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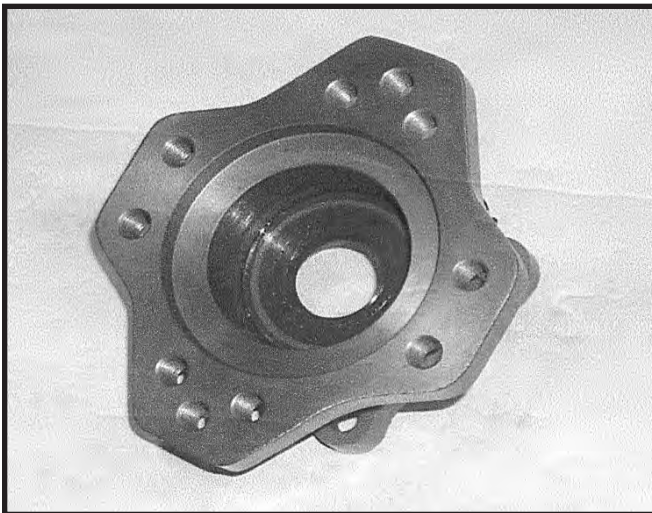
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FEATURES & BENEFITS OF OUR PTO'S

ALL PARTS ARE 100% INTERCHANGEABLE WITH CHELSEA®

OUR PTO HOUSING IS MADE OF CAST IRON. THE COMPETITION OFFERS WEAKER PTO HOUSINGS OF ALUMINUM CONSTRUCTION. FOR HEAVY DUTY APPLICATIONS, CAST IRON IS THE MATERIAL OF CHOICE.



OUR CAST IRON ROTATABLE FLANGE WITH TAPPED HOLES MAKES INSTALLING THE PUMP EASIER.



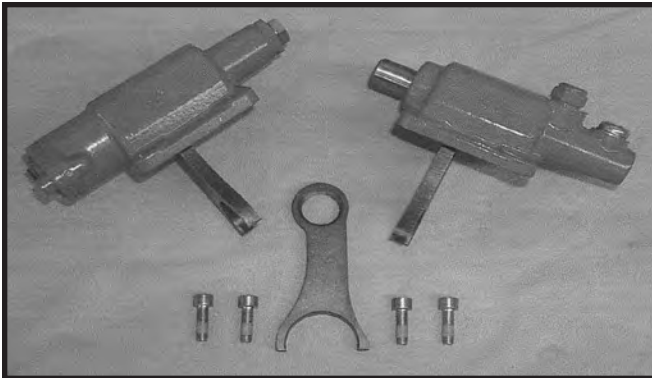
THE WORLD AMERICAN IDLER PIN OFFERS A QUICK WAY TO REMOVE W/O HAVING TO REMOVE THE SET SCREW OR ROLL PIN.

THE COMPETITION USES NO GASKETS & MUCH SMALLER ASSEMBLY BOLTS.

FEATURES & BENEFITS OF OUR PTO'S



***WORLD AMERICAN'S IMPROVED HOUSING TO FLANGE CASTING PRODUCES A STRONGER HOUSING.
*DEEPER GUSSETS WERE ADDED TO ALLOW FOR EASIER INSTALLATION.**



***OUR CAST HOUSING AND STEEL SHIFTING FORK GREATLY REDUCE O-RING EXPANSION BREAKS THAT CAUSE ENGAGEMENT ISSUES.**



SUGGESTED PTO PERCENTAGES

TYPE OF APPLICATION	PTO%	ENGINE RPM
AERIAL LADDER & PLATFORM	80-130	800-1500
AERIAL BUCKET MAN LIFTS	80-130	800-1200
ARERIAL CRANES DIGGER DERRICKS	80-130	800-1200
AUTO CARRIERS	125-210	IDLE
AUTO TOW TRUCKS	90-120	IDLE - 1200
AUTO TOW TRUCKS HEAVY DUTY	90-130	1000 - 1500
AIR COMPRESSORS		
85 FT PER MIN CAPACITY	100	1200 - 2000
125 FT PER MIN CAPACITY	100	1200 - 2000
180 FT PER MIN CAPACITY	100	1200 - 2000
BLOWER PNEUMATIC	150 - 250	1500 - 3500
DUMP BODIES		
SMALL SINGLE AXLE	50 - 80	1000 - 2000
MEDIUM SINGLE - TANDEM	80 - 100	1000 - 2000
LARGE TRI-AXLE	60 - 130	1000 - 2000
DUMP TRAILERS	80 - 130	1000 - 2000
DUMP TRAILERS W/ MOVING FLOOR	80 - 130	1000 - 1800
HYDRAULIC PUMPS		
1 - 15 GPM	80 - 130	IDLE - 3000
16 - 35 GPM	80 - 130	IDLE - 3000
36 + GPM	80 - 130	IDLE - 3000
LIVE FLOOR	80 - 110	1000 - 1800
PRODUCT PUMPS	50 - 70	IDLE - 2000
REFUSE	80 - 130	1000 - 1800
SNOW PLOWS	60 - 90	1000 - 3000
SPREADERS MECHANICAL	45 - 60	1200 - 2500
SPREADERS HYDRAULIC	75 - 90	1200 - 2500
TAILGATES	60 - 75	IDLE
WINCHES	80 - 110	IDLE - 1800

ALWAYS CHECK WITH THE MANUFACTURER FOR CORRECT SPECIFICATIONS AND FLOW REQUIREMENTS.

NEW PTO & PUMP INSTALLATION REQUIREMENTS

PTO QUESTIONS:

Transmission Make and Model: _____

P.T.O. Mounting Location: LH/BOTTOM _____ RH _____ REAR C/S _____

Percentage of Engine Speed Desired: _____% OR, (Desired Engine Operating RPM _____) (SEE PG. 4 FOR SUGGESTION.)

Shifter Type: Cable Shift _____ Air Shift _____

Cab Control Required: Yes _____ No _____

CAB CONTROLLER:

Type Required: Single (PTO Only) _____ Dual W/ Kick Out (PTO / Pump) _____ Dual W/O Kick Out (PTO / Pump) _____

Control Tower Height Required: 8" _____ 10" _____ 12" _____

PUMP QUESTIONS:

Duty Application: Dump _____ Walking Floor _____ Other _____

How is the pump mounted: Direct _____ Remote _____

Shift Type: Air _____ Manual _____

Flow Requirements: _____ GPM

Pressure Required: _____ PSI

Location of ports: Side _____ Rear _____ Both _____

Port Sizes Required: Left Side _____ Right Side _____ Rear Top _____ Rear Bottom _____

TANK QUESTIONS:

Tank Size: 50 Gallons _____ 70 Gallons _____

Mounting: Side (Saddle) _____ Upright _____

Construction: Steel _____ Aluminum _____ Plastic _____ (50 GAL. UPRIGHT ONLY)

HOSE KIT:

Do you require: Yes _____ No _____

*Number of Lines in system: 2 _____ 3 _____

If 3 lin system, do you require the filter? yes _____ no _____

If yes, what filter do you want? 10 micron _____ 25 micron _____

***WE RECOMMEND A 3-LINE SYSTEM FOR LONGER LASTING SYSTEMS.**

REPLACEMENT PTO REQUIREMENTS

Model number from existing unit: _____

Transmission Make and Model: _____

P.T.O. Mounting Location: LH/Bottom _____ RH _____ Rear C/S _____

Percentage of Engine Speed Desired: _____% OR, (Desired Engine Operating RPM _____)

Type of Output Shaft: Round 1-1/4 Keyed _____ Splined _____

If splined, how many? _____

Shifter Type: Cable Shift _____ Air Shift _____

Cab Control Required: Yes _____ No _____

REPLACEMENT PUMP REQUIREMENTS

Model number from existing unit _____

Duty Application: Dump _____ Walking Floor _____ Other _____

*Pump Shifter Type: Manual Shift _____ Air Shift _____

*Flow Required: _____ GPM

*Pressure Required: _____ PSI

*How is the pump mounted? Direct _____ Remote _____

Rotation: Left (CCW) _____ Right (CW) _____

Number of bolt holes on Flange: Two _____ Four _____

Bolt hole center to center (fig.1): A _____ B _____

Type of Input Shaft: Round _____ Splined _____ If splined, how many _____

Input Shaft Diameter: _____

Pilot size (fig. 1): _____ Inches

Rear Housing Cover (fig. 2): _____ inches

Main Body Width (fig. 3): _____ inches

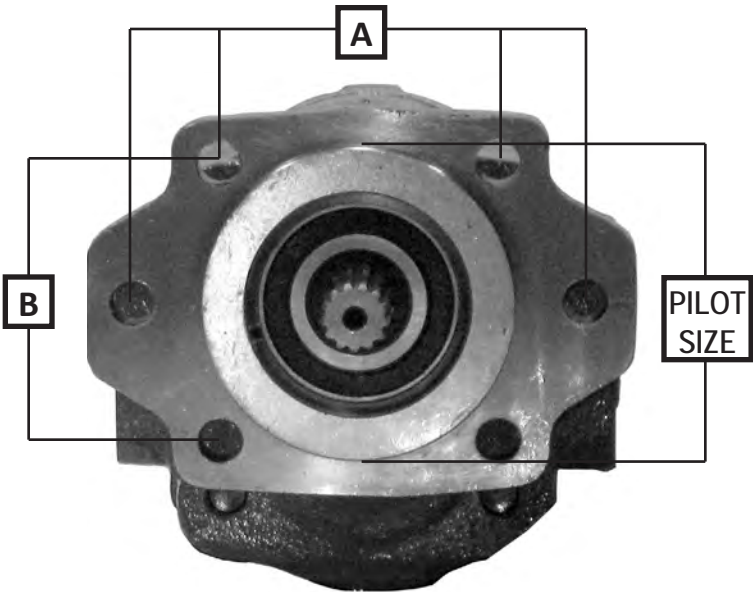
Location of ports: Side _____ Rear _____ Both _____

Port Sizes Required: Left Side _____ Right Side _____ Rear Left _____ Rear Right _____

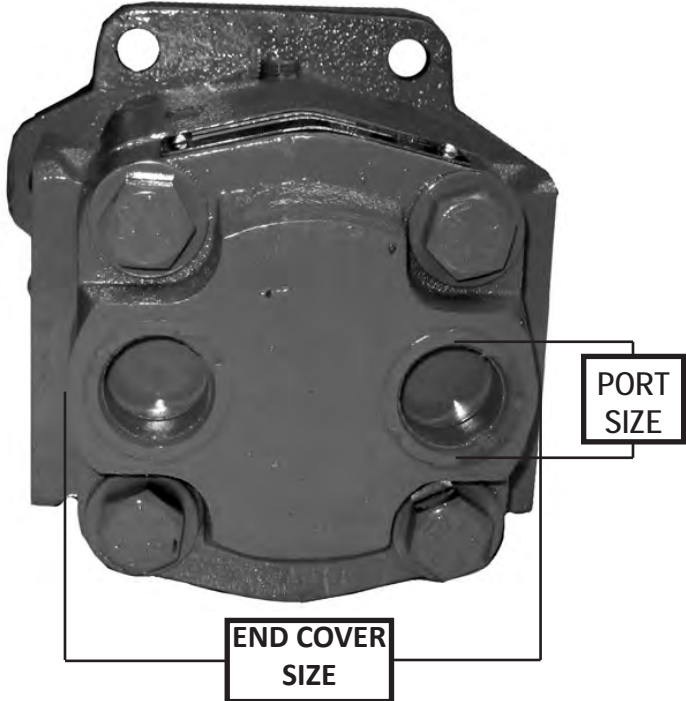
Type of Ports: NPT _____ ORB _____ Split Flange _____

**STOP HERE IF WORKING ON A DUMP PUMP*

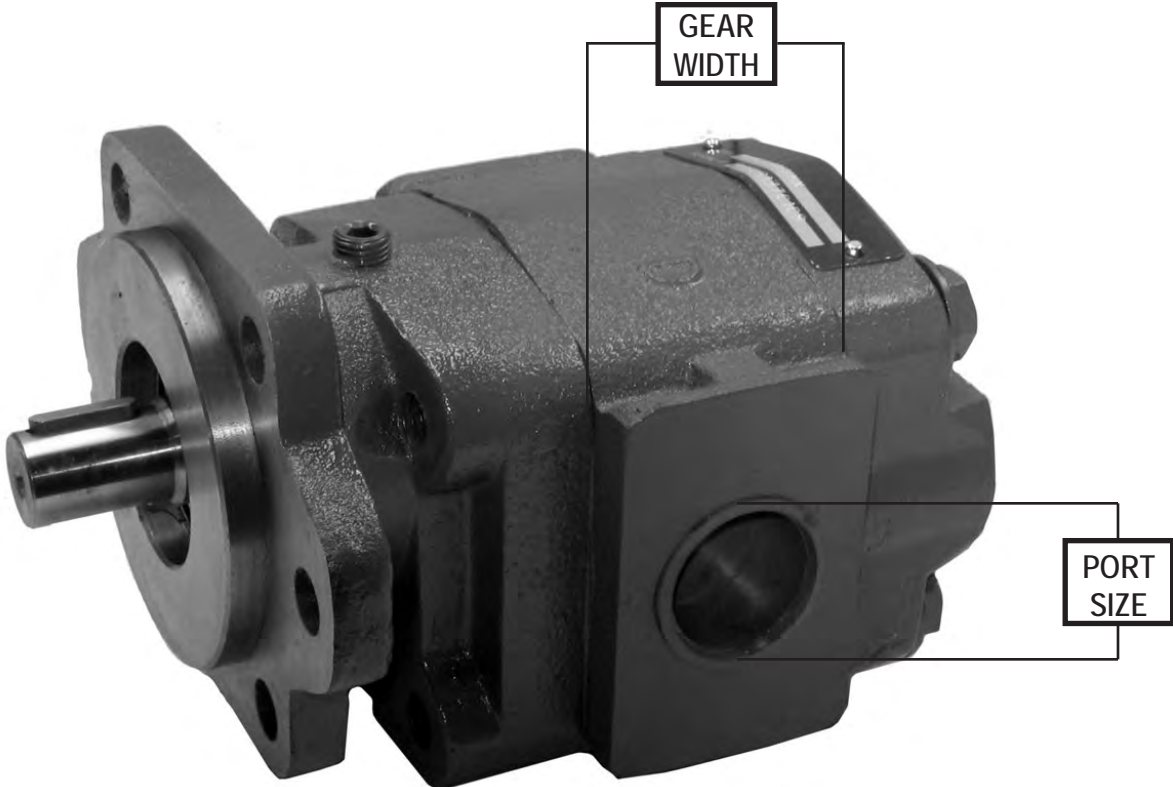
REPLACEMENT PUMP MEASUREMENTS



FRONT (fig.1)

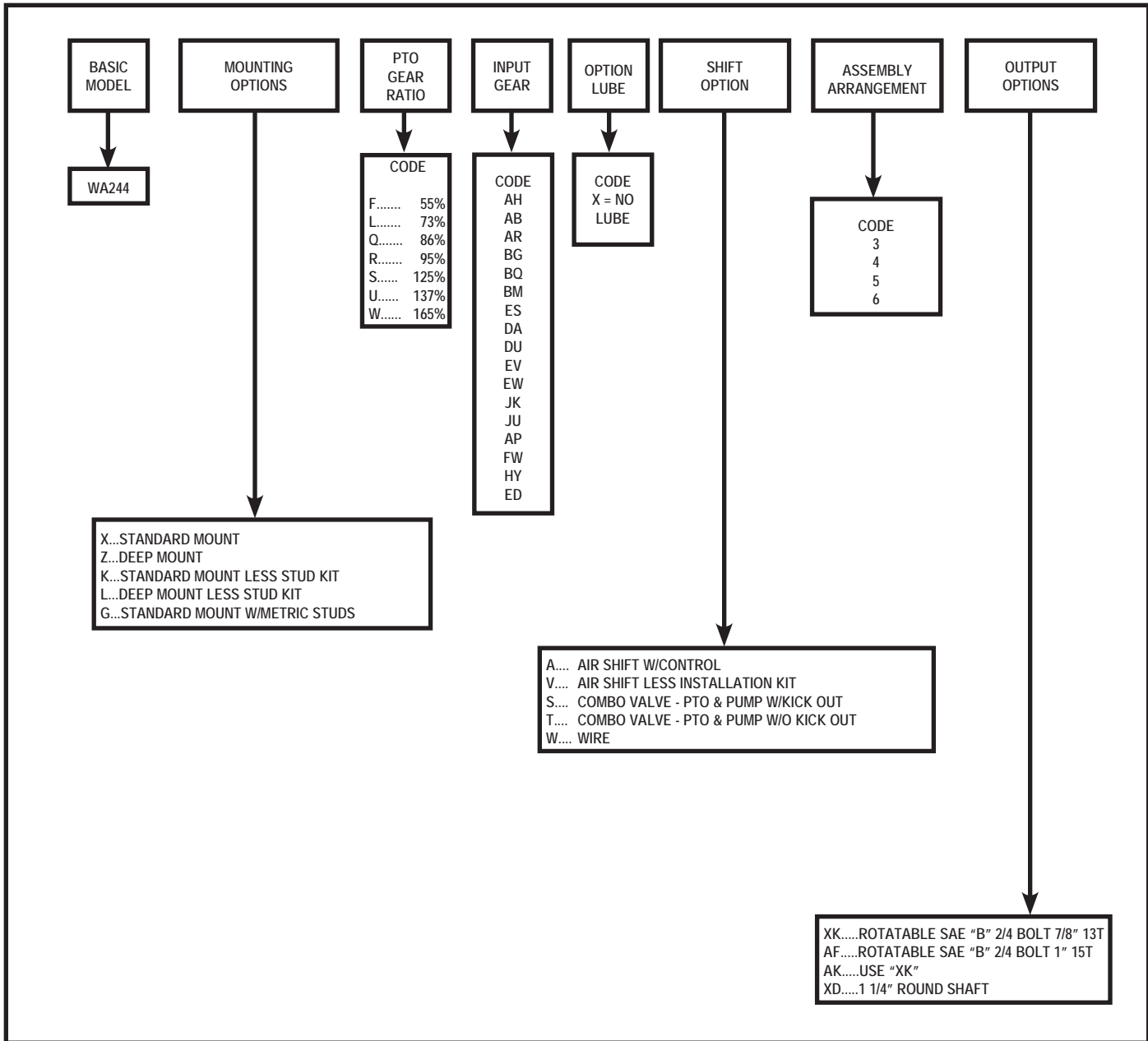


BACK (fig. 2)

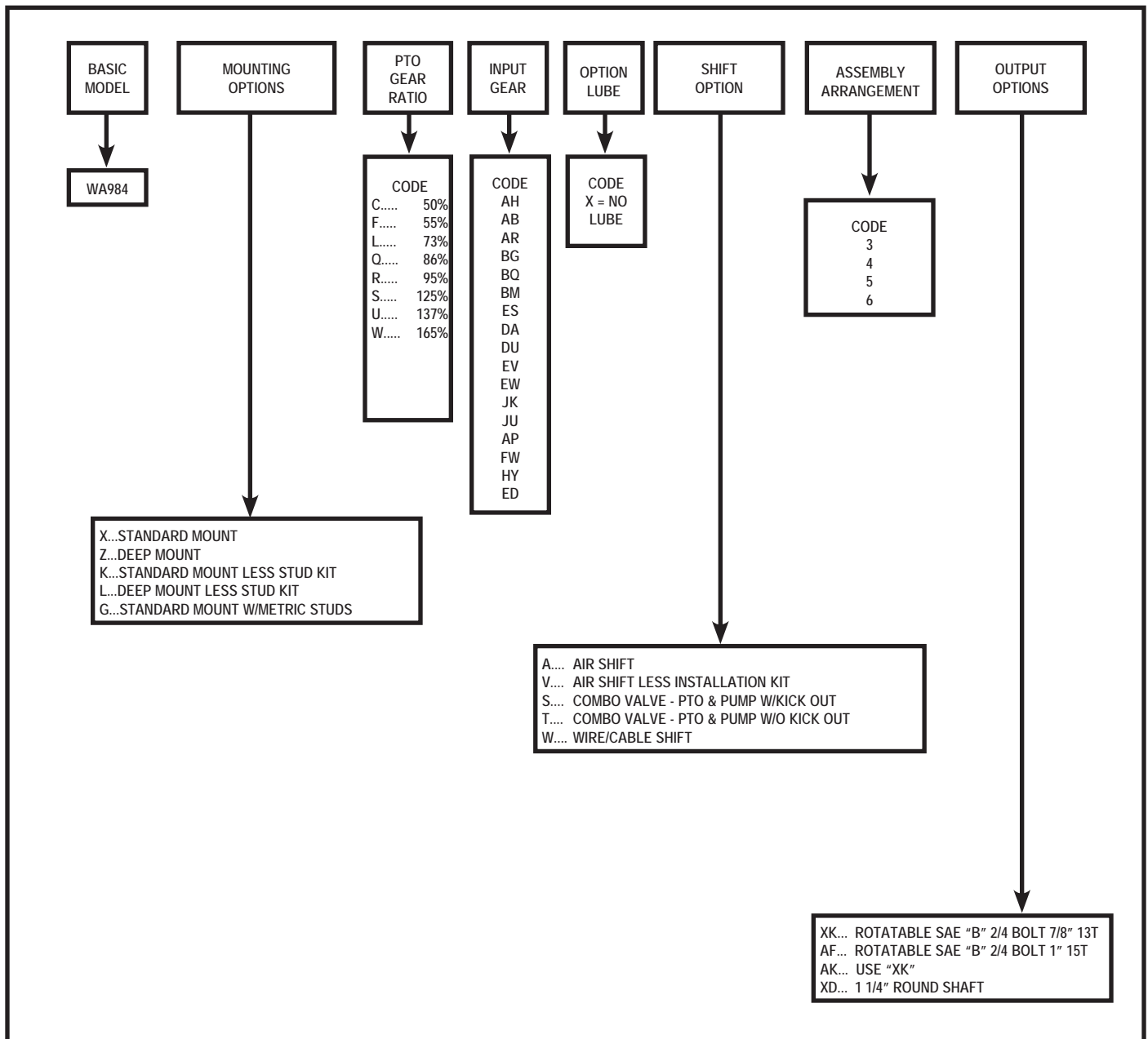


SIDE (fig. 3)

TYPICAL SIX BOLT PTO: WA244-MODEL



TYPICAL EIGHT BOLT PTO: WA984-MODEL

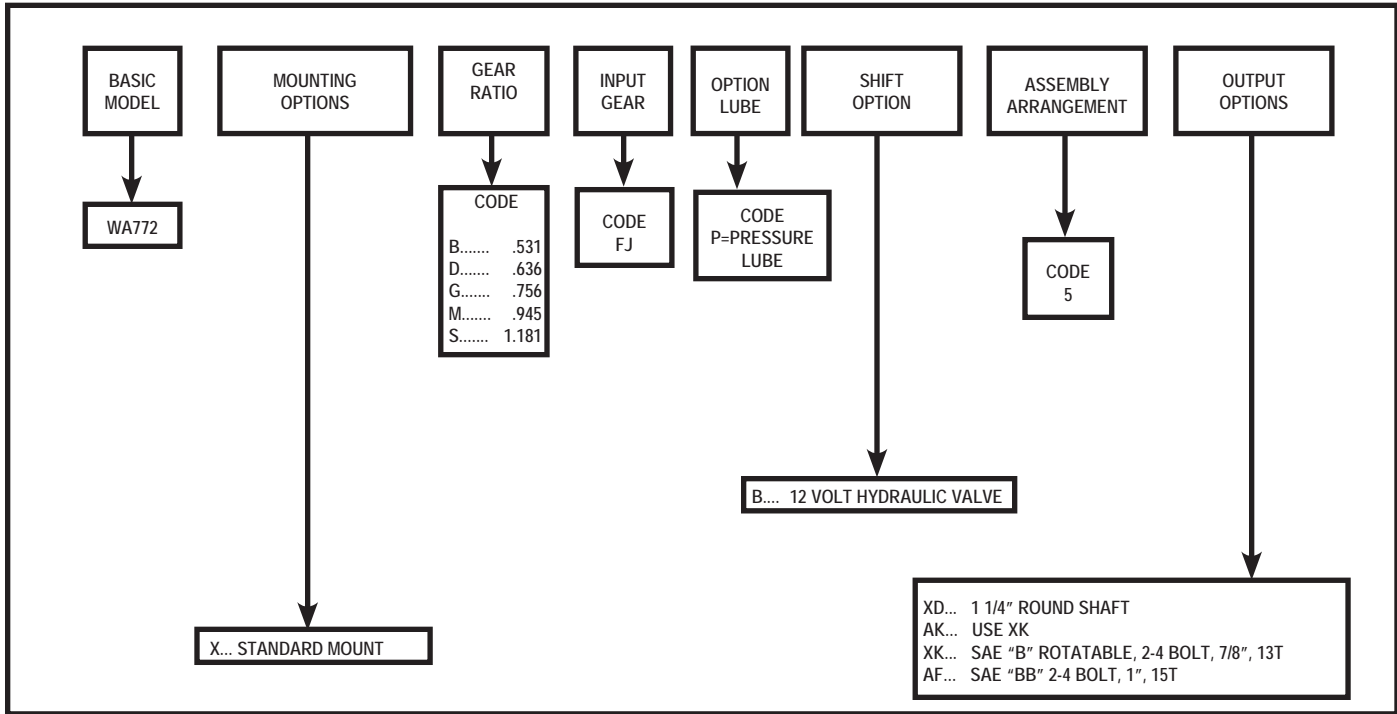


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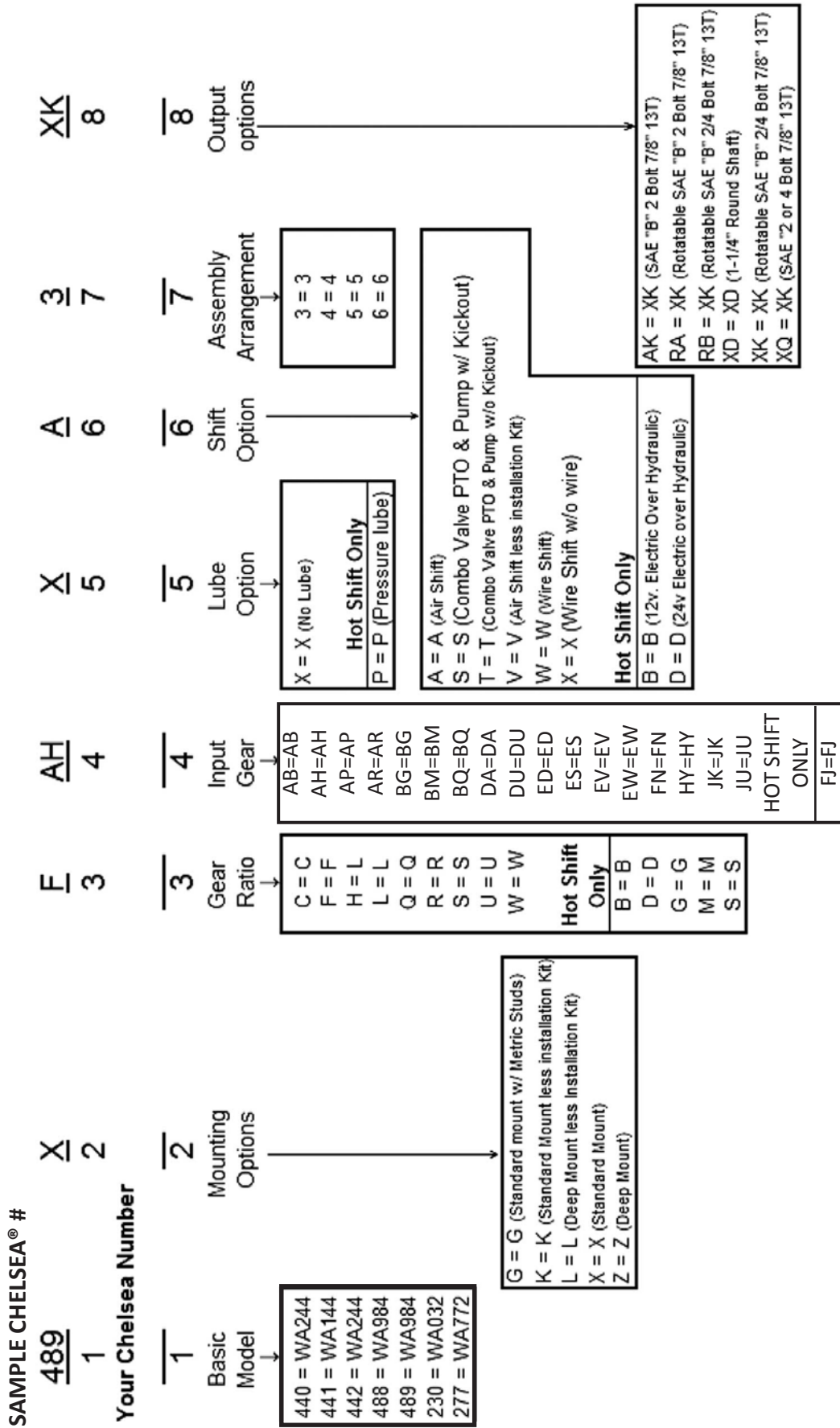
FOR OUR ONLINE INTERCHANGE AND APPLICATION GUIDE.

TEN COLT CLUTCH SHIFT PTO: WA772-MODEL



800.934.2727

CHELSEA® TO WORLD AMERICAN® INTERCHANGE



World American® Part Number = 1 2 3 4 5 6 7 8

MUNCIE® TO WORLD AMERICAN® INTERCHANGE

Sample P.T.O Number

CS20 S A10 05 H 3 K P
 1 2 3* 4* 5 6 7 8*

Your P.T.O Number

1	2	3	4	5	6	7	8
Basic Model	Mounting Options	Input Gear	Gear Ratio	Shift Option	Assembly Arrangement	Output options	Lube Option
<div style="border: 1px solid black; padding: 2px;"> TG6 = WA244 TG8 = WA984 CS6 = WA032 CS20 = WA772 </div>	<div style="border: 1px solid black; padding: 2px;"> B = G (Standard mount w/ Metric Studs) D = Z (Deep Mount) L = L (Less Stud Kit) S = X (Standard Mount) </div>	<div style="border: 1px solid black; padding: 2px;"> C70=BVI F11=EV F61=EW F63=ES F70=JK F75=DU G73-BQ M65=DA S60=AR S61=AP S70=BG S71=FN U57=AB U68=AH Z92=HY Z98=ED HOT SHIFT ONLY A10=FJ </div>	<div style="border: 1px solid black; padding: 2px;"> 05 = C 06 = F 07 = L 08 = L 09 = Q 10 = R 12 = S 14 = U 17 = T </div>	<div style="border: 1px solid black; padding: 2px;"> A = A (Air Shift w/ installation kit) C = W (Wire Shift) L = L (Lever Shift) M = M (Constant Mesh) P = V (Air Shift less installation Kit) HOT SHIFT ONLY H = B (Electric Over Hydraulic) </div>	<div style="border: 1px solid black; padding: 2px;"> 1 = 3 2 = 4 3 = 5 4 = 6 </div>	<div style="border: 1px solid black; padding: 2px;"> B = XD (1-1/4" Round Shaft) K = XK (Rotatable SAE "B" 2/4 Bolt 7/8" 13T) S = XK (SAE "B" 2 Bolt 7/8" 13T) </div>	<div style="border: 1px solid black; padding: 2px;"> X = X (No Lube) P = P (Pressure lube) Hot Shift Only </div>

World American® Part Number =

1 2 4* 3* 8* 5 6 7

* Be Aware of numbering Sequence

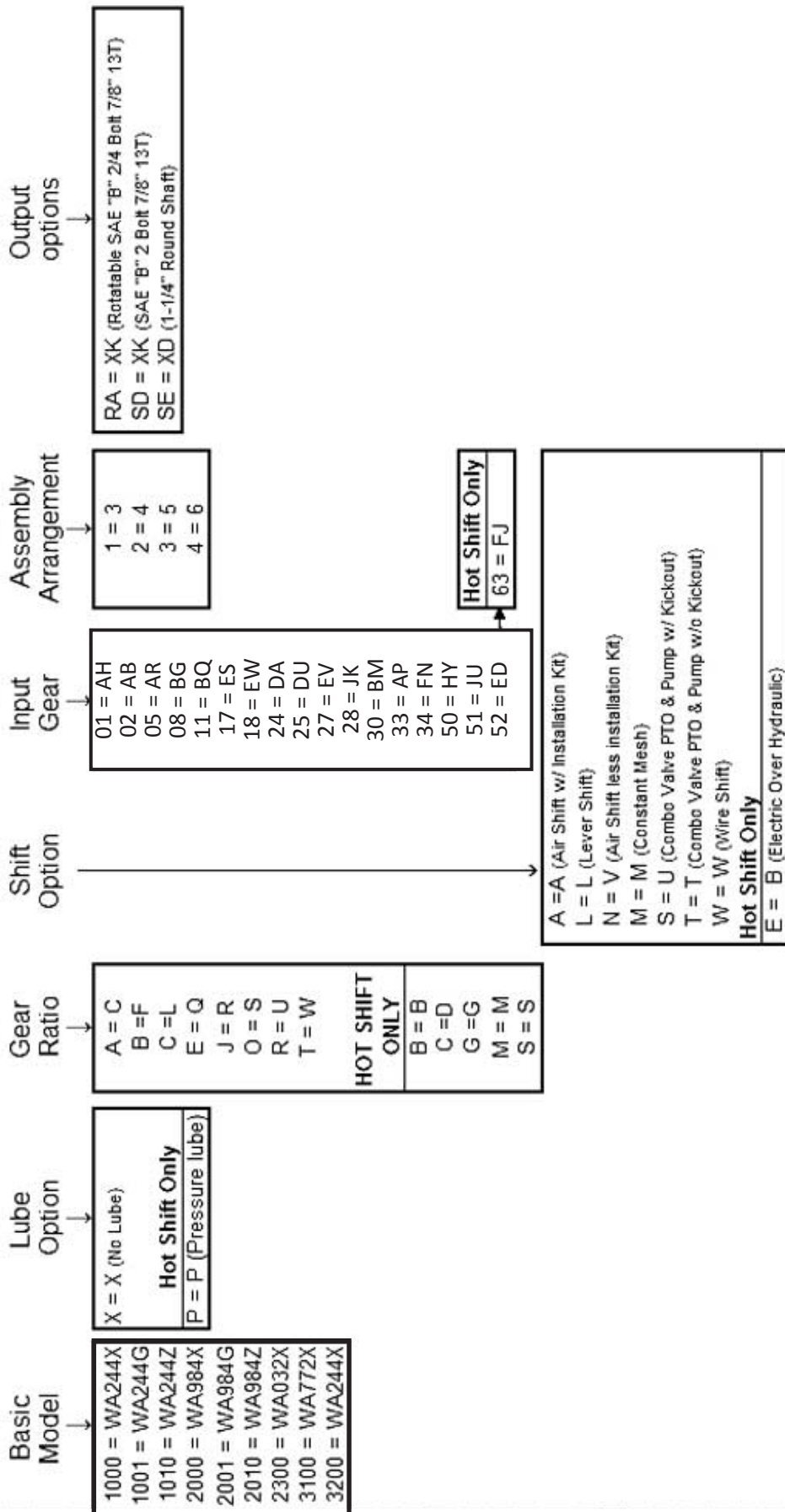
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Sample P.T.O Number

1000 X A 01 1 RA
 1 2 4 5 6 7

Your P.T.O Number

1 2 3 4 5 6 7

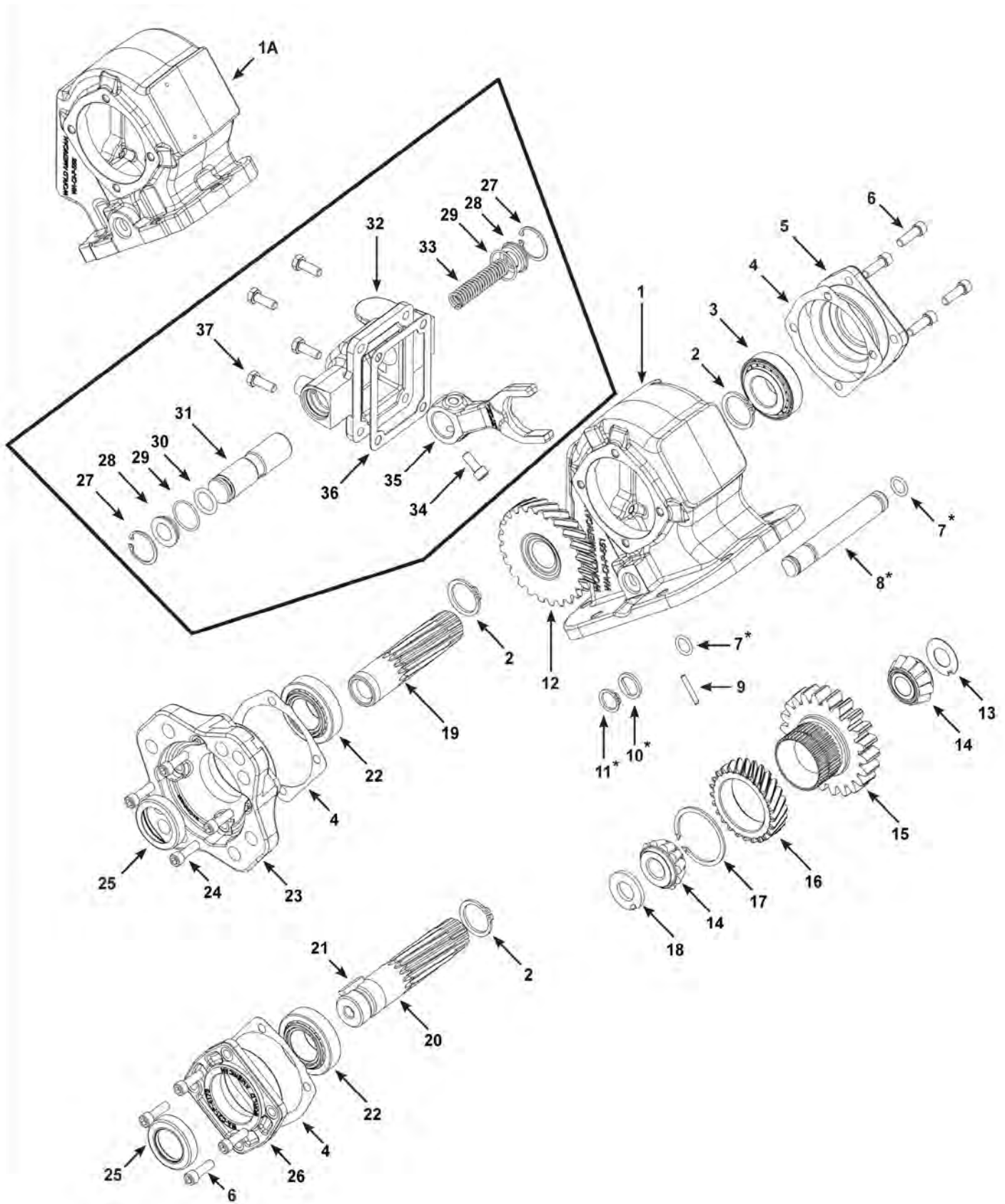


World American® Part Number =

13 1 2 3 4 5 6 7

* Be Aware of numbering Sequence

ALSO AVAILABLE AT WWW.WORLDAMERICAN.COM



ITEM#	WA PART#	DESCRIPTION	QTY.
1	WA1P552X	8 Bolt Standard Mount Housing	1
1A	WA1P557X	6 Bolt standard Mount Housing	1
N.I.	WA1P558X	6 Bolt Deep Mount Housing	1
N.I.	WA1P562X	8 Bolt Deep Mount Housing	1
2	WA378391	Snap Ring	2
3	550532	Bearing	1
4	WA22P24-1	End Cover Gasket	CHART 1
5	WA328274X	End Cover	1
6	WA378430-10	Cap Bolts	8
7*	WA28P191	O-ring	2
8*	WA9P88	Idler Shaft	1
9	WA500597-16	Dowel Pin	1
10*	WA28P99	D Washer	1
11*	WA378000	Snap Ring	1
12	See Chart 3	Lower Ratio Gear	CHART 3
13	WA31P102	Thrust Washer	1
14	550439	Bearing	2
15	See Below list	Input Gear	see below
16	See Gear Chart 3	Upper Ratio Gear	CHART 3
17	See Gear Chart 3	Snap Ring	CHART 3
18	WA14P73-1	Washer	CHART 2
19	WA3P282	Output Shaft XK	1
20	WA3P202	Output Shaft XD	1
21	WA500007-29	Woodruff Key	1
22	550397	Bearing	1
23	WA328333X	Direct Mount XK Flange	1
24	WA378430-8	"XK" Flange Mounting Bolts	4
25	WA28P216	Seal	1
26	WA328273X	Remote Mount XD cover	1
27-37	WA902299-3/6	Air Shift Cover - Position 3 & 6	1
N.I.	WA902300-4/5	Air Shift Cover - Position 4 & 5	1
N.I.	WA329119-1X	Wire Shift Cover for ratios Q,W,X positions 3 & 6	1
N.I.	WA329119-2X	Wire Shift Cover for ratios Q,W,X positions 4 & 5	1
N.I.	WA329121-1X	Wire Shift Cover for ratios F,L,R,S,U positions 3 & 6	1
N.I.	WA329121-2X	Wire Shift Cover for ratios F,L,R,S,U positions 4 & 5	1
36	WA35P8	Top Cover Gasket	1
37	WA378430-9	Top Cover Bolts	4

*INCLUDED WITH IDLER PIN.

CHART 1		
GASKET	WA22P24-1	0.01
GASKET	WA22P24-2	0.02
GASKET	WA22P24-3	0.015

CHART 2		
THRUST WASHER	WA14P73-1	.149-.151
THRUST WASHER	WA14P73-2	.152-.154
THRUST WASHER	WA14P73-3	.155-.157
THRUST WASHER	WA14P73-4	.158-.160
THRUST WASHER	WA14P73-5	.161-.163

CHART 3		
RATIO	GEAR	SET
AAH	WA5P1280 WA2P791	WAAAH
BAH	WA5P1418 WA2P833	WABAH
CAH	WA5P1287 WA2P792	WACAH
FAH	WA5P1077 WA2P726	WFAH
L	WA5P964 WA2P727 WA379522	WAL
Q	WA5P965 WA2P559 WA379522	WAQ
R	WA5P1214 WA2P559 WA379522	WAR
S	WA5P966 WA2P637 WA379522	WAS
U	WA5P967 WA2P560 WA379522	WAU
W	WA5P968 WA2P561 WA379522	WAW
X	WA5P969 WA2P728 WA379522	WAX

SOLD IN SETS ONLY.

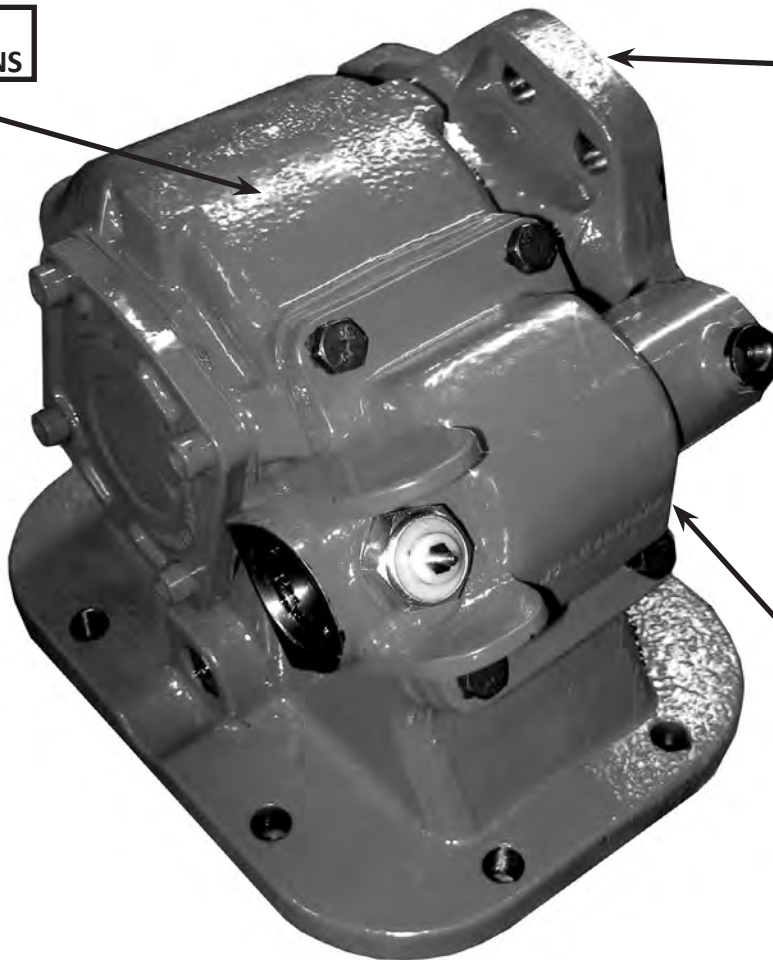
INPUT GEAR LIST			
INPUT GEAR CODE	WA#	INPUT GEAR LIST	CHELSEA® REF #
AH	WAAH	Universal Input Gear for Ratios L,Q,R,S,W	5P1004
FAH	WFAH*	Universal Input Gear for Ratios F	See Chart 3
DA	WADA	Mack Input Gear for ratios L,Q,R,S,W	5P1037
AB	WAAB	Universal Input Gear for Ratios L,Q,R,S,W	5P1001
AR	WAAR	Spicer Input Gear for ratios L,Q,R,S,W	5P1008
AP	WAAP	Spicer Input Gear for ratios L,Q,R,S,W	5P1006
AX	WAAX	Fuller Input Gear for ratios L,Q,R,S,W	5P1010
BG	WABG	Spicer Input Gear for ratios L,Q,R,S,W	5P1015
BQ	WABQ	Chevy & Spicer Input Gear for ratios L,Q,R,S,W	5P1023
ED	WAED	ZF Input Gear for ratios L,Q,R,S,W	5P1056
ES	WAES	Fuller Input Gear for ratios L,Q,R,S,W	5P1059
EV	WAEV	Fuller Input Gear for ratios L,Q,R,S,W	5P1060
FN	WAFN	Spicer Input Gear for ratios L,Q,R,S,W	5P1070
GS	WAGS	ZF Input Gear for ratios L,Q,R,S,W	5P1151
HY	WAHY	ZF Input Gear for ratios L,Q,R,S,W	5P1237
JK	WAJK	Fuller Input Gear for ratios L,Q,R,S,W	5P1261



WORLD AMERICAN BUILD YOUR OWN PTO KIT PROGRAM

**KIT #1
PTO HOUSING OPTIONS**

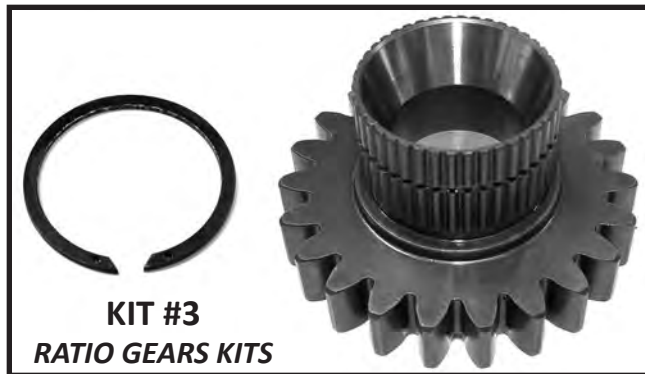
**KIT #5
OUTPUT SHAFT
ASSEMBLY OPTIONS**



**KIT #4
SHIFT COVER
OPTIONS**

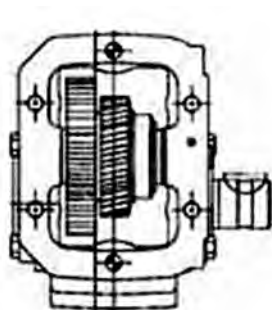


**KIT #2
INPUT GEAR KITS**

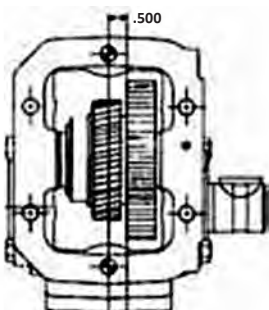


**KIT #3
RATIO GEARS KITS**

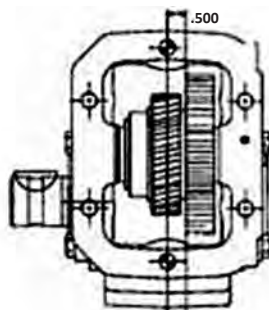
ARRANGEMENT CONFIGURATIONS



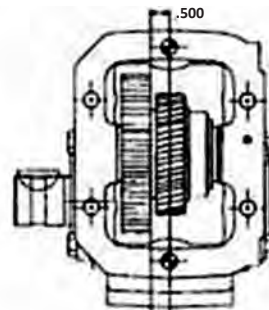
**3
RIGHT, FORWARD**



**4
RIGHT, REAR**



**5
LEFT, FORWARD**



**6
LEFT, REAR**

WORLD AMERICAN BUILD YOUR OWN PTO KIT PROGRAM

Kit #1 PTO Housing Options

Part Number	Description
WA244X	244 series bolt Standard Mount Housing
WA244Z	244 series bolt Deep Mount Housing
WA984X	984 series bolt Standard Mount Housing
WA984Z	984 series bolt Deep Mount Housing

Kit #2 Ratio Gears Options

Part Number	Description
WAFAH*	Ratio .52:1 unigear includes Universal Input Gear AH
WAFDA*	Ratio .52:1 unigear includes Mack Input Gear DA
WAL	Ratio .69:1
WAQ	Ratio .87:1
WAR	Ratio .94:1
WAS	Ratio 1.2:1
WAU	Ratio 1.41:1
WAW	Ratio 1.71:1
WAX	Ratio 2:1

* This is a unigear that is made with the lower ratio gear as a one piece gear sold only in sets with the lower ratio

Kit #3 Input Gear Options

Part Number	Description
WAAB	Universal Input Gear for Ratios L,Q,R,S,W
WAAH	Universal Input Gear for Ratios L,Q,R,S,W
WAAP	Spicer Input Gear for ratios L,Q,R,S,W
WAAR	Spicer Input Gear for ratios L,Q,R,S,W
WAAX	Fuller Input Gear for ratios L,Q,R,S,W
WABG	Spicer Input Gear for ratios L,Q,R,S,W
WABQ	Chevy & Spicer Input Gear for ratios L,Q,R,S,W
WADA	Mack Input Gear for ratios L,Q,R,S,W
WAED	ZF Input Gear for ratios L,Q,R,S,W
WAES	Fuller Input Gear for ratios L,Q,R,S,W
WAEV	Fuller Input Gear for ratios L,Q,R,S,W
WAFAH*	Universal Input Gear for Ratios F
WAFN	Spicer Input Gear for ratios L,Q,R,S,W
WAGS	ZF Input Gear for ratios L,Q,R,S,W
WAHY	ZF Input Gear for ratios L,Q,R,S,W
WAJK	Fuller Input Gear for ratios L,Q,R,S,W

Kit #4 Shift Cover Options

Part Number	Description
WA902299-3/6	Air Shift Cover for Positions 3 and 6
WA902300-4/5	Air Shift Cover for Positions 4 and 5
WA329119-1X	Wire Shift Cover for ratios Q,W,X positions 3 and 6
WA329119-2X	Wire Shift Cover for ratios Q,W,X positions 4 and 5
WA329121-1X	Wire Shift Cover for ratios F,L,R,S,U positions 3 and 6
WA329121-2X	Wire Shift Cover for ratios F,L,R,S,U positions 4 and 5

Kit #5 Output Shaft & Cover Assembly Kits

Part Number	Description
WAXD	7/8" 13 Spline with a 2/4 bolt rotatable "B" flange
WAXK	1.25" round keyed shaft with cover
WAAF	1" 15 spline with a rotatable "BB" flange

CONTROL TOWERS (CONSOLES)



WA600221



WA600222



WA600223

WA#	REF #	DESCRIPTION
WA600221	329219X / K90C	8" TOWER
WA600222	TO - 10	10" TOWER
WA600223	TO - 12	12" TOWER
WA600307		ADAPTOR PLATE FOR SINGLE PTO CONTROL

PTO & DUMP PUMP CONTROL VALVE INSTALLATION KITS



WA#	DESCRIPTION	OEM REF#
WA101X	SINGLE VALVE (PTO ONLY) AIR KIT <i>CONTAINS: HOSE, FITTINGS, VALVE & LED LIGHT</i>	328388-65X



WA#	DESCRIPTION	OEM REF#
WA201X	DUAL VALVE (PTO & DUMP PUMP) AIR KIT WITH KICKOUT <i>CONTAINS: HOSE, FITTINGS, VALVE & LED LIGHT</i>	328388-79X




WA#	DESCRIPTION	OEM REF#
WA202X	DUAL VALVE (PTO & DUMP PUMP) AIR KIT WITHOUT KICKOUT <i>CONTAINS: HOSE, FITTINGS, VALVE & LED LIGHT</i>	328388-72X


REPLACEMENT CAB CONTROL VALVES FOR PTOs & DUMP PUMPS

WA#	DESCRIPTION	REF #
WA118373	SINGLE VALVE ONLY	329214X
WAAV295	DUAL VALVE W/ KICKOUT	K90D / 329358X (DEAD MAN SWITCH)
WAAV295M	DUAL VALVE W/O KICKOUT	329316X

AIR PROTECTION VALVE KIT

	WA#	DESCRIPTION	OEM REF#
	WA9054107	AIR PROTECTION VALVE KIT	378414 118181

PUSH / PULL CABLES

 WA4306-12	WA#	DESCRIPTION	OEM REF#
	WA4306-10	10 FOOT PTO CABLE	328346-10X
	WA4306-12	12 FOOT PTO CABLE	
	WA4306-15	15 FOOT PRO CABLE	328346-15X

CONVERSION KITS

TYPE OF CONVERSION	POSITION	WA#
WIRE TO AIR	3 AND 6	WA902299-1/4
WIRE TO AIR	4 AND 5	WA902300-2/3
AIR TO WIRE	WIRE SHIFT COVER FOR RATIOS Q,W,X, POSITIONS 3 & 6	WA329119-3/6
AIR TO WIRE	WIRE SHIFT COVER FOR RATIOS Q,W,X, POSITIONS 4 & 5	WA329119-4/5
AIR TO WIRE	WIRE SHIFT COVER FOR RATIOS F,L,R,S,U POSITIONS 3 & 6	WA329121-3/6
AIR TO WIRE	WIRE SHIFT COVER FOR RATIOS F,L,R,S,U POSITIONS 4 & 5	WA329121-4/5



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BEARING & SEAL KITS

DESCRIPTION	244 SERIES	984 SERIES
SEAL & GASKET KIT	WA328356-13X	WA328356-50X
BEARING KIT	WA328594-13X	WA328594-13X

POPULAR PTO STUD KITS


PTO TYPE	6-BOLT SERIES	8-BOLT SERIES
STANDARD	WA8170-76X	WA8170-200X
DEEP	WA8170-77X	WA8170-201X
METRIC	WA170-78X	WA170-68X


PTO MOUNTING GASKETS AND SHIMS

THICKNESS	6-BOLT	THICKNESS	8-BOLT
0.010 GASKET	WA6010	0.010 GASKET	WA8010
0.020 GASKET	WA6020	0.020 GASKET	WA8020
0.032 GASKET	WA6032	0.032 GASKET	WA8032
0.062 SHIM	WA6062	0.062 SHIM	WA8062
0.093 SHIM	WA6093	0.093 SHIM	WA8093
0.125 SHIM	WA6125	0.165 SHIM	WA8165
0.140 SHIM	WA6140	0.190 SHIM	WA8190
0.165 SHIM	WA6165	0.248 SHIM	WA8248
0.187 SHIM	WA6187	0.295 SHIM	WA8295
0.200 SHIM	WA6200	0.375 SHIM	WA8375
0.240 SHIM	WA6240	0.600 SHIM	WA8600
0.270 SHIM	WA6270	0.700 SHIM	WA8700
0.300 SHIM	WA6300	0.1005 SHIM	WA81005
0.350 SHIM	WA6350		
0.400 SHIM	WA6400		
0.450 SHIM	WA6450		
0.500 SHIM	WA6500		
0.550 SHIM	WA6550		
0.562 SHIM	WA6562		
0.800 SHIM	WA6800		


REPLACEMENT INDICATOR LIGHT PARTS

	WA#	DESCRIPTION
	WAI-750	INDICATOR LIGHT


	WA#	DESCRIPTION
	WASW-003	SENDING UNIT SENSOR

	WA#	DESCRIPTION
	WASWK-699	REPLACEMENT WIRING HARNESS

PTO SHAFT ASSY

 9553SF	WA#	DESCRIPTION
	WA10270-5729	NON-WELDED 1000 SERIES COMPLETE PTO SHAFT ASSY. DANA® REF #: 10270-5729
	9553SF	NON-WELDED 1310 SERIES COMPLETE PTO SHAFT ASSY. IHC® REF #: 2A29553SF

U-JOINTS FOR PTO


 5-153XR	WA#	DESCRIPTION
	5-153XR	PTO U-JOINT 1310 SERIES
	5-170XR	PTO U-JOINT 1000 SERIES

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PTO YOKES

	WA#	REPLACES MERITOR®#	SERIES	DESCRIPTION
	2-4-473R	131N4-473	1310	1" ROUND
	2-4-503R	131N4-503	1310	1 1/8" ROUND
	2-4-533R	131N4-533	1310	1 1/4" ROUND
	10-3-18KXR	10N3-18X	1000	1 1/4" - 16 SPLINE
	10-3-22XR	10N3-22X	1000	7/8" SQUARE
	10-3-332XR	10N3-32X	1000	1 1/8" HEX
	10-3-83XR	10N3-83X	1000	1" ROUND
	10-3-163XR	10N3-163X	1000	1 1/4" ROUND
	10-4-12R	10N4-12	1000	7/8" SQUARE
	10-4-23R	10N4-23	1000	3/4" ROUND
	10-4-32R	10N4-32	1000	1 1/8" HEX
	10-4-63R	10N4-63	1000	7/8" ROUND
	10-4-93R	10N4-93	1000	1" ROUND
	10-4-103R	10N4-103	1000	1 1/8" ROUND
	10-4-113R	10N4-113	1000	1 1/8" ROUND
	10-4-123R	10N4-123	1000	1 1/4" ROUND
	10-4-183R	10N4-183	1000	1 1/4" ROUND
	10-4-193R	10N4-193	1000	1 1/4" ROUND
	10-4-282R	10N4-282	1000	1 1/4" HEX
	10-4-22R	10N4-22	1000	1" ROUND

SLIP YOKES FOR PTO

	WA#	REPLACES MERITOR®#	DESCRIPTION
	2-3-8001XKXR	131N-3-8001KX	SLIP YOKE 1310 SERIES
	2-3-8021KXR	131N-3-8021KX	SLIP YOKE 1310 SERIES
	2-4-503R	131N-4-503	END YOKE 1310 PTO
	2-28-1757R	131N-28-1759	WELD YOKE 1310 SERIES
	W2-40-1701R	131N-40-1701	SPLINED STUB END 1310 SERIES

HYDRAULIC



SECTION

HYDRAULIC DUMP PUMPS

C-SERIES

WA101-25



WA102-25L



WA#	DESCRIPTION
WAP101-25	DUMP PUMP - EITHER SHAFT ROTATION, 1" DIAMETER KEYPED SHAFT, 49 GPM FLOW @ 1800 RPM - MAX. RPM 2400
WAP101-25AS	DUMP PUMP - EITHER SHAFT ROTATION, 1" DIAMETER KEYPED SHAFT, 49 GPM FLOW @ 1800 RPM - MAX. RPM 2400 WITH AIR SHIFT
WAP102-25L	DUMP PUMP - FACTORY SET ROTATION, 7/8" - 13 TOOTH SPLINE SHAFT, 49 GPM FLOW @ 1800 RPM - MAX. RPM 2400 - EXTENDED STUDS FOR SUPPORT BRACKET
WAP102-25R	DUMP PUMP - RIGHT HAND ROTATION, 7/8" - 13 TOOTH SPLINE SHAFT, 49 GPM FLOW @ 1800 RPM - MAX. RPM 2400 - EXTENDED STUDS FOR SUPPORT BRACKET
WAP102-25LAS	DUMP PUMP - FACTORY SET ROTATION, 7/8" - 13 TOOTH SPLINE SHAFT, 49 GPM FLOW @ 1800 RPM - MAX. RPM 2400 - EXTENDED STUDS FOR SUPPORT BRACKET WITH AIR SHAFT
WAP102-25RAS	DUMP PUMP - RIGHT HAND ROTATION, 7/8" - 13 TOOTH SPLINE SHAFT, 49 GPM FLOW @ 1800 RPM - MAX. RPM 2400 - EXTENDED STUDS FOR SUPPORT BRACKET WITH AIR SHAFT

G-SERIES

WA101G



WA102G



WA#	DESCRIPTION
WA101G	DUMP PUMP G101 - 3 PC. CAST IRON DESIGN, HIGH PRESSURE BALANCED THRUST PLATES, HEAVY DUTY ROLLER BEARINGS, 2 OR 3 LINE HOOK-UP - AVAILABLE WITH CLOCKWISE OR COUNTER CLOCKWISE SHAFT ROTATION - 1" DIAMETER SHAFTS, 15 GPM AT 1000 RPM TO 37 GPM AT 2400 RPM
WAP102G	DUMP PUMP G102 - 3 PC. CAST IRON DESIGN, LEFT HAND ROTATION, HIGH PRESSURE SHAFT SEALS, FACTORY SET 2000 PSI, RELIEF WITH LOAD CHECK, PRESSURE BALANCED THRUST PLATES, HEAVY DUTY ROLLER BEARINGS, 2 OR 3 LINE HOOK-UP, 7/8" 13 TOOTH SPLINE SHAFT, 15 GPM AT 1000 RPM TO 37 GPM AT 2400 RPM
WA101GAS	DUMP PUMP G101 - 3 PC. CAST IRON DESIGN, HIGH PRESSURE BALANCED THRUST PLATES, HEAVY DUTY ROLLER BEARINGS, 2 OR 3 LINE HOOK-UP - AVAILABLE WITH CLOCKWISE OR COUNTER CLOCKWISE SHAFT ROTATION - 1" DIAMETER SHAFTS, 15 GPM AT 1000 RPM TO 37 GPM AT 2400 RPM WITH AIR SHIFT
WAP102GAS	DUMP PUMP G102 - 3 PC. CAST IRON DESIGN, LEFT HAND ROTATION, HIGH PRESSURE SHAFT SEALS, FACTORY SET 2000 PSI, RELIEF WITH LOAD CHECK, PRESSURE BALANCED THRUST PLATES, HEAVY DUTY ROLLER BEARINGS, 2 OR 3 LINE HOOK-UP, 7/8" 13 TOOTH SPLINE SHAFT, 15 GPM AT 1000 RPM TO 37 GPM AT 2400 RPM WITH AIR SHIFT
WA102G-20R	DUMP PUMP G102 - 3 PC. CAST IRON DESIGN, RIGHT HAND ROTATION, HIGH PRESSURE SHAFT SEALS, FACTORY SET 2000 PSI, RELIEF WITH LOAD CHECK, PRESSURE BALANCED THRUST PLATES, HEAVY DUTY ROLLER BEARINGS, 2 OR 3 LINE HOOK-UP, 7/8" 13 TOOTH SPLINE SHAFT, 15 GPM AT 1000 RPM TO 37 GPM AT 2400 RPM

NOTE 1: ALL DUMP PUMPS CAN BE USED WITH 2 OR 3 LINE INSTALLATIONS.

NOTE 2: IT IS RECOMMENDED THAT A SUPPORT BRACKET (SEE PAGE 34) BE USED WITH ALL DUMP PUMPS.

WAK20B SERIES UNIVERSALREPLACEMENT GEAR PUMPS

FEATURES

- Replace all Commercial® P20 and Permco® 2100 Series Pumps
- Direct Replacement for the Muncie® MK Series Pumps
- Bi-rotational
- Handles Pressures up to 3000 PSI
- Dual Porting Side and Rear
- Lower Stocking Quantities

WAK20B

Series

↓

WAK20B - 2/4 Bolt, "B" Mounting Flange

17
GPM
(AT 1000 RPM)

GPM/LPM	
WAK***4	(15)
WAK***6	(23)
WAK***8	(30)
WAK***11	(42)
WAK***13	(49)
WAK***15	(57)
WAK***17	(64)

A
Shaft

WAK*****A = 7/8" 13 Splines
WAK*****K = 1" Round Keyed

N
Porting

WAK***4*N = 1/2" NPT Side Porting & 1" NPT Rear Porting
WAK***6*N = 3/4" NPT Side Porting & 1" NPT Rear Porting
WAK***8*N = 1" NPT Side Porting & 1" NPT Rear Porting
WAK***11*N = 1" NPT Side Porting & 1" NPT Rear Porting
WAK***13*N = 1-1/4" NPT Side Porting & 1" NPT Rear Porting
WAK***15*N = 1-1/4" NPT Side Porting & 1" NPT Rear Porting
WAK***17*N = 1-1/4" NPT Side Porting & 1" NPT Rear Porting
WAK***4*O = 5/8" ORB Side Porting & 1" ORB Rear Porting
WAK***6*O = 3/4" ORB Side Porting & 1" ORB Rear Porting
WAK***8*O = 1" ORB Side Porting & 1" ORB Rear Porting
WAK***11*O = 1" ORB Side Porting & 1" ORB Rear Porting
WAK***13*O = 1-1/4" ORB Side Porting & 1" ORB Rear Porting
WAK***15*O = 1-1/4" ORB Side Porting & 1" ORB Rear Porting
WAK***17*O = 1-1/4" ORB Side Porting & 1" ORB Rear Porting

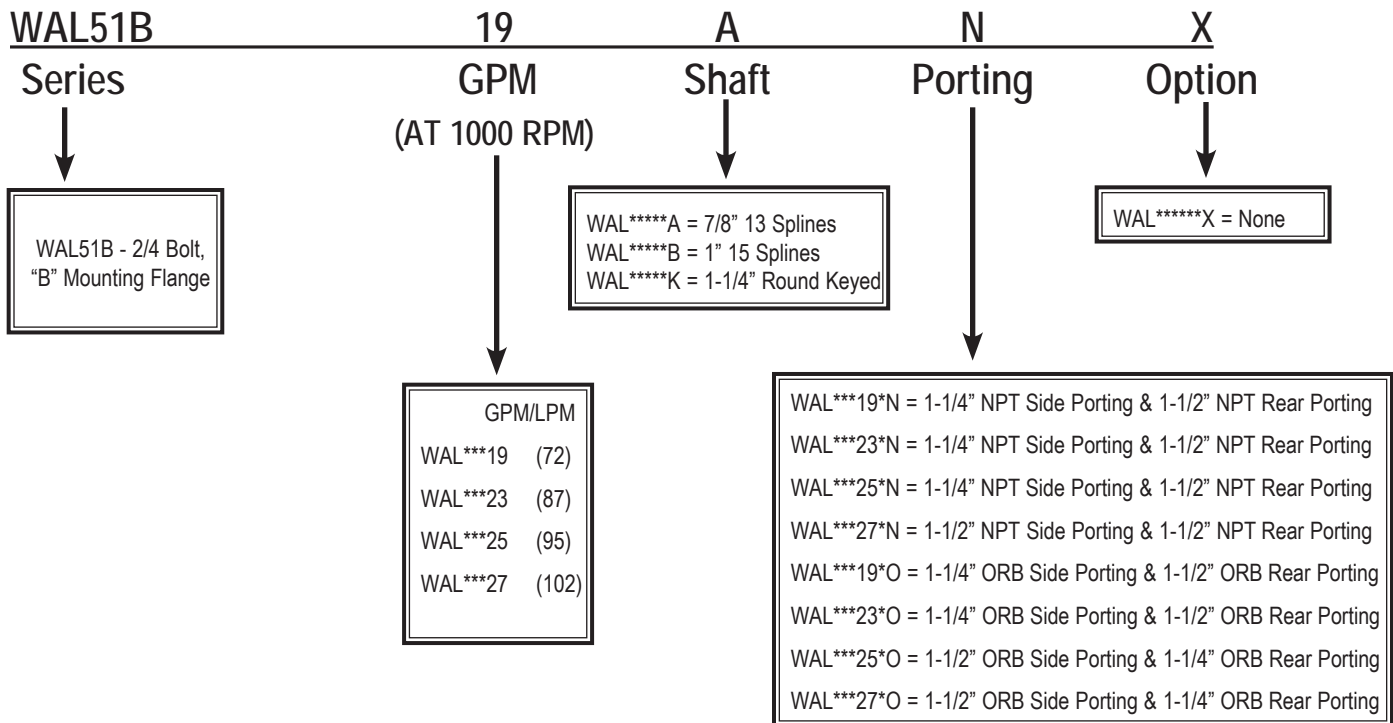
X
Option

WAK*****X = None

WAL51B Series Universal Replacement Gear Pumps

FEATURES

- Replace all Commercial® P50, P51 and Perco® 5100 Series Pumps
- Direct Replacement for the Muncie® ML Series Pumps
- Bi-rotational
- Handles Pressures up to 3000 PSI
- Handles Speeds up to 3600 RPM
- Dual Porting Side and Rear
- HiFlow Body Design for increased flow and performance
- Available with Integral Adjustable Relief Valve



MUNCIE® TO WORLD AMERICAN® PUMP CROSSOVER

REPLACES MUNCIE®	WORLD AMERICAN®
PK1-04-02-BPBB	WAK20B4ANX
PK1-04-09-BPBB	WAK20B4KNX
PK1-06-02-BPBB	WAK20B6ANX
PK1-06-09-BPBB	WAK20B6KNX
PK1-08-02-BPBB	WAK20B8ANX
PK1-08-09-BPBB	WAK20B8KNX
PK1-11-02-BPBB	WAK20B11ANX
PK1-11-09-BPBB	WAK20B11KNX
PK1-13-02-BPBB	WAK20B13ANX
PK1-13-09-BPBB	WAK20B13KNX
PK1-15-02-BPBB	WAK20B15ANX
PK1-15-09-BPBB	WAK20B15KNX
PK1-17-02-BPBB	WAK20B17ANX
PK1-17-09-BPBB	WAK20B17KNX
PL1-19-02-BPBB	WAL51B-19ANX
PL1-19-07-BPBB	WAL51B-19KNX
PL1-23-02-BPBB	WAL51B-23ANX
PL1-23-07-BPBB	WAL51B-23KNX
PL1-25-02-BPBB	WAL51B-25ANX
PL1-25-07-BPBB	WAL51B-25KNX
PL1-27-02-BPBB	WAL51B-27ANX
PL1-27-07-BPBB	WAL51B-27KNX

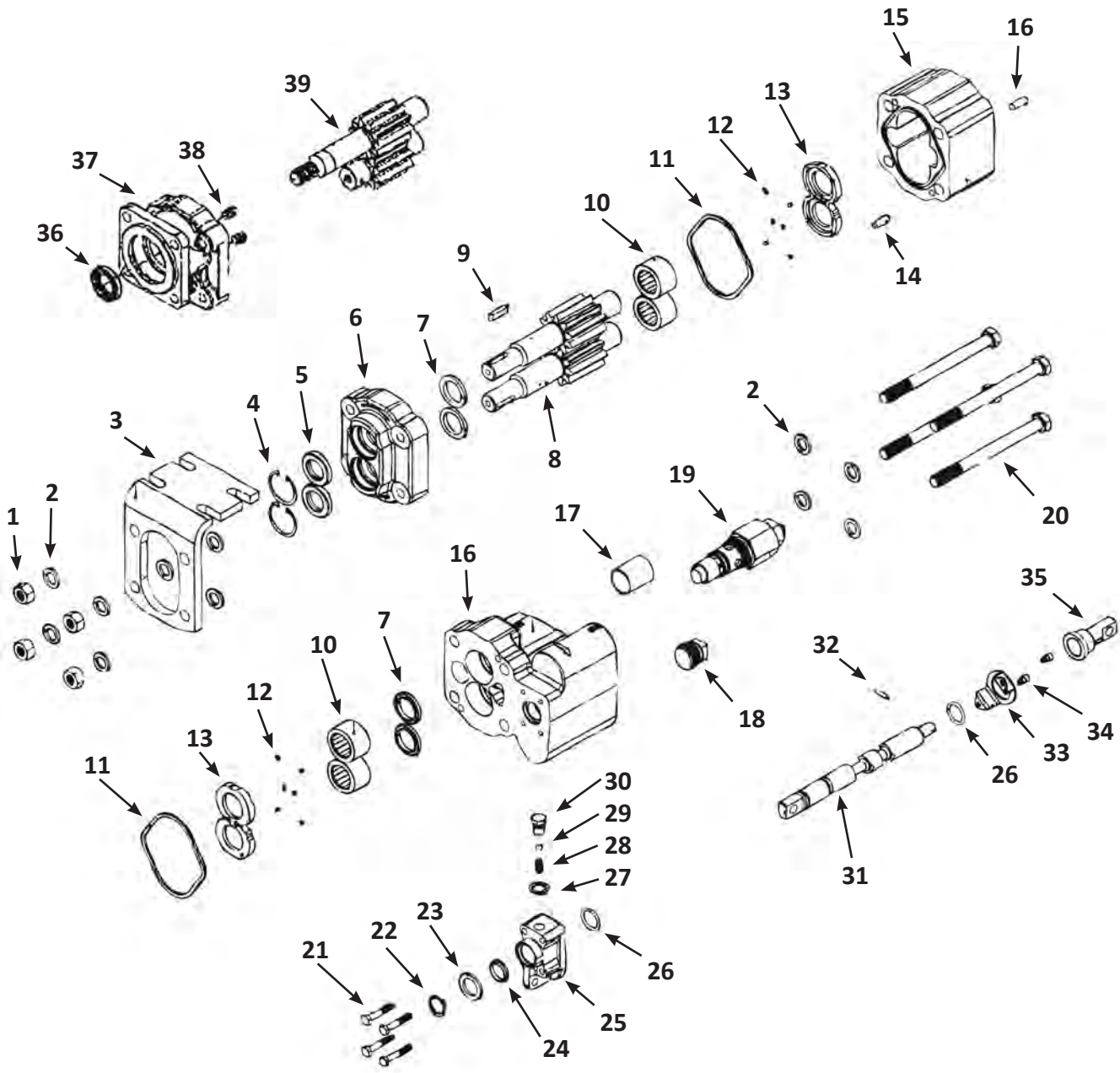


WAK20B-15KNX



WAL51B-27ANX

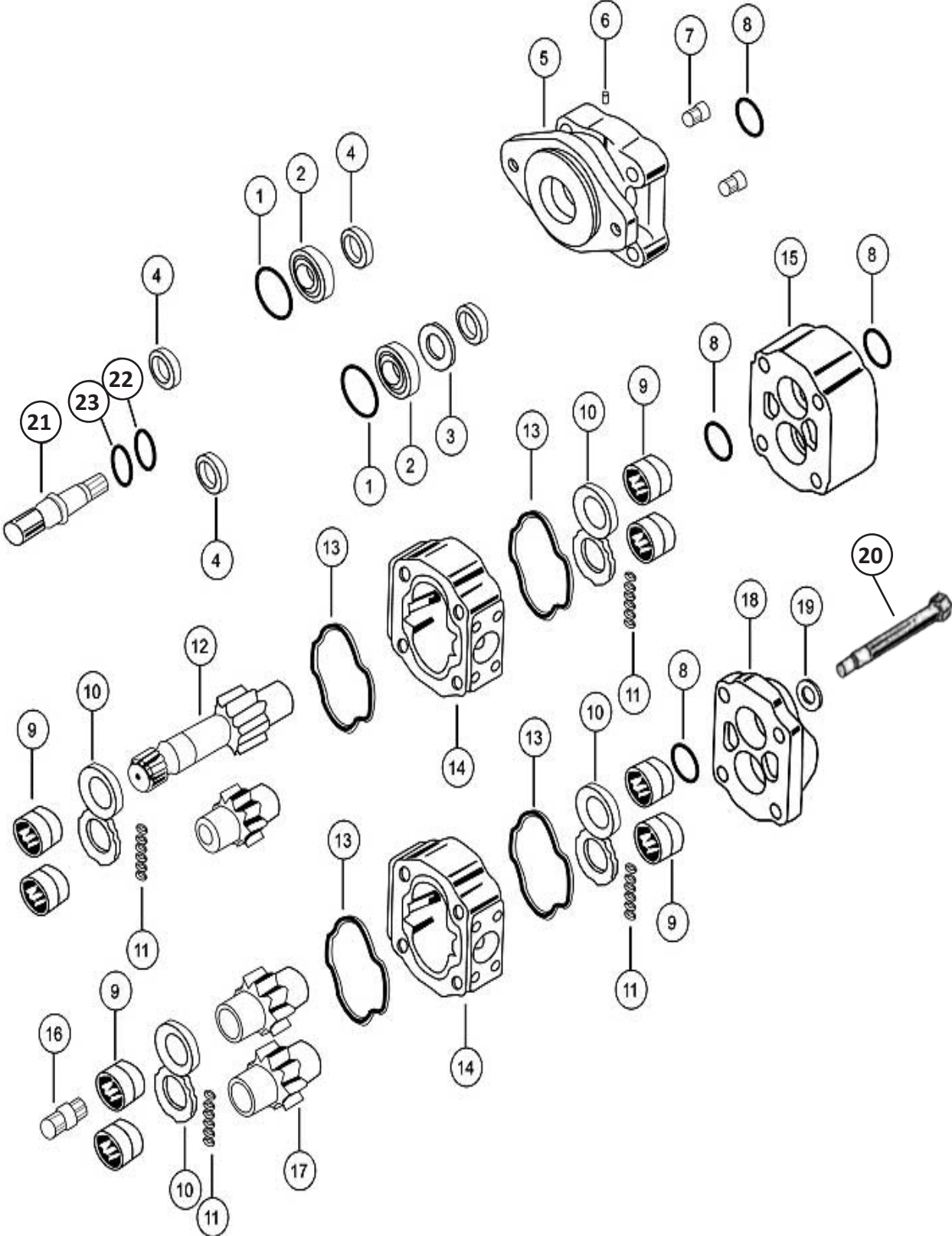
WA101 / WA102 DUMP PUMP



WA101 / WA102 DUMP PUMP

#	WA #	QTY WA101	QTY WA102	DESCRIPTION	ALTERNATIVE#
1	WA391-1451-076	4		HEX NUT	391-1451-076
2	WA391-3784-028	4		WASHER	391-3784-028
3	WAPBK-1001 1			SUPPORT BRACKET (optional)	314-0100-005
4	WA391-2681-493	2	1	SNAP RING	391-2681-493
5	WA391-2883-096	2	1	LIP SEAL	391-2883-096
6	WA314-5039-201	1	1	SHAFT END COVER	314-5039-201
7	WA391-2585-009	4	2	RING SEAL	391-2585-009
8	WA314-29XX-640	2		GEAR SET	314-29XX-640
9	WA391-1781-021	1		SHAFT KEY	391-1781-021
10	WA391-0381-059	4	4	ROLLER BEARINGS	391-0381-059
11	WA391-2884-021	2	2	GEAR HOUSING GASKET	391-2884-021
12	WA391-2882-050	12	12	POCKET SEALS	391-2882-050
13	WA391-2185-012	2	2	THRUST PLATES	391-2185-012
14	WA391-2082-032	2	2	HOUSING DOWEL PINS	391-2082-032
15	WA314-80XX-100	1	1	GEAR HOUSING	314-80XX-100
16a	WA314-3910-903	1		PORT END COVER	314-3910-903
16b	WA314-3910-904		1	PORT END COVER	314-3910-904
17	WA391-3283-052	1	1	OPTIONAL SLEEVE	391-3283-052
18	WA391-2282-006	1	1	PIPE PLUG	391-2282-006
19	WA355-9001-067	1	1	RELIEF VALVE	355-9001-067
20	WA391-1401-110	4	4	BOLTS	391-1401-110
21	WA391-1401-082		4	CAP SCREWS	391-1401-082
22	WA391-2688-003	1	1	SNAP RING	391-2688-003
23	WA391-3782-126	1	1	RETAINER RING	391-3782-126
24	WA391-2883-147	1	1	WIPER RING	391-2883-147
25	WA314-0100-003	1	1	DETENT CAP	314-0100-003
26	WA391-2881-103	1	1	O RING	391-2881-103
27	WA391-3788-002	1	1	LOCK WASHER	391-3788-002
28	WA391-3581-383	1	1	DETENT SPRING	391-3581-383
29	WA391-0282-009	1	1	DETENT BALL	391-0282-009
30	WA391-2583-079	1	1	DETENT RETAINER	391-2583-079
31	WA314-4000-001	1	1	SPOOL VALVE	314-4000-001
32	WA391-2085-009	1	1	PIN	391-2085-009
33	WA391-0981-010	1	1	SPOOL BRACKET	391-0981-010
34	WA391-1402-063	2	2	SPCKET CAP SCREW	391-1402-063
35	WA391-1881-073	1	1	SPOOL END CAP	391-1881-073
36	WA391-2883-115		1	LIP SEAL	391-2883-115
37	WA313-5033-201		1	SHAFT END COVER	313-5033-201
38	WA391-3681-001		2	CHECK VALVES	391-3681-001
39	WA314-29XX-130		1	DRIVE GEAR	314-29XX-130

P20 SERIES



P20 SERIES

#	WA #	DESCRIPTION	ALTERNATIVE #
1	WA391-2686-063	SHAFT BEARING SNAP RING	X05-03-56200, 391-2686-063
2a	WA391-3383-069	BEARING SPACER (IN PLACE OF SHAFT BEARING)	A30-92-38520, 391-3383-069
2b	WA391-0381-040	INPUT SHAFT BEARING	X03-16-12552, 391-0381-040
3	WA391-3381-040	MOTOR SEAL RETAINER USED WITH SHAFT BEARING OR SPACER	A20-60-10000, 391-3381-040
4a	WA391-2883-107	PUMP LIP SEAL FOR CONTINENTAL SHAFT ONLY	X89-11-02508, 391-2883-107
4b	WA391-2883-126	MOTOR LIP SEAL FOR CONTINENTAL SHAFT ONLY	X83-36-02509, 391-2883-126
4c	WA391-2883-058	PUMP LIP SEAL FOR SHAFT END COVER	X83-11-02708, 391-2883-058
4d	WA391-2883-119	MOTOR LIP SEAL	X83-36-02709, 391-2883-119
5a	WA308-5043-201	6 BOLT ROUND WITH 2.625" OR 66.67 mm PILOT PUMP S.E.C. TYPE 05	A20-10-21650, 308-5043-201
5b	WA308-5016-203	PAD PILOT PUMP TYPE 2 S.E.C. TYPE 10	A20-10-22100, 308-5016-203
5c	WA308-5036-201	4 BOLT CLOVERLEAF PILOT TYPE 2 PUMP S.E.C. TYPE 27	A20-10-22460, 308-5036-201
5d	WA308-5030-201	4 BOLT B PILOT PUMP S.E.C. TYPE 42 (4" or 101.6 mm pilot)	A20-10-21420, 308-5030-201
5e	WA308-5053-202	2/4 BOLT B PILOT PUMP S.E.C. TYPE 46 (4" or 101.6 mm pilot)	A20-10-21320, 308-5053-202
5f	WA308-5020-204	2 BOLT A PILOT PUMP S.E.C. TYPE 94 (3 1/4" or 82.55 mm pilot)	A20-10-21210, 308-5020-204
5g	WA308-5020-201	2 BOLT B PILOT PUMP S.E.C. TYPE 97 (4" or 101.6 mm pilot)	A20-10-21220, 308-5020-201
5h	WA308-5029-205	2 BOLT B PILOT TYPE 2 PUMP S.E.C. TYPE 96 (4" or 101.6 mm pilot)	A20-10-22220, 308-5029-205
5i	WA308-5043-401	6 BOLT ROUND WITH 2.625" or 66.67 mm PILOT MOTOR S.E.C. TYPE 05	A20-10-41650, 308-5043-401
5j	WA308-5030-401	4 BOLT B PILOT MOTOR S.E.C. TYPE 42 (4" or 101.6 mm pilot)	A20-10-41420, 308-5030-401
5k	WA308-5053-402	2/4 BOLT B PILOT MOTOR S.E.C. TYPE 46 (4" or 101.6 mm pilot)	A20-10-41320, 308-5053-402
5l	WA308-5020-404	2 BOLT A PILOT MOTOR S.E.C. TYPE 94 (3 1/4" or 82.55 mm pilot)	A20-10-41210, 308-5020-404
5m	WA308-5020-401	2 BOLT B PILOT MOTOR S.E.C. TYPE 97 (4" or 101.6 mm pilot)	A20-10-41220, 308-5020-401
6	WA391-2282-056	CASE DRAIN PLUG	X02-03-22060, 391-2282-056
7a	WA391-3681-001	CHECK VALVE MOTOR	A00-75-11000, 391-3681-001
7b	WA391-2286-004	PRESSURE PLUG PUMP	X02-03-32110, 391-2286-004
8	WA391-2585-006	RING SEAL	X81-76-02706, 391-2585-006
9	WA391-0381-068	ROLLER BEARING (Ø 1.687" O.D.)	X03-25-12743, 391-0381-068
10	WA391-2185-013	PUMP & MOTOR THRUST PLATE	A30-70-10000, 391-2185-013
11	WA391-2882-086	POCKET SEAL	X85-11-00002, 391-2882-086
12a	WA312-29XX-730	SHAFT & GEAR TYPE 30 (0.875" Ø x 1/4" x 3/8" x 1" key)	A30-50-XX125, 312-29XX-730
12b	WA312-29XX-230	SHAFT & GEAR TYPE 25 (0.875" Ø - 13-Tooth spline)	A30-50-XX225, 312-29XX-230
12c	WA312-29XX-740	SHAFT & GEAR TYPE 43 (1.00" Ø x 1/4" x 3/8" x 1 1/4" key)	A30-50-XX135, 312-29XX-740
12d	WA312-29XX-940	SHAFT & GEAR TYPE 67 TYPE 2 (0.875" Ø x 1/4" x 3/8" x 1" key)	A30-50-XX132, 312-29XX-940
12e	WA312-29XX-930	SHAFT & GEAR TYPE 66 TYPE 2 (0.875" Ø x 1/4" x 3/8" x 1" key)	A30-50-XX126, 312-29XX-930
12f	WA312-29XX-430	SHAFT & GEAR TYPE 65 TYPE 2 (0.875" Ø - 13-Tooth spline)	A30-50-XX226, 312-29XX-430
13	WA391-2884-019	PUMP & MOTOR HOUSING GASKET	X85-11-09203, 391-2884-019
14	WA308-80XX-100	PUMP & MOTOR GEAR HOUSING	A20-32-XX000, 308-80XX-100
15a	WA308-7300-100	MOTOR BEARING CARRIER BLANK	A20-40-00000, 308-7300-100
15b	WA308-7363-100	PUMP BEARING CARRIER WITH COMMON PASSAGE	A20-40-20000, 308-7363-100
16	WA312-1133-001	CONNECTING SHAFT	A30-50-00500, 312-1133-001
17	WA312-28XX-000	GEAR SET ONLY	A30-50-XX000, 312-28XX-000
18	WA308-3100-100	PUMP & MOTOR PORT END COVER	A20-22-00000, 308-3100-100
19	WA391-3782-146	FLAT WASHER (9/16")	X45-19-15005, 391-3782-146
20		Length Required BOLTS / STUDS (9/16" UNC)	
21a	WA312-1500-300	CONTINENTAL SHAFT TYPE 30 (0.875" Ø x 1/4" x 3/8" x 1" key)	A30-50-00121, 312-1500-300
21b	WA312-1135-192	CONTINENTAL SHAFT TYPE 30 Long (0.875" Ø x 1/4" x 3/8" x 1" key)	A30-50-00124, 312-1135-192
21c	WA312-1135-133	CONTINENTAL SHAFT TYPE 7 (1.250" Ø - 14-tooth spline, Continental only)	A30-50-00241, 312-1135-133
21d	WA312-1135-138	CONTINENTAL SHAFT TYPE 25 (0.875" Ø - 13-Tooth spline)	A30-50-00221, 312-1135-138
21e	WA312-1500-400	CONTINENTAL SHAFT TYPE 43 (1.00" Ø x 1/4" x 3/8" x 1 1/4" key)	A30-50-00131, 312-1500-400
21f	WA312-1135-193	CONTINENTAL SHAFT TYPE 43 Long (1.00" Ø x 1/4" x 3/8" x 1 1/4" key)	A30-50-00134, 312-1135-193
21g	WA312-1135-152	CONTINENTAL SHAFT TYPE 12 (0.750" Ø x 3/16" x 3/16" 1 9/16" key)	A30-50-00169, 312-1135-152
21h	WA312-1135-171	CONT SHAFT THREADED & KEYED END TYPE 15 (5/8"-18UNF+1/4"x3/8"x7/8"key)	A30-50-00127, 312-1135-171
21i	WA312-1000-200	CONTINENTAL SHAFT TYPE 95 (0.625" Ø x 9-tooth spline)	A30-50-00211, 312-1000-200
22	WA391-2685-011	CONTINENTAL SHAFT BRG. RETAINER SNAP RING	X05-02-28110, 391-2685-011
23	WA312-0100-002	CONTINENTAL SHAFT BRG. RETAINER	A20-60-20000, 312-0100-002
N.I.	WA391-1781-075	SHAFT KEY FOR TYPE 12 SHAFT	X01-02-50540, 391-1781-075
N.I.	WA391-1781-021	SHAFT KEY FOR TYPE 43 & 67 SHAFT	X01-01-61032, 391-1781-021
N.I.	WA391-1781-025	SHAFT KEY FOR TYPE 30 & 66 SHAFT	X01-01-61025, 391-1781-025
N.I.	WA391-1781-020	SHAFT KEY FOR TYPE Spl. SHAFT	X01-01-61044, 391-1781-020
N.I.	WA391-1451-115	HEX NUT (9/16" UNC)	X42-11-14012, 391-1451-115

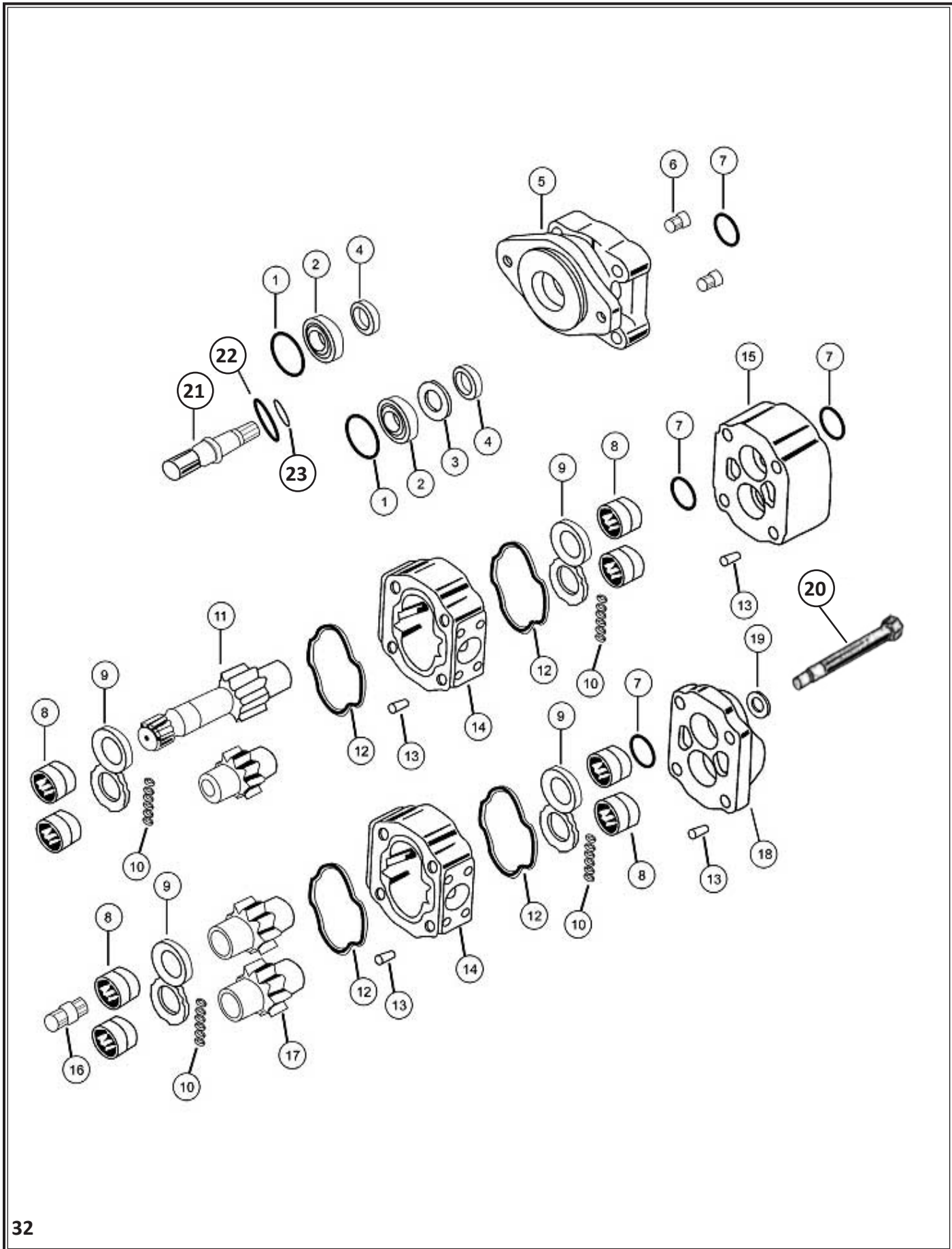
NOTE The XX shown in the part number is in place of the size the true value must be placed into the part number when ordering parts.

(eg.) Gear set no. A50-50-XX000 changes to A50-50-15000 for 1.5" gear size

Housing no. A51-32-XX000 changes to A51-32-15000 for a 1.5" housing size

No porting sizes have been indicated all porting must be specified when ordering parts.

P51 SERIES



P51 SERIES

#	WA #	DESCRIPTION	ALTERNATIVE #
1	WA391-2686-065	SHAFT BRG. SNAP RING	X05-03-77250, 391-2686-065
2a	WA391-3383-087	BRG SPACER & SEAL RETAINER FOR MOTORS	A50-60-10000, 391-3383-087
2b	WA391-0381-077	INPUT SHAFT BEARING	X03-16-13272, 391-0381-077
3	WA391-3383-020	MOTOR SEAL RETAINER USED WITH SHAFT BRG	A50-60-30000, 391-3383-020
4a	WA391-2883-103	PUMP LIP SEAL	X83-11-03308, 391-2883-103
4b	WA391-2883-115	MOTOR LIP SEAL	X83-36-03309, 391-2883-115
4c	WA391-2883-133	PUMP LIP SEAL FOR CONTINENTAL SHAFT ONLY	X89-11-03308, 391-2883-133
5a	WA313-5017-201	PAD PILOT PUMP SHAFT END COVER TYPE 00	A51-10-21100, 313-5017-201
5b	WA313-5037-201	4 BOLT B PILOT PUMP SHAFT END COVER TYPE 42 (4" or 101,6 mm pilot)	A51-10-21420, 313-5037-201
5c	WA313-5037-202	4 BOLT C PILOT PUMP SHAFT END COVER TYPE 78 (5" or 127 mm pilot)	A51-10-21430, 313-5037-202
5d	WA313-5027-201	2 BOLT B PILOT PUMP SHAFT END COVER TYPE 97 (4" or 101,6 mm pilot)	A51-10-21220, 313-5027-201
5e	WA313-5027-202	2 BOLT C PILOT PUMP SHAFT END COVER TYPE 98 (5" or 127 mm pilot)	A51-10-21230, 313-5027-202
5f	WA313-5027-205	2 BOLT B (TYPE 2) PILOT PUMP SHAFT END CVR TYPE 96 (4" or 101,6 mm pilot)	A51-10-22220, 313-5027-205
5g	WA313-5027-206	2 BOLT C (TYPE 2) PILOT PUMP SHAFT END COVER TYPE 99 (5" or 127 mm pilot)	A51-10-22230, 313-5027-206
5h	WA313-5027-208	51/51 SHAFT END COVER FOR PIGGYBACK UNITS TYPE 91	A43-10-21500, 313-5027-208
5i	WA313-5027-209	76/51 SHAFT END COVER FOR PIGGYBACK UNITS TYPE 92	A44-10-21500, 313-5027-209
5j	WA313-5017-401	51 PAD PILOT MOTOR SHAFT END COVER TYPE 00	A51-10-41100, 313-5017-401
5k	WA313-5037-401	4 BOLT B PILOT MOTOR SHAFT END COVER TYPE 42 (4" or 101,6 mm pilot)	A51-10-41420, 313-5037-401
5l	WA313-5037-402	4 BOLT C PILOT MOTOR SHAFT END COVER TYPE 78 (5" or 127 mm pilot)	A51-10-41430, 313-5037-402
5m	WA313-5027-401	2 BOLT B PILOT MOTOR SHAFT END COVER TYPE 97 (4" or 101,6 mm pilot)	A51-10-41220, 313-5027-401
5n	WA313-5027-402	2 BOLT C PILOT MOTOR SHAFT END COVER TYPE 98 (5" or 127 mm pilot)	A51-10-41230, 313-5027-402
6a	WA391-3681-001	CHECK VALVE MOTOR	A00-75-11000, 391-3681-001
6b	WA391-2286-004	PRESSURE PLUG PUMP	X02-03-32110, 391-2286-004
7	WA391-2585-009	RING SEAL	X81-76-03305, 391-2585-009
8	WA391-0381-059	ROLLER BEARING (Ø 1.937" O.D.)	X03-25-13349, 391-0381-059
9a	WA391-2185-029	PUMP THRUST PLATE	A51-70-20000, 391-2185-029
9B	WA391-2185-012	MOTOR THRUST PLATE	A25-70-10000, 391-2185-012
9C	WA391-2185-041	DRY VALVE THRUST PLATE	A50-70-10000, 391-2185-041
10	WA391-2882-050	POCKET SEAL	X85-11-00002, 391-2882-050
11a	WA313-29XX-250	SHAFT & GEAR 14 TOOTH SPLINE 1.228" maj. dia. TYPE 7	A50-50-XX245, 313-29XX-250
11b	WA313-29XX-750	SHAFT & GEAR 1.250" KEYED (5/16") TYPE 11	A50-50-XX145, 313-29XX-750
11c	WA313-29XX-230	SHAFT & GEAR SET 13 TOOTH SPLINE 0.858" maj. dia TYPE 25	A50-50-XX225, 313-29XX-230
11d	WA313-29XX-740	SHAFT & GEAR SET 0.9984" dia. KEYED (1/4" x 3/8" x 1 1/4") TYPE 43	A50-50-XX135, 313-29XX-740
11e	WA313-29XX-450	SHAFT & GEAR 14 TOOTH SPLINE 1.228" maj. dia. TYPE 53 TYPE 2	A50-50-XX246, 313-29XX-450
11f	WA313-29XX-430	SHAFT & GEAR SET 13 TOOTH SPLINE 0.858" maj. dia TYPE 65 TYPE 2	A50-50-XX226, 313-29XX-430
12	WA391-2884-021	PUMP & MOTOR HOUSING GASKET	X85-11-10803, 391-2884-021
13	WA391-2082-032	HOUSING DOWELL PIN	A00-94-11025, 391-2082-032
14	WA313-82XX-100	PUMP & MOTOR GEAR HOUSING	A51-32-XX000, 313-82XX-100
15a	WA313-7740-100	MOTOR BEARING CARRIER BLANK	A51-40-00000, 313-7740-100
15b	WA313-7723-100	PUMP BEARING CARRIER WITH COMMON PASSAGE	A51-40-20000, 313-7723-100
16	WA313-1133-001	CONNECTING SHAFT	A50-50-00500, 313-1133-001
17	WA313-28XX-000	GEAR SET ONLY	A50-50-XX000, 313-28XX-000
18a	WA313-3120-100	PUMP & MOTOR PORT END COVER	A51-22-00000, 313-3120-100
18b	WA313-3420-100	PUMP & MOTOR PORT END COVER SPECIAL LARGER PORTING	A51-27-00000, 313-3420-100
18c	WA313-5027-212	PIGGY BACK REAR PORT END COVER	A51-22-03000, 313-5027-212
19	WA391-3784-028	FLAT WASHER (5/8")	X45-10-17005, 391-3784-028
20	Length Required	BOLTS / STUDS (5/8"-UNC)	
21a	WA313-1500-500	CONTINENTAL SHAFT TYPE 11 (1.250" Ø KEYED 5/16")	A50-50-00141, 313-1500-500
21b	WA313-1135-194	CONTINENTAL SHAFT TYPE 7 (1.250" Ø - 14 TOOTH SPLINE)	A50-50-00241, 313-1135-194
21c	WA313-1000-300	CONTINENTAL SHAFT TYPE 25 (0.875" Ø - 13 TOOTH SPLINE)	A50-50-00221, 313-1000-300
21d	WA313-1500-400	CONTINENTAL SHAFT TYPE 43 (1.00" Ø x 1/4" x 3/8" x 1 1/4" key)	A50-50-00131, 313-1500-400
21e	WA313-1500-502	CONTINENTAL SHAFT TYPE 73 LONG (1.250" Ø KEYED 5/16")	A50-50-00147, 313-1500-502
22	WA391-3381-046	CONTINENTAL SHAFT BRG. RETAINER (MAY NOT BE REQUIRED)	A50-60-20000, 391-3381-046
23	WA391-2685-040	CONTINENTAL SHAFT BRG. RETAINER SNAP RING (MAY NOT BE REQ)	X05-02-35120, 391-2685-040
N.I.	WA391-2584-063	SEAL RETAINER FOR 51/51 PIGGY BACK PUMP S.E.C	A30-60-10001, 391-2584-063
N.I.	WA391-2881-124	SEAL RETAINER O RING FOR PIGGY BACK PUMP S.E.C.	X81-11-04704, 391-2881-124
N.I.	WA391-2881-120	SEAL RETAINER O RING FOR PIGGY BACK PUMP S.E.C.	X81-11-05704, 391-2881-120
N.I.	WA391-2585-013	SEAL RETAINER FOR 76/51 PIGGY BACK PUMP S.E.C.	A50-60-10003, 391-2585-013
N.I.	WA391-2282-056	CASE DRAIN PLUG	X02-03-22060, 391-2282-056
N.I.	WA391-2584-050	DRY VALVE SEAL RETAINER	A50-60-10001, 391-2584-050
N.I.	WA391-2883-058	PUMP LIP SEAL FOR PIGGY BACK S.E.C.& P.E.C.	X83-11-02708, 391-2883-058
N.I.	WA391-1781-008	SHAFT KEY FOR TYPE 73 SHAFT	X01-01-81257, 391-1781-008
N.I.	WA391-1781-021	SHAFT KEY FOR TYPE 43 SHAFT	X01-01-61032, 391-1781-021
N.I.	WA391-1781-045	SHAFT KEY FOR TYPE 11	X01-01-81238, 391-1781-045
N.I.	WA313-1133-004	50/50 PIGGY BACK CONNECTING SHAFT	A41-50-00400, 313-1133-004
N.I.	WA313-1133-003	75/50 PIGGY BACK CONNECTING SHAFT	A42-50-00400, 313-1133-003
N.I.	WA391-1451-076	HEX NUT (5/8"-UNC)	X42-11-16000, 391-1451-076

NOTE The XX shown in the part number is in place of the size the true value must be placed into the part number when ordering parts.
 (eg.) Gear set no. A50-50-XX000 changes to A50-50-15000 for 1.5" gear size
 Housing no. A51-32-XX000 changes to A51-32-15000 for a 1.5" housing size
 No porting sizes have been indicated all porting must be specified when ordering parts.

DUMP PUMP SEAL KIT



WA#	DESCRIPTION
WA102SK	102 DUMP PUMP SEAL KIT
WA101SK	101 DUMP PUMP SEAL KIT
WA100GK	101 & 102 "G" SERIES SEAL KIT

REPLACEMENT DUMP PUMP AIR SHIFT CYLINDER



WA#	DESCRIPTION
WAAIRSHIFTCYC	REPLACEMENT "C" SERIES DUMP PUMP AIR SHIFT CYLINDER
WAAIRSHIFTCYG	REPLACEMENT "G" SERIES DUMP PUMP AIR SHIFT CYLINDER

DUMP PUMP SUPPORT BRACKETS



WA#	DESCRIPTION
WAPBK-1000	102 SERIES SUPPORT BRACKET
WAPBK-1001	101 SERIES SUPPORT BRACKETW



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FILTER ASSEMBLY



WA#	DESCRIPTION
WAF110	1" FILTER HEAD WITH 10 MICRON FILTER
WAF125	1" FILTER HEAD WITH 25 MICRON FILTER

REPLACEMENT FILTER PARTS



WA#	DESCRIPTION
WA725FH	1" FILTER HEAD NPT PORTS WITH TWO 1/8" NPT GAUGE PORTS
WA10FLT	REPLACEMENT 10 MICRON FILTER
WA25FLT	REPLACEMENT 25 MICRON FILTER

QUICK CONNECT COUPLER



WA#	DESCRIPTION
WAWC16	1" WINGED COUPLER

HOSE KITS

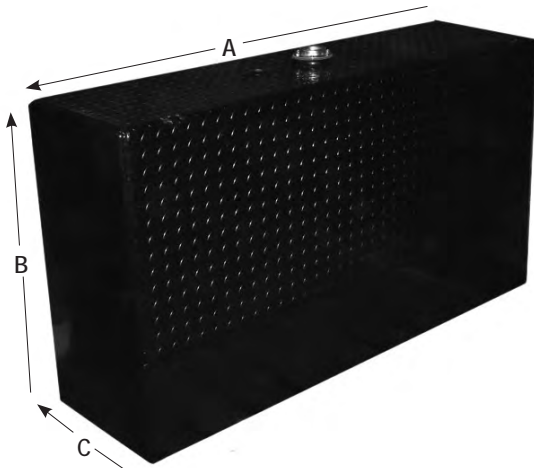


WA#	DESCRIPTION
WAK20-12-2L*	2 LINE HOSE KIT
WAK20-24-3L**	3 LINE HOSE KIT

* Hose Kits are available by special order. Not a stocking item.

** Recommended for continuous duty / prolonged system life.

RESERVOIRS



WAA3070



WAA4500

WA#	COMPETITOR#	DESCRIPTION
WAA2000	A-2000/	50 GALLON POLYETHYLENE UPRIGHT A - 38" B - 29" C - 16.25"
WAA3000	A-3000/	50 GALLON STEEL UPRIGHT A - 34" B - 25.5" C - 14.75"
WAA3070	A-3070/	70 GALLON STEEL UPRIGHT A - 49.25" B - 25.5" C - 14.75"
WAA3500	A-3500/	50 GALLON STEEL SADDLE MOUNT A - 27" B - 26.5"
WAA4000	A-4000/	50 GALLON ALUMINUM UPRIGHT A - 34" B - 25.5" C - 14.75"
WAA4070	A-4070/	70 GALLON ALUMINUM UPRIGHT A - 49.75" B - 25.5" C - 14.75"
WAA4500	A-4500/	50 GALLON ALUMINUM SADDLE MOUNT WITH STEEL STRAPS A - 27.5" B - 26.5"
WAA4500SS	A-4500SS/	50 GALLON ALUMINUM SADDLE MOUNT WITH STAINLESS STRAPS A - 27.5" B - 26.5"

RESERVOIR STRAP KITS

	WA#	COMPETITOR#	DESCRIPTION
	WAS005BK	AMK624-C	SADDLE MOUNT STRAP KIT
	WAS005BKSS	SMS5005BK, AMK624-S	SADDLE MOUNT STRAP KIT, STAINLESS STEEL.

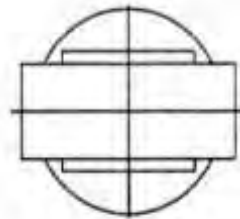
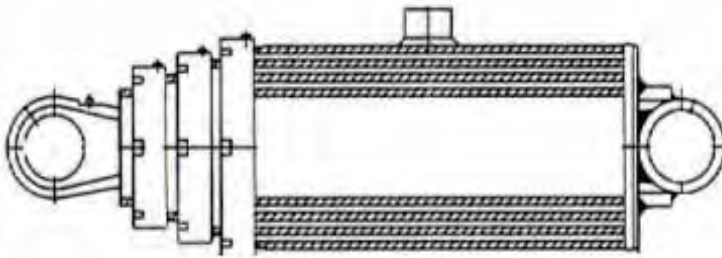
REPLACEMENT RESERVOIR FILLER CAP

	WA#	DESCRIPTION
	WA015	REPLACEMENT HYDRAULIC OIL RESERVOIR CAP.

REPLACEMENT HYDRAULIC CYLINDERS

OPERATING FEATURES

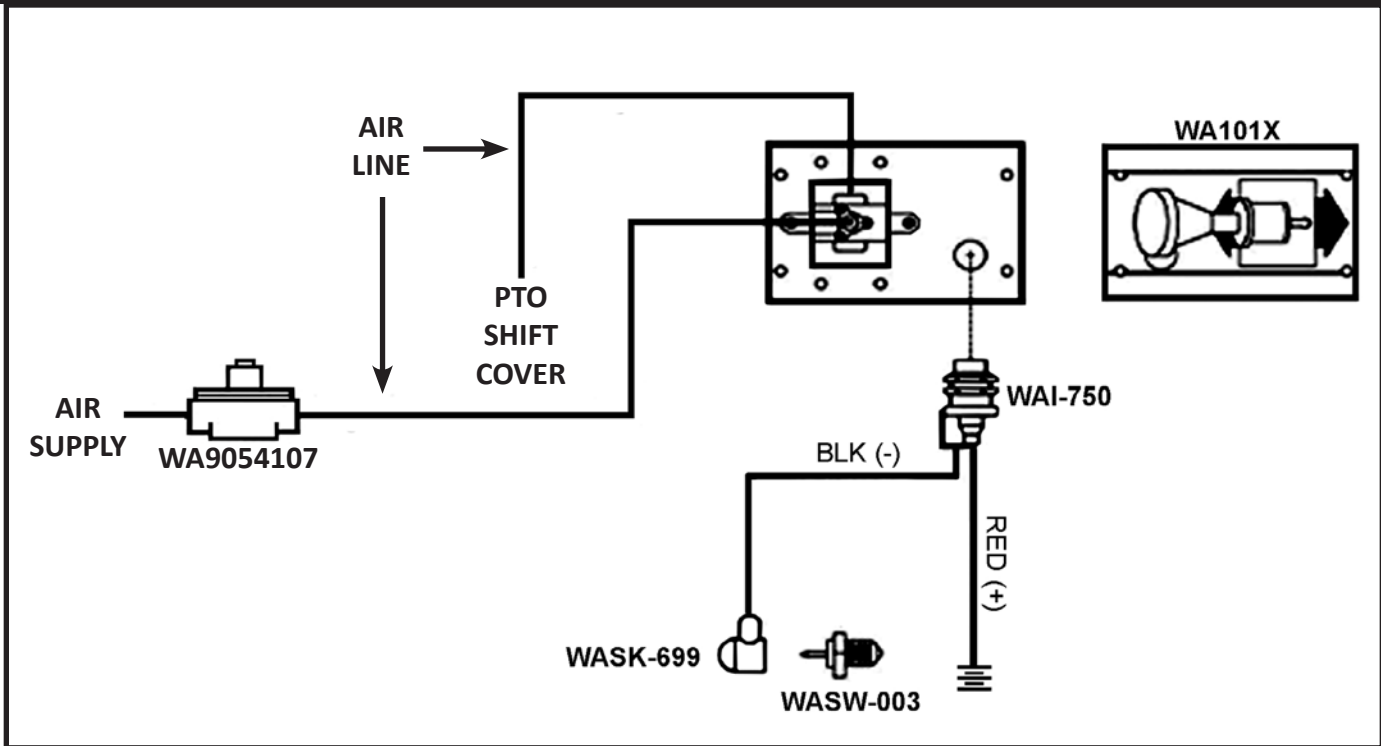
- REQUIRES LESS OIL
- FASTER DURING OPERATION
- LIGHTER AND THINNER THAN THE OEM'S
- MORE LOAD CAPACITY PER STAGE
- MAINTANCE FREE
- NO BLEEDING REQUIRED



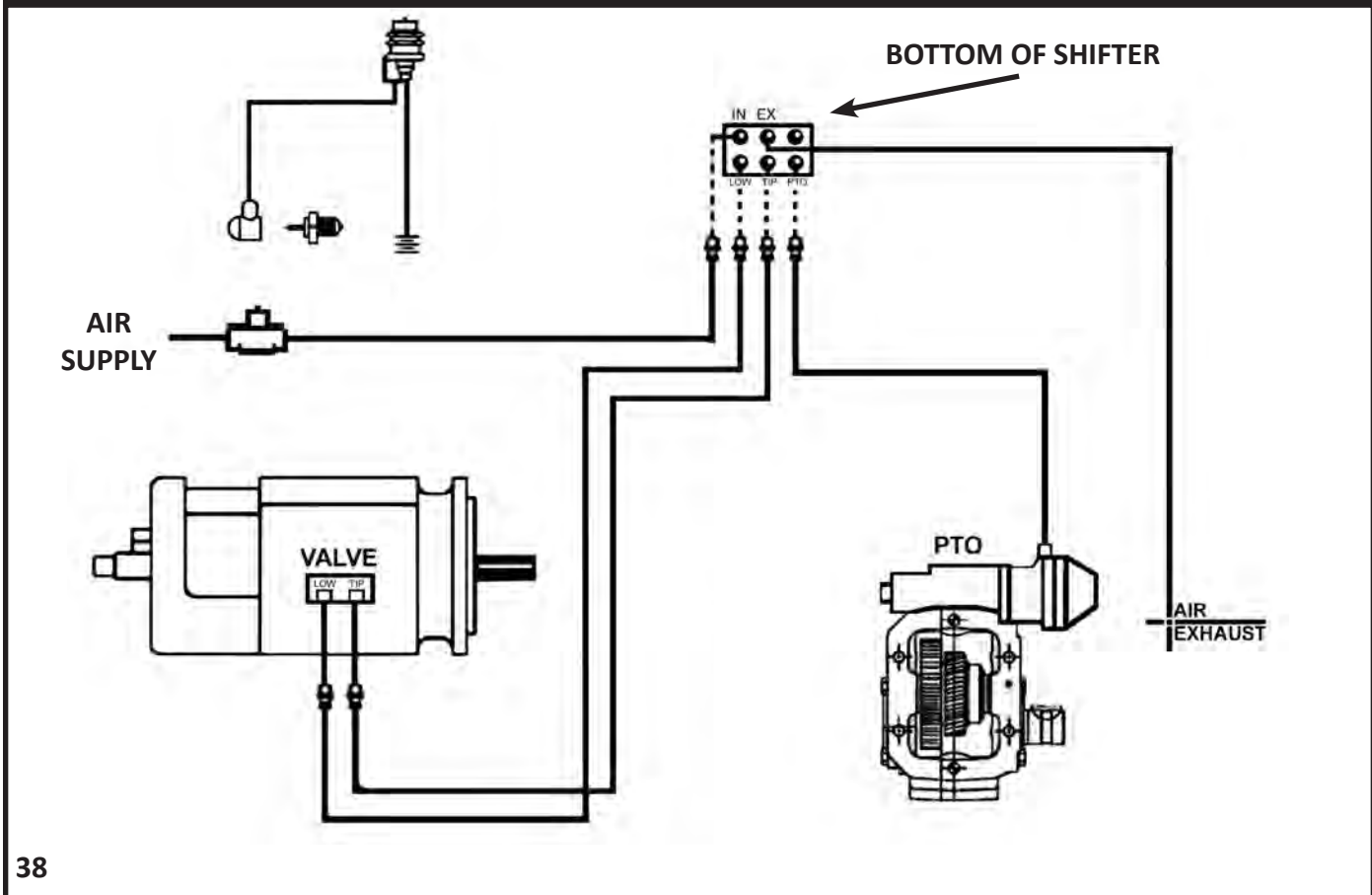
<u>WA#</u>	LARGEST STAGE DIAMETER	# OF STAGES	STROKE LENGTH	HYVA REF#	CUSTOM HOIST
WA6-3-108C	6"	3	108"	FEE-6-3-108	63-702-108
WA6-3-136C	6"	3	136"	FEE-6-3-136	63-702-132
WA7-4-157C	7"	4	157"	FEE-7-4-157	74-701-156
WA7-4-169C	7"	4	169"	FEE-7-4-169	74-701-167
WA8-5-188C	8"	5	188"	FEE-8-5-188	85-402-190
WA8-5-211C	8"	5	211"	FEE-8-5-211	85-402-200
WA8-5-228C	8"	5	228"	FEE-8-5-228	85-402-220
WA9-5-228C	9"	5	228"	FEE-9-5-228	95-461-220

OTHER SIZES AVAILABLE BY SPECIAL ORDER

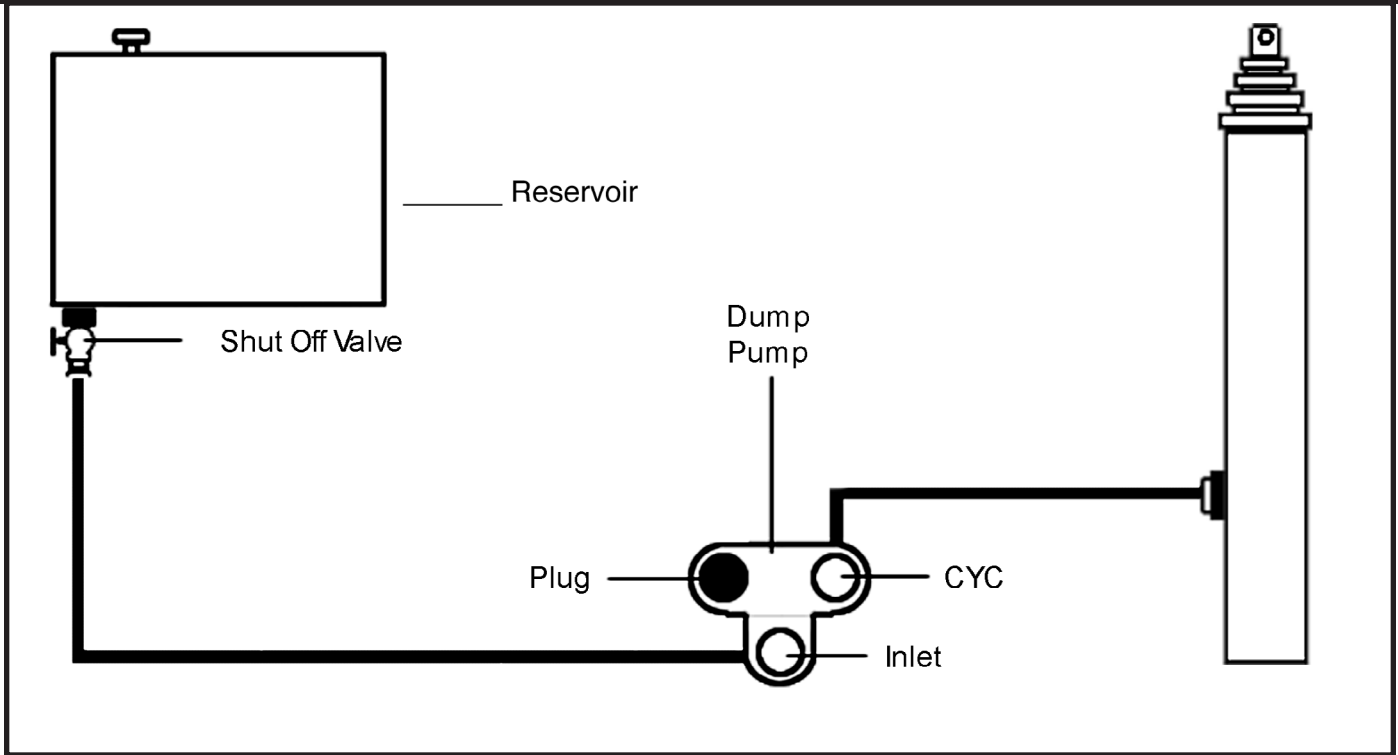
PTO SINGLE CONTROL AIR & ELECTRICAL INSTALLATION GUIDE



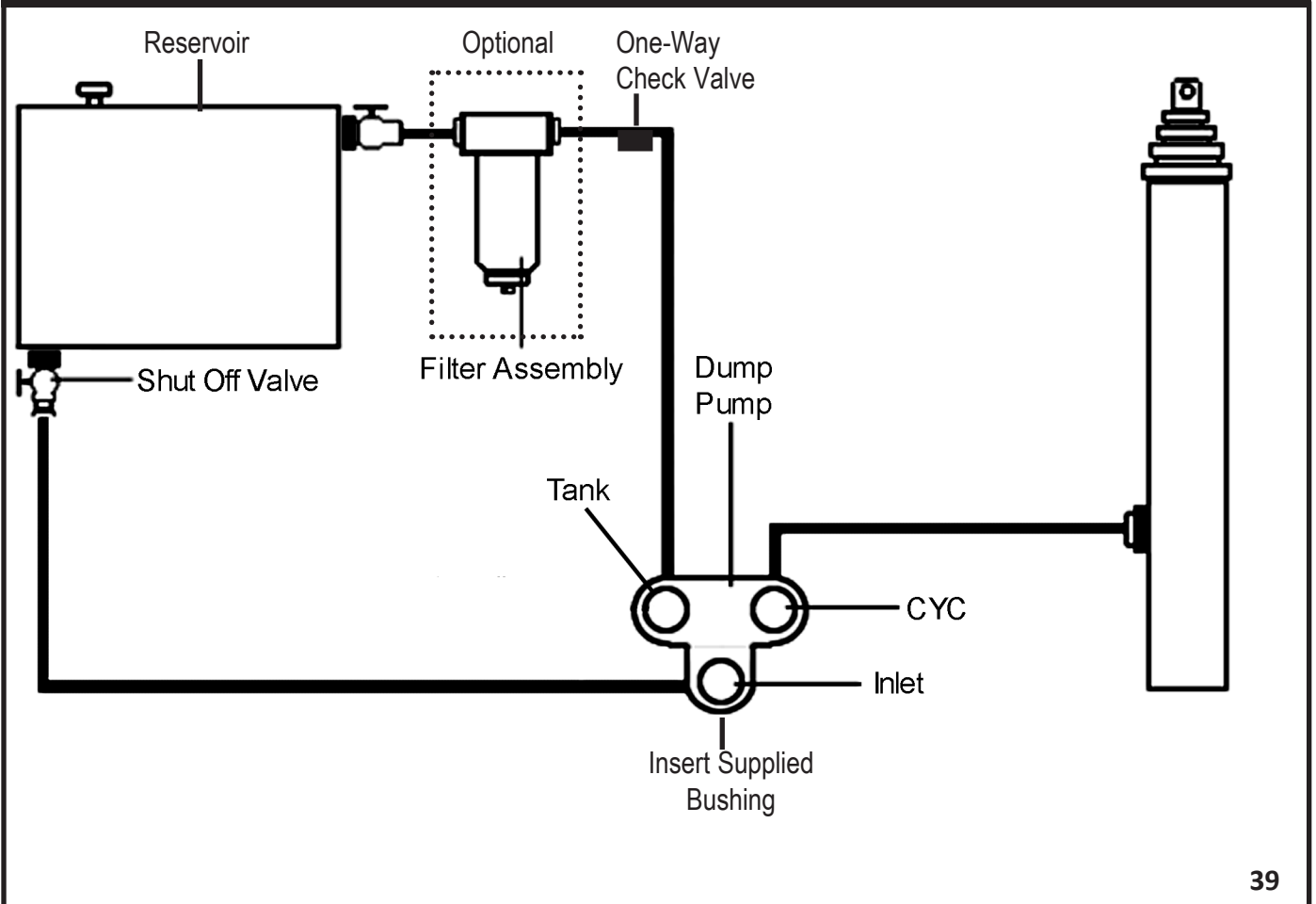
PTO & PUMP DUAL CONTROL AIR & ELECTRICAL INSTALLATION GUIDE



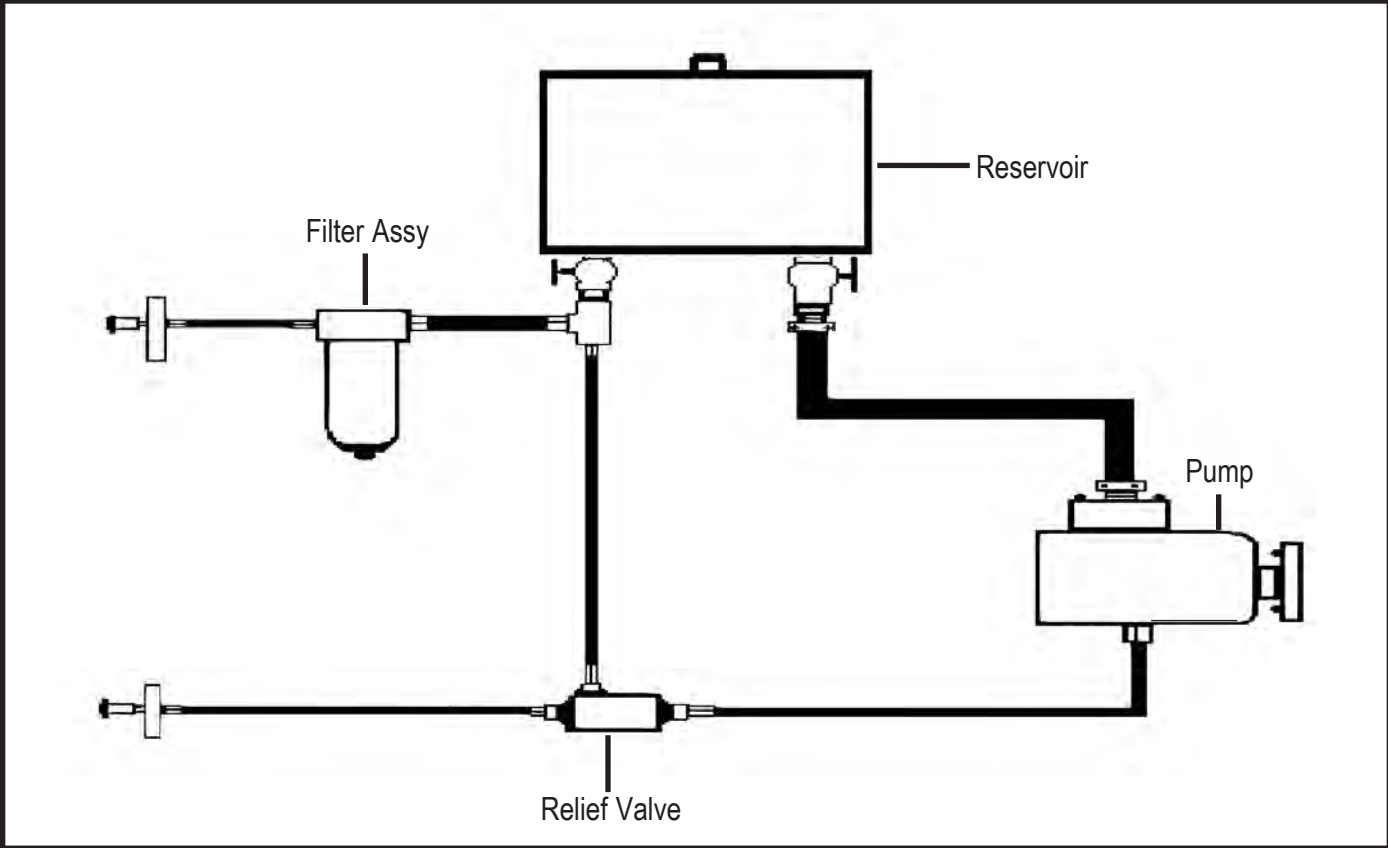
2-LINE HYDRAULIC HOSE INSTALLATION GUIDE



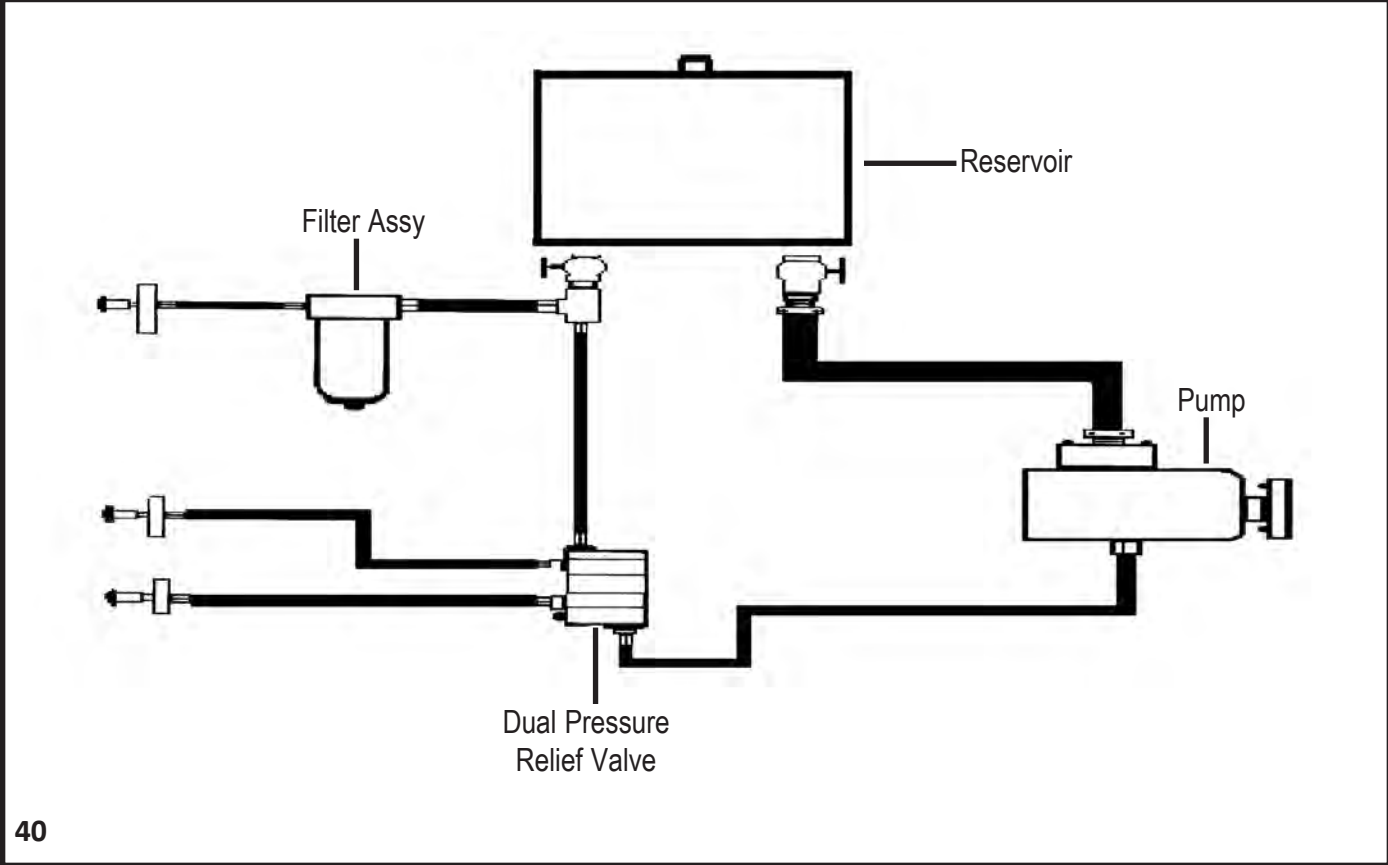
3-LINE HYDRAULIC HOSE INSTALLATION GUIDE



WALKING FLOOR HYDRAULIC SCHEMATIC



COMBINATION WALKING FLOOR/PUMP TRAILER HYDRAULIC SCHEMATIC



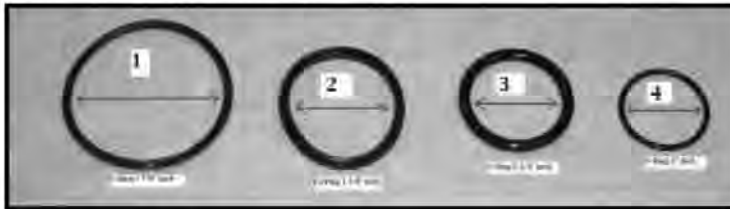
AIR SHIFTER CYLINDER INSTALLATION

English



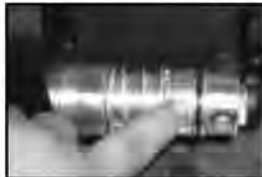
Air Shifter Installation Procedure

Step 1: When replacing or installing an air shifter on any series pump, you must check that the air shifter housing has sufficient lubrication.



Step 2: Verify that all O-Rings are in the proper position.

The "O-Ring" on the air shifter piston is # 2



The "O-Ring" shown on the



Step 3: Insert the Pressure Cap onto the spool of the unit. Next, insert the # 4 O-Ring onto the spool.

Pressure cap



4 O-Ring



Step 4: Insert the Piston on the spool.



Piston

Step 5: Insert the "Clevis Pin" into the air shifter Piston and secure it with the Snap Ring.

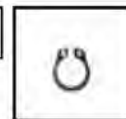
Clevis Pin



Clevis Pin in Piston



Snap Ring



Step 6: Once you have completed steps 1-6, insert the air shifter housing onto the Piston assembly.

Note: Make sure the "O-Ring" on the air shifter housing does not move out of place when installing it onto the piston assembly as shown in the image.



O-Ring #1

continued>

AIR SHIFTER CYLINDER INSTALLATION (continued)

English



Step 7: Hold the housing in place so that it does not move and insert the 4 Cap Screws into each screw opening.

Note: Only "hand tight" the 4 screws at this point. You may use a wrench, but do not tight securely.

4 "Cap Screws"



Paso 8: Once the screws are in place, we recommend the use of a rubber mallet or equivalent to gently tap the air shifter housing all the way around.

Note: This step is necessary in order to establish the next step.



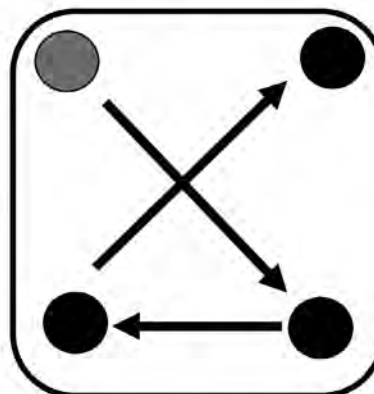
Step 9: Using a small screwdriver or equivalent, rotate the End Cap on the pump's spool 360*degrees to the left and then to the right a few times each.

Note: This allows the air shifter to self adjust to the installation preformed.



Step 10: Using the following images as your reference, follow the sequence shown in order to bolt down the Cap Screws. You may use an Allen wrench at this point to bolt down the screws tight and secure.

Warning: Air sifter failure may occur if the recommended sequence is not followed.



Step 11: Once you have established that the air shifter is secure, we recommend applying more lubricant to the air shifter installation. Remove the caps from the air shifter to apply the lubricant, as shown in the image.



End.

START-UP PROCEDURES AND RECOMMENDATIONS

START-UP PROCEDURE

A

FILL THE HYDRAULIC CYLINDER AND SYSTEM WITH OIL. THE CYLINDER SHOULD BE IN THE RETRACTED POSITION. TO AID IN THE FILLING OF THE SYSTEM WITH OIL, IT MAY BE NECESSARY TO CRACK THE OUTLET LINE AT THE CYLINDER TO ALLOW TRAPPED AIR TO BLEED OFF.

NOTE: THE SPOOL VALVE SHOULD BE IN THE LOWER POSITION.

B

OPERATE THE PUMP AT ZERO PRESSURE FOR TWO MINUTES AT THE MINIMUM RPM OF THE TRUCK. BE SURE THE PUMP IS ENGAGED AND THE SPOOL IS SET AT THE LOWER POSITION. DURING THE BREAK-IN PROCEDURE THE PUMP WILL RUN FREE AND NOT DEVELOPE EXCESSIVE HEAT.

C

CYCLE THE TRUCK BED UP AND DOWN A FEW TIMES TO BLEED THROUGH ANY REMAINING AIR TRAPPED IN THE SYSTEM, THEN RECHECK THE OIL LEVEL AND ADD IF REQUIRED.

OIL RECOMMENDATIONS

VISCOSITY

OPTIMUM OPERATING VISCOSITY IS CONSIDERED TO BE ABOUT 100 SUS (20 cSt)

MINIMUM VISCOSITY 5 SUS (7.5 cSt)

MAXIMUM VISCOSITY AT STARTUP 7500 SUS (1600 cSt)

FLUID GRADES OFTEN USED:

ISO GRADE	40C	100C
32	32 cSt	5 cSt
46	46 cSt	7 cSt

*COLUMN FIGURES ARE BASED ON PUBLISHED INFORMATION FROM VARIOUS OIL COMPANIES.

ADDITIVES SUCH AS RUST, OXIDATION INHIBITORS & FOAM DEPRESSANT ARE USUALLY RECOMMENDED.

NOTE: ANTI-WEAR ADDITIVES CAN CAUSE DAMAGE TO PUMP AND SYSTEM COMPONENTS THAT ARE MADE OF, OR CONTAIN BRASS, COPPER OR BRONZE. THESE ANTI-WEAR ADDITIVES ARE THE SOLE RESPONSIBILITY OF THE USER.

COLD WEATHER OPERATION

OIL FOR USE IN COLD WEATHER OPERATIONS SHOULD HAVE A VISCOSITY NOT MORE THAN 7500 SUS AT THE MINIMUM STARTUP TEMPERATURE. STARTUP PROCEDURES MUST ALLOW FOR A WARM-UP TIME AND THE EQUIPMENT MUST NOT BE OPERATED AT FULL SYSTEM PRESSURES UNTIL THE OIL COMES TO OPERATING TEMPERATURES OR A FULL FLUID STATE

TROUBLESHOOTING

TROUBLE	POSSIBLE CAUSES	REMEDIES
PUMP IS MAKING NOISE	-INSUFFICIENT OIL SUPPLY	CHECK OIL LEVEL. FILL AS REQUIRED
	-AIR LEAKING INTO INLET CONNECTION	CORRECT THE AIR LEAK. INSURE CONNECTIONS ARE TIGHT
	-RESTRICTED OR COLLAPSED INLET HOSE	REMOVE BLOCKAGE OR REPLACE THE COLLAPSED HOSE
	-RESERVOIR AIR VENT PLUGGED	CLEAN OR REPLACE AIR VENT FILTER
	-OIL IS TOO THICK	REPLACE THE OIL TO A LOWER VISCOSITY OIL
PUMP IS OVERHEATING	-INSUFFICIENT OIL SUPPLY	CHECK OIL LEVEL. FILL AS REQUIRED
	-DRIVING WITH PTO ENGAGED	DISENGAGE PTO BEFORE HIGHWAY USE
	-INTERNAL LEAK DUE TO EXCESSIVE WEAR	REPAIR OR REPLACE THE PUMP, CLEAN THE RESERVOIR, REPLACE OIL, REPLACE FILTER
	-OIL IS TOO THICK	REPLACE THE OIL TO A LOWER VISCOSITY OIL
	-LEAKING RELIEF VALVE	INSPECT AND CLEAN THE RELIEF VALVE & CHECK VALVE SEAT
PUMP IS LEAKING EXTERNALLY	-WORN SHAFT OR SHAFT SEAL DUE TO ABRASIVE MATERIAL IN THE OIL OR AROUND THE SHAFT.	REPAIR THE PUMP, CLEAN RESERVOIR & REPLACE FLUID, REPLACE FILTER
	-DAMAGED BODY GASKET	REPLACE ALL GASKETS & RETORQUE THE STUDS TO 2400 in. lbs. / 200 ft. lbs.
	-WORN OR DAMAGED SPOOL SEAL	REPLACE THE SEAL
PUMP WILL NOT DELIVER FLOW	-INSUFFICIENT OIL SUPPLY	CHECK OIL LEVEL. FILL AS REQUIRED
	-RESTRICTED OR COLLAPSED INLET HOSE	REMOVE BLOCKAGE OR REPLACE THE COLLAPSED HOSE
	-WRONG DRIVE ROTATION	CHECK ROTATION OF DRIVE TO PUMP
	-AIR LEAK IN THE INLET LINE PREVENTING PRIMING	INSURE ALL FITTINGS AND CONNECTIONS ARE TIGHT
	-PUMP WORN DUE TO ABRASIVE MATERIAL IN THE OIL	REBUILD OR REPLACE PUMP & CLEAN THE RESERVOIR. REPLACE FILTER
NO PRESSURE IN THE SYSTEM	-PUMP NOT DELIVERING OIL	CHECK OIL LEVEL. FILL AS REQUIRED
	-RELIEF VALVE SET TOO LOW	CHECK PRESSURE & TURN ADJUSTMENT SCREW CW TO INCREASE
	-RELIEF VALVE LEAKING	INSPECT SEAT FOR DAMAGE OR FOREIGN MATERIAL. REPLACE IF REQUIRED
FAILURE TO HOLD THE LOAD	-VALVE SPOOL IS NOT IN THE NEUTRAL POSITION	INSPECT LINKAGE & ADJUST FOR CENTER POSITION
	-FOREIGN MATERIAL LODGED IN THE HOLDING CHECK VALVE OR THE SEAT AREA.	REMOVE RELIEF VALVE & CLEAN. INSPEC VALVE & HOUSING SEAT FOR DAMAGE



WARRANTY CLAIM FORM HYDRAULIC UNITS

DATE: _____
 RGA NUMBER: _____ INVOICE OR SALES ORDER NUMBER: _____
 COMPANY NAME: _____ CONTACT: _____
 ADDRESS: _____
 CITY, STATE, ZIP: _____
 PHONE: _____ FAX OR EMAIL: _____

TYPE OF UNIT

DUMP PUMP: _____ GEAR PUMP: _____ PYO: _____ POWER STEERING PUMP _____
 PART NUMBER: _____ SERIAL NUMBER: _____
 DATE INSTALLED: _____ DATE OF COMPLAINT: _____
 HOW IS UNIT SHIFTED (CIRCLE ONE): AIR CABLE/WIRE

APPLICATION

TRANSMISSION MODEL: _____ PTO NUMBER OF PUMPS ONLY: _____
 OPERATING ENGINE RPM: _____ DUTY CYCLE (HOW LONG IT RUNS FOR): _____
 OPERATING PSI: _____ RELIEF VALVE SETTING: _____
 TYPE OF HYDRAULIC HOSE SYSTEM (CIRCLE ONE): 2 LINE / 3 LINE

REASON FOR RETURN (BE SPECIFIC): _____

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MIDWEST QUALITY CONTROL ONLY **RGA ISSUED BY:** _____

VENDOR CODE: _____ BATCH CODE: _____

VISUAL INSPECTION: _____

DISASSEMBLY INSPECTION: _____

CONCLUSION: _____

APPROVED: _____ DENIED: _____ DENIAL LETTER #: _____ FORM S/N: _____

QUALITY ASSURANCE MANAGER: _____ DATE: _____

NOTES

NOTES
