

Bulletin No.: 01-01-38-013A

Date: October 29, 2003

INFORMATION

Subject:

Diagnostic Information To Consider Before Air Conditioning Compressor Replacement

Models:

1993-2004 Passenger Cars and Light Duty Trucks

Supersede:

This bulletin is being revised to add the 2004 model year and add information for clarification. Please discard Corporate Bulletin Number 01-01-38-013 (Section 01 - HVAC).

A recently completed analysis of air conditioning (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 the ACR 2000 Refrigerant Recycling/Recharging Tool 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 air flow 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 or not performing as designed.
- The installation of aftermarket accessories may alter or restrict the air flow through

the condenser.

^ Inspect for missing or mispositioned air deflectors, baffles, seals and shrouds.

^ 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 for proper system pressures to develop.

^ The air flow 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 overcharged or undercharged with refrigerant. The A/C system charge weight can be measured with the ACR 2000 after a refrigerant recovery is done.

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

^ An A/C system sealer is not approved for use in GM vehicles.

^ The vehicle's refrigerant may be contaminated or contain an excessive amount of air. The vehicle's A/C system may have been charged with an unapproved refrigerant. The refrigerant identifier on the ACR 2000 should alert the technician to these conditions.

^ The orifice tube or thermostatic expansion valve (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. Components with an updated design may have been released. A check for service bulletins applicable to the vehicle being worked on should always be done.

^ A 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.

^ Verify that the engine is not operating with a low unstable idle, and that the engine is operating within the compressor engagement parameters (for example; the engine may be overheating or it may be too cold for compressor engagement).

^ The diagnostic procedures in the HVAC section of the Service Manual should be performed as written to prevent the misdiagnosis of a customer concern. The HVAC

Diagnostic System Check and the A/C System Performance Test are written for a specific model only. They are not generic charts. They follow a logical order with detailed instructions on how to perform each step.

^ The Technical Assistance Center may be contacted for additional help and the latest information on any unusual concerns.

When a thorough HVAC system diagnosis indicates that the compressor should be replaced, follow the procedure in the appropriate 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 Harrison compressors that do not already have one. The suction screen filter is not approved for use on compressors from other manufacturers. Refer to Corporate Bulletin Number 01-01-39-003A for more information on A/C suction screen kit repair recommendations and procedures. 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. Refer to Corporate Bulletin Number 01-01-38-006B for more information on flushing procedures and recommendations.

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 and this will be indicated on the A/C charge label. Refer to Corporate Bulletin Number 00-01-38-009B for more information. 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.

Important: For all GM paid repairs, the charge summary printout from the ACR 2000 is still required to be attached to the shop copy of the repair order. The warranty code must be submitted in the warranty claim information in the comment field. This code provides valuable information about the repair to General Motors for product quality improvement.