



Document Number	Issue Date	Rev. Date
<b>SPL81343</b>	<b>09/83</b>	<b>07/24/13</b>

## CM/CGV & CMU/CGV High Rise Pump Impeller Shaft Service Parts List

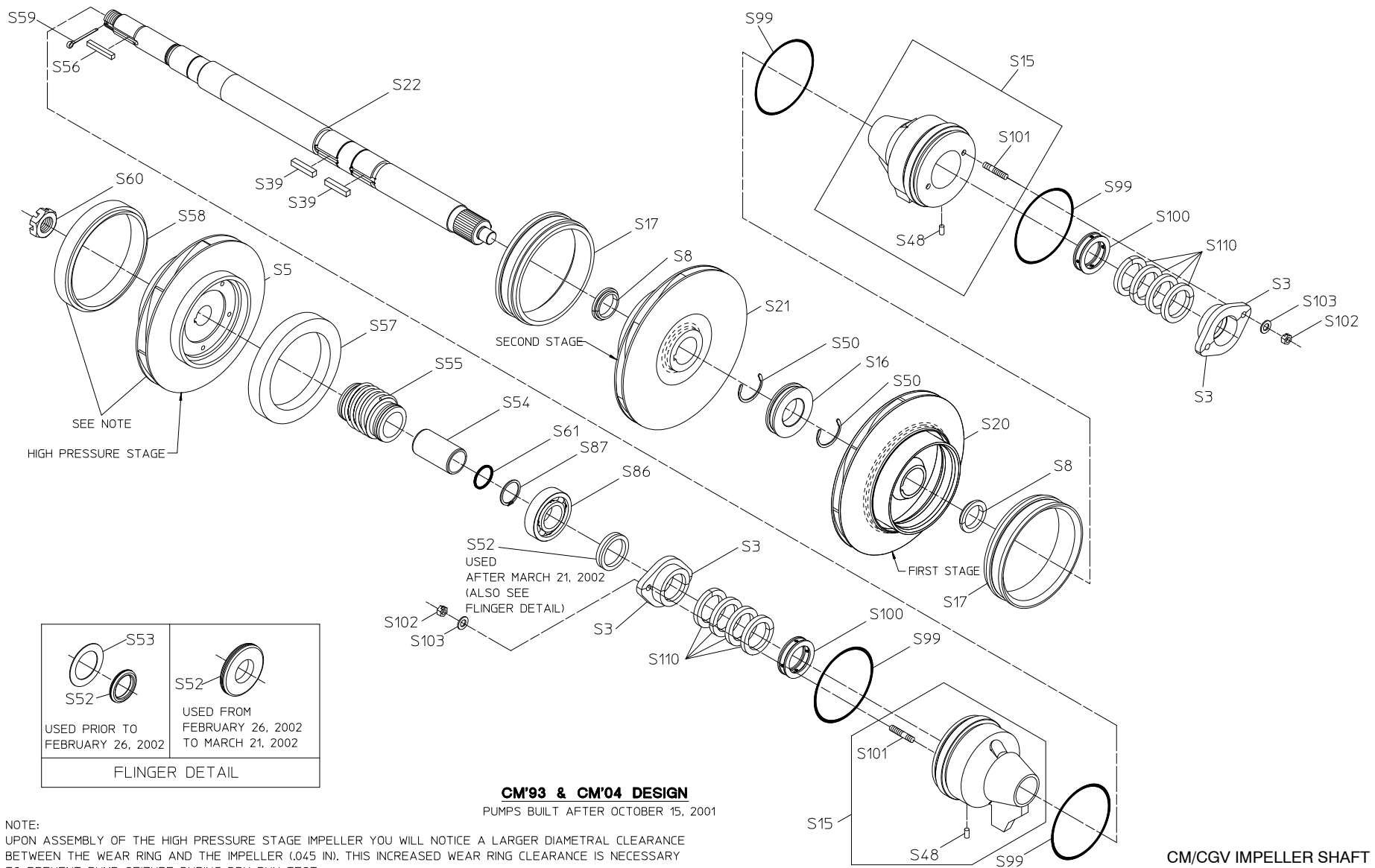
### Index:

Pump Built	CM Pump Body Design	See Pages		
		Components	Packing Requirements	Impeller Rotation
After October 15, 2001	CM'93 or CM'04	2, 3	6, 7	8
Prior to October 15, 2001	CM'77	4, 5		

## CM'93 & CM'04 Design (Pumps Built After October 15, 2001)

REF. NO.	DESCRIPTION
S3	Packing gland half
S5	High pressure stage impeller
S8	Split lock ring
S15	Seal housing assembly
S16	Interstage seal
S17	Wear ring
S20	1st stage impeller
S21	2nd stage impeller
S22	Impeller shaft
S39	Square key, SS, 5/16 x 1-3/8 in.
S48	Dowel pin
S50	Retaining ring, SS
S52	Flinger grommet or V-Ring
S53	Flinger disk
S54	Mechanical seal sleeve

REF. NO.	DESCRIPTION
S55	Mechanical seal kit
S56	Square key, SS, 1/4 x 1-3/16 in.
S57	Wear ring
S58	Wear ring
S59	Cotter pin, SS, 1/8 x 1-3/4 in.
S60	Impeller nut, SS, 1-14
S61	O-Ring
S86	Ball bearing
S87	Retaining ring
S99	Seal housing gasket
S100	Lantern ring
S101	Stud, 5/16-18 x 1-5/16
S102	Nut, 5/16-18
S103	Washer, 5/16
S110	Packing Replacement Kit



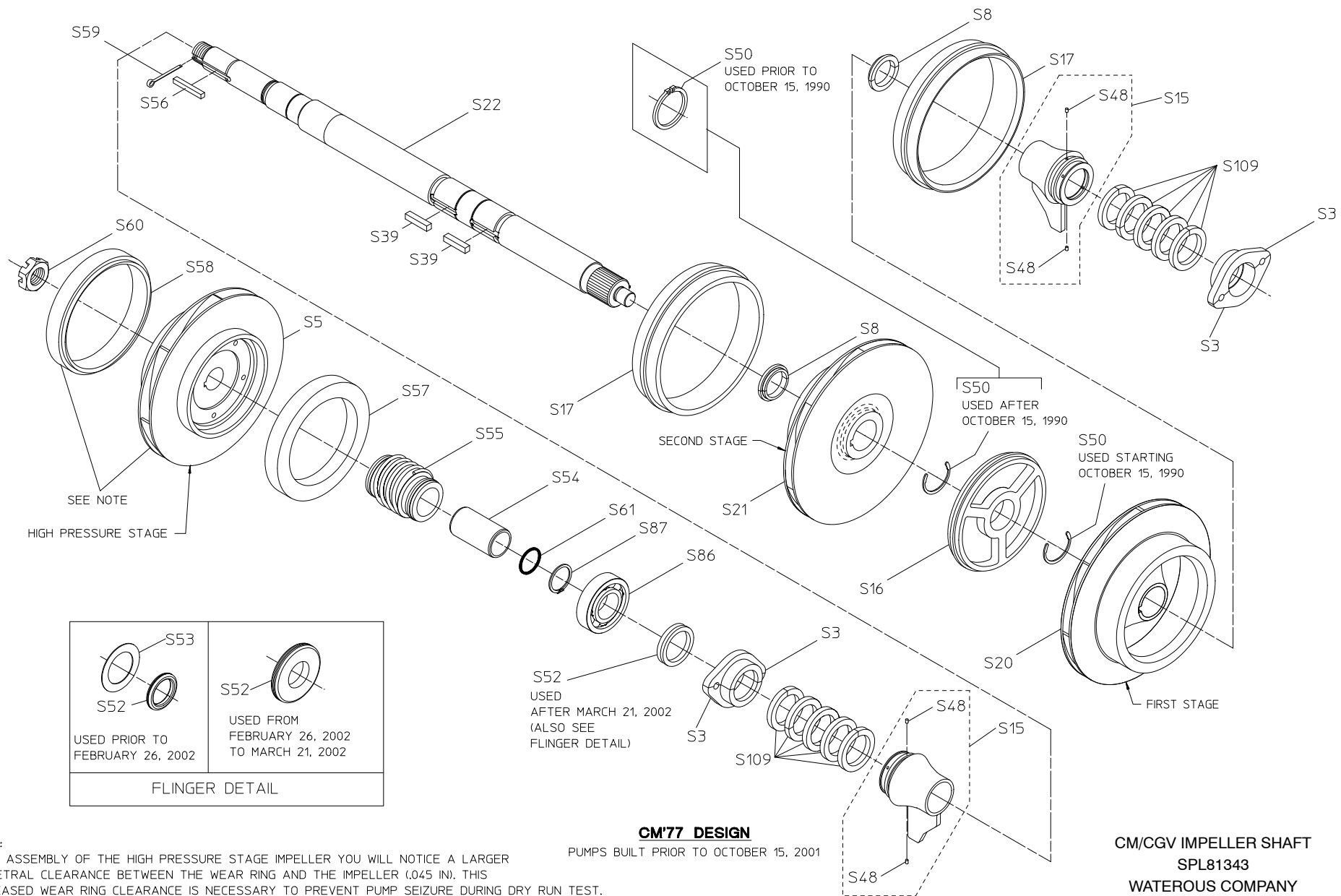
NOTE:  
UPON ASSEMBLY OF THE HIGH PRESSURE STAGE IMPELLER YOU WILL NOTICE A LARGER DIAMETRAL CLEARANCE BETWEEN THE WEAR RING AND THE IMPELLER (.045 IN). THIS INCREASED WEAR RING CLEARANCE IS NECESSARY TO PREVENT PUMP SEIZURE DURING DRY RUN TEST.

CM/CGV IMPELLER SHAFT  
SPL81343  
WATEROUS COMPANY  
SOUTH ST. PAUL, MN 55075  
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## CM'77 Design (Pumps Built Prior to October 15, 2001)

REF. NO.	DESCRIPTION
S3	Packing gland half
S5	High pressure stage impeller
S8	Split lock ring
S15	Stuffing box end assembly
S16	Interstage seal
S17	Wear ring
S20	1st stage impeller
S21	2nd stage impeller
S22	Impeller shaft
S39	Square key, SS, 5/16 x 1-3/8 in.
S48	Spirol pin
S50	Retaining ring, SS

REF. NO.	DESCRIPTION
S52	Flinger grommet or V-Ring
S53	Flinger disk
S54	Mechanical seal sleeve
S55	Mechanical seal kit
S56	Square key, SS, 1/4 x 1-3/16 in.
S57	Wear ring
S58	Wear ring
S59	Cotter pin, SS, 1/8 x 1-3/4 in.
S60	Impeller nut, SS, 1-14
S61	O-Ring
S86	Ball bearing
S87	Retaining ring
S109	Packing Replacement Kit



NOTE:  
 UPON ASSEMBLY OF THE HIGH PRESSURE STAGE IMPELLER YOU WILL NOTICE A LARGER DIAMETRAL CLEARANCE BETWEEN THE WEAR RING AND THE IMPELLER (.045 IN). THIS INCREASED WEAR RING CLEARANCE IS NECESSARY TO PREVENT PUMP SEIZURE DURING DRY RUN TEST.

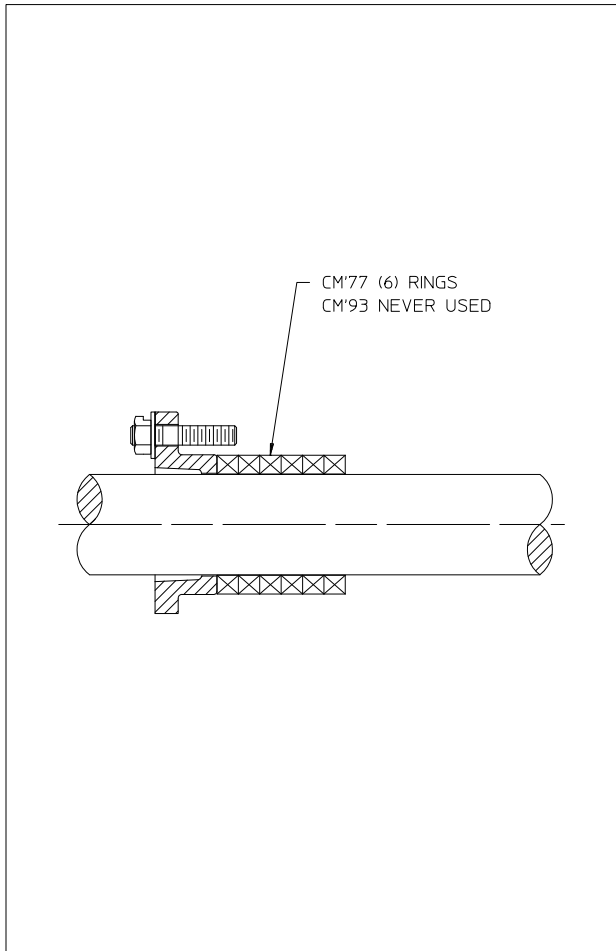
**CM/77 DESIGN**  
 PUMPS BUILT PRIOR TO OCTOBER 15, 2001

**CM/CGV IMPELLER SHAFT**  
**SPL81343**  
**WATEROUS COMPANY**  
**SOUTH ST. PAUL, MN 55075**  
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## Packing Arrangements

REF. NO.	DESCRIPTION
S109	Packing Replacement Kit (CM'93)

REF. NO.	DESCRIPTION
S110	Packing Replacement Kit (CM'77)

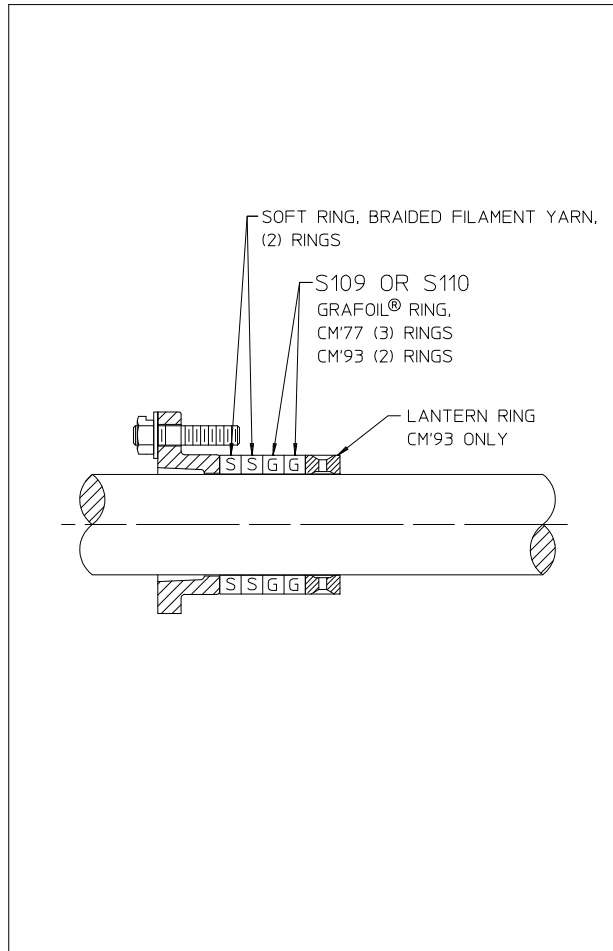


CM'77 (6) RINGS  
CM'93 NEVER USED

**ARRANGEMENT A**

ASBESTOS GRAPHITE RINGS  
USED PRIOR TO JANUARY 31, 1985

NO LONGER AVAILABLE  
BRAIDED FLEXIBLE GRAPHITE (BFG) RINGS WILL BE FURNISHED  
FOR REPAIRS



SOFT RING, BRAIDED FILAMENT YARN,  
(2) RINGS

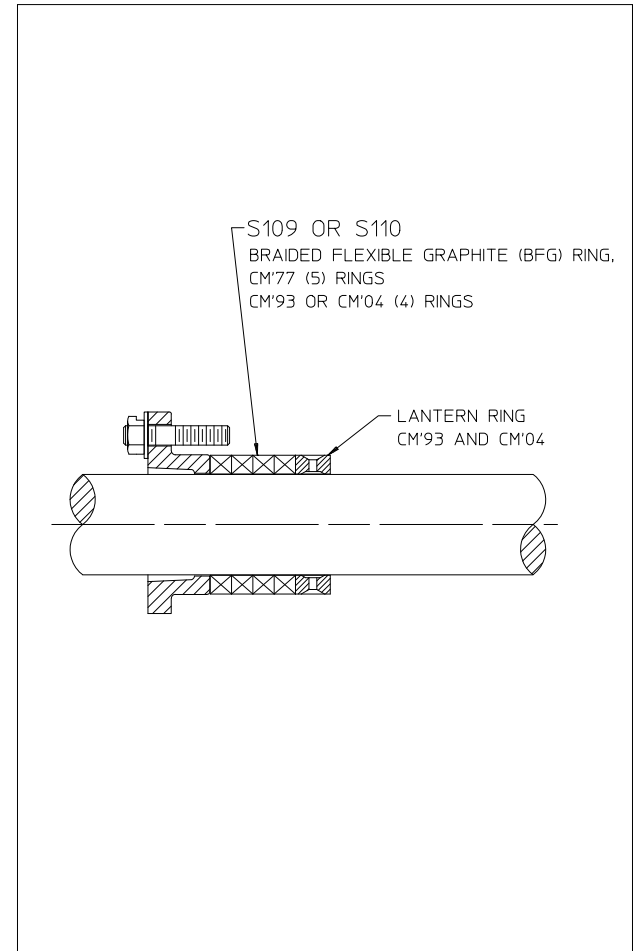
S109 OR S110  
GRAFOIL® RING,  
CM'77 (3) RINGS  
CM'93 (2) RINGS

LANTERN RING  
CM'93 ONLY

**ARRANGEMENT B**

FLEXIBLE GRAPHITE (GRAFOIL®) RINGS  
USED JANUARY 31, 1985 TO JULY 10, 2002

\*REPLACED BY ARRANGEMENT C.  
ARRANGEMENT C WILL BE FURNISHED FOR REPAIRS.  
(INDIVIDUAL S109 OR S110 GRAFOIL® RINGS ARE STILL AVAILABLE)



S109 OR S110  
BRAIDED FLEXIBLE GRAPHITE (BFG) RING,  
CM'77 (5) RINGS  
CM'93 OR CM'04 (4) RINGS

LANTERN RING  
CM'93 AND CM'04

**ARRANGEMENT C**

BRAIDED FLEXIBLE GRAPHITE (BFG) RINGS  
CURRENT CONFIGURATION

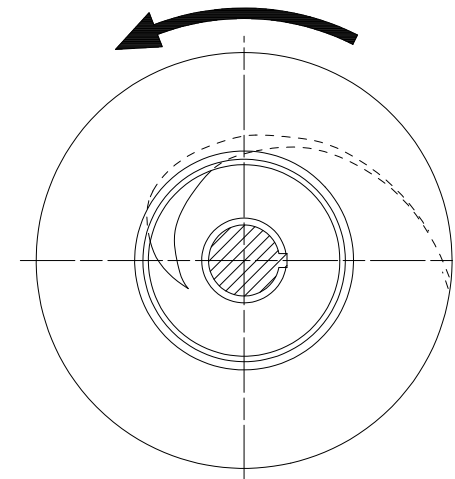
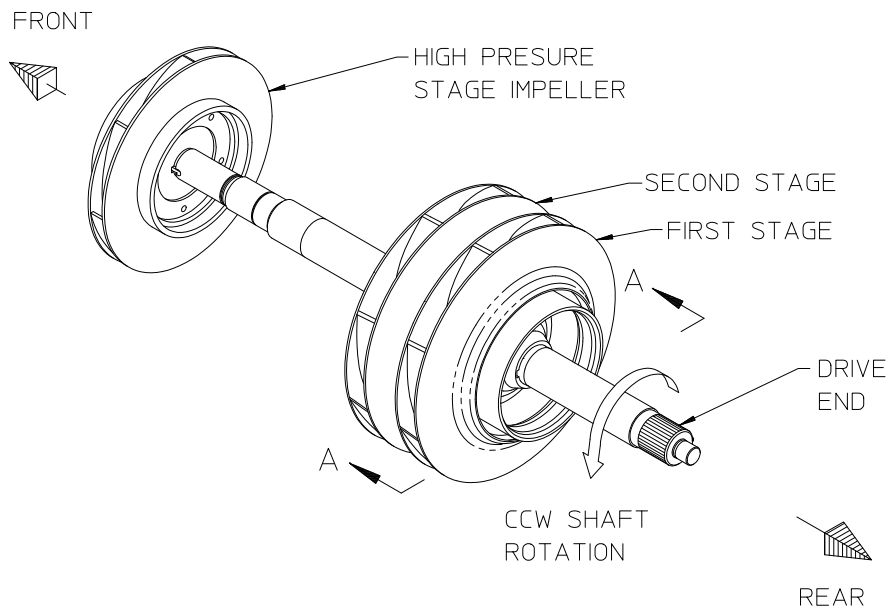
**PACKING ARRANGEMENTS**

NOTE: ALWAYS STAGGER JOINTS IN PACKING RINGS

CM/CGV IMPELLER SHAFT  
SPL81343

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VIEW A-A  
LOOKING INTO EYE OF  
FIRST STAGE IMPELLER

**IMPELLER ROTATIONS**