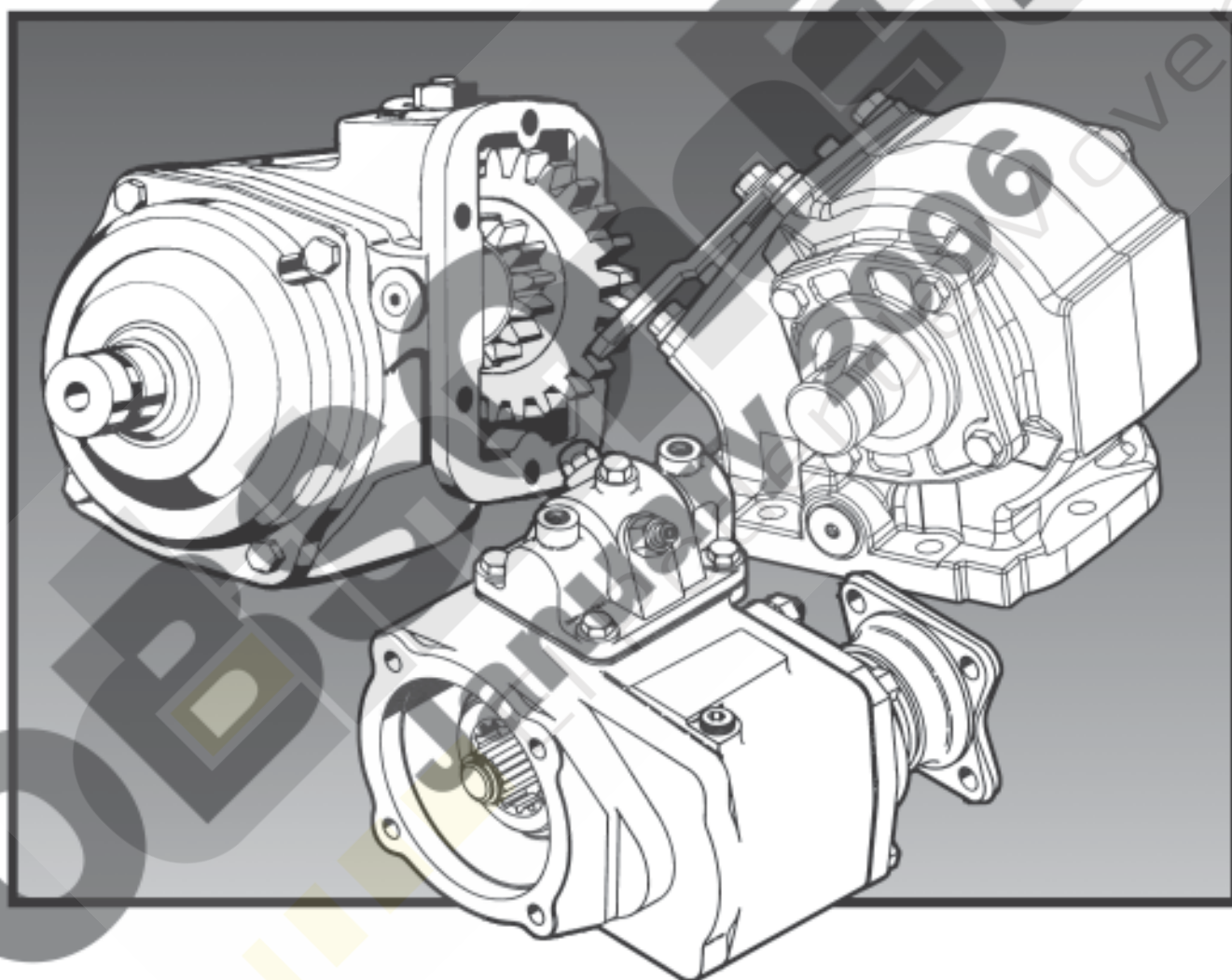


Parts List 452 Series

Effective: February 15, 2002
Supersedes: P410-452 Dated June 1995



 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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Exploded View 1

Bill of Materials 2

Bill of Materials 3

Input Gear Chart - 452 Series 4

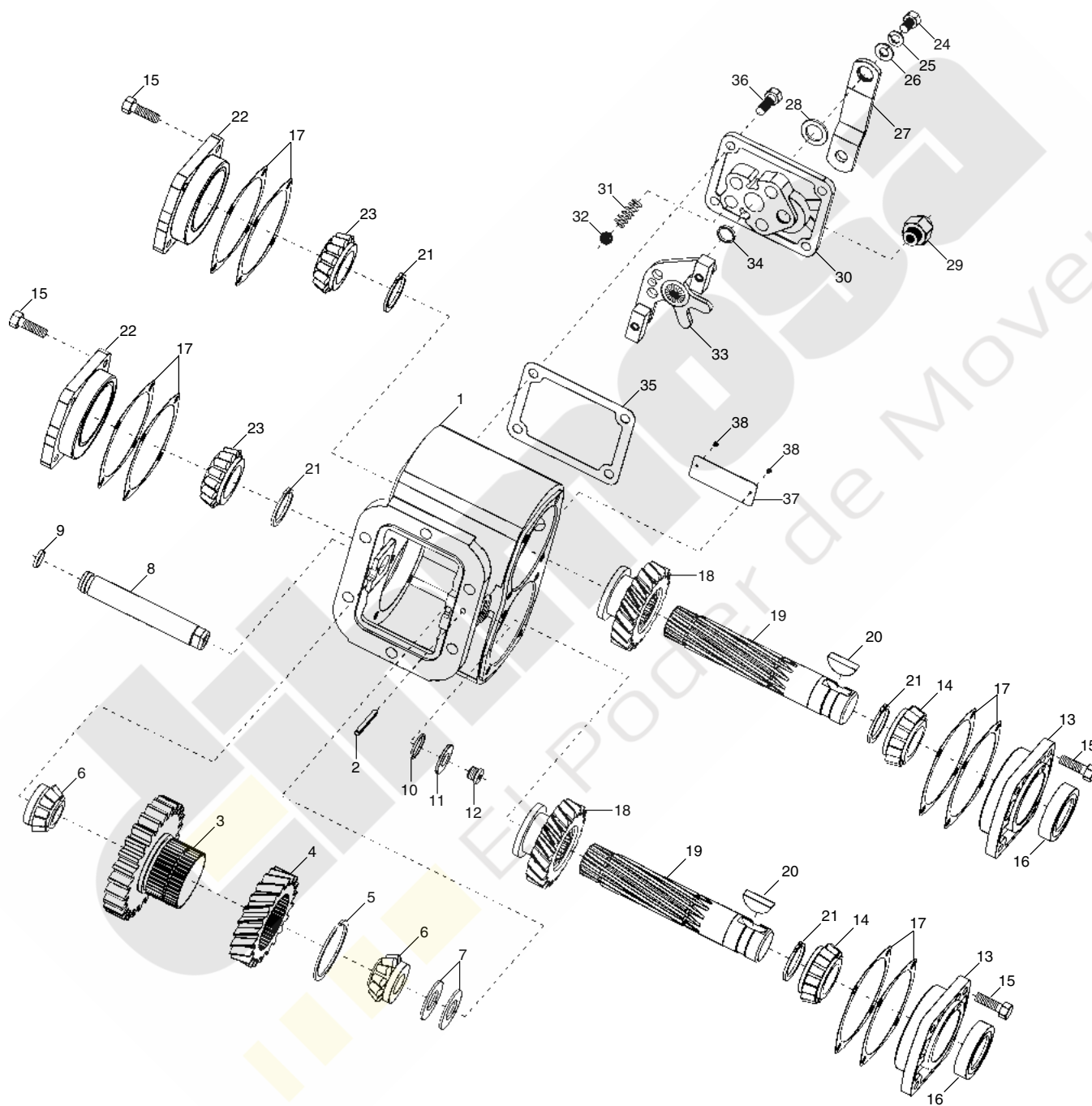
P.T.O. Housing Dimensions 5

Model Number Designation 6

Indicator Light Installation Sketch 6

Assembly Arrangements 6

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Bill of Materials**Power Take-Off****452 Series**

Item	Part Number	Description	Quantity
1	1-P-520X	Housing, w/Roll Pin, Standard Mount	1
	1-P-521X	Housing, w/Roll Pin, Deep Mount	1
2	500597-14	Roll Pin, Deep Mount	1
	500597-16	Roll Pin, Standard Mount	1
3	See Chart Pg. 4	Gear, Input Cluster	1
4	5-P-1153	Gear, Ratio	1
5	379522	Retaining Ring	1
6	550439	Cone Bearing, Input Gear	2
7	14-P-15	Spacer, Input Gear	A.R.
	9-P-74	Shaft, Input Idler Shaft	1
9	28-P-191	O-Ring	1
10	28-P-190	O-Ring	1
11	379542	Retainer, O-Ring	1
12	379484	Plug, O-Ring Boss	1
13	328273X	Bearing Cap Assembly, Open End (Includes bearing cup)	2
14	550532	Bearing Cone, Open End & Reverse Idler Shaft	2
15	378430-10	Capscrew, Hex head (.3125"-18 x 1")	16
16	28-P-52	Oil Seal, Output Shaft	2
17	22-P-24-1	Gasket, Bearing Cap (.010")	A.R.
	22-P-24-2	Gasket, Bearing Cap (.020")	A.R.
	22-P-24-3	Gasket Bearing Cap (.015")	A.R.
18	2-P-721	Gear, Output	1
	3-P-859	Shaft, Standard Output 1.250" Rd.	2
20	500007-29	Woodruff Key	2
21	378391	Retaining Ring, Output Shaft	4
22	328274X	Bearing Cap Assembly, Closed End (Includes bearing cup)	2
23	550397	Bearing Cone, Closed End, Output Shaft	2
	328837X	Cable Shift Cover Assembly, Single Shift	1
		(Consists of Items 24 thru 34)	
24	500409-6	Screw, Shifter Lever (.3125"-24 x .625")	1
25	500365-10	Lockwasher	1
26	500365-22	Flat Washer	1
27	51-P-13	Shift Lever	1
28	378004	Washer, Shift Lever	1
29	379639	Indicator Switch (Normally Off)	1
30	34-P-74	Cover, Shifter	1
31	37-P-14	Popper Spring, Shifter	1
32	378002	Ball, Shifter	1

N.S. — Not Shown

A.R. — As Required

Continued on next page

Bill of Materials**Power Take-Off****452 Series**

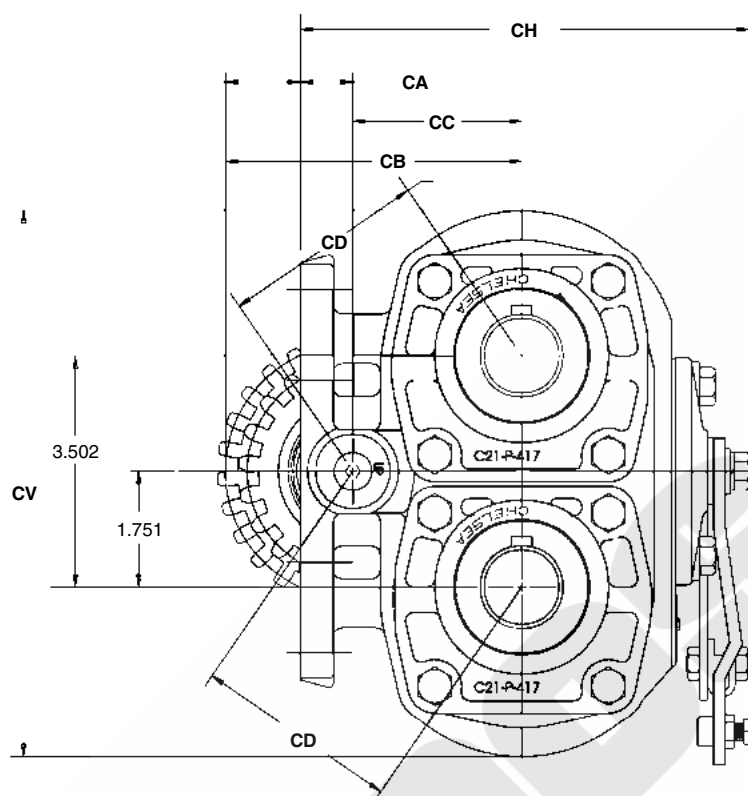
Item	Part Number	Description	Quantity
33	328836X	Plate & Post Assembly	1
34	28-P-191	O-Ring, Shifter Post	1
35	35-P-8	Gasket, Shifter Cover	1
36	378430-8	Capscrew, Hex Head (.3125"-18 x .750")	3
	378430-9	Capscrew, Hex Head (.3125"-18 x.875")	1
37	68-P-2	Name Plate	1
38	378422	Drive Screw	2
		PARTS SHIPPED LOOSE	
N.S.	328346-10X	Cable Control Assembly	1
		(Includes 10' Cable 378441-10 & Knob 378502)	
N.S.	328380X	Mounting Parts Kit, Cable Control	1
	50-P-17	Bracket, Cable Control	1
	50-P-19	Bracket, Swivel	1
	378019	Pin, Pivot	1
	378326	Nut, Hex	1
	500396-8	Capscrew, Hex Head (.250"-20 x .50")	1
	500568-4	Setscrew (.250"-20 x .50")	1
N.S.	7170-2X	Stud Kit, Standard Mount	1
N.S.	7170-1X	Stud Kit, Deep Mount	1
N.S.	7170-72X	Stud Kit, "G" Mount (Metric Studs)	1
N.S.	328948-6X	Mounting Gaskets and Installation Instructions	1
N.S.	328751-1X	Indicator Light, Installation Kit	1
N.S.	329058X	INSTALLATION KIT ("FE" Gear Detail Only)	1
		SERVICE ITEMS	
N.S.	328356-59X	Gasket & Seal Kit	1
		(Contains 8 ea. of 22-P-24-1 & 22-P-2, 4 ea. of 22-P-24-3, 1 28-P-190, 1 28-P-191, 2 28-P-216, 1 35-P-8, 1 35-P-9-1 & 1 35-P-9-2)	
N.S.	329218X	Service Kit, Booted Connector (379640)	1

N.S. — Not Shown

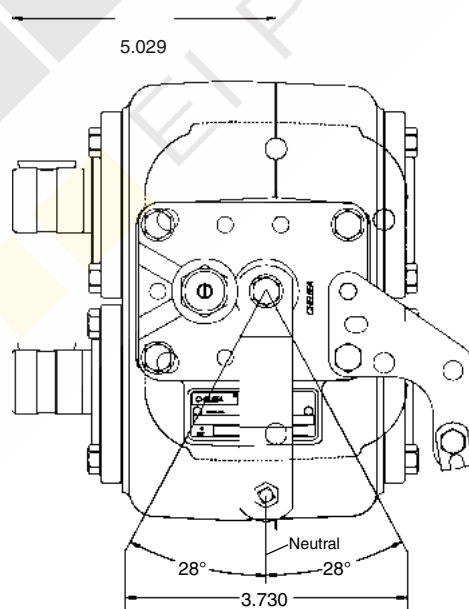
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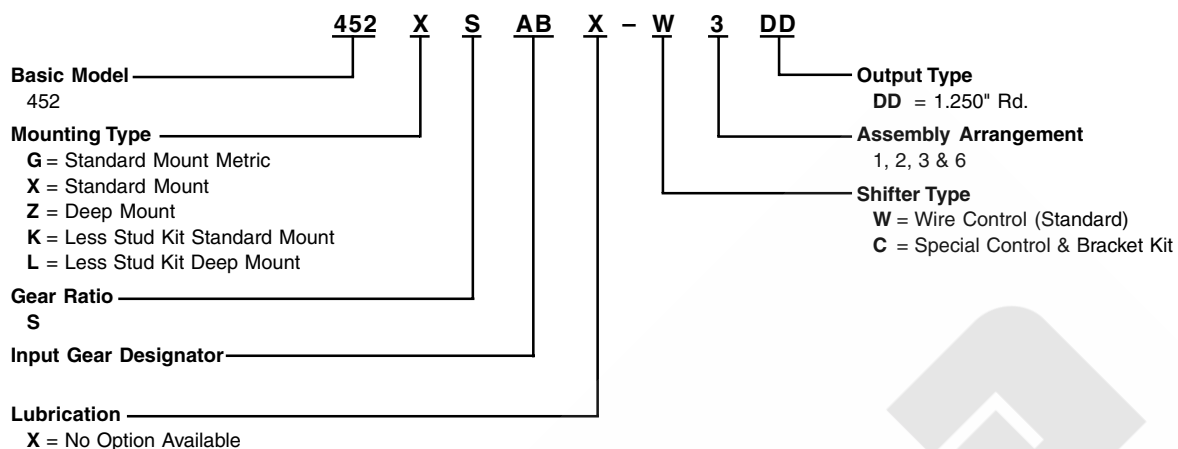
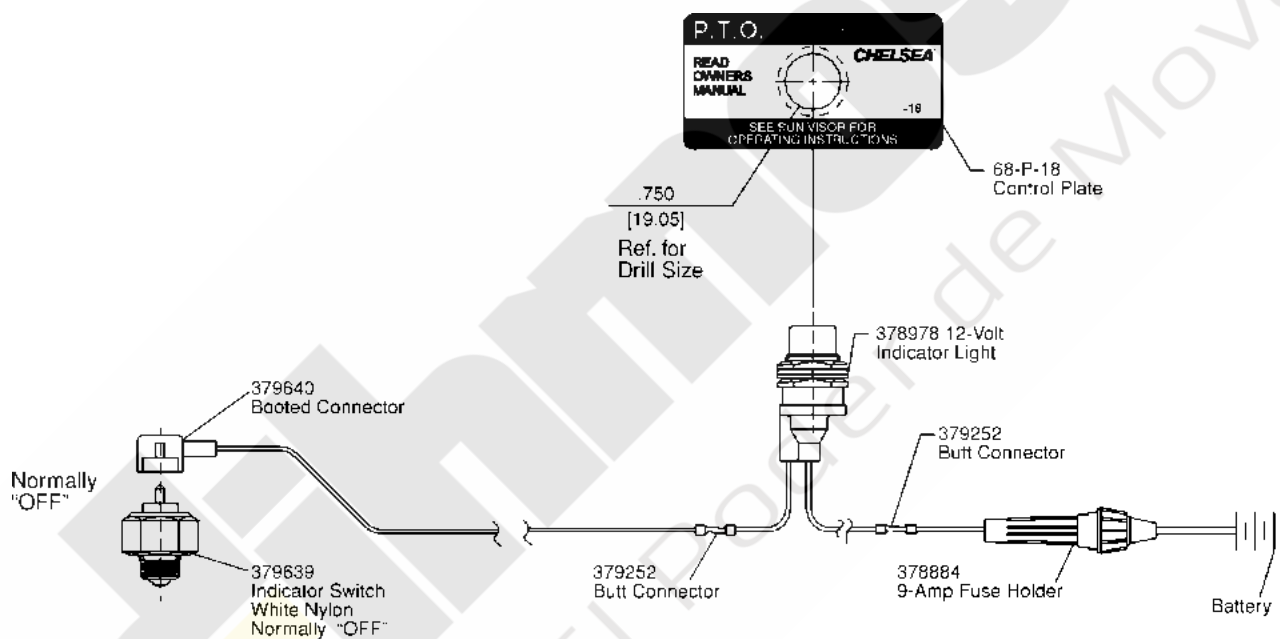
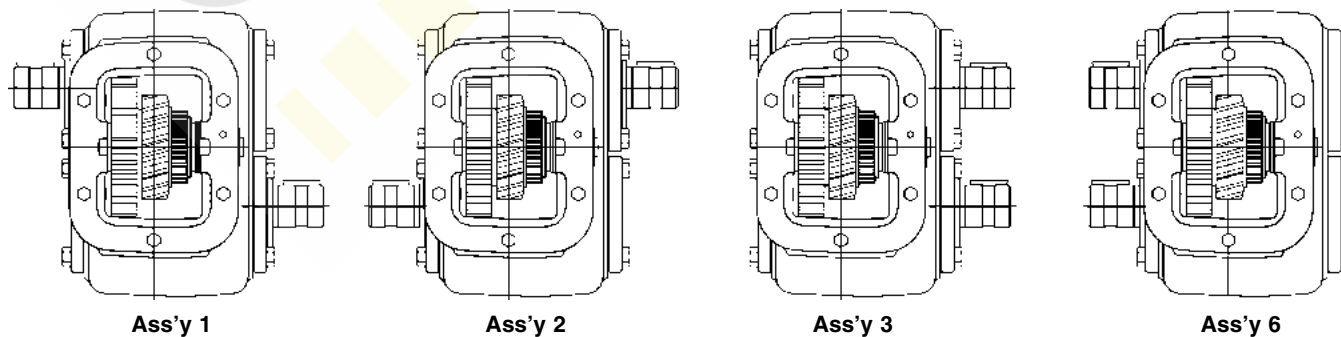
Input Gear Chart - 452 Series**Power Take-Off****452 Series**

P.T.O. Model	Input Gear	Number Teeth	Transmission Applications	Helix Angle
452*SAB	5-P-1001	19	Universal 5-Pitch	Spur
452*SAG	5-P-1003	22	Spicer 5000 & 6000 Series	Spur
452*SAH	5-P-1004	22	Universal 6-Pitch	Spur
452*SAP	5-P-1006	21	Spicer CM-4954 & D, ES-52-5A & D	Left Hand
452*SAQ	5-P-1007	21	Spicer Aux 7041	Left Hand
452*SAR	5-P-1008	21	Spicer CM60, 6000 Series	Left Hand
452*SAW	5-P-1009	22	New Process 541 R.H. Side	Left Hand
452*SAX	5-P-1010	22	L.H. Side Clark 398V & CL 558	Right Hand
452*SBA	5-P-1011	23	L.H. Side Navistar T-32 thru 36 & T-494 thru 496	Left Hand
452*SBC	5-P-1012	18	Clark 557	Left Hand
452*SBG	5-P-1015	23	Spicer 5000 Series & ES-60-5A,C & D	Left Hand
452*SBJ	5-P-1017	25	Spicer 3000 Series R.H. Side	Left Hand
452*SBL	5-P-1019	22	New Process 205 Transfer Case	Right Hand
452*SBM	5-P-1020	22	R.H. Side Clark 398V & CL 558	Left Hand
452*SBN	5-P-1021	22	New Process 540 R.H. Side	Left Hand
452*SBP	5-P-1022	26	L.H. Chev. CH-465 w/adaptor 328555-1X	Right Hand
452*SBQ	5-P-1023	25	Chev. CH465,GMC SM465 & Spicer ES-42-5A & 5D	Left Hand
452*SBR	5-P-1024	26	Clark & Hino "LA", "LB", "LE"	Right Hand
452*SBS	5-P-1025	26	New Process 420 & Clark 285V	Left Hand
452*SBZ	5-P-1028	26	Warner T-18, T-19, T-98A	Left Hand
452*SCB	5-P-1029	25	New Process 435 & 4530	Left Hand
452*SCD	5-P-1031	27	Warner T-18's & T-19's	Left Hand
452*SDA	5-P-1037	23	Mack 2080	Spur
452*SDB	5-P-1038	39	Fuller T-8607A & B, T-1106, T-1107A & B	Spur
452*SDC	5-P-1039	19	Hino "KA", "KB", MFO-6S Nissan MPS-60B & TMH-464	Spur
452*SDH	5-P-1041	21	Renault BDSL-132R, 181, 2052R	Left Hand
452*SDK	5-P-1043	26	Renault BDSL-2152	Left Hand
452*SDM	5-P-1045	17	Clark 450 & 455	Left Hand
452*SDN	5-P-1046	19	Clark 457, & Fuller FS-4005C	Left Hand
452*SDQ	5-P-1048	20		
452*SDU	5-P-1050	28	Fuller FS-5506, 7206A, & 8206A	Left Hand
452*SEC	5-P-1055	36	Zed F, S5-42 Close Ratio	Left Hand
452*SED	5-P-1056	34	Zed F, S5-42 Wide Ratio	Left Hand
452*SEL	5-P-1075	30	Isuzu MSA-5D	Right Hand
452*SES	5-P-1059	22		Left Hand
452*SEV	5-P-1060	40	Fuller T-14607A	Spur
452*SEW	5-P-1061	20	Fuller FS-3005A & B & 4005	Left Hand
452*SFC	5-P-1064	26	NVG-4500 Dodge	Left Hand
452*SFE	5-P-1065	29	Getrag 360	Left Hand
452*SFM	5-P-1069	28	Nissan TMH-704, 762, MHS-50 & 60	Spur
452*SFN	5-P-1070	26	Spicer ES52-7A, ESO65-7A	Left Hand
452*SFP	5-P-1071	23	Renault G405, G406	Left Hand
452*SFW	5-P-1098	28	Fuller FSO-8206A	Left Hand
452*SGQ	5-P-1150	26	Tremec 199F	Left Hand
452*SGS	5-P-1152	29	Zed F S5-42 Wide Ratio	Left Hand
452*SJP	5-P-1268	33		Left Hand
452*SJU	5-P-1316	25		Left Hand



P.T.O. Series	CA	CB	CC	CD	CH	CV
Standard Mount 452X	.792	4.475	2.547	3.091/3.092	6.703	8.250
Deep Mount 452Z	.572	4.459	2.547	3.091/3.091	6.483	8.250



**Indicator Light Installation Sketch****Assembly Arrangements**

Notes

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

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

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

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

(B) Except 267, 277, 278, 242, 244, 246, 250, 251 and 859 series two (2) years from date of installation. **THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED. NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY, TO BUYER'S DESIGNS OR SPECIFICATIONS.**

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

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

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

have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

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

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

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

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

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

12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain 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.

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El Poder de Mover



Parker Hannifin Corporation

Chelsea Products Division
8225 Hacks Cross Road
Olive Branch, Mississippi 38654 USA
Tel: (662) 895-1011
Fax: (662) 895-1019
www.parker.com/chelsea

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