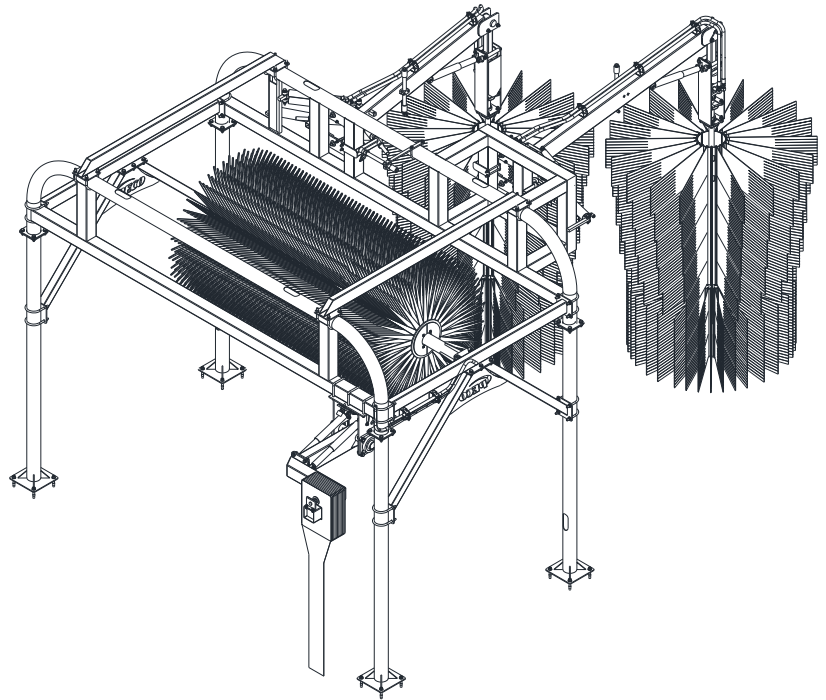


TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

# Installation & Operations Manual



Model No.: **TWC1102s/h**

Part No.: **20022109**

Description: **TWC1102s/h Top Washer / Rear Offset Wrap**

Release Date: **March 25, 2009**

Revision Date: **March 4, 2025**

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# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

## General Warning

READ ENTIRE MANUAL CAREFULLY BEFORE ATTEMPTING TO INSTALL, OPERATE OR SERVICE THE PECO Equipment. PROTECT YOURSELF AND OTHERS BY OBSERVING ALL SAFETY INFORMATION AND ADDITIONAL INSTRUCTIONS INCLUDED WITH THIS EQUIPMENT. FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE!

## Product Description & Specification

### System Description:

The **Top Washer Wrap Combo** is designed for cleaning the top, front, rear, and sides of vehicles. Model TWC1102s is covered by this manual:

TWC1102s/h Top Washer / Rear Offset Wrap

### System Technical Data: TWC1102s/h

**Construction:** Stainless Steel Structure

**Tunnel Space:** 21' – 4" (6.50 m)

**Tunnel Height:** 11' - 6" (3.51 m)

**Tunnel Width:** 16' - 0" (4.86 m)

**Hydraulics:** (Wraps) One Bank @ 3 gpm @ 800 psi. (11.4 lpm @ 5.5 MPa)  
(Top Washer) One Bank @ 6 gpm @ 1100 psi. (22.6 lpm @ 7.6 MPa)

**Water Flow:** 9 gpm @ 40 psi. (34 lpm @ 0.3 MPa)

**Computer Functions:** 3 minimum

**Shipping Weight:** 2500 lbs. (1133 kg)

# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

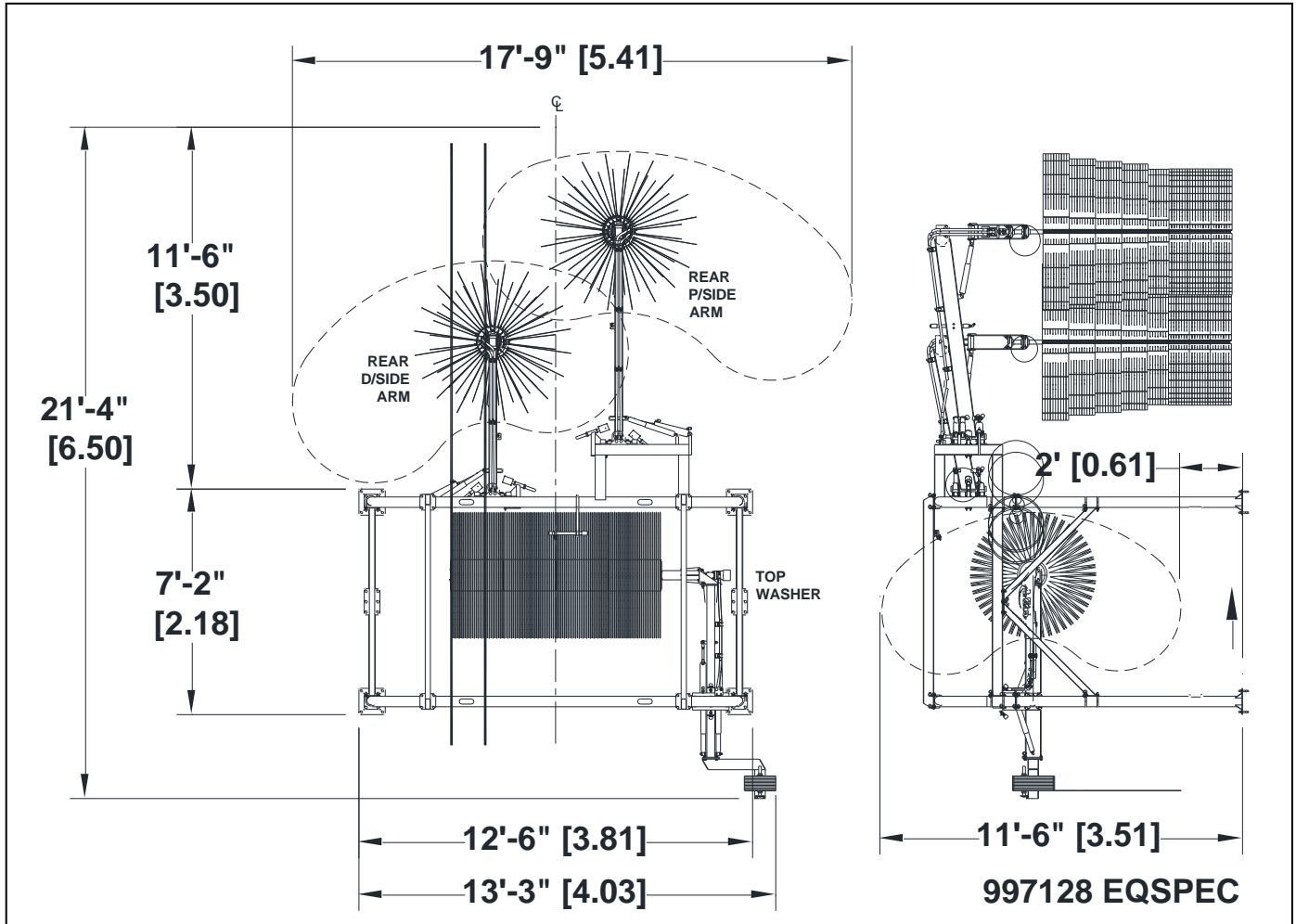
## General Safety Information

All **WARNINGS, CAUTIONS, AND SAFETY TIPS** below concern the safe installation, operation, and service of your PECO Equipment. Please abide by this information; it is listed for your protection. Review thoroughly with all personnel working on or near this machine.

- NEVER ATTEMPT TO WORK ON THE EQUIPMENT WHILE IT IS RUNNING.
- DISCONNECT ALL ELECTRICAL POWER TO THIS DEVICE BEFORE SERVICING THIS MACHINE.
- PERSONNEL MUST BE TRAINED IN SAFE OPERATING PROCEDURES. ALL PERSONNEL SHOULD REVIEW THIS MANUAL PERIODICALLY.
- EMERGENCY STOP BUTTONS MUST BE WELL MARKED AND THEIR LOCATION AND OPERATION REVIEWED WITH ALL PERSONNEL.
- MAINTENANCE OR REPAIR WORK ON EQUIPMENT MUST BE PERFORMED ONLY BY TRAINED EMPLOYEES ASSIGNED BY THE CAR WASH OPERATOR.
- DO NOT WEAR LOOSE FITTING CLOTHING WHEN WORKING ON OR AROUND EQUIPMENT.
- ALL CAR WASHES SHOULD HAVE A HORN OR ALARM THAT SOUNDS PRIOR TO EQUIPMENT STARTING.
- NO UNAUTHORIZED INDIVIDUALS SHOULD BE PERMITTED NEAR THE EQUIPMENT AT ANY TIME. CLEAR THE AREA OF PEOPLE AND ANY LOOSE DEBRIS PRIOR TO STARTING THE WASH.
- DO NOT OPERATE EQUIPMENT IF ANY COMPONENT MALFUNCTION IS FOUND.
- DO NOT OPERATE EQUIPMENT WITHOUT GUARD(S).
- DO NOT OPERATE EQUIPMENT FOR ANY OTHER PURPOSE THAN EXPRESSED IN "SYSTEM DESCRIPTION" SECTION AT THE BEGINNING OF THIS GUIDE.
- LOCK OUT THE AIR AND HYDRAULIC SUPPLY TO THE MACHINE PRIOR TO SERVICING THIS UNIT.

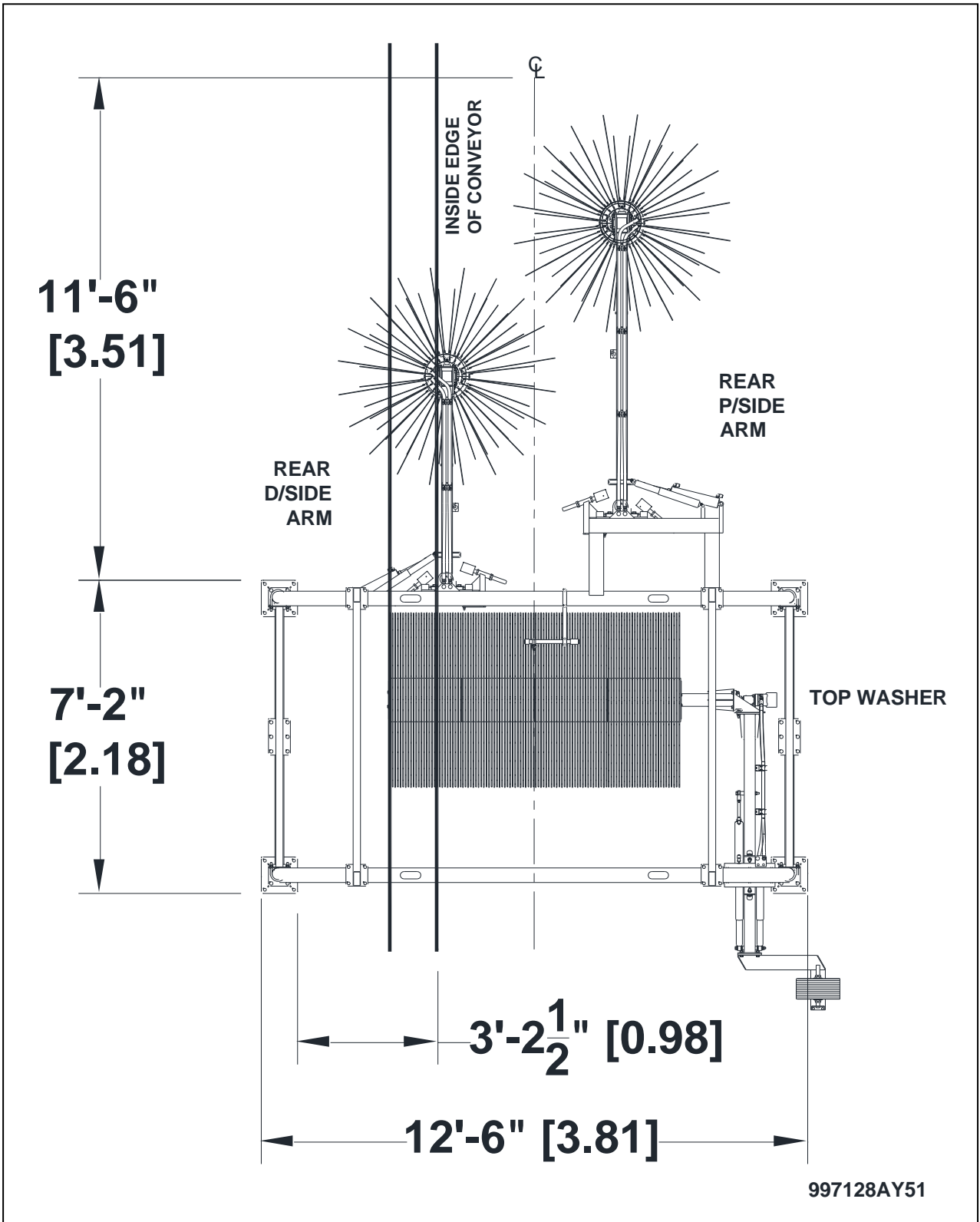
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## REQUIRED OPERATING SPACE



# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

## MOUNTING LOCATION



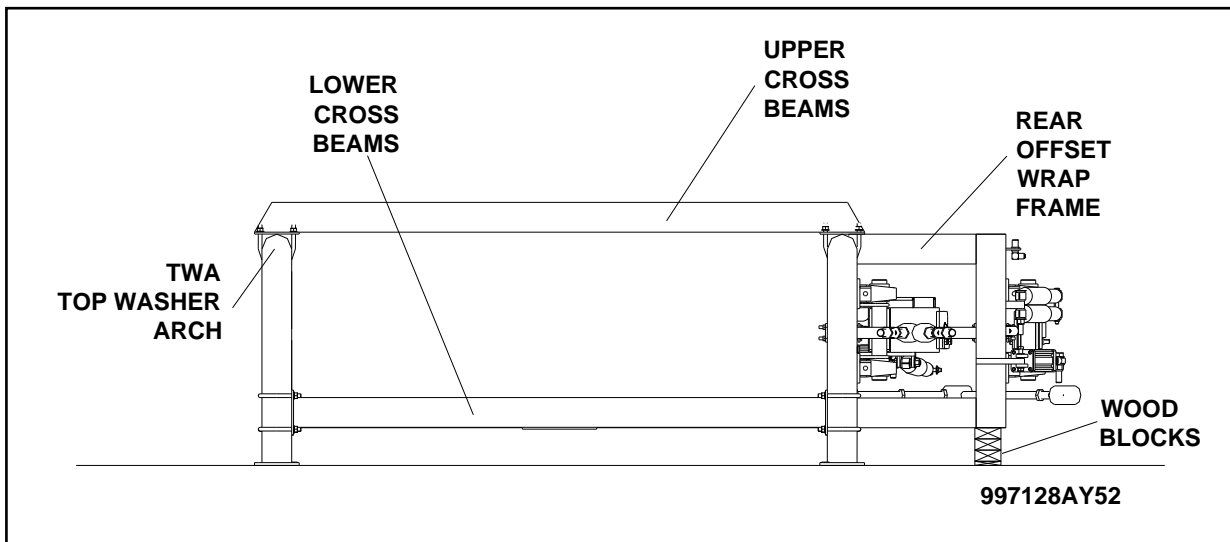
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**YOU MUST USE ANTI-SEIZE ON ALL STAINLESS STEEL NUTS AND BOLTS TO PREVENT GALLING, CROSS-THREADING, AND FROZEN HARDWARE.**

## Installation Procedures

### Assembly Steps:

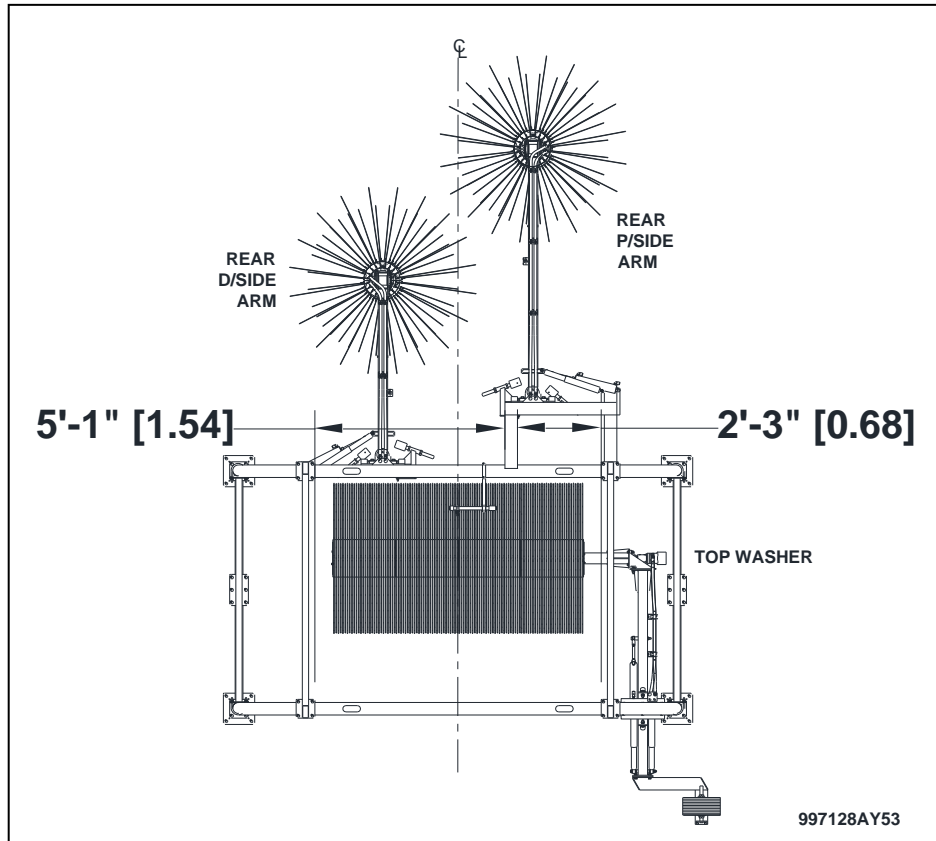
1. Determine the area where the Combo Unit will be located in the tunnel. Refer to the Mounting Location Diagrams for your particular model.
2. Keep the foam top brush assembly in the shipping bag until you are ready to test and run the top washer. This will help maintain the even brush shape. Keep bagged brush out of direct sunlight.
3. The Combo Unit requires a ceiling height of 12'-0".
4. Keep the wrap arms tied back in their shipping position.
5. Carefully stand up the front straight wrap frame. Support the rear offset wrap frame with wood blocks to keep it in the proper position.
6. Use the supplied u-bolts, washers, and nuts to attach the top washer arch and rear offset wrap frame to the two lower cross beams. You must use anti-seize lubricant on all stainless steel nuts and bolts. Do not tighten the fasteners at this time.



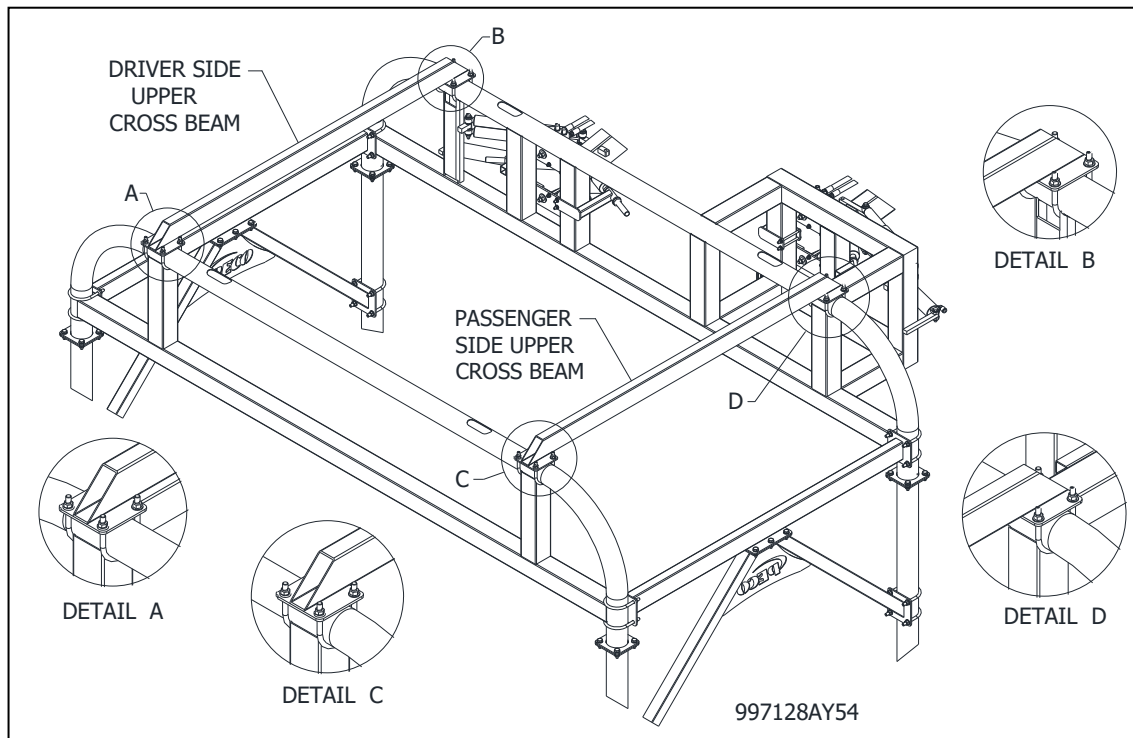
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7. Position and attach the two upper cross beams to the front and rear wrap frames. These upper beams along with the lower cross beams tie the structure together.

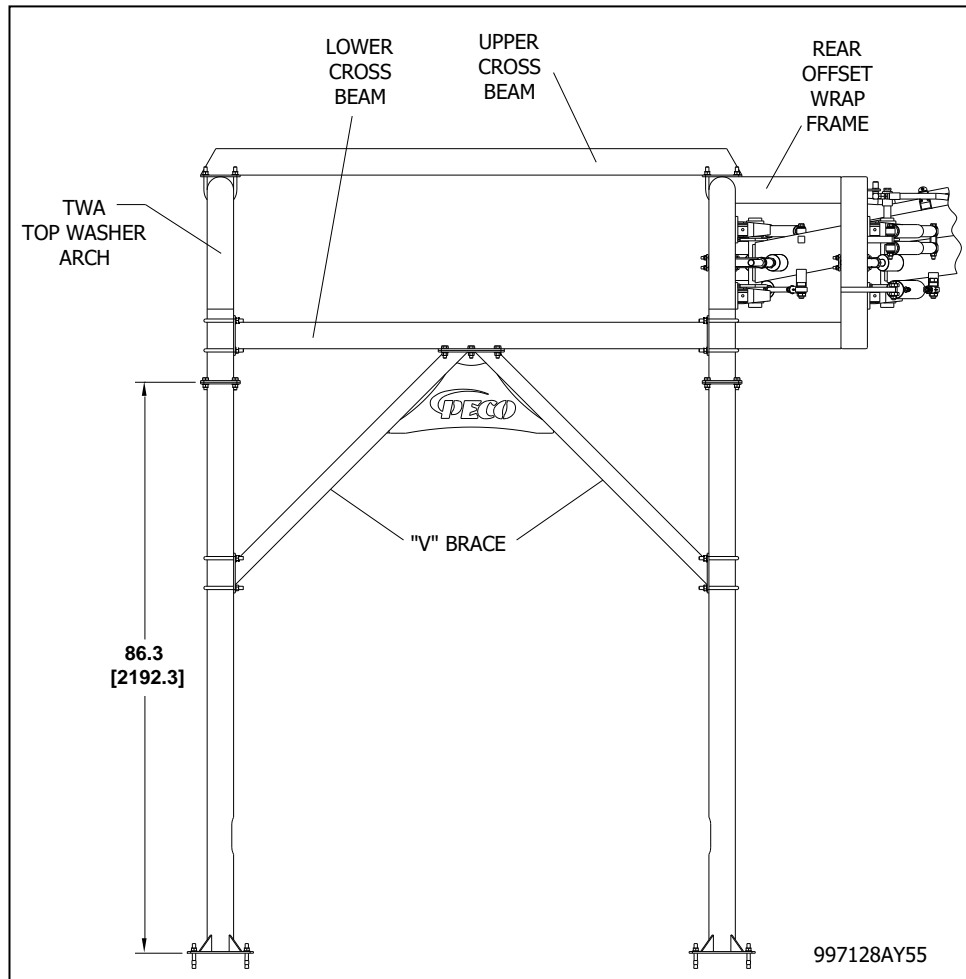


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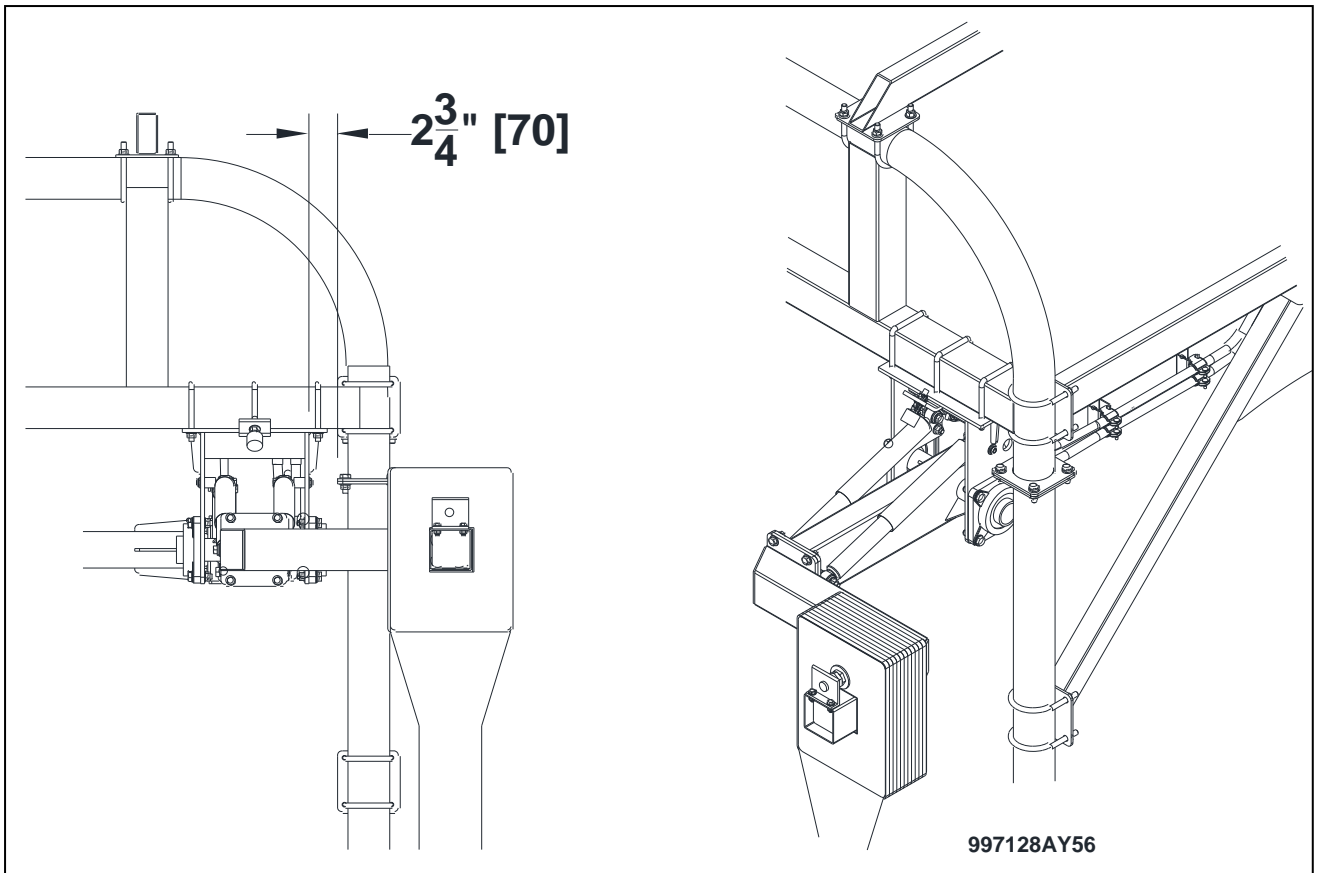
# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

8. Check the assembled structure for squareness. Verify the general alignment of the frames. Tighten the fasteners.
9. Carefully lift the structure (approximately 90") with two portable hoist or fork truck high enough to attach the four main support legs.
10. Attach the "V- shaped" leg brace to the driver side and passenger side of the structure.
11. Ensure all the fasteners on the entire structure are tight and secure.
12. Move this assembled structure to the desired mounting location in the tunnel.
13. Ensure the assembled frame and legs are plumb and level. Use washers to shim under the foot pads if necessary.
14. Lag the structure to the floor using the supplied 1/2" x 3 3/4' anchors.



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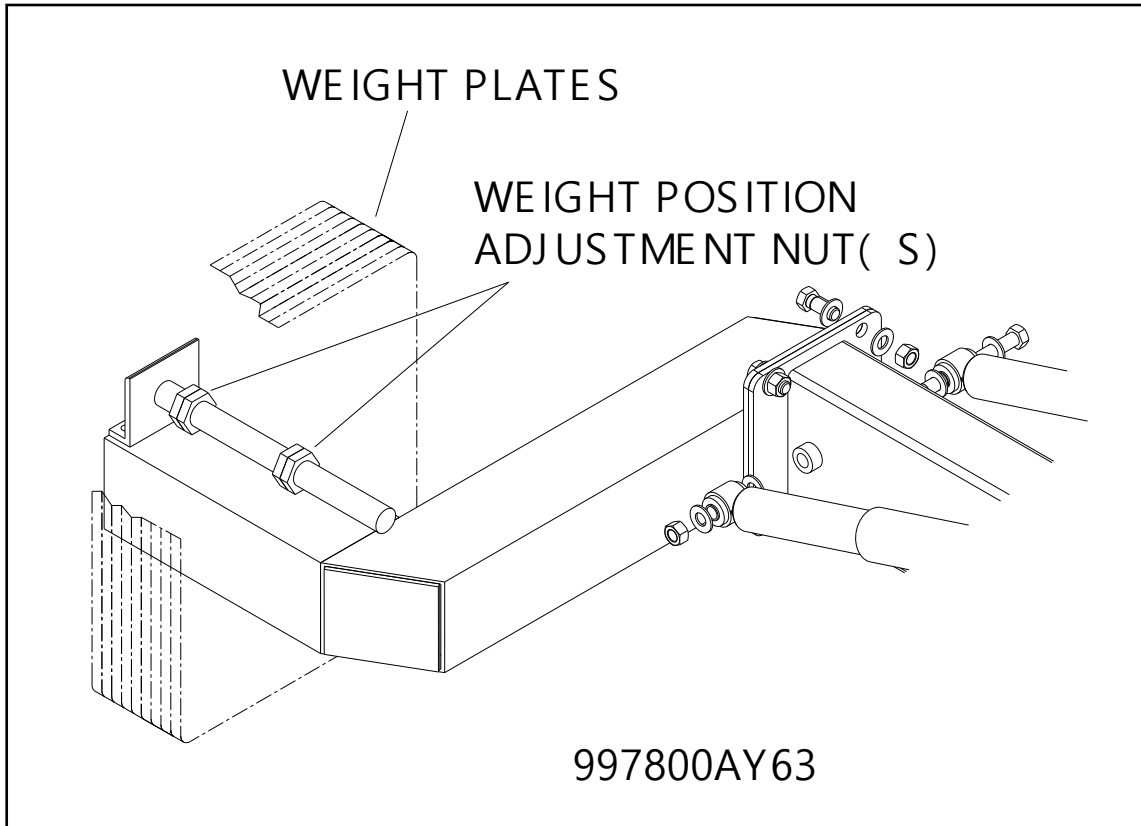
15. Mount the Top Washer Bearing Cage / Brush Arm on the underside of the 4" x 4" horizontal cross beam of the top washer arch. The Top Washer bearing cage flange will be located 2.75" (70mm) from the inside mounting flange of the top washer arch header. Secure this assembly to the 4" x 4" with the three supplied u-bolts and hardware.
16. Attach the stop brackets on the front and rear side of the bearing cage.
17. Check to make sure the arm is square in the structure. Adjust mounting position of the four bolt flange bearings or u-bolts if necessary. Ensure the brush arm is centered in the bearing cage.
18. Attach the brush head assembly to the mounting pad of the brush arm with the supplied hardware. Ensure that the foam brush is level before tightening the hardware.



19. Attach the counterweight / tail section to the brush arm of the Top Washer. This tail section is very heavy. Use a hoist or two people to lift and attach this arm to the brush arm.

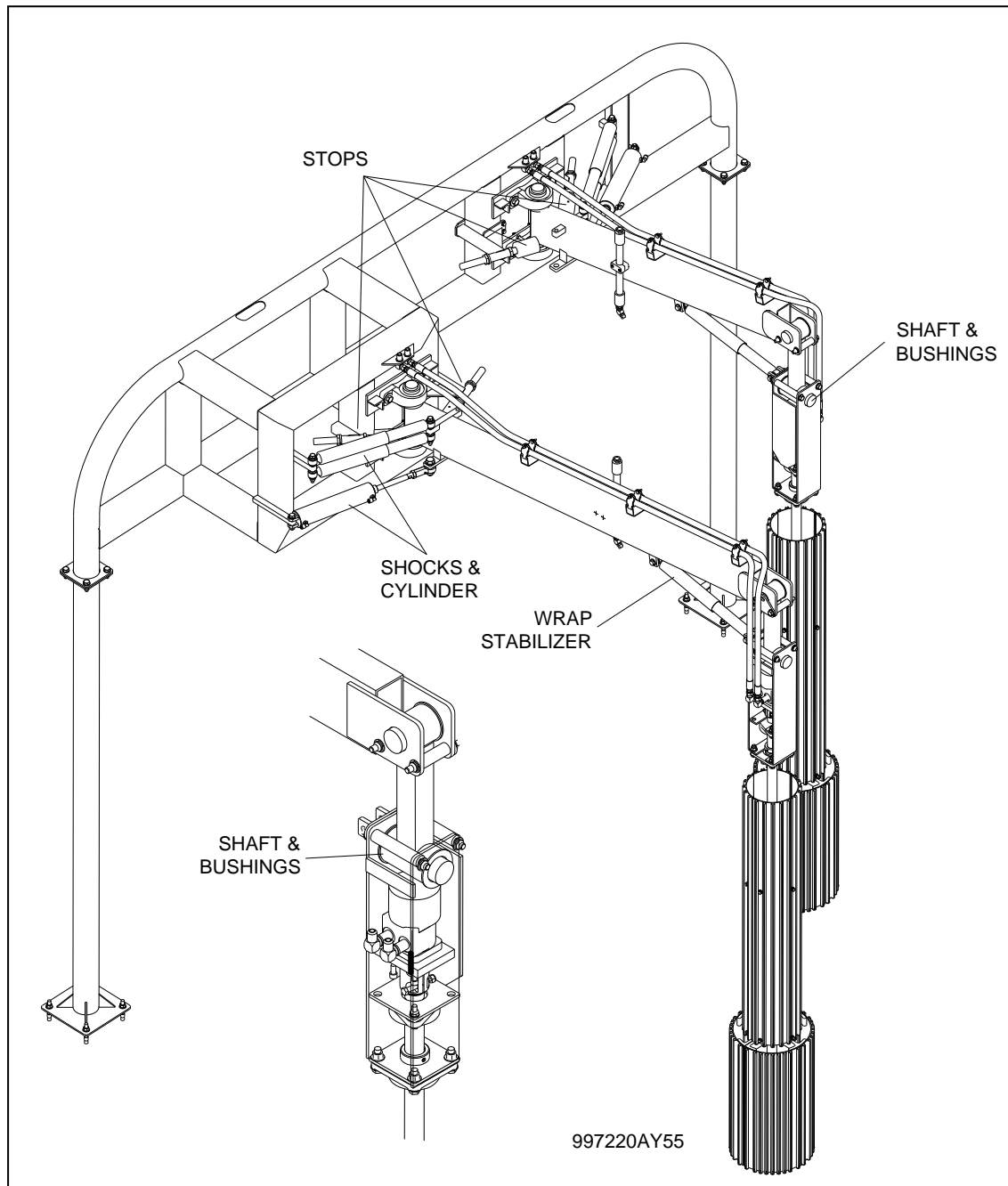
# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

20. Slide the counterweight plates on this tail section. Start with 9 plates. Attach the threaded rod and bracket onto the tail section. Use the larger adjustable nuts to secure the weight plates. Move the weight plates forward toward the main pivot to increase the foam brush weight. Or, move the weight plates away from the main pivot shaft to decrease the foam brush weight.



21. Attach the air cylinder and the two stabilizers to the bearing cage and brush arm.
22. Cut the banding to release the wrap arms.
23. Hang the bearing cage and shaft assemblies on the wrap arms. Slide the bushings and shaft through the upper bearing cage. The hydraulic fittings on the motor must face away from the tunnel centerline.

# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD



24. Connect the wrap stabilizer to each arm.
25. Attach the air cylinders and shocks near the main pivot point on each arm.
26. The driver side brush shafts will need to be cut to clear the conveyor guide rails.
27. Mount the lower cloth hubs to each of the two brush shafts. These hubs should be as low on the shafts as possible.

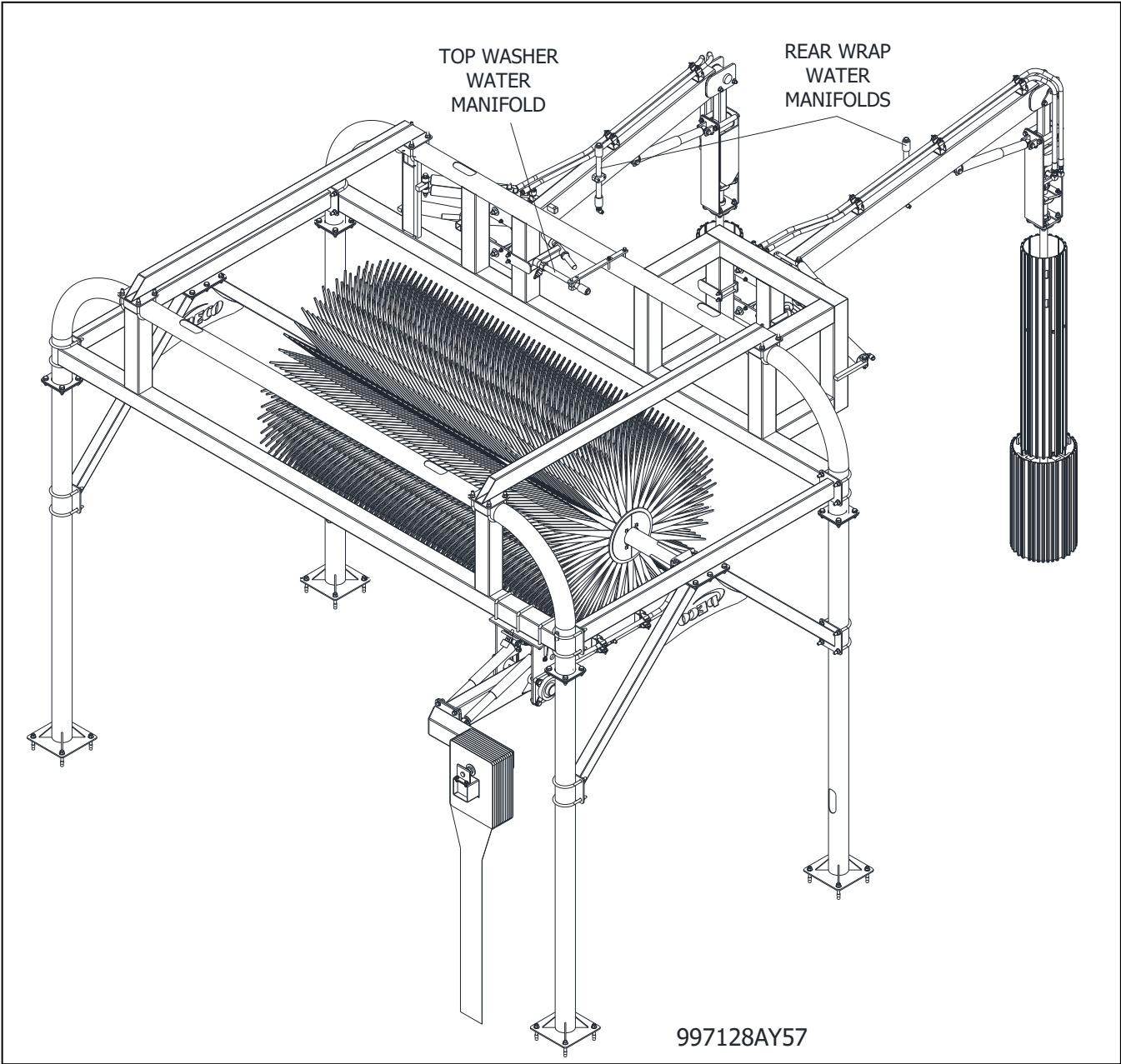
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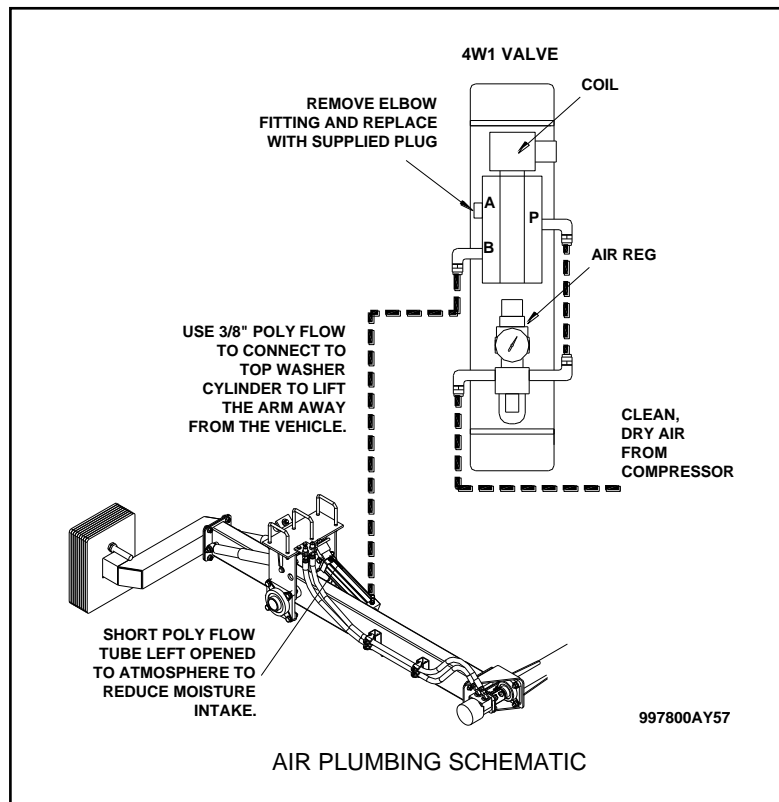
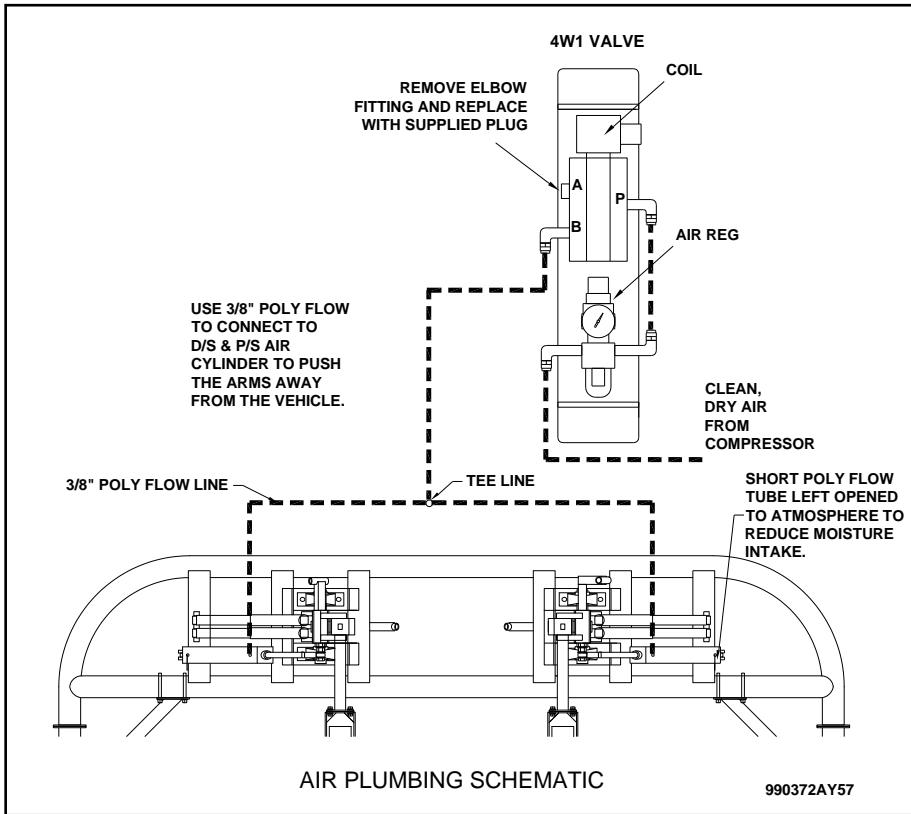
# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

28. The set collar on the bottom of the shaft must be slid onto the shaft under the lower hub and secured. To secure the collar, remove the setscrew, and use a drill to dimple the shaft. Replace the setscrew. This method provides a positive stop for the set collar.
29. Attach the upper cloth hubs to the brush shaft above the lower hubs. Align the grease access slots with the two bearings in the motor housing. If necessary, drill holes to allow access to the grease fittings on the two bearings.
30. The passenger side stops must be reoriented on the frame.
31. Mount the 4-way control valve(s) in the equipment room wall. Locate the unit as close as possible to the flex wrap. Port 'A' must be plugged with the supplied 1/4" fitting. Run 3/8" polyflow line out to the air cylinders on the wrap arms. The line must be teed to feed the driver and passenger side air cylinders. The air pressure to these cylinders is used to push the arms to the wide-open position when the 4-way valve is de-energized.
32. **Alternate Set Up:** If a PECO Wheel Washer is installed under a Combo Unit, plumb the 4W1 valve so the wrap arms are not retracted when the 4W1 valve has no power. The wrap arms will retract when the 4W1 is energized.
33. Attach a 3/4" water supply line from the solenoid in the equipment room to the manifold on the front flex wrap. Attach a 3/4" water supply line from the solenoid in the equipment room to the manifold on the rear flex wrap. Attach a 3/4" water supply line from the solenoid in the equipment room to the Top Washer manifold. You can inject or pump soap to the Wraps and Top Washer to increase cleaning performance. Soap applied through the water manifold will enhance this machines performance.
34. When Foam Material is used in place of Soft Cloth, extra soap **must** be applied to the vehicle for lubricity.

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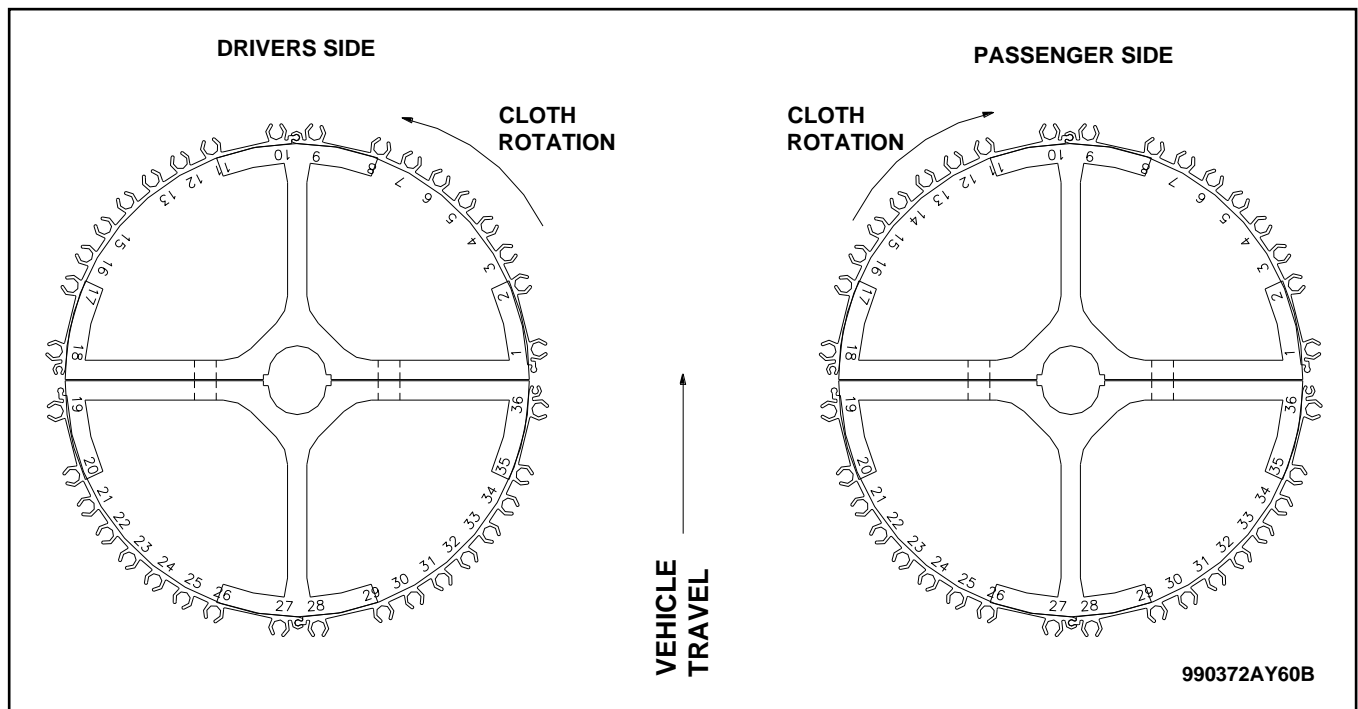
## Wrap Cloth Installation Procedure

### Lower Core Cloth Installation:

#### Lower Cloth Set

QTY.	PART #	DESCRIPTION
48	57081814_	8 ¼" HIGH x 18" LONG 1 PLY CLOTH
72	57161824_	16 ½" HIGH x 18" LONG 1 PLY & 2 PLY CLOTH
24	578000	8 ¼" HIGH x 1 25/64" LONG PLASTIC INSERT

1. Segregate the above cloth panels and plastic inserts. Divide them into two. One for the driver side and one for the passenger side. Each lower core will have 24 (57081814\_), 36 (57161824\_), and 12 (578000) components.
2. The lower cores are 12" diameter x 23 ½" high with 36 vertical slots.

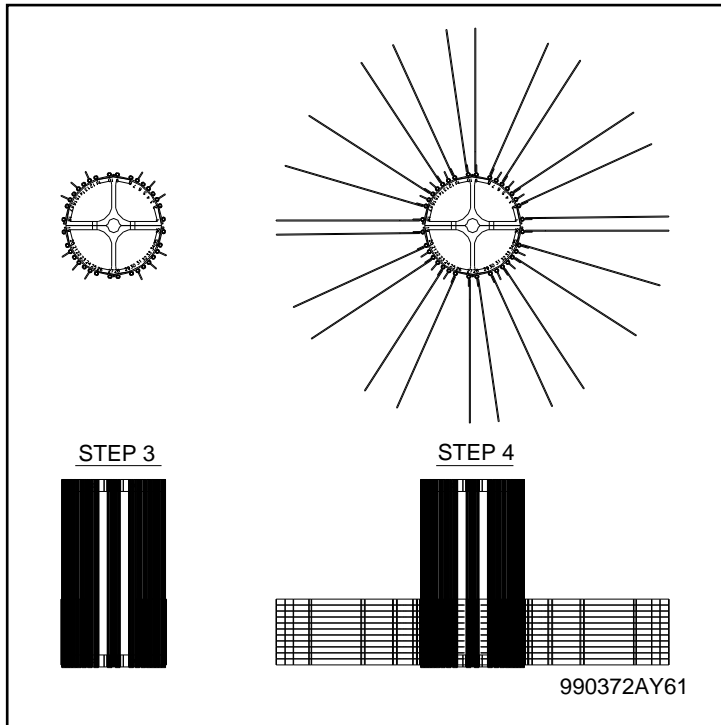


3. Slide the molded inserts into the slots until they stop at the bottom edge of the core. Place these in slots 3,5,7,12,14,16,21,23,25,30,32, and 34. Repeat for each lower core.
4. Slide 8 ¼" high x 18" long 1 Ply cloth panels into the slots until they stop at the bottom edge of the core. Place these in slots 1, 2, 4, 6, 8, 9, 10, 11, 13, 15, 17, 18, 19, 20, 22, 24, 26, 27, 28, 29, 31, 33, 35, and 36. Repeat for each lower core.

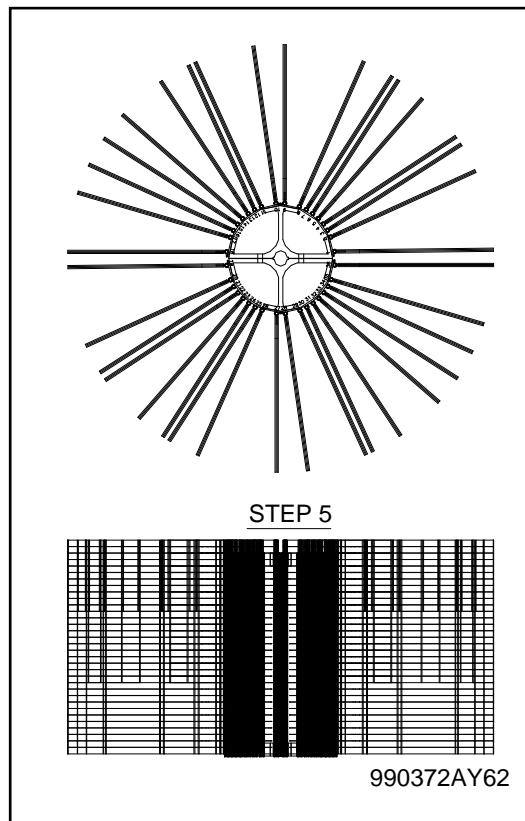
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5. Slide the 16 ½" high x 18" long 1 ply and 2 ply cloth into the slots until they stop against the previous cloth or inserts. Place these in every slot. Repeat for each lower core.



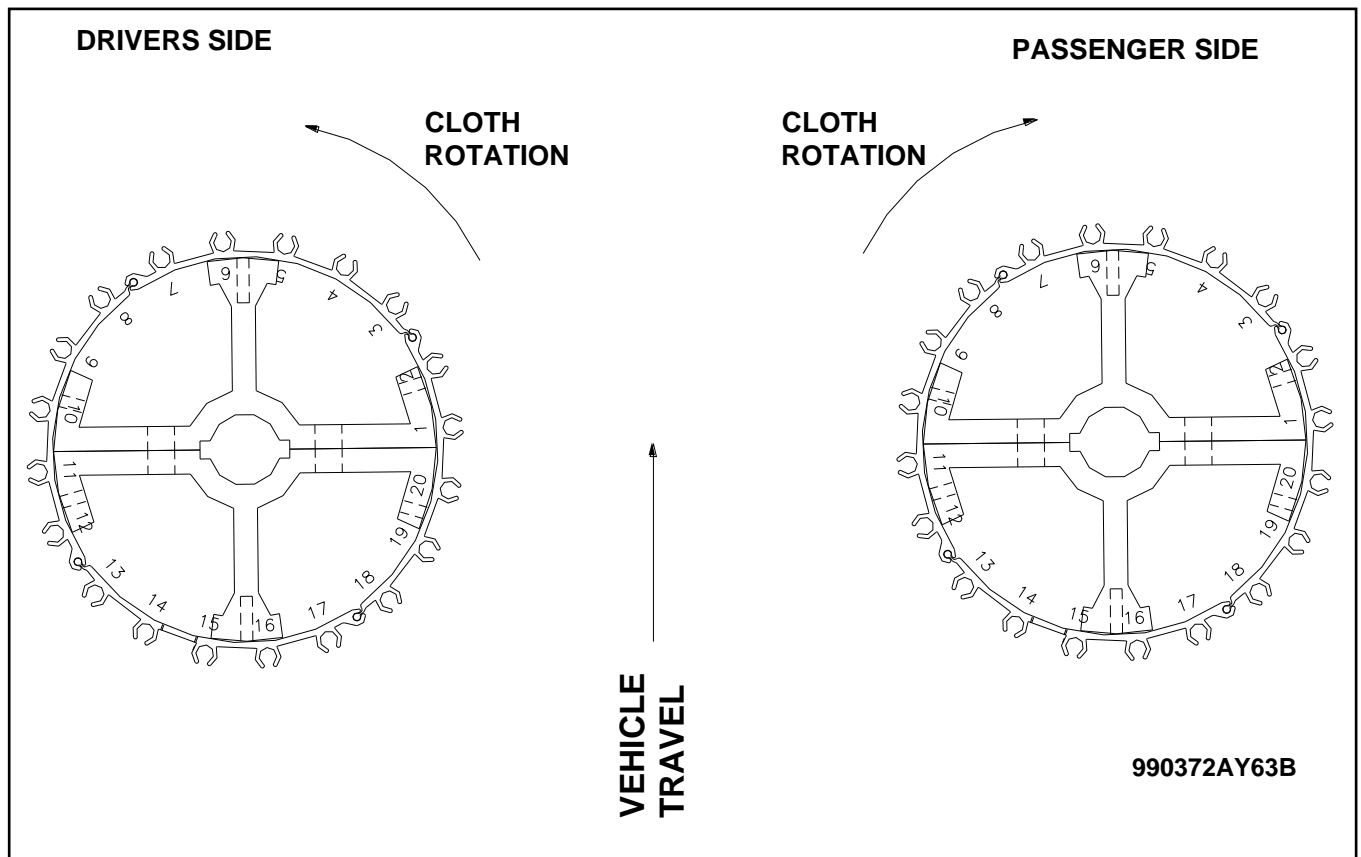
# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

## Upper Core Cloth Installation:

### Upper Cloth Set

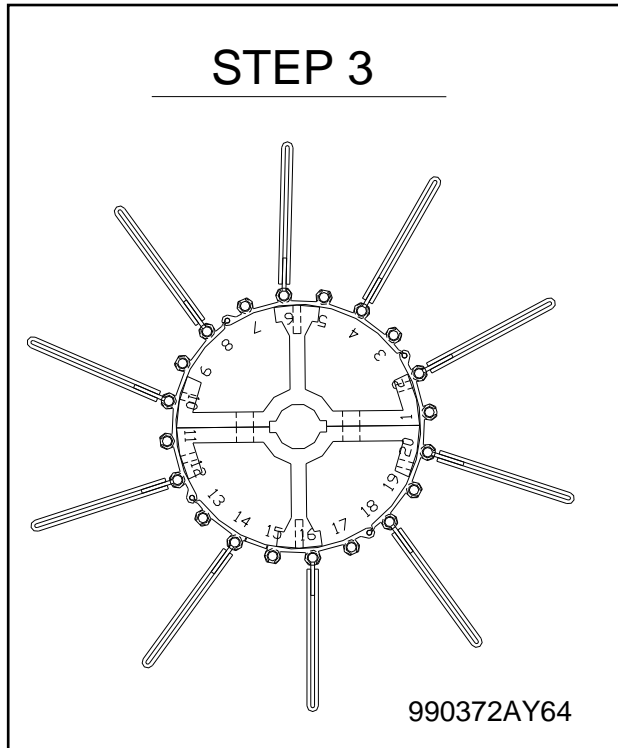
QTY.	PART #	DESCRIPTION
20	57112014_	11 5/8" HIGH x 20" - 21 1/2" LONG 1 PLY CLOTH
20	57112114_	11 5/8" HIGH x 21 1/2" - 23" LONG 1 PLY CLOTH
20	57112314_	11 5/8" HIGH x 23" - 24 1/2" LONG 1 PLY CLOTH
20	57122414_	12 1/2" HIGH x 24 1/2" - 26" LONG 1 PLY CLOTH
20	57110524_	11 5/8" HIGH x 5 1/2" LONG 2 PLY BUFFER

1. Segregate the above cloth panels and plastic inserts. Divide them into two. One for the driver side and one for the passenger side. Each upper core will have 10 (57112014\_), (57112114\_), (57112314\_), (57122414\_), and (57110524\_) components.
2. The upper cores are 10" diameter x 48" high with 20 vertical slots.

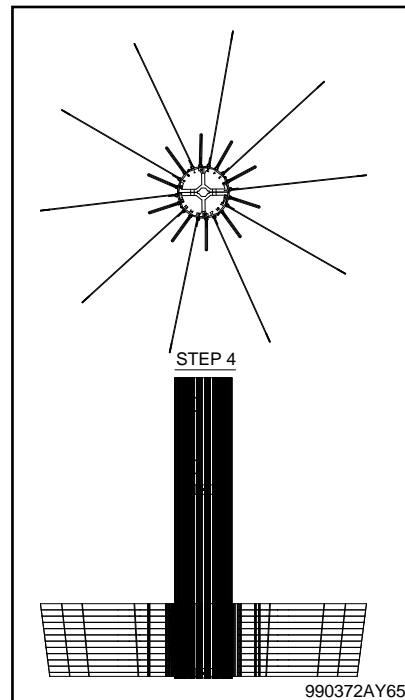


# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

- Slide the 11 5/8" high x 5 1/2" Buffers all the way down until they stop at the lower edge of the upper core. Place these in slots 2, 4, 6, 8, 10, 12, 14, 16, 18, and 20. Repeat for each upper core.

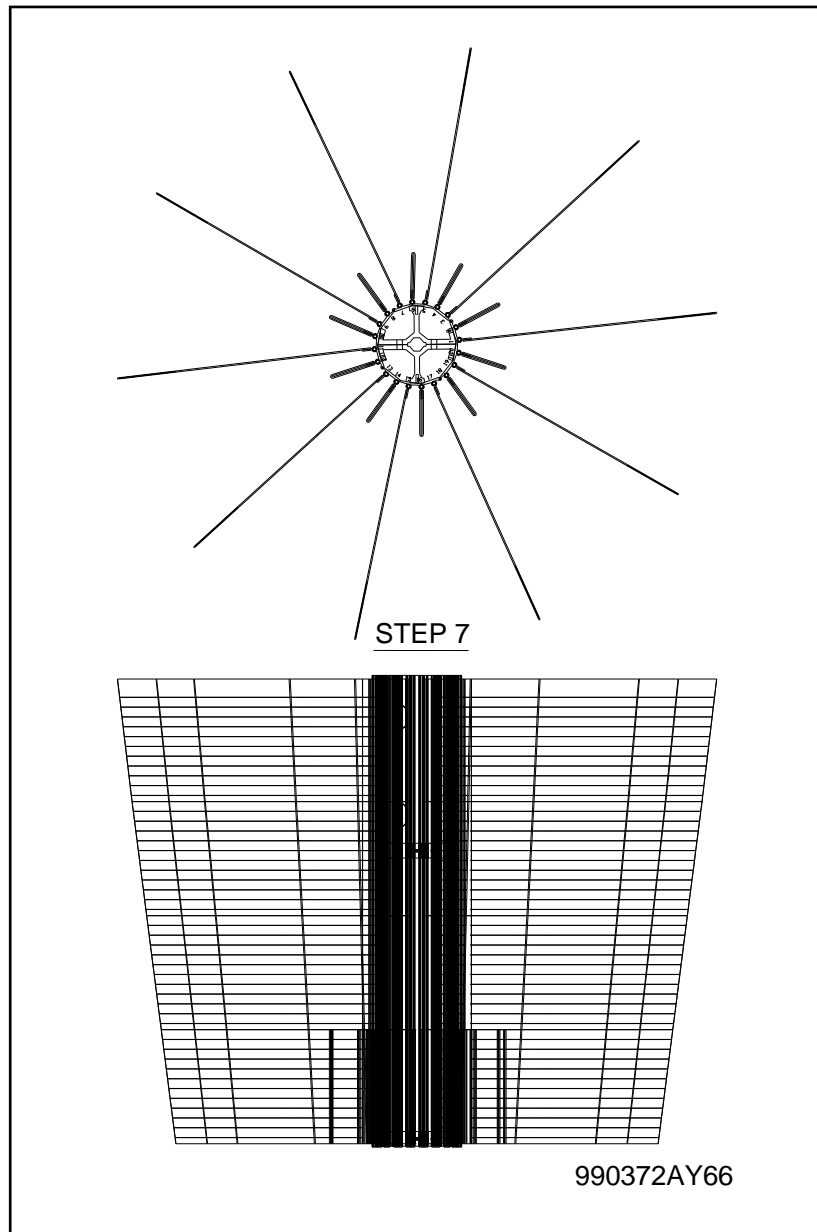


- Slide the 11 5/8" HIGH x 20"- 21 1/2" LONG 1 PLY CLOTH all the way down until they stop at the lower edge of the upper core. Place these in slots 1, 3, 5, 7, 9, 11, 13, 15, 17, and 19. Repeat for each upper core.



# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

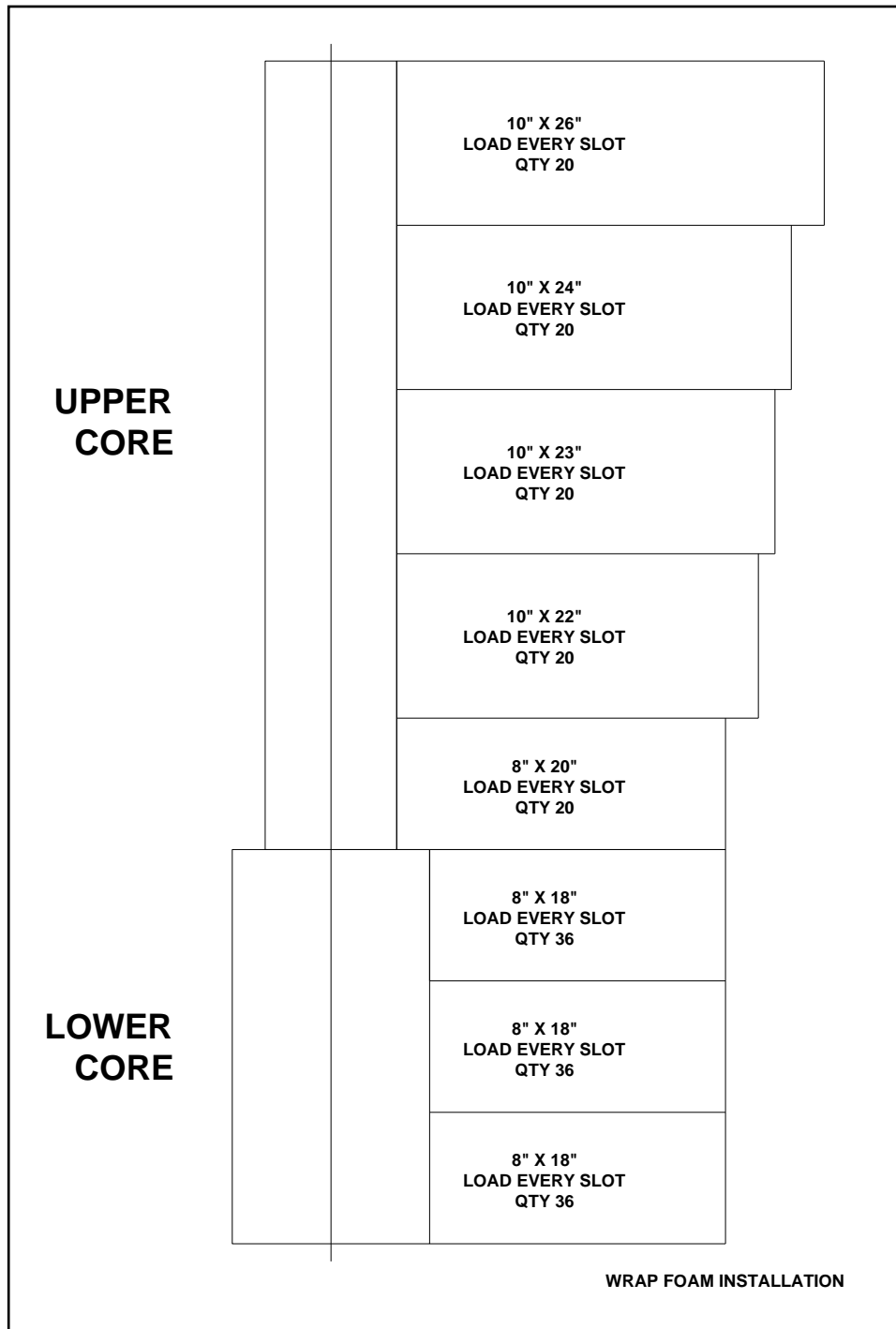
5. Slide the 11 5/8" HIGH x 21 1/2" - 23" LONG 1 PLY CLOTH all the way down until they stop at the lower edge of the upper core. Place these in slots 1, 3, 5, 7, 9, 11, 13, 15, 17, and 19. Repeat for each upper core.
6. Slide the 11 5/8" HIGH x 23"- 24 1/2" LONG 1 PLY CLOTH all the way down until they stop at the lower edge of the upper core. Place these in slots 1, 3, 5, 7, 9, 11, 13, 15, 17, and 19. Repeat for each upper core.
7. Slide the 11 5/8" HIGH x 24 1/2" - 26" LONG 1 PLY CLOTH all the way down until they stop at the lower edge of the upper core. Place these in slots 1, 3, 5, 7, 9, 11, 13, 15, 17, and 19. Repeat for each upper core.



# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

## Wrap Foam Installation Procedure

1. Completely fill the Lower and Upper Cores as shown below.



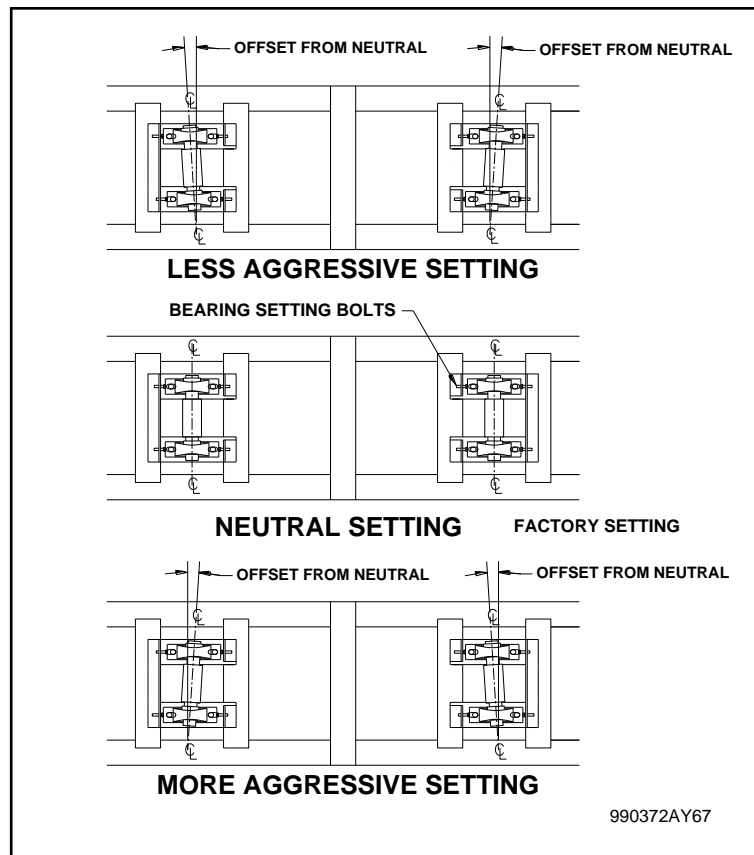
# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

## Wrap Operation Adjustments

### More Aggressive vs. Less Aggressive:

The more aggressive the setting of the Flex Wrap, the quicker the wrap will close and wrap around the rear of vehicles. A unit that is set up less aggressive will not clean the backs of vehicles as good at a higher line speed. However, the more aggressive setting can cause the brushes to climb vehicles and cause damage at a lower line speed. It is important to set the aggressiveness based on the line speed of the conveyor. It should take 6 to 7 seconds for the arms to move from the retracted position to the centerline position. **Initially, a little less aggressive is better than too aggressive.** During initial startup and break-in, you may be tempted to increase the aggressiveness of the machine. The new cloth is relatively stiff during this time. However, as the cloth breaks in, cleaning performance will increase. Foam brushes do not require a long break-in time. Injecting soap into the water supply line will quiet the cloth, improve performance decrease break-in time, and reduce damage claims.

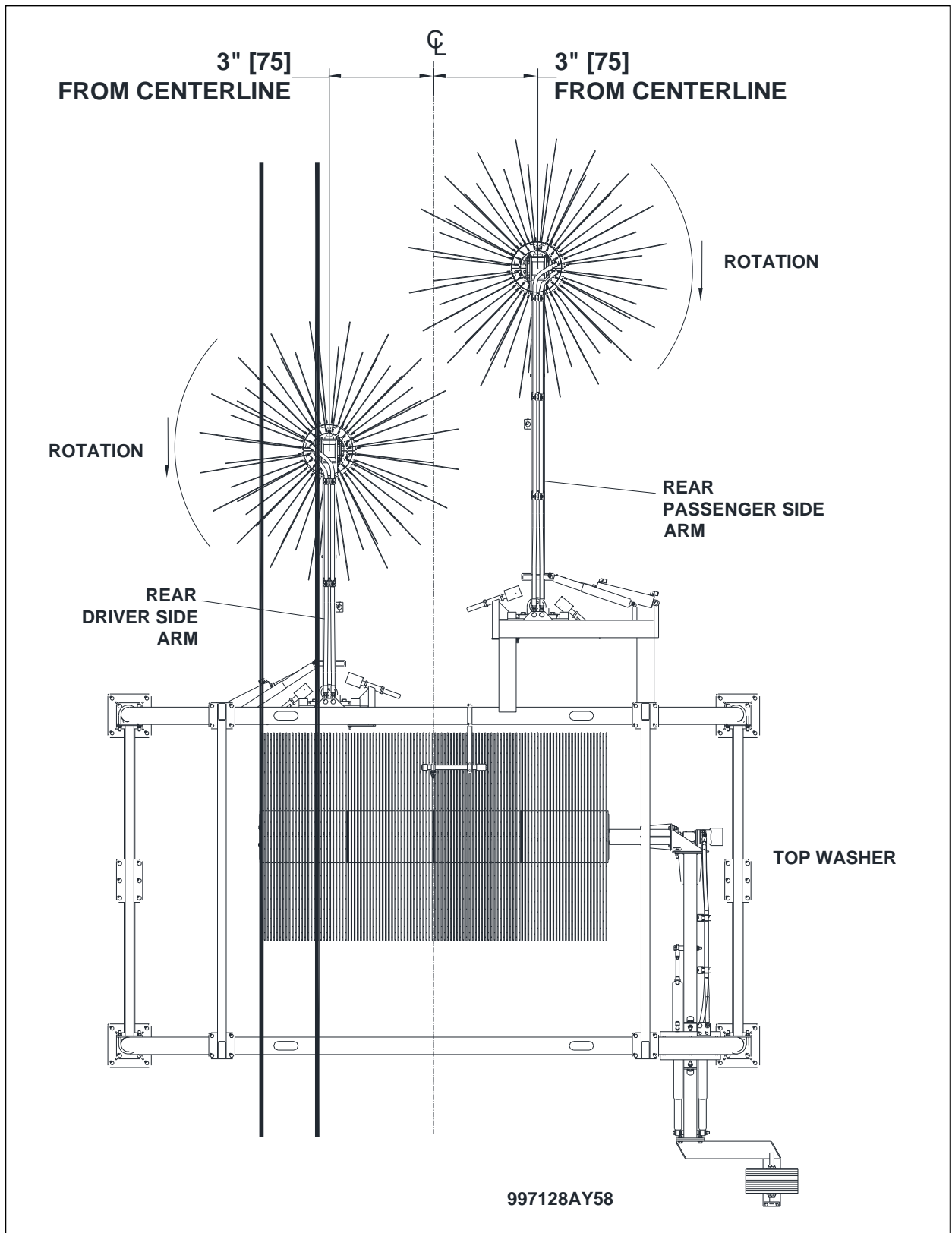
1. Loosen the pillow block bearings and adjust the bearing setting bolts to decrease the amount of aggressiveness in the Flex Wrap. The brushes should be set so they just fall towards the centerline. Once the pillow blocks have been set, tighten the attachment bolts to fully secure the bearings.



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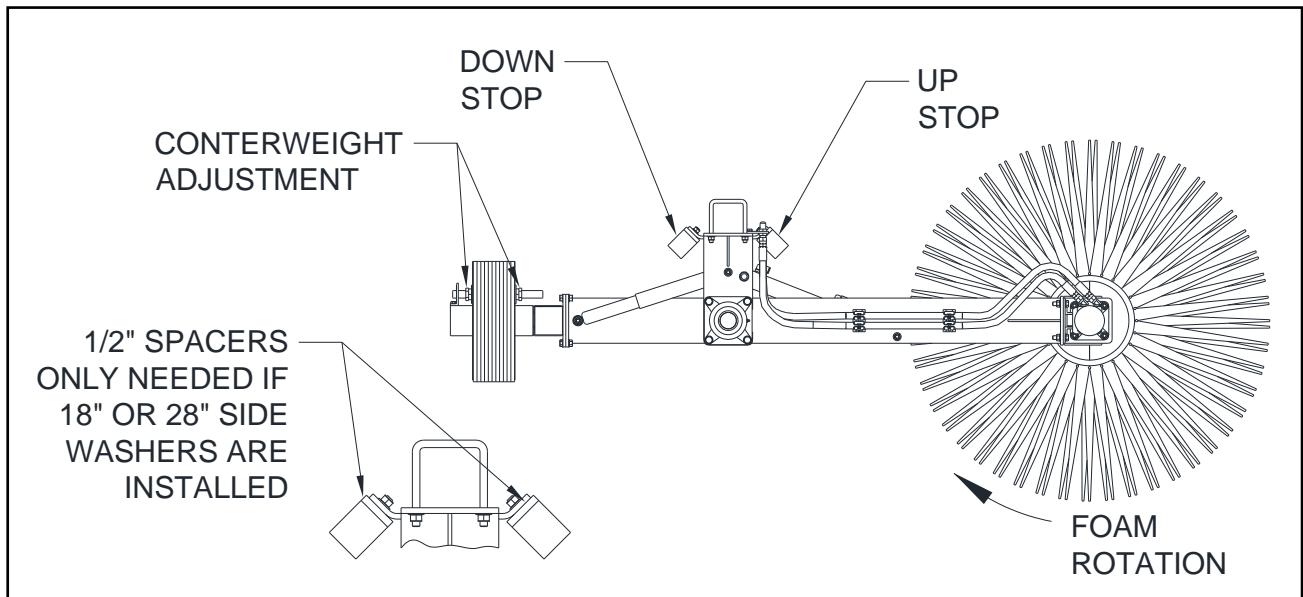
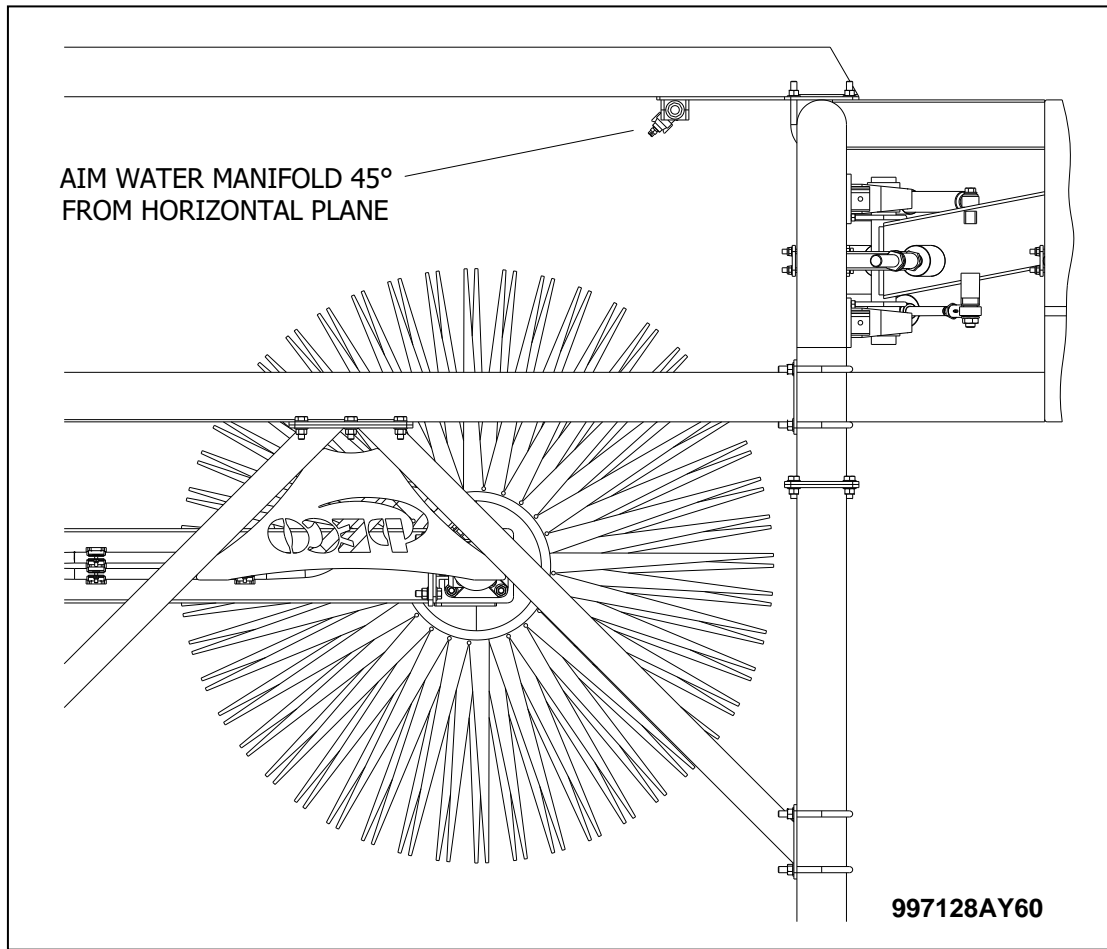
2. Now set the wash and retract stops. Refer to the above diagram. The center of the brush cores must not get any closer to the centerline than the dimensions shown above. Adjust the rest stops to allow the brushes to completely retract (approximately 60 inches (1524mm) from the unit centerline to the center of the brush core). Ensure the retaining nuts are secured and tight. Use a thread locking compound for an added measure of security.
3. Remove the Nozzle Bodies from the manifold prior to start-up. Run the water supply to flush out all particles from the water supply lines. This will lessen the chances of plugging the nozzle tips. Reinstall the nozzles after flushing the water supply lines.
4. Wrap Brush rotation spins in a direction that tends to speed the vehicle up. This unit is designed to rotate at 60-70 RPM for cloth material. Foam brushes should spin at 85-100 RPM. Faster or slower speeds than these designated parameters may damage vehicle or equipment.
5. Make sure all hydraulic connections are tight. Start the hydraulic unit and slowly open the flow to increase the brush RPM. Check rotation of each core. They need to rotate in the direction shown above.
6. The retract cylinders on the unit are used to push the wrap arms away from the centerline. When no power is supplied to the 4W1 valve, the brush arms should be in the retracted position. Set the regulator to 60 psi for initial start-up. Activate the solenoid to release air pressure to the wrap arms. The arms should move toward the centerline. This motion should take approximately 6 to 7 seconds. Deactivate the solenoid and the arms will retract. Repeat this process with the hydraulic unit on and the brushes spinning at the appropriate rpm. Make any final adjustments to the air pressure.
7. Alternate Set Up: If a PECO Wheel Washer is installed under a Combo Unit, plumb the 4W1 valve so the wrap arms are not retracted when the 4W1 valve has no power. The wrap arms will retract when the 4W1 is energized.

# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

## Top Washer Operation Adjustments

1. It is strongly suggested to have a handheld scale to measure the weight of the brush. Any sport fishing scale will work. A handheld scale (Straight Scale) Part Number 5A354 can be ordered from Grainger.
2. Thoroughly soak the foam brush with water before making the weight measurement and adjustment. Aim the water manifold to spray the foam brush in the up and down position. Position the weight plates to achieve a measured brush weight of 10 to 15 lbs (4.5kg to 6.8kg). Use a handheld scale to measure the brush weight. Attach the scale to the motor housing and lift the brush to measure the load. Over time the foam will absorb water and get heavier. The weight plates will need to slide further away from the pivot point to compensate for this added brush weight. Add a weight plate and adjust the position of the plates over time as necessary.
3. Do not allow the foam end of the top washer to get heavier than the measured 15lbs (6.8kg).
4. Up Stop & Down Stop – Remove 1/2” spacers unless 18” or 28” Side Washers are being mounted.
5. The Foam Brush must rotate in the direction that will tend to hold the vehicle back. See the diagram below. Swap the hydraulic supply and return lines at the power pack if necessary. The foam top washer brush should rotate between 85 and 95 rpm.
6. Soap must be applied to the vehicle surface prior to entering the Top Washer. Washing without a lubricant will severely limit the life of the foam and may cause vehicle damage. Use a Chemical Injector or a Foam Applicator for proper lubrication coverage.
7. Adjust the air pressure so the Top Washer Arm retracts to the Up Position in a slow, steady motion. Make this adjustment at the regulator for the retract solenoid. The arm must not slam into the Up Position. Start with an initial regulator setting of 80 psi. Adjust the air pressure up or down to achieve the desire, smooth, steady motion without slamming against the Up Stop.
8. If the wash site is shut down for extended periods of time, you will need to saturate the Foam Brush with water or decrease the Counterweight on the Brush Arm prior to opening the wash for business. Ensure the measured weight of the foam brush is between 10 to 15lbs (4.5kg to 6.8kg).

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## Maintenance Schedule

Maintenance Performed	Daily	Weekly	Monthly	6-Months	Yearly
Grease Bearings		X			
Check Cloth and Foam Condition			X		
Check Air Cylinders and Stabilizers		X			
Replace All Wrap and Top Washer Stabilizers					X
Check the Up Stop and Down Stop on the Top Washer for Wear and Function		X			
Replace the Up Stop and Down Stop on the Top Washer					X
Check Bearings and Brush Shaft for Looseness			X		
Check Hydraulic Motor Shaft Seal for Leakage			X		
Check Hose & Fittings for Leakage			X		
Check Water Nozzles for Blockage	X				
Check bolts and lags for tightness			X		
Clean Structure (Wash Down)			X		
Check Foam Brush Condition	X				
Measure Foam Brush weight with Hand Held Scale.		X			

### Stainless Steel Care

ALWAYS	NEVER
Wash down structure monthly or as often as necessary. Use mild soap and water. Zud works very well.	Use coarse abrasives like sandpaper or steel wool.
Remove all rust spots as soon as possible with a brass, silver, or chrome cleaner. Irreversible pitting will develop under rust that remains on stainless for any period of time.	Clean with mineral acids or bleaches
Use a good car wax, for added protection in harsh chemical environments.	Leave stainless in contact with iron, steel, or other metals which cause contamination leading to rust or corrosion

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# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

## Recommended Replacement Parts List

Part Number	Description	Comments
40013752	HYD MOTOR SEAL KIT	
10016101	WA-SHOCK, ARM STABILIZER (GAS BAG)	
10015882	MOTOR-HYDRAULIC	
10014593	CYLINDER, 2-1/2 BORE x 10 STROKE (W/SS SHAFT	WRAP CYLINDER
20021846	WA-HEAD PIVOT-SS	
10008238	CYLINDER, 2 BORE x 9 STROKE (W/SS SHAFT	TOP WASHER RETRACT CYLINDER

# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

## Trouble Shooting Chart

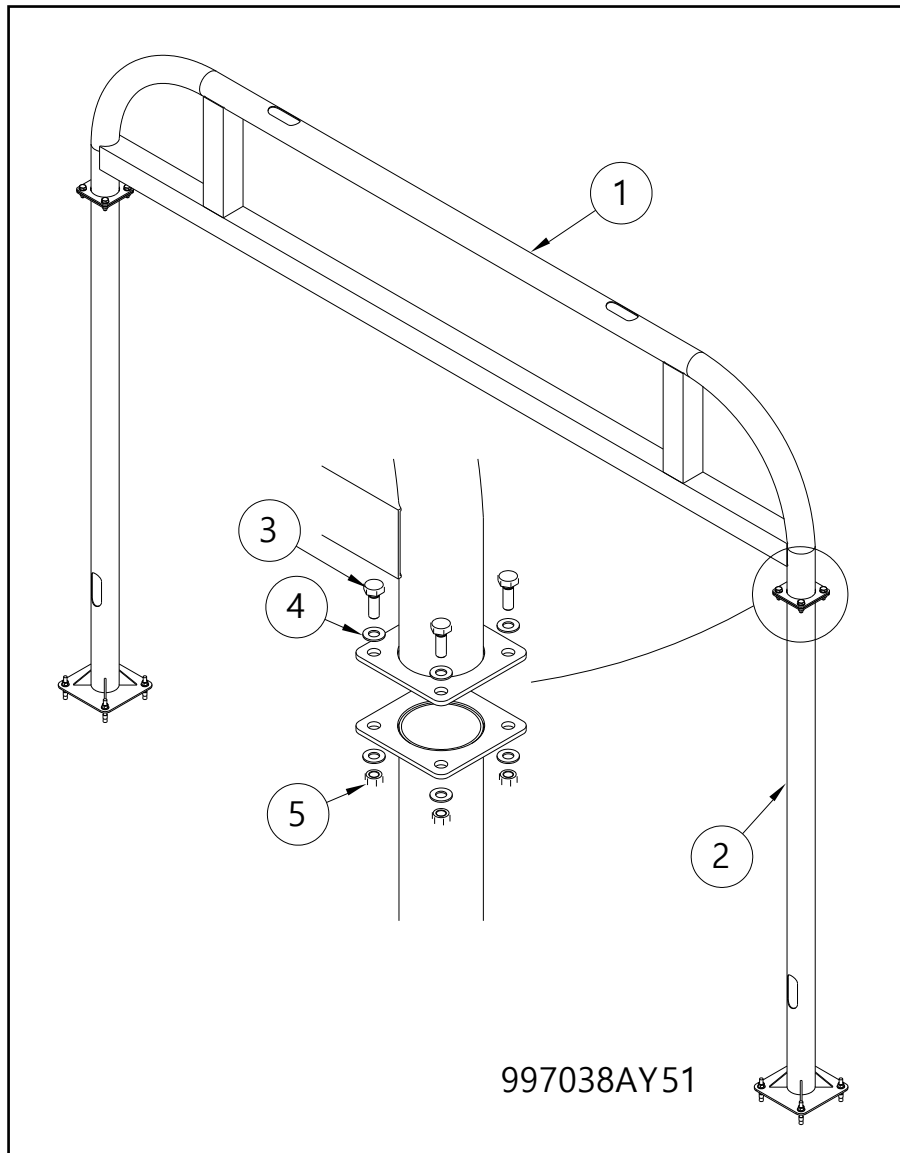
Trouble	Possible Cause	Probable Remedy
Brush bouncing or oscillating against vehicle.	Stabilizers worn	Replace stabilizer
	Missing cloth or foam panels	Inspect core for missing cloth or foam panels. Replace as necessary
Brush stalls when contacting vehicle	Loose coupling between motor and brush shaft if only one side stalls.	Inspect and replace if necessary.
	Hydraulic pressure relief valve is set to low	Slightly increase pressure valve at hydraulic unit until unit spins at a constant RPM when contacting vehicle surface.
	Hydraulic motor	Motor may have debris inside or motor may be worn. Inspect, clean, and replace if necessary.
	Wrap Arm set too aggressive	Adjust pillow block bearings to reduce aggressiveness.
	Retract stops set too far in toward centerline	Adjust stops to allow arms to open wider.
Hydraulic leak	Fitting is loose or damaged	Tighten fitting or replace
	Hole in hose	Replace hose
	Motor/Shaft seal worn	Rebuild with seal kit
Wrap Brush swings fast across rear of vehicle	Arm set to aggressive	Adjust pillow block bearings to reduce aggressiveness.
Wrap Brushes not returning to wash position	Cloth dragging on floor or guide rail.	Raise cores to clear obstruction.
	Arms not set aggressive enough.	Adjust pillow block bearings to increase aggressiveness.
	Shocks are worn.	Replace shocks.
Retract function not working.	Solenoid clogged or worn.	Clean valve and supply line or replace as necessary.
	Air cylinder clogged or worn.	Clean cylinder and supply line or replace as necessary.
Wrap Brush arms not washing rear of vehicles.	Arms not set aggressive enough.	Adjust pillow block bearings to increase aggressiveness.
	Brush speed too low.	Increase flow from hydraulic unit to 60 rpm.
Water not spraying.	Check for plugged Nozzles	Clean or replace nozzles
	Check water solenoid	Clean or replace solenoid
Top Washer Brush stays in up position	Counterweight too heavy	Adjust Counterweight position closer to main pivot point or reduce the number of weight plates on the arm. Ensure the Foam brush weighs between 10lbs to 15 lbs.
	Moisture has migrated out of the Foam Brush	Saturate the Foam Brush and adjust counterweight position if necessary. Ensure the Foam brush weighs between 10lbs to 15 lbs.

# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

## Top Washer Arch Replacement Parts List

ITEM #	PART #	DESCRIPTION	QTY
1	20021894	AR-HEADER-SS, T800s	1
2	20021709	MWC-LEG-SS, MITTER/WRAP SUPPORT	2
3	10005675	BOLT-HEX-SS, 1/2-13 x 1-1/2	8
4	10016435	WASHER-FLAT-SS, 1/2 SAE	16
5	10004704	NUT-NYLON INSERT-SS, 1/2 - 13	8
6	10014552	ANCHOR-WEDGE-SS, 1/2 x 3-3/4	8

## Top Washer Arch Replacement Parts Diagram



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# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

## Rear Offset Wrap Replacement Parts List

ITEM #	PART #	DESCRIPTION	QTY
1	20021847	WA-FRAME-SS, WA721RO	1
2	20021709	MWC-LEG-SS, MITTER/WRAP SUPPORT	2
3	20021853	WA-JOG ARM-SS, WA721FS/RO D/S	1
4	20021854	WA-JOG ARM-SS, WA721FS/RO P/S	1
5	20021852	WA-REST STOP BKT-SS, WA720	2
6	20021856	WA-ARM SWIVEL PIN-SS, WA720	2
7	20021855	WA-HEAD SWIVEL PIN-SS, WA720	2
8	20021846	WA-HEAD PIVOT-SS	2
9	20021850	WA-HEAD-SS, WA720 BEARING/MOTOR	2
10	10014687	WA-TORQUE PLATE-UHMW, MOTOR PE372 (GREEN)	2
11	10014653	SHAFT-STL, 1-1/2 80"L STRESS PROOF (MFG ONLY)	2
12	10014581	CORE-ALUM, BOTTOM 12" DIA (24"L) PE372	2
13	10014584	CORE-ALUM, 10" DIA x 48"H TOP (PE372)	2
14	20021546	WA-MANIFOLD-PVC, D/S COMPLETE	2
15	10014574	CLAMP-PLASTIC, 3/4 PIPE GR4 (STAUFF)	2
16	10014593	CYLINDER 2 1/2" BORE x 10" STROKE W/ SS SHAFT	2
17	10016101	WA-SHOCK, ARM STABILIZER (GAS BAG/RED)	6
18	10016136	BRG-ROD END-3/4, STD FM	2
19	10016003	CLAMP-SS, 3/4" UNISTRUT TUBE (W/INSERT)	10
20	10005911	BRG-PB-2, STD	4
21	10016615	WA-BUSHING-UHMW, UPPER HEAD PIVOT	4
22	20021542	WA-STOP-URETHANE, BUMPER, BLACK (PE372/720/960/196)	4
23	10016159	WA-ROD-SS, (12") OVER-TRAVEL STOP PE372	4
24	10016616	WA-BUSHING-UHMW, LOWER HEAD PIVOT	4
25	10015895	BRG-4B-1 1/2, STD	2
26	10015894	BRG-2B-1 1/2, STD	2
27	10016582	WA-PIVOT STOP SLEEVE-UHMW, ARM 2.9375"	4
28	20021845	WA-PIVOT STOP SLEEVE-UHMW, HEAD 4.9375"	4
29	10015882	MOTOR-HYD, 103-1004 CHAR-LYNN (9.7 IN.-3/REV 4B)	2
30	40012641	COUPLING-PLT, 1" 2-BOLT SPLIT (ZINC PLATED)	2
31	10015845	KEY STOCK-PLN, 1/4" x 1/4" (12" LENGTH)	2
32	10014646	SET COLLAR-STL, 1-1/2 SOLID (PLATED)	4
33	10015736	ELBOW-PLT, 1/2 JIC x 1/2 NPT (EXTRA LONG)	4
34	10015737	ELBOW-PLT, 1/2" JIC 90 DEG BULKHEAD	4
35	10015776	CRIMP FTG-PLT, AEROQUIP 1/2 JIC x 1/2 HOSE	8
36	10015799	ELBOW-PLT, 3/8 POLY x 3/8 NPT (90 DEG) (PUSHLOCK)	4
37	10015935	NUT-NYLON INSERT-PLT, 3/8 - 16	4
38	10015977	BOLT-HEX-PLT, 3/8-16 x 1-1/2 GR5 (MFG ONLY)	4
39	10016378	BOLT-HEX-SS, 1/2-13 x 2-1/2	2
40	10010067	BOLT-HEX-SS, 1/2-13 x 3	4

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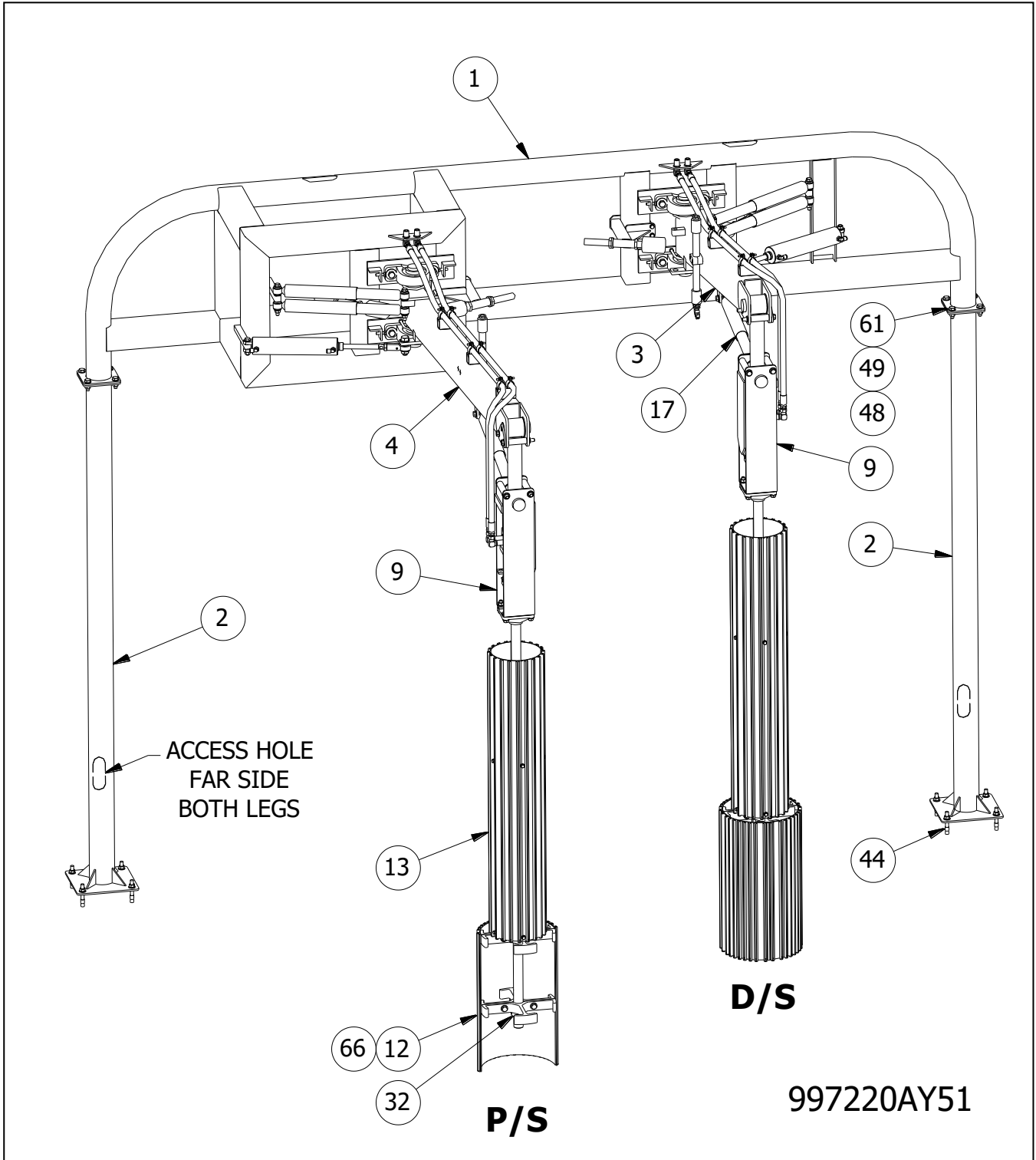
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## TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

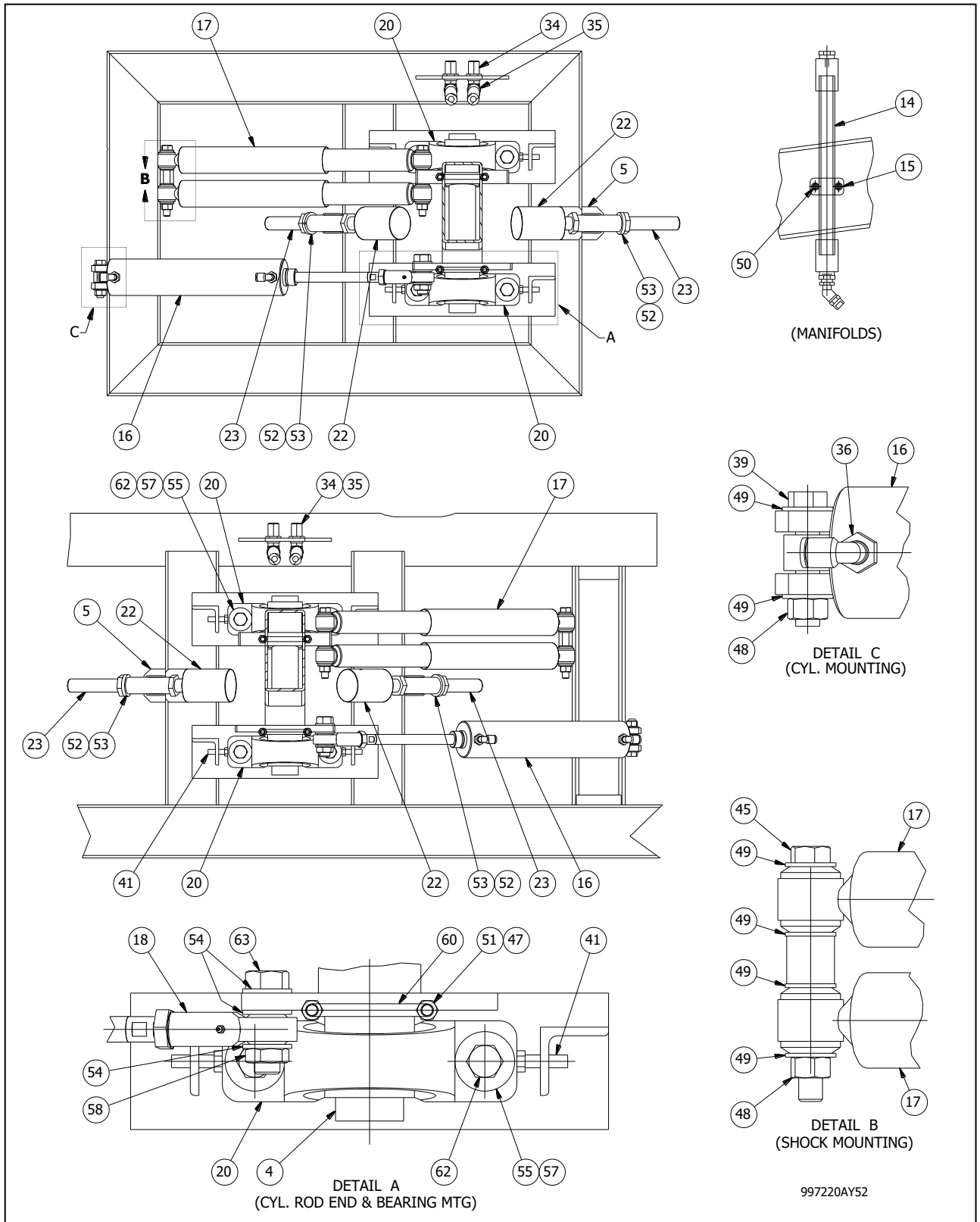
ITEM #	PART #	DESCRIPTION	QTY
41	10005648	BOLT-HEX-SS, 3/8-16 x 1-1/4	8
42	10011340	BOLT-HEX-SS, 3/8 - 16 x 5-1/2	4
43	10009664	BOLT-HEX-SS, 1/2-13 x 6 1/2	4
44	10014552	ANCHOR-WEDGE-SS, 1/2 x 3-3/4	8
45	10006294	BOLT-HEX-SS, 1/2 - 13 x 5	8
46	10016430	BOLT-SOCKET-SS, 3/8 - 16 x 3/4	8
47	10016434	WASHER-FLAT-SS, 3/8 SAE	16
48	10004704	NUT-NYLON INSERT-SS, 1/2 - 13	26
49	10016435	WASHER-FLAT-SS, 1/2 SAE	84
50	10016438	BOLT-SOCKET-SS, 1/4 - 20 x 1-3/4	4
51	10016442	NUT-HEX-SS, 3/8 - 16	8
52	10016443	NUT-HEX-SS, 1 - 8 JAM	8
53	10016447	WASHER-LOCK-SS, 1	4
54	10016448	WASHER-FLAT-SS, 3/4 SAE	6
55	10016450	WASHER-FLAT-SS, 5/8 USS	16
56	10004512	NUT-NYLON INSERT-SS, 3/8 - 16	12
57	10016457	NUT-NYLON INSERT-SS, 5/8 - 11	8
58	10016460	NUT-NYLON INSERT-SS, 3/4 - 10 JAM	2
59	10016469	NUT-NYLON INSERT-SS, 1/2 - 13 JAM	12
60	10014670	U-BOLT-SS, 3/8-16 x 3 x 5 RD (1-1/2 THREAD)	4
61	10005675	BOLT-HEX-SS, 1/2-13 x 1-1/2	8
62	10016375	BOLT-HEX-SS, 5/8-11 x 2-1/2	8
63	10016374	BOLT-HEX-SS, 3/4 - 10 x 2-1/2	2
64	10006164	BOLT-HEX-SS, 1/2-13 X 1-3/4	12
65	10006164	HOSE-1/2, HYDRAULIC 2000 PSI (AEROQUIP)	1
66	372000	CLOTH-SET, WA720/PE372 (EQUIPMENT)	1

# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

## Rear Offset Wrap Replacement Parts Diagram



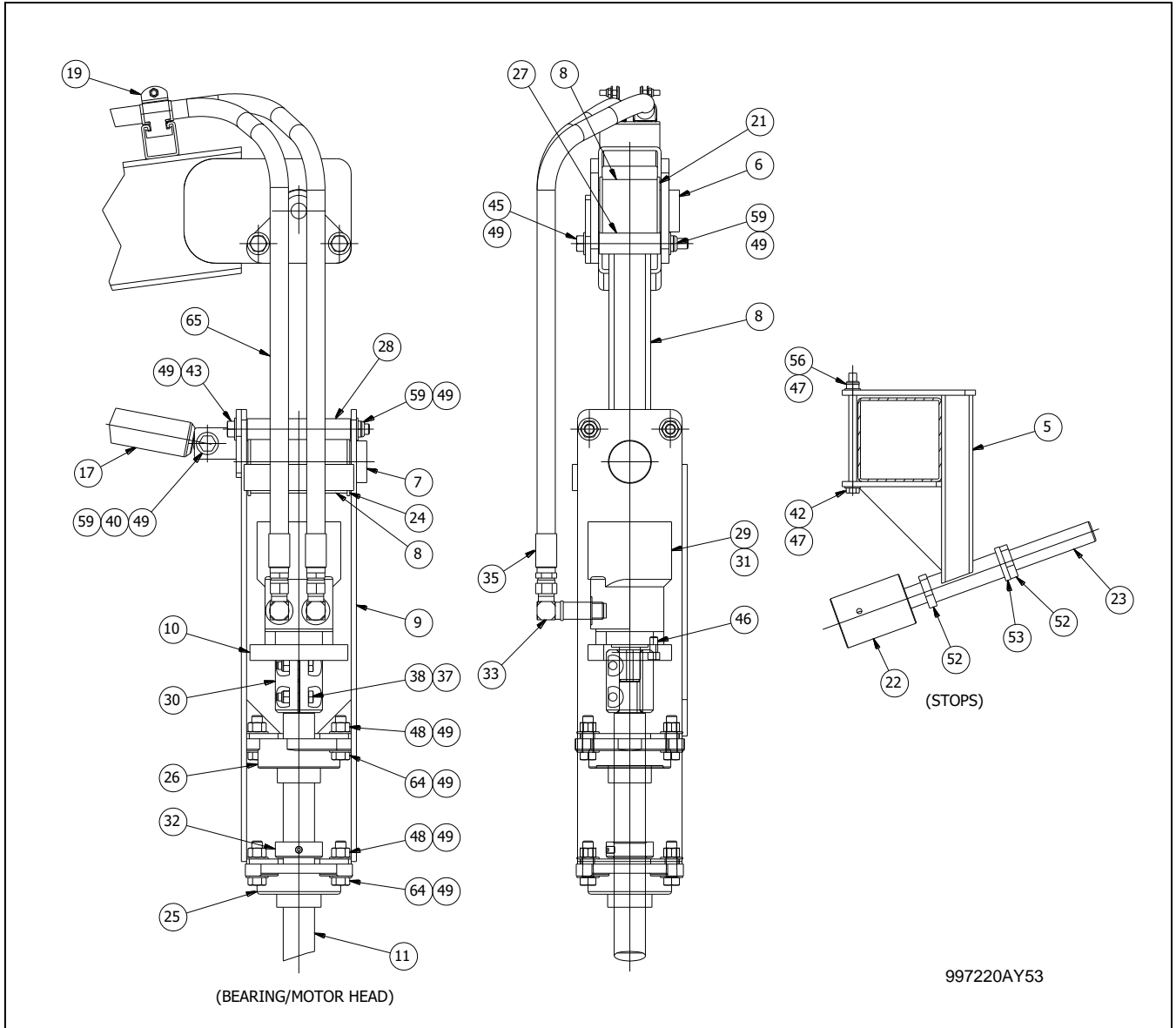
# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD



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# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD



# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

## Top Washer Replacement Parts List

ITEM	PART #	DESCRIPTION	QTY
1	10001303	CAP-PLASTIC, 1/4 NPT FM (WET BOOM)	1
2	10001415	ELBOW-PLT,1/2 JIC X 1/2 NPT (45 DEGREE)	2
3	10003207	NUT-NYLON INSERT-SS, 1/4 - 20	2
4	10004512	NUT-NYLON INSERT-SS, 3/8 - 16	12
5	10004704	NUT-NYLON INSERT-SS, 1/2 - 13	26
6	10005402	BOLT-HEX-SS, 3/8 - 16 x 1	2
7	10005626	BOLT-HEX-SS, 1/2 - 13 x 1-1/4	4
8	10005648	BOLT-HEX-SS, 3/8-16 x 1-1/4	8
9	10006164	BOLT-HEX-SS, 1/2-13 X 1-3/4	8
10	10006332	BOLT-HEX-SS, 1/2 - 13 x 2	8
11	10006922	BOLT-HEX-SS, 1/2-13 x 3-1/2	2
12	10009468	BOLT-HEX-SS, 1/2 - 13 x 8	1
13	10011099	BOLT-HEX-SS, 1/2-13 x 6	1
14	10012879	BOLT-HEX-SS, 3/8 - 16 x 1-1/2	2
15	10014557	BRG-4B-2 3/16, STD	2
16	10014574	CLAMP-PLASTIC, 3/4 PIPE GR4 (STAUFF)	1
17	10014592	CYLINDER 2" BORE x 9" STROKE W/ SS SHAFT	1
18	10014622	NOZZLE BODY-PLASTIC, 3/4 WET BOOM (HINGED)	1
19	10014653	SHAFT-STL, 1-1/2 80"L STRESS PROOF (MFG ONLY)	1
20	10014672	U-BOLT-SS, 1/2-13 x 4 x 5-1/4 SQ (1-3/4 THREAD)	3
21	10014673	U-BOLT-SS, 3/8-16 x 4 x 4-3/4 RD (1 THREAD)	1
22	10015756	BULKHEAD-PLT, CONNECTOR 1/2 x 1/2 (W/NUT)	2
23	10015799	ELBOW-PLT, 3/8 POLY x 3/8 NPT (90 DEG) (PUSHLOCK)	2
24	10015845	KEY STOCK-PLN, 1/4" x 1/4" (12" LENGTH)	1
25	10015882	MOTOR-HYD, 103-1004 CHAR-LYNN (9.7 IN.-3/REV 4B)	1
26	10015895	BRG-4B-1 1/2, STD	1
27	10015898	BRG-ROD END-1/2, STD FM	1
28	10015940	SCREW-WET BOOM-SS, SELF TAPPING	1
29	10016003	CLAMP-SS, 3/4" UNISTRUT TUBE (W/INSERT)	4
30	10016100	BRG-4B-1 1/2, STD PILOTED	1
31	10016101	WA-SHOCK, ARM STABILIZER (GAS BAG/RED)	2
32	10020019	TW-STOP ASSEMBLY 2-1/2" X 3"	2
33	10016166	TB-TORQUE FRAME-SS, MOTOR MOUNTED	1
34	10016168	GASKET-HYPRO, RUBBER NOZZLE CAP	1
35	10016378	BOLT-HEX-SS, 1/2-13 x 2-1/2	1
36	10016381	BOLT-HEX-SS, 3/8-16 x 3	4
37	10016391	BOLT-BUTTON HD-SS, 3/8-16 x 3 SOCKET	8
38	10016420	BOLT-SOCKET-SS, 1/4 - 20 x 2-1/4	2
39	10016422	BOLT-SOCKET-SS, 5/16 - 18 x 3/4	20
40	10016427	BOLT-SOCKET-SS, 1/4 - 20 x 3/4	4
41	10016430	BOLT-SOCKET-SS, 3/8 - 16 x 3/4	4
42	10016432	BOLT-SOCKET-SS, 3/8 - 16 x 1-1/4	2

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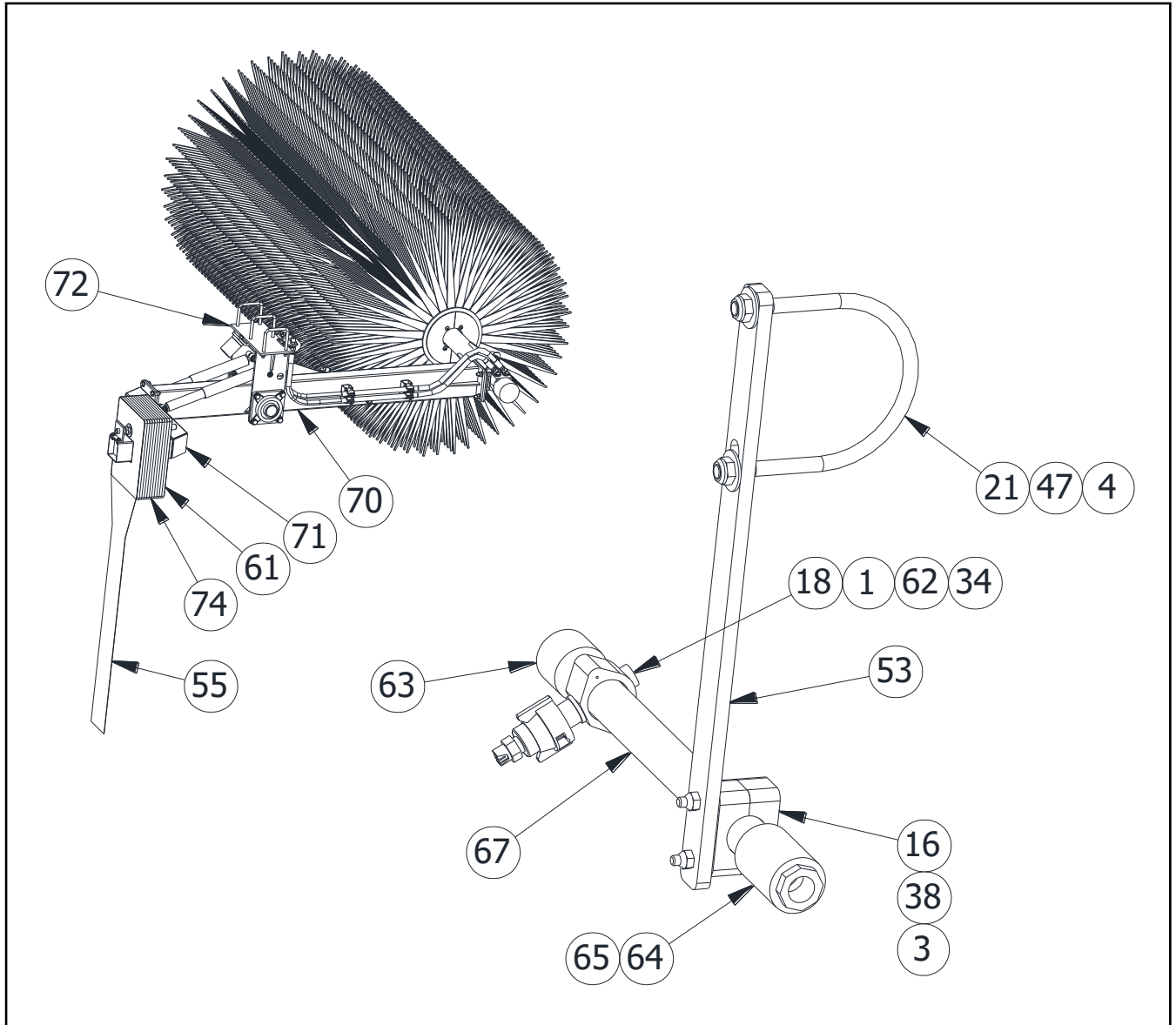
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# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

ITEM	PART #	DESCRIPTION	QTY
43	10016433	NUT-NYLON INSERT-SS, 3/8 - 16 JAM	2
44	10016434	WASHER-FLAT-SS, 3/8 SAE	16
45	10016435	WASHER-FLAT-SS, 1/2 SAE	60
46	10016443	NUT-HEX-SS, 1 - 8 JAM	4
47	10016449	WASHER-FLAT-SS, 3/8 USS	2
48	10016452	WASHER-LOCK-SS, 3/8	10
49	10016454	WASHER-LOCK-SS, 5/16	20
50	10016466	WASHER-FLAT-SS, 5/16 SAE	20
51	10016468	WASHER-FLAT-SS, 1" USS (1" ID x 2-1/2" OD)	2
52	10016469	NUT-NYLON INSERT-SS, 1/2 - 13 JAM	5
53	10016620	AR-BKT-ALUM, SETTING ATTACHMENT	1
54	10016650	TB-SS, T800 BRG SHIM (LASER)	1
55	10016655	TB-PANEL-YELLOW SAFETY HANG DOWN	1
56	10016657	TB-CORE CLAMP-ALUM, T800	6
57	10016658	TB-CORE BKT-ALUM, T800 END	4
58	10016659	TB-CORE CHANNEL-ALUM, T800	4
59	10016660	TB-BRUSH CLAMP-ALUM, T800 (LASER)	2
60	10016661	TB-BRUSH PLATE-ALUM, T800 (LASER)	1
61	10016663	TB-SIGN-ALUM, COUNTERWEIGHT SAFETY"CAUTION-MOVING MACHINERY"	2
62	10016682	NOZZLE-PLASTIC-1/4, 8020 VEEJET	1
63	10017088	CAP-PVC, 3/4 SOCKET SCH80 (GREY)	1
64	10017090	COUPLING-PVC, 3/4 SOCKET SCH80 (GREY)	1
65	10017091	BUSHING-PVC, 3/4 SOCKET x 1/2 NPT SCH80 (GREY)	1
66	20021555	SW-TORQUE BLOCK-UHMW (ALUMINUM CHANNEL TYPE)	1
67	10017071	PIPE-PVC, 3/4 SCH80 (GREY) (20' LENGTHS)	1
68	20021749	TW-BULKHEAD PLATE-SS, RETRACT FITTING	1
69	20021844	WA-CLAMP BKT-SS, UNISTRUT (720/800)	2
70	20021912	TB-ARM-SS, T800s	1
71	20021913	TB-WEIGHT MOUNT-SS, T800s	1
72	20021914	TB-ARM MOUNT-SS, T800s	1
73	20021915	TB-WEIGHT STOP-SS, T800	1
74	20021916	TB-WEIGHT-GALV, T800	11
75	20021918	TB-BRUSH HEAD-SS, T800s	1
76	10016077	HOSE-FLEXFLO-TB, 1/2" x 63" (BLACK)	1
77	10016078	HOSE-FLEXFLO-TB, 1/2" x 63" (RED)	1
78	40012641	COUPLING-PLT, 1" 2-BOLT SPLIT (ZINC PLATED)	1
79	40013914	FOAM-SET, 48" x 80" T800/PE831 SOFT-FLEX (EQUIPMENT)	1
80			
81			

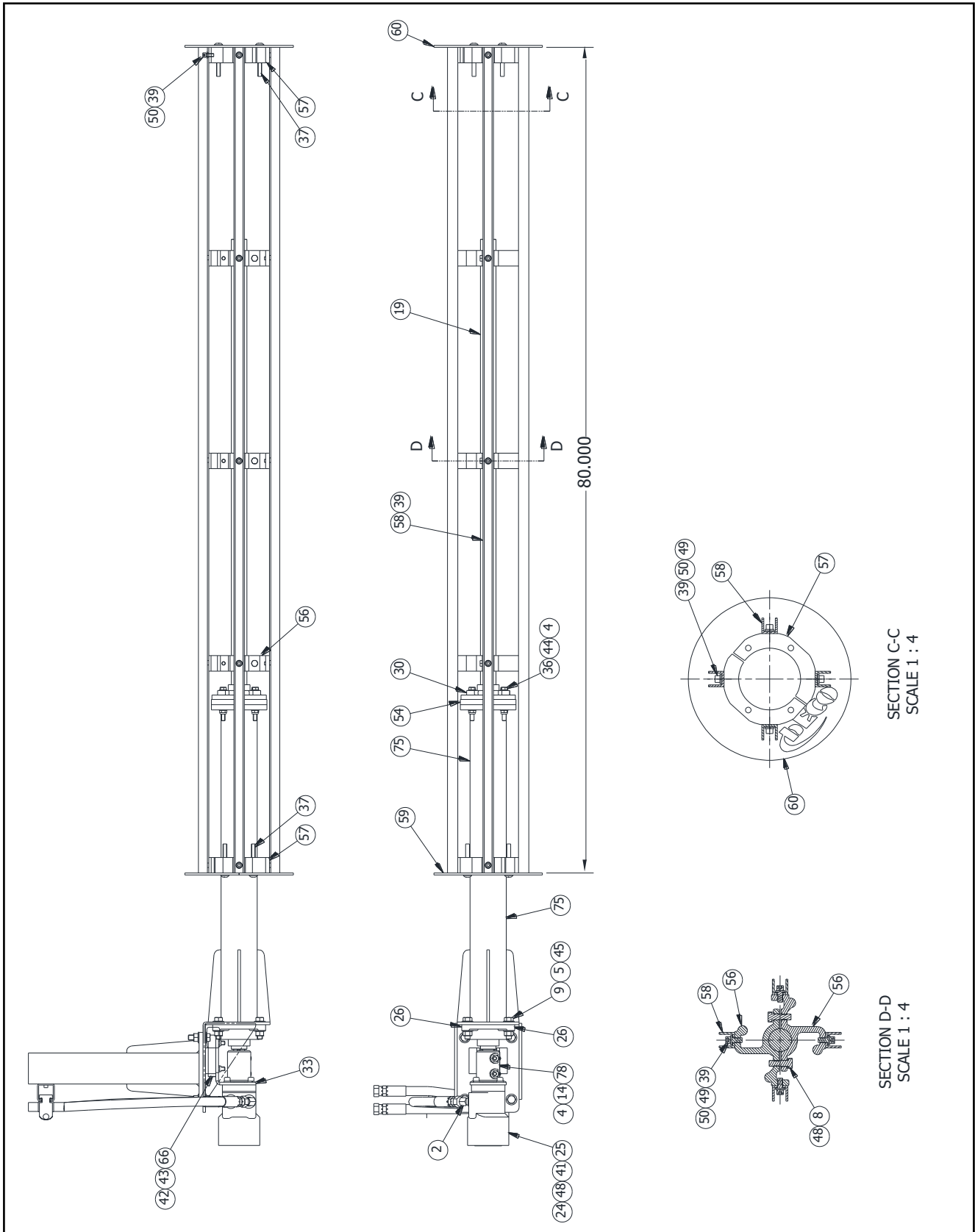
# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

## Replacement Parts List Diagrams





# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD



SECTION C-C  
SCALE 1 : 4

SECTION D-D  
SCALE 1 : 4

# TWC1102s/h TOP WASHER WRAP COMBO UNIT HYD

Packed By:	Date: / /
Inspected By:	Date: / /

Serial #

## Packing List

**TWC1102s/h 20022109**

TOPWASHER WRAP COMBO-TW/RO (SS)

Part Number	Description	Qty.	Shipped
20022136	MWC721RO REAR OFFSET WRAP (SS) (SEE PACKING LIST #20022136)	1	_____
20022183	TWC800s TOPWASHER CARTRIDGE (SS) (SEE PACKING LIST #20022183)	1	_____
20022108	TWAs T800 ARCH (SS) (SEE PACKING LIST #20022108)	1	_____
20022109ML	MANUAL, TWC1102s/h	1	_____