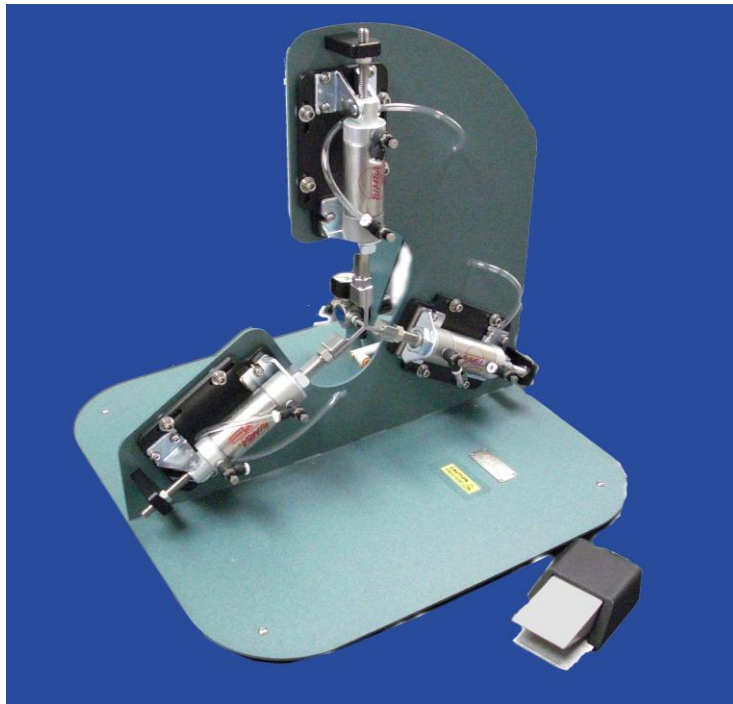




CLEAN ROOM DEVICES, LLC
"WHERE TUBING AND FITTINGS COME TOGETHER"

CRD500 3-JAW EXPANDER

OPERATIONS MANUAL



VERSION 2.0
LAST EDITED 03.08.11
DOCUMENT NUMBER 001
cleanroomdevices.com

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1.0 General Product & Safety Information

1.1 Product Information

- The expander unit is designed to expand most types of soft tubing.
- The minimum/maximum inside tube diameter is 3/32" to 1"
- The expander jaws are designed to meet most applications
- The unit design allows for simple operator adjustment

1.2 Safety Information

- This product uses an air cylinder and foot pedal to pneumatically actuate the expanding jaws. The unit is not intended to expand anything other than flexible tubing.
- The desired air supply should be free of moisture/contaminates, and a minimum 100 psi facility air supply is recommended. It is also recommended that a suitable filter/regulator be installed onto the supply line prior to the unit to preserve the life expectancy of the air components.

2.0 Installation

Ensure all five (5) rubber feet are completely stabilized on your work surface prior to applying air pressure to the unit.

2.1 Air Supply

- Connect a 1/4" air supply hose to the fitting found on the regulator. The air supply should be free of moisture and contaminants. Adjust the regulator within the range of 40-80 psi for operation. Lower than 40 psi may affect the unit's ability to stretch the tubing properly with even pressure. Running pressures higher than 80 psi can damage the jaws.

3.0 Operation

3.1 Tube Expanding

- Start by ensuring the jaws are properly aligned with each other. Maintaining this alignment during adjustment is critical.
- Break loose the set screw nut using a 9/16 open end wrench. (Figure 1)
- Break loose the 4 socket cap screws on the cylinder adjustment plate, using a 3/16 hex wrench. (Figure 2)
- With a 3/16 hex wrench, adjust the cylinder adjustment screw to increase or decrease maximum jaw travel. (Figure 3)
- Repeat this process for the other two air cylinder assemblies.

(This adjustment may require fine tuning depending on your tubing I.D., O.D., Durometer or material. It is recommended you note or log cylinder positions for future applications, or usage.)



Figure 1: Breaking the nut loose



Figure 2: Breaking the cylinder plate loose

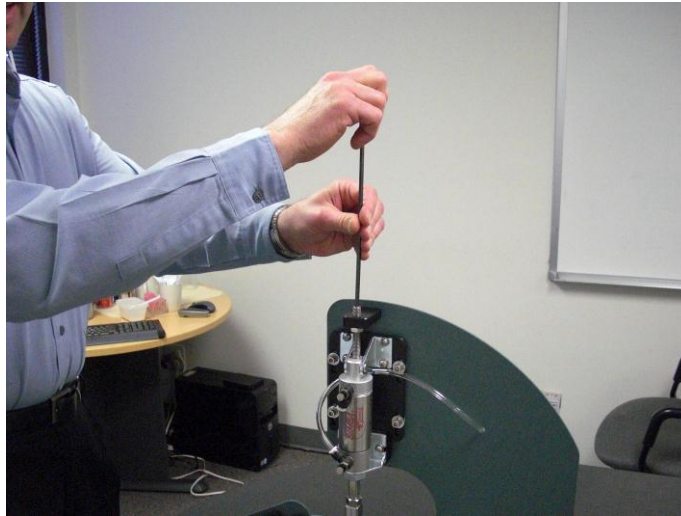


Figure 3: Adjusting the cylinder stop screw

- Place the desired tubing over the ends of ***all three*** expander jaws at the required depth.
- Actuate the expanding motion by fully depressing the foot pedal.
- Once the tube is expanded satisfactorily, push the fitting through the jaws and into the tubing.
- The tubing and fitting may need to be spooned off of the side of the jaws rather than pushed through the center, depending on fitting size and shape.

3.2 *Changing Jaws*

- Loosen all 4 screws on all of the cylinder adjustment plates. Move all three cylinder adjustment plates such that the air cylinders are in their most extended position. Retighten all screws on all cylinder plates
- Break all 3 jam nuts loose, and depress the foot pedal, allowing all three jaws to expand.
- Replace with the desired jaw size and adjust the jaws to the desired expansion length as shown in section 3.1
- Ensure that the jaws are aligned properly, as shown below in figure 4.
- To order additional jaw sets, please specify the part number CD005-D-L where D is the jaw set diameter, and L is the desired length

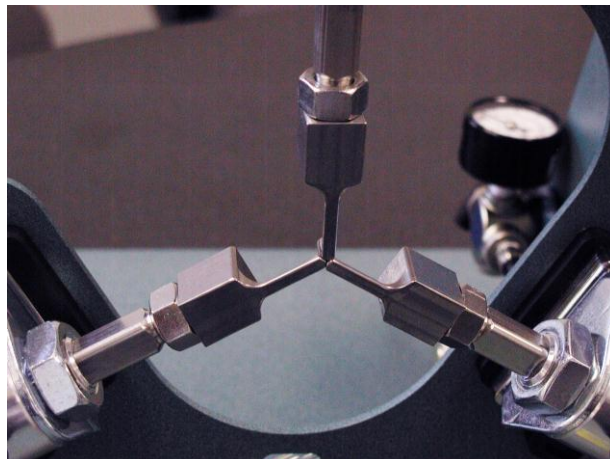


Figure 4: Proper jaw alignment

4.0 Troubleshooting

Operating Error	Action
Unit does not operate.	<ol style="list-style-type: none"> 1. Check the facility air connection. 2. Check all air hose connections on the unit.
Jaws do not spread.	<ol style="list-style-type: none"> 1. Ensure no obstructions are keeping the jaws from expanding. 2. Completely depress the foot pedal to actuate.
Flexible tubing is splitting/tearing.	<ol style="list-style-type: none"> 1. Ensure the tubing being expanded does not exceed the performance of the material. 2. Ensure the lower jaw has been adjusted correctly for the tubing inside diameter (I.D.). 3. Verify facility air supply psi or unit pressure adjustment.

5.0 Maintenance

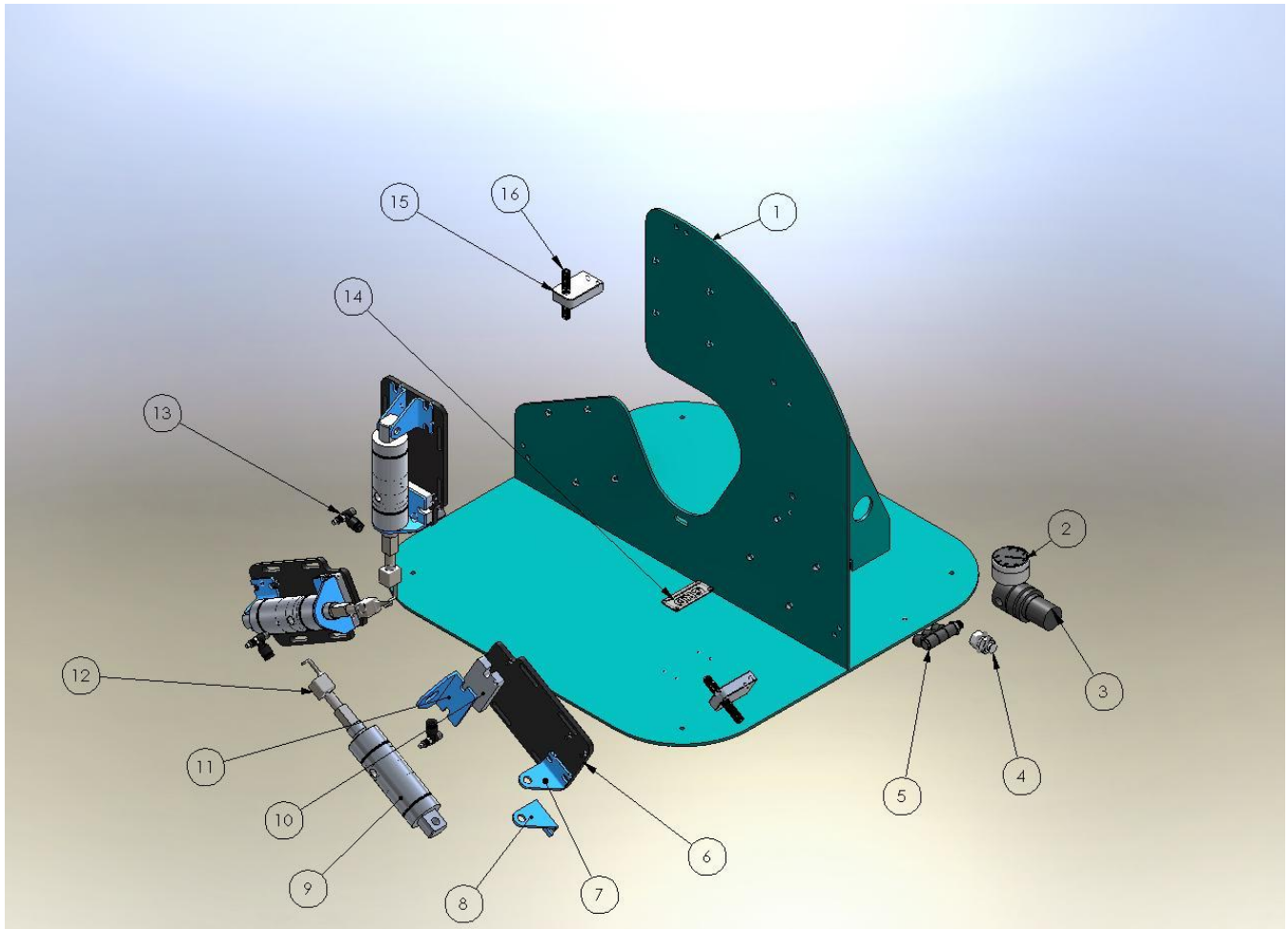
5.1 Periodic Cleaning (annually)

- Wipe down outer surfaces with alcohol, septihol or mild detergents as required.

6.0 Product Specifications

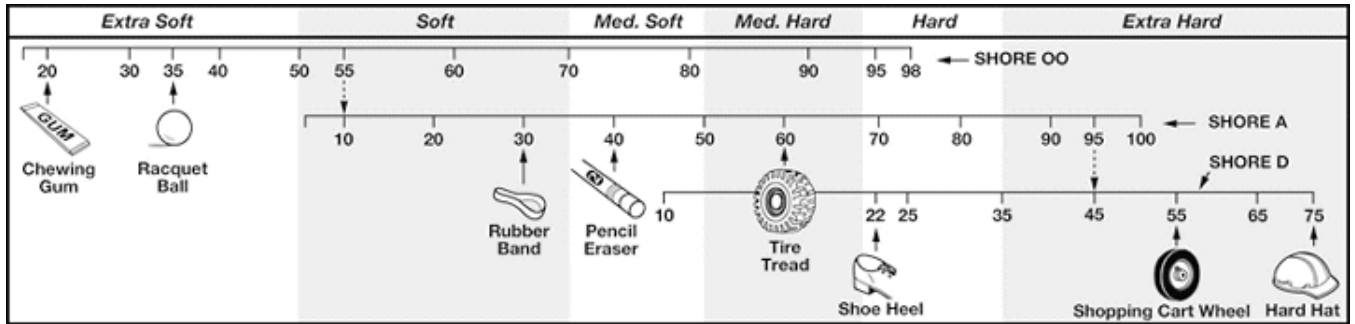
Unit Weight	37 LBS / 17KG
Overall Dimensions	21 in. (53cm) lg. x 21 in. (53cm) w. x 19 in. (48cm) ht.
Minimum/Maximum PSI	40 PSI / 80 PSI

7.0 Parts List



ITEM NO.	CRD P/N	DESCRIPTION	QTY.
1	CD005-002	BASE PLATE, 3 JAW EXPANDER	1
2	P00068	GAUGE, PRESSURE, AIR	1
3	P00066	REGULATOR, AIR, 1/8" NPT	1
4	P00185	BULKHEAD CONNECTOR	1
5	P00186	MANIFOLD, SWIVEL TUBE	1
6	CD005-001	AIR CYLINDER ADJUSTMENT PLATE	3
7	P00027	REAR RIGHT MOUNTING BRACKET	3
8	P00027	REAR LEFT MOUNTING BRACKET	3
9	P00054	AIR CYLINDER, 1 1/2" BORE	3
10	CD002-018	SPACER, FRONT, AIR CYLINDER	3
11	P00028	FRONT MOUNTING BRACKET	3
12	CD005-D-L	JAW, 3 JAW EXPANDER	3
13	P00141	FLOW VALVE, PISCO 1/8"	6
14	CD001-027A	PLATE ,DECAL	1
15	CD005-003	ADJUSTMENT SCREW BRACKET	3
16	P00189	CYLINDER ADJUSTMENT SCREW	3

8.0 Durometer Scale



9.0 Warranty

9.1 Warranty

The manufacturer warrants the product manufactured by it, when properly installed, operated, applied and maintained in accordance with the procedures and recommendations outlined in the manufacturer's operation manual, to be free from defects in material or workmanship for a period as specified below, provided such defect is discovered and brought to the manufacturer's attention within the aforesaid warranty period.

The manufacturer will repair or replace any product or part determined to be defective by the manufacturer within the warranty period, provided such defect occurred in the normal service and not as a result of misuse, abuse, neglect or accident. Normal maintenance items requiring routine replacement are not warranted. The warranty covers parts and labor for the warranty period unless otherwise specified. Repair or replacement shall be made at the factory or the installation site, at the sole discretion of the manufacturer. Any service performed on the product by anyone other than the manufacturer must first be authorized by the manufacturer.

Unauthorized service voids the warranty and any resulting charge or subsequent claim will not be paid. Products repaired or replaced under warranty shall be warranted for the unexpired portion of the warranty applying to the original product.

The foregoing is the exclusive remedy of any buyer of the manufacturer's product. The maximum damages liability of the manufacturer is the original purchase price of the product or part.

THE FORGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER WRITTEN, ORAL, OR STATUTORY, AND IS EXPRESSLY IN LIEU OF THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. THE MANUFACTURER SHALL NOT BE LIABLE FOR LOSS OR DAMAGE BY REASON OF STRICT LIABILITY IN TORT OR ITS NEGLIGENCE IN WHATEVER MANNER INCLUDING DESIGN, MANUFACTURE OR INSPECTION OR THE EQUIPMENT OR ITS FAILURE TO DISCOVER, REPORT, REPAIR, OR MODIFY LATENT DEFECTS INHERENT THEREIN.

THE MANUFACTURER, HIS REPRESENTATIVE OR DISTRIBUTOR SHALL NOT BE LIABLE FOR LOSS OF USE OF THE PRODUCT OR OTHER INCIDENTAL OR CONSEQUENTIAL COSTS, EXPENSES, OR DAMAGES INCURRED BY THE BUYER, WHETHER ARISING FROM BREACH OF WARRANTY, NEGLIGENCE OR STRICT LIABILITY IN TORT.

The manufacturer does not warrant any product, part, material, component, or accessory manufactured by others and sold or supplied in connection with the sale or manufacturer's products.

9.2 Warranty Period

Parts and labor for ninety (90) days from the date of shipment from the factory are covered. Freight to the factory on units that the manufacturer requests to be returned shall be paid by the purchaser, all return freight to be paid by the manufacturer; means of transportation to be specified by the manufacturer.

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