



Wireless Fuel Monitor

## INSTALLATION INSTRUCTIONS

### Part 1. General information

**IMPORTANT!** Before beginning the installation process, read through the entire set of Installation Instructions. Familiarize yourself with the product and the components included with the 7100 product. Plan the installation in advance and purchase any components needed, but not included with the product. Also, make sure you have all of the proper tools to complete the installation.

The No. 7100 fuel level sensor applies the basic technology from the No. 7000 product to underground tank applications. In the 7000, the ultrasonic Level Sensor and the wireless Transmitter are housed in the same Rocket enclosure. Since the wireless transmission cannot penetrate the earth's soil, the Transmit section has been separated from the Sensor section in the 7100 product. The Sensor and Transmitter are each housed in a water-proof "Rocket" enclosure and connected with a 32ft cable. The battery is located in the Transmitter and is therefore accessible if needed. The top of the Transmitter must remain a minimum of a 3 inches above ground level. Aside from the physical separation of the Sensor and Transmitter, the 7100 system functions identically to the 7000 system. Therefore, instructions for the No. 7000 have been included.

These installation instructions assume that the 7100 product is being retrofitted to an existing in-ground tank. For new tank installations, install the tank first along with all piping and backfill partially to leave top surface of tank exposed.

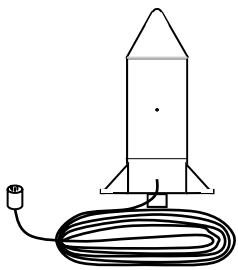
### PREPARATION FOR INSTALLATION

1. Verify contents of packaged product against Part 2. Component List on page 2. In case of missing parts, contact OEM directly.
2. Test product as shipped according to instructions in Part 3a on page 3
3. Review SITE PLAN REFERENCE GUIDE on page 4, survey the installation site and decide on installation method: **Local** or **Remote**.
4. Depending on the installation method chosen, carefully review either Part 4a or 4b and the associated Installation Diagram. See pages 5-6 or 7-8 respectively.
5. Purchase needed components and supplies as suggested on the appropriate Installation Diagram on page 6 or 8.
6. Proceed with field installation as suggested in the detailed instructions in Part 4a or 4b on pages 5 or 7 for Local or Remote installation respectively.

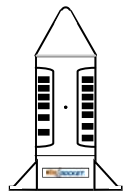
**Part 2. Component List**

Ref No	Qty	Description	Local	Remote
1	1	Sensor with attached Cable	X	X
2	1	Transmitter	X	X
3	1	LCD Receiver	X	X
4	1	2" NPT Tank Adapter	X	X
5	4	8-32 Mounting Screws	X	X
6	1	PVC Cap	X	X
7	1	Mounting Disc	X	
8	1	PVC Coupling	X	X
9	1	Mounting Bracket– Aluminum		X
10	1	3/4" Threaded PVC Adapter		X
11	1	3/4" Ring Nut		X
12	1	4" PVC Pipe (Not Included)	X	X
13	1	3/4" PVC Conduit/Elbows (Not Included)		X
14	2	Lag Screws or Bolts (Not Included)		X
15	1	Neodymium Magnet	X	X

Note that items No. 12,13 and 14 are not supplied with this product and must be purchased separately, if needed.



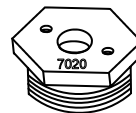
(1) Sensor



(2) Transmitter



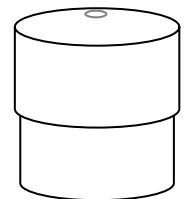
(3) LCD Receiver



(4) 2" Tank Adapter



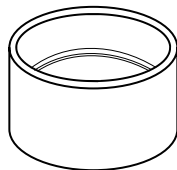
(5) 8-32 Screws (4)



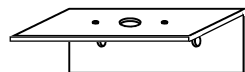
(6) PVC Cap



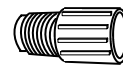
(7) Mounting Disc



(8) PVC Coupling



(9) Mounting Bracket



(10) 3/4" Threaded PVC Adapter



(11) 3/4" Ring Nut



(15) Magnet

### **Part 3. Product Test Procedures**

#### **Part 3a. Testing of Product as Shipped**

Every 7100 product is thoroughly tested before shipping. However, due to the time and effort required to install the product, it is recommended that proper operation be verified before beginning the installation process. Please follow the steps below:

1. Remove the Sensor Rocket/Cable (1), the Transmit Rocket (2) and the LCD Receiver (3) from the packing box and place on a counter close to a 120v electrical outlet.
2. Plug the LCD Receiver (3) into a 120v outlet. The top bar should immediately begin to flash on and off. After about 2 minutes, the top bar will stop flashing and the LCD display will be blank.
3. Use the Magnet (15) to activate the Transmitter (2) by moving the Magnet (15) over the black dot on the Transmitter (2). By holding the Sensor (1) about 6" from a solid surface (counter or floor), the LCD Receiver (3) should show all 10 bars. Moving the Sensor Rocket (1) up should reduce the number of bars. At about 42" from a solid surface, no bars will show and the Receiver (3) red light will blink as well as emit short beeps. The Transmitter (2) will stay in the "Send" mode for about 5 minutes, but should be turned off by swiping the magnet over the black dot again. With Transmitter (2) off, the Receiver (3) will keep displaying the last reading. Disconnect the Sensor cable from the Transmitter (2).
4. If the results in Steps 2. or 3. are not as described above, DO NOT proceed with the installation. Call OEM customer Service at 203-736-8886 for installation assistance.

#### **Part 3b. Field Performance Test (See Step 8 in Part 4a and Step 10 in Part 4b)**

Due to the many different possible site layouts, obstructions and distances from the Transmitter (2) to the LCD Receiver (3) it is recommended that proper system operation be verified as installed prior to back-filling at the tank. Please follow the steps below:

1. Use the measurement of the tank height (inches) to set the DIP switches on the back of the LCD Receiver (3) according to the Rocket 7000 Installation Instructions sheet. Use a long extension cord to plug the Receiver (3) into a 120v outlet and place the Receiver (3) where it will most likely be used. Wait until the top bar on the Receiver (3) stops flashing (about 2 min).
2. Plug the Sensor cable into the bottom of the Transmitter (2). The Transmitter (2) should be placed approximately in its final intended location (on ground next to hole dug down to tank for Local install or at structure where it will be mounted for Remote install).
3. Use Magnet (15) to activate the Transmitter (2) by swiping the Magnet (15) over the black dot on the side of the Transmitter (2). Verify that the Receiver (3) is reading approximately the same fuel level as measured. For example, if the tank height is 48" and the measured fuel level is 32", the Receiver (3) should show 7 bars. If the Receiver (3) display remains blank, move the Receiver (3) around for a better line-of-sight path to the Transmitter (2) until a signal is received and the fuel level is displayed. For Remote installations, the Transmitter (2) can also be moved to find a better location. If the Receiver (3) still shows a blank display, verify that the Transmitter is still in "send mode" by holding the receiver to your ear and listening for rapid clicking. If no clicking is heard, try to re-activate the Transmitter (2) with the Magnet (15). Upon completion of this test, disconnect the Sensor cable from the Transmitter (2).
4. If the results in Steps 1. or 3. are not as described above, DO NOT proceed with the installation. Call OEM customer Service at 203-736-8886 for installation assistance.

## SITE PLAN REFERENCE GUIDE

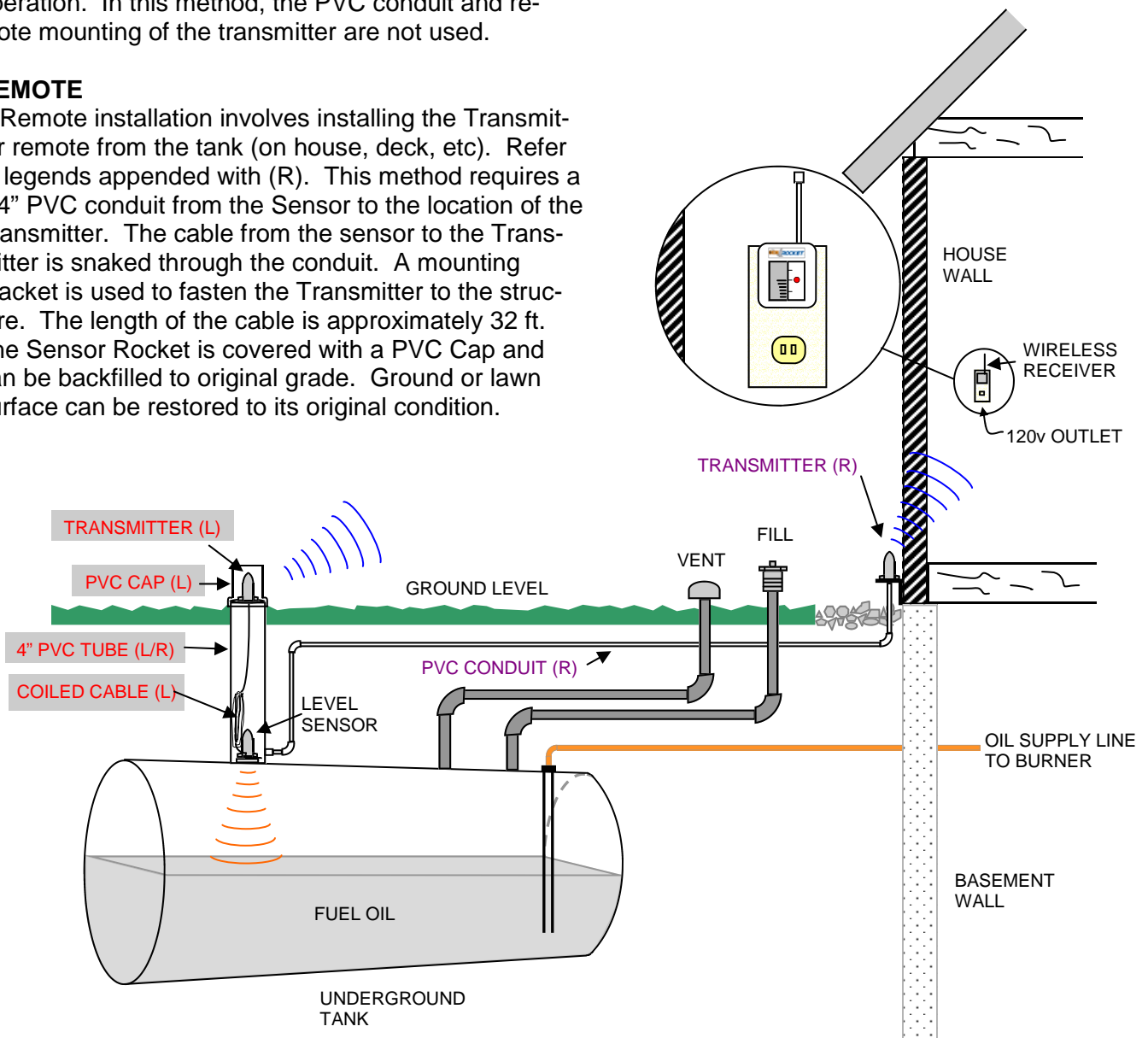
### INSTALLATION OPTIONS:

#### LOCAL

A Local installation involves locating the Transmitter directly above the sensor as shown in the figure below. Refer to the shaded legends that are appended with (L). The PVC Cap covering the Transmitter must extend at least 3" above the ground surface for reliable operation. In this method, the PVC conduit and remote mounting of the transmitter are not used.

#### REMOTE

A Remote installation involves installing the Transmitter remote from the tank (on house, deck, etc). Refer to legends appended with (R). This method requires a 3/4" PVC conduit from the Sensor to the location of the Transmitter. The cable from the sensor to the Transmitter is snaked through the conduit. A mounting bracket is used to fasten the Transmitter to the structure. The length of the cable is approximately 32 ft. The Sensor Rocket is covered with a PVC Cap and can be backfilled to original grade. Ground or lawn surface can be restored to its original condition.



### **Part 4a. Instructions for LOCAL Transmitter Installation**

**Local installation** involves locating the Transmitter (2) at the tank in a PVC housing (included) directly above the Sensor (1). This method avoids having to dig a trench from the tank to a remote place (within 32ft) where the Transmitter would be mounted. Note that the PVC housing must be exposed above the earth surface by at least 3 inches for reliable reception by the Receiver. The PVC housing can be hidden by shrubbery without affecting the transmission.

#### **INSTALLATION STEPS** (See Installation Diagram on page 6)

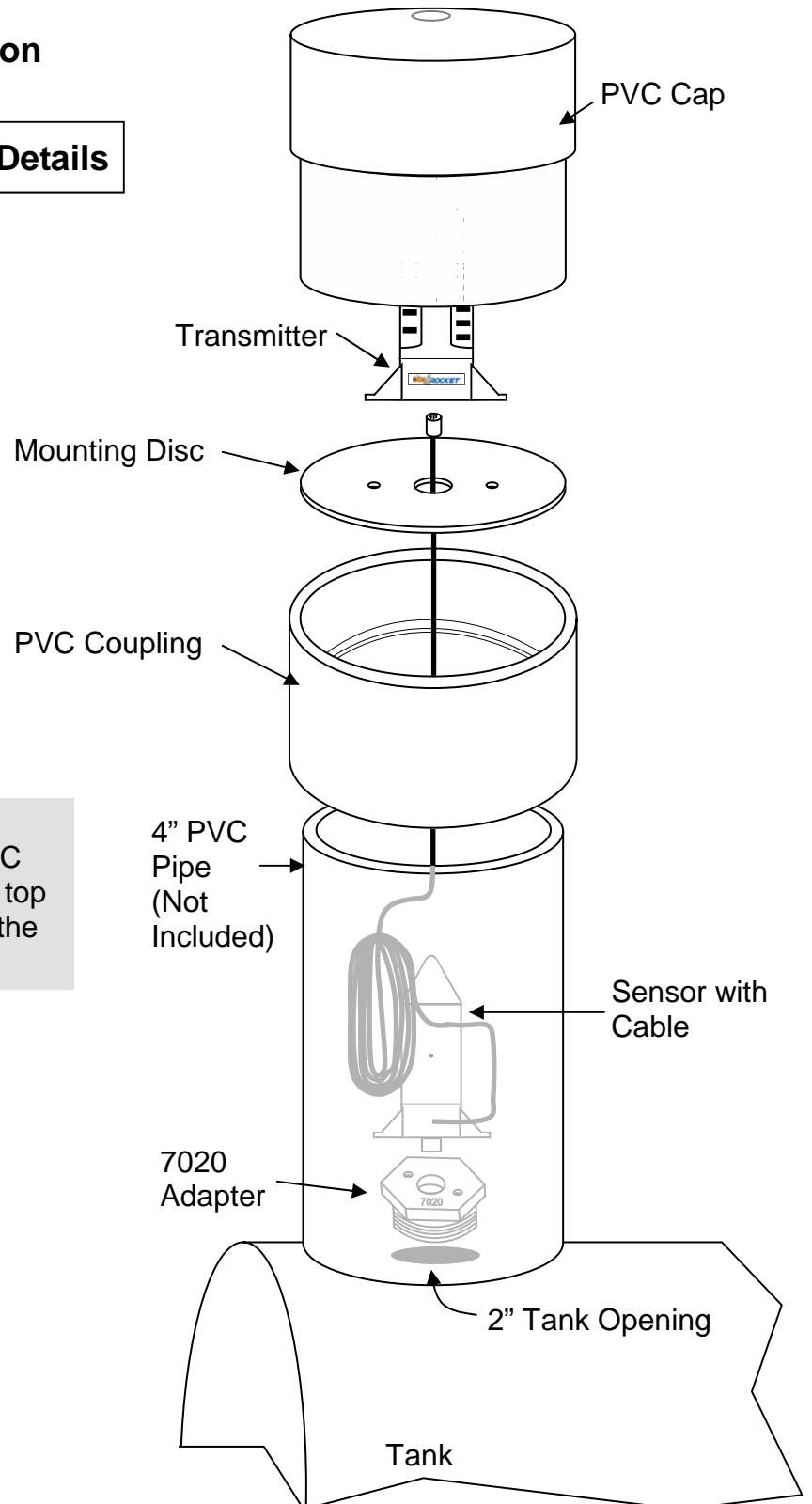
1. Dig down to available 2" NPT opening on tank. Clear a 12-16" diameter opening and clean thoroughly around tank plug. Note: If only 4" opening is available, use a low profile 4x2 reducing bushing (not included). If the only tank opening available is either 1-1/2" or 1-1/4" NPT, you must purchase a special order tank adapter through your distributor; OEM No. 7015 (1-1/2") or No. 7012 (1-1/4").
2. Remove tank plug taking care to prevent any dirt or debris from entering the tank.
3. If not already known, measure tank height by using a measuring stick. This height will be used in Step 8 to configure the LCD Receiver (3) DIP switches.
4. For existing tanks, measure Fuel Level (inches from bottom of tank) and record for verification in Step 8.
5. Install No. 7020 Zinc 2" NPT adapter (4) using proper sealant to make thread connection water tight.
6. Mount Sensor (1) onto No. 7020 Adapter (4) using two pan-head Mounting Screws (5). DO NOT OVER TIGHTEN.
7. Mount Transmitter (2) to Plastic Mounting Disc (7) using two pan-head Mounting Screws (5). DO NOT OVER TIGHTEN.
8. **IMPORTANT.** Perform Field Performance Test as specified in Part 3b on page 3.
9. Measure distance in inches from tank surface to ground surface level. This is the "Tank Depth".
10. Cut 4" PVC pipe (12) to length of 4 inches less than the Tank Depth measured in Step 9. This will result in the PVC Cap (6) extending about 3" above the surface after installation is complete. For best results cut the Pipe (12) longer to expose 6" of the cap above ground level.
11. Slip the PVC Pipe (12) over the shielded cable and the Sensor Rocket (1) and backfill partially to hold the pipe (12) securely in the vertical position. The cable can be left sitting on the Sensor (1) within the PVC pipe (12).
12. Connect the Sensor (1) to the Transmitter (2) by inserting the Connector at the end of the cable into the bottom of the Transmitter (2). Place the Transmitter/Disc assembly into the PVC Coupling (8) so that it sits on the inner lip of the Coupling (8).
13. Place the PVC Cap (6) over the Transmitter (2) and into the Coupling (8). Press down gently for a secure fit. Pressing too hard on the cap will make it difficult to remove at a later time if needed for battery replacement or other maintenance.
14. Finish back-filling against the PVC pipe (12), Coupling (8) and Cap (6).

**INSTALLATION DIAGRAM**  
**For**  
**LOCAL Transmitter Location**

Refer to Part 4a on page 5 for Details

**NOTE:**

You must purchase a section of 4" PVC Pipe to reach from ground level to the top of the tank. Pipe will be cut to size in the field.





### **Part 4b. Instructions for REMOTE Transmitter Installation**

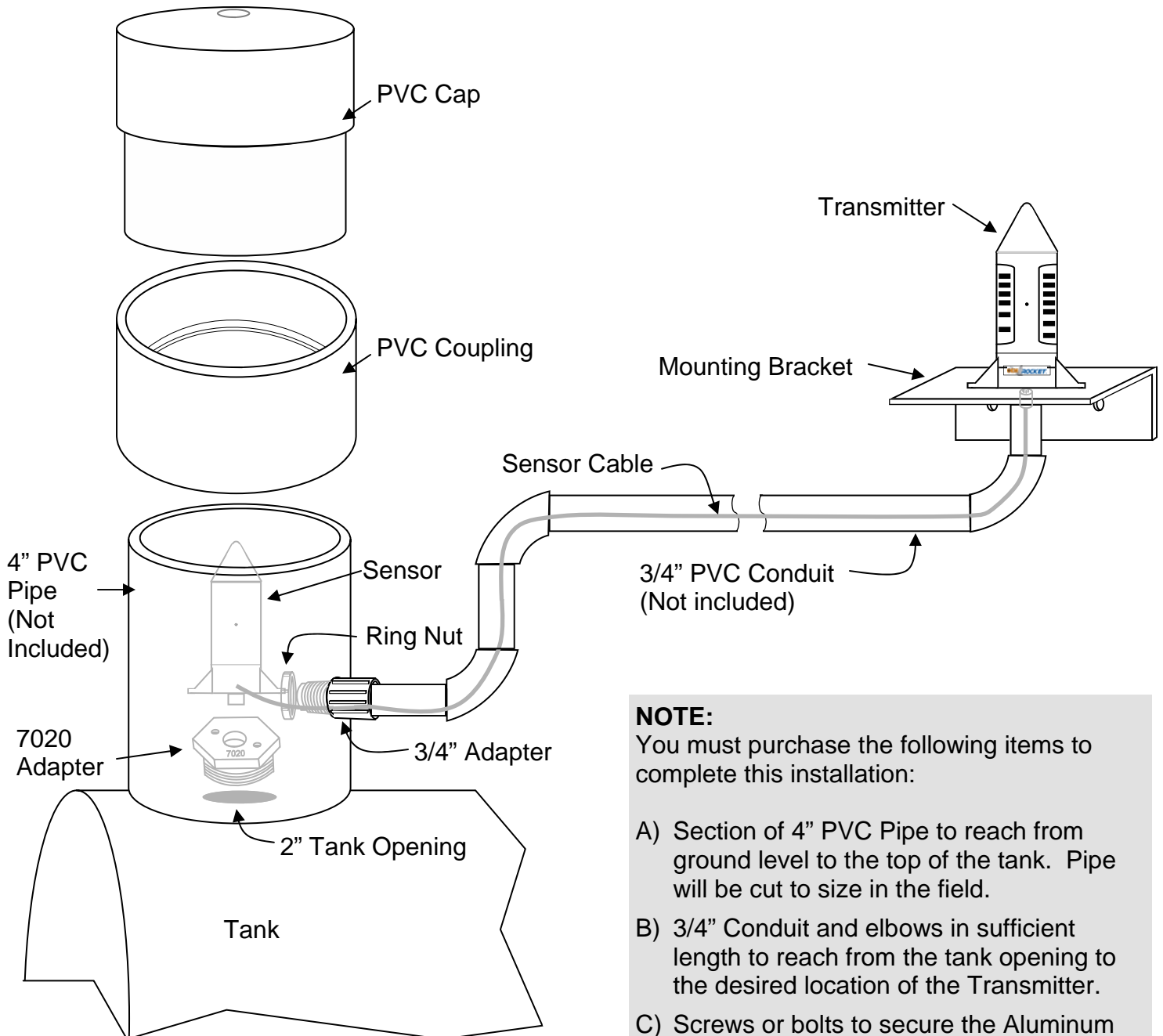
**Remote installation** involves locating the Transmitter away from the tank, for example on the side of a building or other structure, such as a deck. The advantage of this method is that nothing will need to extend above the surface at the tank. This may be preferable if the tank is located under a manicured lawn area or other cosmetically sensitive location. The disadvantage of this method is that a trench needs to be provided from the tank to the location of the Transmitter and a PVC conduit needs to be run from the PVC housing, where the Sensor sits, to the Transmitter to protect the cable between the Sensor and Transmitter.

#### **INSTALLATION STEPS** (See Installation Diagram on page 8)

1. Dig down to available 2" NPT opening on tank. Clear a 12-16" diameter opening and clean thoroughly around tank plug. Note: If only 4" opening is available, use a low profile 4x2 reducing bushing (not included). If the only tank opening available is either 1-1/2" or 1-1/4" NPT, you must purchase a special order tank adapter through your distributor; OEM No. 7015 (1-1/2") or No. 7012 (1-1/4").
2. Measure distance in inches from tank surface to ground surface level. This is the "Tank Depth".
3. Cut 4" PVC pipe (12) to length of 11 inches less than the Tank Depth measured in Step 2. This will result in the PVC Cap (6) being about 4" below the surface after installation is complete. Cut a 1-1/8" hole in the side of the PVC Pipe (12) and install the 3/4" PVC Adapter (10) using the Ring Nut (11).
4. Remove tank plug taking care to prevent any dirt or debris from entering the tank.
5. If not already known, measure tank height by using a measuring stick. This height will be used in Step 10 to configure the LCD Receiver (3) DIP switches.
6. For existing tanks, measure Fuel Level (inches from bottom of tank) and record for verification in Step 10.
7. Install No. 7020 Zinc 2" NPT adapter (4) using proper sealant to make thread connection water tight.
8. Mount Sensor Rocket (1) onto No. 7020 Adapter (4) using two pan-head Mounting Screws (5). **DO NOT OVER TIGHTEN.**
9. Slip the PVC Pipe Assembly (12,10,11) over the shielded cable and the Sensor Rocket (1) and pull the Sensor cable at least partially through the 3/4" PVC Adapter (10).
10. **IMPORTANT.** Perform Field Performance Test as specified in Part 3b on page 3.
11. Backfill partially to hold the pipe (12) securely in the vertical position.
12. Dig a trench to the desired depth (min 5" deep) from tank opening to desired location of Transmitter (2).
13. Configure and connect 3/4" PVC conduit (13) to run in the trench from the 3/4" PVC Adapter (10) at the tank to the Transmitter (2) location. During the assembly of the Conduit (13), snake the Sensor cable through the Conduit (13). Pull back excess cable and leave coiled up in PVC Pipe (12).
14. Fasten the Aluminum Mounting Bracket (9) to the desired structure using appropriate screw or bolts (not included). Insert the Sensor cable through the center hole in the Bracket (9) and into the bottom of the Transmitter (2). Mount the Transmitter (2) to Aluminum Mounting Bracket (9) using two pan-head Mounting Screws (5). **DO NOT OVER TIGHTEN.**
15. Place the PVC Cap (6) into the Coupling (8) and the Cap/Coupling (6,8) assembly over the PVC Pipe (12). Press down gently for a secure fit. Pressing too hard on the cap will make it difficult to remove at a later time if needed.
16. Finish back-filling hole at tank and trench to Transmitter (2).

## INSTALLATION DIAGRAM For Remote Transmitter Location

Refer to Part 4b on page 7 for Details



**NOTE:**

You must purchase the following items to complete this installation:

- A) Section of 4" PVC Pipe to reach from ground level to the top of the tank. Pipe will be cut to size in the field.
- B) 3/4" Conduit and elbows in sufficient length to reach from the tank opening to the desired location of the Transmitter.
- C) Screws or bolts to secure the Aluminum Mounting Bracket to the desired structure.