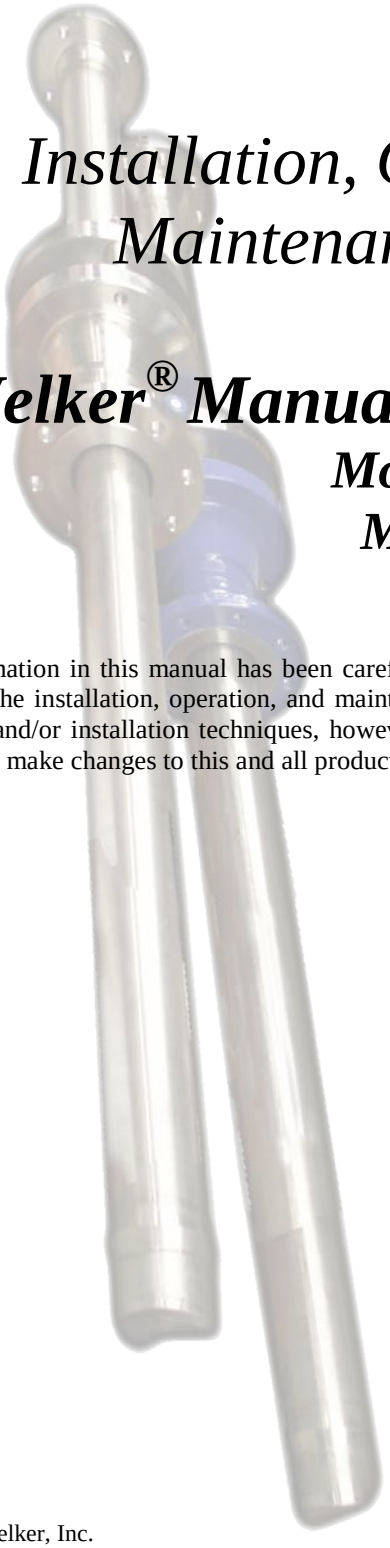

Installation, Operation, and Maintenance Manual

Welker® Manual Insertion Probe

Models

MIP

The information in this manual has been carefully checked for accuracy and is intended to be used as a guide for the installation, operation, and maintenance of the Welker equipment described above. 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 in order to improve performance and reliability.

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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 *Installation, Operation, and Maintenance (IOM) Manual* prior to installation and operation of this equipment is required for a full understanding of its application and performance prior to use.*

If you have any questions, please call 1-800-776-7267 in the USA or 1-281-491-2331.

Notes, Warnings, and Cautions

N NOTE

Notes emphasize information or set it off from the surrounding text.

CAUTION

Caution messages appear before procedures that, if not observed, could result in damage to equipment.

W WARNING

Warnings alert users to a specific procedure or practice that, if not followed correctly, could cause personal injury.

The following procedures have been written for use with standard Welker parts and equipment. Assemblies that have been modified may have additional requirements and specifications that are not listed in this manual.

1.2 DESCRIPTION OF PRODUCT

The Welker Manual Insertion Probe can be manually inserted and withdrawn from a pipeline through a full ported ball valve, where the pipeline pressures do not exceed maximum insertion pressure for the shaft diameter. **When the pressures exceed maximum psi, we recommend the pipeline being depressurized before insertion or withdrawal of the Welker Manual Insertion Probe.**

SPECIFICATIONS

1.3 SPECIFICATIONS

Table 1

Welker Manual Insertion Probe Specifications	
Materials of Construction:	Lubricator Body, Carbon Steel; Wetted Parts, 316SS, Lubricator Body, 304LSS; Wetted Parts, Parts 304LSS
Viscosity Range:	10-˚ 50˚ API Gravity
Temperature Range:	˚F, Determined by flange rating
Maximum Line Pressure:	PSI; Determined by flange rating
Pipeline Connection:	ANSI, Determined by flange rating
Area Classification:	Can be used in hazardous areas
Insertion/Retraction Pressure	PSI, Determined by probe shaft diameter
Materials of Construction:	Lubricator Body, Carbon Steel; Wetted Parts, 316SS, Lubricator Body, 304LSS; Wetted Parts, Parts 304LSS

Table 2

Maximum Insertion/Retraction Pressure	
Diameter of Probe Shaft	Maximum Allowable Pressure
$^3/_8$ inch	455 psi
$^1/_2$ inch	255 psi
$^5/_8$ inch	163 psi
$^3/_4$ inch	113 psi
1 inch	64 psi
$1^1/_4$ inch	40 psi
$1^1/_2$ inch	28 psi
$1^3/_4$ inch	20 psi
2 inches	15 psi

SPECIFICATIONS

1.4 OPTIONS

- **Materials of Construction**
- **Pipeline/Isolation Connection**
- **Flow Rates/Pressure Drops/Injection Rates**
- **Inlet/Outlet Ports (Sizes)**
- **High or low temperatures**
- **Higher Pressures and Flange Ratings**

1.5 SYSTEM DIAGRAM

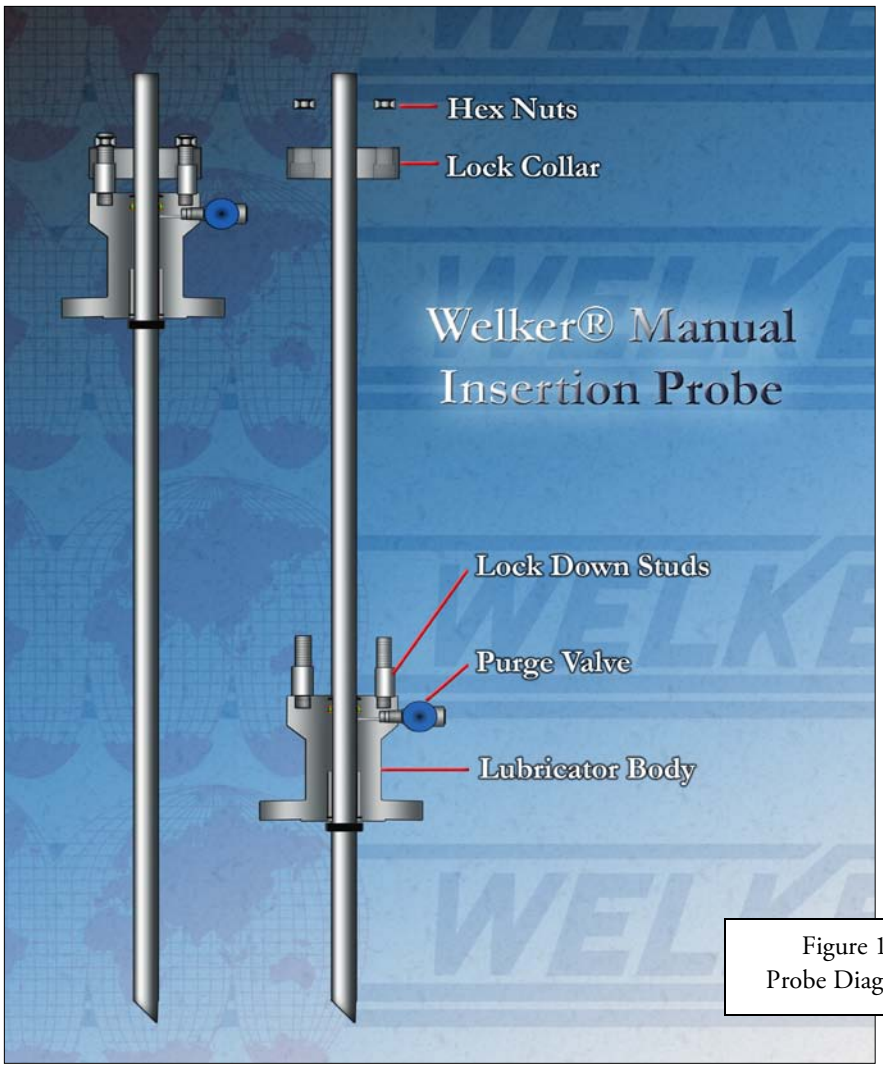


Figure 1
Probe Diagram

Refer to this Figure throughout the installation, operation, & maintenance process.

2. INSTALLATION & OPERATION INSTRUCTIONS

2.1 GENERAL

After unpacking the unit, check it for compliance and for any damages that may have occurred during shipment.

N NOTE

Claims for damages caused during shipping must be initiated by the receiver and directed to the shipping carrier. Welker is not responsible for any damages caused from mishandling by the shipping company.

N NOTE

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

2.2 INSTALLATION THE PROBE (*Refer to Figure 1 on page 5*)

1. If pipeline pressure is not below the maximum allowable pressure for installation/retraction of the probe located in Table 2 of Section 1.3, depressurize the pipeline.
2. Install an open and close valve on the outlet port of the probe.
3. Close all valves on the manual insertion probe.
4. Determine the insertion depth of the probe by measuring from the top of the pipeline isolation valve to the desired depth in the pipeline.
5. Measuring from the top of the lubricator body to the bottom of the lock collar, move the lock collar to a point on the probe that is equal to the desired insertion depth, and then tighten the lock collar firmly.

   Example: If the insertion travel desired is 12 inches, measure upward from the top of the lubricator body to a point on the probe 12 inches high and tighten the lock collar at this position. Therefore, the travel will be limited to this distance.

   N NOTE

   This procedure assures the insertion will be limited by the lock collar.

6. The unit is now ready to be attached to a full ported pipeline isolation valve.
7. Attach the probe to the pipeline isolation valve.
8. Slowly open the pipeline isolation valve and check for leaks.
9. Using the insertion handles on the lock collar, manually push and guide the probe into the pipeline.

   W WARNING

   Always insert probe slowly, and control the movement of the shaft, this will prevent the probe from slamming back and forth and possibly injuring someone.

10. Secure the probe into place by guiding the lock collar over the lubricator body stud bolts and tighten the nuts firmly.

W WARNING **Do not let go of the injection probe until this step is complete**!

11. Make sure all valves are closed, and check for leaks.
12. The installation process is now complete.
13. If desired, you may attach tubing to the outlet valve of the probe in order to install end-user device.

2.3 RETRACTING THE PROBE (*Refer to Figure 1 on page 5*)

1. Close the probe outlet valve, and remove any attached tubing.

N NOTE

If the pipeline pressure is greater than the maximum allowable pressure for installation/retraction of the probe located in Table 2 of Section 1.3, the pipeline pressure must be dropped or depressurized.

W WARNING

AT PRESSURES ABOVE MAXIMUM (SEE TABLE 2), YOU WILL NOT BE ABLE TO CONTROL THE RATE AT THAT THE INSERTION PROBE COMES OUT. PLEASE RELIEVE THE LINE PRESSURE TO BELOW MAXIMUM ALLOWABLE PRESSURE (Table 2) BEFORE REMOVING THE PROBE TO AVOID POSSIBLE INJURY.

2. You will need to apply a force down on the insertion probe just enough to control the rate at that it is withdrawn. The pipeline pressure will push the probe out of the pipeline.

i. Push in on the probe handles firmly and remove the stud nuts that hold the lock collar down.

ii. With the nuts removed, slowly let off the force holding the probe down and allow pipeline pressure to retract the probe.

iii. If there is no pressure on the pipeline, the insertion probe must be pulled by the handles through the lubricator body and spool manually.

3. When the insertion probe has been completely retracted from the pipeline, close the pipeline isolation valve.

4. Bleed any trapped pressure in the insertion probe assembly by slowly opening the lubricator body purge valve.

5. The insertion probe can now be removed from the pipeline isolation valve.

3. MAINTENANCE

3.1 GENERAL

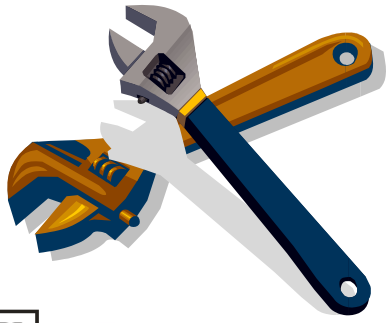
Prior to maintenance or disassembly of the unit, it is advisable to have a repair kit handy for the system in case of unexpected wear or faulty seals. All maintenance and cleaning of the unit should be done on a smooth, clean surface.

NOTE

Under normal operating conditions, in that the probe remains installed in the pipeline, the probe should not need maintenance unless a leak is apparent, or upon removal of the probe. If the probe remains permanently installed, it should be serviced at least once every ten years. In the case of severe service, dirty conditions, excessive retraction and installation, or other unique applications that may subject the equipment to unpredictable circumstances, a more frequent maintenance schedule may be appropriate.

Recommended Tools

It would be advisable to have the following tools available for installation of the unit. However, tools used will vary depending on cylinder model and connectors used.



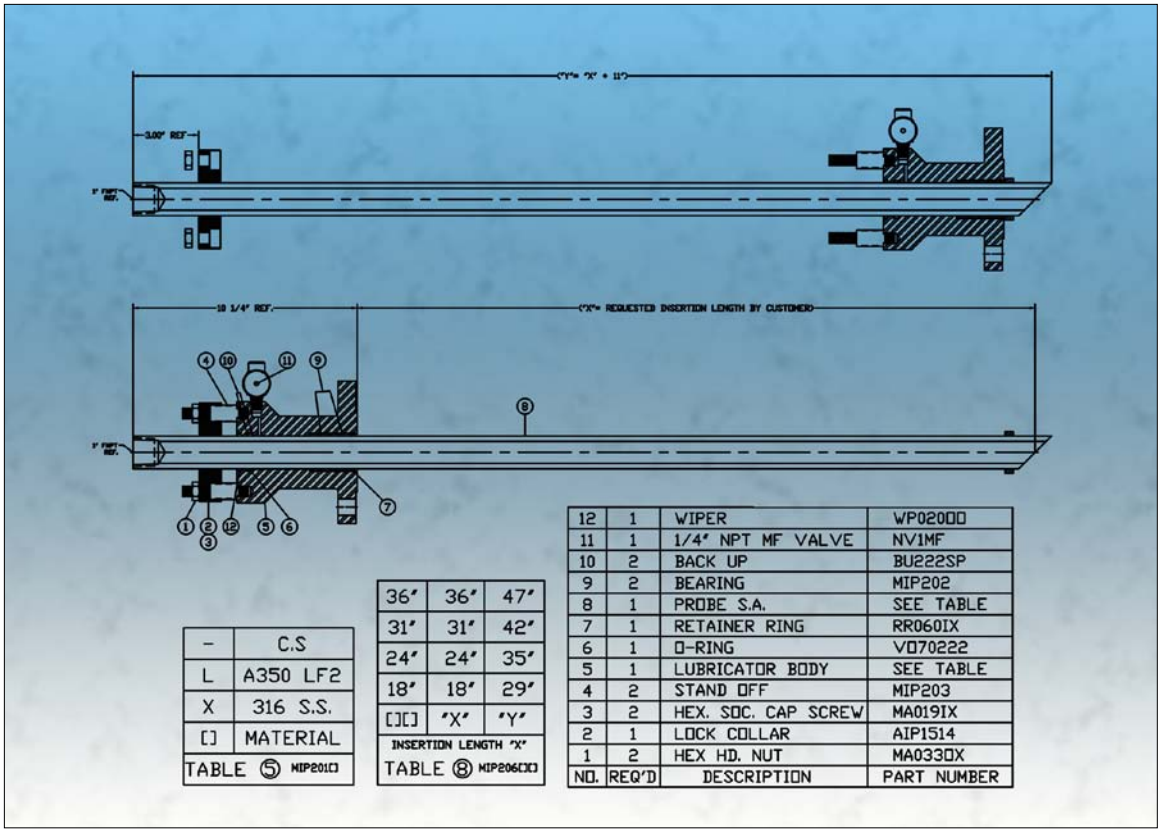
- (2) adjustable wrenches
- 600-grit sandpaper

NOTE

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.

MAINTENANCE

3.2 DISASSEMBLY & MAINTENANCE INSTRUCTIONS



12	1	WIPER	WP02000
11	1	1/4" NPT MF VALVE	NV1MF
10	2	BACK UP	BU222SP
9	2	BEARING	MIP202
8	1	PROBE S.A.	SEE TABLE
7	1	RETAINER RING	RR060IX
6	1	O-RING	VO70222
5	1	LUBRICATOR BODY	SEE TABLE
4	2	STAND OFF	MIP203
3	2	HEX. SOC. CAP SCREW	MA019IX
2	1	LOCK COLLAR	AIP1514
1	2	HEX HD. NUT	MA033OX
NO.	REQ'D	DESCRIPTION	PART NUMBER

36"	36"	47"
31"	31"	42"
24"	24"	35"
18"	18"	29"
[][]	"X"	"Y"

INSERTION LENGTH "X"
TABLE ⑧ MIP206[][]

-	C.S
L	A350 LF2
X	316 S.S.
[]	MATERIAL

TABLE ⑤ MIP201[]

1. Remove the probe from the pipeline following Section 2.3 guidelines.
2. Place the probe assembly on its side in a clean work place.
3. Remove the two hex nuts (Part 1) from the two lock down studs (Part 4).
4. Remove the probe outlet valve.
5. Push the probe shaft out of the lubricator body.
6. Replace the O-ring (Part 6), back-up (Part 10), and wiper (Part 12).
7. Check the surface of the shaft for scratches, and repair as necessary.
8. Reinstall the probe shaft.
9. Reinsert the insertion probe to the correct depth, and set the lock collar on the lock down studs (Part 3).
10. Replace and tighten hex nuts (Part 1) on the lock down studs (Part 4).
11. The probe is now ready to be reinstalled. Please refer to the installation instructions beginning on page 6 for complete details.

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