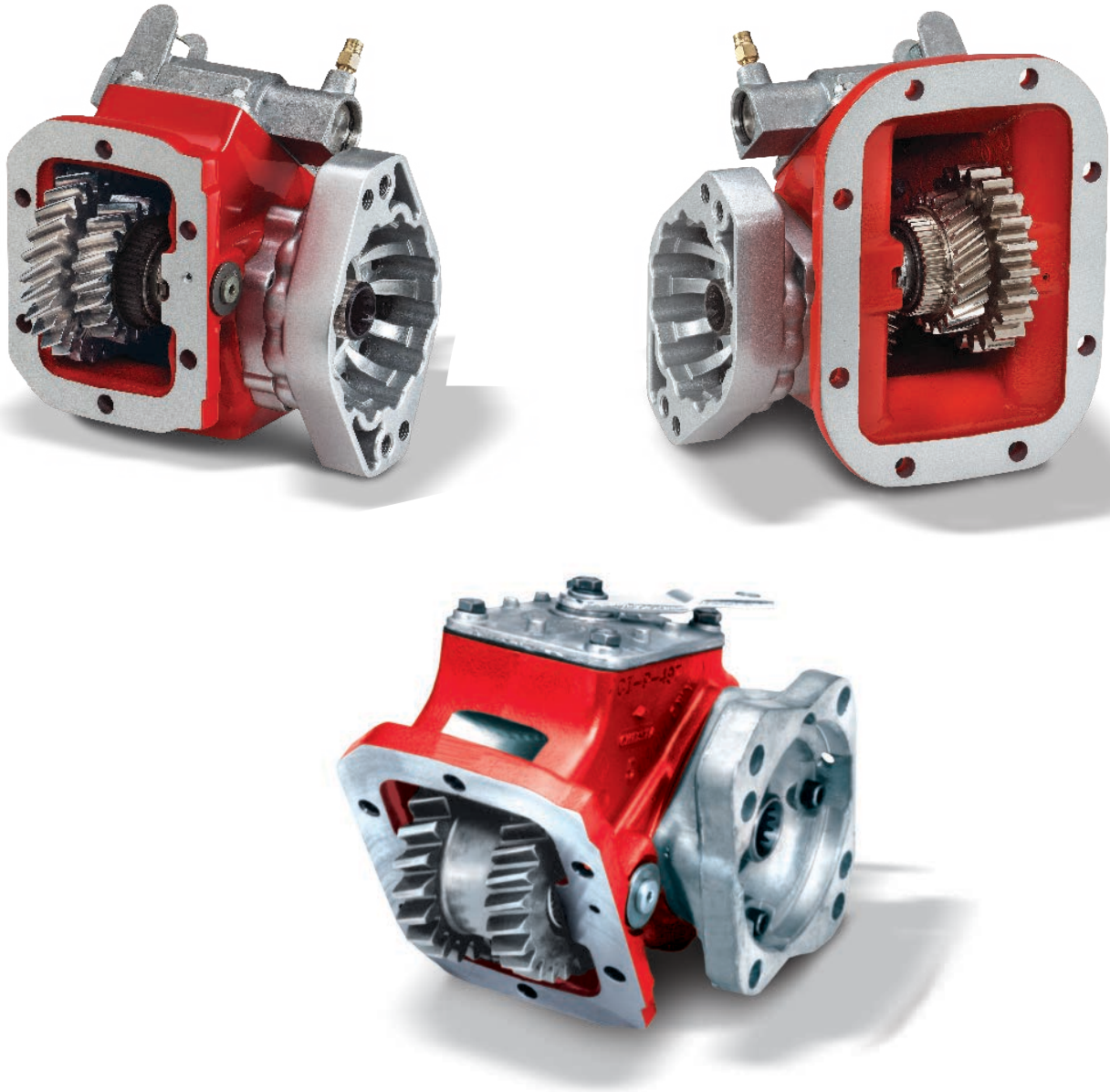


Effective: HY25-2442-M1/US September 15, 2024
Supersedes: HY25-2442-M1/US May 15, 2023



Power Take-Offs Parts List

442, 447 & 489 Series



WARNING – User Responsibility

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

Offer of Sale

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the "Offer of Sale".



WARNING: This product can expose you to chemicals including Lead and Lead Compounds, and Di(2-ethylhexyl)phthalate (DEHP) which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

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Model Number Designator

	4	4	2	X	Q	A	H	X	-	A	3	X	D
Basic Model	442												
Mounting Option													
♦ E = Eaton													
♦ G = Standard Mount w/ Metric Studs													
♦ K = Standard Mount w/o Stud Kit													
♦ L = Deep Mount w/o Stud Kit													
♦ Q = Eaton Procision™													
♦ X = Standard Mount													
♦ Z = Deep Mount													
Gear Ratio													
A = 14/39					Q = 19/24								
B = 14/39					R = 22/24								
C = 17/37					S = 24/22								
F = 21/37					U = 26/20								
H = 23/35					W = 26/17								
L = 25/34					X = 38/21								
Input Option													
Eaton, Mack, Tremac, Allison, Chelsea, Mercedes, Rockwell Transmissions													
NOTE: For more details, see Application Catalog (Transmission Model Number required)													
Lube Option													
P = Pressure Lube													
X = No Pressure Lube													
Shift Option													
¹ A = Air Shift													
C = Special Shift Control & Bracket Kit													
¹ D = 12VDC Elec/Air Eaton Procision™													
♦ E = Eaton Procision® Hydraulic Shift													
H = No Shift Assembly													
M = Constant Mesh													
¹ P = 12VDC Elec/Air Shift													
♦ Q = 24VDC Elec/Air Shift													
²¹ S = Air Shift w/ PTO/Dump Pump Combo Valve w/ Kick Out w/ Neutral Spring Return													
²¹ T = Air Shift w/ PTO/Dump Pump Combo Valve w/o Kick Out w/ Neutral Spring Return													
♦ ²¹ U = Air Shift w/ PTO/Dump Pump Combo Valve w/ Kick Out w/o Neutral Spring Return													
V = Air Shift w/o Installation Kit													
¹ W = Wire Shift													
X = Wire Shift w/o Cable													
♦ Y = Lever Shift													
♦ Z = 12VDC Elec Shift													
Assembly Arrangement													
3, 4, 5, 6													

¹ Includes mounting parts²¹ Includes installation kit, console sold separately⁵⁹ Same as XK except rotated 90°⁷⁹ Flooded Cavity

Output Option

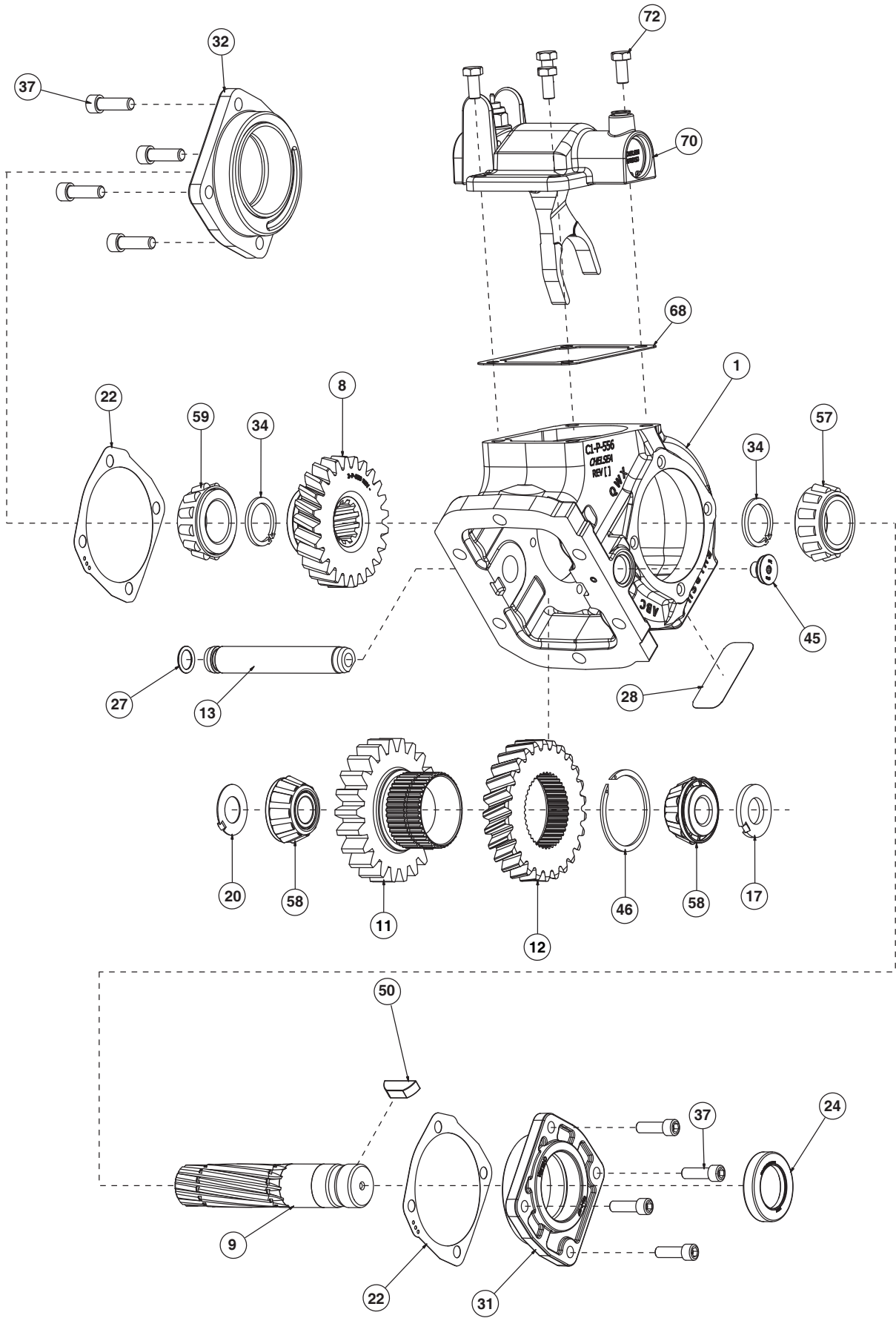
Driveline Output

- ♦ **XB** = Rd Standard Shaft (1-1/4" - 5/16" Key)
- XD** = Rd Standard Shaft (1-1/4" - 5/16" Key)
- XX** = 1-1/4" Tapered Output Shaft w/ Keyway

Pump Mount

- ♦ **AA** = Special Pump for England
- AF** = SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T)
- AK** = SAE B 2-Bolt Flange, SAE B Shaft (7/8" - 13T)
- AZ** = SAE B 4-Bolt Flange, SAE C Shaft (1-1/4" - 14T)
- ♦ **FF** = SAE B Pump Flange, SAE B Shaft (7/8" - 1/4" Key)
- GA** = Greaseable SAE B 2-Bolt Rotatable Flange, SAE B Shaft (7/8" - 13T)
- GB** = Greaseable SAE B 4-Bolt Rotatable Flange, SAE B Shaft (7/8" - 13T)
- ♦ **GE** = Greaseable SAE A 2 or 4-Bolt Flange, SAE A Shaft (5/8" - 9T)
- GF** = Greaseable SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T)
- GH** = Greaseable SAE B 2-Bolt Rotatable Flange, SAE BB Shaft (1" - 15T)
- ♦ **GJ** = Greaseable SAE B 4-Bolt Rotatable Flange, SAE BB Shaft (1" - 15T)
- GK** = Greaseable SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T)
- GL** = Greaseable SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T)
- ♦ **GP** = Greaseable Special SAE A Pilot & 2-Bolt Flange, SAE B Shaft
- ⁵⁹ **GQ** = Greaseable SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T)
- GR** = Greaseable Chelsea Special (Cloverleaf), SAE B Shaft (7/8" - 13T)
- GY** = Greaseable ISO 7653 Pump Mount DIN 5462 Shaft
- GZ** = Greaseable SAE B 2 or 4-Bolt Flange, SAE C Shaft (1-1/4" - 14T)
- ♦ **L*** = Self Lube
- RA** = Rotatable SAE B 2-Bolt Flange, SAE B Shaft (7/8" - 13T)
- RB** = Rotatable SAE B 4-Bolt Flange, SAE B Shaft (7/8" - 13T)
- RC** = Rotatable SAE A 2-Bolt Flange, SAE A Shaft (5/8" - 9T)
- RD** = Rotatable SAE A 2-Bolt Flange, SAE B Shaft (7/8" - 13T)
- RE** = Rotatable SAE B 4-Bolt Flange, SAE BB Shaft (1" - 15T)
- RF** = Rotatable SAE B 2-Bolt Flange, SAE BB Shaft (1" - 15T)
- ♦ **RH** = Rotatable SAE B 2-Bolt Flange, SAE BB Shaft (1" - 15T)
- RJ** = Rotatable SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T)
- RK** = Rotatable SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T)
- ⁷⁹ **RY** = Rotatable ISO 7653 Pump Mount DIN 5462 Shaft
- SQ** = SAE B 4-Bolt Flange, SAE B Shaft (7/8" - 13T)
- XE** = SAE A 2 or 4-Bolt Flange, SAE A Shaft (5/8" - 9T)
- ♦ **XG** = Non-Standard SAE Class A 2-Bolt Flange, Non-Standard Shaft (3/4" - 3/16" Key)
- ♦ **XJ** = Non-Standard SAE A 2-Bolt Flange, Non-Standard Shaft (3/4" - 3/16" Key)
- XK** = SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T)
- ♦ **XL** = Non-Standard SAE Class A 2-Bolt Flange, Non-Standard SAE B Shaft
- ♦ **XO** = Special SAE A Pilot & 2-Bolt Flange, Non-Standard Shaft (3/4" - 3/16" Key)
- ♦ **XP** = Special SAE A Pilot & 2-Bolt Flange, SAE Class B Shaft
- ⁵⁹ **XQ** = SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T)
- XR** = Chelsea Special (Cloverleaf), SAE B Shaft (7/8" - 13T)
- XY** = ISO 7653 Pump Mount DIN 5462 Shaft

♦ No longer a current option per Chelsea Suggested List Price.



Bill of Materials**Parts List
442 Series**

Item	Part Number	Description	Qty.
1	1-P-557X	Standard Mount Housing (X, G, K & *E) (Includes Item 23)	1
	1-P-558X	Deep Mount Housing (Z, L & Q) (Includes Item 23).....	1
8	See page 9	Output Gear	1
9	3-P-202	Standard Output Shaft (XD) (1.250" Rd .313" KW).....	1
	3-P-978	Output Shaft (XD for B Ratio Only)	1
	3-P-1011	Output Shaft (XB).....	1
N.S.	See page 15	Output Shaft (All Others)	1
11	See pages 6-8	Input Gear	1
12	See page 9	Ratio Gear	1
13	9-P-88	Standard Idler Shaft (X Lube Option)	1
	9-P-89	Pressure Idler Shaft (P Self Lube Option).....	1
17	14-P-73-1	Idler Gear Spacer (.149"-.151").....	A.R.
	14-P-73-2	Idler Gear Spacer (.152"-.154").....	A.R.
	14-P-73-3	Idler Gear Spacer (.155"-.157").....	A.R.
20	31-P-102	Bearing Thrust Washer (.754" x .440" x .030").....	1
22	22-P-127-1	Bearing Cap Gasket (.010")	A.R.
	22-P-127-2	Bearing Cap Gasket (.020")	A.R.
	22-P-127-3	Bearing Cap Gasket (.015")	A.R.
24	28-P-216	Oil Seal (2.004" x 1.250" x .374") (*XB & XD Output)	1
	28-P-219	Oil Seal (All Other Outputs).....	1
27	28-P-191	O-ring (.549" x .103").....	1
28	68-P-51-1	Adhesive Label	1
31	328273X	Open End Bearing Cap Assembly (XB & XD Output)	1
32	328274X	Close End Bearing Cap Assembly (All Outputs except L & G)	1
N.S.	See pages 48-60	Open and Close Bearing Cap Assembly (Other Outputs)	1
34	378391	Lockring (All other shifter types Except M)	2
37	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000") (Closed Cap Side)	4
	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000") (XB & XD Output)	4
45	379672	O-ring w/ Socket Face Plug (NWD Plug).....	1
46	379522	Lockring	1
50	500007-29	Woodruff Key (.312") (XD Output).....	1
	500007-24	Woodruff Key (.250") (XB Output).....	1
57	550397	Bearing Tapered Cone (1.250" x .812").....	1
58	550439	Bearing Tapered Cone (.750" x .859").....	2
59	550532	Bearing Tapered Cone (1.181" x .812").....	1
N.S.	4-P-178	Drive Shaft Spacer (Constant Mesh Shifter) (Type M Only).....	1
N.S.	4-P-177	Spacer (1.255" x .005" x .738") (Constant Mesh Shifter) (Type M Only)	1
N.S.	550890	Needle Roller Bearing (A, B & C Ratios Only)	1
N.S.	14-P-75	Input Bearing Spacer (A, B & C Ratios Only)	1
N.S.	561006	Tapered Bearing Cone (A, B & C Ratios Only)	1
68	35-P-8	Shifter Cover Spacer (A, B & C Ratio Only) Use (2) 35-P-8 Gaskets.....	1
	5-A-188	Shifter Cover Gasket (All Other Ratios).....	1
N.S. – Not Shown A.R. – As Required			Continued on Next Page

* No longer a current option per Chelsea Suggested List Price.

Bill of Materials**Parts List
442 Series**

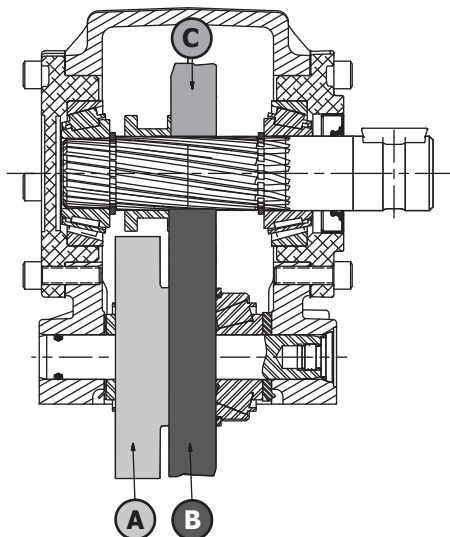
Item	Part Number	Description	Qty.
		SHIFTER COVER ASSEMBLIES	
70	See page 12	Air Shifter.....	1 or
N.S.	See page 13	Lever Shifter	1
N.S.	34-P-39	Constant Mesh Shifter Cover Plate	1
72	378430-9	Hex Head Cap Screw (.312"-18 x .875") (Wire, Electric & Air Shift)	4
	378430-10	Hex Head Cap Screw (.312"-18 x 1.000") (Wire Shift A, B & C Ratio)	4
	378430-6	Hex Head Cap Screw (.312"-18 x .625") (Constant Mesh)	4
N.S.	379814	Warning Label (A & C Ratio).....	1
N.S.	379989	Warning Label (B Ratio)	1
N.S.	379640	Booted Connector (V Shifter Only)	1
N.S.	378414	Pressure Protection Valve (V Shifter Only).....	1
	See pages 68-84 for Bill of Materials for the below loose parts.		
		GASKET KITS	
	328948-6X	Gasket and Installation Instructions.....	1
	328356-67X	Gasket and Seal Kit	
		STUD KITS	
	328170-76X	Standard Stud Kit.....	1
	328170-77X	Deep Mount Stud Kit	1
	7170-72X	Metric Stud Kit.....	1
		INSTALLATION KIT	
	328751-1X	Installation Kit (C, H, W, X, Y)	1
		AIR SHIFT INSTALLATION KITS	
	328388-47X	12VDC Electric Over Air Installation Kit (P Shifter)	
	328388-48X	24VDC Electric Over Air Installation Kit (Q Shifter)	
	328388-65X	Air Shift Installation Kit (S Shifter)	
	328388-72X	Air Shift Installation Kit (T Shifter)	
	328388-98X	Air Shift Installation Kit (A Shifter)	
	329874X	12VDC Elec/Air Kit - Eaton Procision™ (D Shifter)	
		HYDRAULIC INSTALLATION KITS	
	329874-1X	Hydraulic Shift Kit - Eaton Procision™ (E Shifter)	
		SHIFTER KITS	
	329106-39X	Shifter Kit (Air Shift) (3 & 6 Assembly)	
	329106-43X	Shifter Kit (Air Shift) (12VDC Elec/Air)	
	329106-45X	Shifter Kit (Air Shift) (24VDC Elec/Air)	
	329106-105X	Shifter Kit (Wire Control) (3 & 6 Assembly) (Q, W, X Ratio W)	
	329106-106X	Shifter Kit (Wire Control) (4 & 5 Assembly) (Q, W, X Ratio W)	
	329106-107X	Shifter Kit (Wire Control) (3 & 6 Assembly) (Q, W, X Ratio X)	
	329106-108X	Shifter Kit (Wire Control) (4 & 5 Assembly) (Q, W, X Ratio X)	
	329106-109X	Shifter Kit (Wire Control) (3 & 6 Assembly) (F, L, R, S, U Ratio W)	
	329106-110X	Shifter Kit (Wire Control) (4 & 5 Assembly) (F, L, R, S, U Ratio W)	
	329106-111X	Shifter Kit (Wire Control) (3 & 6 Assembly) (F, L, R, S, U Ratio X)	
N.S. – Not Shown			Continued on Next Page

Bill of Materials**Parts List
442 Series**

Item	Part Number	Description	Qty
	See pages 68-84 for Bill of Materials for the below loose parts.		
		SHIFTER KITS (Continued)	
	329106-112X	Shifter Kit (Wire Control) (4 & 5 Assembly) (F, L, R, S, U Ratio XW)	
	329106-143X	Shifter Kit (Wire Control) (3 & 6 Assembly) (A, B, C Ratio W)	
	329106-144X	Shifter Kit (Wire Control) (4 & 5 Assembly) (A, B, C Ratio W)	
	329106-145X	Shifter Kit (Wire Control) (3 & 6 Assembly) (A, B, C Ratio X)	
	329106-146X	Shifter Kit (Wire Control) (4 & 5 Assembly) (A, B, C Ratio X)	
	329106-153X	Shifter Kit (Air Shift) (V Option)	
	328346-10X	Wire Control Cable	1
	328380X	Wire Control Parts Bag (W Shifter)	1
	329245X	Wire Control Bracket Kit	1
	329896X	Electrical Wiring Kit (**LP & **LQ Only)	1
		SERVICE KITS	
	328356-15X	Shifter Cover Seal Kit (Wire Control)	
	328356-26X	Shifter Cover Seal Kit	
	328356-69X	Shifter Cover Seal Kit (Wire Control) (A, B, & C Ratio)	
	328356-71X	Shifter Cover Seal Kit (Air Shift)	
	328594-13X	Bearing and Spacer Kit (Non-Pressure Lube)	
	328594-14X	Bearing and Spacer Kit (Pressure Lube)	
	328594-15X	Bearing and Spacer Kit (Non-Pressure Lube) (A, B, & C Ratio)	
	328594-16X	Bearing and Spacer Kit (Pressure Lube) (A, B, & C Ratio)	
	329202X	Indicator Switch Connector Service Kit	
		HOSE ASSEMBLIES	
	328075X	Pressure Lube Hose (HVP Only)	1
	329876X	Pressure Lube Kit (**LP & **LQ Only)	1
		SERVICE CONVERSION KITS	
	328390-117X	Air Shift Field Conversion Kit (Lever or Wire to Air)	
	328390-119X	Air Shift Field Conversion Kit (Lever or Wire to 12VDC Air)	
	328390-120X	Air Shift Field Conversion Kit (Lever or Wire to 24VDC Air)	
	* 328390-138X	Electric Shift Field Conversion Kit (Wire to 12VDC) (3 & 6 Assembly)	
	* 328390-139X	Electric Shift Field Conversion Kit (Wire to 12VDC) (3 & 4 Assembly)	
	* 328390-140X	Electric Shift Field Conversion Kit (Lever 12VDC)	
	329143X	Field Conversion Kit (Shifter Shaft)	
	329260X	Conversion Kit (440 to 442 Series)	
	329261X	Conversion Kit (440 Deep Mount to 442 Deep Mount)	
		OUTPUT CONVERSION KITS	
	See pages 76-84	Output Conversion Kits Bill of Materials	

* No longer a current option per Chelsea Suggested List Price.

Gear Chart



GEAR DESIGNATOR	INPUT GEAR	NO. TEETH A (11)	HELIX ANGLE	NO. TEETH B
♦ 442**AB	5-P-1001	19	SPUR	
♦ 442**AC	5-P-1002	19	SPUR	
♦ 442**AG	5-P-1003	22	SPUR	
♦ 442**AH	5-P-1004	22	SPUR	
♦ 442**AL	5-P-1005	22	SPUR	
♦ 442**AP	5-P-1006	21	Left Hand	
♦ 442**AQ	5-P-1007	21	Left Hand	
442**AR	5-P-1008	21	Left Hand	
♦ 442**AW	5-P-1009	22	Left Hand	
♦ 442**AX	5-P-1010	22	Left Hand	
♦ 442**BA	5-P-1011	23	Left Hand	
♦ 442**BC	5-P-1012	18	Left Hand	
♦ 442**BE	5-P-1013	27	SPUR	
442**BG	5-P-1015	23	Left Hand	
♦ 442**BH	5-P-1016	25	Right Hand	
♦ 442**BJ	5-P-1017	25	Left Hand	
♦ 442**BK	5-P-1018	23	Left Hand	
♦ 442**BL	5-P-1019	22	Right Hand	
♦ 442**BM	5-P-1020	22	Left Hand	
♦ 442**BN	5-P-1021	22	Left Hand	
♦ 442**BP	5-P-1022	26	Right Hand	
442**BQ	5-P-1023	25	Left Hand	
♦ 442**BR	5-P-1024	26	Right Hand	
♦ 442**BS	5-P-1025	26	Left Hand	
♦ 442**BU	5-P-1026	33	SPUR	
♦ 442**BY	5-P-1027	26	Right Hand	
♦ 442**BZ	5-P-1028	26	Left Hand	
♦ 442**CB	5-P-1029	25	Left Hand	
♦ 442**CD	5-P-1031	27	Left Hand	
♦ 442**CM	5-P-1035	22	SPUR	
♦ 442**CR	5-P-1036	17	Left Hand	

♦ No longer a current option per Chelsea Suggested List Price.

Gear Chart (Continued)

GEAR DESIGNATOR	INPUT GEAR	NO. TEETH A (11)	HELIX ANGLE	NO. TEETH B
442**DA	5-P-1037	23	SPUR	
*442**DB	5-P-1038	39	SPUR	
*442**DC	5-P-1039	19	SPUR	
*442**DD	5-P-1040	20	SPUR	
*442**DH	5-P-1041	21	Left Hand	
*442**DJ	5-P-1042	28	Left Hand	
*442**DK	5-P-1043	26	Left Hand	
*442**DM	5-P-1045	17	Left Hand	
*442**DN	5-P-1046	19	Left Hand	
*442**DP	5-P-1047	27	Left Hand	
*442**DQ	5-P-1048	20	Left Hand	
442**DU	5-P-1050	28	Left Hand	
*442**DX	5-P-1052	26	Left Hand	
*442**DY	5-P-1053	16	Left Hand	
*442**EA	5-P-1054	26	Left Hand	
*442**EC	5-P-1055	36	Left Hand	
*442**ED	5-P-1056	34	Left Hand	
*442**EL	5-P-1075	30	Right Hand	
*442**EP	5-P-1057	35	Right Hand	
*442**EQ	5-P-1058	30	Left Hand	
442**ES	5-P-1059	22	Left Hand	
442**EV	5-P-1060	40	SPUR	
442**EW	5-P-1061	20	Left Hand	
*442**FB	5-P-1063	25	Left Hand	
*442**FC	5-P-1064	26	Left Hand	
*442**FE	5-P-1065	29	Left Hand	
*442**FF	5-P-1066	32	Left Hand	
*442**FK	5-P-1067	21	Left Hand	
*442**FL	5-P-1068	25	Left Hand	
*442**FM	5-P-1069	28	SPUR	
442**FN	5-P-1070	26	Left Hand	
*442**FP	5-P-1071	23	Left Hand	
*442**FQ	5-P-1072	21	Left Hand	
*442**FW	5-P-1098	28	Left Hand	
*442**GQ	5-P-1150	26	Left Hand	
442**GS	5-P-1152	29	Left Hand	
442**GR	5-P-1157	23	SPUR	
442**GZ	5-P-1185	22	Right Hand	
442**HH	5-P-1193	28	Right Hand	
442**HL	5-P-1196	22	Right Hand	
442**HQ	5-P-1200	29	Right Hand	
*442**HW	5-P-1235	35	SPUR	
*442**HX	5-P-1236	32	SPUR	
442**HY	5-P-1237	26	Left Hand	
*442**JA	5-P-1243	27	Left Hand	
*442**JD	5-P-1248	20	Left Hand	
442**JE	5-P-1249	20	Right Hand	
442**JG	5-P-1256	28	Left Hand	
442**JH	5-P-1257	29	Left Hand	
442**JK	5-P-1261	24	Left Hand	
*442**JM	5-P-1263	22	Left Hand	
*442**JP	5-P-1268	33	Left Hand	
*442**JS	5-P-1310	20	Left Hand	
*442**JT	5-P-1313	19	Left Hand	
442**JU	5-P-1316	25	Left Hand	
442**JW	5-P-1319	23	Left Hand	

* No longer a current option per Chelsea Suggested List Price.

Gear Ratio Options**Parts List
442 Series****Gear Chart (Continued)**

GEAR DESIGNATOR	INPUT GEAR	NO. TEETH A (11)	HELIX ANGLE	NO. TEETH B
*442**KC	5-P-1341	41	Left Hand	
442**KH	5-P-1343	32	Left Hand	
*442**KJ	5-P-1405	33	Left Hand	
*442**KL	5-P-1407	29	Left Hand	
*442**KN	5-P-1383	27	Left Hand	
*442**KX	5-P-1411	26	Left Hand	
442**LP	5-P-1459	15	Right Hand	
442**LQ	5-P-1460	29	Left Hand	
*442**LV	5-P-1526	24	Left Hand	
442**IT	Assembled Without Input Gear			
*442*AAB	5-P-1279	19	SPUR	14
442*AAH	5-P-1280	22	SPUR	14
*442*AAP	5-P-1282	21	Left Hand	14
442*AAR	5-P-1283	21	Left Hand	14
442*ADA	5-P-1284	23	SPUR	14
442*AES	5-P-1285	22	Left Hand	14
*442*AJA	5-P-1366	27	Left Hand	14
442*BHV	5-P-1358	24	SPUR	14
442*BAH	5-P-1418	22	SPUR	14
*442*CAB	5-P-1286	19	SPUR	17
442*CAH	5-P-1287	22	SPUR	17
*442*CJA	5-P-1368	27	Left Hand	17
*442*CAP	5-P-1289	21	Left Hand	17
442*CAR	5-P-1290	21	Left Hand	17
442*CDA	5-P-1291	23	SPUR	17
*442*CES	5-P-1292	22	Left Hand	17
*442*FAB	5-P-1076	19	SPUR	21
442*FAH	5-P-1077	22	SPUR	21
*442*FAP	5-P-1079	21	Left Hand	21
442*FAR	5-P-1080	21	Left Hand	21
442*FBC	5-P-1081	18	Left Hand	21
442*FBG	5-P-1082	23	Left Hand	21
*442*FBM	5-P-1083	22	Left Hand	21
442*FBQ	5-P-1084	25	Left Hand	21
442*FDA	5-P-1085	23	SPUR	21
*442*FDJ	5-P-1086	28	Left Hand	21
*442*FDN	5-P-1087	19	Left Hand	21
442*FDU	5-P-1088	28	Left Hand	21
*442*FEC	5-P-1089	36	Left Hand	21
*442*FED	5-P-1090	34	Left Hand	21
*442*FEP	5-P-1091	35	Right Hand	21
442*FES	5-P-1092	22	Left Hand	21
*442*FET	5-P-1093	19	Left Hand	21
442*FEV	5-P-1094	40	SPUR	21
442*FEW	5-P-1095	20	Left Hand	21
*442*FFE	5-P-1096	29	Left Hand	21
442*FFN	5-P-1097	26	Left Hand	21
*442*FGQ	5-P-1149	26	Left Hand	21
442*FGS	5-P-1151	29	Left Hand	21
442*FHV	5-P-1300	24	SPUR	21
*442*FJS	5-P-1311	20	Left Hand	21
*442*FJT	5-P-1314	19	Left Hand	21
442*FJU	5-P-1317	25	Left Hand	21
442*FJW	5-P-1320	23	Left Hand	21
*442*FJA	5-P-1340	27	Left Hand	21
442*HAH	5-P-1364	22	SPUR	23
442*HDA	5-P-1365	23	SPUR	23
*442*HJA	5-P-1342	27	Left Hand	23

* No longer a current option per Chelsea Suggested List Price.

Input Ratio Gear Chart

GEAR DESIGNATOR	INPUT RATIO GEAR	NO. TEETH B (12)
442*L	5-P-964	25
442*Q	5-P-965	19
442*R	5-P-1214	22
442*S	5-P-966	24
442*U	5-P-967	26
442*W	5-P-968	26
442*X	5-P-969	38

Output Gear Chart

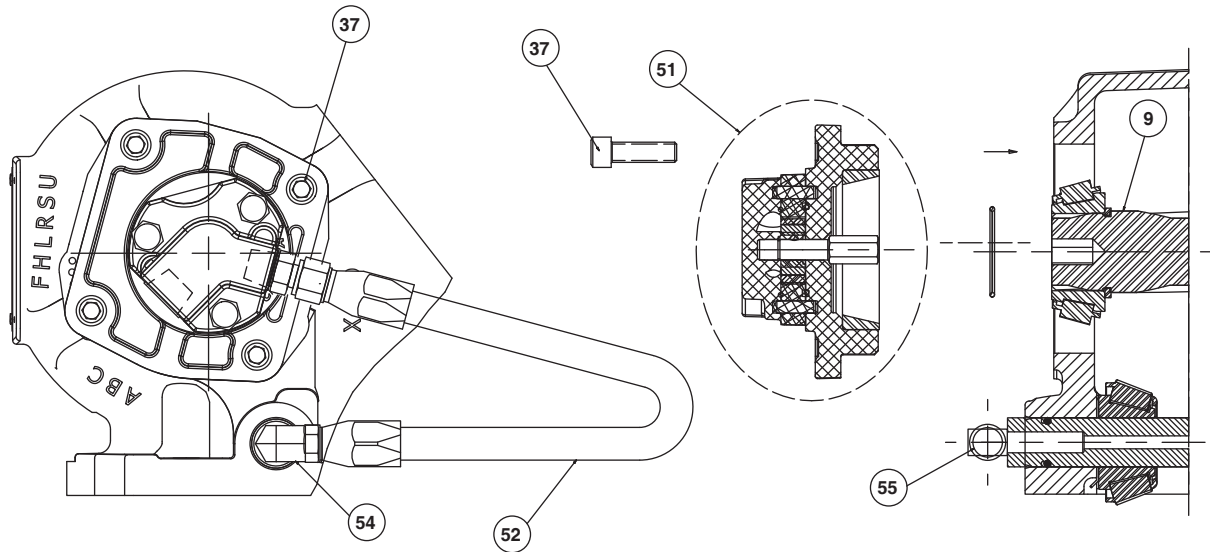
GEAR DESIGNATOR	OUTPUT GEAR	NO. TEETH C (8)
442*A	2-P-791	39
442*B	2-P-833	39
442*C	2-P-792	37
442*F	2-P-726	37
442*H	2-P-802	35
442*L	2-P-727	34
442*Q	2-P-559	24
442*R	2-P-559	24
442*S	2-P-637	22
442*U	2-P-560	20
442*W	2-P-561	17
442*X	2-P-728	21

Geared Adapter Gears

Model Number	Part Number	Helix Angle	No. Teeth	Adapter Input Gear	Part Number	Helix Angle	No. Teeth
442**GX	5-P-1183	Right Hand	21	AP	5-P-1006	Left Hand	21
442**GY	5-P-1184	Right Hand	21	AR	5-P-1008	Left Hand	21
442**GZ	5-P-1185	Right Hand	22	AW	5-P-1009	Left Hand	22
442**HA	5-P-1186	Left Hand	22	AX	5-P-1010	Right Hand	22
442**HB	5-P-1187	Right Hand	23	BG	5-P-1015	Left Hand	23
442**HC	5-P-1188	Right Hand	22	BM	5-P-1020	Left Hand	22
442**HD	5-P-1189	Right Hand	25	CB	5-P-1029	Left Hand	25
442**HE	5-P-1190	Right Hand	27	CD	5-P-1031	Left Hand	27
442**HF	5-P-1191	Right Hand	17	DM	5-P-1045	Left Hand	17
442**HG	5-P-1192	Right Hand	19	DN	5-P-1046	Left Hand	19
442**HH	5-P-1193	Right Hand	28	DU	5-P-1050	Left Hand	28
442**HJ	5-P-1194	Right Hand	36	EC	5-P-1055	Left Hand	36
442**HK	5-P-1195	Right Hand	34	ED	5-P-1056	Left Hand	34
442**HL	5-P-1196	Right Hand	22	ES	5-P-1059	Left Hand	22
442**HM	5-P-1197	Right Hand	20	EW	5-P-1061	Left Hand	20
442**HP	5-P-1199	Right Hand	26	FC	5-P-1064	Left Hand	26
442**HQ	5-P-1200	Right Hand	29	FE	5-P-1065	Left Hand	29
442**HR	5-P-1201	Right Hand	26	FN	5-P-1070	Left Hand	26
442**JB	5-P-1244	Right Hand	26	HY	5-P-1237	Left Hand	26
442**JC	5-P-1247	Right Hand	27	DJA	5-P-1243	Left Hand	27
442**JE	5-P-1249	Right Hand	20	JD	5-P-1248	Left Hand	20
442**JL	5-P-1262	Right Hand	24	JK	5-P-1261	Left Hand	24
442**JN	5-P-1264	Right Hand	22	JM	5-P-1263	Left Hand	22
442**JQ	5-P-1269	Right Hand	33	JP	5-P-1268	Left Hand	33
442**JY	5-P-1312	Right Hand	20	JS	5-P-1310	Left Hand	20
442**KA	5-P-1318	Right Hand	25	JU	5-P-1316	Left Hand	25
442**KB	5-P-1321	Right Hand	23	JW	5-P-1319	Left Hand	23
442**KK	5-P-1406	Right Hand	33	KJ	5-P-1405	Left Hand	33
442**KM	5-P-1408	Right Hand	29	KL	5-P-1407	Left Hand	29
442**KP	5-P-1384	Right Hand	27	KN	5-P-1383	Left Hand	27
442**KY	5-P-1412	Right Hand	26	KX	5-P-1411	Left Hand	26

Self Lube Parts

NOTE: Pump must rotate in direction of arrow



NOTE: Install Street Elbow into idler shaft before installing idler shaft

Pump assembly as shown is for Q, W and X Ratios.
Rotate as needed for A, C, F, H, L, R, S and U Ratios.

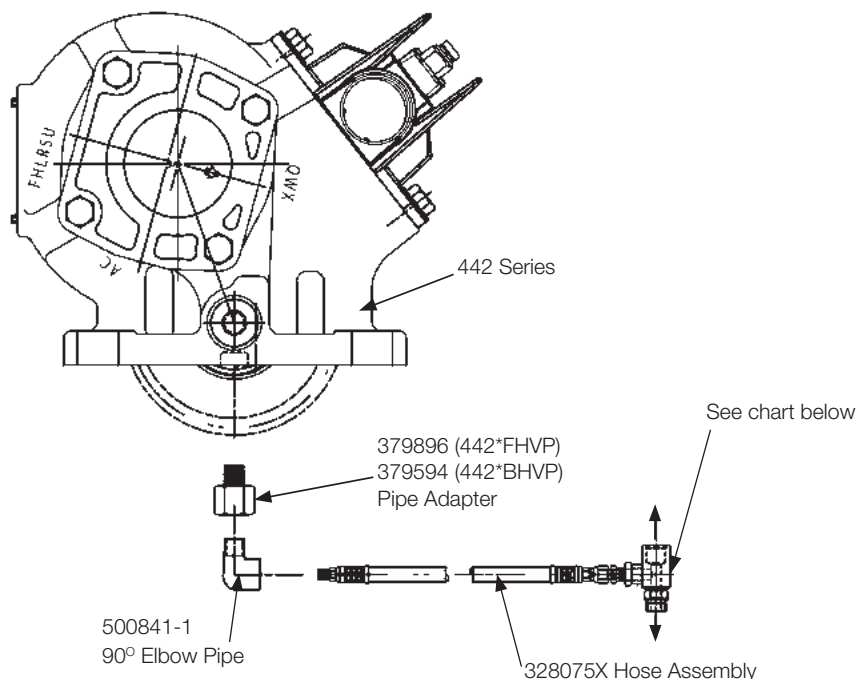
Item	Part Number	Description	Qty.
37	378447-6	Socket Head Cap Screw (.312"-18 x 1.000").....	4
9	3-P-857	Output Shaft (*LD Output)	1 or
	3-P-858	Output Shaft (*LA, *LB, *LC, *LE, *LF Output)	1
51	329091X	Lube Pump & Bearing Cap Assembly	1
52	329092X	Pressure Lube Hose Assembly	1
54	500841-1	90° Street Elbow	1
55	500897-3	Shipping Plug	1

See pages 68-84 for Kit Bill of Materials

♦ No longer a current option per Chelsea Suggested List Price.

Pressure Lube for Allison 1000, 2000/2400 Series 442 Series

(SK-382 Rev B)



Pressure Lube Hose Connection

Chart I

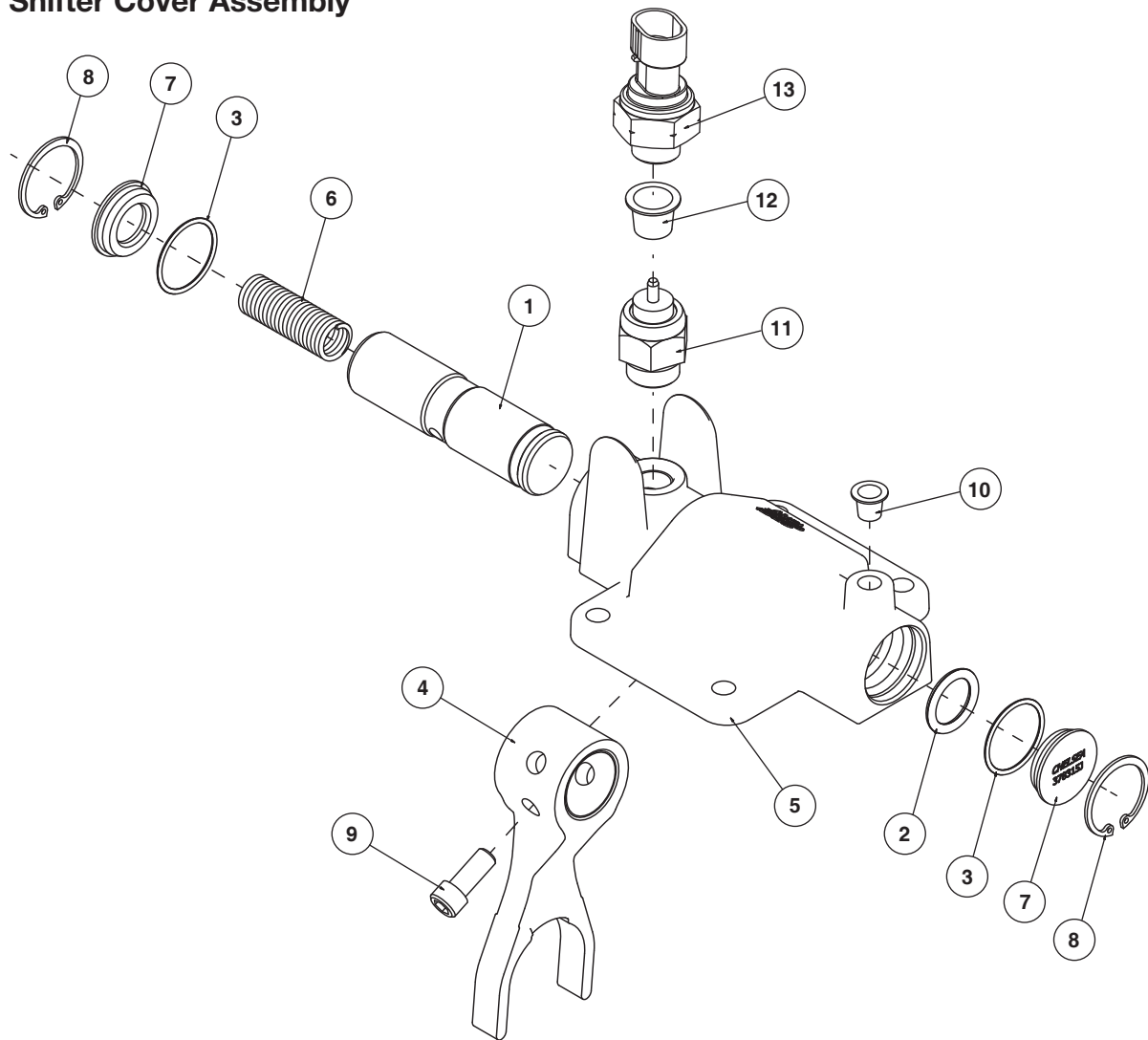
Dimensional Information				
TEE FITTING	378840	378880	378970	378897
D	.750"-16 UNF 2A	.875"-14 UNF 2A	1.062"-12 UNF 2A	1.312"-12 UN 2A
E	.250"-18 NPTF	.250"-18 NPTF	.250"-18 NPTF	.250"-18 NPTF
F	.750"-16 NPTF	.875"-14 UNF 2NB	1.062"-12 UNF 2B	1.312"-12 UN 2B

Allison 1000, 2000/2400 Series Converter Housing Options

Converter Housing Group Number	SAE Number	Description	1000	2000	2400	Chelsea Fitting
34-561	#3	Integral Cooler Ports	STD.	—	—	378840
34-562	#2	Manifold Pad	OPT.	STD.	STD.	378970
34-563	#3	Manifold Pad	OPT.	STD.	STD.	378970
34-565	#3	Integral Cooler Ports	STD.	—	—	378840
34-566	#2	Manifold Pad	OPT.	STD.	STD.	378970
34-567	#2	Manifold Pad	OPT.	STD.	STD.	378970
34-572	#3	Integral Cooler Ports	STD.	—	—	378840
34-573	#3	Integral Cooler Ports	STD.	—	—	378840

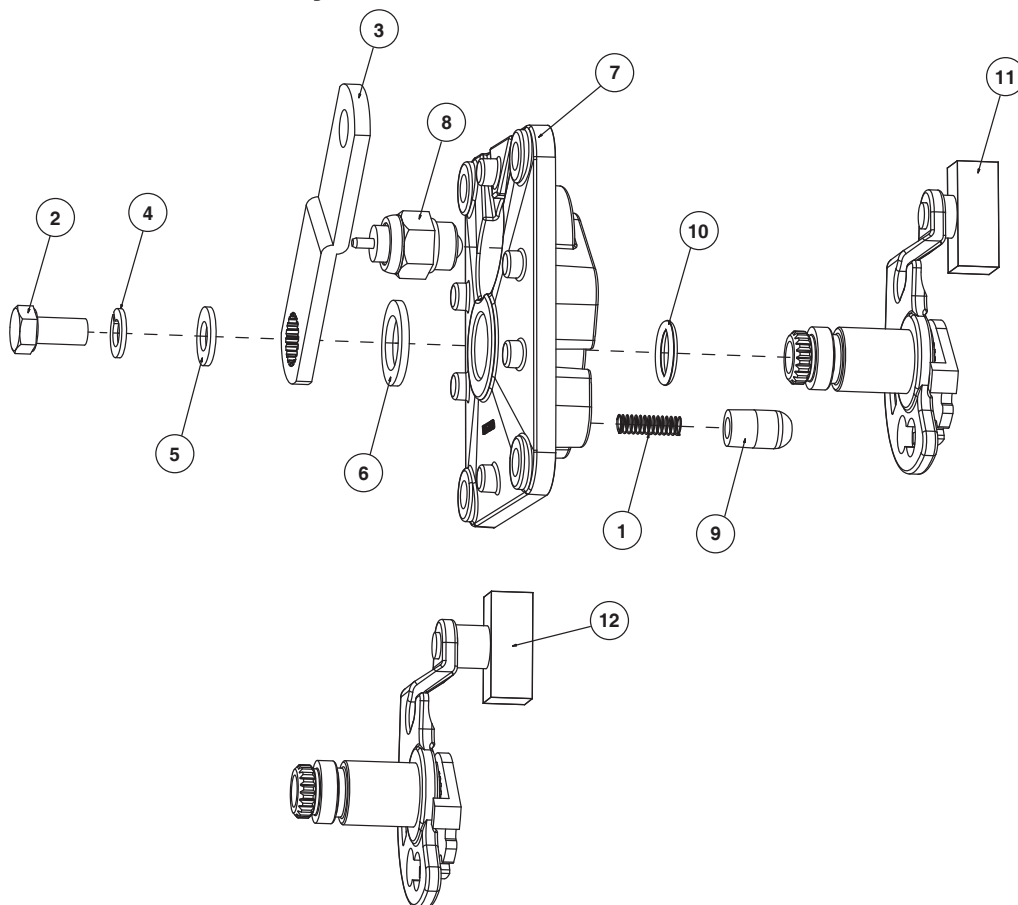
The specific T fitting for each Automatic Transmission is called out at the bottom of each transmission's application sheet. If a T fitting is not called out, then a standard pipe tee will adapt.

Air Shifter Cover Assembly



Item	Part Number	Description	Qty.
70	329361X	Air Shifter Cover Assembly (A Shift) (Includes item 1-11)	1 or
	329361-1X	Air Shifter Cover Assembly (E Shift) (Includes item 1-10 & 12)	1 or
	329361-2X	Air Shifter Cover Assembly (D Shift) (Includes item 1-10 & 13)	1
1	11-P-75	Shifter Shaft.....	1
2	28-P-41	O-ring (.734" x .141").....	1
3	28-P-42	O-ring (1.051" x .070").....	2
4	32-P-180	Shifter Fork.....	1
5	34-P-130	Shifter Cover	1
6	37-P-21	Shifter Spring	1
7	378315	Cover Plug	2
8	378316	Internal Locking.....	2
9	378447-4	1/4" Socket Hex Head Cap Screw (w/ lockpatch) (.312"-18 x .750")	1
10	500897-5	Shipping Plug	1
11	380515	Indicator Switch (329361X).....	1 or
12	500897-10	Shipping Plug (329361-1X).....	1 or
13	379990	Indicator Switch (329361-2X).....	1
AIR SHIFT CONVERSION KITS			
	328390-117X	Lever or Cable to Air.....	1
	328390-119X	12VDC Lever or Cable to Electric/Air	1
	328390-120X	24VDC Lever or Cable to Electric/Air	1

See pages 68-84 for Kit Bill of Materials

Lever Control Shifter Cover Assembly

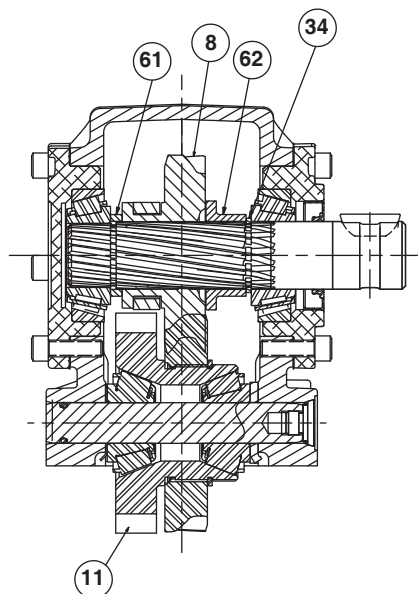
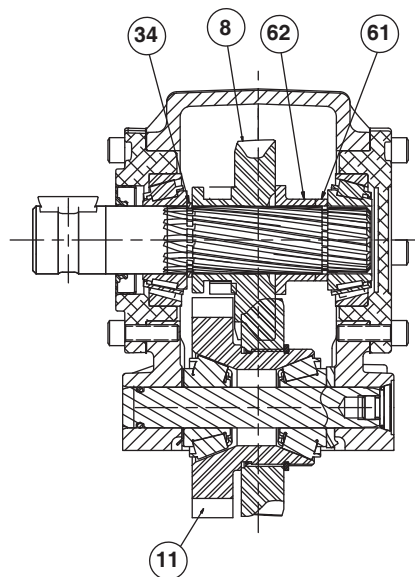
Item	Part Number	Description	Qty.
	329119-1X	Ratios Q, W & X	
	329119-2X	Lever Shifter Cover Assembly (Assembly 3 & 6) (Includes item 1-11).....	1 or
		Lever Shifter Cover Assembly (Assembly 4 & 5) (Includes item 1-11).....	1 or
	329121-1X	Ratios F, H, L, R, S & U	
	329121-2X	Lever Shifter Cover Assembly (Assembly 3 & 6) (Includes item 1-10 & 12)	1 or
		Lever Shifter Cover Assembly (Assembly 4 & 5) (Includes item 1-10 & 12)	1 or
	329271-1X	Ratios A & C	
	329271-2X	Lever Shifter Cover Assembly (Assembly 3 & 6) (Includes item 1-10 & 13)	1 or
		Lever Shifter Cover Assembly (Assembly 4 & 5) (Includes item 1-10 & 13)	1
1	37-P-19	Spring (.220" x 1.188")	1
2	500409-6	Hex Head Cap Screw (.312"-24 x .625")	1
3	51-P-22	Shifter Lever	1
4	500356-10	Lock Washer (.575" x .319" x .056")	1
5	500365-22	Flat Washer (.688" x .344" x .065")	1
6	378004	Flat Washer (.641" x 1.000" x .097")	1
7	34-P-74	Shifter Cover	1
8	380515	Indicator Switch.....	1
9	63-P-16	Shifter Poppet	1
10	28-P-191	O-ring (.549" x .103").....	1
11	329118-1X	Shifter Plate Assembly (329119-1X).....	1 or
	329118-2X	Shifter Plate Assembly (329119-2X).....	1 or
12	329120-1X	Shifter Plate Assembly (329121-1X).....	1 or
	329120-2X	Shifter Plate Assembly (329121-2X).....	1 or
13	329265-1X	Shifter Plate Assembly (329271-1X).....	1 or
	329265-2X	Shifter Plate Assembly (329271-2X).....	1

See pages 68-84 for Kit Bill of Materials

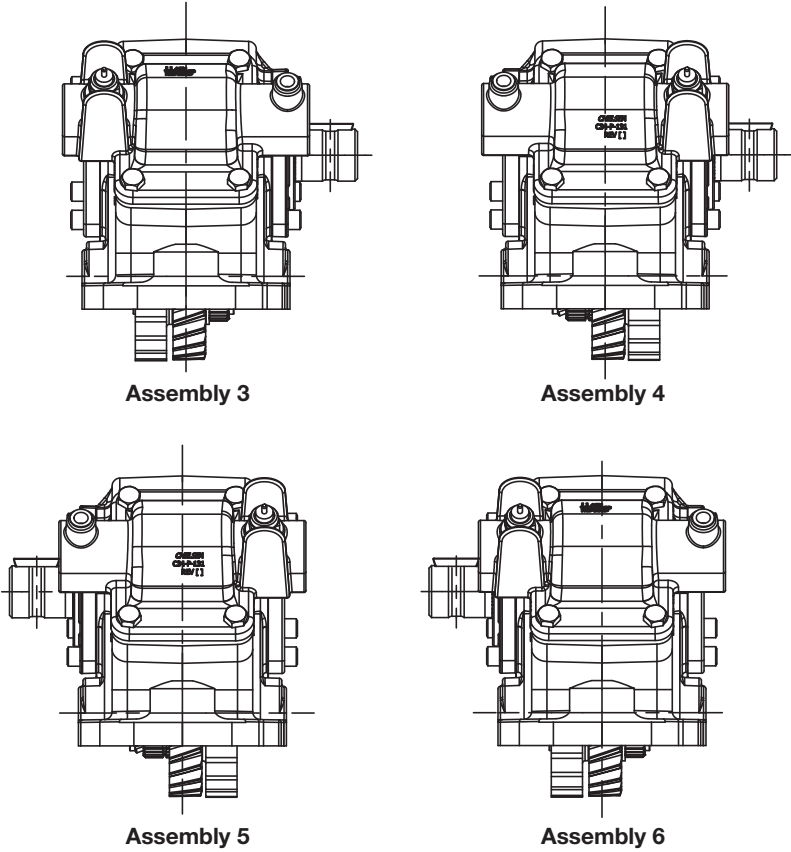
Shifter Kits

For PTO's ordered without the shifter (Shifter Type H), the kits shown below will provide all the components required to complete the assembly.

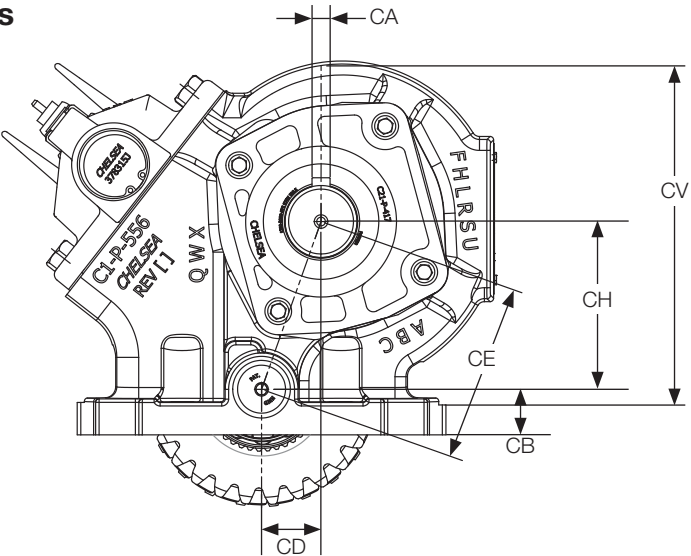
Part Number	Description	Qty.
329106-39X	Shifter Kit (Air Shift, A Shift Option)	1
329106-43X	Shifter Kit (Air Shift, P Shift Option)	1
329106-45X	Shifter Kit (Air Shift, Q Shift Option)	1
329106-105X	Shifter Kit (Wire Control 3 & 6, Q, W, X Ratio; W Shift Option)	1
329106-106X	Shifter Kit (Wire Control 4 & 5, Q, W, X Ratio; W Shift Option)	1
329106-107X	Shifter Kit (Wire Control 3 & 6, Q, W, X Ratio; X Shift Option)	1
329106-108X	Shifter Kit (Wire Control 4 & 5, Q, W, X Ratio; X Shift Option)	1
329106-109X	Shifter Kit (Wire Control 3 & 6, F, L, R, S, U Ratio; W Shift Option)	1
329106-110X	Shifter Kit (Wire Control 4 & 5, F, L, R, S, U Ratio; W Shift Option)	1
329106-111X	Shifter Kit (Wire Control 3 & 6, F, L, R, S, U Ratio; X Shift Option)	1
329106-112X	Shifter Kit (Wire Control 4 & 5, F, L, R, S, U Ratio; X Shift Option)	1
329106-135X	Constant Mesh Kit.....	1
329106-143X	Shifter Kit (Wire Control 3 & 6, A, B & C Ratio; W Shift Option)	1
329106-144X	Shifter Kit (Wire Control 4 & 5, A, B & C Ratio; W Shift Option)	1
329106-145X	Shifter Kit (Wire Control 3 & 6, A, B & C Ratio; X Shift Option).....	1
329106-146X	Shifter Kit (Wire Control 4 & 5, A, B & C Ratio; X Shift Option).....	1
329106-153X	Shifter Kit (V Shift Option)	1
329143X	Field Conversion Kit (Shifter Shaft)	1
See pages 68-84 for Kit Bill of Materials		

Constant Mesh Parts (M Designator)**Assembly 3 & 5****Assembly 4 & 6**

Item	Part Number	Description	Qty.
8	See page 9	Output Gear	1
11	See pages 6-9	Input Gear	1
34	378391	Lockring (Shifter Type M)	1
61	4-P-178	Drive Shaft Spacer.....	1
62	4-P-177	Drive Shaft Spacer.....	1
N.S.	34-P-39	Shifter Cover Plate.....	1
N.S.	35-P-8	Shifter Cover Gasket	1
N.S.	378430-6	1/2" Hex Head Cap Screw (.312"-18 x .625").....	4
N.S. – Not Shown			



PTO Housing Dimensions

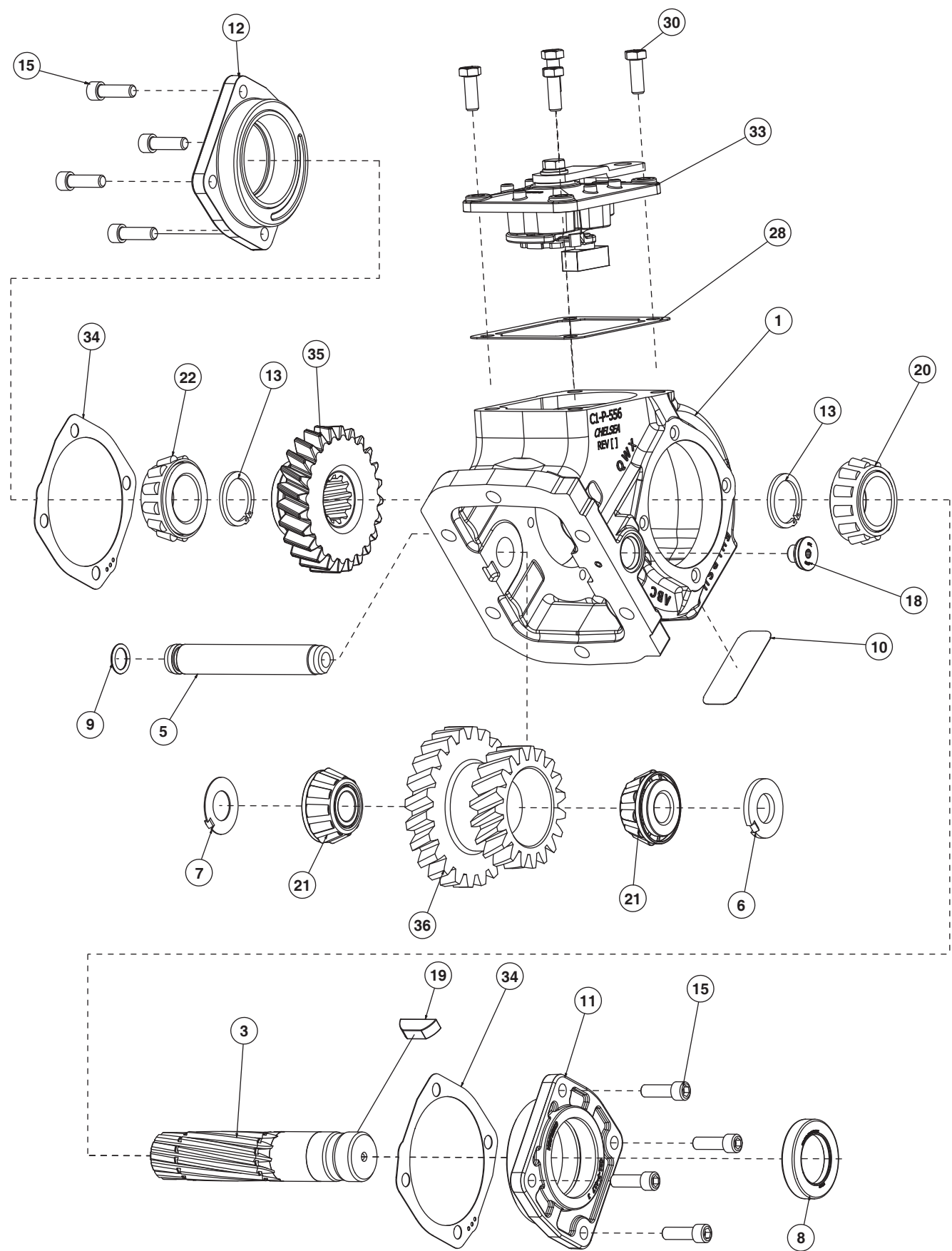


PTO Series	Part Number	CA	CB	CD	CE	CH	CV
442	1-P-557X (X Mount)	0.312" (XD)	.789"-.795" (X Mount)	1.401" (F, H, L, R, S, U)	3.317" (F, H, L, R, S, U)	3.007" (F, H, L, R, S, U)	6.428" (X Mount)
	1-P-558X (Z Mount)	0.250" (XB)	.569"-.575" (Z Mount)	1.032" (Q, W, X) 1.267" (A, B, C)	3.087" (Q, W, X) 3.050" (A, B, C)	2.908" (Q, W, X) 2.775" (A, B, C)	6.207" (Z Mount)

Model Number Designator

4 4 7 X S E T X - A 5 X K									
Basic Model 447				Output Option					
Mounting Option				Driveline Output					
G = Standard Mount w/ Metric Stud Kits K = Standard Mount w/o Stud Kit L = Deep Mount w/o Stud Kit X = Standard Mount Z = Deep Mount				XD = Rd Standard Shaft (1-1/4" - 5/16" Key) XX = 1-1/4" Tapered Output Shaft w/ Keyway					
Gear Ratio				Pump Mount					
Q = 19/24 S = 24/22 U = 26/20 W = 26/17 R = 22/24				AA = Special Pump for England AF = SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T) AK = SAE B 2-Bolt Flange, SAE B Shaft (7/8" - 13T) AZ = SAE B 4-Bolt Flange, SAE C Shaft (1-1/4" - 14T) FF = SAE B Pump Flange, SAE B Shaft (7/8" - 1/4" Key) GA = Greaseable SAE B 2-Bolt Rotatable Flange, SAE B Shaft (7/8" - 13T) GB = Greaseable SAE B 4-Bolt Rotatable Flange, SAE B Shaft (7/8" - 13T) GF = Greaseable SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T) GH = Greaseable SAE B 2-Bolt Rotatable Flange, SAE BB Shaft (1" - 15T) GJ = Greaseable SAE B 4-Bolt Rotatable Flange, SAE BB Shaft (1" - 15T) GK = Greaseable SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T) GP = Greaseable Special SAE A Pilot & 2-Bolt Flange, SAE B Shaft GQ = Greaseable SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T) GR = Greaseable Chelsea Special (Cloverleaf), SAE B Shaft (7/8" - 13T) GY = Greaseable ISO 7653 Pump Mount DIN 5462 Shaft GZ = Greaseable SAE B 2 or 4-Bolt Flange, SAE C Shaft (1-1/4" - 14T) L* = Self Lube RA = Rotatable SAE B 2-Bolt Flange, SAE B Shaft (7/8" - 13T) RB = Rotatable SAE B 4-Bolt Flange, SAE B Shaft (7/8" - 13T) RC = Rotatable SAE A 2-Bolt Flange, SAE A Shaft (5/8" - 9T) RD = Rotatable SAE A 2-Bolt Flange, SAE B Shaft (7/8" - 13T) RE = Rotatable SAE B 4-Bolt Flange, SAE BB Shaft (1" - 15T) RF = Rotatable SAE B 2-Bolt Flange, SAE BB Shaft (1" - 15T) RJ = Rotatable SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T) RK = Rotatable SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T) RY = Rotatable ISO 7653 Pump Mount DIN 5462 Shaft XE = SAE A 2 or 4-Bolt Flange, SAE A Shaft (5/8" - 9T) XG = Non-Standard SAE Class A 2-Bolt Flange, Non-Standard Shaft (3/4" - 3/16" Key) XJ = Non-Standard SAE A 2-Bolt Flange, Non-Standard Shaft (3/4" - 3/16" Key) XK = SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T) XL = Non-Standard SAE Class A 2-Bolt Flange, Non-Standard SAE B Shaft XO = Special SAE A Pilot & 2-Bolt Flange, Non-Standard Shaft (3/4" - 3/16" Key) XP = Special SAE A Pilot & 2-Bolt Flange, SAE Class B Shaft XQ = SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T) XR = Chelsea Special (Cloverleaf), SAE B Shaft (7/8" - 13T) XY = ISO 7653 Pump Mount DIN 5462 Shaft					
Input Option Eaton, Mack, Tremac, Allison, Chelsea, Mercedes, Rockwell Transmissions NOTE: For more details, see Application Catalog (Transmission Model Number required)				Assembly Arrangement 3, 4, 5, 6					
Lube Option									
P = Pressure Lube X = No Pressure Lube									
Shift Option									
¹ A = Air Shift C = Special Shift Control & Bracket Kit H = No Shift Kit M = Constant Mesh ¹ P = 12VDC Elec/Air Shift Q = 24VDC Elec/Air Shift ²¹ S = Air Shift w/ PTO/Dump Pump Combo Valve w/ Kick Out w/ Neutral Spring Return ²¹ T = Air Shift w/ PTO/Dump Pump Combo Valve w/o Kick Out w/ Neutral Spring Return ²¹ U = Air Shift w/ PTO/Dump Pump Combo Valve w/ Kick Out w/o Neutral Spring Return V = Air Shift w/o Installation Kit ¹ W = Wire Shift X = Wire Shift w/o Cable & Knob Y = Lever Shift Z = 12VDC Elec Shift									
¹ Includes mounting parts ²¹ Includes installation kit, console sold separately ⁵⁹ Same as XK except rotated 90° ⁷⁹ Flooded Cavity									

* No longer a current option per Chelsea Suggested List Price.

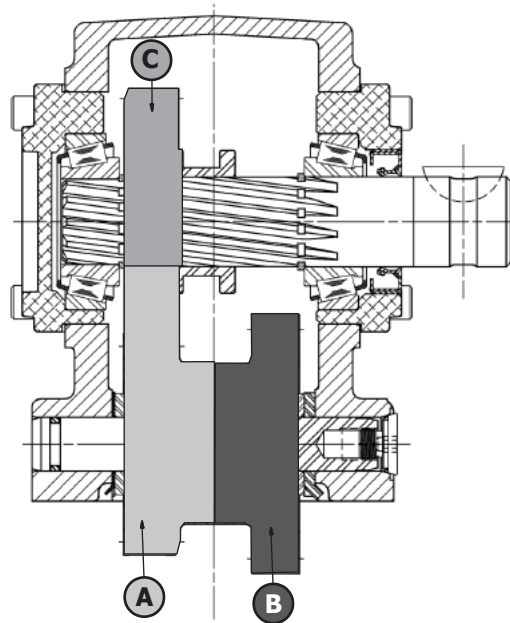


Bill of Materials**Parts List
447 Series**

Item	Part Number	Description	Qty.
1	1-P-557X	Standard Mount Housing (X, G & K) (Includes Item 23)	1 or
	1-P-558X	Deep Mount Housing (Z & L) (Includes Item 23)	1
2	550397	Bearing Cone	1
3	3-P-202	Output Shaft (XD) Standard (1.250" Rd .313" KW)	1 or
	See pages 48-60	Output Shaft (All Other Outputs)	1
5	9-P-88	Idler Standard Shaft	1 or
	9-P-89	Idler Pressure Lube Shaft (P)	1
6	14-P-73-1	Idler Gear Spacer (.149" -.151")	A.R.
	14-P-73-2	Idler Gear Spacer (.152"-.154")	A.R.
	14-P-73-3	Idler Gear Spacer (.155"-.157")	A.R.
7	31-P-102	Bearing Thrust Washer	1
8	28-P-216	Oil Seal (XD Output)	1
	See pages 48-60	Oil Seal (All Other Output)	1
9	28-P-191	O-ring	1
10	68-P-51-1	Adhesive Label	1
11	328273X	Open End Bearing Cap Assembly (XD Output)	1
	See pages 48-60	Bearing Cap Assembly (All Other Outputs)	1
12	328274Xc	Close End Bearing Cap Assembly	1
13	378391	Lockring (All other shifter types Except M)	2
15	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000") (XD Output)	4
	See pages 48-60	Socket Hex Head Cap Screw (All Other Outputs)	4
18	379672	Plug, O-ring w/ Socket Face (NWD Plug)	1
19	500007-29	Woodruff Key (XD Output)	1
21	550439	Bearing Cone	2
22	550532	Bearing Cone	1
28	35-P-8	Gasket, Shifter Cover	1
30	378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875") (Electric, Air & Wire)	4
	378430-8	1/2" Hex Head Cap Screw (.312"-18 x .625") (Constant Mesh)	4
SHIFTER COVER ASSEMBLIES			
33	See page 25	Lever Shifter	1 or
	See page 24	Air Shifter	1
34	22-P-127-1	Bearing Cap Gasket (.010")	A.R.
	22-P-127-2	Bearing Cap Gasket (.020")	A.R.
	22-P-127-3	Bearing Cap Gasket (.015")	A.R.
35	See pages 21-22	Output Gear	1
36	See pages 21-22	Input & Ratio Gear	1
N.S.	378414	Pressure Protection Valve (V Shifter Option)	1
N.S.	379640	Booted Connector (V Shifter Only)	1
N.S. – Not Shown A.R. – As Required			Continued on Next Page

Bill of MaterialsParts List
447 Series

Item	Part Number	Description	Qty.
	See pages 68-84 for Bill of Materials for the below loose parts.		
	328948-6X	GASKET KIT Gasket and Installation Instructions.....	1
	328170-76X	STUD KITS Stud Kit (X Mounting Type).....	1
	328170-77X	Stud Kit (Z Mounting Type).....	1
	7170-72X	Mounting Kit (G Metric Mounting Type)	1
	328751-1X	INSTALLATION KIT Installation Kit (C, H, W, X, Y)	1
	328388-47X	AIR SHIFT INSTALLATION KITS Air Shift Installation Kit (P Shifter)	1
	328388-48X	Air Shift Installation Kit (Q Shifter)	1
	328388-65X	Air Shift Installation Kit (S Shifter)	1
	328388-98X	Air Shift Installation Kit (A Shifter)	1
	329106-71X	SHIFTER KITS Shifter Kit (Air Shift, A Shift Option)	1
	329106-75X	Shifter Kit (Air Shift, P Shift Option)	1
	329106-77X	Shifter Kit (Air Shift, Q Shift Option)	1
	329106-113X	Shifter Kit (Wire Control 3 & 6, Q & W Ratio; W Shift Option).....	1
	329106-114X	Shifter Kit (Wire Control 3 & 6, Q & W Ratio; W Shift Option).....	1
	329106-117X	Shifter Kit (Wire Control 3 & 6, Q & W Ratio; X Shift Option)	1
	329106-118X	Shifter Kit (Wire Control 4 & 5, Q & W Ratio; X Shift Option)	1
	329106-151X	Shifter Kit (V Shift Option).....	1
	328346-10X	Wire Control Cable (W Shifter)	1
	328380X	Wire Control Parts Bag (W Shifter)	1
	328356-13X	SERVICE KITS Gasket & Seal Kit.....	1
	328356-15X	Shifter Cover Seal Kit (Wire Control).....	1
	328356-17X	Shifter Cover Seal Kit (Air Shift)	1
	328356-26X	Shifter Cover Seal Kit (Lever to Air)	1
	328594-13X	Bearing and Spacer Kit (Non-Pressure Lube).....	1
	328711X	PUMP KIT Pump Mounting Kit (XR Output).....	1
	329096-1X	SERVICE CONVERSION KITS Field Conversion Kit (Self Lube Replace 3-P-202)	1
	329097-1X	Field Conversion Kit (Self Lube Replace 3-P-282)	1
	See pages 76-84	OUTPUT CONVERSION KITS Output Conversion Kits Bill of Materials	

Gear Chart

GEAR DESIGNATOR	INPUT GEAR	NO. TEETH* A (14)	HELIX ANGLE	NO. TEETH** B (14)	OUTPUT GEAR	NO. TEETH C (2)
447*QET	5-P-865	19	Left Helix	19	2-P-697	24
447*QES	5-P-869	22	Left Helix	19	2-P-697	24
♦ 447*QFX	5-P-979	24	Left Helix	19	2-P-697	24
♦ 447*QGP	5-P-1145	23	Spur	19	2-P-697	24
♦ 447*QCD	5-P-1178	27	Left Helix	19	2-P-697	24
♦ 447*QEV	5-P-1205	40	Spur	19	2-P-697	24
447*SET	5-P-866	19	Left Helix	24	2-P-698	22
447*SES	5-P-870	22	Left Helix	24	2-P-698	22
♦ 447*SFF	5-P-891	32	Left Helix	24	2-P-698	22
♦ 447*SEQ	5-P-892	30	Left Helix	24	2-P-698	22
♦ 447*SGP	5-P-1146	23	Spur	24	2-P-698	22
♦ 447*SCD	5-P-1179	27	Left Helix	24	2-P-698	22
♦ 447*SEV	5-P-1206	40	Spur	24	2-P-698	22
♦ 447*SJX	5-P-1270	40	Spur	24	2-P-698	22
♦ 447*RET	5-P-1215	19	Left Helix	22	2-P-697	24
♦ 447*RES	5-P-1216	22	Left Helix	22	2-P-697	24
♦ 447*RGP	5-P-1217	23	Spur	22	2-P-697	24
♦ 447*RCD	5-P-1218	27	Left Helix	22	2-P-697	24
♦ 447*REV	5-P-1219	40	Spur	22	2-P-697	24
447*UET	5-P-867	19	Left Helix	26	2-P-699	20
447*UES	5-P-871	22	Left Helix	26	2-P-699	20
♦ 447*UFE	5-P-889	29	Left Helix	26	2-P-699	20
♦ 447*UGP	5-P-1147	23	Spur	26	2-P-699	20
♦ 447*UCD	5-P-1180	27	Left Helix	26	2-P-699	20
♦ 447*UEV	5-P-1207	40	Spur	26	2-P-699	20
♦ 447*UJX	5-P-1271	40	Spur	26	2-P-699	20

* Input gear meshes with the transmission

** Ratio gear meshes with the PTO Output Gear

NOTE: For the 447 Series, install the Input Gear Spacers on the Idler Shaft between the Input Gear and PTO housing.

♦ No longer a current option per Chelsea Suggested List Price.

Gear Chart (Continued)

GEAR DESIGNATOR	INPUT GEAR	NO. TEETH* A (14)	HELIX ANGLE	NO. TEETH** B (14)	OUTPUT GEAR	NO. TEETH C (2)
✦ 447*WET	5-P-868	19	Left Helix	26	2-P-700	17
447*WES	5-P-872	22	Left Helix	26	2-P-700	17
✦ 447*WEV	5-P-1208	40	Spur	26	2-P-700	17
✦ 447*WFE	5-P-890	29	Left Helix	26	2-P-700	17
✦ 447*WGD	5-P-988	19	Right Helix	26	2-P-700	17
✦ 447*WGP	5-P-1148	23	Spur	26	2-P-700	17
✦ 447*WJX	5-P-1272	40	Spur	26	2-P-700	17
✦ 447GWFH	5-P-900	20	Right Helix	26	2-P-700	17
✦ 447GWFG	5-P-901	18	Right Helix	26	2-P-700	17
447**IT	Assembled Without Input Gear					

* Input gear meshes with the transmission

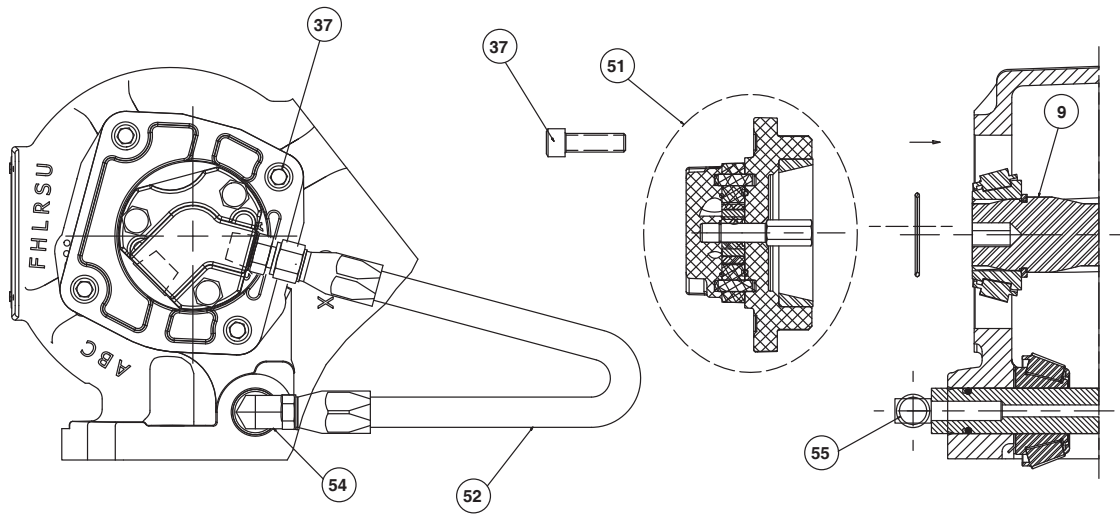
** Ratio gear meshes with the PTO Output Gear

NOTE: For the 447 Series, install the Input Gear Spacers on the Idler Shaft between the Input Gear and PTO housing.

✦ No longer a current option per Chelsea Suggested List Price.

Self Lube Parts

NOTE: Pump must rotate in direction of arrow



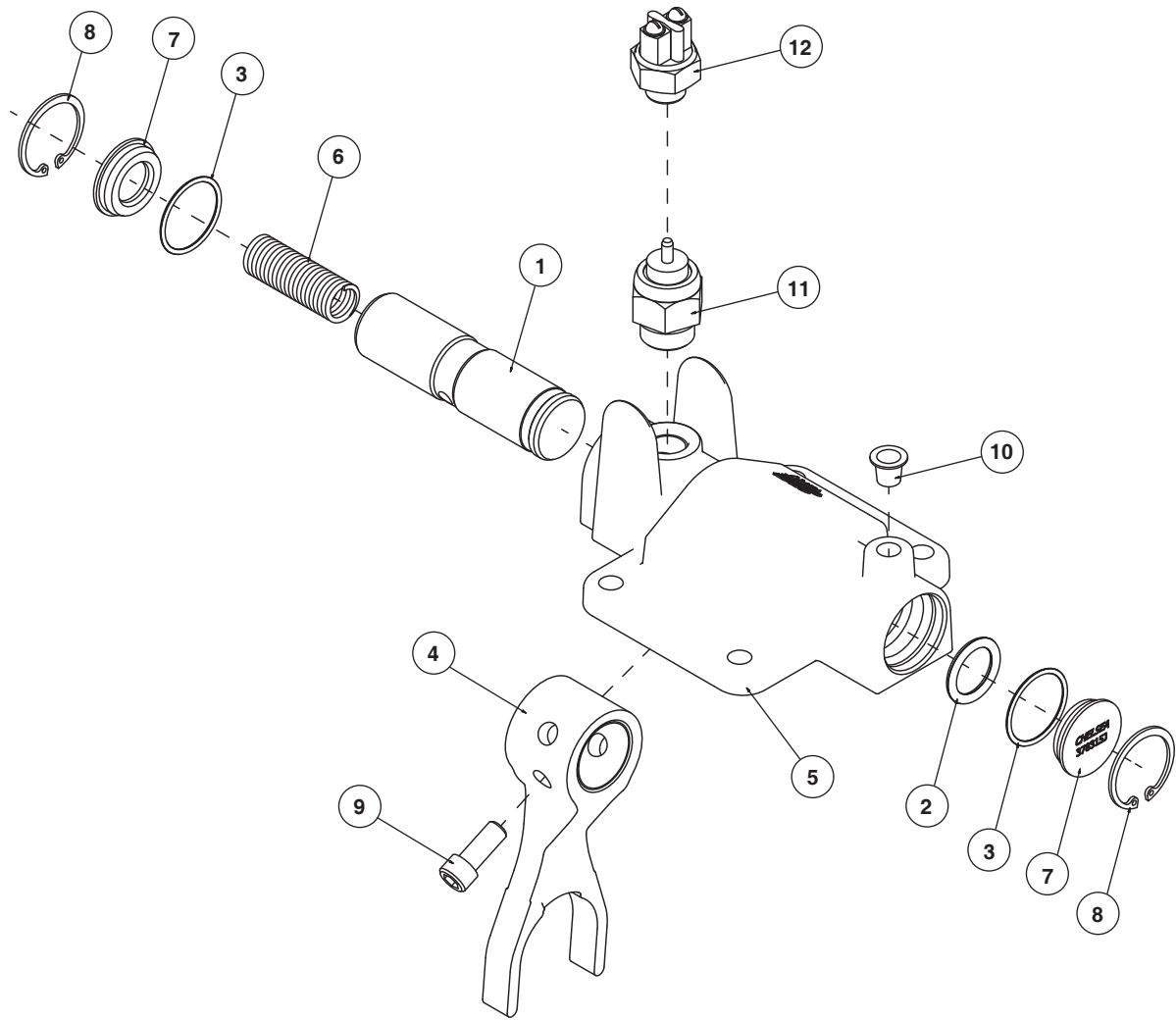
Pump assembly as shown is for Q, W and X Ratios.
Rotate as needed for A, C, F, H, L, R, S and U Ratios.

NOTE: Install Street Elbow into idler shaft before installing idler shaft

Item	Part Number	Description	Quantity			
			447	447A	447B	447C
37	378447-6	Socket Head Cap Screw (.312"-18 x 1.000").....	4		4	4
9	3-P-857	Output Shaft (*LD Output)	1 or			
	3-P-858	Output Shaft (*LA, *LB, *LC, *LE, *LF Output)	1			
51	329091X	Lube Pump & Bearing Cap Assembly	1			
52	329092X	Pressure Lube Hose Assembly	1			
54	500841-1	90° Street Elbow	1			
55	500897-3	Shipping Plug	1			
See pages 68-84 for Kit Bill of Materials						

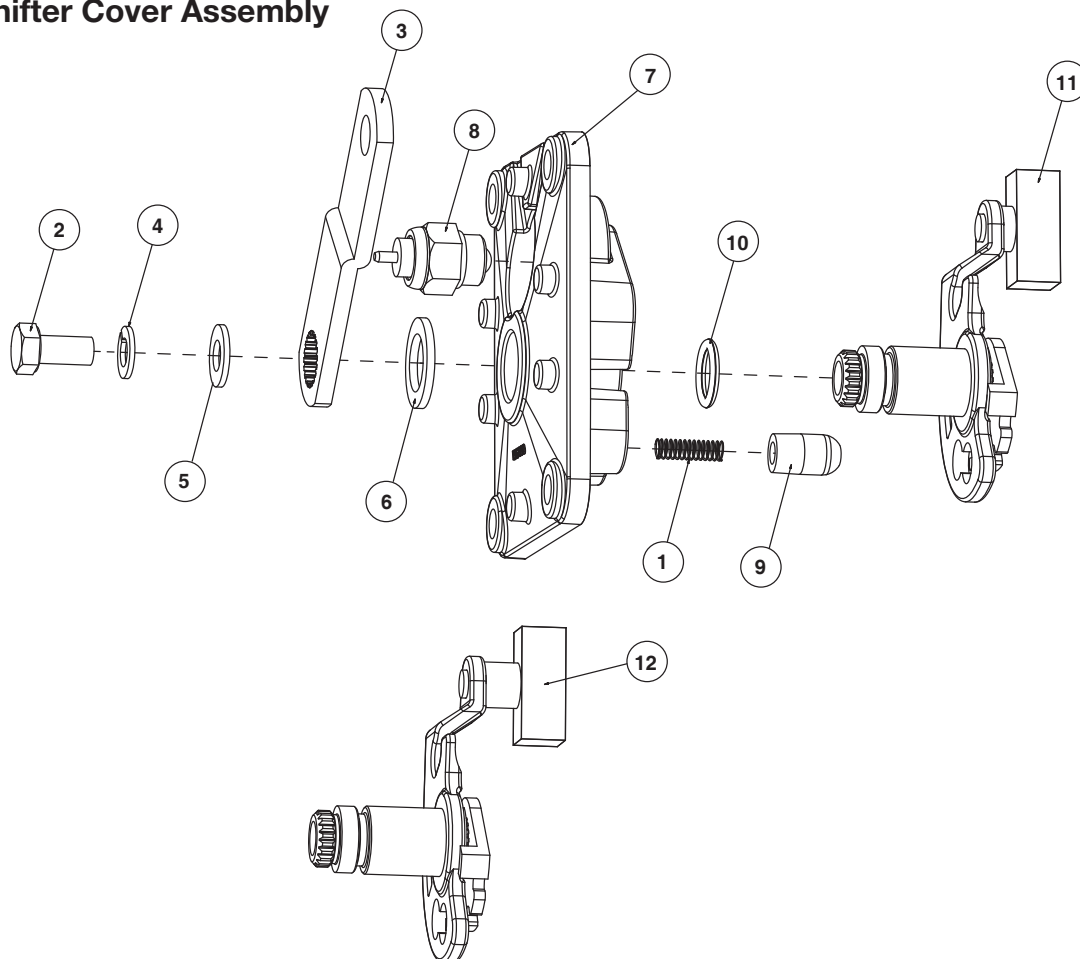
♦ No longer a current option per Chelsea Suggested List Price.

Air Shifter Cover Assembly



Item	Part Number	Description	Qty.
70	329363X	Air Shifter Cover Assembly (Includes item 1-11).....	1 or
	329363-1X	Air Shifter Cover Assembly (E Shift) (Includes item 1-10 & 12)	1
1	11-P-75	Shifter Shaft.....	1
2	28-P-41	O-ring (.734" x .141").....	1
3	28-P-42	O-ring (1.051" x .070").....	2
4	32-P-180	Shifter Fork.....	1
5	34-P-130	Shifter Cover	1
6	37-P-21	Shifter Spring	1
7	378315	Cover Plug	2
8	378316	Internal Locking.....	2
9	378447-4	1/4" Socket Hex Head Cap Screw (w/ lockpatch) (.312"-18 x .750")	1
10	500897-5	Shipping Plug	1
11	380515	Indicator Switch (329363X).....	1 or
12	379038	Indicator Switch (329363-1X).....	1

See pages 68-84 for Kit Bill of Materials

Lever Control Shifter Cover Assembly

Item	Part Number	Description	Qty.
		Ratios Q & W	
	329151-1X	Lever Shifter Cover Assembly (Assembly 3 & 6) (Includes item 1-11).....	1 or
	329151-2X	Lever Shifter Cover Assembly (Assembly 4 & 5) (Includes item 1-11).....	1 or
		Ratios S & U	
	329152-1X	Lever Shifter Cover Assembly (Assembly 3 & 6) (Includes item 1-10 & 12)	1 or
	329152-2X	Lever Shifter Cover Assembly (Assembly 4 & 5) (Includes item 1-10 & 12)	1
1	37-P-19	Spring (.220" x 1.188")	1
2	500409-6	Hex Head Cap Screw (.312"-24 x .625")	1
3	51-P-22	Shifter Lever	1
4	500356-10	Lock Washer (.575" x .319" x .056")	1
5	500365-22	Flat Washer (.688" x .344" x .065")	1
6	378004	Flat Washer (.641" x 1.000" x .097")	1
7	34-P-74	Shifter Cover	1
8	379652	Indicator Switch.....	1
9	63-P-16	Shifter Poppet	1
10	28-P-191	O-ring (.549" x .103").....	1
11	329118-1X	Shifter Plate Assembly (329151-1X).....	1 or
	329118-2X	Shifter Plate Assembly (329151-2X).....	1 or
12	329120-1X	Shifter Plate Assembly (329152-1X).....	1 or
	329120-2X	Shifter Plate Assembly (329152-2X).....	1

See pages 68-84 for Kit Bill of Materials

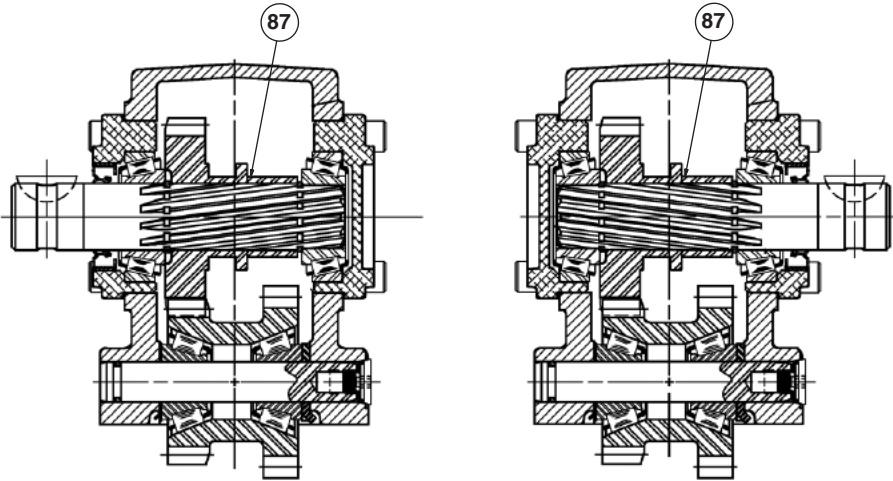
Shifter Kits

For PTOs ordered without the shifter (Shifter Type H), the kits shown below will provide all the components required to complete the assembly.

Part Number	Description	Quantity			
		447	447A	447B	447C
329106-71X	Shifter Kit (Air Shift, A Shift Option)	1			1
329106-75X	Shifter Kit (Air Shift, P Shift Option)	1			
329106-77X	Shifter Kit (Air Shift, Q Shift Option)	1			
329106-113X	Shifter Kit (Wire Control 3 & 6, Q & W Ratio; W Shift Option).....	1			
329106-114X	Shifter Kit (Wire Control 4 & 5, Q & W Ratio; W Shift Option).....	1			
329106-117X	Shifter Kit (Wire Control 3 & 6, Q & W Ratio; X Shift Option).....	1			
329106-118X	Shifter Kit (Wire Control 4 & 5, Q & W Ratio; X Shift Option).....	1			
329106-151X	Shifter Kit (V Shift Option)	1			
329143X	Field Conversion Kit (Shifter Shaft)	1			1

See pages 68-84 for Kit Bill of Materials

Constant Mesh Parts (M Designator)

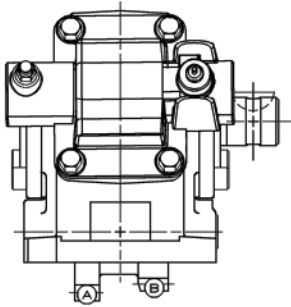


Assembly 3 & 5

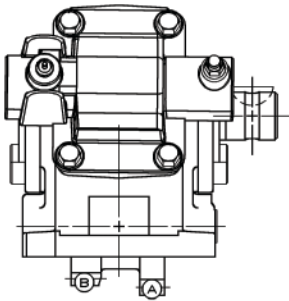
Assembly 4 & 6

Item	Part Number	Description	Quantity			
			447	447A	447B	447C
87	4-P-165	Drive Shaft Spacer	1			
N.S.	34-P-39	Shifter Cover Plate.....	1			
N.S.	35-P-8	Shifter Cover Gasket	1	1	1	1
N.S.	378430-8	1/2" Hex Head Cap Screw (.312"-18 x .625").....	4			

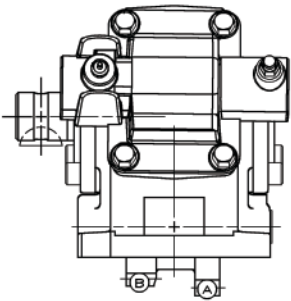
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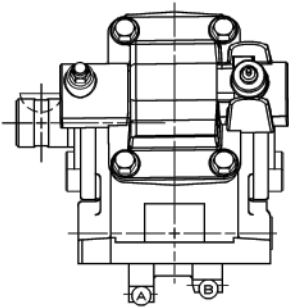
Assembly 3



Assembly 4

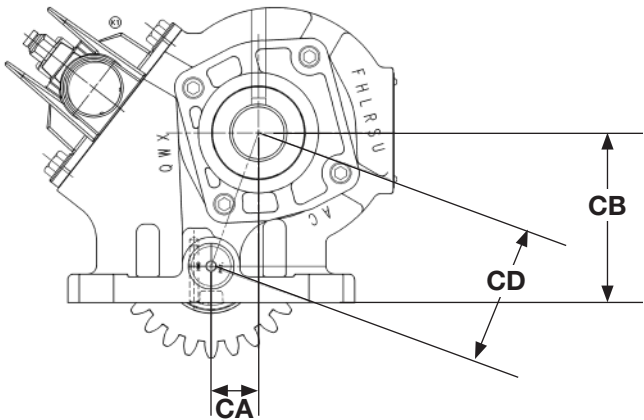


Assembly 5



Assembly 6

PTO Housing Dimensions



PTO Series	Part Number	CA	CB	CD
447 Standard	1-P-557X	1.401" (R, S, U) 1.032" (Q, W)	3.007" (R, S, U) 2.908" (Q, W)	3.317" (R, S, U) 3.087" (Q, W)
447 Deep Mount	1-P-558X	1.401" (R, S, U) 1.032" (Q, W)	3.007" (R, S, U) 2.908" (Q, W)	3.317" (R, S, U) 3.087" (Q, W)

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no text or other markings on the paper.

Model Number Designator

4 8 9 X L A H X - A 3 X K

Basic Model 489

Mounting Option

- * C = CAT TH55
- D = Detroit® DT12® Mount
- * E = Eaton FTS Mount
- * F = Eaton After Market
- G = Standard Mount w/ Metric Stud Kit
- K = Standard Mount w/o Stud Kit
- Q = Eaton Endurant™
- X = Standard Mount
- Z = Deep Mount

Gear Ratio

- A = 14/39 (DT12®)
- * B = 14/39
- C = 17/37 (DT12®)
- F = 21/37 (DT12®)
- H = 23/35
- L = 25/34 (DT12®)
- Q = 19/24 (DT12®)
- R = 22/24 (DT12®)
- ¹ S = 24/22 (DT12®)
- U = 26/20 (DT12®)
- W = 26/17
- X = 38/21

Input Option

Eaton, Mack, Tremac, Allison, Chelsea,
Mercedes, Rockwell Transmissions

NOTE: For more details, see Application Catalog
(Transmission Model Number required)

Lube Option

- X = No Pressure Lube
- P = Pressure Lube

Shift Option

- ¹ A = Air Shift
- * C = Special Shift Control & Bracket Kit
- D = Eaton Endurant HD™ 12VDC Elec/Air Shift
- H = No Shifter Assembly
- M = Constant Mesh
- ¹ P = 12VDC Elec/Air Shift
- Q = 24VDC Elec/Air Shift
- ²¹ S = Air Shift w/ PTO/Dump Pump Combo Valve w/ Kick Out w/ Neutral Spring Return
- ²¹ T = Air Shift w/ PTO/Dump Pump Combo Valve w/o Kick Out w/ Neutral Spring Return
- * ²¹ U = Air Shift w/ PTO/Dump Pump Combo Valve w/ Kick Out w/o Neutral Spring Return
- V = Air Shift w/o Installation Kit
- ¹ W = Wire Shift
- X = Wire Shift w/o Cable & Knob
- * Y = Lever Shift
- * Z = 12VDC Elec Shift
- 5 = Double Acting Air Shift w/o Installation Kit (DT12®)
- 6 = Double Acting Air Shift w/ Installation Kit

Assembly Arrangement

- 3 = Right side - bulge down Left side - bulge up
- 4 = Right side - bulge down Left side - bulge up
- 5 = Left side - bulge down Right side - bulge up
- 6 = Left side - bulge down Right side - bulge up (DT12®)

Output Option

Driveline Output

- * XB = Rd Standard Shaft (1-1/4" - 5/16" Key)
- XD = Rd Standard Shaft (1-1/4" - 5/16" Key) (DT12®)
- XX = 1-1/4" Tapered Output Shaft w/ Keyway

Pump Mount

- * AA = Special Pump for England
- AF = SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T)
- AK = SAE B 2-Bolt Flange, SAE B Shaft (7/8" - 13T)
- AZ = SAE B 4-Bolt Flange, SAE C Shaft (1-1/4" - 14T)
- * FF = SAE B Pump Flange, SAE B Shaft (7/8" - 1/4" Key)
- GA = Greaseable SAE B 2-Bolt Rotatable Flange, SAE B Shaft (7/8" - 13T)
- GB = Greaseable SAE B 4-Bolt Rotatable Flange, SAE B Shaft (7/8" - 13T)
- * GE = Greaseable SAE A 2 or 4-Bolt Flange, SAE A Shaft (5/8" - 9T)
- GF = Greaseable SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T)
- GH = Greaseable SAE B 2-Bolt Rotatable Flange, SAE BB Shaft (1" - 15T)
- * GJ = Greaseable SAE B 4-Bolt Rotatable Flange, SAE BB Shaft (1" - 15T)
- GK = Greaseable SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T)
- GL = Greaseable SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T)
- * GP = Greaseable Special SAE A Pilot & 2-Bolt Flange, SAE B Shaft
- ⁵⁹ GQ = Greaseable SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T)
- GR = Greaseable Chelsea Special (Cloverleaf), SAE B Shaft (7/8" - 13T)
- GY = Greaseable ISO 7653 Pump Mount DIN 5462 Shaft
- GZ = Greaseable SAE B 2 or 4-Bolt Flange, SAE C Shaft (1-1/4" - 14T)
- * L* = Self Lube
- * PA = Rotatable SAE B 2-Bolt Flange, SAE B Shaft (7/8" - 13T)
- * PF = Rotatable SAE B 2-Bolt Flange, SAE BB Shaft (1" - 15T)
- RA = Rotatable SAE B 2-Bolt Flange, SAE B Shaft (7/8" - 13T)
- RB = Rotatable SAE B 4-Bolt Flange, SAE B Shaft (7/8" - 13T)
- RC = Rotatable SAE A 2-Bolt Flange, SAE A Shaft (5/8" - 9T)
- RD = Rotatable SAE A 2-Bolt Flange, SAE B Shaft (7/8" - 13T)
- RE = Rotatable SAE B 4-Bolt Flange, SAE BB Shaft (1" - 15T)
- RF = Rotatable SAE B 2-Bolt Flange, SAE BB Shaft (1" - 15T)
- * RH = Rotatable SAE B 2-Bolt Flange, SAE BB Shaft (1" - 15T)
- RJ = Rotatable SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T)
- RK = Rotatable SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T) (DT12®)
- ⁷⁹ RY = Rotatable ISO 7653 Pump Mount DIN 5462 Shaft
- SQ = SAE B 4-Bolt Flange, SAE B Shaft (7/8" - 13T)
- XE = SAE A 2 or 4-Bolt Flange, SAE A Shaft (5/8" - 9T)
- * XG = Non-Standard SAE Class A 2-Bolt Flange, Non-Standard Shaft (3/4" - 3/16" Key)
- * XJ = Non-Standard SAE A 2-Bolt Flange, Non-Standard Shaft (3/4" - 3/16" Key)
- XK = SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T)
- * XL = Non-Standard SAE Class A 2-Bolt Flange, Non-Standard SAE B Shaft
- * XO = Special SAE A Pilot & 2-Bolt Flange, Non-Standard Shaft (3/4" - 3/16" Key)
- * XP = Special SAE A Pilot & 2-Bolt Flange, SAE Class B Shaft
- ⁵⁹ XQ = SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T)
- XR = Chelsea Special (Cloverleaf), SAE B Shaft (7/8" - 13T)
- XV = 1410 Series Companion Flange (DT12® only)
- XY = ISO 7653 Pump Mount DIN 5462 Shaft (DT12®)

¹ Includes mounting parts

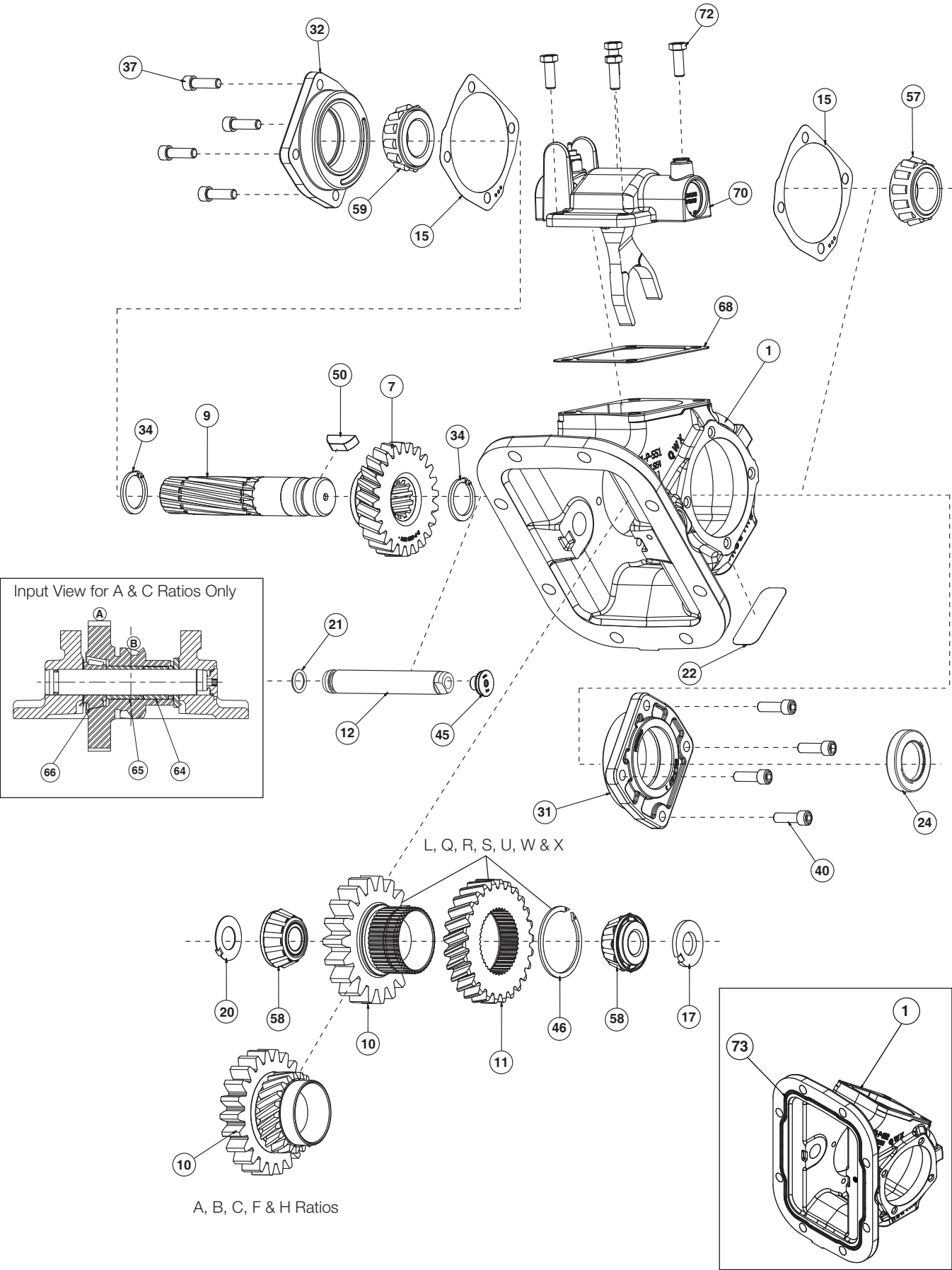
²¹ Includes installation kit, console sold separately

⁵⁹ Same as XK except rotated 90°

⁷⁹ Flooded Cavity

(DT12®) – Available with Detroit® DT12®

* No longer a current option per Chelsea Suggested List Price.



Bill of Materials**Parts List
489 Series**

Item	Part Number	Description	Qty.
1	1-P-552X	Standard & Metric Mount Housing (X & G)	1 or
	1-P-562X	Deep Mount Housing (Z).....	1 or
	1-P-633X	Eaton FTS Mount Housing (E).....	1 or
	1-P-659X	♦ CAT TH55 Mount Housing (C)	1 or
	1-P-781X	Eaton Endurant™ Mount Housing (Q)	1 or
	1-P-799X	Detroit® DT12® Housing.....	1
7	See page 35	Output Gear	1
9	3-P-202	Output Shaft (XD) Standard (1.250" Rd .313" KW).....	1 or
	3-P-1011	Output Shaft (XB) Standard (1.250" Rd .313" KW).....	1 or
	See pages 48-60	Output Shaft (All Other Outputs)	1
10	See pages 34-35	Input Gear	1
11	See pages 34-35	Input Gear Ratio	1
12	9-P-88	Standard Idler Shaft (X Lube Option).....	1 or
	9-P-89	Pressure Idler Shaft (P Self Lube Option).....	1
15	22-P-127-1	Bearing Cap Gasket (.010")	A.R.
	22-P-127-2	Bearing Cap Gasket (.020")	A.R.
	22-P-127-3	Bearing Cap Gasket (.015")	A.R.
17	14-P-73-1	Idler Gear Spacer (.762" x 1.500" x .149"-.151").....	A.R.
	14-P-73-2	Idler Gear Spacer (.762" x 1.500" x .152"-.154").....	A.R.
	14-P-73-3	Idler Gear Spacer (.762" x 1.500" x .155"-.157").....	A.R.
20	31-P-102	Thrust Washer (.754" x .440" x .303").....	1
21	28-P-191	O-ring (.549" x .103").....	1
22	68-P-51-1	Adhesive Label	1 or
24	28-P-216	Oil Seal (2.004" x 1.250" x .374") (XB & XD Output)	1 or
	See pages 48-60	Oil Seal (All Other Outputs).....	1
31	328273X	Bearing Cap & Cup Assembly, 6-Bolt (Output Side, XB & XD Output)	1 or
32	328274X	Bearing Cap & Cup Assembly, 6-Bolt (Rear Side).....	1 or
	See pages 48-60	Bearing Cap Assembly (All Other Outputs) (Output Side)	1
34	378391	Lockring (All other shifter types Except M)	2 or
	378391	Lockring (Shifter Type M Constant Mesh Only).....	1
37	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000") (Closed Cap Side)	4 or
40	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000") (XB & XD Output)	4 or
	See pages 48-60	Cap Screws (All Others)	4
45	379672	O-ring w/ Socket Face Plug (NWD Plug).....	1
46	379522	Lockring	1
50	500007-29	Woodruff Key (.312") (XD Output).....	1 or
	500007-24	Woodruff Key (.250") (XB Output).....	1
57	550397	Tapered Bearing Cone (1.250" x .812").....	1
58	550439	Tapered Bearing Cone (.750" x .859").....	2
59	550532	Tapered Bearing Cone (1.181" x .812").....	1
N.S.	4-P-178	Drive Shaft Spacer (Constant Mesh Shifter) (Type M Only).....	1
N.S.	4-P-177	Spacer (1.255" x .005" x .738") (Constant Mesh Shifter) (Type M Only)	1
N.S. – Not Shown A.R. – As Required		Continued on Next Page	

♦ No longer a current option per Chelsea Suggested List Price.

Bill of Materials**Parts List
489 Series**

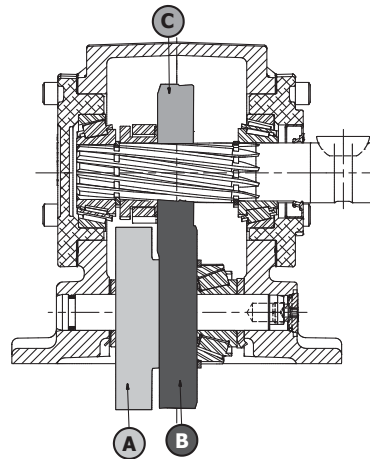
Item	Part Number	Description	Qty.
64	550890	Needle Roller Bearing (A, B & C Ratios Only)	1
65	14-P-75	Input Bearing Spacer (A, B & C Ratios Only)	1
66	561006	Tapered Bearing Cone (A, B & C Ratios Only)	1
68	5-A-188	Shifter Cover Gasket (A & C Ratio Only) (Use (2) 35-P-8 Gaskets).....	1 or
	35-P-8	Shifter Cover Gasket (All Other Ratios & Constant Mesh).....	1
		SHIFTER COVER ASSEMBLIES	
70	See page 37	Air Shifter.....	1 or
N.S.	See page 38	Lever Shifter	1
72	378430-8	1/2" Hex Head Cap Screw (.312"-18 x .750") (Electric Shift)	4 or
	378430-10	1/2" Hex Head Cap Screw (.312"-18 x 1.000") (Wire Shift A & C Ratio)	4 or
	378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875") (Air & Wire Shift) (All Other Ratios)	4 or
	378430-6	1/2" Hex Head Cap Screw (.312"-18 x .625") (Constant Mesh).....	4
73	28-P-381	Mounting Seal O-ring (Q Mount Eaton Endurant™).....	1
	See pages 68-84 for Bill of Materials for the below loose parts.		
N.S.	379640	Booted Connector (V Shifter Only)	1
N.S.	378414	Pressure Protection Valve (V Shifter Only).....	1
		GASKET KITS	
	328948-8X	Gasket and Installation Instructions (All Except Q Mount).....	1
	328948-48X	Gasket and Installation Instructions (Q Mount)	1
	328948-53X	Gasket and Installation Instructions (D Mount)	1
		STUD KITS	
	328170-127X	Stud Kit (C).....	1
	328170-200X	Standard and Deep Mount Stud Kit (X & Z).....	1
	328170-201X	Metric Stud Kit (G)	1
	328170-217X	Stud Kit (LZ Input Only).....	1
	328170-221X	Stud Kit (ME input only)	1
	328170-219X	Stud Kit (D)	1
		INSTALLATION KITS	
	328751-1X	Installation Kit (C, H, W, X & Y).....	1
	380711X	Spacer Kit Eaton Endurant XD™ (ME Input Only).....	1
		AIR SHIFT INSTALLATION KITS	
	328388-47X	12VDC Electric Over Air (P Shifter)	
	328388-48X	24VDC Electric Over Air (Q Shifter)	
	328388-65X	Air-O-Matic Shift (S Shifter)	
	328388-72X	Air Shift (T Shifter)	
	328388-98X	Air Shift Installation Kit (A Shifter)	
	329874X	12VDC Elec/Air Kit - Eaton Procision™/Endurant HD™ (D Shifter)	
	329874-2X	12VDC Elec/Air Kit - Eaton Endurant XD™	
N.S. – Not Shown			Continued on Next Page

Bill of Materials**Parts List
489 Series**

Item	Part Number	Description	Qty.
	See pages 68-84 for Bill of Materials for the below loose parts.		
		SHIFTER KITS	
	329106-39X	Shifter Kit (Air Shift) (3 & 6 Assembly)	
	329106-43X	Shifter Kit (Air Shift) (12VDC Elec/Air)	
	329106-45X	Shifter Kit (Air Shift) (24VDC Elec/Air)	
	329106-105X	Shifter Kit (Wire Control) (3 & 6 Assembly) (Q, W, X Ratio W)	
	329106-106X	Shifter Kit (Wire Control) (4 & 5 Assembly) (Q, W, X Ratio W)	
	329106-107X	Shifter Kit (Wire Control) (3 & 6 Assembly) (Q, W, X Ratio X)	
	329106-108X	Shifter Kit (Wire Control) (4 & 5 Assembly) (Q, W, X Ratio X)	
	329106-109X	Shifter Kit (Wire Control) (3 & 6 Assembly) (F, L, R, S, U Ratio W)	
	329106-110X	Shifter Kit (Wire Control) (4 & 5 Assembly) (F, L, R, S, U Ratio W)	
	329106-111X	Shifter Kit (Wire Control) (3 & 6 Assembly) (F, L, R, S, U Ratio X)	
	329106-112X	Shifter Kit (Wire Control) (4 & 5 Assembly) (F, L, R, S, U Ratio X, W)	
	329106-143X	Shifter Kit (Wire Control) (3 & 6 Assembly) (A, B, C Ratio W)	
	329106-144X	Shifter Kit (Wire Control) (4 & 5 Assembly) (A, B, C Ratio W)	
	329106-145X	Shifter Kit (Wire Control) (3 & 6 Assembly) (A, B, C Ratio X)	
	329106-146X	Shifter Kit (Wire Control) (4 & 5 Assembly) (A, B, C Ratio X)	
	329106-153X	Shifter Kit (Air Shift) (3 & 6 Assembly) (V Option)	
	329106-158XB	Shifter Kit (Air Shift) (Eaton Endurant™, Eaton Procision™)	
	329106-162X	Detroit® DT12® Retrofit Shifter Kit (Option 5)	
	328346-10X	Wire Control Cable	1
	328380X	Wire Control Parts Bag (W Shifter)	1
	329245X	Wire Control Bracket Kit	1
		SERVICE KITS	
	328356-15X	Shifter Cover Seal Kit (Wire Control)	
	328356-17X	Shifter Cover Seal Kit (Air Shift)	
	328356-26X	Shifter Cover Seal Kit (Lever Control)	
	328356-50X	Gasket and Seal Kit	
	328594-13X	Bearing and Spacer Kit (Non-Pressure Lube)	
	328594-14X	Bearing and Spacer Kit (Pressure Lube)	
	328594-15X	Bearing and Spacer Kit (Non-Pressure Lube) (A & C Ratio)	
	328594-16X	Bearing and Spacer Kit (Pressure Lube) (A & C Ratio)	
	329202X	Indicator Switch Connector Service Kit	
		SERVICE CONVERSION KITS	
	328390-117X	Air Shift Field Conversion Kit (Lever or Wire to Air)	
	328390-119X	Air Shift Field Conversion Kit (Lever or Wire to 12VDC Air)	
	328390-120X	Air Shift Field Conversion Kit (Lever or Wire to 24VDC Air)	
	*328390-138X	Electric Shift Field Conversion Kit (Wire to 12VDC) (3 & 6 Assembly)	
	*328390-139X	Electric Shift Field Conversion Kit (Wire to 12VDC) (3 & 4 Assembly)	
	*328390-140X	Electric Shift Field Conversion Kit (Lever 12VDC)	
	329143X	Field Conversion Kit (Shifter Shaft)	
	329262X	Conversion Kit (488 to 489 Series)	
	329263X	Conversion Kit (488 Deep Mount to 489 Deep Mount)	
		OUTPUT CONVERSION KITS	
	See pages 76-84	Output Conversion Kits Bill of Materials	

* No longer a current option per Chelsea Suggested List Price.

Gear Chart



GEAR DESIGNATOR	INPUT GEAR	NO. TEETH A (10)	HELIX ANGLE	NO. TEETH B
✦ 489**AB	5-P-1001	19	Spur	
489**AH	5-P-1004	22	Spur	
489**AR	5-P-1008	21	Left Hand	
489**BG	5-P-1015	23	Left Hand	
✦ 489**CR	5-P-1036	17	Left Hand	
489**DA	5-P-1037	23	Spur	
✦ 489**DB	5-P-1038	39	Spur	
✦ 489**DU	5-P-1050	28	Left Hand	
489**EV	5-P-1060	40	Spur	
✦ 489**HW	5-P-1235	35	Spur	
✦ 489**HX	5-P-1236	32	Spur	
489**IT	Assembled Without Input Gear			
489D*MA	5-P-1596	20	Left Hand	
489D*MB	5-P-1599	20	Left Hand	
489D*MC	5-P-1601	21	Spur	
✦ 489E*LD	5-P-1434	38	Spur	
✦ 489E*LE	5-P-1431	37	Spur	
489Q*ME	5-P-1703	26	Spur	
489Q*LZ	5-P-1571	28	Right Hand	
✦ 489*AAB	5-P-1279	19	Spur	14
489*AAH	5-P-1280	22	Spur	14
489*AAR	5-P-1283	21	Left Hand	14
489*ADA	5-P-1284	23	Spur	14
489DAMA	5-P-1733	20	Left Hand	14
489DAMC	5-P-1734	21	Left Hand	14
489DAME	5-P-1735	26	Spur	14
489*BAH	5-P-1418	22	Spur	14
✦ 489*CAB	5-P-1286	19	Spur	17
489*CAH	5-P-1287	22	Spur	17
489*CAR	5-P-1290	21	Left Hand	17
489*CDA	5-P-1291	23	Spur	17
✦ 489*CMB	5-P-1610	20	Left Hand	17
489QCLZ	5-P-1587	28	Right Hand	17
✦ 489*FAB	5-P-1076	19	Spur	21
489*FAH	5-P-1077	22	Spur	21
489*FAR	5-P-1080	21	Left Hand	21

✦ No longer a current option per Chelsea Suggested List Price.

Gear Chart (Continued)

GEAR DESIGNATOR	INPUT GEAR	NO. TEETH A (10)	HELIX ANGLE	NO. TEETH B
489*FBG	5-P-1082	23	Left Hand	21
489*FDA	5-P-1085	23	Spur	21
489*FDU	5-P-1088	28	Left Hand	21
489*FEV	5-P-1094	40	Spur	21
489DFMA	5-P-1607	20	Left Hand	21
489DFMC	5-P-1615	21	Left Hand	21
489QFLZ	5-P-1588	28	Right Hand	21
489QFME	5-P-1688	26	Spur	21
489*HAH	5-P-1364	22	Spur	23
489*HDA	5-P-1365	23	Spur	23
489QHLZ	5-P-1589	28	Right Hand	23

Input Ratio Gear Chart

GEAR DESIGNATOR	INPUT RATIO GEAR	NO. TEETH B
489*L	5-P-964	25
489*Q	5-P-965	19
489*R	5-P-1214	22
489*S	5-P-966	24
489*U	5-P-967	26
489*W	5-P-968	26
489*X	5-P-969	38

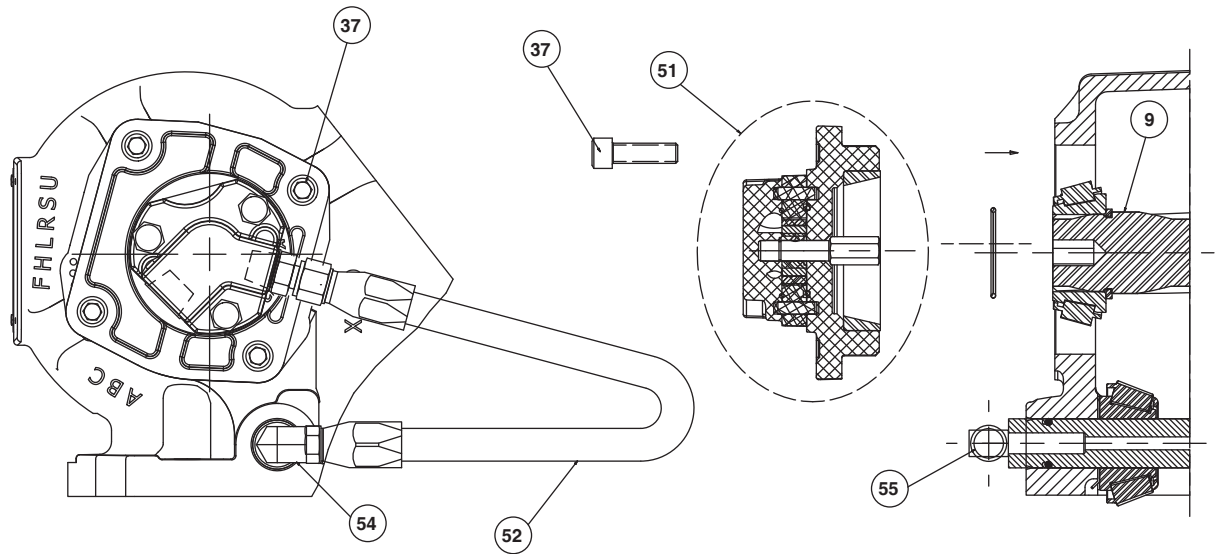
Output Gear Chart

GEAR DESIGNATOR	OUTPUT GEAR	NO. TEETH C	INTERNAL SPLINE DIRECTION
489*A	2-P-791	39	Right Hand - Standard
489*C	2-P-792	37	Right Hand - Standard
489*F	2-P-726	37	Right Hand - Standard
489*H	2-P-802	35	Right Hand - Standard
489*L	2-P-727	34	Right Hand - Standard
489*Q	2-P-559	24	Right Hand - Standard
489*R	2-P-559	24	Right Hand - Standard
489*S	2-P-637	22	Right Hand - Standard
489*U	2-P-560	20	Right Hand - Standard
489*W	2-P-561	17	Right Hand - Standard
489*X	2-P-728	21	Right Hand - Standard
• 489*A	2-P-1001	39	Left Hand - Opposite
• 489*B	2-P-833	39	Left Hand - Opposite
• 489*C	2-P-1000	37	Left Hand - Opposite
• 489*F	2-P-997	37	Left Hand - Opposite
• 489*H	2-P-998	35	Left Hand - Opposite
• 489*L	2-P-999	34	Left Hand - Opposite
• 489*Q	2-P-879	24	Left Hand - Opposite
• 489*R	2-P-879	24	Left Hand - Opposite
• 489*S	2-P-900	22	Left Hand - Opposite
• 489*U	2-P-990	20	Left Hand - Opposite
• 489*W	2-P-991	17	Left Hand - Opposite
• 489*X	2-P-992	21	Left Hand - Opposite

• These gears are used on DT12®

Self Lube Parts

NOTE: Pump must rotate in direction of arrow

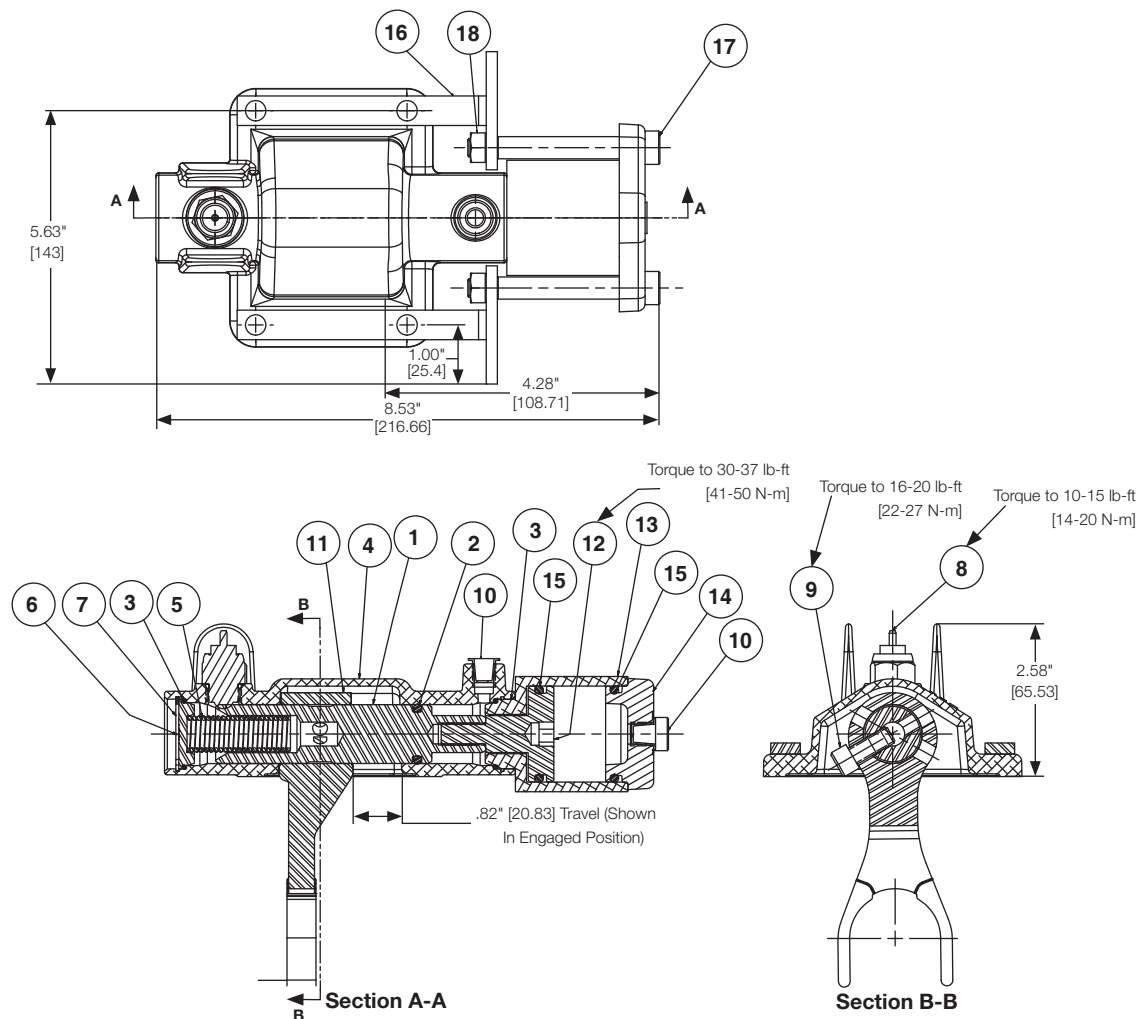


NOTE: Install Street Elbow into idler shaft before installing idler shaft

Pump assembly as shown is for Q, W and X Ratios.
Rotate as needed for A, C, F, H, L, R, S and U Ratios.

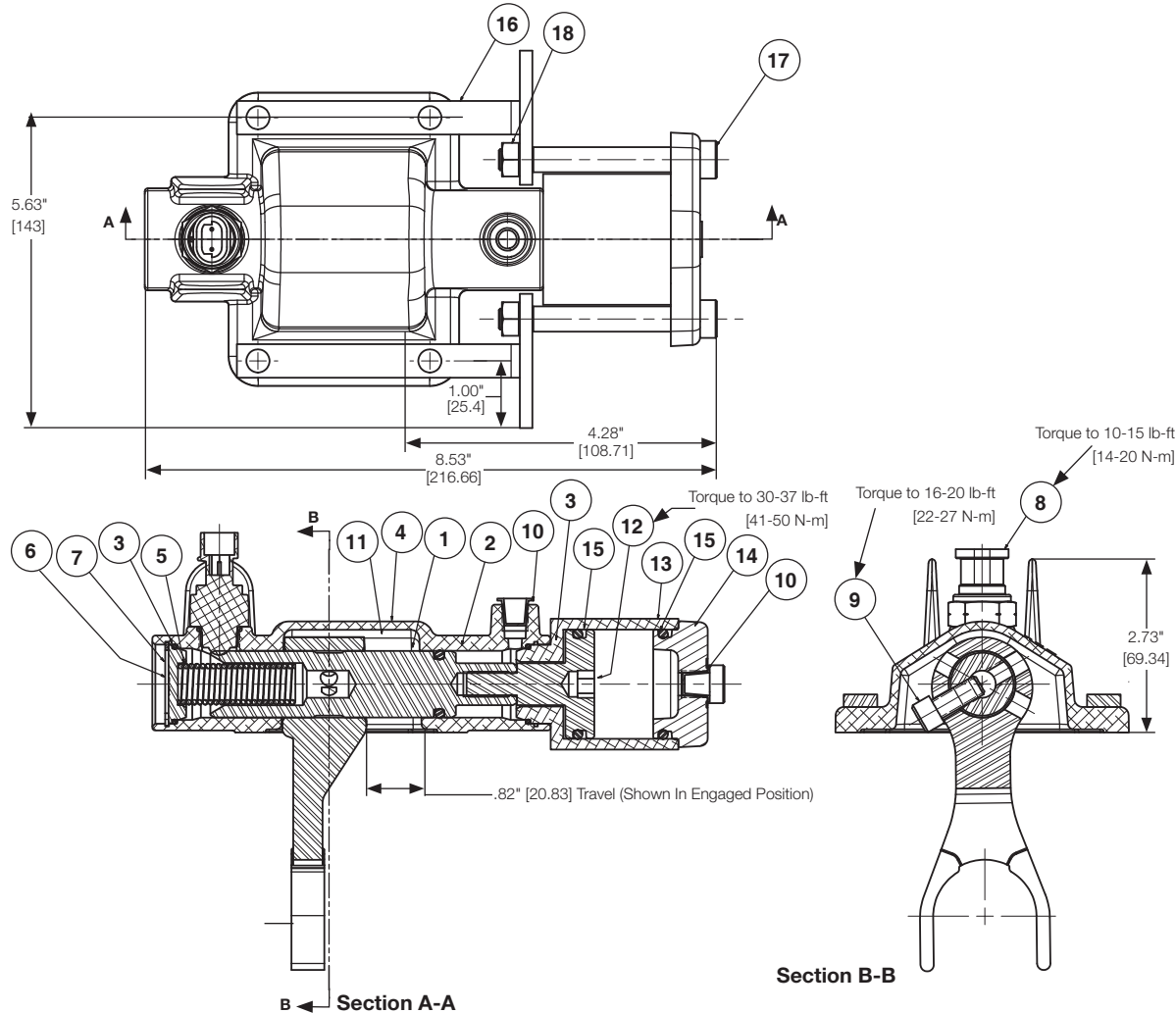
Item	Part Number	Description	Qty.
37	378447-6	Socket Head Cap Screw (.312"-18 x 1.000").....	4
9	3-P-857	Output Shaft (*LD Output)	1 or
	3-P-858	Output Shaft (*LA, *LB, *LC, *LE, *LF Output)	1
51	329091X	Lube Pump & Bearing Cap Assembly	1
52	329092X	Pressure Lube Hose Assembly	1
54	500841-1	90° Street Elbow	1
55	500897-3	Shipping Plug	1
See pages 68-84 for Kit Bill of Materials			

♦ No longer a current option per Chelsea Suggested List Price.

330087X – Air Shifter Cover Assembly Detroit® DT12®

Item	Part Number	Description	Qty.
1	380719	DA Shaft Shifter (1.000").....	1
2	28-P-41	O-ring (.734" x .141").....	1
3	28-P-42	O-ring (1.051" x .070").....	2
4	34-P-130	Shift Cover (Air Shift).....	1
5	37-P-21	Spring (.610" x 4.000").....	1
6	378315	Cover Plug	1
7	378316	Internal Lotckring.....	1
8	380515	Indicator Switch (6-Bolt, 8-Bolt N.O.).....	1
9	378447-4	Socket Head Cap Screw (.312"-18 x .750").....	1
10	500897-5	Shipping Plug	2
11	32-P-180	Shifter Fork.....	1
12	66-P-24	Shifter Piston	1
13	380725	DA Cylinder Shifter	1
14	379027	822, 832 - Cylinder Cap	1
15	28-P-61	O-ring (1.359" x .139").....	2
16	380726	Mounting Bracket DA Shifter	2
17	380722	Shoulder Cap Screw (.312"-18 x 3.000").....	2
18	501145-2	Hex Nut (.312"-18 x .266")	2

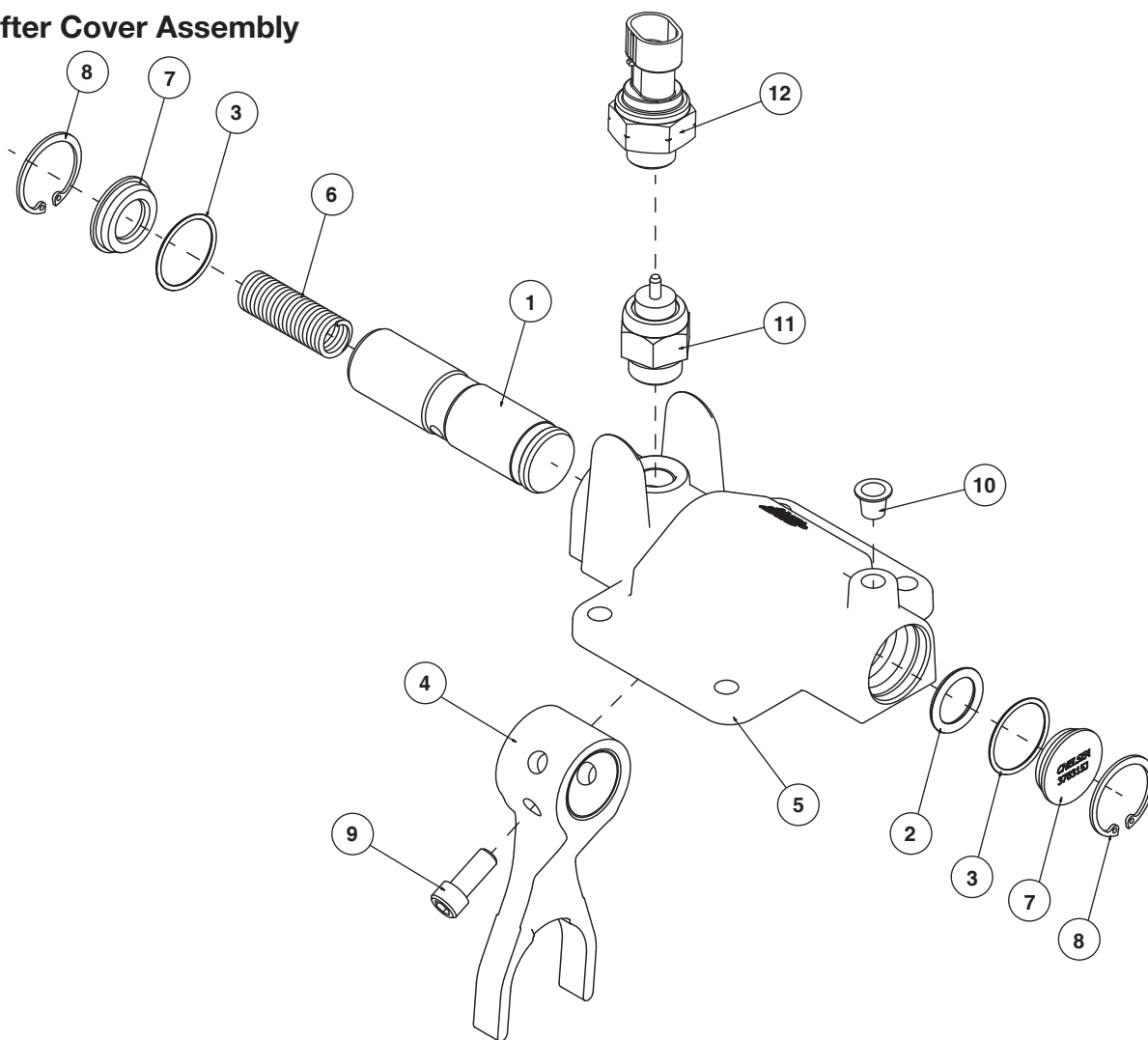
330087-1X – Air Shifter Cover Assembly Eaton Endurant XD™



Item	Part Number	Description	Qty.
1	380719	DA Shaft Shifter (1.000").....	1
2	28-P-41	O-ring (.734" x .141").....	1
3	28-P-42	O-ring (1.051" x .070").....	2
4	34-P-130	Shift Cover (Air Shift).....	1
5	37-P-21	Spring (.610" x 4.000")	1
6	378315	Cover Plug	1
7	378316	Internal Lockring.....	1
8	379990	Indicator Switch (6-Bolt, 8-Bolt N.O.).....	1
9	378447-4	Socket Head Cap Screw (.312"-18 x .750").....	1
10	500897-5	Shipping Plug.....	2
11	32-P-180	Shifter Fork.....	1
12	66-P-24	Shifter Piston	1
13	380725	DA Cylinder Shifter	1
14	379027	Cylinder Cap.....	1
15	28-P-61	O-ring (1.359" x .139").....	2
16	380726	Mounting Bracket DA Shifter	2
17	380722	Shoulder Cap Screw (.312"-18 x 3.000").....	2
18	501145-2	Hex Nut (.312"-18 x .266")	2

NOTE: Use connector harness 330037X to connect to 379990 indicator switch.

Air Shifter Cover Assembly

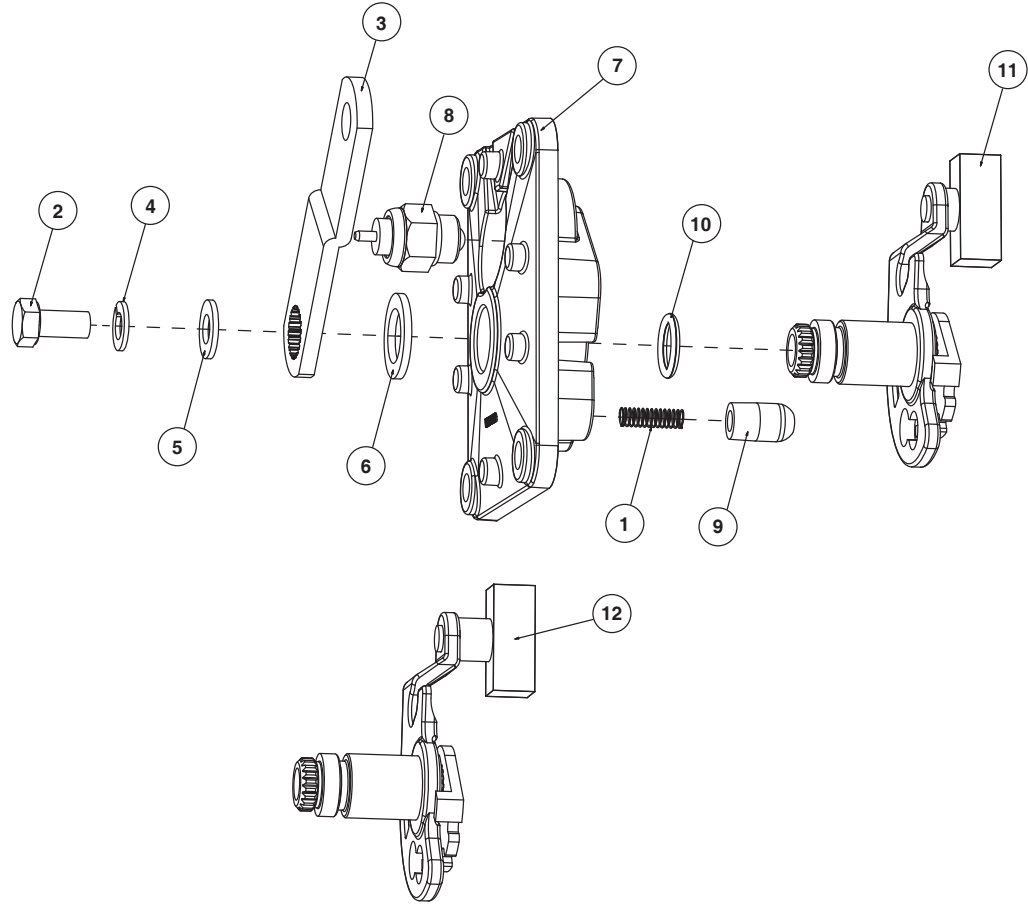


Item	Part Number	Description	Qty.
70	329361X	Air Shifter Cover Assembly (A Shift) (Includes item 1-11)	1 or
	329361-2X	Air Shifter Cover Assembly (D Shift) (Includes item 1-10 & 12).....	1
1	11-P-75	Shifter Shaft.....	1
2	28-P-41	O-ring (.734" x .141").....	1
3	28-P-42	O-ring (1.051" x .070").....	2
4	32-P-180	Shifter Fork.....	1
5	34-P-130	Shifter Cover	1
6	37-P-21	Shifter Spring	1
7	378315	Cover Plug	2
8	378316	Internal Lockring.....	2
9	378447-4	1/4" Socket Hex Head Cap Screw (w/ lockpatch) (.312"-18 x .750")	1
10	500897-5	Shipping Plug	1
11	380515	Indicator Switch (329361X).....	1 or
12	379990	Indicator Switch (329361-2X).....	1
AIR SHIFT CONVERSION KITS			
	328390-117X	Lever or Cable to Air	1
	328390-119X	12VDC Lever or Cable to Electric/Air	1
	328390-120X	24VDC Lever or Cable to Electric/Air	1

See pages 68-84 for Kit Bill of Materials

NOTE: Use connector harness 330037X to connect to 379990 indicator switch.

Lever Control Shifter Cover Assembly



Item	Part Number	Description	Qty.
		Ratios Q, W & X	
	329119-1X	Lever Shifter Cover Assembly (Assembly 3 & 6) (Includes item 1-11).....	1 or
	329119-2X	Lever Shifter Cover Assembly (Assembly 4 & 5) (Includes item 1-11).....	1 or
		Ratios F, H, L, R, S & U	
	329121-1X	Lever Shifter Cover Assembly (Assembly 3 & 6) (Includes item 1-10 & 12)	1 or
	329121-2X	Lever Shifter Cover Assembly (Assembly 4 & 5) (Includes item 1-10 & 12)	1 or
		Ratios A & C	
	329271-1X	Lever Shifter Cover Assembly (Assembly 3 & 6) (Includes item 1-10 & 13)	1 or
	329271-2X	Lever Shifter Cover Assembly (Assembly 4 & 5) (Includes item 1-10 & 13)	1
1	37-P-19	Spring (.220" x 1.188")	1
2	500409-6	Hex Head Cap Screw (.312"-24 x .625")	1
3	51-P-22	Shifter Lever	1
4	500356-10	Lock Washer (.575" x .319" x .056")	1
5	500365-22	Flat Washer (.688" x .344" x .065")	1
6	378004	Flat Washer (.641" x 1.000" x .097")	1
7	34-P-74	Shifter Cover	1
8	380515	Indicator Switch.....	1
9	63-P-16	Shifter Poppet	1
10	28-P-191	O-ring (.549" x .103").....	1
11	329118-1X	Shifter Plate Assembly (329119-1X).....	1 or
	329118-2X	Shifter Plate Assembly (329119-2X).....	1 or
12	329120-1X	Shifter Plate Assembly (329121-1X).....	1 or
	329120-2X	Shifter Plate Assembly (329121-2X).....	1 or
13	329265-1X	Shifter Plate Assembly (329271-1X).....	1 or
	329265-2X	Shifter Plate Assembly (329271-2X).....	1

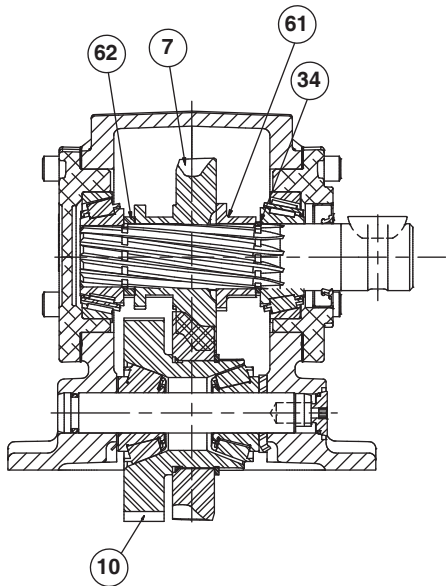
See pages 68-84 for Kit Bill of Materials

Shifter Kits

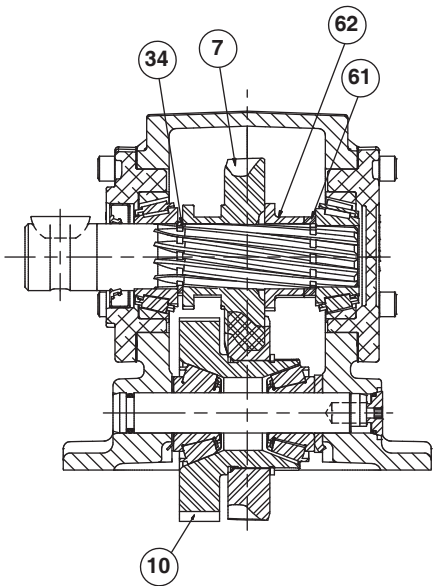
For PTO's ordered without the shifter (Shifter Type H), the kits shown below will provide all the components required to complete the assembly.

Part Number	Description	Qty.
329106-39X	Shifter Kit (Air Shift, A Shift Option)	1
329106-43X	Shifter Kit (Air Shift, P Shift Option)	1
329106-45X	Shifter Kit (Air Shift, Q Shift Option).....	1
329106-105X	Shifter Kit (Wire Control 3 & 6, Q, W, X Ratio; W Shift Option)	1
329106-106X	Shifter Kit (Wire Control 4 & 5, Q, W, X Ratio; W Shift Option)	1
329106-107X	Shifter Kit (Wire Control 3 & 6, Q, W, X Ratio; X Shift Option)	1
329106-108X	Shifter Kit (Wire Control 4 & 5, Q, W, X Ratio; X Shift Option)	1
329106-109X	Shifter Kit (Wire Control 3 & 6, F, L, R, S, U Ratio; W Shift Option)	1
329106-110X	Shifter Kit (Wire Control 4 & 5, F, L, R, S, U Ratio; W Shift Option)	1
329106-111X	Shifter Kit (Wire Control 3 & 6, F, L, R, S, U Ratio; X Shift Option)	1
329106-112X	Shifter Kit (Wire Control 4 & 5, F, L, R, S, U Ratio; X Shift Option)	1
329106-135X	Constant Mesh Kit.....	1
329106-143X	Shifter Kit (Wire Control 3 & 6, A, B & C Ratio; W Shift Option)	1
329106-144X	Shifter Kit (Wire Control 4 & 5, A, B & C Ratio; W Shift Option)	1
329106-145X	Shifter Kit (Wire Control 3 & 6, A, B & C Ratio; X Shift Option).....	1
329106-146X	Shifter Kit (Wire Control 4 & 5, A, B & C Ratio; X Shift Option).....	1
329106-153X	Shifter Kit (V Shift Option)	1
329143X	Field Conversion Kit (Shifter Shaft)	1
See pages 68-84 for Kit Bill of Materials		

Constant Mesh Parts (M Designator)



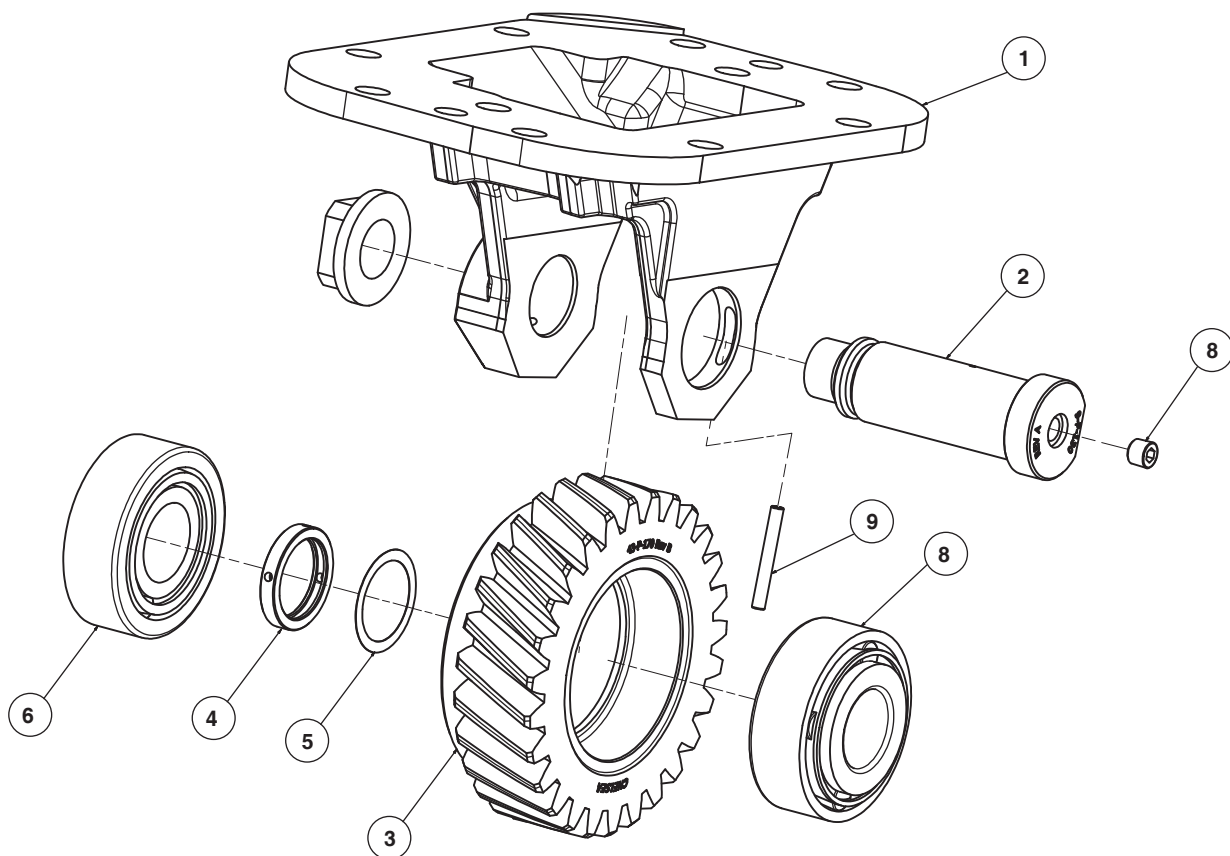
Assembly 3 & 5



Assembly 4 & 6

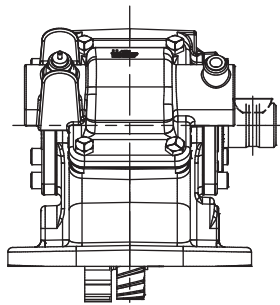
Item	Part Number	Description	Qty.
7	See page 35	Output Gear	1
10	See pages 34-35	Input Gear	1
34	378391	Lockring (Shifter Type M)	1
61	4-P-178	Drive Shaft Spacer (1.255" x 1.505" x .216")	1
62	4-P-177	Drive Shaft Spacer (1.255" x 2.005" x .758")	1
N.S.	34-P-39	Shifter Cover Plate.....	1
N.S.	35-P-8	Shifter Cover Gasket	1
N.S.	378430-6	1/2" Hex Head Cap Screw (.312"-18 x .625").....	4

N.S. – Not Shown

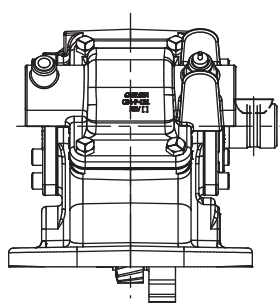
Detroit® DT12® Standard Duty Adapters

Item	Part Number	Description	Qty.
1	42-P-250	Input Designator (329932X MA)	1
	42-P-252	Input Designator (329954X MB).....	1
	42-P-250	Input Designator (329955X MC).....	1
2	9-P-130	Adapter Shaft DT12®	1
3	43-P-170	Adapter Gear (329932X MA).....	1
	43-P-171	Adapter Gear (329954X MB)	1
	43-P-172	Adapter Gear (329955X MC)	1
4	14-P-92	Bearing Spacer (1.193" x 1.525" x .246")	1
5	55-P-44-1	Shim (1.196" x 1.525" x .001")	A.R.
	55-P-44-2	Shim (1.196" x 1.525" x .003")	A.R.
	55-P-44-3	Shim (1.196" x 1.525" x .006")	A.R.
	55-P-44-4	Shim (1.196" x 1.525" x .012")	A.R.
	55-P-44-5	Shim (1.196" x 1.525" x .015")	A.R.
	55-P-44-6		
6	562001.CHD	Tapered Bearing Roller Assembly (1.181" x 2.835" x 1.132")	2
7	380675.CHD	Flange Nut DT12®.....	1
8	379231	Pipe Plug (.125"-27)	1
9	500597-18	Roll Pin (.188" x 1.500").....	1
10	69-P-37	Caution Tag	1

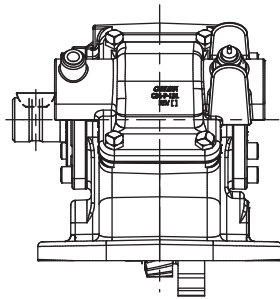
A.R. - As Required



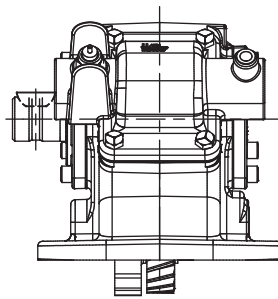
Assembly 3



Assembly 4

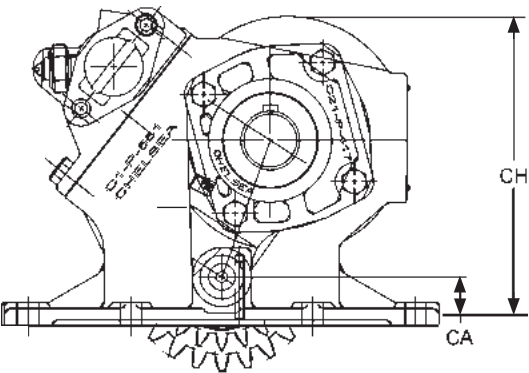


Assembly 5



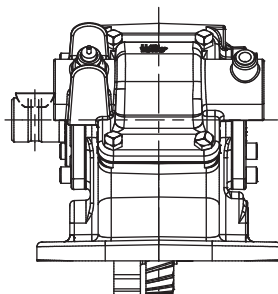
Assembly 6

PTO Housing Dimensions

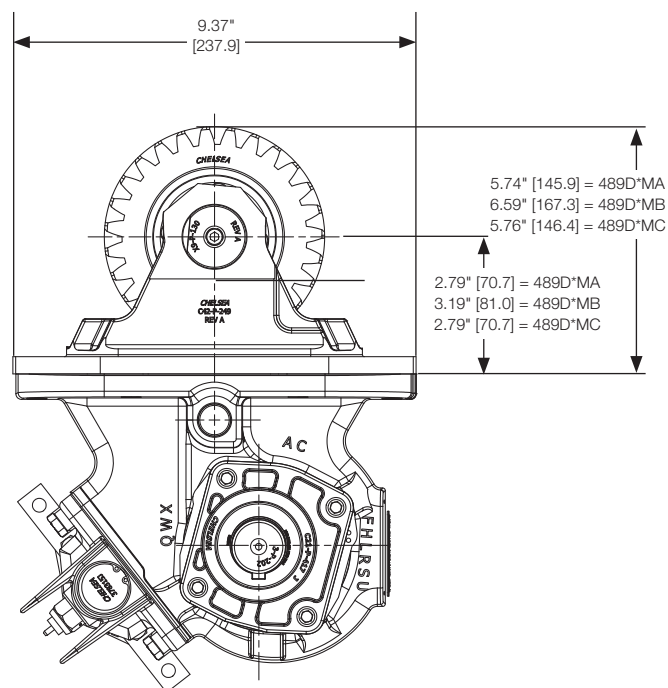
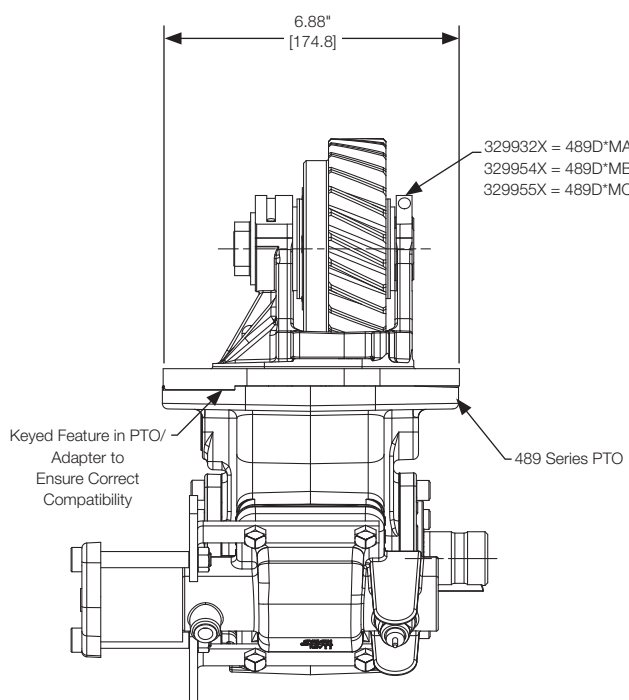


PTO Series	Part Number	CA	CH
489 Standard (X & D Option)	X = 1-P-552X D = 1-P-799X	1.072"	6.708"
489 Deep Mount (Z Option)	1-P-562X	0.930"	6.566"
489 CAT TH55 Mount (C Option)	1-P-659X	1.029"	6.566"
489 Deep Mount (E Option)	1-P-633X	.709"	6.345"
489 Deep Mount (Q Option)	1-P-781X	.863"	6.452"

489 Series PTO with Detroit® DT12® Adapter



Assembly 6



Output Conversion Kits

Flange Suffix	Flange Type	Shaft Type	Conversion Kit	442	447	489
XX	SAE Tapered Shaft	1-1/4" w/ 5/16" Key	XD to XX 328591-122X	x	x	x
XE	SAE A 2 or 4-Bolt	5/8" - 9T Spline	XD to XE 328591-27X	x	x	x
AK	SAE B 2-Bolt	7/8" - 13T Spline	XD to AK XD to AK (B Ratio Only) 328591-28X 329436-7X	x	x	x
SQ	SAE B 4-Bolt	7/8" - 13T Spline	XD to SQ XD to SQ (B Ratio Only) 328591-149X 329436-9X	x		x
XK	SAE B 2 or 4-Bolt	7/8" - 13T Spline	XD to XK XD to XK (B Ratio Only) 328591-16X 329436-3X	x	x	x
■ XQ	SAE B 2 or 4-Bolt	7/8" - 13T Spline	XD to XQ XD to XQ (B Ratio Only) 328591-17X 329436-6X	x	x	x
AF	SAE B 2 or 4-Bolt	1" - 15T Spline	XD to AF 328591-30X	x	x	x
AZ	Non-Standard	1-1/4" - 14T Spline	XD to AZ 328591-70X	x	x	x
*FF	SAE B	7/8" - 13T Spline	XD to FF 328591-29X	x	x	x
*GP	SAE A Pilot 2-Bolt	● 7/8" - 13T Spline	XP to GP XD to GP 328591-86X 328591-90X	x	x	x
*GE	SAE A 2 or 4-Bolt	5/8" - 9T Spline		x		x
GA	Rotatable SAE B 2-Bolt	● 7/8" - 13T Spline	XD to GA XR to GA RA to GA 328591-72X 328591-73X 328591-106X	x	x	x
*GH	Rotatable SAE BB 2-Bolt	● 1" - 15T Spline	XD to GH RF to GH 328591-116X 328591-114X	x	x	x
GB	Rotatable SAE B 4-Bolt	● 7/8" - 13T Spline	XD to GB XR to GB RB to GB 328591-74X 328591-75X 328591-107X	x	x	x
*GJ	Rotatable SAE B 4-Bolt	● 1" - 15T Spline	XD to GJ RE to GJ 328591-138X 328591-114X	x	x	x
GK	SAE B 2 or 4-Bolt	● 7/8" - 13T Spline	XD to GK XK to GK 328591-89X 328591-86X	x	x	x
GL	Rotatable SAE B 2 or 4-Bolt	● 7/8" - 13T Spline	XD to GL 328591-163X	x	x	x
■ GQ	SAE B 2 or 4-Bolt	● 7/8" - 13T Spline	XD to GQ XQ to GQ 328591-91X 328591-86X	x	x	x
GF	SAE BB 2 or 4-Bolt	● 1" - 15T Spline	XD to GF AF to GF 328591-71X 328591-108X	x	x	x
GR	CHELSEA SPECIAL 4-Bolt	● 7/8" - 13T Spline	XD to GR 328591-76X	x	x	x
GY	DIN 5462 Pump Mounting	DIN 5462	XD to GY XY to GY 328591-92X 328591-89X	x	x	x
GZ	Non-Standard 4-Bolt	● 1-1/4" - 14T Spline	XD to GZ AZ to GZ 328591-93X 328591-88X	x	x	x
*RH	Rotatable SAE A 2-Bolt		XD to RH 328591-151X	x		x
RC	Rotatable SAE A 2-Bolt	5/8" - 9T Spline	XD to RC 328591-112X	x	x	x
RD	Rotatable SAE A 2-Bolt	7/8" - 13T Spline	XD to RD XD to RD (B Ratio Only) 328591-113X 329436-8X	x	x	x

NOTE: Check Current Price Sheet for Availability of Output Options

XR to XK Conversion Flange 21-P-525

- Shaft with Grease Fitting
- Similar to Assembly XK Flange Rotated 90°

♦ No longer a current option per Chelsea Suggested List Price.

Output Options**442/447/489 Series****Output Conversion Kits (Continued)**

Flange Suffix	Flange Type	Shaft Type	Conversion Kit	442	447	489
RA	Rotatable SAE B 2-Bolt	7/8" - 13T Spline	XD to RA 328591-55X XR to RA 328591-53X XD to RA (B Ratio Only) 329436-1X	x	x	x
RB	Rotatable SAE B 4-Bolt	7/8" - 13T Spline	XD to RB 328591-56X XR to RB 328591-54X XR to RB (B Ratio Only) 329436-2X	x	x	x
RF	Rotatable SAE B 2-Bolt	1" - 15T Spline	XD to RF 328591-78X	x	x	x
RK	Rotatable SAE B 2 or 4-Bolt	7/8" - 13T Spline	XD to RK (Wet Spline Only) 328591-160X XD to RK (Dry Spline Only) 328591-159X	x	x	x
RE	Rotatable SAE B 4-Bolt	1" - 15T Spline	XD to RE 328591-134X	x	x	x
RJ	Rotatable SAE B 2 or 4-Bolt	1" - 15T Spline	XD to RJ (Wet Spline Only) 328591-162X			x
RY	Rotatable DIN 5462	DIN 5462	XD to RY 328591-131X	x	x	x
*PA	Rotatable SAE B 2-Bolt	7/8" - 13T Spline	XD to PA 328591-143X			x
*PF	Rotatable SAE B 2-Bolt	1" - 15T Spline	XD to PF 328591-142X			x
XR	CHELSEA SPECIAL 4-Bolt	7/8" - 13T Spline	XD to XR 328591-52X	x	x	x
XY	DIN 5462 Pump Mounting	DIN 5462	XD to XY 328591-121X	x	x	x
*XV	1350/1410 Companion Flange		XD to XV 328591-130X			x
*XJ	SAE A 2-Bolt	3/4" - w/ 3/16 Key	XD to XJ 328591-11X	x	x	x
*XL	SAE A 2-Bolt	7/8" - 13T Spline	XD to XL (Except B Ratio) 328591-18X	x	x	x
*XG	SAE A 2-Bolt	3/4" - w/ 3/16 Key	XD to XG 328591-10X	x	x	x
*XP	SAE A Pilot 2-Bolt	7/8" - 13T Spline	XD to XP (Except B Ratio) 328591-23X	x	x	x
*XO	SAE A Pilot 2-Bolt	3/4" - 3/16 Key	XD to XO 328591-26X	x	x	x
*AA	Special Pump for England			x	x	x

NOTE: Check Current Price Sheet for Availability of Output Options

XR to XK Conversion Flange 21-P-525

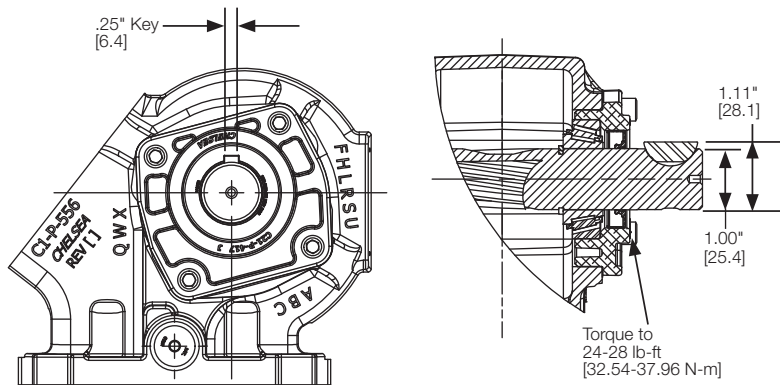
- Shaft with Grease Fitting
- Similar to Assembly XK Flange Rotated 90°

* No longer a current option per Chelsea Suggested List Price.

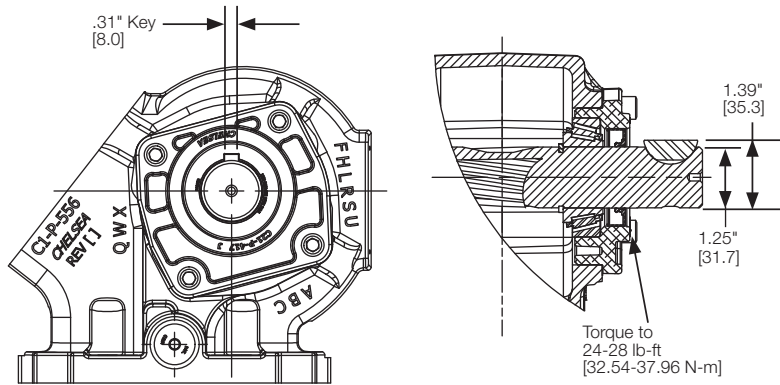
Output Options

Parts List
442/447/489 Series

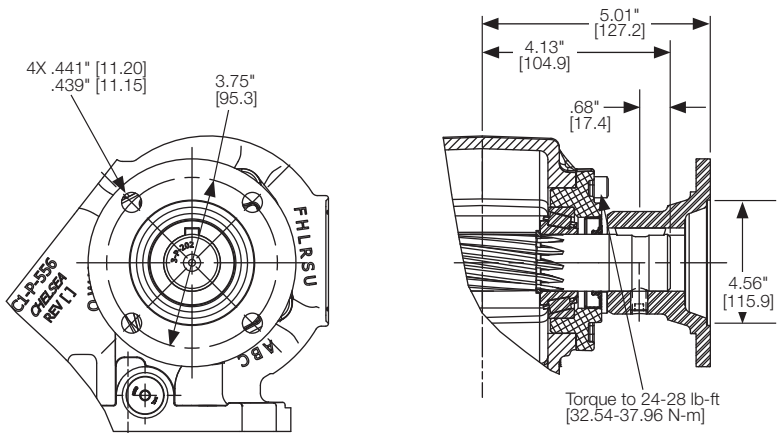
Bill of Materials - Driveline Output



*XB Output Option (442, 489 Only) Rd Standard Shaft (1" - 1/4" Key)		
Part Number	Description	Qty.
3-P-1011	Output Shaft.....	1
22-P-127-1	Gasket (.010")	A.R.
22-P-127-2	Gasket (.020")	A.R.
22-P-127-3	Gasket (.015")	A.R.
28-P-216	Oil Seal.....	1
328273X	Bearing Cap Assembly	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4
500007-24	Woodruff Key (.250")	1



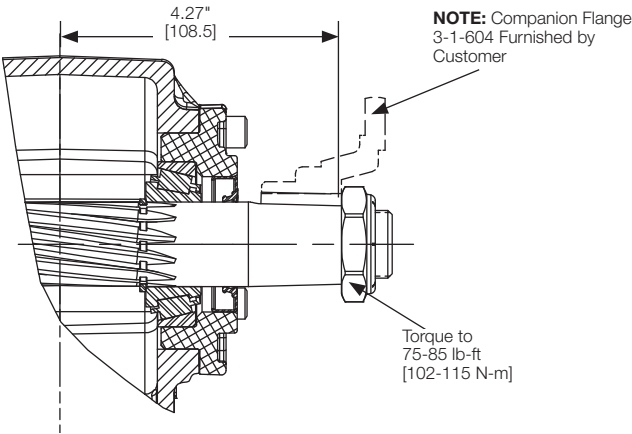
XD Output Option Rd Standard Shaft (1-1/4" - 5/16" Key)		
Part Number	Description	Qty.
3-P-202	Output Shaft.....	1 or
3-P-978	Output Shaft (B Ratio, DT12® only).....	1
22-P-127-1	Gasket (.010")	A.R.
22-P-127-2	Gasket (.020")	A.R.
22-P-127-3	Gasket (.015")	A.R.
28-P-216	Oil Seal (2.004" x 1.250" x .374")...	1
328273X	Bearing Cap Assembly	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4
500007-29	Woodruff Key (.312")	1



*XV Output Option (489 Only) 1350/1410 Companion Flange		
Part Number	Description	Qty.
3-P-202	Output Shaft.....	1 or
3-P-978	Output Shaft (B Ratio, DT12® only).....	1
28-P-216	Oil Seal.....	1
21-P-418	Bearing Cap Assembly	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4
500007-29	Woodruff Key.....	1
*328591-130X	Conversion Kit (XD to XV)	

A.R. - As Required
❖ No longer a current option per Chelsea Suggested List Price.
†Conversion Kits do not include all parts shown above. See pages 76-84 for Conversion Kit BOMs.

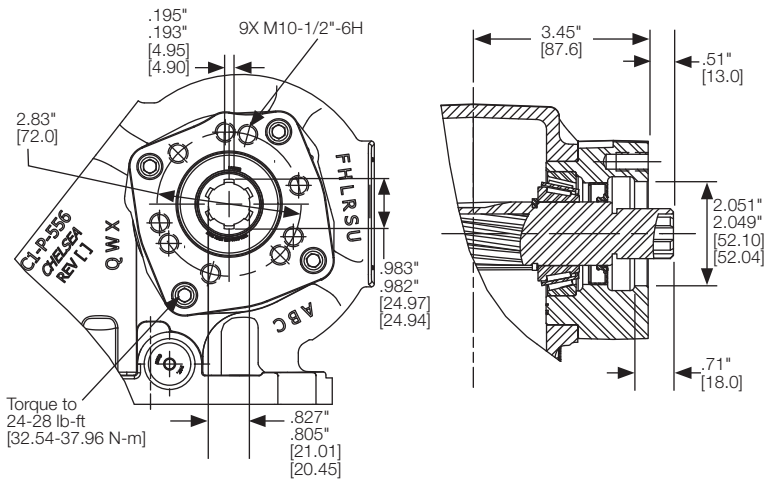
Bill of Materials - Driveline Output (Continued)



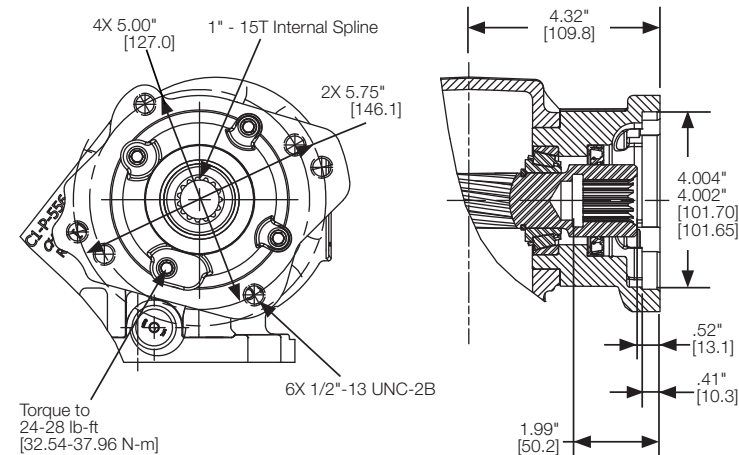
XX Output Option Tapered Output Shaft		
Part Number	Description	Qty.
3-P-766	Output Shaft.....	1
28-P-216	Oil Seal.....	1
328273X	Bearing Cap Assembly	1
378447-6	1/2" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4
379111	Square Key.....	1
501181	Hex Locknut (1.000"-20)	1
†328591-122X	Conversion Kit (XD to XX)	

❖ No longer a current option per Chelsea Suggested List Price.
†Conversion Kits do not include all parts shown above. [See pages 76-84](#) for Conversion Kit BOMs.

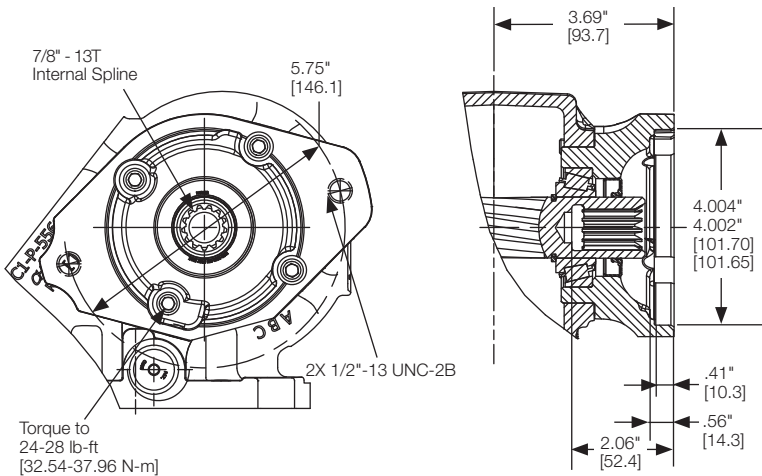
Bill of Materials – Pump Mount



*AA Output Option Special Pump for England		
Part Number	Description	Qty.
3-P-862	Output Shaft.....	1
28-P-216	Oil Seal.....	1
329102X	Bearing Cap Assembly	1
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4



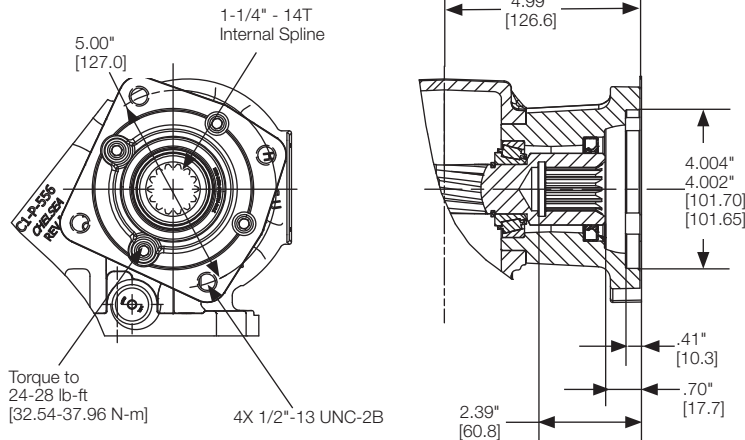
AF Output Option (GF Greasable Option) SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T)		
Part Number	Description	Qty.
3-P-854	Output Shaft.....	1
28-P-219	Oil Seal.....	1
329088X	Bearing Cap Assembly	1
329658X	Cover Kit (Wet Spline Only)	1
378447-10	1/4" Socket Hex Head Cap Screw (.312"-18 x 2.000")	4
†328591-30X	Conversion Kit (XD to AF)	
†328591-71X	Conversion Kit (XD to GF)	
†328591-108X	Conversion Kit (AF to GF)	



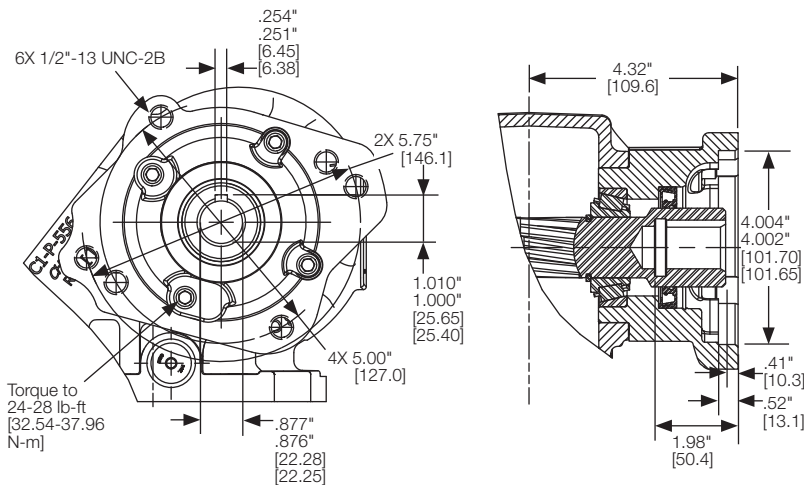
AK Output Option (GK Greasable Option) SAE B 2-Bolt Flange, SAE B Shaft (7/8" - 13T)		
Part Number	Description	Qty.
3-P-282	Output Shaft.....	1 or
3-P-979	Output Shaft (B Ratio, DT12® only)	1
28-P-216	Oil Seal.....	1
328989X	Bearing Cap Assembly	1
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
†328591-28X	Conversion Kit (XD to AK)	
†329436-7X	Conversion Kit (XD to AK) (B Ratio)	
†328591-89X	Conversion Kit (XD to GK)	
†328591-86X	Conversion Kit (XK to GK)	

♦ No longer a current option per Chelsea Suggested List Price.
†Conversion Kits do not include all parts shown above. See pages 76-84 for Conversion Kit BOMs.

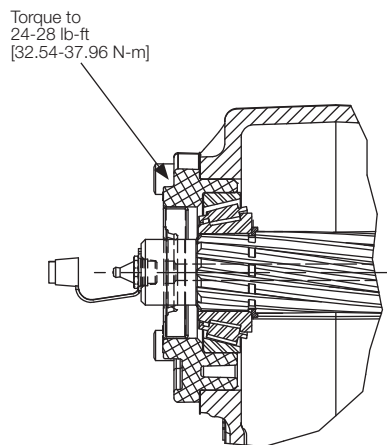
Bill of Materials — Pump Mount (Continued)



AZ Output Option (GZ Greasable Option) SAE B 4-Bolt Flange, SAE C Shaft (1-1/4" - 14T)		
Part Number	Description	Qty.
3-P-844	Output Shaft.....	1
28-P-275	Oil Seal.....	1
329052X	Bearing Cap Assembly	1
378447-11	1/4" Socket Hex Head Cap Screw (.312"-18 x 2.250")	4
†328591-70X	Conversion Kit (XD to AZ)	
†328591-93X	Conversion Kit (XD to GZ)	
†328591-88X	Conversion Kit (AZ to GZ)	



*FF Output Option SAE B Pump Flange, SAE B Shaft (7/8" - 1/4" Key)		
Part Number	Description	Qty.
3-P-851	Output Shaft.....	1
28-P-219	Oil Seal.....	1
329088X	Bearing Cap Assembly	1
378447-10	1/4" Socket Hex Head Cap Screw (.312"-18 x 2.000")	4
†328591-29X	Conversion Kit (XD to FF)	

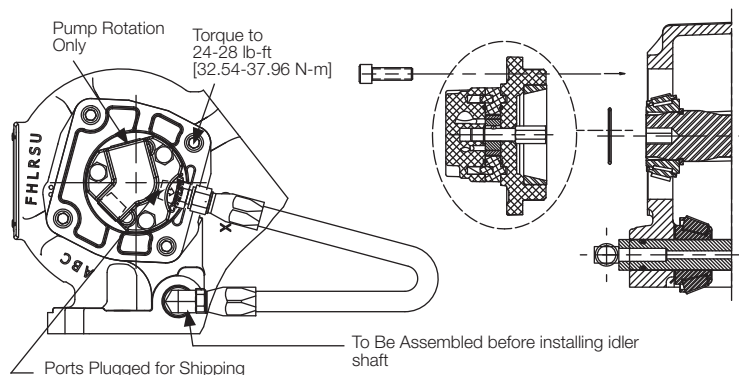


G* Output Option Greaseable Flange		
Part Number	Description	Qty.
3-P-923X	GA, GB, GL, GR Shaft Assemblies	1 or
3-P-921X	GF Shaft Assemblies	1 or
3-P-933X	GQ, GK, GP Shaft Assemblies.....	1 or
3-P-938X	GY Shaft Assemblies	1 or
3-P-939X	GZ Shaft Assemblies	1 or
3-P-941X	GH, GJ Shaft Assemblies	1 or
3-P-981X	GE Shaft Assemblies	1
28-P-268	Oil Seal.....	1
328273X	Bearing Cap Assembly	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4

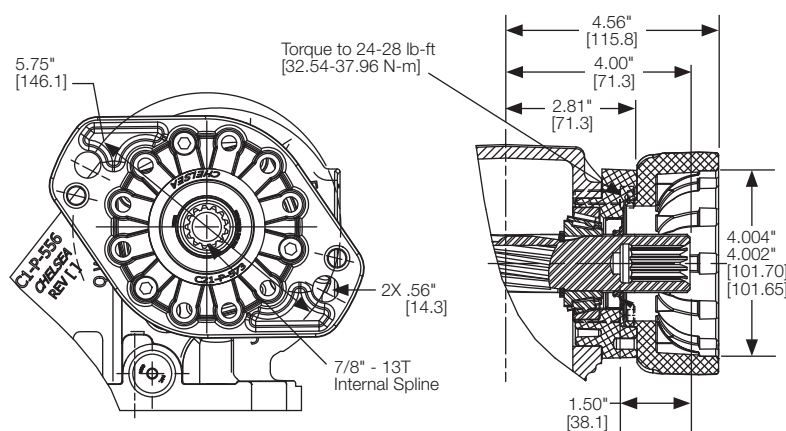
❖ No longer a current option per Chelsea Suggested List Price.

†Conversion Kits do not include all parts shown above. See pages 76-84 for Conversion Kit BOMs.

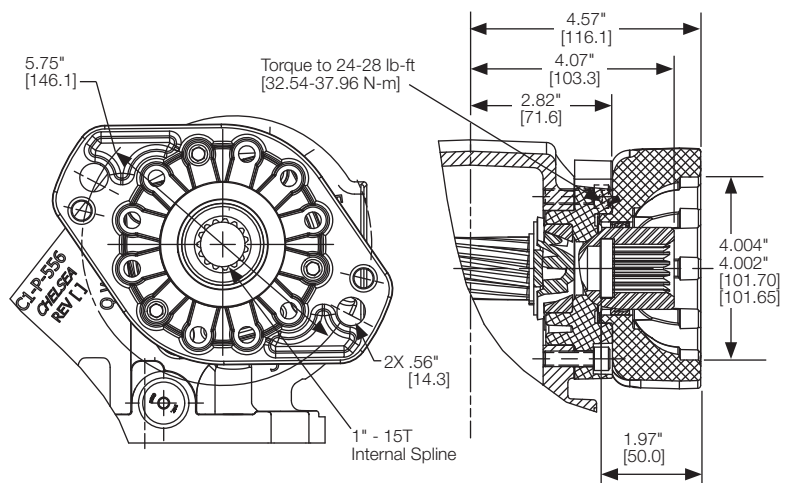
Bill of Materials — Pump Mount (Continued)



L Output Option Self Lube		
Part Number	Description	Qty.
3-P-857	Output Shaft (LD Output)	1 or
3-P-858	Output Shaft (LA, LB, LC, LE, LF Output)	1
329091X	Lube Pump & Bearing Cap Assembly	1
329092X	Pressure Lube Hose Assembly (Ship Loose)	1
379534	Installation Instruction Tag	1
500841-1	90° Street Elbow	1
500897-3	Shipping Plug	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4



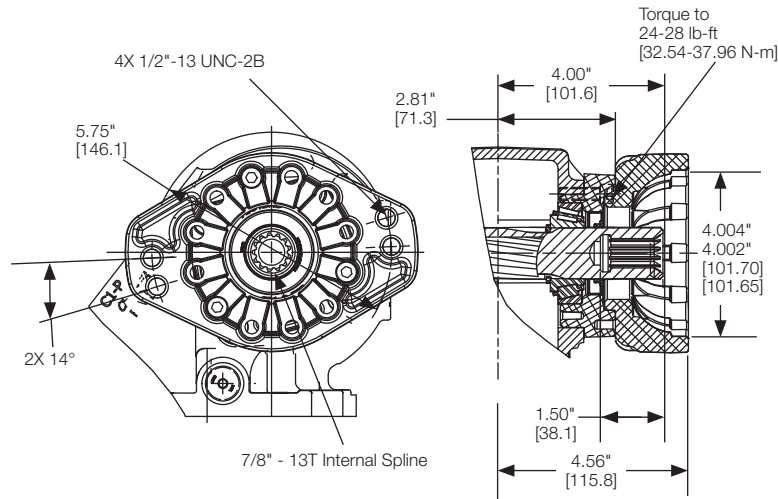
*PA Output Option (489 Only) Rotatable SAE B 2-Bolt Flange, SAE B Shaft (7/8" - 13T)		
Part Number	Description	Qty.
3-P-283	Output Shaft	1
28-P-216	Oil Seal	1
329195X	Bearing Cap Assembly	1
21-P-661	Pump Flange	1
328170-207X	Cap Screw Bag Kit	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4
†328591-143X	Conversion Kit (XD to PA)	



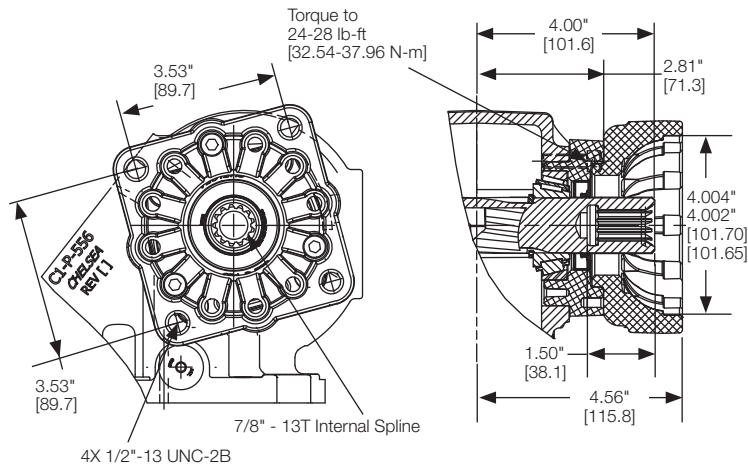
*PF Output Option (489 Only) Rotatable SAE B 2-Bolt Flange, SAE BB Shaft (1" - 15T)		
Part Number	Description	Qty.
3-P-924	Output Shaft	1
28-P-219	Oil Seal	1
329264X	Bearing Cap Assembly	1
21-P-661	Pump Flange	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
28-P-271	O-ring	1
†328591-142X	Conversion Kit (XD to PF)	

✦ No longer a current option per Chelsea Suggested List Price.

†Conversion Kits do not include all parts shown above. See pages 76-84 for Conversion Kit BOMs.

Bill of Materials — Pump Mount (Continued)

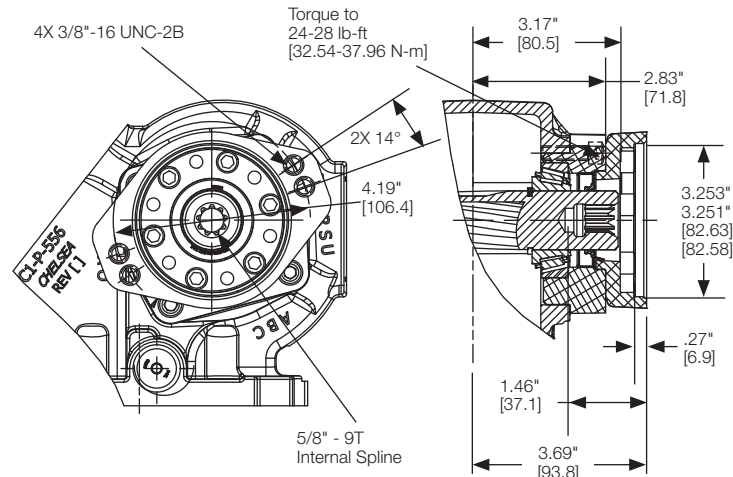
RA Output Option (GA Greasable Option) Rotatable SAE B 2-Bolt Flange, SAE B Shaft (7/8" - 13T)		
Part Number	Description	Qty.
3-P-283	Output Shaft.....	1 or
3-P-980	Output Shaft (B Ratio, DT12® only).....	1
28-P-216	Oil Seal.....	1
329195X	Bearing Cap Assembly	1
21-P-628	Pump Flange (Ship Loose w/ Unit)	1
328170-207X	Cap Screw Bag Kit	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000").....	4
†328591-55X	Conversion Kit (XD to RA)	
†328591-53X	Conversion Kit (XR to RA)	
†329436-1X	Conversion Kit (XD to RA) (B Ratio Only)	
†328591-72X	Conversion Kit (XD to GA)	
†328591-73X	Conversion Kit (XR to GA)	
†328591-106X	Conversion Kit (RA to GA)	



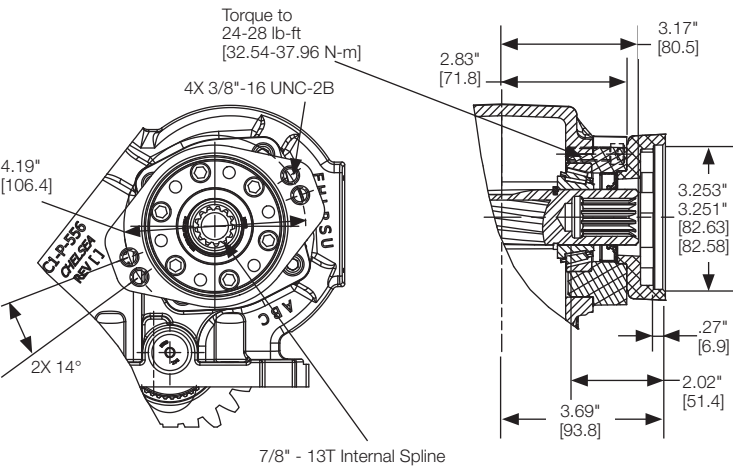
RB Output Option (GB Greasable Option) Rotatable SAE B 4-Bolt Flange, SAE B Shaft (7/8" - 13T)		
Part Number	Description	Qty.
3-P-283	Output Shaft.....	1 or
3-P-980	Output Shaft (B Ratio, DT12® only).....	1
28-P-216	Oil Seal.....	1
329195X	Bearing Cap Assembly	1
21-P-572	Pump Flange 4-Bolt (Ship Loose w/ Unit)	1
328170-207X	Cap Screw Bag Kit	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000").....	4
†328591-56X	Conversion Kit (XD to RB)	
†328591-54X	Conversion Kit (XR to RB)	
†329436-2X	Conversion Kit (XD to RB) (B Ratio Only)	
†328591-74X	Conversion Kit (XD to GB)	
†328591-75X	Conversion Kit (XR to GB)	
†328591-107X	Conversion Kit (RB to GB)	

†Conversion Kits do not include all parts shown above. See pages 76-84 for Conversion Kit BOMs.

Bill of Materials — Pump Mount (Continued)



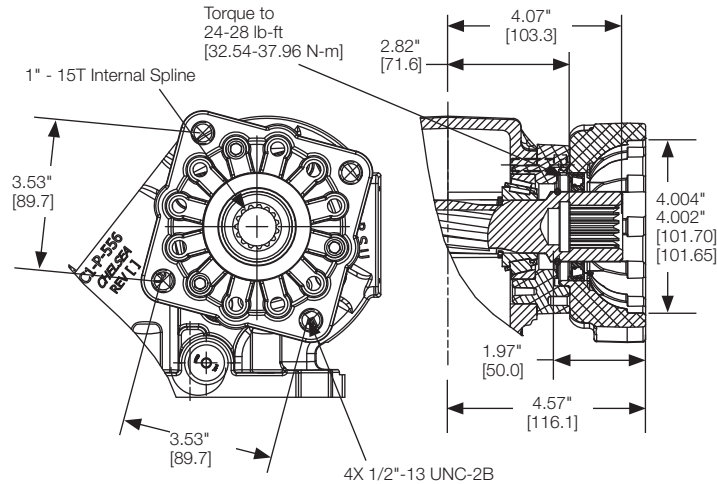
RC Output Option Rotatable SAE A 2-Bolt Flange, SAE A Shaft (5/8" - 9T)		
Part Number	Description	Qty.
3-P-800	Output Shaft.....	1
28-P-216	Oil Seal.....	1
329322X	Bearing Cap Assembly	1
21-P-638	Pump Flange (Ship Loose w/ Unit)	1
328170-210X	Cap Screw Bag Kit.....	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000").....	4
378446-4	1/4" Socket Hex Head Cap Screw (.250"-20 x .750").....	6
†328591-112X	Conversion Kit (XD to RC)	



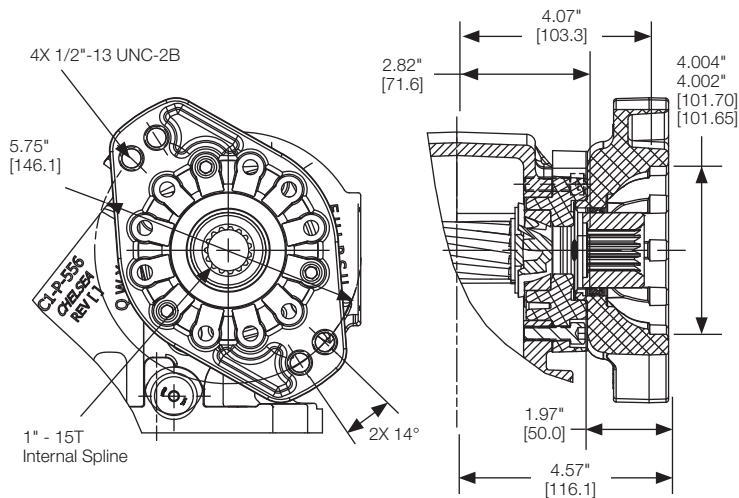
RD Output Option Rotatable SAE A 2-Bolt Flange, SAE B Shaft (7/8" - 13T)		
Part Number	Description	Qty.
3-P-282	Output Shaft.....	1 or
3-P-979	Output Shaft (B Ratio, DT12® only)	1
28-P-216	Oil Seal.....	1
329322X	Bearing Cap Assembly	1
21-P-638	Pump Flange (Ship Loose w/ Unit)	1
328170-210X	Cap Screw Bag Kit.....	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000").....	4
378446-4	1/4" Socket Hex Head Cap Screw (.250"-20 x .750").....	6
†328591-113X	Conversion Kit (XD to RD)	
†329436-8X	Conversion Kit (XD to RD) (B Ratio Only)	

†Conversion Kits do not include all parts shown above. See pages 76-84 for Conversion Kit BOMs.

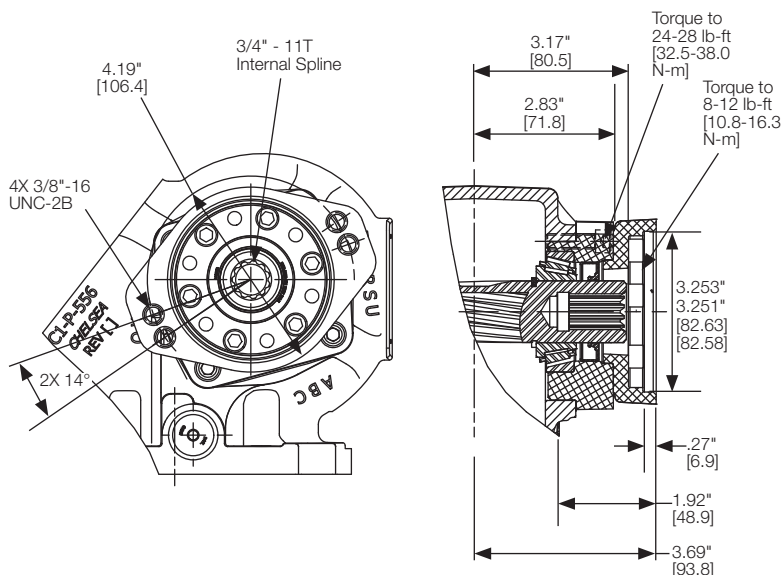
Bill of Materials — Pump Mount (Continued)



RE Output Option (GJ Greasable Option) Rotatable SAE B 4-Bolt Flange, SAE BB Shaft (1" - 15T)		
Part Number	Description	Qty.
3-P-924	Output Shaft.....	1
28-P-219	Oil Seal	1
329264X	Bearing Cap Assembly	1
21-P-654	Pump Flange	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
28-P-271	O-ring.....	1
†328591-134X	Conversion Kit (XD to RE)	
†328591-138X	Conversion Kit (XD to GJ)	
†328591-114X	Conversion Kit (RE to GJ)	



RF Output Option (GH Greasable Option) Rotatable SAE B 2 & 4-Bolt Flange, SAE BB Shaft (1" - 15T)		
Part Number	Description	Qty.
3-P-924	Output Shaft.....	1
28-P-219	Oil Seal	1
329264X	Bearing Cap Assembly	1
21-P-626	Pump Flange	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
28-P-271	O-ring.....	1
†328591-78X	Conversion Kit (XD to RF)	
†328591-116X	Conversion Kit (XD to GH)	
†328591-114X	Conversion Kit (RF to GH)	



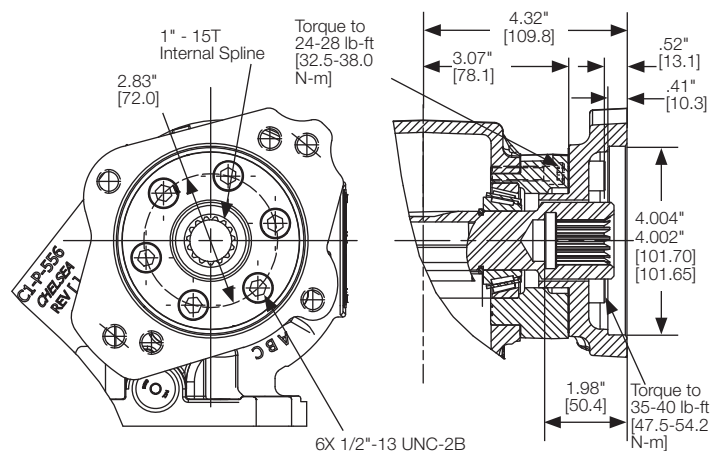
*RH Output Option (442, 489 Only) Rotatable SAE B 2-Bolt Flange, SAE BB Shaft (1" - 15T)		
Part Number	Description	Qty.
3-P-1010	Output Shaft.....	1
28-P-216	Oil Seal	1
329322X	Bearing Cap Assembly (21-P-640)	1
21-P-638	Pump Flange	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4
378446-4	Socket Hex Head Cap Screw	6
†328591-151X	Conversion Kit (XD to RH)	

❖ No longer a current option per Chelsea Suggested List Price.

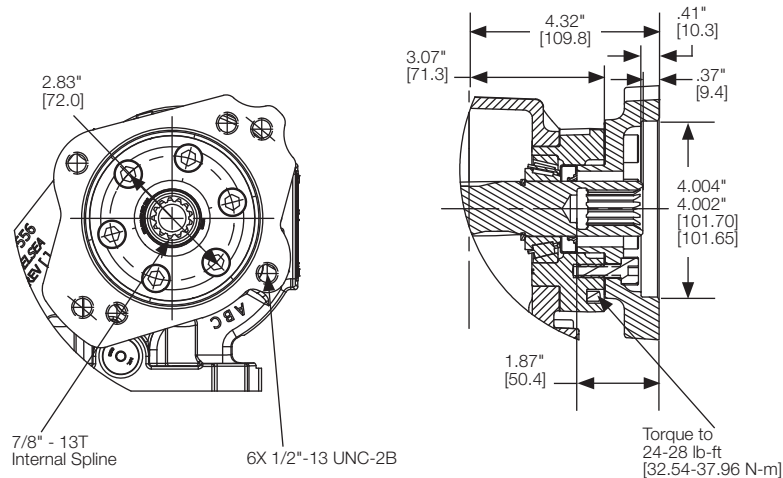
†Conversion Kits do not include all parts shown above. See pages 76-84 for Conversion Kit BOMs.

Output Options

Bill of Materials — Pump Mount (Continued)



RJ Output Option (489 Only) Rotatable SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T)		
Part Number	Description	Qty.
3-P-854	Output Shaft.....	1
3-P-1255	Output Shaft (B Ratio, DT12® only).....	1
329656X	Bearing Cap Assembly (21-P-732).....	1
21-P-734	Pump Flange.....	1
379231	Thread Pipe Plug (.125"-27).....	1
378447-7	Socket Hex Head Cap Screw (.312"-18 x 1.500").....	4
379740-6	Socket Hex Head Cap Screw (M10-1.5 x .984").....	6
22-P-126	Gasket.....	1
69-P-18	Wet Spline Tag	1
†328591-162X	Conversion Kit (XD to RJ) (Wet Spline Only)	



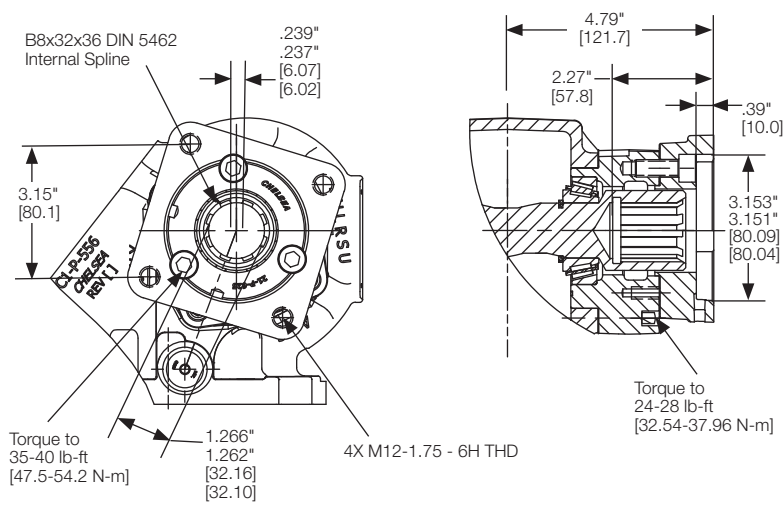
RK Output Option (GL Greasable Option) Rotatable SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T)		
Part Number	Description	Qty.
3-P-283	Output Shaft.....	1
3-P-980	Output Shaft (B Ratio, DT12® only).....	1
28-P-216	Oil Seal (Dry Spline Only)	1
329656X	Bearing Cap Assembly	1
21-P-734	Pump Flange.....	1
379231	Thread Pipe Plug (.125"-27).....	1
22-P-126	Gasket.....	1
69-P-18	Wet Spline Tag	1
329057-2X	Pressure Lube Hose	1
329658X	Cover Kit (Wet Spline Only)	1
379740-6	1/4" Socket Hex Head Cap Screw (M10-1.5 x .984")	6
378447-7	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
329681X	Installation Kit (Wet Spline).....	1
†328591-160X	Conversion Kit (XD to RK) (Wet Spline Only)	
†328591-159X	Conversion Kit (XD to RK) (Dry Spline Only)	
†328591-163X	Conversion Kit (XD to GL)	

†Conversion Kits do not include all parts shown above. See pages 76-84 for Conversion Kit BOMs.

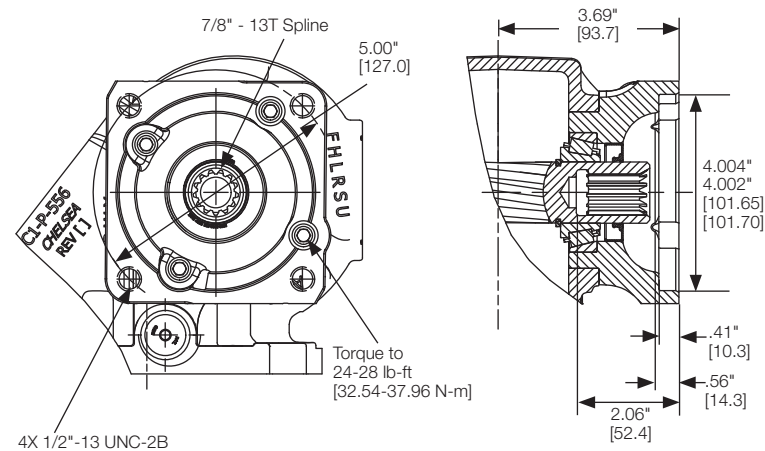
Output Options

442/447/489 Series

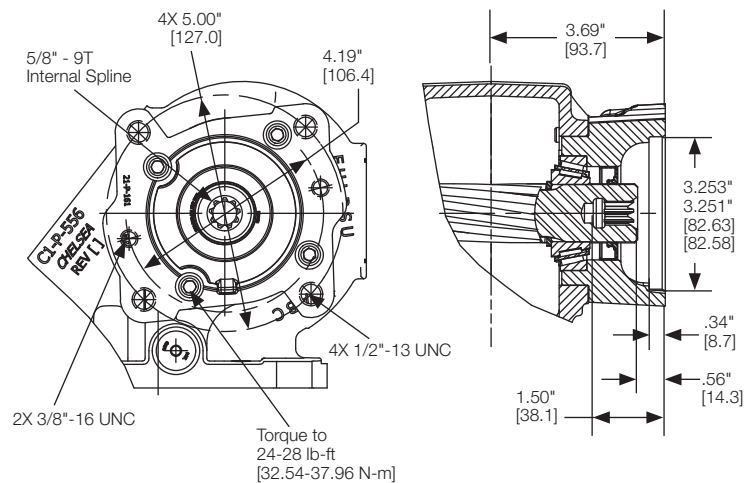
Bill of Materials — Pump Mount (Continued)



RY Output Option Rotatable ISO 7653 Pump Mounting DIN 5462 Shaft		
Part Number	Description	Qty.
3-P-768	Output Shaft.....	1
21-P-625	Pump Flange (Ships Loose w/ Unit).....	1
329356X	Bearing Cap Assembly	1
378447-8	Socket Head Cap Screw (.312\"-18 x 1.500\")	4
329355-1X	Standard Loose Parts Kit.....	1
379740-6	Socket Head Cap Screw (M10-1.5 x .984\")	3
329659X	Cover Kit (Wet Spline Only)	1
22-P-100	Gasket (In Loose Parts)	1
†328591-131X	Conversion Kit (XD to RY)	



SQ Output Option (442, 489 Only) SAE B 4-Bolt Flange, SAE B Shaft (7/8\" - 13T)		
Part Number	Description	Qty.
3-P-282	Output Shaft.....	1 or
3-P-979	Output Shaft (B Ratio, DT12® only)	1
28-P-216	Oil Seal.....	1
329449X	Bearing Cap Assembly	1
378447-8	1/4\" Socket Hex Head Cap Screw (.312\"-18 x 1.500\")	4
†328591-149X	Conversion Kit (XD to SQ)	
†329436-9X	Conversion Kit (XD to SQ) (B Ratio)	



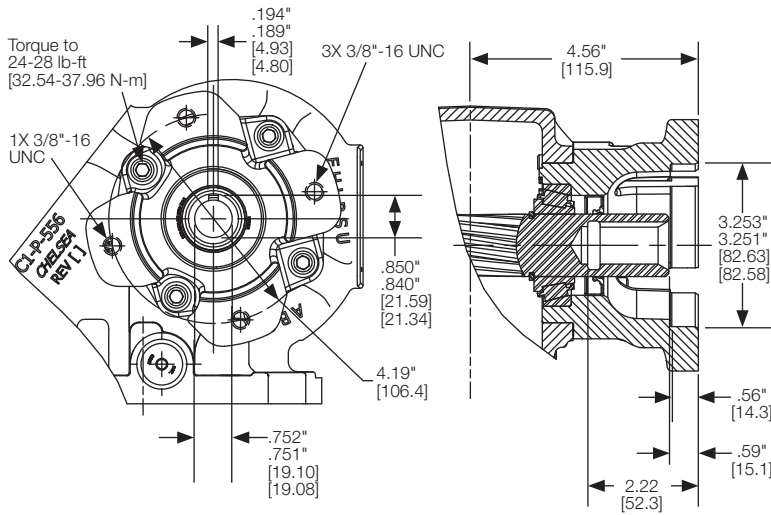
XE Output Option (GE Greasable Option) SAE B 2 or 4-Bolt Flange, SAE A Shaft (5/8\" - 9T)		
Part Number	Description	Qty.
3-P-800	Output Shaft.....	1
28-P-216	Oil Seal.....	1
328328X	Bearing Cap Assembly	1
378447-8	1/4\" Socket Hex Head Cap Screw (.312\"-18 x 1.500\")	4
†328591-27X	Conversion Kit (XD to XE)	

❖ No longer a current option per Chelsea Suggested List Price.

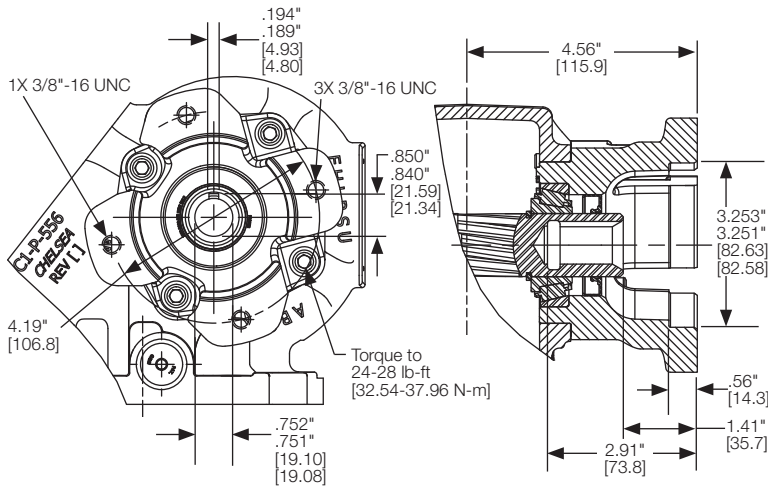
†Conversion Kits do not include all parts shown above. See pages 76-84 for Conversion Kit BOMs.

Output Options

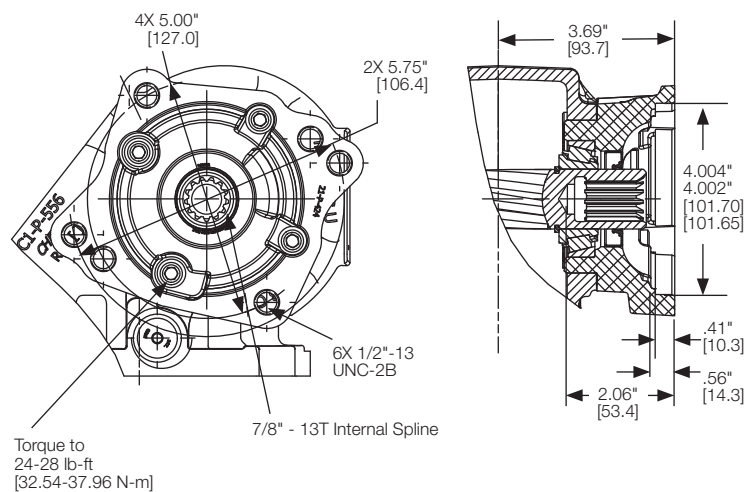
Bill of Materials - Pump Mount (Continued)



*XG Output Option Non-Standard SAE A 2-Bolt Flange, Non-Standard Shaft (3/4" - 3/16" Key)		
Part Number	Description	Qty.
3-P-281	Output Shaft.....	1
28-P-216	Oil Seal.....	1
328580X	Bearing Cap Assembly	1
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
†328591-10X	Conversion Kit (XD to XG)	



*XJ Output Option Non-Standard SAE A 2-Bolt Flange, Non-Standard Shaft (3/4" - 3/16" Key)		
Part Number	Description	Qty.
3-P-284	Output Shaft.....	1
28-P-216	Oil Seal.....	1
328580X	Bearing Cap Assembly	1
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
†328591-11X	Conversion Kit (XD to XJ)	

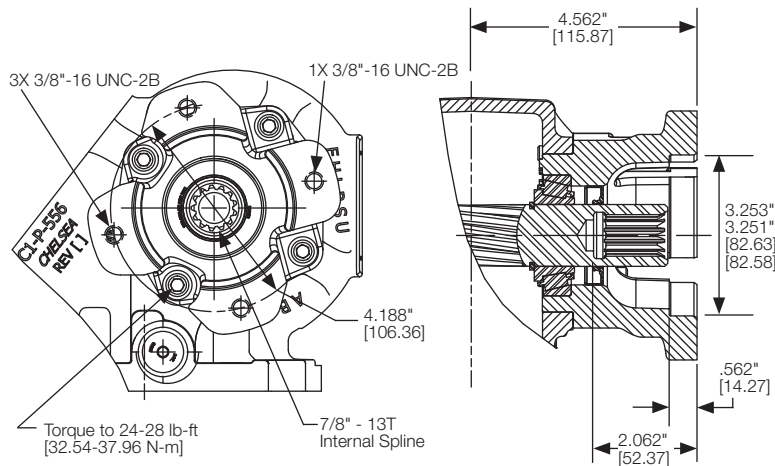


XK Output Option (GK Greasable Option) SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T)		
Part Number	Description	Qty.
3-P-282	Output Shaft.....	1 or
3-P-979	Output Shaft (B Ratio, DT12® only)	1
28-P-216	Oil Seal.....	1
328333X	Bearing Cap Assembly	1
328824X	Bearing Cap Assembly (Wet Spline)	1
329658X	Cover Kit (XK, AF, AZ) (Wet Spline Only)	1
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
†328591-16X	Conversion Kit (XD to XK)	
†329436-3X	Conversion Kit (XD to XK) (B Ratio)	
†328591-89X	Conversion Kit (XD to GK)	
†328591-86X	Conversion Kit (XK to GK)	

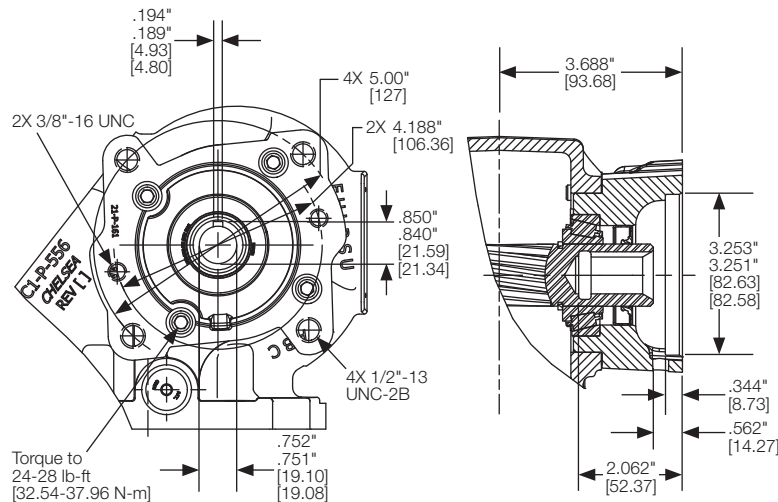
♦ No longer a current option per Chelsea Suggested List Price.

†Conversion Kits do not include all parts shown above. See pages 76-84 for Conversion Kit BOMs.

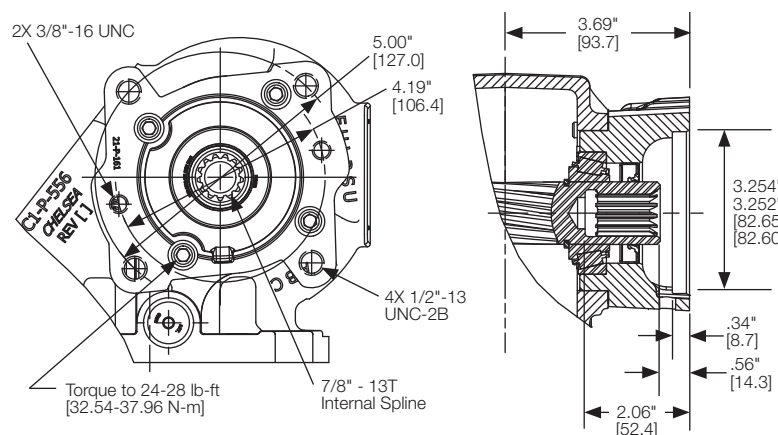
Bill of Materials — Pump Mount (Continued)



*XL Output Option Non-Standard SAE A 2-Bolt Flange, Non-Standard Shaft (7/8" - 13T)		
Part Number	Description	Qty.
3-P-283	Output Shaft.....	1 or
3-P-980	Output Shaft (B Ratio, DT12® only)	1
28-P-216	Oil Seal.....	1
328580X	Bearing Cap Assembly	1
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
†328591-18X	Conversion Kit (XD to XL) (Except B Ratio)	



*XO Output Option Special SAE A Pilot 2-Bolt Flange, Non-Standard Shaft (3/4" - 3/16" Key)		
Part Number	Description	Qty.
3-P-284	Output Shaft.....	1
28-P-216	Oil Seal.....	1
328328X	Bearing Cap Assembly	1
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
†328591-26X	Conversion Kit (XD to XO)	

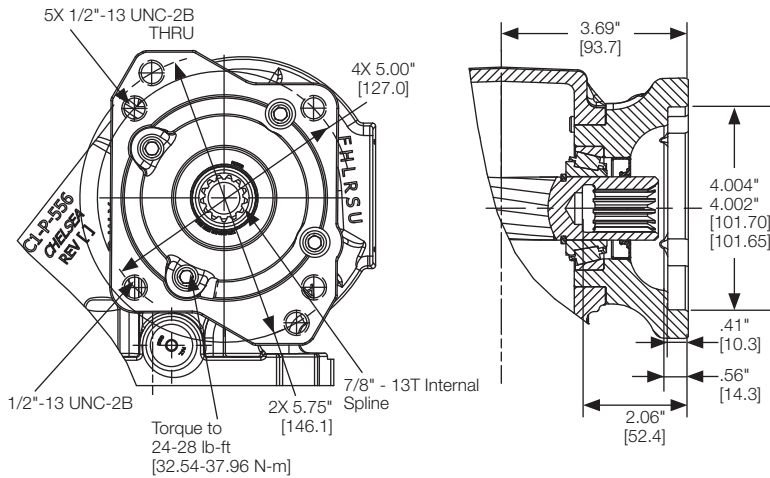


*XP Output Option (GP Greasable Option) Special SAE A Pilot 2-Bolt Flange, SAE B Shaft (7/8" - 13T)		
Part Number	Description	Qty.
3-P-282	Output Shaft.....	1 or
3-P-979	Output Shaft (B Ratio, DT12® only)	1
28-P-216	Oil Seal.....	1
328328X	Bearing Cap Assembly	1
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
†328591-23X	Conversion Kit (XD to XP) (Except B Ratio)	
†328591-90X	Conversion Kit (XD to GP)	
†328591-86X	Conversion Kit (XP to GP)	

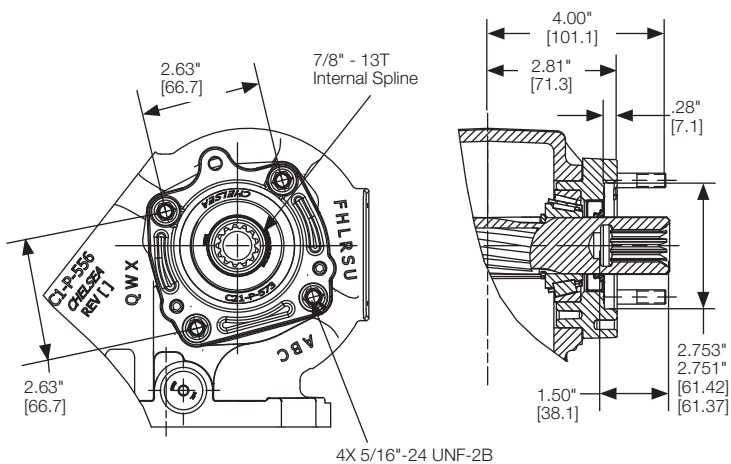
♦ No longer a current option per Chelsea Suggested List Price.

†Conversion Kits do not include all parts shown above. See pages 76-84 for Conversion Kit BOMs.

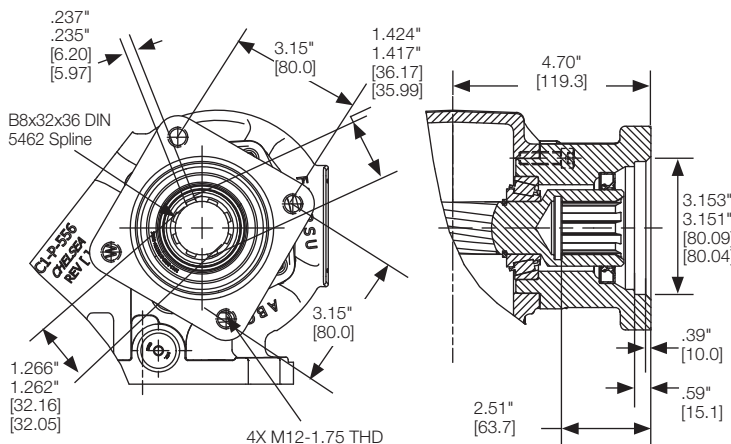
Bill of Materials — Pump Mount (Continued)



XQ Output Option (GQ Greasable Option) SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T)		
Part Number	Description	Qty.
3-P-282	Output Shaft.....	1 or
3-P-979	Output Shaft (B Ratio, DT12® only).....	1
28-P-216	Oil Seal.....	1
328589X	Bearing Cap Assembly	1
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")....	4
†328591-17X	Conversion Kit (XD to XQ)	
†328436-6X	Conversion Kit (XD to XQ) (B Ratio)	
†328591-91X	Conversion Kit (XD to GQ)	
†328591-86X	Conversion Kit (XQ to GQ)	



XR Output Option (GR Greasable Option) Chelsea Special (Cloverleaf), SAE B Shaft (7/8" - 13T)		
Part Number	Description	Qty.
3-P-283	Output Shaft.....	1
28-P-216	Oil Seal.....	1
329194X	Bearing Cap Assembly	1
379673	Hex Shoulder Screw (.312"-24)	4
379063	Flat Washer	4
328711X	Pump Mount Kit	1
†328591-52X	Conversion Kit (XD to XR)	
†328591-76X	Conversion Kit (XD to GR)	

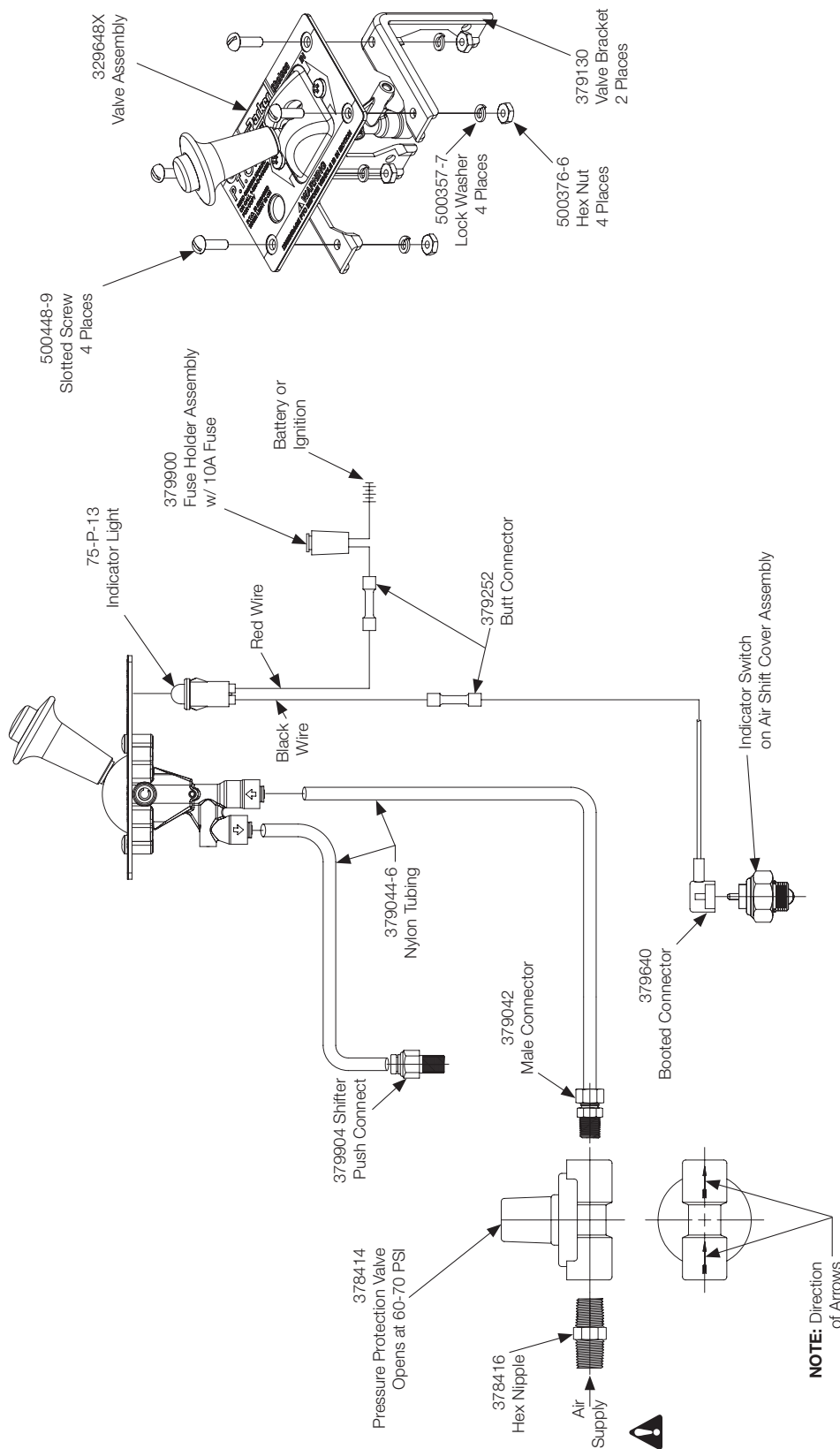


XY Output Option (GY Greasable Option) ISO 7653 Pump Mounting DIN 5462 Shaft		
Part Number	Description	Qty.
3-P-768	Output Shaft.....	1
28-P-275	Oil Seal.....	1
329234X	Bearing Cap Assembly	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000").....	4
†328591-121X	Conversion Kit (XD to XY)	
†328591-92X	Conversion Kit (XD to GY)	
†328591-89X	Conversion Kit (XY to GY)	

†Conversion Kits do not include all parts shown above. See pages 76-84 for Conversion Kit BOMs.

Shift Option A
Air Shift
442/447/489 Series

(SK-462)



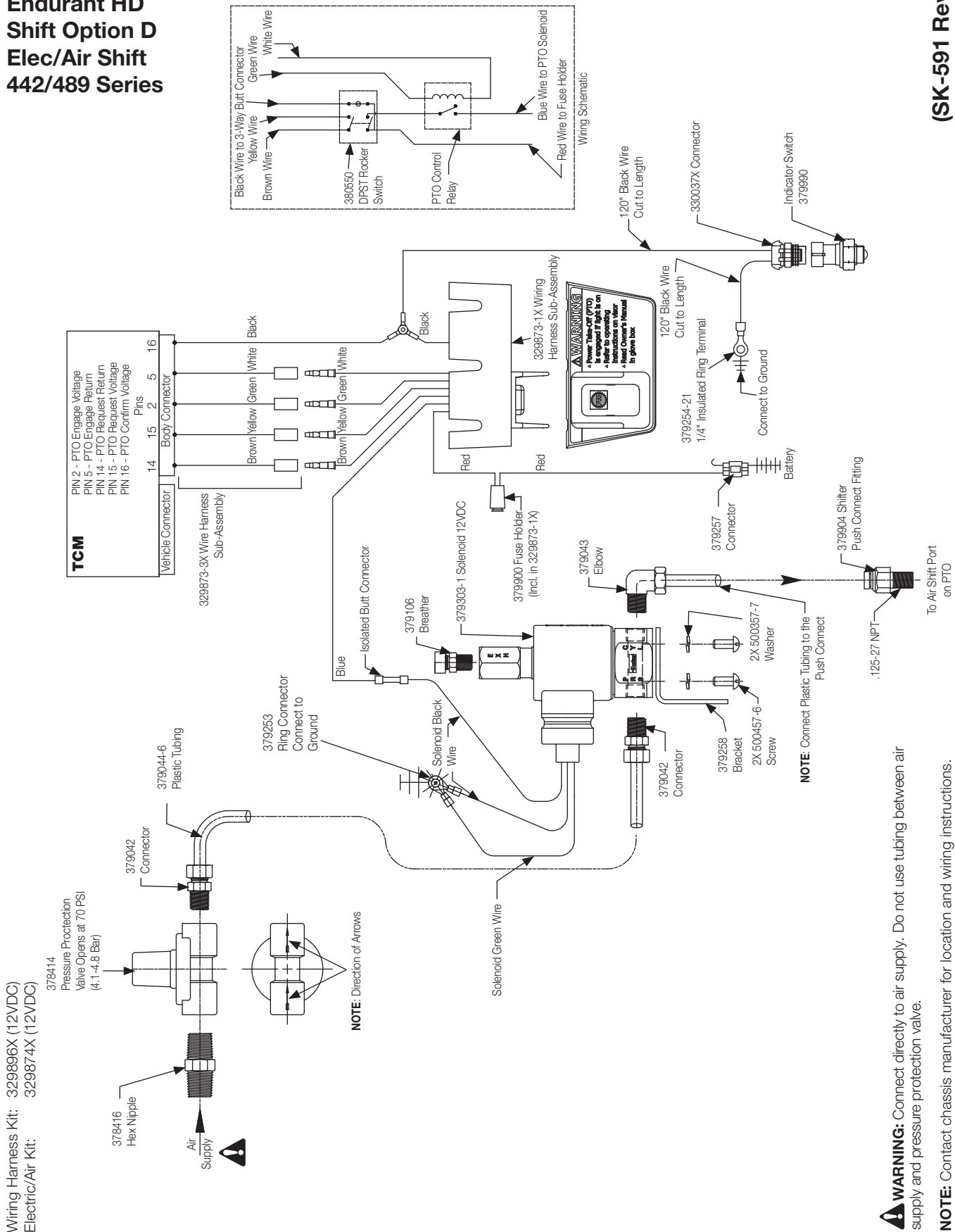
Installation Kit: 328388-98X
 See SK-204 Drilling Template for Control Plate

NOTE: When this installation is used on vehicles with automatic transmissions the PTO drive must be stopped before shifting.

WARNING: Connect directly to air supply. Do not use tubing between air supply and pressure protection valve.
CAUTION: When installing nylon tubing avoid sharp angles, exhaust, and manifold systems.

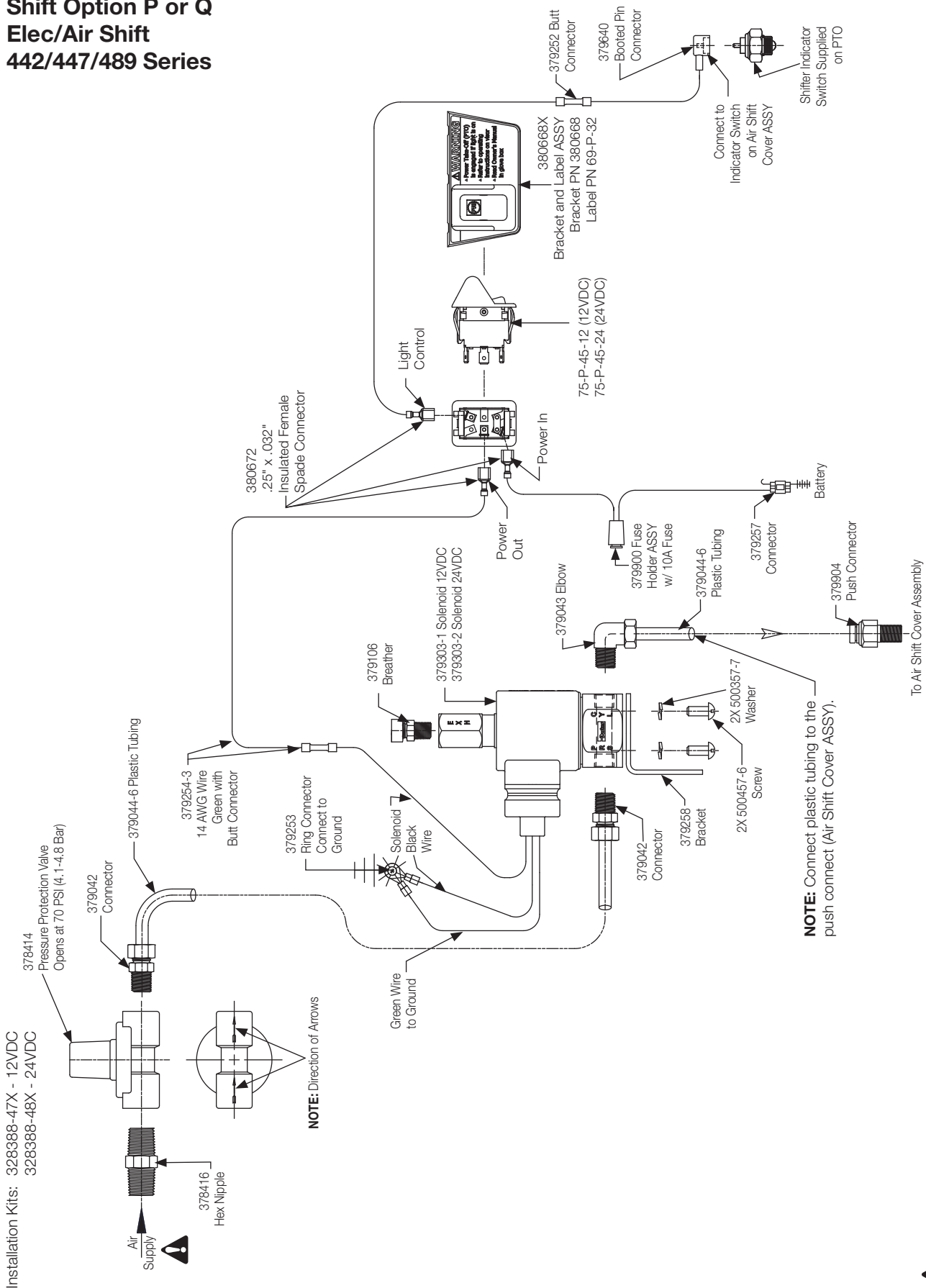
**Eaton Procision™
Endurant HD™
Shift Option D
Elec/Air Shift
442/489 Series**

(SK-591 Rev J)



Shift Option P or Q Elec/Air Shift 442/447/489 Series

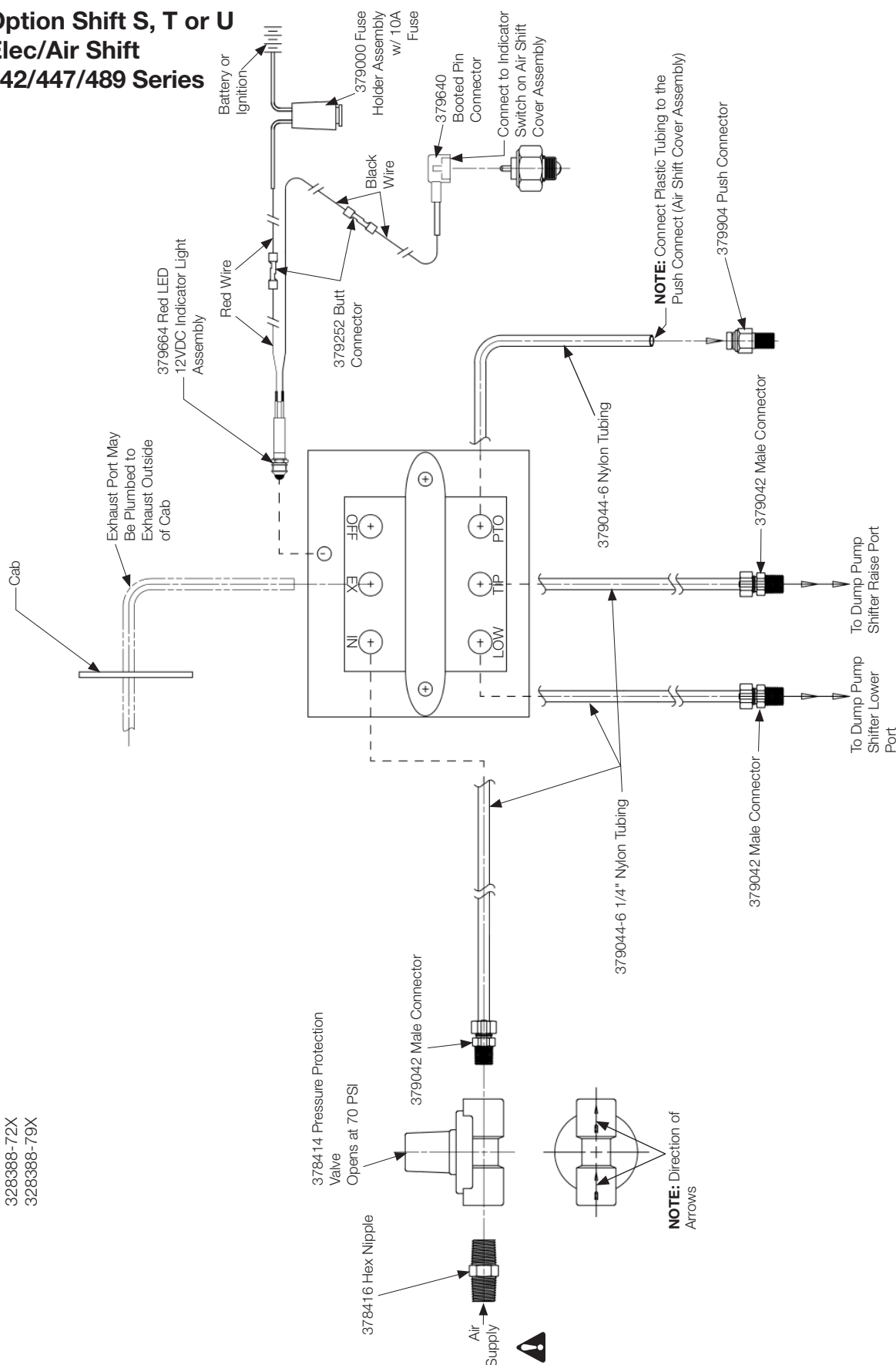
(SK-238 Rev N)



WARNING: Connect directly to air supply. Do not use tubing between air supply and pressure protection valve.

NOTE: Kits contain 75-P-46X wire and connectors kit.

**Option Shift S, T or U
Elec/Air Shift
442/447/489 Series**



! WARNING: Connect directly to air supply. Do not use tubing between air supply and pressure protection valve.

CAUTION: When installing nylon tubing avoid sharp angles, exhaust, and manifold systems.

IMPORTANT: When this installation is used on vehicles with automatic transmissions the, PTO drive gear must be stopped before shifting.

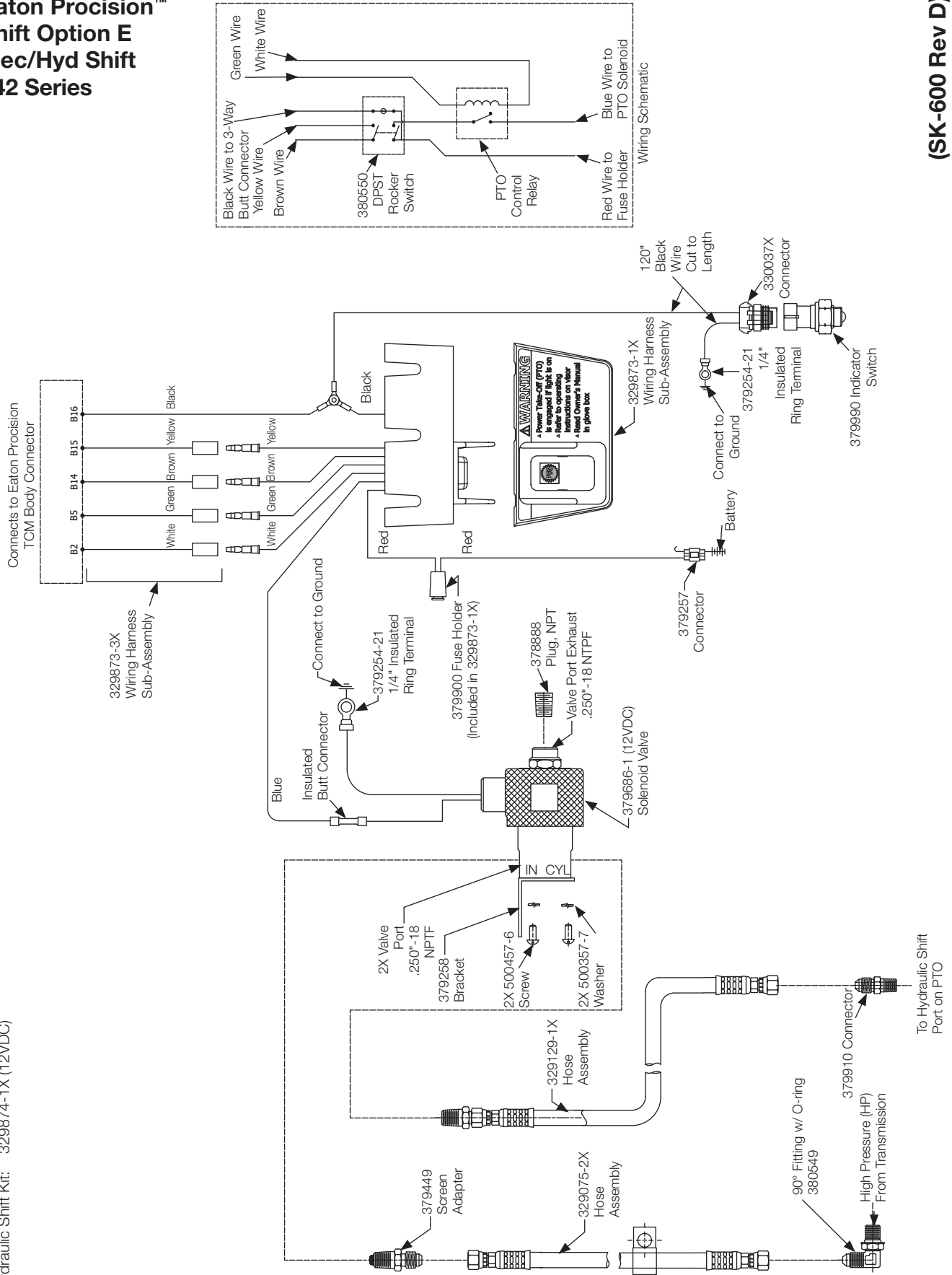
NOTE: Air control valve must be fitted inside a waterproof housing when installed outside the driver's cab.

(SK-297 Rev J)

**Eaton Procision™
Shift Option E
Elec/Hyd Shift
442 Series**

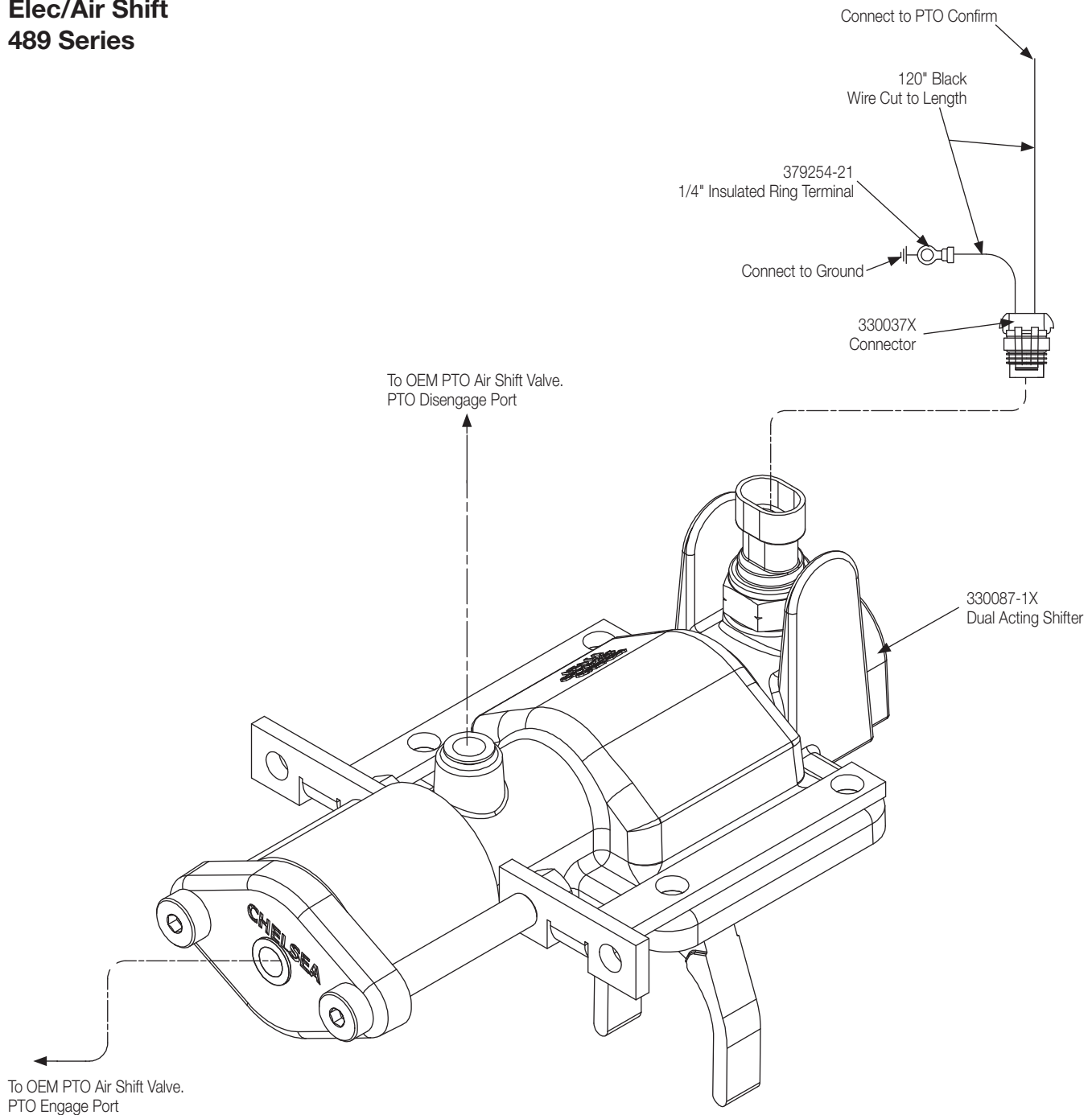
(SK-600 Rev D)

Wiring Harness Kit: 329896X (12VDC)
Hydraulic Shift Kit: 329874-1X (12VDC)



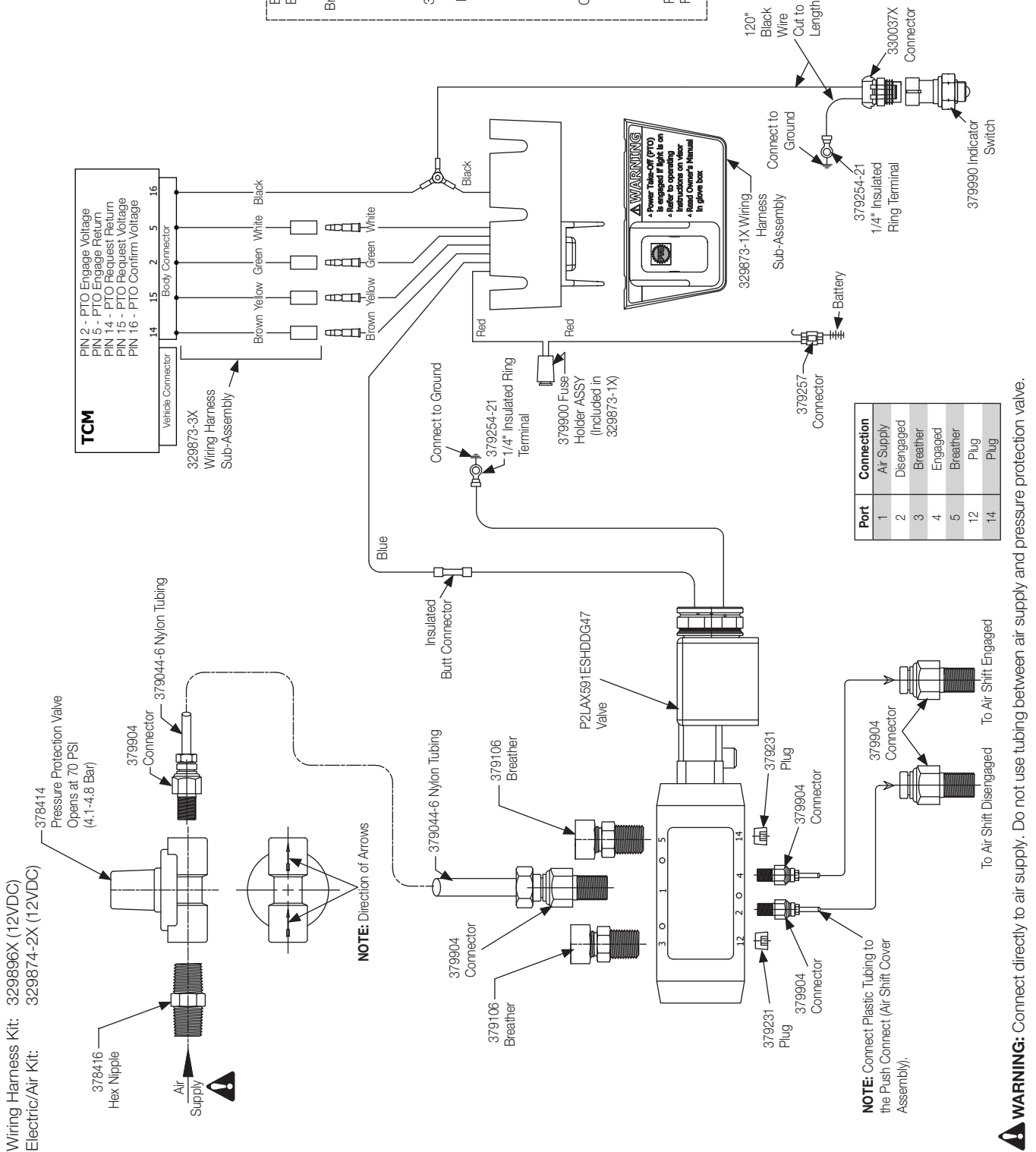
Eaton Endurant XD™ & Detroit® DT12®
Shift Option 5
Elec/Air Shift
489 Series

(SK-631 Rev F)



NOTE: If a 12VDC Elec/Air Pneumatic Valve kit is needed, Order 329874-2X

(SK-631 Rev F)



Part Number	Description	Qty.	Part Number	Description	Qty.
GASKET KITS			STUD KITS		
328356-67X	Gasket & Seal Kit (442 Series)		328170-76X	Standard Stud Kit (442/447 Series) (X Mount)	
22-P-127-1	Bearing Cap Gasket (.010")	4	379423-15	Stud (.375"-16 x .375"-24 x 1.875")	6
22-P-127-2	Bearing Cap Gasket (.020")	4	379744	9/16" Hex Flange Nut (.375"-24)	6
22-P-127-3	Bearing Cap Gasket (.015")	2			
28-P-191	O-ring (.549" x .103")	2	328170-77X	Deep Mount Stud Kit (442/447 Series) (Z Mount)	
28-P-216	Oil Seal (2.004" x 1.250" x .374")	1	379423-12	Stud (.375"-16 x .375"-24 x 1.625")	3
35-P-8	Shifter Cover Gasket	1	378774	Tab Lock Washer (.390")	3
35-P-9-1	Mounting Gasket (6-Bolt) (.010")	2	379744	9/16" Hex Head Flange Nut (.375"-24)	3
35-P-9-2	Mounting Gasket (6-Bolt) (.020")	2	378431-11	9/16" Hex Head Cap Screw (.375"-16 x 1.125")	3
378391	Lockring	2			
328948-6X	Gasket & Installation Kit (442/447 Series)		328170-127X	Stud Kit (489 Series) (C Mount)	
35-P-9-1	Mounting Gasket (.010")	2	379432-11	5/8" Hex Head Cap Screw (.438"-14 x 1.125")	8
35-P-9-2	Mounting Gasket (.020")	2	379224	Tab Lock Washer	8
379085-1	PTO Instruction Decal	1			
328946X	Caution Label Kit	1	328170-200X	Standard & Deep Mount Stud Kit (489 Series) (X & Z Mount)	
379624	Product Warranty Card	1	379287-12	5/8" Hex Head Cap Screw (.438"-14 x 1.125")	6
Owner's Manual	HY25-1135-M1/US	1	379224	Tab Lock Washer (.438")	6
Safety Guide	HY25-1002-M1/US	1	379424-18	Stud (.438"-14 x .438"-20 x 2.000")	2
			379745	11/16" Hex Head Flange Nut (.438"-20)	2
328948-8X	Gasket & Installation Kit (489 Series)		328170-201X	Metric Stud Kit (489 Series) (G Mount)	
328946X	Caution Label Kit	1	379429-18	Stud (M12-1.75 x .438"-20 x 2.000")	8
35-P-15-1	Housing Gasket (.010")	2	379745	11/16" Hex Head Flange Nut (.438"-20)	8
35-P-15-2	Housing Gasket (.020")	2			
379085-1	PTO Instructions Decal	1	328170-217X	Stud Kit (489 Series) (LZ Input Only)	
379624	Product Warranty Card	1	380605	Metric Stud (M10-1.75 x .438"-20)	8
Owner's Manual	HY25-1135-M1/US	1	379745	11/16" Hex Head Flange Nut (.438"-20)	8
Safety Guide	HY25-1002-M1/US	1			
328948-48X	Eaton Endurant™ Gasket & Installation Kit (489 Series)		328170-221X	Stud Kit (489 Series) (ME Input Only)	
328946X	Caution Label Kit	1	379745	Flange Nut (3/8"-16)	8
28-P-381	O-ring Mounting Seal	1	380718	Metric Stud (M12-1.75 x 2.200")	8
69-P-27	Supplemental Install Instructions	1			
379085-1	PTO Instructions Decal	1	328170-219X	Stud Kit (489 Series) (D Mount)	
379624	Product Warranty Card	1	379754	Flange Nut (3/8"-16)	8
Owner's Manual	HY25-1135-M1/US	1	380652	Metric Stud (M12-1.75 x 3.000")	8
Safety Guide	HY25-1002-M1/US	1	380643	Dowel Pin	2
328948-53X	Detroit® DT12® (489D Series)		7170-72X	Metric Stud Kit (442/447 Series) (G Mount)	
328946X	Caution Label Kit	1	379428-14	Stud (M10-1.5 x .375"-24 x 1.750")	6
35-P-129-1	DT12® Mounting Gasket	4	379744	9/16" Hex Head Flange Nut (.375"-24)	6
35-P-129-2	DT12® Mounting Gasket	4			
379624	Warranty Card	1			
Owner's Manual	HY25-1135D-M1/US	1			
Safety Guide	HY25-1002-M1/US	1			
69-P-39	Supplemental Instructions	1			

Continued on Next Page

BOMs in each kit group are listed in order based on part number.

Kits Bill of Materials**Parts List****442/447/489 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
INSTALLATION KITS			AIR SHIFT INSTALLATION KITS		
328751-1X	Installation Kit (C, H, W, X, Y) (All)		328388-47X	12VDC Electric Over Air (All) (P Shift)	
378978	12VDC Indicator Light	1	328388-46X	Installation Kit P Shift Option.....	1
379252	Electrical Butt Speed Limiter Connector.....	2	378414	Pressure Protection Valve	1
379640	Electrical Booted Connector	1	75-P-45-12	Rocker Switch 12VDC.....	1
379900	Fuse Holder.....	1	379044-6	Nylon Tubing (30 ft).....	1
68-P-18	Name Plate.....	1	379252	Electrical Butt Connector	2
			379258	Bracket.....	1
380711X	Spacer Kit (489 Series) (ME Input Only)		379303-1	Solenoid Valve 12VDC.....	1
380711	Endurant XD Spacer (.280").....	1	380668X	Bracket and Label	1
28-P-381	O-ring Mounting Seal.....	1	379106	Breather Cap (.125"-27)	1
			75-P-46X	Wire Kit.....	1
			379640	Electrical Booted Connector	1
			328388-48X	24VDC Electric Over Air (All) (Q Shift)	
			379640	Electrical Booted Connector	1
			328388-46X	Installation Kit P Shift Option.....	1
			378414	Pressure Protection Valve	1
			75-P-45-24	Rocker Switch 24VDC.....	1
			379044-6	Nylon Tubing (30 ft).....	1
			379252	Electrical Butt Speed Limiter Connector.....	1
			379258	Bracket.....	1
			379303-2	Solenoid Valve 24VDC.....	1
			380668X	Bracket and Label	1
			379106	Breather Cap (.125"-27)	1
			75-P-46X	Wire Kit.....	1
			328388-65X	Air-O-Matic Shift (All) (S Shift)	
			329214X	Apsco Valve.....	1
			378414	Pressure Protection Valve	1
			328388-64X	Airshift Kit.....	1
			328388-72X	Air Shift (442/447 Series) (T Shift)	
			378414	Pressure Protection Valve	1
			329316X	Valve Assembly.....	1
			328388-64X	Airshift Kit.....	1
			328388-98X	Installation Kit Air Shift (All) (A Shift)	
			328388-97X	Air Shift.....	1
			329090-6X	Kit Valve	1
			379044-6	Nylon Tubing (30 ft) (.253" x .179").....	1
			379130	Support Bracket	2
			379640	Electrical Booted Connector	1
			329874X	12VDC Elec/Air Kit Eaton Precision™/Endurant™ (D Shift) (442/489 Series)	
			378416	Hex Nipple.....	1
			379042	Male Connector	2
			379043	Male Elbow.....	1
			500357-7	Lock Washer #10	2
			500457-6	Slotted Screw #10-32	2
			378414	Pressure Protection Valve	1
			379044-6	Nylon Tubing	1
			379258	Bracket.....	1
			379303-1	12VDC Valve	1
			379106	Breather Cap	1
			SK-591	Installation Sketch	1

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BOMs in each kit group are listed in order based on part number.

Part Number	Description	Qty.	Part Number	Description	Qty.
AIRSHIFT INSTALLATION KITS			SHIFTER KITS		
329874-2X	Eaton Endurant XD™ (489 Series)		328346-10X	Wire Control Cable (All)	
378416	Hex Nipple.....	1	378441-10	10 Ft. Wire.....	1
378414	Pressure Protection Valve	1	378502	Knob	1
379106	Breather (.125"-27)	2	328380X	Wire Control Parts Bag (W Shifter) (All)	
379904	Push Connector	6	378326	Hex Head Bushinh Nut (.250"-20).....	1
P2LAX591ESHDDG47			50-P-17	Wire Control Bracket	1
	Elec/Air Valve.....	1	50-P-19	Swivel Bracket.....	1
379231	Pipe Plug (.125"-27)	2	500396-8	Hex Head Bolt (.250"-20 x .750")	1
SK-631	Installation Sketch	1	500568-4	Set Screw (.250"-20 x .500")	1
379044-6	Nylon Tubing	1	378019	Pivot Pin	1
HYDRAULIC INSTALLATION KITS			329106-39X	Air Shift (3 & 6 Assembly) (442/489 Series)	
329874-1X	Shift Kit (Eaton Procision™) (442 Series)		329361X	Shifter Cover	1
380549	90° Male Elbow	1	378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875")	4
329075-2X	Hose Assembly	1	35-P-8	Shifter Cover Gasket	1
379449	Male Screen Connector	1	328388-98X	Installation Kit	1
329129-1X	Hose Assembly	1	329106-43X	Electric/Air 12VDC (442 Series)	
379910	Male Connector.....	1	328388-47X	12VDC Electric Over Air.....	1
378888	Plug (.250") NPT	1	329361X	Shifter Cover	1
379686-1	12VDC Hyd Solenoid Valve.....	1	378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875")	4
379258	Bracket.....	1	35-P-8	Shifter Cover Gasket	1
500357-7	Lock Washer #10	2	329106-45X	Electric/Air 24VDC (442 Series)	
500457-6	Slotted Screw #10-32	2	328388-48X	24VDC Electric Over Air.....	1
SK-600	Installation Sketch	1	329361X	Shifter Cover	1
			378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875")	4
			35-P-8	Shifter Cover Gasket	1
			329106-71X	Air Shifter Kit (A Shift Option) (447 Series)	
			329363X	Air Shifter Cover Assembly	1
			378430-9	Hex Head Cap Screw (.312"-18 x .875")	4
			35-P-8	Shifter Cover Gasket	1
			328388-98X	Air Shift Installation Kit	1
			329106-75X	Air Shifter Kit (P Shift Option) (442/447 Series)	
			328388-47X	12VDC Electric Over Air Kit.....	1
			329363X	Air Shifter Cover Assembly	1
			378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875")	4
			35-P-8	Shifter Cover Gasket	1
			329106-77X	Air Shifter Kit (Q Shift Option) (442/447 Series)	
			328388-48X	24VDC Electric Over Air Kit.....	1
			329363X	Air Shifter Cover Assembly	1
			378430-9	Hex Head Cap Screw (.312"-18 x .875")	4
			35-P-8	Shifter Cover Gasket	1

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BOMs in each kit group are listed in order based on part number.

Kits Bill of Materials**Parts List****442/447/489 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
SHIFTER KITS (Continued)			SHIFTER KITS (Continued)		
329106-105X	Wire Shift Kit (Q, W & X Ratio) (442 Series)		329106-109X	Shifter Kit (F, L, R, S & U) (442 Series)	
328380X	Mounting Parts Kit.....	1	328751-1X	Install Kit.....	1
329119-1X	Cable Control Cover.....	1	328380X	Mounting Parts Kit.....	1
35-P-8	Shifter Cover Gasket.....	1	329121-1X	Shifter Cover Assembly Wire.....	1
378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875").....	4	35-P-8	Shifter Cover Gasket.....	1
378441-10	10 Ft. Wire.....	1	378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875").....	4
378502	Knob.....	1	378441-10	10 Ft. Wire.....	1
328751-1X	Light Installation Kit.....	1	378502	Knob.....	1
329106-106X	Wire Shift Kit (Q, W & X Ratio) (442 Series)		329106-110X	Shifter Kit (F, L, R, S & U) (442 Series)	
328751-1X	Light Installation Kit.....	1	328380X	Mounting Parts Kit.....	1
328380X	Mounting Parts Kit.....	1	329121-2X	Cable Control Cover.....	1
329119-2X	Cable Control Cover.....	1	35-P-8	Shifter Cover Gasket.....	1
35-P-8	Shifter Cover Gasket.....	1	378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875").....	4
378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875").....	4	378441-10	10 Ft. Wire.....	1
378441-10	10 Ft. Wire.....	1	378502	Knob.....	1
378502	Knob.....	1	328751-1X	Light Installation Kit.....	1
329106-107X	Wire Shift Kit Less (Q, W, & X Ratio) (442 Series)		329106-111X	Shifter Kit (Wire Control) (F, L, R, S, U) (442 Series)	
328751-1X	Install Kit.....	1	328751-1X	Light Installation Kit.....	1
329119-1X	Shifter Cover Assembly Wire.....	1	329121-1X	Cable Control Cover.....	1
35-P-8	Shifter Cover Gasket.....	1	35-P-8	Shifter Cover Gasket.....	1
378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875").....	4	378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875").....	4
329106-108X	Wire Shift Kit Less (Q, W, & X Ratio) (442 Series)		329106-112X	Shifter Kit (Wire Control) (F, L, R, S, U) (442 Series)	
328751-1X	Install Kit.....	1	328751-1X	Install Kit.....	1
329119-1X	Shifter Cover Assembly Wire.....	1	329121-2X	Cable Control Cover.....	1
35-P-8	Shifter Cover Gasket.....	1	35-P-8	Shifter Cover Gasket.....	1
378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875").....	4	378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875").....	4
			329106-113X	Shifter Kit (Wire Control 3 & 6, Q & W Ratio) (W Shift Option) (447 Series)	
			328751-1X	Light Installation Kit.....	1
			328380X	Mounting Parts Kit.....	1
			329151-1X	Wire Control Shifter Cover Assembly.....	1
			35-P-8	Shifter Cover Gasket.....	1
			378430-9	Hex Head Cap Screw (.312"-18 x .875").....	4
			378441-10	Wire Cable (10 ft).....	1
			378502	Knob.....	1
			329106-114X	Shifter Kit (Wire Control 3 & 6, Q & W Ratio) (W Shift Option) (447 Series)	
			328380X	Mounting Parts Kit.....	1
			329151-2X	Wire Control Shifter Cover Assembly.....	1
			35-P-8	Shifter Cover Gasket.....	1
			378430-9	Hex Head Cap Screw (.312"-18 x .875").....	4
			378441-10	Wire Cable (10 ft).....	1
			378502	Knob.....	1
			328751-1X	Light Installation Kit.....	1
			Continued on Next Page		

BOMs in each kit group are listed in order based on part number.

Part Number	Description	Qty.	Part Number	Description	Qty.
SHIFTER KITS (Continued)			SHIFTER KITS (Continued)		
329106-117X	Shifter Kit (Wire Control 3 & 6, Q & W Ratio) (X Shift Option) (447 Series)		329106-146X	Shifter Kit (Wire Control) (A, B, & C Ratio) (442/447 Series)	
328380X	Mounting Parts Kit.....	1	35-P-8	Shifter Cover Gasket	2
329152-1X	Wire Control Shifter Cover Assembly	1	329271-2X	Cover Assembly	1
35-P-8	Shifter Cover Gasket	1	5-A-188	Shift Cover Spacer (6-Bolt) (.100")	1
378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875")	4	378430-10	1/2" Hex Head Cap Screw (.312"-18 x .875")	4
378441-10	Wire Cable (10 ft)	1	328751-1X	Install Kit.....	1
378502	Knob	1			
328751-1X	Light Installation Kit.....	1	329106-151X	Shifter Kit V Option (447 Series)	
			378414	Pressure Protection Valve	1
329106-118X	Shifter Kit (Wire Control 4 & 5, Q & W Ratio) (X Shift Option) (447 Series)		35-P-8	Shifter Cover Gasket	1
328751-1X	Light Installation Kit.....	1	379640	Electrical Booted Connector	1
328380X	Mounting Parts Kit.....	1	329363X	Air Shifter Cover Assembly	1
329152-2X	Wire Control Shifter Cover Assembly	1	378430-9	Hex Head Cap Screw (.312"-18 x .875")	4
35-P-8	Shifter Cover Gasket	1	Owner's Manual	HY25-1135-M1/US	1
378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875")	4			
378441-10	Wire Cable (10 ft)	1			
378502	Knob	1			
329106-143X	Shifter Kit (Wire Control) (A, B, & C Ratio) (442/447 Series)				
378430-10	1/2" Hex Head Cap Screw (.312"-18 x 1.000")	4			
378441-10	10 ft Wire.....	1			
5-A-188	Shift Cover Spacer (6-Bolt) (.100")	1			
329271-1X	Cover Assembly	1			
328380X	Mounting Parts Kit.....	1			
378502	Knob	1			
328751-1X	Light Installation Kit.....	1			
35-P-8	Shifter Cover Gasket	2			
329106-144X	Shifter Kit (Wire Control) (A, B, & C Ratio) (442/447 Series)				
378430-10	1/2" Hex Head Cap Screw (.312"-18 x 1.000")	4			
378441-10	10 ft Wire.....	1			
5-A-188	Shifter Cover Spacer (6-Bolt) (.100")	1			
329271-2X	Wire Shifter Cover Assembly.....	1			
328380X	Mounting Parts Kit.....	1			
378502	Knob	1			
328751-1X	Light Installation Kit.....	1			
35-P-8	Shifter Cover Gasket	2			
329106-145X	Shifter Kit (Wire Control) (A, B, & C Ratio) (442/447 Series)				
378430-10	Hex Head Cap Screw (.312"-18 x 1.000")	4			
5-A-188	Shift Cover Spacer (6-Bolt) (.100")	1			
329271-1X	Wire Shifter Cover Assembly.....	1			
328751-1X	Light Installation Kit.....	1			
35-P-8	Shifter Cover Gasket	2			

Continued on Next Page

BOMs in each kit group are listed in order based on part number.

Kits Bill of Materials**Parts List****442/447/489 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
SERVICE KITS			SERVICE KITS (Continued)		
329106-153X	Shifter Kit V Option (442/447 Series)		328356-17X	Gasket & Seal Kit (447 Series)	
379640	Electrical Booted Connector	1	22-P-69	Gasket.....	1
378414	Pressure Protection Valve	1	28-P-207	Oil Seal (1.379" x .688" x .406").....	1
35-P-8	Shifter Cover Gasket	1	28-P-41	O-ring (.734" x .141").....	2
329361X	Air Shifter Cover Assembly	1	35-P-14	Gasket.....	2
378430-9	1/2" Hex Head Cap Screw (.312"-18 x 1.000")	4	35-P-8	Shifter Cover Gasket	1
Owner's Manual	HY25-1135-M1/US	1	35-P-9-1	Mounting Gasket (6-Bolt) (.010").....	2
			35-P-9-2	Mounting Gasket (6-Bolt) (.020").....	2
329106-158XB	Eaton Endurant HD™ Shifter Kit D Option (489 Series)		328356-26X	Shifter Cover Seal Kit (Lever Control) (442/447 Series)	
378430-9	Hex Cap Screw (.312"-18 x .875").....	4	22-P-69	Gasket.....	1
329361-2X	Air Shifter Cover Assembly	1	28-P-207	Oil Seal (1.379" x .688" x .406").....	2
35-P-8	Shifter Cover Gasket	1	28-P-226	Oil Seal.....	1
378391	Lockring	1	35-P-14	Shifter Cover Gasket	1
32986X	Wiring Kit.....	1	35-P-8	Shifter Cover Gasket	1
329874X	Electric Air Kit	1	35-P-9-1	Mounting Gasket (6-Bolt) (.010").....	2
330037X	Wiring Harness Connector.....	1	35-P-9-2	Mounting Gasket (6-Bolt) (.020").....	2
329106-162X	Detroit® DT12® Retrofit Shifter Kit (Option 5) (489 Series)		328356-50X	Shifter Cover Seal Kit (Lever Control) (489 Series)	
330087X	DA Air Shifter Cover.....	1	35-P-8	Shifter Cover Gasket	1
35-P-8	Shifter Cover Gasket	1	35-P-15-1	Gasket, Housing (.010").....	2
379640	Electrical Boot Connector	1	35-P-15-2	Gasket, Housing (.020").....	2
378430-10	Hex Cap Screw (.312"-18 x 1.000").....	4	28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
379042	Male Connector (.250") Tube x	1	28-P-190	O-ring (.734" x .141").....	1
379043	Male Elbow.....	1	28-P-191	O-ring (.549" x .103").....	1
69-P-39	Supplemental Instructions	1	378391	Lockring	2
			22-P-127-1	Bearing Cap Gasket (.010")	4
328356-13X	Shifter Cover Seal Kit (Wire Control) (447 Series)		22-P-127-2	Bearing Cap Gasket (.020")	4
28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1	22-P-127-3	Bearing Cap Gasket (.015")	4
28-P-190	O-ring (.734" x .141").....	1	379672	NWD Plug	1
28-P-191	O-ring (.549" x .103").....	2			
35-P-8	Shifter Cover Gasket	2	328356-69X	Shifter Cover Seal Kit (Wire Control A, B & C Ratio) (442 Series)	
378391	Lockring	2	22-P-69	Gasket.....	1
22-P-127-1	Bearing Cap Gasket (.010")	4	28-P-191	O-ring.....	1
22-P-127-2	Bearing Cap Gasket (.020")	4	28-P-226	Oil Seal.....	1
22-P-127-3	Bearing Cap Gasket (.015")	2	5-A-188	Spacer	1
35-P-9-1	Mounting Gasket (6-Bolt) (.010").....	2	35-P-9-1	Housing Gasket (6-Bolt).....	2
35-P-9-2	Mounting Gasket (6-Bolt) (.020").....	2	35-P-9-2	Housing Gasket (6-Bolt).....	2
378774	Tab Lock Washer (.390").....	6	35-P-8	Shifter Cover Gasket	2
379672	Plug.....	1			
328356-15X	Shifter Cover Seal Kit (Wire Control) (All)		328356-71X	Shifter Cover Seal Kit (Air Shift) (442 Series)	
22-P-69	Gasket.....	1	28-P-41	O-ring (.734" x .141").....	1
28-P-191	O-ring (.549" x .103").....	1	28-P-42	O-ring.....	2
28-P-226	Bearing Cap with Molded Dual L	1	378316	Retainer.....	2
35-P-8	Shifter Cover Gasket	1	35-P-8	Shifter Cover Gasket	2
35-P-9-1	Mounting Gasket (6-Bolt) (.010").....	2	35-P-9-1	Housing Gasket (6-Bolt).....	1
35-P-9-2	Mounting Gasket (6-Bolt) (.020").....	2	35-P-9-2	Housing Gasket (6-Bolt).....	1

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BOMs in each kit group are listed in order based on part number.

Part Number	Description	Qty.	Part Number	Description	Qty.
SERVICE KITS (Continued)			WIRING KITS		
328594-13X	Bearing and Spacer Kit (Non-Pressure Lube) (All)		329896X	Electrical Wiring Kit (442/447 Series)	
14-P-73-1	Idler Gear Spacer (.762" x 1.500" x .1500")	1	329873-1X	Subassembly Wiring Kit.....	1
14-P-73-2	Idler Gear Spacer (.762" x 1.500" x .1530")	1	329873-3X	Subassembly Wiring Kit.....	1
14-P-73-3	Idler Gear Spacer (.762" x 1.500" x .1560")	1	N/A.	Kit of Assorted Wiring, Connectors, and Terminals	1
28-P-191	O-ring (.549" x .103").....	1	8060111028	IDC Tap Connector.....	1
31-P-102	Bearing Thrust Washer (.754" x .440" x .030")	1	19038-0006	Female Bullet Connector (4.57 mm).....	4
379672	NWD Plug	1	329202X	Indicator Switch Connector Kit (442/489 Series)	
550439	Bearing Cone (.750" x .859")	2	379252	Electrical Butt Speed Limiter Connector.....	1
9-P-88	Idler Shaft (.750").....	1	380515	Switch Indicator.....	1
68-P-2	Name Plate.....	1	379640	Electrical Booted Connector	1
328594-14X	Bearing and Spacer Kit (Pressure Lube) (442/489 Series)		330037X	Connector Kit Eaton Procion™/Endurant™	
14-P-73-1	Idler Gear Spacer (.149"-.151").....	1	330037X	Wiring Harness Connector.....	1
14-P-73-2	Idler Gear Spacer (.152"-.154").....	1	Continued on Next Page		
14-P-73-3	Idler Gear Spacer (.155"-.157").....	1			
28-P-191	O-ring.....	1			
31-P-102	Bearing Thrust Washer	1			
379672	NWD Plug	1			
500841-1	Street Elbow 90°	1			
500897-5	Shipping Plug	1			
550439	Bearing Cone	2			
9-P-89	Idler Shaft	1			
328594-15X	Bearing and Spacer Kit (Non-Pressure Lube A, B & C Ratio) (442/489 Series)				
14-P-73-1	Idler Gear Spacer (.149"-.151").....	1			
14-P-73-2	Idler Gear Spacer (.152"-.154").....	1			
14-P-73-3	Idler Gear Spacer (.155"-.157").....	1			
14-P-75	Input Bearing Spacer.....	1			
28-P-191	O-ring.....	1			
31-P-102	Bearing Thrust Washer	1			
379672	NWD Plug	1			
550890	Needle Bearing.....	1			
561006	Bearing.....	1			
9-P-88	Idler Shaft	1			
68-P-2	Name Plate.....	1			
328594-16X	Bearing and Spacer Kit (Pressure Lube A, B & C Ratio) (442/489 Series)				
14-P-73-1	Idler Gear Spacer (.149"-.151").....	1			
14-P-73-2	Idler Gear Spacer (.152"-.154").....	1			
14-P-73-3	Idler Gear Spacer (.155"-.157").....	1			
14-P-75	Input Bearing Spacer.....	1			
28-P-191	O-ring (.549" x .103").....	1			
31-P-102	Thrust Washer (.754" x .440" x .030").....	1			
379672	NWD Plug	1			
500841-1	Street Elbow 90°	1			
500897-5	Shipping Plug	1			
550890	Needle Bearing Roller Assembly (.750").....	1			
561006	Bearing Cone	1			
9-P-89	Pressure Lube	1			
68-P-2	Name Plate.....	1			

BOMs in each kit group are listed in order based on part number.

Kits Bill of Materials

Parts List

442/447/489 Series

Part Number	Description	Qty.	Part Number	Description	Qty.
PUMP KITS			SERVICE CONVERSION KITS		
328711X	Pump Kits (447 Series)		328390-117X	Air Shift Field Conversion Kit (442/489 Series)	
378919	Washer	4	35-P-8	Shifter Cover Gasket	1
500963-1	Hex Head Nut (.312"-24)	4	329361X	Air Shifter Cover Assembly	1
			378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875")	4
			328388-98X	Airshift Installation Kit	1
			Owner's Manual	HY25-1135-M1/US	1
			328390-119X	Air Shift Field Conversion Kit (442/489 Series)	
			328388-47X	12VDC Electric Over Air	1
			329361X	Air Shifter Cover Assembly	1
			35-P-8	Shifter Cover Gasket	1
			378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875")	4
			Owner's Manual	HY25-1135-M1/US	1
			328390-120X	Air Shift Field Conversion Kit (442/489 Series)	
			328388-48X	24VDC Electric Over Air	1
			329361X	Air Shifter Cover Assembly	1
			35-P-8	Shifter Cover Gasket	1
			378430-9	1/2" Hex Head Cap Screw (.312"-18 x .875")	4
			Owner's Manual	HY25-1135-M1/US	1
			* 328390-138X	Electric Shift Field Conversion Kit (442/489 Series) (3 and 6 Assembly)	
			329165-1X	Shift Cover Assembly	1
			329166-12X	12VDC Electric Shift	1
			35-P-14	Gasket	3
			35-P-8	Shifter Gasket Cover	1
			378430-8	1/2" Hex Head Cap Screw (.312"-18 x .750")	4
			379718	Installation Tag	1
			Owner's Manual	HY25-1135-M1/US	1
			* 328390-139X	Electric Shift Field Conversion Kit (442/489 Series) (4 and 5 Assembly)	
			329165-2X	Shift Cover Assembly	1
			329166-12X	12VDC Electric Shift	1
			35-P-14	Gasket	3
			35-P-8	Shifter Gasket Cover	1
			378430-8	1/2" Hex Head Cap Screw (.312"-18 x .750")	4
			379718	Installation Instructions Tag	1
			Owner's Manual	HY25-1135-M1/US	1
			* 328390-140X	Electric Shift Field Conversion Kit (Lever 12VDC) (442/489 Series)	
			329166-12X	12VDC Electric Shift	1
			329225-12X	12VDC E-Z Shift Assembly	1
			35-P-14	Gasket	3
			35-P-8	Shifter Gasket Cover	1
			378430-4	1/2" Hex Head Cap Screw (.312"-18 x .500")	2
			378430-8	1/2" Hex Head Cap Screw (.312"-18 x .750")	4
			379718	Installation Tag	1
			Owner's Manual	HY25-1135-M1/US	1

* No longer a current option per Chelsea Suggested List Price.

BOMs in each kit group are listed in order based on part number.

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Part Number	Description	Qty.	Part Number	Description	Qty.
SERVICE CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS		
329096-1X	Field Conversation Kit (Self Lube Replacement)		328591-10X	Conversion Kit (XD to XG)	
22-P-127-1	Bearing Cap Gasket (.010")	2	28-P-216	Oil Seal (2.004" x 1.250" x .374")	1
22-P-127-2	Bearing Cap Gasket (.020")	2	3-P-281	Output Shaft	1
22-P-127-3	Bearing Cap Gasket (.015")	1	328580X	Pump Flange	1
28-P-190	O-ring (.801" x .070")	1	378391	Lockring	2
28-P-191	O-ring (.549" x .103")	1	378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
28-P-216	Oil Seal (2.004" x 1.250" x .374")	1	22-P-127-1	Bearing Cap Gasket (.010")	2
3-P-857	Output Shaft	1	22-P-127-2	Bearing Cap Gasket (.020")	2
329091X	Lube Pump & Bearing	1	22-P-127-3	Bearing Cap Gasket (.030")	1
329092X	Pressure Lube	1			
378391	Lockring	1	328591-11X	Conversion Kit (XD to XJ)	
378422	Drive Screw	1	28-P-216	Oil Seal (2.004" x 1.250" x .374")	1
379534	Installation Instructions	1	3-P-284	Output Shaft	1
379646	Installation Sketch	1	328580X	Flange Assembly	1
500841-1	90° Elbow	1	378391	Lockring	2
68-P-2	Name Plate	1	378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
9-P-76	Idler Shaft	1	22-P-127-1	Bearing Cap Gasket (.010")	2
			22-P-127-2	Bearing Cap Gasket (.020")	2
			22-P-127-3	Bearing Cap Gasket (.015")	1
329097-1X	Field Conversation Kit (Self Lube Replacement)				
22-P-127-1	Bearing Cap Gasket (.010")	2	328591-16X	Conversion Kit (XD to XK)	
22-P-127-2	Bearing Cap Gasket (.020")	2	3-P-282	Output Shaft	1
22-P-127-3	Bearing Cap Gasket (.015")	1	328333X	Pump Flange	1
28-P-190	O-ring (.801" x .070")	1	378391	Lockring	2
28-P-191	O-ring (.549" x .103")	1	378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
28-P-216	Oil Seal (2.004" x 1.250" x .374")	1	379688	Lubricant	1
3-P-858	Pump Shaft	1	22-P-127-1	Bearing Cap Gasket (.010")	2
329091X	Lube Pump & Bearing	1	22-P-127-2	Bearing Cap Gasket (.020")	2
329092X	Pressure Lube	1	22-P-127-3	Bearing Cap Gasket (.015")	1
378391	Lockring	1			
378422	Drive Screw	1	328591-17X	Conversion Kit (XD to XQ)	
379534	Installation Instructions	1	28-P-216	Oil Seal (2.004" x 1.250" x .374")	1
379646	Installation Sketch	1	3-P-282	Output Shaft	1
500841-1	90° Elbow	1	328589X	Bearing Cap Assembly (21-P-169)	1
68-P-2	Name Plate	1	378391	Lockring	2
9-P-76	Idler Shaft	1	378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
			379688	Lubricant	1
329143X	Conversion Kit (Shifter Shaft) (All Series)		22-P-127-1	Bearing Cap Gasket (.010")	2
35-P-14	Gasket	1	22-P-127-2	Bearing Cap Gasket (.020")	2
378430-4	1/2" Hex Head Cap Screw (.312"-18 x .500")	2	22-P-127-3	Bearing Cap Gasket (.015")	1
65-P-23	Shifter Shaft Cover (6-Bolt)	1			
329260X	Conversion Kit (440 to 442 Series)		328591-18X	Conversion Kit (XD to XL)	
1-P-557X	Assembly Housing	1	28-P-216	Oil Seal (2.004" x 1.250" x .374")	1
328594-13X	Bearing Spacer Kit	1	3-P-283	Output Shaft	1
329261X	Conversion Kit (440 Deep Mount to 442 Deep Mount)		328580X	Pump Flange	1
1-P-558X	Housing w/ Roll Pin	1	378391	Lockring	2
328594-13X	Bearing Spacer Kit	1	378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
329262X	Conversion Kit (488 to 489 Series)		379688	Lubricant	1
1-P-552	Standard Housing Mount Assembly	1	22-P-127-1	Bearing Cap Gasket (.010")	2
328594-13X	Bearing Spacer Kit (Non-Pressure Lube)	1	22-P-127-2	Bearing Cap Gasket (.020")	2
329263X	Conversion Kit (488 Deep Mount to 489 Deep Mount)		22-P-127-3	Bearing Cap Gasket (.030")	1
1-P-562	Deep Mount w/ Roll	1			
328594-13X	Bearing Spacer Kit	1			

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BOMs in each kit group are listed in order based on part number.

Kits Bill of Materials**Parts List****442/447/489 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
328591-23X	Conversion Kit (XD to XP)		328591-30X	Conversion Kit (XD to AF)	
28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1	28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
3-P-282	Output Shaft.....	1	3-P-854	Output Shaft.....	1
328328X	Bearing Cap Assembly (21-P-161).....	1	329088X	Bearing Cap Assembly (21-P-522).....	1
378391	Lockring	2	378447-10	1/4" Socket Hex Head Cap Screw (.312"-18 x 2.000")	4
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4	378391	Lockring	2
379688	Lubricant	1	379688	Lubricant	1
22-P-127-1	Bearing Cap Gasket (.010")	2	22-P-127-1	Bearing Cap Gasket (.010")	2
22-P-127-2	Bearing Cap Gasket (.020")	2	22-P-127-2	Bearing Cap Gasket (.020")	2
22-P-127-3	Bearing Cap Gasket (.015")	1	22-P-127-3	Bearing Cap Gasket (.015")	1
328591-26X	Conversion Kit (XD to XO)		328591-52X	Conversion Kit (XD to XR)	
28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1	28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
3-P-284	Output Shaft.....	1	3-P-283	Output Shaft.....	1
328328X	Bearing Cap Assembly (21-P-161).....	1	329194X	Bearing Cap Assembly (21-P-574).....	1
378391	Lockring	2	379673	Hex Shoulder Screw (.312"-24)	4
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4	379063	Flat Washer	4
22-P-127-1	Bearing Cap Gasket (.010")	2	378919	Washer	4
22-P-127-2	Bearing Cap Gasket (.020")	2	500963-1	Hex Lock Nut (.312"-24).....	4
22-P-127-3	Bearing Cap Gasket (.015")	1	378391	Lockring	2
328591-27X	Conversion Kit (XD to XE)		379688	Lubricant	1
28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1	22-P-127-1	Bearing Cap Gasket (.010")	2
3-P-800	Output Shaft.....	1	22-P-127-2	Bearing Cap Gasket (.020")	2
328328X	Bearing Cap Assembly (21-P-161).....	1	22-P-127-3	Bearing Cap Gasket (.015")	1
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4	328591-53X	Conversion Kit (XR to RA)	
378391	Lockring	2	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
379688	Lubricant	1	379638	Mounting Tag.....	1
22-P-127-1	Bearing Cap Gasket (.010")	2	21-P-628	Pump Flange	1
22-P-127-2	Bearing Cap Gasket (.020")	2	328591-54X	Conversion Kit (XR to RB)	
22-P-127-3	Bearing Cap Gasket (.015")	1	21-P-572	Pump Flange	1
328591-28X	Conversion Kit (XD to AK)		379638	Mounting Tag.....	1
28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
3-P-282	Output Shaft.....	1	328591-55X	Conversion Kit (XD to RA)	
328989X	Bearing Cap Assembly (21-P-472).....	1	21-P-628	Pump Flange	1
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4	28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
378391	Lockring	2	3-P-283	Output Shaft.....	1
379688	Lubricant	1	329195X	Bearing Cap Assembly	1
22-P-127-1	Bearing Cap Gasket (.010")	2	378391	Lockring	2
22-P-127-2	Bearing Cap Gasket (.020")	2	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
22-P-127-3	Bearing Cap Gasket (.015")	1	379638	Mounting Tag.....	1
328591-29X	Conversion Kit (XD to AK)		379688	Lubricant	1
28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1	22-P-127-1	Bearing Cap Gasket (.010")	2
3-P-851	Output Shaft.....	1	22-P-127-2	Bearing Cap Gasket (.020")	2
328088X	Bearing Cap Assembly (21-P-522).....	1	22-P-127-3	Bearing Cap Gasket (.015")	1
378447-10	1/2" Socket Hex Head Cap Screw (.312"-18 x 2.000")	4			

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BOMs in each kit group are listed in order based on part number.

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
328591-56X	Conversion Kit (XD to RB)		328591-72X	Conversion Kit (XD to GA)	
21-P-572	Pump Flange	1	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
28-P-216	Oil Seal (2.004" x 1.250" x .374")	1	329195X	Bearing Cap Assembly	1
3-P-283	Output Shaft	1	379638	Mounting Tag	1
329195X	Bearing Cap Assembly	1	328273X	Bearing Cap Assembly	1
378391	Lockring	2	28-P-268	Oil Seal	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7	3-P-923	Output Shaft	1
379638	Mounting Tag	1	379688	Lubricant	1
379688	Lubricant	1	500168-2	Lube Fitting	1
22-P-127-1	Bearing Cap Gasket (.010")	2	379819	Grease Fitting Cap	1
22-P-127-2	Bearing Cap Gasket (.020")	2	28-P-216	Oil Seal (2.004" x 1.250" x .374")	1
22-P-127-3	Bearing Cap Gasket (.015")	1	378391	Lockring	2
328591-70X	Conversion Kit (XD to AZ)		21-P-628	Pump Flange	1
379688	Lubricant	1	22-P-127-1	Bearing Cap Gasket (.010")	2
378447-11	1/4" Socket Hex Head Cap Screw (.312"-18 x 2.250")	4	22-P-127-2	Bearing Cap Gasket (.020")	2
3-P-844	Output Shaft	1	22-P-127-3	Bearing Cap Gasket (.015")	1
378391	Lockring	2	328591-73X	Conversion Kit (XR to GA)	
329052X	Bearing Cap Assembly	1	378391	Lockring	2
28-P-275	Oil Seal	1	379638	Mounting Tag	1
22-P-127-1	Bearing Cap Gasket (.010")	2	3-P-923	Output Shaft	1
22-P-127-2	Bearing Cap Gasket (.020")	2	379688	Lubricant	1
22-P-127-3	Bearing Cap Gasket (.015")	1	500168-2	Lube Fitting	1
328591-71X	Conversion Kit (XD to GF)		379819	Grease Fitting Cap	1
28-P-219	Oil Seal	1	28-P-268	Oil Seal	1
329088X	Bearing Cap Assembly (21-P-522)	1	21-P-628	Pump Flange	1
378391	Lockring	2	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
378447-10	1/4" Socket Hex Head Cap Screw (.312"-18 x 2.000")	4	22-P-127-1	Bearing Cap Gasket (.010")	2
28-P-268	Oil Seal	1	22-P-127-2	Bearing Cap Gasket (.020")	2
328273X	Bearing Cap Assembly	1	22-P-127-3	Bearing Cap Gasket (.015")	1
379688	Lubricant	1	328591-74X	Conversion Kit (XD to GB)	
3-P-921	Output Shaft	1	21-P-572	Pump Flange	1
500168-2	Lube Fitting	1	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
379819	Grease Fitting Cap	1	379638	Mounting Tag	1
22-P-127-1	Bearing Cap Gasket (.010")	2	3-P-923	Output Shaft	1
22-P-127-2	Bearing Cap Gasket (.020")	2	379688	Lubricant	1
22-P-127-3	Bearing Cap Gasket (.015")	1	500168-2	Lube Fitting	1
			379819	Grease Fitting Cap	1
			328273X	Bearing Cap Assembly	1
			28-P-268	Oil Seal	1
			378391	Lockring	2
			22-P-127-1	Bearing Cap Gasket (.010")	2
			22-P-127-2	Bearing Cap Gasket (.020")	2
			22-P-127-3	Bearing Cap Gasket (.015")	1
			28-P-216	Oil Seal (2.004" x 1.250" x .374")	1
			Continued on Next Page		

BOMs in each kit group are listed in order based on part number.

Kits Bill of Materials**Parts List****442/447/489 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
328591-75X	Conversion Kit (XR to GB)		328591-86X	Conversion Kit (XD to GK), (XP to GP), (XQ to GQ)	
21-P-572	Pump Flange	1	378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7	28-P-216	Oil Seal (2.004" x 1.250" x .374")	1
379638	Mounting Tag	1	378391	Lockring	2
3-P-923	Output Shaft	1	328273X	Bearing Cap Assembly	1
379688	Lubricant	1	28-P-268	Oil Seal	1
500168-2	Lube Fitting	1	379819	Grease Fitting Cap	1
379819	Grease Fitting Cap	1	500168-2	Lube Fitting	1
328273X	Bearing Cap Assembly	1	3-P-933	Output Shaft	1
28-P-268	Oil Seal	1	379688	Lubricant	1
378391	Lockring	2	22-P-127-1	Bearing Cap Gasket (.010")	2
22-P-127-1	Bearing Cap Gasket (.010")	2	22-P-127-2	Bearing Cap Gasket (.020")	2
22-P-127-2	Bearing Cap Gasket (.020")	2	22-P-127-3	Bearing Cap Gasket (.015")	1
22-P-127-3	Bearing Cap Gasket (.015")	1			
328591-76X	Conversion Kit (XD to GR)		328591-88X	Conversion Kit (AZ to GZ)	
3-P-923	Output Shaft	1	378391	Lockring	2
379688	Lubricant	1	328273X	Bearing Cap Assembly	1
500168-2	Lube Fitting	1	28-P-268	Oil Seal	1
379819	Grease Fitting Cap	1	378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
328273X	Bearing Cap Assembly	1	379688	Lubricant	1
28-P-268	Oil Seal	1	3-P-933	Output Shaft	1
28-P-216	Oil Seal (2.004" x 1.250" x .374")	1	379819	Grease Fitting Cap	1
328711X	Pump Mount	1	500168-2	Lube Fitting	1
329194X	Bearing Cap Assembly	1	28-P-275	Oil Seal	1
378391	Lockring	2	22-P-127-1	Bearing Cap Gasket (.010")	2
379063	Flat Washer	4	22-P-127-2	Bearing Cap Gasket (.020")	2
379673	Hex Shoulder Screw (.312"-24)	4	22-P-127-3	Bearing Cap Gasket (.015")	1
22-P-127-1	Bearing Cap Gasket (.010")	2			
22-P-127-2	Bearing Cap Gasket (.020")	2	328591-89X	Conversion Kit (XD to GK), (XY to GY)	
22-P-127-3	Bearing Cap Gasket (.015")	1	328273X	Bearing Cap Assembly	1
328591-78X	Conversion Kit (XD to RF)		379819	Grease Fitting Cap	1
28-P-219	Oil Seal	1	500168-2	Lube Fitting	1
3-P-924	Output Shaft	1	3-P-933	Output Shaft	1
329264X	Bearing Cap Assembly (21-P-640)	1	379688	Lubricant	1
21-P-626	Pump Flange	1	28-P-268	Oil Seal	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4	378391	Lockring	2
28-P-271	O-ring	1	328333X	Bearing Cap Assembly	1
378391	Lockring	2	378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
22-P-127-1	Bearing Cap Gasket (.010")	2	22-P-127-1	Bearing Cap Gasket (.010")	2
22-P-127-2	Bearing Cap Gasket (.020")	2	22-P-127-2	Bearing Cap Gasket (.020")	2
22-P-127-3	Bearing Cap Gasket (.015")	1	22-P-127-3	Bearing Cap Gasket (.015")	1
379688	Lubricant	1			
379638	Mounting Tag	1			

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BOMs in each kit group are listed in order based on part number.

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
328591-90X	Conversion Kit (XD to GP)		328591-93X	Conversion Kit (XD to GZ)	
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4	378391	Lockring	2
28-P-268	Oil Seal (2.004" x 1.250" x .437")	1	329052X	Bearing Cap Assembly	1
28-P-216	Oil Seal (2.004" x 1.250" x .374")	1	328273X	Bearing Cap Assembly	1
378391	Lockring	2	28-P-268	Oil Seal	1
328328X	Bearing Cap Assembly	1	378447-11	1/4" Socket Hex Head Cap Screw (.312"-18 x 2.250")	4
328273X	Bearing Cap Assembly	1	379688	Lubricant	1
379819	Grease Fitting Cap	1	3-P-939	Output Shaft	1
500168-2	Lube Fitting	1	379819	Grease Fitting Cap	1
3-P-933	Output Shaft	1	500168-2	Lube Fitting	1
379688	Lubricant	1	28-P-275	Oil Seal	1
22-P-127-1	Bearing Cap Gasket (.010")	2	22-P-127-1	Bearing Cap Gasket (.010")	2
22-P-127-2	Bearing Cap Gasket (.020")	2	22-P-127-2	Bearing Cap Gasket (.020")	2
22-P-127-3	Bearing Cap Gasket (.030")	1	22-P-127-3	Bearing Cap Gasket (.015")	1
328591-91X	Conversion Kit (XD to GQ)		328591-106X	Conversion Kit (RA to GA)	
378391	Lockring	2	28-P-268	Oil Seal (2.004" x 1.250" x .437")	1
328589X	Bearing Cap Assembly	1	328273X	Bearing Cap Assembly	1
28-P-216	Oil Seal (2.004" x 1.250" x .374")	1	378391	Lockring	2
28-P-268	Oil Seal	1	28-P-216	Oil Seal (2.004" x 1.250" x .374")	1
328273X	Bearing Cap Assembly	1	3-P-923X	Output Shaft	1
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
379819	Grease Fitting Cap	1	22-P-127-1	Bearing Cap Gasket (.010")	2
500168-2	Lube Fitting	1	22-P-127-2	Bearing Cap Gasket (.020")	2
3-P-933	Output Shaft	1	22-P-127-3	Bearing Cap Gasket (.030")	1
379688	Lubricant	1	328591-107X	Conversion Kit (RB to GB)	
22-P-127-1	Bearing Cap Gasket (.010")	2	379819	Grease Fitting Cap	1
22-P-127-2	Bearing Cap Gasket (.020")	2	500168-2	Lube Fitting	1
22-P-127-3	Bearing Cap Gasket (.015")	1	3-P-923	Output Shaft	1
328591-92X	Conversion Kit (XD to GY)		379688	Lubricant	1
28-P-275	Oil Seal	1	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
378391	Lockring	2	28-P-268	Oil Seal	1
329234X	Bearing Cap Assembly	1	28-P-216	Oil Seal (2.004" x 1.250" x .374")	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4	328273X	Bearing Cap Assembly	1
328273X	Bearing Cap Assembly	1	378391	Lockring	2
28-P-268	Oil Seal	1	22-P-127-1	Bearing Cap Gasket (.010")	2
500168-2	Lube Fitting	1	22-P-127-2	Bearing Cap Gasket (.020")	2
379688	Lubricant	1	22-P-127-3	Bearing Cap Gasket (.015")	1
3-P-938	Output Shaft	1	Continued on Next Page		
379819	Grease Fitting Cap	1			
22-P-127-1	Bearing Cap Gasket (.010")	2			
22-P-127-2	Bearing Cap Gasket (.020")	2			
22-P-127-3	Bearing Cap Gasket (.015")	1			

BOMs in each kit group are listed in order based on part number.

Kits Bill of Materials**Parts List****442/447/489 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
328591-108X	Conversion Kit (AF to GF)		328591-114X	Conversion Kit (XD to GY), (RF to GH), (RE to GJ)	
28-P-268	Oil Seal	1	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
28-P-219	Oil Seal	1	378391	Lockring	2
328273X	Bearing Cap Assembly	1	28-P-219	Oil Seal	1
378391	Lockring	2	28-P-268	Oil Seal	1
378447-10	1/4" Socket Head Cap Screw (.312"-18 x 2.000")	4	328273X	Bearing Cap Assembly	1
379819	Grease Fitting Cap	1	379819	Grease Fitting Cap	1
500168-2	Lube Fitting	1	500168-2	Lube Fitting	1
3-P-921	Output Shaft	1	3-P-941	Output Shaft	1
379688	Lubricant	1	379688	Lubricant	1
22-P-127-1	Bearing Cap Gasket (.010")	2	22-P-127-1	Bearing Cap Gasket (.010")	2
22-P-127-2	Bearing Cap Gasket (.020")	2	22-P-127-2	Bearing Cap Gasket (.020")	2
22-P-127-3	Bearing Cap Gasket (.015")	1	22-P-127-3	Bearing Cap Gasket (.015")	1
328591-112X	Conversion Kit (XD to RC)		328591- 116X	Conversion Kit (XD to GH)	
28-P-216	Oil Seal (2.004" x 1.250" x .374")	1	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
3-P-800	Output Shaft	1	378391	Lockring	2
329322X	Bearing Cap Assembly (21-P-640)	1	21-P-626	Pump Flange	1
21-P-638	Pump Flange	1	28-P-219	Oil Seal	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4	28-P-268	Oil Seal	1
378446-4	3/16" Socket Head Cap Screw (.250"-20 x .750")	6	328273X	Bearing Cap Assembly	1
378391	Lockring	2	329264X	Bearing Cap Assembly (21-P-640)	1
379638	Mounting Tag	1	379819	Grease Fitting Cap	1
379688	Lubricant	1	500168-2	Lube Fitting	1
22-P-127-1	Bearing Cap Gasket (.010")	2	3-P-941	Output Shaft	1
22-P-127-2	Bearing Cap Gasket (.020")	2	379688	Lubricant	1
22-P-127-3	Bearing Cap Gasket (.015")	1	22-P-127-1	Bearing Cap Gasket (.010")	2
328591-113X	Conversion Kit (XD to RD)		22-P-127-2	Bearing Cap Gasket (.020")	2
21-P-638	Pump Flange	1	22-P-127-3	Bearing Cap Gasket (.015")	1
329322X	Bearing Cap Assembly	1	28-P-271	O-ring	1
378391	Lockring	2	328591-121X	Conversion Kit (XD to XY)	
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4	28-P-275	Oil Seal	1
379638	Mounting Tag	1	3-P-768	Output Shaft	1
379688	Lubricant	1	329234X	Bearing Cap Assembly (21-P-614)	1
378446-4	3/16" Socket Head Cap Screw (.250"-20 x .750")	6	378391	Lockring	2
28-P-216	Oil Seal (2.004" x 1.250" x .374")	1	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4
3-P-282	Pump Flange	1	379688	Lubricant	1
22-P-127-1	Bearing Cap Gasket (.010")	2	22-P-127-1	Bearing Cap Gasket (.010")	2
22-P-127-2	Bearing Cap Gasket (.020")	2	22-P-127-2	Bearing Cap Gasket (.020")	2
22-P-127-3	Bearing Cap Gasket (.015")	1	22-P-127-3	Bearing Cap Gasket (.015")	1
328591-122X	Conversion Kit (XD to XX)		328591-122X	Conversion Kit (XD to XX)	
28-P-216	Oil Seal (2.004" x 1.250" x .374")	1	28-P-216	Oil Seal (2.004" x 1.250" x .374")	1
3-P-766	Output Shaft	1	3-P-766	Output Shaft	1
379111	Square Key	1	379111	Square Key	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4	378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4
380487	Hex Head Cap Screw	4	380487	Hex Head Cap Screw	4

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BOMs in each kit group are listed in order based on part number.

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
328591-130X	Conversion Kit (XD to XV)		328591-142X	Conversion Kit (XD to PF)	
379828	Companion Flange	1	28-P-219	Oil Seal (2.506" x 1.625" x .375").....	1
378454-7	3/16" Socket Head Setscrew (.375"-16 x .500")	1	3-P-924	Output Shaft.....	1
			329264X	Bearing Cap Assembly	1
			378391	Lockring	1
328591-131X	Conversion Kit (XD to RY)		378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4	379688	Lubricant	1
21-P-625	Pump Flange	1	379638	Mounting Tag.....	1
3-P-768	Output Shaft.....	1	28-P-271	O-ring.....	1
378391	Lockring	1	21-P-661	Pump Flange	1
329356X	Bearing Cap Assembly	1	22-P-127-1	Bearing Cap Gasket (.010")	2
329355-1X	Standard Loose Parts Kit	1	22-P-127-2	Bearing Cap Gasket (.020")	2
22-P-127-1	Bearing Cap Gasket (.010")	2	22-P-127-3	Bearing Cap Gasket (.030")	1
22-P-127-2	Bearing Cap Gasket (.020")	2			
22-P-127-3	Bearing Cap Gasket (.015")	1	328591-143X	Conversion Kit (XD to PA)	
328591-134X	Conversion Kit (XD to RE)		378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7
28-P-219	Oil Seal	1	378391	Lockring	2
3-P-924	Output Shaft.....	1	21-P-661	Pump Flange	1
329264X	Bearing Cap Assembly (21-P-640).....	1	28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
21-P-654	Pump Flange	1	329195X	Bearing Cap Assembly	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7	3-P-283	Output Shaft.....	1
28-P-271	O-ring.....	1	379638	Mounting Tag.....	1
378391	Lockring	1	379688	Lubricant	1
379638	Mounting Tag.....	1	22-P-127-1	Bearing Cap Gasket (.010")	2
379688	Lubricant	1	22-P-127-2	Bearing Cap Gasket (.020")	2
22-P-127-1	Bearing Cap Gasket (.010")	2	22-P-127-3	Bearing Cap Gasket (.030")	1
22-P-127-2	Bearing Cap Gasket (.020")	2			
22-P-127-3	Bearing Cap Gasket (.015")	1	328591-149X	Conversion Kit (XD to SQ)	
328591-138X	Conversion Kit (XD to GJ)		28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
28-P-271	O-ring	1	3-P-282	Pump Flange	1
328273X	Bearing Cap Assembly	1	329449X	Bearing Cap Assembly	1
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	7	378391	Lockring	2
378391	Lockring	2	378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
329264X	Bearing Cap Assembly	1	379688	Lubricant	1
28-P-219	Oil Seal	1	22-P-127-1	Bearing Cap Gasket (.010")	2
21-P-654	Pump Flange	1	22-P-127-2	Bearing Cap Gasket (.020")	2
28-P-268	Oil Seal	1	22-P-127-3	Bearing Cap Gasket (.015")	1
379819	Grease Fitting Cap.....	1			
500168-2	Lube Fitting	1	328591-151X	Conversion Kit (XD to RH)	
3-P-941	Output Shaft.....	1	329322X	Bearing Cap Assembly	1
379688	Lubricant	1	28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
			3-P-1010	Output Shaft.....	1
			378391	Lockring	2
			379638	Mounting Tag.....	1
			378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4
			379688	Lubricant	1
			378446-4	3/16" Socket Head Cap Screw (.250"-20 x .750")	6
			21-P-638	Pump Flange	1
			22-P-127-1	Bearing Cap Gasket (.010")	2
			22-P-127-2	Bearing Cap Gasket (.020")	2
			22-P-127-3	Bearing Cap Gasket (.015")	1

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BOMs in each kit group are listed in order based on part number.

Kits Bill of Materials**Parts List****442/447/489 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
328591-159X	Conversion Kit (XD to RK) (Dry Spline Only)		328591-163X	Conversion Kit (XD to GL)	
379688	Lubricant	1	328273X	Bearing Cap Assembly	1
379638	Mounting Tag.....	1	329656X	Bearing Cap Assembly	1
378447-7	1/4" Socket Head Cap Screw		28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
	(.312"-18 x 1.250")	4	28-P-268	Oil Seal (2.004" x 1.000" x .374").....	1
378391	Lockring	2	3-P-923	Output Shaft.....	1
329656X	Bearing Cap Assembly	1	378391	Lockring	2
3-P-283	Output Shaft.....	1	379638	Mounting Tag.....	1
28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1	379740-6	1/4" Socket Hex Head Cap Screw	
21-P-734	Pump Flange.....	1		(M10-1.5 x .984")	6
22-P-127-1	Bearing Cap Gasket (.010")	2	379688	Lubricant	1
22-P-127-2	Bearing Cap Gasket (.020")	2	500168-2	Lube Fitting	1
22-P-127-3	Bearing Cap Gasket (.015")	1	379819	Grease Fitting Cap.....	1
379740-6	1/4" Socket Hex Head Cap Screw		378447-7	1/4" Socket Head Cap Screw	
	(M10-1.5 x .984")	6		(.312"-18 x 1.250")	4
328591-160X	Conversion Kit (XD to RK) (Wet Spline Only)		21-P-734	Pump Flange.....	1
329057-4X	Pressure Lube Hose	1	22-P-127-1	Bearing Cap Gasket (.010")	4
329681X	Installation Kit (Wet Spline).....	1	22-P-127-2	Bearing Cap Gasket (.020")	4
21-P-734	Pump Flange	1	22-P-127-3	Bearing Cap Gasket (.015")	4
378447-7	1/4" Socket Head Cap Screw				
	(.312"-18 x 1.250")	4	329436-1X	Conversion Kit (XD to RA) (B Ratio Only)	
329656X	Bearing Cap Assembly	1	21-P-628	Pump Flange	1
3-P-283	Output Shaft.....	1	28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
22-P-127-1	Bearing Cap Gasket (.010")	4	3-P-980	Output Shaft.....	1
22-P-127-2	Bearing Cap Gasket (.020")	4	329195X	Bearing Cap Assembly	1
22-P-127-3	Bearing Cap Gasket (.015")	4	378391	Lockring	2
378391	Lockring	2	378447-6	1/4" Socket Hex Head Cap Screw	
379231	Thread Pipe Plug (.125"-27).....	1		(.312"-18 x 1.000")	7
379740-6	1/4" Socket Hex Head Cap Screw		379638	Mounting Tag.....	1
	(M10-1.5 x .984")	6	379688	Lubricant	1
22-P-126	Gasket.....	1	22-P-127-1	Bearing Cap Gasket (.010")	2
379638	Mounting Tag.....	1	22-P-127-2	Bearing Cap Gasket (.020")	2
			22-P-127-3	Bearing Cap Gasket (.015")	1
328591-162X	Conversion Kit (XD to RJ) (Wet Spline Only)		329436-2X	Conversion Kit (XD to RB)	
329057-4X	Pressure Lube Hose	1	21-P-572	Pump Flange	1
329681X	Installation Kit (Wet Spline).....	1	28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
21-P-734	Pump Flange	1	3-P-980	Output Shaft.....	1
378447-7	1/4" Socket Head Cap Screw		329195X	Bearing Cap Assembly	1
	(.312"-18 x 1.250")	4	378391	Lockring	2
329656X	Bearing Cap Assembly	1	378447-6	1/4" Socket Hex Head Cap Screw	
3-P-854	Output Shaft.....	1		(.312"-18 x 1.000")	7
22-P-127-1	Bearing Cap Gasket (.010")	4	379638	Mounting Tag.....	1
22-P-127-2	Bearing Cap Gasket (.020")	4	379688	Lubricant	1
22-P-127-3	Bearing Cap Gasket (.015")	4	22-P-127-1	Bearing Cap Gasket (.010")	2
378391	Lockring	2	22-P-127-2	Bearing Cap Gasket (.020")	2
379231	Thread Pipe Plug (.125"-27).....	1	22-P-127-3	Bearing Cap Gasket (.015")	1
379740-6	1/4" Socket Hex Head Cap Screw				
	(M10-1.5 x .984")	6	329436-3X	Conversion Kit (XD to XK)	
22-P-126	Gasket.....	1	3-P-979	Output Shaft.....	1
379638	Mounting Tag.....	1	328333X	Bearing Cap Assembly	1
			378391	Lockring	2
			378447-8	1/4" Socket Hex Head Cap Screw	
				(.312"-18 x 1.500")	4
			379688	Lubricant	1
			22-P-127-1	Bearing Cap Gasket (.010")	2
			22-P-127-2	Bearing Cap Gasket (.020")	2
			22-P-127-3	Bearing Cap Gasket (.015")	1

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BOMs in each kit group are listed in order based on part number.

Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)		
329436-6X	Conversion Kit (XD to XQ)	
28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
3-P-979	Output Shaft.....	1
328589X	Bearing Cap Assembly	1
378391	Lockring	2
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
379688	Lubricant	1
22-P-127-1	Bearing Cap Gasket (.010")	2
22-P-127-2	Bearing Cap Gasket (.020")	2
22-P-127-3	Bearing Cap Gasket (.015")	1
329436-7X	Conversion Kit (XD to AK)	
28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
328989X	Bearing Cap Assembly	1
378391	Lockring	2
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
379688	Lubricant	1
3-P-979	Output Shaft.....	1
22-P-127-1	Bearing Cap Gasket (.010")	2
22-P-127-2	Bearing Cap Gasket (.020")	2
22-P-127-3	Bearing Cap Gasket (.015")	1
329436-8X	Conversion Kit (XD to RD)	
21-P-638	Pump Flange	1
329322X	Bearing Cap Assembly	1
378391	Lockring	2
378447-6	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.000")	4
379638	Mounting Tag.....	1
379688	Lubricant	1
378446-4	3/16" Socket Head Cap Screw (.250"-20 x .750")	6
28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
3-P-979	Output Shaft.....	1
22-P-127-1	Bearing Cap Gasket (.010")	2
22-P-127-2	Bearing Cap Gasket (.020")	2
22-P-127-3	Bearing Cap Gasket (.015")	1
329436-9X	Conversion Kit (XD to SQ)	
28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
3-P-979	Output Shaft.....	1
329449X	Bearing Cap Assembly	1
378391	Lockring	2
378447-8	1/4" Socket Hex Head Cap Screw (.312"-18 x 1.500")	4
379688	Lubricant	1
22-P-127-1	Bearing Cap Gasket (.010")	2
22-P-127-2	Bearing Cap Gasket (.020")	2
22-P-127-3	Bearing Cap Gasket (.015")	1

BOMs in each kit group are listed in order based on part number.

Offer of Sale

WARNING: This product can expose you to chemicals including Lead and Lead Compounds, and Di(2-ethylhexyl)phthalate (DEHP) which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

- 1. Definitions.** As used herein, the following terms have the meanings indicated.

Buyer: means any customer receiving a Quote for Products.

Buyer's Property:

means any tools, patterns, plans, drawings, designs, specifications materials, equipment, or information furnished by Buyer, or which are or become Buyer's property.

Confidential Information:

means any technical, commercial, or other proprietary information of Seller, including, without limitation, pricing, technical drawings or prints and/or part lists, which has been or will be disclosed, delivered, or made available, whether directly or indirectly, to Buyer.

Goods: means any tangible part, system or component to be supplied by Seller.

Intellectual Property Rights:

means any patents, trademarks, copyrights, trade dress, trade secrets or similar rights.

Products: means the Goods, Services and/or Software as described in a Quote.

Quote: means the offer or proposal made by Seller to Buyer for the supply of Products.

Seller: means Parker-Hannifin Corporation, all divisions, subsidiaries and businesses selling products under these terms.

Seller's IP: means patents, trademarks, copyrights, or other intellectual property rights relating to the Products, including without limitation, names, designs, images, drawings, models, software, templates, information, any improvements or creations or other intellectual property developed prior to or during the relationship contemplated herein.

Services: means any services to be provided by Seller.

Software: means any software related to the Goods, whether embedded or separately downloaded.

Special Tooling:

means equipment acquired by Seller or otherwise owned by Seller necessary to manufacture Goods, including but not limited to tools, jigs, and fixtures.

Terms: means the terms and conditions of this Offer of Sale.

- 2. Terms.** All sales of Products by Seller will be governed by, and are expressly conditioned upon Buyer's assent to, these Terms. These Terms are incorporated into any Quote provided by Seller to Buyer. Buyer's order for any Products whether communicated to Seller verbally, in writing, by electronic data interface or other electronic commerce, shall constitute acceptance of these Terms. Seller objects to any contrary or additional terms or conditions of Buyer. Reference in Seller's order acknowledgement to Buyer's purchase order or purchase order number shall in no way constitute an acceptance of any of Buyer's terms or conditions of purchase. Any Quote made by Seller to Buyer shall be considered a firm and definite offer and shall not be deemed to be otherwise despite any language on the face of the Quote. Seller reserves all rights to accept or reject any purported acceptance by Buyer to Seller's Quote if such purported acceptance attempts to vary the terms of the Quote. If Seller ships Products after Buyer issues an acceptance to the Quote, any additional or different terms proposed by Buyer will not become part of the parties' business relationship unless agreed to in a writing that is signed by an authorized representative of Seller, excluding email correspondence. If the transaction proceeds without such agreement on the part of Seller, the business relationship will be

governed solely by these Terms and the specific terms in Seller's Quote.

3. Price; Payment. The Products set forth in the Quote are offered for sale at the prices indicated in the Quote. Unless otherwise specifically stated in the Quote, prices are valid for thirty (30) days and do not include any sales, use, or other taxes or duties. Seller reserves the right to modify prices for any reason and at any time by giving ten (10) days prior written notice. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2020). All sales are contingent upon credit approval and full payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified in the Quote). Under any circumstances, Buyer may not withhold or suspend payment of any amounts due and payable as a deduction, set-off or recoupment of any amount, claim or dispute with Seller. Unpaid invoices beyond the specified payment date incur interest at the rate of 1.5% per month or the maximum allowable rate under applicable law. Seller reserves the right to require advance payment or provision of securities for first and subsequent deliveries if there is any doubt, in Seller's sole determination, regarding the Buyer's creditworthiness or for other business reasons. If the requested advance payment or securities are not provided to Seller's satisfaction, Seller reserves the right to suspend performance or reject the purchase order, in whole or in part, without prejudice to Seller's other rights or remedies, including the right to full compensation. Seller may revoke or shorten any payment periods previously granted in Seller's sole determination. The rights and remedies herein reserved to Seller are cumulative and in addition to any other or further rights and remedies available at law or in equity. No waiver by Seller of any breach by Buyer of any provision of these terms will constitute a waiver by Seller of any other breach of such provision.

4. Shipment; Delivery; Title and Risk of Loss. All delivery dates are approximate, and Seller is not responsible for damages or additional costs resulting from any delay. All deliveries are subject to our ability to procure materials from our suppliers. Regardless of the manner of shipment, delivery occurs and title and risk of loss or damage pass to Buyer, upon placement of the Products with the carrier at Seller's facility. Unless otherwise agreed prior to shipment and for domestic delivery locations only, Seller will select and arrange, at Buyer's sole expense, the carrier and means of delivery. When Seller selects and arranges the carrier and means of delivery, freight and insurance costs for shipment to the designated delivery location will be prepaid by Seller and added as a separate line item to the invoice. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions. Buyer shall not return or repackage any Products without the prior written authorization from Seller, and any return shall be at the sole cost and expense of Buyer.

5. Warranty. The warranty for the Products is as follows:

(i) Seller warrants that all products sold conform to the applicable Parker Chelsea standard specification for the lesser period of 2 years (24 Months) from date of service or 2-1/2 years (30 Months) from date of build (as marked on the product name plate; (ii) Services shall be performed in accordance with generally accepted practices and using the degree of care and skill that is ordinarily exercised and customary in the field to which the Services pertain and are warranted for a period of six (6) months from the date of completion of the Services; and (iii) Software is only warranted to perform in accordance with applicable specifications provided by Seller to Buyer for ninety (90) days from the date of delivery or, when downloaded by a Buyer or end-user, from the date of the initial download. All prices are based upon the exclusive limited warranty stated above, and upon the following disclaimer:

EXEMPTION CLAUSE; DISCLAIMER OF WARRANTY, CONDITIONS, REPRESENTATIONS: THIS WARRANTY IS THE SOLE AND ENTIRE WARRANTY, CONDITION, AND REPRESENTATION, PERTAINING TO PRODUCTS. SELLER DISCLAIMS ALL OTHER WARRANTIES, CONDITIONS,

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Offer of Sale (Continued)

AND REPRESENTATIONS, WHETHER STATUTORY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THOSE RELATING TO DESIGN, NONINFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE SOFTWARE IS ERROR-FREE OR FAULT-TOLERANT, OR THAT BUYER'S USE THEREOF WILL BE SECURE OR UNINTERRUPTED, UNLESS OTHERWISE AUTHORIZED IN WRITING BY SELLER, THE SOFTWARE SHALL NOT BE USED IN CONNECTION WITH HAZARDOUS OR HIGH-RISK ACTIVITIES OR ENVIRONMENTS. EXCEPT AS EXPRESSLY STATED HEREIN, ALL PRODUCTS ARE PROVIDED "AS IS".

6. Claims; Commencement of Actions. Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to Seller within ten (10) days of delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the non-conformance is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including tort, negligence, or otherwise must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

7. LIMITATION OF LIABILITY. IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE THE NON-CONFORMING PRODUCTS, RE-PERFORM THE SERVICES, OR REFUND THE PURCHASE PRICE PAID WITHIN A REASONABLE PERIOD OF TIME. IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING ANY LOSS OF REVENUE OR PROFITS, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCTS.

8. Confidential Information. Buyer acknowledges and agrees that Confidential Information has been and will be received in confidence and will remain the property of Seller. Buyer further agrees that it will not use Seller's Confidential Information for any purpose other than for the benefit of Seller and shall return all such Confidential Information to Seller within thirty (30) days upon request.

9. Loss to Buyer's Property. Buyer's Property will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the Products manufactured using Buyer's Property. Also, Seller shall not be responsible for any loss or damage to Buyer's Property while it is in Seller's possession or control.

10. Special Tooling. Seller may impose a tooling charge for any Special Tooling. Special Tooling shall be and remain Seller's property. In no event will Buyer acquire any interest in the Special Tooling, even if such Special Tooling has been specially converted or adapted for manufacture of Goods for Buyer and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller has the right to alter, discard or otherwise dispose of any Special Tooling or other property owned by Seller in its sole determination at any time.

11. Security Interest. To secure payment of all sums due from Buyer, Seller retains a security interest in all Products delivered to Buyer and, Buyer's acceptance of these Terms is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect Seller's security interest.

12. User Responsibility. Buyer, through its own analysis and testing, is solely responsible for making the final selection of the Products and assuring that all performance, endurance, maintenance, safety and warning requirements of the application of the Products are met. Buyer must analyze all aspects of the application and follow applicable industry standards, specifications, and any technical information provided with the Quote or the Products, such as Seller's instructions, guides and specifications. If Seller provides options of or for Products based upon data or specifications provided by Buyer, Buyer is responsible for

determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products. In the event Buyer is not the end-user of the Products, Buyer will ensure such end-user complies with this paragraph.

13. Use of Products, Indemnity by Buyer. Buyer shall comply with all instructions, guides and specifications provided by Seller with the Quote or the Products. If Buyer uses or resells the Products in any way prohibited by Seller's instructions, guides or specifications, or Buyer otherwise fails to comply with Seller's instructions, guides and specifications, Buyer acknowledges that any such use, resale, or non-compliance is at Buyer's sole risk. Further, Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, intellectual property infringement or any other claim, arising out of or in connection with: (a) improper selection, design, specification, application, or any misuse of Products; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of Buyer's Property; (d) damage to the Products from an external cause, repair or attempted repair by anyone other than Seller, failure to follow instructions, guides and specifications provided by Seller, use with goods not provided by Seller, or opening, modifying, deconstructing, tampering with or repackaging the Products; or (e) Buyer's failure to comply with these Terms, including any legal or administrative proceedings, collection efforts, or other actions arising from or relating to such failure to comply. Seller shall not indemnify Buyer under any circumstance except as otherwise provided in these Terms.

14. Cancellations and Changes. Buyer may not cancel or modify, including but not limited to movement of delivery dates for the Products, any order for any reason except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage and any additional expense. Seller, at any time, may change features, specifications, designs and availability of Products.

15. Assignment. Buyer may not assign its rights or obligations without the prior written consent of Seller.

16. Force Majeure. Seller is not liable for delay or failure to perform any of its obligations by reason of any events or circumstances beyond its reasonable control. Such circumstances include without limitation: accidents, labor disputes or stoppages, government acts or orders, acts of nature, pandemics, epidemics, other widespread illness, or public health emergency, cyber related disruptions, cyber-attacks, ransomware sabotage, delays or failures in delivery from carriers or suppliers, shortages of materials, sudden increases in the price of raw material or components, shutdowns or slowdowns affecting the supply of raw materials or components, or the transportation thereof, oil shortages or oil price increases, energy crisis, energy or fuel interruption, war (whether declared or not) or the serious threat of same, riots, rebellions, acts of terrorism, embargoes, fire or any reason whether similar to the foregoing or otherwise. Seller will resume performance as soon as practicable after the event of force majeure has been removed. All delivery dates affected by an event of force majeure shall be tolled for the duration of such event of force majeure and rescheduled for mutually agreed dates as soon as practicable after the event of force majeure ceases to exist. The right to allocate capacity is in the Seller's sole discretion. An event of force majeure shall not include financial distress, insolvency, bankruptcy, or other similar conditions affecting one of the parties, affiliates and/or subcontractors. An event of force majeure in the meaning of these Terms means any circumstances beyond Seller's control that permanently or temporarily hinders performance, even where that circumstance was already foreseen. Buyer shall not be entitled to cancel any orders following its claim of an event of force majeure.

17. Waiver and Severability. Failure to enforce any provision of these Terms will not invalidate that provision; nor will any such failure prejudice either party's right to enforce that provision in the future. Invalidation of any provision of these Terms shall not

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Offer of Sale (Continued)

WARNING: This product can expose you to chemicals including Lead and Lead Compounds, and Di(2-ethylhexyl)phthalate (DEHP) which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

invalidate any other provision herein and, the remaining provisions will remain in full force and effect.

18. Duration. Unless otherwise stated in the Quote, any agreement governed by or arising from these Terms shall: (a) be for an initial duration of one (1) year; and (b) shall automatically renew for successive one-year terms unless terminated by Buyer with at least 180-days written notice to Seller or if Seller terminates the agreement pursuant to Section 19 of these Terms.

19. Termination. Seller may, without liability to Buyer, terminate any agreement governed by or arising from these Terms for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate, in writing, if Buyer: (a) breaches any provision of these Terms, (b) becomes or is deemed insolvent, (c) appoints or has appointed a trustee, receiver or custodian for all or any part of Buyer's property, (d) files a petition for relief in bankruptcy on its own behalf, or one is filed against Buyer by a third party, (e) makes an assignment for the benefit of creditors; or (f) dissolves its business or liquidates all or a majority of its assets.

20. Ownership of Rights. Buyer agrees that (a) Seller (and/or its affiliates) owns or is the valid licensee of Seller's IP and (b) the furnishing of information, related documents or other materials by Seller to Buyer does not grant or transfer any ownership interest or license in or to Seller's IP to Buyer, unless expressly agreed in writing. Without limiting the foregoing, Seller retains ownership of all Software supplied to Buyer. In no event shall Buyer obtain any greater right in and to the Software than a right in a license limited to the use thereof and subject to compliance with any other terms provided with the Software. Buyer further agrees that it will not, directly or through intermediaries, reverse engineer, decompile, or disassemble any Software (including firmware) comprising or contained within a Product, except and only to the extent that such activity may be expressly permitted, either by applicable law or, in the case of open-source software, the applicable open-source license.

21. Indemnity for Infringement of Intellectual Property Rights. Seller is not liable for infringement of any Intellectual Property Rights except as provided in this Section. Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on a third-party claim that one or more of the Products infringes the Intellectual Property Rights of a third party in the country of delivery of the Products by Seller to Buyer. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of any such claim, and Seller having sole control over the defense of the claim including all negotiations for settlement or compromise. If one or more Products is subject to such a claim, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Products, replace or modify the Products to render them non-infringing, or offer to accept return of the Products and refund the purchase price less a reasonable allowance for depreciation. Seller has no obligation or liability for any claim of infringement: (i) arising from information provided by Buyer (including Seller's use of Buyer's Property); or (ii) directed to any Products for which the designs are specified in whole or part by Buyer; or (iii) resulting from the modification, combination or use in a system of any Products. The foregoing provisions of this Section constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for claims of infringement of Intellectual Property Rights.

22. Governing Law. These Terms, the terms of any Quote, and the sale and delivery of all Products are deemed to have taken place in, and shall be governed and construed in accordance with, the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to the sale

and delivery of the Products.

23. Entire Agreement. These Terms, along with the terms set forth in the Quote, forms the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale and purchase. In the event of a conflict between any term set forth in the Quote and these Terms, the terms set forth in the Quote shall prevail. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter shall have no effect. No modification to these Terms will be binding on Seller unless agreed to in a writing that is signed by an authorized representative of Seller, excluding email correspondence, 'clickwrap' or other purported electronic assent to different or additional terms. Sections 2-25 of these Terms shall survive termination or cancellation of any agreement governed by or arising from these Terms.

24. No 'Wrap' Agreements/No Authority to Bind. Seller's clicking any buttons or any similar action, such as clicking "I Agree" or "Confirm," to utilize Buyer's software or webpage for the placement of orders, is NOT an agreement to Buyer's Terms and Conditions. **NO EMPLOYEE, AGENT OR REPRESENTATIVE OF SELLER HAS THE AUTHORITY TO BIND SELLER BY THE ACT OF CLICKING ANY BUTTON OR SIMILAR ACTION ON BUYER'S WEBSITE OR PORTAL.**

25. Compliance with Laws. Buyer agrees to comply with all applicable laws, regulations, and industry and professional standards, including those of the United States of America, and the country or countries in which Buyer may operate, including without limitation the U.S. Foreign Corrupt Practices Act ("FCPA"), the U.S. Anti-Kickback Act ("Anti-Kickback Act"), U.S. and E.U. export control and sanctions laws ("Export Laws"), the U.S. Food Drug and Cosmetic Act ("FDCA"), and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), each as currently amended. Buyer agrees to indemnify, defend, and hold harmless Seller from the consequences of any violation of such laws, regulations and standards by Buyer, its employees or agents. Buyer represents that it is familiar with all applicable provisions of the FCPA, the Anti-Kickback Act, Export Laws, the FDCA and the FDA and certifies that Buyer will adhere to the requirements thereof and not take any action that would make Seller violate such requirements. Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly, to any governmental official, foreign political party or official thereof, candidate for foreign political office, or commercial entity or person, for any improper purpose, including the purpose of influencing such person to purchase Products or otherwise benefit the business of Seller. Buyer further represents and agrees that it will not receive, use, service, transfer or ship any Products from Seller in a manner or for a purpose that violates Export Laws or would cause Seller to be in violation of Export Laws. Buyer agrees to promptly and reliably provide Seller all requested information or documents, including end-user statements and other written assurances, concerning Buyer's ongoing compliance with Export Law.

09/22



Parker-Hannifin Corporation

Chelsea Products Division
8225 Hacks Cross Rd
Olive Branch, MS 38654
United States

Phone: +1 (662) 895-1011

Email: chd_support@support.parker.com

www.Parker.com/Chelsea

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