Service Bulletin

TECHNICAL

Subject: Diagnostic Information To Consider Prior To A/C Compressor Replacement

Models: 2004 and Prior Passenger Cars and Light Duty Trucks
2004 and Prior HUMMER H2

An analysis of A/C compressors that had been replaced for noise, vibration and insufficient cooling concerns has indicated a high number of "no trouble found" results. Further studies have shown that the root cause of the customer concerns that might lead to a compressor replacement was often a state of refrigerant charge issue or in another area or system of the vehicle.

The A/C system refrigerant charge level, either high or low, has been found to be a major contributor to unnecessary compressor replacement. The ability of a properly maintained and calibrated refrigerant recovery/charge machine to recover and measure the weight of the A/C system refrigerant charge will help the technician make a more accurate diagnosis of a charge level concern prior to any component replacement.

A thorough visual inspection should always be performed before any tests or repairs are done. Doing so may find an obvious problem that will save time and eliminate the need for extensive diagnosis. Some additional items, as listed below, should be considered before a compressor is replaced for noise, vibration or insufficient cooling concerns.

- The compressor mounting bolts, brackets or braces may be loose or missing.
- The compressor drive belt may be frayed, loose or misaligned.
- The A/C refrigerant lines may be grounding out on body, chassis or engine components. This may allow noise and vibration to be transmitted into the passenger compartment.
- The airflow through the condenser may be insufficient.

  -The condenser fins may be bent or filled with debris.

  -The space between the condenser and radiator may be filled with leaves or debris.

  -The cooling fans may be inoperative.

  -The installation of aftermarket accessories may alter or restrict the airflow through the condenser.
- Air deflectors, baffles, seals, and shrouds may be missing or mispositioned.
- The compressor cycling switch may not be operating correctly. This may allow the evaporator core to freeze up or the compressor may not stay engaged long enough to develop proper system pressures.
- The airflow through the evaporator core may be restricted.

  -The cabin filter may be plugged.

  -The evaporator core may be covered with debris.

  -The cowl air inlet leaf screen may be plugged.

- The A/C system may be over or undercharged with refrigerant.

- The A/C system may contain an improper amount or incorrect type of refrigerant oil. Only GM approved refrigerant oils should be used.

- The vehicle's refrigerant may be contaminated or contain an excessive amount of air.

- The orifice tube or TXV may be restricted, plugged or inoperative.

  -The capillary bulb on the TXV must be properly positioned so that the valve will provide proper refrigerant flow.

- The desiccant bag in the accumulator may have failed, allowing debris to circulate in the A/C system.

- The A/C system charge weight may have been changed. Updated components updated design may have been released. Check for service bulletins applicable to the vehicle being diagnosed.

- Check for diagnostic trouble codes in all the control modules on the vehicle should be done. Some trouble codes will disable compressor operation after they have set. They must be repaired and cleared before compressor operation is allowed.

- The diagnostic procedures in the HVAC section of the vehicle’s service manual should be performed as written to prevent the misdiagnosis of a customer concern.

  -HVAC diagnostic system checks and A/C system performance tests are written for a specific model only. They are not generic charts and follow a logical order with detailed instructions on how to perform each step.

When a thorough HVAC system diagnosis indicates that the compressor should be replaced, follow the procedure in the vehicle’s service manual. The oil balance instructions are an important part of the replacement procedure. The correct refrigerant oil, as listed in the service manual, must be used in the new compressor.

It is recommended that a suction screen filter be installed on Delphi compressors that do not already have one. The suction screen filter is not approved for use on compressors from other manufacturers. If the compressor has had a catastrophic internal failure, an inline filter may be required to capture the large amount of debris that may be found to be circulating in the A/C system. In addition, the A/C system may require flushing.

The addition of fluorescent refrigerant leak dye to the A/C system is recommended if the vehicle does not have it installed already. Some vehicles have leak dye installed at the assembly plant. If leak dye has been added during a previous repair and has been in the vehicle for more than three years, it is recommended that additional dye be added. Finally, a leak check of the entire A/C system should be performed before the vehicle is returned to the customer.