

## Electronic Fan Clutches



With over 60 years of manufacturing and engineering experience, Hayden<sup>®</sup> Automotive is your aftermarket source for premium quality electronic fan clutches, manufactured in our North American ISO:9001 certified facility.

- Components are machined and assembly balanced using a 3-D design validated by dynamic testing to less than 1 oz-in tolerance
- Inner clutch grooves are machined to tolerances of .001 of an inch using precision CNC processes and assembly
- Premium grade silicone to provide faster response time to your vehicle's ever changing cooling demands
- Manufactured using high quality bearings for trusted durability and performance
- Operates at the same PWM frequency as the O.E. it replaces
- O.E. matching electronics and circuitry
- Assembled with high quality pressed fit bearings and validated using 250 hour durability test

# FAN CLUTCH TROUBLESHOOTING GUIDE

Hayden's engineering team has over 60 years of experience in the engineering and development of fan clutches. This expertise has enabled us to maintain several manufacturing certifications and to create consistent quality in every fan clutch we build. Fan clutches operate at different speeds and conditions and testing must be performed at every level of operation. Critical performance aspects of a fan clutch include engagement and disengagement temperatures, duty cycle speed, disengagement RPM, engagement RPM and torque. Hayden takes the time to measure each of these critical performance indicators for every O.E. fan clutch we design. This level of commitment delivers a part that will match O.E. performance in every facet. Below are some key factors that affect fan clutch performance and vehicle cooling.

Before replacing, check all of the following:

- Bent, cracked or missing fan blades
- O.E. fan blades in use (Hayden® fan clutches are designed to be used with the O.E. fan blade)
- Oil streaks, black marks or excessive dirt collection on the fan clutch as a sign of leaks
- Play in the fan clutch (no more than 1/4" forward/back at fan blade tip)
- Ensure all air dams are in place
- Fins of the condenser, radiator, oil coolers or intercoolers are straight and free of debris
- No debris between condenser and radiator to obstruct air flow
- Cooling system has been serviced and maintained to manufacturer specifications
- Radiator has no blockages or hot spots
- Functioning thermostat
- Cooling system hoses are new or match O.E. specifications
- Water pump functioning and in good condition
- Electric fan clutch harness is routed away from fan blades and free of kinks, sharp bends or other wire damaging conditions
- PCM is updated to the latest firmware version
  - PCM monitors transmission temperature, A/C head pressure, A/C demand, coolant temperature, engine speed and engine load which all determine electric fan clutch engagement and disengagement

## IMPORTANT

- Do NOT replace EV fan clutch unless a specific issue is identified by proper SI (Service Indicator/ Check Engine) diagnosis
- Do NOT replace an EV fan clutch for fan noise
- Do NOT replace an EV fan clutch unless a specific condition related to the EV fan clutch is identified using SI diagnostics. If the EV fan clutch has a condition that warrants replacement, a DTC (Diagnostic Trouble Code) should set and/or SI diagnostics should lead to the replacement of the fan clutch
- Do not attempt to replace EV fan clutch without proper tools. Please refer to manufacturer requirements for proper tools and replacement
- Always check motor and transmission mounts to prevent fan blade contact with wire harness. Subsequent damage is not covered via warranty

◆ **In the event an electronic fan clutch harness is cut or damaged by the fan blade, the common causes are improper routing of the harness and worn or defective engine/transmission mounts. These instances are NOT covered by the manufacturer's warranty.**