



HydraCradle™ Tank Owner's Manual

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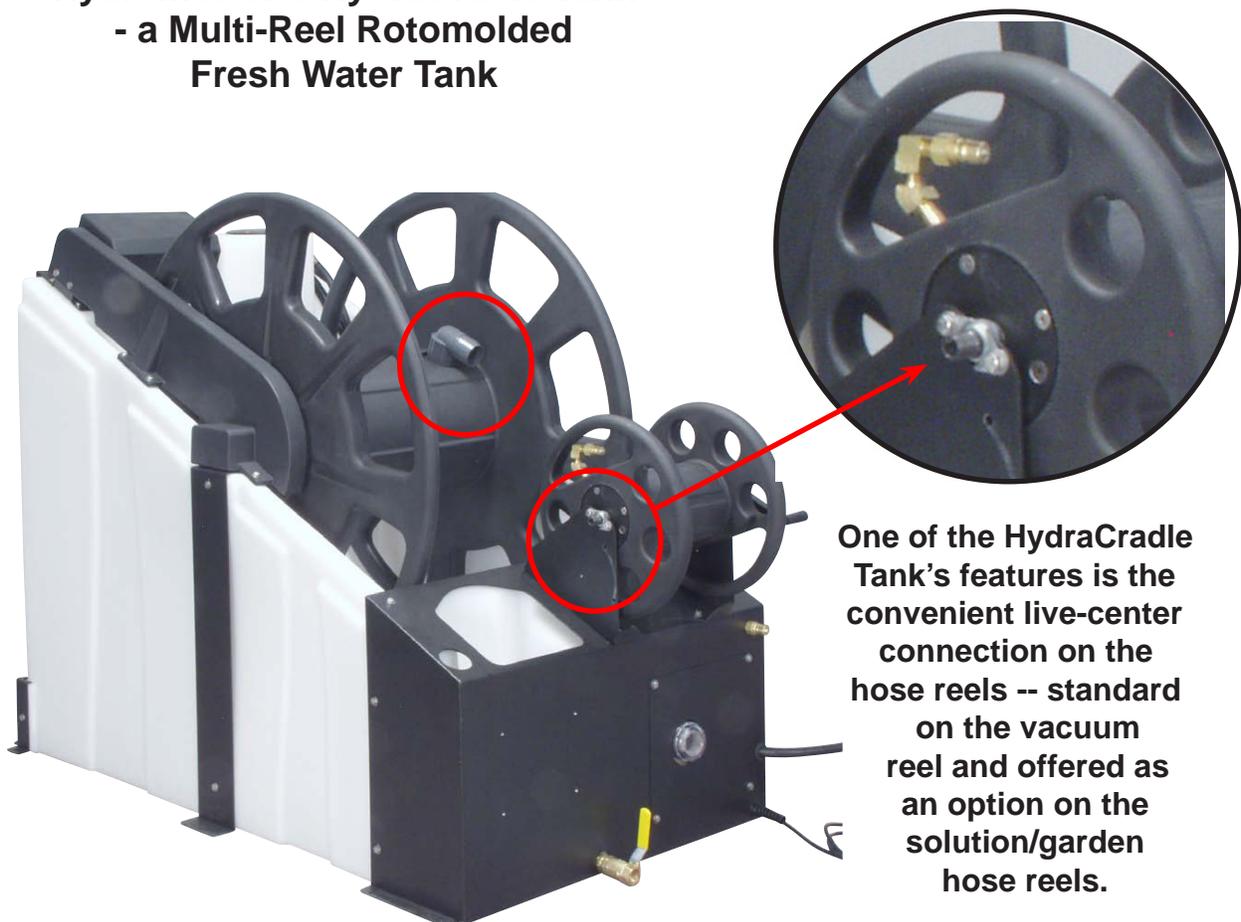
1 - General Information

HydraMaster's latest addition to its accessory product line is the HydraCradle™ Tank, a 125-gallon (473-litre) rotomolded fresh water tank with an integrated multi-reel system. It is compatible with most truckmounts on the market and all of HydraMaster truckmounts, including slide-ins.

The HydraCradle Tank is an innovative combination of durable, rustproof rotomolded components and powder coated steel. Its one-piece, frameless self-venting design is virtually leakproof.

Standard features of the HydraCradle Tank include a 38" (96.5 cm) diameter, rotomolded vacuum hose reel which holds a full 250 ft (76.2 m) of 2" (5.1 cm) diameter vacuum hose and houses a "live-center" vacuum connection. "Live center" means the hose connector on the vacuum reel is always connected to the recovery tank, providing an easy and convenient connection.

HydraMaster's HydraCradle Tank - a Multi-Reel Rotomolded Fresh Water Tank



One of the HydraCradle Tank's features is the convenient live-center connection on the hose reels -- standard on the vacuum reel and offered as an option on the solution/garden hose reels.

HydraCradle Tank

The 14" (35.6 cm) diameter, rotomolded solution hose reel, with a manual crank and an optional live center, holds up to 250 ft (76.2 m) of solution hose or up to 50 ft. (15.2 m) of garden hose

A convenient foot switch, located on the front of the unit, lets you automatically retract the vacuum hose when you are finished cleaning.

Also located on the front of the unit is an easily accessible fresh water fill connector. When the tank is full, the HydraCradle Tank's water fill sensor automatically shuts off the water, preventing spill over.

The centralized up-front electrical panel houses the pump-in pump, the pump's filter and 15 Amp fuse, and the 30 Amp fuse for the hose reel motor.

Although the HydraCradle Tank has been designed and built to give you years of reliable service, it still requires proper installation and operation, as well as regular maintenance. This Owner's Manual contains installation and operation instructions, and information required for proper maintenance. Please follow the instructions carefully and you will be rewarded with years of profitable, trouble-free operation.

It is imperative that no section be overlooked when preparing for operation of this equipment.

This section of the manual contains the following helpful information. If you are viewing the digital version of the manual, click on the bulleted items to access those subsections.

- [Contact Information](#)
- [Warnings, Cautions and Notices](#)
- [HydraCradle Tank Specifications](#)
- [Configurations](#)
- [Responsibilities](#)
- [System Concept](#)
- [Local Water Precautions](#)

HydraCradle Tank

Contact Information

If you have any questions regarding the operation, maintenance or repair of the HydraCradle Tank, please contact your local distributor.

To find a local distributor, please visit our website at <http://www.hydramaster.com/owners/locate/index.asp>.

If your question cannot be resolved by your distributor or by the information within this manual, you may contact HydraMaster Customer Service direct using the following phone numbers or e-mail addresses.

<u>Hours</u>	<u>Telephone Numbers</u>	<u>E-mail Addresses</u>
Monday-Friday	(425) 775-7276 Parts	Tech Support: techsupport@hydramaster.com
7:00 a.m. to 5:00 p.m.	(425) 775-7275 Service	Parts Support: partssupport@hydramaster.com
Pacific Standard Time	(800) 426-4225 Parts / Service FAX	

When calling your distributor, be sure to reference the date of purchase.

FOR YOUR REFERENCE:

Date of Purchase: _____

Purchased From (Distributor): _____

HydraCradle Tank

Warnings, Cautions and Notices

WARNING

HydraMaster uses this WARNING symbol throughout the manual to warn of possible injury or death.

CAUTION

This CAUTION symbol is used to warn of possible equipment damage.

NOTICE

This NOTICE symbol indicates that federal or state regulatory laws may apply, and also emphasizes supplemental information.

HydraCradle Tank

Warnings and Cautions specific to the HydraCradle Tank include:

⚠ WARNING

HEARING PROTECTION: The Occupational Safety and Health Administration (OSHA) recommends the use of hearing protection when a technician is exposed to an average of 85 decibels (this is an average of exposure over an 8-hour period). The carpet cleaning equipment used in conjunction with the HydraCradle Tank can produce sound levels as high as 85 decibels to a distance of 10 ft (3 m). Please check with your local state agencies to see if OSHA standards apply to your application.

⚠ WARNING

MOVING PARTS: Never touch any part of the tank assembly or the reel that is in motion. Severe bodily injury may result.

⚠ WARNING

SECURING TANK TO VEHICLE: When the HydraCradle Tank is full of water, the tank can weigh more than a 1,000 lbs (454 kg). A sudden or crash stop will cause the machine to rocket forward if not properly secured. To prevent serious personal injury, ensure that the tank is well secured to the floor of the vehicle with the hardware supplied. Protect yourself and the machine.

CAUTION

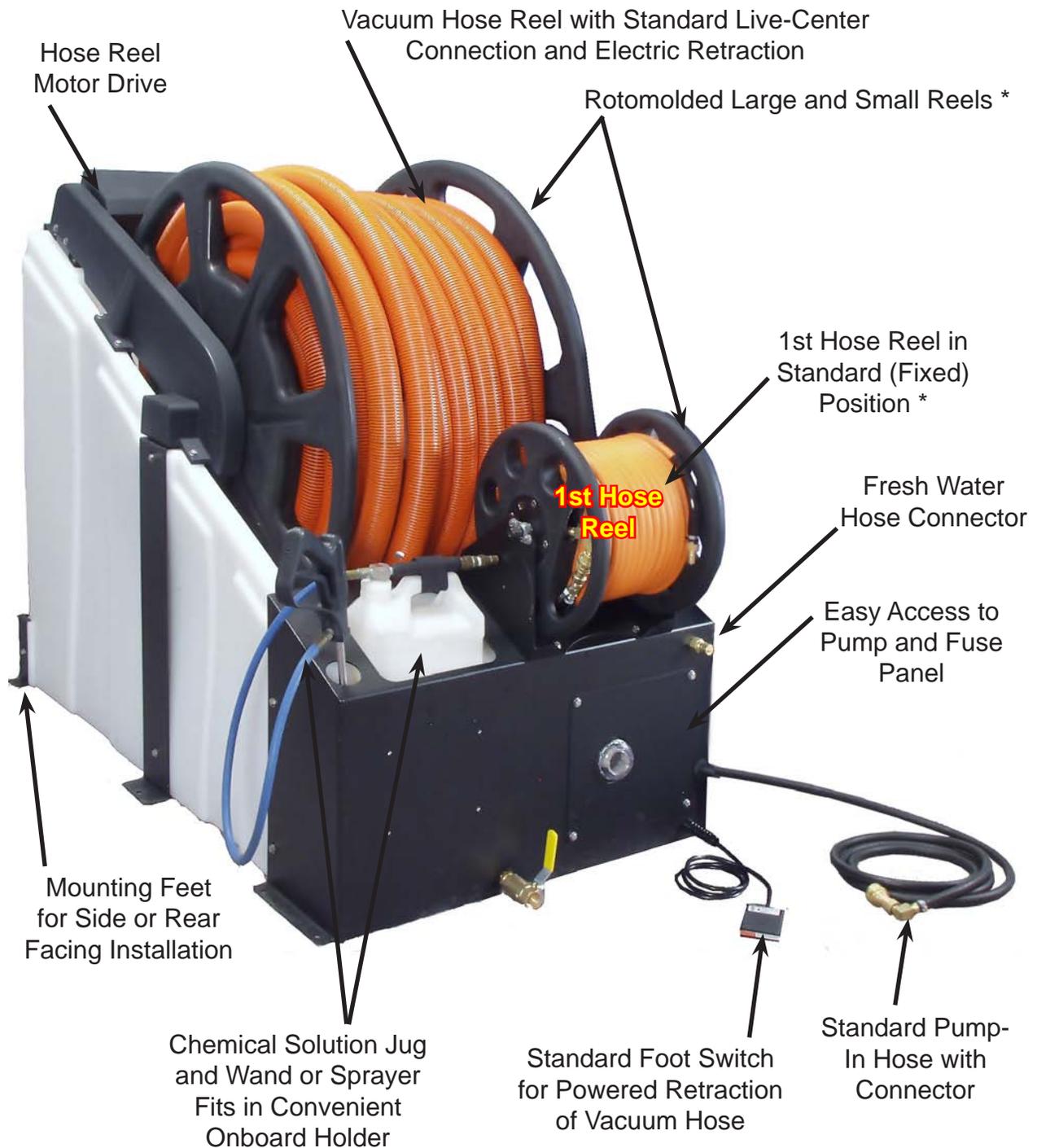
HARD WATER PROTECTION: Failure to take appropriate measures to prevent scale build up can result in system failure and loss of warranty on affected parts. Test the water in your immediate and surrounding areas with hard water test strips. Assume all water obtained from wells is hard. If you are operating in a hard water area at 3.0 grains or more per gallon, use a water softening system.

CAUTION

FREEZE PROTECTION: Failure to take appropriate measures to prevent equipment damage due to freezing can result in system failure and loss of warranty on affected parts.

HydraCradle Tank

Standard Tank Configuration



* Small reels can be configured with solution or garden hose, all with an optional live-center connection.

HydraCradle Tank

HydraCradle Tank Specifications

Tank Capacity	125 gallons (473 litres)	
Tank Construction	Rotomolded LLDPE *	
Mounting Components	Powder coated steel	
Dimensions		
Standard Configuration	47¼" H x 65" L x 34" W (120 cm x 165 cm x 86.4 cm)	
Long Configuration (3rd Hose Reel)	47¼" H x 74" L x 34" W (120 cm x 188 cm x 86.4 cm)	
Standard Configuration Weight (without Vacuum Hose)	285 lbs. (129 kg)	
38" (96.5-cm) Diameter Vacuum Hose Reel - Standard - (for 2" (5.1-cm) Diameter Hose)	Maximum Capacity	250 ft. (76.2 m)
	Construction	Rotomolded LLDPE*
	Live Center	Standard
	Electrical Operation	Power Retraction - Standard
14" (35.6-cm) Diameter Hose Reels **		
	Solution (for 1/4" [6.35-mm] Diameter Hoses)	Maximum Capacity
		250 ft. (76.2 m)
	Construction	Rotomolded LLDPE
	Garden (for 5/8" [15.9 mm] Diameter Hoses)	Maximum Capacity
		50 ft. (15.2 m)
	Construction	Rotomolded LLDPE
Pump Fuse	15 Amp	
Hose Reel Motor Fuse	30 Amp	

* LLDPE = Linear Low Density Polyethylene

** Hose reels are offered with optional configurations; see the next subsection.

HydraCradle Tank

Configurations

HOSE REELS

Refer to the following table before placing your order for the standard HydraCradle Tank.

STANDARD: 1st Solution/Garden Hose Reel	
Part #	Description
000-163-600	Standard Tank (1 Solution Hose Reel NON LIVE)
000-163-601	Standard Tank (1 Garden Hose Reel NON LIVE)
000-163-600L	Standard Tank (1 Solution Hose Reel LIVE)
000-163-601L	Standard Tank (1 Garden Hose Reel LIVE)

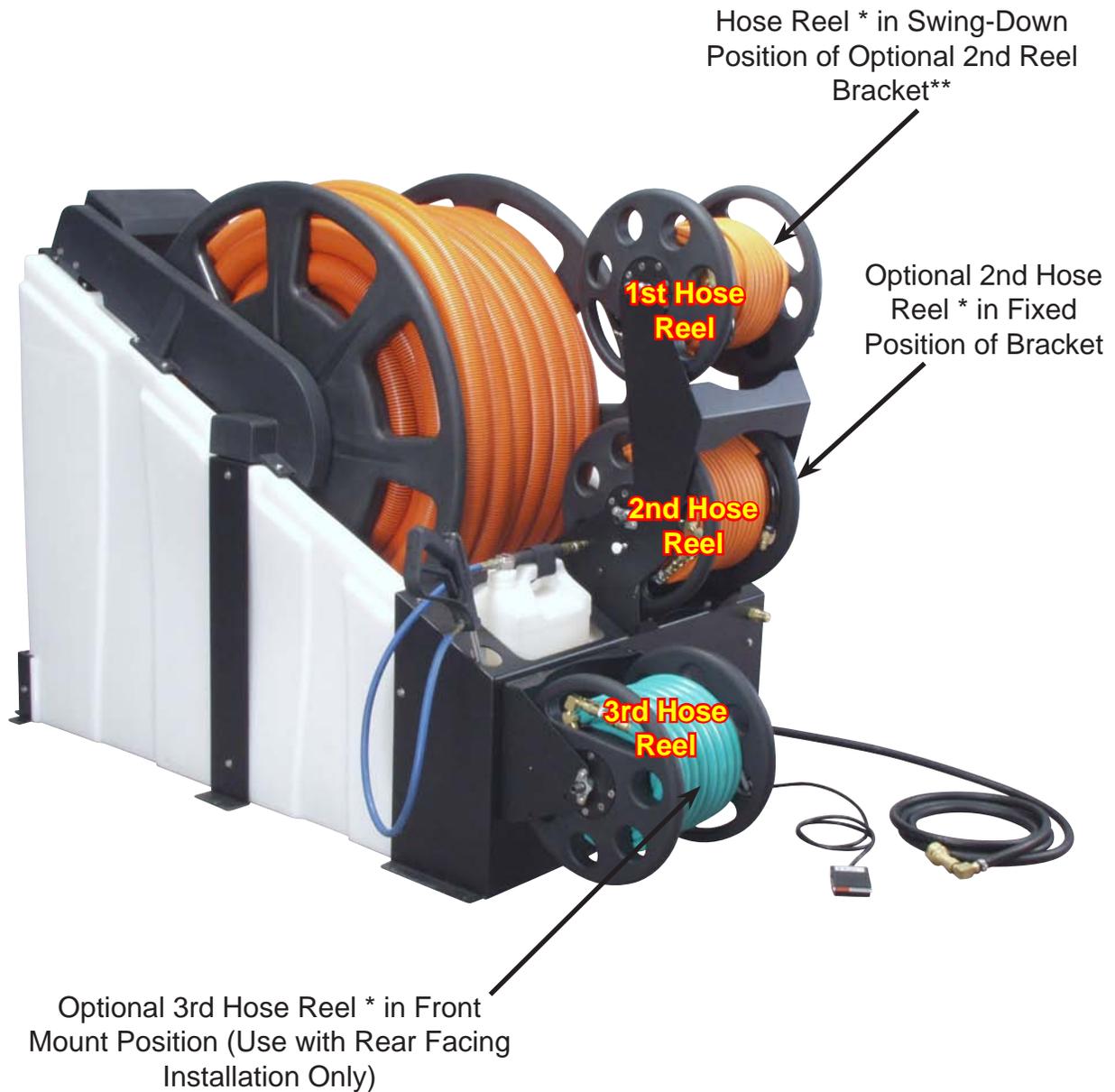
The standard HydraCradle Tank shipment includes 5 packages of components needed to install the tank:

- Pump-in pump barb insert, elbow and quick connect hardware
- Drain valve and PVC nipple
- Crank handle and fastening hardware for the 1st Hose Reel
- Fresh water tank mounting hardware (8 tie down washers, 8 screws, 16 flat washers and 8 Nylock nuts)
- 2 ring terminal connectors for the battery cables, and 2 quick connectors (1 female, 1 male) for the pump-in pump cable

Your shipment also includes the pump-in pump hose and the overflow hose that can be cut to the desired lengths.

HydraCradle Tank

Tank Configuration with Optional Hose Reels



* Small reels can be configured with solution or garden hose, all with an optional live-center connection.

** Note that the 1st Hose Reel (part of the standard configuration) moves to this position when the optional 2nd Hose Reel with the swing-down bracket is installed.

HydraCradle Tank

If you decide to add one or both optional hose reels aftermarket, refer to the following table before placing your order.

OPTIONAL: 2nd Solution/Garden Hose Reel	
Part #	Description
000-163-602S	Reel #2 Solution Reel NON LIVE
000-163-602SL	Reel #2 Solution Reel LIVE
000-163-602G	Reel #2 Garden Reel NON LIVE
000-163-602GL	Reel #2 Garden Reel LIVE
OPTIONAL: 3rd Solution/Garden Hose Reel*	
Part #	Description
000-163-603S	Reel #3 Solution Reel NON LIVE
000-163-603SL	Reel #3 Solution Reel LIVE
000-163-603G	Reel #3 Garden Reel NON LIVE
000-163-603GL	Reel #3 Garden Reel LIVE

*Only available for rear door installation

If you decide to convert a non live-center hose reel to a live-center reel, aftermarket, refer to this table:

Part #	Description
000-078-604	Fitting Kit, Live Solution Hose
000-078-605	Fitting Kit, Live Garden Hose

HydraCradle Tank

HOSES

The vacuum hose and solution/garden hoses are purchased separately when you order a standard HydraCradle Tank. Refer to the following table to order hoses. Please note that you can mix or match colors for the vacuum and solution hoses; the garden hose is only available in green.

Part #	Description
000-068-048	50-ft (15.2-m) Vacuum Hose, Orange with 2" (5.1-cm) Diameter; 000-052-168 Vacuum Hose Coupler *
000-068-065	50-ft (15.2-m) Vacuum Hose, Blue with 2" (5.1-cm) Diameter; 000-052-168 Vacuum Hose Coupler *
000-068-053	150-ft (45.7-m) Solution Hose, Orange, 1/4" (6.35 mm) Diameter with 1/4" (6.35 mm) Insert and Bend Protectors
000-068-206	150-ft (45.7-m) Solution Hose, Blue 1/4" (6.35-mm) Diameter with 1/4" (6.35 mm) Insert and Bend Protectors
000-068-815	100-ft (30.5-m) Solution Hose, Orange, 1/4" (6.35-mm) Diameter with 1/4" (6.35 mm) Insert and Bend Protectors
000-068-816	100-ft (30.5-m) Solution Hose, Blue 1/4" (6.35-mm) Diameter with 1/4" (6.35 mm) Insert and Bend Protectors
000-068-035	50-ft (15.2-m) Garden Hose, Green 5/8" (15.9-mm) Diameter

* For each 2 sections of 50-ft (15.2-m) vacuum hose ordered, order 1 hose coupler.

NOTICE

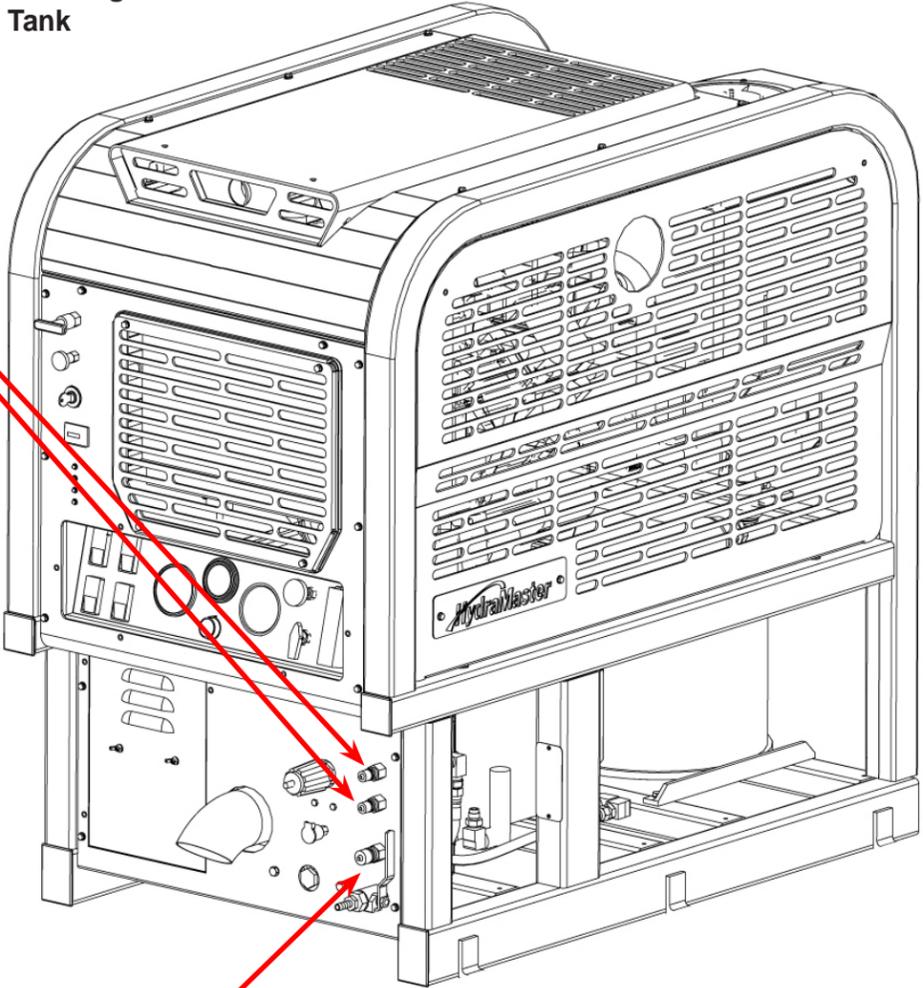
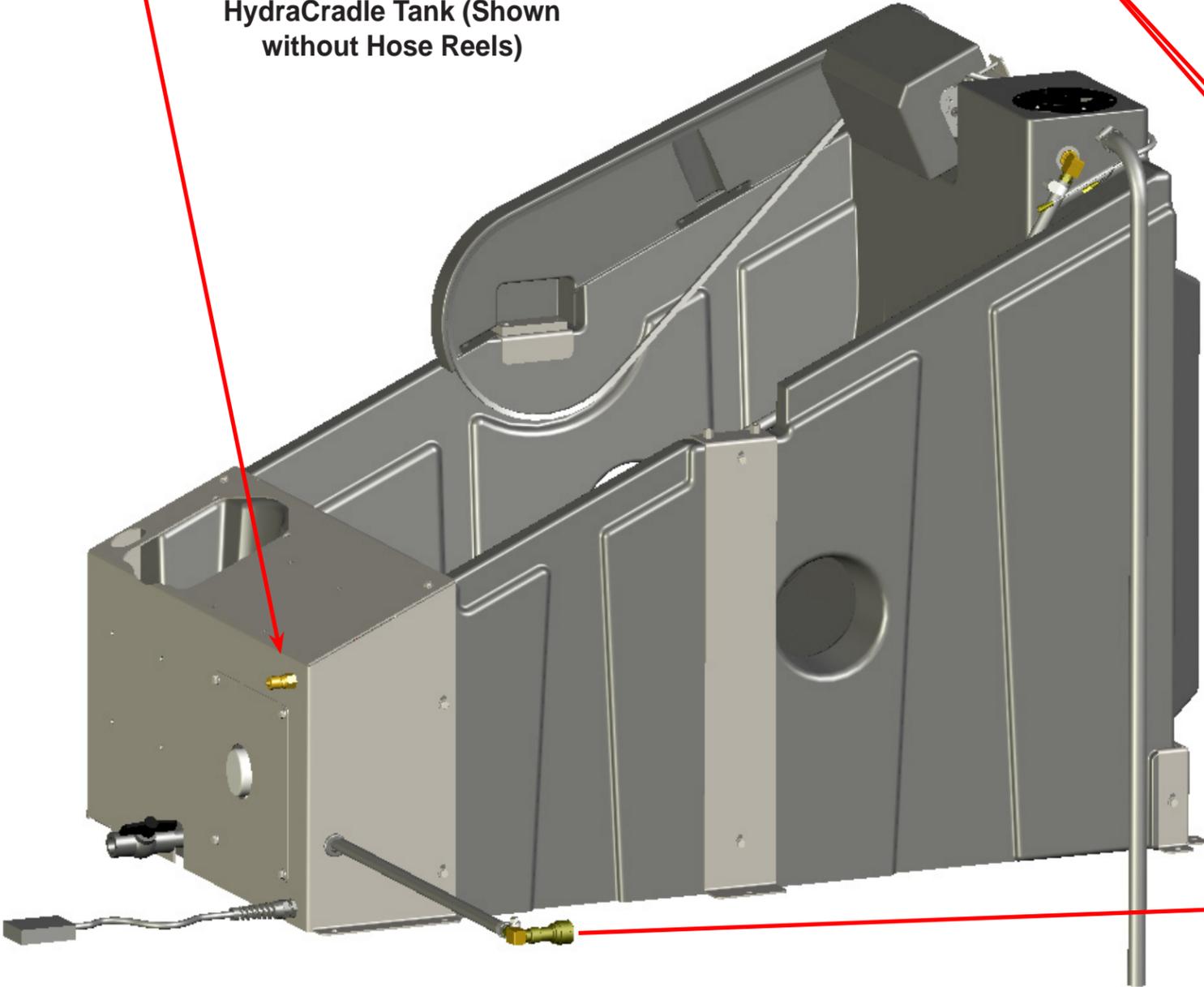
Each 250-ft (76.2-m) solution hose is a combination of one 150-ft (45.7-m) hose and one 100-ft (30.5-m) hose, connected with quick connectors. Combining shorter lengths of hose to make 250 ft (76.2 m) is not recommended; extra connectors would require more space than is available on the reel..

System Concept

1. Water Flows from Outdoor Water Faucet into HydraCradle Tank

HydraCradle Tank (Shown without Hose Reels)

3. Heated Cleaning Solution Is Pumped from Cleaning Unit to Solution Hose(s) on HydraCradle Tank



HydraMaster Cleaning Unit

2. Fresh Water is Pumped from HydraCradle Tank to Carpet Cleaning Unit

Figure 1-1. Concept Illustration of Water Flow Into HydraCradle Tank and Solution Flow into HydraCradle Tank Solution Hose(s)

HydraCradle Tank

Responsibilities

Prior to the arrival of the unit, the vehicle in which the HydraCradle Tank will be installed should be delivered to the installer.

PURCHASER'S RESPONSIBILITY

If you are the purchaser, it is your responsibility to read this Owner's Manual and to familiarize yourself with the information contained herein, paying special attention to all Warnings and Cautions.

SALES REPRESENTATIVE'S RESPONSIBILITY

Acceptance of Shipment

1. If the HydraCradle Tank shows any outward signs of damage, do not sign the delivery receipt until you have closely inspected the unit and noted any damage on the delivery receipt.
2. The sales representative from whom you purchased your HydraCradle Tank is responsible for supervising the correct installation of the unit into your vehicle and thoroughly training you in its operation, maintenance and precautions.

Installation

- Correctly installing the HydraCradle Tank in your vehicle and securing it with bolts and tie down washers.
- Checking all water and vacuum connections including the vacuum reel rotation prior to starting the carpet cleaning unit.
- Checking all hoses, tools/wands and accessories for correct operation.

Training

- A thorough review of the Owner's Manual with the purchaser.
- Instruction in and familiarization with:
 1. How to correctly fill and drain the tank.
 2. How to correctly clean the tank.
 3. How the unit's systems work, how to troubleshoot the tank.
 4. How to do basic repairs.
 5. Safety precautions and their importance
 6. How to avoid freezing damage
 7. How to avoid hard water damage
- A thorough review of the unit warranty and warranty procedures.
- A thorough review of hard water precautions and warnings.
- How to determine hard water areas.
- Use of water softening systems.

HydraCradle Tank

Local Water Precautions

The quality of water varies greatly. Many areas have an excess of minerals in the water which results in what is commonly called “hard water.” These minerals tend to adhere to the insides of heater coils and other parts of the machines causing damage and a loss of cleaning effectiveness. This influences the reliability and efficiency of equipment in direct proportion to the level of hardness.

HARD WATER ADVISORY

HydraMaster recognizes that any hard water deposits which might occur within the water system of our truckmounts and tanks is a serious problem. Hard water deposits will ultimately decrease the performance of the system and are expected to seriously lower the reliability of the machine.

To validate a machine's warranty, HydraMaster requires that all machines operating in designated “Hard Water Areas” (3.0 grains or more per gallon) be fitted with a water softening system, or a properly installed magnetic-type descaler must be used and maintained. Periodic descaling or acid-rinsing alone is not adequate in these areas. HydraMaster does not recommend any particular type or brand; however, the relative effectiveness of some types of magnetic descalers or softeners may require additional periodic use of descaling agents.

HydraMaster also recommends, in the strongest possible terms, that machines in all areas be fitted with a water softening system for improved operation and reliability.

CAUTION

Failure to take appropriate measures to prevent scale build up can result in system failure and loss of warranty on affected parts.

HydraCradle Tank

HARD WATER AREA MAP

The hard water map, shown in Figure 1-2, defines hard water areas in the lower 48 United States which compromise fluid related components such as hoses, fittings, pumps, and valves. For other countries, hard water area maps can be obtained from geological societies.

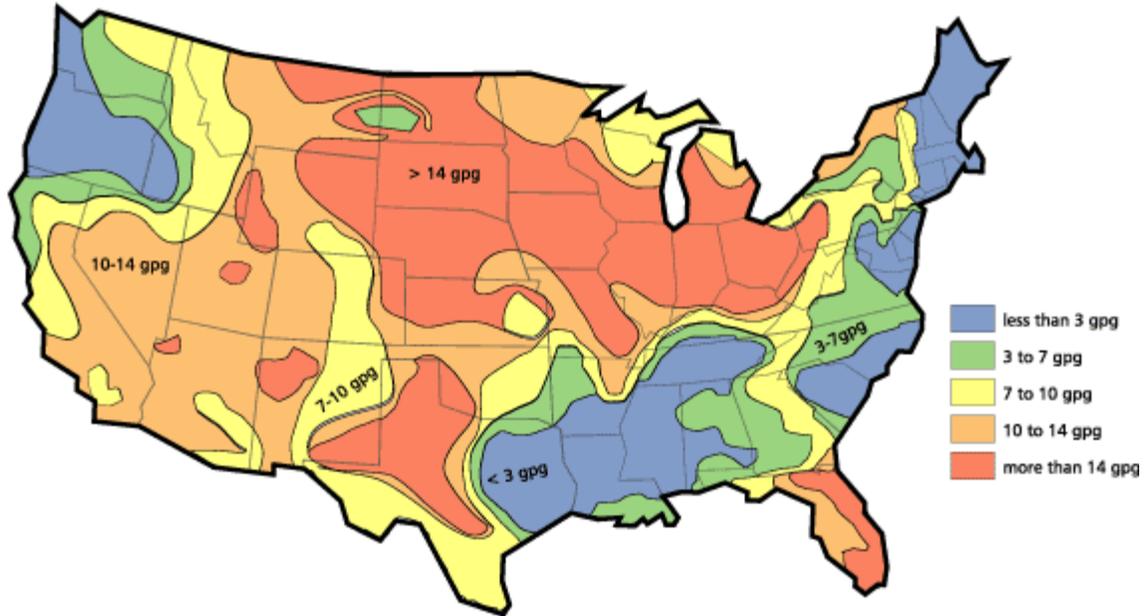


Figure 1-2. Hard Water Map of Mainland United States

NOTICE

The map shown in Figure 1-2 is provided for general reference only. Water hardness in your geographical location should be confirmed by testing.

HydraCradle Tank

WATER SOFTENER

Cleaning efficiency and equipment life is increased, chemical use decreased, and the appearance of cleaned carpets enhanced when water softeners are incorporated in hard water areas. HydraMaster strongly urges the use of water softener units with the HydraCradle Tank in areas exceeding 3.0 grains per gallon (3.78 litres).

Failure to use a water softener in these areas will invalidate the tank's warranty. Referring to the hard water area map shown Figure 1-2, determine the quality of water in your area and take immediate action if the water hardness exceeds 3.0 grains per gallon.

The relatively low cost of a water softener service is more than made up for by an increased life of machine parts, reduced chemical costs and continued cleaning efficiency. The water softener will also increase the effectiveness of the cleaning chemicals, therefore less chemical will be needed.

For example: If the softener will treat 900 gallons (3.04 kilolitres) of water and the machine uses an average of 30 gallons (113.6 litres) per hour, for an average of 5 hours a day, this equals 150 gallons (568 litres) per day. In 6 days the machine would use 900 gallons of water. Therefore, the softener would need to be charged every 6 working days for maximum softening.

Contact a water softener distributor in your area for information on the rental of a simple water treatment unit to carry in your vehicle. Be sure to charge the water softener in accordance with the capability of the softener.

HydraCradle Tank

2 - Installation Instructions

Although there are various vehicle types and configurations from which to select for a HydraCradle Tank installation, HydraMaster recommends that you purchase a Ford or GM cargo van. This section of the Owner's Manual, therefore, provides general installation instructions based on just the Ford and GM cargo van configurations.

After you purchase a HydraCradle Tank, make sure the distributor/installer understands that the HydraCradle Tank must be installed into the vehicle after the carpet cleaning unit (such as a CDS, MAXX, Titan or Boxxer) has been properly installed, as indicated in Figure 2-1.

⚠ WARNING

Use extreme caution in loading the HydraCradle Tank into the van. Always seek the assistance of a second person. If you attempt to load the HydraCradle Tank by yourself, personal injury could result.

Installing HydraCradle Tank into Van

1. After receiving the palletized HydraCradle Tank, move it to the outside rear of the van, using a forklift.
2. Remove the packing and wrapping material, and unbolt the tank from the pallet. Carefully angle the palletized HydraCradle Tank onto the rear of the van as shown in Figure 2-2.



Figure 2-1. Sample Configuration of HydraCradle Tank Installation with CDS Unit in GM Van



Figure 2-2. Load Tank into the Van



Figure 2-3. Pivot Tank over the Wheel Well

HydraCradle Tank

3. With the assistance of a second person, push the empty tank off of the pallet and into the van, positioning the tank at an angle.
4. With the assistance of the second person, carefully lift the tank from the shorter end of the tank, pivoting the tank's shorter end over the wheel well (see Figure 2-3).
5. Dry fit the HydraCradle Tank, positioning it parallel to the carpet cleaning unit. Leaving approximately 4" (10 cm) of space between the tank and the cleaning unit (see Figure 2-4) will result in optimal clearance between a CDS truckmount and the handle on the standard solution or garden hose reel. A minimum of 2" (5 cm) of space can be used, maximizing cargo space in the van, but clearance will be very tight between the handle and the CDS unit.

NOTICE

If the optional 2nd reel (with the swing-out bracket) is installed and the live-center hoses are fitted, then the 2" (5-cm) spacing must be used.

If not, then some configurations of hose reels could interfere with the side door opening in the van.



Figure 2-4. Position Tank Parallel to Cleaning Unit; Space between HydraCradle Tank and Cleaning Unit Should Be 4" (10 cm)

HydraCradle Tank

- Referring to Figure 2-5, and Figure 2-6, locate the 8 holes in the brackets, at the base of the unit. There are 4 holes on each side of the tank.



Figure 2-5. Drill Only 1 Hole for Corner Bracket

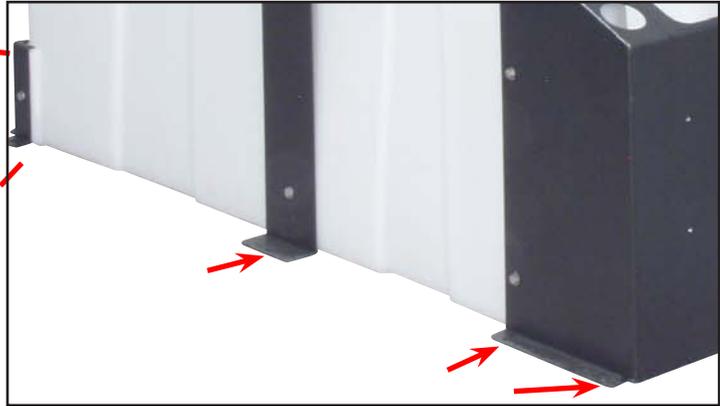


Figure 2-6. Mounting Holes on Each Side, Indicated by Arrows (See 9 before Installing Tank)

NOTICE

The corner bracket at the rear of the tank, shown in Figure 2-5, lets you select 1 of 2 tabs - you only need to use one, not both. To better accommodate the installation, you can cut off the unused tab of the corner bracket.

- Mark the location of the 8 holes, checking under the van to ensure that, when you drill through the van floor, you are not drilling through the fuel line or other components.

HydraCradle Tank

CAUTION

THROUGH-FLOOR DRILLING: Be careful when drilling holes through the van floor. Many vans have critical components mounted directly below the van floor which could be damaged by a misplaced drill bit.

- Using a 7/16" (11.1 mm) drill bit, drill the 8 preselected holes through the van floor (see Figure 2-6).

NOTICE

Prior to securing the tank to the van floor, you must first loosen the side bracket bolts on the tank as described in the next step.

- Loosen, but do not remove, the 5 bracket bolts on each side of the HydraCradle Tank before securing the tank to the van floor (see circled bolts in Figure 2-7).
- Secure the tank to the van floor with four 3/8" (9.5 mm) bolts on each side.
- After tightening the 8 bolts that secure the tank to the floor, tighten the 10 bracket bolts (5 on each side) as indicated in .Figure 2-7



Figure 2-7. Loosen But Do Not Remove 5 Bracket Bolts

HydraCradle Tank

- Next, drill a hole in the van floor to insert the overflow hose (see Figure 2-8).

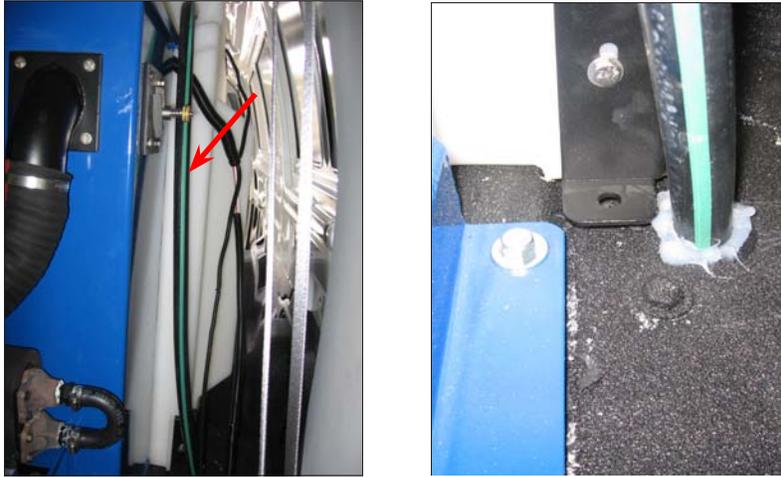


Figure 2-8. Insert Overflow Hose through Floor and Fill with Sealer

Installing Drain Valve Assembly

The drain valve assembly is included in one of the plastic packages, shipped with the HydraCradle Tank.

- Remove the valve and PVC nipple from the package.
- Install the PVC nipple (see number 21 in Figure 2-9) into the front of the tank as indicated.
- Insert the valve (see number 20 in Figure 2-9) into the PVC nipple.

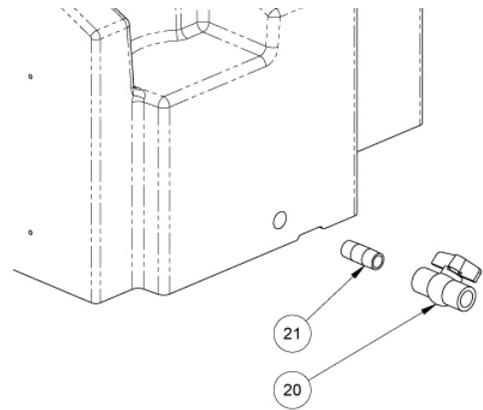


Figure 2-9. Install PVC Nipple and Valve

Installing 1st/3rd Hose Reel onto HydraCradle Tank

NOTICE

If you ordered a 1st Hose Reel and a 2nd Hose Reel, install the 2nd Hose Reel first and then install the 1st Hose Reel on the 2nd Hose Reel as explained on page 2-13. If you ordered just a 1st Hose Reel, continue with the following procedure.

HydraCradle Tank

The 1st Hose Reel, handle and fastening hardware are shipped as standard features with the HydraCradle Tank but packaged separately (see Figure 2-10).

Follow this procedure to install the 1st Hose Reel as well as the 3rd Hose Reel (refer to Notice on the next page).

1. Remove the hose reel from its box and remove all shipping material. Locate the 4 bolts and washers which are in a plastic bag, attached to the hose reel.
2. Position the hose reel onto the HydraCradle Tank, aligning the mounting holes with the holes on the hose reel bracket (see Figure 2-11).
3. Secure the hose reel to the HydraCradle Tank with the 4 washer/bolts and tighten the bolts.
4. Attach the handle onto the right-hand side of the hose reel (see Figure 2-12).



Figure 2-10. 1st/3rd Hose Reel

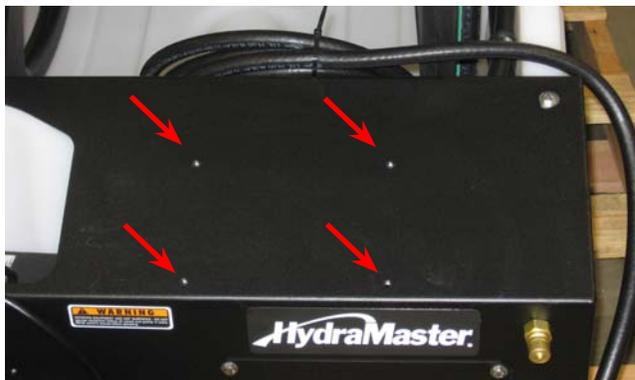


Figure 2-11. Arrows Show Mounting Holes for 1st Hose Reel



Figure 2-12. Attach Handle

NOTICE

The tension knob shown in Figure 2-12 can be tightened for hose reel braking purposes

HydraCradle Tank

NOTICE

The 3rd Hose Reel, available as an option, is the same configuration as the 1st Hose Reel.

The procedure for installing the 3rd Hose Reel is the same as that for installing the 1st Hose Reel except that the 3rd Hose Reel is mounted on the vertical front of the HydraCradle Tank (see Figure 2-13).



Figure 2-13. Install 3rd Hose Reel on Vertical Front

Installing Connectors onto Cables and Hose

1. At the rear of the HydraCradle Tank, locate the battery cables in one loom and the pump-in pump cables in the other loom (see Figure 2-14).
2. Cut the battery cables to length if necessary. Locate the 2 ring terminal connectors in the plastic bag, shipped with the HydraCradle Tank, and install the ring terminal connectors onto the battery cables, using pliers or similar tool.
3. Cut the pump-in pump cables to length if necessary. Locate the 2 quick connect connectors, one female and one male, in the plastic bag which is shipped with the HydraCradle Tank.



Figure 2-14. Battery Cables, Left Photo; Crimping Terminal onto Cable, Right Photo

HydraCradle Tank

NOTICE

Observe that one pump-in pump cable is white-and-black striped and the other cable is grey.

4. Attach the female quick connector to the white-and-black striped cable (see Figure 5-1 for wiring schematic).
5. Attach the male quick connector to the grey cable.
6. Connect the battery cables to the van's battery or to a battery located inside the van.
7. Connect the tank's pump-in pump cables to the cleaning unit's pump-in pump connectors.

NOTICE

If installing the HydraCradle Tank in a van with a HydraMaster truckmount:

- The white/black pump-in pump cable connects to the white/black cable on the truckmount.
- The grey pump-in pump cable connects to the grey cable on the truckmount.

If installing the HydraCradle Tank in a van with a HydraMaster CDS:

- The white/black pump-in pump cable connects to the white cable on the CDS.
 - The grey pump-in pump cable connects to the yellow cable on the CDS.
8. Next, locate the pump-in pump hose which is shipped without a connector so that you can select the length of hose you need.
 9. Cut the pump-in pump hose to the length needed.
 10. Install the supplied connector and hose clamp onto the pump-in pump hose, and connect the pump-in pump to the cleaning unit (see Figure 2-15).



Figure 2-15. Connect Pump-in Pump Hose

HydraCradle Tank

Installing Hoses onto HydraCradle Tank

1. Connect one end of the recovery tank hose onto the HydraCradle Tank's live-center vacuum port (see Figure 2-16).

Connect Recovery Tank Hose on Top of Vacuum Port or on the Side of the Port Here



Vacuum Port

Remove Clean Out Plug by Twisting Off with Wrench

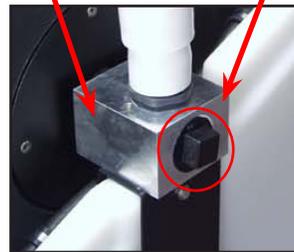


Figure 2-16. Connect Recovery Tank Hose onto HydraCradle Tank

NOTICE

For rear facing installations, you have the option of connecting the recovery hose on the side of the HydraCradle Tank's vacuum port, instead of on top. Ensure that the clean out plug (shown in Figure 2-16), is inserted in the other opening, depending on the configuration selected.

2. Connect the other end of the recovery tank hose into the cleaning unit's recovery tank cuff (see Figure 2-17).

NOTICE

If the recovery tank hose is too long, it can be shortened and re-attached to the cuff.

3. Connect the vacuum hose sections with the hose couplers; connect the assembled vacuum hose to the HydraCradle Tank's vacuum live-center vacuum port (see Figure 2-18).
4. Load the vacuum hose onto the reel by stepping on the foot switch.
5. Guide the vacuum hose onto the reel hub so that the hose is evenly distributed on the hub.

HydraCradle Tank

6. Locate the hose connector on the 1st Hose Reel and connect the hose (see Figure 2-19).
7. Turn the hand crank away from you to load the hose, guiding the hose onto the reel hub (see Figure 2-20).



Figure 2-17. Connect Recovery Tank Hose into Cleaning Unit's Tank Cuff



Figure 2-18. Connect Vacuum Hose

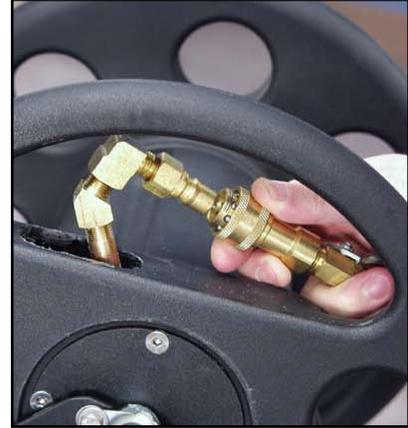


Figure 2-19. Connect Hose to 1st Hose Reel

NOTICE

To set the brake on the 1st reel, gently turn the tension knob, located near the handle, to the right (see Figure 2-21).



Figure 2-20. Turn Handle to Load Solution Hose onto Hose Reel



Figure 2-21. Turn Tension Knob to the Right to Set Brake

HydraCradle Tank

Install Live-Center Hardware onto 1st/3rd Solution Hose Reel

If you ordered the 1st/3rd Solution Hose Reel with the live-center option, you will receive the following hardware. Refer to Figure 2-22.

<u>No.</u>	<u>Part#</u>	<u>Description</u>	<u>Qty</u>
1	000-033-046	Clamp, 1/2" Wide X 1/2"	2
2	000-052-061	Bushing, 3/8" M X 1/4"	1
3	000-052-085	Elbow, 1/4" Brass	1
4	000-174-003	Washer, 1/4" S/S Flat	2
5	000-143-333	Screw, 1/4-20 X 1/2"	2
6	000-068-813	Hose, Solution Orange 1/4"	1
7	000-163-574	Swivel, 3/8" Live Solution	1
8	000-052-050	1/4" Male Quick Connector	1



Figure 2-22. Parts Included in Solution Hose Reel, Live-Center Option

HydraCradle Tank

To install the live-center hardware onto the 1st/3rd Hose Reel:

1. Attach the swivel onto the hose reel (see Figure 2-23).

NOTICE

Apply pipe thread sealant on the threads of the reel, bushing, elbow, quick connect and short hose.



Figure 2-23. Attach Swivel onto Hose Reel

2. Install the 3/8" (9.5 mm) bushing onto one hose end and install the hose into the swivel (see Figure 2-24).
3. Thread the short hose through the 2 clamps, route the hose to the front of the reel bracket and attach the clamps onto the reel bracket in the provided holes (see Figure 2-25 - clamp positions are indicated by circles).
4. Attach the short hose's quick connector to the HydraMaster cleaning unit's solution connector



Figure 2-24. Install Hose End into Swivel

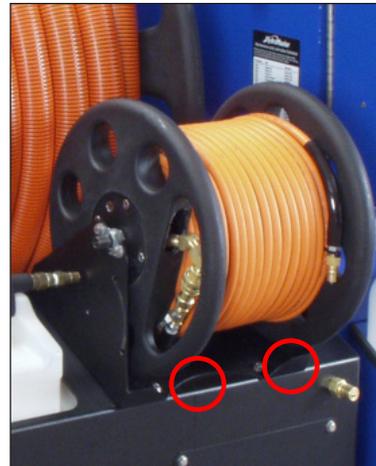


Figure 2-25. Install Clamps onto Front of Reel Bracket

HydraCradle Tank

Installing 2nd Hose Reel onto HydraCradle Tank

The 2nd Hose Reel's handle and fastening hardware are shipped in a plastic bag, which is attached to the reel.

1. Remove the 2nd Hose Reel from its box and remove all shipping material. Locate the screws, washers, rubber bumper mounts and handle (see Figure 2-26 and Figure 2-27).
2. Remove power from the HydraCradle by detaching the HydraCradle's battery cables from the 12 V battery.
3. Position the 2nd Hose Reel onto the HydraCradle Tank, aligning the tank's mounting holes with the holes on the hose reel bracket (see Figure 2-28).
4. Secure the hose reel to the HydraCradle Tank with 4 washers and the small screws, and tighten the screws (see Figure 2-29).



Figure 2-26. Remove 2nd Hose Reel from Box; Do Not Remove Wood Brace until Step 5



Figure 2-27. Fastening Hardware for 2nd Hose Reel



Figure 2-28. Position 2nd Hose Reel onto HydraCradle Tank

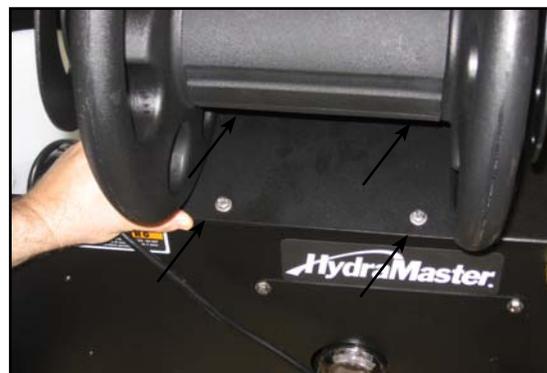


Figure 2-29. Secure Hose Reel with 4 Washer/Bolts

HydraCradle Tank

NOTICE

The 2nd Hose Reel is shipped with a wood brace installed to ensure the bracket does not incur damage during shipping.

5. Remove the 2 screws that secure the wood brace, and discard the brace and screws (see Figure 2-30).
6. Attach the handle onto the right-hand side of the hose reel.



Figure 2-30. Remove 2 Screws Securing Wood Brace

To install the 1st Hose Reel onto the 2nd Hose Reel:

7. First, remove the screws from the tensioner bearing on one side of the 1st Hose Reel, using a 3/16" (4.76 mm) Allen wrench (see Figure 2-31).
8. Remove the screws from the face flange bearing on the other side of the 1st Hose Reel.
9. Lift the reel off of the bracket (see Figure 2-32).

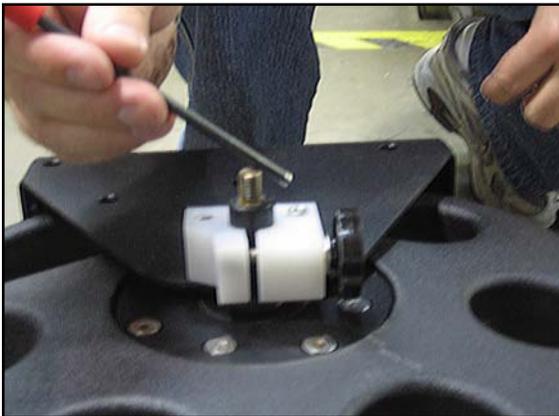


Figure 2-31. Remove Screws from Both Sides of 1st Hose Reel



Figure 2-32. Lift 1st Hose Reel Off of Bracket

HydraCradle Tank

10. Insert the bracket onto the 2nd Hose Reel, aligning the 3 holes on the bracket with the 3 holes on the 2nd Hose Reel (see Figure 2-33). Ensure that the curved cut out on the bracket is facing forward (see Figure 2-34).

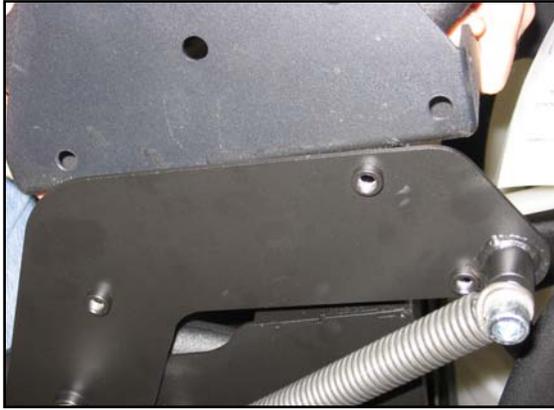


Figure 2-33. Align Holes on Bracket with Holes on Reel



Figure 2-34. Curved Cut Out Should Face Forward

11. Secure each side of the bracket to each side of the reel with the 3 washers and large screws (see Figure 2-27 and Figure 2-35).
12. Lift the secured bracket away from the 2nd Hose Reel as shown in Figure 2-36. Apply Loctite® #242 on the threads of the 2 rubber bumper mounts and install the mounts as indicated in Figure 2-36.



Figure 2-35. Secure Each Side of the Bracket to the Reel with 3 Screws



Figure 2-36. Install 2 Rubber Mounts

HydraCradle Tank

13. Lift the 1st Hose Reel onto the bracket and install the fastening hardware onto both sides of the 1st Hose Reel (see Figure 2-37 and refer to Steps 7 and 8 in this procedure).
14. Install the handle onto the side of the 1st Hose Reel.
15. Load the solution/garden hoses onto the respective small hose reels.
16. Re-attach the battery cables to the 12 V battery.



Figure 2-37. Secure 1st Hose Reel to Bracket

HydraCradle Tank

3 - Operating Instructions

This section of the HydraCradle Tank Owner's Manual includes information concerning:

- Start Up
- Daily Shut Down
- Shut Down for Extended Storage
- Freeze Guarding

If your HydraCradle Tank is configured with the Garden Hose Reel, Non-Live configuration, follow this connection procedure:

1. Unreel all the garden hose from the hose reel.
2. Disconnect the garden hose from the reel using the quick disconnect.
3. Connect the quick connect to the front of the HydraCradle Tank.
4. Connect the garden hose to a water source (outside house faucet).
5. Turn on the faucet to fill the tank.

If your HydraCradle Tank is configured with a Garden Hose Reel (Live) Option, follow this connection procedure:

1. Unreel sufficient garden hose to reach the water source (outside house faucet).
2. Connect the garden hose to the water source.
3. Turn on the faucet to fill tank.

⚠ WARNING

To avoid personal injury, do not use the foot switch if it is in standing water or it is immersed in water.

CAUTION

When operating the HydraCradle Tank during the colder months of the year, ensure that you properly freeze guard the system. Failure to take appropriate measures to prevent equipment damage due to freezing can result in system failure and loss of warranty on affected parts.

NOTICE

Following the recommended HydraCradle Tank maintenance procedures will further extend the life of the HydraCradle Tank and also help ensure the best cleaning results.

HydraCradle Tank

Start Up

1. Ensure that all electrical cables, hoses and wands/tools have been properly connected.
2. Manually unwind the vacuum hose a few feet off of the vacuum reel, and press on the foot switch to test for power retraction of the hose.

⚠ WARNING

Never touch the vacuum hose reel when it is in motion. Severe bodily injury may result.

3. Start the HydraMaster cleaning unit and begin the cleaning process as recommended in the cleaning unit's owner's manual.

Daily Shut Down

After finishing each cleaning job, follow the recommended procedure in the appropriate owner's manual for shutting down the HydraMaster cleaning unit and properly disposing of the recovered cleaning solution.

To shut down the HydraCradle Tank after daily use:

1. Clean out the vacuum hose and, pressing on the foot switch, rewind the vacuum hose onto its reel.
2. Rewind the other hoses.
3. Stow the foot switch securely inside the vehicle.
4. Place prespray bottles and cleaning tools/wands in the tank's storage area.

CAUTION

When operating the HydraCradle Tank during the colder months of the year, ensure that you properly freeze guard the system. Failure to take appropriate measures to prevent equipment damage due to freezing can result in system failure and loss of warranty on affected parts.

NOTICE

In colder climates, insulating the vehicle walls and floor boards will help protect the equipment.

NOTICE

When the van is not in operation, placing an electric heater in the vehicle or parking the vehicle indoors will help ensure against freezing, but should not be the primary method of freeze protection.

HydraCradle Tank

Shut Down for Extended Storage

If you want to shut down and store the HydraCradle Tank for an extended period of time:

1. Remove the hose from the pump-in pump connector, positioning the hose so it is pointing outside the van.
2. Turn on the pump-in pump and run for 1 - 2 minutes until all the water is purged from the hose.
3. Remove the recovery tank hose from the cleaning unit's recovery tank and the HydraCradle Tank; rinse with clean water and allow the recovery tank hose to drain.
4. Drain the remainder of the water in the tank by opening the drain valve (see Figure 3-1).
5. Manually unwind the vacuum hose and remove it from the reel, rinse the hose with clean water and allow it to drain before rewinding it on the reel.
6. Unwind the garden hose(s), detach from the reel(s) and completely drain the hose(s) before rewinding them onto the reel(s).
7. Remove and clean the filters as instructed in Section 6 of this Owner's Manual.
8. Stow the foot switch securely inside the vehicle.
9. Place prespray bottles and cleaning tools/wands in the tank's storage area.



Figure 3-1. Turn Drain Valve

CAUTION

Failure to take appropriate measures to prevent equipment damage due to freezing can result in system failure and loss of warranty on affected parts.

HydraCradle Tank

Freeze Guarding

Water freezes at 32° F (0° C), but, to be on the safe side, you should protect your HydraCradle Tank and hoses for any temperature below 35° F (1.67° C).

CAUTION

When operating the HydraCradle Tank during the colder months of the year, ensure that you properly freeze guard the system. Failure to take appropriate measures to prevent equipment damage due to freezing can result in system failure and loss of warranty on affected parts.

The following precautions are recommended prior to and during cleaning:

1. Run the HydraMaster cleaning unit HydraCradle Tank before leaving for the first job to ensure nothing has frozen the night before, including hoses and tool/wand.
2. Drain the remainder of the water in the tank by opening the drain valve (see Figure 3-1).
3. Insulate the fresh water hose (that connects from the outside water faucet to the HydraCradle Tank) from the cold ground by routing the hose through an extra 1½” (3.8 cm) vacuum hose.
4. Close the van doors until you begin cleaning; afterwards, open the doors only slightly.

NOTICE

In colder climates, insulating the vehicle walls and floor boards will help protect the equipment.

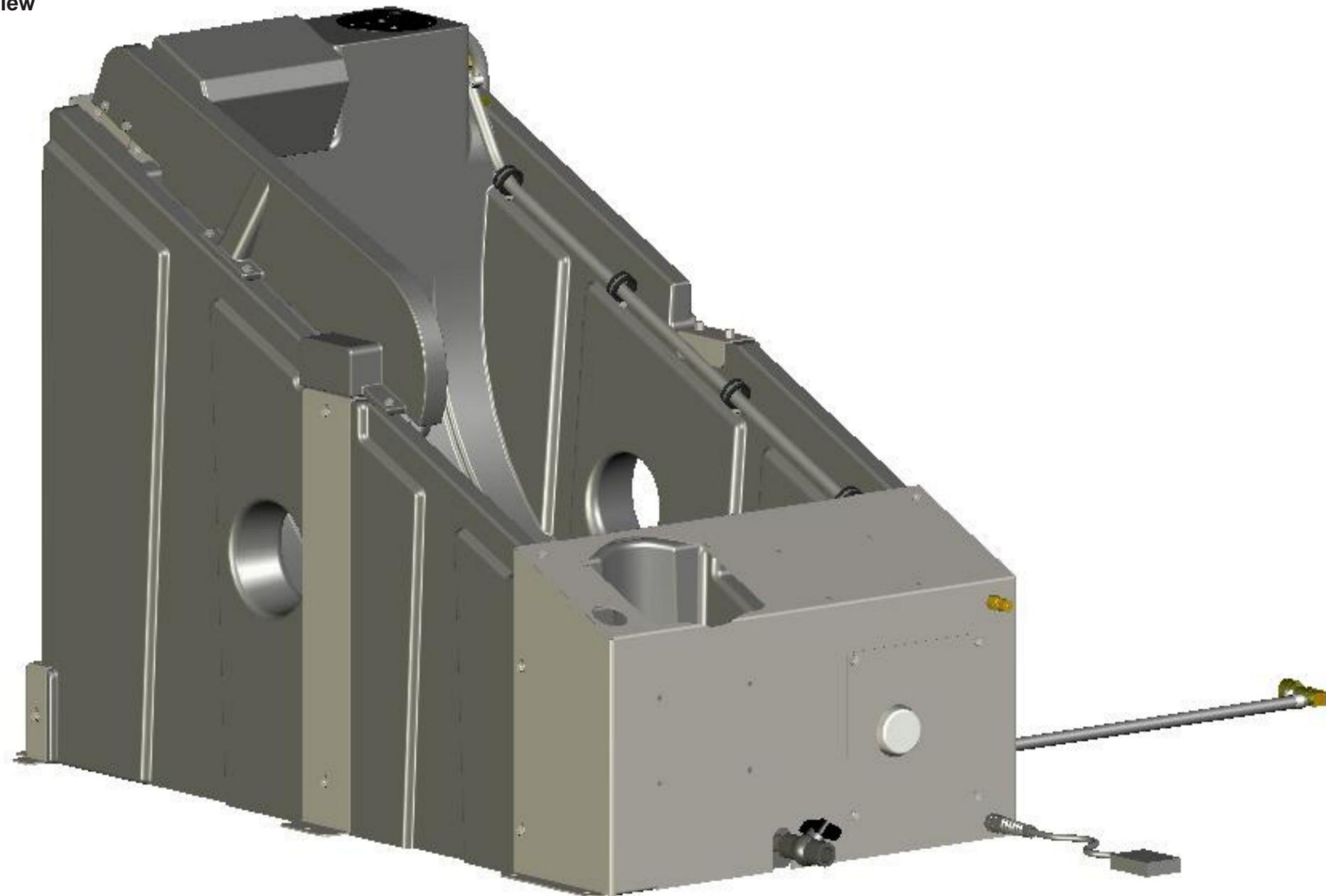
5. Do not procrastinate during the cleaning operation or the hot water solution line will also freeze on the ground. The solution line should be insulated in extremely cold climates.
6. Whenever possible, store the van in a heated garage at night or over the weekend. If not possible, place a 1,500 Watt electric heater inside the vehicle, aimed directly at the equipment.
7. Follow steps detailed in the preceding Daily Shut Down procedure.

NOTICE

When the van is not in operation, placing an electric heater in the vehicle or parking the vehicle indoors will help ensure against freezing, but should not be the primary method of freeze protection.

4 - Assemblies and Parts Lists

Figure 4-1. HydraCradle Tank Assembly - Overall View
7582 Rev. A

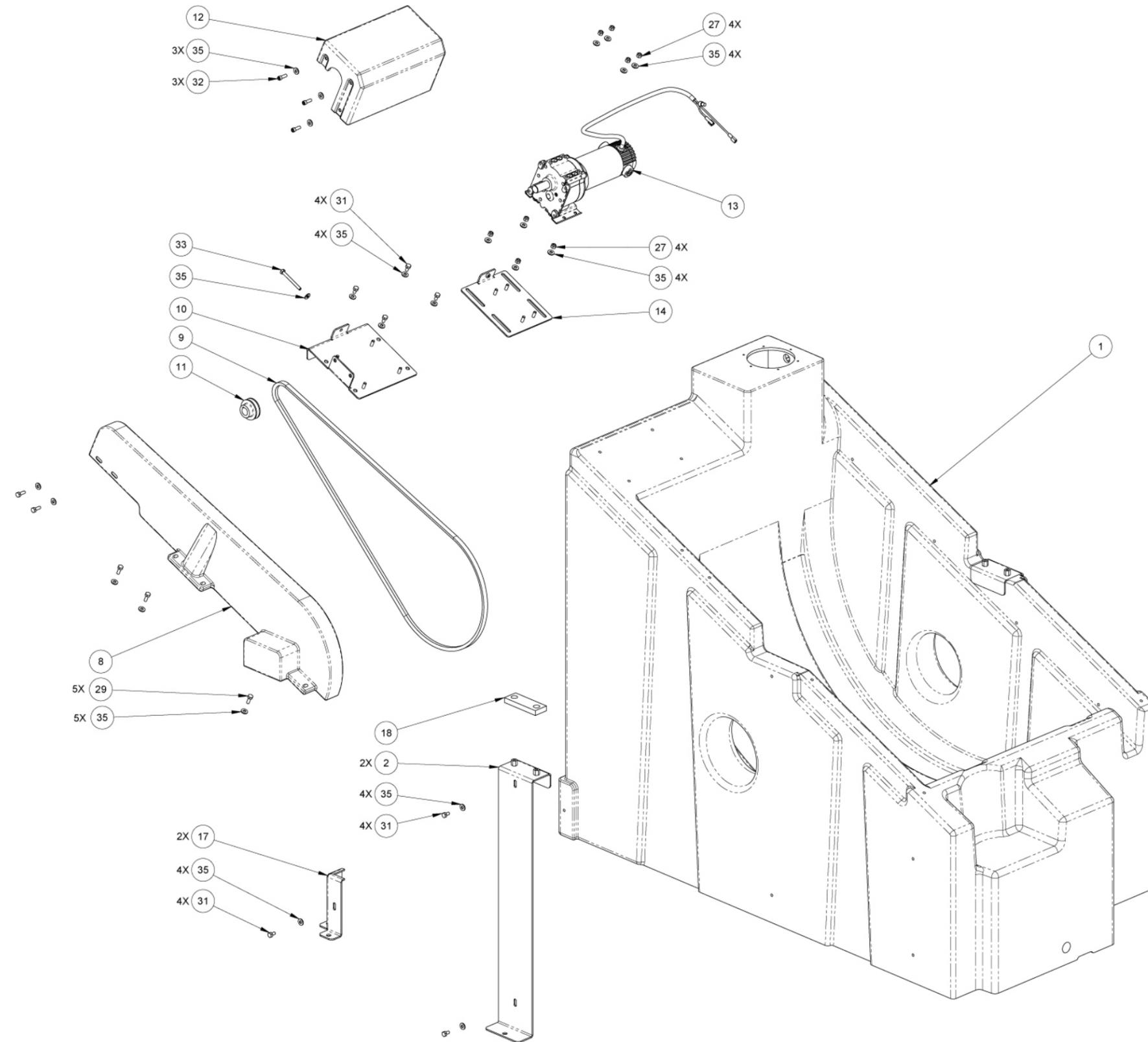


NOTICE

The HydraCradle Tank Assembly includes all valves, all fittings and the retraction motor assembly.

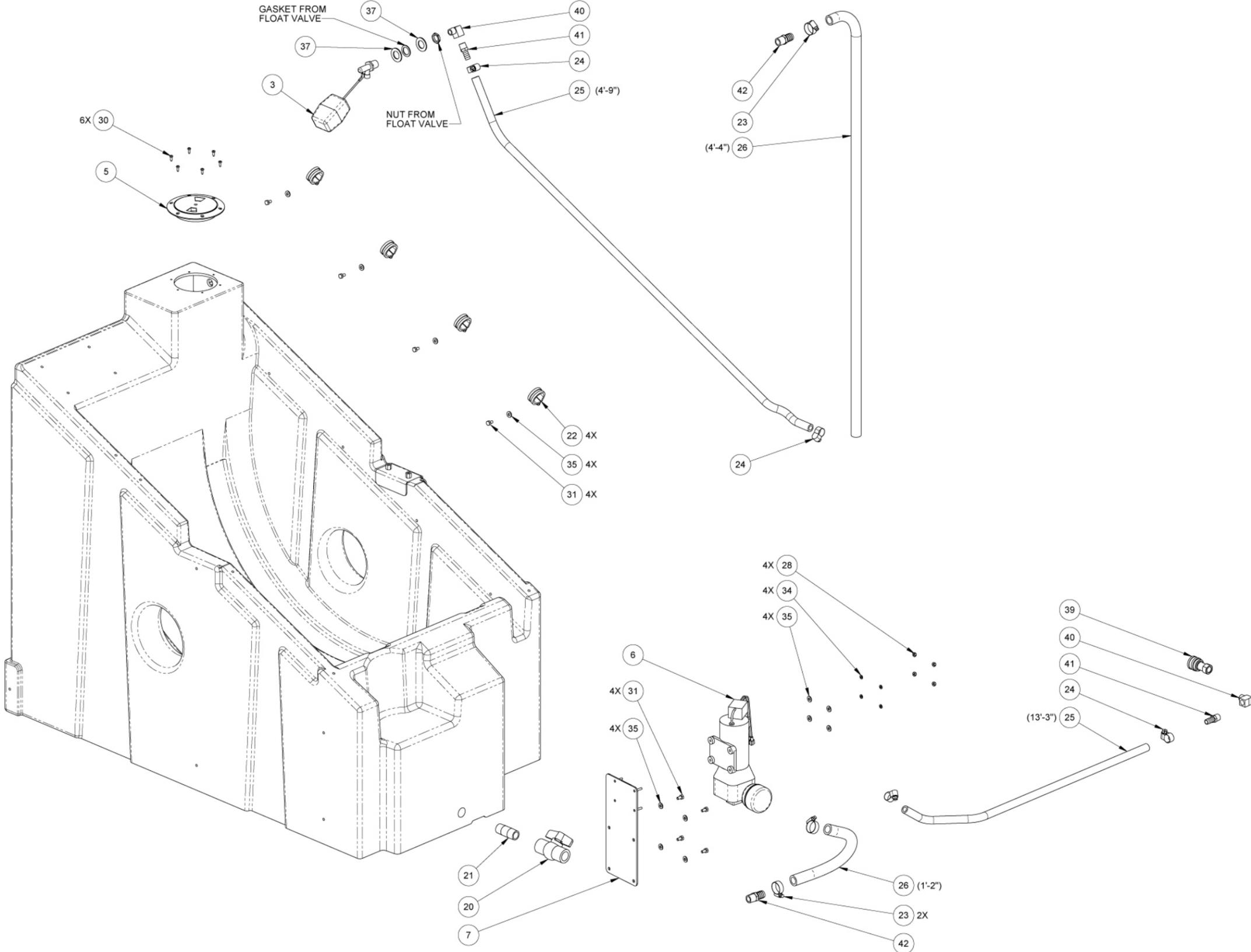
HydraCradle Tank

Figure 4-2. HydraCradle Tank Assembly -
Parts View 1 of 3
7582 Rev. A



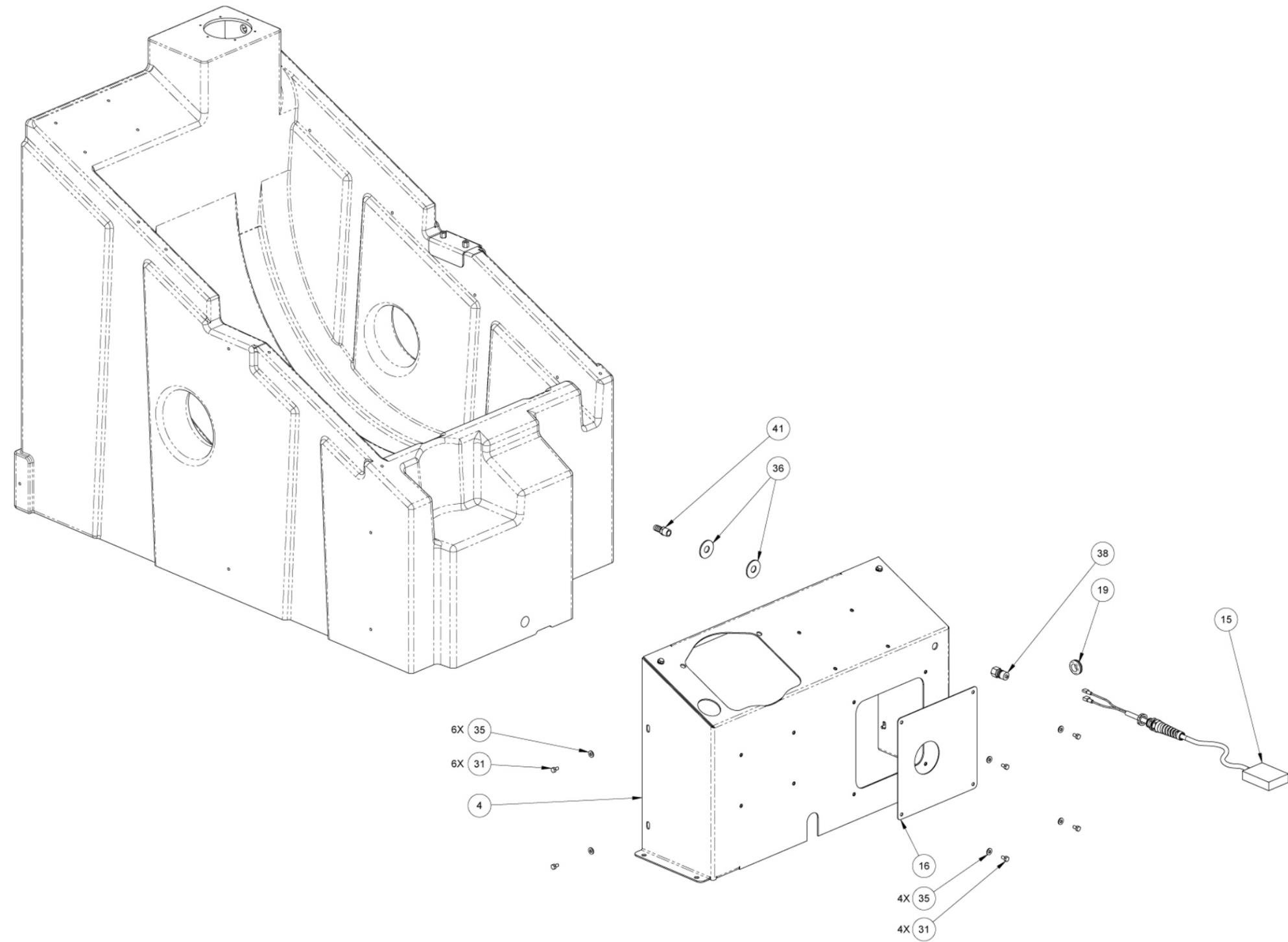
HydraCradle Tank

Figure 4-3. HydraCradle Tank Assembly - Parts View 2 of 3
7582 Rev. A



HydraCradle Tank

Figure 4-4. HydraCradle Tank Assembly - Parts View 3 of 3
7582 Rev. A

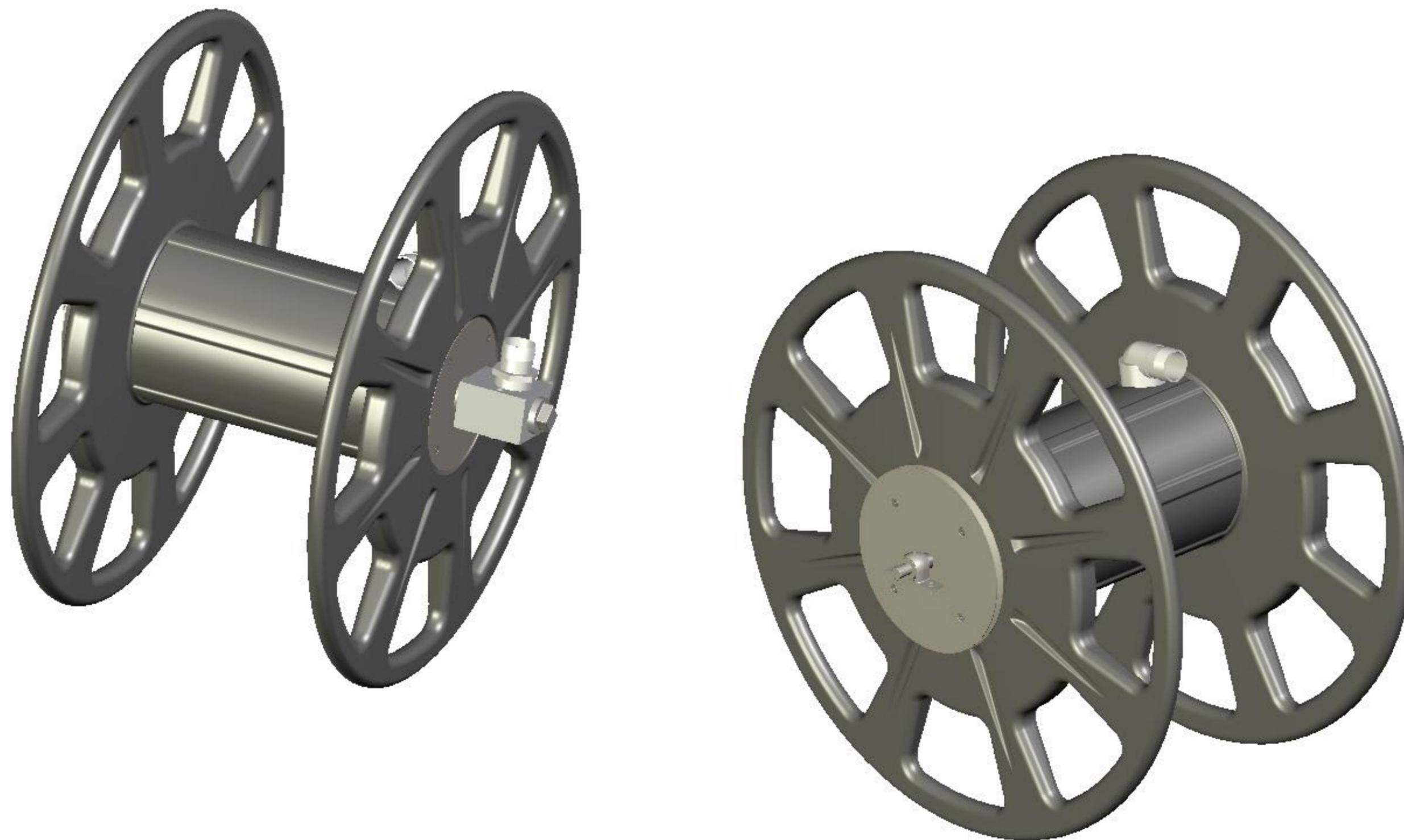


HydraCradle Tank

HydraCradle Tank Assembly Parts List

Item	Part Number	Description	Qty	Item	Part Number	Description	Qty
1	000-159-134	Tank, 125 Gallon, HydraCradle	1	31	000-143-333	Screw, 1/4"-20UNC X 0.50" Lg. Hex Head	28
2	000-015-978	Bracket, Tank, Center Tie Down	2	32	000-143-566	Screw, 1/4"-28UNF X 0.75" Lg. Socket Head	3
3	000-169-217	Valve, Float, Water Box	1	33	000-143-594	Screw, 1/4"-20UNC X 2 1/2" Lg. Hhcs, Full Threads	1
4	000-041-476	Cover, Tank Front	1	34	000-174-001	Washer, #10 Flat	4
5	000-041-365	Cover, 4" Round	1	35	000-174-003	Washer, 1/4" Flat	49
6	000-111-190	Pump, 4.5 gpm, 40 psi, 12 Vdc, Modification	1	36	000-174-008	Washer, 5/8" Flat	2
7	000-100-183	Panel, Pump Mounting	1	37	000-174-028	Washer, 7/8" I.D. X 1.50" O.D. X 0.090" Thk.	2
8	000-041-475	Cover, Belt HydraCradle Tank	1	38	000-052-052	Quick Connect, 660 3/8" Brass w/ EPDM O-Ring	1
9	000-010-130	V-Belt, 4l, 73" Long	1	39	000-052-053	Quick Connect, 3/8 Female	1
10	000-092-027	Mount, Drive Motor	1	40	000-052-086	Elbow, 3/8" NPT Street	2
11	000-109-122	Pulley, 2" OD X 3/4 Bore	1	41	000-052-105	Insert, #68 (3/8" NPT X 1/2" Barb)	3
12	000-041-474	Cover, Motor, HydraCradle Tank	1	42	000-052-129	Insert, #812	2
13	000-091-046	Motor Assembly, 1/6 HP, 12 Vdc, Modification	1	43	000-063-040	Harness, HydraCradle Tank	1
14	000-092-026	Mount, Motor Adjustment	1	44	000-068-141	Hose, 2" X 10 ft Vacuum	1
15	000-157-156	Foot Switch - Modified	1	45	000-081-304	Label Set, HydraCradle Tank	1
16	000-041-477	Cover, Pump Access	1				
17	000-015-977	Bracket, Rear Base	2				
18	000-154-173	Spacer, Bearing Block	1				
19	000-060-013	Grommet, 3/4"ID Rubber	1				
20	000-169-202	Valve, 3/4" FPT Ball Valve	1				
21	000-052-328	Nipple, 3/4" X 2 1/2, Pvc	1				
22	000-033-116	Clamp, 1-1/2" Cushion Loop w/ 7/16" Mounting Hole	4				
23	000-033-029	Clamp, Hose, Size 12	3				
24	000-033-004	Clamp, Size #6 Mini Hose	4				
25	000-068-018	Hose, 1/2 Rubber	18				
26	000-068-459	Hose, 3/4 Rubber, Green Stripe	5.5				
27	000-094-009	Nut, 1/4"-20UNC Nylock	8				
28	000-094-034	Nut, #10-24UNC Nylock S/S	4				
29	000-143-001	Screw, 1/4"-20UNC X 0.75" Lg. Hex Head	5				
30	000-143-314	Screw, #8 X 1/2" Lg. Pan Head	6				

Figure 4-5. Vacuum Hose Reel Assembly - Overview
7581 Rev. A



HydraCradle Tank

Vacuum Hose Reel Assembly Parts List

Item	Part Number	Description	Qty
1	000-163-595	Reel, 38" O.D., Vacuum Hose, Rotomold	2
2	000-163-596	Reel, Center Core, Vacuum Hose, Rotomold	1
3	000-092-023	Mount, Reel Pulley, 12" O.D. With .75 Shaft	1
4	000-052-222	Elbow, 2" Barb X 2" FPT	1
5	000-052-219	Adapter, 2" NPT X 2" F Slip	1
6	000-057-015	Gasket, 1-1/2" Bulkhead Fitting	1
7	000-154-180	Spacer, .5 OD X .065 Wall X 2.0"Lg	4
8	000-008-053	Bearing, Pillow Block, 3/4	1
9	000-092-025	Mount, Live Center	1
10	000-097-071	O-Ring, As568a-136, Buna-N, 2" Nom ID X .103	3
11	000-106-018	Plug, 2" NPT, Square Head	1
12	000-052-221	Insert, 2" NPT X 2" Barb (Grey)	1
13	000-092-024	Mount, 38" Reel, Live Center	1
14	000-125-246	Pipe, 2" Pvc X 2 1/2 Lg	1

Item	Part Number	Description	Qty
15	000-068-812	Hose, 2 1/2 X 9"Lg, Wire Reinforced	1
16	000-033-012	Clamp, Size #44 Hose	2
17	000-174-003	Washer, 1/4" Flat	2
18	000-143-001	Screw, 1/4"-20 UNC X 0.75" Lg. Hex Head	2
19	000-155-103	Spring, .75id X 2" Lg	1
20	000-174-005	Washer, 3/8" Flat	4
21	000-143-593	Screw, 3/8"-16 UNC. X 6.5" Lg. Hex Head	4
22	000-143-603	ScRew,1/4-20 X 3" Lg, FHCS, SST	4
23	000-143-596	Screw,1/4-20 X 1/2 Lg, FHCS, SST	4
24	000-143-595	Screw, 1/4"-20 UNC X 1.75" Lg. Socket Head	2
25	000-143-605	Screw,5/16-18 X 5/8lg, Dog Point Set Screw, W/Locking Patch	1

Figure 4-7. 14" (35.6-cm) Diameter 1st or 3rd Solution Hose Reel Assembly - Overview
7584 Rev. B

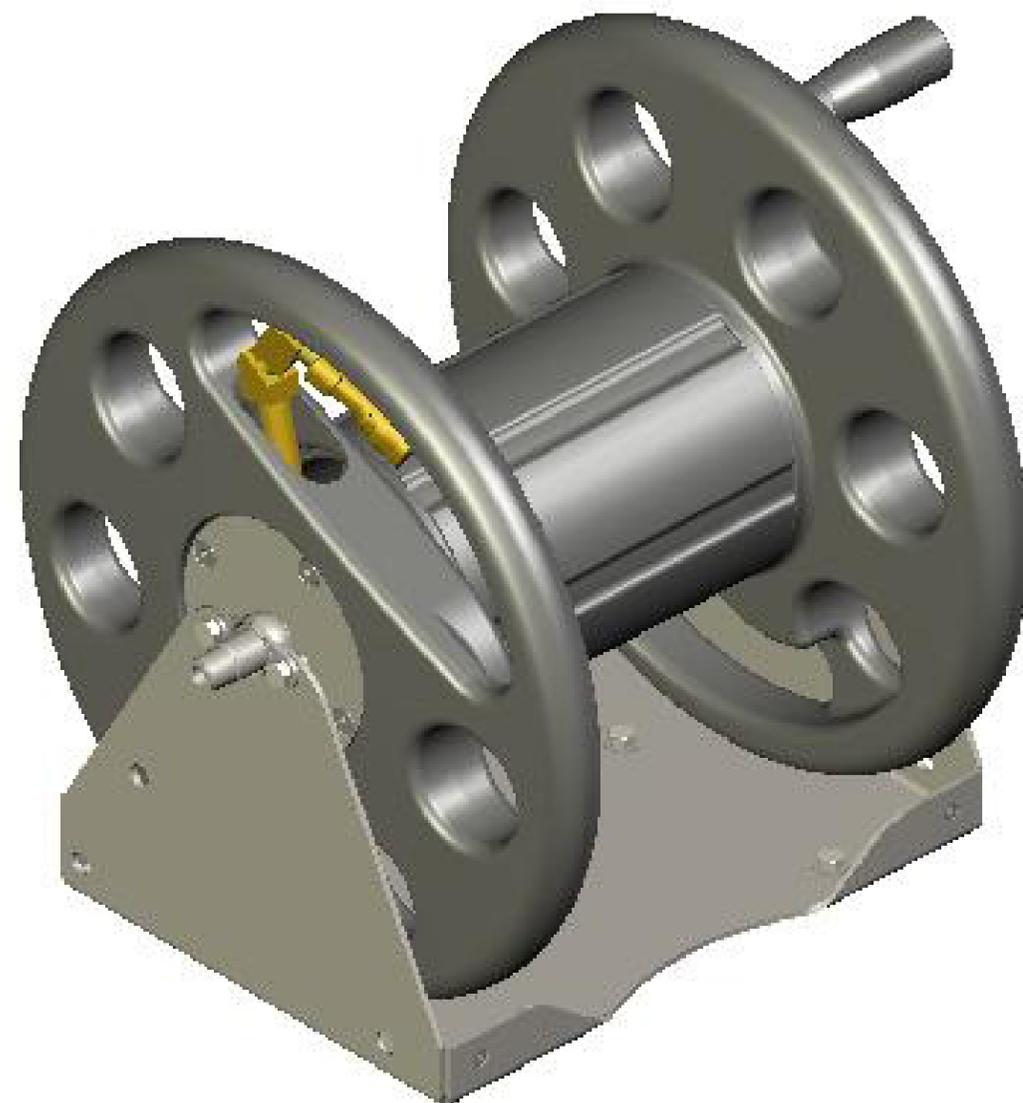
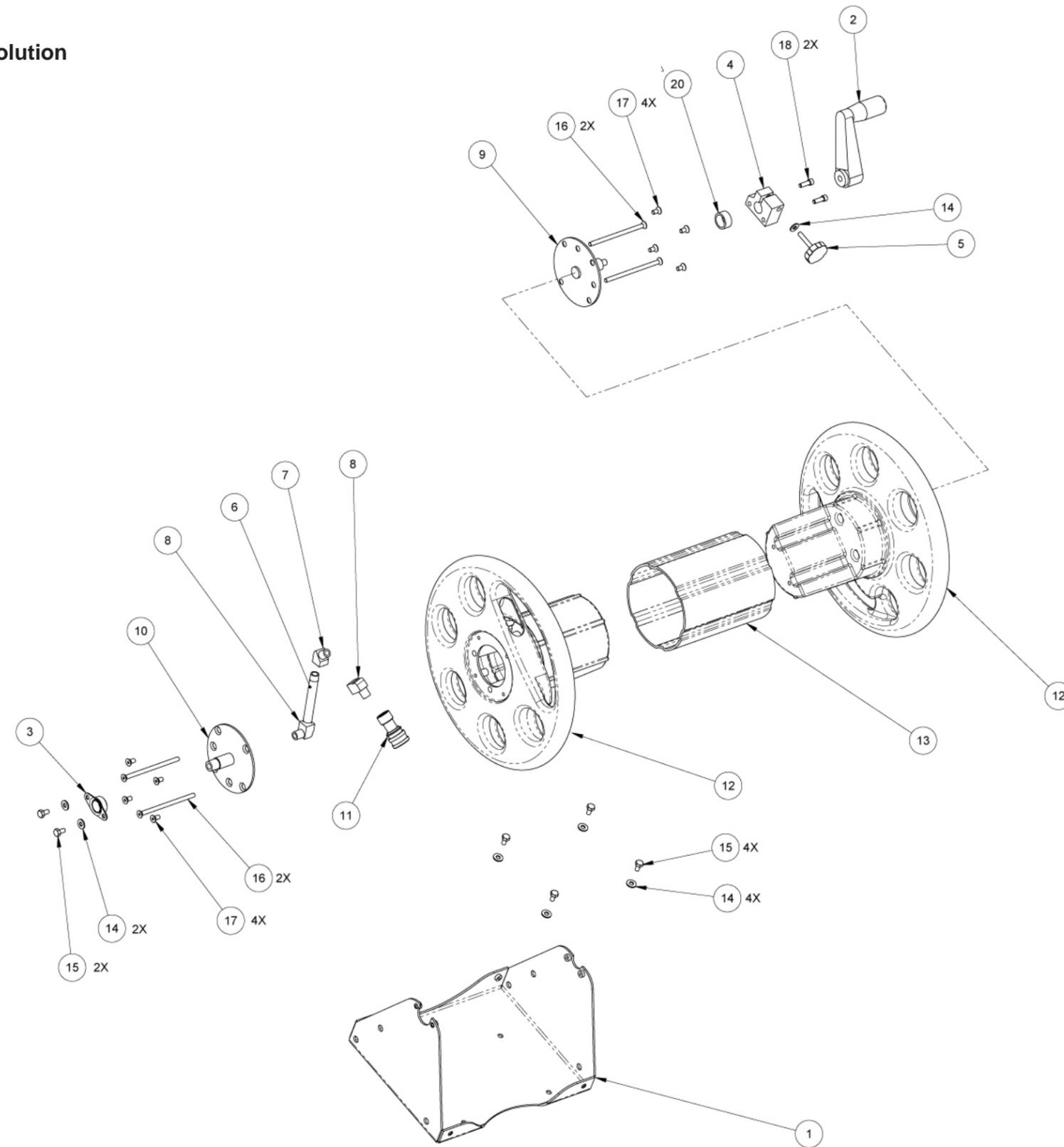


Figure 4-8. 14" (35.6-cm) Diameter 1st or 3rd Solution
Hose Reel Assembly - Parts View
7584 Rev. B



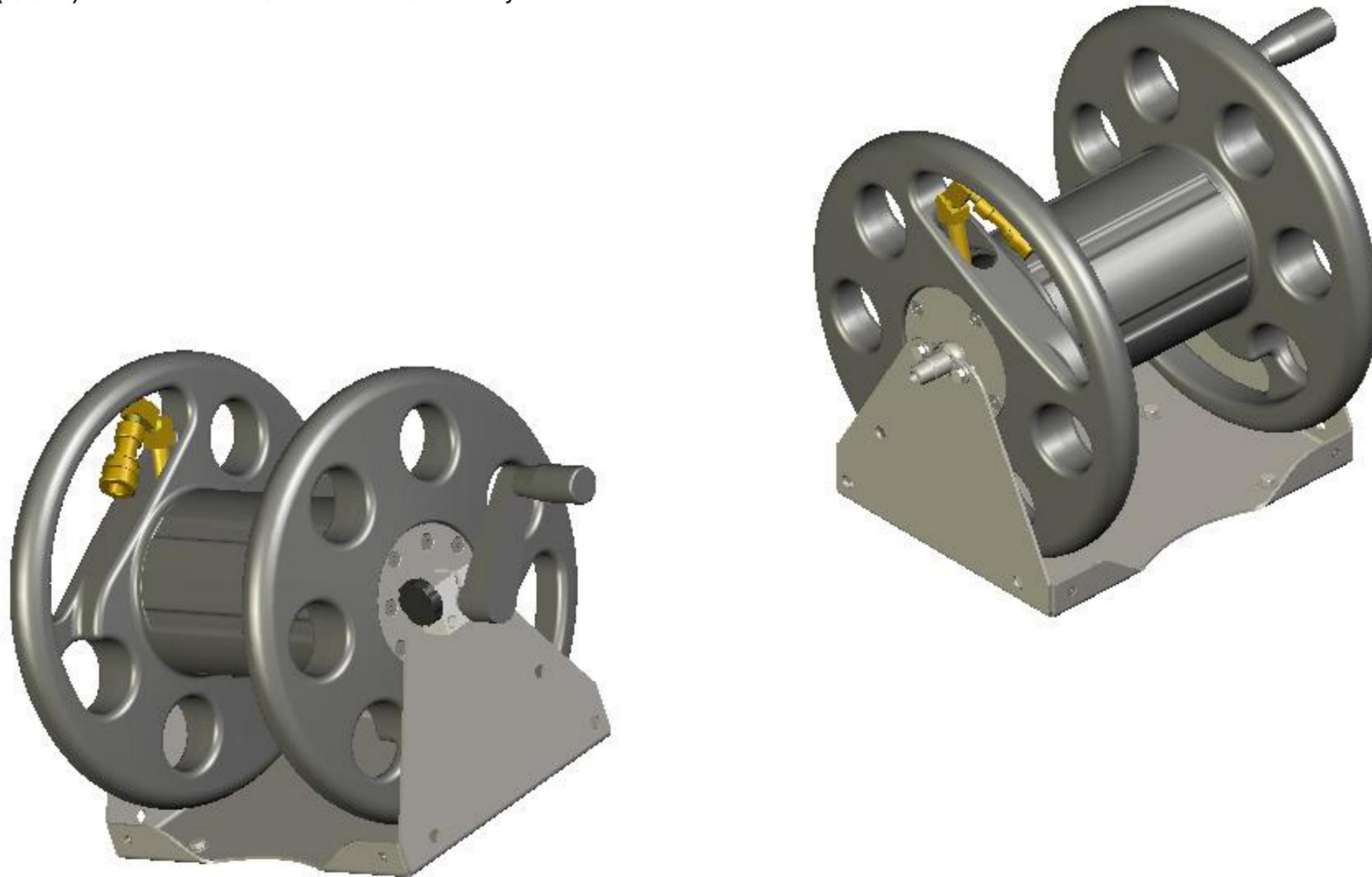
HydraCradle Tank

14" (35.6-cm) Diameter 1st or 3rd Solution Hose Reel Assembly Parts List

Item	Part Number	Description	Qty
1	000-015-979	Bracket, Reel Mount	1
2	000-061-150	Handle, Crank, 3/8-16 Int Thread	1
3	000-008-054	Bearing, Face Flange, 3/4 ID	1
4	000-008-055	Bearing-Tensioner	1
5	000-143-589	Thumb Screw, 1/4-20 X 1-1/2 Lg, w/ Rosette Hd	1
6	000-052-647	Nipple, 1/4 NPT X 4"	1
7	000-052-082	Elbow, 1/4" NPT Street X 45°	1
8	000-052-085	Elbow, 1/4" NPT Street	2
9	000-092-028	Mount, 14" Reel Crank	1
10	000-092-029	Mount, 14" Reel, Live Center	1

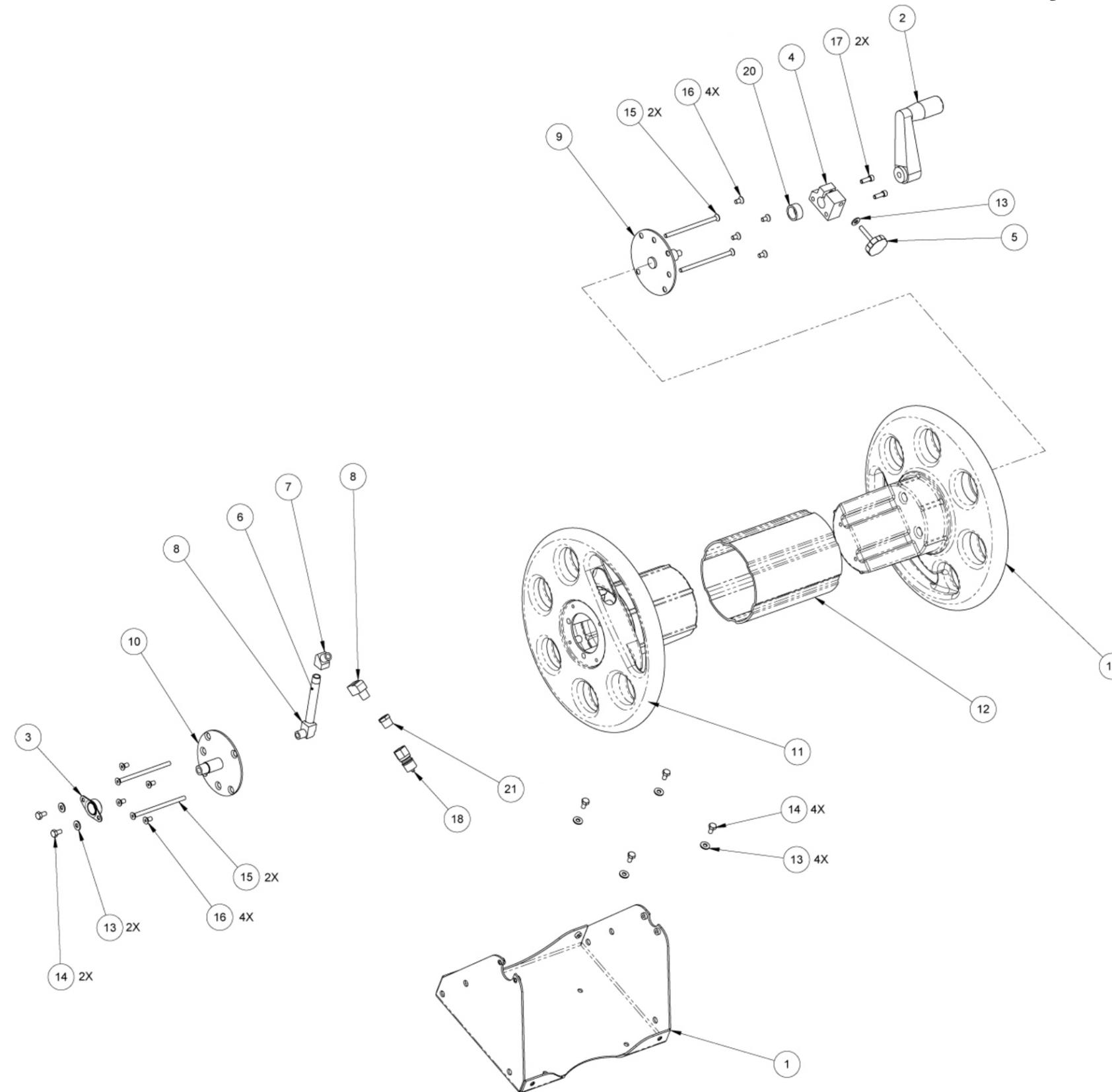
Item	Part Number	Description	Qty
11	000-052-051	Quick Connect, 440 Female w/EPDM O-Ring	1
12	000-163-598	Reel, 14" Rotomold	2
13	000-163-599	Reel, Center Core, Rotomold	1
14	000-174-003	Washer, 1/4" Flat	7
15	000-143-333	Screw, 1/4"-20UNC X 0.50" Lg. Hex Head	6
16	000-143-598	Screw, 1/4-20 X 4 1/2 Lg, FHCS, SST	4
17	000-143-596	Screw, 1/4-20 X 1/2 Lg, FHCS, SST	8
18	000-143-599	Screw, 1/4"-20UNC X 3/4" Lg. SHCS, Ss	2
19	000-078-604	Kit, Live Solution Fittings (not shown)	1
20	000-154-179	Spacer, .82 ID X 1.05 OD X .5 Lg	1

Figure 4-9. 14" (35.6-cm) Diameter 1st or 3rd Garden Hose Reel Assembly -
Overview
7583 Rev. A



HydraCradle Tank

Figure 4-10. 14" (35.6-cm) Diameter 1st or 3rd Garden Hose Reel Assembly - Parts View
7583 Rev. A

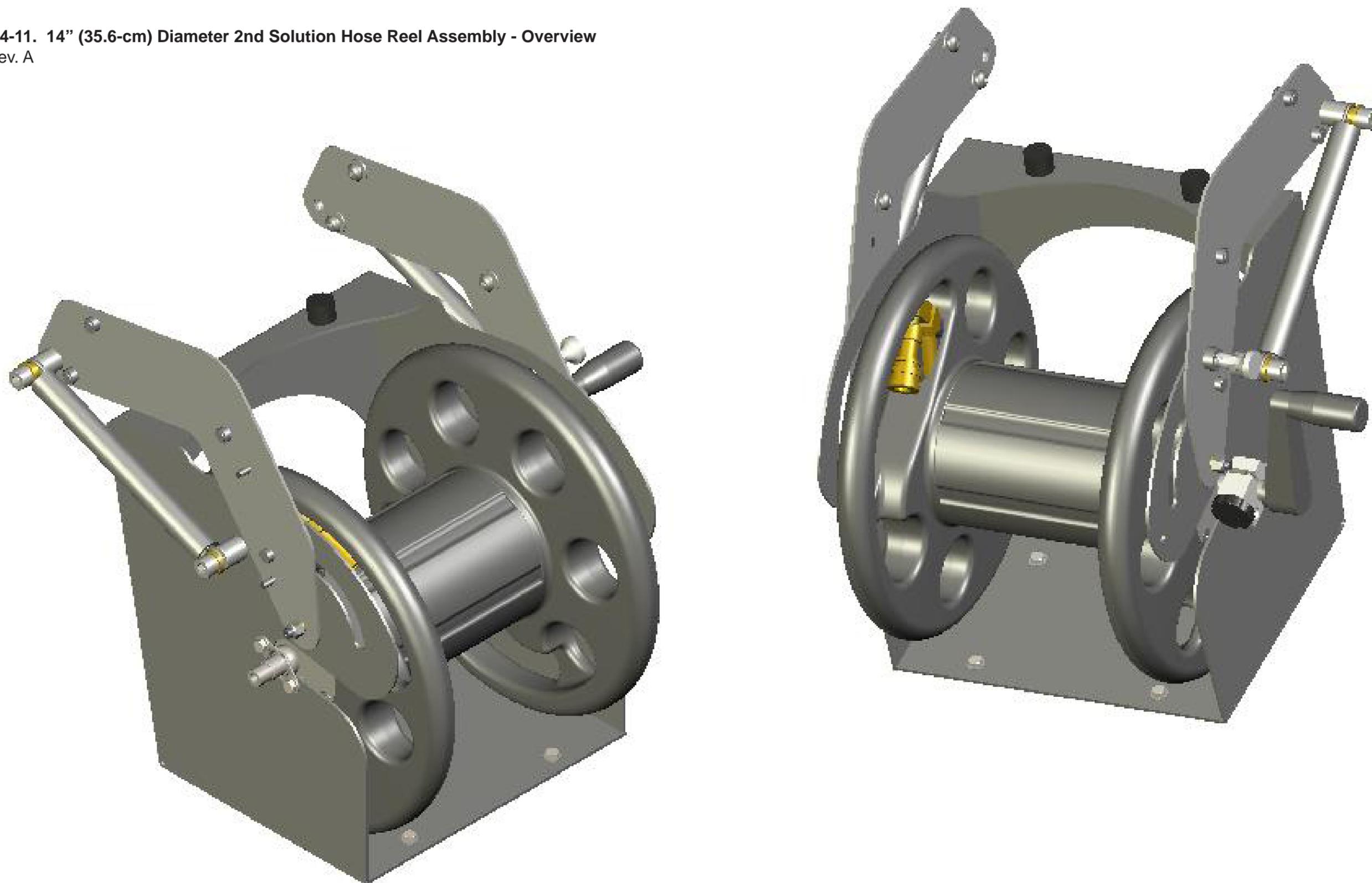


14" (35.6-cm) Diameter 1st or 3rd Garden Hose Reel Assembly Parts List

Item	Part Number	Description	Qty
1	000-015-979	Bracket, Reel Mount	1
2	000-061-150	Handle, Crank, 3/8-16 Int Thread	1
3	000-008-054	Bearing, Face Flange, 3/4 ID	1
4	000-008-055	Bearing-Tensioner	1
5	000-143-589	Thumb Screw, 1/4-20 X 1-1/2 Lg, w/ Rosette Hd	1
6	000-052-647	Nipple, 1/4 NPT X 4"	1
7	000-052-082	Elbow, 1/4" NPT Street X 45°	1
8	000-052-085	Elbow, 1/4" NPT Street	2
9	000-092-028	Mount, 14" Reel Crank	1
10	000-092-029	Mount, 14" Reel, Live Center	1
11	000-163-598	Reel, 14" Rotomold	2

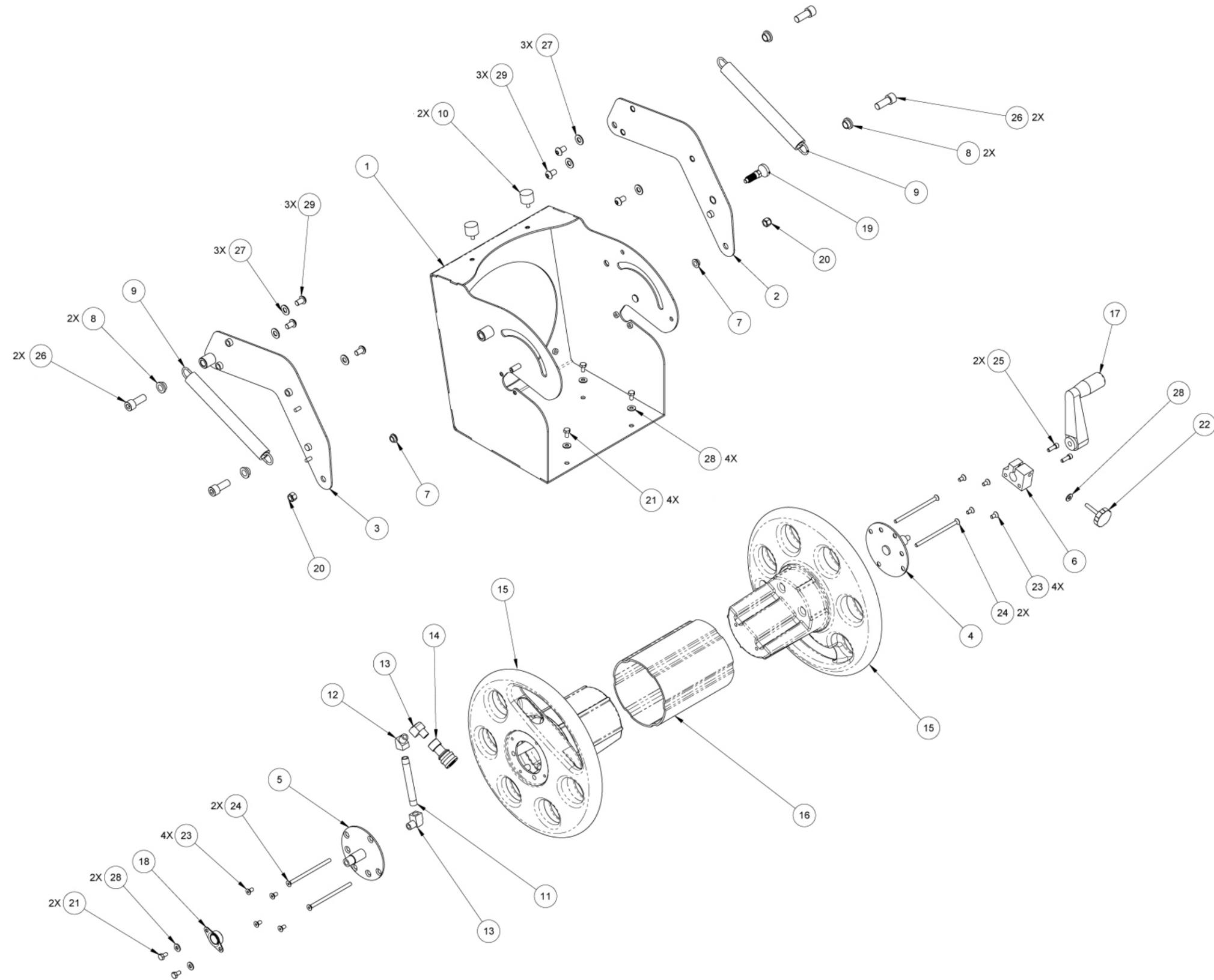
Item	Part Number	Description	Qty
12	000-163-599	Reel; Center Core, Rotomold	1
13	000-174-003	Washer, 1/4" Flat	7
14	000-143-333	Screw, 1/4"-20 UNC X 0.50" Lg. Hex Head	6
15	000-143-598	Screw, 1/4-20 X 4 1/2 Lg, FHCS, SST	4
16	000-143-596	Screw, 1/4-20 X 1/2 Lg, FHCS, SST	8
17	000-143-599	Screw, 1/4"-20 UNC X 3/4" Lg. SHCS, SS	2
18	000-052-052	Quick Connect, 660 3/8" Brass w/ EPDM O-Ring	1
19	000-078-605	Kit, Live Fittings, Garden	1
20	000-154-179	Spacer, .82 ID X 1.05 OD X .5 Lg	1
21	000-052-061	Bushing, 3/8" NPT X 1/4" FPT	1

Figure 4-11. 14" (35.6-cm) Diameter 2nd Solution Hose Reel Assembly - Overview
7587 Rev. A



HydraCradle Tank

Figure 4-12. 14" (35.6-cm) Diameter
Hose Reel Assembly - Parts View
7587 Rev. A



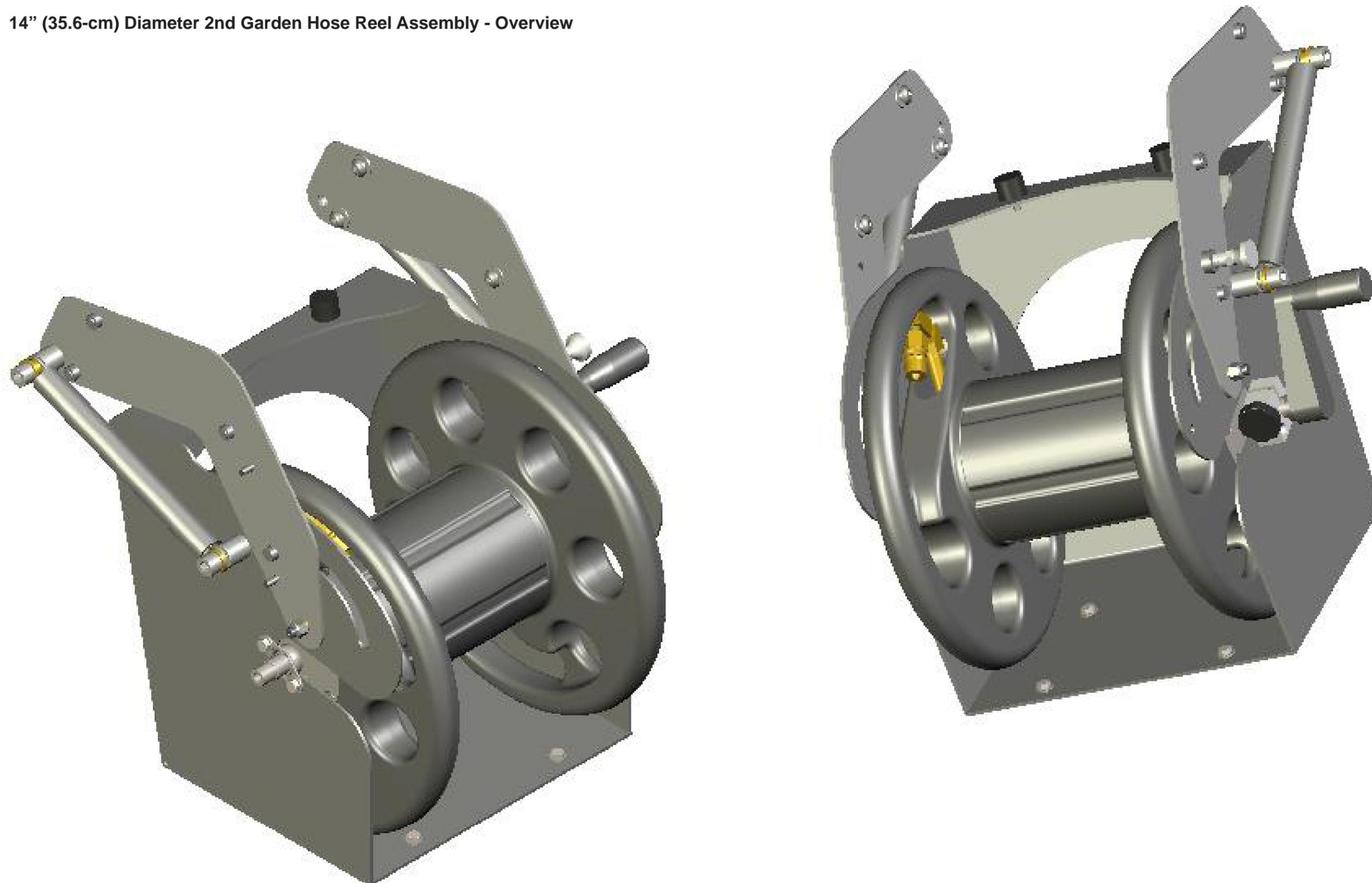
HydraCradle Tank

14" (35.6-cm) Diameter 2nd Solution Hose Reel Assembly Parts List

Item	Part Number	Description	Qty
1	000-015-992	Bracket, 2nd Reel	1
2	000-015-993	Bracket, 2nd Reel, Rh Pivot	1
3	000-015-994	Bracket, 2nd Reel, Lh Pivot	1
4	000-092-028	Mount, 14" Reel Crank	1
5	000-092-029	Mount, 14" Reel, Live Center	1
6	000-008-055	Bearing-Tensioner	1
7	000-020-072	Bushing, Flanged, Bronze, 3/8id X 1/2 OD X 1/4lg	2
8	000-020-068	Bushing, Flanged Bronze, 1/2id X 5/8 OD X 3/8lg	4
9	000-155-104	Spring, Extension, 1"OD X 9" Lg X .135 Wire Dia	2
10	000-092-031	Mount, Rubber Bumper, w/1/4-20 X 1/2lg Mtg Stud	2
11	000-052-647	Nipple, 1/4 NPT X 4"	1
12	000-052-082	Elbow, 1/4" NPT Street X 45°	1
13	000-052-085	Elbow, 1/4" NPT Street	2
14	000-052-051	Quick Connect, 440 Female w/ EPDM O-Ring	1
15	000-163-598	Reel, 14" Rotomold	2

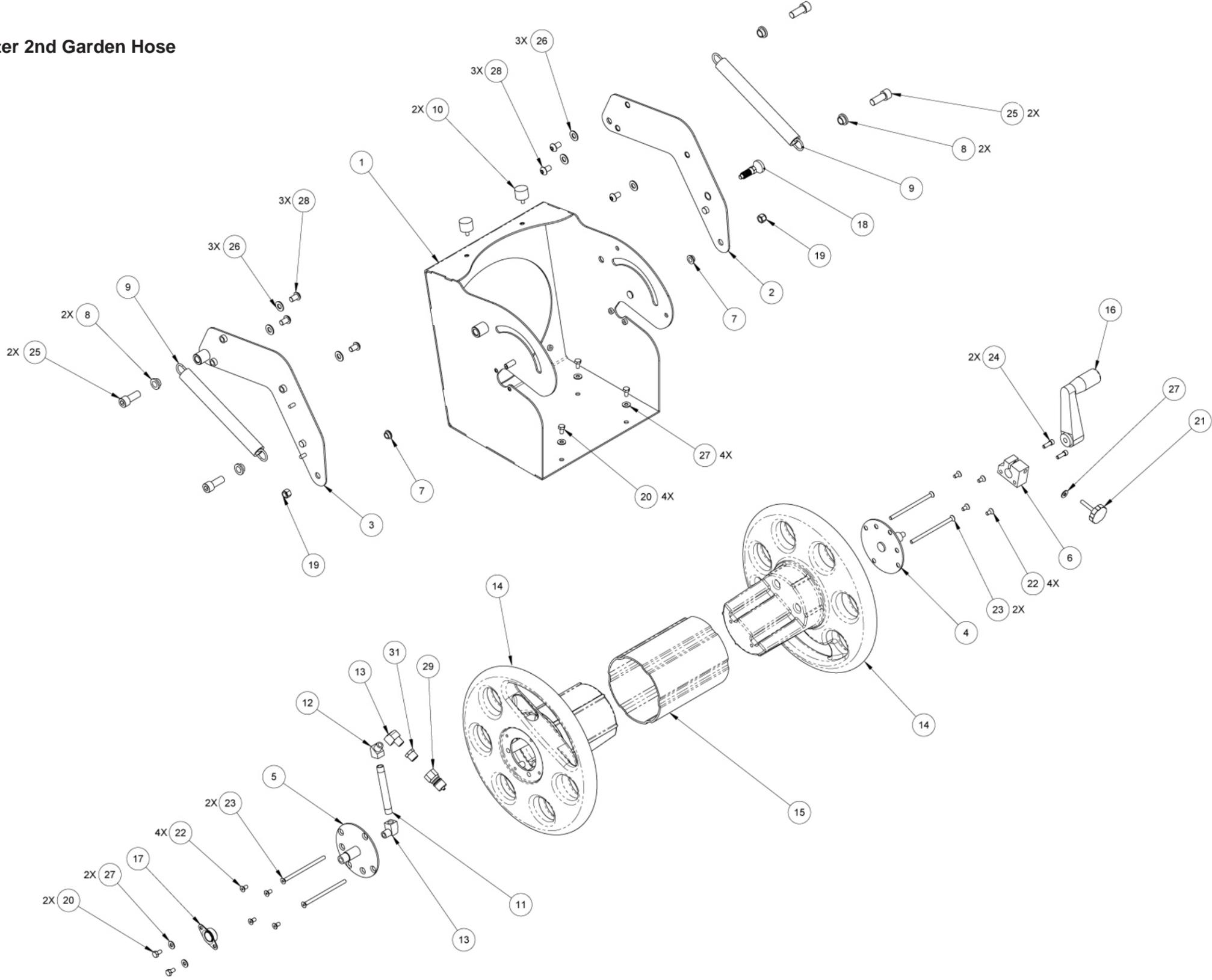
Item	Part Number	Description	Qty
16	000-163-599	Reel; Center Core, Rotomold	1
17	000-061-150	Handle, Crank, 3/8-16 Int Thread	1
18	000-008-054	Bearing, Face Flange, 3/4 ID	1
19	000-103-057	Pin, Retractable, 1/2-13 Threads	1
20	000-094-100	Nut, 3/8-16, Nylock	2
21	000-143-333	Screw, 1/4"-20 UNC X 0.50" Lg. Hex Head	6
22	000-143-589	Thumb Screw, 1/4-20 X 1-1/2 Lg, w/ Rosette Hd	1
23	000-143-596	Screw, 1/4-20 X 1/2 Lg, FHCS, SST	8
24	000-143-598	Screw, 1/4-20 X 4 1/2 Lg, FHCS, SST	4
25	000-143-599	Screw, 1/4"-20 UNC X 3/4" Lg. SHCS, Ss	2
26	000-143-603	Screw, 1/2-13 UNC X 1-1/4" Lg. Socket Head	4
27	000-174-005	Washer, 3/8" Flat	6
28	000-174-003	Washer, 1/4" Flat	7
29	000-143-602	Screw, 3/8-16 X 5/8lg, Button Head	6
30	000-078-604	Kit, Live Solution Fittings	1

Figure 4-13. 14" (35.6-cm) Diameter 2nd Garden Hose Reel Assembly - Overview
7586 Rev. A



HydraCradle Tank

Figure 4-14. 14" (35.6-cm) Diameter 2nd Garden Hose Reel Assembly - Parts View
7586 Rev. A



HydraCradle Tank

14" (35.6-cm) Diameter 2nd Garden Hose Reel Assembly Parts List

Item	Part Number	Description	Qty
1	000-015-992	Bracket, 2nd Reel	1
2	000-015-993	Bracket, 2nd Reel, Rh Pivot	1
3	000-015-994	Bracket, 2nd Reel, Lh Pivot	1
4	000-092-028	Mount, 14" Reel Crank	1
5	000-092-029	Mount, 14" Reel, Live Center	1
6	000-008-055	Bearing-Tensioner	1
7	000-020-072	Bushing, Flanged, Bronze, 3/8id X 1/2 OD X 1/4lg	2
8	000-020-068	Bushing, Flanged Bronze, 1/2id X 5/8 OD X 3/8lg	4
9	000-155-104	Spring, Extension, 1"OD X 9" Lg X .135 Wire Dia	2
10	000-092-031	Mount, Rubber Bumper, w/1/4-20 X 1/2lg Mtg Stud	2
11	000-052-647	Nipple, 1/4 NPT X 4"	1
12	000-052-082	Elbow, 1/4" NPT Street X 45°	1
13	000-052-085	Elbow, 1/4" NPT Street	2
14	000-163-598	Reel, 14" Rotomold	2
15	000-163-599	Reel; Center Core, Rotomold	1
16	000-061-150	Handle, Crank, 3/8-16 Int Thread	1
17	000-008-054	Bearing, Face Flange, 3/4 ID	1
18	000-103-057	Pin, Retractable, 1/2-13 Threads	1
19	000-094-100	Nut, 3/8-16, Nylock	2
20	000-143-333	Screw, 1/4"-20 UNC X 0.50" Lg. Hex Head	6
21	000-143-589	Thumb Screw, 1/4-20 X 1-1/2 Lg, w/ Rosette Hd	1
22	000-143-596	Screw, 1/4-20 X 1/2 Lg, FHCS, SST	8
23	000-143-598	Screw, 1/4-20 X 4 1/2 Lg, FHCS, SST	4

Item	Part Number	Description	Qty
24	000-143-599	Screw, 1/4"-20 UNC X 3/4" Lg. SHCS, Ss	2
25	000-143-601	Screw, 1/2-13 UNC X 1-1/4" Lg. Socket Head	4
26	000-174-005	Washer, 3/8" Flat	6
27	000-174-003	Washer, 1/4" Flat	7
28	000-143-602	Screw, 3/8-16 X 5/8 Lg, Button Head	6
29	000-052-052	Quick Connect, 660 3/8" Brass w/ EPDM O-Ring	1
30	000-078-605	Kit, Live Garden Fittings	1
31	000-052-061	Bushing, 3/8" NPT X 1/4" FPT	1

Figure 4-15. Pump-In Pump - Overview
7590

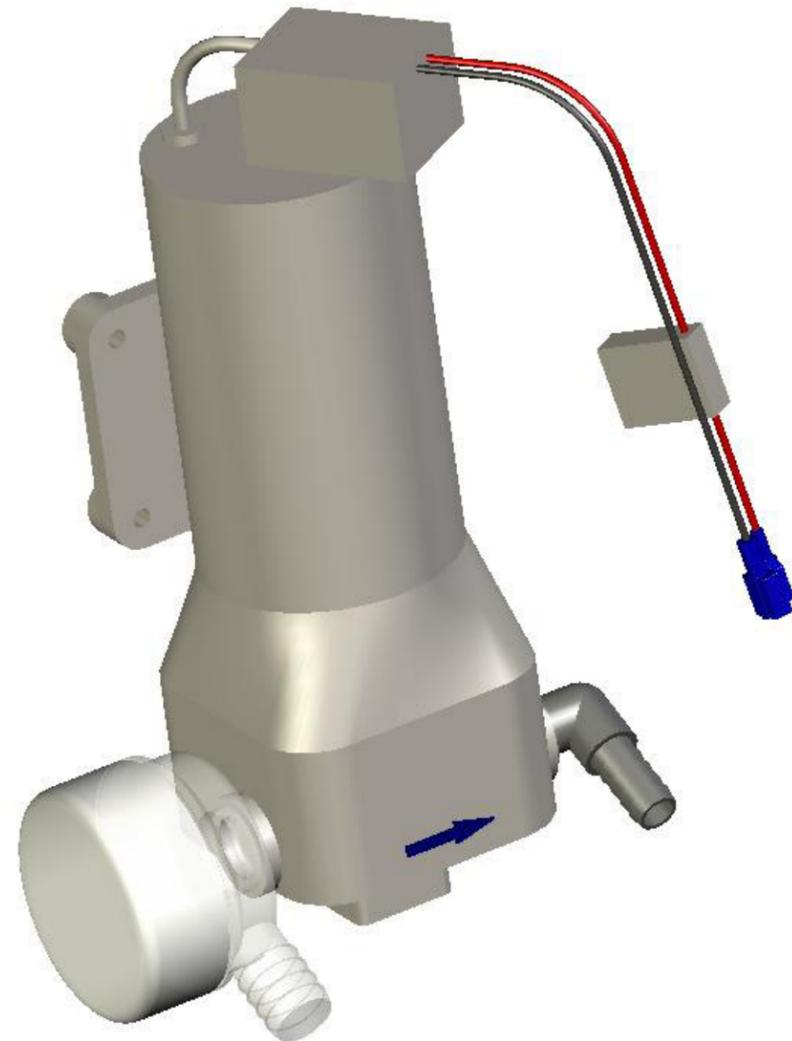
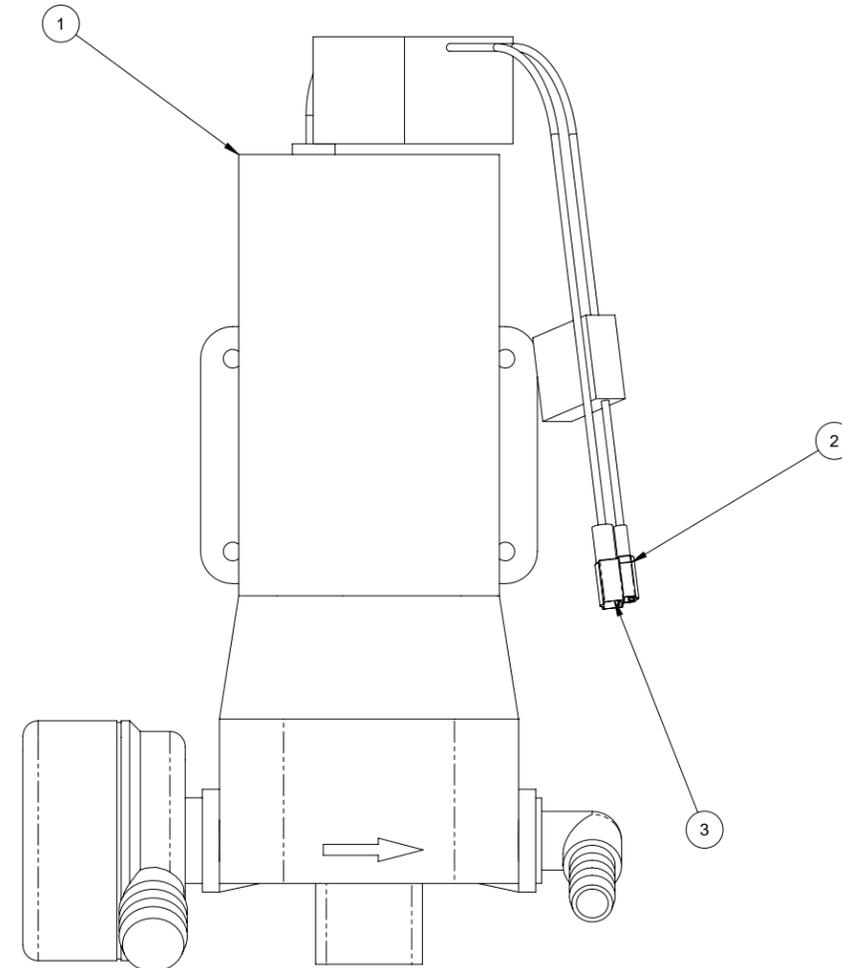


Figure 4-16. Pump-In Pump - Parts View
7590



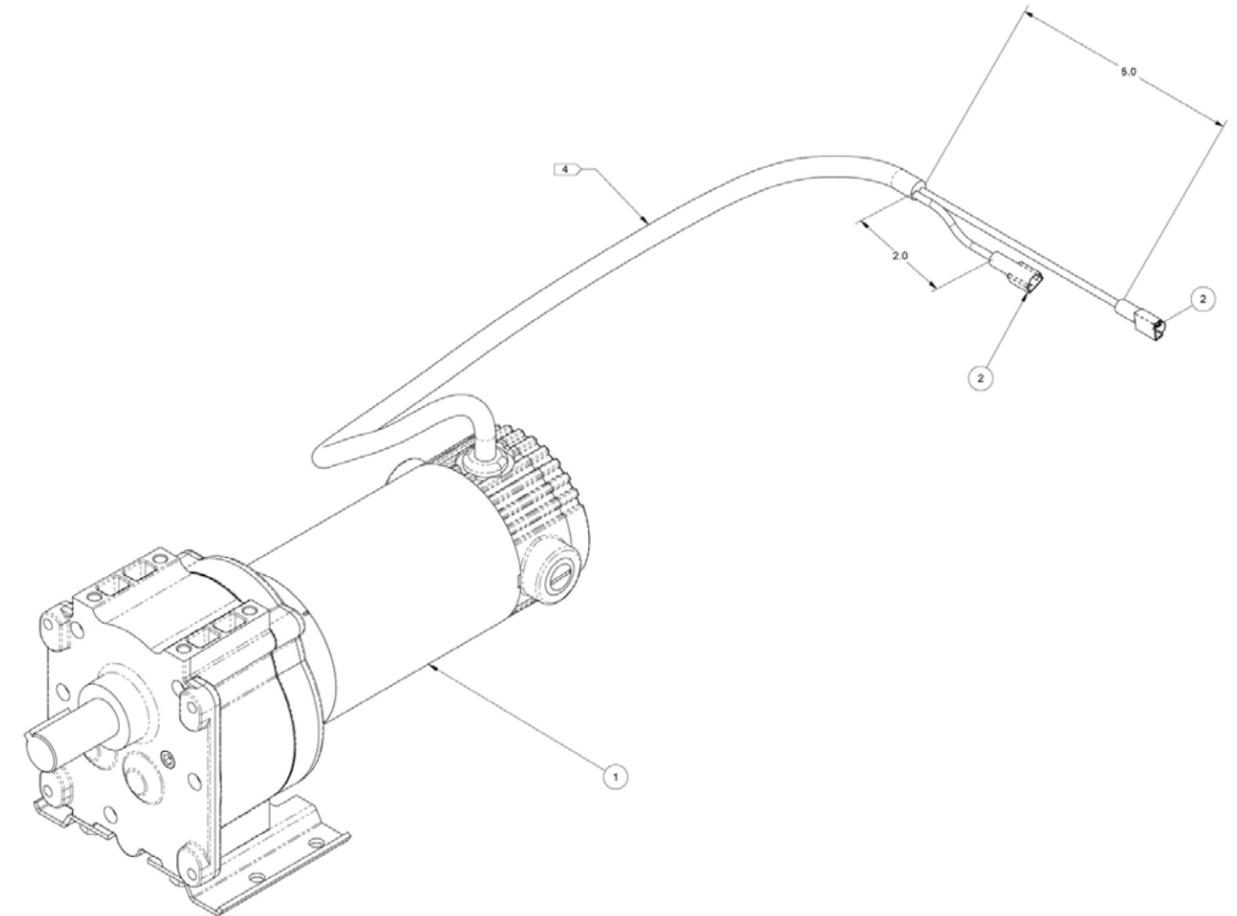
Pump-In Pump Assembly Parts List

Item	Part Number	Description	Qty
1	000-111-189	Pump, 4.5 gpm, 40 psi, 12 Vdc	1
2	000-037-012	Terminal, Fully Insulated Female, 22-16 ga	1
3	000-037-009	Terminal, Fully Insulated Male, 16-14 ga	1

Figure 4-17. Gear Motor Assembly - Overview
7589 Rev. A



Figure 4-18. Gear Motor Assembly - Parts View
7589 Rev. A



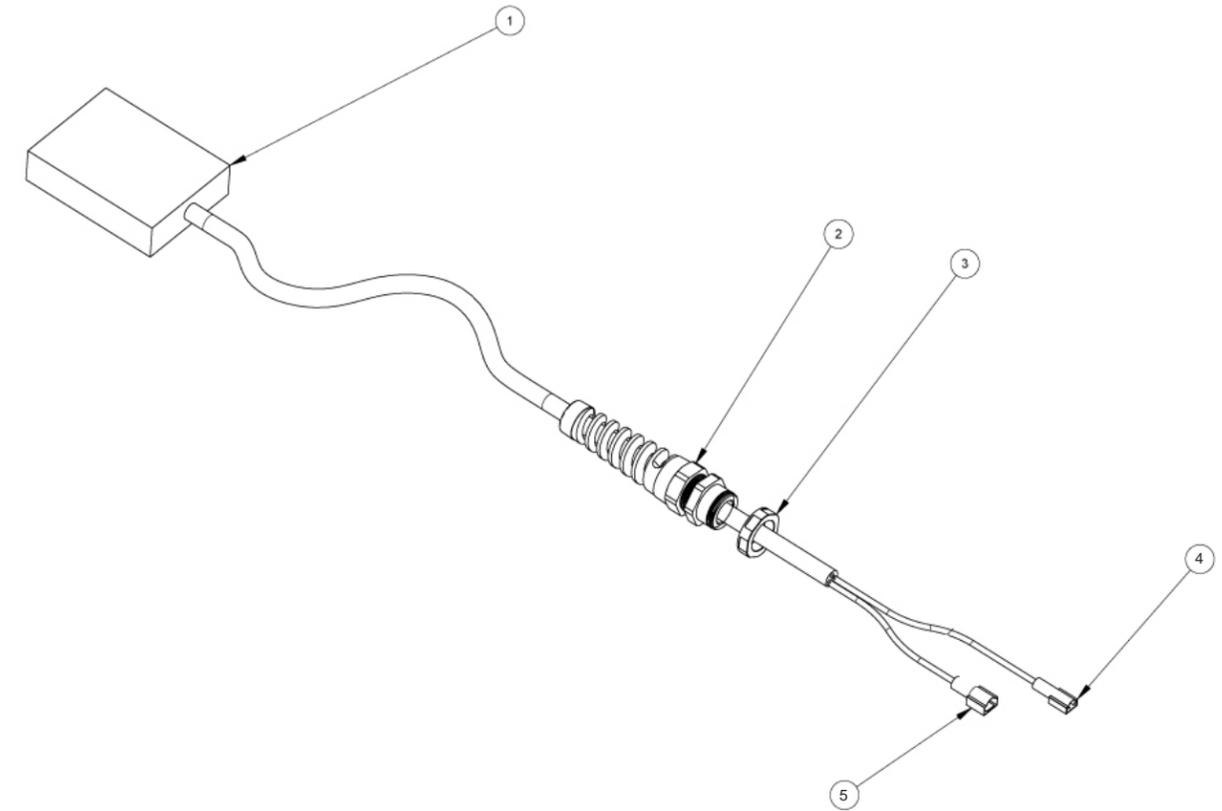
Gear Motor Assembly Parts List

Item	Part Number	Description	Qty
1	000-091-045	Gear Motor, 1/6 HP, 12Vdc	1
2	000-037-022	Terminal, Fully Insulated Female, 12-10 ga	2

Figure 4-19. Foot Switch Assembly - Overview
7591 Rev. A



Figure 4-20. Foot Switch Assembly - Parts View
7591 Rev. A



Foot Switch Assembly Parts List

Item	Part Number	Description	Qty
1	000-157-155	Switch, Foot w/8 ft Cord	1
2	000-108-012	Protector, Power Cord Relief	1
3	000-094-036	Nut, 1/2" NPT Pipe Plastic	1
4	000-037-022	Terminal, Fully Insulated Female, 12-10 ga	1
5	000-037-023	Terminal, Fully Insulated Male, 12-10 ga	1

HydraCradle Tank

Figure 4-21. Live Garden Fittings Kit - Overview
7593 Rev. A

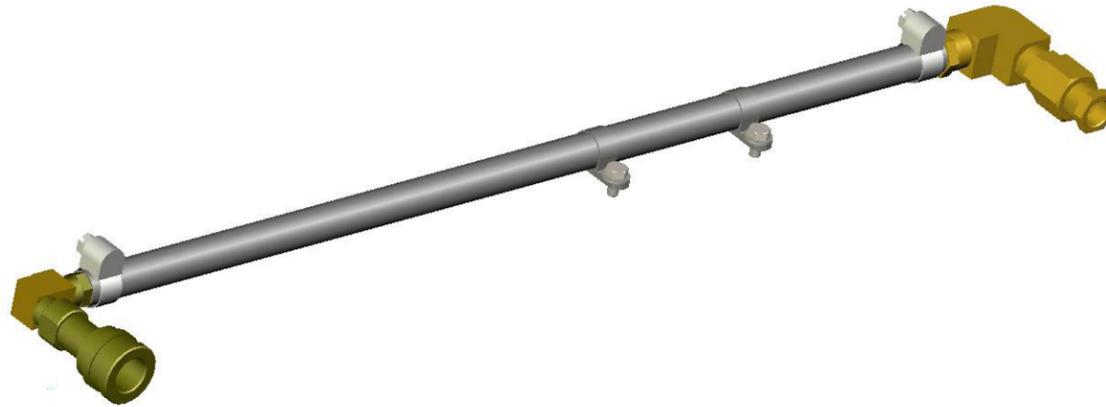
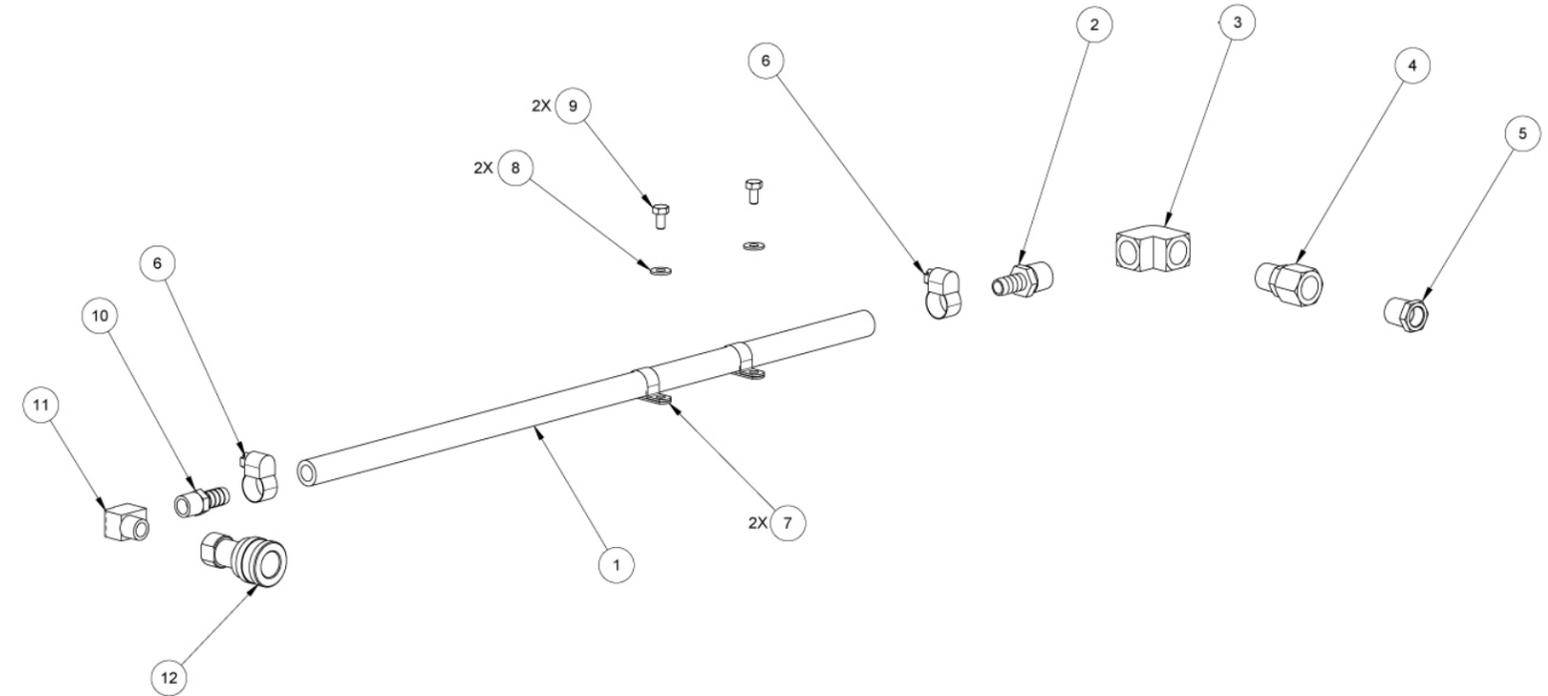


Figure 4-22. Live Garden Fittings Kit - Parts View
7593 Rev. A



Live Garden Fittings Kit Assembly Parts List

Item	Part Number	Description	Qty
1	000-068-018	Hose, 1/2" Rubber	5.0 ft
2	000-052-107	Insert, #88 (1/2" NPT X 1/2" Barb)	1
3	000-052-143	Elbow, 1/2 FPT, Brass	1
4	000-052-290	Swivel, Garden, 1/2 NPT	1
5	000-052-064	Bushing, 1/2 M X 3/8 F	1
6	000-033-004	Clamp, Size #6 Mini Hose	2

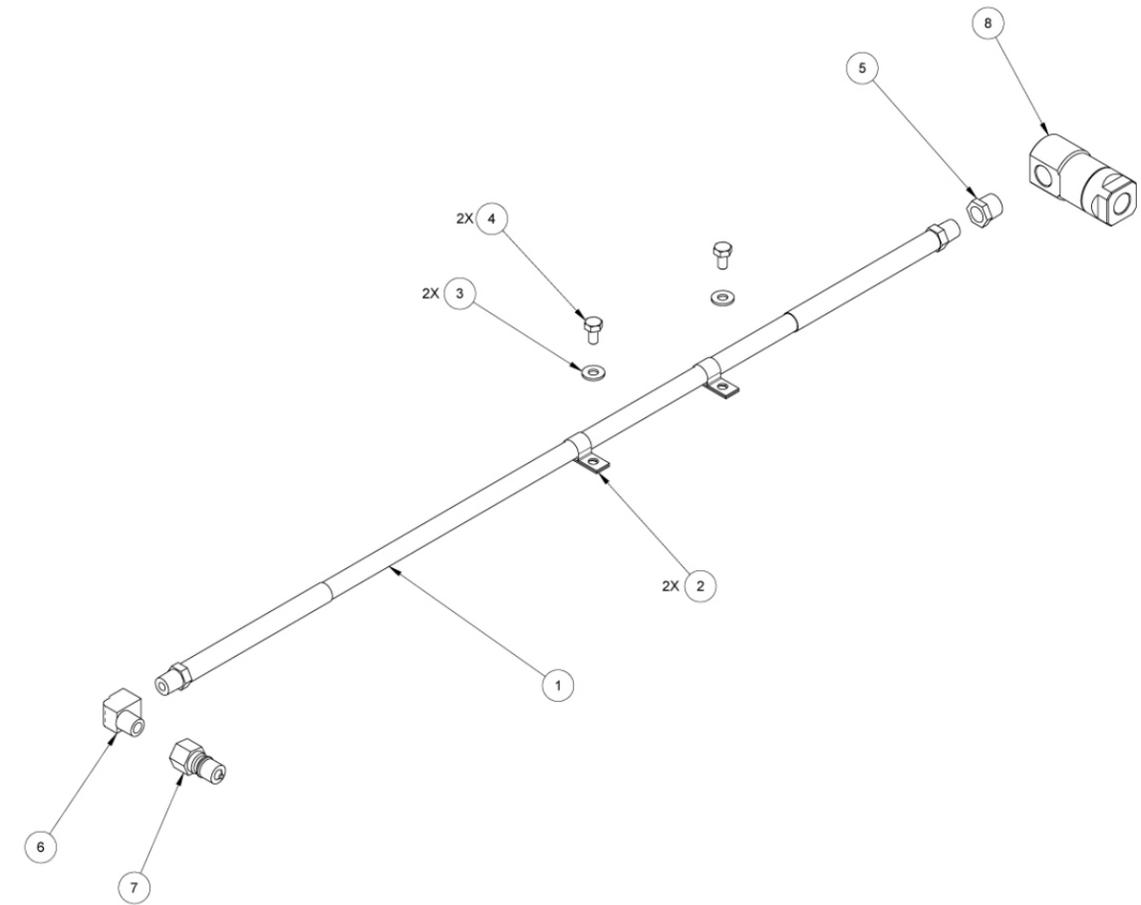
Item	Part Number	Description	Qty
7	000-033-134	Clamp, 3/4 ID, Cushion	2
8	000-174-003	Washer, 1/4" Flat	2
9	000-143-333	Screw, 1/4"-20 UNC X 0.50" Lg. Hex Head	2
10	000-052-105	Insert, #68 (3/8" NPT X 1/2" Barb)	1
11	000-052-086	Elbow, 3/8" NPT Street	1
12	000-052-053	Quick Connect, 3/8 Female	1

HydraCradle Tank

Figure 4-23. Live-Center Solution Fittings Kit - Overview
7594 Rev. A



Figure 4-24. Live-Center Solution Fittings Kit - Parts View
7594 Rev. A



Live Solution Fittings Kit Assembly Parts List

Item	Part Number	Description	Qty
1	000-068-813	Hose, Solution Orange, 1/4" w/1/4" Inserts	1
2	000-033-046	Clamp, 1/2 Wide X 1/2 Tube	2
3	000-174-003	Washer, 1/4" Flat	2
4	000-143-333	Screw, 1/4"-20 UNC X 0.50" Lg. Hex Head	2
5	000-052-061	Bushing, 3/8" NPT X 1/4" FPT	1
6	000-052-085	Elbow, 1/4" NPT Street	1
7	000-052-050	Quick Connect, 440 Male w/ Viton Std	1
8	000-163-574	Swivel, 3/8 Live Solution, SST w/Viton Selas	1

HydraCradle Tank

5 - Electrical System

The HydraCradle's electrical system has been designed to be powered just by the vehicle's or truckmount's 12 V battery (see Figure 5-1). No special power sources are required.

Although the electrical configuration is fairly straightforward and easy to follow as you can see in Figure 5-1, you should note the following if you are the distributor, installer or service technician::

If installing the HydraCradle tank in a van with a HydraMaster truckmount:

- The white/black pump-in pump cable connects to the white/black cable on the truckmount.
- The grey pump-in pump cable connects to the grey cable on the truckmount.

If installing the HydraCradle tank in a van with a HydraMaster CDS:

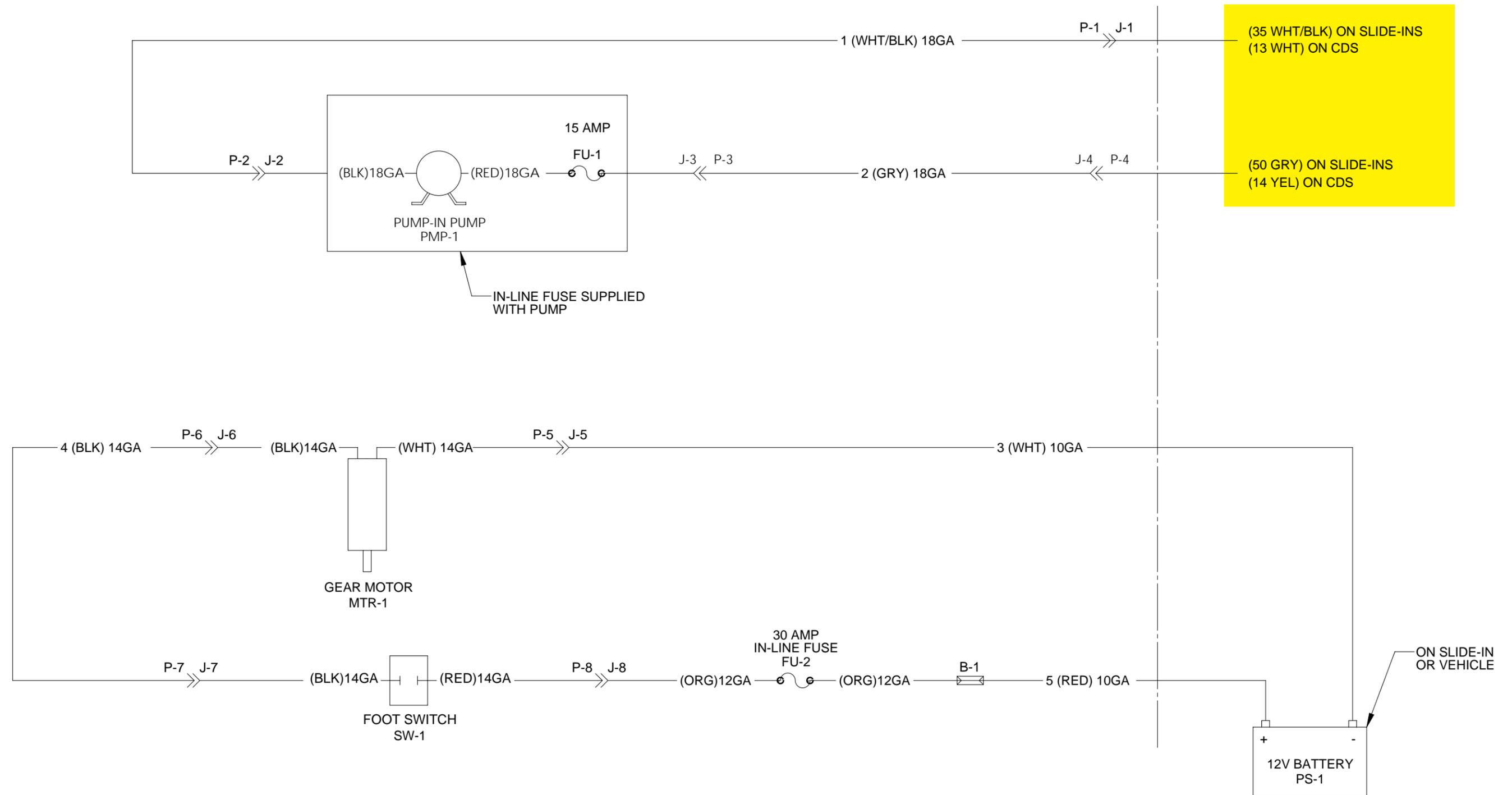
- The white/black pump-in pump cable connects to the white cable on the CDS.
- The grey pump-in pump cable connects to the yellow cable on the CDS.

Also, the HydraCradle's 2 fuses (15 Amp for the pump-in pump and 30 Amp for the foot switch/gear motor), indicated in Figure 5-1, are both easily accessible from the front panel of the HydraCradle. If you need to replace either fuse, refer to Section 7 of this Owner's Manual for fuse removal and replacement procedures.

Figure 5-2, which shows a layout of the HydraCradle's wiring harness, has been included in this manual as a convenient reference and also to provide more connection details for distributors/installers.

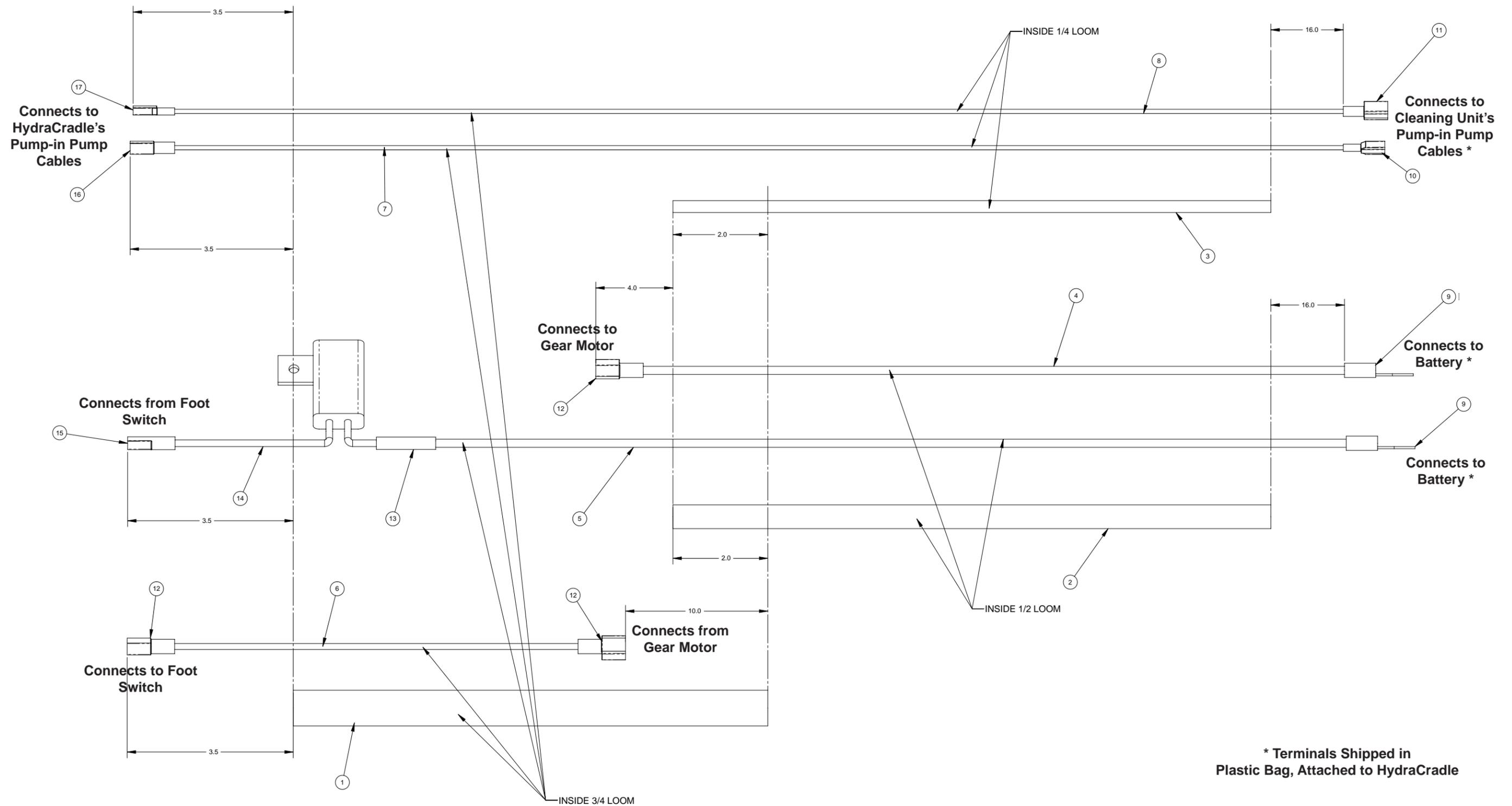
HydraCradle Tank

Figure 5-1. HydraCradle Wiring Schematic
7585 Rev. A



HydraCradle Tank

Figure 5-2. HydraCradle Cable Harness Diagram



HydraCradle Tank

Cable Harness Parts List

Item	Part Number	Description	Qty
1	000-063-017	Harness Wrap, 3/4" Split	5
2	000-063-008	Harness Wrap, 1/2" Split	13
3	000-063-021	Harness Wrap, 1/4" Split	13
4	000-178-014	Wire, GXL, 10 ga, White	14
5	000-178-035	Wire, GXL, 10 ga, Red	18
6	000-178-064	Wire, GXL, 14 ga, Black	5
7	000-178-095	Wire, GXL, 18 ga, Grey	19
8	000-178-111	Wire, GXL, 18 ga, White-Black Stripe	19
9	000-037-017	Terminal, 3/8" Stud, 10 ga Wire, Insulated	2
10	000-037-071	Terminal, Fully Insulated Female, 22 -16 ga	1
11	000-037-072	Terminal, Fully Insulated Male, 22 -16 ga	1
12	000-037-023	Terminal, Fully Insulated Male, 12 -10 ga	3
13	000-037-029	Connector, Butt, 12-10 ga	1
14	000-056-006	Fuse Holder, In-Line - Weatherproof	1
15	000-037-022	Terminal, Fully Insulated Female, 12-10 ga	1
16	000-037-009	Terminal, Fully Insulated Male, 16-14 ga	1
17	000-037-012	Terminal, Fully Insulated Female, 22-16 ga	1

HydraCradle Tank

6 - Scheduled Maintenance and Troubleshooting

To avoid costly repairs and down-time, it is imperative to develop and practice good maintenance procedures. Periodic procedures fall into daily and weekly increments, and are outlined in this section. All recommended maintenance must be performed by competent service personnel.

This section is divided into the following topics:

- Operational Maintenance
- Appearance Maintenance
- Troubleshooting

Operational Maintenance

This section contains recommendations for maintenance that will affect the service life of your HydraCradle. HydraMaster recommends that you follow maintenance schedules as stated.

Belt Tension

Each month, check the tension on the V belt by:

1. Removing power from the HydraCradle by detaching the HydraCradle's battery cables from the 12 V battery.
2. Removing the 5 screws and 5 washers that secure the belt cover to the HydraCradle frame and then remove the belt cover.
3. Pressing in on the V belt to test the tension. If the belt can be pressed in more than 1" (25.4 mm), it needs to be tightened.
4. After checking and/or adjusting the belt, re-attach the belt cover frame and re-apply power.

Zerk Lubrication

If your HydraCradle Tank is configured with a live-center connection on a small hose reel, lubricate the zerk on the swivel after every 40 hours of use with molybdenum disulfide ("moly") grease (see Figure 6-1).

CAUTION

Do not overgrease.



Figure 6-1. Location of Zerk on Swivel

HydraCradle Tank

Pump-in Pump Filter Check

Remove, inspect and clean the pump-in pump filter on at least a monthly basis.

1. If the tank is not empty, drain it by opening the drain valve.

NOTICE

If the tank is not drained prior to changing the filter, water will drain from the filter opening when the filter is removed.

2. Remove, inspect and clean the pump-in pump filter (see Figure 6-2).



Figure 6-2. Unscrew See-through Cap (Left Photo); Remove and Inspect Filter (Right Photo)

NOTICE

For easier access to the cap, you have the option of removing the pump access cover first, as shown in Figure 6-3, using a 7/16" (11 mm) wrench.

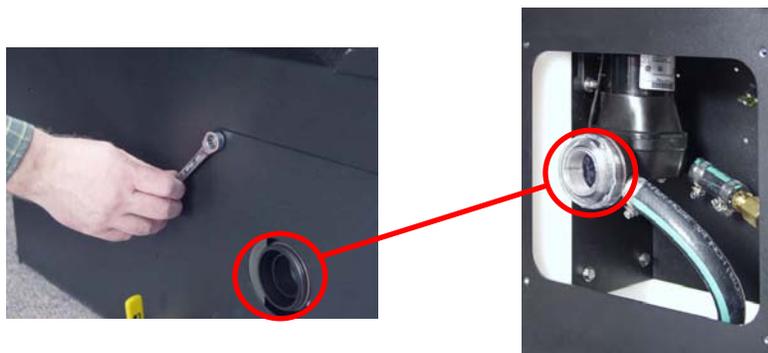


Figure 6-3. Remove Pump Access Cover

HydraCradle Tank

Descaling

Scale deposits on the interior of the HydraCradle can cause a noticeable loss in performance. Deposits of this kind result from hard water deposits. The frequency with which descaling procedures are required will vary. If your area has particularly hard water or you see evidence of deposits in the HydraCradle and the solution/garden hoses, you may have to descale monthly.

To descale your system:

1. Add an appropriate descaler chemical to your HydraCradle.
2. Pump the descaler through the HydraCradle system according to the directions on the descaler container's label.
3. Flush and repeat as necessary.
4. Clean the pump-in pump filter and check it frequently following descaling.

Appearance Maintenance

Maintaining the original appearance of your HydraCradle is important for two reasons:

1. It represents a big dollar investment for your cleaning business and its appearance should reflect that fact. A dirty machine does not look professional.
2. Maintenance, troubleshooting and repair is much easier to accomplish on a clean, well-maintained unit. Regular cleaning of the tank offers you an opportunity to visually inspect all parts of the tank and spot potential problems before they occur.

The following maintenance is recommended at the frequency indicated:

Daily

- Wipe tank thoroughly with a damp cloth.
- Wipe down hoses as needed.

Weekly

- Visually inspect hoses for cuts and abrasions.
- Thoroughly clean hoses.
- Remove large debris which may have accumulated under the vacuum hose, at the bottom of the tank, and wipe away any remaining smaller debris.

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Troubleshooting

1.0. No vacuum hose retraction - foot switch will not power on

1.1 Check foot switch	Connections are not secure; reseal connectors.
	Check continuity on foot switch cables; if defective, replace foot switch.
1.2. Check hose reel motor	30 Amp fuse is bad; replace fuse.
	Drive belt is loose or broken; adjust or replace belt.
1.3. Check battery	Battery is weak or dead; replace battery.
	Battery connections are not tight; reseal connectors
	Check continuity on battery cables; if defective, repair or replace.

2.0. Pump-in pump does not power on

2.1. Check pump-in pump motor.	15 Amp fuse is bad; replace fuse.
	Cable connections are not secure; reseal connectors.
	Check continuity on cables; if defective, repair or replace cables
2.2. Check battery.	Battery is weak or dead; replace battery.
	Battery connections are not tight; reseal connectors
	Battery cables may be bad; if defective, replace.

3.0. Recovery hose vacuum is weak or there is no vacuum

3.1. Recovery hose is not securely connected to live-center mount.	Disconnect and reconnect the recovery hose onto the barbed fitting.
3.2. Square head plug on live-center mount is missing or is not seated tightly.	Insert and tighten plug onto one opening of the live-center mount.
3.3. Live-center mount O-rings may be defective. (See Section 7)	Disassemble live-center mount and check the 3 O-rings (see removal and replacement procedure in Section 7 of this manual); replace all 3 O-rings as necessary. <u>Always</u> lubricate the O-rings with standard O-ring grease prior to re-installation.

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4.0. Solution/garden hoses losing pressure or have no pressure

4.1 Quick connects may have come loose.	Tighten or replace as necessary.
4.2 Hoses may be leaking.	Repair or replace as necessary.

5.0. HydraCradle Tank is empty or fills slowly

5.1. No water coming from source.	Check water supply at the house faucet or water's source.
5.2 There is a restriction in the water supply system.	Inspect the supply system from the source through the incoming quick connect for kinks, clogs or restricted filters. Clean or repair as necessary.
5.3. The float valve in the tank has jammed or is stuck open.	Remove the round cover on the rear of the tank; determine the cause of the obstruction and remove it from the tank..
5.4. The float valve in the tank is defective.	Replace float valve.

6.0. HydraCradle Tank overflows

6.1. There is a restriction in the drainage system.	Inspect the drain line for kinks or clogs. Clean or repair as necessary.
6.2. The float valve in the tank has jammed or is stuck open.	Remove the round cover on the rear of the tank; determine the cause of the obstruction and remove it from the tank.
6.3. The float valve in the tank is defective.	Replace float valve.

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7 - Removal and Replacement Procedures

This section of the manual explains removal and replacement procedures for commonly used components that may need to be replaced, such as fuses, and which are typically found at an automotive supply store.

For those distributors and owners who may want to stock replacement parts, unique to the HydraCradle, this section of the manual also identifies spares, and provides spares removal and replacement procedures.

HydraCradle spares are as follows:

Spare Part	Location	Part No.
73" (1.85 cm) Long V-belt	Reel Motor Assembly	000-010-130
O-Rings	Live-Center Mount	000-097-071
Foot Switch	Front Panel	000-157-156
Swivel for Solution Hose (live center)	Small Solution Hose Reels with Live Center	000-163-574
Swivel for Garden Hose (live center)	Small Garden Hose Reels with Live Center	000-052-290

Specific removal and replacement procedures included in this section are:

- Pump-In Pump Fuse (15 Amp)
- Reel Motor Fuse (30 Amp)
- V-belt (P/N 000-010-130)
- Water Box Float Valve (P/N)
- O-Rings (P/N 000-097-071)
- Foot Switch (P/N 000-157-156)

The replacement procedures for the swivels can be found in Section 2 of this manual.

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Pump-In Pump Fuse (15 Amp)

After you have determined that the 15 Amp fuse needs to be replaced, follow these instructions to remove and replace the original fuse

1. Remove power from the HydraCradle by detaching the HydraCradle's battery cables from the 12 V battery.
2. Remove the pump access cover for access to the fuse holder .
3. From inside the pump access opening, locate the 15 Amp fuse holder (see Figure 7-1).
4. Open the fuse holder, remove original fuse and discard it.
5. Insert the new 15 Amp fuse into the fuse holder.
6. Re-attach the pump access cover.
7. Re-attach the battery cables



Figure 7-1. Remove 15 Amp Fuse from Fuse Holder

Reel Motor Fuse (30 Amp)

After you have determined that the 30 Amp fuse needs to be replaced, follow these instructions to remove and replace the original fuse

1. Remove power from the HydraCradle by detaching the HydraCradle's battery cables from the 12 V battery.
2. Remove the pump access cover for access to the fuse holder .
3. From inside the pump access opening, locate the 30 Amp fuse holder (see Figure 7-2).
4. Open the fuse holder, remove original fuse and discard it.
5. Insert the new 30 Amp fuse into the fuse holder.
6. Re-attach the pump access cover
7. Re-attach the battery cables.



Figure 7-2. Remove 30 Amp Fuse from Fuse Holder

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V-belt (P/N 000-010-130)

After you have determined the belt is broken or damaged, follow these instructions to remove and replace the original V-belt:

1. Remove power from the HydraCradle by detaching the HydraCradle's battery cables from the 12 V battery.
2. Remove the 5 screws and 5 washers that secure the belt cover to the HydraCradle frame and then remove the belt cover (see Figure 7-3).
3. Loosen, but do not remove, the 4 nuts on the motor adjustment mount (see Figure 7-4).
4. Loosen the screw on the rear of the motor adjustment mount as indicated in Figure 7-4.
5. Move the motor adjustment mount just enough to loosen the V-belt.
6. Remove the 2 screws that secure the pillow block bearing and then remove the pillow block bearing (see Figure 7-5).
7. Remove the original V-belt and discard it.
8. Install the new V-belt, re-installing and tightening all the hardware and fasteners mentioned in the preceding Steps 2 - 6

NOTICE

Tighten the V belt until the belt deflects 1/2" - 1". (12.7 mm - 25.4 mm).

9. Re-attach the battery cables



Figure 7-3. Belt Cover Removed

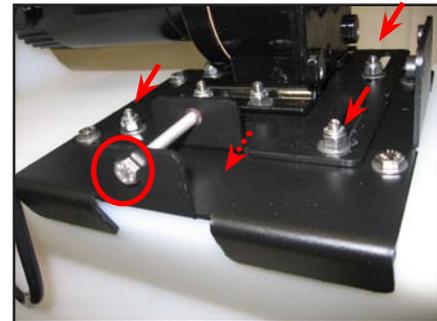


Figure 7-4. Loosen Nuts and 1 Screw on Motor Adjustment Mount



Figure 7-5. Remove Pillow Block Bearing

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Water Box Float Valve (P/N)

NOTICE

Before you disassemble the water box float valve, make sure you are in possession of the replacement kit which includes the water box float valve, the gasket and the nut as referenced in Figure 7-6.

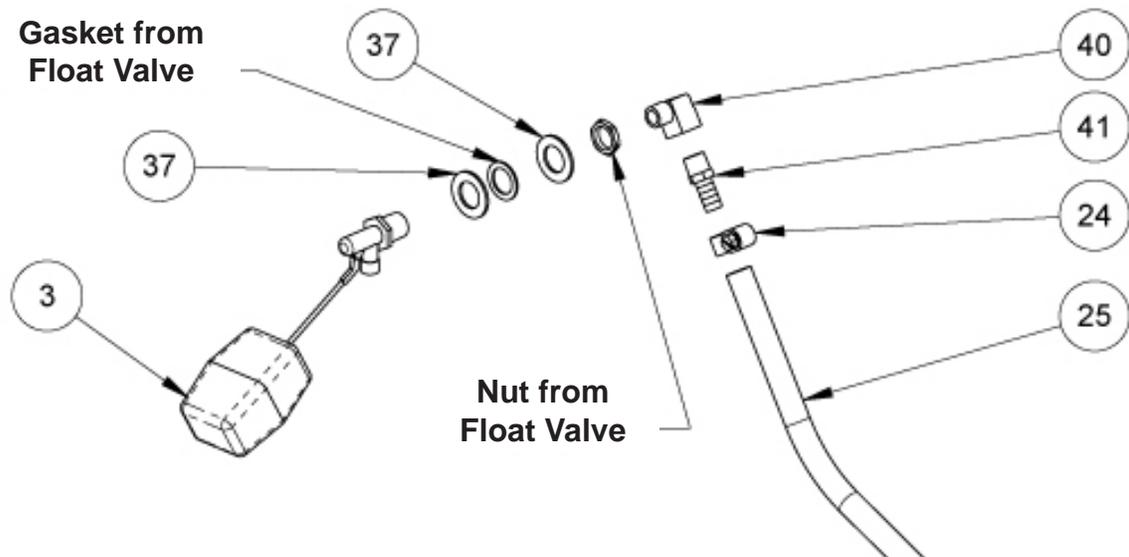


Figure 7-6. Removing Water Box Float Valve

After you have determined that the water box float valve needs to be replaced:

1. Remove power from the HydraCradle by detaching the HydraCradle's battery cables from the 12 V battery.
2. Loosen the hose clamp (number 24 in Figure 7-6).
3. Remove the hose (25) and the barb insert (41).
4. Remove the cover.
5. With a wrench, reach into the tank, grip the hex connector on the float valve (3).
6. Remove the elbow (40) and the nut.
7. Remove the float valve, the 2 washers (37), the gasket and the nut.
8. Retain the 2 washers (37).
9. Discard the original water box float valve, gasket and nut.
10. Re-assemble the components described in the preceding steps.
11. Re-attach the battery cables.

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O-Rings (P/N 000-097-071)

After you have determined that any or all of the O-rings on the live-center mount need to be replaced, follow these instructions to remove and replace the original 3 O-rings (replace all 3 at the same time).

1. Remove power from the HydraCradle by detaching the HydraCradle's battery cables from the 12 V battery.
2. Unfasten and remove the 2 socket head screws (see Figure 7-7 and Figure 7-8, number 24) that secure the live-center mount to the bracket and then remove the live-center mount.



Figure 7-7. Remove Recovery Hose from Live-Center Mount

NOTICE

It may be necessary to first remove the recovery hose and the barb insert from the live-center mount.

3. Remove all the O-rings from the reel mount (see Figure 7-8) and replace with 3 new O-rings (see Figure 7-9).
4. Grease the new O-rings with O-ring lubricant.
5. Re-assemble the components described in the preceding steps.
6. Re-attach the battery cables.

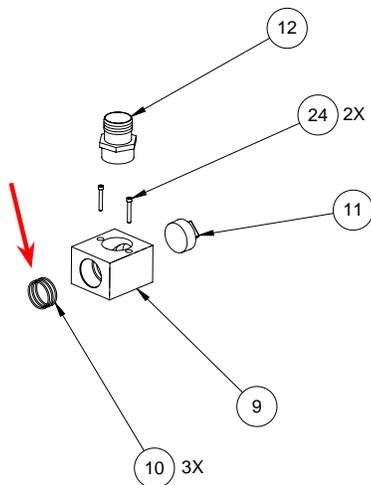


Figure 7-8. Live-Center Mount Subassembly Showing Location of 3 O-Rings (Number 10)



Figure 7-9. Location of 3 O-Rings on Reel Mount

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Foot Switch (P/N 000-157-156)

After you have determined the foot switch or parts of the foot switch have been damaged, follow these instructions to remove and replace the original foot switch, in entirety.

NOTICE

The replacement foot switch is available in ONLY 1 configuration, shown in Figure 7-10.

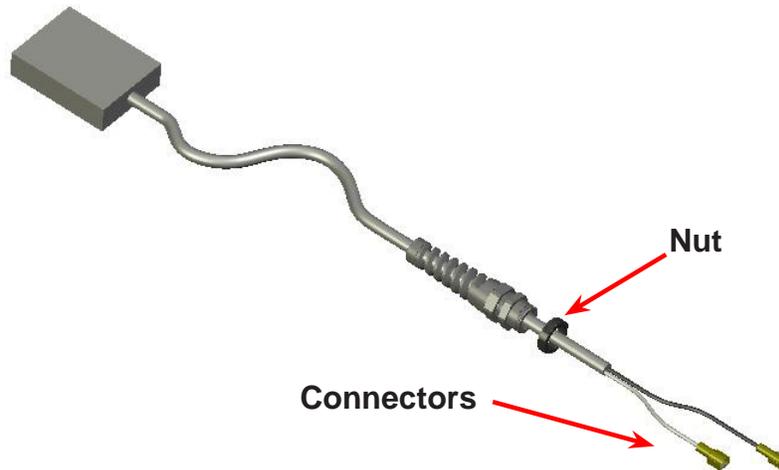


Figure 7-10. Spare Foot Switch Available in Only 1 Configuration as Complete Assembly with Crimped Connectors Attached

1. Remove power from the HydraCradle by detaching the HydraCradle's battery cables from the 12 V battery.
2. Remove the pump access cover for easier internal access to the foot switch cable assembly (see Figure 7-11).
3. Loosen the foot switch nut from inside the front cover.

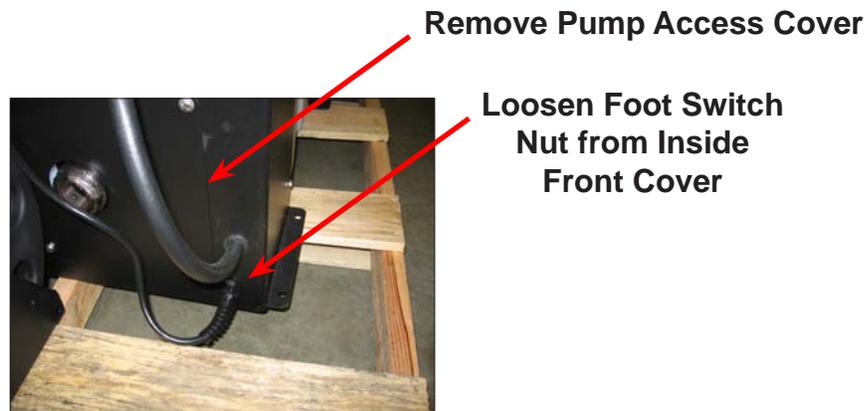


Figure 7-11. Remove Original Foot Switch

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4. From inside the pump access opening, push the foot switch cable assembly out.
5. Gently pull the cable assembly away from the front panel to access the cable connectors that are attached to the wiring harness.
6. Make note of which foot switch cable connectors are connected to the corresponding wiring harness connectors (see Figure 7-12).
7. Disconnect the cable connectors and discard the damaged foot switch assembly.

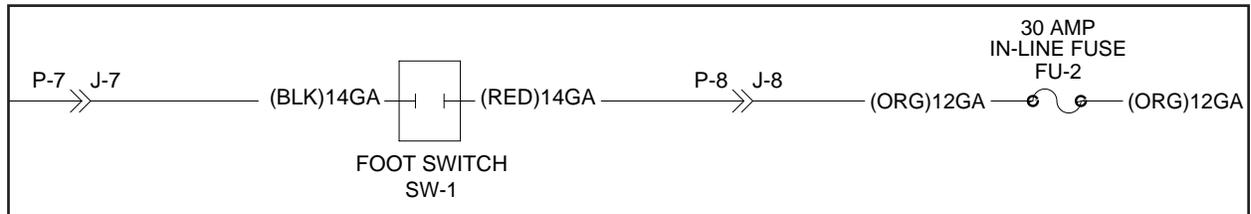


Figure 7-12. Foot Switch Cable Connections

8. Route the foot switch assembly cables back into the pump access opening,
9. Attach the new foot switch assembly cable connectors.
10. Tighten the foot switch nut.
11. Re-attach the pump access cover.
12. Re-attach the battery cables and test the foot switch for proper operation.

8 - How to Order Parts

To order warranty replacement parts or repairs, it is important that you read this section which includes:

- Warranty Parts Orders
- Parts Orders
- Emergencies
- One Final Note

Warranty Parts Orders

1. Call the local distributor where you purchased your equipment and ask for the Service Department.
2. Have the following information ready:
 - a. Date of Purchase
 - b. Unit Serial Number
 - c. Description of Malfunction
3. Once it has been determined which parts are needed to correct the problem with your machine, make arrangements with your distributor to either perform the repairs or ship the parts to you.

Any questions you have regarding the warranty program should be directed to the Customer Service Department at (425) 775-7275, 7 a.m. to 5 p.m. Monday through Friday (PST).

We shall always endeavor to be fair in our evaluation of your warranty claim and shall provide you with a complete analysis of our findings.

HydraMaster warranty covers only defective materials and/or workmanship for the periods listed. Diagnostic reimbursement is specifically excluded.

Parts Orders

Call your local distributor. In most instances, they either stock or have access to parts through a regional service center.

Emergencies

If, for any reason, your distributor is unable to supply you with the necessary parts, they may call us and arrange for expedited shipping.

HydraMaster sells parts only through authorized distributors and service centers.

9 - Warranty Information

The warranty on the tank portion, itself, is 3 years; the warranty for all other parts is 1 year.

To avoid misunderstandings which might occur between machine owners and the manufacturer, we are listing causes of component failure that specifically voids warranty coverage. Such causes listed in this section shall constitute abuse or neglect.

Pump

- Failure to protect pump-in pump against freezing.
- Failure to use water softener in hard water areas.

Vacuum and Solution Hoses

- Failure to protect hoses against freezing.
- Failure to protect hoses against burns from engine and blower exhaust.
- Damage to hoses from being run over by vehicles.
- Kinking or cracking from failure to store or unroll hoses correctly.
- Normal wear and tear from everyday use.

Hard Water Deposits

- Failure to use or maintain a water softening system or a properly installed magnetic-type descaler, whichever might be necessary, with machines operating in designated "Hard Water Areas" (3.0 grains or more per gallon).

Warranty Procedure

Warranty coverage is available to you through your local distributor.

If you have moved to a new area or have purchased a used machine and need information regarding your local distributor, call HydraMaster at (425) 775-7272 or email us at: custsvc@hydramaster.com. You can also find a local distributor by visiting our website at <http://www.hydramaster.com/owners/locate/index.asp>.

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10 - Accessories

HydraMaster's machine accessories are the most innovative collection available in the cleaning industry.

The full line of machines, accessories and chemicals can enhance cleaning performance while reducing your labor costs, and include:

- Upholstery Tools
- Wands
- Vacuum Hoses
- Van Accessories
- Carpet Care Detergents
- Rinse Agents
- Pre-Sprays
- Hard Floor Care Detergents
- De-Foamers and Descalers
- Deodorizers and Disinfectants
- Spotting Agents

For more information, visit our website at www.hydramaster.com.

To order genuine HydraMaster accessories and chemical solutions, call your nearest authorized HydraMaster Distributor. (To find a local distributor, please visit our website at <http://www.hydramaster.com/owners/locate/index.asp>.)