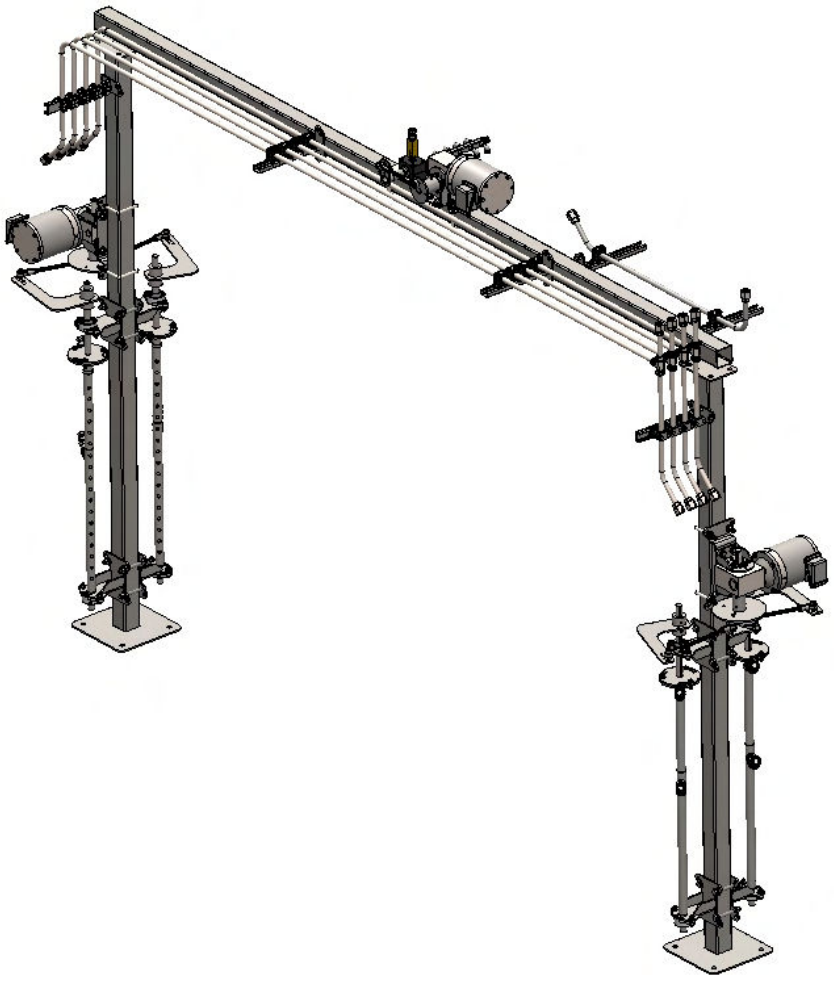
HOFFMAN INNOVATEIT

blastIT & *rinseIT*

HIGH-PRESSURE ARCHES

Instruction Manual

V 2.0, 12-31-24



For Further Assistance Please Contact
innovateIT Car Wash Equipment LLC
518-741-4200 option 2
support@innovateITcarwash.com

Table of Contents

Introduction

1. Introduction

The manufacturer innovateIT Car Wash Equipment LLC is committed to the continuous improvement of its equipment construction quality and the safe operation of its equipment.

1.1 Warranty

This manual covers the installation, intended use, and maintenance of the high-pressure arches. Misuse or improper operation of this device will void the manufacturer's warranty.

The arch is covered by a 1-year limited warranty from the date of shipment. This warranty shall be void and of no effect if:

1. Any installation defect that was apparent or ascertainable at the time of installation was completed but was not promptly reported to innovateIT Car Wash Equipment LLC.
2. Damage occurs due to the customer's failure to observe any instructions from innovateIT Car Wash Equipment or an authorized distributor and/or requirements of the manufacturer with respect to the product.
3. The breach results from misuse of the equipment as outlined in the instruction manual.

When purchasing through a distributor, please ask about their warranty coverage on the unit.

1.2 Safety Information

The instructions in this manual provide you with the information necessary to install and operate the high-pressure arch. Before starting installation, the instruction manual should be carefully read and understood. This relates to all high-pressure arch documents from innovateIT Car Wash Equipment.

The basic pre-requisite for safe working is compliance with all the safety and handling instructions stated in this manual. Furthermore, follow all local accident, hazard prevention regulations or general safety regulations when installing and operating the high-pressure arch.

The equipment's operation, maintenance, and troubleshooting must only be carried out by trained personnel. Personnel should be able to interpret a wiring diagram, use a multimeter to read AC and DC power, and apply Lock Out Tag Out (LOTO) safety procedures specific to the equipment.

Electrical installation must adhere to local codes and the National Electrical Code, ANSI/NFPA 70 for electrical wiring. To avoid electrical shock hazards, do not operate this device when controller enclosures are open and energized. Electrical power must be shut off and a lock-out procedure utilized to ensure all electrical power is disabled before performing maintenance to any portion of the system.

Plumbing installation must adhere to a local code and Uniform Plumbing Code (UPC), and plumbing connections and drains must adhere to local standards and facility codes.

Do not remove any Caution, Warning, or any other descriptive labels from the arch. Do not operate this device in an explosive environment or in the presence of flammable materials.

Movement or vibrations during shipment may cause connections to loosen. Check all connections before starting up a unit.

innovateIT Car Wash Equipment LLC does not accept liability for accidents or damages due to negligence or disregard for the instructions in this manual. Also, the Company does not accept liability for damages due to improper use of the equipment.

This instruction manual should always be kept in a safe and easily accessible place near the equipment's site of installation and operation, and be available for the operator at the user site at any time.

If the manual is damaged, lost, or misplaced, you should immediately request a new copy from innovateIT Car Wash Equipment LLC.

1.2.1 Notifications & Symbols

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTE is used to address practices not related to physical injury.

2. System Overview

The High-Pressure Arches are designed to deliver consistent high-pressure water application to cars moving through the tunnel.

The blastIT High-Pressure Prep Arch is designed to tackle heavy dirt and grime effectively. Engineered for high-pressure application, the blastIT ensures that even the most stubborn contaminants below the window line and on the roof are broken down before the vehicle progresses through subsequent wash stages.

For final vehicle rinsing, the rinseIT High-Pressure Arch complements the blastIT by delivering a uniform high-pressure rinse across all vehicle surfaces, ensuring a spotless finish.

2.1 Features & Functions

innovateIT Car Wash Equipment LLC has developed a series of high-pressure arches designed to deliver reliable and consistent cleaning performance, even in the most demanding car wash environments. Featuring oscillating manifolds, these arches provide comprehensive cleaning coverage for every vehicle.

The blastIT High-Pressure Prep Arch is engineered to tackle heavy dirt, grime, and contaminants in critical areas, including below the window line, on the roof, and along the top surfaces. Its oscillating top manifolds effectively clean the roof and upper sections of the vehicle, while the oscillating side manifolds focus on areas below the window line where debris often accumulates.

By deploying precise high-pressure water streams, the blastIT breaks down stubborn buildup, ensuring a cleaner surface for downstream wash stages.

Complementing the blastIT, the rinseIT High-Pressure Rinse Arch provides a final, uniform rinse to remove detergents, residues, and any remaining dirt. With its oscillating side and top manifolds, the rinseIT ensures comprehensive high-pressure water coverage across the entire vehicle.

Both arches are constructed from durable stainless steel to withstand the harsh conditions of car wash environments, ensuring long-lasting performance.

These high-pressure arches are available in multiple configurations to suit different tunnel designs and wash applications. Options include dual top, dual side, split manifold, and other customizable manifold arrangements to optimize coverage for specific cleaning needs. The configurations depicted in illustrations are for reference only and do not necessarily represent the exact setup for every blastIT or rinseIT installation. A detailed overview of available configuration variations can be found in Appendix 1.

The blastIT High-Pressure Prep Arch is equipped with zero-degree nozzles, available in 0003 or 0006 sizes, ensuring maximum impact for breaking down stubborn dirt and grime. The rinseIT High-Pressure Rinse Arch does not come pre-equipped with nozzles but is designed to accommodate a range of nozzle options, including zero-degree, 5-degree, and 15-degree nozzles, allowing operators to customize spray patterns to meet specific rinsing needs.

Configurable settings, including direction, oscillating angle, adjustable oscillation speeds, and water flow rates, allow these systems to adapt seamlessly to various car wash tunnel designs, providing flexibility and efficiency in any installation.

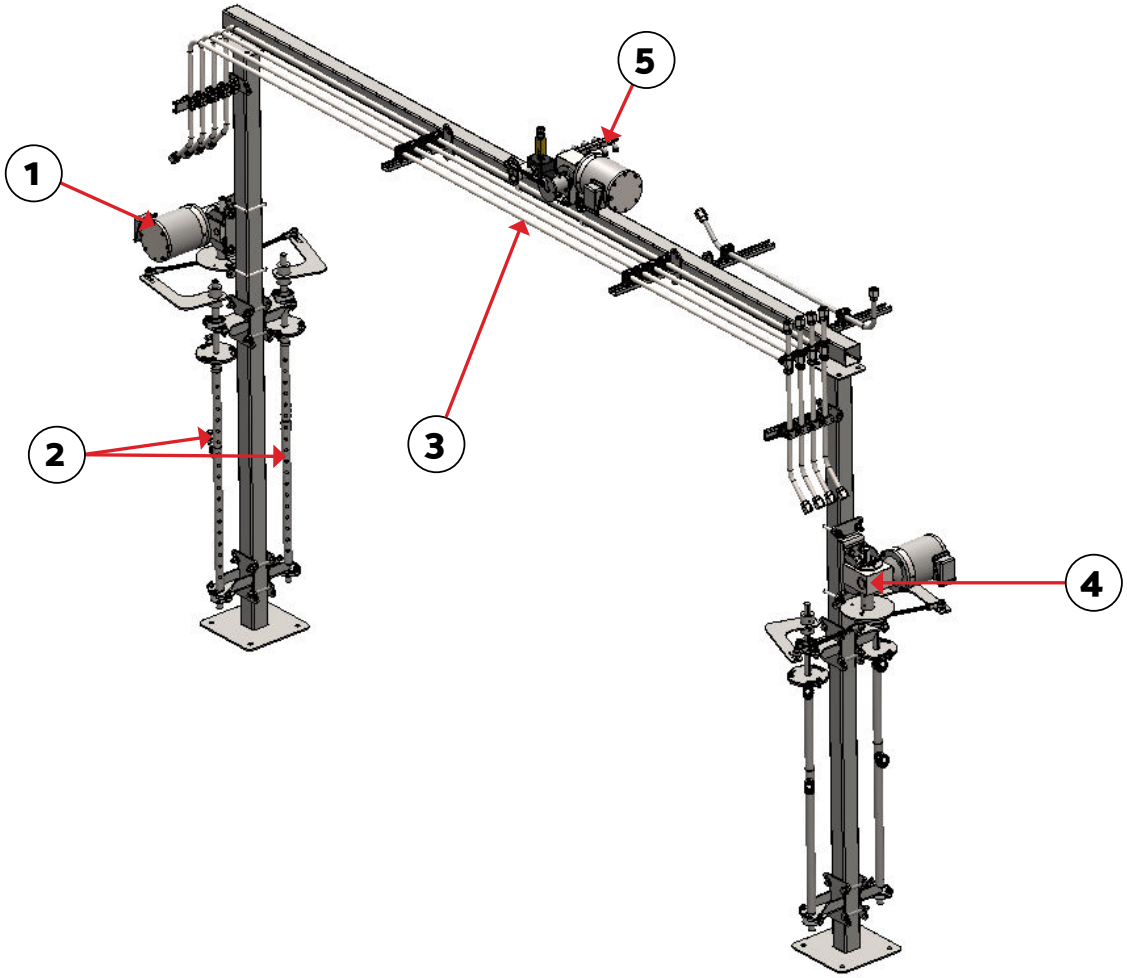


Fig. 2.1 - 1 *- High-Pressure Arch identification*

Table 2.1 - 1 *- High-Pressure Arch component features and functions*

#	Component	Features/Functions
1	Motor	- Powers oscillating actions of the manifolds
2	Side Manifold	- Oscillating arms effectively clean heavy grime and debris
3	Stainless Steel Plumbing	- Provides durable and corrosion-resistant water delivery throughout the system
4	Gearbox	- Ensures smooth and precise operation of the oscillating mechanisms
5	Top Manifold	- Oscillating assembly that applies high-pressure water to clean the roof and upper surfaces of the vehicle

2.2 System Specifications

Table 2.2 - 1 - *High-Pressure Arch specifications*

	blastIT	rinseIT
Water Usage (Per Manifold)	Top - 9 GPM Side - 18 GPM **based on 0003 nozzle*	Top - 9 GPM Side - 9 GPM
Electrical Supply	(3) 3PH 1/2 HP Motors	
Voltage (Motor)	208VAC / 3PH 480VAC / 3PH	
Max Current (Per Motor)	2.5 A (208) 1 A (480)	
Water Connections (Per Manifold)	3/4” FNPT	
Dimensions (Arch)	144” w x 100.5” h x 24” d	

3. Installation

Installation of high-pressure arches must conform to local plumbing, electrical, and sanitation codes. The customer is responsible for obtaining all permits and ensuring the following conform to all state and local codes before installing the arch.

3.1 Installation Preparation

NOTE

Dimensions of the arch are adjustable. The maximum width from outside to outside of the uprights in 149”.

Locate where the arch will be installed with your installer. Consider the following factors:

- Ensure a reliable municipal water supply is accessible and capable of meeting the system’s flow and pressure requirements.
- Verify the availability of a 208/230/480VAC 3-phase power source for the motors.
- Confirm sufficient space for the arches within the tunnel layout. The placement should allow for unobstructed vehicle travel and proper alignment of the manifolds with the vehicle surfaces for effective cleaning and rinsing.

3.2 Mechanical Installation

NOTE

Manifolds come pre-mounted to the arch when delivered. They are positioned at specific heights to ensure an optimal spray pattern and coverage. If needed, the height can be adjusted to fine-tune performance based on the user’s specific setup.

Place equipment in the tunnel where the installation will take place. Position the arch to align with the centerline of the vehicle path. Refer to Fig. 3.2 - 2 for a visual representation of proper placement in the car wash tunnel.

- **Standard Conveyor**
  - **Driver Side**
    - The center of the driver-side leg should be 40.5” off the conveyor’s inner rail.
  - **Passenger Side**
    - The center of the passenger-side leg should be 96.5” from the conveyor’s inner rail.
- **Belt Conveyor**
  - The center of the arch should be aligned with the centerline of the belts.

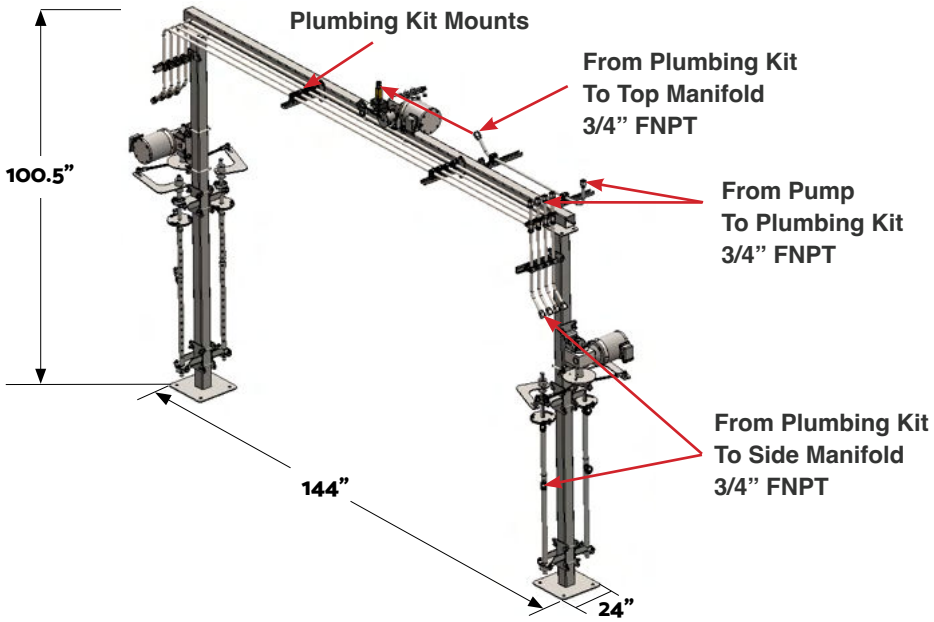


Fig. 3.2 - 1 - *blastIT Arch connection points*

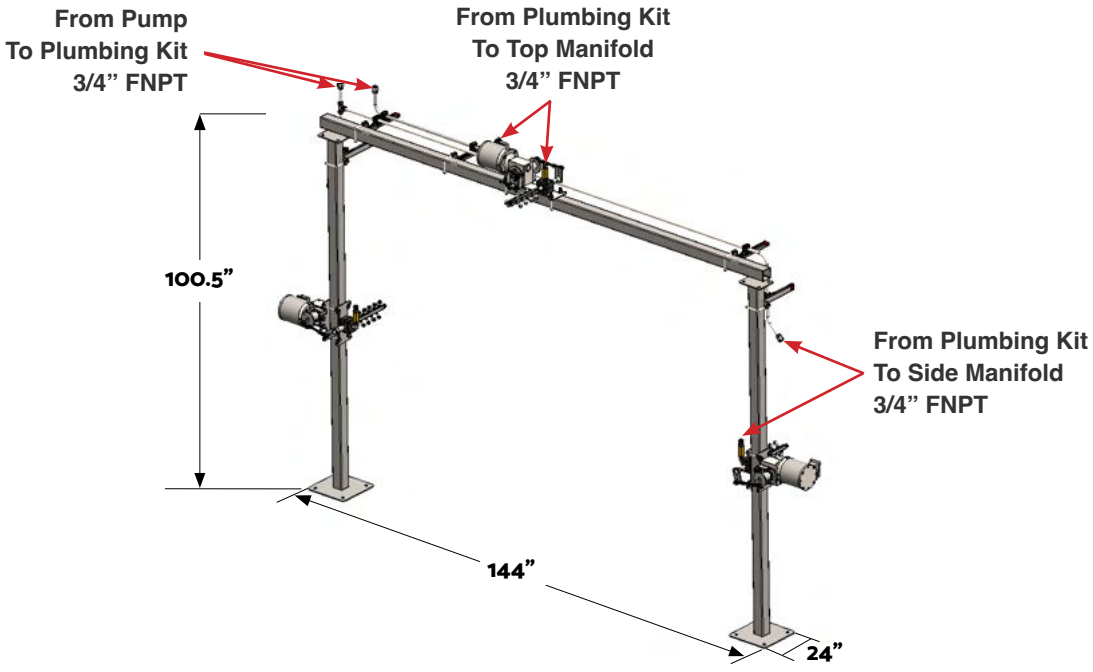


Fig. 3.2 - 2 - *rinseIT Arch connection points*

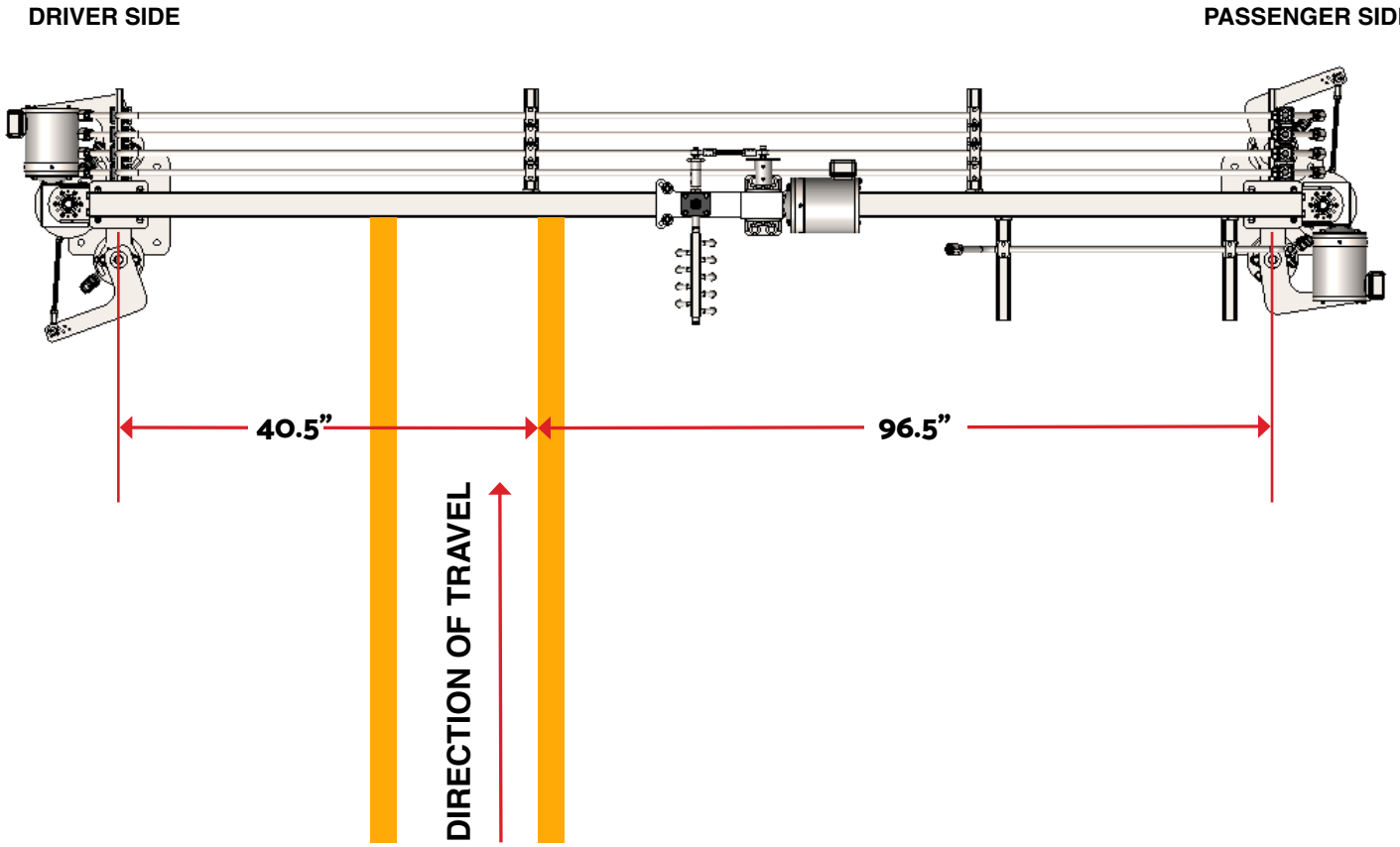


Fig. 3.2 - 3 - *Standard chain conveyor placement of the blastIT Arch*

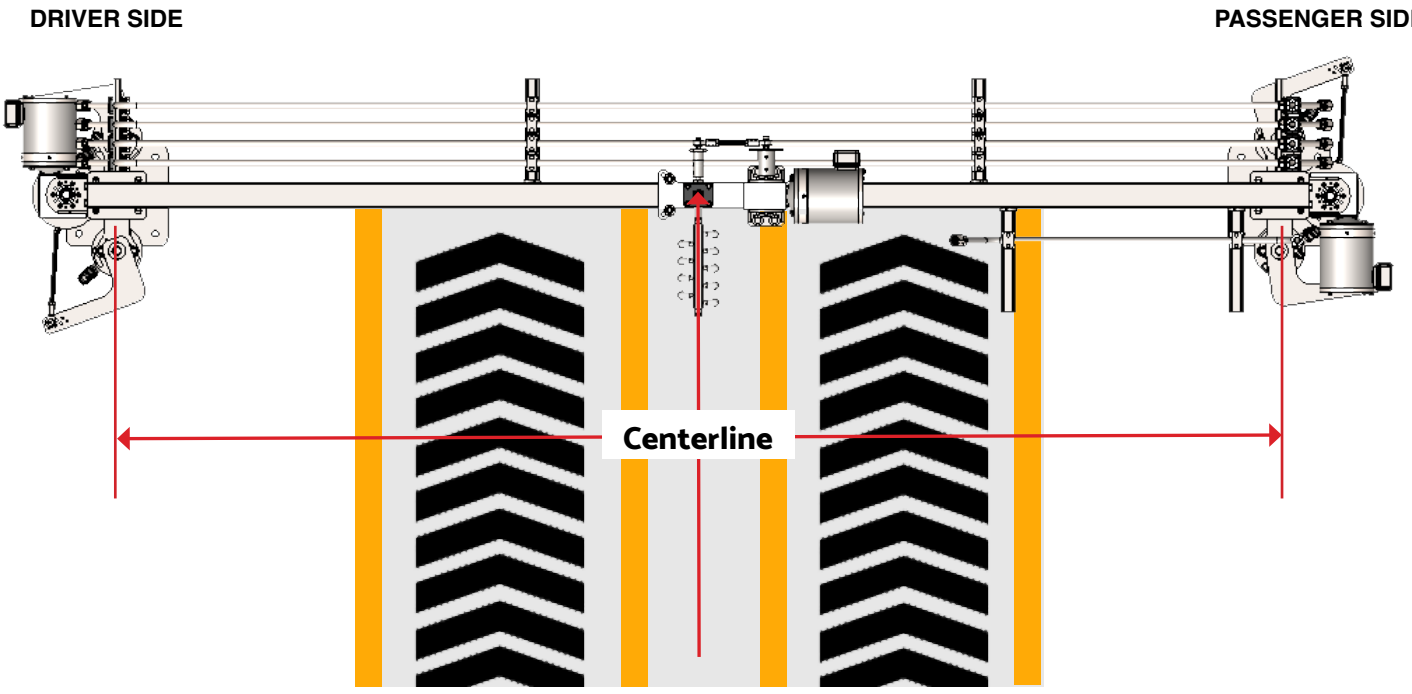


Fig. 3.2 - 4 - *Belt conveyor placement of the blastIT Arch*

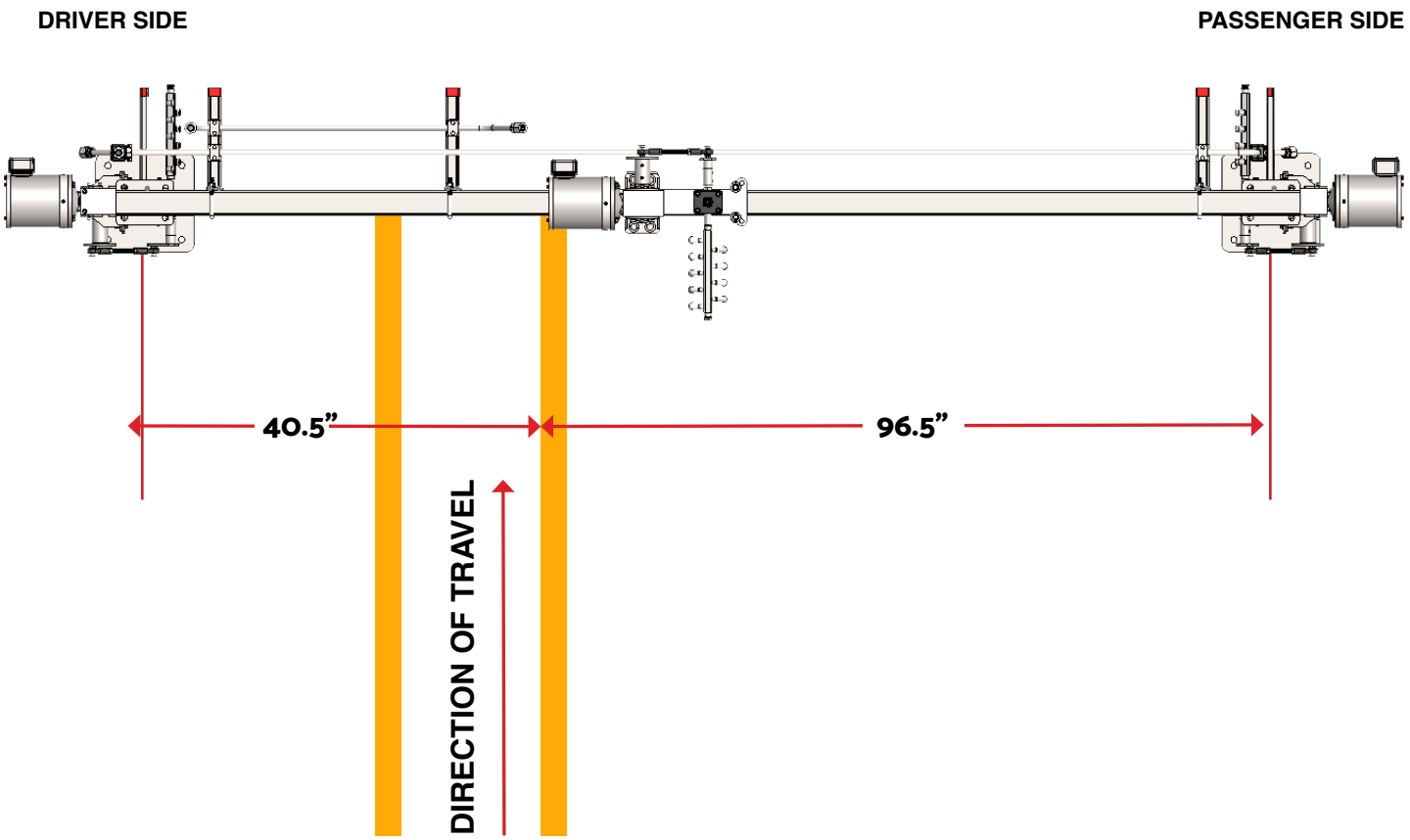


Fig. 3.2 - 5 - *Standard chain conveyor placement of the rinseIT Arch*

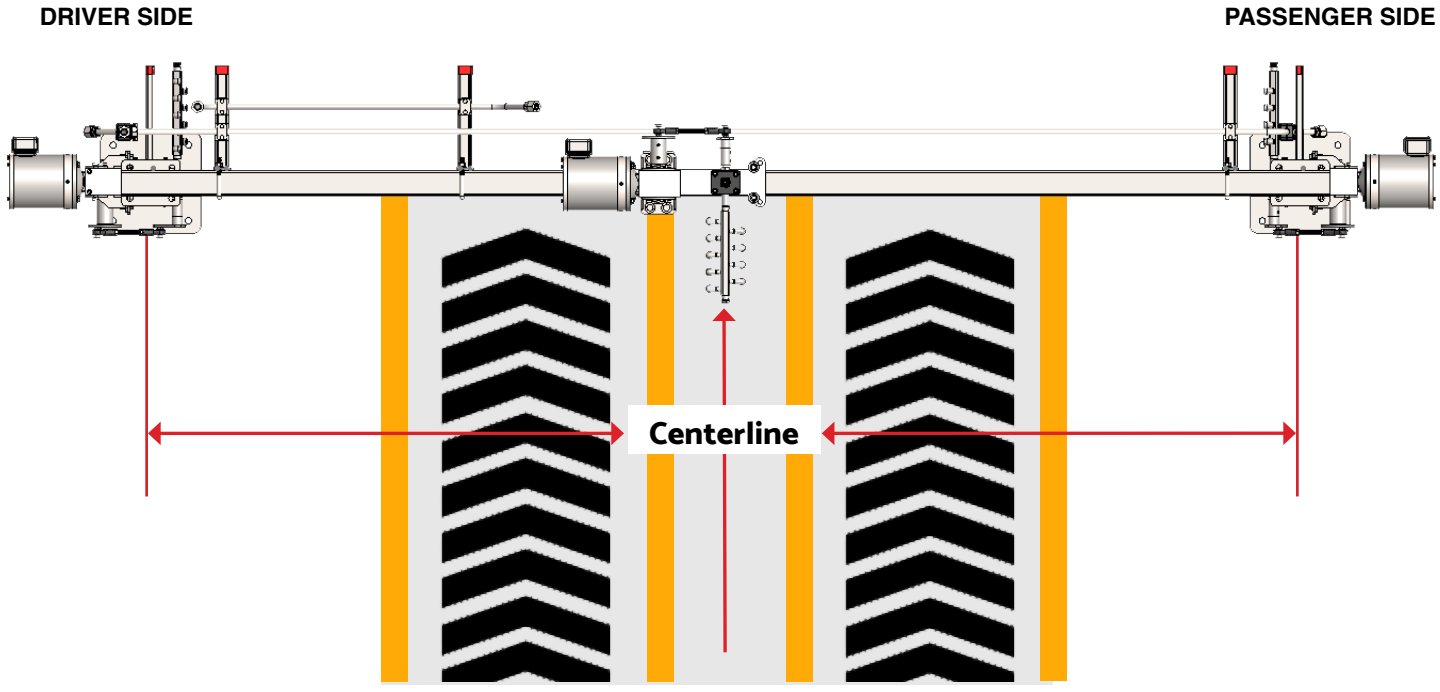


Fig. 3.2 - 6 - *Belt conveyor placement of the rinseIT Arch*

3.2.1 Assembling The Bare Arch

Refer to Fig. 3.2 - 1 for the correct placement of the arch within the car wash tunnel.

1. Align the arch with the vehicle centerline and confirm spacing from the conveyor's guide rails.
2. Lay the two 8-foot tall legs and the 12-foot crossbar on the ground near the intended installation site.
3. Position one leg on the driver's side of the conveyor and the other on the passenger's side.
4. Align the 12-foot crossbar perpendicular to the conveyor.
5. Insert two ½" stainless steel U-bolts into the holes at the top of each leg (Fig. 3.2.1 - 1).

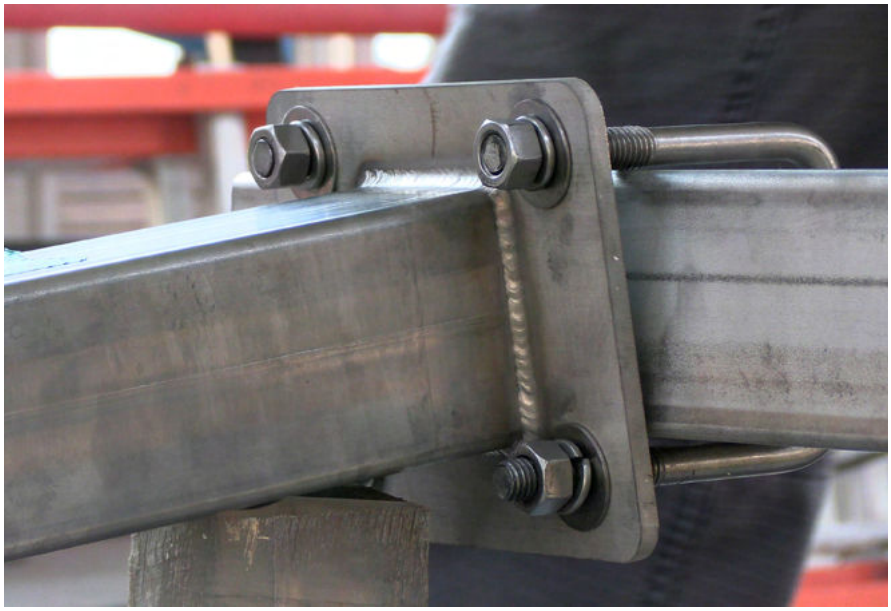


Fig. 3.2.1 - 1 - *Attaching arch legs to crossbar*

6. Place ½" flat washers and split lock washers onto the bolts, then secure with ½" nuts.
7. Slide the crossbar under the U-bolts on both legs and tighten the bolts snugly.
8. Ensure the vertical legs and the crossbar are level.
    - Floors are often pitched for drainage, so it is crucial to level the vertical legs accordingly. The crossbar should also be leveled, keeping in mind that the pitch may differ on the driver and passenger sides to allow for proper water drainage.
    - Stainless steel flat-bar (1/8"x2", 1/4"x2") or 3/4" fender washers can be used under the floor plate for leveling as needed.
9. Secure the arch to the floor using appropriate anchors. It is recommended to use 5/8"x 7" stainless steel thunder studs for optimal stability and durability.

3.2.2 Installing and Connecting Drive Linkages

1. Apply antiseize lubricant to all threads on bolts and hardware to prevent corrosion and ensure smooth assembly.
2. Attach the drive linkages.
3. Insert a shoulder bolt through the spherical rod end.
4. Place a flat washer over the bolt and thread the nut onto the bolt the entire way.
5. Insert the bolt into the threads on the pitman arm or flywheel and tighten securely.
6. While holding the shoulder bolt with an Allen wrench, use a 9/16" wrench to tighten the nut down to the pitman arm/flywheel to use it as a jam nut.

Fig. 3.2.2 - 1 - *Flywheel/pitman arm connection*

7. When 2 linkage share a same shoulder bolt, place a flat washer between the 2 spherical rod ends (Fig. 3.2.2 - 2).

Fig. 3.2.2 - 2 - *Installation of 2 linkages on 1 shoulder bolt*

8. Adjust the horizontal drive linkage to ensure it is level.
    - If the linkage is not level, adjust the height of the gearbox or motor assembly.
9. Grease all bearings.

The amount of oscillation (throw) of each manifold can be adjusted in two ways:

- Adjust the shoulder bolt location in the flywheel.
- Adjust the shoulder bolt location on the manifold's pitman arm.

3.2.3 Installing Plumbing

NOTE

When making hose connections, it is best to keep the mounts on the vertical legs as close as possible to the connection points of the tubing for stability

1. Attach the tubing to the arch using clamps.
2. Space the clamps evenly along the vertical legs and top crossbar.
3. Attach the high-pressure hose from the backroom pump to the stainless steel tubing inlet.
4. Securely connect the hoses from the tubing to the side and top manifolds.
    - Apply antiseize lubricant to hose ends before connecting to the manifold. Do not use thread tape for these connections.
5. Inspect and secure all connections.
    - Apply thread tape to all remaining fittings to prevent leaks.
6. Ensure routing of hoses does not interfere with mechanical linkages.
7. Tighten all hose clamps and fittings.

3.3 Electrical Installation

⚠ WARNING!

Electrical installation to be performed by a qualified electrician. Follow all local codes.
3PH breaker power to be supplied by customer.

NOTE

VFDs are required to control the speed of oscillation. Motors must be connected to VFDs (not included).

1. Ensure gland connections are properly seated and secure.
    - The outer cable diameter must be between 0.20”-0.45”.
2. Penetration to motor junction box should be done to prevent moisture entry. **Penetration should not be through the top of the junction box.**
3. Drip loop is recommended to avoid as much water ingress as possible.
4. Ensure that the motor drains are on the low point of the motor and are positioned vertically (Fig. 3.3-1).

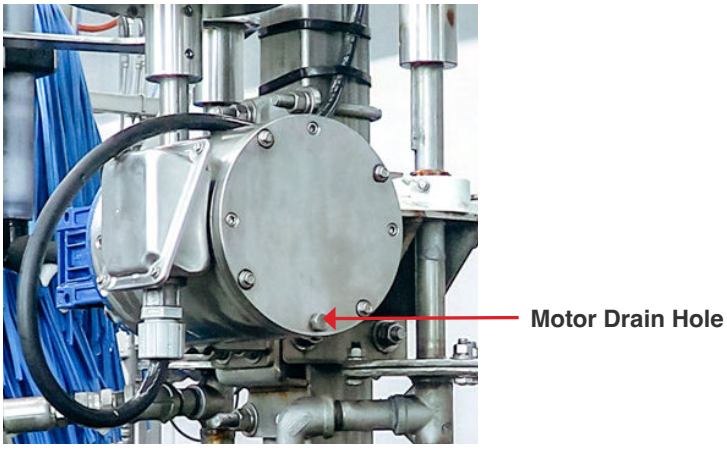


Fig. 3.3 - 1 - *Motor drain hole*

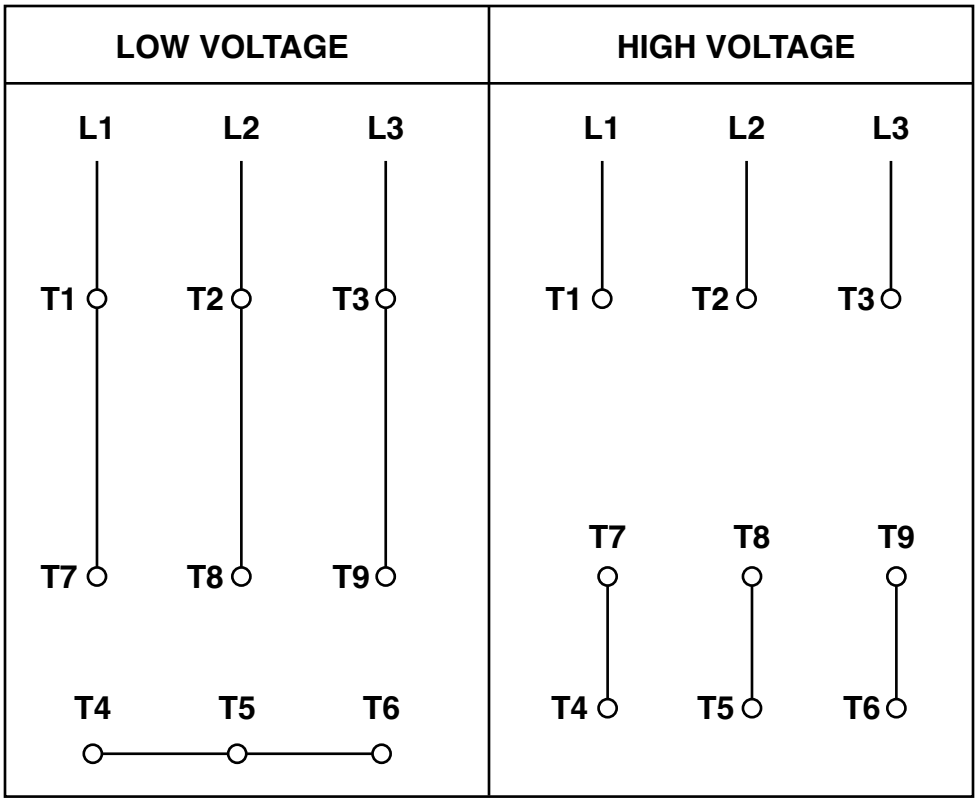


Fig. 3.3 - 1 - *1/2 HP Motor wiring - across the line start & run*

4. Startup & Operation

⚠ WARNING!

Check and verify the tightness of all power distribution lines (screw terminals) before the startup process

NOTE

Ensure all steps and precautions in Section 3 have been completed before starting up the high-pressure arch

4.1 Flushing The Lines

1. Turn on the pump and flush out the lines for a minimum of 10 minutes.
2. Install all nozzles.
3. Ensure that there are no leaks.
4. Ensure that all remaining hardware is tightened.

4.2 Confirm Operation

1. Ensure all bearings have been greased prior to starting the system.
2. Start the system and confirm the operational sweep and direction of the manifolds is adjusted to desired settings. Refer to Section 3.2.2 to adjust oscillation.
3. Ensure high-pressure plumbing and electrical connections are not bound during operation/oscillation.

5. Service & Maintenance

The best method to maintain the high-pressure arch is to take a few minutes daily to examine the unit for leaks or any indication of a mechanical or electrical fault.

If a change in performance or operation is observed, it is essential to take corrective action quickly to minimize the potential damage to the system.

There are elements of the system that will require normal maintenance actions. These items are listed in the following section.

5.1 Service Schedule

Table 5.1 - 1 - *Service schedule*

Check	Frequency	Process
Visual Inspection	Daily	• Check for loose fasteners, visible leaks, worn hoses, and any unusual wear on components. Inspect nozzles for blockages or damage.
Hoses and Plumbing	Weekly	• Check for leaks, cracks, or wear in hoses and stainless steel plumbing; replace if damaged.
Manifolds and Nozzles	Weekly	• Remove debris and buildup from nozzles and manifolds to ensure proper water flow.
Lubrication	Weekly	• Apply lubricant to all moving parts, including linkages and bearings
Motors and Gearboxes	Monthly	• Verify smooth operation of motors and gearboxes; check for unusual noise or vibration.

6. Troubleshooting

For product support, contact support@innovateITcarwash.com, or call (518) 741-4200 (option 2).

Symptom	Potential Causes	Solution
Spray Inconsistent From Nozzle	• Clogged nozzle.	• Remove and clean nozzle.
No Oscillation	• No power from MCC.	• Trace power distribution and determine cause.
	• Electrical connection issue at motor.	• Check motor connection and ensure there is no moisture.
	• Gearbox issue.	• Confirm keyshaft is installed properly in the keyway. • Separate the motor from the gearbox and verify the rotation of the gearbox.
No Water To 9-Port Manifold	• Valve seized closed.	• Remove swivel fitting from check valve and manually actuate poppet in valve.
Plumbing Kit Rattling	• Loose mounts/clamps	• Tighten all plumbing kit mounts/clamps.

7. Recommended Spare Parts

Below is a list of recommended spare parts that may require replacement during the course of system operation.

innovateIT Product Number	Description
BRNG-1.0-2B	1” Thermal Plastic Flange Bearing
MTR-ELE-1/2	1/2 HP Motor
GRBX-SS-26:1	Gearbox
BJ-RODEND-PLSTC-1/2-20X1/2	Rod Ends
4005940	Rifle Nozzle Tip
4005939	Rifle Nozzle Body
WB-CHCKVLV-8	1/2” Check Valve

7.1 Spare Part Replacement

7.1.1 Replacing Thermal Plastic Flange Bearing

The following tools are needed to complete this task:

- (2) 9/16” Wrench
- 5/32” Allen Key
- 3/16” Allen Key

1. Turn off electrical supply to the unit.
2. Turn off the supply from the high-pressure pump.
3. Loosen the set screw on the bearing (Fig. 7.1.1 - 1).
4. Remove the two bolts holding bearing onto the bearing mount.
5. Bottom Bearing
    - Slide the bearing off the shaft.
    - Replace the bearing.
6. Top Bearing
    - Remove the connecting rod linkage.
    - Loosen the set screws on boomerang arm.
    - Remove the boomerang arm.
    - While holding the manifold, remove the bearing.
    - Reinstall the boomerang arm with keystock.
    - Reconnect the connecting rod linkage.
7. Turn on the supply from the high-pressure pump
8. Turn on electrical supply to the unit.

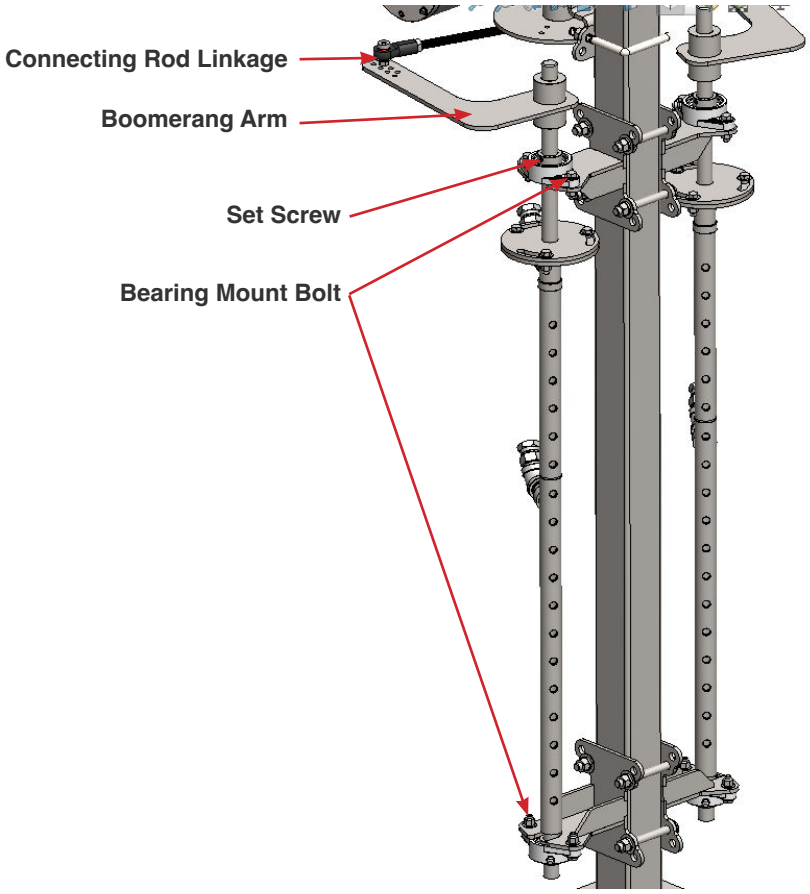


Fig. 7.1.1 - 1 - *Replacing flange bearing*

7.1.2 Replacing 1/2 HP Motor

The following tools are needed to complete this task:

- 9/16” Wrench

1. Turn off electrical supply to the unit.
2. Turn off the supply from the high-pressure pump.
3. Disconnect the cable from the motor.
4. Remove the four bolts holding the motor to the gearbox (Fig 7.1.2 - 1).
5. Slide the motor out of the gearbox. Keep the gearbox coupling.
6. Add antiseize to the contact face of the motor.
7. Align the motor shaft keyway to the gearbox adapter.
8. Reinstall bolts holding the motor to the gearbox.
9. Reinstall motor cable.
10. Turn on the supply from the high-pressure pump
11. Turn on electrical supply to the unit.

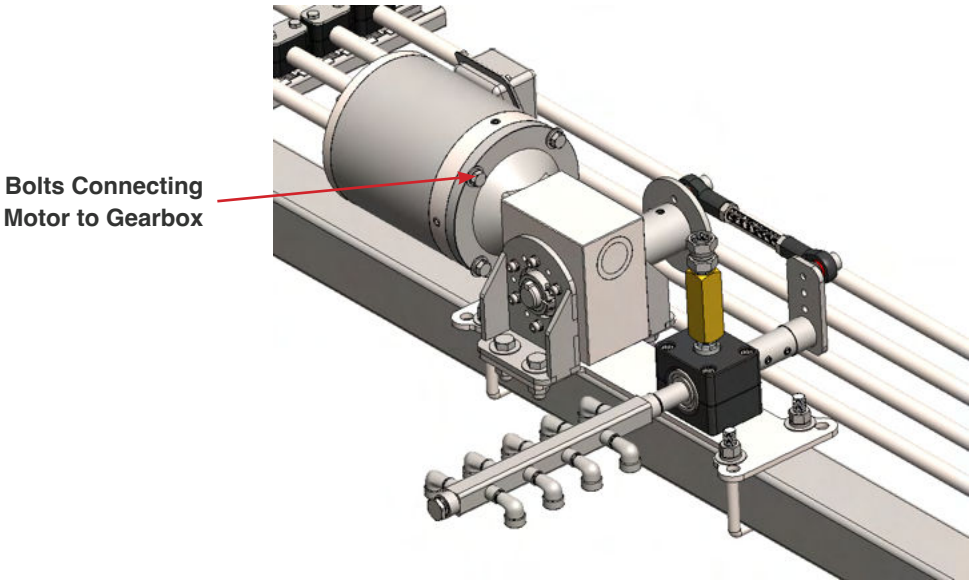


Fig. 7.1.2 - 1 - *Replacing motor*

7.1.3 Replacing Gearbox

The following tools are needed to complete this task:

- 9/16” Wrench
- (2) 3/4” Wrenches
- 3/16” Allen Key
- M4 Allen Key

1. Turn off electrical supply to the unit.
2. Turn off the supply from the high-pressure pump.
3. Remove the connecting linkages from the flywheel (Fig. 7.1.3 - 1).
4. Loosen the flywheel set screws and remove the flywheel.
5. Remove the motor and gearbox mount from the arch.
6. Remove the gearbox mounts from the gearbox.
7. Loosen the set screws on the set collars and remove the shaft collars and shaft.
8. Remove the four bolts holding the motor and gearbox together. Put the gearbox coupling aside.
9. If needed – reapply antiseize on to motor.
10. Align the motor with the gearbox adapter.
11. Reinstall the motor on to the gearbox.
12. Install shaft, keystock and shaft collars back into the gearbox.
13. Reinstall the gearbox mounts on to the gearbox and mount the gearbox back on the mounting plate.
14. Install the mounting plate on to the arch.
15. Reinstall the flywheel on to the shaft.
16. Connect linkages.
17. Adjust height so the linkages are horizontal.
18. Tighten and reinstall electrical connection
19. Turn on the supply from the high-pressure pump
20. Turn on electrical supply to the unit.

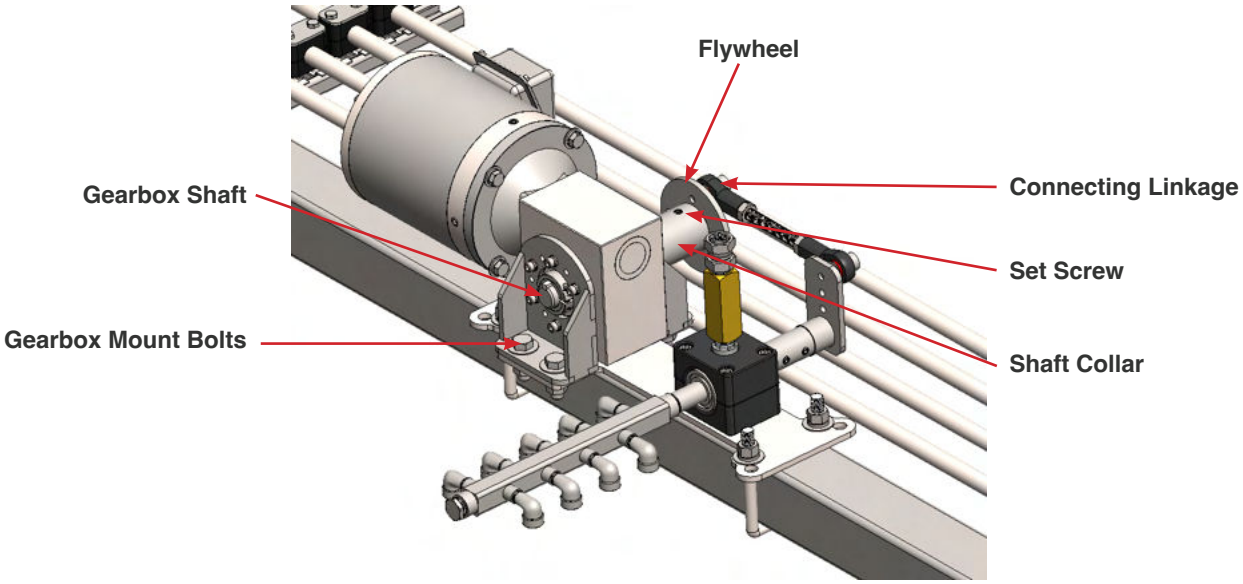


Fig. 7.1.3 - 1 - *Replacing gearbox*

7.1.4 Replacing Rod Ends

The following tools are needed to complete this task:

- 9/16” Wrench
- 3/4” Wrench
- 3/16” Allen Key

1. Turn off electrical supply to the unit.
2. Turn off the supply from the high-pressure pump.
3. Remove the bolt (Fig. 7.1.4 - 1).
4. Unthread off the threaded rod.

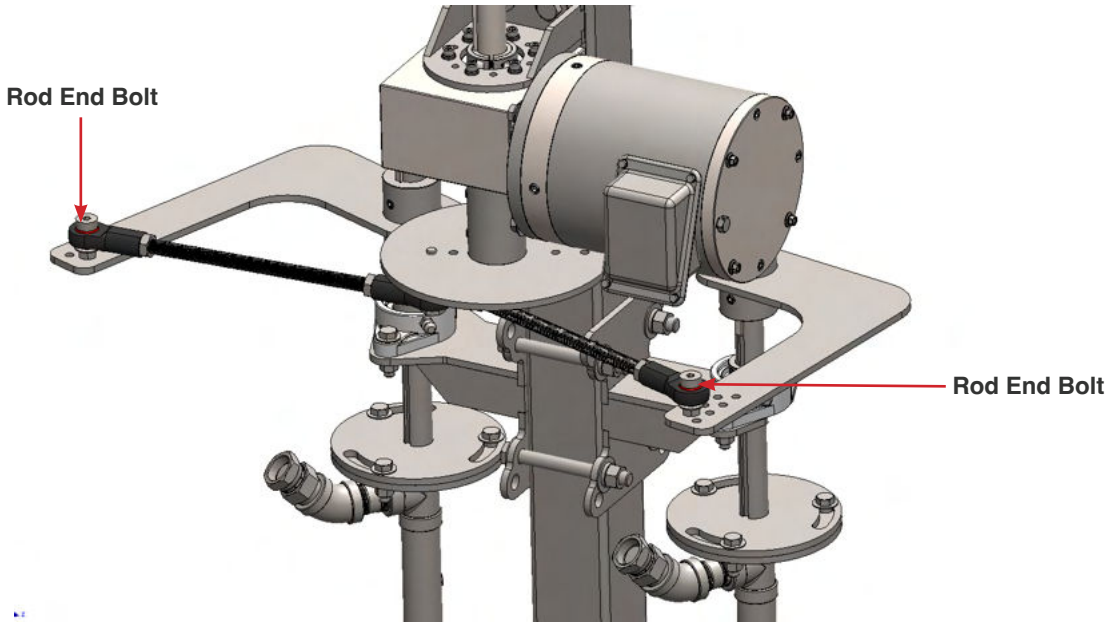


Fig. 7.1.4 - 1 - *Replacing rod ends*

5. Remove hardware from the broken rod end.
6. Reinstall hardware onto the new rod end.
7. Thread new rod end onto the threaded rod.
8. Install back on to the boomerang arm or flywheel.
9. Tighten jam nuts on the bolt and threaded rod.
10. Turn on the supply from the high-pressure pump
11. Turn on electrical supply to the unit.

7.1.5 Replacing 1/2” Check Valve

The following tools are needed to complete this task:

- 2 Adjustable Wrenches

1. Turn off electrical supply to the unit.
2. Turn off the supply from the high-pressure pump.
3. Remove the hose from the swivel fitting (Fig. 7.1.5 - 1).
4. Unthread the check valve from the water bearing,

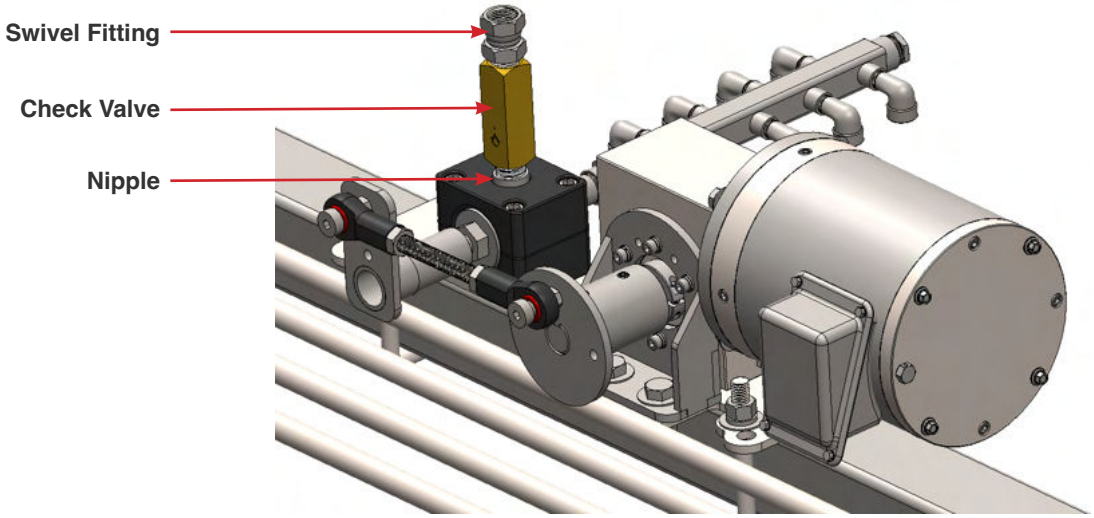
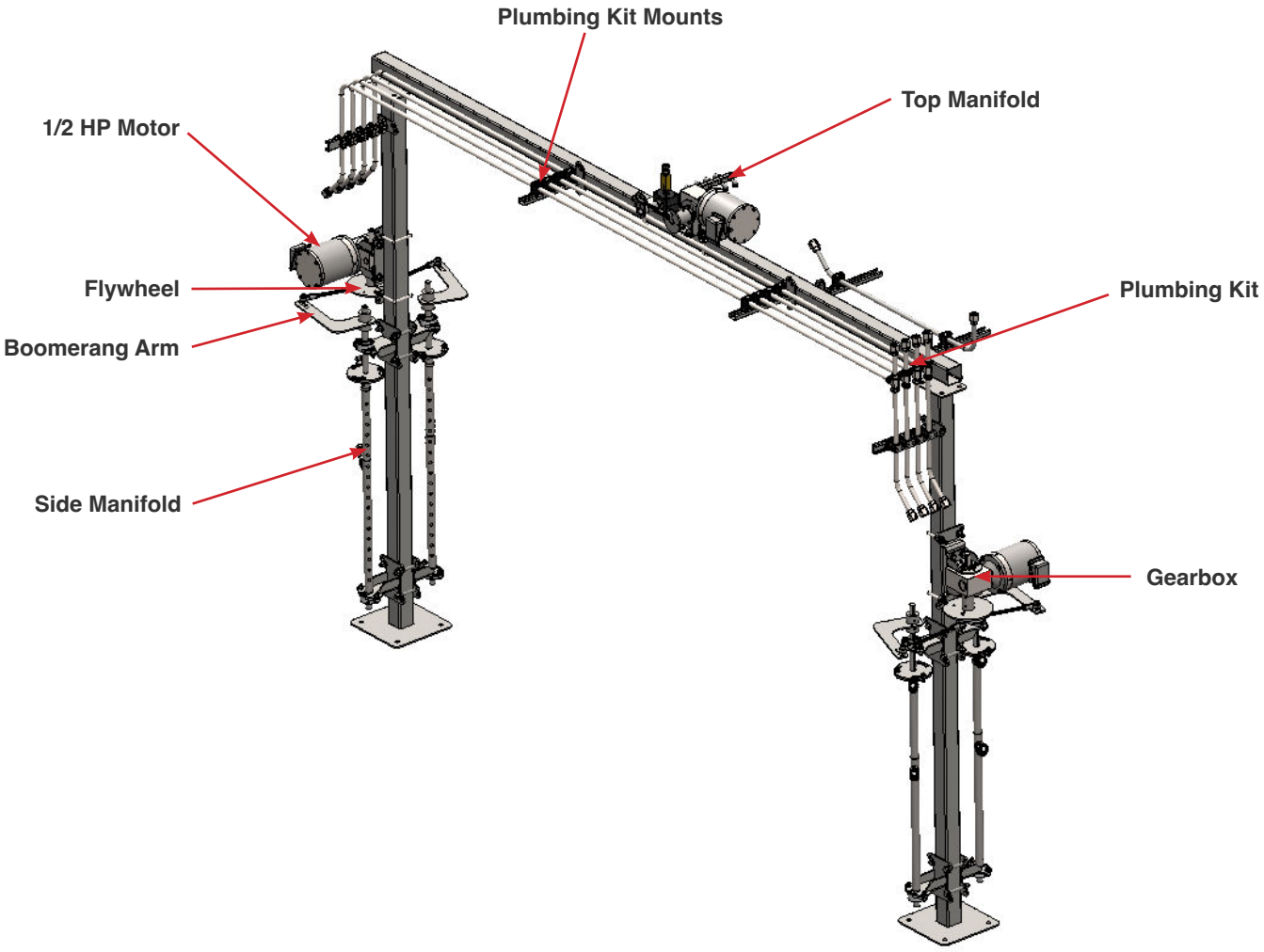


Fig. 7.1.5 - 1 - *Replacing check valve*

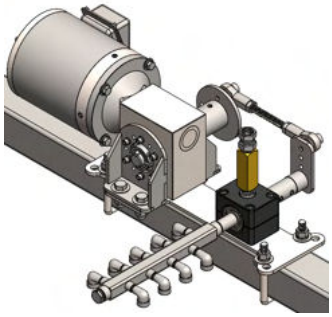
5. Loosely install nipple into new check valve, ensuring proper flow direction (nipple on outlet of check valve)
6. Using check valve, tighten the nipple into the water bearing.
7. Reinstall the swivel into the check valve on the inlet side.
8. Reconnect the hose.
9. Add additional antiseize to hose if needed.
10. Turn on the supply from the high-pressure pump
11. Turn on electrical supply to the unit.

Appendix 1 - System Identification

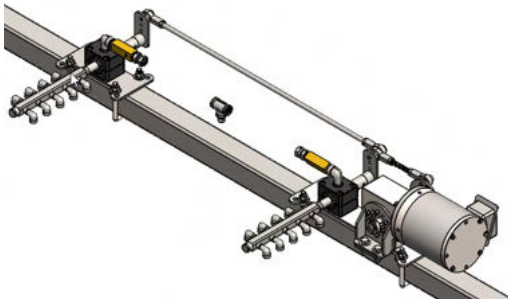


Configurations - Top Kit (blastIT/rinseIT)

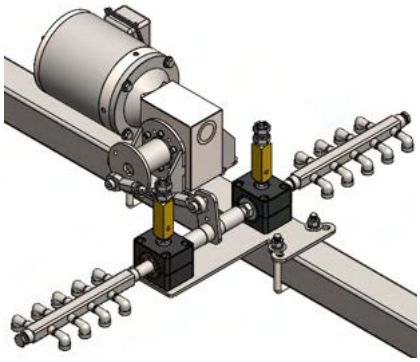
Standard



Parallel

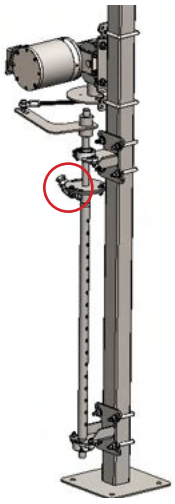


Inline

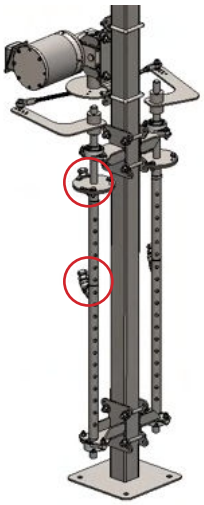


Configurations - Side Manifolds (blastIT)

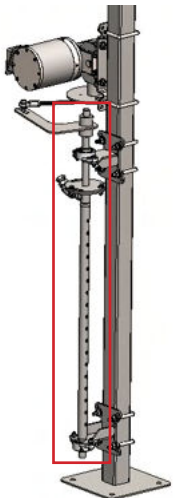
Standard



Split



2 Side
(1 Manifold Per Side)



4 Side
(2 Manifolds Per Side)