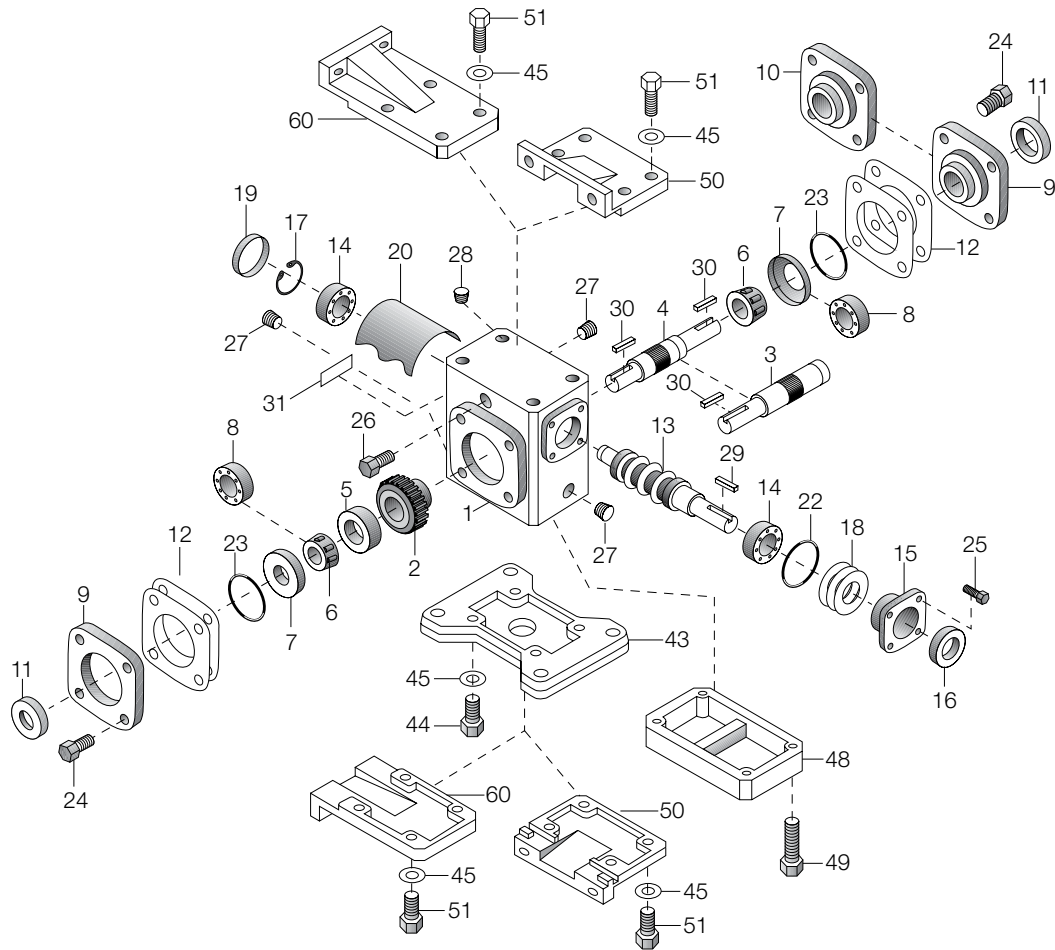


## Parts List – Single Reduction Models, Cast Iron Units

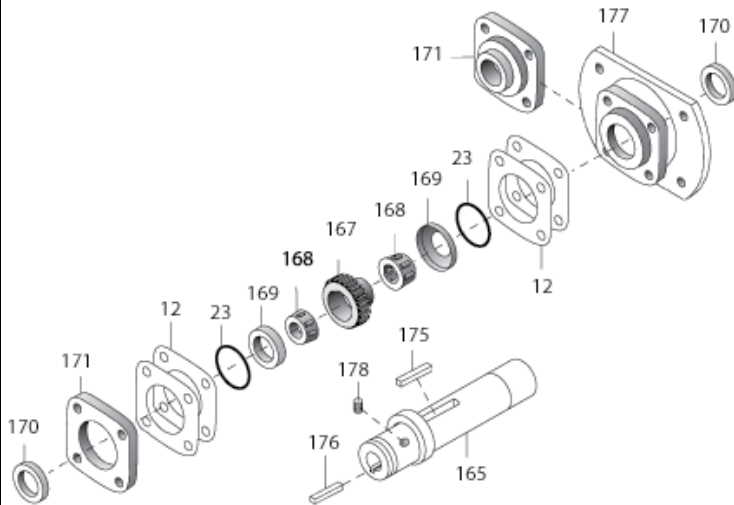


Part No.	Description	Part No.	Description	Part No.	Description
1	HOUSING	26	VENT PLUG	51	HEX HEAD CAP SCREW
2*	WORM GEAR	27	PIPE PLUG	60	VERTICAL BASE (X & Y ASSEMBLY)
3*	SINGLE PROJECTING OUTPUT SHAFT	28	PROTECTIVE CAP PLUG	101	FAN
4*	DOUBLE PROJECTING OUTPUT SHAFT	29	INPUT KEY	102	SPACER
5*	GEAR SPACER	30	OUTPUT KEY	103	HEX HEAD CAP SCREW
6*	OUTPUT BEARING (CONE) – MODELS 713-760	31	NAMEPLATE	104	FAN GUARD
7	OUTPUT BEARING (CUP) – MODELS 713-760	32	INPUT BEARING (CUP) MODELS 732-760	105	HEX HEAD CAP SCREW
8	OUTPUT BEARING – MODEL 710 ONLY	33	INPUT BEARING (CONE) – MODELS 732-760	106	WASHER
9	BEARING CARRIER (OPEN)	34	GREASE CUPS – MODELS 732-760	165	HOLLOW OUTPUT SHAFT (S VERSION ONLY)
10	BEARING CARRIER (CLOSED)	35	HEX HEAD CAP SCREW	166	HOLLOW OUTPUT SHAFT (H VERSION ONLY)
11*	OUTPUT OIL SEAL	37	OUTPUT SHAFT KEY – MODELS 730-760	167	WORM GEAR
12*	ADJUSTMENT SHIMS	38	RETAINING RING – MODELS 710-738	168	OUTPUT BEARING (CONE)
13	INPUT WORM SHAFT	39	MOTOR SHAFT – MODELS 710-738	169	OUTPUT BEARING (CUP)
14	INPUT BEARING – MODELS 710-730	40	MOTOR FLANGE – MODELS 710-738	170	OIL SEAL
15	INPUT BEARING RETAINER	41	OIL SEAL – MODELS 710-738	171	BEARING CARRIER
16	INPUT OIL SEAL – MODELS 710-760	42	HEX HEAD CAP SCREW	172	HOLLOW SHAFT MTG. BRACKET
17	RETAINING RING	43	HORIZONTAL BASE	173	HEX HEAD CAP SCREW
18	ADJUSTMENT SHIMS	44	HEX HEAD CAP SCREW	174	LOCKWASHER
19	BORE PLUG – MODELS 710-730	45	LOCKWASHER	175	KEY (INTERNAL)
20	INTERNAL BAFFLE – MODELS 713-732	46	2 PIECE FC COUPLING – WITH INSERT	176	KEY (EXTERNAL)
22	INPUT “O” RING	47	RETAINING MOTOR FLANGE	177	“V” TYPE BASE-MODEL (718, 721, 726, 732)
23*	OUTPUT “O” RING	48	RISER BLOCK	178	SOCKET SETSCREW
24	HEX HEAD CAP SCREW	49	HEX HEAD CAP SCREW	179	FAN GUARD DUCT PLATE
25	HEX HEAD CAP SCREW	50	VERTICAL BASE (HIGH OR LOW)		

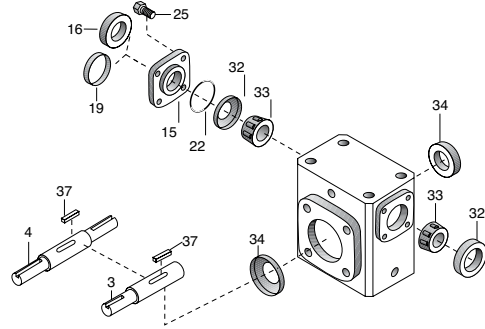
\*For Models 710 to 726, these parts are available as complete assemblies. See Part Ordering Information, page 9.

## Options & Accessories – Single Reduction Models, Cast Iron Units

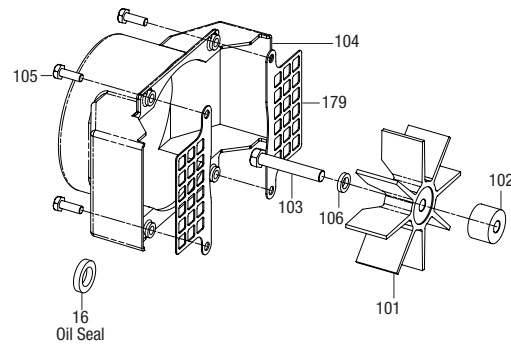
### Hollow Output Shaft Models S and SF718-732\*



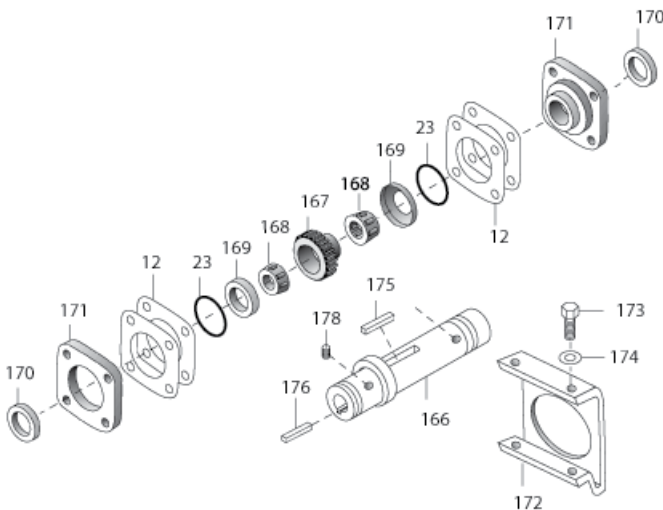
### Models 732-760



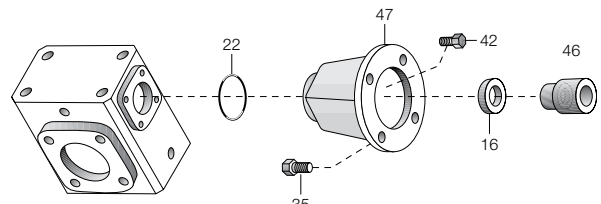
### Fan kit for models 732-760



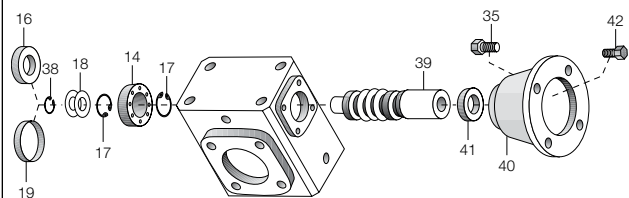
### HOLLOW OUTPUT Shaft Models H, HF, and HQC713-738



### Models QC710-QC738, RF752-RF760



### Models F710-F738

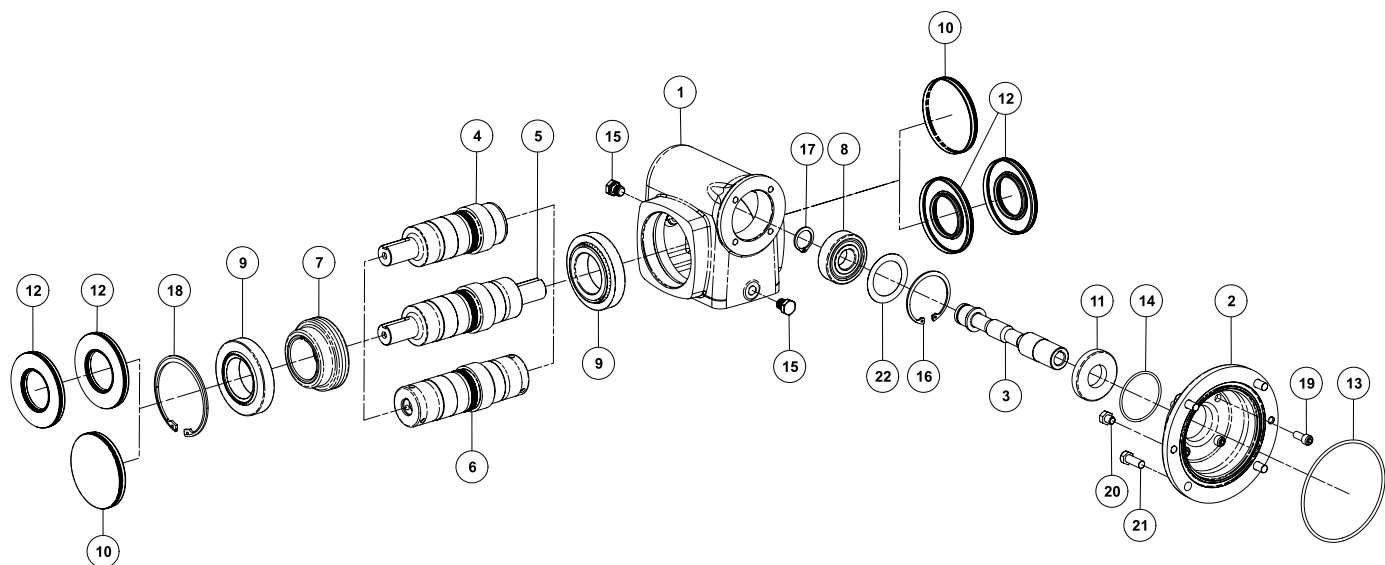


### Part ordering information

1. Be sure to provide complete Boston Gear catalog number from speed reducer nameplate, along with part description and number. For example, "One output oil seal, Part No. 11, for RF718-30-B5-G".
2. Output shaft components for Boston Gear models 710 through 726 are available only as complete assemblies that include Parts 2, 3, 5, 6, 11, 12 and 23 for single projecting shafts; and Parts 2, 4, 5, 6, 11, 12 and 23 for double projecting shafts. When ordering, specify "output shaft assembly" and full Boston Gear catalog number from nameplate.

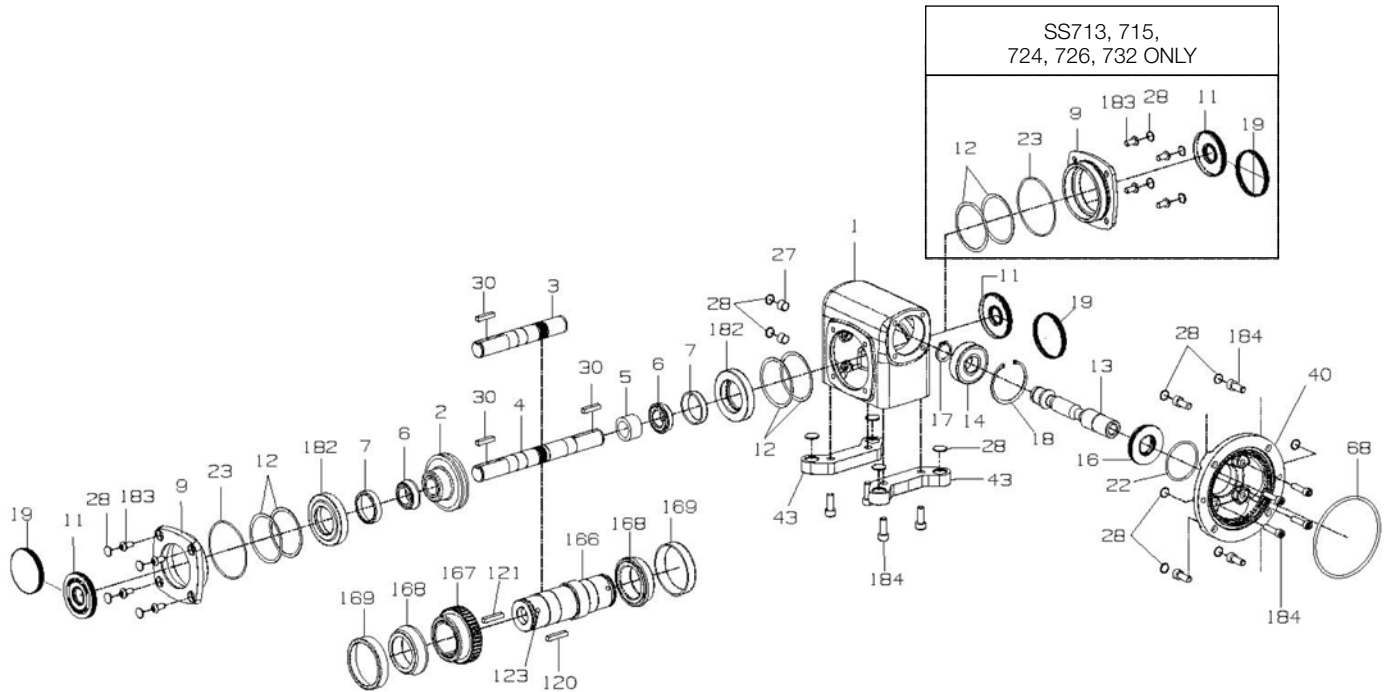
\*\* Not available in the 730 or 724 Center distance, See H series.

Parts List - Stainless SS7180, SS7210, SS7240 Units



Part No.	Description	Part No.	Description
1	HOUSING, BASIC	12	OUTPUT OIL SEAL
2	MOTOR FLANGE	13	INPUT O-RING, MOTOR FLANGE
3	IPUT SHAFT	14	INPUT O-RING, HOUSING
4	OUTPUT SHAFT, SOLID, SINGLE PROJECTION	15	PLUG, OIL FILL/DRAIN
5	OUTPUT SHAFT, SOLID, DOUBLE PROJECTION	16	INPUT RETAINING RING, HOUSING
6	OUTPUT SHAFT, HOLLOW	17	INPUT RETAINING RING, SHAFT
7	WORM GEAR	18	OUTPUT RETAINING RING
8	INPUT BEARING	19	SCREW, CAP, HEX SOCKET HEAD, SS, 5/16-18 X 3/4 LG
9	OUTPUT BEARING	20	SCREW, CAP, HEX HEAD, SS, 3/8-16 X 3/8 LG
10	BOREPLUG	21	SCREW, CAP, HEX HEAD, SS, 3/8-16 X 1" LG
11	INPUT OIL SEAL	22	SHIM, INPUT (.003 THK)

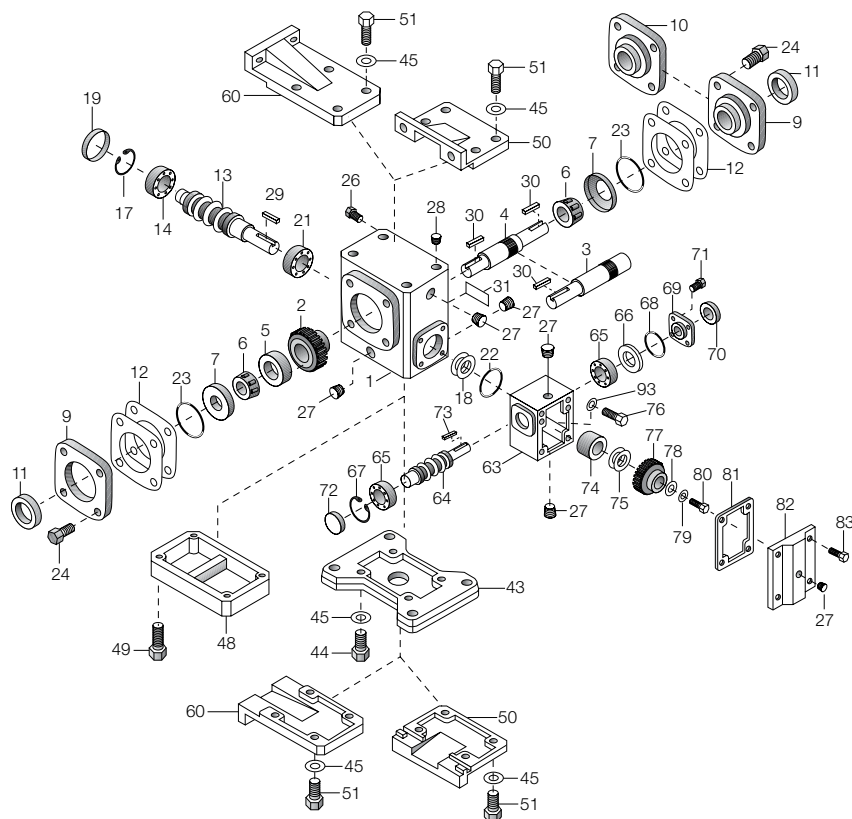
**PARTS LIST - STAINLESS STEEL MODELS SSF AND SSHF 700 Series (Gen 1) Units**  
**The original Domed Crown™ Design**



Part No.	Description
1	HOUSING
2	WORM GEAR
3	SINGLE PROJECTING OUTPUT SHAFT
4	DOUBLE PROJECTING OUTPUT SHAFT
5	GEAR SPACER
6	OUTPUT BEARING (CONE)
7	OUTPUT BEARING (CUP)
9	BEARING CARRIER (OPEN)
11	OUTPUT OIL SEAL
12	ADJUSTMENT SHIMS
13	INPUT WORM SHAFT
14	INPUT BEARING
16	INPUT OIL SEAL
17	RETAINING RING (EXTERNAL)
18	RETAINING RING (INTERNAL)
19	BORE PLUG
22	INPUT "O" RING
23	OUTPUT "O" RING
27	PIPE PLUG

Part No.	Description
28	PROTECTIVE CAP PLUG
30	OUTPUT KEY
40	MOTOR FLANGE
43	HORIZONTAL BASE
68	MOTOR FLANGE "O" RING
120	KEY (EXTERNAL)
121	KEY (INTERNAL)
123	SOCKET SETSCREW
166	HOLLOW OUTPUT SHAFT (H) VERSION ONLY
167	WORM GEAR
168	OUTPUT BEARING (CONE)
169	OUTPUT BEARING (CUP)
182	REDUCER BUSHING (MODELS 718 & 721 SOLID SHAFT ONLY)
183	HSBHCS
184	SHCS

## Parts List – Double Reduction Models , Cast Iron Units

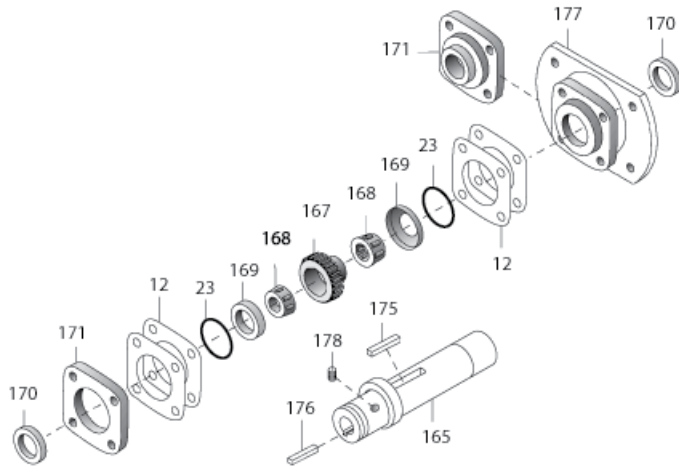


Part No.	Description	Part No.	Description	Part No.	Description
1	HOUSING	31	NAMEPLATE	78	WASHER
2*	WORM GEAR	32	INTER. BEARING (CUP) –MODELS 732-W760	79	LOCKWASHER
3*	SINGLE PROJECTING OUTPUT SHAFT	33	INTER. BEARING (CONE) – MODELS 732-W760	80	HEX HEAD CAP SCREW
4*	DOUBLE PROJECTING OUTPUT SHAFT	34	GREASE CUPS – MODELS W732-W760	81	ATTACHMENT COVER GASKET
5*	GEAR SPACER	35	HEX HEAD CAP SCREW	82	ATTACHMENT COVER
6*	OUTPUT BEARING (CONE)	37	OUTPUT SHAFT KEY – MODELS W730-W760	83	HEX HEAD CAP SCREW
7	OUTPUT BEARING (CUP)	43	HORIZONTAL BASE	84	INPUT BEARING (CONE) – MODEL W760 ONLY
9	BEARING CARRIER (OPEN)	44	HEX HEAD CAP SCREW	85	INPUT BEARING (CUP) – MODEL W760 ONLY
10	BEARING CARRIER (CLOSED)	45	LOCKWASHER	86	TWO PIECE FC COUPLING WITH INSERT
11*	OUTPUT OIL SEAL	48	RISER BLOCK	87	MOTOR FLANGE
12*	ADJUSTMENT SHIMS	49	HEX HEAD CAP SCREW	88	HEX HEAD CAP SCREW
13	INTERMEDIATE WORM SHAFT	50	VERTICAL BASE (HIGH OR LOW)	89	MOTOR FLANGE
14	INTERMEDIATE BEARING–MODELS W713-W730	51	HEX HEAD CAP SCREW	90	INPUT WORM SHAFT
15	INTER. BEARING RETAINER–MODELS W732-W760	60	VERTICAL BASE (ASSEMBLY X & Y)	91	EXTERNAL RETAINING RING
16	INTER. OIL SEAL – MODELS W732-W760	63	ATTACHMENT HOUSING	92	OIL SEAL – MODELS FW713-FW738
17	RETAINING RING – MODELS W713-W730	64	INPUT WORM SHAFT	93	WASHER
18	ADJUSTMENT SHIMS	65	INPUT BEARING	165	HOLLOW OUTPUT SHAFT (S VERSION ONLY)
19	BORE PLUG – MODELS W713-W730	66	ADJUSTMENT SHIMS	166	HOLLOW OUTPUT SHAFT (H VERSION ONLY)
21	INTERMEDIATE BEARING	67	RETAINING RING	167	WORM GEAR
22	INTERMEDIATE “O” RING	68	“O” RING	168	OUTPUT BEARING (CONE)
23*	OUTPUT “O” RING	69	BEARING RETAINER	169	OUTPUT BEARING (CUP)
24	HEX HEAD CAP SCREW	70	OIL SEAL	170	OIL SEAL
25	HEX HEAD CAP SCREW	71	HEX HEAD CAP SCREW	171	BEARING CARRIER
26	VENT PLUG – 2 PIECE	72	BORE PLUG – MODELS W713-W738	172	HOLLOW SHAFT MTG. BRACKET
27	PIPE PLUG	73	INPUT WORM SHAFT KEY	173	HEX HEAD CAP SCREW
28	PROTECTIVE CAP PLUG	74	GEAR SPACER	174	LOCKWASHER
29	INTERMEDIATE KEY	75	ADJUSTMENT SHIMS	175	KEY (INTERNAL)
30	OUTPUT KEY	76	HEX HEAD CAP SCREW	176	KEY (EXTERNAL)
		77	INTERMEDIATE WORM GEAR	177	“V” TYPE BASE MODEL (718, 721, 726, 732)
				178	SOCKET SETSCREWS

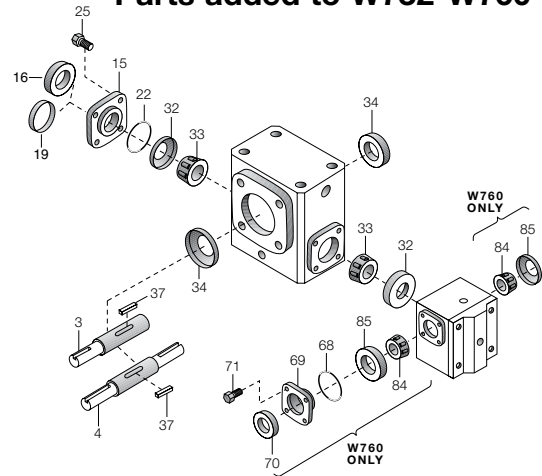
\*For Models 710 to 730, these parts are available as complete assemblies. See Part Ordering Information, Page 11.

## Options & Accessories – Double Reduction Models, Cast Iron Units

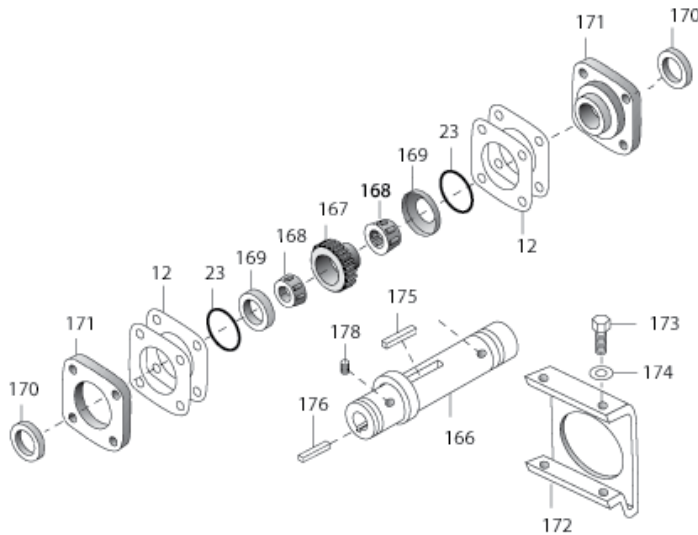
### Hollow Output Shaft Models SW, SFW, and SRFW718-732\*



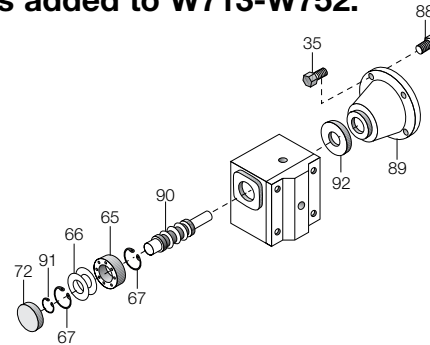
### Models W732-W760 Parts added to W732-W760



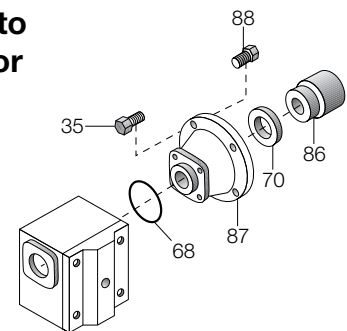
### Hollow Output Shaft Models HW, HFW, and HQCW713-738



### Models FW713-FW752 Parts added to W713-W752.



### Models QCW713-QCW760 Parts added to W713-W726 or W732-W760. These parts available in kit form.



### Part ordering information

1. Be sure to provide complete Boston Gear catalog number from speed reducer nameplate, along with part description and number. For example, "One output oil seal, Part No. 11, for W713-150-G".
2. Output shaft components for Boston Gear models 710 through 726 are available only as complete assemblies that include Parts 2, 3, 5, 6, 11, 12 and 23 for single projecting shafts; and Parts 2, 4, 5, 6, 11, 12 and 23 for double projecting shafts. When ordering, specify "output shaft assembly" and full Boston Gear catalog number from nameplate.

\* Not available in 730 center distance, see H series.

## F700 Series

### Disassembly and Reassembly Procedures

(For Item Identification, Refer To Exploded View)

#### Output Shaft Disassembly

1. Remove vented filler (Item 26), and the most convenient pipe plug (Item 27) and completely drain oil.
2. Remove bearing carrier screws (Item 24) from projecting shaft bearing carrier (Item 9). Remove carrier by CAREFULLY sliding it over the projecting shaft diameter. Carrier removal is improved by rotating it 30 to 45 degrees and prying on the exposed edges.
3. Output shaft assembly (Items 2, 3, 5 & 6) can now be removed from the unit. Exercise care not to nick or scratch worm gear or shaft diameters.
4. Visually examine the output shaft assembly. Check tapered roller bearings (Item 6) for signs of pitting or metallic contamination or discoloration. Rollers should have continuously smooth action and should not bind or exhibit "flat-spots".
5. Note that replacement parts for output gear (Item 2) will include an output shaft assembly (Items 3 OR 4) for sizes F710 through F726. Also included are items 5, 6, 11, 12 and 23.

#### Input Shaft Disassembly

##### Models F710 through F730

1. With a screwdriver or suitable tool, pierce the bore plug (Item 19) and remove from the housing bore.

##### Models F732 and F738 only

2. Remove fan guard (Item 104). Remove fan retaining screw (Item 103), fan (Item 101) and spacer. With a screw-driver or suitable tool, pierce fan end oil seal or end cap (item 16 or 19) and remove from the housing bore.
3. Remove the outboard retaining ring (Item 17) from the housing bore. Remove the metal shims (Item 18), located between the retaining ring and the ball bearing (Item 14).
4. Remove four (4) screws (Item 42) from the

motor flange (Item 40) and remove the flange from the housing.

5. Remove the input worm assembly (Items 14, 38 and 39) through the bore opposite the flange side. Remove the oil seal (Item 41) from the housing.
6. Check the condition of the ball bearing (Item 14). The bearing should roll smoothly and not bind. If the bearing needs replacement, remove the snap ring (Item 38) and press the shaft through the bearing. Install new bearing onto the shaft and re-assemble the snap ring. If the bearing is not pre-packed with grease, pack at least 50% full with Mobilux EP #2 All Purpose Grease or equivalent.

#### Input Shaft Reassembly

##### Models F710 through F738

1. Insert input worm assembly in the housing. Seat the ball bearing against the inner retaining ring (Item 17).
2. Install the metal shims (Item 18) and assemble outboard snap ring (Item 17).
3. Clean the housing bore(s) in the area where oil seals will be installed.
4. Install the oil seals as follows:

Oil Seals - Apply ALL-PURPOSE grease (NLGI #2 consistency) to the seal lip area.

5. Insert the new oil seal (Item 41) over the shaft until it contacts the housing. CARE MUST BE TAKEN NOT TO DAMAGE THE OIL SEAL LIP. For best performance, cover the shaft with a seal leader or greased paper to prevent seal lip damage.



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**Replacing the Radial Lip Seal on a Boston Gear Speed Reducer.**

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6. With a small hammer, tap around the face of the oil seal casing - near the outside diameter. Locate the seal as shown in Figure 2 Page 24. Use a suitable driving tool that contacts the full seal face. Once the seal is fully seated, verify the seal is not cocked in the bore. For best seal performance they should be installed perpendicular within .010" of the machined surface.

## Model F710 through F730

7. Install a new bore plug (Item 19). Using a small hammer, lightly tap around the plug face near the outside diameter. CAUTION should be exercised not to distort or cock the bore plug.

## Model F732 and F738

8. Install new oil seal on the fan end (Item 16). With a small hammer, tap around the face of the oil seal casing - near the outside diameter. Use a suitable tool to assure squareness of the seal to the bore. Drive the seal flush to 1/16th inch projection. Reinstall fan spacer, fan, washer, lockwasher, and bolt. Verify the seal is not cocked in the bore. Tighten the bolt per the chart in Figure 5, Page 25. Reinstall the fan guard and tighten the screws per chart in Figure 5.

## Worm Gear Replacement

### Model F710 through F726

1. Replace the entire output assembly.

### Model F730 through F760

2. Place the output gear assembly into a pressing fixture and remove the worm gear from the shaft.
3. With the gear key assembled in the shaft key, press the new gear onto the shaft to the dimension shown in Figure 1, Page 24.
4. Install the shaft spacer (Item 5) and grease cups (Item 34).
5. Press the bearing cones (Item 6) onto the shaft making sure that the assembly is tight (no space between items).
6. Remeasure from the end of the shaft to the gear face as shown in Figure 1, Page 24. Readjust, if necessary, by pressing on the bearing cone until desired dimension is achieved.
7. Where grease cups are used, pack with Mobilux EP #2 All Purpose Grease or equivalent.

## Output Shaft Reassembly into Housing

1. Remove the existing oil seal (Item 11) from the bearing carrier (Item 9).
2. Coat the gear teeth with blue or red Dykme mixture or similar coating and install the output assembly into the housing.

3. Slide the bearing carrier over the projecting shaft and bolt the carrier to the housing, making sure the metal shims (Item 12) are between the carrier and the housing. Rotate the input shaft to properly seat the tapered bearings.
4. Shim adjustment must be made at this time. If the output shaft is excessively loose, measure the endplay of the output shaft and remove shims evenly from BOTH carriers until the endplay is within the limits shown in Figure 3, Page 25.

If the carrier does NOT meet the housing face, measure the gap and add shims evenly to BOTH carrier locations until the endplay is within the limits specified.

5. ASSEMBLE THE MOTOR TO THE UNIT. Check the worm gear centrality. Apply a slight load on the output shaft then rotate the input shaft for one to two minutes. Remove the bearing carrier and remove the gear shaft assembly. Check the gear teeth for correct contact pattern as shown in Figure 6, Page 26.
6. If adjustment is required, all adjustments MUST be made to the carrier which is located on the side OPPOSITE the GEAR HUB. All adjustment for centrality must be made from the TOTAL shim pack which has already been determined.

**Example:** If a shim is REMOVED from the centralized side, it must be ADDED to the opposite side.

7. When a good contact pattern has been established, assemble carrier(s) to the unit. Replace all O-rings (Item 23) where required. (Install all shims on the carriers BEFORE installing O-rings.)
8. Install a new oil seal (Item 11) into the carrier bore. Use procedures as described above. Install the carrier over the projecting shaft (recommend placing masking tape over the sharp edges of the shaft keyseat to prevent cutting the oil seal lip).



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**Boston Gear Speed Reducer.**  
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9. Tighten all screws as shown in Figure 5, Page 25.
10. Fill the unit to the proper oil level with the recommended lubricant.
11. Install the vent plug (Item 26) and the drain pipe plug (Item 27).



## 700 and RF700 and QC700 Series

### Disassembly and Reassembly Procedures

(For Item Identification, Refer To Exploded View)

#### Output Shaft Disassembly

1. Remove vented filler (Item 26) and the most convenient pipe plug (Item 27) and completely drain oil.
2. Remove bearing carrier screws (Item 24) from projecting shaft bearing carrier (Item 9). Remove carrier by CAREFULLY sliding it over the projecting shaft diameter.
3. Output shaft assembly (Items 2, 3, 5 & 6) can now be removed from the unit. Exercise care not to nick or scratch worm gear or shaft diameters.
4. Visually examine the output shaft assembly. Check tapered roller bearings (Item 6) for signs of metallic contamination or discoloration. Rollers should have continuously smooth action and should not bind or exhibit "flat-spots".
5. Note that replacement parts for output gear (Item 2) will include an output shaft (Items 3 OR 4) for sizes RF/710 through RF/726.

#### Input Shaft Disassembly

##### Model RF/710 through RF/730

1. With a screwdriver or suitable tool, pierce the bore plug (Item 19) and remove from the housing.
2. Remove the snap ring (Item 17) from the housing. Remove the retainer at the projecting shaft (Item 15) and the shims (Item 18).
3. With a soft mallet, tap lightly on the projecting shaft, removing the shaft assembly from the bore plug end.
4. Check the condition of the ball bearings (Item 14). The bearing should roll smoothly and not bind. If the bearing needs replacement, press the shaft through the bearing. Install new bearings on the shaft. Install bearings so that the shields face inward. If the bearing is not prepacked with grease, pack at least 50% full with Mobilux EP #2 All Purpose Grease or equivalent.

#### End Cap Instructions

##### Model RF/732 through RF/760

5. Remove the fan guard (Item 104). Remove the fan retaining screw (Item 103), fan (Item 101), and spacer. Remove the retainer(s) (Item 15) at both ends, if applicable or remove the motor flange (Item 47) and shims (Item 18) and O-ring (Item 22).
6. With a soft mallet, tap lightly on the projecting shaft, removing the bearing cup and input shaft through the fan end.
7. Remove the bearing cup from the projecting shaft end.
8. Check the conditions of the bearing cones and cups (Items 32 and 33). The rollers should not exhibit pitting. The cage should show no wear or distortion. The bearings, when supported in the cups, should run smoothly with no binding.
9. If the bearings need replacement, press the shaft through the bearing. Hand-pack the new cones with grease and install onto the shafts.

#### Input Shaft Reassembly

##### Model RF/710 through RF/730

1. Install the retaining ring (Item 17) in the outboard housing groove. Install the input shaft assembly through the projecting shaft end of the housing. Tap lightly to seat the bearing against the snap ring retainer.
2. Remove the old oil seal (Item 16) from the bearing retainer (Item 15). Using a small hammer, install a new oil seal by tapping around the face of the seal casing - near the outside diameter. The seal should be flush to 1/16th inch projection above the retainer surface. Verify the seal is not cocked in the bore.
3. Install the bearing cup (Item 32) and shims (Item 18), the bearing retainer (Item 15) and the O-ring (Item 22). It is recommended to protect the oil seal lip by using masking tape on the keyseat edges.



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**Replacing the Radial Lip Seal on a**  
**Boston Gear Speed Reducer.**

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## Model RF/732 through RF/760

4. Install a new oil seal in the far retainer (Item 16). With a small hammer, tap around the face of the oil seal casing - near the outside diameter. Use a suitable tool to assure squareness of the seal to the bore. Drive the seal flush to 1/16th inch projection. Verify the seal is not cocked in the bore.
5. Repack the roller bearings (Items 32 and 33) or replace if required.
6. Reinsert the input shaft assembly, assuring that the far bearing cup (Item 32) is in place. Lightly tap the end of the projecting shaft to seat the bearing.
7. Insert the front bearing cup (Item 32) and the shim pack. Replace the front oil seal in the retainer as per step #4 above.
8. Reinstall the front retainer using the O-ring. Tighten all bolts per table Figure 5, Page 25.
9. Rotate the shaft several times to seat the bearings and check for shaft endplay per Figure 4, Page 25. Adjust if required.
10. Replace fan and fan guard. Tighten bolts per Figure 5, Page 25.

## Worm Gear Replacement

### Model RF/710 through RF/726

1. Replace the entire output assembly.

### Model RF/730 through RF/760

2. Place the output gear assembly into a pressing fixture and remove the worm gear from the shaft.
3. With the gear key assembled in the shaft key seat, press the new gear onto the shaft to the dimension shown in Figure 1, Page 24.
4. Install the shaft spacer (Item 5) and grease cups (Item 34).
5. Press the bearing cones (Item 6) onto the shaft making sure that the assembly is tight (no space between items).
6. Remeasure from the end of the shaft to the gear face as shown in Figure 1, Page 24. Readjust, if necessary, by pressing on the bearing cone until desired dimension is achieved.

7. Where grease cups are used, pack with Mobilux EP #2 All Purpose Grease or equivalent.

## Output Shaft Reassembly into Housing

1. Remove the existing oil seal (Item 11) from the bearing carrier (Item 9).
2. Coat the gear teeth with blue or red Dykme mixture or similar coating and install the output assembly into the housing.
3. Slide the bearing carrier over the projecting shaft and bolt the carrier to the housing, making sure the metal shims (Item 12) are between the carrier and the housing. Rotate the input shaft to properly seat the tapered bearings.
4. Shim adjustment must be made at this time. If the output shaft is excessively loose, measure the endplay of the output shaft and remove shims evenly from BOTH carriers until the endplay is within the limits shown in Figure 4. If the carrier does NOT meet the housing face, measure the gap and add shims evenly to BOTH carrier locations until the endplay is within the limits specified.
5. Check the worm gear centrality. Apply a slight load on the output shaft and rotate the input shaft for one to two minutes. Remove the bearing carrier and remove the gear shaft assembly. Check the gear teeth for correct contact pattern as shown in Figure 6, Page 26.
6. If adjustment is required, all adjustments MUST be made to the carrier which is located on the side OPPOSITE the GEAR HUB. All adjustment for centrality must be made from the TOTAL shim pack which has already been determined.

**Example:** If a shim is REMOVED from the centralized side, it must be ADDED to the opposite side.

7. When a good contact pattern has been established, assemble carrier(s) to the unit. Replace all O-rings (Item 23) where required. (Install all shims on the carriers BEFORE installing O-rings).
8. Install a new oil seal (Item 11) into the carrier bore. Use procedures as described above. Press the seal flush to 1/16th inch projecting. Install the carrier over the projecting shaft



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**Replacing the Radial Lip Seal on a Boston Gear Speed Reducer.**

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(recommend placing masking tape over the sharp edges of the shaft keyseat to prevent cutting the oil seal lip). Verify the seal is not cocked in the bore.

9. Tighten all screws as shown in Figure 5, Page 23.
10. Fill the unit to the proper oil level with the recommended lubricant.
11. Install the vent plug (Item 26) and the drain pipe plug (Item 27).

## W700, RFW 700 and QCW700 Series

### Disassembly and Reassembly Procedures

(For item identification, refer to exploded view)

#### FW713 - FW752 Series

#### Output Shaft Disassembly

1. Remove vented filler (Item 26), and the most convenient pipe plug (Item 27) and completely drain oil.
2. Remove bearing carrier screws (Item 24) from both bearing carriers (Items 9 & 10). Remove both carriers.

**Note:** Carefully slide open carrier (Item 9) over projecting shaft diameter.

3. Output shaft assembly (Items 2, 3, 5 & 6) can now be removed from unit. Exercise care not to nick or scratch worm gear or shaft diameters.
4. Output shaft assembly can now be visually examined. Check tapered roller bearings (Item 6) for signs of any metallic contamination or discoloration. Rollers should have continuously smooth action and should not bind or exhibit "flat-spots".

#### Intermediate Worm Shaft Disassembly

##### Models FW713 - FW730

1. With a screwdriver or other similar tool, pierce input bore plug (Item 19) and remove from housing bore.

##### Models FW732 - FW752

Remove bearing retainer screws (Item 25) and remove bearing retainer (Item 15).

##### Models FW713 - FW752

2. Remove outboard retaining ring (Item 17) from housing bore.

##### Models FW713 - FW738

3. Remove four (4) screws (Item 83) from attachment cover (Item 82) and remove from housing.
4. Remove screw (Item 80), lock washer (Item 79) and washer (Item 78).

5. Remove intermediate worm assembly (Item 13) through bore opposite attachment housing.

##### Models FW713 - FW730

6. Check condition of ball bearings (Items 14 & 21). Bearings should roll smoothly and not bind. If bearings need replacement, press shaft through bearings. Install new bearings onto shaft. If not already packed with grease, bearings should be packed at least 50% full with Mobilux EP #2 All Purpose Grease or equivalent.

##### Models FW732 - FW752

Check tapered roller bearings (Items 32 & 33) for signs of any metallic contamination or discoloration. Rollers should have continuously smooth action and should not bind or exhibit "flat-spots". Repack bearings with Mobilux EP #2 All Purpose or equivalent.

#### Intermediate Worm Gear

Now that intermediate shaft has been removed, intermediate gear (Item 77) may be removed from attachment housing. Shims (Item 75) and gear spacer (Item 74) should be set aside for reassembly.

**Note:** Do not attempt to remove intermediate worm gear (Item 77) prior to removal of intermediate shaft as gear teeth will be damaged from being pried out from under the engaged worm threads.

#### Input Shaft Disassembly

1. With a screwdriver or other similar tool, pierce input bore plug (Item 72) and remove from housing bore.
2. Remove outboard retaining ring (Item 67) from housing bore. Remove metal shims (Item 66) located between snap ring and ball bearing (Item 65).
3. Remove four (4) screws (Item 88) from motor flange (Item 89) and remove flange from housing.
4. Remove input worm assembly (Item 90) through bore opposite flange side. Remove oil seal (Item 92) from housing bore. Inboard retaining ring (Item 67) will remain in housing.

5. Check condition of ball bearing (Item 65). Bearing should roll smoothly and not bind. If bearings need replacement, remove snap ring (Item 91) and press shaft through bearing.

Install new bearing onto shaft and reassemble snap ring (Item 91). If not already packed with grease, bearing should be packed at least 50% full with Mobilux EP #2 All Purpose Grease or equivalent.

## Input Shaft Reassembly

1. Insert input worm shaft assembly (Item 90) into housing with retaining ring (Item 67) used to seat ball bearing.
2. Install metal shims (Item 66) and assemble outboard snap ring (Item 67).
3. Clean housing bore(s) in area where oil seal is to be inserted.
4. Oil Seal Assembly:  
  
Oil Seal - Apply All Purpose Grease (NLGI #2 consistency) to seal lip area.
5. Insert new oil seal (Item 92) over the shaft (care must be taken not to damage oil seal lip) until it contacts the housing.



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**Replacing the Radial Lip Seal on a**  
**Boston Gear Speed Reducer.**  
<https://p.widencdn.net/bbgndd/V-0116-BG>

6. With small hammer, tap around the face of seal casing near the outside diameter. Oil seal location as follows:

**Flange end oil seal** - Refer to Figure 2, Page 24 (use suitable driving tool to recess seal).

7. Install new bore plug (Item 72). If rubber clad O.D. no sealant is required. Using small hammer, lightly tap around plug face near the outside diameter. Caution should be exercised not to distort or cock plug during installation.
8. Assemble motor flange (Item 89).

## Intermediate Worm Reassembly

1. Insert intermediate worm assembly (Item 13) through bore opposite attachment housing.

**Note:** Spacer (Item 74) and shims (Item 75) should be put on shaft and worm gear (Item 77) held in mesh with input worm (Item 90) while sliding intermediate worm assembly into position.

2. Assemble attachment cover (Item 82).

### Models FW713 - FW730

3. Install new bore plug (Item 19). Using small hammer, lightly tap around plug face near the outside diameter. Caution should be exercised not to distort or cock plug during installation.

### Models FW732 - FW752

Assemble intermediate bearing retainer (Item 15).

## Worm Gear Replacement

### Models FW713 - FW726

1. Replace entire output assembly.

### Models FW730 - FW752

1. Place output gear assembly (Item 2) into a pressing fixture and remove worm gear from shaft.
2. With gear key assembled in shaft keyseat, press new gear onto shaft to dimension shown in Figure 1, Page 24.
3. Install shaft spacer (Item 5) and grease cups (Item 34) when applicable.
4. Press bearing cones (Item 6) onto shaft making sure the assembly is tight.
5. Remeasure from end of shaft to worm gear face as shown in Figure 1, Page 24. If adjustment is necessary, press bearing cone (Item 6) until required dimension is achieved.
6. Where grease cups are used, pack with Mobilus EP #2 All Purpose Grease or equivalent.

## Output Shaft Reassembly into Housing

1. Remove existing oil seal (Item 11) from bearing carrier (Item 9).
2. Coat gear teeth (Item 3) with red-lead mixture or similar coating and install output gear assembly into housing.
3. Slide bearing carrier (Item 9) over projecting shaft (Item 4) diameter and bolt carrier to housing. Make sure metal shims (Item 12) are between carrier and housing face. Rotate input shaft to properly seat tapered roller bearings.
4. Adjustments of shims (Item 12) must be made at this time. If output shaft is excessively loose, measure endplay of output shaft and remove shims (Item 12) evenly from both carriers (Items 9 and 10) until endplay is within limits specified on Figures 3 or 4, Page 25.

If bearing carrier (Item 9) does not meet housing face, measure gap and add shims (Item 12) evenly to each side (Items 9 and 10).

5. Assemble motor to unit. Check worm gear centrality. Apply slight load to output shaft and rotate input shaft for 1 or 2 minutes. Remove output bearing carrier (Item 9) and remove output gear assembly. Check gear teeth for contact pattern. Optimum bearing pattern is shown in Figure 3, Page 25.

If gear requires adjustment for centrality, all adjustments must be made from side opposite gear hub.

**Note:** All adjustment for gear centrality to be made from the already established total shim pack (Ref. - Step 4). For example - If a shim is removed from centralized side, it must be added to the opposite side.

6. When good contact pattern or gear teeth is established, assemble carriers(s) to unit. Install new oil seal (Item 12) into bearing carrier bore. Seal assembly same as shown in "Input Shaft Reassembly" - Steps 4, 5 and 6. (Recommend masking tape over sharp keyseat edges so seal lip is not cut or damaged.) Oil seal to be flush with carrier face. Verify the seal is not cocked in the bore.



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**Replacing the Radial Lip Seal on a  
Boston Gear Speed Reducer.**

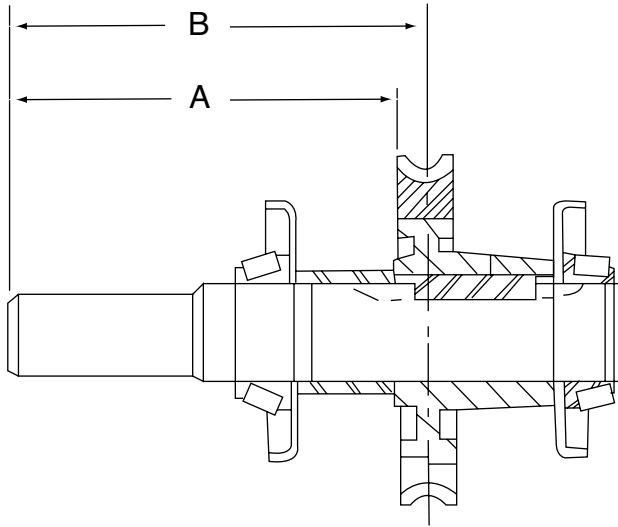
<https://p.widencdn.net/bbgndd/V-0116-BG>

7. Fill unit to proper level with recommended gear lubrication. (Ref. Pages 5-8.)

8. Install vent (Item 26) and pipe plug (Item 27).

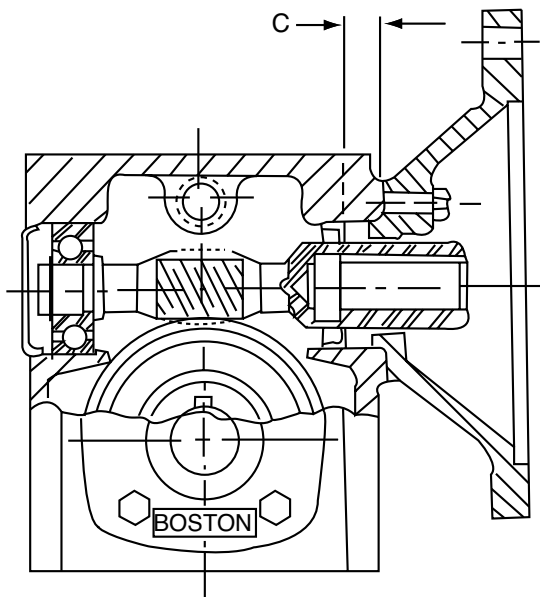
**Important:** All screw tightening torques listed in Figure 5, Page 25.

**Note:** For RFW and W700 Series Ref. to Single Reduction Instructions for 700/RF Series Input Disassembly and reassembly Page 18.



Unit	"A" $\pm 1/64$	"B" Ref. Only
730	6.310	6-3/4
732	7.469	7-1/16
738	7.25	7-3/4
752	8.44	9-1/16
760	9.28	10

**Figure No. 1**



Unit Size	"C" Dimension
F710/FW713	5/16
FW718	
F713/FW721	3/8
FW726	
F715	3/8
F718/FW732	3/8
F721/FW738	3/8
F724	3/8
F726	3/8
F730	3/8
F732	5/8
F738	5/8

**Figure No. 2**

**Note:** "C" Dimensions shown are original oil seal locations. When seal is replaced add or subtract 1/16th of an inch to dimension shown. This will allow seal to wear on a new surface for extended life.

### ENDPLAY - FLANGED REDUCTOR

UNIT SIZE	INPUT SHAFT ENDPLAY	OUTPUT SHAFT ENDPLAY
F710, F713	.0005 to .0075 Max.	.0005 to .003 Max.
F715 Through F730	.0005 to .009 Max.	.0005 to .003 Max.
F715 Through F730	.0005 to .003 Max.	.0005 to .003 Max.

Figure No. 3

### ENDPLAY - REDUCTOR & RF & QC TYPE

UNIT SIZE	INPUT SHAFT ENDPLAY	OUTPUT SHAFT ENDPLAY
710, 713	.0005 to .002 Max.	.0005 to .003 Max.
715 Through 730	.0005 to .003 Max.	.0005 to .003 Max.
732 Through 738	.0005 to .005 Max.	.0005 to .003 Max.

Figure No. 4

**Note:** Endplays adjusted by:

1. Input Shaft - Adding or subtracting metal shims (Item 18)
2. Output Shaft - Adding or subtracting metal shims (Item 12)

### SCREW TIGHTENING TORQUES\* (IN-LBS.)

UNIT SIZE	CARRIER SCREW	FLANGE SCREW	FAN GUARD SCREW	FAN ATTACH. SCREW
F710	39-58	39-58		
F713	83-125	83-125		
F715	169-253	169-253		
F718	169-253	169-253		
F721	169-253	169-253		
F724	169-253	169-253		
F726	169-253	169-253		
F730	169-253	169-253		
F732	169-253	169-253	83-125	140-160
F738	296-444	169-253	83-125	140-160
F752	473-709	473-709	83-125	140-160
F760	716-1074	473-709	83-125	140-160

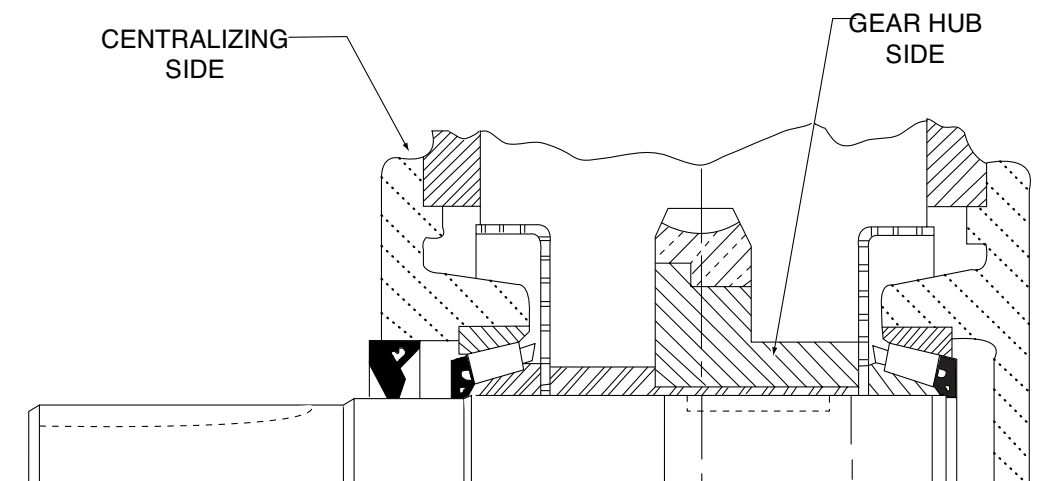
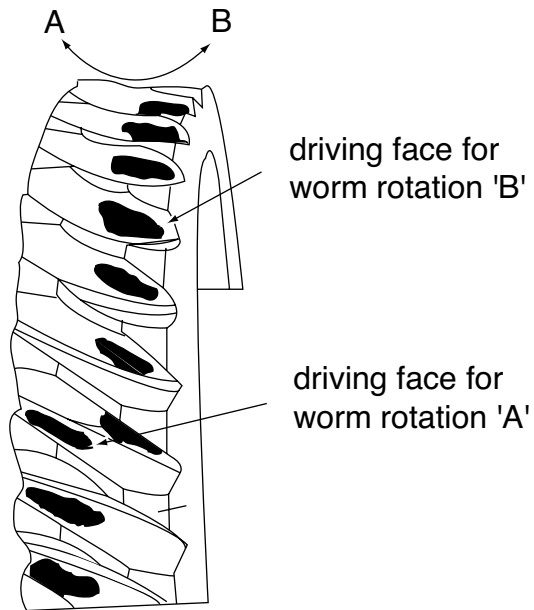
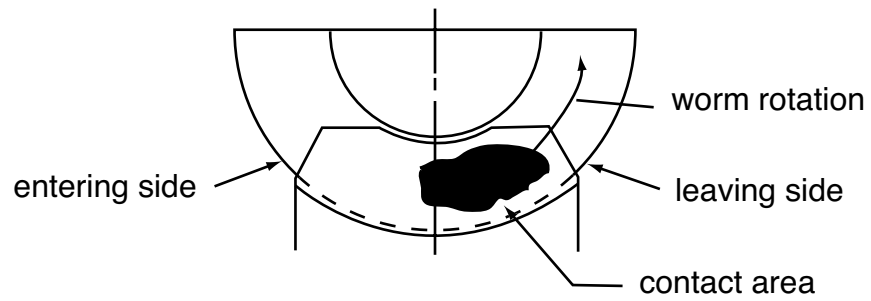
Figure No. 5

**Note:** Does not apply to SSF or SSHF reducers



## IDEAL POSITIONING OF WORM GEAR CONTACT

Figure No. 6



## Notes

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