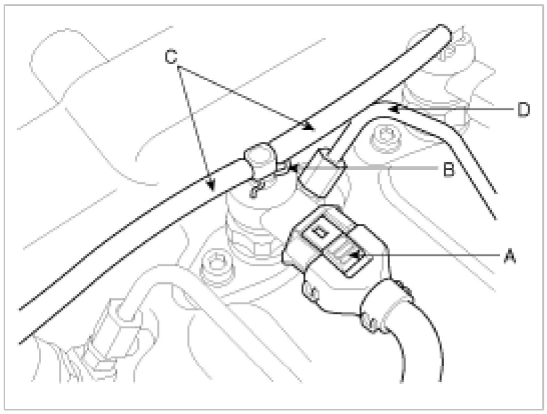
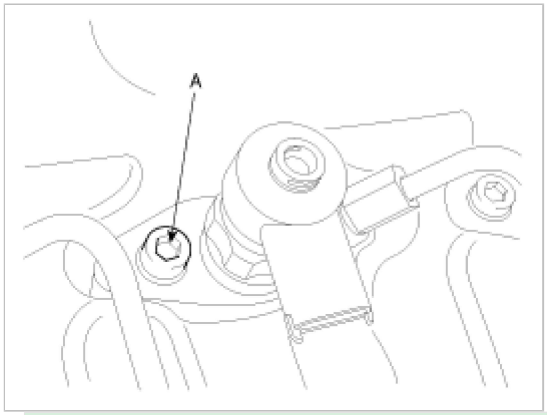
REMOVAL

- Common Rail Fuel Injection System issubject to extremely high pressure (Approximately1,600 bar)
- Never perform any work on injection systemwith engine running or within 30 seconds afterthe engine stops.
- Always pay attention to safety precaution.
- Ensure the absolute cleanliness.
- It is not recommended to remove the injectorswithout any notice.
- High pressure fuel pipe should not be reused.
- Once an injector mounting bolt is removed, the bolt must be replaced with new one. When replacing an injector clamp or dowel pin, be sure to also replace the injector mounting bolt with new one.

1. Turn ignition switch OFF and disconnect the negative(-) battery cable.
2. Disconnect the injector connector (A).



3. After removing the clip (B), disconnect the retun tube(C) from the injectors.
4. Disconnect the high pressure pipe (D) connecting theinjectors with the common rail.
5. Unscrew the injector clamp tightening bolt (A) and pull the injectorupward.



Use SST, when it is difficult to remove the injector from the engine.

INSTALLATION

1. Install the injector according to the reverse order of REMOVAL procedure.

- When installing the injector, MUST REPLACE the O-ring (A) and apply a grease to that.
- MUST PERFORM " Injector Class Input" procedure after injector installation.

When installing the high pressure pipe, apply the specified tightening torques to the flange nuts of the high pressure pipe side and the common rail side with SST (Refer to below table).

Item	Dimension	SST No.
Flange Nut (Injector Side)	14mm (0.551 in)	09314-27110
Flange Nut (HP Pump Side)		
Flange Nut (Common RailSide)	17mm (0.669 in)	09314-27120

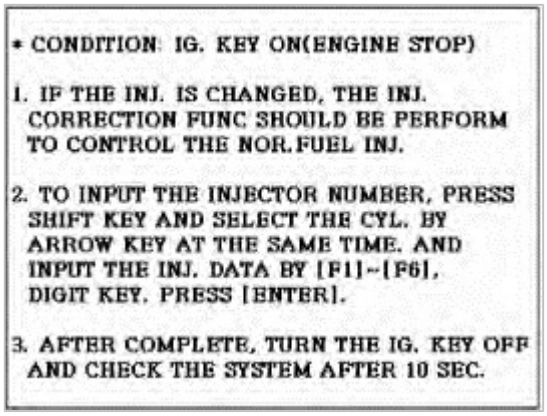
· **Injector clamp mounting bolts:** 28.4 ~ 32.4 N.m (2.9 ~ 3.3 kgf·m, 21.0 ~ 23.9 lbf·ft)
· **High pressure pipe flange nuts (Injector ↔ Common Rail):** 24.5 ~ 28.4 N·m (2.5 ~ 2.9 kgf·m, 18.1 ~ 20.1 lbf·ft)
High pressure pipe flange nuts (Common Rail ↔ HP Pump): 24.5 ~ 28.4 N·m (2.5 ~ 2.9kgf·m, 18.1 ~ 20.1 lbf·ft)

REPLACEMENT

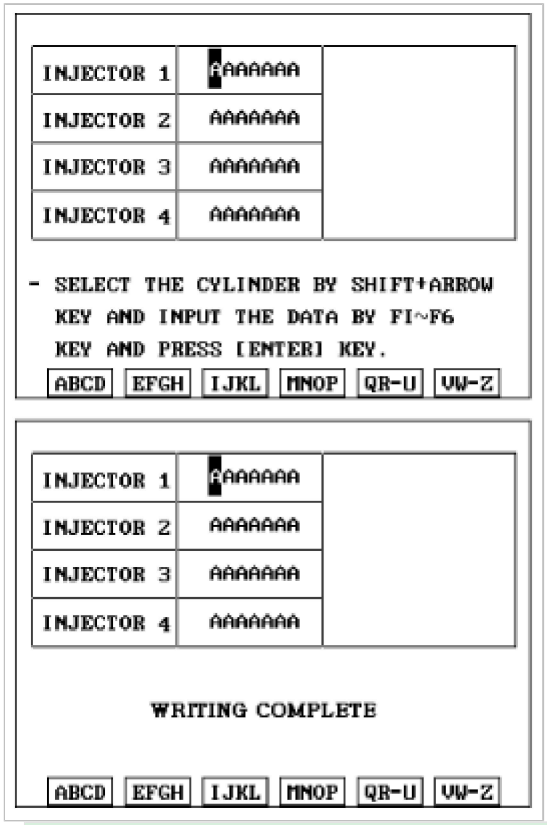
After replacing an ECM, MUST input the injector data (7 digit) of each cylinder into a new ECM.

1. Replace the injector with a new one according to the "REMOVAL" and "INSTALLATION" procedures.
2. Connect a scan tool to Data Link Connector (DLC) and turn ignition switch on.
3. Select "ENGINE CONTROL".
4. Select "A-ENGINE (VGT)"
5. Select "INJECTOR CORRECTION".

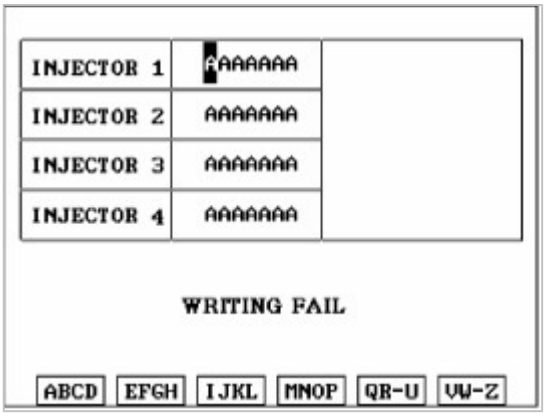
6. Press "ENTER" key.



7. Input the injector data (7 digit) written on the top of each inejctor with function keys ([F1] ~ [F6]) and number keys.



When "WRITING FAIL" is displayed on the scan tool, input injector data (7 digits) of each cylinder into a new ECM again as prior procedure.

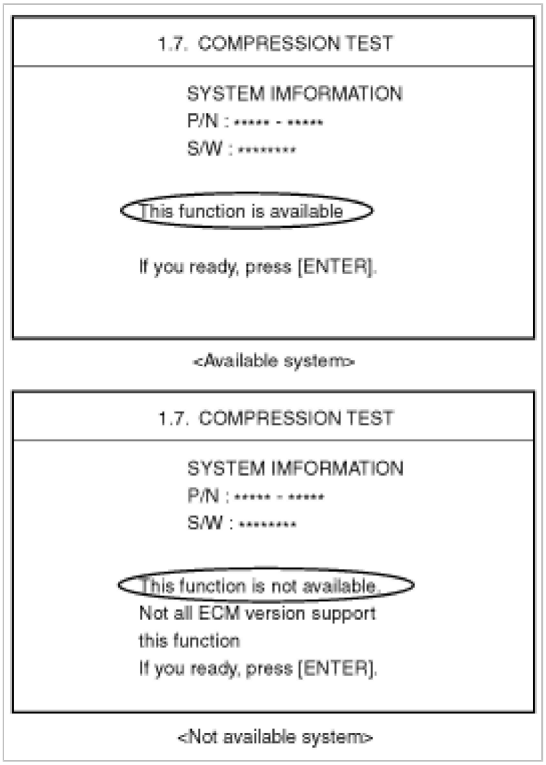


INSPECTION

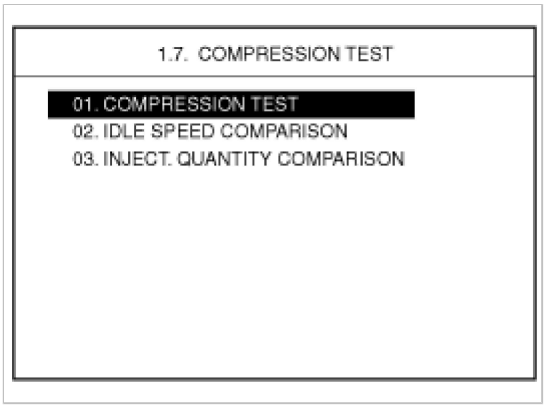
- COMPRESSION TEST
- IDLE SPEED COMPARISON
- INJECT QUANTITY COMPARISON

TEST PROCEDURE

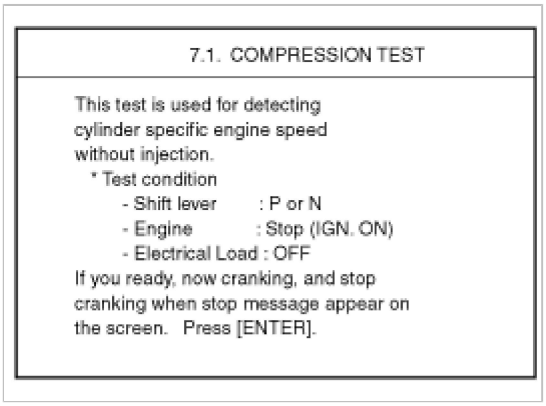
1. Connect Hi-Scan(Pro) and select "Vehicle" and "Engine Test Function".
2. Information for ECM version is displayed as below.



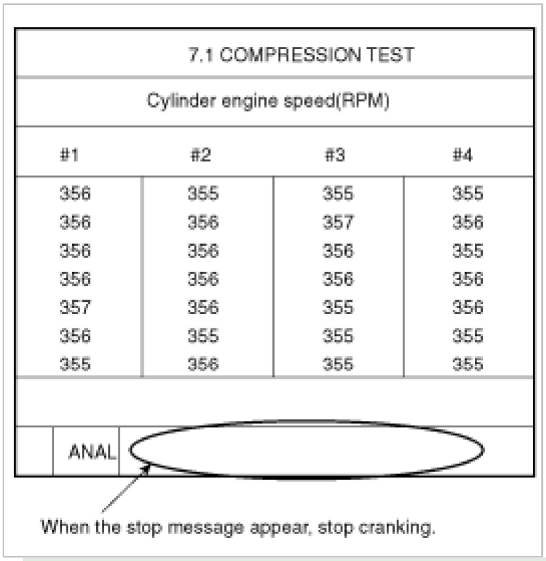
3. After pressing "[ENTER]", select "COMPRESSION TEST" mode and press "[ENTER]".



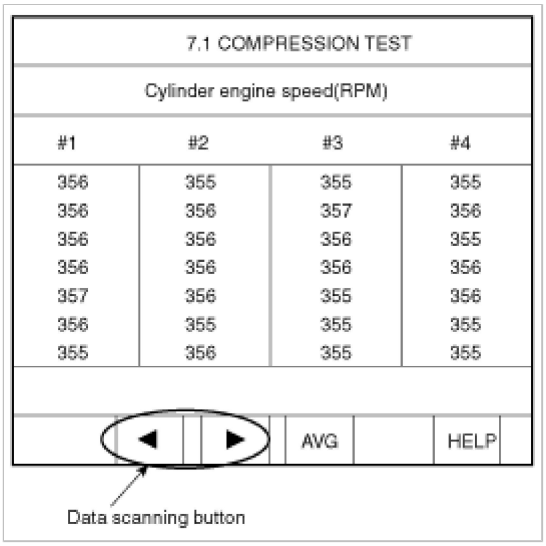
4. Set the test condition described as below screen and then, crank engine. When engine stop message being appeared, stop cranking.



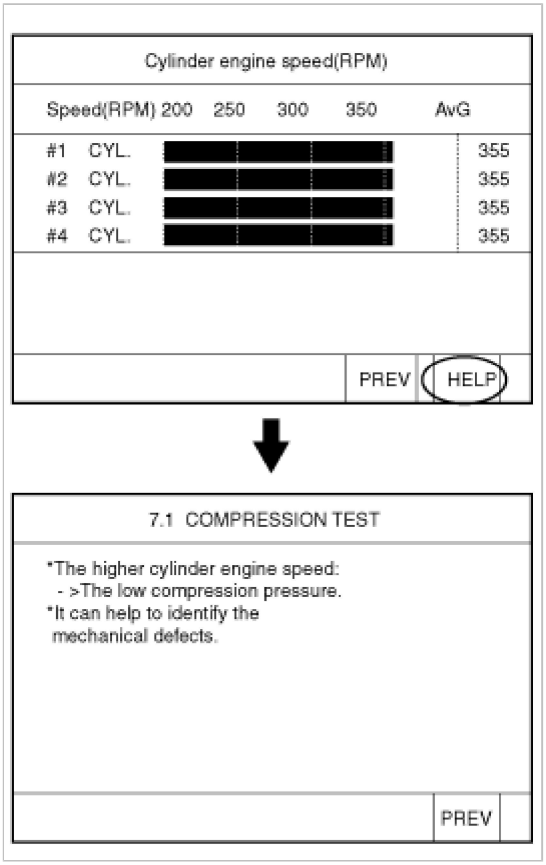
5. Press "ANAL" and the test result is appeared.



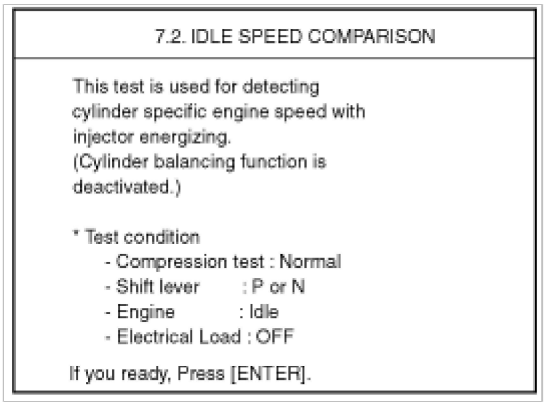
During cranking engine does not start.



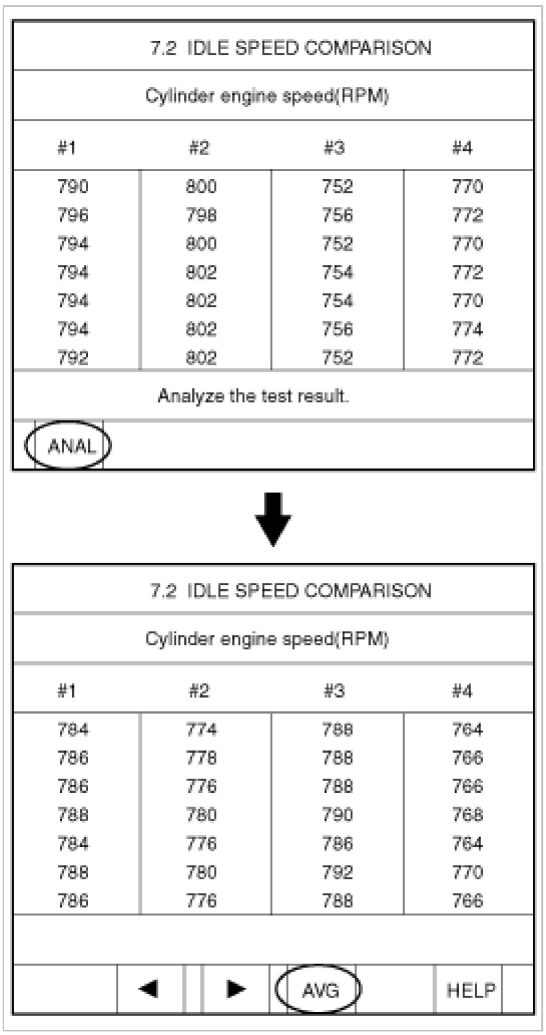
6. Press "AVG" and the data average of each cylinder is appeared.
   Press "HELP" and description of the data is appeared.



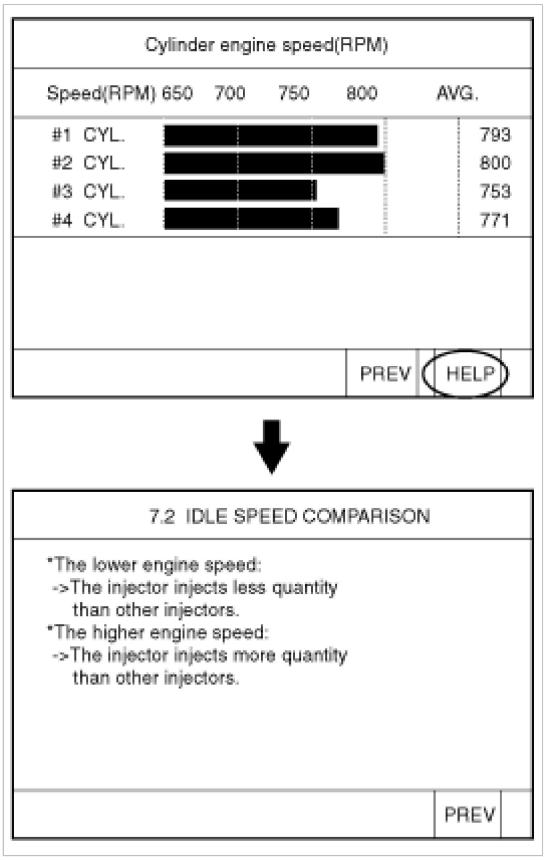
7. After pressing "ESC", select "IDLE SPEED COMPARISON" and press "[ENTER]".
8. Set the test condition described as below screen and press "[ENTER]".



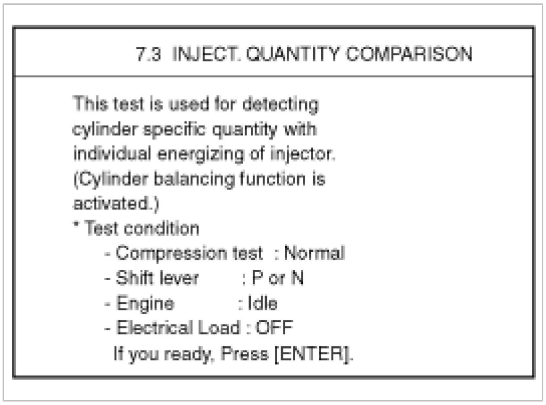
9. The rpm data of each cylinder is appeared.



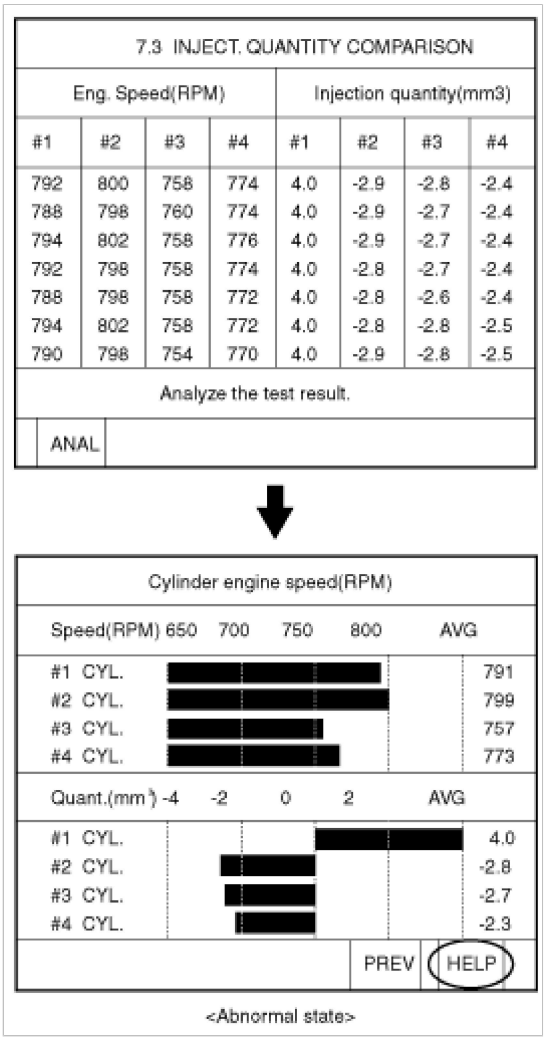
10. Press "AVG" and the data average of each cylinder is appeared.
    Press "HELP" and description of the data is appeared.



11. After pressing "ESC", select "INJECTOR QUANTITY COMPARISON" and press "[ENTER]".
12. Set the test condition described as below screen and press "[ENTER]".

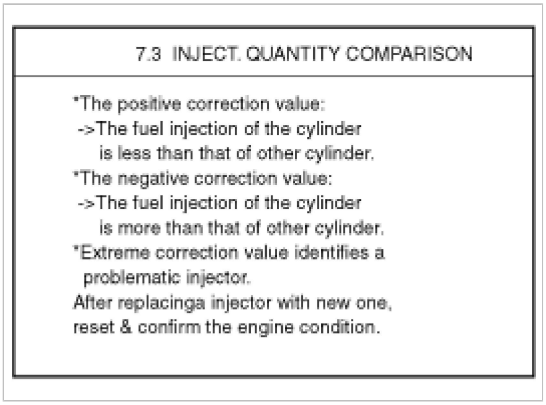


13. The data od each cylinder about RPM and compensating injection quantity is appeared.



<Abnormal state>

14. Press "HELP" and description of the data is displayed as below.



15. Replace the default injector, and then repeat previous test modes to check if the injector is normal.

COMPONENT INSPECTION

1. Turn ignition switch "OFF".
2. Disconnect injector connector.
3. Measure resistance between the terminals 1 and 2 of injector connector.

Resistance : 0.215 ~ 0.295Ω [20 (68)]