

**TECHNICAL SERVICE BULLETIN****Bulletin No.:** TSB-015**Date:** June 16, 2015**Subject:** Cylinder Movement in Brackets**Models:** All Back Of Cab Fuel Storage Modules**Background**

Quantum fuel storage modules (FSMs) are designed provide a safe and durable fuel storage solution for class 7 and class 8 commercial trucks

**Condition**

In some cases, the cylinder(s) may rotate and/or move laterally within the fuel storage module cylinder support brackets.

**Cause**

Mechanical loads induced by normal vehicle operation in conjunction with pressure cycling of the cylinder may cause the cylinder(s) to rotate and/or move laterally within the fuel storage module cylinder support brackets.

**Correction**

Inspect the cylinders in the fuel storage module for rotational and lateral movement. If any of the cylinders have moved beyond the specifications outlined in the Cylinder Position Inspection section in this document, then the cylinder will need to be repositioned in the fuel storage module cylinder brackets before proceeding.

If the cylinders are all properly positioned, in the fuel storage module cylinder support brackets, then proceed with the cylinder positioning block kit installation instructions.

**Labor Time**

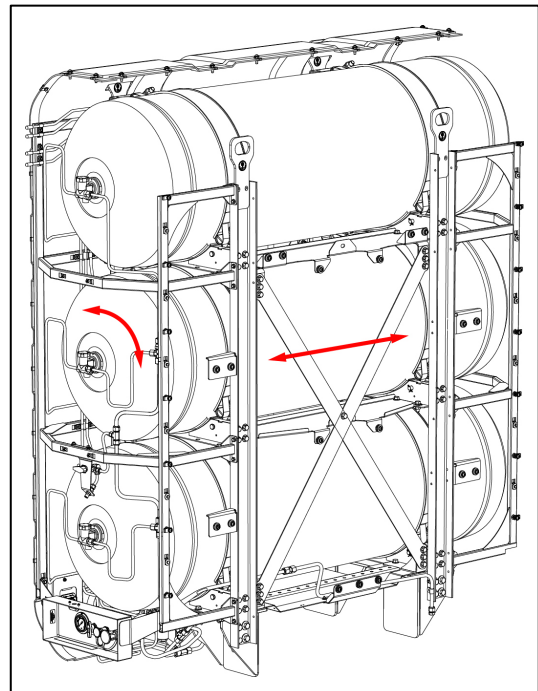
Inspection Labor Time - 0.7 Hours

Remove and Replace Side Covers – 1.5 Hours

Isolator Trimming – 1.5 Hours

Cylinder Positioning Block Kit Installation – 1.5 Hours

Cylinder Venting Allowance (400 psi to 0 psi) – 4 Hours



**TECHNICAL SERVICE BULLETIN****Parts Information**

Each shipment will include one (1) Cylinder Positioning Block Kit.

Use the Order Form included in this bulletin to indicate the kit tools as needed.

| Cylinder Positioning Block Kit - 117222 |     |                                          |
|-----------------------------------------|-----|------------------------------------------|
| Quantum PN                              | Qty | Description                              |
| 117217                                  | 12  | Positioning Blocks – Rotational Movement |
| 117218                                  | 6   | Positioning Blocks – Lateral Movement    |
| 117330-001                              | 3   | Adhesive – ASI MP55320 (50ml)            |
| 117504                                  | 2   | Mixer Nozzle – 10:1 Cartridge            |
| 116619                                  | 1   | Service Identification Label             |

| Tool Kit Options |     |                         |
|------------------|-----|-------------------------|
| Quantum PN       | Qty | Description             |
| 117505           | 1   | Reusable Dispensing Gun |

**Contact Information:**

E-Mail: [QTService@qtw.com](mailto:QTService@qtw.com)

Phone: 800.816.8691

Fax: 949.930.3401

**TECHNICAL SERVICE BULLETIN**

 One Sheet  
Per Vehicle

**Order Form – Cylinder Positioning Block Kit**
**TSB-015**

Fax to 949.930.3401

 Email to [QTService@qtww.com](mailto:QTService@qtww.com)

The following information must be complete and legible:

1) Name:

2) Order Date:

3) Contact Phone:

4) Email (If applicable):

5) Complete VIN:

6) FSM Serial Number:

7) Vehicle Mileage:

8) Vehicle Year:

9) Vehicle Make &amp; Model:

10) Shipping Address\*:

Please indicate the parts needed for this vehicle. Place an "X" in the box for the parts required.

| Check | Quantity | Description                    | Quantum PN |
|-------|----------|--------------------------------|------------|
| X     | 3        | Cylinder Positioning Block Kit | 117222     |
|       |          | <b>Tool Kit Options</b>        |            |
|       |          | Reusable Dispensing Gun        | 117505     |

\* Parts will be shipped UPS Ground. If expedited shipping is required, please provide the shipping number and preferred carrier.

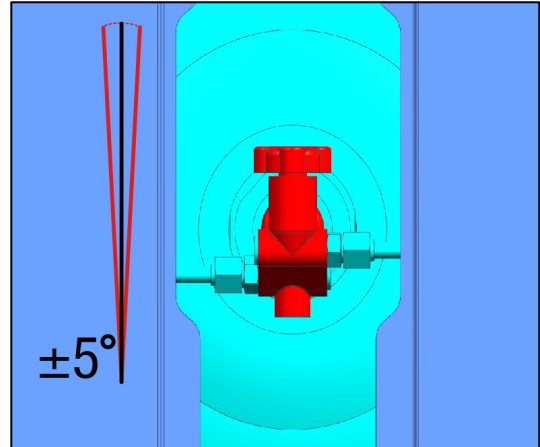
## TECHNICAL SERVICE BULLETIN

### Cylinder Position Inspection

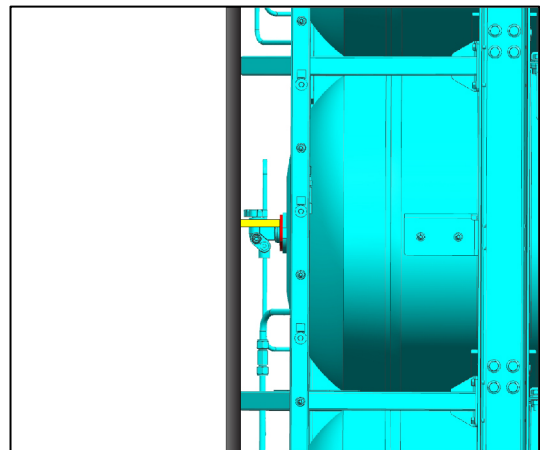
1. Inspect the cylinder for rotational movement. Position an angle indicator on one of the frame pieces of the fuel storage module to gauge the angle of the entire fuel storage module. The reading from the frame will need to be subtracted from the reading taken from the cylinder valves.

Use an angle indicator tool on the valve to determine the valve angle. If the cylinder has rotated more than  $\pm 5^\circ$ , then the cylinder will need to be repositioned in the cylinder support brackets before proceeding.

*Valve Angle – Frame Angle = Actual Valve Angle*

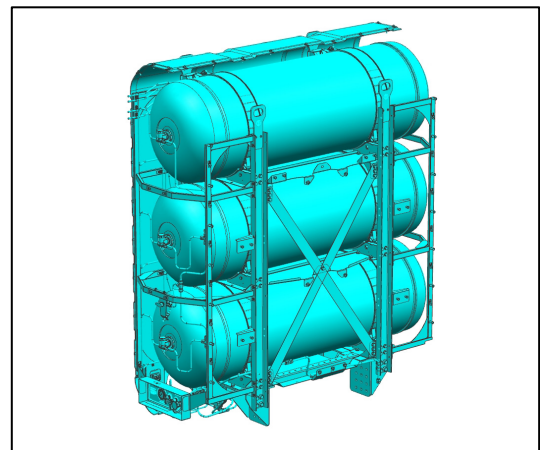


2. Inspect the cylinder for lateral movement. Open the cylinder access door and place a straight edge (such as a level shown in grey in the illustration to the right) against the outer frame. Use a tape measure (shown in yellow in the illustration) and measure the distance between the straight edge and the cylinder valve boss. The cylinder must be within 2.7"-3.5" (68-88mm). Check all three (3) valves. If the cylinder is outside of range, then the cylinder will need to be repositioned in the cylinder support brackets before proceeding.



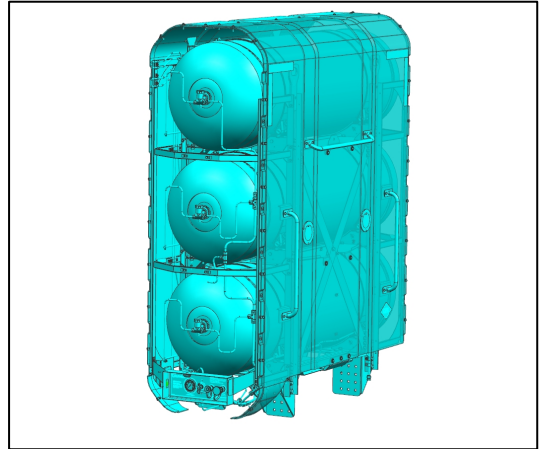
3. Repeat this inspection for the 2 remaining cylinders. If all cylinders are properly positioned, then proceed to the installation of the cylinder position blocks as defined in this bulletin.

If any parts were noted as damaged during the inspection, then order new parts at this time.



**TECHNICAL SERVICE BULLETIN****Cylinder Positioning Block Kit Installation Instructions**

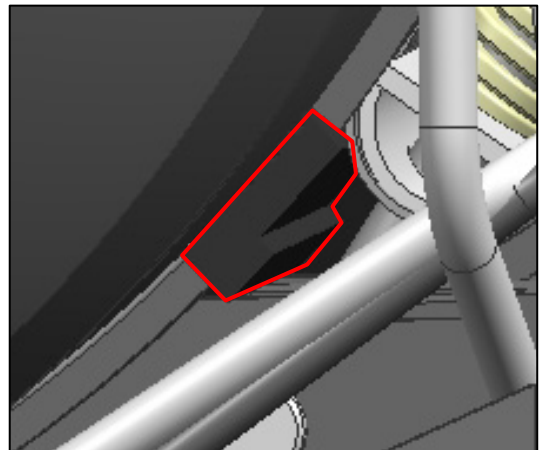
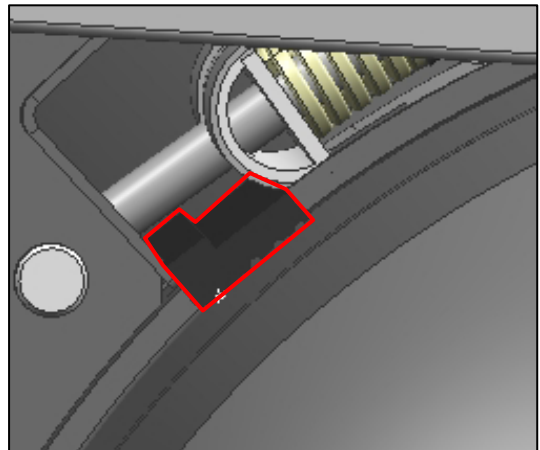
1. Follow Quantum's CNG Cylinder Installation and Maintenance Manual for general fuel system safety procedures and guidelines. The manual is available at [www.qtwv.com](http://www.qtwv.com).
2. Remove and retain the bolts retaining the side cover assemblies.
3. Remove the side cover assemblies.



4. Confirm the rotational movement blocks, supplied in the kit, will dry fit in between the cylinder support bracket saddle and strap.

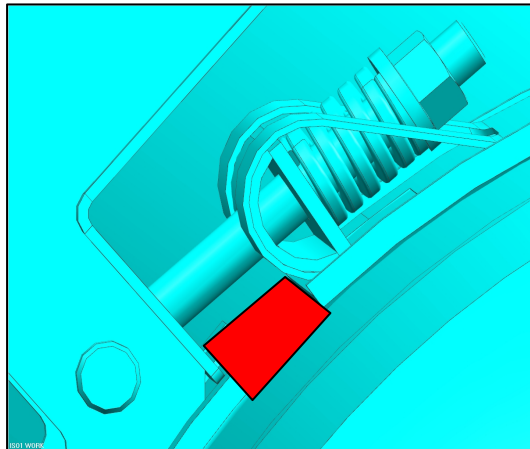
Rotational Movement Blocks – PN 117217  
Lateral Movement Blocks – PN 117218

If the isolator material from the strap or bracket is impeding the rotational movement blocks, then replace the isolator(s).

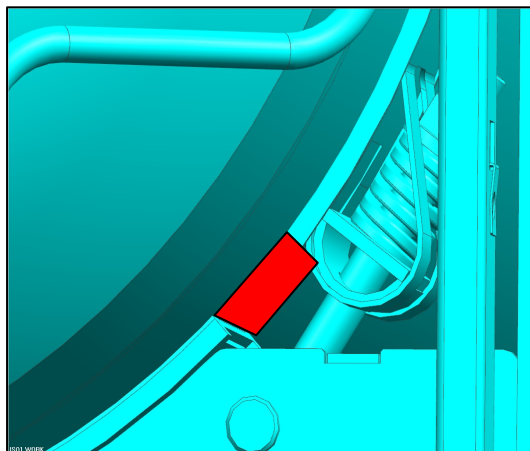


**TECHNICAL SERVICE BULLETIN****CAUTION**

The adhesive and the rotational movement blocks may not bond to the cylinder surface if there is any dirt or residue present during application. Thoroughly clean and flush the area between the cylinder support bracket saddles and straps using isopropyl alcohol (70% recommended for longer flash time which aids in cleaning) and a 2" bottle brush. Failure to thoroughly clean and remove all dirt and residue will cause the adhesive bond to fail and create a hazardous condition which could result in minor or moderate injury.

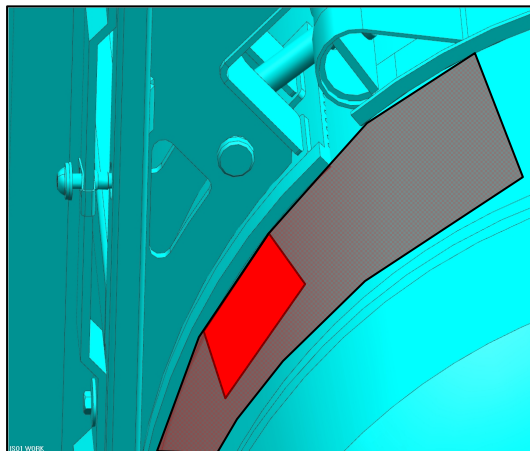


5. Thoroughly clean all of the rotational movement blocks (PN 117217).

**CAUTION**

The adhesive and the lateral movement blocks may not bond to the cylinder surface if there is any dirt or residue present during application. Thoroughly clean and flush the area between the cylinder support bracket saddles and straps using isopropyl alcohol (70% recommended for longer flash time which aids in cleaning) and a 2" bottle brush. Failure to thoroughly clean and remove all dirt and residue will cause the adhesive bond to fail and create a hazardous condition which could result in minor or moderate injury.

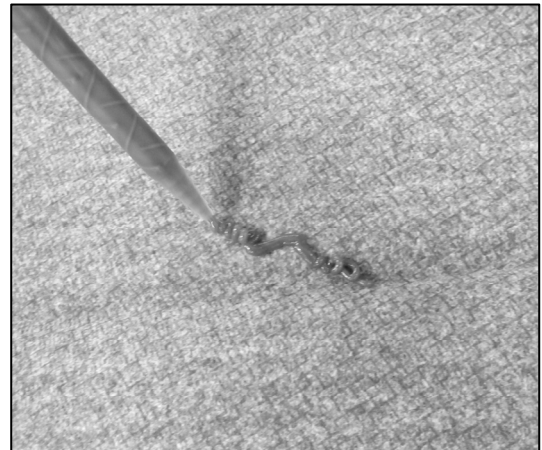
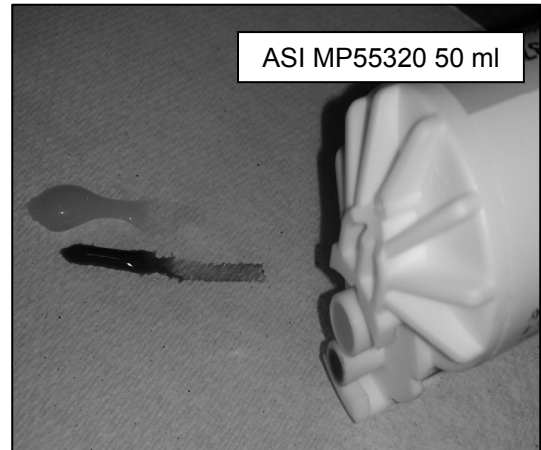
6. Before proceeding, ensure enough time has passed that the cleaner has completely and thoroughly dried.



**TECHNICAL SERVICE BULLETIN****CAUTION**

The adhesive will fail to reach full bond strength if the mix is incorrect. Run a 2" bead of adhesive to confirm the adhesive mix and color. If the mix is incorrect, remove and replace the nozzle and run a 2" test bead until the mix is correct. Failure to apply a correct adhesive mix will compromise the bond strength and could result in minor or moderate injury and/or damage to components.

7. Prepare the adhesive by slowly squeezing the handle until both of the adhesive cylinders in the cartridge have purged any remaining air.
8. Attach the mixing nozzle onto the adhesive gun and purge a 2" strip onto a paper towel.



**TECHNICAL SERVICE BULLETIN****CAUTION**

The bond of the adhesive may fail if the adhesive is allowed to skin before bonding the blocks to the cylinder. Do not allow the adhesive skin before bonding the blocks to the cylinder. Failure to follow this instruction could result in minor or moderate injury and/or damage to the components

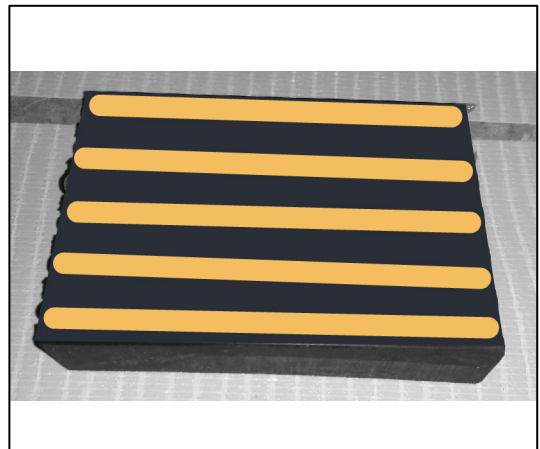
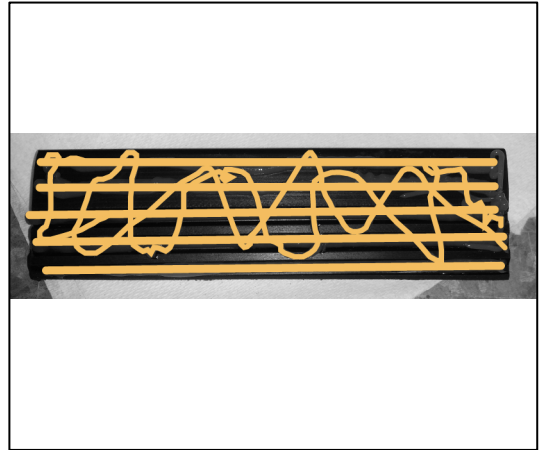
**CAUTION**

The adhesive will skin in one minute which will render the adhesive useless. Apply the adhesive and attach the positioning block in less than one minute. Failure to apply the adhesive and attach the positioning block in less than one minute will cause the adhesive to fail to bond and could result in minor or moderate injury and/or damage to the components.

The adhesive being used will begin to cure very quickly and assembly must occur within the time periods defined below (ASI MP55320):

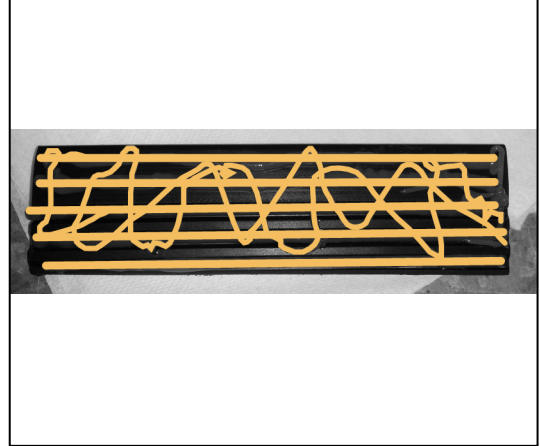
- The working time is 8-12 minutes. Working time is the time between when the adhesive is applied to the block and when the block is applied to the surface of the cylinder.
- The fixture time is 25-35 minutes. Fixture time is the time when the block has been applied to the surface of the cylinder and adjusting the block to its final position. Moving the block during or after the specified fixture time may adversely affect the adhesive strength.
- Duration of time until the adhesive is fully cured is 24 hours, however the vehicle can be put into service after 2 hours.

**Temperature and humidity will affect curing times. High ambient and/or component temperatures and low humidity will cure faster. Low ambient and/or component temperatures and high humidity will cure slower. Do not apply below 32°F.**



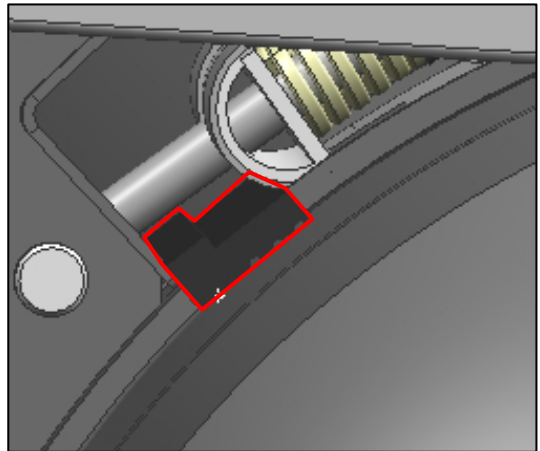
**TECHNICAL SERVICE BULLETIN**

9. Working with one position block at a time, apply adhesive to a clean, dry rotational movement block (PN 117217) using a linear pattern on the block as shown and ensure the surface will be completely covered.



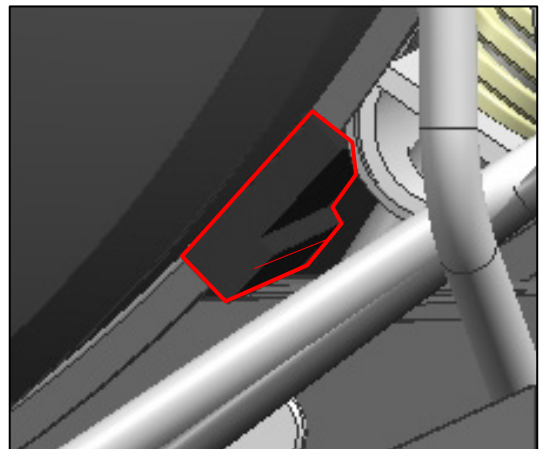
10. Install the block into position approximately as shown. The large shoulder of the block must be flush against the isolator and the cylinder support bracket.

**Note:** Thicker edge of material must be installed against the cylinder bracket.



11. Apply the remaining cylinder rotational movement blocks to the cylinder in the locations shown with the large shoulder of the block flush against the isolator.

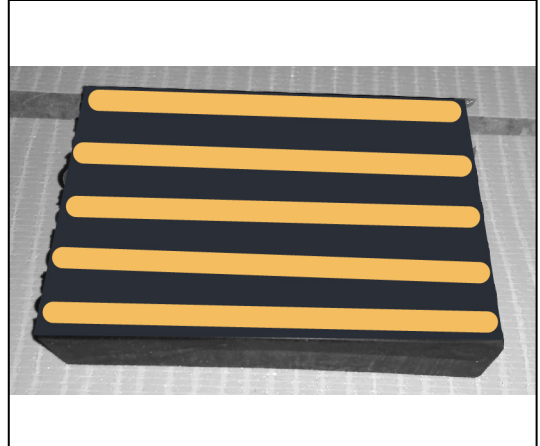
**Note:** Thicker edge of material must be installed against the cylinder bracket.



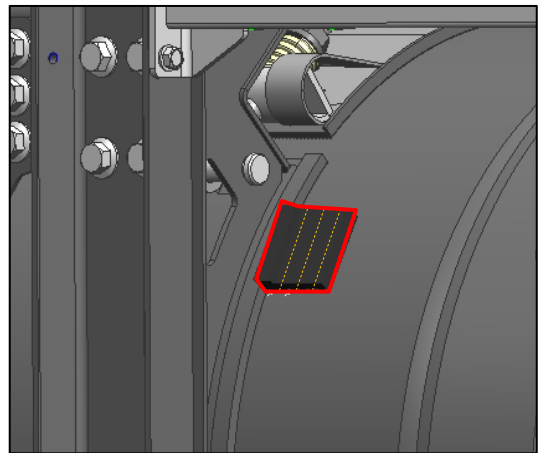
**TECHNICAL SERVICE BULLETIN**

12. Working with one position block at a time, apply adhesive to a clean, dry rotational movement block (PN 117218) using a linear pattern on the block as shown and ensure the surface will be completely covered.

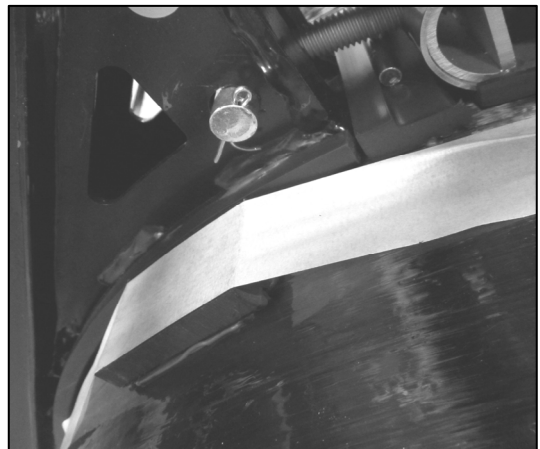
**Apply the adhesive to the flat side of the block.**



13. Install the lateral movement block into position approximately as shown. The block must be flush against the isolator and the cylinder support bracket with the adhesive beads aligned in parallel with the cylinder support bracket.

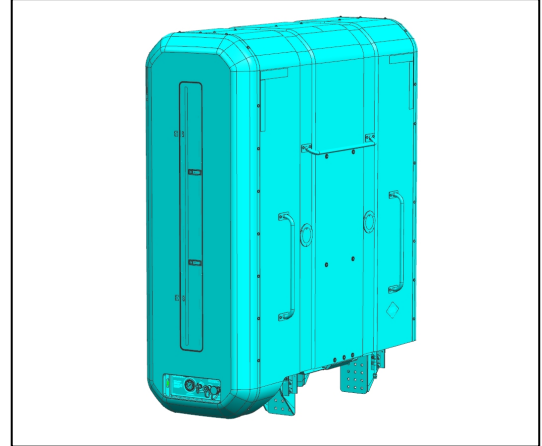


**Note:** A strip of tape over the block for one hour will allow the block to conform to the curvature of the cylinder's surface.



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14. Install the side cover assemblies and torque the fasteners to 71 lb-in (8 Nm).



15. Prepare the inside of the cylinder access door for the service identification label.

The surface and the service identification label must be maintained between 70°-100°F (21°-38°C) prior to installation. Warm the surface and label if necessary.

Clean the surface with isopropyl alcohol solution or equivalent. Surfaces must be dry before label installation. Always use an applicator tool to press decal down firmly and smoothly.



**VEHICLE MUST NOT BE PUT INTO SERVICE UNTIL AFTER 2 HOURS OF BONDING THE CYLINDER POSITIONING BLOCKS TO THE SURFACE OF THE CYLINDER. THE ADHESIVE MUST CURE 2 HOURS BEFORE PRESSURIZING THE CYLINDER. FAILURE TO WAIT 2 HOURS BEFORE PRESSURIZING THE CYLINDER(S) AND PLACING THE VEHICLE INTO SERVICE WILL CAUSE BOND SEPARATION WHICH WILL AFFECT PRODUCT DURABILITY.**