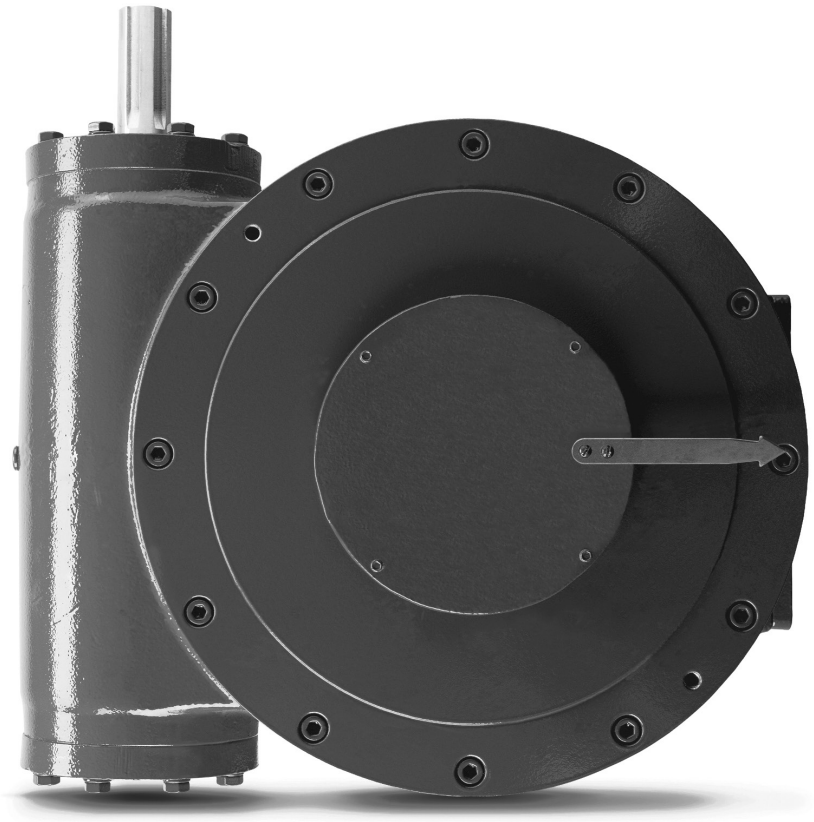
FLOWSERVE

USER INSTRUCTIONS

Limitorque HBC Series

FCD LMENIM3501-02-AQ (10/14)

Installation
Operation
Maintenance



Experience In Motion

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1 Introduction

1.1 Purpose

This installation, operation and maintenance manual (IOM) explains how to install and maintain the Flowserve Limitorque HBC gearbox. Information on installation, disassembly, reassembly, lubrication, and spare parts is provided.

1.2 User Safety

Safety notices in this manual detail precautions the user must take to reduce the risk of personal injury and damage to the equipment. The user must read and be familiar with these instructions before attempting installation, operation, or maintenance. Failure to observe these precautions could result in serious bodily injury, damage to the equipment, voiding of the warranty, or operational difficulty.

Safety notices are presented in this manual in three forms:

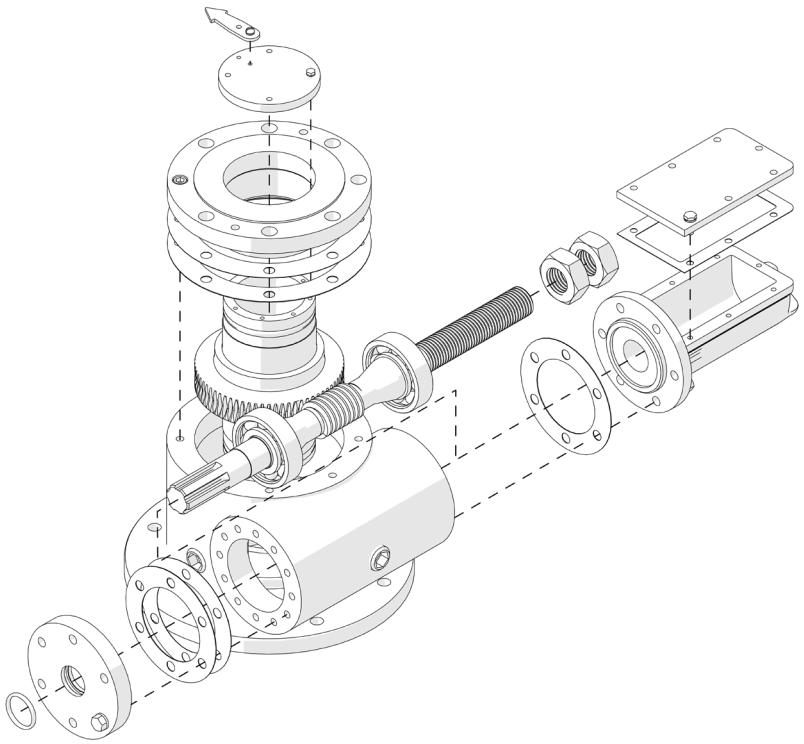
WARNING: Refers to personal safety. Alerts the user to potential danger. Failure to follow warning notices could result in personal injury or death.

CAUTION: Directs the user's attention to general precautions that, if not followed, could result in personal injury and/or equipment damage.

NOTE: Highlights information critical to the user's understanding of the HBC gearbox's installation and operation.

2 Inspection, Installation, and Mounting Procedures

Figure 2.1 – HBC-0 through -3 exploded view



WARNING: Do not manually operate the HBC gearbox with devices other than the installed handwheel or wrench nut. Using additive force devices (cheater bars, wheel wrenches, pipe wrenches, or other devices of this nature) on the gearbox handwheel or wrench nut may cause serious personal injury and/or damage to the gearbox or valve.

2.1 Initial Inspection and Storage Instructions

WARNING: Read this installation, operation and maintenance manual completely before attempting to store the gearbox. If an electric actuator is attached to the HBC gearbox, be aware of the electrical hazards. Consult the actuator installation, operation and maintenance manual for guidance.

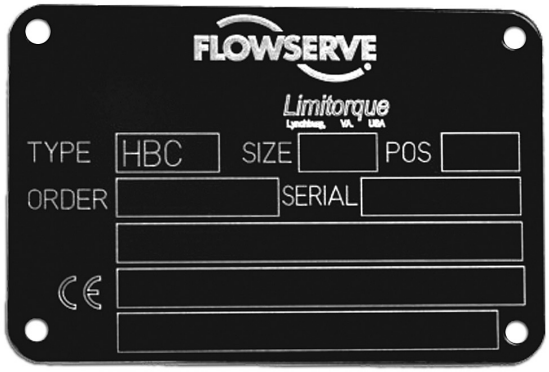
2.2 Inspection and Recording

Upon receipt of the gearbox, inspect the condition of the equipment, and record nameplate information.

1. Carefully remove the gearbox from shipping carton or skid. Thoroughly examine the equipment for any physical damage that may have occurred during shipment. If damaged, immediately report the damage to the transport company.
2. A nameplate is attached to each gearbox with the following information:
   - Gearbox size
   - Order number
   - Customer tagging
   - Gearbox serial number
   - Lubricant type

Record this information for future reference, i.e., ordering parts, or obtaining further information.

Figure 2.2 – HBC nameplate



2.3 Storage Procedure

NOTE: The following is the recommended storage procedure to retain maximum product integrity during storage. Failure to comply with recommended procedure will void the warranty.

Storage (Less Than One Year)

Store gearboxes on wooden skids to protect the machined mounting flange. Place the wooden skids containing the gearboxes in a clean, dry, protected warehouse. If the gearboxes must be stored outside, they must be covered in polyethylene protection with silica gel crystals to absorb moisture. If an electric actuator is attached to the HBC, refer to the storage procedures in its respective manual for appropriate storage procedures. Rotate input shafts every three months to mix the lubricant.

2.4 General Mounting Instructions

⚠ **CAUTION:** To avoid disengaging the worm gear segment, ensure that the index mark on the drive sleeve (centerline of gear segment) is oriented to the midpoint of the 90° valve travel. Full stroke rotation of this index mark should not move past the corresponding travel limit index marks on the housing cover. Should the housing cover index marks not be visible, the two housing cover bolts ("C" and "D") can be used for this alignment. Refer to Figure 2.3.

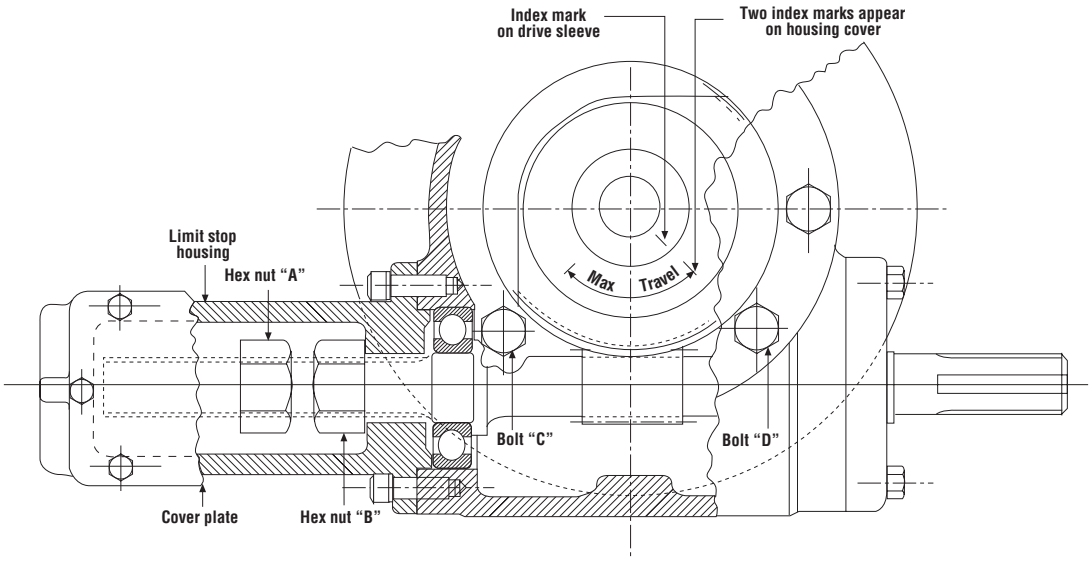
1. Place the valve in full closed position.
2. Press the splined adapter on valve shaft and insert key (should be a press fit to avoid splined adapter movement in HBC drive sleeve), or utilize a set screw to eliminate movement of splined adapter on the valve shaft.
3. Remove the pointer cap from HBC gearbox.
4. Turn the HBC gearbox input shaft to full closed position. The stops are preset for 90° travel. Be certain of correct direction of rotation.
5. Mount the gearbox on the valve and bolt securely. Be sure of gearbox stop alignment before engaging splines. (See angular displacement tolerances in Table 2.1.)
6. For standard stop setting instructions, see Section 2.5, Setting Position Limit Stops for HBC-0 through -3.
7. For gearboxes with AWWA input shaft stop, see Section 5, Setting Instructions for AWWA Input Shaft Stop.

2.5 Setting Position Limit Stops for HBC-0 through -3

Refer to Figure 2.3.

1. With the valve in full closed position, remove limit stop cover plate.
2. You will note two traveling hex nuts, "A" and "B."
   a. If hex nut "B" is near the position shown, run the hex nut hand-tight against the housing so that one of the flats of the hex nut is on top, facing the cover plate. (If hex nut "A" is near the opposite end of the limit stop housing, proceed with Step 4 first.)
   b. If hex nut "A" or "B" hits the housing before the valve was tightly closed, back off the hex nut until the valve is tight and proceed as in Step 2a.
3. Replace the limit stop cover plate and turn the input shaft of the HBC gearbox to fully open the valve.
4. Remove the limit stop cover plate and check the position of hex nut "A." This nut should be turned until it is flush up against the end of the limit stop housing and one of the flats of the nut is on top facing the limit stop housing cover plate.
5. Bolt the limit stop cover plate into position.

Figure 2.3 – Hex nut type stop (HBC-0 through -3)



2.6 Setting Position Limit Stops for HBC-4 through -7

Refer to Figure 4.2.

1. With the valve in the full closed position, remove Stop Screw Cover (piece #16).
2. Remove the Lock Screw (piece #17).
3. Adjust the appropriate Stop Screw (piece #17) based on rotation of the drive sleeve — inward if valve is closed and stop has not yet been reached, or outward if stop has been reached and valve is not yet fully closed.
4. Once the Stop Screw is set, lock securely with Lock Screw.
5. Operate the valve to fully open position and set open stop in the same manner.

2.7 HBC Angular Displacement Tolerances

Table 2.1 – HBC angular displacement tolerance

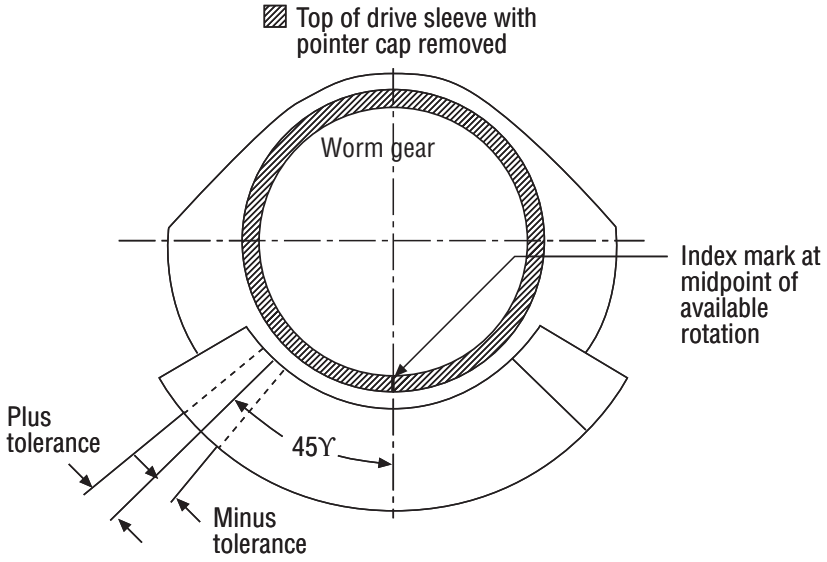
	Angular Displacement		Splined Tooth
Gearbox Size	Stop	Gear	Space in Degrees
HBC-0	105°[1]	170° Gear Segment	9.00°
HBC-1	114°[1]	170° Gear Segment	6.42°
HBC-2	114°[1]	170° Gear Segment	4.50°
HBC-3	114°[1]	170° Gear Segment[3]	3.46°
HBC-4	±7°[2]	±7°	3.00°
HBC-5	±6.75°[2]	±6.75°	2.14°
HBC-6	±9°[2]	±9°	1.80°
HBC-7	±9°[2]	±9	N/A

Note 1: Stops used on HBC-0 through HBC-3 incorporate standard hex nuts. The tolerance listed is ±0.31 from basic size on the thickness. The data shown above is based on maximum thickness of both nuts.

Note 2: Displacement is based on 45° travel on either side of gear centerline.

Note 3: Gearboxes with serial numbers less than S/N 365365 have 110° gear segments.

Figure 2.4 – Top of drive sleeve showing available rotation



3 Lubrication

Flowserve Limitorque HBC gearboxes are factory lubricated with an NLGI grade 0 calcium sulphonate grease suitable for a temperature range of -20°F to +150°F (-29°C to +60°C). Other lubricants approved by Flowserve Limitorque may be used based on customer requirements. See the nameplate for lubricant type.

Quantity

Limitorque gearboxes are built to operate on the partial immersion principle. The primary concern regarding the amount of lubricant is whether the “worm” is totally immersed in grease. This can be verified by the use of one or more of the many “fill” and “drain” plugs provided on the gearbox housing.

Quality

When removing a “fill” or “drain” plug to inspect the lubricant level, remove a small amount and ensure that it is clean and free of any contaminant, including water. Should dirt, water, or other foreign matter be found, the lubricant must be replaced and will require some partial disassembly. Contact Flowserve Limitorque with the gearbox order number or serial number for replacement parts.

Consistency

The main gearbox lubricant should be slightly fluid, approximating a standard NLGI-0 grade consistency.

Alternate lubricants may be used in place of the standard lubricants supplied by Flowserve, provided they are a calcium sulphonate or similar lubricant.

⚠ **CAUTION:** Do not add a different lubricant to a Flowserve Limitorque gearbox unless it is of the same soap base as the existing lubricant, or you have received the approval of the lubricant manufacturer.

Table 3.1 – Lubricant weights

Gearbox Size	Amount of Lubricant Approximate Volume		Approximate Weight	
	(gal.)	(L)	(lb)	(kg)
HBC-0	.20	.76	1.5	0.7
HBC-1	.35	1.32	3.0	1.4
HBC-2	.50	1.89	4.0	1.8
HBC-3	1.40	5.30	12.0	5.4
HBC-4	3.50	13.2	30.0	13.6
HBC-5	5.20	19.7	45.0	20.4
HBC-6	9.25	35.0	80.0	36.3
HBC-7	14.50	54.9	125.0	56.7

Note: Lubricant weepage is normal in cases of infrequent operation, does not affect the form, fit or function of the gearbox, and is not covered by the warranty.

4 Dissassembly and Reassembly Instructions

4.1 Safety Precautions

☠ **WARNING:** Read this Installation, Operation and Maintenance Manual completely before attempting to install, operate, or troubleshoot the Flowserve Limitorque gearbox.

☠ **WARNING:** Potential HIGH-PRESSURE vessel — be aware of high-pressure hazards associated with the attached valve or other actuated device when installing or performing maintenance on the gearbox. Do not remove the gearbox mounting bolts from the valve or actuated device unless the valve or device stem is secured or there is no pressure in the line.

☠ **WARNING:** For maintenance and/or disassembly of the gearbox while installed on the valve, ensure that the gearbox is not under thrust or torque load. If the valve must be left in service, the valve stem must be locked in such a way as to prevent any movement of the valve stem.

☠ **WARNING:** Do not manually operate the gearbox with devices other than the installed handwheel. Using force beyond the ratings of the gearbox and/or using additive force devices such as cheater bars, wheel wrenches, pipe wrenches, or other devices on the gearbox handwheel may cause serious personal injury and/or damage to the gearbox and valve.

☠ **WARNING:** Do not exceed any design limitations or make modifications to this equipment without first consulting Flowserve Limitorque.

☠ **WARNING:** Use of the product must be suspended any time it fails to operate properly.

⚠ **CAUTION:** If a motor actuator is driving the gearbox, do not operate the valve under motor operation without first checking and setting the limit switch setting and checking for correct motor rotation.

⚠ **CAUTION:** Do not use replacement parts that are not Flowserve Limitorque parts, as serious personal injury and/or damage to the gearbox and valve may result.

4.2 Safety Practices

The following checkpoints should be performed to maintain safe operation of the HBC gearbox:

- Set up a periodic operating schedule on infrequently used valves.
- Ensure that the limit and/or torque switches on any electric actuator fitted to the HBC worm gearbox are correctly and appropriately adjusted.

4.3 HBC-0 through -3

Refer to Figure 4.1.

1. Remove the Limit Stop Housing Cap (piece #20) and Gasket (piece #21).
2. Rotate the Worm Shaft (piece #6) clockwise until Pointer Cap (piece #9) stops rotating.
3. Remove the Pointer Cap (piece #9) and Housing Cover (piece #2).
4. Remove both Stop Nuts (piece #18) and Limit Stop Housing (piece #19).
5. Remove the Through Cap (piece #4).
6. Remove the Worm Shaft (piece #6) by rotating and pulling from Housing (piece #1). It may be necessary to maneuver the Bearing (piece #13) around the Drive Sleeve (piece #5), by rotating the drive sleeve slightly in the direction it was turning in Step 2. It is not necessary to remove the Bearing (piece #13) from Worm Shaft (piece #6).
7. Remove the Drive Sleeve and Worm Gear (piece #5).

NOTE: In reassembling the gearbox, follow all of the above steps in the reverse order. Be sure you have located the center line of the Worm Gear (piece #5) before reinstalling the Housing Cover (piece #2).

NOTE: For reassembly of the worm shaft (step 6 of the disassembly procedure), be sure that end play does not exceed 0.015 in. This is accomplished by the proper combination of 0.015 in. and 0.030 in. gaskets on the stop housing side and input side of the gear housing.

Figure 4.1 – HBC-0 through -3 assembly

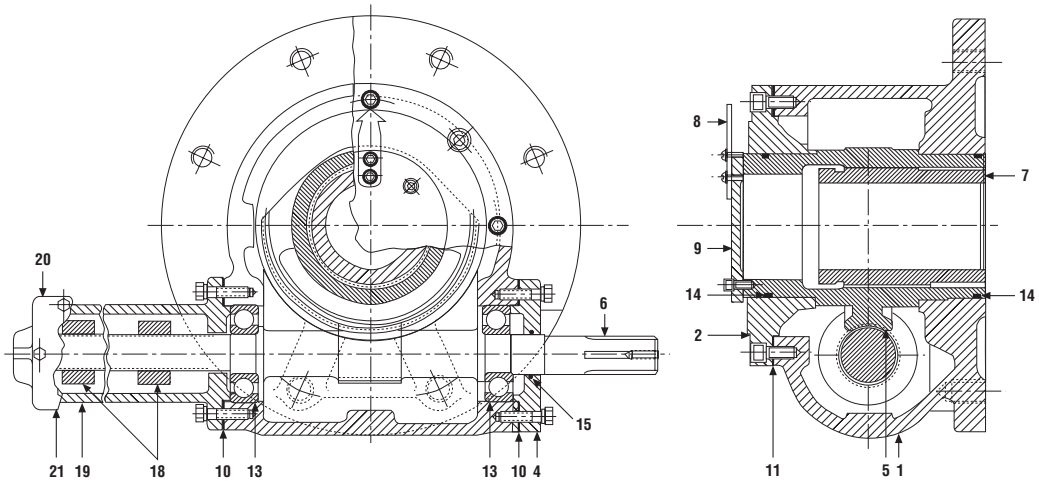


Table 4.1 – HBC-0 through -3 parts list (refer to Figure 4.1)

Piece Number	Description
1	Housing
2	Housing Cover
4	Through Cap
5	Drive Sleeve and Worm Gear
6	Worm Shaft
7	Spline Adapter
8	Pointer
9	Pointer Cap
10	End and Through Cap Gasket
11	Housing Cover Gasket
13	Worm Shaft Bearing
14	Drive Sleeve O-ring
15	Worm Shaft O-ring
18	Hex Nut Stop
19	Limit Stop Housing
20	Limit Stop Housing Cap
21	Limit Stop Housing Gasket

4.4 HBC-4 through -7

Refer to Figure 4.2.

1. Remove the Stop Screw Cover (piece #16).
2. Remove the Lock Screw and Stop Screw (total 2 each, piece #17).
3. Rotate the Worm Shaft (piece #6) full clockwise until Pointer Cap (piece # 9) stops rotating or until the Worm Shaft (piece #6) can no longer be turned.
4. Remove the End Cap (piece #3) and Through Cap (piece #4).
5. Remove the Pointer Cap (piece #9) and Housing Cover (piece #2).
6. Remove the Worm Shaft (piece #6) by rotating and pulling from Housing (piece #1). It will be necessary to slightly rotate or cock the Drive Sleeve (piece #5) away from the worm in order to allow the Bearing (piece #13) to clear. It is not necessary to remove the Bearing (piece #13) from the Worm Shaft (piece #6).
7. Remove the Drive Sleeve and Worm Gear (piece #5).

NOTE: To reassemble the gearbox, proceed in the reverse order listed above. In order to ensure good stop nut engagement at the end of travel, it is recommended that the stops be preset for 90° of rotation by establishing 45° rotation on either side of the worm gear center line while installing the stop screws. It will then be necessary to readjust the stops once the gearbox is on the valve; however, this will minimize the risk of disorienting the worm gear sector.

Figure 4.2 – HBC-4 through -7 assembly

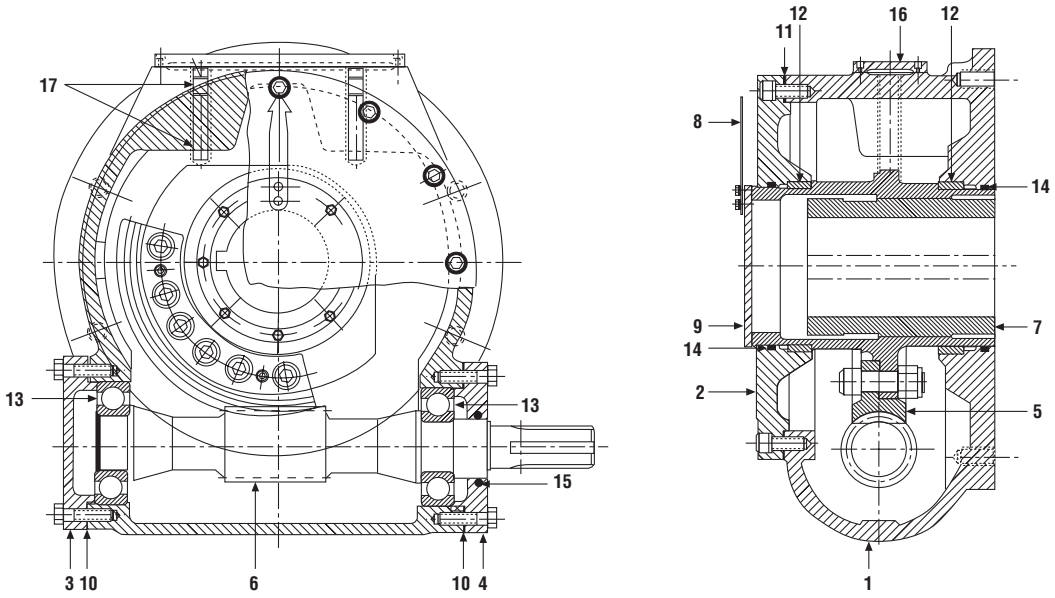


Table 4.2 – HBC-4 through -7 parts list (refer to Figure 4.2)

Piece Number	Description
1	Housing
2	Housing Cover
3	End Cap
4	Through Cap
5	Drive Sleeve and Worm Gear
6	Worm Shaft
7	Spline Adapter
8	Pointer
9	Pointer Cap
10	End and Through Cap Gasket
11	Housing Cover Gasket
12	Drive Sleeve Bushing
13	Worm Shaft Bearing
14	Drive Sleeve O-ring
15	Worm Shaft O-ring
16	Stop Screw Cover
17	Stop Screw and Lock Screw

4.5 Spur Gear Attachments

All of the standard Flowserve Limitorque spur gear attachments are made up of gear sets. The first gear set is the 2.86:1 attachment. When the second gear set is added to the first, the overall attachment ratio increases to between 8.5 and 12:1. When both the first and second attachment are added to the third, the overall gear ratio is between 19 and 38.9. The disassembly instructions described below will disassemble the 38.9:1 attachment. Steps 1 through 5 describe the 2.86:1 disassembly, steps 1 through 10 describe the 8.5 to 12:1 attachment disassembly, and the full instruction describes the 19 to 38.9:1 attachment disassembly.

Refer to Figure 4.3.

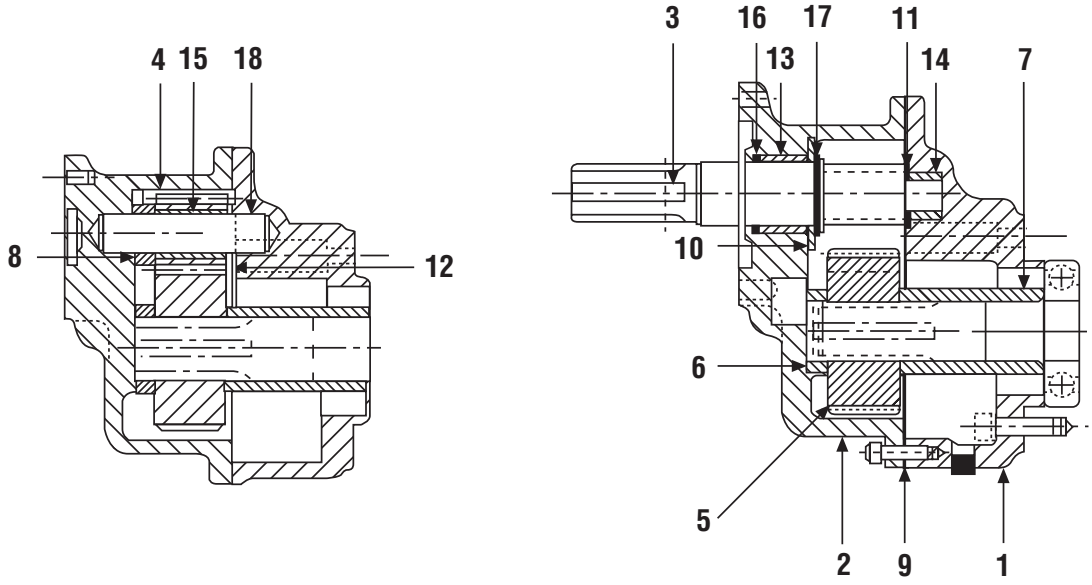
1. Remove the First Set Housing (piece #2).
2. Remove Input Shaft and Pinion (piece #3).
3. Remove Idler Gear (piece #4) and Idler Gear Spacer (piece #8).
4. Remove First Set Output Gear (piece #5).
5. If only 2.86:1 spur attachment is used you must next remove the Housing Adapter (piece #1) and Output Gear Spacer (piece #7).
6. Remove Second Set Housing Adapter (piece #20).
7. Remove Intermediate Shaft and Pinion (piece #22) carefully. Thrust Bearings (pieces #27 and 28) are not captive on the shaft.
8. Remove Output Gear Collar (piece #25).
9. Remove Second Set Output Gear (piece #23) and Second Set Output Gear Spacer (piece #24).
10. If the spur attachment gear ratio is 8.5 to 12:1, remove Second Set Housing (piece #19).
11. If the spur attachment ratio is 19 to 38.9:1, remove Third Set Housing Adapter (piece #32).
12. Remove Intermediate Shaft and Output Pinion (piece #33) carefully. Thrust Bearings (pieces #37 and 38) are not captive on the shaft.
13. Remove Third Set Output Gear Collar (piece #35).
14. Remove Third Set Output Gear (piece #34) and Spacer (piece #36).
15. Remove Third Set Housing (piece #31).

NOTE: In reassembling the spur gear attachments, follow all of the instructions in the reverse order, ensuring that all of the bearings indicated in the assembly drawings are intact and in good condition.

NOTE: When replacing gaskets, use gasket thickness of 1/32 in.

Figure 4.3 – Spur gear attachments

Single reduction ratio – 2.86 to 11



Double reduction ratio – 12.00 to 1

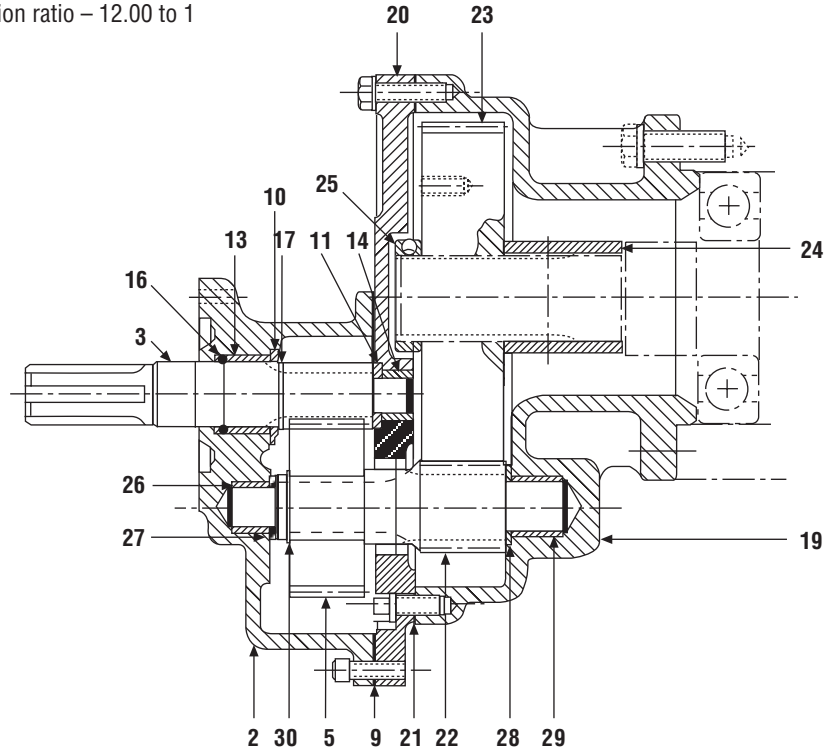


Figure 4.3 – Spur gear attachments (continued)

Triple reduction ratio – 38.90 to 1

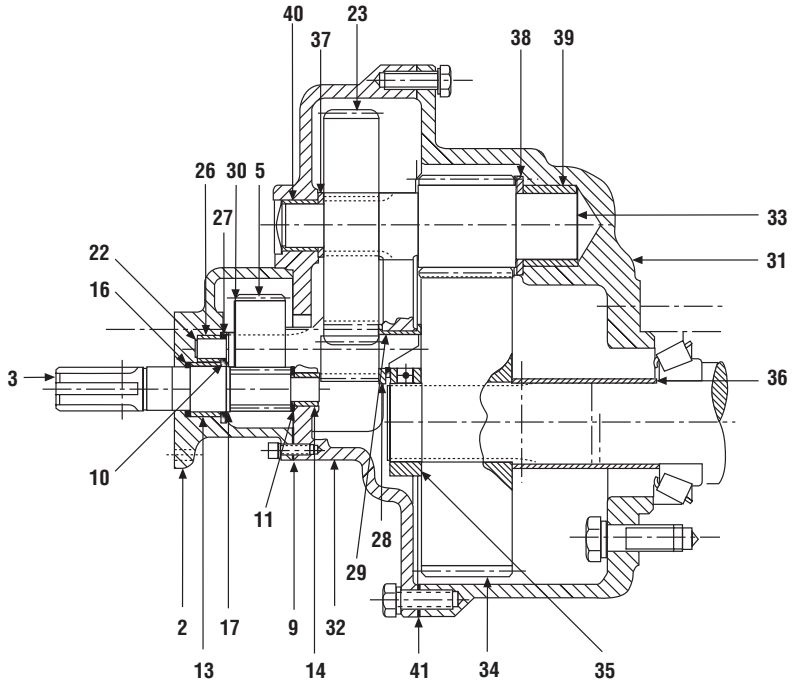


Table 4.3 HBC-1 through -7 spur gear attachments parts list (refer to Figure 4.3)

Piece Number	Description
1	First Set Housing Adapter
2	First Set Housing
3	First Set Input Shaft and Pinion
4	Idler Gear
5	First Set Output Gear
6	First Set Collar
7	First Set Output Gear Spacer
8	Idler Gear Spacer
9	First Set Housing Gasket
10	Input Shaft Thrust Bearing
11	Input Shaft Thrust Bearing
12	Idler Gear Thrust Bearing
13	First Set Housing Bearing
14	First Set Housing Adapter Bearing
15	Idler Gear Bearing
16	Input Shaft Quad Ring
17	Input Shaft Retaining Ring
18	Idler Gear Shaft
19	Second Set Housing
20	Second Set Housing Adapter

Piece Number	Description
21	Second Set Housing Gasket
22	Intermediate Shaft and Pinion
23	Second Set Output Gear
24	Second Set Output Shaft Spacer
25	Second Set Output Gear Collar
26	Intermediate Shaft Bearing
27	Intermediate Shaft Thrust Bearing
28	Intermediate Shaft Thrust Bearing
29	Second Set Housing Bearing
30	Intermediate Shaft Retaining Ring
31	Third Set Housing
32	Third Set Housing Adapter
33	Intermediate Shaft and Output Pinion
34	Third Set Output Gear
35	Third Set Collar Output Gear
36	Third Set Output Shaft Spacer
37	Output Pinion and Shaft Thrust Bearing
38	Output Pinion and Shaft Thrust Bearing
39	Third Set Housing Bearing
40	Third Set Housing Adapter Bearing
41	Third Set Housing Gasket

5 Setting Instructions for AWWA Input Shaft Stop

⚠ **CAUTION:** Following these instructions exactly will prevent jamming or damaging the equipment.

Complies fully with AWWA Standard C504, latest revision.

Refer to Figures 5.1 and 5.2.

1. Remove the Limit Stop Housing Cover (piece #9), Gear Frame Housing Cover (piece #10), and Gear Frame Through Cap (piece #11). Do not remove Gear Frame Retaining Plate (piece #48).
2. Note the position of the Racks (piece #19). The racks should be in the up position, as shown in Figure 5.1A.
3. Note the position of the three (3) center punch marks on the end of the Input Shaft (piece #4). These center punch marks show the position of the lug on the Lug Sleeve (piece #5).
4. With the input shaft as shown in Figure 5.1B, pull the Idler Gear (piece #18) and hold it out of engagement with the Input Pinion (piece #47).
5. Rotate the handwheel on the Input Shaft (piece #4) clockwise until the valve reaches the extreme position of travel. Normally with clockwise handwheel rotation closing the valve, the valve will go to the fully closed position. If the valve is set up for clockwise handwheel rotation to open, the valve will go to the fully open position.
6. Place the Input Shaft (piece #4) in position, as shown in Figure 5.1C.
7. Using a screwdriver, rotate the Input Pinion (piece #25A), as shown in Figure 5.1B clockwise until the Rack (piece #19A) moves downward, as shown in Figure 5.1C. Do not rotate the pinion any further.
8. Push Idler Gear (piece #18) into engagement and rotate Input Shaft (piece #4) clockwise to check the setting. The lug should hit the Rack (piece #19) and prevent further handwheel rotation.

9. Reassemble the Gear Frame Through Cap (piece #11) with two mounting screws to hold the Idler Gear (piece #18) engaged with the Input Pinion (piece #25A) and rotate the Input Shaft (piece #4) counterclockwise to the other extreme valve position. If the Rack (piece #19B) should trip to the down position as shown in Figure 5.1D before the valve reaches the end of travel, use the following procedure:
    a. Turn the Input Shaft (piece #4) back one turn.
    b. Pull Idler Gear (piece #18) out of engagement.
    c. Place a screwdriver on the Input Pinion (piece #25B).
    d. Rotate clockwise approximately 50 turns.
    e. Push Idler Gear (piece #18) into engagement again and rotate handwheel counterclockwise until the valve goes to the extreme position of travel. Repeat as necessary until the valve reaches the point where the stop should be set.
10. With the valve in the position to be set, position the Input Shaft (piece #4) as shown in Figure 5.1D, hold the Idler Gear (piece #18) out of engagement, and with the screwdriver on the Input Pinion (piece #25B), rotate it counterclockwise until the Rack (piece #19B) moves, as shown in Figure 5.1D. Do not rotate the pinion any further.
11. Push the Idler Gear (piece #18) into engagement and rotate Input Shaft (piece #4) counterclockwise to check setting. The lug should hit the Rack (piece #19B).
12. Reassemble Limit Stop Housing Cover (piece #9), Gear Frame Housing Cover (piece #10), and Gear Frame Through Cap (piece #11).
13. Open and close the valve fully to verify that position limit stops are set at the desired valve position.

NOTE: When the AWWA input shaft stop is supplied, the standard limit stops in the housing are also furnished. The housing limit stops should be adjusted to function as secondary stops by ensuring that the AWWA input stops engage first. Section 2 – Inspection, Installation, and Mounting Procedures in this manual provides instruction for setting the standard housing limit stops.

Figure 5.1 – AWWA input shaft stop (back view)

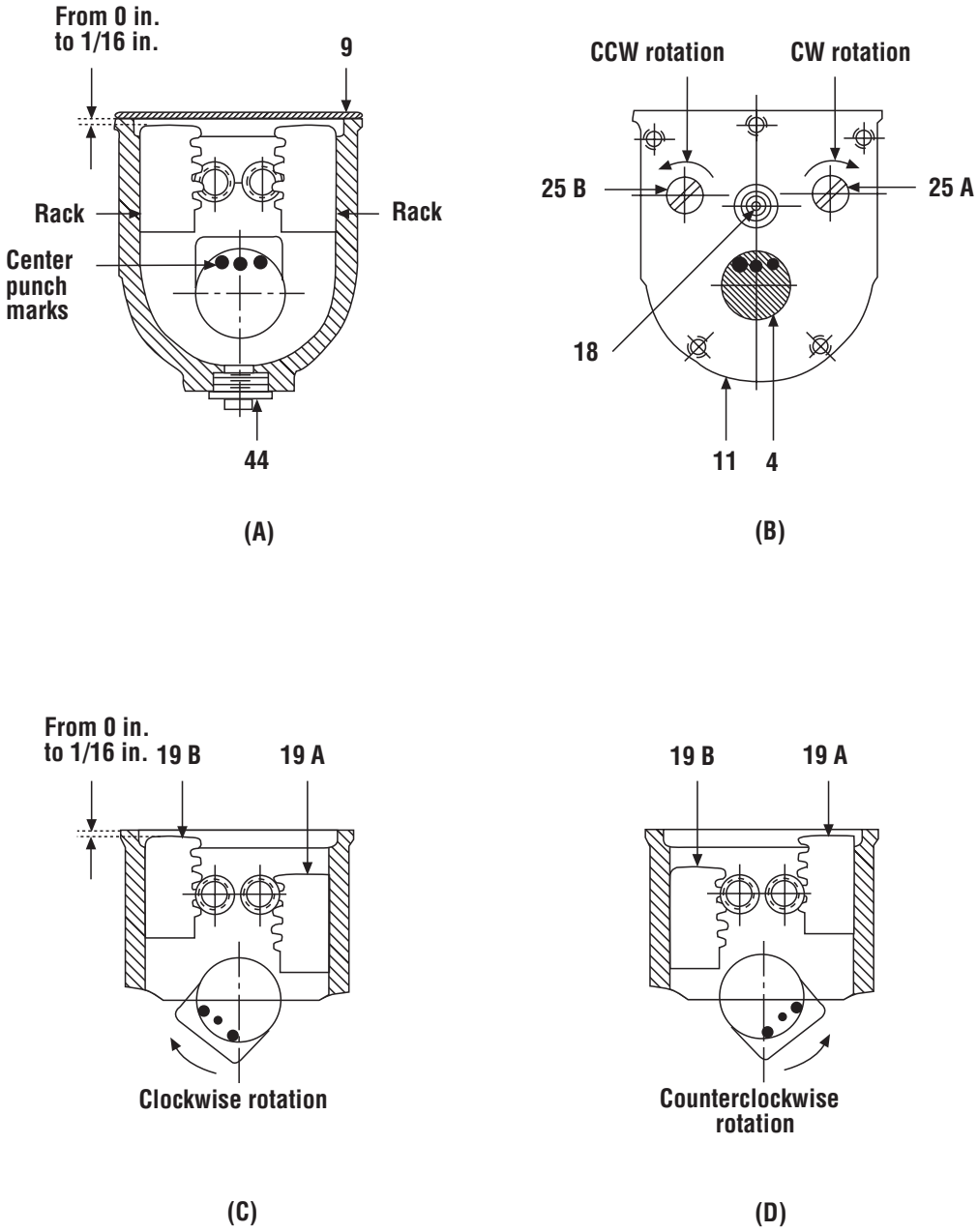


Figure 5.2 – AWWA input shaft stop (complete view)

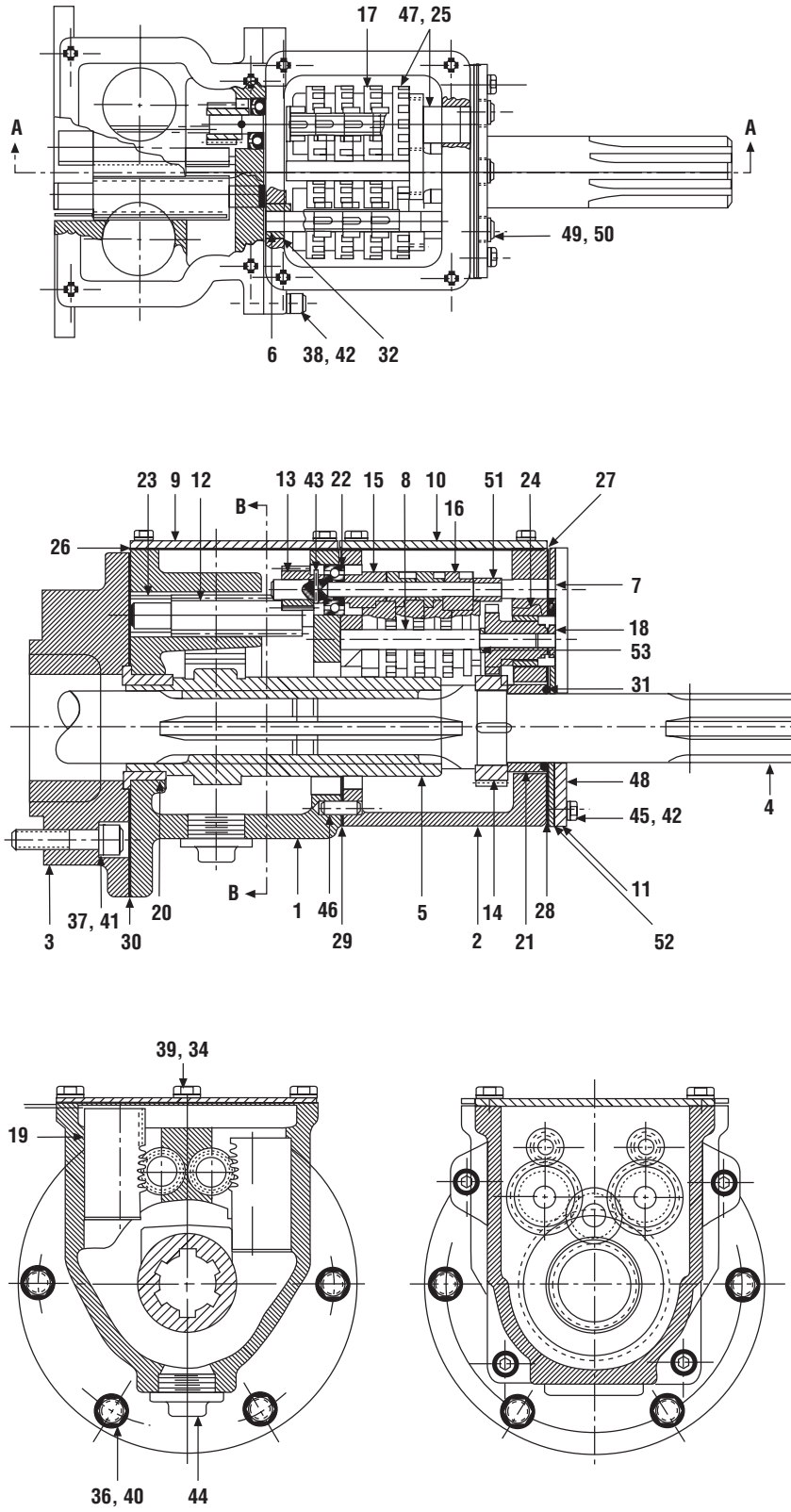


Table 5.1 – AWWA input shaft stop parts list (refer to Figure 5.2)

Piece Number	Description
1	Limit Stop Housing
2	Gear Frame
3	Limit Stop Housing Adapter
4	Input Shaft
5	Splined Lug Sleeve
6	Intermittent Gear Shaft
7	Intermittent Pinion Shaft
8	Intermittent Drive Shaft
9	Limit Stop Housing Cover
10	Gear Frame Housing Cover
11	Gear Frame Through Cap
12	Rack Pinion
13	Pinion
14	Input Gear
15	Intermittent Stem Pinion
16	Intermittent Pinion
17	Intermittent Gear
18	Idler Gear
19	Rack
20	Flanged Bushing
21	Input Shaft Bushing
22	Intermittent Stem Pinion Bearing
23	Rack Pinion Bearing
24	Bushing
25	Input Pinion
26	Housing Cover Gasket
27	Gear Frame Cover Gasket

Piece Number	Description
28	Through Cap Gasket
29	Housing Gasket
30	Adapter Gasket
31	O-ring
32	Bushing
34	Cap Screw Round Head #10 — 32 in x ½ in long
35	Roll Pin 3⁄32 in Diameter x ¾ in Long — Not Shown
36	Cap Screw Hex Head 5⁄16 in — 18 in x 1 in Long
37	Cap Screw Socket Head ⅜ in — 16 x 1½ in Long
38	Cap Screw Socket Head ¼ in — 20 in x ¾ in Long
39	Lockwasher #10
40	Lockwasher 5⁄16 in
41	Lockwasher ⅜ in
42	Lockwasher ¼ in
43	Roll Pin ⅛ in Diameter x ⅝ in Long
44	1 in — 20 Drain Plug
45	Cap Screw Round Head ¼ in — 20 x ½ in Long
46	Dowel Pin ¼ in Diameter x ⅝ in Long
47	Input Pinion — Gear Assembly
48	Gear Frame Retaining Plate
49	¼ in — 20 x 7⁄16 in Long Socket Head Cap Screw
50	¼ in Lockwasher Hi-Collar
51	Pinion Spacer
52	Through Cap Gasket
53	Idler Gear Spacer

Note: When the AWWA input shaft stop is used, the standard limit stop is also furnished.

6 How to Order Parts

To order parts or obtain further information about your Flowserve Limitorque HBC gearboxes, contact your local Limitorque distributor sales office, or:

Flowserve Limitorque
5114 Woodall Road
P.O. Box 11318
Lynchburg, VA 24506-1318

Telephone (434) 528-4400
Fax (434) 845-9736

All inquiries or orders must be accompanied by the following information:

1. Gearbox size
2. Order number
3. Serial number

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