



Installation, Operation, and Maintenance Manual

***Welker[®] Gas Sampler
Model
MPS-2***

Manual IOM-056

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.

13839 West Bellfort
Sugar Land, Texas 77498-1671
U.S.A.
Tel.: (281) 491-2331
Fax: (281) 491-8344
www.welker.com

TABLE OF CONTENTS

1. GENERAL	3
1.1 Introduction	3
2. INSTALLATION INSTRUCTIONS	3
2.1 Installing the Sampler	3
2.2 Start-Up and Sequence of Operation	4
3. MAINTENANCE INSTRUCTIONS	5
3.1 General	5
3.2 Disassembly	5
3.3 Reassembly	7

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 1-281-491-2331. 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 40 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).

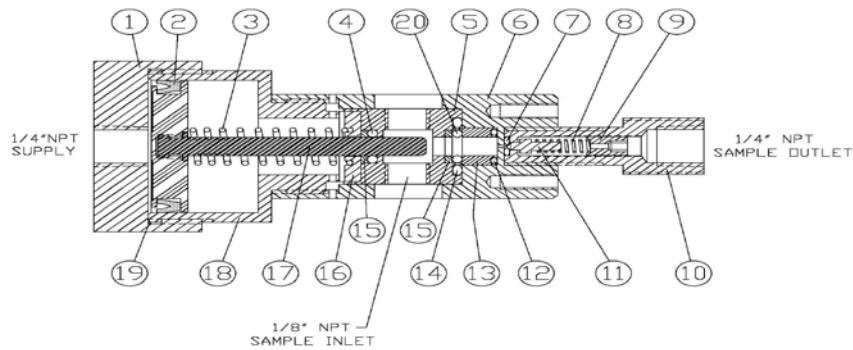


Figure 3.1

- 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.**

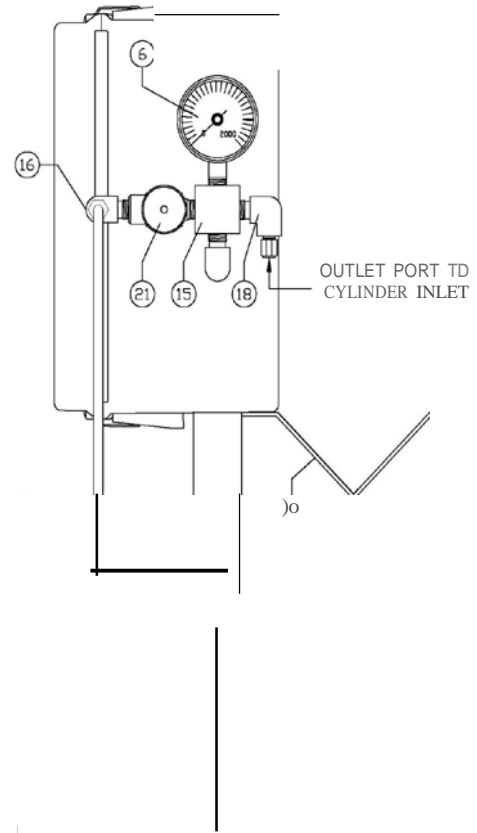
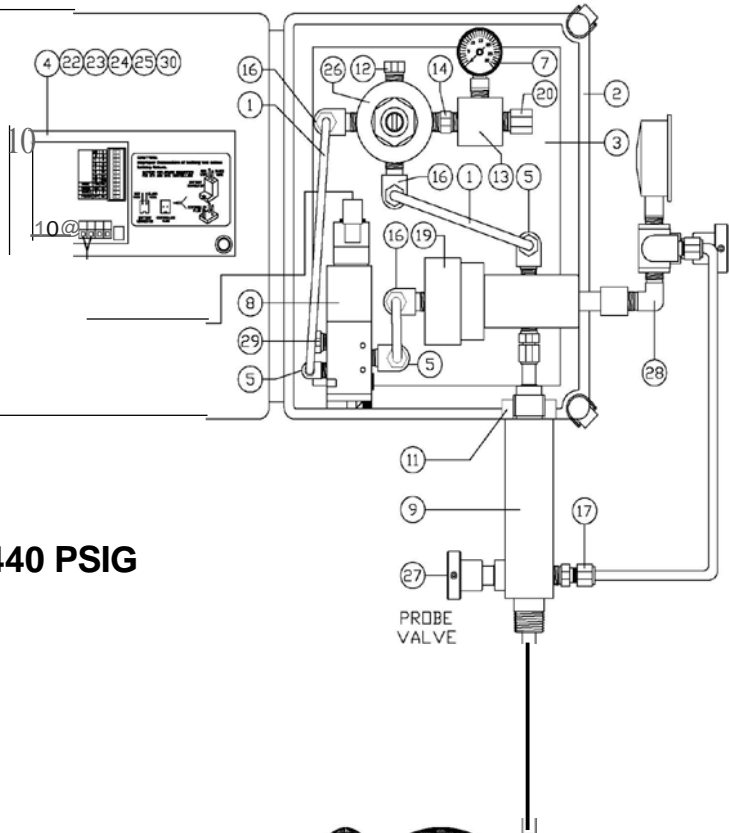
3.3.5 When the collection head assembly is being replaced, use caution with the internal relief, making sure it is properly aligned while threading on the anvil/cylinder. The anvil/cylinder must be attached securely to the inner shaft.

11/11/10
N/A

11/11/10
N/A

TO PROTECT SENSITIVE PIPELINE EQUIPMENT, WELKER ENGINEERING COMPANY RECOMMENDS INSTALLING ANY PRODUCT PROTRUDING INTO THE PIPELINE UPSTREAM OF THE STRAINER.
MAKING 11/11/10
AD681BL
B

MAOP: 20-1440 PSIG



DATE	REV.	RECORD	AUTHORIZE	DRAFTER	CHECKED
3/21/06		DR# 7490	GB	TJM	GB
1/10/07	A	CHG 16:12	GB	EBC	GB
7/9/07	B	CHG 5879	GB	EBC	

WELKER

ALL INFORMATION CONTAINED HEREIN IS THE PROPERTY OF WELKER ENGINEERING COMPANY. THIS DOCUMENT AND THE INFORMATION CONTAINED HEREIN SHALL NOT BE USED, COPIED, OR SOLD WITHOUT THE EXPRESS WRITTEN PERMISSION OF WELKER ENGINEERING COMPANY. ANY UNAUTHORIZED REPRODUCTION OR DISTRIBUTION OF THIS DOCUMENT IS PROHIBITED.

P.O. BOX 138
13839 WEST BELLFORT
SUGARLAND, TEXAS 77487-0138
PHONE <281> 491-2331
FAX <281> 491-8344

INCL. MICRO PURGE SAMPLER 1/1 MANIFOLD & 6TC TIMER

DESIGNED BY TIM	SCALE STF	APPROVED BY	DRAWN BY G. MUKHERJI
DATE 3/31/06			AD681BL
			1 of 2 B

MIRCAIALJo

N/A

MAOP: 20-1440 PSIG

ROOS,
N/A

TO PROTECT SENSITIVE PIPELINE EQUIPMENT, 1KLYER ENGINEERING INC. DRAWING NO. J118CR-
THE PIPELINE OPERATOR'S QUALITY STRATEGY. PART RECORDING IS AN INSTRUMENTAL TO THE PRODUCT PRODUCING INTO A0681BL

1REV-B

NO.	REQ.	DESCRIPTION	PART NUMBER
30	1	LITHIUM BATTERY PACK	EBPL072125
29	1	MUFFLER	MF246AB
		1/8' NPT BRONZE	
28	1	MALE ELBOJ, 1/4' NPT	MF045DX
27	1	VALVE KIT, NV-2	VL18200
26	1	REGULATOR	REG23
25	2	TIMER BOARD STAND OFF	OIP015
24	1	COVER PLATE	DIP014
23	1	TIMER BOARD	OIP013
		MOUNTING PLATE	


NO.	REQ.	DESCRIPTION	PART NUMBER
22	1	TIMER MOUNTING PLATE	DIP012
21	1	VALVE M/F	NV!MF
20	1	RELIEF VALVE 1/4'	MR05400
19	1	MICRO PURGE PUMP	MPS2
18	1	MALE ELBOV	MF0260X
		1/8' T x 1/4' NPT	
17	1	MALE CONNECTOR	MF018DX
		1/4' T x 1/4' NPT	
16	4	MALE ELBOV	MF090DX
		1/4' T x 1/4' NPT	
15	1	CROSS, BLOCK 1/4' NPT	MF0340X
14	1	HEX NIPPLE, 1/4' NPT	MF0040X
13	1	TEE, BLOCK 1/4' NPT	MF002DX
12	1	HEX PLUG, 1/4' NPT	MFOOIX
11	1	JAM NUT	MA209BX
10	1	CYLINDER TRAY BRACKET	GSS1120
9	1	PROBE BASE MPS2	GSS10MP18
8	1	SOLENOID VALVE	ESVVE41AF11
		4-VAY ALUM.	
7	1	GAUGE 0-10011	GA11400
6	1	GAUGE 0-200011	GA003IX
5	3	MALE ELBOJ	MF017IX
		1/4' x 1/8' NPT	
4	1	6TC TIMER, CONTROLLER	ETIVE6TC
3	1	BACKPLATE	EENHOAIOPB
2	1	FIBERGLASS ENCLOSURE	EENHOA1086CHDRFG
1	AS	TUBING, 316 S.S.	0316S0025T03
	REQ.	1/4' O.D. x .035 I.D.	

DATE	REV.	RECORD	AUTHORIZE	DRAFTER
3/21/06	-	DRff 7490	GB	TJM
1/10/07	A	CNff 5652	GB	EBC
7/19/07	B	CNff 5879	GB	EBC

(CHECKED) _____

III"

Mi atr J' KNT IDIG IDY JHOIIGIIL HGIMTIN



IC n "1" K ICTIMB

WELKEK

P.O. BOX 138
13839 WEST BELLFORT
SUGARLAND, TEXAS 77487-0138
PHONE <281> 491-2331
FAX <281> 491-8344

TITL: MICRO PURGE SAMPLER 1/I MANIFOLD
8. 6TC TIMER

COF-MFY

DATE: 3/31/06

APPROV: [Signature]

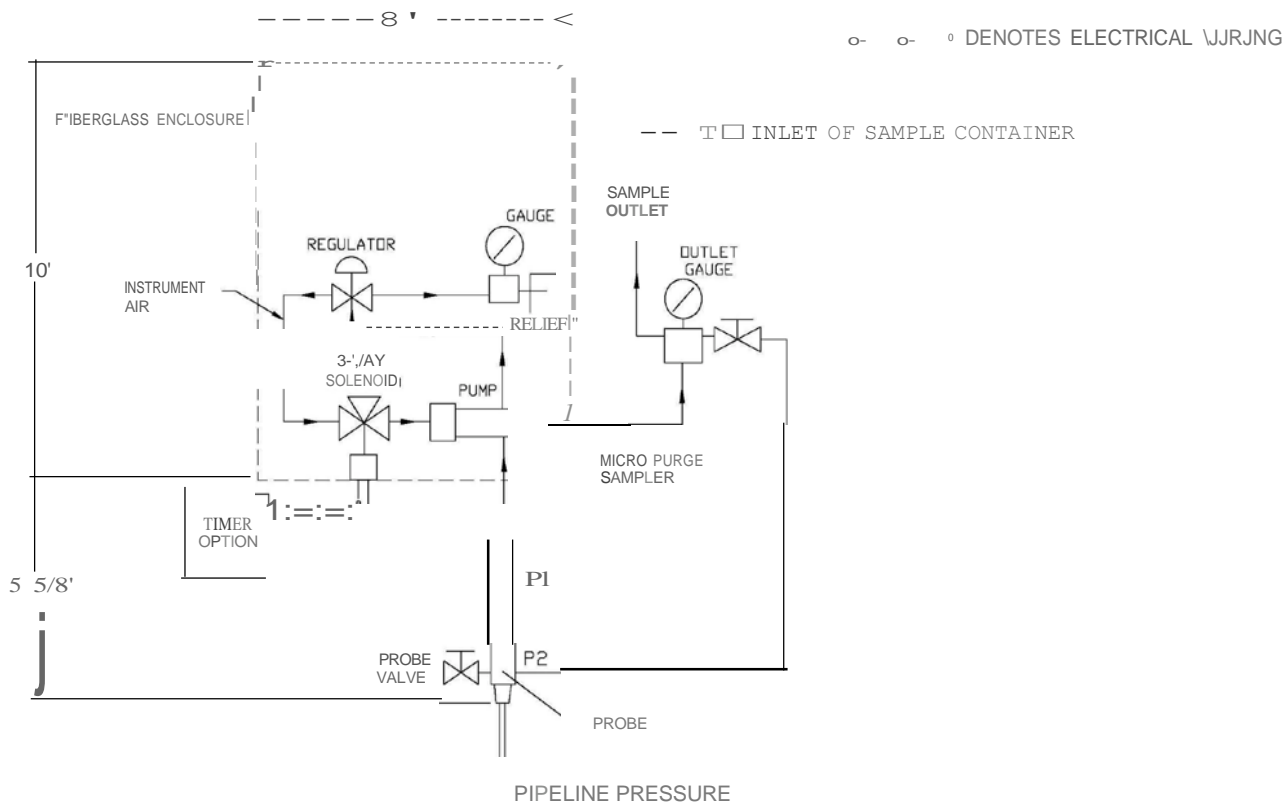
DRAWING NUMBER: AD681BL

SH r2 I.CB

DATE: N/A
 TITLE: N/A

TO PROTECT SENSITIVE PIPELINE EQUIPMENT, WELKE ENGINEERING COMPANY RECOMMENDS INSTALLING ANY PRODUCT PROTRUDING FROM THE PIPELINE UPSTREAM OF THE SIGHT LINE.

PROJECT NUMBER: AD681BE
 SHEET: C



DATE	REV.	RECORD	AUTHORIZED	DRAFTER	CHECKED
12/1/97	-	DRfi 3107	KES	RP	KES
9/22/03	A	CNfi 4315	GB	RDC	GB
10/8/03	B	CNfi 4337	GB	RDC	GB
7/19/07	C	CNfi 5879	GB	EBC	

WELKE

THIS DOCUMENT CONTAINS CONFIDENTIAL INFORMATION WHICH IS THE PROPERTY OF WELKE ENGINEERING COMPANY. IT CONTAINS SHALL NOT BE USED, COPIED OR REPRODUCED IN ANY MANNER WITHOUT THE EXPRESS WRITTEN PERMISSION OF WELKE. IT SHALL NOT BE COPIED OR OTHERWISE REPRODUCED IN ANY MANNER AND SHALL NOT BE DISCLOSED OR DISTRIBUTED TO THIRD PARTIES. THIS DOCUMENT SHALL REMAIN THE PROPERTY OF WELKE AND SHALL BE RETURNED UPON DEMAND.

P.O. BOX 138
 13839 1/2 EST BELLFORT
 SUGARLAND, TEXAS 77487-0138
 PHONE <281 491-2331
 FAX <281 491-8344

TITLE: MICRO PURGE SAMPLER	
DATE: 1/16/98	APPROVED BY: RP STF
DRAWING NUMBER: AD681BE	