

CASTLE FRAME ASSEMBLY TABLE

AT-8

Diagnostics Manual



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Solutions Index

Adjusting the Tabletop.....	8.01
Adjusting the Fence.....	8.02
Aligning the Arm.....	8.10
Adjusting Bracket.....	8.21
Adjusting the Arm Bearings.....	8.22
Tightening Bracket Bolts.....	8.30
Tightening the PEM Nut.....	8.40
Cylinder Rebuilding.....	8.50
Adjusting the Regulator.....	8.90



How To...

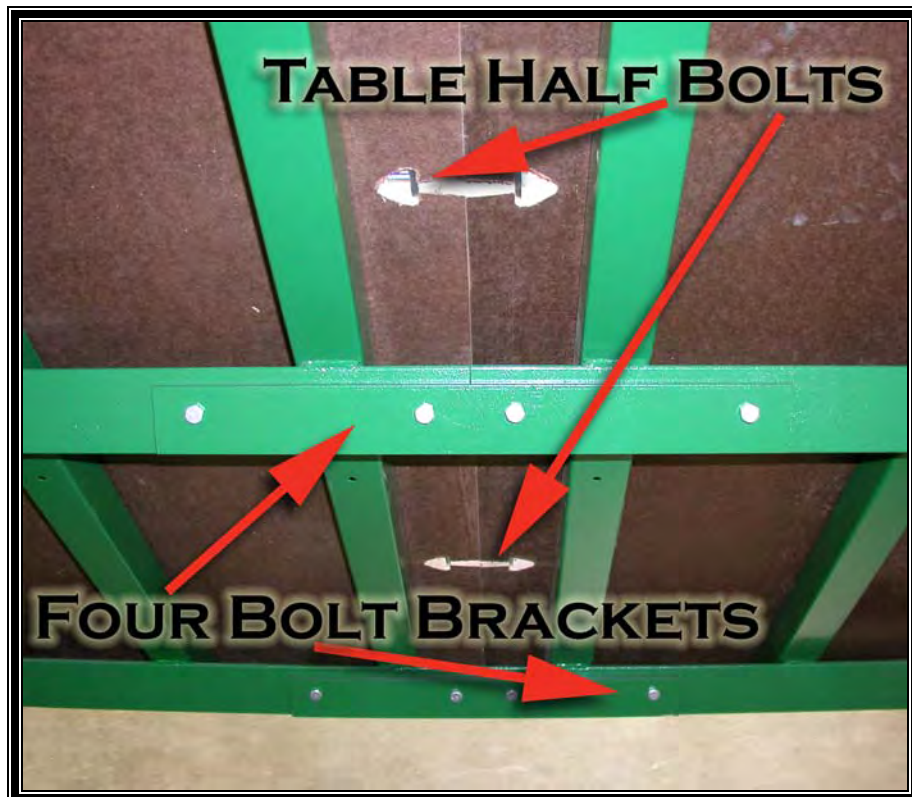
8.01

ADJUSTING THE TABLETOP

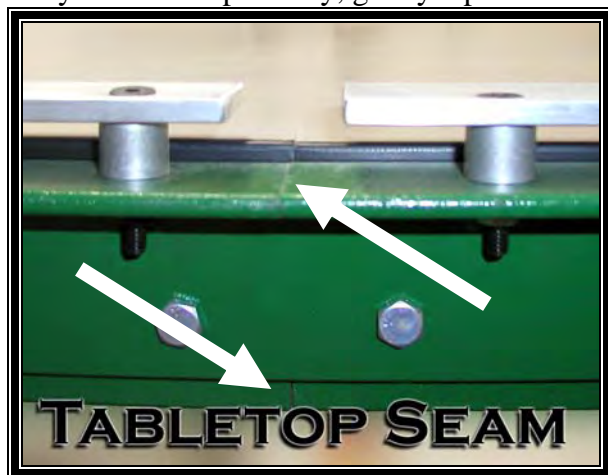
Follow these steps to set up the tabletop. Once the tabletop is set up correctly, it is unlikely that it ever need to be adjusted. If the table does for some reason need an adjustment, just skip the first step.

SOLUTION STEPS:

1. Line up the aluminum spine between both halves of the table.
2. Tighten the nuts and bolts that draw the two halves of the table together, but don't completely tighten them.



3. Check that the tabletops meet evenly by running your fingers across the seam on the top of the table. If they don't meet perfectly, gently tap the half that is out of alignment with a rubber mallet.



4. Tighten the tabletop nuts down completely once they are level.

3. Adjust 10 x 1/4 screws that hold the tabletop to the frame.



How To...

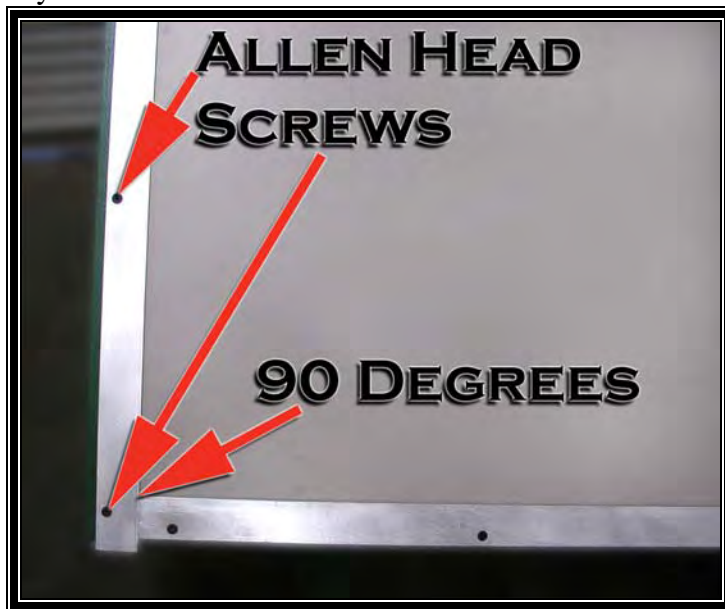
8.02

ADJUSTING THE FENCE

The fences on the work surface should be in perfect square to act as a reference during the construction process. The vertical and horizontal fences are held in place with allen head screws. The screws holding the fences in the bottom left of the tables are fixed. The other allen screws are adjustable.

SOLUTION STEPS:

1. Make sure all the allen screws are loosened so that the fences will move with pressure, but are not completely slack.



2. Place a truly square piece of wood in the corner of the table against the fences.
3. Tap or move the fences with a mallet so that they match the wood guide.
4. Tighten the allen screws, starting with the fixed screws first.
5. Use a long piece of truly straight wood and check that the bottom two fences are aligned with one another.
6. If they are not straight then loosen the right fence, as above, and repeat adjustment until they are straight.



How To...

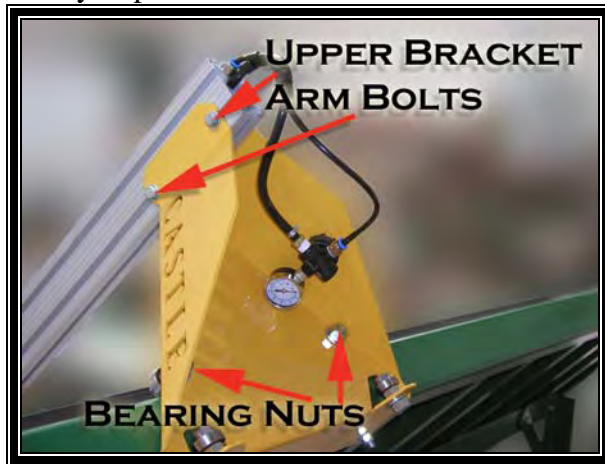
8.10

ALIGNING THE ARM

When the machine is set up or reassembled after relocation, the arm must be aligned to ensure proper operation. This procedure requires two people.

SOLUTION STEPS:

1. If the arm is not already on the table, remove the stop bolt on one end of the top beam and slide the assembled arm onto the table.
2. Re-insert the stop bolt.
3. Loosen the four bolts in the top bracket that hold the arm in place while someone holds the bottom bracket firmly in place on the table.



4. Do not loosen the bottom bracket bolts.
5. Adjust the arm in the upper bracket until the desired position is reached.
6. Tighten the bolts in the upper bracket.
7. Test the positioning by rolling the arm along the beam. It should roll smoothly the whole way.
8. This is a trial and error procedure and you may need to repeat steps 3 through 7 until the right position is found.



How To...

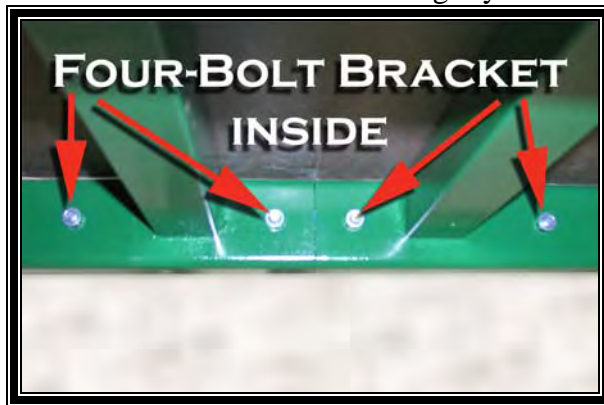
8.21

ADJUSTING BRACKET

The brackets that hold the two halves of the frame together are called the four-bolt brackets. The one at the top of the frame is located inside the beam and has four bolts welded to it. If this top bracket is not aligned and tightened down properly then the arm will not roll evenly.

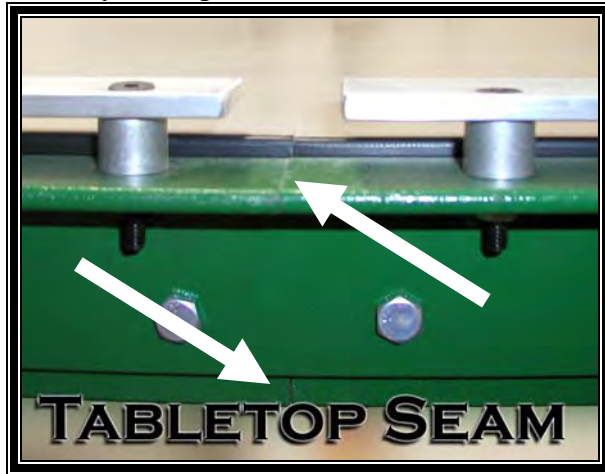
SOLUTION STEPS:

1. Loosen all of the four-bolt brackets slightly.



2. Tap the frame gently at the upper four bolt bracket with a rubber mallet to align the halves.
**Using a clamp to hold the two halves of the frame flush, will greatly increase your chances of success.

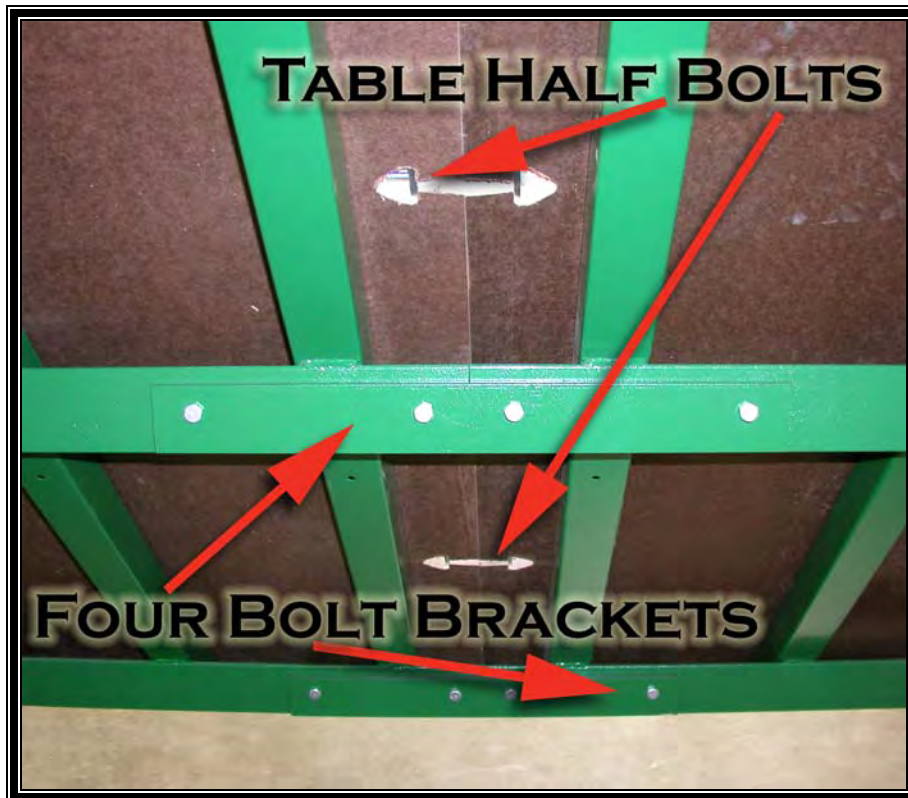
3. Check the bottom frame seam to make sure it is still even. Using a clamp in this position will help in the same way as Step #2.



4. Tighten the top four bolt bracket first, then tighten the bottom four-bolt bracket.

5. Roll the arm across the center of the table to check for smoothness.

6. Tighten the two four-bolt brackets in the middle of the frame.



7. These step may need to be repeated to get the arm to roll smoothly.



How To...

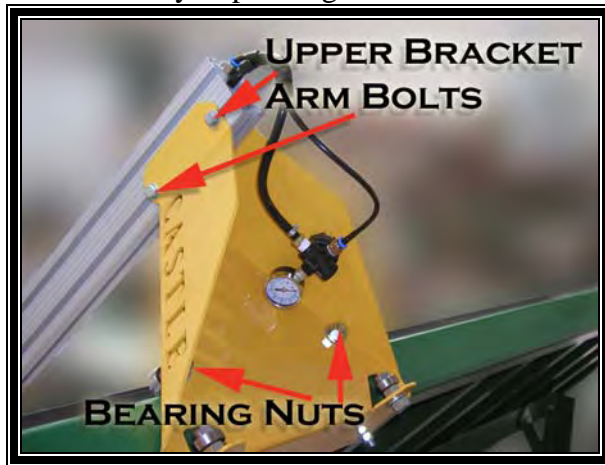
8.22

ADJUSTING THE ARM BEARINGS

The arm rides on two sets of bearings, one at the bottom bracket and one at the upper bracket. If the arm becomes loose or rides on the beam roughly, then these bearing sets may need to be tightened. This procedure requires two people.

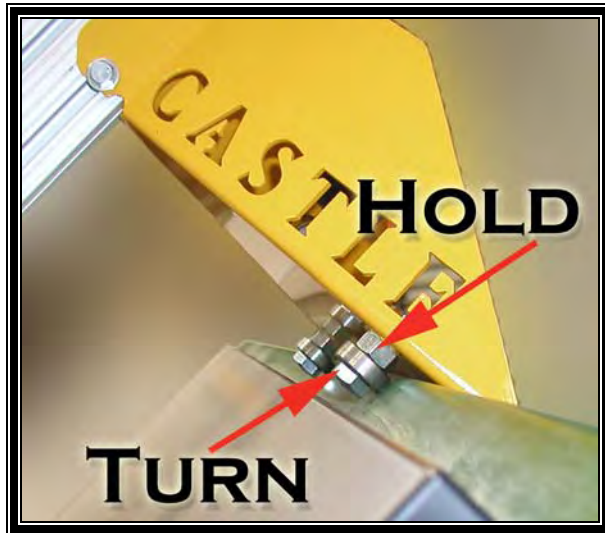
SOLUTION STEPS:

1. **LOOSEN** the four bolts in the top bracket that hold the arm in place while someone holds the bottom bracket firmly in place against the table.



2. Do not loosen the bottom bracket bolts.

3. Locate the bearings attached to the upper bracket that ride on the top of the beam. Tighten the bolt head on one side of the bearing while holding the nut on the other side of the bearing.



4. It is important that these be tightened down firmly.

5. After tightening the bearing nut on the front of the upper bracket, the nut on the rear of the upper bracket should be tightened next.

6. Do this by holding the nut closest to, and in front of the bracket, while tightening the nut at the rear of the bracket.

7. If the bearings were loose, the tightening procedure could change the arm positioning. Test the positioning of the arm by rolling it along the beam. It should roll smoothly the whole way and be parallel to the tabletop.

8. Adjust arm positioning by running procedure 8.21. This step especially needs to be run if the bearings were quite loose and the arm doesn't move smoothly after tightening the bearings



How To...

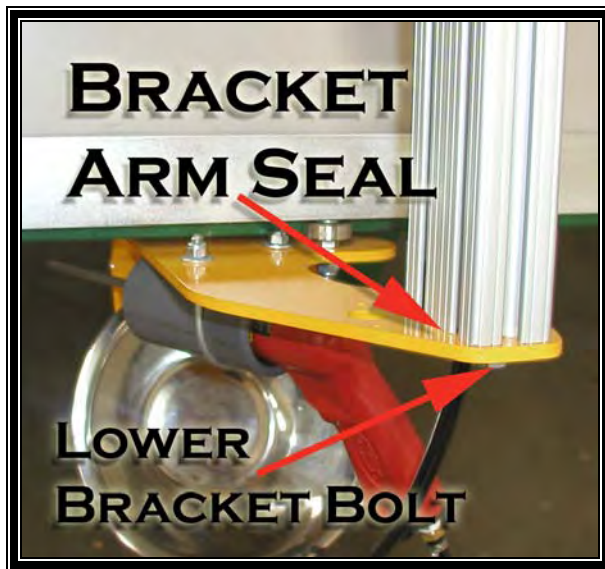
8.30

TIGHTENING BRACKET BOLTS

The bottom bracket is held to the aluminum clamp bar by two bolts. If either of these bolts are loose or slightly tweaked out of shape, the pneumatic seal won't hold. It is important that these bolts be tight, but they are tapped directly into the aluminum so if they are over-tightened they will strip the arm out.

SOLUTION STEPS:

1. Check that the bolts on the bottom bracket are tight.
2. If the seal still leaks turn off the air, remove the bolts, and apply thread sealant before re-installing them.



3. Make sure that BOTH bolts are tight. If they are not then the bracket will not sit flush.



How To...

8.40

TIGHTENING THE PEM NUT

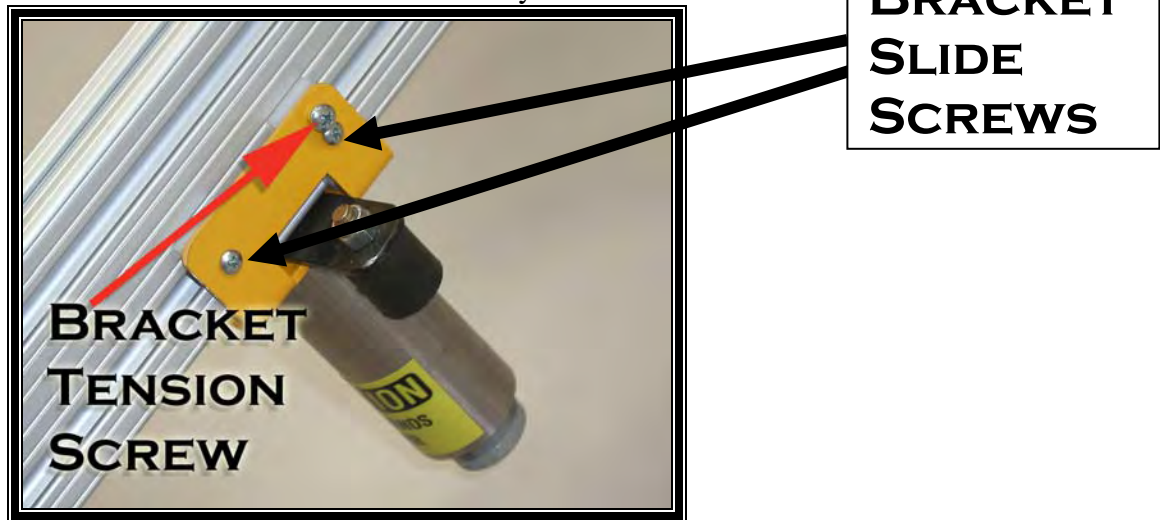
The cylinder lever is held against the body of the cylinder with a PEM nut. This nut can be tightened by first removing the cylinder and then tightening up the nut.

SOLUTION STEPS:

1. Remove the arm from the upper bracket by removing the bolts in the bracket. This can be done with the arm on the machine, but will require a second person to hold the bottom bracket firmly against the table.
2. Turn off the air and remove the airline for the cylinder with the loose lever. The line is connected to the cylinder by a push-in fitting. Simply push the outer ring in as you pull the airline.

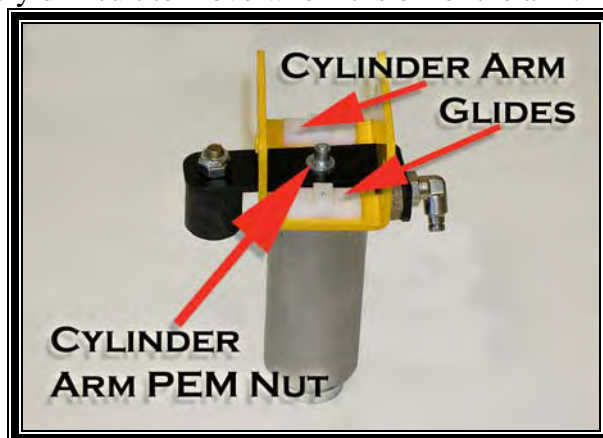


3. Loosen the tension screw on the side of the cylinder bracket



4. Take out the two bracket slide screws on each side of the cylinder bracket, and pull the whole assembly off of the arm.

5. Tighten the PEM nut at the top of the cylinder and check the action of the lever. It should be relatively difficult to move when it is off of the arm.



7. Slide the cylinder(s) back onto the arm.

8. Replace the cylinder assembly, including the cylinder bracket, back onto the arm. Replace the bracket slide screws and tighten.

9. Tighten the bracket tension screw until the desired slide resistance is reached.



How To...

8.42

REMOVING CYLINDER

The cylinders have several rings and gaskets that help maintain pressure within the cylinder itself. Over time these seals can become worn or damaged and may need to be replaced. Refer to the parts explosion and corresponding list below for specific part identification.

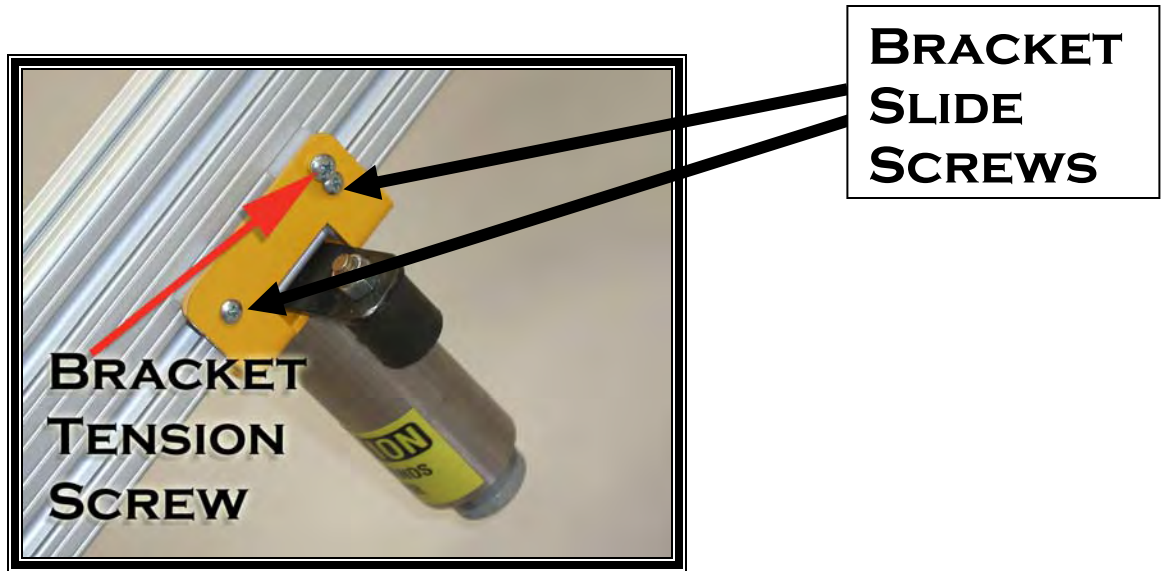
This procedure requires two people.

SOLUTION STEPS:

1. Turn off the air and remove the airline for the cylinder to be removed/rebuilt. The line is connected to the cylinder by a push-in fitting. Simply push the outer ring in as you pull the airline.



3. Loosen the tension screw on the side of the cylinder bracket



4. Take out the two bracket slide screws on each side of the cylinder bracket (4 total), and pull the whole assembly off of the arm.



How To...

8.50

REBUILDING CYLINDER

The cylinders have several rings and gaskets that help maintain pressure within the cylinder itself. Over time these seals can become worn or damaged and may need to be replaced. Refer to the parts explosion and corresponding list below for specific part identification.

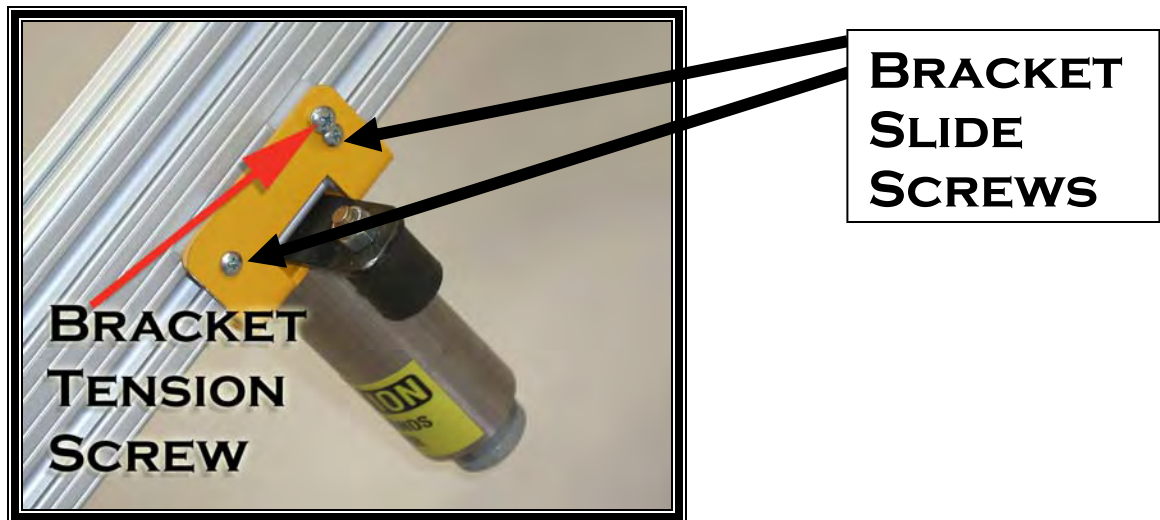
This procedure requires two people.

SOLUTION STEPS:

1. Turn off the air and remove the airline for the cylinder to be removed/rebuilt. The line is connected to the cylinder by a push-in fitting. Simply push the outer ring in as you pull the airline.

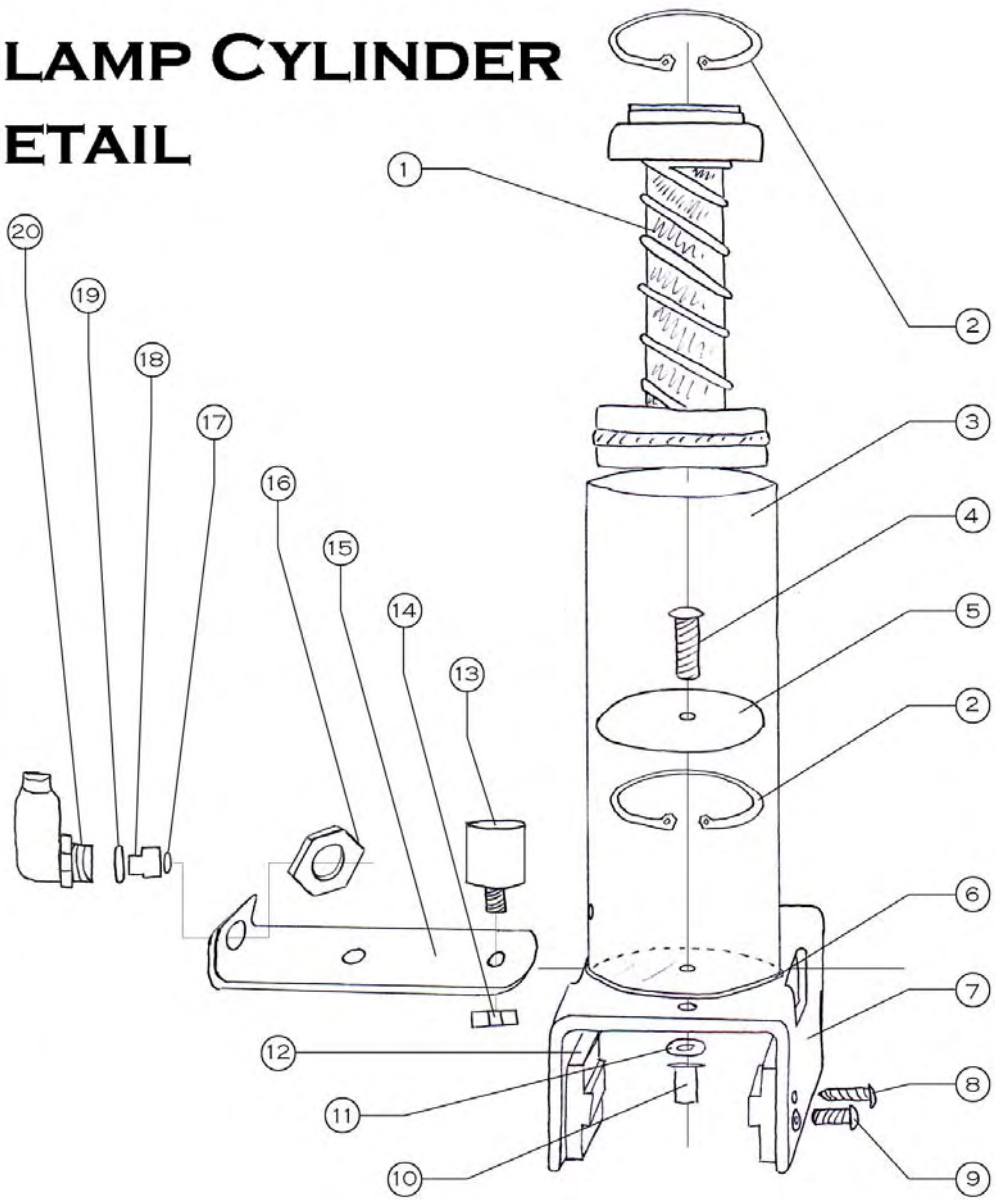


3. Loosen the tension screw on the side of the cylinder bracket

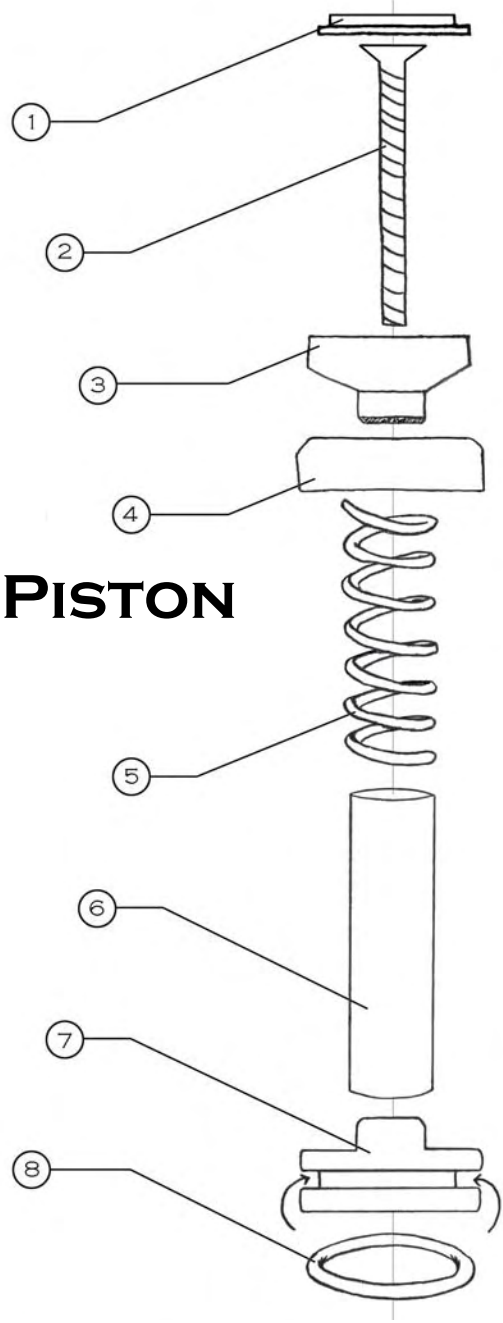


4. Take out the two bracket slide screws on each side of the cylinder bracket (4 total), and pull the whole assembly off of the arm.
5. With the cylinder off of the arm, remove the snap ring - (2) on the parts explosion
6. Remove the piston (1)
7. Remove the PEM nut(10) and the screw (4) in the center.
8. Remove the large washer (5) and the gasket (6)
9. Remove the piston assembly from the elbow (17), (18), (19)
10. Replace the elbow piston with a new one from the rebuild kit and apply the enclosed lube.
11. Put the cylinder back together in the opposite order of Steps 5 through 9 using the new components in the rebuild kit where supplied.
12. When tightening the center screw, be sure it is left **JUST LOOSE** enough to allow air flow from the elbow into the cylinder sleeve. This usually means that you tighten it very tight, but not 'death grip' tight.
13. Slide the cylinder(s) back onto the arm.
14. Replace the cylinder assembly, including the cylinder bracket, back onto the arm. Replace the bracket slide screws and tighten.
15. Tighten the bracket tension screw until the desired slide resistance is reached.
16. Hook the air up to the regulator and test the rebuilt cylinder. The piston should come down and retract quickly. The lever action should be stiff, but not take a full body lean.
17. If the arm does not roll smoothly, adjust the arm according to procedure 8.20

CLAMP CYLINDER DETAIL



CLAMP PISTON DETAIL



AT CYLINDER REBUILD KIT

DRAWING 1 OF 2 - CLAMP CYLINDER DETAIL

Item #	Part #	Part Description	Qty
4	F10377	Screw, Machine 10-32 x 7/8 PPMS	1
5	M08615	AT Stainless Steel Washer	1
6	N00051	AT Reinforced Neoprene Rubber Gasket	1
10	F32012	AT Pem Stand-Off	1
11	F10000	# 10 SAE Flat Washer - 90126A11	1
17	H00352	Buna-N O-Ring - 003	1
19	H00600	Buna-N O-Ring - 006	1

DRAWING 2 OF 2 - CYLINDER PISTON DETAIL

Item #	Part #	Part Description	Qty
8	H32200	Buna-N O-Ring - 322	1

NOT PICTURED

Item #	Part #	Part Description	Qty
###	S00243	LocTite 242, Threadlocker Adhesive, .02 oz	1



How To...

8.90 ADJUSTING THE REGULATOR

The air for the machine is taken in and controlled through the regulator at the top of the machine. If the air pressure seems low, it can be checked and adjusted at the regulator.

SOLUTION STEPS:

1. Visually check that the regulator gauge reads between 80 and 85 PSI.
2. If it does not, then pull the regulator knob to release it from its locked position.
3. Turn the knob while watching the gauge until it reads the appropriate pressure.
4. If there are other machines that use a lot of air pressure on the same line as the AT-8, then run the other machines while someone reads the gauge.
5. It should remain between 80 and 85 PSI. If it drops significantly then the pressure should be turned up at the compressor.