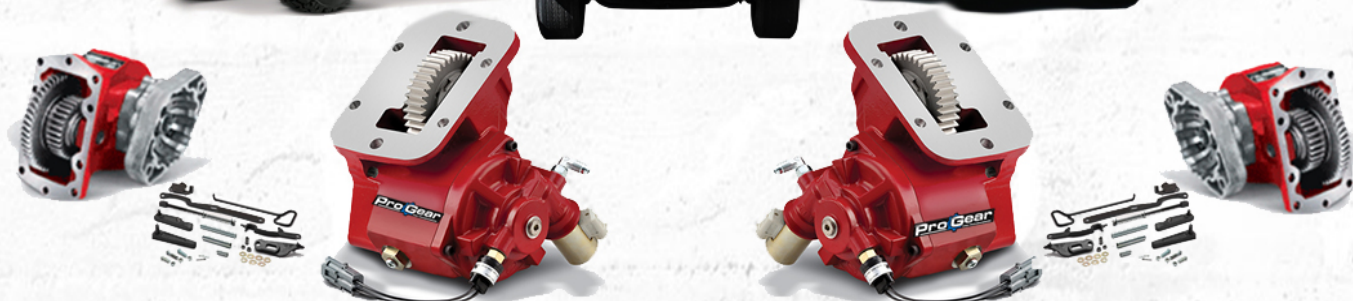




Chelsea PTO 2230 Parts Manual

Pro Gear Chelsea 2230 Series PTO parts manual to assist in identifying the parts for your Chelsea Power Take Off unit.

If you need any assistance identifying the correct Power Take Off unit for your truck and equipment, contact your Chelsea replacement part specialists at Pro Gear and Transmission.

Pro Gear stocks every part for your Parker Chelsea PTO including: PTO housings, mounts, driveshafts, gears, bearings, gaskets, cable shift cover assembly, post and plate assembly, brackets, stud kits, seal kits, lever control assembly, air shift cover assembly, direct mount pump conversion kits, stud kits including English and metric references, CAT D&H parts and much more.

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For parts or service contact the Chelsea specialists at Pro Gear & Transmission, Inc.

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(407) 872-1901
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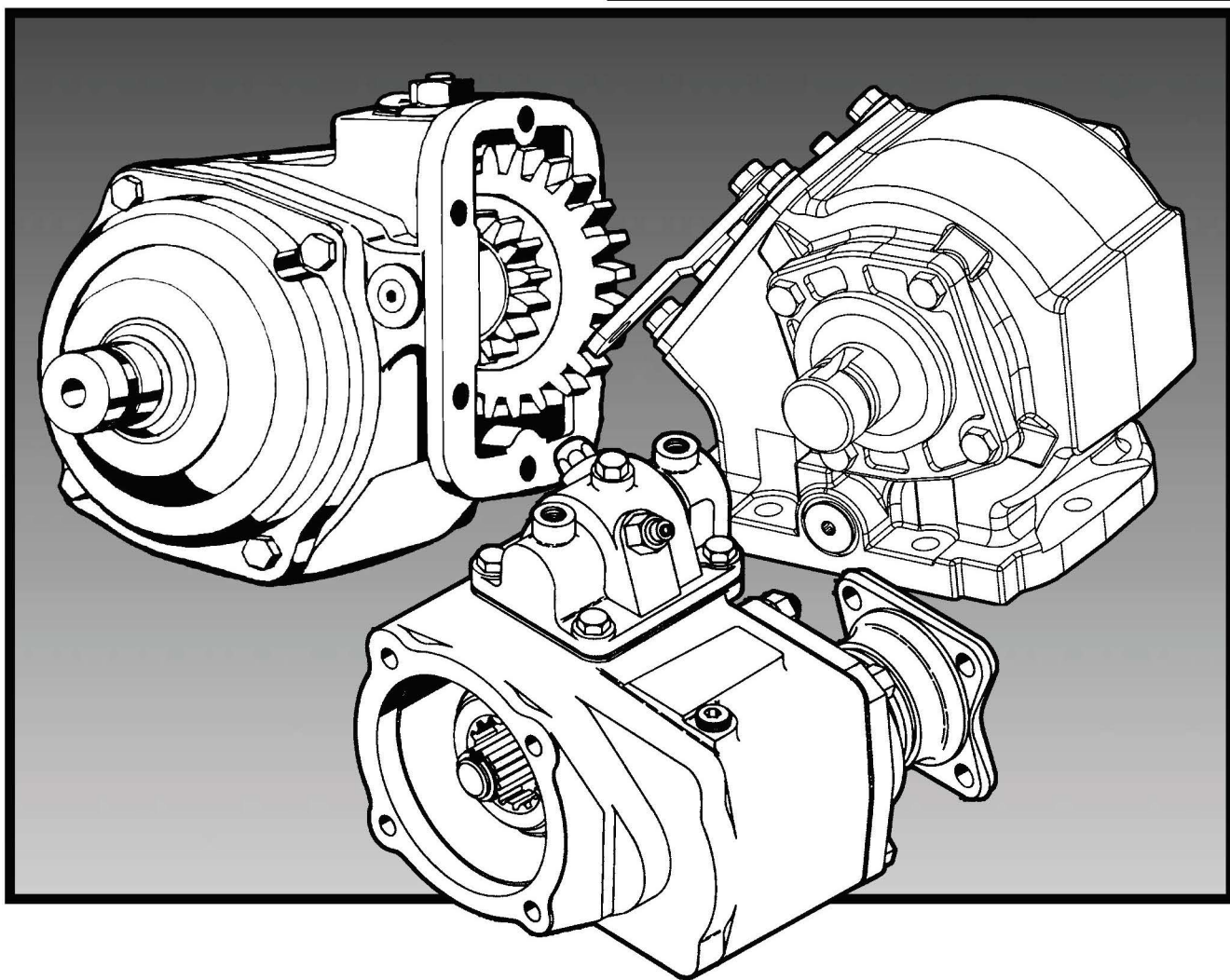
Bulletin HY25-2130-M1/US

CHELSEA®

Replacement Parts List

2230 Series Manual

Effective: February 9, 2009





WARNING

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

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The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

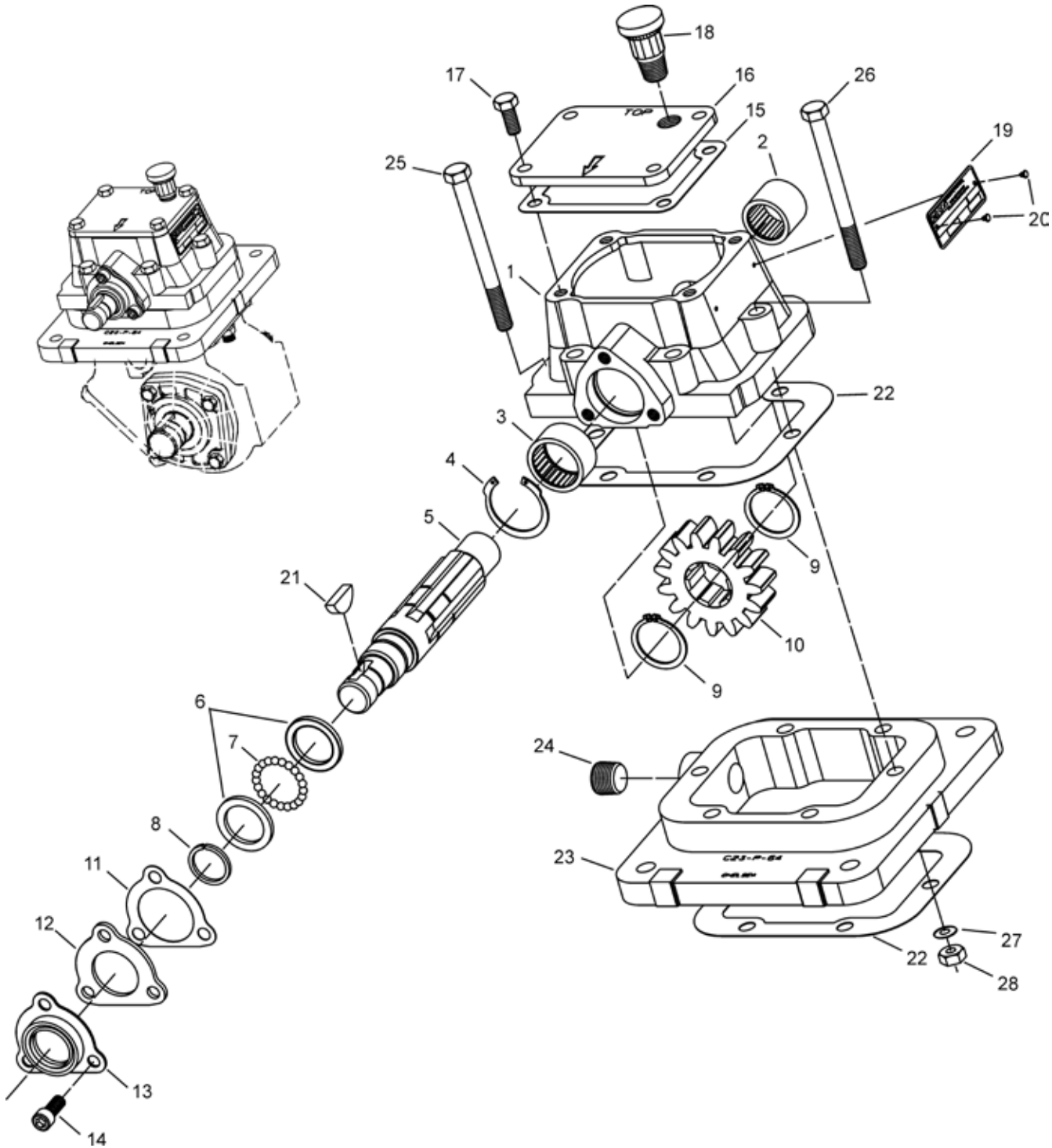
Offer of Sale

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

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Contents

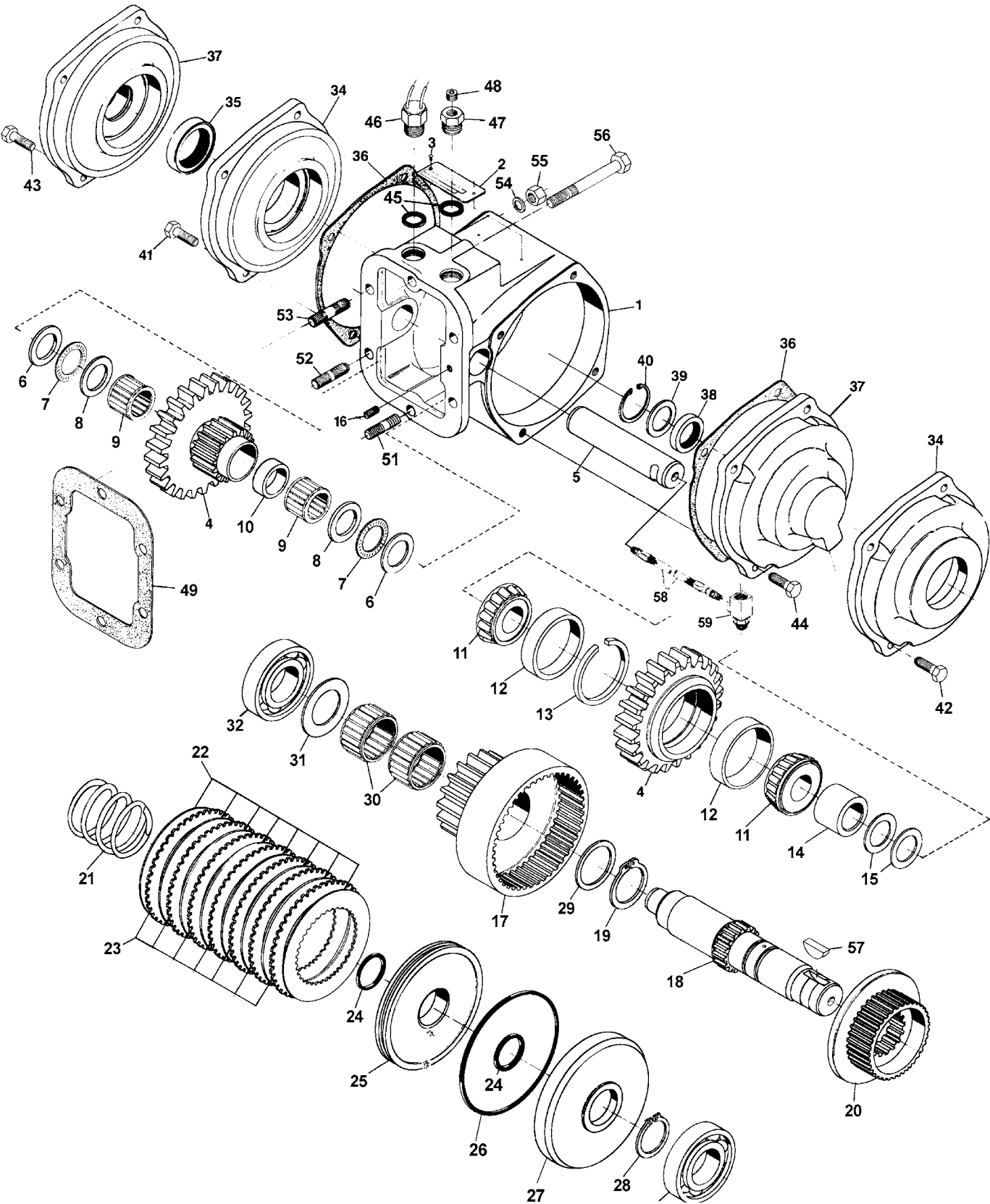
100 Series Exploded View	1
100 Series Bill of Materials	2
230 Series Exploded View	3
230 Series Bill of Materials	4-5
Model Number Designation	6
Pump Conversion Kit	7
Pump Conversion Kit Bill of Materials	8-11
Offer of Sale	12



100 Series Bill of Materials**Power Take-Off****2230 Series**

Item	Part Number	Description	Quantity
	<u>328853X</u>	Special 100 Series Sub-Assembly	
		(Include 328852-1X and 328281-73X plus items 9-20)	1
	<u>328852-1X</u>	Housing And Bearing Assembly (Include items 1-4)	1
1	<u>1-P-393</u>	Housing	1
2	<u>550895</u>	Needle Bearing	1
3	<u>550135</u>	Needle Bearing	1
4	<u>379124</u>	Lockring	1
	<u>328281-73X</u>	Drive Shaft Assembly (Includes Items 5-8)	
5	<u>3-P-350</u>	Drive Shaft	1
6	<u>31-P-79</u>	Thrust Washer	2
7	<u>378108</u>	Ball Bearings	21
8	<u>378331</u>	Lockring	1
9	<u>378333</u>	Lockring	2
10	<u>2-P-290</u>	Drive Gear	1
11	<u>22-P-69</u>	Gasket	1
12	<u>378106</u>	Thrust Plate	1
13	<u>28-P-226</u>	Thrust Bearing Cap and Seal	1
14	<u>378447-4</u>	Capscrew, Socket Head w/Patch (.3125" -18 x .750")	3
15	<u>35-P-58</u>	Cover Plate Gasket	1
16	<u>34-P-110</u>	Cover Plate	1
17	<u>378430-6</u>	Capscrew, Hex Head w/Patch (.3125" - 18 x .625")	3
18	<u>378513</u>	Breather	1
19	<u>68-P-2</u>	Name Plate, English	1
20	<u>378422</u>	Drive Screws	2
21	<u>500007-24</u>	Woodruff Key	1
		Spacer Mounting Plate	
22	<u>35-P-9-1</u>	Mounting Gasket (.010 Thick)	A.R.
22	<u>35-P-9-2</u>	Mounting Gasket (.020 Thick)	A.R.
23	<u>23-P-55</u>	Spacer Mounting Plate	1
24	<u>379064</u>	Pipe Plug (Patched) (.500" - 14 N.P.T.)	1
25	<u>500398-39</u>	Hex Cap (.375" - 16 x 6.250")	1
26	<u>378431-31</u>	Capscrew, Hex Head w/ Patch (.375" - 16 x 4.250")	5
27	<u>500357-11</u>	Lockwasher	6
28	<u>500370-3</u>	Hex Nut (.375" - 16)	6

A.R. As Required



230 Series Bill of Materials**Power Take-Off
2230 Series**

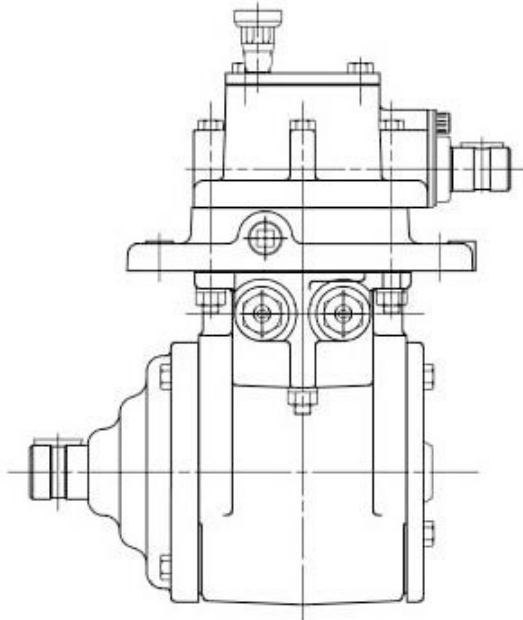
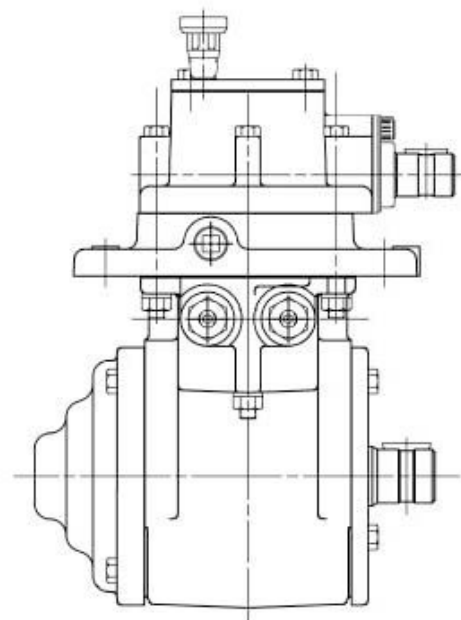
Item	Part Number	Description	Quantity
1 ▶	1-P-437	Housing	1
2 ▶	68-P-2	Name Plate	1
3 ▶	378422	Drive Screw	2
4 ▶	5-P-1144	Gear, Input	1
5 ▶	9-P-55	Idler Shaft (Standard No pressure Lube)	1
6 ▶	31-P-61	Thrust Washer (Idler Shaft .031")	2
7 ▶	560920	Needle Thrust Bearing (Idler Shaft)	2
8 ▶	31-P-62	Thrust Washer (Idler Shaft .125")	2
9 ▶	550886	Needle Bearing Assembly (Idler Shaft)	2
10 ▶	14-P-54	Spacer, Needle Bearing (Idler Shaft)	1
		(Items 11 thru 15 used in "U" Ratios Only)	
11 ▶	560968	Bearing Cone	2
12 ▶	550221	Bearing Cup	2
13 ▶	379313	Lockring	1
14 ▶	4-P-143	Spacer, Input Gear	1
15	14-P-65-1	Bearing Adjusting Spacer (.054"-.056")	A.R.
	14-P-65-2	Bearing Adjusting Spacer (.059"-.061")	A.R.
	14-P-65-3	Bearing Adjusting Spacer (.064"-.066")	A.R.
	14-P-65-4	Bearing Adjusting Spacer (.069"-.071")	A.R.
	14-P-65-5	Bearing Adjusting Spacer (.074"-.076")	A.R.
16 ▶	378452-7	Set Screw (.250"-20 x .500")	1
17 ▶	2-P-640	Gear, Output	1
	See Chart Pg.8	Driveshaft and Clutch Assembly (Includes items 18 thru 28)	1
	328926-1X	"XD" Output/Ass'y (1.250" round), Ass'y 2	
	328926-2X	"XD" Output/Ass'y (1.250" round), Ass'y 1	
18 ▶	3-P-677	Output Shaft ("XD" Ass'y 2)	1 or
	3-P-679	Output Shaft ("XD" Ass'y 1)	1
19 ▶	379746	Snap Ring	1
20 ▶	2-P-458	Inner Clutch Gear	1
21 ▶	37-P-39	Clutch Spring	1
22 ▶	379485	Friction Disc	8
23 ▶	379595	Clutch Plate	7
24 ▶	28-P-244	O-Ring	2
25 ▶	379325	Piston	1
26 ▶	28-P-178	O-Ring	1
27 ▶	379323	Clutch Back-up Cylinder	1
28 ▶	378576	Snap Ring	1
29 ▶	14-P-49	Spacer	1
30 ▶	560918	Roller Bearing	2
31 ▶	31-P-57	Thrust Washer	1
32 ▶	550010	Ball Bearing	2
34 ▶	21-P-451	Bearing Cover, Open End	1
	21-P-297	For Ass'y 1 ("XD") Output	
		For Ass'y 2 ("XD") Output	
35 ▶	28-P-225	Oil Seal, Output ("XD")	1
	28-P-230	Oil Seal, Output ("XY")	1
36 ▶	22-P-53	Gasket, Bearing Cover	2
		Bearing Cover Assembly, Closed End	1
	328806X	For Ass'y 1 (Includes items 37 thru 40)	
	328807X	For Ass'y 2 (Includes items 37 thru 40)	
37 ▶	21-P-295	Bearing Cover, Closed End	1
	21-P-299	For Ass'y 1	
	28-P-119	For Ass'y 2	
38 ▶		Oil Seal	1

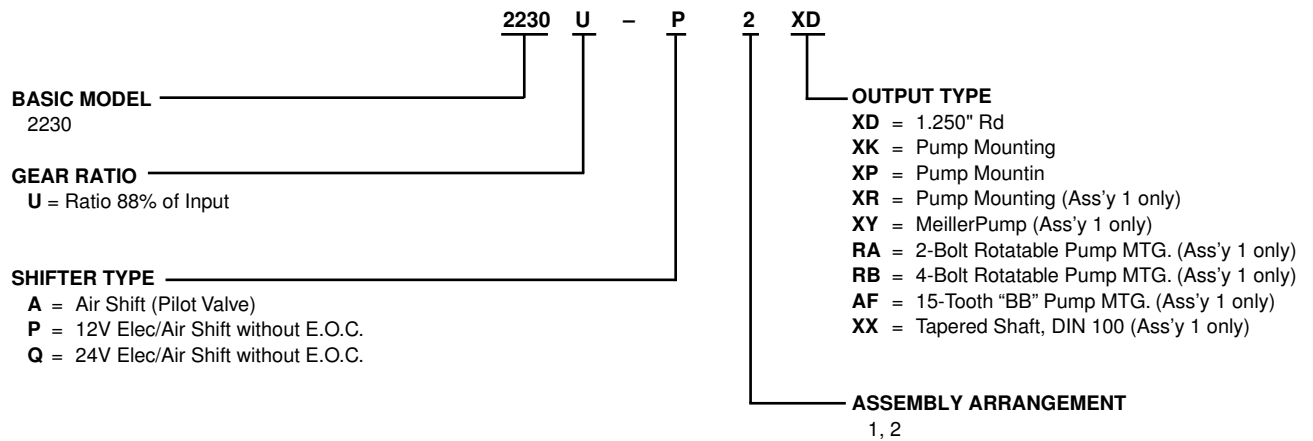
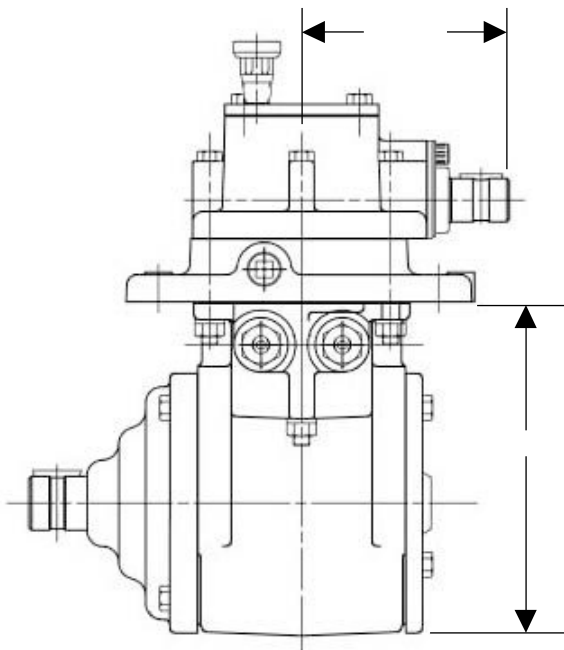
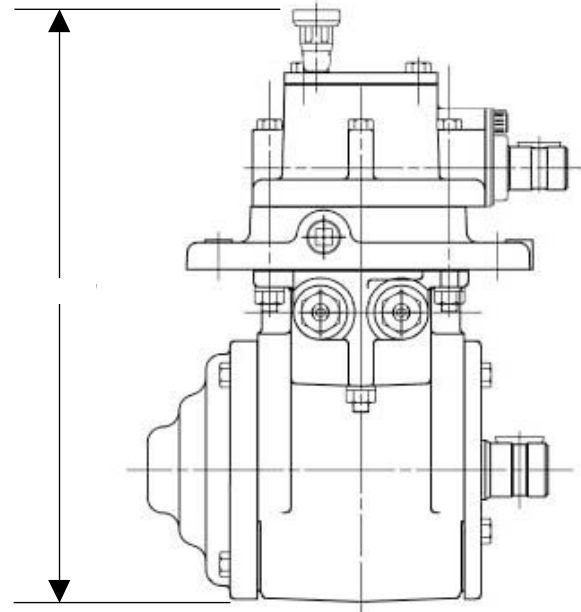
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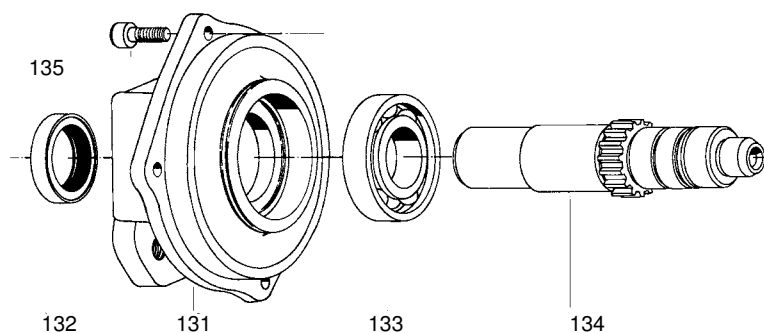
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230 Series Bill of Material**2230 Series**

Item	Part Number	Description	Quantity
39 ►	378811	Back-up Plate.....	1
40 ►	378849	Snap Ring	1
41 ►	378430-10	Capscrew, Hex Head (.3125" - 18 x 1.000") (Ass'y 2 "XD")	4
42 ►	378430-12	Capscrew, Hex Head (.3125" - 18 x 1.250") (Ass'y 1 "XD")	4
43 ►	378430-10	Capscrew, Hex Head (.3125" - 18 x 1.000") (Closed Ass'y 3 & 5)	4
44 ►	378430-12	Capscrew, Hex Head (.3125" - 18 x 1.250") (Closed Ass'y 4 & 6)	4
45 ►	28-P-171	O-Ring	2
46 ►	379243	Speed Sensor (Transducer) Included w/optional Overspeed Control	1 or
	379917	Speed Sensor (Transducer) Included w/optional Overspeed Control	1
		(Allison 1000, 2000/2400)	
47 ►	379242	Adapter Plug	
		With Speed Limiter	1
		Without Speed Limiter	2
48 ►	379231	Pipe Plug (.125" - 27 N.P.T.F.)	
		With Speed Limiter	1
		Without Speed Limiter	2
		LOOSE PARTS	
57 ►	500007-24	Woodruff Key ("XD")	1
58 ►	328075X	Pressure Lube Hose	1

Assembly Arrangements**Ass'y 1****NOTE:** 2230 Ass'y-1 uses 230 Ass'y-3**Ass'y 2****NOTE:** 2230 Ass'y-2 uses 230 Ass'y-6

**Case Dimensions****Ass'y 1****NOTE:** 2230 Ass'y-1 uses 230 Ass'y-3**Ass'y 2****NOTE:** 2230 Ass'y-2 uses 230 Ass'y-6



Pump Mounting Suffix (See Note)	Flange Item 131	Bearing Cap Gasket	Seal Item 132	Bearing Item 133	Driveshaft & Clutch		Output Shaft Spacer	Hex Socket Head Screw Item 135
					Assembly Number	Output Shaft Item 134 **		
XK Assembly 1	21-P-445	22-P-53 (2)	28-P-225	550010	328926-4X	3-P-686		378447-7
Assembly 2	21-P-303	22-P-53 (2)	28-P-225	550010	328926-3X	3-P-678		378447-6
XP Assembly 2	21-P-443	22-P-53 (2)	28-P-225	550010	328926-4X	3-P-686		378447-7
Assembly 1	21-P-301	22-P-53 (2)	28-P-225	550010	328926-3X	3-P-678		378447-6
XR Assembly 1	21-P-447	22-P-53 (2)	28-P-225	550010	328926-5X	3-P-703		378447-7
XX Assembly1	21-P-297	22-P-53 (2)	28-P-225	550010	328926-6X	3-P-787		378430-12
XY Assembly 1	21-P-468	22-P-53 (2)	28-P-230	550010	328926-8X	3-P-825		378447-7
AF Assembly 1	21-P-445	22-P-53 (2)	28-P-225	550010	328926-9X	3-P-896		378447-7
RA Assembly 1	21-P-628	22-P-53 (2)	28-P-225	550010	328926-5X	3-P-703		378447-6
RB Assembly 1	21-P-572	22-P-53 (2)	28-P-225	550010	328926-5X	3-P-703		378447-6
AF Assembly 2	21-P-628	22-P-53 (2)	28-P-225	550010	328926-10X	3-P-957		378447-7

The Rotatable Flanges attach to the [21-P-447](#) Flange

* - [328748X](#) Pump to Flange Mounting Kit Must Be Used with "R" Suffix

Kit Contains: (4) [378430-11](#) Hex Head Capscrews (.3125" - 18 x 1.125")

(4) [378919](#) Washers (Special)

(4) [45-P-11](#) Bushing Guide

** - Assembly Includes the Pump Shaft Shown Plus Items 19 thru 29 on page 3

Pump Flange Conv. Kits Bill of Materials**2230 Series**

Conversion Kit Number	Ass'y	Flange Type	Shaft Type
► 329160-11X	XD to XK	3 & 5	S.A.E. "B" .875" 13 - Tooth
► 329160-12X	XD to XP	3 & 5	S.A.E. "B" .875" 13 - Tooth
329160-13X	XD to XR	3 & 5	S.A.E. "B" .875" 13 - Tooth
► 329160-14X	XD to XY	3 & 5	DIN 5462
► 329160-15X	XD to XK	4 & 6	S.A.E. "B" .875" 13 - Tooth
329160-16X	XD to XP	4 & 6	S.A.E. "B" .875" 13 - Tooth
► 329160-33X	XD to RA	3 & 5	S.A.E. "B" .875" 13 - Tooth
► 329160-34X	XD to RB	3 & 5	S.A.E. "B" .875" 13 - Tooth
329160-35X	XR to RA	3 & 5	S.A.E. "B" .875" 13 - Tooth
► 329160-36X	XR to RB	3 & 5	S.A.E. "B" .875" 13 - Tooth
329160-43X	XD to XX	All	Round Tapered w/ key
329160-50X	XD to AF	3 & 5	S.A.E. "BB" 1.0" 15 - Tooth
► 329160-51X	XD to AF	4 & 6	S.A.E. "BB" 1.0" 15 - Tooth

Bills of Material for Pump Flange Conversion Kits

Part Number	Description	Quantity
► 329160-11X	Conversion Kit (XD to XK)	
► 378576	Snap Ring.....	1
► 378849	Retainer Ring	1
► 379688	Grease Packet.....	1
► 379746	Lock Ring	1
► 21-P-445	Bearing Cap	1
► 22-P-53	Bearing Cap Gasket	2
► 28-P-178	O-Ring	1
► 28-P-179	Oil Seal.....	1
► 28-P-225	Oil Seal.....	1
► 28-P-244	O-Ring	2
► 378447-7	Socket Head Capscrew (.312" - 18 x 1.250")	4
3-P-686	Pump Shaft.....	1
► 329160-12X	Conversion Kit (XD to XP)	
► 378576	Snap Ring.....	1
► 378849	Retainer Ring	1
► 379688	Grease Packet.....	1
► 379746	Lock Ring	1
► 21-P-443	Bearing Cap	1
► 22-P-53	Bearing Cap Gasket	2
► 28-P-178	O-Ring	1
► 28-P-179	Oil Seal.....	1
► 28-P-225	Oil Seal.....	1
► 28-P-244	O-Ring	2
► 378447-7	Socket Head Capscrew (.312" - 18 x 1.250")	4
3-P-686	Pump Shaft.....	1
329160-13X	Conversion Kit (XD to XR)	
► 378576	Snap Ring.....	1
► 378849	Retainer Ring	1
► 379688	Grease Packet.....	1
► 379746	Lock Ring	1
► 21-P-447	Bearing Cap	1
► 22-P-53	Bearing Cap Gasket	2
► 28-P-178	O-Ring	1
► 28-P-179	Oil Seal.....	1
► 28-P-225	Oil Seal.....	1
► 28-P-244	O-Ring	2
► 378447-7	Socket Head Capscrew (.312" - 18 x 1.250")	4
3-P-703	Pump Shaft.....	1

Pump Flange Conv. Kits Bill of Materials**2230 Series**

Part Number	Description	Quantity
► 329160-14X	Conversion Kit (XD to XY)	
► 378576	Snap Ring.....	1
► 378849	Retainer Ring	1
► 378898	Flat Head Socket Capscrew (.438" - 14 x 1.00")	1
► 379335	Coupling, Splined	1
► 379688	Grease Packet.....	1
► 379746	Lock Ring	1
► 21-P-468	Bearing Cap	1
► 22-P-53	Bearing Cap Gasket	2
► 28-P-178	O-Ring	1
► 28-P-179	Oil Seal.....	1
► 28-P-230	Oil Seal.....	1
► 28-P-244	O-Ring	2
► 378447-7	Socket Head Capscrew (.312" - 18 x 1.250")	4
► 3-P-825	Pump Shaft.....	1
► 329160-15X	Conversion Kit (XD to XK)	
► 378576	Snap Ring.....	1
► 378849	Retainer Ring	1
► 379688	Grease Packet.....	1
► 379746	Lock Ring	1
► 21-P-303	Bearing Cap	1
► 22-P-53	Bearing Cap Gasket	2
► 28-P-178	O-Ring	1
► 28-P-179	Oil Seal.....	1
► 28-P-225	Oil Seal.....	1
► 28-P-244	O-Ring	2
► 378447-6	Socket Head Capscrew (.312" - 18 x 1.00")	4
► 3-P-678	Pump Shaft.....	1
329160-16X	Conversion Kit (XD to XP)	
► 378576	Snap Ring.....	1
► 378849	Retainer Ring	1
► 379688	Grease Packet.....	1
► 379746	Lock Ring	1
► 21-P-301	Bearing Cap	1
► 22-P-53	Bearing Cap Gasket	2
► 28-P-178	O-Ring	1
► 28-P-179	Oil Seal.....	1
► 28-P-225	Oil Seal.....	1
► 28-P-244	O-Ring	2
► 378447-6	Socket Head Capscrew (.312" - 18 x 1.00")	4
► 3-P-678	Pump Shaft.....	1
► 329160-33X	Conversion Kit (XD to RA)	
► 378576	Snap Ring.....	1
► 378849	Retainer Ring	1
► 379688	Grease Packet.....	1
► 379746	Lock Ring	1
► 21-P-447	Bearing Cap	1
► 21-P-628	Pump Flange.....	1
► 22-P-53	Bearing Cap Gasket	2
► 28-P-178	O-Ring	1
► 28-P-179	Oil Seal.....	1
► 28-P-225	Oil Seal.....	1
► 28-P-244	O-Ring	2
► 378447-6	Socket Head Capscrew (.312" - 18 x 1.00")	4
► 378447-7	Socket Head Capscrew (.312" - 18 x 1.250")	4
► 3-P-703	Pump Shaft.....	1

Pump Flange Conv. Kits Bill of Materials

2230 Series

Part Number	Description	Quantity
► 329160-34X	Conversion Kit (XD to RB)	
► 378576	Snap Ring.....	1
► 378849	Retainer Ring	1
► 379688	Grease Packet.....	1
► 379746	Lock Ring	1
► 21-P-447	Bearing Cap	1
► 21-P-572	Pump Flange.....	1
► 22-P-53	Bearing Cap Gasket	2
► 28-P-178	O-Ring	1
► 28-P-179	Oil Seal	1
► 28-P-225	Oil Seal	1
► 28-P-244	O-Ring	2
► 378447-6	Socket Head Capscrew (.312" - 18 x 1.00").....	4
► 378447-7	Socket Head Capscrew (.312" - 18 x 1.250").....	4
► 3-P-703	Pump Shaft.....	1
329160-35X	Conversion Kit (XR to RA)	
► 21-P-628	Pump Flange.....	1
► 378447-6	Socket Head Capscrew (.312" - 18 x 1.00").....	4
► 329160-36X	Conversion Kit (XR to RB)	
► 21-P-572	Pump Flange.....	1
► 378447-6	Socket Head Capscrew (.312" - 18 x 1.00").....	4
329160-43X	Conversion Kit (XD to XX)	
► 378576	Snap Ring.....	1
► 378849	Retainer Ring	1
► 379111	Square Key.....	1
► 379746	Lock Ring	1
► 501181	Hex Nut	1
► 22-P-53	Bearing Cap Gasket	2
► 28-P-178	O-Ring	1
► 28-P-179	Oil Seal	1
► 28-P-225	Oil Seal	1
► 28-P-244	O-Ring	2
► 378430-10	Hex Capscrew (.312" - 18 x 1.00").....	4
► 378430-12	Hex Capscrew (.312" - 18 x 1.25").....	4
► 3-P-787	Pump Shaft.....	1
► 3-1-604	Companion Flange (Sold Separately)	1
329160-50X	Conversion Kit (XD to AF)	
► 378576	Snap Ring.....	1
► 378849	Retainer Ring	1
► 379688	Grease Packet.....	1
► 379746	Lock Ring	1
► 21-P-445	Bearing Cap	1
► 22-P-53	Bearing Cap Gasket	2
► 28-P-178	O-Ring	1
► 28-P-179	Oil Seal	1
► 28-P-225	Oil Seal	1
► 28-P-244	O-Ring	2
► 378447-7	Socket Head Capscrew (.312" - 18 x 1.250").....	4
► 3-P-896	Pump Shaft.....	1

Pump Flange Conv. Kits Bill of Materials**2230 Series**

Part Number	Description	Quantity
▶ 329160-51X	Conversion Kit (XD to AF)	
▶ 378576	Snap Ring.....	1
▶ 378849	Retainer Ring	1
▶ 379688	Grease Packet.....	1
▶ 379746	Lock Ring	1
▶ 21-P-303	Pump Flange.....	1
▶ 22-P-53	Bearing Cap Gasket.....	2
▶ 28-P-178	O-Ring.....	1
▶ 28-P-179	Oil Seal.....	1
▶ 28-P-224	Oil Seal.....	2
▶ 28-P-225	Oil Seal.....	1
▶ 378447-6	Socket Head Capscrew (.312" - 18 x 1.00").....	4
3-P-895	Pump Shaft.....	1

Offer of Sale

The items described in this document and other documents or descriptions provided by Parker Hannifin Corporation, its subsidiaries and its authorized distributors are hereby offered for sale at prices to be established by Parker Hannifin Corporation, its subsidiaries and its authorized distributors. This offer and its acceptance by any customer ("Buyer") shall be governed by all of the following Terms and Conditions. Buyer's order for any such items, when communicated to Parker Hannifin Corporation, its subsidiary or an authorized distributor ("Seller") verbally or in writing, shall constitute acceptance of this offer.

1. Terms and Conditions of Sale: All descriptions, quotations, proposals, offers, acknowledgments, acceptances and sales of Seller's products are subject to and shall be governed exclusively by the terms and conditions stated herein. Buyer's acceptance of any offer to sell is limited to these terms and conditions. Any terms or conditions in addition to, or inconsistent with those stated herein, proposed by Buyer in any acceptance of an offer by Seller, are hereby objected to. No such additional, different or inconsistent terms and conditions shall become part of the contract between Buyer and Seller unless expressly accepted in writing by Seller. Seller's acceptance of any offer to purchase by Buyer is expressly conditional upon Buyer's assent to all the terms and conditions stated herein, including any terms in addition to, or inconsistent with those contained in Buyer's offer. Acceptance of Seller's products shall in all events constitute such assent.

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 18 months from date of sale.

(B) Except 267, , 269, 277, 278, 246, 247, 250 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 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.