

# Engine Cooling Systems

## VARIABLE SPEED COOLING FANS

### FLEX-BLADE FAN

American Motors  
Cadillac  
Ford Motor Co.  
Pontiac

#### DESCRIPTION

This unit is a fixed blade assembly designed to flex the blades as the engine RPM increases. As RPM increases blade pitch decreases, thereby saving power and decreasing noise level. No adjustment or test is required beyond keeping the fan belt adjusted to the proper tension.

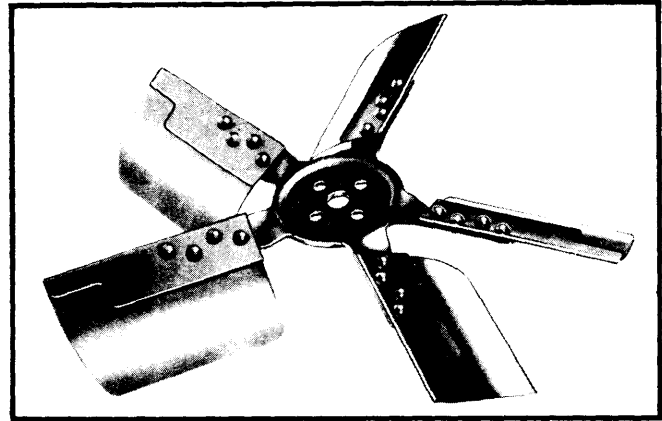


Fig. 5 Flex-Blade Fan

## FAN CLUTCH WITH THERMOSTATIC CONTROL

American Motors  
Chrysler Corp.  
Ford Motor Co  
General Motors

#### DESCRIPTION

All air conditioned models use a thermostatically controlled fluid fan and torque control clutch. The thermal control drive is a silicone filled coupling connecting the fan to the fan pulley, and is operated by a control valve. Control valve is operated by a temperature sensitive bimetal coil or strip and controls the flow of silicone through the clutch. During periods of operation when radiator discharge air temperature is low, the fan clutch limits the fan speed. High radiator discharge air temperature causes bimetal to allow a greater flow of silicone to enter the clutch. This increases the drag between the driven member and driving member resulting in a higher fan speed and increased cooling.

#### TESTING

In cases of engine overheating or insufficient air conditioning proceed with the following:

- 1) Start with a cool engine to ensure complete fan clutch disengagement.
- 2) Cover radiator grille sufficiently to induce high engine temperature.
- 3) Start engine and operate at 2000 RPM, turn on air conditioning if equipped.

4) A fan roar will be noticed when the fan clutch engages.  
**NOTE** — It will take approximately 5 to 10 minutes for the temperature to become high enough to allow engagement of the fan clutch. While operating engine under these conditions, observe temperature light to prevent overheating. If hot light comes on, remove cover from radiator grille.

5) As soon as the clutch engages, remove the radiator grille cover and turn the A/C off to assist in engine cooling.

6) After several minutes the fan clutch should disengage. This can be determined by a reduction in fan speed and roar. If the fan fails to function as described, it should be replaced.

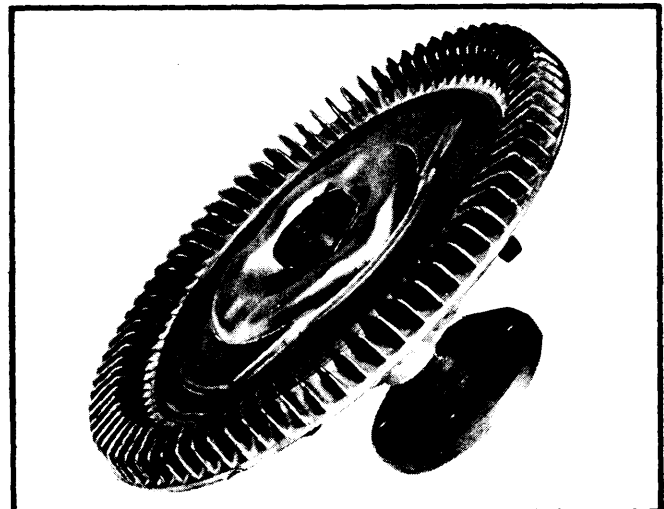


Fig. 6 Thermal Control Fan Drive