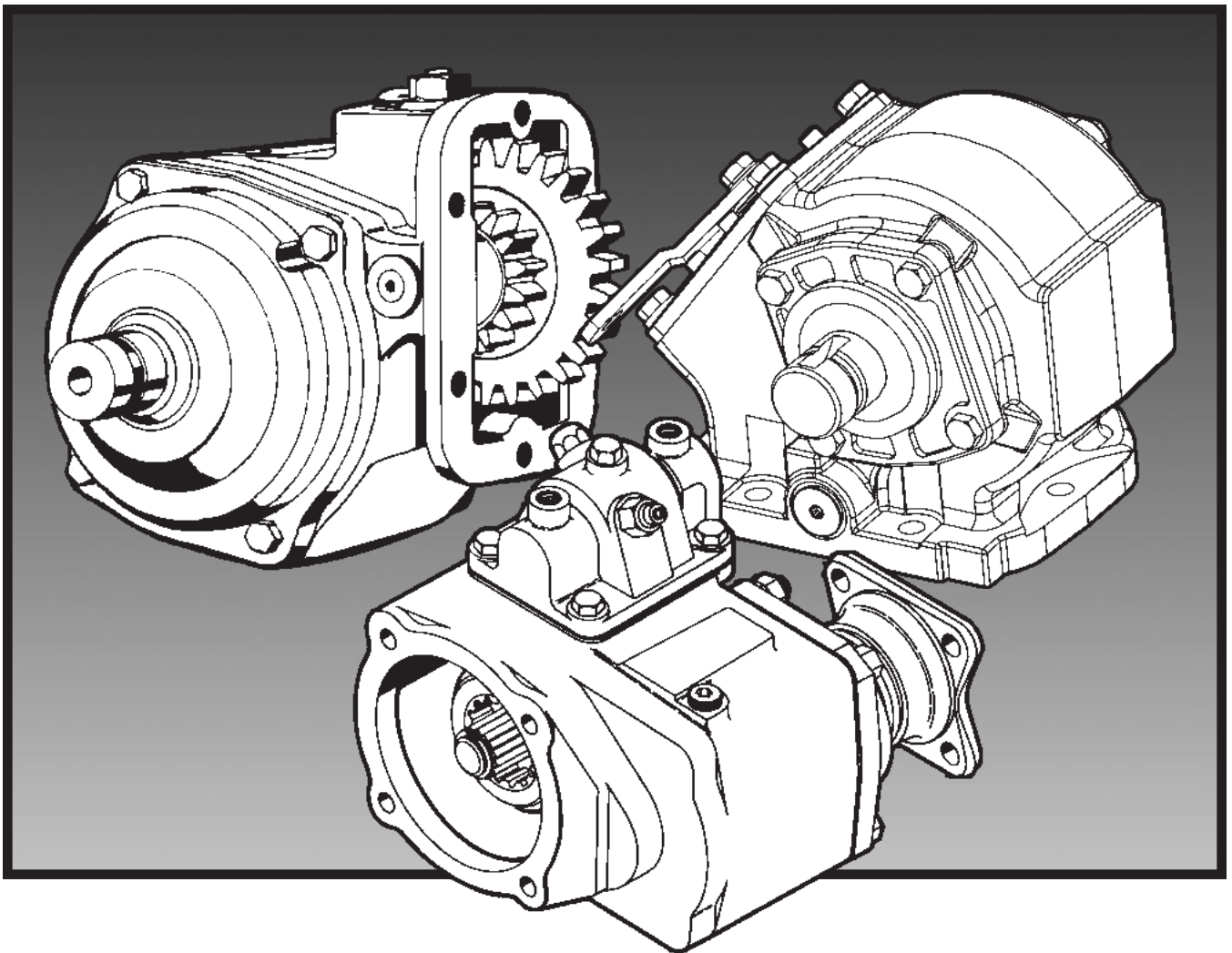


Parts List 442, 447 & 489 Series

Effective: November 15, 2010
Supersedes: HY25-2442-M1/US Dated June 2007





WARNING — User Responsibility

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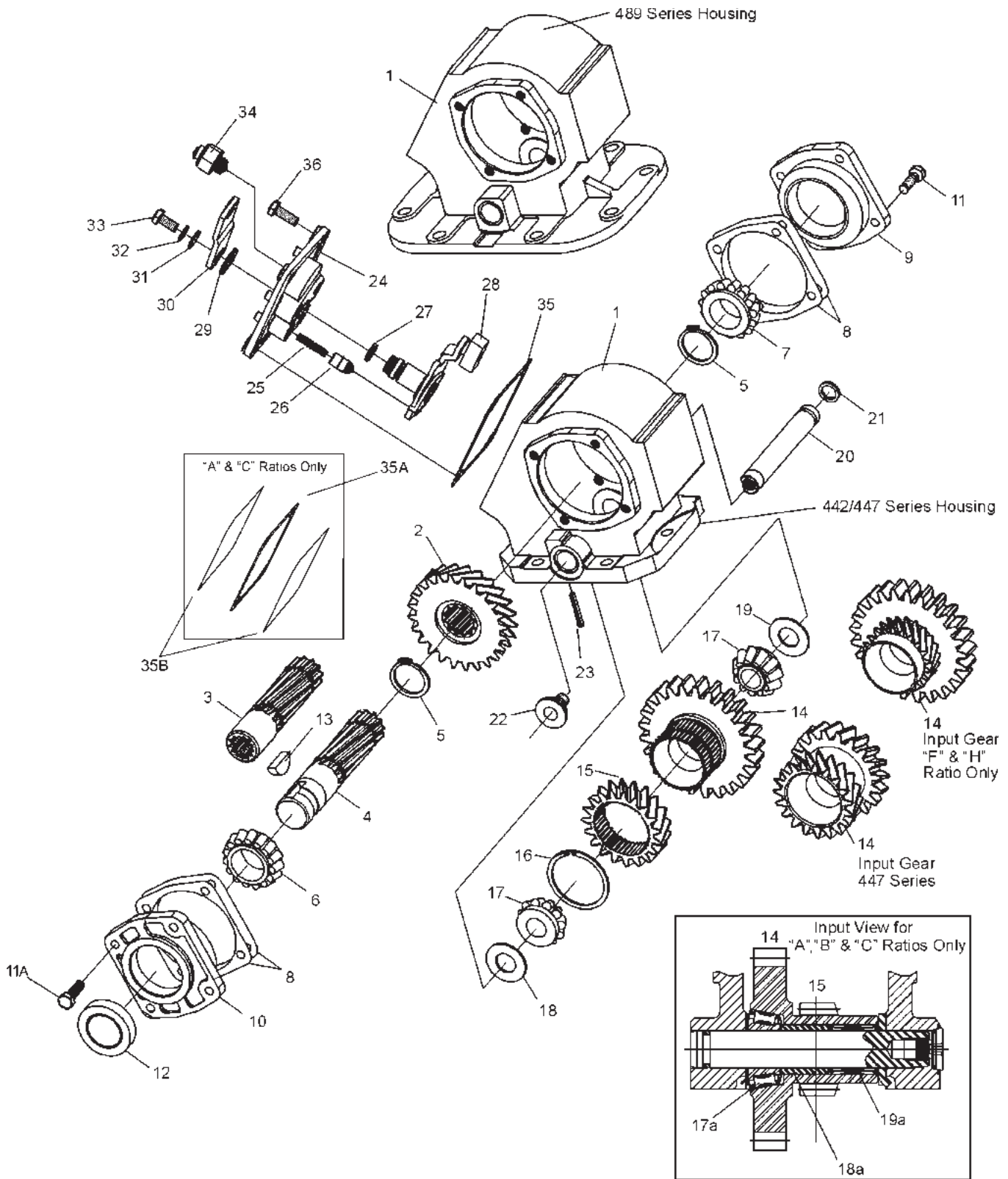
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Bill of Materials

Item	Part Number	Description	Quantity		
			442	447	489
1	1-P-557X 1-P-558X 1-P-552X 1-P-562X	Housing, Standard Mount ("X", "G" & "K") (Includes Item 23) Housing, Deep Mount ("Z" & "L") (Includes Item 23) Housing, Standard Mount (Includes Item 23) Housing, Deep Mount (Includes Item 23)	1 1 - -	1 1 - -	- - 1 1
2	See Charts, Pgs 9-12	Gear, Output	1	1	1
3	See Charts, Pgs 15-18	Shaft, Output Pump Mount	1	1	1
4	3-P-202 3-P-978	Shaft, Output ("XD") Standard 1.250" Rd .313" KW Shaft, Output ("XD" for "B" Ratio Only) Standard 1.250" Rd .313" KW	1 1	1 -	1 -
5	378391	Lockring (All other shifter types Except "M")	2	2	2
6	550397	Bearing Cone.....	1	1	1
7	550532	Bearing Cone.....	1	1	1
8	22-P-24-1 22-P-24-2 22-P-24-3	Gasket, Bearing Cap (.010")..... Gasket, Bearing Cap (.020")..... Gasket, Bearing Cap (.015").....	A.R. A.R. A.R.	A.R. A.R. A.R.	A.R. A.R. A.R.
9	328274X	Bearing Cap Assembly, Close End	1	1	1
N.S.	550221	Bearing Race	1	1	1
10	328273X	Bearing Cap Assembly, Open End ("XD" Output)	1	1	1
N.S.	550221	Bearing Race	1	1	1
	See Charts, Pgs 15-18	Bearing Cap Assembly, Pump Mounts	1	1	1
11	378447-6	Capscrew, Hex Head (.312" - 18 x 1.00") (Closed Cap Side)	4	4	4
11A	378447-8	Capscrew, Hex Head (.312" - 18 x 1.00") ("XD" Output).....	4	4	4
12	28-P-216	Oil Seal, "XD" Output	1	1	1
	See Charts, Pgs 15-18	Oil Seal	1	1	1
13	500007-29	Key, Woodruff ("XD" Output)	1	1	1
14	See Charts, Pgs 9-12	Gear, Input	1	1	1
15	See Charts, Pgs 9-12	Gear, Input Ratio.....	1	1	1
16	379522	Lock Ring	1	1	1
17	550439	Bearing Cone.....	2	2	2
17A	561006	Bearing Cone, Tapered ("A", "B" & "C" Only)	1	-	1
18A	14-P-75	Spacer, Input Bearing ("A", "B" & "C" Only)	1	-	1
19A	550890	Bearing, Needle Roller ("A", "B" & "C" Only)	1	-	1
18	14-P-73-1 14-P-73-2 14-P-73-3	Spacer, Idler Gear (.149" - .151")..... Spacer, Idler Gear (.152" - .154")..... Spacer, Idler Gear (.155" - .157").....	A.R. A.R. A.R.	A.R. A.R. A.R.	A.R. A.R. A.R.
19	31-P-102	Thrust Washer, Bearing	1	1	1
20	9-P-88 9-P-89	Shaft, Idler Standard..... Shaft, Idler Pressure Lube ("P").....	1 1	1 1	1 1
21	28-P-191	O-Ring.....	1	1	1
22	379672	Plug, O-Ring w/Socket Face (NWD Plug).....	1	1	1
23	500597-14 500597-16	Roll Pin, Deep Mount (1" Long) Roll Pin, Standard Mount (1.125" Long)	1 1	1 1	1 1
		Cable Control Cover Assemblies Ratios "Q", "W" & "X"			
	329119-1X 329119-2X	Shifter Cover Ass'y, Wire Control (Ass'y 3 & 6)..... Shifter Cover Ass'y, Wire Control (Ass'y 4 & 5).....	1 1	- -	1 1
		Ratios "F", "H", "L", "R", "S" & "U"			
	329121-1X 329121-2X	Shifter Cover Ass'y, Wire Control (Ass'y 3 & 6)..... Shifter Cover Ass'y, Wire Control (Ass'y 4 & 5).....	1 1	- -	1 1
		Ratios "A", "B" & "C"			
	329271-1X 329271-2X	Shifter Cover Assembly, Wire Control (Ass'y 3 & 6)..... Shifter Cover Assembly, Wire Control (Ass'y 4 & 5).....	1 1	- -	1 1

N.S. — Not Shown A.R.—As Required
See Pages 24-35 for Kit Bill of Materials

Continued on Next Page

Bill of Materials

Item	Part Number	Description	Quantity		
			442	447	489
	329151-1X	Ratios "Q" & "W"			
		Shifter Cover Assembly, Wire Control (Ass'y 3 & 6).....	-	1	-
	329151-2X	Shifter Cover Assembly, Wire Control (Ass'y 4 & 5).....	-	1	-
	329152-1X	Ratios "R", "S" & "U"			
		Shifter Cover Assembly, Wire Control (Ass'y 3 & 6).....	-	1	-
	329152-2X	Shifter Cover Assembly, Wire Control (Ass'y 4 & 5).....	-	1	-
24	34-P-39	All the above shift cover assemblies include items 24 thru 35			
		Cover Plate, Shifter - Constant Mesh.....	1	1	1
	34-P-74	Cover Plate, Shifter.....	1	-	1
25	37-P-19	Spring.....	1	1	1
26	63-P-16	Poppet Pin.....	1	1	1
27	28-P-191	O-Ring.....	1	1	1
28	329118-1X	Ratios "Q" & "W" & "X"			
		Post and Plate Assembly, (Ass'y 3 & 6)	1	1	1
28	329118-2X	Post and Plate Assembly, (Ass'y 4 & 5)	1	1	1
28	329120-1X	Ratios "F", "H", "L", "R", "S" & "U"			
		Post and Plate Assembly, (Ass'y 3 & 6)	1	1	1
28	329120-2X	Post and Plate Assembly, (Ass'y 4 & 5)	1	1	1
28	329265-1X	Ratios "A", "B" & "C"			
		Post and Plate Assembly, (Ass'y 3 & 6)	1	-	1
28	329265-2X	Post and Plate Assembly, (Ass'y 4 & 5)	1	-	1
29	378004	Flat Washer	1	1	1
30	51-P-22	Shifter Lever.....	1	1	1
31	500365-22	Flat Washer.....	1	1	1
32	500356-10	Lockwasher.....	1	1	1
33	500409-6	Capscrew, Hex Head (.312" - 24 x .625")	1	-	1
34	379639	Indicator Switch, Pin Style (Normally Off).....	1	-	1
	379652	Indicator Switch, Pin Style (Normally On).....	-	1	-
	35-P-8	Gasket, Shifter Cover.....	1	1	1
35A	5-A-188	Gasket, Shifter Cover ("A", "B" & "C" Ratio Only)	1	-	1
35B	35-P-8	Gasket, Shifter Cover ("A", "B" & "C" Ratio Only)	2	-	2
36	378430-9	Capscrew, Hex Head (.312" - 18 x .875") (Wire, Electric & Air Shift)....	4	4	4
	378447-6	Capscrew, Hex Head (.312" - 18 x 1.000") (Wire Shift "A", "B" & "C" Ratio)	4	-	4
N.S.	68-P-2	Name Plate	1	1	1
N.S.	378422	Drive Screw, Name Plate	2	2	2
		Loose Parts			
		P.T.O. Mounting Kit			
	328170-76X	Mounting Kit ("X" Mounting Type).....	1	1	-
	328170-77X	Mounting Kit ("Z" Mounting Type).....	1	1	-
	7170-72X	Mounting Kit ("G" Metric Mounting Type)	1	1	-
	328170-201X	Mounting Kit ("G" Metric Mounting Type)	-	-	1
	328170-200X	Mounting Kit ("X" & "Z" Mounting)	-	-	1
	328346-10X	Cable, Wire Control ("W" Shifter)	1	1	1
	328380X	Parts Bag, Wire Control ("W" Shifter).....	1	1	1
	329245X	Bracket Kit, Wire Control ("C" Shifter)	1	-	1

N.S. — Not Shown A.R.—As Required
See Pages 24-35 for Kit Bill of Materials

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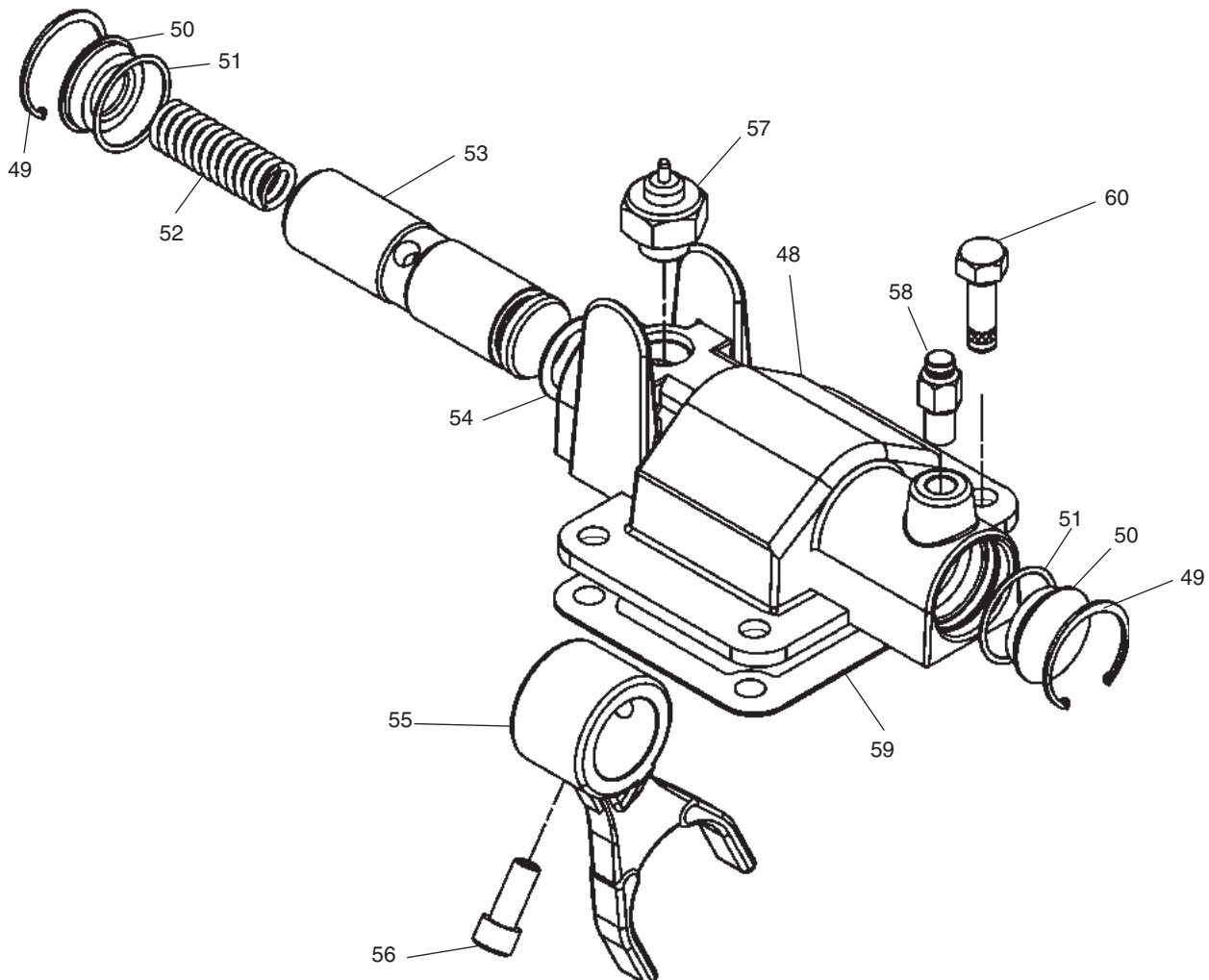
Bill of Materials

Item	Part Number	Description	Quantity		
			442	447	489
		Air Shift Installation Kit			
	328388-37X	Air Shift Installation Kit ("A" Shifter)	1	1	1
	328388-47X	Air Shift Installation Kit ("P" Shifter)	1	1	1
	328388-48X	Air Shift Installation Kit ("Q" Shifter)	1	1	1
	328388-65X	Air Shift Installation Kit ("S" Shifter)	1	1	1
	328388-72X	Air Shift Installation Kit ("T" Shifter).....	1	-	1
	328751-1X	Installation Kit ("C", "H", "W", "X", "Y")	1	1	1
	379319	Indicator Switch Booth	1	1	1
	328948-6X	Gasket and Installation Instructions	1	1	-
	328948-8X	Gasket and Installation Instructions	-	-	1
	329166-12X	Electric Shift Installation Kit	1	1	1
	379640	Booted Connector ("V" Shifter Option).....	1	-	1
	378414	Pressure Protection Valve ("V" Shifter Option).....	1	1	1
	328075X	Pressure Lube Hose ("HVP" Input Gear Only).....	1	-	-
	328711X	Pump Mounting Kit ("XR" Output)	-	1	-
		Service Kits			
	329202X	Indicator Switch Connector Service Kit.....	1	-	1
	329218X	Indicator Switch Service Kit	1	-	1
	329304X	Bearing Cap and Seal Assembly (Pressure Lube)	1	-	1
	See Pgs 13-14	Pump Field Conversion Kit	1	1	1
	328356-67X	Gasket & Seal Kit			
	378391	Lockring	2	-	-
	328356-13X	Gasket & Seal Kit.....	-	1	-
	328356-50X	Gasket & Seal Kit.....	-	-	1
	328356-15X	Shifter Cover Seal Kit (Wire Control)	1	1	1
	328356-69X	Shifter Cover Seal Kit (Wire Control "A", "B" & "C" Ratio)	1	-	1
	328356-71X	Shifter Cover Seal Kit (Air Shift).....	1	1	1
	329096-1X	Field Conversion Kit (Self Lube Replace 3-P-202)	-	1	-
	329097-1X	Field Conversion Kit (Self Lube Replace 3-P-282)	-	1	-
	328594-13X	Bearing and Spacer Kit (Non-Pressure Lube)	1	1	1
	328594-14X	Bearing and Spacer Kit (Pressure Lube)			
	328594-15X	Bearing and Spacer Kit (Non-Pressure Lube "A", "B" & "C" Ratio)			
	328594-16X	Bearing and Spacer Kit (Pressure Lube "A", "B" & "C" Ratio)	1	-	1
	329260X	Conversion Kit, 440 to 442 Series	1	-	-
	329261X	Conversion Kit, 440 Deep Mount to 442 Deep Mount	1	-	-
	329262X	Conversion Kit, 488 to 489 Series	-	-	1
	329263X	Conversion Kit, 488 Deep Mount to 489 Deep Mount	-	-	1

N.S. — Not Shown A.R.—As Required
See [Pages 24-35](#) for Kit Bill of Materials

Continued on Next Page

Air Control Parts ("A" Designator)



Item	Part Number	Description	Quantity		
			442	447	489
	329361X	Shifter Cover Assembly, Air Shift (Includes Items 48-57)	1	-	1
	329363X	Shifter Cover Assembly, Air Shift	-	1	-
48	34-P-130	Shifter Cover	1	1	1
49	378316	Snap Ring	2	2	2
50	378315	Cover Plug	2	2	2
51	28-P-42	O-Ring	2	2	2
52	37-P-21	Shifter Spring	1	1	1
53	11-P-75	Shaft, Shifter	1	1	1
54	28-P-41	O-Ring	1	1	1
55	32-P-180	Shifter Fork	1	1	1
56	378447-4	Capscrew, Socket Head w/lockpatch (.312" - 18 x .750")	1	1	1
57	379639	Indicator Switch (Normally OFF)	1	1	1
58	379904	Push Connect, for 1/4" tubing	1	1	1
59	35-P-8	Gasket, Shifter Cover	1	1	1
60	378430-8	Capscrew, Hex Head (.312" - 18 x .875")	4	4	4
		Air Shift Conversion Kits			
	328390-117X	Lever or Cable to Air	1	-	1
	328390-119X	Lever or Cable to Electric/Air, 12V	1	-	1
	328390-120X	Lever or Cable to Electric/Air, 24V	1	-	1
	328390-125X	Wire to Air	-	1	-
	328390-127X	Wire to Electric/Air 12V	-	1	-
	328390-129X	Wire to Electric/Air 24V	-	1	-

See [Pages 24-35](#) for Kit Bill of Materials

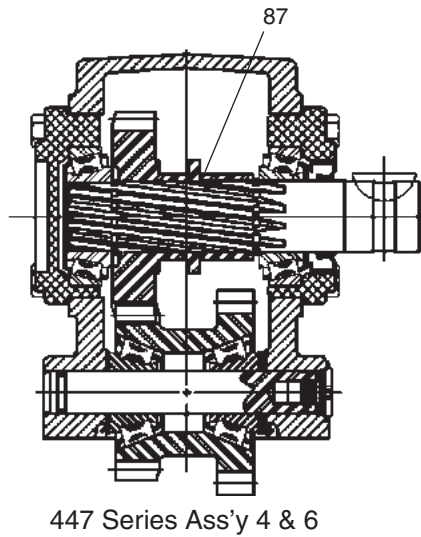
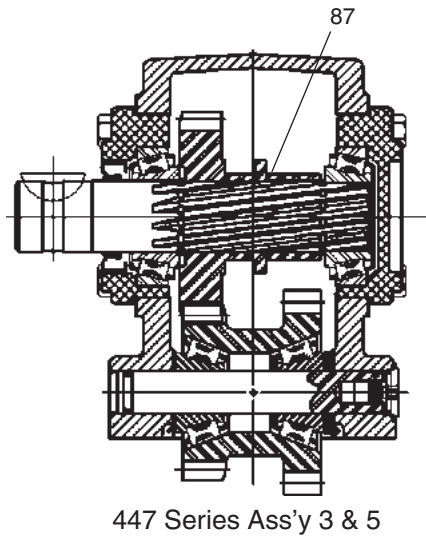
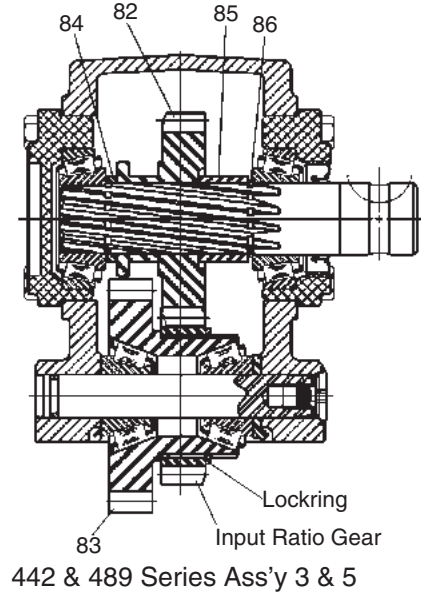
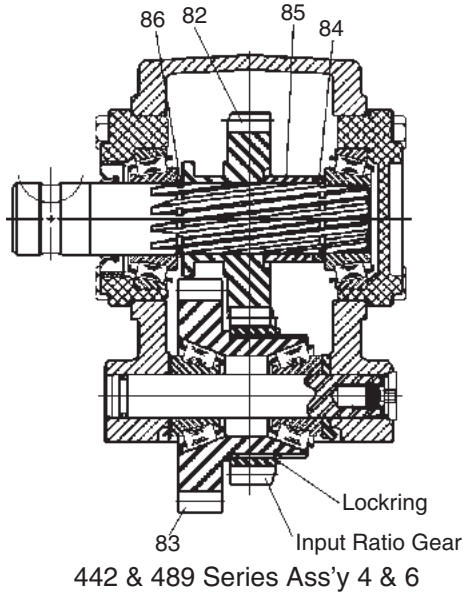
Shifter Kits

For P.T.O.'s ordered without the shifter (Shifter Type "H"), the kits shown below will provide all the components required to complete the assembly.

Part Number	Description	Quantity		
		442	447	489
329106-39X	Shifter Kit (Air Shift, "A" Shift Option).....	1	-	1
329106-43X	Shifter Kit (Air Shift, "P" Shift Option).....	1	-	1
329106-45X	Shifter Kit (Air Shift, "Q" Shift Option)	1	-	1
329106-71X	Shifter Kit (Air Shift, "A" Shift Option).....	-	1	-
329106-75X	Shifter Kit (Air Shift, "P" Shift Option).....	-	1	-
329106-77X	Shifter Kit (Air Shift, "Q" Shift Option)	-	1	-
329106-105X	Shifter Kit (Wire Control 3 & 6, "Q", "W", "X" Ratio; "W" Shift Option).....	1	-	1
329106-106X	Shifter Kit (Wire Control 4 & 5, "Q", "W", "X" Ratio; "W" Shift Option).....	1	-	1
329106-107X	Shifter Kit (Wire Control 3 & 6, "Q", "W", "X" Ratio; "X" Shift Option).....	1	-	1
329106-108X	Shifter Kit (Wire Control 4 & 5, "Q", "W", "X" Ratio; "X" Shift Option).....	1	-	1
329106-109X	Shifter Kit (Wire Control 3 & 6, "F", "L", "R", "S", "U" Ratio; "W" Shift Option) ..	1	-	1
329106-110X	Shifter Kit (Wire Control 4 & 5, "F", "L", "R", "S", "U" Ratio; "W" Shift Option) ..	1	-	1
329106-111X	Shifter Kit (Wire Control 3 & 6, "F", "L", "R", "S", "U" Ratio; "X" Shift Option) ...	1	-	1
329106-112X	Shifter Kit (Wire Control 4 & 5, "F", "L", "R", "S", "U" Ratio; "X" Shift Option) ...	1	-	1
329106-113X	Shifter Kit (Wire Control 3 & 6, "Q" & "W" Ratio; "W" Shift Option).....	-	1	-
329106-114X	Shifter Kit (Wire Control 4 & 5, "Q" & "W" Ratio; "W" Shift Option).....	-	1	-
329106-117X	Shifter Kit (Wire Control 3 & 6, "Q" & "W" Ratio; "X" Shift Option).....	-	1	-
329106-118X	Shifter Kit (Wire Control 4 & 5, "Q" & "W" Ratio; "X" Shift Option).....	-	1	-
329106-135X	Constant Mesh Kit	1	-	1
329106-143X	Shifter Kit (Wire Control 3 & 6, "A", "B" & "C" Ratio; "W" Shift Option)	1	-	1
329106-144X	Shifter Kit (Wire Control 4 & 5, "A", "B" & "C" Ratio; "W" Shift Option)	1	-	1
329106-145X	Shifter Kit (Wire Control 3 & 6, "A", "B" & "C" Ratio; "X" Shift Option)	1	-	1
329106-146X	Shifter Kit (Wire Control 4 & 5, "A", "B" & "C" Ratio; "X" Shift Option)	1	-	1
329106-151X	Shifter Kit ("V" Shift Option)	-	1	-
329106-153X	Shifter Kit ("V" Shift Option)	1	-	1
329143X	Field Conversion Kit (Shifter Shaft)	1	1	1

See [Pages 24-35](#) for Kit Bill of Materials

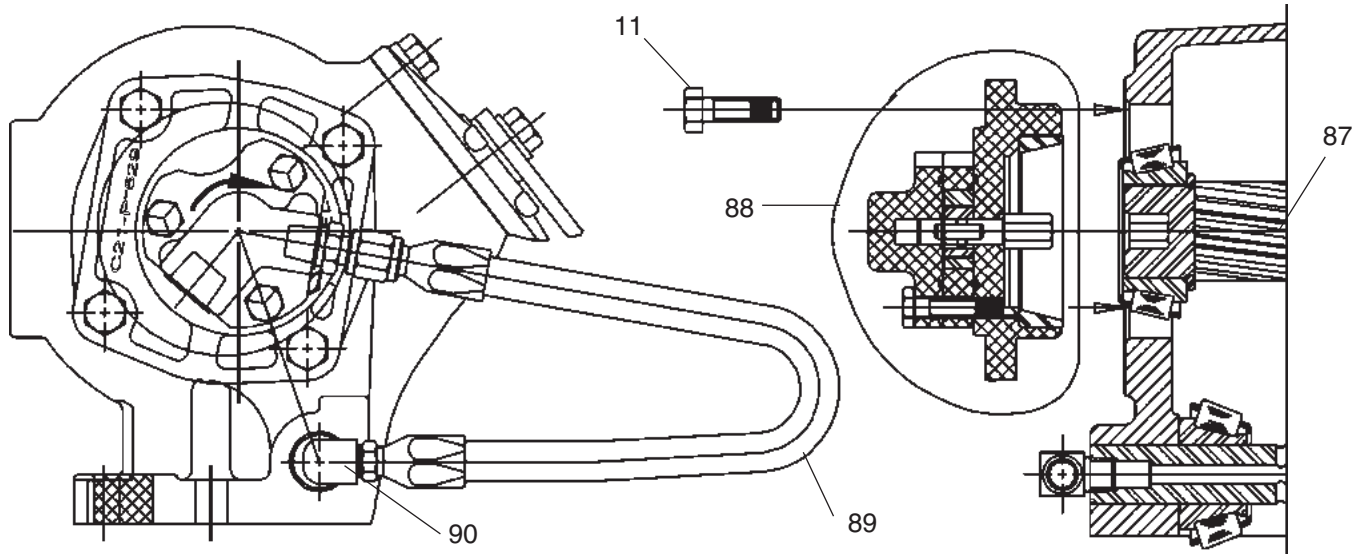
Constant Mesh Parts ("M" Designator)



Item	Part Number	Description	Quantity		
			442	447	489
82	See Charts, Pg 9-12	Gear, Output.....	1	-	1
83	See Charts, Pg 9-12	Gear, Input.....	1	-	1
84	4-P-177	Spacer, Drive Shaft	1	-	1
85	4-P-178	Spacer, Drive Shaft	1	-	1
86	378391	Lockring (Shifter Type "M")	1	-	1
87	4-P-165	Spacer, Drive Shaft	-	1	-
N.S.	34-P-39	Cover Plate, Shifter	1	1	1
N.S.	35-P-8	Gasket, Shifter Cover	1	1	1
N.S.	378430-6	Capscrew, Hex Head (.312" - 18 x .625").....	4	4	4

N.S.— Not Shown

NOTE: Pump must rotate in direction of arrow



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

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

Item	Part Number	Description	Quantity		
			442	447	489
11	378430-10	Capscrew, Hex Head (.312" - 18 x 1.00").....	4	4	4
87	3-P-857	Shaft, Output ("LD" Output)	1	1	1
	3-P-858	Shaft, Output ("LA", "LB", "LC", "LE", "LF" Output)	1	1	1
88	329091X	Lube Pump & Bearing Cap Assembly.....	1	1	1
89	329092X	Pressure Lube Hose Assembly.....	1	1	1
90	500841-1	Street Elbow, 90°	1	1	1

See [Pages 24-35](#) for Kit Bill of Materials

Gear Chart — 442 Series

Input Gear Chart — 442 Series

Model Number	Part Number	Gear Type	No. Teeth Input Gear	No. Teeth Ratio Gear	Model Number	Part Number	Gear Type	No. Teeth Input Gear	No. Teeth Ratio Gear
442**AB	5-P-1001	SPUR	19		442**EW	5-P-1061	Left Helix	20	
442**AC	5-P-1002	SPUR	19		442**FB (OBS)	5-P-1063	Left Helix	25	
442**AG	5-P-1003	SPUR	22		442**FC	5-P-1064	Left Helix	26	
442**AH	5-P-1004	SPUR	22		442**FE	5-P-1065	Left Helix	29	
442**AL (OBS)	5-P-1005	SPUR	22		442**FF (OBS)	5-P-1066	Left Helix	32	
442**AP	5-P-1006	Left Helix	21		442**FK	5-P-1067	Left Helix	21	
442**AQ	5-P-1007	Left Helix	21		442**FL	5-P-1068	Left Helix	25	
442**AR	5-P-1008	Left Helix	21		442**FM	5-P-1069	SPUR	28	
442**AW	5-P-1009	Left Helix	22		442**FN	5-P-1070	Left Helix	26	
442**AX	5-P-1010	Left Helix	22						
442**BA	5-P-1011	Left Helix	23		442**FP	5-P-1071	Left Helix	23	
442**BC	5-P-1012	Left Helix	18		442**FQ (OBS)	5-P-1072	Left Helix	21	
442**BE (OBS)	5-P-1013	SPUR	27		442**FW	5-P-1098	Left Helix	28	
					442**GQ	5-P-1150	Left Helix	26	
442**BG	5-P-1015	Left Helix	23		442**GS	5-P-1152	Left Helix	29	
442**BH	5-P-1016	Right Helix	25		442**GR (OBS)	5-P-1157	SPUR	23	
442**BJ	5-P-1017	Left Helix	25						
442**BK	5-P-1018	Left Helix	23		442**HW	5-P-1235	SPUR	35	
442**BL	5-P-1019	Right Helix	22		442**HX	5-P-1236	SPUR	32	
442**BM	5-P-1020	Left Helix	22		442**HY	5-P-1237	Left Helix	26	
442**BN	5-P-1021	Left Helix	22		442**JA	5-P-1243	Left Helix	27	
442**BP	5-P-1022	Right Helix	26		442**IT	Assembled Without Input Gear			
442**BQ	5-P-1023	Left Helix	25		442**JD	5-P-1248	Left Helix	20	
442**BR	5-P-1024	Right Helix	26		442**JG	5-P-1256	Left Helix	28	
442**BS	5-P-1025	Left Helix	26		442**JH	5-P-1257	Left Helix	29	
442**BU (OBS)	5-P-1026	SPUR	33		442**JK	5-P-1261	Left Helix	24	
442**BY	5-P-1027	Right Helix	26		442**JM	5-P-1263	Left Helix	22	
442**BZ	5-P-1028	Left Helix	26		442**JP	5-P-1268	Left Helix	33	
442**CB	5-P-1029	Left Helix	25		442**JS	5-P-1310	Left Helix	20	
					442**JT (OBS)	5-P-1313	Left Helix	19	
442**CD	5-P-1031	Left Helix	27		442**JU	5-P-1316	Left Helix	25	
					442**JW	5-P-1319	Left Helix	23	
442**CM (OBS)	5-P-1035	SPUR	22		442**KC	5-P-1341	Left Helix	41	
442**CR	5-P-1036	Left Helix	17		442**KH	5-P-1343	Left Helix	32	
					442**KJ	5-P-1405	Left Helix	33	(C1)
442**DA	5-P-1037	SPUR	23		442**KL	5-P-1407	Left Helix	29	(C2)
442**DB	5-P-1038	SPUR	39		442**KN	5-P-1383	Left Helix	27	(D1)
442**DC	5-P-1039	SPUR	19		442**KX	5-P-1411	Left Helix	26	
442**DD	5-P-1040	SPUR	20		Input Gears "A" Ratio Only				
442**DH	5-P-1041	Left Helix	21		442*AAB	5-P-1279	SPUR	19	14
442**DJ	5-P-1042	Left Helix	28		442*AAH	5-P-1280	SPUR	22	14
442**DK	5-P-1043	Left Helix	26		442*AAP	5-P-1282	Left Helix	21	14
					442*AAR	5-P-1283	Left Helix	21	14
442**DM	5-P-1045	Left Helix	17		442*ADA	5-P-1284	SPUR	23	14
442**DN	5-P-1046	Left Helix	19		442*AES	5-P-1285	Left Helix	22	14
442**DP	5-P-1047	Left Helix	27		442*AJA	5-P-1366	Left Helix	27	14
442**DQ	5-P-1048	Left Helix	20		Input Gears "B" Ratio Only				
					442*BHV	5-P-1358	SPUR	24	14
442**DU	5-P-1050	Left Helix	28		442*BAH	5-P-1418	SPUR	22	14
					Input Gears "C" Ratio Only				
442**DX	5-P-1052	Left Helix	26		442*CAB	5-P-1286	SPUR	19	17
442**DY (OBS)	5-P-1053	Left Helix	16		442*CAH	5-P-1287	SPUR	22	17
442**EA	5-P-1054	Left Helix	26		442*CJA	5-P-1368	Left Helix	27	17
442**EC	5-P-1055	Left Helix	36		442*CAP	5-P-1289	Left Helix	21	17
442**ED	5-P-1056	Left Helix	34		442*CAR	5-P-1290	Left Helix	21	17
442**EL	5-P-1075	Right Helix	30		442*CDA	5-P-1291	SPUR	23	17
442**EP	5-P-1057	Right Helix	35		442*CES	5-P-1292	Left Helix	22	17
442**EQ	5-P-1058	Left Helix	30		Input Gears "F" Ratio Only				
442**ES	5-P-1059	Left Helix	22		442*FAB	5-P-1076	SPUR	19	21
442**EV	5-P-1060	SPUR	40		442*FAH	5-P-1077	SPUR	22	21
					442*FAP	5-P-1079	Left Helix	21	21

Continued on Next Page

Gear Chart — 442 Series

442, 447 & 489 Series

Input Gear Chart — 442 Series (Continued)

Model Number	Part Number	Gear Type	No. Teeth Input Gear	No. Teeth Ratio Gear	Model Number	Part Number	Gear Type	No. Teeth Input Gear	No. Teeth Ratio Gear
442*FAR	5-P-1080	Left Helix	21	21	442*FFE	5-P-1096	Left Helix	29	21
442*FBC	5-P-1081	Left Helix	18	21	442*FFN	5-P-1097	Left Helix	26	21
442*FBG	5-P-1082	Left Helix	23	21	442*FGQ	5-P-1149	Left Helix	26	21
442*FBM	5-P-1083	Left Helix	22	21	442*FGS	5-P-1151	Left Helix	29	21
442*FBQ	5-P-1084	Left Helix	25	21	442*FHV (H)	5-P-1300	SPUR	24	21
442*FDA	5-P-1085	SPUR	23	21	442*FJS	5-P-1311	Left Helix	20	21
442*FDJ	5-P-1086	Left Helix	28	21	442*FJT	5-P-1314	Left Helix	19	21
442*FDN	5-P-1087	Left Helix	19	21	442*FJU	5-P-1317	Left Helix	25	21
442*FDU	5-P-1088	Left Helix	28	21	442*FJW	5-P-1320	Left Helix	23	21
442*FEC	5-P-1089	Left Helix	36	21	442*FJA	5-P-1340	Left Helix	27	21
442*FED	5-P-1090	Left Helix	34	21	Input Gears "H" Ratio Only				
442*FEP	5-P-1091	Right Helix	35	21	442*HAH	5-P-1364	SPUR	22	23
442*FES	5-P-1092	Left Helix	22	21	442*HDA	5-P-1365	SPUR	23	23
442*FET	5-P-1093	Left Helix	19	21	442*HJA	5-P-1342	Left Helix	27	23
442*FEV	5-P-1094	SPUR	40	21					
442*FEW	5-P-1095	Left Helix	20	21					

Input Ratio Gear Chart — 442 Series

Ratio	Part Number	No. Teeth "B"
442*L	5-P-964	25
442*Q	5-P-965	19
442*R	5-P-1214	22
442*S	5-P-966	24
442*U	5-P-967	26
442*W	5-P-968	26
442*X	5-P-969	38

Output Gear Chart — 442 Series

Ratio	Part Number	No. Teeth "C"
442*A	2-P-791	39
442*B	2-P-833	39
442*C	2-P-792	37
442*F	2-P-726	37
442*H	2-P-802	35
442*L	2-P-727	34
442*Q	2-P-559	24
442*R	2-P-559	24
442*S	2-P-637	22
442*U	2-P-560	20
442*W	2-P-561	17
442*X	2-P-728	21

Geared Adapter Gears — 442 Series

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

Continued on Next Page

Gear Chart — 442 Sereis & 447Series**Geared Adapter Gears — 442 Series**

Model Number	Part Number	Gear Type	No. Teeth	Adapter Input Gear	Part Number	Gear Type	No. Teeth
442**JY	5-P-1312	Right Helix	20	JS	5-P-1310	Left Helix	20
442**KA	5-P-1318	Right Helix	25	JU	5-P-1316	Left Helix	25
442**KB	5-P-1321	Right Helix	23	JW	5-P-1319	Left Helix	23
442**KK	5-P-1406	Right Helix	33	KJ	5-P-1405	Left Helix	33
442**KM	5-P-1408	Right Helix	29	KL	5-P-1407	Left Helix	29
442**KP	5-P-1384	Right Helix	27	KN	5-P-1383	Left Helix	27

Gear Chart — 447 Series

Model Number	Part No. Input Gear	Helix Angle	No. Teeth* Input Gear	No. Teeth** Ratio Gear	Part No. Output Gear	No. Teeth Output Gear
447*QET	5-P-865	Left Helix	19	19	2-P-697	24
447*QES	5-P-869	Left Helix	22	19	2-P-697	24
447*QFX	5-P-979	Left Helix	24	19	2-P-697	24
447*QGP	5-P-1145	Spur	23	19	2-P-697	24
447*QCD	5-P-1178	Left Helix	27	19	2-P-697	24
447*QEV	5-P-1205	Spur	40	19	2-P-697	24
447*SET	5-P-866	Left Helix	19	24	2-P-698	22
447*SES	5-P-870	Left Helix	22	24	2-P-698	22
447*SFF	5-P-891	Left Helix	32	24	2-P-698	22
447*SEQ	5-P-892	Left Helix	30	24	2-P-698	22
447*SCD	5-P-1179	Left Helix	27	24	2-P-698	22
447*SEV	5-P-1206	Spur	40	24	2-P-698	22
447*SJX	5-P-1270	Spur	40	24	2-P-698	22
447*RET	5-P-1215	Left Helix	19	22	2-P-697	24
447*RES	5-P-1216	Left Helix	22	22	2-P-697	24
447*RGP	5-P-1217	Spur	23	22	2-P-697	24
447*RCD	5-P-1218	Left Helix	27	22	2-P-697	24
447*REV	5-P-1219	Spur	40	22	2-P-697	24
447*UET	5-P-867	Left Helix	19	26	2-P-699	20
447*UES	5-P-871	Left Helix	22	26	2-P-699	20
447*UFE	5-P-889	Left Helix	29	26	2-P-699	20
447*UGP	5-P-1147	Spur	23	26	2-P-699	20
447*UCD	5-P-1180	Left Helix	27	26	2-P-699	20
447*UEV	5-P-1207	Spur	40	26	2-P-699	20
447*UJX	5-P-1271	Spur	40	26	2-P-699	20
447*WET	5-P-868	Left Helix	19	26	2-P-700	17
447*WES	5-P-872	Left Helix	22	26	2-P-700	17
447*WFE	5-P-890	Left Helix	29	26	2-P-700	17
447*WGFH	5-P-900	Right Helix	20	26	2-P-700	17
447*WFG	5-P-901	Right Helix	18	26	2-P-700	17
447*Wfy	5-P-976	Spur	38	14	2-P-700	17
447*WGD	5-P-988	Right Helix	19	26	2-P-700	17
447*WGP	5-P-1148	Spur	23	26	2-P-700	17
447*WCD	5-P-1181	Left Helix	27	26	2-P-700	17
447*WEV	5-P-1208	Spur	40	26	2-P-700	17
447*WJX	5-P-1272	Spur	40	26	2-P-700	17

* Input gear meshes with the transmission

** Ratio gear meshes with the P.T.O. Output Gear

NOTE: The unique design of the 447 Series input gear requires that the spacers used to shim the input bearings be placed opposite of the normal position found on the 442 and 489 series. For the 447 Series install the Input gear spacers (item # 18 on pg. 2) on the idler shaft between the Input Gear and P.T.O. housing.

Input Gear Chart — 489 Series

Model Number	Part Number	Gear Type	No. Teeth Input Gear	No. Teeth Ratio Gear	Model Number	Part Number	Gear Type	No. Teeth Input Gear	No. Teeth Ratio Gear
489**AB	5-P-1001	Spur	19		489*CAB	5-P-1286	Spur	19	17
489**AH	5-P-1004	Spur	22		489*CAH	5-P-1287	Spur	22	17
489**AR	5-P-1008	Left Helix	21		489*CAR	5-P-1290	Left Helix	21	17
489**BG	5-P-1015	Left Helix	23		489*CDA	5-P-1291	Spur	23	17
489**DA	5-P-1037	Spur	23						
489**DU	5-P-1050	Left Helix	28		489*FAB	5-P-1076	Spur	19	21
489**EV	5-P-1060	Spur	40		489*FAH	5-P-1077	Spur	22	21
489**DB	5-P-1038	Spur	39		489*FAR	5-P-1080	Left Helix	21	21
489**CR	5-P-1036	Left Helix	17		489*FBG	5-P-1082	Left Helix	23	21
489**HW	5-P-1235	Spur	35		489*FDA	5-P-1085	Spur	23	21
489**HX	5-P-1236	Spur	32		489*FDU	5-P-1088	Left Helix	28	21
					489*FEV	5-P-1094	Spur	40	21
489*AAB	5-P-1279	Spur	19	14	489*HAH	5-P-1364	Spur	22	23
489*AAH	5-P-1280	Spur	22	14	489*HDA	5-P-1365	Spur	23	23
489*AAR	5-P-1283	Left Helix	21	14					
489*ADA	5-P-1284	Spur	23	14					

Ratio Gear Chart — 489 Series**Input Ratio Gear Chart — 489 Series**

Ratio	Part Number	No. Teeth
489*A	See Chart Above	
489*C	See Chart Above	
489*F	See Chart Above	
449*H	See Chart Above	
489*L	5-P-964	25
489*Q	5-P-965	19
489*R	5-P-1214	22
489*S	5-P-966	24
489*U	5-P-967	26
489*W	5-P-968	26
489*X	5-P-969	38

Output Gear Chart — 489 Series

Ratio	Part Number	No. Teeth
489*A	2-P-791	39
489*C	2-P-792	37
489*F	2-P-726	37
449*H	2-P-802	35
489*L	2-P-727	34
489*Q	2-P-559	24
489*R	2-P-559	24
489*S	2-P-637	22
489*U	2-P-560	20
489*W	2-P-561	17
489*X	2-P-728	21

Direct Mount Pump Conversion Kits

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 ("B" Ratio Only)	XD to AK 328591-28X XD to AK 329436-7X
AZ	Non-Standard	1-1/4" - 14 Spline	XD to AZ 328591-70X
FF	S.A.E. "B" 2 or 4-Bolt	7/8" Rd w/1/4" Key	XD to FF 328591-29X
GA	Rotatable S.A.E. "B" 2-Bolt	● 7/8" - 13 Spline	XD to GA 328591-72X XR to GA 328591-73X RA to GA 328591-106X
GB	Rotatable S.A.E. "B" 4-Bolt	● 7/8" - 13 Spline	XD to GB 328591-74X XR to GB 328591-75X RB to GB 328591-107X
GF	S.A.E. "BB" 2 or 4-Bolt	● 1.0" - 15 Spline	XD to GF 328591-71X AF to GF 328591-108X
GH	Rotatable S.A.E. "BB" 2-Bolt	● 1.0" - 15 Spline	XD to GH 328591-116X RF to GH 328591-114X
GJ	S.A.E. "B" 4-Bolt Rotatable	● 1.0" - 15 Spline	XD to GJ 328591-138X RE to GJ 328591-114X
GK	S.A.E. "B" 2 or 4-Bolt	● 7/8" - 13 Spline	XD to GK 328591-89X XK to GK 328591-86X
GP	S.A.E. "A" Pilot 2 or 4-Bolt	● 7/8" - 13 Spline	XD to GP 328591-90X XP to GP 328591-86X
■ GQ	S.A.E. "B" 2 or 4-Bolt	● 7/8" - 13 Spline	XD to GQ 328591-91X XQ to GQ 328591-86X
GR	CHELSEA SPECIAL 4-Bolt	● 7/8" - 13 Spline	XD to GR 328591-76X
GY	DIN 5462 Pump Mounting	● 7/8" - 13 Spline	XD to GY 328591-92X XY to GY 328591-89X
GZ	Non-Standard 4-Bolt	● 1-1/4" - 14 Spline	XD to GZ 328591-93X AZ to GZ 328591-88X
▶▶ LA	S.A.E. "B" 2-Bolt	7/8" - 13 Spline	AK to LA 328591-44X
▶▶ LB	S.A.E. "A" Pilot 2-Bolt	7/8" - 13 Spline	XP to LB 328591-45X
▶▶ LC	S.A.E. "B" 2 or 4-Bolt	7/8" - 13 Spline	XQ to LC 328591-46X
▶▶ LD	Similar to "XD"	1-1/4" Rd	XD to LD
▶▶ LE	6-Bolt Rd	7/8" - 13 Spline	XN to LE 328591-47X
▶▶ LF	S.A.E. "B" 2 or 4-Bolt	7/8" - 13 Spline	XK to LF 328591-48X

NOTE: Check Current Price Sheet for Availability of Output Options

Continued on Next Page

XR to "XK" Conversion Flange 21-P-525

- Shaft with Grease Fitting
- Similar to Ass'y "XK" Flange Rotated 90°
- ▶▶ Lube Pump Option

Direct Mount Pump Conversion Kits (Cont'd) 442, 447 & 489 Series

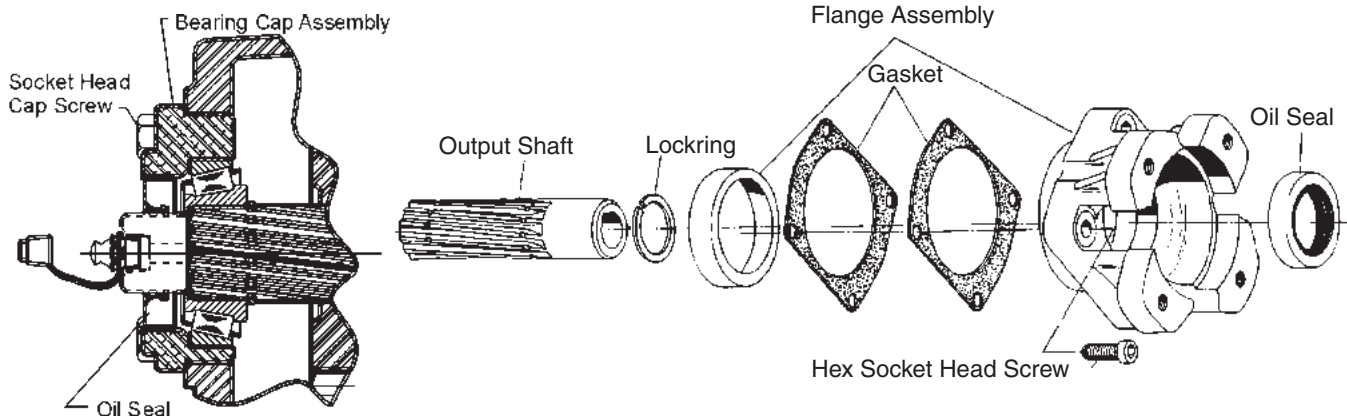
Flange Suffix	Flange Type	Shaft Type	Conversion Kit
PA	Parker P2-060 Pump Mounting	7/8" - 13 Spline	XD to PA 328591-143X
PF	Parker P2-060 Pump Mounting	1.0" - 15 Spline	XD to PF 328591-142X
RA	Rotatable S.A.E. "B" 2-Bolt	7/8" - 13 Spline	XD to RA 328591-55X XR to RA 328591-53X
		("B" Ratio Only)	XD to RA 329436-1X
RB	Rotatable S.A.E. "B" 4-Bolt	7/8" - 13 Spline	XD to RB 328591-56X XR to RB 328591-54X
		("B" Ratio Only)	XR to RB 329436-2X
RC	Rotatable S.A.E. "A" 2-Bolt	5/8" - 9 Spline	XD to RC 328591-112X
RD	Rotatable S.A.E. "A" 2-Bolt	7/8" - 13 Spline	XD to RD 328591-113X
		("B" Ratio Only)	XD to RD 329436-8X
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
RY	Rotatable DIN 5462	DIN 5462	XD to RY 328591-131X
SQ	S.A.E. "B" 4-Bolt	7/8" - 13 Spline	XD to SQ 328591-149X
		("B" Ratio Only)	XD to SQ 329436-9X
XE	S.A.E. "A" 2 or 4-Bolt	5/8" - 9 Spline	XD to XE 328591-27X
XG	Non-Standard-S.A.E. "A" 2-Bolt	3/4" Rd w/3/16" Key	XD to XG 328591-10X
XJ	Non-Standard 2-Bolt	3/4" Rd	XD to XJ 328591-11X
XK	S.A.E. "B" 2 or 4-Bolt	7/8" - 13 Spline	XD to XK 328591-16X
		("B" Ratio Only)	XD to XK 329436-3X
XL	Non-Standard 2-Bolt	7/8" - 13 Spline	XD to XL 328591-18X
		("B" Ratio Only)	XD to XL 329436-4X
XO	S.A.E. "A" Pilot 2-Bolt	3/4" Rd w/3/16" Key	XD to XO 328591-26X
XP	S.A.E. "A" Pilot 2-Bolt	7/8" - 13 Spline	XD to XP 328591-23X
		("B" Ratio Only)	XD to XP 329436-5X
■ XQ	S.A.E. "B" 2 or 4-Bolt	7/8" - 13 Spline	XD to XQ 328591-17X
		("B" Ratio Only)	XD to XQ 329436-6X
XR	CHELSEA SPECIAL 4-Bolt	7/8" - 13 Spline	XD to XR 328591-52X
XV	Rd Shaft	1-1/4" w/Set Screw	XD to XV 328591-130X
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°
- ▶▶ Lube Pump Option

Output Options Bill of Materials



Output Flange	Part Number	Description	Qty
AA	3-P-862	Output Shaft	1
	28-P-216	Oil Seal	1
	239102X	Bearing Cap Ass'y (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 Ass'y (21-P-522)	1
	378447-10	Socket Head Capscrew (.312" - 18 x 2.0")	4
AK	3-P-282	Output Shaft	1
	3-P-979	Output Shaft ("B" Ratio Only)	1
	28-P-216	Oil Seal	1
	328989X	Bearing Cap Ass'y (21-P-472)	1
AZ	3-P-844	Output Shaft	1
	28-P-275	Oil Seal	1
	329052X	Bearing Cap Ass'y (21-P-508)	1
	378447-11	Socket Head Capscrew (.312" - 18 x 2.5")	4
FF	3-P-851	Output Shaft	1
	28-P-219	Oil Seal	1
	329088X	Bearing Cap Ass'y (21-P-522)	1
	378447-10	Socket Head Capscrew (.312" - 18 x 2.0")	4
(1) G*	3-P-923X	"GA", "GB", "GR", Shaft Assemblies	1 or
	3-P-981X	"GE" Shaft Assembly	1 or
	3-P-921X	"GF" Shaft Assemblies	1 or
	3-P-933X	"GQ", "GK", "GP" Shaft Assemblies	1 or
	3-P-938X	"GY" Shaft Assemblies	1 or
	3-P-939X	"GZ" Shaft Assemblies	1 or
	3-P-941X	"GH", "GJ" Shaft Assemblies	1
	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	
378447-6	Rear Bearing Cap Hex Head Capscrew (.312" - 18 x 1.0")	4	
L*	3-P-857	Output Shaft ("LD")	1
	3-P-858	Output Shaft ("LA", "LB", "LC", "LF")	1
	329091X	Lube Pump & Bearing Cap Ass'y	1
	329092X	Pressure Lube Hose Ass'y	1
	500841-1	Elbow 90° Street	1
378447-6	Hex Capscrew (.312" - 18 x 1.0")	4	

(1) NOTE: For Output Flange Information see the related flange Bills of Material:

GA=RA, GB=RB, GF=AF, GR=XR, GK=XK, GP=XP, GQ=XQ, GY=XY, GZ=AZ, GH=RF, GJ=RE & GE=XE

Continued on following page

Output Options Bill of Materials

Output Flange	Part Number	Description	Qty
PA	3-P-283	Output Shaft	1
	28-P-216	Oil Seal	1
	329195X	Bearing Cap Ass'y (21-P-574)	1
	21-P-661	Pump Flange	1
	378447-6	Socket Head Capscrew (.312" - 18 x 1.0")	4
	328170-207X	Capscrew Bag Kit	1
	378447-6	Socket Head Capscrew (.312" - 18 x 1.0")	3
PF	3-P-924	Output Shaft	1
	28-P-219	Oil Seal	1
	329264X	Bearing Cap Ass'y (21-P-629)	1
	21-P-661	Pump Flange	1
	378447-6	Socket Head Capscrew (.312" - 18 x 1.0")	4
	28-P-271	O-Ring	1
RA	3-P-283	Output Shaft	1
	3-P-980	Output Shaft ("B" Ratio Only).....	1
	28-P-216	Oil Seal	1
	329195X	Bearing Cap Ass'y (21-P-574).....	1
	21-P-628	Pump Flange (Ship Loose w/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
	3-P-980	Output Shaft ("B" Ratio Only).....	1
	28-P-216	Oil Seal	1
	329195X	Bearing Cap Ass'y (21-P-574).....	1
	21-P-572	Pump Flange (Ship Loose w/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 Ass'y (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 Ass'y (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 Ass'y (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
RY	3-P-768	Output Shaft	1
	21-P-625	Pump Flange	1
	329356X	Bearing Cap Ass'y (21-P-532).....	1
	378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4
	329355-1X	Standard Loose Parts Kit.....	1
	379740-6	Socket Head Capscrew (M10 1.5" x .984")	3
	22-P-100	Gasket	1
	22-P-84	Gasket	1
379231	Pipe Plug	2	

Continued on following page

Output Options Bill of Materials

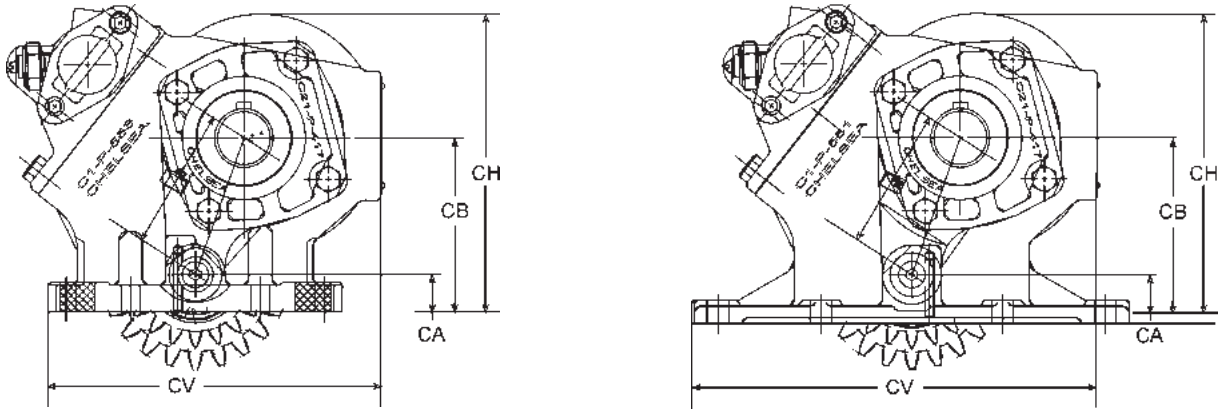
Output Flange	Part Number	Description	Qty
XE	3-P-800	Output Shaft	1
	28-P-216	Oil Seal	1
	328328X	Bearing Cap Ass'y (21-P-161)	1
	378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4
XG	3-P-281	Output Shaft	1
	28-P-216	Oil Seal	1
	328580X	Bearing Cap Ass'y (21-P-259)	1
	378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4
XJ	3-P-284	Output Shaft	1
	28-P-216	Oil Seal	1
	328580X	Bearing Cap Ass'y (21-P-259)	1
	378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4
XK	3-P-282	Output Shaft	1
	3-P-979	Output Shaft ("B" Ratio Only)	1
	28-P-216	Oil Seal	1
	328333X	Bearing Cap Ass'y (21-P-424) & (28-P-216)	1
	378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4
XL	3-P-283	Output Shaft	1
	3-P-980	Output Shaft ("B" Ratio Only)	1
	28-P-216	Oil Seal	1
	328580X	Bearing Cap Ass'y (21-P-259)	1
	378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4
XO	3-P-284	Output Shaft	1
	28-P-216	Oil Seal	1
	328328X	Bearing Cap Ass'y (21-P-161)	1
	378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4
XP	3-P-282	Output Shaft	1
	3-P-979	Output Shaft ("B" Ratio Only)	1
	28-P-216	Oil Seal	1
	328328X	Bearing Cap Ass'y (21-P-161)	1
	378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4
XQ	3-P-282	Output Shaft	1
	3-P-979	Output Shaft ("B" Ratio Only)	1
	28-P-216	Oil Seal	1
	328589X	Bearing Cap Ass'y (21-P-269)	1
	378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4
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 500963-1	Washer	4
	Hex Lock Nut (.312" - 24)	4	
XV	3-P-202	Output Shaft	1
	28-P-216	Oil Seal	1
	3-P-978	Output Shaft ("B" Ratio Only)	1
	328273X	Bearing Cap Ass'y (21-P-418)	1
	378430-10	Hex Capscrew (.312" - 18 x 1.0")	4
	500007-29	Woodruff Key	1
	379828	Companion Flange	1
	378431-8	Set Screw	1

Continued on following page

Output Options Bill of Materials

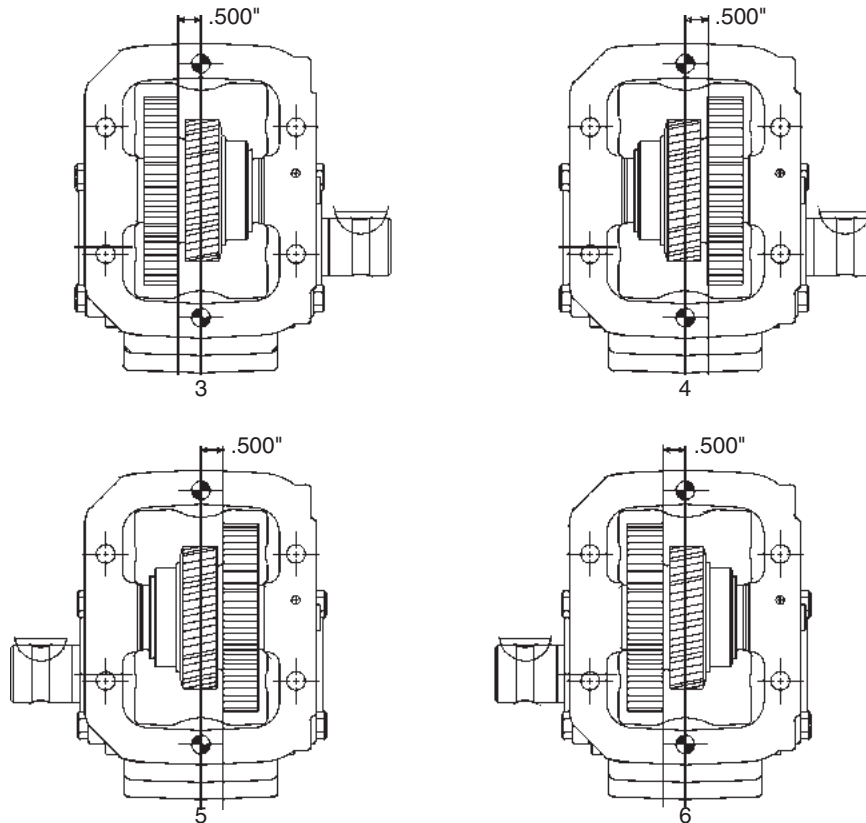
Output Flange	Part Number	Description	Qty
XX	3-P-766	Output Shaft	1
	28-P-216	Oil Seal	1
	378430-10	Hex Capscrew (.312" - 18 x 1.0")	4
	379111	Square Key	1
	501181	Hex Locknut (1.0" - 20)	1
XY	3-P-768	Output Shaft	1
	28-P-275	Oil Seal	1
	328234X	Bearing Cap Ass'y (21-P-614).....	1
	378447-6	Socket Head Capscrew (.312" - 18 x 1.0")	4
SQ	3-P-282	Output Shaft	1
	3-P-979	Output Shaft ("B" Ratio Only).....	1
	28-P-216	Oil Seal	1
	329449X	Bearing Cap Ass'y (21-P-692).....	1
	378447-8	Socket Head Capscrew (.312" - 18 x 1.5")	4

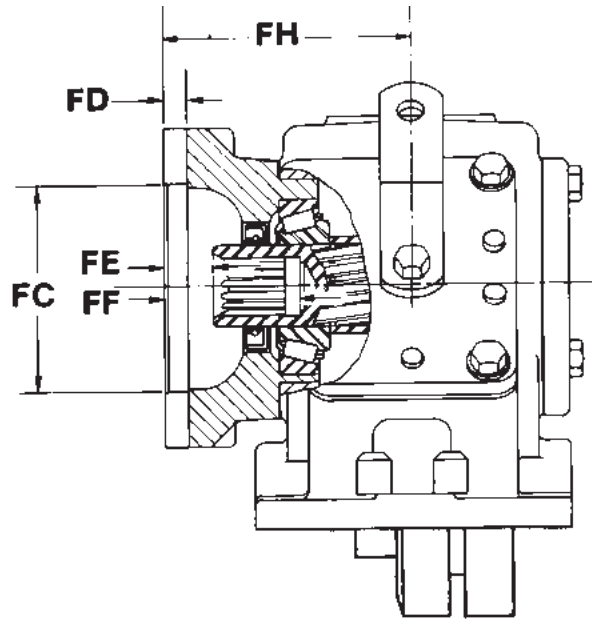
P.T.O. Housing Dimensions



P.T.O. Series	Part Number	CA	CB	CD	CH	CV
442/447 Standard	1-P-557X	0.793"	3.800" ("F", "H", "L", "R", "S", "U") 3.701" ("Q", "W", "X") 3.568" ("A", "C")	3.317" ("F", "H", "L", "R", "S", "U") 3.087" ("Q", "W", "X") 3.050" ("A", "C")	6.428"	7.000"
442/447 Deep Mount	1-P-558X	0.573"	3.580" ("F", "H", "L", "R", "S", "U") 3.481" ("Q", "W", "X") 3.348" ("A", "C")	3.317" ("F", "H", "L", "R", "S", "U") 3.087" ("Q", "W", "X") 3.050" ("A", "C")	6.207"	7.000"
489 Standard	1-P-552X	1.072"	4.079" ("F", "H", "L", "R", "S", "U") 3.980" ("Q", "W", "X") 3.847" ("A", "C")	3.317" ("F", "H", "L", "R", "S", "U") 3.087" ("Q", "W", "X") 3.050" ("A", "C")	6.708"	8.500"
489 Deep Mount	1-P-562X	0.930"	3.937" ("F", "H", "L", "R", "S", "U") 3.838" ("Q", "W", "X") 3.705" ("A", "C")	3.317" ("F", "H", "L", "R", "S", "U") 3.087" ("Q", "W", "X") 3.050" ("A", "C")	6.566"	8.500"

Assembly Arrangements



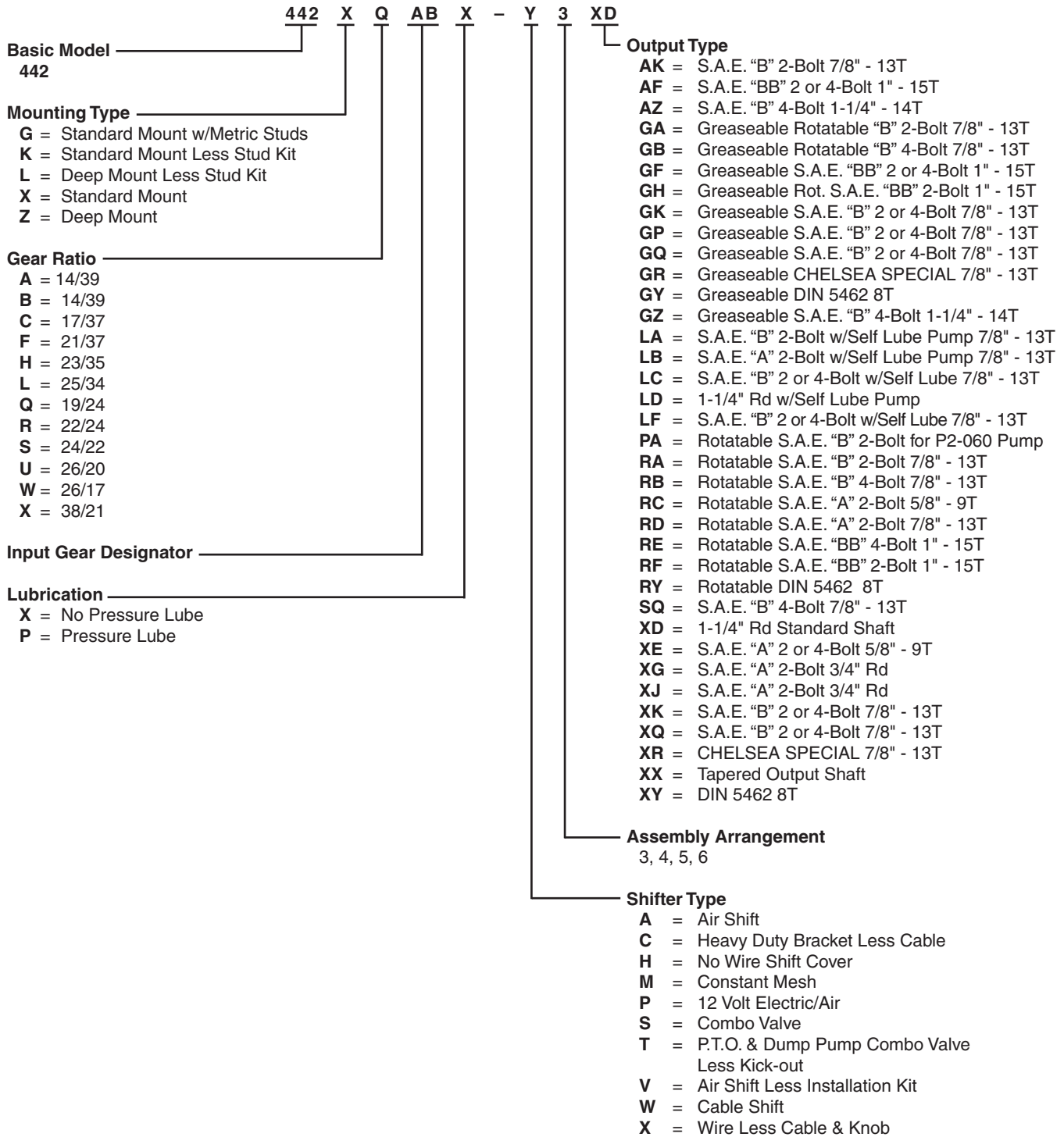


Pump Flange Suffix	Bolt Circle Dia.	Bolt Holes		FC	FD	FE	FF	FH	Output Shaft	Keyway Width
		Tapped Hole	No. Equally Spaced	Female Pilot Dia.	Pilot Depth	Face to End of Shaft	Face thru Hole	Face to Center of P.T.O.	Hole Diameter	
AA	2.834	M10 - 1.5"	6	2.05	N/A	N/A	N/A	3.447	.982/.816 - 6 Spline	—
AF, GF	5.750	.500" - 13	2	4.003	0.406	0.516	1.984	4.322	1" - 15 Spline	—
	5.000	.500" - 13	4	4.003	0.406	0.516	1.984	4.322	—	—
AK	5.750	.500" - 13	2	4.003	0.406	0.562	2.062	3.688	7/8" - 13 Spline	—
AZ, GZ	5.000	.500" - 13	4	4.003	0.406	0.695	2.392	4.985	1-1/4" - 14 Spline	—
FF	5.750	.500" - 13	2	4.003	0.406	0.516	1.984	4.322	7/8" Rd	1/4"
	5.000	.500" - 13	4	4.003	0.406	0.516	1.984	4.322	—	—
MY, GM	3.15 x 3.15	M12-1.75	12	3.152	0.393	0.594	2.508	4.697	DIN 5462	—
● PA	5.750	0.536	2	4.003	0.406	0.558	2.058	4.588	7/8" - 13 Spline	—
● PF	5.750	0.536	2	4.003	0.406	0.501	1.969	4.569	1" - 15 Spline	—
● RA, GA	5.750	.500" - 13	2 ■	4.003	0.406	0.558	2.058	4.588	7/8" - 13 Spline	—
● RB, GB	5.000	.500" - 13	4	4.003	0.406	0.558	2.058	4.588	7/8" - 13 Spline	—
● RC	4.188	.375" - 16	2 ■	3.253	0.270	0.525	1.462	3.694	5/8" - 9 Spline	—
● RD	4.188	.375" - 16	2 ■	3.253	0.270	0.525	1.462	3.694	7/8" - 13 Spline	—
● RE, GJ	3.53 x 3.53	.500" - 13	4	4.003	0.406	0.501	1.969	4.569	1.0" - 15 Spline	—
● RF, GH	5.750	.500" - 13	2 ■	4.003	0.406	0.501	1.969	4.569	1" - 15 Spline	—
● RY	3.150	M12 - 1.75"	4	3.152	0.394	0.360	2.274	4.790	DIN 5462	—
XE	5.000	.500" - 13	4	3.253	0.344	0.562	1.500	3.688	5/8" - 9 Spline	—
XG	4.188	.375" - 16	4	3.253	0.562	0.593	2.218	4.562	3/4" Rd	3/16"
XJ	4.188	.375" - 16	4	3.253	0.562	1.406	2.906	4.562	3/4" Rd	3/16"
XK, GK	5.750	.531" - 134	2	4.003	0.406	0.562	2.062	3.688	7/8" - 13 Spline	—
	5.000	.531" - 134	4	4.003	0.406	0.562	2.062	3.688	—	—
XL	4.188	.375" - 16	4	3.253	0.562	0.562	2.062	4.562	7/8" - 13 Spline	—
XO	5.000	.500" - 13	4	3.253	0.344	0.562	2.062	3.688	3/4" Rd	3/16"
	4.188	.375" - 16	2	3.253	0.344	0.562	2.062	3.688	—	—
XP, GP	5.000	.500" - 13	4	3.253	0.344	0.562	2.062	3.688	7/8" - 13 Spline	—
	4.188	.375" - 16	2	3.253	0.344	0.562	2.062	3.688	—	—
XY, GY	4.454	M12 - 1.75"	4	3.152	0.393	0.594	2.508	4.697	DIN 5462	—
XQ, GQ, SQ	5.750	.500" - 13	2	4.003	0.406	0.562	2.062	3.688	7/8" - 13 Spline	—
	5.000	.500" - 13	4	4.003	0.406	0.562	2.062	3.688	—	—
XR, GR	3.710	.312" - 24(Studs)	4	2.752	0.281	N/A	N/A	2.809	7/8" - 13 Spline	—

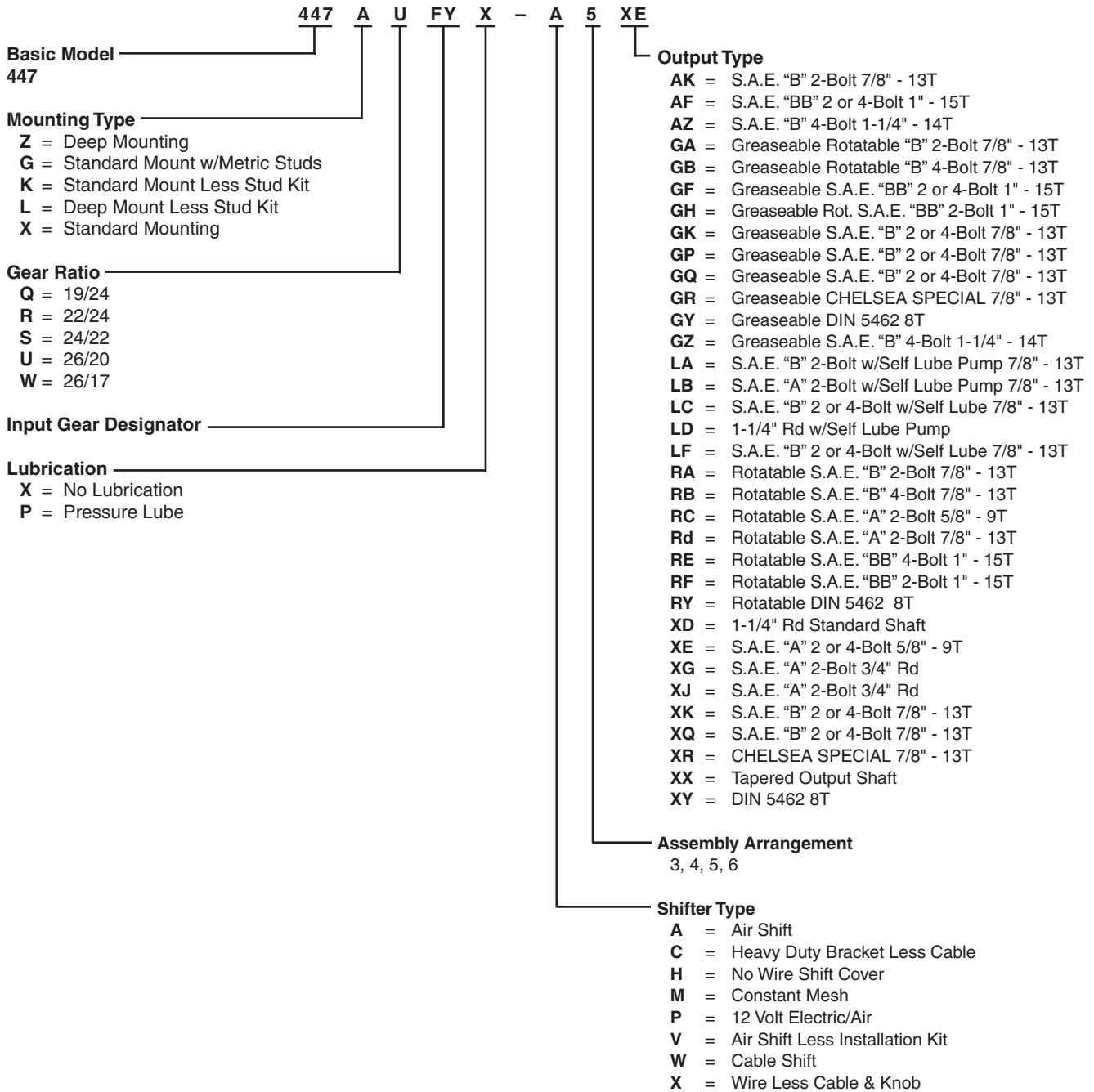
- Rotatable Flange Rotates in 30° Increments
- Two Set of Holes Spaced 14° Apart
- ▶ Not Tapped

NOTE: To convert an "XR" to an "XK", use conversion flange number 21-P-525

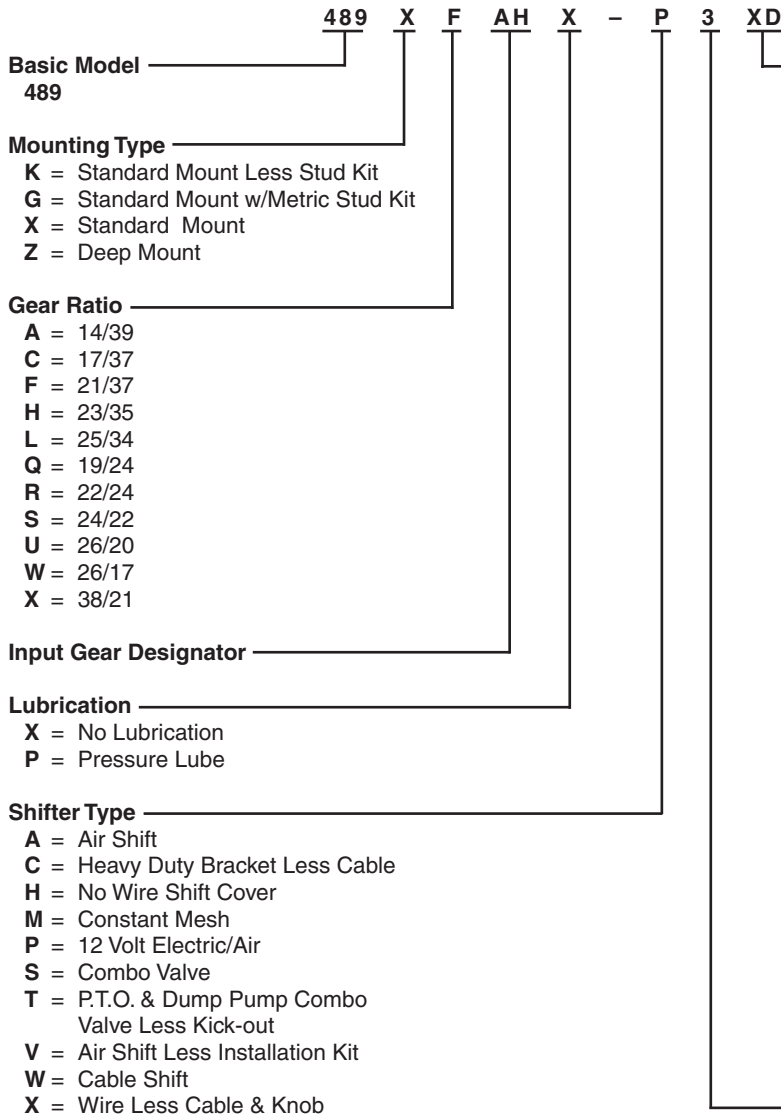
Model Number Designation



Model Number Designation



Model Number Designation



Output Type

- AK = S.A.E. "B" 2-Bolt 7/8" - 13T
- AF = S.A.E. "BB" 2 or 4-Bolt 1" - 15T
- AZ = S.A.E. "B" 4-Bolt 1-1/4" - 14T
- GA = Greaseable Rotatable "B" 2-Bolt 7/8" - 13T
- GB = Greaseable Rotatable "B" 4-Bolt 7/8" - 13T
- GF = Greaseable S.A.E. "BB" 2 or 4-Bolt 1" - 15T
- GH = Greaseable Rot. S.A.E. "BB" 2-Bolt 1" - 15T
- GK = Greaseable S.A.E. "B" 2 or 4-Bolt 7/8" - 13T
- GP = Greaseable S.A.E. "B" 2 or 4-Bolt 7/8" - 13T
- GQ = Greaseable S.A.E. "B" 2 or 4-Bolt 7/8" - 13T
- GR = Greaseable CHELSEA SPECIAL 7/8" - 13T
- GY = Greaseable DIN 5462 8T
- GZ = Greaseable S.A.E. "B" 4-Bolt 1-1/4" - 14T
- LA = S.A.E. "B" 2-Bolt w/Self Lube Pump 7/8" - 13T
- LB = S.A.E. "A" 2-Bolt w/Self Lube Pump 7/8" - 13T
- LC = S.A.E. "B" 2 or 4-Bolt w/Self Lube 7/8" - 13T
- LD = 1-1/4" Rd w/Self Lube Pump
- LF = S.A.E. "B" 2 or 4-Bolt w/Self Lube 7/8" - 13T
- PA = Special S.A.E. "B" 2-Bolt 7/8" - 13 Spline
- PF = Special S.A.E. "B" 2-Bolt 1" - 15 Spline
- RA = Rotatable S.A.E. "B" 2-Bolt 7/8" - 13T
- RB = Rotatable S.A.E. "B" 4-Bolt 7/8" - 13T
- RC = Rotatable S.A.E. "A" 2-Bolt 5/8" - 9T
- RD = Rotatable S.A.E. "A" 2-Bolt 7/8" - 13T
- RE = Rotatable S.A.E. "BB" 4-Bolt 1" - 15T
- RF = Rotatable S.A.E. "BB" 2-Bolt 1" - 15T
- RY = Rotatable DIN 5462 8T
- SQ = S.A.E. "B" 4-Bolt 7/8" - 13T
- XD = 1-1/4" Rd Standard Shaft
- XE = S.A.E. "A" 2 or 4-Bolt 5/8" - 9T
- XG = S.A.E. "A" 2-Bolt 3/4" Rd
- XJ = S.A.E. "A" 2-Bolt 3/4" Rd
- XK = S.A.E. "B" 2 or 4-Bolt 7/8" - 13T
- XQ = S.A.E. "B" 2 or 4-Bolt 7/8" - 13T
- XR = CHELSEA SPECIAL 7/8" - 13T
- XX = Tapered Output Shaft
- XY = DIN 5462 8T

Assembly Arrangement
3, 4, 5, 6

Kits Bill of Materials**Power Take-Offs****442, 447 & 489 Series**

329091X	Lube Pump & Bearing Cap Assembly(442/447/489 Series)	329106-45X	Electric/Air 24V (442/489 Series)
28-P-249	O-Ring	328388-48X	24V Electric Over Air
3-P-881	Gerotor Shaft	329361X	Shifter Cover
329093X	Pump Adapter	378430-9	Hex Capscrew
21-P-530	Pump Adapter	35-P-8	Shifter Cover
550221	Bearing Tab	329106-71X	Air Shift (447 Series)
378429-11	Hex-Capscrew	329363X	Shifter Cover
379173	Plate-Plump	378430-9	Hex Capscrew
379175	Retaining	35-P-8	Shifter Cover
379176	Pump-Gerotor	328388-98X	Kit Installation
379525	Pump Cap	329106-75X	Electric/Air 12V (447 Series)
500037-7	Dowel Pin	328388-47X	12V Electric
500566-3	Ball	329363X	Shifter Cover
500897-11	Cap Plug	378430-9	Hex Capscrew
500897-8	Shipping Plug	35-P-8	Shifter Cover
329092X	Pressure Lube Hose Assembly (442/447/489 Series)	329106-77X	Electric/Air 24V (447 Series)
379280	Fitting Swivel	328388-48X	24V Electric Over Air
385004	Female JIC	329363X	Shifter Cover
385003	Male NPTF	378430-9	Hex Capscrew
385006	Hose Bulk	35-P-8	Shifter Cover
329096-1X	Field Conversion Kit (Self Lube Replace 3-P-202)	329106-105X	Cable Shift ("Q", "W", & "X") (442/489 Series)
28-P-216	Oil Seal	328380X	Mounting Parts Kit
3-P-857	Output Shaft	329119-1X	Cable Control Cover
329091X	Lube Pump	35-P-8	Shifter Cover
329092X	Pressure Lever	378430-9	Hex Capscrew
378391	Lock/Retaining	378441-10	10 Ft. Wire
379534	Inst Instruction	378502	Knob
500841-1	Elbow 90°	328751-1X	Install Kitt
28-P-190	O-Ring .73	329106-106X	Cable Shift ("Q", "W", & "X") (442/489 Series)
28-P-191	O-Ring .54	328751-1X	Install Kit
9-P-76	Idler Shaft	328380X	Mounting Parts Kit
378422	Drive Screw	329119-2X	Cable Control Cover
379646	Installation	35-P-8	Shifter Cover
22-P-127-1	Bearing Cone	378430-9	Hex Capscrew
22-P-127-2	Bearing Cone	378441-10	Wire
22-P-127-3	Bearing Cone	378502	Knob
68-P-2	Name Plate	329106-107X	Wire Shift Kit Less (442/489 Series)
329097-1X	Field Conversion Kit (Self Lube Replace 3-P-282)	328751-1X	Install Kit
378391	Lock/Retaining	329119-1X	Cable Control Cover
500841-1	Elbow 90°	35-P-8	Shifter Cover
379534	Inst Instruction	378430-9	Hex Capscrew
379646	Installation	329106-108X	Wire Shift Kit Less
378422	Drive Screw	328751-1X	Install Kit
329092X	Pressure Lever	329119-2X	Cable Control Cover
329091X	Lube Pump	35-P-8	Shifter Cover
28-P-191	O-Ring .54	378430-9	Hex Capscrew
28-P-190	O-Ring .73	329106-109X	Shifter Kit ("F", "L", "R" "S" & "U") (442/489 Series)
28-P-216	Oil Seal	328751-1X	Install Kit
9-P-76	Idler Shaft	328380X	Mounting Parts Kit
3-P-858	Pump Shaft	329121-1X	Cable Control Cover
22-P-127-1	Bearing Cone	35-P-8	Shifter Cover
22-P-127-2	Bearing Cone	378430-9	Hex Capscrew
22-P-127-3	Bearing Cone	378441-10	10 Ft. Wire
68-P-2	Name Plate	378502	Knob
329106-39X	Air Shift (Ass'y 3&6) (442/489 Series)	329106-43X	Electric/Air 12V (442/489 Series)
329361X	Shifter Cover	328388-47X	12V Electric
378430-9	Hex Capscrew	329361X	Shifter Cover
35-P-8	Shifter Cover	378430-9	Hex Capscrew
328388-98X	Kit Installation	35-P-8	Shifter Cover
329106-43X	Electric/Air 12V (442/489 Series)		
328388-47X	12V Electric		
329361X	Shifter Cover		
378430-9	Hex Capscrew		
35-P-8	Shifter Cover		

Continued on Next Page

329106-110X	Cable Shift ("F", "L", "R" "S" & "U") (442/489 Series)	
328380X	Mounting Parts Kit.....	1
329121-2X	Cable Control Cover.....	1
35-P-8	Shifter Cover.....	1
378430-9	Hex Capscrew.....	4
378441-10	10 Ft. Wire.....	1
378502	Knob.....	1
328751-1X	Install Kit.....	1
329106-111X	Cable Shift, Less Cab (442/489 Series)	
328751-1X	Install Kit.....	1
329121-1X	Cable Control Cover.....	1
35-P-8	Shifter Cover.....	1
378430-9	Hex Capscrew.....	4
329106-112X	Cable Shift, Less Cab (442/489 Series)	
328751-1X	Install Kit.....	1
329121-2X	Cable Control Cover.....	1
35-P-8	Shifter Cover.....	1
378430-9	Hex Capscrew.....	4
329106-113X	Cable Shift ("Q" & "W") (447 Series)	
328751-1X	Install Kit.....	1
328380X	Mounting Parts Kit.....	1
329151-1X	Cable Control Cover.....	1
35-P-8	Shifter Cover.....	1
378430-9	Hex Capscrew.....	4
378441-10	10 Ft. Wire.....	1
378502	Knob.....	1
329106-114X	Cable Shift ("Q" & "W") (447 Series)	
328380X	Mounting Parts Kit.....	1
329151-2X	Cable Control Cover.....	1
35-P-8	Shifter Cover.....	1
378430-9	Hex Capscrew.....	4
378441-10	10 Ft. Wire.....	1
378502	Knob.....	1
328751-1X	Install Kit.....	1
329106-117X	Cable Shift ("S" & "U") (447 Series)	
328380X	Mounting Parts Kit.....	1
329152-1X	Cable Control Cover.....	1
35-P-8	Shifter Cover.....	1
378430-9	Hex Capscrew.....	4
378441-10	10 Ft. Wire.....	1
378502	Knob.....	1
328751-1X	Install Kit.....	1
329106-118X	Cable Shift ("S" & "U") (447 Series)	
328751-1X	Install Kit.....	1
328380X	Mounting Parts Kit.....	1
329152-2X	Cable Control Cover.....	1
35-P-8	Shifter Cover.....	1
378430-9	Hex Capscrew.....	4
378441-10	10 Ft. Wire.....	1
378502	Knob.....	1
329106-135X	Constant Mesh Kit (442/489 Series)	
34-P-39	Cover Plate.....	1
35-P-8	Shifter Cover.....	1
378430-6	Hex Capscrew.....	4
4-P-178	Spacer Drive Shaft.....	1
4-P-177	Spacer Drive Shaft.....	1

329106-143X	Shifter Kit (442/489 Series)	
378430-10	Hex Capscrew.....	4
378441-10	10 Ft. Wire.....	1
5-A-188	Use 5-A-18.....	1
329271-1X	Cover Ass'y.....	1
328380X	Mounting Parts Kit.....	1
378502	Knob.....	1
328751-1X	Install Kit.....	1
35-P-8	Shifter Cover.....	2
329106-144X	Shifter Kit (442/489 Series)	
35-P-8	Shifter Cover.....	2
328751-1X	Install Kit.....	1
329271-2X	Cover Ass'y.....	1
378430-10	Hex Capscrew.....	4
5-A-188	Use 5-A-18.....	1
378441-10	10 Ft. Wire.....	1
378502	Knob.....	1
328380X	Mounting Parts Kit.....	1
329106-145X	(442/489 Series)	
378430-10	Hex Capscrew.....	1
5-A-188	Use 5-A-18.....	1
329271-1X	Cover Ass'y.....	1
328751-1X	Install Kit.....	1
35-P-8	Shifter Cover.....	2
329106-146X	(442/489 Series)	
35-P-8	Shifter Cover.....	2
329271-2X	Cover Ass'y.....	1
5-A-188	Use 5-A-18.....	1
378430-10	Hex Capscrew.....	4
328751-1X	Install Kit.....	1
329106-151X	Shifter Kit "V" Option (447 Series)	
378414	Pressure Protection Valve.....	1
35-P-8	Shifter Cover.....	1
379640	Booted Con.....	1
329363X	Shifter Cover.....	1
378430-9	Hex Capscrew.....	4
Owners Manual	HY25-1135-M1/US.....	1
329106-153X	Shifter Kit "V" Option (442/489 Series)	
379640	Booted Connector.....	1
378414	Pressure Protection Valve.....	1
35-P-8	Shifter Cover.....	1
329361X	Shifter Cover.....	1
378430-9	Hex Capscrew.....	4
Owners Manual	HY25-1135-M1/US.....	1
Ratios "Q" & "W" & "X"		
329118-1X	Post and Plate Assembly, (Ass'y 3 & 6)	
62-P-45	Shifter Plate.....	1
63-P-20	Shifter Pin.....	1
64-P-1	Shifter Shoe.....	1
378244	Shifter Post.....	1
378246	Lockring.....	1
378313	Lifter Plate.....	1
329118-2X	Post and Plate Assembly, (Ass'y 4 & 5)	
62-P-46	Shifter Plate.....	1
63-P-20	Shifter Pin.....	1
64-P-1	Shifter Shoe.....	1
378244	Shifter Post.....	1
378246	Lockring.....	1
378313	Lifter Plate.....	1

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Kits Bill of Materials

Power Take-Offs

442, 447 & 489 Series

Ratios "Q", "W" & "X"

329119-1X	Shifter Cover Ass'y, Wire Control (Ass'y 3 & 6)	
28-P-191	O-Ring	1
34-P-74	Shifter Cover	1
37-P-19	Spring	1
51-P-22	Shifter Lever	1
63-P-16	Poppet Pin	1
329118-1X	Shifter Plate Ass'y	1
378004	Flat Washer	1
379639	Indicator Switch	1
500356-10	Lock Washer	1
500365-22	Flat Washer	1
500409-6	Hex. HD. Capscrew .312"-24 X .625"	1

329119-2X	Shifter Cover Ass'y, Wire Control (Ass'y 4 & 5)	
28-P-191	O-Ring	1
34-P-74	Shifter Cover	1
37-P-19	Spring	1
51-P-22	Shifter Lever	1
63-P-16	Poppet Pin	1
329118-2X	Shifter Plate Ass'y	1
378004	Flat Washer	1
379639	Indicator Switch	1
500356-10	Lock Washer	1
500365-22	Flat Washer	1
500409-6	Hex. HD. Capscrew .312"-24 X .625"	1

Ratios "F", "H", "L", "R", "S" & "U"

329120-1X	Post and Plate Assembly, (Ass'y 3 & 6)	
62-P-45	Shifter Plate	1
63-P-21	Shifter Pin	1
64-P-1	Shifter Shoe	1
378244	Shifter Post	1
378246	Lockring	1
378313	Lifter Plate	1

329120-2X	Post and Plate Assembly, (Ass'y 4 & 5)	
62-P-46	Shifter Plate	1
63-P-21	Shifter Pin	1
64-P-1	Shifter Shoe	1
378244	Shifter Post	1
378246	Lockring	1
378313	Lifter Plate	1

Ratios "F", "H", "L", "R", "S" & "U"

329121-1X	Shifter Cover Ass'y, Wire Control (Ass'y 3 & 6)	
28-P-191	O-Ring	1
34-P-74	Shifter Cover	1
37-P-19	Spring	1
51-P-22	Shifter Lever	1
63-P-16	Poppet Pin	1
329120-1X	Shifter Plate Ass'y	1
378004	Flat Washer	1
379639	Indicator Switch	1
500356-10	Lock Washer	1
500365-22	Flat Washer	1
500409-6	Hex. HD. Capscrew .312"-24 X .625"	1

329121-2X	Shifter Cover Ass'y, Wire Control (Ass'y 4 & 5)	
28-P-191	O-Ring	1
34-P-74	Shifter Cover	1
37-P-19	Spring	1
51-P-22	Shifter Lever	1
63-P-16	Poppet Pin	1
329120-2X	Shifter Plate Ass'y	1
378004	Flat Washer	1
379639	Indicator Switch	1
500356-10	Lock Washer	1
500365-22	Flat Washer	1
500409-6	Hex. HD. Capscrew .312"-24 X .625"	1

329143X	Dust Cover Kit For (442/447/489 Series)	
35-P-14	Gasket	1
378430-4	Capscrew Hex Head	2
65-P-23	Cover Shift	1

Ratios "Q" & "W"

329151-1X	Shifter Cover Assembly, Wire Control (Ass'y 3 & 6)	
28-P-191	O-Ring	1
34-P-74	Shifter Cover	1
37-P-19	Spring	1
51-P-22	Shifter Lever	1
63-P-16	Poppet Pin	1
329118-1X	Shifter Plate Ass'y	1
378004	Flat Washer	1
379652	Indicator Switch Norm. "On"	1
500356-10	Lock Washer	1
500365-22	Flat Washer	1
500409-6	Hex. HD. Capscrew .312"-24 X .625"	1

329151-2X	Shifter Cover Assembly, Wire Control (Ass'y 4 & 5)	
28-P-191	O-Ring	1
34-P-74	Shifter Cover	1
37-P-19	Spring	1
51-P-22	Shifter Lever	1
63-P-16	Poppet Pin	1
329118-2X	Shifter Plate Ass'y	1
378004	Flat Washer	1
379652	Indicator Switch Norm. "On"	1
500356-10	Lock Washer	1
500365-22	Flat Washer	1
500409-6	Hex. HD. Capscrew .312"-24 X .625"	1

Ratios "R", "S" & "U"

329152-1X	Shifter Cover Assembly, Wire Control (Ass'y 3 & 6)	
28-P-191	O-Ring	1
34-P-74	Shifter Cover	1
37-P-19	Spring	1
51-P-22	Shifter Lever	1
63-P-16	Poppet Pin	1
329120-1X	Shifter Plate Ass'y	1
378004	Flat Washer	1
379652	Indicator Switch Norm. "On"	1
500356-10	Lock Washer	1
500365-22	Flat Washer	1
500409-6	Hex. HD. Capscrew .312"-24 X .625"	1

329152-2X	Shifter Cover Assembly, Wire Control (Ass'y 4 & 5)	
28-P-191	O-Ring	1
34-P-74	Shifter Cover	1
37-P-19	Spring	1
51-P-22	Shifter Lever	1
63-P-16	Poppet Pin	1
329120-2X	Shifter Plate Ass'y	1
378004	Flat Washer	1
379652	Indicator Switch Norm. "On"	1
500356-10	Lock Washer	1
500365-22	Flat Washer	1
500409-6	Hex. HD. Capscrew .312"-24 X .625"	1

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329166-12X	Electric Shift Installation Kit (442/447/489 Series)	
329158-12X	Electric Shift.....	1
329163-10X	Electric Shift.....	1
379247	Fuse Holder.....	1
379252	Butt Connector.....	2
379253	Ring Connector.....	1
379257	Splice Connector.....	1
379265	Grommet.....	1
379689	Self Taping Screw.....	4
500357-7	Lockwasher.....	4
500376-6	Nut 10-24.....	4
500457-6	Slotted Screw.....	4
379640	Booted Connector.....	1
379061X	Tie Wire.....	1
Owners Manual	HY25-1667-M1/US.....	1
329202X	Indicator Switch Connector Service Kit (442/447/489 Series)	
379252	Butt Connector.....	1
379639	Switch Indicator.....	1
379640	Booted Connector.....	1
329260X	Conversion Kit, 440 to 442 Series	
1-P-557X	Housing, Standard Mount.....	1
1-P-557	P.T.O. Housing.....	1
500597-16	Roll Pin, Standard Mount (1.125" Long).....	1
328594-13X	Bearing Spacer Kit.....	1
329261X	Conversion Kit, 440 Deep Mount to 442 Deep Mount	
1-P-558X	Deep Mount w/Roll Pin.....	1
1-P-558	Housing Deep Mount.....	1
500597-14	Roll Pin, Deep Mount (1" Long).....	1
328594-13X	Bearing Spacer Kit.....	1
329262X	Conversion Kit, 488 to 489 Series	
1-P-552X	Housing Stanard w/Roll Pin.....	1
1-P-552	Housing.....	1
500597-16	Pin Roll.....	1
328594-13X	Bearing Spacer Kit (Non Pressure Lube).....	1
329263X	Conversion Kit, 488 Deep Mount to 489 Deep Mount	
1-P-562X	Deep Mount.....	1
1-P-562	Housing.....	1
500597-16	Pin Roller.....	1
328594-13X	Bearing Spacer Kit.....	1
31-P-102	Thrust Washer.....	1
379672	Plug O-Ring.....	1
9-P-88	Idler Shaft.....	1
550439	Bearing Cone.....	1
28-P-191	O-Ring.....	1
14-P-73-1	Spacer Idler Gear (.149"-.151").....	1
14-P-73-2	Spacer Idler Gear (.152"-.154").....	1
14-P-73-3	Spacer Idler Gear (.155"-.157").....	1
Ratios "A", "B" & "C" (442/489 Series)		
329265-1X	Post and Plate Assembly, (Ass'y 3 & 6).....	1
62-P-45	Shifter Plate.....	1
63-P-23	Shifter Pin.....	1
64-P-1	Shifter Shoe.....	1
378244	Shifter Post.....	1
378246	Lockring.....	1
378313	Lifter Plate.....	1
329265-2X	Post and Plate Assembly, (Ass'y 4 & 5)	
62-P-46	Shifter Plate.....	1
63-P-23	Shifter Pin.....	1
64-P-1	Shifter Shoe.....	1
378244	Shifter Post.....	1
378246	Lockring.....	1
378313	Lifter Plate.....	1

Ratios "A", "B" & "C" (442/489 Series)		
329271-1X	Shifter Cover Assembly, Wire Control (Ass'y 3 & 6)	
28-P-191	O-Ring.....	1
34-P-74	Shifter Cover.....	1
37-P-19	Spring.....	1
51-P-22	Shifter Lever.....	1
63-P-16	Poppet Pin.....	1
329265-1X	Shifter Plate Ass'y.....	1
378004	Flat Washer.....	1
379639	Indicator Switch Norm. "On".....	1
500356-10	Lock Washer.....	1
500365-22	Flat Washer.....	1
500409-6	Hex. HD. Capscrew .312"-24 X .625".....	1
329271-2X	Shifter Cover Assembly, Wire Control (Ass'y 4 & 5)	
28-P-191	O-Ring.....	1
34-P-74	Shifter Cover.....	1
37-P-19	Spring.....	1
51-P-22	Shifter Lever.....	1
63-P-16	Poppet Pin.....	1
329265-2X	Shifter Plate Ass'y.....	1
378004	Flat Washer.....	1
379639	Indicator Switch Norm. "On".....	1
500356-10	Lock Washer.....	1
500365-22	Flat Washer.....	1
500409-6	Hex. HD. Capscrew .312"-24 X .625".....	1
329304X	Bearing Cap & Seal (442/489 Series)	
21-P-641	Bearing Cap.....	1
28-P-224	Oil Seal.....	1
329361X	Shifter Cover Assembly, Air Shift (442/489 Series)	
34-P-130	Shifter Cover.....	1
379639	Indicator Switch (Normally OFF).....	1
21-P-572	Flange Pump.....	1
28-P-216	Oil Seal.....	1
3-P-980	Output Shaft.....	1
329195X	Bearing Cap Ass'y.....	1
378391	Lock/Retaining.....	2
378447-6	Socket Head.....	7
379638	P.T.O. Tag.....	1
379688	Lubricant-Spline.....	1
22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1
329436-1X	Pump Conv Kit "RA" "B" Ratio Only	
21-P-628	Pump Flange.....	1
28-P-216	Oil Seal.....	1
3-P-980	Output Shaft.....	1
329195X	Bearing Cap Ass'y.....	1
378391	Lock/Retaining.....	2
378447-6	Socket Head.....	7
379638	P.T.O. Tag.....	1
379688	Lubricant-Spline.....	1
22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1
329436-3X	Pump Conv Kit "XK" "B" Ratio Only	
3-P-979	Output Shaft.....	1
328333X	Flange Assembly.....	1
378391	Lock/Retaining.....	2
378447-8	Socket Head.....	4
379688	Lubricant-Spline.....	1
22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1

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Kits Bill of Materials**Power Take-Offs****442, 447 & 489 Series**

329436-6X	Pump Conv Kit "XQ" "B" Ratio Only		328356-13X	Gasket & Seal Kit	
28-P-216	Oil Seal.....	1	22-P-24-1	Gasket, Bearing Cap.....	4
3-P-979	Output Shaft.....	1	22-P-24-2	Gasket, Bearing Cap.....	4
328589X	Bearing Cap.....	1	22-P-24-3	Gasket, Bearing Cap.....	2
378391	Lock/Retaining.....	2	28-P-190	O-Ring.....	1
378447-8	Socket Head.....	4	28-P-191	O-Ring.....	2
379688	Lubricant-Spline.....	1	28-P-216	Oil Seal.....	1
22-P-127-1	Bearing Cone.....	2	35-P-8	Gasket, Shifter Cover.....	2
22-P-127-2	Bearing Cone.....	2	35-P-9-1	Gasket, Housing (.010").....	2
22-P-127-3	Bearing Cone.....	1	35-P-9-2	Gasket, Housing (.020").....	2
			378391	Lockring.....	2
			378774	Lockwasher.....	6
329436-7X	Pump Conv Kit "AK" "B" Ratio Only		328356-15X	Shifter Cover Seal Kit (Wire Control)	
28-P-216	Oil Seal.....	1	22-P-69	Gasket.....	1
328989X	Flange Assembly.....	1	28-P-191	O-Ring.....	1
378391	Lock/Retaining.....	2	28-P-226	Oil Seal.....	1
378447-8	Socket Head.....	4	35-P-8	Gasket, Shifter Cover.....	1
379688	Lubricant-Spline.....	1	35-P-9-1	Gasket, Housing.....	2
3-P-979	Output Shaft.....	1	35-P-9-2	Gasket, Housing.....	2
22-P-127-1	Bearing Cone.....	2			
22-P-127-2	Bearing Cone.....	2	328356-50X	Gasket & Seal Kit	
22-P-127-3	Bearing Cone.....	1	22-P-24-1	Gasket, Bearing Cap.....	4
			22-P-24-2	Gasket, Bearing Cap.....	4
329436-8X	Pump Conv Kit "RD" B Ratio Only		22-P-24-3	Gasket, Bearing Cap.....	4
21-P-638	Pump Flange.....	1	28-P-190	O-Ring.....	1
329322X	Bearing Cap.....	1	28-P-191	O-Ring.....	1
378391	Lock/Retaining.....	2	28-P-216	Oil Seal.....	1
378447-6	Socket Head.....	4	35-P-8	Gasket, Shifter Cover.....	1
379638	P.T.O. Tag.....	1	35-P-15-1	Gasket, Housing.....	1
379688	Lubricant-Spline.....	1	35-P-15-2	Gasket, Housing.....	1
378446-4	Screw, Socket.....	6	378391	Lockring.....	2
28-P-216	Oil Seal.....	1			
3-P-979	Output Shaft.....	1	328356-67X	Gasket & Seal Kit	
22-P-127-1	Bearing Cone.....	2	22-P-24-1	Gasket, Bearing Cap.....	4
22-P-127-2	Bearing Cone.....	2	22-P-24-2	Gasket, Bearing Cap.....	4
22-P-127-3	Bearing Cone.....	1	22-P-24-3	Gasket, Bearing Cap.....	4
			28-P-191	O-Ring.....	2
329436-9X	Pump Conv Kit "SQ" B Ratio Only		28-P-216	Oil Seal.....	1
28-P-216	Oil Seal.....	1	35-P-8	Gasket, Shifter Cover.....	1
3-P-979	Output Shaft.....	1	35-P-9-1	Gasket, Housing.....	2
329449X	Bearing Cap.....	1	35-P-9-2	Gasket, Housing.....	2
378391	Lock/Retaining.....	2			
378447-8	Socket Head.....	4	328356-69X	Shifter Cover Seal Kit (Wire Control "A", "B" & "C" Ratio)	
379688	Lubricant-Spline.....	1	22-P-69	Gasket.....	1
22-P-127-1	Bearing Cone.....	2	28-P-191	O-Ring.....	1
22-P-127-2	Bearing Cone.....	2	28-P-226	Oil Seal.....	1
22-P-127-3	Bearing Cone.....	1	5-A-188	Spacer.....	1
			35-P-9-1	Gasket, Housing.....	2
328170-76X	Stud Kit, Standard (442/447 Series)		35-P-9-2	Gasket, Housing.....	2
379423-15	Stud .375".....	6			
379744	Flange Nut.....	6	328356-71X	Shifter Cover Seal Kit (Air Shift)	
			28-P-41	O-Ring.....	1
328170-77X	Stud Kit, Deep Mount (442/447 Series)		28-P-42	O-Ring.....	2
379744	Flange Nut.....	3	378316	Retainer.....	2
378431-11	Hex Capscrew.....	3	35-P-8	Gasket, Shifter Cover.....	2
379423-12	Stud .375".....	3	35-P-9-1	Gasket, Housing.....	1
378774	Tablock Washer.....	3	35-P-9-2	Gasket, Housing.....	1
328170-200X	Stud Kit, Standard & Deep Mount (489 Series)		328380X	Mounting Parts Kit (442/447/489 Series)	
379224	Tab Lockwasher.....	6	378326	Nut, Hex.....	1
378432-12	Capscrew.....	6	50-P-17	Bracket, Wire Control.....	1
379424-18	Stud.....	2	50-P-19	Swivel Bracket.....	1
379745	Flange Nut.....	2	500396-8	Screw, Hex.....	1
			500568-4	Set Screw.....	1
328170-201X	Stud Kit, Metric (489 Series)		378019	Pivot Pin.....	1
379745	Flange Nut.....	8			
379429-19	Stud Metric.....	8			
328346-10X	Cable Control (442/447/489 Series)				
378441-10	10 Ft. Wire.....	1			
378502	Knob.....	1			

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328388-37X	Air Shift Installation Kit ("A" Shifter)	
328388-44X	Air Shift.....	1
329090-1X	Valve Kit.....	1
379044-7	Nylon Tubing.....	1
379130	Support Bracket.....	2
68-P-27	Control Plate.....	1
379640	Booted Connector.....	1
328388-44X	Air Shift Kit	
378416	Hex Nipple.....	1
378978	Indicator.....	1
379042	Male Connector.....	2
379043	Male Elbow.....	1
379252	Butt Connector.....	2
500357-7	Lockwasher.....	8
500376-6	Nut 10-24.....	4
500448-9	Screw Slot.....	4
379900	Ass'y Fuse.....	1
379904	Push Connect.....	1
328388-46X	Inst Kit Parts Bag	
379900	Ass'y Fuse.....	1
378416	Hex Nipple.....	1
379042	Male Connector.....	2
379043	Male Elbow.....	1
379253	Ring Connector.....	1
379257	Splice Connect.....	1
379306	Fork Connector.....	4
500357-7	Lockwasher.....	2
500457-6	Slotted Screw.....	2
379904	Push Connect.....	1
328388-47X	12V Electric Over Air (442/447/489 Series)	
328388-46X	Inst Kit P Shift Option.....	1
378414	Pressure Protection Valve.....	1
378881	Rocker Swivel.....	1
378978	Indicator.....	1
379044-7	Nylon Tubing.....	1
379252	Butt Connector.....	2
379258	Bracket.....	1
379303-1	Valve 12V.....	1
379336	Switch Bracket.....	1
379254-3	Wire, Green.....	1
379106	Breather Cap.....	1
379640	Booted Connector.....	1
328388-48X	24V Electric Over Air (442/447/489 Series)	
379640	Booted Connector.....	1
328388-46X	Inst Kit P Shift Option.....	1
378414	Pressure Protection Valve.....	1
378881	Rocker Swivel.....	1
379005	Indicator.....	1
379044-7	Nylon Tubing.....	1
379252	Butt Connector.....	1
379258	Bracket.....	1
379303-2	Valve 24V.....	1
379336	Switch Bracket.....	1
379106	Breather-Cap.....	1
379254-3	Wire, Green.....	1
328388-65X	Air-O-Matic Shift (442/447/489 Series)	
329214X	ApSCO Valve.....	1
378414	Pressure Protection Valve.....	1
328388-64X	Airshift Kit.....	1
328388-72X	Air Shift (442/489 Series)	
378414	Pressure Protection Valve.....	1
329316X	Valve Assembly.....	1
328388-64X	Airshift Kit.....	1

328388-97X	Airshift	
328931X	Kit Valve.....	1
500357-7	Lockwasher.....	4
500376-6	Nut 10-24.....	4
500448-9	Screw Slot.....	4
378416	Hex Nipple.....	1
379042	Male Connector.....	1
379252	Butt Connector.....	2
379900	Ass'y Fuse.....	1
379904	Push Connect.....	1
75-P-13	Light Indicator.....	1
328388-98X	Kit Installation Air Shift	
328388-97X	Air Shift.....	1
329090-6X	Kit Valve.....	1
379044-7	Nylon Tubing.....	1
379130	Support Bracket.....	2
379640	Booted Connector.....	1
328390-117X	Cable to Air (442/489 Series)	
35-P-8	Shifter Cover.....	1
329361X	Shifter Cover.....	1
378430-9	Hex Capscrew.....	4
328388-98X	Kit Installation.....	1
Owners Manual	HY25-1135-M1/US.....	1
328390-119X	Cable to Electric/Air (442/489 Series)	
328388-47X	12V Electric.....	1
329361X	Shifter Cover.....	1
35-P-8	Shifter Cover.....	1
378430-11	Hex Capscrew.....	4
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328390-120X	Cable to Electric/Air (442/489 Series)	
328388-48X	24V Electric Over Air.....	1
329361X	Shifter Cover.....	1
35-P-8	Shifter Cover.....	1
378430-11	Hex Capscrew.....	4
Owners Manual	HY25-1135-M1/US.....	1
328390-125X	Cable to Air (447 Series)	
329363X	Shifter Cover.....	1
378430-9	Hex Capscrew.....	4
35-P-8	Shifter Cover.....	1
328388-98X	Kit Installation.....	1
Owners Manual	HY25-1135-M1/US.....	1
328390-127X	Wire to 12V Kit (447 Series)	
328388-47X	12V Electric.....	1
329363X	Shifter Cover.....	1
378430-9	Hex Capscrew.....	4
35-P-8	Shifter Cover.....	1
Owners Manual	HY25-1135-M1/US.....	1
328390-129X	W/C to 24V Conv Kit (447 Series)	
328388-48X	24V Electric Over Air.....	1
329363X	Shifter Cover.....	1
378430-9	Hex Capscrew.....	4
35-P-8	Shifter Cover.....	1
Owners Manual	HY25-1135-M1/US.....	1

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Kits Bill of Materials

328591-10X	"XG" Pump Conversion		328591-26X	"XO" Pump Conversion	
28-P-216	Oil Seal.....	1	28-P-216	Oil Seal.....	1
3-P-281	Pump Shaft.....	1	3-P-284	Pump Shaft.....	1
328580X	Flange Assembly.....	1	328328X	Flange Assembly.....	1
378391	Lock/Retaining.....	2	378391	Lock/Retaining.....	2
378447-8	Socket Head.....	4	378447-8	Socket Head.....	4
22-P-127-1	Bearing Cone.....	2	22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2	22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1	22-P-127-3	Bearing Cone.....	1
328591-11X	"XJ" Pump Conversion		328591-27X	"XE" Pump Conversion	
28-P-216	Oil Seal.....	1	28-P-216	Oil Seal.....	1
3-P-284	Pump Shaft.....	1	3-P-800	Pump Shaft.....	1
328580X	Flange Assembly.....	1	328328X	Flange Assembly.....	1
378391	Lock/Retaining.....	2	378391	Lock/Retaining.....	2
378447-8	Socket Head.....	4	378447-8	Socket Head.....	4
22-P-127-1	Bearing Cone.....	2	379688	Lubricant-Spline.....	1
22-P-127-2	Bearing Cone.....	2	22-P-127-1	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1	22-P-127-2	Bearing Cone.....	2
			22-P-127-3	Bearing Cone.....	1
328591-16X	"XK" Pump Conversion		328591-28X	"AK" Pump Conversion	
3-P-282	Pump Shaft.....	1	28-P-216	Oil Seal.....	1
328333X	Flange Assembly.....	1	3-P-282	Pump Shaft.....	1
378391	Lock/Retaining.....	2	328989X	Flange Assembly.....	1
378447-8	Socket Head.....	4	378391	Lock/Retaining.....	2
379688	Lubricant-Spline.....	1	378447-8	Socket Head.....	4
22-P-127-1	Bearing Cone.....	2	379688	Lubricant-Spline.....	1
22-P-127-2	Bearing Cone.....	2	22-P-127-1	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1	22-P-127-2	Bearing Cone.....	2
			22-P-127-3	Bearing Cone.....	1
328591-17X	"XQ" Pump Conversion		328591-29X	"FF" Pump Conversion	
28-P-216	Oil Seal.....	1	28-P-219	Oil Seal.....	1
3-P-282	Pump Shaft.....	1	3-P-851	Pump Shaft.....	1
328589X	Bearing Cap.....	1	329088X	Flange Assembly.....	1
378391	Lock/Retaining.....	2	378391	Lock/Retaining.....	2
378447-8	Socket Head.....	4	378447-10	Capscrew.....	4
379688	Lubricant-Spline.....	1	379688	Lubricant-Spline.....	1
22-P-127-1	Bearing Cone.....	2	22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2	22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1	22-P-127-3	Bearing Cone.....	1
328591-18X	"XL" Pump Conversion		328591-30X	"AF" Pump Conversion	
28-P-216	Oil Seal.....	1	28-P-219	Oil Seal.....	1
3-P-283	Pump Shaft.....	1	3-P-854	Pump Shaft.....	1
328580X	Flange Assembly.....	1	329088X	Flange Assembly.....	1
378391	Lock/Retaining.....	2	378391	Lock/Retaining.....	2
378447-8	Socket Head.....	4	378447-10	Capscrew.....	4
379688	Lubricant-Spline.....	1	379688	Lubricant-Spline.....	1
22-P-127-1	Bearing Cone.....	2	22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2	22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1	22-P-127-3	Bearing Cone.....	1
328591-23X	"XP" Pump Conversion		328591-44X	"LA" Pump Conversion	
28-P-216	Oil Seal.....	1	28-P-216	Oil Seal.....	1
3-P-282	Pump Shaft.....	1	3-P-858	Pump Shaft.....	1
328328X	Flange Assembly.....	1	328989X	Flange Assembly.....	1
378391	Lock/Retaining.....	2	329091X	Lube Pump.....	1
378447-8	Socket Head.....	4	329092X	Pressure Lube.....	1
379688	Lubricant-Spline.....	1	378391	Lock/Retaining.....	2
22-P-127-1	Bearing Cone.....	2	378447-8	Socket Head.....	4
22-P-127-2	Bearing Cone.....	2	379533	Installation.....	1
22-P-127-3	Bearing Cone.....	1	379534	Inst Instruction.....	1
			500841-1	Elbow 90°.....	1
			500897-5	Plug Shipping.....	1
			9-P-76	Idler Shaft.....	1
			22-P-127-1	Bearing Cone.....	2
			22-P-127-2	Bearing Cone.....	2
			22-P-127-3	Bearing Cone.....	2

328591-45X	"LB" Pump Conversion	
28-P-216	Oil Seal.....	1
3-P-858	Pump Shaft.....	1
328328X	Flange Assembly.....	1
329091X	Lube Pump.....	1
329092X	Pressure Lube.....	1
378391	Lock/Retaining.....	2
378447-8	Socket Head.....	4
379533	Installation.....	1
379534	Inst Instruction.....	1
500841-1	Elbow 90°.....	1
500897-5	Plug Shipp.....	1
9-P-76	Idler Shaft.....	1
22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	2
328591-46X	"LC" Pump Conversion	
28-P-216	Oil Seal.....	1
3-P-858	Pump Shaft.....	1
328589X	Bearing Cap.....	1
329091X	Lube Pump.....	1
329092X	Pressure Lube.....	1
378391	Lock/Retaining.....	1
378447-8	Socket Head.....	4
379533	Installation.....	1
379534	Inst Instr.....	1
500841-1	Elbow 90°.....	1
500897-5	Plug Shipp.....	1
9-P-76	Idler Shaft.....	1
22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	2
328591-47X	"LE" Pump Conversion	
28-P-216	Oil Seal.....	1
3-P-858	Pump Shaft.....	1
328584X	Flange Assembly.....	1
329091X	Lube Pump.....	1
329092X	Pressure Lube.....	1
378391	Lock/Retaining.....	2
378447-8	Socket Head.....	4
379533	Installation.....	1
379534	Inst Instruction.....	1
500841-1	Elbow 90°.....	1
500897-5	Plug-Shipping.....	1
9-P-76	Idler Shaft.....	1
22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	2
328591-48X	"LF" Pump Conversion	
3-P-858	Pump Shaft.....	1
328333X	Flange Assembly.....	1
329091X	Lube Pump.....	1
329092X	Pressure Lube.....	1
378391	Lock/Retaining.....	2
378447-8	Socket Head.....	4
379533	Installation.....	1
379534	Inst Instruction.....	1
500841-1	Elbow 90°.....	1
500897-5	Plug Shipp.....	1
9-P-76	Idler Shaft.....	1
22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	2

328591-52X	Pump Conv. Kit "XD"	
28-P-216	Oil Seal.....	1
3-P-283	Pump Shaft.....	1
328711X	Pump Mount.....	1
329194X	Bearing Cap Ass'y.....	1
378391	Lock/Retaining.....	2
379063	Flat Washer.....	4
379673	Stud.....	4
379688	Lubricant-Spline.....	1
22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1
328591-53X	Pump Conv. Kit "R"	
378447-6	Socket Head.....	7
379638	P.T.O. Tag.....	1
21-P-628	Pump Flange.....	1
328591-54X	Pump Conv. Kit "R"	
21-P-572	Flange Pump.....	1
378447-6	Socket Head.....	7
379638	P.T.O. Tag.....	1
328591-55X	Pump Conv. Kit "XD"	
21-P-628	Pump Flange.....	1
28-P-216	Oil Seal.....	1
3-P-283	Pump Shaft.....	1
329195X	Bearing Cap Ass'y.....	1
378391	Lock/Retaining.....	2
378447-6	Socket Head.....	7
379638	P.T.O. Tag.....	1
379688	Lubricant-Spline.....	1
22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1
328591-56X	Pump Conv. Kit "XD"	
21-P-572	Flange Pump.....	1
28-P-216	Oil Seal.....	1
3-P-283	Pump Shaft.....	1
329195X	Bearing Cap Ass'y.....	1
378391	Lock/Retaining.....	2
378447-6	Socket Head.....	7
379638	P.T.O. Tag.....	1
379688	Lubricant-Spline.....	1
22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1
328591-70X	"AZ" Pump Conversion	
379688	Lubricant-Spline.....	1
378447-11	Cap Screw.....	4
3-P-844	Output Shaft.....	1
378391	Lock/Retaining.....	2
329052X	Bearing Cap.....	1
28-P-275	Oil Seal.....	1
22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1

Kits Bill of Materials**Power Take-Offs****442, 447 & 489 Series**

328591-71X	Pump Conversion Kit		328591-75X	Pump Conversion Kit	
28-P-219	Oil Seal.....	1	21-P-572	Flange Pump.....	1
329088X	Flange Assembly.....	1	378447-6	Socket Head.....	7
378391	Lock/Retaining.....	2	379638	P.T.O. Tag.....	1
378447-10	Capscrew.....	4	3-P-923X	Drive Shaft Ass'y.....	1
28-P-268	Oil Seal.....	1	3-P-923	Drive Shaft.....	1
328273X	Bearing Cap.....	1	379688	Lubricant-Spline.....	1
3-P-921X	Drive Shaft Ass'y.....	1	500168-2	Fitting.....	1
379688	Lubricant-Spline.....	1	379819	Grease Fit.....	1
3-P-921	Drive Shaft.....	1	328273X	Bearing Cap.....	1
500168-2	Fitting.....	1	28-P-268	Oil Seal.....	1
379819	Grease Fit.....	1	378391	Lock/Retaining.....	2
22-P-127-1	Bearing Cone.....	2	22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2	22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1	22-P-127-3	Bearing Cone.....	1
328591-72X	Pump Conversion Kit		328591-76X	Pump Conversion Kit	
378447-6	Socket Head.....	7	3-P-923X	Drive Shaft Ass'y.....	1
329195X	Bearing Cap Ass'y.....	1	3-P-923	Drive Shaft.....	1
379638	P.T.O. Tag.....	1	379688	Lubricant-Spline.....	1
328273X	Bearing Cap.....	1	500168-2	Fitting.....	1
28-P-268	Oil Seal.....	1	379819	Grease Fit.....	1
3-P-923X	Drive Shaft Ass'y.....	1	328273X	Bearing Cap.....	1
3-P-923	Drive Shaft.....	1	28-P-268	Oil Seal.....	1
379688	Lubricant-Spline.....	1	28-P-216	Oil Seal.....	1
500168-2	Fitting.....	1	328711X	Pump Mount.....	1
379819	Grease Fit.....	1	329194X	Bearing Cap Ass'y.....	1
28-P-216	Oil Seal.....	1	378391	Lock/Retaining.....	2
378391	Lock/Retaining.....	2	379063	Flat Washer.....	4
21-P-628	Pump Flange.....	1	379673	Stud.....	4
22-P-127-1	Bearing Cone.....	2	22-P-127-1	Bearing Cone.....	2
22-P-127-2	Bearing Cone.....	2	22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1	22-P-127-3	Bearing Cone.....	1
328591-73X	Pump Conversion Kit		328591-78X	Pump Conversion Kit	
378391	Lock/Retaining.....	2	21-P-626	Pump Flange.....	1
379638	P.T.O. Tag.....	1	28-P-219	Oil Seal.....	1
3-P-923X	Drive Shaft Ass'y.....	1	3-P-924	Output Shaft.....	1
3-P-923	Drive Shaft.....	1	329264X	Bearing Cap Ass'y.....	1
379688	Lubricant-Spline.....	1	378391	Lock/Retaining.....	2
500168-2	Fitting.....	1	378447-6	Socket Head.....	7
379819	Grease Fit.....	1	379688	Lubricant-Spline.....	1
328273X	Bearing Cap.....	1	379638	P.T.O. Tag.....	1
28-P-268	Oil Seal.....	1	28-P-271	O-Ring.....	1
21-P-628	Pump Flange.....	1	22-P-127-1	Bearing Cone.....	2
378447-6	Socket Head.....	7	22-P-127-2	Bearing Cone.....	2
22-P-127-1	Bearing Cone.....	2	22-P-127-3	Bearing Cone.....	1
22-P-127-2	Bearing Cone.....	2	328591-86X	Conversion Kit To "GK"	
22-P-127-3	Bearing Cone.....	1	378447-8	Socket Head.....	4
328591-74X	Pump Conversion Kit		28-P-216	Oil Seal.....	1
3-P-923X	Drive Shaft Ass'y.....	1	378391	Lock/Retaining.....	2
3-P-923	Drive Shaft.....	1	328273X	Bearing Cap.....	1
379688	Lubricant-Spline.....	1	28-P-268	Oil Seal.....	1
500168-2	Fitting.....	1	3-P-933X	Output Shaft.....	1
379819	Grease Fit.....	1	379819	Grease Fit.....	1
328273X	Bearing Cap.....	1	500168-2	Fitting.....	1
28-P-268	Oil Seal.....	1	3-P-933	Output Shaft.....	1
28-P-216	Oil Seal.....	1	379688	Lubricant-Spline.....	1
329195X	Bearing Cap Ass'y.....	1	22-P-127-1	Bearing Cone.....	2
378391	Lock/Retaining.....	2	22-P-127-2	Bearing Cone.....	2
378447-6	Socket Head.....	7	22-P-127-3	Bearing Cone.....	1
379638	P.T.O. Tag.....	1			
21-P-572	Flange Pump.....	1			
22-P-127-1	Bearing Cone.....	2			
22-P-127-2	Bearing Cone.....	2			
22-P-127-3	Bearing Cone.....	1			

328591-88X	Conversion Kit "AZ" To "GZ"	
378391	Lock/Retaining	2
328273X	Bearing Cap	1
28-P-268	Oil Seal	1
378447-8	Socket Head	4
3-P-939X	Output Shaft	1
379688	Lubricant-Spline	1
3-P-939	Output Shaft	1
379819	Grease Fit	1
500168-2	Fitting	1
28-P-275	Oil Seal	1
22-P-127-1	Bearing Cone	2
22-P-127-2	Bearing Cone	2
22-P-127-3	Bearing Cone	1
328591-89X	Conversion Kit "XD" To "GK"	
328273X	Bearing Cap	1
3-P-933X	Output Shaft	1
379819	Grease Fit	1
500168-2	Fitting	1
3-P-933	Output Shaft	1
379688	Lubricant-Spline	1
28-P-268	Oil Seal	1
378391	Lock/Retaining	2
328333X	Flange Assembly	1
378447-8	Socket Head	4
22-P-127-1	Bearing Cone	2
22-P-127-2	Bearing Cone	2
22-P-127-3	Bearing Cone	1
328591-90X	Conversion Kit "XD" To "GP"	
378447-8	Socket Head	4
28-P-268	Oil Seal	1
28-P-216	Oil Seal	1
378391	Lock/Retaining	2
328328X	Flange Assembly	1
328273X	Bearing Cap	1
3-P-933X	Output Shaft	1
379819	Grease Fit	1
500168-2	Fitting	1
3-P-933	Output Shaft	1
379688	Lubricant-Spline	1
22-P-127-1	Bearing Cone	2
22-P-127-2	Bearing Cone	2
22-P-127-3	Bearing Cone	1
328591-91X	Conversion Kit "XD" To "GQ"	
378391	Lock/Retaining	2
328589X	Bearing Cap	1
28-P-216	Oil Seal	1
28-P-268	Oil Seal	1
328273X	Bearing Cap	1
378447-8	Socket Head	4
3-P-933X	Output Shaft	1
379819	Grease Fit	1
500168-2	Fitting	1
3-P-933	Output Shaft	1
379688	Lubricant-Spline	1
22-P-127-1	Bearing Cone	2
22-P-127-2	Bearing Cone	2
22-P-127-3	Bearing Cone	1

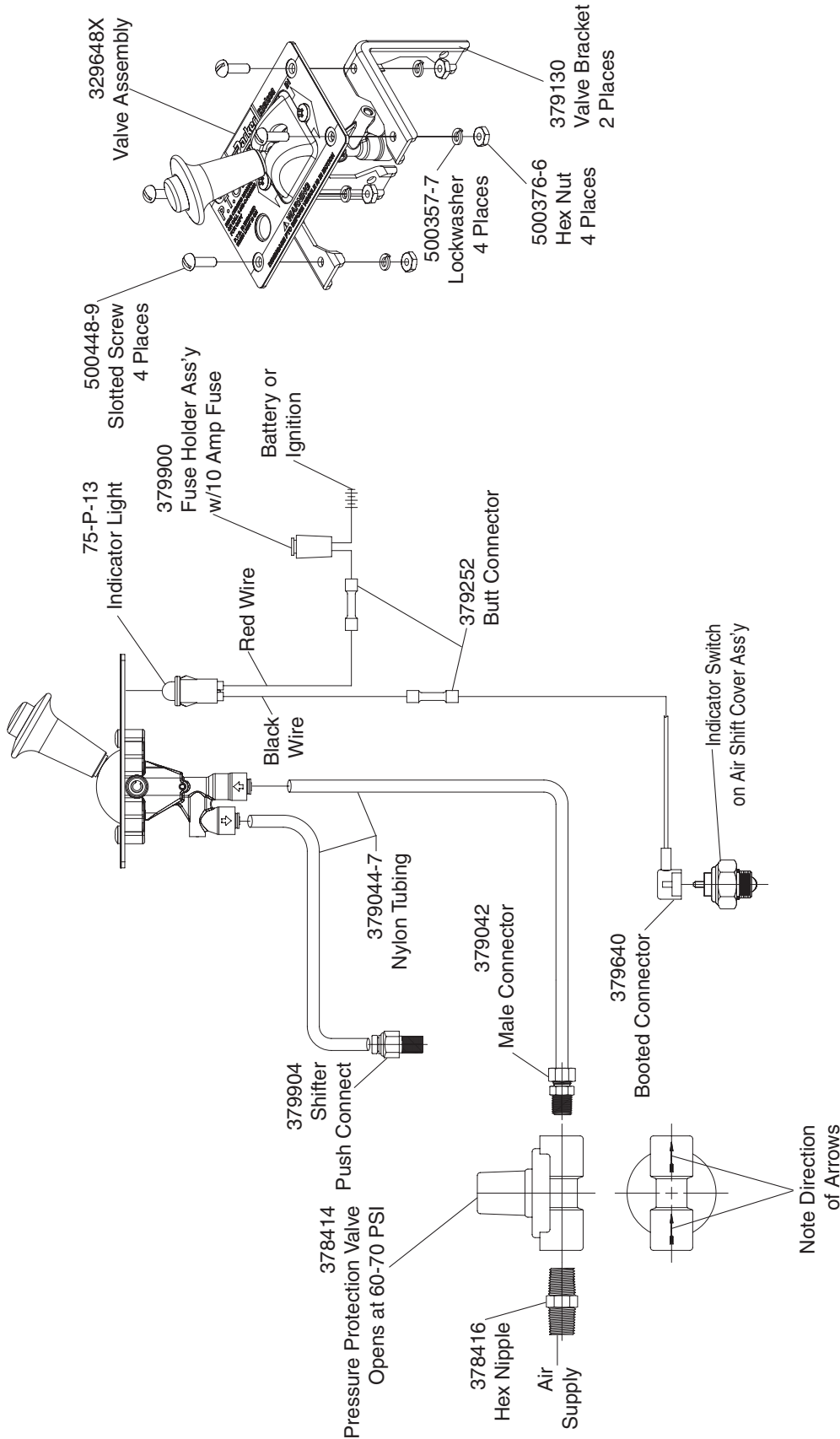
328591-92X	Conversion Kit "XD" To "GY"	
28-P-275	Oil Seal	1
378391	Lock/Retaining	2
329234X	Bearing Cap	1
378447-6	Socket Head	4
328273X	Bearing Cap	1
28-P-268	Oil Seal	1
3-P-938X	Output Shaft	1
500168-2	Fitting	1
379688	Lubricant-Spline	1
3-P-938	Output Shaft	1
379819	Grease Fit	1
22-P-127-1	Bearing Cone	2
22-P-127-2	Bearing Cone	2
22-P-127-3	Bearing Cone	1
328591-93X	Conversion Kit "XD" To "GZ"	
378391	Lock/Retaining	2
329052X	Bearing Cap	1
328273X	Bearing Cap	1
28-P-268	Oil Seal	1
378447-11	Cap Screw	4
3-P-939X	Output Shaft	1
379688	Lubricant-Spline	1
3-P-939	Output Shaft	1
379819	Grease Fit	1
500168-2	Fitting	1
28-P-275	Oil Seal	1
22-P-127-1	Bearing Cone	2
22-P-127-2	Bearing Cone	2
22-P-127-3	Bearing Cone	1
328591-106X	Conversion Kit "RA" To "GA"	
28-P-268	Oil Seal	1
328273X	Bearing Cap	1
378391	Lock/Retaining	2
28-P-216	Oil Seal-2	1
3-P-923X	Drive Shaft Ass'y	1
3-P-923	Drive Shaft	1
379688	Lubricant-Spline	1
500168-2	Fitting	1
379819	Grease Fit	1
378447-6	Socket Head	7
22-P-127-1	Bearing Cone	2
22-P-127-2	Bearing Cone	2
22-P-127-3	Bearing Cone	1
328591-107X	Conversion Kit "RB" To "GB"	
3-P-923X	Drive Shaft Ass'y	1
3-P-923	Drive Shaft	1
379688	Lubricant-Spline	1
500168-2	Fitting	1
379819	Grease Fit	1
378447-6	Socket Head	7
28-P-268	Oil Seal	1
28-P-216	Oil Seal	1
328273X	Bearing Cap	1
378391	Lock/Retaining	2
22-P-127-1	Bearing Cone	2
22-P-127-2	Bearing Cone	2
22-P-127-3	Bearing Cone	1

Kits Bill of Materials**Power Take-Offs****442, 447 & 489 Series**

328591-108X	Conversion Kit "AF" To "GF"		328591-116X	Conversion Kit "XD" To "GH"	
28-P-268	Oil Seal.....	1	28-P-219	Oil Seal.....	1
28-P-219	Oil Seal.....	1	378447-6	Socket Head.....	7
328273X	Bearing Cap.....	1	378391	Lock/Retaining.....	2
378391	Lock/Retaining.....	2	21-P-626	Pump Flange.....	1
378447-10	Capscrew.....	4	329264X	Bearing Cap Ass'y.....	1
3-P-921X	Drive Shaft Ass'y.....	1	328273X	Bearing Cap.....	1
379688	Lubricant-Spline.....	1	28-P-268	Oil Seal.....	1
3-P-921	Drive Shaft.....	1	28-P-271	O-Ring.....	1
500168-2	Fitting.....	1	3-P-941X	Drive Shaft.....	1
379819	Grease Fit.....	1	3-P-941	Drive Shaft.....	1
22-P-127-1	Bearing Cone.....	2	379688	Lubricant-Spline.....	1
22-P-127-2	Bearing Cone.....	2	379819	Grease Fit.....	1
22-P-127-3	Bearing Cone.....	1	500168-2	Fitting.....	1
			22-P-127-1	Bearing Cone.....	2
			22-P-127-2	Bearing Cone.....	2
			22-P-127-3	Bearing Cone.....	1
328591-112X	Conversion Kit "XD" To "RC"				
329322X	Bearing Cap.....	1	328591-121X	Conversion Kit "XD" To "XY"	
28-P-216	Oil Seal.....	1	28-P-275	Oil Seal.....	1
3-P-800	Pump Shaft.....	1	3-P-768	Shaft Output ("XY").....	1
378391	Lock/Retaining.....	2	329234X	Bearing Cap.....	1
379638	P.T.O. Tag.....	1	378447-6	Socket Head.....	4
378447-6	Socket Head.....	4	378391	Lock/Retaining.....	2
379688	Lubricant-Spline.....	1	22-P-127-1	Bearing Cone.....	2
378446-4	Screw, Socket.....	6	22-P-127-2	Bearing Cone.....	2
21-P-638	Pump Flange.....	1	22-P-127-3	Bearing Cone.....	1
22-P-127-1	Bearing Cone.....	2			
22-P-127-2	Bearing Cone.....	2	328591-122X	Conversion Kit "XD" To "XX"	
22-P-127-3	Bearing Cone.....	1	501181	Hex Nut.....	1
			3-P-766	Shaft Earby.....	1
328591-113X	Conversion Kit "XD" To "RD"		28-P-216	Oil Seal.....	1
21-P-638	Pump Flange.....	1	379111	SQ. Key 50.....	1
329322X	Bearing Cap.....	1	378447-6	Socket Head.....	4
378391	Lock/Retaining.....	2			
378447-6	Socket Head.....	4	328591-130X	Conversion Kit "XD" To "XV"	
379638	P.T.O. Tag.....	1	379828	Companion.....	1
379688	Lubricant-Spline.....	1	378454-7	Setscrew.....	1
378446-4	Screw, Socket.....	6			
28-P-216	Oil Seal.....	1	328591-131X	Conversion Kit "XD" To "RY"	
3-P-282	Pump Shaft.....	1	378447-8	Socket Head.....	4
22-P-127-1	Bearing Cone.....	2	21-P-625	Output Cover.....	1
22-P-127-2	Bearing Cone.....	2	3-P-768	Shaft Output ("XY").....	1
22-P-127-3	Bearing Cone.....	1	378391	Lock/Retaining.....	1
			329356X	Bearing Cap Ass'y.....	1
328591-114X	Conversion Kit "RF" To "GH"		329355-1X	Loose Part.....	1
378447-6	Socket Head.....	7	22-P-127-1	Bearing Cone.....	2
378391	Lock/Retaining.....	2	22-P-127-2	Bearing Cone.....	2
28-P-219	Oil Seal.....	1	22-P-127-3	Bearing Cone.....	1
28-P-268	Oil Seal.....	1			
328273X	Bearing Cap.....	1	328591-134X	Pump Conv Kit "XD" To "RE"	
3-P-941X	Drive Shaft.....	1	21-P-654	Pump Flange.....	1
3-P-941	Drive Shaft.....	1	329264X	Bearing Cap Ass'y.....	1
379688	Lubricant-Spline.....	1	378391	Lock/Retaining.....	1
379819	Grease Fit.....	1	378447-6	Socket Head.....	7
500168-2	Fitting.....	1	379638	P.T.O. Tag.....	1
22-P-127-1	Bearing Cone.....	2	379688	Lubricant-Spline.....	1
22-P-127-2	Bearing Cone.....	2	22-P-127-2	Bearing Cone.....	2
22-P-127-3	Bearing Cone.....	1	28-P-219	Oil Seal.....	1
			28-P-271	O-Ring.....	1
			3-P-924	Output Shaft.....	1
			22-P-127-1	Bearing Cone.....	2
			22-P-127-2	Bearing Cone.....	2
			22-P-127-3	Bearing Cone.....	1

328591-138X	Conversion Kit "XD" To "GJ"		328594-14X	Bearing and Spacer Kit (Pressure Lube)	
28-P-271	O-Ring	1	14-P-73-1	Spacer, Idler Gear (.149" - .151")	1
328273X	Bearing Cap.....	1	14-P-73-2	Spacer, Idler Gear (.152" - .154")	1
378447-6	Socket Head.....	7	14-P-73-3	Spacer, Idler Gear (.155" - .157")	1
378391	Lock/Retaining	2	28-P-191	O-Ring	1
329264X	Bearing Cap Ass'y	1	31-P-102	Thrust Washer	1
28-P-219	Oil Seal.....	1	379672	NWD Plug	1
21-P-654	Pump Flange	1	500841-1	Street Elbow 90°	1
28-P-268	Oil Seal.....	1	500897-5	Shipping Plug	1
3-P-941X	Drive Shaft	1	550439	Bearing.....	2
3-P-941	Drive Shaft.....	1	9-P-89	Shaft, Idler	1
379688	Lubricant-Spline.....	1			
379819	Grease Fit	1	328594-15X	Bearing and Spacer Kit (Non-Pressure Lube "A", "B" & "C" Ratio)	
500168-2	Fitting.....	1	14-P-73-1	Spacer, Idler Gear (.149" - .151")	1
			14-P-73-2	Spacer, Idler Gear (.152" - .154")	1
328591-142X	Pump Conversion Kit "XD" To "PF"		14-P-73-3	Spacer, Idler Gear (.155" - .157")	1
28-P-219	Oil Seal.....	1	14-P-75	Spacer, Input Bearing	1
3-P-924	Output Shaft.....	1	28-P-191	O-Ring	1
329264X	Bearing Cap Ass'y	1	31-P-102	Thrust Washer	1
378391	Lock/Retaining	1	379672	Plug, NWD	1
378447-6	Socket Head	7	550890	Needle Bearing.....	1
379688	Lubricant-Spline.....	1	561006	Bearing.....	1
379638	P.T.O. Tag	1	9-P-88	Shaft, Idler	1
28-P-271	O-Ring	1			
21-P-661	Pump Flange	1	328594-16X	Bearing and Spacer Kit (Pressure Lube "A", "B" & "C" Ratio)	
22-P-127-1	Bearing Cone.....	2	14-P-73-1	Spacer, Idler Gear (.149" - .151")	1
22-P-127-2	Bearing Cone.....	2	14-P-73-2	Spacer, Idler Gear (.152" - .154")	1
22-P-127-3	Bearing Cone.....	1	14-P-73-3	Spacer, Idler Gear (.155" - .157")	1
			14-P-75	Spacer, Input Bearing	1
328591-143X	Pump Conversion Kit "XD" To "PA"		28-P-191	O-Ring	1
378447-6	Socket Head	7	31-P-102	Thrust Washer	1
378391	Lock/Retaining	2	379672	Plug, NWD	1
21-P-661	Pump Flange	1	500841-1	Street Elbow 90°	1
28-P-216	Oil Seal.....	1	500897-5	Plug, Shipping	1
329195X	Bearing Cap Ass'y	1	550890	Needle Bearing.....	1
3-P-283	Pump Shaft.....	1	561006	Bearing.....	1
379638	P.T.O. Tag	1	9-P-89	Shaft, Idler	1
379688	Lubricant-Spline.....	1			
22-P-127-1	Bearing Cone.....	2	328711X	Pump Mounting Kit (447 Series)	
22-P-127-2	Bearing Cone.....	2	378919	Washer.....	4
22-P-127-3	Bearing Cone.....	1	500963-1	Hex Lock Nut	4
328591-149X	"SQ" Pump Conversion		328751-1X	Installation Kit ("C", "H", "W", "X", "Y")	
28-P-216	Oil Seal.....	1	68-P-18	Name Plate.....	1
3-P-282	Pump Shaft.....	1	378978	Indicator Light, 12V	1
329449X	Bearing Cap.....	1	379900	Fuse Holder, 10-Amp	1
378391	Lock/Retaining	2	379252	Butt Connector.....	2
378447-8	Socket Head	4	379640	Booted Connector ("V" Shifter Option)	
379688	Lubricant-Spline.....	1			
22-P-127-1	Bearing Cone.....	2	328948-6X	(442/447 Series)	
22-P-127-2	Bearing Cone.....	2	35-P-9-1	Mounting Gasket .010".....	2
22-P-127-3	Bearing Cone.....	1	35-P-9-2	Mounting Gasket .020".....	2
			379085-1	P.T.O. Instruction Decal	1
328594-13X	Bearing and Spacer Kit (Non-Pressure Lube)		328946X	Caution Label Kit.....	1
14-P-73-1	Spacer, Idler Gear (.149" - .151")	1	379624	Product Warranty Card	1
14-P-73-2	Spacer, Idler Gear (.152" - .154")	1	Owners Manual	HY25-1135-M1/US	1
14-P-73-3	Spacer, Idler Gear (.155" - .157")	1	Safety Guide	HY25-1002-M1/US	1
28-P-191	O-Ring	1			
31-P-102	Thrust Washer, Bearing	1	328948-8X	(489 Series)	
379672	NWD Plug	1	328946X	Caution Label Kit.....	1
550439	Bearing.....	2	35-P-15-1	Gasket, Housing .010".....	2
9-P-88	Shaft, Idler	1	35-P-15-2	Gasket, Housing .020".....	2
			379085-1	P.T.O. Instructions Decal	1
			379624	Product Warranty Card	1
			Owners Manual	HY25-1135-M1/US	1
			Safety Guide	HY25-1002-M1/US	1
			7170-72X	Stud Kit, Metric (442/447 Series)	
			379428-14	Stud M10	6
			379744	Flange Nut.....	6

Air Shift Installation Sketch for 442, 447 & 489 Series Using: Williams Valve (SK-462 Rev A)



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

NOTE: When this installation is used on vehicles with automatic transmissions the P.T.O .drive must be stopped before shifting.
CAUTION: When installing nylon tubing avoid sharp angles, exhaust and manifold systems.

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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.

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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.

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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 thereto. 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.

10/09-P



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