Component Procedures: Alternator

Table of Contents

Component Procedures: Alternator

Parts and Labor (itype_189)

Parts

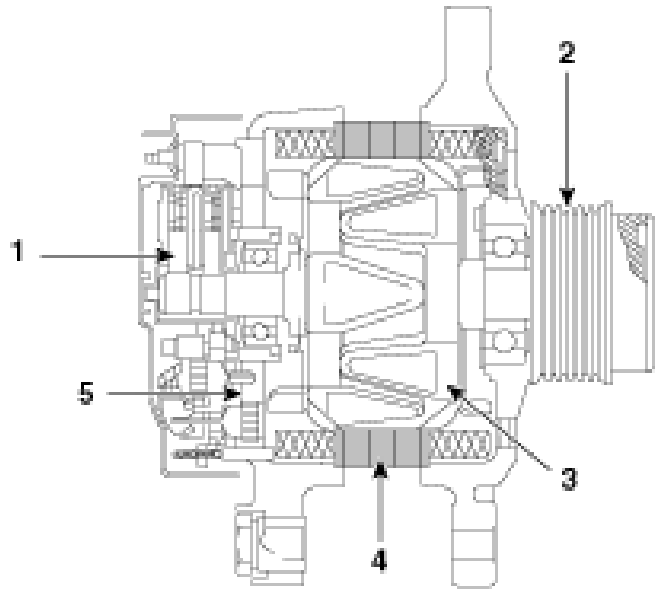
Qualifier	Part #	Name	Price	Note
Alternator > Alternator	373002E821	Korea Built	675.18	
Alternator > Alternator	373002E721	Us Built	719.42	

Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Remove & Install	Alternator > Alternator, R&I	B	0.8	0.0
Remove & Replace	Alternator > Alternator, R&R	B	0.8	0.0

Alternator - Description and Operation (Article 44030)

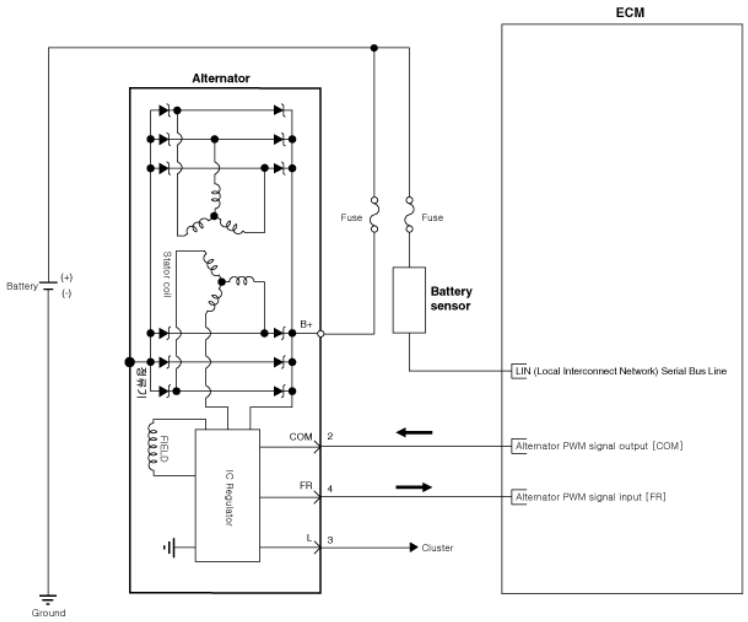
- Description



1. Brush 2. OAD (Overrunning Alternator Decoupler) 3. Rotor 4. Stator

Alternator - Schematic Diagrams (Article 44034)

- Circuit Diagram

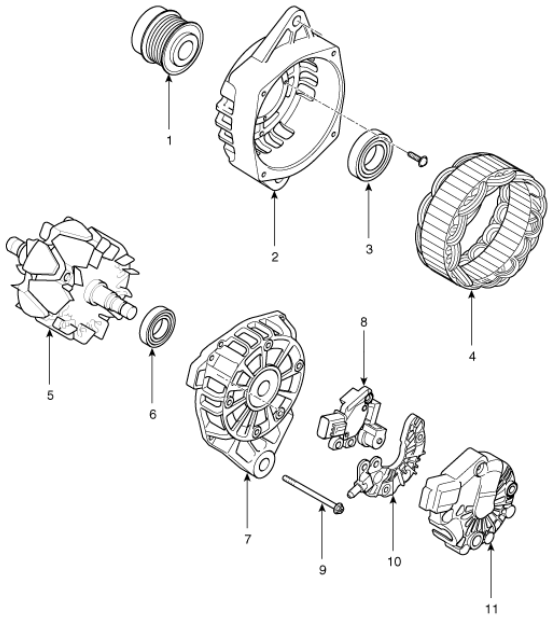


COM signal - When controlling the voltage generated, the ECM sends the target voltage data to the alternator via a PWM signal. (High voltage : 4V or higher, low voltage : 2V or lower) FR signal - The transistor activation signal inside the alternator monitors the voltage generated by the alternator to control the excitation current before it sends the FR signal to the ECM. (At certain RPM/electric loads, the FR duty can remain static. However, more often, the RPM, electric load, target voltage, etc. are always changing in the vehicle, so the FR must also change constantly) L signal - Turns on the battery warning lamp on the dashboard when the battery charging system malfunctions. (Conditions for turning on the lamp - overcharge, over discharge, a field coil blown inside the alternator) B+ terminal - The output voltage from the generator travels to the battery via the B+ terminal.

- COM signal - When controlling the voltage generated, the ECM sends the target voltage data to the alternator via a PWM signal. (High voltage : 4V or higher, low voltage : 2V or lower)
- FR signal - The transistor activation signal inside the alternator monitors the voltage generated by the alternator to control the excitation current before it sends the FR signal to the ECM. (At certain RPM/electric loads, the FR duty can remain static. However, more often, the RPM, electric load, target voltage, etc. are always changing in the vehicle, so the FR must also change constantly)
- L signal - Turns on the battery warning lamp on the dashboard when the battery charging system malfunctions. (Conditions for turning on the lamp - overcharge, over discharge, a field coil blown inside the alternator)
- B+ terminal - The output voltage from the generator travels to the battery via the B+ terminal.

Alternator - Components and Components Location (Article 44033)

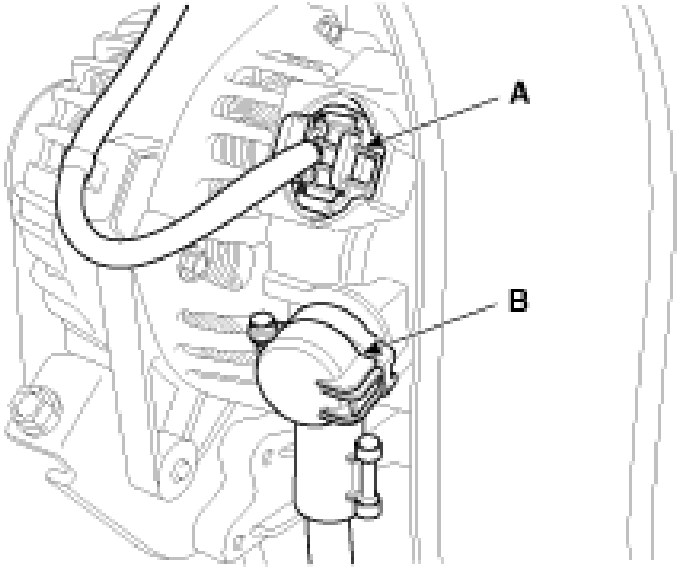
- Components



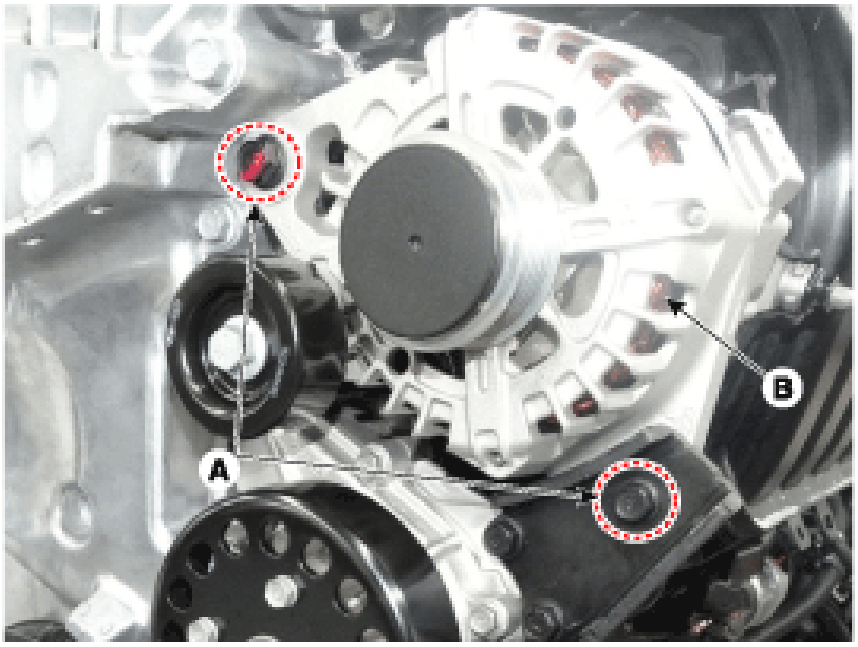
1. OAD (Overrunning Alternator Decoupler) 2. Front Bracket 3. Front Bearing 4. Stator 5. Rotor 6. Rear Bearing
7. Rear Bracket 8. Brush Holder Assembly 9. Through Bolt 10. Rectifier Assembly 11. Rear Cover

Alternator - Repair Procedures (Article 44036)

- Removal
- Turn ignition switch OFF and disconnect the negative (-) battery cable .
- Remove the drive belt. (Refer to Engine Mechanical System - "Drive Belt")
- Disconnect the alternator connector (A) and the cable (B) from alternator "B" terminal.



- Remove the alternator (B) after loosening the mounting bolts (A).



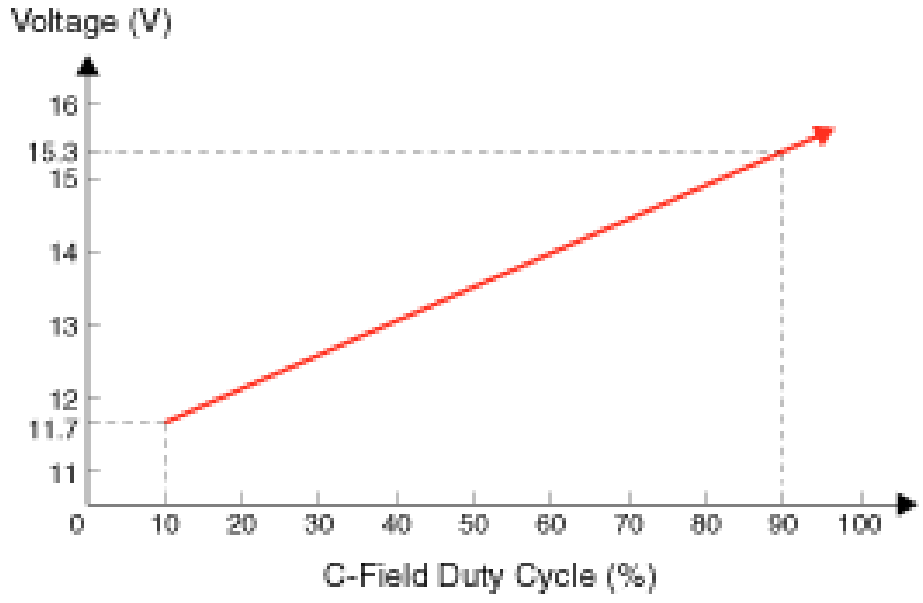
- Installation
- Install in the reverse order of removal.
- Adjust the alternator belt tension after installation. (Refer to Engine Mechanical System - "Drive Belt")

Alternator installation bolt : [12 mm (0.47 in) bolt] 19.6 - 26.5 N.m (2.0 - 2.7 kgf.m, 14.5 - 19.5 lb-ft) [14 mm (0.55 in) bolt] 29.4 - 41.2 N.m (3.0 - 4.2 kgf.m, 21.7 - 30.4 lb-ft)

Alternator - Specifications (Article 44031)

- Specification

Item	Specification
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 ± 0.3V
Temperature Gradient External mode	0 ± 3 mV / °C
Internal mode	-3.5 ± 2mV / °C



Alternator - Specifications (Article 44032)

- Specification

Item Specification

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 ± 0.3V

Temperature Gradient External mode 0 ± 3 mV / °C

Internal mode -3.5 ± 2mV / °C