

CM Series Impeller Shaft Assembly Service Parts List Index:

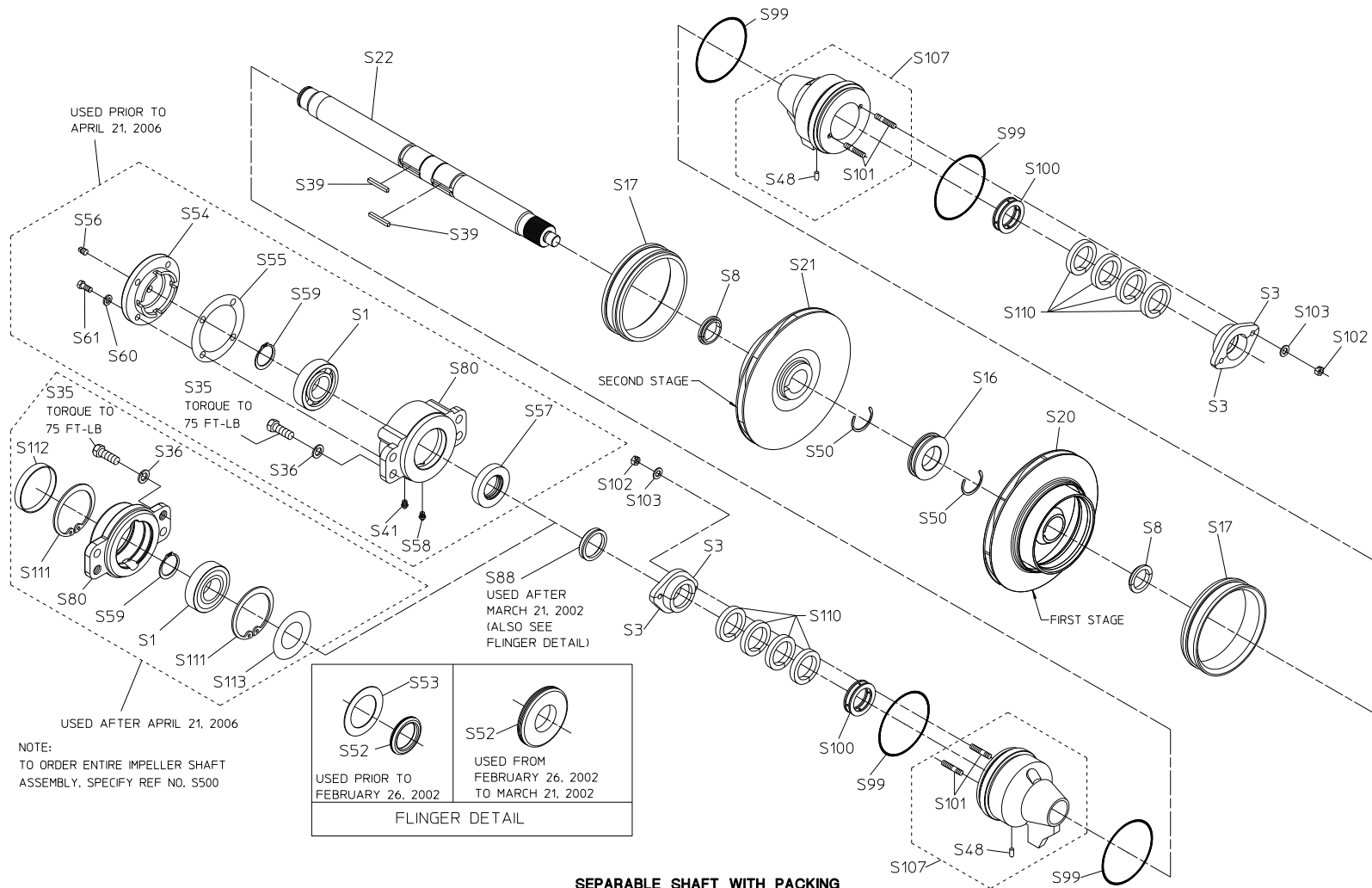
TWO STAGE PUMPS - CM, CMU SERIES

Pump Type	Complete Pump and Transmission Model <i>(Located on Pump Serial Plate)</i>							Shaft			See Page							
	C10 Series	C20 Series	D Series (Direct Drive)	K Series	P Series	W Series	Y Series	Type	Drive	Tachometer	Seal Type		Impeller Rotation	Mechanical Seal Kits		Packing Arrangements		
											Pack- ing	Mechani- cal Seals		Outboard End	Drive End			
														Pages 29 & 30	Pages 31 & 32			
Two Stage (CM, CMU Series)	CMC10B CMC10C CMC10D CMC10E CMC10F CMUC10B CMUC10C CMUC10D CMUC10E CMUC10F	CMC20B CMC20C CMC20D CMC20E CMC20F CMUC20B CMUC20C CMUC20D CMUC20E CMUC20F	-	CMK CMUK	CMPA CMUPA	CMWB CMWBX CMWK	CMYB, CMYBX CMYC, CMYCX CMYD, CMYDX CMYE, CMYEX CMYF, CMYFX CMUYB, CMUYBX CMUYC, CMUYCX CMUYD, CMUYDX CMUYE, CMUYEX CMUYF, CMUYFX	Separable	Rear	Without	2, 3	4, 5	26	Details A & B	Detail D	32, 33		
	-	-	-	CMK-1	-	-	-	One-Piece	Front	Without	10, 11	-	27				-	-
	-	-	CMD CMUD CMD CMUD	-	-	-	-	One-Piece	Front	With	12, 13	14, 15	27				Detail C	Detail F
Three Stage (CMH, CMUH Series)	CMHC10B CMHC10C CMHC10D CMHC10E CMHC10F CMUHC10B CMUHC10C CMUHC10D CMUHC10E CMUHC10F	CMHC20B CMHC20C CMHC20D CMHC20E CMHC20F CMUHC20B CMUHC20C CMUHC20D CMUHC20E CMUHC20F	-	CMHK	-	CMHWB CMHWBX CMHWK	CMHYB, CMHYBX CMHYC, CMHYCX CMHYD, CMHYDX CMHYE, CMHYEX CMHYF, CMHYFX CMUHYB, CMUYHBX CMUHYC, CMUHYCX CMUHYD, CMUHYDX CMUHYE, CMUHYEX CMUHYF, CMUHYFX	One-Piece	Rear	Without	20, 21	-	26	-	-	32, 33		
	-	-	CMHD CMUHD	-	-	-	-	One-Piece	Front	With	22, 23	-	27	-	-			
	-	-	-	-	-	-	-	One-Piece	Rear	Without	24, 25	-	26, 27	-	-			

Separable Shaft with Packing, Rear Drive

REF. NO.	DESCRIPTION
S1	Ball bearing
S3	Gland half
S8	Lock ring
S16	Innerstage seal
S17	Wear ring (Available in original size or 0.025, 0.050 and 0.075 undersize.)
S20	Impeller, first stage
S21	Impeller, second stage
S22	Impeller shaft
S35	Hex Hd screw, 1/2-13 x 1-1/4
S36	Lock washer, 1/2 in.
S39	Square key, 5/16 x 1-3/8 in.
S41	Lubrication fitting, 1/8 in.
S48	Dowel pin, 1/4 x 1/2 in.
S50	Retaining ring kit
S52	Flinger grommet
S53	Flinger disk
S54	Bearing housing cap
S55	Gasket
S56	Pipe plug, 1/4 in.
S57	Oil seal

REF. NO.	DESCRIPTION
S58	Lubrication relief fitting
S59	Retaining ring
S60	Lock washer, 3/8 in.
S61	Hex hd screw, 3/8-16 x 1 in.
S80	Bearing housing
S88	V-ring flinger
S99	Seal housing gasket
S100	Lantern ring
S101	Stud, 5/16-18 x 1-5/8 in.
S102	Unbalanced nut, 5/16-18
S103	Flat brass washer, 5/16 in.
S107	Seal housing subassembly (includes S48 and S101)
S110	Packing kit, split ring (BFG rings) or individual flexible graphite (Grafoil®) rings, see page 32.
S111	Retaining ring
S112	Seal housing plug
S113	Bearing shield
S500	Complete impeller shaft assembly

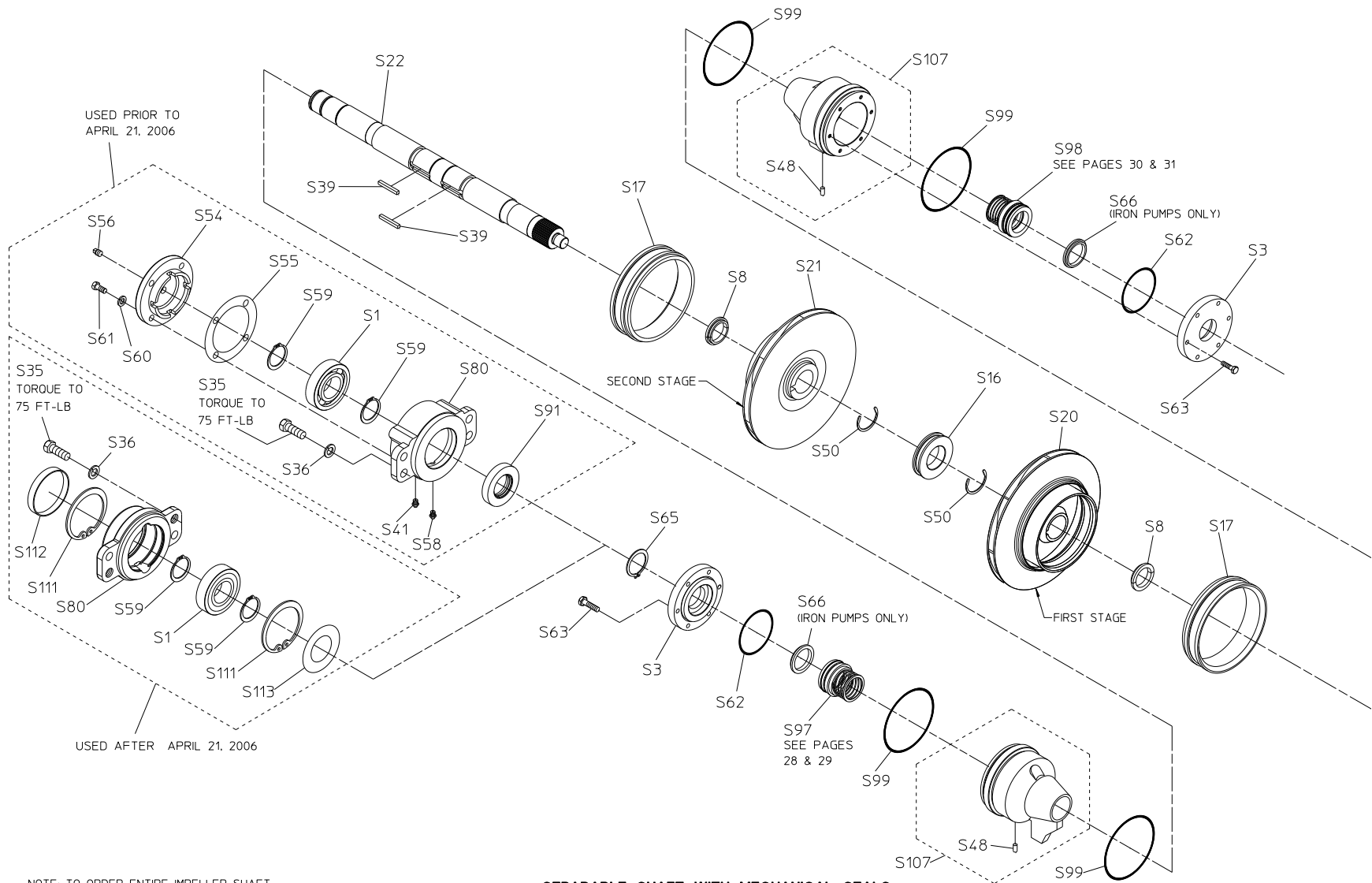


SEPARABLE SHAFT WITH PACKING
REAR DRIVE

Separable Shaft with Mechanical Seals, Rear Drive

REF. NO.	DESCRIPTION
S1	Ball bearing
S3	Seal chamber cover
S8	Lock ring
S16	Innerstage seal
S17	Wear ring (Available in original size or 0.025, 0.050 and 0.075 undersize.)
S20	Impeller, first stage
S21	Impeller, second stage
S22	Impeller shaft
S35	Hex hd screw, 1/2-13 x 1-1/4
S36	Lock washer, 1/2 in.
S39	Square key, 5/16 x 1-3/8 in.
S41	Lubrication fitting, 1/8 in.
S50	Retaining ring kit
S54	Bearing housing cap
S55	Gasket
S56	Pipe plug, 1/4 in.
S58	Lubrication relief fitting
S59	Retaining ring
S60	Lock washer, 3/8 in.
S61	Hex hd screw, 3/8-16 x 1 in.
S62	O-ring, 3 x 3-1/4 in.
S63	Hex hd screw, SS, 1/4-20 x 1 in.

REF. NO.	DESCRIPTION
S65	Retaining ring
S66	Throttle bushing
S80	Bearing housing
S91	Oil seal
S97	Mechanical seal kit - outboard end (see kit details A & B)
S98	Mechanical seal kit - drive end (See kit detail D)
S99	Seal housing gasket
S107	Seal housing subassembly (includes S48)
S111	Retaining ring
S112	Seal housing plug
S113	Bearing shield
S500	Complete impeller shaft assembly



NOTE: TO ORDER ENTIRE IMPELLER SHAFT ASSEMBLY, SPECIFY REF NO. S500

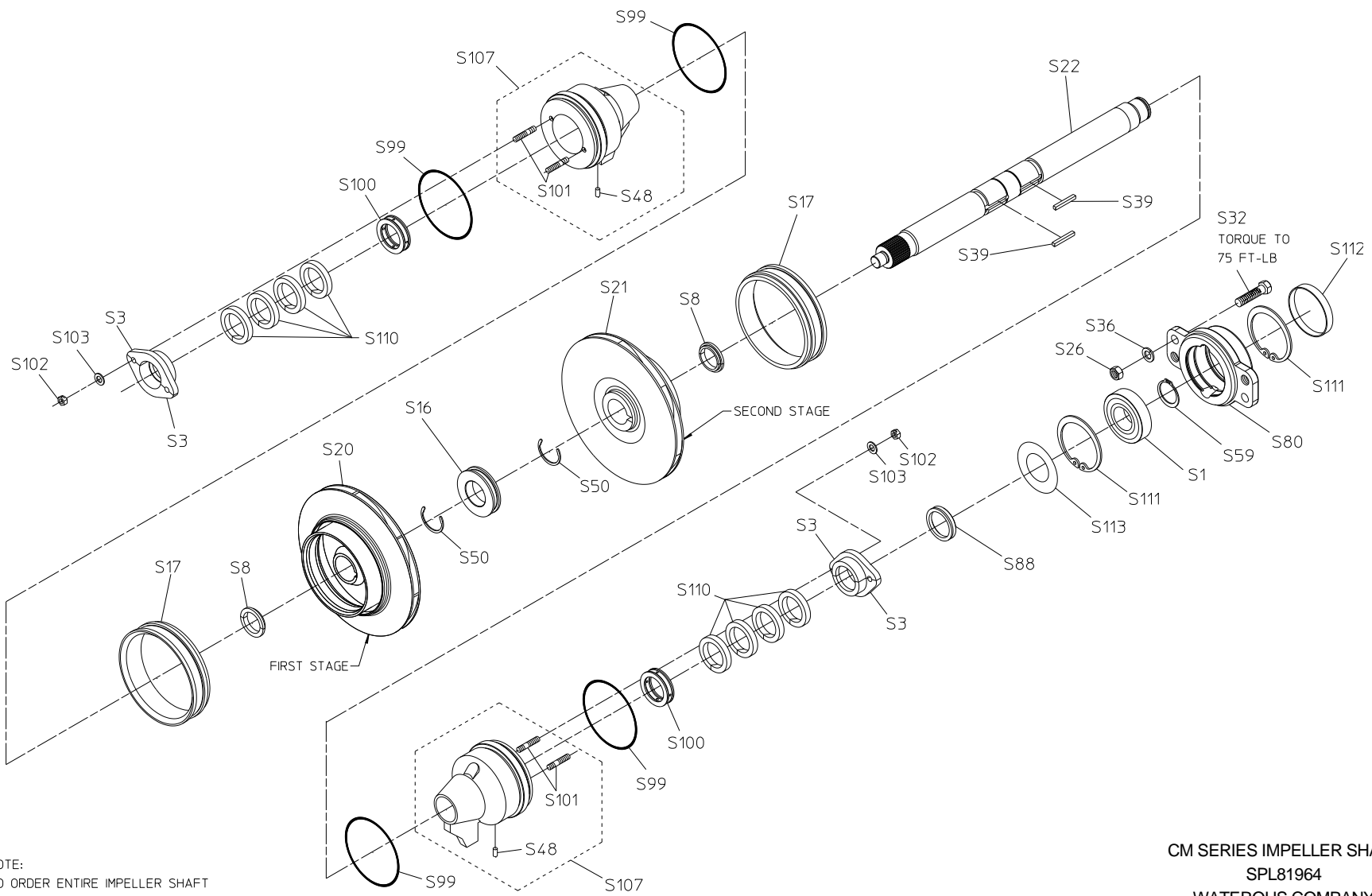
SEPARABLE SHAFT WITH MECHANICAL SEALS

REAR DRIVE

Separable Shaft with Packing, Front Drive

REF. NO.	DESCRIPTION
S1	Ball bearing
S3	Gland half
S8	Lock ring
S16	Innerstage seal
S17	Wear ring (Available in original size or 0.025, 0.050 and 0.075 undersize.)
S20	Impeller, first stage
S21	Impeller, second stage
S22	Impeller shaft
S26	Hex Nut, 1/2-20
S32	Hex Hd Screw, 1/2-20 x 2 in.
S36	Lock washer, 1/2 in.
S39	Square key, 5/16 x 1-3/8 in.
S48	Dowel pin, 1/4 x 1/2 in.
S50	Retaining ring kit

REF. NO.	DESCRIPTION
S59	Retaining ring
S80	Bearing housing
S88	V-ring flinger
S99	Seal housing gasket
S100	Lantern ring
S101	Stud, 5/16-18 x 1-5/8 in.
S102	Unbalanced nut, 5/16-18
S103	Flat brass washer, 5/16 in.
S107	Seal housing subassembly (includes S48 and S101)
S110	Packing kit, split ring (BFG rings) or individual flexible graphite (Grafoil®) rings, see page 32.
S111	Retaining ring
S112	Seal housing plug
S113	Bearing shield
S500	Complete impeller shaft assembly



NOTE:
 TO ORDER ENTIRE IMPELLER SHAFT
 ASSEMBLY, SPECIFY REF NO. S500

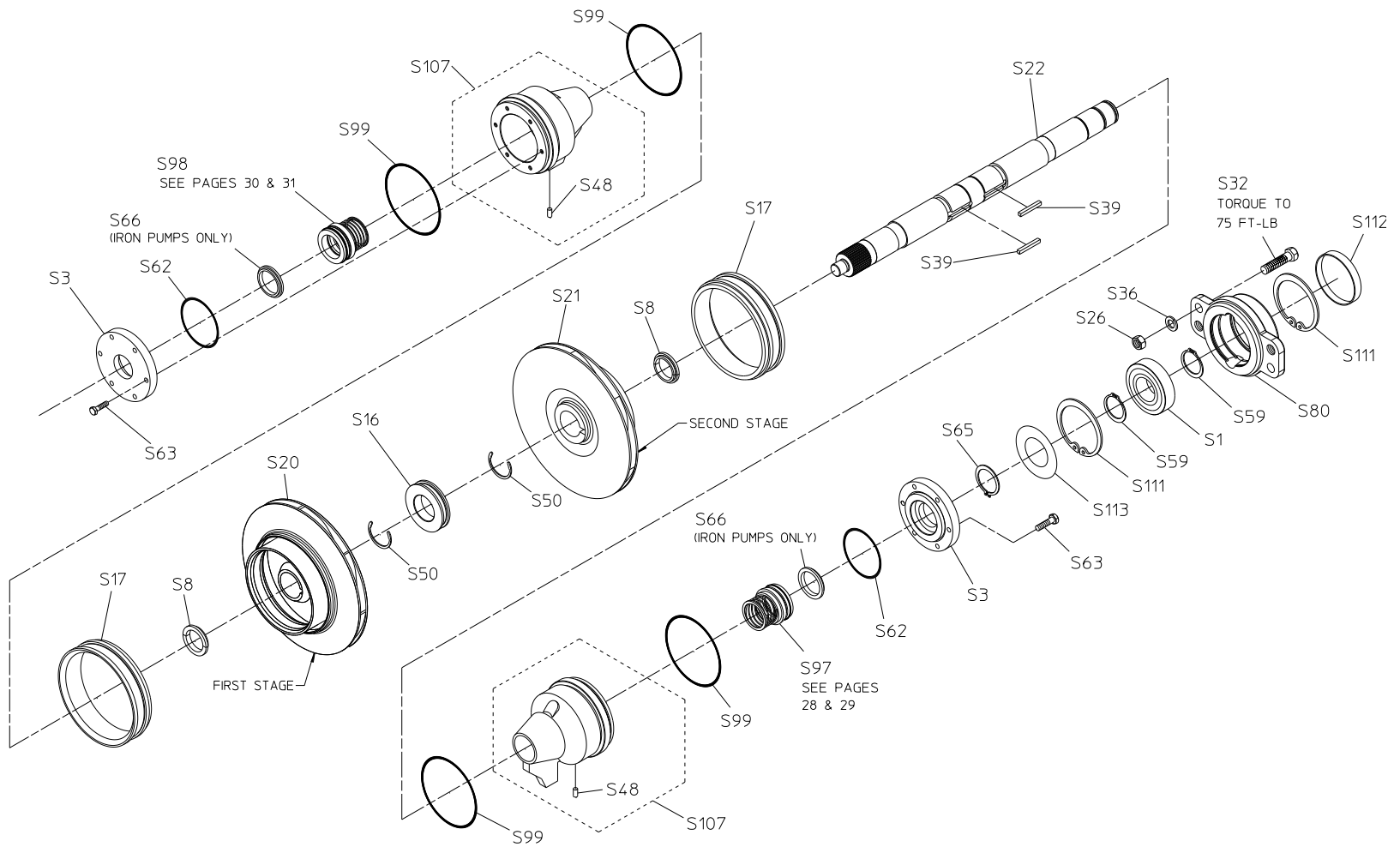
SEPARABLE SHAFT WITH PACKING
 FRONT DRIVE

CM SERIES IMPELLER SHAFT
 SPL81964
 WATEROUS COMPANY
 SOUTH ST. PAUL, MN 55075
 PAGE 7 OF 33

Separable Shaft with Mechanical Seals, Front Drive

REF. NO.	DESCRIPTION
S1	Ball bearing
S3	Seal chamber cover
S8	Lock ring
S16	Innerstage seal
S17	Wear ring (Available in original size or 0.025, 0.050 and 0.075 undersize.)
S20	Impeller, first stage
S21	Impeller, second stage
S22	Impeller shaft
S26	Hex Nut, 1/2-20
S32	Hex Hd Screw, 1/2-20 x 2 in.
S36	Lock washer, 1/2 in.
S39	Square key, 5/16 x 1-3/8 in.
S50	Retaining ring kit
S59	Retaining ring
S62	O-ring, 3 x 3-1/4 in.
S63	Hex hd screw, SS, 1/4-20 x 1 in.

REF. NO.	DESCRIPTION
S65	Retaining ring
S66	Throttle bushing
S80	Bearing housing
S97	Mechanical seal kit - outboard end (see kit details A & B)
S98	Mechanical seal kit - drive end (See kit detail D)
S99	Seal housing gasket
S107	Seal housing subassembly (includes S48)
S111	Retaining ring
S112	Seal housing plug
S113	Bearing shield
S500	Complete impeller shaft assembly



NOTE: TO ORDER ENTIRE IMPELLER SHAFT
ASSEMBLY, SPECIFY REF NO. S500

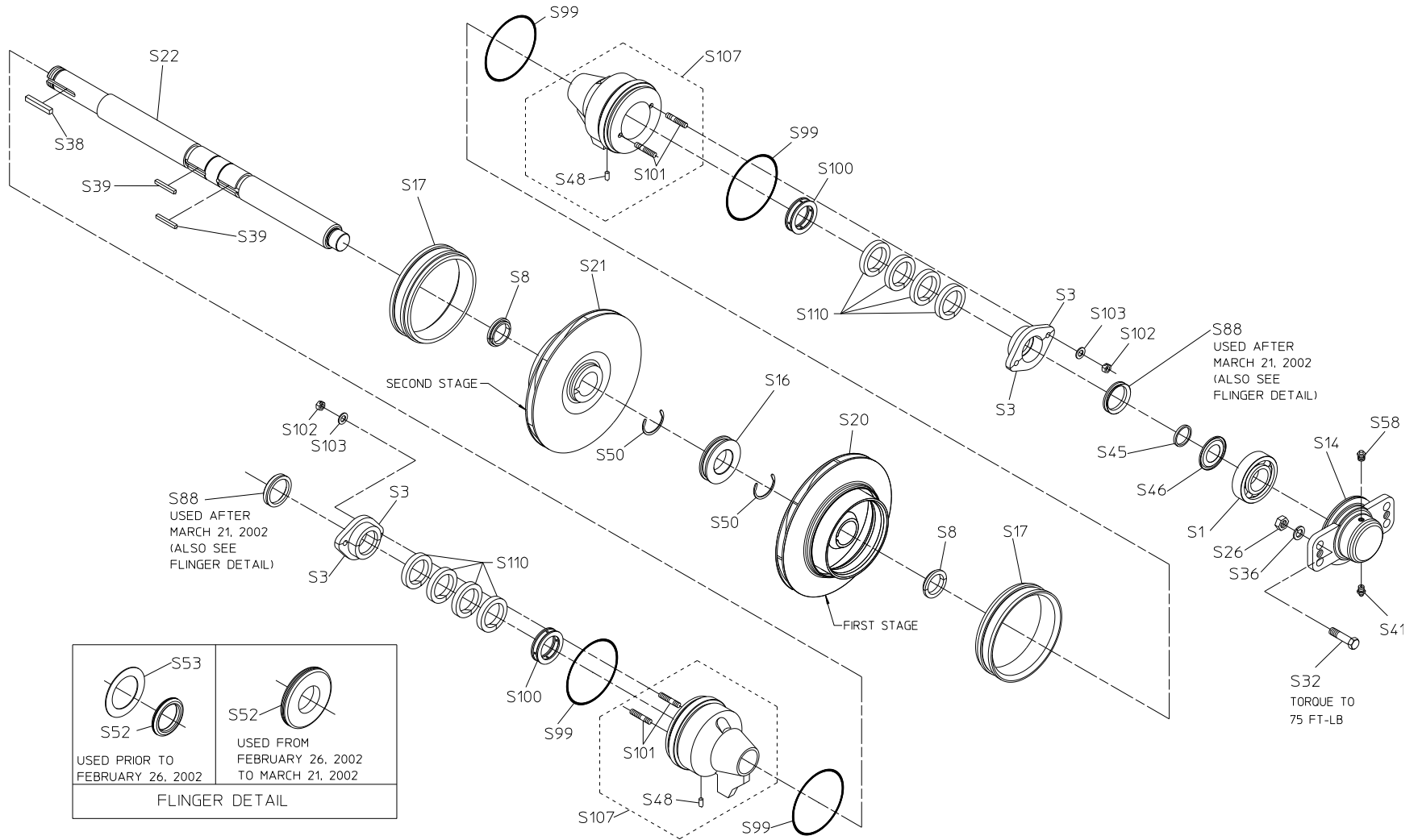
SEPARABLE SHAFT WITH MECHANICAL SEALS
FRONT DRIVE

CM SERIES IMPELLER SHAFT
SPL81964
WATEROUS COMPANY
SOUTH ST. PAUL, MN 55075
PAGE 9 OF 33

One-Piece Shaft with Packing Front Drive Model CMK-1

REF. NO.	DESCRIPTION
S1	Ball bearing
S3	Gland half
S8	Lock ring
S14	Bearing housing
S16	Innerstage seal
S17	Wear ring (available in original size or 0.025, 0.050 and 0.075 in. undersize)
S20	Impeller, first stage
S21	Impeller, second stage
S22	Impeller shaft
S26	Hex nut, 1/2-20
S32	Hex hd screw, 1/2-20 x 1-3/4 in.
S36	Lock washer, 1/2 in.
S38	Key, 5/16 x 1-9/16
S39	Square key, 5/16 x 1-3/8 in.
S41	Lubrication fitting, 1/8 in.
S45	Bearing spacer
S46	Bearing seal
S50	Retaining ring kit
S52	Flinger grommet
S53	Flinger disk

REF. NO.	DESCRIPTION
S58	Lubrication relief fitting
S88	V-ring flinger
S99	Seal housing gasket
S100	Lantern ring
S101	Stud, 5/16-18 x 1-5/8 in.
S102	Unbalanced nut, 5/16-18
S103	Flat brass washer, 5/16 in.
S107	Seal housing subassembly (includes S48 and S101)
S110	Packing kit, split ring (BFG) or individual flexible graphite (Grafoil®) ring, see page 32.
S500	Complete impeller shaft assembly



NOTE: TO ORDER ENTIRE IMPELLER SHAFT ASSEMBLY, SPECIFY REF NO. S500

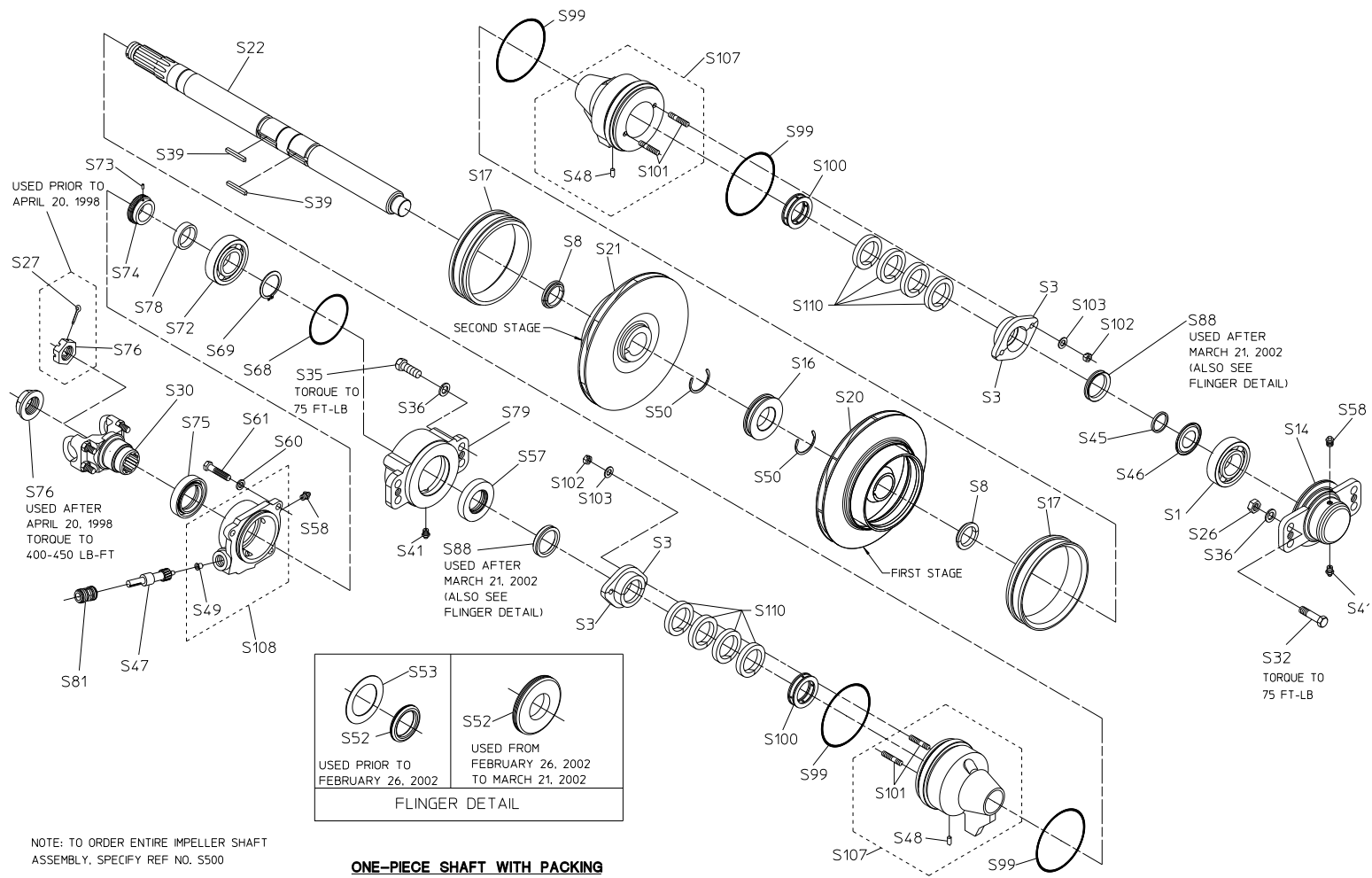
ONE-PIECE SHAFT WITH PACKING
FRONT DRIVE, MODEL CMK-1

CM SERIES IMPELLER SHAFT
SPL81964
WATEROUS COMPANY
SOUTH ST. PAUL, MN 55075
PAGE 11 OF 33

One-Piece Shaft with Packing Front Drive with Tachometer Models CMD & CMUD

REF. NO.	DESCRIPTION
S1	Ball bearing
S3	Gland half
S8	Lock ring
S14	Bearing housing
S16	Innerstage seal
S17	Wear ring (Available in original size or 0.025, 0.050 and 0.075 in. undersize.)
S20	Impeller, first stage
S21	Impeller, second stage
S22	Impeller Shaft
S26	Hex nut, 1/2-20
S27	Cotter pin, 1/8 x 1-3/4 in. (prior to April 20, 1998)
S30	End yoke with U-bolts
S32	Hex hd screw, 1/2-20 x 1-3/4 in.
S35	Hex hd screw, 1/2-13 x 1-1/4
S36	Lock washer, 1/2 in.
S39	Square key, 5/16 x 1-3/8 in.
S41	Lubrication fitting, 1/8 in.
S45	Bearing spacer
S46	Bearing seal
S47	Tachometer driven gear
S48	Dowel pin, 1/4 x 1/2 in.
S49	Tachometer/Speedometer bushing
S50	Retaining ring kit
S52	Flinger grommet
S53	Flinger disk

REF. NO.	DESCRIPTION
S57	Oil seal
S58	Lubrication relief fitting
S60	Lock washer, 3/8 in.
S61	Hex hd screw, 3/8-16 x 1 in.
S68	O-ring, 3-1/4 x 3-1/2 in.
S69	Retaining ring
S72	Ball bearing
S73	Spring pin, 3/16 x 1/2 in.
S74	Tachometer drive gear
S75	Oil seal
S76	Shaft nut
S78	Tachometer gear spacer
S79	Bearing housing
S81	Tachometer/Speedometer sleeve
S88	V-ring flinger
S99	Seal housing gasket
S100	Lantern ring
S101	Stud, 5/16-18 x 1-5/8 in.
S102	Unbalanced nut, 5/16-18
S103	Flat brass washer, 5/16 in.
S107	Seal housing subassembly (includes S48 and S101)
S108	Tachometer gear housing assembly (includes S49)
S110	Packing kit, split ring (BFG ring) or individual flexible graphite (Grafoil®) ring, see page 32.
S500	Complete impeller shaft assembly



CM SERIES IMPELLER SHAFT
SPL81964
WATEROUS COMPANY
SOUTH ST. PAUL, MN 55075
PAGE 13 OF 33

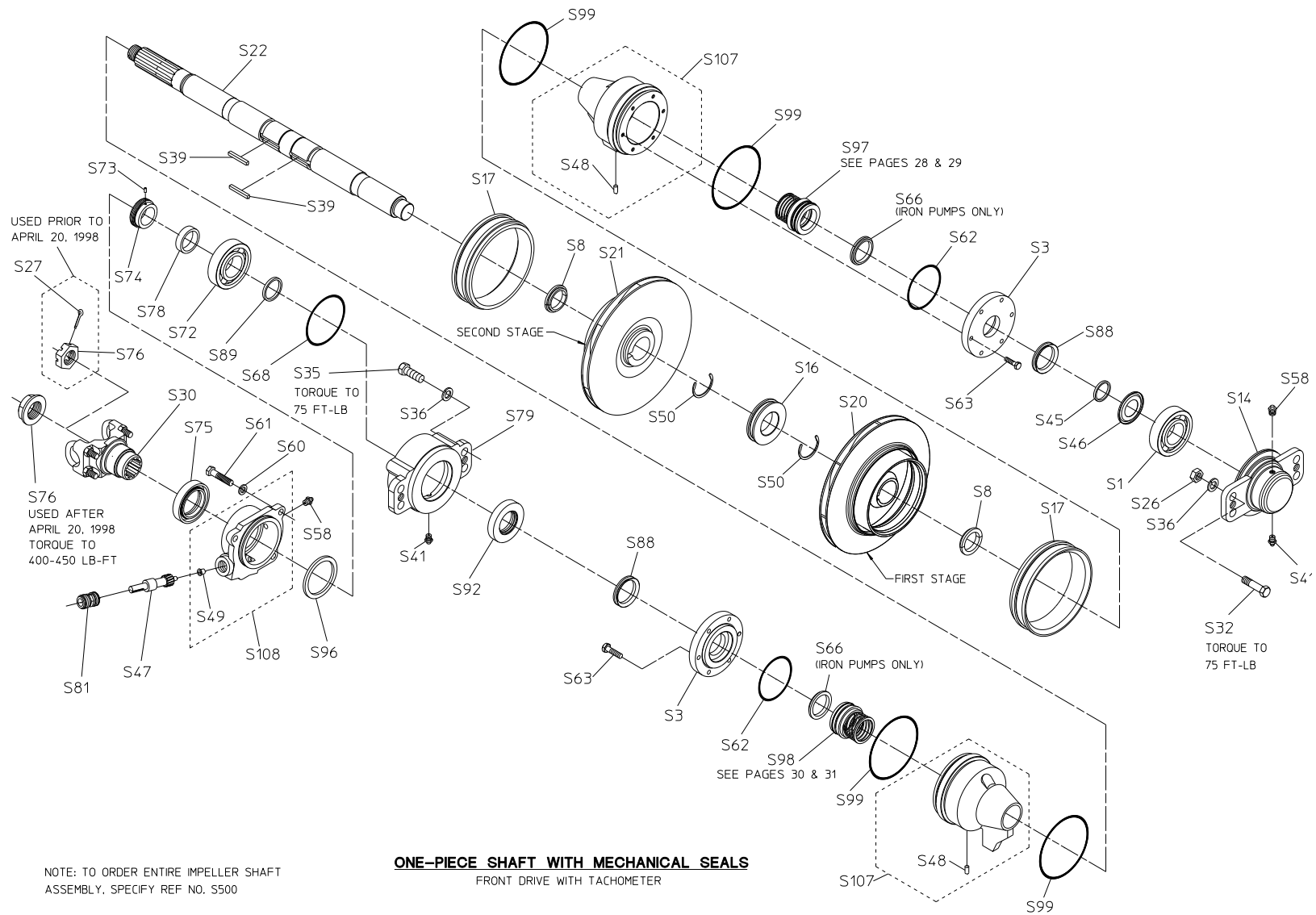
One-Piece Shaft with Mechanical Seals

Front Drive with Tachometer

Models CMD & CMUD

REF. NO.	DESCRIPTION
S1	Ball bearing
S3	Seal chamber cover
S8	Lock ring
S14	Bearing housing
S16	Innerstage seal
S17	Wear ring (Available in original size or 0.025, 0.050 and 0.075 in. under-size.)
S20	Impeller, first stage
S21	Impeller, second stage
S22	Impeller Shaft
S26	Hex nut, 1/2-20
S27	Cotter pin, 1/8 x 1-3/4 in. (prior to April 20, 1998)
S30	End yoke with U-bolts
S32	Hex hd screw, 1/2-20 x 1-3/4 in.
S35	Hex hd screw, 1/2-13 x 1-1/4
S36	Lock washer, 1/2 in.
S39	Square key, 5/16 x 1-3/8 in.
S41	Lubrication fitting, 1/8 in.
S45	Bearing spacer
S46	Bearing seal
S47	Tachometer driven gear
S48	Dowel pin, 1/4 x 1/2 in.
S49	Tachometer/Speedometer bushing
S50	Retaining ring kit

REF. NO.	DESCRIPTION
S58	Lubrication relief fitting
S60	Lock washer, 3/8 in.
S61	Hex hd screw, 3/8-16 x 1 in.
S62	O-ring, 3 x 3-1/4 in.
S63	Hex hd screw, SS, 1/4-20 x 1 in.
S68	O-ring, 3-1/4 x 3-1/2 in.
S72	Ball bearing
S73	Spring pin, 3/16 x 1/2 in.
S74	Tachometer drive gear
S75	Oil seal
S76	Shaft nut
S78	Tachometer gear spacer
S79	Bearing housing
S81	Tachometer/Speedometer sleeve
S82	Cotter pin, 1/8 x 1 in.
S88	V-ring flinger
S92	Oil seal
S96	Housing spacer
S97	Mechanical seal kit - outboard end (see kit detail C)
S98	Mechanical seal kit - drive end (see kit Detail F)
S99	Seal housing gasket
S107	Seal housing subassembly (includes S48)
S108	Tachometer gear housing assembly (includes S49)
S500	Complete impeller shaft assembly

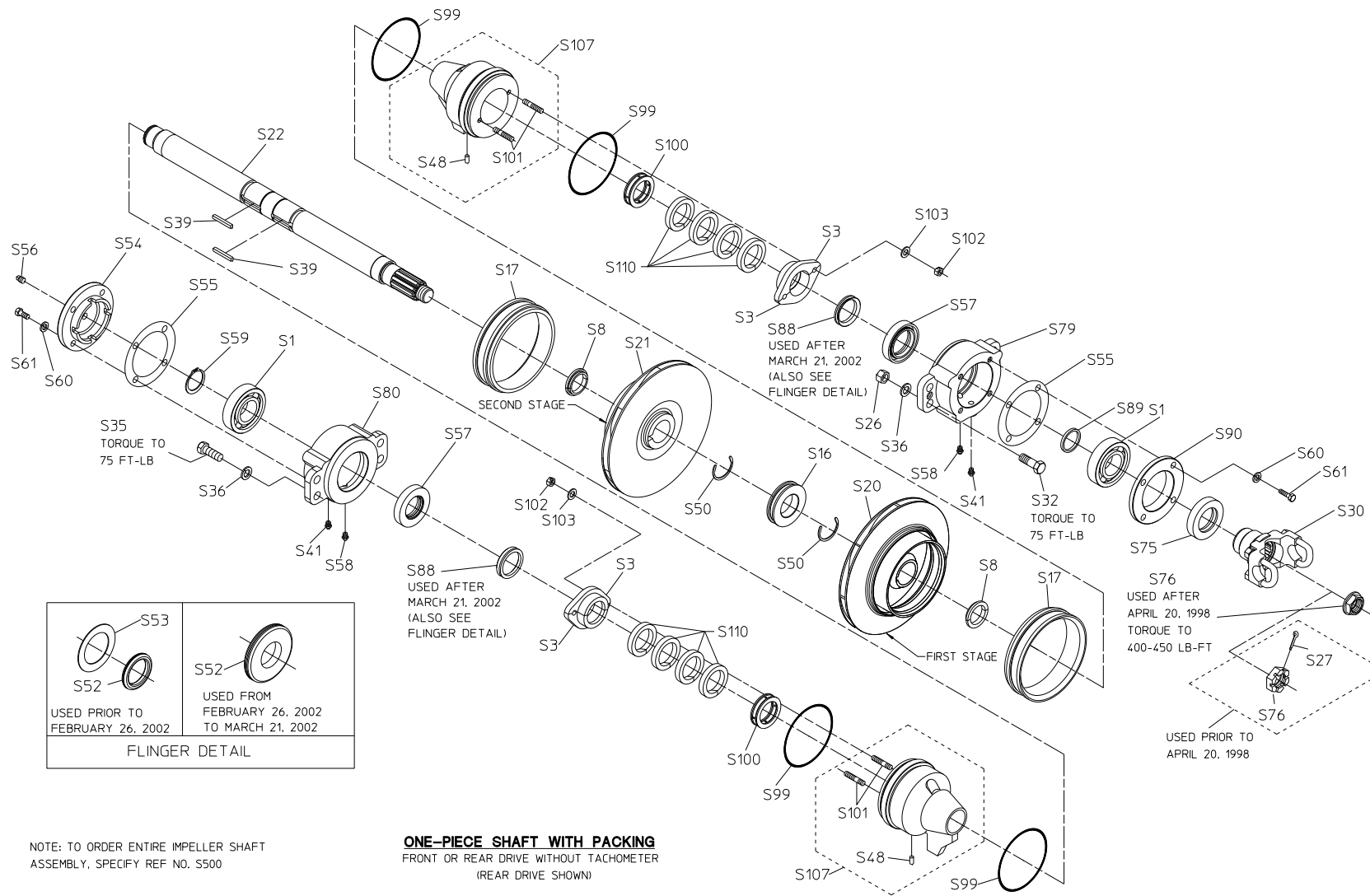


CM SERIES IMPELLER SHAFT
SPL81964
WATEROUS COMPANY
SOUTH ST. PAUL, MN 55075

One-Piece Shaft with Packing Front or Rear Drive without Tachometer Models CMD & CMUD

REF. NO.	DESCRIPTION
S1	Ball bearing
S3	Gland half
S8	Lock ring
S16	Innerstage seal
S17	Wear ring (Available in original size or 0.025, 0.050 and 0.075 in. undersize.)
S20	Impeller, first stage
S21	Impeller, second stage
S22	Impeller Shaft
S26	Hex nut, 1/2-20
S27	Cotter pin, 1/8 x 1-3/4 in. (prior to April 20, 1998)
S30	End yoke with U-bolts
S32	Hex hd screw, 1/2-20 x 1-3/4 in.
S35	Hex hd screw, 1/2-13 x 1-1/4
S36	Lock washer, 1/2 in.
S39	Square key, 5/16 x 1-3/8 in.
S41	Lubrication fitting, 1/8 in.
S48	Dowel pin, 1/4 x 1/2 in.
S49	Tachometer/Speedometer bushing
S50	Retaining ring kit
S52	Flinger grommet
S53	Flinger disk
S54	Bearing housing cap

REF. NO.	DESCRIPTION
S55	Gasket
S56	Pipe plug, 1/4 in.
S57	Oil seal
S58	Lubrication relief fitting
S59	Retaining ring
S60	Lock washer, 3/8 in.
S61	Hex hd screw, 3/8-16 x 1 in.
S75	Oil seal
S76	Shaft nut
S79	Bearing housing
S80	Bearing housing
S88	V-ring flinger
S89	Bearing spacer
S90	Oil seal housing
S99	Seal housing gasket
S100	Lantern ring
S101	Stud, 5/16-18 x 1-5/8 in.
S102	Unbalanced nut, 5/16-18
S103	Flat brass washer, 5/16 in.
S107	Seal housing subassembly (includes S48 and S101)
S110	Packing kit, split ring (BFG rings) or individual flexible graphite (Grafoil®) rings, see page 32.
S500	Complete impeller shaft assembly



NOTE: TO ORDER ENTIRE IMPELLER SHAFT ASSEMBLY, SPECIFY REF NO. S500

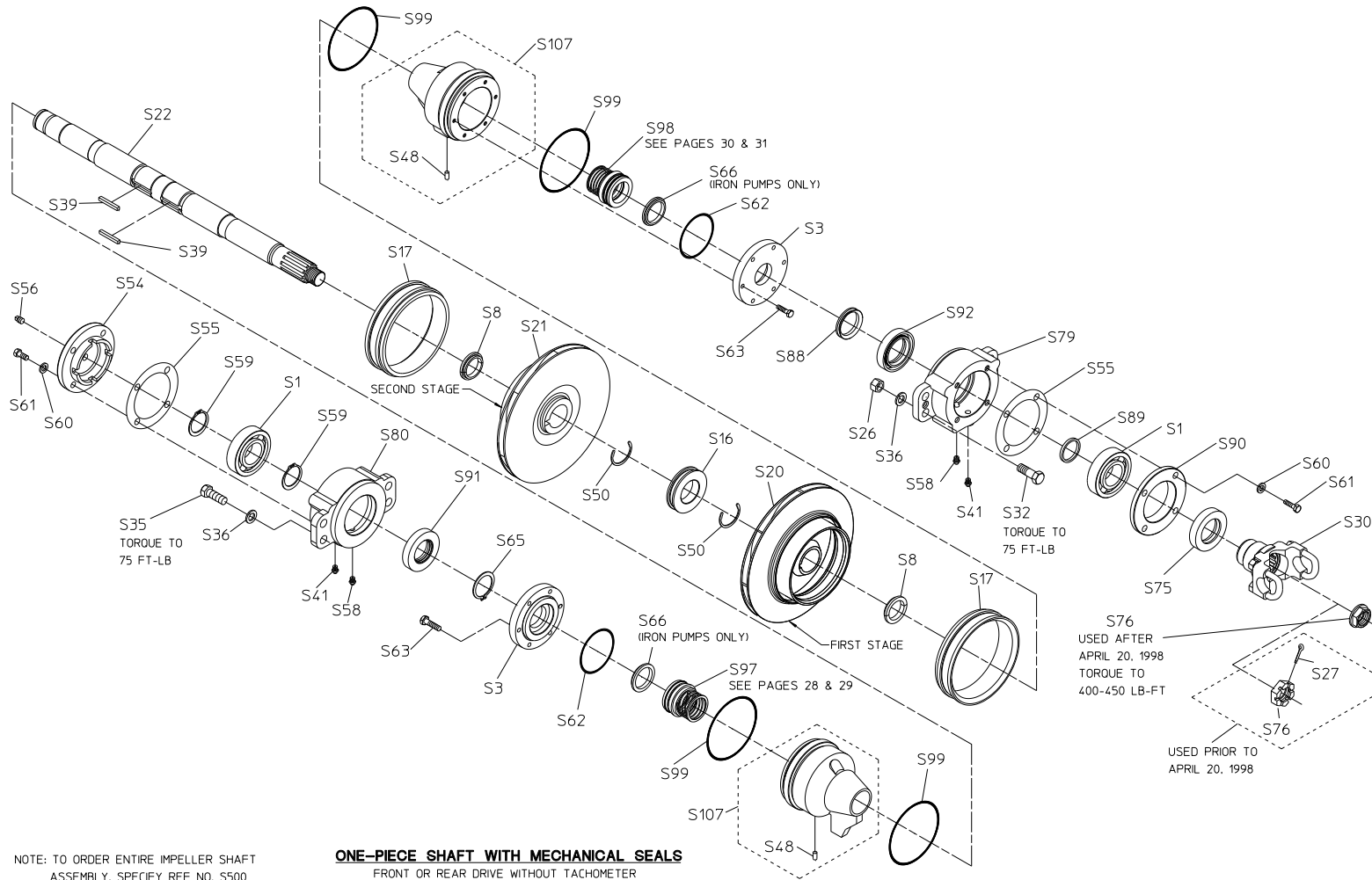
ONE-PIECE SHAFT WITH PACKING
 FRONT OR REAR DRIVE WITHOUT TACHOMETER
 (REAR DRIVE SHOWN)

CM SERIES IMPELLER SHAFT
 SPL81964
 WATEROUS COMPANY
 SOUTH ST. PAUL, MN 55075
 PAGE 17 OF 33

One-Piece Shaft with Mechanical Seals Front or Rear Drive without Tachometer Models CMD & CMUD

REF. NO.	DESCRIPTION
S1	Ball bearing
S3	Seal chamber cover
S8	Lock ring
S16	Innerstage seal
S17	Wear ring (Available in original size or 0.025, 0.050 and 0.075 undersize.)
S20	Impeller, first stage
S21	Impeller, second stage
S22	Impeller shaft
S26	Hex nut, 1/2-20
S27	Cotter pin, 1/8 x 1-3/4 in. (prior to April 20, 1998)
S30	End yoke with U-bolts
S32	Hex hd screw, 1/2-20 x 2 in.
S35	Hex hd screw, 1/2-13 x 1-1/4
S36	Lock washer, 1/2 in.
S39	Square key, 5/16 x 1-3/8 in.
S41	Lubrication fitting,
S48	Dowel pin, 1/4 x 1/2 in.
S50	Retaining ring
S54	Bearing housing cap
S55	Gasket
S56	Pipe plug, 1/4 in.
S58	Lubrication relief fitting

REF. NO.	DESCRIPTION
S59	Retaining ring
S60	Lock washer, 3/8 in.
S61	Hex hd screw, 3/8-16 x 1 in.
S62	O-ring, 3 x 3-1/4 in.
S63	Hex hd screw, SS, 1/4-20 x 1 in.
S65	Retaining ring
S66	Throttle bushing
S75	Oil seal
S76	Shaft nut
S79	Bearing housing
S80	Bearing housing
S88	V-ring flinger
S89	Bearing spacer
S90	Oil seal housing
S91	Oil seal
S92	Oil seal
S97	Mechanical seal kit - outboard end (see kit details A & B)
S98	Mechanical seal kit - drive end (see kit detail F)
S99	Seal housing gasket
S107	Seal housing subassembly (includes S48)
S500	Complete impeller shaft assembly



NOTE: TO ORDER ENTIRE IMPELLER SHAFT ASSEMBLY, SPECIFY REF NO. S500

ONE-PIECE SHAFT WITH MECHANICAL SEALS
 FRONT OR REAR DRIVE WITHOUT TACHOMETER
 (REAR DRIVE SHOWN)

S76
 USED AFTER
 APRIL 20, 1998
 TORQUE TO
 400-450 LB-FT

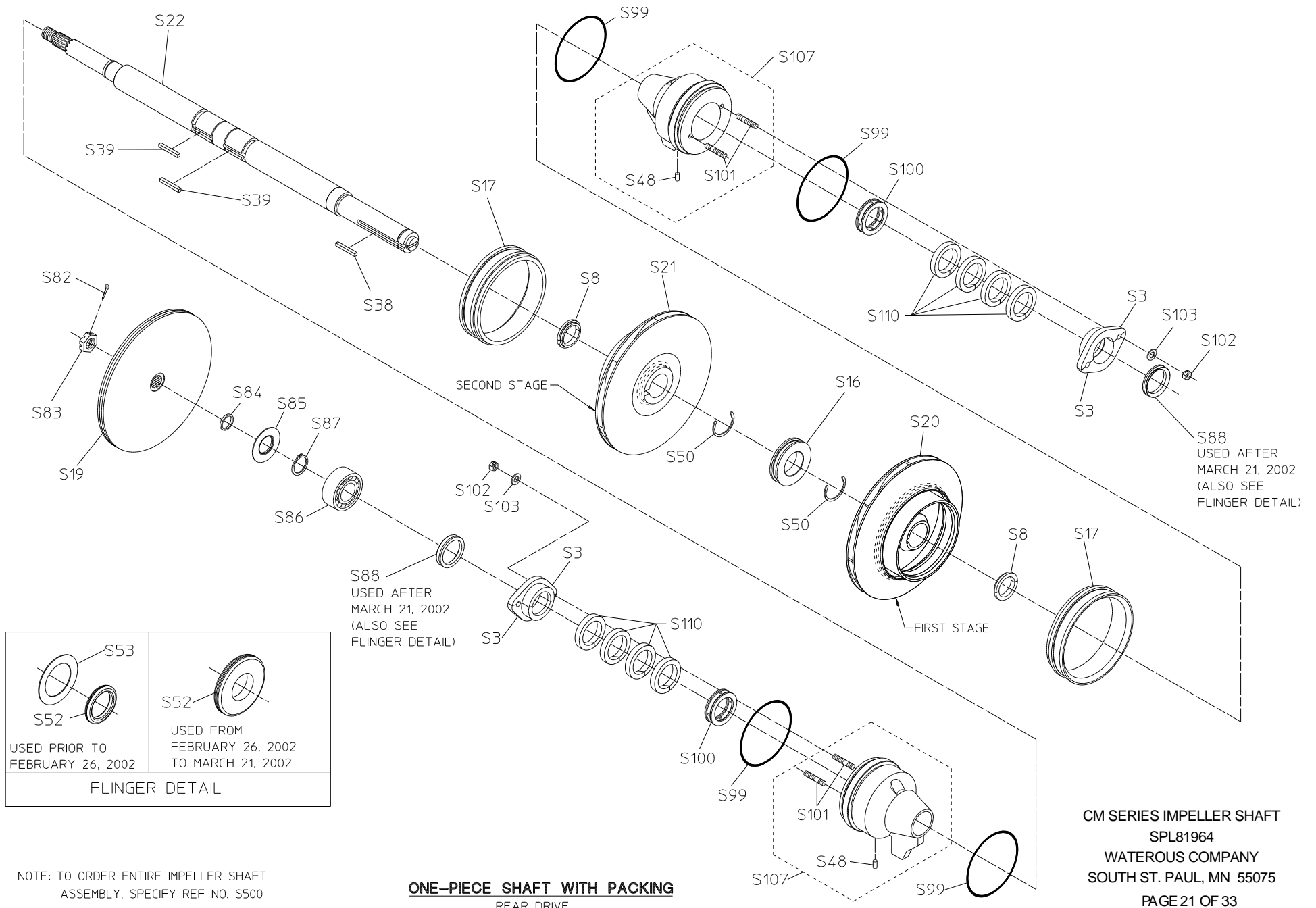
S27
 S76
 USED PRIOR TO
 APRIL 20, 1998

One-Piece Shaft with Packing Rear Drive Three-Stage Pumps

REF. NO.	DESCRIPTION
S3	Gland half
S8	Lock ring
S16	Innerstage seal
S17	Wear ring (Available in original size or 0.025, 0.050 and 0.075 in. undersize.)
S19	Impeller, extra pressure stage
S20	Impeller, first stage
S21	Impeller, second stage
S22	Impeller shaft
S38	Square Key, 5/16 x 2-5/16 in.
S39	Square key, 5/16 x 1-3/8 in.
S48	Dowel pin, 1/4 x 1/2 in.
S50	Retaining ring kit
S52	Flinger grommet
S53	Flinger disk
S82	Cotter pin, 1/8 x 1 in.
S83	Castle hex nut, 3/4-16
S84	Impeller spacer
S85	Flinger ring
S86	Double row ball bearing

Note: For extra pressure stage components not shown, see extra pressure stage body service parts list.

REF. NO.	DESCRIPTION
S87	Retaining ring
S88	V-ring flinger
S99	Seal housing gasket
S100	Lantern ring
S102	Unbalanced nut, 5/16-18
S103	Flat brass washer, 5/16 in.
S107	Seal housing subassembly (includes S48 and S101)
S110	Packing kit, split ring (BFG ring) or individual flexible graphite (Grafoil®) ring, see page 32.
S500	Complete impeller shaft assembly



One-Piece Shaft with Packing Front Drive with Tachometer Models CMHD & CMUHD

REF. NO.	DESCRIPTION
S3	Gland half
S8	Lock ring
S16	Innerstage seal
S17	Wear ring (Available in original size or 0.025, 0.050 and 0.075 in. undersize.)
S19	Impeller, extra pressure stage
S20	Impeller, first stage
S21	Impeller, second stage
S22	Impeller shaft
S27	Cotter pin, 1/8 x 1-3/4 in. (prior to April 20, 1998)
S30	End yoke with U-bolts
S35	Hex hd screw, 1/2-13 x 1-1/4
S36	Lock washer, 1/2 in.
S39	Square key, 5/16 x 1-3/8 in.
S41	Lubrication fitting, 1/8 in.
S47	Tachometer driven gear
S49	Tachometer/Speedometer bushing
S50	Retaining ring kit
S52	Flinger grommet
S53	Flinger disk
S57	Oil seal
S58	Lubrication relief fitting
S60	Lock washer, 3/8 in.
S61	Hex hd screw, 3/8-16 x 1 in.
S66	Throttle bushing

Note: For extra pressure stage components not shown, see extra pressure stage body service parts list.

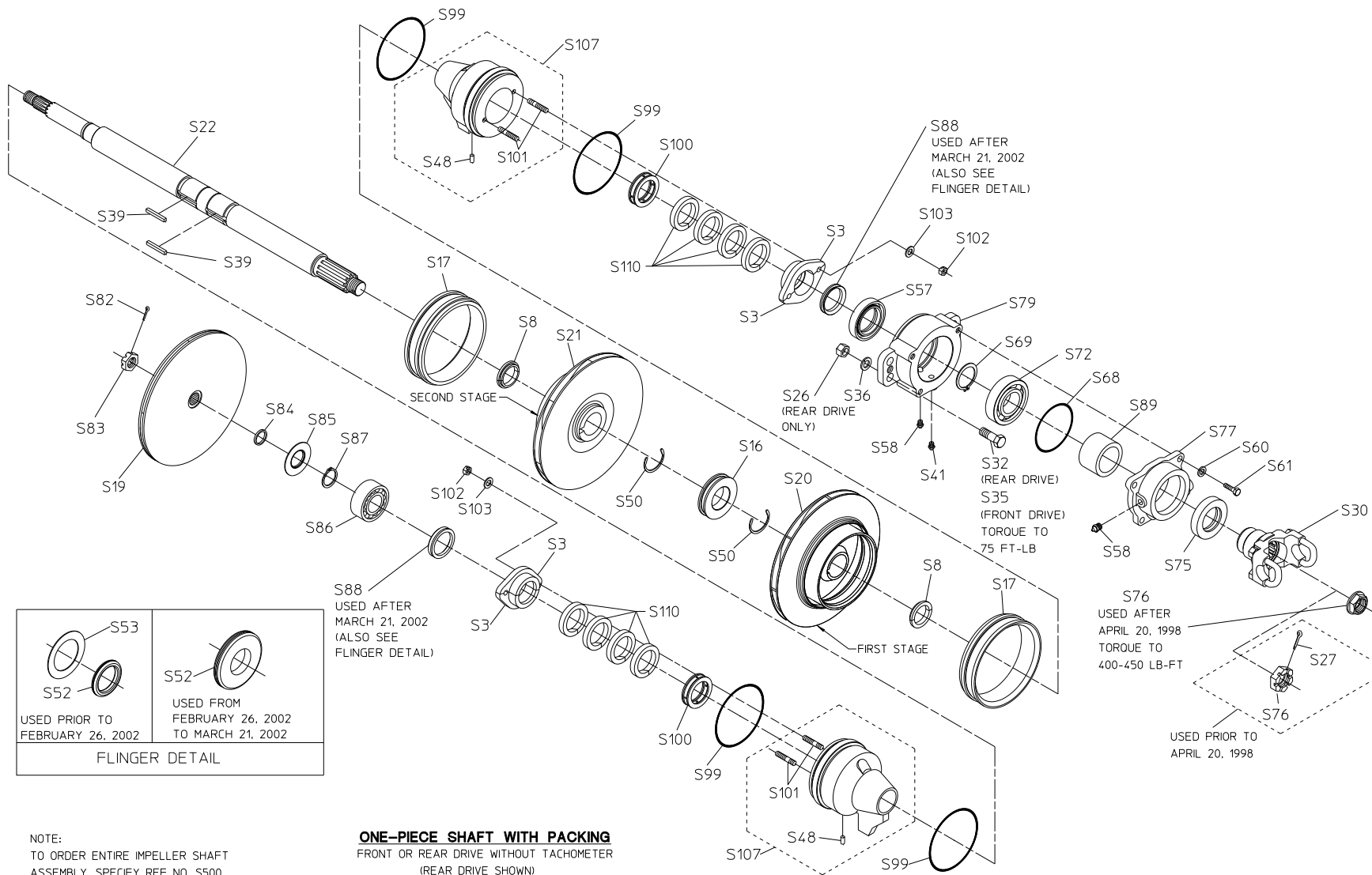
REF. NO.	DESCRIPTION
S72	Ball bearing
S73	Spring pin, 3/16 x 1/2 in.
S74	Tachometer drive gear
S75	Oil seal
S76	Shaft nut
S78	Tachometer gear spacer
S79	Bearing housing
S81	Tachometer/Speedometer sleeve
S82	Cotter pin, 1/8 x 1 in.
S83	Castle hex nut, 3/4-16
S84	Impeller spacer
S85	Flinger ring
S86	Double row ball bearing
S87	Retaining ring
S88	V-ring flinger
S99	Seal housing gasket
S100	Lantern ring
S101	Stud, 5/16-18 x 1-5/8 in.
S102	Unbalanced nut, 5/16-18
S103	Flat brass washer, 5/16 in.
S107	Seal housing subassembly (includes S48 and S101)
S108	Tachometer gear housing assembly (includes S49)
S110	Packing kit, split ring (BFG ring) or individual flexible graphite (Grafoil®) ring, see page 32.
S500	Complete impeller shaft assembly

One-Piece Shaft with Packing Front or Rear Drive without Tachometer Models CMHD & CMUHD

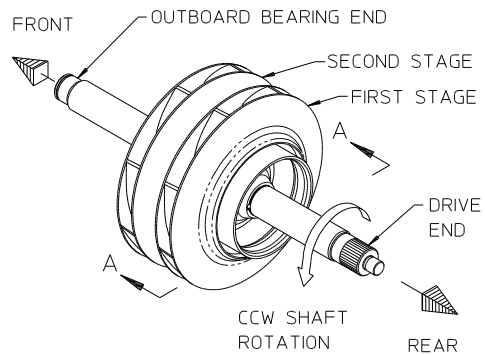
REF. NO.	DESCRIPTION
S3	Gland half
S8	Lock ring
S16	Innerstage seal
S17	Wear ring (available in original size or 0.025, 0.050 and 0.075 in. undersize)
S19	Impeller, extra pressure stage
S20	Impeller, first stage
S21	Impeller, second stage
S22	Impeller shaft
S26	Hex nut, 1/2-20
S27	Cotter pin, 1/8 x 1-3/4 in. (prior to April 20, 1998)
S30	End yoke with U-bolts
S32	Hex hd screw, 1/2-20 x 2 in.
S35	Hex hd screw, 1/2-13 x 1-1/4
S36	Lock washer, 1/2 in.
S39	Square key, 5/16 x 1-3/8 in.
S41	Lubrication fitting, 1/8 in.
S48	Dowel pin, 1/4 x 1/2 in.
S50	Retaining ring kit
S52	Flinger grommet
S53	Flinger disk
S57	Oil seal
S58	Lubrication relief fitting
S60	Lock washer, 3/8 in.

Note: For extra pressure stage components not shown, see extra pressure stage body service parts list.

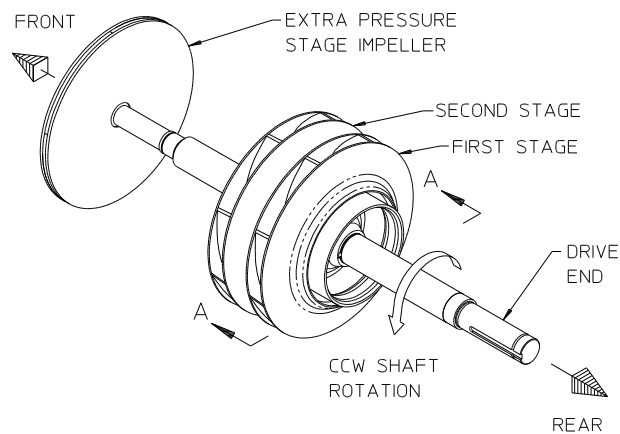
REF. NO.	DESCRIPTION
S61	hex hd screw, 3/8-16 x 1 in.
S68	O-ring, 3-1/4 x 3-1/2 in.
S69	Retaining ring
S72	Ball bearing
S75	Oil seal
S76	Shaft nut
S77	Oil seal housing
S79	Bearing housing
S82	Cotter pin, 1/8 x 1 in.
S83	Castle hex nut, 3/4-16
S84	Impeller spacer
S85	Flinger ring
S86	Double row ball bearing
S87	Retaining ring
S88	V-ring flinger
S89	Bearing spacer
S99	Seal housing gasket
S100	Lantern ring
S101	Stud, 5/16-18 x 1-5/8 in.
S102	Unbalanced nut, 5/16-18
S103	Flat brass washer, 5/16 in.
S107	Seal housing subassembly (includes S48 and S101)
S110	Packing kit, split ring (BFG ring) or individual flexible graphite (Grafoil®) ring, see page 32.
S500	Complete impeller shaft assembly



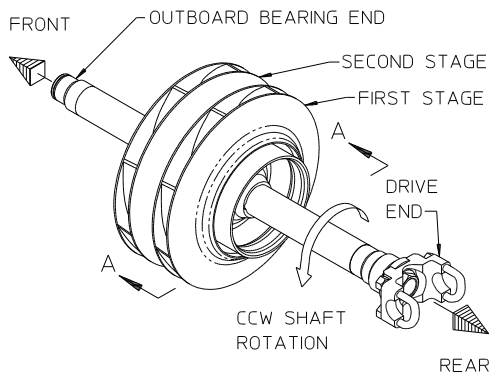
CM SERIES IMPELLER SHAFT
 SPL81964
 WATEROUS COMPANY
 SOUTH ST. PAUL, MN 55075
 PAGE 25 OF 33



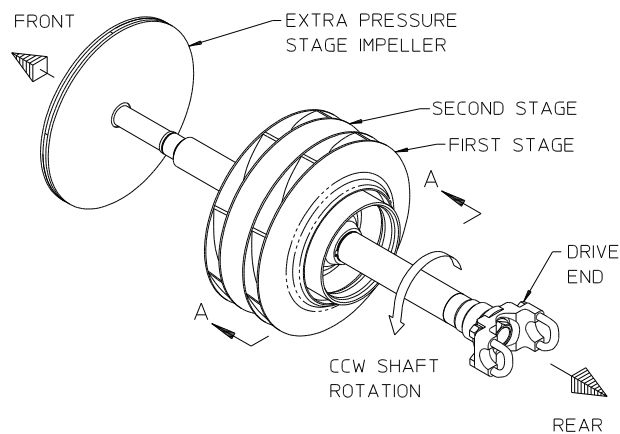
CM, CMU
WITH SEPARABLE IMPELLER SHAFT



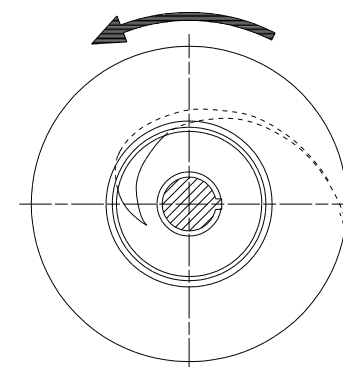
CMH, CMUH
WITH ONE-PIECE IMPELLER SHAFT



CMD, CMUD
DIRECT DRIVE

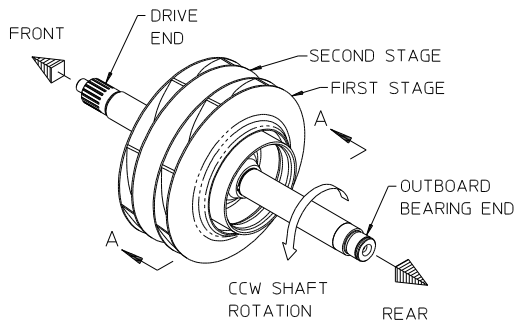


CMHD, CMUHD
DIRECT DRIVE

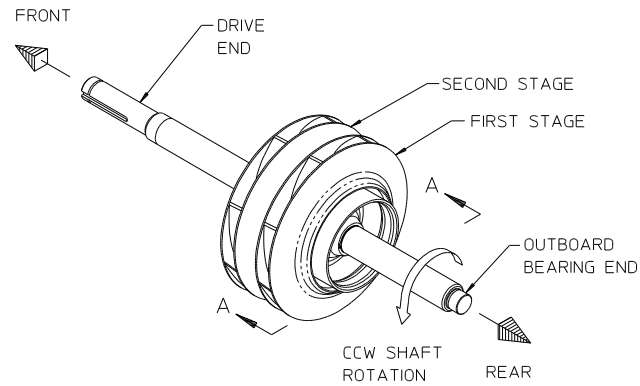


VIEW A-A
LOOKING INTO EYE OF
FIRST STAGE IMPELLER

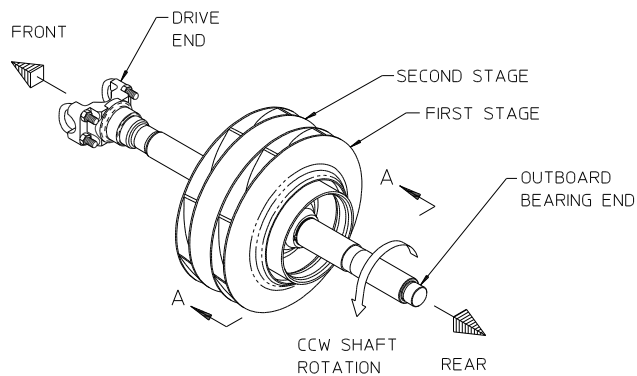
REAR DRIVE IMPELLER ROTATIONS



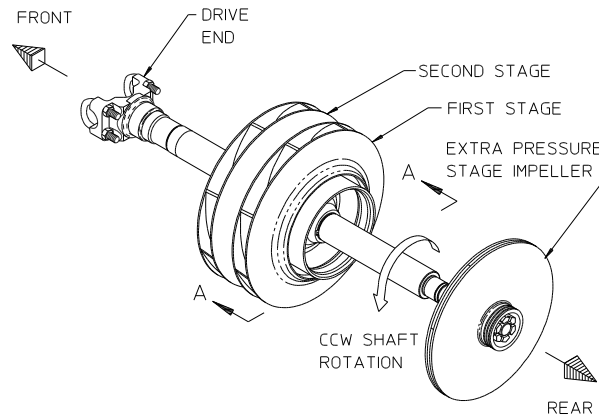
CM, CMU
WITH SEPARABLE IMPELLER SHAFT



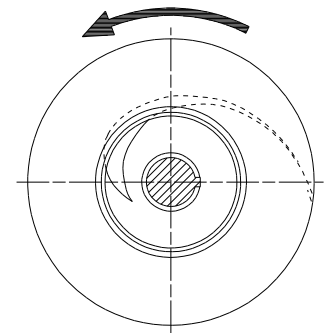
CMK1
WITH ONE-PIECE IMPELLER SHAFT



CMD, CMUD
DIRECT DRIVE



CMHD, CMUHD
DIRECT DRIVE



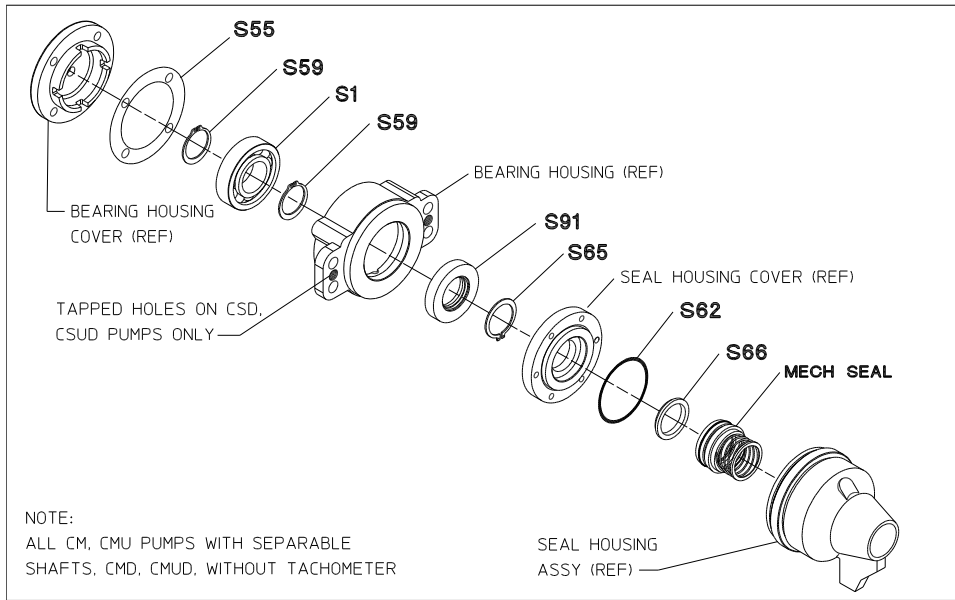
VIEW A-A
LOOKING INTO EYE OF
FIRST STAGE IMPELLER

FRONT DRIVE IMPELLER ROTATIONS

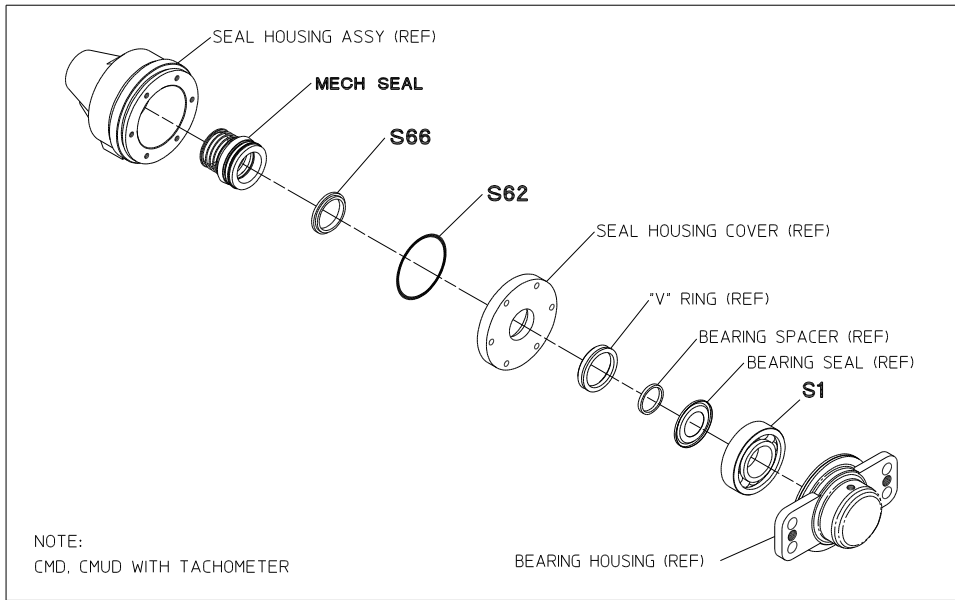
S97 Outboard End Mechanical Seal Kit

REF. NO.	DESCRIPTION
S1	Ball bearing
S55	Gasket
S59	Retaining ring
S62	O-ring, 3 x 3-1/4 in.
S65	Retaining ring
S66	Throttle bushing

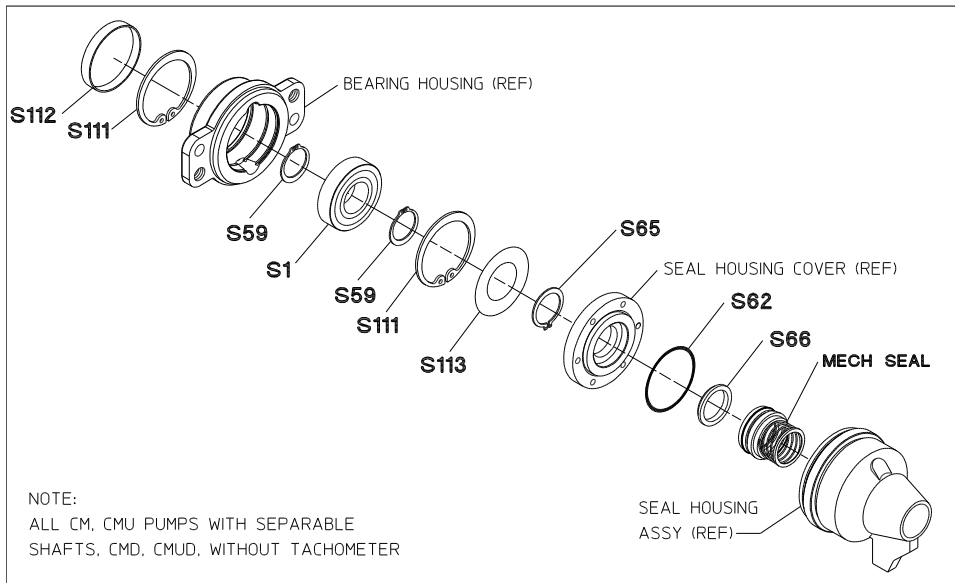
REF. NO.	DESCRIPTION
S91	Oil seal
S97	Mechanical seal kit - outboard end
S111	Retaining ring
S112	Seal housing plug
S113	Bearing shield



DETAIL A
PUMPS BUILT PRIOR TO APRIL 21, 2006



DETAIL C
PUMPS WITH TACHOMETER, BUILT ALL YEARS



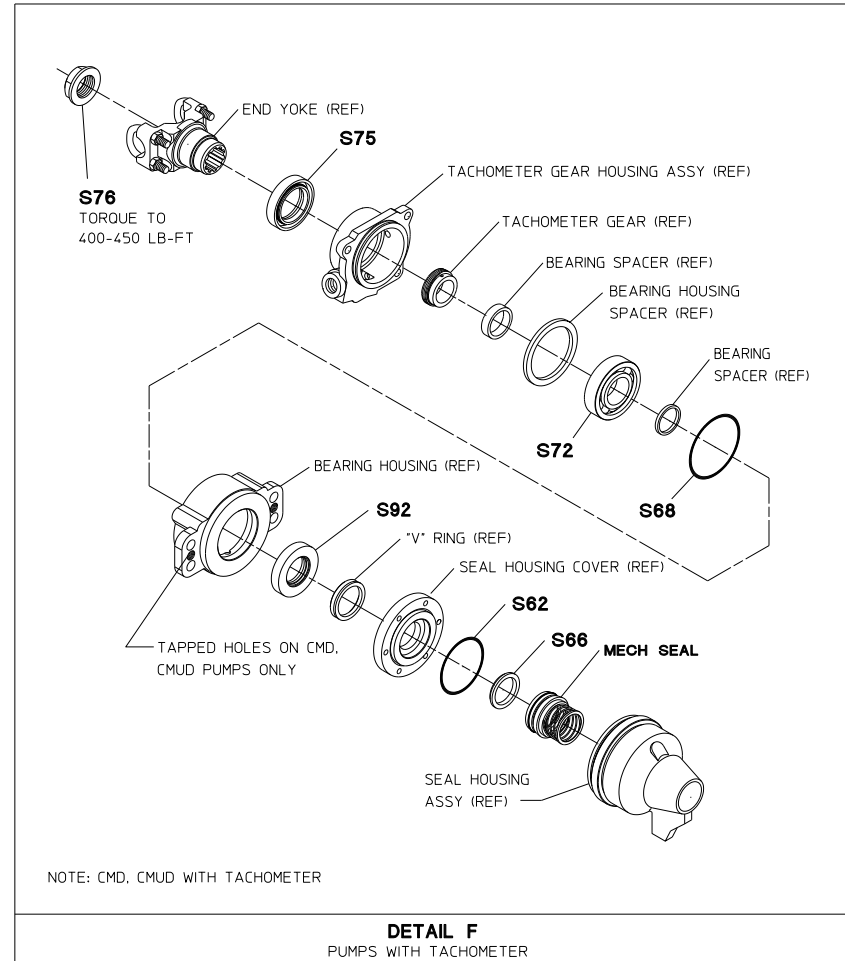
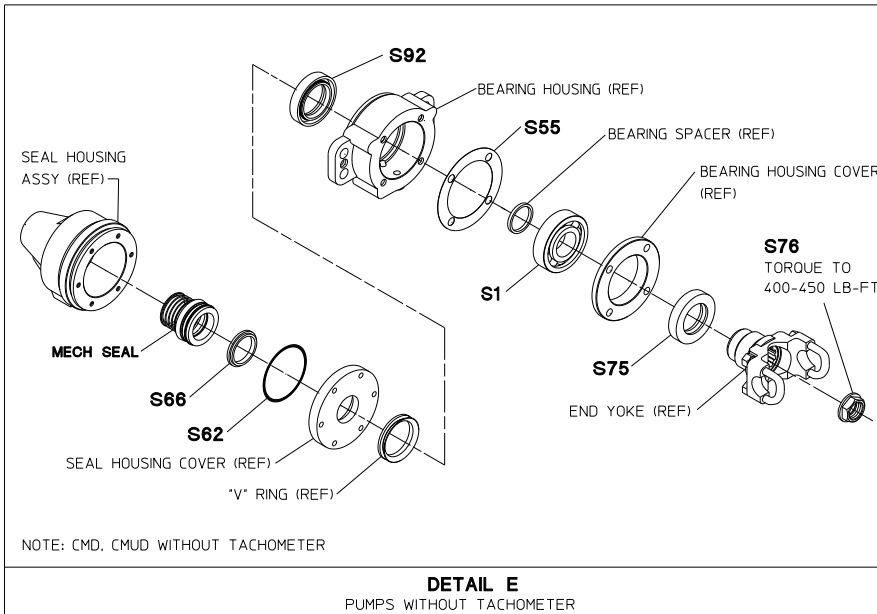
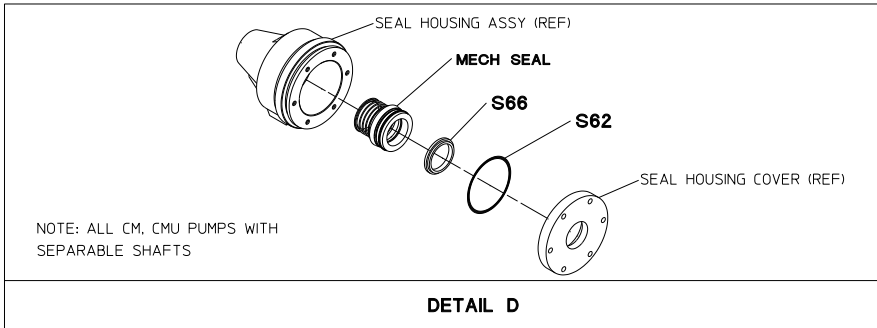
DETAIL B
PUMPS BUILT AFTER APRIL 21, 2006 (SEALED OUTBOARD BEARING)

S97 OUTBOARD END MECHANICAL SEAL KITS
NOTE: PARTS SHOWN IN BOLD TEXT INCLUDED IN MECHANICAL SEAL KIT.

S98 Drive End Mechanical Seal Kit

REF. NO.	DESCRIPTION
S1	Ball bearing
S55	Gasket
S62	O-ring, 3 x 3-1/4 in.
S66	Throttle bushing
S68	O-ring, 3-1/4 x 3-1/2 in.

REF. NO.	DESCRIPTION
S72	Ball bearing
S75	Oil seal
S76	Shaft nut
S92	Oil seal
S98	Mechanical seal kit - drive end

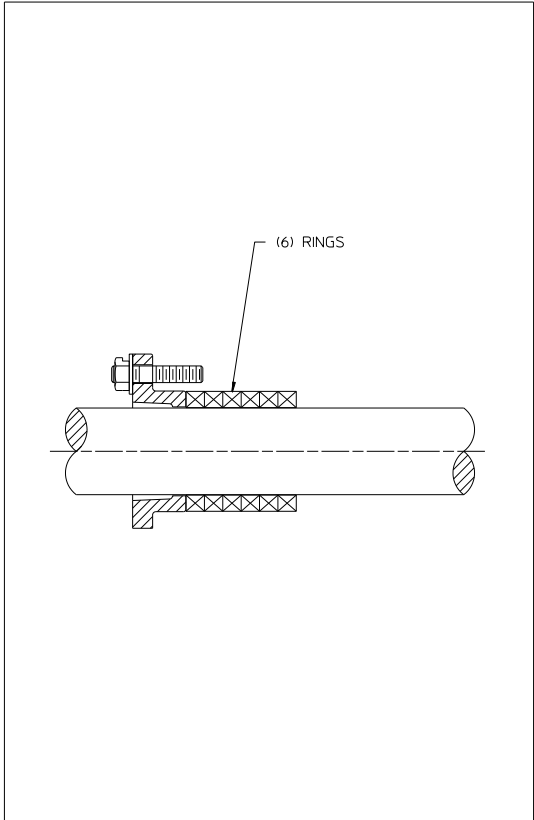


S98 DRIVE END MECHANICAL SEAL KITS
 NOTE: PARTS SHOWN IN BOLD TEXT INCLUDED IN MECHANICAL SEAL KIT.

Packing Arrangements

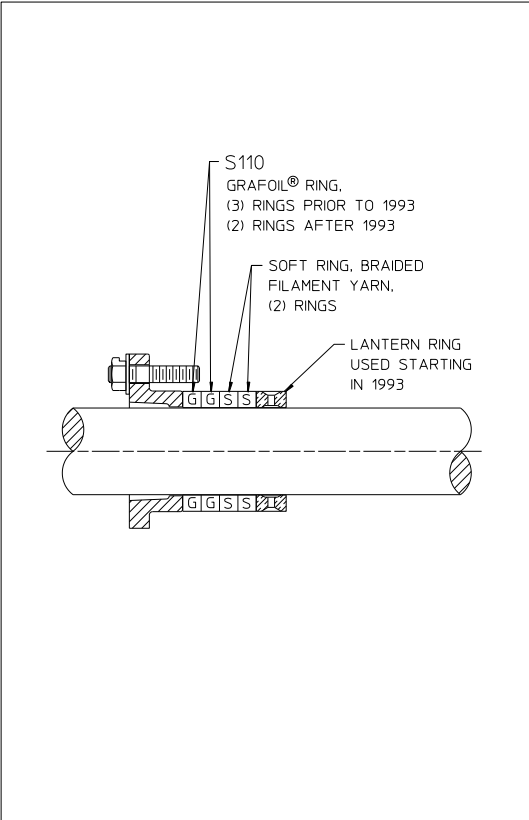
REF. NO.	DESCRIPTION
S110	Split ring packing kit (BFG rings) or individual flexible graphite (Grafoil®) ring

REF. NO.	DESCRIPTION



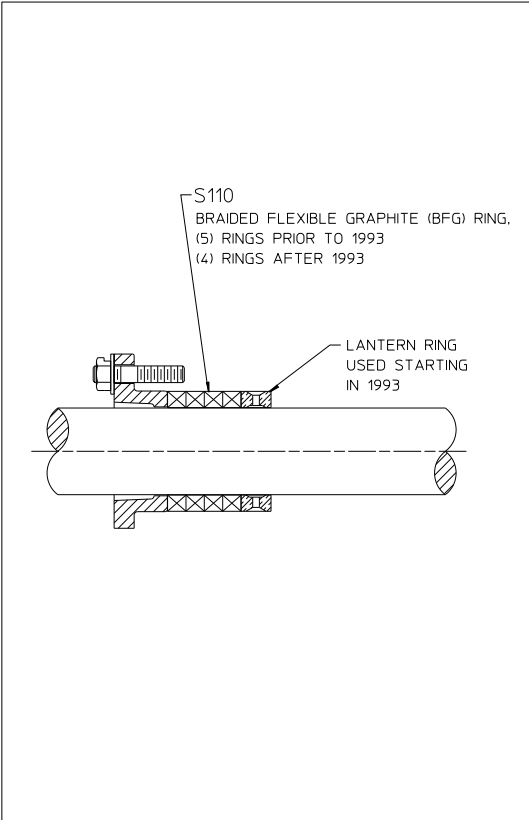
ARRANGEMENT A
 ASBESTOS GRAPHITE RINGS
 USED PRIOR TO JANUARY 31, 1985

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



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 S110 GRAFOIL® RINGS ARE STILL AVAILABLE)



ARRANGEMENT C
 BRAIDED FLEXIBLE GRAPHITE (BFG) RINGS
 CURRENT CONFIGURATION

PACKING ARRANGEMENTS
 NOTE: ALWAYS STAGGER JOINTS IN PACKING RINGS

CM SERIES IMPELLER SHAFT
 SPL81964
 WATEROUS COMPANY
 SOUTH ST. PAUL, MN 55075