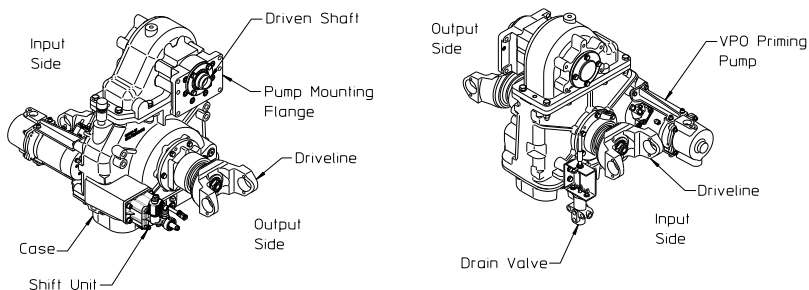


## C20 Series Transmission Service Parts List

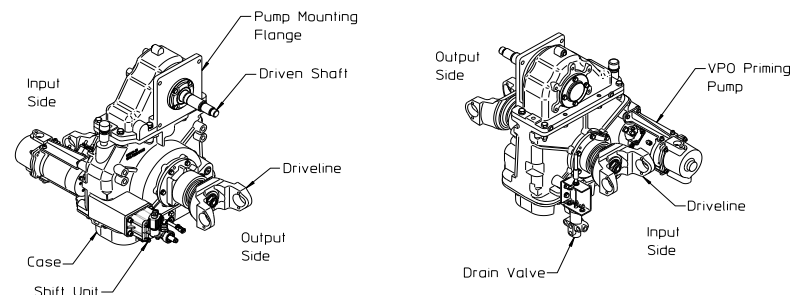
As used with CM, CMU, CS, CSU pump models: Transmission mounted on the front of the pump  
 As used with CXV, CXS pump models: Pump mounted on the rear (output shaft side) of transmission

Index:

Components					See Page
Driven Shaft	Pump Model	Type			
	CM, CMU, CS, CSU	Separable Impeller Shaft			2, 3
	CXV, CXS	Non-Separable Impeller Shaft			4, 5
Driveline	CM, CMU, CS, CSU, CXV, CXS	Input and Output Shaft	Exploded View		6, 7
			Cross-Section View		8, 9
		Input Shaft Only	Exploded View		10, 11
			Cross-Section View		12, 13
Case	CM, CMU, CS, CSU	Viewed From Input Side			14, 15
		Viewed From Ouput Side			16, 17
	CXV, CXS	Viewed From Input Side			18, 19
		Viewed From Ouput Side			20, 21
	CM, CMU, CS, CSU, CXV, CXS	Cap Variations	Spacers, Shims and Sealant Application	Models C20B, C20C, C20D, C20E, C20F	22, 23
			Hardware	Models C20B	24, 25
				Models C20C	26, 27
				Models C20D, C20E, C20F	28, 29
Shift Unit	See Pneumatic Shaft Service Parts List				
Optional Acces-sories	Transmission Mounted Drain Valve		See Drain Valve Service Parts List		
	Model VPO Priming Pump		See Priming Pump Service Parts List		



**AS USED WITH CM, CMU, CS, CSU PUMP MODELS**



**AS USED WITH CXV, CXS PUMP MODELS**

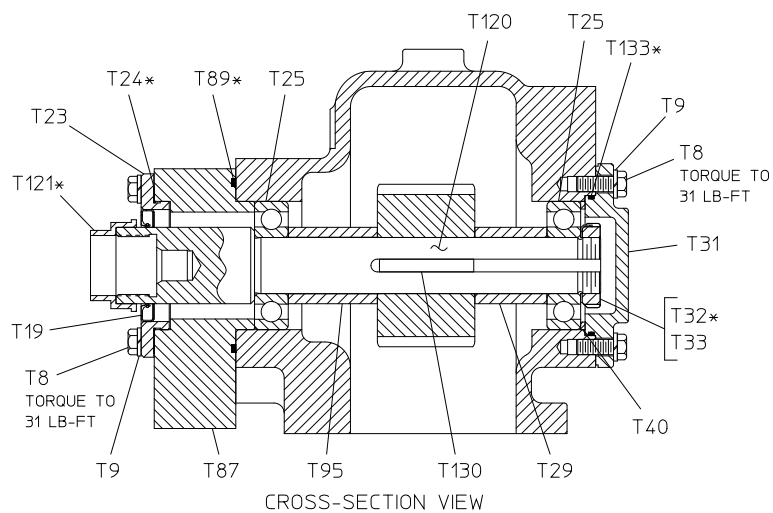
## Driven Shaft - Separable Impeller Shaft

REF. NO.	DESCRIPTION
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T19	Oil Seal, 1-7/8 x 2-3/4 x 5/16 in.
T23	Oil Seal Housing
T24	Oil Seal Housing Gasket
T25	Single Row Ball Bearing
T26	Driven Sprocket
T29	Bearing Spacer, 1.769 in. Wide
T31	Bearing Cover
T32	Bearing Lock Nut Washer (W07)
T33	Bearing Lock Nut (N07)

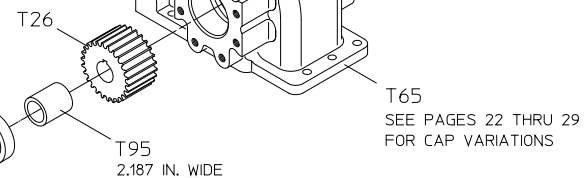
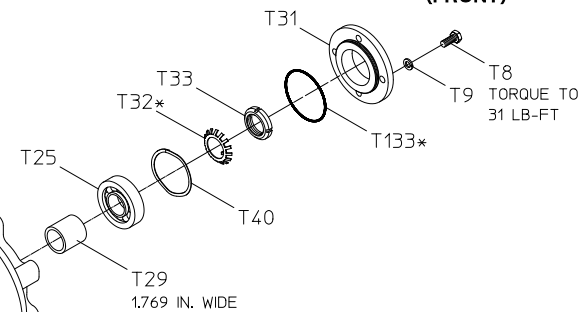
REF. NO.	DESCRIPTION
T40	Wave Spring, 80 mm
T65	Case Cap
T87	Front Mount Adapter
T88	Socket Hd Screw, 1/2-13 x 2-1/4 in.
T89	O-ring, 4 x 4-1/4 in.
T95	Bearing Spacer, 2.187 Wide
T120	Driven Shaft
T121	Driven Shaft Boot
T130	Square Key, 5/16 x 2-5/16 in.
T133	O-ring, 3-1/4 x 3-7/16 in.
T141	Gasket and O-ring Repair Kit

### Hardware Torque Specifications

Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft

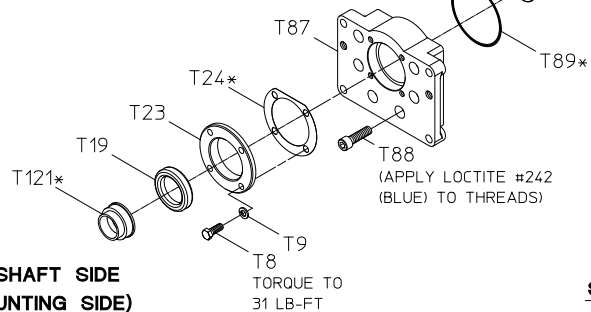


# INPUT SHAFT SIDE (FRONT)



T141  
GASKET AND O-RING  
REPAIR KIT  
\*PART OF T141 GASKET  
AND O-RING REPAIR KIT

# OUTPUT SHAFT SIDE (PUMP MOUNTING SIDE)



# DRIVEN SHAFT SEPARABLE IMPELLER SHAFT PUMP MODELS: CM, CMU, CS, CSU

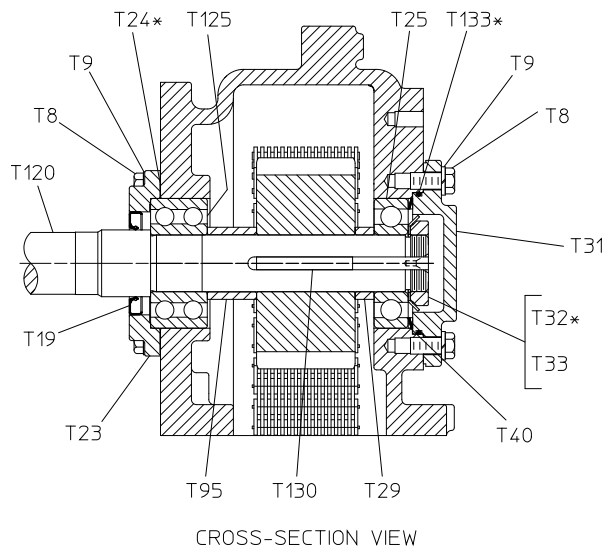
## Driven Shaft - Non-Separable Impeller Shaft

REF. NO.	DESCRIPTION
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T19	Oil Seal, 1-5/8 x 2-1/2 x 5/16 in.
T23	Oil Seal Housing
T24	Oil Seal Housing Gasket
T25	Single Row Ball Bearing
T26	Driven Sprocket
T29	Bearing Spacer, .460 in. Wide
T31	Bearing Cover
T32	Bearing Lock Nut Washer (W07)
T33	Bearing Lock Nut (N07)

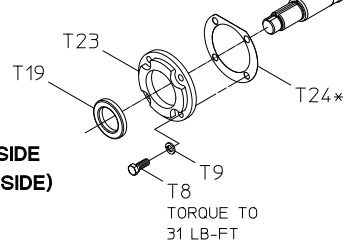
REF. NO.	DESCRIPTION
T40	Wave Spring, 80 mm
T65	Case Cap
T95	Bearing Spacer, 1.196 in. Wide
T120	Driven Shaft
T125	Double Row Ball Bearing
T130	Square Key, 5/16 x 2-5/16 in.
T133	O-ring, 3-1/4 x 3-7/16 in.
T141	Gasket and O-ring Repair Kit

### Hardware Torque Specifications

Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft



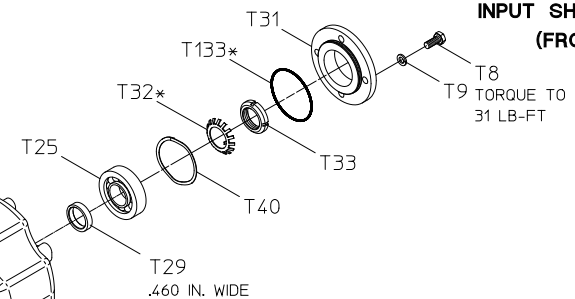
**OUTPUT SHAFT SIDE  
(PUMP MOUNTING SIDE)**



**DRIVEN SHAFT  
NON-SEPARABLE IMPELLER SHAFT**

PUMP MODELS: CXV, CXS

**INPUT SHAFT SIDE  
(FRONT)**



T141  
GASKET AND O-RING  
REPAIR KIT  
\* PART OF T141 GASKET  
AND O-RING REPAIR KIT

# Driveline - Input and Output Shafts

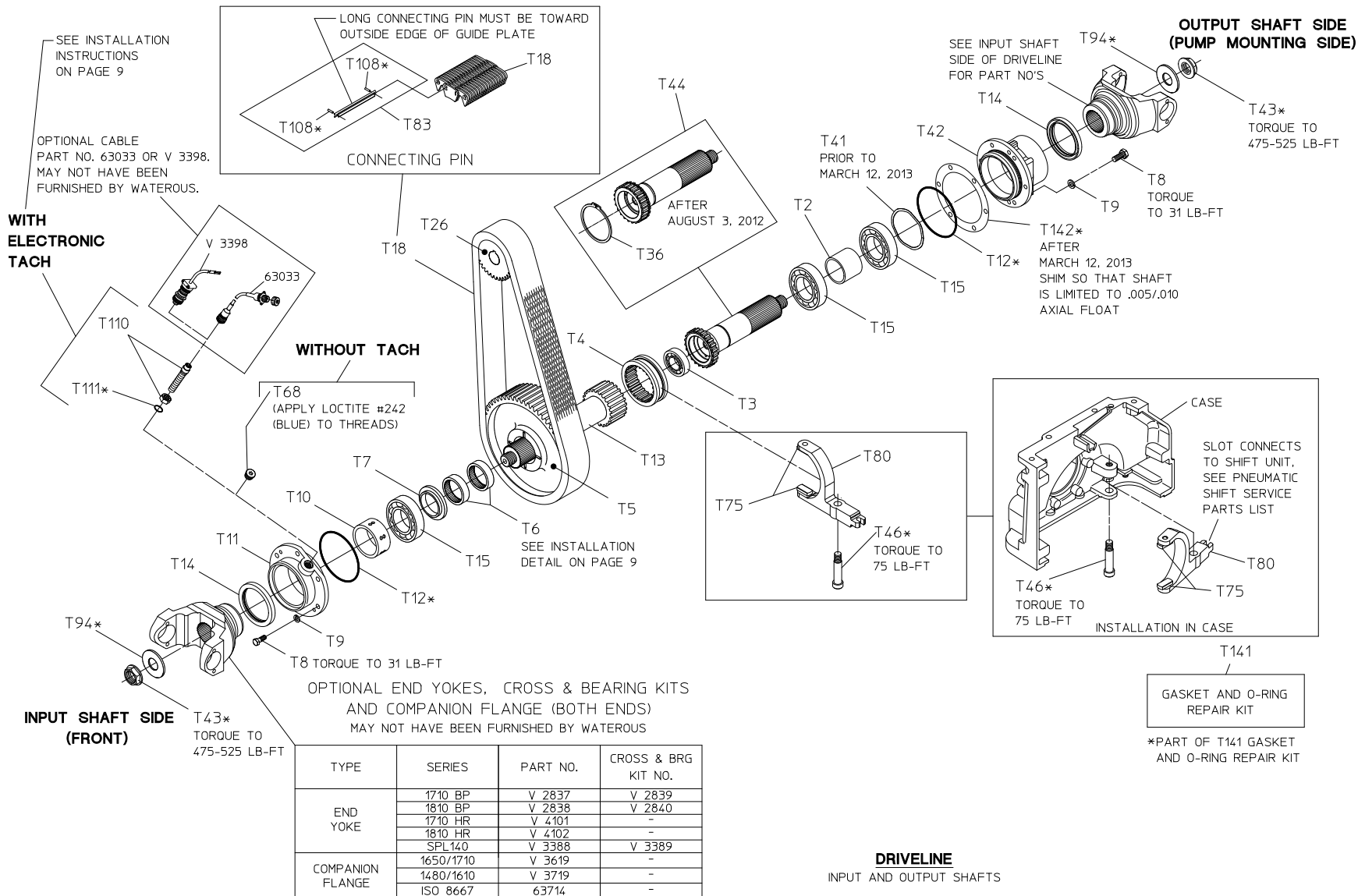
## Exploded View

REF. NO.	DESCRIPTION
T2	Coupling Shaft Spacer
T3	Single Row Ball Bearing
T4	Shift Collar
T5	Drive Sprocket
T6	Needle Bearing
T7	Thrust Washer
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T10	Tachometer Pulse Generator
T11	Drive Shaft Housing
T12	O-ring, 4-3/4 x 5 in.
T13	Drive Shaft
T14	Oil Seal, 3-1/2 x 4-3/8 in.
T15	Single Row Ball Bearing
T18	Chain
T26	Driven Sprocket
T36	Retaining Ring (Used Starting August 3, 2012)
T41	Wave Spring, 110 mm

REF. NO.	DESCRIPTION
T42	Coupling Shaft Housing
T43	Self-Locking Nut, 1-1/4-18 in.
T44	Coupling Shaft (Includes T36)
T46	Shoulder Screw, 5.8-11 x 2-1/2 in. (Self-Locking)
T68	Set Screw, 5/8-18 x 5/8 in.
T75	Shift Shoe
T80	Shift Fork
T83	Chain Connecting Pin Set
T94	Plain Washer, 1-1/4 in.
T108	Spirol Pin, 1/16 x 1/4 or 1/16 x 5/16 in.
T110	Magnetic Tachometer Pick-up
T111	O-ring, 5/8 x 3/4 in.
T141	Gasket and O-ring Repair Kit
T142	Aluminum Shim

### Hardware Torque Specifications

Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft



# Driveline - Input and Output Shafts

## Cross-Section View

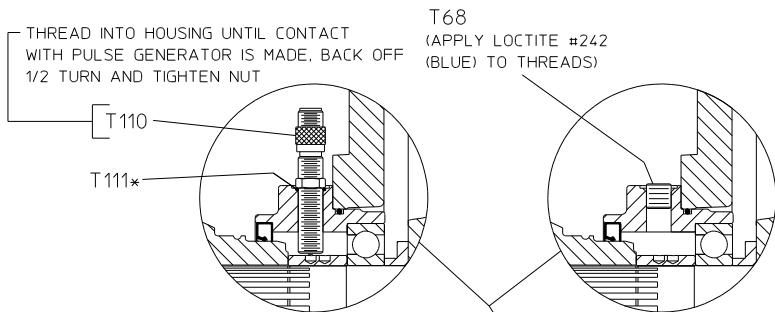
REF. NO.	DESCRIPTION
T2	Coupling Shaft Spacer
T3	Single Row Ball Bearing
T4	Shift Collar
T5	Drive Sprocket
T6	Needle Bearing
T7	Thrust Washer
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T10	Tachometer Pulse Generator
T11	Drive Shaft Housing
T12	O-ring, 4-3/4 x 5 in.
T13	Drive Shaft
T14	Oil Seal, 3-1/2 x 4-3/8 in.
T15	Single Row Ball Bearing
T18	Chain
T26	Driven Sprocket
T36	Retaining Ring (Used Starting August 3, 2012)
T41	Wave Spring, 110 mm

REF. NO.	DESCRIPTION
T42	Coupling Shaft Housing
T43	Self-Locking Nut, 1-1/4-18 in.
T44	Coupling Shaft (Includes T36)
T46	Shoulder Screw, 5.8-11 x 2-1/2 in. (Self-Locking)
T68	Set Screw, 5/8-18 x 5/8 in.
T75	Shift Shoe
T80	Shift Fork
T94	Plain Washer, 1-1/4 in.
T110	Magnetic Tachometer Pick-up
T111	O-ring, 5/8 x 3/4 in.
T141	Gasket and O-ring Repair Kit
T142	Aluminum Shim

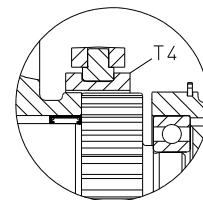
### Hardware Torque Specifications

Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft

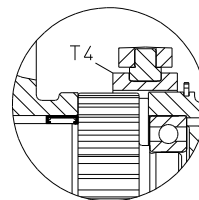




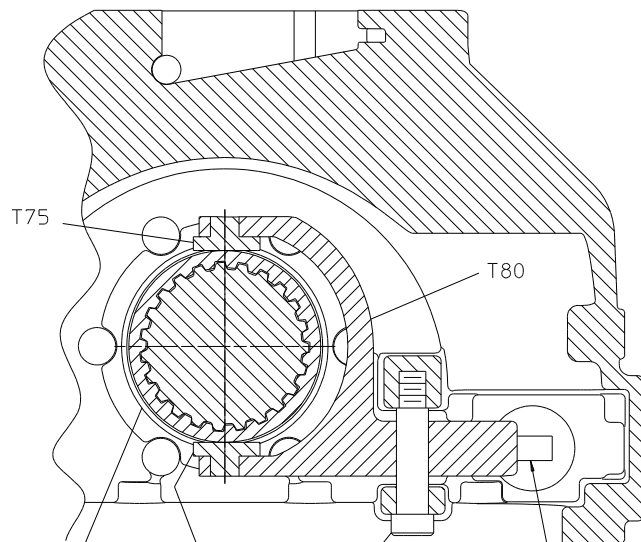
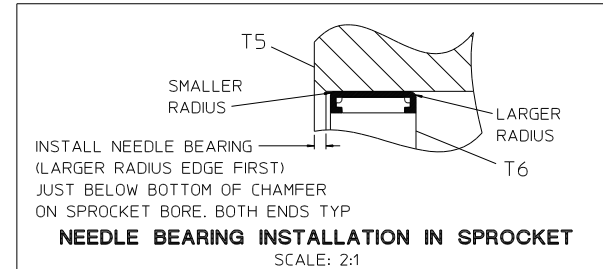
WITH ELECTRONIC TACH



SHIFT COLLAR  
IN PUMP POSITION



SHIFT COLLAR  
IN ROAD POSITION

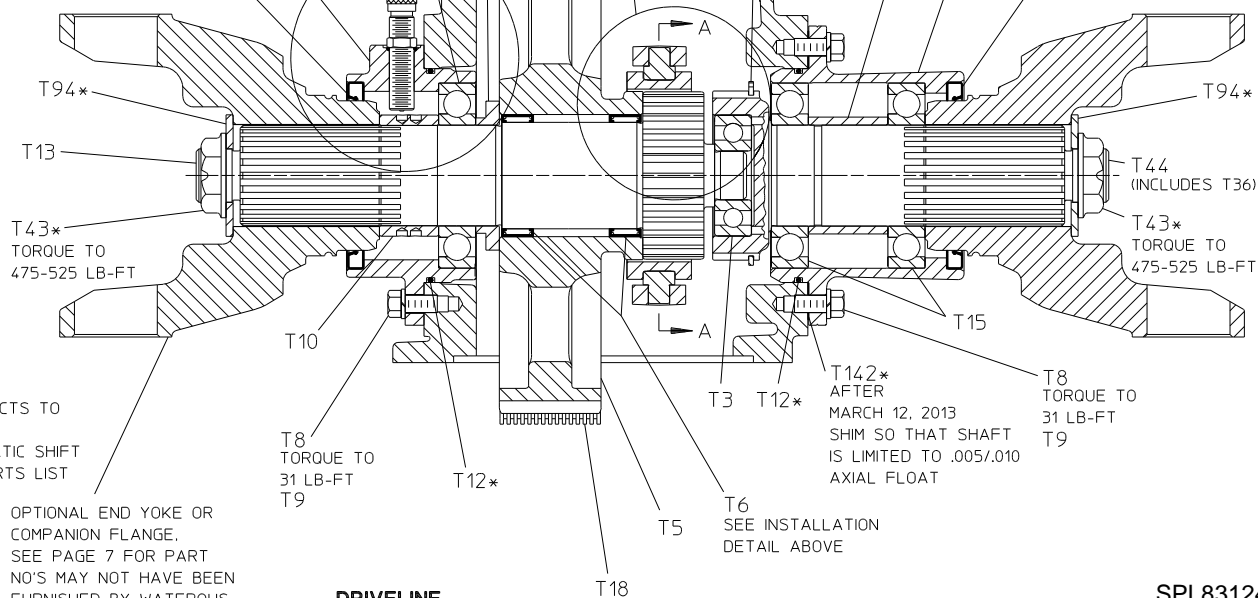


T46\*  
TORQUE TO  
75 LB-FT

SECTION A-A

SLOT CONNECTS TO  
SHIFT UNIT.  
SEE PNEUMATIC SHIFT  
SERVICE PARTS LIST

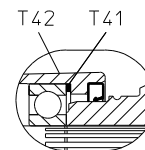
INPUT SHAFT SIDE  
(FRONT)



OPTIONAL END YOKE OR  
COMPANION FLANGE.  
SEE PAGE 7 FOR PART  
NO'S MAY NOT HAVE BEEN  
FURNISHED BY WATEROUS

**DRIVELINE**

INPUT AND OUTPUT SHAFTS



GASKET AND O-RING  
REPAIR KIT

\*PART OF T141 GASKET  
AND O-RING REPAIR KIT

OUTPUT SHAFT SIDE  
(PUMP MOUNTING SIDE)

# Driveline - Input Shaft Only

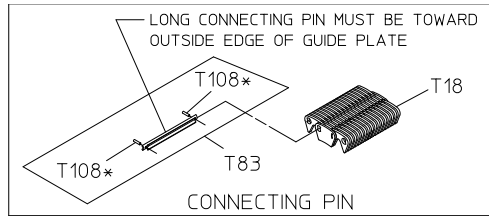
## Exploded View

REF. NO.	DESCRIPTION
T3	Single Row Ball Bearing
T4	Shift Collar
T5	Drive Sprocket
T6	Needle Bearing
T7	Thrust Washer
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T10	Tachometer Pulse Generator
T11	Drive Shaft Housing
T12	O-ring, 4-3/4 x 5 in.
T13	Drive Shaft
T14	Oil Seal, 3-1/2 x 4-3/8 in.
T15	Single Row Ball Bearing
T18	Chain
T26	Driven Sprocket
T36	Retaining Ring
T41	Wave Spring, 72 mm

REF. NO.	DESCRIPTION
T42	Bearing Housing
T43	Self-Locking Nut, 1-1/4-18 in.
T57	Magnetic Drain Plug, 3/4-16
T68	Set Screw, 5/8-18 x 5/8 in.
T83	Chain Connecting Pin Set
T94	Plain Washer, 1-1/4 in.
T108	Spirol Pin, 1/16 x 1/4 or 1/16 x 5/16 in.
T110	Magnetic Tachometer Pick-up
T111	O-ring, 5/8 x 3/4 in.
T141	Gasket and O-ring Repair Kit

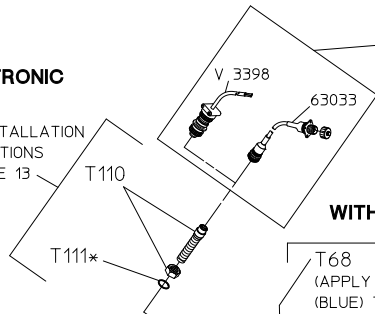
### Hardware Torque Specifications

Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft



### WITH ELECTRONIC TACH

SEE INSTALLATION INSTRUCTIONS ON PAGE 13

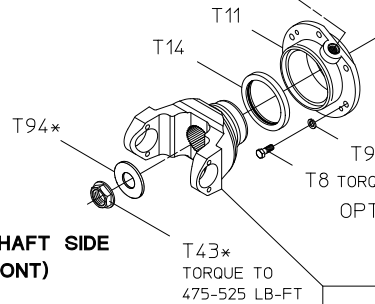


OPTIONAL CABLE PART NO. 63033 OR V 3398 MAY NOT HAVE BEEN FURNISHED BY WATEROUS

### WITHOUT TACH

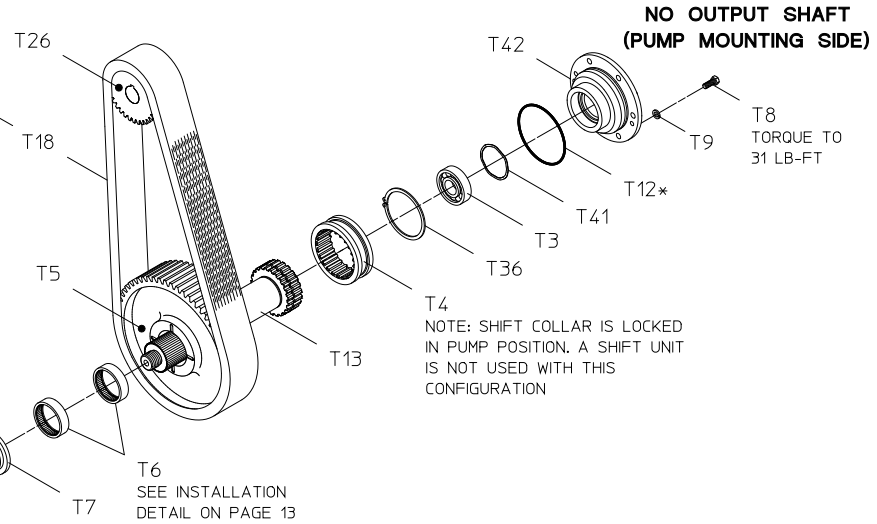
T68 (APPLY LOCTITE #242 (BLUE) TO THREADS)

### INPUT SHAFT SIDE (FRONT)



OPTIONAL END YOKES, CROSS & BEARING KITS AND COMPANION FLANGE (BOTH ENDS) MAY NOT HAVE BEEN FURNISHED BY WATEROUS

TYPE	SERIES	PART NO.	CROSS & BRG KIT NO.
END YOE	1710 BP	V 2837	V 2839
	1810 BP	V 2838	V 2840
	1710 HR	V 4101	-
	1810 HR	V 4102	-
	SPL140	V 3388	V 3389
COMPANION FLANGE	1650/1710	V 3619	-
	1480/1610	V 3719	-
	ISO 8667	63714	-



### NO OUTPUT SHAFT (PUMP MOUNTING SIDE)

NOTE: SHIFT COLLAR IS LOCKED IN PUMP POSITION. A SHIFT UNIT IS NOT USED WITH THIS CONFIGURATION

### DRIVELINE INPUT SHAFT ONLY

T141

GASKET AND O-RING REPAIR KIT

\*PART OF T141 GASKET AND O-RING REPAIR KIT

## Driveline - Input Shaft Only

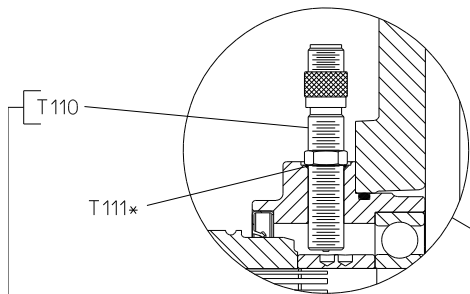
### Cross-Section View

REF. NO.	DESCRIPTION
T3	Double Row Ball Bearing
T4	Shift Collar
T5	Drive Sprocket
T6	Needle Bearing
T7	Thrust Washer
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T10	Tachometer Pulse Generator
T11	Drive Shaft Housing
T12	O-ring, 4-3/4 x 5 in.
T13	Drive Shaft
T14	Oil Seal, 3-1/2 x 4-3/8 in.
T15	Single Row Ball Bearing
T18	Chain
T36	Retaining Ring
T41	Wave Spring, 72 mm

REF. NO.	DESCRIPTION
T42	Bearing Housing
T43	Self-Locking Nut, 1-1/4-18 in.
T57	Magnentic Drain Plug
T68	Set Screw, 5/8-18 x 5/8 in.
T94	Plain Washer, 1-1/4 in.
T110	Magnetic Tachometer Pick-up
T111	O-ring, 5/8 x 3/4 in.
T141	Gasket and O-ring Repair Kit

### Hardware Torque Specifications

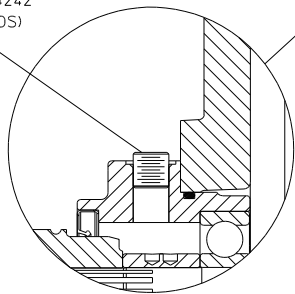
Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft



### WITH ELECTRONIC TACH

THREAD INTO HOUSING UNTIL CONTACT  
WITH PULSE GENERATOR IS MADE. BACK OFF  
1/2 TURN AND TIGHTEN NUT

T68  
(APPLY LOCTITE #242  
(BLUE) TO THREADS)



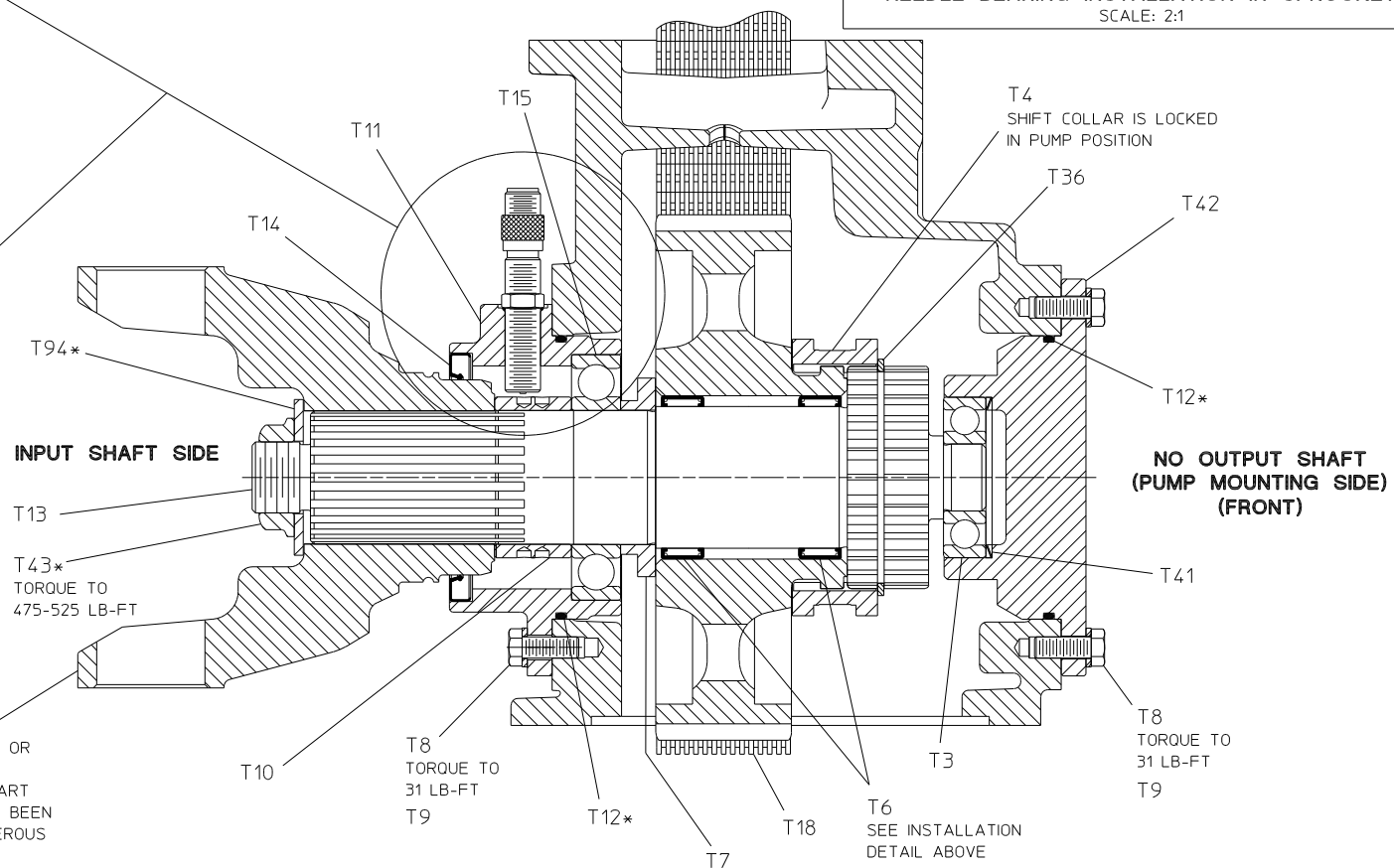
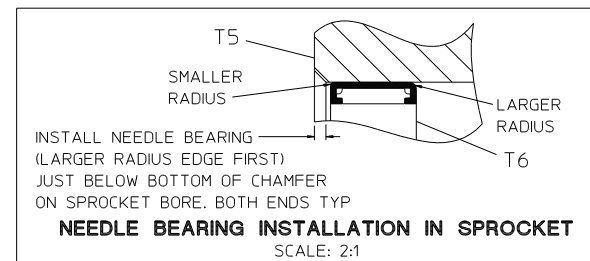
### WITHOUT TACH

OPTIONAL END YOKE OR  
COMPANION FLANGE.  
SEE PAGE 11 FOR PART  
NO'S MAY NOT HAVE BEEN  
FURNISHED BY WATEROUS

T141

GASKET AND O-RING  
REPAIR KIT

\*PART OF T141 GASKET  
AND O-RING REPAIR KIT



**DRIVELINE**  
INPUT SHAFT ONLY

# Case

## Viewed From Input Side

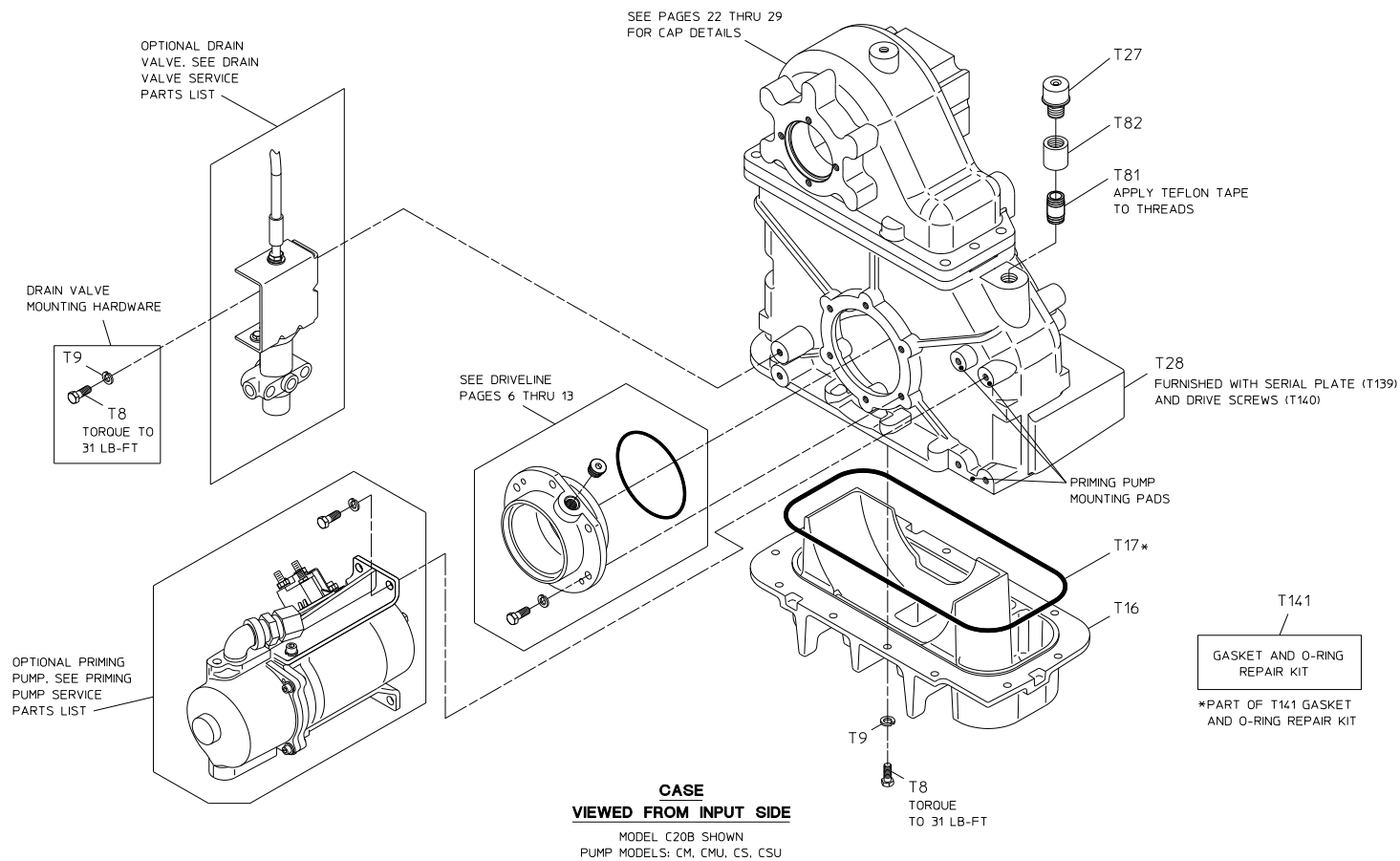
### Pump Models CM, CMU, CS, CSU

REF. NO.	DESCRIPTION
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T16	Transmission Pan
T17	Transmission Pan O-ring, 13 x 13-3/8
T27	Breather, 1/2 NPT
T28	Case

REF. NO.	DESCRIPTION
T81	Pipe Nipple, 1/2 NPT x 1-1/2 in.
T82	Coupling, 1/2 NPT
T141	Gasket and O-ring Repair Kit

### Hardware Torque Specifications

Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft



**Case**  
Viewed from Output Side  
Pump Models CM, CMU, CS, CSU

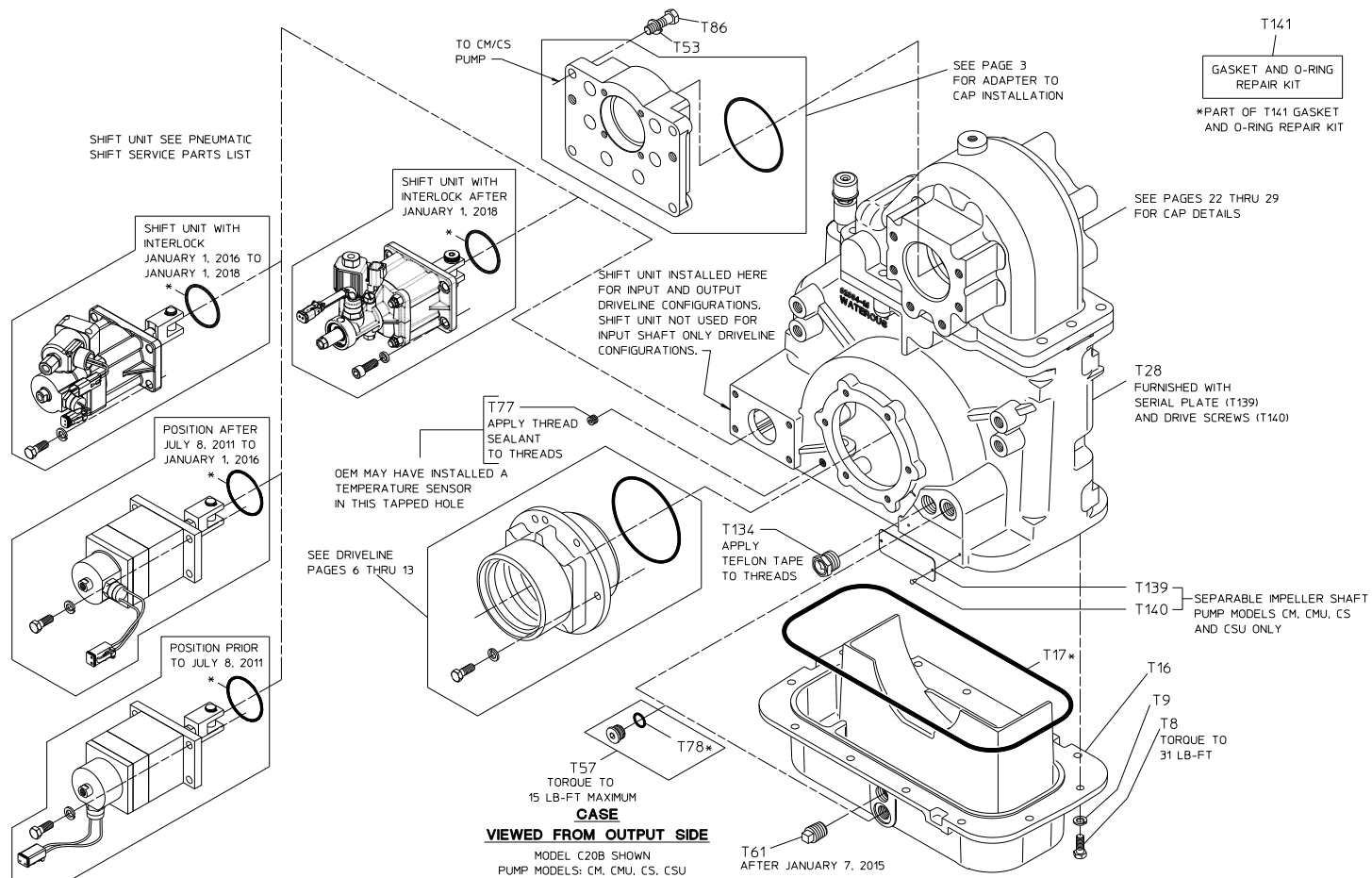
REF. NO.	DESCRIPTION
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T16	Transmission Pan
T17	Transmission Pan O-ring, 13 x 13-3/8
T28	Case
T53	Lock Washer, 1/2 in.
T57	Magnetic Drain Plug, 3/4-16 (Includes T78)
T61	Pipe Plug, 1/2 NPT
T77	Headless Pipe Plug, 1/8 NPT

REF. NO.	DESCRIPTION
T78	O-ring, 16.4mm x 20.8mm
T86	Hex Hd Screw, 1/2-13 x 1-3/4 in.
T134	Sight Plug, 3/4 NPT
T139	Serial Plate
T140	Drive Screw, No. 6 x 1/4 in.
T141	Gasket and O-ring Repair Kit

**Hardware Torque Specifications**

Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft





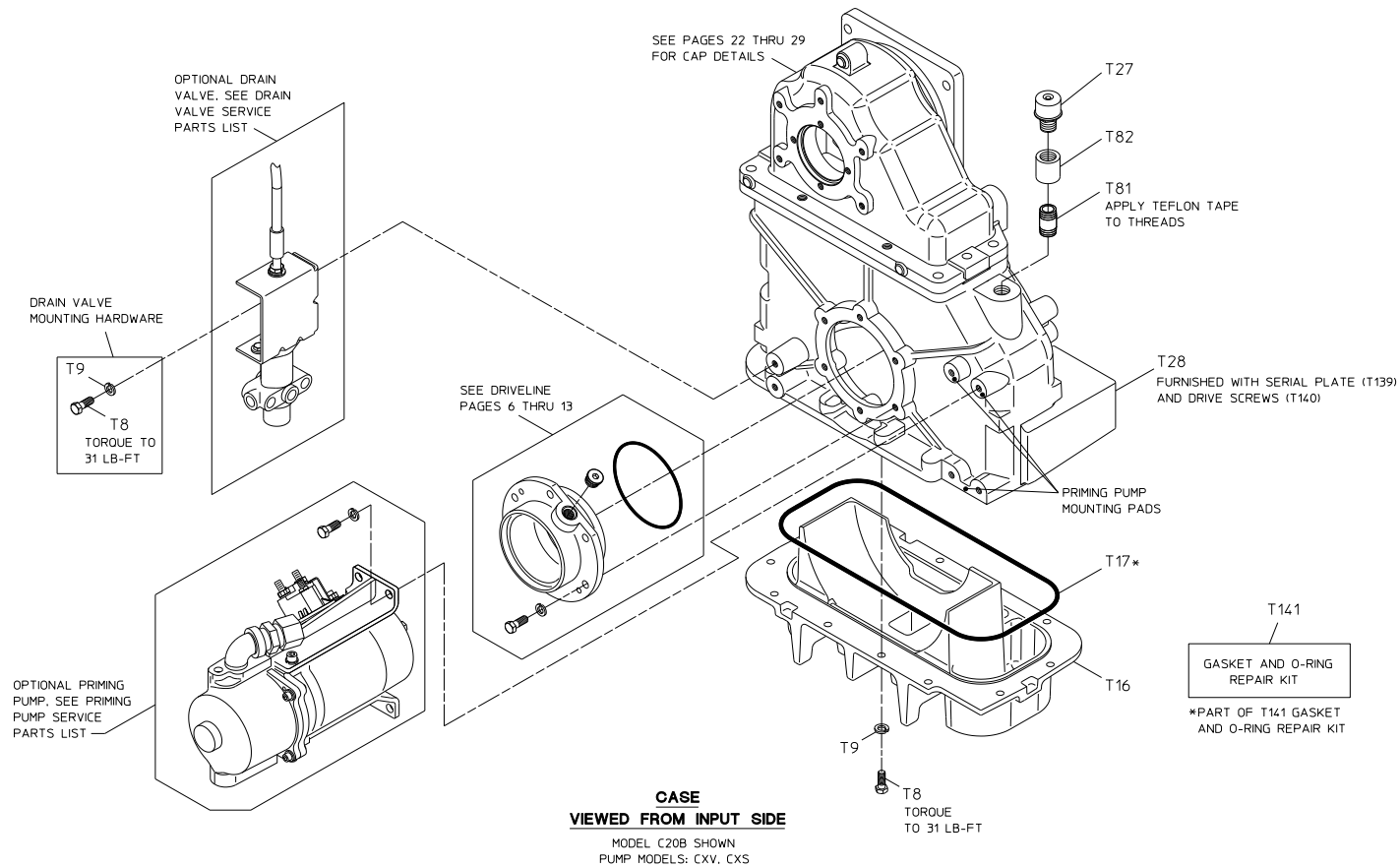
**Case**  
Viewed from Input Side  
Pump Models CXV, CXS

REF. NO.	DESCRIPTION
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T16	Transmission Pan
T17	Transmission Pan O-ring, 13 x 13-3/8
T27	Breather, 1/2 NPT
T28	Case

REF. NO.	DESCRIPTION
T81	Pipe Nipple, 1/2 NPT x 1-1/2 in.
T82	Coupling, 1/2 NPT
T141	Gasket and O-ring Repair Kit

**Hardware Torque Specifications**

Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft



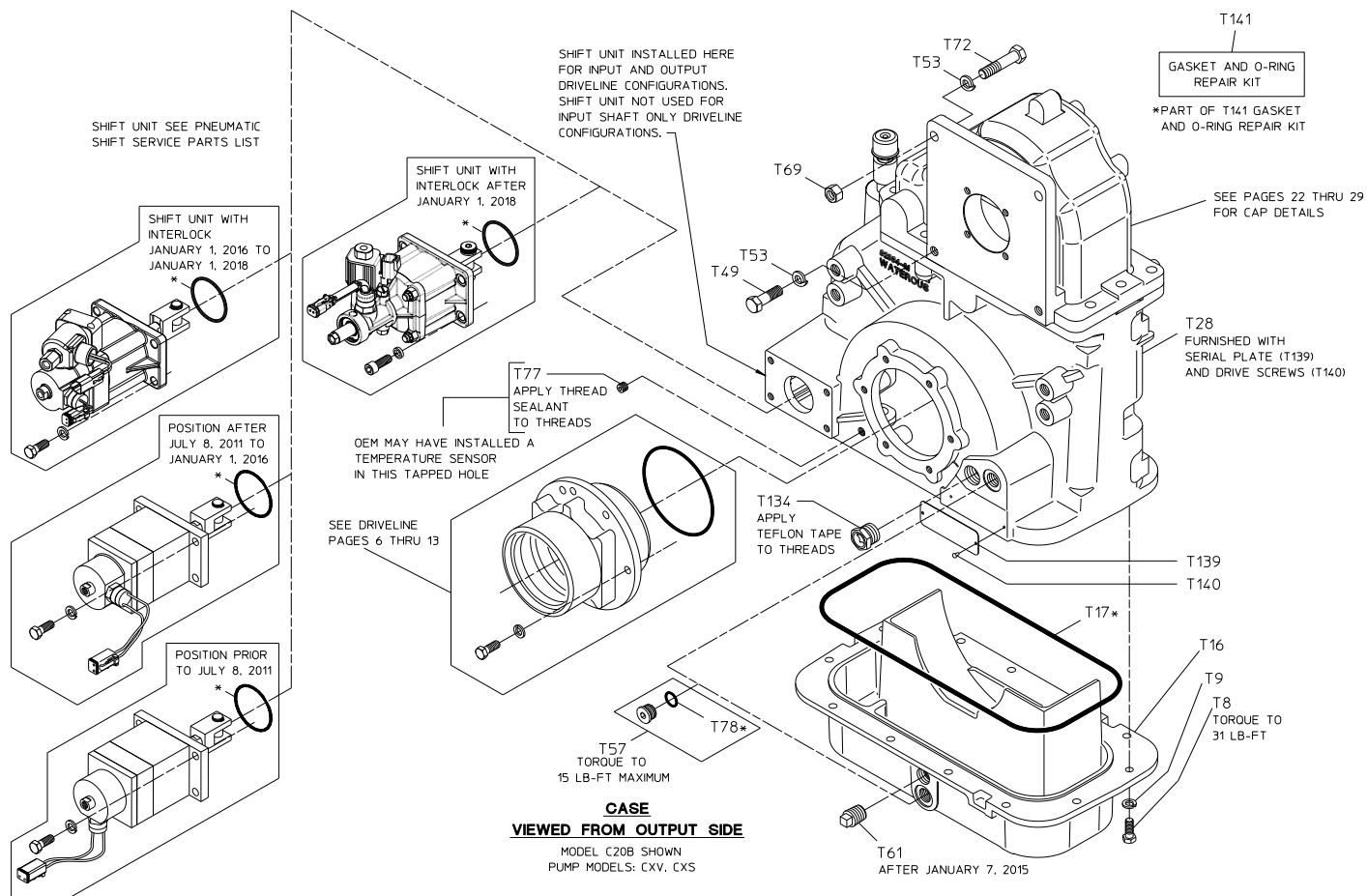
**Case**  
Viewed from Output Side  
Pump Models CXV, CXS

REF. NO.	DESCRIPTION
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T16	Transmission Pan
T17	Transmission Pan O-ring, 13 x 13-3/8
T28	Case
T49	Hex Hd Screw, 1/2-13 x 1-1/4 in.
T53	Lock Washer, 1/2 in.
T57	Magnetic Drain Plug, 3/4-16 (Includes T78)

REF. NO.	DESCRIPTION
T69	Hex Nut, 1/2-20
T72	Hex Hd Screw, 1/2-20 x 2-1/4 in.
T77	Headless Pipe Plug, 1/8 NPT
T78	O-ring, 16.4mm x 20.8mm
T134	Sight Plug, 3/4 NPT
T139	Serial Plate
T140	Drive Screw, No. 6 x 1/4 in.
T141	Gasket and O-ring Repair Kit

**Hardware Torque Specifications**

Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft



## Case Cap Variations

Spacers, Shims and Sealant Application (Models C20B, C20C, C20D, C20E and C20F)

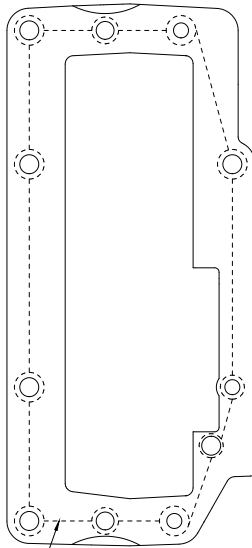
REF. NO.	DESCRIPTION
T28	Case
T63	Cap Seal Plug
T64	Oil Return Tube

REF. NO.	DESCRIPTION
T65	Case Cap
T99	Shim
T100	Case Spacer

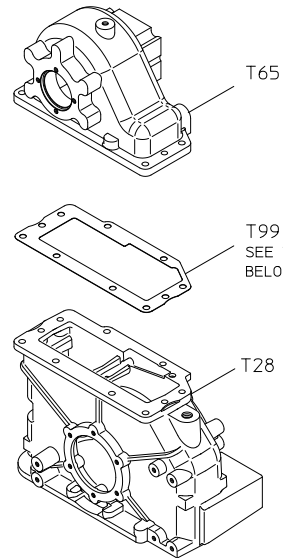
### Hardware Torque Specifications

Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft

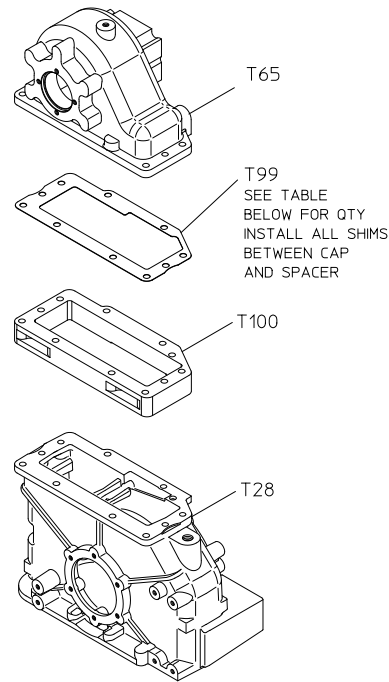
APPLY LOCTITE® 518 SEALANT OR EQUIVALENT TO MATING FLANGES AND BETWEEN SHIMS



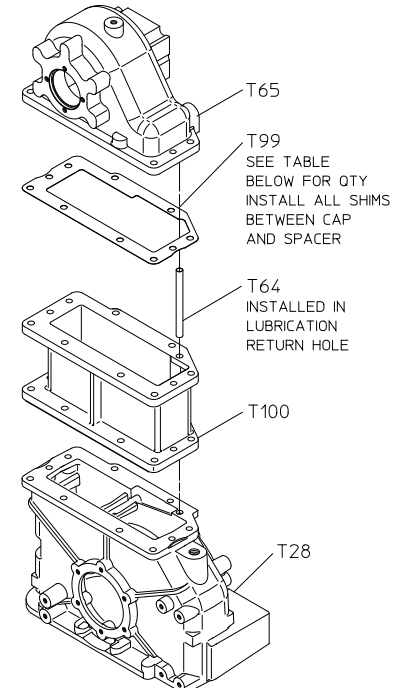
APPLY A THIN BEAD OF SEALANT  
AS SHOWN BY DASHED LINE  
(CASE FLANGE SHOWN)



**MODEL C20B**



**MODEL C20C**



**MODEL C20D, C20E & C20F**

RATIO	QTY OF T99 SHIMS														
	MODEL C20B			MODEL C20C			MODEL C20D			MODEL C20E			MODEL C20F		
	.010 BROWN	.025 WHITE	.031 ORANGE	.010 BROWN	.025 WHITE	.031 ORANGE	.010 BROWN	.025 WHITE	.031 ORANGE	.010 BROWN	.025 WHITE	.031 ORANGE	.010 BROWN	.025 WHITE	.031 ORANGE
1.27	2	1	0	3	7	2	1	0	2	2	0	1	0	0	1
1.41	0	0	0	1	2	0	0	3	0	2	0	1	0	0	1
1.48	4	2	1	3	2	2	2	0	1	0	0	1	1	0	0
1.58	0	0	0	2	0	0	1	1	0	2	0	0	0	0	0
1.69	1	3	0	0	0	0	2	0	0	2	0	3	0	4	0
1.79	0	0	2	0	0	0	1	0	0	3	2	1	2	2	1
1.88	2	0	0	1	0	0	2	0	0	1	1	1	2	0	1
1.97	2	2	1	0	0	1	0	1	1	0	2	0	1	0	1
2.03	0	0	0	1	1	0	0	0	2	2	0	0	4	1	0
2.27	1	1	0	0	3	0	0	0	0	0	0	0	0	0	0
2.46	2	1	0	0	1	2	0	1	0	2	1	3	2	1	3
2.68	1	2	0	1	0	0	4	0	0	3	1	0	0	0	2

**CASE ASSEMBLY, SPACERS AND SHIMS**

(CASE CAP FOR PUMP MODELS CM, CMU, CS, CSU SHOWN)

## Case Cap Variations

### Hardware for Model C20B

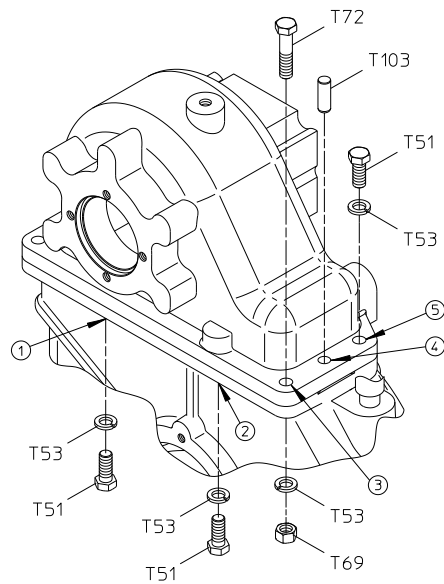
REF. NO.	DESCRIPTION
T51	Hex Hd Screw, 1/2-13 x 1-1/2 in.
T53	Lock Washer, 1/2 in.
T69	Hex Nut, 1/2-20

REF. NO.	DESCRIPTION
T72	Hex Hd Screw, 1/2-20 x 2-1/4 in.
T103	Dowel Pin, 1/2 x 1-1/2 in.

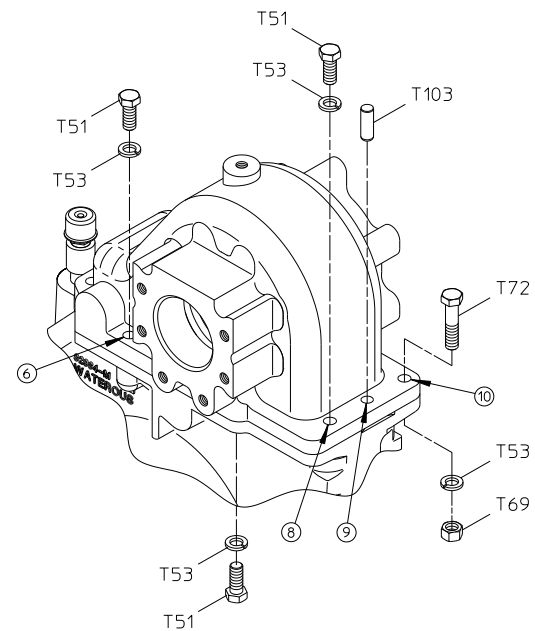
### Hardware Torque Specifications

Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft





**VIEWED FROM INPUT SIDE OF CASE**



**VIEWED FROM OUTPUT SIDE OF CASE**

FLANGE HARDWARE BETWEEN CAP (T65) AND CASE (T28)

REF NO.	HARDWARE DESCRIPTION	HOLE NUMBER										QTY	TORQUE SPECIFICATION
		1	2	3	4	5	6	7	8	9	10		
T51	SCREW-HEX HD, 1/2-13 X 1.50	1	1			1	1	1	1			6	75 LB-FT
T53	WASHER-LOCK, 1/2	1	1	1		1	1	1	1		1	8	-
T69	NUT-HEX, 1/2-20			1							1	2	-
T72	SCREW-HEX HD, 1/2-20 X 2.25			1							1	2	85 LB-FT
T103	PIN-DOWEL, 1/2 X 1-1/2				1					1		2	-

**CASE CAP VARIATIONS**  
**HARDWARE FOR MODEL C20B**

(CASE CAP FOR PUMP MODELS CM, CMU, CS, CSU SHOWN)

NOTE:  
 1. HOLES 1 AND 2 ARE BLIND HOLES THAT ARE  
 TAPPED INTO THE CAP AND ARE NOT SHOWN.

## Case Cap Variations

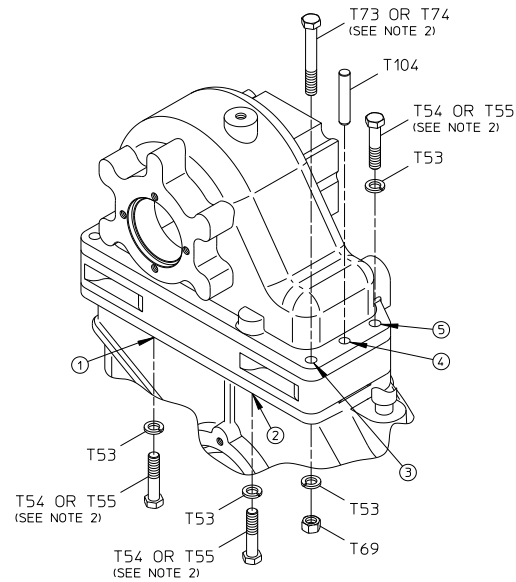
### Hardware for Models C20C

REF. NO.	DESCRIPTION
T53	Lock Washer, 1/2 in.
T54	Hex Hd Screw, 1/2-13 x 3-1/2 in.
T55	Hex Hd Screw, 1/2-13 x 3-3/4 in.
T69	Hex Nut, 1/2-20

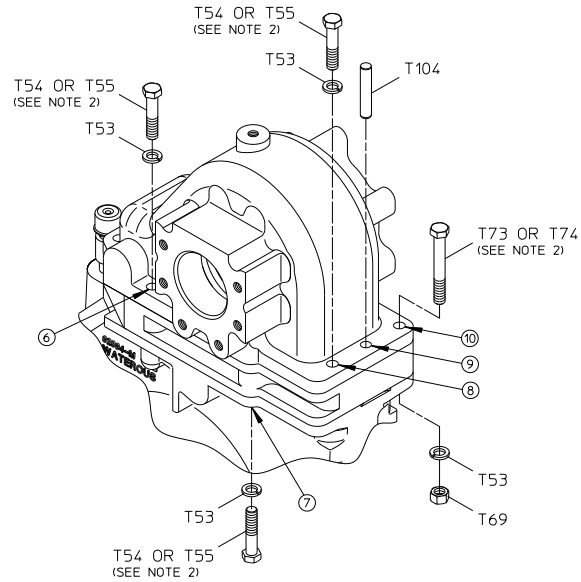
REF. NO.	DESCRIPTION
T73	Hex Hd Screw, 1/2-20 x 4 in.
T74	Hex Hd Screw, 1/2-20 x 4-1/4 in.
T104	Dowel Pin, 1/2 x 3 in.

### Hardware Torque Specifications

Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft



**VIEWED FROM INPUT SIDE OF CASE**



**VIEWED FROM OUTPUT SIDE OF CASE**

FLANGE HARDWARE BETWEEN CAP (T65), SPACER (T100) AND CASE (T28)

REF. NO.	HARDWARE DESCRIPTION	HOLE NUMBER										QTY	TORQUE SPECIFICATION
		1	2	3	4	5	6	7	8	9	10		
T53	WASHER-LOCK, 1/2	1	1	1		1	1	1	1		1	8	-
T54	SCREW-HEX HD, 1/2-13 X 3.50	1	1			1	1	1	1			6	75 LB-FT
T55	SCREW-HEX HD, 1/2-13 X 3.75 (SEE NOTE 2)	1	1			1	1	1	1			6	75 LB-FT
T69	NUT-HEX, 1/2-20			1							1	2	-
T73	SCREW-HEX HD, 1/2-20 X 4.00			1							1	2	85 LB-FT
T74	SCREW-HEX HD, 1/2-20 X 4.25 (SEE NOTE 2)			1							1	2	85 LB-FT
T104	PIN-DOWEL, 1/2 X 3.00				1					1		2	-

**NOTES:**

- HOLES 1, 2 AND 7 ARE BLIND HOLES THAT ARE TAPPED INTO THE CAP AND ARE NOT SHOWN.
- T55 & T74 USED ON 1.27 RATIO ONLY.  
T54 & T73 IS USED ON ALL OTHER RATIOS.

**CASE CAP VARIATIONS**  
**HARDWARE FOR MODEL C20C**  
(CASE CAP FOR PUMP MODELS CM, CMJ, CS, CSU SHOWN)

## Case Cap Variations

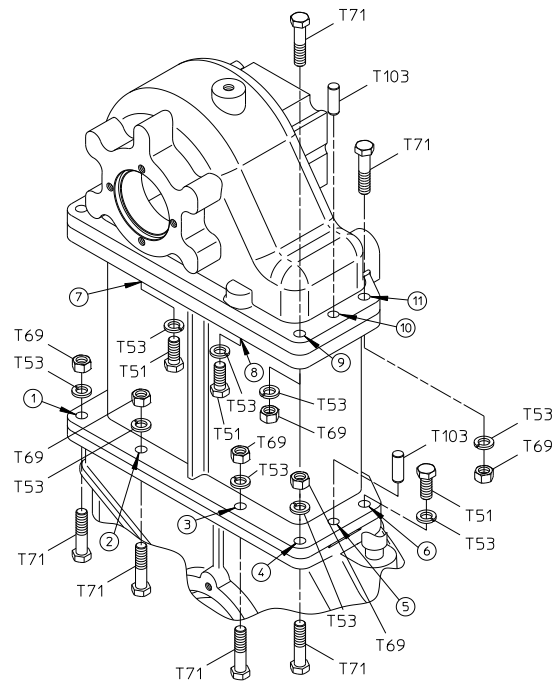
### Hardware for Models C20D, C20E and C20F

REF. NO.	DESCRIPTION
T51	Hex Hd Screw, 1/2-13 x 1-1/2 in.
T53	Lock Washer, 1/2 in.
T69	Hex Nut, 1/2-20

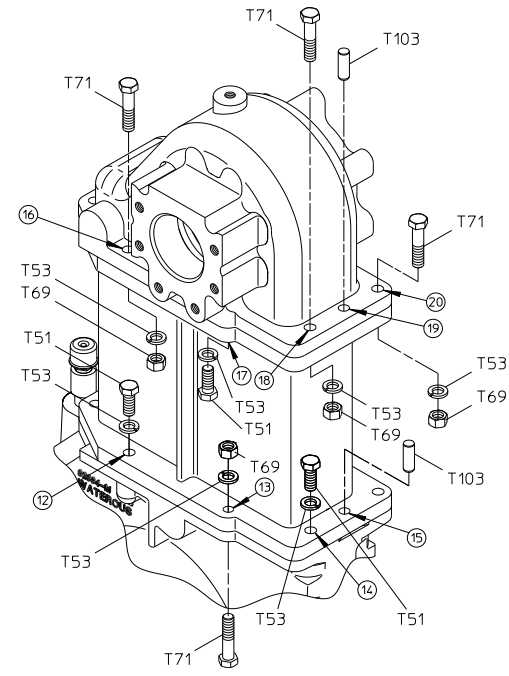
REF. NO.	DESCRIPTION
T71	Hex Hd Screw, 1/2-20 x 2 in.
T103	Dowel Pin, 1/2 x 1-1/2 in.

### Hardware Torque Specifications

Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft



**VIEWED FROM INPUT SIDE OF CASE**



**VIEWED FROM OUTPUT SIDE OF CASE**

FLANGE HARDWARE BETWEEN CAP (T65), SPACER (T100) AND CASE (T28)

REF NO.	HARDWARE DESCRIPTION	HOLE NUMBER																				QTY	TORQUE SPECIFICATION
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
T51	SCREW-HEX HD, 1/2-13 X 1.50							1	1	1			1	1	1			1			6	75 LB-FT	
T53	WASHER-LOCK, 1/2	1	1	1	1			1	1	1	1		1	1	1		1	1	1	1	16	-	
T69	NUT-HEX, 1/2-20	1	1	1	1					1	1	1	1			1	1	1	1	1	10	-	
T71	SCREW-HEX HD, 1/2-20 X 2	1	1	1	1					1	1	1	1			1	1	1	1	1	10	85 LB-FT	
T103	PIN-DOWEL, 1/2 X 1.50					1					1					1				1	4	-	

**CASE CAP VARIATIONS**

**HARDWARE FOR MODELS C20D, C20E AND C20F**

(CASE CAP FOR PUMP MODELS CM, CMU, CS, CSU SHOWN)

NOTE:  
1. HOLES 7 AND 8 ARE BLIND HOLES THAT ARE  
TAPPED INTO THE CAP AND ARE NOT SHOWN.