

Mag Plus Probe

Installation Guide

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Contact TLS Systems Technical Support for additional troubleshooting information at 800-323-1799.

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Thoroughly examine all components and units as soon as they are received. If any cartons are damaged or missing, write a complete and detailed description of the damage or shortage on the face of the freight bill. The carrier's agent must verify the inspection and sign the description. Refuse only the damaged product, not the entire shipment.

Veeder-Root must be notified of any damages and/or shortages within 30 days of receipt of the shipment, as stated in our Terms and Conditions.

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1. Contact Veeder-Root Customer Service at 800-873-3313 with the specific part numbers and quantities that were missing or received damaged.
2. Fax signed Bill of Lading (BOL) to Veeder-Root Customer Service at 800-234-5350.
3. Veeder-Root will file the claim with the carrier and replace the damaged/missing product at no charge to the customer. Customer Service will work with production facility to have the replacement product shipped as soon as possible.

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3. If "lost" equipment is delivered at a later date and is not needed, Veeder-Root will allow a Return to Stock without a restocking fee.
4. Veeder-Root will NOT be responsible for any compensation when a customer chooses their own carrier.

RETURN SHIPPING

For the parts return procedure, please follow the appropriate instructions in the "General Returned Goods Policy" pages in the "Policies and Literature" section of the Veeder-Root **North American Environmental Products** price list. Veeder-Root will not accept any return product without a Return Goods Authorization (RGA) number clearly printed on the outside of the package.

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Introduction

This manual describes Mag Plus probe components and typical installation kits. Instructions are included for assembling floats onto the probe's shaft, attaching spacer rings to the probe's canister, example installations of the probe into both an underground and above ground tank and field wiring connections.

For guidelines on site preparation and atypical installation examples, refer to the appropriate Veeder-Root Site Preparation and Installation manual. For assembly of float kits such as required for Density or Phase separation detection, refer to the float assembly instructions included in those kits.

Make a record of the float size installed on each probe. The installed float size will be required for each probe during system setup.

Veeder-Root maintains a continuous process of product development and therefore product specifications may not be as described in this manual. Please contact the Veeder-Root office nearest you, or visit our website at www.veeder.com for information on new or updated products. Changes affecting products or procedures described in this manual will be reported in subsequent revisions. Veeder-Root has taken every care in the compilation of this manual; however it is the installers' responsibility to take every precaution to safeguard themselves and others.

Every person working with Veeder-Root equipment is expected to take every safety precaution possible and to have read this manual, particularly the sections referring to health and safety.

NOTE Deviation from the specifications contained in this manual can result in rework, delays in system installation and additional installation charges.

Contractors are advised to contact their nearest Veeder-Root office where local conditions may preclude using the specifications contained in this manual.

Contractor Certification Requirements

Veeder-Root requires the following minimum training certifications for contractors who will install and setup the equipment discussed in this manual:

Installer Certification (Level 1): Contractors holding valid Installer Certification are approved to perform wiring and conduit routing; equipment mounting; probe, sensor and carbon canister vapor polisher installation; wireless equipment installation; tank and line preparation; and line leak detector installation.

Technician Certification (Level 2/3): Contractors holding valid Technician Certifications are approved to perform installation checkout, startup, programming and operations training, system tests, troubleshooting and servicing for all Veeder-Root Series Tank Monitoring Systems, including Line Leak Detection. In addition, Contractors with the following sub-certification designations are approved to perform installation checkout, startup, programming, system tests, troubleshooting, service techniques and operations training on the designated system.

- Wireless 2
- Tall Tank

VR Vapor Products Certification: Contractors holding a certification with the following designations are approved to perform installation checkout, startup, programming, system tests, troubleshooting, service techniques and operations training on the designated system.

- ISD – In Station Diagnostics
- PMC – Pressure Management Control
- CCVP - Veeder-Root Vapor Polisher
- Wireless – ISD/PMC Wireless
- A current Veeder-Root Technician Certification is a prerequisite for the VR Vapor Products course.

Warranty Registrations may only be submitted by selected Distributors.

Product Marking Information

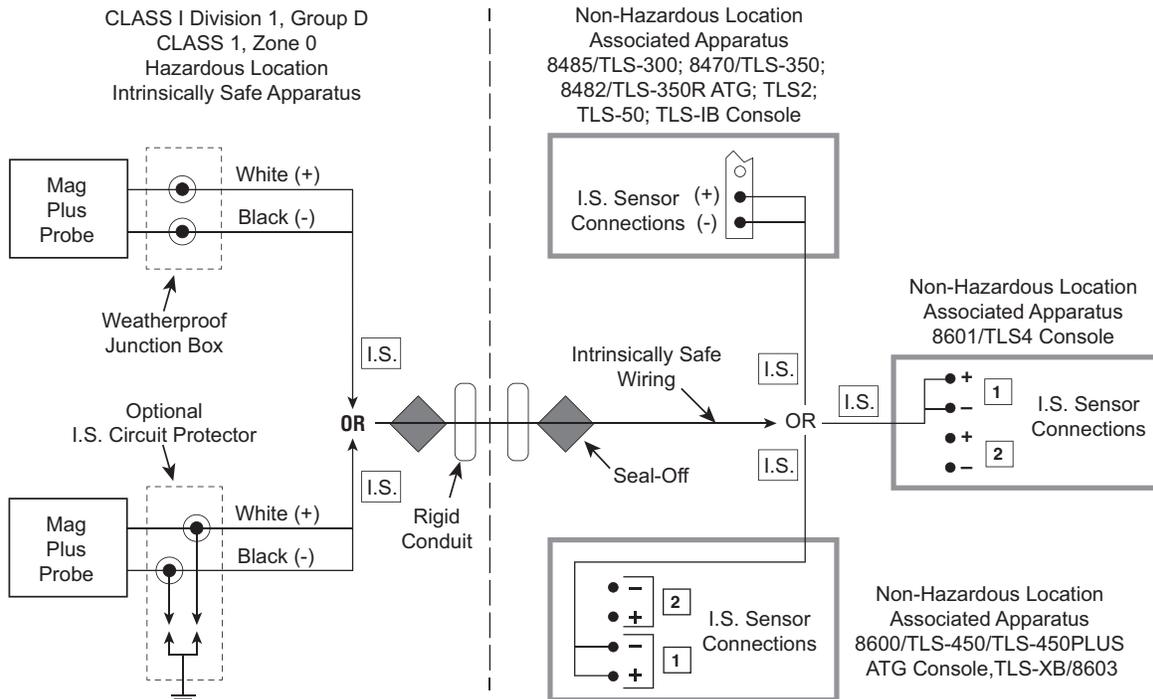
RELATED DOCUMENTS

Documents Required to Install Equipment

This intrinsically safe apparatus is only for use as part of a Veeder-Root Automatic Tank Gauging System (ATG Console with probes and sensors). To install intrinsically safe apparatus, use the specific control drawing that appears on the nameplate of the applicable associated apparatus (ATG Console):

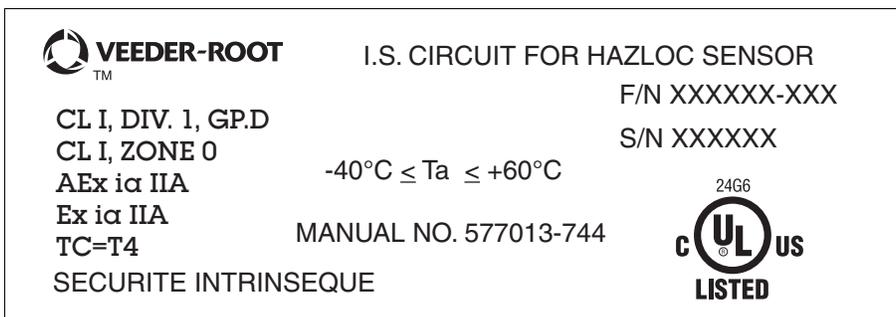
Equipment	UL/cUL Control Drawing Document No.
Associated Apparatus	
TLS-450/8600, TLS-450PLUS/8600	331940-008
TLS-350, TLS-350R	331940-011
TLS-300	331940-013
TLS-50 or TLS2 or TLS-IB	331940-014
TLS4/8601	331940-018
TLS-XB/8603	331940-019
Intrinsically Safe Apparatus for Wireless Applications	
Tank Gauge Accessories	331940-012

The control drawings contain information related to the correct installation of the overall intrinsically Safe System. This includes information such as maximum number of apparatus, specific apparatus allowed in the system, maximum cable lengths, references to codes, proper grounding and so on. Control drawings can be found on the accompanying Compact Disk (TECH DOCS CD) or on the Internet at www.veeder.com under SUPPORT; VR TECHNICAL DOCUMENTS; DRAWINGS.



GENERAL PRODUCT WIRING DIAGRAM - WIRED INSTALLATIONS ONLY

Product Label Contents



Safety Warnings

To protect yourself and your equipment, observe the following warnings and important information:

 WARNING	
    	<p>This product is to be installed in systems operating near locations where highly combustible fuels or vapors may be present.</p> <p>FAILURE TO COMPLY WITH THE FOLLOWING WARNINGS AND SAFETY PRECAUTIONS COULD CAUSE DAMAGE TO PROPERTY, ENVIRONMENT, RESULTING IN SERIOUS INJURY OR DEATH.</p> <ol style="list-style-type: none"> 1. Read and follow all instructions in this manual, including all safety warnings to protect yourself and others from serious injury, explosion, or electrical shock. 2. Comply with all applicable codes including: the National Electrical Code; federal, state, and local codes; and other applicable safety codes. 3. To protect yourself and others from being struck by vehicles, block off your work area during installation or service. 4. Do not alter or modify any component or substitute components in this kit. 5. Warning! Substitution of components may impair intrinsic safety. 6. Field wiring to the Mag Plus probe must not share a conduit with any non-intrinsically safe device's wiring. 7. Warning! To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing. 8. Materials used in the construction of this device contain aluminum. Care must be taken to avoid ignition hazards due to impact or friction. 9. Before installing or taking the unit into a hazardous area, earth the unit in a safe area to remove any static charge. Then immediately transport the unit to the installation site. Do not rub or clean the unit prior to installation. Cleaning is not required under normal service conditions. Do not rub or clean the unit after installation. If the unit is not fixed to a known earth point when installed, ensure that a separate earth connection is made to prevent the potential of a static discharge. When fitting or removing the unit, use of anti-static footwear or clothing is required.

NOTE Failure to install this product in accordance with its instructions and warnings will result in voiding of all warranties with this product.

Safety Symbols

The following safety symbols are used throughout this manual to alert you to important safety hazards and precautions.

 <p>EXPLOSIVE Fuels and their vapors are extremely explosive if ignited.</p>	 <p>FLAMMABLE Fuels and their vapors are extremely flammable.</p>
 <p>ELECTRICITY High voltage exists in, and is supplied to, the device. A potential shock hazard exists.</p>	 <p>TURN POWER OFF Live power to a device creates a potential shock hazard. Turn Off power to the device and associated accessories when servicing the unit.</p>
 <p>WEAR EYE PROTECTION Wear eye protection when working with pressurized fuel lines or epoxy sealant to avoid possible eye injury.</p>	 <p>GLOVES Wear gloves to protect hands from irritation or injury.</p>
 <p>INJURY Careless or improper handling of materials can result in bodily injury.</p>	 <p>USE SAFETY BARRICADES Unauthorized people or vehicles in the work area are dangerous. Always use safety cones or barricades, safety tape, and your vehicle to block the work area.</p>
 <p>READ ALL RELATED MANUALS Knowledge of all related procedures before you begin work is important. Read and understand all manuals thoroughly. If you do not understand a procedure, ask someone who does.</p>	

Equipment Protection

LIGHTNING AND INTRINSICALLY SAFE CIRCUIT PROTECTION

In a Veeder-Root system, each intrinsically safe (I.S.) circuit may use an optional I.S. circuit protector in place of the weatherproof junction box located in Zone 1. Intrinsically safe circuit protectors consist of a certified in-line device or a simple apparatus.

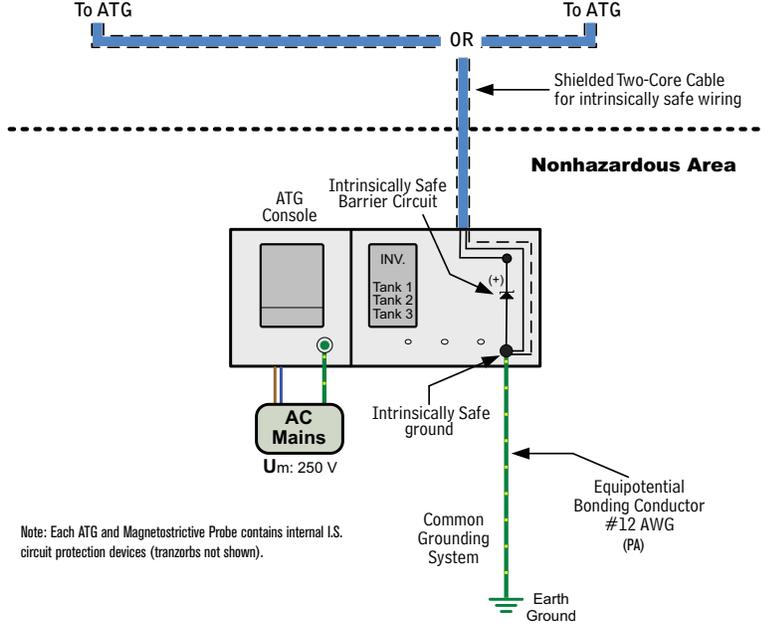
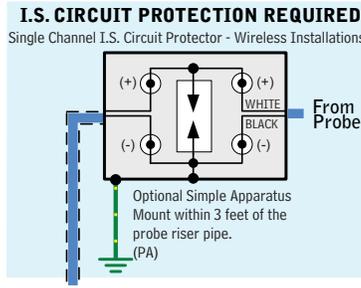
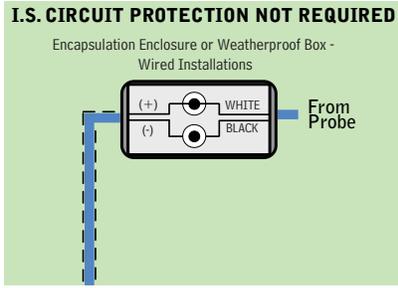
An intrinsically safe circuit protector provides protection of the system against lightning strikes and any other source of possible electrical surges caused by electrical railway systems, high voltage direct current facilities and the like.

In locations where the intrinsically safe cables or circuits are considered to be at risk of developing hazardous potential differences within the hazardous location, an external I.S. circuit protection device may be needed.

EQUIPOTENTIAL GROUNDING

The intrinsically safe circuit in the TLS Monitoring System is derived from a fuse protected Zener diode intrinsic safety barrier. This type of explosion protection requires that the intrinsically safe electric circuit is referenced to the safety ground associated to the mains circuit. If the site has a submersible pump connected to the same mains safety ground as the TLS Monitoring System Console and it is installed in a metallic riser of a metallic storage tank, the Zener diode barrier must be referenced to the same earth (safety) ground.

HAZARDOUS LOCATION



Note: Each ATG and Magnetostrictive Probe contains internal I.S. circuit protection devices (transzorbis not shown).

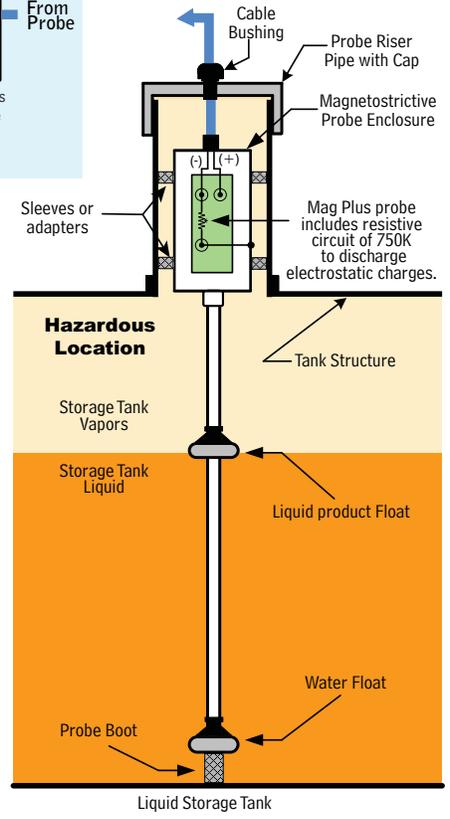


Figure 1. Connection For A Wired Mag Plus Probe Installation With And Without Optional I.S. Circuit Protection

Mag Plus Probe Installation Kits

Installation Kits

Available Mag Plus probe installation kits are listed in Table 1 and Table 2..

Table 1.- Installation Kit P/N 846100-1XX, 846400-1XX And 846402-1XX

Qty.	Description	Part Number
1	Cable, 5 feet long (standard size)	330272-001
1	2-inch Product Float	331627-001
1	2-inch Water Float	331582-00X
1	Boot	333202-001
2	Canister Insulating Sleeves	332457-001
1	Cable Seal Kit (CSK)	330020-415 or 330020-067

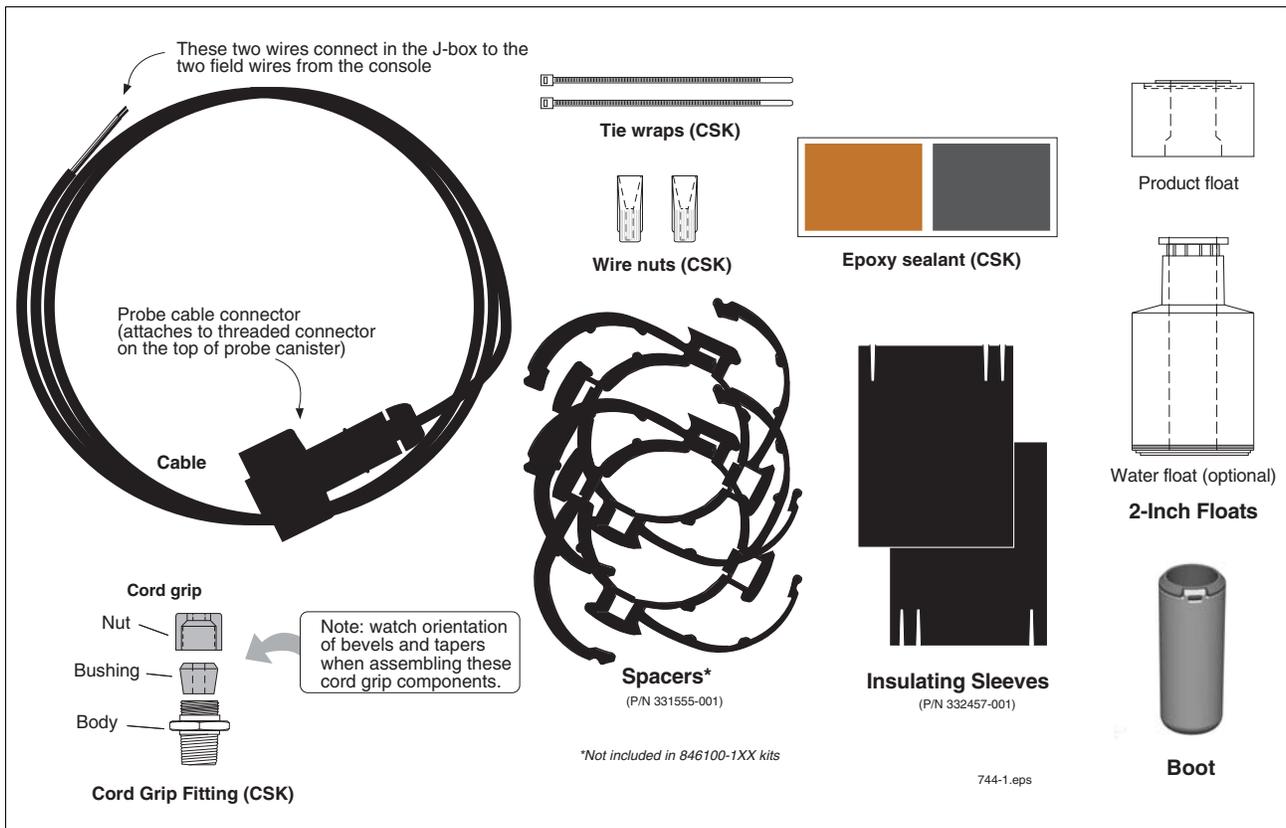


Figure 2. Installation Kit 846100-1XX, 846400-1XX And 846402-1XX Contents

Table 2.- Installation Kit P/N 846400-3XX, -0XX And 846402-3XX, -0XX, 330020-720, -721, -722

Qty.	Description	Part Number
1	Cable, 5 feet long (standard size)	330272-001
1	3-inch* Product Float	331759-001
1	3-inch* Water Float	331583-00X
1	4-inch* Product Float	331719-001
1	4-inch* Water Float	331718-00X
1	Boot	333202-001
2	Canister Spacer Ring	331555-001
1	Cable Seal Kit (CSK)	330020-067

*Note: Depending on your order, this kit is shipped with either 3- or 4-inch floats.

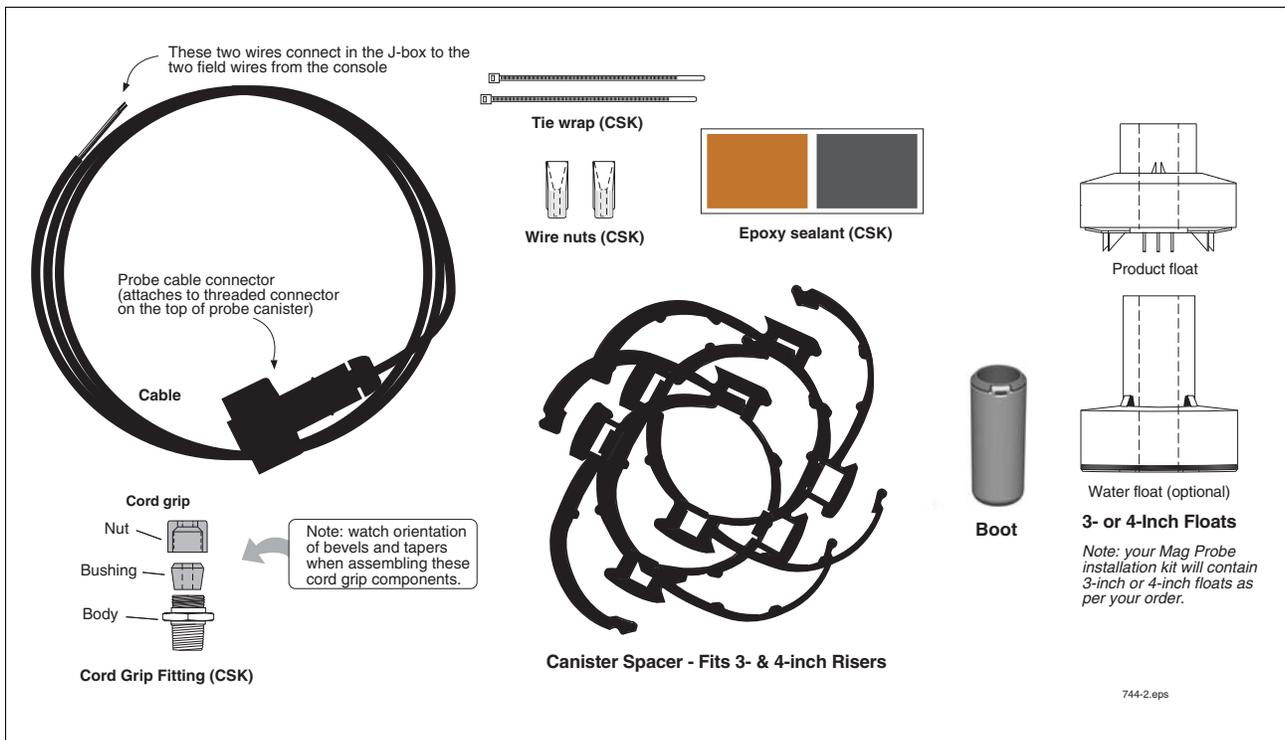


Figure 3. Installation Kit 846400-3XX, -0XX And 846402-3XX, -0XX Contents

Riser Cap Kit for Mag Plus Probe Installations

The cap on the riser containing the Mag Plus probe must be modified to allow the probe's cable to exit the riser. This modification requires making a 1/2"-14 NPT tapped hole in the cap for a cord grip. Two types of drilled and tapped Riser Cap kits are available for purchase, or you may be able to modify the existing riser cap.

CAP AND CORD GRIP KIT

This Riser Cap kit (Table 3) contains a non-metallic cap which screws onto the 4" NPT riser (Figure 4). The cap comes drilled and tapped with a cord grip.

Table 3.- Cap And Cord Grip Kit - Part No. 330020-282

Qty.	Description	Part Number
1	Cap Riser	331106-001
1	Gasket	339112-001
1	Bushing - Cord Grip	330787-001
1	Nut - Cord Grip	330594-001

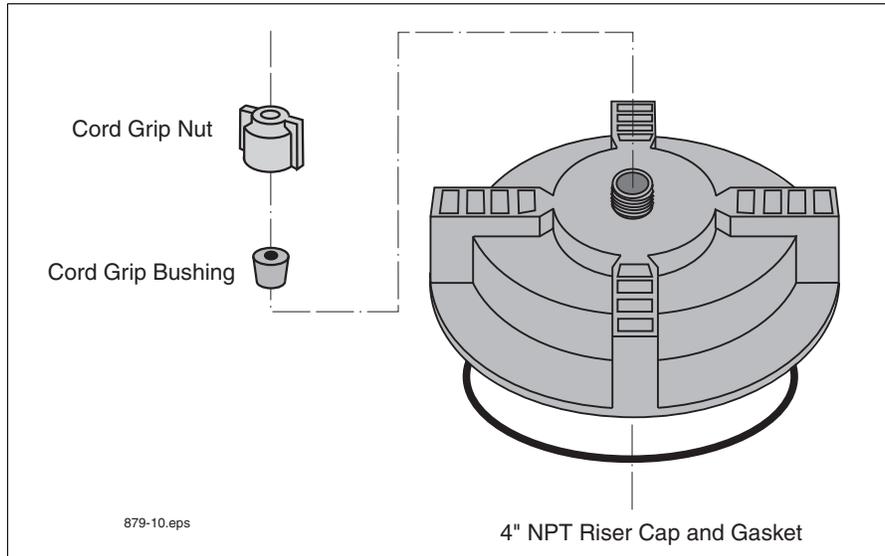


Figure 4. Cap And Cord Grip Kit

METAL CAP AND RING KIT

This riser cap kit contains an adapter ring which screws onto the 4" NPT riser and a quick-release metal cap which clamps onto the ring (Table 4). The cap comes drilled and tapped with a cord grip (Figure 5).

Table 4.- Metal Cap And Ring Kit - Part No. 312020-952

Qty.	Description	Part Number
1	Adapter ring	339104-001
1	Adapter ring gasket	339112-001
1	Cap	339119-001
1	Cap gasket	339111-001
1	Group Cord Grip	331028-001

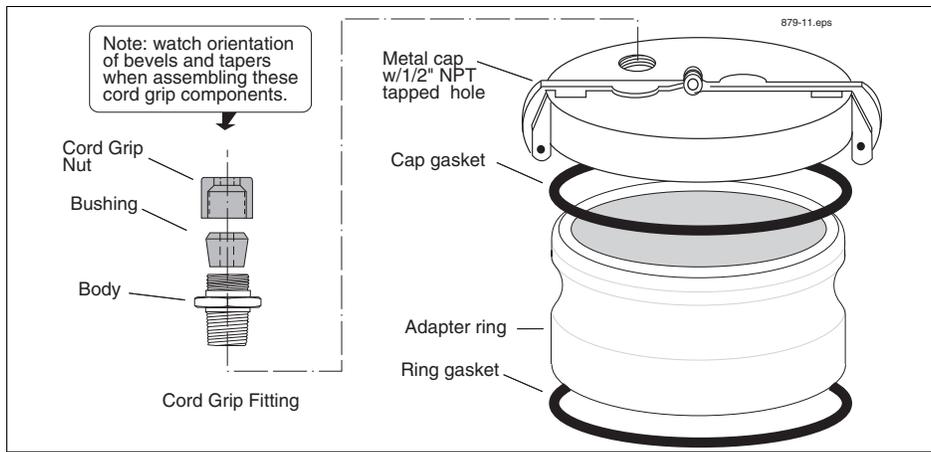


Figure 5. Metal Cap And Ring Kit

Modifying an Existing Metal Cap

In order to ensure that the riser cap seals properly to the probe cable and riser, we recommend purchasing one of the kits available for this purpose. Riser Caps from other manufacturers may require modification. If using an existing metal riser cap, drill and tap it for a cord grip fitting (P/N 331028-001) as follows.

1. Remove the cap to a non-hazardous location.
2. Drill and tap the cap for a 1/2"-14 NPT cord grip thread [Figure 6].

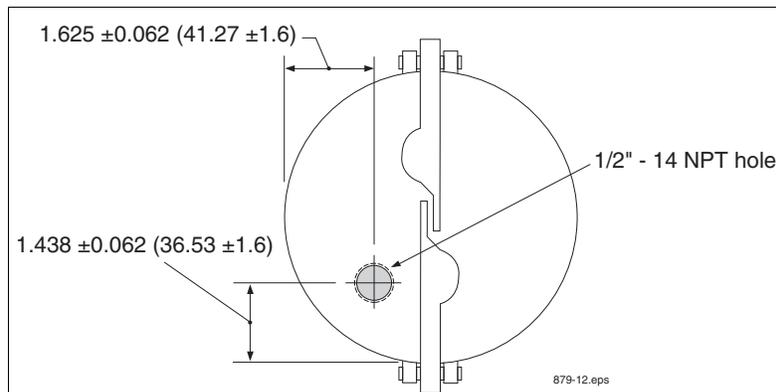


Figure 6. Modifying An Existing Metal Riser Cap

AST Installation Kit

This kit is recommended when installing Mag Plus probes into an above ground storage tank (AST). This kit contains a length of flexible conduit, connectors, etc., for easier probe access. The kit contents are listed in Table 5 and shown in Figure 7.

Table 5.- AST Installation Kit - Part No. 312020-984

Qty.	Description	Part Number
5 feet	3/8" Flexible conduit	576008-294
1	3/8" Adaptor nut	329972-002
2	3/8" Straight liquidtight connectors and related parts	576008-295
1	Cord Grip Group	331028-001

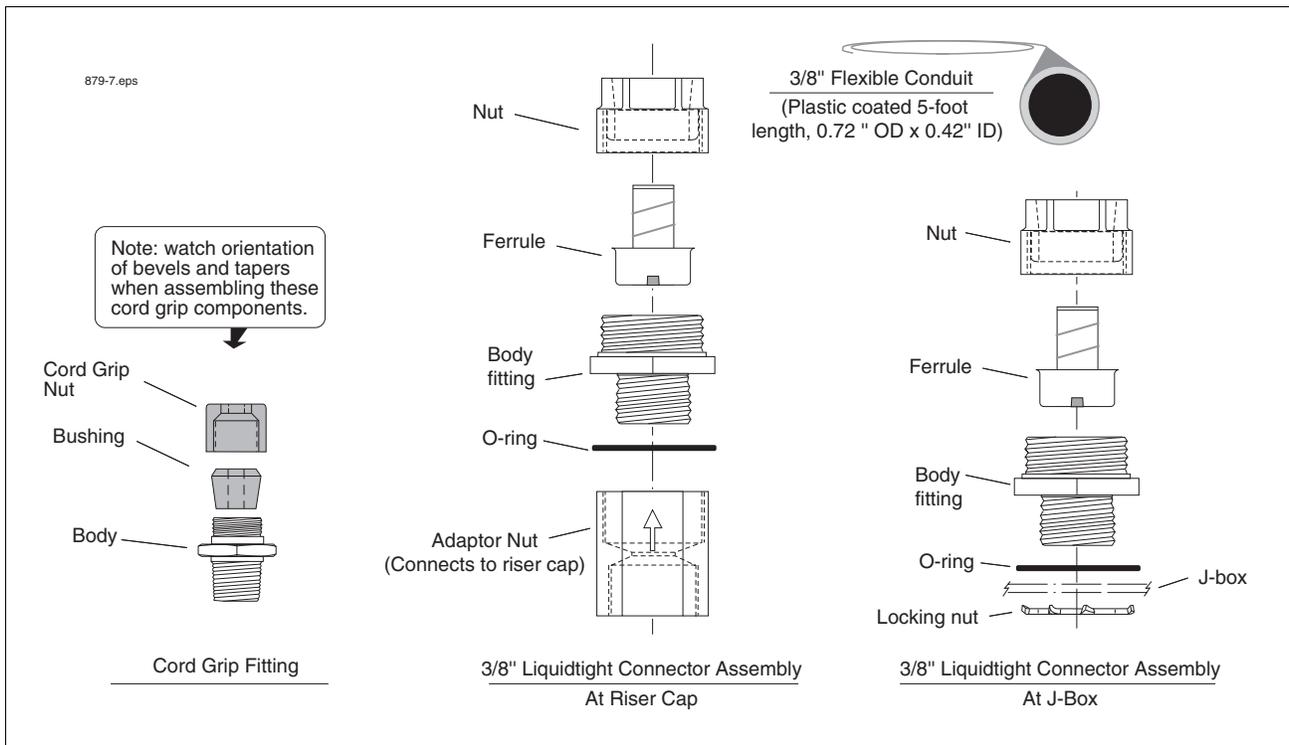


Figure 7. AST Installation Kit

I.S. Circuit Protection Kit

Kit 848190-001 (Table 6) is required for wireless installations of Mag Plus probes and kit 848190-002 (Table 7) is optional for wired installations of Mag Plus probes. The kit contents are shown in Figure 8.

Table 6.- Single Channel I.S. Circuit Protector Installation Kit - Part No. 848190-001

Qty.	Description	Part Number
6	Wire nut	576008-461
1	Cable tie	576008-482
1	Single-Channel I.S. protector	333500-003
1	Manual - splice kit	577013-744

Table 7.- Dual Channel I.S. Circuit Protector Installation Kit - Part No. 848190-002

Qty.	Description	Part Number
6	Wire nut	576008-461
1	Cable tie	576008-482
1	Dual-Channel I.S. protector	333500-004
1	Manual - splice kit	577013-744

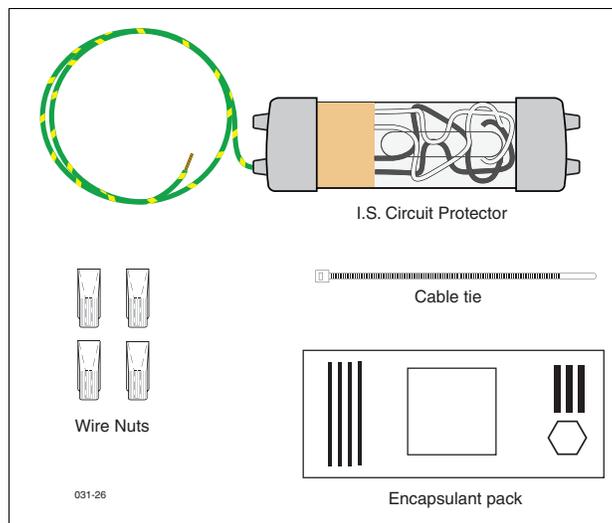


Figure 8. I.S. Circuit Protector Installation Kit Contents

Assembling Mag Plus Probe Components

Attaching Canister Insulator Sleeves (2-Inch Risers)

1. Open the shipping carton so that you have access to the Mag Plus probe. Also open the installation kit.
2. Install the two canister insulator sleeves onto the Mag Plus probe canister as shown in Figure 9.

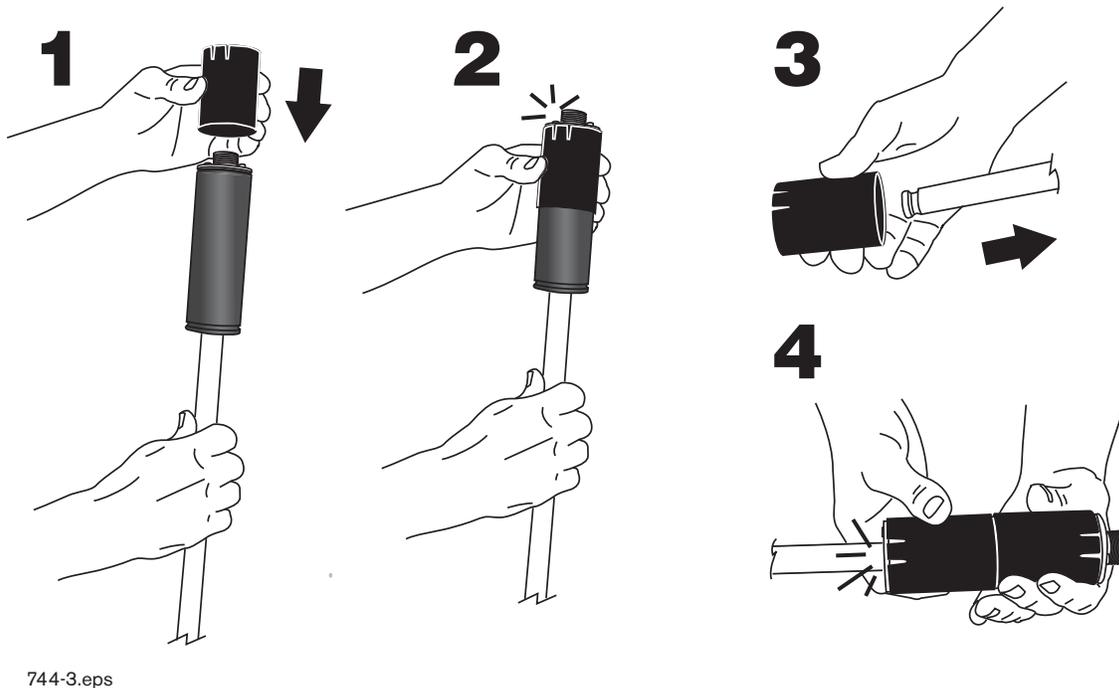


Figure 9. Installing Mag Plus Probe Canister Insulator Sleeves

Attaching Mag Plus Probe Canister Spacer Rings (3- & 4-Inch Risers)

1. Open the shipping carton so that you have access to the Mag Plus probe. Open the installation kit.
2. Set the spacer vanes for a 3- or 4-inch riser (see Figure 10) as required. Install the two spacer rings onto the Mag Plus probe canister as shown in the figure below. Note: you must slide the bottom spacer up the Mag Plus probe shaft and onto the lower end of the canister.

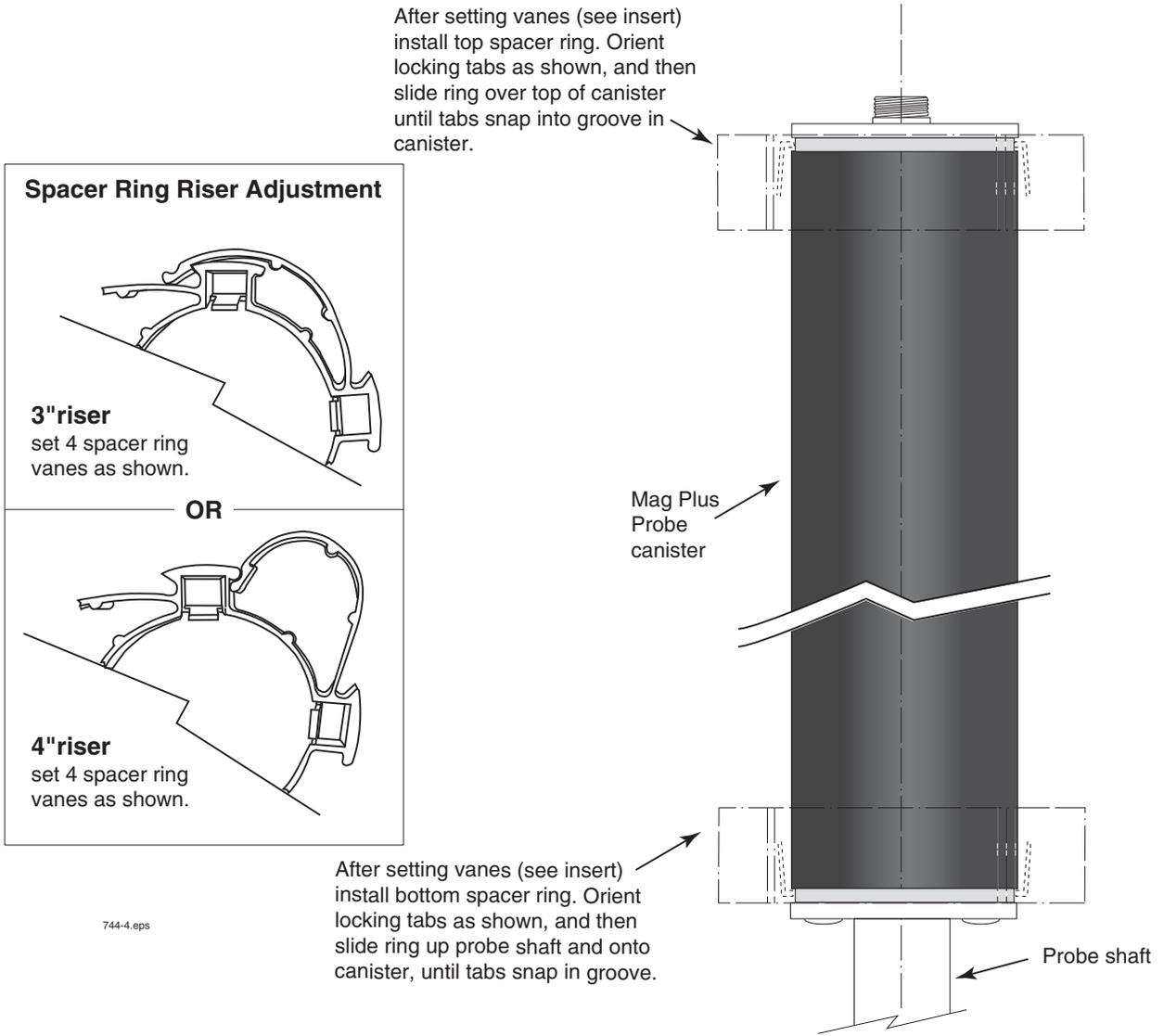


Figure 10. Installing Mag Plus Probe Canister Spacer Rings

Assembling Floats onto Mag Plus Probe Shaft

The Product floats, Water Floats (if ordered), and Boots from the installation kits are assembled on the probe shafts in the exact sequence and orientation shown in Figure 11.

IMPORTANT! Failure to push the boot as far as possible onto the probe shaft could cause the boot and float(s) to fall into the tank. The boot must be pushed on until it “locks” on the probe shaft. Also, water floats must be installed, if ordered, for the probe to operate correctly.

Handle the probe carefully. Striking or dropping the probe will result in loss of calibration and could cause permanent damage.

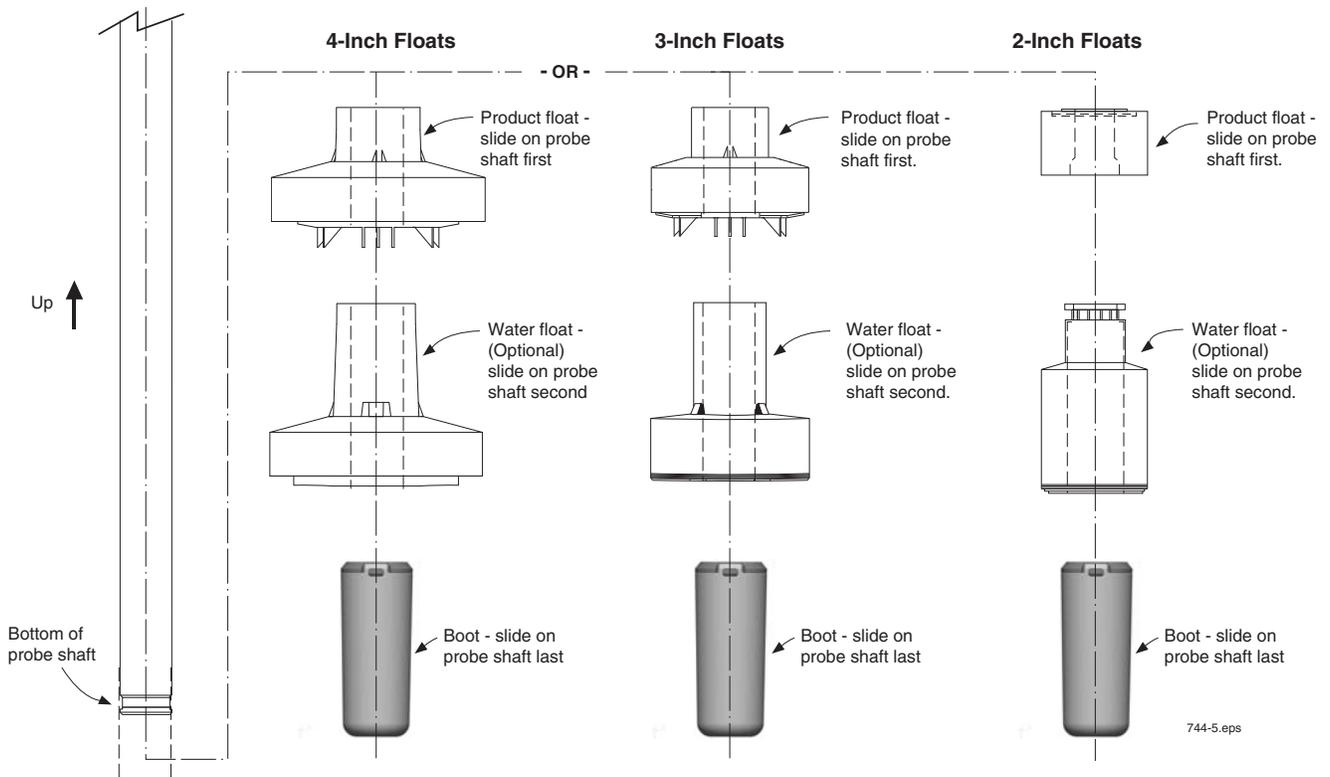


Figure 11. Mag Plus Probe Float Installation

Mag Plus Probe Installation Examples

UST Tank



1. Turn OFF power to the console.
2. Remove any sludge from the bottom of the tank.
3. Check that floats, boot, and cable are assembled correctly on probe.
4. Gently slide the float(s) to the bottom of the probe shaft before raising the probe. Carefully lower the probe into the riser pipe until the boot rests on the bottom of the tank [See Figure 12 for example UST installation, Figure 13 for example UST installation with I.S. Circuit Protector or Figure 14 for example AST installation].



WARNING! Handle probes carefully. Striking or dropping the probe will result in loss of calibration and damage to the probe.

5. Attach the connector end of the probe cable to the threaded connector on top of the probe canister and tighten down the integral nut.

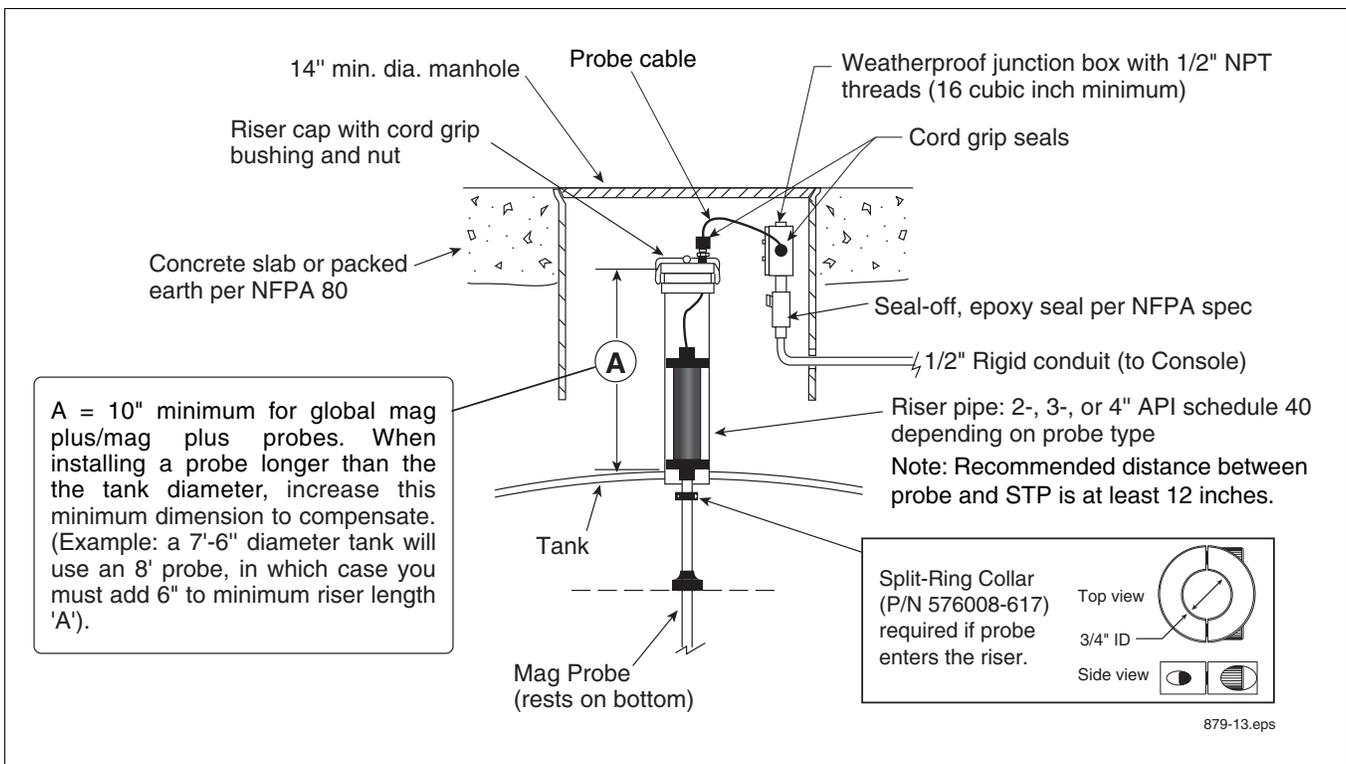


Figure 12. UST Mag Plus Probe Installation - Dedicated Riser

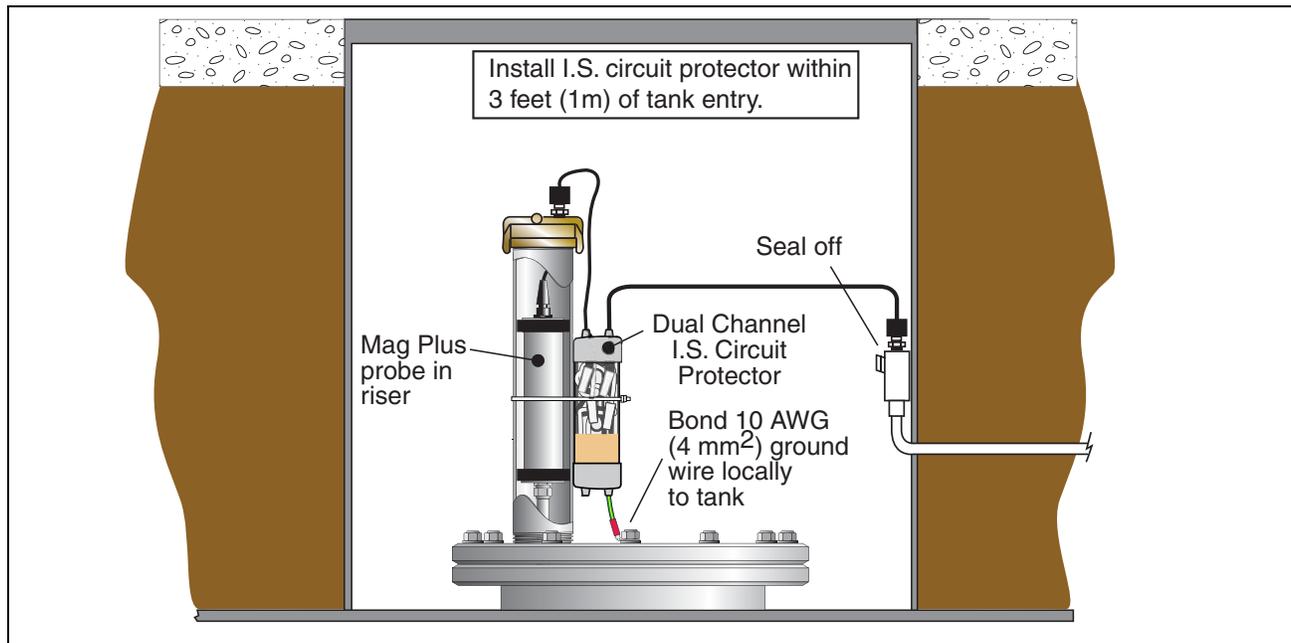


Figure 13. Optional UST Mag Plus Probe Installation With I.S. Circuit Protector

UST RISER CAP ATTACHMENT

1. If using the one piece cap (see Figure 4 on page 8), push the end of the probe cable through the cord grip bushing and nut on the cap, leaving a minimal amount of slack between the probe and cap. Screw the cap onto the riser by hand until the gasket first contacts the pipe. Then lightly tap the cap with a hammer to tighten it an additional 3/4 turn. Go to Step 3.

If installing the metal cap and adapter ring (see Figure 5 on page 9), screw the ring onto the 4" riser until the gasket contacts the pipe, then use a torque wrench attached to an appropriate strap wrench (K-D Specialty tools nylon strap oil filter wrench, or equivalent) and tighten the ring to 35 - 45 ft-lbs. Push the cable through the metal cap and cord grip, then clamp the cap onto the adapter ring.

2. Make sure there is a minimal amount of slack between the probe and cap, then tighten the cord grip nut until the cable is held firmly. Push the end of the cable through the field J-box cord grip, then tighten that cord grip nut as well. Splice and seal the wires in the J-box.

AST Tank.

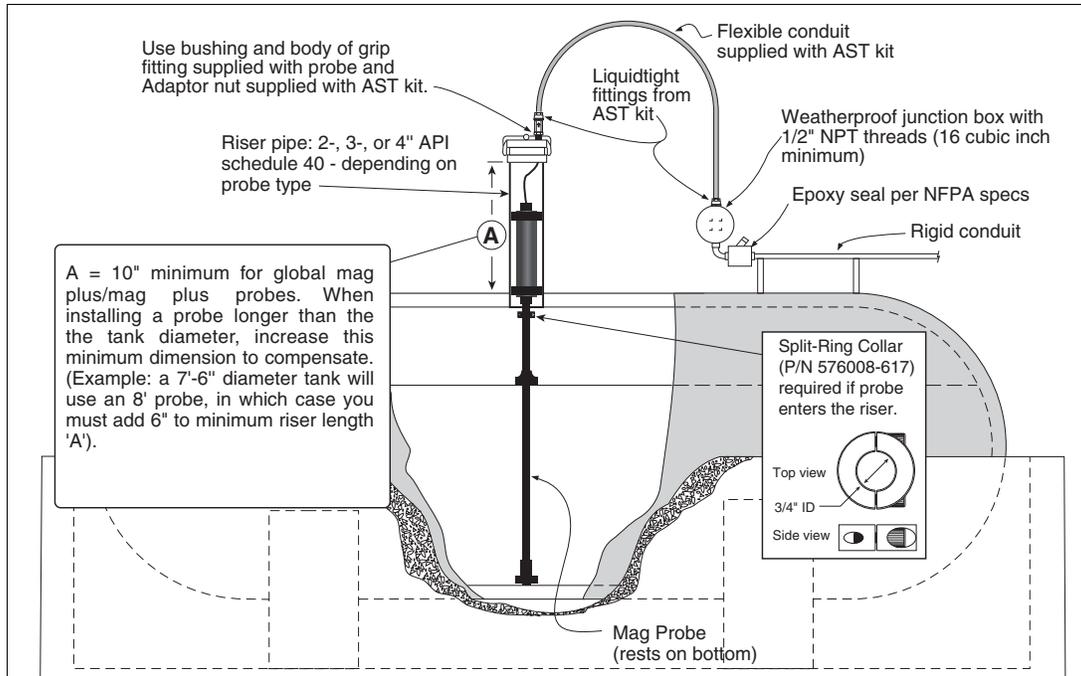


Figure 14. AST Mag Plus Probe Installation - Dedicated Riser

AST RISER CAP ATTACHMENT

1. If using the one piece cap (see Figure 4), push the end of the probe cable through the cap and cord grip bushing, leaving a minimal amount of slack between the probe and cap. Discard the cord grip nut and attach the Adapter Nut from the AST kit to the cap (see Figure 7). Tighten the Adapter Nut until the cable is held firmly. Go to Step 3.
2. If installing the metal cap and ring (see Figure 5), screw the ring onto the 4" riser until the gasket contacts the pipe, then use a pipe wrench to tighten it an additional 3/4 turn. Using UL-classified pipe sealant (suitable for the fuels involved), screw the cord grip fitting into the tapped hole and tighten. Place the cord grip bushing in the fitting. Discard the cord grip nut and loosely screw the Adapter Nut from the AST kit onto the cord grip fitting (see Figure 7). Push the cable through the metal cap, bushing, and Adapter nut, then clamp the cap onto the ring. Make sure there is a minimal amount of slack between the probe and cap, then tighten the Adapter Nut until the cable is held firmly.
3. Next assemble the liquid tight connectors on both ends of the flexible conduit as shown in Figure 7. Push the cable through the flexible conduit assembly and into the J-box. Connect the flexible conduit assembly to the Adapter Nut on one end and the J-box on the other.
4. Tighten the fittings until snug. Splice and seal the wires in the J-box.

Wireless Mag Plus Probe Installation

An example wireless Mag Plus probe installation is shown in shown in Figure 15. Mount the I.S. circuit protector as close as possible to the entry point for the probe leader cable.

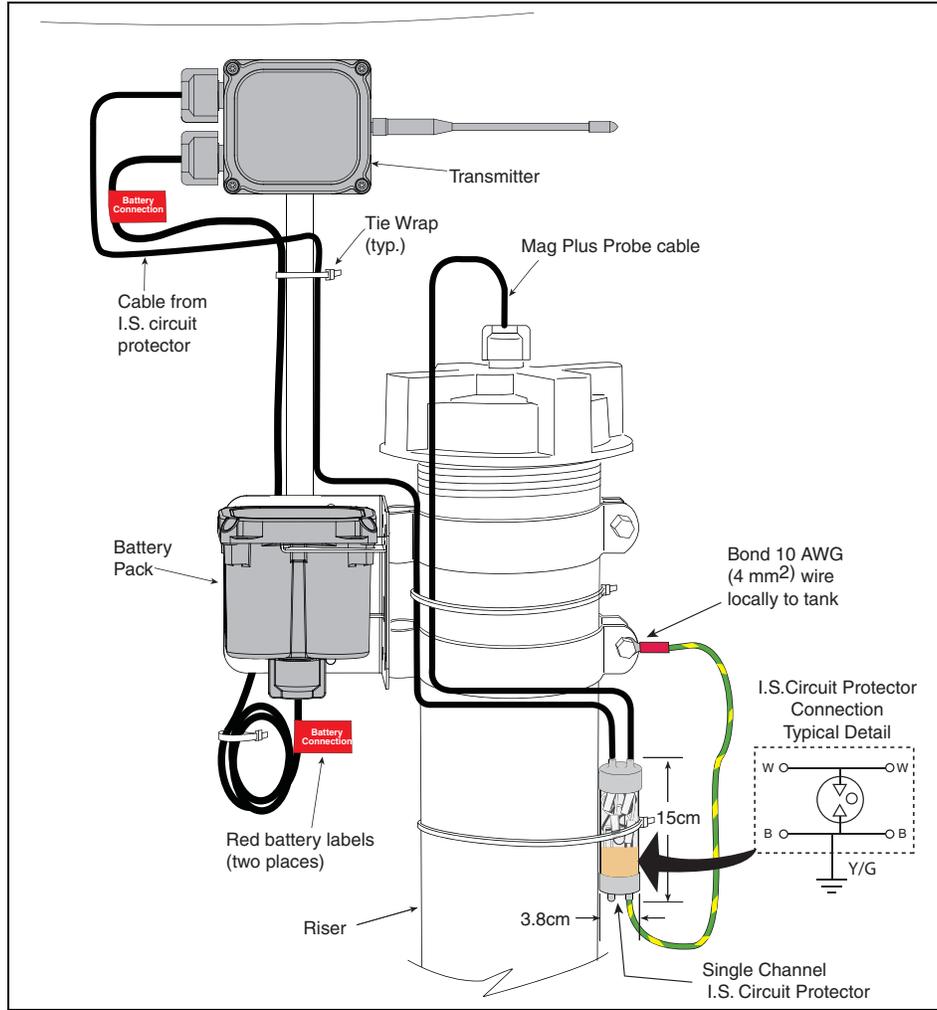


Figure 15. Example Wireless Mag Plus Probe Installation With Single-Channel I.S. Circuit Protector

Field Wiring

WIRED MAG PLUS PROBE

Pull appropriate cable from the each Mag Plus probe location to the TLS console.



An explosion could occur if other, non-intrinsically safe wires share TLS intrinsically safe wire conduits or wiring troughs. Conduits and wiring troughs from probes and sensors to the console must not contain any other wires.

NOTE At least 2 feet of free cable must be left for connection at both the TLS console and the probe locations.

Ensure that **all** cables are correctly identified. All probe field wiring **must** be legibly and permanently labeled with the tank number.

NOTE Failure to correctly mark probe field wiring may lead to re-work, delays in system installation and additional charges.

Maximum Cable Lengths

A maximum of 1000 feet of cable length per Mag Plus probe must be observed.

Sealing Field Connections

Wiring Run Through Rigid Conduit

1. Route the wire from the Mag Plus probe canister into the weatherproof junction box. If necessary, pull the two-wire cable from the console into the junction box.
2. Using the wiring nuts, connect the wires from the Mag Plus probe cable to the field wires from the console (see General Product Wiring Diagram on page 2). Observe polarity!
3. Seal wire nuts with epoxy sealant following the instructions in Figure 16.

A

B

C

Instructions:

NOTE: When temperature is below 50°F (10°C), keep resin in a warm place prior to mixing (e.g., in an inside pocket next to body).

1. Open epoxy sealant package, and remove resin pak.
2. Holding resin pak as shown in A, bend pak along long length.
3. As shown in B, firmly squeeze the RED SIDE of the resin, forcing it through the center seal and into BLACK SIDE.
4. Mix thoroughly to a uniform color by squeezing contents back and forth 25-30 times.
5. Squeeze mixed, warm resin into one end of bag and cutoff other end.
6. Slowly insert wiring connections into sealing pack until they fit snugly against the opposite end as shown in C.
7. Twist open end of bag and use tie wrap to close it off and position the tie wrapped end up until the resin jells.

CAUTION: Epoxy sealant is irritating to eyes, respiratory system, and skin. Can cause allergic skin reaction. Contains: epoxy resin and Cycloaliphatic epoxy-carboxylate.

Precautions: Wear suitable protective clothing, gloves, eye, and face protection. Use only in well ventilated areas. Wash thoroughly before eating, drinking, or smoking.

Figure 16. Epoxy Sealing Mag Plus Probe Field Connections

4. Do NOT terminate shield or drain wire in the field junction box, ground shield and drain wires at console only.
5. Place the bag with the resin sealed wiring connections in the junction box. Replace and tighten the junction box cover.

WIRED MAG PLUS PROBE USING DIRECT BURIAL CABLE

When using direct burial cable for probe-to-console wiring runs, the sealing materials and procedure are completely different. Refer to the Direct Burial Cable Installation Manual 576013-858.

I.S. CIRCUIT PROTECTOR INSTALLATIONS

Wireless Probe Installs require the installation of a single-channel I.S. Circuit Protector between the probe and the transmitter.

Some wired probe installs, that are subject to high levels of electrical interference, may require the installation of the dual-channel I.S. Circuit protector between the probe and the TLS console. In these instances, the I.S. circuit protector replaces the weatherproof junction box and epoxy-sealed connections described in Figure 16.

1. Cut the soft vinyl epoxy enclosure end cap entrance holes of the appropriate I.S. circuit protector to accommodate each cable diameter. Keep the hole sizes to a minimum. Insert about 5 inches (127mm) of each cable through the openings [Figure 17]. Remove 3 inches (76mm) of the outer jacket from each cable. Trim the insulation from the conductors.

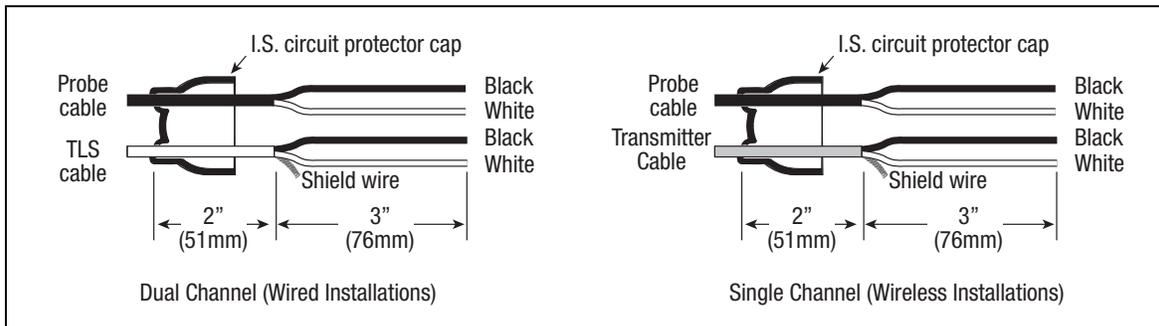


Figure 17. Splice Length Dimensions

2. Connect incoming cable wires and to the I.S. circuit protector wires using wire nuts as shown in Figure 18. Cut off the TLS/Transmitter cable's bare shield wire at the cable jacket.

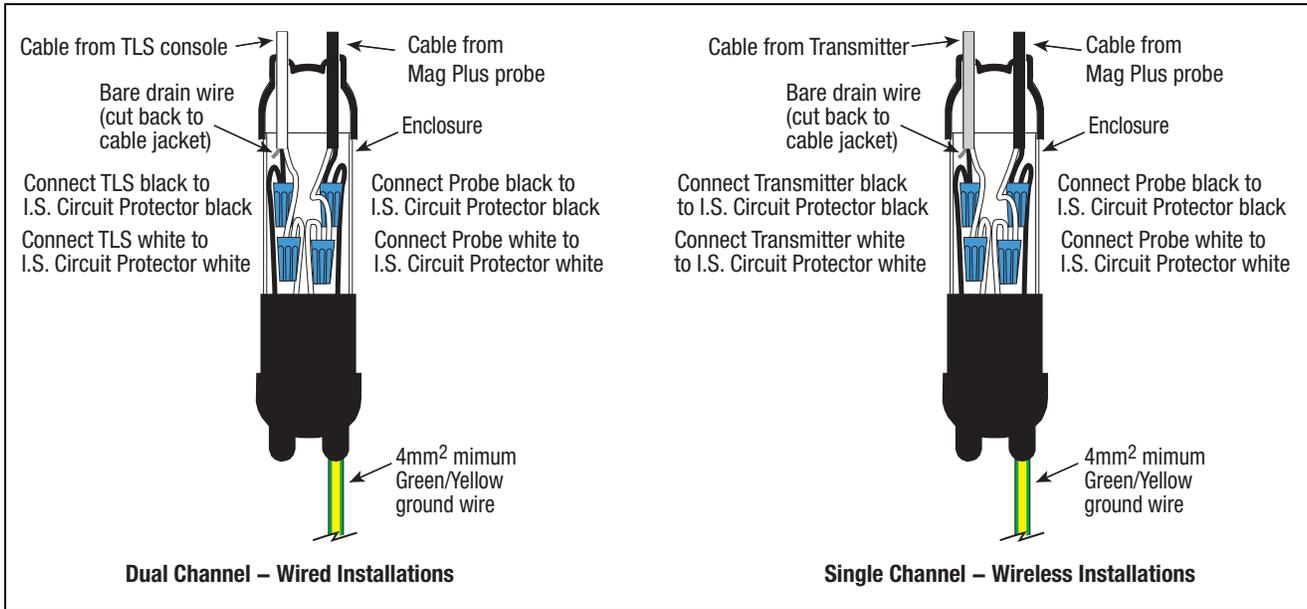


Figure 18. I.S. Circuit Protector Splice Connections

- Center the splices in the clear plastic sleeve. Assemble the I.S. circuit protector closure, making sure the sleeve is fully inserted into each of the vinyl end caps. Rotate the sleeve cover until both slot openings line up. Arrange the closure so the slot openings are facing up and the I.S. circuit protector is as level as possible.

⚠ WARNING!	
	<p>Sealing compound contains isocyanate. Vapor and liquid may cause sensitization. May be irritating to the eyes.</p> <p>Avoid skin and eye contact. Avoid repeated and prolonged breathing of vapor. Use only in well ventilated areas. Wear chemically resistant gloves.</p> <p>Inhalation - provide fresh air. In case of eye contact flush eyes with plenty of water for 10 minutes and get medical attention. If ingested do not induce vomiting. Get medical attention. Wash with soap and water in case of skin contact.</p>

- Remove bag of “Sealing compound” from foil package. Grasp the ends, one in each hand, then pull sharply to remove plastic clip [Figure 19].

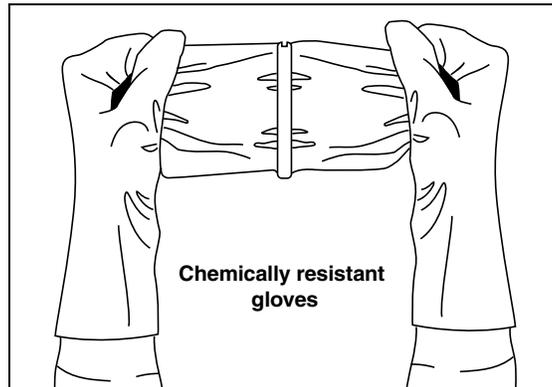


Figure 19. Removing Sealing Compound Clip

5. Thoroughly mix compound together. Invert bag several times while squeezing compound from one end to the other for a minimum of one minute.
6. Once the mixture feels warm, immediately cut one corner and slowly fill the I.S. circuit protector's plastic sleeve [Figure 20]. Stop just short of filling the entire sleeve. **Do not overfill!**

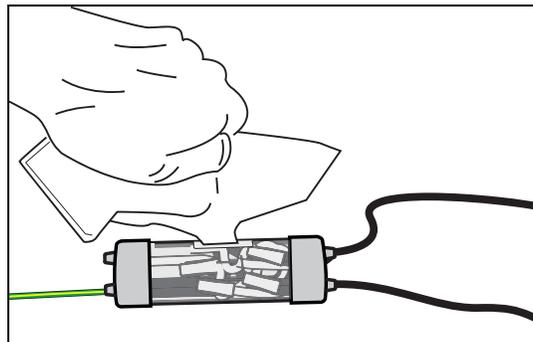


Figure 20. Pouring Sealing Compound Into Sleeve

7. With a twisting motion, rotate the outer clear plastic barrel to close the pouring slot. Wait at least five minutes, then use the large cable tie to mount the I.S. circuit protector to the riser pipe or probe canister as applicable.
8.  Connect the green/yellow ground wire from the I.S. circuit protector to an appropriate tank ground (see Figure 15). In non-conductive tank installations, connect the green/yellow ground wire from the I.S. circuit protector to a grounding rod as per the local authority.

