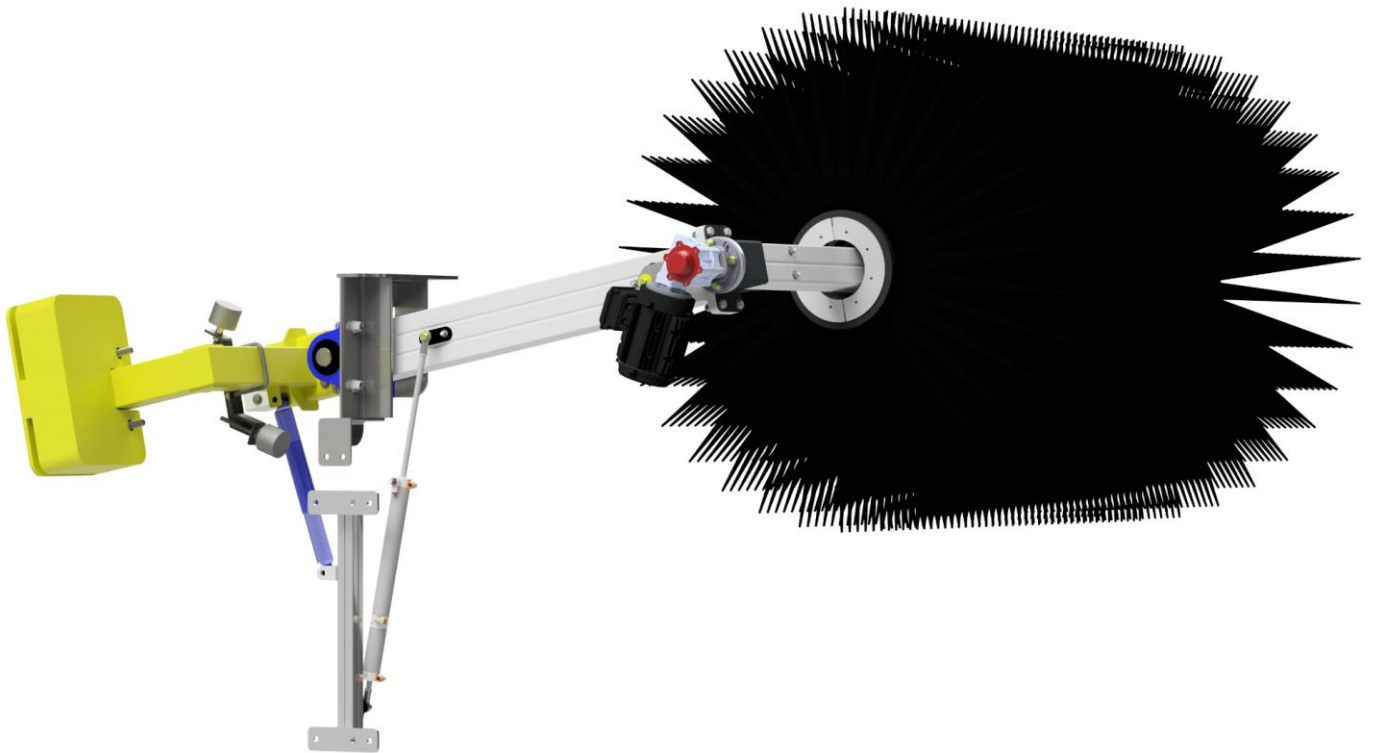




Compact Top Brush



Owner's Manual

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

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SAFETY REQUIREMENTS

****WARNING****

1. All employees must be thoroughly trained in safe operation and standard maintenance practices. All employees must review this entire manual monthly.
2. Do not enter the wash tunnel when the equipment is operating. Death or dismemberment may occur.
3. Do not wear loose fitting clothing or jewelry around moving equipment. Do not allow any part of your body or other objects (including ladders, hoses or tools) to come in contact with moving equipment. Entanglement may result causing death or dismemberment.
4. Do not leave a ladder or any other items such as wash down hoses or tools in the wash tunnel while equipment is running. Vehicle damage and injury, including death, can occur.
5. Always exercise caution when walking (never run) through the wash tunnel as there may be slippery conditions. Be careful so you do not bump into or trip over equipment.
6. Only those employees specifically instructed and trained by the location management are permitted to enter the wash tunnel to perform inspections or maintenance. At least two qualified maintenance people must be present when performing equipment repairs or preventive maintenance.
7. Do not perform any maintenance or work on equipment unless you first perform Lock-Out Safety Precautions. 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 must be restarted only by the person who performed the "lock out" operation.
8. When working on any equipment that is higher than your shoulders, always use a fiberglass ladder that is in good condition.
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. Electrical connections and repairs must be performed by a Licensed Electrician Only.
11. Emergency "STOP" buttons must be well marked and their location and proper use reviewed with all personnel. Any activated "STOP" button must be reset only by the person who activated it. Clear the wash tunnel of any people, ladders, hoses, tools and other loose items before restarting the equipment. An audible device must sound to warn people that the equipment is starting.

12. Do not operate any piece of equipment that requires safety covers with those covers removed or improperly installed. Do not operate any piece of equipment if any component of that piece is suspected to be defective or malfunctioning.
13. Store all cleaning and washing solutions and oils in a well-ventilated area. Clean up fluid spills immediately to prevent hazardous safety conditions. Be certain to follow all safety procedures on SDS Sheets for each chemical product used.
14. All hydraulic and electric systems in the wash tunnel equipped with a torque relief or overload should be checked and set at the minimum amount that will allow for proper functionality under normal washing conditions.
15. No unauthorized people should ever be permitted in the wash tunnel or near the equipment at any time.

* * *

!! CAUTION !!

When a piece of equipment must be in operation during inspection or maintenance, one qualified technician must stay at the power disconnect switch while another qualified technician performs the inspection or maintenance.

INTRODUCTION

This 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.
5605 Hiatus Road
TAMARAC, FLORIDA 33321**

TELEPHONE: 800-327-8723 FAX: 800-495-4049

THANK YOU FOR YOUR CONFIDENCE IN SONNY'S!



PRODUCT FEATURES

Sonny's Compact Top Brush is designed to fit in a smaller footprint and can also be retrofitted to existing front to back 901 Mitter Foundation Frame. The simple mechanical operation features a re-engineered pivot system that delivers a fluid motion over all horizontal surfaces for a more consistent wash across a wider range of vehicles.

- Gentle NeoGlide® Foam Hush Brush™ does not absorb water and delivers a consistent balanced wash, every time, regardless of volume, while reducing noise.
- Single Arm Cantilevered Design
- High Strength Aluminum Alloy Top Brush Frame
- 304 Stainless Steel Main Support Weldment
- 304 Stainless Steel Counterweight Assembly/Powder Coated Safety Yellow
- Brush tracks the contour of the vehicle using only a counterweight.
- Available as a Top Brush Spider, which allows for mounting of Entrance Wraps, Exit Wraps, Tire Brush Attachments, Top Mount and Bottom Mount Side Brushes.
- Octagonal Sheetmetal Core Hub for light weight, smooth operation, and ease of NeoGlide® replacement
- Double Roller Pillow Block Bearings, 2" HD Pivot Shaft
- Light Touch Shock for smooth operation and retract
- 2 Position Air Cylinder for optimal brush position control.

PRODUCT SPECIFICATIONS

Footprint Length	98"
Footprint Width	144"
Height	140"
Vehicle Clearance	90"
RPM	75-85
Drive Electric	1 HP Transtecno

DIMENSIONS

Figure #1

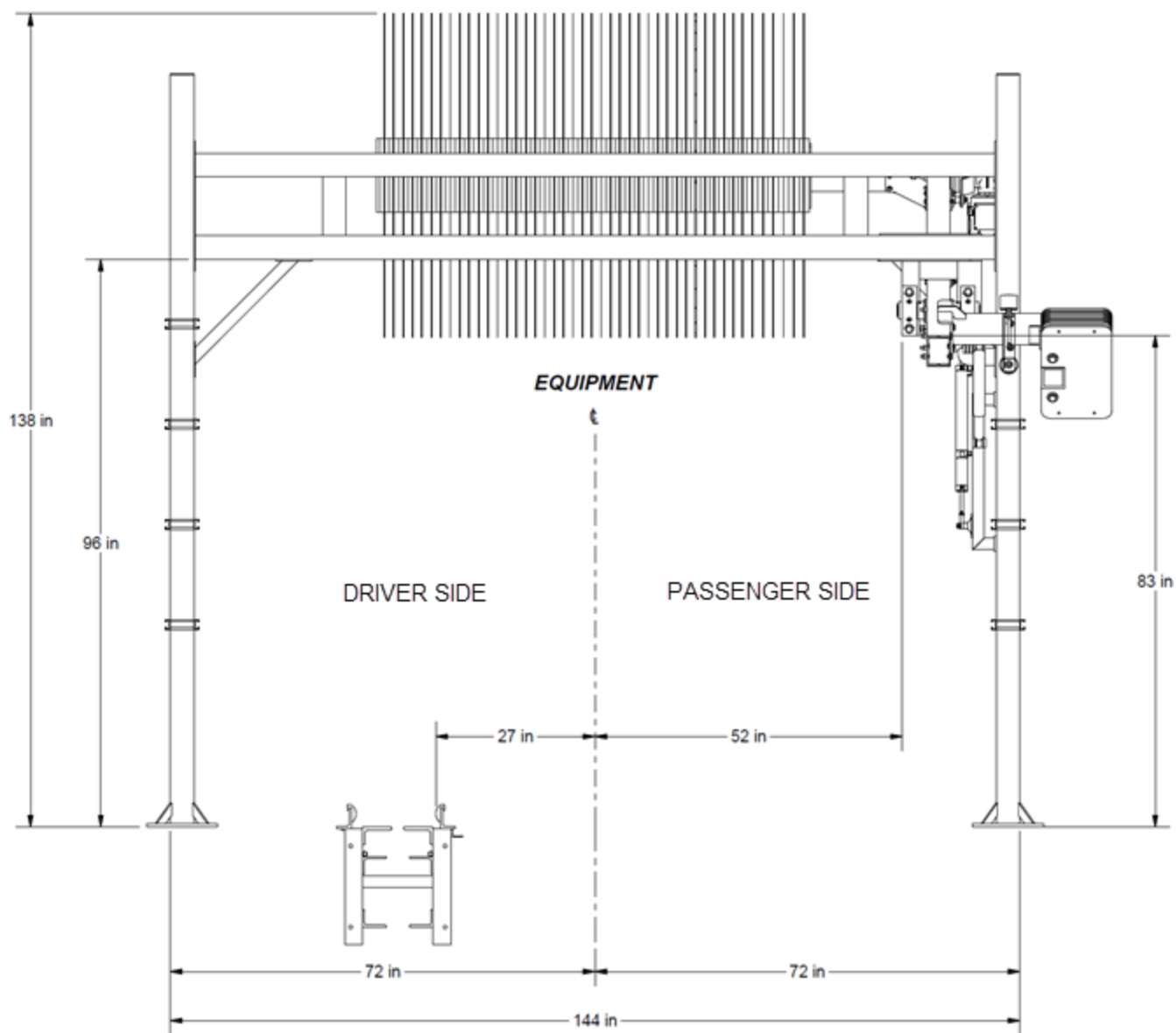
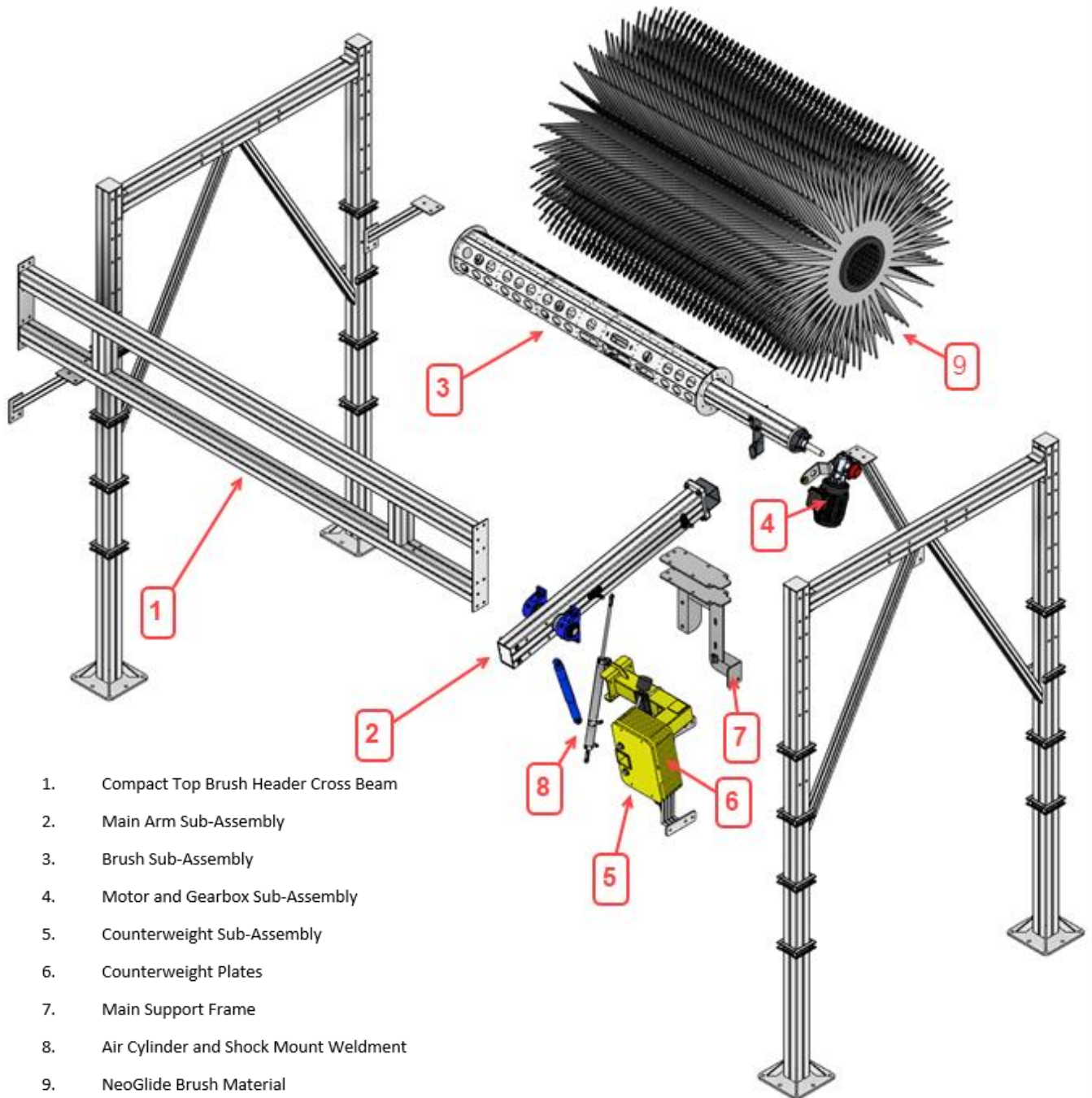


Figure #2



Brush Dimensions

Diameter	55"
Length	73" (Nominal)

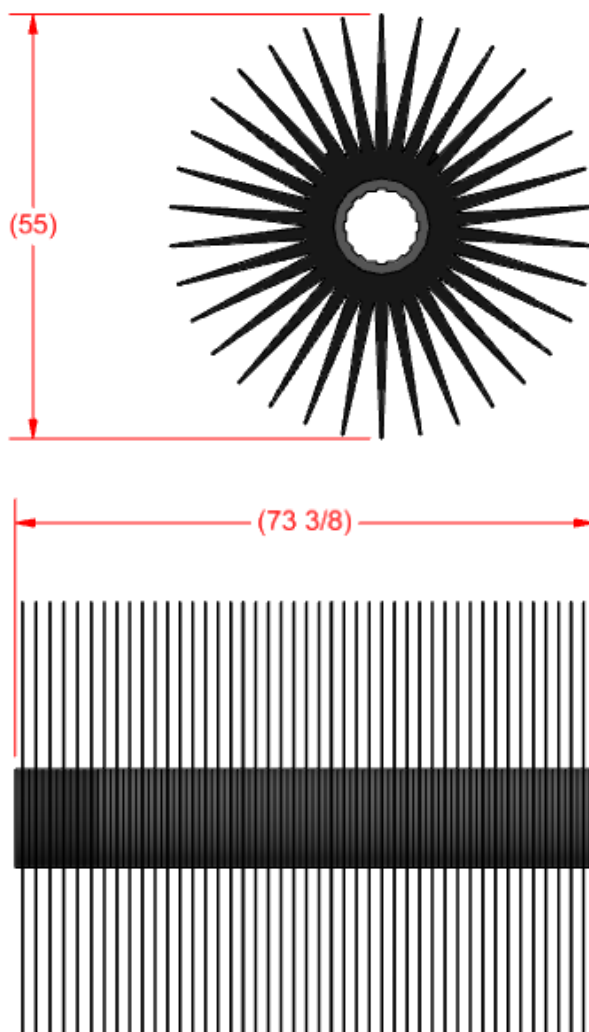


Figure #3

**Compact Top Brush - Pneumatic Diagram
Three Position Control**

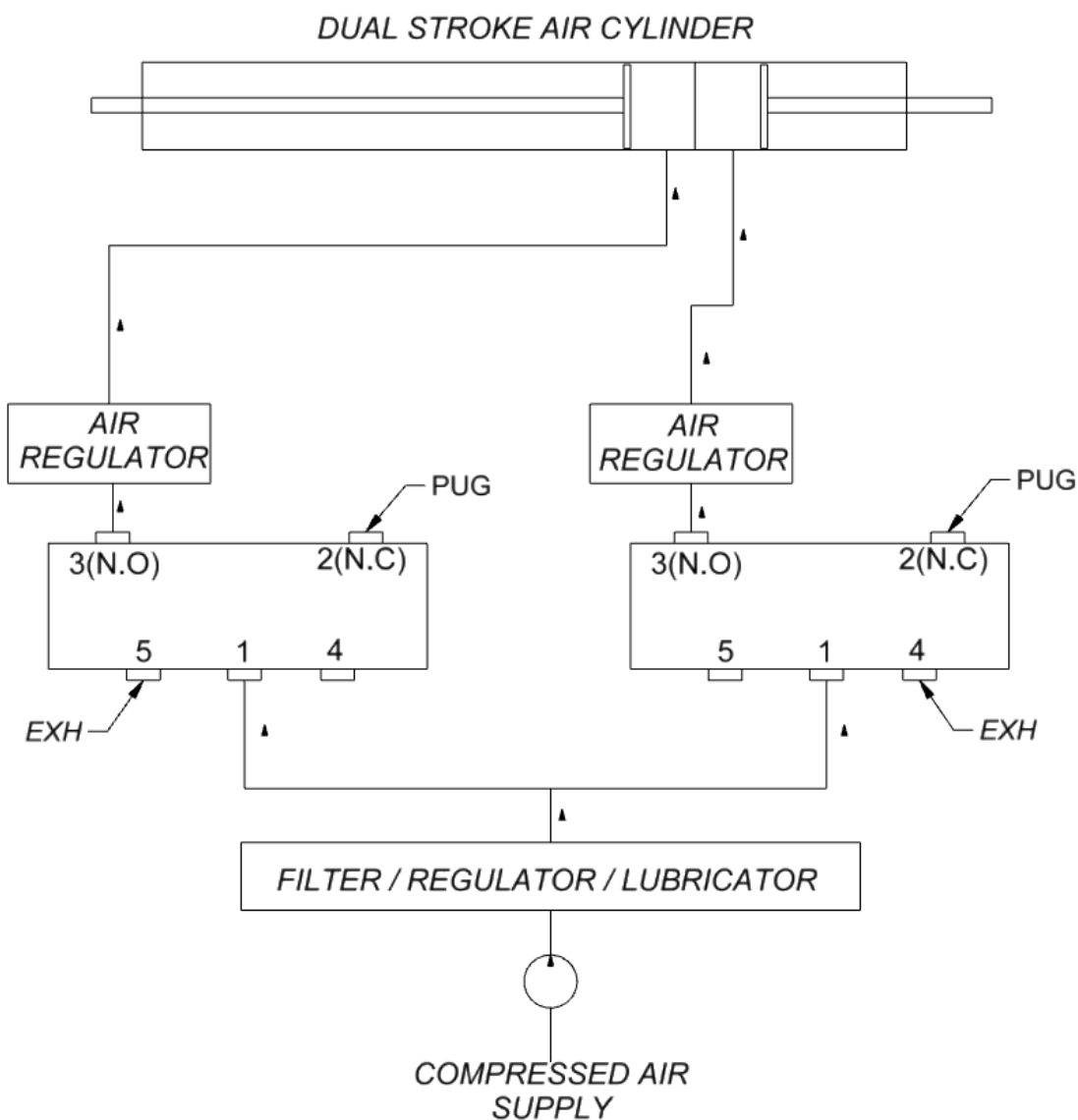
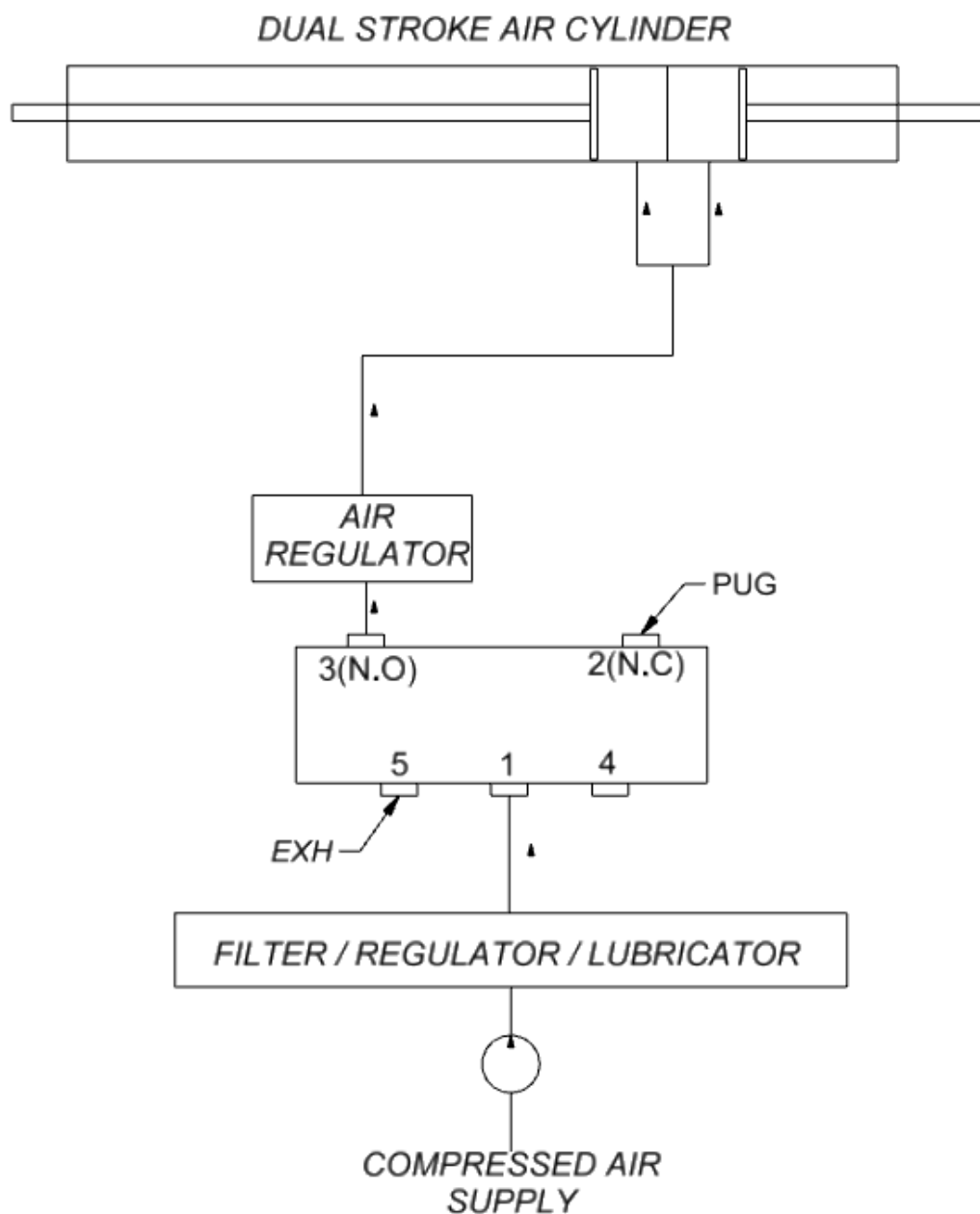


Figure #4

**Compact Top Brush - Pneumatic Diagram
Two Position Control**



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.

Water

- The Customer's Plumber is to provide and install a ½" city water line @60PSI (nominal) to the solenoid valve on the chemical distribution system for the Washer.

Electric

The Customer's Electrician is responsible for:

- The Customer's Electrician is to provide and install single phase power from the (24 or 110 VAC as determined at time of order) from the Customer's Controller system to the liquid solenoid valve for the brush spray bars and, if required, the motor starter coil for the hydraulic power pack feeding the brush and any pump motor for the chemical distribution system.
- The Customer's Electrician is to provide and install single phase power from the remote push-button station through the tunnel equipment programmer to the supplied air solenoid valve on the Air Distribution Manifold for retract of both washers upon selective signal.
- The Customer's Electrician is to provide materials and install 208VAC or 230VAC or 460VAC, 3-phase, 60Hz power to the electric motor on the hydraulic power pack or VFD panel from a properly sized three pole circuit breaker and motor starter with three thermal overloads when applicable.

Compressed Air

- The Customer's Plumber is to provide and install a ½" compressed air line from the Air Compressor to the Air Distribution Manifold for the Retract functions.

Technical Disclaimer

- Although building codes have been considered in developing all drawings, verification of site-specific conditions and compliance with federal, state and local building codes is the exclusive responsibility of the customer and/or architect and engineer.

INSTALLATION

Tools

1. Safety Glasses
2. ½ “ Drive Ratchet Set
3. Standard Combo Wrenches
4. 4’ Level
5. Electric Impact Wrench
6. 1” Hammer Drill
7. Tape Measure
8. Sledge Hammer

Consumables

1. Anti-Seize Compound
2. Marine Grease

Work Force

Two (2) – (4) persons

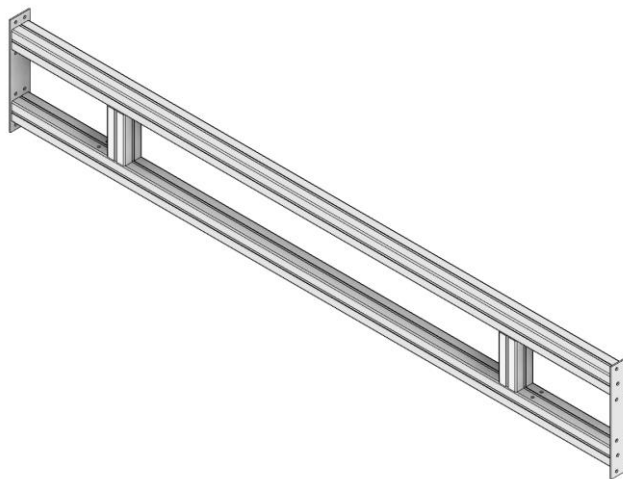
Time (assuming no problems)

3.00 – 5.00 hours

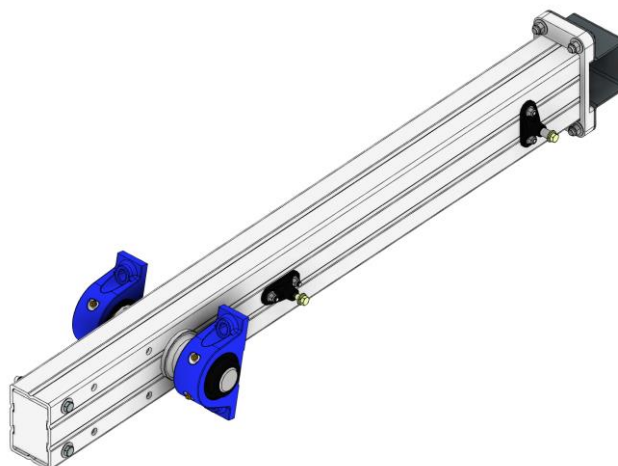
Included Sub-Assemblies:

The following sub-assemblies are included with shipment:

1. Compact Top Brush Header Cross Beam



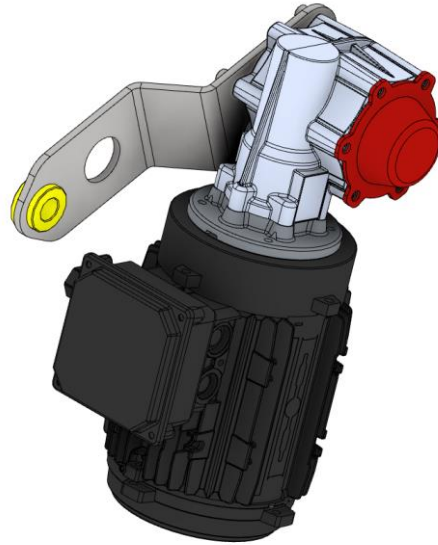
2. Main Arm Sub-Assembly



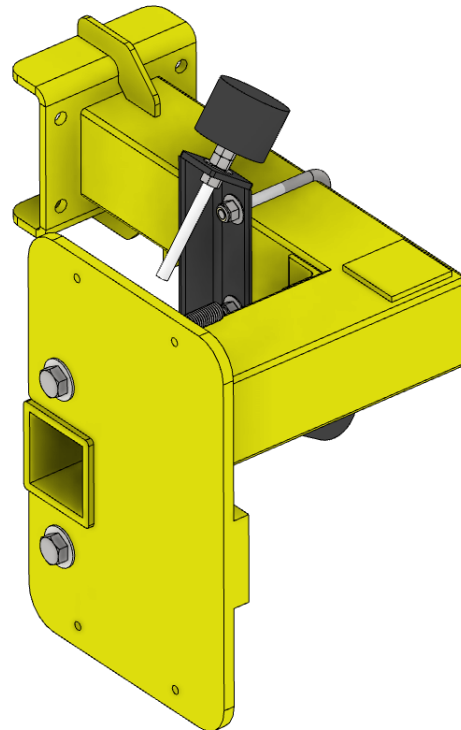
3. Brush Sub-Assembly



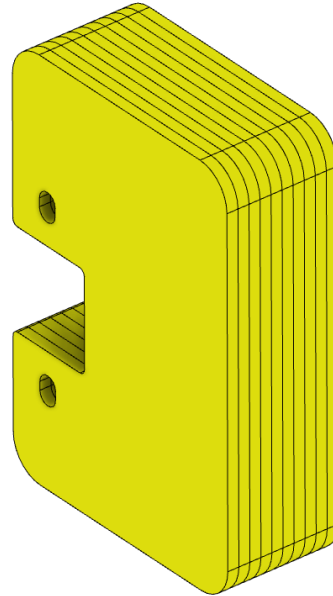
4. Motor and Gearbox Sub-Assembly



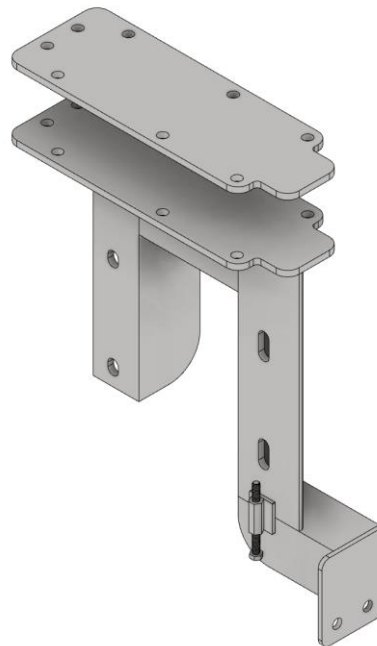
5. Counterweight Sub-Assembly



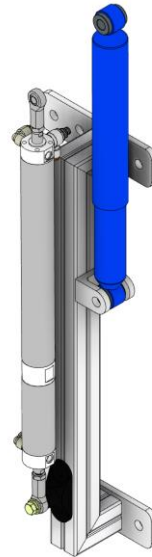
6. Counterweight Plates



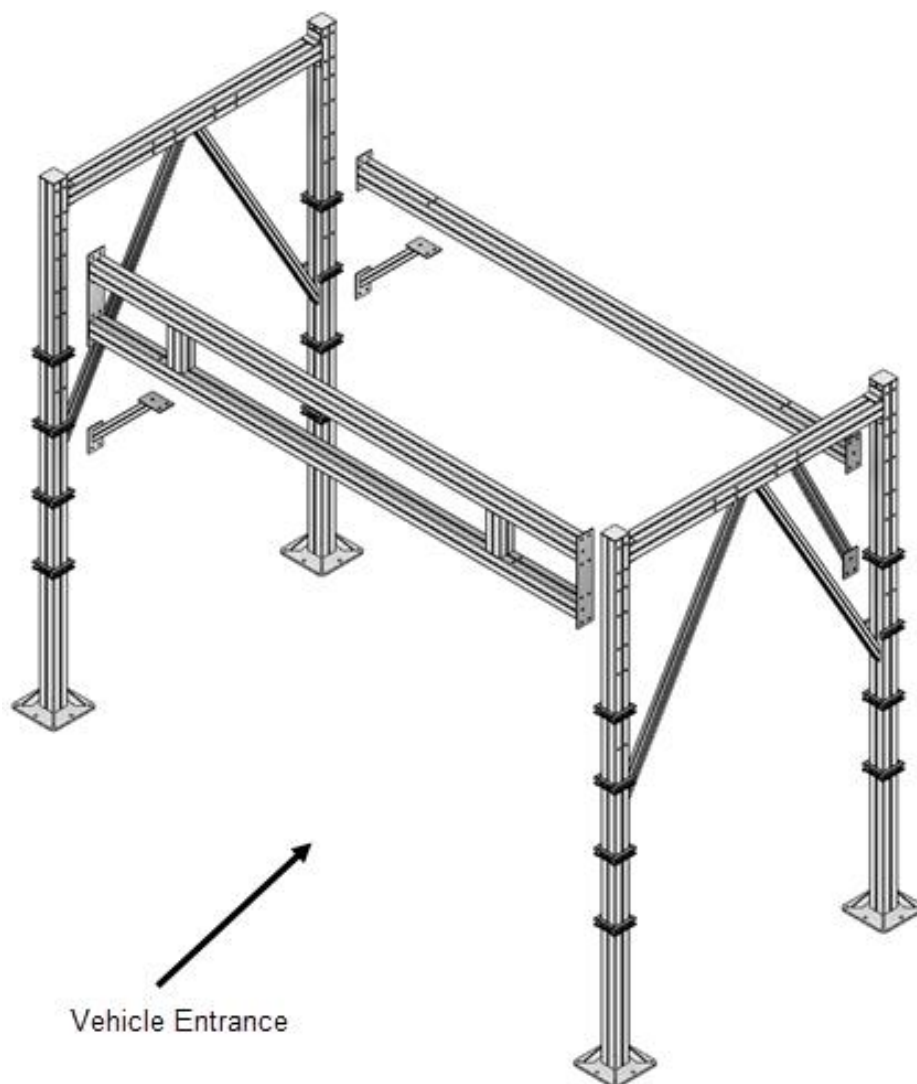
7. Main Support Frame



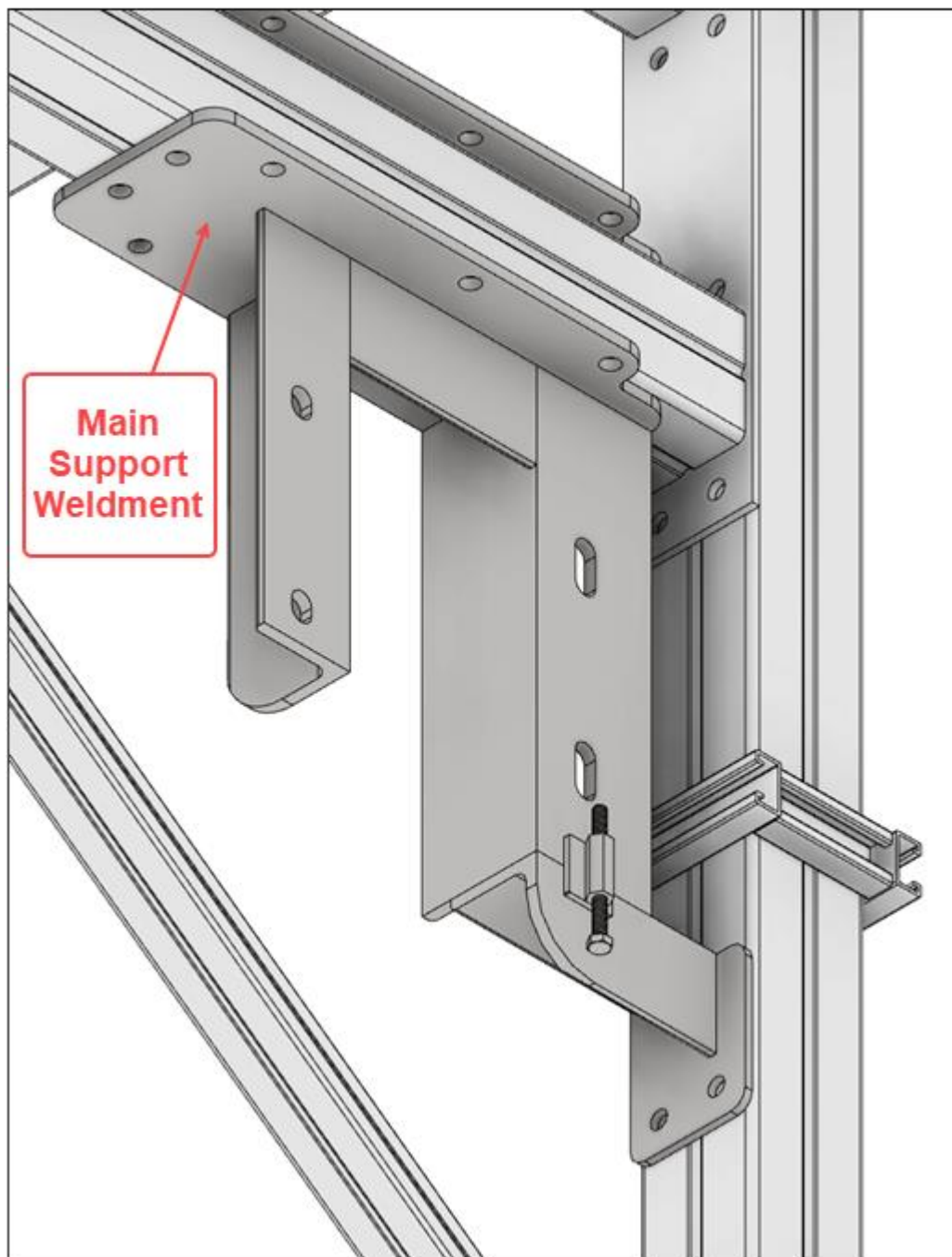
**8. Air Cylinder and Shock
Mount Weldment**



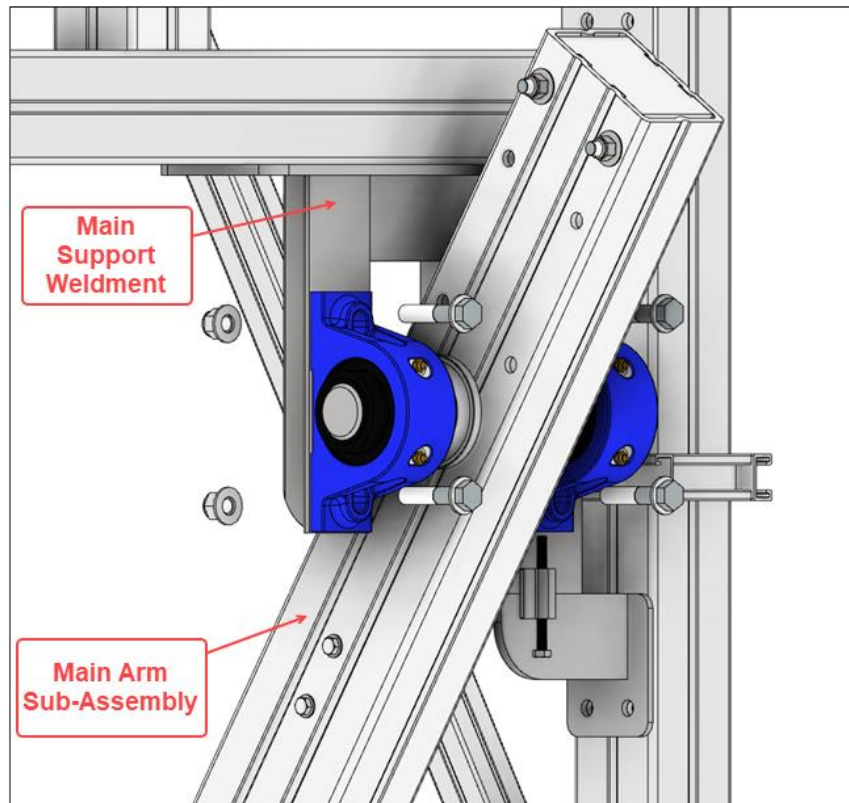
1. Determine where the Top Brush frame is to be installed (See **Figure #1** in the Dimensions Section and the tunnel layout drawings for your location).
2. Sweep any debris from where the Top Brush will stand.
3. Check all hardware and place Anti-Seize Compound on each bolt.
4. Place the foundation frame legs, cross beams OR wrap headers, and the 3 standard braces in the area where the unit will be permanently located. Note the position of the 3 standard braces in the illustration below:



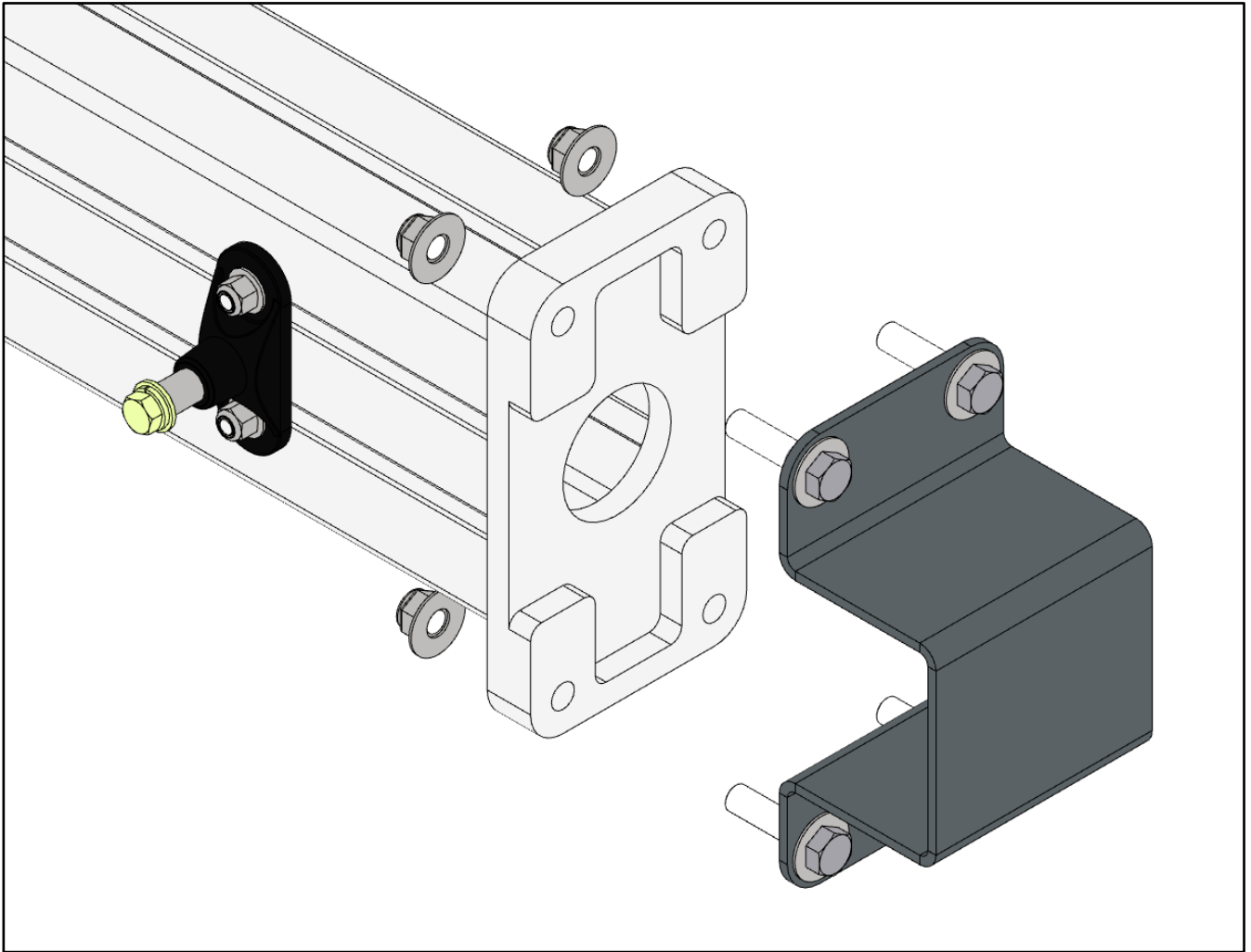
5. Attach the **Main Support Weldment** to the frame unit. Use the frame holes normally used for the Foundation Frame Standard Brace. This will go in place of the missing brace (on the entrance passenger side of the frame).



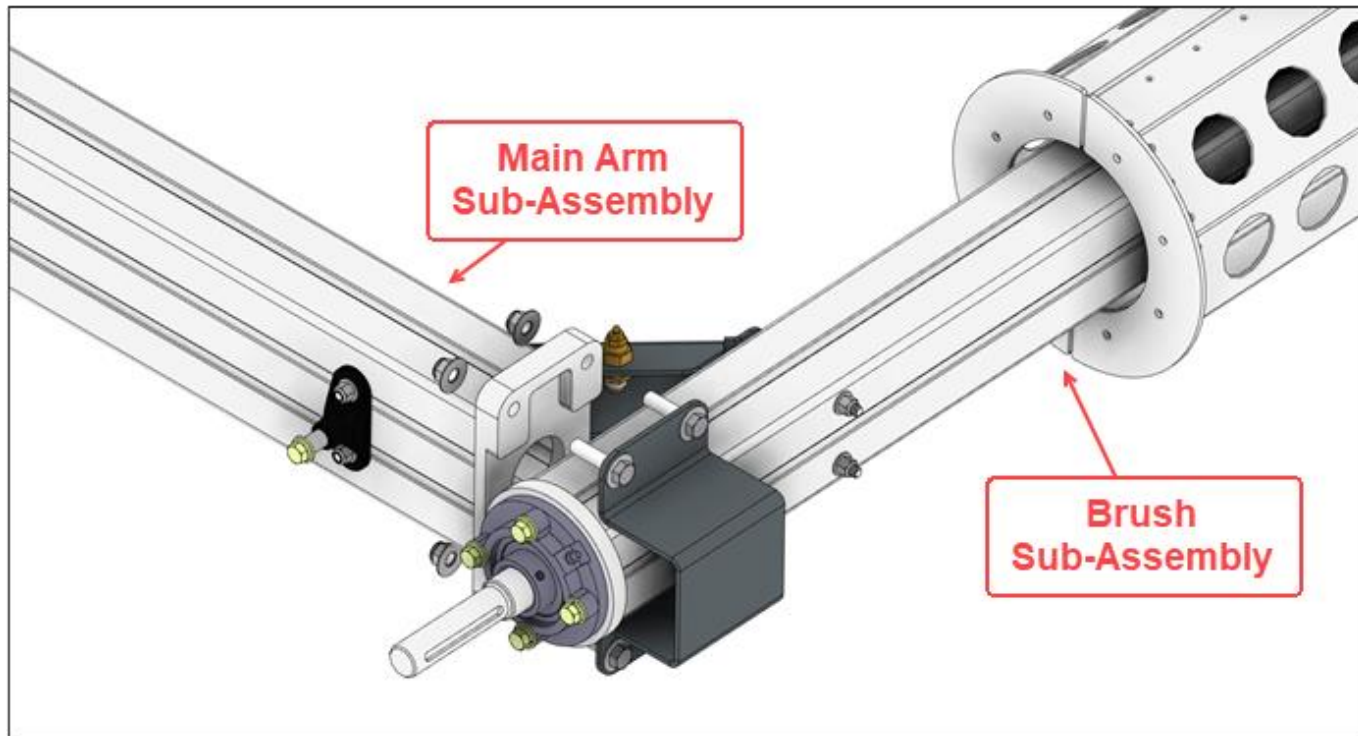
6. With the interconnection hardware provided by SONNY'S (boxed and attached to the assembly frame) join the legs, cross beams, wrap header, support weldment and gussets to the frame "finger tight".
7. Level and square the frame with the centerline of the equipment (see **Figure #1** in the Dimensions Section and the tunnel layout drawings for your location).
8. Drill and place one anchor bolt in each corner of the frame unit, to secure the frame in place.
9. Tighten all the frame hardware.
10. Drill, install and tighten the remaining anchor bolts for the frame unit per the dimensions shown in **Figure #1**. Make sure that the entrance and exit cross beams are level (shim mounting feet, if necessary) and that each of the 4 vertical legs are plumb. Make sure that the frame unit is level and secured tight.
11. Attach the **Main Arm Sub-Assembly** on to the **Main Support Weldment**, loosely mounted. **Note:** the black parts (seen on the image on the next page) on the arm assembly must point towards the closest leg of the frame.



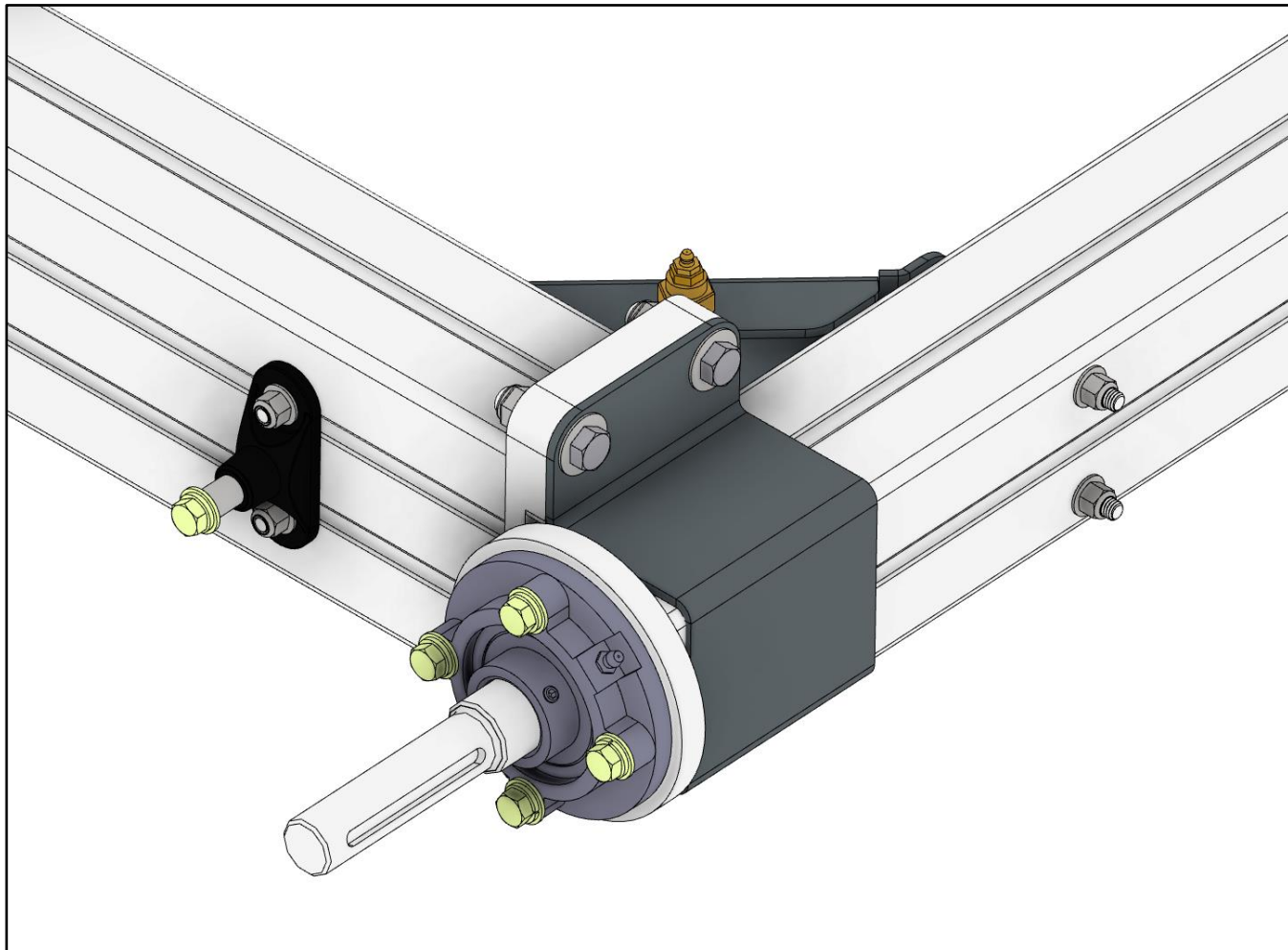
12. Remove the black clamp attached to the end of the **Main Arm Sub-Assembly**.



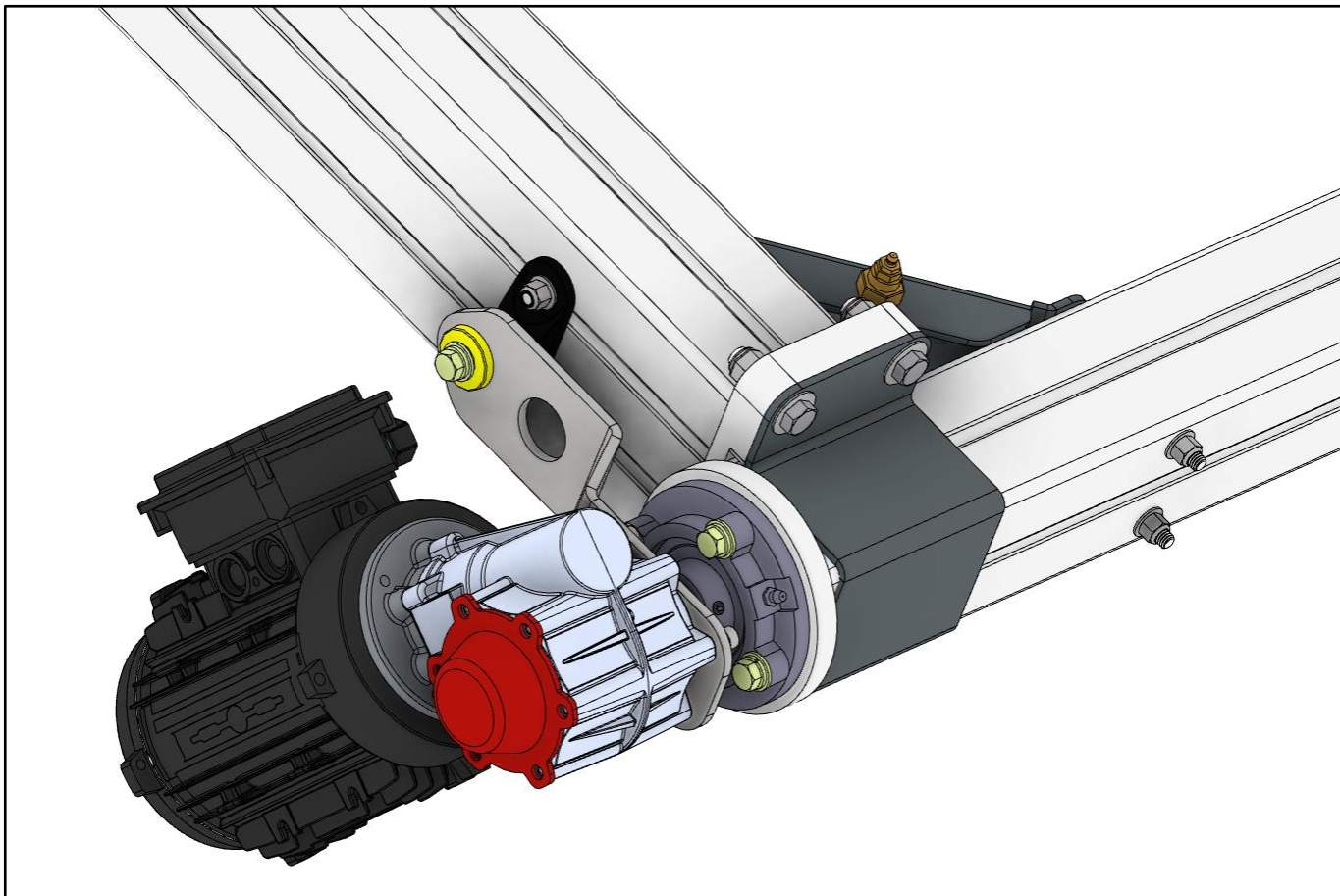
13. Using two people to support the **Brush Sub-Assembly**, place it on the end of the **Main Arm Sub-Assembly**.



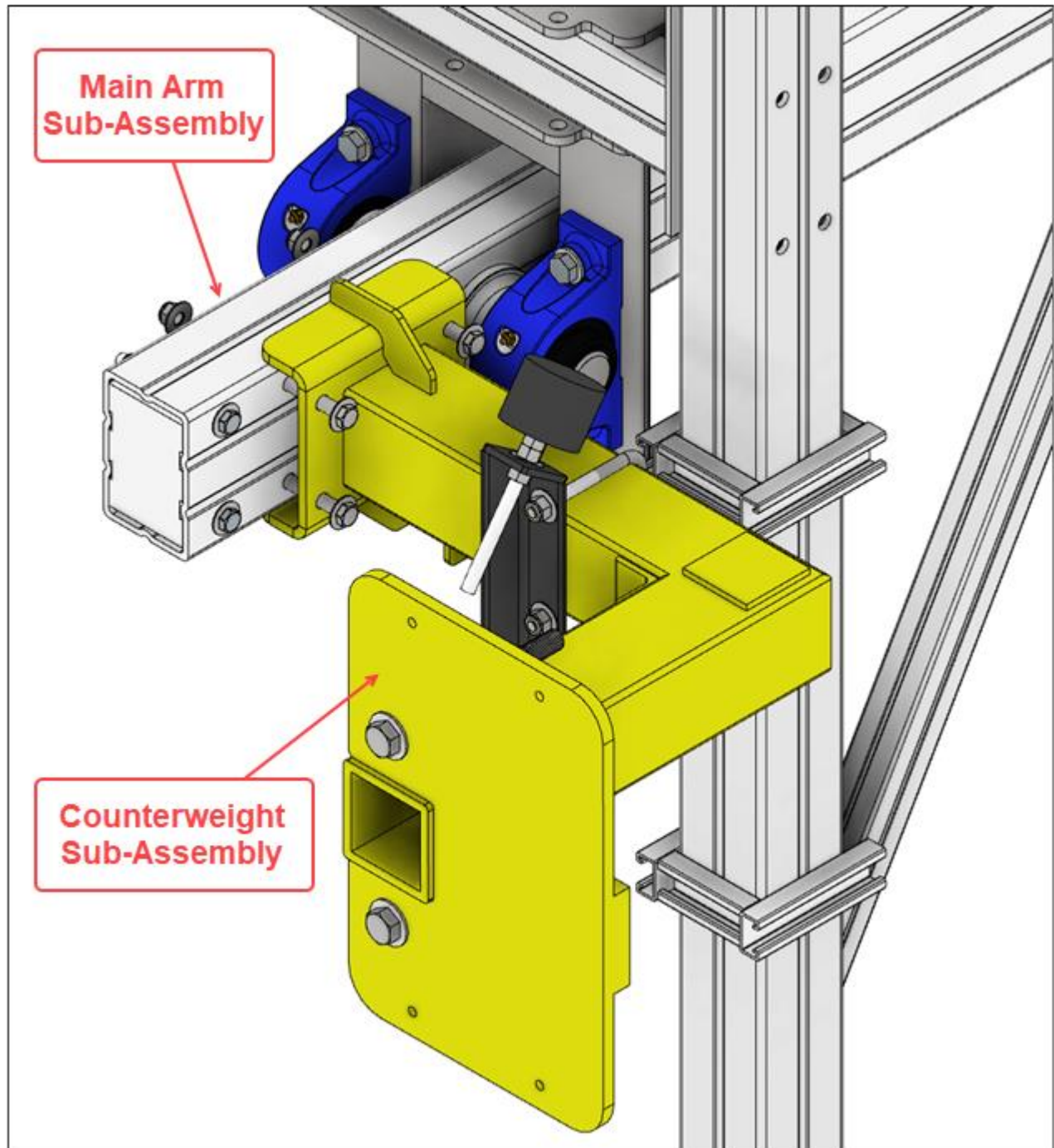
14. Reattach the black clamp on to the end of **Main Arm Sub-Assembly**. Tighten ½" bolts to 57 lb-ft from the **Brush Sub-Assembly** to **Main Arm Sub-Assembly**.



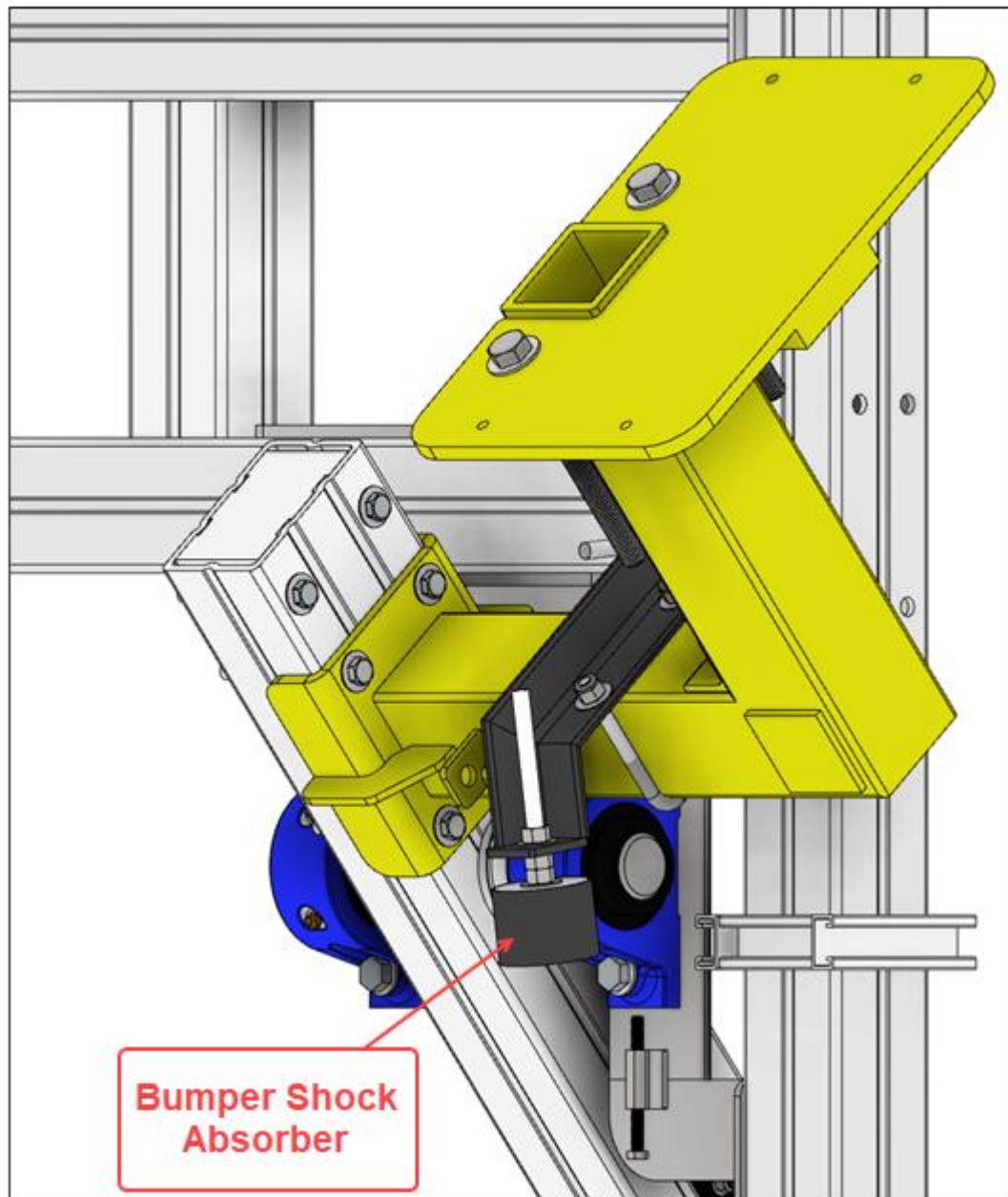
15. Using the provided 8mm machine key, remove hardware from the **Main Arm Sub-Assembly** and reattach through the torque plate UHMW Yellow Bushing. Apply Anti-Seize Compound on the brush shaft.



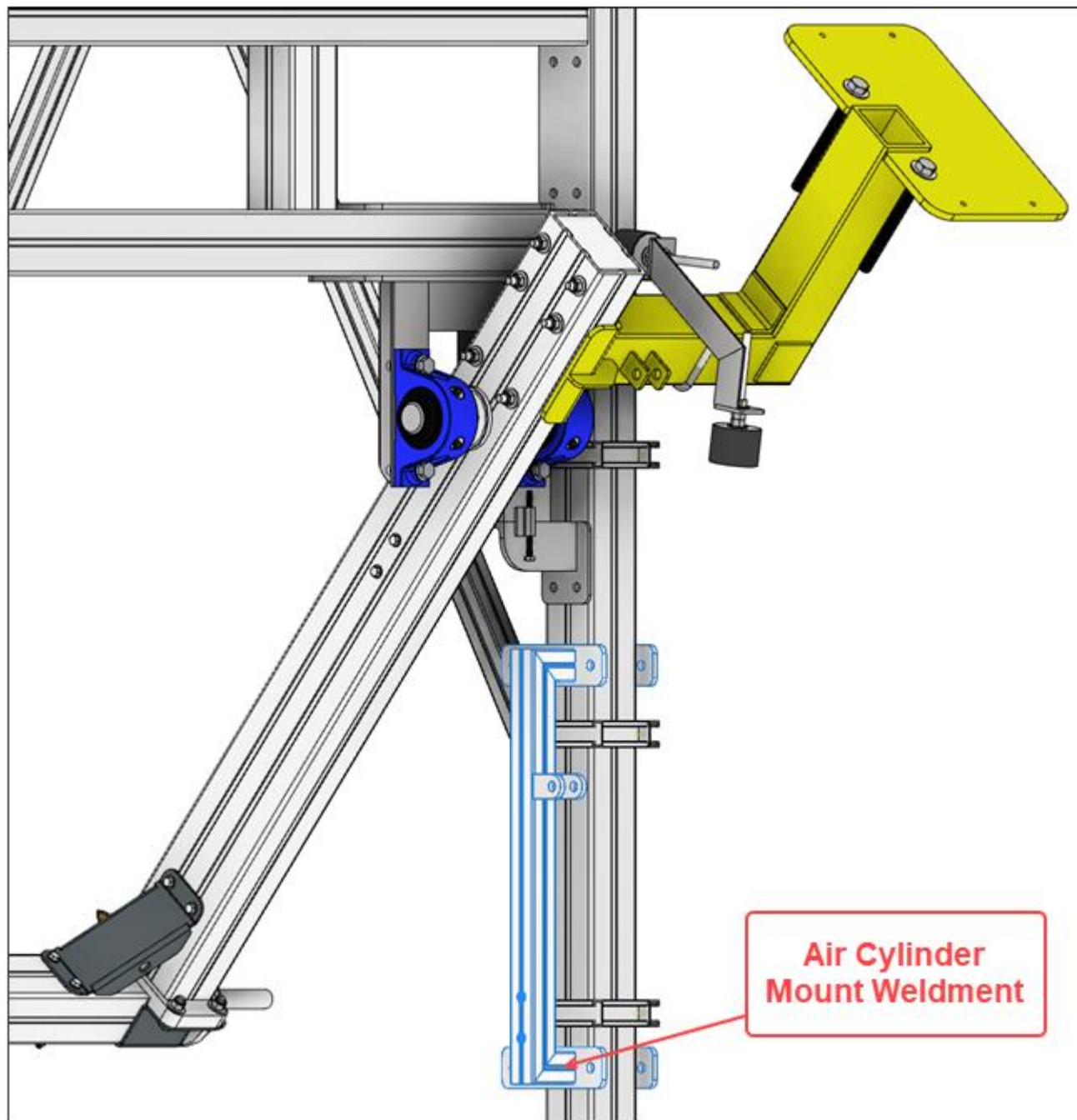
16. Attach the **Counterweight Sub-Assembly** to the **Main Arm Sub-Assembly**. Tighten ½" bolts to 57 lb-ft.

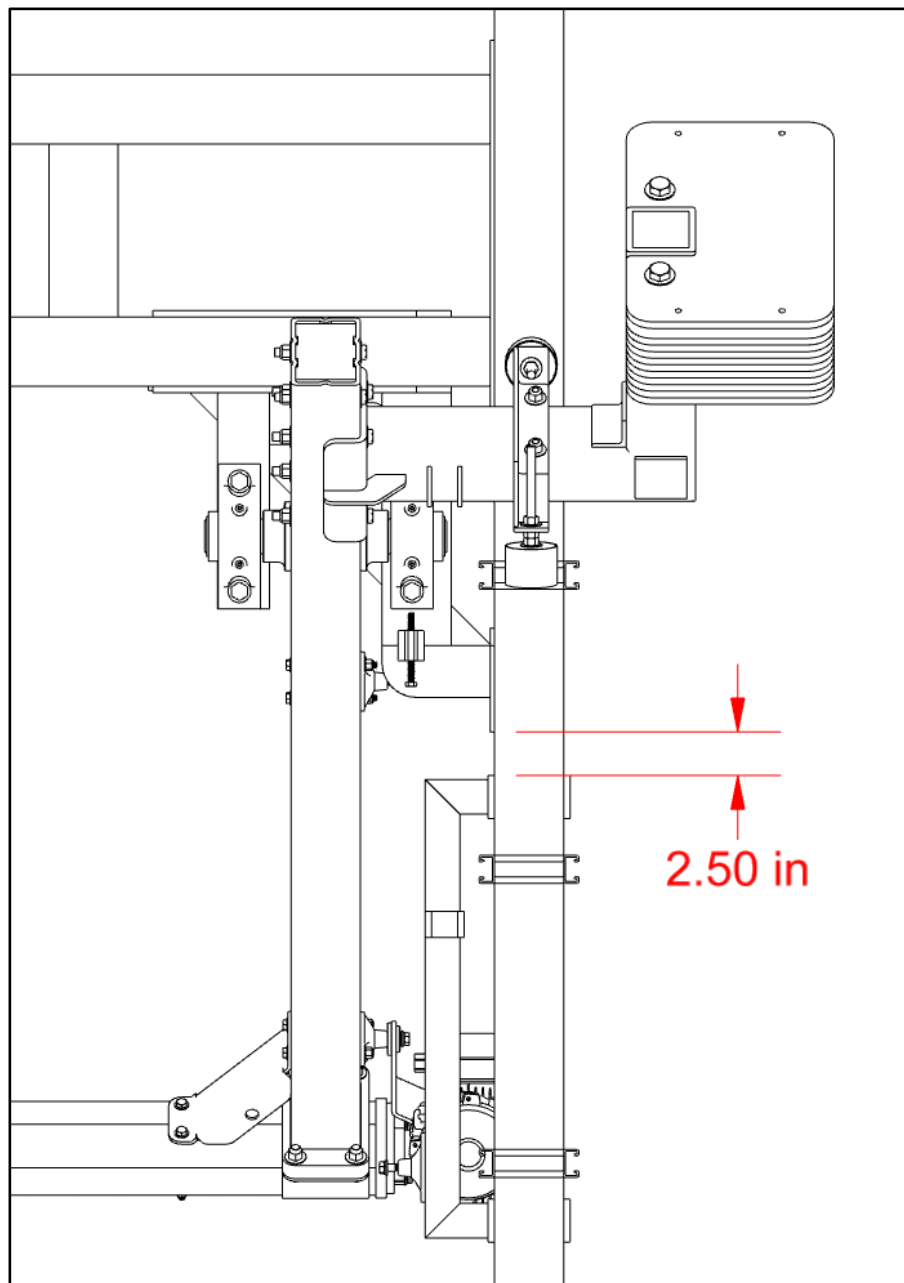


17. Attach the **Bumper Shock Absorber** to the **Counterweight Sub-Assembly**. The bumpers may be adjusted by backing off the outside nut to allow the bumper to be moved. Re-tighten all nuts once bumper has been adjusted.



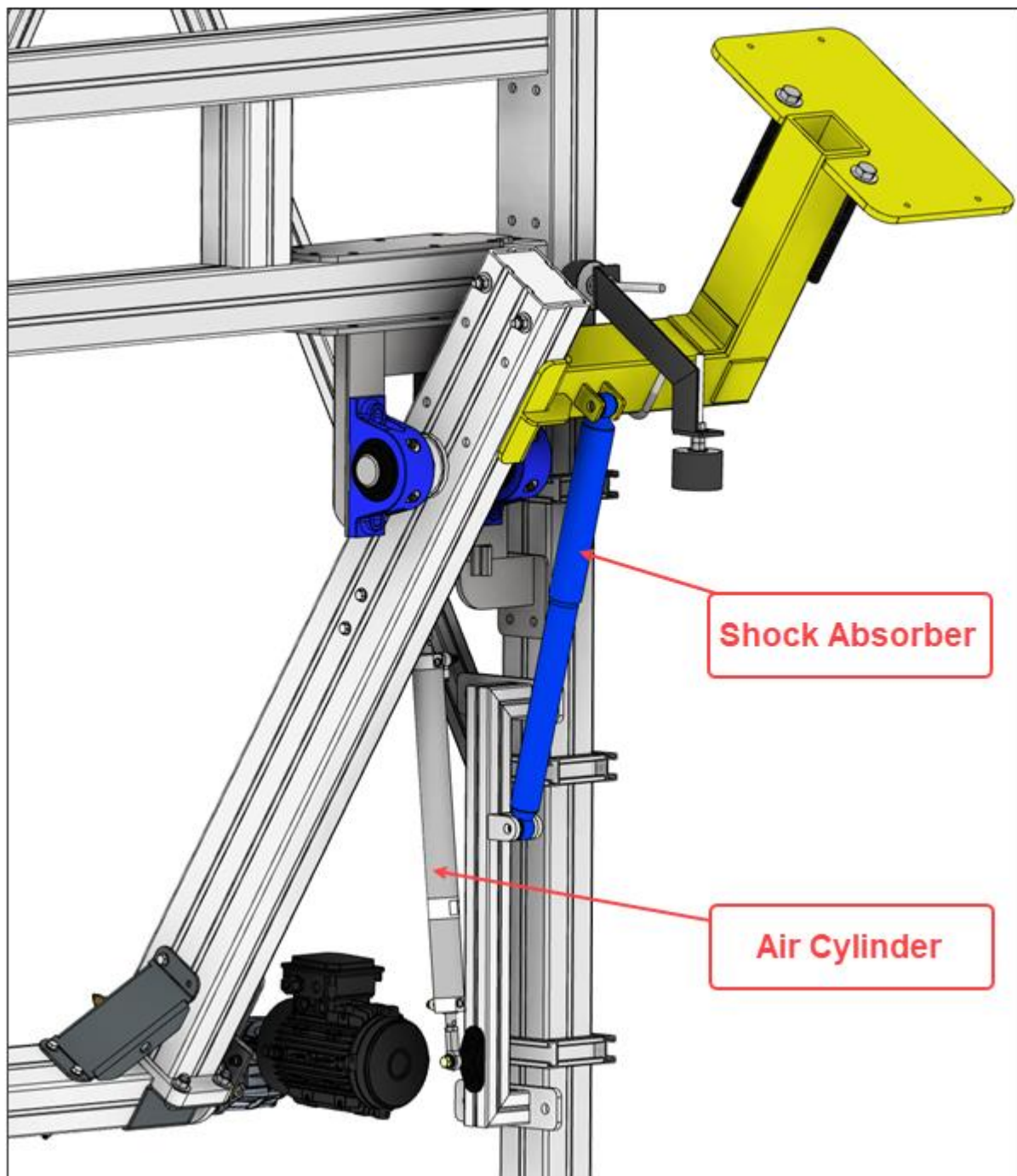
18. Attach **Air Cylinder Mount Weldment** to frame leg. See page 29 for how to locate the mount.





19. Attach shock absorber and air cylinder to the **Air Cylinder Mount Weldment**.

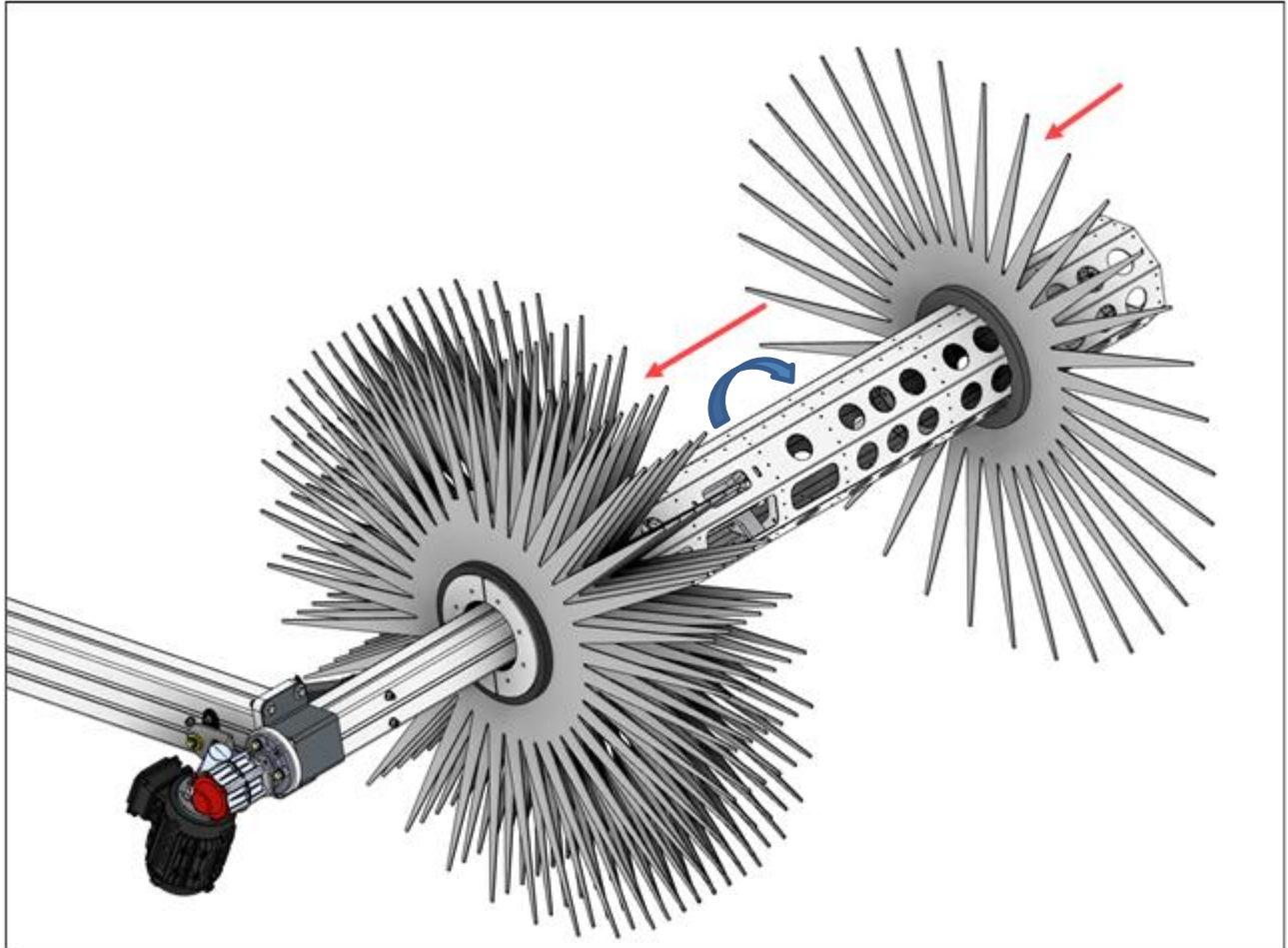
Note: the shorter section of the air cylinder must point down.



20. Remove the retainer plate from the end of the **Brush Sub-Assembly**.



21. Slide the brush material and separators onto the **Brush Sub-Assembly**. Please note rotation direction marked on Neoglide stars to install brush properly.



When the hub is full with brush material and separators, the last foam piece on the end of the hub should stick out 1/4" to 3/8" past the end of the hub and will be compressed when the end plate is added back on. This will ensure proper compression of brush material, for a tight and secure fit.

22. Once the top brush material and separators are on, re-attach and tighten the end plate.
23. Install one airline to the air cylinder valve for the retract operation. Run and connect the chemical lines from the Chemical Distribution Manifold to the chemical line on the frame for the application nozzles.

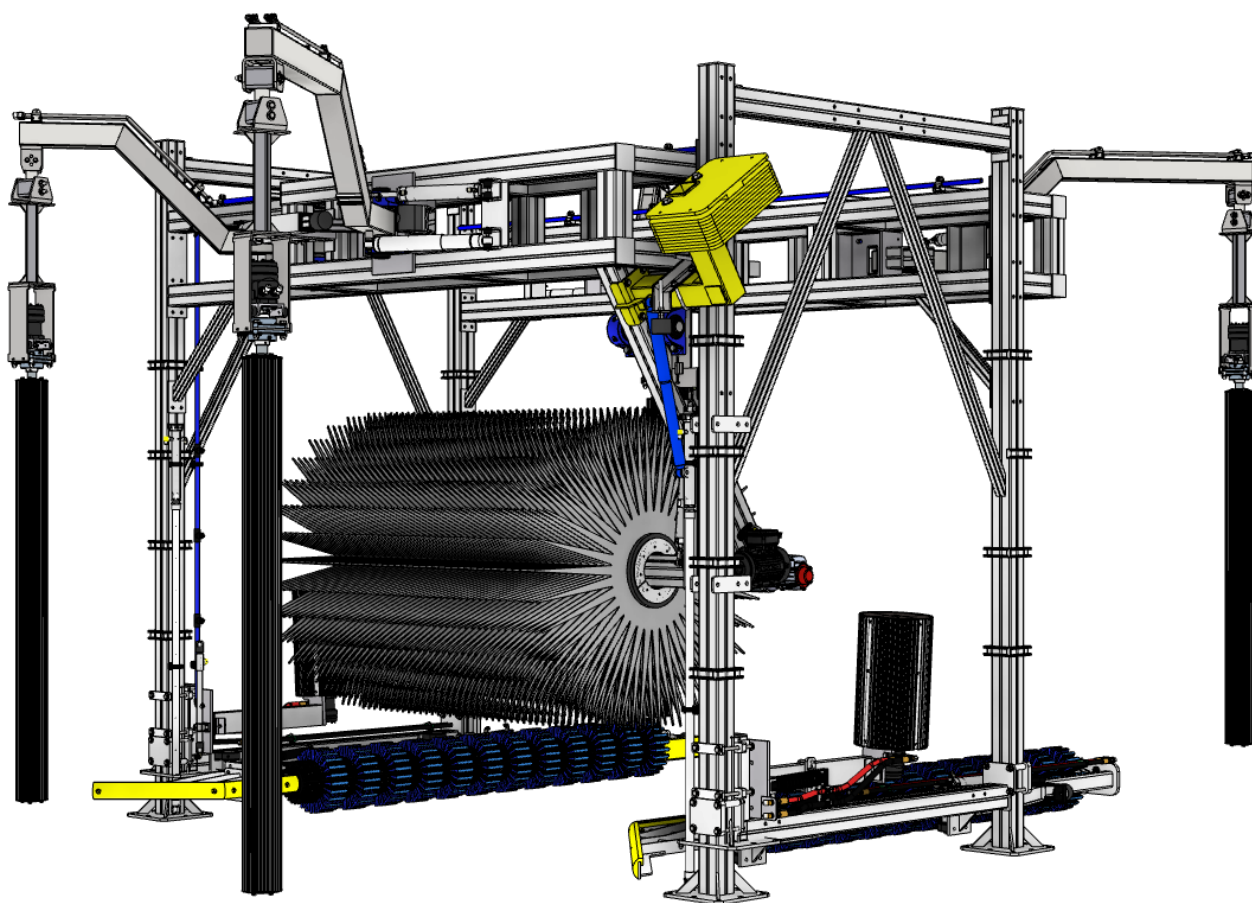
Note: Air is only used to hold the brush in the retracted position. No air is used during the wash process

24. Once the brush material and separators have been added, attach the **Counterweight Plates** to the **Counterweight Sub-Assembly**. *This is the final assembly step.*

Note: The brush must be retracted for this step to prevent plates from falling on installer (Counterweight Sub-Assembly will be lowered when brush is retracted).

Compact Top Brush Complimentary Equipment

- In addition to a full installation, the Compact Top Brush can also be retrofitted with your existing 901-Mitter Foundation Frame, mounting to all Sonny's Standard Entrance Wrap Headers.
- Foundation Frame is compatible with all Sonny's Standard Tire Brush Attachments
- Bottom Mount Side Brushes available for entrance leg, 18" and 21" Only (Requires Air Retract Kit)
- Top Mount and Bottom Mount Side Brushes available for exit leg, 18", 21", 28" and 35" (Cannot be combined with Exit Wraps)



ADJUSTMENTS AND TESTING

Adjust the Cleaning Pressure of the Washer

Air pressure should not be used in the washing operation. Brush penetration should be between 3 to 5 inches across the entire vehicle. To adjust brush penetration, counterweight plates can be added or removed.

Adjust the Rotation Speed of the Brush

The brush speed should be adjusted using a VFD for the electric motor. Recommended brush speed should be around 85 RPM. (See the **Operating Speeds Chart** on the following page.)

Adjust for Smooth Retract Operation

To adjust the retract operation the air pressure regulator should be adjusted for approximately 30PSI in the retract position. The tunnel controller should be adjusted so that the brush is put into the wash position prior to the front of the car arriving at the brush. This will entail deactivating the retracts before the vehicle reaches the brush and setting the look ahead to check for the proximity of the next car.

Note: Retract Position for the Top Brush is achieved by the Extension of the Air Cylinder.

Speed and Torque Adjustment

- Compact Top Brush requires a VFD for proper smooth operation. Acceleration time should be set to 3.0 seconds.
- The speed can be adjusted on the Variable Frequency Drive (VFD).
- To increase the speed adjust the Hertz on the VFD to a higher number.
- To decrease the speed adjust the Hertz on the VFD to a lower number.
- The Overload on the Motor Starter protector(s) must be set at the lowest level to allow for operation. Adjust the amps in accordance with motor(s) name plate. For a 1HP Transtecno Motor, Overload Detection Level should be set to 2.3 amps.

Operating Speeds Chart

Chain Speed	Brush RPM
60-90 CPH	75-85
90-150 CPH	85-90

GENERAL OPERATION

Compact Top Brush Operation

Brush rotation starts and stops with a signal from the Customer supplied Controller system to the Customer's hydraulic power pack or VFD activating brush rotation. This Controller Start-Stop signal should also control soap solution delivery to the spray bar or manifold providing lubricity to the brush.

BE CERTAIN THAT THE BRUSHES ROTATE AGAINST VEHICLE TRAVEL

With the brush rotating (against the direction of vehicle travel and at proper RPM) the vehicle's front hood contacts the brush and brush travels across the vehicle maintaining steady contact while cleaning the hood, roof and trunk of the vehicle.

Proper cloth penetration on flat vehicle surfaces should be **3-5"**. As the brush rounds corners, such as on windshields, the cloth penetration may be greater, but not deeper than half the distance to the aluminum brush core.

Retract Operation

When there is no vehicle approaching the brush the tunnel controller will retract the brush from the wash position, toward the ceiling. This can also be set up in the controller to retract for the beds of trucks to avoid problems.

It is recommended that the brush be retracted for:

1. Sun visors mounted over the windshield.
2. Any racks mounted on the roof.
3. Rear wipers on Acura Integra's and Mazda RX-7's unless they are taped down.
4. Open bed pickup trucks.

MAINTENANCE

FOR THE FIRST MONTH OF OPERATION CHECK ALL HARDWARE AND FITTINGS FOR TIGHTNESS EACH WEEK!

DAILY

1. Check all hydraulic, air and chemical lines and fittings for leaks. Repair, or replace, as needed.
2. Check brush for proper operation, listening for any unusual noises from the equipment.
3. Inspect brush cloth for cuts, grease, or oil. Remove and repair, or replace, any cloth panel if any of these conditions are found.
4. Check retract and extend for proper operation, smoothness and correct application pressure.
5. Check for proper chemical solution delivery.

WEEKLY

1. Spray lubricant on the clevis pins on both ends of the Lite Touch Shock.
2. Grease the brush shaft bearings. Do not allow grease to come in contact with brush cloth.
3. Grease fitting for bearing inside the Brush Core has been extended to the gusset for accessibility and hose has been prefilled with grease.
4. Drain water from FRL and check lubricant level in FRL.

MONTHLY

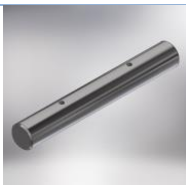
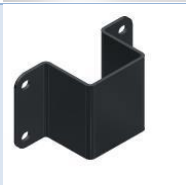

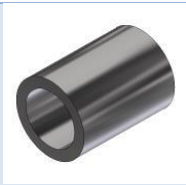




1. Inspecting all hardware and fittings for tightness.
2. Grease the Double Roller Pillow Bearings at brush main pivot. Do not allow grease to come in contact with brush cloth.
3. Inspect the bumper stops for wear to ensure the air cylinder has not reached the end of travel. If bumper stops are worn, replace as necessary.
4. Inspect soap solution spray nozzles for wear. Replace as necessary.
5. Thoroughly clean the equipment and framework.


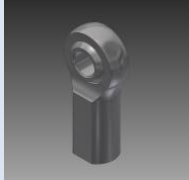
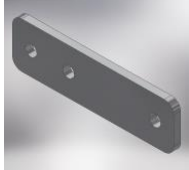

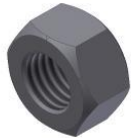
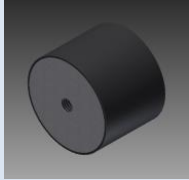

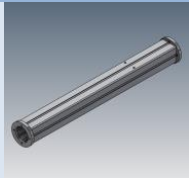
SEMI-ANNUALLY



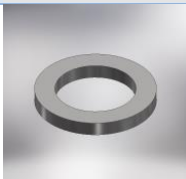


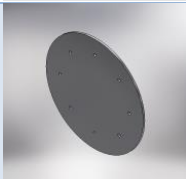

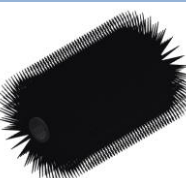
1. Carefully inspect brush equipment cloth for wear and damage. Replace as necessary.

Compact Top Brush - Wear Items and Replacement Parts

Part Number	Thumbnail	QTY / Per Top Brush	Description
20019042		10	Compact TB Counterweight Plate Yellow PC
10011743		1	Flender Style TT Gearbox 16:1 Ratio 1HP
10011747		1	Gearbox Only, Flender Style TT 16:1
10013419		1	Torque Plate, CTB Electric SS
20018767		1	Bushing for Torque Plate CTB
20018676		1	Compact Top Brush Main Arm Weldment

20018684		1	Shaft, Main Pivot Shaft Compact Top Brush
10013441		1	Beam Clamp CTB PC Black
20015333		2	Retract Attachment Bracket Blk PC
20014396		1	Sleeve Spacer, 7/16 ID 13/16in Long
10007439		2	Bearing 2-Bolt Pillow Block 2in Timken
20018885		1	Compact Top Brush Header Beam Weldment
10013427		1	Compact Top Brush Support Clamp Plate
20019025		1	Compact Top Brush, Air Cylinder Assembly

10013737		1	Shock, Lite Touch Compact Top Brush
10010812		2	Rod End Bearing Female 7/16in w/Zerk
20018974		2	Compact Top Brush Shock Mount Plate
10013431		2	Bolt, Hex 3/4-10 X 8 SS Full Threaded
10004669		2	Nut, Hex Finish 3/4-10 SS 75CNFHS
10003431		2	Rubber Stop 3in Dia O.D. x 2.25in Length
10005706		2	AMI Bearing 4-Bolt Piloted Flange 1-1/2"
20018675		1	Compact Top Brush Beam Weldment

10013435		1	Compact Top Brush Corner Gusset Black PC
20018680		1	Shaft, Compact Top Brush Flender Elec
10013718		4	Shim Ring, 1/2" ID x 0.090 Thick 18-8 SS
10013484		2	Compact Top Brush AL End Plate Half
20018685		1	Compact Top Brush Sheetmetal Core Hub
10013483		1	Compact Top Brush AL End Plate Full
10013429		2	Compact Top Brush Core Hub Half Stiffner
10013681 10013680 10013682		1	NEOGLIDE® Compact Top Brush Kit Black NEOGLIDE® Compact Top Brush Kit Blue NEOGLIDE® Compact Top Brush Kit Red

CUSTOMER SERVICE

Need more help?

For questions regarding **installation and/or operational issues and settings**, please contact Sonny's Tech Support at extension 234 or email at Sonnys-Support@SonnysDirect.com.

To order **replacement parts**, contact Customer Service at ext. 200, email us at CustomerService@SonnysDirect.com or visit us on the web at www.SonnysDirect.com.

Toll Free Main Line	800-327-8723
Local Number	954-720-4100
Customer Service	Option 3
Equipment Sales	Option 4
Technical Support	Option 5

Thank you for being a Sonny's car wash equipment owner!

From all of us here at



WARRANTY

SONNY'S ENTERPRISES, INC. FACTORY LIMITED LIFETIME WARRANTY

Equipment manufactured by SONNY'S ENTERPRISES, INC. is warranted to be free from defect in material and workmanship. Welded metal framework and other non-moving, non-wearable fabricated metal components manufactured by Sonny's are warranted for the life of the equipment to the original purchaser. Fabricated metal wearable surface and moving components manufactured by Sonny's are warranted for a period of one (1) year to the original purchaser of the equipment.

All components assembled to Sonny's equipment that are manufactured by others are warranted by the appropriate manufacturer and subject to that manufacturer's limited warranty. Contact Sonny's for the specific information on other component manufacturer's warranty terms. All new cloth shipped with new Sonny's equipment is warranted for a period of one (1) year or 80,000, whichever occurs first.

This warranty is not assignable or transferable. The warranty period begins the first day following installation or 30 days from the original invoice date, whichever occurs first. The Seller's liability shall be limited to repair or replacement of materials found to be defective within the warranty period. In the event of repair or replacement this limited warranty is noncumulative. The Purchaser must supply the Seller with immediate written notice when any defects are found. The Seller shall have the option of requiring the return of defective material to establish the Purchaser's claim. Neither labor nor transportation charges are included in this warranty. Transportation damage claims are to be submitted to the carrier of the damaged materials.

This warranty is based upon the Purchaser's reasonable care and maintenance of the warranted equipment. It does not apply to any equipment which has been subject to misuse, including neglect, accident or exposure to harsh chemicals or chemicals that react violently with: water, organic acids (e.g. acetic acid), inorganic acids (e.g. hydrofluoric acid), oxidizing agents (e.g. peroxides), and metals (e.g. aluminum). Chemicals corrosive to: aluminum alloys, carbon steel, and other metals. Nor does it apply to any equipment which has been repaired or altered by anyone not so authorized by Sonny's. Further, the equipment must be properly installed with proper accuracy of all specified plumbing, electrical, and mechanical requirements. This warranty does not apply to normal wear and tear or routine maintenance components.

EXCEPT AS EXPRESSLY STATED HEREIN, SONNY'S SHALL NOT BE LIABLE FOR DAMAGES OF ANY KIND IN CONNECTION WITH THE PURCHASE, MAINTENANCE, OR USE OF THIS EQUIPMENT INCLUDING LOSS OF PROFITS AND ALL CLAIMS FOR CONSEQUENTIAL DAMAGES. THE LIMITED WARRANTY EXPRESSED HEREIN IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED. SONNY'S NEITHER ASSUMES NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION HERewith.

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