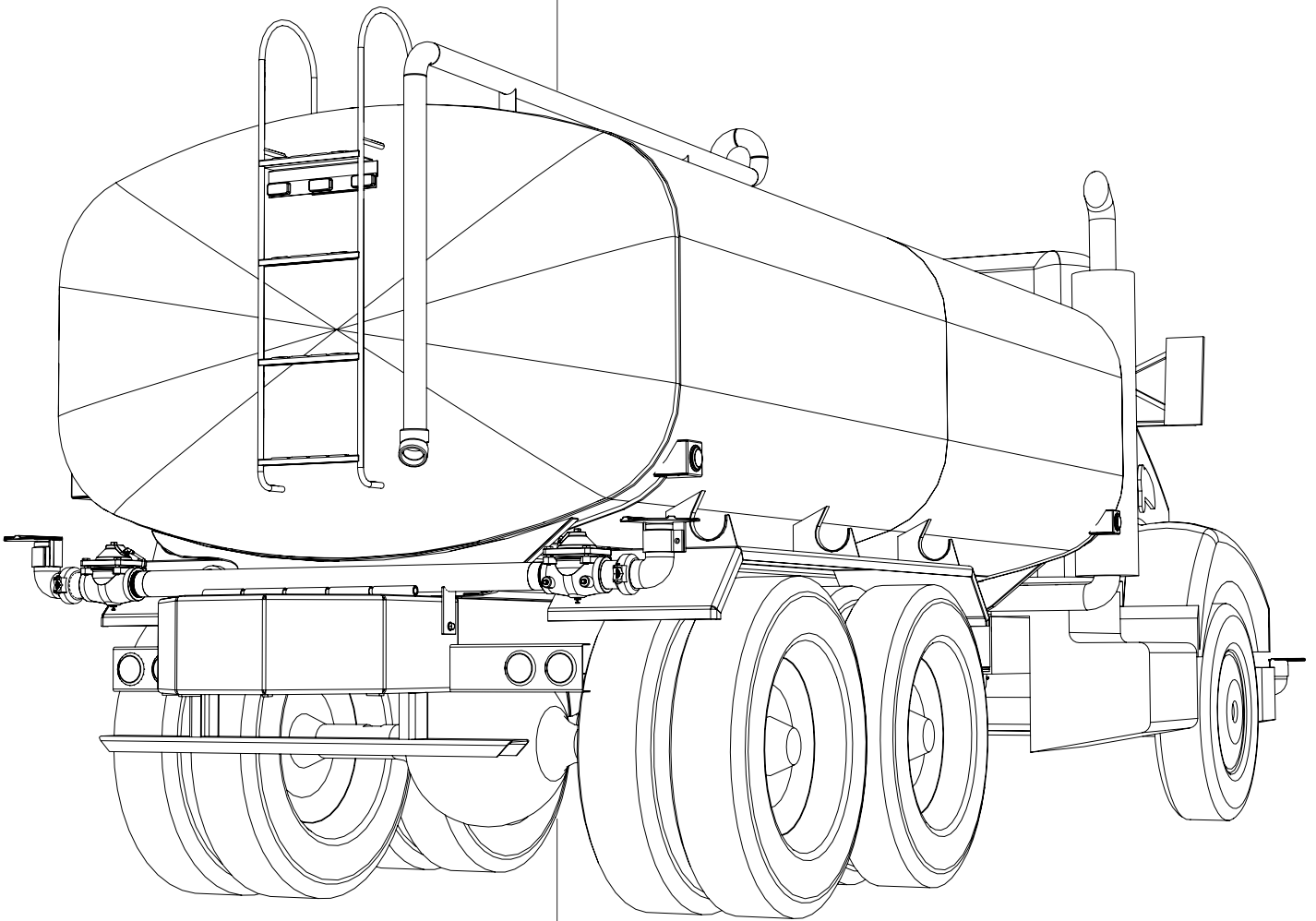




Operations Maintenance Technical Data Parts List

MANUAL WT - REV B JUL 2013



NIECE EQUIPMENT WATER TRUCK

WT2000, WT4000, WT4500

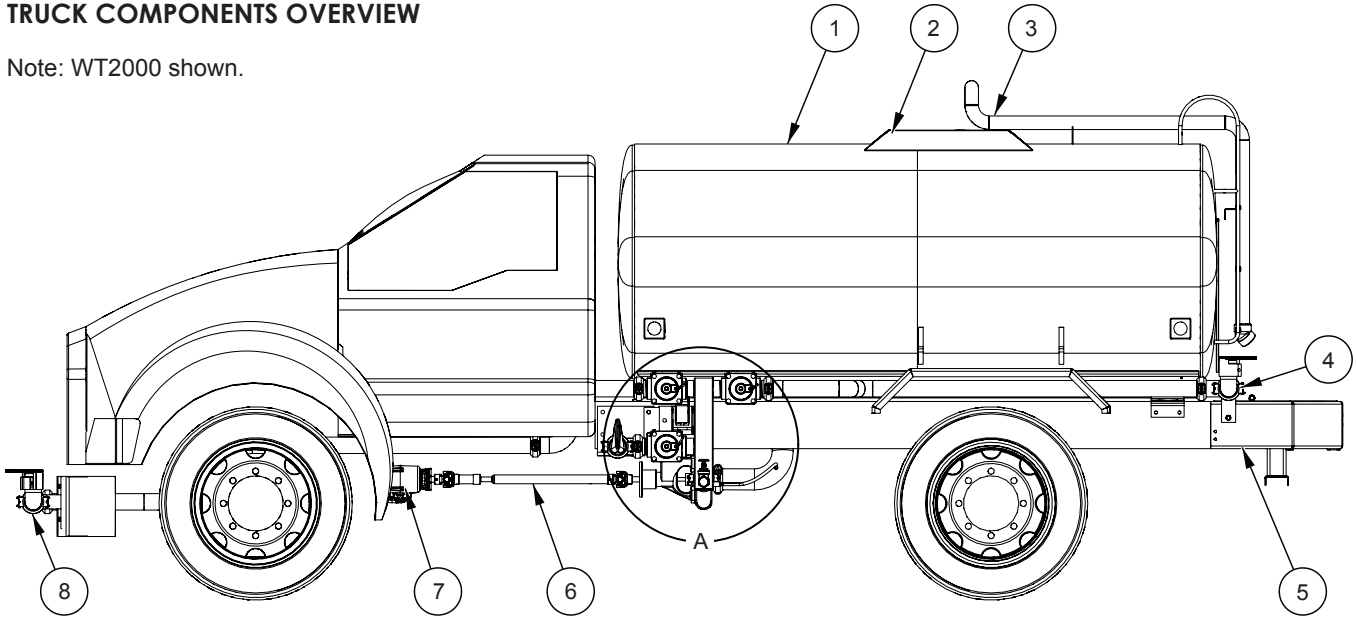
CONTENTS

General Information	4
Operations	7
Parts	8
Truck Options	12
Maintenance	24
Troubleshooting	25
Schematics	A1
Berkeley OEM Pump Manual	A2
Muncie OEM PTO Manual	A3

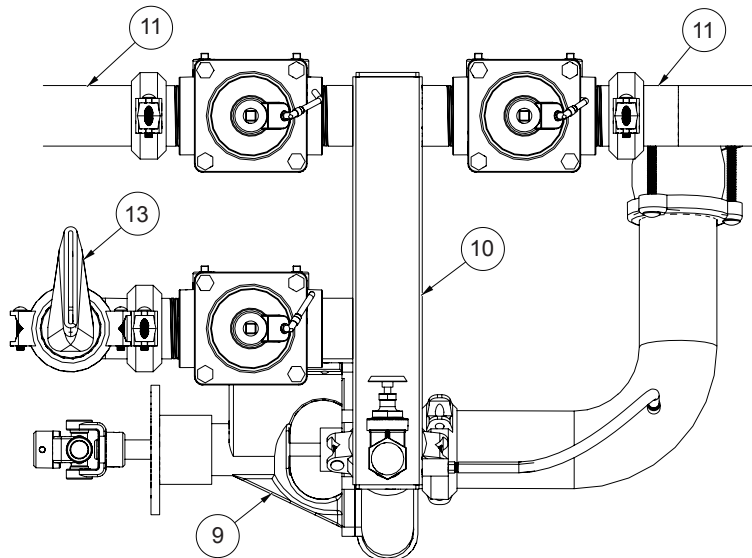
Thank you for purchasing a Niece Equipment Water Truck. Please read through this manual carefully to ensure you get the best results from your equipment and operate it safely. If a problem should arise or if you have any questions, please contact us at 512.252.3808. This manual should be considered a permanent part of the truck and should remain with it at all times.

TRUCK COMPONENTS OVERVIEW

Note: WT2000 shown.



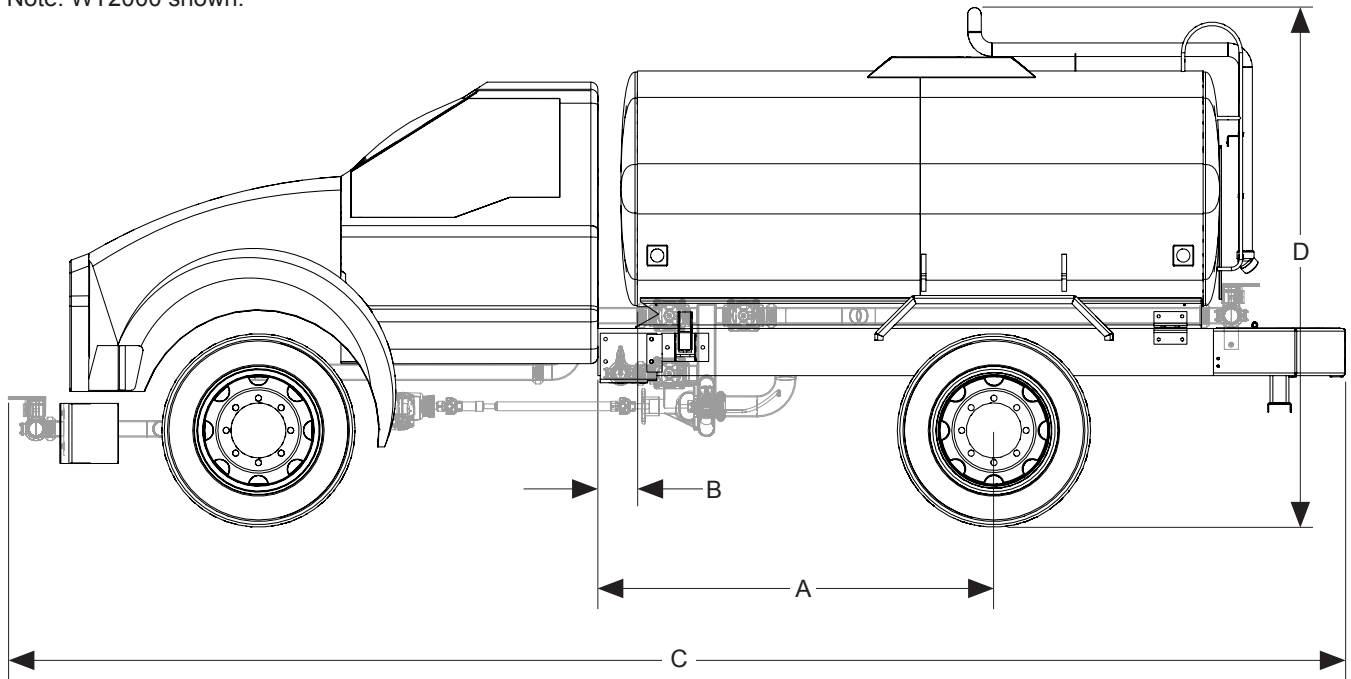
- 1. Water Tank
- 2. Manway
- 3. Loading Pipe
- 4. Rear Spray Assembly
- 5. Pushblock
- 6. Driveline
- 7. Power Take Off
- 8. Front Spray Assembly
- 9. Pump
- 10. Manifold
- 11. Routing Assembly to Rear Spray
- 12. Routing Assembly to Front Spray
- 13. Side Spray Assembly



Water Truck Detail View A

TRUCK DIMENSIONS

Note: WT2000 shown.



DIM	WT2000	WT4000	WT4500
A	120" CA	156" CT	156" CT
B	8"	8"	8"
C*	287"	357"	386"
D*	110"	122"	122"

*Dimensions for reference only.

TRUCK HARDWARE

SIZE	PLAIN-DRY	ZINC PLATED
1/2-13	106 ft./lbs.	96 ft./lbs.
5/8-11	212 ft./lbs.	191 ft./lbs.
3/4-10	376 ft./lbs.	339 ft./lbs.

Niece Trucks are built with Production Grade 8 coarse thread matched system components (bolts, nuts, washers) with ultimate tensile strength of 150,000 PSI minimum.

Niece Equipment uses both plain-dry and zinc plated hardware.

Note: the recommended assembly torque values in the table to the left are offered as a guide only.

Note: all torque values are based upon using matched system components and have been tightened from the nut.

Note: subsequent variables such as oil or other lubricants may appreciably alter these values and must be taken into consideration.

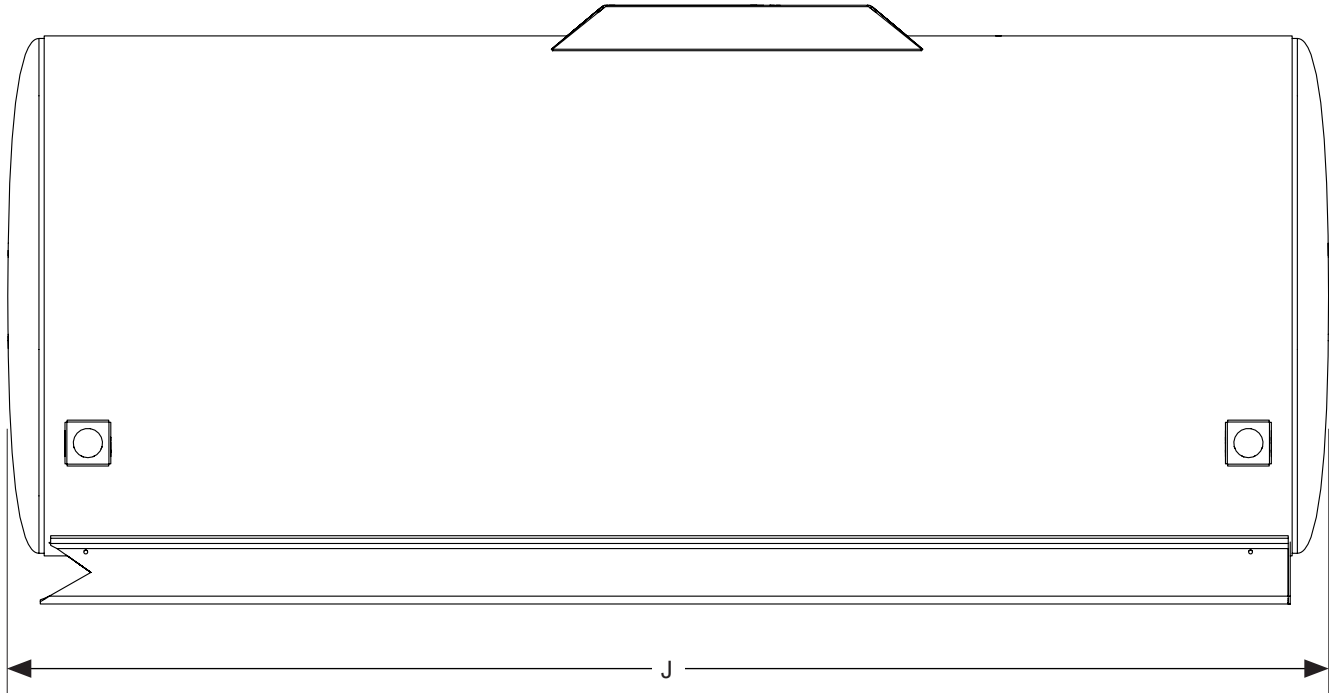
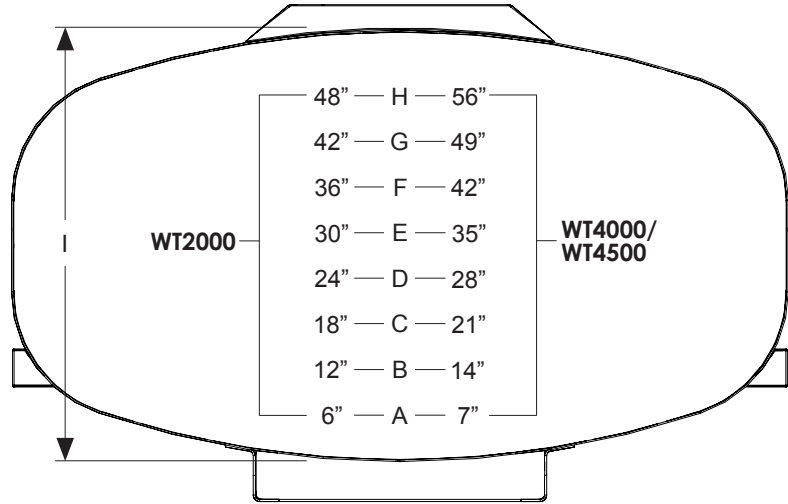
WARNING! It is imperative that all bed and tank mounting bolts are inspected regularly.

GENERAL INFORMATION - WATER TANK FILL PROFILES

WATER TRUCK TANK FILL PROFILES

Note: 2000 gallon water tank shown.

DIM	WT2000	WT4000	WT4500
A	150 gal	305 gal	340 gal
B	390 gal	810 gal	910 gal
C	670 gal	1360 gal	1525 gal
D	965 gal	1915 gal	2150 gal
E	1255 gal	2470 gal	2780 gal
F	1540 gal	3025 gal	3400 gal
G	1805 gal	3560 gal	4005 gal
H	2000 gal	4000 gal	4500 gal
I	50"	60"	60"
J	127"	199 3/4"	223 3/4"



ENGAGING THE PTO

Note: Operator is required to have a valid and proper driver's license to operate equipment as mandated by state law.

1. Stop truck and secure parking brake.
2. With the engine at an idle, depress clutch and select desired gear (should be low gear). While the clutch is still depressed, flip the PTO switch to the ON position - the red indicator light will illuminate.
3. When the PTO is fully engaged, release the parking brake and clutch - the truck will begin to move.
4. Select the desired spray and flip the control switch to the UP position.

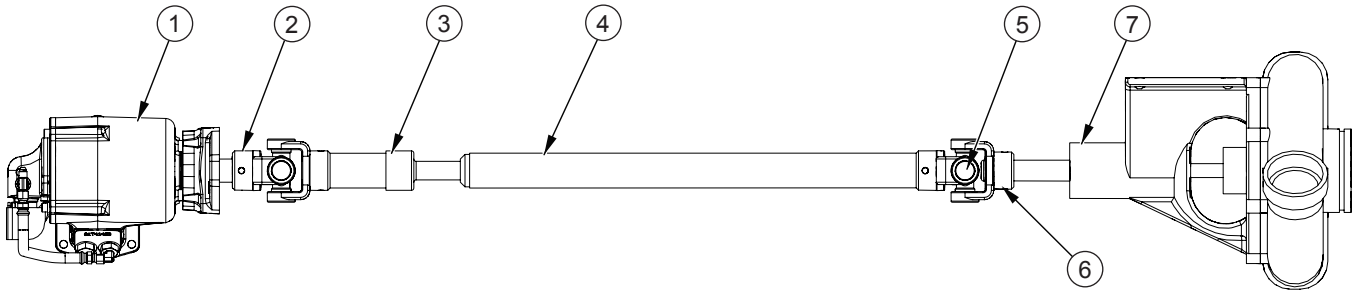
WARNING! Never try to engage the PTO without depressing the clutch. Severe damage to the PTO will result.

WARNING! Let engine RPM drop before turning switches to OFF. Failure to do so can result in damage to pumps, PTO and/or drive line.

WARNING! Avoid shifting gears with system engaged. Shifting may cause damage to PTO, pumps and/or drive line.

WARNING! Never repair, inspect or maintain system while PTO system is engaged or truck is running. Severe injury or death may result.

PTO, DRIVELINE, PUMP

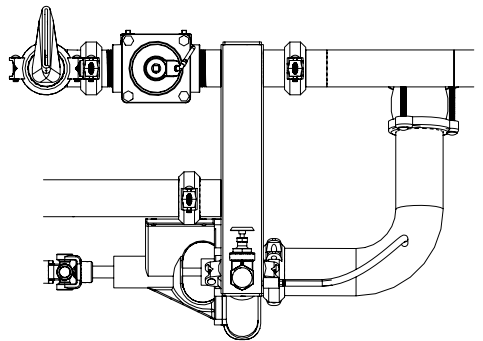


REF.	DESCRIPTION	QTY.	PART #
1	Power Take Off	1	Varies
2	1 1/4" Yoke	1	NI95
3	Slip Yoke	1	NI113
4	1310 Driveline Kit	1	NI97
5	U-Joint	2	NI98
6	1 1/8" Yoke	1	NI96
7	CCW Berkeley Pump (standard trans.)	1	4018366895

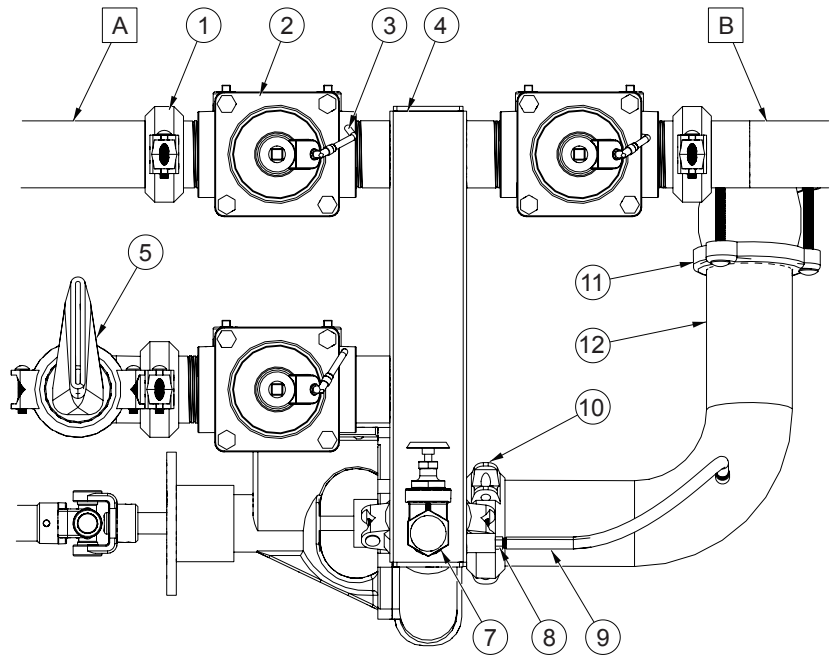
Note: CW Berkeley Pump is used for trucks with automatic transmission, part number: 4018366899.

MANIFOLD AND SIDE SPRAY

Note: WT2000 Manifold setup shown.

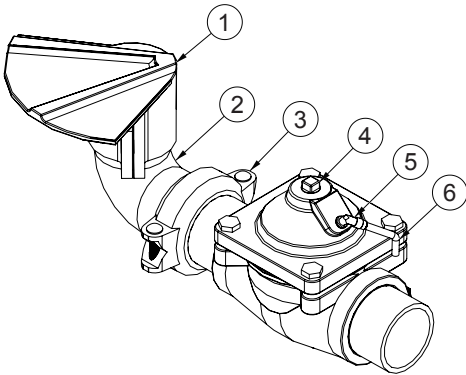


WT4000/4500 Manifold Setup

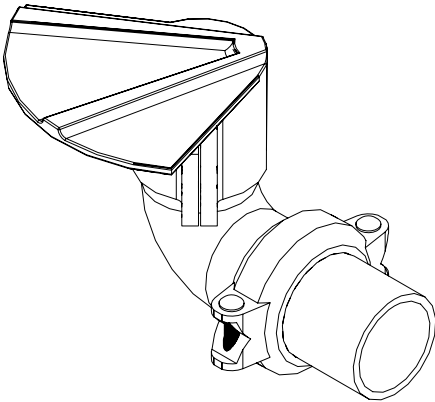
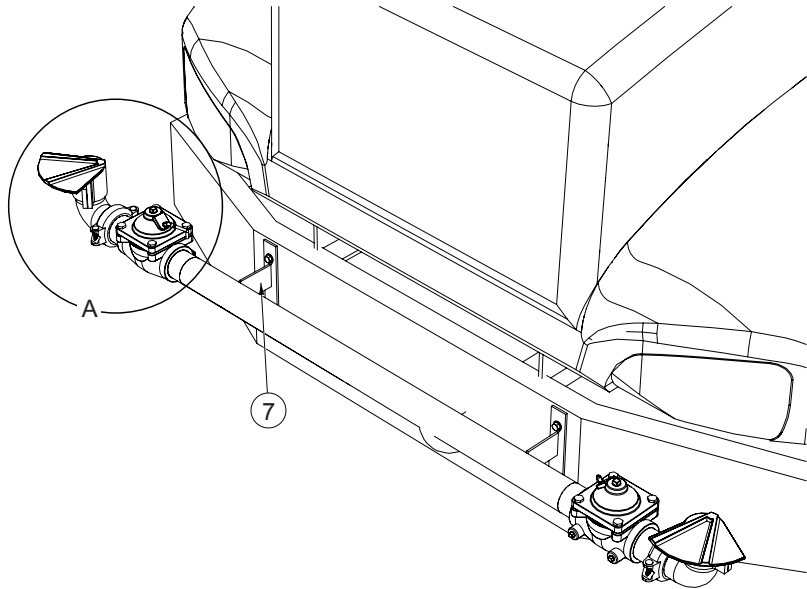


REF.	DESCRIPTION	QTY.	PART #
1	3" Victaulic Firelock Clamp	5	15150031300
2	3" Cla-Val Inline Valve	3	20097AIR300
3	1/4" Nylon Tube	3	4NABTA
4	Manifold	1	n/a
5	Side Spray	1	91100999970
6	Side Spray Elbow	1	91100999975
7	1/2" Gate Valve	1	20467000150
8	1/2" Hose Barb	2	8RLA-8MP
9	1/2" Bypass Tube	1	410X1/2
10	4" Victaulic Firelock Clamp	1	15150031400
11	4" Dresser Coupler	1	15154030400
12	4" Suction Pipe 90° Welded	1	n/a
A	3" pipe routing to front spray	1	n/a
B	3" pipe routing to rear spray	1	n/a

FRONT SPRAY BAR



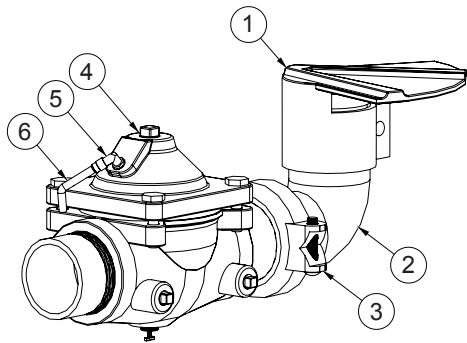
Detail A. WT4000/4500 Front Spray Assm.



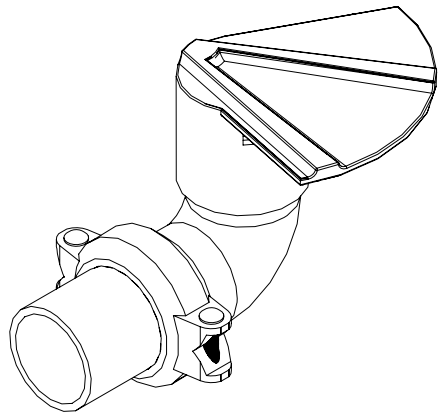
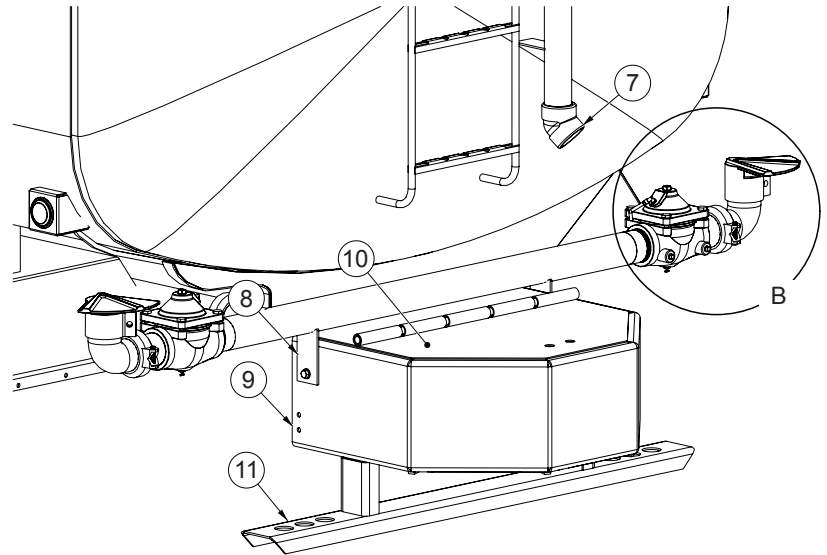
WT2000 Front Spray Assm.

REF.	DESCRIPTION	QTY.	PART #
1	Fan Spray	2	91100999966
2	Fan Spray Elbow	2	91100999971
3	3" Victaulic Firelock Clamp	2	15150031300
4	3" Cla-Val Inline Valve	2	20097AIR300
5	1/4" Elbow	2	
6	1/4" Nylon Air Tubing	2	4NABTA
7	Front Spray Bar Bracket	2	NI77

TRUCK REAR AND REAR SPRAY BAR

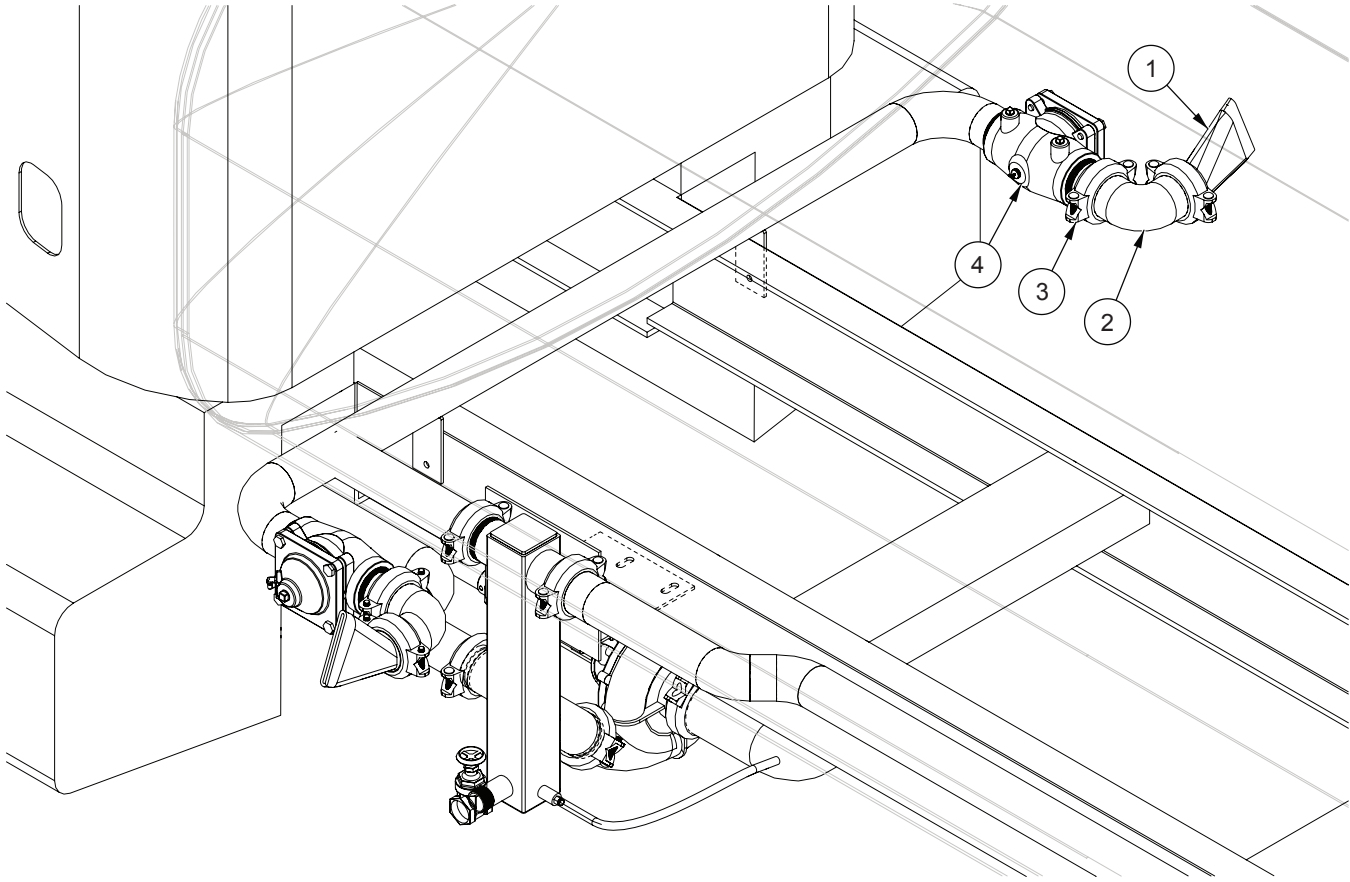


Detail B. WT4000/4500 Rear Spray Assm.



WT2000 Rear Spray Assembly

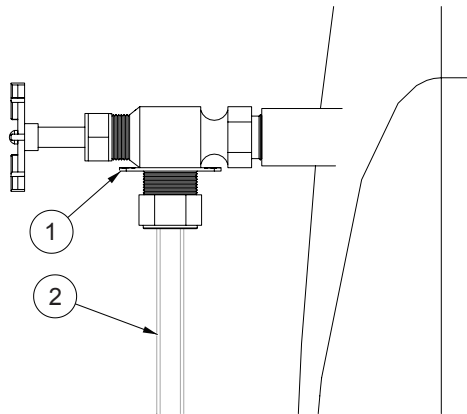
REF.	DESCRIPTION	QTY.	PART #
1	Fan Spray	2	9110099966
2	Fan Spray Elbow	2	9110099971
3	3" Victaulic Firelock Clamp	2	15150031300
4	3" Cla-Val Inline Valve	2	20097AIR300
5	1/4" Elbow	2	
6	1/4" Nylon Air Tubing	2	ANABTA
7	2 1/2" 45° Threaded Elbow	1	
8	Rear Spray Bar Bracket	2	NI78
9	Push Block	1	NI74
10	Push Block Lid	1	NI75
11	Step Bumper	1	NI76

EXTRA VALVE AND SPRAY

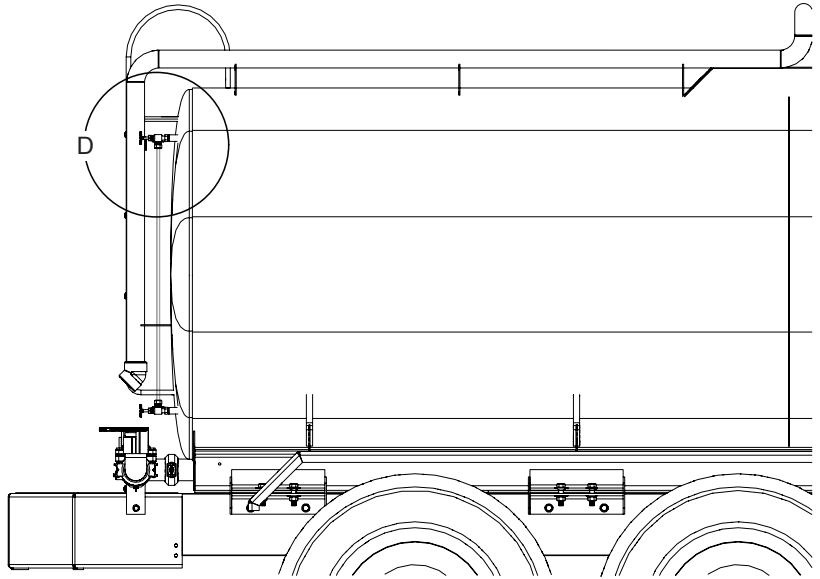
Note: standard Side Spray relocated with this option.

REF.	DESCRIPTION	QTY.	PART #
1	Fan Spray	1	91100999966
2	Fan Spray Elbow	1	91100999971
3	3" Victaulic Firelock Clamp	1	15150031300
4	3" Cla-Val Inline Valve	1	20097AIR300

SIGHT TUBE

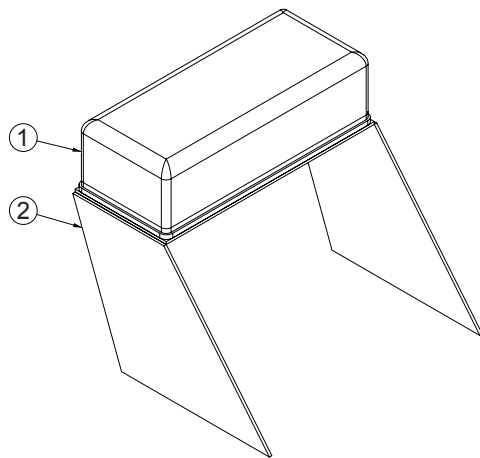


Detail D. Sight Tube Assembly

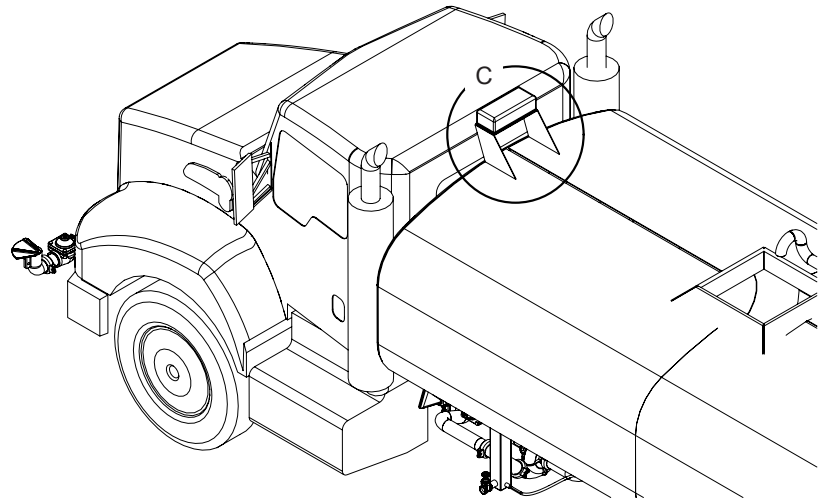


REF.	DESCRIPTION	QTY.	PART #
1	Sight Tube Valve	2	NITUBEVALVE
2	Sight Tube	1	NISTUBE

BEACON LIGHTS



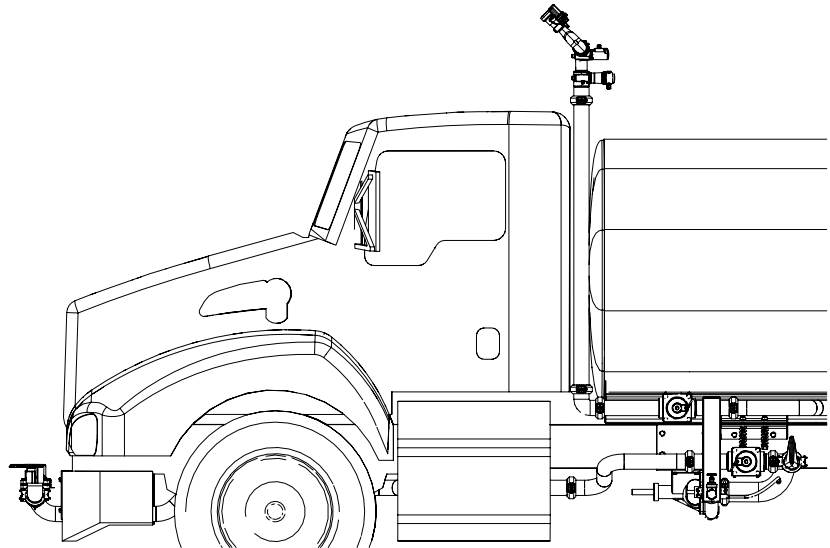
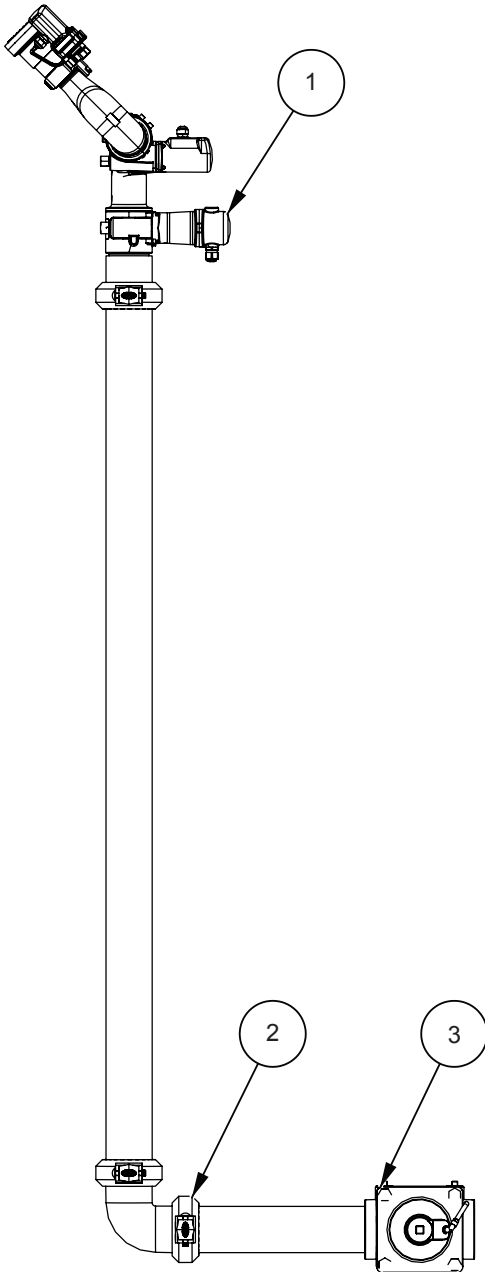
Detail C. Beacon Light Assembly



REF.	DESCRIPTION	QTY.	PART #
1	Mini Bar LED Lamp	1	
2	Beacon Light Mount	1	

OPTIONS - REMOTE OPERATED WATER CANNON

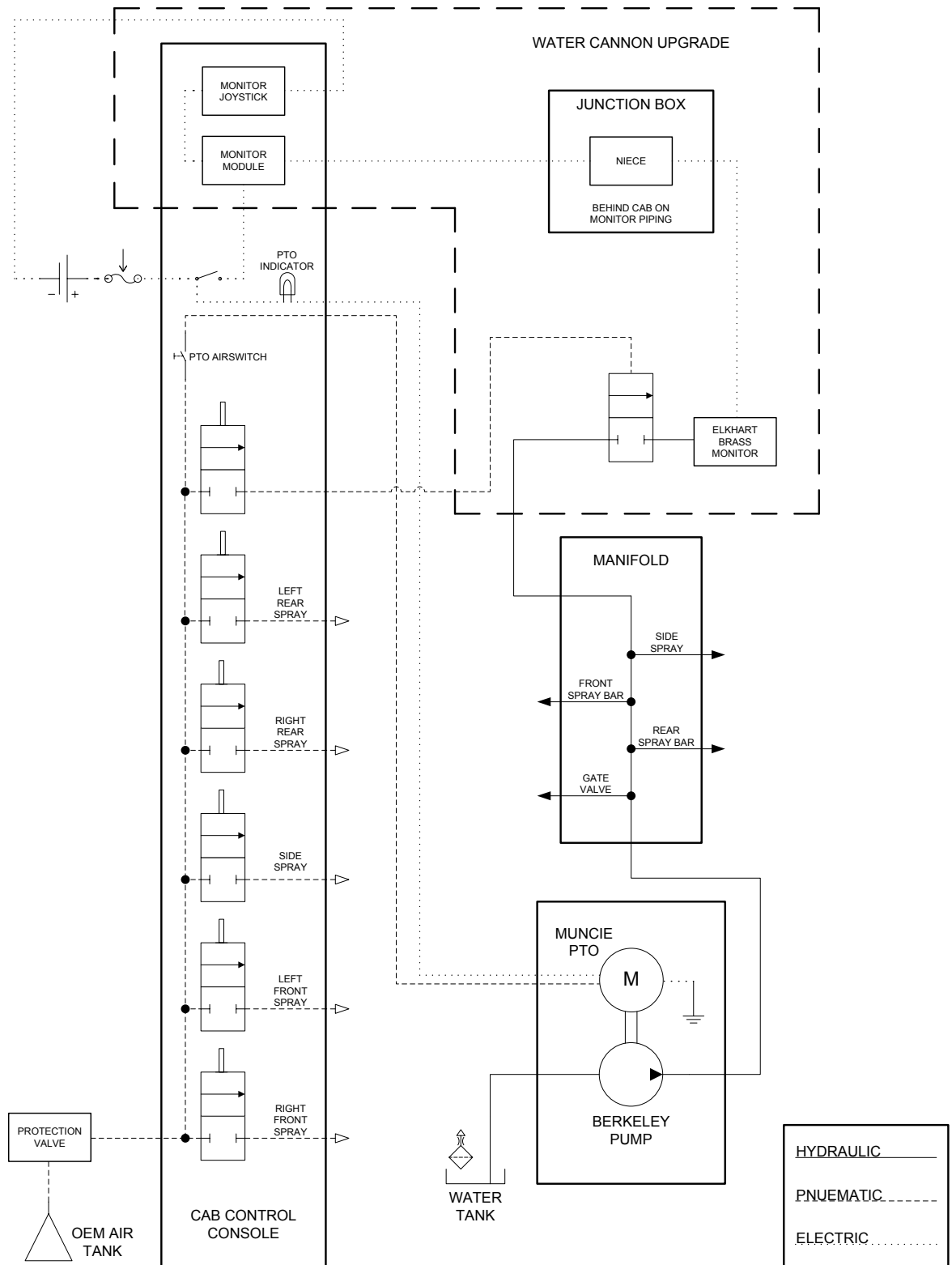
REMOTE OPERATED WATER CANNON



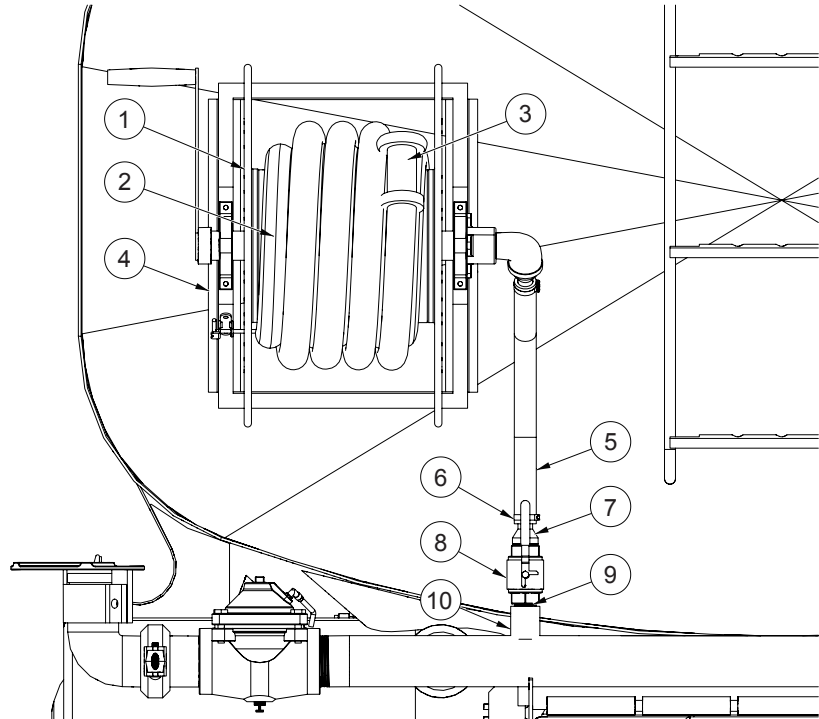
REF.	DESCRIPTION	QTY.	PART #
1	Elkhart Brass Sidewinder RF Monitor	1	520932F750
2	3" Victaulic Firelock Clamp	3	15150031300
3	3" Cla-Val Inline Valve	1	20097AIR300

Water Cannon Assembly

WATER CANNON SCHEMATIC



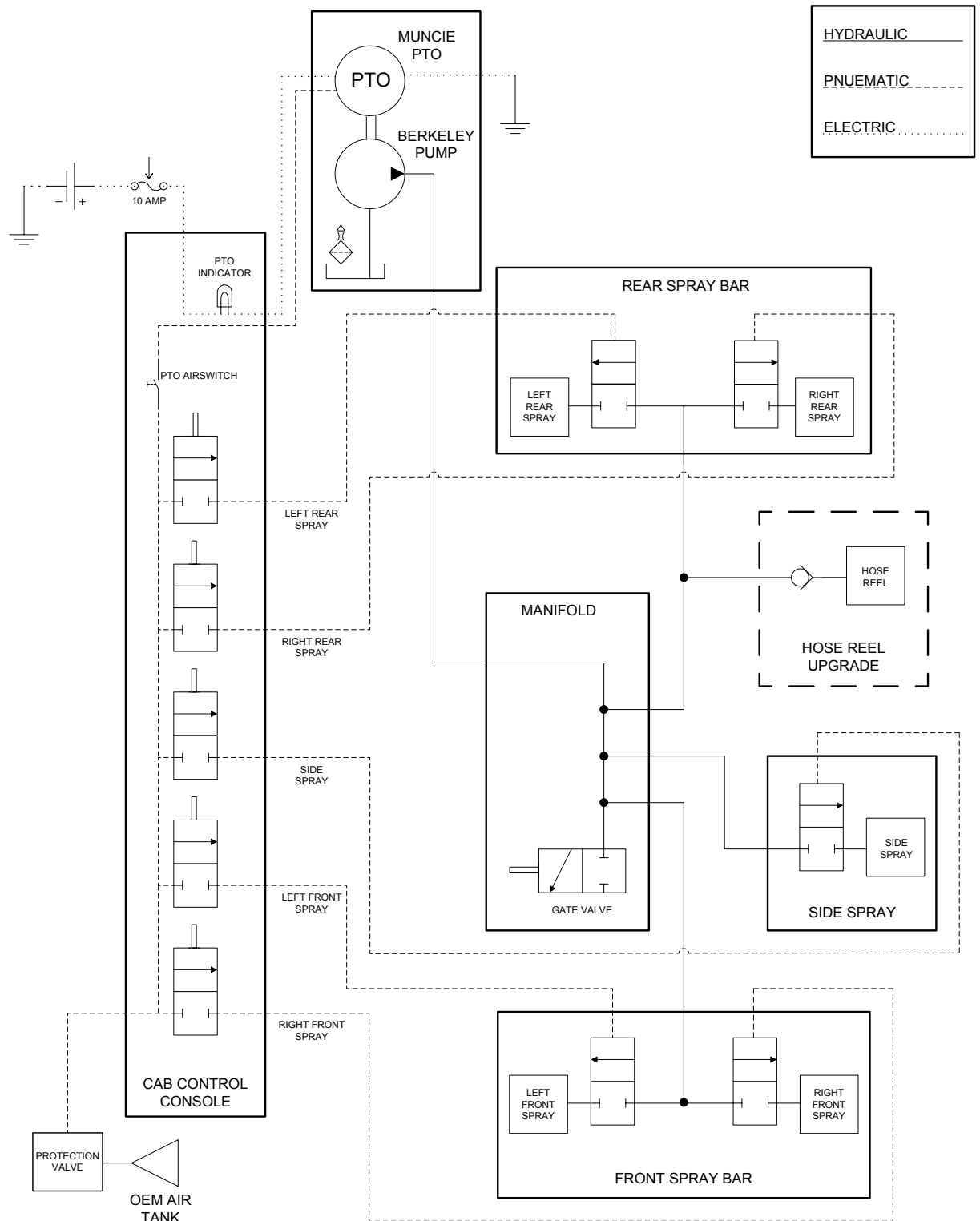
TANK-MOUNTED HOSE REEL



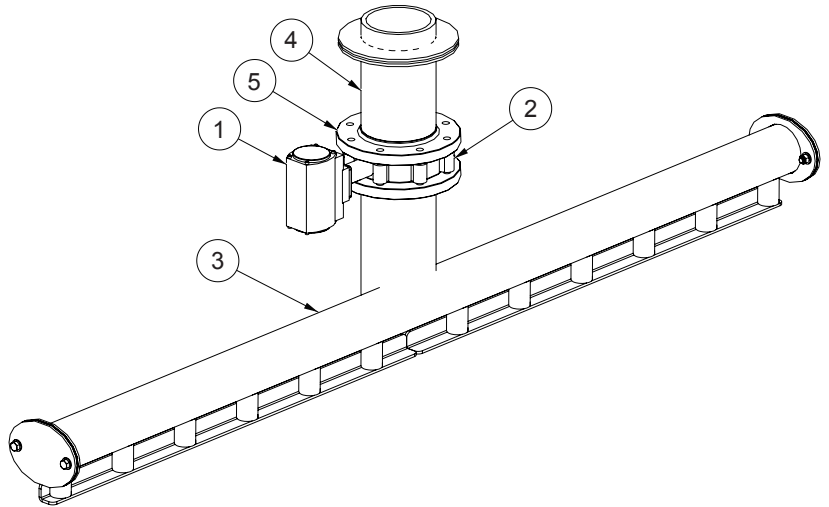
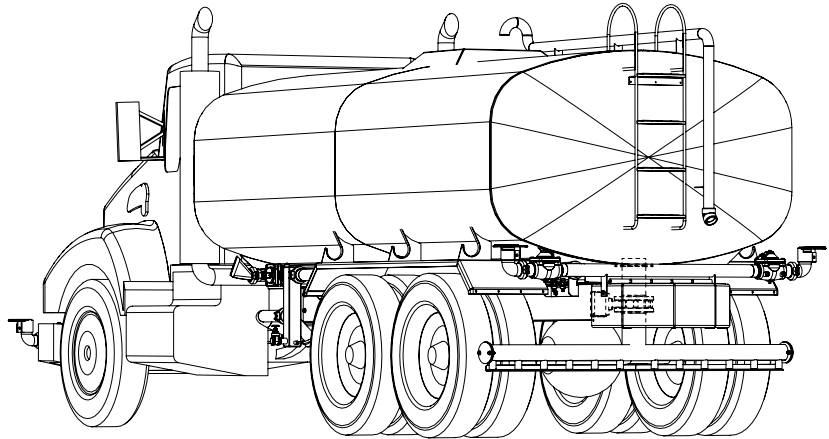
REF.	DESCRIPTION	QTY.	PART #
1	Cox Hose Reel	1	350841758
2	1.5" x 50' Hose	1	see note
3	1.5" Fog Nozzle	1	196930150
4	Hose Reel Bracket Set	1	NI80
5	1.5" x 3' Hose	1	see note
6	T-Bolt Clamp	4	see note
7	1.5" Combination Nipple	4	see note
8	1.5" Ball Valve	1	20465100150
9	1.5" Close Nipple	1	
10	1.5" Merchant Coupler	1	

Note: 1.5" x 50' Hose and 1.5" x 3' Hose are sold together (with two 1.5" Combination Nipples and T-bolt Clamps each) as a Hose Kit, part number 350841777.

HOSE REEL SCHEMATIC



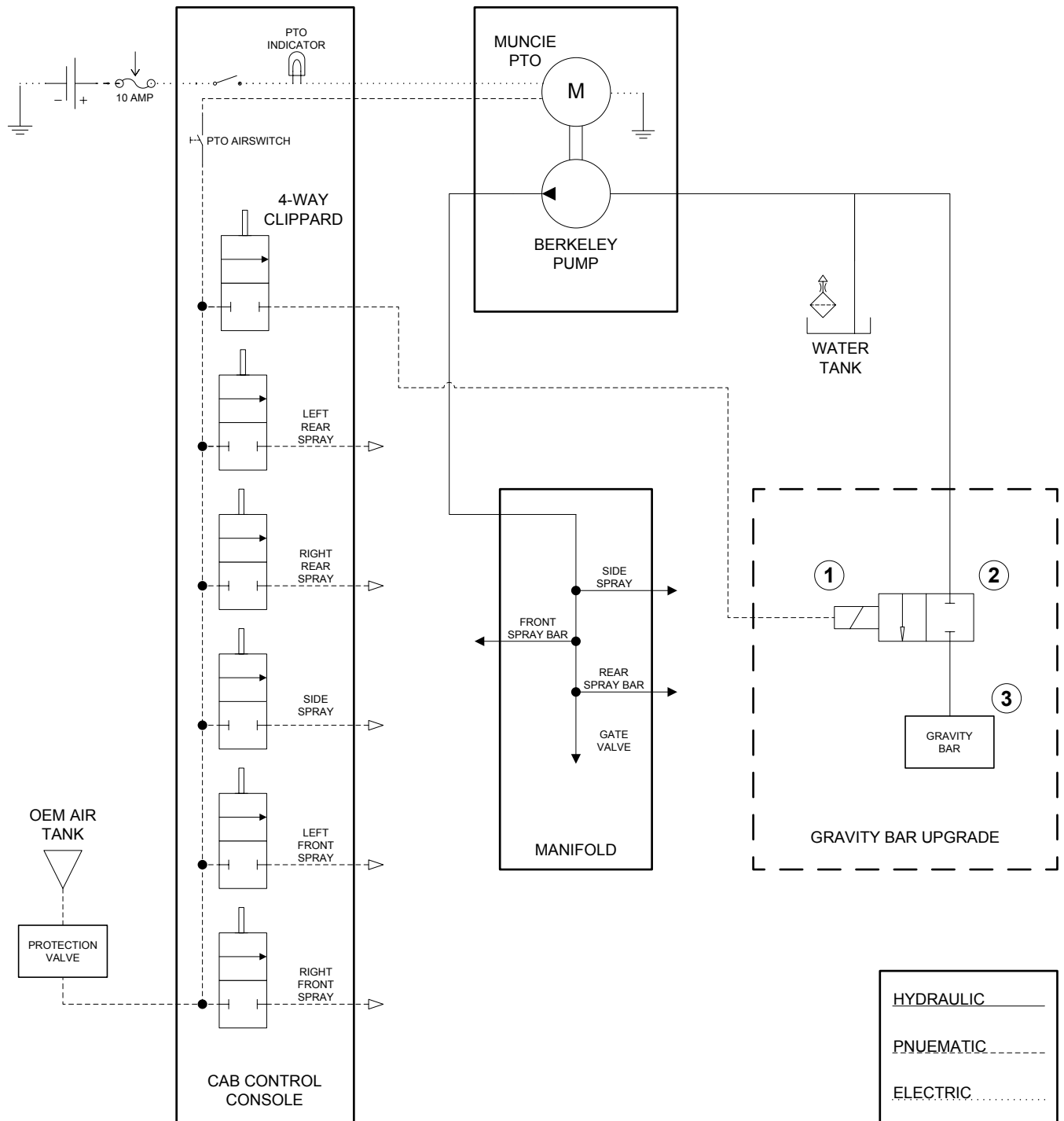
GRAVITY BAR



REF.	DESCRIPTION	QTY.	PART #
1	Nibco Double Acting Pneumatic Actuator	1	see note
2	6" Butterfly Valve	1	see note
3	Gravity Bar	1	see note
4	6" Drop Pipe	1	see note
5	6" Flange	2	see note

Note: gravity bars are sold as a kit (part number NI8GRKIT) - kit includes all parts above along with a clippard switch.

GRAVITY BAR SCHEMATIC

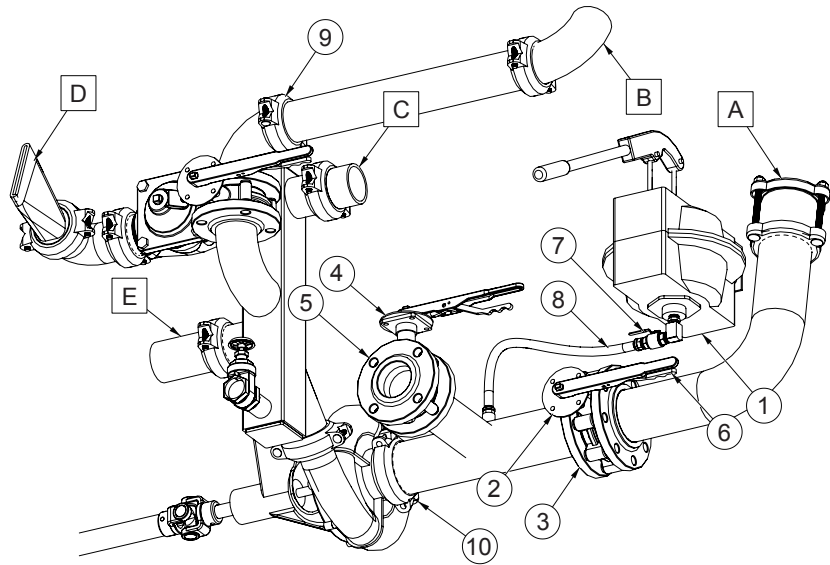


SUCTION PLUMBING

Note: all Butterfly Valve Handles shown in normal truck operation position.

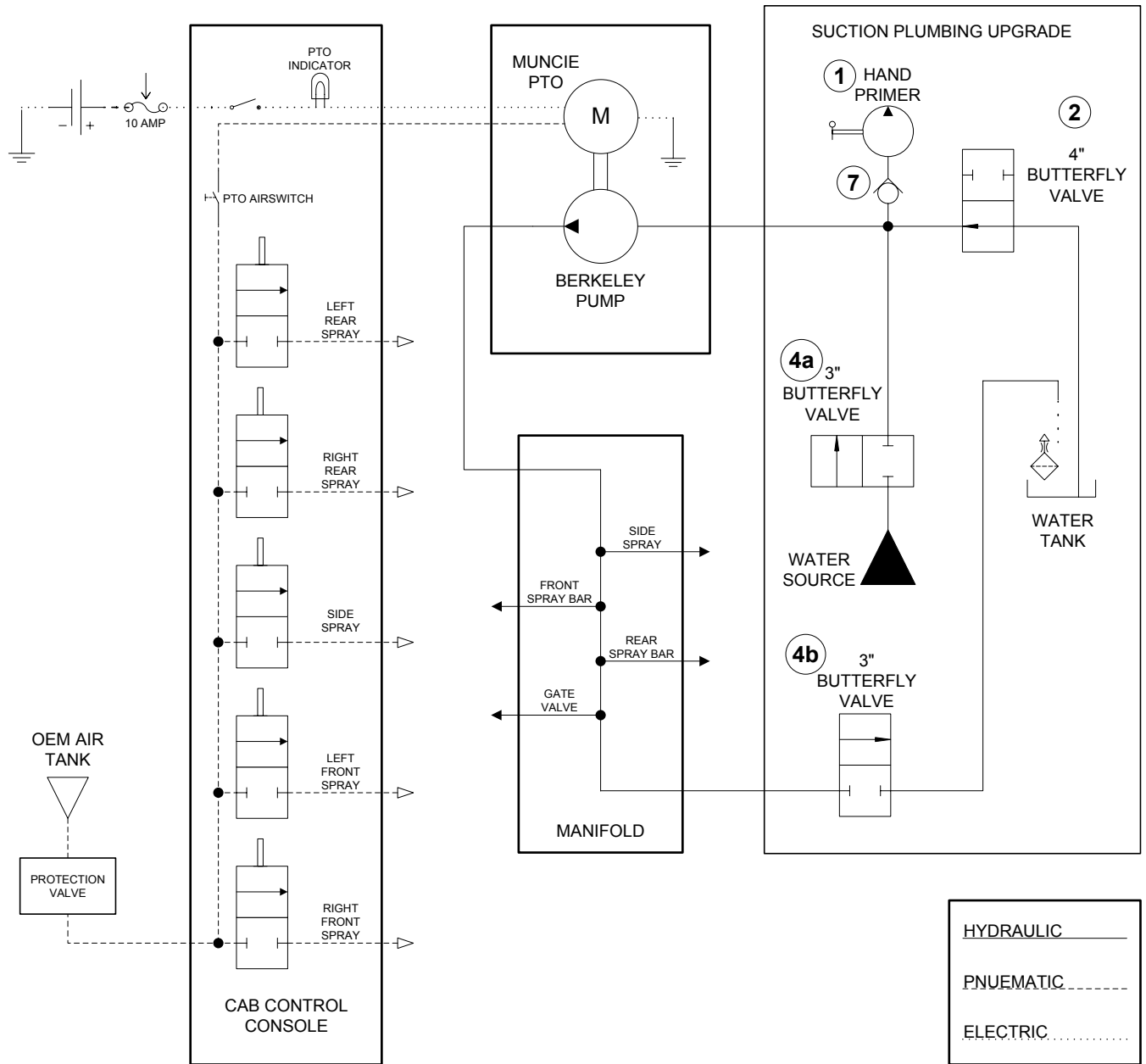
Suction Plumbing Operations

1. Park truck in neutral and set parking brakes.
2. Close 4" Butterfly Valve (2) on tank.
3. Connect water suction hose to 3" pipe and open 3" Butterfly Valve (4).
4. Open upper 3" Butterfly Valve located on manifold.
5. Open 1/2" Ball Valve (7) on suction Hand Primer (1) and pump handle until water fills aluminum bowl.
6. Depress clutch and engage PTO.
7. When filling operation is complete return all valves to their original position.
8. Depress clutch and disengage PTO.

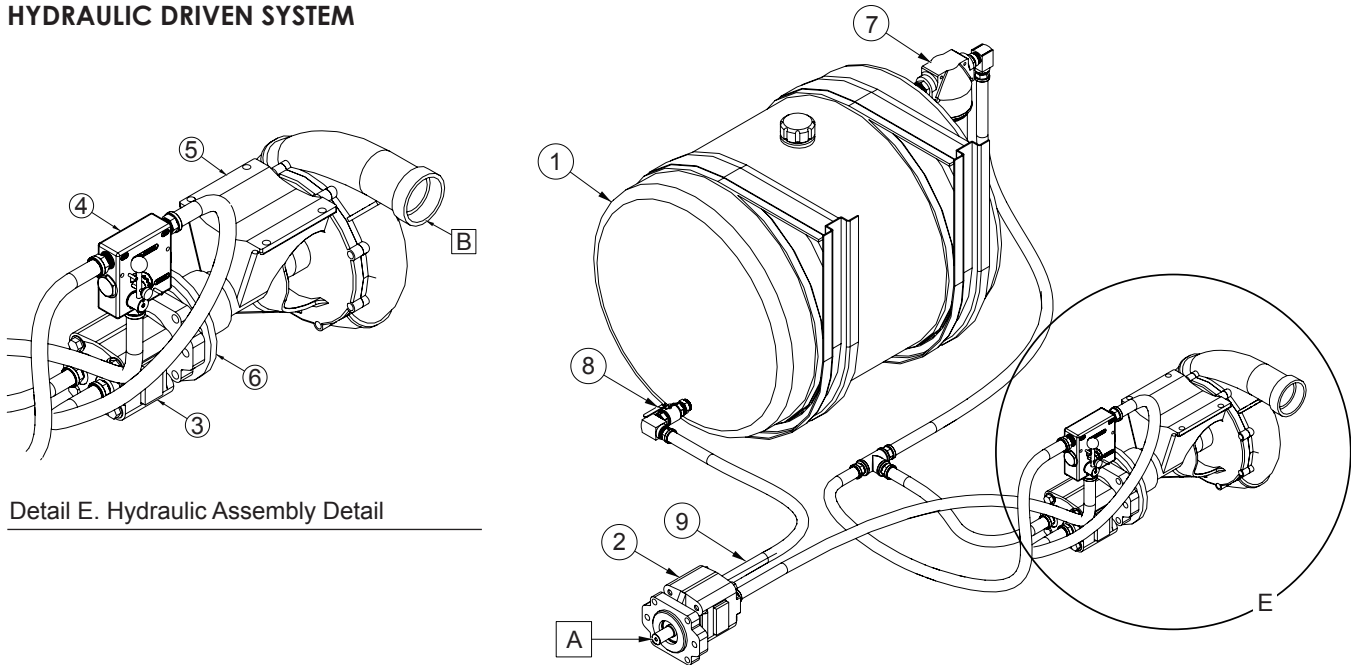


REF.	DESCRIPTION	QTY.	PART #
1	Hand Diaphragm Primer	1	9110099997
2	4" Butterfly Valve	1	20169100400
3	4" Flange	2	
4	3" Butterfly Valve	2	20169100300
5	3" Flange	4	
6	Butterfly Valve Handle	3	
7	1/2" Ball Valve	1	20465100025
8	1/2" Nylon Hose Reinforced	1	
9	3" Victaulic Firelock Clamp	2	15150031300
10	4" Victaulic Firelock Clamp	1	15150031400
A	Suction from Water Tank	1	n/a
B	3" routing into Water Tank	1	n/a
C	3" routing to Rear Spray Bar	1	n/a
D	Side Spray	1	n/a
E	3" Routing to Front Spray Bar	1	n/a

SUCTION PLUMBING SCHEMATIC



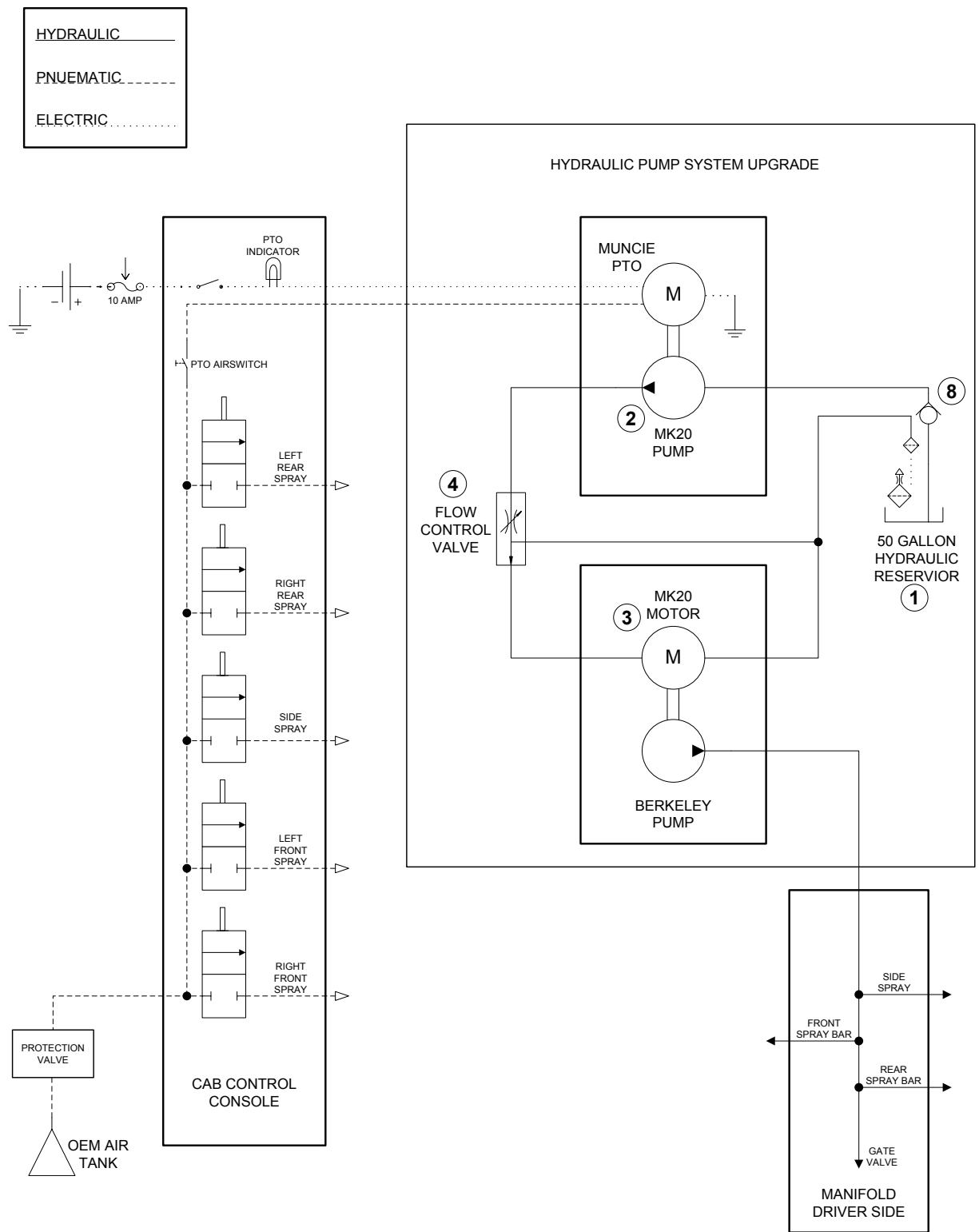
HYDRAULIC DRIVEN SYSTEM



Detail E. Hydraulic Assembly Detail

REF.	DESCRIPTION	QTY.	PART #
1	50 Gallon Hydraulic Reservoir	1	
2	Metaris Hydraulic MK20 Pump	1	
3	Metaris Hydraulic MK20 Motor	1	
4	Prince Adjustable Flow Control Valve	1	
5	CW Berkeley Pump	1	4018366899
6	Berkeley Hydraulic Motor Drive Adaptor	1	4018366999
7	Filter	1	
8	3/4" Ball Valve	1	
9	3/4" Hydraulic Hose	6	
A	MK20 Pump mounted on PTO	1	n/a
B	Berkeley Pump to Manifold	1	n/a

**HYDRAULIC DRIVEN SYSTEM
 SCHEMATIC**



MAINTENANCE

WARNING! Failure to follow service instructions listed in this manual can lead to permanent damage and/or void factory warranties.

WARNING! In cold weather climates, following maintenance instructions is extremely important.

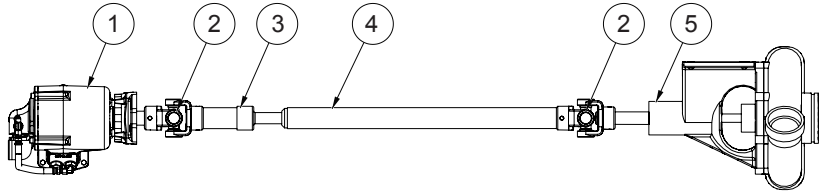


Fig. 1. PTO, Drive line, Pump

TRUCK CAB AND CHASSIS

1. Change the fuel filter every 30,000 gallons.

PUMP AND PTO

WARNING! Never inspect, adjust or repair the pump or PTO while the truck is running.

1. Read and follow pump (Fig. 1 - 5) and PTO (Fig. 1 - 1) maintenance instructions as provided in the Berkeley manual beginning at page 18 and Muncie PTO manual section 2.4.
2. Pump packing is required to drip 1 drop per second.
3. Adjust as instructed in Muncie PTO manual section 2.4.

Note: for pump and PTO maintenance, a grease pump is required.

PTO DRIVELINE

WARNING! Never inspect, adjust or repair the drive line while truck is running.

1. Inspect u-joints (Fig. 1 - 2) and spline shaft (Fig. 1 - 4) for wear weekly.
2. Grease u-joints and slip yoke (Fig. 1 - 3) weekly.

TANK MOUNTS

WARNING! It is imperative that tank and bed mounts are inspected regularly.

1. Visually inspect the tank mounting bolts daily as part of the DOT pre-trip inspection.
2. Inspect the tank mounts (Fig. 2) weekly to make sure they have not come loose.
3. Check the tank springs to see if they are loose or have too much travel, up and down.
4. Check the torque values monthly for all bed and tank mounting bolts. See "Truck Hardware" section on page 5 for recommended torque values.

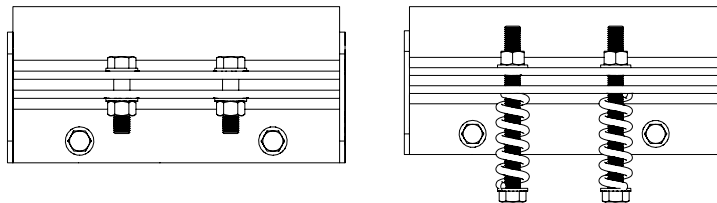


Fig. 2. Tank Mounts (WT4000/4500 mounts shown)

MISC. DAILY MAINTENANCE

1. Always drain truck air tanks at the end of each work day.
2. Open 1/4" petcocks on all of the 3" inline- valves and on the pump case.

TROUBLESHOOTING - GENERAL, WATER PUMP, INLINE VALVE

Note: first refer to the troubleshooting pages provided by each component's manufacturer.

ISSUE

The truck will not pump water.

SOLUTIONS

1. Check for missing end yoke bolts. Replace as necessary.
2. Check if keyways are missing from water pump and PTO. Replace as necessary. If replacing the water pump keyway, tack weld the keyway in place.
3. Remove and clogs in the water pump and plumbing.
4. Verify that the PTO is engaging.
5. Check if the water pump impeller was broken off (in cold weather especially). Replace as necessary.

ISSUE

The Berkeley Water Pump is leaking a large volume of water.

SOLUTIONS

1. Tighten packing gland bolts, located in the center of the water pump. Do not tighten the packing gland all the way down until the gland is touching the housing. This will make the internal packing fail. Touch both set nuts evenly. Gland should only need a 1/4" to 3/8" depth adjustment.
2. Add 1/4" Teflon packing rope to pump. You should only need to add 2" at a time.

Note: Berkeley's all season pump is designed to drip at all times.

ISSUE

The water pump shaft is starting to wobble.

SOLUTIONS

1. The front bearing is most likely going out on the pump. Remove the outer bearing cap and inspect the front pump bearing for damage. If bearing is out, replace the enter shaft.
2. Inspect outer bearing cap for damage. If the outer bearing has failed, the outer cap bearing's outlet shaft is likely enlarged, making it easy for dirt to get into the bearings.

ISSUE

The 3" Inline Valve will not turn on.

SOLUTIONS

1. Drain any water from the chassis air tanks.
2. If water continues to build up in the air tanks, check the inline valve's diaphragm assembly for holes or cracks.
3. Check for air coming into the cab. Verify that the compressor is working.

ISSUE

The Inline Valve control switch will not work or exhaust.

SOLUTIONS

1. Drain any water from the chassis air tank.
2. Flip the switch on and off several times to clean out water buildup.
3. Replace the switch if still failing.

TROUBLESHOOTING - DRIVELINE, WATER TANK

Note: first refer to the troubleshooting pages provided by each component's manufacturer.

ISSUE

The Driveline has fallen off the shaft.

SOLUTIONS

1. Check the end yokes for missing set screws. If missing, replace the set screws and use thread locker to secure them.
2. Check if keyway has come out of pump or PTO shaft. If so, replace keyway. If replacing water pump keyway, tack weld the keyway in place.

ISSUE

The Driveline is starting to wobble during operation.

SOLUTIONS

1. Check U-joints to see if the bearings have failed. Replace as necessary.
2. Check if the slip yoke is failing. Replace if necessary.
3. Check if the end yokes are missing the set screws. Replace if necessary with thread locker.
4. Check the end yokes to see if the shaft receiver holes are damaged. Replace if necessary.

ISSUE

The Water Tank is starting to crack.

SOLUTIONS

1. Check if the tank's mounting bolts are loose. If so, replace loose bolts. Do not use used bolts, nuts or washers if the bolt has started to back off. This will happen again if you don't replace them.
2. Check if the front tank mounting springs are fully compressed. If so, replace the springs and install new 3/4" x 8" tank bolts. Springs should never be fully compressed. The front of the tank should be able to travel free from chassis frame.
3. Inspect the Z-frame rubber stripping. If the isolator rubber is coming out from in between the chassis frame and the tank frame, reinstall the rubber and tack weld it in place. If the 4' isolator is missing, replace it.



P.O. Box 128, Delle Valle, TX 78617
3039 Hwy 71 E, Delle Valle, TX 78617
512.252.3808 Phone
888.643.2372 Toll Free
512.252.7078 Fax
www.nieceequipment.com

Manual WT - REV B JUL 2013
© 2013 Niece Equipment, LP, all rights reserved



Warranty Statement

Guarantee 12 months Tank - 12 months Discharge

~~~~~

Niece Equipment warrants each new Niece Equipment manufactured tank to be free from defects in materials and workmanship for a period of 12 months after the date of receipt by customer but no longer than 13 months from the date of shipment from Niece Equipment. This warranty is limited to replacement or repair at the manufacture’s plant or authorized service agent, which ever Niece Equipment deems most appropriate to better serve the customer. All warranties are upon inspection of such part or failure item. All freight into the Niece factory or authorized service agent, and back to the customer, shall be the responsibility of the customer.

It is hereby understood that Niece Equipment Inc., warrants only products and accessories manufactured by Niece Equipment. Niece Equipment makes no warranty with respect to engines, motors, gauges or other products not manufactured by Niece Equipment; such being subject to the warranty of their respective manufacturers. Any modifications to the tank, including the interior lining, pump, and other components, without the consent of Niece, will cause this warranty to be null and void. Replacement items shall be genuine Niece Equipment parts.

This warranty does not obligate Niece Equipment Inc. to bear the cost of labor or transportation charges in connection with the replacement or repair of defective parts, nor shall it apply to any product upon which alterations have been made unless authorized by the respective manufacturers.

Using this tank for any other purpose other than the intended purpose at the time of manufacture shall cause this warranty to become null and void.

Niece Equipment Inc. shall be in no event liable for consequential damages or contingent liabilities arising out of the failure of any product or their accessories to operate properly. No expressed or implied or statutory warranty other than herein stated set forth is made or authorized to be made by Niece Equipment Inc.

LIMITATION OF WARRANTY: THE PROVISIONS OF THIS PARAGRAPH ARE THE SELLER’S SOLE WARRANTY. SELLER MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH EXCEEDS SELLER’S AFORESTATED OBLIGATION, ARE HEREBY DISCLAIMED BY THE SELLER AND EXCLUDED FROM THIS WARRANTY. Seller neither assumes nor authorizes any person to assume for it, any other obligation in connection with the sale of the products. This warranty shall not apply to any product, or parts of products, which (a) have been repaired or altered outside the seller’s factory, or authorized service representative’s control in any manner, or (b) have been subject to misuse, negligence, or accident, or (c) have been used in a manner contrary to seller’s verbal or printed instructions.

***IMPORTANT: Warranty Registration Card must be signed and returned to Niece Equipment for Warranty to be validated.***



**WARRANTY REGISTRATION CARD**

Company Name: \_\_\_\_\_

Product Type: \_\_\_\_\_ Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_ VIN: \_\_\_\_\_

*- COPY -  
Keep for your records*

**IMPORTANT**

***This statement must be signed and returned to Niece Equipment to be validated.***

P.O. Box 128 Del Valle, TX 78617

**By signing the purchaser acknowledges that purchaser has Read and Understands the Terms and Conditions of the Warranty Statement.**

Authorized Purchaser's Representative \_\_\_\_\_

Representative's Title \_\_\_\_\_ Date \_\_\_\_\_



**WARRANTY REGISTRATION CARD**

Company Name: \_\_\_\_\_

Product Type: \_\_\_\_\_ Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_ VIN: \_\_\_\_\_

**IMPORTANT**

***This statement must be signed and returned to Niece Equipment to be validated.***

P.O. Box 128 Del Valle, TX 78617

**By signing the purchaser acknowledges that purchaser has Read and Understands the Terms and Conditions of the Warranty Statement.**

Authorized Purchaser's Representative \_\_\_\_\_

Representative's Title \_\_\_\_\_ Date \_\_\_\_\_