

**INTRODUCTION** — This sheet is for use when a screw conveyor drive, Sizes 5107 - 5315JSC is to be used and the following conditions exist: Rexnord standard or 316 stainless steel JSC tapered drive shafts cannot be used due to special extension dimensions or materials; or manufacturing a special tapered drive shaft is not feasible. Use this sheet to retrofit existing applications or for outfitting new installations where the above conditions warrant. For tapered drive shaft recommendations, see Sheet 377-140.

This sheet will allow the use of a straight (non tapered) drive shaft with a special bushing conversion kit on screw conveyor applications. The bushing conversion kit may also be used on flange mounted 5407JF applications where the Falk JSC seal housing is to be used as the mounting flange. Consult Factory for optional adapter flanges on Sizes 5107JF thru 5315JF. This kit provides one bushing bore per drive size as shown in Table 4. Provided in this sheet are dimensions for drive shaft recommendations and instructions for the installation and removal of the assembly.

**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 drive 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.

The packing gland sealing option (Sizes 5107-5315) is usable with the bushing kit, but the clamp ring must be assembled from the extension end of the drive shaft on Sizes 5307 and 5315.

**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 drive shaft, to provide the shoulder, but stress concentrations can 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 shaft manufactured per the recommendations shown, proceed as follows:

**5107-5215JSC** — The seal housing may be assembled to the drive before or after the drive shaft is installed into the drive, depending on the shaft extension diameter.

**5307-5315JSC** — The seal housing must be assembled over the drive shaft from the extension end of the shaft, or the shaft shoulder must be fixed in position after the seal housing is assembled over the drive shaft (see Figure 2).

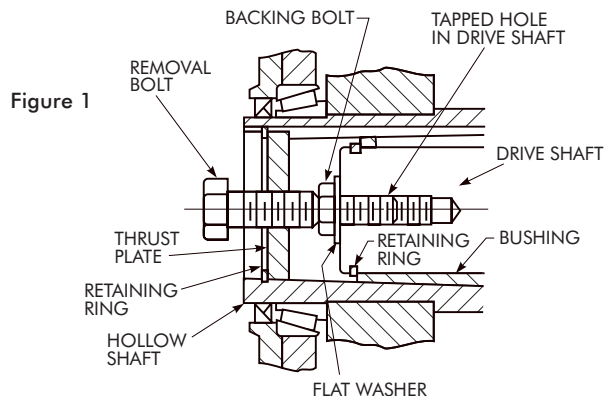
**5407JSC** — The seal housing may be assembled to the drive before or after the drive shaft is installed into the drive, but if the seal housing is installed to the drive first, the lip type seal (if

used) must be installed from the extension end.

**ALL JSC DRIVES** — Slide the bushing (large 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. Line up the keyway in the drive hollow shaft with the key in the drive shaft and slide shaft/bushing assembly into the hollow shaft. Attach the seal housing to the drive with the fasteners provided.

Tighten fasteners to torque given in Table 1. 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 screwdriver 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.



**TABLE 1 — Seal Housing Fastener Tightening Torque (Non-Lubricated Fasteners)**

DRIVE SIZE	Fastener Size	Max Tightening Torque lb-ft (Nm)
5107	.500-13UNC	69 (94)
5115	.625-11UNC	137 (186)
5203	.750-10UNC	245 (332)
5207	.875- 9UNC	380 (515)
5215	1.000- 8UNC	567 (769)
5307	1.000- 8UNC	792 (1 074)
5315	1.000- 8UNC	792 (1 074)
5407	.750- 10UNC	330 (447)

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

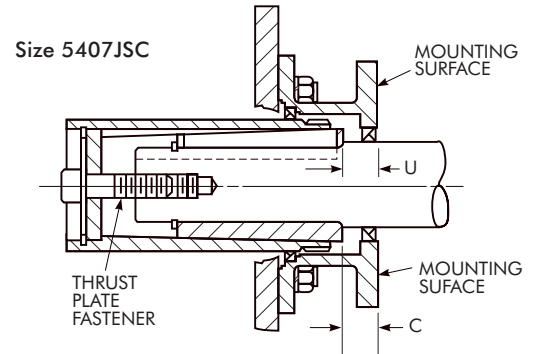
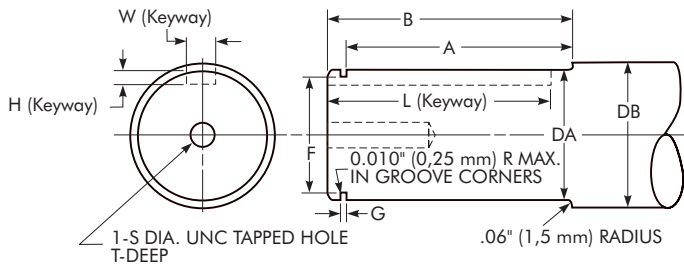
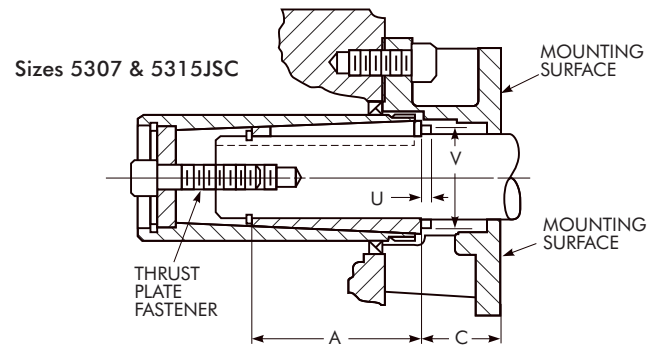
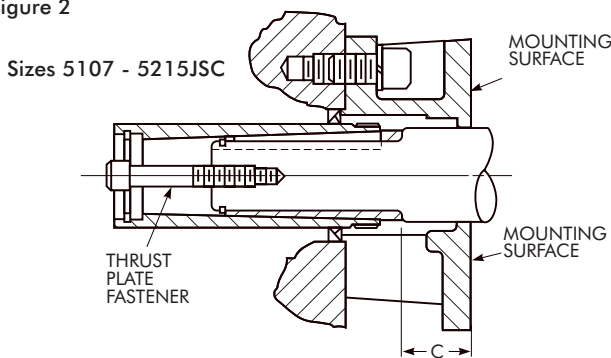
DRIVE SIZE	Fastener Size & Grade	Max Tightening Torque lb-ft (Nm)	Min Thread Depth Inches (mm)
5107	.500-13UNC x 3.50, GR.8	92 (125)	2.00 (50,8)
5115	.500-13UNC x 4.00, GR.8	92 (125)	2.00 (50,8)
5203	.625-11UNC x 3.50, GR.8	183 (248)	2.00 (50,8)
5207	.625-11UNC x 3.50, GR.8	183 (248)	2.00 (50,8)
5215	.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 (1 074)	2.50 (63,5)
5407	1.000- 8UNC x 5.50, GR.8	792 (1 074)	2.75 (69,8)

▲ 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 (1 006)	1.000- 8UNC x 2.50
5315	1.125- 7UNC x 3.00	742 (1 006)	1.000- 8UNC x 2.50
5407	1.125- 7UNC x 3.00	742 (1 006)	1.000- 8UNC x 2.50

Figure 2



**TABLE 4 — Dimensions – Inches (mm)★**

Taper Conversion Bushing Kit †	(TCB) Kit Part No.	A ± 0.010 (± 0.25)	B ± 0.030 (± 0.75)	C ‡	DA •	DB ■ +0.000, - 0.003 (+0.00, - 0.08)	Retaining Ring ♦			Keyway *			S	T Min	Weld/Integral Flange		
							Groove		Mfg No.	Max O.D.	W	H			L Min	U	V
							F	G									
TCB5107J-1.438	0766041	4.780 (121,41)	5.000 (127,00)	2.625 (66,68) 2.414 (61,32)	1.4375	1.750 (44,45)	1.295 1.287	0.056 0.060	Spir O Lox RSN-137	1.500	0.375	0.1875	3.563 (90,50)	0.500-13	2.00 (50,8)	...	...
TCB5115J-1.938	0766042	5.330 (135,38)	5.500 (139,70)	2.452 (62,28) 2.226 (56,54)	1.9375	2.375 (60,33)	1.735 1.725	0.068 0.072	Spir O Lox RST-181	2.000	0.500	0.2500	4.000 (101,60)	0.500-13	2.00 (50,8)	...	...
TCB5203J-2.188	0766043	5.310 (134,87)	5.625 (142,88)	2.346 (59,59) 2.099 (53,31)	2.1875	2.625 (66,68)	1.952 1.940	0.086 0.091	Spir O Lox RSN-206	2.250	0.500	0.2500	4.625 (117,48)	0.625-11	2.00 (50,8)	...	...
TCB5207J-2.438	0766044	5.890 (149,61)	6.250 (158,75)	2.548 (64,72) 2.260 (57,40)	2.4375	3.000 (76,20)	2.290 2.278	0.056 0.060	Spir O Lox RS-236	2.500	0.625	0.3125	5.625 (142,88)	0.625-11	2.00 (50,8)	...	...
TCB5215J-2.938	0766045	6.860 (174,24)	7.125 (180,98)	2.475 (62,87) 2.188 (55,58)	2.9375	3.500 (88,90)	2.728 2.716	0.056 0.060	Spir O Lox RS-281	3.062	0.750	0.3750	5.875 (149,22)	0.875-9	2.50 (63,5)	...	...
TCB5307J-3.438	0766046	6.530 (165,86)	6.860 (174,24)	3.527 (89,59) 3.235 (82,17)	3.4375	3.500 (88,90)	3.172 3.160	0.103 0.108	Spir O Lox RSN-334	3.625	0.875	0.4375	6.750 (171,45)	1.000-8	2.50 (63,5)	0.375 ▲ (9,52)	4.250 (107,95)
TCB5315J-3.438	0785785	7.030 (178,56)	8.500 (215,90)	3.560 (90,42) 3.266 (82,96)	3.4375	3.500 (88,90)	3.263 3.251	0.103 0.108	Spir O Lox RSN-343	...	0.875	0.4375	8.250 (209,55)	1.000-8	2.50 (63,5)	0.375 ▲ (9,52)	4.250 (107,95)
TCB5407J-3.438	0786823	7.655 (194,44)	9.500 (241,30)	1.879 (47,7) 1.552 (39,4)	3.4375	3.938 (100,025)	3.263 3.251	0.103 0.108	RSN-343	...	0.875	0.4375	9.250 (234,95)	1.000-8	2.75 (69,8)	1.500 (38,10) ♣	...

★ For metric drive shafts, provide the retaining ring groove per manufacturers' recommendations, and keyway appropriate for the shaft diameter.

† Kit consists of: Bushing, thrust plate, fastener, key, retaining ring, and hardware.

‡ The range of C dimension is the variation which may occur due to axial compression and manufacturing tolerances.

● 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".

■ If a lip type seal is used, a 32rms finish is recommended.

♦ Smalley 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"; 1.000"

Inch keyway depth tolerance is +.010", -.000".

▲ Maximum for use with packing gland seal.

♣ Minimum for use with dual lip seal.