CS-150 Series

Cast Iron Wet-Seal 1-1/2” x 1-1/4” Centrifugal Spray Pump

Installation and Operation Manual

WARNING: USE OF THIS PRODUCT FOR ANY PURPOSES OTHER THAN ITS ORIGINAL INTENT, ABUSE OF THE PRODUCT, AND/OR MODIFICATION TO THE ORIGINAL PRODUCT IS STRICTLY PROHIBITED BY JOHN BLUE COMPANY. JOHN BLUE COMPANY RESERVES THE RIGHT TO DENY WARRANTY OR LIABILITY CLAIMS IN ANY/ALL SITUATIONS INVOLVING MISUSE, ABUSE OR MODIFICATION.

THE ORIGINAL INTENT OF THIS PRODUCT DOES NOT INCLUDE USE WHERE THE MAXIMUM ALLOWED PRESSURE OR TEMPERATURE IS EXCEEDED, AND IT DOES NOT INCLUDE APPLICATIONS UTILIZING FLUIDS THAT ARE NOT COMPATIBLE WITH THE PRODUCT’S COMPONENT MATERIALS. DO NOT USE THIS PRODUCT WITH FLAMMABLE OR COMBUSTIBLE FLUIDS SUCH AS GASOLINE, KEROSENE, DIESEL, ETC... FAILURE TO FOLLOW THIS NOTICE MAY RESULT IN SERIOUS INJURY AND/OR PROPERTY DAMAGE AND WILL VOID THE PRODUCT WARRANTY. IF IN DOUBT ABOUT YOUR APPLICATION, CONTACT YOUR STOCKING DEALER OR THE JOHN BLUE TECHNICAL STAFF AT 1-800-253-2583.

WARNING: This product can expose you to certain chemicals, which are known to the State of California to cause cancer or birth defects or other reproductive harm. For more information go to: www.P65Warnings.ca.gov.

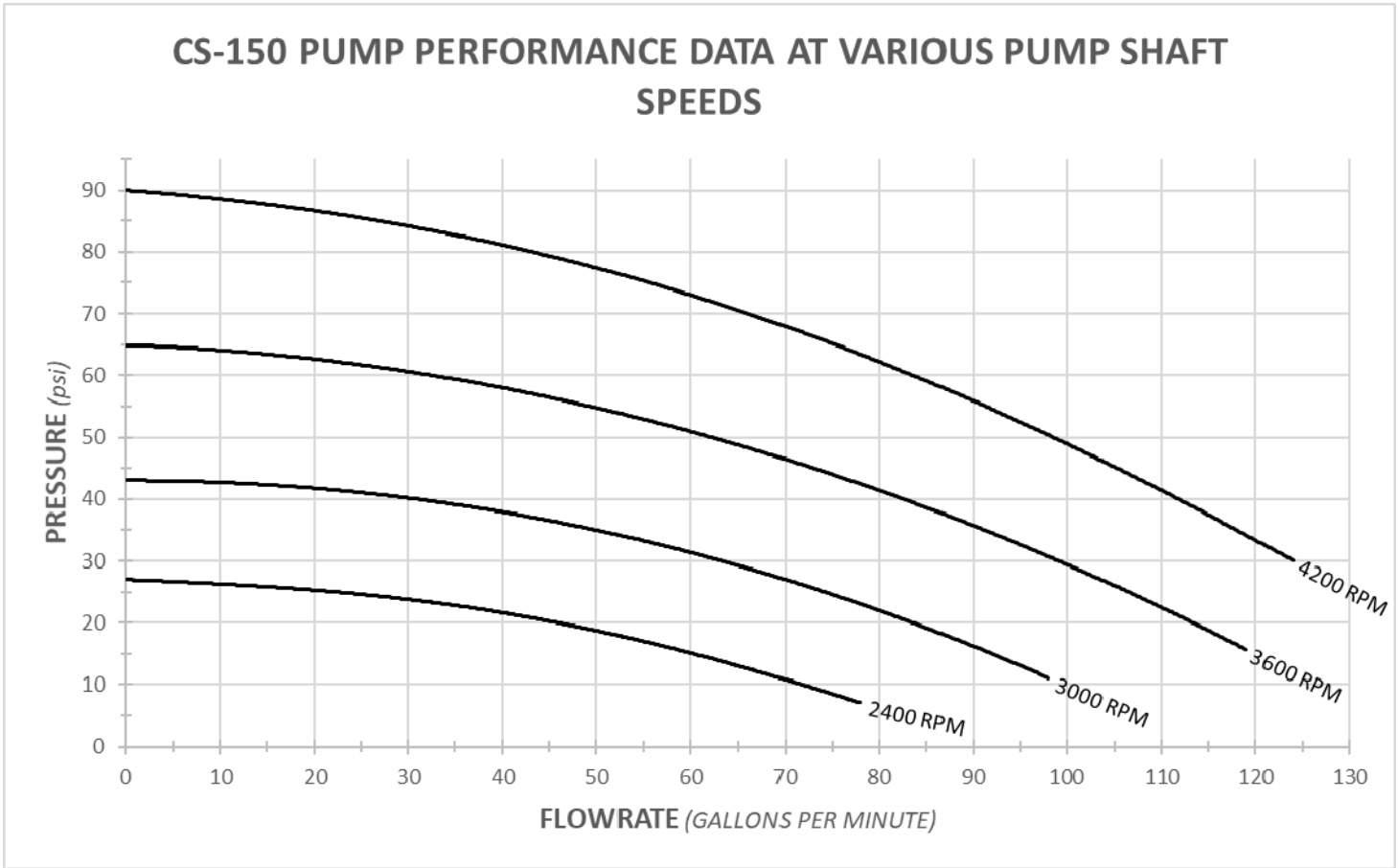
SAFETY PRECAUTIONS: EQUIPMENT SHOULD BE OPERATED BY RESPONSIBLE PEOPLE. A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST AN ACCIDENT. FILL SYSTEM WITH WATER FIRST AND CHECK FOR LEAKS – REPLACE HOSES WHEN WORN OR CRACKED.

The CS-150 Centrifugal spray pump is available in four configurations, details of each configuration are outlined on the proceeding pages, the four configurations are:

1. **1.)** Shaft Drive (P/N: CS-150)
2. **2.)** Hydraulic Drive (P/N: CS-150-HY)
3. **3.)** Hydraulic Drive with Manifold (P/N: CS-150-HYM)
4. **4.)** Gas Engine Drive (P/N: CS-150RG)

Pump Specifications and Performance:

- Max flow: 125 gpm @ 3800 RPM
- Max pressure: 90 psi @ 4200 RPM
- Shaft Size 3/4” Inner Diameter
- Pump Inlet Port Size: 1-1/2” FPT & 220 Flange Inlet
- Pump Outlet Port Size: 1-1/4” FPT & 200 Flange Outlet



1.) Shaft Drive Configuration (P/N: CS-150):

Installation:

This configuration is designed to drive the pump via a pulley system mounted on the pump drive shaft.

For hydraulic motor fitment, you must order a “-HY” or “-HYM” pump for use.

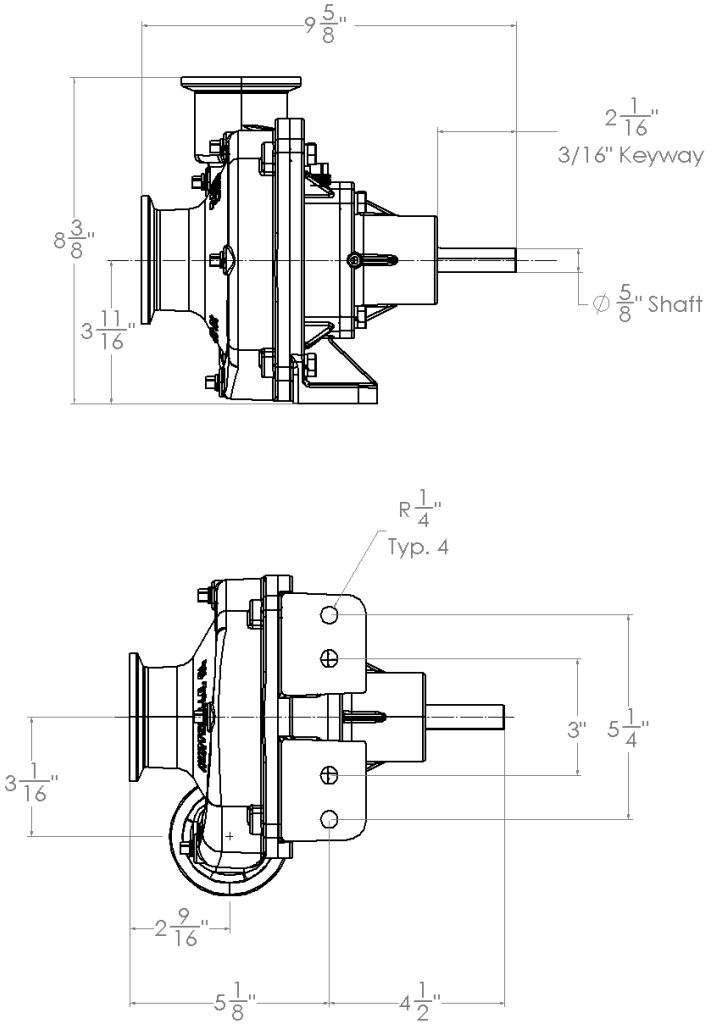
** Note that any plumbing must be supported so that its weight does not hang off the pump, this will void the warranty.

Storage:

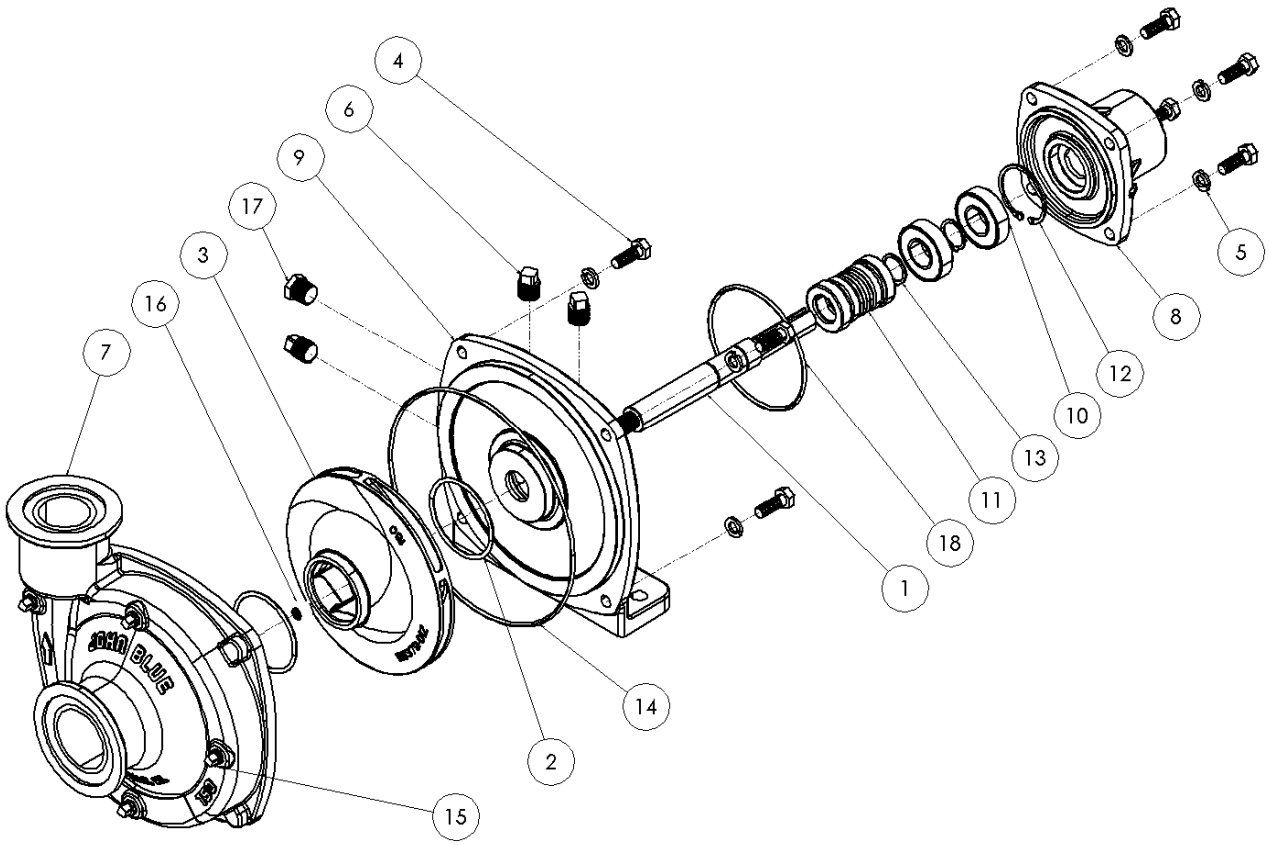
After use, flush the pump with a solution that will neutralize the fluid you have been pumping, and then drain, then fill the pump with RV antifreeze for storage.

Maintenance:

Inspect the seal reservoir fluid level using the sight window, the fluid level should be above the middle of the window. If the fluid is dirty, drain the pump by vacuum or turning upside down, then replace with 50/50 premixed ethylene glycol antifreeze. If fluid is cloudy, impeller side seal may be leaking.



CS-150 Pump Components:



Item	Description	Part #	Qty
1	SHAFT	116383-01	1
2	TEFLON SEAL RING	116246-01	2
3	IMPELLER	116379-01	1
4	5/16"-18 X 7/8" LG. HEX HEAD BOLT, PLATED	91013	8
5	5/16" SPLIT LW, PLATED	93023	8
6	1/8" NPT PLUG, PLATED	C-431-B	3
7	HOUSING	116380-01	1
8	BEARING HOUSING	116282-01	1
9	PEDESTAL	116381-01	1
10	BEARING	116385-01	2
11	DOUBLE SEAL – CERAMIC	116386-01	1
12	HOUSING RETAINING RING	116387-01	1
13	SHAFT RETAINING RING	116388-01	2
14	HOUSING O-RING – VITON #166	116389-01	1
15	1/8" NPT PLUG, PLATED	A-29	4
16	3/8"-24NF FLEXLOC NUT, SS	S-3557	1
17	SIGHT WINDOW	116384-01	1
18	ADAPTER O-RING – BUNA #152	116390-01	1

2.) Hydraulic Drive Configuration (P/N: CS-150-HY):

Installation:

This configuration is designed to drive the pump via a hydraulic motor.

** Note that any plumbing must be supported so that its weight does not hang off the pump, this will void the warranty.

Storage:

After use, flush the pump with a solution that will neutralize the fluid you have been pumping, and then drain, then fill the pump with RV antifreeze for storage.

Maintenance:

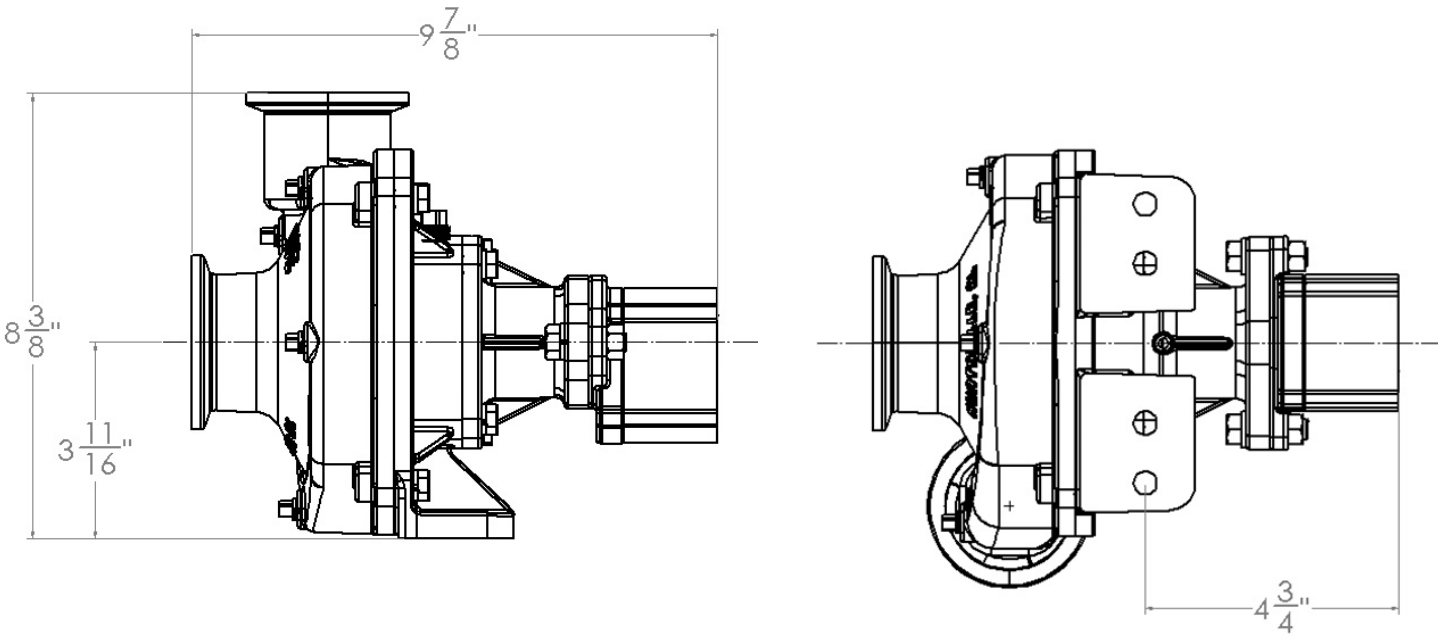
Inspect the seal reservoir fluid level using the sight window, the fluid level should be above the middle of the window. If the fluid is dirty, drain the pump by vacuum or turning upside down, then replace with 50/50 premixed ethylene glycol antifreeze. If fluid is cloudy, impeller side seal may be leaking.

Hydraulic Drive Specifications:

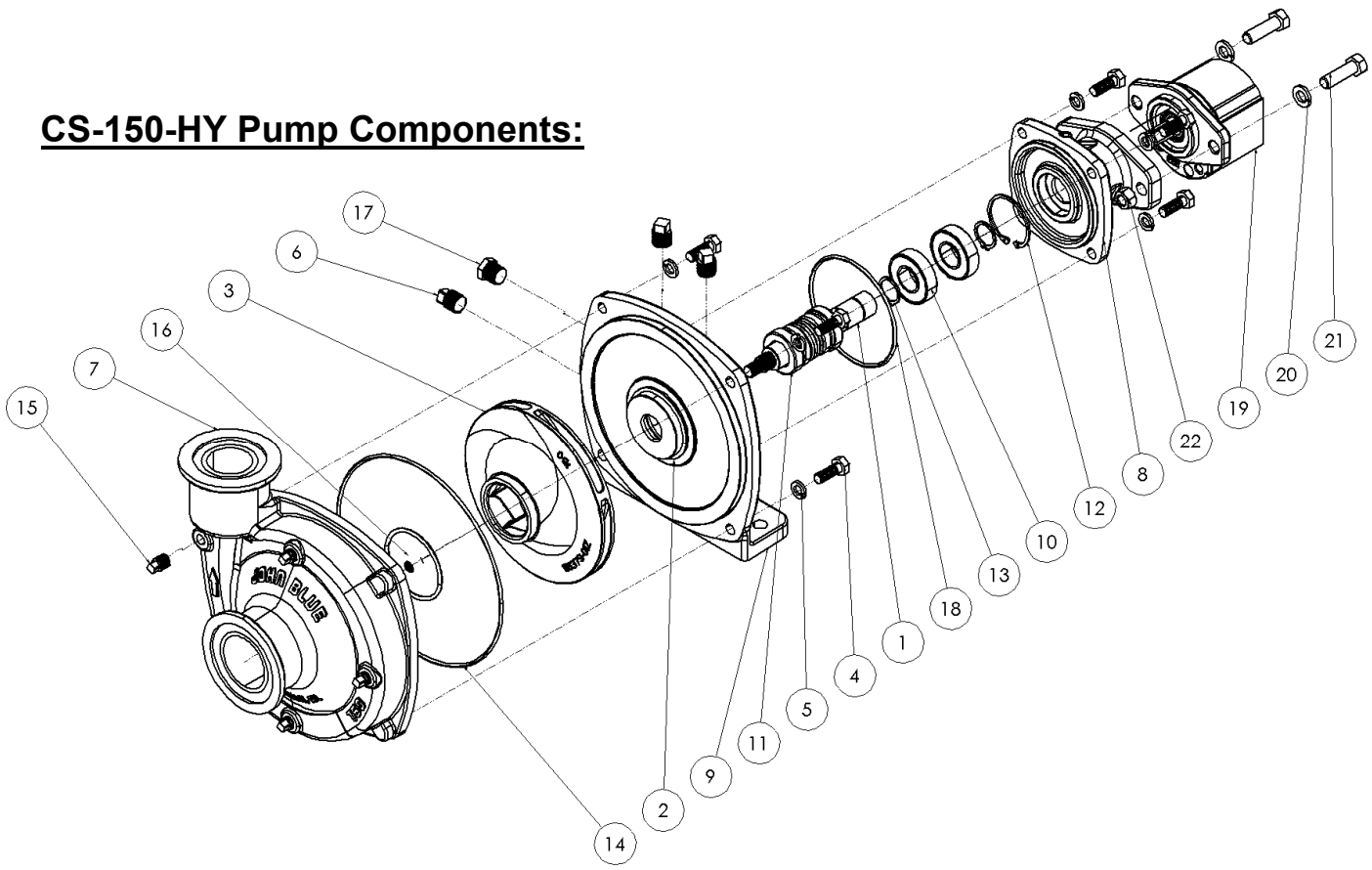
- Max Hydraulic Flow : 4 GPM*
- Max Hydraulic Pressure : 3000 PSI*
- Pump Port (P) Size : SAE-6
- Tank Port (T) Size : SAE-8
- Gauge/Load Sense Port (M1G/LS) : SAE-4

Hydraulic line sizes should be sized appropriately to the flow capacity of the tractor / supply and rated for 3000 PSI continuous operating pressure, for flowrates from 0-4 GPM size -6 (3/8") hose is recommended.

**** MAXIMUM WATER FLOW FROM THE PUMP IS ACHIEVED AT 4 GPM HYDRAULIC FLOW, HYDRAULIC FLOW IN EXCESS OF 4 GPM OR HYDRAULIC PRESSURE IN EXCESS OF 3000 PSI CAN RESULT IN DAMAGE TO THE HYDRAULIC MOTOR.***



CS-150-HY Pump Components:



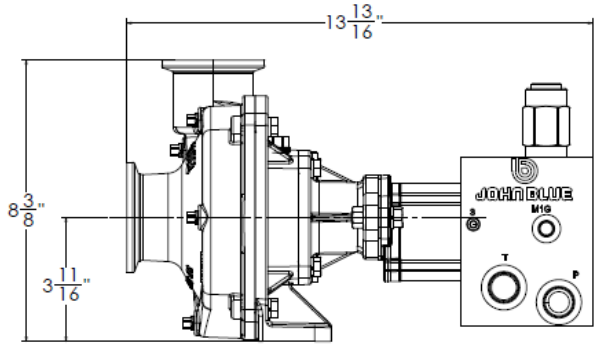
Item	Description	Part #	Qty
1	SHAFT	116392-01	1
2	TEFLON SEAL RING	116246-01	2
3	IMPELLER	116379-01	1
4	5/16"-18 X 7/8" LG. HEX HEAD BOLT, PLATED	91013	8
5	5/16" SPLIT LW, PLATED	93023	8
6	1/8" NPT PLUG, PLATED	C-431-B	3
7	HOUSING	116380-01	1
8	BEARING HOUSING	116282-01	1
9	PEDESTAL	116381-01	1
10	BEARING	116385-01	2
11	DOUBLE SEAL – CERAMIC	116386-01	1
12	HOUSING RETAINING RING	116387-01	1
13	SHAFT RETAINING RING	116388-01	2
14	HOUSING O-RING – VITON #166	116389-01	1
15	1/8" NPT PLUG, PLATED	A-29	4
16	3/8"-24NF FLEXLOC NUT, SS	S-3557	1
17	SIGHT WINDOW	116384-01	1
18	ADAPTER O-RING – BUNA #152	116390-01	1
19	HYDRAULIC MOTOR	116486-01	1
20	3/8" WASHER	93024	2
21	3/8"-16 1-1/4 HEX BOLT, PLATED	90653	2
22	3/8"-16 HEX NUT, PLATED	92024	2

3.) Hydraulic Drive with Manifold Configuration (P/N: CS-150-HYM):

Installation:

This configuration is designed to drive the pump via a hydraulic motor with a manifold.

** Note that any plumbing must be supported so that its weight does not hang off the pump, this will void the warranty.

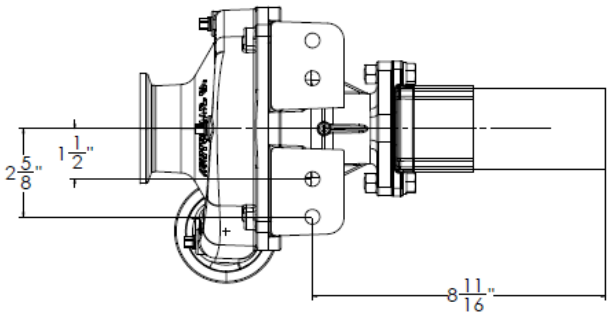


Storage:

After use, flush the pump with a solution that will neutralize the fluid you have been pumping, and then drain, then fill the pump with RV antifreeze for storage.

Maintenance:

Inspect the seal reservoir fluid level using the sight window, the fluid level should be above the middle of the window. If the fluid is dirty, drain the pump by vacuum or turning upside down, then replace with 50/50 premixed ethylene glycol antifreeze. If fluid is cloudy, impeller side seal may be leaking.



Hydraulic Drive Specifications:

- Max Hydraulic Flow : 25 GPM*
- Ideal Hydraulic Flow : 4 GPM
- Max Hydraulic Pressure : 3000 PSI*
- Pump Port (P) Size : SAE-10
- Tank Port (T) Size : SAE-10
- Gauge/Load Sense Port (M1G/LS) : SAE-4

Hydraulic line sizes should be sized appropriately to the flow capacity of the tractor / supply and rated for 3000 PSI continuous operating pressure, for flowrates from 0-4 GPM size -6 (3/8”) hose is recommended, for flowrates from 8-15 GPM size -8 (1/2”) hose is recommended, for flowrates from 15-25 GPM size -10 (5/8”) hose is recommended, and for the M1G/LS Line size -4 (1/4”) hose is recommended.

**** MAXIMUM WATER FLOW FROM THE PUMP IS ACHIEVED AT 4 GPM HYDRAULIC FLOW, HYDRAULIC FLOW IN EXCESS OF 25 GPM OR HYDRAULIC PRESSURE IN EXCESS OF 3000 PSI CAN RESULT IN DAMAGE TO THE HYDRAULIC MOTOR OR MANIFOLD. ALL HYDRAULIC FLOW IN EXCESS OF 4 GPM IS BYPASSED BACK TO THE TANK AND CAN CAUSE HEAT GENERATION WITHIN THE HYDRAULIC SYSTEM.***

Hydraulic System Operation for CS-150-HYM:

Depending on the tractor's hydraulic system, please select the appropriate instructions from the below choices. If you have any questions, please contact John Blue or your John Blue distributor.

If Tractor's Hydraulic System is Load Sense / Closed Center:

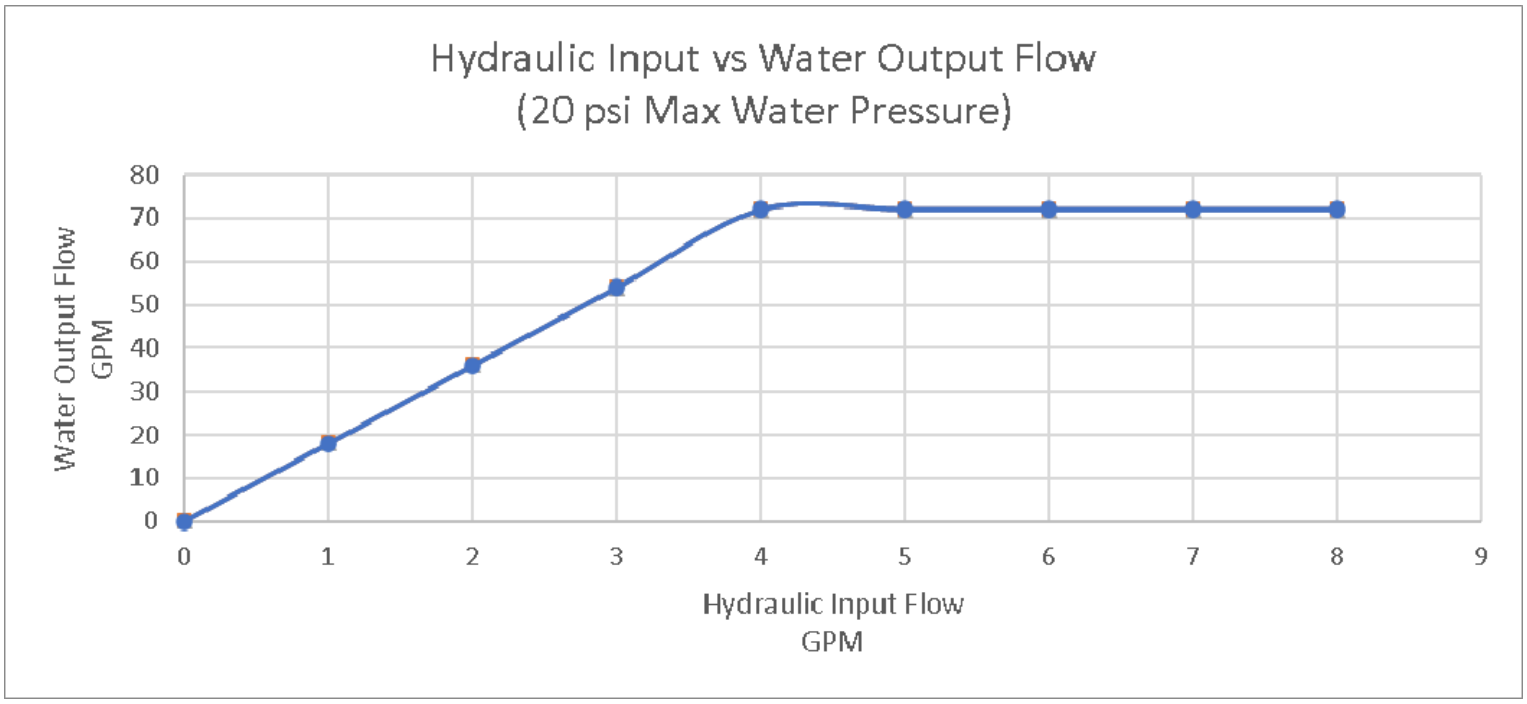
1. Connect M1G port of Hydraulic Manifold to Load Sense (LS) port of tractor's hydraulic system
2. Shutoff sprayer system valves
3. Set hydraulic flow from tractor/supply to 0-4 GPM per Chart HYM 1.1 (below) to approximate sprayer flow desired. Do not exceed 25 GPM hydraulic flow
4. Open sprayer system valve to desired sprayer pressure and flow

If Tractor's Hydraulic System is Pressure Compensated:

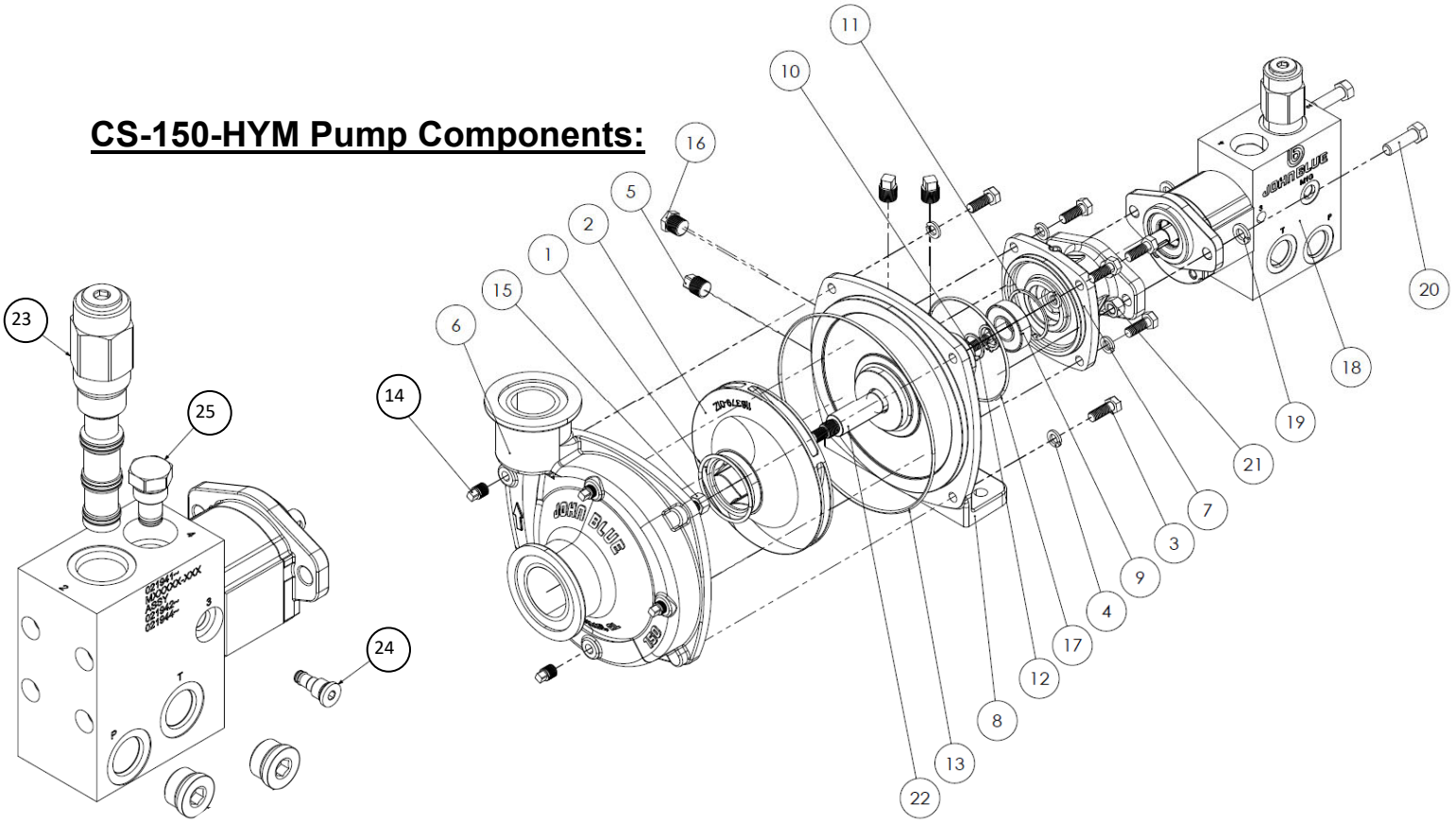
1. Shutoff sprayer system valve
2. Set Hydraulic flow from tractor/supply to 0-4 GPM per Chart HYM 1.1 (below) to approximate sprayer flow desired. Do not exceed 25 GPM hydraulic flow.
3. Open sprayer system valve to desired sprayer pressure and flow

If Tractor's Hydraulic System is Open Center:

1. Set hydraulic flow from tractor/supply to 0-4 GPM per the below "Chart HYM 1.1" to approximate sprayer flow desired. Do not exceed 25 GPM hydraulic flow.
2. Open sprayer system valve to desired sprayer pressure and flow



CS-150-HYM Pump Components:



Item	Description	Part #	Qty
1	TEFLON SEAL RING	116246-01	2
2	IMPELLER	116379-01	1
3	5/16”-18 X 7/8” LG. HEX HEAD BOLT, PLATED	91013	8
4	5/16” SPLIT LW, PLATED	93023	8
5	1/8” NPT PLUG, PLATED	C-431-B	3
6	HOUSING	116380-01	1
7	BEARING HOUSING, HYD	116391-01	1
8	PEDESTAL	116381-01	1
9	BEARING	116385-01	2
10	DOUBLE SEAL – CERAMIC	116386-01	1
11	HOUSING RETAINING RING	116387-01	1
12	SHAFT RETAINING RING	116388-01	2
13	HOUSING O-RING – VITON #166	116389-01	1
14	1/8” NPT PLUG, PLATED	A-29	4
15	3/8”-24NF FLEXLOC NUT, SS	S-3557	1
16	SIGHT WINDOW	116384-01	1
17	ADAPTER O-RING – BUNA #152	116390-01	1
18	HYDRAULIC MOTOR W/MANIFOLD	116494-01	1
19	3/8” WASHER	93024	2
20	3/8”-16 1-1/4 HEX BOLT, PLATED	90653	2
21	3/8”-16 HEX NUT, PLATED	92024	2
22	SHAFT	116392-01	1
23	SEAL-KIT, VALVE 2	116522-01	1
24	SEAL-KIT, VALVE 3	116523-01	1
25	SEAL-KIT, VALVE 4	116524-01	1
26	KEY # 42704500 (NOT SHOWN)	116525-01	1

4.) Gas Engine Drive Configuration (P/N: CS-150RG):

Installation:

This configuration is designed to drive the pump via a gas engine. The recommended engine is a Honda GX-160 (John Blue Part Number: 113798-01).

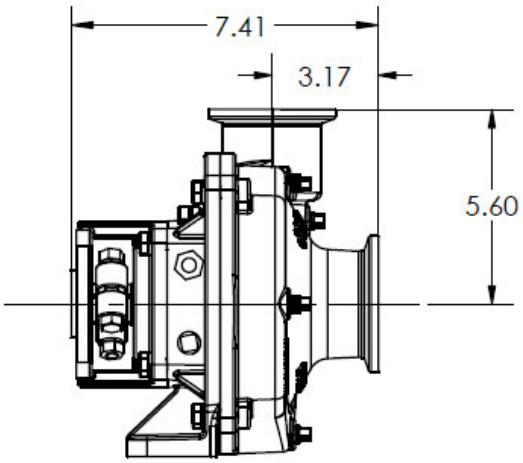
** Note that any plumbing must be supported so that its weight does not hang off the pump, this will void the warranty.

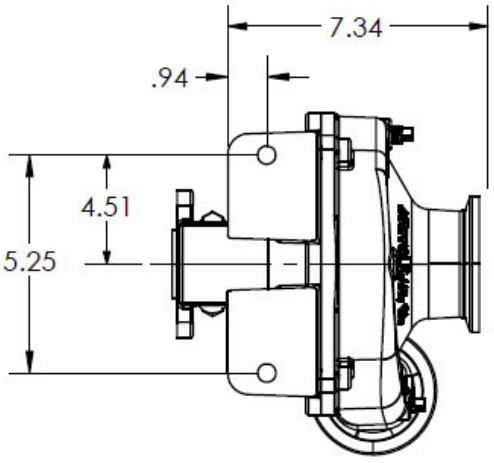
Storage:

After use, flush the pump with a solution that will neutralize the fluid you have been pumping, and then drain, then fill the pump with RV antifreeze for storage.

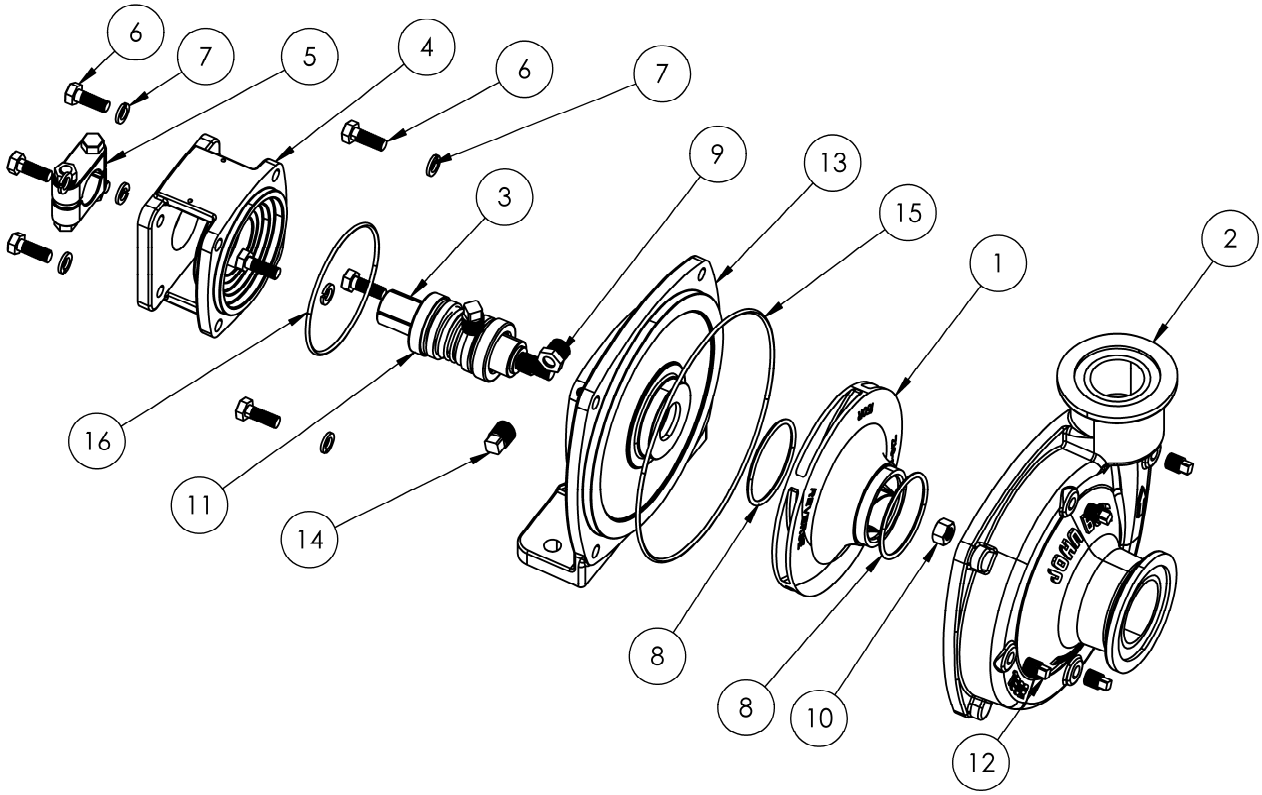
Maintenance:

Inspect the seal reservoir fluid level using the sight window, the fluid level should be above the middle of the window. If the fluid is dirty, drain the pump by vacuum or turning upside down, then replace with 50/50 premixed ethylene glycol antifreeze. If fluid is cloudy, impeller side seal may be leaking.





CS-150RG Pump Components:



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	116413-01	IMPELLER	1
2	116414-01	HOUSING	1
3	116416-01	IMPELLER SHAFT, GAS ENGINE	1
4	116417-01	ADAPTER, GAS ENGINE	1
5	S-3607S	SHAFT CLAMP	1
6	91013	5/16-18 x 7/8" LG HEX HEAD BOLT, PLATED	8
7	93023	5/16" SPLIT LOCKWASHER, PLATED	8
8	116246-01	PTFE O-RING	2
9	116384-01	SIGHT WINDOW	1
10	S-3557	3/8-24NF LOCK NUT, SS	1
11	S-3565-V	DOUBLE SEAL - CERAMIC	1
12	A-29	1/8" NPT PLUG	4
13	116415-01	PEDESTAL	1
14	95015	1/4" NPT PLUG	2
15	116389-01	HOUSING O-RING - VITON #166	1
16	116390-01	ADAPTER O-RING - VITON #152	1

Pump Troubleshooting:

ISSUE	PROBABLE CAUSE
Pump makes rattling noise while running	Cavitation or pump starvation (suction lift is too high or the inlet line is too restrictive)
Reduced pump output or pressure	Clogged impeller or inlet piping (including strainer)
	Leaks in suction line or at inlet gasket
	Collapsed suction line
	Trapped air in sections of suction line
	Suction lift is too great – flooded inlet recommended
	Discharge lift is too great
	Worn or damaged parts (impeller or volute)
Pump fails to prime or slow prime	Leaks in suction line or at inlet gasket
	Suction lift is too great – flooded inlet recommended
	Collapsed suction line
Seal reservoir fluid changes level	Leak at the input shaft seal if level is low
	Leak at the impeller side seal if level is high

Hydraulic System Troubleshooting:

ISSUE	PROBABLE CAUSE
Reduced sprayer pump water flow or water pressure	Insufficient hydraulic flow or pressure from tractor
	Damaged O-rings on valves in hydraulic motor manifold see “Parts Breakdown” section above
Insufficient water pressure	No water available. Water pump exceeding water supply
	Leaks in water pressure line
External hydraulic leak	Damaged seals or loose components
	Assembly bolts loose
No water flow but maximum hydraulic pressure	Pressure and Tank lines between tractor and HYM are reversed. Reverse lines on the on hydraulic motor manifold. Debris in water line stopping water pump from rotating.
Overheated hydraulic system	Excessive Hydraulic flow. Max water output available at 4 GPM Hydraulic flow. Hydraulic flow in excess of 25 GPM not recommended.

Note to the Owner

The pump should be inspected annually for any wear or damage to any of the components in order to ensure proper operation. Enter the date of installation in the space provided for future reference. This information will be required for ordering replacement parts or servicing your pump.

Our engineering department constantly improves its products. We reserve the right to make design and specification changes without notice.

DATE OF INSTALLATION: _____

LIMITED WARRANTY

THIS WARRANTY IS IN LIEU OF ALL OTHER WRITTEN OR EXPRESS WARRANTIES AND REPRESENTATIONS. ANY IMPLIED WARRANTIES INCLUDING MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY LIMITED TO THIS WRITTEN WARRANTY. JOHN BLUE COMPANY SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES.

Use of this product for any purpose other than its original intent, abuse of the product, and/or any modification to the original product is strictly prohibited by the manufacturer, John Blue Company. Any modification to the product should be approved by John Blue Company prior to use. John Blue Company will deny Warranty claims and liability in any situation involving misuse, abuse or modification.

Each new machine or component manufactured by John Blue Company through original buyer is warranted by John Blue Company to buyer and to any party or parties to whom buyer may resell, lease or lend the equipment to be free from defects in material and workmanship under normal use and service. This obligation of John Blue Company under this warranty is limited to the repair or replacement of defective parts or correction of improper workmanship of any parts of such equipment which shall within one year from the date of John Blue's original delivery thereof, be returned to John Blue's factory, transportation charges prepaid and which John Blue Company shall determine to its satisfaction upon examination thereof to have been thus defective. When it is impractical to return the defective parts of such equipment to John Blue's factory, then John Blue shall have no liability for the labor cost involved in repairing or replacing any such parts and shall be liable solely for supplying the material necessary to replace or repair the defective parts, provided that prior thereto John Blue Company shall have determined to its satisfaction that any such parts are thus defective.

This warranty shall not apply to any equipment which shall have been repaired or altered outside John Blue's factory in any way so as to affect its durability, nor which has been subjected to misuse, abuse, negligence or accident, or operated in any manner other than in accordance with operating instructions provided by John Blue Company. This warranty does not extend to repairs made necessary by the use of inferior or unsuitable parts or accessories, or parts or accessories not recommended by John Blue Company.

John Blue Company makes no warranties in respect to parts, accessories or components not manufactured by John Blue Company, same ordinarily being warranted separately by their respective manufacturers.

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