TYPE DBZ, DBZ-A, DBZ-B *Couplings*

Thomas *Installation Instruction*

Warning: All rotating power transmission products are potentially dangerous and must be properly guarded in compliance with OSHA standards for the speed and applications for which they are intended. It is the responsibility of the user to provide proper guarding.

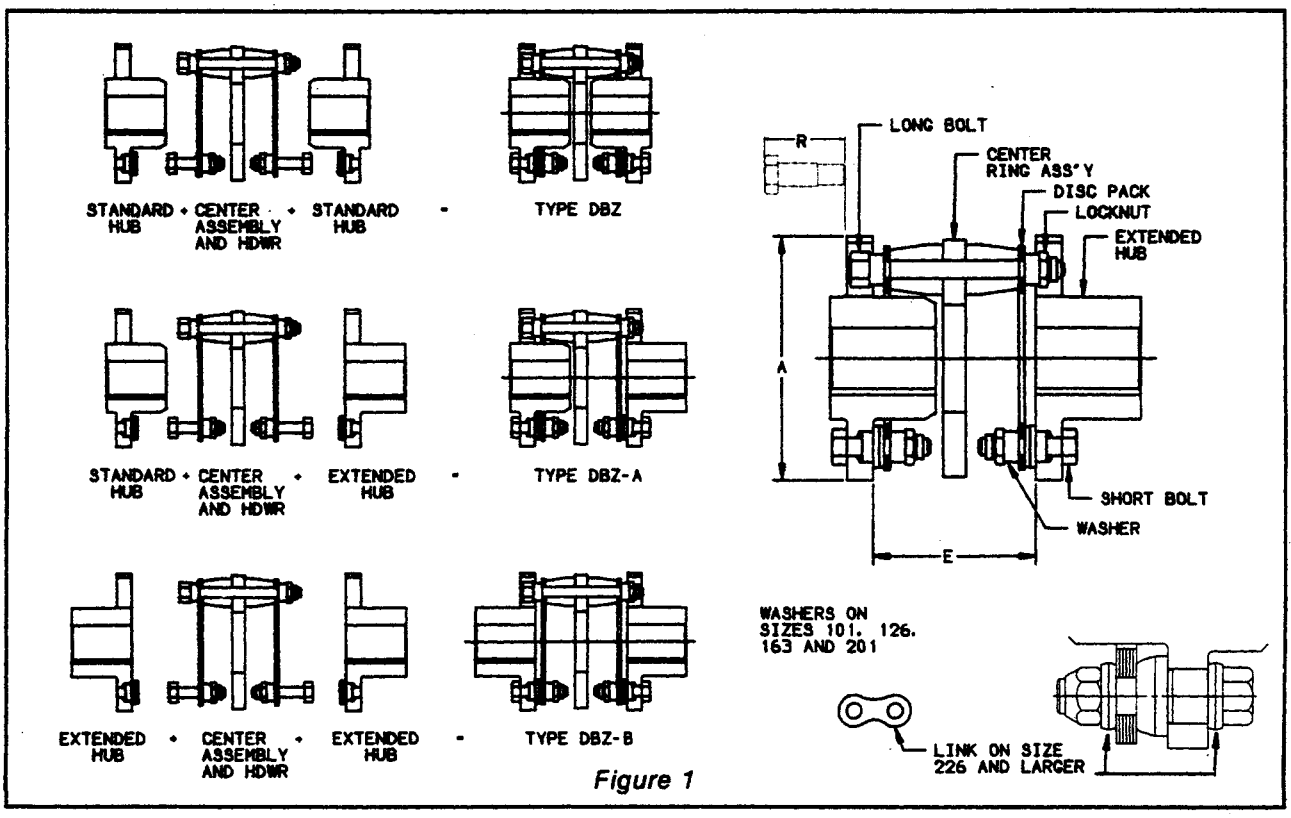


Figure 1

I. **Purpose:** These instructions are intended to help you to install, align, and maintain your THOMAS coupling.

II. **Scope:** Covered here will be general information, hub mounting, alignment, assembly, locknut torquing, disc pack replacement, and part numbers.

III. **General Information:**The coupling as received, may or may not be assembled. If assembled, the locknuts are not torqued. Examine the parts to assure there is no visible damage. If coupling is assembled, remove the bolts that attach the hubs to the disc packs. Remove both hubs. Leave the disc packs attached to the center member.

IV. Hub Mounting:

A. General. Clean hub bores and shafts. Remove any nicks or burrs. If bore is tapered, check for good contact pattern. If the bore is straight, measure the bore and shaft diameters to assure proper fit. The key(s) should have a snug side-to-side fit with a small clearance over the top.

NOTE: If the DBZ hub position on the shaft does not allow enough room to install the short bolts in the hub after hub mounting, install the bolts and disc pack before mounting hub on shaft. See Section VI A & B

B. Straight Bore. Install key(s) in the shaft. If the hub is an interference fit, heat the hub in an oil bath or oven until bore is sufficiently larger than the shaft. 350 degrees F. is usually sufficient. An open flame is not recommended. However, if flame heating is necessary, use a very large rose bud tip to give even heat distribution. A thermal heat stick will help determine hub temperature. **DO NOT SPOT HEAT THE HUB OR DISTORTION MAY OCCUR.** With the hub expanded, slide it up the shaft to the desired axial position. A pre-set axial stop device can be helpful.

NOTE: All DBZ hubs have pressed-in bushings. Make sure the bushings are facing the disc pack.

C. Taper Bore. Put the hub on the shaft without key(s) in place. Lightly tap hub up the shaft with a soft hammer. This will assure a metal-to-metal fit between shaft and hub. This is the starting point for the axial draw. Record this position between shaft end and hub face with a depth micrometer. Mount a dial indicator to read axial hub movement. Set the indicator to "0". Remove hub and install key(s). Remount hub, drawing it up the shaft to the "0" set point. Continue to advance hub up the taper to the desired axial position. Use the indicator as a guide only. A pre-set axial stop device can be helpful. Check the final results with depth micrometer. The hub may have to be heated in order to reach the desired position on the shaft. **DO NOT SPOT HEAT THE HUB OR DISTORTION MAY OCCUR.** Install shaft locknut to hold hub in place.

V. SHAFT ALIGNMENT. Move equipment into place.

A. Soft Foot. The equipment must sit flat on its base. Any soft foot must be corrected now.

B. Axial Spacing. The axial spacing of the shafts should be positioned so that the disc packs (flexing elements) are flat when the equipment is running under normal operating conditions. This means there is a minimal amount of waviness in the disc pack when viewed from the side. This will result in a flexing element that is centered and parallel to its mating flange faces. Move the connected equipment or hubs on their respective shafts to accomplish the above. As a guide, maximum and minimum values for dimension "E" are given. See Table 1 and Figure 1.

C. Angular Alignment. Rigidly mount a dial indicator on one hub or shaft, reading the face of the other hub flange, as shown in Figure 2. Rotate both shafts together making sure the shaft axial spacing remains constant. Adjust the equipment by shimming and/or moving so that the indicator reading is within .002 inch per inch of coupling flange diameter. See Chart (A)

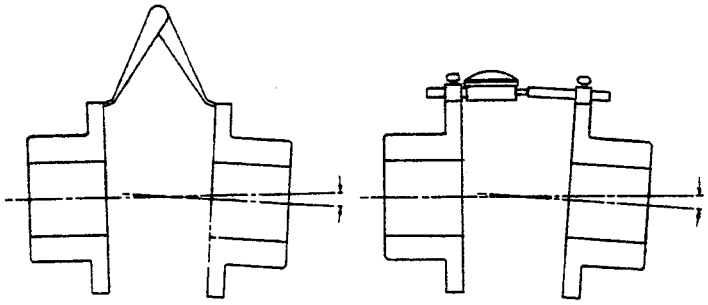


Figure 2

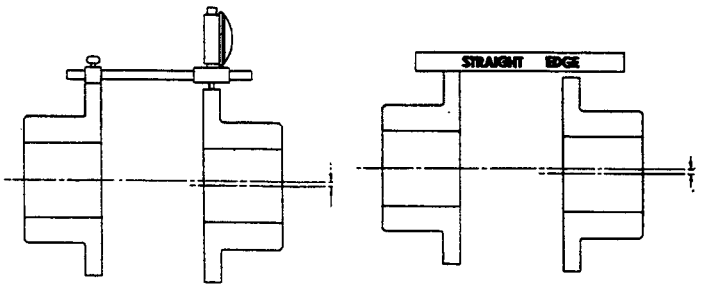


Figure 3

SUGGESTED MAXIMUM ALIGNMENT VALUE

COUPLING SIZE	TOTAL INDICATOR READING (T.I.R.)	
	ANGULAR	PARALLEL
50	.004	.003
62	.005	.003
75	.005	.003
101	.006	.004
126	.007	.005
163	.009	.005
201	.010	.006
226	.012	.007
263	.014	.009
301	.016	.010
351	.018	.012
401	.020	.013
451	.024	.014

CHART A

D. Parallel Offset. Rigidly mount a dial indicator on one hub or shaft, reading the other hub flange outside diameter, as shown in Figure 3. Indicator set-up sag must be compensated for. Rotate both shafts together. Adjust the equipment by shimming and/or moving so that the indicator reading is within .002 inch per inch of the axial length between flex elements. See Chart (A)

NOTE: If the driver or driven equipment alignment specification is tighter than these recommendations, the specification should be used. Also, be sure to compensate for thermal movement in the equipment. The coupling is capable of approximately four times the above shaft misalignment tolerances. However, close alignment at installation will provide longer service with smoother operation.

VI. FINAL ASSEMBLY. With the coupling in good alignment, the bolts will fit through the holes in the flanges and the disc packs more easily.

A. If the coupling arrived assembled, the disc packs are still attached to the center ring. Before taking the disc packs off, first install one hub bolt through each disc pack and secure with a locknut. This will help when the pack is reinstalled later. If the coupling was shipped disassembled, the bolt through the pack is not required as the discs in the pack are factory-taped together.

B. Remove the long bolts. Mount the disc packs on the hubs with the one bolt through the disc pack aligned with a clearance hole in the hub. Install the short bolts through the hub, disc pack, bevel washer or link, and secure with a locknut.

NOTE: All bolt threads should be lubricated. A clean motor oil is recommended.

On size 226 and larger, a link must be put on the bolt first. Remove the disc pack alignment bolt. Proceed to mount the second disc pack to the other hub in the same way.

Table 1
Locknut Tightening Torques

Coupling Size	"A" Diameter	Dimension "E"		Dimension "R"	Thread Size	Torque Ft.-Lbs. (In.-Lbs.)
		Min.	Max.			
50	2.00	1.36	1.37	1.41	#6-40	(24)
62	2.44	1.74	1.75	1.75	#10-32	(36)
75	2.69	1.77	1.78	1.75	#10-32	(36)
101	3.22	2.08	2.10	1.97	#12-28	(96)
126	3.84	2.46	2.48	2.31	1/4-28	(156)
163	4.56	2.46	2.48	2.31	1/4-28	(156)
201	5.34	2.96	2.98	2.69	5/16-24	25
226	6.06	3.83	3.85	3.31	3/8-24	30
263	7.00	4.33	4.35	3.75	7/16-20	40
301	8.00	4.90	4.93	4.44	1/2-20	95
351	9.38	5.90	5.93	5.44	5/8-18	175
401	10.69	6.71	6.75	6.16	11/16-16	200
451	12.13	7.27	7.31	6.75	3/4-16	260

NOTE:

1. These torque values are approximate for steel bolts with lubricated threads. Modification will be necessary for stainless steel. For stainless steel the tightening torque must be reduced to 60% of the values shown. Bolt and locknut threads must also be liberally coated with molybdenum disulfide grease.
2. Bolts should be held from rotating while the locknuts are torqued to the values shown.

C. Position one set of short bolts in each hub on top. Now slide the center ring down into place straddling the short bolts with the center ring bushings. If coupling is dynamically balanced, the center ring match marks must line up with both hub match marks. When one bushing is in line with the hole in the disc pack, slide one long bolt through washer or link, disc pack, center ring, disc pack, washer or link, and then secure with a locknut. The long bolt requires a minimum clearance "R" for installation between back side of coupling flange and stationary equipment. See Figure 1 and Table 1 for value of "R". On size 226 and larger a link must be put on the bolt first. Now install the rest of the long bolts in the same manner.

D. Torque the long bolt locknuts at this time. See Table 1 for torque values.

NOTE: With the coupling in good alignment the bolts will fit through the holes in the flanges and the disc pack more easily.

It is recommended that all locknuts be retightened after several hours of initial operation.

E. For further help with the installation or alignment, consult Rexnord.

VII. Disc Pack Replacement. If it becomes necessary to replace the disc pack, it can be done as follows:

A. Remove all the long bolts and lower the center ring by sliding it out from between the two disc packs.

B. Remove one short bolt from the disc pack/hub connection and re-install it through a hub clearance hole and into the hole in the disc pack. Put the nut on. This will keep the discs together and maintains the disc orientation for later reinstallation. Remove the rest of the short bolts and take off the disc pack. Repeat for the second disc pack.

C. Replace the pack(s) if required. Recheck alignment per Section V. Reassemble per Section VI.

VIII. For spare replacement parts see Table 2.

Table 2
Part Number and Quantity Required

Size of DBZ DBZ-A DBZ-B	Std. Hub	Ext. Hub	Center Ring	Disc Pack Two per Cplg.		Parts Kit consists of Washers or Links, Bolts, and Locknuts for one Coupling								
				Tom-aloy	Stain-less	Parts Kit	Washer or Link		Long Bolt		Short Bolt		Locknut	
	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Qty.	Part No.	Qty.	Part No.	Qty.	Part No.	Qty.
50	114401	514402	314405	710492	910492	716320	none	—	312659	2	210495	4	711738	6
62	414412	114413	014416	510601	710601	816320	none	—	112657	2	010525	4	011739	6
75	114423	814424	514427	710523	910523	816320	none	—	112657	2	010525	4	011739	6
101	716104	216105	814438	910619	310619	916320	511192	8	711162	2	411161	4	516503	6
126	116106	816107	414445	910618	310618	116320	002161	8	811198	2	510728	4	916504	6
163	816108	616109	016022	410954	610954	416320	002161	16	811198	4	510728	8	916504	12
201	416110	016111	414471	710624	910624	001950	002170	16	411206	4	210721	8	316505	12
226	616112	116113	614482	010689	210689	001953	011874	12	011250	4	010634	8	716506	12
263	716114	216115	514491	920357	120357	001956	211875	12	710788	4	410787	8	116507	12
301	416116	516117	414500	420359	620359	001958	411876	12	310656	4	010655	8	516508	12
351	616118	716119	314509	820361	020361	001960	711877	12	410734	4	110733	8	316510	12
401	816120	916121	914516	220363	420363	001962	011878	12	310241	4	110240	8	716511	12
451	016122	116123	514523	310646	510646	001964	311879	12	910642	4	710641	8	116512	12

For further assistance, call Rexnord Corp. Coupling Operation, Warren, PA — **814-723-6600**
FAX 814-726-1740

Rexnord

TYPE CMR/AMR Couplings

Thomas Installation Instruction

Warning: All rotating power transmission products are potentially dangerous and must be properly guarded in compliance with OSHA standards for the speed and applications for which they are intended. It is the responsibility of the user to provide proper guarding.

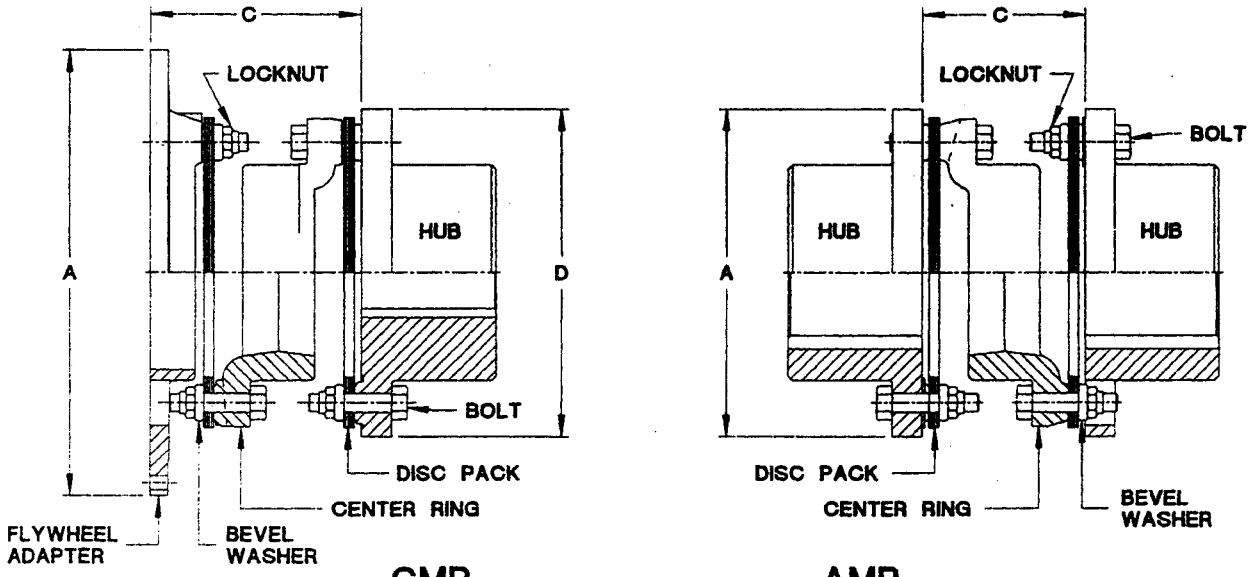


Figure 1

I. **Purpose:** These instructions are intended to help you to install, align, and maintain your THOMAS coupling.

II. **Scope:** Covered here will be general information, hub mounting, alignment, assembly, locknut torquing, disc pack replacement, and part numbers.

III. **General Information:** The coupling, as received, may or may not be assembled. If assembled, the locknuts are not torqued. Examine the parts to assure there is no visible damage. If coupling is assembled, remove the bolts, locknuts, and washers that attach the hub(s) to the disc pack. Remove the hub(s). Leave the disc packs attached to the center ring and the flywheel adapter (when used).

IV. **Hub Mounting:**

A. **General.** Clean hub bore and shaft. Remove any nicks or burrs. If bore is tapered, check for good contact pattern. If the bore is straight, measure the bore and shaft diameters to assure proper fit. The key(s) should have a snug side-to-side fit with a small clearance over the top.

B. **Straight Bore.** Install key(s) in the shaft. If the hub is an interference fit, heat the hub in an oil bath or oven until bore is sufficiently larger than the shaft. 350 degrees F. is usually sufficient. An open flame is not recommended. However, if flame heating is necessary, use a very large rose bud tip to give even heat distribution. A thermal heat stick will help determine hub temperature. **DO NOT SPOT HEAT THE HUB OR DISTORTION MAY OCCUR.** With the hub expanded, slide it quickly up the shaft to the desired axial position. A pre-set axial stop device can be helpful.

C. **Taper Bore.** Put the hub on the shaft without key(s) in place. Lightly tap hub up the shaft with a soft hammer. This will assure a metal-to-metal fit between shaft and hub. This is the starting point for the axial draw. Record this position between shaft end and hub face with a depth micrometer. Mount a dial indicator to read axial hub movement. Set the indicator to "0". Remove hub and install key(s). Remount hub, drawing it up the shaft to the "0" set point. Continue to advance hub up the taper to the desired axial position. Use the indicator as a guide only. A pre-set axial stop device can be helpful. Check the final results with depth micrometer. The hub may have to be heated in order to reach the desired position on the shaft. **DO NOT SPOT HEAT THE HUB OR DISTORTION MAY OCCUR.** Install shaft locknut to hold hub in place.

V. **SHAFT ALIGNMENT.** Move equipment into place.

A. Soft Foot. The equipment must sit flat on its base. Any soft foot must be corrected now.

B. Axial Spacing. The axial spacing of the shaft should be positioned so that the disc packs (flexing elements) are flat when the equipment is running under normal operating conditions. This means there is a minimal amount of waviness in the disc pack when viewed from the side. This will result in a flexing element that is centered and parallel. Move the connected equipment or hub(s) on their respective shaft(s) to accomplish the above. As a guide, maximum and minimum values for dimension "C" are given. These dimensions are suggested for initial installation. Additional capacity is available to compensate for thermal and structural movement. Maximum axial capacity values for these couplings are also given. See Table 1 and Figure 1.

C. Angular Alignment. Rigidly mount a dial indicator on one hub or shaft, reading the face of the other hub flange or flywheel adapter, as shown in Figure 2. Rotate both shafts together making sure the shaft axial spacing remains constant. Adjust the equipment by shimming and/or moving so that the indicator reading is within .002 inch per inch of coupling flange diameter. See Chart (A).

D. Parallel Offset. Rigidly mount a dial indicator on one hub or shaft, reading the other hub flange or flywheel adapter outside diameter, as shown in Figure 3. Compensate for indicator set-up sag. Rotate both shafts together. Adjust the equipment by shimming and/or moving so that the indicator reading is within .002 inch per inch of the axial length between flex elements. See Chart (A).

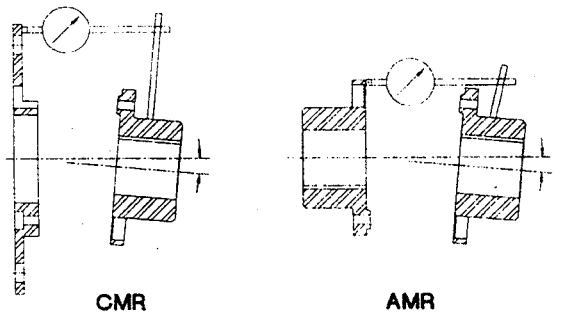


Figure 2

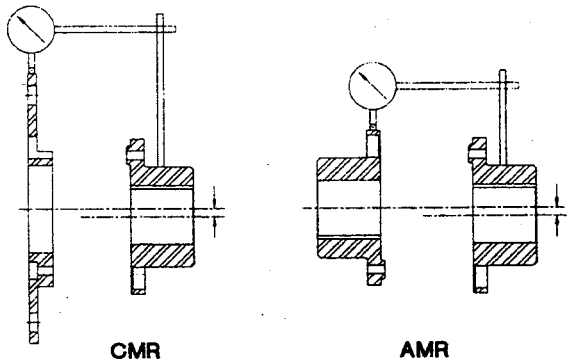


Figure 3

NOTE: If the driver or driven equipment alignment specification is tighter than these recommendations, the specification should be used. Also, be sure to compensate for thermal movement in the equipment. The coupling is capable of approximately three times the above shaft misalignment tolerances. However, close alignment at installation will provide longer service with smoother operation.

SUGGESTED MAXIMUM ALIGNMENT VALUES

COUPLING SIZE	TOTAL INDICATOR READING (T.I.R.)		
	ANGULAR for AMR	ANGULAR for CMR	PARALLEL
162	.009	.002 INCHES PER INCH OF "A" DIA.	.005
200	.011		.006
225	.012		.006
262	.014		.007
312	.016		.008
350	.018		.009
375	.020		.010
425	.022		.011
450	.024		.012
500	.027		.014
550	.030		.015
600	.033		.017
700	.038		.019
750	.041		.021
800	.045		.023
850	.047		.024
925	.051		.026
1000	.056		.029
1100	.060		.031
1200	.067		.034
1300	.073		.036

CHART (A)

VI. **FINAL ASSEMBLY.** With the coupling in good alignment, the bolts will fit through the holes in the flanges and the disc packs more easily. See Figure 1.

A. When fly wheel adapter is used - CMR.

1. If the coupling arrived assembled, the disc packs, center ring, and flywheel adapter are still attached. Before taking the disc pack off the hub end, first install one hub bolt through the disc pack and secure with a locknut. This will help when the pack is reinstalled later. Remove disc pack. If the coupling was shipped disassembled, the bolt through the pack is not required as the discs in the pack are factory-taped together.

2. If coupling is not preassembled, start with the flywheel adapter on a work bench. Put the bolts through the adapter from the back side seating the head of the bolt in the slot provided. Slide the disc over the bolts. Add the washers. **The beveled side of the washer should always be against the disc pack.** Secure with the locknuts. Now mount the center ring to this disc pack by putting the bolts through the holes in the center ring fingers, and then through the remaining disc pack holes. Add the washers, and secure with the locknuts. All the locknuts in this sub-assembly can now be torqued to the values shown in Table 1.

NOTE: All bolt threads should be lubricated. A clean motor oil is recommended.

If the coupling was preassembled (flywheel adapter, disc pack, and center ring) the locknut in this sub assembly can be torqued to the values shown in Table 1.

The disc pack when installed should look flat and parallel with mating adapter and center ring fingers.

3. With the hub mounted and the span length "C" set, proceed to put the sub-assembly (flywheel adapter, disc pack, and center ring) into place between the flywheel and hub. Bolt the adapter to the flywheel in the manner prescribed by the engine manufacturer.

4. Now install the remaining disc pack. Rotate the hub or center ring so that the hub bolt holes line up between the center ring fingers. Start a bolt through the bolt hole in the hub. Hold the disc pack in one hand, slip it down between the hub and center ring until one hole in the disc pack lines up with the bolt. Slide the bolt through this hole into the disc pack. Add a washer. **The beveled side of the washer should always be against the disc pack.** Install the locknut.

   Do not torque any locknuts at this time. Remove the disc pack alignment bolt if used. Now pivot the pack around until it lines up with the rest of the bolt holes in the hub. Install the rest of the hub bolts through the hub bolt holes, disc pack, washers, and locknuts. The remaining bolts for this end can be put through the center ring bolt holes, disc pack, washers, and locknuts. The locknuts can be snugged up at this time. The disc pack as installed should look flat and parallel with the mating hub and center ring fingers.

5. Make the final coupling alignment check at this time.

6. Torque up the locknuts. See Table 1 for torque values.

NOTE: With the coupling in good alignmen the bolt will fit through the holes in the flanges and the disc pack more easily.

It is recommended that all locknuts be retightened after several hours of initial operation.

7. For further help with the installation or alignment, consult Rexnord.

B. When two hubs are used - AMR.

1. If the coupling arrived assembled, the disc packs are still attached to the center ring. Before taking the disc packs off, first install one hub bolt through each disc pack and secure with a locknut. This will help when the pack is reinstalled later. Remove disc pack. If the coupling was shipped disassembled, the bolt through the pack is not required as the discs in the pack are factory-taped together.

2. With the hubs mounted and the span length "C" set, proceed to put the center ring into place between the two hubs. Care should be taken when handling the center ring.

   Support the center ring on wood blocks, with nylon straps from a hoist, or some other convenient way. It may help to support the end not being worked on with bolts through the center ring bolt holes and into the hub flange bolt holes. This will hold the parts in line at that end.

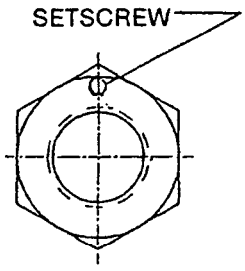
3. Now install the disc pack. Rotate the hub or center ring so that the hub bolt holes line up between the center ring fingers. Start a bolt through a bolt hole in the hub. Hold the disc pack in one hand, slip it down between the hub and the center ring until one hole in the disc pack lines up with the bolt. Slide the bolt through this hole into the disc pack. Add a washer. **The beveled side of the washer should always be against the disc pack.** Install the locknut.

NOTE: All bolt threads should be lubricated. A clean motor oil is recommended.

Table 1

Locknut Tightening Torques

Coupling Size	CMR="D AMR="A Diameter	Dimension "C" for CMR		Dimension "C" for AMR		Axial Capacity (In.)	Thread Size	Torque Ft.-Lbs. (In.-Lbs.)	Locknut Setscrew	
		Min.	Max.	Min.	Max.				Thread Size	Torque In.-Lbs.
162	4.59	3.33	3.35	2.64	2.66	± .036	1/4-28	(156)		
200	5.75	3.89	3.91	3.02	3.04	± .036	5/16-24	25		
225	6.00	3.89	3.91	3.02	3.04	± .036	5/16-24	25		
262	6.88	4.45	4.47	3.52	3.54	± .043	3/8-24	50		
312	8.13	5.33	5.36	4.14	4.17	± .051	7/16-20	40		
350	9.13	5.89	5.92	4.58	4.61	± .056	1/2-20	95		
375	10.06	6.64	6.67	5.14	5.17	± .062	9/16-18	130		
425	11.00	7.14	7.17	5.58	5.61	± .067	5/8-18	175		
450	11.88	7.64	7.67	5.96	5.99	± .072	11/16-16	200		
500	13.44	8.77	8.81	6.83	6.87	± .082	3/4-16	260		
550	15.00	9.89	9.93	7.71	7.75	± .092	7/7-14	350		
600	16.75	10.89	10.94	8.46	8.51	± .102	1-14	335*		
700	18.94	12.46	12.52	9.65	9.71	± .115	1-1/8-12	425*		
750	20.63	13.53	13.59	10.53	10.59	± .125	1-1/4-12	560*		
800	22.38	14.78	14.85	11.40	11.47	± .136	1-3/8-12	740*		
850	23.75	15.78	15.85	12.15	12.22	± .144	1-1/2-12	950*		
925	25.75	17.28	17.35	13.28	13.35	± .156	1-5/5-12	1800	3/8-16	150
1000	28.25	18.59	18.67	14.53	14.61	± .172	1-3/4-12	2350	3/8-16	150
1100	30.25	19.84	19.92	15.53	14.61	± .183	1-7/8-12	3000	3/8-16	150
1200	33.38	21.59	21.69	17.09	17.19	± .203	2-1/8-8	4000	1/2-13	300
1300	36.00	23.36	23.46	—	—	± .218	2-1/8-8	4000	1/2-13	300



NOTE:
1. These torque values are approximate for steel bolts with lubricated threads.
2. **Bolts should be held from rotating while the locknuts are torqued to the values shown.**
3. *These locknuts are cad plated.

Do not torque any locknuts at this time. Remove the disc pack alignment bolt if used. Now pivot the pack around until it lines up with the rest of the bolt holes in the hub. Install the rest of the hub bolts through the hub bolt holes, disc pack, washers, and locknuts. The remaining bolts for this end can be put through the center ring bolt holes, disc pack, washers, and locknuts. The locknuts can be snugged up at this time. The disc pack installed should look flat and parallel with the mating hub and center ring fingers.

4. Now proceed to the other end of the coupling. Remove the support bolts, if used, supporting the center ring in one of the other ways. Using paragraph "VI.B.3" above install the second disc pack.

5. Make the final coupling alignment check at this time.

6. Torque up the locknuts. See Table 1 for torque values.

NOTE: With the coupling in good alignment the bolt will fit through the holes in the flanges and the disc pack more easily.

It is recommended that all locknuts be retightened after several hours of initial operation.

7. For further help with the installation or alignment, consult Rexnord.

VII. Disc Pack Replacement. If it becomes necessary to replace the disc pack, it can be done as follows:

A. At the hub end of the coupling, remove all locknuts and washers. Back out and remove all but one bolt. It may be necessary to tap the ends of the bolts with a soft hammer to start them out. Pivot the disc pack out. Put one of the coupling bolts through the pack securing it with a locknut. This will keep the discs together and maintain the disc orientation for later reinstallation if reused. Remove the last bolt and slide the pack out.

B. For the CMR coupling

1. Remove the bolts that hold the flywheel adapter to the flywheel. Remove the adapter, disc pack, center ring assembly and put it on a bench.

2. Remove all the locknuts, washers, and bolts that hold the center ring to the disc pack. Remove the center ring. Before removing the disc pack, put a bolt through the pack and secure with a locknut. Remove the rest of the locknuts, washers, and bolts.

3. Replace parts as necessary. Recheck alignment per Section V. Reassemble per Section VI.

C. For the AMR coupling

1. Now disassemble the other end per "VII.A" above being sure to support the center ring when taking out the last bolts. Remove the center ring.

2. Replace parts as necessary. Recheck alignment per Section V. Reassemble per Section VI.

VIII. FOR REPLACEMENT PARTS, see Table 2.

Table 2 Part Numbers and Quantity Required

Size of CMR Cplg.	FLYWHEEL ADAPTER	Hub	Center Ring	Disc Pack Two per Cplg.		Washer		Bolt		Locknut	
				Tom-aloy	Stain-less						
	1 PER COUPLING MADE TO CUSTOMERS' SPECIFICATIONS	Part No.	Part No.	Part No.	Part No.	Part No.	Qty.	Part No.	Qty.	Part No.	Qty.
162		811410	811050	710663	310663	002161	12	511049	12	916504	12
200		322058	120959	210665	710665	002170	12	211046	12	316505	12
225		622050	320960	210984	610984	002170	16	211046	16	316505	16
262		322047	720826	010985	210985	002167	16	110717	16	716506	16
312		021395	720752	010957	310957	002165	16	710966	16	116507	16
350		721392	820897	810952	010952	019098	16	310968	16	516508	16
375		921797	921373	410943	610943	019100	16	210924	16	916509	16
425		221838	321377	810986	010986	910928	16	210929	16	316510	16
450		122088	121376	210987	410987	710916	16	010917	16	716511	16
500		321936	920941	420735	620735	810919	16	310918	16	116512	16
550		021647	930642	110962	310962	910920	16	210921	16	516514	16
600		120943	937205	710959	910959	610901	16	910923	16	020253*	16
700		621073	830433	–	420803	910935	16	110936	16	020257*	16
750		622262	130596	–	921021	611079	16	811080	16	202055*	16
800		931467	330562	–	220851	710991	16	510990	16	020256*	16
850		531608	430458	–	020793	810978	16	610977	16	020257*	16
925		002228	002232	–	020958	011043	16	713897	16	913898	16
1000		002216	002220	–	721034	411083	16	211082	16	112534	16
1100		002222	002226	–	421151	311167	16	111166	16	212014	16
1200		002235	002240	–	521630	002237	16	511627	16	412015	16
1300		008671	015963	–	411734	008674	16	511735	16	412015	16

*These locknuts are cad plated.