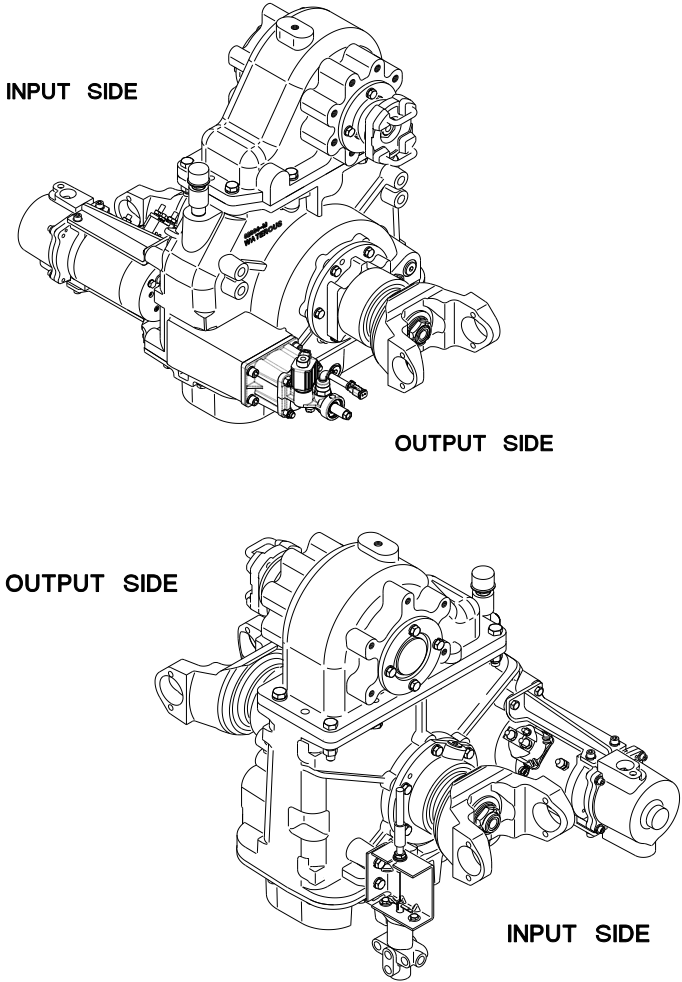


TC20 Series Power Take-Off Service Parts List

Index:



Components				See Page	
Type	Front Shaft (Input Side of Case)	Rear Shaft (Output Side of Case)			
Output Shaft	Single	1410 Series End Yoke	None	2, 3	
		Hydraulic Pump (SAE Class B 2-Bolt Hydraulic Flange)	None	4, 5	
		None	1410 Series End Yoke	6, 7	
		None	Hydraulic Pump (SAE Class B 2-Bolt Hydraulic Flange)	8, 9	
		None	Eclipse ES 150-ESD, 150-ESOS CAFS with 1410 Series End Yoke	10, 11	
	Dual	1410 Series End Yoke	Hydraulic Pump (SAE Class B 2-Bolt Hydraulic Flange)	12, 13	
Hydraulic Pump (SAE Class B 2-Bolt Hydraulic Flange)		1410 Series End Yoke	14, 15		
Driveline	Input and Output Shafts		Exploded View	16, 17	
			Cross-Section View	18, 19	
	Input Shaft Only		Exploded View	20, 21	
			Cross-Section View	22, 23	
Shift Unit	See Shift Unit Service Parts List			--	
Case	Viewed from Input Side			24, 25	
	Viewed from Output Side			26, 27	
	Cap Variations	Spacers, Shims and Sealant Application		Models TC20B, TC20C, TC20D, TC20E, TC20F	28, 29
		Hardware		Models TC20B	30, 31
				Models TC20C	32, 33
Models TC20D, TC20E, TC20F				34, 35	
Optional Accessories (Fire Pump Applications Only)	PTO Mounted Drain Valve		See Drain Valve Service List		
	Model VPO Priming Pump		See Priming Pump Service Parts List		

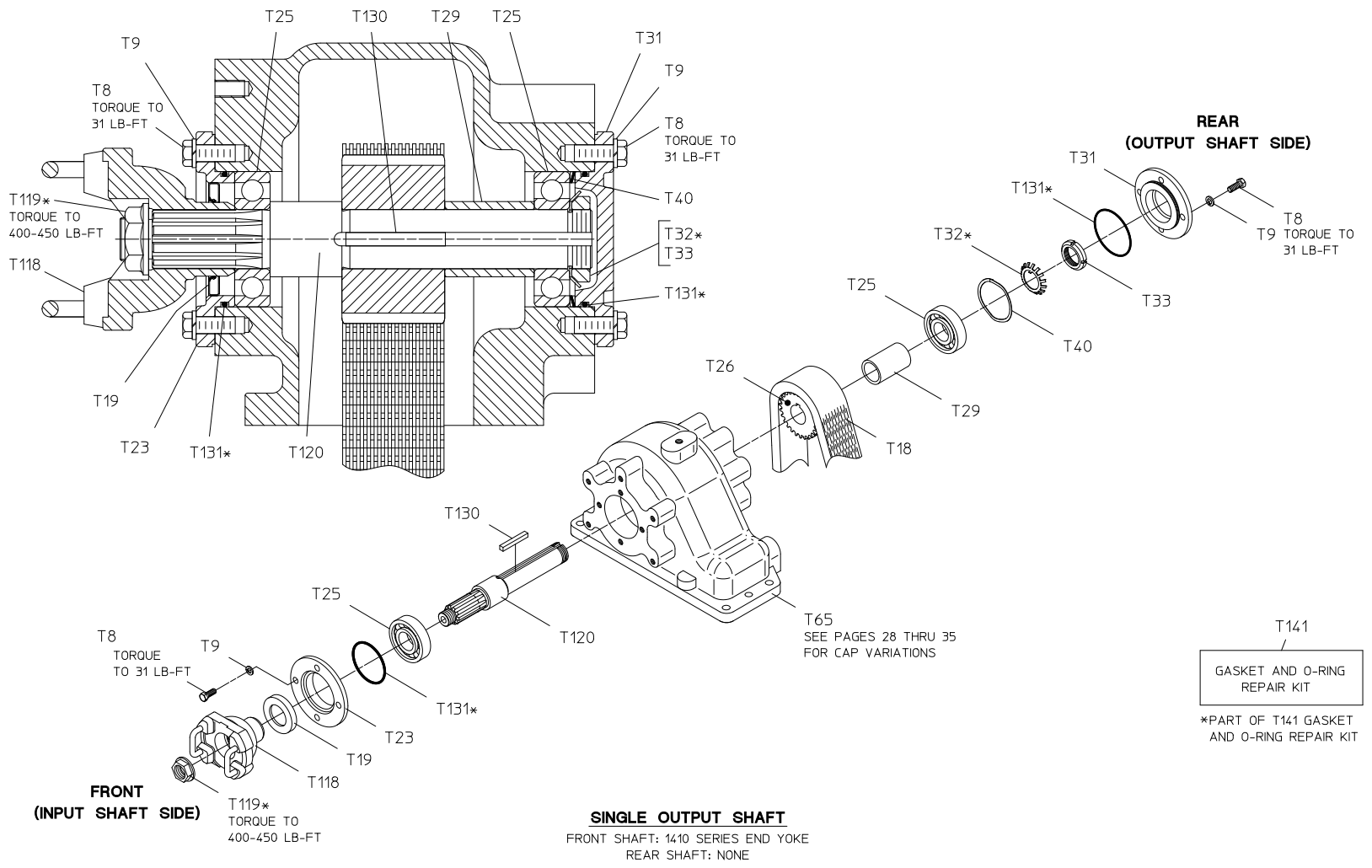
Single Output Shaft - Front Shaft: 1410 Series End Yoke Rear Shaft: None

REF. NO.	DESCRIPTION
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T18	Chain
T19	Oil Seal, 1-23/32 x 2-5/8 x 5/16 in.
T23	Oil Seal Housing
T25	Single Row Ball Bearing
T26	Driven Sprocket
T29	Bearing Spacer
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
T118	End Yoke, 1410 Series
T119	Self-Locking Nut, 1-20 UNEF
T120	Driven Shaft
T130	Square Key, 5/16 x 2-5/16 in.
T131	O-ring, 2-3/4 x 3 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



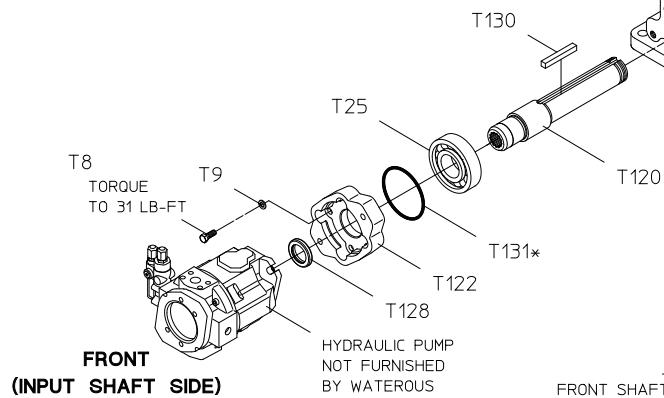
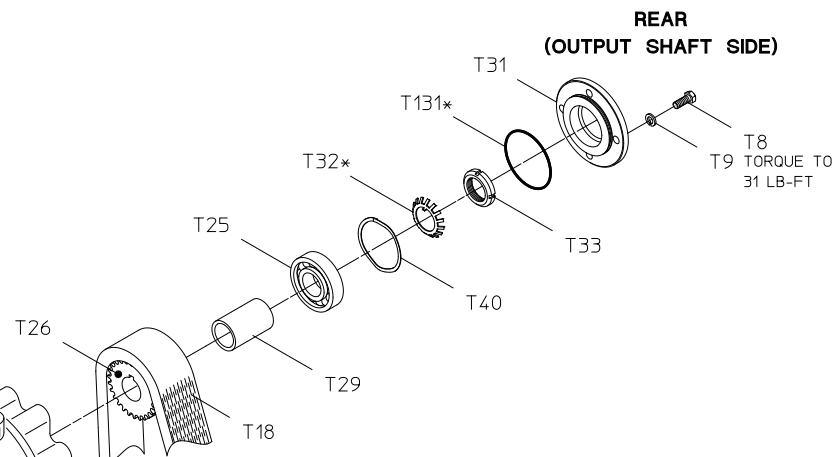
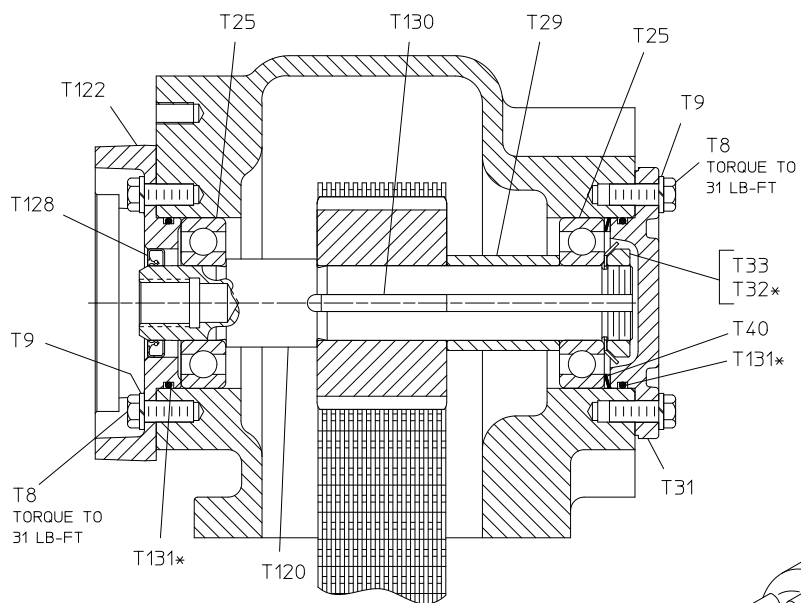
Single Output Shaft - Front Shaft: Hydraulic Pump Rear Shaft: None

REF. NO.	DESCRIPTION
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T18	Chain
T25	Single Row Ball Bearing
T26	Driven Sprocket
T29	Bearing Spacer
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
T120	Driven Shaft
T122	Hydraulic Adapter, SAE Class B 2-Bolt
T128	Oil Seal, 1-3/8 x 2 x 5/16 in.
T130	Square Key, 5/16 x 2-5/16 in.
T131	O-ring, 2-3/4 x 3 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



SINGLE OUTPUT SHAFT

FRONT SHAFT: SAE CLASS B 2-BOLT HYDRAULIC FLANGE
 REAR SHAFT: NONE

T65
 SEE PAGES 28 THRU 35
 FOR CAP VARIATIONS

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

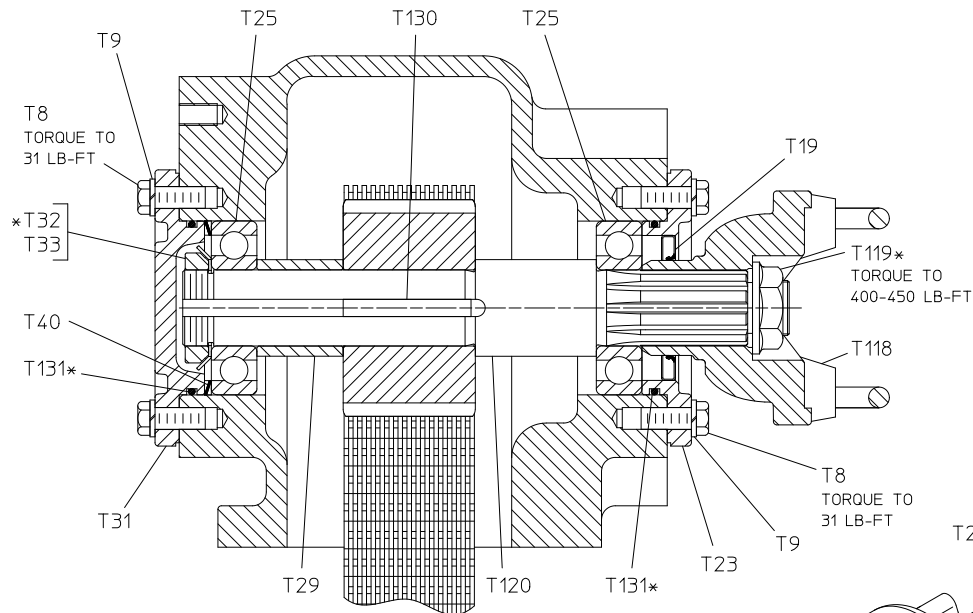
Single Output Shaft - Front Shaft: None
Rear Shaft: 1410 Series End Yoke

REF. NO.	DESCRIPTION
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T18	Chain
T19	Oil Seal, 1-23/32 x 2-5/8 5/16 in.
T23	Oil Seal Housing
T25	Single Row Ball Bearing
T26	Driven Sprocket
T29	Bearing Spacer
T31	Bearing Cover
T32	Bearing Lock Nut Washer (W07)
T33	Bearing Lock Nut (N07)

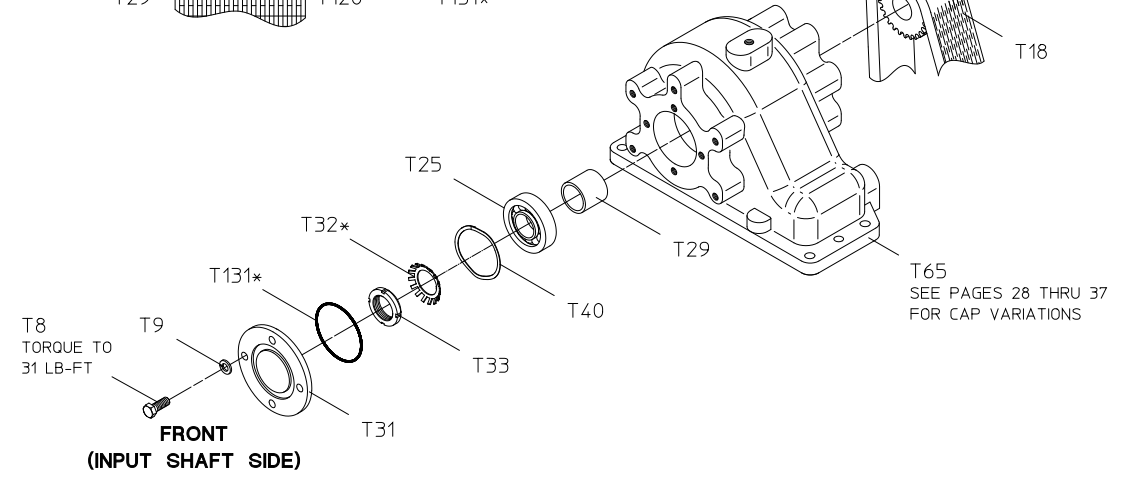
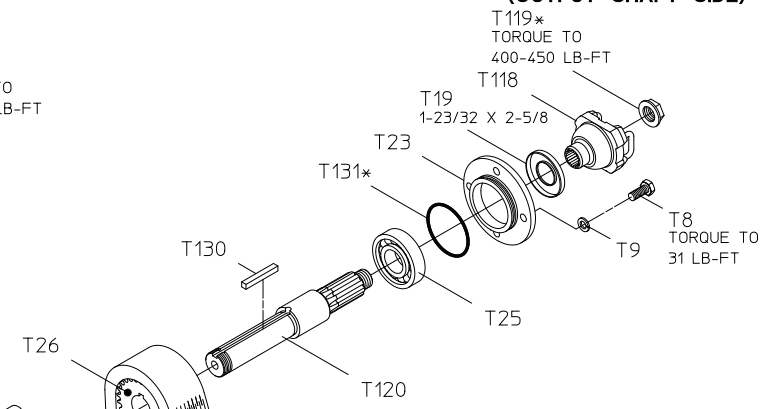
REF. NO.	DESCRIPTION
T40	Wave Spring, 80 mm
T65	Case Cap
T118	End Yoke, 1410 Series
T119	Self-Locking Nut, 1-20 UNEF
T120	Driven Shaft
T130	Square Key, 5/16 x 2-5/16 in.
T131	O-ring, 2-3/4 x 3 in.
T141	Gasket and O-ring Repair Kit

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



**REAR
(OUTPUT SHAFT SIDE)**



T141
 GASKET AND O-RING
 REPAIR KIT

*PART OF T141 GASKET
 AND O-RING REPAIR KIT

SINGLE OUTPUT SHAFT
 FRONT SHAFT: NONE
 REAR SHAFT: 1410 SERIES END YOKE

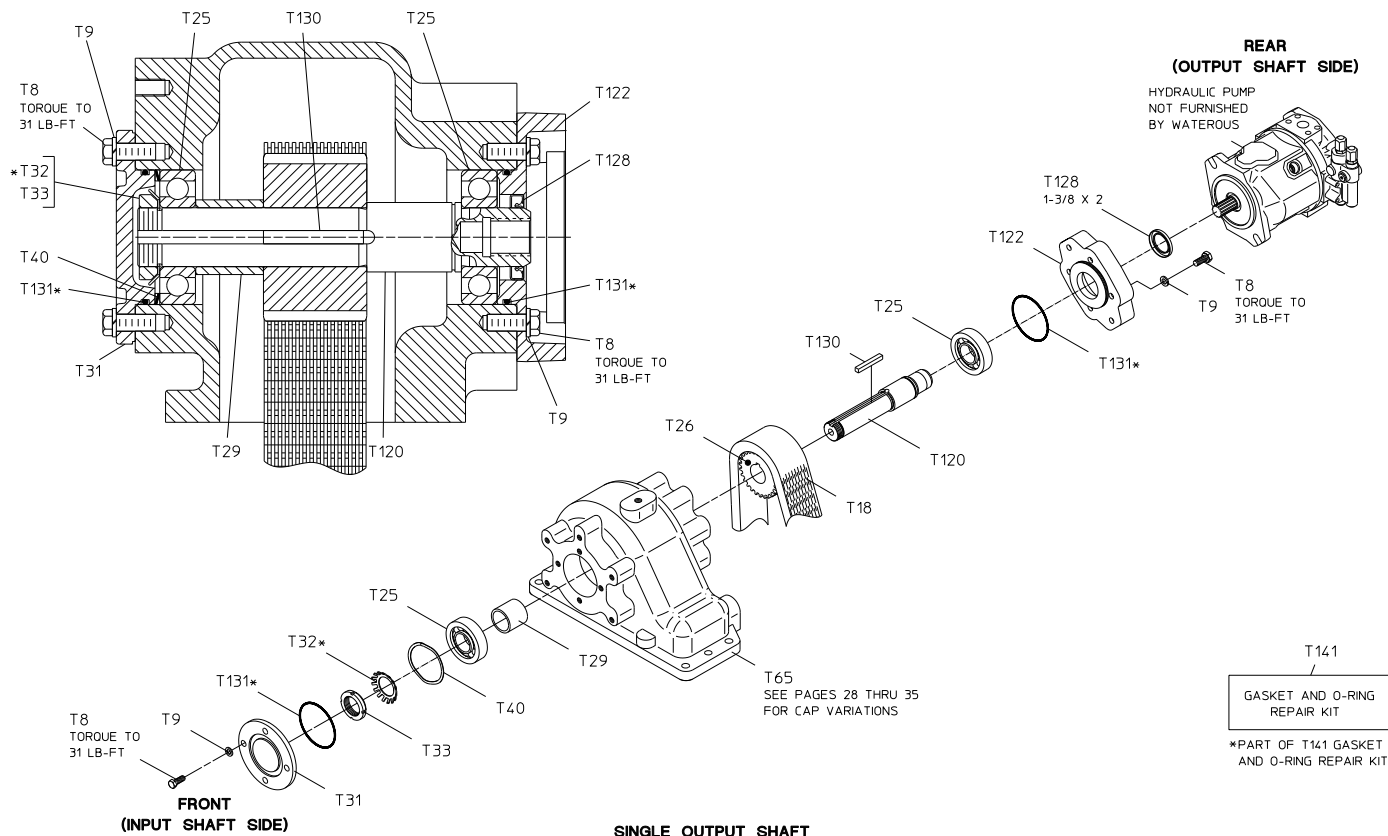
**Single Output Shaft - Front Shaft: None
Rear Shaft: Hydraulic Pump**

REF. NO.	DESCRIPTION
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T18	Chain
T25	Single Row Ball Bearing
T26	Driven Sprocket
T29	Bearing Spacer
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
T120	Driven Shaft
T122	Hydraulic Adapter, SAE Class B 2-Bolt
T128	Oil Seal, 1-3/8 x 2 x 5/16 in.
T130	Square Key, 5/16 x 2-5/16 in.
T131	O-ring, 2-3/4 x 3 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



SINGLE OUTPUT SHAFT
 FRONT SHAFT: NONE
 REAR SHAFT: SAE CLASS B 2-BOLT HYDRAULIC FLANGE

Single Output Shaft - Front Shaft: None
Rear Shaft: Eclipse™ ES Compressor, 150-ESD, 150-ESOS CAFS

REF. NO.	DESCRIPTION
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T18	Chain
T22	Oil Seal, 2 x 2-5/8 x 5/16 in.
T23	Oil Seal Housing
T26	Driven Sprocket
T29	Yoke Spacer
T31	Bearing Cover
T37	Single Row Ball Bearing
T38	Plastic Shim
T39	O-ring, 4-1/4 x 4-1/2 in.
T45	Retaining Ring
T47	Bearing Locknut Washer (W06)
T48	Bearing Locknut (N06)

REF. NO.	DESCRIPTION
T49	Hex Hd Screw, 1/2-13 x 1-1/4 in.
T53	Lock Washer, 1/2 in.
T62	Wave Spring, 90 mm
T65	Case Cap
T76	Double Row Ball Bearing
T95	Bearing Spacer
T118	End Yoke, 1410 Series
T119	Self-Locking Nut, 1-20 UNEF
T120	Driven Shaft
T130	Square Key, 5/16 x 2-5/16 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

Dual Output Shaft - Front Shaft: 1410 Series End Yoke Rear Shaft: Hydraulic Pump

REF. NO.	DESCRIPTION
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T18	Chain
T19	Oil Seal, 1-23/32 x 2-5/8 x 5/16 in.
T23	Oil Seal Housing
T25	Single Row Ball Bearing
T26	Driven Sprocket
T29	Bearing Spacer
T40	Wave Spring, 90 mm

REF. NO.	DESCRIPTION
T65	Case Cap
T118	End Yoke, 1410 Series
T119	Self-Locking Nut, 1-20 UNEF
T120	Driven Shaft
T122	Hydraulic Adapter, SAE Class B 2-Bolt
T128	Oil Seal, 1-3/8 x 2 x 5/16 in.
T129	Retaining Ring
T130	Square Key, 5/16 x 2-5/16 in.
T131	O-ring, 2-3/4 x 3 in.
T141	Gasket and O-ring 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

Dual Output Shaft - Front Shaft: Hydraulic Pump Rear Shaft: 1410 Series End Yoke

REF. NO.	DESCRIPTION
T8	Hex Hd Screw, 3/8-16 x 1 in.
T9	Lock Washer, 3/8 in.
T18	Chain
T19	Oil Seal, 1-23/32 x 2-5/8 x 5/16 in.
T23	Oil Seal Housing
T25	Single Row Ball Bearing
T26	Driven Sprocket
T29	Bearing Spacer
T40	Wave Spring, 90 mm

REF. NO.	DESCRIPTION
T65	Case Cap
T118	End Yoke, 1410 Series
T119	Self-Locking Nut, 1-20 UNEF
T120	Driven Shaft
T122	Hydraulic Adapter, SAE Class B 2-Bolt
T128	Oil Seal, 1-3/8 x 2 x 5/16 in.
T129	Retaining Ring
T130	Square Key, 5/16 x 2-5/16 in.
T131	O-ring, 2-3/4 x 3 in.
T141	Gasket and O-ring 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

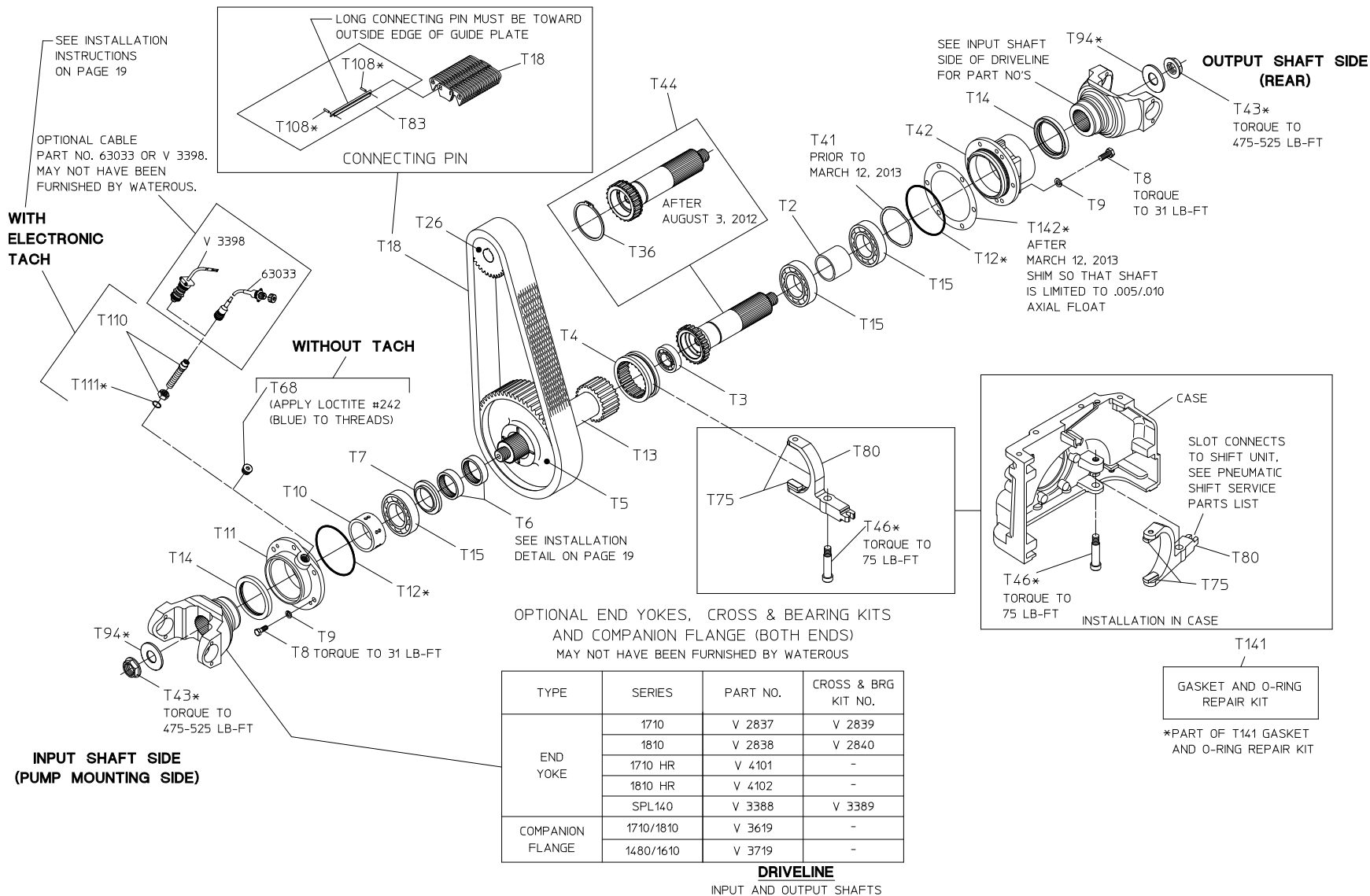
Drive Line - Input and Output Shaft (Exploded View)

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
T42	Coupling Shaft Housing

REF. NO.	DESCRIPTION
T43	Retaining Ring, (Used Starting August 3, 2012)
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 Tahcometer 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



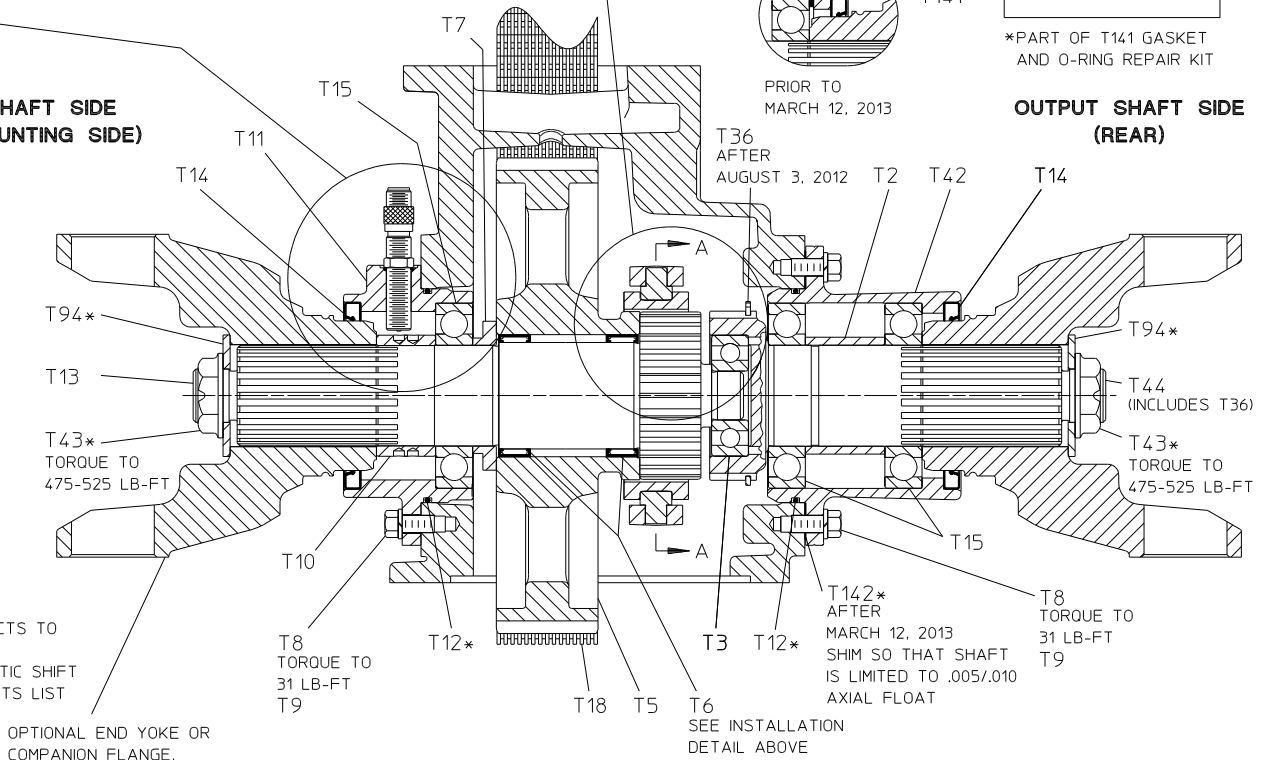
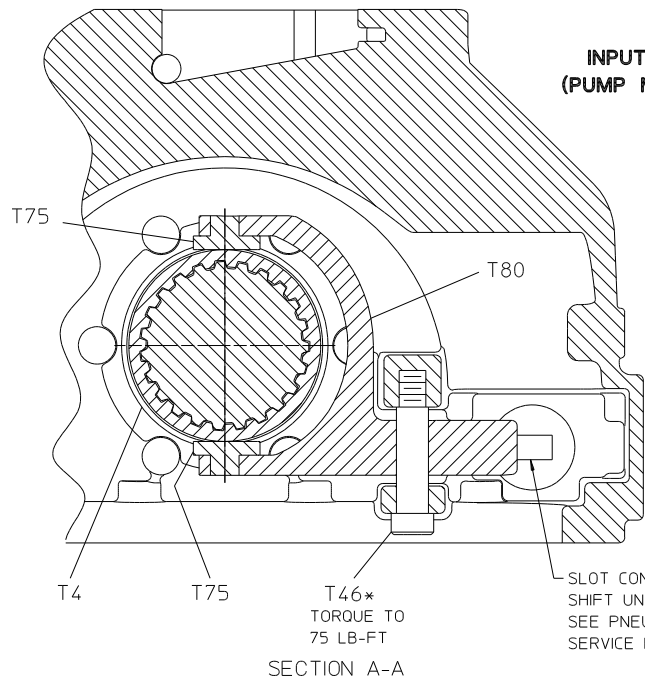
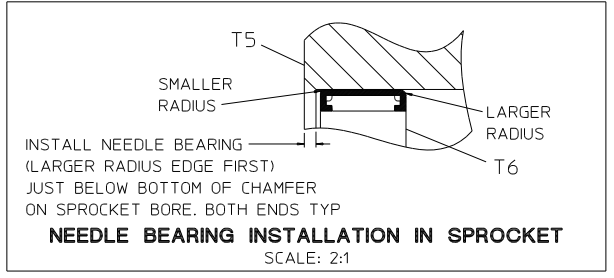
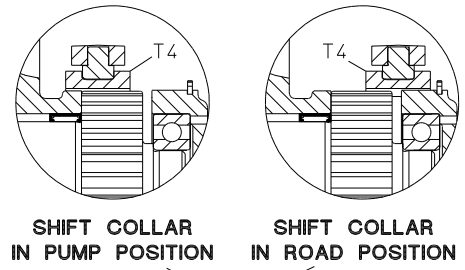
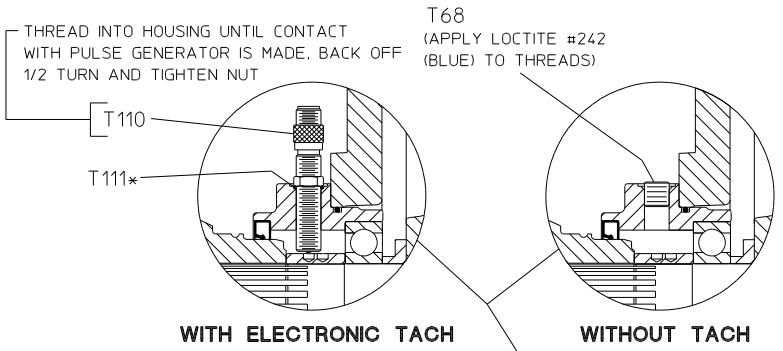
Drive Line - Input and Output Shaft (Cross-Section View)

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
T36	Retaining Ring (Used Starting August 3, 2012)

REF. NO.	DESCRIPTION
T41	Wave Spring, 110 mm
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 Tahcometer 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



OPTIONAL END YOKE OR COMPANION FLANGE. SEE PAGE 17 FOR PART NO'S MAY NOT HAVE BEEN FURNISHED BY WATEROUS

DRIVELINE
INPUT AND OUTPUT SHAFTS

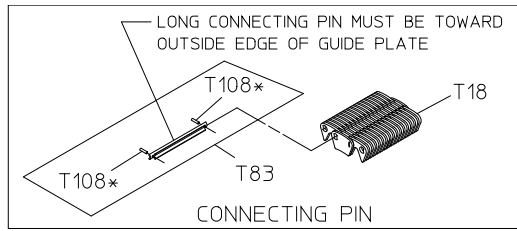
Drive Line - Input Shaft Only (Exploded View)

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

REF. NO.	DESCRIPTION
T26	Driven Sprocket
T36	Retaining Ring
T41	Wave Spring, 72 mm
T42	Bearing Housing
T43	Self-Locking Nut, 1-1/4-18 in.
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 Tahcometer Pick-up
T111	O-ring, 5/8 x 3/4 in.
T141	Gasket and O-ring Repair Kit

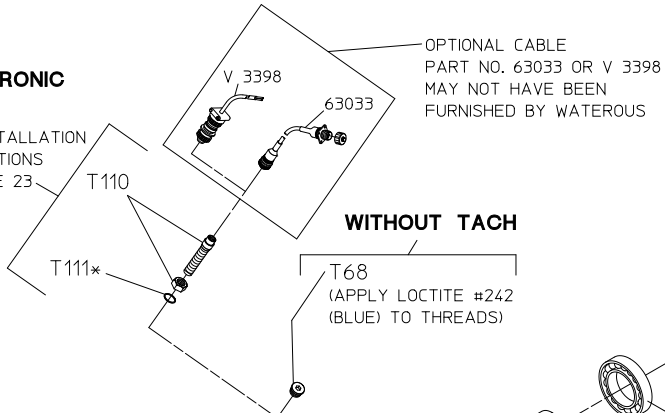
Hardware Torque Specifications

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



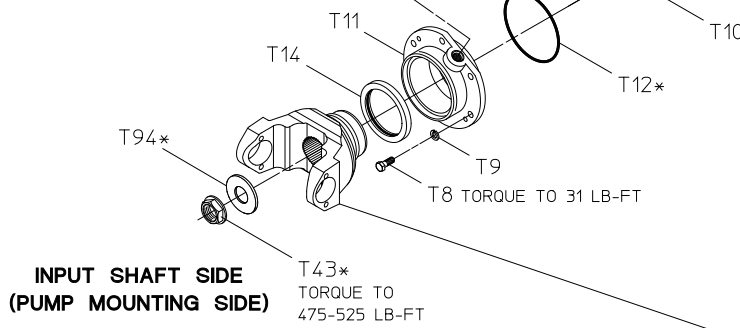
WITH ELECTRONIC TACH

SEE INSTALLATION INSTRUCTIONS ON PAGE 23

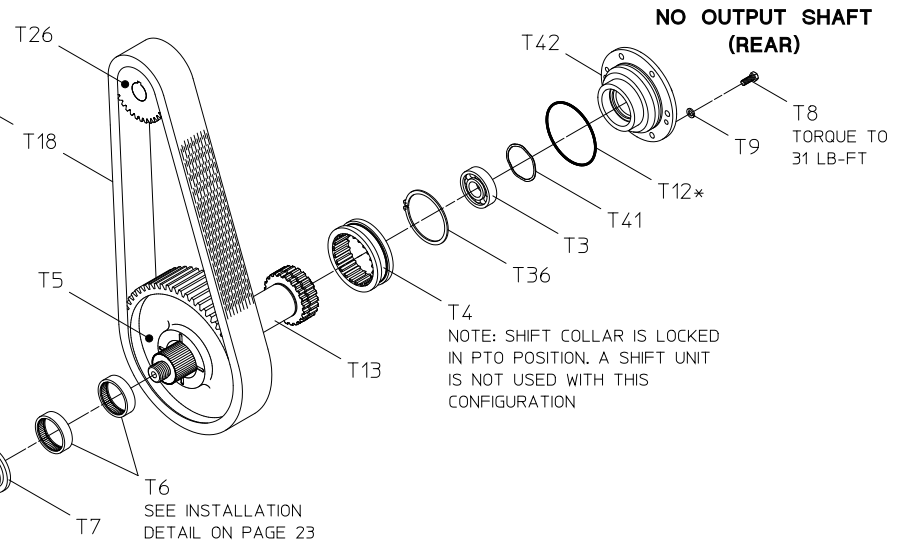


WITHOUT TACH

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



INPUT SHAFT SIDE (PUMP MOUNTING SIDE)



NO OUTPUT SHAFT (REAR)

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

OPTIONAL END YOKE, CROSS & BEARING KIT AND COMPANION FLANGE
MAY NOT HAVE BEEN FURNISHED BY WATEROUS

TYPE	SERIES	PART NO.	CROSS & BRG KIT NO.
END YOKE	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	1710/1810	V 3619	-
	1480/1610	V 3719	-



*PART OF T141 GASKET AND O-RING REPAIR KIT

DRIVELINE
INPUT SHAFT ONLY

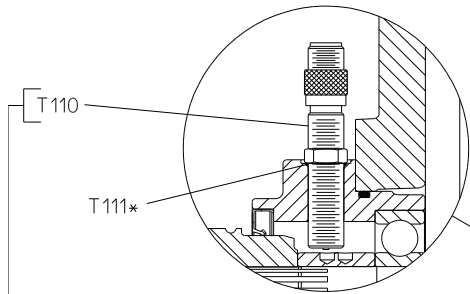
Drive Line - Input Shaft Only (Cross-Section View)

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

REF. NO.	DESCRIPTION
T36	Retaining Ring
T41	Wave Spring, 72 mm
T42	Bearing Housing
T43	Self-Locking Nut, 1-1/4-18 in.
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

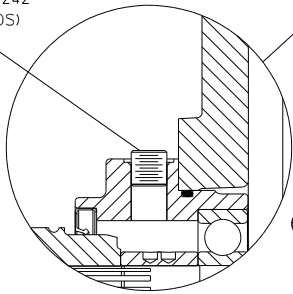
Screw Size	Torque Specification
5/16-18 UNC	17 lb-ft
3/8-16 UNC	31 lb-ft
1/2-13 UNC	75 lb-ft
1/2-20 UNF	85 lb-ft
5/8-11 UNC	150 lb-ft



WITH ELECTRONIC TACH

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

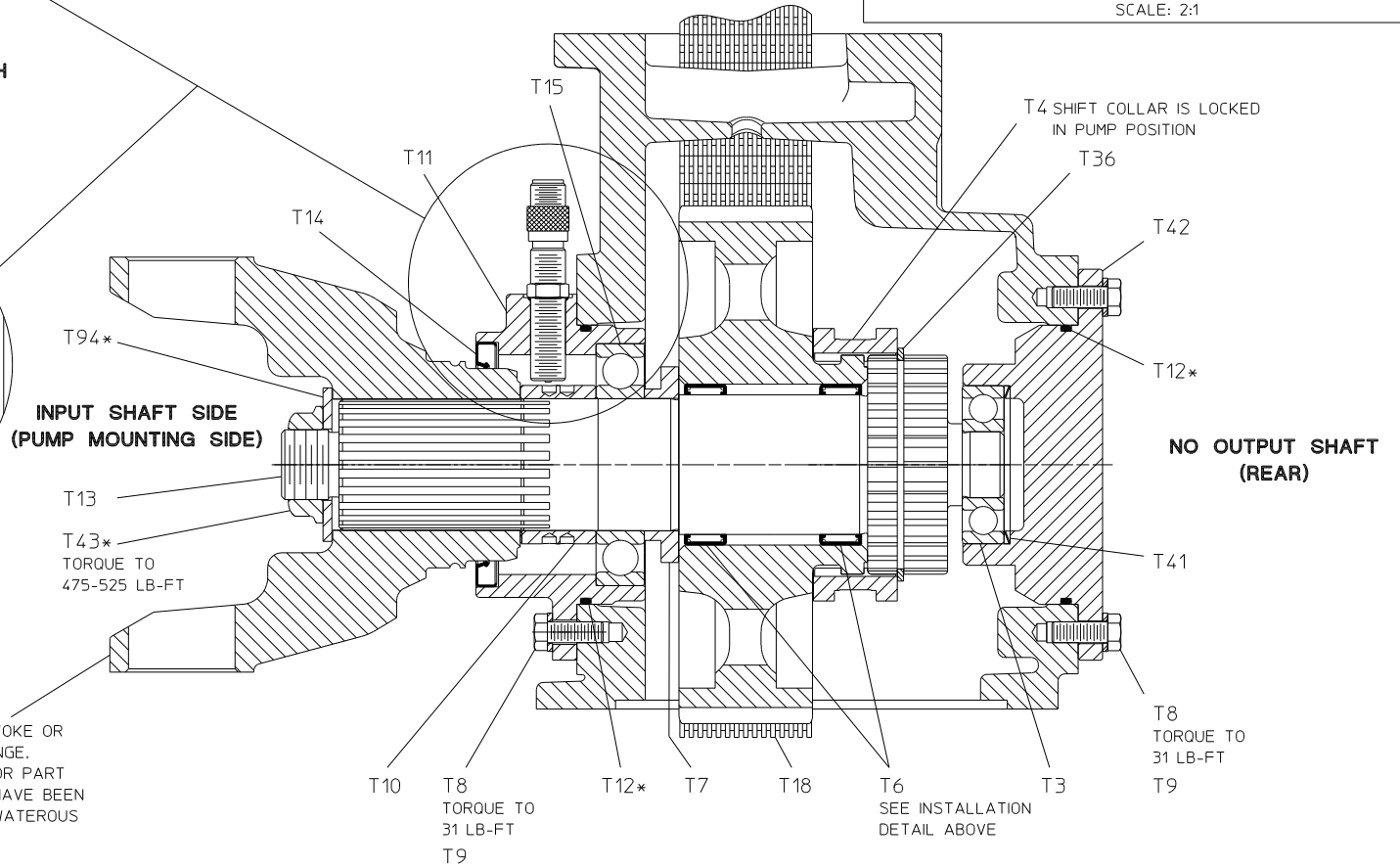
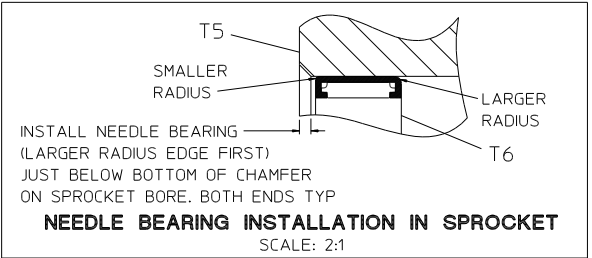
T68
(APPLY LOCTITE #242 (BLUE) TO THREADS)



WITHOUT TACH

T141
GASKET AND O-RING REPAIR KIT

*PART OF T141 GASKET AND O-RING REPAIR KIT



DRIVELINE
INPUT SHAFT ONLY

Case

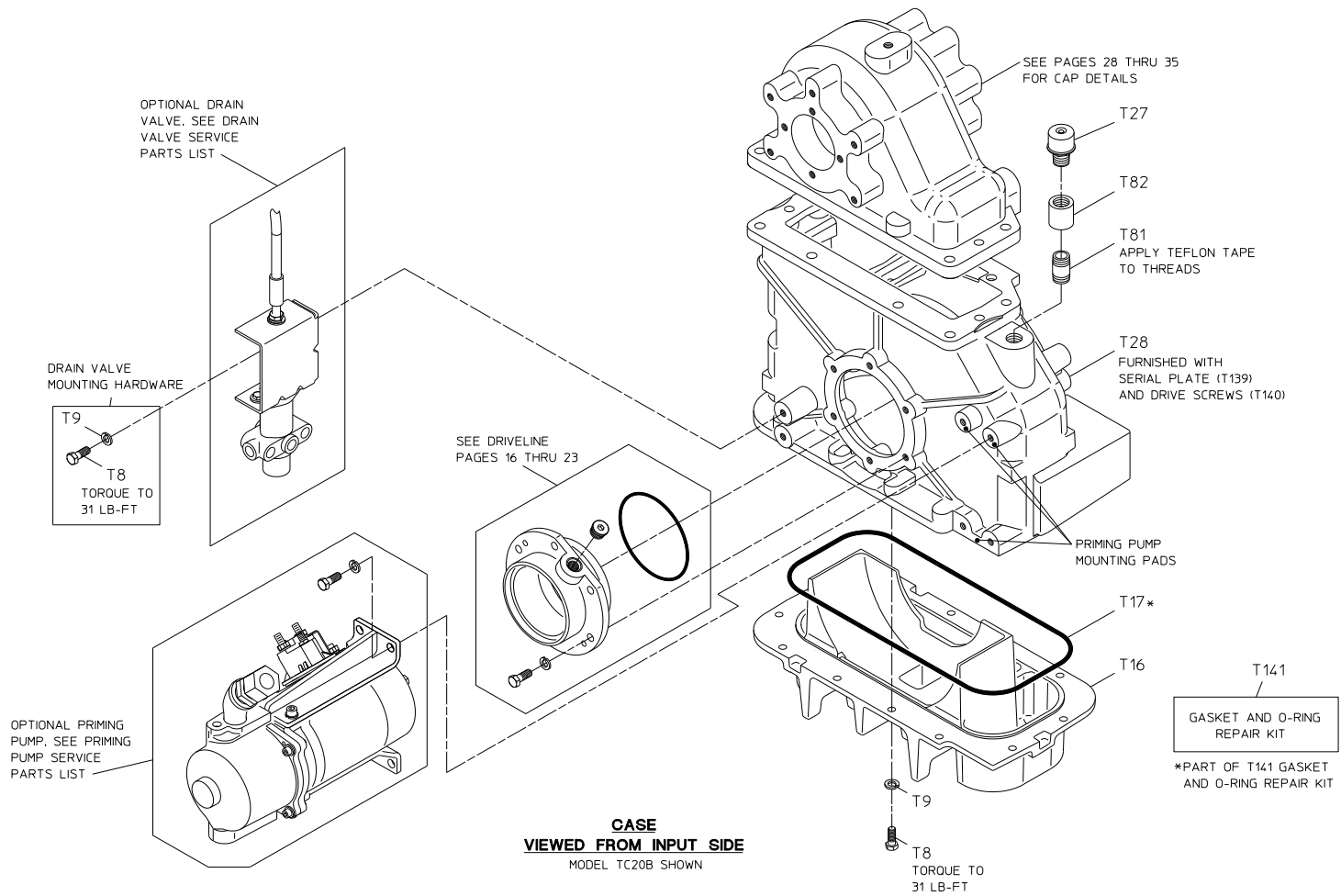
Viewed from Input Side

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

REF. NO.	DESCRIPTION
T27	Breather, 1/2 NPT
T28	Case
T81	Pipe Nipple, 1/2 NPT x 1-1/2 in.
T82	Pipe 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

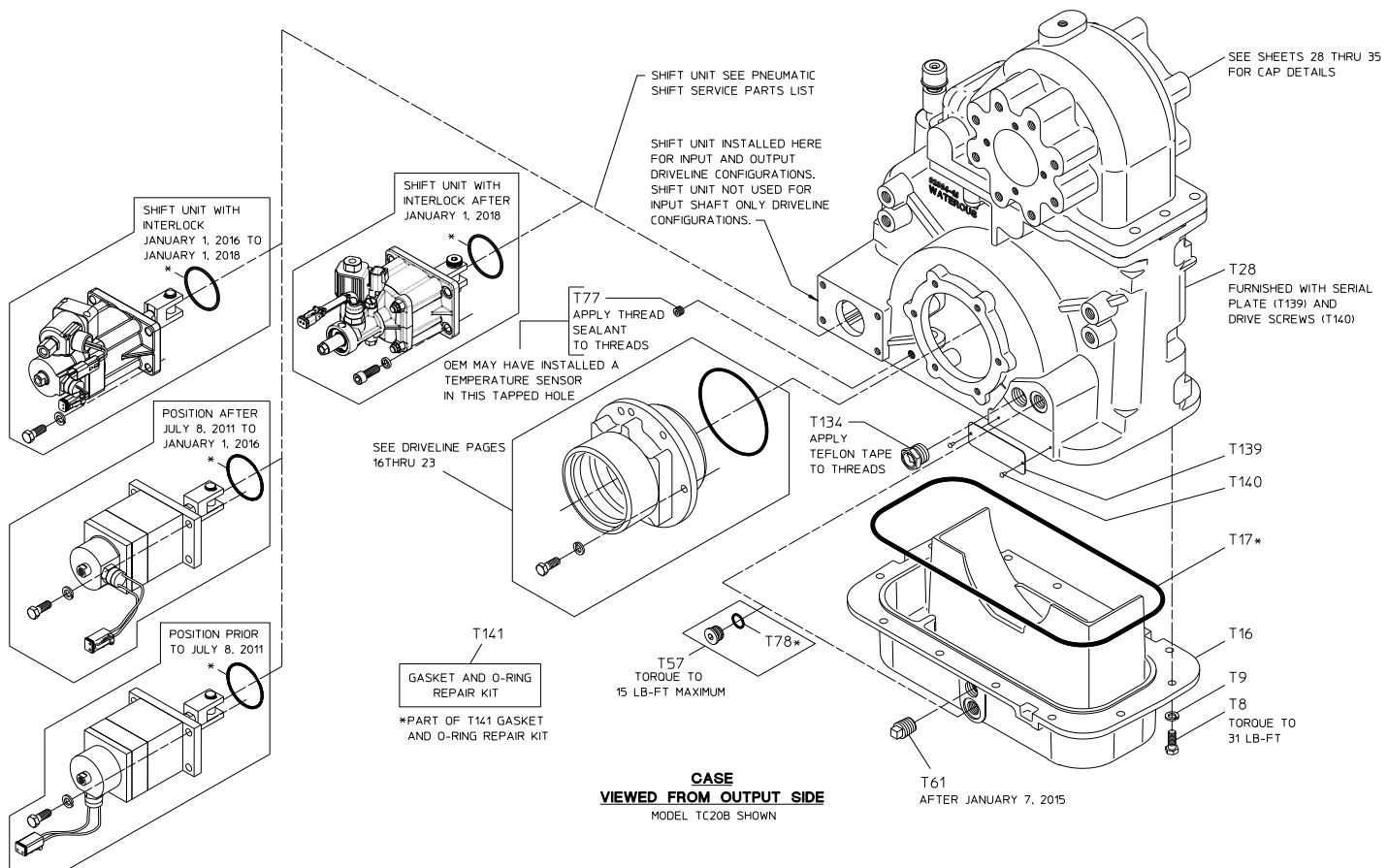
Viewed from Output Side

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
T57	Magnetic Drain Plug, 3/4-16 (Includes T78)
T61	Pipe Plug, 1/2 NPT

REF. NO.	DESCRIPTION
T77	Headless Pipe Plug, 1/8 NPT
T78	O-ring, 16.4 mm x 20.8 mm
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



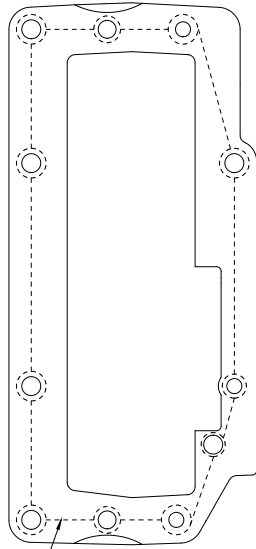
Case Cap Variations - Spacers, Shims and Sealant Application

Models TC20B and TC20C, TC20D, TC20E and TC20F

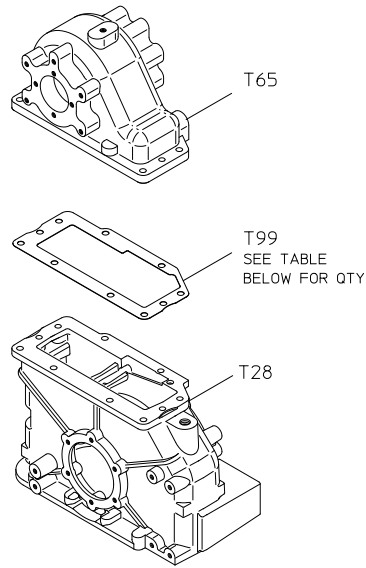
REF. NO.	DESCRIPTION
T28	Case
T64	Oil Return Tube
T65	Case Cap

REF. NO.	DESCRIPTION
T99	Shim
T100	Case Spacer

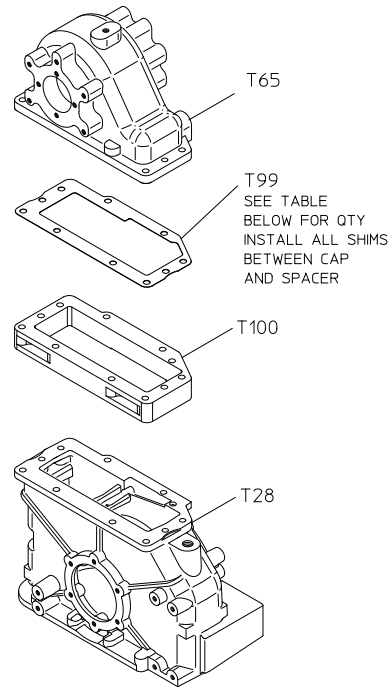
APPLY LOCTITE® 518 SEALANT OR EQUIVALENT TO MATING FLANGES AND BETWEEN SHIMS



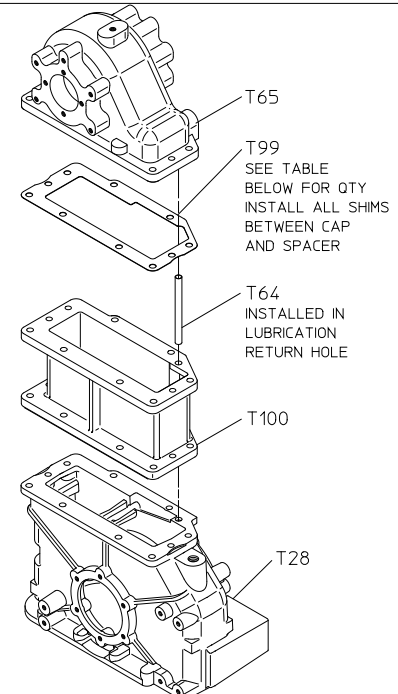
APPLY A THIN BEAD OF SEALANT AS SHOWN BY DASHED LINE (CASE FLANGE SHOWN)



MODEL TC20B



MODEL TC20C



MODEL TC20D, TC20E & TC20F

RATIO	QTY OF T99 SHIMS														
	MODEL TC20B			MODEL TC20C			MODEL TC20D			MODEL TC20E			MODEL TC20F		
	.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
1.14	1	1	0	4	2	0	1	0	3	0	3	0	0	1	1
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	0	0	2	0	0	0	0	0
1.69	1	3	0	0	0	0	2	0	0	3	0	3	0	4	0
1.79	0	0	2	0	0	0	1	0	0	2	1	1	2	2	1
1.88	2	0	0	1	0	0	2	0	0	1	1	2	0	0	1
1.97	2	2	0	0	0	1	0	1	0	2	0	1	1	0	1
2.03	0	0	1	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
2.73	0	0	3	2	2	0	3	2	1	0	0	1	0	2	0

CASE ASSEMBLY, SPACERS AND SHIMS

Case Cap Variations - Hardware

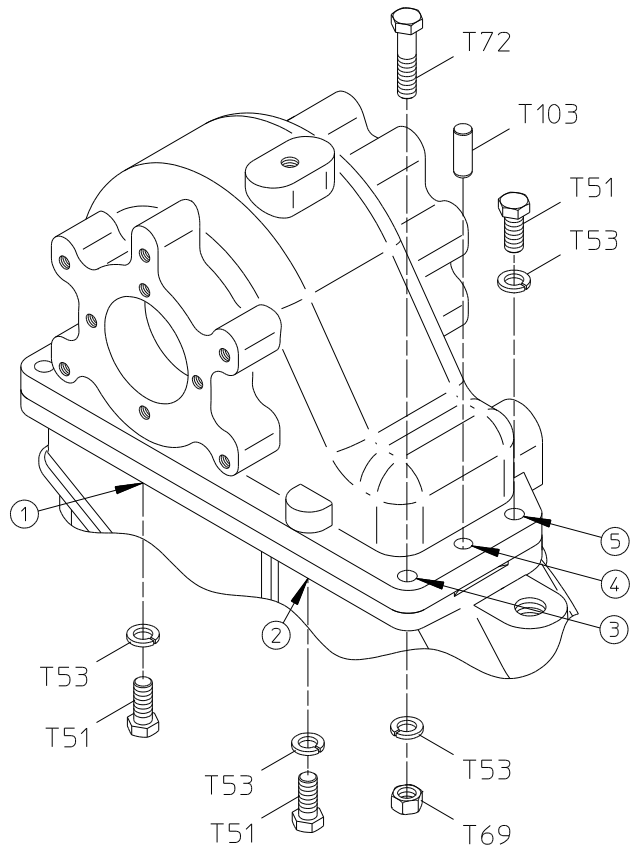
Model TC20B

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

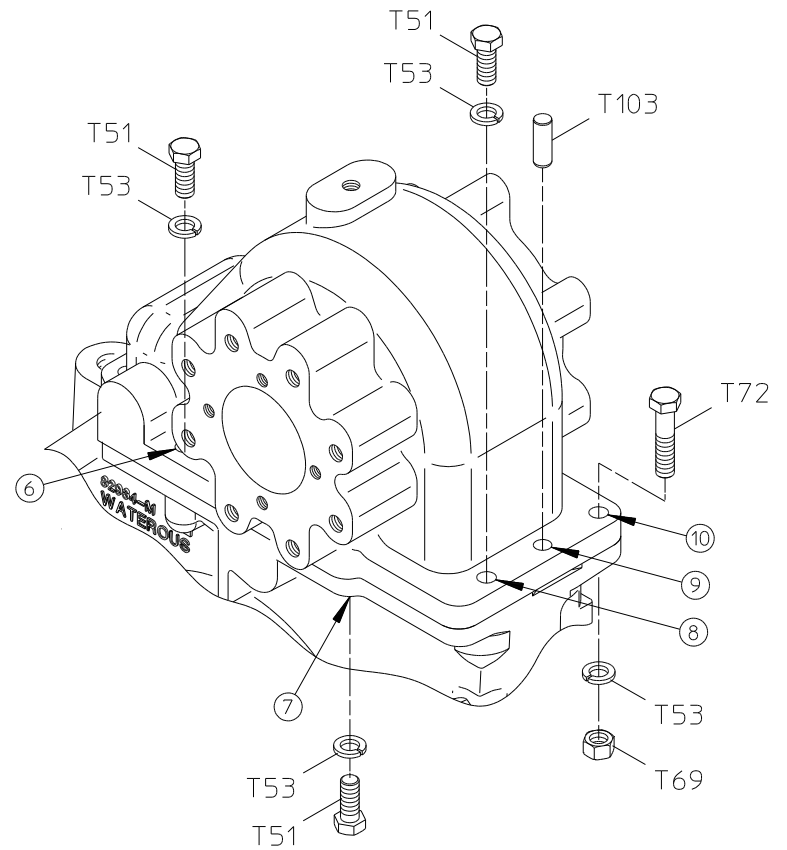
REF. NO.	DESCRIPTION
T72	Hex Hd Screw, 1/2-20 x 2-1/4 in.
T103	Dowel Pin, 1/2 x 1-1/2 in.

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	-	

NOTE:

1. HOLES 1, 2 AND 7 ARE BLIND HOLES THAT ARE TAPPED INTO THE CAP AND ARE NOT SHOWN.

CASE CAP VARIATIONS
HARDWARE FOR MODEL TC20B

Case Cap Variations - Hardware

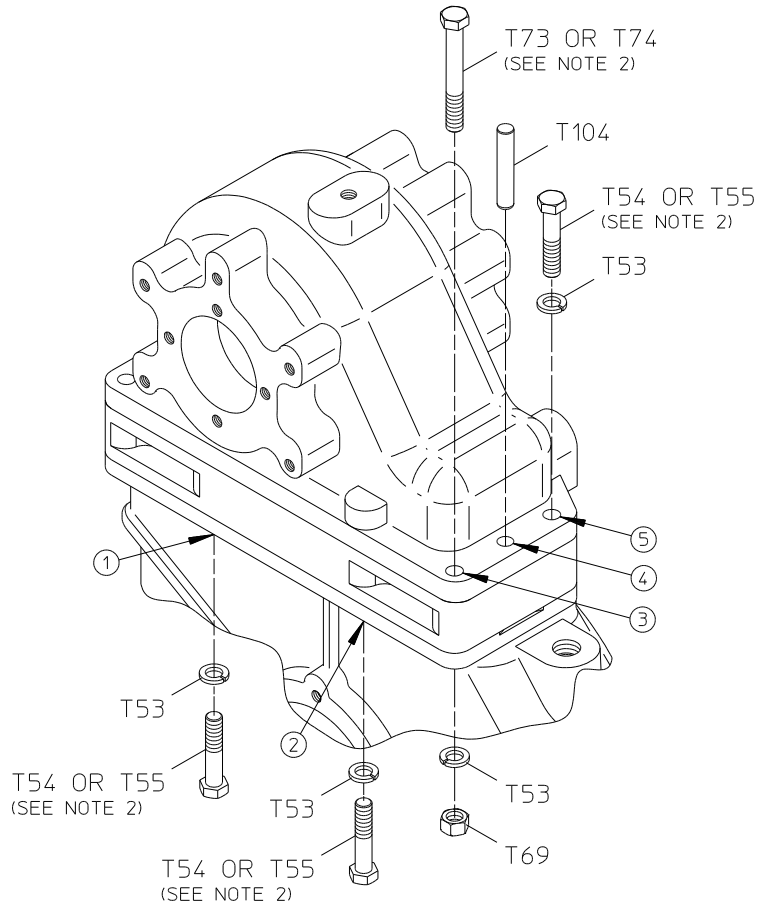
Model TC20C

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

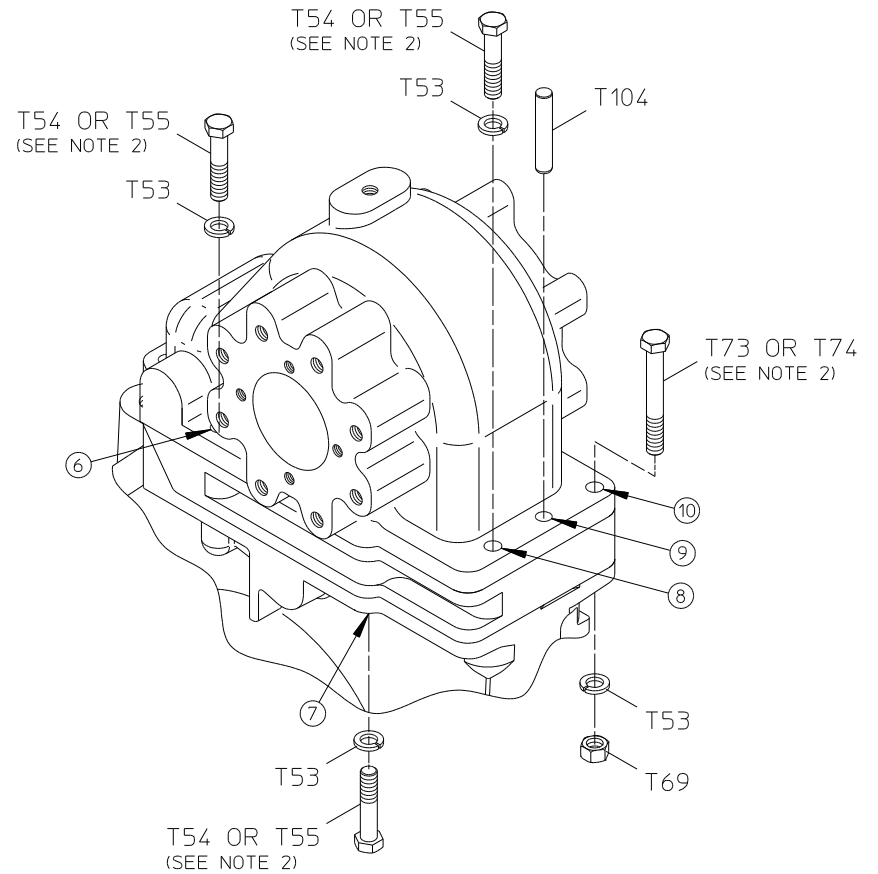
REF. NO.	DESCRIPTION
T73	Hex Hd Screw, 1/2-20 x 4 in.
T74	Hex Hd Screw, 1/2-20 x 4-1/4 in.
T104	Dowel Pin, 1/2 x 3 in.

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				1					1	2	2	-

NOTES:

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

CASE CAP VARIATIONS
HARDWARE FOR MODELS TC20C

Case Cap Variations - Hardware

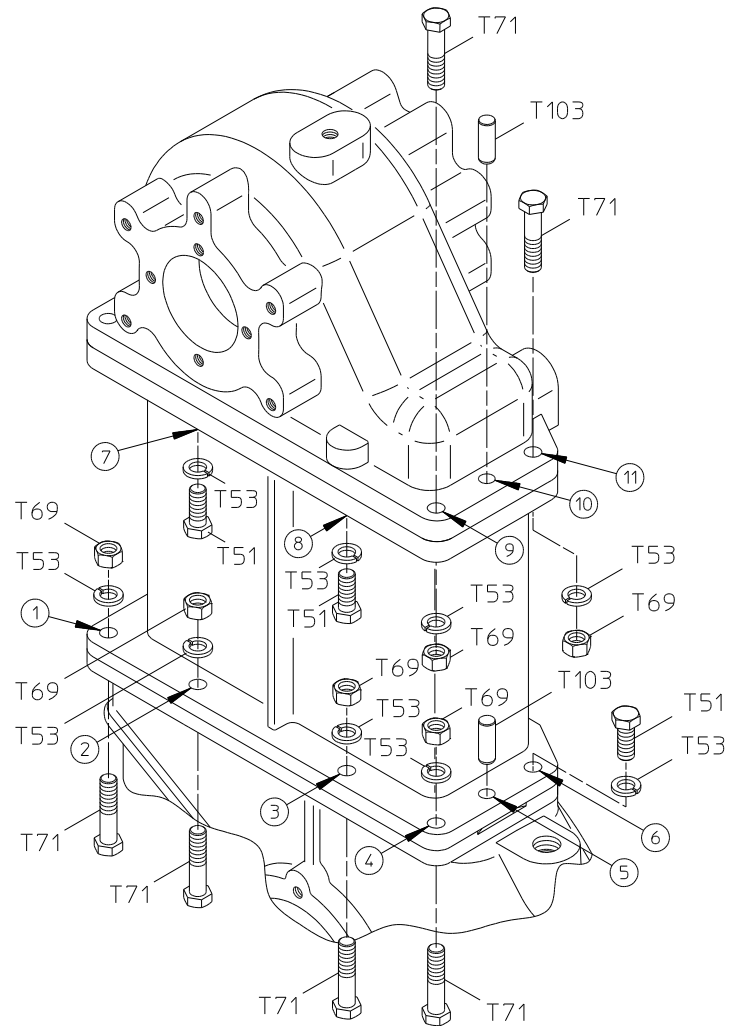
Model TC20D, TC20E and TC20F

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

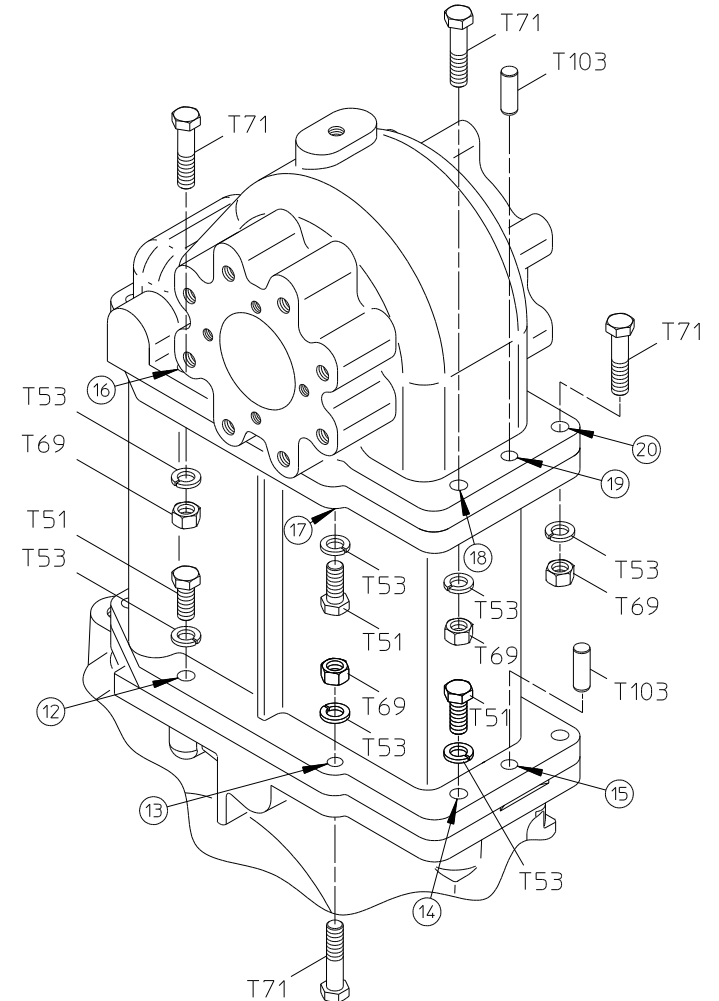
REF. NO.	DESCRIPTION
T71	Hex Hd Screw, 1/2-20 x 2 in.
T103	Dowel Pin, 1/2 x 1-1/2 in.

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				6	75 LB-FT
T53	WASHER-LOCK, 1/2	1	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	10	-
T71	SCREW-HEX HD, 1/2-20 X 2.00	1	1	1	1					1		1		1			1		1		1	10	85 LB-FT
T103	PIN-DOWEL, 1/2 X 1-1/2					1						1				1				1		4	-

NOTE:

1. HOLES 7, 8 AND 17 ARE BLIND HOLES THAT ARE TAPPED INTO THE CAP AND ARE NOT SHOWN.

**CASE CAP VARIATIONS
HARDWARE FOR MODELS TC20D, TC20E & TC20F**