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ProGear AND TRANSMISSION

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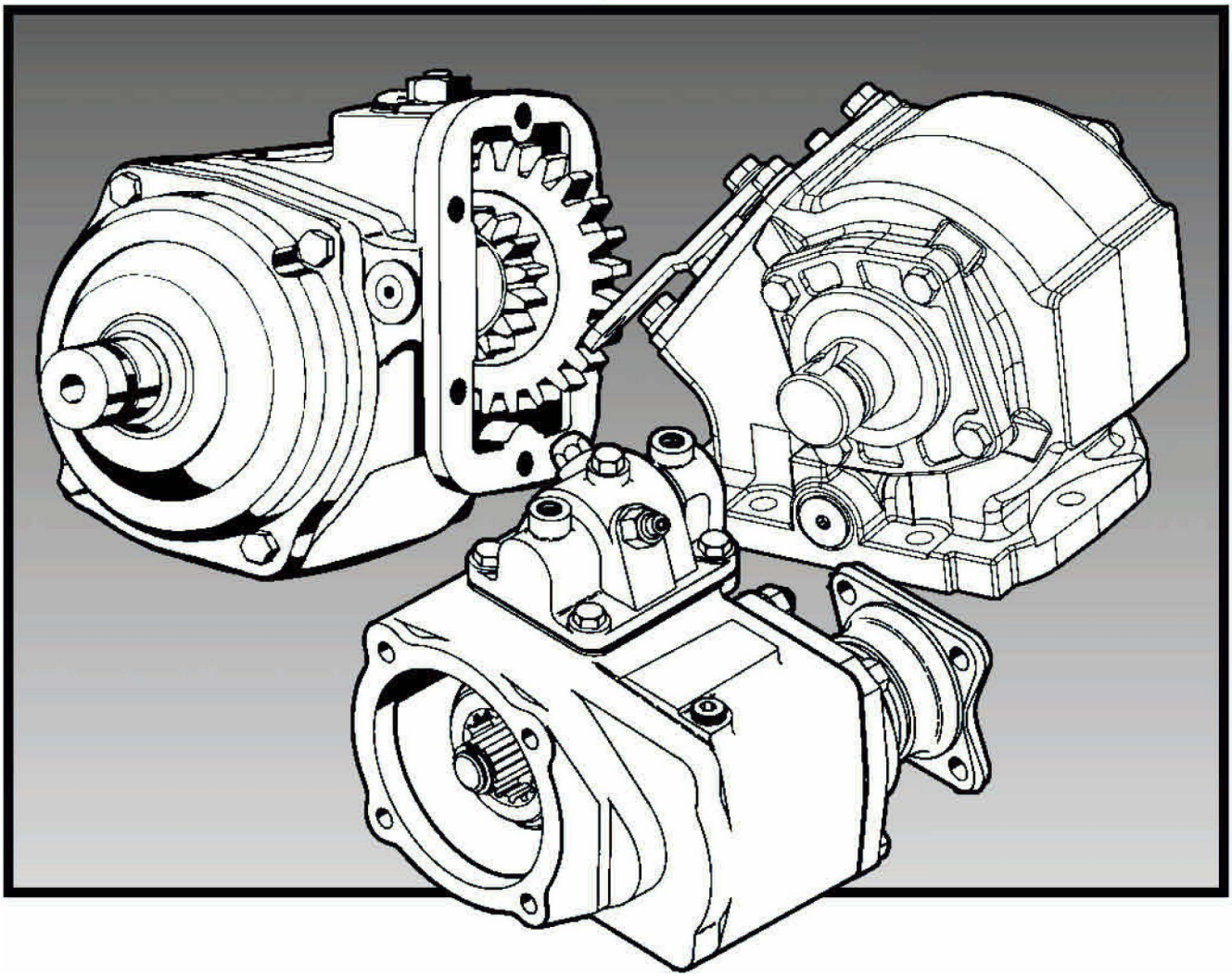
(877) 776-4600 or (407) 872-1901 parts@eprogear.com

Bulletin HY25-2277-M1/US

CHELSEA®

Replacement Parts List 277/278 Series Manual

Effective: February 15, 2002
Supersedes: HY25-2277-M1/US December, 2001



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Chelsea Products Division
Olive Branch, MS 38654 USA

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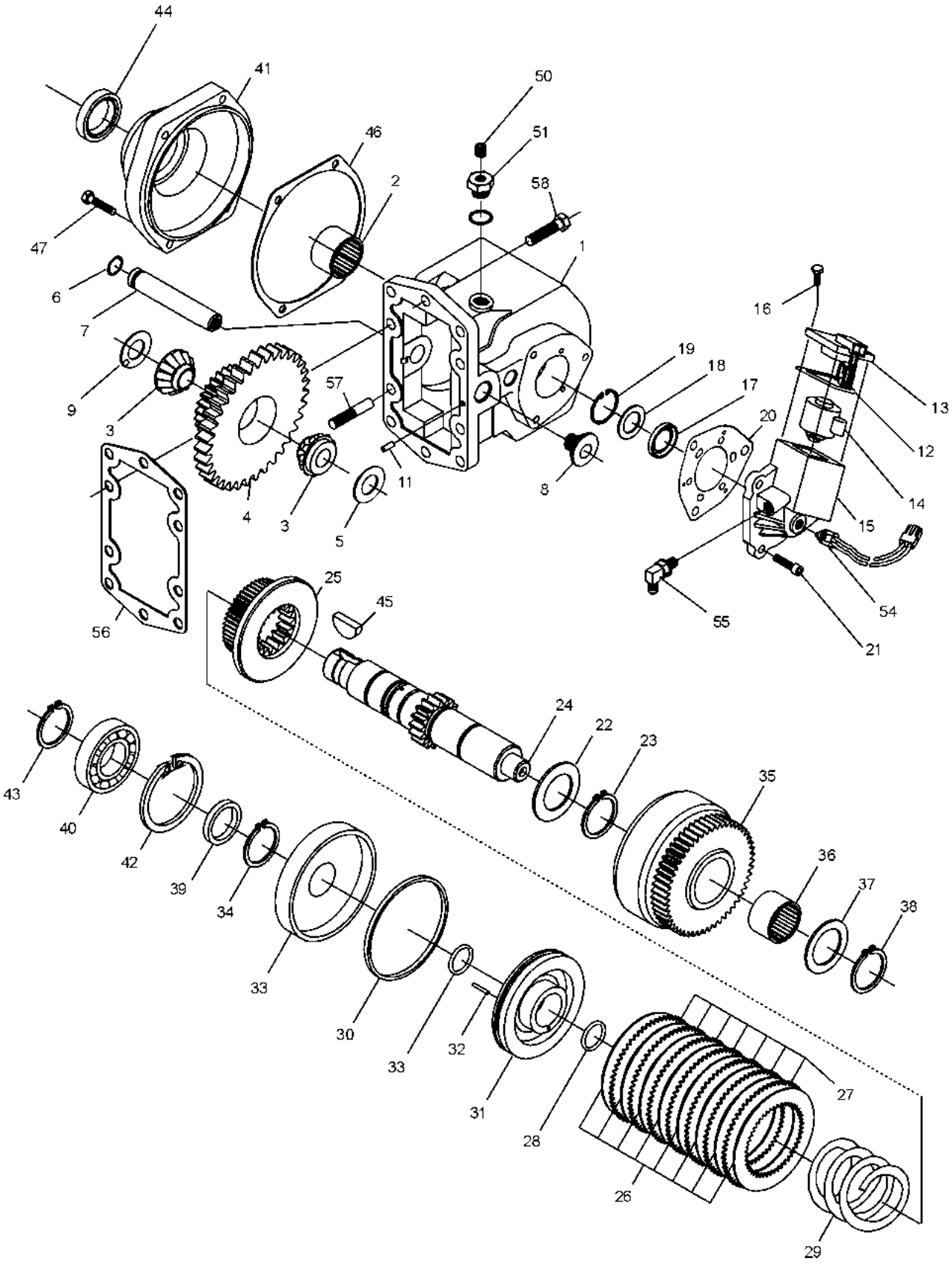

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Item		Part Number	Description	Quantity
1		**1-P-554X**	Housing Ass'y 5, includes item 11	1
2	▶	**560972**	Needle Bearing	1
3	▶	**550439**	Tapered Bearing Cone	2
4		**See Chart Pg. 4**	Input Gear	1
5		**14-P-74-1**	Spacers (.112 - .114)	A.R.
		14-P-74-2	Spacers (.115 - .117)	A.R.
		14-P-74-3	Spacers (.118 - .120)	A.R.
		14-P-74-4	Spacers (.121 - .123)	A.R.
		14-P-74-5	Spacers (.124 - .126)	A.R.
6	▶	**28-P-191**	O-Ring	1
7	▶	**9-P-91**	Idler Shaft, Pressure Lube	1
8	▶	**379672**	NWD Plug	1
9	▶	**9-P-102**	Thrust Washer	1
11	▶	**500597-16**	Slotted Pin	1
	▶	**329145-12X**	Valve And Valve Cap Assembly (12 Volt)	1
	▶	**329145-24X**	Valve And Valve Cap Assembly (24 Volt)	1
			Assemblies include items 12 thru 19	
12	▶	**28-P-193**	Block Ring	1
13	▶	**329144X**	Valve Cap Assembly (12 Volt)	1
		329144-1X	Valve Cap Assembly (24 Volt)	1
14	▶	**379604-1**	Solenoid Valve (12 Volt)	1
	▶	**379604-2**	Solenoid Valve (24 Volt)	
15	▶	**34-P-123**	Valve Cap	1
16	▶	**379565**	Hex Capscrew (.250"-20 x .750")	4
17	▶	**28-P-119**	Oil Seal	1
18	▶	**378811**	Washer	1
19	▶	**378849**	Retaining Ring	1
20	▶	**22-P-112**	Gasket, Valve Cap	1
21	▶	**378447-6**	Socket Head Capscrew (.312"-18 x 1.000")	3
		See Chart Pg. 4	Output Shaft & Clutch Assembly	
			(Includes items 22 thru 34)	
22	▶	**14-P-49**	Spacer	1
23	▶	**379746**	Retaining Ring	1
24		**See Chart Pg. 4**	Output Shaft	1
25	▶	**2-P-458**	Clutch Gear	1
26	▶	**379485**	Friction Disc	8
27	▶	**379595**	Clutch Plate	7
28	▶	**28-P-244**	O-Ring	2
29	▶	**37-P-39**	Return Spring	1
		328895X	Piston & Cylinder Assembly (Includes items 30-32)	
30	▶	**28-P-121**	Block Vee Ring	1
	▶	**328676X**	Piston Assembly (Includes items 31 and 32)	
31		**379133**	Piston	1
32	▶	**378856**	Wiggler Wire	1
33		**378760**	Clutch Back Up Cylinder	1
34	▶	**378576**	Retaining Ring	1
			Output Gear Assembly (Includes items 35 and 36)	
	▶	**329005-1X / 6X**	"B" Ratio / "B" Ratio Super Torque	
	▶	**329005-2X / 7X**	"D" Ratio / "D" Ratio Super Torque	
	▶	**329005-3X / 8X**	"G" Ratio / "G" Ratio Super Torque	
	▶	**329005-4X / 9X**	"M" Ratio / "M" Ratio Super Torque	
	▶	**329005-5X / 10X**	"S" Ratio / "S" Ratio Super Torque	
35		**See Chart Pg. 4**	Output Gear	1
36	▶	**560972**	Needle Bearing	1
37	▶	**31-P-70**	Thrust Washer	1
38	▶	**379746**	Retaining Ring	1
39	▶	**4-P-147**	Spacer, Drive Shaft	1
40	▶	**550010**	Ball Bearing	1

A.R.—As Required

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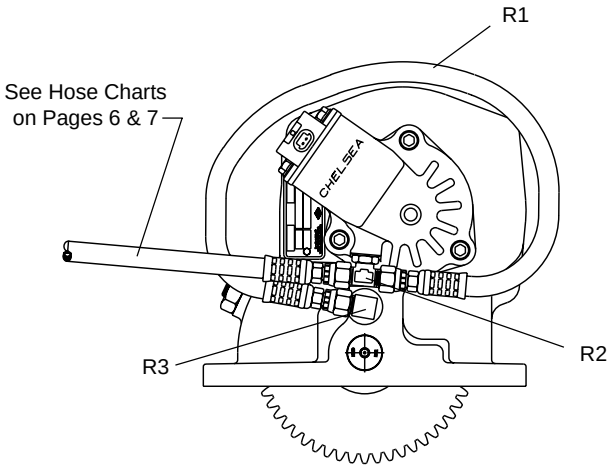
Item		Part Number	Description	Quantity
41		See Chart Pg. 4	Bearing Cap/Pump Flange	1
42	▶	378895	Retaining Ring	1
		Pressure Lube Option "P"		
43	▶	378576	Retaining Ring	1
44	▶	28-P-225	Oil Seal	1
45	▶	500007-29	Woodruff Key	1
46		22-P-101	Gasket, Bearing Cap	1
47	▶	378447-8	Socket Head Capscrew (.312"-18 x 1.500")	4
48	▶	379659	Run Tee, Pressure Lube Only	1
49		379660	Steel Tubing, Pressure Lube Only	1
50	▶	379231	Pipe Plug .125"-27 NPTF, w/o E.O.C. Only	1
51	▶	379242	O-Ring Boss Plug, w/o E.O.C. Only	1
52	▶	28-P-171	O-Ring, w/ E.O.C. Only	1
53	▶	379243	Speed Sensor, w/ E.O.C. Only	1
54	▶	379502	Pressure Switch Assembly	1
55	▶	379486	Straight Thread Connector 90 degrees, w/o Pressure Lube	1
56	▶	35-P-74	Mounting Gasket	1
		7170-86X	Stud Kit	1
57	▶	379451	Guide Screw	2
58	▶	379453-10	Ferry Capscrew (M10-1.5 x 35mm)	8
N.S.		379486	90° Elbow Fitting w/O-Ring (Transmission High Pressure)	1
		Lube Option "R" Valve Cap Rotated 120°		
R1		329130-3X	Hose Connector	1
R2		379556	Straight Thread O-Ring Connector Tee	1
R3		379486	Straight Thread 90° Elbow	1

N.S. — Not Shown

277X***R-*5**



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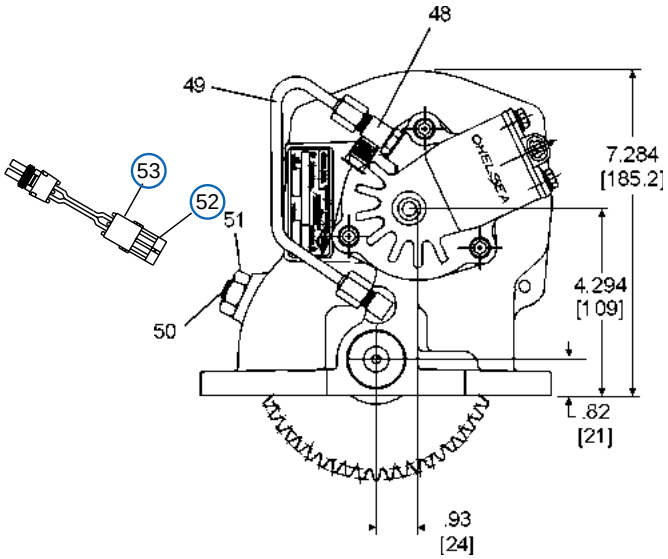

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Item	Part Number	Description	Quantity
		PARTS SHIPPED LOOSE	
	379486	90° O-Ring Connector	1
	328748X	Pump Mounting Kit, For "XR" Pump Only	1
	328948-9X	Gasket & Installation Instructions	1
	329024-12X	Installation Kit 12V, Less E.O.C.	1
	329024-24X	Installation Kit 24V, Less E.O.C.	1
	329076X	Installation Kit 12V, With E.O.C.	1
	328924-12X	Control Box 12V, With E.O.C.	1
	328924-24X	Control Box 24V, With E.O.C.	1
	329327-12X	Installation Kit 12V, Remote Valve Less E.O.C.	1
	329327-24X	Installation Kit 24V, Remote Valve Less E.O.C.	1
		SERVICE KITS	
	329071-19X	Gasket & Seal Kit	1
	329071-33X	Gasket & Seal Kit ("XY" Output Only)	1
	329071-5X	Bearing Kit	1
	329071-7X	Clutch Repair Kit	1
	329175-12X	E.O.C. Field Conversion Kit 12V, Remote Valve	1
	329175-24X	E.O.C. Field Conversion Kit 24V, Remote Valve	1
	329240-12X	Conversion Kit 12V, Remote Valve	1
	329240-24X	Conversion Kit 24V, Remote Valve	1

Gear Chart

Model Number	Input Gear Part Number Item No. 4	Number Teeth Lg/Sm	Output Gear Item No. 35		Gear & Bearing Sub-assembly Items 35 & 36
			Part Number	Number Teeth	
277XBFJ	5-P-912	▶ 25	2-P-688	47	329005-1X
277XDFJ	5-P-913	▶ 28	2-P-684	44	329005-2X
277XGFJ	5-P-914	▶ 31	2-P-683	41	329005-3X
277XMFJ	5-P-915	▶ 35	2-P-682	37	329005-4X
277XSFJ	5-P-1173	▶ 39	2-P-756	33	329005-5X
SUPER TORQUE™					
277SBFJ	5-P-1350	▶ 25	2-P-800	47	329005-6X
277SDFJ	5-P-1293	▶ 28	2-P-790	44	329005-7X
277SGFJ	5-P-1225	▶ 31	2-P-779	41	329005-8X
277SMFJ	5-P-1351	▶ 35	2-P-801	37	329005-9X
277SSFJ	5-P-1278	39	2-P-789	33	329005-10X

Output Shaft Chart

Model Number	Output Shaft Item No. 24	Output Shaft & Clutch Assy No.	Bearing Cap/Pump Flange Item No. 41	Oil Seal Item No. 44	Pump Flange
277*-***XD	3-P-831	329006-1X	21-P-480	28-P-225	
277*-***XK	3-P-832	329006-2X	21-P-482	28-P-225	
277*-***XP	3-P-832	329006-2X	21-P-568	28-P-225	
277*-***XR	3-P-833	329006-3X	21-P-484	28-P-225	
277*-***XY	3-P-852	329006-4X	21-P-524	28-P-230	
277*-***XX	3-P-853	329006-5X	21-P-480	28-P-225	
277*-***XP	3-P-832	329006-2X	21-P-568	28-P-225	
277*-***AF	3-P-892	329006-6X	21-P-576	28-P-225	
277*-***RA	3-P-833	329006-3X	21-P-484	28-P-225	21-P-628
277*-***RB	3-P-833	329006-3X	21-P-484	28-P-225	21-P-572
277*-***RF	3-P-925	329006-8X	21-P-484	28-P-225	21-P-628

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Model Number Designation

277 X G XP P - B 5 XD

BASIC MODEL
277

MOUNTING TYPE
X = Standard Mounting
S = Super Torque™

GEAR RATIO
B = 25/47 D = 28/44
G = 31/41 M = 35/37
S = 39/33

INPUT GEAR DESIGNATOR

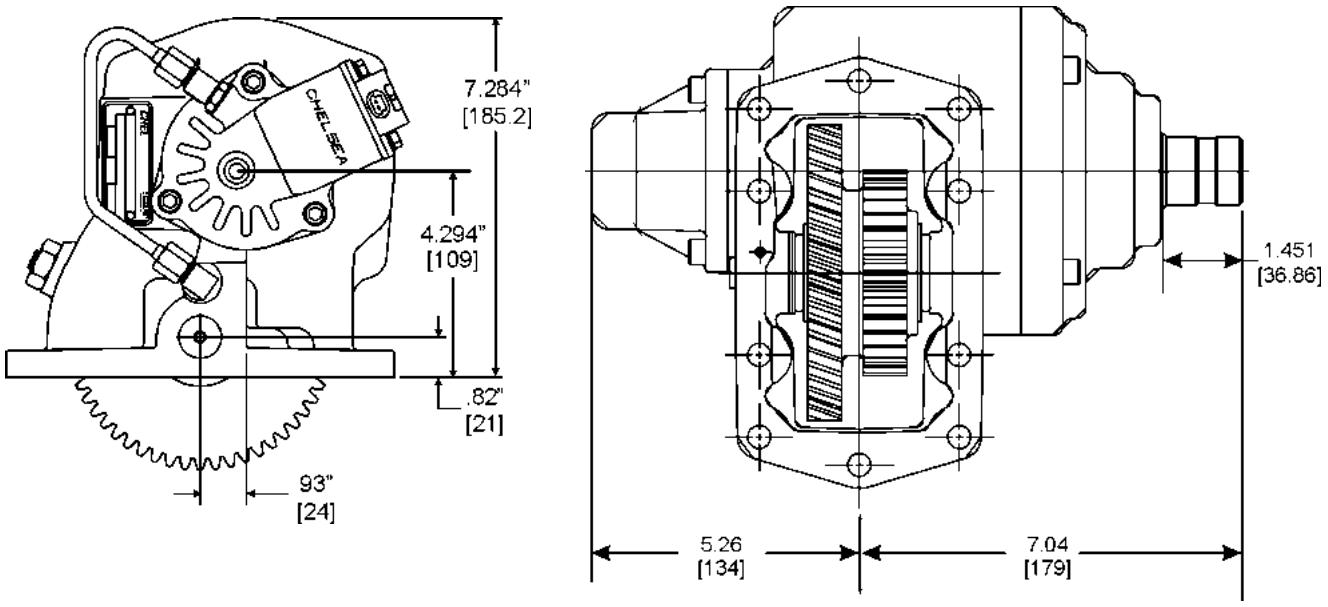
LUBRICATION
P = Pressure Lube
R = Valve Cap Rotated 120°

OUTPUT TYPE
XD = 1.250" RD Std. Shaft
XK = S.A.E. "B" 2 or 4 Bolt
XP = S.A.E. "A" 2 Bolt
XR = CHELSEA Special
AF = S.A.E. "BB" 2 or 4 Bolt
RA = Rotatable S.A.E. "B" 2 Bolt
RB = Rotatable S.A.E. "B" 4 Bolt
XY = DIN 5462
XX = DIN 100
RF = Rotatable S.A.E. "BB" 2 Bolt
RG = Rotatable S.A.E. "BB" 4 Bolt

ASSEMBLY ARRANGEMENT
5 Gear forward, shaft rear, bulge up right side, bulge down left side

SHIFTER TYPE
B = 12V Hydraulic Valve
D = 24V Hydraulic Valve
G = 12V Remote Hydraulic Valve w/o E.O.C.
H = 24V Remote Hydraulic Valve w/o E.O.C.
K = 12V Hydraulic Valve with E.O.C.
L = 24V Hydraulic Valve with E.O.C.
M = 12V without Installation Kit - 329024-12X
N = 24V without Installation Kit - 329024-24X

P.T.O. Housing Dimensions



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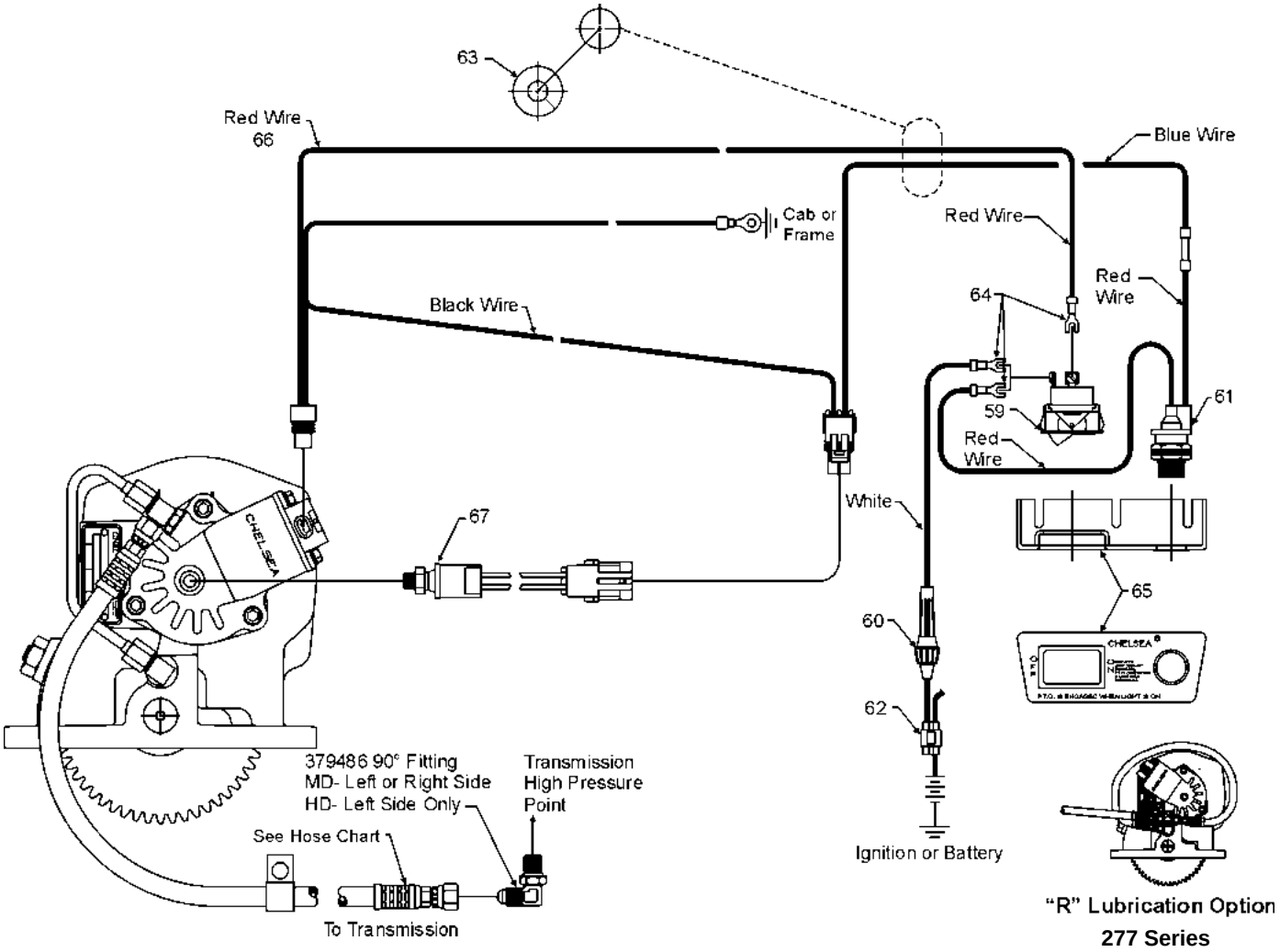
Shift Installation Kit Without Electronic Overspeed Control (SK-247)



Trans.	P.T.O. Side	Hose Part#	Comments
MD	LEFT	329130-5X	26.5" w/o Hose Clamp (Lube Option "P") Pressure Lube
MD	RIGHT	329075-1X	26.5" w/ Hose Clamp (Lube Option "P") Pressure Lube
HD	LEFT	329130-4X	22.0" w/o Hose Clamp (Lube Option "P") Pressure Lube
HD	TOP RIGHT	329075-2X	42.0" w/ Hose Clamp (Lube Option "P") Pressure Lube
MD	LEFT	329130-5X	26.5" w/o Hose Clamp (Lube Option "R") Valve Cap Rotated 120°
MD	RIGHT	329075-1X	26.5" w/ Hose Clamp (Lube Option "R") Valve Cap Rotated 120°
HD	LEFT	329130-5X	26.5" w/o Hose Clamp (Lube Option "R") Valve Cap Rotated 120°
HD	TOP RIGHT	329075-4X	47.0" w/ Hose Clamp (Lube Option "R") Valve Cap Rotated 120°

Item	Part Number	Description	Quantity
▶	329024-12X	12 Volt Shift Installation Kit	1
▶	329024-24X	24 Volt Shift Installation Kit	1
59	378881	Switch	1
60 ▶	378884	Fuse, 9 Amp	1
61 ▶	378978	Indicator Light, 12 Volt	1 or
	379005	Indicator Light, 24 Volt	1
62 ▶	379257	Connector, Splice	1
63 ▶	379265	Grommet	1
64 ▶	379306	Fork Connector	3
65 ▶	379336	Bracket	1
66 ▶	379504	Valve Connector & Wire	1
67 ▶	379502	Pressure Switch	1

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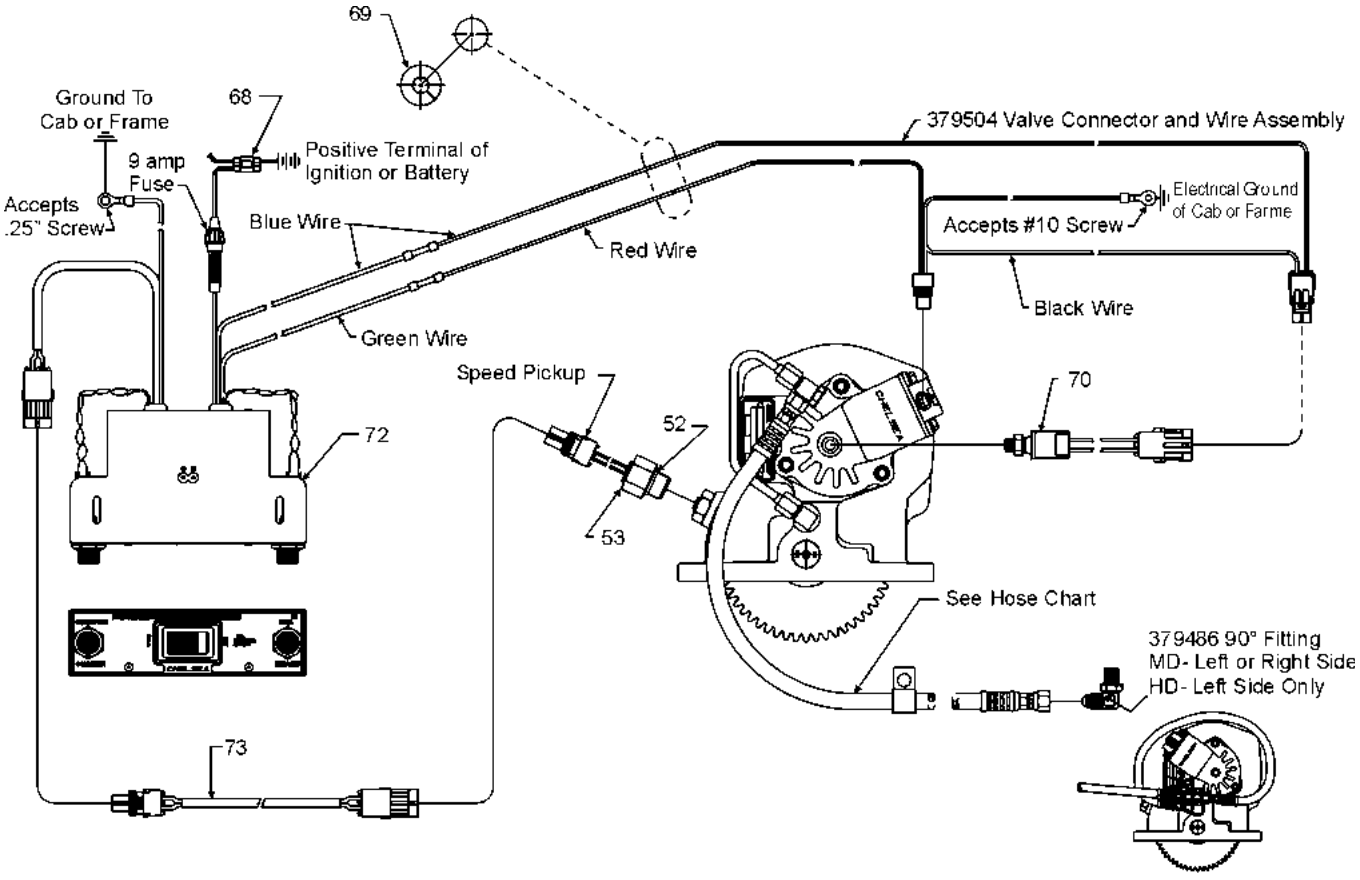
Shift Installation Kit With Electronic Overspeed Control (SK-248)



Trans.	P.T.O. Side	Hose Part#	Comments
MD	LEFT	329130-5X	26.5" w/o Hose Clamp (Lube Option "P") Pressure Lube
MD	RIGHT	329075-1X	26.5" w/ Hose Clamp (Lube Option "P") Pressure Lube
HD	LEFT	329130-4X	22.0" w/o Hose Clamp (Lube Option "P") Pressure Lube
HD	TOP RIGHT	329075-2X	42.0" w/ Hose Clamp (Lube Option "P") Pressure Lube
MD	LEFT	329130-5X	26.5" w/o Hose Clamp (Lube Option "R") Valve Cap Rotated 120°
MD	RIGHT	329075-1X	26.5" w/ Hose Clamp (Lube Option "R") Valve Cap Rotated 120°
HD	LEFT	329130-5X	26.5" w/o Hose Clamp (Lube Option "R") Valve Cap Rotated 120°
HD	TOP RIGHT	329075-4X	47.0" w/ Hose Clamp (Lube Option "R") Valve Cap Rotated 120°

"R" Lubrication Option
277 Series

Item	Part Number	Description	Quantity
▶	**329076X**	Shift Installation Kit	1
68 ▶	**379257**	Connector, Splice	1
69 ▶	**379265**	Grommet	1
70 ▶	**379502**	Pressure Switch	1
71 ▶	**379504**	Valve Connector & Wire	1
N.S.	**379252**	Butt Connector	1
N.S.	**379061**	Wire Tie	6
72	**328924-12X**	Chelsea E.O.C., 12 Volt	1
	328924-24X	Chelsea E.O.C., 24 Volt	1
▶	**329175-12X**	E.O.C. Field Conversion Kit, 12 Volt (Includes 329076X and items 52, 53 and 72)	
▶	**329175-24X**	E.O.C. Field Conversion Kit, 24 Volt (Includes 329076X and items 52, 53 and 72)	
73		**SPEED SENSOR EXTENSION CABLE***	
	328923-10X	10' Extension Cable, Supplied with E.O.C.	1 or
	328923-5X	5' Extension Cable, Optional	

* Run cable through grommet in firewall
N.S. — Not Shown

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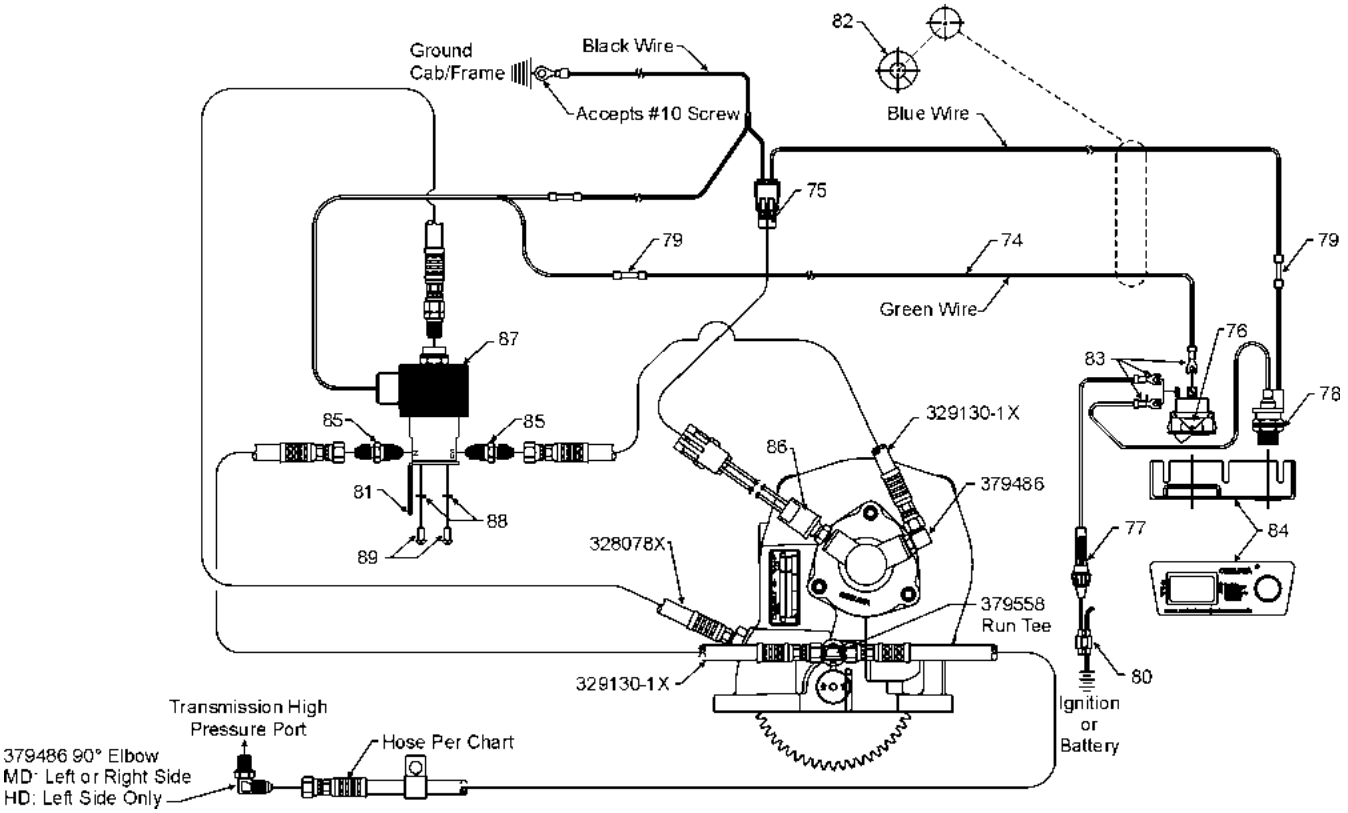
Remote Mount Valve Conversion Kits (SK-316)



Trans.	P.T.O. Side	Hose Part#	Comments
MD	LEFT	329130-5X	26.5" w/o Hose Clamp (Shifter "Options G & H") 12V & 24V Remote Hydraulic Valve w/o E.O.C.
MD	RIGHT	329075-1X	26.5" w/ Hose Clamp (Shifter "Options G & H") 12V & 24V Remote Hydraulic Valve w/o E.O.C.
HD	LEFT	329130-5X	26.5" w/o Hose Clamp (Shifter "Options G & H") 12V & 24V Remote Hydraulic Valve w/o E.O.C.
HD	TOP RIGHT	329075-4X	47.0" w/ Hose Clamp (Shifter "Options G & H") 12V & 24V Remote Hydraulic Valve w/o E.O.C.

Item		Part Number	Description	Quantity
	▶	**329237-12X**	12 Volt Shift Installation Kit	
	▶	**329237-24X**	24 Volt Shift Installation Kit	
74		**329230X**	Connector Wire	1
75	▶	**329231X**	Valve Connector & Wire	1
76		**378881**	Switch	1
77	▶	**378884**	Fuse Holder, 9 AMP	1
78	▶	**378978**	Indicator Light, 12 Volt	1 or
		379005	Indicator Light, 24 Volt	1
79	▶	**379252**	Butt Connector	2
80	▶	**379257**	Splice Connector	1
81	▶	**379258**	Mounting Bracket, Solenoid	1
82	▶	**379265**	Grommet	1
83	▶	**379306**	Fork Connector	3
84	▶	**379336**	Name & Plate Bracket	1
85	▶	**379449**	Male Connector	2
86	▶	**379502**	Pressure Switch	1
87	▶	**379686-1**	Solenoid Valve, 12 Volt	1 or
	▶	**379686-2**	Solenoid Valve, 24 Volt	1
88	▶	**500357-7**	Lockwasher	2
89	▶	**500457-6**	Mounting Screw (.790"-32x.438")	2

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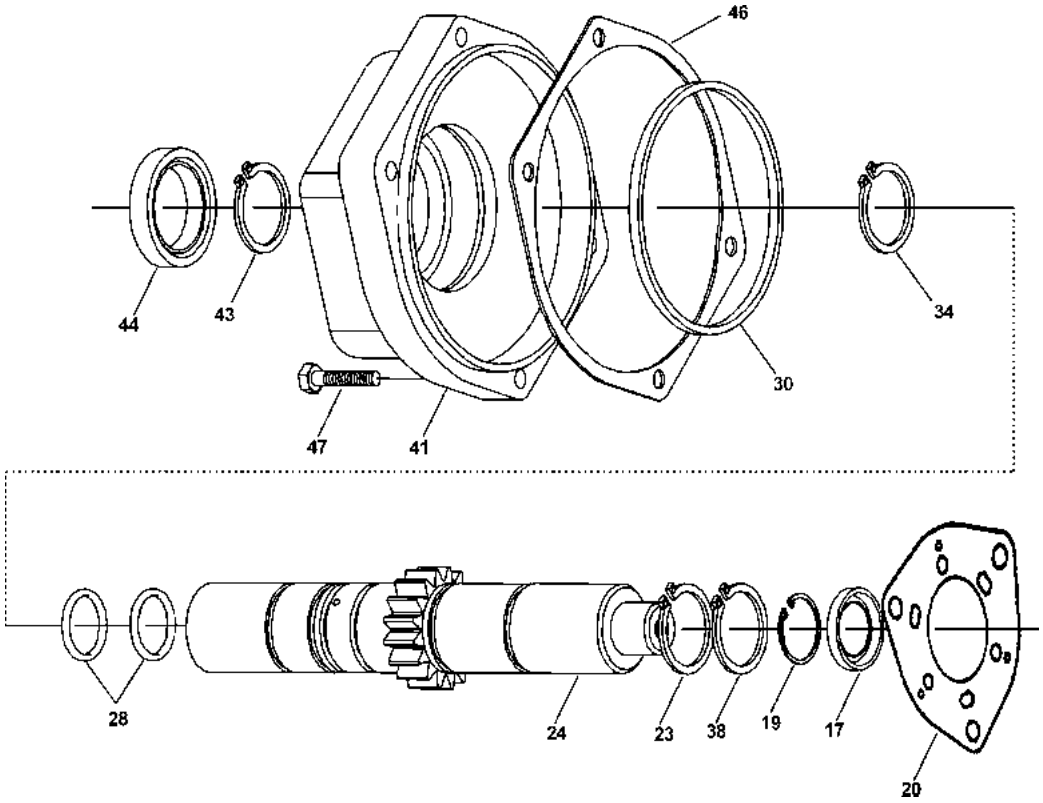

Item		Part Number	Description	Quantity
	▶	**329160-21X**	"XK" Output	
	▶	**329160-22X**	"XR" Output	
	▶	**329160-23X**	"XP" Output	
	▶	**329160-25X**	"AF" Output	
	▶	**329160-37X**	"RA" Output	
	▶	**329160-38X**	"RB" Output	
	▶	**329160-39X**	"RF" Output	
	▶	**329160-45X**	"RG" Output	
17	▶	**28-P-119**	Oil Seal, High Pressure	1
19	▶	**378849**	Retaining Ring	1
20	▶	**22-P-112**	Gasket, Valve Cap	1
23	▶	**379746**	Retaining Ring	1
24	▶	**3-P-832**	Output Shaft, XK & XP Outputs	1 or
		3-P-833	Output Shaft, XR, RA, & RB Outputs	1
		3-P-925	Output Shaft, RF Output	1
	▶	**3-P-892**	Output Shaft, AF Output	1
28	▶	**28-P-244**	O-Ring	2
30	▶	**28-P-121**	Block -V- Ring	1
34	▶	**378576**	Retaining Ring	1
38	▶	**379746**	Retaining Ring	1
41	▶	**21-P-482**	Bearing Cap, XK Output	1 or
	▶	**21-P-484**	Bearing Cap, XR Output	1
		21-P-568	Bearing Cap, XP Output	1
	▶	**21-P-576**	Bearing Cap, AF Output	1
N.S.		**21-P-572**	Pump Flange, RB & RG Output & 21-P-484 Brg. Cap	1
N.S.		**21-P-628**	Pump Flange, RA & RF Outputs & 21-P-484 Brg. Cap	1
43	▶	**378576**	Retaining Ring	1
44	▶	**28-P-225**	Oil Seal	1
46		**22-P-101**	Gasket, Bearing Cap	1
47	▶	**378447-8**	Socket Head Capscrew (.3125"-18 x 1.500")	4
N.S.		**378447-6**	Socket Head Capscrew (.3125"-18 x 1.000")(Rotatable Flange)	4
N.S.		**328748X**	Pump Mounting Kit, XR Output	1

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Notes

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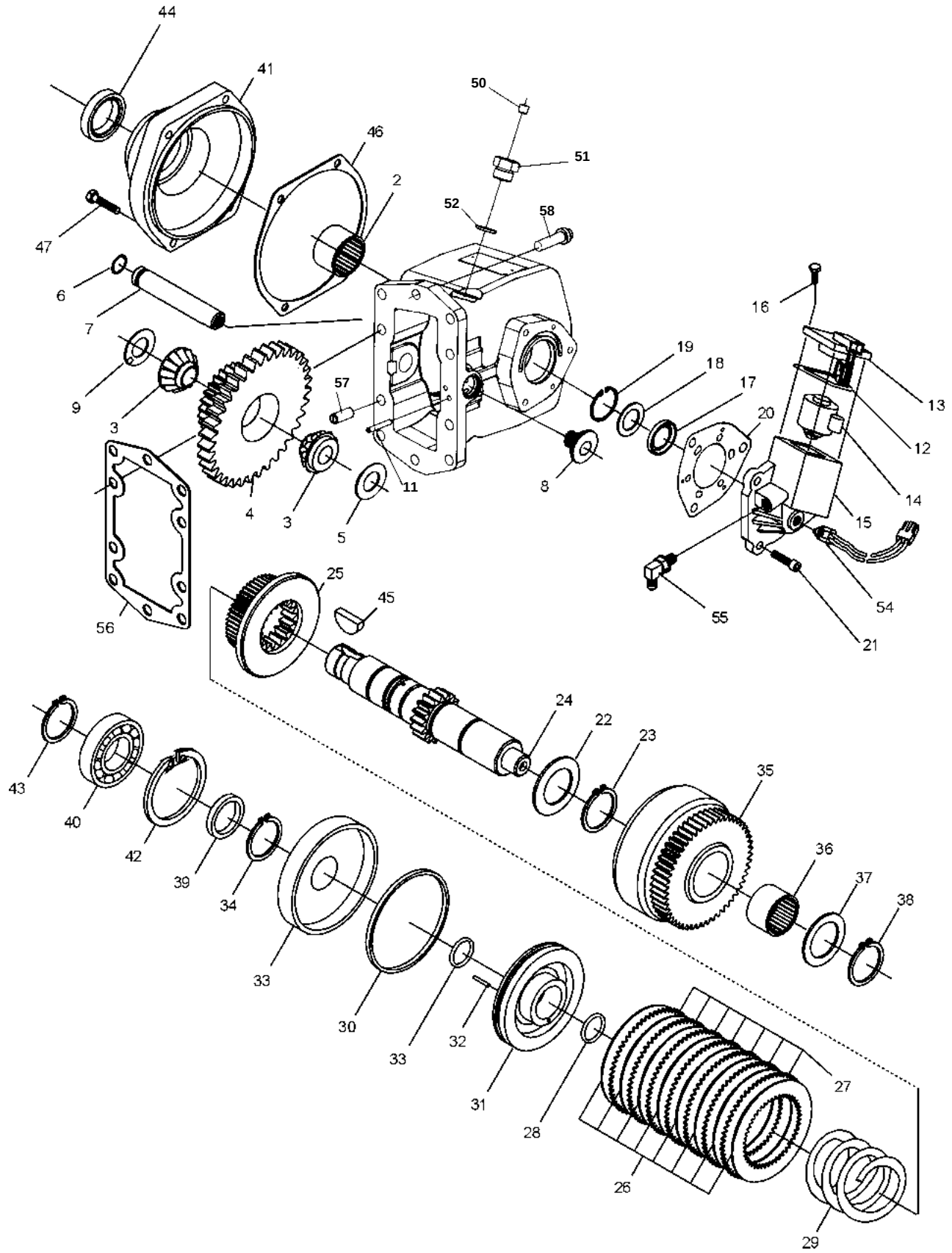

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Item		Part Number	Description	Quantity
1	▶	1-P-591X	Housing Ass'y 3 (Includes Item # 11)	1
2	▶	560972	Needle Bearing	1
3	▶	550439	Tapered Bearing Cone	2
4		See Chart Pg. 14	Input Gear	1
5		14-P-74-1	Spacers (.112 - .114)	A.R.
		14-P-74-2	Spacers (.115 - .117)	A.R.
		14-P-74-3	Spacers (.118 - .120)	A.R.
		14-P-74-4	Spacers (.121 - .123)	A.R.
		14-P-74-5	Spacers (.124 - .126)	A.R.
6	▶	28-P-191	O-Ring	1
7	▶	9-P-91	Idler Shaft, Pressure Lube	1
8	▶	379672	NWD Plug	1
9	▶	9-P-102	Thrust Washer	1
11	▶	500597-16	Slotted Pin	1
	▶	329352-12X	Valve and Valve Cap Assembly (12 Volt)	1
	▶	329352-24X	Valve and Valve Cap Assembly (24 Volt)	1
			Assemblies include items 12 thru 19	
12	▶	28-P-193	Block Ring	1
13	▶	329144X	Valve Cap Assembly (12 Volt)	1
		329144-1X	Valve Cap Assembly (24 Volt)	1
14	▶	379604-1	Solenoid Valve (12 Volt)	1
	▶	379604-2	Solenoid Valve (24 Volt)	
15	▶	34-P-278	Valve Cover	1
16	▶	379565	Hex Capscrew (.250"-20 x .750")	4
17	▶	28-P-119	Oil Seal	1
18	▶	378811	Washer	1
19	▶	378849	Retaining Ring	1
20	▶	22-P-112	Gasket, Valve Cover	1
21	▶	378447-6	Socket Head Capscrew (.312"-18 x 1.000")	3
		See Chart Pg. 14	Output Shaft & Clutch Assembly	
			(Includes items 22 thru 34)	
22	▶	14-P-49	Spacer	1
23	▶	379746	Retaining Ring	1
24		See Chart Pg. 14	Output Shaft	1
25	▶	2-P-458	Clutch Gear	1
26	▶	379485	Friction Disc	8
27	▶	379595	Clutch Plate	7
28	▶	28-P-244	O-Ring	2
29	▶	37-P-39	Return Spring	1
		328895X	Piston & Cylinder Assembly (Includes items 30-32)	
30	▶	28-P-121	Block Vee Ring	1
	▶	328676X	Piston Assembly (Includes items 31 and 32)	
31		379133	Piston	1
32	▶	378856	Wiggler Wire	1
33		378760	Clutch Back Up Cylinder	1
34	▶	378576	Retaining Ring	1
			Output Gear Assembly (Includes items 35 and 36)	
		329005-11X / 12X	"B" Ratio / "B" Ratio Super Torque	
	▶	329005-1X / 6X	"D" Ratio / "D" Ratio Super Torque	
	▶	329005-2X / 7X	"G" Ratio / "G" Ratio Super Torque	
		329005-13X / 15X	"M" Ratio / "M" Ratio Super Torque	
		329005-14X / 16X	"S" Ratio / "S" Ratio Super Torque	
	▶	329005-5X / 10X	"T" Ratio / "T" Ratio Super Torque	
35		See Chart Pg. 14	Output Gear	1
36	▶	560972	Needle Bearing	1
37	▶	31-P-70	Thrust Washer	1
38	▶	379746	Retaining Ring	1
39	▶	4-P-147	Spacer, Drive Shaft	1
40	▶	550010	Ball Bearing	1

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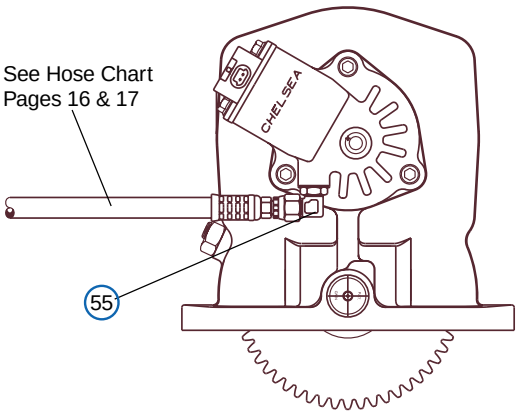
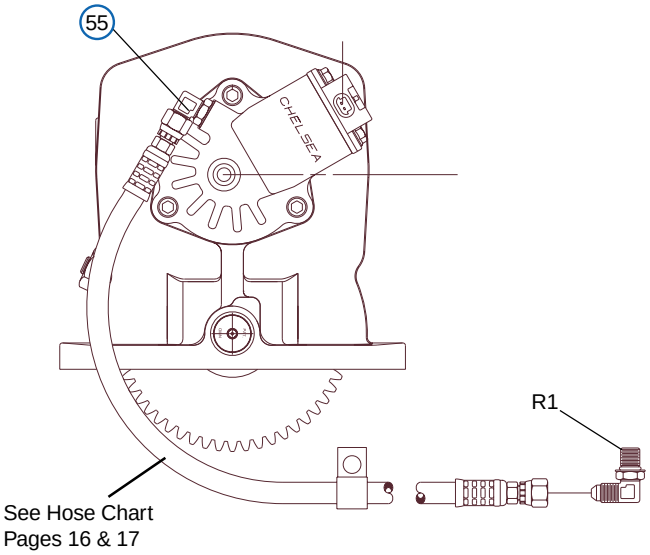
Item		Part Number	Description	Quantity
41		See Chart Pg. 14	Bearing Cap/Pump Flange	1
42	▶	378895	Retaining Ring	1
43	▶	378576	Retaining Ring	1
44	▶	28-P-225	Oil Seal	1
45	▶	500007-29	Woodruff Key	1
46		22-P-101	Gasket, Bearing Cap	1
47	▶	378447-8	Socket Head Capscrew (.312"-18 x 1.500")	4
48	▶	379659	Run Tee, Pressure Lube Only	1
49		379660	Steel Tubing, Pressure Lube Only	1
50	▶	379231	Pipe Plug .125"-27 NPTF, w/o E.O.C. Only	1
51	▶	379242	O-Ring Boss Plug, w/o E.O.C. Only	1
52	▶	28-P-171	O-Ring, w/ E.O.C. Only	1
53	▶	379243	Speed Sensor, w/ E.O.C. Only	1
54	▶	379502	Pressure Switch Assembly	1
55	▶	379486	Straight Thread Connector 90°	1
56	▶	35-P-74	Mounting Gasket	1
		7170-107X	Stud Kit (Includes items 57 and 58)	1
57	▶	379428-18	Stud, M10-1.5 & .375-24 x 2.000	2
58	▶	379453-10	Ferry Capscrew (M10-1.5 x 35mm)	8
N.S.		379486	90° Elbow Fitting w/ O-Ring	1
N.S.		379744	Flange Nut, .375-24	2
R1		379486	Straight Thread 90° Elbow	1

N.S. — Not Shown

278X*R-*3****



278X*P-*3***



Item	Part Number	Description	Quantity
		PARTS SHIPPED LOOSE	
	▶ 379486	90° O-Ring Connector	1
	▶ 328748X	Pump Mounting Kit, For "XR" Pump Only	1
	▶ 328948-9X	Gasket & Installation Instructions	1
	▶ 329024-12X	Installation Kit 12V, Less E.O.C.	1
	▶ 329024-24X	Installation Kit 24V, Less E.O.C.	1
	▶ 329076X	Installation Kit 12V, With E.O.C.	1
	328924-12X	Control Box 12V, With E.O.C.	1
	328924-24X	Control Box 24V, With E.O.C.	1
		SERVICE KITS	
	▶ 329071-19X	Gasket & Seal Kit	1
	▶ 329071-33X	Gasket & Seal Kit ("XY" Output Only)	1
	▶ 329071-5X	Bearing Kit	1
	▶ 329071-7X	Clutch Repair Kit	1
	▶ 329175-12X	E.O.C. Field Conversion Kit 12V, Remote Valve	1
	▶ 329175-24X	E.O.C. Field Conversion Kit 24V, Remote Valve	1

Gear Chart

Model Number	Input Gear Part Number Item No. 4	Number Teeth Lg/Sm	Output Gear Item No. 35		Gear & Bearing Sub-assembly Items 35 & 36
			Part Number	Number Teeth	
278XBFJ	5-P-912	50/25	2-P-811	50	329005-11X
278XDFJ	5-P-913	50/28	▶ 2-P-688	47	329005-1X
278XGFJ	5-P-914	50/31	▶ 2-P-684	44	329005-2X
278XMFJ	5-P-915	50/35	▶ 2-P-814	40	329005-13X
278XSFJ	5-P-1173	50/39	▶ 2-P-815	36	329005-14X
278XTFJ	5-P-1409	50/42	▶ 2-P-756	33	329005-5X
SUPER TORQUE™					
278SBFJ	5-P-1350	50/25	2-P-812	50	329005-12X
278SDFJ	5-P-1293	50/28	▶ 2-P-800	47	329005-6X
278SGFJ	5-P-1225	50/31	▶ 2-P-790	44	329005-7X
278SMFJ	5-P-1351	50/35	2-P-816	40	329005-15X
278SSFJ	5-P-1278	50/39	2-P-817	36	329005-16X
278STFJ	5-P-1410	50/42	2-P-789	33	329005-10X

Output Shaft Chart

Model Number	Output Shaft Item No. 24	Output Shaft & Clutch Ass'y No.	Bearing Cap/Pump Flange Item No. 41	Oil Seal Item No. 44	Pump Flange
278*-***XD	3-P-831	329006-1X	▶ 21-P-480	28-P-225	
278*-***XK	3-P-832	329006-2X	▶ 21-P-482	28-P-225	
278*-***XP	3-P-832	329006-2X	21-P-568	28-P-225	
278*-***XR	3-P-833	329006-3X	▶ 21-P-484	28-P-225	
278*-***XY	3-P-852	329006-4X	▶ 21-P-524	28-P-230	
278*-***XX	3-P-853	329006-5X	▶ 21-P-480	28-P-225	
278*-***XP	3-P-832	329006-2X	21-P-568	28-P-225	
278*-***AF	3-P-892	329006-6X	▶ 21-P-576	28-P-225	
278*-***RA	3-P-833	329006-3X	▶ 21-P-484	28-P-225	21-P-628
278*-***RB	3-P-833	329006-3X	▶ 21-P-484	28-P-225	21-P-572
278*-***RF	3-P-925	329006-8X	▶ 21-P-484	28-P-225	21-P-628

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Model Number Designation

278 X G FJ P - B 3 XD

BASIC MODEL
278

MOUNTING TYPE
X = Standard Mounting
S = Super Torque™

GEAR RATIO
B = 25/50
D = 38/47
G = 31/44
M = 35/41
S = 39/37
T = 42/33

INPUT GEAR DESIGNATOR

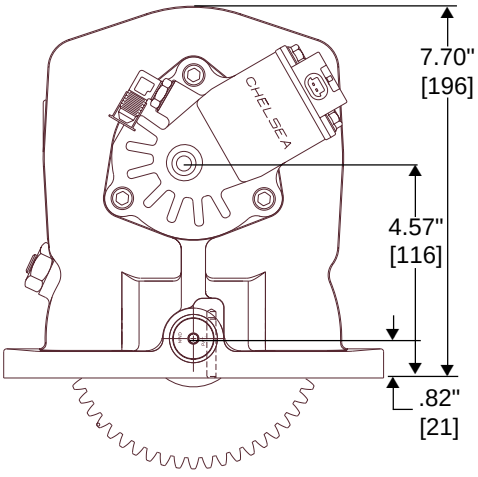
LUBRICATION
P = Pressure Lube
R = Valve Cap Rotated 120°

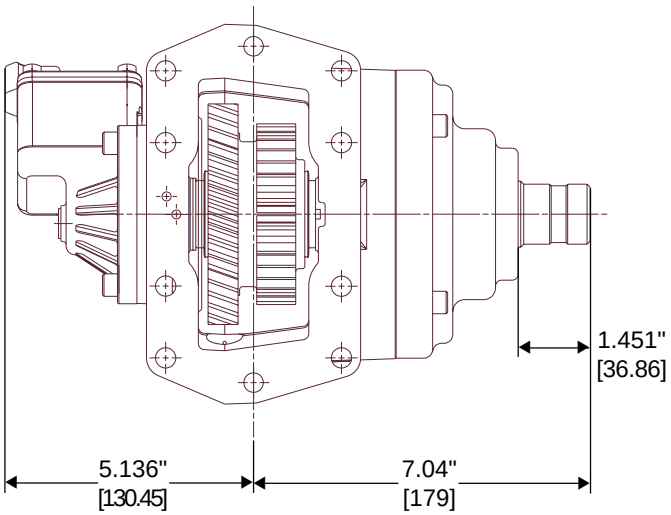
OUTPUT TYPE
XD = 1.250" RD Std. Shaft
XK = S.A.E. “B” 2 or 4 Bolt
XP = S.A.E. “A” 2 Bolt
XR = CHELSEA Special
AF = S.A.E. “BB” 2 or 4 Bolt
RA = Rotatable S.A.E. “B” 2 Bolt
RB = Rotatable S.A.E. “B” 4 Bolt
XY = DIN 5462
XX = DIN 100
RF = Rotatable S.A.E. “BB” 2 Bolt
RG = Rotatable S.A.E. “BB” 4 Bolt

ASSEMBLY ARRANGEMENT
3 - Gear Forward, Shaft Rear, Bulge Straight Up Both Sides

SHIFTER TYPE
B = 12V Hydraulic Valve
D = 24V Hydraulic Valve
G = 12V Remote Valve without E.O.C.
H = 24V Remote Valve without E.O.C.
K = 12V Hydraulic Valve with E.O.C.
L = 24V Hydraulic Valve with E.O.C.
M = 12 Volt without Installation Kit - 329024-12X
N = 24 Volt without Installation Kit - 329024-24X

P.T.O. Housing Dimensions





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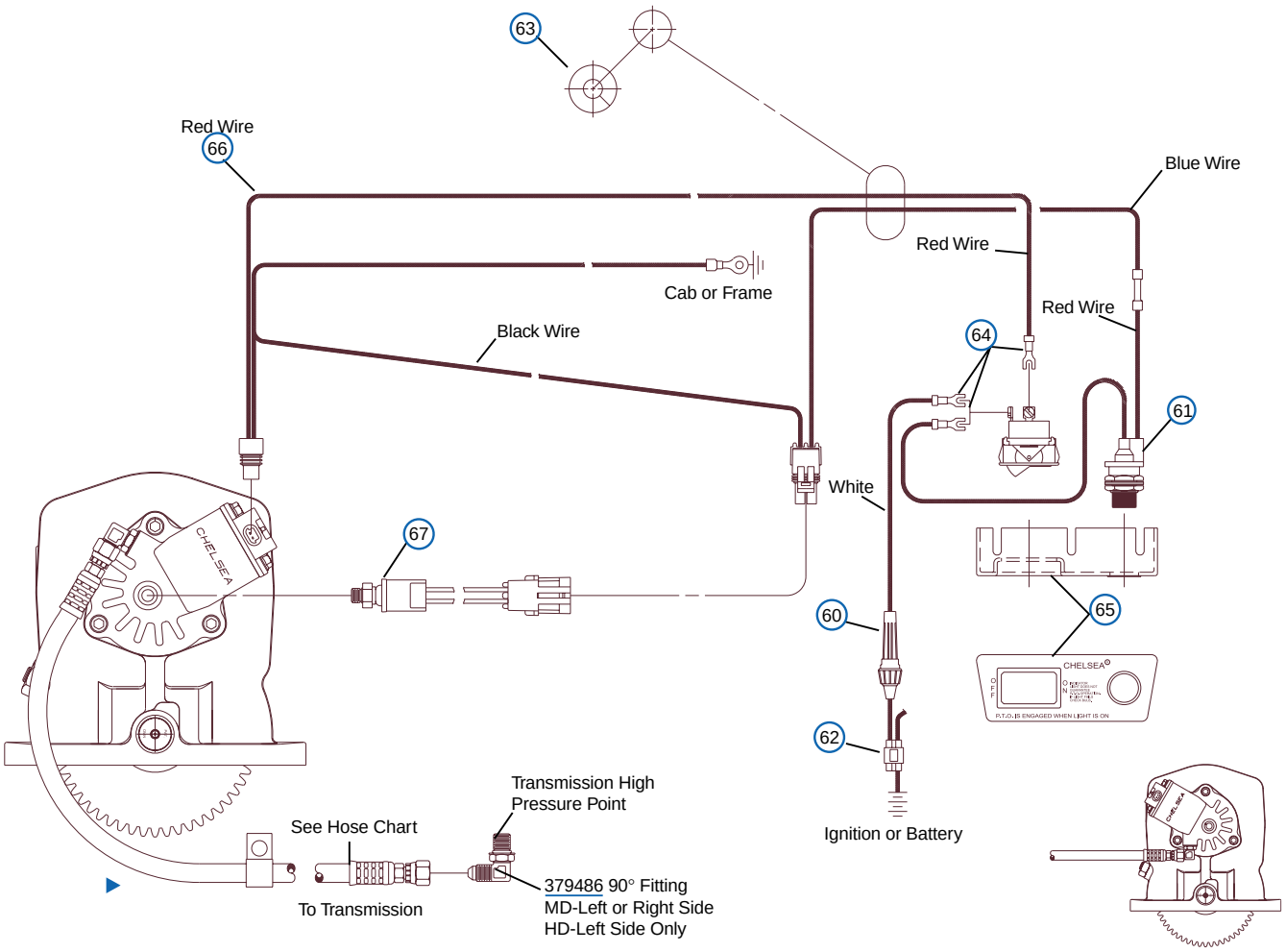
Shift Installation Kit Without Electronic Overspeed Control (SK-347)



"R" Lubrication Option
278 Series

Trans.	PTO Side	Hose Part#	Comments
MD	LEFT	329130-5X	26.5" w/o Hose Clamp (Lube Option "P") Pressure Lube
MD	RIGHT	329075-1X	26.5" w/ Hose Clamp (Lube Option "P") Pressure Lube
HD	LEFT	329130-4X	22.0" w/o Hose Clamp (Lube Option "P") Pressure Lube
HD	TOP RIGHT	329075-2X	42.0" w/ Hose Clamp (Lube Option "P") Pressure Lube
MD	LEFT	329130-5X	26.5" w/o Hose Clamp (Lube Option "R") Valve Cap Rotated 120°
MD	RIGHT	329075-1X	26.5" w/ Hose Clamp (Lube Option "R") Valve Cap Rotated 120°
HD	LEFT	329130-5X	26.5" w/o Hose Clamp (Lube Option "R") Valve Cap Rotated 120°
HD	TOP RIGHT	329075-4X	47.0" w/ Hose Clamp (Lube Option "R") Valve Cap Rotated 120°

Item		Part Number	Description	Quantity
	▶	329024-12X	12 Volt Shift Installation Kit	1
	▶	329024-24X	24 Volt Shift Installation Kit	1
59		378881	Switch	1
60	▶	378884	Fuse, 9 Amp	1
61	▶	378978	Indicator Light, 12 Volt	1 or
		379005	Indicator Light, 24 Volt	1
62	▶	379257	Connector, Splice	1
63	▶	379265	Grommet	1
64	▶	379306	Fork Connector	3
65	▶	379336	Bracket	1
66	▶	379504	Valve Connector & Wire	1
67	▶	379502	Pressure Switch	1

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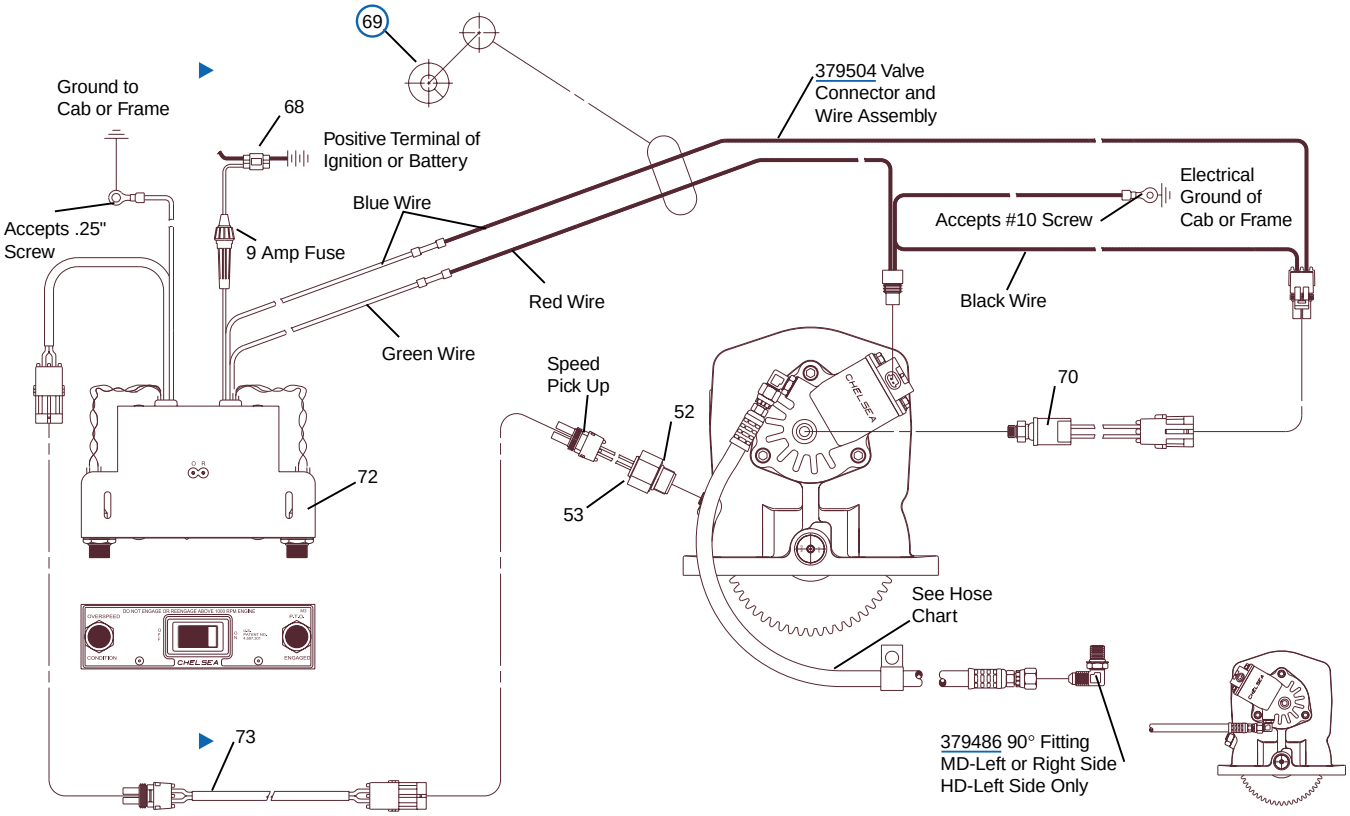
Shift Installation Kit With Electronic Overspeed Control (SK-348)



"R" Lubrication Option
278 Series

Trans.	P.T.O. Side	Hose Part#	Comments
MD	LEFT	329130-5X	26.5" w/o Hose Clamp (Lube Option "P") Pressure Lube
MD	RIGHT	329075-1X	26.5" w/ Hose Clamp (Lube Option "P") Pressure Lube
HD	LEFT	329130-4X	22.0" w/o Hose Clamp (Lube Option "P") Pressure Lube
HD	TOP RIGHT	329075-2X	42.0" w/ Hose Clamp (Lube Option "P") Pressure Lube
MD	LEFT	329130-5X	26.5" w/o Hose Clamp (Lube Option "R") Valve Cap Rotated 120°
MD	RIGHT	329075-1X	26.5" w/ Hose Clamp (Lube Option "R") Valve Cap Rotated 120°
HD	LEFT	329130-5X	26.5" w/o Hose Clamp (Lube Option "R") Valve Cap Rotated 120°
HD	TOP RIGHT	329075-4X	47.0" w/ Hose Clamp (Lube Option "R") Valve Cap Rotated 120°

Item	Part Number	Description	Quantity
	329076X	Shift Installation Kit	1
68	**379257**	Connector, Splice	1
69	**379265**	Grommet	1
70	**379502**	Pressure Switch	1
71	**379504**	Valve Connector & Wire	1
N.S.	**379252**	Butt Connector	1
N.S.	**379061**	Wire Tie	6
72	**328924-12X**	Chelsea E.O.C., 12 Volt	1
	328924-24X	Chelsea E.O.C., 24 Volt	1
	329175-12X	E.O.C. Field Conversion Kit, 12 Volt (Includes 329076X and items 52, 53 and 72)	
	329175-24X	E.O.C. Field Conversion Kit, 24 Volt (Includes 329076X and items 52, 53 and 72)	
73		**SPEED SENSOR EXTENSION CABLE***	
	328923-10X	10' Extension Cable, Supplied with E.O.C.	1 or
	328923-5X	5' Extension Cable, Optional	

* Run cable through grommet in firewall
N.S. — Not Shown

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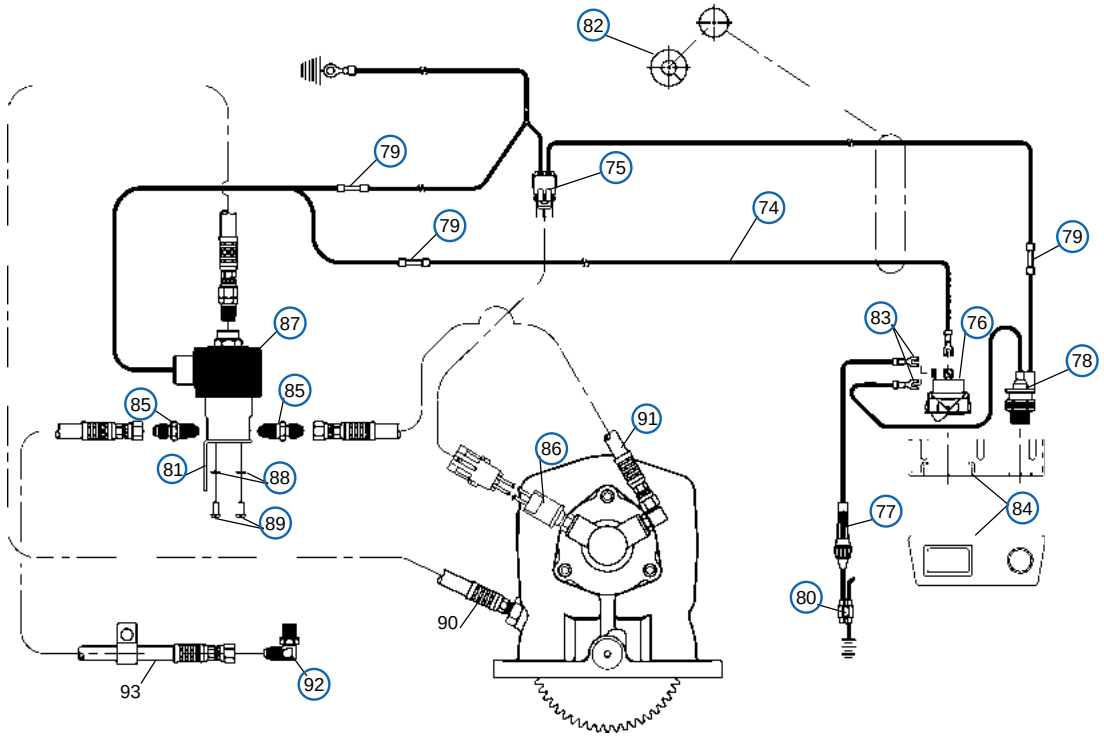
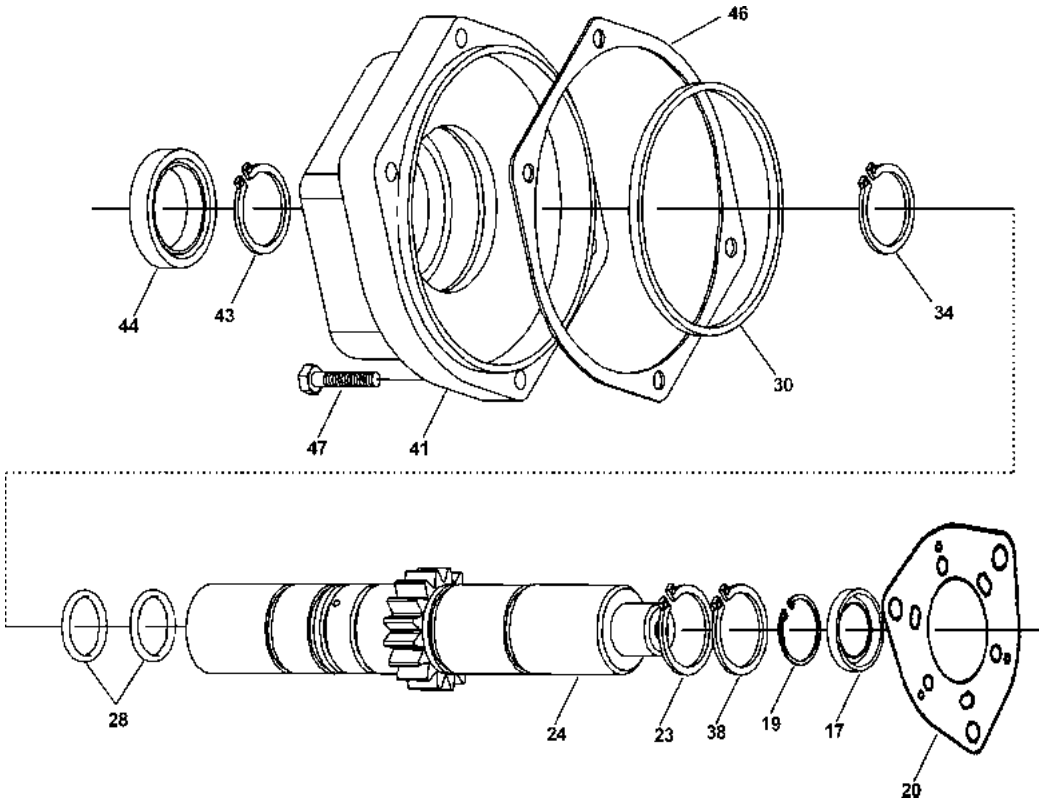
Shift Installation Kit With Remote Solenoid (SK-349)



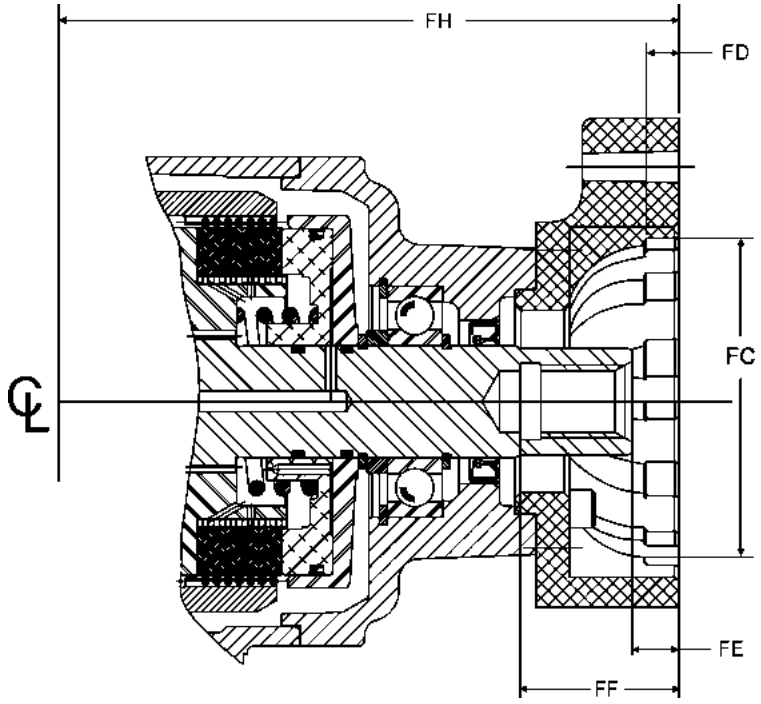
Note: This option is not available nor can it be used on E.O.C. applications

Trans.	P.T.O. Side	Hose Part#	Comments
MD	Left	329130-5X	26.5" w/o Hose Clamp
MD	Right	329075-1X	26.5" w/ Hose Clamp
HD	Left	329130-5X	26.5" w/o Hose Clamp
HD	Top Right	329075-4X	47.0" w/ Hose Clamp

Item		Part Number	Description	Quantity
	▶	**329237-12X**	12 Volt Shift Installation Kit	
	▶	**329237-24X**	24 Volt Shift Installation Kit	
74		**329230X**	Connector Wire	1
75	▶	**329231X**	Valve Connector & Wire	1
76		**378881**	Switch	1
77	▶	**378884**	Fuse Holder, 9 Amp	1
78	▶	**378978**	Indicator Light, 12 Volt	1 or
		379005	Indicator Light, 24 Volt	1
79	▶	**379252**	Butt Connector	2
80	▶	**379257**	Splice Connector	1
81	▶	**379258**	Mounting Bracket, Solenoid	1
82	▶	**379265**	Grommet	1
83	▶	**379306**	Fork Connector	3
84	▶	**379336**	Name & Plate Bracket	1
85	▶	**379449**	Male Connector	2
86	▶	**379502**	Pressure Switch	1
87	▶	**379686-1**	Solenoid Valve, 12 Volt	1 or
	▶	**379686-2**	Solenoid Valve, 24 Volt	1
88	▶	**500357-7**	Lockwasher	2
89	▶	**500457-6**	Mounting Screw (.790"-32x.438")	2
90		**329075X**	Hose Assembly	1
91	▶	**329130-1X**	Hose Assembly	1
92	▶	**379486**	90° Fitting (Install in Transmission High Pressure Port)	1
93		**See Hose Chart**	Pressure Lube Hose Assembly	1



Item		Part Number	Description	Quantity
	▶	**329160-21X**	"XK" Output	
	▶	**329160-22X**	"XR" Output	
	▶	**329160-23X**	"XP" Output	
	▶	**329160-25X**	"AF" Output	
	▶	**329160-37X**	"RA" Output	
	▶	**329160-38X**	"RB" Output	
	▶	**329160-39X**	"RF" Output	
	▶	**329160-45X**	"RG" Output	
17	▶	**28-P-119**	Oil Seal, High Pressure	1
19	▶	**378849**	Retaining Ring	1
20	▶	**22-P-112**	Gasket, Valve Cap	1
23	▶	**379746**	Retaining Ring	1
24	▶	**3-P-832**	Output Shaft, XK & XP Outputs	1 or
		3-P-833	Output Shaft, XR, RA, & RB Outputs	1
		3-P-925	Output Shaft, RF Output	1
	▶	**3-P-892**	Output Shaft, AF Output	1
28	▶	**28-P-244**	O-Ring	2
30	▶	**28-P-121**	Block -V- Ring	1
34	▶	**378576**	Retaining Ring	1
38	▶	**379746**	Retaining Ring	1
41	▶	**21-P-482**	Bearing Cap, XK Output	1 or
	▶	**21-P-484**	Bearing Cap, XR Output	1
		21-P-568	Bearing Cap, XP Output	1
	▶	**21-P-576**	Bearing Cap, AF Output	1
N.S.		**21-P-572**	Pump Flange, RB & RG Output & 21-P-484 Brg. Cap	1
N.S.		**21-P-628**	Pump Flange, RA & RF Outputs & 21-P-484 Brg. Cap	1
43	▶	**378576**	Retaining Ring	1
44	▶	**28-P-225**	Oil Seal	1
46		**22-P-101**	Gasket, Bearing Cap	1
47	▶	**378447-8**	Socket Head Capscrew (.3125"-18 x 1.500")	4
N.S.		**378447-6**	Socket Head Capscrew (.3125"-18 x 1.000")(Rotatable Flange)	4
N.S.		**328748X**	Pump Mounting Kit, XR Output	1



Pump Flange Suffix	Bolt Circle Diameter	Bolt Holes		FC	FD	FE	FF	FH	Output Shaft	
		Tapered Hole Diameter	No. Equally Spaced	Female Pilot of Shaft	Pilot Depth Hole	Face to End of P.T.O.	Face Thru	Face to Center	Hole Diameter	Keyway Width
AF	5.000	.500-13	4	4.003	0.406	2.060	7.304		1.000-15 Spline	
	5.750	.500-13	2							
XK	5.000	.500-13	4	4.003	0.406	0.562	1.940	6.410	.875-13 Spline	-
	5.750	.500-13	2							
XP	4.188	.375-16✦	2	3.253	0.344	0.562	1.940	6.410	.875-13 Spline	-
XR	3.710	.312-18✦	4	2.752	0.281	N/A	N/A	5.860	.875-13 Spline	
XY	3.150	M12x1.75	4	3.152	0.394	0.55	2.250	9.030	1.420-8 Spline	
XX*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.250 SAE Taper	0.3125
RA ◆	5.750	4 x .500-13	4	4.003	0.406	0.574	2.056	7.605	.875-13 Spline	
RF ◆	5.750	4 x .500-13	2●	4.003	0.406	0.574	2.056	7.605	1.000-15 Spline	
RG ◆	3.552	4 x .500-13	4	4.003	0.406	0.574	2.060	7.610	1.000-15 Spline	
RB ◆	3.552	4 x .500-13	4	4.003	0.406	0.574	2.060	7.610	.875-13 Spline	

* Requires customer supplied companion flange, Spicer part number 3-1-604.
◆ Rotatable Flange Rotates in 30° Increments
● Flange has two sets of holes offset 14°
✦ Hole tapped .750" deep

CAUTION: All pump mounting dimensions shown are compiled to conform to S.A.E. standards; however it shall be the responsibility of the user to determine the correct fit at the time the pump is mounted to the P.T.O. Therefore carefully check the shaft and key or spline engagement.

NOTE: Apply a generous amount of spline lubricant part number 379688 to the inside of shaft. Must cover tooth space.

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Offer of Sale

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2. Payment: Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Amounts not timely paid shall bear interest at the maximum rate permitted by law for each month or portion thereof that the Buyer is late in making payment. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

3. Delivery: Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

4. Warranty: Seller warrants that the items sold hereunder shall be free from defects in material or workmanship for a period of:

(A) All Power Take-Off units one (1) year from date of installation.

(B) Except 267, 277, 278, 242, 244, 250, 251 and 859 series two (2) years from date of installation. **THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED. NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY, TO BUYER'S DESIGNS OR SPECIFICATIONS.**

5. Limitation Of Remedy: SELLER'S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS CONTRACT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD OR REFUND OF THE PURCHASE PRICE PAID BY BUYER, AT SELLER'S SOLE OPTION. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ITEMS SOLD HEREUNDER, WHETHER ALLEGED TO ARISE FROM BREACH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY.

6. Changes, Reschedules and Cancellations: Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

8. Buyer's Property: Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property, Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. Indemnity For Infringement of Intellectual Property Rights: Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. Patents, U.S. Trademarks, copyrights, trade dress and trade secrets (hereinafter 'Intellectual Property Rights'). 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 an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

11. Force Majeure: Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter 'Events of Force Majeure'). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain there/to. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

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