

## SUBARU EXHAUST GAS RECIRCULATION

All Models

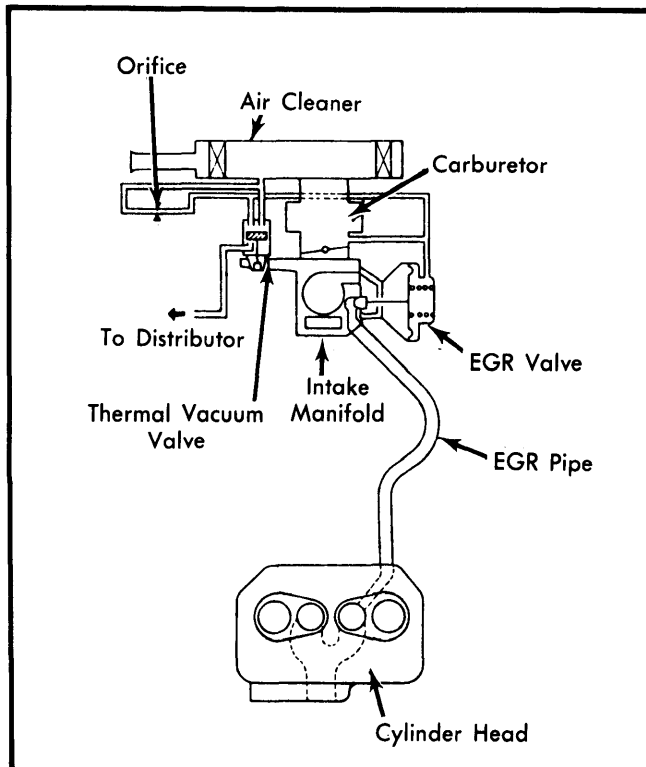
### DESCRIPTION

The exhaust gas recirculation (EGR) system is used to help control formation of NO<sub>x</sub> emissions. By recycling some exhaust gas from the exhaust ports back to the intake system, combustion temperatures are lowered, which helps keep NO<sub>x</sub> emission down. System consists of EGR valve, EGR pipe, thermal vacuum valve and control valve orifice (2-WD Man. Trans. only).

### OPERATION

A vacuum signal is supplied to the EGR valve from a port upstream from the throttle valve. When intake manifold temperature is below 86° F (30° C), the vacuum signal is modulated by an air bleed to the air cleaner. When temperature of the manifold is above 104° F (40° C), the signal is modulated through an orifice on 2-WD Man. Trans. models, and not modulated on 4-WD and Auto. Trans. models.

When the EGR valve is open, exhaust gases flow through the EGR pipe through the valve and into the intake manifold. The strength of the vacuum signal at the EGR valve determines how much exhaust gas is recirculated.



**Fig. 1** Subaru Exhaust Gas Recirculation  
(Man. Trans. 2-WD Models)

### TESTING

#### EGR VALVE

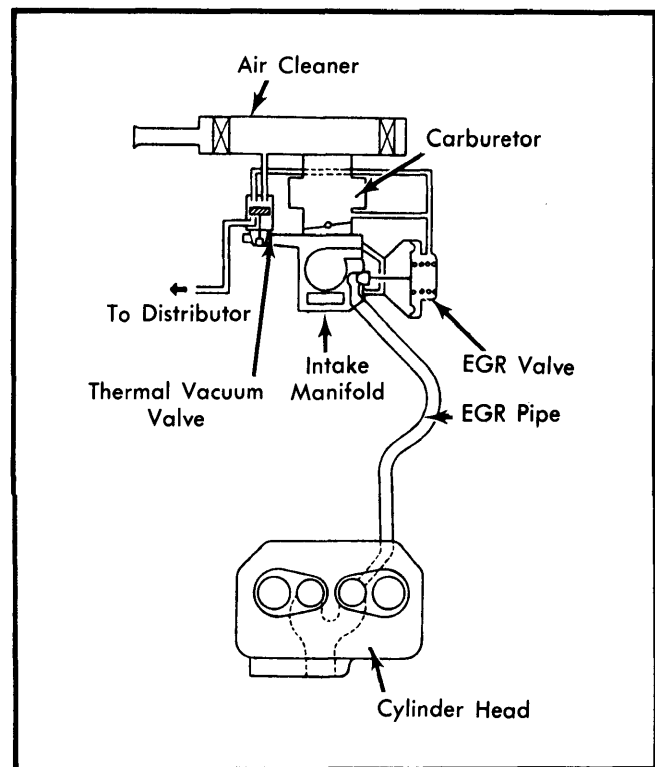
- 1) Looking through opening in EGR valve body, check that valve shaft moves when engine reaches 3000-3500 RPM under no-load condition.
- 2) If shaft does not move as specified, remove valve and manually check valve movement. If valve appears okay, check vacuum lines for leaks.
- 3) If valve does not operate, clean or replace. Check EGR pipe for deposits or clogging.

#### THERMAL VACUUM VALVE

- 1) Remove thermal vacuum valve from intake manifold. Connect hoses to 2 upper ports and cap lower port. Submerge valve in container of water.

**CAUTION** — Do not allow water to enter valve.

- 2) With water below 86° F (30° C), blow air through valve. If air does not pass freely, replace valve. Heat water above 104° F (40° C). No air should pass. If air passes through valve, replace valve.



**Fig. 2** Subaru Exhaust Gas Recirculation  
(Auto. Trans. & 4-WD Models)