VARIABLE SPEED COOLING FANS

FAN CLUTCH WITH THERMOSTATIC CONTROL

DESCRIPTION

This unit consists of 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 (which 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. Cover radiator grille sufficiently to induce high engine temperature.

2) Start engine and operate at 2000 RPM and turn on air conditioning (if equipped). A fan roar will be noticed when the fan clutch engages. *NOTE — It will take approximately 5-10 minutes for the temperature to become high enough to allow engagement of fan clutch. While operating engine under these conditions, observe temperature light to prevent overheating. If hot light comes on, remove cover from radiator grille.*

3) As soon as the clutch engages, remove the radiator grille cover and turn the air conditioning off to assist in engine cooling. 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.

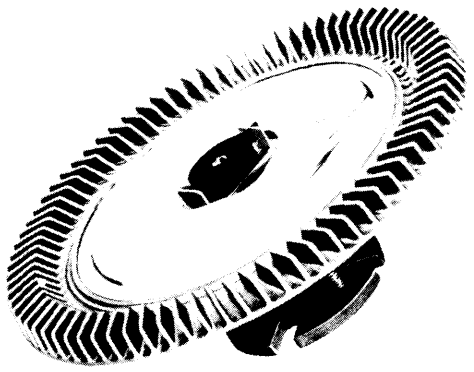

Fig. 1 Thermal Control Fan Drive Unit

FAN CLUTCH WITHOUT THERMOSTATIC CONTROL

DESCRIPTION

This unit is basically the same as the thermostatically controlled fan clutch except it is not controlled by a temperature sensitive coil. It allows the fan to be driven in normal manner at low speeds while limiting the top speed of the fan to a predetermined level at higher speeds. The silicone in the clutch housing provides a more positive drive at lower speeds and allows greater slippage between the driven member and driving member at higher engine speeds.

TESTING

In case of engine overheating during low car speed or idle operation, increase engine speed to approximately 1000 RPM in neutral gear. If condition is not corrected by increasing engine speed, replace fan drive unit with a unit that is known to be operating properly and test by operating vehicle under same conditions. Replace unit assembly if trouble is corrected with test unit. All units are non-adjustable and if damaged or not operating properly they must be replaced.

FLEX-BLADE FAN

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 and ensuring that unit is not damaged.

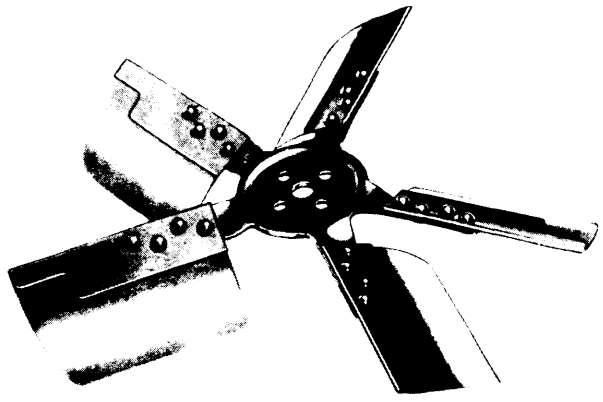

Fig. 2 Typical Flex-Blade Fan