TECH TIP

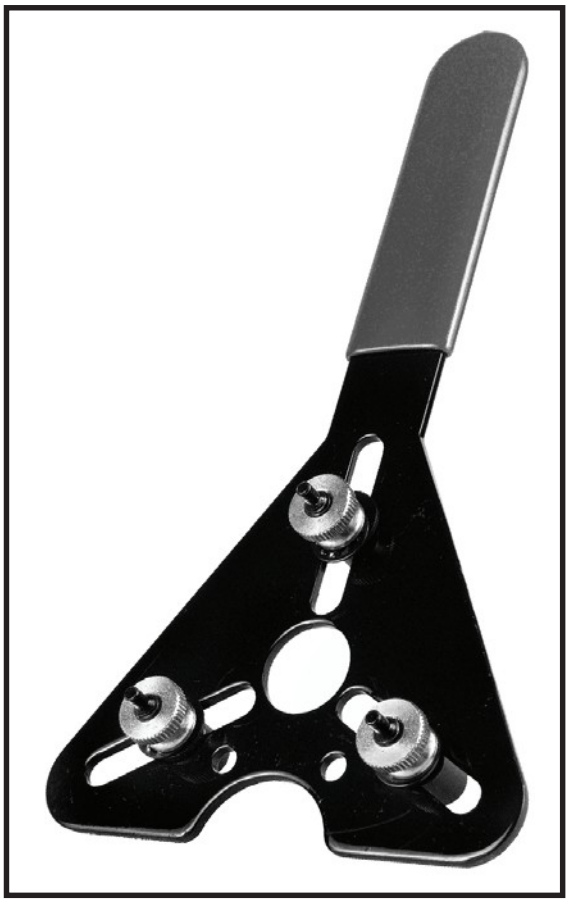
BREAK AWAY TORQUE AND THE SPANNER WRENCH

The Compressor Installation Procedure guide, supplied with all remanufactured and new compressors, instructs the installer to rotate the compressor crankshaft a minimum of ten revolutions prior to beginning compressor operation. Many of the compressors we supply (new and remanufactured) require the use of a spanner wrench to rotate the crankshaft.

Many compressors have a significant "break away torque," which is the amount of turning force needed to start the compressor crankshaft moving. The amount of force needed to continue turning a compressor crankshaft is "rotational torque." It takes more torque to start a crankshaft turning than it takes to continue turning the crankshaft.

Several factors contribute to the 'Breakaway Torque' of a compressor:

- Some compressors are being shipped dry. Lubrication between the cylinder walls and piston rings will be at a minimum.
- The normal friction between the new piston rings and the fresh cylinder walls will take more force to move the piston.
- Compressors may sit on the shelf for several months before being sold to a service dealer. This will cause pistons rings to form to the cylinder walls, which will cause the piston to require more torque to move.



Delphi Harrison indicated that new compressors may require as much as 200 inch pounds (17 foot pounds) to reach "break away torque". The remanufactured units we tested required as much as 175 inch pounds (15 foot pounds) to reach the point where the compressor crankshaft would rotate. This amount will probably exceed most technicians' ability.

The use of the crankshaft nut to turn the crankshaft may:

- Damage the end of the crankshaft by over tightening the nut.
- Shear off the end of the crankshaft at the nut.
- Damage the crankshaft nut by "rounding it off."
- Change the compressor hub to pulley air gap.
- Add to technician confusion when it is noticed that the NEW Delphi/Harrison compressors come without a nut on the end of the crankshaft.

For the above reasons, we strongly recommend using a spanner wrench to rotate the compressor crankshaft during installation.