CASTLE INC

Owners Manual

AT-5

Table of Contents

1 Introduction

Thank you for making the Castle AT-5 the latest addition to your shop. Since 1985 our goal has been to manufacture and develop machines that make cabinetmaking and casework easier, faster and more profitable for the woodworker. This machine represents our commitment to your productivity. Castle machines are made in Petaluma, California and are manufactured to the highest standards using local vendors wherever possible.

This instruction manual is intended for use by anyone setting up or servicing this machine. It should be kept available for immediate reference so that all operations can be performed with maximum efficiency and safety.

Note: Do not attempt to perform maintenance or operate this machine until you have read and understand the information contained in this manual.

2 Machine Safety

NOTICE: The Castle Frame Assembly Table was designed with operator safety as a priority. This machine was carefully prepared for shipment at our factory. Upon receipt of the machine, inspect for shipping damage. Report any damage **IMMEDIATELY** to the freight company, your Castle dealer and to Castle, Inc. DO NOT attempt to operate the machine if you observe any physical damage. Contact Castle, Inc. at 800.282.8338 for instructions.

2.1 Key Features

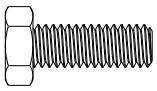
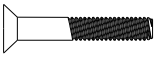
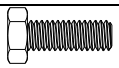
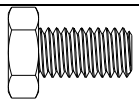
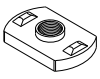
Your AT-5 Face Frame Assembly Table's ergonomic design places the bottom rail at 32" above floor level to reduce bending, reaching and operator fatigue. The highly efficient design allows the hold-down cylinders to be repositioned and clamped in one quick smooth action for fast production. The super rigid, high precision beam is both light and strong and moves effortlessly on ball bearings.

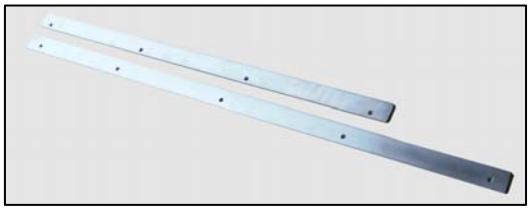
The AT-5 is equipped with a pressure regulator, pressure gauge and hose for a pneumatic air screw driver (sold separately). The convenient screw tray is inches away from the work at all times.

2.2 Inventory

Included with each AT-5 Face Frame Assembly Table are the following items. Please take a moment to verify that each of the items listed below and on the following pages are included with you shipment.

- Owners Manual
- Warranty Card – Please fill out and mail to Castle, Inc. or visit our website at www.castleusa.com and register online.
- Hardware: (See following page for hardware details)

CASTLE AT-5 ASSEMBLY TABLE HARDWARE PACK			
Part #	**Part Description**	**Qty**	**Part**
F51878	5/16-18 X 7/8 HHCS (Frame Assembly)	12	
F51628	5/16-18 Hex Nuts (Frame Assembly)	12	
F44134	¼-20 X 1-3/4 FHCS (Fence Installation)	9	
F01422	¼-20 Kep Nut (Fence Installation)	11	
N00345	5/16 Large Aluminum Spacer (Fence Installation)	5	
N00346	5/16 Small Aluminum Spacer	4	
F10212	#10 x 2-1/2" Phillips Pan Head Sheet Metal Screw (Worktop Installation)	18	
F14585	¼-20 x 5/8 HHCS	2	
F01423	¼-20 Hex Nuts	2	
F51638	5/16-18 x 5/8 HHCS	4	
F51698	5/16-18 T Nut	4	
F01411	¼ USS Washer	4	

C08008	AT Frame Table Arm Assembly	1	
C08009	AT Arm Top Bracket Assembly	1	
G08516	AT Leg Braces	4	
O08474	AT Side Fence	1	
O08594	AT-5 Bottom Fence	1	
C08000	Sioux Air Gun Hose	1	
S12043	Spiral Wrap – 8”	1	
P14170	¼ OD Black Tube – 16”	1	

2.3 Machine Requirements

Your Castle AT-5 Face Frame Assembly Table requires a minimum of **85 PSI** air not to exceed 150 PSI.

- Supply Line should be a minimum of ¼" line.
- Install an air filter trap to reduce the potential for foreign particles and water from your air supply prior to entry into the machine. The filter should be mounted to the wall where your supply comes from and SHOULD NOT be mounted to your machine.

2.4 Other Supplies

- Plywood sheet at least 4'x5' (not included)

3 Setting Up Your AT-5

Your Castle AT-5 Assembly Table is shipped knocked-down, with the legs bolted to a pallet and the frame and top inside.

3.1 Frame Assembly

1. Remove the clamp arm from the pallet by cutting the two zip ties.
2. Unbolt the legs on the narrow side of the pallet and open them to an almost parallel position.
3. Lift the table top out and set it aside for later use. Set the two 4x4's on the floor to prep for the next step.
4. Unbolt the legs from the pallet.
5. Place the frame face down on the 4 x 4's so that the angle iron is facing up (Fig 1)
6. Attach the legs and leg braces to the frame.
7. To attach each of the legs you will need:
    a. (2) leg braces [G08516],
    b. (6) 5/16-18 x 7/8" hex head cap screws [F51878] and
    c. (6) 5/16-18 hex nuts [F51628].

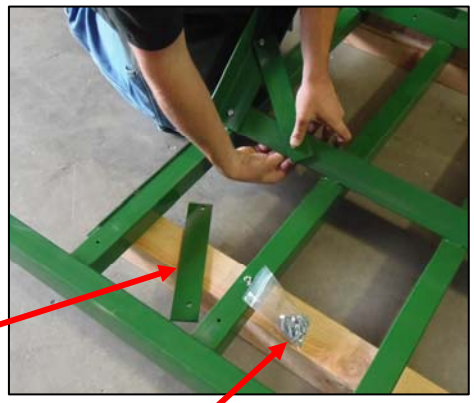
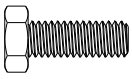


Fig 1



8. Have someone hold the leg or clamp them in place while you fasten the leg to the frame. The flat part of the angle iron should face the inside of the machine.
9. Next attach the (2) leg support brackets using the bolts supplied. Repeat this process for the other side.

10. Roll the assembly onto the legs by rolling it first over the top tube, then onto the leg backs, and finally up and into a fully upright position.

11. Check that all the leg braces and bolts are securely tightened.

3.2 Fence Installation

1. Attach the fences using the ¼-20 Flat Head bolts [F44134], aluminum spacers [N00345 and N00346] and the ¼-20 Kep Nuts [F01422]. The side fence uses the small spacers and the bottom fence uses the larger spacers.

Fig 3

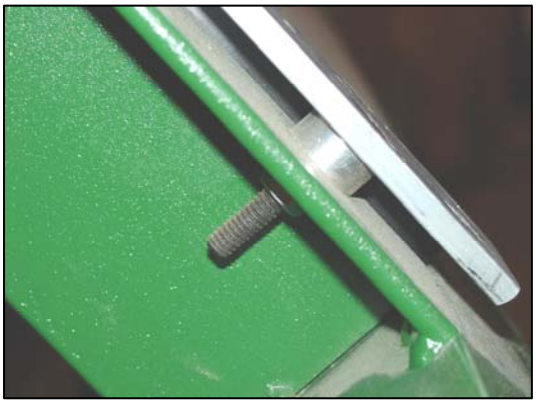


Fig 2

Caution: When fastening the fences be sure to only tighten one bolt on each fence at the bottom left corner of the frame. You will tighten the rest later.

3.3 Worktop Installation

Fig 4

1. Using the (18) #10 X 2-1/2” pan Phillips sheet metal screws [F10212] fasten the table down through the rear of the frame.

2. Place a sheet of plywood measuring AT LEAST 4x5 on the table, and rest it on the bottom fence.

Fig 5

3. Push up on the end of the fence opposite the end with the tight bolts until the fence is flush with the wood. Now tighten all of the bolts for the fences.

3.4 Arm Installation

1. Attach the arm bracket to the aluminum beam using the 5/16-18x5/8 HHCS bolts [F51638] and 5/16-18 T-nuts [F51698] supplied.

Fig 6

2. Position the clamp arm onto the frame from the right side.

Fig 7

3. The length of the arm may need to be adjusted at the upper arm bracket.
4. Square the arm vertically by loosening 3 of the 4 bolts and drawing the arm parallel with the left fence.

5. Slide the top bracket to achieve proper lower bearing adjustment.
6. Install the stop bolts through the holes in the back side of the top beam. The stop bolts are necessary to keep the arm from sliding off the beam.

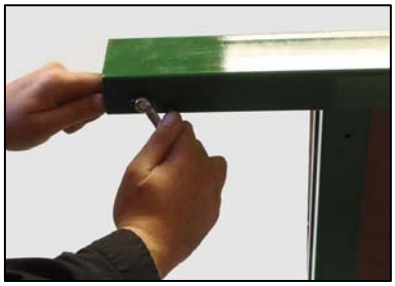
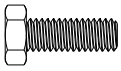


Fig 8

7. Stop Bolt Pack Includes:
   a. (2) ¼ x 5/8 Hex Head Cap Screw [F14585]



   b. (2) ¼ Kep Nut [F01422]

   c. (2) ¼ Hex Nut [F01423]

3.5 Connecting Air

1. The air regulator on the upper bracket is rotated 180 degrees for its protection in shipping.
2. To rotate the regulator and gauge, loosen the nut located on the outside of the bracket (shown) and rotate.

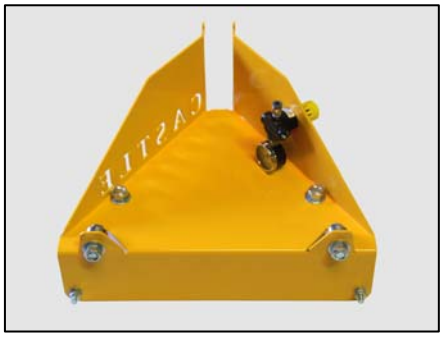


Fig 9

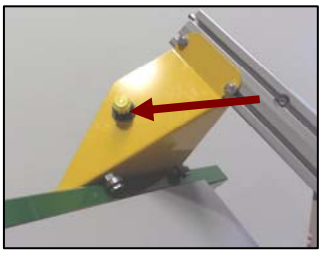


Fig 10

3. Use the ¼" OD X .17 ID x 16" Black Tube [P14170] included to connect air from the regulator to the push-in fitting at the top of the arm.
4. Connect air to your Assembly Table at the Main Air In port on the regulator.

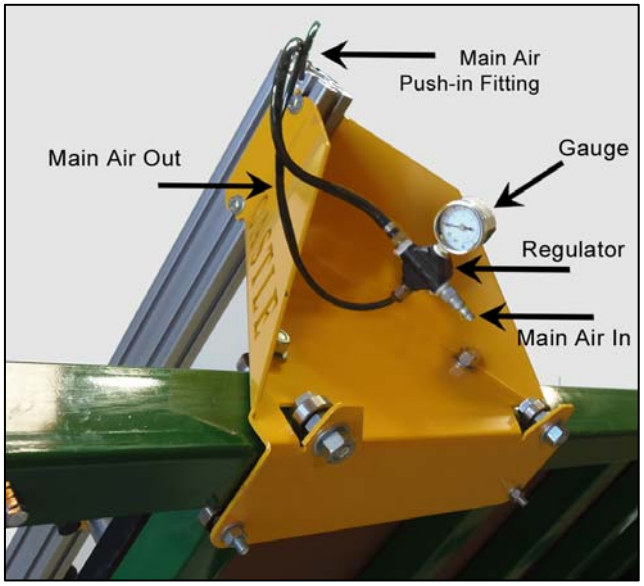


Fig 11

5. To set the Air Pressure, pull the yellow knob on the regulator out and turn the knob until the pressure measures **85 PSI** on the gauge.

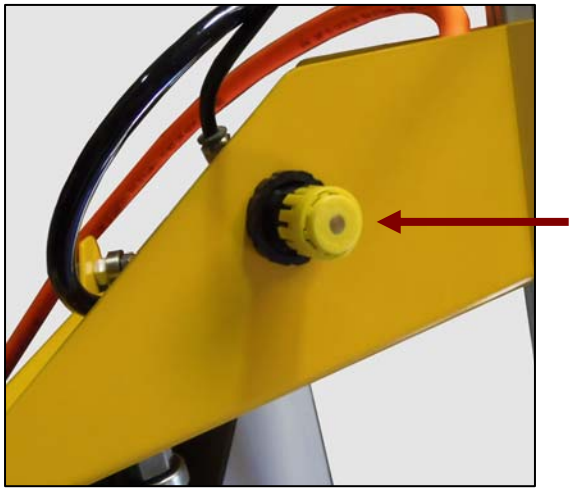


Fig 12

4 Operating Instructions

Warning: Always wear eye protection when operating pneumatic equipment.

4.1 Cylinder Actuation

To operate the clamp cylinder locate the black lever with the rubber stopper. Moving this lever back and forth will clamp and release the cylinder.

Fig 13

Your Assembly Table beam arm is fitted with (5) ports for air fittings and can accommodate an optional fifth clamp cylinder.

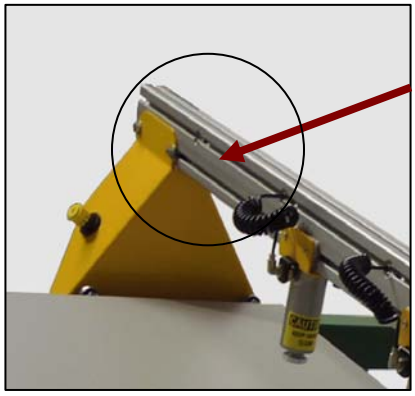


Fig 14

4.2 Screw Bowl Holder

The Screw Bowl is held in place by the red lever on the Clamp Arm Bottom Bracket. Pull the lever **down** to release the bowl and push it **up** to hold the bowl in place.

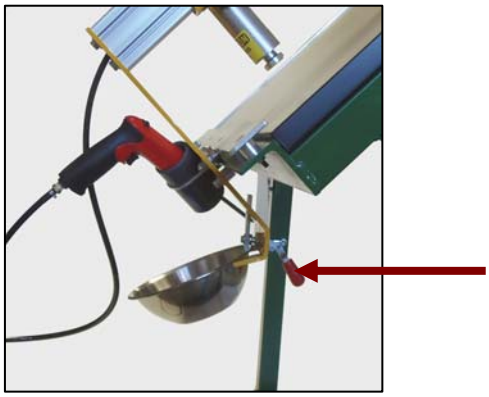


Fig 15

4.3 Optional Screw Gun Airline

Your Castle Assembly Table comes with a 3/8" AT Gun Hose Assembly [C08000]. To attach the Air Screw Gun (optional) remove the red plug from the regulator and connect the AT Air Gun Hose Assembly. Next, thread the hose through the aluminum arm. Connect your Air Gun to the bottom end of the hose.

Fig 16

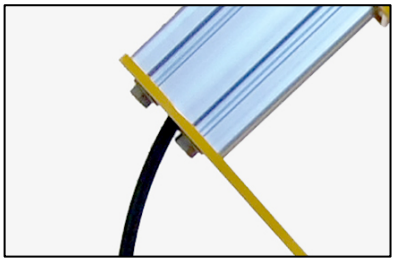


Fig 17

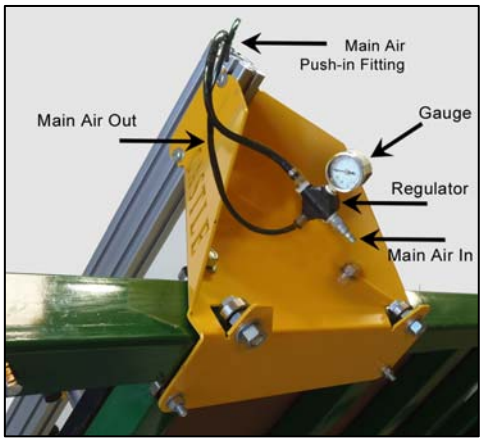


Fig 18

5 Maintenance

Note: Contact a Castle, Inc service technician for proper service information.

- It is suggested that the table top be periodically cleaned of excess glue and/or dust.
- The Poly Foot Pads are subject to wear over time and should be replaced.
- If you notice a considerable slow down in the speed of the cylinder actuation, the cylinder may need to be rebuilt using the AT Cylinder Rebuild Kits (Part #K08004).

Fig 19

- To purchase replacement parts for your AT-5 Assembly Table contact Castle, Inc. @ 800.282.8338 or visit our web store at http://castleusa.com/webstore/

6 Trouble Shooting Guide

6.1 Adjusting the Arm Bearings

Your Assembly Table 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, these bearing sets may need to be tightened. This procedure is performed best with two people.

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.

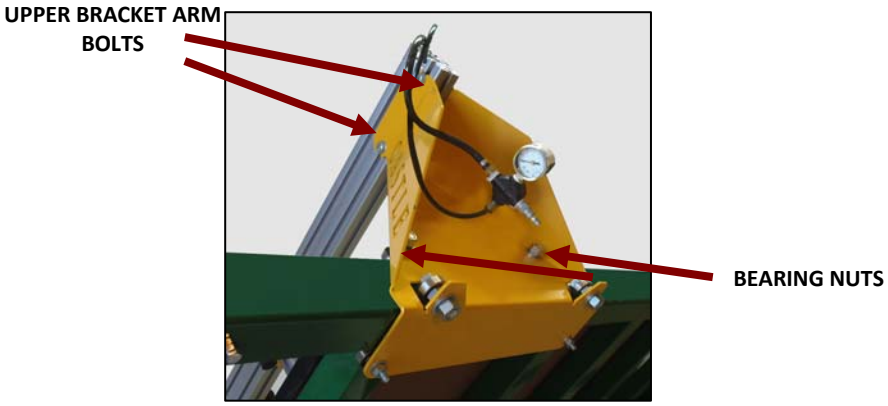


Fig 20

2. Do not loosen the bottom bracket bolts.
3. Locate the bearings attached to the upper brackets that ride on the top of the beam. Tighten the bolt head on one side of the bearing while holding the not on the other side of the bearing.

Note: For smooth operation of your Assembly Table Arm, it is important that the bearing bolts be tightened down firmly.

4. 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.
5. Do this by holding the nut closest to, and in front of the bracket, while tightening the nut at the rear of the bracket.

6. 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.

6.2 Aligning the Arm

When your Castle Assembly Table is set up or reassembled after relocation, the arm must be aligned to ensure proper operation.

Note: This procedure requires two people.

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 on the top bracket that hold the arm in place while someone holds the bottom bracket firmly in place on the table.

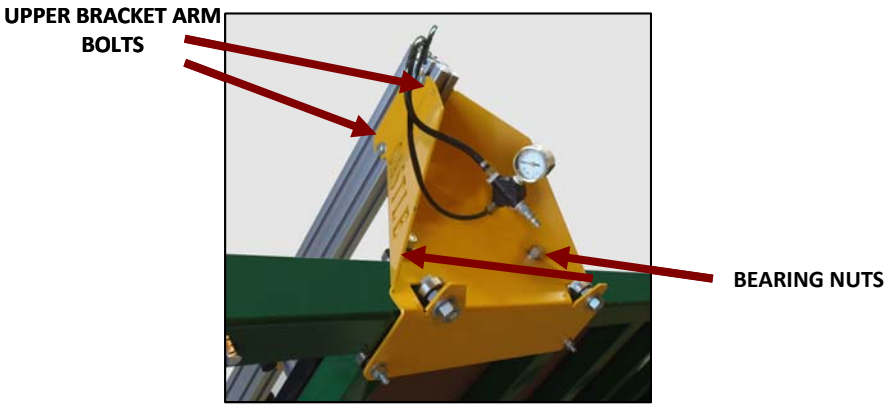


Fig 21

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 across the entire work top.
8. You may need to repeat steps 3 through 7 to achieve proper adjustment and smooth functioning of the arm.

6.3 Tightening Bracket Bolts

The bottom bracket is held to the aluminium clamp bar by two bolts. If either of these bolts is loose or slightly tweaked out of shape, the pneumatic seal won't hold. It is important that these bolts be tight.

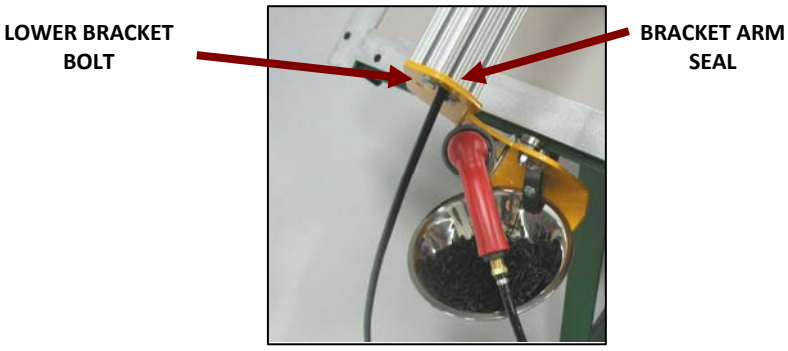


Fig 22

Warning: **Bottom Bracket bolts are tapped directly into the aluminium. If they are over-tightened they may strip out the arm.**

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.

6.4 Removing the Cylinder

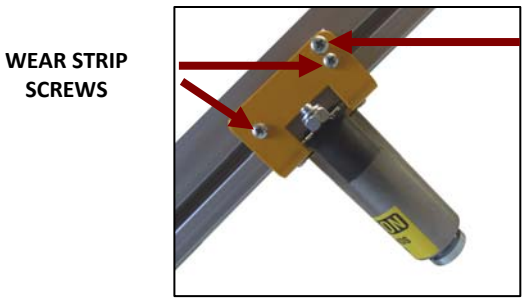


Fig 23

1. Turn off the air and remove the airline for the cylinder to be rebuilt. The line is connected to the cylinder by a push-in fitting. Simply push the outer ring in as you pull the airline.
2. Loosen the tension screw on the side of the Cylinder Channel.
3. Remove the (4) Wear Strip screws on each side of the Cylinder Channel and remove the complete cylinder assembly off the arm.

6.5 Tightening the PEM Nut

Note: This procedure requires two people to remove the arm assembly from the table.

The cylinder lever is held against the body of the cylinder with a PEM nut. If you notice that the cylinder lever has come loose or that your clamp cylinder does not hold pressure the PEM nut may have come loose. This nut can be tightened by first removing the cylinder and then tightening up the nut.

1. 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.
2. 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.
3. Loosen the tension screw on the side of the cylinder channel.
4. Take out the two Wear Strip Attachment screws on each side of the cylinder channel and pull the clamp cylinder assembly off the arm.
5. Tighten the PEM nut at the top of the cylinder using a 5/16 socket and check the action of the lever. It should be relatively difficult to move when it is off the arm.
6. Slide the cylinder(s) back onto arm.
7. Replace the cylinder assembly including the cylinder channel back onto the arm. Replace the wear strip attachment screws and tighten.
8. Tighten the bracket tension screw until the desired slight resistance is achieved.

Fig 24

6.6 Rebuilding the Cylinder

The cylinders have several rings and gaskets that help maintain pressure within the cylinder. Over time these seals can become worn or damaged and may need to be replaced. Refer to the parts clamp cylinder detail and parts list in Appendix A & B for specific part identification.

Note: This procedure requires two people.

1. Turn off the air and remove the airline for the cylinder to be rebuilt. The line is connected to the cylinder by a push-in fitting. Push the outer ring in as you pull the airline out.
2. Loosen the tension screw on the side of the Cylinder Channel.
3. Remove the (4) Wear Strip screws on each side of the Cylinder Channel and remove the complete assembly from the arm.
4. With the cylinder off the arm remove the Snap Ring (#2) on Appendix A
5. Remove the piston (#1).

Fig 25

6. Remove the Pem Nut (#10) and center screw (#4).
7. Remove the Large Washer (#5) and the Gasket (#6).
8. Remove the Piston Assembly (#17, 18, 19) from the Elbow Fitting (#20).
9. Replace the Buna-N O-Rings with the new ones from the rebuild kit and apply the enclosed lube.
10. Reassemble the cylinder reversing steps 4 through 8 using the replacement parts included in your rebuild kit (K08004).

Fig 26

11. When tightening the center screw, be sure it is left JUST LOOSE enough to allow air flow from the elbow fitting into the cylinder sleeve. It should be tightened very tight but not ‘death grip’ tight.
12. Slide the cylinder(s) back onto the arm.
13. Replace the cylinder assembly including the cylinder channel onto the arm. Replace the wear strip screws and tighten.
14. Tighten the bracket tension screw until the desired slide resistance is reached.
15. Reconnect air 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.
16. If the arm does not roll smoothly refer to Section 6.1 Adjusting the Arm Bearing.

7 Appendix A – Clamp Cylinder Detail

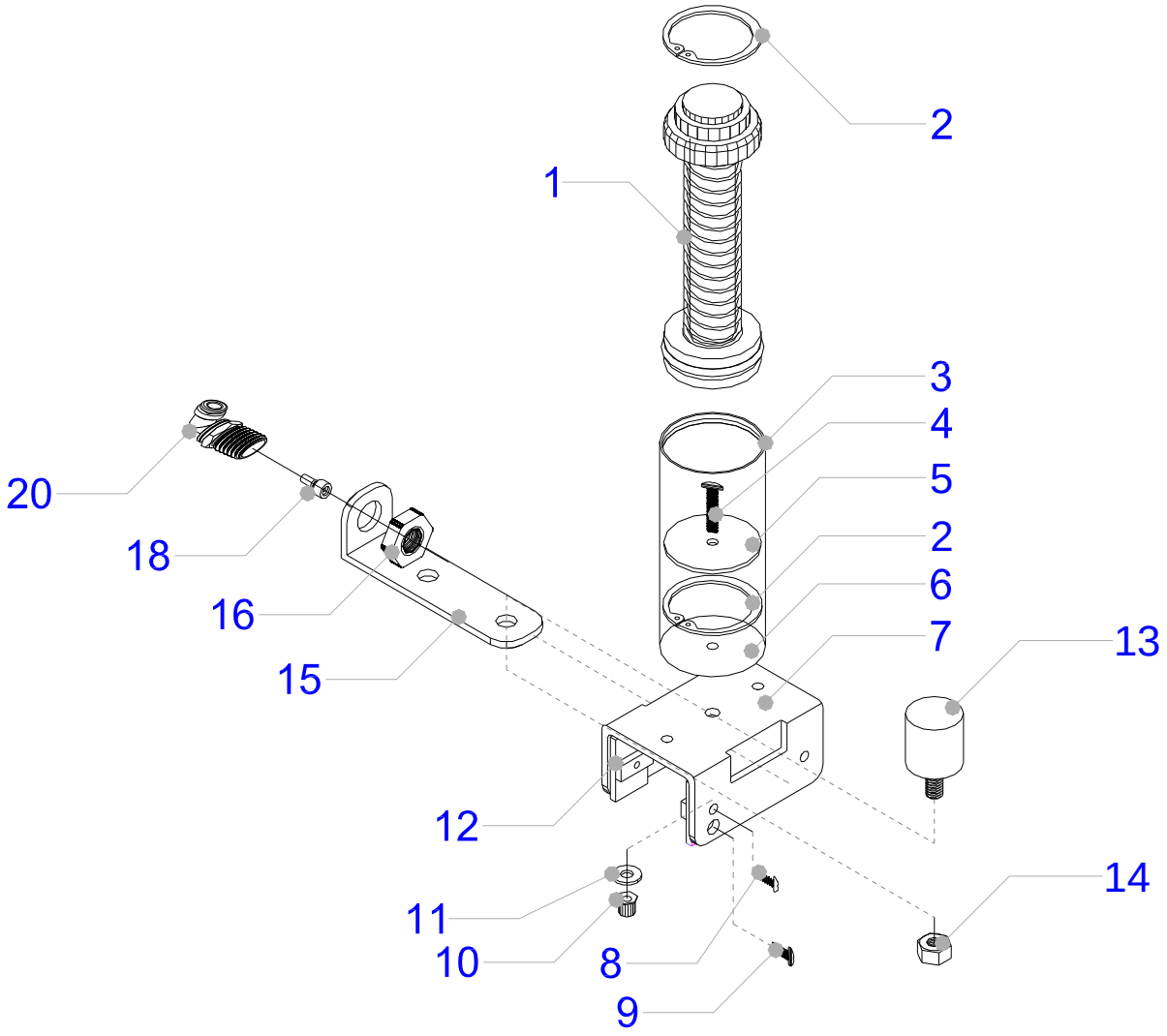


Fig 27

Item #	Part #	Part Description	Qty
1		Cylinder Piston Assembly	1
2	D15800	Internal Retaining Ring, 1-5/8	1
3	G08006	AT Cylinder Sleeve	1
4	F10377	10-32 x 7/8 PPMS – Machine Screw	1
5	M08615	AT Stainless Steel Washer	1
6	G00051	AT Reinforced Neoprene Rubber Gasket	1
7	G08001	AT Air Cylinder Channel	1
8	F80122	#8 x ½" Phillip Pan Sheet Metal Screw	4
9	F10338	10-32 x 3/8" Phillip Pan Machine Screw	1
10	F32012	AT Pem Stand-Off	1
11	F10000	#10 SAE Flat Washer	1
12	G08242	Wear Strip, 1-1/4 HUMW	4
13	H51608	Vibration Mount, SE Rubber 5/16-18	1
14	F51699	5/16-18 Nylon Locknut	1
15	G08002	AT Air Cylinder Valve Lever	1
16	F14114	¼ NPT Brass Locknut	1
17	H00352	Buna-N O-Ring – 003	1
18	N08001	AT Valve Piston	1
19	H00600	Buna-N O-Ring – 006	1
20	P12447	¼ x 5/32 Swivel Elbow Fitting	1

8 Appendix B – Cylinder Piston Detail

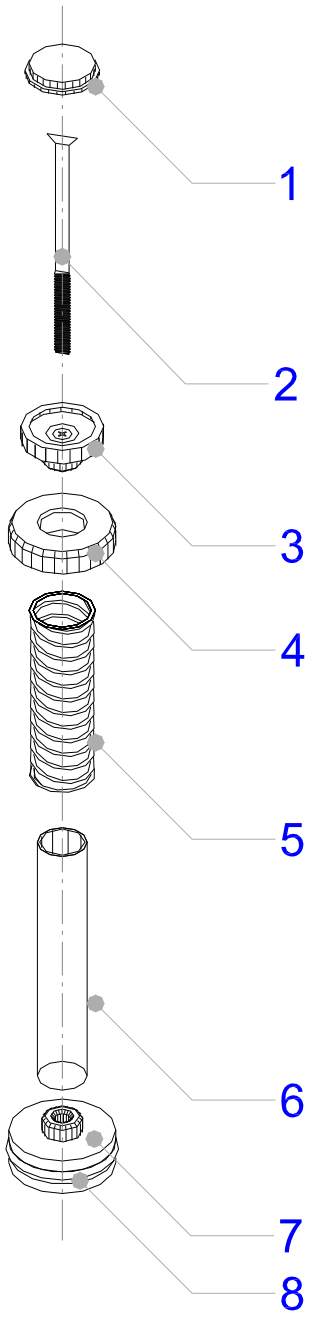


Fig 28

Item #	Part #	Part Description	Qty
1	N70118	Poly Foot Pad, 1 x 1/8	1
2	F14204	¼-20 x 4 Phillips Flat head Machine Screw	1
3	N08005	AT Cylinder Foot	1
4	N08011	AT Air Cylinder Ring	1
5	H11135	AT Cylinder Return Spring	1
6	O08075	AT Cylinder Piston Rod	1
7	N08010	AT Air Cylinder Piston	1
8	H32200	Buna-N O-Ring – 322	1

9 Appendix C - Assembly Table Accessories

Visit our web store to purchase service parts, options and accessories for your Castle Assembly Table. We offer Sioux Air Drills, additional Clamp Cylinder Assemblies and Open Back Conversion kits among other items.

http://castleusa.com/webstore/

Fig 31

AT-OB CONVERSION KIT
PART # K05001

Fig 30

AT Clamp Cylinder Assembly
PART # C08002

Fig 29

Sioux Pneumatic Screw Gun
PART # T22607