

About Us

We appreciate your business!

Congratulations on your new SAWYER product. We are proud to have you as our customer and will strive to provide you with the best service and reliability in the industry. This product is backed by our extensive warranty and world-wide service network. To locate your nearest distributor or service agency, please contact us at the phone number and address listed on the bottom of each page.

You are in good company!

Sawyer Manufacturing Company is the world leader in the design and manufacture of pipeline and welding equipment and has been since 1948. Sawyer equipment has become a standard in the industry and continues to set the benchmark for quality and durability.

This user operation manual has been made to instruct you for the best use and operation of your Sawyer product. Your satisfaction with our products is our main goal. Please read this entire manual carefully, noting all tips, notes and warnings. Safety always comes first.

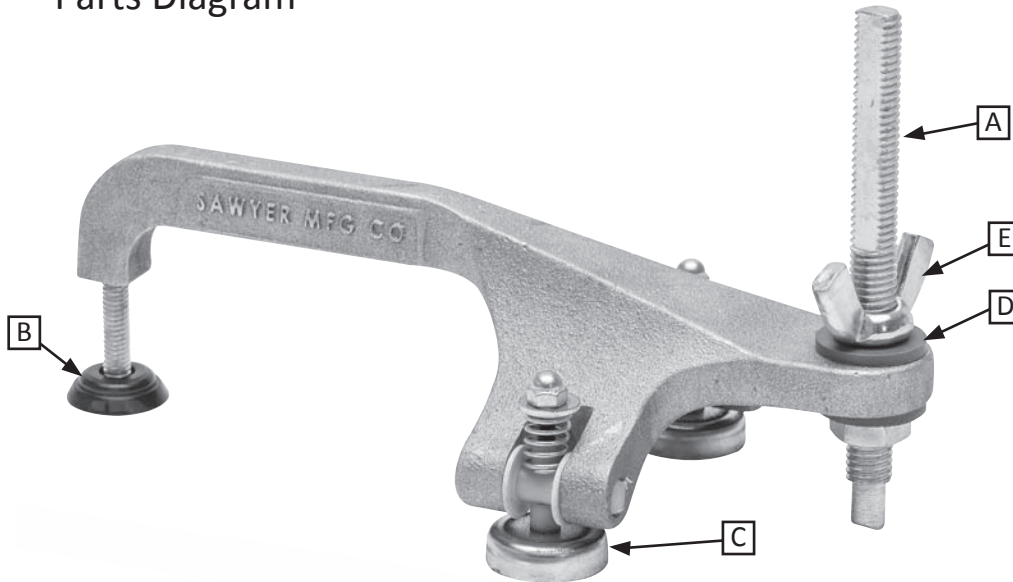



SAWYER
MFG COMPANY

Grasshopper Manual

Model 410

Parts Diagram



- | | |
|---------------------|---|
| A. Arc bolt | F. Flat tooth arc bolt <i>*not pictured*</i> |
| B. Stabilizer |  |
| C. Magnets | G. Tie arc bolt <i>*not pictured*</i> |
| D. Phenolic washers |  |
| E. Wing-nut | |

Record the following information for warranty purposes:

Where purchased: _____

Purchase date: _____

Equipment Serial #: _____



CAUTION



CAUTION: *The Grasshopper is meant to be used as a grounding device for pipe liners. Stay clear of arcing current and keep objects away from device. Ensure that the Grasshopper is in place securely before welding. Use caution when operating the Grasshopper. After each use clean and store in a warm, dry area.*

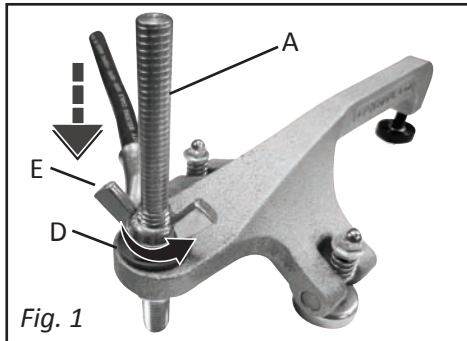
Warranty

All products manufactured by or for Sawyer Manufacturing Company are guaranteed against defects due to faulty workmanship or materials for twelve months from the date of purchase.

This guarantee is limited to the repair or replacement of any parts found to be defective, and no other liability—expressed, implied, or contingent—is assumed.

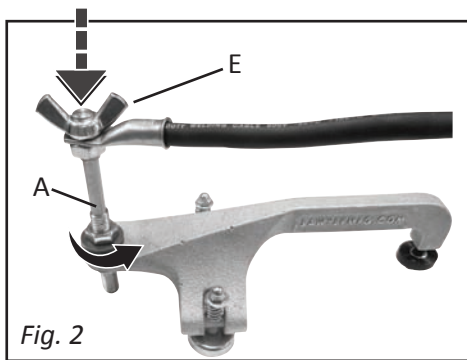
Installation

Note: Welding ground clamps can be placed on arc bolt in place of welding lug



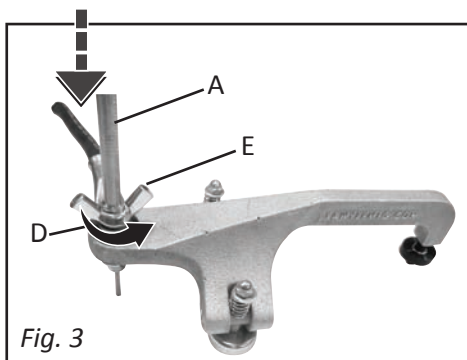
Standard Arc Bolt

1. Unscrew wing-nut (E) and take off. (Fig. 1)
 - a. Place welding lug through arc bolt (A) resting on phenolic washer. (D, Fig. 1)
 - b. Reinstall wing nut (E) onto welding lug and tighten. (Fig. 1)



Tie-In Arc Bolt

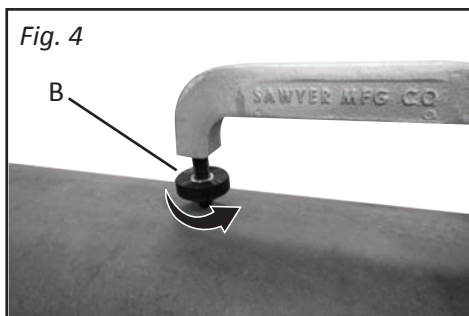
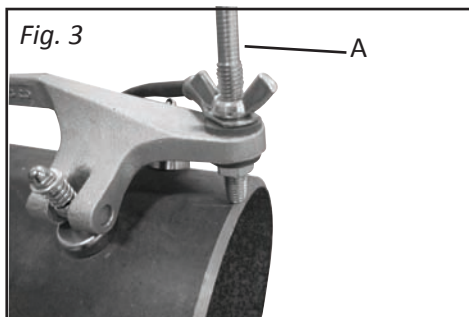
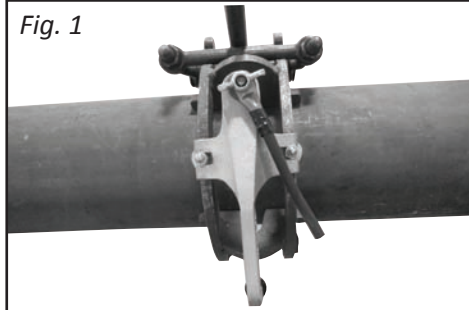
1. Unscrew wing-nut (E) and take off. (Fig. 2)
 - a. Place welding lug through arc bolt (A) resting on top nut. (Fig. 2)
 - b. Reinstall wing nut (E) onto welding lug and tighten. (Fig. 2)



Flat Tooth Arc Bolt

1. Unscrew wing-nut (E) and take off. (Fig. 3)
 - a. Place welding lug through arc bolt (A) resting on phenolic washer. (D, Fig. 3)
 - b. Reinstall wing nut (E) onto welding lug and tighten. (Fig. 3)

Operation



Note: Grasshopper can be mounted on flat plate.

Note: Mount grasshopper on a clean metal surface anywhere on pipe to be welded.

Note: The grasshopper should be mounted on an external clamp perpendicular to the pipe. (Fig. 1)

1. Place grasshopper onto pipe. (Fig. 2)

2. Turn arc bolt (A, Fig. 3) until the tip rests on the pipe.

3. Rotate stabilizer (B, Fig. 4) until it rests on the pipe.

4. Weld pipe. (Fig. 5)

Tip: If parent material is in question, weld on the bolt end; thus causing the material to be the same as the rod used.

Tip: To prevent weld slag, also known as weld BBs, build up on the arc bolt; run acetalene torch over the bolt without the oxygen turned on.

Tip: To manage your grounding cable, tape the cable on the neck of the grasshopper.

