FACTORY AIR™ by 4 SEASONS

TECH TIP

Compressor Failures

The failure of an a/c compressor can be the result of several factors. When a compressor needs to be replaced, care should be given to diagnose the reason for the failure. The replacement compressor might also fail rapidly if the problem, which caused the replacement, has not been diagnosed and corrected. One of the more common failures is caused by the compressor functioning without the proper amount of lubricant. The technician installing a compressor needs to comply with the manufactures recommendation and insure that the proper amount of lubricant has been placed in the a/c system. When the compressor is operating normally, the lubricant does not stay in the compressor. The lubricant continually flows through the a/c system. The oil flowing through the system in necessary to keep the compressor properly lubricated. If a problem develops that impedes the proper flow of the lubricant, a rapid premature compressor failure will occur. There are many reasons why the lubricant's ability to flow might be changed.

The refrigerant takes small portions of the lubricant with it as it moves through the system. This flowing of oil keeps the a/c system working properly. As the compressor moves the refrigerant gas from the low side to the high side, it also carries the oil. If a failure occurs which lets the oil escape from the refrigerant's grip, or if some problem impedes the flow of oil, the a/c system is headed for failure.

- Most compressors are being shipped without the proper amount of oil recommended by the manufacturer. It is up to the installer to determine the proper amount to be added to the compressor. If the installer does not follow the manufactures' recommendation, the compressor could be damaged due to lack of lubricant. Install ½ of the recommended oil amount in the compressor and the other ½ in the accumulator.

- The A/C system with an improper amount of refrigerant can affect the flow of lubricant. If there is not enough refrigerant in the system the movement of lubricant will be greatly affected. There will not be enough lubricant carried with the smaller amount of refrigerant. If the system is over charged, the flow of lubricant can be adversely affected by the higher head pressure, and the possibility of pooling in the condenser and or drier.

- If a leak develops anywhere in the pressurized system, the oil will also leak out. A considerable amount of oil can leak out in a very short period of time. In many systems, a compressor failure can occur after a very small amount of oil has leaked out. When installing a replacement compressor, remember that improper compressor mounting torque can contribute to leaks and/or noise.

- A problem can arise when the condenser has been impacted with a heavy load of contaminates. The installer flushes the condenser and assumes that since the flush came out clean the condenser was clean. **Most modern condensers are "dual pass".** This means that the high-pressure line from the compressor comes into the condenser at the top and splits into at least two parallel passages. **If one of these passages happens to be clean, and the other is totally clogged, the flush will follow the path of least resistance and flow through the open side.** This leaves a tremendous amount of contaminates in the system unnoticed by the installer. If a significant amount of these contaminates leaves the condenser, it will flow to other components and will cause the slowing or stoppage of the lubricant flow. The proper installation of an inline filter can help to avoid this problem.

Note:

On Ford products with an FS10 or an FX15 compressor that has had a major failure, or GM products with a DA6 compressor with broken Teflon rings and a dual path condenser, you must to replace the condenser.