

Zerorez[®] Clutch Drive System Owner's Manual

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1 - General Information

The 2017 Zerorez® - Clutch Drive System (CDS) Truckmounts are custom-engineered carpet cleaning machines developed, designed and manufactured by HydraMaster for Zerorez. The systems utilize the most current technology available in water heating, water recovery systems and cleaning without the use of high-residue soaps, detergents, shampoos or chemicals using Zerorez' Empowered Water™ System.

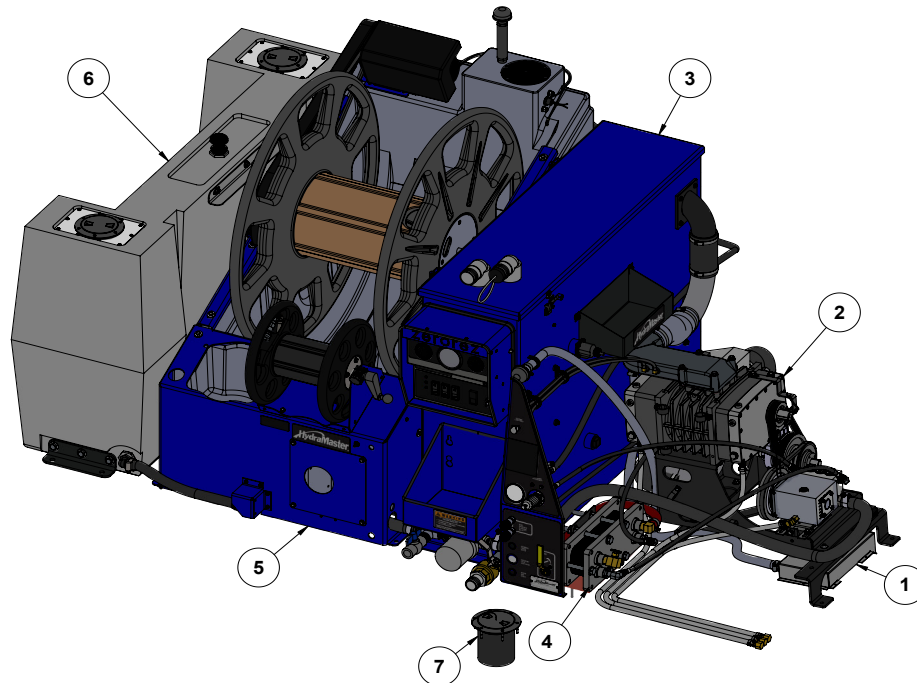


Figure 1-1. 2017 Zerorez CDS

The 2017 Zerorez CDS equipment is shipped from HydraMaster to distributors, and includes the following major components. (See page 9-1 in this Owner's Manual for more information.)

1. Yaw Sensor Cooling System
2. Power Pack Assembly with Cowling
3. Zerorez CDS Tank Assembly, which includes the instrumentation panel
4. Alfa Laval and Salsa (Not Shown) Heat Exchangers
5. Zerorez Cradle Tank Assembly
6. Zerorez 110 Gallon Tank
7. Pass Through Kit

It is the purpose of this manual to help you properly understand, maintain and service your cleaning plant. Follow the directions carefully and you will be rewarded with years of profitable, trouble-free operation.

This Owner's Manual contains operation instructions as well as information required for proper maintenance, adjustment and repair of the 2017 Zerorez CDS. Component troubleshooting guides have also been included for your convenience.

It is imperative that no section be overlooked when preparing for operation of this equipment. Please read this Owner's Manual to familiarize yourself with the operation of the 2017 Zerorez CDS, paying special attention to all **Warnings and Cautions**.

This section of the manual contains the following helpful information:

- Contact Information
- Warnings, Cautions and Notices
- Machine Specifications
- Responsibilities
- Waste Water Disposal Advisory

CONTACT INFORMATION

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

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.

Warnings and Cautions specific to the 2017 ZEROREZ CDS include:

⚠ WARNING

HOT SURFACES: During the operation of this equipment, many surfaces on the machine will become very hot. When near the van for any reason, be careful not to touch any hot surface, such as the engine or the exhaust.

⚠ 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 eight-hour period). This equipment can produce 85 decibels to a distance of 10 feet. Please check with your local state agencies to see if OSHA standards apply to your application.

⚠ WARNING

NO SMOKING: It is unsafe to smoke in or around the vehicle. Do not allow any open flames in or around the vehicle.

⚠ WARNING

CARBON MONOXIDE: This unit generates toxic fumes. Position the vehicle so that the fumes will be directed away from the job site. Do not park where exhaust fumes can enter a building through open doors, windows, air conditioning units or kitchen fans.

⚠ WARNING

TOXIC FUMES: Do not occupy the vehicle when the cleaning equipment is operating. Toxic fumes may accumulate inside a stationary vehicle.

⚠ WARNING

ENGINE EXHAUST: The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

⚠ WARNING

MOVING PARTS: Never touch any part of the machine that is in motion. Severe bodily injury may result.

⚠ WARNING

IN ACCORDANCE WITH EPA, STATE AND LOCAL LAWS, DO NOT DISPOSE OF RESIDUAL ('A") WATER INTO GUTTERS, STORM DRAINS, STREAMS, RESERVOIRS, ETC. The penalties for non-compliance can be serious. Always check local laws and regulations to be sure you are in compliance.

In addition, do not dispose of residual water onto lawns or driveways, especially during freezing weather. Slip-and-fall accidents can occur when water has frozen onto driveways and walkways, causing personal injury to customers as well as cleaning staff.

CAUTION

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

CAUTION

LEVEL OPERATION: During operation, the vehicle must be parked on level ground not to exceed + or - 10 degrees. Failure to ensure proper leveling may prevent proper internal lubrication of engine, vacuum and/or high pressure components.

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. 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.

MACHINE SPECIFICATIONS

2017 ZEROREZ CDS Cleaning Unit (including blower and heat exchangers)

Frame	41.5" H x 61.0" L x 23" W	
Weight	900 lbs.	
Construction	Tank	Marine Aluminum with Baked-on Epoxy Finish
Chassis	Powder Coated Steel	
Cowling	Fiberglass	
Power Transfer	Electric Clutch-driven Shaft, Key Activated	
Drive Type	Universal Drive Shaft	
Drive System	PolyChain on Power Pack	
Vacuum Blower	Gardner Denver 408 TriFlow	
	Blower rpm @ 14"Hg 3,600	
Water Pump	General Pump, 4.0 gpm	
Heating System	Alpha Laval Engine Coolant Heat Exchanger (1,200 psi)	
	Blower Exhaust (Salsa) Heat Exchanger (1,200 psi)	

Instruments		
	Main Panel	
		Electronic Tachometer, 0-4,000 rpm
		Water Temperature Gauge, 0-320° F
		Vacuum Gauge, 0-30" Hg
		Hour Meter, Machine Run-Time
		Keyed Ignition, Start/Stop
		Electronic Circuit Protection Breaker, Re-set table
		Machine Status Indicator Lamps
		Water Pressure Gauge, Liquid Filled, 0-1,500 psi
		Dual Tool/Wand Hook-Up
	Side Panel	
		Water Pressure Adjustment
		Blower Lubrication Port
		Water Temperature Adjustment Knob
		High Pressure Outlets

Available Equipment	
Auxiliary Pump Out	Automatic Waster-Water Disposal System (AWDS)
Cleaning Tool/ Wand	One 2" Evolution Stainless Steel Wand and One Pressure Wash Tool
High Pressure Hose	1/4" High Temperature, Lined, Vinyl Covered - Hose rated to 2,200 psi, 250° F
Two Back Door Bins for Extra Storage	
Wheel Chock Set	
Van Finish Package	
Van Decal Package	
Owner's Manual: MAN-47205	
Owner's Guide: MAN-47206	

HydraCradle Fresh Water Tank

Tank Capacity	125 gallons	
Tank Construction	Rotomolded LLDPE *	
Mounting Components	Stainless Steel	
Dimensions	47¼" H x 65" L x 34" W	
Dry Weight (without Vacuum Hose)	195 lbs	
38" Diameter Vacuum Hose Reel - Standard - (for 2" Diameter Hose)	Capacity***	250 ft.
	Construction	Rotomolded LLDPE*
	Electrical Operation	Power Retraction - Standard
Blue Vacuum Hose	5 x 50 ft Sections; 2" Diameter	
14" Diameter Solution Hose Reel **	Maximum Capacity	250 ft.
	Construction	Rotomolded LLDPE
Solution Hose	250 ft, ¼" Diameter	
Hose Reel Motor Fuse	30 Amp	

* LLDPE = Linear Low Density Polyethylene

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

*** The amount of hose that conveniently fits onto each reel can be affected by the diameter of the hose, the type and size of cuffs or connections, and the pliability of the hose itself.

110 Gallon Fresh Water Tank

Tank Capacity	110 Gallons
Tank Construction	Polyethylene, Ultra Thick Wall
Dimensions	34" H x 60" L x 18" W
Weight	115 lbs

RESPONSIBILITIES

Sales Representative's Responsibility

Acceptance of Shipment

Before accepting the truckmount, check the following:

1. The truckmount should be free from any damage during shipping. Do not sign the delivery receipt until you have closely inspected the truckmount and noted any damage on the delivery receipt. Hidden damage may be present even if the box looks fine. It is recommended that the box be opened before you sign for the shipment.
2. Check the packing list and verify that all items are present.

Installation Responsibilities

- Ensure proper payload capability. 2017 Zerorez CDS must be installed into a vehicle with a payload capacity of 3,850 lbs or greater.
- Ensure proper placement of the 2017 Zerorez CDS fresh water tanks, and accessories in the vehicle, and check that they are secured with bolts and back up plates. The distributor should verify that the owner is in agreement with the layout.
- Ensure proper installation of the electrical wiring and the connections to the vehicle's battery.
- Check the pump, vacuum blower and engine oil levels prior to starting the truckmount.
- Start and run the truckmount and check that all systems function properly.
- Test all hoses, wands and other accessories for correct operation.
- Ensure timely return of the document package.

Training

- A thorough review of the Owner's Manual with the purchaser.
- Instruction in and familiarization with:
 1. How to correctly start up and shut down the unit
 2. How to correctly clean with the unit
 3. Where and how often to check and change component oil levels
 4. How the unit's systems work, how to troubleshoot the unit
 5. How to do basic repairs
 6. Safety precautions and their importance
 7. How to avoid freezing damage
 8. How to avoid hard water damage
- A thorough review of the unit warranty and warranty procedures.

Purchaser's Responsibility

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

WASTE WATER DISPOSAL ADVISORY

There are laws in most communities prohibiting the dumping of recovered “gray” water from carpet cleaning in any place but a sanitary treatment system.

The cleaning rinse water, recovered into your unit’s recovery tank, contains materials that must be safely processed before entering streams, rivers and reservoirs.

In most cases, an acceptable method of waste water disposal is to discharge into a municipal sewage treatment system after first filtering out solid material such as carpet fiber. Access to the sanitary system can be obtained through a toilet, laundry drain, RV dump, etc. Permission should first be obtained from any concerned party or agency.

One disposal method is to use the Automatic Waster-Water Disposal System (AWDS). This optional system is designed to remove waste water from the extractor’s recovery system and actively pump the water through hoses to a suitable disposal drain.

When properly configured, the AWDS will continuously monitor the level of waste water and pump it out simultaneously with the cleaning operation. The hidden benefit of this process is that the technician does not have to stop his/her cleaning to empty the recovery tank.

⚠ WARNING

IN ACCORDANCE WITH EPA, STATE AND LOCAL LAWS, DO NOT DISPOSE OF RESIDUAL (‘A”) WATER INTO GUTTERS, STORM DRAINS, STREAMS, RESERVOIRS, ETC. The penalties for non-compliance can be serious. Always check local laws and regulations to be sure you are in compliance.

In addition, do not dispose of residual water onto lawns or driveways, especially during freezing weather. Slip-and-fall accidents can occur when water has frozen onto driveways and walkways, causing personal injury to customers as well as cleaning staff.

2 - Operating Instructions

This section of the manual contains the following instructions:

- Before Operating the 2017 Zerorez CDS
- 2017 Zerorez CDS Start Up
- Throttle Control Function
- 2017 Zerorez CDS Shut Down
- Zerorez Cradle Tank Daily Shut Down
- Zerorez Cradle Tank Shut Down for Extended Storage

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.

BEFORE OPERATING THE ZEROREZ - CDS

1. Locate the unit and equipment in a well-ventilated area.

⚠ WARNING

The 2017 Zerorez CDS unit generates toxic fumes. Position the vehicle so that the fumes will be directed away from the job site. Do not park where exhaust fumes can enter a building through open doors, windows, air conditioning units or kitchen fans.

2. Check the fuel tank to be certain there is adequate fuel to complete the job.
3. Position the wheel chocks on one of the rear tires.
4. Connect all required hoses. (See hose routing list in section 9)
5. When connecting the pressure hose to the pressure outlet connections at the front of the unit, go to the farthest area to be cleaned and connect to the cleaning tool. This ensures that you have the proper length of hose required to perform the cleaning.

ZEROREZ CDS START-UP

1. Make sure the vehicle's gear select lever is in the Park position and the emergency brake is set.
2. Start the vehicle's engine.
3. Manually unwind the vacuum hose a few feet off of the Cradle Tank's vacuum reel, and press on the foot switch to test for power retraction of the hose.
4. Power up the CDS by turning the key in the ignition switch (Figure 2-1)
5. Select the cleaning speed appropriate for the cleaning job.
6. Turn on the PUMP CLUTCH switch. Adjust cleaning pressure to desired level.

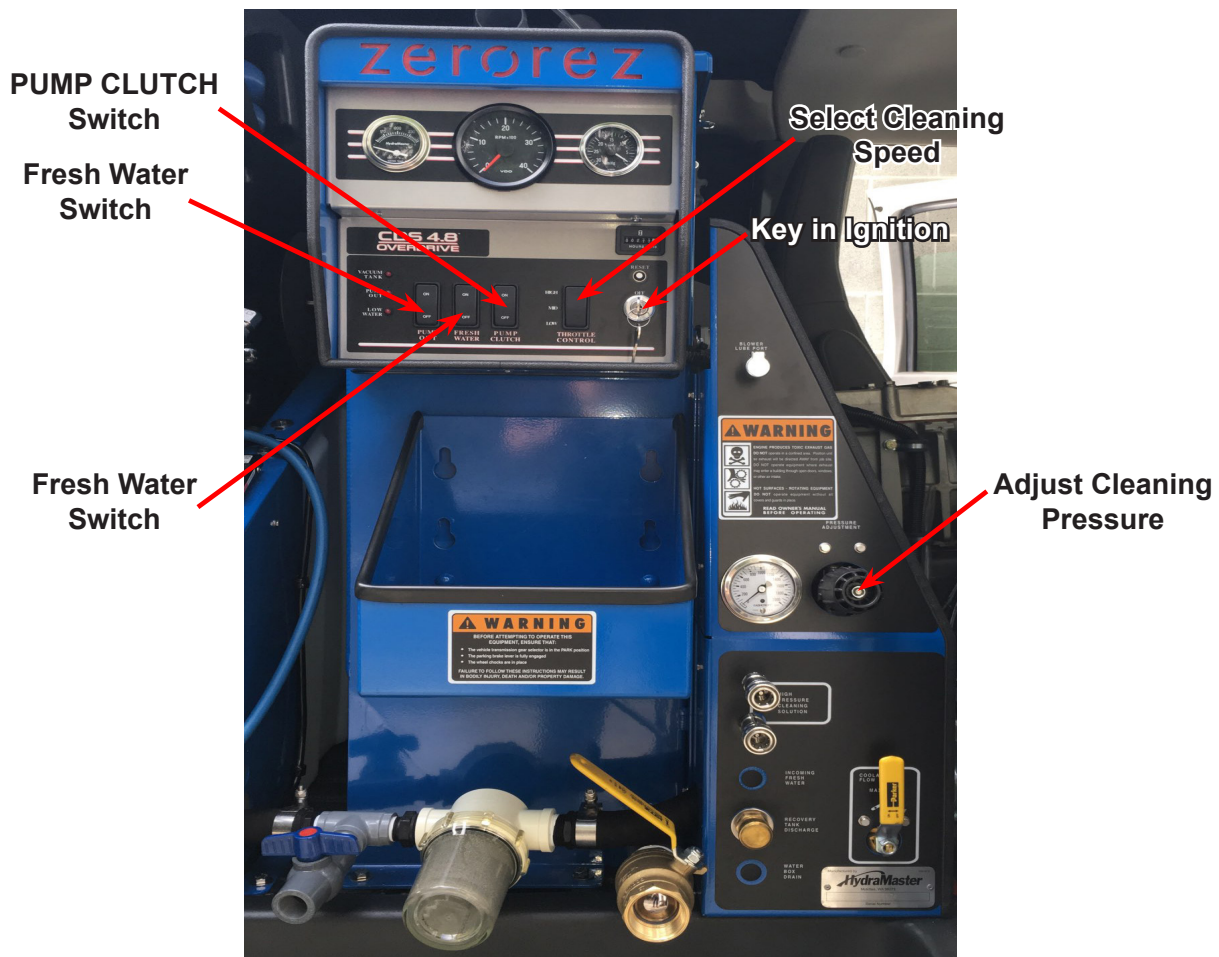


Figure 2-2. Front View of 2017 Zerorez CDS

7. (If applicable) Connect the AWDS to a dump hose (the length of a garden hose), route the hose to an appropriate waste site and turn the PUMP OUT switch 'ON'.

NOTICE

Do not dump waste or wastewater in any area which might violate local, state or federal law. Drain the recovery tank into a sanitary drain system.

NOTICE

The AWDS will not engage until the water level rises inside the recovery tank.

8. Now proceed with the cleaning operation.

NOTICE

The machine will automatically shut down when the recovery tank reaches its full capacity due to the float switch located inside the tank. When this occurs, turn the CDS key switch off and empty the recovery tank. Then, turn the unit back on and continue to clean.

NOTICE

If Freeze guarding is necessary, perform the freeze guard procedure at this time as outlined in Vacuum Freeze Guard Kit Instructions for P/N 000-078-078.

1. Turn off the CDS fresh water switch.
2. Turn off the outdoor faucet
3. Lay vacuum hoses out in order for all moisture to be removed from the hoses. This prevents spillage of any dirty solution in your vehicle when storing the hoses.
4. Disconnect the hoses and put them away.
5. Allow the unit to run for a few minutes with the vacuum hose disconnected in order to remove all moisture from the vacuum pump.
6. Plug the vacuum inlets.
7. Spray a Hydramaster-recommended lubricant (P/N 000-087-006) into the lube port for about 5 to 10 seconds while the unit is running. This will lubricate the vacuum pump and prevent it from rusting. (The lube port is located on the front panel above the pressure gauge.)
8. Remove the inlet plugs, then turn the ignition 'OFF' before draining the recovery tank .
9. Turn the heat control valve to the 'OFF' position. This will help avoid engine overheat problems due to reduced coolant flow through the radiator.
10. Drain the recovery tank .

NOTICE

Do not dump waste in any area which might violate local, state or federal law. Drain the recovery tank into a sanitary drain system.

11. When the recovery tank is drained, lift the recovery tank lid and remove the filter basket.
12. Clean out any accumulated debris.
13. Rinse and re-install.
14. Check the corrugated blower filter.
15. Clean out any accumulated debris.
16. Rinse and re-install.

NOTICE

When re-installing the blower filter, ensure that it is fully seated against its mount so that debris cannot pass under it and into the blower.

HYDRACRADLE TANK DAILY SHUT DOWN

To shut down the HydraCradle Tank after daily use:

1. Clean out the vacuum hose and, pressing on the switch, rewind the vacuum hose onto its reel.
2. Rewind the other solution hose.
3. Place cleaning tools/wands in the tank's storage area.

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. Drain the remainder of the water in the tank.
2. 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.
3. Unwind the solution hose, detach from the reel and completely drain the hose before rewinding it onto the reel.

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.

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3 - Freeze Guarding

When operating the 2017 Zerorez CDS during the colder months of the year, ensure that you properly freeze guard the system. No part of the 2017 Zerorez CDS System is covered by warranty if machine damage occurs because of freezing.

CAUTION

BE SURE YOUR MACHINE IS PROTECTED! Freezing will cause component damage.

The following precautions are recommended prior to and during cleaning jobs:

1. Run the machine before leaving for the first job to ensure nothing has frozen the night before, including hoses and tool/wand.
2. Insulate the solution hose from the cold ground by running it through an extra 1½" vacuum hose.
3. Leave vehicle doors closed until you begin cleaning; afterwards, open slightly.

NOTICE

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

4. 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.
5. 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 machine.

⚠ WARNING

Never use a propane heater. It causes excessive moisture on the vehicle ceiling and the possibility of it malfunctioning is therefore higher, which may cause bodily injury. If the machine and vehicle are left outside with a heater, drain water from the machine cleaning tools and hoses because they can be freeze-damaged.

6. If Machine and vehicle are left outside with a heater, drain water from the machine cleaning tools and hoses because they can be freeze-damaged.

To Drain the machine, open the Cradle Tank drain valve and drain the tanks thoroughly.

7. Freeze Guard Procedure

To drain the CDS, use Kit P/N 000-078-078 (clear freeze guard hose with plug attached) which is shipped with the machine.

NOTICE

The purpose of this part is to facilitate the removal of water from the ZEROREZ CDS cleaning equipment. The sale and use of the kit is in no way a guarantee against freeze damage but will be sufficient to guard against severe freeze damage for most major components.

1. Connect the black stopper end of the freeze guard hose to the Recovery Tank inlet.
2. Connect the other end of the freeze guard hose to one of the outgoing cleaning solution quick connect fittings.
3. Turn the pump clutch "OFF" at the switch.
4. Turn down the pressure regulator to "0" (counterclockwise).
5. Open the valve and drain the HydraCradle Tank until water no longer flows. This ensures that there is no water at the pump inlet, which could result in freeze damage.
6. Turn on the unit and allow the vacuum to draw the majority of the water from the system.
7. When no water can be seen traveling through the clear hose, turn the unit off.

4 - Maintenance and Troubleshooting

To avoid costly repairs and down-time, it is imperative to develop and practice good maintenance procedures from the beginning. These procedures fall into daily, weekly, monthly and quarterly increments, and are outlined in this section. All recommended maintenance on the Zerorez CDS must be performed by competent service personnel.

This section is divided into these parts:

- 2017 Zerorez CDS Maintenance and Troubleshooting
 - Operational Maintenance
 - Appearance Maintenance
 - Drive Shaft Maintenance
 - Troubleshooting

- Cradle Tank Maintenance and Troubleshooting
 - Operational Maintenance
 - Appearance Maintenance
 - Troubleshooting

NOTICE

Important: Record the date and machine hours on the maintenance log. Maintenance logs are provided for your convenience in the Owner's Guide. Records of maintenance must be kept and copies may be required to be furnished to HydraMaster before the warranty is honored. It is recommended that you affix a copy of the log on the vehicle door near your unit for convenience and to serve as a maintenance reminder.

2017 ZEROREZ CDS MAINTENANCE AND TROUBLESHOOTING

DAILY

- Check engine oil level.
- Empty recovery tank inlet filter.
- Inspect and clean garden hose screen.
- Visually inspect machine for loose wires, oil leaks, water leaks, etc.
- Inspect recovery tank stainless steel filter for clogging or damage; clean, repair or replace as needed.
- Inspect and clean the vacuum slot on the cleaning wand. Watch for sharp edges that may tear the carpet; remove any sharp edges as required.
- Lubricate blower with a HydraMaster-recommended spray lubricant (P/N 000-087-006) through blower lube port.
- Park the vehicle inside or turn on heater during freezing weather, and perform freeze guard procedure as weather dictates.

Weekly

- Check around vehicle and CDS unit for any evidence of oil/fluid leaks.

⚠ WARNING

Grease, oil, antifreeze, and debris build-up near hot equipment, such as the vehicle engine exhaust system or the CDS blower exhaust system, can present a fire hazard and can cause death or bodily injury.

Vehicle engine exhaust system or the CDS blower exhaust system, can present a fire hazard and can cause death or bodily injury.

- Clean and inspect float switches.
- Flush water and chemical system with 50/50 white vinegar solution.
- Change pump oil after first 50 hours; every 300 hours thereafter.
- Check pump oil. Add as necessary.
- Check pump drive belt for wear.
- Check pump pulleys for wear.
- Check CDS blower mounting fasteners, drive shaft clamping collar fasteners, and CDS front end component fasteners, tighten as needed.
- Check internal machine high pressure water lines for wear or chafing.
- Remove and clean chemical container.
- Remove the stainless steel blower inlet filter inside the recovery tank and thoroughly clean, removing all lint build-up. Inspect for damage and re-install.
- Inspect and clean vacuum relief valve. Clean and lubricate as necessary.
- Inspect all external solution hoses, vacuum hoses, and quick connects for wear or

damage that may cause premature failure, replace as needed.

- Check magnesium anodes in recovery tank and replace as necessary.
- Clean recovery tank thoroughly with high pressure washer.
- Check vehicle engine rpm on CDS tachometer:

Speed 1 = 1,600

Speed 2 = 1,400

Speed 3 = 1,200

Monthly

- Change engine oil.
- Check engine air cleaner filter. Clean as necessary.
- Check blower drive belt.
- Clean and inspect battery connections as needed.
- Grease drive shaft U-joints (Drive Shaft Maintenance, Figure 4-1). Inspect for wear.
- Change blower oil after first 100 hours.

Quarterly

- Change oil in blower every 400 - 500 hours/or every three months which ever comes first.
- Change oil in pump every 300 hours. Replace pump drive belt (P/N 000-010-065) every 300 hours.
- Check the vehicle fuel lines for any chafing or wear, especially in the engine compartment or near any rotating parts.
- Check the CDS wiring harness for any chafing or wear, especially in the vehicle engine compartment or near any rotating parts.
- Check the vehicle wiring harness for any chafing or wear, especially in the vehicle engine compartment or near any rotating parts.
- Grease Drive shaft spline if so equipped.
- Grease the power pack pillow block bearings.

Yearly

- Give van complete vehicle service.
- Flush the van's cooling system. Add new anti-freeze.
- Change the van's transmission fluid.
- Clean and inspect Salsa Heat exchanger (if equipped).

Change engine oil and filter after every 2,000 miles.

Refer to the Interval Hours Maintenance chart in the Owner's Guide.

Appearance Maintenance

Maintaining the original appearance of your unit 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 machine offers you an opportunity to visually inspect all parts of the machine and spot potential problems before they occur.

The following maintenance is recommended by the manufacturer at the frequency indicated:

Daily

- Wipe machine down thoroughly with a damp cloth.
- Flush recovery tank out thoroughly.
- Clean wand to maintain original appearance.
- Wipe down vacuum and high pressure hoses as needed.
- Visually inspect hoses for cuts, etc.

Weekly

- Wipe down entire unit as needed.
- Apply good coat of auto wax to all painted surfaces inside and out.
- Thoroughly clean wand and inspect for clogged jet, debris in vacuum slot and leaking fittings at valve.
- Apply light coat of auto wax to wand. Thoroughly clean vacuum and high pressure hose including hose cuffs.

Drive Shaft Maintenance

Every 500 operating hours, apply lubricant to the drive shaft's zerk fittings at clutch and blower flange U-joints, in hot climates (conditions above 95° F) lubricate the drive shaft every 250 operating hours (see Figure 4-1).

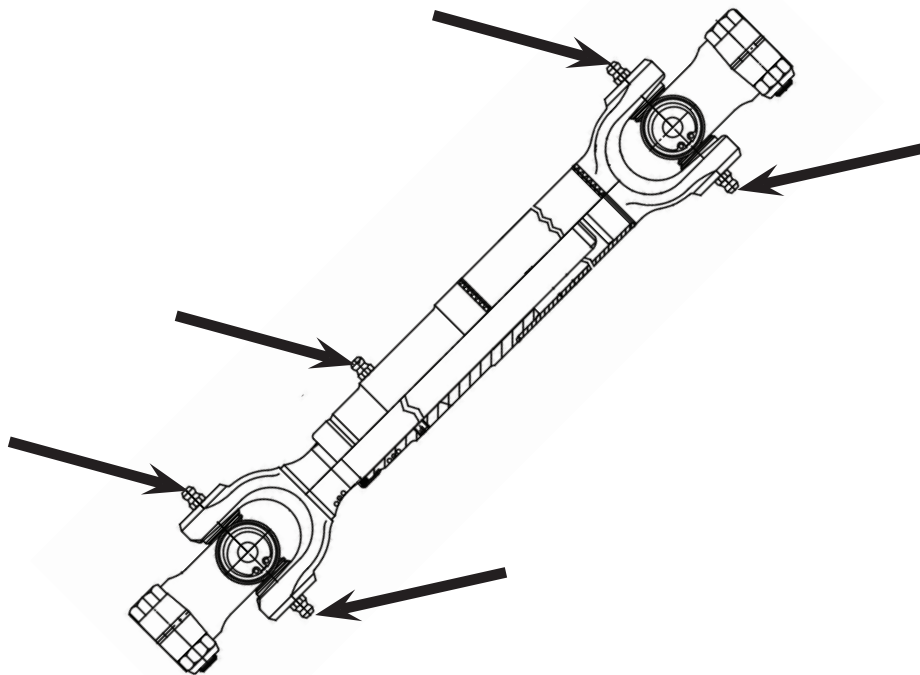


Figure 4-3. Zerk Fittings on Drive Shaft

The drive shaft splines should also be lubricated with a bearing grease with an application temperature range of -4° F to +347° F; the drive shaft manufacturer recommends Mobil Delvac Xtreme Service™ grease as the lubricant.

LONG-TERM MAINTENANCE SCHEDULE

The following components or systems should be serviced or replaced at the specified intervals.

Component	Interval (Machine hours / months of service)
High pressure water pump rebuild	2,000 / 24
Vehicle engine thermostat	2,000 / 24
Vehicle engine accessory drive belt	2,000 / 24
CDS clutch	3,000 / 36
CDS drive shaft	3,000 / 36
CDS blower silencer and exhaust plumbing	4,000 / 48
CDS and vehicle heater hoses	4,000 / 48
CDS wire harness	4,000 / 48
CDS clutch housing drive bearings	4,000 / 48

Heating System

1.0. Vehicle overheats and shuts off CDS

Refer to vehicle dealer for diagnosis and repair.

2.0. Vehicle overheats

	Probable Cause	Solution
2.1.	Faulty thermostat in vehicle.	Refer to dealer
2.2.	Faulty water pump on vehicle	Refer to dealer
2.3.	Faulty radiator (plugged) limited water flow	Refer to dealer
2.4.	Faulty fan clutch, limited air-flow.	Refer to dealer

3.0. Unable to achieve normal cleaning temperature

	Probable Cause	Solution
3.1.	There is hard water or build-up in the heat exchangers.	This will not allow the heat to transfer properly. Flush as necessary.
3.2.	Flow is too great.	Measure flow at tool.
		The jet in the cleaning tool is too large or worn out. Test the tool for water flow and replace or repair jet as necessary.
		Pressure is too high. Adjust pressure to normal. Inspect pressure gauge for accurate reading.
3.3.	The CDS is being operated at too low rpm or too low vacuum setting.	The system must be at full operating rpm and full vacuum load to achieve full operating temperature. These values must be set per manufacture's specifications. Adjust vacuum or rpm as necessary.

4.0. System attains normal heat but drops off sharply

	Probable Cause	Solution
4.1.	Flow at cleaning tool is too high.	Orifice in tool is too large or worn out. Test flow of tool. Repair or replace as necessary.
4.2.	The rpm of machine is set too low.	Adjust as necessary.
4.3.	Pressure is too high.	Adjust pressure to normal. Inspect pressure gauge for accurate reading.

Miscellaneous

1.0. Vehicle radiator overflows into coolant overflow container while machine is in use

	Probable Cause	Solution
1.1.	Internal leak in coolant heat exchanger.	Pressure test each heat exchanger separately to determine which heat exchanger is faulty. This process requires heated water and high pressure to simulate the same conditions that are causing the leak. Refer to qualified service technician if necessary.

CRADLE TANK MAINTENANCE AND TROUBLESHOOTING

This section is divided into the following topics:

- Operational Maintenance
- Appearance Maintenance

Operational Maintenance

This section contains recommendations for maintenance that will affect the service life of your Cradle Tank. 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 Cradle Tank by detaching the Tank's battery cables from the 12 V battery.
2. Removing the screws and washers that secure the belt cover to the Cradle Tank 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" - 1 1/2", it needs to be tightened.
4. After checking and/or adjusting the belt, re-attach the belt cover frame and re-apply power.

Appearance Maintenance

Maintaining the original appearance of your Cradle Tank 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.

Cradle Tank Troubleshooting

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

Possible Cause	Solution
1.1 Check toggle switch	Connections are not secure; reseal connectors.
	Check continuity on toggle switch cables; if defective, replace switch.
1.2 Check relay	Connections are not secure; reseal connectors.
	Check continuity on relay cables; if defective, replace relay.
1.3. Check hose reel motor	30 Amp fuse is bad; replace fuse.
	Drive belt is loose or broken; adjust or replace belt.
1.4. 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. Recovery hose vacuum is weak or there is no vacuum

Possible Cause	Solution
2.1. Recovery hose sections are not securely connected to each other or the tank.	Disconnect and reconnect the recovery hoses and check the barbed adapters in between.

3.0. Solution hose losing pressure or has no pressure

Possible Cause	Solution
3.1 Quick connects may have come loose.	Tighten or replace as necessary.
3.2 Hoses may be leaking.	Repair or replace as necessary.

4.0. Cradle Tank is empty or fills slowly

Possible Cause	Solution
4.1. No water coming from source.	Check water supply.
4.2 There is a restriction in the water supply system.	Inspect hose connections between fresh water tanks. Tighten if necessary.

5.0. Cradle Tank overflows or will not fill all the way

Possible Cause	Solution
5.1. There is a restriction in the air vent, extending from the Cradle Tank.	Inspect and clean, or repair as necessary.

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5 - Vacuum Blower System

This section of the manual covers the CDS' vacuum blower system and includes information on:

- Recovery Tank Inlet Filter
- Vacuum Blower Lubrication
- Vacuum Blower Troubleshooting

The vacuum blower, featuring tri-lobe rotors, is designed for maximum positive displacement and manufactured using special porting technology to significantly reduce noise.



Lubrication for both the gear end and drive end of the blower is provided by full oil splash.

Unlike grease lubrication, oil-splash lubrication provides for longer bearing and seal life through improved heat dissipation.

At the gear end, the timing gear teeth are lubricated by submersion in oil with the gear teeth serving as oil slingers. At the drive end, the bearings are also lubricated by submersion in oil with oil slingers attached on the shafts.

The performance and life of the vacuum blower is greatly dependent on the care and proper maintenance it receives.

Because of the close tolerances between the 3 lobes and housing of the vacuum blower, solid objects entering the inlet will damage the internal lobes, gears, bearings or drive system.

To prevent this from happening, a stainless steel filter screen has been placed at the vacuum blower intake inside the vacuum recovery tank. This stainless steel filter system should be removed for cleaning on a daily basis.

⚠ WARNING

Use caution when the CDS is being run for test purposes and the vacuum inlet is open. Unregulated vacuum may cause injury if body parts come in contact with the open vacuum inlet.

CAUTION

To protect the vacuum blower from overloading and damaging itself, there is a vacuum relief system installed on the vacuum recovery tank. When the recovery tank inlet is completely sealed off, a maximum of 14" Hg will be attained. At the end of each day, spray the HydraMaster-recommended lubricant (P/N 000-087-006) into the blower lubrication port before shutting down the machine. If you fail to lubricate the vacuum blower on a daily basis, rust deposits and moisture can form and decrease the life of the vacuum blower.

CAUTION

The recovery tank is protected from excessive water level overflowing by a recovery tank float kill switch. The switch is not activated by foam, only by liquid.

RECOVERY TANK INLET FILTER

HydraMaster inlet filter screens are designed to trap lint, hair and large objects that would normally collect at the bottom of your recovery tank. Clean the screen at the end of each job to eliminate build-up of debris in the tank.

VACUUM BLOWER LUBRICATION

Use AEON PD-XD Synthetic Lubricant. Read the vacuum blower's Owner's Manual for proper oil changing instructions. (A digital copy of the vacuum blower Owner's Manual can be found on the CD which is shipped with each 2017 Zerorez CDS Owner's Guide.) Because the CDS is very demanding of the vacuum blower, the vacuum blower should be maintained as recommended in the vacuum blower Owner's Manual.

Remember to:

1. Remove fill plugs or breathers from both gear end and drive end plates.
2. SLOWLY pour oil through fill until oil appears in the oil sight glass. Bring oil level to center of sight glass.
3. Verify oil level is at proper level in BOTH gear end and drive end sight glasses.
4. Replace fill plugs or breathers that were removed in step 1.
5. Add fresh oil as required to maintain proper level.

The oil should be drained, flushed and replaced every 400 - 500 hours. The oil drain hose is connected under the head plate; at the end of the oil drain hose is a cap.

VACUUM BLOWER TROUBLESHOOTING

1.0. Weak vacuum at tool/wand. Gauge reads normal (10” Hg to 14” Hg)

POSSIBLE CAUSE	SOLUTION
1.1. Clogged hoses or tool/wand tube.	Disconnect hoses and carefully check for an obstruction.
1.2. Excessive length of hoses connected to machine.	Make sure machine is rated for the conditions under which it is being operated.
1.3. Clogged heat exchanger restricts vacuum.	See qualified service technician.

2.0. Vacuum gauge will not come up to 14” Hg

POSSIBLE CAUSE	SOLUTION
2.1. There is an air leak somewhere in the vacuum system.	Check vacuum relief valve for proper adjustment. Check all hoses for cuts and breaks. Check recovery tank lid gasket. Make sure the recovery tank drain valve is fully closed.
2.2. The vacuum gauge is defective.	Test and replace as necessary.
2.3. Vacuum blower is turning too slowly.	Check blower RPM at tachometer on the CDS’ dash. Blower RPM should be 2 times the tachometer RPM. See the throttle control kit instructions for further troubleshooting assistance.

3.0. Vacuum gauge reads high with no hoses attached

POSSIBLE CAUSE	SOLUTION
3.1. Filter in recovery tank is clogged.	Remove and clean or replace as necessary.
3.2. Hose from recovery tank to blower is collapsed internally	Inspect and replace as necessary.

4.0. Noisy Vacuum Blower

POSSIBLE CAUSE	SOLUTION
4.1. Vacuum Blower is low on oil	Inspect oil level and replenish as necessary
<div style="background-color: yellow; padding: 5px; display: inline-block;">CAUTION</div> <p>Running the blower when it is low on oil will cause severe internal damage to the blower. If this situation occurs, the blower should be inspected by a qualified service technician.</p>	
4.2. There is internal damage to the blower.	Refer to qualified service technician.

5.0. Vacuum blower is locked and will not turn

POSSIBLE CAUSE	SOLUTION
5.1. The machine has been unused for a period of time and the blower was not properly lubricated when it was shut down, causing rust to build up on internal surfaces.	Spray penetrating oil into blower and let sit for at least 1 hour. Then very carefully use pipe wrench on outer diameter of pulley on blower shaft and attempt to free up blower. Do not use wrench directly on blower shaft. If unable to free up blower in this manner, refer to a qualified service technician.
5.2. There is internal damage to blower.	Refer to qualified service technician.

6 - Water Pump Maintenance

The Zerorez CDS' water pump features a dynamic low-pressure seal retainer, an innovative intermediate ring, and superior low-pressure and high-pressure seals. With its ceramic plungers and nickel-plated forged brass manifold, this high-temperature pump is ideal for use in carpet cleaning.

You must perform daily and periodic maintenance on the pump to maintain maximum performance of seals and valves.

This section of the manual explains:

- Daily Maintenance
- Periodic Maintenance
- Servicing Valves
- Water Pump Troubleshooting



DAILY MAINTENANCE

1. Check the oil level and the condition of the oil. The oil level should be up to the center of the sight glass on the back of the pump.
2. Use a SAE15W40 oil.

CAUTION

If the oil becomes discolored and contaminated, one of the oil seals may be damaged. Refer to the Pump Owner's Manual for more information.

Do not operate the pump if the crankcase has been contaminated with water.

CAUTION

Do not leave contaminated oil in the pump housing or leave the housing empty. Remove contaminated oil as soon as it is discovered and replace it with clean oil.

CAUTION

Do not turn the drive shaft while the oil reservoir is empty.

CAUTION

Protect the pump from freezing.

PERIODIC MAINTENANCE

Change the oil after the first 50 hours of operation, with the pump stopped and the oil still warm, and after every 300 operating hours or 3 months of operation. When changing the oil, remove the drain plug on the oil drain hose so all oil and accumulated sediment will drain out.

The initial oil change is recommended for no other reason than to eliminate impurities that may be in the oil during the running-in phase. If these impurities are not removed, but are allowed to remain in the oil, they may cause premature wear to the moving parts and the oil seals.

NOTICE

If the pump works in conditions with high humidity and with sharp temperature changes, condensation may appear inside the crankcase. Condensation mixing with the oil can change the oil's properties, which is easy to detect because the oil changes to a white, milky color.

If the pump does not have excessive water leaking from the packings, and the oil becomes milky, the oil has to be changed more frequently.

Removing a Valve

1. Remove the valve cap (30 mm) and extract the valve assembly (see Figure 6-1).
2. Remove the valve assembly (retainer, spring, valve plate, valve seat) from the valve cavity.
3. Remove the O-ring and support from the valve cavity.

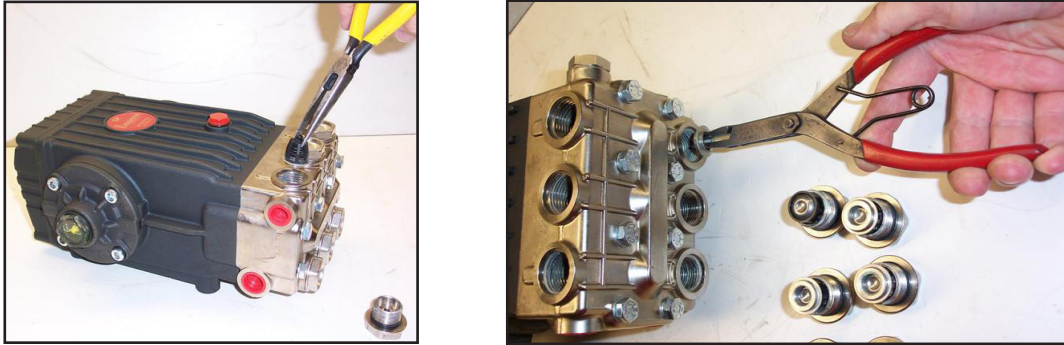


Figure 6-1. Remove Valve Cap and Valve Assembly

4. Examine the O-ring and replace if there is any evidence of cuts, abrasion, or distortion.
5. Inspect the manifold for wear or damage (see Figure 6-2).
6. Inspect the old valves for wear or damage. Only one valve kit is necessary to repair all the valves in the pump. (The kit includes new supports, O-rings, valve seat, valve poppet, spring and retainer; all are pre-assembled.)

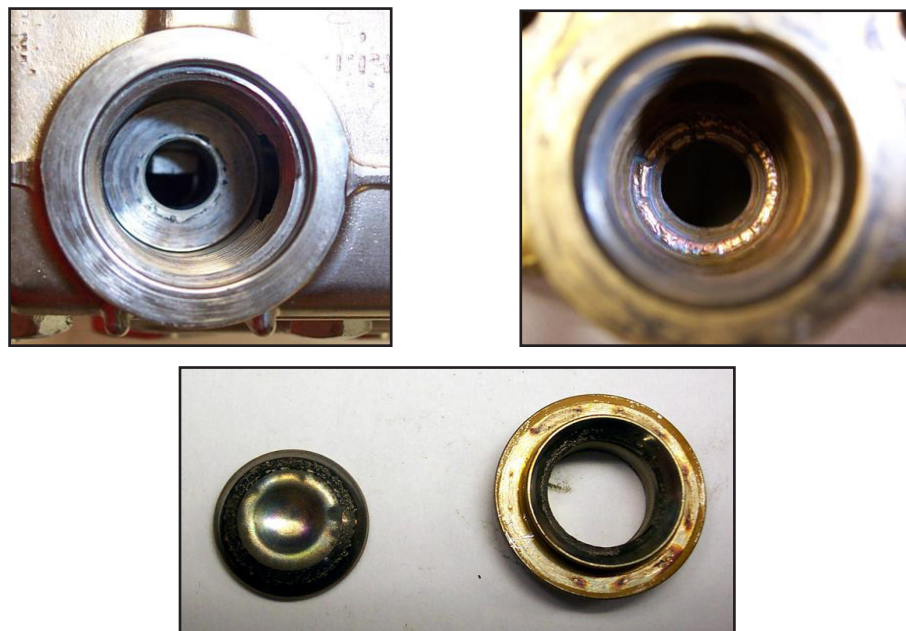


Figure 6-2. Inspect Manifold and Old Valves

7. Replace the center inlet check valve with a modified check valve (see Figure 6-3).

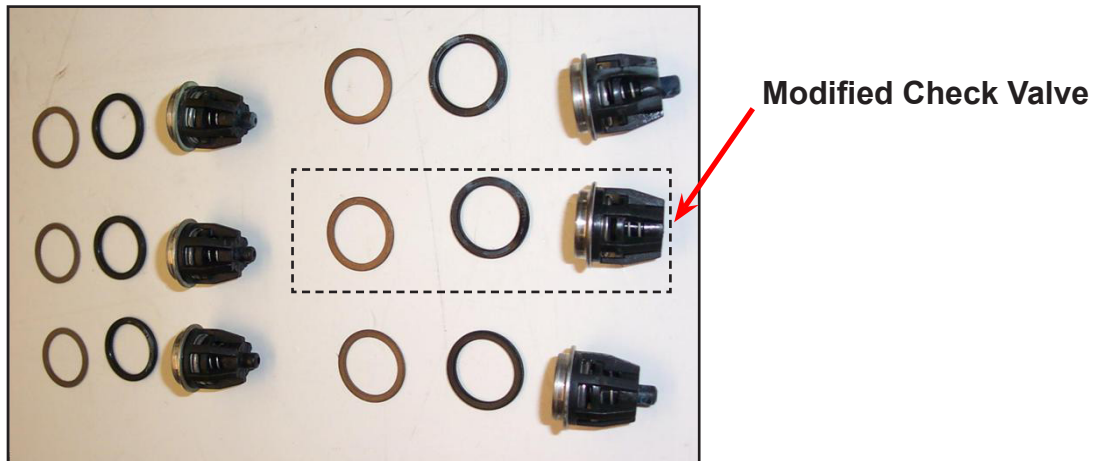


Figure 6-3. Replace Center Inlet Check Valve with Modified Check Valve

8. Apply O-ring grease to O-rings and install valves (Figure 6-4).

NOTICE

HydraMaster recommends O-ring grease, P/N 000-087-028

9. Replace valve cap and torque to 95 ft-lbs. (see Figure 6-5).

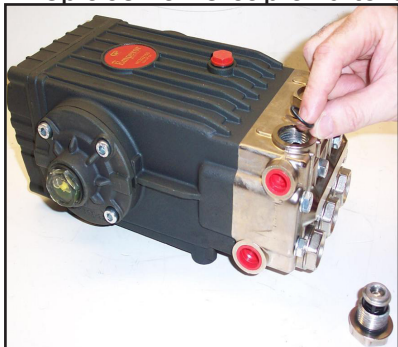


Figure 6-4. Apply Grease and Install Valves

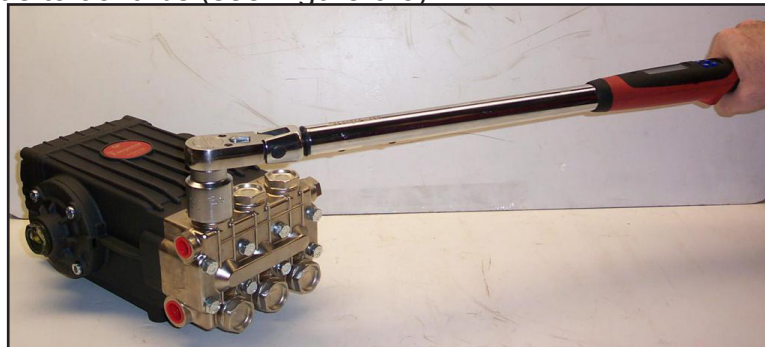


Figure 6-5. Replace Valve Cap

10. Remove the fasteners retaining the manifold.
11. Separate manifold from crankcase (see Figure 6-6).

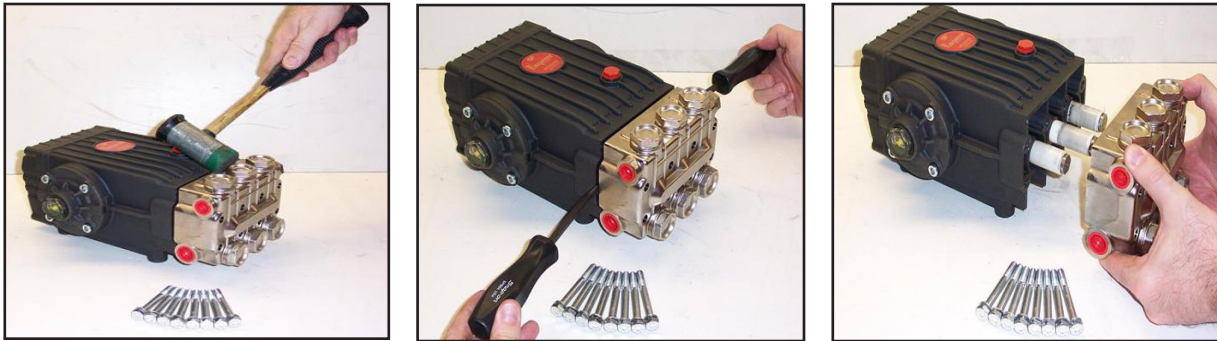


Figure 6-6. Separate Manifold from Crankcase

NOTICE

It may be necessary to rotate crankshaft or tap manifold with rawhide or plastic mallet to loosen.

CAUTION

When sliding manifold from crankcase, use caution not to damage ceramic plungers.

12. The seal assemblies may come off with the manifold (see Figure 6-7).

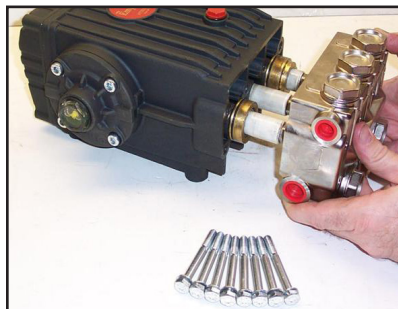


Figure 6-7. Seal Assemblies May Come Off with Manifold



Figure 6-8. Examine Ceramic Plungers

13. Examine the ceramic plungers. The surface should be smooth and free from scoring, pitting or cracks (see Figure 6-8); if not, replace.

14. Loosen the stainless steel plunger bolt.
15. Remove the stainless steel plunger bolt and ceramic plunger from the plunger guide (see Figure 6-9).
16. If the slinger washer is removed, be certain it is re-installed or replaced.
17. Separate plunger bolt from ceramic plunger (see Figure 6-9).

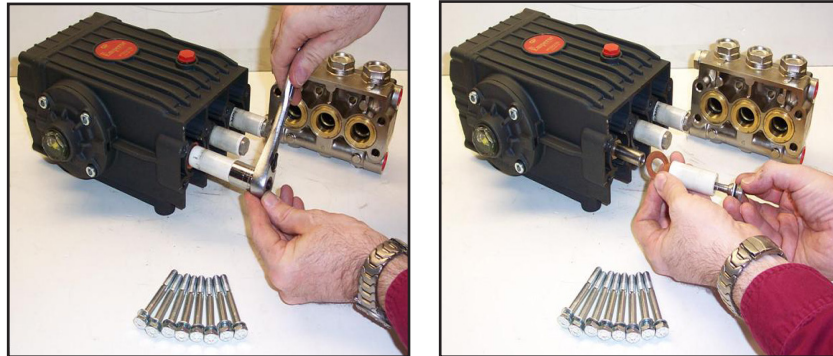


Figure 6-9. Remove Stainless Steel Plunger Bolt and Ceramic Plunger

18. Install new Teflon® back-up ring and O-ring on the plunger bolt. Apply a film of O-ring grease on the outside of the O-ring (see Figure 6-10).
19. Apply removable anaerobic thread sealant (Loctite® 542) to the threads of the plunger bolt, carefully pressing the plunger bolt into ceramic plunger (see Figure 6-10).
20. Slide new ceramic plunger over the plunger guide (see Figure 6-10).

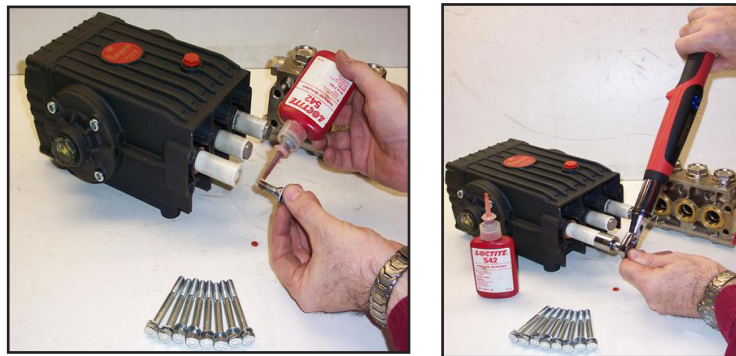


Figure 6-10. Install O-ring, Apply Sealant and Slide Plunger over Plunger Guide

21. Torque plunger to 14.5 ft.-lbs.

Extracting Seals

With manifold removed from crankcase:

1. Insert proper extractor collet through main seal retainer (see Figure 6-11).
2. Tighten collet and extract retainers and seals.

NOTICE

The Teflon seals of the HT series will be damaged during disassembly so new ones will have to be installed.

Replacing the Seal Assemblies

Only one seal kit is necessary to repair all the seals in the pump (see Figure 6-12). Use

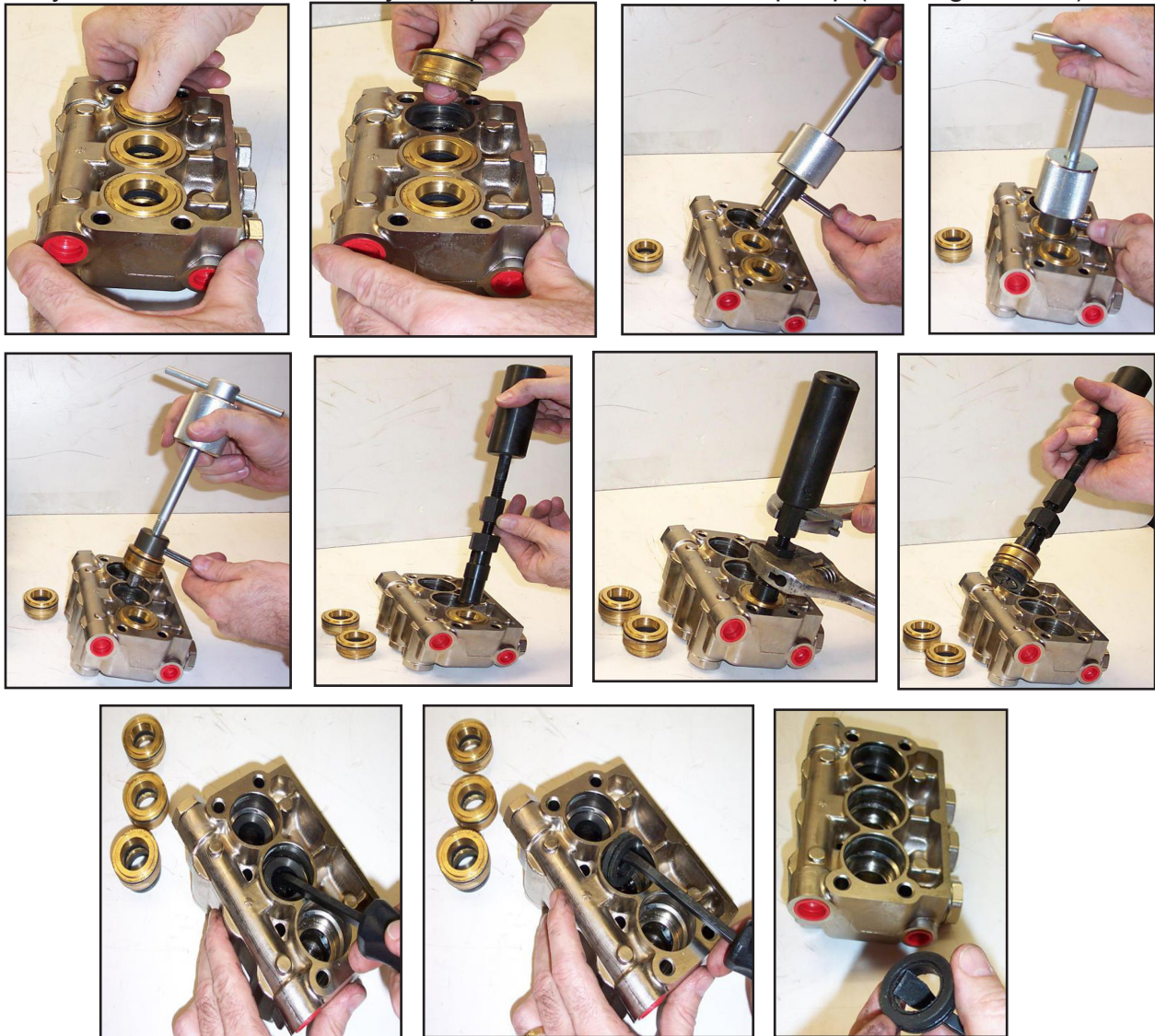


Figure 6-11. Extract Retainers and Seals

an insertion tool for seal installation.

To install a seal assembly:

1. Apply a film of O-ring grease on the O-ring on the outside of the new high pressure seal.

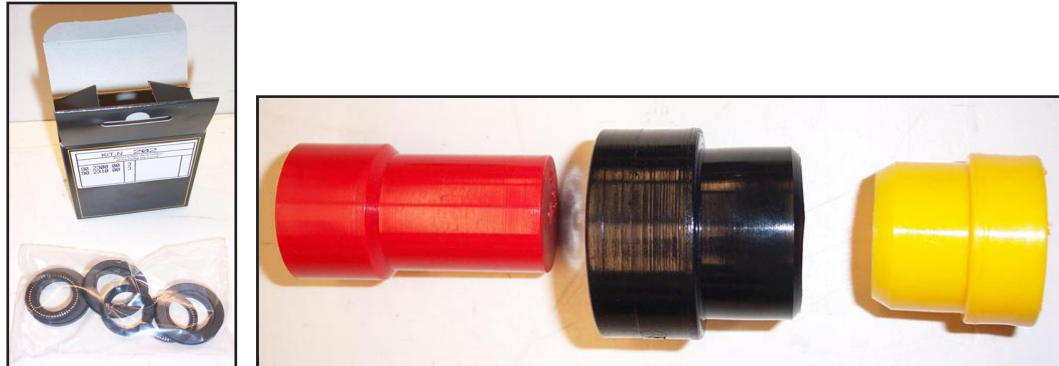


Figure 6-12. Seal Kit and Insertion Tool for Seal Installation

2. Insert the high pressure seal into the cavity with the “U” shape down.
3. Press high pressure seal into place.
4. Apply a film of grease on the O-ring on the brass retainer (see Figure 6-13).

To install the intermediate retainers and the low pressure seals:

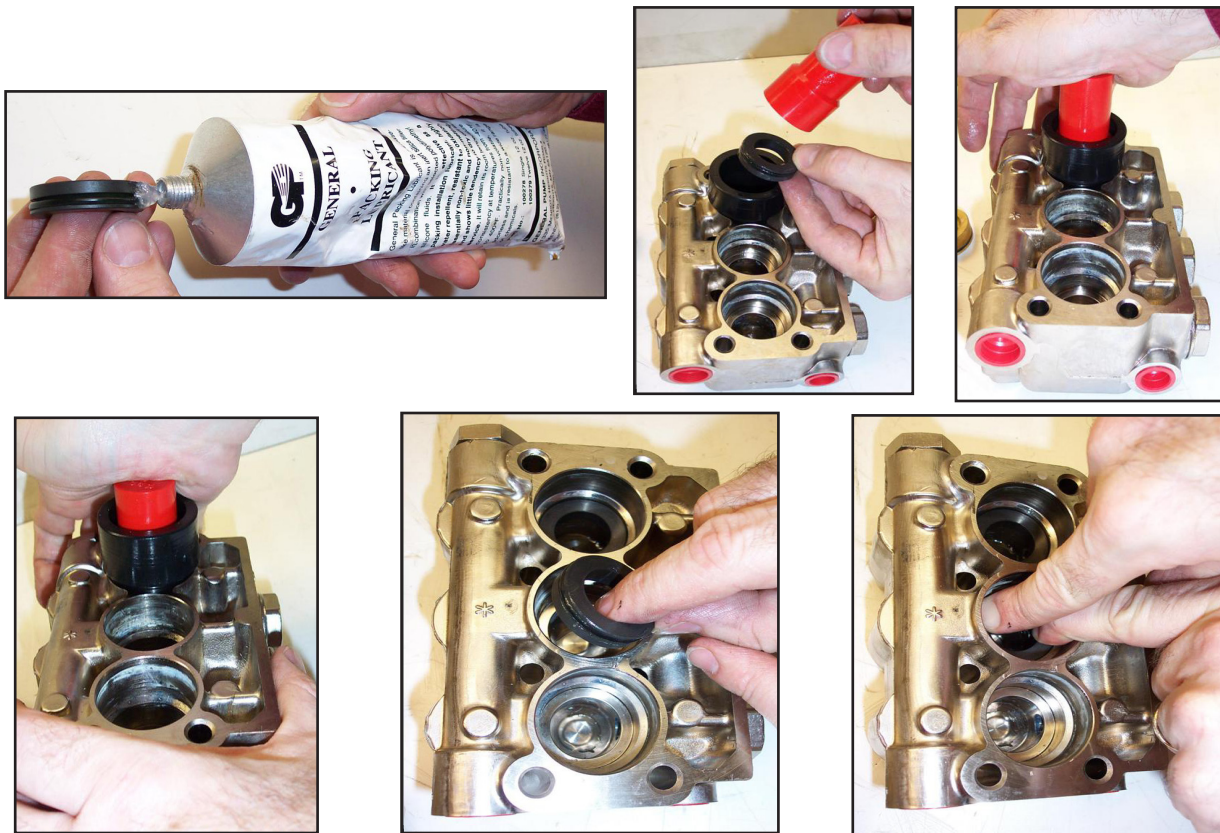


Figure 6-13. Install Seal Assembly Using O-Ring Grease

1. Insert the brass intermediate retainer into the cavity.
2. Press the new low pressure seal into the brass low pressure seal retainer and install a new O-ring on the outside (see Figure 6-14).
3. Press the low pressure seal assembly into the cavity (see Figure 6-15).

Re-Installing Manifold

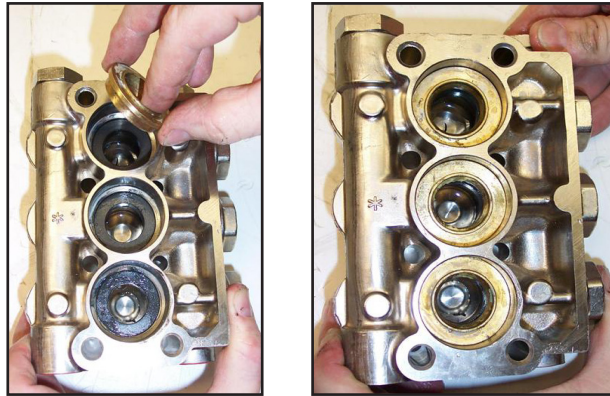


Figure 6-14. Install Retainers into Cavities

1. Position the outer plungers at the same position (see Figure 6-16).

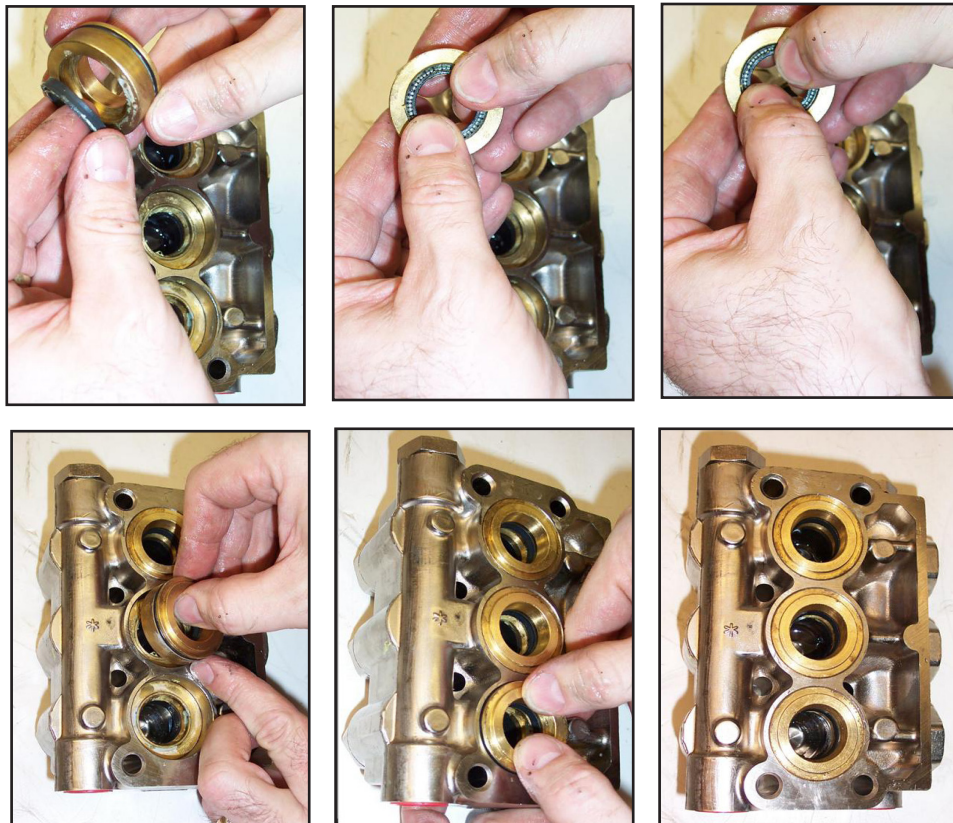


Figure 6-15. Press Low Pressure Seal Assembly into Cavity

2. Re-install manifold and torque the fasteners in an “X” pattern to 50% of specification and then re-torque to 100% specification (see Figure 6-17 and Figure 6-18).

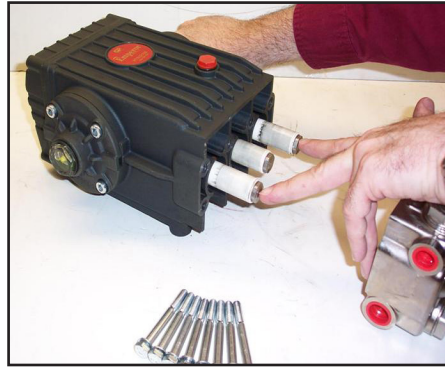


Figure 6-16. Re-install Manifold and Torque Fasteners

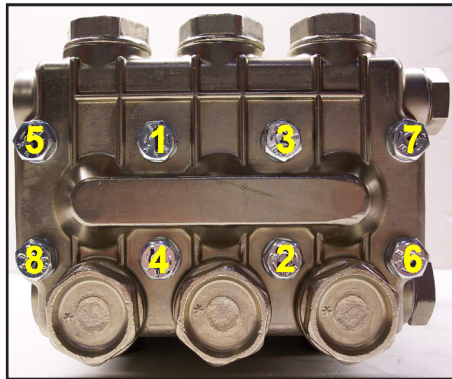
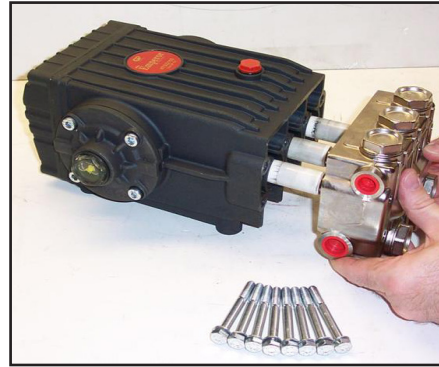


Figure 6-17. Torque Sequence in “X” Pattern

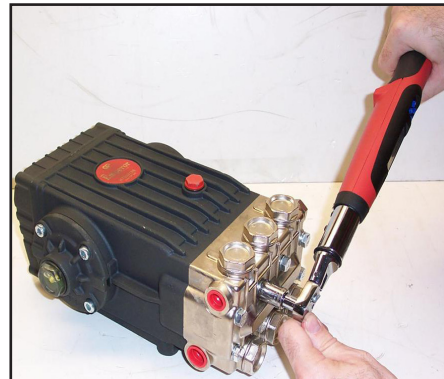


Figure 6-18. Torque Bolts to 22 ft.-lbs

WATER PUMP TROUBLESHOOTING

1.0. Will not come up to normal cleaning pressure

Probable Cause	Solution
1.1. Pressure adjusting valve is defective or dirty.	Disassemble valve. Repair or replace as necessary.
1.2. Worn seals or valves in pump.	Test pump output volume directly from pump at normal operating rpm. If volume is below manufacturer's specifications, replace seals and inspect for defective valves.
1.3. Pump rpm is too low.	Check engine rpm and adjust as necessary. Check for loose pump belt. Adjust tension as necessary.
1.4. Primary system control orifice is missing or loose.	Remove filter and inspect. Tighten or replace as necessary.
1.5. Primary orifice is worn.	Measure orifice size and replace as necessary.

2.0. No pressure reading on PSI gauge

Probable Cause	Solution
2.1. Pump switch is not turned on.	Turn on switch
2.2. Pump belt is broken.	Replace belt.
2.3. Pump clutch is not activated. No water in tanks.	Check system back to source to locate cause of interruption to water flow.
2.4. Pump clutch is not activated.	Check for 12 volts at clutch. If 12 volts is present, replace clutch.
	If 12 volts is not present, check power to the low-water relay. If there is 12 volts at the relay, check low water switch in HydraCradle.
	If low water switch has no continuity when float is up, replace the switch. If switch is good, replace the low water relay.

3.0. PSI gauge reads normal; low pressure from tool/wand

Probable Cause	Solution
3.1. There is a restriction in the cleaning tool/wand.	Inspect tool jet and clean or replace as necessary. Inspect any filters in the cleaning tool and clean or replace as necessary.
3.2. There is a defective quick connect in the system.	Inspect each quick connect and replace as necessary.
3.3. There is a restriction in solution hose.	Remove quick connects and inspect hoses. Clean or replace as necessary.

4.0. Pressure pulsation

Probable Cause	Solution
4.1. Water is too hot and is approaching boiling point.	Check temperature of water.
4.3. One of the intake or outlet valves in the high-pressure pump is defective or is being held open by debris.	Remove each valve and inspect for correct operation.

7 - Electrical System

This section of the manual contains wiring diagrams (Figure 7-1, Figure 7-2) and electrical schematic (Figure 7-3) and troubleshooting guides for the service technician because the most challenging problem to trace in any system is often an electrical failure.

The electrical system operates on 12VDC which is provided by the vehicle's battery. No additional power sources are required.

The HydraCradle's 30 Amp fuse for the foot switch/gear motor, is easily accessible from the front panel of the HydraCradle.

CAUTION

To avoid equipment damage, it is very important to tie up any loose wires or hoses near the drive shaft area. Tie wraps are sufficient for wires and small hoses.

When securing large hoses or wiring harnesses in the area of the drive shaft, tie down the components with a hose clamp, with a clear vinyl hose inserted onto the clamp. On some installations, if the fuel injector wires are not properly secured, the wires could rub against the CDS drive shaft, causing a short in the electrical system of the van.

TROUBLESHOOTING

1.0. CDS will not turn on

	Probable Cause	Solution
1.1.	The main power fuse has blown.	Remove CDS cowling and engine cover and check all wiring from the power source back to the CDS console for damage. Replace fuse only after locating the problem that caused the fuse to blow. If unable to locate problem, refer to qualified service technician.
1.2.	The plug-in connection at the base of the recovery tank is corroded.	Clean and seal connection to protect it from moisture.
1.3.	The main circuit breaker has blown on the CDS dash.	Reset breaker and look for loose connections or damaged wires. Check all wires from the control panel forward to the front of the vehicle. If no problem is found but the breaker still trips refer to qualified service technician.

2.0. CDS shuts off while in use

	Probable Cause	Solution
2.1	Recovery tank is full.	Empty tank and restart machine.
2.2.	Recovery tank float switch is dirty or defective.	Inspect float to see if the triangle mark on the float is facing up. If it is, and the float slides freely on the post, replace the float assembly.
2.3.	The vehicle gear selector has moved.	Inspect the gear selector to be sure it is in the proper position. If selector has moved, refer to qualified service technician.
<div style="background-color: #ff8c00; color: white; padding: 5px; display: inline-block;">⚠ WARNING</div> <p>If vehicle gear selector has moved, refer to qualified service technician. This is a dangerous condition and needs to be repaired immediately.</p>		

Figure 7-1. CDS ZR 2017 Wiring Diagram - View 1 of 2
000-179-062 Rev. D

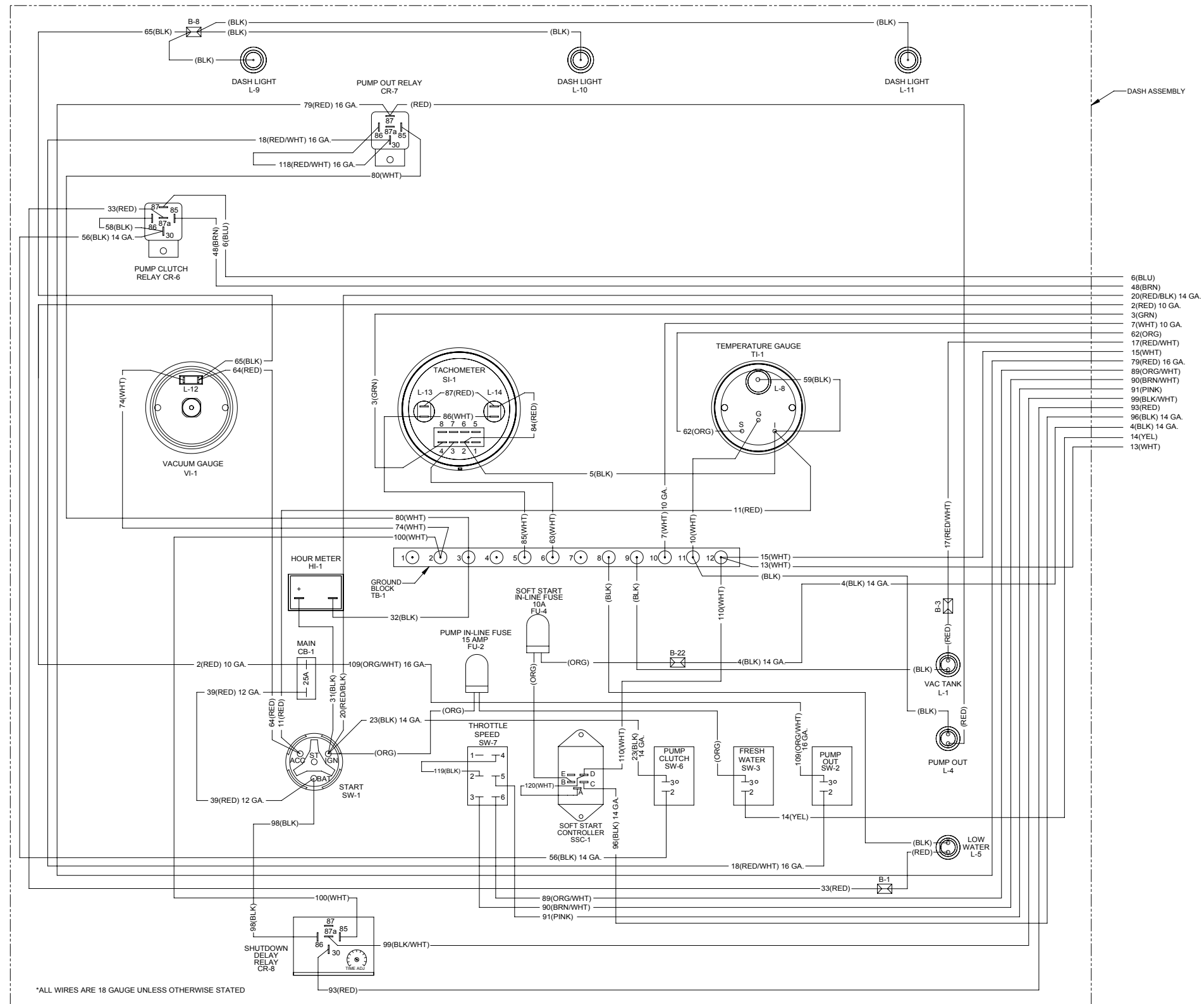


Figure 7-2. CDS ZR 2017 Wiring Diagram - View 2 of 2
000-179-062 Rev. D

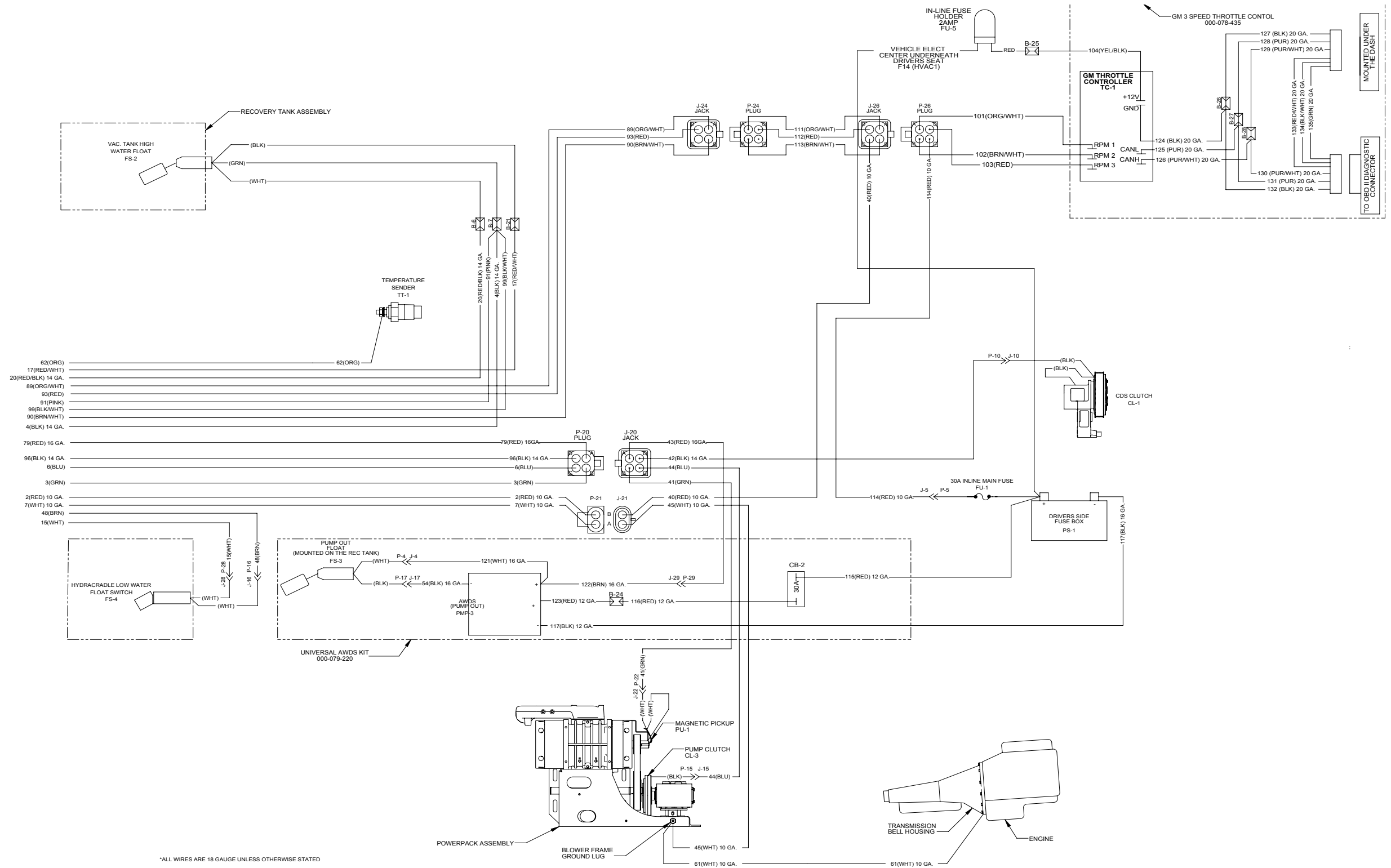
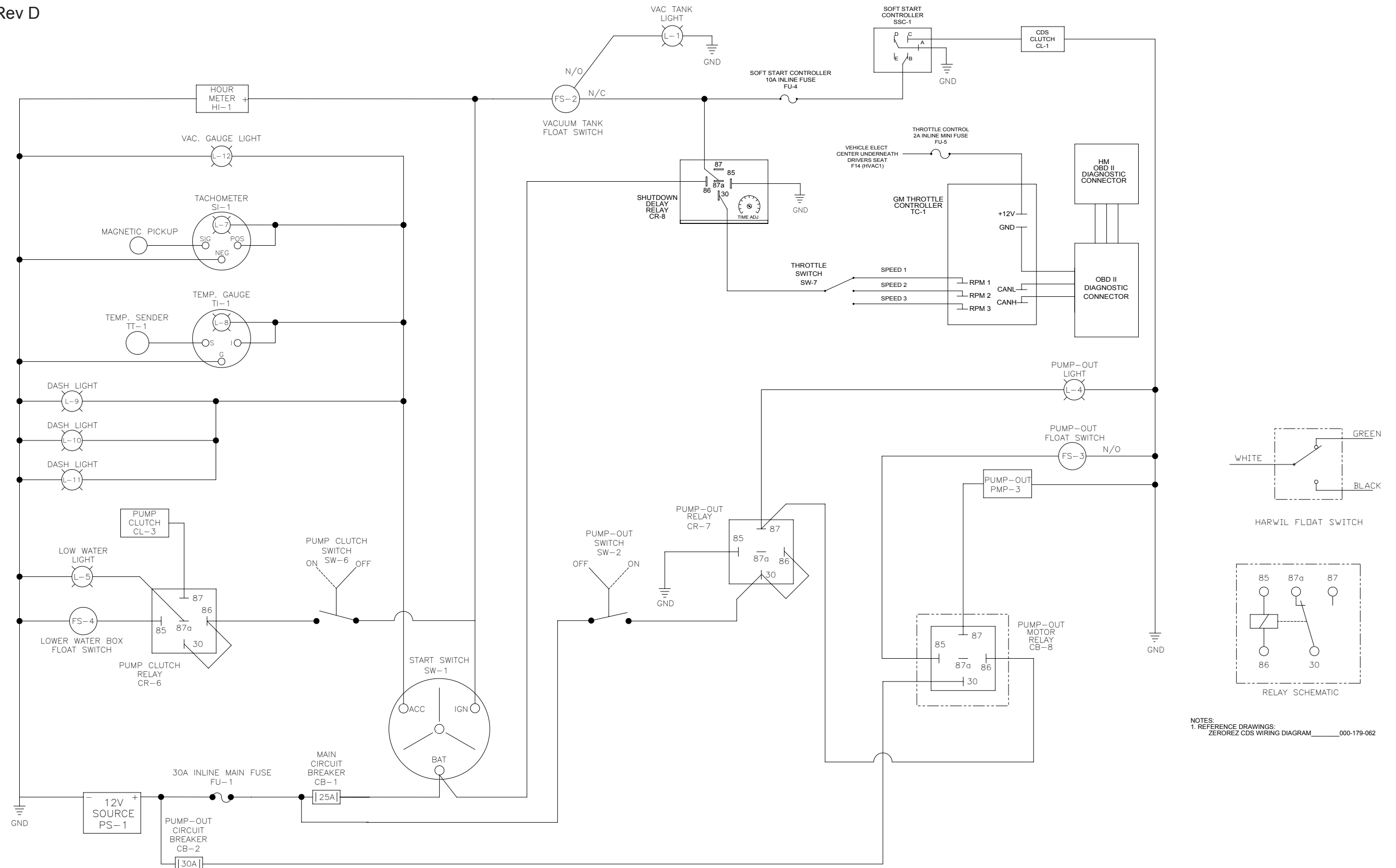
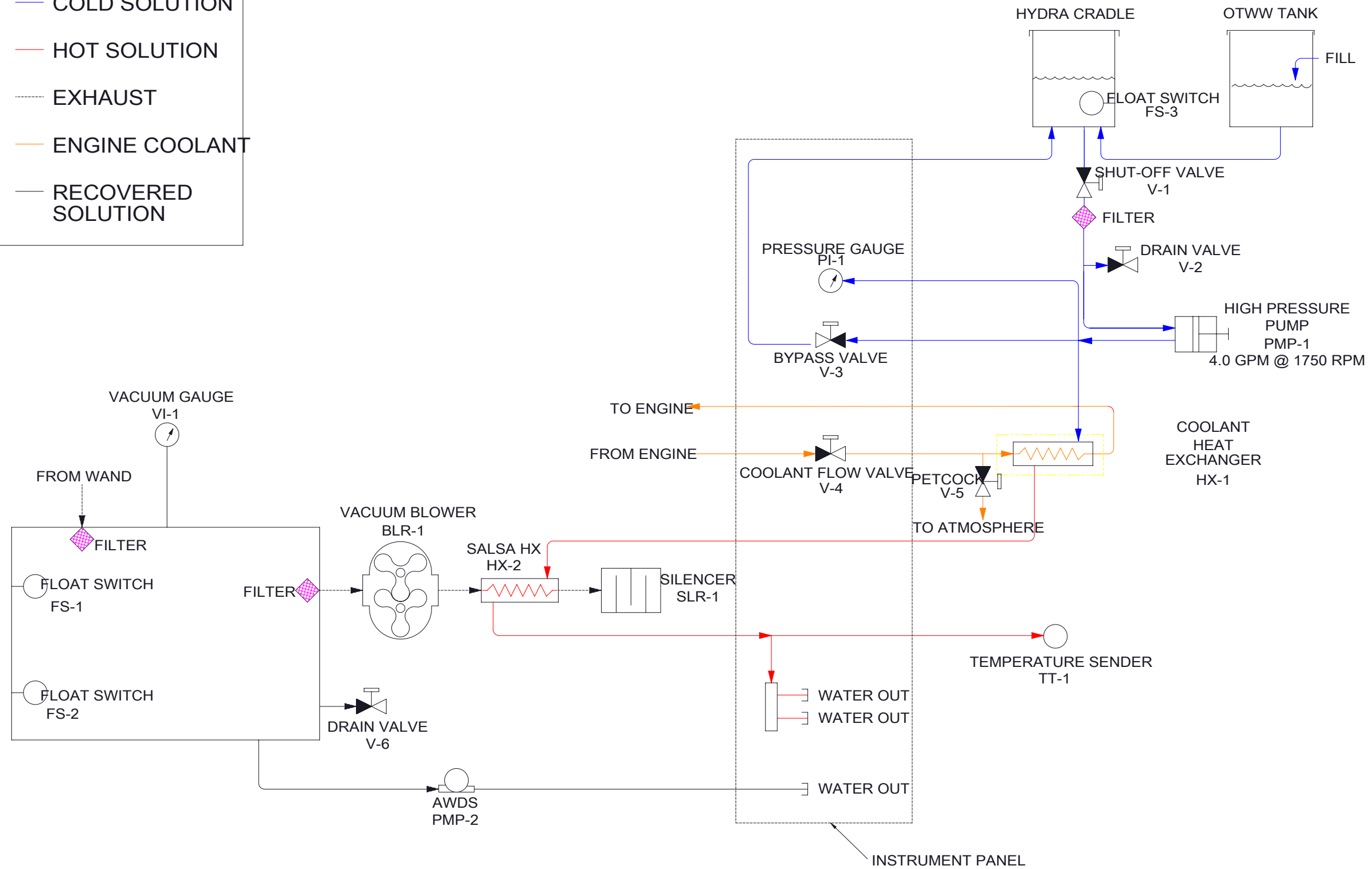
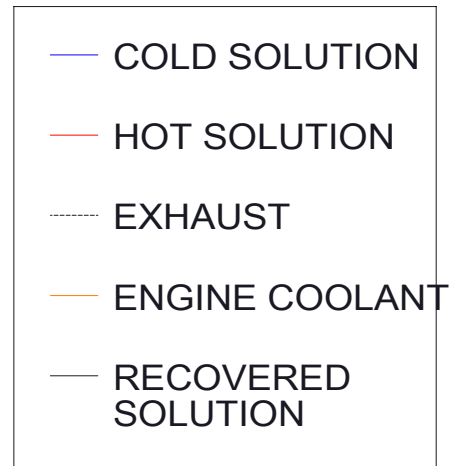


Figure 7-3. CDS ZR 2017 Electrical Schematic
000-179-063 Rev D



NOTES:
1. REFERENCE DRAWINGS:
ZEROREZ CDS WIRING DIAGRAM 000-179-062

8 - Flow System



9 - Assemblies and Parts Lists

This section of the manual provides detailed illustrations and parts lists for the following assemblies.

NOTICE

When ordering parts for assemblies, first refer to the appropriate assembly listed here and then find the part number listed on that specific page. In most cases, you do not have to order the entire assembly to get a part.

If you have an electronic copy (a .pdf) of this manual, you can search for the part number by pressing the **CTRL** key and the **F** key at the same time. This will “pop up” the Find window on your monitor. Type the part number, including dashes, into the Find window and press the **Enter** key.

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■ Salsa Heat Exchanger Assembly Parts List.....	9-28	■ Hose Routings List	9-53
■ 2017 ZR CDS Front End Assembly	9-29		
■ 2017 ZR CDS Clutch Assembly Kit.....	9-31		
■ Pass Through Assembly Parts List	9-32		

Some of the illustrations in this section reference sealants, thread lockers, adhesive, primer, anti-seize and lubricant specifications that are used in the construction of HydraMaster equipment.

Refer to Figure 9-1 to identify those substances such as A1, A2 and so forth. Equivalent products are acceptable if they meet or exceed current specifications and are approved by HydraMaster.

Adhesive Material Production Line Reference Card from ENG-45975 Rev. 0					
<p>A1 Silicone RTV</p>	<p>A2 Loctite 567</p>	<p>A3 Loctite 545</p>	<p>A4 Teflon Tape</p>	<p>E1 Loctite 51252 Grease</p>	
<p>B1 Loctite 242</p>	<p>B2 Loctite 262</p>	<p>B3 Loctite 266</p>	<p>C1 Gapper</p>	<p>D1 Loctite 7649</p>	<p>E2 Molykote Anti-Seize</p>
<p>B4 Loctite 222MS</p>	<p>B5 Loctite 425</p>	<p>E4 Super Lube</p>	<p>E5 SKF Anti-Fret</p>		

Figure 9-1. Adhesive and Sealant Material Reference

Figure 9-2. Top Level Machine with AWDS - View 1 of 2
751-016-743-10 Rev. A

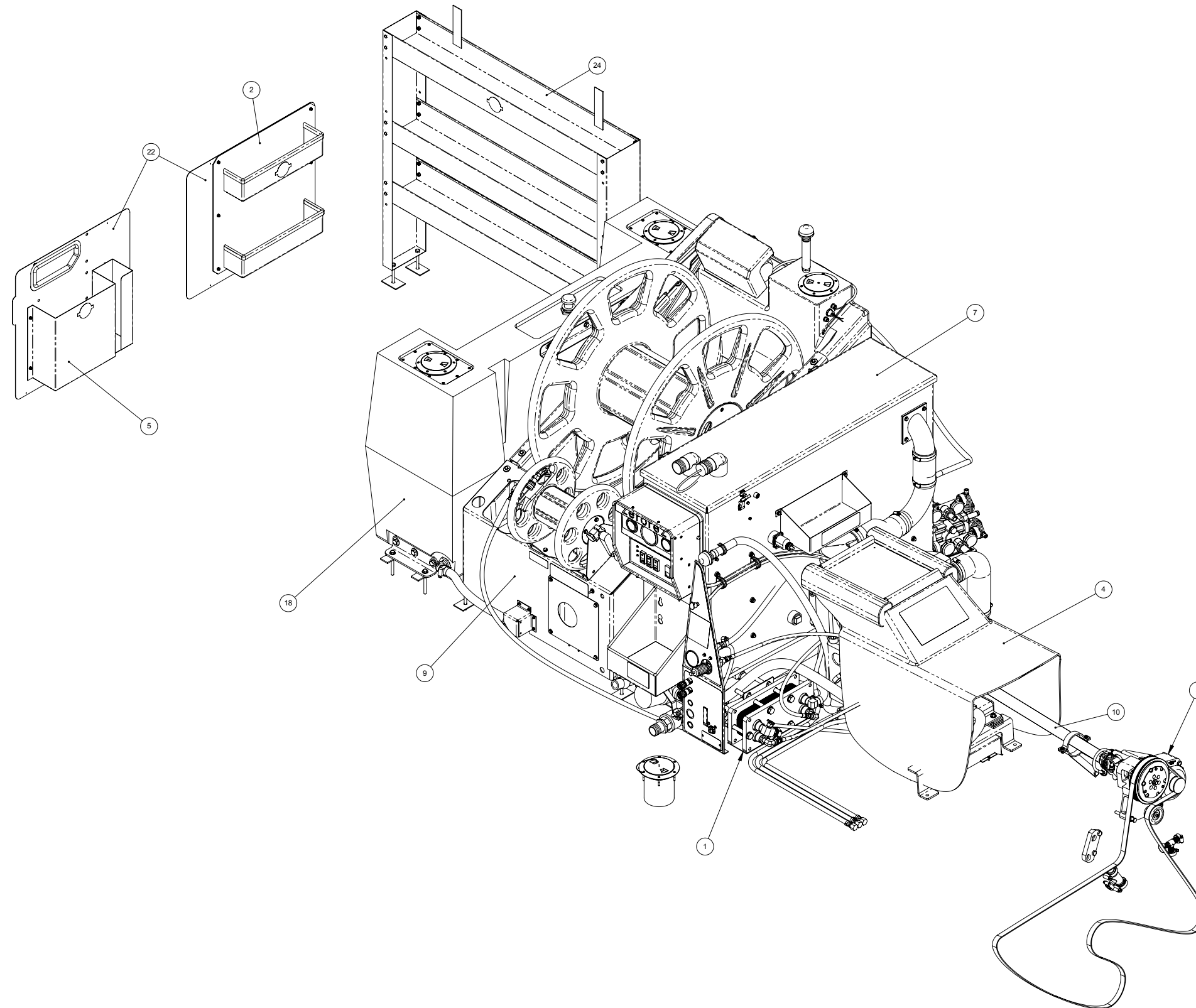
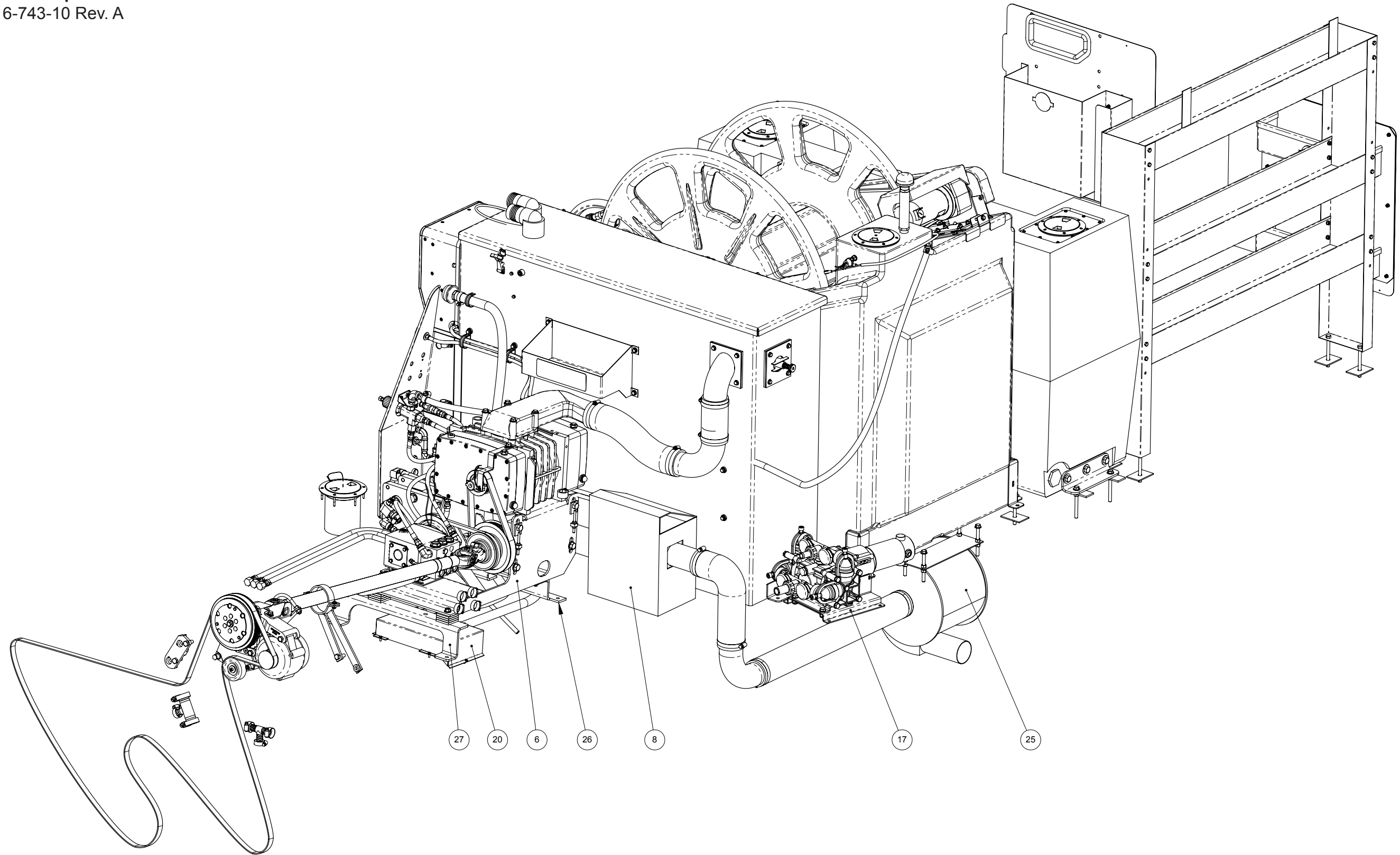


Figure 9-3. Top Level Machine with AWDS - View 2 of 2
751-016-743-10 Rev. A

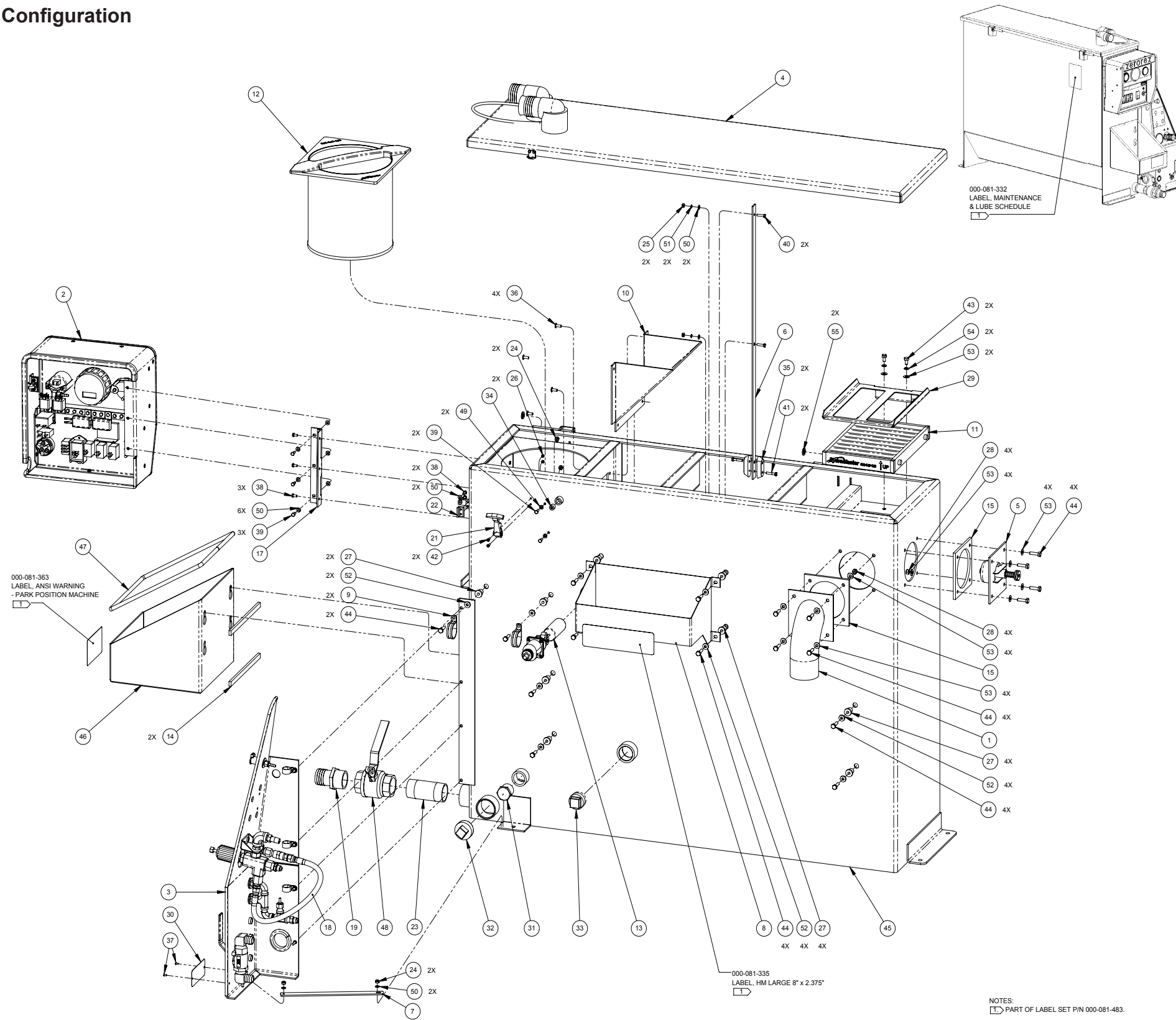


Top Level Machine with AWDS Assembly Parts List

Item	Part Number	Description	Qty
1	601-006-752	ASSEMBLY, ALFA LAVEL - HEAT EXCHANGER ZR	1
2	000-163-050	ASSEMBLY, BACK DOOR SHELF	1
3	601-021-743	ASSEMBLY, CDS FRONT END - CDS ZR 2017	1
4	601-020-008	ASSEMBLY, COWLING - CHEVY CDS GRAY	1
5	000-163-015	ASSEMBLY, FURNITURE PAD HOLDER	1
6	601-004-743	ASSEMBLY, POWERPACK - CDS ZR 2017	1
7	601-060-743	ASSEMBLY, RECOVERY TANK - ZR 2017 E10	1
8	601-005-743	ASSEMBLY, SALSA HX CDS ZR 2017	1
9	000-163-610	ASSEMBLY, TANK CRADLE - W/ SOLUTION REEL	1
10	000-150-174	DRIVE LINE AXLE	1
11	601-015-743	FINISH PACKAGE CDS ZR 2017	1
12	000-063-084	HARNESS, SECONDARY W/ BREAKOUT	1
13	000-068-598	HOSE, 1-1/2" DUMP - BLUE	1
14	000-068-826	HOSE, 1/4" X 250' SOLUTION ASSEMBLY - S/S	1
15	000-068-065	HOSE, 2" X 50' VACUUM - BLUE	5

Item	Part Number	Description	Qty
16	000-068-385	HOSE, 3/4" GREENSTRIPE X 18' LG.	1
17	000-079-220	KIT, AWDS UNIVERSAL	1
18	000-079-200	KIT, OTWW TANK	1
19	000-078-563	KIT, PARTS ZEROZEZ	1
20	000-079-141	KIT, YAW SENSOR COOLING - ZR-2017	1
21	000-081-057	LABEL, HM EQUIPED	1
22	000-100-021	PANEL SET, REAR DOOR ASSEMBLY - CHEVY	1
23	000-163-053	PRESSURE WASHING TOOL NEW	1
24	000-163-038	SHELF, THREE TIER, ASSEMBLY - 47"	1
25	000-093-030	SILENCER, 3" INLET AND OUTLET - COATED	1
26	000-154-147	SPACER, POWER PACK - REAR - COATED	1
27	000-154-185	SPACER, POWERPACK - 2010 CHEVY FRONT	1

Figure 9-4. Recovery Tank - Basic Configuration
601-060-743 Rev. B



NOTES:
PART OF LABEL SET P/N 000-081-483.

Recovery Tank - Basic Configuration Assembly Parts List

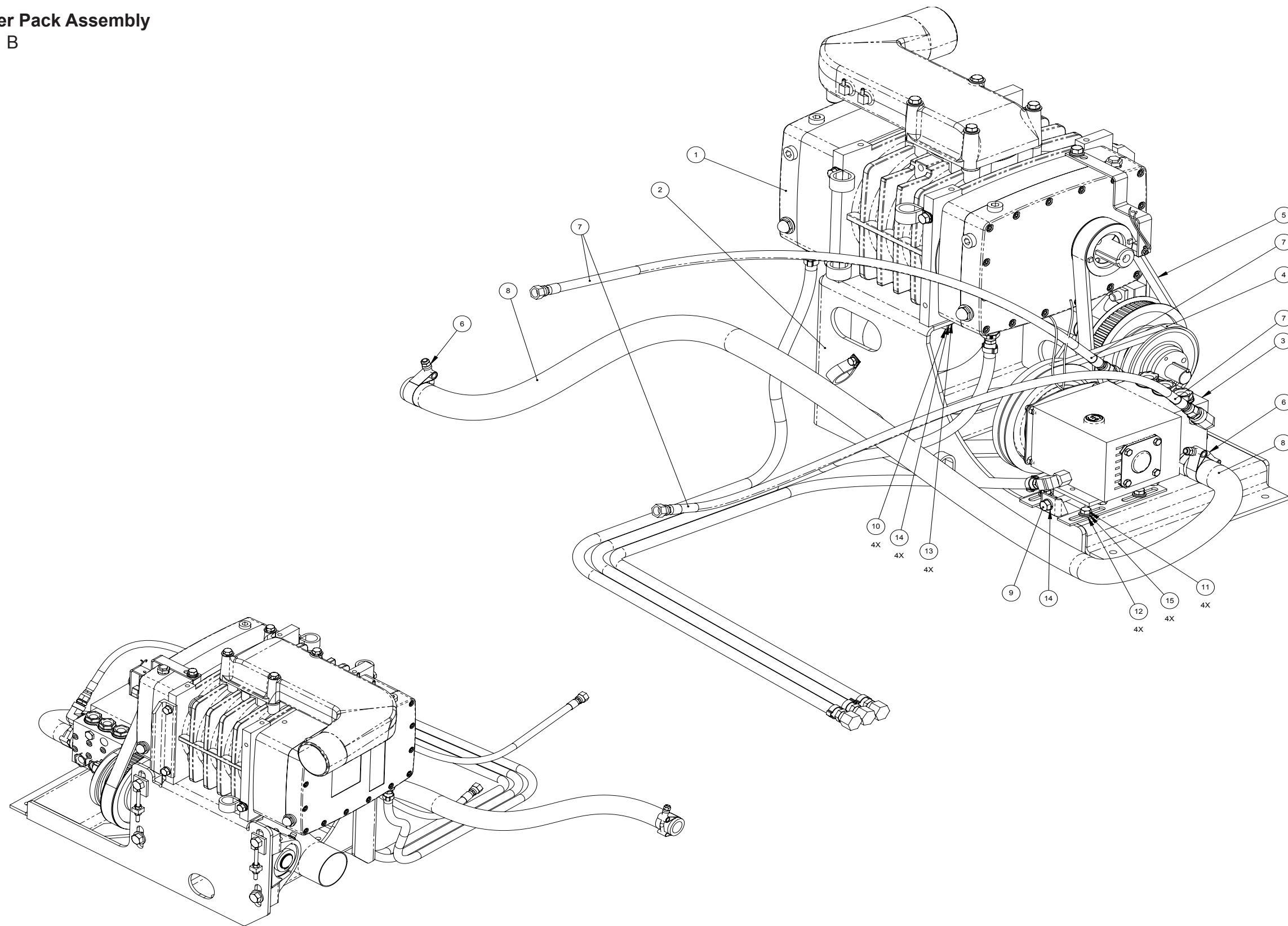
Item	Part Number	Description	Qty
1	000-001-135	ADAPTER, Ø3.0 TANK TO x 90° BLOWER HOSE	1
2	601-018-743	ASSEMBLY, DASH BOX - CDS ZR 2017	1
3	601-019-743	ASSEMBLY, INSTRUMENT PANEL - CDS ZR 2017	1
4	601-029-701	ASSEMBLY, RECOVERY TANK COVER	1
5	610-026-724	ASSEMBLY, VACUUM RELIEF VALVE - URT	1
6	000-015-423	BRACKET, ANODE - FABRICATED	1
7	000-015-1208	BRACKET, INSTRUMENT PANEL TO VACUUM TANK	1
8	000-015-422	BRACKET, TRAY - COATED	1
9	000-033-053	CLAMP, 1-1/2" CUSHION LOOP	2
10	000-049-154	FILTER, AIR DEFLECTOR, URT - FABRICATED	1
11	000-049-153	FILTER, FLAT - UNIVERSAL RECOVERY TANK	1
12	000-049-152	FILTER, RECOVERY TANK BASKET	1
13	000-157-091	FLOAT, LEVER SWITCH	1
14	000-057-026	GASKET, 1/2" x 1/4" x 18-1/8" LG.	2
15	000-057-206	GASKET, ADAPTER - URT	2
16	000-063-081	HARNESS ASSEMBLY, CDS w/ SOFT START	1
17	000-067-031	HINGE, DASH BOX	1
18	000-068-737	HOSE, 5/16" X 14.5 W/J IC ENDS	1
19	000-052-226	INSERT, 1-1/2" NPT x 1-1/2" BARB (GREY)	1
20	000-081-483	LABEL SET, CDS ZR 2017	1
21	000-086-008	LATCH, BUNGEE	1
22	000-086-032	LATCH, DASH STRIKE	1
23	000-052-921	NIPPLE, 1-1/2" NPT X 4" LG. S/S	1
24	000-094-034	NUT, #10-24UNC HEX NYLOCK	4
25	000-094-004	NUT, #10-24UNC HEX	2
26	000-094-063	NUT, #6-32UNC HEX NYLOCK	2
27	000-094-113	NUT, 1/4"-20UNC NEOPRENE WELLNUT	10
28	000-094-009	NUT, 1/4"-20UNC NYLOCK	8
29	000-105-785	PLATE, BLOWER FLAT FILTER - ZR	1

Item	Part Number	Description	Qty
30	000-105-012	PLATE, MACHINE SERIAL I.D.	1
31	000-106-049	PLUG, 1" NPT BLACK NYLON	1
32	000-106-019	PLUG, 1-1/2" NPT	1
33	000-106-046	PLUG, 1-1/4" NPT	1
34	000-106-007	PLUG, 1/4" NPT ALLEN HEAD	1
35	000-108-022	PROTECTOR, MAGNESIUM ANODE - MODIFIED	2
36	000-140-023	RIVET, AB8-6A ALUMINUM POP	4
37	000-140-015	RIVET, 1/8" X 1/4" LG. POP	2
38	000-143-166	SCREW, #10-24UNC x 0.375" LG. HEX HEAD	5
39	000-143-126	SCREW, #10-24UNC x 0.50" LG. HEX HEAD	5
40	000-143-132	SCREW, #10-24UNC x 0.75" LG. HEX HEAD	2
41	000-143-134	SCREW, #10-24UNC x 1.00" LG. HEX HEAD S/S	2
42	000-143-539	SCREW, #6-32UNC x 0.50" LG. BUTTON HEAD	2
43	000-143-333	SCREW, 1/4"-20UNC x 0.50" LG. HEX HEAD	2
44	000-143-002	SCREW, 1/4"-20UNC x 1.00" LG. HEX HEAD	18
45	000-159-130	TANK, 100 GALLON UNIVERSAL RECOVERY	1
46	000-166-002	TRAY, SOAP JUG - COATED	1
47	000-131-131	TRIMLOK, 3/8 X 1/8 RUBBER	1
48	000-169-022	VALVE, 1-1/2" FULL PORT BALL	1
49	000-174-036	WASHER, #10 FLAT RUBBER BACKED	2
50	000-174-001	WASHER, #10 FLAT	12
51	000-174-014	WASHER, #10 LOCK	2
52	000-174-060	WASHER, 1/4" FLAT RUBBER BACKED	10
53	000-174-003	WASHER, 1/4" FLAT S/S	18
54	000-174-019	WASHER, 1/4" LOCK	2
55	000-174-029	WASHER, 3/8" FLAT RUBBER BACKED	2

NOTICE

* Check anodes every 50 hours and replace as necessary..

Figure 9-5. Power Pack Assembly
601-004-743 Rev. B

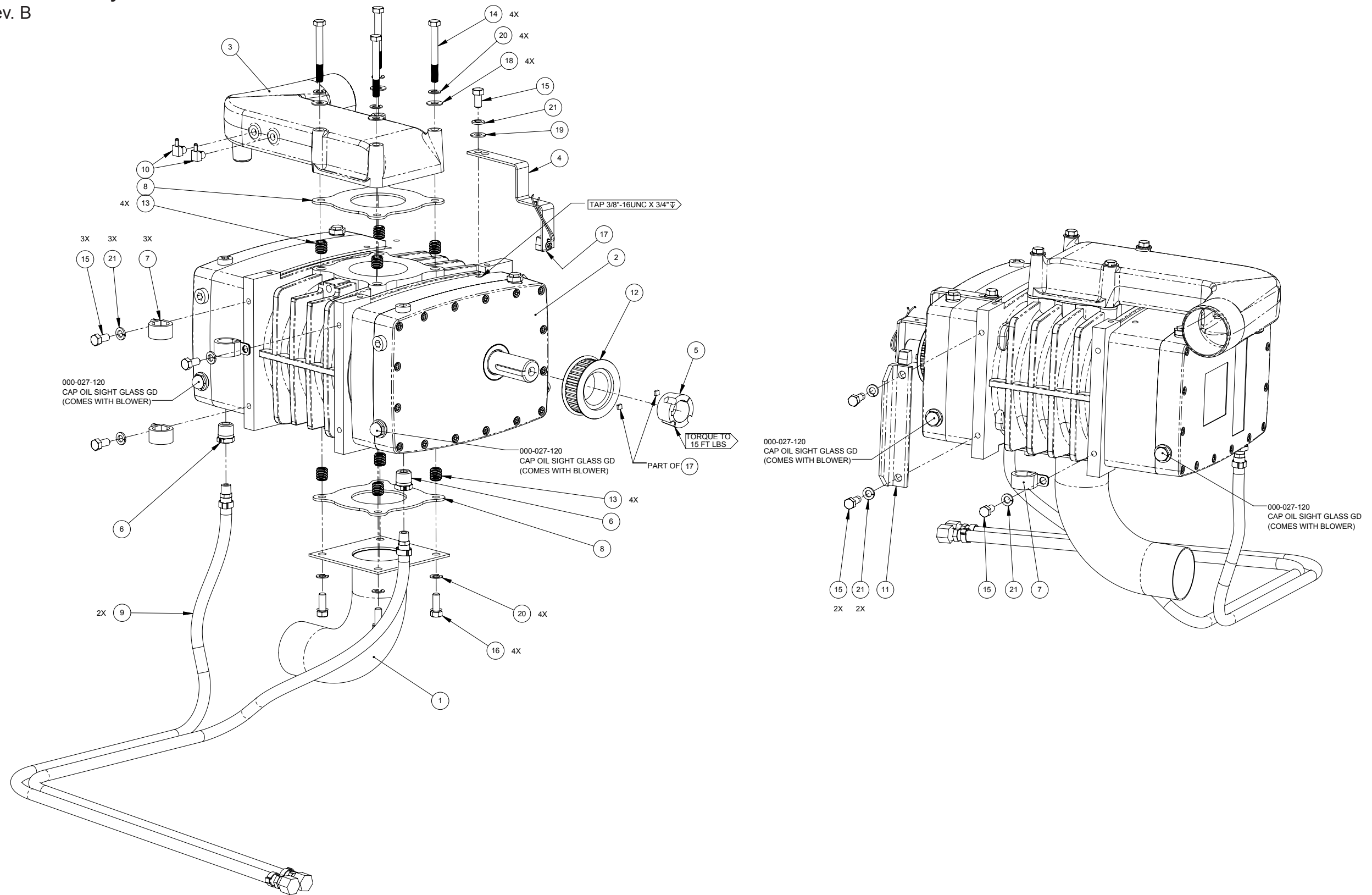


Power Pack Assembly Parts List

Item	Part Number	Description	Qty
1	601-002-743	ASSEMBLY, BLOWER - CDS ZR 2017	1
2	601-001-743	ASSEMBLY, FRAME - CDS ZR 2017	1
3	601-007-743	ASSEMBLY, PUMP - CDS ZR 2017	1
4	000-010-065	BELT, #9345 PUMP DRIVE	1
5	000-010-139	BELT, CDS 800-21 POLYCHAIN-GT	1
6	000-033-132	CLAMP, 1-1/2" T-BOLT	2
7	000-068-644	HOSE ASSEMBLY, 5/16" PTFE (TEFLON) X 49.5" LG.	2
8	000-068-1044	HOSE, 1" I.D. SUCTION X 41" LG.	1

Item	Part Number	Description	Qty
9	000-143-098	SCREW, 3/8"-16UNC X 2.50" LG. HEX HEAD	1
10	000-143-018	SCREW, 3/8"-16UNC x 1" LG. HEX HEAD - GRADE 8	4
11	000-143-012	SCREW, 5/16"-18UNC x 3/4" LG.	4
12	000-174-002	WASHER, 1/4" FLAT	4
13	000-174-005	WASHER, 3/8" FLAT	4
14	000-174-021	WASHER, 3/8" LOCK	5
15	000-174-018	WASHER, 5/16" LOCK	4

Figure 9-6. Blower Assembly
601-002-743 Rev. B



Blower Assembly Parts List

Item	Part Number	Description	Qty
1	000-001-867	ADAPTER, BLOWER EXHAUST	1
2	000-111-218	BLOWER, GD 408 TRIFLOW	1
3	000-013-127	BOX, BLOWER INLET	1
4	000-015-1357	BRACKET, TACH SENSOR MOUNTING - COATED	1
5	000-020-075	BUSHING, 1-1/4" TAPERLOCK 1210	1
6	000-052-067	BUSHING, 1/2" NPT X 1/4" FPT	2
7	000-033-117	CLAMP, 1" CUSHION LOOP w/ 7/16 MOUNT HOLE	4
8	000-057-246	GASKET, BLOWER TO FRAME	2
9	000-068-1093	HOSE ASSEMBLY, DRAIN X 58" LG.	2
10	000-052-106	INSERT, 1/8" NPT x 5/32" BARB x 90°	2
11	000-108-221	PROTECTOR, PULLEY COWLING	1
12	000-109-135	PULLEY, 31 TOOTH POLY CHAIN	1
13	000-143-723	SCREW, INSERT 3/8"-16UNC ID X 5/8"-11UNC OD	8
14	000-143-743	SCREW, 3/8"-16UNC X 3.25" LG. HEX HEAD S/S	4
15	000-143-017-1	SCREW, 3/8"-16UNC x 0.75" LG. HEX HEAD	7
16	000-143-018	SCREW, 3/8"-16UNC x 1" LG. HEX HEAD - GRADE 8	4
17	000-149-010	SENSOR, CDS MAGNETIC TACH	1
18	000-174-032	WASHER, 3/8" FLAT	4
19	000-174-005	WASHER, 3/8" FLAT	1
20	000-174-057	WASHER, 3/8" LOCK	8
21	000-174-021	WASHER, 3/8" LOCK	7

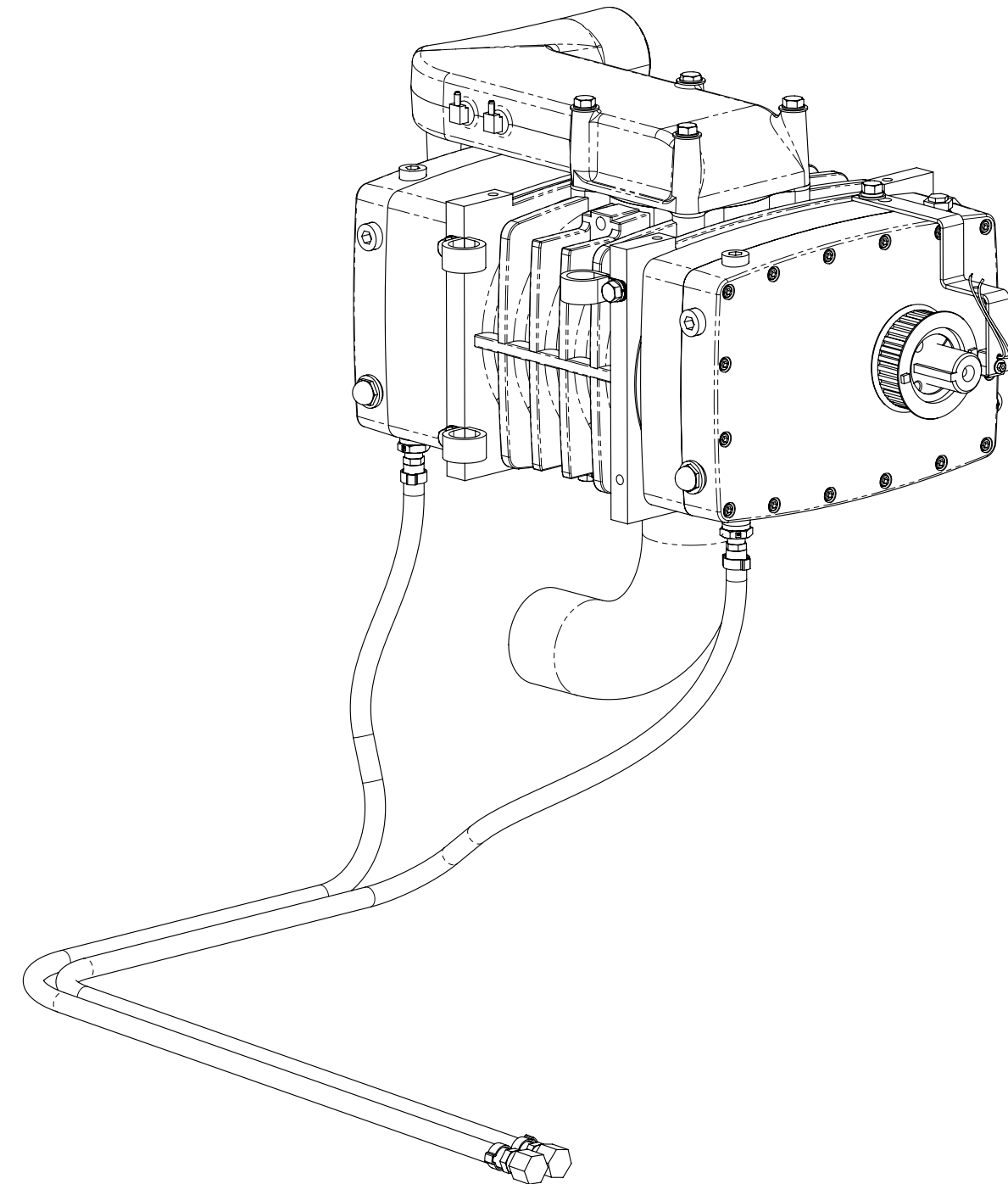
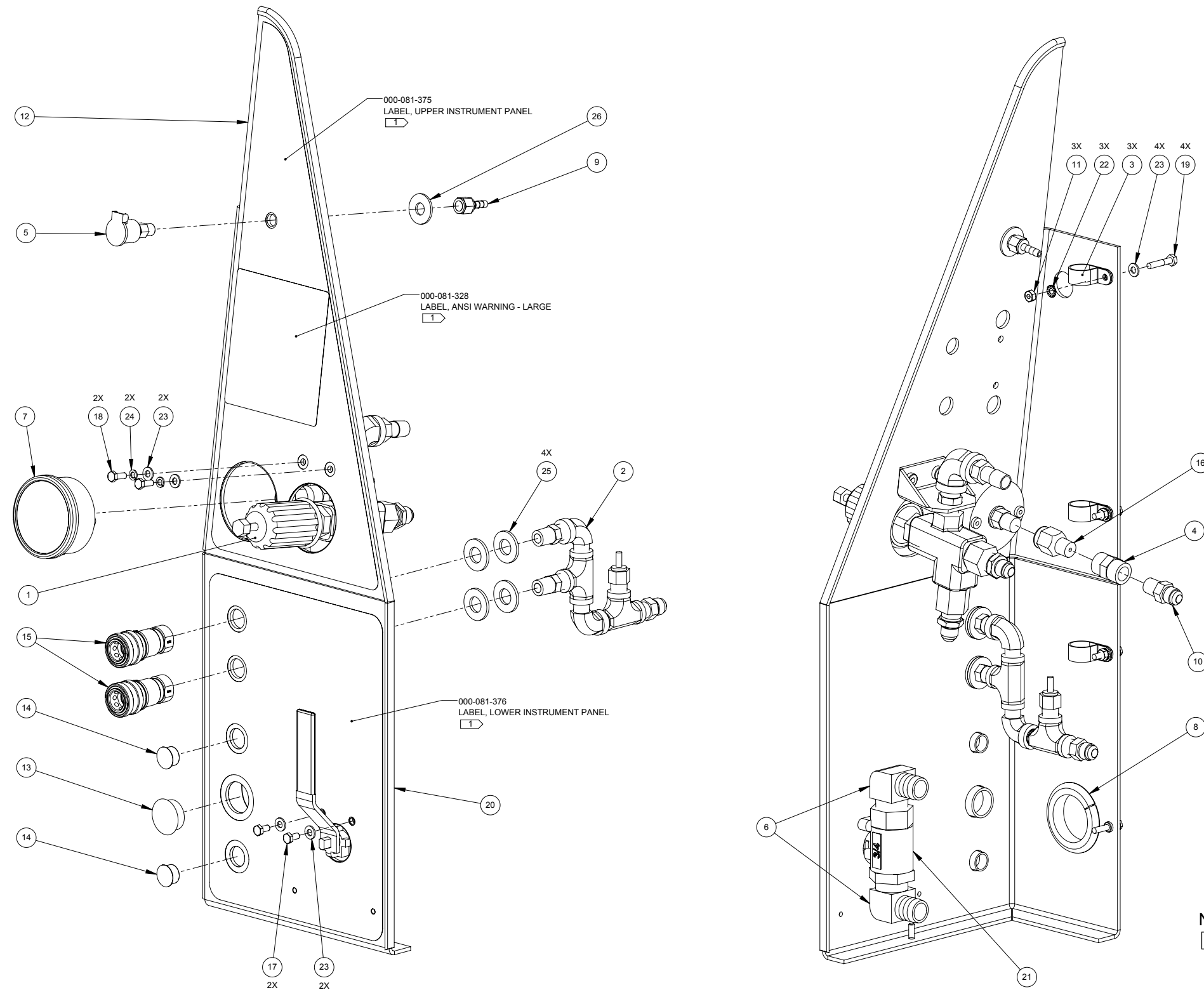


Figure 9-7. Instrument Panel Assembly
601-019-743 Rev. B

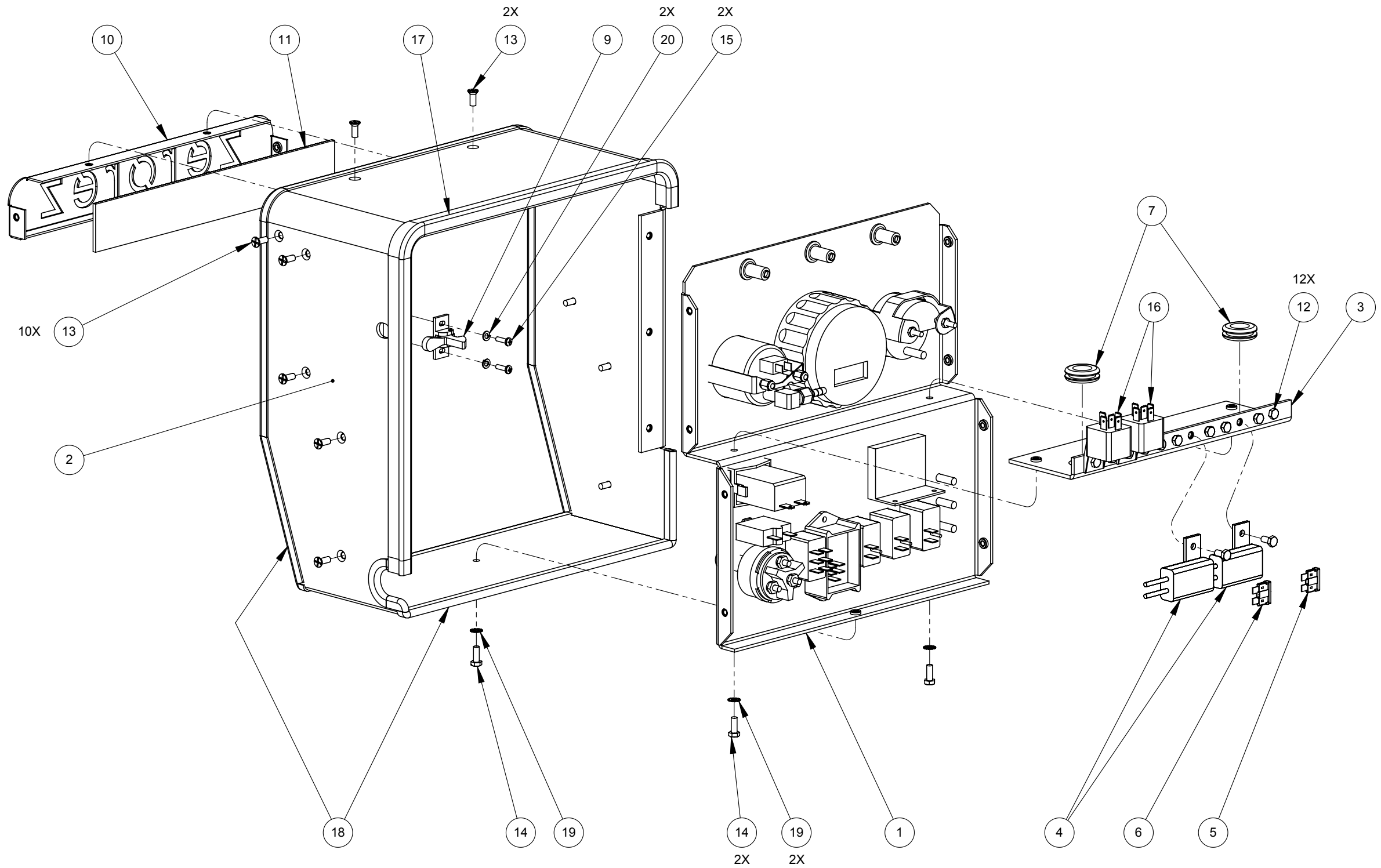


Instrument Panel - Assembly Parts List

Item	Part Number	Description	Qty
1	601-009-741	ASSEMBLY, BY-PASS VALVE	1
2	601-008-741	ASSEMBLY, HI-PSI	1
3	000-033-023	CLAMP, 3/4" NYLON HOSE	3
4	000-052-610	COUPLER, 1/4 FPT S/S	1
5	000-052-272	CUP, GRAVITY FEED OIL BLOWER LUBE PORT	1
6	000-052-589	ELBOW, 3/4" NPT X 3/4" BARB	2
7	000-074-155	GAUGE, PRESSURE 0 -2000 PSI	1
8	000-060-015	GROMMET, 2.5" - MODIFIED	1
9	000-052-096	INSERT, #F23 (1/8" FPT x 3/16" BARB)	1
10	000-052-506	NIPPLE, 1/4" MPT X 9/16"	1
11	000-094-004	NUT, #10-24UNC HEX	3
12	000-100-168	PANEL, INSTRUMENT - COATED	1
13	000-106-029	PLUG, 1" HOLE	1
14	000-106-024	PLUG, 5/8" BLACK DOME	2

Item	Part Number	Description	Qty
15	000-052-948	QUICK CONNECT, 1/4" FEMALE S/S - PARKER	2
16	000-135-053	REGULATOR, HI PSI SNUBBER	1
17	000-143-166	SCREW, #10-24UNC x 0.375" LG. HEX HEAD	2
18	000-143-126	SCREW, #10-24UNC x 0.50" LG. HEX HEAD	2
19	000-143-134	SCREW, #10-24UNC x 1.00" LG. HEX HEAD S/S	4
20	000-131-027	TRIMLOK, 1/8" X 3/16" LG.	4.5'
21	000-169-201	VALVE, 3/4" HEATER PANEL MOUNT	1
22	000-174-015	WASHER, #10 EXTERNAL STAR	3
23	000-174-001	WASHER, #10 FLAT	8
24	000-174-014	WASHER, #10 LOCK	2
25	000-174-012	WASHER, 1/2 SAE H/D	4
26	000-174-005	WASHER, 3/8" FLAT	1

Figure 9-8. Dash Box Assembly
601-018-743 Rev. A



Dash Box Assembly Parts List

Item	Part Number	Description	Qty
1	601-020-701	ASSEMBLY, DASH PANEL	1
2	000-013-025	BOX, DASH - COATED	1
3	000-015-183	BRACKET, GROUNDING BUS - FABRICATED	1
4	000-056-006	FUSE HOLDER, IN-LINE - WEATHERPROOF	2
5	000-056-003	FUSE, 15 AMP PLUG IN	1
6	000-056-010	FUSE, 25 AMP	1
7	000-060-002	GROMMET, LARGE WIRING	2
8	000-084-007	KIT, LIGHT - NEW STYLE TEMP GAUGE	1
9	000-086-104	LATCH, DASH SECURING	1
10	000-105-053-10	PLATE, DASH NAME - COATED - ZEROREZ	1
11	000-084-016	REFLECTOR, 1.625" x 11" NEW HM LOGO	1
12	000-143-046	SCREW, #6-32 x .500" LG. PHP	2
13	000-143-166	SCREW, #10-24UNC x 0.375" LG. HEX HEAD	12
14	000-143-114	SCREW, #10-24UNC x 0.50" LG. FLAT HEAD PH	12
15	000-143-126	SCREW, #10-24UNC x 0.50" LG. HEX HEAD	3
16	000-108-013	SHIELD, DRIP - DASH	1
17	000-157-022	SWITCH, RELAY	2
18	000-131-027	TRIMLOK, 18" ID X 3/8"	1
19	000-174-043	WASHER, #6 LOCK	2
20	000-174-015	WASHER, #10 OUTSIDE STAR	3

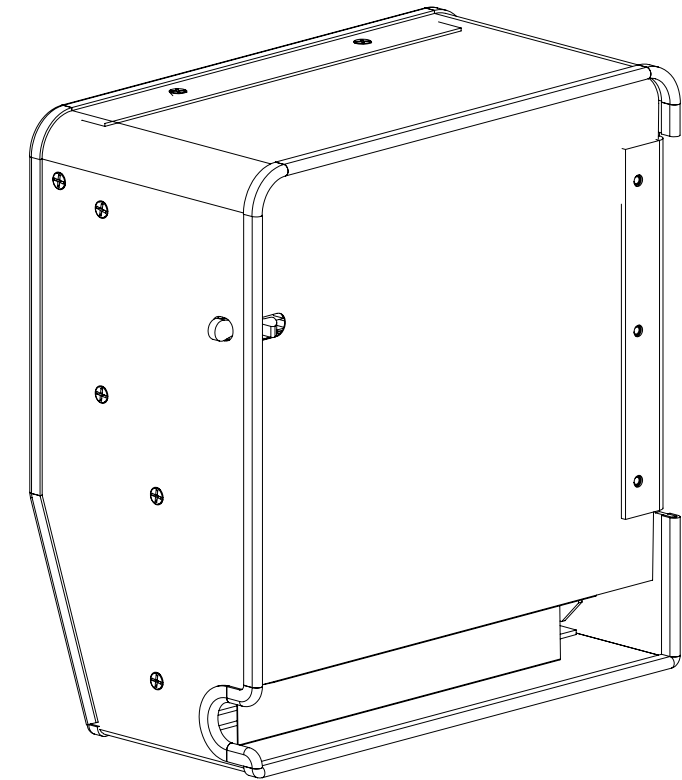
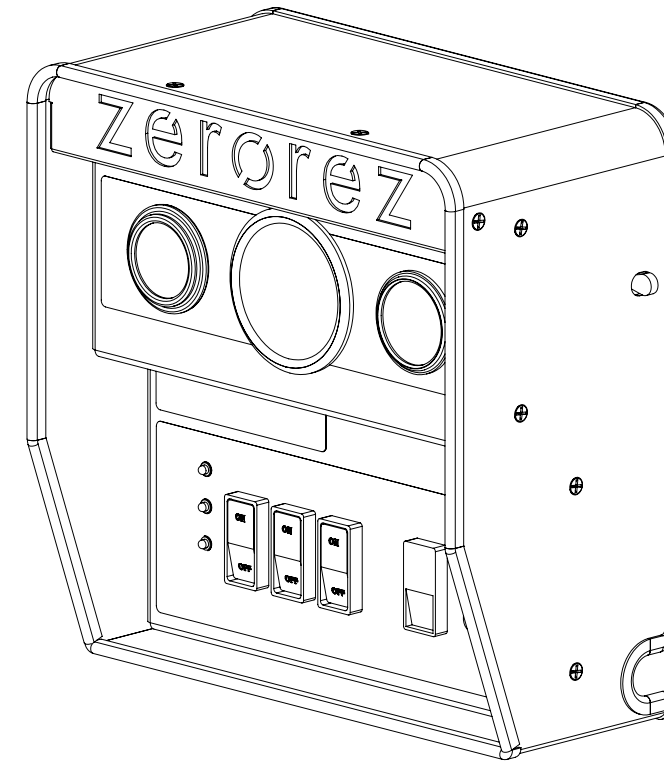
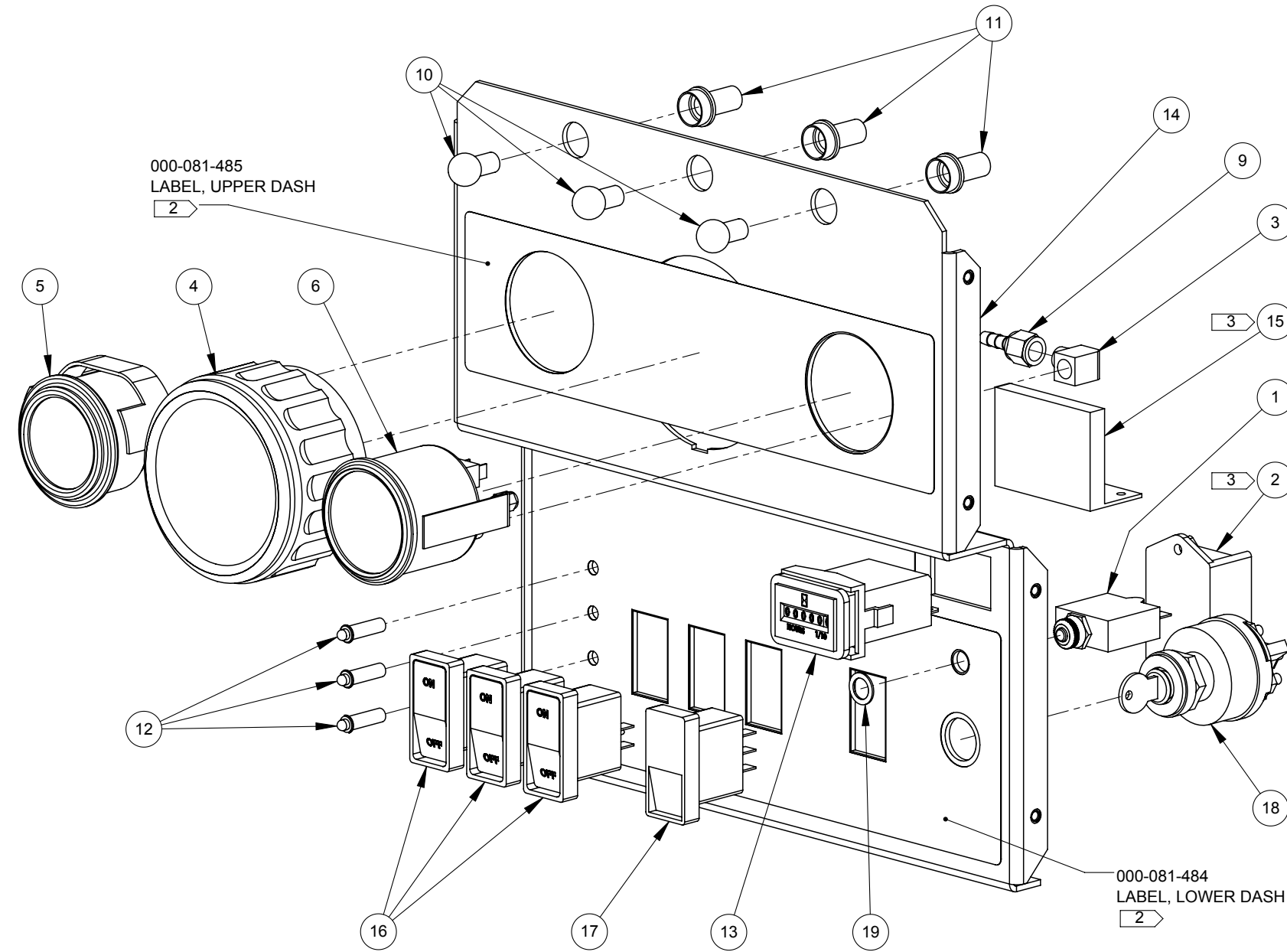


Figure 9-9. Dash Panel Assembly
601-020-743 Rev. B



NOTES:

1. REFERENCE DRAWINGS:
 WIRING DIAGRAM 000-179-062
 ELECTRICAL SCHEMATIC 000-179-063
2. PART OF LABEL SET 000-081-483.
3. ADHERE ITEMS 2 & 15 TO ITEM 14 WITH TAPE P/N 000-161-.009.
4. ITEM NOT SHOWN.

Dash Panel Assembly Parts List

Item	Part Number	Description	Qty
1	000-018-004	BREAKER, 25 AMP CIRCUIT	1
2	000-074-054	CONTROLLER, CDS SOFT START	1
3	000-052-084	ELBOW, 1/8" NPT STREET	1
4	000-074-178	GAUGE, TACH 0-4000RPM	1
5	000-074-016	GAUGE, TEMPERATURE	1
6	000-074-006	GAUGE, VACUUM	1
7	000-063-064	HARNESS, CDS DASH SET 1 WIRING	1
8	000-063-065	HARNESS, CDS DASH SET 2 WIRING	1
9	000-052-096	INSERT, #F23 (1/8" FPT x 3/16" BARB)	1
10	000-084-004	LAMP, REPLACEMENT GAUGE	3
11	000-084-009	LAMP, SOCKET - DASHBOARD	3
12	000-084-011	LIGHT, RED LED INDICATOR MINI	3
13	000-074-170	METER, RECTANGULAR W/O BEZEL	1
14	000-100-071	PANEL, DASH - COATED	1
15	000-157-166	RELAY, THROTTLE CONTROL DELAY	1
16	000-157-040	SWITCH, 20 AMP ROCKER	3
17	000-157-131	SWITCH, 3 WAY SPEED CONTROL	1
18	000-157-008	SWITCH, IGNITION	1
19	000-174-052	WASHER, 3/8" FLAT	1

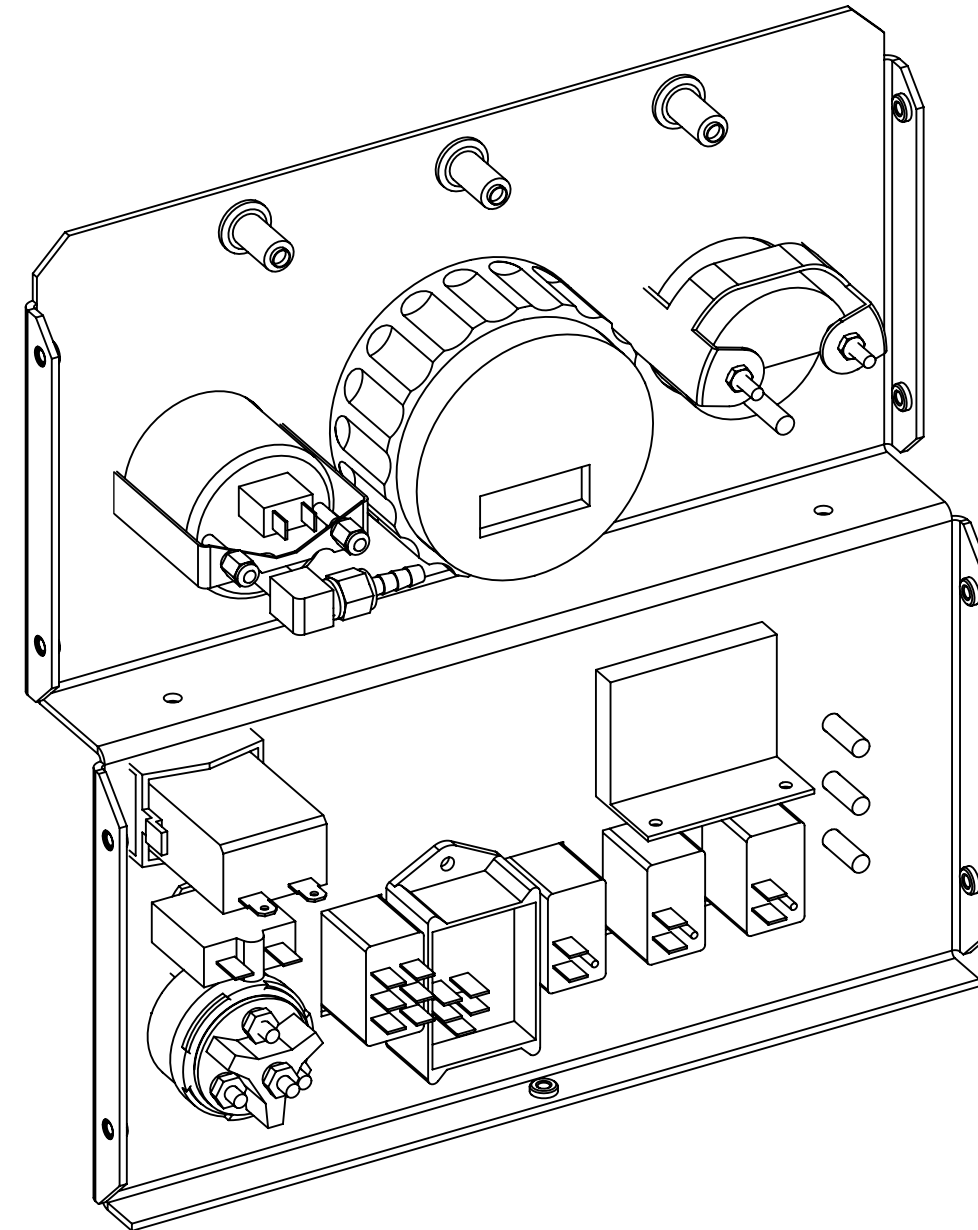
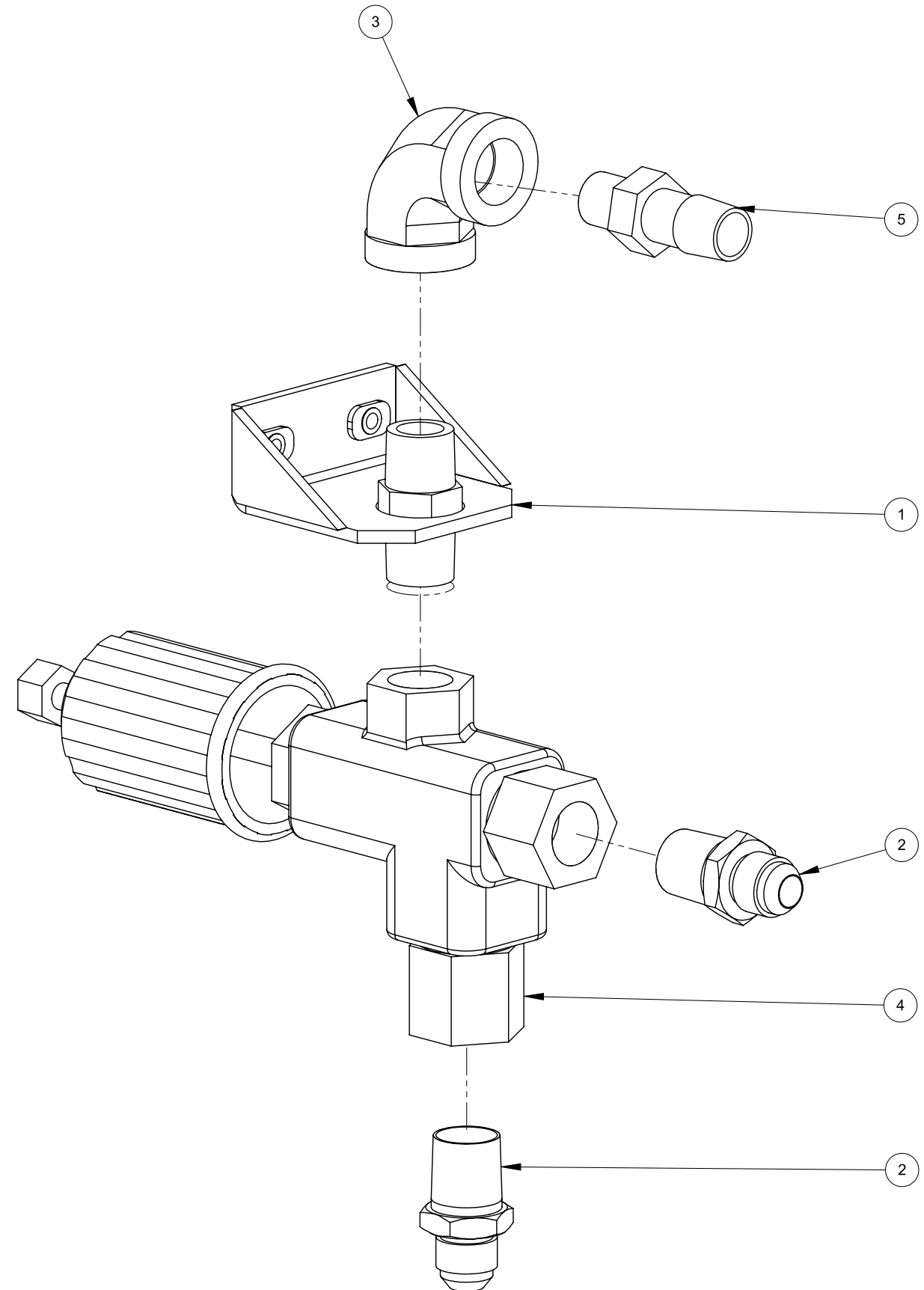
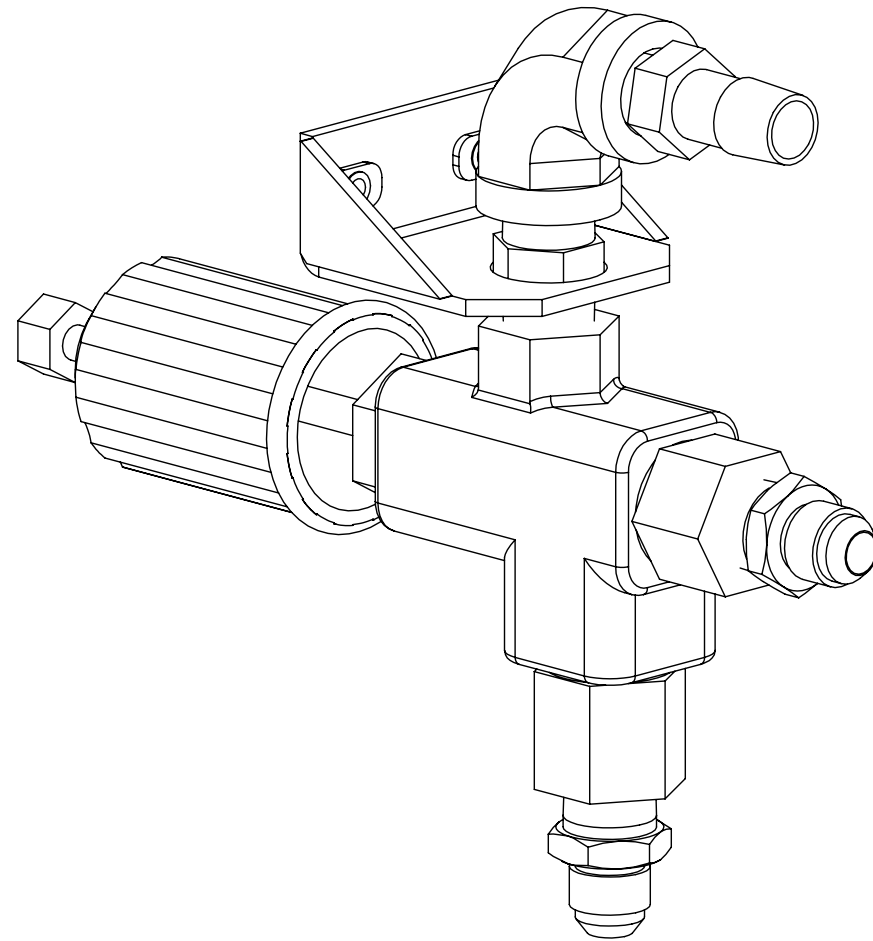


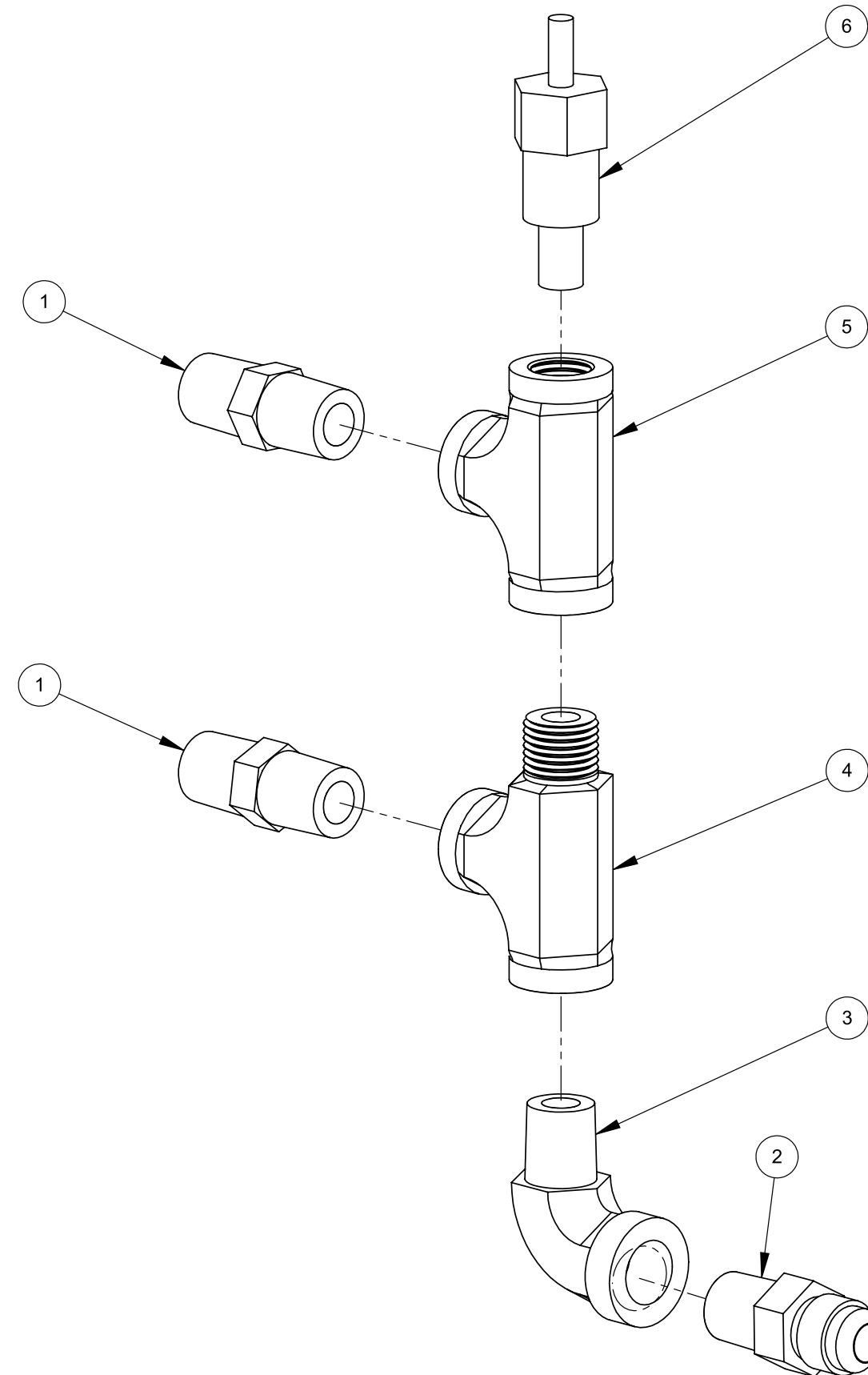
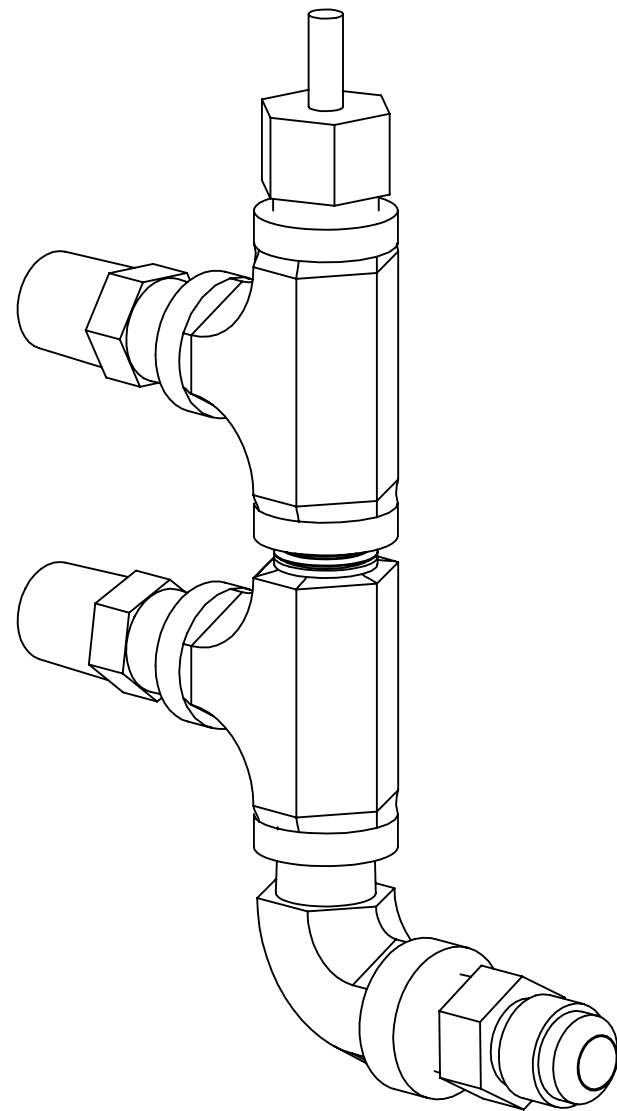
Figure 9-10. By-Pass Valve Assembly
601-009-741 Rev. D



By-Pass Valve Assembly Parts List

Item	Part Number	Description	Qty
1	000-015-515	Bracket, By-Pass Valve Mount - Weldment	1
2	000-052-507	Nipple, 3/8" NPT X 9/16"-18 37 Degree JIC S/S	2
3	000-052-188	Elbow, 3/8" S/S Female	1
4	000-169-178	Valve, S/S Press Reg	1
5	000-052-056	Insert, #68 GFBN	1

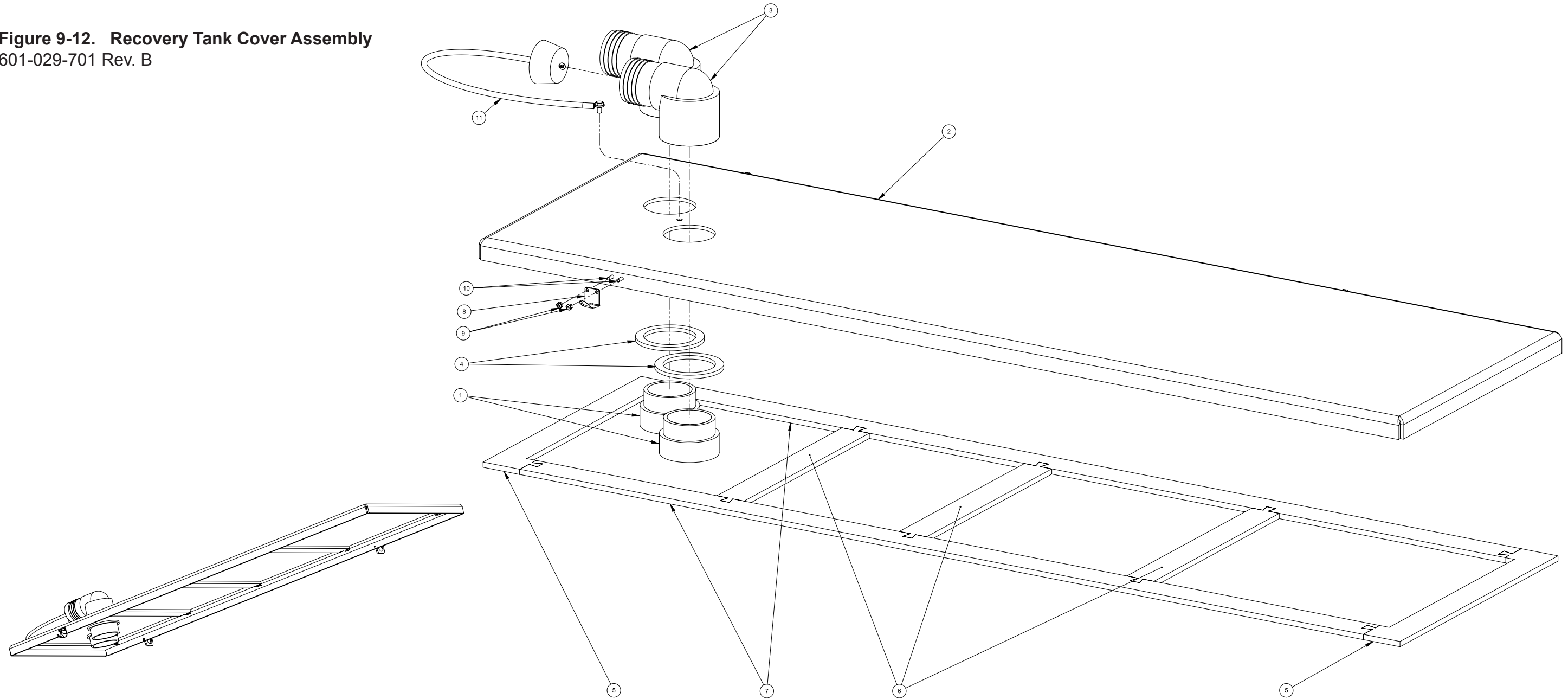
Figure 9-11. Hi-PSI Manifold Assembly
601-008-741 Rev. C



Hi-PSI Manifold Assembly Parts List

Item	Part Number	Description	Qty
1	000-052-095	Nipple, 1/4" S/S Hex	2
2	000-052-506	Nipple, 1/4" MPT X 9/16"	1
3	000-052-691	Elbow, 1/4" Street S/S	1
4	000-052-190	Tee, 1/4" Branch S/S	1
5	000-052-189	Tee, 1/4" Female S/S	1
6	000-149-035	Sender, Temperature - Coated	1

Figure 9-12. Recovery Tank Cover Assembly
601-029-701 Rev. B

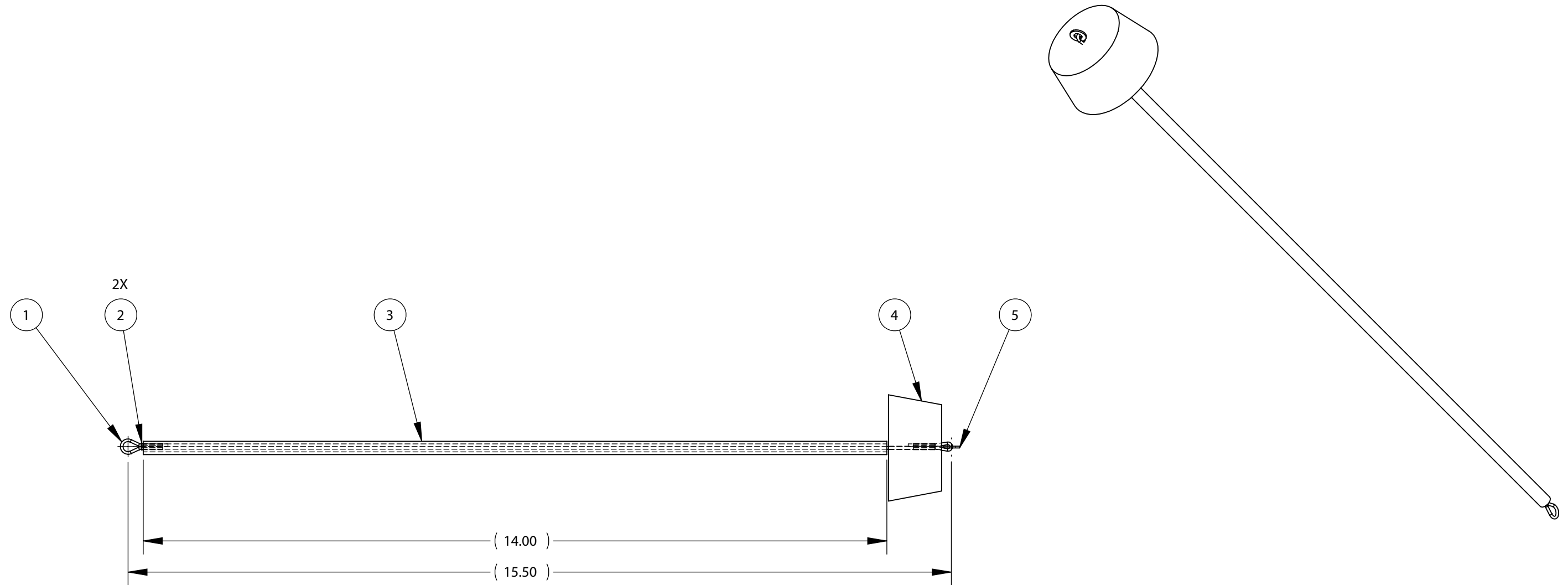


Recovery Tank Cover Assembly Parts List

Item	Part Number	Description	Qty
1	000-052-219	Adapter, 2" NPT X 2" F Slip	2
2	000-041-447	Cover, Recovery Tank - Coated	1
3	000-052-222	Elbow, 2" Barb X 2" FPT	2
4	000-057-015	Gasket, 1-1/2" Bulkhead Fitting	2
5	000-057-202	Gasket, End - Rec. Tank Cover	2
6	000-057-203	Gasket, Middle - Rec. Tank Cover	3

Item	Part Number	Description	Qty
7	000-057-205	Gasket, Side - Rec. Tank Cover	2
8	000-086-008	Latch, Bungee - Strike (Part of 000-086-008)	1
9	000-094-063	Nut, #6-32UNC Nylock	2
10	000-143-539	Screw, #6-32UNC X 0.50" Lg. Button Head	2
11	000-078-039	Vacuum Inlet Stopper	1

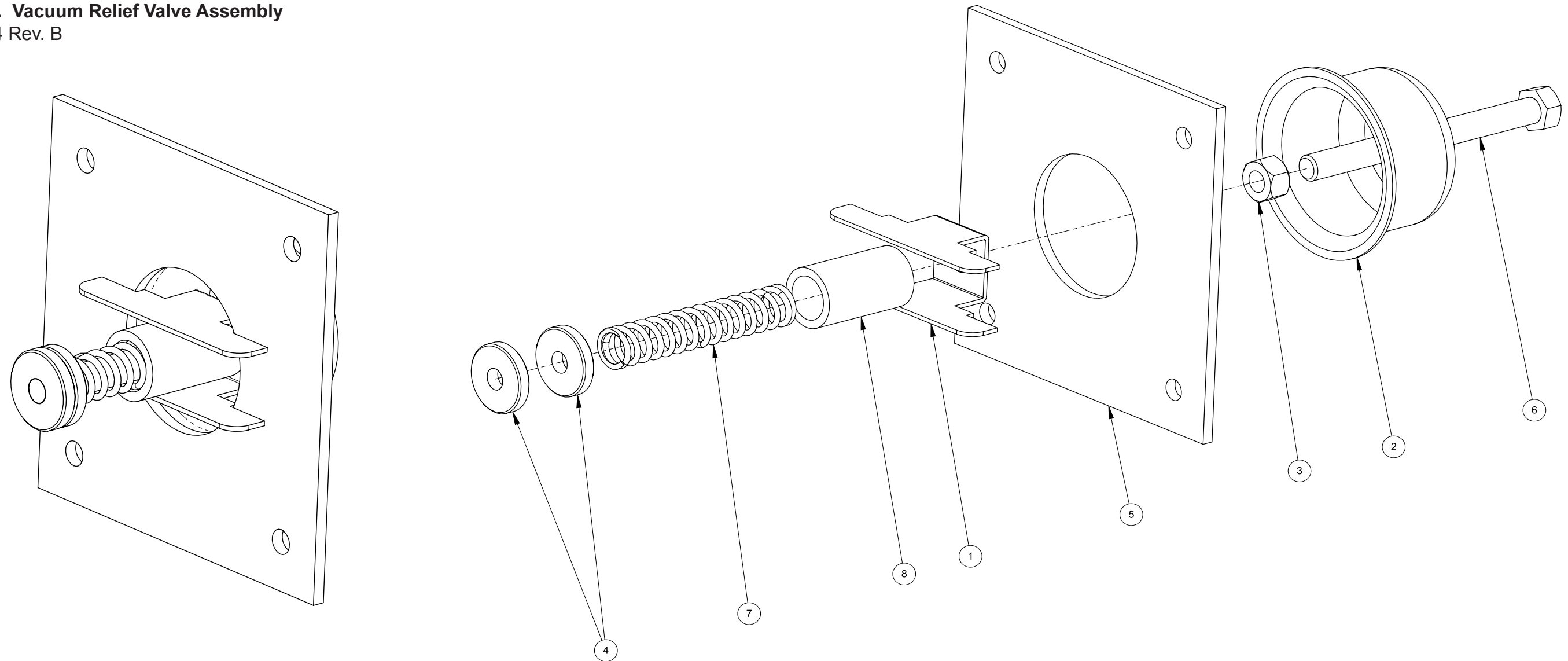
Figure 9-13. Vacuum Inlet Stopper Kit Assembly
000-078-039 Rev. B



Vacuum Inlet Stopper Kit Parts List

Item	Part Number	Description	Qty
1	000-025-008	Cable, 150 lb. Test 17.00 Lg.	1
2	000-033-032	Clamp, Throttle Cable	2
3	000-068-025	Hose, Ø1/4" X 14.00 Lg. Clear	1
4	000-106-028	Stopper, Vacuum Inlet	1
5	000-174-045	Washer, #6 S/S Flat	1

Figure 9-14. Vacuum Relief Valve Assembly
610-026-724 Rev. B

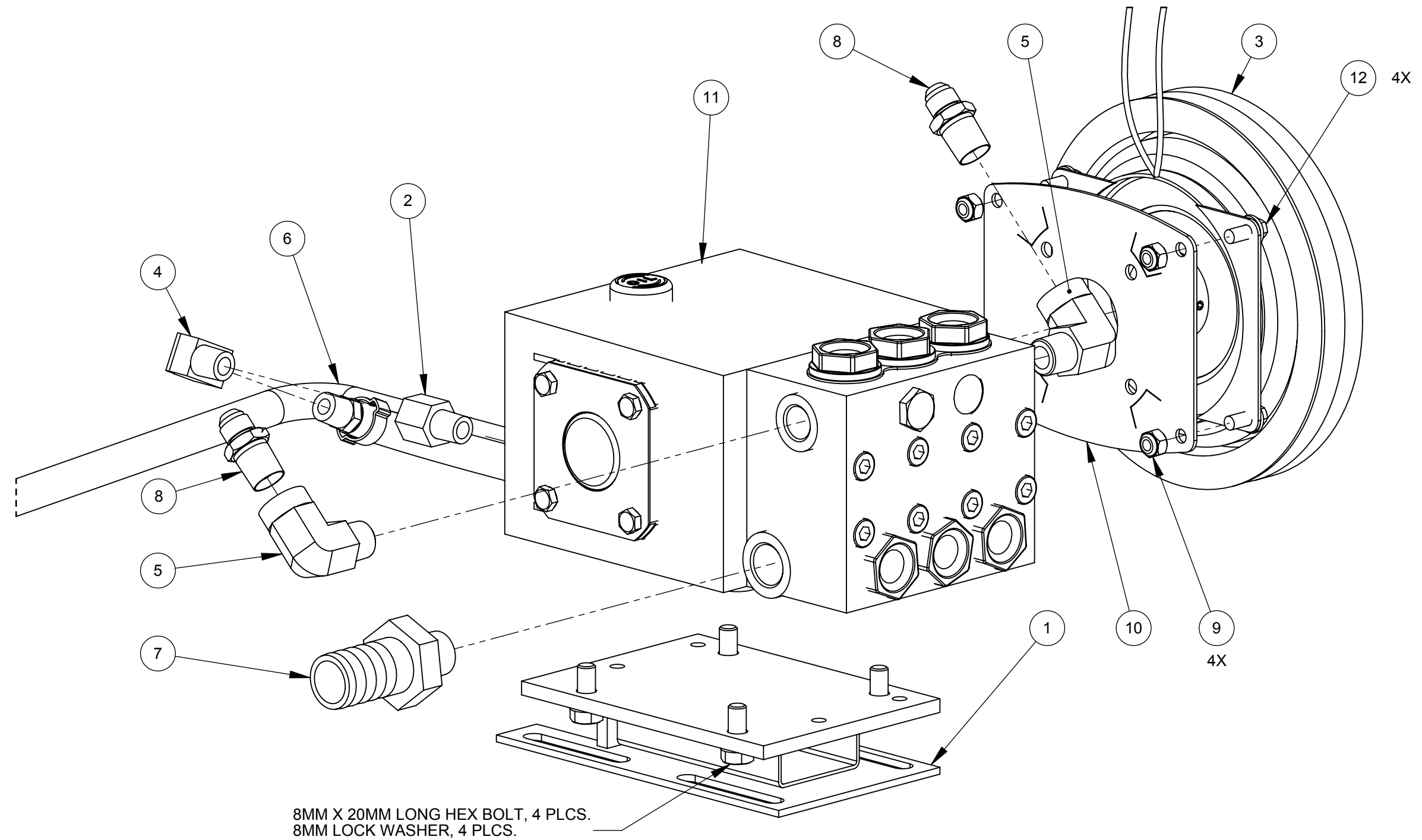


Vacuum Relief Valve Assembly Parts List

Item	Part Number	Description	Qty
1	000-015-182	Bracket, Vacuum Relief Valve - Fabricated	1
2	000-027-032	Cap, Spun Vacuum Relief Valve	1
3	000-094-101	Nut, 3/8"-16 UNC Hex Jam	1
4	000-094-077	Nut, 3/8"-16UNC X 1.00" O.D. Knurled	2

Item	Part Number	Description	Qty
5	000-105-332	Plate, Vacuum Relief Valve Mounting - Coated	1
6	000-143-198	Screw, 3/8"-16UNC X 4" Lg. Hex Head - Full Thread	1
7	000-155-026	Spring, Vacuum Relief Valve	1
8	000-125-111	Tube, Vacuum Relief Spring Guide	1

Figure 9-15. Pump Assembly
601-007-743 Rev. A



Pump Assembly Parts List

Item	Part Number	Description	Qty
1	000-015-927	Bracket, Compressor Mount - Coated	1
2	000-052-062	Bushing, 1/4" NPT Male X 1/4" NPT Female	1
3	000-036-008	Clutch, 7" O.D. 24mm Single Groove	1
4	000-052-085	Elbow, 1/4" NPT Street	1
5	000-052-747	Elbow, 3/8 S/S Street 90	2
6	000-068-1093	Hose Assembly, Drain X 58"	1

Item	Part Number	Description	Qty
7	000-052-922	Insert, 1/2" MNPT X 1" Hose Barb	1
8	000-052-507	Nipple, 3/8" NPT X 9/16"-18 37 Degrees Jic S/S	2
9	000-094-071	Nut, 1/4"-20UNC Nylock Half	4
10	000-105-550	Plate, Pump Clutch - GP 4.0 Gpm	1
11	000-111-159	Pump, 4.0 gmp GP S/S	1
12	000-143-141	Screw, 1/4"-20UNC X 1/2" Lg. Whiz Lock	4

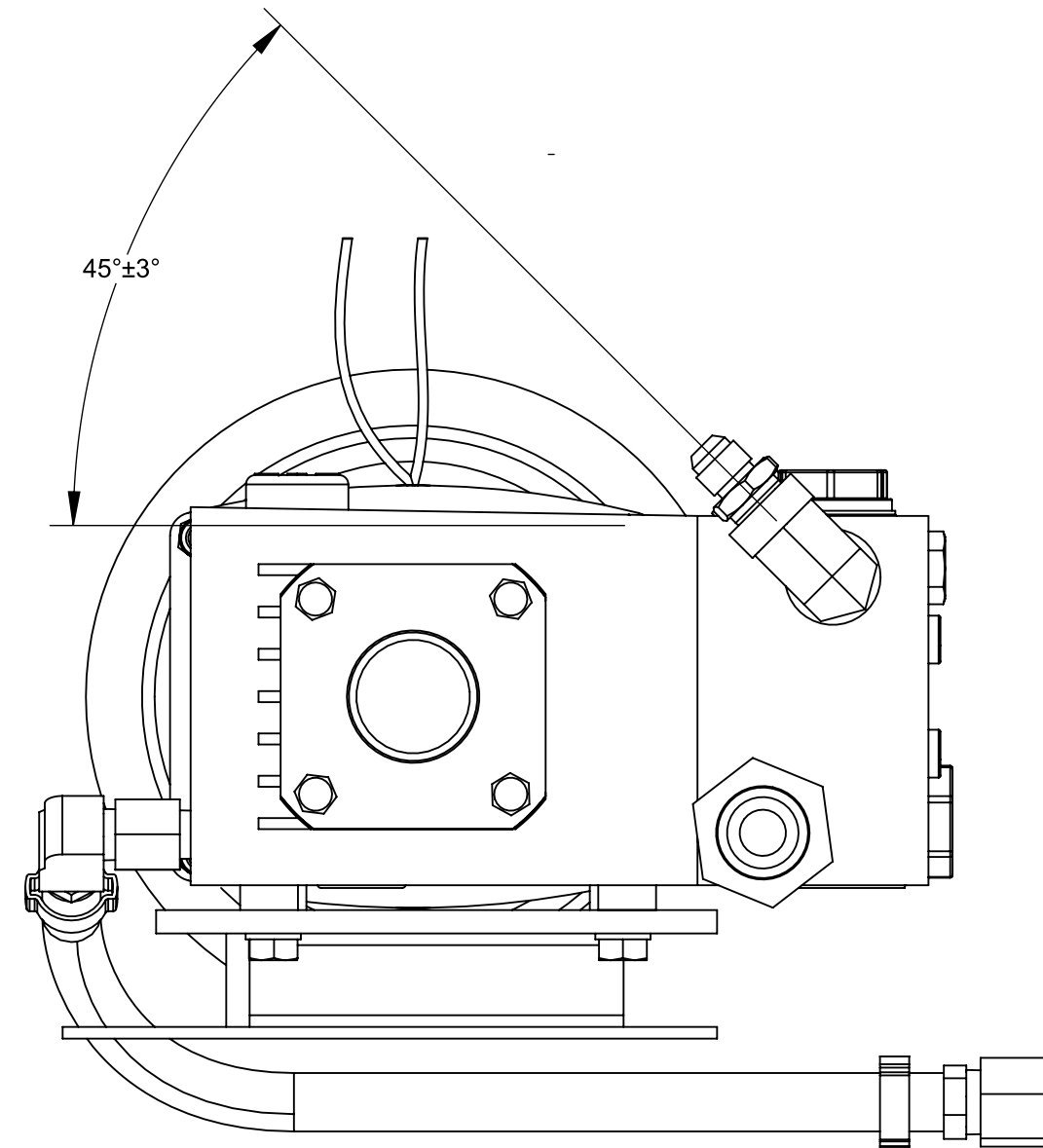
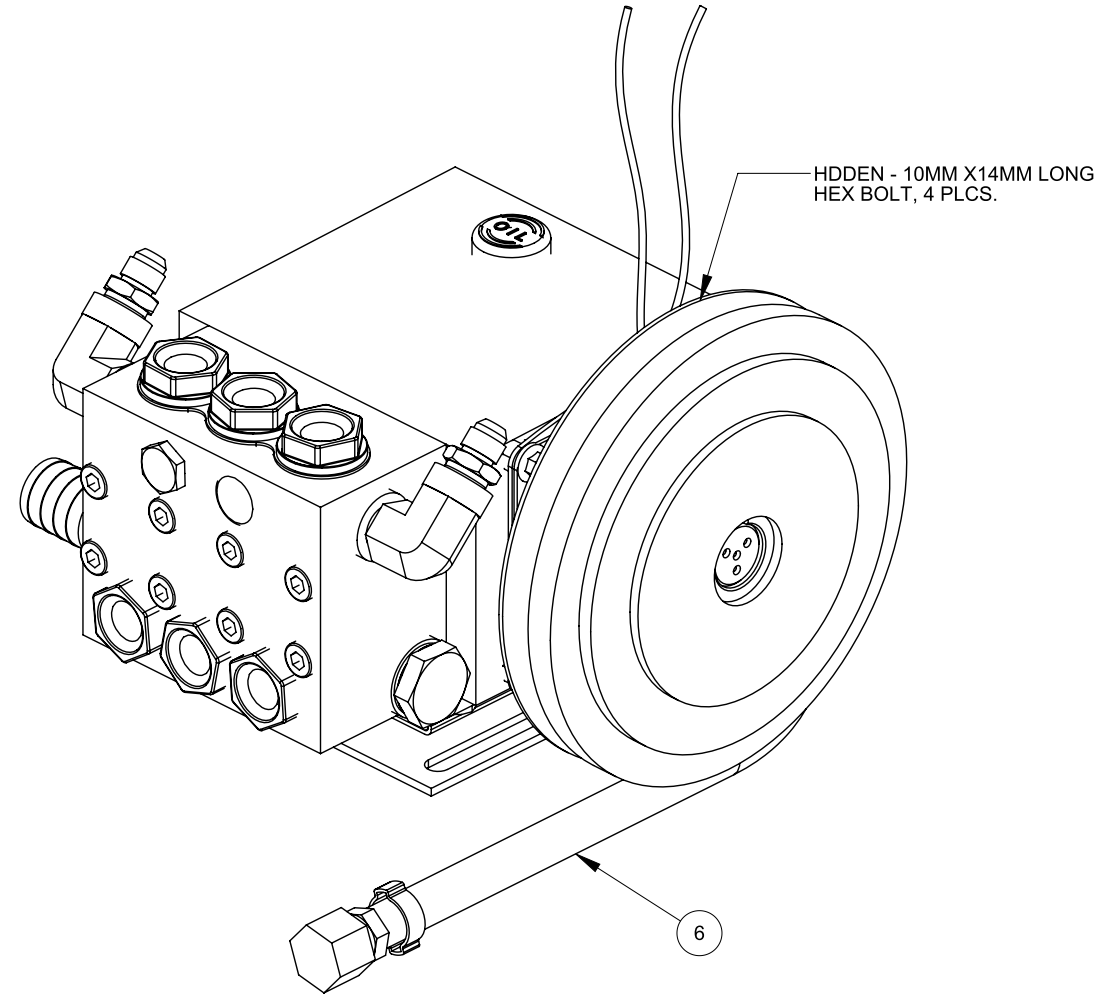
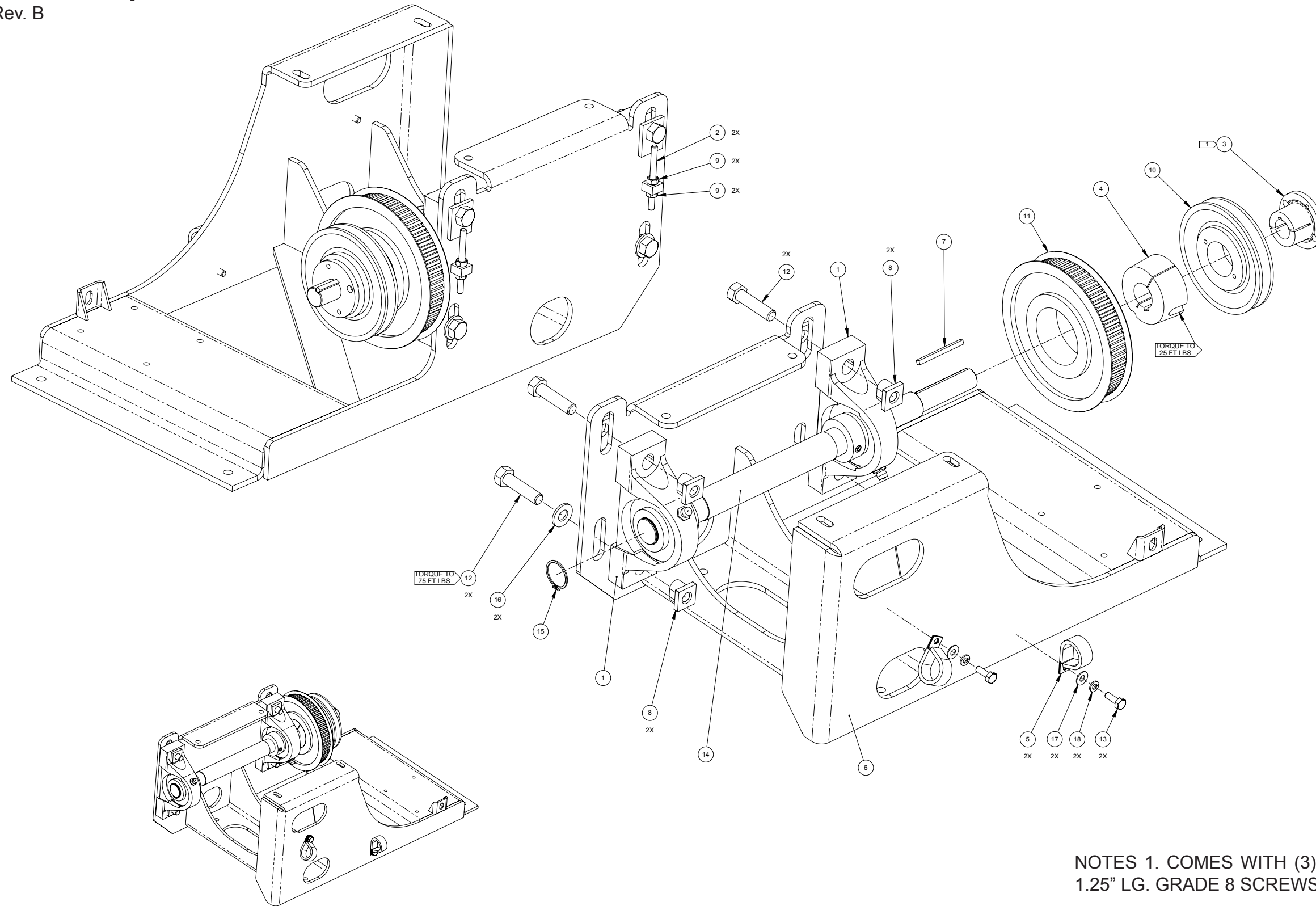


Figure 9-16. Frame Assembly
601-001-743 Rev. B



NOTES 1. COMES WITH (3) 1/4"-20UNC X 1.25" LG. GRADE 8 SCREWS.

Frame Assembly Parts List

Item	Part Number	Description	Qty
1	000-008-020	BEARING, PILLOW BLOCK - 1-3/16" BORE	2
2	000-015-1353	BRACKET, BLOWER DRIVE ADJUSTING - COATED	2
3	000-020-019	BUSHING, #H x 7/8" BORE	1
4	000-020-026	BUSHING, 1-1/8" TAPER-LOCK	1
5	000-033-057	CLAMP, 1" CUSHION LOOP	2
6	000-055-230	FRAME, BLOWER - COATED	1
7	000-077-012	KEY, 3/16" x 2.5" LG. CLASS 2 FIT	1
8	000-094-136	NUT, 1/2"-13UNC TEE - COATED	4
9	000-094-010	NUT, 1/4"-20UNC HEX S/S	4

Item	Part Number	Description	Qty
10	000-109-043	PULLEY, AK51H	1
11	000-109-136	PULLEY, 63 TOOTH POLY CHAIN	1
12	000-143-567	SCREW, 1/2"-13UNC x 2.0" LG. HEX HD GRD8 BO	4
13	000-143-001	SCREW, 1/4"-20UNC x 0.75" LG. HEX HEAD	2
14	000-150-047	SHAFT, DRIVE SPROCKET	1
15	000-139-021	SNAP RING, 1-3/16" SHAFT	1
16	000-174-012	WASHER, 1/2 SAE H/D	2
17	000-174-003	WASHER, 1/4" FLAT S/S	2
18	000-174-019	WASHER, 1/4" LOCK	2

Figure 9-17. Alfa Laval Heat Exchanger Assembly
601-006-752 Rev. D

Alfa Laval Heat Exchanger Assembly Parts List

Item	Part Number	Description	Qty
1	000-038-090	ASSEMBLY, HX CORE - ALFA LAVAL	1
2	000-015-1289	BRACKET, CHEVRON-STYLE - HX, ALFA LAVAL	1
3	000-052-018	BUSHING, 3/4" M X 3/8" F PTR-S/S	2
4	000-033-029	CLAMP, SIZE #12 HOSE	2
5	000-033-017	CLAMP, 1/4" I.D. HOSE	1
6	000-052-589	ELBOW, 3/4" NPT X 3/4" BARB	1
7	000-052-747	ELBOW, 3/8" STREET X 90° s/s	2
8	000-052-733	FITTING, 3/4" NPT STREET ELBOW - MODIFIED	1
9	000-068-974	HOSE, 3/4" I.D. RUBBER x 30" LG. - RED	1
10	000-068-1053	HOSE, 3/8" I.D. CLEAR X 24" LG.	1
11	000-052-602	INSERT, #1212 BRASS	1
12	000-052-507	NIPPLE, 3/8" NPT x 9/16"-18 37° JIC s/s	2
13	000-094-047	NUT, 16MM X 2.0 FLANGE	4
14	000-094-116	NUT, 3/8"-16UNC HEX S/S	2
15	000-108-200	PROTECTOR, PAD - HX MOUT - 14" X 4" LG.	1
16	000-143-198	SCREW, 3/8"-16UNC x 4.00" LG. HEX HEAD	2
17	000-169-205	VALVE,PETCOCK 90 DEG	1
18	000-174-032	WASHER, 3/8" FLAT	4
19	000-174-057	WASHER, 3/8" LOCK	2
20	000-174-206	WASHER, TIE DOWN CLEAT S/S	2

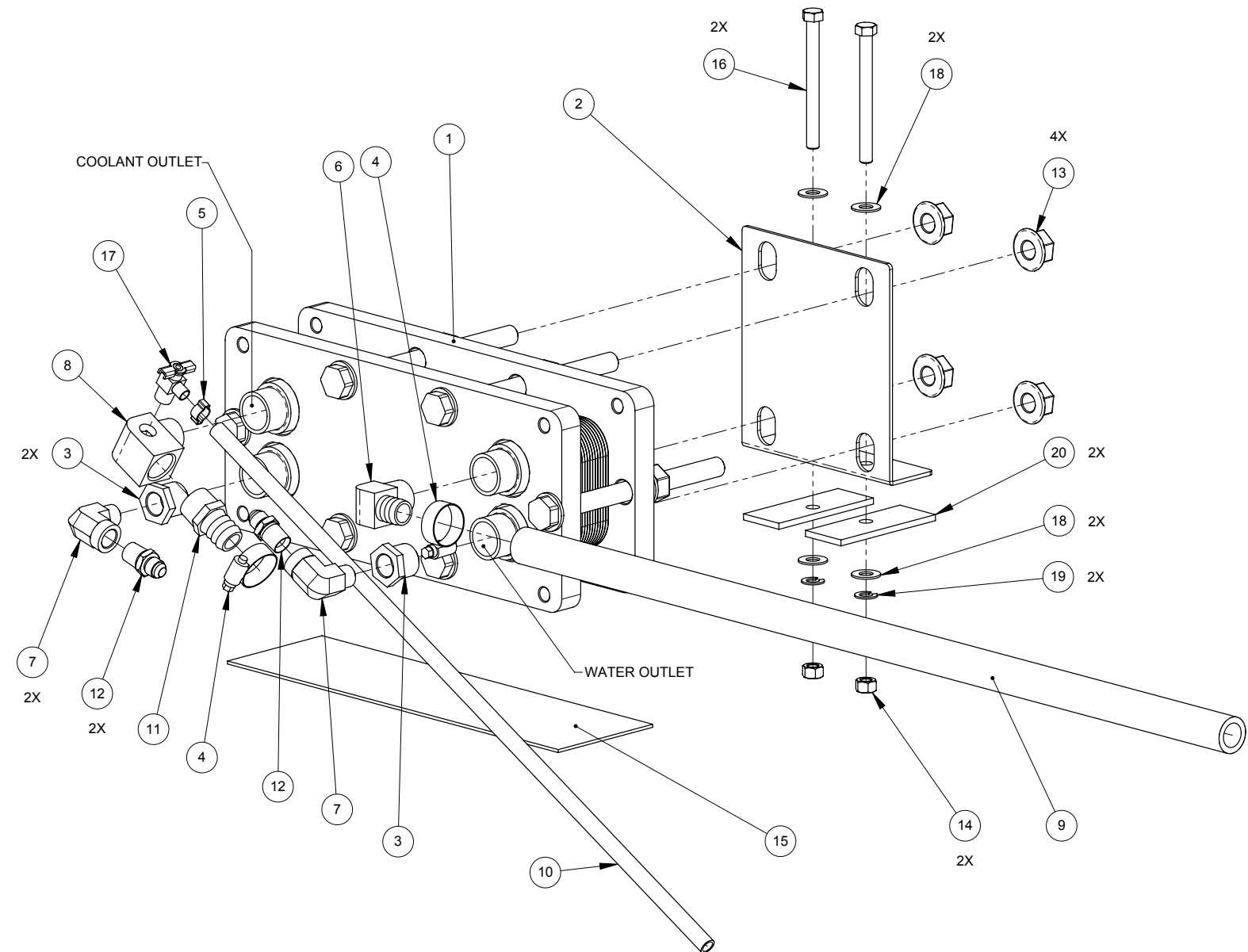
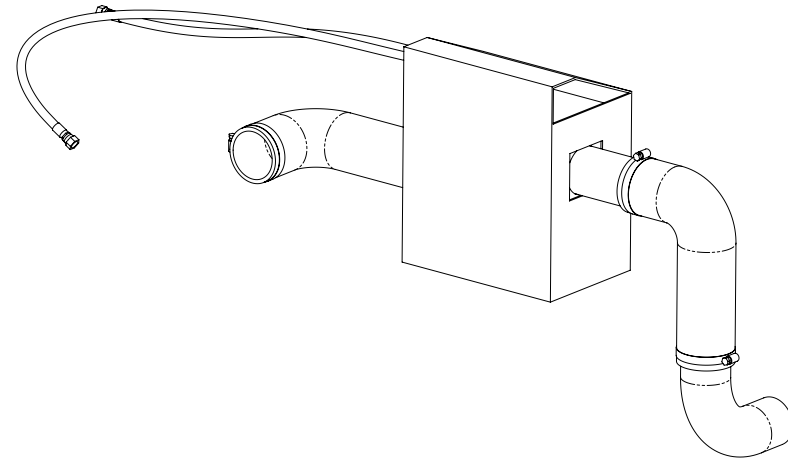
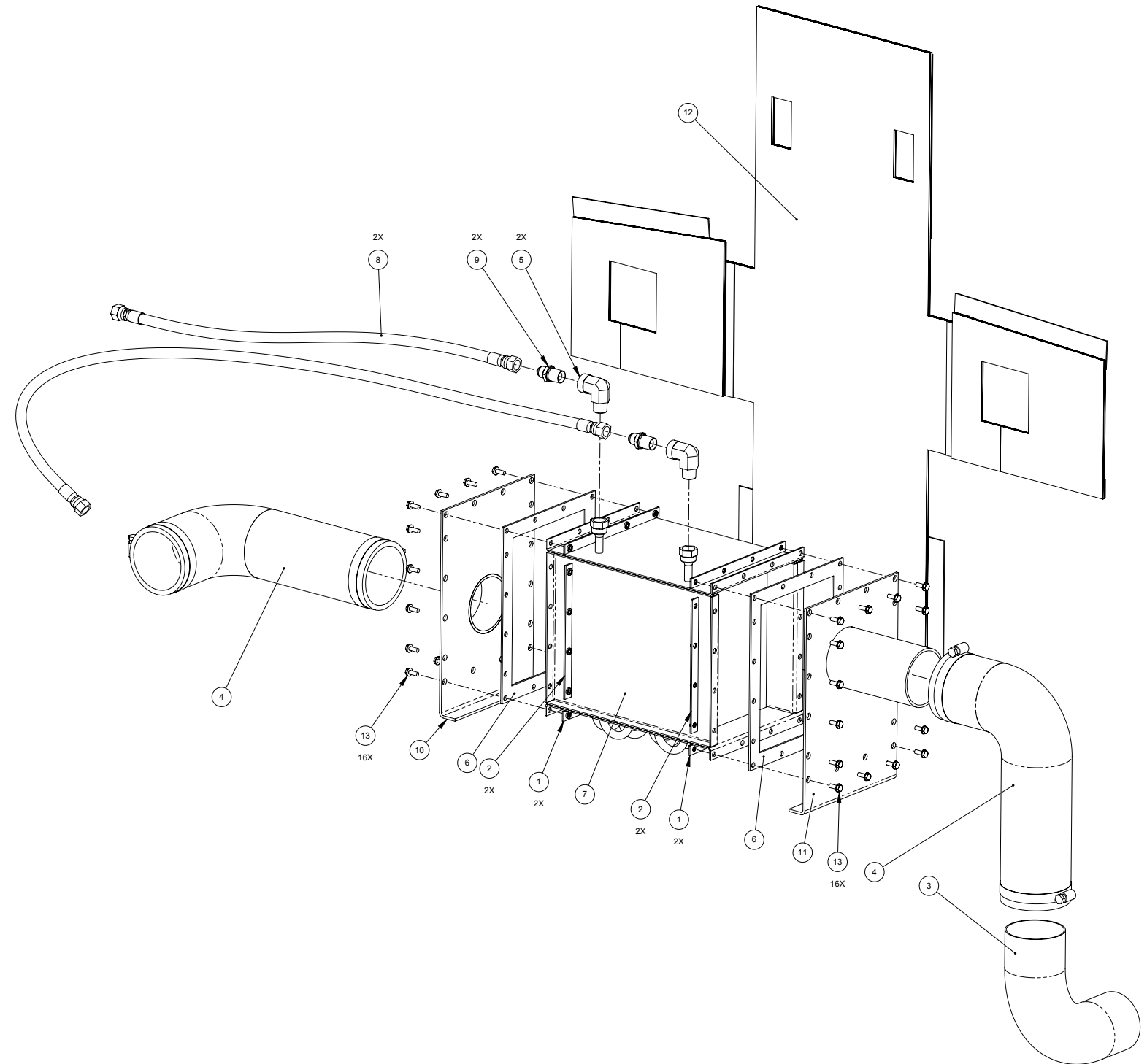


Figure 9-18. Salsa Heat Exchanger Assembly
601-005-743 Rev. A



Salsa Heat Exchanger Assembly Parts List

Item	Part Number	Description	Qty
1	000-015-1303	BRACKET, HX PLENUM SIDE BACKING	4
2	000-015-1302	BRACKET, HX PLENUM TOP BACKING	4
3	000-052-649	ELBOW, 3.00" O.D. X 0.065 WALL 4.500" R w/ 2.00"	1
4	000-052-674	ELBOW, 3" RUBBER w/CLAMPS	2
5	000-052-747	ELBOW, 3/8" STREET X 90° s/s	2
6	000-057-255	GASKET, SALSA HX - CDS ZR-2017	2
7	000-038-084	HEAT EXCHANGER, 8R 6X8 SS 2 FIN	1
8	000-068-802	HOSE ASSEMBLY, 5/16" PTFE (TEFLON) X 42" LG.	2
9	000-052-507	NIPPLE, 3/8" NPT x 9/16"-18 37° JIC s/s	2
10	000-100-370	PANEL, SALSA INLET - WELDMENT	1
11	000-100-368	PANEL, SALSA OUTLET - WELDMENT	1
12	000-108-223	PROTECTOR, SALSA INSULATION SET - NZR	1
13	000-143-583	SCREW, #10-24UNC x 0.50" LG. HEX FLANGE Z/P	32



NOTICE

* Check anodes every 500 hours and replace as necessary.

Figure 9-19. 2017 ZR CDS Front End Assembly
601-021-743 Rev. C

2017 ZR CDS Front End Assembly Parts List

Item	Part Number	Description	Qty
1	000-120-016	ANGLE 1X1X1/8X 72 LG ALUM	1
2	000-033-029	CLAMP, SIZE #12 HOSE	4
3	000-033-008	CLAMP, SIZE #20 HOSE	2
4	000-037-003	CONN BUTT 14/16 BLUE	2
5	000-056-006	FUSE HOLDER IN LINE WEATHERPRO	1
6	000-063-021	HARNESS, 1/4" SPLIT WIRE LOOM	8.33'
7	000-078-435	KIT, 2017 GM THROTTLE 3 SPEED CONTROL	1
8	000-078-743	KIT, CDS CLUTCH NZR 2017	1
9	000-094-010	NUT, 1/4"- 20UNC S/S HEX	2
10	000-094-009	NUT, 1/4"-20UNC NYLOCK	4
11	000-108-127	PROTECTOR, FLY STRAP - COATED	1
12	000-108-009	PROTECTOR, FLY STRAP - TOP CLAMP - COATED	1
13	000-143-002	SCREW, 1/4"-20UNC x 1.00" LG. HEX HEAD	2
14	000-143-078	SCREW, M10 x 30MM LG.	3
15	000-147-035	SEAL, BLANK SILICONE	1
16	000-154-225	SPACER, TENSIONER STANDOFF 2017- COATED	1
17	000-052-716	TEE, UPPER COOLANT - GMC 2003	1
18	000-052-379	TEE, 3/4" BARB X 3/4" BARB X 3/4" BARB	1
19	000-037-026	TERMINAL, FULLY INSULATED FEMALE 90° QC	1
20	000-174-003	WASHER, 1/4" FLAT S/S	4

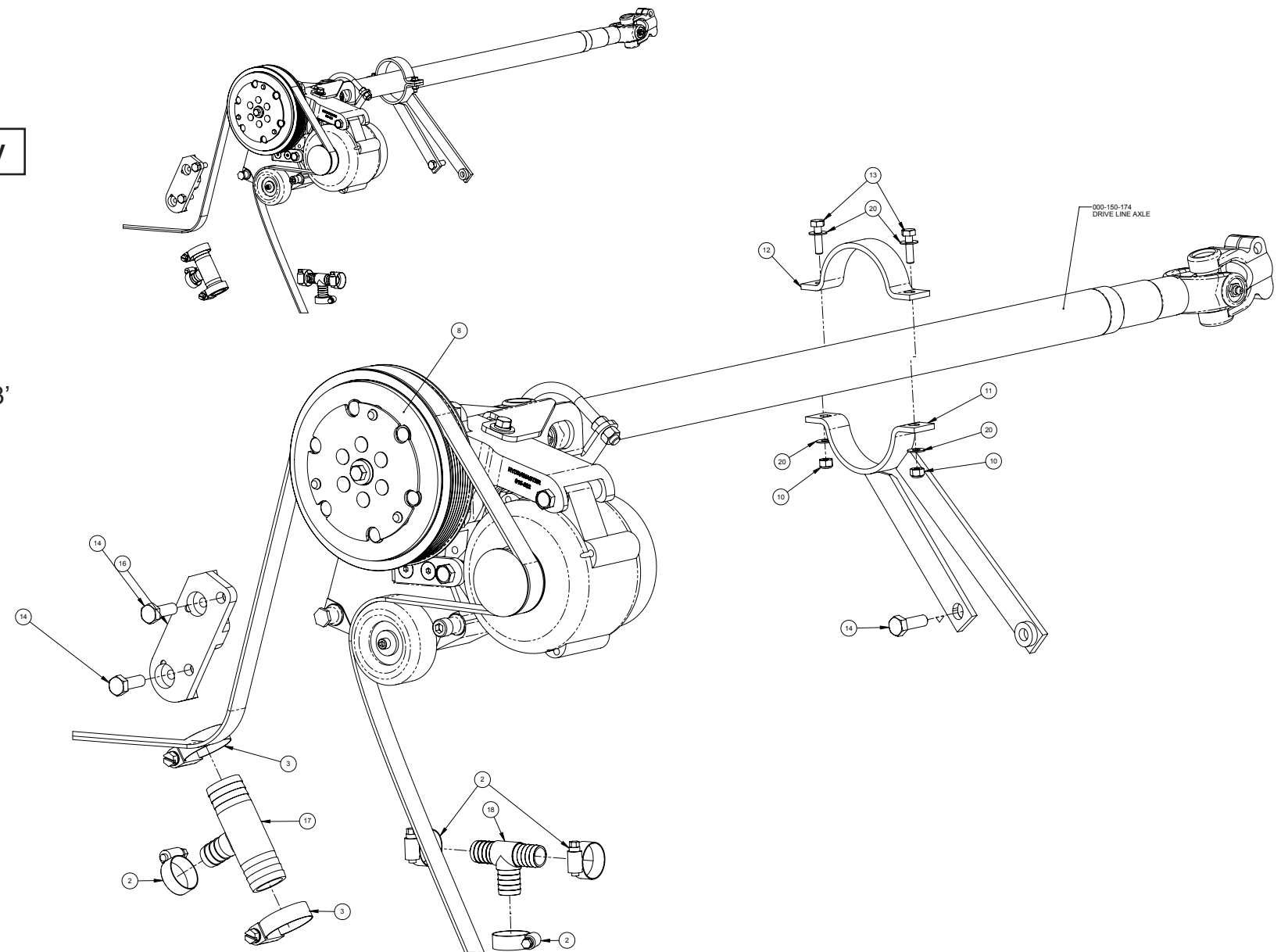
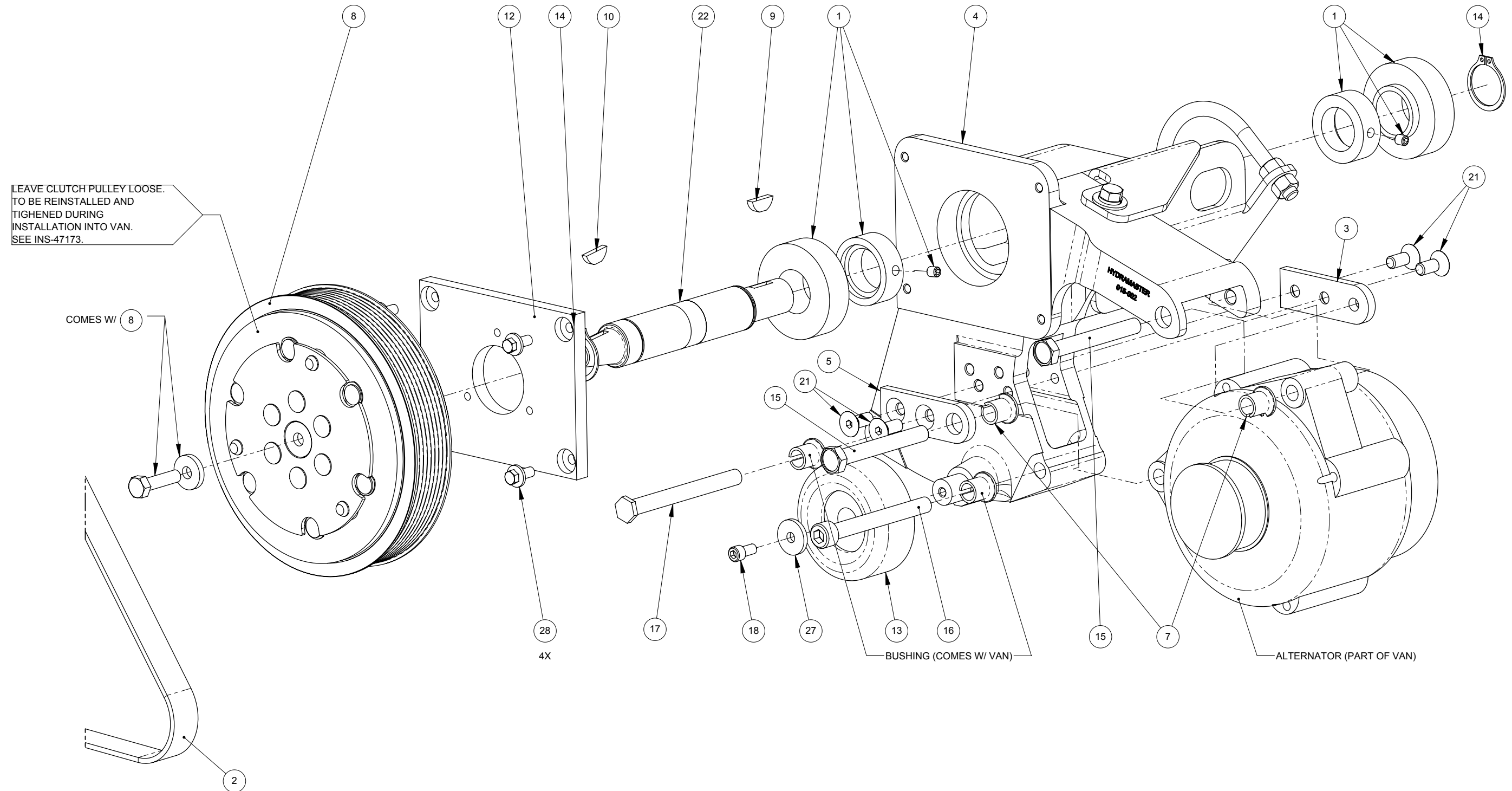


Figure 9-20. 2017 ZR CDS Clutch Assembly Kit
000-078-743 Rev. B



2017 ZR CDS Clutch Assembly Kit - Assembly Parts List

Item	Part Number	Description	Qty
1	000-008-011	BEARING, CDS CLUTCH	2
2	000-010-140	BELT, GATES K061177HD	1
3	000-015-880	BRACKET, 2003 CHEVY IDLER CASTING - REAR	1
4	000-015-002	BRACKET, CDS FRONT END IDLER CASTING	1
5	000-015-879	BRACKET, IDLER CASTING - FRONT	1
6	000-015-1359	BRACKET, SHAFT PROTECTOR - COATED	1
7	000-154-141	BUSHING, CDS IDLER CASTING - ALTMOTOR	2
8	000-036-012	CLUTCH, 7" CDS POLY GROOVE	1
9	000-077-009	KEY,3/16" X 3/4" WOODRUFF	1
10	000-077-008	KEY,5/32 X 3/4" WOODRUFF	1
11	000-094-016	NUT, 3/8"-16UNC HEX WHIZ LOCK	2
12	000-105-784	PLATE, CLUTCH SPACER	1
13	000-109-095	PULLEY, 76MM CDS IDLER - GATES W/ DOUBLE RO	1
14	000-139-005	RING,CDS CLUTCH SHAFT	2
15	000-143-564	SCREW, M10 X 1.5 X 80MM LG. HEX HEAD	2

Item	Part Number	Description	Qty
16	000-143-563	SCREW, M10 X 1.5 X 90MM LG. SOCKET HD	1
17	000-143-558	SCREW, M10x1.5 x 90MM LG. MOD. THIN HEAD	1
18	000-143-079	SCREW, 1/4"-20UNC x 0.5" LG. SOCKET HEAD	1
19	000-143-017	SCREW, 3/8"-16UNC x 0.75" LG. HEX HEAD GRD. 8	1
20	000-143-242	SCREW, 5/16"-18UNC x 0.75" LG. HEX HEAD GRADE 51	1
21	000-143-562	SCREW, 5/16-18UNC X 0.75" LG. FLAT HEAD ALLEN	4
22	000-150-177	SHAFT, ELECTRIC 7" CLUTCH	1
23	000-143-741	U-BOLT, 3/8" X 2.5" PIPE X 3.63" LG. Z/P	1
24	000-174-021	WASHER, 3/8" LOCK	1
25	000-174-004	WASHER, 5/16" FLAT, USS	1
26	000-174-018	WASHER, 5/16" LOCK	1
27	000-174-104	WASHER, CHEVY CDS IDLER CASTING	1
28	000-143-141	SCREW, 1/4"-20UNC x 0.50" LG. WHIZ LOCK	4

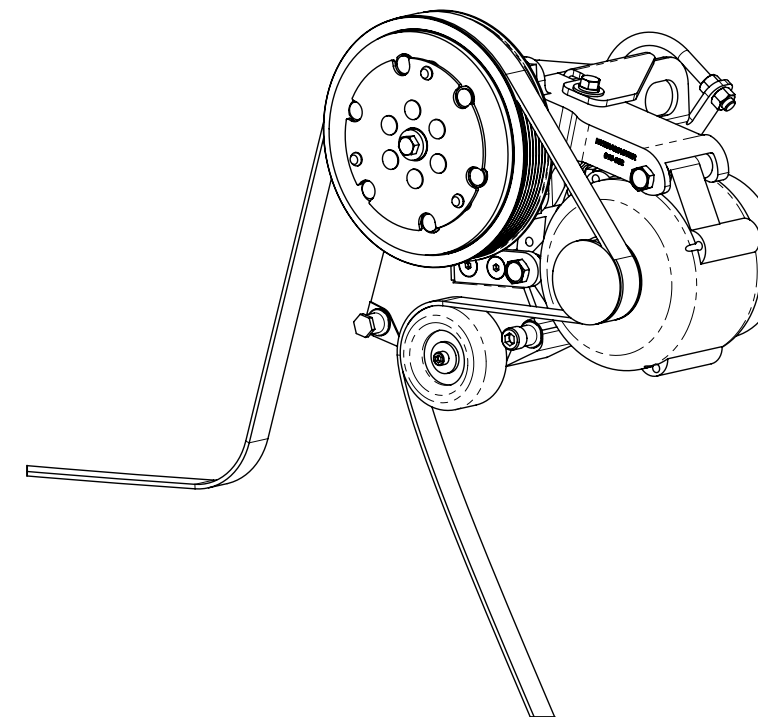
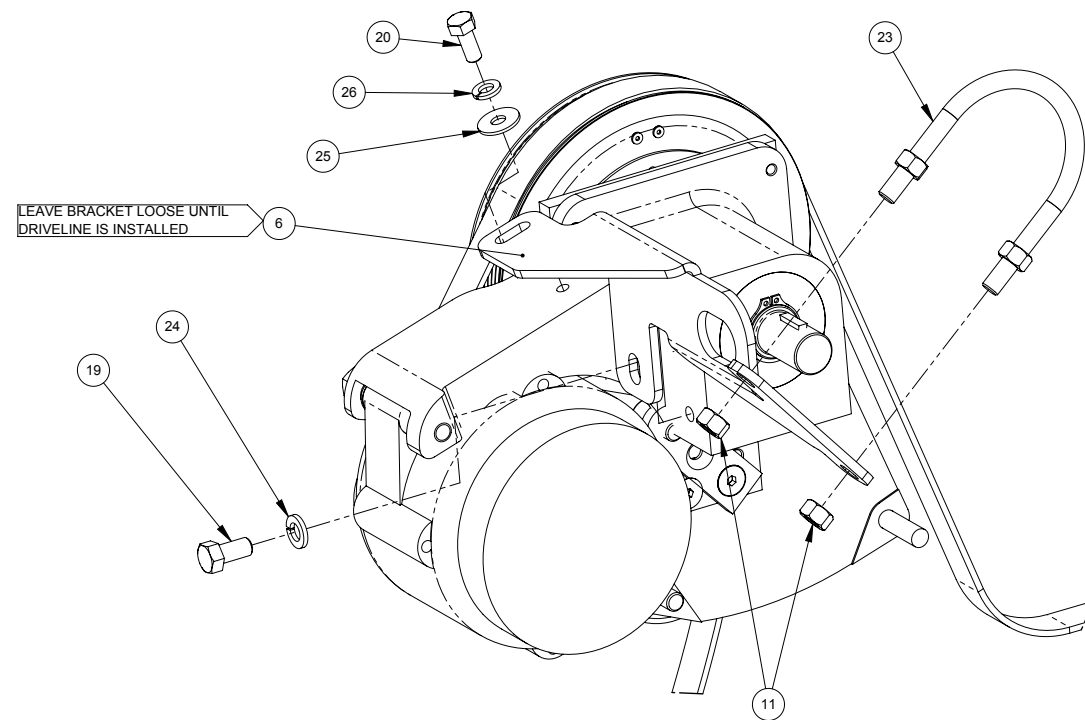
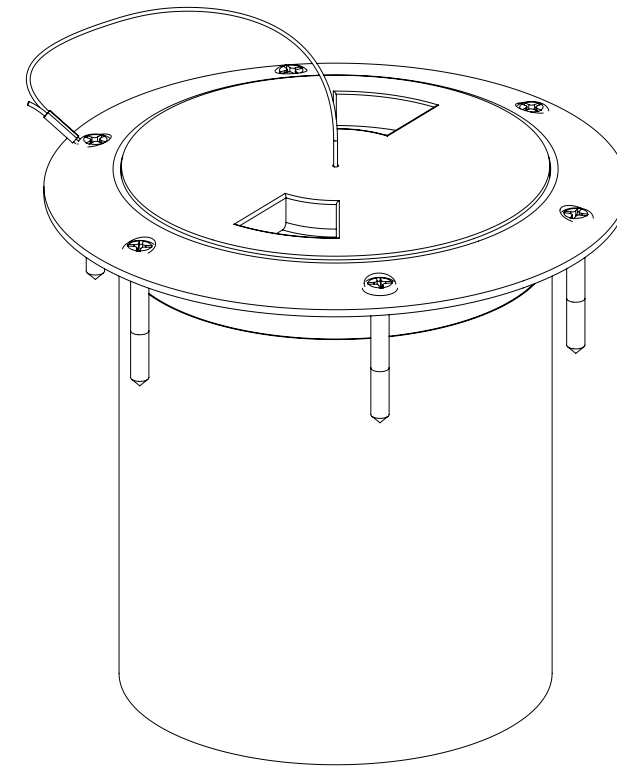
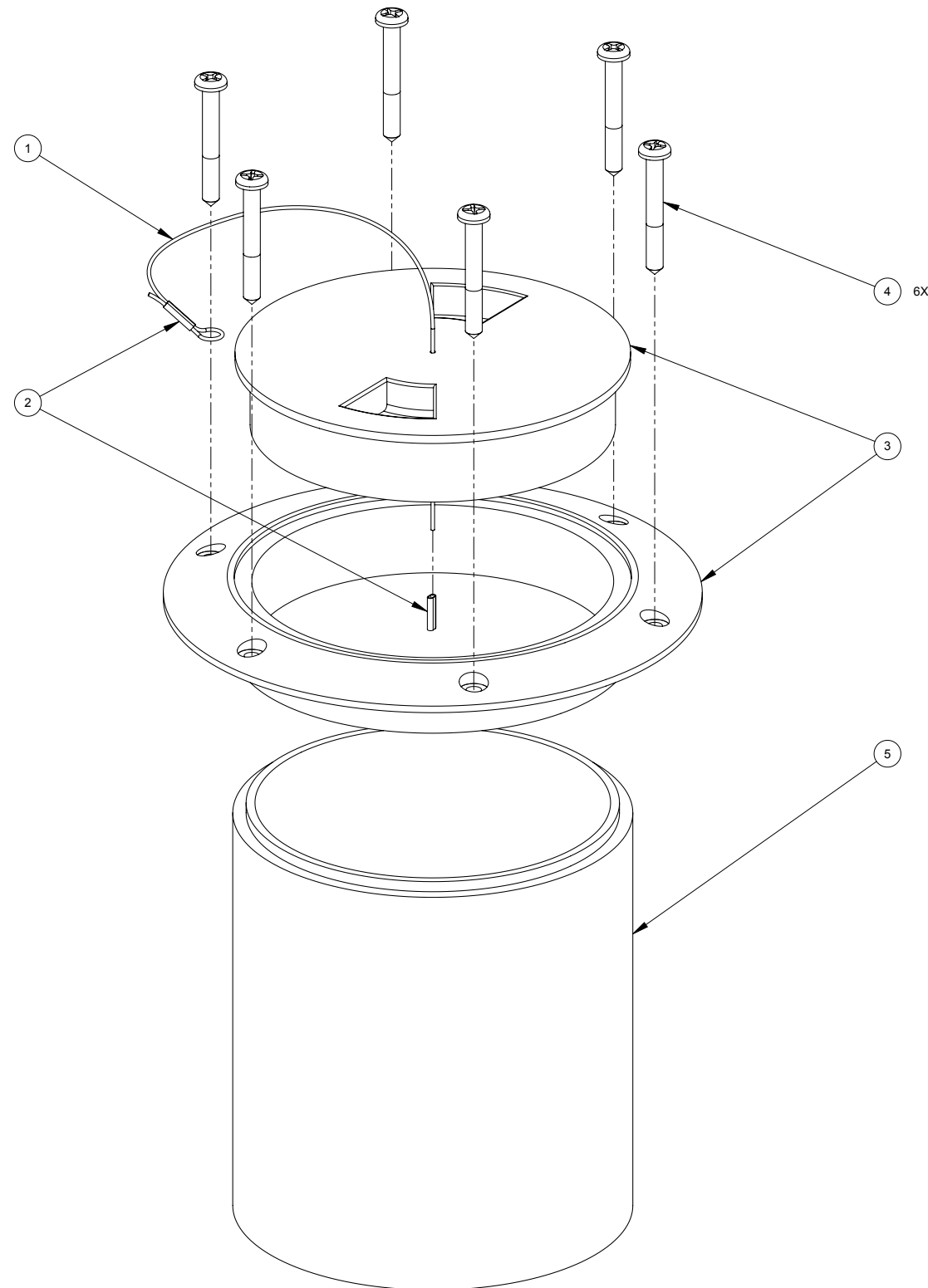


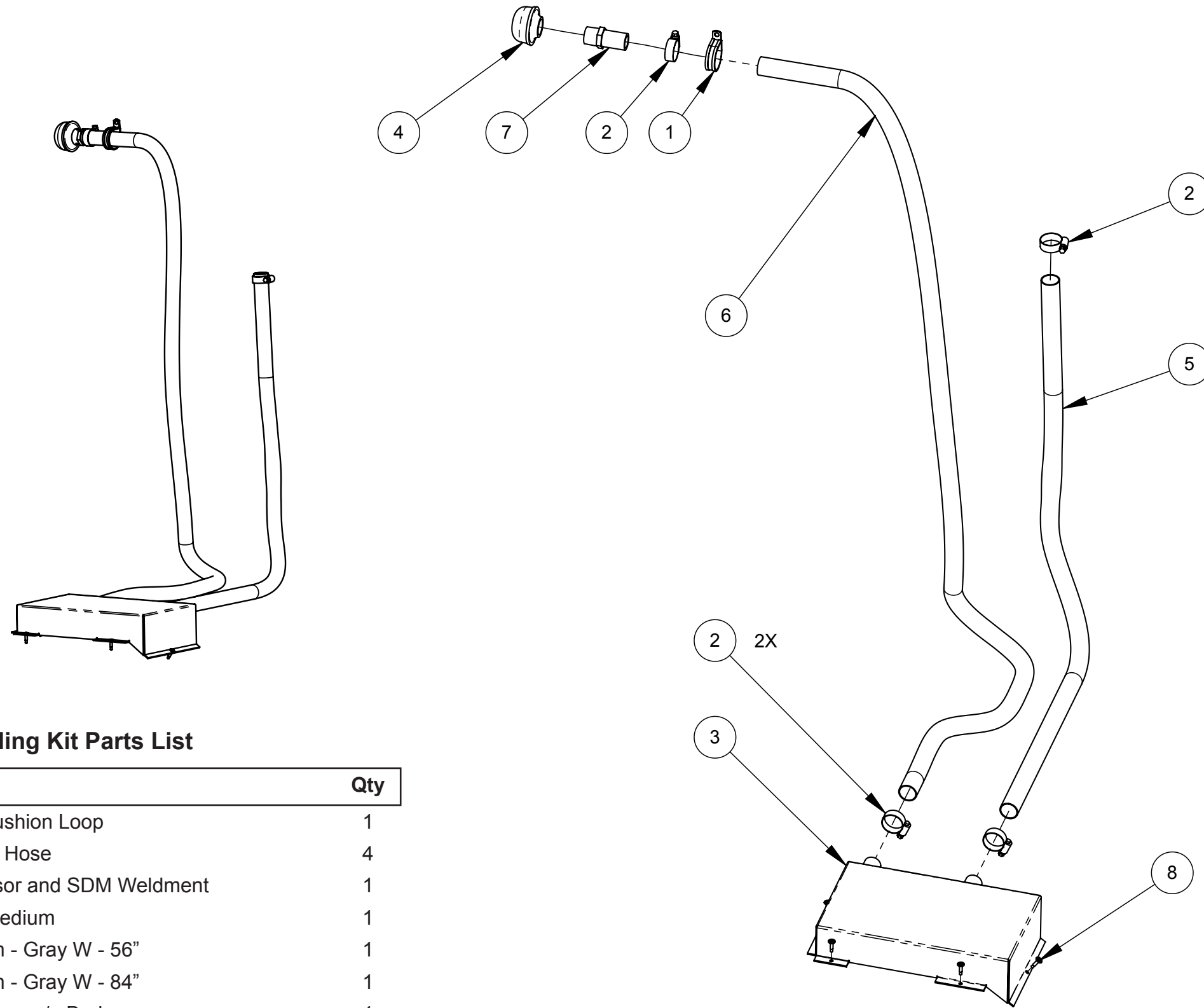
Figure 9-21. Pass Through Assembly
000-078-381 Rev. D



Pass Through Assembly Parts List

Item	Part Number	Description	Qty
1	000-025-008	Cable, 150 lb Test S/S	1
2	000-033-032	Clamp, CDS Throttle Cable	2
3	000-041-893	Cover, 4" Round ABS-Mod. -Pass Through	1
4	000-143-537	Screw, #10 X 1.5" Lg. Pan Head Sheet Metal	6
5	000-125-182	Tube, Pass Through	1

Figure 9-22. ZR Yaw Sensor Cooling Kit
000-079-141-A



Yaw Sensor Cooling Kit Parts List

Item	Part Number	Description	Qty
1	000-033-053	Clamp, 1-1/2" Cushion Loop	1
2	000-033-029	Clamp, Size #12 Hose	4
3	000-041-323	Cover, Yaw Sensor and SDM Weldment	1
4	000-041-020	Filter Screen - Medium	1
5	000-068-830	Hose, 1" Vacuum - Gray W - 56"	1
6	000-068-828	Hose, 1" Vacuum - Gray W - 84"	1
7	000-052-908	Insert 3/4 X 1 Hose w/o Barb	1
8	000-143-112	Screw, 10-24 X 1/2" Self Tapping Pan HD-Phillips	4

Figure 9-23. Cradle Tank with Solution Reel Assembly
000-163-610 Rev. G

Cradle Tank with Solution Reel Assembly List

Item	Part Number	Description	Qty
1	000-163-609	Assembly, Tank Cradle - ZEROREZ	1
2	000-163-069	Assembly, Tank Cradle Air Vent	1
3	000-163-611	Assembly, ZEROREZ 14" Hose Reel, Solution	1
4	000-078-200	Kit, Tie Down Cradle Tank	1

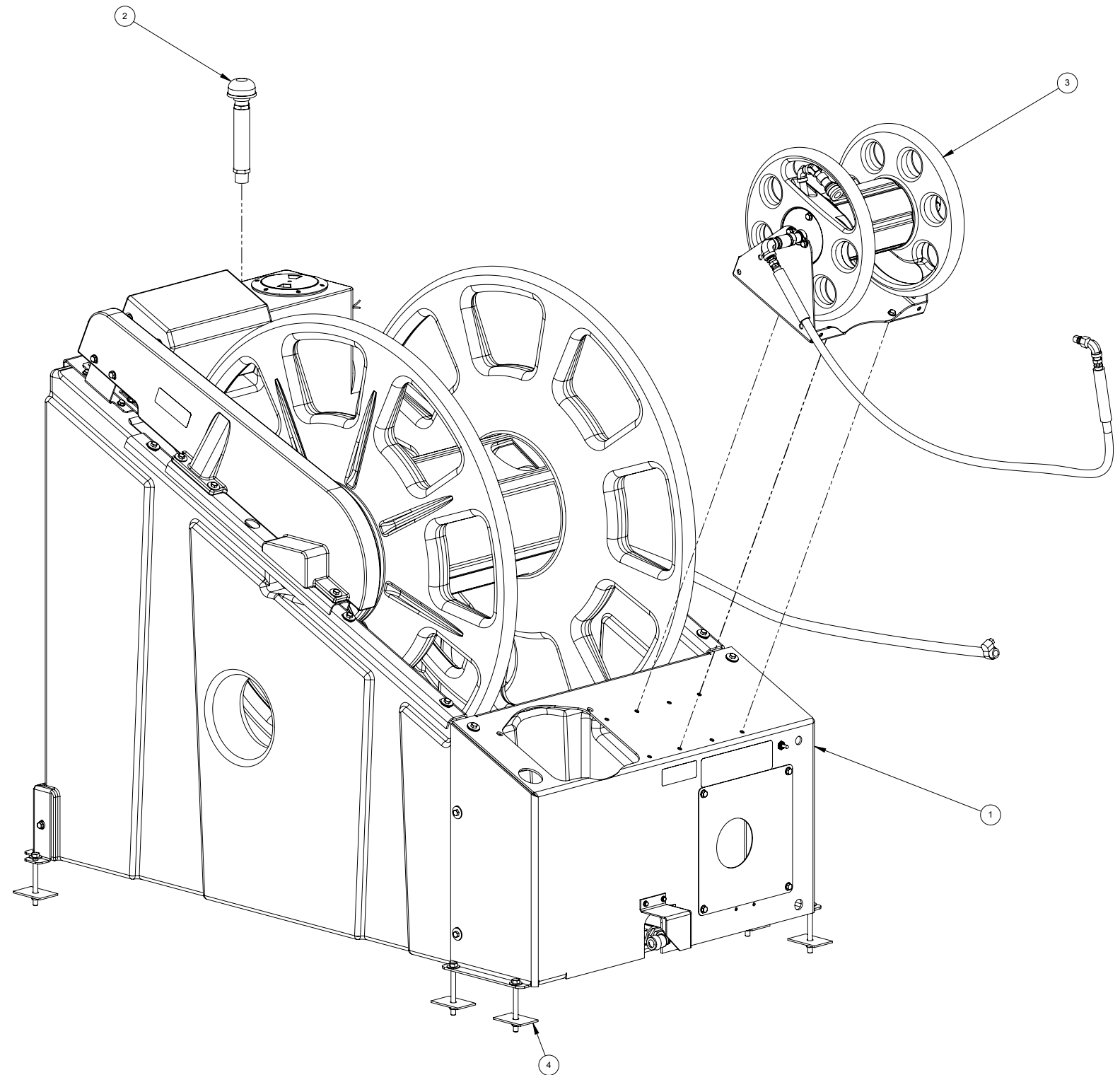
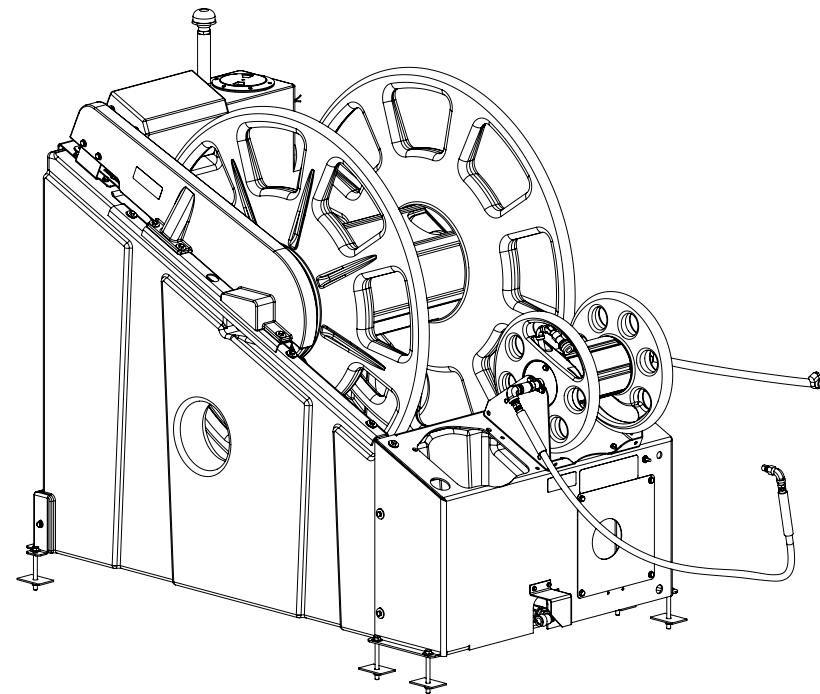
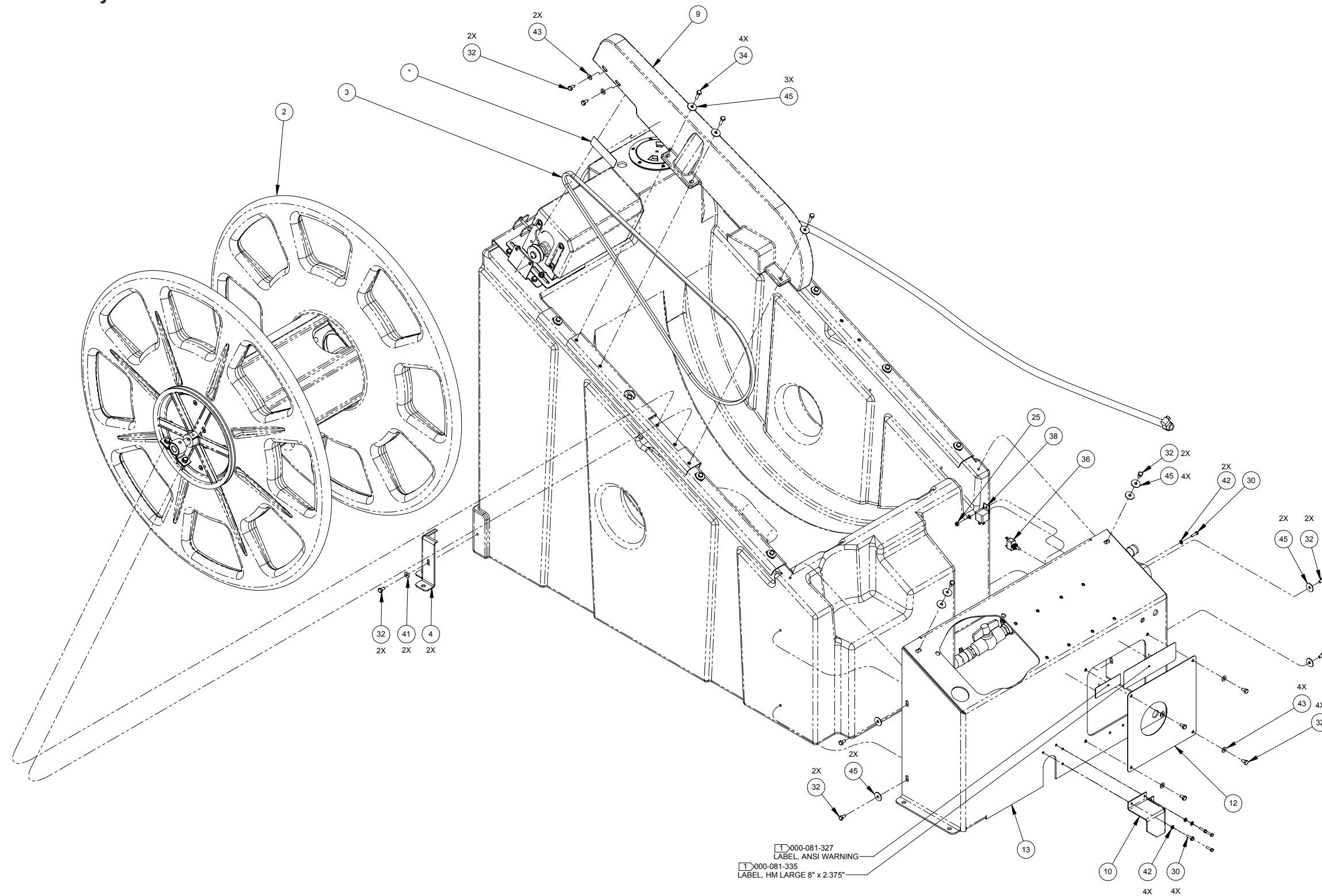


Figure 9-24. Cradle Tank Assembly - View 1 of 4
000-163-609 Rev. H



NOTES:
 1 ITEMS ARE PART OF LABEL SET 000-081-304.

Figure 9-25. Cradle Tank Assembly - View 2 of 4
000-163-609 Rev. H

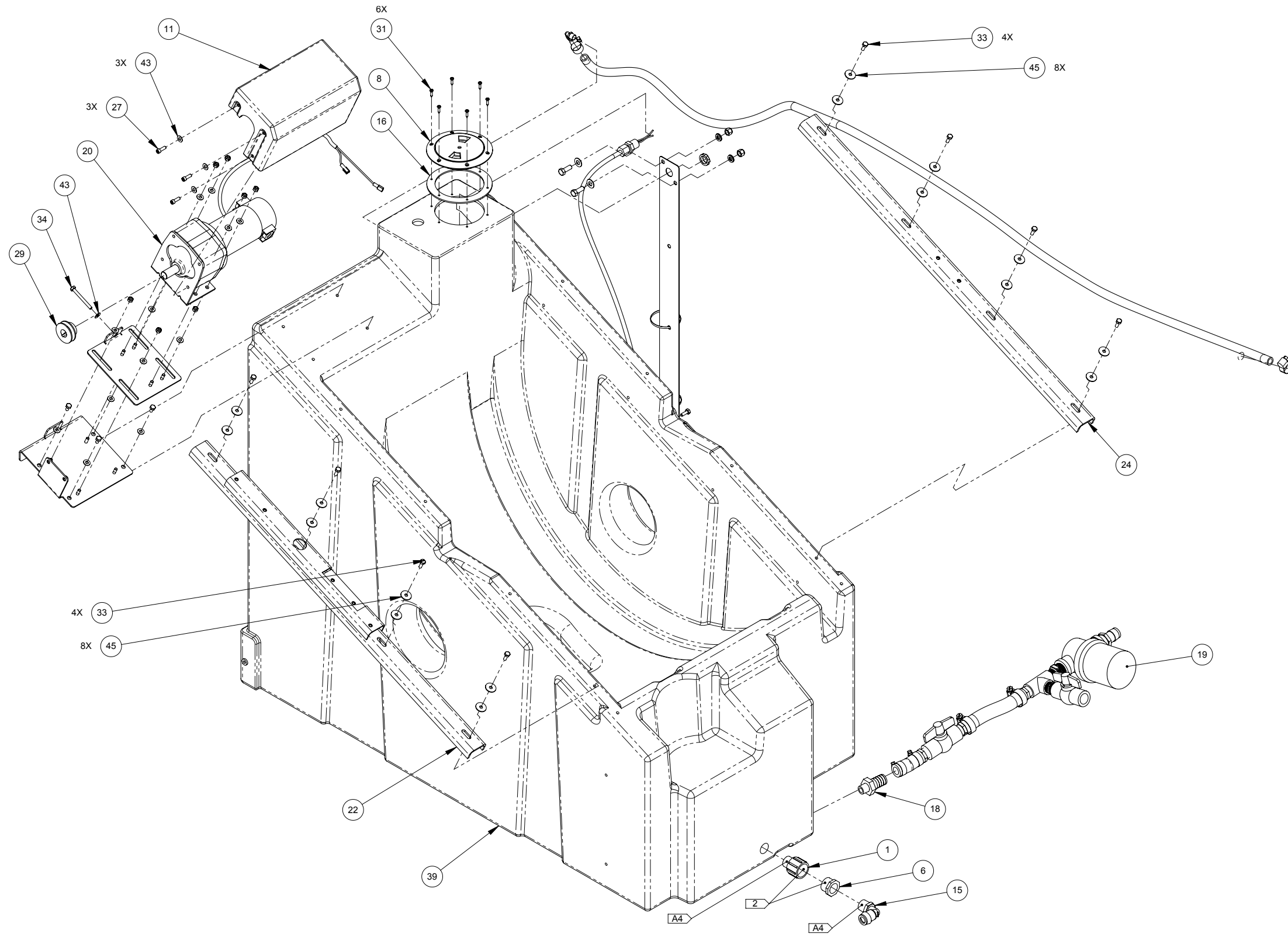
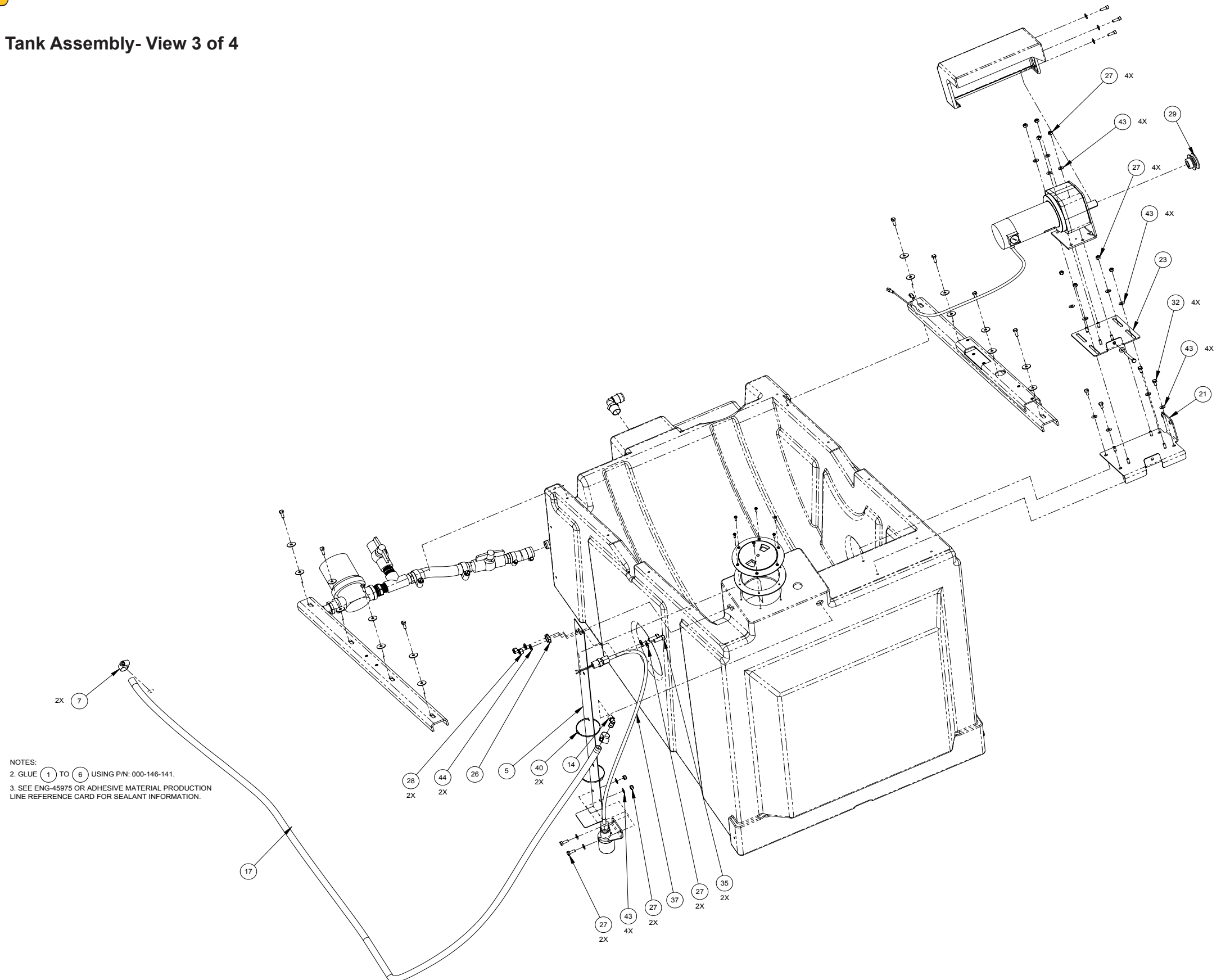
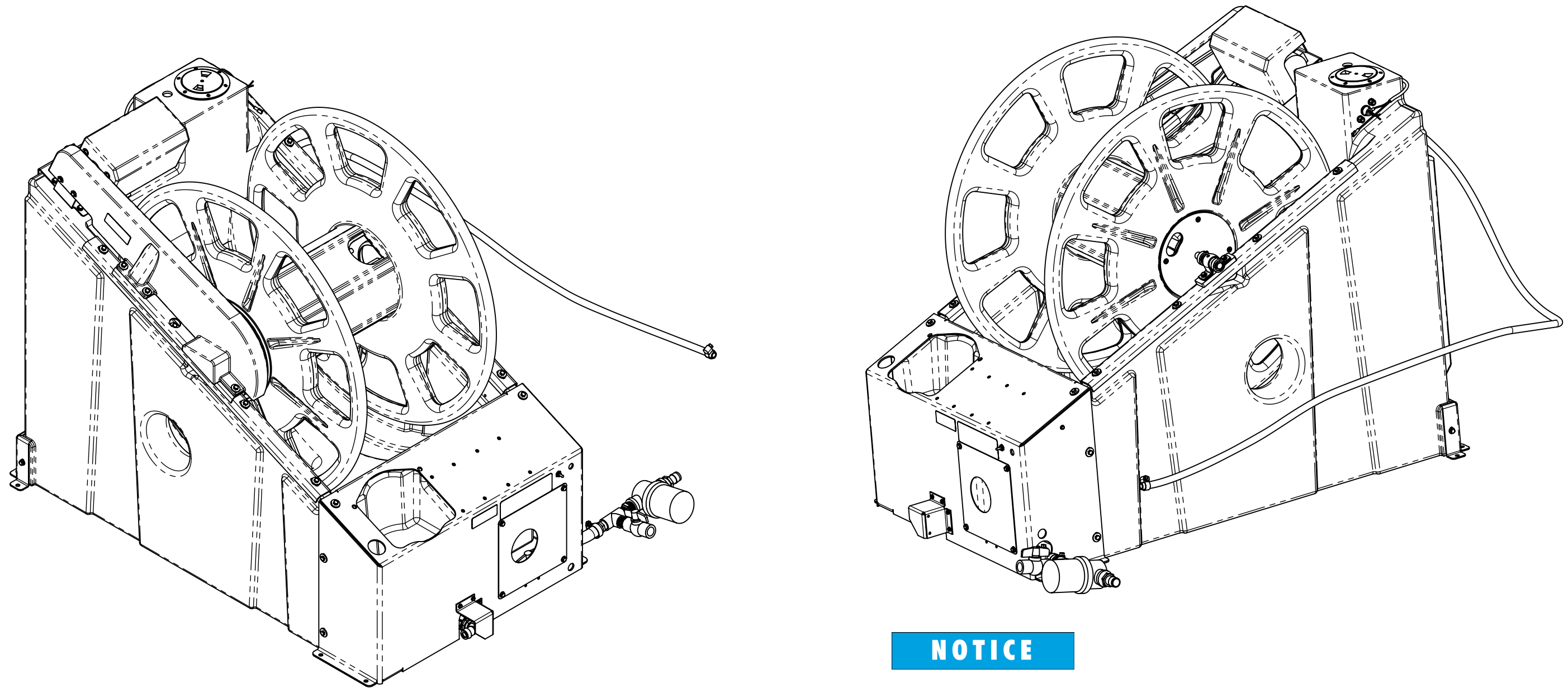


Figure 9-26. Cradle Tank Assembly- View 3 of 4
000-163-609 Rev. H



NOTES:
 2. GLUE 1 TO 6 USING P/N: 000-146-141.
 3. SEE ENG-45975 OR ADHESIVE MATERIAL PRODUCTION LINE REFERENCE CARD FOR SEALANT INFORMATION.

Figure 9-27. Cradle Tank Assembly - View 4 of 4
000-163-609 Rev. H



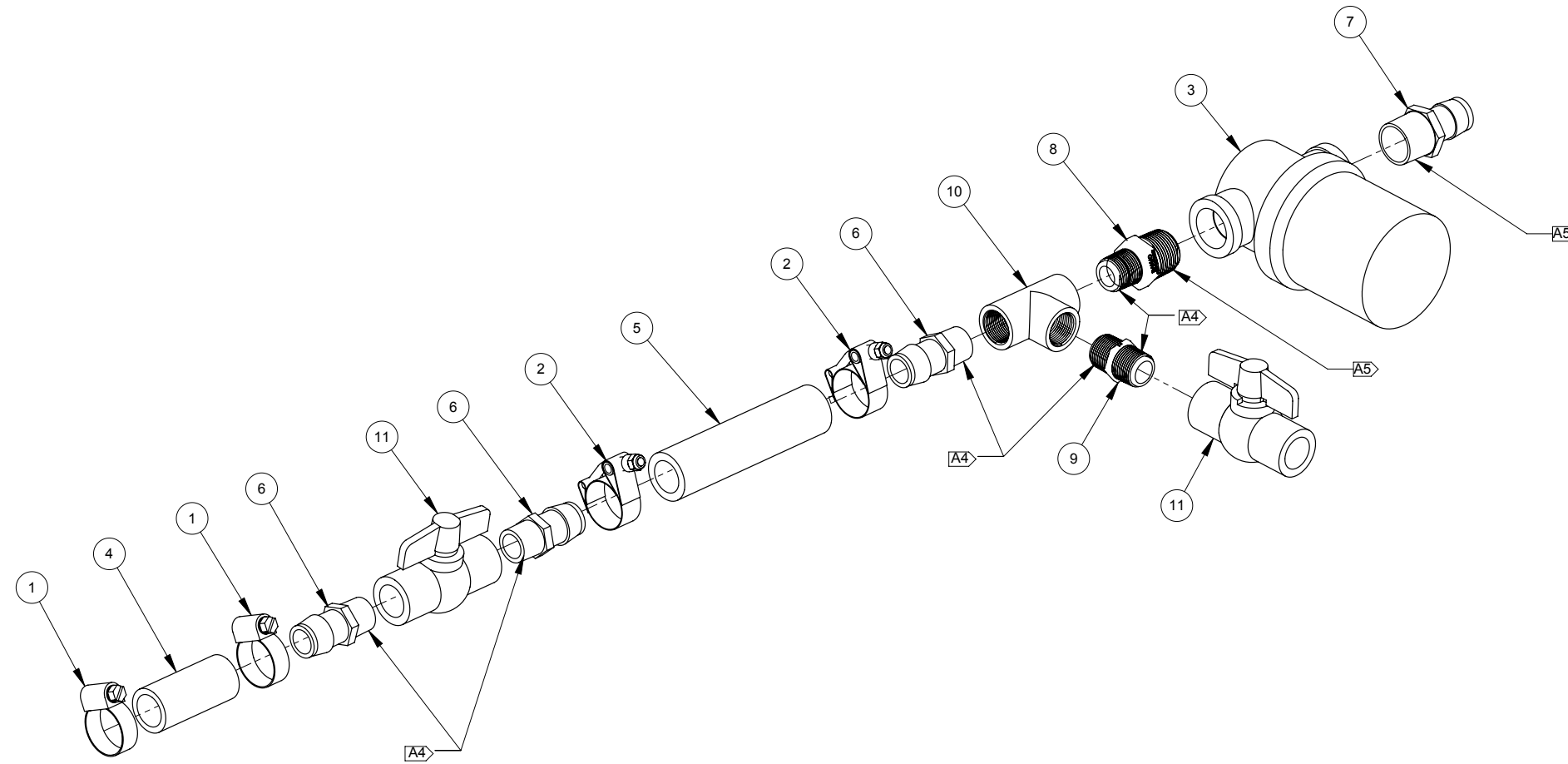
NOTICE

30 Amp fuse and relay are under item 12 Pump Access Cover.

Cradle Tank Assembly Parts List

Item	Part Number	Description	Qty	Item	Part Number	Description	Qty
1	000-052-236	ADAPTER,3/4"MPT X 1"FEMALE	1	24	000-092-034	MOUNT, RIGHT SIDE - COATED	1
2	000-163-605	ASSEMBLY, VACUUM HOSE REEL	1	25	000-094-034	NUT, #10-24UNC HEX NYLOCK	1
3	000-010-030	BELT, 4L, 73" LONG	1	26	000-094-036	NUT, 1/2" NPT PIPE PLASTIC	1
4	000-015-1199	BRACKET, REAR BASE - FABRICATED	2	27	000-094-009	NUT, 1/4"-20UNC NYLOCK	18
5	000-015-012	BRACKET, SUBMERSIBLE FLOAT SWITCH - FAB	1	28	000-094-100	NUT, 3/8"-16UNC HEX NYLOCK	2
6	000-052-235	BUSHING,3/4"FPT X 1"MALE	1	29	000-109-122	PULLEY, 2" OD X 3/4 BORE	1
7	000-033-006	CLAMP, SIZE #8	2	30	000-143-132	SCREW, #10-24UNC x 0.75" LG. HEX HEAD	5
8	000-041-365	COVER, 4" ROUND	1	31	000-143-739	SCREW, #8-15 X 3/4" LG. PAN HEAD SS	6
9	000-041-475	COVER, BELT - CRADLE TANK	1	32	000-143-333	SCREW, 1/4"-20UNC x 0.50" LG. S/S HEX HEAD	18
10	000-041-734	COVER, ELBOW - CRADLE TANK - COATED	1	33	000-143-001	SCREW, 1/4"-20UNC x 0.75" LG. HEX HEAD	7
11	000-041-474	COVER, MOTOR, CRADLE TANK	1	34	000-143-594	SCREW, 1/4"-20UNC x 2.50" LG. HEX HEAD, FULL TH	4
12	000-041-477	COVER, PUMP ACCESS - COATED	1	35	000-143-096	SCREW, 3/8"-16UNC X 1.00" LG. HEX HEAD	2
13	000-041-476	COVER, TANK FRONT - COATED	1	36	000-157-167	SWITCH, 3 WAY TOGGLE - MOMENTARY	1
14	000-052-484	ELBOW, 1/2" NPT X 1/2 HOSE	1	37	000-157-039	SWITCH, MODIFIED LIQUID LEVEL	1
15	000-052-348	ELBOW, 3/4" NPT x 1" HOSE	1	38	000-157-022	SWITCH, RELAY	1
16	000-057-254	GASKET - 4 IN. COVER LID	1	39	000-159-134	TANK, 125 GALLON, CRADLE	1
17	000-068-878	HOSE, 1/2" RUBBER - 8 FT LONG	1	40	000-162-011	TIE WRAP, 14.25" X 0.18" SS	2
18	000-052-922	INSERT, 1/2" MNPT X 1" HOSE BARB	1	41	000-174-205	WASHER 1/4 X 5/8 X 1/8 SS	2
19	000-079-218	KIT, INLINE FILTER - CRADLE TANK	1	42	000-174-001	WASHER, #10 FLAT	6
20	000-091-046	MOTOR ASSEMBLY, 1/6 HP, 12VDC, MODIFICATION	1	43	000-174-003	WASHER, 1/4" FLAT S/S	26
21	000-092-027	MOUNT, DRIVE MOTOR - COATED	1	44	000-174-029	WASHER, 3/8" FLAT RUBBER BACKED	2
22	000-092-033	MOUNT, LEFT SIDE - COATED	1	45	000-174-200	WSHR 0.26 ID X 1 FLAT 0.074 SS	27
23	000-092-026	MOUNT, MOTOR ADJUSTMENT - COATED	1				

Figure 9-28. Cradle Tank Inline Filter Kit
000-079-218 Rev. B

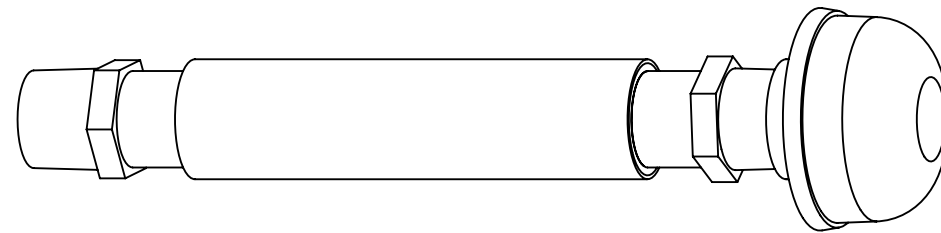


Cradle Tank Inline Filter Kit Assembly Parts List

Item	Part Number	Description	Qty
1	000-033-029	CLAMP, SIZE #12 HOSE	2
2	000-033-020	CLAMP, SIZE #16 HOSE	2
3	000-049-200	FILTER, 1" IN-LINE STRAINER	1
4	000-068-1094	HOSE, 1" I.D. GREEN STRIPE X 3" LG.	1
5	000-068-1095	HOSE, 1" I.D. SUCTION X 6" LG.	1
6	000-052-125	INSERT, 3/4" X 1" HOSE BARB	3

Item	Part Number	Description	Qty
7	000-052-758	INSERT, 1" NPT x 1" BARB	1
8	000-052-946	NIPPLE, 1" NPT X 3/4" NPT HEX	1
9	000-052-947	NIPPLE, 3/4" FPT HEX	1
10	000-052-945	TEE, 3/4" FPT X FPT X FPT	1
11	000-169-202	VALVE, 3/4" FPT BALL VALVE	2

Figure 9-29. Air Vent Assembly
000-163-069 Rev. A



Air Vent Assembly List

Item	Part Number	Description	Qty
1	000-049-020	Filter Screen - Medium	1
2	000-068-876	Hose, 1" I.D. Green Stripe X 5" Lg.	1
3	000-052-125	Insert, 3/4" X 1" Hose Barb	2

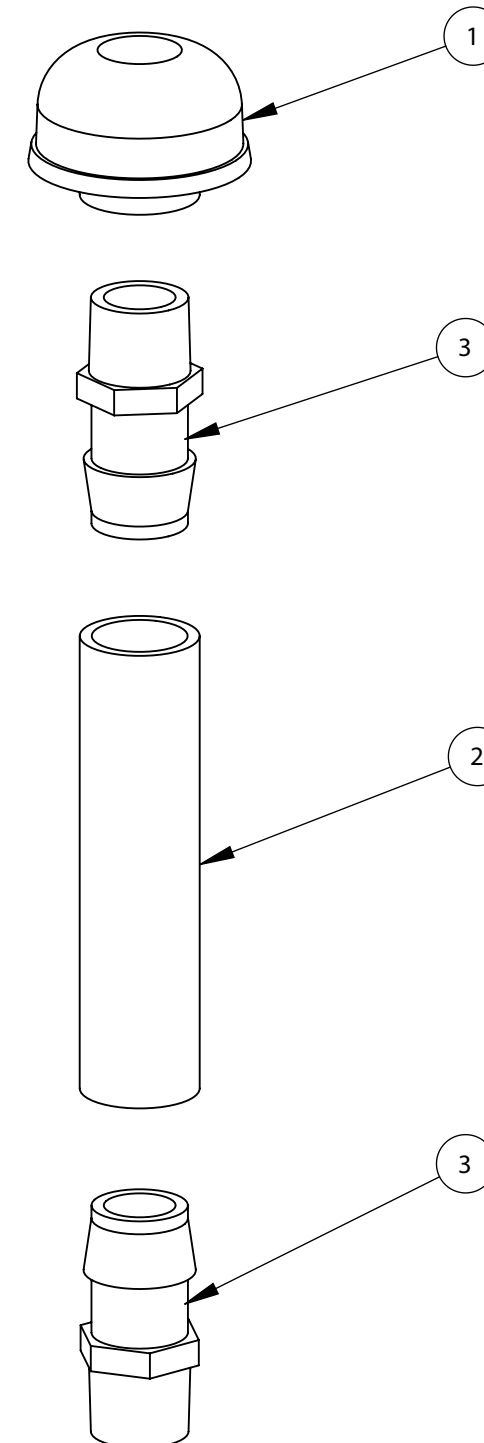


Figure 9-30. 14" Solution Hose Reel Assembly
000-163-611 Rev. E

14" Solution Hose Reel Assembly Parts List

Item	Part Number	Description	Qty
1	000-008-054	BEARING, FACE FLANGE, 3/4 ID	1
2	000-008-055	BEARING-TENSIONER	1
3	000-015-979	BRACKET, REEL MOUNT - COATED	1
4	000-052-007	BUSHING, 3/8" M X 1/4 F	1
5	000-052-691	ELBOW, 1/4" NPT STREET S/S	2
6	000-052-745	ELBOW, 1/4", 45 DEG STREET S/S	1
7	000-052-188	ELBOW, 3/8" SS FEMALE	1
8	000-061-152	HANDLE, CRANK - MODIFIED	1
9	000-068-251	HOSE ASSEMBLY, 1/4" SOLUTION X 96" LG. - ZR	1
10	000-092-028	MOUNT, 14" REEL CRANK - COATED	1
11	000-092-029	MOUNT, 14" REEL, LIVE CENTER - COATED	1
12	000-052-678	NIPPLE, 1/4 NPT X 4", SCH 80	1
13	000-052-690	QUICK CONNECT, 1/4" FEMALE S/S	1
14	000-163-598	REEL, 14" ROTOMOLD	2
15	000-163-599	REEL; CENTER CORE, ROTOMOLD	1
16	000-143-333	SCREW, 1/4"-20UNC x 0.50" LG. S/S HEX HEAD	8
17	000-143-599	SCREW, 1/4"-20UNC x 0.75" LG. SHCS, SS	2
18	000-143-610	SCREW, 1/4"-20UNC x 4.50" LG. HEX HEAD	4
19	000-154-179	SPACER, 0.82" ID X 1.05" OD X 0.5" LG	1
20	000-052-570	SWIVEL, 3/8 LIVE SOLUTION, TRIPLE BEARING SS	1
21	000-143-589	THUMB SCREW, 1/4"-20UNC X 1.50" LG	1
22	000-174-003	WASHER, 1/4" FLAT S/S	13

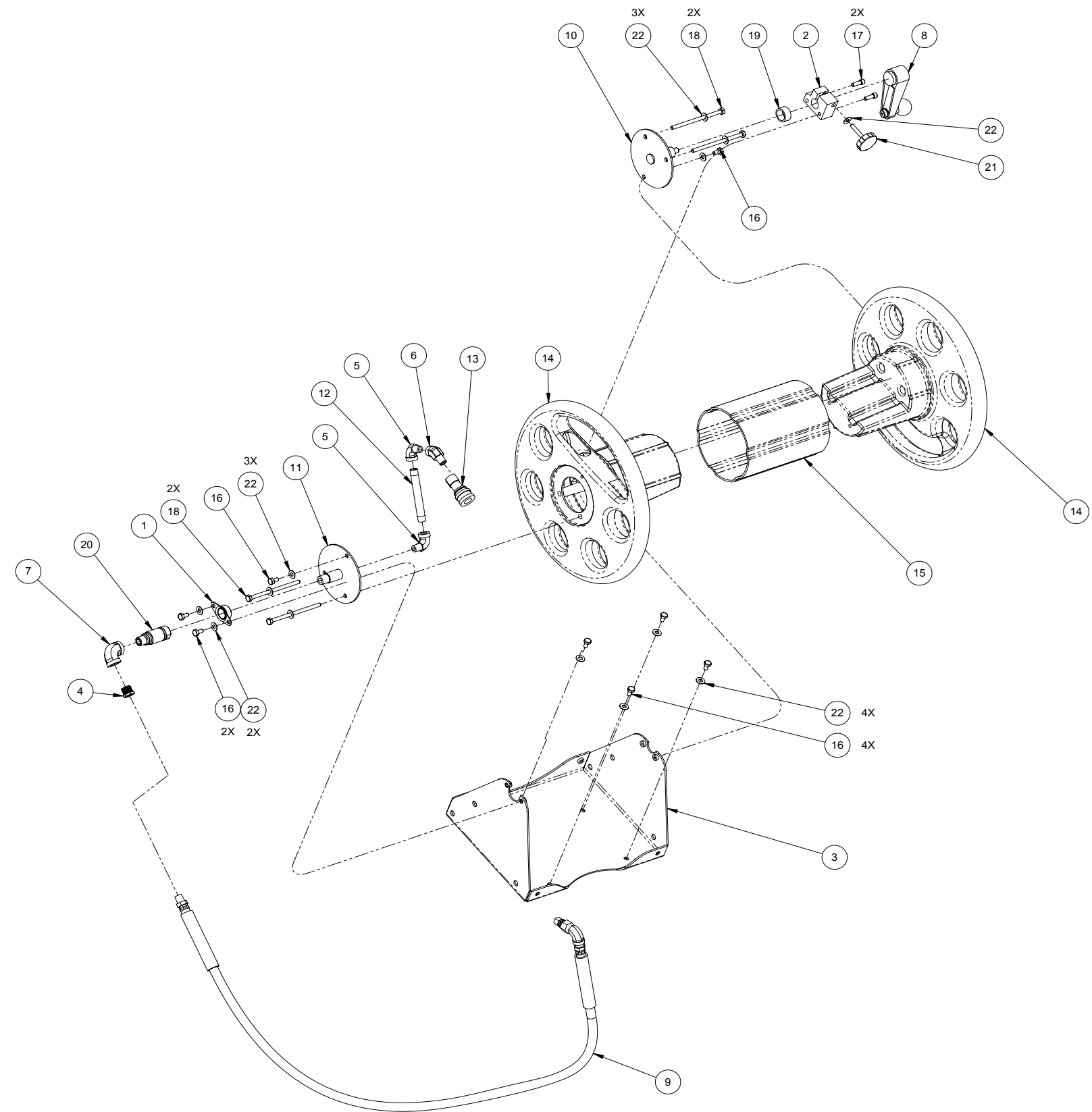
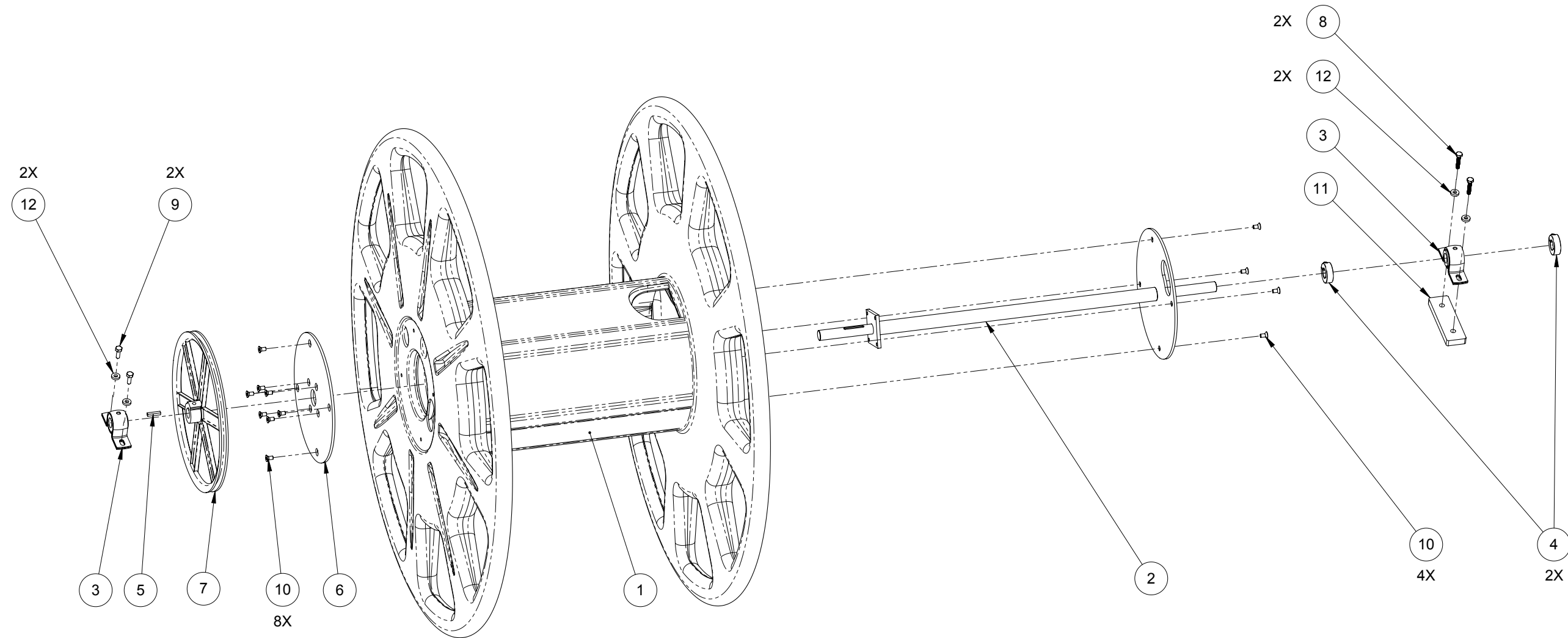


Figure 9-31. Vacuum Hose Reel Assembly
000-163-605 Rev. H



Vacuum Hose Reel Assembly Parts List

Item	Part Number	Description	Qty
1	000-163-597	ASSEMBLY, HUB - VACUUM HOSE REEL	4
2	000-141-054	AXLE, MAIN SHAFT, NON-LIVE, FAB	1
3	000-008-053	BEARING, PILLOW BLOCK, 3/4	12
4	000-020-079	COLLAR 3/4 IN S/S CLAMPING	2
5	000-077-016	KEY, 3/16 X 3/16 X 1.0" LG	2
6	000-105-661	PLATE, REEL MTG BRG SIDE - COATED	1

Item	Part Number	Description	Qty
7	000-109-128	PULLEY, 12" OD X 3/4 BORE	1
8	000-143-010	SCREW, 1/4-20 X 1 1/4" S/S HHCS	1
9	000-143-001	SCREW, 1/4"-20UNC x 0.75" LG. HEX HEAD	2
10	000-143-596	SCREW, 1/4"-20UNC x 0.50" LG, FLAT HEAD	2
11	000-154-222	SPACER, CRADLE TANK NON LIVE	1
12	000-174-205	WASHER 1/4 X 5/8 X 1/8 SS	1

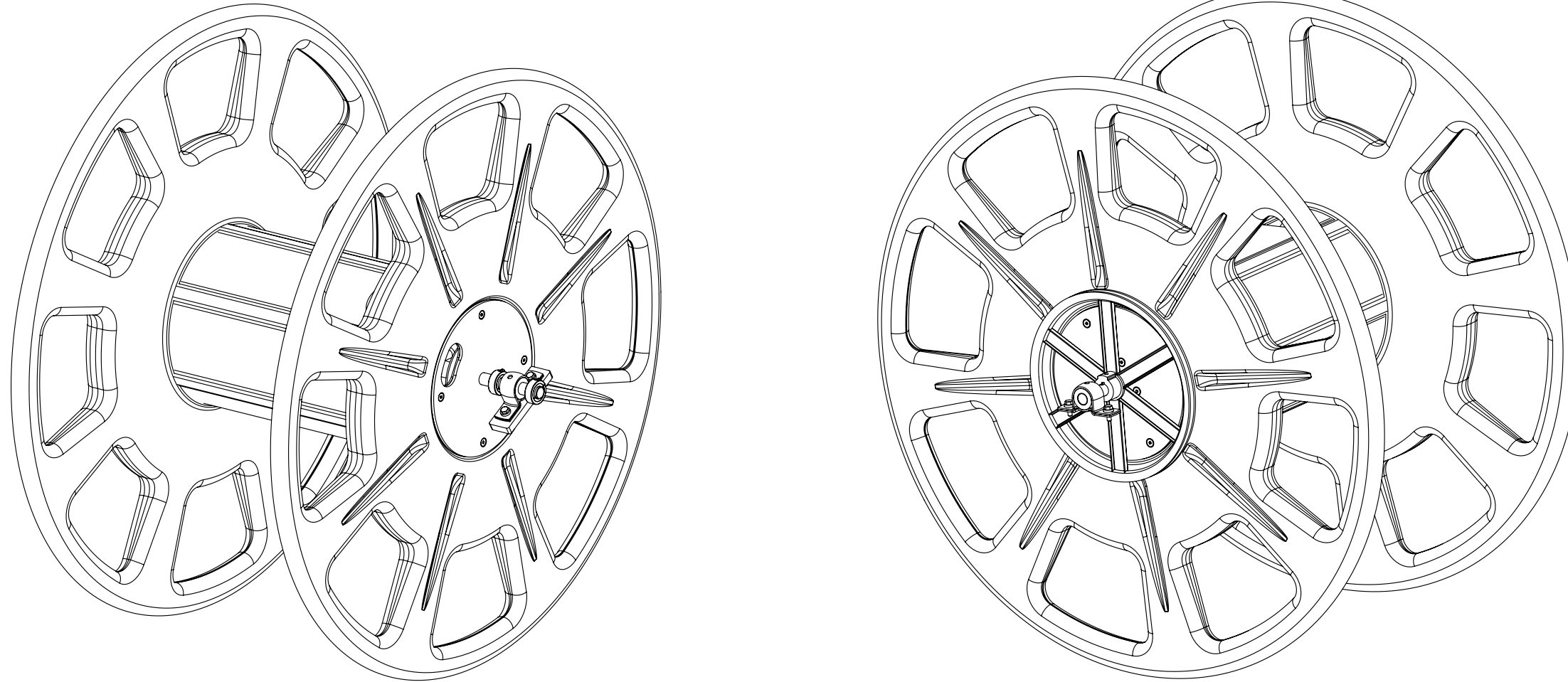
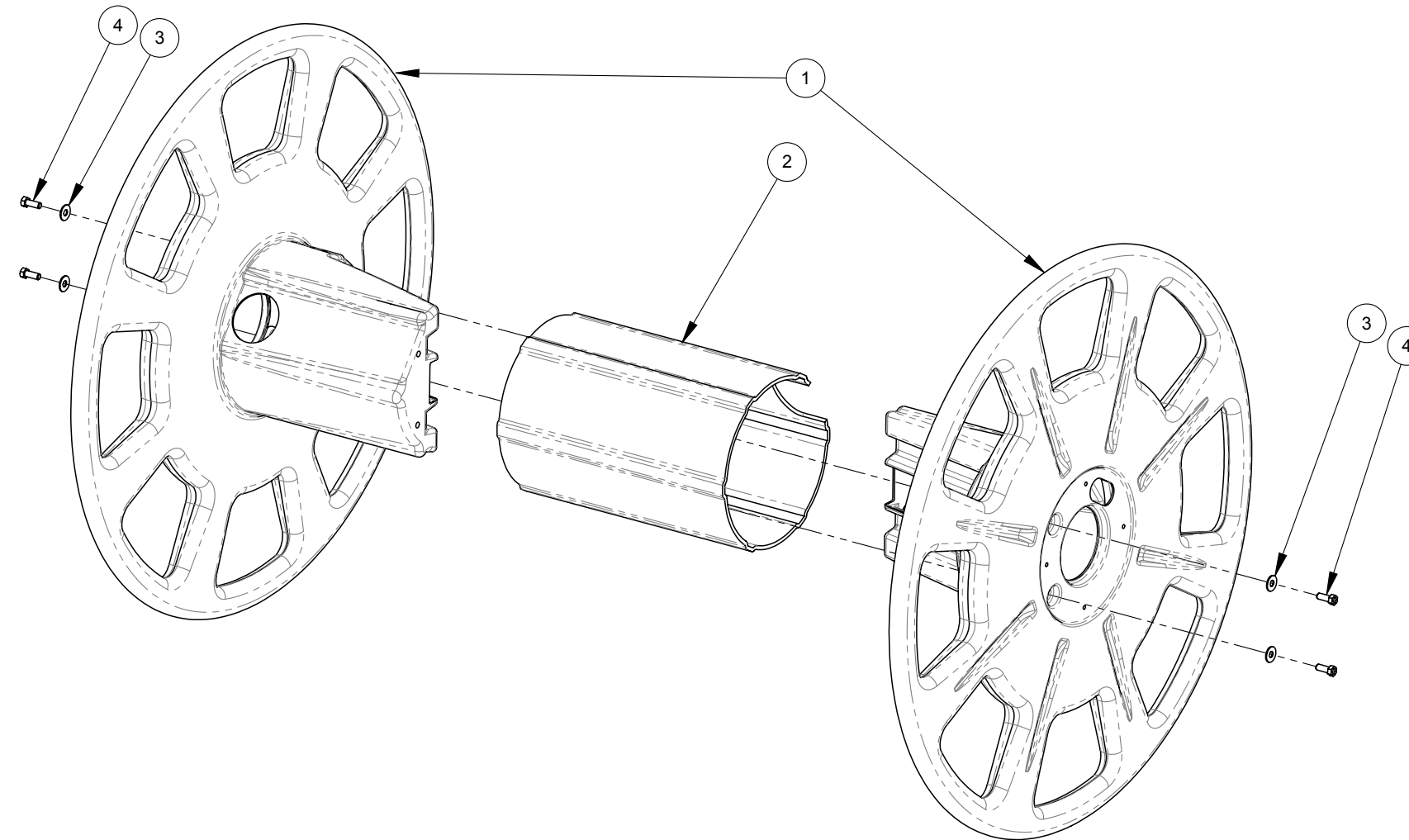


Figure 9-32. Vacuum Hose Reel Hub Assembly
000-163-597 Rev. A



Vacuum Hose Reel Hub 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	000-174-005	Washer, 3/8" Flat	4
4	000-143-018	Screw, 3/8"-16UNC X 1" Lg. Hex Head - Grade 8	4

NOTICE

P/N 000-159-115 is shipped separately.

Figure 9-33. 110 Gallon OTWW Tank Kit Assembly
000-079-200 Rev. C

110 Gallon OTWW Tank Kit Assembly Parts List

Item	Part Number	Description	Qty	Item	Part Number	Description	Qty
1	000-052-186	BUSHING, 1 1/2" NPT X 1"	1	7	000-094-126	NUT, 1/2"-13UNC HEX S/S	1
2	000-033-020	CLAMP, SIZE #16 HOSE	2	8	000-143-537	SCREW, #10 X 1.5" LG. PAN HEAD SHEET METAL	20
3	000-041-020	COVER, 110G LID ASSY	2	9	000-143-198	SCREW, 3/8"-16UNC x 4.00" LG. HEX HEAD	4
4	000-052-131	ELBOW, 1" NPT x 1" BARB	1	10	000-174-057	WASHER, 3/8" LOCK	4
5	000-068-250	HOSE, 1" GREEN STRIPE - 30" LONG	1	11	000-174-032	WASHER, 3/8" FLAT	8
6	000-094-116	NUT, 3/8"-16UNC HEX S/S	4	12	000-174-206	WASHER, TIE DOWN CLEAT S/S	4

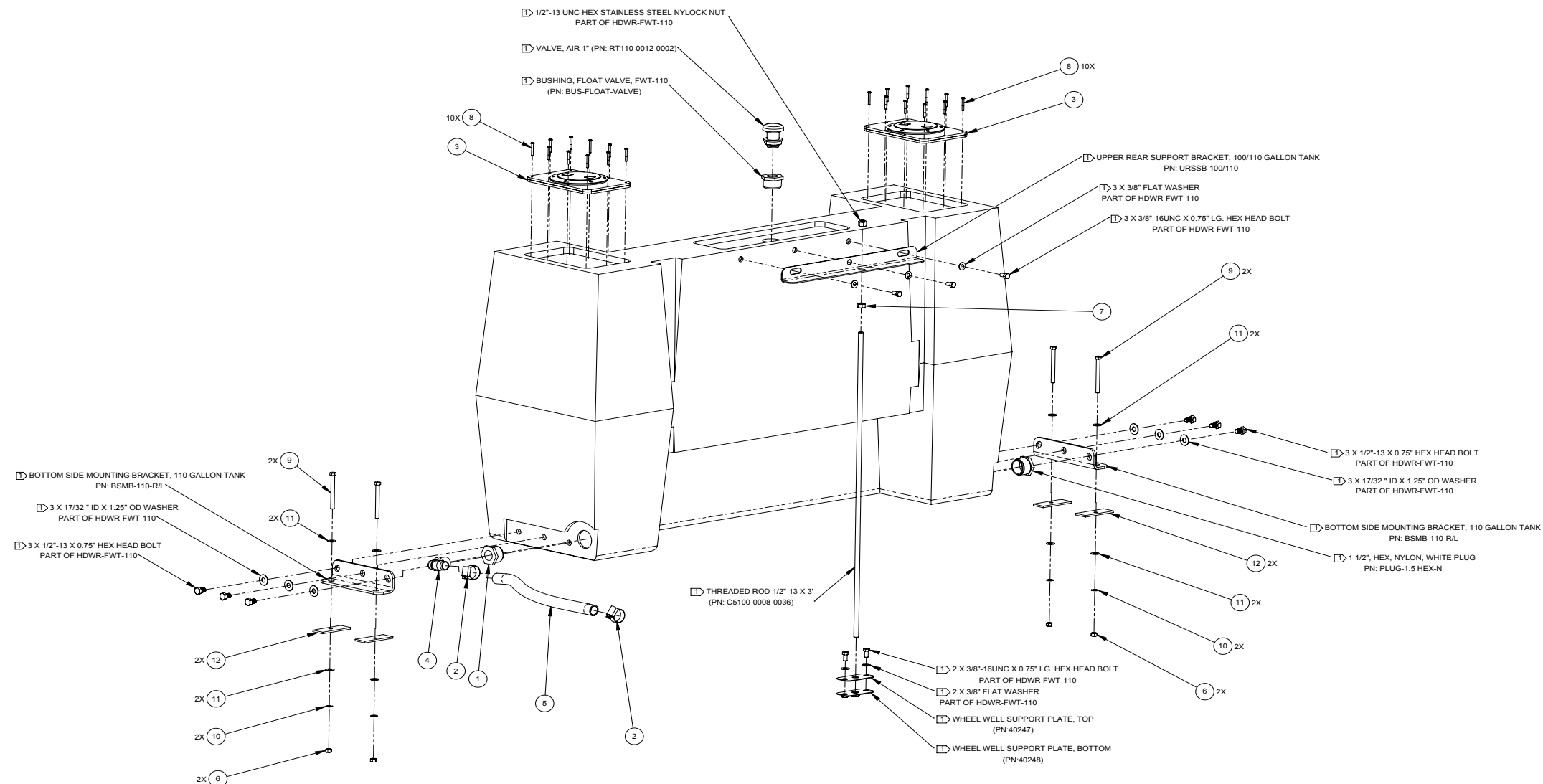
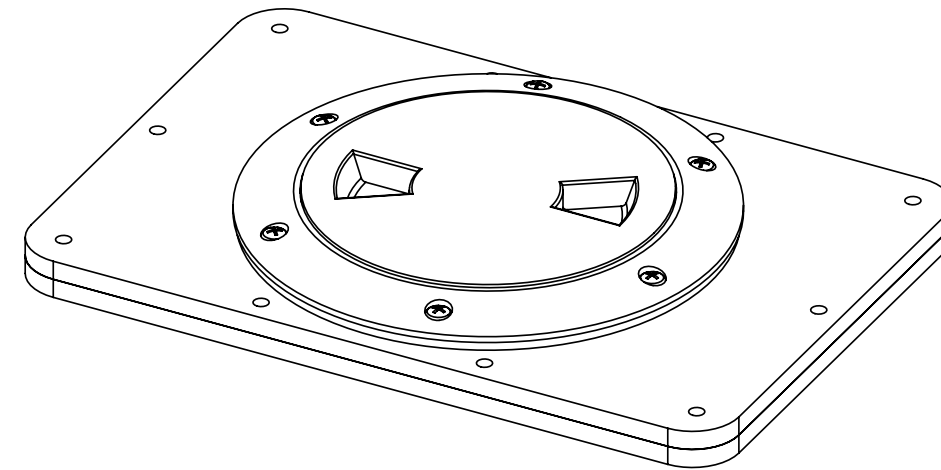
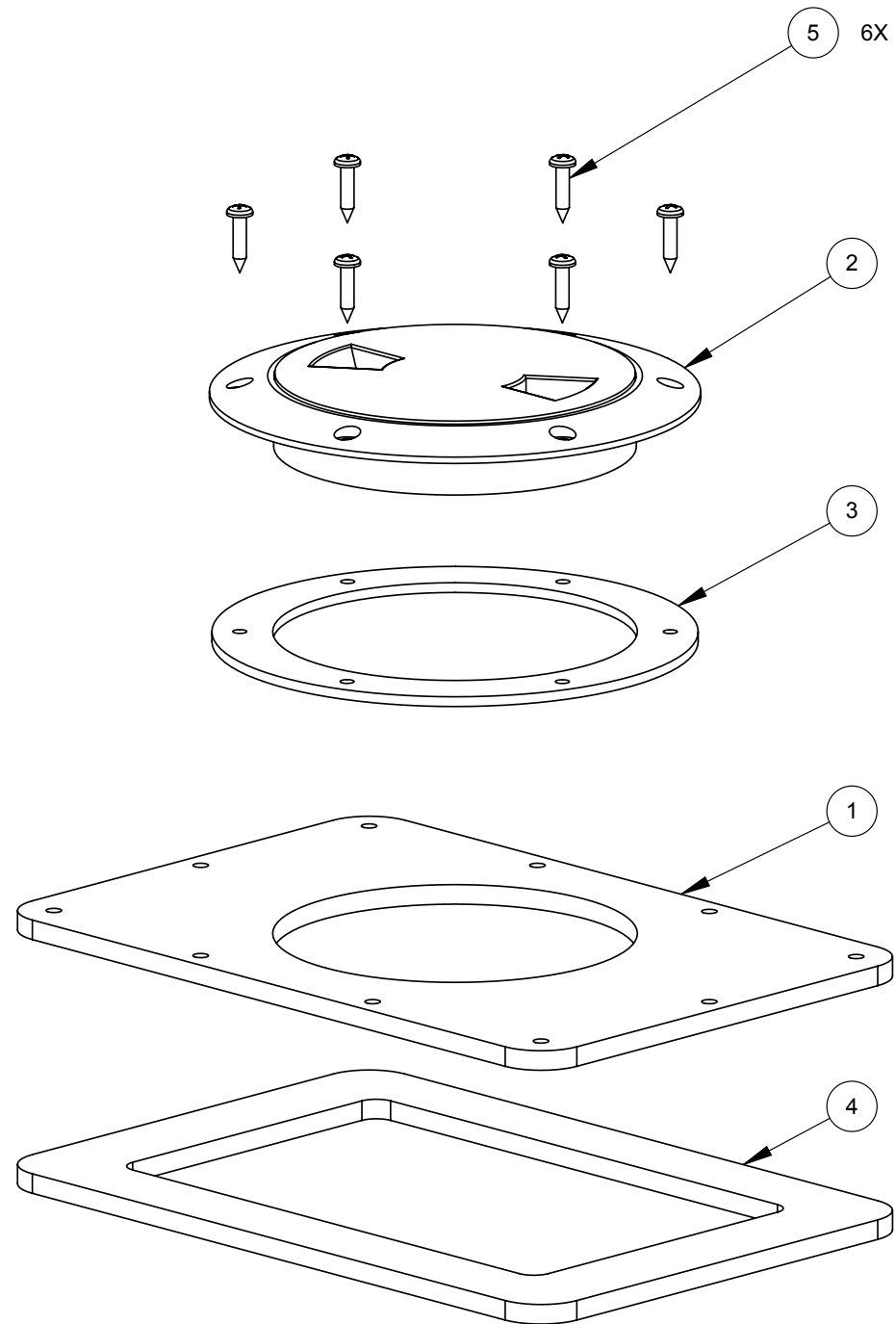


Figure 9-34. 110 Gallon Tank Lid Assembly
000-041-020 Rev. E



110 Gallon Tank Lid Assembly Parts List

Item	Part Number	Description	Qty
1	000-041-072	Bracket, Pumptec Lid	1
2	000-041-892	Cover, 4" Round Polycarbonate - Raw	1
3	000-057-254	Gasket - 4" Cover Lid	1
4	000-057-001	Gasket, Pumptec Lid	1
5	000-143-739	Screw, #8-15 X 3/4" Lg. Pan Head SS	6

Figure 9-35. 3 Tier Stainless Steel Shelf Assembly
000-163-038 Rev. D

3 Tier Stainless Steel Shelf Assembly Parts List

Item	Part Number	Description	Qty
1	000-015-024	Bracket, Shelf Mounting	2
2	000-081-173	Label	1
3	000-083-020	Leg, 3 Tier Shelf	2
4	000-094-010	Nut, 1/4"-20UNC Hex	24
5	000-094-016	Nut, 3/8"-16UNC Hex S/S	4
6	000-143-333	Screw, 1/4"-20UNC X 0.50" Lg. Hex Head	24
7	000-143-198	Screw, 3/8"-16UNC X 4" Lg. Hex Head - Full Thread	4
8	000-166-057	Tray, 3 Tier - 47"	3
9	000-174-019	Washer, 1/4" Lock	24
10	000-174-032	Washer, 3/8" Flat	4
11	000-174-057	Washer, 3/8" Lock	4
12	000-174-206	Washer, Tie Down Cleats S/S	4

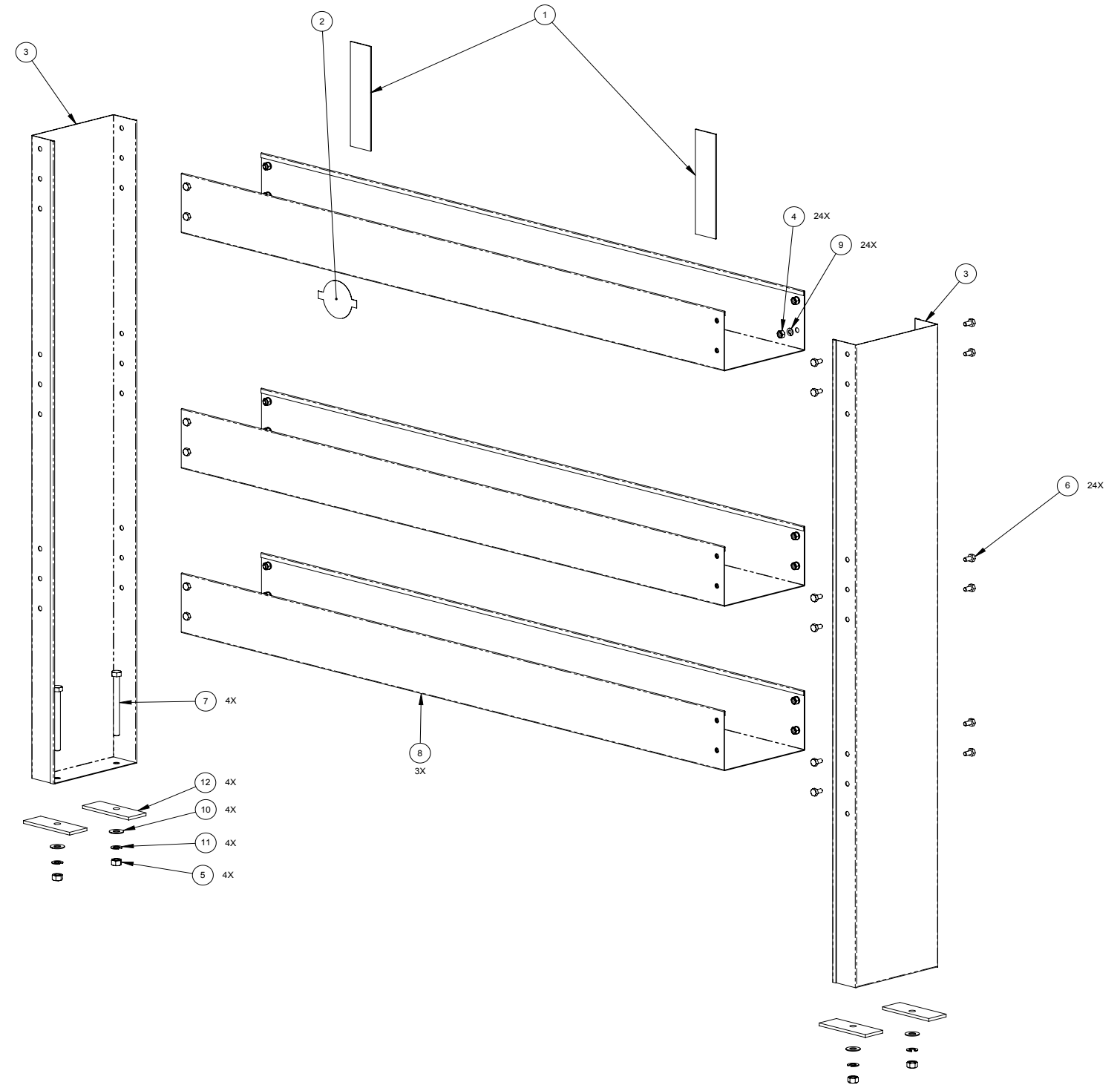
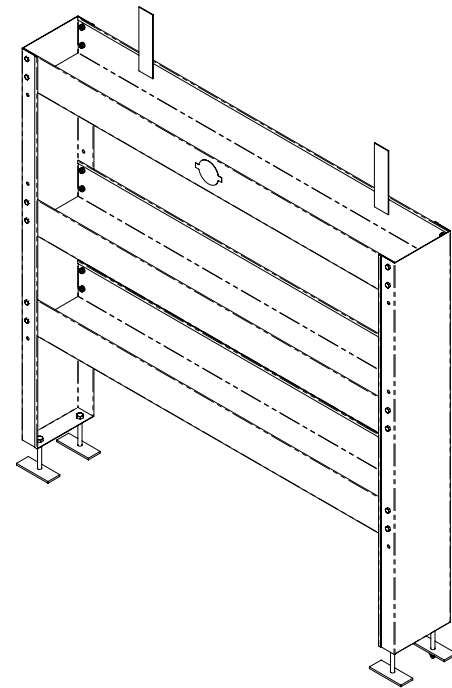


Figure 9-36. Panel Set Rear Door Assembly
000-100-021 Rev. A

Panel Set Rear Door Assembly Parts List

Item	Part Number	Description	Qty
1	000-100-020	Panel Set, Left and Right Rear Door - Chevy	1
2	000-131-060	Trimlok Seal, 3/4" X 3 ft	1

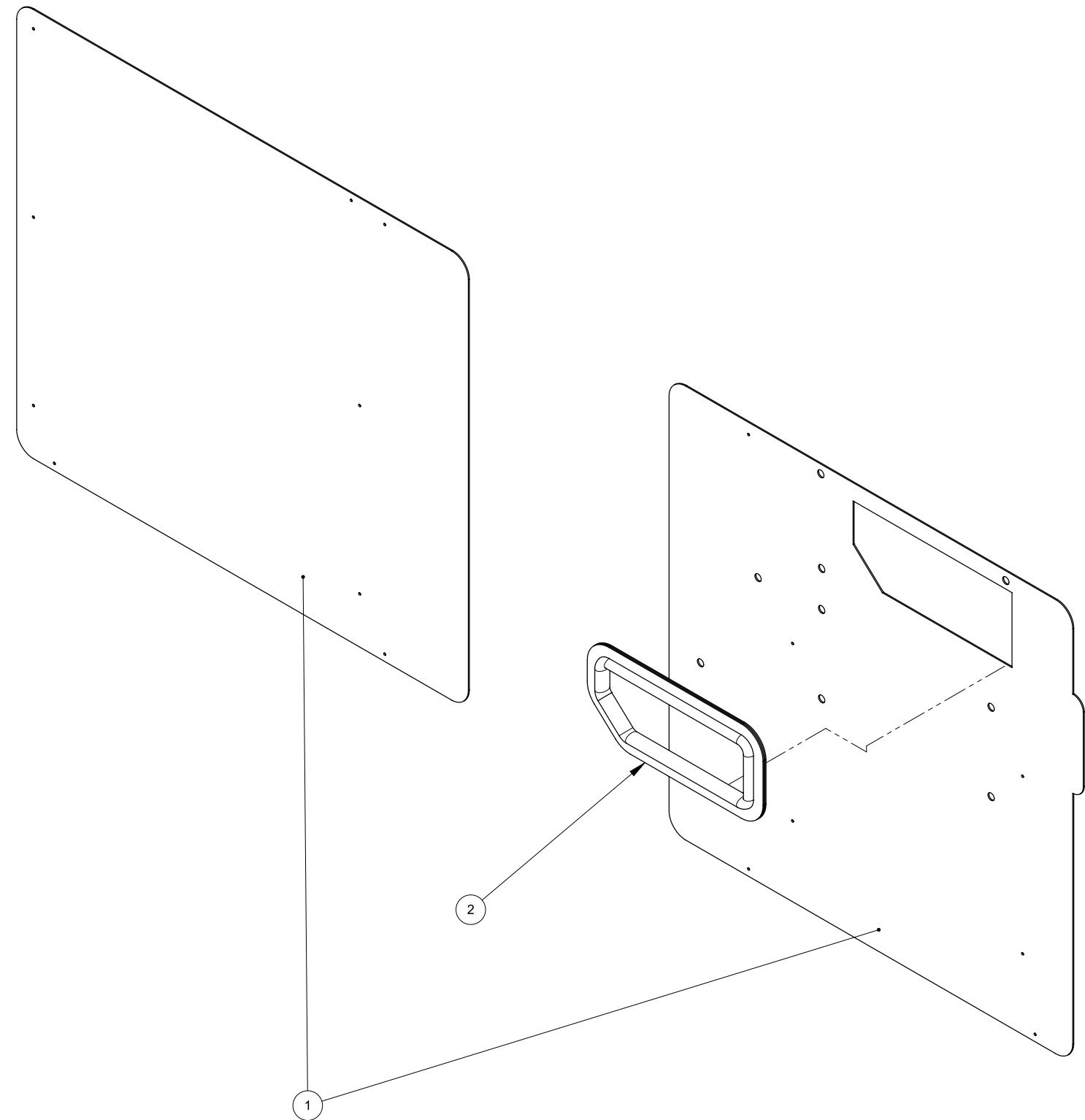


Figure 9-37. Back Door Shelf Assembly
000-163-050

Back Door Shelf Assembly Parts List

Item	Part Number	Description	Qty
1	000-081-173	Label	1
2	000-094-004	Nut, #10-24UNC Hex	12
3	000-143-132	Screw, #10-24UNC X 0.75" Lg. Hex Head	6
4	000-163-049	Shelf, Back Door - Coated	1
5	000-131-003	Trimlok, 1/8" X 3/4" - Bulk	2 ft
6	000-174-001	Washer, #10 Flat	18
7	000-174-014	Washer, #10 Lock	12

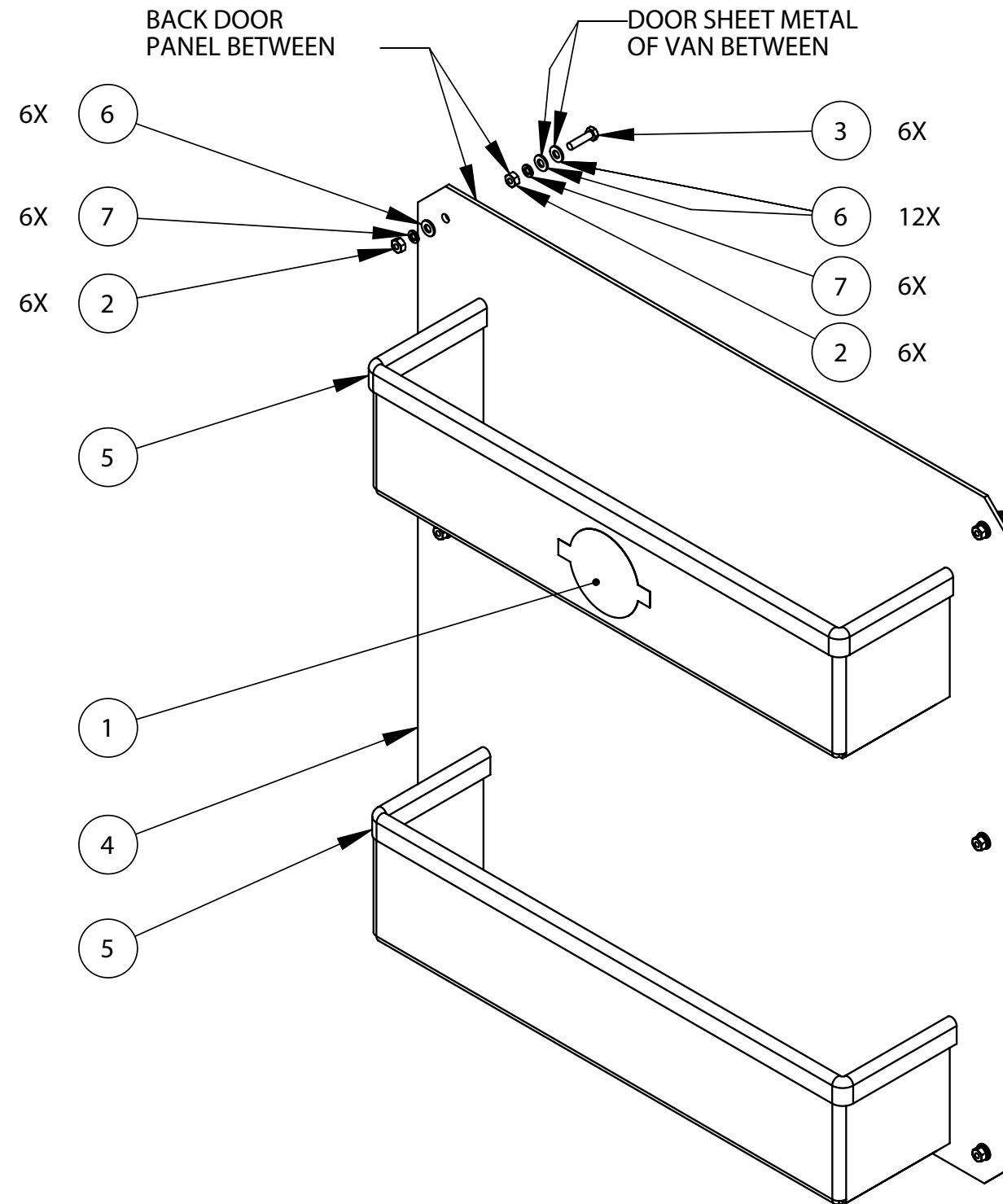


Figure 9-38. Furniture Pad Holder Assembly
000-163-015 Rev. B

Furniture Pad Holder Assembly Parts List

Item	Part Number	Description	Qty
1	000-163-024	Holder, Furniture Pad - Coated	1
2	000-081-173	Label	1
3	000-094-004	Nut, #10-24UNC Hex	8
4	000-143-132	Screw, #10-24UNC X 0.75" Lg. Hex Head	4
5	000-174-001	Washer, #10 Flat	12
6	000-174-014	Washer, #10 Lock	8

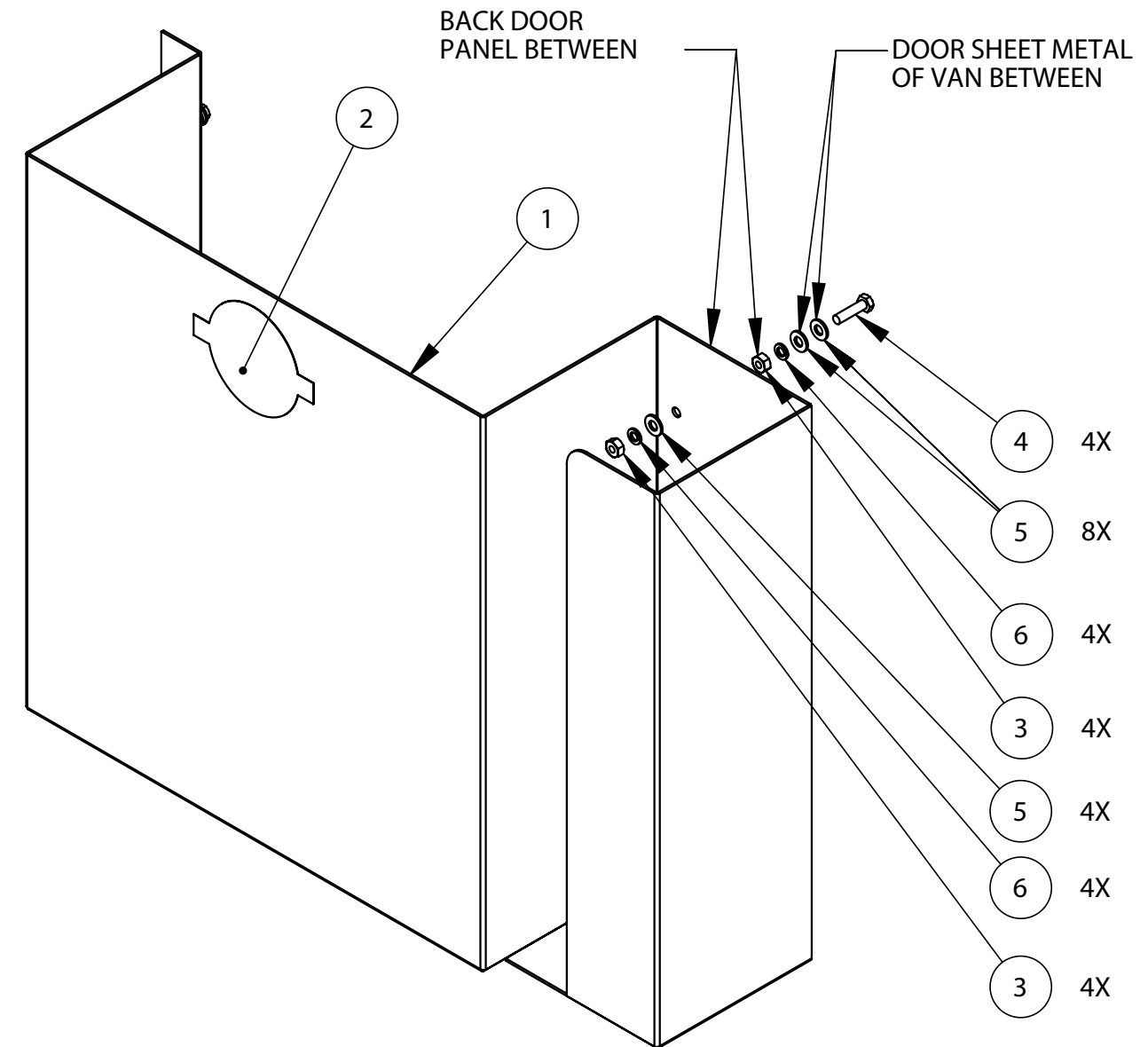
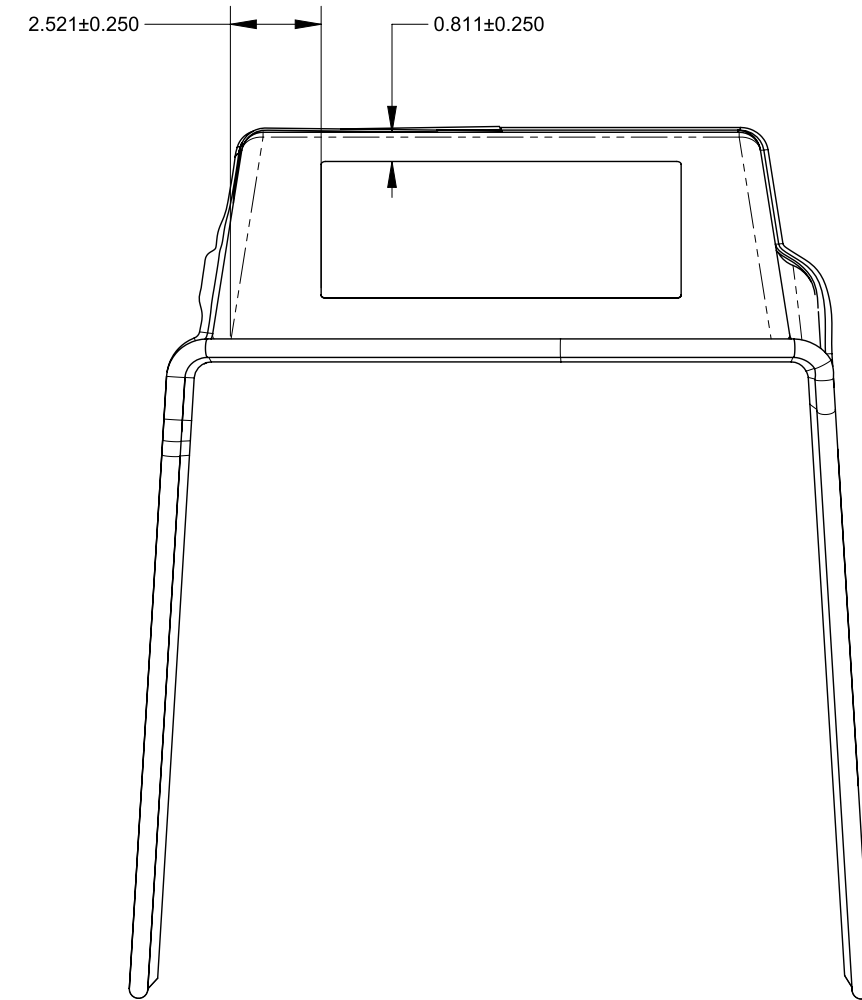
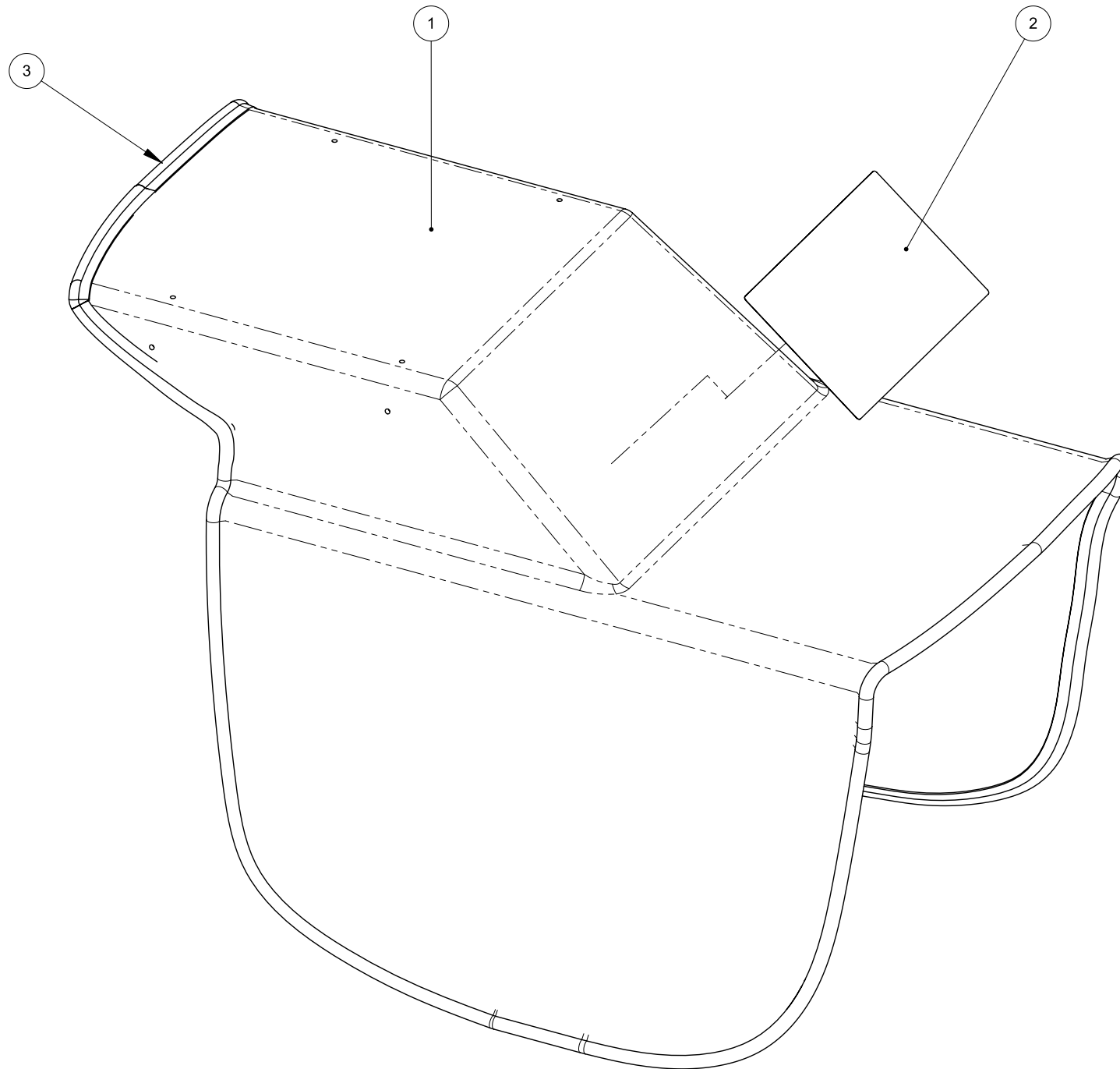


Figure 9-39. Chevy Cowling Assembly (Unmodified)
601-020-008



NOTICE

If the cowling is modified (cut to fit), it may be necessary to move the Driveline Lubrication Procedure and Specification Label to the side of the cowling (driver's side). Replacement labels are available by ordering this part number: 000-081-403.

Chevy Cowling Assembly Parts List

Item	Part Number	Description	Qty
1	000-041-139	Cowling, Chevy	1
2	000-081-403	Label, Driveline Lubrication Procedure and Specification	1
3	000-131-060	Trimlok, 3/4" Bulb	1 ft

Table 8-2. 2017 ZR CDS Standard Hose Routings

Part Number	Description	From	To
000-068-030	HOSE, 5/32" I.D. RUBBER/VACUUM	Lube Port	Blower
000-068-030	HOSE, 5/32" I.D. RUBBER/VACUUM	Blower	Pressure Gauge
000-068-1044	HOSE, 1" SUCTION X 41" LG.	Water Pump	ZR Cradle Tank (In-Line Filter)
000-068-1094	HOSE, 1" I.D. GREEN STRIPE X 3" LG.	ZR Cradle Tank (Shut-Off Valve)	ZR Cradle Tank
000-068-1095	HOSE, 1" I.D. SUCTION X 6" LG.	ZR Cradle Tank (Dump Valve)	ZR Cradle Tank (Shut-Off Valve)
000-068-251	HOSE ASSEMBLY, 1/4" SOLUTION X 96" LG. -ZR	Pressure Regulator	ZR Cradle Tank (Rear)
000-068-385	HOSE, 3/4" I.D. GREEN STRIPE X 18FT	Alfa Laval HX	Lower Coolant T (Brass)
000-068-385	HOSE, 3/4" I.D. GREEN STRIPE X 18FT	Coolant Flow Valve	Upper Coolant T
000-068-644	HOSE, 5/16 X 49 1/2T EFLONW/JIC ENDS	Water Pump	Alfa Laval HX
000-068-644	HOSE, 5/16 X 49 1/2T EFLONW/JIC ENDS	Water Pump	Pressure Regulator
000-068-737	HOSE, 5/16" X 14.5" W/J IC ENDS	Pressure Regulator	Pressure Gauge
000-068-802	HOSE ASSEMBLY, 5/16" PTFE (TEFLON) X 42" LG.	Alfa Laval	Salsa
000-068-802	HOSE ASSEMBLY, 5/16" PTFE (TEFLON) X 42" LG.	Salsa	Pressure Regulator
000-068-974	HOSE, 3/4" I.D. RUBBER x 30" LG. - RED	Alfa Laval HX	Coolant Flow Valve

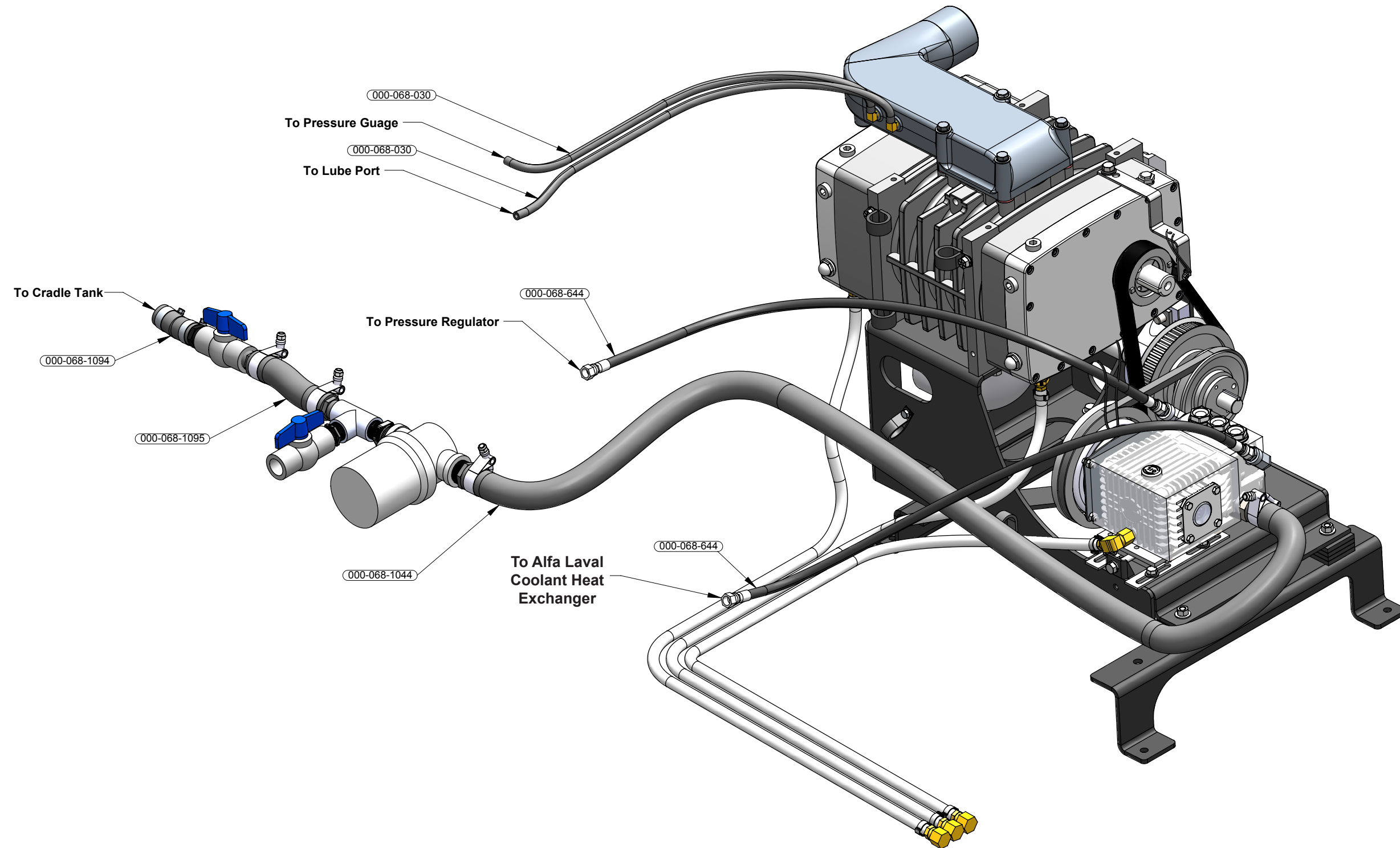


Figure 9-40. 2017 ZEROREZ CDS Hose Routings - View 1 of 6

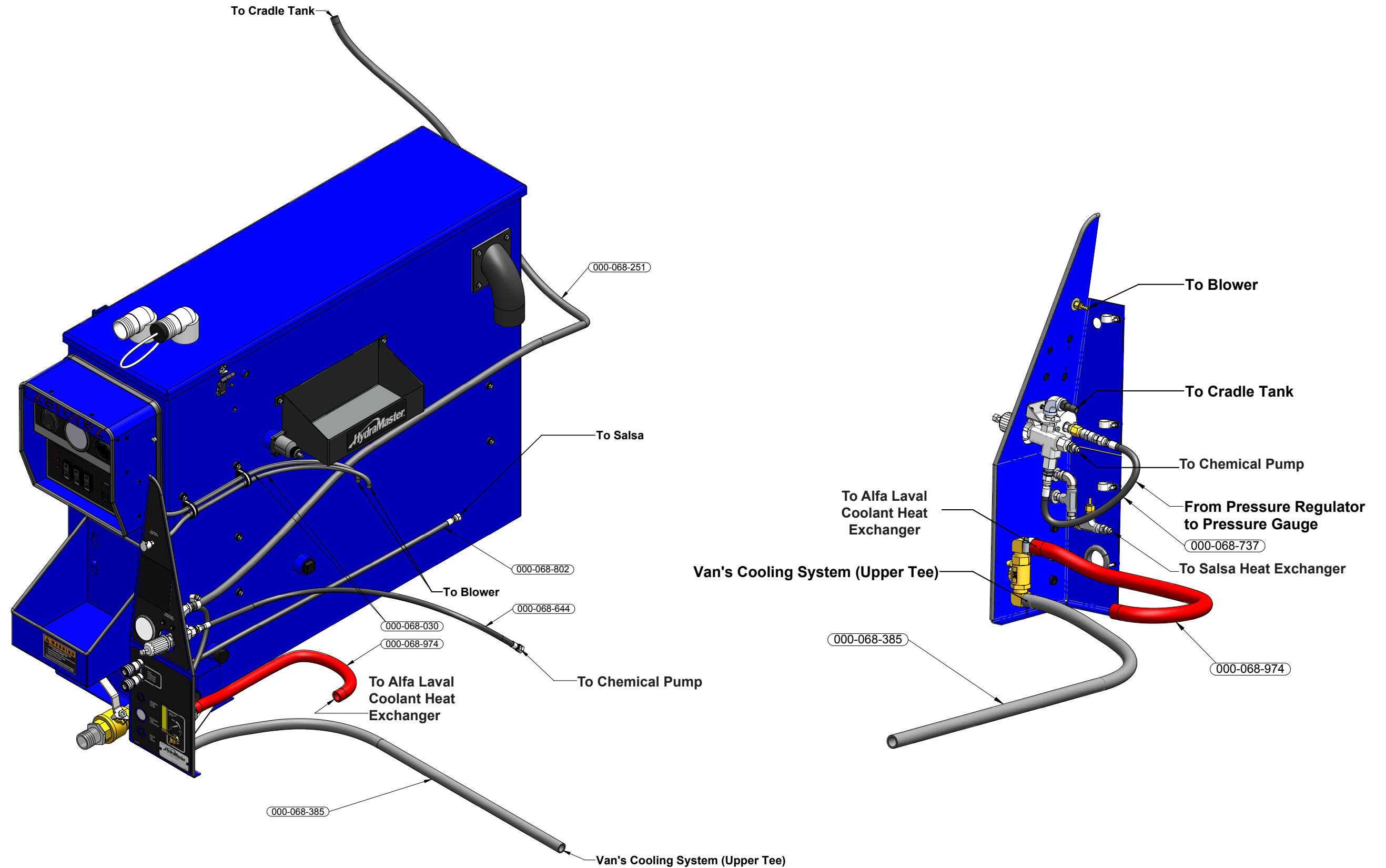


Figure 9-41. 2017 ZEROREZ CDS Hose Routings - View 2 of 6

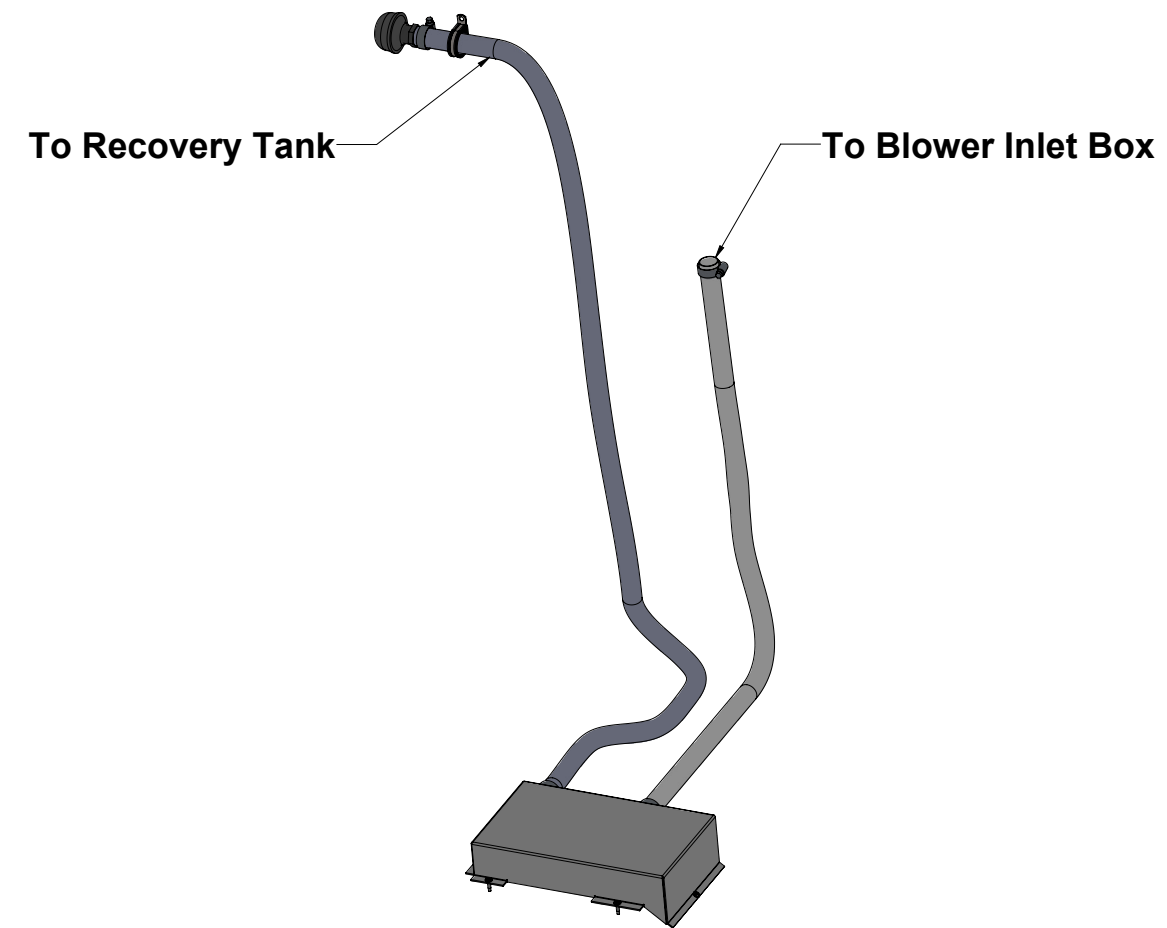


Figure 9-42. 2017 Zerorez CDS Hose Routings - View 3 of 6

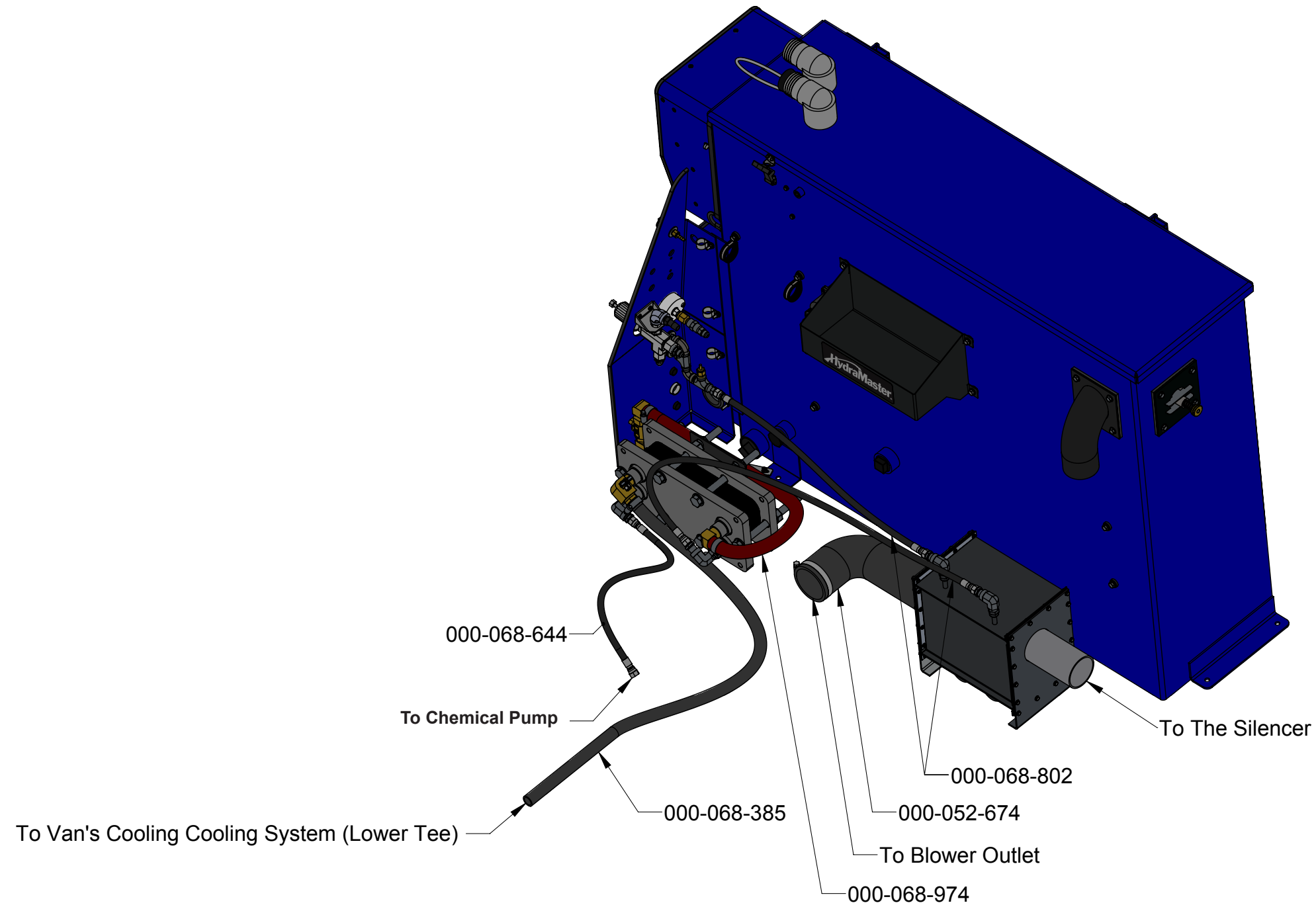


Figure 9-43. 2017 ZEROREZ CDS Hose Routings - View 4 of 6

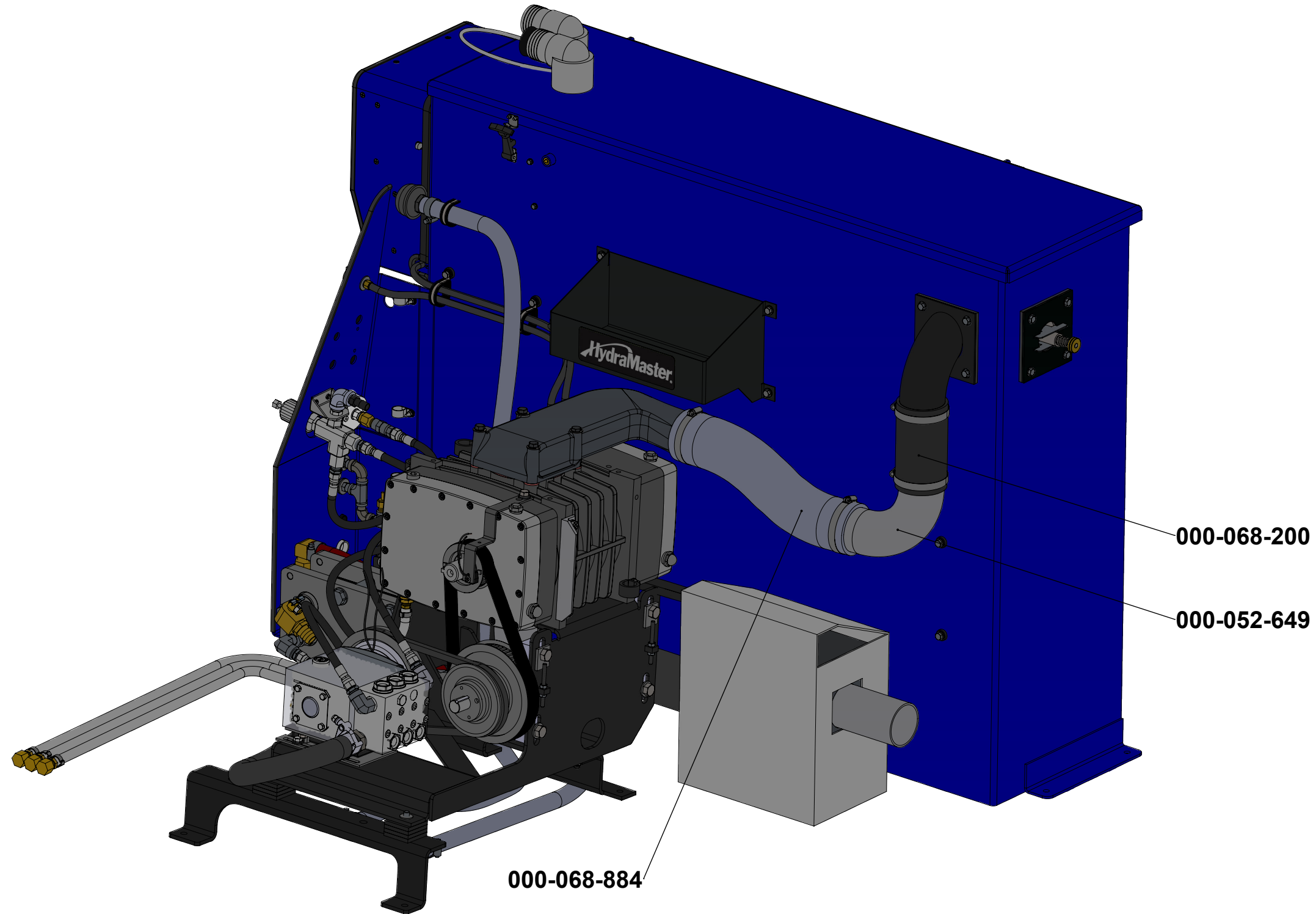


Figure 9-44. 2017 ZEROREZ CDS Hose Routings - View 5 of 6

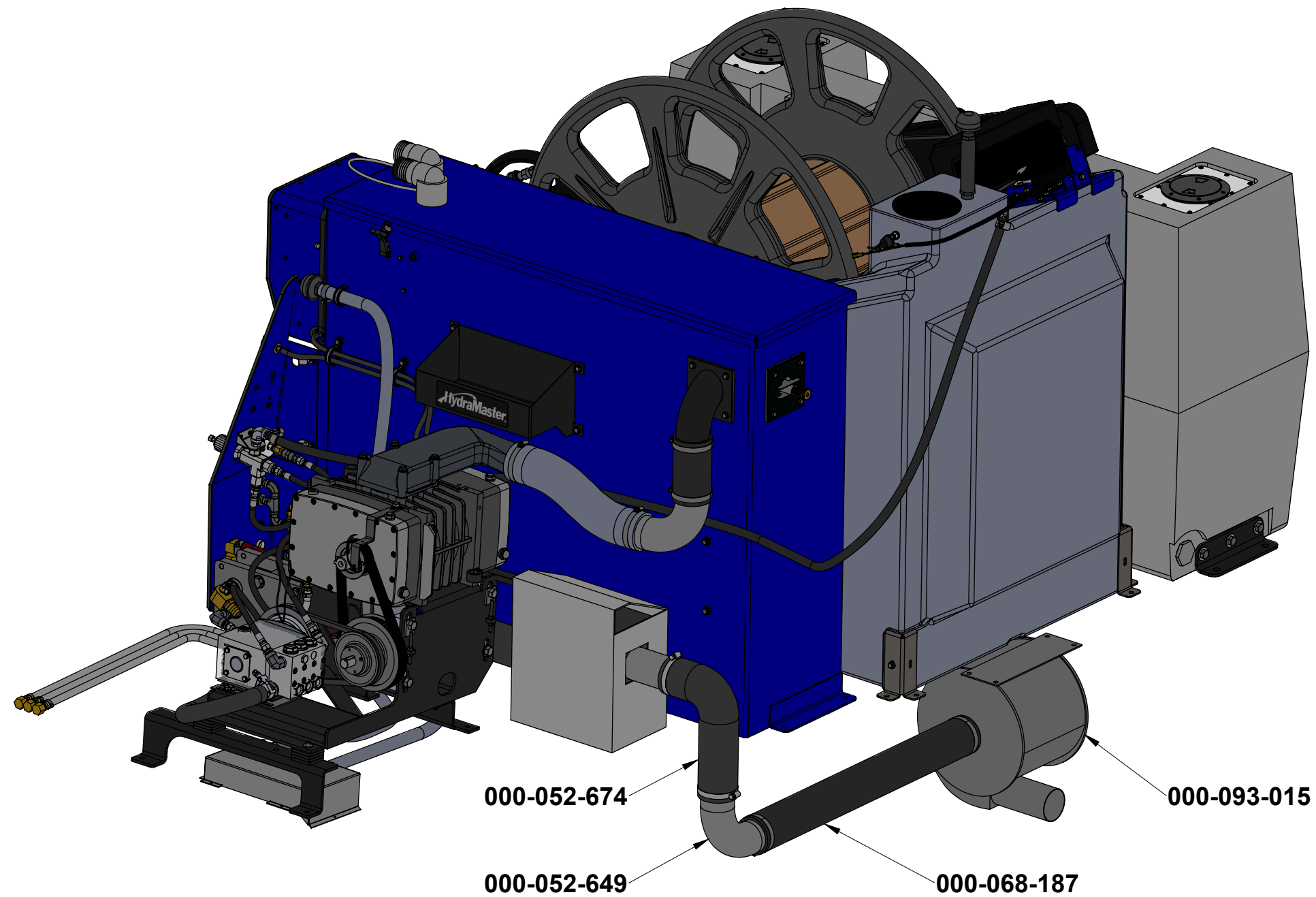


Figure 9-45. 2017 ZEROREZ CDS Hose Routings - View 6 of 6

10 - 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

HYDRAMASTER 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. Equipment Model
 - b. Date of Purchase
 - c. Hours on the Unit
 - d. Unit Serial Number, if applicable
 - e. 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 (Pacific Time).

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 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 HydraMaster and arrange for expedited shipping.

HydraMaster sells parts only through authorized distributors and service centers.

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11 - Warranty Information

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.

BLOWER

- Failure to lubricate impellers daily with an oil-based lubricant, to lubricate bearings, to maintain proper oil levels, or to use the correct oil grade and viscosity as recommended in blower manual.
- Failure to properly maintain blower safeguard systems such as waste tank filter screen, vacuum safety relief valve and waste tank automatic shut-off system.
- Allowing foam to pass through blower.

HIGH PRESSURE WATER PUMP

- Failure to maintain proper oil level as recommended in pump manual.
- Failure to change oil in pump at recommended intervals.
- Failure to protect pump against freezing.
- Failure to maintain pump protection shut-off system.
- Failure to use water softener in hard water areas.
- Use of improper chemicals.

RECOVERY TANK

- Failure to properly maintain filtering devices in tank.
- Failure to clean tank as recommended by manufacturer.
- Failure to maintain vacuum safety release in tank.
- Use of improper chemicals.

CHEMICAL SYSTEM

- Use of improper chemical.
- Failure to use water softener in hard water area.
- Operating machine without proper chemical filter screen.
- Failure to protect against freezing.

CONTROL PANEL

- Failure to protect flowmeter and water pressure gauge against freezing.

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.

CLEANING WAND AND TOOL

- Failure to protect against freezing.
- Obvious physical abuse of wand or tool.

WATER HEATING SYSTEM

- Over-pressurization of the system (recommended maximum working pressure - 1,200 psi).
- Failure to protect against freezing.

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" (3.5 grains or more per gallon).

WARRANTY PROCEDURE

Warranty coverage is available to you through your local distributor.

When calling your distributor, be sure to have the machine's information; model and serial number, ready for the service representative.

FOR YOUR REFERENCE:

Model No. _____

Serial No. _____

Date of Purchase: _____

Purchased From (Distributor): _____

HYDRAMASTER® STANDARD CDS LIMITED WARRANTY

HydraMaster warrants to the original end user, each new machine, new accessories and genuine replacement parts against defects in material and workmanship under normal use and service. Our obligation under this warranty is limited to repair or replacement of the defective item at our factory or by an Authorized Service Center. Warranty coverage shall begin on the date of purchase by the original end user (as evidenced by your invoice from the factory or Authorized Dealer) or six (6) months from the date the machine was shipped from the factory, whichever is earlier. The warranty registration card must be completed and returned within 30 days of purchase. The warranty coverage period is specified below.

GROUP	Parts ^{1,2}	Labor ²
Frame	3 Years	2 Years
Covers	3 Years	2 Years
Vacuum Recovery Tank (Structural only)	3 Years	2 Years
Vacuum Pump – see Note 3	2 Years	2 Years
Chemical Systems	2 Years	2 Years
Hoses, Internal Machine	2 Years	2 Years
Hoses, External Machine	2 Years	2 Years
Valve, High pressure bypass	2 Years	2 Years
Water Heating System	2 Years	2 Years
Pump, High pressure water	2 Years	2 Years
Belts	2 Years	2 Years
Fittings, internal machine	2 Years	2 Years
Filter Screens	2 Years	2 Years
Gauges	2 Years	2 Years
Electrical Components	2 Years	2 Years
Accessories and Fresh Water Tanks	1 Year	1 Year
Replacement Parts- see Note 4	90 Days	NA
NOTES:		
1-Parts repaired or replaced are guaranteed for the remainder of the original machine warranty period.		
2-Coverage only applicable to products sold and used in the United States and Canada.		
3-As provided by the original Manufacturer.		
4-Applies to replacement parts only after machine warranty coverage has expired.		

This warranty shall not apply to repairs resulting from accidents or misuse, damage in transit, overloading the capacity of the machine, failure due to lack of proper maintenance or care as described in the operating and maintenance instructions. Freezing of any water or chemical related component will VOID all warranties on water or chemical related components, internal or external. Corrosion, deposits and/or build-up in the water, chemical, recovery or heating systems due to hardness in the water used or chemicals which result in deposits, will VOID all warranties on affected components. The use or application of any chemical, including but not limited to acids or solvents, which results in damage to metal, rubber, plastic, or painted parts will VOID all warranties on those parts. Minor adjustments, such as tightening of screws or bolts not connected with the replacement of parts, are not covered. Replacement of expendable wear items including, but not limited to paint, labels and other cosmetic parts are also not covered. Repairs or alterations by an organization other than the factory or an Authorized Service Center are not covered and will void any HydraMaster warranty as to the parts or systems repaired or altered by a non-authorized organization.

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION OF THE LIMITED WARRANTIES STATED WITHIN. NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS MADE EXCEPT AS EXPRESSLY STATED HEREIN. ANY STATUTORY IMPLIED WARRANTIES, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, THAT ARE IMPOSED BY LAW DESPITE THE EXPRESS LIMITATION OR WARRANTIES ABOVE, ARE EXPRESSLY LIMITED TO THE DURATION OF THE WRITTEN WARRANTY. BUYER UNDERSTANDS, ACKNOWLEDGES AND AGREES THAT THE REMEDIES PROVIDED UNDER THIS LIMITED WARRANTY ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE TO THE BUYER. HYDRAMASTER WILL NOT BE LIABLE FOR ANY OTHER OR ADDITIONAL DAMAGES, INCLUDING BUT NOT LIMITED TO INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE FURNISHING, PERFORMANCE, USE OF OR INABILITY TO USE THE MACHINE. ANY EXTENSIONS OF OR MODIFICATIONS MADE TO THIS WARRANTY BY A DEALER/DISTRIBUTOR OF HYDRAMASTER ARE THE SOLE RESPONSIBILITY OF THE DEALER/DISTRIBUTOR.

HydraMaster will pay all freight and transportation charges within the United States, via normal ground shipping means, for replacement of parts covered under this warranty. All material must be properly authorized by HydraMaster prior to being returned. When returning, please provide an explanation of the problem and include the serial number of the machine as well as the name of the selling organization. All defective material must be returned to HydraMaster within 60 days of authorization. The Technical Service department of the authorized Dealer Service Center or the factory will investigate and then contact you.

Transportation of hazardous waste or contaminated equipment is subject to various laws and regulations. In returning machines, parts, or accessories under this limited warranty, the end user must certify in writing that the machines, parts or accessories being returned have not been used for handling, clean up, or disposal of hazardous waste or hazardous materials including but not limited to such things as asbestos, anthrax etc. or if the machines, parts or accessories being returned have been used for handling, clean up, or disposal of hazardous waste or hazardous materials, then the end user must have the machines, parts or accessories decontaminated by licensed and qualified decontamination professionals and provide written certification of this decontamination signed by the decontamination professionals. These machines, parts or accessories are to be returned only to the local HydraMaster Authorized Service Center for Warranty service along with decontamination certification.

HydraMaster reserves the right to change its warranty policy without notice.

HydraMaster is a Nilfisk, Inc. brand.



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