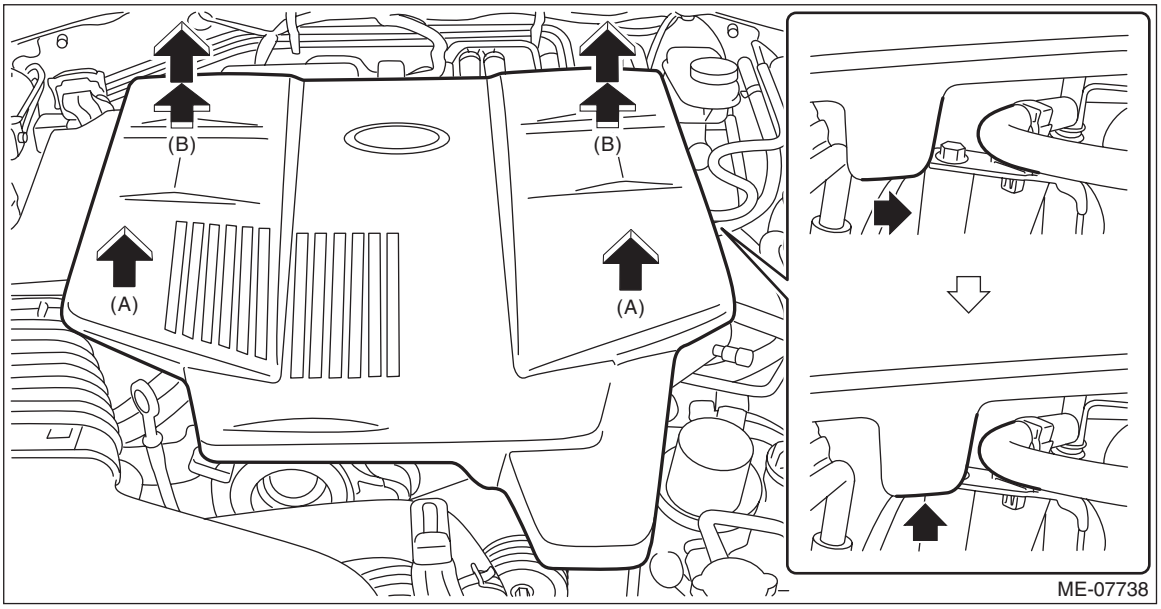
5. Intake Manifold Vacuum

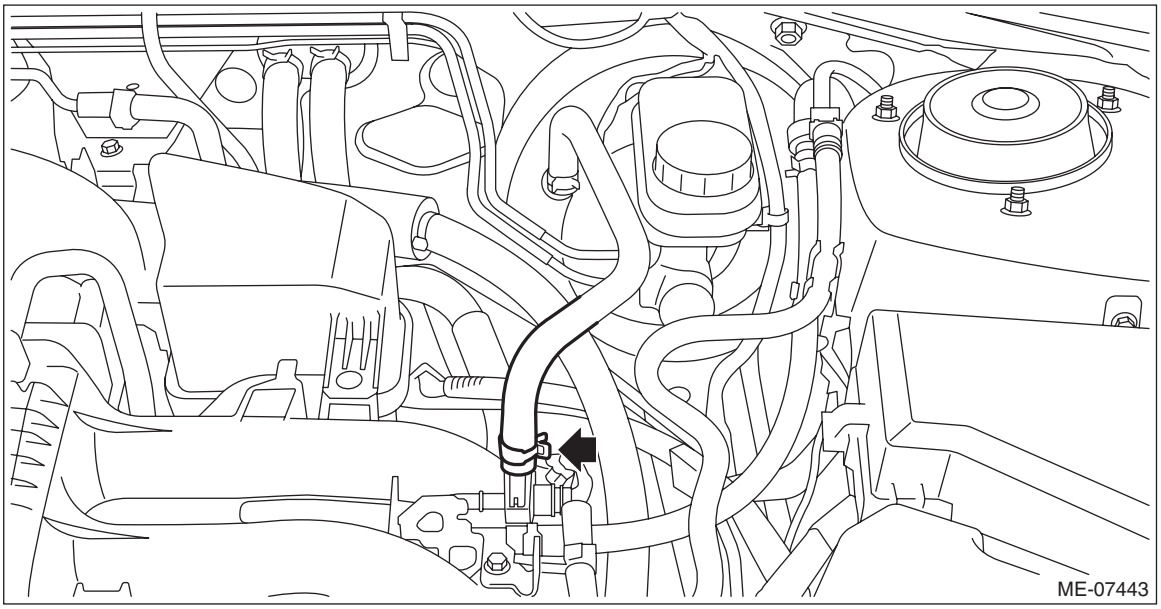
A: INSPECTION

1) Turn the ignition switch to OFF.
2) Remove the collector cover. (HEV model)
   (1) Carefully pull up the front of collector cover at two positions (A).
   (2) Carefully pull up the rear of collector cover at two positions (B) while moving it backward.

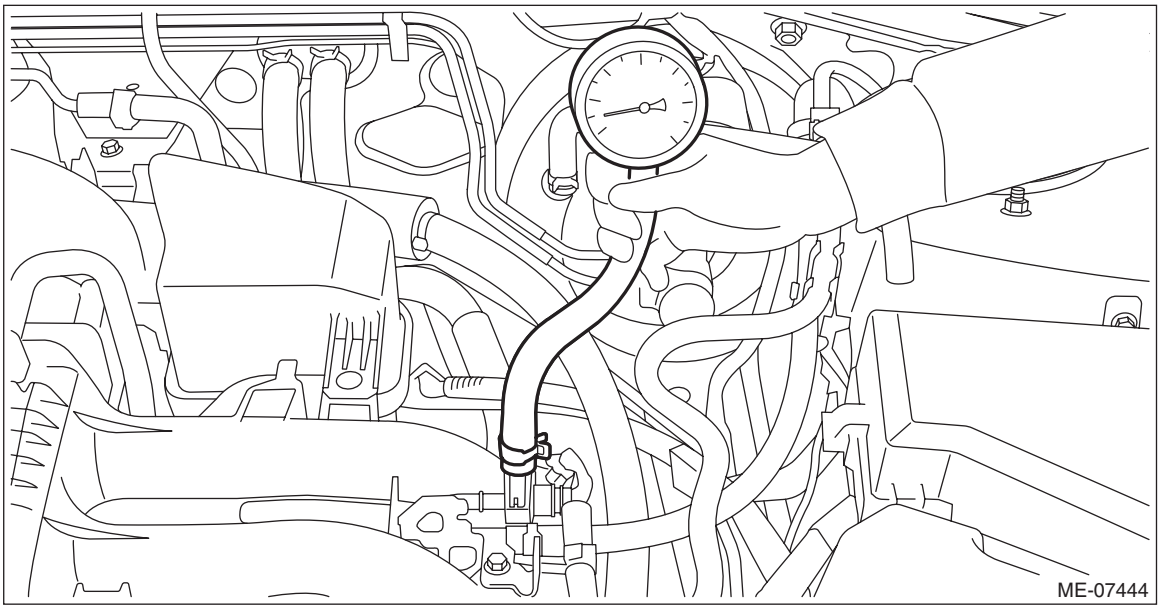
NOTE:
Be careful not to contact the fuel delivery tube when moving the collector cover rearward.



3) Warm up the engine.
4) Install the vacuum gauge. (Gasoline engine model)
   (1) Remove the brake booster vacuum hose from the intake manifold.



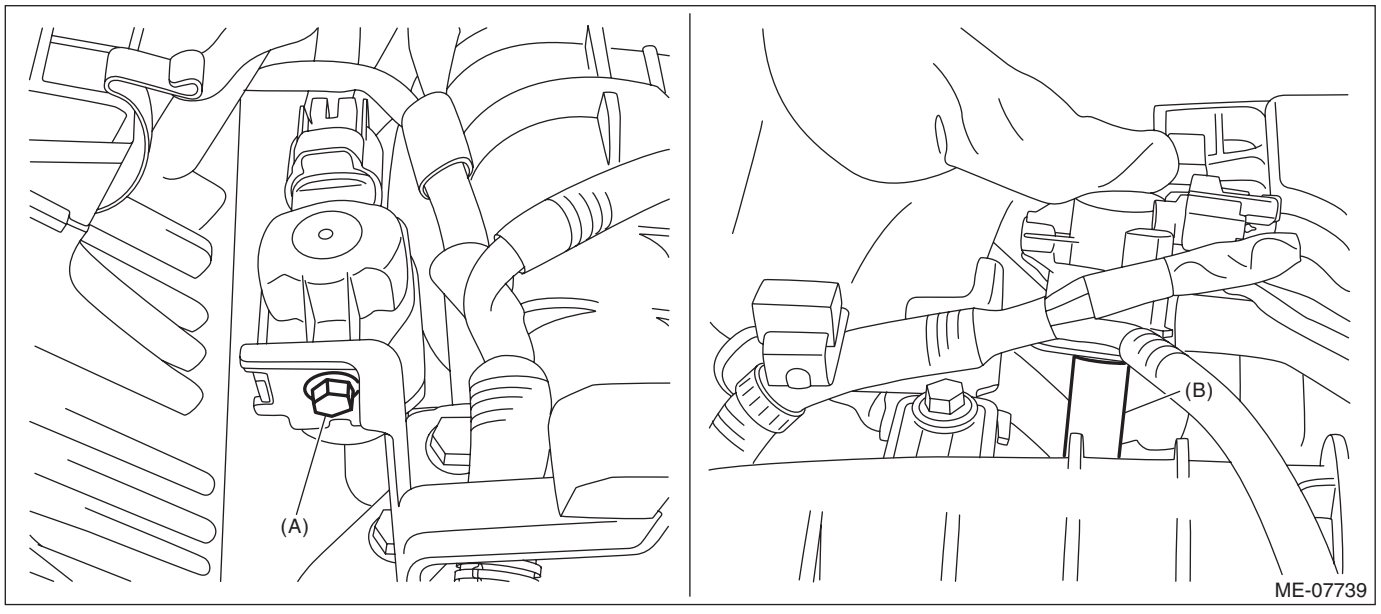
(2) Connect the vacuum gauge to the intake manifold.



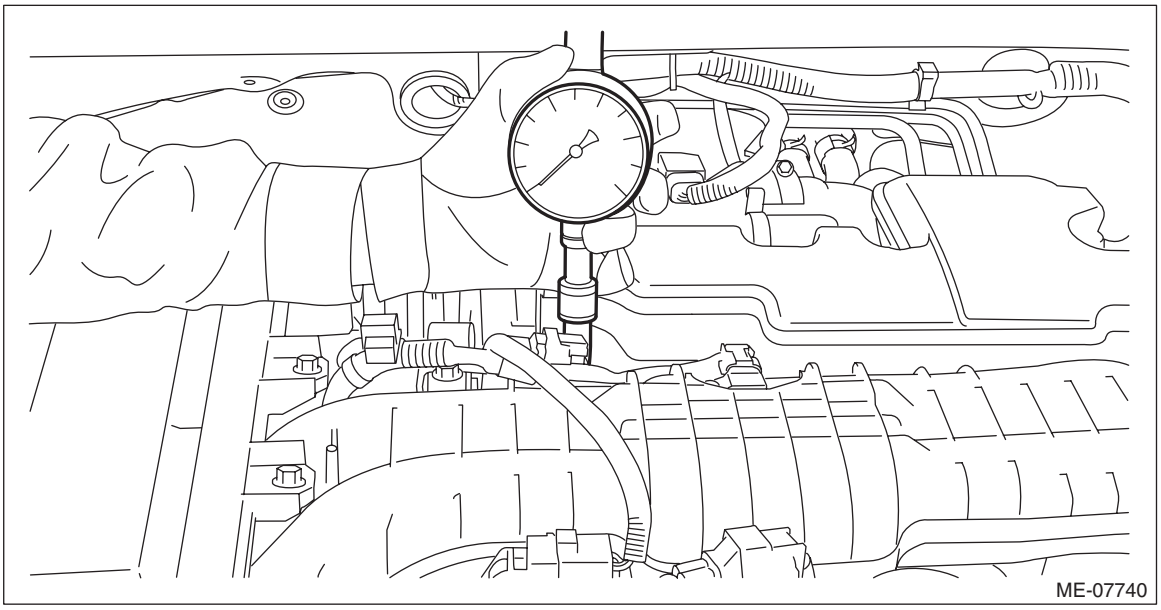
5) Install the vacuum gauge. (HEV model)

(1) Remove the nut (A) which secures purge control solenoid valve to the purge control solenoid valve bracket, and disconnect the vacuum hose (B) from the purge control solenoid valve.

NOTE:
Hold the purge control solenoid valve unit by hand to prevent it from rotating together.



(2) Connect the vacuum gauge to the vacuum hose.



6) Keep the engine at idle speed and read the vacuum gauge indication.

NOTE:
Condition of engine inside can be diagnosed by observing the behavior of the vacuum gauge needle as described in table below.

Intake manifold vacuum (at idling, A/C OFF):
Standard
–60.0 kPa (–450 mmHg, –17.72 inHg) or more

Diagnosis of engine condition by inspection of intake manifold vacuum	
Vacuum gauge needle behavior	Possible engine condition
1. Needle is steady but lower than standard value. This tendency becomes more evident as engine temperature rises.	Leakage around intake manifold gasket, disconnection or damage of vacuum hose
2. Needle intermittently drops to position lower than standard value.	Leakage around cylinder
3. Needle drops suddenly and intermittently from standard value.	Sticky valve
4. When engine speed is gradually increased, needle begins to vibrate rapidly at certain speed, and then vibration increases as engine speed increases.	Weak or broken valve springs
5. Needle vibrates above and below standard value in narrow range.	Defective ignition system

7) After inspection, install the related parts in the reverse order of removal.

NOTE:
When installing the purge control solenoid valve, hold the purge control solenoid valve unit by hand to prevent it from rotating together. (HEV model)

Tightening torque:
6.4 N·m (0.7 kgf-m, 4.7 ft-lb)