



Content



Mechanical PTOs

HM589.....4



Allison PTOs

H380.....11



Rear Mount PTOs

HTF4033-
HTF4036.....17



Accessories

Valves.....22

Towers.....24

Etc.....28



Further PTO Information

Ordering
Guide.....29

Warranty.....30

Section 1: Mechanical PTOs

HM589



The HM589 Series

A Two - Gear Mechanical Transmission PTO

The HM589 PTO is simple to install, with its **8 bolt configuration**, which conforms to most manual transmissions, such as Eaton Fuller, Tremec, Mack, etc.

The housing and flange are cast iron and the bearings are heavy duty, ensuring a long life.

The PTO is air-shift controlled. It is sold as a kit, which allows for easy maintenance. Often used in utility trucks, dump trucks, trailers, fire & rescue vehicles, snow and ice, and more.



Key Features

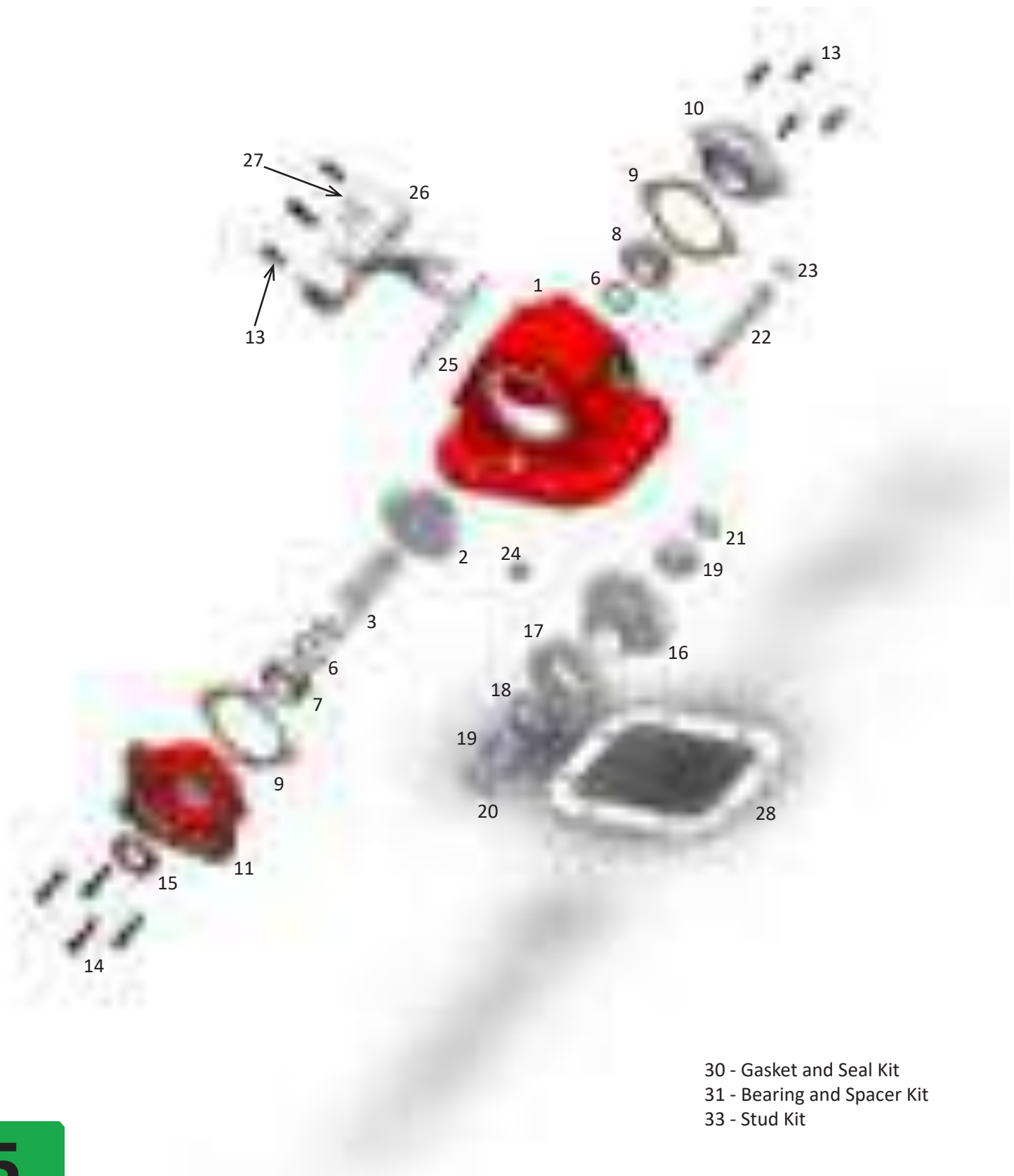
- 8 bolt configuration
- Cast iron
- Multiple gear ratios and output options
- Available in Z Flange Deep Mount (Mack Manual Transmission)

Applications

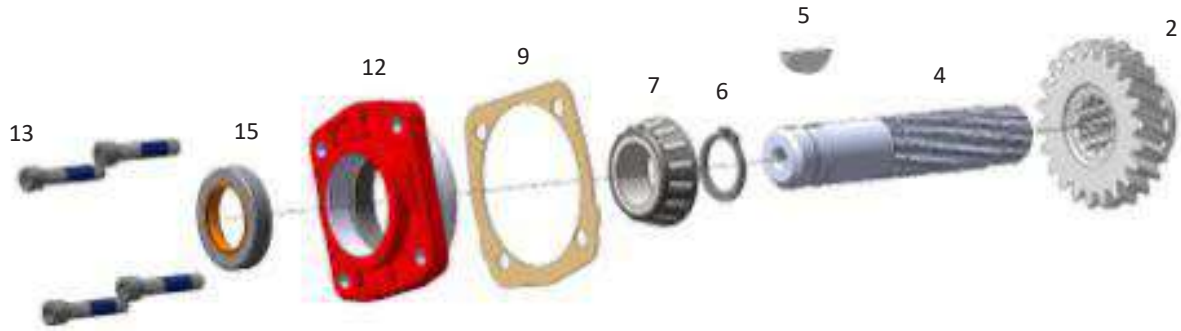
- Utility trucks
- Dump trucks
- Dump Trailers
- Fire & rescue vehicles
- Snow and ice
- More

Mechanical PTOs

Exploded View **HM589**



Mechanical PTOs



Parts List HM589

Item	Part Number	Replacement for	Description
1	HM1P552X	1-P-552X	Standard Mounting Housing Assembly
	HM1P562X	1-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)
	HM2P802	2-P-802	Output Ratio Gear (H)
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)

Mechanical PTOs

Parts List **HM589** continued

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

Mechanical PTOs

Input Gears HM589

Heavy Motions Model Number	Chelsea® Model Number	Part Number	Type	Input	Teeth Ratio
HM589*FAH	489*FAH	HM5P1077	Spur	22	21
HM589*HAH	489*HAH	HM5P1364	Spur	22	23
HM589**AH	489**AH	HM5P1004	Spur	22	
HM589**DA	589**DA	HM5P1037	Spur	23	

Gearing Ratios HM589

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*H	489*H			HM2P802	35
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

Mechanical PTOs

Ordering Code **HM589**

HM589 X **F** **AH** X - **A** **3** **XK**

Model	
HM589	8 Bolt

Output Options	
XK	SAE "B" 2/4 Bolt 7/8" 13T
XD	1-1/4" Standard Shaft

Mounting	
X	Standard Mount
K	Standard Mount Less Stud Kit
G	Standard Mount with Metric Stud Kit
L	Deep Mount Less Stud Kit
Z	Deep Mount

Assembly Arrangement	
3	Right, Forward
4	Right, Rear
5	Left, Forward
6	Left, Rear

Ratio	
F	21/37
H	23/35
L	25/34
Q	19/24
R	22/24
S	24/22
U	26/20
W	26/17
X	38/21

Shift Option	
A	Air Shift with Cab Control
V	Air Shift No Cab Control
S	Air Shift with PTO/Dump Pump Combo Valve

Lube Options	
X	No Pressure Lubrication

Input Gear	
IT	Without Gear
AH	Fuller Series
DA	Mack Transmission
ES	Eaton Transmission (542 Only)

Mechanical 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

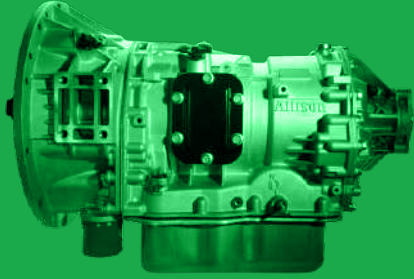


6

Left Side Output
Rear Input Gear

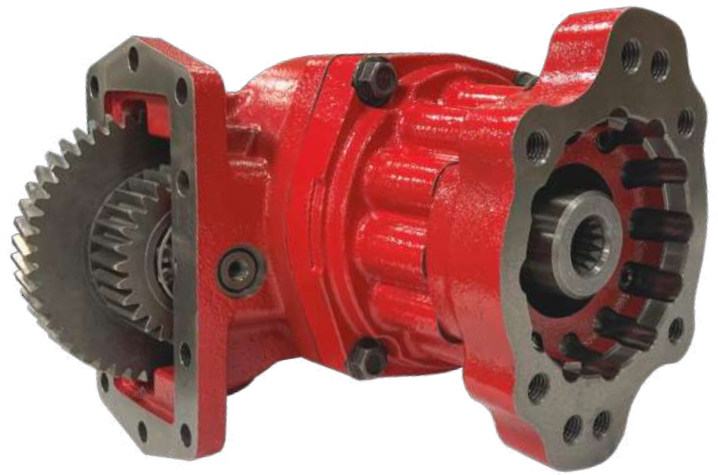
Section 2: Allison 3000 & 4000 Series PTOs

H380



The H380 Series Hotshift Hydraulic 10-Bolt PTO

The H380 features electric-over-hydraulic shifting. It can be used in a wide variety of applications, and features an intermittent torque rating of 301-400. The 380 Series is interchangeable with many competitive models on the market, and fits Allison 3000 and 4000 series transmissions.



Technical Specifications:

Output Flange:	SAE B Flange
Intermittent Torque:	301-400 lb-ft, 501+ Nm
Lubricant:	P=Pressure Lube
Output Power:	51+ kW, (68HP)
Output Shaft Type:	Spline, SAE B (7/8" - 13T) Spline, SAE BB (1" - 15T) SHAFT 1¼" Keyed Shaft - 5/16" Key
Shift Type:	Powershift (Hydraulic)
Continuous Operation:	Yes
Mounting Type:	10-Bolt

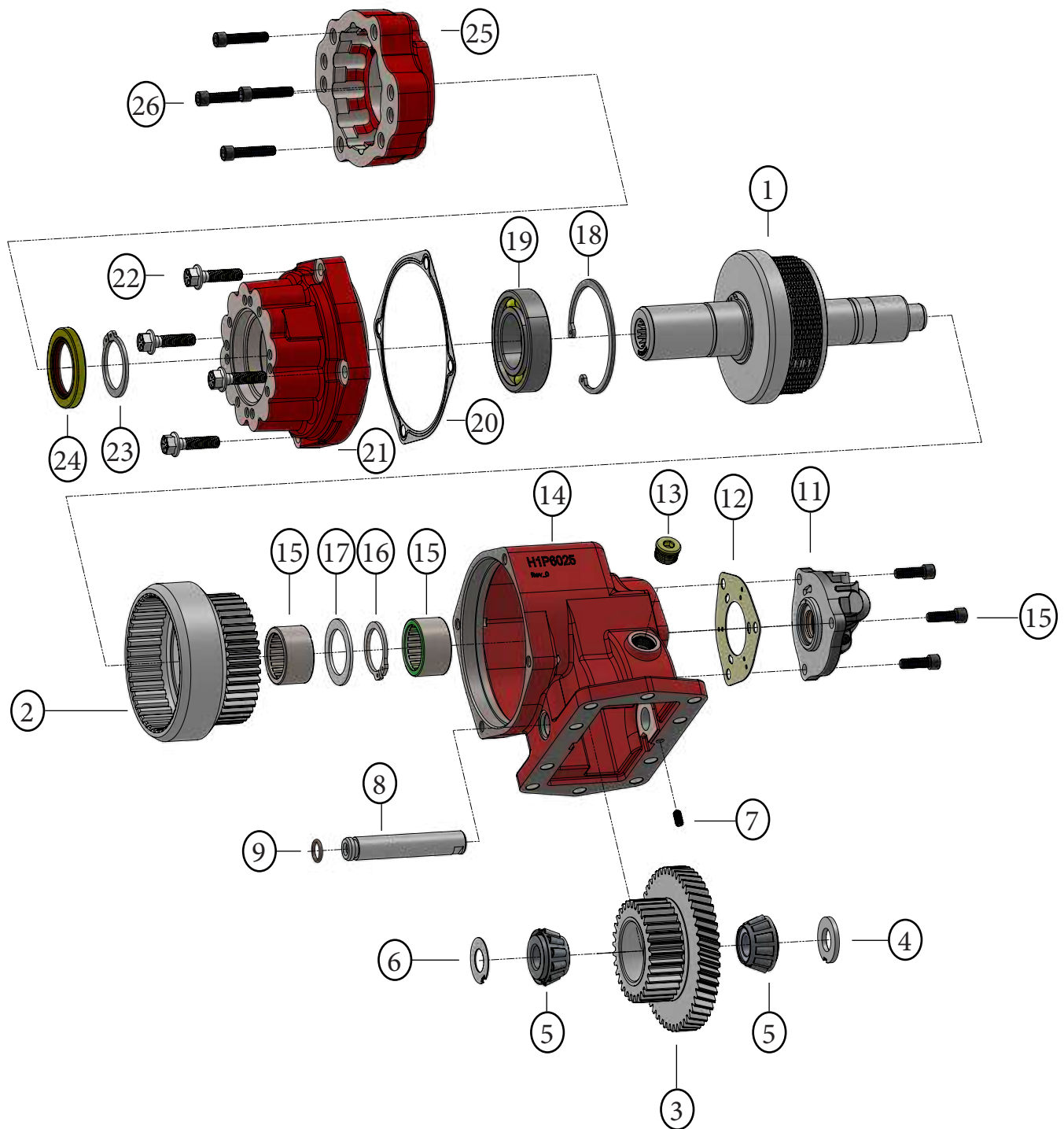
Key Features

- Cast Iron
- Rotatable Flanges
- Continuous-Duty Torque Rating up to 390 ft-lbs

Applications

- Oil & Gas
- Truck Cranes
- Refuse/Waste
- Dump Trucks
- Fire & Rescue
- More

Exploded View - H380



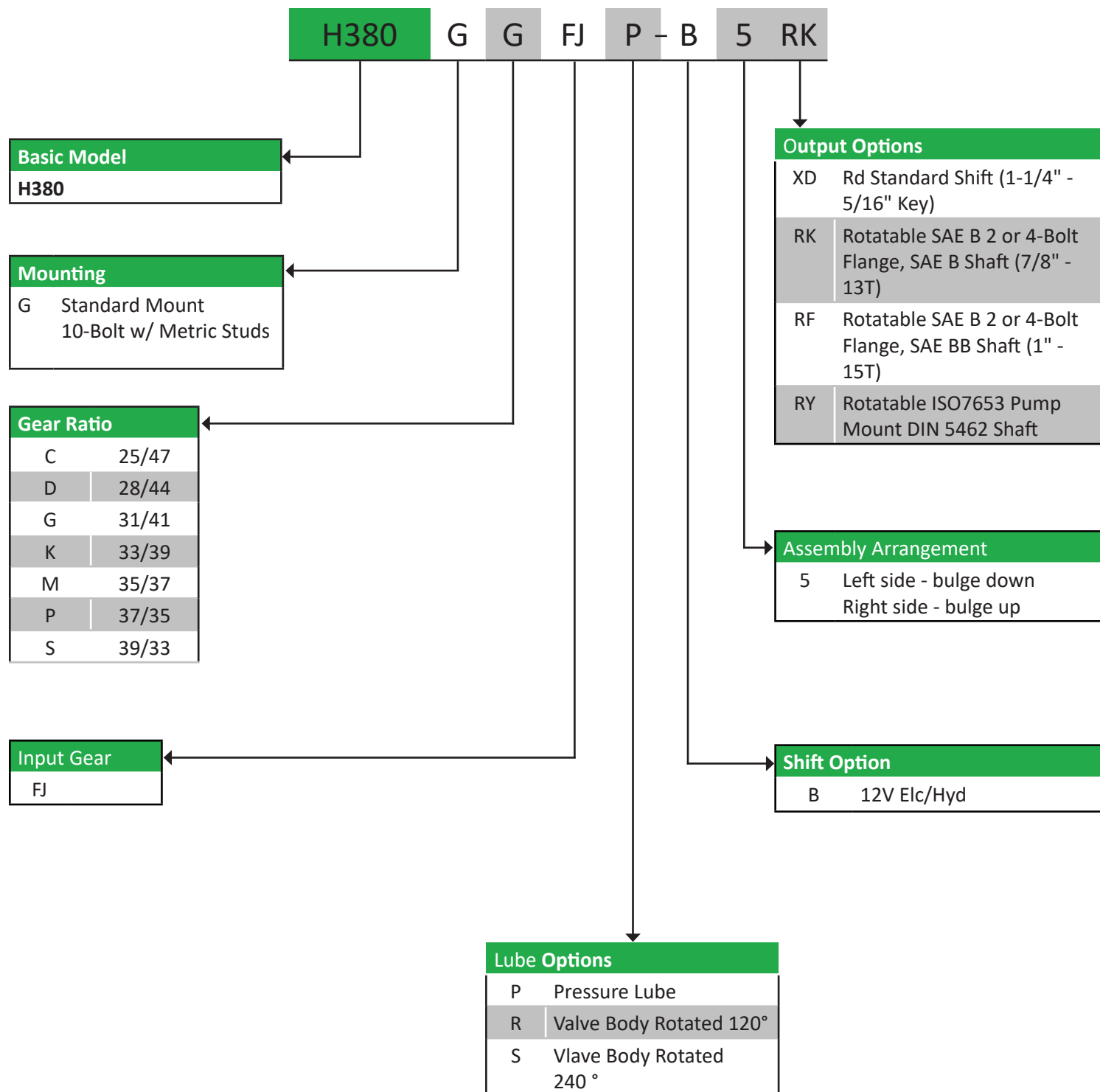
Allison 3000 & 4000 PTOs

Parts List H380

Item	Part Number	Replacement for	Description
1	See page 24 for components		Drive Shaft and Clutch Assembly
	H329724-3X		DIN 8T Shaft for RY output
	H329724-4X		7/8" - 13T Shaft for RK output
	H329724-5X		1" - 15T Shaft for RF output
	H329724-6X		1 1/4" Keyed Shaft for XD output
2	Reference Pg 18		Output Gear
3	Reference Pg 18		Input and Ratio Gear
4	H14P73-1	14-P-73-1	Spacer 0.150"
	H14P73-2	14-P-73-2	Spacer 0.153"
	H14P73-3	14-P-73-3	Spacer 0.156"
5	H550439	550439	Bearing 0.750" x 0.8598"
6	H31P102	31-P-102	Thrust Washer 0.030"
7	H378452-7	378452-7	Set Screw 0.25"-20 x 0.50"
8	H9P106	9-P-106	Idler Shaft
9	H28P191	28-P-191	O-Ring
10	H378447-6	378447-6	Socket Head Capscrew 7/16"-18 x 1.00"
11	H329463-12X	329463-12X	Valve and Cap Assembly 12VDC
12	H22P112	22-P-112	Gasket
13			Plug - ORB#8
14	H1P765	1-P-765	Housing Arrangement 5 with 3/8" Bearing Cap Bolts
15	H560972	560972	Needle Bearing
16	H379746	379746	Lockring
17	H31P70	31-P-70	Thrust Washer
18	H378263	378263	Lockring
19	H550311	550311	Ball Bearing
20	H22P151	22-P-151	Gasket
21	H21P881	21-P-881	Bearing Cap with holes for 3/8" Cap Bolts
22	H380563-14	380563-14	Hex Flange Head Capscrew 3/8"-16 x 1.5"
23	H379555	379555	Lockring
24	H28P267	28-P-267	Shaft Seal
25	H21P731	21-P-731	Flange RB/RF/RK/RZ
26	H378447-8	378447-8	Socket Head Capscrew 7/16"-18 x 1.50"

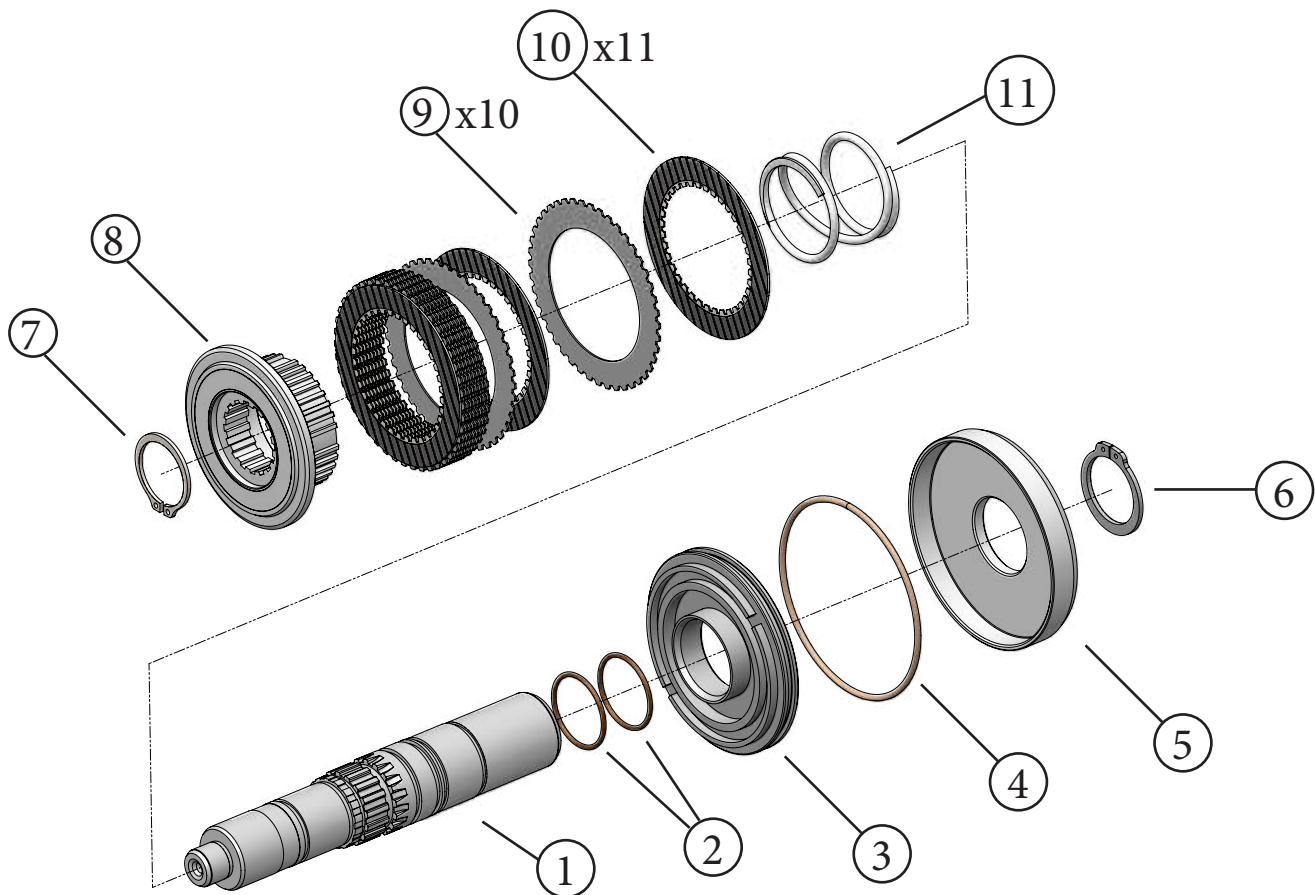
Allison 3000 & 4000 PTOs

Ordering Code **H380**



Allison 3000 & 4000 PTOs

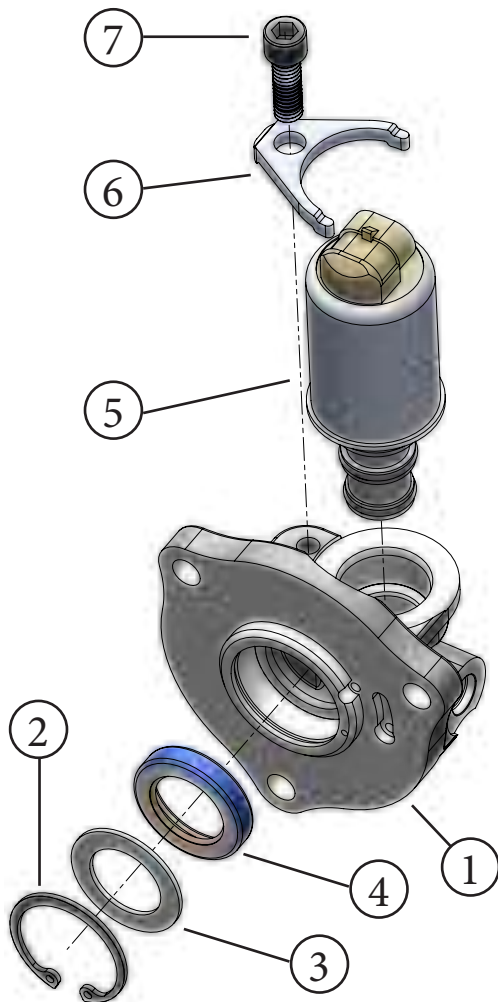
DRIVE SHAFT AND CLUTCH ASSEMBLIES



Item	Part Number	Replacement for	Description	Used in Assembly
1	H3P1067	3-P-1067	DIN 8T Shaft for RY output	H329724-3X
	H3P1125	3-P-1125	1 1/4" Keyed Shaft for XD output	H329724-6X
	H3P1126	3-P-1126	7/8" - 13T Shaft for RK output	H329724-4X
	H3P1127	3-P-1127	1" - 15T Shaft for RF output	H329724-5X
2	H22P41	28-P-41	O-Ring	
3	H380110-1	H380110-1	Clutch Piston	
4	H28P178	28-P-178	O-Ring	
5	H380051	H380051	Cylinder Clutch Back up	
6	H379555	379555	Lockring	
7	H380069	H380069	Lockring	
8	H2P858	2-P-858	Inner Gear Hub	
9	H380065	H380065	Clutch Plate (Assembly Needs 10 pieces)	
10	H379485	379485	Friction Disc (Assembly Needs 11 pieces)	
11	H37P62	37-P-62	Spring	

Allison 3000 & 4000 PTOs

VALVE AND CAP ASSEMBLY



Item	Part Number	Replacement for	Description	Used in Assembly
1	H34P143	34-P-143	Valve Housing	
2	H378849	378849	Lockring	
3	H378811	378811	Washer	
4	H28P119	28-P-119	High Pressure Oil Seal	
5	H380123-12	380123-12	Hydraulic Valve 12VDC	H329463-12X
6	H380124	380124	Clamp - Included with Hydraulic Valve	
7	HM378447-6	378447-6	Socket Head Cap-screw	

H380 Gear Ratios

Gear Code	Input/Ratio Gear				Output Gear		
	Part Number	Replacement for	Number of Teeth		Part Number	Replacement for	Number of Teeth
			Input	Ratio			
H380*CFJ	H5P1491-2XW	5-P-1491-2X	50	25	H2P927	2-P-927	47
H380*DFJ	H5P1491-3X	5-P-1491-3X	50	28	H2P928	2-P-928	44
H380*GFJ	H5P1491-4X	5-P-1491-4X	50	31	H2P929	2-P-929	41
H380*KFJ	H5P1491-5X	5-P-1491-5X	50	33	H2P931	2-P-931	39
H380*MFJ	H5P1491-6X	5-P-1491-6X	50	35	H2P933	2-P-933	37
H380*PFJ	H5P1491-7X	5-P-1491-7X	50	37	H2P935	2-P-935	35
H380*SFJ	H5P1491-8X	5-P-1491-8X	50	39	H2P936	2-P-936	33
H380*TFJ	H5P1491-9X	5-P-1491-9X	50	41	H2P937	2-P-937	31

Section 3: Rear Mount PTOs



The HTF4033-4036 Series PTO

Rear mount PTOs are generally easier to install than their side mounted cousins, and while standard in Europe for many years now, is becoming more popular in the United States. Heavy Motions is the exclusive American provider of Aber Hydraulic's rear mount PTOs. They are popular on M-Drive and Volvo I-Shift Transmissions. It replaces OEM and other manufacturers rear mount PTOs



Key Features

- Compact Design
- Multiple Ratios Available
- 8 Tooth DIN 5462 Output
- Easily switch DIN shaft options with adapters

Applications

- Utility trucks
- Dump trucks
- More

Rear Mount PTOs

Exploded View - **HTF** **Series** Rear Mount PTOs



Included
in this
series:

HTF4033

HTF4034

HTF4035

HTF4036

Rear Mount PTO

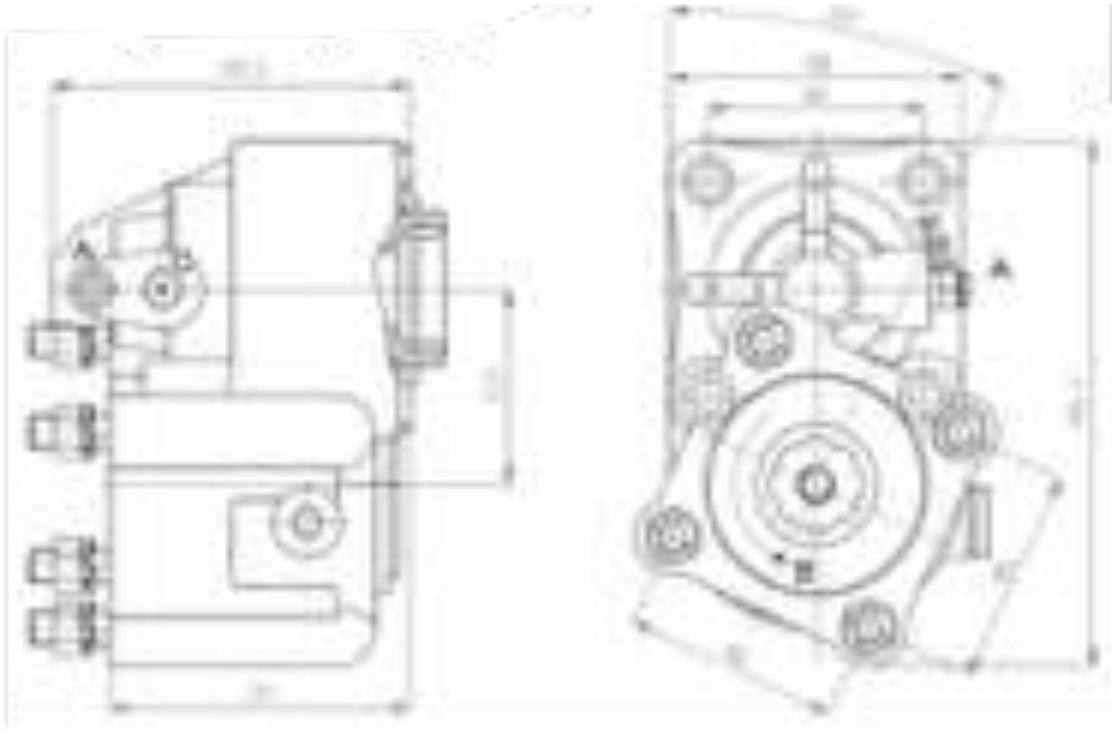
Parts List HTF Series Rear Mount PTOs

Item	Part Number	Quantity	Description
1	CFTF325	1	Cover Ring
2	CCORI55	1	O-Ring
3	CCORI57	1	O-Ring
4	CFTF326	2	Washer
5	CCROL50	2	Roller Bearing
6	CCPAR11	1	Cap Screw
7	CFTF010	1	Washer
8	CFTF112	1	Shaft
9	CCMOL05	1	Spring
10	CFTF316	1	Output Shaft
11	CFTF372	1	Washer
12	CCWR04	1	Retainer Ring
13	CFTF057	1	Sleeve
14	CCROL03	2	Flat Roller Bearing
15	CCANI23	2	Washer
16	CCFRE36	1	Retainer Ring
17	CFTF063	1	Air Control Piston
18	CCORI04	2	O-Ring
19	CCVED17	1	Retainer Seal
20	/	1	Output Gear

Item	Part Number	Quantity	Description
21	CFTF688	1	Housing
22	CIAB001	1	Identification Plate
23	CCREB01	2	Rivet
24	CCT01	1	Sensor Plug
25	CCTAC01	1	Plug
26	R614DCR	1	Pneumatic Fitting
27	CCROL51	1	Roller Bearing
28	/	1	Input Gear
29	CCROL34	1	Roller Bearing
30	CFTF218	1	Washer
31	CFTF689	Washer	Washer
32	CCFRE08	1	Retainer Ring
33	CCRET09	1	Retainer Seal
34	CCPAR72	2	Cap Screw
35	CCPAR161	2	Cap Screw
36	CCJUN04	1	Gasket
37	CFTF091	4	Stud
38	CCANI09	4	Washer
39	CFTF098	4	Net

Input/Output Gears		
	Item	
	20	28
HTF4033AMP	CFTF311	CFTF312
HTF4034AMP	CFTF313	CFTF314
HTF4035AMP	CFTF307	CFTF308
TF4036AMP	CFTF309	CFTF310

Rear Mount PTOs



	HTF4033	HTF4034	HTF4035	HTF4036
Continuous Torque (Nm)	500	350	400	450
Intermittent Torque (Nm)	550	450	500	500
Power (at 1000 rpm)	69 cv / 51 kW	48 cv / 36 kW	55 cv / 40 kW	62 cv / 46 kW
Mounting Position	Rear	Rear	Rear	Rear
Pump Rotation	Right Hand	Right Hand	Right Hand	Right Hand
Weight (kg)	11	11	11	11
PTO internal ratio	1 : 1	1 : 1.73	1 : 1.56	1 : 1.35

Rear Mount PTO

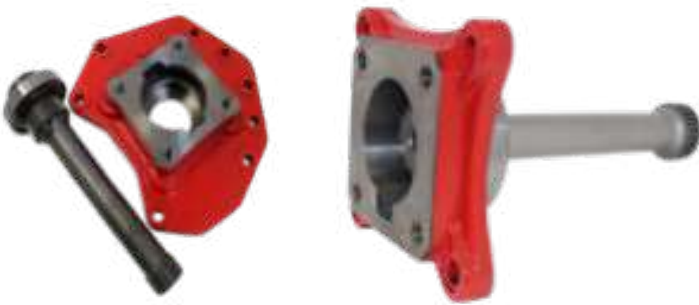
1. Adapters for Rear Mount PTOs

Part Number	Description
HADA4FSE1RE	DIN Shaft Output, 1-1/4" keyed shaft, 5/16 Keyed
HADA4FB24	DIN Shaft Output, 7/8-13, 2/4 Bolt B
HADA4FBB24	DIN Shaft Output, 1"-15 tooth 2/4 Bolt BB
HADA1300R	DIN Shaft Output, 1300 series companion flange
HADA1400R	DIN Shaft Output, 1400 series companion flange



2. Connecting Shaft Assembly For Mack® M-Drive / Volvo® I-Shift Automatic Transmission Applications

Part Number	Description
HVK5006	Connecting Shaft for Mack®/Volvo®

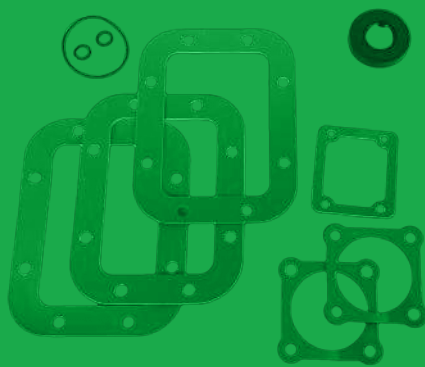


3. Indicator Switch Connector

Part Number	Description
CCSEN08	2 Pole, Pin Connector DIN Sensor



Section 4: PTO Accessories



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



PTO Accessories

PTO KITS - AIR CONTROLS Continued

HM103WK-TB 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



HM100 PTO Combo Valve - Small Design

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



HM100C-13 PTO Combo Valve - Small Design

Contains:

HM100

HMTOWER-13

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



PTO Accessories

PTO KITS - AIR CONTROLS Continued

HM103WKC-8-TB PTO Combo Valve W/ Tower, 8" Console

Replacement for

Contains :

HM103WK	PTO Combo Valve
HMTOWER-8	Tower / Console
HM1TB	Air Tubing
	• With kick out function • Controlled lowering of the body • Push-to-Connect Fittings • Universal 8" Tower



HM103WKC-8-TG HM103WKC-8-TG Valve, Hoist, PTO, Tail-gate, 8" Console

Replacement for

Contains :

HM103WK	PTO Combo Valve
HMTOWER-8	Tower / Console
HM1TB	Air Tubing
	• With kick out function • Controlled lowering of the body • Push-to-Connect Fittings • Universal 8" Tower



HM103WKC-8 PTO Combo Valve W/ Tower Without TB, 8" Console

Replacement for

Contains :

HM103WK	PTO Combo Valve
HMTOWER-8	Tower / Console
	• With kick out function • Controlled lowering of the body • Push-to-Connect Fittings • Universal 8" Tower



PTO Accessories

PTO KITS - AIR CONTROLS Continued

HM103WKC-13 PTO Combo Valve W/ Tower, 13" Console

Replacement for

Contains :

HM103WK	PTO Combo Valve
HMTOWER-13	Tower / Console

- With kick out function
- Controlled lowering of the body
- Push-to-Connect Fittings
- Universal 13" Tower



HM103WKC-13-TB PTO Combo Valve W/ Tower, 13" Console

Replacement for

Contains :

HM103WK	PTO Combo Valve
HMTOWER-13	Tower / Console
HM1TB	Air tubing

- With kick out function
- Controlled lowering of the body
- Push-to-Connect Fittings
- Universal 13" Tower



HM103WKC-13-TG PTO Combo Valve W/ Tower, 13" Console

Replacement for

Contains :

HM103WK	PTO Combo Valve
HMTOWER-13	Tower / Console
HM1TB	Air tubing

- With kick out function
- Controlled lowering of the body
- Push-to-Connect Fittings
- Universal 13" Tower



PTO Accessories

PTO KITS - AIR CONTROLS Continued

HM103WKC-13-HP-TB

HM103WKC-13-HP-TB Valve, Hoist,
PTO High Pressure, 13" Console.
TUBE INCLUDED

Replacement for

Contains :

HM103WK

PTO Combo Valve

HMTOWER-13

Tower / Console

HM1TB

Air tubing

- With kick out function
- Controlled lowering of the body
- Push-to-Connect Fittings
- Universal 13" Tower



HMTOWER-8

Tower/Console, 8" Console

Replacement for

Chelsea

329219X

- Use with PTO Combo Valve
- Universal 8" Tower
- Dimensions: 8" x 4 5/8" x 3 1/4"
- Base: 4 5/8" x 5"



HMTOWER-13

Tower/Console, 13" Console

- Use with PTO Combo Valve
- Universal 13" Tower
- Dimensions: 13" x 4 5/8" x 3 1/4"
- Base: 4 5/8" x 5"



HM1PPV

Pressure Protection Valve

Replacement for

Chelsea

378414

Muncie

31M15759

328863X

- Opens at 60-70 psi



PTO Accessories

PTO KITS - AIR CONTROLS Continued

HM1221-1B Single Bank Control Valve

APSCO Cross
Reference

VM-7

Straight Handle Design



HM1221-2B20 2 Bank Control Valves

APSCO Cross
Reference

VM7-2B2020

Heil Cross
Reference

031-3322

Angled Handle Design



HM379640 PTO Wire for Ball Switch Connector

Replacement for

Chelsea

379640

- Used with HM329361 Air Shifter



HM11L Indicator Light

- Fits Valve HM101V



PTO Accessories

PTO KITS - AIR CONTROLS Continued

HM1TB	Air Tubing
Replacement for	
Chelsea	379044-7
Muncie	45M44430
• 1/4" Diameter • 30 ft. Long	



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

