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# A-3 Sample Probe Retriever

# User Manual

Manual No. 99104500139, Rev. 01

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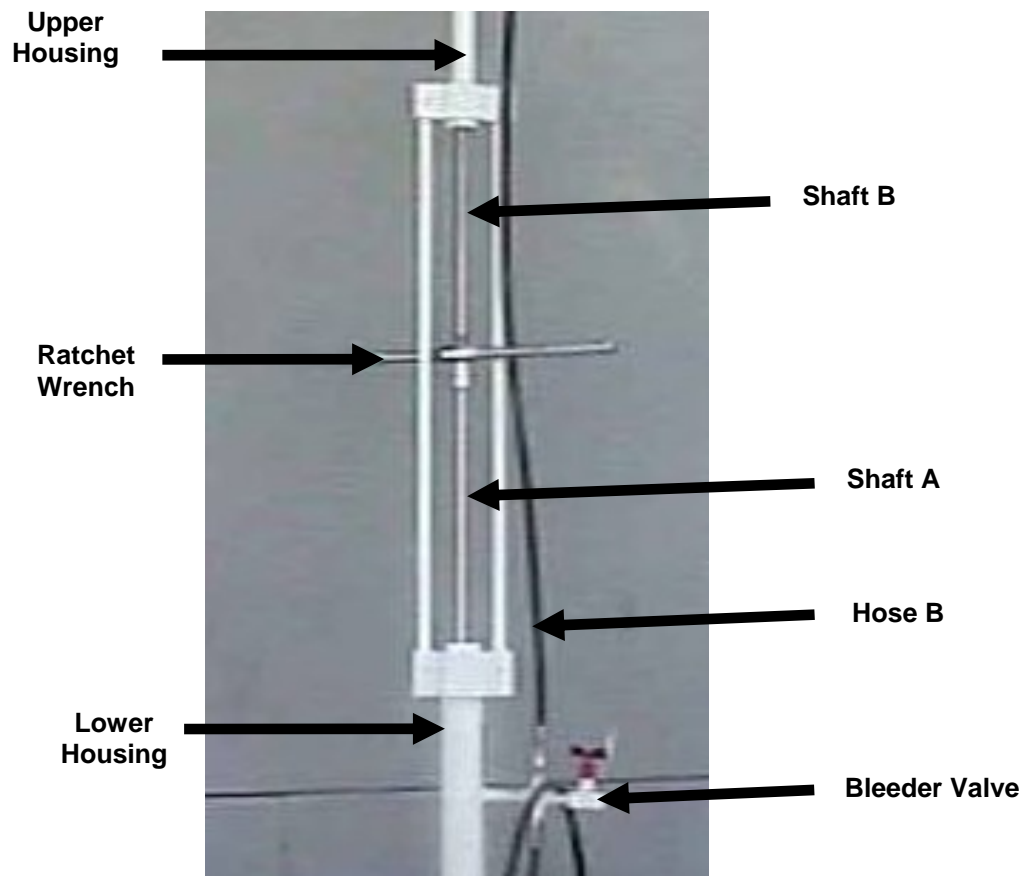
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## Nomenclature



## Description

The Series A-3 Sample Probe Retriever is used to install and retrieve Model C Sample Probes in pipelines or vessels that are pressurized up to 1,000 psig without interrupting service and with minimal loss of product.

Existing pipelines in regular service can be readily equipped with any Model C Sample Probe without interruption of service when a hot tap is applied. Sample probes can also be removed from lines for repair, inspection, or preparation of scraper runs without depressurizing or interrupting service.

The Series A-3 Sample Probe Retriever equalizes pressure between the pipeline and sample probe, allowing the probe to be installed or retrieved with only enough manual force to overcome O-ring friction, even at high line pressure.

With the use of the A-3 Sample Probe Retriever, any Model C Sample Probe can be conveniently removed for use at different locations. Only one Retriever is needed to service multiple sample probe locations.

The Series A-3 Sample Probe Retriever has high-quality carbon steel structural components. The Retriever is fitted with rust-proof plated steel rods, bronze rod bushings, Viton<sup>®</sup> O-ring seals, and Teflon<sup>®</sup> backup rings. Flexible hoses on the Retriever have high-pressure, reinforced construction. The drain valve is made of carbon steel. A specially designed ratchet wrench is provided for turning the Retriever during installation and retrieval of Model C Sample Probes.

## Pipeline Preparation

The A-3 Sample Probe Retriever is attached to the product line by means of a 2-in. ball valve and a U-22 Adapter. Before attempting to install or remove the Model C Sample Probe with the A-3 Retriever, make sure that the following customer-furnished connections are installed on the pipeline:

- A 2-in. pipe connection must be welded to the product line.
- A 2-in. ball valve must be threaded or flanged into the 2-in. pipe connection. The ball valve should also have 2-in. NPT female threads or a flange for receiving the U-22 Adapter. Due to the length of the retriever, a second operator must support the outer end.
- A 1/4-in. connection must be welded close to the 2-in. connection (see Figure 1) to accommodate a 1/4-in. MNPT globe valve. (Retriever Hose A threads into the globe valve.)

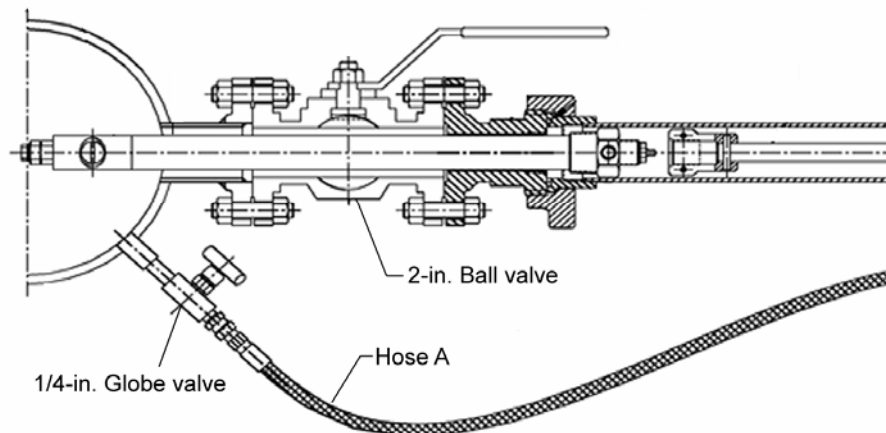


Figure 1—Pipeline preparations required for the use of the A-3 Sample Probe Retriever

## Tools for Installation and Retrieval

The following tools are required for installing and retrieving the Model C Sample Probe:

- 15-in. crescent wrench
- 5-gal bucket
- 9/16-in. open-end wrench
- 5/32-in. Allen wrench
- 18- to 20-oz. ball peen hammer

## Sample Probe Installation

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**CAUTION— AT LEAST TWO OPERATORS ARE REQUIRED FOR INSTALLING AND/OR RETRIEVING A MODEL C SAMPLE PROBE WITH THE A-3 RETRIEVER.**

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To install a Model C Sample Probe in a pipeline or vessel, perform the following steps. Reference Figure 2 on Page 6 for item numbers.

1. Mount a U-22 Union Adapter (for the C-2 Series Sample Probe) onto a 2-in. ball valve on the product line.
2. Apply Teflon<sup>®</sup> tape or thread compound to the 1 1/4-in. NPT threads of the sample probe.
3. Install the 1-in. threaded NPT end of the sample probe into the coupling end of Shaft A.
4. Fully draw Shaft A with the sample probe attached back into the housing.
5. Use the ball peen hammer to secure the union nut (item 28) onto the U-22 Union Adapter.
6. Place the ratchet wrench on Shaft A, then pull Shaft B down from the housing balance (item 15) and insert it in back of the ratchet wrench.
7. Connect Hose A (item 5) to the 1/4-in. globe valve on the product line.
8. Close the 1/4-in. bleeder valve (item 27) and open the globe valve to build up pressure between the globe valve and the 2-in. ball valve.
9. Open the ball valve to equalize pressure throughout the retriever.
10. Carefully push the ratchet wrench forward (Shaft B should remain attached to the wrench), feeling the sample probe slide through the 2-in. ball valve and into the pipeline.
11. Engage the pipe thread on the sample probe into the U-22 Union Adapter and tighten with the ratchet wrench until the sample probe is snug. **DO NOT FORCE** - Final tightening is completed upon removal of the A-3 Retriever (see step 17).
12. Close the 1/4-in. globe valve.

13. Open the ¼-in. bleeder valve to discharge pressure and product from the retriever into a bucket.
14. Disconnect Hose A from the globe valve (with the 9/16-in. open-end wrench), and drain the hose into a bucket.
15. Use a hammer to disconnect the union nut using COUNTERCLOCKWISE rotation (with a bucket placed underneath).
16. Pull the A-3 Retriever back, and disconnect the coupling end of Shaft A using COUNTERCLOCKWISE rotation.
17. Tighten the sample probe with a 15-in. crescent wrench. Make sure the arrow on the hex of the sample probe body is oriented with the direction of flow.
18. Install the drive mechanism and connect the sample discharge line to the receptacle.

## Sample Probe Retrieval

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**CAUTION— AT LEAST TWO OPERATORS ARE REQUIRED FOR INSTALLING AND/OR RETRIEVING A MODEL C SAMPLE PROBE WITH THE A-3 RETRIEVER.**

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To retrieve a Model C Sample Probe from a pipeline or vessel, perform the following steps:

1. Remove the drive mechanism and sample discharge line from the sample probe.
2. Unscrew the sample probe connection to the U-22 Adapter a couple of turns, just to break the tension on the pipe thread.
3. Partially pull Shaft A from the retriever housing, exposing the coupling end only.
4. Using the ratchet wrench, screw the coupling end onto the 1-in. NPT-threaded end of sample probe.
5. Tighten the two sets of screws with the 5/32-in. Allen wrench, taking care not to over-tighten.
6. Push the A-3 retriever assembly over Shaft A and the sample probe, and mate it with the U-22 Adapter.
7. Use the hammer to secure the union nut on the U-22 Adapter.
8. Place the ratchet wrench on Shaft A, then pull Shaft B and insert it in back of the ratchet wrench.
9. Connect Hose A (item 5) to the ¼-in. globe valve on the product line.
10. Close the ¼-in. bleeder valve (item 27).
11. Open the globe valve to equalize pressure throughout the retriever.
12. Remove the sample probe from the U-22 Adapter by rotating the ratchet wrench COUNTERCLOCKWISE and drawing the sample probe all the way back inside the housing.



13. Close the 2-in. ball valve and the ¼-in. globe valve.
14. Open the ¼-in. bleeder valve and drain into a bucket.
15. Disconnect Hose A from the ¼-in. globe valve and drain into a bucket.
16. Use a hammer to break the union nut (with a bucket placed underneath) and remove the retriever.
17. Push Shaft A forward until the coupling end of Shaft A and the sample probe are exposed.
18. Loosen the set screws with the 5/32-in. Allen wrench and remove the sample probe from the coupling end of Shaft A.

## Maintenance Information

The parts shown below are recommended for maintaining the A-3 Retriever. Parts should be replaced every two years with regular use.

### Recommended Spare Parts

QTY	PART NO.	DESCRIPTION
2	50068200117	O-Ring #116 Viton®
4	50142200397	Back-Up Ring
2	50142208022	O-Ring #217 Viton®
1	50142200401	O-Ring #332 Viton®

### Series A-3 Sample Probe Retriever Bill of Materials

ITEM	QTY	PART NO.	DESCRIPTION
1	2	50068200117	O-Ring #116 Viton <sup>®</sup>
2	4	50142200397	Back-Up Ring
3	1	50142200398	Retaining Ring
4	2	50142200399	Swivel Adapter for Quick Disconnect
5	1	50142200400	Hose ¼-in. MNPT x 46-in. Long (Hose A)
6	4	50142200410	Shoulder Screw 10-24 x 1 in.
7	4	50142200411	10-24 Hex Nut
8	1	50142200412	Roll Pin ¼ in. x 7/8 in.
9	1	50142200419	Housing Assembly
10	1	50142200418	Shaft and Socket Assembly
11	1	50142200420	Front Support
12	1	50142200421	Rear Support
13	1	50142200425	Ratchet Wrench
14	2	50142200429	Support Rod
15	1	50142200430	Housing Balance
16	1	50142200431	Shaft Balance
17	1	50142207068	Ratchet Socket
18	1	50142207155	Hose ¼-in. MNPT x 64-in. Long (Hose B)
19	1	50142207596	End Cap
20	2	50142208022	O-Ring #217 Viton <sup>®</sup>
21	2	50142208034	Brass Bearing
22	1	50142300032	¼-in. Female Cad Ell
23	1	50142300192	¼-in. Cad Plated Cross
24	1	50142300252	¼-in. Cad Plated Street Ell
25	2	50142300622	¼-in. x 1 1/2-in. F.S. Nipple
26	1	50142300625	¼-in. x 3-in. F.S. Nipple
27	1	66210715512	¼-in. FNPT Valve 6000 WP
28	1	50142200403	Yale Fig #3 Union Nut
29	1	50142200404	Yale Union Modified
30	1	50142200401	O-Ring #332 Viton <sup>®</sup>
<b>ADDITIONAL PARTS NEEDED BUT NOT SUPPLIED WITH RETRIEVER</b>			
	1	50142200409	U-22 Union Adapter

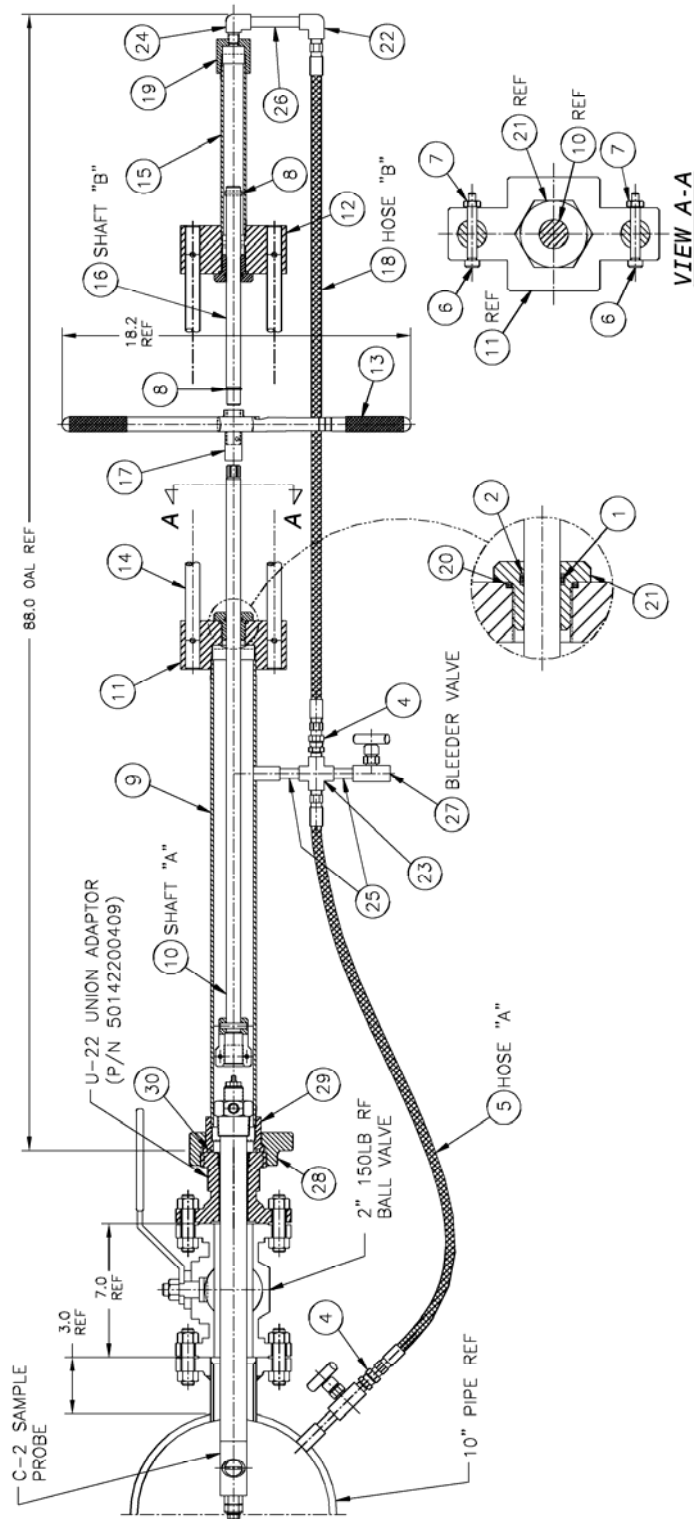


Figure 2—Schematic of the Model C-2 Sample Probe installation using the Series A-3 Sample Probe Retriever.



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