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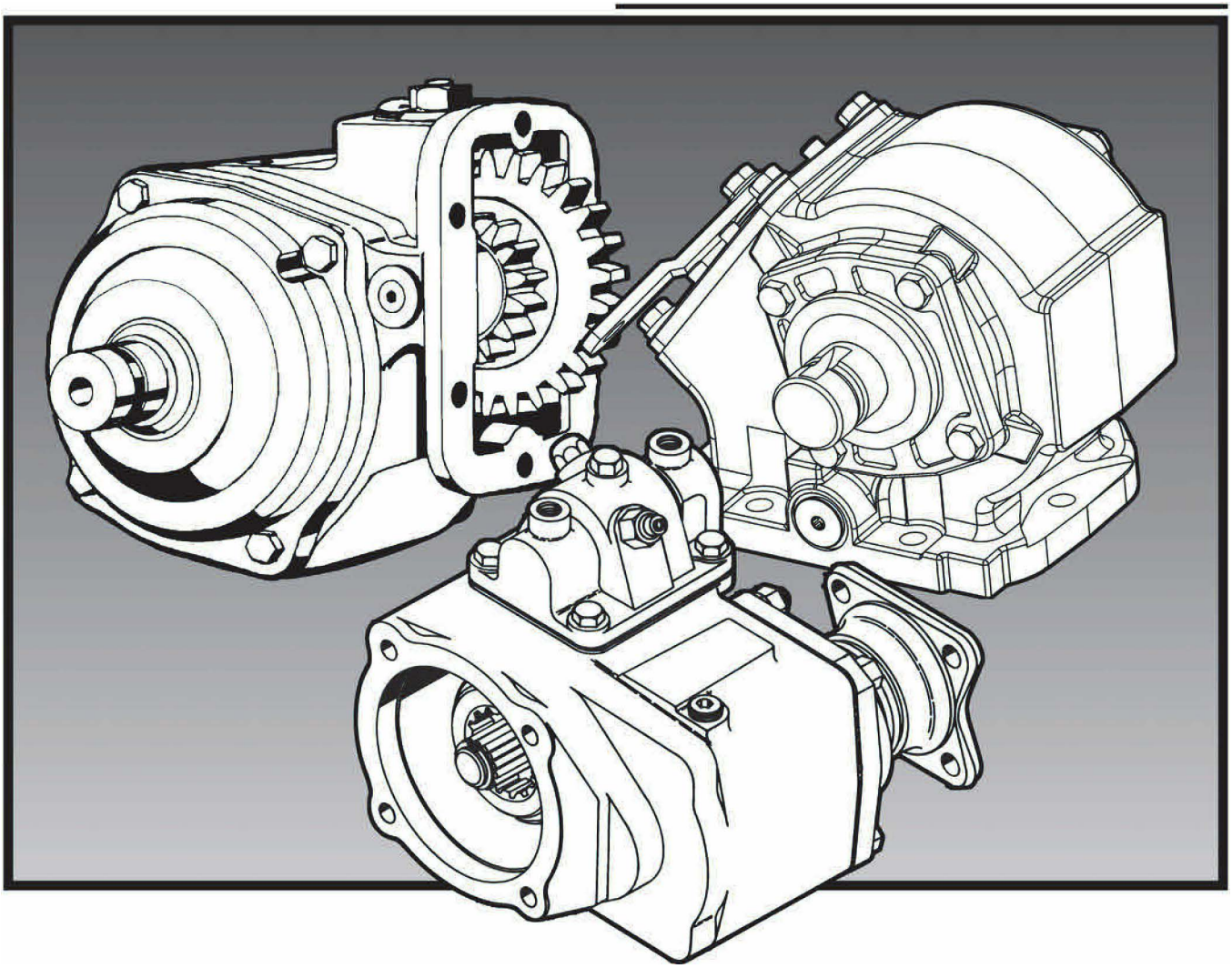
CHELSEA®
Replacement Parts List 290 Series Manual

Bulletin HY25-2290-M1/US

Effective: August 15, 2004
Supersedes: HY25-2290-M1/US Dated Feb. 15, 2002



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Chelsea Products Division
Olive Branch, MS 38654 USA

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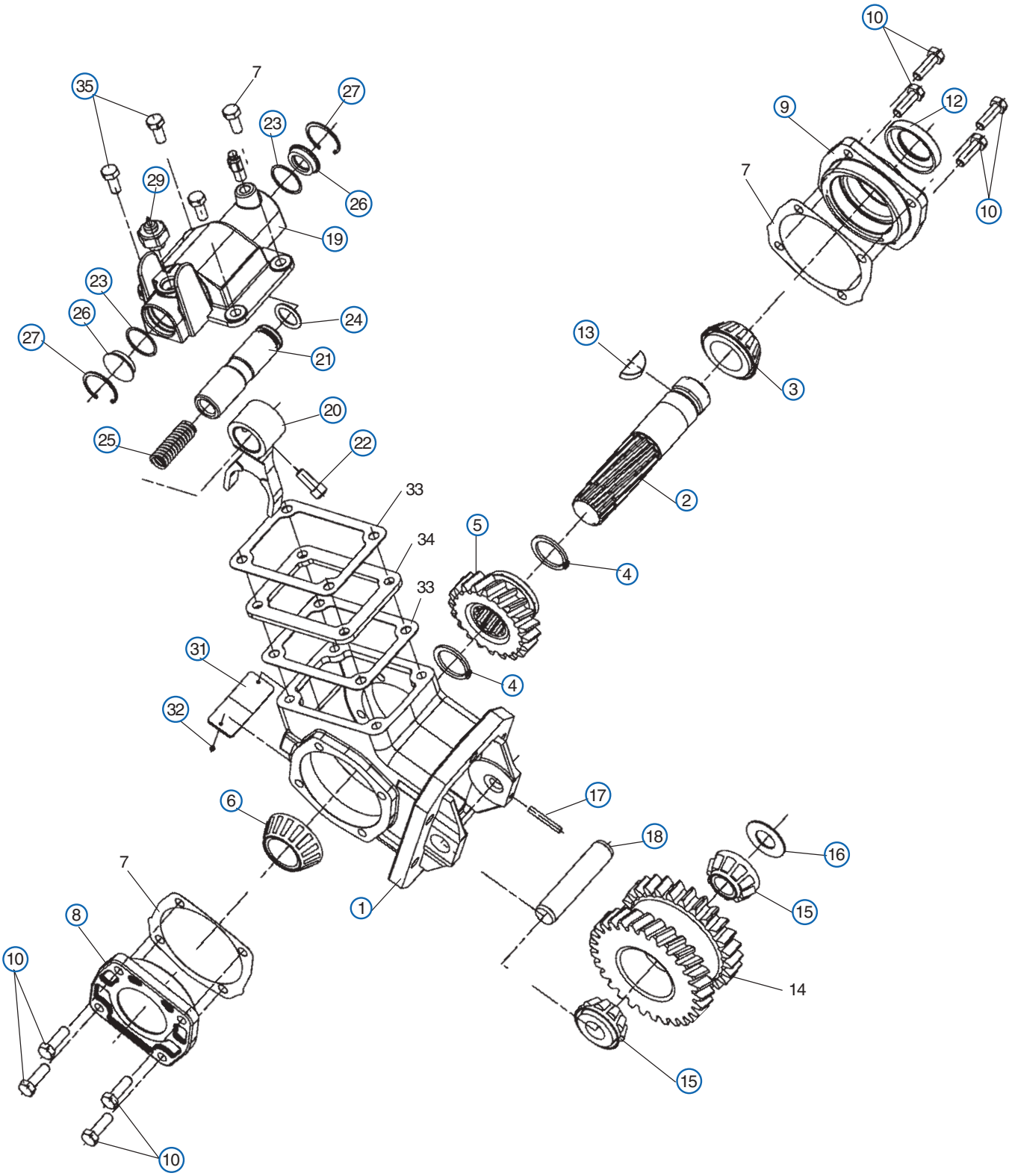

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Item		Part Number	Description	Quantity
1	▶	1-P-519X	Housing, Standard (Includes Item 17)	1
2	▶	3-P-202	Output Shaft, Standard ("XD")	1 or
		See Chart Pg 4	Other Output Shaft Options	1
3	▶	550397	Bearing Cone	1
4	▶	378391	Retaining Ring	2
5	▶	2-P-770	Gear, Output "F" Ratio (37 Teeth)	1 or
	▶	2-P-771	Gear, Output "L" Ratio (34 Teeth)	1
	▶	2-P-697	Gear, Output "Q" Ratio (24 Teeth)	1
	▶	2-P-699	Gear, Output "U" Ratio (20 Teeth)	1
6	▶	550532	Bearing Cone	1
7		22-P-24-1	Gasket, Bearing Cap .010" thick	A.R.
		22-P-24-2	Gasket, Bearing Cap .020" thick	A.R.
		22-P-24-3	Gasket, Bearing Cap .015" thick	A.R.
8	▶	328274X	Bearing Cap Assembly, Closed End	1
9	▶	328273X	Bearing Cap Assembly, Open End	1
		See Chart Pg. 4	Other Output Flange Options	
10	▶	378430-10	Capscrew, Hex Head (.312" - 18 x 1.0")	8
		See Chart Pg. 4	Other Flange Cap Screws	
12	▶	28-P-216	Oil Seal, Standard Output	1
		See Chart Pg. 4	Other Oil Seals	
13	▶	500007-29	Woodruff Key, "XD" Output	1
14		See Chart Pg. 3	Gear, Input	1
15	▶	550439	Bearing Cone	2
16	▶	14-P-15	Spacer, Idler Gear	A.R.
17	▶	500597-16	Pin, Slotted	1
18	▶	9-P-81	Shaft, Idler	1
	▶	329363X	Air Shift Control Assembly (includes items 19-28)	
19	▶	34-P-130	Cover, Shift	1
20	▶	32-P-180	Shifter Fork	1
21	▶	11-P-75	Shaft, Shifter	1
22	▶	378447-4	Capscrew, Allen Head	1
23	▶	28-P-42	Oil Ring	2
24	▶	28-P-41	Oil Ring	1
25	▶	37-P-21	Spring, Shifter	1
26	▶	378315	Cover Plug	2
27	▶	378316	Snap Ring	2
28		379639	Indicator Switch	1
29	▶	35-P-8	Gasket, Shift Cover (All Except "F" Ratio)	2 or
	▶	35-P-8	Gasket, Shift Cover ("F" Ratio Only)	3
30	▶	5-A-125	Spacer, (All Except "F" Ratio)	1 or
	▶	5-A-125	Spacer, ("F" Ratio Only)	1
	▶	5-A-250	Spacer, ("F" Ratio Only)	1
31	▶	68-P-2	Name Plate	1
32	▶	378422	Drive Screw	2
35	▶	378430-8	Capscrew, Hex Head (.312"-18 x .750") All Except "F" Ratio	4 or
	▶	378430-11	Capscrew, Hex Head (.312"-18 x 1.125") "F" Ratio Only	4
			PARTS SHIPPED LOOSE	
	▶	328170-76X	Stud Kit, Standard	1
		7170-72X	Stud Kit, Metric	1
	▶	328948-6X	Gasket & Installation Instructions	1
	▶	378414	Pressure Protection Valve ("V" Shifter Only)	1
	▶	379640	Booted Connector ("V" Shifter Only)	
		328388-37X	Installation Kit, Air Shift, "A" Shifter	1
	▶	328388-47X	Installation Kit, Air Shift, "P" Shifter	1
	▶	328388-48X	Installation Kit, Air Shift, "Q" Shifter	1
	▶	328388-65X	Installation Kit, Air Shift, "S" Shifter	1
		329166-12X	Installation Kit, E-Z Shift, "Z" Shifter	1
		328751X	Installation Kit, "Y" Shifter	1
			SERVICE KITS	
	▶	328356-50X	Gasket and Seal Kit	
	▶	328356-71X	Gasket and Seal Kit, Air Shift	
	▶	328390-123X	Air Shift Field Conversion Kit (Wire to Air)	1

A.R. — As Required

290 X Q GE X – Y 6 XD

Basic Model
290

Mounting Type
X = Standard Mount
G = Standard Mount w/Metric Stud Kit
K = Standard Mount Less Stud Kit

Gear Ratio
F = 29/37
L = 31/34
Q = 29/34
U = 29/20

Input Gear Designator
See Chart Below

Lubrication
X = No Option Available

Output Type
AA = Meiller
AF = S.A.E. “BB” 2 or 4 Bolt
AK = S.A.E. “B” 2 Bolt
AZ = S.A.E. “B” 4 Bolt
FF = S.A.E. “B” 2 or 4 Bolt
GH = Greaseable Rotatable S.A.E. “BB” 2 Bolt
MY = DIN 5462
RA = Rotatable S.A.E. “B” 2 Bolt
RB = Rotatable S.A.E. “B” 4 Bolt
RC = Rotatable S.A.E. “A” 2 Bolt
RE = Rotatable S.A.E. “B” 4 Bolt
RF = Rotatable S.A.E. “BB” 2 Bolt
XD = 1.250" Round
XG = S.A.E. “A” 2 Bolt
XJ = S.A.E. “A” 2 Bolt
XK = S.A.E. “B” 2 or 4 Bolt (Q-Ratio only)
XL = S.A.E. “A” 2 Bolt
XR = CHELSEA Special
XX = S.A.E. Tapered Shaft
XY = DIN 5462

Assembly Arrangement
3, 4, 5, 6

Shifter Type
A = Air
H = No Shifter
P = 12V Electric/Air
S = Air Shift w/Control Value
Q = 24V Electric/Air
V = Air Shift, Less Installation Kit

Input Gear Chart

Model Number	Part Number	Transmission Mating Gear	P.T.O. Output Mating Gear	Comments
290*QGE	5-P-992	32	29	Eaton 4106 A & B
290*QGF	5-P-993	26	29	Eaton 4106 OD
290*UGE	5-P-1136	32	29	Eaton 4106 A & B
290*FHU	5-P-1221	26	29	Mack T2060A
290*LHU	5-P-1222	26	31	Mack T2060A
290*QHU	5-P-1223	26	29	Mack T2060A
290*UHU	5-P-1224	26	29	Mack T2060A
290*FHZ	5-P-1238	34	29	CL-3905/FSO-4305
290*LHZ	5-P-1239	34	31	CL-3905/FSO-4305
290*QHZ	5-P-1240	34	29	CL-3905/FSO-4305
290*UHZ	5-P-1241	34	29	CL-3905-FSO-4305
290*QJJ	5-P-1258	19	29	ZED-F 6S-850

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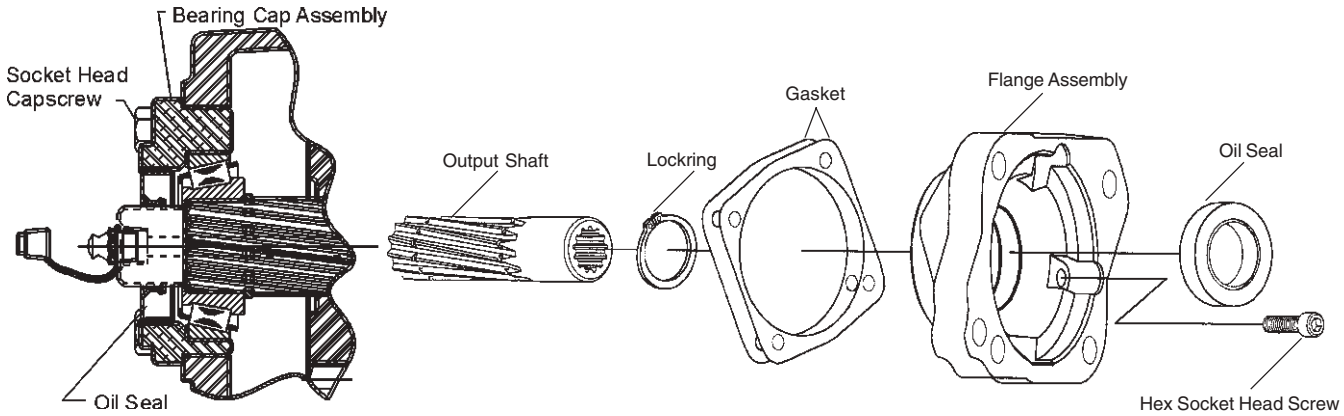

Rear Cap

Output	Part Number	Description	Qty
AA	**3-P-862**	Output Shaft	1
	▶ **28-P-216**	Oil Seal	1
	239102X	Bearing Cap Assy.(21-P-532)	1
	▶ **378447-8**	Socket Head Capscrew (.312" - 18 x 1.5")	4
AF	**3-P-854**	Output Shaft	1
	▶ **28-P-219**	Oil Seal	1
	▶ **329088X**	Bearing Cap Assy.(21-P-522)	1
	▶ **378447-10**	Socket Head Capscrew (.312" - 18 x 1.5")	4
AK	**3-P-282**	Output Shaft	1
	▶ **28-P-216**	Oil Seal	1
	▶ **328989X**	Bearing Cap Assy.(21-P-472)	1
	▶ **378447-8**	Socket Head Capscrew (.312" - 18 x 1.5")	4
AZ	**3-P-844**	Output Shaft	1
	28-P-230	Oil Seal	1
	▶ **329052X**	Bearing Cap Assy.(21-P-508)	1
	379982	Hex Washer Flange Bolt (.312" - 18 x 2.5")	4
FF	**3-P-851**	Output Shaft	1
	▶ **28-P-219**	Oil Seal	1
	▶ **329088X**	Bearing Cap Assy. (21-P-522)	1
	▶ **378447-10**	Socket Head Capscrew (.312" - 18 x 2.0")	4
G*	**3-P-938X**	"GM"	1 or
	▶ **3-P-941X**	"GH", "GJ" Shaft Assemblies	1
	▶ **500168-2**	Lube Fitting (Zerk)	1
	▶ **379819**	Grease Fitting Cap	1
	▶ **379688**	Coupling Lube Pack (5/8 fl.oz)	1
	▶ **28-P-268**	Rear Bearing Cap Shaft Oil Seal	1
	▶ **328273X**	Rear Bearing Cap Assembly	1
	▶ **378430-10**	Rear Bearing Cap Hex Head Capscrew	4
MY	**3-P-768**	Output Shaft	1
	▶ **28-P-275**	Oil Seal	1
	329412X	Bearing Cap Assy. (21-P-675)	1
	▶ **378447-6**	Socket Head Capscrew (.312" - 18 x 1.0")	4

Continued on following page

Output	Part Number	Description	Qty
RA	**3-P-283**	Output Shaft	1
	▶ **28-P-216**	Oil Seal	1
	▶ **329195X**	Bearing Cap Assy. (21-P-574)	1
	▶ **21-P-628**	Pump Flange (Ship Loose with unit)	1
	▶ **378447-6**	Socket Head Capscrew	4
	▶ **328170-207X**	Capscrew Bag Kit	1
	378170-6	Socket Head Capscrew	3
RB	**3-P-283**	Output Shaft	1
	▶ **28-P-216**	Oil Seal	1
	▶ **329195X**	Bearing Cap Assy. (21-P-574)	1
	▶ **21-P-572**	Pump Flange (Ship Loose with unit)	1
	▶ **378447-6**	Socket Head Capscrew	4
	▶ **328170-207X**	Capscrew Bag Kit	1
	378170-6	Socket Head Capscrew	3
RC	**3-P-800**	Output Shaft	1
	▶ **28-P-216**	Oil Seal	1
	▶ **329322X**	Bearing Cap Assy (21-P-640)	1
	▶ **21-P-638**	Pump Flange	1
	▶ **378447-6**	Socket Head Capscrew (.312" - 18 x 1.0")	4
	▶ **328170-210X**	Capscrew Bag Kit	1
	▶ **378447-4**	Socket Head Capscrew (.312" - 18 x .75")	6
RE	**3-P-924**	Output Shaft	1
	▶ **28-P-219**	Oil Seal	1
	▶ **329264X**	Bearing Cap Assy. (21-P-629)	1
	▶ **21-P-654**	Pump Flange	1
	▶ **378447-6**	Socket Head Capscrew (.312" - 18 x 1.0")	4
	▶ **28-P-271**	O-Ring	1
RF	**3-P-924**	Output Shaft	1
	▶ **28-P-219**	Oil Seal	1
	▶ **329264X**	Bearing Cap Assy. (21-P-629)	1
	▶ **21-P-626**	Pump Flange	1
	▶ **378447-6**	Socket Head Capscrew (.312" - 18 x 1.0")	7
	▶ **28-P-271**	O-Ring	1
XG	**3-P-281**	Output Shaft	1
	▶ **28-P-216**	Oil Seal	1
	▶ **328580X**	Bearing Cap Assy. (21-P-259)	1
	▶ **378447-8**	Socket Head Capscrew (.312" - 18 x 1.5")	4
XJ	**3-P-284**	Output Shaft	1
	▶ **28-P-216**	Oil Seal	1
	▶ **328580X**	Bearing Cap Assy.(21-P-259)	1
	▶ **378447-8**	Socket Head Capscrew (.312" - 18 x 1.5")	4
XK	**3-P-282**	Output Shaft	1
	▶ **28-P-216**	Oil Seal	1
	▶ **328333X**	Bearing Cap Assy.(21-P-424)	1
	▶ **378447-8**	Socket Head Capscrew (.312" - 18 x 1.5")	4
XL	**3-P-283**	Output Shaft	1
	▶ **28-P-216**	Oil Seal	1
	▶ **328580X**	Bearing Cap Assy.(21-P-259)	1
	▶ **378447-8**	Socket Head Capscrew (.312" - 18 x 1.5")	4

Continued on following page

Output	Part Number	Description	Qty
XR	**3-P-283**	Output Shaft	1
	▶ **28-P-216**	Oil Seal	1
	▶ **329194X**	Bearing Cap Assembly (21-P-574)	1
	▶ **379673**	Hex Shoulder Screw (.312" - 24)	4
	▶ **379063**	Flat Washer	4
	▶ **328711X**	Pump Mounting Kit	1
	▶ **378919**	Washer	4
	500963-1	Hex Lock Nut (.312" - 24)	4
XX	**3-P-766**	Output Shaft	1
	▶ **28-P-216**	Oil Seal	1
	▶ **329273X**	Bearing Cap Assy. for 660 & 680 Series	1 or
	▶ **328273X**	Bearing Cap Assy. (21-P-418)	1
	▶ **378430-10**	Hex Capscrew (.312" - 18 x 1.0")	4
	▶ **379111**	Square Key	1
	501181	Hex Locknut (1.0" - 20)	1
XY	**3-P-768**	Output Shaft	1
	▶ **28-P-275**	Oil Seal	1
	328234X	Bearing Cap Assy. (21-P-614)	1
	▶ **378447-6**	Socket Head Capscrew (.312" - 18 x 1.0")	4

Flange Suffix	Flange Type	Shaft Type	Conversion Kit
AA	Special for England	.982"-6 Spline	
AF	S.A.E. "B" 2 or 4 Bolt	1.0"-15 Spline	XD to AF 328591-30X
AK	S.A.E. "B" 2 Bolt	7/8"-13 Spline	XD to AK 328591-28X
AZ	S.A.E. 4 Bolt	1-1/4"-14 Spline	XD to AZ 328591-70X
FF	S.A.E. "B" 2 or 4 Bolt	7/8" Round	XD to FF 328591-29X
● GH	Rotatable S.A.E. "BB" 2 Bolt	1.0"-15 Spline	XD to GH 328591-116X
● GJ	S.A.E. "B" 4 Bolt Rotatable	1.0"-15 Spline	XD to GJ 328591-138X
● GM	Din 5462 Pump Mounting	DIN 5462	XD to GM 328591-148X
MY	Din 5462 Pump Mounting	DIN 5462	XD to MY 328591-146X
RA	Rotatable S.A.E. "B" 2 Bolt	7/8"-13 Spline	XD to RA 328591-55X
RB	Rotatable S.A.E. "B" 4 Bolt	7/8"-13 Spline	XD to RB 328591-56X
RC	Rotatable S.A.E. "A" 2 Bolt	5/8"-9 Spline	XD to RC 328591-112X
RE	S.A.E. "B" 4 Bolt Rotatable	1.0"-15 Spline	XD to RE 328591-134X
RF	Rotatable S.A.E. "B" 2 Bolt	1.0"-15 Spline	XD to RF 328591-78X
XG	Non-standard-S.A.E. "A" 2 Bolt	3/4" Round w/ 3/16 key	XD to XG 328591-10X
XJ	Non-standard 2 Bolt	3/4" Round	XD to XJ 328591-11X
XK	S.A.E. "B" 2 or 4 Bolt	7/8"-13 Spline	XD to XK 328591-16X
XL	Non-standard 2 Bolt	7/8"-13 Spline	XD to XL 328591-18X
XR	Chelsea Special 4 Bolt	7/8"-13 Spline	XD to XR 328591-52X
XX	S.A.E Tapered Shaft	1-1/4" w/ 5/16" key	XD to XX 328591-122X
XY	Din 5462 Pump Mounting	DIN 5462	XD to XY 328591-121X

NOTE: Check Current Price Sheet for Availability of Output Options

XR to "XK" Conversion Flange 21-P-525
- ● Shaft with Grease Fitting
- ■ Similar to Ass'y "XK" Flange Rotated 90°

Bills of Materials for Pump Flange Conversion Kits

Part Number	Description	Quantity
▶ 328591-10X	**Conversion Kit (XD - XG)**	
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 28-P-216	Oil Seal	1
▶ 3-P-281	Output Shaft	1
▶ 328580X	Bearing Cap Assy.(21-P-259)	1
▶ 378391	Retaining Ring	2
▶ 378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4
▶ 328591-11X	**Conversion Kit (XD - XJ)**	
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 28-P-216	Oil Seal	1
▶ 3-P-284	Output Shaft	1
▶ 328580X	Bearing Cap Assy.(21-P-259)	1
▶ 378391	Retaining Ring	2
▶ 378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4
▶ 328591-16X	**Conversion Kit (XD - XK)**	
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 28-P-216	Oil Seal	1
▶ 3-P-282	Output Shaft	1
▶ 328333X	Bearing Cap Assy.(21-P-424)	1
▶ 378391	Retaining Ring	2
▶ 378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4
▶ 379688	Grease Pack	1

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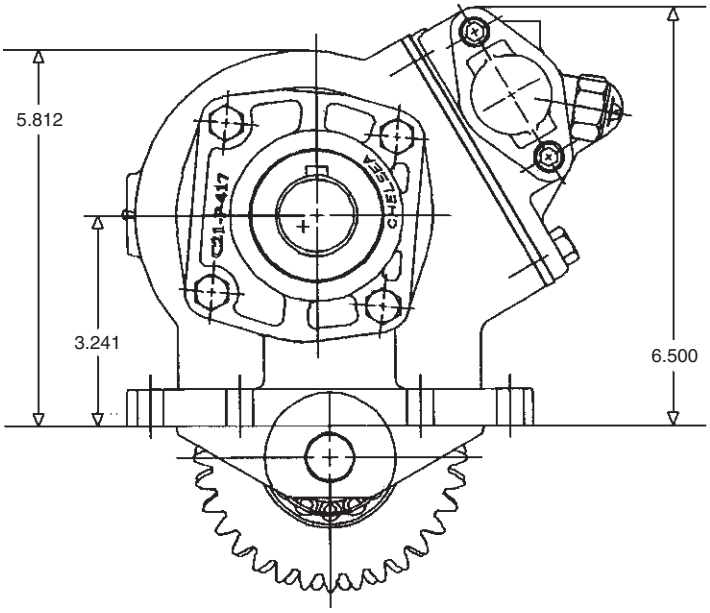
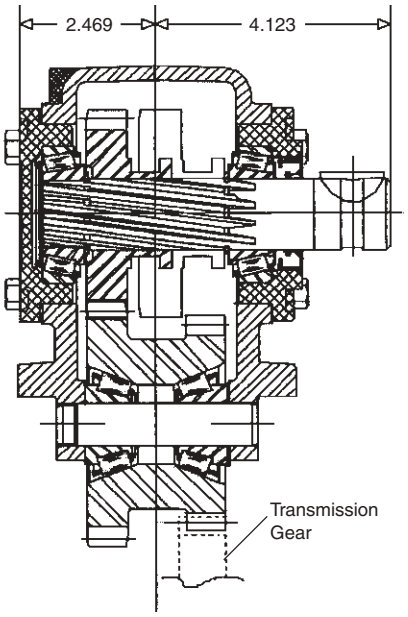
Part Number	Description	Quantity
▶ 328591-16X	**Conversion Kit (XD - XL)**	
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 28-P-216	Oil Seal	1
▶ 3-P-283	Output Shaft	1
▶ 328580X	Bearing Cap Assy.(21-P-259)	1
▶ 378391	Retaining Ring	2
▶ 378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4
▶ 379688	Grease Pack	1
▶ 328591-28X	**Conversion Kit (XD - AK)**	
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 28-P-216	Oil Seal	1
▶ 3-P-282	Output Shaft	1
▶ 328989X	Bearing Cap Assy.(21-P-472)	1
▶ 378391	Retaining Ring	2
▶ 378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4
▶ 379688	Grease Pack	1
328591-29X	**Conversion Kit (XD - FF)**	
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 28-P-219	Oil Seal	1
3-P-851	Output Shaft	1
▶ 329088X	Bearing Cap Assy.(21-P-522)	1
▶ 378391	Retaining Ring	2
▶ 378447-10	Socket Head Capscrew (.312" - 18 x 2.0")	4
▶ 379688	Grease Pack	1
▶ 328591-52X	**Conversion Kit (XD - XR)**	
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 28-P-216	Oil Seal	1
▶ 3-P-283	Output Shaft	1
▶ 328711X	Pump Mounting	1
▶ 378919	Washer (.328" ID x .062")	4
500963-1	Hex Lock Nut (.312"-24)	4
▶ 329194X	Bearing Cap Assy.(21-P-574)	1
▶ 379637	Socket Head Screw (.312" - 18)	2
▶ 378391	Retaining Ring	2
▶ 379063	Flat Washer (.339" ID x .052")	4
▶ 379673	Stud, Shoulder (.312"-18 x .312"-24)	4
▶ 379688	Grease Pack	1
▶ 328591-55X	**Conversion Kit (XD - RA)**	
▶ 21-P-628	Pump Flange	1
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 28-P-216	Oil Seal	1
▶ 3-P-283	Output Shaft	1
▶ 329195X	Bearing Cap Assy.(21-P-574)	1
▶ 378391	Retaining Ring	2
▶ 378447-6	Socket Head Capscrew (.312" - 18 x 1.0")	7
▶ 379688	Grease Pack	1

Part Number	Description	Quantity
▶ 328591-56X	**Conversion Kit (XD - RB)**	
▶ 21-P-572	Pump Flange	1
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 28-P-216	Oil Seal	1
▶ 3-P-283	Output Shaft	1
▶ 329195X	Bearing Cap Assy.(21-P-574)	1
▶ 378391	Retaining Ring	2
▶ 378447-6	Socket Head Capscrew (.312" - 18 x 1.0")	7
▶ 379688	Grease Pack	1
▶ 328591-70X	**Conversion Kit (XD - AZ)**	
▶ 379688	Grease Pack	1
▶ 378447-11	Socket Head Capscrew (.312" - 18 x 2.250")	4
▶ 3-P-844	Output Shaft	1
28-P-230	Oil Seal	1
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 378391	Retaining Ring	2
▶ 329052X	Bearing Cap Assy.(21-P-508)	1
▶ 328591-78X	**Conversion Kit (XD - RF)**	
▶ 21-P-626	Pump Flange	1
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 28-P-219	Oil Seal	1
▶ 3-P-924	Output Shaft	1
▶ 329264X	Bearing Cap Assy.(21-P-629)	1
▶ 378391	Retaining Ring	2
▶ 378447-6	Socket Head Capscrew (.312" - 18 x 1.0")	4
▶ 379688	Grease Pack	1
28-P-638	O-Ring	1
328591-112X	**Conversion Kit (XD - RC)**	
▶ 21-P-638	Pump Flange	1
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 28-P-216	Oil Seal	1
▶ 3-P-800	Output Shaft	1
▶ 329322X	Bearing Cap Assy.(21-P-640)	1
▶ 378391	Retaining Ring	2
▶ 378447-6	Socket Head Capscrew (.312" - 18 x 1.0")	4
▶ 379688	Grease Pack	1
▶ 378446-4	Screw, Socket (.250" - 20 x .750")	6

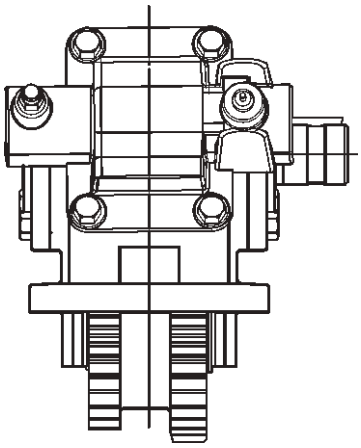
Part Number	Description	Quantity
▶ 328591-116X	**Conversion Kit (XD - GH)**	
▶ 21-P-626	Pump Flange	1
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 28-P-219	Oil Seal	1
▶ 3-P-941X	Output Shaft	1
▶ 379688	Grease Pack	1
▶ 379819	Grease Fitting Cap	1
▶ 500168-2	Fitting	1
▶ 328273X	Closed Bearing Cap Assy.(21-P-418)	1
▶ 378391	Retaining Ring	2
▶ 378447-6	Socket Head Capscrew (.312" - 18 x 1.0")	7
▶ 28-P-268	Oil Seal	1
▶ 329264X	Open Bearing Cap Assy.(21-P-629)	1
▶ 28-P-271	O-Ring	1
▶ 328591-122X	**Conversion Kit (XD - XX)**	
501181	Hex Nut	1
▶ 3-P-766	Output Shaft	1
▶ 28-P-216	Oil Seal	1
▶ 378430-10	Hex Capscrew (.312" - 18 x 1.0")	4
▶ 379111	Square Key	1
▶ 328591-134X	**Conversion Kit (XD - RE)**	
▶ 21-P-654	Pump Flange	1
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 28-P-219	Oil Seal	1
▶ 328273X	Closed Bearing Cap Assy.(21-P-418)	1
▶ 378391	Retaining Ring	2
▶ 378447-6	Socket Head Capscrew (.312" - 18 x 1.0")	7
▶ 28-P-268	Oil Seal	1
▶ 329264X	Open Bearing Cap Assy.(21-P-629)	1
▶ 28-P-271	O-Ring	1
▶ 379688	Grease Pack	1
▶ 328591-138X	**Conversion Kit (XD - GJ)**	
▶ 21-P-654	Pump Flange	1
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ 28-P-219	Oil Seal	1
▶ 3-P-941X	Output Shaft	1
▶ 500168-2	Fitting	1
▶ 379688	Grease Pack	1
▶ 379819	Grease Fitting Cap	1
▶ 328273X	Closed Bearing Cap Assy.(21-P-418)	1
▶ 378391	Retaining Ring	2
▶ 378447-6	Socket Head Capscrew (.312" - 18 x 1.0")	7
▶ 28-P-268	Oil Seal	1
▶ 329264X	Open Bearing Cap Assy.(21-P-629)	1
▶ 28-P-271	O-Ring	1

Part Number	Description	Quantity
328591-146X	**Conversion Kit (XD - MY)**	
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ **3-P-768**	Output Shaft	1
▶ **28-P-275**	Oil Seal	1
329412X	Bearing Cap Assy. (21-P-675)	1
▶ **378447-6**	Socket Head Capscrew (.312" - 18 x 1.0")	4
▶ **378391**	Retaining Ring	2
328591-148X	**Conversion Kit (XD - GM)**	
▶ **28-P-275**	Oil Seal	1
▶ **378391**	Retaining Ring	2
329412X	Open Bearing Cap Assy. (21-P-675)	1
▶ **378447-6**	Socket Head Capscrew (.312" - 18 x 1.0")	4
▶ **328273X**	Closed Bearing Cap Assy. (21-P-418)	1
▶ **28-P-268**	Oil Seal	1
22-P-24-1	Gasket, Bearing Cap .010" thick	2
22-P-24-2	Gasket, Bearing Cap .020" thick	2
22-P-24-3	Gasket, Bearing Cap .015" thick	1
▶ **3-P-938X**	Output Shaft	1
▶ **500168-2**	Fitting	1
▶ **379688**	Grease Pack	1
▶ **379819**	Grease Fitting Cap	1

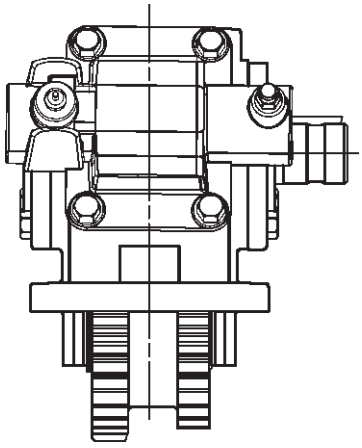




Assembly Arrangements



Assembly 3



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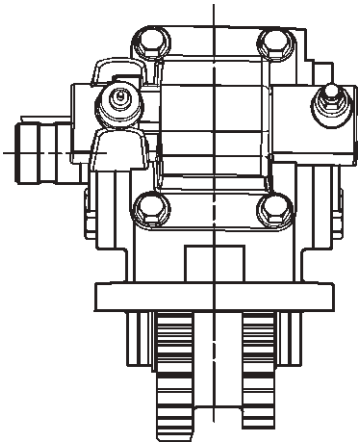

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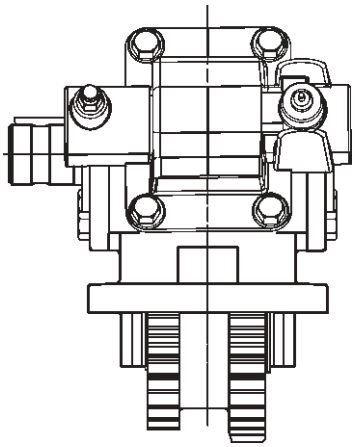

Assembly 6

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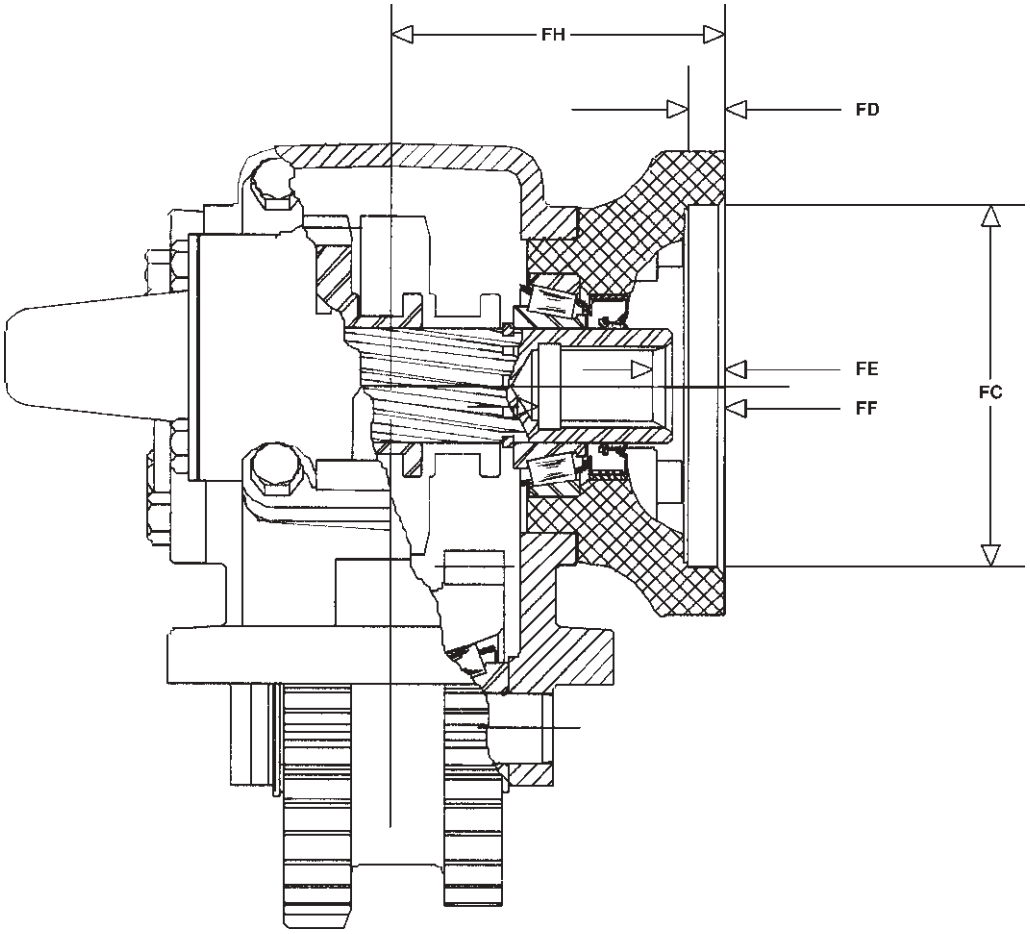

Pump Flange Suffix	Bolt Circle Dia.	Bolt Holes		FC	FD	FE	FF	FH	Output Shaft	Keyway Width
		Tapped Hole	No. Equally Spaced	Female Pilot Dia.	Pilot Depth	Face to End of Shaft	Face thru Hole	Face to Center of P.T.O.	Hole Diameter	
AA	2.83	M10-1.5	6	2.05	N/A	N/A	N/A	3.447	6 Spline	—
AF	5.00	.500" - 13	4	4.003	0.406	0.516	1.984	4.322	1" - 15 Spline	—
AK	5.75	.500" - 13	2	4.003	0.406	0.516	1.984	4.322	.875" - 13 Spline	—
AZ	5.75	.500" - 13	4	4.003	0.406	0.562	2.062	4.985	1.25" - 14 Spline	—
FF	5.00	.500" - 13	4	4.003	0.406	0.516	1.984	4.322	.875" Round	.25"
	5.75	.500" - 13	2	—	—	—	—	—	—	—
MY	3.15 x 3.15	M12-1.75	12	3.152	0.393	0.594	2.508	4.697		
RA	5.75	.500" - 13	2	4.003	0.406	0.558	2.058	4.558	.875" - 13 Spline	—
RB	5.00	.500" - 13	4	4.003	0.406	0.558	2.058	4.558	.875" - 13 Spline	—
RC•	4.188	.375 -16	2tt	3.253	0.27	0.525	1.462	3.694	.625" - 9 Spline	—
RE•	3.532 x 3.532	.500"13	4	4.003	0.406	0.501	1.969	4.569	1.0"-15 Spline	
RF•, GH	5.75	.500" - 13	2tt	4.003	0.406	0.501	1.969	4.569	1.0" - 15 Spline	—
XG	4.19	.500" - 13	4	3.253	0.562	0.562	2.331	4.562	.75" Round	.1875"
XJ	4.19	.500" - 13	4	3.253	0.562	1.406	3.018	4.562	.75" Round	.1875"
*XK	5.00	.500" - 13	4	4.003	0.406	0.562	2.062	3.688	.875" - 13 Spline	—
	5.75	.500" - 13	2	—	—	—	—	—	—	—
XL	4.19	.500" - 13	4	3.253	0.562	0.562	2.062	4.562	.875" - 13 Spline	—
XR	3.71	—	4	2.752	0.281	N/A	N/A	2.809	.875" - 13 Spline	—
XY	4.61	M12-1.75	4	3.152	0.393	0.594	2.31	4.697	DIN 5462 Spline	—

* Available on the "Q" Ratio only
• Rotatable Flange Rotates in 30° Increments
tt Two Set of Holes Spaced 14° Apart
NOTE: To convert an "XR" to an "XK", use conversion flange number 21-P-525

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Notes

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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, 245, 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.

9/01-P

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