HINO TRUCKS™
A Toyota Group Company

Tech Tip No:	06 - 007
Group:	16 – Cooling System
Issue Date:	7-18-2006

ENGINE TECH TIPS

Subject: FAN CLUTCH DIAGNOSTICS

1. **RELEVANT MODELS:**
   All Models

2. **COMPLAINT:**
   Engine coolant temperature increasing to abnormally high readings usually noticed at higher speeds, under load, or on long grades.
   Poor A/C quality and the A/C compressor is cycling irregularly.

3. **CAUSE:**
   Poor air flow across the A/C condenser, intercooler, and radiator cores.

   The A/C high side head pressures may reach 400 psi. Which would cause the high-pressure switch to open circuit and shut down the compressor. Once the pressures return to a safe level the switch would close and the compressor will start pumping only to shut off again when the abnormal high side pressure returns.
   This lack of air will also affect the efficiency of the cooling system possibly causing an overheating situation

   NOTE: Verify that there is no debris causing an airflow restriction as per Tech Tip "ENGINE OVERHEATING"

Vendor Ref:

ENGINE TECH TIPS

4. CORRECTION:

To diagnose clutch fan operation with Hino Diagnostic Explorer.

A) Park vehicle outside
B) Select engine coolant temperature parameter.
C) Set engine to desired RPM.
D) Block off front of radiator to restrict airflow.
E) Monitor at what engine coolant temperature the fan engages.
F) Remove restriction from front of radiator and monitor at what engine coolant temperature the fan disengages.

The fan clutch can also be diagnosed by using a Fluke meter with a Temperature Sensor inserted into the radiator core.

A) Park the vehicle outside
B) Insert the Fluke temperature sensor thru the radiator core
C) Set engine to desired RPM.
D) Block off front of radiator to restrict airflow.
E) Monitor Fluke meter to determine at what temperature the fan engages.
F) Remove restriction from front of radiator and monitor at what temperature the fan disengages.

5. FAN CLUTCH OPERATING RANGE:

Temperature range for clutch fan.
50 degrees to 85 degrees Celsius
122 degrees to 185 degrees Fahrenheit

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