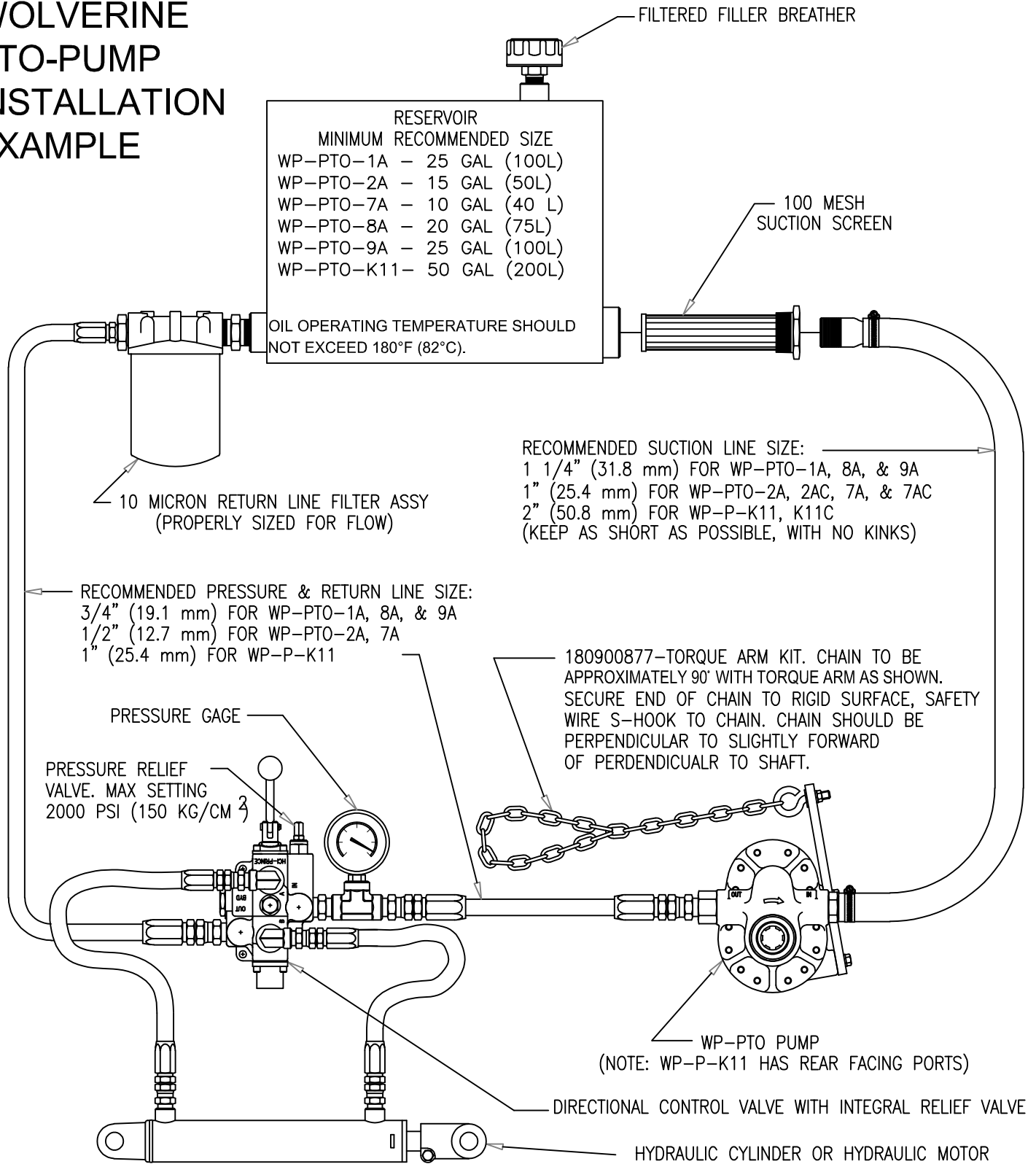


WOLVERINE PTO-PUMP INSTALLATION EXAMPLE



PUMP INSTALLATION INSTRUCTIONS FOR MODELS: WP-PTO-1A, 2A, 3A, 7A, 8A, 9A, AND WP-PTO-K11

THE PRINCE WOLVERINE PUMPS ARE DESIGNED FOR OPERATION FROM A PTO SHAFT, SUCH AS THE ONES FOUND ON AGRICULTURAL TRACTORS. IN ORDER TO UTILIZE THESE PUMPS TO THEIR FULL POTENTIAL, PLEASE READ AND REVIEW THE FOLLOWING, AND REFERENCE THE ILLUSTRATION ON THE BACK OF THIS PAGE BEFORE INSTALLATION.

- OPEN CENTER:** PUMP FLOW MUST RETURN TO THE RESERVOIR WITH THE VALVE IN THE NEUTRAL POSITION (VALVE MUST BE AN OPEN CENTER VALVE)
- PRESSURE:** BEFORE INSTALLING, ENSURE THAT THE SYSTEM HAS A RELIEF VALVE SET AT OR BELOW RATED PRESSURE OF 2000 PSI (140 BAR)
- FILTRATION:** A 100 MESH SUCTION STRAINER AND A 10 MICRON RETURN LINE FILTER, BOTH SIZED PROPERLY FOR FLOW AND BOTH INCORPORATING A "DIRTY FILTER" INTERNAL BYPASS FILTER ARE RECOMMENDED. (NOTE: IF THE PUMP IS BEING INSTALLED ON A SYSTEM WHERE THERE HAS BEEN A COMPONENT THAT HAS FAILED, THE SYSTEM SHOULD BE CLEANED OUT AND NEW OIL INSTALLED.)
- HYDRAULIC FLUID:** USE A GOOD QUALITY MINERAL BASE HYDRAULIC FLUID WITH A VISCOSITY OF 70-250 SUS (13-55 cSt) AT SYSTEM OPERATING CONDITIONS. DEPENDING ON TEMPERATURE, MOST COMMONLY USED FLUIDS ARE 10W, 20W, ISO32, ISO46 AND ATF.
- TEMPERATURE:** IF OPERATING OIL EXCEEDS 180°F, (82°C) A LARGER RESERVOIR OR HEAT EXCHANGER IS REQUIRED.
- TORQUE ARM:** TORQUE ARM KIT #180900877, WITH AN 11" LONG TORQUE ARM, AND A 800 LB (375KG) MINIMUM WORKING STRENGTH CHAIN, IS RECOMMENDED. THE CHAIN SHOULD BE APPROX 90° TO THE TORQUE ARM, AND BE SECURED TO A RIGID SURFACE. THE CHAIN SHOULD BE PERPENDICULAR TO THE PTO SHAFT TO AVOID AN END THRUST ON THE PUMP
- SPLINE LENGTH:** THE DRIVE SHAFT MUST EXTEND INTO THE PUMP A MINIMUM OF 3" (75MM) FOR 6 TOOTH SPLINES, AND 2.5" (60MM) 21 TOOTH SPLINES

PUMP REFERENCE INFORMATION

PUMP NO.	DISPLACEMENT (CU.IN/REV)	RPM	DRIVE SHAFT	INLET PORT	OUTLET PORT	INLET PORT ADAPTER SIZE	HP INPUT AT FULL PSI	GPM OUTPUT
WP-PTO-1A	9.8	540	6 TOOTH	#16 SAE	#12 SAE	1 1/4" HOSE	32	20
WP-PTO-2A	5.5	540	6 TOOTH	#16 SAE	#12 SAE	1" HOSE	18	11
WP-PTO-7A	3.6	540	6 TOOTH	#16 SAE	#12 SAE	1" HOSE	13	7
WP-PTO-8A	3.6	1000	21 TOOTH	#16 SAE	#12 SAE	1" HOSE	23	13
WP-PTO-9A	7.6	540	6 TOOTH	#16 SAE	#12 SAE	1 1/4" HOSE	28	17
WP-PTO-K11	9.8	1000	21 TOOTH	#20 SAE *	#16 SAE *	2" HOSE	60	40

* PORTS ON WC-PTO-K11 ARE LOCATED FACING REAR OF PUMP INSTEAD OF SIDE