



Installation, Operation, and Maintenance Manual

Welker[®] Gas Sampler
Model
MPS-2

The information in this manual has been carefully checked for accuracy and is intended to be used as a guide to operations. Correct operating and/or installation techniques, however, are the responsibility of the end user. Welker reserves the right to make changes to this and all products to improve performance and reliability.

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Appendix A – Drawings

1. General

1.1 Introduction

We appreciate your business and your choice of Welker products. The Installation, Operation and Maintenance liability for this product becomes that of the purchaser at the time of receipt. Reading the applicable IO&M Manual prior to installation and operation of this equipment is required so that you have a full understanding of its application and performance prior to commencement of use. If you have any questions, please call 1-800-776-7267 or 1-281-491-2331 in the USA. The Welker MPS series sampler is a positive displacement pump. It is designed to take a representative sample of a gas product, at pipeline conditions, and pump it into a sample container. Used separately or as part of a complete sampling system, the MPS will provide the user with an accurate and representative sample of their product.

2. Installation Instructions

2.1 Installing the Sampler

To place the unit into operation, the following procedures should be followed:

2.1.1 After unpacking the unit, check it over for compliance and any damages.

NOTE: The installation instructions are written from the position that the MPS is part of a complete sampler system. If it is purchased as a sampler alone, the system should be constructed in a fashion compatible to the following instructions.

Recommended System Components:

- MPS series sampler
- Sample probe (Welker Model GAL0020 or equal)
- Instrument regulator with downstream relief valve and gauge
- Electronic solenoid valve
- Constant pressure sample cylinder

2.1.2 Before installing sampler onto the pipeline thread-o-let, be sure the probe is cut to a length that will reach into the center one-third of the pipeline. The sampler should be located in the least turbulent area available of the flowing stream, i.e., not in a header or blowdown stack and away from obstructions, elbows, or partially closed valves.

2.1.3 Once the sampler is mounted, hook-up can be completed.

2.1.4 Tube from the “sample out” port on the sampler to the sample container. The cylinder (container) should be located as close to the sampler as is possible. Use small diameter stainless steel tubing ($\frac{1}{8}$ ” tubing is preferred).

NOTE: If a constant pressure cylinder is used, refer to those instructions for complete details.

All connections must be checked carefully for leaks at full line pressure. No leaks are acceptable within the complete sample system.

NOTE: When sealing fittings with PTFE tape, refer to the proper sealing instructions for the tape used.

2.1.5 If your system is paced by an electronic signal from an outside source (i.e., turbine meter, flow computer, etc.), make the appropriate electrical hook-ups at this time.

2.1.6 System is now ready for start-up.

2.2 Start-Up and Sequence of Operation

2.2.1 Open the probe valve on the GSS10MP18 sampler (if using the GAL0020 sampler probe, the side-mounted needle valve will remain closed).

2.2.2 Set the instrument supply regulator at 65-70 psi.

2.2.3 To test the sample system, take the following steps:

- Close the product inlet valve on the cylinder.
- Actuate the sampler several times by energizing the solenoid valve.
- Observe the gauge on the manifold. Build pressure to above line pressure. Let the unit sit for several minutes and check for a drop in pressure. If it does drop, check for leaks. If the sampler holds pressure, the unit is ready to be placed in operation.

3. Maintenance Instructions

3.1 General

Prior to maintenance or disassembly of the unit, it is advisable to have a repair kit handy for the system in case of encountering unexpected wear or faulty seals.

We recommend that the unit have bi-annual maintenance under normal operating conditions. In the case of severe service, dirty conditions, excessive cycling usage or other unique applications that may subject the equipment to unpredictable circumstances, a more frequent maintenance schedule may be appropriate.

Disassembly should be done in as clean an environment as possible. New seals supplied in spare parts kits are not lubricated. They should be lightly coated with lubrication grease (silicone grease or other) before they are installed into the equipment. This helps in the installation of the seals while reducing the risk of damage when positioning them on the parts. After the seals are installed, some additional lubrication can be applied to shafts or cylinder inner diameters to allow smooth transition of parts.

The following tools will be required:

- 12” adjustable wrench
- 6” adjustable wrench
- 8” channel lock pliers
- hex wrench, sizes $\frac{5}{32}$ ”, $\frac{3}{16}$ ”, $\frac{1}{4}$ ”, and $\frac{3}{8}$ ”
- Lubricant to apply to all O-ring seals when reassembling.

3.2 Disassembly

NOTE: The sampler must first be removed from the pipeline in order to perform maintenance.

- 3.2.1 Close both probe valves.
- 3.2.2 Remove instrument regulator and solenoid valve.
- 3.2.3 Disconnect sample outlet tubing.
- 3.2.4 Remove sampler from probe (see Figure 3.1).

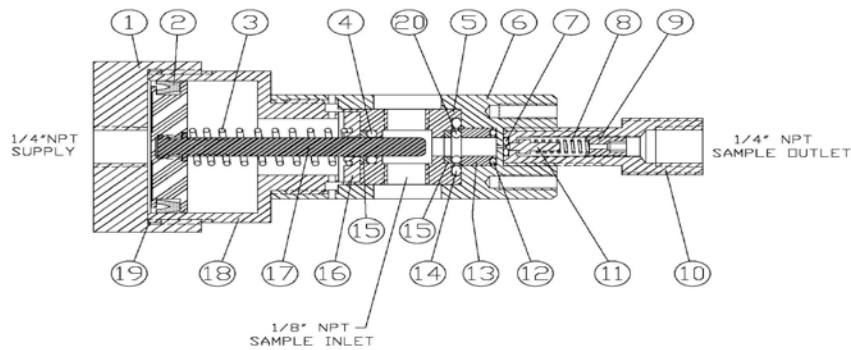


Figure 3.1

- 3.2.5 Unscrew cap (part #1) from motor housing (part #18).
 - 3.2.6 Remove piston (part #17), spring (part #3), and spring retainer (part #16).
 - 3.2.7 Inspect piston (part #17) for scratches or pits. The piston has a polished surface and should be free from scratches or abrasions. Slightly lubricate before reassembly.
 - 3.2.8 Remove flow ring (part #5) and replace the two O-ring seals on each end (parts #4 and #14).
- NOTE:** Before installing new O-ring seals, be sure O-ring grooves are clean and seals have been lubricated with silicone grease or an O-ring lubricant.
- 3.2.9 Remove relief cap (part #10) from body.
 - 3.2.10 Remove poppet (part #11) and spring (part #8) by unscrewing spring adjuster (part #9).
 - 3.2.11 Inspect poppet for scratches and clean relief cap.
 - 3.2.12 Replace O-ring (part #7).

3.2.13 Reassemble in reverse order. All seals and shafts should be lightly lubricated before installation. Do not overtighten screwed connections. They are O-ring sealed and need only be snug.

3.2.14 Reconnect instruments and cylinder.

3.2.15 Sampler is now ready to put into operation.

3.3 Reassembly

To reassemble the sampler, simply reverse the order of disassembly while paying special attention to the following procedures:

3.3.1 O-rings and seals can be cut or destroyed during assembly. Please use caution when assembling the sampler.

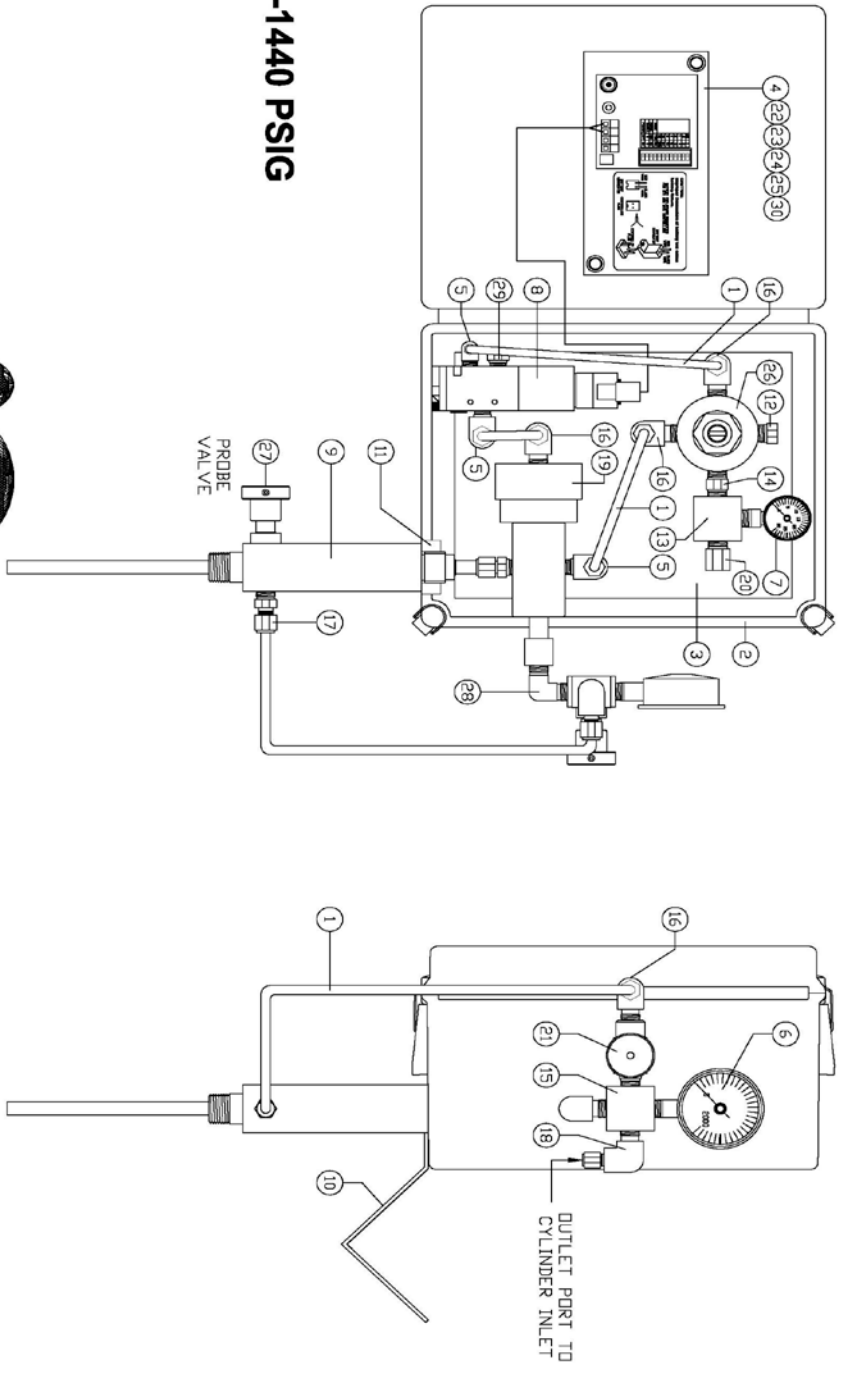
3.3.2 Lubricate the polished surfaces on the shafts and cylinders. Silicone grease is recommended. Small amounts are sufficient.

3.3.3 Take extra care when reassembling the inner shaft, as it must travel through several seals. Lubricate and rotate shaft while inserting, so as not to scratch the shaft or damage the seals.

3.3.4 Snug the packing gland nuts after the sampler has been fully reassembled.

NOTE: Never tighten the nut unless it is leaking. **DO NOT OVERTIGHTEN.**

3.3.5 When the collection head assembly is being replaced, use caution with the internal relief, making sure it is properly aligned while threading on the anvil/cylinder. The anvil/cylinder must be attached securely to the inner shaft.



MAOP: 20-1440 PSIG

DATE	REV.	RECORD	AUTHORIZED	DRAWN	CHECKED
3/21/06	-	DR# 7490	GB	TJM	GB
1/12/07	A	CNH 5652	GB	EBC	GB
7/9/07	B	CNH 5879	GB	EBC	GB

		P. O. BOX 138 SUGARLAND, TEXAS 77487-0138 PHONE (281) 51-2331 FAX (281) 491-8344	
TITLE:	MICRO PURGE SAMPLER W/ MANIFOLD & 6TC TIMER	DRAWN BY:	TJM
COMPANY:	WELKER ENGINEERING	SCALE:	STF
DATE:	3/31/06	APPROVED BY:	STF
		DRAWING NUMBER:	AD681BL
		SHEET:	1 of 2
		REV:	B

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NO.	REQ.	DESCRIPTION	PART NUMBER
22	1	TIMER MOUNTING PLATE	DIP012
21	1	VALVE M/F	NV1M/F
20	1	RELIEF VALVE 1/4"	MR054DD
19	1	MICRO PURGE PUMP	MP52
18	1	MALE ELBDW	MF026DX
17	1	1/8" T x 1/4" NPT	MF018DX
16	4	MALE CONNECTOR 1/4" T x 1/4" NPT	MF090DX
15	1	MALE ELBDW 1/4" T x 1/4" NPT	MF034DX
14	1	CROSS, BLDCK 1/4" NPT	MF004DX
13	1	HEX NIPPLE, 1/4" NPT	MF002DX
12	1	TEE, BLDCK 1/4" NPT	MF001DX
11	1	HEX PLUG, 1/4" NPT	MA209BX
10	1	JAM NUT	GSS1120
9	1	CYLINDER TRAY BRACKET	GSS10MP18
8	1	PROBE BASE MP52	ESSVVE41AF11
7	1	SOLENOID VALVE 4-WAY ALUM.	GAI14DD
6	1	GAUGE 0-100#	GA003DD
5	3	GAUGE 0-2000#	MF017DX
4	1	MALE ELBDW 1/4" x 1/8" NPT	EENHDA10P8
3	1	1/4" x 1/8" NPT	ETIWE6TC
2	1	BACKPLATE	EENHDA10P8
1	AS	6TC TIMER, CONTROLLER	EENHDA10B6GH0RF6
1	REQ	FIBERGLASS ENCLDUSURE 316 S.S.	0316S0025T103
1	REQ	TUBING, 3/4" O.D. x .035 W.T.	
23	1	MOUNTING PLATE	DIP013
24	1	CDVER PLATE	DIP014
25	2	TIMER BOARD STAND OFF	DIP015
26	1	REGULATR	REG23
27	1	VALVE KIT, NV-2	VL182DD
28	1	MALE ELBDW, 1/4" NPT	MF045DX
29	1	MUFFLER 1/8" NPT BRONZE	MF246AB
30	1	LITHIUM BATTERY PACK	EBPL072125

DATE	REV.	RECORD	AUTHORIZED	DRAFTER	CHECKED
3/21/06	-	DRH 7490	GB	TJM	GB
1/12/07	A	CNH 5652	GB	EBC	GB
7/9/07	B	CNH 5879	GB	EBC	

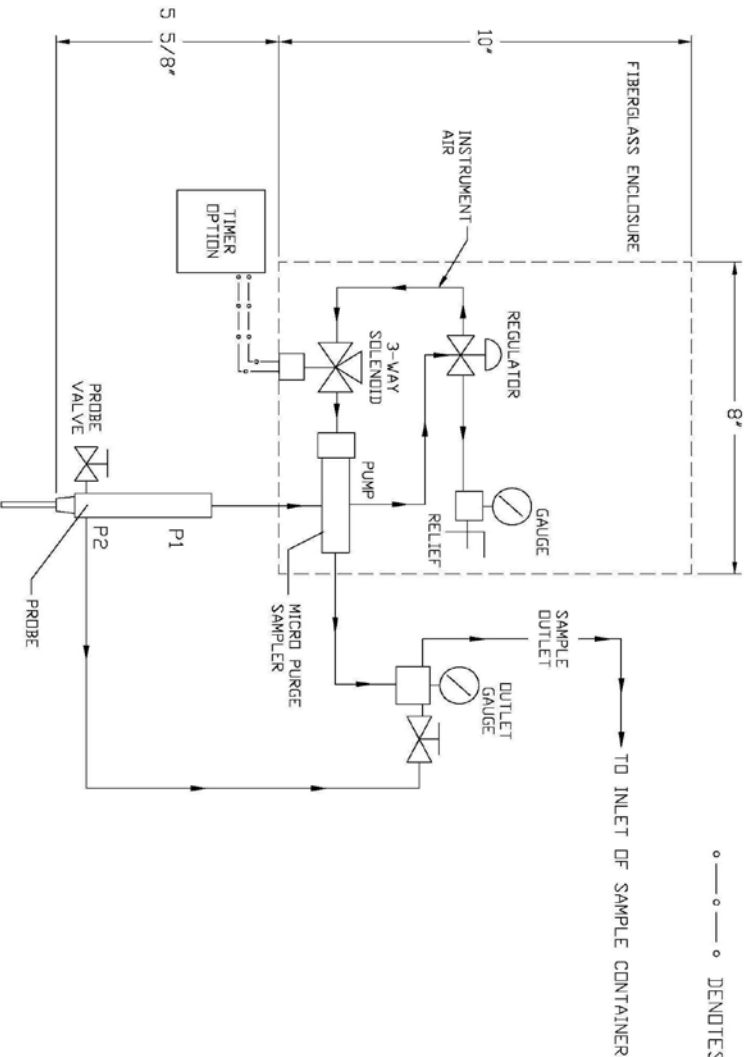
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TITLE	MICRO PURGE SAMPLER W/ MANIFOLD	
COMPANY	WELKER	
DRAWN BY	TJM	SCALE
DATE	3/31/06	APPROVED BY
SHEET	2 of 2	DRAWING NUMBER
REV.	B	AD681BL

MATERIAL	FINISH	TO PROTECT SENSITIVE PIPELINE EQUIPMENT, WELKER ENGINEERING COMPANY RECOMMENDS INSTALLING ANY PRODUCT PROTRUDING INTO THE PIPELINE USTERRAM OR THE STRAINER.	DRAWING NUMBER	REV.
N/A	N/A		AD681BE	C



PIPELINE PRESSURE

DATE	REV.	RECORD	AUTHORIZED	DRAWER	CHECKED	TITLE	COMPANY	SCALE	APPROVED BY	DRAWING NUMBER
12/1/97	-	DR# 3107	KES	RP	KES	MICRO PURGE SAMPLER				
9/22/03	A	CN# 4315	GB	RDC	GB					
10/8/03	B	CN# 4337	GB	RDC	GB					
7/9/07	C	CN# 5879	GB	EBC	GB					

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DATE		SCALE				SHEET	1 of 1
							REV. C