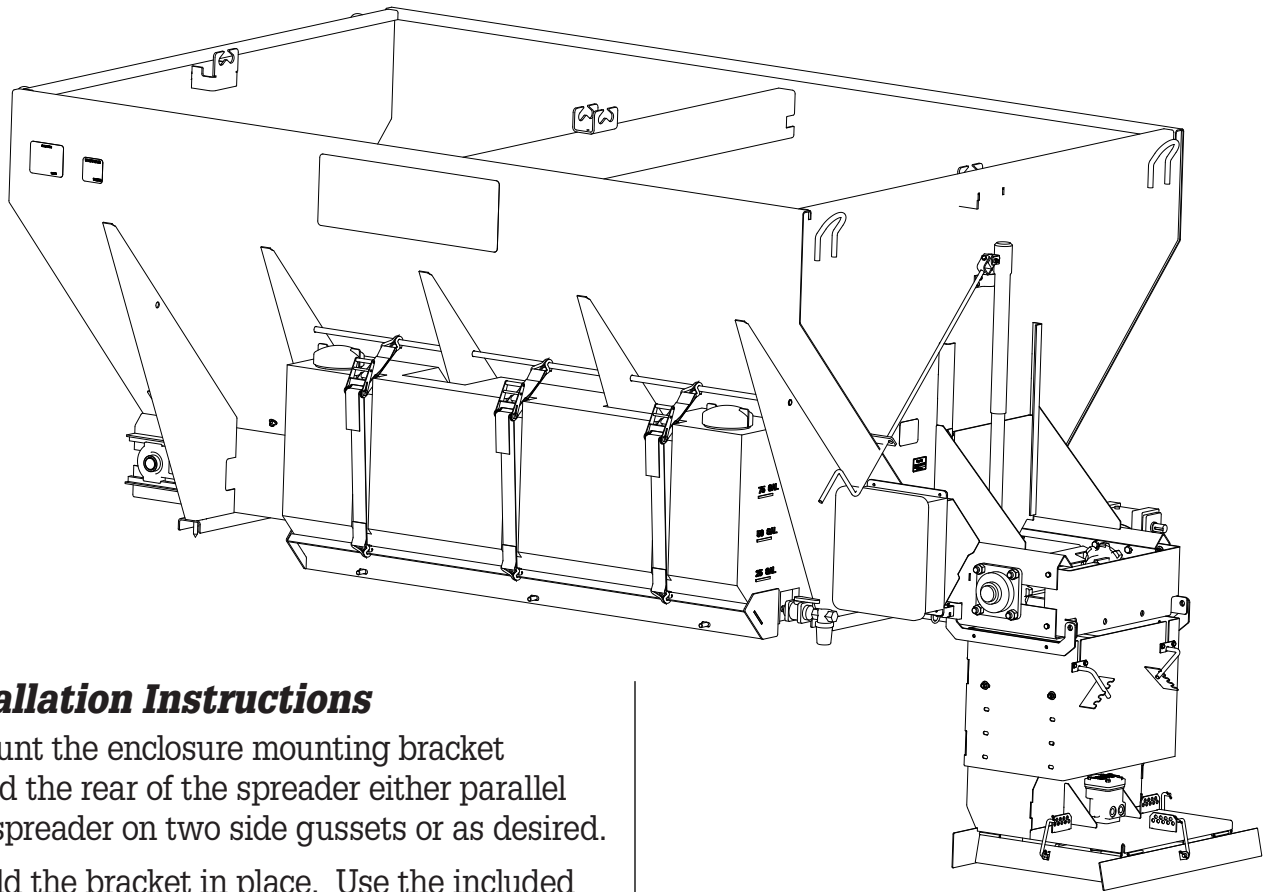


# Installation & Operator's Manual

## LS4H Liquid Spray System 105 Gallon Tank



### Installation Instructions

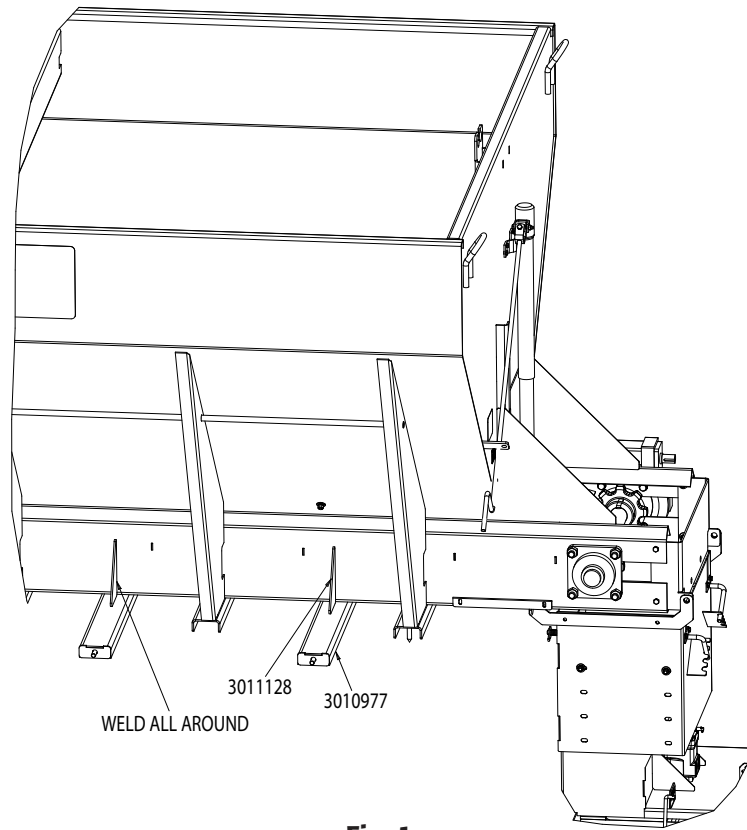
1. Mount the enclosure mounting bracket toward the rear of the spreader either parallel with spreader on two side gussets or as desired.
2. Weld the bracket in place. Use the included hardware to mount the enclosure using the predrilled holes that match up with the four holes on the enclosure's flanges and two holes inside.

**▲ WARNING**

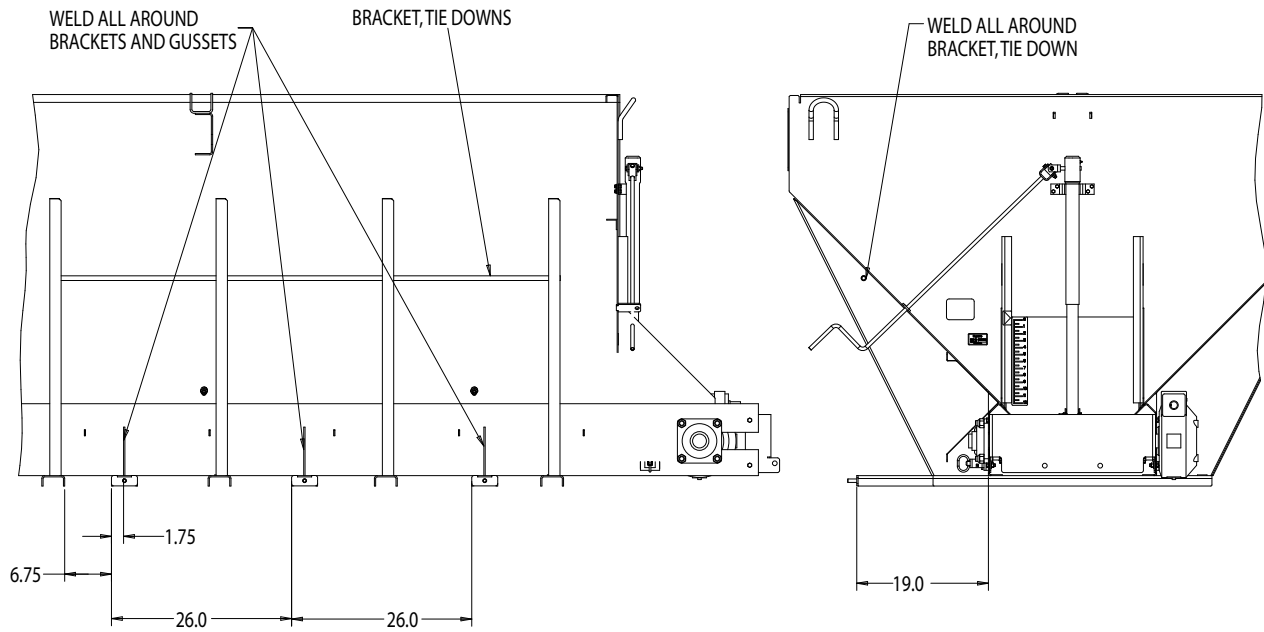
The two inside bolts must be installed through the internal enclosure plate and mounting bracket in order to secure the assembly.

3. Position reservoir bracket (#3010977), gussets (#3011128) and bracket tie downs (#3011124) as shown in fig.2. Weld all parts in place as shown in fig.2 and fig.1 on both sides of spreader.
4. Place reservoir (#3010816) on bracket and secure it using retainers (#3010979) as shown in fig.3.

5. Use three (#1496505) (see fig. 3) 1-3/4" x 5" ratchet tie downs to secure the reservoir.
6. Plumb: Reservoir, ball valve, filter, pump enclosure and spray nozzles according to plumbing schematic. Use Loctite™ #30534 or Permatex™ #2 thread sealants only. **DO NOT USE TEFLON TAPE**
7. Two 11/16" diameter holes are predrilled in the chute guide (#3010180) for installation of two liquid spray nozzles, see fig.3. Installation on different brands of spreaders may require different nozzle locations.
8. Refer to page 4 for flow adjustment

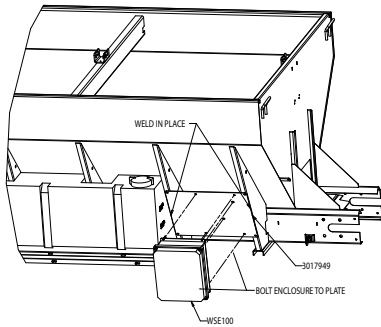


**Fig. 1.**

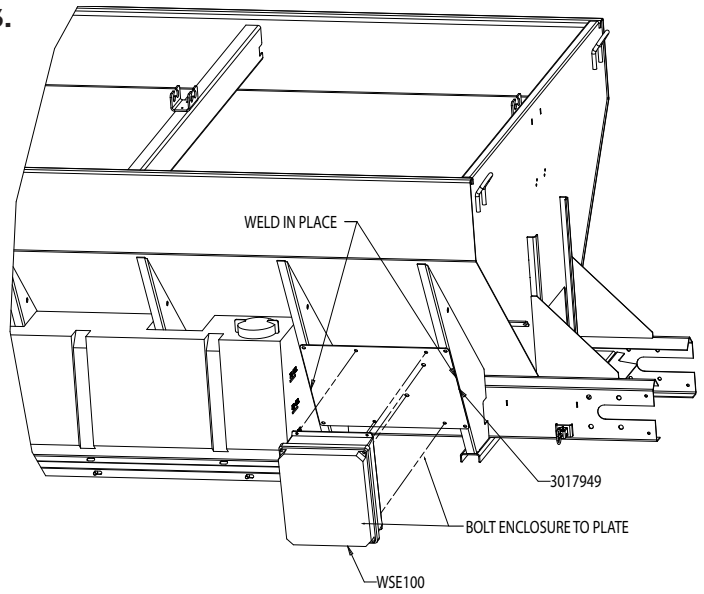


**Fig. 2.**

**Fig. 4.**



**Fig. 3.**



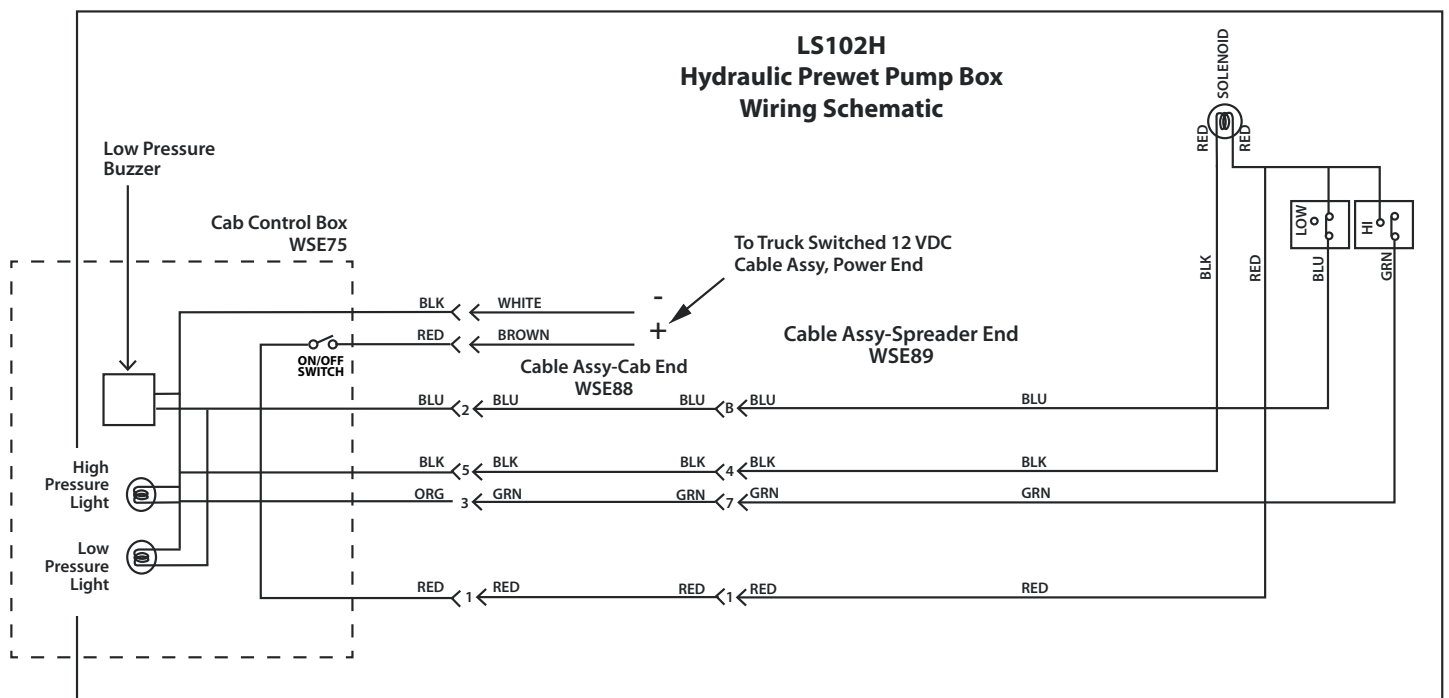
LS4H can be adapted for Buyers' 3, 4 and 4.5 cubic yard spreaders.

**Fig. 5.**

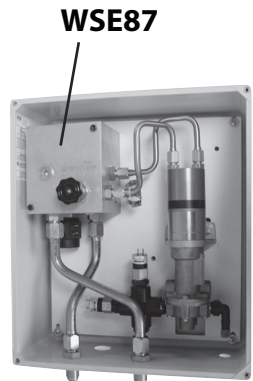
WSE75  
Cab Controller  
box (Front)



WSE75  
(Back)

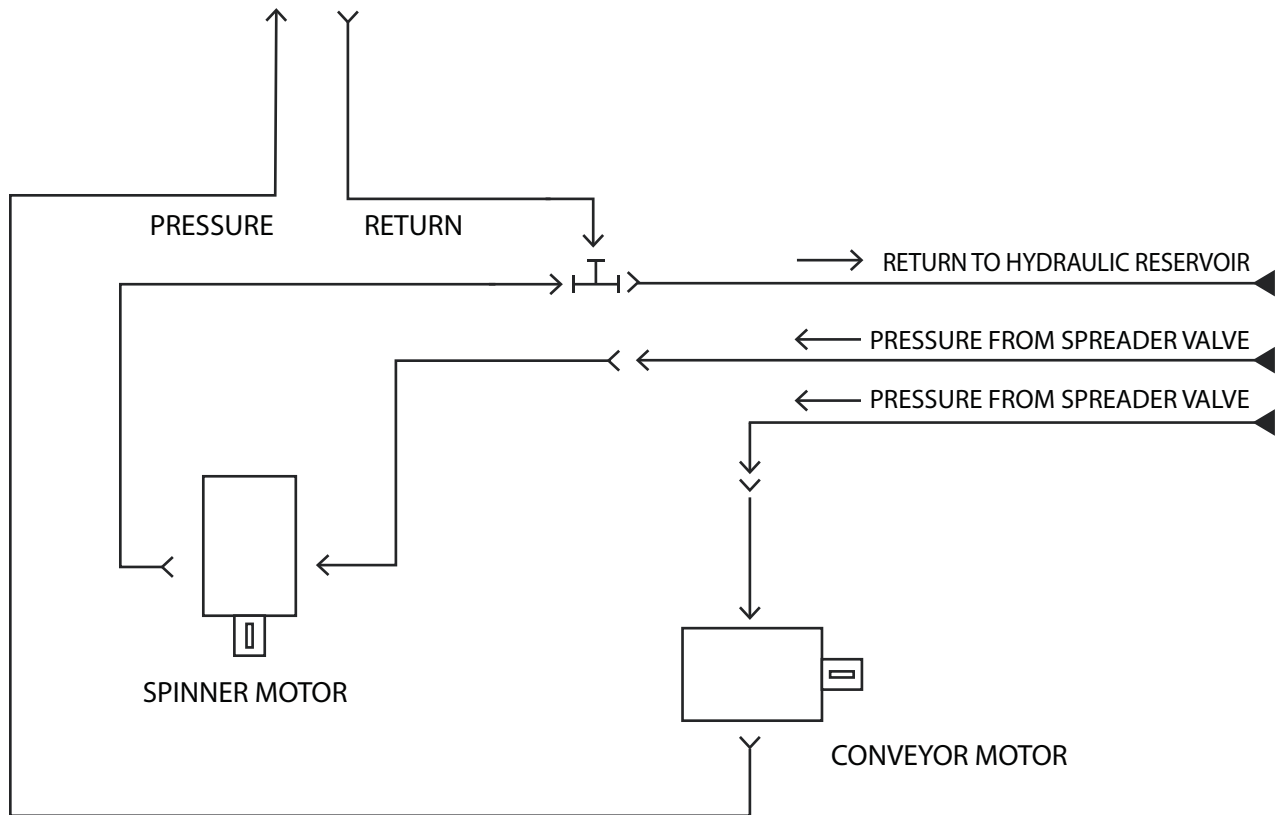


**Fig. 6**

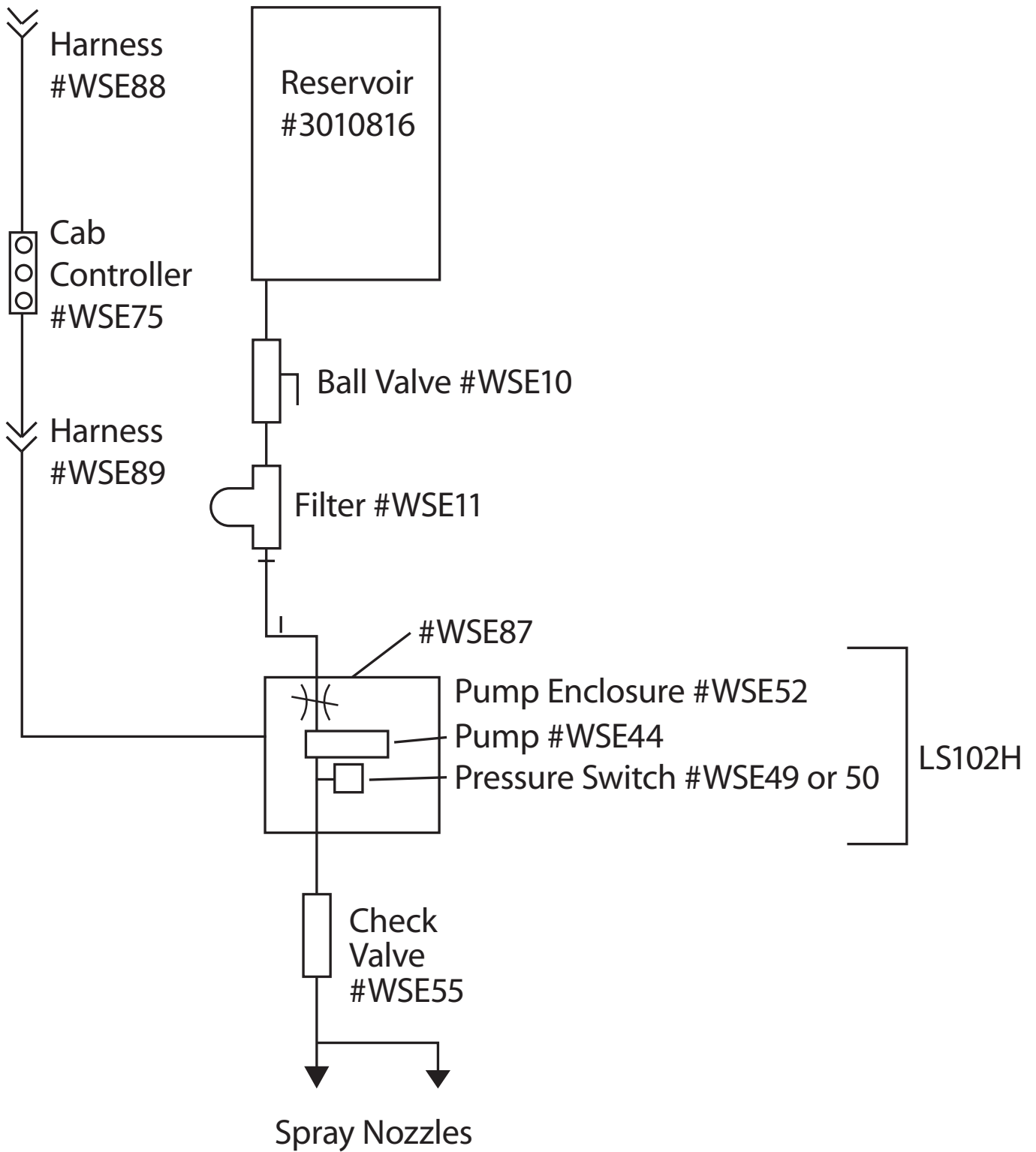


**LS102H  
HYDRAULIC  
PREWET  
PUMP  
BOX**

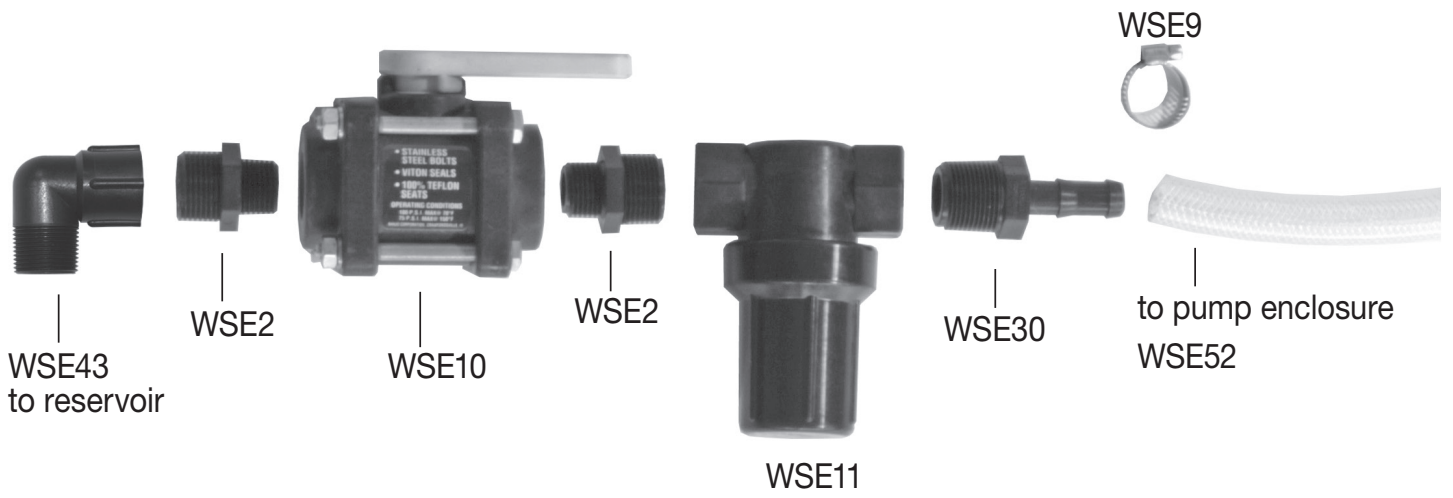
**NOTE:** It takes five revolutions of the black dial on the WSE87 to fully open it. This should be the factory preset. There is also a jam nut that should be tightened to prevent loosening in shipment. The pre-wet pump delivers 4.5GPM when the valve is fully opened.



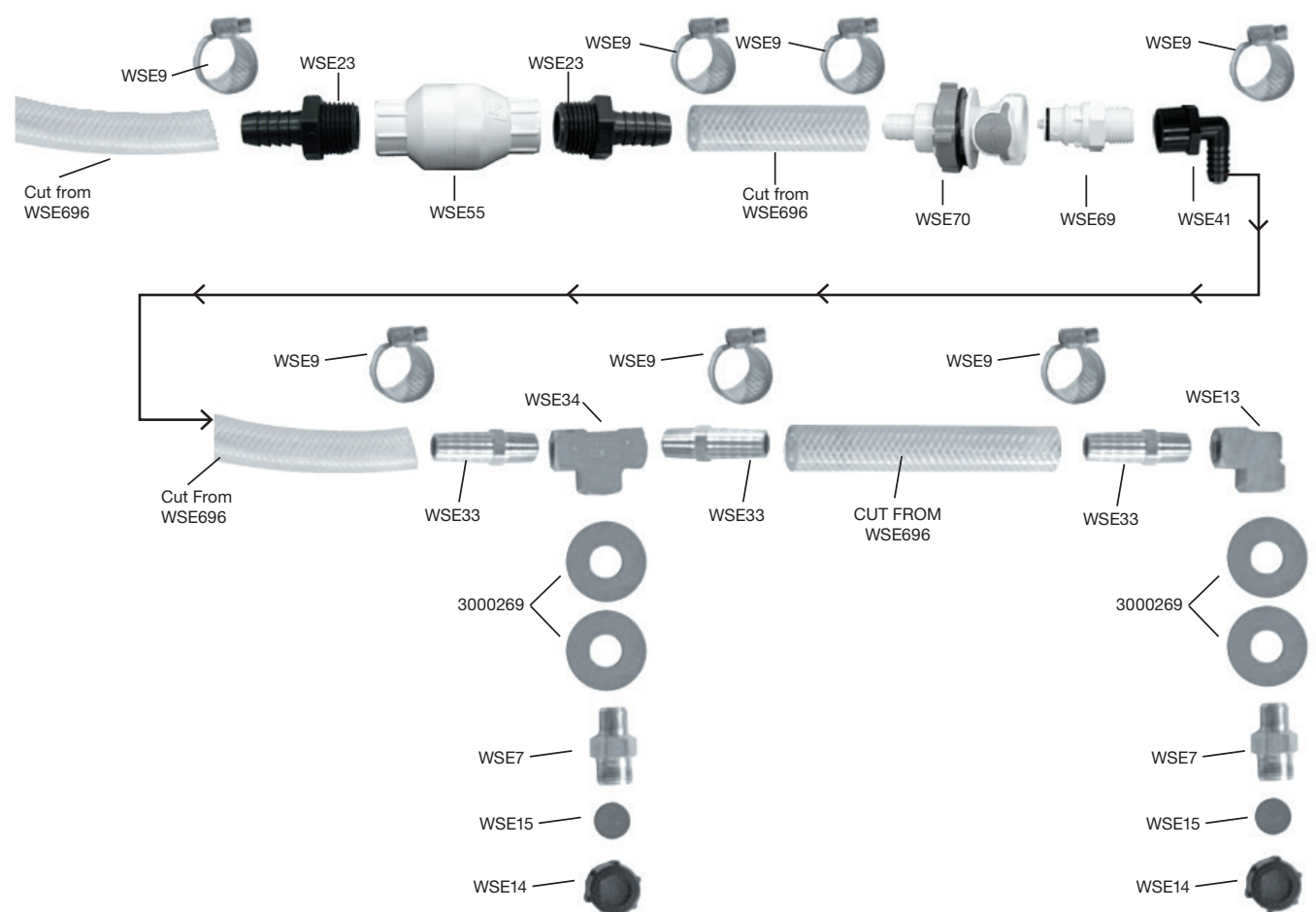
**HYDRAULIC SCHEMATIC**



**Fig. 7 Prewet Plumbing Dia.**



**Fig. 8. Filter/Valve Assembly**



**Fig. 9. Nozzle Assembly**

## Liquid Spray System Operating Instructions



1. Read all instructions before operating. Always wear hand, eye, and skin protection when working with de-icing chemicals. Make sure everyone is standing clear of liquid spray system before operating.
2. Inspect all plumbing for leaks.
3. Open ball valve (#WSE10) at the reservoir.
4. Make sure reservoir has adequate supply of clean de-icing liquid. Do not operate pump without liquid.
5. To energize system, turn red power button to "on" position.
6. If the red low pressure warning light/alarm comes on, the reservoir is empty or the pump is off. Do not operate pump without liquid. Note: Low pressure light and alarm will sound each time system is started. This is normal and occurs until sufficient pressure is achieved to open pressure switch (turning off light/buzzer).
7. Close ball valve (#WSE10) at the reservoir when not in use.

## Liquid Spray System Trouble Shooting Guide

Motor & Pump Operate Erratically: 1,2,3,4,5  
(Possible Problem)

Motor runs – Pump does not: 1,2,3,4,5,6,7 (Possible Problem)

Motor & Pump fail to operate: 8,9,10,11,12 (Possible Problem)

### POSSIBLE PROBLEM:

- |  |                 |
|--|-----------------|
| 1. Little or no de-icer in tank/s              |                 |
| 2. Clogged filter                              | Fill            |
| 3. Clogged Nozzles                             | Clean           |
| 4. Damaged suction hose                        | Clean           |
| 5. Pump failure                                | Replace         |
| 6. Ball valve is closed at tank/s              | Replace         |
| 7. Frozen parts                                | Open valve      |
| 8. Bad electrical connection                   | Thaw out        |
| 9. Motor failure- seized                       | Inspect         |
| 10. Cab controller on-off switch not turned on | Replace         |
| 11. Bad cab controller on-off switch           | Turn on         |
| 12. Blown fuse in cab controller or fuse panel | Replace         |
|  | Inspect/replace |

### REPAIR:

## Liquid Spray System Routine Maintenance

### RESERVOIR:

- Inspect fittings for leaks from cracks or looseness
- Inspect filler/breather for cracks. Depress breather to check for adequate spring pressure or binding

### PLUMBING:

- Inspect hoses/fittings/ball valve for leaks, cracks, looseness, chafing, binding etc.

### FILTER:

- Remove and clean filter element every 8 to 10 hours or as needed depending on how clean de-icing liquid is

### PUMP-PRESSURE SWITCH & ENCLOSURE:

- Inspect wiring for wear and loose or corroded connections
- Inspect door and gasket to prevent corrosion

### NOZZLES:

- Inspect operation for even spray pattern. Remove and clean as needed

### CAB CONTROLLER:

- Inspect lights, switch.
- Inspect wire harness and connections for wear and loose or corroded connections

### CLEANING:

- Wash with hot water and soap after each use

### STORAGE:

- Store inside to prevent freezing
- Drain liquid de-icer from tank/s and hoses when not in use for more than two days or during extremely low temperatures
- RV anti-freeze or windshield washer fluid should be run through the system for several minutes to flush de-icer from the system to prevent component freezing especially for end of season storage



**Always wear hand, eye, and skin protection when working with de-icing chemicals. Use extreme care!**



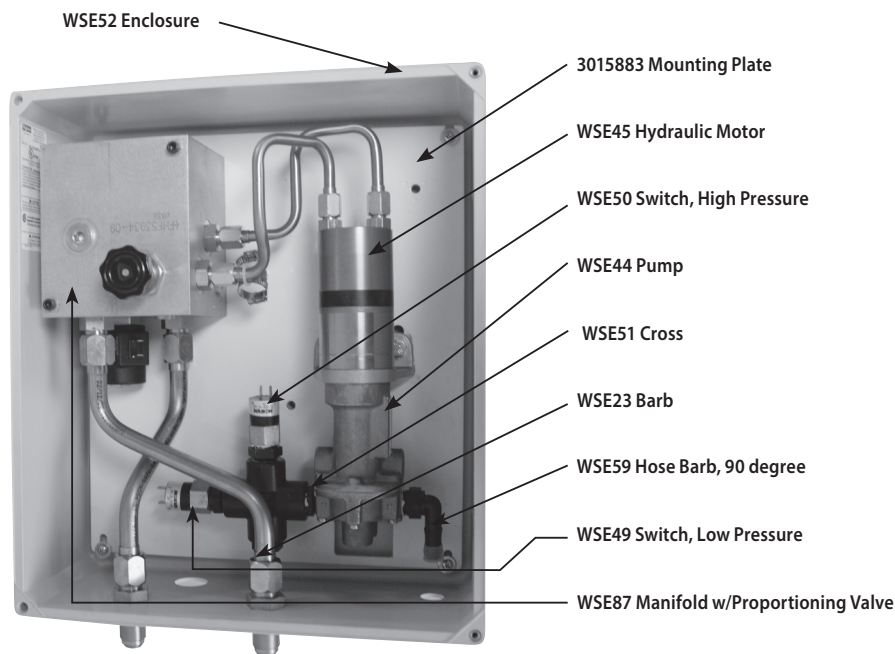
**Always wear hand, eye, and skin protection when working with de-icing chemicals. Use extreme care!**

## Bill of Materials

PART NO.	QTY.	DESCRIPTION
3010816	1	RESERVOIR
3010977	3	BRACKET,RESERVOIR MOUNT
3010979	1	RETAINER, RESERVOIR
3011124	1	BRACKET,TIE DOWNS
3011128	3	GUSSET
3015883	1	PLATE,PUMP MOUNT(INSIDE ENCLOSURE)
3017949	1	BRACKET,ENCLOSURE MOUNT
149650501	3	STRAP
H5315X10	2	CONNECTOR,MALE JIC TO MALE STRAIGHT
H5315X6X8	2	CONNECTOR,MALE JIC TO MALE STRAIGHT
H5325X10	2	UNION,BULKHEAD 5/8"
H5924X10	2	NUT,BULKHEAD 5/8"
WSE10	1	BALL VALVE, 1/2 NPT POLY
WSE100	1	ENCLOSURE ASSEMBLY
WSE11	1	FILTER, 3/4 NPT, 6GPM, 300 MICRON POLY
WSE13	1	ELBOW,BRASS 1/4 NPTF X 1/4 NPTF
WSE14	2	NOZZLE CAP
WSE15	2	RUBBER,NOZZLE
WSE2	2	NIPPLE,HEX 3/4 X 1/2 POLY
WSE23	3	BARB,HOSE 1/2 MPT X 1/2 HB
WSE30	1	BARB,HOSE 3/4 NPT X 1/2 HB
WSE33	3	BARB,HOSE 1/4IN NPT X 1/2" BARB, BRASS
WSE34	1	TEE,FEMALE, 1/4 NPT X 1/4 NPT X 1/4 NPT, BRASS
WSE41	1	BARB,HOSE 1/2 FPT X 1/2 HB 90 DEG ELBOW
WSE43	1	ELBOW, STREET 3/4IN NPT
WSE44	1	PUMP

PART NO.	QTY.	DESCRIPTION
WSE45	1	MOTOR
WSE49	1	SWITCH, LOW PRESSURE
WSE50	1	SWITCH, HIGH PRESSURE
WSE51	1	CROSS, 1/2"
WSE52	1	ENCLOSURE
WSE55	1	CHECK VALVE
WSE57	1	NIPPLE,1-1/2 HEX
WSE58	2	BUSHING,REDUCER 1/2 X 1/4 POLY
WSE59	1	BARB, HOSE 1/2 MP X 1/2, 90 DEG
WSE60	1	TUBE, STEEL, 5/8"OD
WSE61	1	STRAIN RELIEF
WSE6168	1	HOSE, POLY, 1/2" ID X 168" LONG
WSE67	1	TUBE, STEEL, 5/8"OD
WSE69	1	COUPLER,MALE HALF 3/4"
WSE696	1	HOSE, POLY 1/2" ID X 96" LONG
WSE7	2	NOZZLE BODY, BRASS
WSE70	1	COUPLER,FEMALE HALF 3/4"
WSE73	2	TUBE ASSEMBLY,STL BENT #3
WSE74	2	TUBE ASSEMBLY,STL BENT #4
WSE75	1	CONTROLLER
WSE76	1	HARNESS
WSE86	1	NUT, STRAIN RELIEF
WSE87	1	MANIFOLD
WSE88	1	HARNESS,10FT HYD OPERATED
WSE89	1	HARNESS,TRIPLE HYD OPERATED
WSE9	13	CLAMP,HOSE

**Fig. 10 WSE100Hydraulic Prewet Pumpbox Reference**



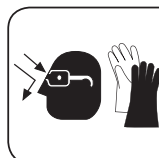
### SAFETY ALERT SYMBOL



This Symbol Means **ATTENTION!**  
Please Read & Understand Completely  
Before Operating!

#### EQUIPMENT INSTALLERS & OPERATORS: TURN OFF ALL POWER BEFORE PERFORMING ANY SERVICE OPERATIONS.

- Follow Recommended Operating Procedure.
- Keep Equipment In Safe Operating Condition At All Times.
- Recognize & Avoid Hazards While Operating, Servicing and Maintaining Equipment.



### CAUTION

**RESERVOIR & COMPONENTS MAY  
CONTAIN HAZARDOUS MATERIAL.  
HANDLE WITH CARE.**