3. Immerse the water thermostat in a boiling antifreeze and water mixture.
4. See the General Specifications chart for water thermostat opening temperatures.

Radiator Leak Test, Removed From Vehicle

CAUTION: Never leak test an aluminum radiator in the same water that copper/brass radiators are tested in. Flux and caustic cleaners may be present in the cleaning tank and they will damage aluminum radiators .

NOTE: Always install plugs in the oil cooler fittings before leak-testing or cleaning any radiator.

NOTE: Clean the radiator before leak-testing to avoid contamination of tank.

1. Leak-test the radiator in clean water with 138 kPa (20 psi) air pressure.

Fan Clutch Test

1. Spin the fan blade (8600) by hand. A light resistance should be felt. If there is no resistance or very high resistance, the minimum and maximum fan speeds must be checked as follows:

Fan Clutch Test—Minimum Speed Requirement

1. Use a suitable marker to mark the water pump pulley (8509), one of the fan blade retaining bolts and the crankshaft pulley (6312).
2. Connect a tachometer to the engine.
3. Install a throttle adjusting tool.
4. Connect the Digital Photoelectric Tachometer.
5. **WARNING: To avoid the possibility of personal injury or damage to the vehicle, do not operate the engine until the fan blade has been first examined for possible cracks and separation.**

   Start the engine and run it at approximately 1500 rpm until the normal operating temperature has been achieved.
6. Adjust the engine speed to 2300 rpm.
7. Operate the strobe light at 3000 rpm and aim it at the water pump pulley. Adjust the engine speed until the light flash and the water pump pulley mark are synchronized.
8. Aim the strobe light at the fan blade bolts. Adjust the strobe light until the light flash is synchronized with the marked fan blade bolt (the fan blade appears to stand still).
9. The fan blade speed must not be greater than 1500 rpm at 3000 water pump rpm.

10. Turn the engine off.

11. If the fan blade speed was greater than 1500 rpm, replace the fan clutch (8A616).

Fan Clutch Test—Maximum Speed Requirement

1. Perform Steps 1 through 5 of the Fan Clutch Test—Minimum Speed Requirement.

2. **NOTE:** The temperature should be above 96°C (205°F) for maximum fan speed.

   Block off areas on each side of the radiator in the engine compartment and the front of the radiator grille (8200). This will raise the temperature of the air striking the fan clutch and should cause the fan blade to operate at maximum speed.

3. Place the climate control function selector switch in the MAX A/C position and the blower motor switch in the HI position.

4. Adjust the strobe to 3000 rpm.

5. **WARNING: To avoid the possibility of personal injury or damage to the vehicle, do not operate the engine until the fan blade has been first examined for possible cracks and separation.**

   Start the engine and adjust the engine speed until the strobe light flash and the water pump pulley mark are synchronized.

6. Aim the strobe light at the fan blade retaining bolts. Adjust the strobe light until the light flash is synchronized with the marked fan blade bolt (the fan blade appears to stand still).

7. If the fan blade speed is less than 2300 rpm, replace the fan clutch.
