

MANUFACTURED BY PARKER - PGI DIVISION

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Form FVC112 Rev. A

Installation, Operation and Maintenance Manual for Shear Breakaway Model SB100 and SB125

IMPORTANT: KEEP THIS DOCUMENT WITH THE PRODUCT UNTIL IT REACHES THE END USER.

The Shear Breakaway Coupler is designed to protect the Anhydrous Ammonia riser from accidental pull-aways. Upon disconnect, poppets in both halves of the coupler snap closed to stop flow of product from both the riser and the tank, preventing a dangerous release of Anhydrous Ammonia.

Part Number	Size (MxF)	Flow (GPM)	Valve Compatibility
SB100	1"NPT	75 GPM	Works with upto 70 GPM excess flow valves
SB125	1-1/4" NPT	115 GPM	Works with upto 110 GPM excess flow valves

WARNING! YOU MUST HAVE PROPER TRAINING BEFORE HANDLING ANHYDROUS AMMONIA.

1. For handling and storage of NH₃ refer to ANSI Standard K61.1 / CGA G-2.1 and local codes and Authorities having jurisdiction.
2. Contact with or inhalation of Liquid Anhydrous Ammonia (NH₃) can cause **SERIOUS INJURY OR DEATH**.
3. Before installation or removal of any tank valve, the system must be purged of all product.
4. Personal Protective Equipment (PPE), safety gloves, goggles and clothing should be worn.
5. An abundant supply of fresh water should be available to provide immediate first aid treatment for exposure to NH₃.
6. To ensure long term safe operation, the manufacturer recommends that under normal service conditions this product should be inspected before every usage season and be repaired or replaced as required.

WARNING! FAILURE TO READ AND UNDERSTAND THE INSTRUCTIONS CONTAINED IN THIS DOCUMENT CAN LEAD TO PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH.

WARNING! PROPER OPERATION OF THIS DEVICE AND YOUR SAFETY DEPEND ON THE FOLLOWING:

1. The installed Shear Breakaway Coupler must not be obstructed in any way. Make sure that there is nothing that the hose can get caught on if a pull away happens. Hose reels and other hardware might need to be moved so the hose does not catch on them.
2. All piping and valves in the system should be able to withstand a pull force greater than **600 lbs.**
3. This unit must be installed no higher than 3 feet higher than your tanks filler valve and no lower than 3 feet lower than your tanks filler valve. See Figure 1

WARNING!

- Contact with NH₃ liquid or inhalation of NH₃ vapors can cause **serious injury or death**.
- Protective clothing, goggles and gloves must be worn at all times.
- Emergency water must be available to flood any NH₃ contact area on the body.
- Follow all Local and National Regulations.

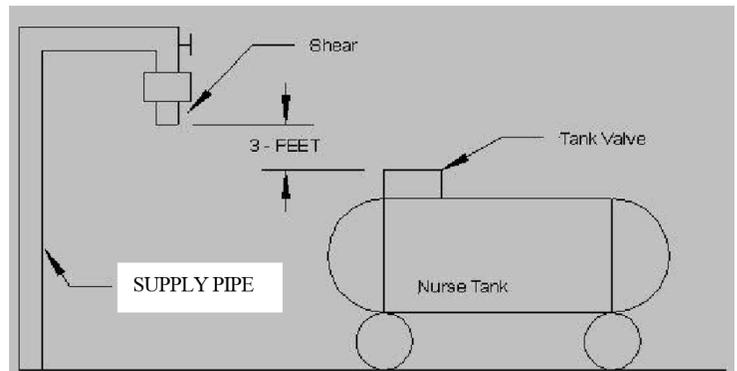
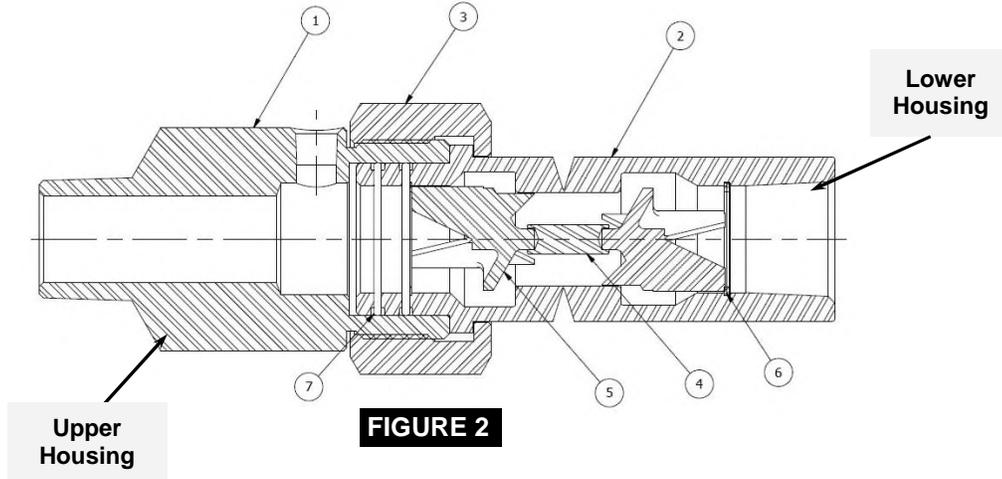


FIGURE 1

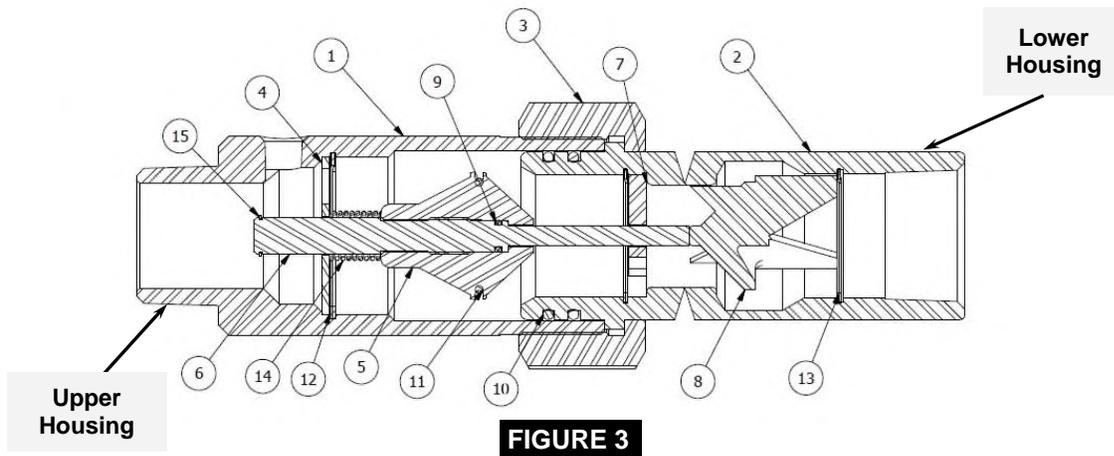
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Operation

1. SB100 — When the Shear Breakaway Coupler is connected and under pressure, the Rod (4) is held open by opposing poppets (5) to allow smooth flow of Anhydrous Ammonia. Figure 2 (SB100—1" NPT)



2. SB125 — When the Shear Breakaway Coupler is connected and under pressure, the opposing Poppet Assemblies (5 & 8), are held open by the spring-biased Rod (15). Figure 3 (SB125 — 1-1/4" NPT)



3. When the SB100/125 is fully engaged, the Upper Housing (1) is secured to the Lower Housing (2) by Lock Nut (3). The separation is accomplished when, and only when a pull away occurs.

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Installation

CAUTION Riser Pipe System must be properly stabilized, per Local and National Regulations.

SB100/125 Shear Breakaway includes:

SB100 (Figure 4)

- 1) Upper Housing
- 2) Lower Housing
- 3) Lock Nut
- 4) Bungee Cord
- 5) Rings (2 sets : 1" and 1-1/4")
- 6) U-bolt Hardware Kit
- 7) Shear Securing Bar

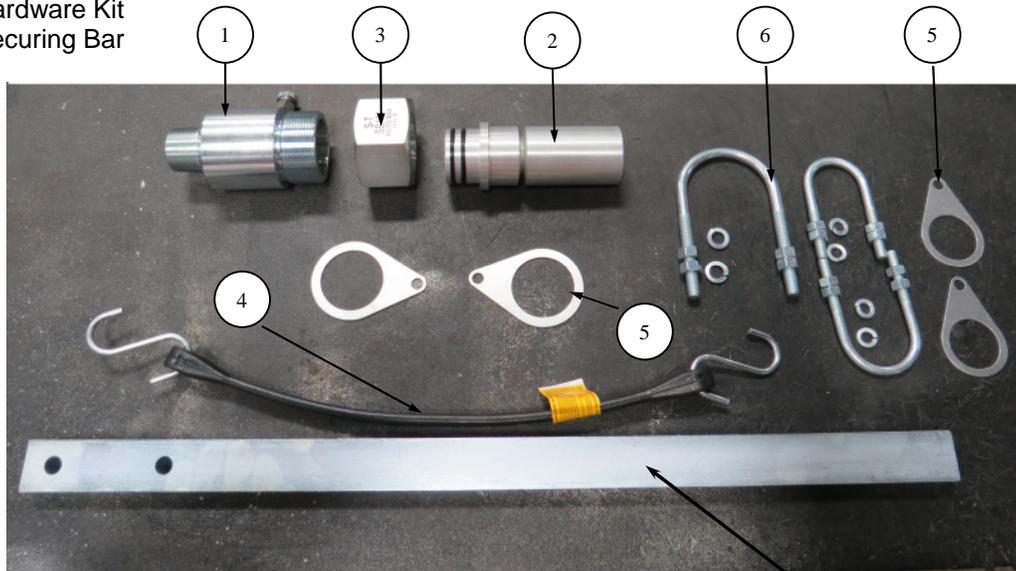


FIGURE 4

SB125 (Figure 5)

- 1) Upper Housing
- 2) Lower Housing
- 3) Lock Nut
- 4) Bungee Cord
- 5) Rings (2 sets : 1" and 1-1/4")
- 6) U-bolt Hardware Kit
- 7) Shear Securing Bar

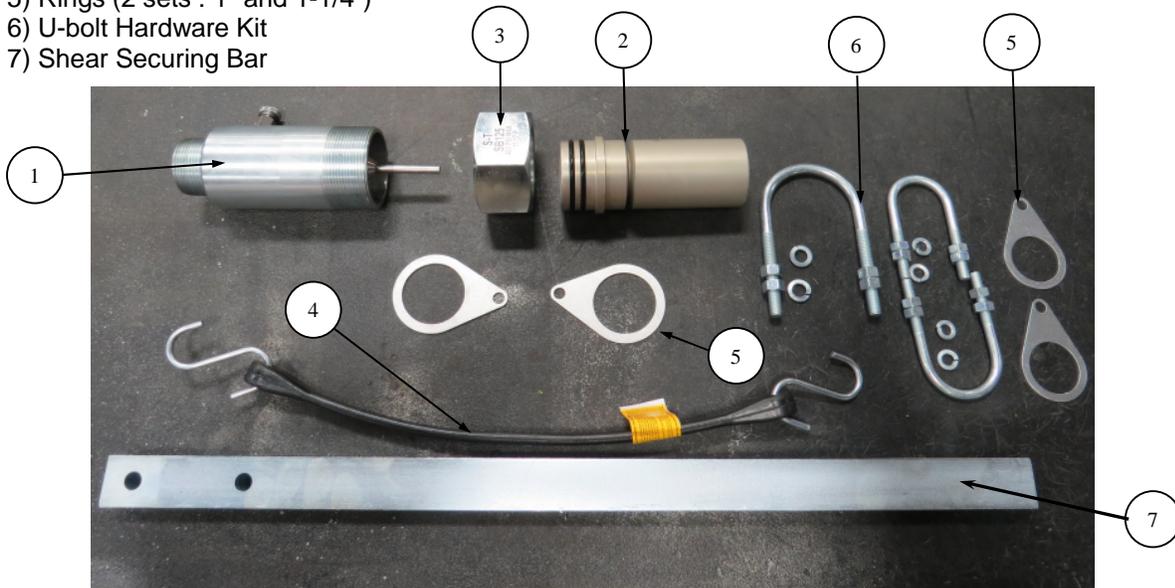


FIGURE 5

****NOTE: All parts must be used when installing the SB100/125 Shear Breakaway.****

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Installation

1. Separate the SB100/125 by unscrewing the Lock Nut and pulling the Upper and Lower Housings apart.
2. Slide the Lock Nut over the Lower Housing and slide the end of the Ring over the male pipe thread of the hose and screw hose into the female pipe thread in the Lower Housing as shown in Figure 6 and tighten firmly.

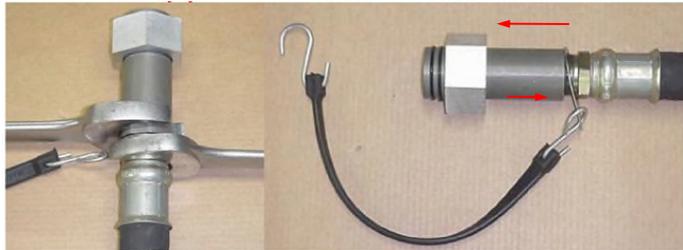


FIGURE 6

3. Slide the other end of the bungee holder ring over the male pipe thread of the Upper Housing and screw the Upper Housing Inlet body into the riser piping or shut off valve as shown in Figure 7 and tighten firmly. **Please follow your local regulation regarding shut off valves and excess flows. The SB100/125 must be installed down stream of your shut off valve/ excess flow. The SB100/125 must flow more GPMs than the excess flow it is protecting.**



FIGURE 7

**LIQUID OR VAPOR
SUPPLY PIPE**

4. Attach the Shear Securing Bar with the predrilled holes to the installed SB unit with the appropriate u-bolts and nuts as shown in Figure 8, do not tighten the u-bolt nuts yet.

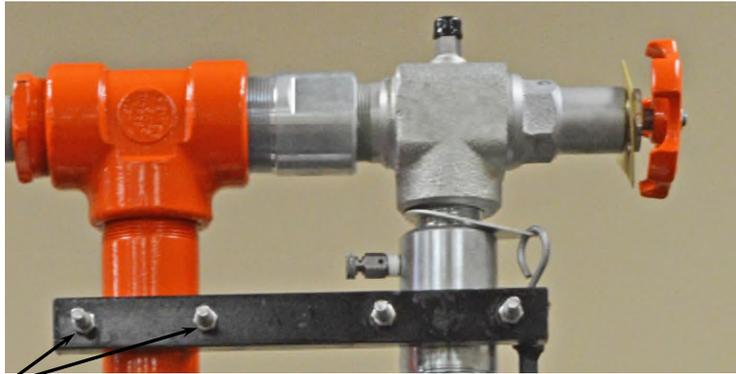


FIGURE 8

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Installation (cont.)

5. Mark and drill holes for the accompanying u-bolt that will be used to attach the Shear Securing Bar to the riser piping as shown in Figure 9. **NOTE:** If Shear Securing Bar is long enough, it can be used to secure a second valve on opposite side of the riser piping.



Drill

FIGURE 9

6. Cut off any excess material from the Shear Securing Bar as shown in Figure 10.
****NOTE:** Leave at least 1" of material on the Shear Securing Bar for u-bolt clearance. *******



FIGURE 10

7. Install the Shear Securing Bar with appropriate u-bolts, nuts and lock washers as shown in Figure 11.
Make sure to tighten bolts firmly.

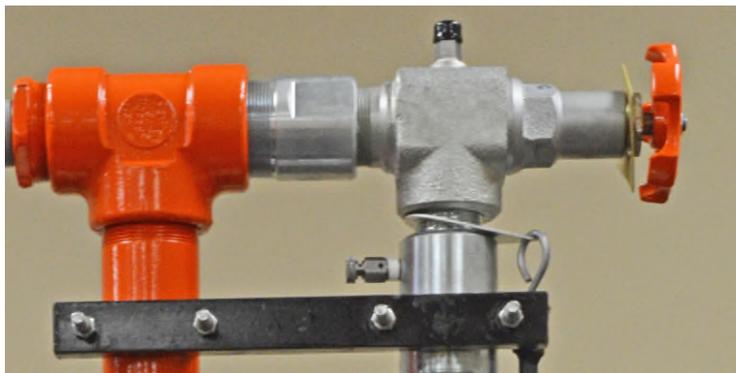
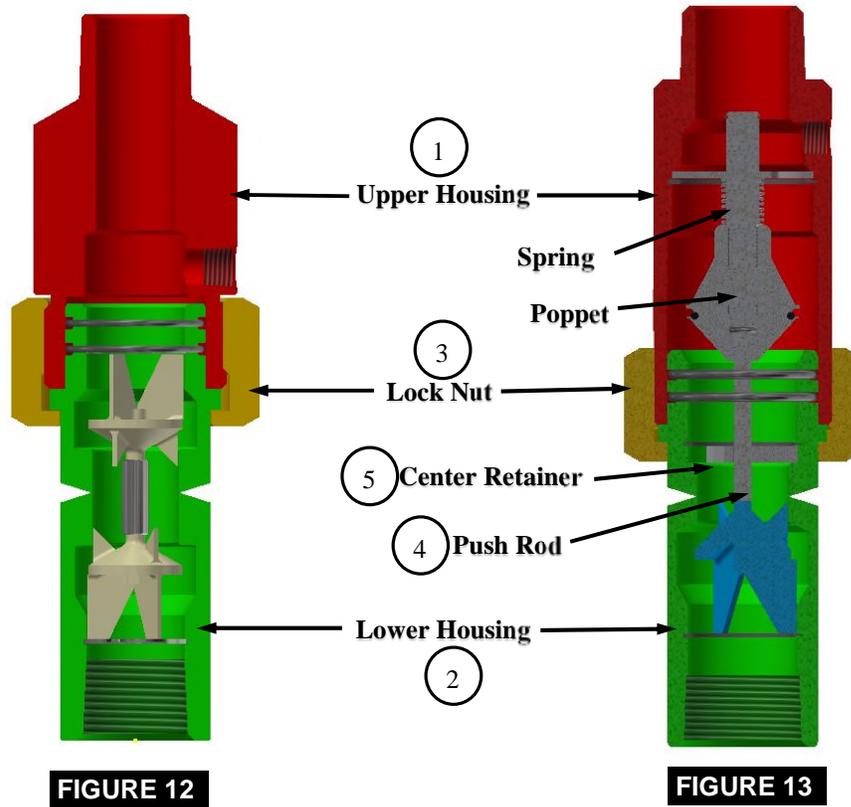


FIGURE 11

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Installation (cont.)

8. Attach the SB lower housing (2) with the Lock Nut (3) and hose assembly to the Upper Housing (1) by pushing the unit into inlet body making sure both o-rings are properly lubricated (i.e. Silicone Synthetic Grease) and are completely inside the inlet body as shown in Figure 12 . If using the SB125 make sure you guide the Push Rod (4) that protrudes from the upper housing body into the Center Retainer (5) in the Lower Housing (2) as shown in Figure 13.



9. Then screw the Lock Nut (3) onto the Upper Housing (1) inlet body and tighten firmly until the Lock Nut stops and pinch the bungee hook closed to prevent it from slipping off as shown in Figure 14.

***NOTE: When tightening the Lock Nut DO NOT put any wrench on the Lower Housing (2) , Shear body. This could cause the unit to prematurely break.**

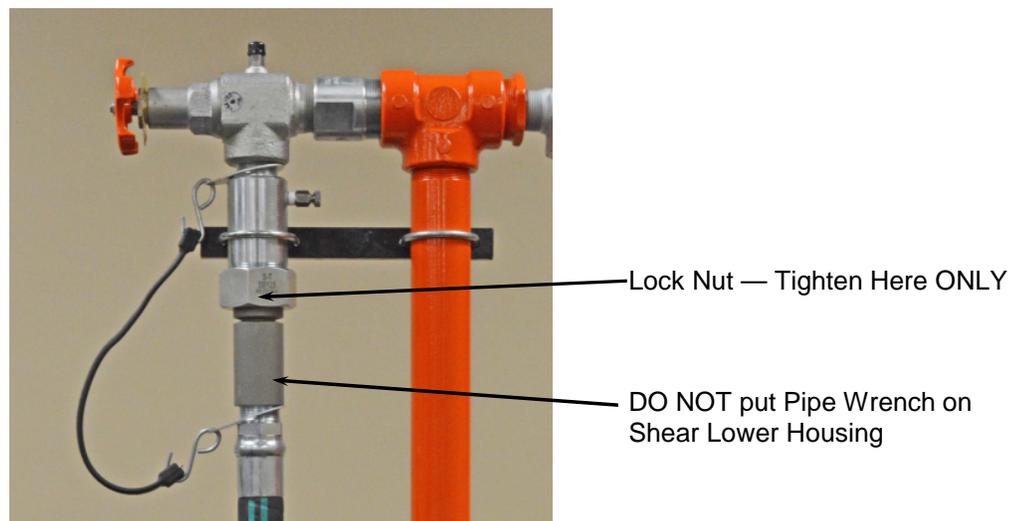


FIGURE 14

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WHAT TO DO WHEN A PULL-AWAY OCCURS

Caution: ALWAYS WEAR APPROPRIATE SAFETY EQUIPMENT WHILE FOLLOWING THE PROCEDURE BELOW.

- CAUTION: YOU MUST HAVE PROPER TRAINING TO HANDLE ANHYDROUS AMMONIA.**
- CAUTION: BE AWARE OF THE WIND DIRECTION AND YOUR SURROUNDINGS SO THAT YOU DO NOT ENDANGER YOURSELF OR ANYONE ELSE.**
- CAUTION: BE MINDFUL THAT AMMONIA CAN STILL BE TRAPPED IN THE HOSE AND PIPING WHEN BLEEDING THE SYSTEM.**
- CAUTION: FOLLOW ALL LOCAL REGULATIONS.**

1. Put on approved gloves, goggles and breathing equipment.
2. Make sure area is safe/secure before entering.
3. Close all liquid and vapor line valves on the riser.
4. Close all valves on the nurse tank that the riser hoses are attached to when the pull away occurred.
CAUTION: There could be liquid ammonia trapped in the hose lines that are still attached to the nurse tank that pulled away with the hoses attached, please take extreme caution while around these hoses. Wear safety equipment at all times.
5. Close all hose end valves that are attached to the nurse tank that was involved in the pull away. Bleed down the liquid and vapor line connection between the hose line valves and the tanks filler and vapor valves.
6. Disconnect the liquid and vapor hose line valves from the nurse tank.
7. Bleed down the liquid and vapor lines that were involved in the pull away by submerging the valve into a container of water and slowly opening the hose end valves to drain the ammonia out of the hoses.
8. Remove the broken shear body from the end of the hose.
9. Open the bleeder valve located on the shear inlet body and drain the ammonia from the unit. Wait several minutes to completely drain. **Caution: Please be aware that the bleeder valves bleed hole is pointed down so when it is opened the ammonia will vent toward the ground and away from any person present.**
10. After draining the ammonia there might still be some ammonia trapped in the inlet body, as a precaution use a long piece of steel or wood and tap on the body several times to see if there is any ammonia left in the unit. Unscrew the Lock-Nut and remove the broken shear piece. **Caution: Be mindful that ammonia can still be present. Use approved safety equipment.**
11. You may now install the new shear body by following steps number 2, 8 and 9 in the installation instructions.

IF YOU NEED REPLACEMENT OF LOWER HOUSING AND POPPETS OR HAVE ANY QUESTIONS PLEASE CALL SQUIBB TAYLOR AT 1-800-345-8105.

Always check website for latest info: www.squibbtaylor.com

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