Owners Manual

PORTABLE HYDRAULIC PACK

Brought to you by

AgKNX

Golden Colorado, USA

Stand-Alone Implement Hydraulic Power

READ THIS BEFORE STARTING

For your safety and to prevent any incidents while operating the PHP, it is important to go through and understand this checklist before starting.

1. Read this manual completely.
2. Register your PHP online or by sending in the warranty card
3. Fill the hydraulic tank with AW-32 Hydraulic fluid. The PHP is shipped without hydraulic fluid. DO NOT start the engine without filling the hydraulic fluid tank. (Refer to Startup Procedure)
4. Fill the engine crankcase with 5W-30 or 10W-30 motor oil. DO NOT start the engine without adding motor oil. (Refer to Startup Procedure)
5. Use fresh, uncontaminated lead-free gasoline. Do not mix fuel with oil.

READ THIS BEFORE STARTING

WARNING

Improper use of the AgKNX Portable Hydraulic Pack (PHP) can result in injury or death. To avoid incident, read and <u>understand</u> all instructions and precautions in the manual and observe safe conduct around mechanical and hydraulic systems.

It is your responsibility to be safe. If in doubt, contact a knowledgeable technician, the dealer you purchased the PHP from or AgKNX customer service. Do not operate or let anyone operate without understanding the information in this manual.

WARNING

Hazards and conditions may exist in your operation area that we cannot anticipate. Operators and those in the area must be aware of any potential hazards and alert to any signs of danger. In addition to the necessary training, tools and knowledge to operate this machine, AWARENESS AND ALERTNESS IS YOUR BEST DEFENSE AGAINST ACCIDENTS.

Following proper operation and maintenance procedures keeps the PHP a safe and effective tool.

WARNING

California Proposition 65
Engine exhaust from this equipment contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

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INTRODUCTION

The AgKNX Portable Hydraulic Power pack allows you to take hydraulic power on the go. Ruggedly built with quality components, the PHP can be relied upon.

Key Benefits of the AgKNX PHP:

- Replace tractor hydraulic power for remote hydraulic applications
- Save tractor fuel and working hours
- Free up tractor for other work
- Easy to transport
- Parts and support available
- Two-way control valve with detent function
- Hydraulic filter to extend life of PHP and implements

About AgKNX

We supply a wide range of quality farm & ranch products from gate hardware to tractor implements. We have several engineers on staff with many years of combined experience to assist with technical support and provide insights. We take pride in keeping customers happy.

AgKNX
15000 W 44th Ave, Ste B
Golden, Colorado 80403

Model #_____

Date of Purchase_____

Purchased From_____

Protecting Yourself

To avoid injury or death, read all instructions relevant to the PHP and its components, including the engine, which has a separate manual.

Always wear the proper gear and outfit including: eye protection, hearing protection, tight gloves (without drawstrings), protective boots. Do Not wear loose fitting clothing or items that hang loose that could be caught on a component.

To maintain safety awareness, make sure all decals are present and readable on the PHP. If a decal is worn or missing call customer support for a replacement.

Choosing and Preparing a Worksite

Inspect your worksite before starting. Look around for tripping hazards, constricted spaces, slippery or uneven suraces, combustible objects and animals.

Do NOT Operate the PHP in the following scenarios:
- On icy, muddy, wet surfaces, or uneven surfaces.
- In tall grass or brush (fire hazard).
- In an unventilated area. Exhaust fumes can be deadly.

Always have assistance when loading and unloading the PHP.

Operating the PHP
- DO NOT CONNECT OR DISCONNECT HYDRAULIC LINES WITHOUT RELIEVING THE PRESSURE FROM THE SYSTEM.
- The PHP uses a single stage Deli CRE-7.7C hydraulic pump with

a working pressure of 1160 psi and flow rate of 4.1 gal/min at 2000 RPM or 7.4 gpm at 3600 RPM. Make sure the implement you are using with the PHP is rated for at least that pressure and compatible with that flow rate.

- Determine the connection configuration to your equipment's hydraulic lines to ensure the correct rotation of your equipment's components. If the hydraulic fittings need to be changed, use fittings that will mate into the 1/2" Female NPT ports on the valve.
- DO NOT alter the PHP or use it for anything other than operating hydraulic equipment. Altering, customising, or changing components will degrade performance, could cause injury or death and WILL VOID THE WARRANTY. The PHP was engineered to perform best as it is and under these instructions. Changing the hydraulic fittings connected to the 1/2" NPT ports on the valve is an exception to this.

- Operators of the PHP or any equipment powered by the PHP must be 18 years of age or older.
- Operators of the PHP must read and understand the manual.
- Anyone who is not operating the PHP or equipment powered by the PHP should maintain a distance of 25 feet for safety reasons. This includes animals.
- Do not leave the PHP to run anattended.
- Do not operate if your abilities may be impaired by alcohol, drugs, medication or tiredness.
- Operate with your hand only. Do not use your foot, knee, a board, a rope, or anything other than your hand. If something goes wrong you need the dexterity to correct it quickly.

Maintaining and Repairing the PHP

The first part of maintaining your PHP is following the safety guidelines. Many performance issues and damages arise as a

result of unsafe practices. Be safe and save your equipment, your money, and most importantly, yourself.

- Inspect the PHP before each use. Check if all hydraulic fittings are tight and clean of leaks. Check that no bolts between components have come loose. Check that all hoses and clamps are secure and in the right place.
- Check the oil level in the engine crank case with the dipstick on the engine.
- Check the hydrualic fluid level in the reservoir tank. It should be 1" from the ceiling of the tank.
- If storing the PHP for and extended period (eg, over winter), remove all fuel from the tank and run all remaining fuel out of the carburetor.
- Do not run with old gasoline. Do not mix gasoline and oil.
- Do not use the PHP if your inspection reveals any issues. Using the PHP when you know repair is needed could void the warranty and cause further damage. It is also a safety issue.
- Do not manipulate the engine to allow it to run at excessive speeds. The maximum RPM is set for as it is for a reason, above this limit equipment can be damaged and operation can become unsafe.
- Do not use any extension devices with the control lever. This is an aleration that is unsafe and will void the warranty.
- Clean the PHP after each use to prevent corrosion and contamination of the fluids. Store it inside. Keeping the machine clean is a large factor in maintaining performance and lifespan.
- DO NOT make and alterations to the PHP, as this is unsafe and will VOID THE WARRANTY.

Fueling Precautions
- Fuel the PHP in an open, well ventilated area on solid, level, dry ground, not on a truck or trailer.

- Use a genuine, purpose built fuel container to carry gasoline.
- Be sure gas cap on the PHP and the cap on your fuel container are securely in position after fueling.
- If gasoline is spilled: move the PHP away from the spill and keep any source of ignition away from the spill. Wipe any gasoline from the PHP and allow any remaining to evaporate before proceding.
- Store gasoline in a sealed container designed for gasoline storage, in a cool, dry, uninhabited area.
- Bring a Class B fire extinguisher on any worksite where potential flying sparks could cause a fire in dry areas.
- DO NOT smoke while refueling or refuel near any flames or sparks.
- DO NOT fill the PHP while it is running or still hot.

Fire Prevention

Internal combustion engines such as that used on the PHP can create very high temperatures and rogue sparks. Therefore, the PHP should not be used on brush or tall grass or near combustible objects such as brush piles. The proper application of a spark arrester can mitigate these dangers if maintained.

Do not operate the PHP or attached equipment near open flames or sparks, or while smoking. This is an explosion hazard.

GETTING STARTED

Before starting, inspect the PHP for any possible damage that occured during transport or shipping. Contact your dealer or AgKNX for any replacement parts that may have occured due to shipping damage.

Startup

Read this section before starting the engine to ensure equipment does not become damaged.

ENGINE MANUAL
The PHP comes with a separate engine manual that should be read prior to operating the unit. If your PHP did not come with an engine specific manual, contact your dealer or AgKNX to get one.

1. Fill the hydraulic tank with AW-32 hydraulic fluid or equivalent. Fill until the fluid level is 1 inch from the ceiling of the tank. Also refer to you implements manual to check for fluid recommendations. Other oils commonly used are SAE 10W or automatic transmission fluid. Be sure the the fluid you use is compatible with both the implement and the PHP.

    NOTICE: DO NOT overfill the hydraulic tank. If too much fluid is in the system a condition can occur in which scalding hot hydraulic fluid is forced from the tank at high pressure. Avoid this dangerous situation by maintaining a proper fluid level.

2. Fill the engine crank case with the engine oil recommended in the Engine Manual.
3. All engines installed on the PHP are four cycle and have separate reservoirs for gasoline and oil. DO NOT mix gas and oil for fuel.
4. Use fresh, lead free gasoline that has not been contaminated by other fluids or debris.

5. Position the contol valve in Nuetral (center).
6. Loosen, but do not remove, the hydraulic tank fill cap to allow flow.
7. Disconnect the spark plug wire from the spark plug and secure it with a nonconductive tether; this prevents accidental ignition while priming the engine.
8. Pull the engine start cord at a moderate pace several times to prime the hydraulic pump by drawing in fluid.
9. Reattache the spark plug wire to the spark plug.
10. Start the PHP and run the engine for 10 minutes at half throttle.
11. Power off the engine after 10 minutes.
12. Inspect the hydraulic system of the equipment the PHP is going to power. It must be completely primed. If there is a cylinder in the system, the cylinder should be fully retracted. Inspect all hydraulic hoses and attachement points, make sure all fittings are secure.
13. Once connected to your equipment to be powered, recheck all fluid levels and adjust as necessary.
14. Secure the PHP's hydraulic tank fill cap firmly.

The startup procedure is now complete.

OPERATION

WARNING

Hydraulic fluid can become very hot with continuous use. DO NOT handle the PHP with bare skin while running or shortly after shutting it down as you will likely be burned. DO NOT remove the hydraulic tank fill cap while the PHP is running as high pressure could cause the release of scalding hot fluid.

Use with a Hydraulic Motor Implement
1. Identify the Pressure In hose on your implement.
2. Attach the Pressue In hose to the fitting on the lever side of the control valve, shown on the left in the picture below. *The PHP control valve comes with 1/2 quick connect hydraulic*
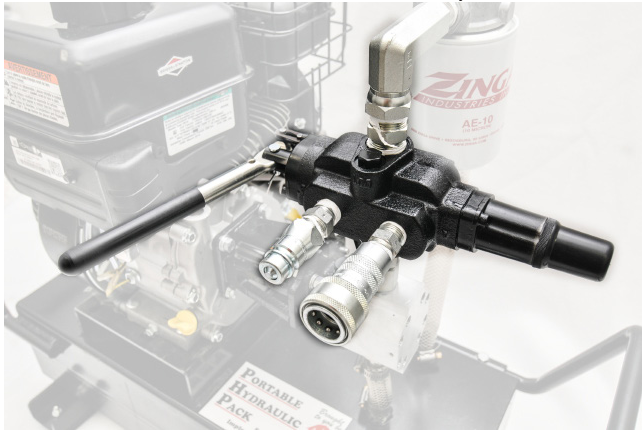
couplers. Be sure your implement is compatible with these couplers. If they are not, we recommend replacing the couplers on the implement rather than using an adaptor, which causes pressure loss.
3. Put the valve in Nuetral and start the engine. *Always have the valve lever in the Nuetral position when starting the PHP.*
4. Once the engine is warm, move the throttle into high RPM position.
5. Pull the handle towards the valve body (to the right in the preceeding picture.) In this direction the valve features a

detent that will hold it in position unless a preset pressure is reached, in which case the valve returns to nuetral. The preset pressure is 1000psi. This can be adjusted by removing the end cap and turning the bolt.

6. If your implement is capable of being used with reverse flow direction (refer to implement manual), you can reverse the flow with the bidirectional valve on the PHP:

   a. First move the lever into nuetral position to allow the implement motor to come to a halt.

   b. Slowly engage the reverse position (toward the engine, left in the preceeding picture), and hold the lever there. This direction does not have detent and the valve will return to nuetral if not held in reverse.

   c. DO NOT fix the valve in reverse position, this is a safety hazard and an alteration that voids the warranty.

7. Before turning off the PHP, put the valve in nuetral and allow all parts to come to a halt.

8. Once all machinery is stationary, turn off the engine.

9. To relieve pressure from the system, move the control lever into the forward and reverse positions for 5 seconds each.

10. Disconnect the hoses after pressure has been relieved.

Use with a Hydraulic Cylinder Attachement

NOTICE:

A mechanical position locking device is needed to prevent the cylinder from creeping. The valve on the PHP does not lock the position.

IMPORTANT: Cylinders and Hydrualic Fluid Level

Cylinders can remove a large portion of fluid from the hydraulic reservoir. DO NOT use a system in which the hydraulic tank level drops below 25% full. DO NOT add fluid to the tank when the reservoir is depleted, this is not a solution and will cause overflow when the cylinder cycles. DO NOT try to retrofit an auxiliary reservoir.

OPERATION

1. The cylinder should be fully retracted before attaching any hoses.
2. Determine if there is a need to have the detent funtion apply to either direction, or choose you hose connection based on the couplers. As an example below we attach the extending port on the cyclinder to the detent side on the valve.
3. Connect the cylinder return hose (rod end) to the port on the valve opposite the lever.
4. Connect the cylinder pressure hose (opposite rod end) to the port on the valve nearest the lever.
5. Position the valve in nuetral.
6. To extend the cylinder, pull the valve lever towards the valve body (away from the engine). This postion will stay engaged unless the system pressure exceeds the detent pressure (preset at 1000psi). <u>The lever must be manually pulled back to nuetral from this position.</u>
7. Lock the cylinder at the desired extension with a mechanical block or clamp. If not mechanically locked in place the PHP permits the cylinder to creep back under load.
8. To retract the cylinder, pull the lever away from the valve body (towards the engine). This position does not have detent and will return to nuetral if not held in place. DO NOT fix the lever in this position.
9. When finished using the system, fully retract the rod into the cylinder.
10. Position the valve in nuetral.
11. Turn off the engine.
12. To relieve pressure from the system, move the control lever into the forward and reverse positions for 5 seconds each.
13. Disconnect the hoses after pressure has been relieved.

General Maintenane Procedures
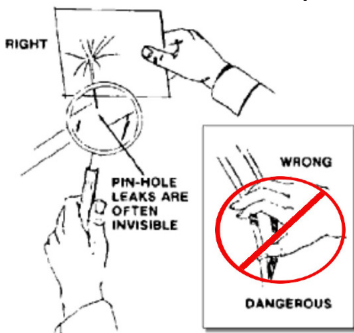
Before each operation, check the following:

- Inspect the hydraulic fittings and hose clamps on the tank, valve, filter and the attached implement. Make sure they are tight and check for signs of leaks (see warning below).
- Inspect the hydraulic hoses on the PHP and the implement. They should not have any cracks, kinks or fraying or signs of leaks.
- Check that all fasteners between components are tight, including the engine mount, pump mount and pump, and valve mount bracket.

If replacement parts are needed do not operate the PHP. Find the replacement part specs in the parts list and use only parts from your dealer, AgKNX, or that are certain to meet the specifications. Using unapproved parts can damage the PHP and your implement, can be a safety hazard, and is an alteration that will void the warranty.

WARNING: High Pressure Leaks Can Be Invisible

DO NOT check for leaks with your hands or bare skin. High pressure hydraulic fluid can puncture the skin and cause serious injury and poisoning which could be fatal. Seek Immediate medical attention if you have been punctured by hydraulic fluid.

Check for leaks in the hydraulic lines with something that is not

your body but will discolor if a leak is dischargin onto it. A thin board or cardboard are good options. Move the board around and up and down the hose, checking for any discoloration that my be caused by discharge through a tiny hole.

Hydraulic System Maintenance

We recommend changing the hydraulic fluid every 100 hours of use, or sooner if you notice a decrease in performance from the system. See the specification section for details on fluid changing. The fluid should be 1" from the ceiling of the tank.

If a fitting or hose needs replacement be sure to relieve all pressure from the system. With the engine off, cycle the control valve lever in each position for 5 seconds at a time, for several cycles, allowing any built up pressure to equalize in the system.

The hydraulic system does not require preparation procedures for storage.

Engine Service

Change engine crankcase oil as recommended by the manufacturer. Refer to the engine manual for maintenance and repair. Do not store gasoline in the engine for extended periods. If gasoline has been left in the engine the carburetor, petcock and fuel lines and fuel tank may need to be cleaned.

Refer to the engine manual for storage procedures.

SPECIFICATIONS

	PHP50	PHP100
Engine	196cc	270cc
Hydraulic Tank	5.6 gallons	10.2 gallons
Hydraulic Pump	DLH CBR-E7.7C 7.4 gpm, 900 psi	7.4 gpm, 1160 psi
Control Valve	DLH LVA1-95N21A7 1000psi detent (1-way) 25 gpm, 3000 psi max	DLH LVA1-95N21A7 1000psi detent (1-way) 25 gpm, 3000 psi max
Hydraulic Couplers	1/2" Quick connect one male, one female	1/2" Quick connect one male, one female
Dry Weight		
Overall Size		

Hydraulic Fluid:

General recommendation: AW-32 to AW-46.

Dextron III Automatic Transimission Fluid can also be used.

For extreme cold or hot conditions, consut the chart to choose the best fluid based on the operating fluid temperature range

ISO Viscosity	Minimum Fluid Temp °F	Maximum Fluid Temp °F
AW-22 (not recommended)[1]	5	131
AW-32 (for cold to moderate)	18	147
AW-46 (moderate to warm)	28	163
AW-68 (warm to hot)	39	183
AW-100 (not recommended)[2]	50	201

1. Not recommended because even in cold weather the fluid temperature can exceed the max allowable fluid temp if working under high pressure.
2. Not recommended because in less than hot temperatures the fluid will be too thick, and the max allowable temp of this fluid is beyond what is recommended to operate at for the system.

PARTS LIST

| ITEM NO.	PART	DESCRIPTION	QTY.
1	PHPBASE	Base tank with feet, inlet & outlet tubes, and handle welded as one piece	1
2	Engine		1
3	75LJ12	LO75 1/2" diameter Lovejoy coupler for Pump Shaft	1
4	75LJS	Rubber Spider for LO75 Lovejoy Coupler	1
5	75LJ34	3/4" diameter Lovejoy coupler for Engine Shaft	1
6	LSPM301	Pump Mount	1
7	DLH CBRE77C	DLH CBR-E7.7C Pump - 7.1 gpm, 1160 psi	1
8	FASTM8B45	m8 1.25 45mm bolt	4
9	FASTM8W	M8 flat Washer	8
10	FASTM8SW	m8 spring washer	12
11	FASTM8N	M8 1.25nut	8
12	FASTM8B30	m8 1.25 30mm bolt	4
13	PHPP875	magnetic 7/8"-18 drain plug	1
14	PHPPORB40	1-7/8"-12 SAE ORB 40 micron breather cap	1
15	PHPHCL	Generic worm-gear clamp to fit suction and return line hoses	4
16	HFORB14MXTUB12M	Hydraulic fitting 4604-12-10 7/8"-14 SAE to 3/4" Hose Barb	1
17	PHPH100	19.05mm (3/4") ID Hose Rated for Hydraulic Fluid and Suction - 100mm long	1

PARTS LIST

ITEM NO.	PART	DESCRIPTION	Q TY.
18	LSVLC5	C5 Valve -Deli Hydraulics - Note Handle Bracket may need to be rotated	1
19	HFNPT12MXNPT12FL	Hydraulic fitting 1501-LL-12-12 90 deg long fitting between valve adapter and filter	1
20	LSFL010B	Hydraulic Return Filter Base Zinga ZAF-05	1
21	LSFL010F	Hydraulic Return Filter Zinga AE-10	1
22	HFNPT12MXTUB12ML	3/4NPT Male to 3/4" Barbed Hose Fitting 90 degree elbow Hydraulic Fitting 4501-12-12	1
23	PHPH320	19.05" ID Black rubber hose for return line, rated for hydraulic oil - 320mm	1
24	HFAG8FXNPT8M	1/2" Stainless Steel Ag-style Quick Disconnect hydraulic fitting (female) QCH-AGPOP-B-1/2-1/2FP-S	1
25	HFAG8MXNPT8M	1/2" stainless steel Ag-style Quick Disconnect hydraulic fitting (male) QCH-AGPOP-T-1/2-1/2FP-S	1
26	FASTM8B25	M8-1.25 thread pitch 25mm Long	4
27	HFAGCCM	Rubberized cover and retention chain and ring, Male ag style quick connect	1
28	HFAGCCF	Rubberized cover and retention chain and ring, female ag style quick connect	1
29	HFORB8MXNPT12M	3/4" NPT male to SAE 8 Male 6401-08-12 hydraulic fitting	1
30	HFORB6MORB8F	SAE 6 male to SAE 8 female adapter 6410-06-08 hyrdaulic fitting	1
31	HFNPT8MXNPT8M	1/2" NPT Male-Male Adapter Hydraulic fitting 5404-08-08	2
32	HFNPT12MXNPT12M	3/4" NPT Male-Male adapter for between valve outlet and 90 deg filter adapter	1

PARTS DRAWING
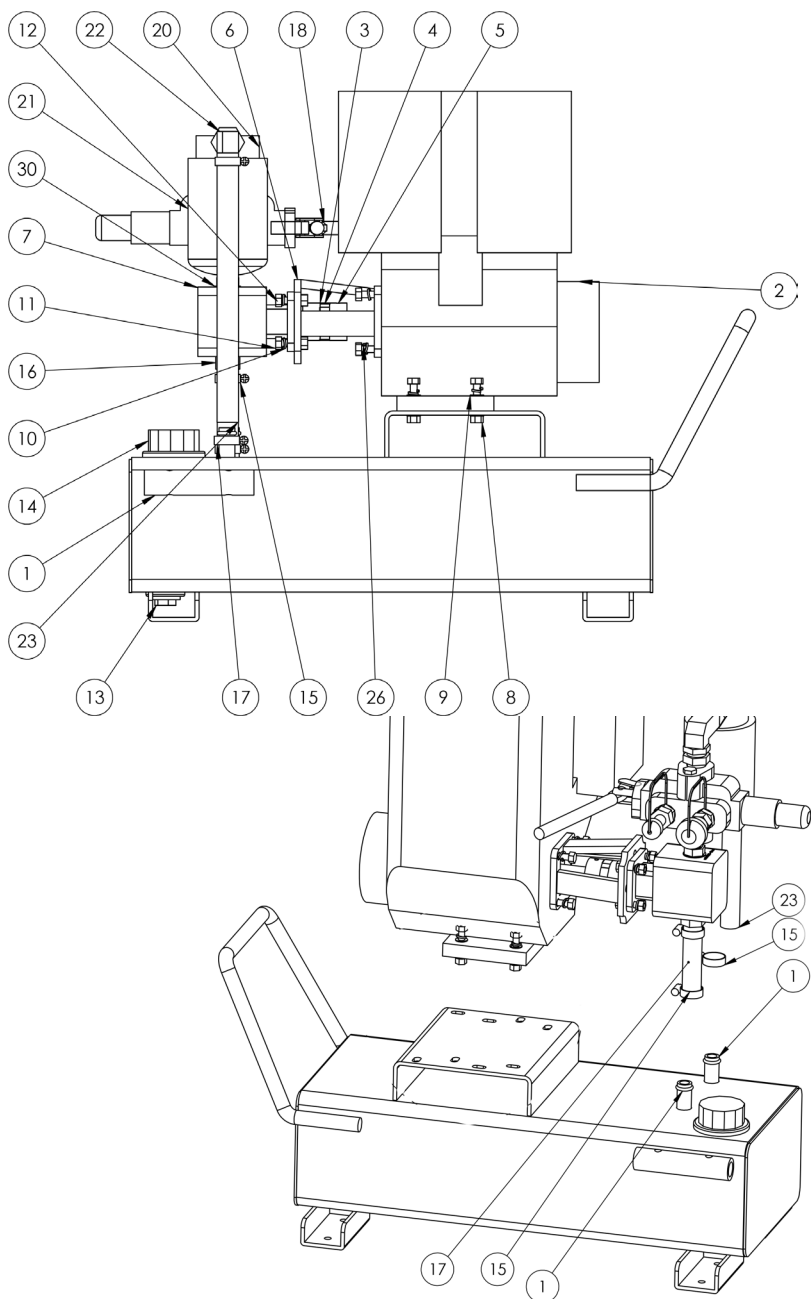
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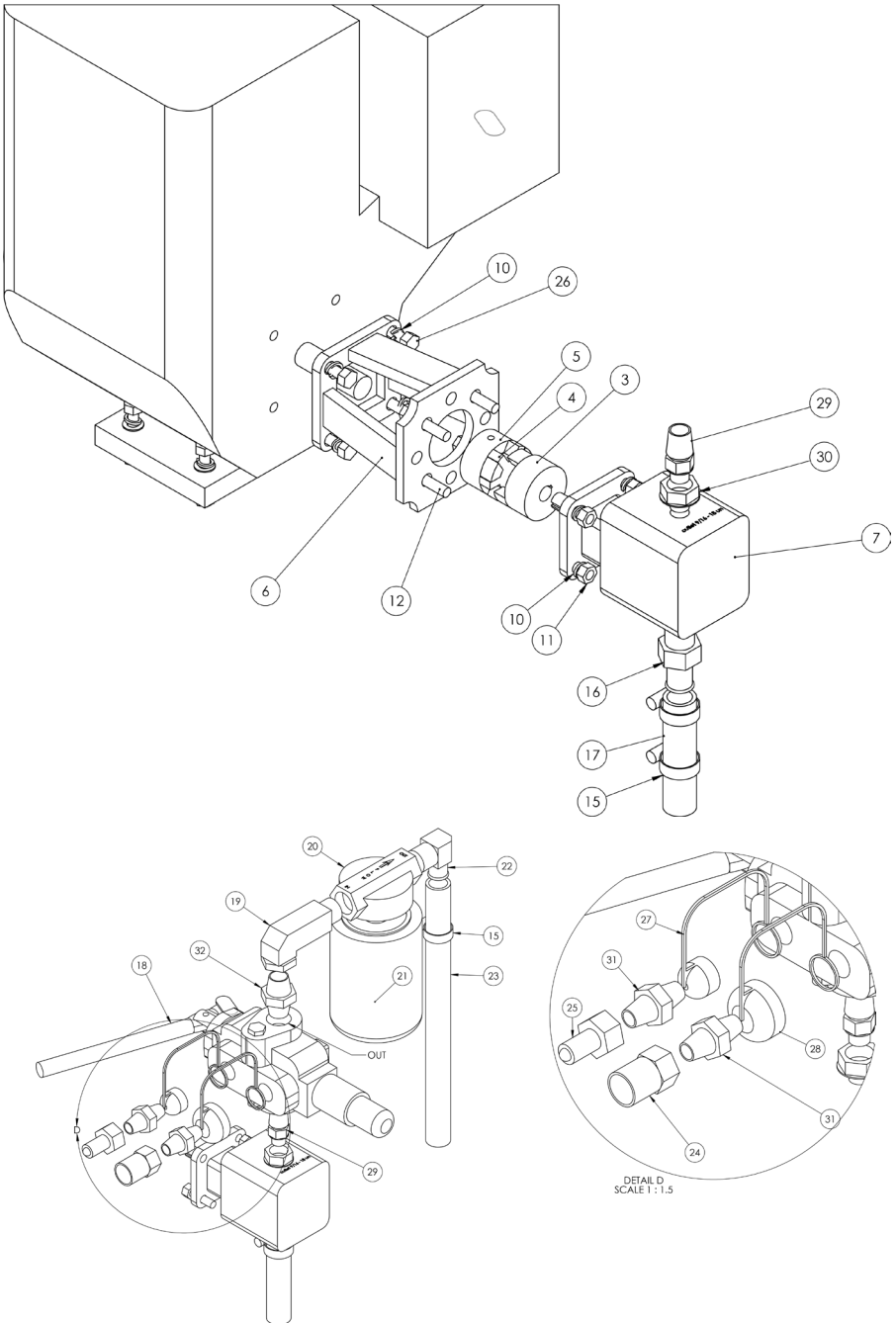
WARRANTY INFORMATION

AgKNX includes with purchase of the PHP a one year warranty, starting from the date of reciept of the PHP. Under this warranty, the original purchaser may recieve
- replacement of defective parts, free of charge
- repair service, free of charge, provided the PHP or component in question is delivered prepaid to our office, which we will inspect to determine whether the fault is due to defect or misuse.
- technical support

This warranty is void if
- the PHP or any of it's components have been altered or replaced with unapproved parts
- the PHP has been used for unapproved applications or in a way that violates the instructions of this manual
- the PHP has been serviced in any way contrary to instructions in this manual or without approval of AgKNX personnel
- the warranty was not registered with AgKNX

This warranty does not cover the engine, however, we will carry out the warranty of the engine's manufacturer.

To talk with an AgKNX representative regarding issues and warranty claims, have your model number and date of purchase on hand.

Model #_____

Date of Purchase_____

Purchased From_____

PHP WARRANTY REGISTRATION

To register you PHP Warranty, submit this form to the address below or find our warranty registration page at agknx.com

AgKNX
Customer Service Dept
15000 W 44th Ave, Ste B
Golden, Colorado 80403

Model #_____ Engine Serial #_____

Date of Purchase_____

Purchased From_____

City, St   _____

Owners Name _____

Address   _____

City, St, Zip   _____

Phone   _____

Email   _____

I acknowledge the terms of this warranty and understand the violations which can void this warranty. I have read and understand the manual and will adhere to the safety precautions therein. I have completed this form truthfully. To all of the above,

I sign:

_____