

**INTRODUCTION** — These instructions are for use when a flange mounted 5107-5315JF drive is to be used and the manufacture of a tapered drive shaft is not feasible. For JF tapered drive shaft recommendations, see Appendix H. Use this appendix to retrofit existing applications or for outfitting new installations. Parts required are the Basic drive, TA Taper bushing and a thrust plate kit.

This appendix will allow the use of a straight drive shaft with the tapered bushing (without spanner nut) on flange mounted applications. Provided are dimensions (Table 4) for shaft recommendations and instructions for the installation and removal of the assembly. All bushing bore sizes, which are available in the standard Quadrive®, are possible with this setup.

Drives are provided with tapped holes in the output face of the housing along with a female register to allow mounting to the driven equipment. JF drives are mounted to the equipment without the use of an adapter flange. Optional adapter flanges are available, consult the Factory.

**FIGURE 2** — The hollow shaft of the drive has a tapered bore which accepts the tapered bushing. When the bushing is drawn into the taper a clamping force is applied to the drive shaft. The drive shaft is drawn into the hollow shaft via a fastener in the thrust plate. The bushing seats against a shoulder on the driven shaft and is drawn into the drive with the shaft. Removal is accomplished by using a jackscrew in the thrust plate and forcing the drive shaft out of the drive. The retaining ring in the drive shaft assures that the bushing will be removed along with the shaft.

**DRIVE SHAFT RECOMMENDATIONS** — The recommendations for the drive shaft consist of two major features. The first is the shoulder which must be provided in the location shown in Figure 2. This shoulder provides the backing necessary to draw the bushing into the taper. A permanently fixed shoulder must be provided in order for this design to be effective. The shoulder may be a welded collar or an integral step. SET COLLARS ARE NOT ACCEPTABLE. A retaining ring may be used, in the driven shaft, to provide the shoulder, but stress concentrations occur at the groove and therefore shaft stresses must be checked. The second major feature on the shaft is the retaining ring groove in the shaft end. This feature is recommended to ensure positive removal of the bushing when the drive shaft is removed from the drive. The threaded hole in the end of the drive shaft accepts the thrust plate fastener.

**WARNING:** Lock out power source and remove all external loads from system before servicing drive or accessories.

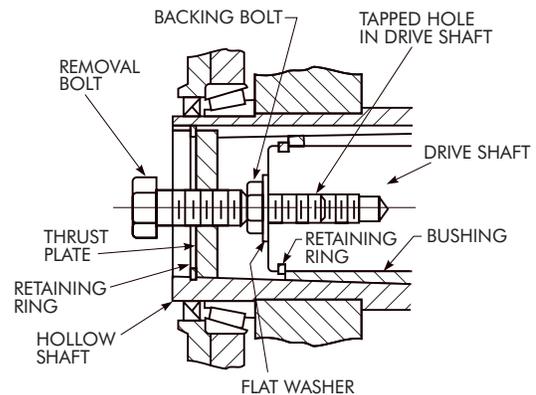
**INSTALLATION PROCEDURE** — With the drive shaft manufactured per the recommendations shown, and the bushing selected for the proper shaft diameter, remove and discard the retaining ring and spanner nut from the bushing assembly.

Slide the bushing (flange end first) onto the drive shaft until it contacts the shoulder on the shaft. Insert the key through the bushing and into the drive shaft keyway. Install the retaining ring into the groove in the drive shaft. Bring the drive into position, line up the hollow shaft keyway with the key and slide the bushing and drive shaft into the hollow shaft bore.

Attach the drive to the mounting surface with fasteners (not provided). Refer to Table 1 for fastener size and tightening torque. Assemble the thrust plate and retaining ring into the counterbore in the hollow shaft. Insert the thrust plate fastener through the thrust plate and thread into the drive shaft end. Tighten to the torque given in Table 2. Install all covers and guards.

**REMOVAL PROCEDURE** — Remove low speed shaft input end cover. Remove the thrust plate fastener, retaining ring and thrust plate from the hollow shaft. Refer to Table 3 and select a backing bolt and flat washer and install them into the drive shaft as illustrated in Figure 1. The head of the backing bolt provides a working surface for the removal bolt. Reinsert the thrust plate and retaining ring into the hollow shaft and select a removal bolt from Table 3. Thread the removal bolt into the thrust plate until it contacts the backing bolt head. Tighten the removal bolt to the torque indicated in Table 3. (If the thrust plate rotates in the shaft, align the slot in the plate with the hollow shaft keyway and insert a screw driver or piece of key stock to prevent rotation of the plate.) After torquing the bolt, as instructed, strike the bolt sharply with a hammer and retorquing the bolt if separation of the drive from the shaft did not occur. Repeat this procedure, retorquing the bolt after each blow, until separation occurs.

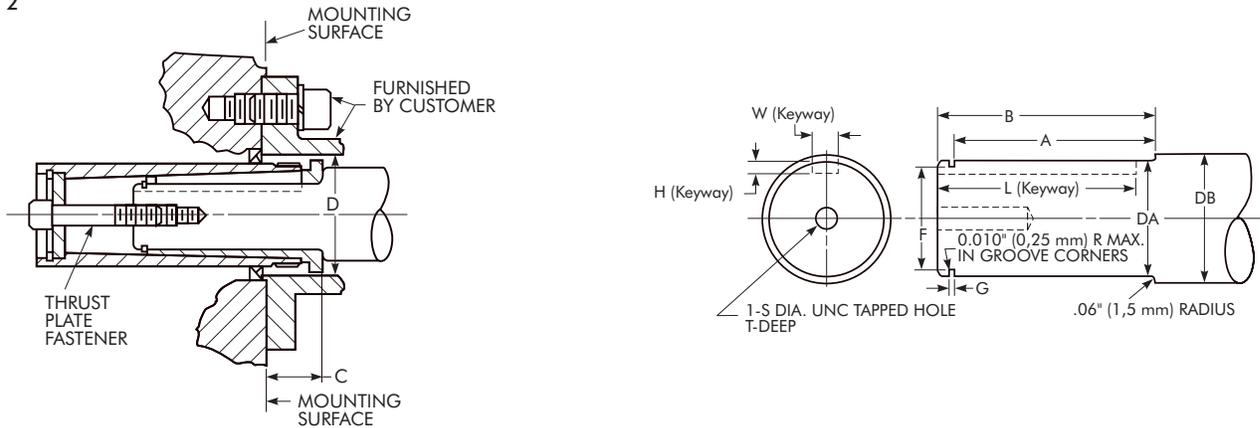
Figure 1



**TABLE 1 — JF Drive – Foundation Fastener & Tightening Torque (Non-Lubricated Fasteners)**

DRIVE SIZE	Fastener Size & Grade	Max Tightening Torque lb-ft (Nm)	Min Fastener Engagement Into Drive Housing Inch (mm)
5107	.500-13UNC, GR. 5	69 (94)	.76 (19,3)
5115	.625-11UNC, GR. 5	137 (186)	.94 (23,9)
5203	.750-10UNC, GR. 5	245 (332)	.76 (19,3)
5207	.875- 9UNC, GR. 5	380 (515)	.88 (22,4)
5215	1.000- 8UNC, GR. 5	567 (769)	1.00 (25,4)
5307	1.000- 8UNC, GR. 8	792 (1074)	1.24 (31,5)
5315	1.000- 8UNC, GR. 8	792 (1074)	1.24 (31,5)

Figure 2



**TABLE 2 — Thrust Plate Fastener Data ▲**  
(Non-Lubricated Fasteners)

DRIVE SIZE	Fastener Size & Grade	Max. Tightening Torque lb-ft (Nm)	Min Thread Depth Inches (mm)
5107	.500-13UNC x 3.50, GR.8	92 (125)	2.00 (50,8)
5115	.500-13UNC x 4.00, GR.8	92 (125)	2.00 (50,8)
5203	.625-11UNC x 3.50, GR.8	183 (248)	2.00 (50,8)
5207	.625-11UNC x 3.50, GR.8	183 (248)	2.00 (50,8)
5215	.875- 9UNC x 5.00, GR.8	533 (723)	2.50 (63,5)
5307	1.000- 8UNC x 5.00, GR.5	567 (769)	2.50 (63,5)
5315	1.000- 8UNC x 5.00, GR.8	792 (1074)	2.50 (63,5)

▲ Fasteners may be hex socket head or hex head except for Size 5307, which must be a hex head to clear input end cover.

**TABLE 3 — Removal & Backing Bolt Size and Tightening Torque**

DRIVE SIZE	Removal Bolt Size & Min Length – Inches	Max Tightening Torque lb-ft (Nm)	Backing Bolt Size & Max Length – Inches
5107	.625-11UNC x 1.75	133 (180)	.500-13UNC x 1.25
5115	.625-11UNC x 1.75	133 (180)	.500-13UNC x 1.25
5203	.750-10UNC x 2.00	242 (328)	.625-11UNC x 1.75
5207	.750-10UNC x 2.00	242 (328)	.625-11UNC x 1.75
5215	1.000- 8UNC x 2.50	567 (769)	.875- 9UNC x 2.25
5307	1.125- 7UNC x 3.00	742 (1006)	1.000- 8UNC x 2.50
5315	1.125- 7UNC x 3.00	742 (1006)	1.000- 8UNC x 2.50

**TABLE 4 — Dimensions For Largest Bore Bushing – Inches (mm) ★**

DRIVE SIZE	Thrust Plate Kit †	Thrust Plate Part No.	A ± 0.010 (±0.250)	B ± 0.030 (±0.75)	C ‡	D •	DA ■	DB Min	Retaining Ring ♦				Keyway *			S	T Min
									Groove		Spir O Lox		W	H	L Min		
									F	G	Mfg. No.	Max O.D.					
5107	TP5107JF	0778773	4.780 (121,41)	5.000 (127,00)	-1.356 (-34,4) -1.606 (-40,8)	2.500 (63,50)	1.4375	1.750 (44,45)	1.295 (1,287)	0.056 (0,060)	RSN-137	1.500	0.375	0.1875	3.563 (90,50)	0.500-13	2.00 (50,8)
5115	TP5115JF	0778774	5.330 (135,38)	5.500 (139,70)	-1.528 (-38,8) -1.794 (-45,6)	3.250 (82,55)	1.9375	2.250 (57,15)	1.735 (1,725)	0.068 (0,072)	RST-181	2.000	0.500	0.2500	4.000 (101,60)	0.500-13	2.00 (50,8)
5203	TP5203JF	0778775	5.310 (134,87)	5.625 (142,88)	-1.634 (-41,5) -1.921 (-48,8)	3.500 (88,90)	2.1875	2.500 (63,50)	1.952 (1,940)	0.086 (0,091)	RSN-206	2.250	0.500	0.2500	4.625 (117,48)	0.625-11	2.00 (50,8)
5207	TP5207JF	0778776	5.890 (149,61)	6.250 (158,75)	-1.557 (-39,6) -1.885 (-47,9)	4.000 (101,60)	2.4375	2.750 (69,85)	2.290 (2,278)	0.056 (0,060)	RS-236	2.500	0.625	0.3125	5.625 (142,88)	0.625-11	2.00 (50,8)
5215	TP5215JF	0778777	6.860 (174,24)	7.125 (180,98)	-1.755 (-44,6) -2.082 (-52,9)	4.750 (120,65)	2.9375	3.250 (82,55)	2.728 (2,716)	0.056 (0,060)	RS-281	3.062	0.750	0.3750	5.875 (149,22)	0.875-9	2.50 (63,5)
5307	TP5307JF	0778778	7.170 (182,12)	7.500 (190,50)	-1.843 (-46,8) -2.175 (-55,2)	5.125 (130,18)	3.4375	3.750 (95,25)	3.172 (3,160)	0.103 (0,108)	RSN-334	3.625	0.875	0.4375	6.750 (171,45)	1.000-8	2.50 (63,5)
5315	TP5315JF	0778779	7.700 (195,58)	8.000 (203,20)	-1.840 (-46,7) -2.175 (-55,2)	6.000 (152,40)	3.9375	4.250 (107,95)	3.701 (3,690)	0.120 (0,125)	RST-387	4.125	1.000	0.5000	7.062 (179,37)	1.000-8	2.50 (63,5)

★ For metric drive shafts or bushing bores smaller than the maximum, provide the retaining ring groove per manufacturers' recommendations, keyway appropriate for the shaft diameter, and DB minimum of 0.300" (7.62 mm) larger than the bushing bore to provide adequate backing.

† Kit consists of: thrust plate, thrust plate fastener, hollow shaft retaining ring and drive shaft retaining ring.

‡ The range for C dimensions is the variation which may occur due to axial compression and manufacturing tolerances. Negative C dimensions indicate that the bushing protrudes beyond the mounting surface.

• The D dimension is the recommended minimum bore which clears the TA Taper bushing flange.

■ Shaft diameter tolerances are per AGMA as follows: to 1.50" = +.000", -.004"; over 1.50" to & including 2.50" = +.000", -.005"; over 2.50" to & including 4.00" = +.000", -.006". Metric drive shafts are to be based on h10 tolerances.

♦ Smallley retaining rings may be used instead of Spir O Lox by substituting WS for RS, WST for RST or WSM for RSN.

\* Inch keyway width tolerances are as follows: over .312" to & including .500" = +.0025", -.0000"; over .500" to & including 1.000" = +.0030", -.0000". Metric keyway widths are based on class N9 tolerances. Inch keyway depth tolerance is +.010", -.000". Refer to ISO 773 or DIN 6885 sheet 1 for metric keyway depth tolerances.