

## Gas Cylinders

The use of gas charged springs on Broda products allow the caregiver to easily make adjustments to the tilt, recline, and leg rest with a minimum amount of effort. The gas cylinders contain Nitrogen gas, it is not flammable nor is it toxic. The cylinders provide a lifting force of 300 Newtons (approx. 68Lbs). In other words the cylinders reduce the amount of weight the care giver has to lift by 68Lbs.

Part No.	Description	Where Used
<b>Part No.</b> PRT-PAB4	300N locking gas cylinder with a nine inch long body	Used for the seat tilt on pedal chair, (48) full recliner (785) and tilt and recline for Commode/Shower chair (385)
<b>Part No.</b> PRT-PAB4 (NL)	300N non-locking cylinder, with a nine inch long body	Used for the tilt on the 785
<b>Part No.</b> PRT-PAB5	300N locking gas cylinder with a eleven inch long body	Used for the leg rest on all models. Used for back recline on all reclining models except the CS 385. and for the tilt on the 75V, 35V, 85V, 30VT, and 80V.
<b>Part No.</b> PRT-PAB5 NL	300N non-locking gas cylinder with an eleven inch long body	Used for the tilt on the 785 prior to Sept 8, 2001, and previous model 885 as the right hand tilt cylinder.

### How do they work?

On the end of the stem of the cylinder is a small pin. When the operator depresses the Handle this pulls on the cable which in turn pulls on a small lever inside the actuator mechanism into which the stem of the cylinder is mounted. This depresses the pin, which in turn opens a valve located inside the barrel of the cylinder. This allows for changes in position. When the operator releases the handle the valve closes and locks the cylinder in the desired position.

Over the years Broda has used many different types of actuators to operate the gas cylinders used on our products. Although they may look different their function is one and the same (to push against the pin and open the valve that controls the cylinder). If the cylinder is not properly adjusted when mounted in the actuator, the cylinder may not function properly.

### Maintenance

The gas cylinders do not require any maintenance, although they may need to be adjusted due to wide temperature variations or cable stretch.

**When adjusting the cylinder it is important that you do not damage the stem on the cylinder. Small scratches left by applying the jaws of pliers or Vice Grips directly to the shaft while making adjustments will destroy the seal and allow the gas inside the cylinder to escape. Use a piece of vinyl strapping or rubber to protect the cylinder shaft from the jaws of the tool you are using to make the adjustments!**

## **Trouble shooting for cylinders**

Often when experiencing problems with cylinders on Broda chairs, the cylinder is not damaged, it just needs adjustment. There are two common adjustments.

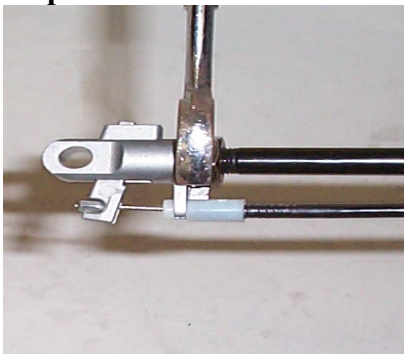
1. The pin that the cable handle pulls on at the end of the cylinder is not connected correctly.
2. Or the handle or cable assembly have become broken or disconnected.

*The cable mechanism works exactly like a bicycle brake and is easy to check when experiencing problems.*

Other solutions to common problems are listed below.

- 1. Chair is not reclining or tilting when cylinder handle is pulled.**
  - a. The pin in the end of the cylinder is not being depressed when the handle is pulled.  
*Action to take:* See adjustment steps
- 2. The chair seems to slowly slide out of position**
  - a. The pin in the end of the cylinder may be still partially depressed.  
*Action to take:* See adjustment steps.

### **Adjustment Steps**



**Note: Cylinder does not need to be removed from the chair to make this adjustment.**

1. Loosen the lock nut located on the stem of the gas cylinder next to the actuator (17mm or 11/16” wrench).
2. From the above instruction determine whether you want to wind the stem further into the actuator or further out of the actuator. You will need to wind the stem further into the actuator if the chair is not tilting or reclining, (wind it clockwise) and wind it further out of the actuator if the chair is slowly sliding out of position. (wind it counter-clockwise)



**Note:** When adjusting cylinders with tools that come in contact with the cylinder rods. A cloth, piece of vinyl strap, or some other protective material must be used to protect the sliding surface of the rod. If the rod becomes scratched or scarred it will puncture the seal on the cylinder and the cylinder will fail.

**Damaging a cylinder in this fashion voids the manufacturers warranty.**

3. Wind the stem in the correct direction one half turn. When viewing the cylinder with stem pointing towards you turn the stem clockwise to wind the stem out of the actuator and counter-clockwise to wind the stem into the actuator.
4. Check the function of the cylinder and repeat steps 3 & 4 until the cylinder functions properly.
5. Tighten the lock nut loosened in step 1.

If adjusting the cylinder does not correct the problem, the cylinder may need to be replaced.

## Removal and Installation Steps



Old (left) and new (right) actuators respectively



1. Remove the 5/16" mounting bolt from the end of the cylinder (requires 2 x 1/2" wrenches).



2. Loosen the lock nut located on the stem of the cylinder by the actuator.



3. Wind the stem of the cylinder out of the actuator.
4. Wind the stem of the new cylinder into the actuator.



5. Reinstall the 5/16" mounting bolt.
6. Adjust the cylinder as per the above adjustment instructions.

## Installing an Actuator



1. Hold the small pin in your right hand, with the long flat side, and the “u” cut out pointing upward.
2. Hold the head of the actuator in your left hand with the tail portion pointing to the right and the rounded head pointing up
3. Slide the small end of the pin through the hole, bringing it through just until it becomes flush with the side of the actuator



4. Holding the pin in place, wind the cylinder into the actuator, making sure the pin stays in place at all times
5. Tighten the actuator on the cylinder until the pin reaches the top of the hold in the actuator.
6. Using a wrench, tighten the bolt that will be located just underneath the attached actuator