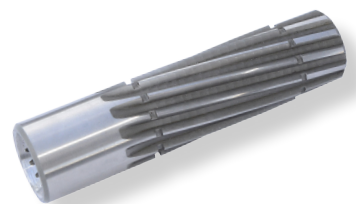
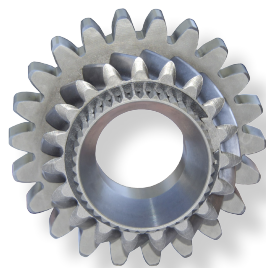
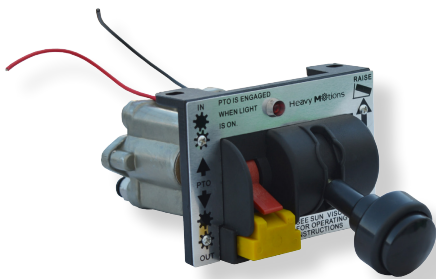
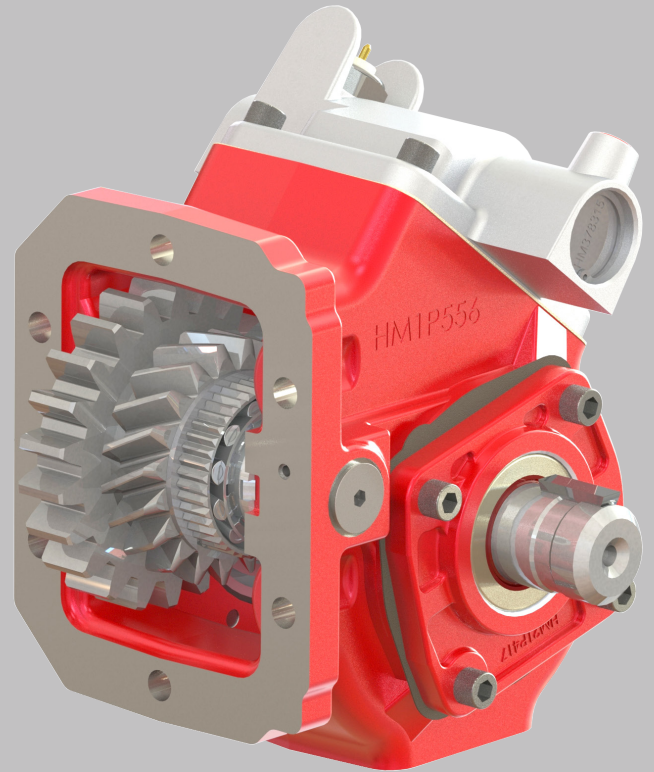
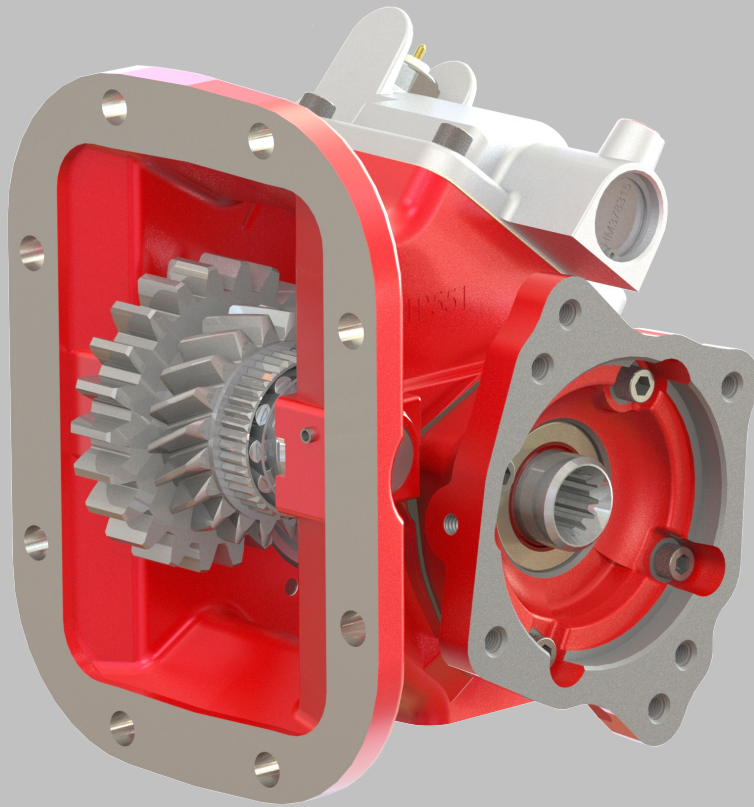


# Power Take-offs

*Series HM589 | Series HM542*



*your source for your mobile hydraulic needs*

**Replacement Parts for**  
*Chelsea®- 489 Series | Chelsea®- 442 Series*



July 2017

# Heavy Motions PTOs



## 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.

This document and other information from Heavy Motions Inc., its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

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

Please note: All parts supplied are Heavy Motions®. The use of other manufactures' names, part numbers, descriptions or trademarks is for cross reference and informational purposes only.



## CONTENT

---

### **Page 4**

Exploded View - Six Bolt PTOs

### **Page 5-6**

Parts List - Six Bolt PTOs

### **Page 7**

Input and Ratio Gears - Six Bolt PTOs

### **Page 8**

Exploded View - Eight Bolt PTOs

### **Page 9-10**

Parts List - Eight Bolt PTOs

### **Page 11**

Input and Ratio Gear - Eight Bolt PTOs

### **Page 12-13**

Air Controls

### **Page 14**

PTO Conversion Kit

### **Page 15**

Replacement Parts for Chelsea® 277

Replacement Parts for Muncie® TG6- TG8

### **Page 16**

Specifications

### **Page 17**

Selecting a PTO

Suggested PTO Percentages

### **Page 18**

Arrangement Options

### **Page 19**

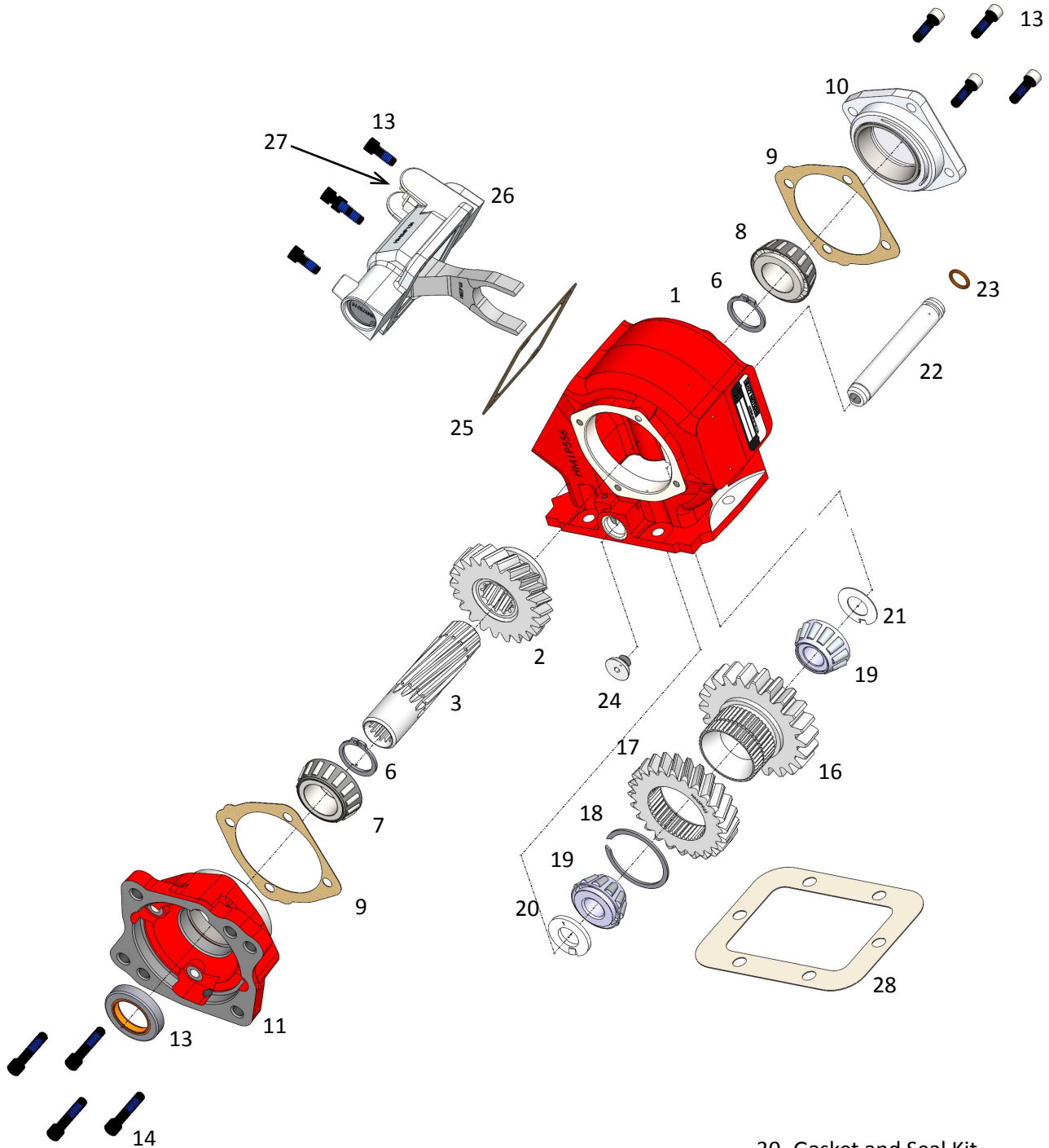
Assembly Options

### **Page 20**

Warranty

# Heavy Motions PTOs

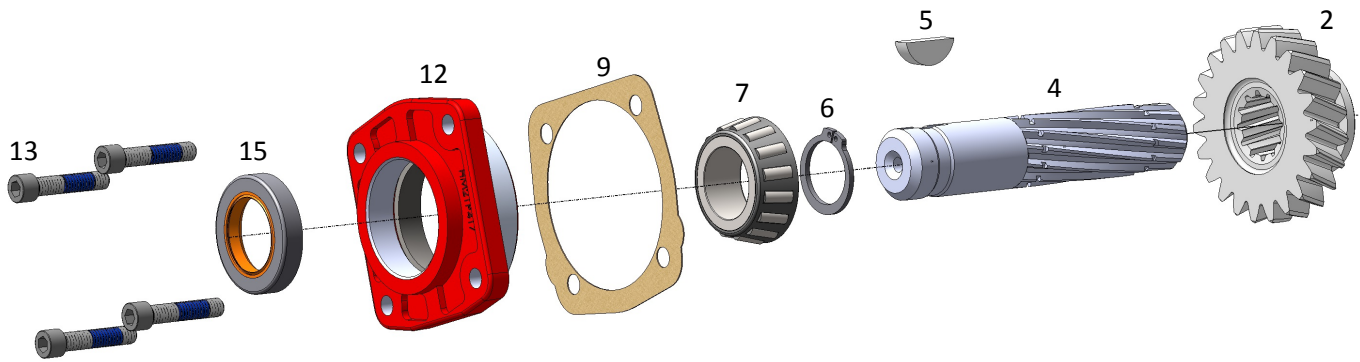
## EXPLODED VIEW - SIX BOLT PTOs



30- Gasket and Seal Kit  
31- Bearing and Spacer Kit  
33 - Stud Kit



# Heavy Motions PTOs



## PARTS LIST - SIX BOLT PTOs

Item	Part Number	Replacement for	Description
1	HM1P557X	1-P-557X	Standard Mounting Housing Assembly
	HM1P558X	5-P-558X	Deep Mount Housing Assembly
2	HM2P559	2-P-559	Output Ratio Gear (Q/R)
	HM2P726	2-P-726	Output Ratio Gear (F)
	HM2P560	2-P-560	Output Ratio Gear (U)
	HM2P561	2-P-561	Output Ratio Gear (W)
	HM2P637	2-P-637	Output Ratio Gear (S)
	HM2P727	2-P-727	Output Ratio Gear (L)
	HM2P728	2-P-728	Output Ratio Gear (X)
3	HM3P282	3-P-282	Output Shaft Direct 7/8" - 13 Tooth
4	HM3P202	3-P-202	Output 1-1/4" Keyed
5	HM500007-29	500007-29	Key, Woodruff
6	HM378391	378391	Retaining Ring
7	HM550397	550397	Bearing Cone
8	HM550532	550532	Bearing Cone
9	HM22P127-1	22-P-127-1	Gasket 0.010"
	HM22P127-2	22-P-127-2	Gasket 0.020"
	HM22P127-3	22-P-127-3	Gasket 0.015"
10	HM328274X	328274X	Bearing Cap Assembly
11	HM328333X	328333X	Flange Assembly
12	HM328273X	328273X	Bearing Cap Open End
13	HM378447-6	378447-6	Capscrew
14	HM378447-8	378447-8	Capscrew
15	HM28P216	28-P-216	Shaft Seal
16	HM5P1004	5-P-1004	Input Gear (AH)
	HM5P1015	5-P-1015	Input Gear (BG)
	HM5P1037	5-P-1037	Input Gear (DA)
	HM5P1059	5-P-1059	Input Gear (ES)
	HM5P1077	5-P-1077	Input Gear (FAH)

# Heavy Motions PTOs

## PARTS LIST - SIX BOLT PTOs CONT.

Item	Part Number	Replacement for	Description
17	HM5P964X	5-P-964X	Input Ratio Gear (L)
	HM5P965X	5-P-965X	Input Ratio Gear (Q)
	HM5P966X	5-P-966X	Input Ratio Gear (S)
	HM5P967X	5-P-967X	Input Ratio Gear (U)
	HM5P968X	5-P-968X	Input Ratio Gear (W)
	HM5P969X	5-P-969X	Input Ratio Gear (X)
	HM5P1214X	5-P-1214X	Input Ratio Gear (R)
18	HM379522	379522	Retaining Ring
19	HM550439	550439	Bearing Cone
20	HM14P-73-1	14-P-73-1	Spacer 0.149"-0.151"
	HM14P73-2	14-P-73-2	Spacer 0.152"-0.154"
	HM14P73-3	14-P-73-3	Spacer 0.155"-0.157"
21	HM31P102	31-P-102	Thrust Washer
22	HM9P88	9-P-88	Idler Shaft
23	HM28P191	28-P-191	O-Ring
24	HM379672	379672	Plug
25	HM35P8	35-P-8	Gasket
26	HM329361X	329361X	Air Shifter
27	HM379639	379639	Indicator Switch
28	HM35P9-1	35-P-9-1	Mounting Gasket 0.010"
	HM35P9-2	35-P-9-2	Mounting Gasket 0.020"
29	HM379640	379640	Connector
30	HM328356-13X	328356-13X	Gasket and Seal Kit
31	HM328594-13X	328594-13X	Bearing and Spacer Kit
32	HM328948-6X	328948-6X	Gasket and Installation Instructions
33	HM328170-76X	328170-76X	Standard Stud Kit
	HM7170-72X	7170-72X	Metric Stud Kit
	HM328170-77X	328170-77X	Deep Mount Stud Kit

## INPUT GEARS

Heavy Motions Model Number	Chelsea® Model Number	Part Number	Type	Input	Teeth Ratio
HM542*FAH	442*FAH	HM5P1077	Spur	22	21
HM542**AH	442**AH	HM5P1004	Spur	22	
HM542**BG	442**BG	HM5P1015	Left Helix	23	
HM542**DA	442**DA	HM5P1037	Spur	23	
HM542**ES	442**ES	HM5P1059	Left Helix	22	

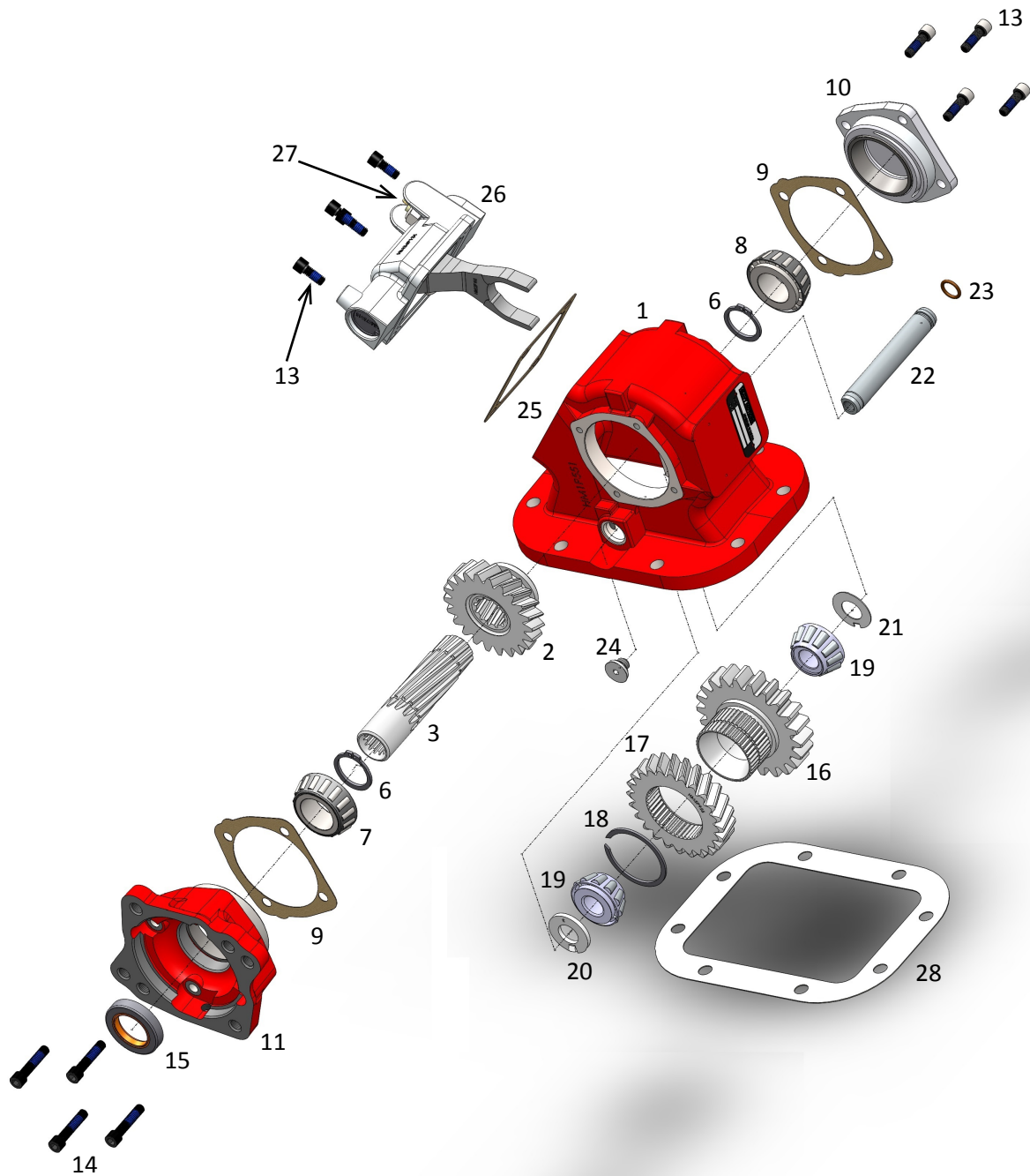
## RATIO GEARS

INPUT RATIO GEAR				OUTPUT GEAR	
Heavy Motions Model Number	Chelsea® Model Number	Part Number	Teeth	Part Number	Teeth
HM542*F	442*F			HM2P726	37
HM542*L	442*L	HM5P964	25	HM2P727	34
HM542*Q	442*Q	HM5P965	19	HM2P559	24
HM542*R	442*R	HM5P1214	22	HM2P559	24
HM542*S	442*S	HM5P966	24	HM2P637	22
HM542*U	442*U	HM5P967	26	HM2P560	20
HM542*W	442*W	HM5P968	26	HM2P561	17
HM542*X	442*X	HM5P969	38	HM2P728	21



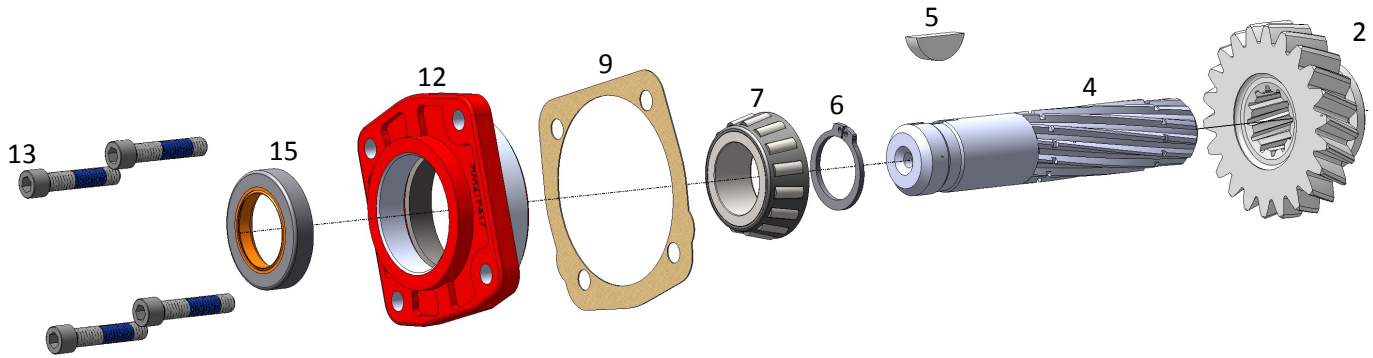
# Heavy Motions PTOs

## EXPLODED VIEW - EIGHT BOLT PTOs



- 30 - Gasket and Seal Kit
- 31 - Bearing and Spacer Kit
- 33 - Stud Kit

# Heavy Motions PTOs



## PARTS LIST - EIGHT BOLT PTOs

Item	Part Number	Replacement for	Description
1	HM1P552X	1-P-552X	Standard Mounting Housing Assembly
	HM1P562X	5-P-562X	Deep Mount Housing Assembly
2	HM2P559	2-P-559	Output Ratio Gear (Q/R)
	HM2P726	2-P-726	Output Ratio Gear (F)
	HM2P560	2-P-560	Output Ratio Gear (U)
	HM2P561	2-P-561	Output Ratio Gear (W)
	HM2P637	2-P-637	Output Ratio Gear (S)
	HM2P727	2-P-727	Output Ratio Gear (L)
	HM2P728	2-P-728	Output Ratio Gear (X)
3	HM3P282	3-P-282	Output Shaft Direct 7/8" - 13 Tooth
4	HM3P202	3-P-202	Output Shaft 1-1/4" Keyed
5	HM500007-29	500007-29	Key Woodruff
6	HM378391	378391	Retaining Ring
7	HM550397	550397	Bearing Cone
8	HM550532	550532	Bearing Cone
9	HM22P127-1	22-P-127-1	Gasket 0.010"
	HM22P127-2	22-P-127-2	Gasket 0.020"
	HM22P127-3	22-P-127-3	Gasket 0.015"
10	HM328274X	328274X	Bearing Cap Assembly
11	HM328333X	328333X	Flange Assembly
12	HM328273X	328273X	Bearing Cap Open End
13	HM378447-6	378447-6	Capscrew
14	HM378447-8	378447-8	Capscrew
15	HM28P216	28-P-216	Shaft Seal
16	HM5P1004	5-P-1004	Input Gear (AH)
	HM5P1015	5-P-1015	Input Gear (BG)
	HM5P1037	5-P-1037	Input Gear (DA)
	HM5P1059	5-P-1059	Input Gear (ES)
	HM5P1077	5-P-1077	Input Gear (FAH)

# Heavy Motions PTOs

## PARTS LIST - EIGHT BOLT PTOs CONT.

Item	Part Number	Replacement for	Description
17	HM5P964X	5-P-964X	Input Ratio Gear (L)
	HM5P965X	5-P-965X	Input Ratio Gear (Q)
	HM5P966X	5-P-966X	Input Ratio Gear (S)
	HM5P967X	5-P-967X	Input Ratio Gear (U)
	HM5P968X	5-P-968X	Input Ratio Gear (W)
	HM5P969X	5-P-969X	Input Ratio Gear (X)
	HM5P1214X	5-P-1214X	Input Ratio Gear (R)
18	HM379522	379522	Retaining Ring
19	HM550439	550439	Bearing Cone
20	HM14P73-1	14-P-73-1	Spacer 0.149"-0.151"
	HM14P73-2	14-P-73-2	Spacer 0.152"-0.154"
	HM14P73-3	14-P-73-3	Spacer 0.155"-0.157"
21	HM31P102	31-P-102	Thrust Washer
22	HM9P88	9-P-88	Idler Shaft
23	HM28P191	28-P-191	O-Ring
24	HM379672	379672	Plug
25	HM35P8	35-P-8	Gasket
26	HM329361X	329361X	Air Shifter
27	HM379639	379639	Indicator Switch
28	HM35P15-1	35-P-15-1	Mounting Gasket 0.010"
	HM35P15-2	35-P-15-2	Mounting Gasket 0.020"
29	HM379640	379640	Connector
30	HM328356-50X	328356-50X	Gasket and Seal Kit
31	HM328594-13X	328594-13X	Bearing and Spacer Kit
32	HM328948-8X	328948-8X	Gasket and Installation Instructions
33	HM328170-200X	328170-200X	Standard Stud Kit
	HM328170-201X	328170-201X	Metric Stud Kit



## INPUT GEARS

Heavy Motions Model Number	Chelsea® Model Number	Part Number	Type	Input	Teeth Ratio
HM589*FAH	489*FAH	HM5P1077	Spur	22	21
HM589**AH	489**AH	HM5P1004	Spur	22	
HM589**BG	489**BG	HM5P1015	Left Helix	23	
HM589**DA	489**DA	HM5P1037	Spur	23	

## RATIO GEARS

INPUT RATIO GEAR				OUTPUT GEAR	
Heavy Motions Model Number	Chelsea® Model Number	Part Number	Teeth	Part Number	Teeth
HM589*F	489*F			HM2P726	37
HM589*L	489*L	HM5P964	25	HM2P727	34
HM589*Q	489*Q	HM5P965	19	HM2P559	24
HM589*R	489*R	HM5P1214	22	HM2P559	24
HM589*S	489*S	HM5P966	24	HM2P637	22
HM589*U	489*U	HM5P967	26	HM2P560	20
HM589*W	489*W	HM5P968	26	HM2P561	17
HM589*X	489*X	HM5P969	38	HM2P728	21

# Heavy Motions PTOs

## PTO KITS - AIR CONTROLS

**HM101V**

**PTO Shift Valve Assembly**

*Replacement for*

Chelsea

329648X

- Positive Locking Two Position, Three way
- Spring Loaded Lockout Safety Knob
- Push-to-Connect Fittings
- Includes Indicator Light



**HM101S-LH**

**PTO Shift Valve Kit**

*Contains :*

HM101V

PTO Shift Valve Assembly

HM1PPV

Pressure Protection Valve

- Positive Locking Two Position, Three way
- Spring Loaded Lockout Safety Knob
- Push-to-Connect Fittings
- Includes Indicator Light



**HM103WK**

**PTO Combo Valve**

*Replacement for*

Chelsea

329358X

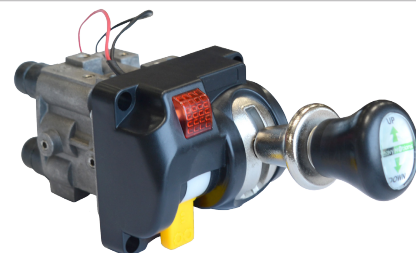
- Prevents accidental PTO engagement
- With kick out function
- Controlled lowering of the body
- Push-to-Connect Fittings



**HM503WK**

**PTO Combo Valve - Small Design**

- Prevents accidental PTO engagement
- With kick out function
- Controlled lowering of the body
- Push-to-Connect Fittings



## PTO KITS - AIR CONTROLS Cont.

HM1PPV	Pressure Protection Valve
<b>Replacement for</b>	
Chelsea	378414
Muncie	31M15759
	328863X
	<ul style="list-style-type: none"> <li>• Opens at 60-70 psi</li> </ul>



HM103WKT	PTO Combo Valve W/ Tower
<b>Replacement for</b>	
Apsco	AV295C
<b>Contains :</b>	
HM103WK	PTO Combo Valve
HMTOWER-8	Tower / Console
	<ul style="list-style-type: none"> <li>• With Kick out Function</li> <li>• Controlled lowering of the body</li> <li>• Push-to-Connect Fittings</li> <li>• Universal 8" Tower</li> </ul>



HMTOWER-8	Tower/Console
<b>Replacement for</b>	
Chelsea	329219X
	<ul style="list-style-type: none"> <li>• Use with PTO Combo Valve</li> <li>• Universal 8" Tower</li> <li>• Dimensions: 8" x 4 5/8" x 3 1/4"</li> <li>• Base: 4 5/8" x 5"</li> </ul>



HM1TB	Air Tubing
<b>Replacement for</b>	
Chelsea	379044-7
Muncie	45M44430
	<ul style="list-style-type: none"> <li>• 1/4" Diameter</li> <li>• 30 ft. Long</li> </ul>



HM1IL	Indicator Light
	<ul style="list-style-type: none"> <li>• Fits Valve HM101V</li> </ul>





# Heavy Motions PTOs

## HM379640 PTO Wire for Ball Switch Connector

### Replacement for

Chelsea

379640

- Used with HM329361 Air Shifter



## PTO CONVERSION KIT

### HM328591-16X

### Replacement for 328591-16X

Chelsea

Converts remote mount HM589 and Chelsea 442 and 489 series PTO to a direct mount PTO.

### Contains :

HM328333X	Flange Assembly	Qty: 1
HM3P282	Output Shaft 7/8"	Qty: 1
HM28P216	Shaft Seal	Qty: 1
HM378447-8	Capscrew	Qty: 4
HM378391	Retaining Ring	Qty: 2
HM379688A	Spline Lubricant	Qty: 2
HM22P127-1	Gasket 0.010"	Qty: 2
HM22P127-2	Gasket 0.020"	Qty: 2
HM22P127-3	Gasket 0.015"	Qty: 1



## FEATURED PRODUCTS

### REPLACEMENT PARTS FOR CHELSEA® 277

#### FRICTION DISK

Heavy Motions	Replaces P/N	Description
HM379485	379485	Friction Disk

#### CLUTCH PLATE

Heavy Motions	Replaces P/N	Description
HM379595	379595	Clutch Plate

#### SHAFT

Heavy Motions	Replaces P/N	Description
HM3P1051	3-P-1051	Output Shaft 7/8"-13 Tooth

### REPLACEMENT PARTS FOR MUNCIE® TG6 & TG8

*Parts are 100% interchangeable with those used in Muncie's® TG Series PTOs.*

#### GEARS

Heavy Motions	Replaces P/N	Description	Pitch	Teeth
HM03T34284	03T34284	Input Gear	U68	24
HM03T34453	03T34453	Input Gear	C70	24
HM03T38546	03T38546	Input Gear	T81	29

#### SHAFTS

Heavy Motions	Replaces P/N	Description	Output Type	Dimensions
HM06T33963	06T33963	Output Shaft	"B" Remote Mount	1 1/4" Round
HM06T39143	06T39143	Output Shaft	"M", "K", "6" Hyd Shaft	7/8" – 13 Tooth

#### GASKETS

Heavy Motions	Replaces P/N	Description	Holes	Thickness
HMGA6010	13M35091	Mounting Gasket	6	0.10"
HMGA6015	13M35092	Mounting Gasket	6	0.20"
HMGA8010	13M35151	Mounting Gasket	8	0.10"
HMGA8015	13M35152	Mounting Gasket	8	0.20"

#### STUD KITS

Heavy Motions	Replaces P/N	Description	Models
HM6SKS	20MK6700	6 bolt Std Mounting Kit	TG6S, TG6D
HM6SKM	20MKM602	6 bolt Metric Mounting Kit	TG6B, TG6C
HM8SKS	20MK8801	8 bolt Std Mounting Kit	TG8S, TG8D, TG8M
HM8SKM	20MKM801	8 bolt Metric Mounting Kit	TG8B, TG8C

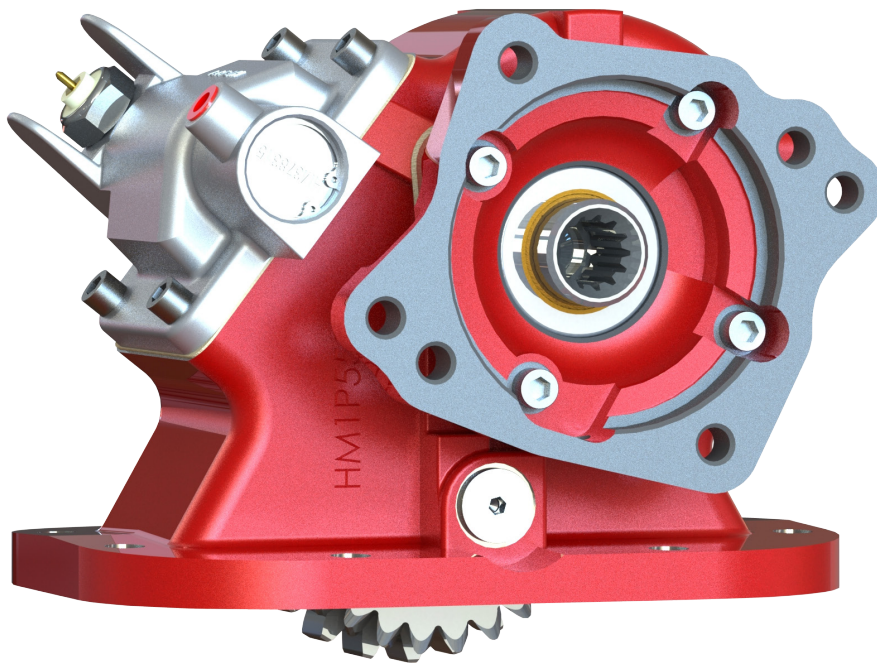
#### MISCELLANEOUS

Heavy Motions	Replaces P/N	Description
HM1PPV	31M15759	Pressure Protection Valve
HM1TB	45M44430	Air Tubing 1/4 – 30ft

# Heavy Motions PTOs

## SPECIFICATIONS

Ratio	F	Q	R
Torque Intermittent Service (Lb. ft)	250	225	225
Torque Intermittent Service (N.m)	339	305	305
Power @ 500 RPM (HP)	24	21	21
Power @ 1,000 RPM (HP)	48	43	43
Power @ 500 RPM (KW)	18	16	16
Power @ 1,000 RPM (KW)	36	32	32
Approximate Weight (KG)	30lbs (13.6 Kg)		





## SELECTING A PTO

Please have the following information ready when selecting a new or replaced PTO.

TRANSMISSION MAKE AND MODEL: \_\_\_\_\_

MOUNTING LOCATION: BOTTOM, SIDE

PERCENTAGE OF ENGINE SPEED: \_\_\_\_% (See below for suggestions)

OUTPUT TYPE: SPLINED 13T ☐ 1-1/4" Round Shaft ☐

SHIFTER: AIR SHIFT ☐

IF AIR, CAB CONTROL: PTO ONLY ☐, DUAL (PTO/PUMP) ☐

CONTROL TOWER: YES ☐, NO ☐

## SUGGESTED PTO PERCENTAGES

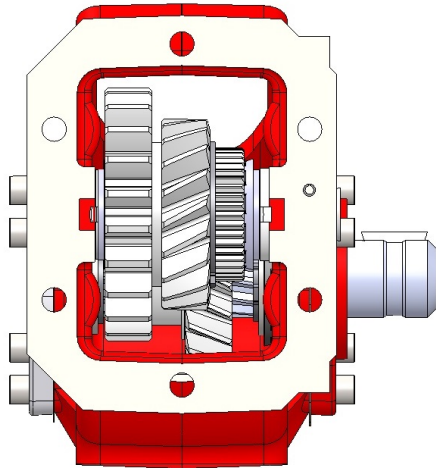
Common uses are suggested below. Please be sure to match the PTO with the right pump flow requirements.

APPLICATION	PTO %
Dump Body - Small Single Axle	60%-90%
Dump Body - Medium Double Axle	80%-100%
Dump Body - Large, Tri-Axle	100%-120%
Dump Trailers	100%-120%
Moving Floors	90%-120%

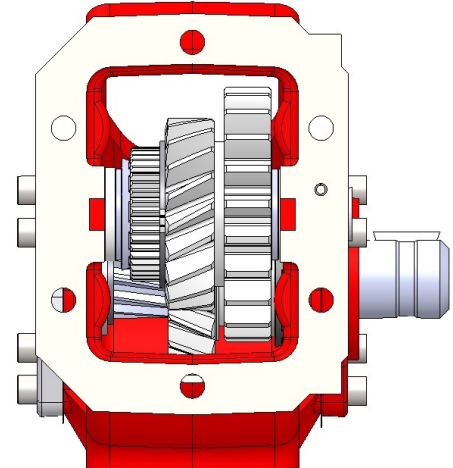
# Heavy Motions PTOs

## ARRANGEMENT OPTIONS

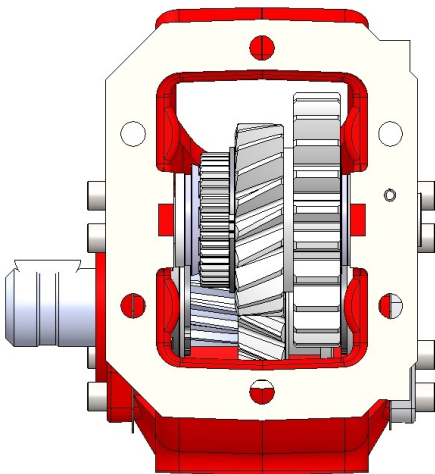
To identify the proper arrangement, place the PTO with the input gear facing you and the shifter up.



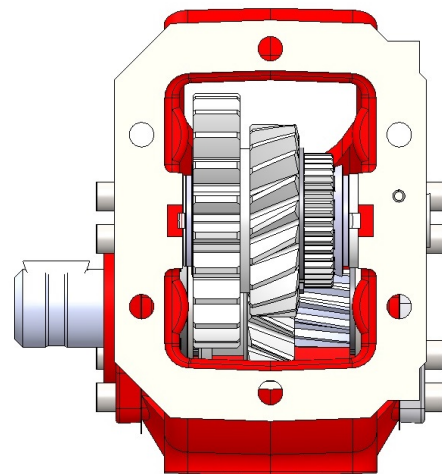
**3**  
Right Side Output  
Forward Input Gear



**4**  
Right Side Output  
Rear Input Gear



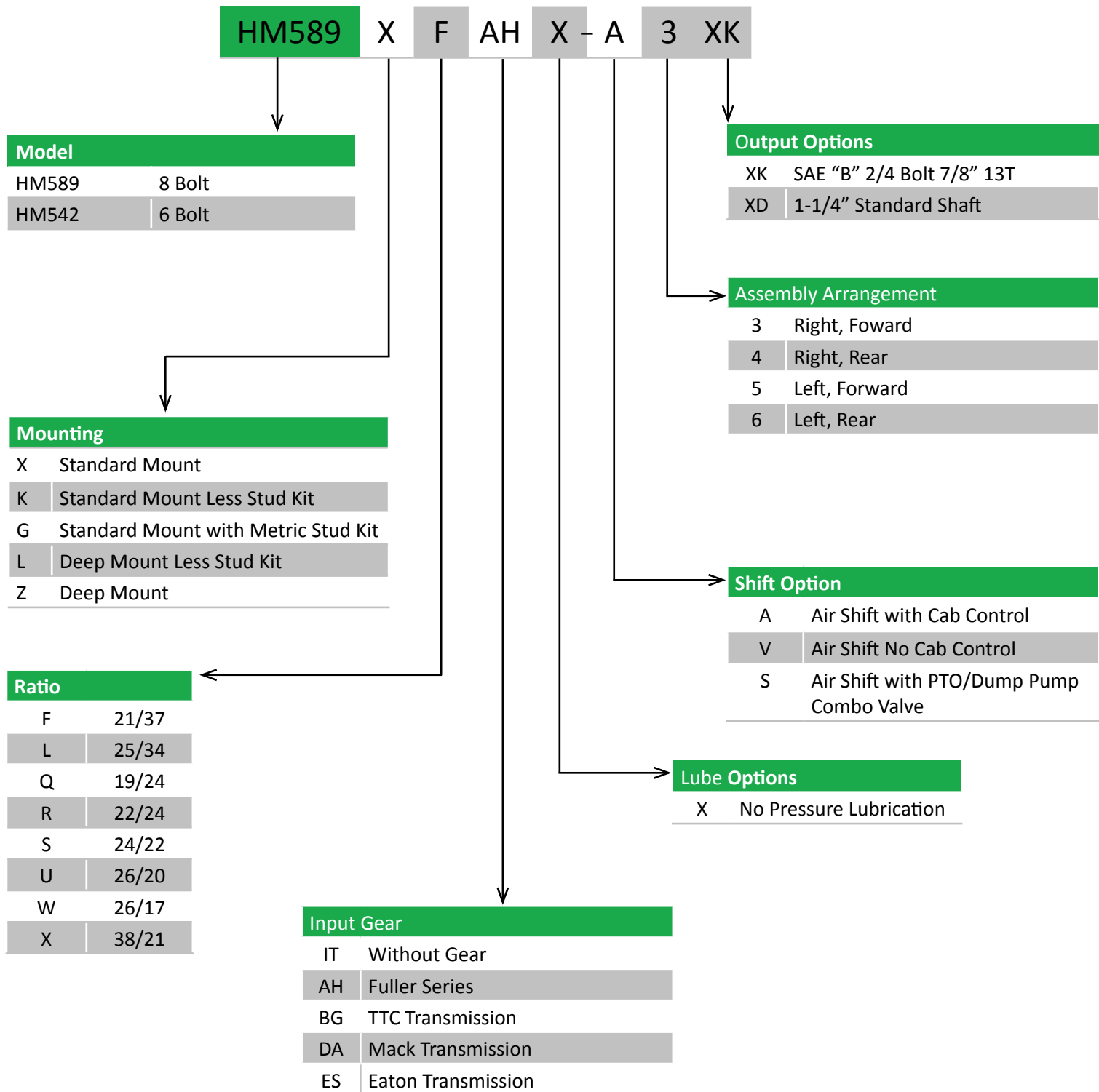
**5**  
Left Side Output  
Forward Input Gear



**6**  
Left Side Output  
Rear Input Gear

Series HM589	Chelsea ®	Muncie ®
3	3	1
4	4	2
5	5	3
6	6	4

## ASSEMBLY OPTIONS



## HEAVY MOTIONS, INC. PTO WARRANTY

The Heavy Motions PTOs and other parts covered in this catalog are warranted for a period of (2) two years from the date of installation against any defect in material and workmanship which existed at the time of sale by Heavy Motions Inc., according to the following provisions, subject to the requirements that the PTO must be used only in the appropriate applications and following the Installation and Owner's Manual instructions.

If during the warranty period the PTO fails due to a defect in any part in material or workmanship that existed at the time of the sale by Heavy Motions Inc., the defective part will be repaired or replaced, at the discretion of Heavy Motions Inc., at no charge, if the defective part is returned to Heavy Motions Inc. with transportation prepaid. Authorization from your sales representative is required to initiate the warranty.

**WARNING:** The above warranty shall terminate if any alterations or repairs are made to the PTO other than at Heavy Motions Inc.

The foregoing warranty is in lieu of all other obligations and liabilities, including negligence and all warranties of merchantability and suitability, expressed or implied, and state Heavy Motions' entire and exclusive liability and buyer's exclusive remedy for any claim of damages in connection with the sale, repair or replacement of the above goods, their design, installation or operation. Heavy Motions Inc. will in no event be liable for any direct, indirect, special, incidental or consequential damages whatsoever, and our liability under no circumstances will exceed the contract price for the goods for which liability is claimed.

Heavy Motions Inc. is not liable for any repair related cost incurred to the Buyer at any time if the repair is conducted by the buyer without written authorization from Heavy Motions Inc.

# Notes

[illegible]



WWW.HEAVYMOTIONS.COM

# Notes

[illegible]



**2134 S. Green Privado**  
**Ontario, CA 91761**  
**Toll Free: 1-866-865-8889**  
**info@heavymotions.com**  
**www.heavymotions.com**