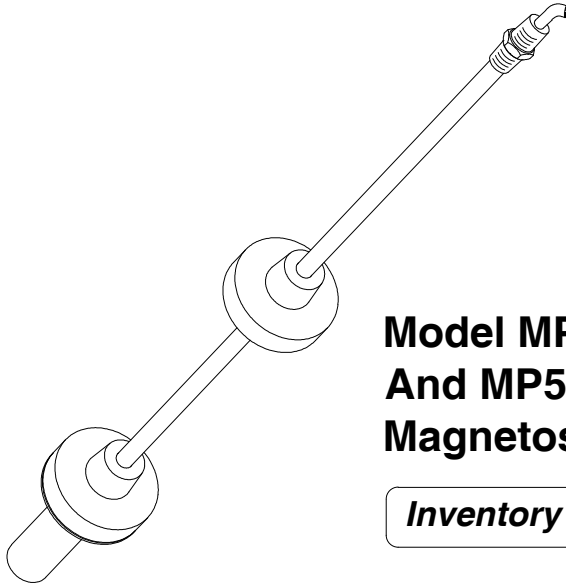


## **MP56xSA Flex Probes\*** **Installation Instructions**



**Model MP561SA, MP562SA, MP563SA  
And MP564SA  
Magnetostrictive Flex Probes**

*Inventory Management Of Tanks Up To 70 Feet*

**For use with the  
following:**

### **TMS1000 SERIES**

**Wireless DATA ACQUISITION MODULE (WiDAM)  
USED IN CONJUNCTION WITH WIRELESS CONSOLES**

**NOTE: MP56xSA SERIES PROBES ARE NOT COMPATIBLE WITH  
WIRED CONSOLES TMS2000 AND TMS3000. REFER TO THE  
MP46xSA SERIES.**

**\* NOTE:**

**BEFORE USING THIS BULLETIN, VERIFY MODEL NUMBER ON PROBE TAG IS MP56xSA.  
"X" CAN BE NUMBER 1, 2, 3 OR 4.**

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120 FINN COURT, FARMINGDALE, NY 11735

TEL: (631) 293-8450

FAX: (631) 293-8533

WEBSITE: [www.pneumercator.com](http://www.pneumercator.com)

PNEUMERCATOR TECHNICAL SUPPORT

1 (800) 209-7858

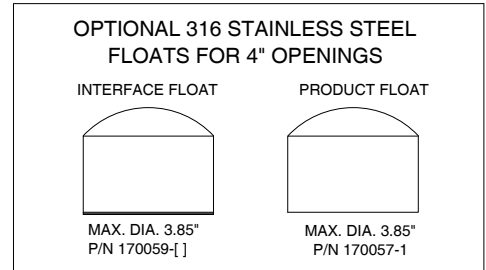
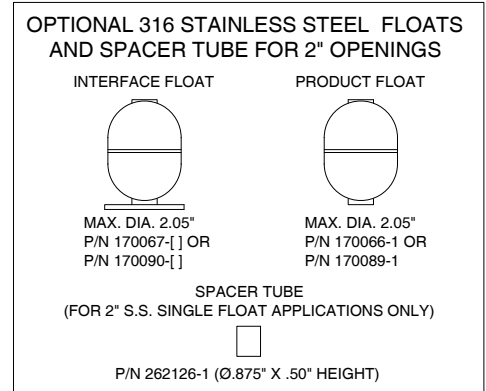
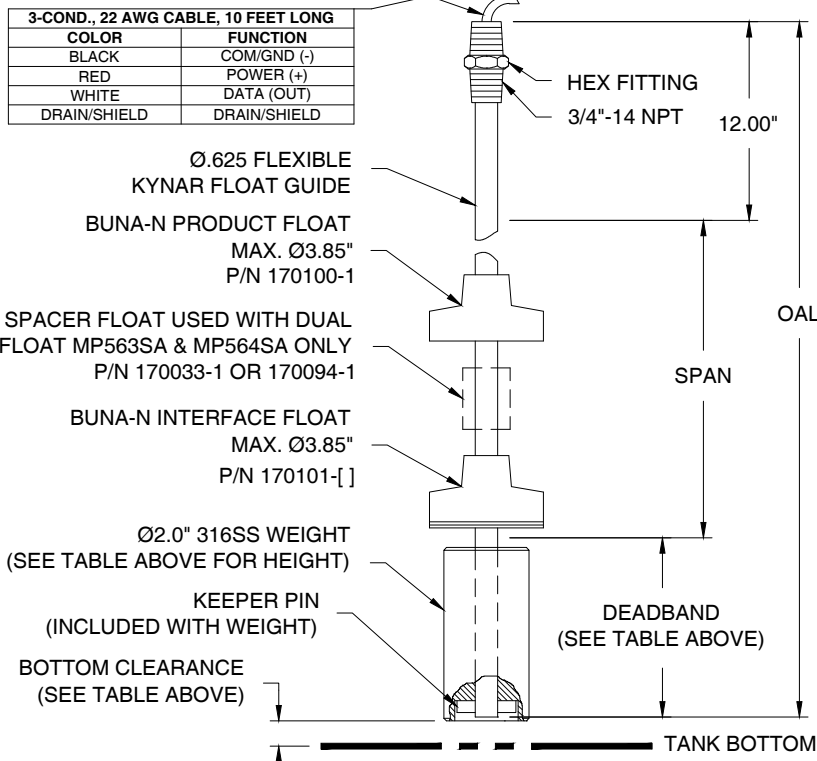
**PRODUCT DESCRIPTION:** MP56xSA series level gauging probes utilize proven magnetostrictive technology for accuracy and reliability. There are (4) models with (6) size ranges as shown in the table below. Probes are supplied with (1) product float for product level gauging and optionally (1) interface float for bottom water gauging. Additionally the probe contains either (1) or (5) thermistors for temperature measurement.

MODEL NO. *	OAL (IN.) (Overall Length)	BOTTOM CLEARANCE (IN.)	BOTTOM DEADBAND DIMENSION (IN.)	WEIGHT HEIGHT (IN.) **	HEIGHT (ABOVE TANK)
MP561SA	151 - 216	2.00	8.00	7.00	12 INCHES MINIMUM SEE PAGE 4
MP562SA	217 - 288	2.00	8.00	7.00	
MP563SA ***	289 - 432	3.00	12.00	11.00	
	433 - 600	4.00	15.00	14.00	
MP564SA	601 - 720	5.00	17.00	16.00	
	721 - 840	6.00	19.00	18.00	

\* Unless otherwise specified, all probes are supplied coiled in shipping cartons except MP561SA probes with overall length 151" - 192" are NOT COILED, supplied in shipping tubes.

\*\* Maybe supplied as single-piece weight kit no. 10529-x or multiple-piece weight kit no. 10642-x (installation instructions included).

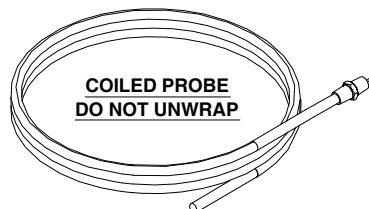
\*\*\* See BUL218 instructions for MP563SV replacement with MP563SA probes (433" to 600" probe OAL only).



SEE BULLETIN 176 FOR OPTIONAL EXTENDED FLOATS FOR 4" OPENINGS

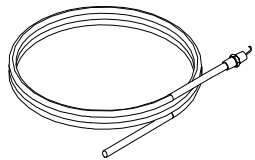
**APPLICATIONS:** The MP56xSA series flex probes are generally used for inventory management of tanks above 12.5 up to 70 feet tall where installation of a rigid probe is not possible due to tank height (above 18 feet), a low ceiling clearance or chemical incompatibility.

**UNPACKING:** All probes should be visually inspected regardless of their shipping carton/tube physical condition at delivery. Inspect probe for physical damage including the inner tubes. Contact PNEUMERCATOR and the shipping company immediately if any of the parts (see page 3) are missing or damaged. During inspection and removal of the probe from the shipping carton/tube, **IMPORTANT: DO NOT LIFT THE PROBE BY IT'S ELECTRICAL CABLE! DO NOT BEND THE TOP OR BOTTOM 2 FEET OF THE PROBE! DO NOT REMOVE PROBE TAG! IF COILED: DO NOT CUT THE TIE WRAPS AND UNCOIL THE PROBE!** Consult the factory if you are not sure that the parts you received are suitable for your application.



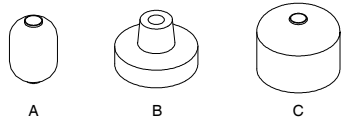
## PNEUMERCATOR SUPPLIED COMPONENTS:

(NOT SHOWN TO SCALE)



**COILED PROBE**  
**DO NOT UNWRAP**  
Overall Length (OAL) as  
required from table on page 2.

**NOTE:** Overall length 151" -192" NOT COILED.



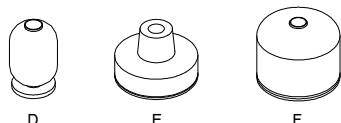
**PRODUCT FLOAT**  
Either A, B or C supplied  
A = 2" opening or greater  
B, C = 4" opening or greater



**SPACER FLOAT**  
Supplied **ONLY** with models MP563SA & MP564SA  
probes with both product and interface floats.

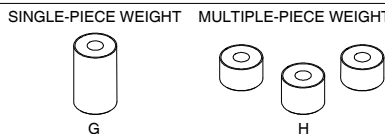


**BOTTOM SPACER TUBE**  
For 2" S.S. single float applications **ONLY**.



**INTERFACE FLOAT \***  
Either D, E or F supplied  
D = 2" opening or greater  
E, F = 4" opening or greater

\* IF CONFIGURED FOR DUAL FLOAT OPERATION.



**PROBE WEIGHT**  
Either G or H supplied  
Length as required from  
table on page 2.

\*\* Installation instructions included



**KEEPER PIN**

**FLEX CONDUIT ACCESSORIES**



J = COUPLING & FLEX CONDUIT FITTING  
ASSEMBLY  
K = 3/4" NPT FLEX CONDUIT TUBING,  
UP TO 10-FOOT LONG  
L = 3/4" NPT FLEX CONDUIT FITTING & O-RING

## CUSTOMER SUPPLIED COMPONENTS:

(NOT SHOWN TO SCALE)

### MOUNTING COMPONENTS FOR ALL APPLICATIONS



2" X 3/4" NPT METAL BUSHING

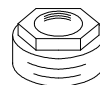


2" NPT METAL COUPLING

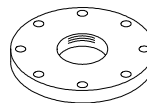


2" NPT (BOTH ENDS)  
SCHEDULE 40 METAL NIPPLE  
Length calculated from formula on  
page 4.

### OPTIONAL MOUNTING COMPONENTS



**METAL BUSHING**  
Required **ONLY** for threaded openings  
greater than 2" NPT. Selected bushing  
**MUST** have mating 2" NPT thread for  
the nipple above.



**MATING METAL FLANGE**  
For mating flange threaded openings  
greater than 2" NPT, an appropriate  
bushing must be used to connect the  
nipple.

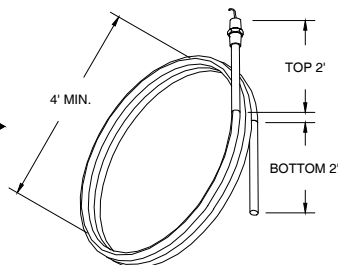
**NOTE:**  
THE HEIGHT OF THESE OPTIONAL COMPONENTS ARE  
REPRESENTED BY "H" UNDER NIPPLE LENGTH  
CALCULATION ON PAGE 4.

## INSTALLATION:

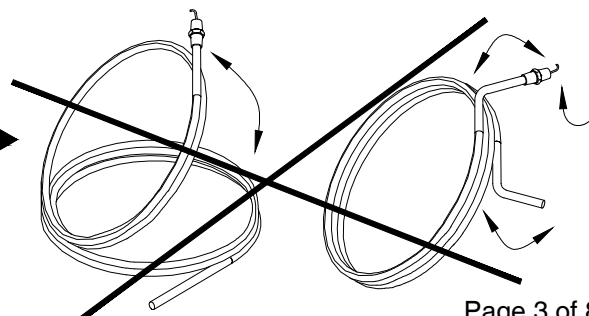
### WARNINGS:

- Installation is only recommended at temperatures 30°F or above. Probe damage may occur as a result of handling at lower temperatures, voiding warranty.
- **DO NOT ATTEMPT TO CUT, MODIFY OR IMPROPERLY BEND THE PROBE.** This will damage internal electronics causing the probe to fail, voiding warranty.
- Installation must be done by 2 qualified personnel, familiar with local wiring codes and explosion hazard electrical practices.
- While handling the probe and during installation, **DO NOT CUT OR MODIFY THE PROBE. DO NOT BEND THE TOP OR BOTTOM 2 FEET OF THE PROBE. IF COILED: KEEP THE COILS PARALLEL! DO NOT LIFT ONE COIL SEPARATELY FROM THE OTHER COILS. DO NOT TWIST THE COILS.**

**CORRECT**  
HANDLING



**INCORRECT**  
HANDLING

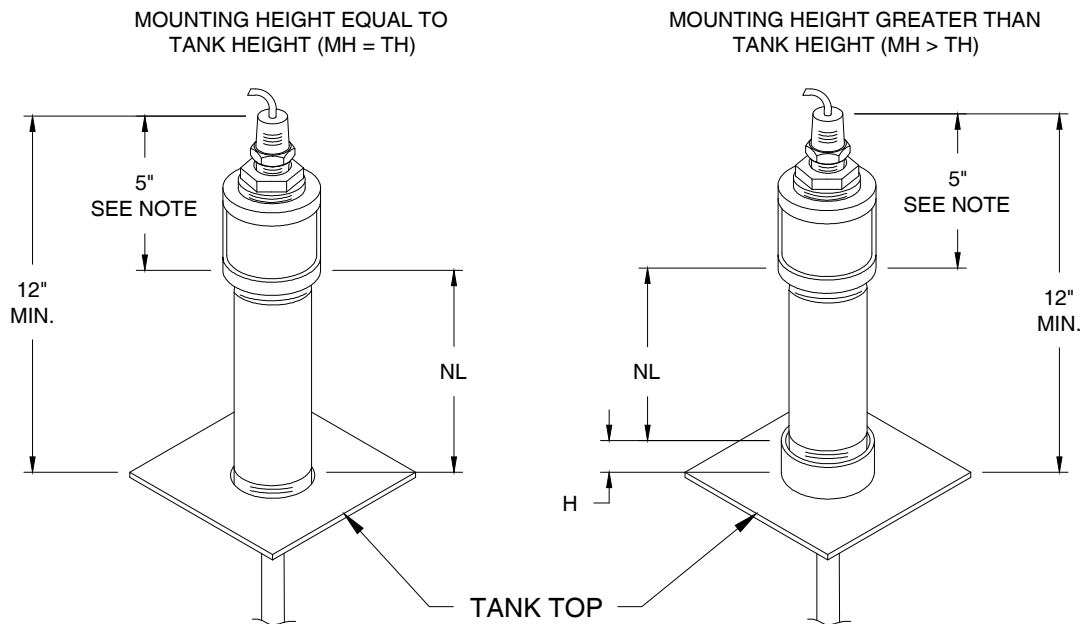


# INSTALLATION CONT'D:

## WARNINGS CONT'D:

- Probe mounting location should be selected to minimize effect from turbulence. **DO NOT LOCATE IN A DIRECT LINE OF INBOUND OR OUTBOUND FLOW.**
- **IMPORTANT!** Maintain adequate clearance between probe and tank sidewall. The recommended guideline is a minimum clearance of 2 feet, with 1 additional foot for every 10 feet above 20 feet.
- **INCORRECT INSTALLATION!** Allowing the probe to touch the bottom of the tank then lifting it to match the bottom clearance value in the table on page 2. This method of installation will cause improper probe operation and may damage probe, voiding warranty. **USE NIPPLE LENGTH (NL) FORMULA BELOW.**

1. **NIPPLE LENGTH CALCULATION:** Use the formula below to calculate the nipple length required for the correct mounting of probe. **INCORRECT NIPPLE LENGTH WILL CAUSE IMPROPER PROBE OPERATION AND MAY DAMAGE PROBE, VOIDING WARRANTY.**



NOTE: THIS DIMENSION IS 5" WHEN STANDARD METAL 2" X 3/4" BUSHING (TYPICALLY 1 3/8" OVERALL HT) AND 2" COUPLING (TYPICALLY 2 1/2" OVERALL HT) ARE USE IN MOUNTING ASSEMBLY.

**FORMULA** (ALL MEASUREMENT IN INCHES) : **NL = (L + BC + 8) - MH**

This formula assumes a 5/8" thread engagement on each end of the nipple.

WHERE: NL = Nipple Length

L = Effective Probe length (see probe tag)

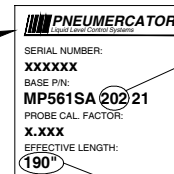
MH = Tank mounting height measured from inner bottom to top of threaded opening or TH + H.

TH = Tank height measured from inner bottom to tank roof.

H = The height from top of tank to where nipple will be installed.

BC = Probe bottom clearance from table on page 2.

**PROBE TAG EXAMPLE**  
(BOTTOM SECTION)



DO NOT USE FOR NIPPLE LENGTH CALCULATION

USE FOR "L" VALUE IN FORMULA

### NIPPLE LENGTH CALCULATION EXAMPLE 1:

L (from probe tag) = 407"      MH = 403"

BC (from table on page 2) = 3"

**NL = (407 + 3 + 8) - 403 = 15"**

### NIPPLE LENGTH CALCULATION EXAMPLE 2:

L (from probe tag) = 525"      TH = 512"      H = 5"

BC (from table on page 2) = 4"      MH = 512 + 5 = 517"

**NL = (525 + 4 + 8) - 517 = 20"**

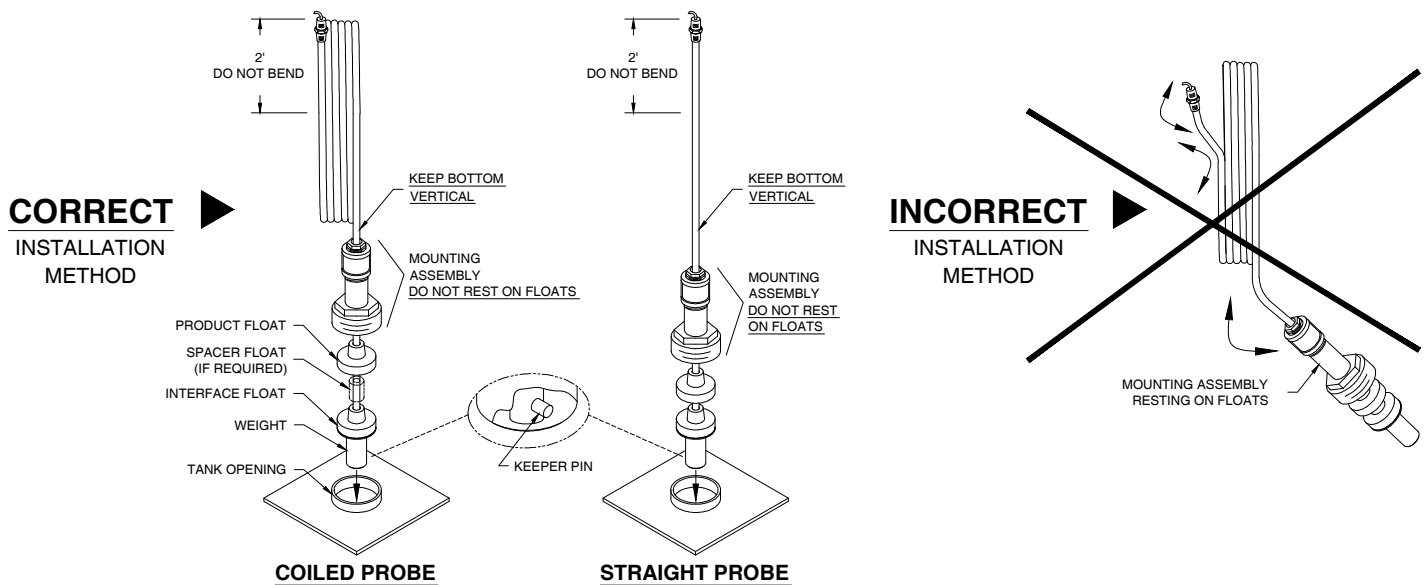
## INSTALLATION CONT'D:

2. **TRANSPORT PROBE AND ACCESSORIES:** Transport the flex probe (with tie wraps still in place if coiled) and the other components to the top of the tank.

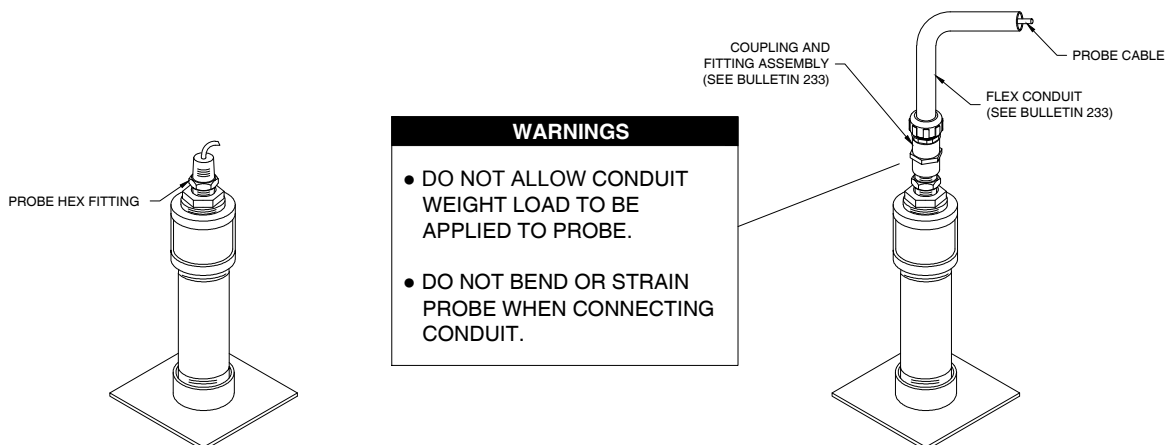
### CAUTION

It is the INSTALLERS RESPONSIBILITY to ensure that they are adequately supported when handling the probe on top of the tank. FAILURE TO COMPLY MAY RESULT IN PERSONAL INJURY, PROPERTY LOSS AND EQUIPMENT DAMAGE.

3. **INSTALL ACCESSORIES:** Steps (3a) and (3b) apply to coiled probes, step (3b) applies to straight probes.
- Rest the coiled probe over your shoulder. Let the second installer cut **ONLY** the tie wrap at the end of the tube with a hole through it, marked #1.
  - Keeping the probe bottom vertical, install the appropriate components on the end of the probe as shown, making sure to support the end of the probe to keep it from twisting. **DO NOT BEND THE BOTTOM 2 FEET OF THE PROBE.**



4. **INSTALL PROBE:** With the components supported by the second installer (If coiled, keep coils on your shoulder cutting the tie wraps in number sequence only when necessary), carefully feed the weight and floats through the tank opening, **THE TOP 2 FEET OF THE PROBE CONTAINS ELECTRONICS. DO NOT BEND. DO NOT REMOVE PROBE TAG!**
5. **SECURE PROBE:** Screw the mounting assembly into tank opening, then the probe hex fitting into the mounting assembly. Assemble and install flex conduit accessories per supplied bulletin 233.



# WIRING:

## WiDAM SERIES GENERAL SYSTEM OVERVIEW w/ INTERNAL WiDAM ANTENNA (see Page 7 for External WiDAM Antenna)

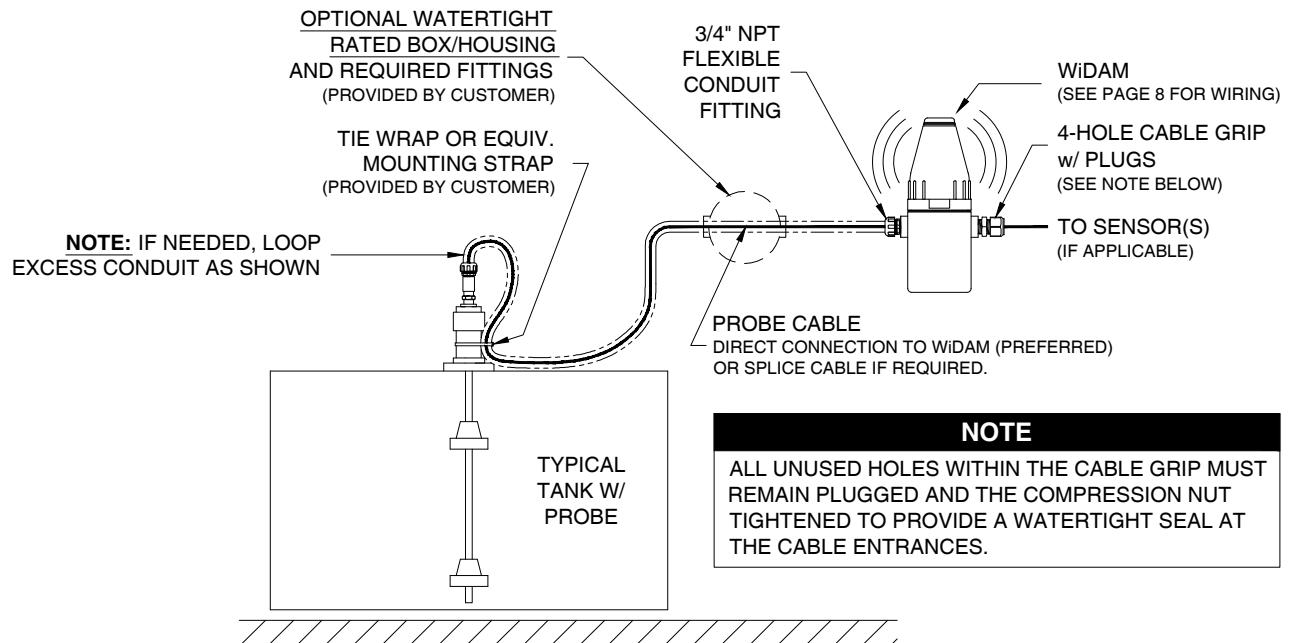
### ⚠ WARNING

Refer to TMS installation manual or wiring drawing 50440 for WARNINGS and CAUTIONS before proceeding. FAILURE TO COMPLY MAY RESULT IN PERSONAL INJURY, PROPERTY LOSS AND EQUIPMENT DAMAGE.



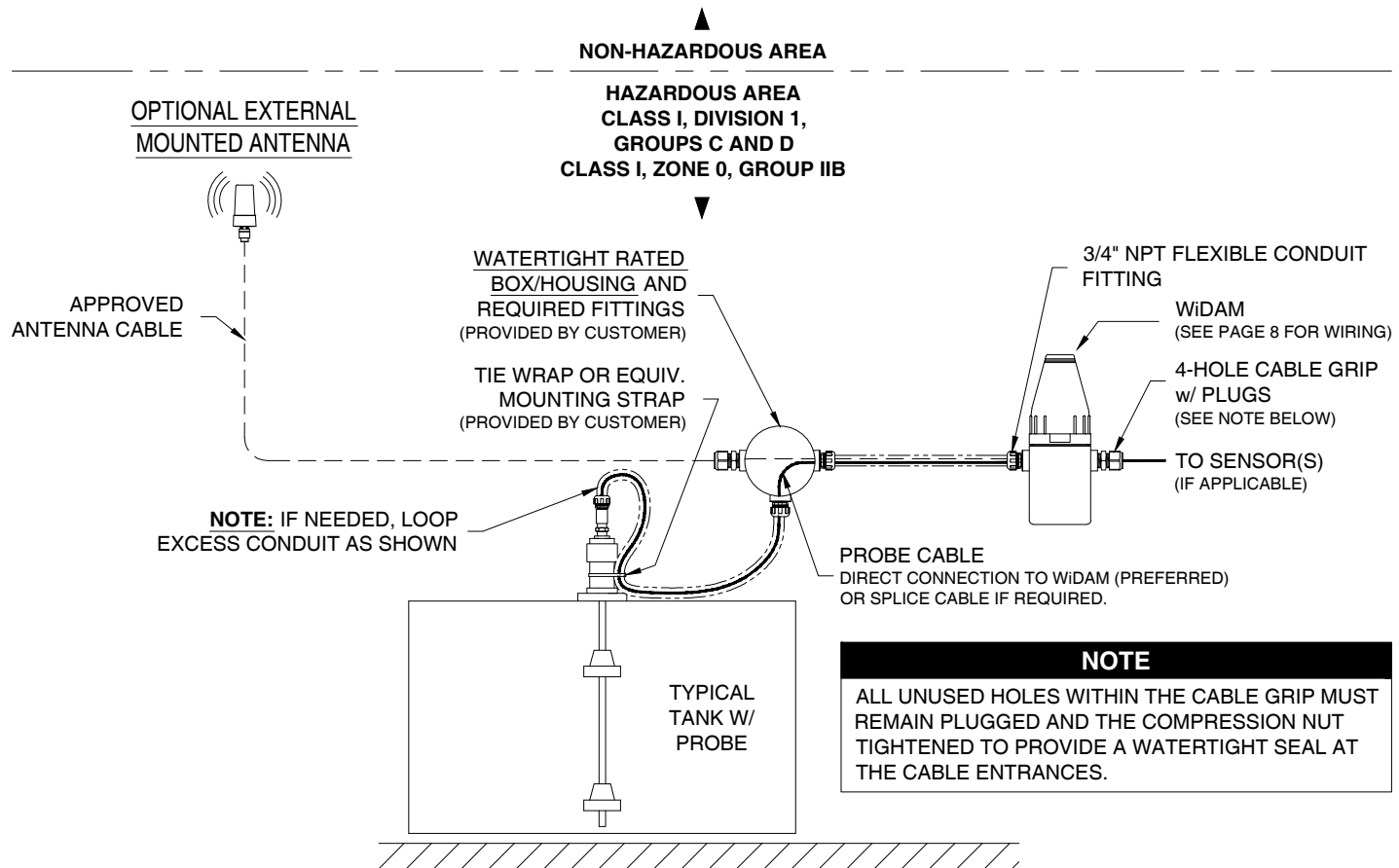
▲  
NON-HAZARDOUS AREA

HAZARDOUS AREA  
CLASS I, DIVISION 1,  
GROUPS C AND D  
CLASS I, ZONE 0, GROUP IIB  
▼



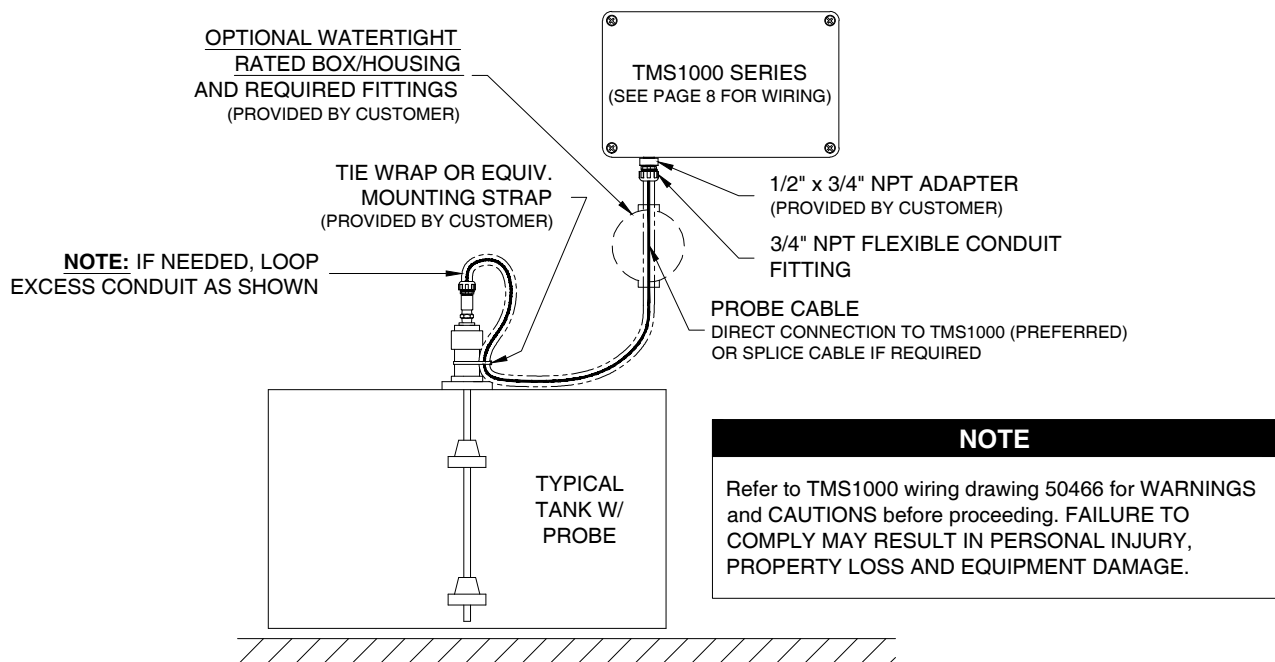
# WIRING CONT'D:

## WiDAM SERIES GENERAL SYSTEM OVERVIEW CONT'D w/ EXTERNAL WIDAM ANTENNA (see Page 6 for Internal WiDAM Antenna)



### TMS1000 SERIES GENERAL SYSTEM OVERVIEW (SEE NOTE BELOW)

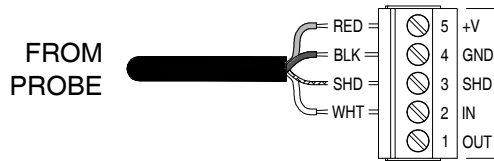
**⚠ FOR NON-FUEL, NON-INTRINSICALLY SAFE APPLICATIONS**



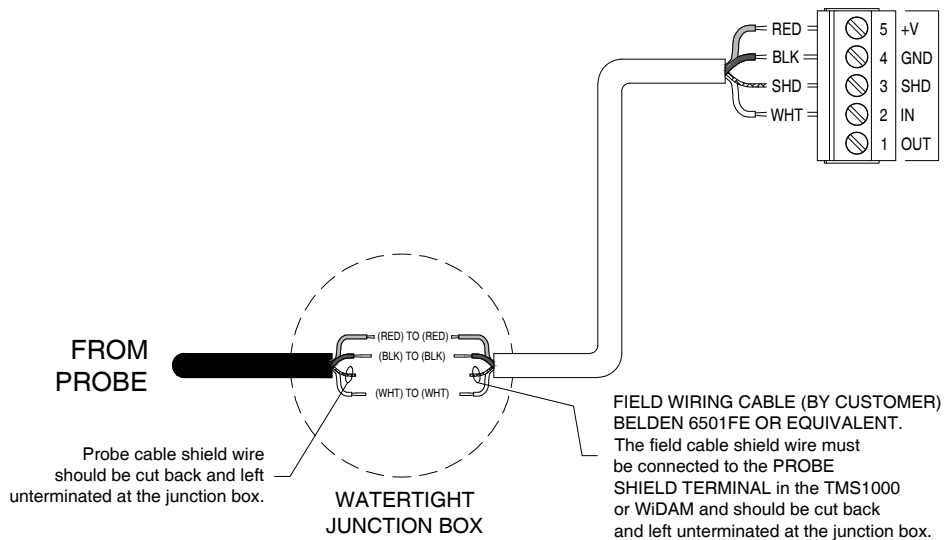
# WIRING CONT'D:

## TYPICAL WIRING FOR TMS1000 AND WiDAM SERIES

### PREFERRED WIRING



### SPLICE PROBE CABLE AS SHOWN BELOW IF REQUIRED



**PROGRAMMING:** Information necessary for programming this probe can be found on the tag attached to the probe. The top section has certification information and the bottom has information needed to program the wireless TMS console to communicate with this probe. Copy the information from the tag on the probe onto this sheet and onto the tank worksheet in the TMS Operation Manual for referencing when programming the TMS. USE THE EFFECTIVE LENGTH GIVEN ON THE TAG WHEN PROGRAMMING THE SYSTEM PROBE LENGTH PARAMETER. THE "SA" ON THE PROBE TYPE IS NOT NEEDED FOR PROGRAMMING.

PROBE NAME, LOCATION OR DESCRIPTION: \_\_\_\_\_

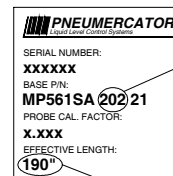
SERIAL NO. \_\_\_\_\_

P/N: MP56\_SA \_\_\_\_\_

Probe Type: MP56\_SA

Effective Length: \_\_\_\_\_

### PROBE TAG EXAMPLE (BOTTOM SECTION)



DO NOT USE FOR PROGRAMMING

USE THIS VALUE FOR PROGRAMMING