Dual Pack Flex Wrap

Service Manual

COLEMAN HANNA
CARWASH SYSTEMS LLC
AN O'HANRAHAN COLEMAN COMPANY

5842 W 34th St, Houston, TX 77092
1.800.999.9878 • 1.713.683.9878
www.colemanhanna.com

Find us on Facebook:
/ColemanHannaCarwash

1.0 Installation

The following information is a recommended means for installation of the Hanna Pack Flex Wrap. Check for the local utilities, making sure of proper access location and supply sizing. If anything must be changed, do so prior to the day of installation. Deficiencies discovered at the time of installation will greatly increase time spent before startup.

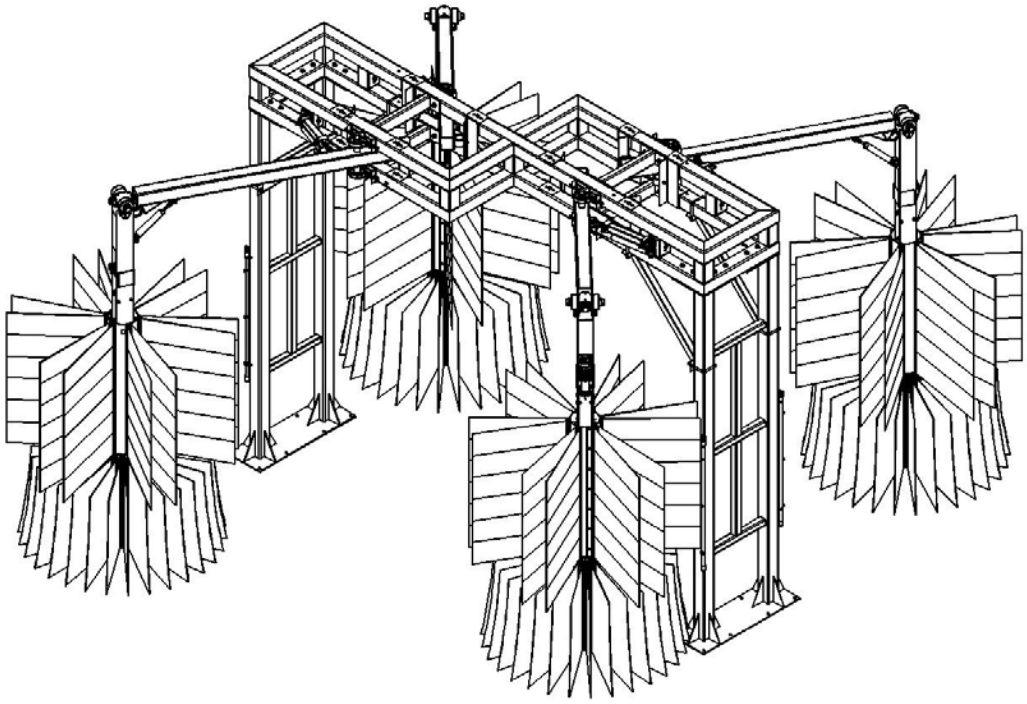


Figure 1-1. ***The Hanna Dual Pack Flex Wrap Isometric Layout***

1.1 Setup

This section goes over the required tools, product checks, and safety precautions needed to continue to the installation of the product.

1. Read this manual prior to opening crates or installing equipment.

2. Carefully open crates and identify the individual parts for assembly using the enclosed checklist. If there are any missing parts, notify your Hanna distributor immediately.

WARNING: ***IF USING A FORKLIFT TO INSTALL EQUIPMENT MAKE SURE TO FOLLOW OSHA AND GENERAL SAFETY RULES AND REGULATIONS TO ENSURE PERSONAL SAFETY.***

3. Place the framework in the wash bay as shown on the layout drawing (available if purchased with system). Make sure the framework is facing the correct direction for vehicle travel. When all pieces for your configuration have been set in place, take the time to recheck the packing lists.

4. Make sure all of the necessary tools are on-hand before work is begun.

   - ✓ Set of ratchets/wrenches to secure bolts, nuts, connections, anchors, etc.
   - ✓ A mason drill to set the pilot holes for the anchor bolts.
   - ✓ Large hammer to insert the anchor blots to the ground.
   - ✓ A power grinder to remove excess material form the anchor bolts.
   - ✓ Tube cutters for poly connections.
   - ✓ Blade/box cutter.
   - ✓ Leveling tool to assure that the structure is accurately square.
   - ✓ Set of screwdrivers, as a flat head will be needed for the core assembly.
   - ✓ Tape measure to acquire proper distances and identifying marks.
   - ✓ Plumb bob to align the component to the centerline of the tunnel.
   - ✓ Teflon tape for fittings.
   - ✓ Never-seize for stainless steel hardware attachment.
   - ✓ Forklifts for heavy material.

1.2 Structure Installation

5. Stand the two legs where the correct location for the structure resides, do not anchor the legs into the ground at this time.

6. Carefully raise the header assembly on top of the legs using a forklift. It is recommended that one person on each side hold the legs while header is placed on top. Refer to figure 1-13 and 1-14 to see how the header assembly is orientated according to car travel. **Note:** Before bolting the structure in place, it is imperative that never-seize be placed on all stainless steel bolt threads to prevent locking.

7. Once aligned, use the ½" X 5 ½" bolts, ½" flat washers, and ½" esna nuts to secure the header assembly to the legs. **Note:** When bolting the header to the legs make sure the head of the bolt is always on top of the structure and the washer and nut connect at the bottom. This will assure that the bolts will not fall if any nut should ever become disconnected.

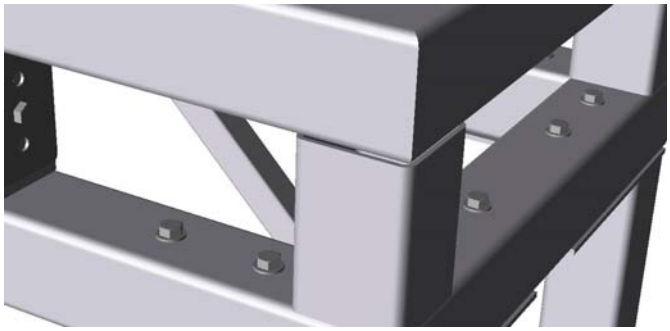


Figure 1-2. ***Header Assembly Bolted to Legs***

8. Place the post-to-header gussets on the structure. All post-to-header gussets are mounted parallel with the header assembly facing the inside legs of the structure. Once aligned use the provided 5 ½" U-bolts, ½" flat washers, and ½" esna nuts to secure all (4) of the gussets. (2) U-bolts will be required for every gusset.

Figure 1-3. ***Mounted Post-to-Header Gusset***

9. Situate the structure so that it's perfectly over centerline of the carwash. Please refer to your M1 drawing to locate and reference where the centerline is to your system. Use the plumb bob and hang it from the center point of the Dual Pack Flex Wrap Header. If centered correctly, the point of the plum bob will point to the centerline of the tunnel.

Figure 1-4. ***Plumb Bob***

10. Using your level, make sure that the header assembly is perfectly straight. If the bubble in the level is not directly between the center marks, there may be problems with future extend and retract performances. To compensate for any unevenness in the header, the installer may have to place spacer plates under the base plate of the offset leg.

11. Double check for accuracy before anchoring the base plates. If centered correctly, there will be **77 inches** from the outer edge of each base plate to the centerline. Make sure that there is at least **7 feet of clearance from the exit side** and **7 feet of clearance from the entrance side**. This is so that the components in front of and behind the Flex Wrap may not interfered with.

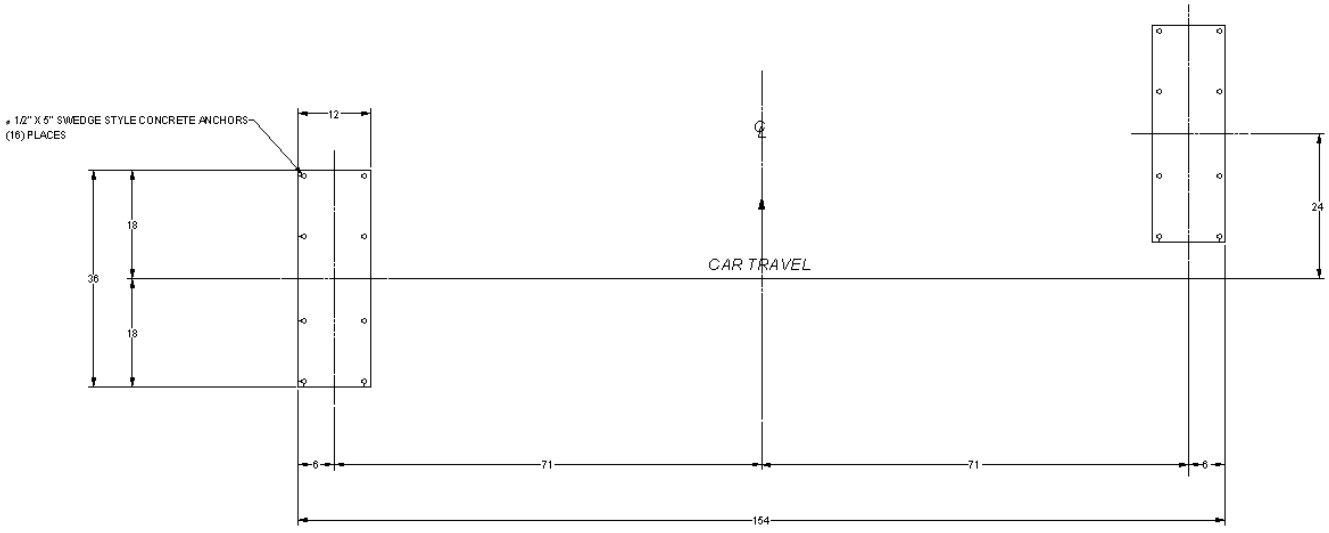


Figure 1-5. ***Centerline Orientation of the Hanna Dual Pack Flex Wrap***

12. Once situated, drill the pilot holes for the anchor bolts, drive the ½" X 5" anchor bolts into the ground, tighten the nuts, and grind off the excess threads extruding from the ground.

Figure 1-6. ***Anchor Bolt***

13. Recheck and make sure that all bolts are completely tight after the structures has been moved and anchored down.

1.2.1 Installing the Core Assemblies to the Box and Shaft Assembly

14. Locate the (4) Box and Shaft assemblies provided with the equipment and gently lay them on a clear/dry working area.

15. Locate the (4) 48" X 8" Cores and the (4) 28" X 10" Cores. Locate the spider hub assemblies, split hub assemblies, and flange-bushing kits.

16. Install the spider just under the shaft coupler at the top of the shaft under the hydraulic motor. Slip the upper core of the shaft and the spider.

17. Install the four-bolt flange onto the shaft. Then use a screwdriver to spread the taper lock slightly and slip the assembly up the shaft. The bottom of the lower core should be **10" off the ground on the passenger side and 12" on the driver side**. Set the four-bolt flange to achieve this eight off the floor.

Wedge a flat head screwdriver into the gap taper lock in order to slide it up the shaft.

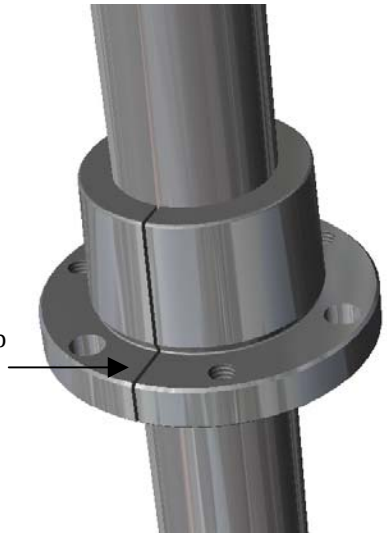


Figure 1-7. ***Taper Lock on Shaft***

18. Install the set collar against the four-bolt flange and install the lower core with the four bolts provided.

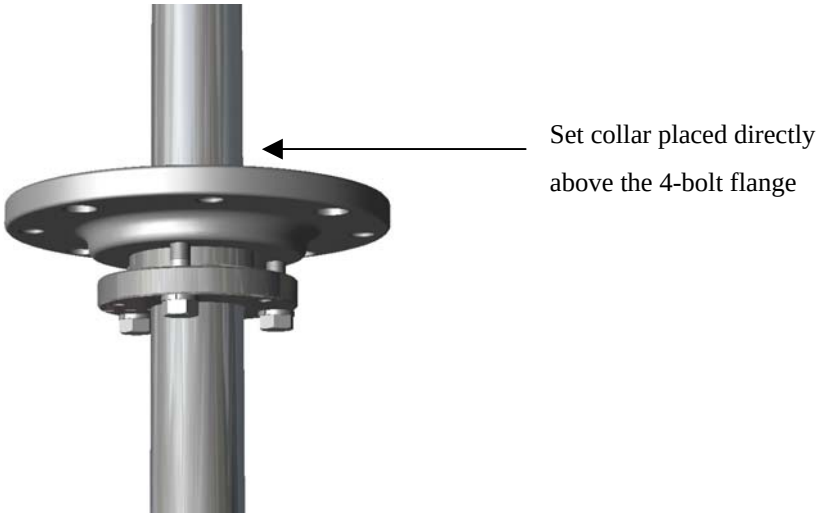


Figure 1-8. ***4-Bolt Flange for Lower Core***

19. Install the split hub for the upper core above the four-bolt flange, slide the upper core over the split hub and tighten with the three ¼" bolts provided.

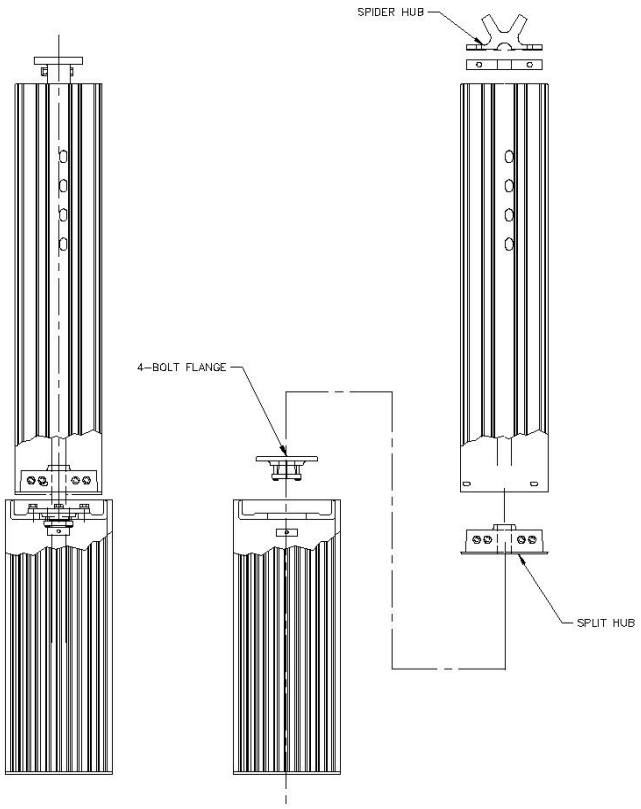


Figure 1-9. ***Core Assembly Orientation Over the Shaft***

1.2.2 Installing the Box and Shaft/Brush Assembly to the Arm Weldment

20. Once both the core assemblies are secure to the Box and Shaft assemblies, hoist the Box and Shaft assembly to where the hole of the bearing insert meets the end shaft of the arm weldment.

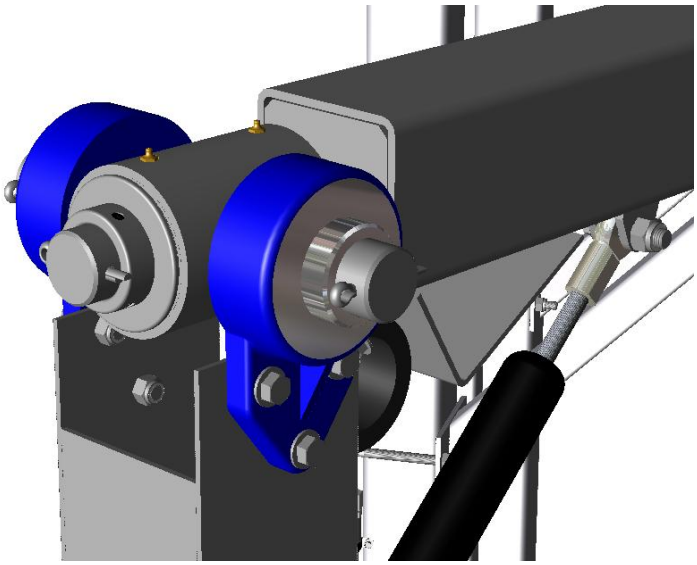


Figure 1-10. ***Bearing Attached to the End of the Arm Weldment***

21. Once in place, make sure that the grease fittings are accessible from the top of the shaft assembly and set collars are secure on all four sides of the bearing insert.

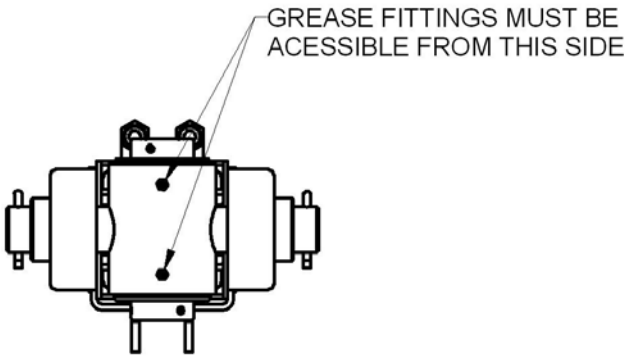


Figure 1-11. ***Top View of the Box and Shaft Assembly***

22. Attach the shock assembly from the arm weldment to the box and shaft assembly. Make sure that the hardware connecting these items are free enough to rotate. If tightened too much, box and shaft assembly movement will be hindered and damage may result.

23. Tighten the set collars to prevent the bearing insert from slipping.

24. Make sure the three cotter pins provided at the end of the arm weldment are installed to complete the attachment of the Box and Shaft assembly.

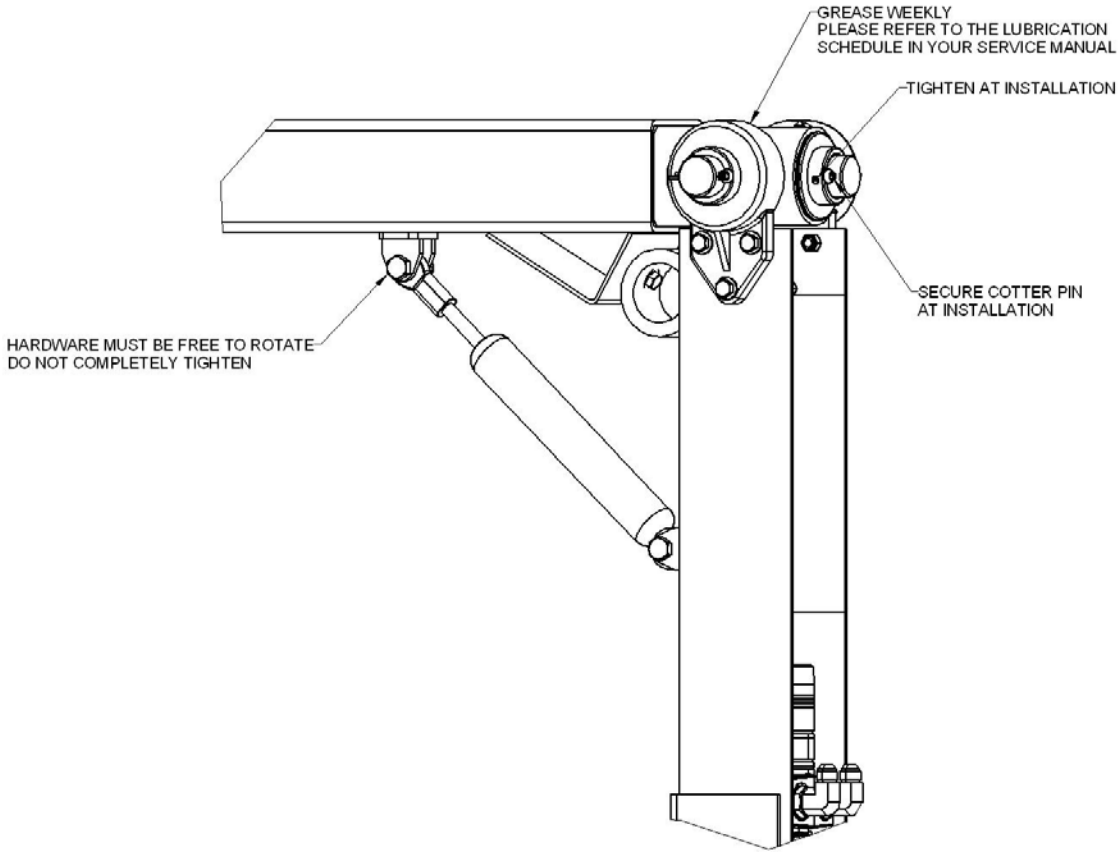


Figure 1-12. ***Box and Shaft Assembly Connected to the Arm Weldment***

1.2.3 Positioning the Bumper Stops

25. It is imperative that the bumper stops be positioned correctly. Failure to do so my result in vehicle and equipment damage.

26. Upon installation, the bumper stops must be tested prior to attaching the cylinders or the shocks

27. To test the bumpers, install them as shown in figure 1-13.

28. Level the arms, and slowly move the arms by hand, in and out. Check the rest position of each brush to assure proper arm motion.

29. The brushes should reach the centerline of the car wash tunnel when extended (in) and reach the position shown below when retracted (out).

30. Reattach the cylinders and shocks as described in the following section of the manual. Re-check the arm motion by hand.

31. Neither the cylinders nor the shock should “bottom-out” in either the extended or retracted position. If this occurs reset the bumper stops to one of the available holes in the bumper stop brackets.

32. Once the bumper tops have been set to their final position, permanently secure them in place by tack welding the bolt head to the bumper stop bracket.

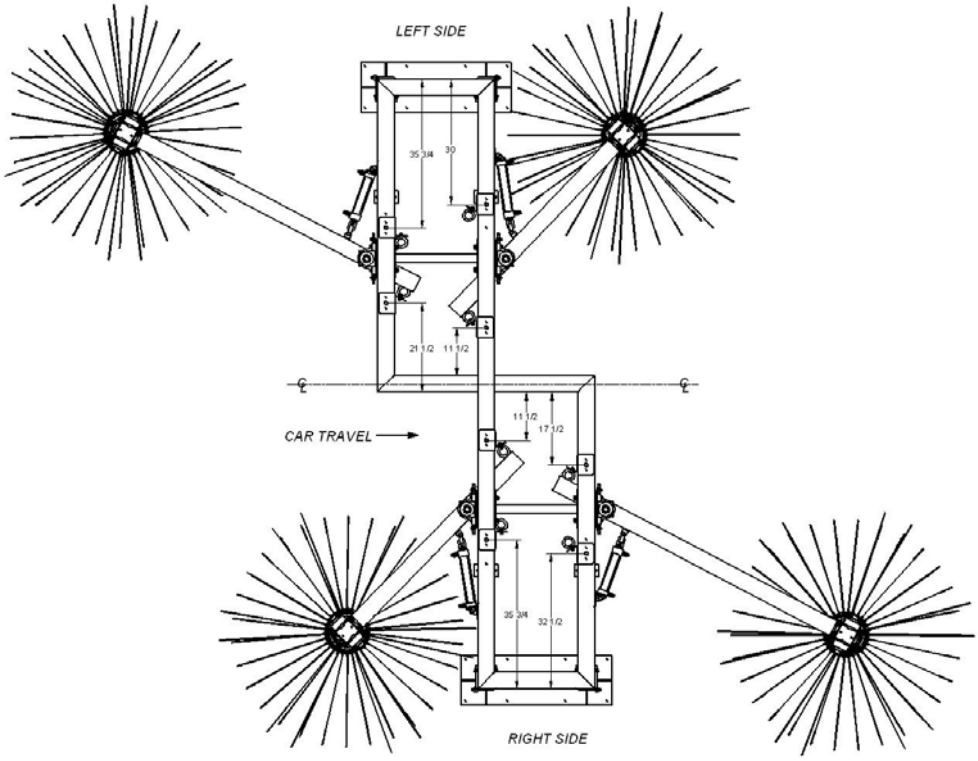


Figure 1-13. ***Dual Pack Flex Wrap in Retracted Position***

33. The entrance wraps shown in figure 1-14 are in the fully extended position. The bumper stops have been positioned to prevent the brushes from reaching the centerline. This lack of ‘cross-over’ is a mandatory safety feature and will prevent both vehicle and equipment damage.

34. When these brushes engage the front of the vehicle, they will easily and smoothly wrap around the front bumper.

35. The brushes will then thoroughly wash the sides of the vehicle while gently washing the area near the external mirror.

36. As the brushes approach the rear of the vehicle, this where the entrance wraps perform their specialized function.

37. As the warps come around the rear bumper, the brushes will begin to crawl towards the centerline of the carwash tunnel. Because of the geometry of the arms, the brushes will chase the rear of the vehicle, as the arms swing inward.

38. This chasing action, combined with the overhead pivot gimbal will allow the brushes to swing along the back of the vehicle resulting in total coverage of the rear of the vehicle.

39. When this washing action is further combined with the limited 'cross-over', the brushes will proved superior cleaning of the rear of any vehicle while at the same time, have limited contact with trailer hitches, license plates, and rear wipers. If the arms exceed the crossover shown, please check all bumper stops with the correct drawing dimensions.

40. The exits wraps shown in figure 1-14 are in their fully extended position. The bumper stops have been positioned to allow the brushes to nearly reach the centerline. This 'cross-over' is required for the washing of the front of any vehicle.

41. When these brushes engage the front of a vehicle, they will scrub the front grill and bumper, while crawling away from the center of the vehicle. This is the specialized function of these brushes.

42. After rounding the corner of the front bumper, the brushes will then thoroughly wash the sides of the vehicle while gently washing the area near the external mirror.

43. As the wraps come around the rear bumper, the brushes will begin to crawl towards the centerline of the car wash tunnel. Because of the geometry of the arms, the brushes will pull away from the car as the arms swing inward. This is to allow the compressed cloth to flare out while the brush exerts less and less force with the vehicle.

44. This flaring action combined with the overhead pivot gimbal will allow the brushes to gently loft off the back of the vehicle while still using the tips of the cloth to wash a large majority of the rear surface.

45. When this washing action is further combines with the full range of 'cross-over', the brushes proved good cleaning of the rear while having limited contact with more fragile parts of the car.

46. If your brushes do no have the amount of “cross-over” shown in figure 1-14, please check all bumper stops with the dimensions shown on the drawing.

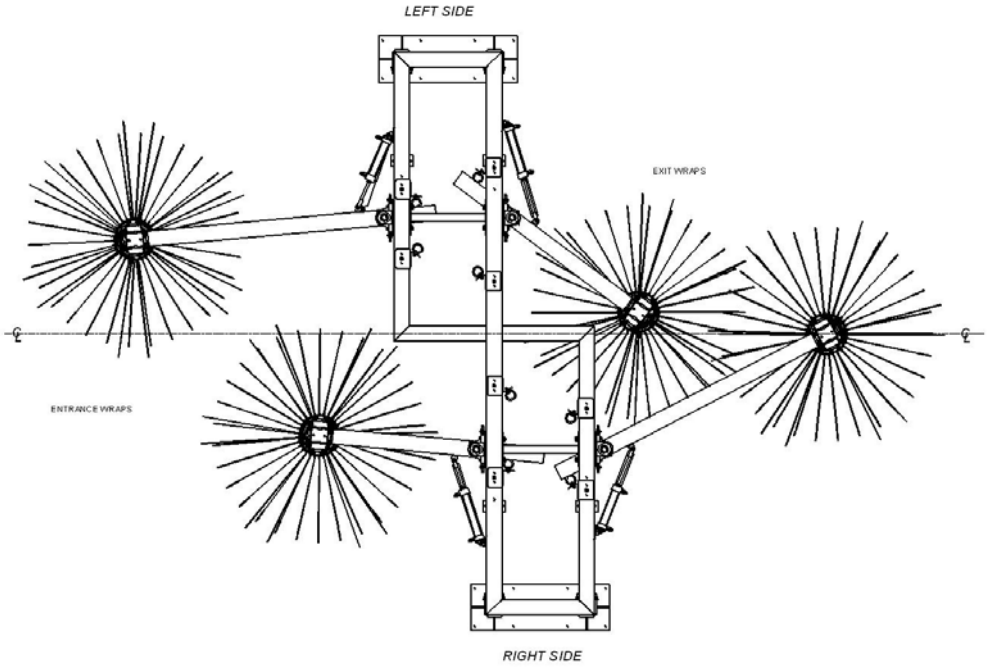


Figure 1-14. ***Dual Pack Flex Wrap in Extended Position***

1.2.4 Installing the Shocks and Cylinders

47. When mounting the blue shock and cylinder assembly, make sure to place the cylinder assembly above the shock.

48. Connect the rod end bearing of the cylinder and the thinner end of the shock to the arm weldment. The thicker end of the shock and the hinged end of the cylinder connect to the header assembly.

49. Make sure that the hardware used to connect these items are secure but loose enough to move freely for the extension and retract to run smooth.

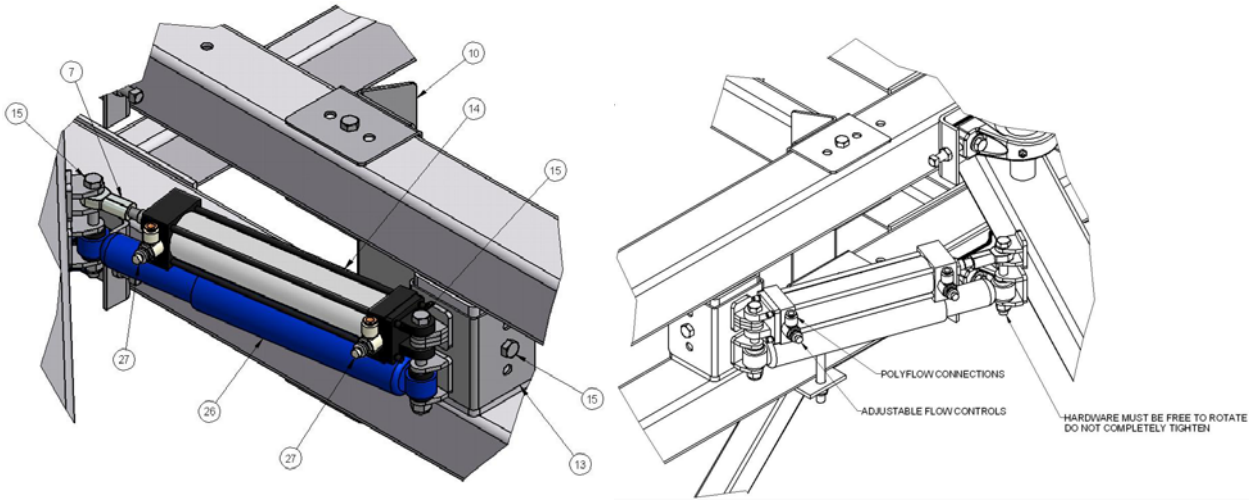


Figure 1-15. ***Shock and Cylinder Assembly***

1.2.5 Leveling the Arms

50. There are two items on the Flex Wrap header that used to adjust the leveling of the arms; the leveling shims and the alignment adjusters as shown in figure 1-16.

51. Loosen the two bolts that hold the pillow lock bearing in place to add or remove the spacer shims. Only do this if the arm is not straight. This can be checked when the leveling tool is placed on the arm weldment (for vertical alignment).

52. Tighten or loosen the alignment adjusters located on the bearing mount plate to straighten the arm weldment shaft (for horizontal alignment).

53. To see if the arm is properly level and adjusted, the arm will stay at rest in any position. If the arm sways from one end to anther on its own, adjustments will have to be made until the arm will be able to stay in any position at rest.

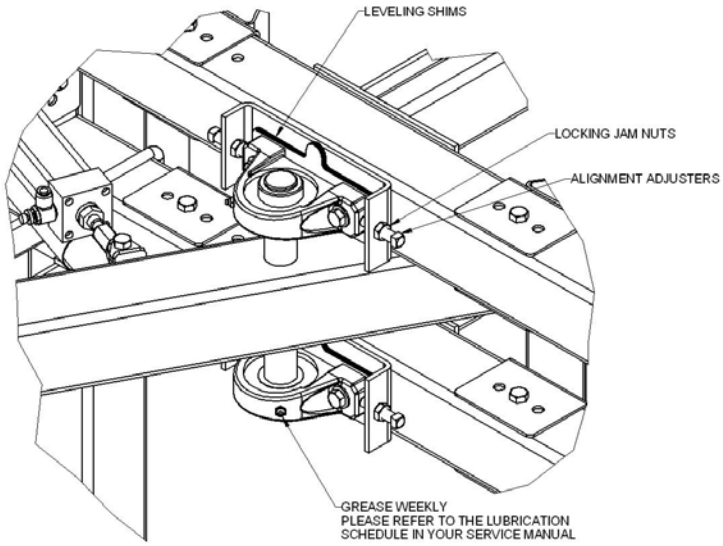


Figure 1-16. ***Where to Make Adjustments for Arm Leveling***

1.3 Pneumatic Connections

This section covers the needed connections to make sure that all pneumatics are properly installed

54. (4) Pneumatic cylinder assemblies on the Hanna Dual Pack Flex Wrap require a total of (8) 3/8" poly air hose connections at a volume of **.02 CFM per car**. There will be one dedicated connection for each of the four hoses leading to the (2) pneumatic control boxes (two lines for extend motion and two lines for the retract motion).

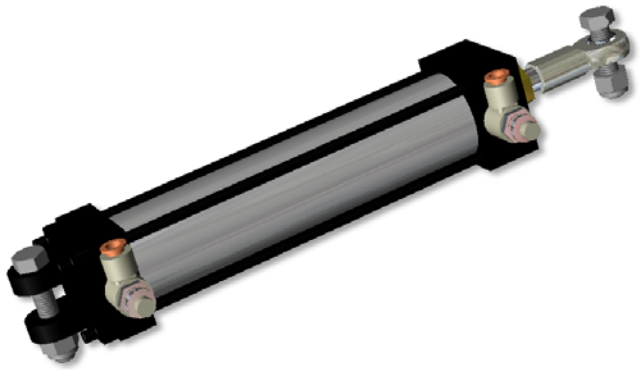


Figure 1-17. ***Pneumatic Cylinder Assembly***

55. Figure 1-19 portrays the pneumatic control box for controlling the extend and retract command to the air cylinders.

56. During runtime, use the pneumatic flow adjuster on the cylinder to create a smoother extend and retracted movement. Turning the airflow adjustment knob shown in figure 1-18 does this. Use the stop adjustment ring to limit how much the airflow can be adjusted.

Figure 1-18. ***Pneumatic Flow Adjustment***

57. It is recommended that different color hoses be used for the each of the extend and retract commands, this will make it easier identifying and leading the correct hose to the correct ports on the control box.

58. There will be (4) labels marked D/S Extend, D/S Retract, P/S Extend, and P/S retract on the bottom ports outside of the box. Lead the correct passenger side cylinder hose and driver side cylinder hose accordingly. In the case of the Dual Pack Flex Wrap there will be a total of (8) connections; (4) for the entrance brush and (4) for the exit brush.

Figure 1-19. ***Pneumatic Control Box for the Hanna Dual Pack Flex Wrap***

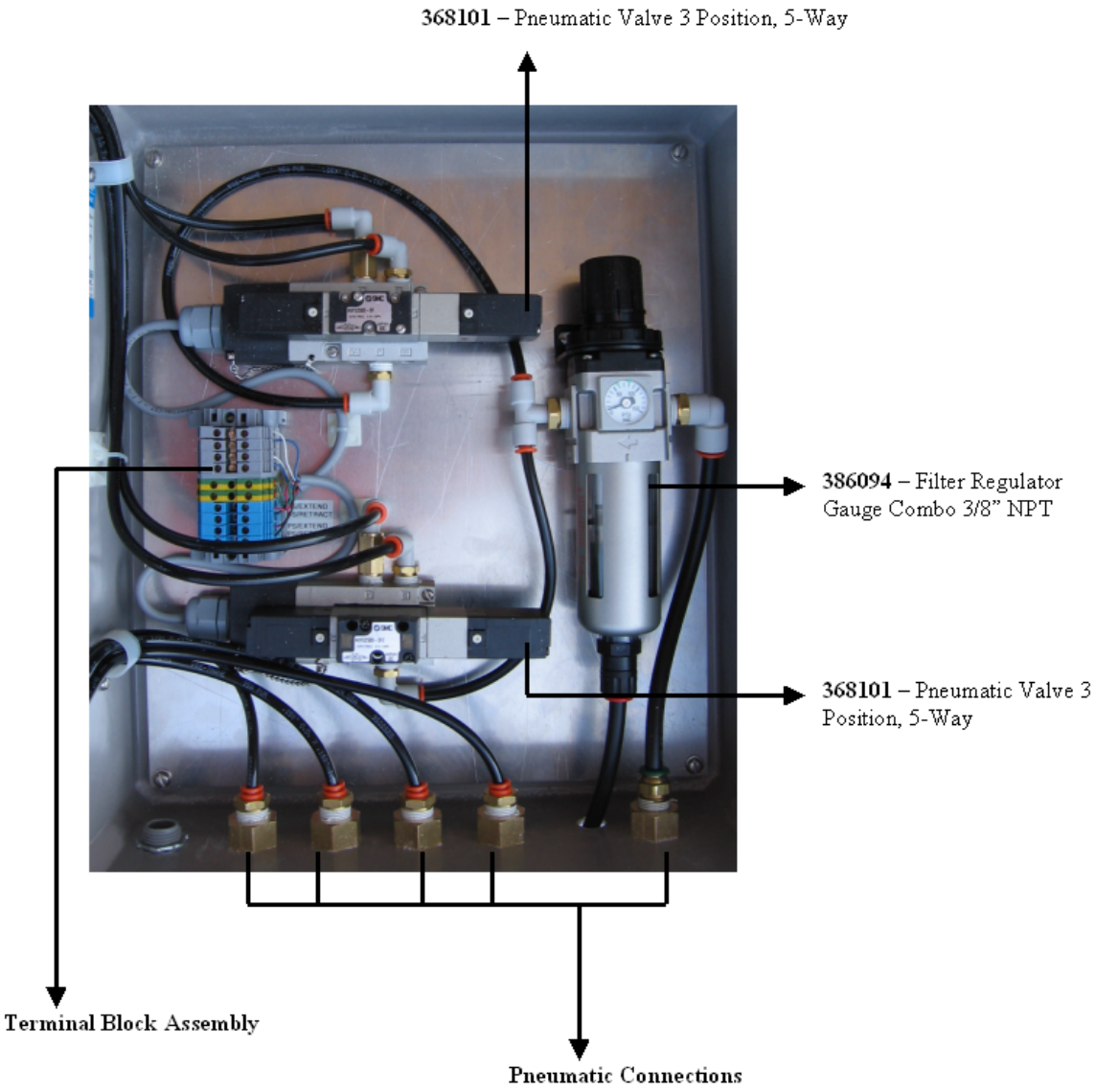


Figure 1-20. ***Right Hand Side of the Opened Control Box***

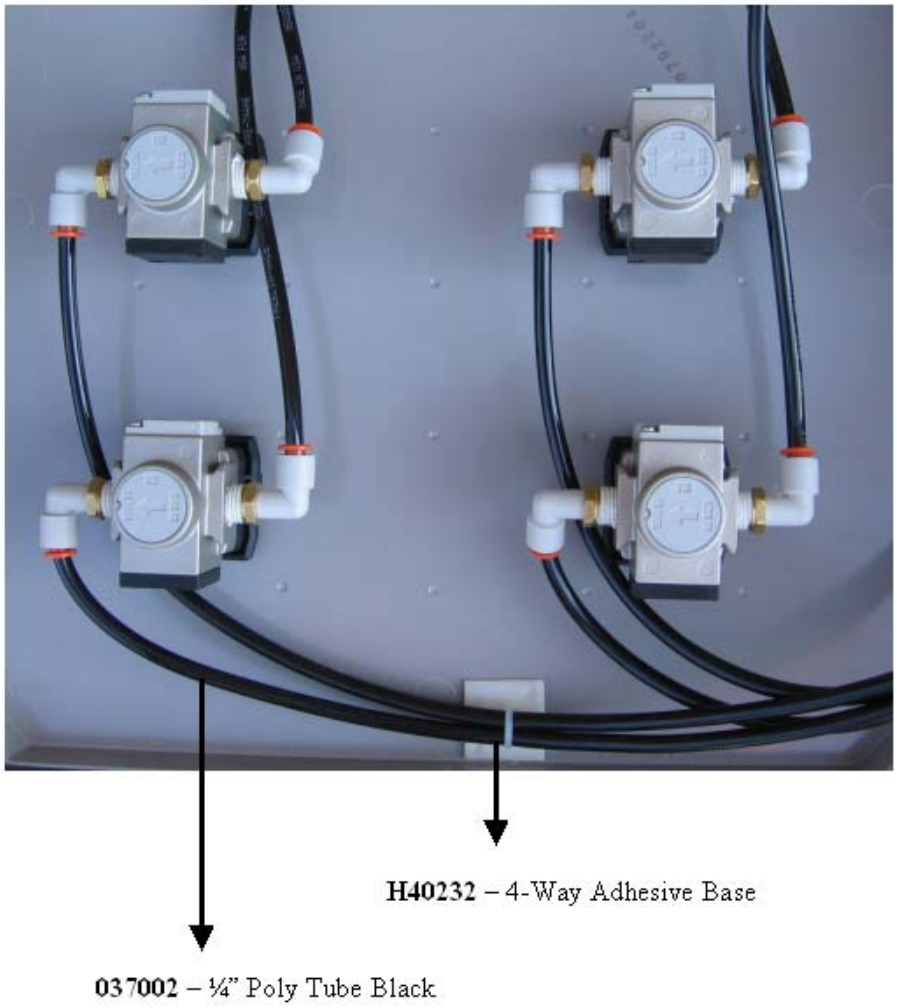


Figure 1-21. ***Left Hand Side of the Opened Control Box***

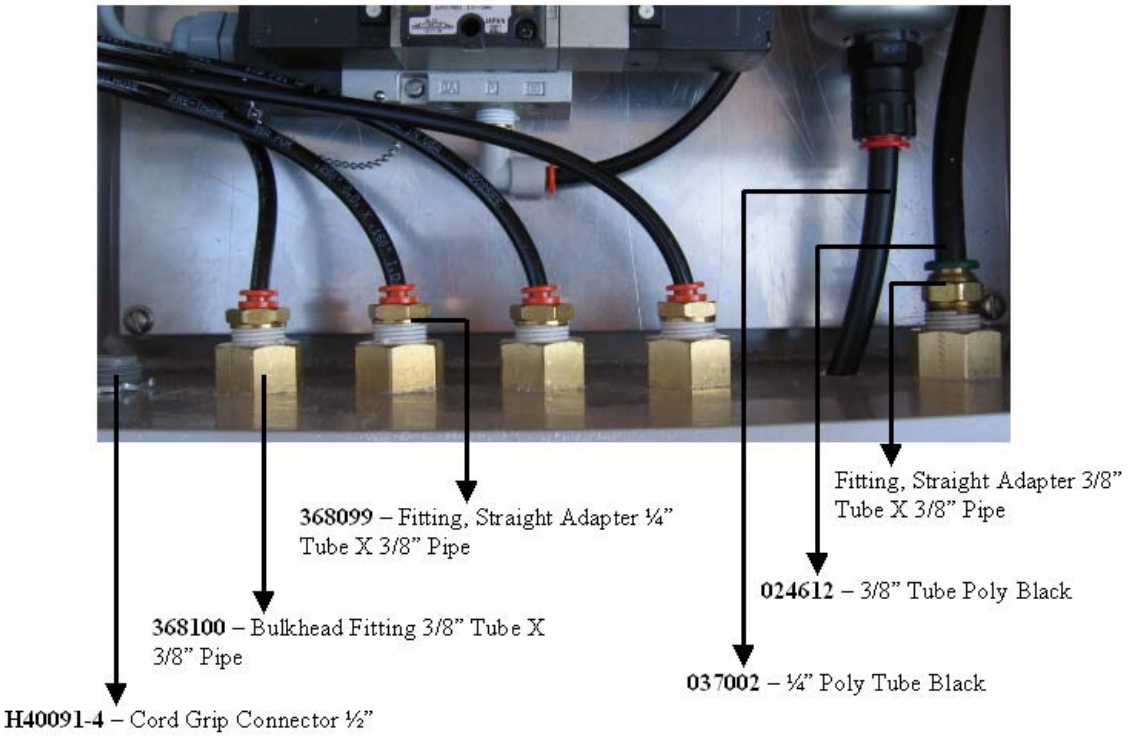


Figure 1-22. ***Extend and Retract Ports on the Control Box***

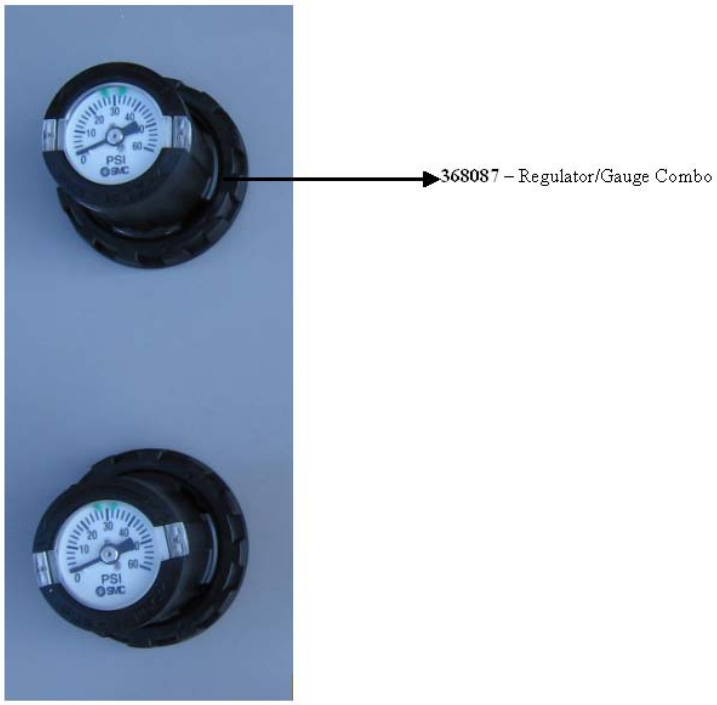


Figure 1-23. ***Regulator Gauge***

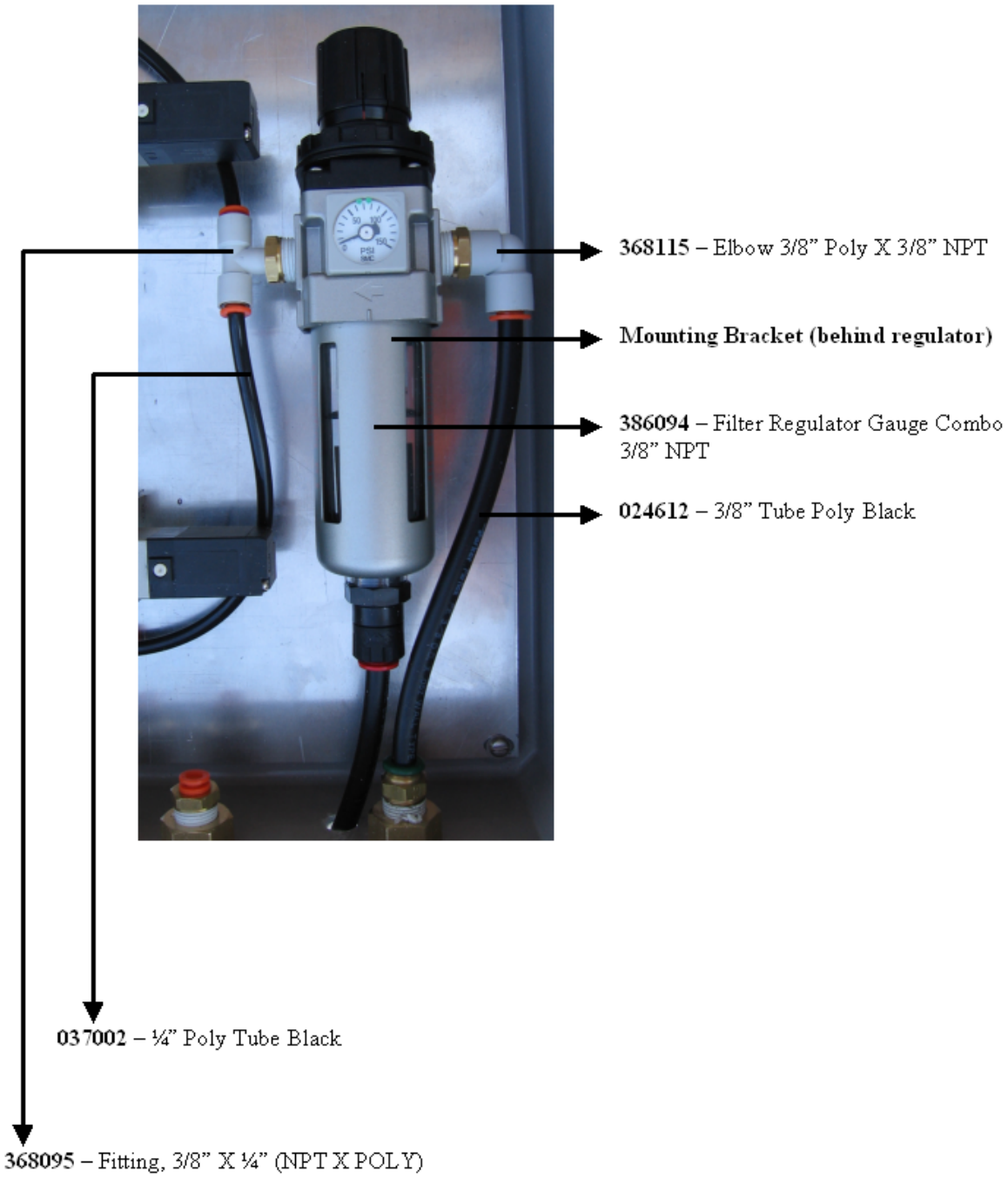


Figure 1-24. ***Filter Regulator***

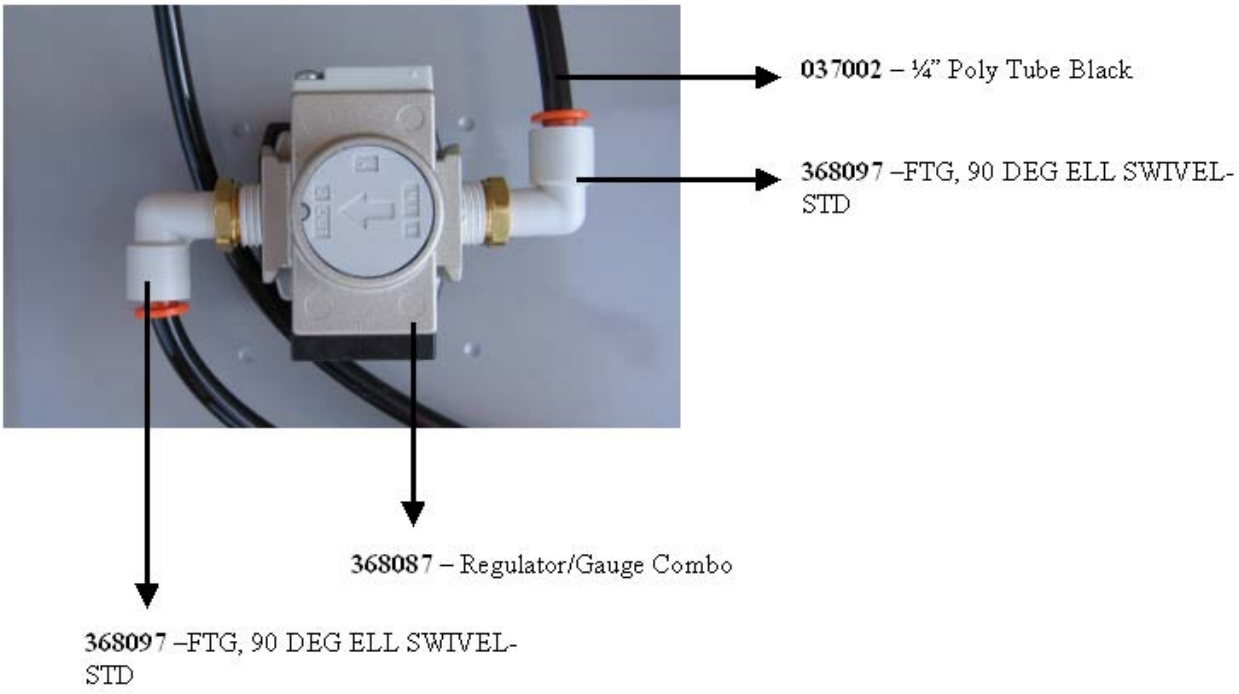


Figure 1-25. ***Close-up of the Regulator Guage***

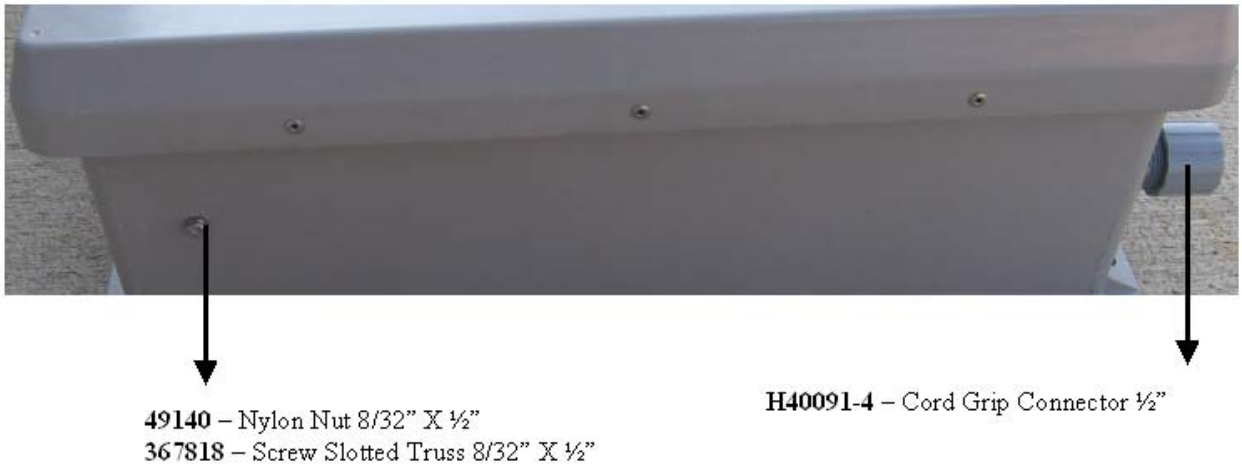


Figure 1-26. ***Outside Edge of the Control Box***

1.4 Water Connections

This section covers the needed water connections to assure proper volume and pressure levels are met to operate this component.

59. There are four manifolds mounted on the Dual Pack Flex Wrap to wet the brushes upon automobile entry. Each manifold requires a **flow of 9 GPM** at a **pressure of 40 PSI.**

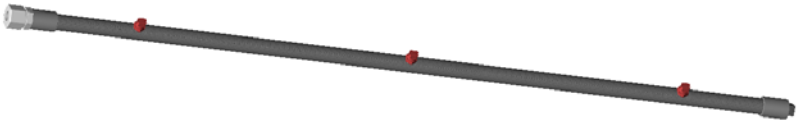


Figure 1-27. ***Water Manifold***

60. Connect ½" poly flow to the nylon fitting located at the end of the manifold.

61. The Dual Pack Flex Wrap requires the use of a single level pump station to feed the water to the manifold. Make sure that you are meeting the flow and pressure requirements to properly run the manifold. If pressure and flow are not met to engineering specifications, the cloth material saturation level will not enable quality car washing.

1.5 Hydraulic Connections

This section covers the hydraulic requirements and connections needed. To operate the Hanna Dual Pack Flex Wrap.

62. A **3.0 - 3.5 GPM** flow rate at a pressure of **500 PSI** is required out of each of the two priority valve from the hydraulic unit. **50-60 RPM** is the recommended rotation speed of each motor, which is established from the priority valve on the hydraulic unit.

63. The motors are connected in a series style circuit. One end of one of the motors will have the hydraulic feed line, and the other motor at the opposite end will have the return hydraulic line. All hydraulic motor ports in between will be connected in a daisy-chain fashion. See figure 1-28 to see what these motor ports look like on the Flex Wrap.

Figure 1-28. ***One of the Two Hydraulic Motors used for Brush Rotation on the Flex Wrap***

1.6 Pneumatic Control Box Electrical Connections

58. Attach control box to wall.

59. Bring-in eight functions as shown in figure 1-29:
    - Funct 1. Entrance Brush Driver Side Extend – (24VAC) solenoid #1
    - Funct 2. Entrance Brush Driver Side Retract – (24VAC) solenoid #2
    - Funct 3. Entrance Brush Passenger Side Extend (24VAC) solenoid #3
    - Funct 4. Entrance Brush Passenger Side Retract (24VAC) solenoid #4
    - Funct 5. Exit Brush Driver Side Extend – (24VAC) solenoid #1
    - Funct 6. Exit Brush Driver Side Retract – (24VAC) solenoid #2
    - Funct 7. Exit Brush Passenger Side Extend (24VAC) solenoid #3
    - Funct 8. Exit Brush Passenger Side Retract (24VAC) solenoid #4

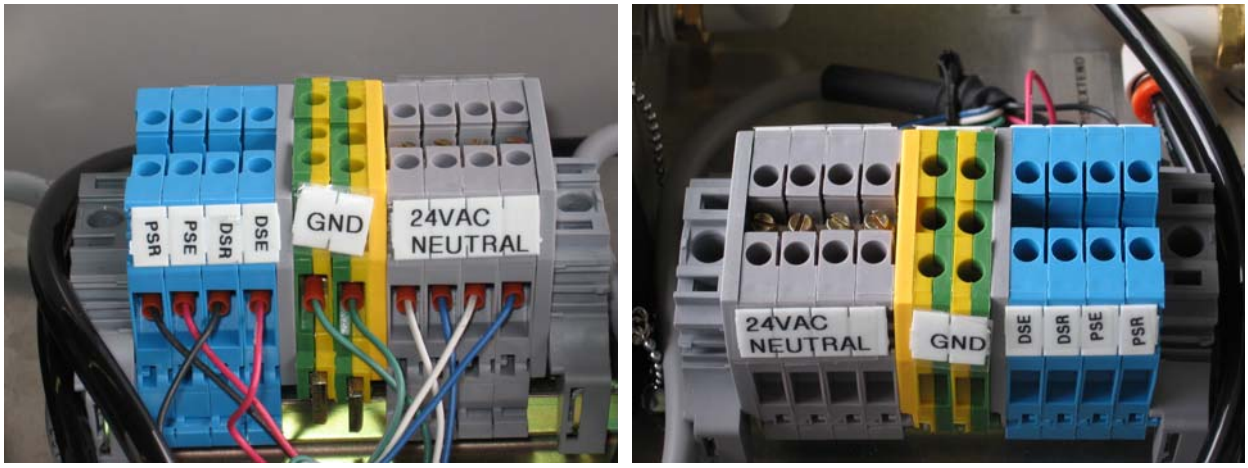


Figure 1-29. ***Terminal Block Assembly Inside the Control Box***

60. Attach all ground wires to the ground provided. Attach additional ground if necessary.

61. Attach all neutral wires to the neutral portion of the terminal strip.

62. Attach **Driver Side Extend** function terminal labeled ‘DSE’.

63. Attach **Driver Side Retract** function to terminal labeled ‘DSR’.

64. Attach the **Passenger Side Extend** function labeled 'PSE'.

65. Attach the **Passenger Side Retract** terminal 'PSR'.

66. Attach the air supply to the isolation valve located on the outside of the pneumatic control box.

67. Do **NOT** attach the poly-flow air supply lines.

68. Open the isolation valve.

69. Set the internal regulator from 80-100 psi.

70. Set the door mounted regulators to the following pressures:

Funct 1.	Entrance Brush Driver Side Extend	30 psi
Funct 2.	Entrance Brush Driver Side Retract	30 psi
Funct 3.	Entrance Brush Passenger Side Extend	30 psi
Funct 4.	Entrance Brush Passenger Side Retract	30 psi
Funct 5.	Exit Brush Driver Side Extend	10 psi
Funct 6.	Exit Brush Driver Side Retract	20 psi
Funct 7.	Exit Brush Passenger Side Extend	20 psi
Funct 8.	Exit Brush Passenger Side Retract	30 psi

71. You should notice air coming out of all four ports on the bottom of the control boxes. If air is not coming out of any of the ports, contact Hanna immediately.

72. Once air is coming out of all four ports equally, activate the Driver Side Extend function at the controller. You should notice that the air supply from the Driver Side Retract port will stop. If the result is opposite, swap the poly-flow inside the control box until this result is achieved.

73. Repeat this process for the Passenger Side functions.

74. Now that the computer functions match the plumbing and labeling of the control box, connect the poly-flow tubing for the cylinders to extend on the base end of the cylinders and the retract on the rod end.

1.7 Other Electrical Connections

75. Make sure the solenoids to the water, hydraulic, and pneumatic connections are in place and connected to the correct function on the tunnel controller.

1.8 Startup

The following section describes the occurring sequence of events that will occur after a proper installation.

76. First thing to check for upon startup is brush rotation. Correct brush rotation is critical to the performance of the Flex Wrap. Improper brush rotation will result in vehicle and equipment.

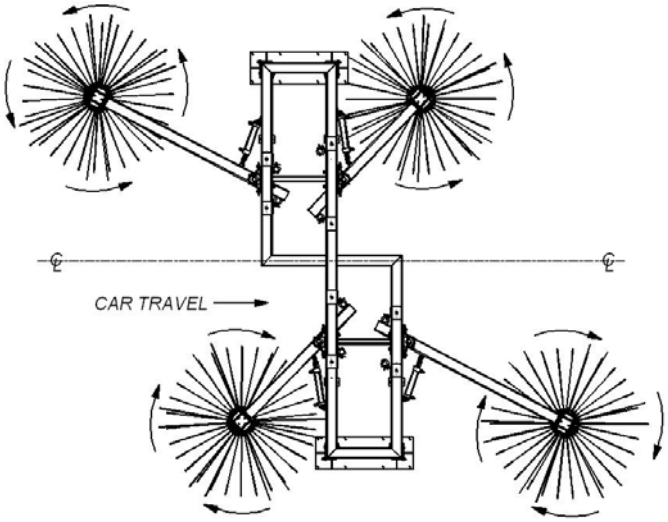


Figure 1-30. ***Brush Rotation of the Dual Pack Flex Wrap***

77. As soon as the hydraulic unit starts, the brushes begin to rotate. This is a mandatory safety feature.

78. As the vehicle approaches, two separate 24 VAC signals are sent to the 'extend' terminals of the pneumatic control box. This will bring both arms toward the centerline position

79. The signal is held on for the entire vehicle length. From this point on, each function must be separated from driver's side to passenger side. This will help eliminate vehicle and shaft damage from vehicle drive through.

80. As the vehicle makes contact with the first brush (driver's side), the brush will begin to crawly across the front of the vehicle, away from the centerline. If your brush is rotating the wrong direction, switch the hydraulic lines leading to the hydraulic motor. This will reverse the brush direction

81. Once the brush has traveled around the front corner of the vehicle, an additional 24VAC signal is sent to the driver's side retract function. At this time both extend and retract signals are on. This will cause the valve to go to a neutral position, allowing air to both push and pull on the brush at the same time. The result, depending on your regulator settings, is a soft gentle wash force on the side of the vehicle especially around the external mirrors and antennas.

82. As the brush approaches the rear quarter panel of the vehicle, the retract signal is cancelled, this returns full pressure to the brush which aids the brush in washing the back of the vehicle.

83. The point at which the retract function is energized or de-energized is programmable and may be customized but the wash owner. However, it is required around the external mirror on all vehicles.

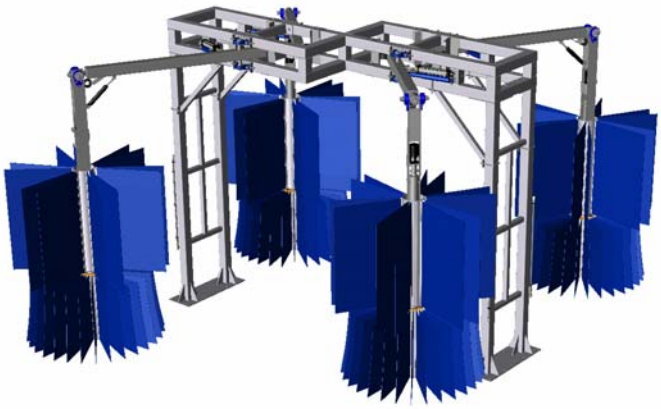
84. Once the brush wraps around the rear of the vehicle, it is pre-positioned for the next vehicle.

85. This same process is duplicated for both sides of the Dual Pack Flex Wrap with the only exception being the activation point due to the offset in the Flex Wrap Frame.

1.9 Installation Check List

Make sure that all installation procedures have been checked and confirmed to be correct.

Check Off	Install Procedure
	Structure is mounted over the centerline
	Brush core assemblies are secure and installed to the box and shaft subassembly
	All bearing grease fittings have been located and identified for future access
	The bumper stops have been positioned and secured
	Shocks and cylinder assemblies have been properly attached and installed
	Arms have been leveled
	Pneumatic control boxes are installed
	Pneumatic connections lead to the correct ports
	Water connections are installed and are ran with the correct volume and pressure
	Hydraulic connections are installed and are ran with the correct volume and pressure
	Electrical connections are installed and are ran with correct timing and power requirements
	Brush rotation has been checked and is running in the correct direction
	Start up procedures have been read and understood



2.0 Safety

Keep the following safety rules in mind when installing and using Hanna Car Wash Systems

NOTE*: Always follow local and national trade codes when installing any equipment.*

- Always disconnect power from any electrical device or component prior to servicing.
- Unplug the unit or use proper lock-out procedures so that no one can inadvertently turn the power on while you are working on that equipment.
- Use caution when maintaining any piece of equipment.
- Wear protective clothing and eyewear when using power tools.
- Direct discharge of high-pressure water and chemicals away from you and other persons, or direct it into approved containers.
- Keep equipment clean for proper operation.
- Keep hands or any body parts away from equipment while in operation.
- If you need to disassemble a part for service or repair, re-assemble equipment according to instructions.
- Be sure all components are firmly screwed or latched into position.
- Observe safety and handling instructions of the chemical manufacturers.
- Wear protective clothing and eyewear when dispensing or working with chemicals or other potentially hazardous materials.

2.1 Cautions, Warnings, and Notes

Throughout this manual there are various messages concerning safety – please heed these warnings!

2.1.1 Cautions

Cautions warn against a potential hazard that, if not avoided, may result in minor or moderate injury. Caution signs also alert against unsafe practices that may cause property damage.

CAUTION:

2.1.2 Warnings

Warning messages warn against a potential hazard that, if not avoided, may result in serious injury or death.

WARNING:

2.1.3 Notes

Note means reader take note. Notes contain helpful suggestions.

NOTE: *This parameter should NOT be changed when attempting to make system adjustments.*

Jim Coleman Company/Hanna Car Wash Systems

Main Office
5842 West 34th Street
Houston, TX 77092
800-999-9878 • 713-683-9878 • Fax: 713-683-9624
www.jcolemanco.com

Hanna Division Office
7905 Blankenship Dr.
Houston, TX 77055
866-683-6615 • 713-683-6615 • Fax: 713-590-6630
www.hannacarwash.com

Jim Coleman Company/Hanna Car Wash Systems

Main Office
5842 West 34th Street
Houston, TX 77092
800-999-9878 • 713-683-9878 • Fax: 713-683-9624
www.jcolemanco.com

Hanna Division Office
7905 Blankenship Dr.
Houston, TX 77055
866-683-6615 • 713-683-6615 • Fax: 713-590-6630
www.hannacarwash.com