

## TECH TIP

### Shaft Seal Lubrication

Compressor shaft seals are thoroughly lubricated during the assembly process. However, when a compressor is on a shelf for an extended period of time, the lubricant can ‘run off’ the seal, leaving it virtually dry. Without lubrication, the seal cannot do its job. After adding oil to the compressor, be sure to stand the compressor on its clutch or nose for about one minute. This allows oil to coat the seal again. After the compressor is mounted on the vehicle, turn the clutch hub ten to fifteen times. This serves two functions:

- First, to move the oil off the pistons without damaging the reed valves
- Second, to lubricate the ‘sealing surface’ of the seal.

If this procedure is omitted, the sealing surface may be dry when the compressor is first engaged. This could instantly damage the seal causing a leak.

Often, when installing a compressor, oil may be found in the nose of the compressor. This does not mean the seal is leaking. It is usually oil from the assembly process. Also, oil seepage may occur at the seal, since oil is what actually makes the seal work. This too does not mean the seal is leaking. Every seal has two sealing or mating surfaces: a rotating surface and a stationary surface. These two mating surfaces must have a film of oil between them in order to seal. Slight oil seepage is a result of this lubricating film.

If a dye is used in the system, the dye may be seen in the compressor nose as well. The presence of dye does not always indicate a refrigerant leak because dye mixes with the oil. Since oil will seep past the seal by design, dye can be found in the compressor nose. A seal leak must be proven by the use of an electronic leak detector. If the detector does not locate any refrigerant at the clutch, the seal is good.

One final note: most shaft seals require a ‘run-in’ time of operation to ‘seat’ the sealing surfaces. This can be as little as ten minutes or as much as two hours of compressor operation. The seal needs to complete the ‘run-in’ time before it is declared a ‘leaker.’