

BEARING INSTALLATION AND RETENTION

ENGINEERING DATA

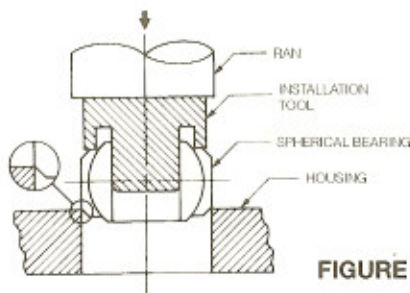


FIGURE 30

SPHERICAL BEARING INSTALLATION

Use of an arbor press or hydraulic press is recommended. Under no circumstances should a hammer or any other type of shock including impact method be used. A suitable installation tool (as shown in Figure 30) is advised. A guide pin aligns the ball in a 90° position, but all force is applied to the outer race only. A lead chamfer or radius on either the bearing or housing is essential.

STAKING PROCEDURE:

1. Install bearing into housing per Figure 30 and position it symmetrical about housing centerline within .005" (0.127 mm).
2. Mount bearing and top anvil over bottom anvil guide pin as shown in Figure 31.
3. A trial assembly should be made for each new bearing lot to determine the staking force necessary to meet the axial retention load required. Excessive force should be avoided since this may result in bearing distortion and seriously impair bearing function and life. (See Staking Force, Page 21.)

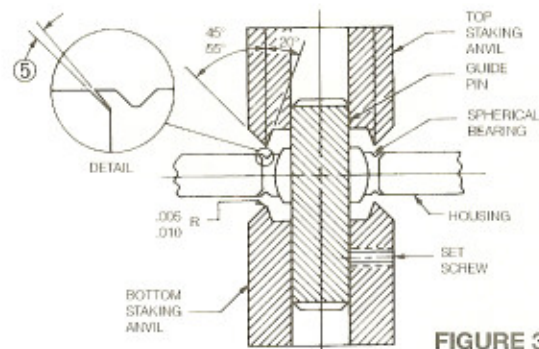


FIGURE 31

V-GROOVE RETENTION (V-GROOVE SERIES)

For bearings with race staking grooves, a double anvil staking method as shown in Figure 31 is recommended. This method is best performed on a hydraulic or pneumatic press.

4. Apply the staking force established by trial assembly, rotate assembly 90° and re-apply force. Repeat operation through a minimum of 3 rotations to ensure 360° uniformity of lip swaging.
- ⑤ After staking, a slight gap may exist between race lip and housing chamfer as shown in detail in Figure 31. This gap should not be a cause for rejection providing bearing meets the thrust load specified.

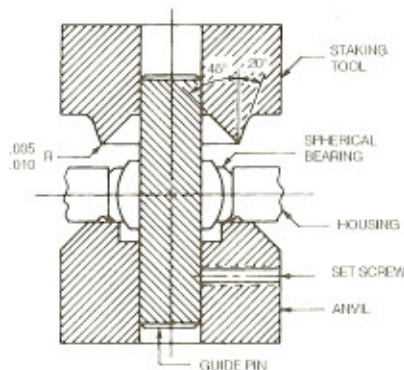


FIGURE 32

HOUSING STAKE RETENTION (CHAMFERED BEARING SERIES)

Retention of chamfered bearings may be accomplished by many methods and may vary according to housing configuration, material, hardness and the axial thrust load required. When axial loads are light to moderate, a housing ring staking tool as shown in Figure 32 may be used. The bearing and housing are supported by an anvil while the annular staking tool is forced into one side of the housing flaring a small amount of the housing material over the race chamfer. The opposite side of the housing is then staked in the same manner. When this method is used, the housing crosshole edges should be sharp to a .005" (0.13 mm) maximum radius or chamfer. As with the V-groove staking, excessive staking forces should be avoided in order to prevent deformation of the spherical bearing.

LINED JOURNAL BEARING INSTALLATION

The same general procedure as outlined for spherical bearings should be followed. (See Figure 30). In the case of fabric lined bores, however, it is mandatory that both the insertion tool guide pin and the mating shaft have ends free of both burrs and sharp edges. A .030" (0.76 mm) blended radius or 15° lead (as shown in Figure 34) is recommended, since it is virtually impossible to install a sharp edged shaft without inflicting some damage to the fabric liner. For maximum support of the fabric lined bore, the effective length of the insertion tool guide pin should exceed the journal bearing length.

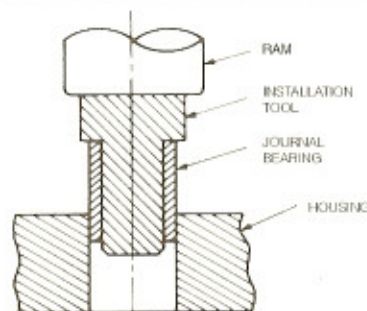


FIGURE 33



FIGURE 34