

APPLICATION BULLETIN

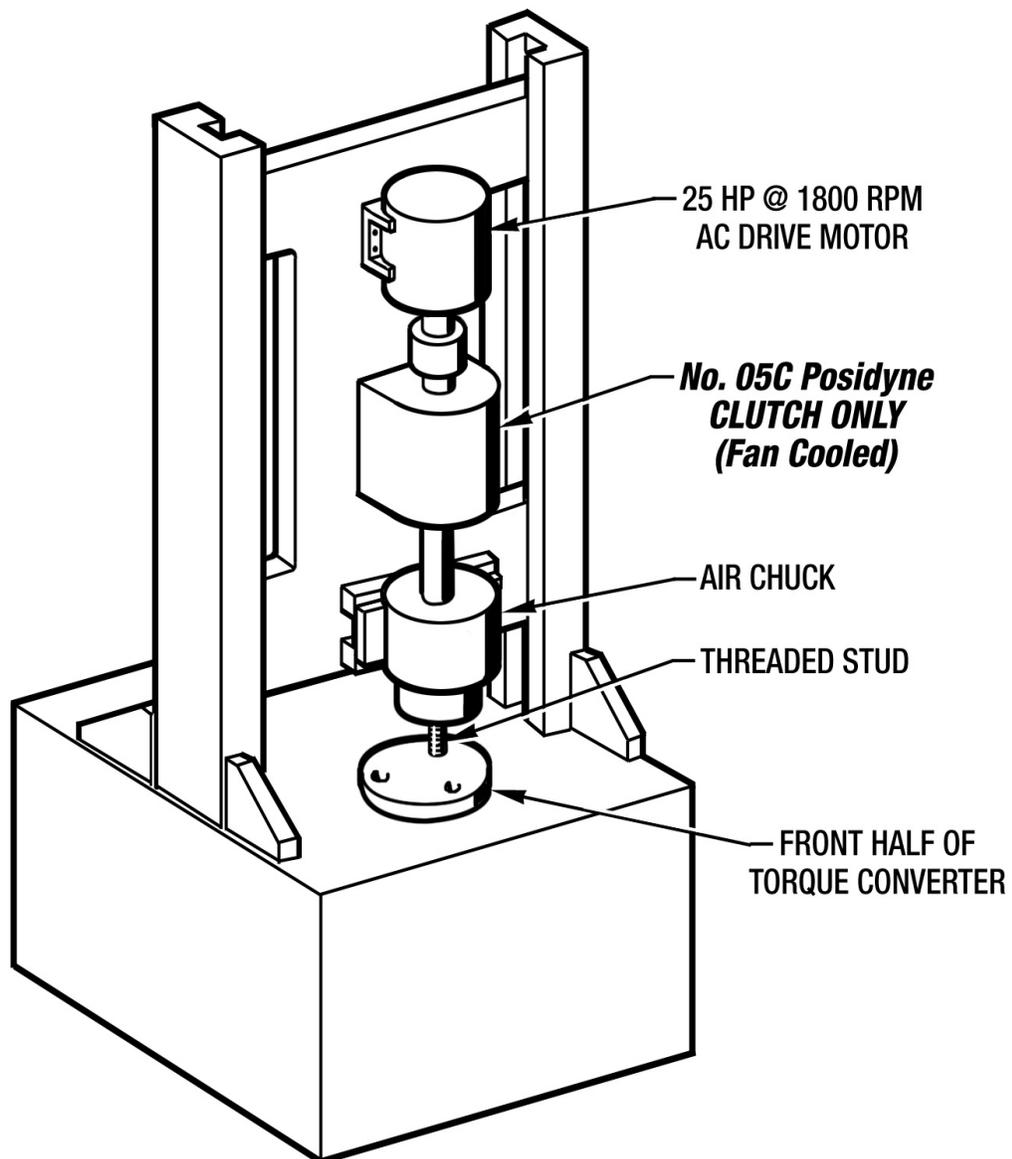


APPLICATION: Spin Welder Drive

INDUSTRY: Automotive Industry

PRODUCT: Oil Shear *Posidyne* Clutch Only

SPIN WELDER DRIVE



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DRIVE REQUIREMENTS: The drive is to accelerate an air chuck, which holds a threaded stud for spin welding to the front half of a torque converter. Spin welding involves high speed rotation of the stud as it is forced against a stationary part. By doing this, kinetic energy is converted into heat, and the two parts are fused together.

APPROACH: The appropriate size **Posidyne** (Clutch Only) Model C is used to connect. an AC motor to an air chuck. These three components of the machine are mounted on a common base, which can be either horizontally or vertically mounted dependent upon basic machine design. In the case of the vertical unit, this assembly is stroked up and down by hydraulic cylinders.

The cycle begins when two parts are loaded into the machine, one (the stud) into the air chuck and the other (the housing) into the stationary fixture positioned below the air chuck. After loading, the drive assembly is moved down, forcing the stud against the housing to assure contact alignment and that the parts are locked into place. The drive assembly is then moved slightly away from the housing. The **Posidyne** clutch is then engaged accelerating the air chuck and stud to the AC motor speed. With the air chuck and stud spinning, hydraulic cylinders force the drive assembly and stud down against the fixed housing with a required force. The frictional heat resulting in contact builds up very quickly, and only a few milliseconds are required to reach the temperature necessary to fuse the two parts together. When that point is reached, the clutch is disengaged and friction between the two parts stops rotation of the air chuck. The weld is then allowed to cool for a few seconds. The air chuck releases and the drive assembly moves upward away from the now welded assembly. The cycle is complete.

FEATURES:

- The process is simple-no flux, filler or shielding gas is required, as the work pieces themselves supply all that is needed.
- The **Posidyne** Clutch brings the work piece up to speed rapidly and high cycle rates are obtainable because of superior thermal dissipation of the clutch.
- A properly applied clutch gives millions of trouble-free actuations.
- The Spin Welder can be operated by personnel with very little training, as the operator's function is merely to load, start and unload the machine.



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