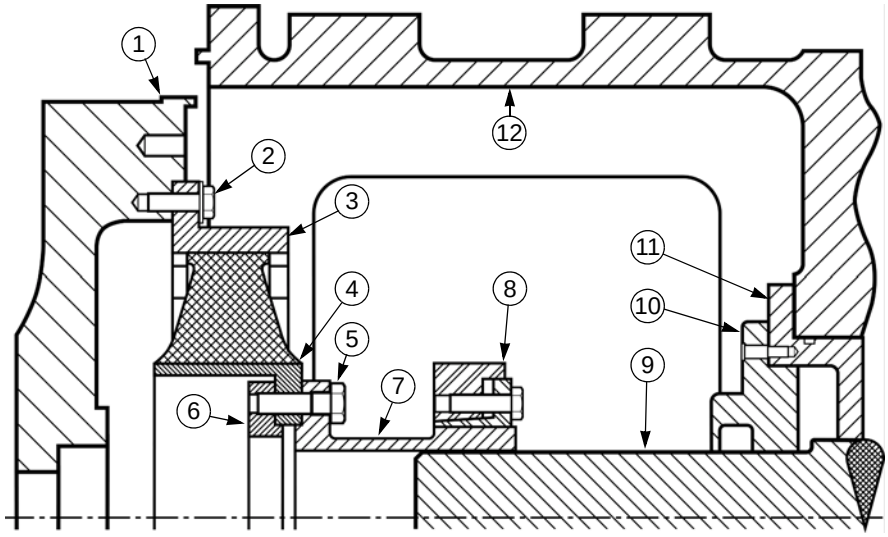
Coupling Hub Installation and Retention for RG Model Rotary Compressors

Refer to the coupling manufacturer hub assembly and disassembly procedures for straight bored, keyless couplings. Failure to follow these procedures can result in removal difficulties and hub or shaft damage.

Verify jackshaft and coupling hub bore mating surfaces and bolt threads are clean and free of burrs, nicks, dings, etc. Run bolt into tapped holes by hand to verify thread fit and that bolt length is not too long for the parts being connected.

NOTE: Minimize sliding, turning, and twisting of coupling hub as much as possible during removal or installation onto compressor jackshaft .



1. Engine Flywheel
2. Capscrews (or) Bolts & Washers
3. Coupling Aluminum Flange
4. Coupling Rubber Element with Integral Metal Sleeve
5. Hub Capscrews
6. Threaded Plate (if applicable)
7. Coupling Hub
8. Shrink Disc with Hex Head Capscrews
9. Compressor Jackshaft
10. Seal Housing
11. Bearing Retainer
12. Compressor Bell Housing

FIGURE 1 Typical Flywheel Mounted Coupling Installation

REV	DESCRIPTION	REV	EC	DATE	REV	EC	DATE
5	EDITED FOR FORMAT, STYLE, AND CLARITY. PRIMARY CHANGES: 1. CHANGED TO NEW ER FORMAT. 2. REMOVED PARAGRAPH NUMBERING. 3. REMOVED FIGURES 4, 5, AND 6. 4. UPDATED GRAPHICS WITH NEW SEAL HOUSING AND BEARING RETAINER DESIGN. 5. CHANGED TO NUMBERED CALLOUTS ON FIGURES 1, 2, AND 3. 6. ADDED 1.53 TO TABLE 1 AND TABLE 2 VALUES BECAUSE OF NEW SEAL HOUSING AND BEARING RETAINER DESIGN.	4	014365	11-13-08			
		3	013842	12-6-06			
		2	013029	6-20-06			
		1	013234	2-23-06			
		0	010774	7-15-02	5	017191	10-25-11

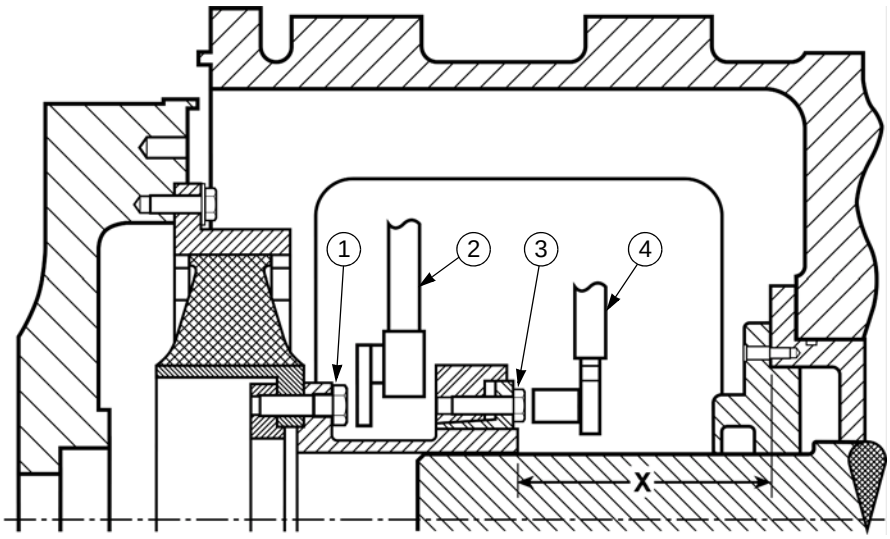
Typical Coupling Removal and Installation

These procedures apply to RG compressors, with or without bell housing mount.

Coupling Removal

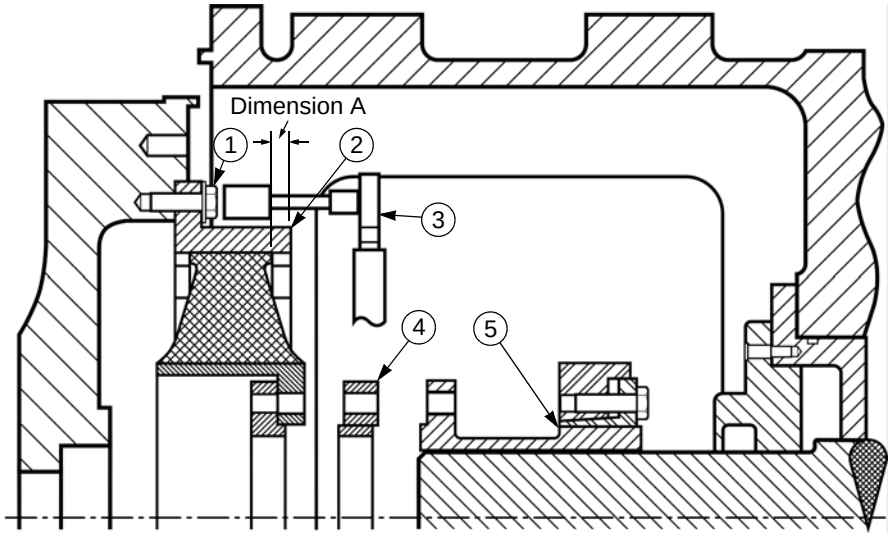
1. Measure and record the distance from the coupling hub to the bearing retainer (Figure 2, dimension “X”). This dimension verifies correct coupling hub position when reinstalled.
2. Loosen shrink disc:
   - **a.** First, loosen all locking capscrews 1/4 turn (see Figure 2). Then, gradually loosen capscrews in a clockwise pattern.
   - **b.** Back out all capscrews until there is a gap under the cap screw heads.
   - **c.** Remove 3 or 4 of the capscrews and thread into the threaded jacking holes. Use them as jacking screws to push the inner ring away from the outer collar until shrink disc is loose.
3. Remove hub capscrews with an appropriate wrench and adapter (see Figure 2).
4. Slide hub and shrink disc onto jackshaft as far as possible (see Figure 3).

   NOTE: Minimize sliding, turning, and twisting of coupling hub as much as possible during removal.



1. Hub Cap Screw
2. Wrench w/Adapter
3. Locking Cap Screw
4. Wrench w/Socket

FIGURE 2 Shrink Disc and Hub Bolting Removal



1. Capscrews (or) Bolts and Washers
2. Coupling Aluminum Flange
3. Wrench, Extension, and Socket
4. Spacer
5. Hub and Shrink Disc

FIGURE 3 Hub and Shrink Disc, Aluminum Coupling Flange, and Spacer Installation

5. Some coupling designs include a spacer to ease coupling component removal. Remove spacer, if applicable (see Figure 3).
6. Remove bolting from coupling aluminum flange. Aluminum flange removal may not be required for all designs (see Figure 3).

7. Remove coupling rubber element, the threaded plate (if applicable), and the aluminum flange.
8. Slide coupling hub and shrink disc off of jackshaft and remove.
9. Clean all parts and temporarily reassemble coupling components to prevent loss of parts. Treat surfaces as required to prevent corrosion. Cover or package the coupling to keep it clean, and place it in a safe, dry area to protect it from damage. Protect compressor and engine surfaces exposed by coupling removal from wetness, dirt, corrosion or other damage.

Coupling Installation

1. Before installing coupling hub and shrink disc, verify the jackshaft outside diameter, the hub bore and outside diameter, and the shrink disc bore are free from oil, dirt, and any high spots, nicks, or burrs. Failure to correct these conditions reduces the assembly torque capability and may spin or gall the coupling hub on the compressor jackshaft.
2. Slide coupling hub and shrink disc onto jackshaft (see Figure 3).

   NOTE: Minimize sliding, turning, and twisting of coupling hub as much as possible during installation.
3. Assemble the aluminum flange, rubber element and threaded plate (if applicable) on engine flywheel. Position the rubber element flush or up to 1/4 inch (6.5 mm) recessed past the face of the aluminum flange (see Figure 3, Dimension A). See coupling manufacturer and/or packager instructions for proper bolt torque values and procedure.
4. Install spacer, if applicable.
5. Slide coupling hub and shrink disc into place. Lubricate hub capscrew threads and seating surfaces with petroleum oil. Tighten opposing pairs of capscrews to torques listed in the coupling manufacturer or packager instructions in 50% increments. When an adapter is used with a torque wrench, the torque applied to the bolt may differ from the torque wrench setting. See Ariel Technical Manual for a method to calculate the torque wrench setting for the required bolt torque when using an adapter.
6. Measure distance **X** from the bearing retainer to the face of the coupling hub with a machinist's scale to 0.06 in. (1.5 mm). See Figure 2. Dimension **X** should agree to within 0.06 in. (1.5 mm) with dimension **X** measured during coupling removal. If installing a pre-engineered coupling for the first time, verify dimension **X** is within values listed in Table 1 or Table 2. Reposition the rubber element in the aluminum flange, if needed.

NOTE: Position rubber element fully within the aluminum flange to avoid premature coupling failure. Position coupling hub so the shrink disc is completely on the compressor jackshaft or hub yielding will occur, resulting in difficult hub removal from the jackshaft.

TABLE 1 RG357M Dimension X for Pre-Engineered Couplings

Engine	Engine Flywheel	Dimension X, In. (mm)
CAT G3516	2W-8772	5.62 to 5.87 (143 to 149)
CAT G3516	169-3337[a]	5.62 to 5.87 (143 to 149)
CAT G3512	2W-8772	6.35 to 6.60 (161 to 168)
Waukesha L7044, L7042 and L5794	Standard, 1164	5.74 to 5.99 (146 to 152)
	1161A, 1161C	5.62 to 5.87 (143 to 149)
	1163	5.62 to 5.87 (143 to 149)
Waukesha F3524 and F3514	Standard, 1164	6.48 to 6.73 (165 to 171)
	1161A, 1161C	6.35 to 6.60 (161 to 168)
	1163	6.35 to 6.60 (161 to 168)
Waukesha P48	303013B	6.35 to 6.60 (161 to 168)

a. The 169-3337 flywheel is unavailable for the RG357M with SAE-00 bell housing. See ER-84.

7. Tighten shrink disc:

a. See shrink disc manufacturer or packager instructions for proper bolt tightening procedures.

b. Lubricate internal tapers of shrink disc, threads, and under the heads of locking capscrews with molybdenum disulfide lubricant.

c. To ensure appropriate shrink disc tightness, verify the inner ring is flush or slightly below the outer ring. See Figure 4.

TABLE 2 RG282M Dimension X for Pre-Engineered Couplings

Engine	Dimension X, In. (mm)	
	w/o SAE-0 Bell Housing	w/SAE-0 Bell Housing
CAT G3412 & G3408	6.94 to 7.19 (176 to 183)	6.47 to 6.72 (165 to 171)
CAT G3512	7.03 to 7.28 (179 to 185)	
CAT G3508		
Waukesha L36		
Waukesha H24 & F18	7.11 to 7.36 (181 to 187)	

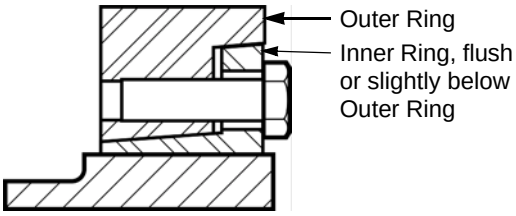


FIGURE 4 Verifying Shrink Disc Tightness