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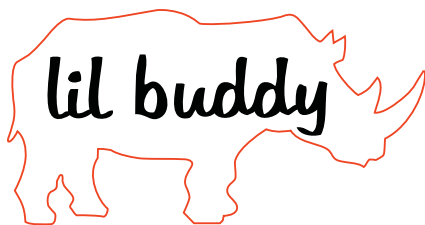
# **lil-BUDDY™ PRO1**

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Windshield Installation Tool



## **Operations Manual**



**lil-BUDDY™** PRO1  
Windshield Installation Tool

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## Safety Warnings

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### **DANGER**

This is the highest level statement. Failure to follow the listed instructions will most likely result in severe injury or death.

### **WARNING**

This is a statement of serious hazard. Failure to follow the listed instructions could place the individual at risk of serious injury or death.

### **CAUTION**

The statements used with this level of warning deal with a safe operating procedure. If the procedure is ignored, the possibility of personal injury may exist.

### **IMPORTANT**

**IMPORTANT** is used to draw attention to a procedure that needs to be followed to prevent machine or property damage.

# Introduction

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<b>IMPORTANT</b>
<b>Read and understand contents of this manual and view the videotape that was sent with the lil-BUDDY PRO1 prior to using this tool.</b>

The lil-BUDDY PRO1 windshield installation tool is intended to provide a safe and fast means for installing windshields in most vehicles. The lil-BUDDY PRO1 when properly operated retains a secure grip on one side of the windshield allowing windshield installation to be done by a single technician. The technician can easily manoeuvre, and accurately position a replacement windshield.

The lil-BUDDY PRO1 product is covered by following U.S. patents: (patent # pending) and pending U.S. and foreign patent applications. lil-BUDDY™, lil-BUDDY™ PRO and lil-BUDDY™ PRO1 are a trademark of lil-BUDDY Corporation.

# Setting Up The Lil Buddy

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This section covers the setting up of the lil-BUDDY PRO1. It provides information about health and safety, and checks that should be made prior to starting a job.

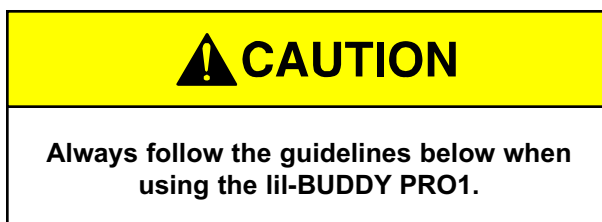
It assumes that you have already removed the old windshield, using any vehicle protection that was necessary for that operation.

The actual windshield placement operation is covered under Using The Lil Buddy. See page 12.

## Before You Start

- Use any additional tape or other protection on the paintwork around the edge of the windshield opening.
- Clean the glass on which the lil-BUDDY PRO1 is to be mounted to, ensure there is no dust or dirt that will affect the strength of grip.
- Completely close the window on which the Base Pivot Cup is to be mounted. If the window is slightly open, there could be movement in the Base Pivot Cup that provides an unstable lift for the technician.
- Ensure that the door on which the Base Pivot Cup is to be mounted is completely closed.
- Place some tape or retention strips on either side of the vehicle roof to use once the new windshield has been fitted.
- Place the new windshield on a cradle to the side of the vehicle in readiness for placement.
- Locate two lil BUDDY Jr. suction cups to help with lifting the replacement windshield.

## Health And Safety

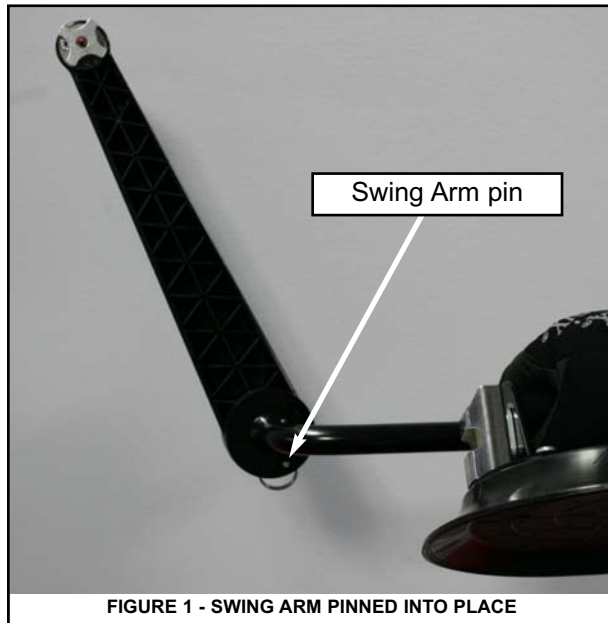


- To avoid the risk of harm to bystanders, make sure that people are kept away from the working area while the glass replacement is in progress.
- Wear safety gloves to protect the hands.
- Wear safety glasses to protect the eyes.

## Attaching The Base Pivot Cup

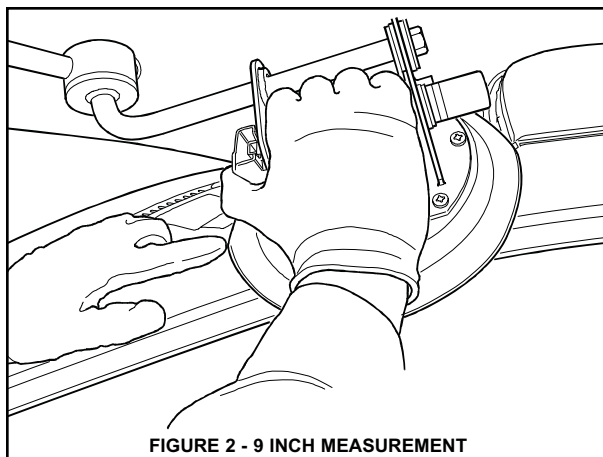
The Base Pivot Cup is normally mounted on the drivers door glass of a vehicle. Windshield installation can be done with the Base Pivot Cup mounted on the passenger door glass of a vehicle with the passenger side model. Drivers side model shown in this manual.

1. Pin Swing Arm into position. See figure 1.



2. Use the Base Pivot Cup to measure 9 inches from the top of the windshield pillar down the side of each windshield side pillar. Use tape, your finger or a grease pen to mark both side pillars. See figure 2.

The measurements should NOT include any molding or trim present; it should be taken from where the edge of the glass will be placed.



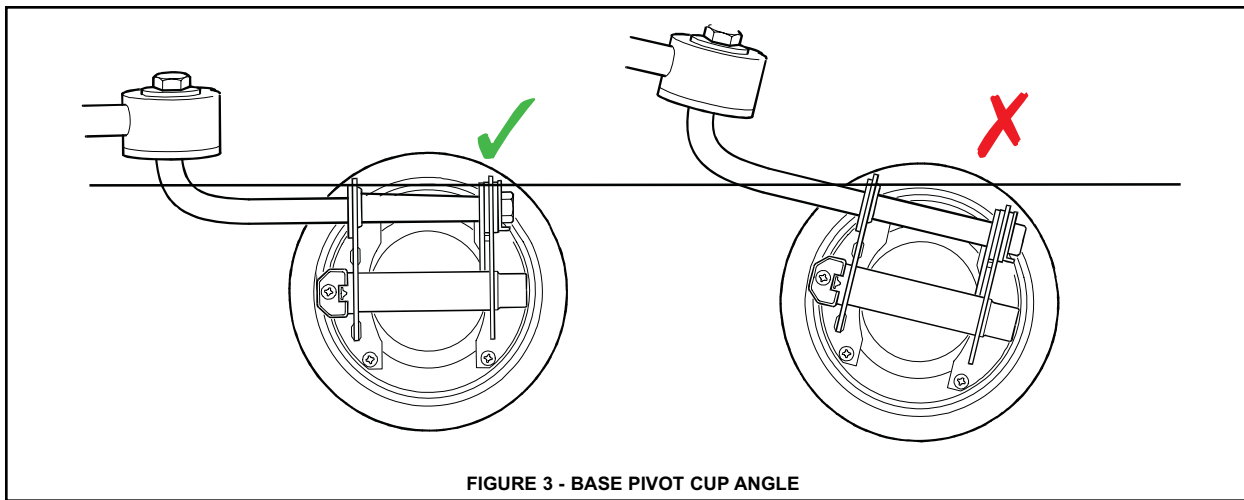


FIGURE 3 - BASE PIVOT CUP ANGLE

2. Move the Base Pivot Cup and position it on the side window so that:
  - The Base Pivot Cup is parallel with the ground. Use the handle grip to visually achieve this. See figure 3.
  - The red dot on the Swing Arm is in line with the 9" mark on both windshield side pillars. See figure 5.
3. Light pressure can be used on the cup to keep it in place on the door glass while it is being positioned correctly.
4. When you are completely happy with the position, firmly fix the cup by doing the following:

- Push the pump several times, rapidly. As you do so the air between the cup and the glass will be removed and the amount of the button showing will gradually reduce.
- Keep pushing the pump until you can no longer see the red line.

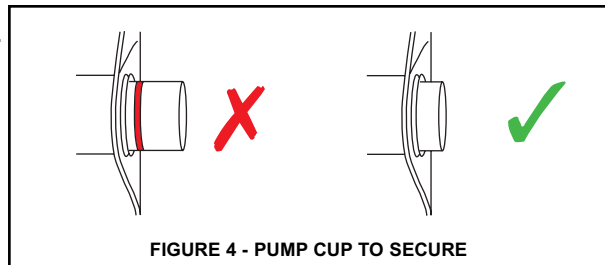


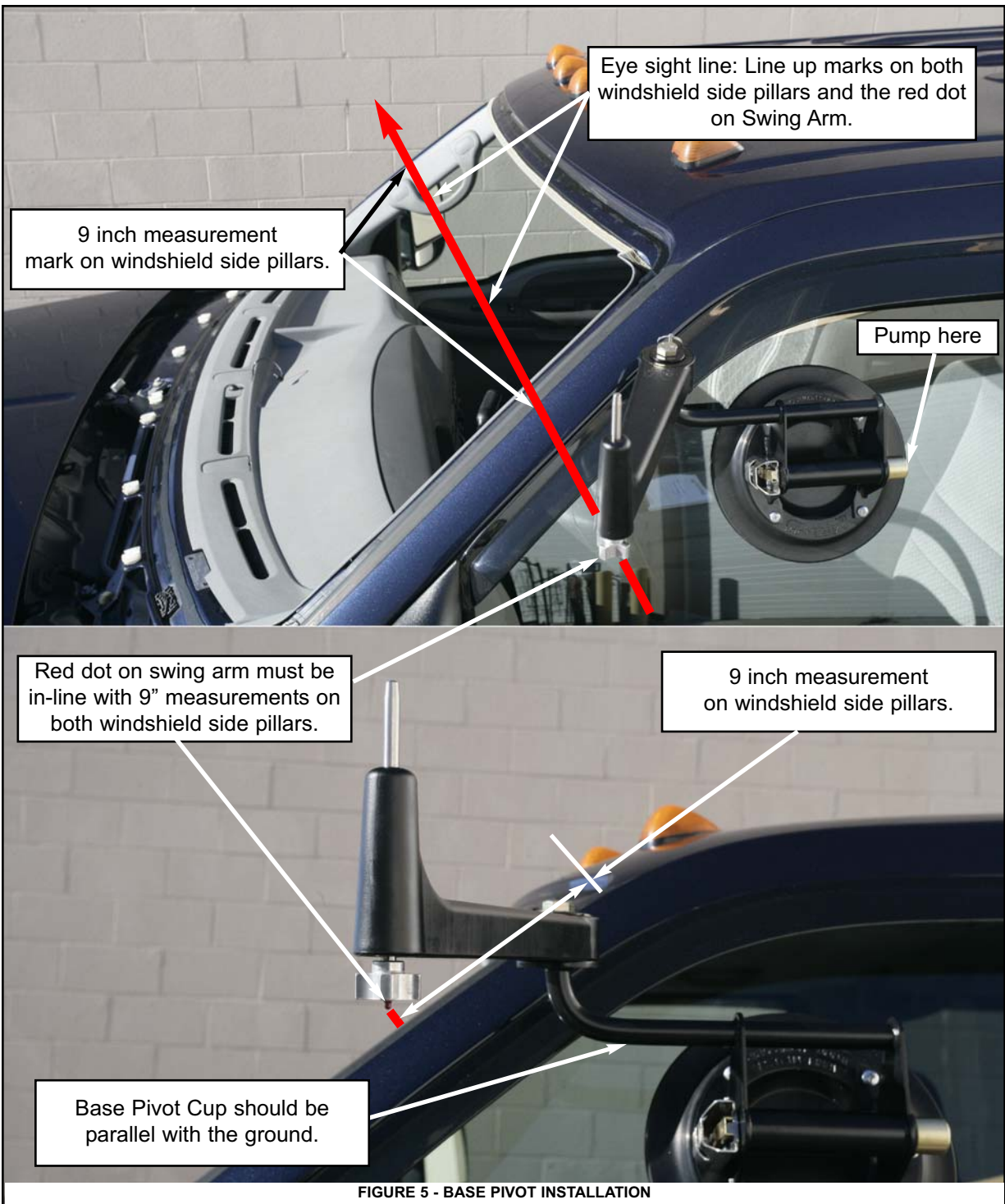
FIGURE 4 - PUMP CUP TO SECURE

**⚠ WARNING**

After Base Pivot Cup has been secured to the door glass, check placement to ensure proper red dot location. If red dot is not in-line with both windshield side pillar markings, repeat steps 2 through 4.

5. Pull the pin locking the Swing Arm into place so it is ready for windshield installation.





**⚠ CAUTION**

Swing Arm location must be correct for proper windshield placement. See troubleshooting section for additional information.

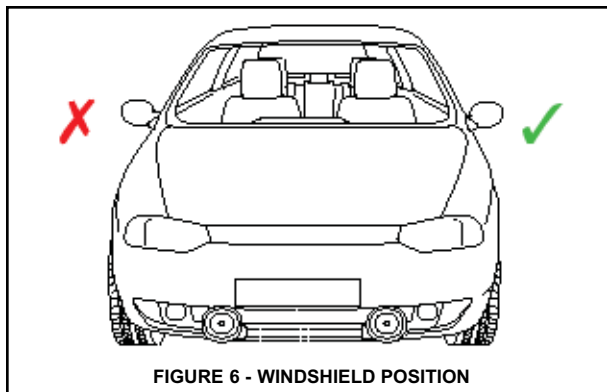
## Attaching The Sliding Rod Cup

### IMPORTANT

Before installing the Sliding Rod Cup, ensure that the outside of the windshield is clean.

The Sliding Rod cup is placed on the new windshield before starting to lift it into position.

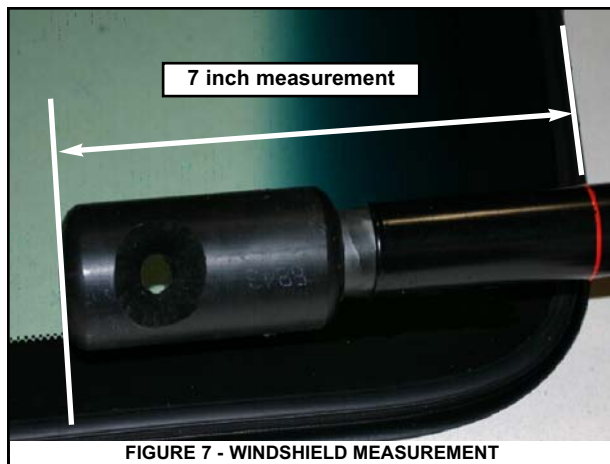
1. Position a cradle close to the left-hand side of the vehicle and place the new windshield on it, with the outer side facing upwards.



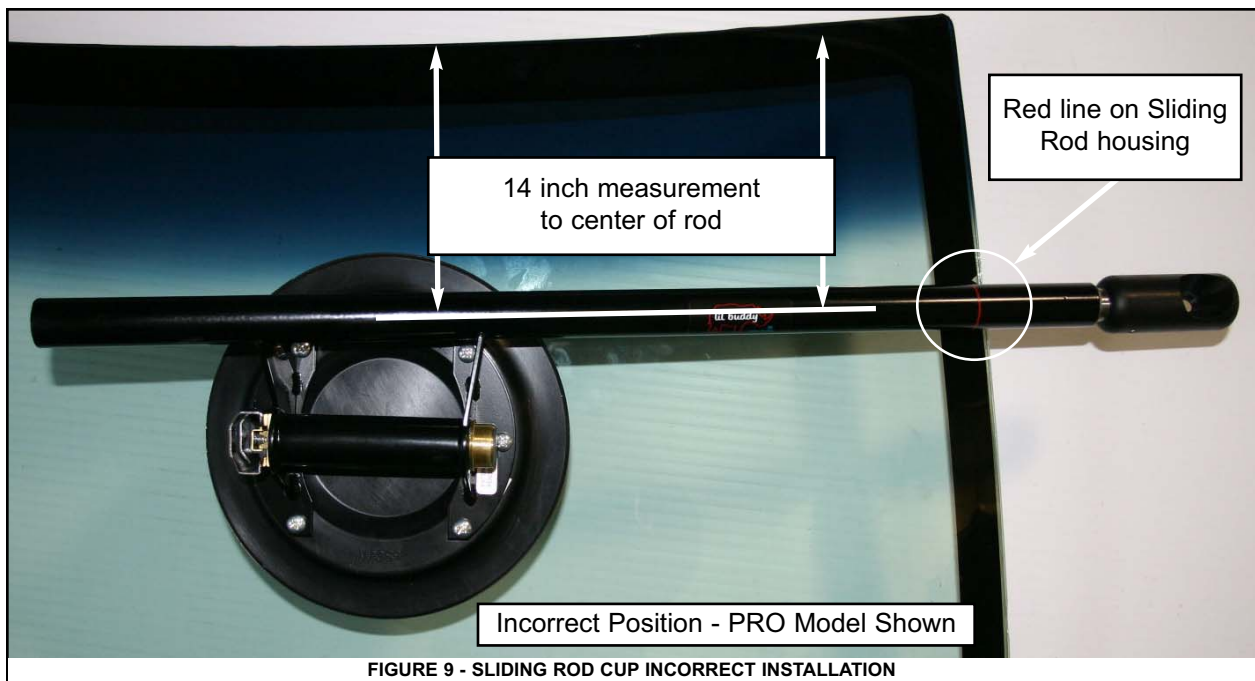
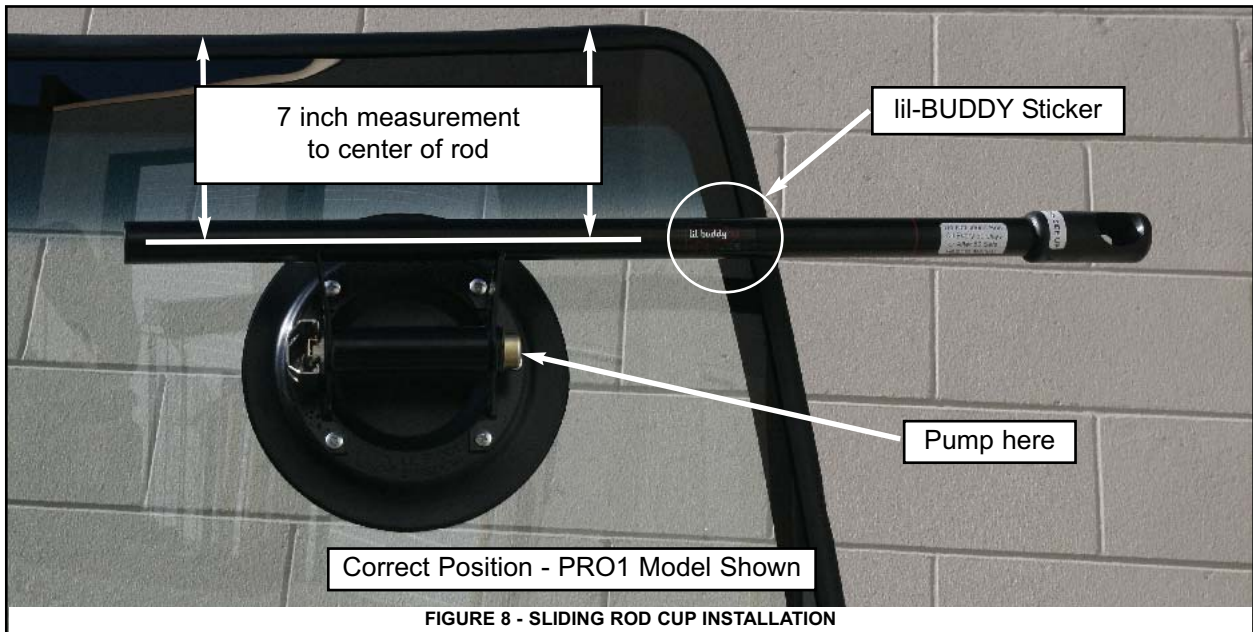
2. On the right-hand side of the windshield, using the red line marked on the collapsed Sliding Rod measure down 7 inches from the top. Mark with your finger or a grease pen. See figure 7.

When taking this measurement:

- The rod should NOT be extended.
- The distance measured should NOT include any moulding or trim present; it should be taken from where the glass starts.

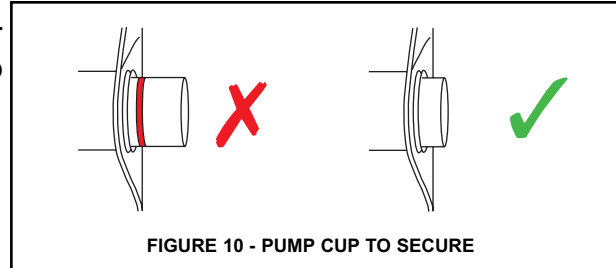


3. Move the Sliding Rod Cup and position it on the glass so that:
- The rod is parallel to the windshield top edge. See figure 8.
  - The center of the rod is centered on the 7 inch mark. See figure 8.
  - The Lil Buddy label on the rod is just on the edge of the windshield. See figure 8.



4. When you are completely happy with the position, firmly fix the cup by doing the following:

- Push the pump several times, rapidly. As you do so the air between the cup and the glass will be removed and the amount of the button showing will gradually reduce.
- Keep pushing the pump until you can no longer see the red line.



## ! WARNING

After Sliding Rod Cup has been secured to the windshield, check placement to ensure proper rod location. If rod movement occurred, repeat steps 3 and 4.

5. Attach two lil Buddy Jr. suction cups to the other side of the windshield. They can be placed wherever you like, as long as they are shoulder width apart. So put them where they feel most comfortable for you when lifting and moving the windshield. See figure 11.

## IMPORTANT

lil BUDDY Jr. hand suction cups **MUST BE** placed shoulder width apart for proper windshield leverage.


6. Use one of the lil Buddy jr. suction cups and the handle on the Sliding Rod Cup, to turn the windshield over and round so that the Sliding Rod Cup is closest to the car.



## Final Checks

With both Lil Buddy components in place, take some time to visually check everything is correct. This is the time to make any final adjustments and corrections to ensure a straight-forward replacement.

- Make sure the two units are positioned correctly on the glass.
- Ensure the red line on the pump of each unit is not showing. If it is, the cup is not totally secure on the glass. To rectify it, push the pump a few times, rapidly, until the red line is no longer in view.

 <b>WARNING</b>
<b>Visually check cup seals before setting windshield into place. A red line showing on the cups brass pump rod indicates a bad seal. DO NOT use the Lil-Buddy with a bad seal.</b>

- Ensure you have placed some tape or retention strips either side of the vehicle roof. These will be used to prevent slippage once the new windshield has been fitted.

## Using The Lil Buddy

### WARNING

Visually check cup seals before setting windshield into place. A red line showing on the cups brass pump rod indicates a bad seal. DO NOT use the Lil-Buddy with a bad seal.

**NOTE:** It is advisable to do a test-run of putting the new windshield in place prior to gluing. This is so you can work out the exact manoeuvring required without having to worry about accidentally smudging glue on the paintwork.

1. Turn the windshield over on the cradle and prep for windshield for installation, apply glue.
2. If necessary, move the cradle with the windshield close to the side of the vehicle where the Base Pivot Cup is attached to the door glass.
3. Adjust the end of the rod so it is the correct way for placing onto the Base Pivot Cup.  
The side with the deeper cut-out needs to be facing upwards; the side of the shallower cut-out need to be facing downwards. There should be a sticker on the rod end showing which side is up. See figure 12.

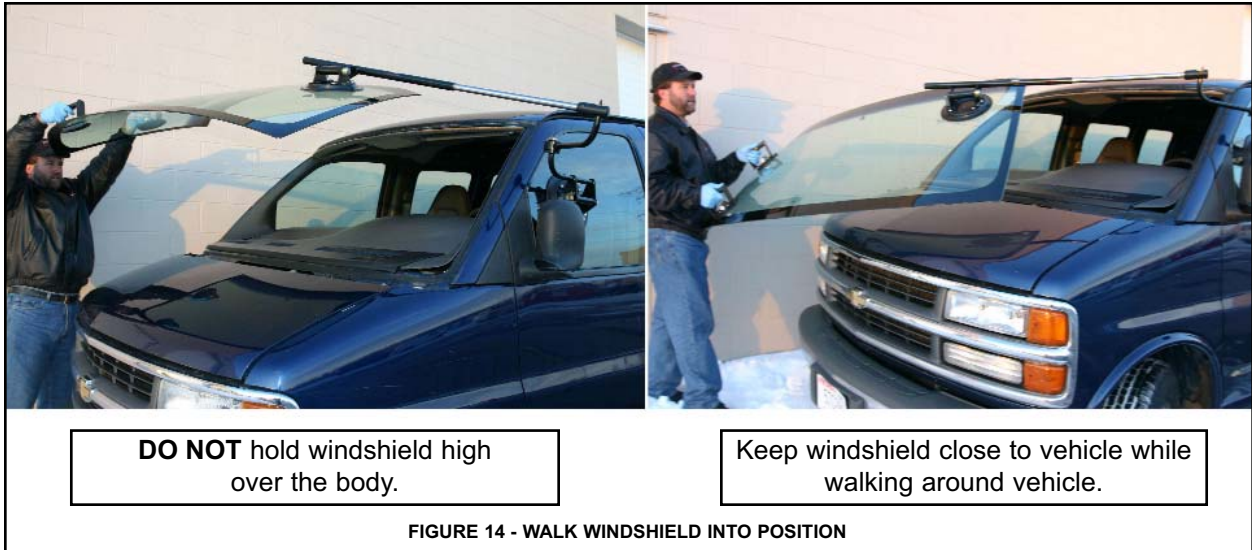


4. Fully extend the sliding rod and carefully place the rod end onto the pin at the end of the Swing Arm. See figure 13.



FIGURE 13 - INSTALLATION OF SLIDING ROD END TO SWING ARM

5. While using both lil Buddy Jr. suction cups, properly lift the windshield and gradually move away from the vehicle to extend the sliding rod out for optimum clearance.
6. Gradually move around the front of the vehicle. Stay close to the vehicle as you go and ensure you lift the windshield enough to clear the vehicle, but **DO NOT** lift it high.



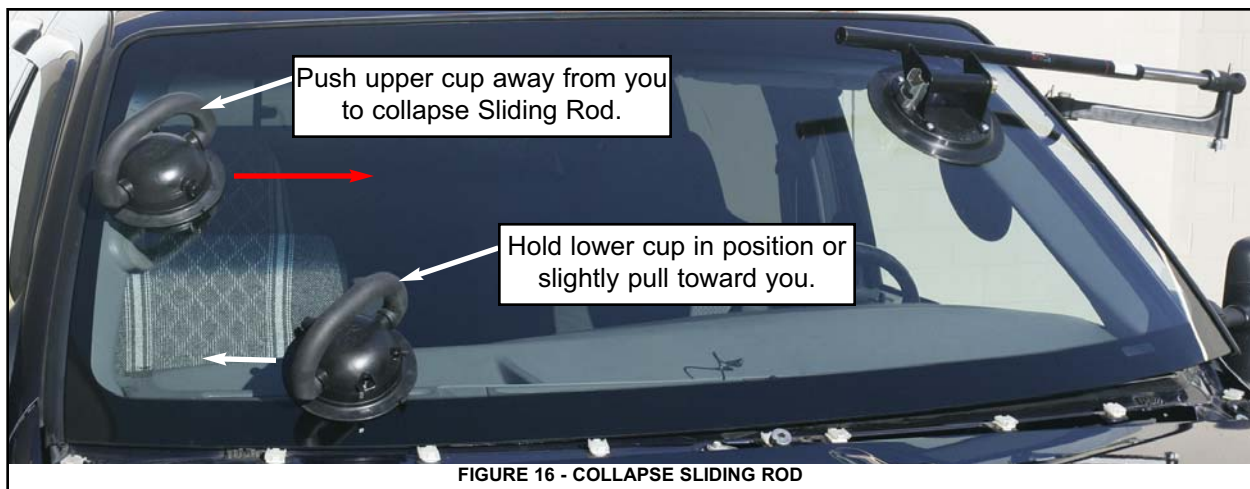
7. When you get to the front tire on the other side of the vehicle, push back on the Swing Arm so it moves around and away from the vehicle. Swing Arm should be positioned approximately where it was when Base Pivot Cup was installed. See figure 15.

**⚠ CAUTION**

**Swing Arm location must be correct for proper windshield placement. See troubleshooting section for additional information.**

8. Continue to push back on the arm to reduce the rod length. At the same time, manoeuvre the windshield so it hovers above its final position. See figures 15 and 16.





9. Use the following sequence to drop the windshield into its final position.
  - Set the top corner of the windshield into place.
  - Move the windshield, as necessary, to position it correctly over the bottom corner.
  - Set the bottom corner into place.



10. Place the retention strip or tape from the vehicle roof across the top of the vehicle and windshield to prevent it slipping while the glue is bonding.
11. Walk around to the other side of the vehicle.



**⚠ WARNING**

**DO NOT touch extended (silver) portion on the Sliding Rod. ALWAYS hold black Sliding Rod Housing.**

12. Take hold of the black Sliding Rod Housing and support the weight of the windshield. Release the Swing Arm pin and pivot arm out of the way. See figure 18.



Turn clockwise on Swing Arm pin and then pull down to release.

Once Swing Arm pin is released pivot Swing Arm out of the way.

FIGURE 18 - SWING ARM PIN RELEASE

13. As you drop the Sliding Rod Housing, fit the windshield into its final position by lining-up the top corner and then placing the whole side into position in one operation.
14. Place the second retention strip or tape across the top of the vehicle and windshield.
15. Remove the Base Pivot Cup and Sliding Rod Cup from the glass by pressing the release levers. You could also use your finger to break the seal between the cup and glass. See figure 19.
16. Put the units immediately into the carry case.

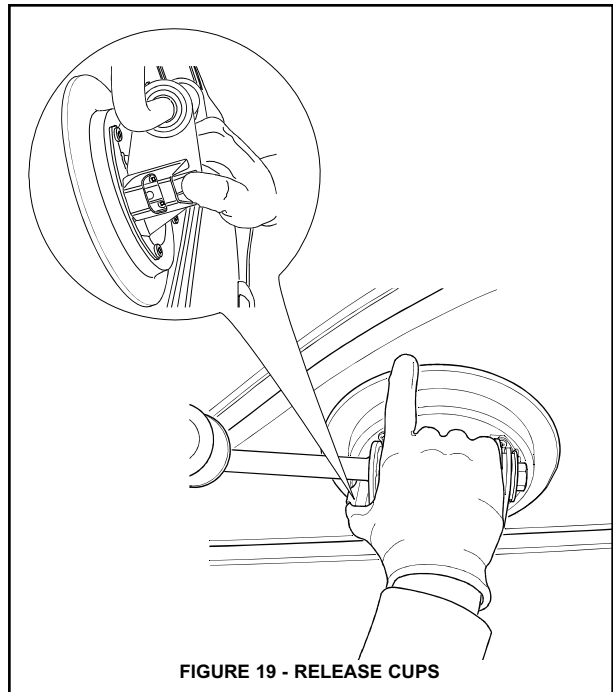


FIGURE 19 - RELEASE CUPS

# Maintenance

**⚠ WARNING**

DO NOT touch extended (silver) portion on the Sliding Rod. ALWAYS hold black Sliding Rod Housing.

**⚠ WARNING**

After lubrication; slowly collapse silver Sliding Rod allowing excess oil to escape out the end of black Sliding Rod Housing. BEWARE oil will spray out the black Sliding Rod Housing if collapsed to fast.

**IMPORTANT**

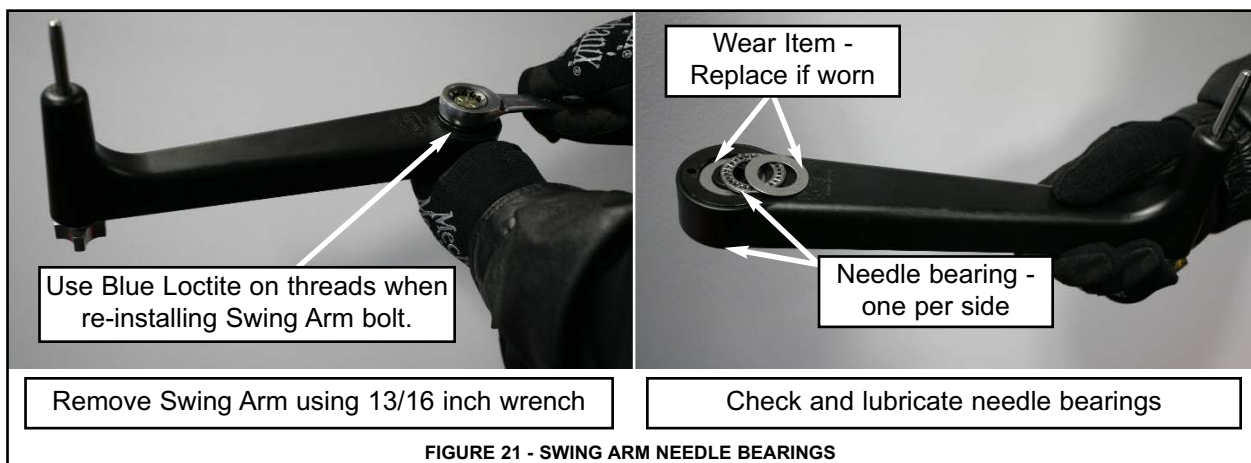
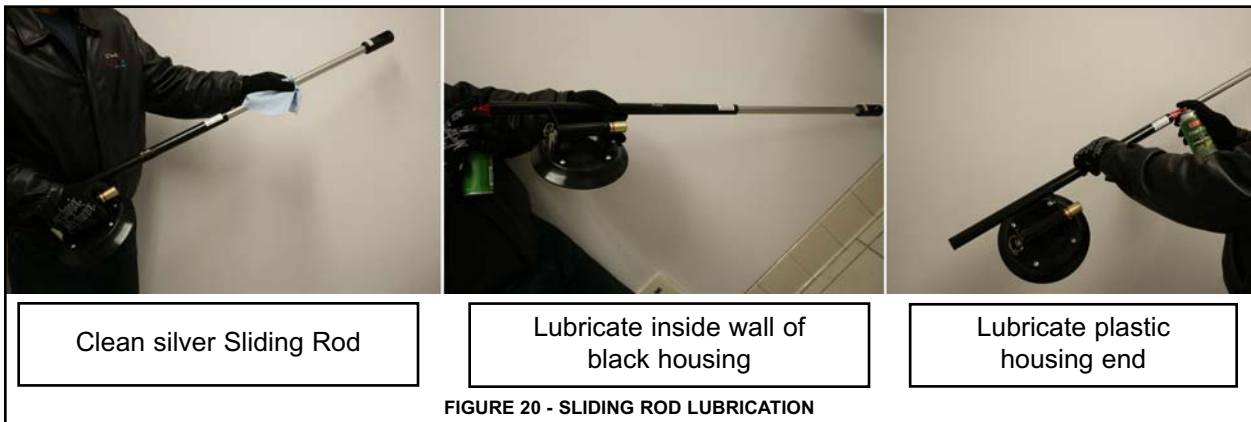
Be sure to clean up excess oil after lubricating Sliding Rod.

## Every 50 Sets or 30 Days

1. Extend and clean silver Sliding Rod. See figure 20.
2. Lubricate black Sliding Rod Housing. Spray approximately 2 to 3 seconds into housing to ensure full lubrication of seals. Use CRC TrueTap Foamy Cutting Fluid or specific lil Buddy lubricate. See figure 20.

## Every 1000 Sets or 1 Year

1. Perform 30 days maintenance.
2. Lubricate Swing Arm needle bearings. Check for worn bearings, replace as needed. See figure 21.



# Troubleshooting

Problem	Probable Cause	Solution
1. Windshield is hovering to close (low) to side of vehicle where lil BUDDY is mounted.	<ul style="list-style-type: none"> <li>a. Base Pivot Cup mounted to low on door glass.</li> <li>b. Sliding Rod Cup mounted to high on windshield.</li> <li>c. Swing Arm swung to far back</li> </ul>	<ul style="list-style-type: none"> <li>a. Adjust Base Pivot Cup See figure 22.</li> <li>b. Adjust Sliding Rod Cup See figure 23.</li> <li>c. Adjust Swing Arm See figure 24.</li> </ul>
2. Windshield is hovering to far (high) from side of vehicle where lil BUDDY is mounted.	<ul style="list-style-type: none"> <li>a. Base Pivot Cup mounted to high on door glass.</li> <li>b. Sliding Rod Cup mounted to low on windshield.</li> </ul>	<ul style="list-style-type: none"> <li>a. Adjust Base Pivot Cup See figure 25.</li> <li>b. Adjust Sliding Rod Cup See figure 26.</li> </ul>



Base Pivot Cup mounted to low.  
**Notice:** Red Dot on Swing Arm below pillar.



**Result:** Windshield to close to glue.

FIGURE 22 - BASE PIVOT CUP MOUNTED TO LOW



Sliding Rod Cup mounted to high.  
**Notice:** Less than 7 inches from top of windshield to centerline of rod.



**Result:** Windshield to close to glue.

FIGURE 23 - SLIDING ROD CUP MOUNTED TO HIGH



**Notice:** Swing Arm swung to far to rear of vehicle.  
**Result:** Windshield to close to glue.

FIGURE 24 - IN-CORRECT SWING ARM POSITION



Base Pivot Cup mounted to high.  
**Notice:** Red Dot on Swing Arm above pillar.



**Result:** Windshield to high from glue.

FIGURE 25 - BASE PIVOT CUP MOUNTED TO HIGH



Sliding Rod Cup mounted to low.  
**Notice:** More then 7 inches from top of windshield to centerline of rod.



**Result:** Windshield to high from glue.

FIGURE 26 - SLIDING ROD CUP MOUNTED TO LOW

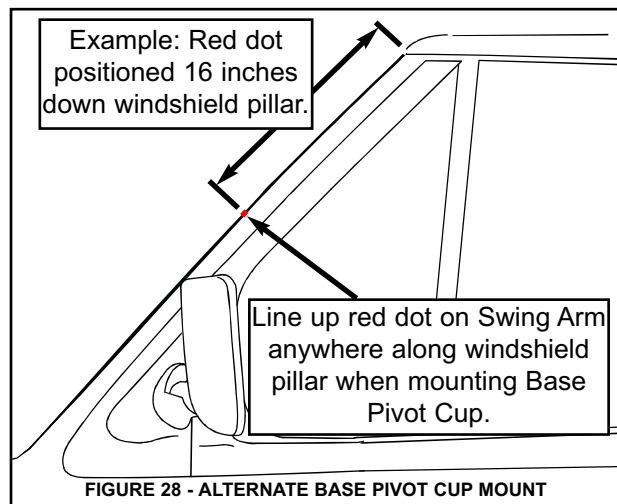
# Special Techniques

## Working With Two-Framed Side Windows Or Obstructions

As you become more experienced at using the Lil Buddy you may have to vary the position of the Base Pivot Cup on the side door glass to avoid potential obstructions to the working of the units.

In these cases, the Sliding Rod Cup placement also has to be adjusted accordingly.

1. Attach the Base Pivot Cup (see page 5) in the standard way; except with the Swing Arm pinned into its fully extended position, placing the red dot anywhere along the windshield pillar as required. See figures 27 and 28.



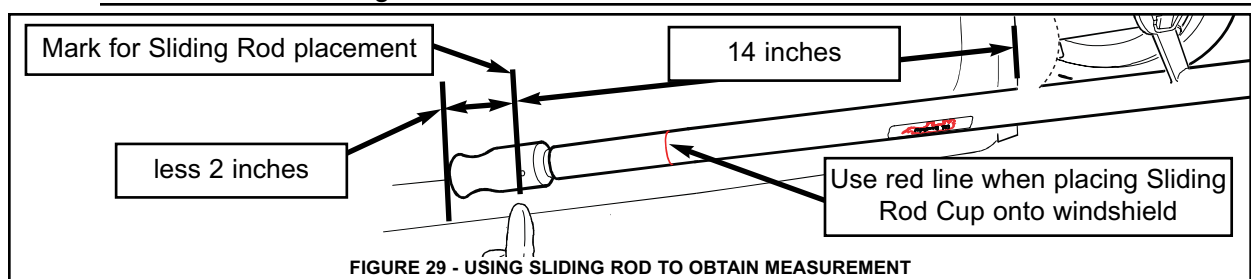
2. Measure the distance from the top of the windshield pillar down the side pillar to the red dot mark. Be sure your sight line is in line with both side pillars and the red dot when taking this measurement. Example 16 inches, See figure 28.

This is used for the placement of the Sliding Rod Cup on the new windshield.

3. Follow the standard procedure (see page 8) for positioning the Sliding Rod Cup on the new windshield, except:

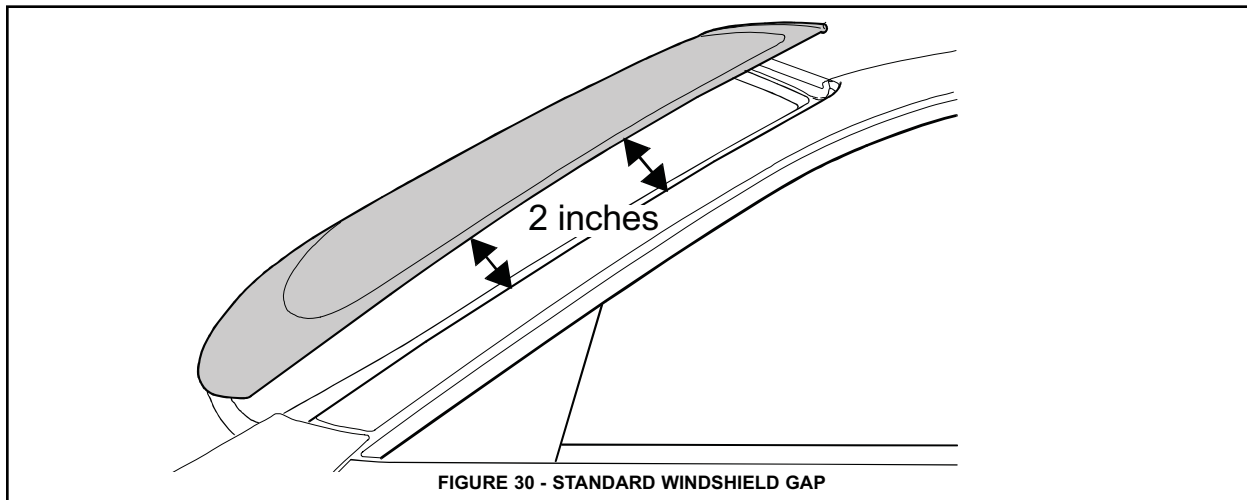
- Instead of measuring 7 inches from the top, measure the amount you have just noted, less 2 inches. Example 14 inches, See figure 29.
- Use the red line on Sliding Rod when placing Sliding Rod Cup. See figure 9.

**Tip:** The easiest way of completing the last two steps is to use the Sliding Rod Cup to measure the distance down the side pillar on the vehicle - essentially, place the rod at the top of the pillar to red dot mark on the side pillar. Then when you place the Sliding Rod Cup on the new windshield, use the rod length, less 2 inches, for the required measurement. See figure 29.



## Adjusting The Sliding Rod Cup Placement

The standard placement for the Sliding Rod Cup on the new windshield, as described in the manual, will give a gap of about 2 inches between the new glass and the aperture, when fitting. This will be fine for 90% of replacements.



However, it is possible to adjust the Sliding Rod Cup placement, altering the 2 inch gap width, to cope with different circumstances that you might encounter. For example:

- Obstruction of hood or fender - the gap between the new windshield and pillar should be reduced to enable the glass to be positioned under the obstruction easily.
- Heavy windshields - the Sliding Rod Cup should be placed lower to give a more even spread of weight for the technician.

As you become more experienced at using the Lil Buddy you will be able to view the car and windshield type, and make an assessment on the Sliding Rod Cup placement.

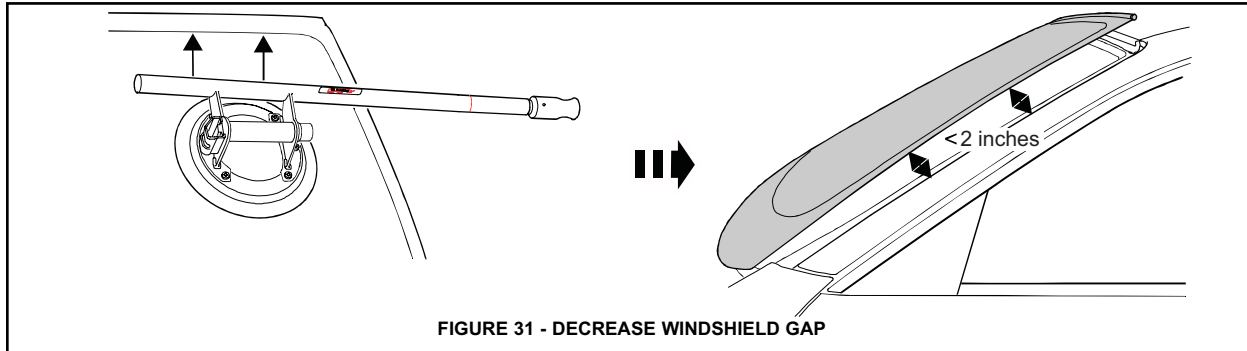
1. Attach the Base Pivot Cup (see page 5) in the standard way.
2. Follow the standard procedure (see page 8) for positioning the Sliding Rod Cup on the new windshield, that is:
  - The rod is parallel to the windshield top edge.
  - The center of the rod is above or below the 7 inch mark.
  - The Lil Buddy lable on the rod to the side edge of the windshield.

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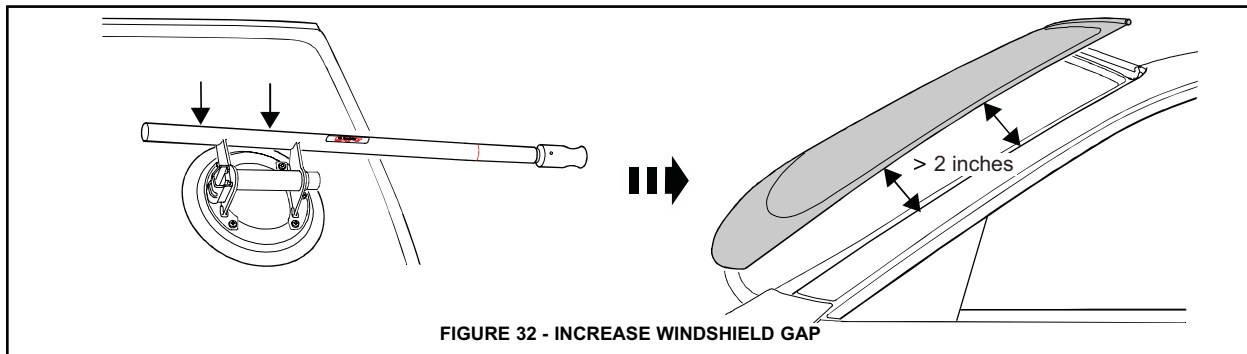
**Tip:** For every 1 inch you move the Sliding Rod from the standard 7 inch placement; the windshield gap will either increase or decrease approximately 1/2 inch. See steps 3 and 4.

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3. To reduce the gap between the windshield and the pillar, the Sliding Rod Cup needs to be placed higher up the windshield. See figure 31.



4. To widen the gap between the windshield and the pillar, the Sliding Rod Cup needs to be placed lower down the windshield. See figure 32.



When widening the gap, you have to be aware that it pulls the windshield across towards the Base Pivot Cup, which could potentially alter the placement you have already done on the other side of the vehicle. Essentially, the higher the windshield, the greater the likelihood of it being pulled out of position on the other side.

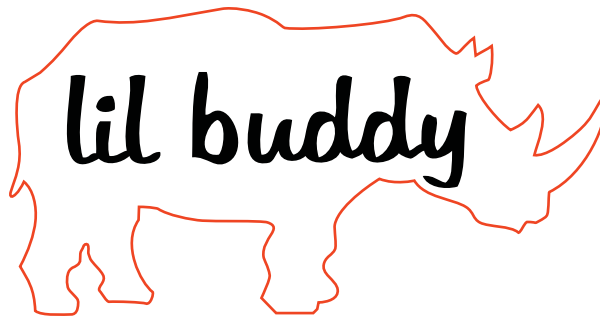
## **STANDARD WARRANTY**

Lil BUDDY™ warrants that its products will be free from defects in design, materials, and workmanship for a period of 365 days from the date of shipment. All claims for breach of this warranty must be made within 30 days after the defect is or can, with reasonable care, be detected and in no event no more than 30 days after the warranty has expired. In order to be entitled to the benefits of this warranty, the products must have been properly installed, maintained, and operated within their rated capacities and/or specified design parameters, and not otherwise abused. This warranty is Lil Buddy's exclusive warranty. LIL BUDDY EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. Non-standard warranties, if any, must be specified by Lil Buddy in writing.

In the event of any defects covered by this warranty, Lil Buddy will remedy such defects by repairing or replacing any defective equipment or parts, bearing all the costs for parts, and transportation. This shall be the exclusive remedy for all claims whether based on contract, negligence, or strict liability.

## **LIMITATION OF LIABILITY**

LIL BUDDY SHALL NOT IN ANY EVENT BE LIABLE FOR ANY LOSS OF USE OF ANY EQUIPMENT OR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, WHETHER FOR BREACH OF WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.



**Australian Distributor:**

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