

# Installation and Operation Manual

## Insertion Meter



***SPONSLER, INC.***

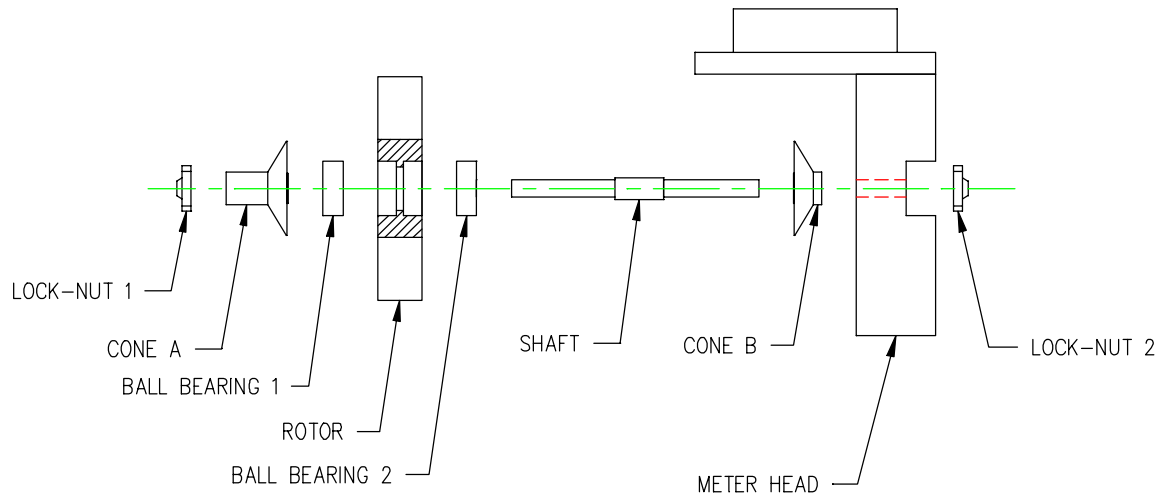
Flow Measuring Devices and Controls

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## INSERTION METER HEAD ASSEMBLY INSTRUCTIONS

→ In order to remove meter head from the stem, the rotor assembly or internals must first be removed to avoid damage.



**Figure 1: Disassembly/Assembly Drawing**

**Disassembly of Internals:** (see figure 1 for disassembly drawing)

- 1) Remove both lock nuts
- 2) Once lock nuts have been removed, carefully slide cone A, ball bearing 1, rotor, and ball bearing 2 off the shaft.

*Note: Before disassemble, make sure your environment is as dirt free as possible. Also try to handle bearings as little as possible.*

*It is very important to maintain the order of the internals as they are removed. Do not flip or turn the internals or they will not go back together correctly.*

- 3) Remove the shaft and cone B from the meter head.
- 4) Once the internals have been removed the meter head can then be detached from the stem.

**Reassemble of Internals:** (see figure 1 for assembly drawing)

- 1) Slide cone B onto the shaft.
- 2) Insert shaft and cone B into the meter head.
- 3) Screw on lock nut 2 in order to hold shaft and cone B in position.
- 4) Slide ball bearing 2 onto the shaft.
- 5) Slide the rotor on the shaft so that the “IN” burned on the rotor faces the direction of the flow.
- 5) Slide ball bearing 1 and cone A onto the shaft.
- 6) Screw on lock nut 1

*Note: When both lock nuts are on and tight make sure that cone A and cone B can not spin. (Do not torque over 2-in. lbs. Max.)*

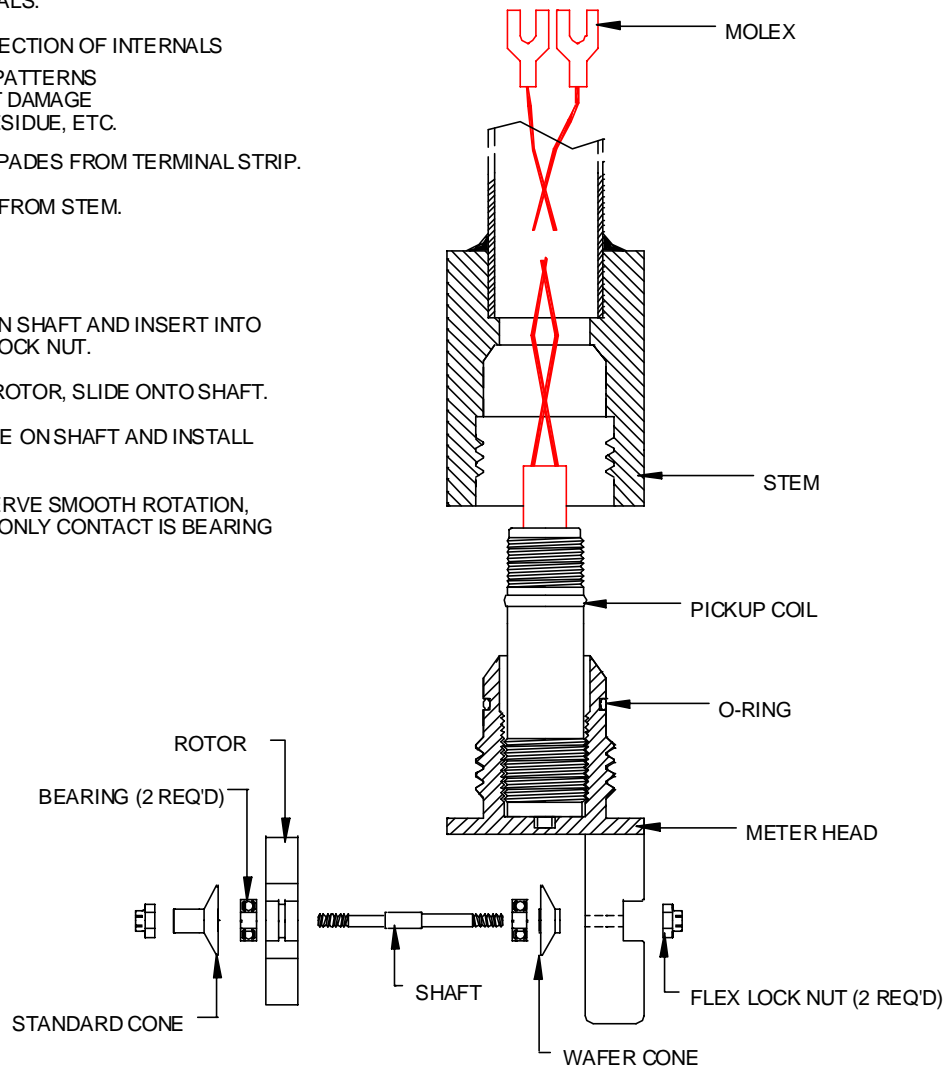
# INSERTION METER INTERNALS-CHECK FOR DAMAGE

## DIS-ASSEMBLY

- 1) DIS-ASSEMBLE INTERNALS.
- 2) PERFORM VISUAL INSPECTION OF INTERNALS
  - A) OBSERVE NO WEAR PATTERNS
  - B) OBSERVE NO IMPACT DAMAGE
  - C) CLEANLINESS, NO RESIDUE, ETC.
- 3) DISCONNECT MOLEX SPADES FROM TERMINAL STRIP.
- 4) REMOVE METER HEAD FROM STEM.

## RE-ASSEMBLY

- 1) PLACE WAFER CONE ON SHAFT AND INSERT INTO METER HEAD. INSTALL LOCK NUT.
- 2) INSTALL BEARINGS IN ROTOR, SLIDE ONTO SHAFT.
- 3) PLACE STANDARD CONE ON SHAFT AND INSTALL LOCK NUT.
- 4) SPIN ROTOR AND OBSERVE SMOOTH ROTATION, NO WOBBLE. OBSERVE ONLY CONTACT IS BEARING TO CONE PLATFORM.

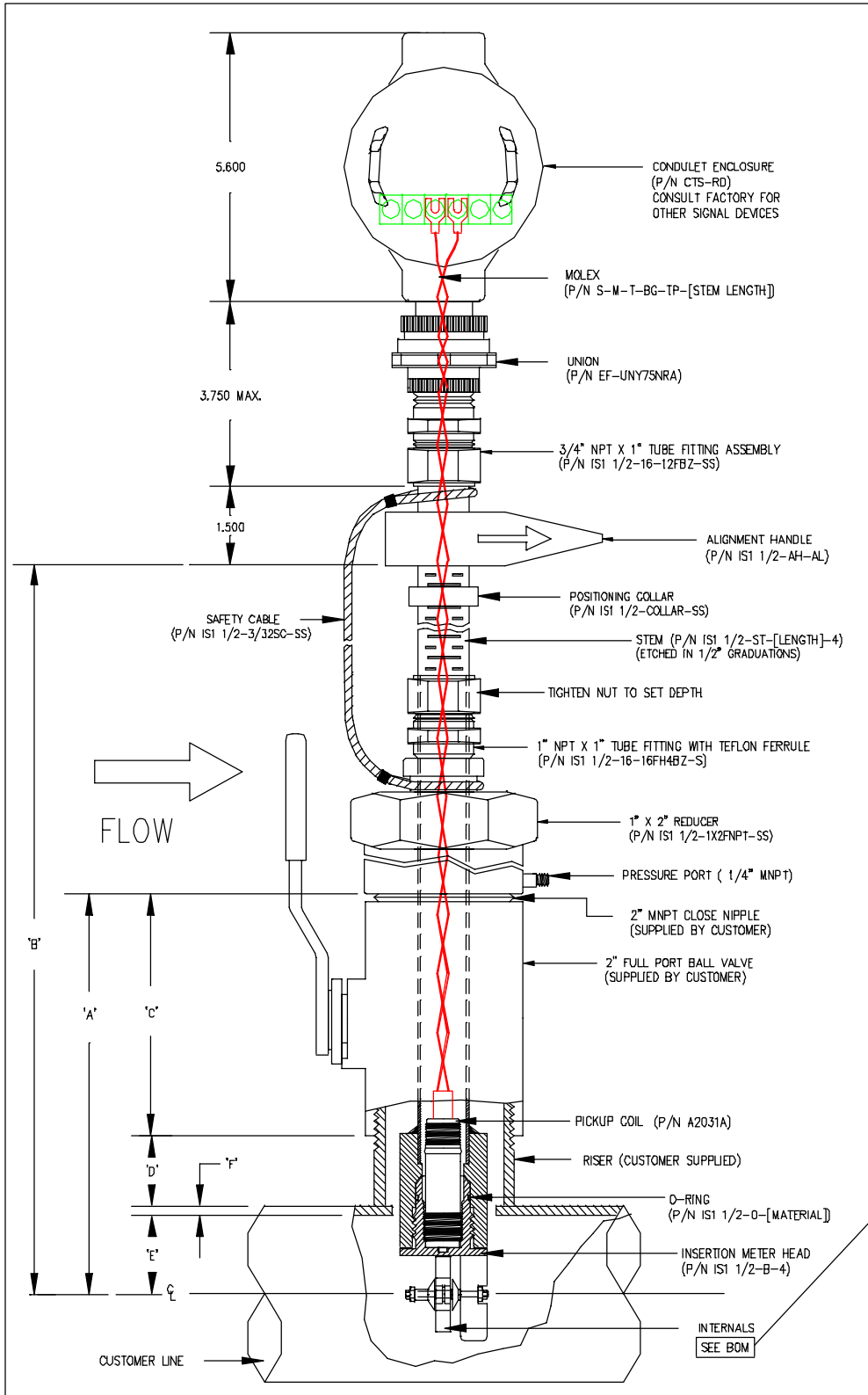


## *NOTE:*

*If any part of the insertion meter internals appear damaged, contact the factory for return instructions.*

# INSERTION METER ILLUSTRATIONS

## Standard Insertion Meter with Bell Reducer



DATE	REV	REVISION RECORD	AUTH	DR	CK
4-11-00	1	MOD. STEM OALS	TN	TN	
5-3-00	2	UPDATED TO			
		ATTACHED PRINT	TN	JPM	
5-4-00	3	ADDED 75" LENGTH		JPM	

**SPECIFICATIONS:**

	TEMPERATURE	PRESSURE	FLOW RANGE
LIQUID	-430 to 350F	150 psig	2-40 ft/sec
GAS	-430 to 350F	100 psig	20-200 ft/sec

**SIZING:**

1) STEM: LENGTH INSERTED

SIZE	'B' MAX
12"	18 3/4"
18"	24 3/4"
24"	30 3/4"
36"	42 3/4"
75"	75 3/4"

TO DETERMINE STEM LENGTH:  
C + D + E + F = A

2) TO DETERMINE INSERTION DEPTH IN PIPE:

'E' =  $\frac{\text{PIPE I.D.}}{2}$  { FOR 8" AND SMALLER PIPE

'E' = .125 X PIPE I.D. { FOR 8" AND LARGER PIPE

**INSTALLATION:**

MEASURE 'A', TIGHTEN NUT.

INSTALL BELL REDUCER TO VALVE (USE TEFLON TAPE/SEALANT ON CLOSE NIPPLE)

LOOSEN NUT SLIGHTLY ENOUGH TO TURN STEM SO THAT ARROW ON ALIGNMENT HANDLE POINTS IN THE DIRECTION OF FLOW. TIGHTEN NUT AGAIN.

NOTE: ALIGNMENT HANDLE IS SET AT FACTORY FOR CORRECT POSITIONING OF ROTOR. DO NOT ADJUST.

INTERNAL KIT BOM		
QTY	DESCRIPTION	MAT'L
1	1 1/2" BB ROTOR	17-4
1	1 1/2" BB CONE	304 SS
1	1 1/2" BB WAFER CONE	304 SS
1	1 1/2" INSERTION SHAFT	304 SS
2	2-56 FLEX LOCK NUT	
2	CB-1 1/2"	

### SPONSLER CO., INC.

FILE NAME: \st12\SI12ASSY.dwg		DRAWN BY: TN	
DESCRIPTION: INSERTION METER, ADJUSTABLE NPT		DATE: 3-16-98	
INSTALLATION DRAWING		REVIEWED BY:	
MATERIAL:		SCALE: NONE	
AS NOTED		DATE:	
CODE: MA	DRAWING NUMBER: SI12-ASSY-01	REV. #: 3	APPR. BY: DATE:

# Insertion Meter with Fixed flange

