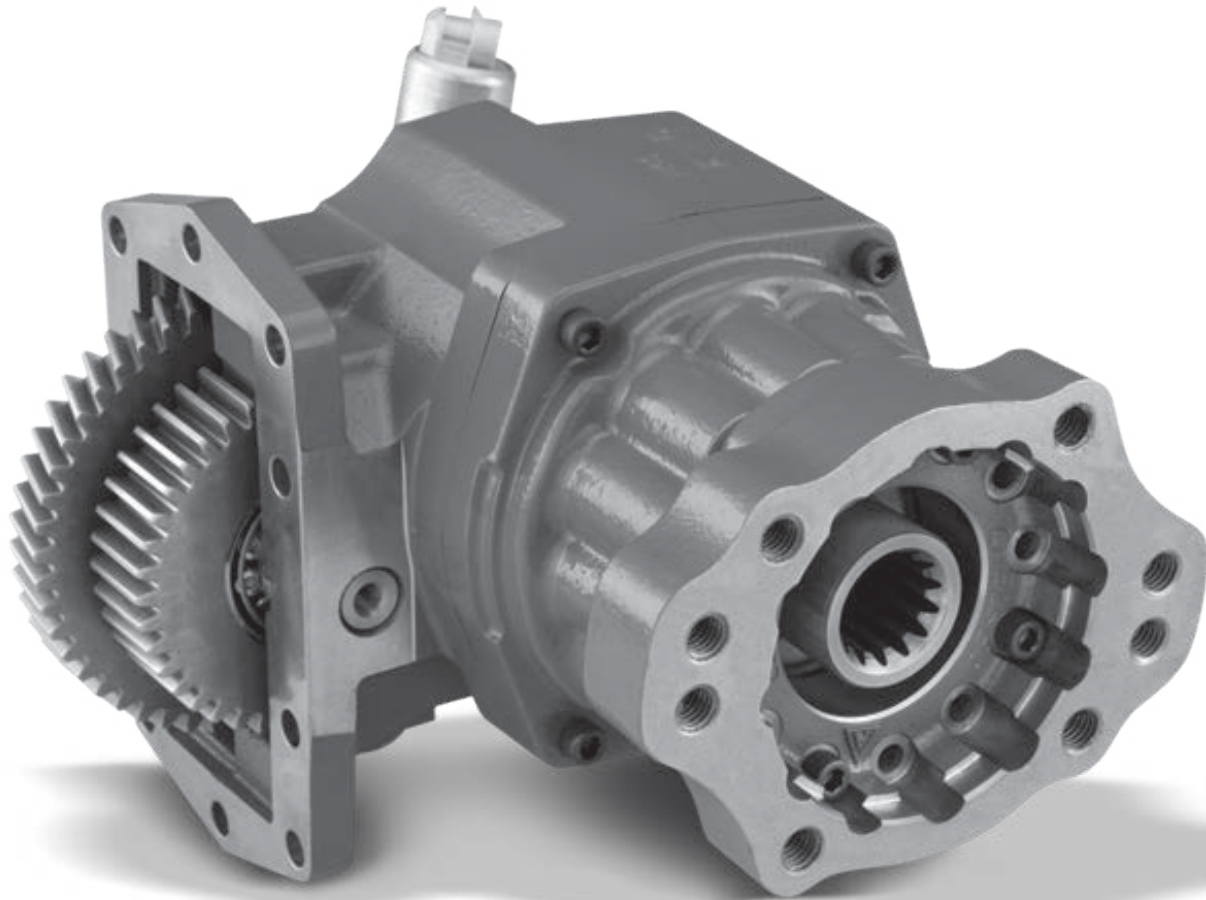


Effective: HY25-2280-M1/US January 15, 2024
Supersedes: HY25-2280-M1/US December 15, 2023



Power Take-Offs Parts List

280, 287 Series



WARNING – User Responsibility

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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.

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280 Series

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287 Series

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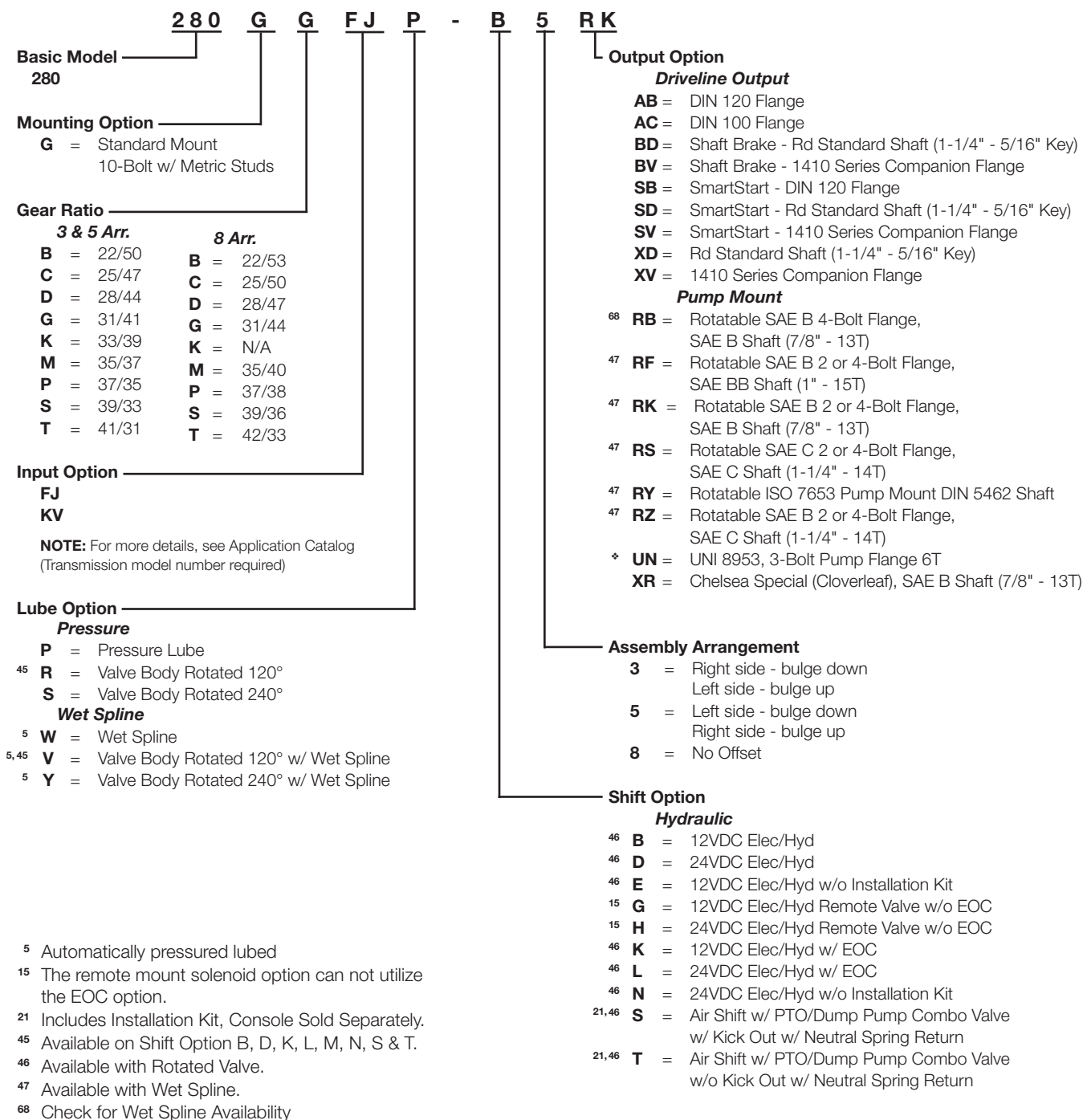
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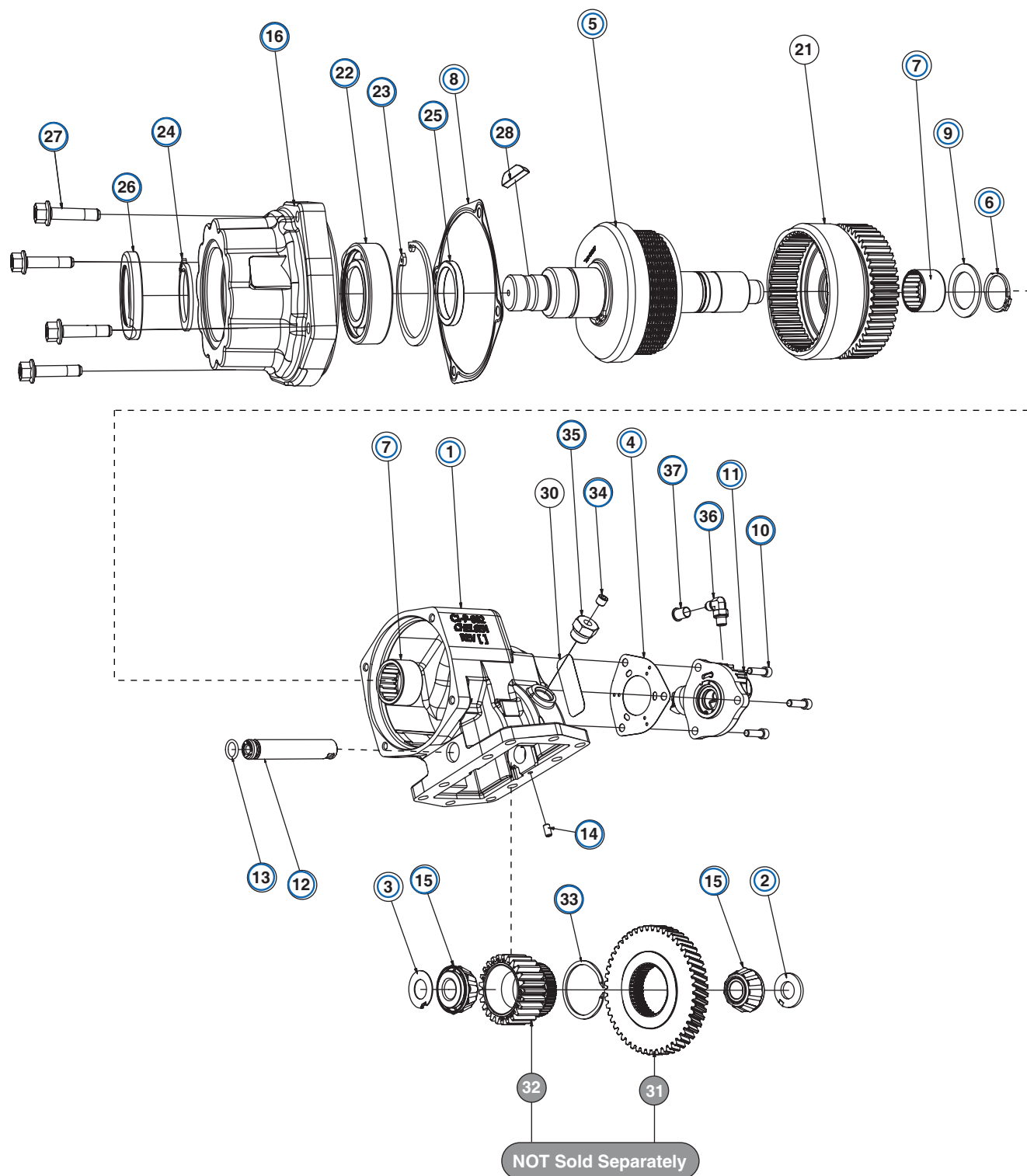
Offer of Sale 61-63



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

Exploded View

Parts List 280 Series



Bill of Materials

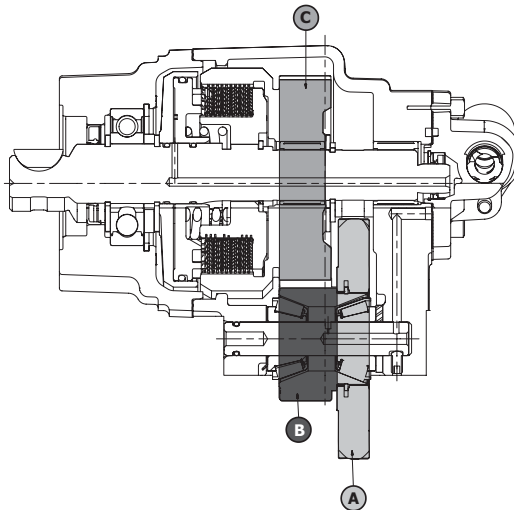
Parts List
280 Series

Item	Part Number	Description	Qty.
1	1-P-703	Housing (3 Arrangement) (w/ 5/16" Bearing Cap Bolts).....	1 or
▶	1-P-763	Housing (3 Arrangement) (w/ 3/8" Bearing Cap Bolts).....	1 or
	1-P-705	Housing (5 Arrangement) (w/ 5/16" Bearing Cap Bolts).....	1 or
▶	1-P-765	Housing (5 Arrangement) (w/ 3/8" Bearing Cap Bolts).....	1 or
	1-P-708	Housing (8 Arrangement) (w/ 5/16" Bearing Cap Bolts).....	1 or
▶	1-P-768	Housing (8 Arrangement) (w/ 3/8" Bearing Cap Bolts).....	1
2	14-P-73-1	Spacer (.762" x 1.500" x .150") (Thickness as Required).....	1 or
	14-P-73-2	Spacer (.762" x 1.500" x .153")	1 or
	14-P-73-3	Spacer (.762" x 1.500" x .156")	1
3	▶ 31-P-102	Thrust Washer (.754" x .440" x .030")	1
4	▶ 22-P-112	Gasket.....	1
5	▶ 329724-6X	Drive Shaft & Clutch Assembly (XD) (See page 11).....	1 or
	▶ 329724-9X	Output Shaft (1.250") Keyed w/ SmartStart (SD) (See page 11)	1
6	▶ 379746	Lockring	1
7	▶ 560972	Bearing Needle Roller Assembly (1.500" x 1.875" x 1.000").....	2
8	▶ 22-P-151	Gasket.....	1
9	▶ 31-P-70	Thrust Washer (1.507" x 2.167" x .094")	1
10	▶ 378447-6	Socket Head Cap Screw (.312"-18 x 1.000").....	3
11	See Page 8	Valve Cap Assembly	1
12	▶ 9-P-106	Idler Shaft (.750")	1
13	▶ 28-P-191	O-ring (.549" x .103").....	1
14	▶ 378452-7	Socket Head Set Screw (.250"-20 x .500")	1
15	▶ 550439	Bearing Tapered Cone (.750" x .859")	2 or
	▶ 561006	Bearing Tapered Cone (.750" x .655") (B Ratio Only).....	2
16	▶ 21-P-766	Bearing Cap (SD, XD, XV, SV, AB, AC, SB, SC) (w/ 5/16" Bearing Cap Bolts)	1 or
	▶ 21-P-881	Bearing Cap (SD, XD, XV, SV, AB, AC, SB, SC) (w/ 3/8" Bearing Cap Bolts)	1
21	See Page 5	Gear Output	1
22	▶ 550311	Ball Bearing (1.770" x 3.346" x .748")	1
23	▶ 378263	Lockring	1
24	▶ 379555	Lockring	1
25	▶ 4-P-187	Spacer (1.776" x 2.200" x .239")	1
26	▶ 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
27	▶ 378447-8	Socket Head Cap Screw (.312"-18 x 1.500") (w/ 5/16" Bearing Cap Bolts)	4 or
	▶ 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500") (w/ 3/8" Bearing Cap Bolts)	4
28	▶ 500007-29	Woodruff Key (XD & SD Output Only)	1
30	68-P-51-1	Adhesive Label	1
Not Sold Separately			
31	See Page 5	Input Gear	1
32	See Page 5	Ratio Gear	1
33	▶ 379522	Lockring	1
34	▶ 379231	Pipe Plug (.125"-27) (w/o EOC Only).....	1
35	▶ 379242	Adapter Straight (.125"-27 x .750"-16) (w/o EOC Only).....	1
36	▶ 379486	90° Elbow (.438"-20)	1
37	▶ 379564-2	Cap Thread (.438")	1

Continued on Next Page

Bill of Materials

Item	Part Number	Description	Qty.
N.S.	379243	Speed Sensor (w/ EOC Only).....	1
N.S.	28-P-171	O-ring (.644" x .087") (w/ EOC Only).....	1
	See pages 44-48 for Bill of Materials for the below loose parts.		
		SERVICE KITS	
►	329071-63X	Bearing Kit (All Outputs Except (BD, BV)	
►	329071-64X	Bearing Kit (BV)	
►	329071-80X	Gasket & Seal Kit (All Outputs Except BD, BV)	
►	329071-82X	Gasket & Seal Kit (BD, BV)	
►	329071-83X	Hydraulic Valve O-ring Kit (BD, BV)	
►	329678X	Gear & Clutch Plates Kit (All)	
		STUD KITS	
	7170-86X	Mounting Kit (FJ Gear) (3 & 5 Arrangement)	1 or
	7170-107X	Mounting Kit (FJ Gear) (8 Arrangement)	1 or
	7170-117X	Mounting Kit (KV Gear) (3 & 5 Arrangement)	1 or
	7170-118X	Mounting Kit (KV Gear) (8 Arrangement)	1
		INSTALLATION INSTRUCTIONS KITS	
►	328948-9X	Gasket & Installation Instructions	
		HYDRAULIC INSTALLATION KITS	
►	329024-12X	12VDC Installation Kit (FJ Gear, B Shift)	
►	329024-24X	24VDC Installation Kit (FJ Gear, D Shift)	
►	329237-12X	12VDC Remote Valve w/o EOC Installation Kit (FJ Gear, G Shift)	
►	329237-24X	24VDC Remote Valve w/o EOC Installation Kit (FJ Gear, H Shift)	
►	329076X	12VDC & 24VDC w/ EOC Installation Kit (FJ Gear, K, L Shift)	
►	329650X	Electronic Overspeed Control (K, L Shift)	
►	329443-12X	12VDC Installation Kit (KV Gear, B Shift)	
►	329443-24X	24VDC Installation Kit (KV Gear, D Shift)	
	329444X	12VDC & 24VDC w/ EOC Installation Kit (KV Gear, K, L Shift)	
►	329445-12X	12VDC Remote Valve w/o EOC Installation Kit (KV Gear, G Shift)	
►	329445-24X	24VDC Remote Valve w/o EOC Installation Kit (KV Gear, H Shift)	
		AIR INSTALLATION KITS	
►	328388-85X	Installation Kit Air Shift (S Shift)	
	328388-86X	Installation Kit Air Shift (T Shift)	
		SHIFTER CONVERSION KITS	
►	329175-12X	12VDC w/ EOC Conversion Kit (FJ Gear)	
►	329175-24X	24VDC w/ EOC Conversion Kit (FJ Gear)	
►	329354-12X	12VDC Remote Hyd Valve Conversion Kit (All)	
►	329354-24X	24VDC Remote Hyd Valve Conversion Kit (All)	
	329448-12X	12VDC w/ EOC Conversion Kit (KV Gear)	
	329448-24X	24VDC w/ EOC Conversion Kit (KV Gear)	
		HOSE ASSEMBLIES	
►	328075X	Exhaust Hose Assembly (G & H Shift)	1
►	329057-3X	Lube Hose Assembly (G & H Shift).....	2
►	329057-4X	Lube & Clutch Hose Assembly (G & H Shift)	2
►	329075-5X	Pressure Hose Assembly (KV Gear)	1
►	329141-1X	Pressure Hose Assembly (FJ Gear).....	1
N.S. — Not Shown			



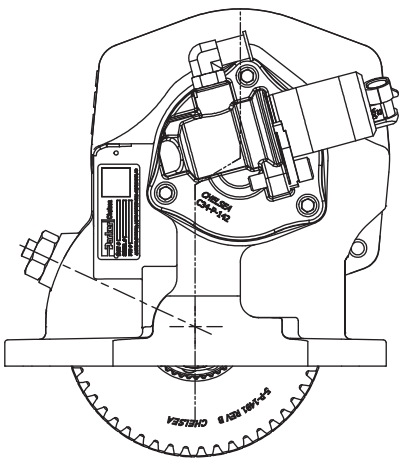
3 and 5 Assembly

GEAR DESIGNATOR	INPUT GEAR ASSEMBLY	NOT Sold Separately				OUTPUT GEAR (21)	NO. TEETH C
		INPUT GEAR (31)	NO. TEETH A	RATIO GEAR (32)	NO. TEETH B		
280*BFJ	5-P-1491-1X	5-P-1491	50	5-P-1478	22	2-P-926	50
280*CFJ	5-P-1491-2X	5-P-1491	50	5-P-1495	25	2-P-927	47
280*DFJ	5-P-1491-3X	5-P-1491	50	5-P-1479	28	2-P-928	44
280*GFJ	5-P-1491-4X	5-P-1491	50	5-P-1480	31	2-P-929	41
280*KFJ	5-P-1491-5X	5-P-1491	50	5-P-1481	33	2-P-931	39
280*MFJ	5-P-1491-6X	5-P-1491	50	5-P-1482	35	2-P-933	37
280*PFJ	5-P-1491-7X	5-P-1491	50	5-P-1483	37	2-P-935	35
280*SFJ	5-P-1491-8X	5-P-1491	50	5-P-1484	39	2-P-936	33
280*TFJ	5-P-1491-9X	5-P-1491	50	5-P-1497	41	2-P-937	31
280*BKV	5-P-1493-1X	5-P-1493	45	5-P-1478	22	2-P-926	50
280*CKV	5-P-1493-2X	5-P-1493	45	5-P-1495	25	2-P-927	47
280*DKV	5-P-1493-3X	5-P-1493	45	5-P-1479	28	2-P-928	44
280*GKV	5-P-1493-4X	5-P-1493	45	5-P-1480	31	2-P-929	41
280*KKV	5-P-1493-5X	5-P-1493	45	5-P-1481	33	2-P-931	39
280*MKV	5-P-1493-6X	5-P-1493	45	5-P-1482	35	2-P-933	37
280*PKV	5-P-1493-7X	5-P-1493	45	5-P-1483	37	2-P-935	35
280*SKV	5-P-1493-8X	5-P-1493	45	5-P-1484	39	2-P-936	33
280*TKV	5-P-1493-9X	5-P-1493	45	5-P-1497	41	2-P-937	31

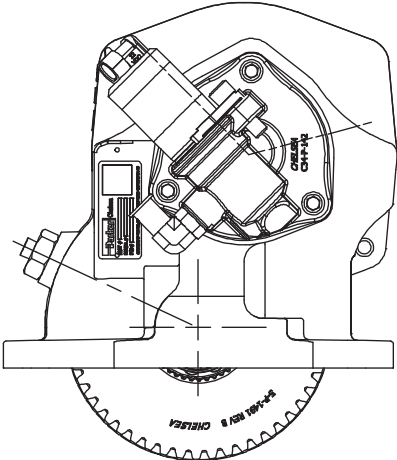
8 Assembly

GEAR DESIGNATOR	INPUT GEAR ASSEMBLY	NOT Sold Separately				OUTPUT GEAR (21)	NO. TEETH C
		INPUT GEAR (31)	NO. TEETH A	RATIO GEAR (32)	NO. TEETH B		
280*BFJ	5-P-1491-1X	5-P-1491	50	5-P-1478	22	2-P-925	53
280*CFJ	5-P-1491-2X	5-P-1491	50	5-P-1495	25	2-P-926	50
280*DFJ	5-P-1491-3X	5-P-1491	50	5-P-1479	28	2-P-927	47
280*GFJ	5-P-1491-4X	5-P-1491	50	5-P-1480	31	2-P-928	44
280*MFJ	5-P-1491-6X	5-P-1491	50	5-P-1482	35	2-P-930	40
280*PFJ	5-P-1491-7X	5-P-1491	50	5-P-1483	37	2-P-932	38
280*SFJ	5-P-1491-8X	5-P-1491	50	5-P-1484	39	2-P-934	36
280*TFJ	5-P-1491-10X	5-P-1491	50	5-P-1485	42	2-P-936	33
280*BKV	5-P-1493-1X	5-P-1493	45	5-P-1478	22	2-P-925	53
280*CKV	5-P-1493-2X	5-P-1493	45	5-P-1495	25	2-P-926	50
280*DKV	5-P-1493-3X	5-P-1493	45	5-P-1479	28	2-P-927	47
280*GKV	5-P-1493-4X	5-P-1493	45	5-P-1480	31	2-P-928	44
280*MKV	5-P-1493-6X	5-P-1493	45	5-P-1482	35	2-P-930	40
280*PKV	5-P-1493-7X	5-P-1493	45	5-P-1483	37	2-P-932	38
280*SKV	5-P-1493-8X	5-P-1493	45	5-P-1484	39	2-P-934	36
280*TKV	5-P-1493-10X	5-P-1493	45	5-P-1485	42	2-P-936	33

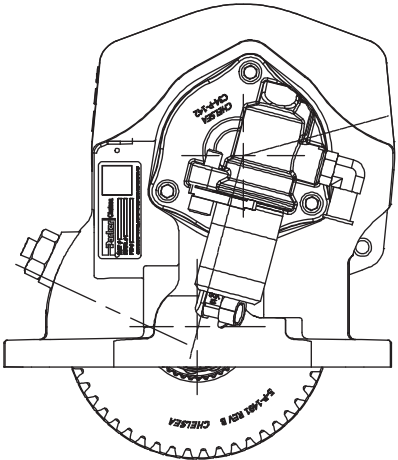
Pressure Lube



P = Pressure Lube

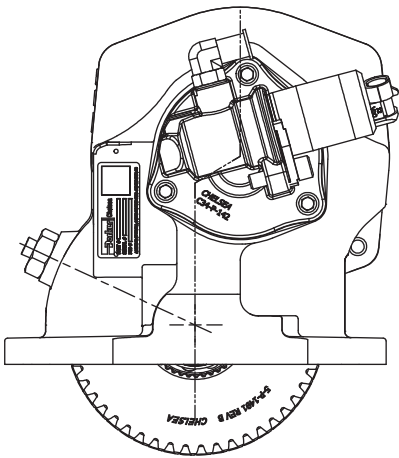


R = Valve Cap Rotated 120°

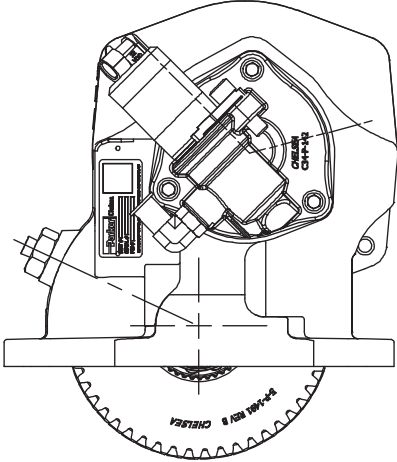


S = Valve Cap Rotated 240°

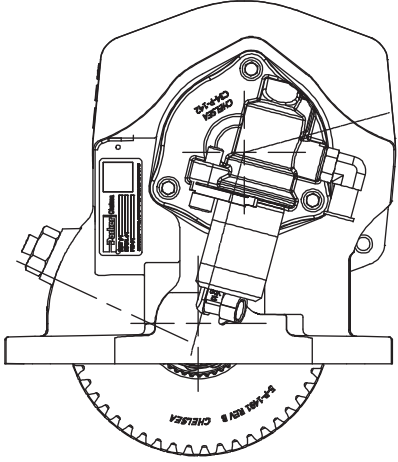
Wet Spline



W = Wet Spline

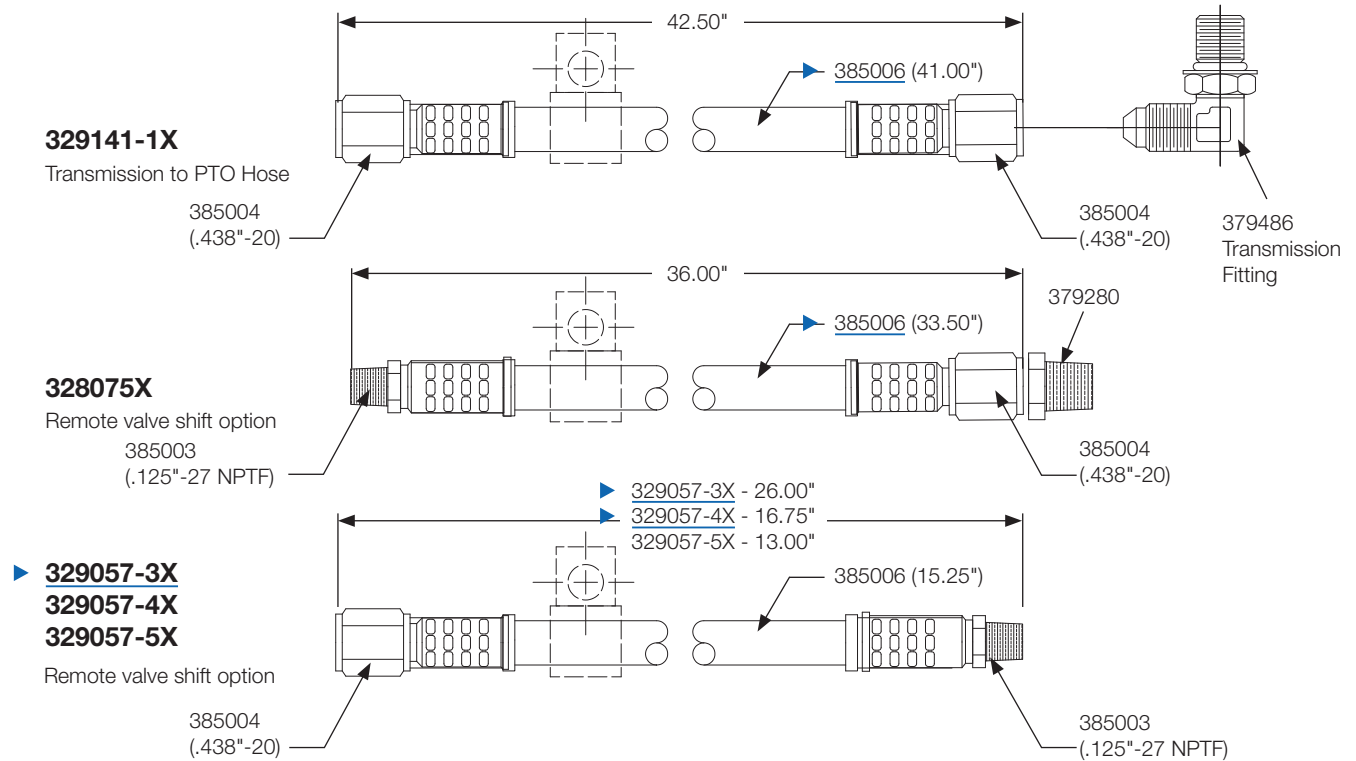


V = Valve Cap Rotated 120°
w/ Wet Spline



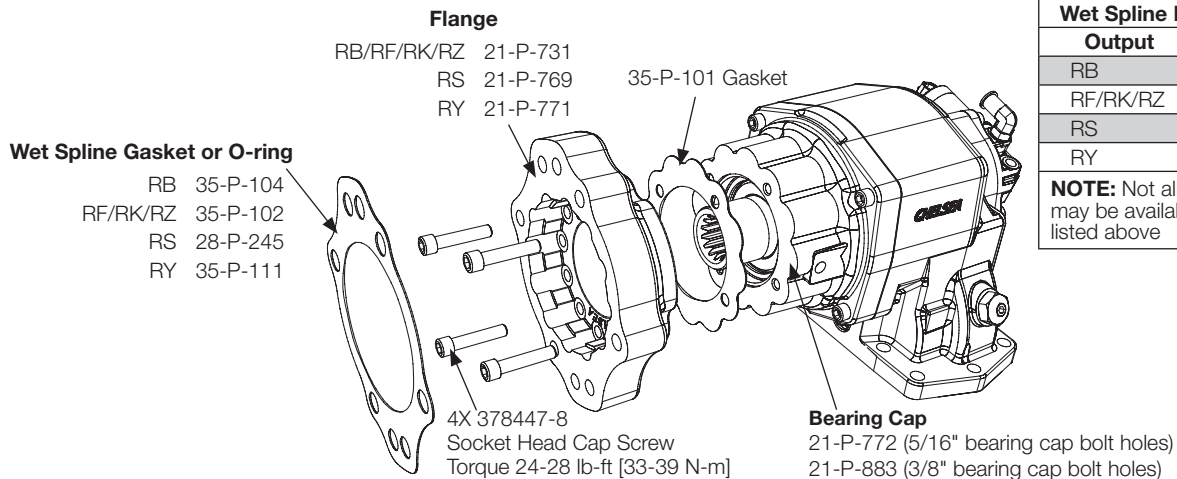
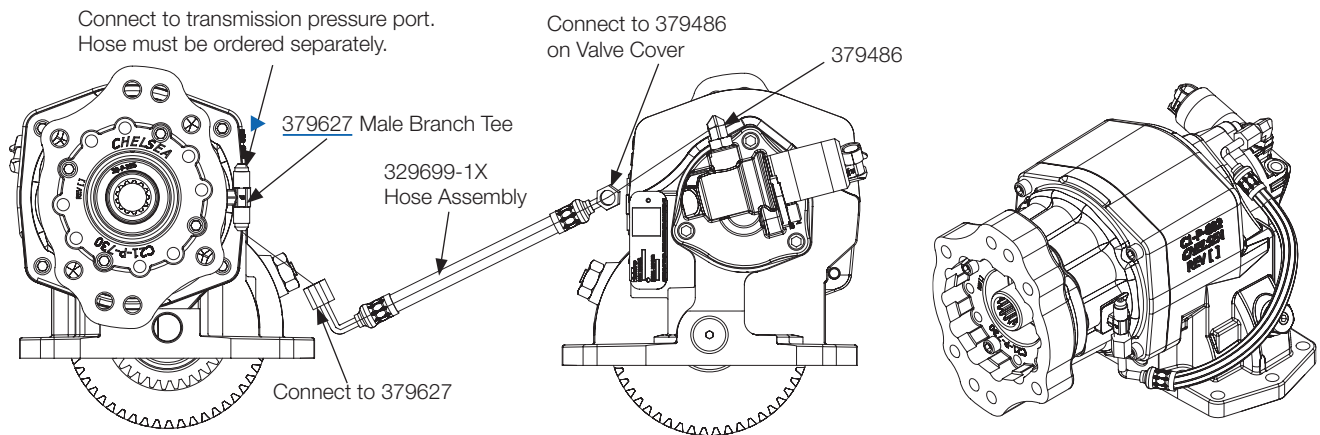
Y = Valve Cap Rotated 240°
w/ Wet Spline

Pressure Lube (Continued)



Wet Spline Installation – 280 Series RB, RF, RK, RS, RY & RZ

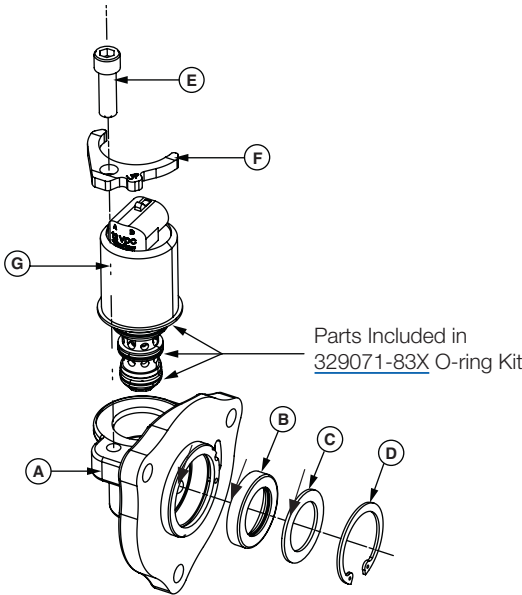
(SK-508 Rev B)



Wet Spline Installation Kits	
Output	Kit Number
RB	329959X
RF/RK/RZ	329700X
RS	329744X
RY	329742X

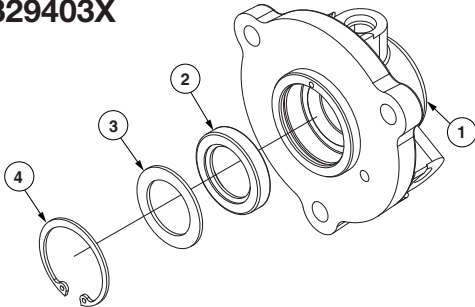
NOTE: Not all output options may be available on Series listed above

Valve Cap Assembly



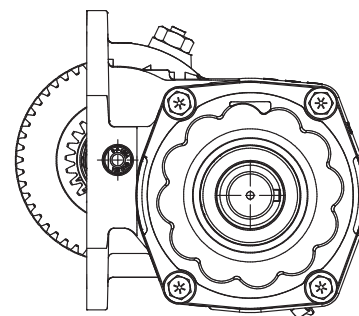
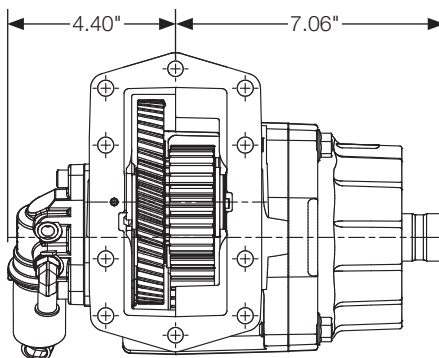
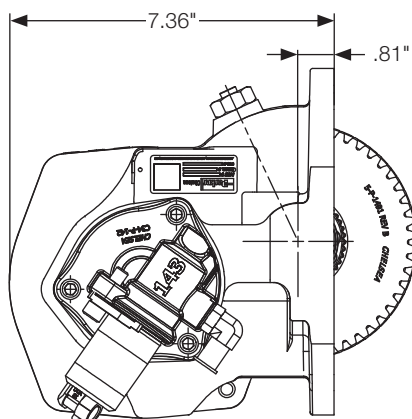
Item	Part Number	Description	Qty.
11 ▶	329442-12X	Valve & Cap Assembly (12VDC) (KV Gear Only)	1 or
▶	329442-24X	Valve & Cap Assembly (24VDC) (KV Gear Only)	1
▶	329463-12X	Valve & Cap Assembly (12VDC) (FJ Gear Only)	1 or
▶	329463-24X	Valve & Cap Assembly (24VDC) (FJ Gear Only)	1
A	34-P-143	Valve Cap	1
B	28-P-119	Oil Seal (High Pressure)	1
C	378811	Washer	1
D	378849	Snap Ring	1
E	378447-6	Socket Head Cap Screw (.312"-18 x 1.000").....	1
F	379995	Clamp (KV) Included w/ 379993 Valve	1 or
	380012	Clamp (FJ) used w/ 380011 Valve	1
	380124	Clamp (FJ) used w/ 380123 Valve	1
G	380123-12	Hydraulic Valve (12VDC) (FJ) (White Connector Top) (New Style)	1 or
▶	380123-24	Hydraulic Valve (24VDC) (FJ) (Black Connector Top) (New Style)	1
	380011-12	Hydraulic Valve (12VDC) (FJ) (White Side Connector) N.L.A. – USE 380123-12	1 or
	380011-24	Hydraulic Valve (24VDC) (FJ) (Black Side Connector) N.L.A. – USE 380123-24.....	1
▶	379993-12	Hydraulic Valve (12VDC) (KV) (White Connector)	1 or
▶	379993-24	Hydraulic Valve (24VDC) (KV) (Black Connector)	1
▶	329071-83X	Hydraulic Solenoid Valve O-ring Service Kit.....	1
N.L.A. – No Longer Available			

Remote Valve Cap Assembly – 329403X

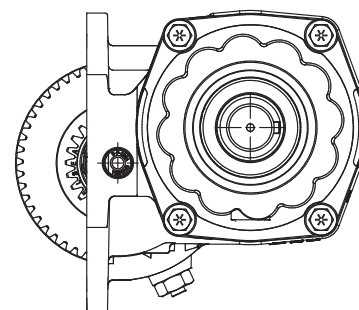
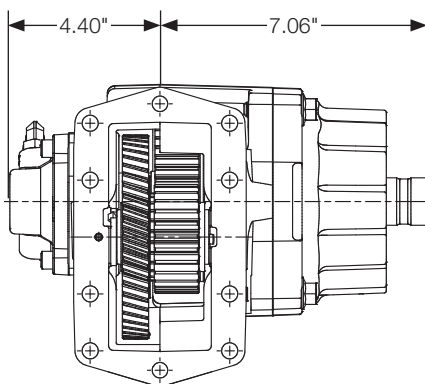
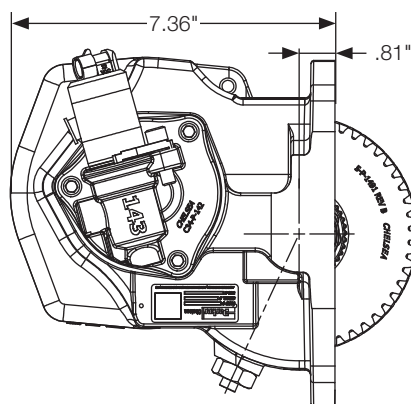


Item	Part Number	Description	Qty.
1 ▶	21-P-701	Cap Seal	1 or
2 ▶	28-P-119	Oil Seal (1.379" x .875" x .250").....	1
3 ▶	378811	Washer	1
4 ▶	378849	Lockring	1

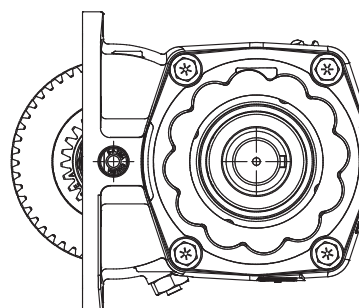
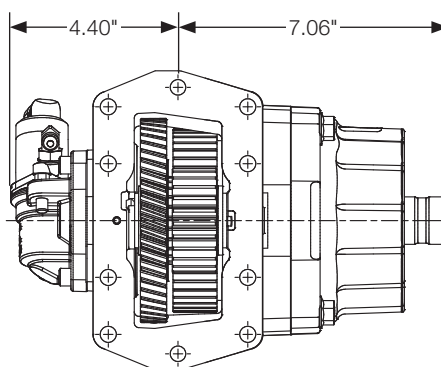
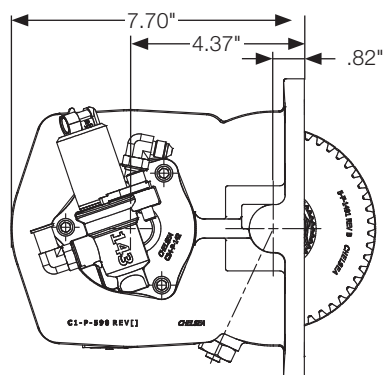
Housing Dimensions



Assembly 3



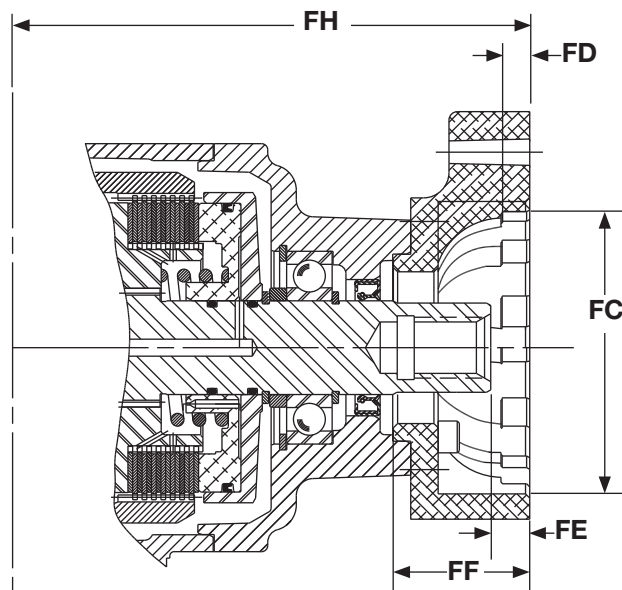
Assembly 5



Assembly 8

Output Options

Pump Flange & Shaft Dimensions



Direct Mount

Pump Flange Suffix	Bolt Circle Diameter	Bolt Holes		FC	FD	FE	FF	FH	Output Shaft
		Hole Diameter	No. Equally Spaced	Female Pilot of Flange	Pilot Depth Hole	Face to End of PTO	Face Thru	Face to Center	Dimensions
RF ●	5.750" 5.000"	1/2"-13 UNC	2 ■ 4	4.000"	0.406"	0.592"	2.060"	7.643"	1" - 15T Spline
RK ●	5.750" 5.000"	1/2"-13 UNC	2 ■ 4	—	0.406"	0.497"	1.872"	7.671"	7/8" - 13T Spline
RS ●	7.125" 6.375"	5/8"-11 UNC 1/2"-13 UNC	2 4	5.003"	0.531"	0.730"	2.700"	7.671"	1-1/4" - 14T Spline
RY ●	4.454"	M12-1.75	4	3.152"	0.530"	0.581"	2.281"	7.266"	B8x32x36
RZ ●	5.750" 5.000"	1/2"-13 UNC	2 ■ 4	4.000"	0.406"	0.730"	2.700"	7.671"	1-1/4" - 14T Spline

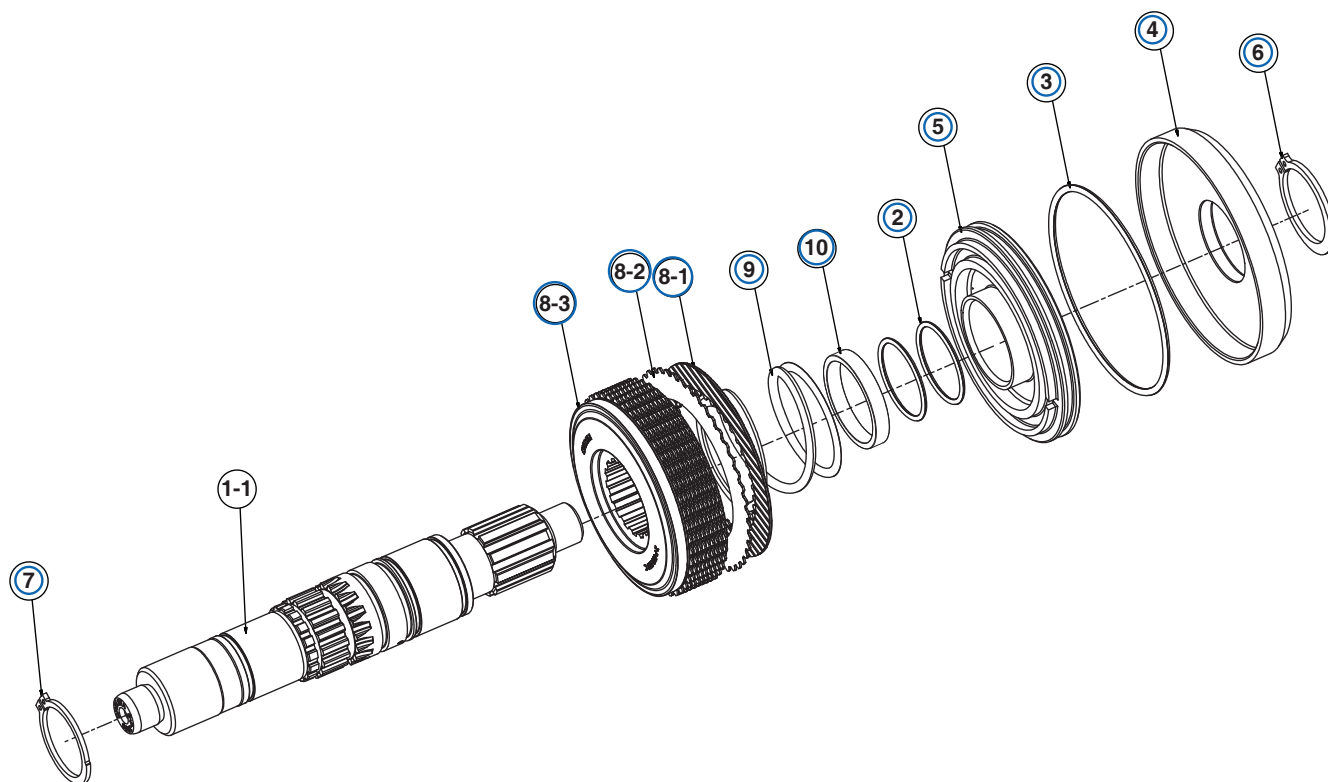
Companion Flange Mount

Pump Flange Suffix	Bolt Circle Diameter	Bolt Holes		FC	FD	FE	FF	FH	Output Shaft
		Hole Diameter	No. Equally Spaced	Male/Female Pilot of Flange	Pilot Depth Hole	Face to End of PTO	Face Thru	Face to Center	Dimensions
AB, SB	3.996"	0.404" ▶	8	2.952"	+0.093" ◆	—	—	8.009"	1-1/2" - 10T Spline
AC, SC	3.307"	0.323" ▶	6	2.243"	+0.080" ◆	—	—	7.978"	1-1/4" Rd
BD	—	—	—	—	—	—	—	9.058"	1-1/4" Rd Keyed (5/16")
BV	3.750"	0.440" ▶	4	2.751"	0.083"	—	—	8.986"	1-1/2" - 10T Spline
SD	—	—	—	—	—	—	—	6.570"	1-1/4" Keyed
XV, SV	3.750"	0.440" ▶	4	2.751"	0.083"	—	—	8.956"	1-1/2" - 10T Spline

- Rotatable Flange Rotates in 30° Increments
- Two Set of Holes Spaced 14° Apart
- ▶ Not Tapped
- ◆ Pilot is Not a Hole

CAUTION: All pump mounting dimensions shown are compiled to conform to SAE/DIN standards; however it shall be the responsibility of the user to determine the correct fit at the time the pump is mounted to the PTO. Therefore carefully check the shaft and key or spline engagement.

Drive Shaft & Clutch Assembly – 329724-*X

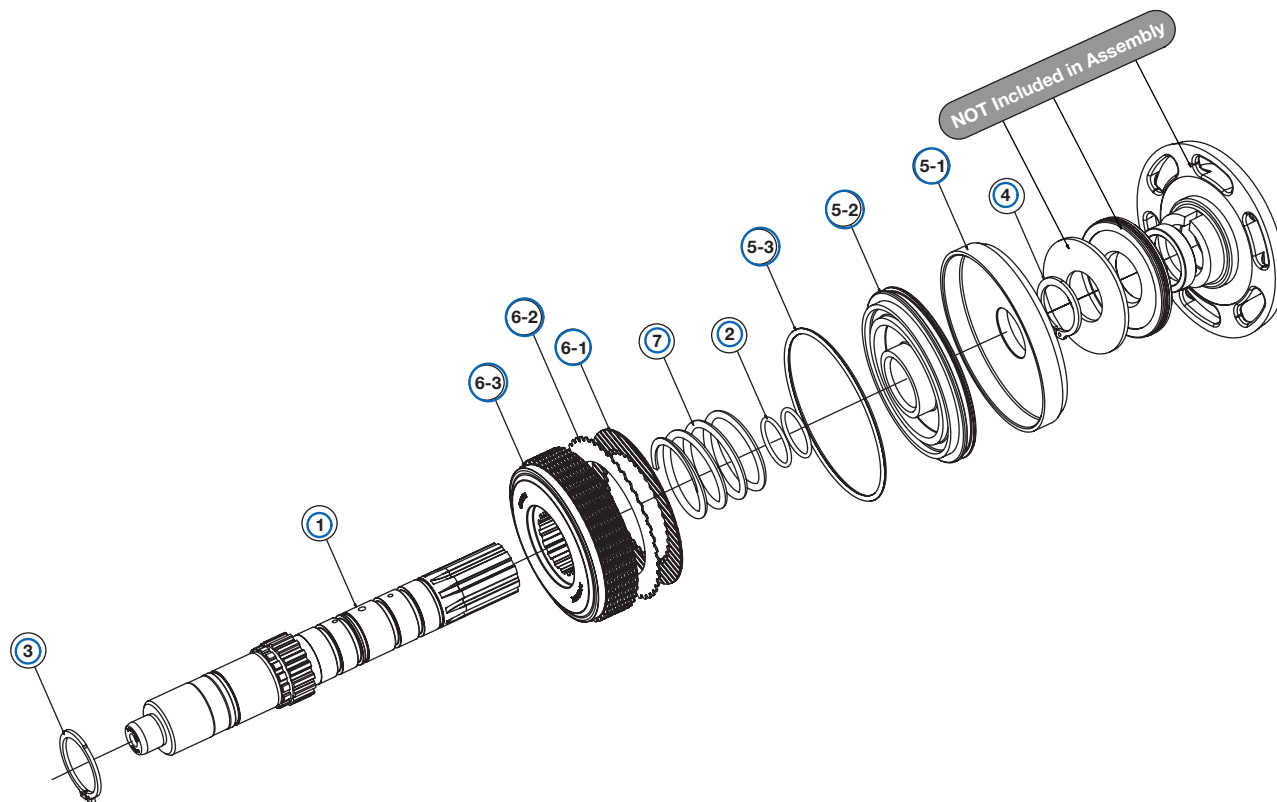


Item	Part Number	Description	Qty.
1 ►	3-P-1065	Output Shaft 10T Straight (329724-1X) (AB, AC, XV)	1 or
►	3-P-1066	Output Shaft (1-1/4" - 14T) (329724-2X) (RS, RZ).....	1 or
►	3-P-1067	Output Shaft (DIN 8T) (329724-3X) (RY).....	1 or
►	3-P-1125	Output Shaft (1-1/4" Keyed) (329724-6X) (XD).....	1 or
►	3-P-1126	Output Shaft (7/8" - 13T) (329724-4X) (RB, RK, XR)	1 or
►	3-P-1127	Output Shaft (1" - 15T) (329724-5X) (RF)	1 or
►	3-P-1156	Output Shaft (329724-9X) (SD).....	1 or
►	3-P-1161	Output Shaft 10T Straight (329724-8X) (SB, SC, SV)	1
2 ►	28-P-285	O-ring (1.597" x .103").....	2
3 ►	28-P-178	O-ring (4.484" x .138").....	1
4	380051	Cylinder Clutch Back-Up	1
5 ►	380110-1	Clutch Piston (Early 280 Series included piston w/ ball but is no longer necessary).....	1
6 ►	379555	Lockring	1
7 ►	380069	Lockring	1
8 ►	329678X	Gear & Plates Kit	1
8-1 ►	379485	Friction Disc.....	11
8-2 ►	380065	Clutch Plate.....	10
8-3 ►	2-P-858	Inner Gear Hub.....	1
9 ►	37-P-72	Spring (2.140" x 1.729")	1
10 ►	4-P-213	Spacer (1.800" x 2.070" x .330")	1

Output Options

Drive Shaft & Clutch Assembly – 329723X

Shaft Brake Output - BD, BV

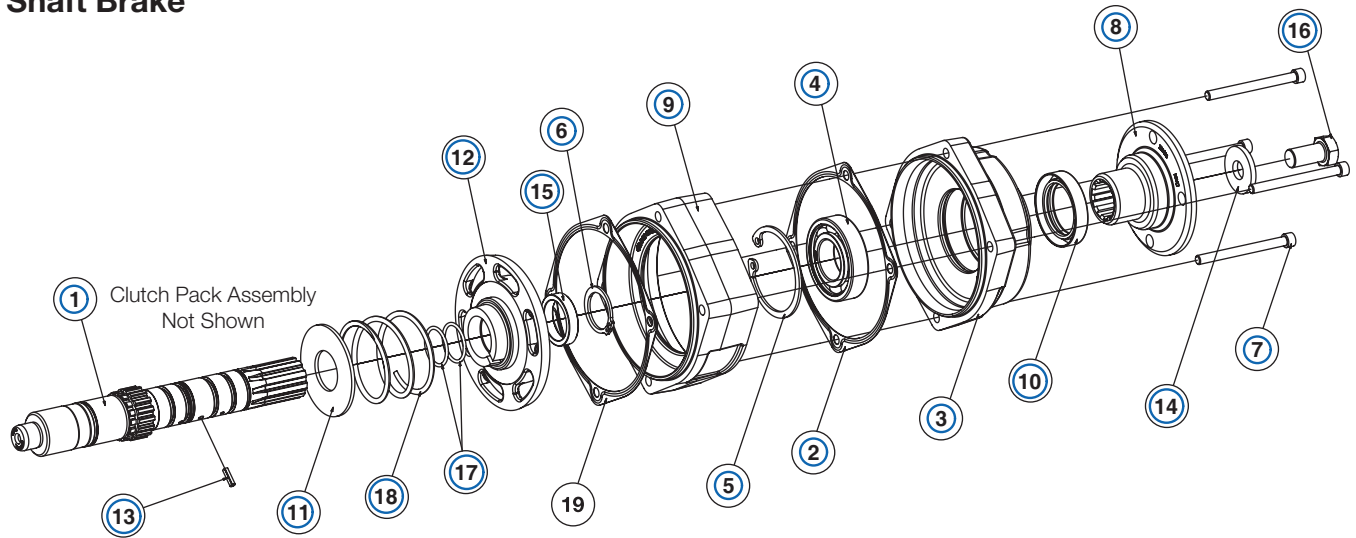


Item	Part Number	Description	Qty.
1 ►	3-P-1072	Output Shaft 10T Straight (329723X) (BD, BV)	1 or
	3-P-1141	Output Shaft (1-1/4" Keyed) (329723-1X) (BD, BV)	1
2 ►	28-P-244	O-ring (1.174" x .103")	2
3 ►	380069	Lockring	1
4 ►	378576	Lockring	1
5 ►	329179-1X	Piston & Back-Up Cylinder Assembly	1
5-1 ►	379323-1	Cylinder Clutch Back-Up	1
5-2 ►	380057-1	Piston Clutch Hydraulic	1
5-3 ►	28-P-178	O-ring (4.484" x .138")	1
6 ►	329678X	Gear & Plates Kit	1
6-1 ►	379485	Friction Disc	11
6-2 ►	380065	Clutch Plate	10
6-3 ►	2-P-858	Inner Gear Hub	1
7 ►	37-P-39	Spring (2.552" x 1.985")	1

Output Options

Parts List
280 Series

Shaft Brake

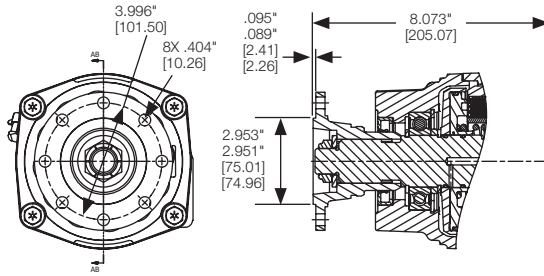


Output Flange	Part Number	Description	Qty.
1 ➤	329723X	BV Assembly Drive Shaft & Clutch (3-P-1072 Shaft)	1
2 ➤	22-P-151	Gasket.....	2
3 ➤	21-P-773	Bearing Cap (w/ 5/16" Bearing Cap Bolts).....	1 or
➤	21-P-884	Bearing Cap (w/ 3/8" Bearing Cap Bolts).....	1
4 ➤	550010	Bearing Ball (1.378" x 2.834" x .669").....	1
5 ➤	378895	Lockring	1
6 ➤	378576	Lockring	1
7 ➤	378447-16	Socket Head Cap Screw (.312"-18 x 3.500") (w/ 5/16" Bearing Cap Bolts)	4 or
➤	380563-28	Hex Flange Head Cap Screw (.375"-16 x 3.500") (w/ 3/8" Bearing Cap Bolts).....	4
8 ➤	380081	1410 Series Companion Flange (BV)	1
9 ➤	23-P-68	Drag Brake Bearing Cap Spacer (w/ 5/16" Bearing Cap Bolts)	1 or
➤	23-P-73	Drag Brake Bearing Cap Spacer (w/ 3/8" Bearing Cap Bolts)	1
10 ➤	28-P-212	Oil Seal (2.506" x 1.750" x .315").....	1
11 ➤	31-P-113	Thrust Washer (1.385" x 3.125" x .125").....	1
12 ➤	329410X	Brake Assembly	1
13 ➤	379977	Spring Pin.....	1
14 ➤	4-P-130	Washer.....	1
15 ➤	4-P-186	Spacer (1.385" x 1.750" x .365")	1
16 ➤	378435-7	Hex Head Cap Screw (.625"-11 x 1.250")	1
17 ➤	28-P-244	O-ring (1.174" x .103").....	2
18 ➤	37-P-60	Spring (2.531" x 2.130" x .172")	1
1 ➤	329723-1X	BD Assembly Drive Shaft & Clutch (3-P-1141 Shaft)	1
2 ➤	22-P-151	Gasket.....	2
3 ➤	21-P-691	Bearing Cap (w/ 5/16" Bearing Cap Bolts).....	1 or
➤	21-P-888	Bearing Cap (w/ 3/8" Bearing Cap Bolts).....	1
4 ➤	550010	Ball Bearing (1.378" x 2.834" x .669").....	2
5 ➤	378895	Lockring	1
6 ➤	378576	Lockring	2
7 ➤	378447-16	Socket Head Cap Screw (.312"-18 x 3.500") (w/ 5/16" Bearing Cap Bolts)	4 or
➤	380563-28	Hex Flange Head Cap Screw (.375"-16 x 3.500") (w/ 3/8" Bearing Cap Bolts).....	4
9 ➤	23-P-68	Drag Brake Bearing Cap Spacer (w/ 5/16" Bearing Cap Bolts)	1 or
➤	23-P-73	Drag Brake Bearing Cap Spacer (w/ 3/8" Bearing Cap Bolts)	1
10 ➤	28-P-225	Oil Seal (2.004" x 1.375" x .315").....	1
11 ➤	31-P-113	Thrust Washer (1.385" x 3.125" x .125").....	1
12 ➤	329410X	Assembly Brake	1
13 ➤	379977	Spring Pin.....	1
15 ➤	4-P-186	Spacer (1.385" x 1.750" x .365")	1
17 ➤	28-P-244	O-ring (1.174" x .103").....	2
18 ➤	37-P-60	Spring (2.531" x 2.130" x .172")	1

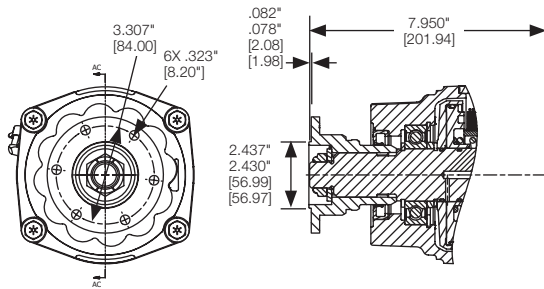
Output Options

Parts List
280 Series

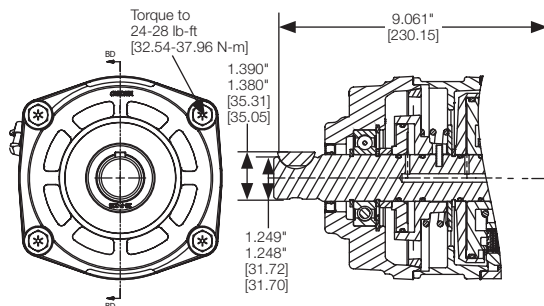
Bill of Materials - Driveline Output



AB Output Option DIN 120 Flange			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329724-1X ➤	329724-1X	Drive Shaft & Clutch Assembly (3-P-1065)	1
21-P-766 ➤	21-P-881	Bearing Cap	1
28-P-211 ➤	28-P-211	Oil Seal (3.001" x 2.000" x .375")	1
379558 ➤	379558	DIN 120	1
380076-13 ➤	380076-13	Washer (.950" x 1.762" x .157")	1
380486 ➤	380486	Thin Nylon Lock Nut (.875"-14)	1
†329160-88X	†329160-130X	Conversion Kit (XD to AB)	



AC Output Option DIN 100 Flange			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329724-1X ➤	329724-1X	Drive Shaft & Clutch Assembly (3-P-1065)	1
21-P-766 ➤	21-P-881	Bearing Cap	1
28-P-211 ➤	28-P-211	Oil Seal (3.001" x 2.000" x .375")	1
379742 ➤	379742	DIN 100	1
380076-13 ➤	380076-13	Washer (.950" x 1.762" x .157")	1
380486 ➤	380486	Thin Nylon Lock Nut (.875"-14)	1
†329160-92X	†329160-134X	Conversion Kit (XD to AC)	



BD Output Option Drag Brake - Rd Standard Shaft (1-1/4" - 5/16" Key)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329723-1X ➤	329723-1X	Drive Shaft & Clutch Assembly (3-P-1141)	1
22-P-151 ➤	22-P-151	Gasket	1
21-P-691 ➤	21-P-888	Drag Brake Bearing Cap	1
550010 ➤	550010	Ball Bearing (1.378" x 2.349" x .693")	1
378895 ➤	378895	Lockring	1
378576 ➤	378576	Lockring	2
23-P-68 ➤	23-P-73	Drag Brake Bearing Cap Spacer	1
28-P-225 ➤	28-P-225	Oil Seal (2.004" x 1.375" x .315")	1
31-P-113 ➤	31-P-113	Thrust Washer (1.385" x 3.125" x .125")	1
329410X ➤	329410X	Brake Assembly	1
379977 ➤	379977	Spring Pin (.187" x .625")	1
4-P-186 ➤	4-P-186	Spacer (1.385" x 1.750" x .365")	1
28-P-244 ➤	28-P-244	O-ring (1.174" x .103")	2
37-P-60 ➤	37-P-60	Spring (2.531" x 2.130" x .172")	1
†329160-94X	†329160-136X	Conversion Kit (XD to BD)	

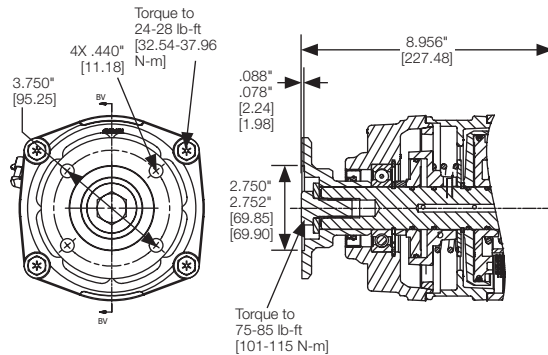
†Conversion Kits do not include all parts listed above. See [pages 49-57](#) for Conversion Kit BOMs.

Output Options

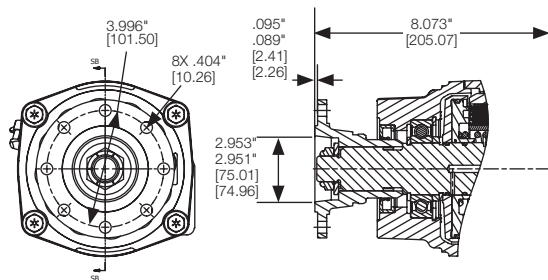
Parts List

280 Series

Bill of Materials - Driveline Output (Continued)



BV Output Option			
Drag Brake - 1410 Series Companion Flange			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329723X ➤	329723X	Drive Shaft & Clutch Assembly (3-P-1072).....	1
22-P-151 ➤	22-P-151	Gasket.....	1
21-P-773 ➤	21-P-884	Bearing Cap	1
550010 ➤	550010	Ball Bearing (1.378" x 2.349" x .669").....	1
378895 ➤	378895	Lockring	1
378576 ➤	378576	Lockring	1
378447-16 ➤	380563-28	Cap Screw (.375"-16 x 3.500").....	4
380081 ➤	380081	1410 Series Companion Flange.....	1
23-P-68 ➤	23-P-73	Drag Brake Bearing Cap Spacer.....	1
28-P-212 ➤	28-P-212	Oil Seal (2.506" x 1.750" x .315").....	1
31-P-113 ➤	31-P-113	Thrust Washer (1.385" x 3.125" x .125").....	1
329410X ➤	329410X	Brake Assembly	1
379977 ➤	379977	Spring Pin (.187" x .625")	1
4-P-130 ➤	4-P-130	Spacer (.640" x 1.620" x .188")	1
4-P-186 ➤	4-P-186	Spacer (1.385" x 1.750" x .365")	1
378435-7 ➤	378435-7	Hex Head Cap Screw (.625"-11 x 1.250")	1
28-P-244 ➤	28-P-244	O-ring (1.174" x .103").....	2
37-P-60 ➤	37-P-60	Spring (2.531" x 2.130" x .172")	1
†329160-81X	†329160-123X	Conversion Kit (XD to BV)	

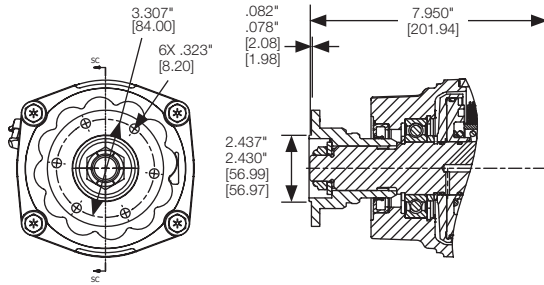


SB Output Option			
DIN 120 Flange			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329724-8X ➤	329724-8X	Drive Shaft & Clutch Assembly (3-P-1161).....	1
21-P-766 ➤	21-P-881	Bearing Cap	1
28-P-211 ➤	28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1
379558 ➤	379558	DIN 120.....	1
380076-13 ➤	380076-13	Washer (.950" x 1.762" x .157").....	1
380486 ➤	380486	Thin Nylon Lock Nut (.875"-14).....	1
†329160-89X	†329160-131X	Conversion Kit (XD to SB)	

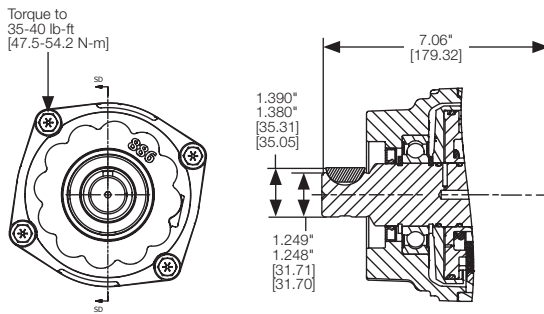
†Conversion Kits do not include all parts listed above. See [pages 49-57](#) for Conversion Kit BOMs.

Output Options

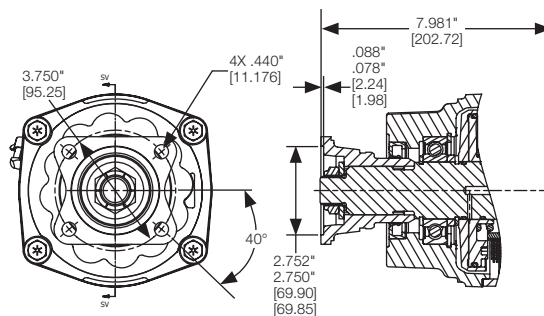
Bill of Materials - Driveline Output (Continued)



SC Output Option DIN 100 Flange			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329724-8X ►	329724-8X	Drive Shaft & Clutch Assembly (3-P-1161).....	1
21-P-766 ►	21-P-881	Bearing Cap	1
28-P-211 ►	28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1
379742 ►	379742	DIN 100.....	1
380076-13 ►	380076-13	Washer (.950" x 1.762" x .157").....	1
380486 ►	380486	Thin Nylon Lock Nut (.875"-14).....	1
†329160-93X	†329160-135X	Conversion Kit (XD to SC)	



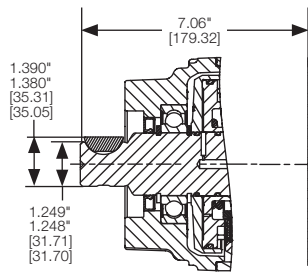
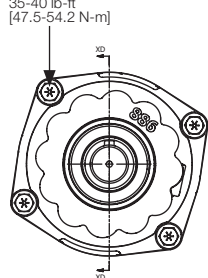
SD Output Option SmartStart - Rd Standard Shaft (1-1/4" - 5/16" Key)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329724-9X ►	329724-9X	Drive Shaft & Clutch Assembly (3-P-1156).....	1
21-P-766 ►	21-P-881	Bearing Cap	1
28-P-267 ►	28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
379558 ►	379558	DIN 120.....	1
380076-13 ►	380076-13	Washer (.950" x 1.762" x .157").....	1
380486 ►	380486	Thin Nylon Lock Nut (.875"-14).....	1
†329160-77X	†329160-119X	Conversion Kit (XD to SD)	



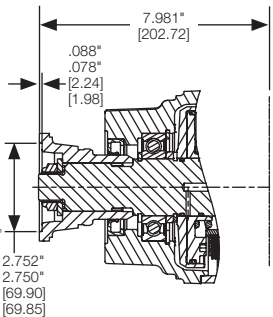
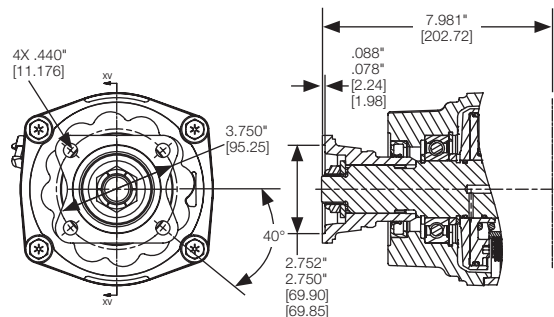
SV Output Option SmartStart - 1410 Series Companion Flange			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329724-8X ►	329724-8X	Drive Shaft & Clutch Assembly (3-P-1161).....	1
21-P-766 ►	21-P-881	Bearing Cap	1
28-P-211 ►	28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1
380503 ►	380503	1410 Series Companion Flange.....	4
380076-13 ►	380076-13	Flat Washer (.950" x 1.762" x .157").....	1
380486 ►	380486	Thin Nylon Lock Nut (.875"-14).....	1
†329160-117X	†329160-120X	Conversion Kit (XD to SV)	
†329160-117X	†329160-120X	Conversion Kit (XV to SV)	

†Conversion Kits do not include all parts listed above. See pages 49-57 for Conversion Kit BOMs.

Bill of Materials - Driveline Output (Continued)

Torque to
35-40 lb-ft
[47.5-54.2 N-m]

XD Output Option Rd Standard Shaft (1-1/4" - 5/16" Key)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329724-6X ➤	329724-6X	Drive Shaft & Clutch Assembly (3-P-1125).....	1
21-P-766 ➤	21-P-881	Bearing Cap	1
28-P-267 ➤	28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
500007-29 ➤	500007-29	5/16" Woodruff Key	1



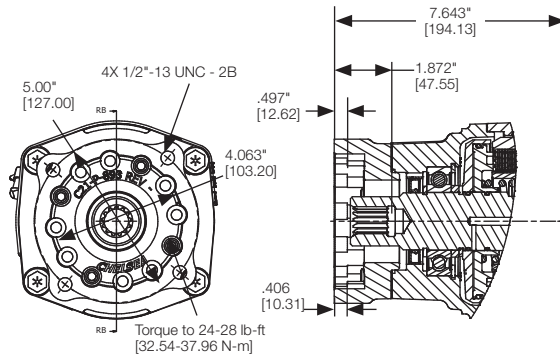
XV Output Option 1410 Series Companion Flange			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329724-1X ➤	329724-1X	Drive Shaft & Clutch Assembly (3-P-1065).....	1
21-P-766 ➤	21-P-881	Bearing Cap	1
28-P-211 ➤	28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1
380503 ➤	380503	1410 Series Companion Flange.....	1
380076-13 ➤	380076-13	Flat Washer (.950" x 1.762" x .157")	1
380486 ➤	380486	Thin Nylon Lock Nut (.875"-14).....	1
†329160-97X	†329160-139X	Conversion Kit (XD to XV)	

†Conversion Kits do not include all parts listed above. See [pages 49-57](#) for Conversion Kit BOMs.

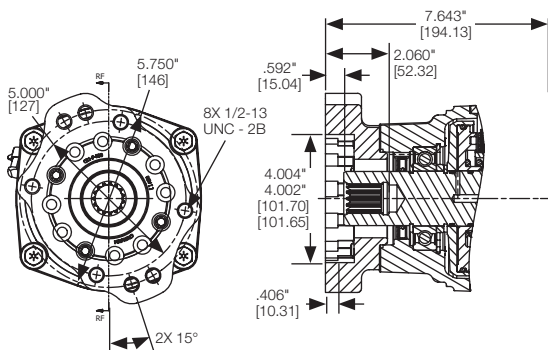
Output Options

Parts List
280 Series

Bill of Materials - Pump Mount



RB Output Option Rotatable SAE B 4-Bolt Flange, SAE B Shaft (7/8" - 13T)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
NA	➤ 329724-4X	Drive Shaft & Clutch Assembly (3-P-1126).....	1
	➤ 21-P-882	Bearing Cap	1 or
	➤ 21-P-883	Bearing Cap (Wet Spline Only)	1
	➤ 28-P-267	Oil Seal (2.627" x 1.750" x .312")	1
	➤ 328170-216X	Cap Screw Bag Kit	1
	➤ 35-P-101	Rotatable Flange Gasket (Wet Spline) (Ships w/ Kit)	1
	➤ 21-P-894	Pump Flange (Ships Loose w/ Unit)	4
		Wet Spline LOOSE PARTS	1
	➤ 329699-1X	Hose Assembly	1
	➤ 329959X	Wet Spline Loose Parts Kit	1
	➤ 329658X	Cover Kit	1
NA	† 329160-149X	Conversion Kit (XD to RB DRY)	
	† 329160-150X	Conversion Kit (XD to RB WET)	



RF Output Option Rotatable SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329724-5X	➤ 329724-5X	Drive Shaft & Clutch Assembly (3-P-1127).....	1
21-P-767	➤ 21-P-882	Bearing Cap	1 or
21-P-772	➤ 21-P-883	Bearing Cap (Wet Spline Only)	1
28-P-267	➤ 28-P-267	Oil Seal (2.627" x 1.750" x .312")	1
328170-216X	➤ 328170-216X	Cap Screw Bag Kit	1
35-P-101	➤ 35-P-101	Rotatable Flange Gasket (Wet Spline) (Ships w/ Kit)	1
21-P-731	➤ 21-P-731	Pump Flange (Ships Loose w/ Unit)	4
329699-1X	➤ 329699-1X	Hose Assembly (Wet Spline)	1
		Wet Spline LOOSE PARTS	1
329700X	➤ 329700X	Wet Spline Loose Parts Kit	1
329658X	➤ 329658X	Cover Kit (Wet Spline)	1
† 329160-82X	† 329160-124X	Conversion Kit (XD to RF DRY)	
† 329160-83X	† 329160-125X	Conversion Kit (XD to RF WET)	

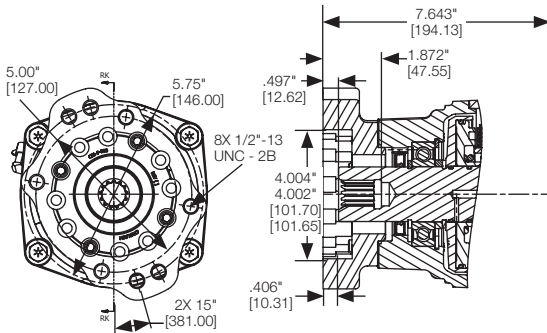
†Conversion Kits do not include all parts listed above. See [pages 49-57](#) for Conversion Kit BOMs.

Output Options

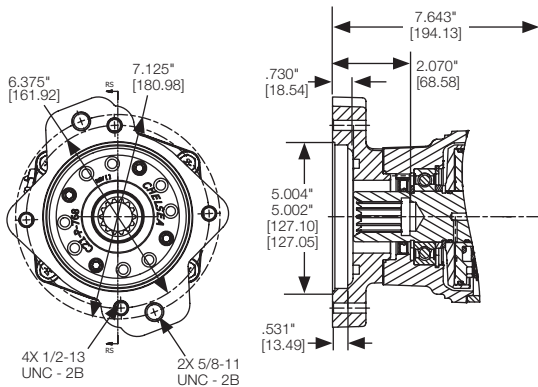
Parts List

280 Series

Bill of Materials - Pump Mount (Continued)



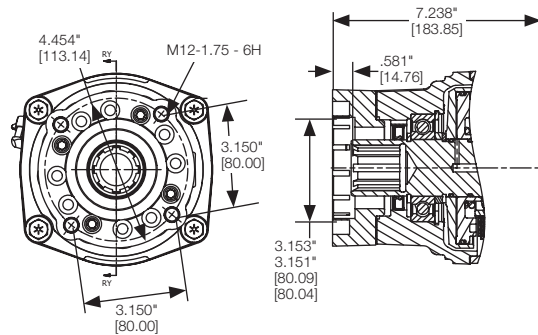
RK Output Option			
Rotatable SAE B 2 or 4-Bolt Flange, SAE B Shaft (7/8" - 13T)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329724-4X ►	329724-4X	Drive Shaft & Clutch Assembly (3-P-1126).....	1
21-P-767 ►	21-P-882	Bearing Cap	1 or
21-P-772 ►	21-P-883	Bearing Cap (Wet Spline Only)	1
28-P-267 ►	28-P-267	Oil Seal (2.627" x 1.750" x .312")	1
328170-216X	328170-216X	Cap Screw Bag Kit	1
35-P-101 ►	35-P-101	Rotatable Flange Gasket (Wet Spline) (Ships w/ Kit)	1
21-P-731 ►	21-P-731	Pump Flange (Ships Loose w/ Unit)	4
329699-1X ►	329699-1X	Wet Spline LOOSE PARTS	1
329700X ►	329700X	Hose Assembly	1
329658X ►	329658X	Wet Spline Loose Parts Kit	1
		Cover Kit	1
†329160-79X	†329160-121X	Conversion Kit (XD to RK DRY)	
†329160-80X	†329160-122X	Conversion Kit (XD to RK WET)	



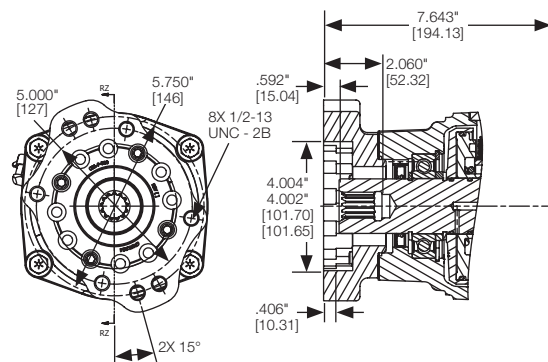
RS Output Option			
Rotatable SAE C 2 or 4-Bolt Flange, SAE C Shaft (1-1/4" - 14T)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329724-2X ►	329724-2X	Drive Shaft & Clutch Assembly (3-P-1066).....	1
21-P-767 ►	21-P-882	Bearing Cap	1 or
21-P-772 ►	21-P-883	Bearing Cap (Wet Spline Only)	1
28-P-267 ►	28-P-267	Oil Seal (2.627" x 1.750" x .312")	1
328170-216X	328170-216X	Cap Screw Bag Kit	1
35-P-101 ►	35-P-101	Rotatable Flange Gasket (Wet Spline) (Ships w/ Kit)	1
21-P-769 ►	21-P-769	Pump Flange (Ships Loose w/ Unit)	1
329699-1X ►	329699-1X	Wet Spline LOOSE PARTS	1
329744X ►	329744X	Hose Assembly	1
329654X ►	329654X	Wet Spline Loose Parts Kit	1
		Cover Kit	1
†329160-84X	†329160-126X	Conversion Kit (XD to RS DRY)	
†329160-85X	†329160-127X	Conversion Kit (XD to RS WET)	

†Conversion Kits do not include all parts listed above. See [pages 49-57](#) for Conversion Kit BOMs.

Bill of Materials - Pump Mount (Continued)



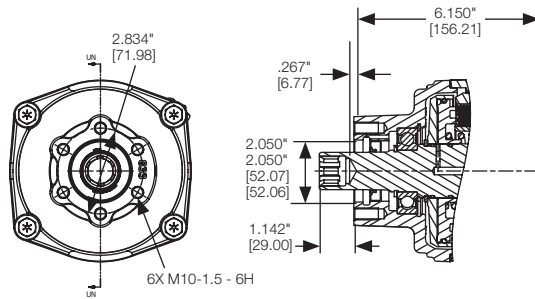
RY Output Option			
Rotatable ISO 7653 Pump Mount DIN 5462 Shaft			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329724-3X ➤	<u>329724-3X</u>	Drive Shaft & Clutch Assembly (3-P-1067).....	1
21-P-767 ➤	<u>21-P-882</u>	Bearing Cap	1 or
21-P-772 ➤	<u>21-P-883</u>	Bearing Cap (Wet Spline Only)	1
28-P-267 ➤	<u>28-P-267</u>	Oil Seal (2.627" x 1.750" x .312").....	1
328170-216X ➤	<u>328170-216X</u>	Cap Screw Bag Kit	1
35-P-101 ➤	<u>35-P-101</u>	Rotatable Flange Gasket (Wet Spline) (Ships w/ Kit).....	1
21-P-771 ➤	<u>21-P-771</u>	Pump Flange (Ships Loose w/ Unit)	1
		Wet Spline LOOSE PARTS	1
329699-1X ➤	<u>329699-1X</u>	Hose Assembly	1
329742X ➤	<u>329742X</u>	Wet Spline Loose Parts Kit	1
329659X ➤	<u>329659X</u>	Cover Kit	1
†329160-86X	†329160-128X	Conversion Kit (XD to RY DRY)	
†329160-87X	†329160-129X	Conversion Kit (XD to RY WET)	



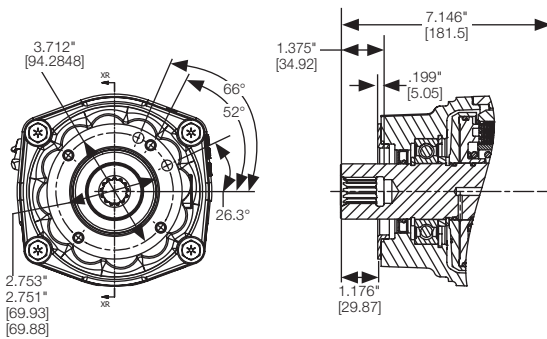
RZ Output Option			
Rotatable SAE B 2 or 4-Bolt Flange, SAE C Shaft (1-1/4" - 14T)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329724-2X ➤	<u>329724-2X</u>	Drive Shaft & Clutch Assembly (3-P-1066).....	1
21-P-767 ➤	<u>21-P-882</u>	Bearing Cap	1 or
21-P-772 ➤	<u>21-P-883</u>	Bearing Cap (Wet Spline Only)	1
28-P-267 ➤	<u>28-P-267</u>	Oil Seal (2.627" x 1.750" x .312").....	1
328170-216X ➤	<u>328170-216X</u>	Cap Screw Bag Kit	1
35-P-101 ➤	<u>35-P-101</u>	Rotatable Flange Gasket (Wet Spline) (Ships w/ Kit)	1
21-P-731 ➤	<u>21-P-731</u>	Pump Flange (Ships Loose w/ Unit)	4
		Wet Spline LOOSE PARTS	1
329699-1X ➤	<u>329699-1X</u>	Hose Assembly	1
329700X ➤	<u>329700X</u>	Wet Spline Loose Parts Kit	1
329658X ➤	<u>329658X</u>	Cover Kit	1
†329160-95X	†329160-137X	Conversion Kit (XD to RZ DRY)	
†329160-96X	†329160-138X	Conversion Kit (XD to RZ WET)	

†Conversion Kits do not include all parts listed above. See [pages 49-57](#) for Conversion Kit BOMs.

Bill of Materials - Pump Mount (Continued)



*UN Output Option			
UNI 8953, 3-Bolt Pump Flange DIN 5462 Shaft			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
N/A ➤	329724-7X	Drive Shaft & Clutch Assembly (3-P-1129).....	1
	21-P-832	Bearing Cap	1 or
	21-P-833	Bearing Cap (Wet Spline Only)	1
	28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1
		Wet Spline LOOSE PARTS	1
	➤ 329699-1X	Hose Assembly	1
	329821X	Wet Spline Loose Parts Kit	1
N/A	† 329160-132X	Conversion Kit (XD to UN DRY)	
	† 329160-133X	Conversion Kit (XD to UN WET)	

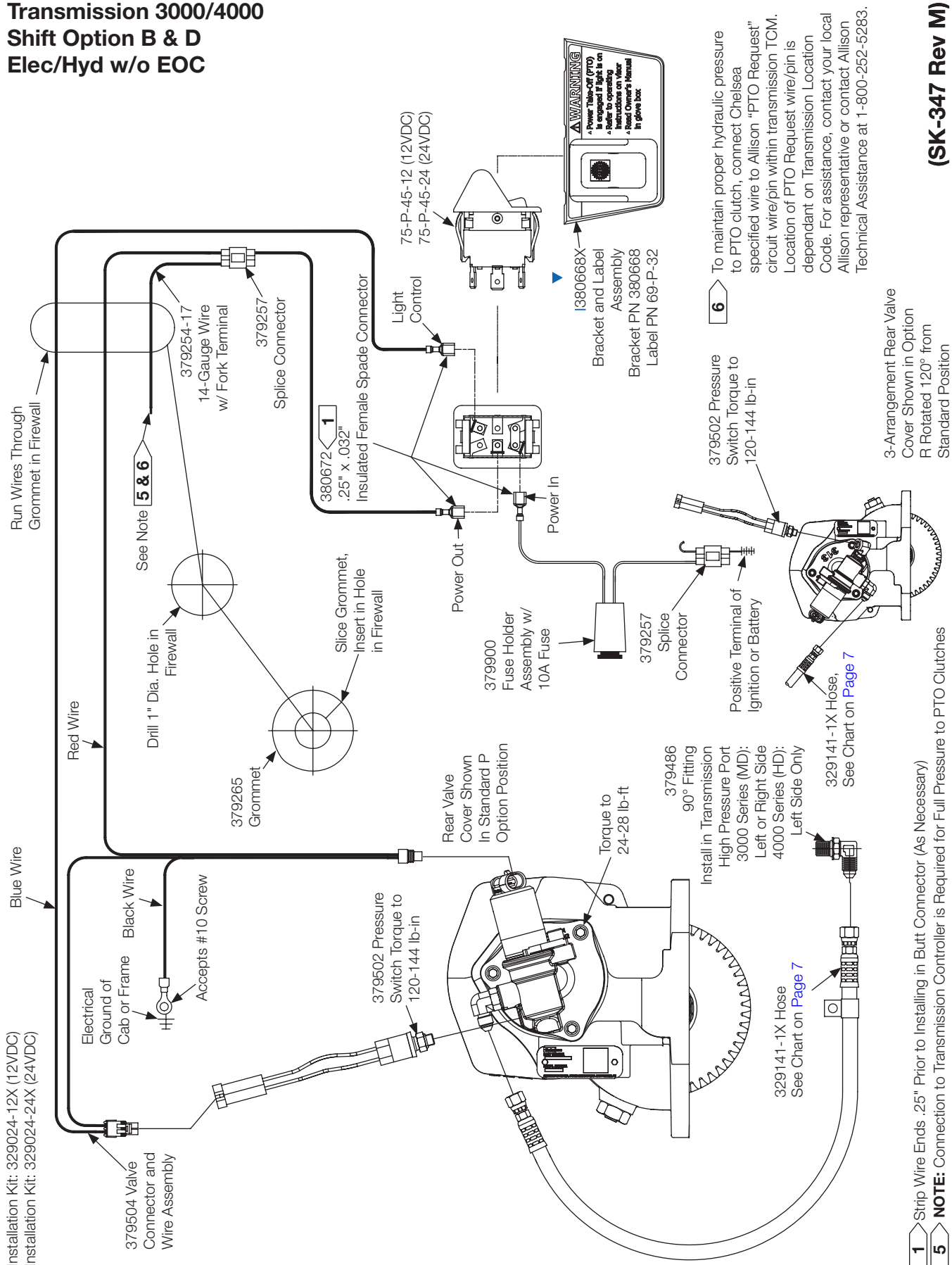


XR Output Option			
Chelsea Special (Cloverleaf), SAE B Shaft (7/8" - 13T)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
329724-4X ➤	329724-4X	Drive Shaft & Clutch Assembly (3-P-1126).....	1
21-P-767 ➤	21-P-882	Bearing Cap	1
28-P-267 ➤	28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
380563-14 ➤	380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4
4-P-209 ➤	4-P-209	Spacer	1
329906X ➤	329906X	Pump Installation Kit.....	1

♦ No longer a current option per 2018 Chelsea Suggested List Price.

†Conversion Kits do not include all parts listed above. See [pages 49-57](#) for Conversion Kit BOMs.

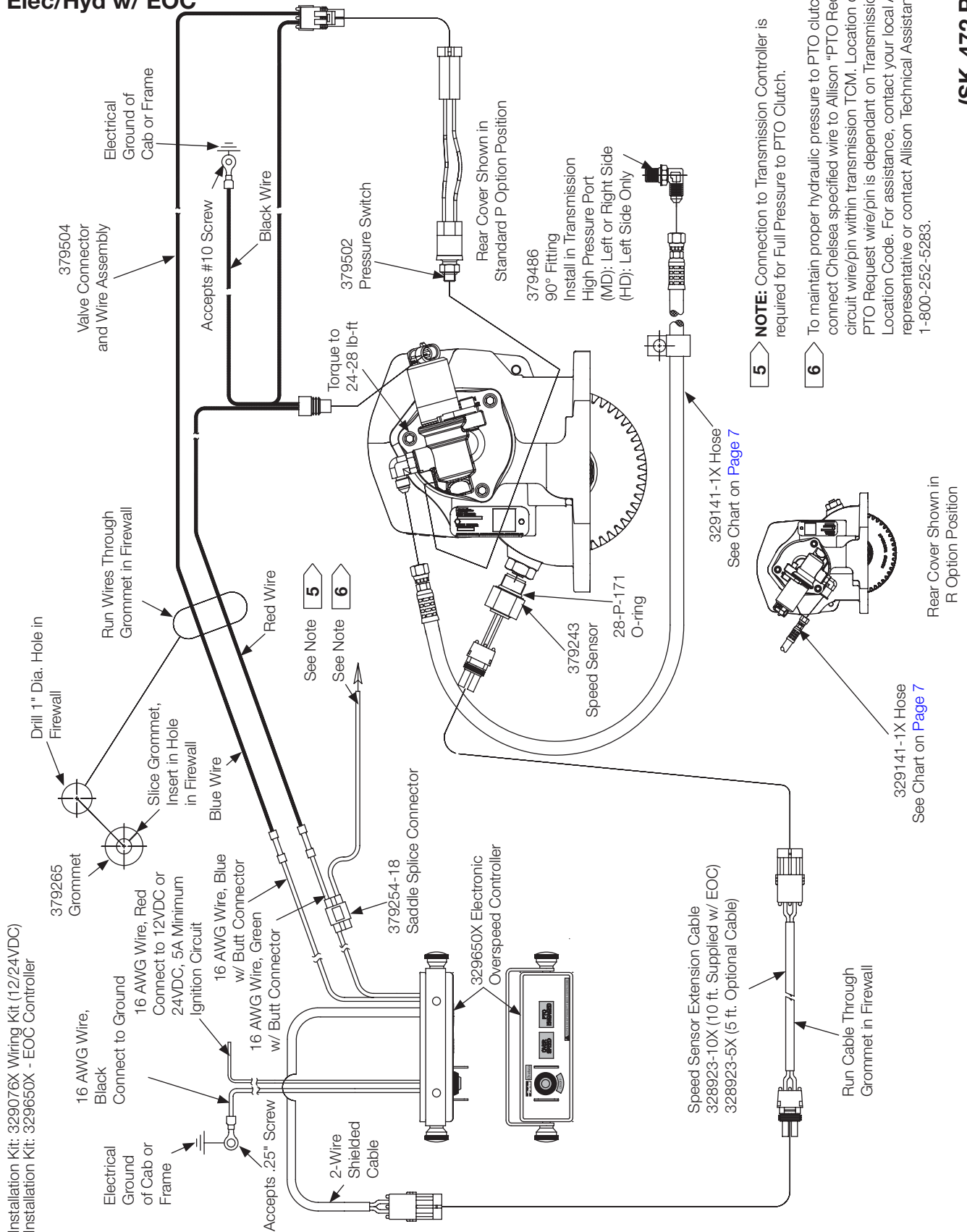
Transmission 3000/4000
Shift Option B & D
Elec/Hyd w/o EOC

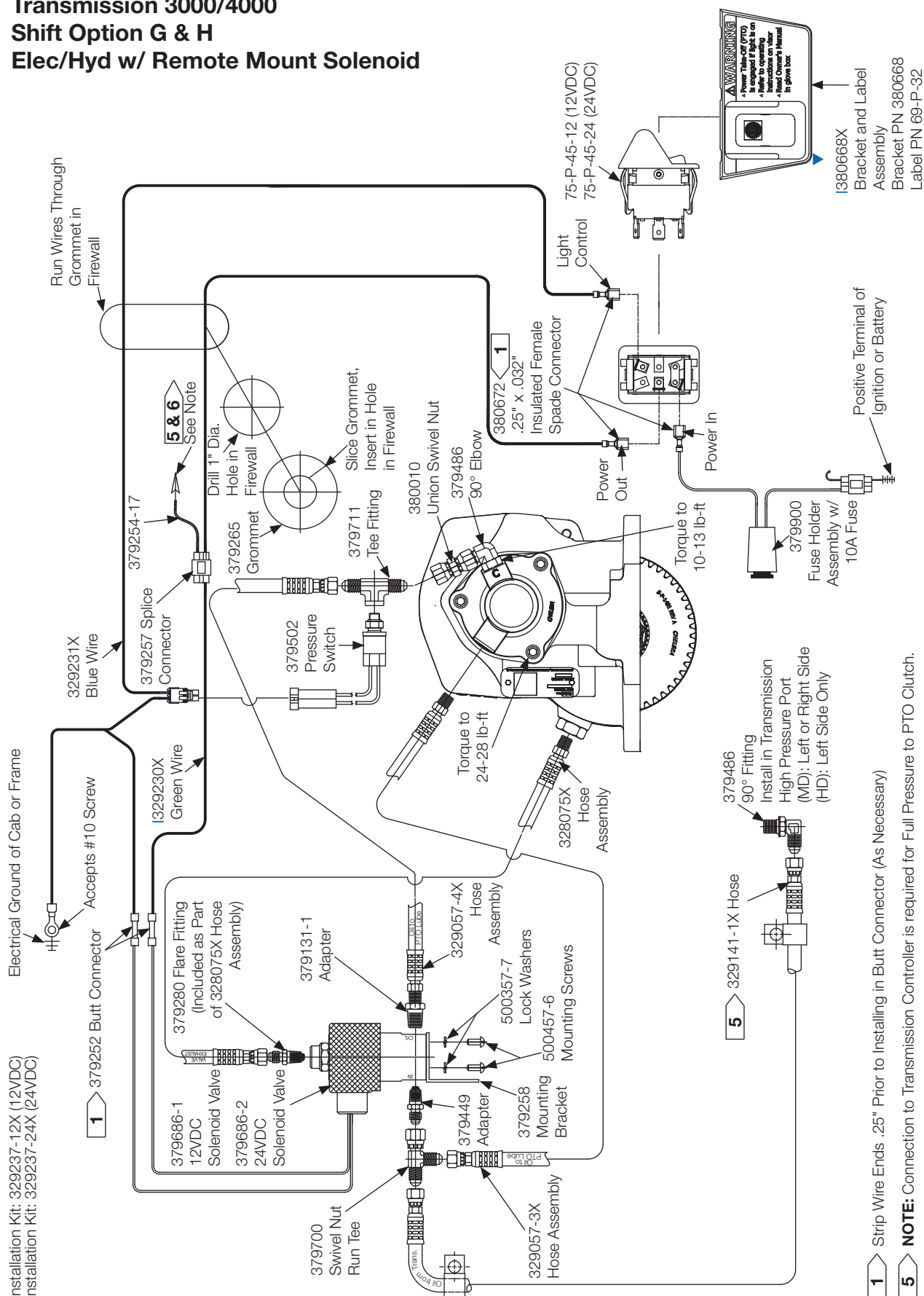


(SK-347 Rev M)

Transmission 3000/4000
Shift Option K & L
Elec/Hyd w/ EOC

(SK-472 Rev D)

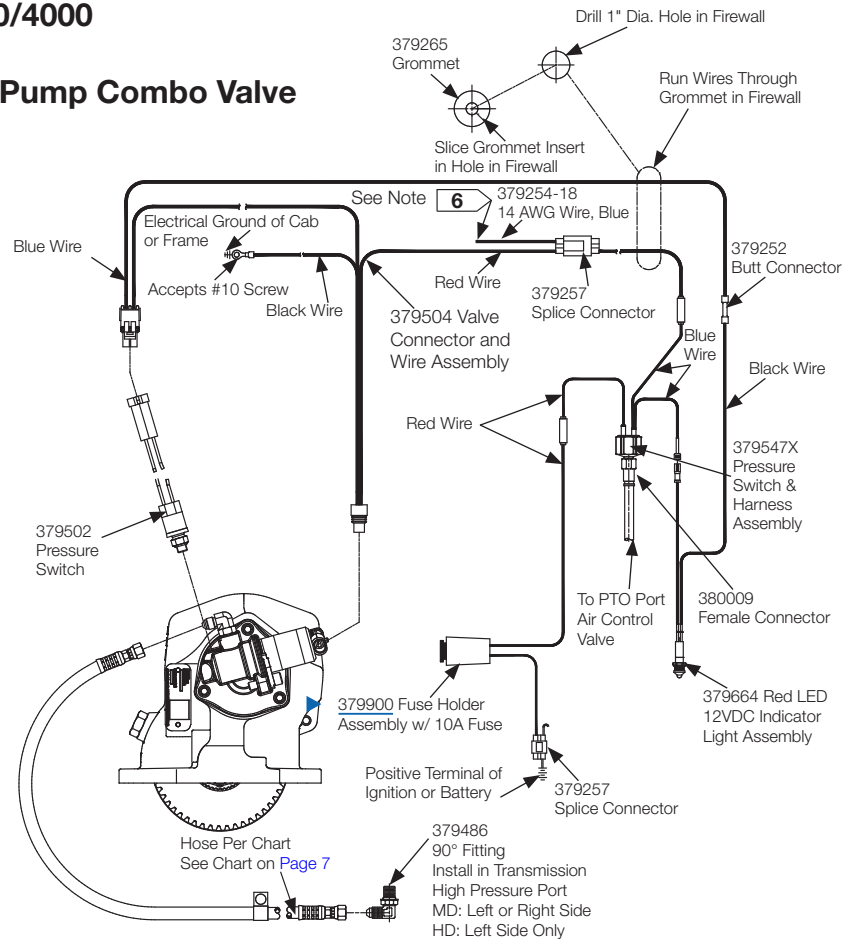


Transmission 3000/4000
Shift Option G & H
Elec/Hyd w/ Remote Mount Solenoid**(SK-432 Rev H)**

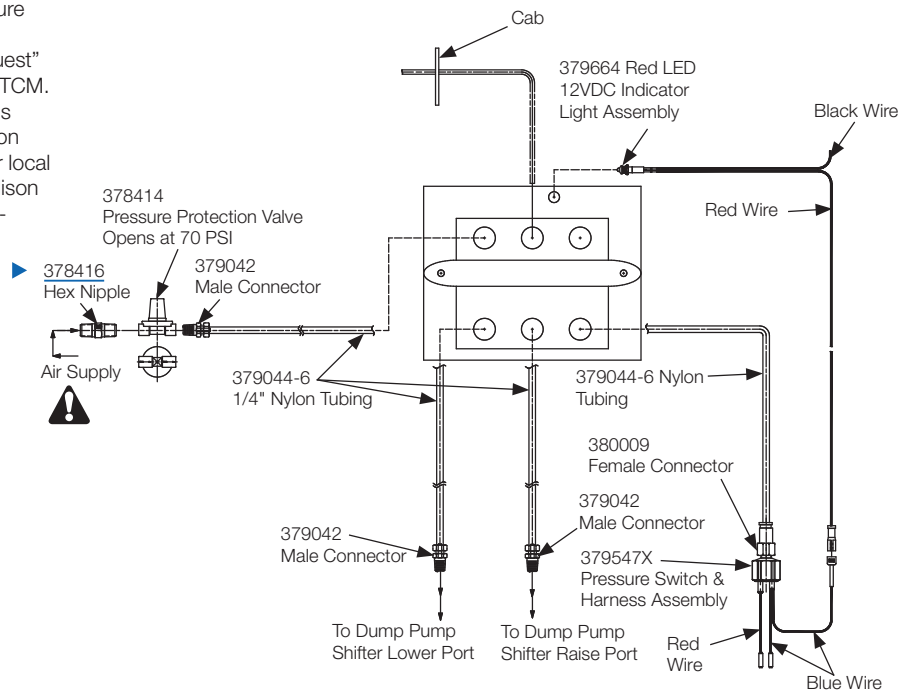
1 Strip Wire Ends .25\" Prior to Installing in Butt Connector (As Necessary)

5 NOTE: Connection to Transmission Controller is required for Full Pressure to PTO Clutch.

6 To maintain proper hydraulic pressure to PTO clutch, connect Chelsea specified wire to Allison \"PTO Request\" circuit wire/pin within transmission TCM. Location of PTO Request wire/pin is dependant on Transmission Location Code. For assistance, contact your local Allison representative or contact Allison Technical Assistance at 1-800-252-5283.

**Transmission 3000/4000
Shift Option S & T
Elec/Hyd w/ PTO/Pump Combo Valve****(SK-427 Rev E)**

- 6** To maintain proper hydraulic pressure to PTO clutch, connect Chelsea specified wire to Allison "PTO Request" circuit wire/pin within transmission TCM. Location of PTO Request wire/pin is dependant on Transmission Location Code. For assistance, contact your local Allison representative or contact Allison Technical Assistance at 1-800-252-5283.



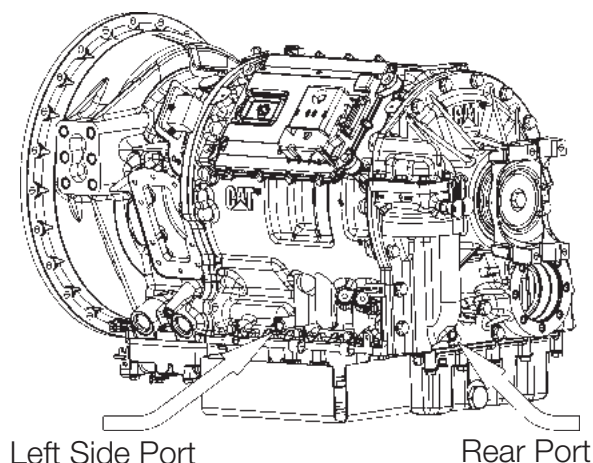
Installation Kit: (S Shift) 328388-85X
Installation Kit: (T Shift) 328388-86X

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

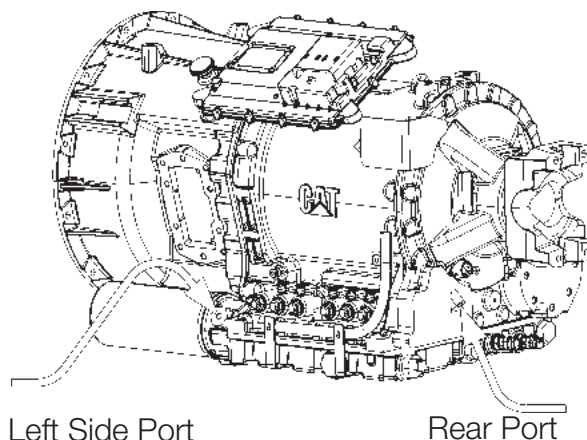


WARNING: Connect directly to air supply. Do not use tubing between air supply and pressure protection valve.

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

Pressure Port Locations & Hose Chart**(SK-414 Rev B)****CX31**

(Filter Removed for Clarity)

**CX28****Both High Pressure Connections are -4 O-ring Boss****HOSE CHART**

Trans.	PTO	PTO Location	High Oil Pressure Location	PTO Valve Location	PTO Fitting	Trans. Fitting	Trans.-PTO Valve Hose #
CX31 CX28	280, 287	Driver (LHS)	LHS	Attached	379486	379812	329075-1X
		Driver (LHS)	Rear				329075-5X
		Pass. (RHS)	LHS				329075-2X
		Pass. (RHS)	Rear			379486	329075-5X
		Driver (LHS)	LHS	Remote	379486	379812	329130-6X
		Driver (LHS)	Rear				329130-6X
		Pass. (RHS)	LHS				329130-6X
		Pass. (RHS)	Rear				329130-6X

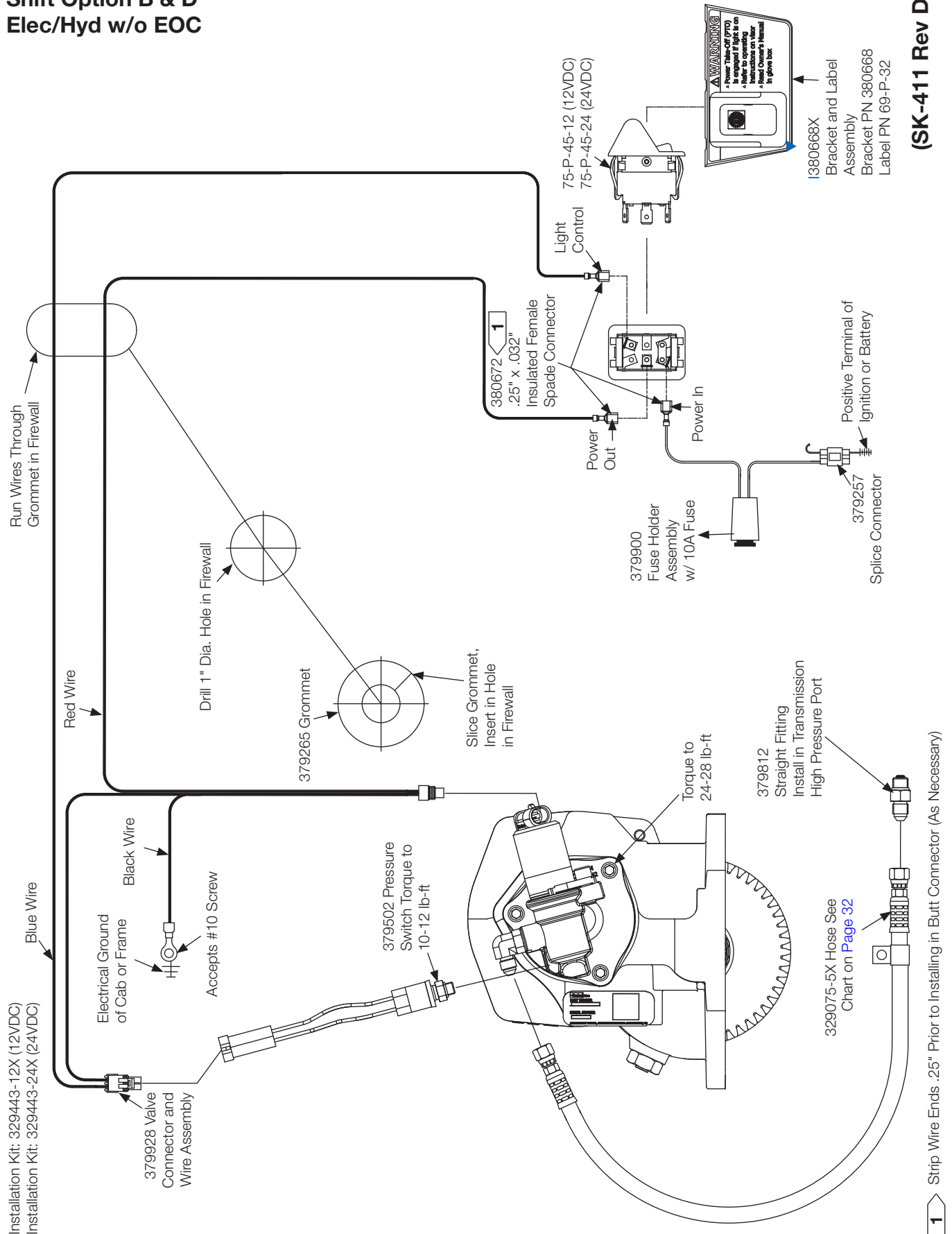
LHS = Left Hand Side of Transmission, 8 O'clock position

RHS = Right Hand Side of Transmission, 1 O'clock position

NOTES:

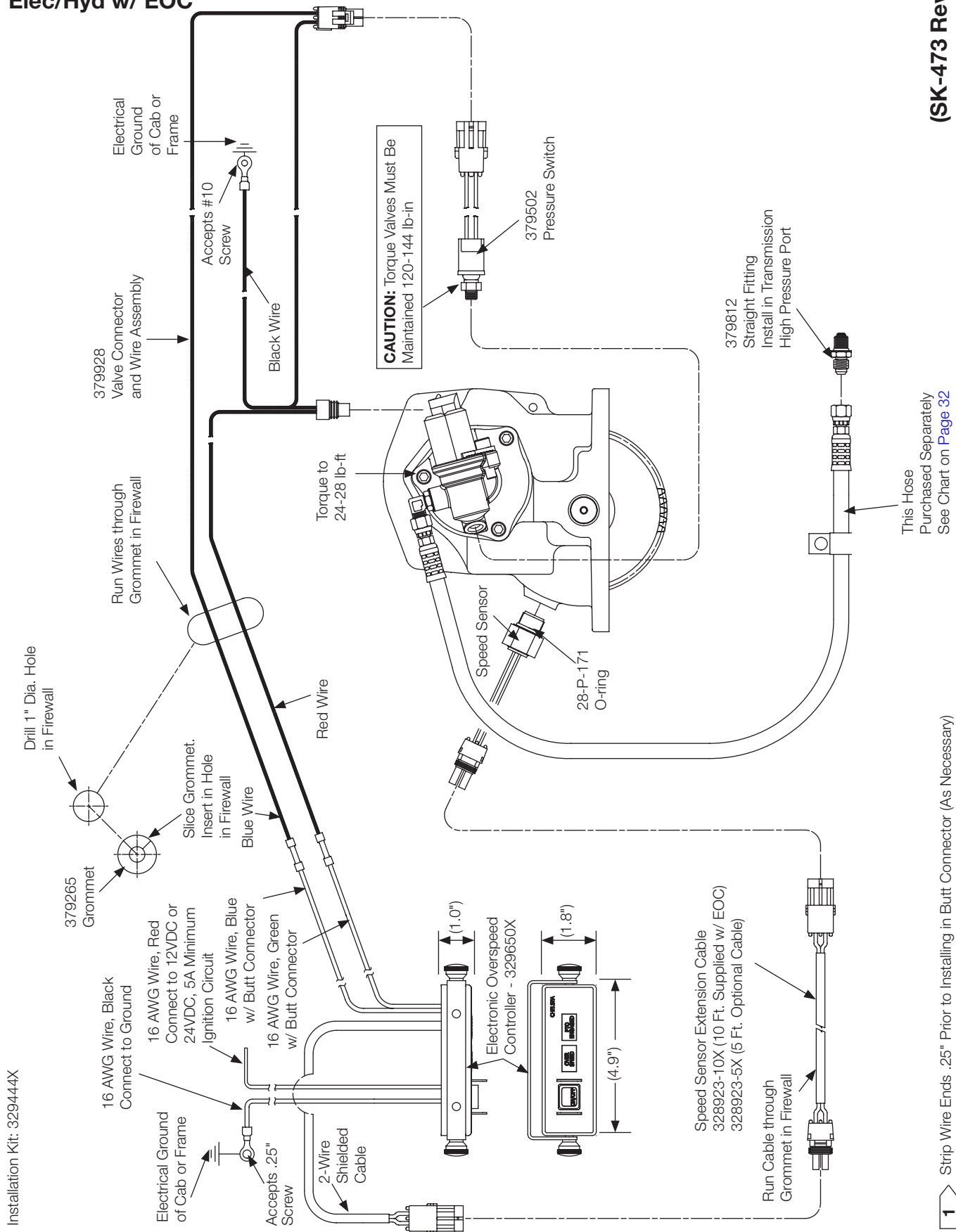
1. One PTO Fitting 379486 and one transmission fitting 379812 are included with the PTO unit. If using ► [379486](#) in transmission it must be purchased separately.
2. Hoses to be purchased separately.
3. 379486 elbow will not install on left hand (driver) side oil port due to transmission interference.
4. If 379486 is listed as transmission fitting for rear location, route hose along right hand (passenger) side of transmission and under transmission output yoke.

(SK-411 Rev D)



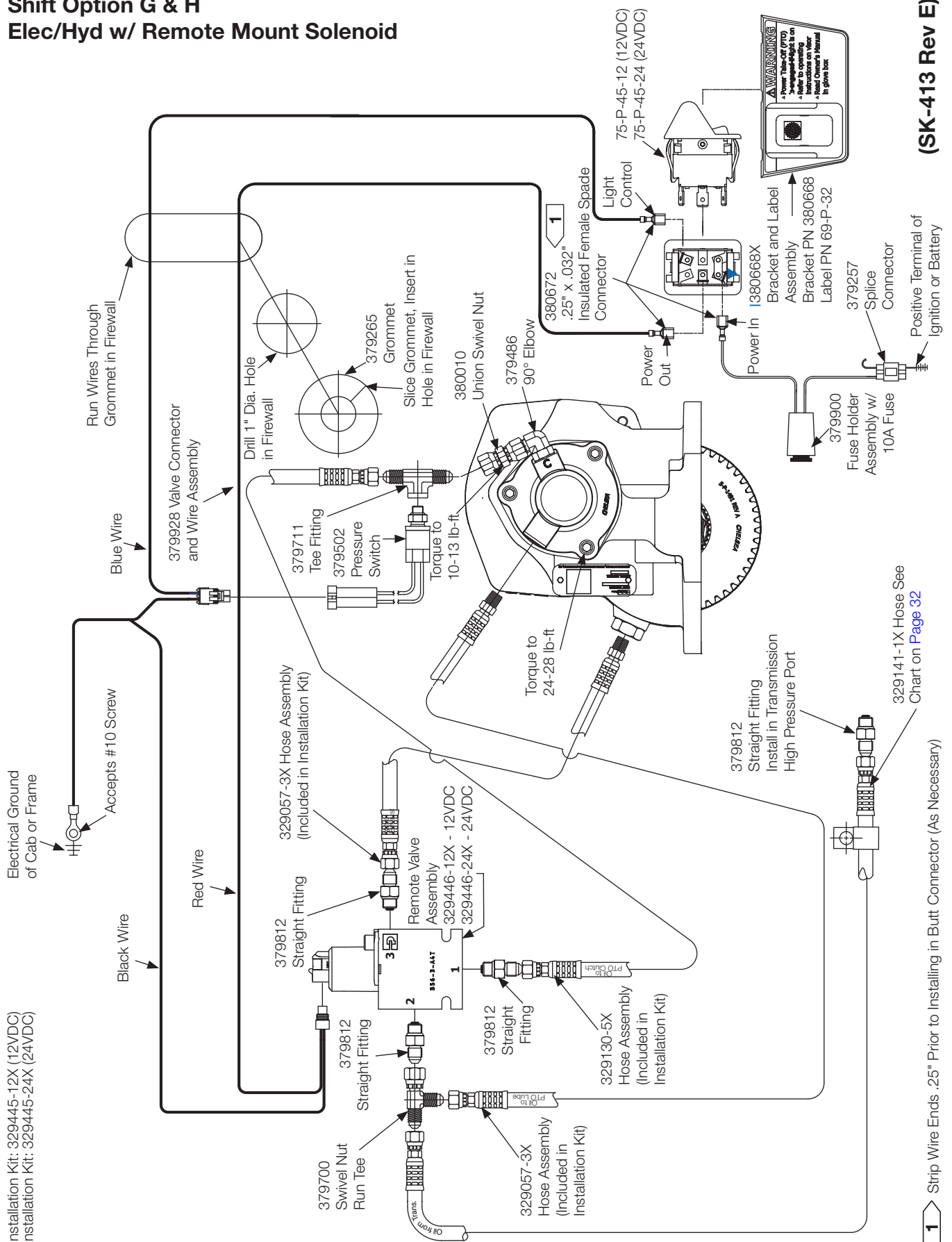
**Shift Option K & L
Elec/Hyd w/ EOC**

(SK-473 Rev B)



Shift Option G & H

Elec/Hyd w/ Remote Mount Solenoid



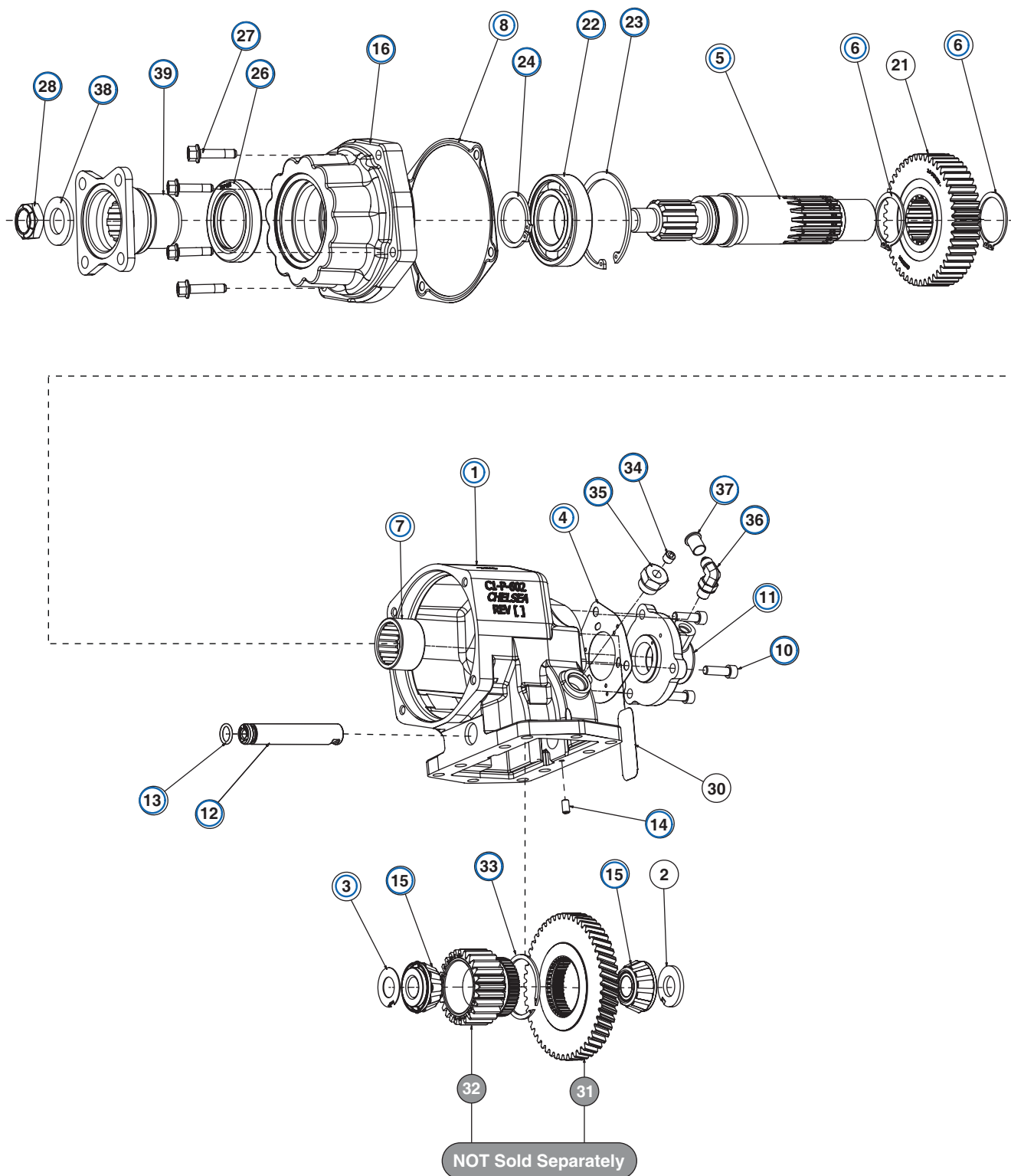
This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Model Number Designator

2 8 7		G	P	F J	P	-	M	5	X V
Basic Model									
287									
Mounting Option									
G = Standard Mount 10-Bolt w/ Metric Studs									
Gear Ratio									
3 & 5 Arr.		8 Arr.							
B = 22/50		B = 22/53							
C = 25/47		C = 25/50							
D = 28/44		D = 28/47							
G = 31/41		G = 31/44							
K = 33/39		K = N/A							
M = 35/37		M = 35/40							
P = 37/35		P = 37/38							
S = 39/33		S = 39/36							
T = 41/31		T = 42/33							
Input Option									
FJ									
KV									
NOTE: For more details, see Application Catalog (Transmission model number required)									
Lube Option									
Pressure									
P = Pressure Lube									
R = Valve Body Rotated 120°									
S = Valve Body Rotated 240°									
Wet Spline									
5 W = Wet Spline									
5 V = Valve Body Rotated 120° w/ Wet Spline									
5 Y = Valve Body Rotated 240° w/ Wet Spline									
		</							

Exploded View

Parts List 287 Series



Bill of Materials

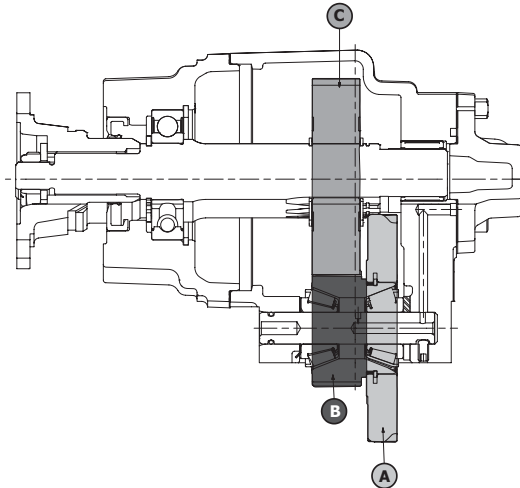
Parts List
287 Series

Item	Part Number	Description	Qty.
1	1-P-703	Housing (3 Arrangement) (w/ 5/16" Bearing Cap Bolts).....	1 or
►	1-P-763	Housing (3 Arrangement) (w/ 3/8" Bearing Cap Bolts).....	1 or
	1-P-705	Housing (5 Arrangement) (w/ 5/16" Bearing Cap Bolts).....	1 or
►	1-P-765	Housing (5 Arrangement) (w/ 3/8" Bearing Cap Bolts).....	1 or
	1-P-708	Housing (8 Arrangement) (w/ 5/16" Bearing Cap Bolts).....	1 or
►	1-P-768	Housing (8 Arrangement) (w/ 3/8" Bearing Cap Bolts).....	1
2	14-P-73-1	Spacer (.762" x 1.500" x .150") (Thickness as Required).....	1 or
	14-P-73-2	Spacer (.762" x 1.500" x .153")	1 or
	14-P-73-3	Spacer (.762" x 1.500" x .156")	1
3	► 31-P-102	Thrust Washer (.754" x .440" x .030").....	1
4	► 22-P-112	Gasket.....	1
5	► 3-P-1068	Output Shaft - 10T Straight (AB, AC, XV)	1
	► 3-P-1155	Output Shaft (RK)	1
	► 3-P-1099	Output Shaft (1" - 15T) (RF)	1
	► 3-P-1070	Output Shaft (1-1/4" - 14T) (RS, RZ).....	1
	► 3-P-1071	Output Shaft (DIN 8T) (RY)	1
6	► 379668	Lockring	2
7	► 560972	Bearing Needle Roller Assembly (1.500" x 1.875" x 1.000").....	1
8	► 22-P-151	Gasket.....	1
10	► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000").....	1
11	► 21-P-690	Cap Seal	1
12	► 9-P-106	Idler Shaft (.750").....	1
13	► 28-P-191	O-ring (.549" x .103").....	1
14	► 378452-7	Socket Head Set Screw (.250"-20 x .500").....	1
15	► 550439	Tapered Bearing Cone (.750" x .859").....	2 or
	► 561006	Tapered Bearing Cone (.750" x .655") (B Ratio Only).....	2
16	► 21-P-766	Bearing Cap (w/ 5/16" Bearing Cap Bolts).....	1 or
	► 21-P-881	Bearing Cap (w/ 3/8" Bearing Cap Bolts).....	1
21	See Page 35	Gear Output	1
22	► 550311	Ball Bearing (1.770" x 3.346" x .748").....	1
23	► 378263	Lockring	1
24	► 379555	Lockring	1
26	► 28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1
27	► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500") (w/ 5/16" Bearing Cap Bolts)	4 or
	► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500") (w/ 3/8" Bearing Cap Bolts).....	4
28	► 380486	Thin Nylon Lock Nut (.875"-14).....	1
30	68-P-51-1	Adhesive Label	1
Not Sold Separately			
31	See Page 35	Input Gear	1
32	See Page 35	Ratio Gear	1
33	► 379522	Lockring	1
34	► 379231	Pipe Plug (.125"-27)	1
35	► 379242	Adapter Straight (.125"-27 x .750"-16)	1
36	► 379486	90° Elbow (.438"-20)	1

Continued on Next Page

Parts List
287 Series**Bill of Materials**

Item	Part Number	Description	Qty.
37 ▶	379564-2	Cap Thread (.438")	1
38 ▶	380076-13	Hardened Washer Flat (.950" x 1.762" x .157")	1
39 ▶	380503	1410 Series Companion Flange (XV)	1
▶	379558	DIN 120 (AB)	1
▶	379742	DIN 100 (AC)	1
See pages 44-45 for Bill of Materials for the below loose parts.			
SERVICE KITS			
▶	329071-66X	Bearing Kit	1
▶	329071-81X	Gasket & Seal Kit	1
STUD KITS			
	7170-86X	Mounting Kit (FJ Gear) (3 & 5 Arrangement)	1
	7170-117X	Mounting Kit (KV Gear) (3 & 5 Arrangement)	1
INSTALLATION INSTRUCTIONS KITS			
	328948-47X	Gasket & Installation Instructions	1
HOSE ASSEMBLIES			
▶	329075-5X	Pressure Hose Assembly (KV Gear)	1
▶	329141-1X	Pressure Hose Assembly (FJ Gear)	1
▶	329699-1X	Wet Spline Lube Assembly (W, V & Y Shift)	1



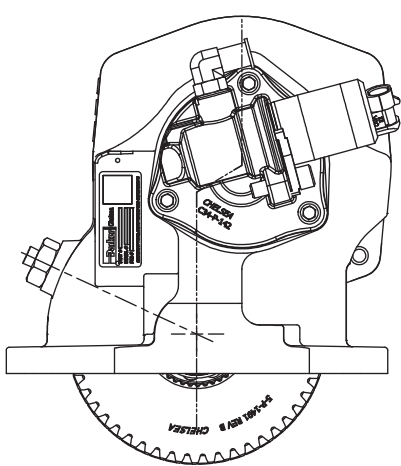
3 and 5 Assembly

GEAR DESIGNATOR	INPUT GEAR ASSEMBLY	NOT Sold Separately				OUTPUT GEAR (21)	NO. TEETH C
		INPUT GEAR (31)	NO. TEETH A	RATIO GEAR (32)	NO. TEETH B		
287*BFJ	5-P-1491-1X	5-P-1491	50	5-P-1478	22	2-P-944	50
287*CFJ	5-P-1491-2X	5-P-1491	50	5-P-1495	25	2-P-945	47
287*DFJ	5-P-1491-3X	5-P-1491	50	5-P-1479	28	2-P-946	44
287*GFJ	5-P-1491-4X	5-P-1491	50	5-P-1480	31	2-P-947	41
287*KFJ	5-P-1491-5X	5-P-1491	50	5-P-1481	33	2-P-949	39
287*MFJ	5-P-1491-6X	5-P-1491	50	5-P-1482	35	2-P-951	37
287*PFJ	5-P-1491-7X	5-P-1491	50	5-P-1483	37	2-P-953	35
287*SFJ	5-P-1491-8X	5-P-1491	50	5-P-1484	39	2-P-954	33
287*TFJ	5-P-1491-9X	5-P-1491	50	5-P-1497	41	2-P-955	31
287*BKV	5-P-1493-1X	5-P-1493	45	5-P-1478	22	2-P-944	50
287*CKV	5-P-1493-2X	5-P-1493	45	5-P-1495	25	2-P-945	47
287*DKV	5-P-1493-3X	5-P-1493	45	5-P-1479	28	2-P-946	44
287*GKV	5-P-1493-4X	5-P-1493	45	5-P-1480	31	2-P-947	41
287*KKV	5-P-1493-5X	5-P-1493	45	5-P-1481	33	2-P-949	39
287*MKV	5-P-1493-6X	5-P-1493	45	5-P-1482	35	2-P-951	37
287*PKV	5-P-1493-7X	5-P-1493	45	5-P-1483	37	2-P-953	35
287*SKV	5-P-1493-8X	5-P-1493	45	5-P-1484	39	2-P-954	33
287*TKV	5-P-1493-9X	5-P-1493	45	5-P-1497	41	2-P-955	31

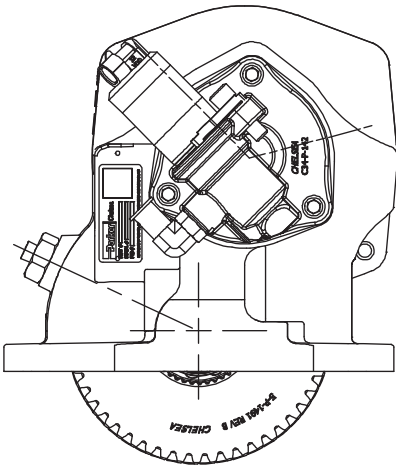
8 Assembly

GEAR DESIGNATOR	INPUT GEAR ASSEMBLY	NOT Sold Separately				OUTPUT GEAR (21)	NO. TEETH C
		INPUT GEAR (31)	NO. TEETH A	RATIO GEAR (32)	NO. TEETH B		
287*BFJ	5-P-1491-1X	5-P-1491	50	5-P-1478	22	2-P-943	53
287*CFJ	5-P-1491-2X	5-P-1491	50	5-P-1495	25	2-P-944	50
287*DFJ	5-P-1491-3X	5-P-1491	50	5-P-1479	28	2-P-945	47
287*GFJ	5-P-1491-4X	5-P-1491	50	5-P-1480	31	2-P-946	44
287*MFJ	5-P-1491-6X	5-P-1491	50	5-P-1482	35	2-P-948	40
287*PFJ	5-P-1491-7X	5-P-1491	50	5-P-1483	37	2-P-950	38
287*SFJ	5-P-1491-8X	5-P-1491	50	5-P-1484	39	2-P-952	36
287*TFJ	5-P-1491-10X	5-P-1491	50	5-P-1485	42	2-P-954	33
287*BKV	5-P-1493-1X	5-P-1493	45	5-P-1478	22	2-P-943	53
287*CKV	5-P-1493-2X	5-P-1493	45	5-P-1495	25	2-P-944	50
287*DKV	5-P-1493-3X	5-P-1493	45	5-P-1479	28	2-P-945	47
287*GKV	5-P-1493-4X	5-P-1493	45	5-P-1480	31	2-P-946	44
287*MKV	5-P-1493-6X	5-P-1493	45	5-P-1482	35	2-P-948	40
287*PKV	5-P-1493-7X	5-P-1493	45	5-P-1483	37	2-P-950	38
287*SKV	5-P-1493-8X	5-P-1493	45	5-P-1484	39	2-P-952	36
287*TKV	5-P-1493-10X	5-P-1493	45	5-P-1485	42	2-P-954	33

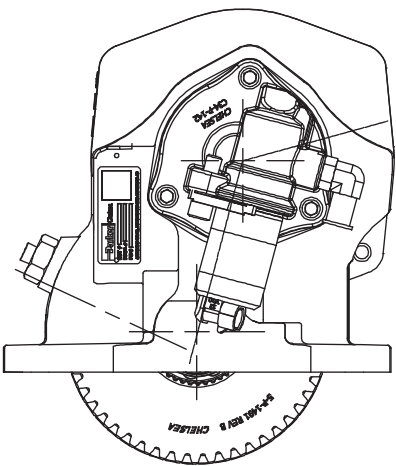
Pressure Lube



P = Pressure Lube

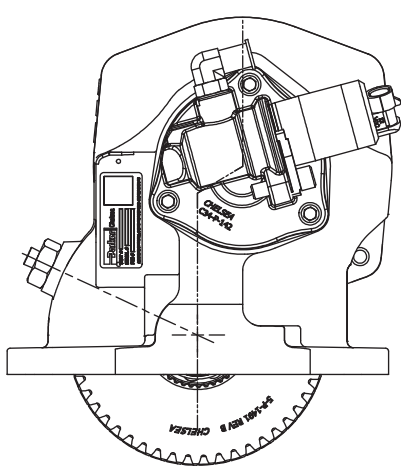


R = Valve Cap Rotated 120°

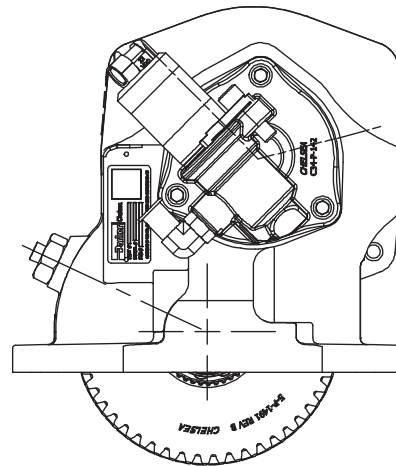


S = Valve Cap Rotated 240°

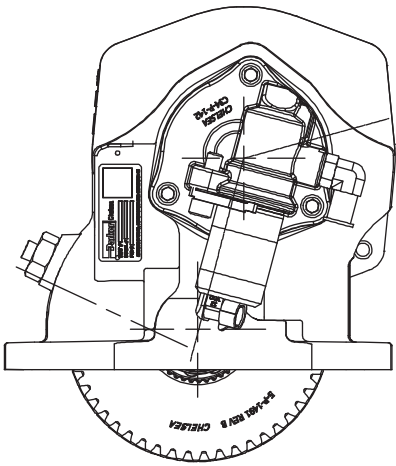
Wet Spline



W = Wet Spline

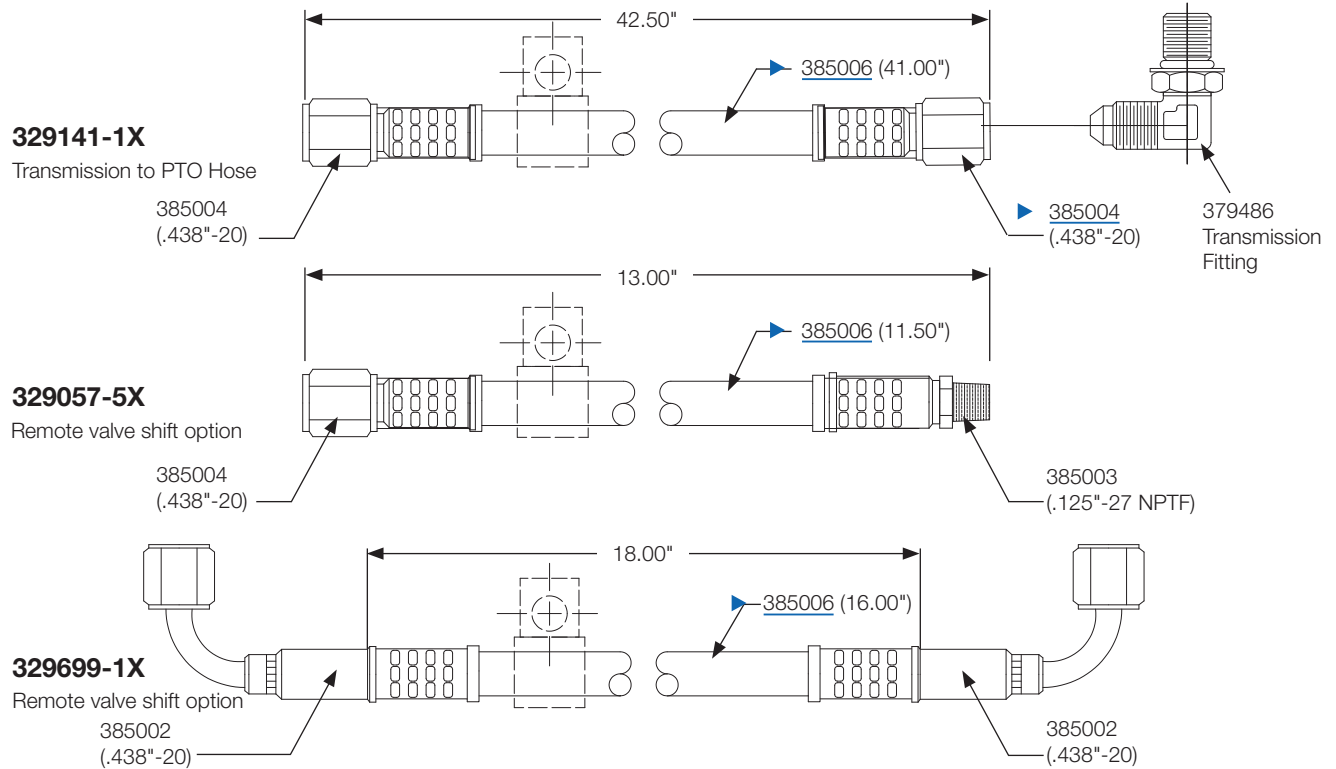


V = Valve Cap Rotated 120°
w/ Wet Spline



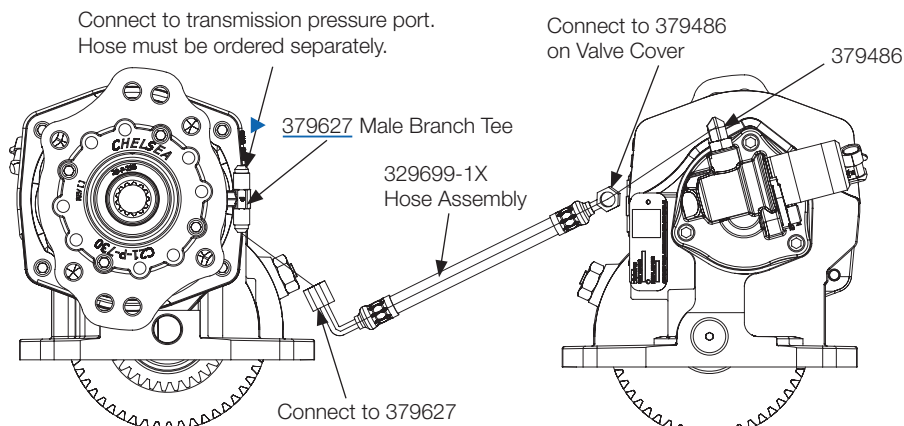
Y = Valve Cap Rotated 240°
w/ Wet Spline

Pressure Lube (Continued)



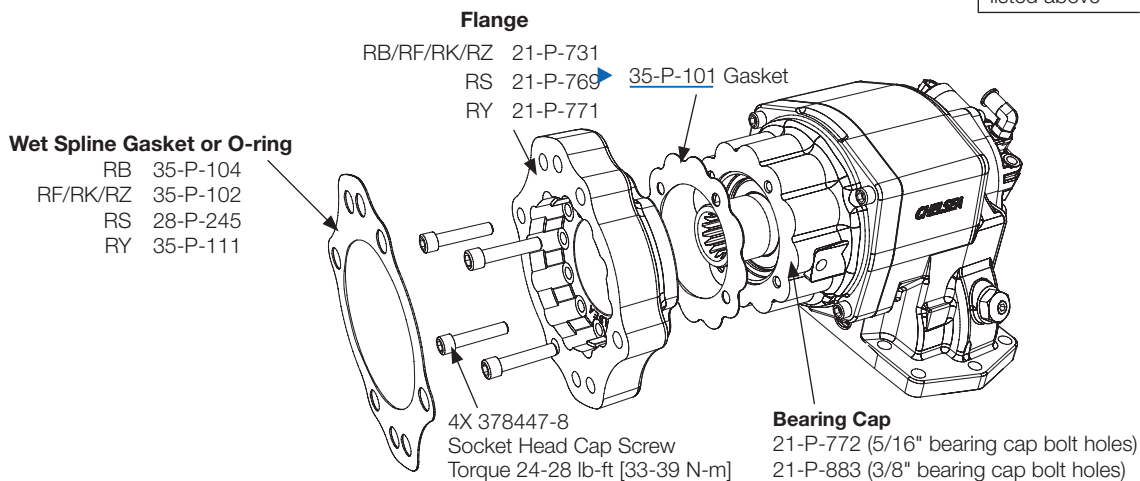
Wet Spline Installation – 287 Series RB, RF, RK, RS, RY & RZ

(SK-508 Rev B)

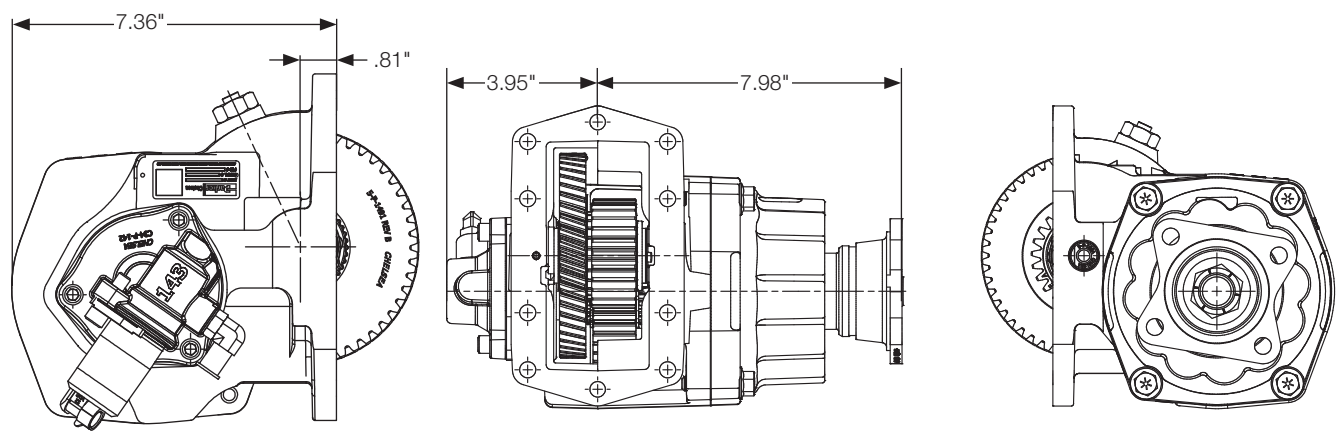


Wet Spline Installation Kits	
Output	Kit Number
RB	329959X
RF/RK/RZ	329700X
RS	329744X
RY	329742X

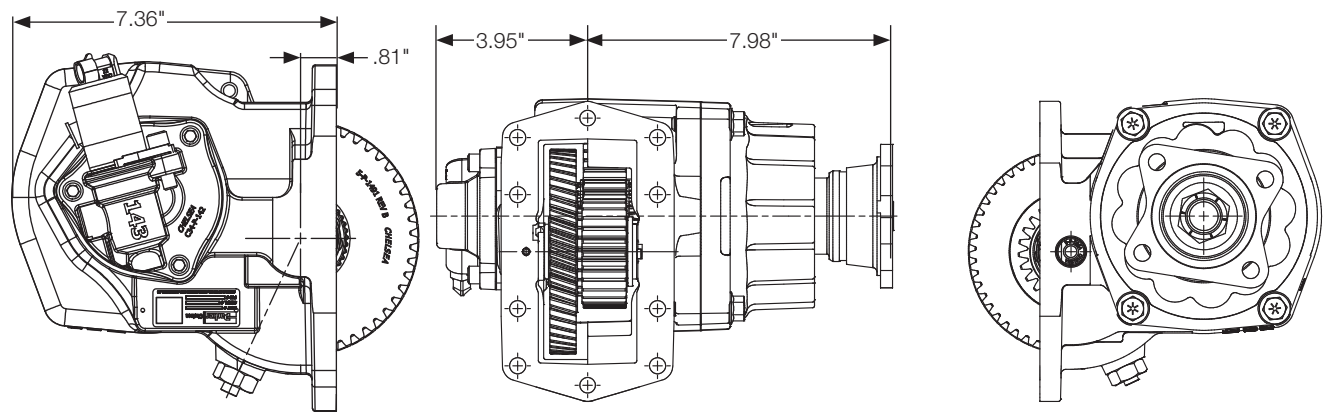
NOTE: Not all output options may be available on Series listed above



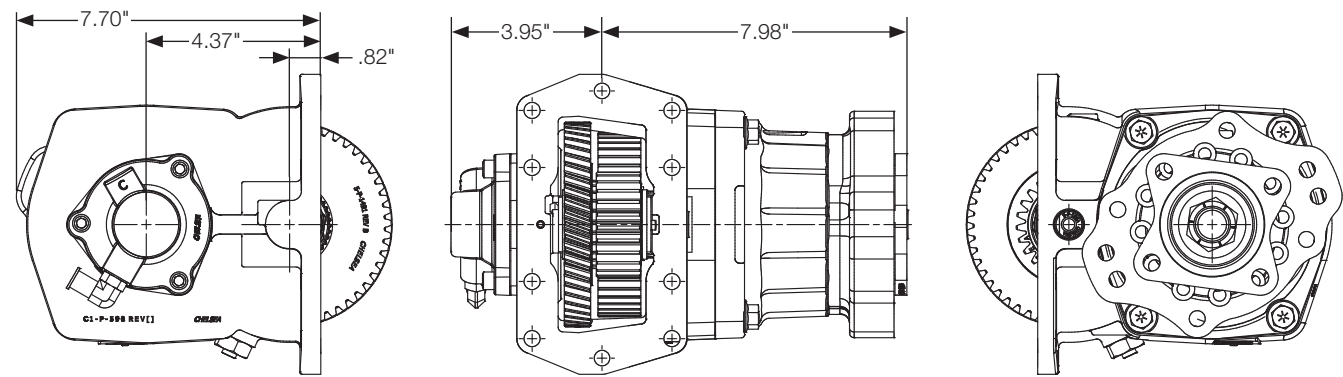
Housing Dimensions



Assembly 3

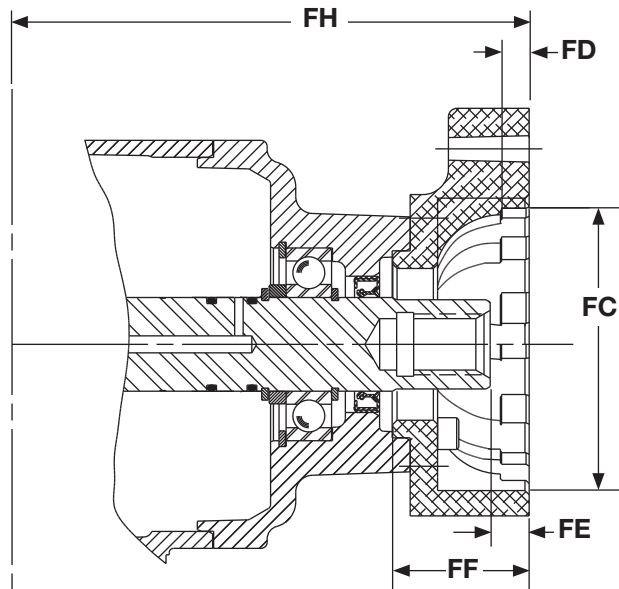


Assembly 5



Assembly 8

Direct Mount Pump Flange & Shaft Dimensions



Direct Mount

Pump Flange Suffix	Bolt Circle Diameter	Bolt Holes		FC	FD	FE	FF	FH	Output Shaft
		Hole Diameter	No. Equally Spaced	Female Pilot of Flange	Pilot Depth Hole	Face to End of PTO	Face Thru	Face to Center	Dimensions
RF●	5.750" 5.000"	1/2"-13 UNC	2■ 4	4.000"	—	.610"	2.080"	7.670"	1" - 15T Spline
RK●	5.750" 5.000"	1/2"-13 UNC	2/2 4	4.000"	—	.500"	1.872"	7.670"	7/8" - 13T Spline
RS●	7.125" 6.375"	5/8"-11 UNC	2■ 4	5.003"	.531"	.610"	2.580"	7.670"	1-1/4" - 14T Spline
RY●	4.454"	M12-1.75	4	3.152"	—	.549"	2.250"	7.270"	B8x32x36
RZ●	5.750" 5.000"	1/2"-13 UNC	2■ 4	—	.406"	.610"	2.580"	7.670"	1-1/4" - 14T Spline

CAUTION: All pump mounting dimensions shown are compiled to conform to SAE/DIN standards; however it shall be the responsibility of the user to determine the correct fit at the time the pump is mounted to the PTO Therefore carefully check the shaft and key or spline engagement.

Companion Flange Mounts & Shaft Dimensions

Pump Flange Suffix	Bolt Circle Diameter	Bolt Holes		FC	FD	FE	FF	FH	Output Shaft
		Hole Diameter	No. Equally Spaced	Female Pilot of Flange	Pilot Depth Hole	Face to End of PTO	Face Thru	Face to Center	Dimensions
AB	3.996"	.404" ▶	8	2.952"	.093" ◆	—	—	8.073"	1-1/2" - 10T Spline
AC	3.307"	.323" ▶	6	2.243"	.080" ◆	—	—	7.950"	1-1/2" - 10T Spline
XD	—	—	—	—	—	—	—	7.090"	1-1/4" Rd Keyed (5/16")
XV	3.750"	—	4	2.751"	.083"	—	—	7.981"	1-1/2" - 10T Spline

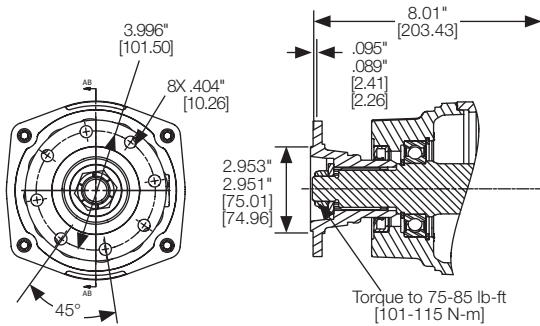
- Rotatable Flange Rotates in 30° Increments
- Two Set of Holes Spaced 14° Apart
- ▶ Not Tapped
- ◆ Pilot is Not a Hole

CAUTION: All pump mounting dimensions shown are compiled to conform to SAE/DIN standards; however it shall be the responsibility of the user to determine the correct fit at the time the pump is mounted to the PTO Therefore carefully check the shaft and key or spline engagement.

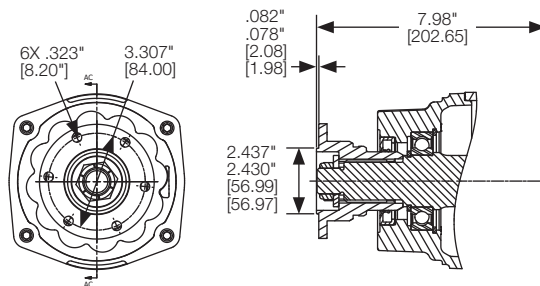
Output Options

Parts List
287 Series

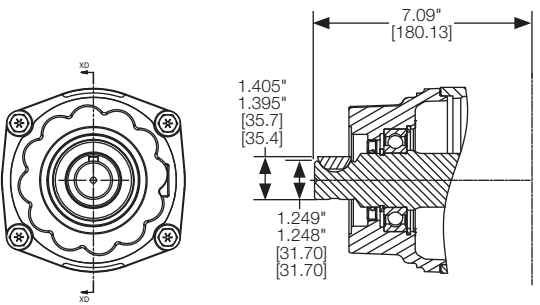
Bill of Materials — Driveline Output



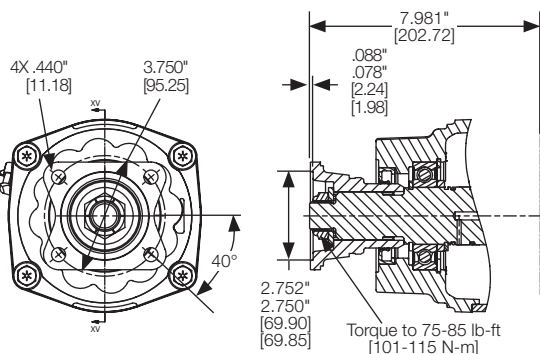
AB Output Option DIN 120 Flange			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
3-P-1068 ►	3-P-1068	Output Shaft 10T Straight.....	1
21-P-766 ►	21-P-881	Bearing Cap	1
28-P-211 ►	28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1
379558 ►	379558	Companion Flange	1
380486 ►	380486	Thin Nylon Lock Nut (.875"-14).....	1
4-P-191 ►	4-P-191	Spacer (.885" x 1.750" x .188")	1



AC Output Option DIN 100 Flange			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
3-P-1068 ►	3-P-1068	Output Shaft 10T Straight.....	1
21-P-766 ►	21-P-881	Bearing Cap	1
28-P-211 ►	28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1
379742 ►	379742	Companion Flange	1
380486 ►	380486	Thin Nylon Lock Nut (.875"-14).....	1
4-P-191 ►	4-P-191	Spacer (.885" x 1.750" x .188")	1



XD Output Option Rd Standard Shaft (1-1/4" - 5/16" Key)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
3-P-1154 ►	3-P-1154	Output Shaft	1
21-P-766 ►	21-P-881	Bearing Cap	1
28-P-267 ►	28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
500007-29 ►	500007-29	Woodruff Key.....	1



XV Output Option 1-1/2" - 10T Spline Shaft with 1410 Series Flange			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
3-P-1068 ►	3-P-1068	Output Shaft 10T Straight.....	1
378447-16 ►	380563-28	Bearing Cap Bolts	1
21-P-766 ►	21-P-881	Bearing Cap	1
28-P-211 ►	28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1
380503 ►	380503	1410 Series Companion Flange.....	1
380076-13 ►	380076-13	Washer (.950" x 1.762" x .157").....	1
380486 ►	380486	Thin Nylon Lock Nut (.875"-14).....	1

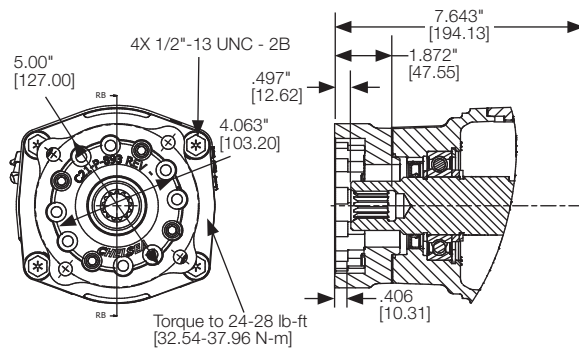
Must order 378447-16 Cap Screws separately.

Output Options

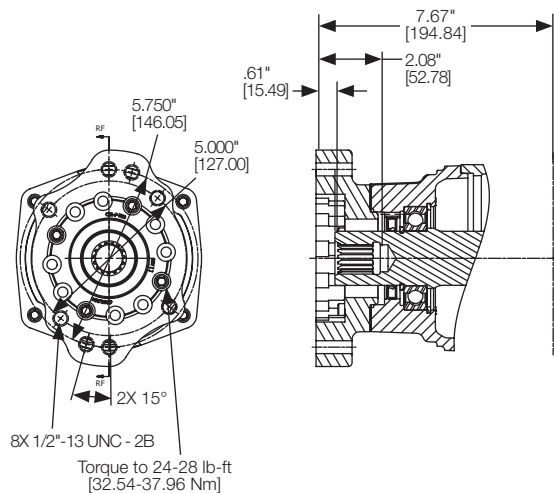
Parts List

287 Series

Bill of Materials — Pump Mount



RB Output Option			
Rotatable SAE B 4-Bolt Flange, SAE B Shaft (7/8" - 13T)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
NA	➤ 3-P-1155	Output Shaft.....	1
	➤ 21-P-882	Bearing Cap	1 or
	➤ 21-P-883	Bearing Cap (Wet Spline Only).....	1
	➤ 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
	➤ 328170-216X	Cap Screw Bag Kit	1
	➤ 35-P-101	Rotatable Flange Gasket (Wet Spline) (Ships w/ Kit).....	1
	➤ 21-P-894	Pump Flange (Ships Loose w/ Unit)	4
		Wet Spline LOOSE PARTS	1
	➤ 329699-1X	Hose Assembly	1
	➤ 329959X	Wet Spline Loose Parts Kit	1
	➤ 329658X	Cover Kit	1
NA	† 329160-149X	Conversion Kit (XD to RB DRY)	
	† 329160-150X	Conversion Kit (XD to RB WET)	

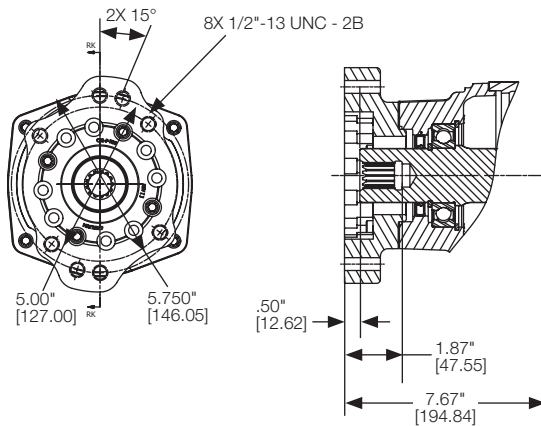


RF Output Option			
Rotatable SAE B 2 or 4-Bolt Flange, SAE BB Shaft (1" - 15T)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
3-P-1099	➤ 3-P-1099	Output Shaft (1" - 15T)	1
21-P-767	➤ 21-P-882	Bearing Cap	1 or
21-P-772	➤ 21-P-883	Bearing Cap (Wet Spline Only).....	1
28-P-267	➤ 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
328170-216X	➤ 328170-216X	Cap Screw Kit (378447-8 Qty. 4)	1
35-P-101	➤ 35-P-101	Rotatable Flange Gasket (Wet Spline) (Ships w/ Kit).....	1
21-P-731	➤ 21-P-731	Pump Flange (Ships Loose w/ Unit)	1
69-P-18	➤ 69-P-18	Tag (Wet Spline Only).....	1
		Wet Spline LOOSE PARTS	
329700X	➤ 329700X	Wet Spline Loose Parts Kit	1
329699-1X	➤ 329699-1X	Hose Assembly	1
329658X	➤ 329658X	Cover Kit	1

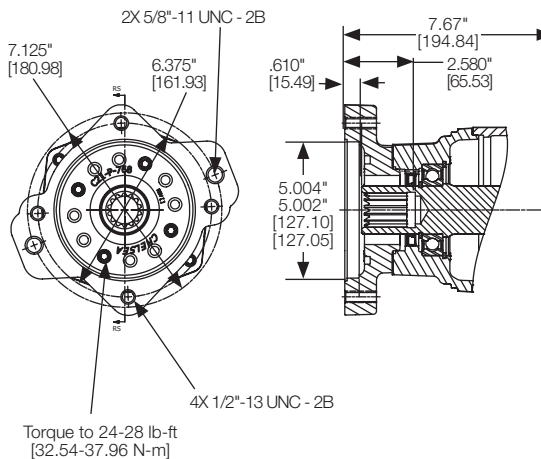
Output Options

Parts List
287 Series

Bill of Materials — Pump Mount (Continued)



RK Output Option Rotatable SAE B 2 or 4-Bolt Flange, SAE B (7/8" - 13T)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
3-P-1155 ➤	3-P-1155	Output Shaft.....	1
21-P-767 ➤	21-P-881	Bearing Cap	1 or
21-P-772 ➤	21-P-883	Bearing Cap (Wet Spline Only).....	1
28-P-267 ➤	28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
328170-216X ➤	328170-216X	Cap Screw Kit (378447-8 Qty. 4)	1
35-P-101 ➤	35-P-101	Rotatable Flange Gasket (Wet Spline) (Ships w/ Kit).....	1
21-P-731 ➤	21-P-731	Pump Flange (Ships Loose w/ Unit)	1
69-P-18 ➤	69-P-18	Tag (Wet Spline Only).....	1
		Wet Spline LOOSE PARTS	
329700X ➤	329700X	Wet Spline Loose Parts Kit	1
329699-1X ➤	329699-1X	Hose Assembly	1
329658X ➤	329658X	Cover Kit	1



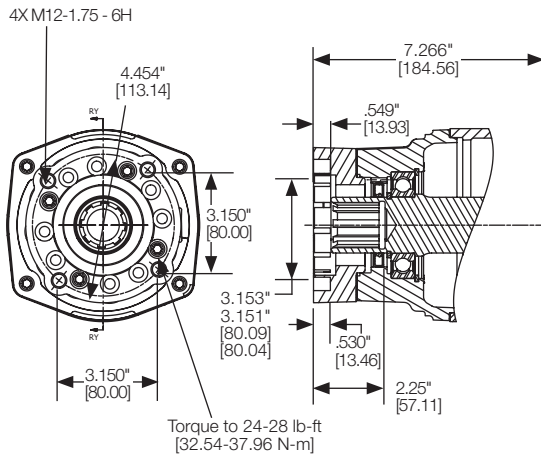
RS Output Option Rotatable SAE C 2 or 4-Bolt Flange, SAE C (1-1/4" - 14T)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
3-P-1070 ➤	3-P-1070	Output Shaft (1-1/4" - 14T).....	1
21-P-767 ➤	21-P-882	Bearing Cap	1 or
21-P-772 ➤	21-P-883	Bearing Cap (Wet Spline Only).....	1
28-P-267 ➤	28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
328170-216X ➤	328170-216X	Cap Screw Kit (378447-8 Qty. 4)	1
35-P-101 ➤	35-P-101	Rotatable Flange Gasket (Wet Spline) (Ships w/ Kit).....	1
21-P-769 ➤	21-P-769	Pump Flange (Ships Loose w/ Unit)	1
69-P-18 ➤	69-P-18	Tag (Wet Spline Only).....	1
		Wet Spline LOOSE PARTS	
329744X ➤	329744X	Wet Spline Loose Parts Kit	1
329699-1X ➤	329699-1X	Hose Assembly	1
329654X ➤	329654X	Cover Kit	1

Output Options

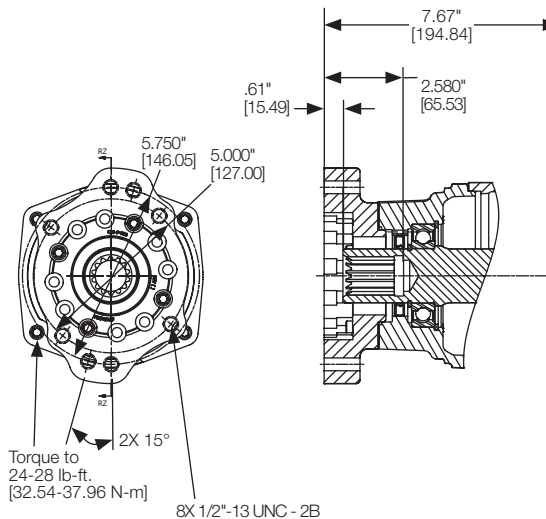
Parts List

287 Series

Bill of Materials — Pump Mount (Continued)



RY Output Option Rotatable DIN 5462 8T Shaft			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
3-P-1071 ➤	3-P-1071	Output Shaft (DIN 8T)	1
21-P-767 ➤	21-P-882	Bearing Cap	1 or
21-P-772 ➤	21-P-883	Bearing Cap (Wet Spline Only)	1
28-P-267 ➤	28-P-267	Oil Seal (2.627" x 1.750" x .312")	1
328170-216X ➤	328170-216X	Cap Screw Kit (378447-8 Qty. 4)	1
35-P-101 ➤	35-P-101	Rotatable Flange Gasket (Wet Spline) (Ships w/ Kit)	1
21-P-771 ➤	21-P-771	Pump Flange (Ships Loose w/ Unit)	1
69-P-18 ➤	69-P-18	Tag (Wet Spline Only)	1
Wet Spline LOOSE PARTS			
329742X ➤	329742X	Wet Spline Loose Parts Kit	1
329699-1X ➤	329699-1X	Hose Assembly	1
329659X ➤	329659X	Cover Kit	1



RZ Output Option Rotatable SAE B 2 or 4-Bolt Flange SAE C Shaft (1-1/4" - 14T)			
Part Number		Description	Qty.
PTO w/ 5/16" Bearing Cap Bolts	PTO w/ 3/8" Bearing Cap Bolts		
3-P-1070 ➤	3-P-1070	Output Shaft (1-1/4" - 14T)	1
21-P-767 ➤	21-P-882	Bearing Cap	1 or
21-P-772 ➤	21-P-883	Bearing Cap (Wet Spline Only)	1
28-P-267 ➤	28-P-267	Oil Seal (2.627" x 1.750" x .312")	1
328170-216X ➤	328170-216X	Cap Screw Kit (378447-8 Qty. 4)	1
35-P-101 ➤	35-P-101	Rotatable Flange Gasket (Wet Spline) (Ships w/ Kit)	1
21-P-731 ➤	21-P-731	Pump Flange (Ships Loose w/ Unit)	1
69-P-18 ➤	69-P-18	Tag (Wet Spline Only)	1
Wet Spline LOOSE PARTS			
329700X ➤	329700X	Wet Spline Loose Parts Kit	1
329699-1X ➤	329699-1X	Hose Assembly	1
329658X ➤	329658X	Cover Kit	1

Kits Bill of Materials

Parts List

280/287 Series

Part Number	Description	Qty.	Part Number	Description	Qty.
SERVICE KITS			SERVICE KITS (Continued)		
► 329071-63X	Bearing Kit (All Outputs Except BV, BD) (280 Series)		► 329071-80X	Gasket & Seal Kit (All Outputs Except BV) (280 Series)	
► 379746	Lockring	1	► 28-P-119	Oil Seal (1.379" x .875" x .250").....	1
► 378263	Internal Lockring	1	► 28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1
► 379555	Lockring	1	► 28-P-285	O-ring (1.597" x .103").....	2
► 560972	Needle Roller Bearing Assembly (1.500" x 1.875" x 1.000")	2	► 28-P-178	O-ring (4.359" x .138").....	1
► 550311	Ball Bearing (1.770" x 3.346" x .748")	1	► 35-P-101	Bearing Cap Gasket (Wet Spline).....	1
► 550439	Tapered Cone Bearing (.750" x .859")	2	► 28-P-191	O-ring (.549" x .103").....	1
► 31-P-102	Thrust Washer (.754" x .440" x .030")	1	► 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
14-P-73-1	Spacer (.762" x 1.500" x .150")	1	► 22-P-151	Shim Gasket	1
14-P-73-2	Spacer (.762" x 1.500" x .153")	1	► 22-P-112	Valve Cap Gasket	1
14-P-73-3	Spacer (.762" x 1.500" x .156")	1	► 35-P-74	Shim Gasket	1
► 561088	Needle Roller Bearing Assembly (1.500" x 1.875" x 1.250")	1			
► 329071-64X	Bearing Kit (BV & BD Output) (280 Series)		► 329071-81X	Gasket & Seal Kit (287 Series)	
► 379746	Lockring	1	► 22-P-151	Shim Gasket	1
► 378263	Lockring	1	► 28-P-191	O-ring (.549" x .103").....	1
► 379555	Lockring	1	► 28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1
► 378895	Lockring	1	► 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
► 378576	Lockring	1	► 35-P-101	Bearing Cap Gasket (Wet Spline).....	1
► 550010	Ball Bearing (1.378" x 2.834" x .669")	1	► 35-P-74	PTO Shim Gasket.....	1
► 560972	Needle Roller Bearing Assembly (1.500" x 1.875" x 1.000")	2			
► 550439	Tapered Cone Bearing (.750" x .859")	2	► 329071-82X	Gasket & Seal Kit (BV, BD) (280 Series)	
► 31-P-102	Thrust Washer (.754" x .440" x .030")	1	► 28-P-225	Oil Seal (2.004" x 1.375" x .315").....	1
14-P-73-1	Spacer (.762" x 1.500" x .150")	1	► 28-P-244	O-ring (1.174" x .103").....	4
14-P-73-2	Spacer (.762" x 1.500" x .153")	1	► 22-P-151	Shim Gasket	2
14-P-73-3	Spacer (.762" x 1.500" x .156")	1	► 22-P-112	Valve Cap Gasket	1
			► 28-P-212	Oil Seal (2.506" x 1.750" x .315").....	1
► 329071-66X	Bearing Kit (287 Series)		► 28-P-191	O-ring (.549" x .103").....	1
► 378263	Lockring	1	► 28-P-252	Brake O-ring (2.674" x .103").....	1
► 379555	Lockring	1	► 28-P-178	O-ring (4.359" x .138").....	1
► 560972	Needle Roller Bearing Assembly (1.500" x 1.875" x 1.000")	1	► 28-P-119	Oil Seal (1.379" x .875" x .250").....	1
► 550311	Ball Bearing (1.770" x 3.346" x .748")	1			
► 550439	Tapered Cone Bearing (.750" x .859")	2	► 329071-83X	Solenoid Valve Seal Kit (280 Series)	
► 31-P-102	Thrust Washer (.754" x .440" x .030")	1	2016V-7	O-ring (.614" x .070").....	1
14-P-73-1	Spacer (.762" x 1.500" x .150")	1	2017V-7	O-ring (.676" x .070").....	1
14-P-73-2	Spacer (.762" x 1.500" x .153")	1	2020V-7	O-ring (.864" x .070").....	2
14-P-73-3	Spacer (.762" x 1.500" x .156")	1			
► 379668	Lockring	2	► 329678X	Gear & Clutch Plates Kit (280 Series)	
			► 2-P-858	Inner Hub Gear	1
			► 379485	Friction Disc	11
			► 380065	Clutch Plate	10

Continued on Next Page

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

Kits Bill of Materials**Parts List****280/287 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
STUD KITS			INSTALLATION INSTRUCTION KITS		
7170-86X	Mounting Kit (FJ Gear) (3 & 5 Arr.) (280, 287 Series)		328948-47X	Gasket & Installation Kit Instructions (280 & 287 Series)	
► 379451	Pilot Screw	2	328946X	Caution Label Kit	1
► 379453-10	Cap Screw (M10-1.5 x .984")	8	► 35-P-74	Shim Gasket.....	1
► 379486	90° Elbow (.438"-20)	1	► 379085-2	Instructions Label	1
SK-355	Installation	1	► 379624	Product Warranty Card.....	1
7170-107X	Mounting Kit (FJ Gear) (8 Arr.) (280 Series)		Owner's Manual	HY25-1280-M1/US	1
► 379451	Pilot Screw	2	Safety Guide	HY25-1002-M1//US	1
► 379453-8	Cap Screw (M10-1.5 x 1.181")	2	Continued on Next Page		
► 379453-10	Cap Screw (M10-1.5 x 1.378")	8			
► 379486	90° Elbow (.438"-20)	1			
SK-355	Installation	1			
7170-117X	Mounting Kit (KV Gear) (3 & 5 Arr.) (280, 287 Series)				
► 379451	Pilot Screw	2			
► 379453-10	Cap Screw (M10-1.5 x 1.984")	8			
► 379812	Male Connector (.438"-20)	1			
7170-118X	Mounting Kit (KV Gear) (8 Arr.) (280 Series)				
► 379451	Pilot Screw	2			
► 379453-8	Ferry Head Cap Screw (M10-1.5 x 1.181")	1			
► 379453-10	Cap Screw (M10-1.5 x 1.378")	8			
SK-355	Installation	1			
► 379812	Male Connector	1			

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

Kits Bill of Materials

Parts List

280/287 Series

Part Number	Description	Qty.	Part Number	Description	Qty.
HYDRAULIC INSTALLATION KITS			HYDRAULIC INSTALLATION KITS (Continued)		
► 329024-12X	12VDC Installation Kit (FJ Gear, B Shift) (280 Series)		► 329237-24X	24VDC Remote Valve w/o EOC Installation Kit (FJ Gear, H Shift) (280 Series)	
380672	Female Spade Connector (.250").....	3	75-P-45-24	24VDC Rocker Switch.....	1
► 380668X	Bracket & Label Assembly.....	1	► 329231X	Valve Connector & Wire.....	1
► 379252	Electrical Butt Connector.....	1	380672	Female Spade Connector (.250").....	3
► 379257	Electrical Connector.....	1	► 380668X	Bracket & Label Assembly.....	1
► 379265	Grommet.....	1	► 379252	Speed Limiter Butt Connector.....	1
75-P-45-12	12VDC Rocker Switch.....	1	► 379257	Electrical Speed Limiter Connector.....	2
SK-347	Installation Sketch.....	1	► 379258	Mounting Bracket.....	1
► 379502	Pressure Switch.....	1	► 379265	Grommet w/ Speed Control.....	1
► 379504	Electrical Valve Connector.....	1	► 380668X	Bracket & Label Assembly.....	1
► 379900	Fuse Holder Assembly.....	1	► 75-P-46X	Wire & Connectors Kit.....	1
► 379254-17	Fork Terminal 14G.....	1	► 379449	Male Connector (.438"-20 x .250"-18).....	1
► 379061	Plastic Wire Tie.....	6	► 379502	Pressure Switch.....	1
► 329024-24X	24VDC Installation Kit (FJ Gear, D Shift) (280 Series)		► 379686-1	12VDC Hydraulic Solenoid Valve.....	1
380672	Female Spade Connector (.250").....	3	► 500357-7	Lock Washer (.194" x .337" x .047").....	2
► 380668X	Bracket & Label Assembly.....	1	► 500457-6	Round Head Slotted Screw (.190"-32 x .438").....	2
► 379252	Electrical Butt Connector.....	1	► 379900	Fuse Holder.....	1
► 379257	Electrical Speed Limiter Connector.....	1	► 379711	Tee (.375"-24 x .438"-20 x .438"-20).....	1
► 379265	Grommet.....	1	► 379700	Swivel Nut Tee (.438"-20).....	1
75-P-45-24	24VDC Rocker Switch.....	1	► 380010	Female SAE Swivel Nut (.438"-20).....	1
SK-347	Hydraulic Shift Installation Sketch.....	1	► 379131-1	Pipe Reducer Bushing (.125"-27 x .250"-18).....	1
► 379502	Pressure Switch.....	1	SK-432	Remote Valve Installation Sketch.....	1
► 379504	Electrical Valve Connector.....	1	► 379254-17	Fork Wire 14G.....	1
► 379900	Fuse Holder Assembly.....	1			
► 379254-17	Fork Terminal 14G.....	1	► 329076X	Installation Kit EOC (FJ Gear, K, L Shift) (280 Series)	
► 379061	Plastic Wire Tie.....	6	► 379252	Butt Connector.....	1
► 329237-12X	12VDC Remote Valve w/o EOC Installation Kit (FJ Gear, G Shift) (280 Series)		► 379257	Electrical Speed Connector.....	1
75-P-45-12	12VDC Rocker Switch.....	1	► 379265	Grommet w/ Speed Control.....	1
► 329231X	Valve Connector & Wire.....	1	► 379502	Pressure Switch.....	1
380672	Female Spade Connector (.250").....	3	► 379504	Valve Connector & Wire.....	1
► 380668X	Bracket & Label Assembly.....	1	► 75-P-46X	Wire & Connectors Kit.....	1
► 379252	Speed Limiter Butt Connector.....	1	► 379061X	Plastic Wire Tie.....	1
► 379257	Electrical Speed Limiter Connector.....	2			
► 379258	Mounting Bracket.....	1	► 329650X	Electronic Overspeed Control (K, L Shift) (280 Series)	
► 379265	Grommet w/ Speed Control.....	1	► 328923-10X	Speed Sensor Cable - 10 ft.....	1
► 380668X	Bracket & Label Assembly.....	1		(.250"-20) NC Hex Bolt x 1" Lg.....	2
► 75-P-46X	Wire & Connectors Kit.....	1		Flat Washer (.250").....	2
► 379449	Male Connector (.438"-20 x .250"-18).....	1		Lock Washer (.250").....	2
► 379502	Pressure Switch.....	1		Hex Nut (.250").....	2
► 379686-1	12VDC Hydraulic Solenoid Valve.....	1	Owner's Manual	HY25-1650-M1/US.....	1
► 500357-7	Lock Washer (.194" x .337" x .047").....	2		EOC Unit (NSS).....	1
► 500457-6	Round Head Slotted Screw (.190"-32 x .438").....	2	► 329443-12X	12VDC Installation Kit (KV Gear, B Shift) (280 Series)	
► 379900	Fuse Holder.....	1	► 378881	Rocker Switch.....	1
► 379711	Tee (.375"-24 x .438"-20 x .438"-20).....	1	► 378978	Indicator Light.....	1
► 379700	Swivel Nut Tee (.438"-20).....	1	► 379252	Electrical Butt Connector.....	1
► 380010	Union Female SAE Swivel Nut (.438"-20).....	1	► 379257	Electrical Connector.....	1
► 379131-1	Pipe Reducer Bushing (.125"-27 x .250"-18).....	1	► 379265	Grommet.....	1
SK-432	Remote Valve Installation Sketch.....	1	► 379306	Fork Terminal.....	3
► 379254-17	Fork Terminal 14G.....	1	► 379336	Electrical/Air Shifter Switch Bracket.....	1
			► 379502	Pressure Switch.....	1
			► 379928	Valve & Wire Connector.....	1
			► 379900	Fuse Holder Assembly.....	1
			► 379061X	Plastic Wire Tie.....	1

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

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Kits Bill of Materials**Parts List****280/287 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
HYDRAULIC INSTALLATION KITS (Continued)			AIR INSTALLATION KITS		
► 329443-24X	24VDC Installation Kit (KV Gear, D Shift) (280 Series)		► 328388-85X	Installation Kit Air Shift (S Shift) (280 Series)	
► 378881	Rocker Switch	1	SK-427	Installation Sketch	1
► 379005	Indicator Light	1	► 378416	Hex Nipple (.250"-18)	1
► 379252	Electrical Butt Connector	1	► 379042	Male Connector (.250" Tube x .125"-27)	1
► 379257	Electrical Connector	1	► 379044-6	Tubing (.253" x .179" x 30 ft)	3
► 379265	Grommet	1	► 329214X	Air Shifter Valve S Shifter Valve	1
► 379306	Fork Terminal	3	► 380009	Female Connector	1
► 379336	Electrical/Air Shifter Switch Bracket	1	► 378414	Air Shifter Pressure Protection Valve	1
► 379502	Pressure Switch	1	► 379252	Electrical Butt Connector	1
► 379928	Valve & Wire Connector	1	► 379257	Electrical Speed Limiter Connector	2
► 379900	Fuse Holder Assembly	1	► 379265	Grommet w/ Speed Control	1
► 379061X	Plastic Wire Tie	1	► 379502	Pressure Switch	1
			► 379504	Electrical Valve Connector	1
			► 379900	Fuse Holder Assembly	1
329444X	12VDC & 24VDC Installation Kit (KV Gear, EOC K, L Shift) (280 Series)		379665-1	Decal S & T Options	1
► 379252	Electrical Butt Connector	1	► 379061	Plastic Wire Tie	6
► 379257	Electrical Connector	1	► 379305	Pressure Switch	1
► 379265	Grommet	1	379254-17X	Blue Wire	1
► 379502	Pressure Switch	1	► 379306	Electrifies Fork Connector	3
► 379928	Valve Wire & Connector	1			
► 379061X	Plastic Wire Tie	1			
			328388-86X	Installation Kit Air Shift (T Shift) (280 Series)	
► 329445-12X	12VDC Remote Valve Installation Kit (KV Gear, G Shift) (280 Series)		SK-427	Installation Sketch	1
► 329446-12X	Remote Mount Valve Assembly 12VDC	1	► 378416	Hex Nipple (.250"-18)	1
► 378881	Rocker Switch	1	► 379042	Male Connector (.250" Tube x .125"-27)	1
► 378978	12VDC Indicator Light	1	► 379044-6	Tubing (.253" x .179" x 30 ft)	3
► 379252	Electrical Butt Connector	1	► 329214X	Air Shifter Valve T Shifter Air Shifter	1
► 379257	Electrical Connector	1	► 380009	Female Connector	1
► 379265	Grommet	1	► 378414	Air Shifter Pressure Protection Valve	1
► 379306	Electrical Fork Terminal	3	► 379252	Electrical Butt Connector	1
► 379336	Electrical/Air Switch Bracket	1	► 379257	Electrical Speed Limiter Connector	2
► 379502	Pressure Switch	1	► 379265	Grommet w/ Speed Control	1
► 379812	Male Connector (.438"-20)	3	► 379502	Pressure Switch	1
► 379900	Fuse Holder Assembly	1	► 379504	Electrical Valve Connector	1
► 379928	Valve & Wire Connector	1	► 379900	Fuse Holder Assembly	1
► 380010	Female Union SAE Swivel Nut (.438"-20)	1	379665-1	Decal S & T Options	1
► 379700	Swivel Nut Tee (.438"-20)	1	► 379061	Plastic Wire Tie	6
► 379711	Tee (.375"-24 x .438"-20 x .438"-20)	1	► 379305	Pressure Switch	1
			379254-17X	Blue Wire	1
			► 379306	Electrifies Fork Connector	3
► 329445-24X	24VDC Remote Valve Installation Kit (KV Gear, H Shift) (280 Series)				
► 329446-24X	Remote Mount Valve Assembly 24VDC	1			
► 378881	Rocker Switch	1			
► 379005	24VDC Indicator Light	1			
► 379252	Electrical Butt Connector	1			
► 379257	Electrical Connector	1			
► 379265	Grommet	1			
► 379306	Electrical Fork Terminal	3			
► 379336	Electrical/Air Switch Bracket	1			
► 379502	Pressure Switch	1			
► 379812	Male Connector (.438"-20)	3			
► 379900	Fuse Holder Assembly	1			
► 379928	Valve & Wire Connector	1			
► 380010	Female Union SAE Swivel Nut (.438"-20)	1			
► 379700	Swivel Nut Tee (.438"-20)	1			
► 379711	Tee (.375"-24 x .438"-20 x .438"-20)	1			

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

Kits Bill of Materials

Parts List

280/287 Series

Part Number	Description	Qty.	Part Number	Description	Qty.
SHIFTER CONVERSION KITS			SHIFTER CONVERSION KITS		
► 329175-12X	12VDC Conversion Kit EOC (FJ Gear) (280 Series)		329448-12X	12VDC Conversion Kit w/ EOC (KV Gear) (280 Series)	
► 28-P-171	O-ring (.644" x .087").....	1	► 28-P-171	O-ring (.644" x .087").....	1
► 329650X	12VDC Speed Limiter Assembly	1	► 329650X	12VDC Speed Limiter Assembly	1
► 329076X	12VDC & 24VDC w/ EOC Installation Kit.....	1	► 329444X	12VDC & 24VDC w/ EOC Installation Kit.....	1
► 379243	Speed Sensor	1	► 379243	Air Cylinder Cover.....	1
► 329175-24X	24VDC Conversion Kit EOC (FJ Gear) (280 Series)		329448-24X	24VDC Conversion Kit w/ EOC (KV Gear) (280 Series)	
► 28-P-171	O-ring (.644" x .087").....	1	► 28-P-171	O-ring.....	1
► 329650X	24VDC Speed Limiter Assembly	1	► 329650X	EOC Controller	1
► 329076X	12VDC & 24VDC w/ EOC Installation Kit.....	1	► 329444X	EOC Wire Installation Kit.....	1
► 379243	Speed Sensor	1	► 379243	Speed Sensor	1
► 329354-12X	12VDC Conversion Kit Remote Valve (280 Series)		Continued on Next Page		
► 22-P-112	Valve Cap Gasket	1			
► 500457-6	Round Head Slotted Screw (.190"-32 x .438")	2			
► 500357-7	Lock Washer (.337" x .194" x .047")	2			
► 379686-1	12VDC Hydraulic Shifter Solenoid Valve.....	1			
► 379449	Male Connector (.438"-20 x .250"-18)	2			
► 379258	Solenoid Valve Mounting Bracket.....	1			
► 379564-2	Shipping Cap	2			
► 329231X	Valve Connector Wiring Assembly	1			
► 329230X	Electrical Wire & Butt Connector.....	1			
► 328075X	Hose Assembly (36")	1			
► 379700	Swivel Nut Tee (.438"-20)	1			
► 380010	Female SAE Swivel Nut Union (.438"-20)	1			
► 379486	90° Elbow (.438"-20)	1			
► 329403X	Seal Cap Assembly	1			
► 379711	Tee (.375"-24 x .438"-20 x .438"-20").....	1			
► 379131-1	Pipe Reducer Bushing	1			
► SK-432	12VDC Remote Solenoid Installation Kit	1			
► 329057-4X	Hose Assembly (16.75")	2			
► 329354-24X	24VDC Conversion Kit Remote Valve (All) (280 Series)				
► 500457-6	Mounting Screw	2			
► 500357-7	Lock Washer (.194" x .337" x .047")	2			
► 379686-2	24VDC Hydraulic Solenoid Valve.....	1			
► 379449	Screen Adapter	1			
► 379258	Solenoid Valve Mounting Bracket.....	1			
► 379564-2	Cap Thread	2			
► 329231X	Valve Connector Wiring	1			
► 329230X	Electrical Wire & Butt Connector.....	1			
► 328075X	Hose Assembly	1			
► 22-P-112	Gasket.....	1			
► 379700	Tee Female	1			
► 380010	Union Female	1			
► 379486	90° Elbow (.438"-20)	1			
► 329403X	Cap Assembly	1			
► 379711	Female Bracket	1			
► 379131-1	Pipe Reducer Bushing	1			
► SK-432	Installation	1			

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

Kits Bill of Materials**Parts List****280/287 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS			OUTPUT CONVERSION KITS (Continued)		
► 329160-77X	5/16" Conversion Kit (XV to SD) (280 Series)		329160-80X	5/16" Conversion Kit (XD to RK DRY) (280 Series)	
► 3-P-1156	Output Shaft (1.25") Keyed.....	1	► 21-P-772	Bearing Cap	1
► 22-P-101	Gasket.....	1	► 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
► 28-P-119	Oil Seal (1.379" x .875" x .249").....	1	► 21-P-731	Pump Flange.....	1
► 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1	► 329699-1X	Overall Hose Assembly.....	1
► 28-P-285	O-ring (1.612" x .103").....	2	► 329700X	Wet Spline Parts Kit.....	1
► 378447-8	Socket Head Cap Screw (.312"-16 x 1.500")	4	► 329658X	Lockring	1
► 379555	Lockring	2	► 3-P-1126	Output Shaft (7/8" - 13T)	1
► 379746	Lockring	1	► 28-P-285	O-ring (1.597" x .103").....	2
► 378849	Lockring	1	► 379555	Lockring	1
► 22-P-112	Gasket.....	1	► 380069	Lockring	1
► 380069	Lockring	1	► 22-P-101	Gasket.....	2
► 500007-29	Woodruff Key.....	1	► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	3
► 329160-79X	5/16" Conversion Kit (XD to RK DRY) (280 Series)		► 28-P-119	Oil Seal (1.379" x .875" x .250").....	1
► 21-P-767	Bearing Cap	1	► 22-P-112	Gasket.....	1
► 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1	► 378849	Lockring	1
► 21-P-731	Pump Flange.....	1	► 379746	Lockring	1
► 3-P-1126	Output Shaft (7/8" - 13T)	1	► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3
► 28-P-285	O-ring (1.597" x .103").....	4	► 550311	Ball Bearing (1.770" x 3.346" x .748").....	1
► 379555	Lockring	2	► 378263	Lockring	1
► 380069	Lockring	1	329160-81X	5/16" Conversion Kit (XD to BV) (280 Series)	
► 22-P-101	Gasket.....	1	► 378576	Lockring	2
► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	3	► 378849	Lockring	1
► 28-P-119	Oil Seal (1.379" x .875" x .250").....	1	► 378895	Lockring	1
► 22-P-112	Gasket.....	1	► 379746	Lockring	1
► 378849	Lockring	1	► 379977	Spring Pin (.187" x .625")	1
► 379746	Lockring	1	► 380069	Lockring	1
► 379688	Spline Lubricant.....	1	► 380081	1410 Series Companion Flange.....	1
► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3	► 550010	Ball Bearing (1.378" x 2.834" x .669").....	1
► 550311	Ball Bearing (1.770" x 3.346" x .748").....	1	► 21-P-773	Bearing Cap	1
► 378263	Internal Lockring.....	1	► 22-P-101	Gasket.....	2
			► 22-P-112	Gasket.....	1
			► 23-P-68	Drag Brake Bearing Cap Spacer.....	1
			► 28-P-119	Oil Seal (1.379" x .875" x .250").....	1
			► 28-P-212	Oil Seal (2.506" x 1.750" x .315").....	1
			► 28-P-244	O-ring (1.174" x .103").....	4
			► 31-P-113	Thrust Washer (1.385" x 3.125" x .125").....	1
			► 329410X	Brake Assembly	1
			► 378435-7	Hex Head Cap Screw (.625"-11 x 1.250") ..	1
			► 378447-16	Socket Head Cap Screw (.312"-18 x 3.500")	4
			► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	4
			► 37-P-60	Spring (2.531" x 2.130" x .172")	1
			► 3-P-1072	Output Shaft 10T Straight.....	1
			► 4-P-130	Spacer (.640" x 1.620" x .188")	1
			► 4-P-186	Spacer (1.385" x 1.750" x .365")	1
			► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3

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

Kits Bill of Materials

Parts List

280/287 Series

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
▶ 329160-82X	5/16" Conversion Kit (XD to RF DRY) (280 Series)		▶ 329160-84X	5/16" Conversion Kit (XD to RS DRY) (280 Series)	
▶ 3-P-1127	Output Shaft (1" - 15T)	1	▶ 3-P-1066	Output Shaft (1-1/4" - 14T) Lockring.....	1
▶ 22-P-101	Gasket.....	1	▶ 28-P-285	O-ring (1.597" x .103") Lockring	2
▶ 28-P-119	Oil Seal (1.379" x .875" x .250").....	1	▶ 379555	Lockring	2
▶ 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1	▶ 380069	Lockring	1
▶ 28-P-285	O-ring (1.597" x .103").....	2	▶ 21-P-767	Bearing Cap	1
▶ 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	4	▶ 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
▶ 379555	Lockring	2	▶ 21-P-769	Pump Flange.....	1
▶ 379746	Lockring	1	▶ 22-P-101	Gasket.....	1
▶ 378849	Lockring	1	▶ 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	8
▶ 22-P-112	Gasket.....	1	▶ 28-P-119	Oil Seal (1.379" x .875" x .250").....	1
▶ 380069	Lockring	1	▶ 22-P-112	Gasket.....	1
▶ 21-P-767	Bearing Cap	1	▶ 378849	Lockring	1
▶ 21-P-731	Pump Flange.....	1	▶ 379746	Lockring	1
▶ 379688	Spline Lubricant.....	1	▶ 379688	Spline Lubricant.....	1
▶ 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3	▶ 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3
▶ 550311	Ball Bearing (1.770" x 3.346" x .748").....	1	▶ 550311	Ball Bearing (1.770" x 3.346" x .748").....	1
▶ 378263	Internal Lockring.....	1	▶ 378263	Internal Lockring.....	1
▶ 329160-83X	5/16" Conversion Kit (XD to RF WET) (280 Series)		▶ 329160-85X	5/16" Conversion Kit (XD to RS WET) (280 Series)	
▶ 378849	Lockring	1	▶ 3-P-1066	Output Shaft (1-1/4" - 14T).....	1
▶ 379555	Lockring	2	▶ 28-P-285	O-ring (1.597" x .103").....	2
▶ 379746	Lockring	1	▶ 379555	Lockring	2
▶ 380069	Lockring	1	▶ 380069	Lockring	1
▶ 21-P-772	Bearing Cap	1	▶ 21-P-772	Bearing Cap	1
▶ 22-P-101	Gasket.....	1	▶ 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
▶ 22-P-112	Gasket.....	1	▶ 21-P-769	Pump Flange.....	1
▶ 28-P-119	Oil Seal (1.379" x .875" x .250").....	1	▶ 329699-1X	Overall Hose Assembly.....	1
▶ 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1	▶ 329744X	Wet Spline Parts Kit.....	1
▶ 28-P-285	O-ring (1.597" x .103").....	2	▶ 329654X	Cover Kit	1
▶ 21-P-731	Pump Flange.....	1	▶ 22-P-101	Gasket.....	1
▶ 329658X	Cover Kit	1	▶ 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	8
▶ 329699-1X	Overall Hose Assembly.....	1	▶ 28-P-119	Oil Seal (1.379" x .875" x .250").....	1
▶ 329700X	Wet Spline Parts Kit.....	1	▶ 22-P-112	Gasket.....	1
▶ 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	8	▶ 378849	Lockring	1
▶ 3-P-1127	Output Shaft (1" - 15T)	1	▶ 379746	Lockring	1
▶ 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3	▶ 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3
▶ 550311	Ball Bearing (1.770" x 3.346" x .748").....	1	▶ 550311	Ball Bearing (1.770" x 3.346" x .748").....	1
▶ 378263	Internal Lockring.....	1	▶ 378263	Internal Lockring.....	1

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

Kits Bill of Materials**Parts List****280/287 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
► 329160-86X	5/16" Conversion Kit (XD to RY DRY) (280 Series)		► 329160-88X	5/16" Conversion Kit (XD to AB) (280 Series)	
► 3-P-1067	Output Shaft (DIN 8T)	1	► 378849	Lockring	1
► 28-P-285	O-ring (1.597" x .103")	2	► 379555	Lockring	1
► 379555	External Lockring	2	► 379558	DIN 120	1
► 380069	Lockring	1	► 379746	Lockring	1
► 21-P-767	Bearing Cap	1	► 380069	Lockring	1
► 28-P-267	Oil Seal (2.627" x 1.750" x .312")	1	► 380486	Thin Nylon Lock Nut (.875"-14)	1
► 21-P-771	Pump Flange	1	► 22-P-101	Gasket	1
► 22-P-101	Gasket	1	► 22-P-112	Gasket	1
► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	8	► 28-P-119	Oil Seal (1.379" x .875" x .250")	1
► 28-P-119	Oil Seal (1.379" x .875" x .250")	11	► 28-P-211	Oil Seal (3.001" x 2.000" x .375")	1
► 2-P-112	Gasket	1	► 28-P-285	O-ring (1.597" x .103")	2
► 378849	Lockring	1	► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	4
► 379746	Lockring	1	► 380076-13	Hardened Flat Washer (.950" x 1.760")	1
► 379688	Spline Lubricant	1	► 3-P-1065	Output Shaft 10T Straight	1
► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3	► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3
► 550311	Ball Bearing (1.770" x 3.346" x .748")	1			
► 378263	Internal Lockring	1			
► 329160-87X	5/16" Conversion Kit (XD to RY WET) (280 Series)		► 329160-89X	5/16" Conversion Kit (XD to SB) (280 Series)	
► 3-P-1067	Output Shaft (DIN 8T)	1	► 3-P-1161	Output Shaft 10T Straight	1
► 21-P-772	Bearing Cap	1	► 28-P-285	O-ring (1.597" x .103")	2
► 28-P-285	O-ring (1.597" x .103")	2	► 379555	Lockring	1
► 379555	Lockring	2	► 380069	Lockring	1
► 380069	Lockring	1	► 28-P-211	Oil Seal (3.001" x 2.000" x .375")	1
► 28-P-267	Oil Seal (2.627" x 1.750" x .312")	1	► 379558	DIN 120	1
► 21-P-771	Pump Flange	1	► 380076-13	Hardened Flat Washer (.950" x 1.762" x .157")	1
► 329699-1X	Overall Hose Assembly	1	► 380486	Thin Nylon Lock Nut (.875"-14)	1
► 329742X	Wet Spline Loose Parts Kit	1	► 22-P-101	Gasket	1
► 329659X	Cover Kit	1	► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	4
► 22-P-101	Gasket	1	► 28-P-119	Oil Seal (1.379" x .875" x .250")	1
► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	8	► 22-P-112	Gasket	1
► 28-P-119	Oil Seal (1.379" x .875" x .250")	1	► 378849	Lockring	1
► 22-P-112	Gasket	1	► 379746	Lockring	1
► 378849	Lockring	1	► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3
► 379746	Lockring	1			
► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3			
► 550311	Ball Bearing (1.770" x 3.346" x .748")	1			
► 378263	Internal Lockring	1			

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

Kits Bill of Materials**Parts List****280/287 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
► 329160-92X	5/16" Conversion Kit (XD to AC) (280 Series)		► 329160-94X	5/16" Conversion Kit (XD to BD) (280 Series)	
► 378849	Lockring	1	► 378576	Lockring	2
► 379555	Lockring	2	► 378849	Lockring	1
► 379742	DIN 100	1	► 378895	Lockring	1
► 379746	Lockring	1	► 379746	Lockring	1
► 380069	Lockring	1	► 379977	Spring Pin (.187" x .625")	1
► 380486	Thin Nylon Lock Nut (.875"-14)	1	► 380069	Lockring	1
► 22-P-101	Gasket	1	► 550010	Ball Bearing (1.378" x 2.834" x .669")	1
► 22-P-112	Gasket	1	► 21-P-691	Drag Brake Bearing Cap	1
► 28-P-119	Oil Seal (1.379" x .875" x .250")	1	► 22-P-101	Gasket	2
► 28-P-211	Oil Seal (3.001" x 2.000" x .375")	1	► 22-P-112	Valve Gasket	1
► 28-P-285	O-ring (1.597" x .103")	2	► 23-P-68	Drag Brake Bearing Cap Spacer	1
► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	4	► 28-P-119	Oil Seal (1.379" x .875" x .250")	1
► 380076-13	Hardened Flat Washer (.950" x .176")	1	► 28-P-225	Oil Seal (2.004" x 1.375" x .315")	1
► 3-P-1065	Output Shaft 10T Straight	1	► 28-P-244	O-ring (1.174" x .103")	4
► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3	► 31-P-113	Thrust Washer (1.385" x 3.125" x .125")	1
► 550311	Ball Bearing (1.770" x 3.346" x .748")	1	► 329410X	Brake Assembly	1
► 378263	Internal Lockring	1	► 378447-16	Socket Head Cap Screw (.312"-18 x 3.500")	4
► 329160-93X	5/16" Conversion Kit (XD to SC) (280 Series)		► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	4
► 3-P-1161	Output Shaft 10T Straight	1	► 37-P-60	Spring (2.531" x 2.130" x .172")	1
► 28-P-285	O-ring (1.597" x .103")	2	► 3-P-1141	Output Shaft (1.250) Keyed	1
► 379555	Lockring	2	► 4-P-186	Spacer (1.385" x 1.750" x .365")	1
► 380069	Lockring	1	► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3
► 28-P-211	Oil Seal (3.001" x 2.000" x .375")	1	► 329160-95X	5/16" Conversion Kit (XD to RZ DRY) (280 Series)	
► 379742	DIN 100	1	► 3-P-1066	Output Shaft (1-1/4" - 14T)	1
► 380076-13	Hardened Flat Washer (.950" x 1.762" x .157")	1	► 28-P-285	O-ring (1.597" x .103")	2
► 380486	Thin Nylon Lock Nut (.875"-14)	1	► 379555	Lockring	2
► 22-P-101	Gasket	1	► 380069	Lockring	1
► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	4	► 21-P-767	Bearing Cap	1
► 28-P-119	Oil Seal (1.379" x .875" x .250")	1	► 28-P-267	Oil Seal (2.627" x 1.750" x .312")	1
► 22-P-112	Valve Gasket	1	► 21-P-731	Pump Flange	1
► 378849	Lockring	1	► 22-P-101	Gasket	1
► 379746	Lockring	1	► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	8
► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3	► 28-P-119	Oil Seal (1.379" x .875" x .250")	1
► 550311	Ball Bearing (1.770" x 3.346" x .748")	1	► 22-P-112	Gasket	1
► 378263	Lockring	1	► 378849	Lockring	1
			► 379746	Lockring	1
			► 379688	Spline Lubricant	1
			► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3
			► 550311	Ball Bearing (1.770" x 3.346" x .748")	1
			► 378263	Internal Lockring	1

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

Kits Bill of Materials**Parts List****280/287 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
► 329160-96X	5/16" Conversion Kit (XD to RZ WET) (280 Series)		► 329160-117X	5/16" Conversion Kit (XD to SV) (280 Series)	
► 3-P-1066	Output Shaft (1-1/4" - 14T).....	1	► 3-P-1161	Output Shaft.....	1
► 28-P-285	O-ring (1.597" x .103").....	2	► 28-P-285	O-ring (1.597" x .103").....	2
► 379555	Lockring	2	► 379555	Lockring	2
► 380069	Lockring	1	► 380069	Lockring	1
► 21-P-772	Bearing Cap	1	► 28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1
► 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1	► 380076-13	Hardened Flat Washer (.950" x 1.000")	1
► 21-P-731	Pump Flange	1	► 380486	Thin Nylon Lock Nut (.875"-14).....	1
► 329699-1X	Overall Hose Assembly	1	► 22-P-101	Gasket.....	1
► 329700X	Wet Spline Parts Kit.....	1	► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	4
► 329658X	Cover Kit	1	► 28-P-119	Oil Seal (1.379" x .875" x .250").....	1
► 22-P-101	Gasket.....	1	► 22-P-112	Valve Gasket	1
► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	8	► 378849	Lockring	1
► 28-P-119	Oil Seal (3.001" x 2.000" x .375").....	1	► 379746	Lockring	1
► 22-P-112	Gasket.....	1	► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3
► 378849	Lockring	1	► 550311	Ball Bearing (1.770" x 3.346" x .748").....	1
► 379746	Lockring	1	► 378263	Lockring	1
► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3			
► 550311	Ball Bearing (1.770" x 3.346" x .748").....	1	► 329160-119X	3/8" Conversion Kit (XD to SD) (280 Series)	
► 378263	Internal Lockring	1	► 3-P-1156	Output Shaft.....	1
			► 22-P-151	Gasket Shim.....	1
► 329160-97X	5/16" Conversion Kit (XD to XV) (280 Series)		► 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
► 3-P-1065	Output Shaft 10T Straight.....	1	► 28-P-285	O-ring (1.597" x .103").....	2
► 28-P-285	O-ring (1.597" x .103").....	2	► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4
► 379555	Lockring	2	► 379555	Lockring	2
► 380069	Lockring	1	► 379746	Lockring	1
► 28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1	► 380069	Lockring	1
► 380076-13	Hardened Flat Washer (.950" x 1.762" x .157")	1	► 500007-29	Woodruff Key.....	1
► 380486	Thin Nylon Lock Nut (.875"-14).....	1			
► 380503	1410 Series Companion Flange.....	1	► 329160-120X	3/8" Conversion Kit (XD to SV) (280 Series)	
► 22-P-101	Gasket.....	1	► 3-P-1161	Output Shaft 10T Straight.....	1
► 378447-8	Socket Head Cap Screw (.312"-18 x 1.500")	4	► 22-P-151	Gasket Shim.....	1
► 28-P-119	Oil Seal (1.379" x .875" x .250").....	1	► 28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1
► 22-P-112	Gasket.....	1	► 28-P-285	O-ring (1.597" x .103").....	2
► 378849	Lockring	1	► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	2
► 379746	Lockring	1	► 379555	Lockring	2
► 378447-6	Socket Head Cap Screw (.312"-18 x 1.000")	3	► 379746	Lockring	1
► 550311	Ball Bearing (1.770" x 3.346" x .748").....	1	► 380069	Lockring	1
► 378263	Lockring	1	► 380076-13	Hardened Flat Washer (.950" x 1.762" x .157")	1

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

Kits Bill of Materials

Parts List

280/287 Series

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
► 329160-121X	3/8" Conversion Kit (XD to RK DRY) (280 Series)		► 329160-123X	3/8" Conversion Kit (XD to BV) (280 Series)	
► 21-P-882	Bearing Cap	1	► 378576	Lockring	2
► 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1	► 378895	Lockring	1
► 21-P-731	Pump Flange	1	► 379746	Lockring	1
► 3-P-1126	Output Shaft (7/8" - 13T).....	1	► 379977	Spring Pin (.187" x .625")	1
► 28-P-285	O-ring (1.597" x .103").....	2	► 380069	Lockring	1
► 379555	Lockring	2	► 380081	1410 Series Companion Flange.....	1
► 380069	Lockring	1	► 550010	Ball Bearing (1.378" x 2.834" x .669").....	1
► 22-P-151	Bearing Cap Gasket	1	► 21-P-884	Bearing Cap	1
► 328170-216X	Cap Screw Kit	1	► 22-P-151	Bearing Cap Gasket	2
► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4	► 23-P-73	Drag Brake Bearing Cap Spacer	1
► 379746	Lockring	1	► 28-P-212	Oil Seal (2.506" x 1.750" x .315").....	1
► 379688	Spline Lubricant.....	1	► 28-P-244	O-ring (1.174" x .103").....	4
► 550311	Ball Bearing (1.770" x 3.346" x .748").....	1	► 31-P-113	Thrust Washer (1.385" x 3.125" x .125").....	1
► 378263	Lockring	1	► 329410X	Brake Assembly	1
► 329160-122X	3/8" Conversion Kit (XD to RK Wet) (280 Series)		► 378435-7	Hex Head Cap Screw (.625"-11 x 1.250") ..	1
► 21-P-883	Bearing Cap	1	► 380563-28	Hex Flange Head Cap Screw (.375"-16 x 3.500")	4
► 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1	► 328170-216X	Cap Screw Kit	1
► 21-P-731	Pump Flange	1	► 37-P-60	Spring (2.531" x 2.130" x .172")	1
► 329699-1X	Hose Assembly	1	► 3-P-1072	Output Shaft 10T Straight.....	1
► 329700X	Wet Spline Parts Kit.....	1	► 4-P-130	Spacer (.640" x 1.620" x .188")	1
► 329658X	Cover Kit	1	► 4-P-186	Spacer (1.385" x 1.750" x .365")	1
► 3-P-1126	Output Shaft (7/8" - 13T).....	1	► 329160-124X	3/8" Conversion Kit (XD to RF DRY) (280 Series)	
► 28-P-285	O-ring (1.597" x .103").....	2	► 3-P-1127	Output Shaft (1" - 15T)	1
► 379555	Lockring	2	► 22-P-151	Bearing Cap Gasket	1
► 380069	Lockring	1	► 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
► 22-P-151	Bearing Cap Gasket	1	► 28-P-285	O-ring (1.597" x .103").....	2
► 328170-216X	Cap Screw Kit	1	► 328170-216X	Cap Screw Kit	1
► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4	► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4
► 379746	Lockring	1	► 379555	Lockring	2
► 550311	Ball Bearing (1.770" x 3.346" x .748").....	1	► 379746	Lockring	1
► 378263	Lockring	1	► 380069	Lockring	1
			► 21-P-882	Bearing Cap	1
			► 21-P-731	Pump Flange	1
			► 379688	Spline Lubricant.....	1
			► 550311	Ball Bearing (1.770" x 3.346" x .748").....	1
			► 378263	Internal Lockring	1

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

Kits Bill of Materials**Parts List****280/287 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
► 329160-125X	3/8" Conversion Kit (XD to RF WET) (280 Series)		► 329160-128X	3/8" Conversion Kit (XD to RY DRY) (280 Series)	
► 379555	Lockring	2	► 3-P-1067	Output Shaft (DIN 8T)	1
► 379746	Lockring	1	► 28-P-285	O-ring (1.597" x .103")	2
► 380069	Lockring	1	► 379555	Lockring	2
► 21-P-883	Bearing Cap	1	► 380069	Lockring	1
► 22-P-151	Bearing Cap Gasket	1	► 21-P-882	Bearing Cap	1
► 28-P-267	Oil Seal (2.627" x 1.750" x .312")	1	► 28-P-267	Oil Seal (2.627" x 1.750" x .312")	1
► 28-P-285	O-ring (1.597" x .103")	2	► 21-P-771	Pump Flange	1
► 21-P-731	Pump Flange	1	► 22-P-151	Bearing Cap Gasket	1
► 329658X	Cover Kit	1	► 328170-216X	Cap Screw Kit	1
► 329699-1X	Overall Hose Assembly	1	► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4
► 329700X	Wet Spline Parts Kit	1	► 379746	Lockring	1
► 328170-216X	Cap Screw Kit	1	► 379688	Spline Lubricant	1
► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4	► 550311	Ball Bearing (1.770" x 3.346" x .748")	1
► 3-P-1127	Output Shaft (1" - 15T)	1	► 378263	Internal Lockring	1
► 550311	Ball Bearing (1.770" x 3.346" x .748")	1			
► 378263	Internal Lockring	1			
► 329160-126X	3/8" Conversion Kit (XD to RS DRY) (280 Series)		► 329160-129X	3/8" Conversion Kit (XD to RY WET) (280 Series)	
► 3-P-1166	Output Shaft (1-1/4" - 14T)	1	► 379746	Lockring	1
► 28-P-285	O-ring (1.597" x .103")	2	► 550311	Ball Bearing (1.770" x 3.346" x .748")	1
► 379555	Lockring	1	► 378263	Internal Lockring	1
► 380069	Lockring	1	► 3-P-1067	Output Shaft (DIN 8T)	1
► 21-P-882	Bearing Cap	1	► 21-P-883	Bearing Cap	1
► 28-P-267	Oil Seal (2.627" x 1.750" x .312")	1	► 28-P-285	O-ring (1.597" x .103")	2
► 328170-216X	Cap Screw Kit	1	► 379555	Lockring	2
► 21-P-769	Pump Flange	1	► 380069	Lockring	1
► 22-P-151	Bearing Cap Gasket	1	► 28-P-267	Oil Seal (2.627" x 1.750" x .312")	1
► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4	► 21-P-771	Pump Flange	1
► 379746	Lockring	1	► 329699-1X	Overall Hose Assembly	1
► 379688	Spline Lubricant	1	► 329742X	Wet Spline Loose Parts Kit	1
► 550311	Ball Bearing (1.770" x 3.346" x .748")	1	► 329659X	Cover Kit	1
► 378263	Internal Lockring	1	► 22-P-151	Bearing Cap Gasket	1
			► 328170-216X	Cap Screw Kit	1
			► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4
► 329160-127X	3/8" Conversion Kit (XD to RS WET) (280 Series)		► 329160-130X	3/8" Conversion Kit (XD to AB) (280 Series)	
► 3-P-1066	Output Shaft (1-1/4" - 14T)	1	► 379555	Lockring	2
► 28-P-285	O-ring (1.597" x .103")	2	► 379558	DIN 120	1
► 379555	Lockring	1	► 379746	Lockring	1
► 380069	Lockring	1	► 380069	Lockring	1
► 21-P-883	Bearing Cap	1	► 380486	Thin Nylon Lock Nut (.875"-14)	1
► 28-P-267	Oil Seal (2.627" x 1.750" x .312")	1	► 22-P-151	Bearing Cap Gasket	1
► 328170-216X	Cap Screw Kit	1	► 28-P-211	Oil Seal (3.001" x 2.000" x .375")	1
► 21-P-769	Pump Flange	1	► 28-P-285	O-ring (1.597" x .103")	2
► 329699-1X	Overall Hose Assembly	1	► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4
► 329744X	Wet Spline Parts Kit	1	► 380076-13	Hardened Flat Washer (.950" x 1.762" x .157")	1
► 329654X	Cover Kit	1	► 3-P-1065	Output Shaft 10T Straight	1
► 22-P-151	Bearing Cap Gasket	1	► 550311	Ball Bearing (1.770" x 3.346" x .748")	1
► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4	► 378263	Internal Lockring	1
► 379746	Lockring	1			
► 550311	Ball Bearing (1.770" x 3.346" x .748")	1			
► 378263	Internal Lockring	1			

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

Kits Bill of Materials**Parts List****280/287 Series**

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
329160-131X	3/8" Conversion Kit (XD to AB) (280 Series)		329160-134X	3/8" Conversion Kit (XD to AC) (280 Series)	
► 3-P-1161	Output Shaft 10T Straight.....	1	► 379555	Lockring	2
► 28-P-285	O-ring (1.597" x .103").....	2	► 379742	DIN 100.....	1
► 379555	Lockring	1	► 379746	Lockring	1
► 380069	Lockring	1	► 380069	Lockring	1
► 28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1	► 380486	Thin Nylon Lock Nut (.875"-14).....	1
► 379558	DIN 120.....	1	► 22-P-151	Bearing Cap Gasket	1
► 380076-13	Hardened Flat Washer (.950" x 1.762" x .157")	1	► 28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1
► 380486	Thin Nylon Lock Nut (.875"-14).....	1	► 28-P-285	O-ring (1.597" x .103").....	2
► 22-P-151	Bearing Cap Gasket	1	► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4
► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4	► 380076-13	Hardened Flat Washer (.950" x 1.762" x .157")	1
► 379746	Lockring	1	► 3-P-1065	Output Shaft 10T Straight.....	1
			► 550311	Ball Bearing (1.770" x 3.346" x .748").....	1
			► 378263	Internal Lockring.....	1
329160-132X	3/8" Conversion Kit (XD to UN DRY) (280 Series)		329160-135X	3/8" Conversion Kit (XD to SC) (280 Series)	
3-P-1129	Output Shaft (DIN 6T)	1	► 3-P-1161	Output Shaft 10T Straight.....	1
► 28-P-285	O-ring (1.597" x .103").....	2	► 28-P-285	O-ring (1.597" x .103").....	2
► 380069	Lockring	1	► 379555	Lockring	2
21-P-832	Bearing Cap	1	► 380069	Lockring	1
► 550010	Ball Bearing (1.378" x 2.834" x .669").....	1	► 28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1
► 378895	Lockring	1	► 379742	DIN 100.....	1
► 378576	Lockring	1	► 380076-13	Hardened Flat Washer (.950" x 1.762" x .157")	1
► 28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1	► 380486	Thin Nylon Lock Nut (.875"-14).....	1
► 22-P-151	Shim Gasket.....	1	► 22-P-151	Bearing Cap Gasket	1
► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4	► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4
► 379746	Lockring	1	► 379746	Lockring	1
► 379688	Spline Lubricant.....	1	► 550311	Ball Bearing (1.770" x 3.346" x .748").....	1
			► 378263	Lockring	1
329160-133X	3/8" Conversion Kit (XD to UN WET) (280 Series)		329160-136X	3/8" Conversion Kit (XD to BD) (280 Series)	
3-P-1129	Output Shaft (DIN 6T)	1	► 378576	Lockring	2
► 28-P-285	O-ring (1.597" x .103").....	2	► 378895	Lockring	1
► 380069	Lockring	1	► 379746	Lockring	1
21-P-833	Bearing Cap	1	► 379977	Spring Pin (.187" x .625")	1
► 550010	Ball Bearing (1.378" x 2.834" x .669").....	1	► 380069	Lockring	1
► 378895	Lockring	1	► 550010	Ball Bearing (1.378" x 2.834" x .669").....	1
► 378576	Lockring	1	► 21-P-888	Drag Brake Bearing Cap	1
► 28-P-216	Oil Seal (2.004" x 1.250" x .374").....	1	► 22-P-151	Bearing Cap Gasket	2
► 329699-1X	Hose Assembly	1	► 23-P-73	Drag Brake Bearing Cap Spacer	1
329821X	Wet Spline Parts Kit.....	1	► 28-P-225	Oil Seal (2.004" x 1.375" x .315").....	1
► 22-P-151	Shim Gasket.....	1	► 28-P-244	O-ring (1.174" x .103").....	4
► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4	► 31-P-113	Thrust Washer (1.385" x 3.125" x .125").....	1
► 379746	Lockring	1	► 329410X	Brake Assembly	1
			► 380563-28	Hex Flange Head Cap Screw (.375"-16 x 3.500")	4
			► 328170-216X	Cap Screw Kit	1
			► 37-P-60	Spring (2.531" x 2.130" x .172")	1
			► 3-P-1141	Output Shaft (1.250") Keyed.....	1
			► 4-P-186	Spacer (1.385" x 1.750" x .365")	1

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

Kits Bill of Materials

Parts List

280/287 Series

Part Number	Description	Qty.	Part Number	Description	Qty.
OUTPUT CONVERSION KITS (Continued)			OUTPUT CONVERSION KITS (Continued)		
► 329160-137X	3/8" Conversion Kit (XD to RZ DRY) (280 Series)		329160-149X	3/8" Conversion Kit (XD to RB DRY) (280 Series)	
► 3-P-1066	Output Shaft (1-1/4" - 14T).....	1	► 21-P-882	Bearing Cap	1
► 28-P-285	O-ring (1.597" x .103").....	2	► 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
► 379555	Lockring	2	► 21-P-894	Pump Flange.....	1
► 380069	Lockring	1	► 3-P-1126	Output Shaft (7/8" - 13T)	1
► 21-P-882	Bearing Cap	1	► 28-P-285	O-ring (1.597" x .103").....	2
► 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1	► 379555	Lockring	2
► 21-P-731	Pump Flange.....	1	► 380069	Lockring	1
► 22-P-151	Bearing Cap Gasket	1	► 22-P-151	Shim Gasket.....	1
► 328170-216X	Cap Screw Kit	1	► 328170-216X	Bag Kit	1
► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4	► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4
► 379746	Lockring	1	► 379746	Lockring	1
► 379688	Spline Lubricant.....	1	► 379688	Spline Lubricant.....	1
► 550311	Ball Bearing (1.770" x 3.346" x .748")	1	► 550311	Ball Bearing (1.770" x 3.346" x .748")	1
► 378263	Internal Lockring	1	► 378263	Lockring	1
329160-138X	3/8" Conversion Kit (XD to RZ WET) (280 Series)		329160-150X	3/8" Conversion Kit (XD to RB WET) (280 Series)	
► 3-P-1066	Output Shaft (1-1/4" - 14T).....	1	► 21-P-894	Pump Flange.....	1
► 28-P-285	O-ring (1.597" x .103").....	2	► 21-P-883	Bearing Cap (Wet Spline).....	1
► 379555	Lockring	2	► 22-P-151	Shim Gasket.....	1
► 380069	Lockring	1	► 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1
► 21-P-883	Bearing Cap	1	► 28-P-285	O-ring (1.597" x .103").....	2
► 28-P-267	Oil Seal (2.627" x 1.750" x .312").....	1	► 328170-216X	Bag Kit	1
► 21-P-731	Pump Flange.....	1	► 329658X	Cover Kit	1
► 329699-1X	Overall Hose Assembly.....	1	► 378263	Lockring	1
► 329700X	Wet Spline Parts Kit.....	1	► 379555	Lockring	2
► 329658X	Cover Kit	1	► 379746	Lockring	1
► 22-P-151	Bearing Cap Gasket	1	► 380069	Lockring	1
► 328170-216X	Cap Screw Kit	1	► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4
► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4	► 3-P-1126	Output Shaft (7/8" - 13T)	1
► 379746	Lockring	1	► 550311	Ball Bearing (1.770" x 3.346" x .748")	1
► 550311	Ball Bearing (1.770" x 3.346" x .748")	1	► 329959X	Wet Spline Parts Kit.....	1
► 378263	Internal Lockring	1	► 329699-1X	Hose Assembly	1
► 329160-139X	3/8" Conversion Kit (XD to XV) (280 Series)				
► 3-P-1065	Output Shaft 10T Straight.....	1			
► 28-P-285	O-ring (1.597" x .103").....	2			
► 379555	Lockring	2			
► 380069	Lockring	1			
► 28-P-211	Oil Seal (3.001" x 2.000" x .375").....	1			
► 380076-13	Hardened Flat Washer (.950" x 1.762" x .157")	1			
► 380486	Thin Nylon Lock Nut (.875"-14).....	1			
► 380503	1410 Series Companion Flange.....	1			
► 22-P-151	Bearing Cap Gasket	1			
► 380563-14	Hex Flange Head Cap Screw (.375"-16 x 1.500")	4			
► 379746	Lockring	1			
► 550311	Ball Bearing (1.770" x 3.346" x .748")	1			
► 378263	Lockring	1			

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

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.

This image shows a full page of blank, lined paper. It features approximately 20 evenly spaced horizontal blue or grey lines across its entire width, typical of notebook paper. The lines are uniform in thickness and spacing, providing a guide for writing. There are no margins, text, or other markings on the page.

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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

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Offer of Sale (Continued)

REPRESENTATION, PERTAINING TO PRODUCTS. SELLER DISCLAIMS ALL OTHER WARRANTIES, CONDITIONS, 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

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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

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 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



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