



INSTALLATION INSTRUCTIONS: XT®, QD®, HE & TAPERLOCK® BUSHINGS

NOTE: Follow instructions carefully to ensure satisfactory performance of pulley & bushings.

FOR FACTORY INSTALLED SHAFTS, FINAL ASSEMBLY MAY BE REQUIRED BEFORE INSTALLATION AS COMPONENTS MAY NOT ARRIVE TIGHTENED TO RECOMMENDED TORQUE SPECIFICATIONS. RETIGHTEN CAP/SET SCREWS WITH A TORQUE WRENCH SET AT THE VALUE SHOWN IN THE CORRESPONDING TABLE.

Prior to installation, ensure the following components are free of grease and debris:

- Surface of shaft
- Bore of the bushing
- Tapered inside diameter of the hub
- Tapered outside diameter of the bushing

Particles or any material left on the mating surfaces may cause improper installation. **DO NOT LUBRICATE MATING SURFACES**

1. If pulley is to be keyed to shaft, be certain both shaft and bushing keyways are clean, smooth, and free of burrs. Check key size with both shaft and bushing keyways. Place keys into the shaft keyways. Pulley bushing keyways require alignment of both shaft keyways for proper bushing-to-hub installation.

The standards for Class 1 Fit are provided by “ANSI Standard Fits for Parallel Keys and Taper Keys (ANSI B17.1-1967, R1989)”. The fit between key stock and mating keyways should be somewhere between clearance and interference as there is no standard for interference fit in this regard. When installing key stock into a compression hub/bushing system and axle, it is essential to prevent too tight of a fit as this might interfere with proper installation of the system. Since the key stock will not be rigidly held in position by the assembly, it is common to retain the key stock laterally by use of an axle detailed with a captured keyway. When using “keyed full length” axles, the key stock is allowed to shift the length of the keyway and must be retained using alternate methods. Common methods include modifying the keyway in the axle or key stock once installed by use of a punching tool. The deformation of the keyway or key stock will prevent lateral movement.

2. Place shaft into the pulley, being certain not to damage the bore of the hubs.
3. Insert a wedge (such as a screwdriver tip) in the bushing split and tap lightly to expand the bushing. **CAUTION: EXCESSIVE EXPANSION WILL CAUSE BREAKAGE.**

FOR XT, QD AND HE STYLE BUSHINGS, FOLLOW STEPS 4a through 7a

- 4a. Slide bushings on to the shaft and into the hubs keeping the drilled holes of the bushings lined up with the threaded holes of the hub. Place the cap screws into the drilled holes of each bushing and hand-tighten cap screws into the threaded holes of the hubs. Remove the wedge.

- 5a. Position the shaft as desired and tighten the cap screws in each bushing slightly so that the bushings are snug in the hubs.

- 6a. Using a torque wrench and recommended torque (see TABLE 1) tighten cap screws **alternately and evenly** in one bushing only. Use the numbered sequence on the bushing flange cap screw heads in FIGURE 1, starting with 1 first, 2 second, and so on, with all cap screws being used until the specified torque no longer turns the cap screws. **DO NOT OVERTIGHTEN.** Over-tightening may damage the hub threads. Check to be certain the surfaces on both sides of the split are even.

WARNING: DO NOT EXCEED RECOMMENDED TORQUE IN ATTEMPT TO PULL BUSHING FLANGE FLUSH WITH HUB FACE - THERE SHOULD BE CLEARANCE WHEN TIGHTENED.

If the bushing flange is pulled flush with hub face while tightening cap screws to recommended torque, check for an undersized shaft.

- 7a. Tighten the remaining bushing following the instructions in step #6a.

FOR TAPERLOCK STYLE BUSHINGS, FOLLOW STEPS 4b through 8b

- 4b. Slide bushings on to the shaft and into the hubs, keeping the holes of the bushings lined up with the holes of the hubs. Lightly oil the threads and end profile of the set screws. Place the setscrews into the drilled holes of both bushings and hand tighten until snug. Remove the wedge and position the shaft as desired

- 5b. **Alternately and evenly** tighten the setscrews in the first bushing until snug. Repeat for the second bushing. **WARNING: DO NOT USE A WORN HEX KEY WRENCH, AS THIS MAY DAMAGE THE SETSCREWS.**

- 6b. To ensure that the bushings are properly seated and to obtain maximum gripping force, hammer the face of the first bushing using a drift or sleeve. Do not hit the bushing directly with a hammer, as this may damage the bushing. Hammer all the way around the bushing, avoiding the outside edges, until the bushing is seated evenly within the hub.

- 7b. Once the set screws in both bushings are snug by hand and the bushings are seated, alternately and evenly torque the set screws in the first bushing to the recommended setting in TABLE 1. Repeat steps 5b & 6b until the specified torque no longer turns the set screws. (Continued on next page)

- 8b. Tighten the remaining bushing following the instructions in step #6 & #7.

MAINTENANCE

DURING THE FIRST 30 DAYS OF OPERATION, INSPECT THE BUSHINGS AND CAP/SET-SCREWS FOR PROPER TORQUE AND AT LEAST ONCE A WEEK AND THEREAFTER DURING PERIODIC SHUTDOWNS.

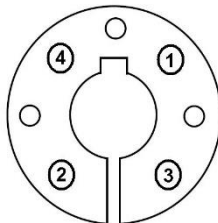
REMOVAL

1. Remove all cap screws.
2. Insert cap screws into all threaded (half threaded for taperlock style products removal holes on bushings).
3. Tighten the cap screws **alternately and evenly** in one bushing only. A few turns on each of the cap screws should release the grip of the bushing. If the bushing does not loosen immediately, tap on the bushing with a rubber mallet.
4. Remove the bushing from the shaft.
5. Remove the second bushing following removal steps 1 through 4.

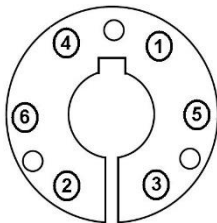
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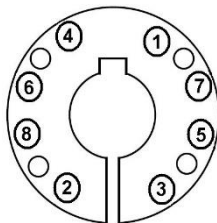
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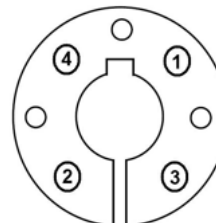
XTB15 - XTB80



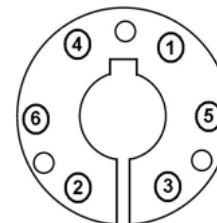
XTB100



XTB120



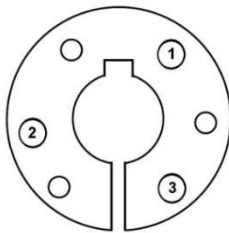
HEB25 - HEB40



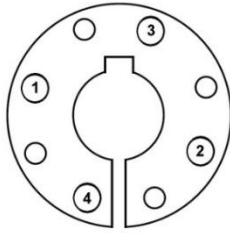
HEB45 - HEB60

TORQUE SPECIFICATIONS XT® BUSHINGS			
Bushing	Number of Cap Screws	Cap Screw Size	Torque Spec Lb-In*
XTB15	4	1/4-20 UNC X 1	95
XTB20	4	5/16-18 UNC X 1-1/4	200
XTB25	4	3/8-16 UNC X 1-3/4	350
XTB30	4	7/16-14 UNC X 1-1/2	550
XTB35	4	1/2-13 UNC X 1-3/4	840
XTB40	4	9/16-12 UNC X 2	1,200
XTB45	4	5/8-11 UNC X 2-1/4	1,680
XTB50	4	3/4-10 UNC X 2-1/2	3,000
XTB60	4	7/8-9 UNC X 2-1/2	4,800
XTB70	4	1-8 UNC X 3	7,200
XTB80	4	1 1/8-7 UNC X 3-1/2	9,000
XTB100	6	1 1/8-7 UNC X 3-1/2	9,000
XTB120	8	1 1/8-7 UNC X 3-1/2	9,000

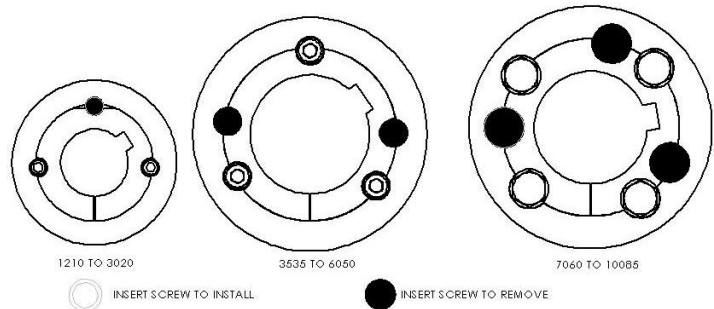
TORQUE SPECIFICATIONS HE BUSHINGS			
Bushing	Number of Cap Screws	Cap Screw Size	Torque Spec Lb-In*
HEB25	4	3/8-16 UNC X 2	360
HEB30	4	1/2-13 UNC X 2-3/8	720
HEB35	4	9/16-12 UNC X 2-3/4	1080
HEB40	4	5/8-11 UNC X 3	1,680
HEB45	6	5/8-11 UNC X 3-3/4	1,680
HEB50	6	3/4-10 UNC X 4-3/8	2,400
HEB60	6	7/8-9 UNC X 4-3/4	4,200



JA - JS



MS - WS



TORQUE SPECIFICATIONS QD® BUSHINGS			
Bushing	Number of Cap Screws	Cap Screw Size	Torque Spec Lb-In*
JA	3	10-24 UNC X 1	72
SH	3	1/4-20 UNC X 1-3/8	108
SD	3	1/4-20 UNC X 1-7/8	108
SDS	3	1/4-20 UNC X 1-3/8	108
SK	3	5/16-18 UNC X 2	180
SF	3	3/8-16 UNC X 2	360
E	3	1/2-13 UNC X 2-3/4	720
F	3	9/16-12 UNC X 3-5/8	900
JS	3	5/8-11 UNC X 2-1/2	1,620
MS	4	3/4-10 UNC X 3	2,700
NS	4	7/8-9 UNC X 3-1/2	3,600
PS	4	1-8 UNC X 4-1/2	5,400
WS	4	1 1/8-7 UNC X 5	7,200

TORQUE SPECIFICATIONS TAPERLOCK BUSHINGS		
Bushing	Number of Set Screws	Torque Spec Lb-In*
1210	2	175
1610	2	175
2012	2	280
2517	2	430
3020	2	800
3535	3	1,000
4040	3	1,700
4545	3	2,450
5050	3	3,100
6050	3	7,820
7060	4	7,820
8065	4	7,820
10085	4	13,700
120100	4	13,700

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