

Introduction

The following instructions apply to standard 1000 Series Omnibox® drives, Sizes 1133 thru 1600. Read ALL instructions in this manual before disassembling any parts from drive.

Drive Sizes 1133 thru 1525 of the 1000 Series Omnibox feature a single low speed seal cover design. To change the drive from left hand to right hand or vice-versa, the high speed assembly must be relocated to opposite side of drive. Before reversing the high speed assembly, the low speed assembly must first be partially removed from drive. Refer to Steps (I.) thru (VI.) for Sizes 1133 thru 1525.

Drive Size 1600 has two low speed seal covers, requiring “hand” changing to be performed on low speed shaft. Refer to Steps (VII.) through (X.) for Size 1600 drives.

I. PREDISASSEMBLY — To prevent dirt from falling into the housing, clean all external surfaces of drive before disassembly. During disassembly, wire tie all shim gaskets to their respective seal covers for reference when reassembling. NOTE: Replace any damaged shim gaskets with new ones of equal thickness.

II. REMOVE LOW SPEED SHAFT ASSEMBLY (PARTIALLY) — Sizes 1133 thru 1525

- A. Remove lowest pipe plug from housing and drain the oil from drive.
- B. Remove all keys from the solid shaft extension keyways and note location they were removed from. Wrap the keyway on low speed shaft extension with masking tape or light weight Kraft paper to protect against damaging seal lips. Coat the shaft extension with bearing grease.
- C. Remove the low speed seal cover fasteners and pry the low speed seal cover (and low speed flange, where required) away from housing using equal amounts of force on opposite sides of cover. Refer to Table 1, Page 4, for fastener head size. Do not damage the shim gaskets that may be under the low speed seal cover. After cover is removed from housing, remove any shim gaskets from under cover.

NOTE: There is an o-ring located on the register diameter of the low speed seal cover.

- D. Slide the low speed shaft assembly out of the housing only far enough to disengage gear teeth from mesh.

NOTE: DO NOT force the low speed gear from the low speed pinion. This may cause damage to gear teeth and could result in premature drive failure.

III. REMOVE HIGH SPEED SHAFT ASSEMBLY

A. Sizes 1133 thru 1325

1. Remove the high speed seal cover (and motor flange, where required). Refer to Table 2, Page 4, for fastener head size. Remove o-ring from seal cover and set it aside. This o-ring will be used for reassembly of drive.
2. Remove high speed shaft from drive (from cover-side of housing).
3. Remove and discard high speed shaft seal located in housing. A new seal will be required for reassembly of drive. Clean sealant from housing bore.

B. Sizes 1425 thru 1525 — The method used to remove the high speed shaft assembly depends on type of drive. Drive types include solid high speed shaft (WB), hollow shaft/motor flange input (WBM) and extended motor flange input (WBF). Instructions for all types are as follows:

1. TypeWB Drives — Solid High Speed Shaft (no motor flange):

- a. Wrap the keyway on high speed shaft extension with masking tape or light weight Kraft paper to protect against damaging seal lips. Coat the shaft extension with bearing grease.
- b. Remove the high speed seal cover fasteners and seal covers from housing. Refer to Table 2, Page 4, for fastener head size. Remove any shim gaskets from under the seal covers.
- c. Remove o-rings from seal covers and set them aside. These o-rings will be used for reassembly of drive.
- d. Remove high speed shaft assembly from housing.

2. Type WBM Drives — Hollow High Speed Shaft/Motor Flange Input:

- a. Coat the shaft extension with bearing grease.
- b. Remove the high speed seal cover and motor flange fasteners. Refer to Table 2, Page 4, for fastener head size. Remove seal cover and motor flange. Remove any shim gaskets from under seal cover or flange.
- c. Remove o-rings from seal cover and flange and set them aside. These o-rings will be used for reassembly of drive.
- d. Pull high speed shaft partially out of drive from seal cover-side to access retaining ring in housing. Prior to removing retaining ring remove the inner high speed bearing race by inserting a long metal rod through the opposite high speed bore. Tap the bearing race out with the rod. Now, compress retaining ring while removing high speed shaft assembly from drive.

3. Type WBF Drives — Extended Motor Flange Input:

- a. Wrap the keyway on high speed shaft extension with masking tape or light weight Kraft paper to protect against damaging seal lips. Coat the shaft extension with bearing grease.
- b. Remove the high speed seal cover and motor flange fasteners. Refer to Table 2, Page 4, for fastener head size. Remove flange and seal cover.
- c. Remove second high speed seal cover located under motor flange. Remove any shim gaskets under the seal covers.
- d. Remove o-rings from seal covers and set them aside. These o-rings will be used for reassembly of drive.
- e. Remove high speed shaft assembly from housing.

IV. INSTALL HIGH SPEED SHAFT ASSEMBLY

- A. Position the high speed shaft assembly into drive housing with shaft extension extending in desired direction (right or left hand extension).
- B. Position low speed shaft assembly completely into drive in its original orientation, if partially removed during disassembly of high speed shaft. NOTE: Do not force gears into mesh. This may cause damage to gear teeth and could result in premature drive failure.

1. Sizes 1133 thru 1325

- a. Coat the high speed seal cover o-ring with bearing grease and position it at base of register diameter on the seal cover.
- b. Apply Loctite 290 or equivalent to threaded portion of high speed seal cover fasteners.
- c. Install high speed seal cover to housing. Cross torque fasteners to value shown in Table 2, Page 4.
- d. Carefully inspect polished surface of shaft where the seal makes contact. If the seal surface shows any sign of a nick, scratch, spiral swirl or groove, the shaft should be replaced or refurbished to prevent leakage of the lubricant. (In many instances the seal surface can be restored by use of a thin wall wear sleeve. Check with your local seal supplier and follow the manufacturer's instructions for installing the wear sleeve.)
- e. **CAUTION:** *Protect seal lips from sharp edges of the keyway by wrapping masking tape or light weight Kraft paper around the shaft and coating the paper and seal lips with bearing grease before sliding the seal on or off the shaft. Do not expand the seal lips more than 0.030" (.76 mm) on diameter.*
- f. Refer to Table 3, Page 4, for replacement seal part numbers and descriptions.
- g. Coat O.D. of NEW seal with #3 Permatex or equivalent sealant. Position seal square into housing bore with the garter spring toward bearing. Place a square ended cylindrical tool against seal and press or lightly tap tool (not seal) until seal outer wall is seated .219" inside the seal bore outer wall.
CAUTION: *A shaft shoulder is NOT provided for stopping seal. DO NOT seat seal against bearing.*
- h. Reinstall motor flange to housing if it was removed earlier. Apply Loctite 290 or equivalent to motor flange fasteners. Cross torque fasteners to value shown in Table 2, Page 4.

- 2. **Sizes 1425 thru 1525** — The method used to install the high speed shaft assembly depends on type of drive. Drive types include solid high speed shaft (WB), hollow shaft/motor flange input (WBM) and extended motor flange input (WBF). Instructions for all types are as follows:

a. Type WB Drives — Solid high speed Shaft (no motor flange):

- (1) Coat the high speed seal cover o-rings with bearing grease and position them at base of register diameter on the seal covers.
- (2) Apply Loctite 290 or equivalent to threaded portion of high speed seal cover fasteners.
- (3) Install high speed seal cover and shim gaskets to housing. Cross torque fasteners to value shown in Table 2, Page 4.
- (4) It is not necessary to check high speed shaft axial end float of WB drives.

b. Type WBM Drives — Hollow High Speed Shaft/Motor Flange Input:

- (1) Coat the high speed seal cover and flange o-rings with bearing grease and position them at base of register diameter on the seal cover and flange.
- (2) Apply Loctite 290 or equivalent to threaded portion of high speed seal cover and flange fasteners.
- (3) Install high speed seal cover, flange and shim gaskets to housing. Cross torque fasteners to value shown in Table 2, Page 4.
- (4) Check high speed shaft axial end float — End float can be checked using a dial indicator positioned on the end of the high speed shaft extension. Move high speed shaft in and out axially while reading the dial indicator. The allowable axial end float for Sizes 1425 & 1525 is +.001" to +.006" (.02 to .15 mm).
If the end float does not meet specifications, remove high speed seal cover and motor flange. Add or remove shim gaskets from under high speed seal cover. If additional shim gaskets are required, obtain shim kit from Rexnord. Use P/N 4731619 for Size 1425 and P/N 4731620 for Size 1525.
Reassemble the seal cover and motor flange to housing. Repeat this procedure until measured end float meets specifications.

c. Type WBF Drives — Extended Motor Flange Input:

- (1) Coat the high speed seal cover o-rings with bearing grease and position them at base of register diameter on the seal covers.
- (2) Apply Loctite 290 or equivalent to threaded portion of high speed seal cover and flange fasteners.
- (3) Install high speed seal covers, flange and shim gaskets to housing. Cross torque fasteners to value shown in Table 2, Page 4.

- (4) It is not necessary to check high speed shaft axial end float of WBF drives.

V. INSTALL LOW SPEED SHAFT ASSEMBLY — Sizes 1133 thru 1525

- A. Coat the o-ring on the low speed seal cover with bearing grease.
- B. Apply Loctite 290 or equivalent to threaded portion of low speed seal cover fasteners. Install low speed seal cover and shim gaskets to housing. Cross torque fasteners to value shown in Table 1.
- C. Remove the tape or lightweight paper from shaft extensions and install all shaft extension keys removed earlier.

VI. LUBRICATION — All Sizes

Fill the drive with an approved fluid to the appropriate level, as specified in Manual 278-109.

VII. CHANGING DRIVE “HAND” — Size 1600

The Size 1600 Omnibox uses two low speed seal covers. The “hand” on this size is changed by removing and relocating low speed shaft assembly. Refer to “Introduction” and “Predisassembly” paragraphs before beginning disassembly of drive. For changing “hand” of a size 1600 Omnibox, the following instructions apply:

- A. Remove lowest pipe plug from housing and drain the oil from drive.
- B. Remove fasteners from both low speed seal covers. Refer to Table 1 for fastener head size.
- C. Remove the low speed seal cover and shim gaskets opposite the low speed shaft extension. NOTE: It may be necessary to tap the seal cover with a plastic tipped hammer. Keep shim gaskets with their respective seal cover.
- D. Gently tap exposed end of shaft with a plastic tipped hammer and slide low speed shaft assembly out of housing.
- E. Reinstall low speed shaft assembly and shim gaskets into housing bore, opposite from which it was removed. Install seal cover fasteners and tighten finger tight.
- F. Install low speed seal cover and shim gaskets opposite the low speed shaft extension. Install seal cover fasteners and tighten finger tight.
- G. Cross-torque all low speed seal cover fasteners to the value shown in Table 1.
- H. Reinstall lowest pipe plug in housing, removed earlier.
- J. Turn high speed shaft in both directions to check if gear train is running freely. If the high speed shaft turns freely, continue with Step 9. If the high speed shaft does not turn freely, follow the procedures given in Step 8.

VIII. CENTERING WORM GEAR OVER WORM SHAFT — Size 1600

- A. If the gearing turns over hard when all the seal cover fasteners are tightened, loosen fasteners of “one” low speed seal cover. If the high speed shaft now turns free, continue with Step C. If the high speed shaft still turns hard, continue with Step B.
- B. Retorque loosened seal cover fasteners and loosen opposite low speed seal cover fasteners. High speed shaft should now turn freely.
- C. Remove some thin shim gaskets from the side with the “tightened” seal cover fasteners and place them on the side with the “loosened” seal cover fasteners.
- D. Tighten all fasteners to the value listed in Table 1. Check to see that the high speed shaft turns freely. If not, repeat procedure shifting more shim gaskets over from one side to the other until high speed shaft turns freely when all seal cover fasteners are tight.

IX. CHECK LOW SPEED SHAFT AXIAL END FLOAT — Size 1600

- A. End float can be checked using a dial indicator positioned on the end of the low speed shaft extension.
- B. Move low speed shaft in and out axially while reading the dial indicator.
- C. If required, add or remove shim gaskets equally from under each low speed seal cover until an end float of .000” to +.002” (0 to .05 mm) is obtained.

X. LUBRICATION

Fill the drive with an approved fluid to the appropriate level, as specified in Manual 278-109.

TABLE 1 — Low Speed Seal Cover Fastener Size & Tightening Torque

DRIVE SIZE	Fastener Thread Size	Fastener Head Size	Torque	
			lb-ft	Nm
1133	.312-18	1/2	15	20
1154	.312-18	1/2	15	20
1175	.312-18	1/2	15	20
1206	.312-18	1/2	15	20
1238	.312-18	1/2	15	20
1262	.312-18	1/2	15	20
1300	.375-16	9/16	28	38
1325	.375-16	9/16	28	38
1425	.438-14	5/8	45	61
1525	.438-14	5/8	45	61
1600	.438-14	5/8	45	61

TABLE 2 — High Speed Seal Cover/ Motor Flange Fastener Size & Tightening Torque

DRIVE SIZE	Fastener Thread Size	Fastener Head Size	Torque	
			lb-ft	Nm
1133	.312-18	1/2	15	20
1154	.312-18	1/2	15	20
1175	.312-18	1/2	15	20
1206	.312-18	1/2	15	20
1238	.312-18	1/2	15	20
1262	.312-18	1/2	15	20
1300	.312-18	1/2	15	20
1325	.312-18	1/2	15	20
1425	.438-14	5/8	45	61
1525	.438-14	5/8	45	61

TABLE 3 — Replacement Seal Guide (Sizes 1133 thru 1525)

DRIVE SIZE	Seal Location				
	Solid High Speed Shaft (Single Extension)	Solid High Speed Shaft (Double Extension)	High Speed Quill Shaft	Solid Low Speed Shaft	Low Speed Quill Shaft
1133					P/N 2921512 CR# 9939 1.00 x 1.62 x .250
1154				P/N 2921511 CR# 534953 .875 x 1.62 x .250	
1175	P/N 2921500 CR# 534948 .625 x 47mm x 7mm	P/N 2921504 CR# 6383 .625 x 1.38 x .250	P/N 2921507 CR# 534951 1.375 x 47mm x 7mm		P/N 2921518 CR# 14259 1.438 x 2.25 x .313
1206				P/N 2921512 CR# 9939 1.00 x 1.62 x .250	
1238	P/N 2921501 CR# 534956 .750 x 52mm x 7mm	P/N 2921505 CR# 7624 .750 x 1.62 x .250	Frame Size 56C-140TC & D71D-D80D P/N 2921508 CR# 534952 1.375 x 52mm x 7mm Frame Size 180TC P/N 2921509 CR# 534958 1.563 x 52mm x 7mm	P/N 2921513 CR# 534955 1.250 x 2.13 x .250	P/N 2921519 CR# 19227 1.938 x 2.62 x .313
1262					
1300	P/N 2921502 CR# 534949 .938 x 62mm x 8mm	P/N 2921506 CR# 9308 .938 x 1.62 x .250	P/N 2921510 CR# 534957 1.875 x 62mm x 8mm	P/N 2921514 CR# 14994 1.500 x 2.37 x .313	P/N 2902564 CR# 25076 2.500 x 3.62 x .375
1325					
1425			Frame Size 56C-140TC & D80D-D110/112 P/N 2921510 CR# 534957 1.875 x 62mm x 8mm	P/N 2921515 CR# 18737 1.875 x 2.88 x 313	P/N 2921520 CR# 27272 2.750 x 3.50 x .375
1525	P/N 2921503 CR# 534950 1.313 x 2.06 x .313		Frame Size 180-250TC & D132D P/N 2917238 CR# 22361 2.250 x 3.00 x .375	P/N 2921516 CR# 19995 2.000 x 3.00 x .313	P/N 2921521 CR# 534954 4.250 x 5.25 x .375