW

The number of pinion teeth 13

Performance [No-load, 11.5V] Ampere 105A

Speed Min. 2,950 rpm

- Tightening Torques

Item N.m kgf.m lb-ft

Ignition coil installation bolt 9.8 - 11.8 1.0 - 1.2 7.2 - 8.7

Spark plug installation 14.7 - 24.5 1.5 - 2.5 10.9 - 18.1

Alternator B-terminal cable nut 9.8 - 11.8 1.0 - 1.2 7.2 - 8.7

Alternator installation bolt [12 mm (0.47 in.)] 19.6 - 26.5 2.0 - 2.7 14.5 - 19.5

Alternator installation bolt [14 mm (0.55 in.)] 29.4 - 41.2 3.0 - 4.2 21.7 - 30.4

Battery (+) terminal tightening nut 7.8 - 9.8 0.8 - 1.0 5.2 - 8.7

Battery (-) terminal tightening nut 3.9 - 5.9 0.4 - 0.6 2.9 - 4.3

Battery mounting bracket bolt 19.6 - 29.4 2.0 - 3.0 14.5 - 30.4

Battery tray installation bolt 19.6 - 29.4 2.0 - 3.0 14.5 - 30.4

Battery sensor cable installation bolt 10.8 - 13.7 1.1 - 1.4 8.0 - 10.1

Starter installation bolt 49.0 - 63.7 5.0 - 6.5 36.2 - 47.0

Engine Electrical System - Specifications (Article 44002)

- Specification

Ignition System

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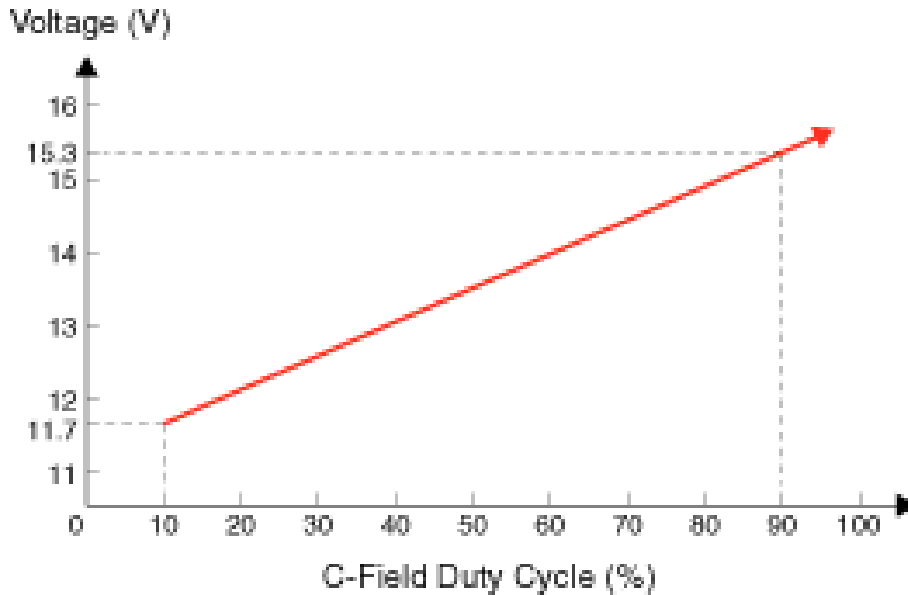
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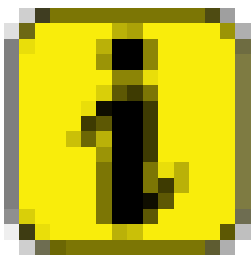
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