



# Pendulum



# Owners Manual

**Sonny's Enterprises, Inc.**  
5605 Hiatus Road  
Tamarac, Florida 33321

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## **\*INTRODUCTION\***

This Owner's Manual contains information that is vital to the successful installation, operation and maintenance of your SONNY'S vehicle washing equipment.

Please read, and understand, the full contents of this manual before installation and operation of the equipment. Keep this booklet in a location where it may be used for ongoing reference.

Should you have any questions on the operation or servicing of this equipment please contact

**TECHNICAL SERVICES DEPT.**

**SONNY'S ENTERPRISES INC.**

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**THANK YOU FOR YOUR CONFIDENCE IN SONNY'S !!!!**



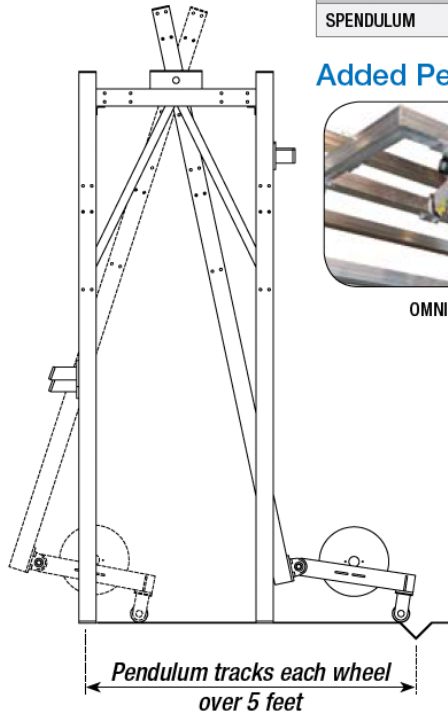
## Product Specifications

- Unique mechanical tracking motion provides thorough coverage.
- Simple mechanical design offers minimal maintenance and automatically adjusts to any chain speed.
- Tracks both front and back wheels for a full 5 feet.
- 4 inch square QuadX aluminum frame.
- 4 – zero degree plus nozzles & 1 – 5 degree on each spinner.
- Also available as a turbo with 4 – zero degree nozzles & 1 – turbo nozzle in center.
- Long lasting ceramic swivels.
- Spinner housing constructed of poly plastic.
- Sized for solution delivery of 20GPM @ 650-800PSI.
- 144 inches of tunnel length required.
- 156 inches of tunnel width required.
- 154 inches unobstructed overhead clearance required.

# Optional Related Equipment

## Ordering Information

Item #	Description	Price
SPENDULUM	Pendulum with Driver and Passenger SPINNERS	\$10320.00



## Added Performance Items



OMNI10T

### OMNI10T or OMNI20T

- Optional OMNI10T or OMNI20T (dual manifold) oscillates and pivots a single basket high pressure manifold(s) containing 10 or 20 of SONNY'S exclusive zero degree plus nozzles
- Mounts to the entrance of the PENDULUM to provide increased high pressure wash coverage without increasing necessary tunnel length

### Mirror Blaster for Pendulum

- Conserve rinse water and blast detergent from mirrors with SONNY'S Mirror Blaster with turbo nozzles
- Includes fully adjustable passenger and driver manifolds
- Easily attaches to Pendulum arm to blast mirrors clean \*

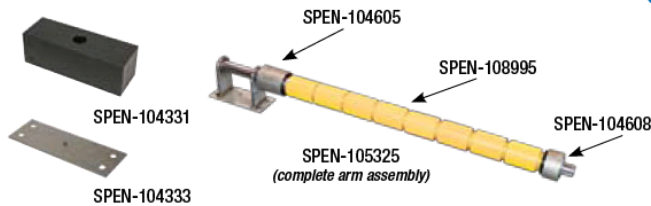


RNSMIRTURBO-P\*  
(longer mounting bracket shown with black powder coating)

Item #	Description	Price
OMNI10T	Omni, Top Attach Bolt On w/ Plus Noz	\$3440.00
OMNI10T-E	Omni, ElecTop Attach Bolt On w/ Plus Noz	4139.00
OMNI20T	Omni, Top Bolt On w/Dual Manifolds	4575.00
OMNI20T-E	Omni, Elec. Top Bolt On w/Dual Manifolds	5274.00
RNSMIRTURBO-P*	Mirror Blaster, Turbo, for Pendulum	1030.00

\* Additional brackets are required to mount to pendulum arm. Included in price.

## Quick Replacement Reference



Item #	Description	Price
SPEN-104605	Pendulum, Roller Wide Assembly 4in	\$27.60
SPEN-108995	Pendulum, Bushing Wide Roller	11.20
SPEN-104608	Pendulum, Roller Narrow Assembly 2in	17.00
SPEN-105325	Pendulum, Roller Arm Assy. Complete	465.00
SPEN-104331	Bearing, Block Pendulum UHMW 12in	43.30
SPEN-104333	Bearing, Mount Cap Plate Pendulum 12in	22.00
A11210-38	Cylinder, 1 1/2in x 10in Strk 3/8in Port	142.60

## Support Equipment



H25SPS



H25DPS

Item #	Description	Price
H25SPS	Pump Station, H-25 Single	\$5445.00
H25DPS	Pump Station, H-25 Double, 1 Tank	10765.00

## **\*SAFETY REQUIREMENTS\***

1. Only those employees specifically instructed by the location manager will be permitted to enter the wash tunnel to perform inspections or maintenance.
2. Do not enter the wash tunnel when the equipment is operating.
3. Always exercise caution when walking through the wash area, may be slippery conditions.
4. Be cautious when walking through the tunnel to avoid running into or tripping over equipment.
5. Do not ever run through the wash area.
6. Do not perform any work on equipment unless you performed Lock-Out Safety Precautions.
7. When maintenance requires that a piece of equipment be in operation, one qualified maintenance person must stay at the power disconnect switch while that equipment is operating.
8. All electrically powered equipment must have manually operated disconnects capable of being locked in the "OFF" position. Equipment that has been "locked out" for any reason can only be restarted by the person who performed the "lock out" operation.
9. Do not attempt to repair or adjust any pressurized liquid or pneumatic part, hose, pipe or fitting while that equipment is in operation.
10. Any "Stop" switch activated must be reset only by the person who initiated the operation.
11. Electrical connections and repairs are to be performed only by a Licensed Electrician Only.
12. Store all cleaning and washing solutions and oils in a well ventilated area.
13. Clean up fluid spills immediately to prevent hazardous safety conditions.
14. Be certain to follow all safety procedures on MSDS Sheets for each chemical product used.
15. All new employees must be thoroughly trained in safe operating and maintenance practices.
16. All employees must attend periodically scheduled safety procedure sessions.
17. Do not operate any piece of equipment that requires safety covers with those covers removed or improperly installed.
18. Do not allow any part of your body or other object to come in contact with moving machinery.
19. Do not wear loose fitting clothing or jewelry around moving machinery.
20. At least two qualified maintenance people must be present when performing equipment repairs or preventative maintenance.
21. When working on any equipment that is higher than a person's shoulders always use a fiberglass ladder that is in good condition.

# **\*INSTALLATION\***

## **Utilities Requirements**

**UTILITIES INTERCONNECTION AND THE MATERIALS REQUIRED FOR INTERCONNECTION TO SONNY'S EQUIPMENT ARE THE RESPONSIBILITY OF THE CUSTOMER !  
PERFORM ALL TRADES WORK TO ALL APPLICABLE LOCAL AND NATIONAL CODES !**

### **Electric**

- The Customer's Electrician is to provide materials and install single phase power (24VAC or 110VAC...Specify at the time of order) from the tunnel equipment controller to high pressure pump controls, hydraulic power pack control, and the supplied 4-way air solenoid valve on the Air Distribution Manifold.

### **Air**

#### **Compressed Air**

- The Customer's Plumber is to provide and install a ½ inch compressed air line from the air compressor to the air distribution manifold for the retract functions.

# Dimensions

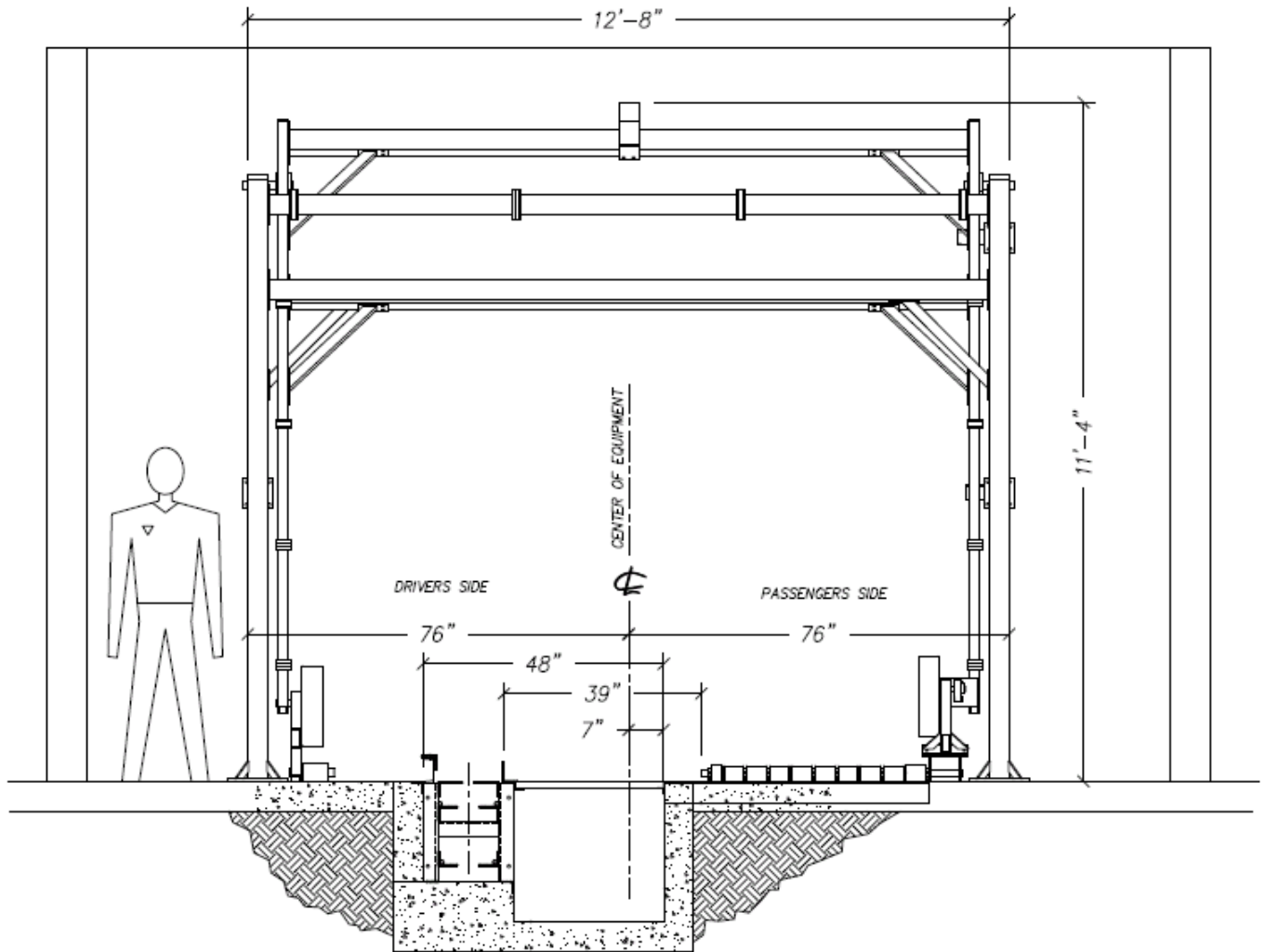


Figure #1 A

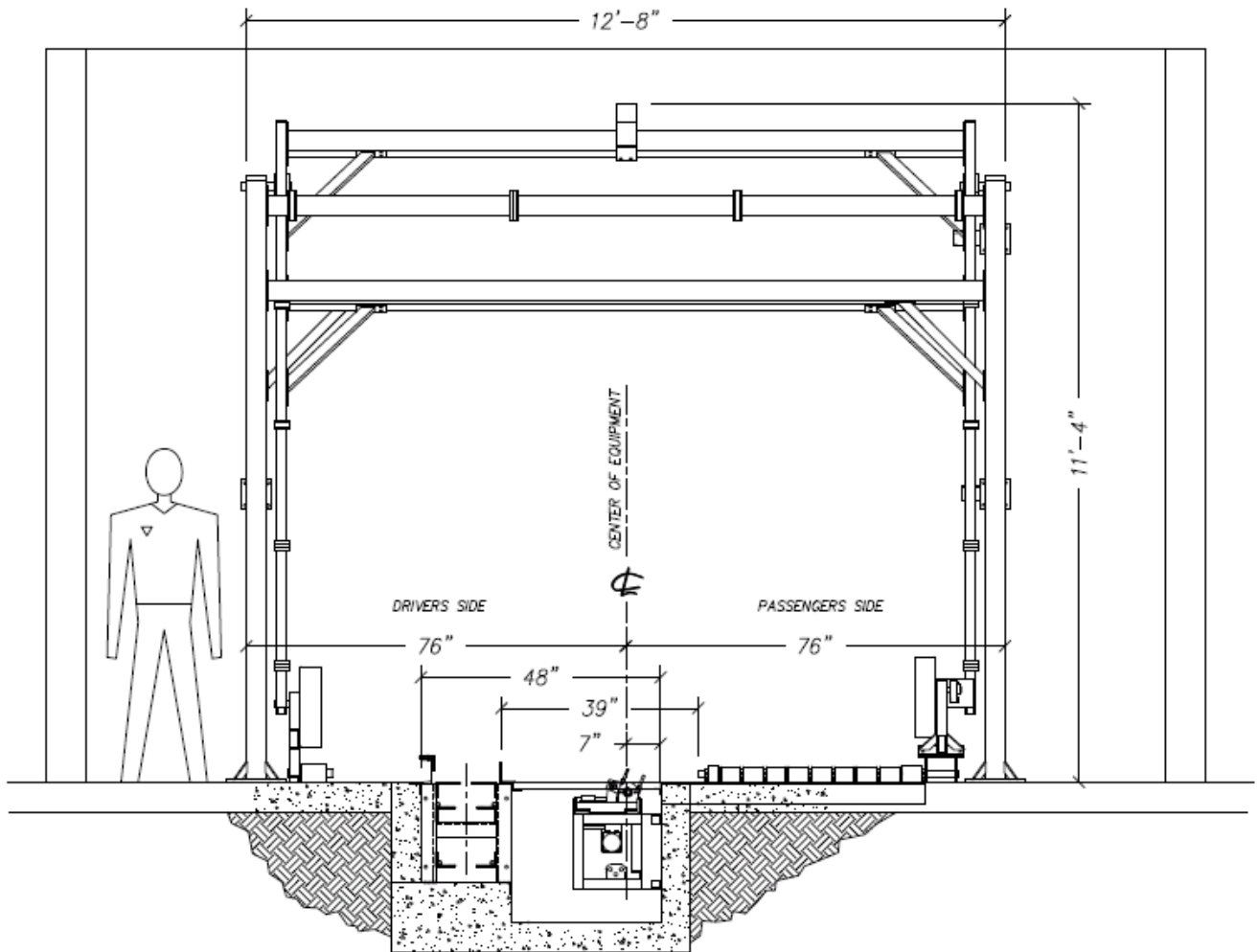


Figure #1 B

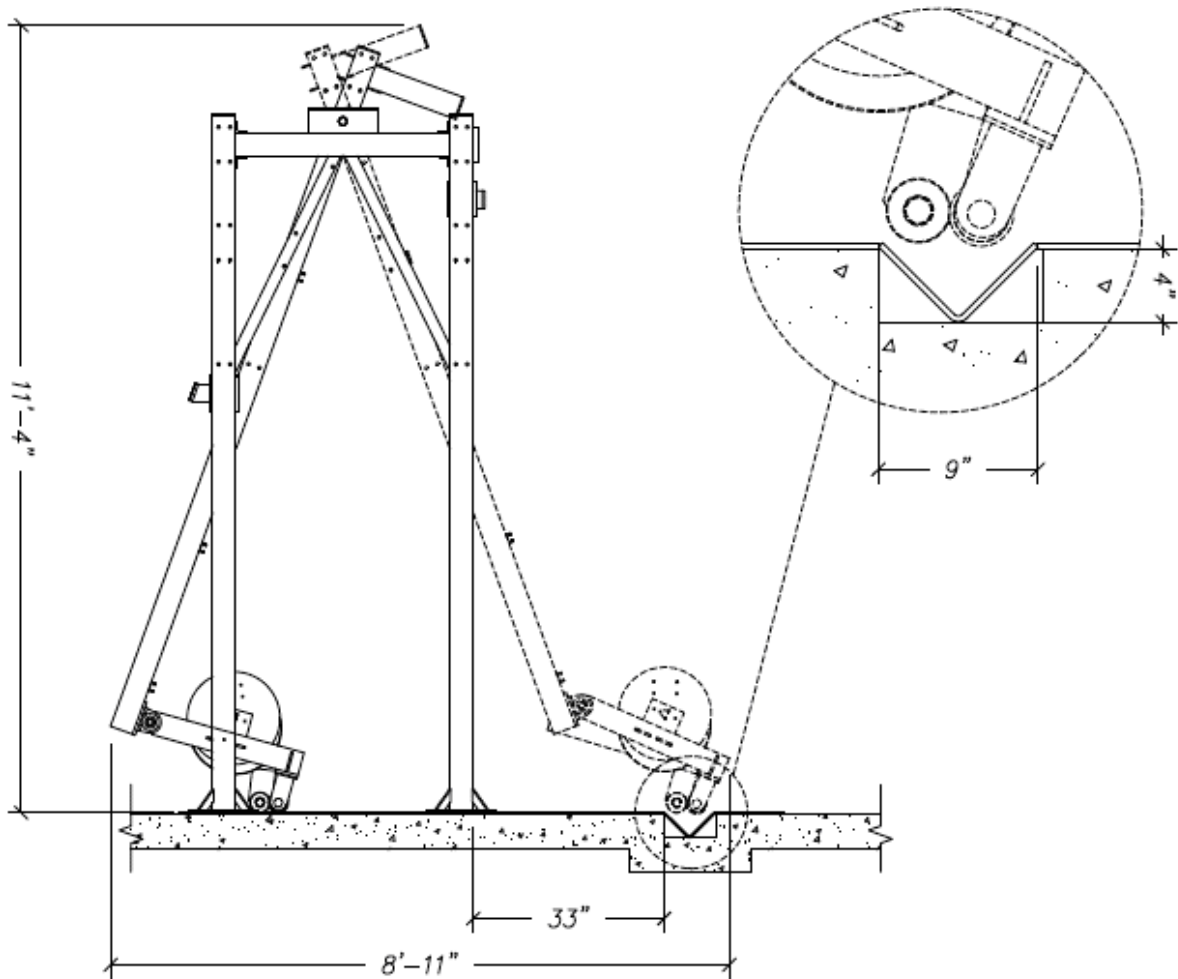


Figure #2

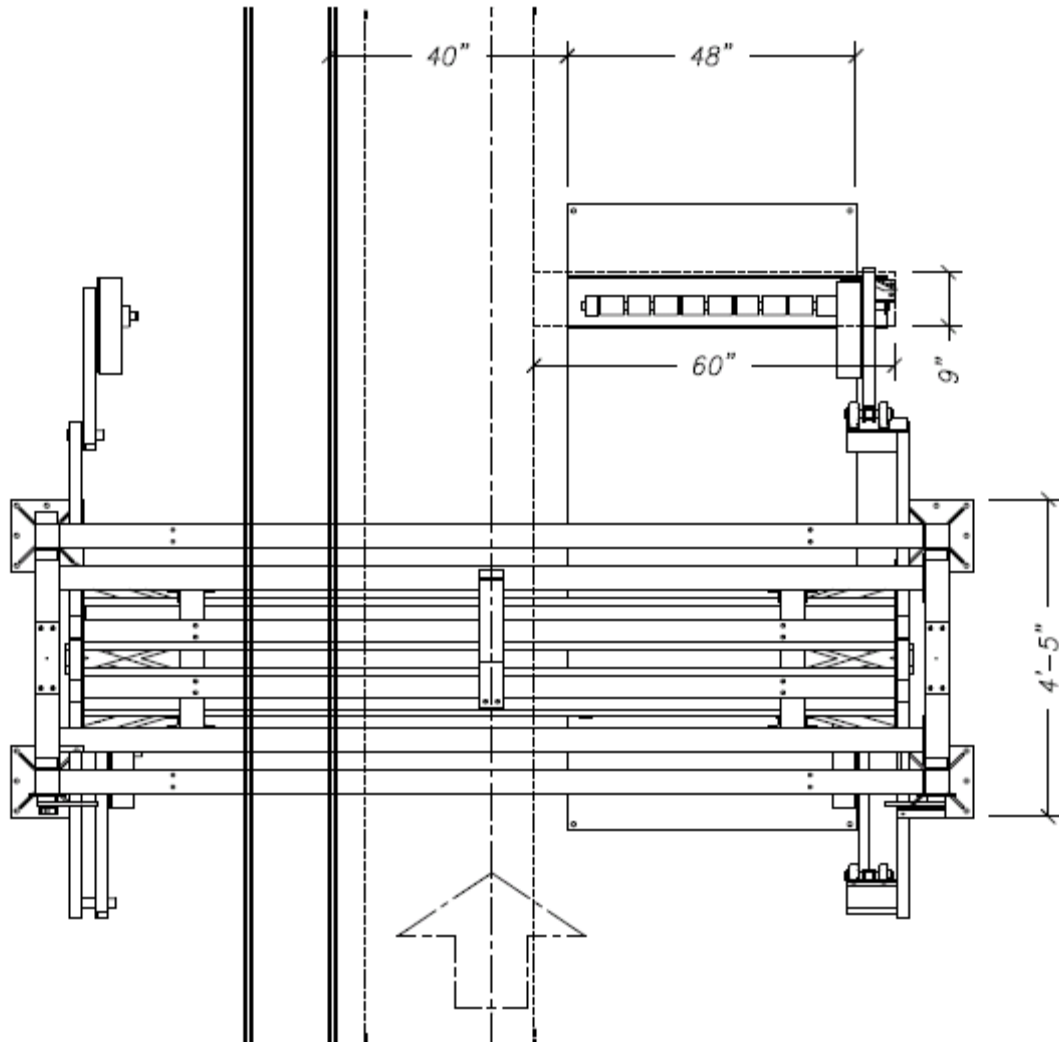
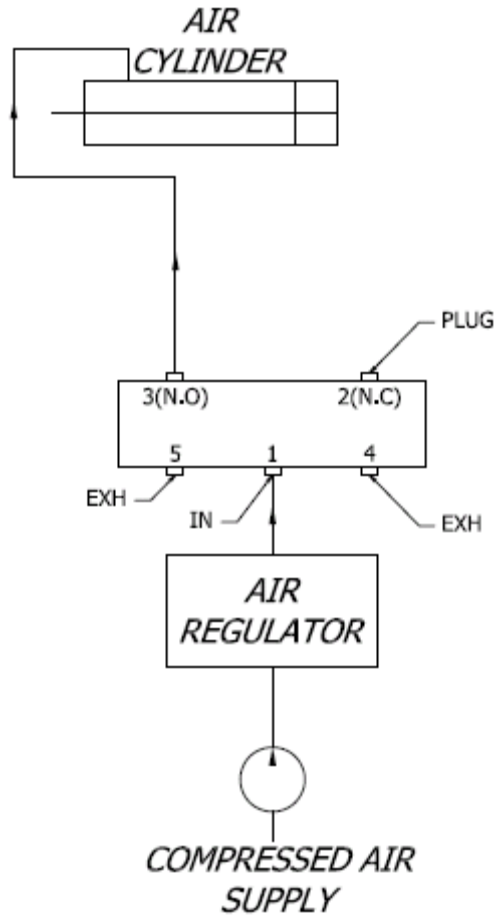


Figure #3

PROGRAMMABLE EXTEND INTERCONNECTION DIAGRAM  
TYPICAL EACH CYLINDER



**Figure #4**

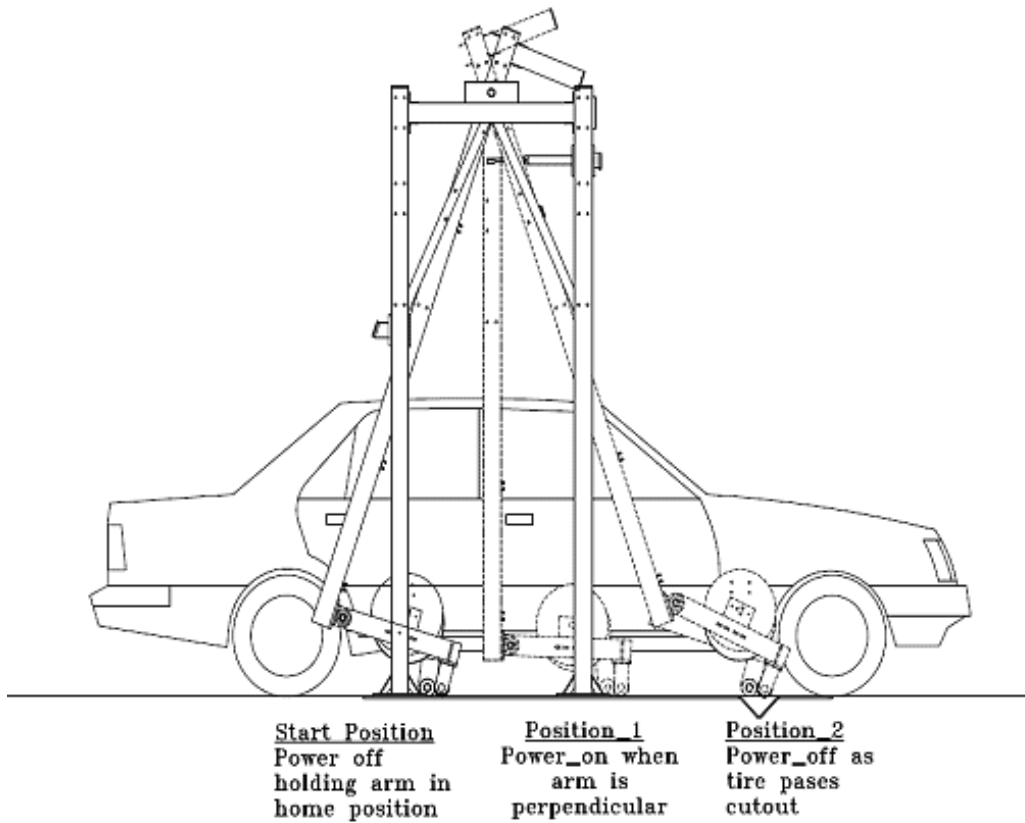


Figure #5

# Equipment Installation

## Pendulum Wash Arch Installation

### Installation Tools

1. Safety Glasses
2. 1/2" Drive Ratchet Set
3. Standard Combo Wrenches
4. Standard Screwdriver
5. 1" Hammer Drill
6. Sledge Hammer
7. Tape Measure

### Consumables

1. Stainless Shims
2. Teflon Tape
3. Teflon Paste

### Manpower

Two (2) men

### Time (assuming no problems)

2.00 - 3.00 hours

### Installation Steps

1. Unload the truck, being especially careful when unloading the 4' x 9'.75" x 1/2" thick steel plate. It is extremely heavy and will require 4 or 5 men to carefully unload and place in a safe area. A sturdy piano dolly can be used to move it once unloaded off the truck.
2. Once the truck is unloaded and all of the parts are in a safe area, locate the parts box. Also make note of the preassembled parts for future reference.
3. Verify that you have the correct numbers of nuts, bolts, and washers to complete the job. Now is a good time to look over the required tools list and verify that you have the proper tools on hand.
4. If you have not done so, please verify that you have the minimum requirements for height (12'10"), width (13'), and front to back (10') for the Pendulum swing and 12' total free space between equipment.
5. Find the centerline of your wash. Typically it is 7" towards the driver's side of the pit when measured from the passenger's side. The centerline to the outside of the frame leg (not the foot) measurement is 76". Make and mark the centerline measurement in at least 3 places on each side that total at least 11' in length. Snap the 11' chalk line on the driver's and passenger's sides. These lines will represent the outside to outside measurement of each 4" leg (not the plate foot).
6. Mark the placement for the front legs (closest to entrance). They need to be a minimum of two feet from the end (furthest point towards the exit) of the previous piece of equipment. Make this measurement on both sides of the conveyor, using a square to make sure the marks are perfectly square with the conveyor.

7. Measure 3'9" from the measurement in step 6, making sure you stay square. Do this on both sides and mark following the 11' line you made in step 5. This measurement is the back of the entrance (closest to entrance) side leg to the front of the exit side leg (closest to exit). Take a can of clear lacquer paint and spray all of your marks to keep them from being smeared by being walked on or by water.
8. Bring both sets of legs into the wash tunnel. The legs are NOT specific to DS or PS. Lean each of the leg assemblies against each of the tunnel walls so they will be in position for the next step.
9. Take one of the 144' cross member that only has holes in the ends and raise up the end facing the drivers side of the tunnel (passenger side end is on the ground). Have a helper lower the leg assembly from against the driver's side wall to meet the cross member. Place four ½" x 5.5" stainless steel (SS) bolts through the holes, with the thread end facing the center of the wash. Make sure to place a SS flat washer on the bolt before pushing through the hole. Place a washer on the thread end and then a standard SS nut. Do the other three bolts the same, making sure to hand tighten only at this point.
10. Follow the same steps for the exit end top cross member. Please note that this cross member has the "uni-strut" welded to it. Again, only hand tighten the bolts.
11. With one helper holding the driver's side legs from sliding with his feet and also pulling back on the leg assembly, have helper #2 pick up the two cross members and raise over their head (they are not heavy) while a third helper brings the passenger side legs over to the cross members and holds steady. Helper #4 can now line up the cross members with the pre drilled holes in the legs and slide the bolts through as done in step #9. Again, only hand tighten the bolts.
12. The structure is now secure and may be assembled with just two people. Place one ladder next to the passenger's side leg and one next to the driver's side leg. It helps to have the ½" x 5.5" bolts with washers on the bolt ends and have nuts and flat washers on top of the to ladders, ready to use.
13. With one helper on the passenger side ladder, entrance side of the leg, have helper #2 retrieve a cross member (one of two cross members with holes drilled 25" from the end) and hand one end to helper #1 on the passenger's side ladder and have helper #2 carefully climb the driver's side ladder (entrance end of the leg assembly), carrying the cross member with him. Helper #2 on the driver's side may now slide bolts through the legs in the same fashion as was done when installing the other cross members, making sure to leave bolts finger tight.
14. Follow the same steps from above to install the exit end cross member.
15. Locate the four (4) 25" long, angle cut braces. Have 16 ½" x 5.5" SS bolts ready with washers already on the bolts. Starting at the passenger side, entrance end, have helper #1 on a ladder. Helper # 1 slides the two bolts through the leg assembly, then slide the 25" angle cut brace over those bolts. The upper bolts may now be easily be put through

- the upper cross member, and hand tightened with NYLON LOCK BOLTS. Follow the same steps for the remaining three braces, leaving ALL bolts finger tight till the end.
16. Locate the black UHMW (plastic) block. The plastic block will already have four (4) ½" x 9" bolts through it and the aluminum flat bearing mount cap. Unscrew the four nuts and washers from each black plastic bearing block. Have helper #1 climb the ladder on the driver's side and slide the four bolts through the pre-drilled holes ON TOP of the now assembled leg assembly. Replace washers removed and secure the nylon bolts to the ½" x 9" SS bolts, finger tight.
  17. Locate the Pendulum pivot arms. The passenger side has a plate on the bottom, and the driver's side has a pivot shaft on the bottom. Both arms will have a stainless shaft pre-installed, with two split clamps on the shaft. Loosen the inside split clamp so it can slide, and remove the outer split clamp and set aside. Starting on the driver's side, slide the pivot arm through the black plastic bearing. Slide the split clamp onto the end of the stainless shat and leave loose for now.
  18. Follow step #17 for passenger's side.
  19. Locate the sixteen (16) 3", eight (8) 3.5", and eight (8) 5.5" long SS bolts. Place flat washers on each bolt and have ready. This will expedite the assembly process.
  20. Locate the two pivot arm cross members, four 25" long angle braces and two 4 x 14" flat cylinder mount plates (there is a stud in the middle of the plate).
  21. Have helper # 1 on the passenger's side, with a ladder set under the center of the frame assembly. Helper #1 will pick up one of the two pivot arm cross members, holding steady for helper # 2 who is already on a ladder on the driver's side in the center of the frame assembly.

**NOTE: Be cautious of the conveyor and grating on the driver's side.**

- Helper #2, on driver's side, will locate the SECOND (LOWER) SET of four (4) holes on the driver's side pivot arm, and slide TWO thee (3) inch bolts through the BOTTOM holes only(do not put bolts through the upper holes yet). Have helper #1 do the same on the passenger's side.
22. Follow the same procedure as step #21, for the upper pivot cross member. This time secure the cross member with four (4) three (3") inch bolts. Make sure to place a flat washer on the bolt before hand tightening the nut. Follow the same procedure for the passenger side.
  23. With a helper on the driver's side ladder, have him put two three (3") inch bolts with washers through the lowest holes in the pivot arm (the two holes closest to the ground). Helper # 2 will now hand helper # 1 an angle cut 25" brace, which helper # 1 will slide on the 3" bolts he just put into the pivot arms. Secure hand tight with a flat washer, lock washer and nut. Do the same on the passenger's side.

24. Have a helper on a ladder on the driver's side and put two (2) 5.5" bolts and flat washers through the TOP of the lower cross member and the angle brace. Secure brace to cross member with flat washers, lock washers and hand tighten nut. Do the same on the passenger's side.
25. On driver's side, have a helper on a ladder with four (4) 3.5" bolts with flat washers installed. Slide the 3.5" bolts through the upper mount holes for the lower cross member (the ones left empty is step 24) and also the two holes directly above those for the 25" angled brace.
26. Slide the 25" angled brace over the 3.5" bolts, then slide the 4" x 14" plate onto those bolts AND the upper two 3.5" bolts for the lower cross member. Place a flat washer, lock washer and nut on each of the four bolts and hand tighten. Slide two 5.5" bolts and flat washers through the two holes in the upper cross member and upper 25" angled brace. Secure with a flat washer, lock washer and nut. Hand tighten the bolts only.
27. Move to passenger's side and follow the same procedure.
28. Staying on the passenger's side, locate the Pendulum lower arm with two "pillow block" bearings attached, four 1.5" bolts, four flat washers, and four lock washers.
29. Loosen the set screws on the "pillow block" bearings in case some adjustments are needed to mount bearings to the swing arm plate. Secure the bearings to plate mount on passenger's side Pendulum swing arm. You may tighten the bolts securely.
30. Center the lower arm between the "pillow block" bearings, and tighten the set screws firmly securing the shaft to the bearings.
31. Locate the Pendulum "Roller Arm" assembly. Along with four 2" bolts, eight flat washers, four lock washers and four nuts.
32. Slide a flat washer onto each of the four 2" bolts, and slide the bolts through the lower arm, with the threads pointing towards the ground. Secure each bolt with flat washer, lock washer and a nut. Keep hand tight for now.
33. Locate one of the two spinner / can assemblies, and four 3" bolts and 8 flat washers. You will need two bolts per side. Move the whole are back and forth to check for smoothness of movement. If no binding is present, then move to the next step.

**NOTE:** The spinner assembly has two mounting positions. If most of your business is vehicles with 15"-18" rims, then use the lower mounting position. If you have many trucks and cars with larger wheel combinations, then use the upper mounting position. You may change the position any time if need be.

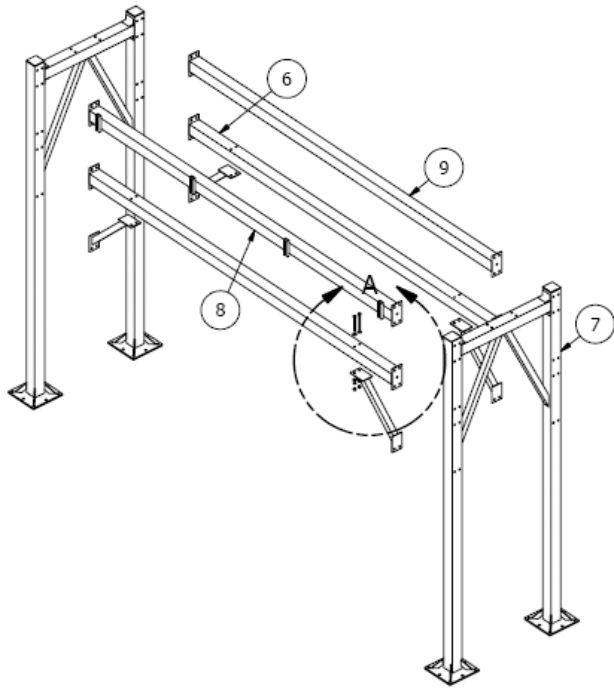
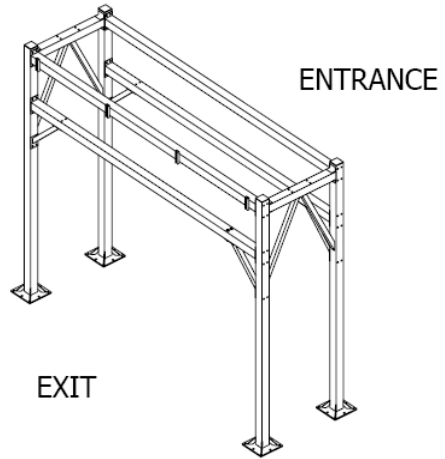
34. On the driver's side, locate the driver's side lower pivot arm. Slide the lower pivot arm onto the driver's side swing arm, making it flush against the side of the swing arm. Allow the roller to sit flat on the ground.
35. Remove the outer split collar from the roller resting on the ground. Two split collars are put the on the shaft for shipping only. Use the split collar removed to secure the lower

- pivot arm assembly to the lower swing arm. Tighten the slit collar and check for ease of movement.
36. Bolt the spinner assembly/ can to the lower arm, using the same holes as in step 36.
  37. Locate the two air cylinder mounts with square backing plates and with the cast aluminum air cylinder clevis mounts attached. Remove the square backing plates and set the washers and nuts aside for now. Leave the bolts on the bracket.
  38. Starting on the driver's side with one helper on the ladder at the exit side of the frame. Have helper on ladder hold cylinder mount so that the cast clevis is facing towards the entrance side. Slide square backing plate over bolts still on mounting plate and replace washers and nuts set aside from before. Slide the plate up so it is level with the stud on the cylinder mount plate installed in step #29. Once the cylinder mount is level, you may tighten the bolts and secure the mount.
  39. Place shaft end of air cylinder on stud on the swing arm, making sure the air ports are facing in towards the passenger's side, and secure the nylon nut. Do NOT over tighten, and allow for movement. Place pin through clevis end of the air cylinder and lock with cotter pin. Repeat these steps for passenger's side mount, making sure the passenger's side air cylinder has the air ports facing the driver's side of the wash.
  40. Locate the two spring stops. These parts are side specific. To find the driver's side and passenger's side, lay them on the ground, with the springs inside of the frame legs. When held up with the spring on the inside of the driver's side entrance leg, the spring and rubber stop should be pointing down slightly. Once located, mount the spring stop three inches below the driver's side lower angle brace mounting point. Repeat this step for the passenger side.
  41. Have helper #1 on the ladder at the exit end of the Pendulum. Helper #2 will pass up the counter weight to helper #1. Helper #1 can rest the counter weight on the top of the ladder till helper # 2 can assist from a second ladder next to the first. Both helpers should get their hands on the counter weight, and carefully move into position. The counter weight will be centered on the top cross member of the Pendulum swing arms. Secure with two (2) 5.5" bolts with washers on both ends of the bolt.
  42. With helper #1 on one side of the Pendulum, and helper # 2 on the other, both should push and or drag the frame assembly onto the front leg marks made earlier in step # 6. Now move the exit end legs onto the rear marks. Verify you are square with the conveyor by taking measurements from each leg to a common point on the conveyor. Once the Pendulum is square, move to the step.
  43. With helper # 1 holding the frame from moving off its marks, have helper # 2 drill the lag holes in the concrete. Once one hole is drilled, have helper #1 hammer the lags into the concrete with a 3 pound sledge hammer. Continue this procedure placing four lags in each leg. Once all lags are hammered into the concrete, you may tighten them down with a 1/2" impact gun and a 15/16" impact socket.

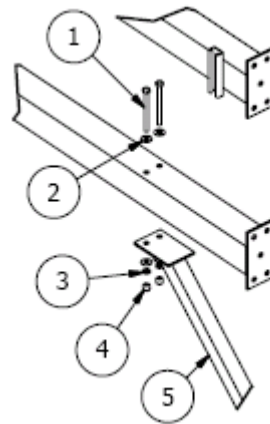
44. With helper # 1 and helper # 2 both on ladders, begin to tighten ALL of the bolts NOT tightened before. You may use the impact gun with a  $\frac{3}{4}$ " socket or regular sockets and wrenches. When adjusting the split collars installed in step #17, make sure the swing arms are an even distance from the black plastic bearings. Once centered, tighten the outside collar, then push the inside collar so it is touching the black plastic bearing. Tighten the inside collar. Once completed move to the next step.
45. Starting at the passenger's side exit leg, measure 12" (1 foot) from the INSIDE of the leg closest to the exit. (not the square "foot") Make a mark. Measure towards the exit 33" (thirty three inches) and make a mark. Measure towards the exit 9" (nine inches) and make a mark.
46. Place the "tab" end of your tape measure on the passenger's side of the pit. Extend the tape measure 66" (sixty six inches) towards the passenger's side wall, making sure it is square and crosses through the mark you made in step 45. Mark 66" with a marker. Follow the same procedure for the mark made 9" (nine inches) towards the exit from the 33" mark. Drop a chalk line from the passenger's side of the pit to the 66" mark. Do the same for the other mark. Connect the chalk lines at 66", and you should now have a rectangle 66" long by 9" wide. Locate the clear lacquer spray paint and spray all of the chalk lines you have just made.
47. The rectangular area marked and squared in step # 45 and # 46 will be the area of concrete that **HAS TO BE CUT**. It is suggested that you hire a professional concrete cutter to do this.

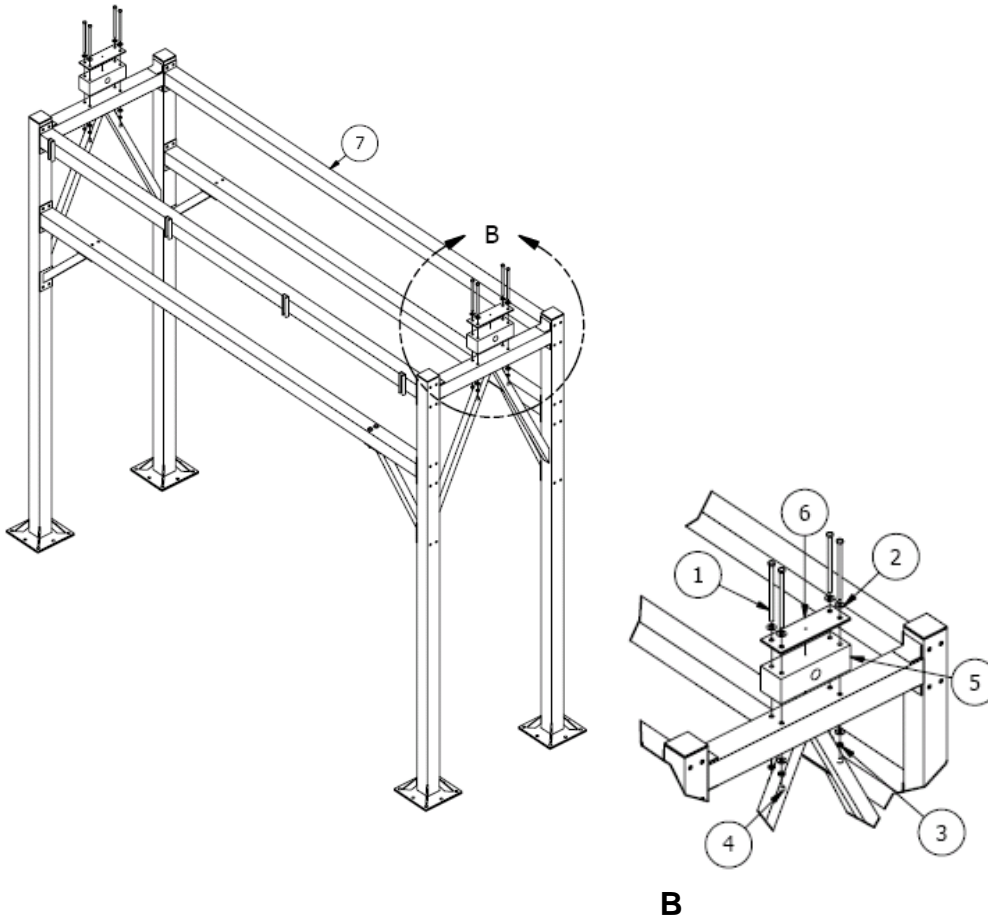
**CAUTION: Concrete cut has to be a minimum of 6" deep and a minimum of 9" wide. If you are NOT cutting the concrete now, then you should remove the four bolts that hold the Pendulum roller arm to the swing arm. This will allow you to continue to wash cars until you are ready to cut the concrete.**

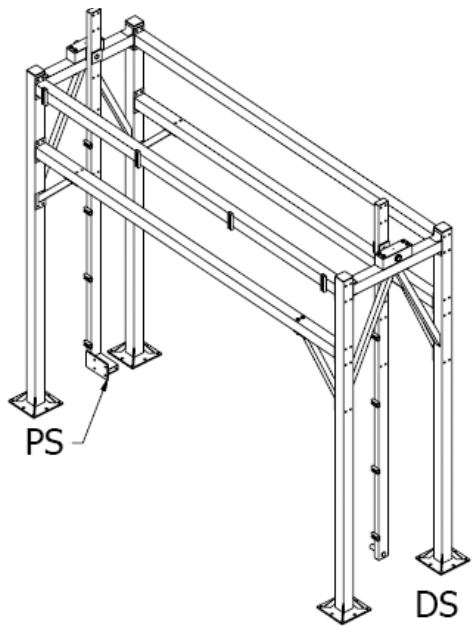
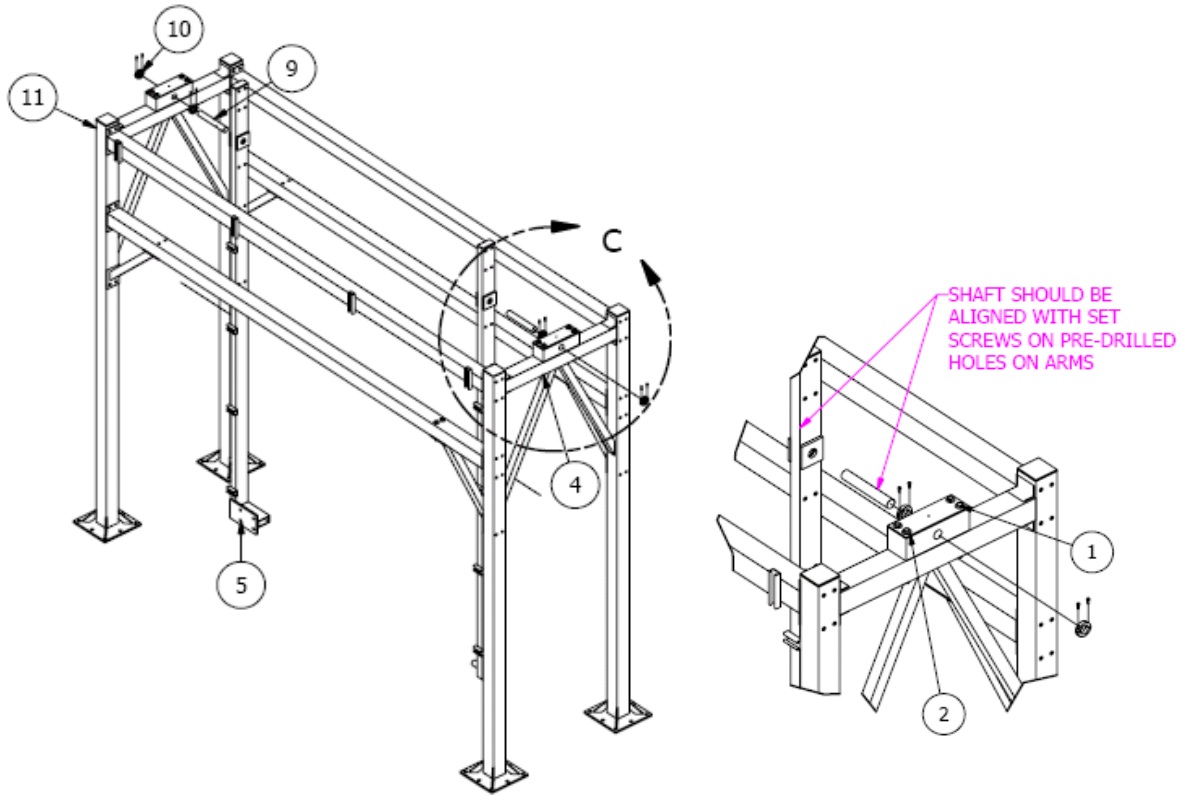
48. Once the concrete is cut and the hole is free of debris, 4 helpers can carefully move the  $\frac{1}{2}$ " steel plate into position. The steel plate needs to be square and should be twelve inches (12") from the inside of the passenger's side legs, with the "Vee" of the steel plate centered in the 9" by 66" trench created when removing the concrete.
49. Replace the Pendulum roller arm if removed in step # 47, making sure all bolts are tight. Once the roller is secure, test movement by pushing the arm forward so the roller falls into the steel "VEE" at the end of travel. If the roller arm "hangs" up a bit, use a pry bar to move the steel plate back or forward slightly until roller arm no longer "hangs" up. You may now secure the steel plate securely to the ground with the 4 (four) supplied  $\frac{1}{2}$ " concrete anchor bolts.
50. Once all high pressure hooks ups are made, the Pendulum is ready to be test run. It is common to make changes in your tunnel operation software. In order to make the initial operation and set up of your new Pendulum smooth, it is suggested that you take a measurement from the photo eye at the entrance to the entrance side of the pendulum frame leg. Once you have that measurement, making small changes in the software will be very easy.



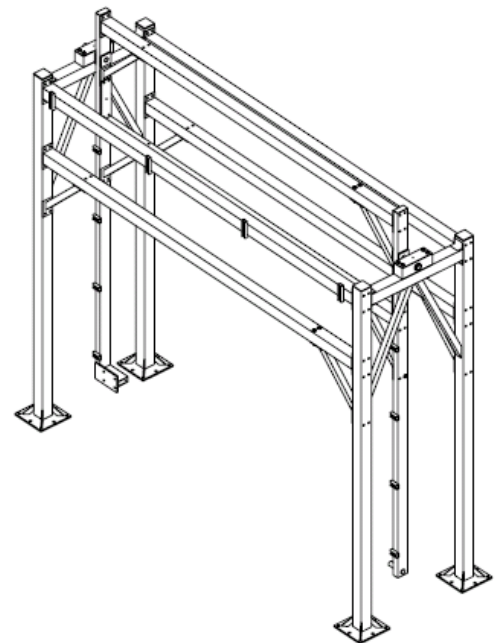
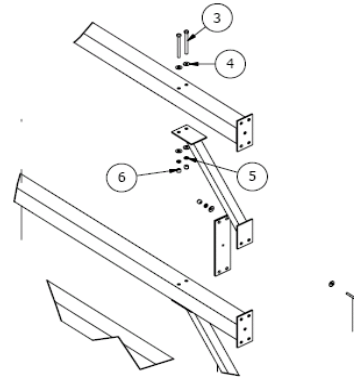
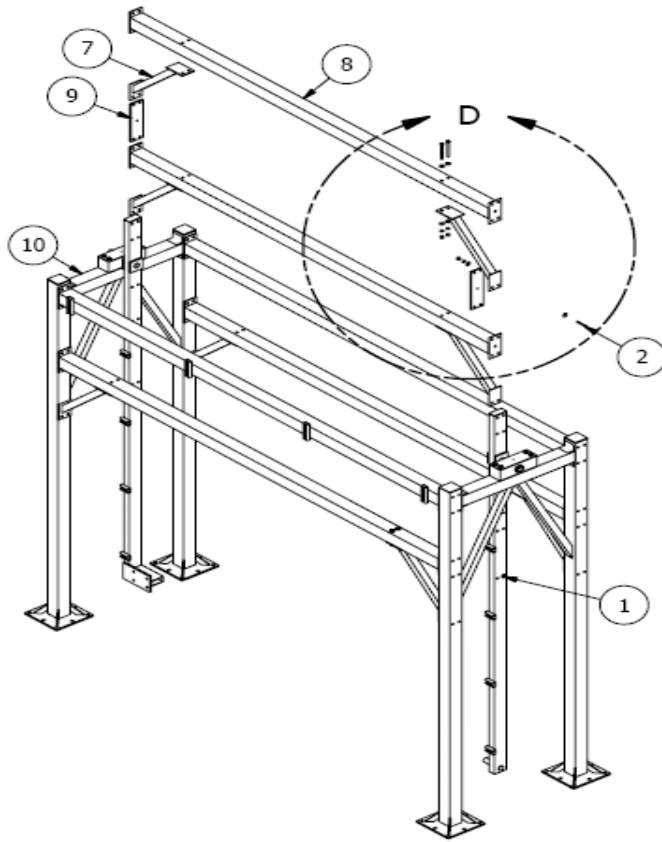
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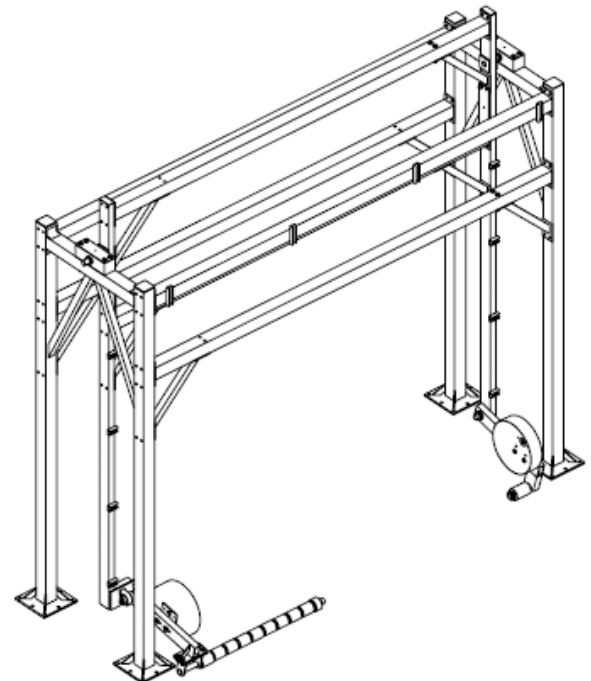
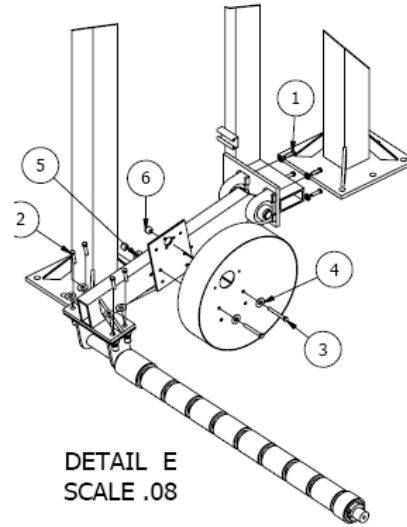
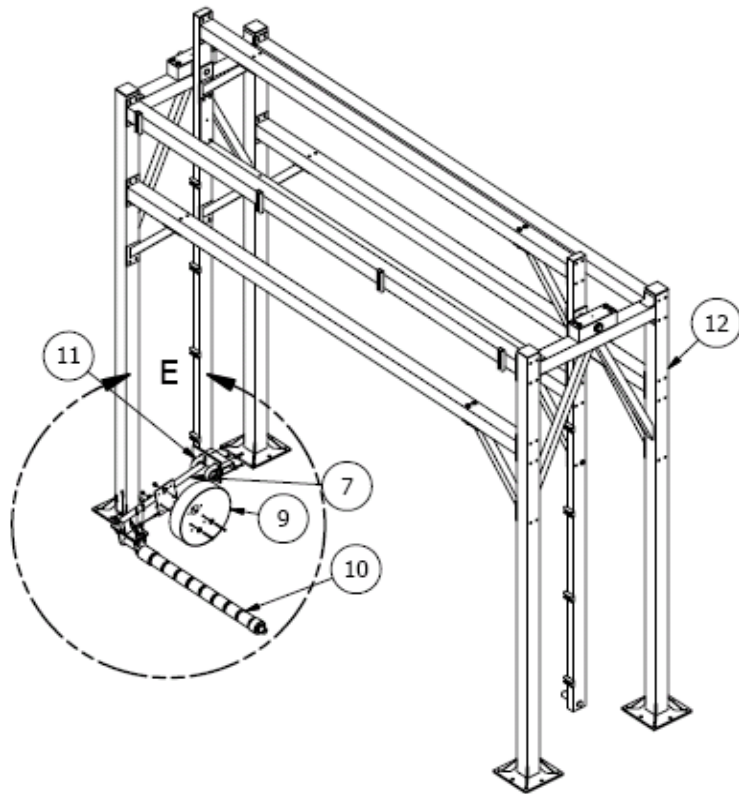


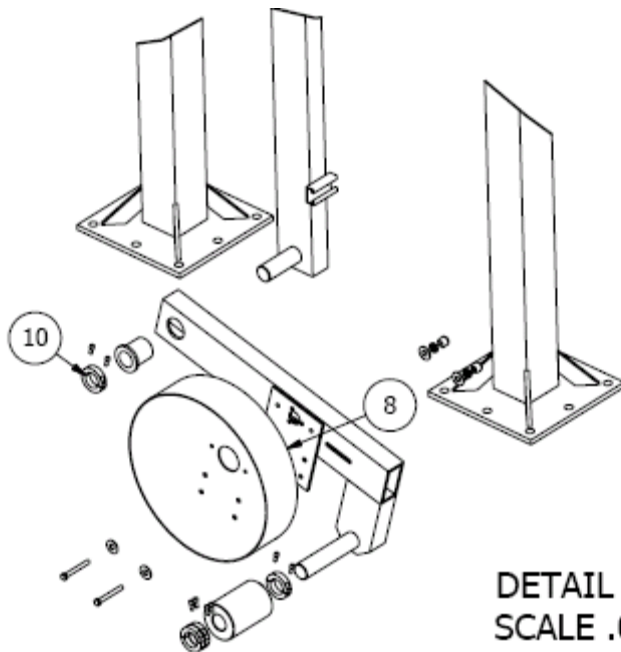
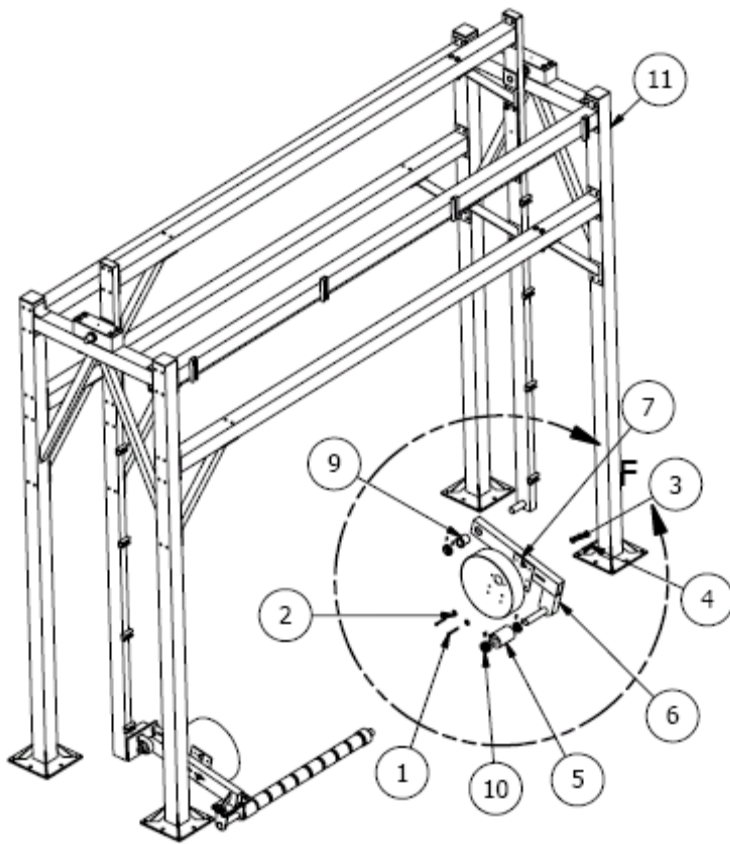


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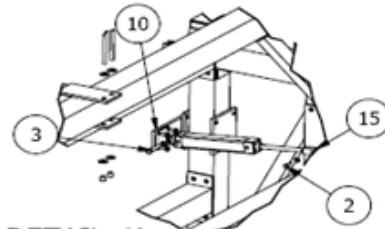
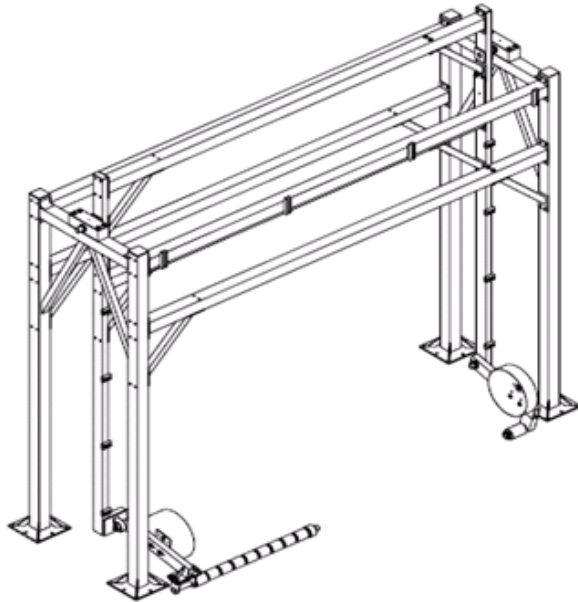


D

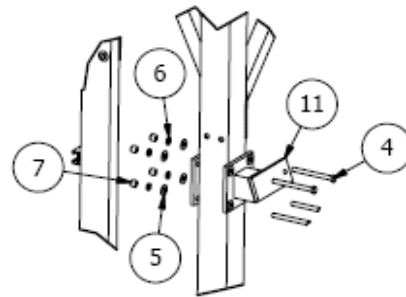
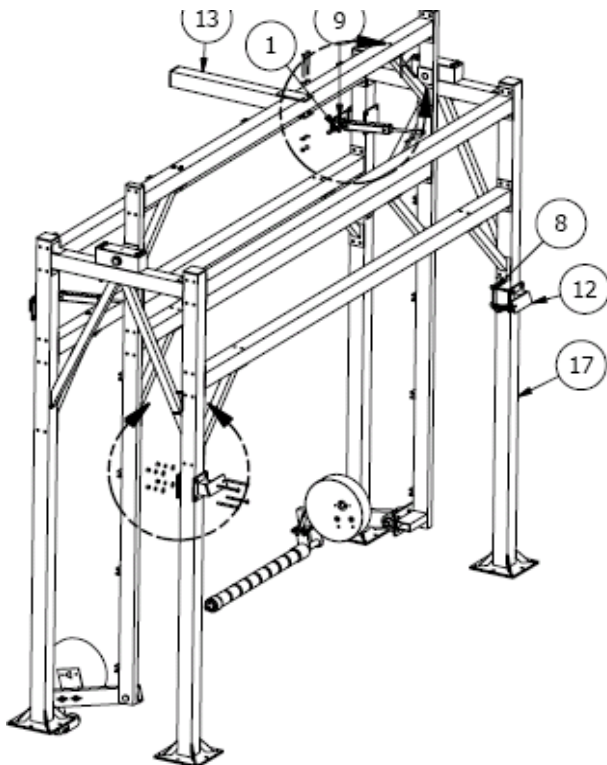




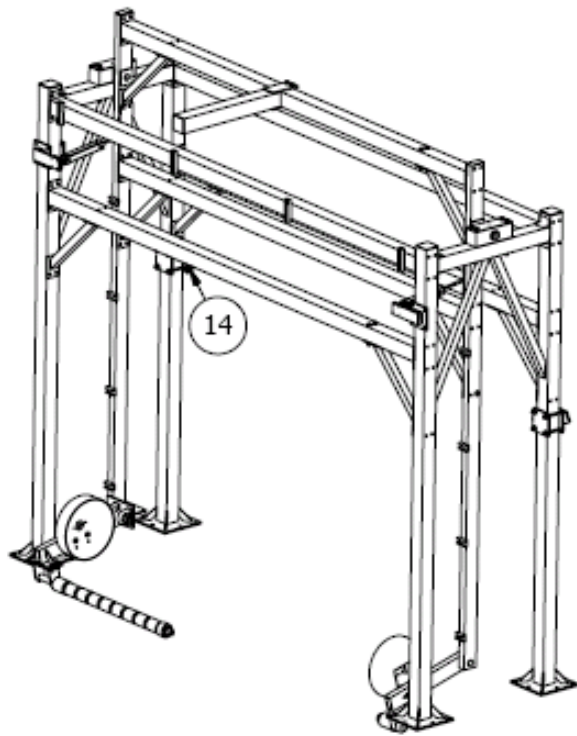
DETAIL F  
 SCALE .08



DETAIL K  
 SCALE 0.06 : 1



DETAIL J  
 SCALE 0.06 : 1



# Adjustments and Testing

## Adjustments

1. Water Pressure to Nozzles is adjusted at the HP bypass valve on the Water Pump station to approximately 800PSI.
2. Oscillating Speed Adjustment (optional Omni Top)
  - (a) The oscillating speed of the manifold can be adjusted at the flow control on the hydraulic power pack.
  - (b) Speed should be set to 60-70RPM as counted at the hydraulic motor shaft.
3. Tracking Speed Adjustment (optional Omni Top)
  - (a) The manifold has two air pressure regulators on the air manifold to control tracking. Should be set to 60PSI.
  - (b) The manifold has a brass flow-control valve on the reservoir to regulate how fast the manifold tracks the vehicle as it passes and a black plastic flow-control valve on the air cylinder to control how quickly it returns to the ready position, facing the tunnel entrance.

## \*GENERAL OPERATION\*

### Pendulum

1. Needs to be programmed as a tire/wheel function which will allow two on/off cycles which is needed to help the pendulum return to the home position.
2. The 4-way Mac solenoid to the pendulum should be normally open "free flow" which will continuously apply pressure to keep the wheel blaster home and help with the first few feet of tracking.
3. As the front wheel/tire area comes into target range, the high pressure pump station should power up, supplying the pendulum with the high pressure water needed.
4. When the pendulum arm is positioned perpendicular to the ground, the air pressure should turn off when it receives power from the controller. The counter weight will now keep the pendulum against the tire as the vehicle pushes the pendulum "up hill".
5. As the pusher arm falls into the trench and the tire passes, the air pressure is turned on by turning off power from the controller to quickly bring the pendulum back to the home position.
6. The high pressure water should continue to run as the rear wheel/tire area comes into target range.
7. As the pendulum arm again comes perpendicular to the ground the air should again shut off when it receives power from the controller allowing the counter weight to keep the pusher arm in position.
8. When the rear tire passes over the pusher arm the water should turn off and the air pressure should turn on by turning off power from the controller, bringing the pendulum back to the home position for the next vehicle.

### Spinner Wheel Cleaners

Starting and stopping Spinners is controlled by the Customer's equipment programmer signal to the motor starter coil controlling three phase power to the high pressure water pump. The speed of the rotation of the Spinners being driven may be changed by the bypass/regulator adjustment on the pump.

## **\*PREVENTIVE MAINTENANCE\***

### **DAILY**

1. During Opening Checks, check for leaks around hydraulic hoses and fittings. Repair any hydraulic leaks immediately. (Omni Top option)
2. Check spray pattern from nozzles and clean any dirty nozzles.
3. Operational Checks
  - (a) Check for leaks around hoses and fittings. Repair any serious water or air leaks immediately.
  - (b) General examination of operation, listening for any unusual noises.
  - (c) Observe retract operation. It should be smooth and retract completely.
  - (d) Observe fluid level in reservoir. If low, add fluid or if contaminated, drain and replace. (Omni Top option)

### **WEEKLY**

1. Check all nozzles for wear and replace if necessary.
2. Perform a close inspection of operating mechanisms and hoses for problems.
3. Spray lubricant on cylinder rod ends and clevises.

### **MONTHLY**

1. Inspect all UHMW bearings for wear. Replace if necessary.
2. Inspect all UHMW rollers on the push arm for wear.
3. Inspect all split collar couplers for wear and replace as needed.
4. Inspect all hardware and fittings for tightness and clean the entire assembly thoroughly.
5. Grease all pivot point bearings.

### **ANNUALLY**

Drain, purge, and refill hydraulic system. (Omni Top option)

**\*PARTS LIST\***



**Air Cylinder For SONNY'S Pendulum**



- Cylinder, 10in stroke, 7/16in UNF male x 3/8in rod eye x 1/2in rear clevis



Item #	Description	Price
A11210-2	Cylinder, 2in Bore x 10in Stroke SMC	\$115.00
RDEY3825P	Rod Eye, 3/8in x 2 1/2in w/Nuts /Washer	21.99
KQ2L11-35S	Elbow, Swivel 3/8in Tube x 1/4in NPT SMC	2.55
SPEN-103420	Rod Eye Mount, w/Hardware	19.99
RRCL122	Rear Clevis, 1/2in x 2in w/Hardware	24.99
RREYCLMTP	Rear Eye Mount Pend, 1/2in w/Hardware	19.99

**Bearing & Mounting Plate**



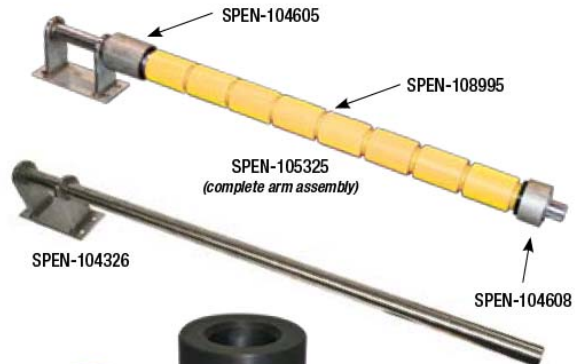
Item #	Description	Price
SPEN-104331	Bearing, Block Pendulum UHMW 12in	\$43.30
SPEN-104333	Bearing, Mount Cap Plate Pendulum 12in	22.00

**Shaft**



Item #	Description	Price
SPEN-105139	Pendulum, Pivot Shaft	\$27.30

**Pendulum Roller Arm Assembly**



Item #	Description	Price
SPEN-105325	Pendulum, Roller Arm Assy. Complete	\$465.00
SPEN-104326	Pendulum, Rod Mount Weldment	182.30
SPEN-108995	Pendulum, Bushing Wide Roller	11.20
SPEN-104605	Pendulum, Roller Wide Assembly 4in	\$27.60
SPEN-104608	Pendulum, Roller Narrow Assembly 2in	\$17.00
SPEN-108215	Rod Spacer, Pendulum 1/2in	6.99
SPEN-108214	Pendulum, Sleeve Rod Mount 1 1/2 x 5in	28.90
SPEN-108212	Pendulum, Sleeve Rod Mount 1 1/2 x 4in	16.50
SPEN-108213	Pendulum, Sleeve Rod Mount 1 1/2 x 2in	13.40
SPEN-108216	Pendulum, Guide Roller 5in	23.90
BF4100	Bearing, 4-Bolt Flange 1in (Passenger Side)	15.25
BTB20C	Bearing, 2-Bolt Tapped 1 1/4in (Driver Side)	28.79
SPEN-104329	Pendulum, Arm Lower DS Weldment	143.00
SPEN-104184	Pendulum, Arm Lower PS Weldment	125.00



**PART # SPEN-108212**



**PART # SPEN-108213**

## **\*CUSTOMER SERVICE\***

Please contact SONNY'S Equipment Department for installation and/or operational questions regarding this piece of equipment.

Please refer to the Parts list in this manual or our Parts Catalog and contact SONNY'S Customer Service Order Entry Department for any replacement parts for this piece of equipment.

For Equipment Repairs please visit the web at [www.sonnysdirect.com/manuals](http://www.sonnysdirect.com/manuals).

**DEPARTMENT**

Toll Free Main Line  
Equipment Department

**PHONE NUMBERS**

800-327-8723  
954-720-4100

**FAX NUMBERS**

800-495-4049  
954-720-9292

Or you can email Sales at [sales@sonnysdirect.com](mailto:sales@sonnysdirect.com)

*Thank you for being a SONNY'S car wash equipment owner!*

*From all of us here at*

