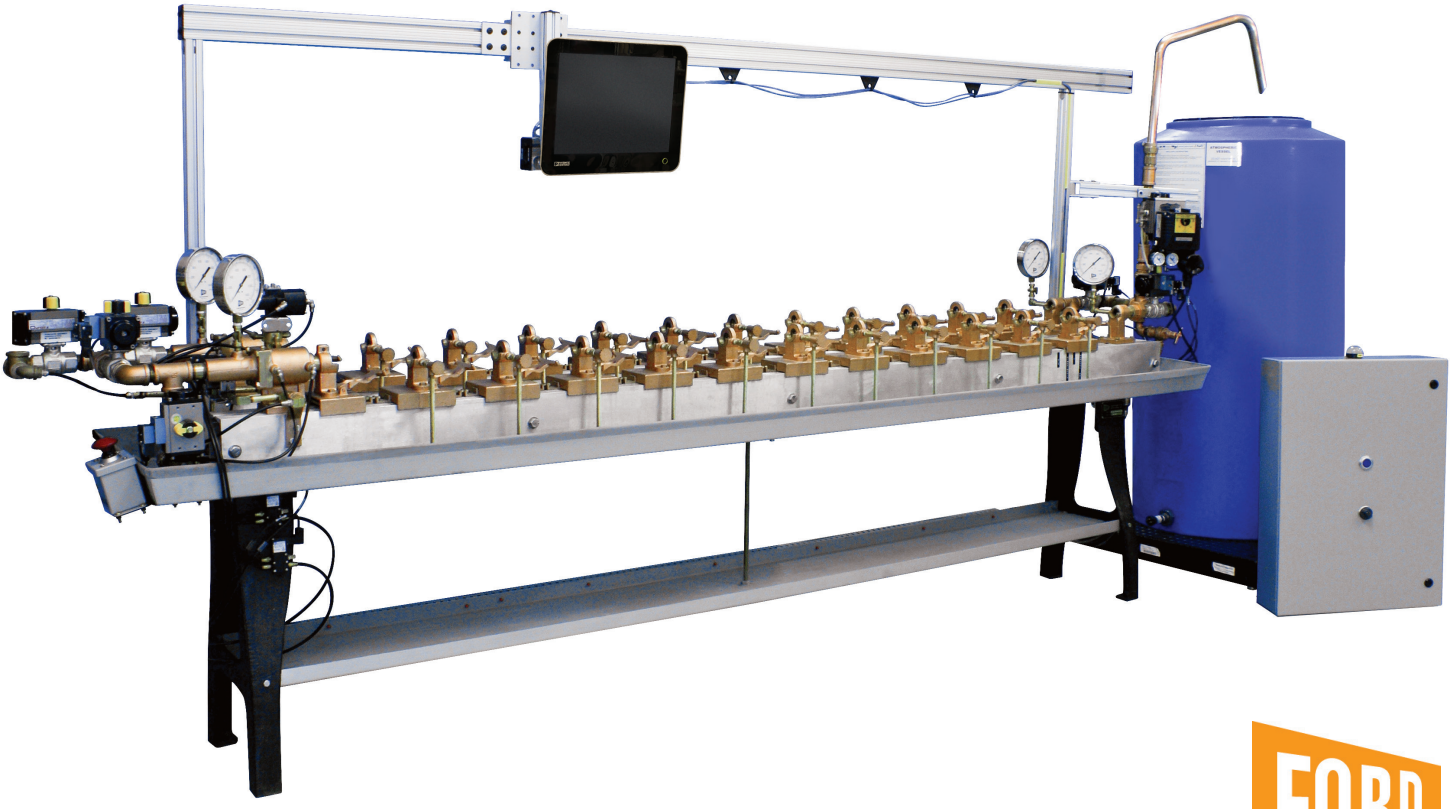
09/25/23

THE FORD METER BOX COMPANY, INC.
CERTIFIED TO ISO 9001:2015
10004466

Ford Meter Box® Test Bench Installation Instructions



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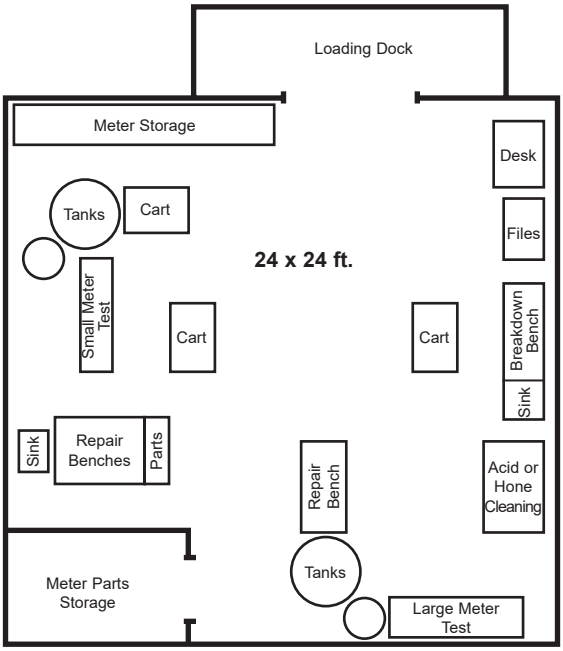


Figure 1 - Typical meter shop layout

1 – Bench Placement

1.1 [Fig. 1] illustrates the layout of a typical meter shop. Before setting the testing equipment, review this layout and select a location based on the following:

Note: The drain hole in the end of the pan should run to the tank sump or to a floor drain.

Note: An air chamber or expansion tank, as shown in [Fig. 2], just ahead of the inlet valve will reduce water hammer when large-flow tests are stopped quickly, preventing possible damage to meters or piping.

1.2. Uncrate and remove any packing tape from the test bench and calibrated tank and position them as desired. Unpack and sort all supplied adapters and equipment; check for damage. If any item is damaged in transit, notify the transportation company and The Ford Meter Box Company.

1.3. The bench should be installed on a level floor. As shown in [Fig. 3], the bench should be level through axis A-B. This will allow the slope on the pan to drain water to outlet (C). The tanks must be set so the water discharge from the bench (D) will empty into the tank.

Note: Provided adjustable feet allow for level adjustments

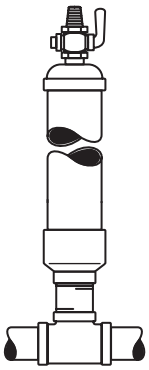


Figure 2 - Air Chamber

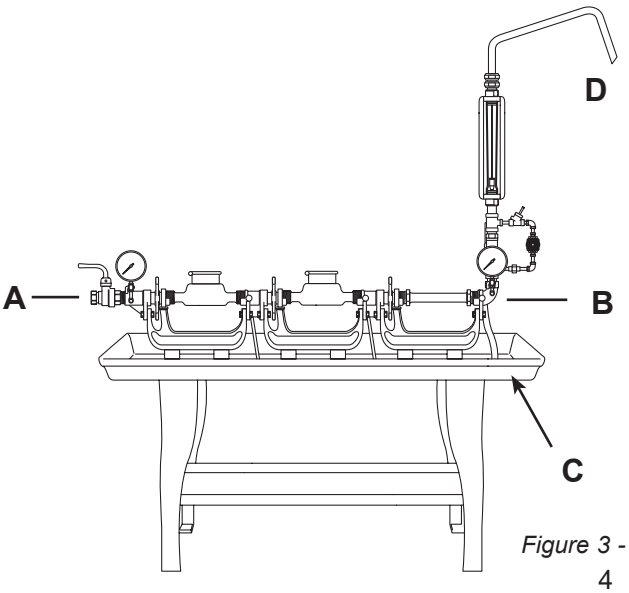


Figure 3 - Bench layout

Installation Instructions for Standard, Akron and Indianapolis Test Benches

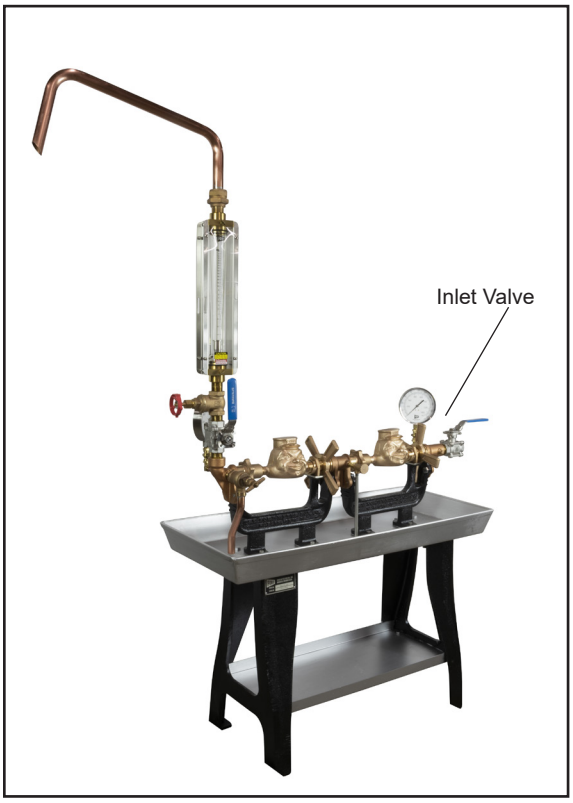


Figure 4 - Standard Test Bench

2 – Plumbing Connections

2.1 Connect water supply piping to the inlet valve of the bench when the bench and tank position are set [Fig. 4].

Note: The supply of water to the inlet of the bench should provide for large-flow tests, if required. Connect the testing equipment to a supply line at least one size larger than the inlet valve (example: 1-1/4" inlet pipe to 1" inlet valve).

Note: The Standard Bench and Indianapolis Bench have an inlet ball valve tapped for a 1" pipe connection. The center line of the inlet valve is 34-1/2" above floor level for the Standard Bench and 34" for the Indianapolis Bench.

Note: The Indianapolis Bench requires a water supply leading to the four-way, piston operated valve on the inlet clamping cylinder. This valve operates the inlet clamping cylinder that serves all testing stations. Connect the supplied 3/8" tubing with push connect fitting to water supply piping ahead of the inlet valve.

Note: The Akron Bench requires a water supply leading to the four-way, piston operated valve on the inlet clamping cylinder. This valve operates the inlet clamping cylinder that serves all testing stations. Connect the supplied 3/8" tubing with push connect fitting to water supply piping ahead of the inlet valve.

Installation Instructions for Standard, Akron and Indianapolis Test Benches

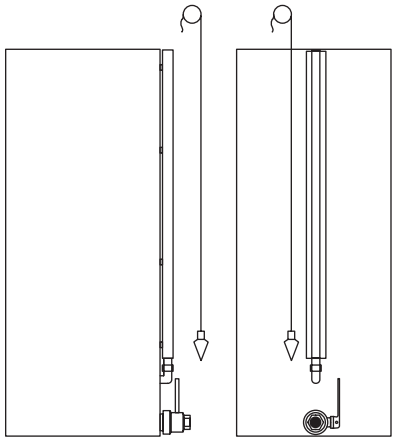


Figure 5 - Plumb tanks

Pictured above are the 10-gallon and 100-gallon tanks (10-GF-SS and 100-GF-SS), ordinarily used together, as are the 1-cubic foot and 10-cubic foot tanks (1-F-SS and 10-FG-SS). In nearly all cases two tanks are recommended, the smaller for low and intermediate tests and the larger for high-flow tests.

3 – Calibrated Tank Installation

3.1 If possible, mount the tanks on a substantial concrete floor, or ideally on a concrete pedestal about 10" in height. This additional height will place the water level at test-volume in a conveniently readable position. The layout should permit the operator to observe water draining from the tank valve and the water level in the tank sight gauge while operating the outlet flow control valve. [Fig. 6 & Fig. 7] (next page) illustrate top views of two suggested layouts.

3.2 Plumb with a plumb-line on the aluminum calibration strip. Plumb the tanks in two directions as shown in [Fig. 5]. Use the front and the side of the calibration strip for plumb points.

Note: Tanks are calibrated with O.E.M. drain valves. Alternate valve replacement may cause inaccurate test results.

Catalog Number	Nominal Size	Dia.	Height	Calibration Points	Size Discharge	Approx. Shipping Wt. Lbs.
1-F-SS	1 cu. ft.	7"	60"	1 & 1/2 cu. ft.	1"	105.0
* **10-GF-SS**	10 gal.	9"	60"	10 & 5 gal. - 1 cu. ft.	1"	120.0
* **100-GF-SS**	100 gal.	26"	60"	100 & 50 gal. - 10 cu. ft.	2"	240.0
* **50-F-SS**	50 cu. ft.	47"	72"	50 & 25 cu. ft.	3"	690.0
500-G-SS	500 gal.	54"	72"	500 & 250 gal.	3"	800.0
100-F-SS	100 cu. ft.	67"	72"	100 & 50 cu. ft.	3"	1230.0
1000-G-SS	1000 gal.	73"	78"	1000 & 500 gal.	3"	1600.0
1000-GF-SS	1000 gal.	73"	78"	1000 & 500 gal. - 100 cu. ft.	3"	1680.0
* **25-L-SS**	25 liters	7"	60"	**AS SPECIFIED BY PURCHASER**	1"	110.0
50-L-SS	50 liters	9"	60"		1"	117.0
150-L-SS	150 liters	16"	60"		1-1/2"	215.0
200-L-SS	200 liters	19"	60"		1-1/2"	275.0
* **400-L-SS**	400 liters	26"	60"		2"	375.0
* **500-L-SS**	500 liters	30"	60"		2"	420.0
600-L-SS	600 liters	32"	60"		2"	480.0
1000-L-SS	1 cu. meter	39"	72"		3"	505.0
2000-L-SS	2 cu. meters	54"	72"		3"	970.0
3000-L-SS	3 cu. meters	67"	72"		3"	1500.0
4000-L-SS	4 cu. meters	73"	78"		3"	1925.0
5000-L-SS	5 cu. meters	84"	78"		3"	2550.0

Stainless steel construction

* Available with dual sight glass gauges. Add “-DGGS” to end of part number

Installation Instructions for Standard, Akron and Indianapolis Test Benches

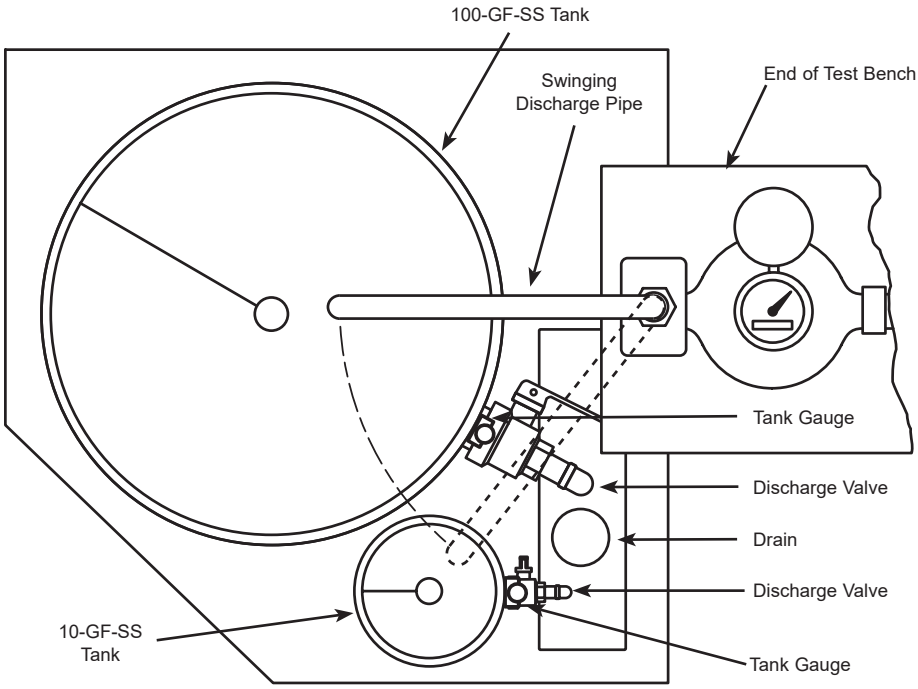


Figure 6 - Standard layout with sight gauges directly above drain valves

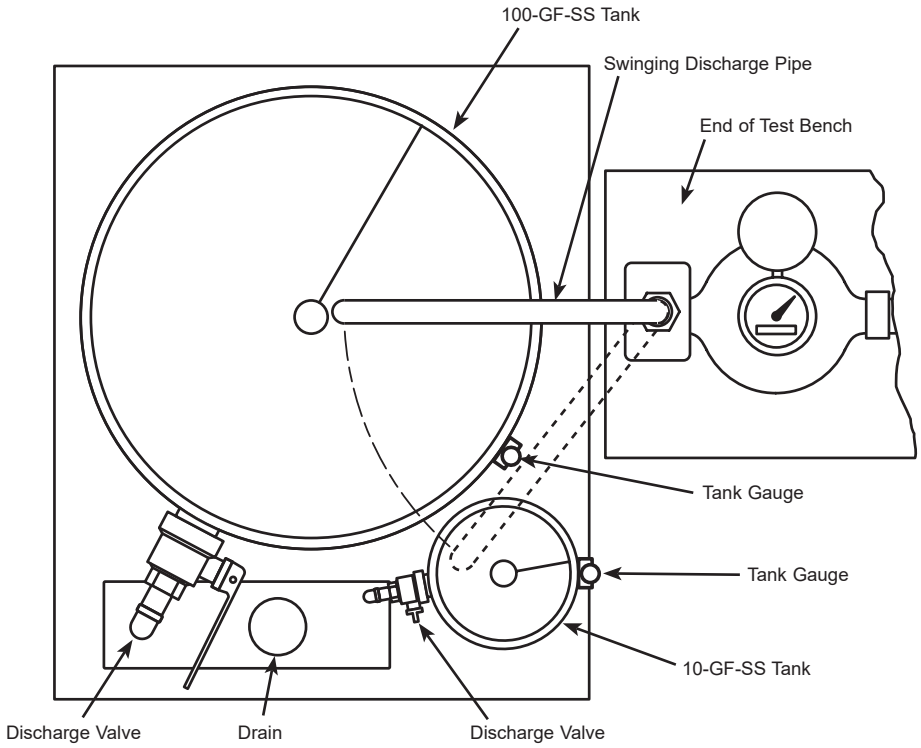
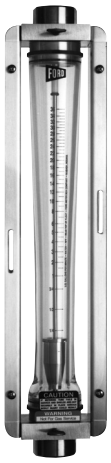


Figure 7 - Alternate layout with sight gauges rotated away from drain valves

Installation Instructions for Standard, Akron and Indianapolis Test Benches



Standard Testerate Indicator
for
Standard and Indianapolis
Test Benches

Catalog No. KTI

4a - Installing the Testerate Indicator – Standard and Indianapolis Benches

4a.1. Install the Testerate Indicator on the outlet of the bench in a vertical position, with the large end of the glass tube on top. See caution on the next page for Testerate Indicator operation.

Note: The Ford Testerate Indicator is a precision instrument and requires careful handling for best results. The glass tube will withstand a pressure of 150 lbs. per square inch; however, the glass is not guaranteed against breakage in service. The glass tube is surrounded by the Testerate Indicator frame and two clear plastic covers. Do not operate the unit without the covers. If the unit is damaged in transit, notify the transportation company and The Ford Meter Box Company. See Caution on next page.

Note: The indicator has a piece of flexible plastic inserted to keep the rotor from moving during shipment. To remove the plastic tubing, pull it from the upper (outlet) end of the indicator. After removing the plastic tubing, the indicator is ready for installation.

Note: The Testerate Indicator is tapped for 1" pipe at both ends. The piping should be secure and not subject to vibration.

4a.2. Connect the swinging discharge pipe to the indicator so the discharge flows into the calibration tank. [Fig. 8, next page] In order to prevent twisting the Testerate Indicator frame, use two wrenches to connect the swinging discharge pipe assembly. Hold one wrench on the brass fitting on the top of the indicator and use the other to tighten the swing discharge pipe assembly nut.

Installation Instructions for Standard, Akron and Indianapolis Test Benches

4a - Installing the Testerate Indicator – Standard and Indianapolis Benches (continued)

Important Information for Proper Operation of Testerate Indicator:

CAUTION: The Testerate Indicator is a delicate instrument and is easily damaged by abuse or improper use. One of the common ways to damage the Testerate Indicator is to have the blow-off valve closed when the inlet valve is opened. This compresses the air in the meters. If the outlet valve is then opened abruptly, the compressed air rushes through the Testerate Indicator causing violent movement of the rotor inside the glass gauge tube. This could cause damage to the indicator.

WARNING:

When operating the test bench, make sure the blow-off valve is open while opening the inlet valve. Do not close the blow-off valve until the system has purged itself of air. When testing begins, open the outlet valve slowly as some air will remain between the outlet valve and Testerate Indicator.

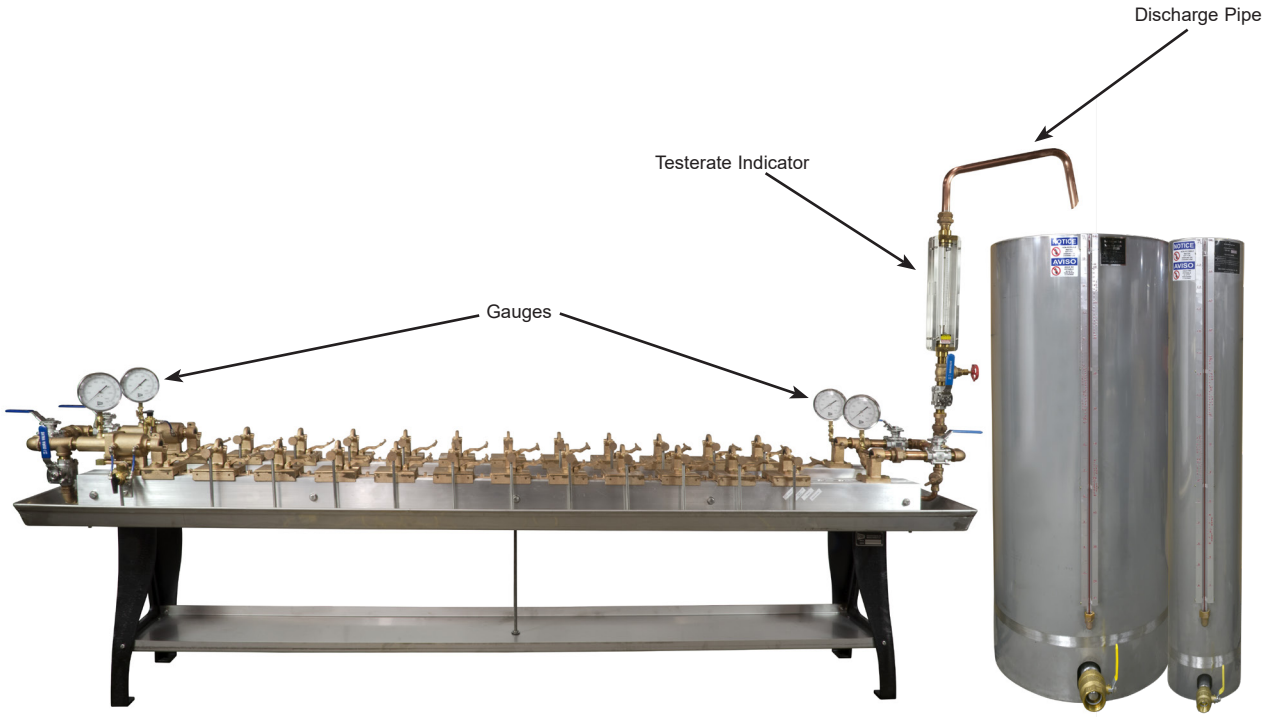


Figure 8 - Bench setup

Installation Instructions for Standard, Akron and Indianapolis Test Benches

4b - Installing the Digital Indicator Outlet (DIO) – Indianapolis and Akron Benches

4b.1. Install the DIO on the outlet of the bench in a vertical position.

Note: The part number for the DIO on an Indianapolis test bench is IDIO. The part number for the DIO on an Akron test bench is ADIO

4b.2. Connect the swinging discharge pipe to the DIO so the discharge flows into the calibration tank. Hold one wrench on the brass fitting on the top of the DIO and use the other to tighten the swing discharge pipe assembly nut.

4b.3. Connect provided 24v power cable to DIO and customer-supplied power source.

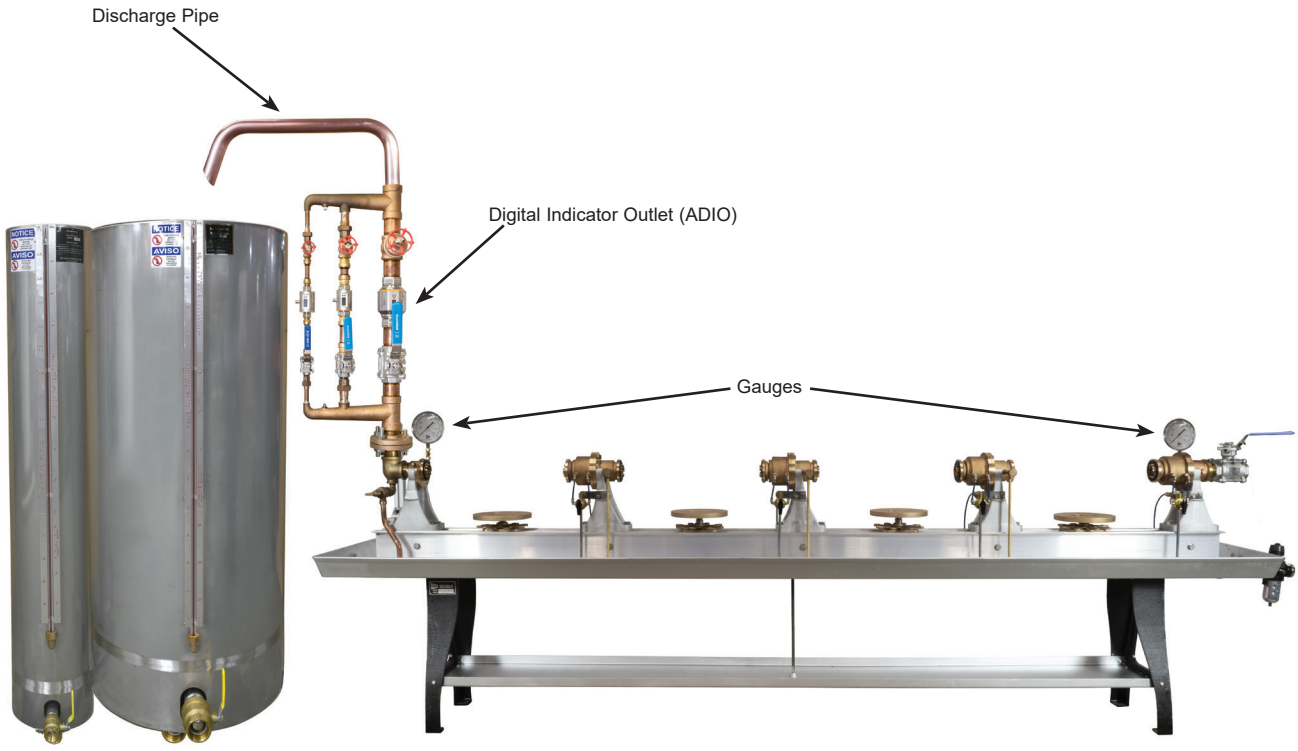


Figure 9 - Bench setup

Installation Instructions for Test Benches with Auto-Stop

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Installation Instructions for Test Benches with Auto-Stop

Figure 1 - Position control box

1 – Equipment Setup

1.1 Mount control box [Fig. 1] to wall or other convenient surface near the bench outlet.

1.2 Position outlet gasket on bench outlet.

1.3 Install Auto-Stop assembly [Fig. 2] on the bench outlet.

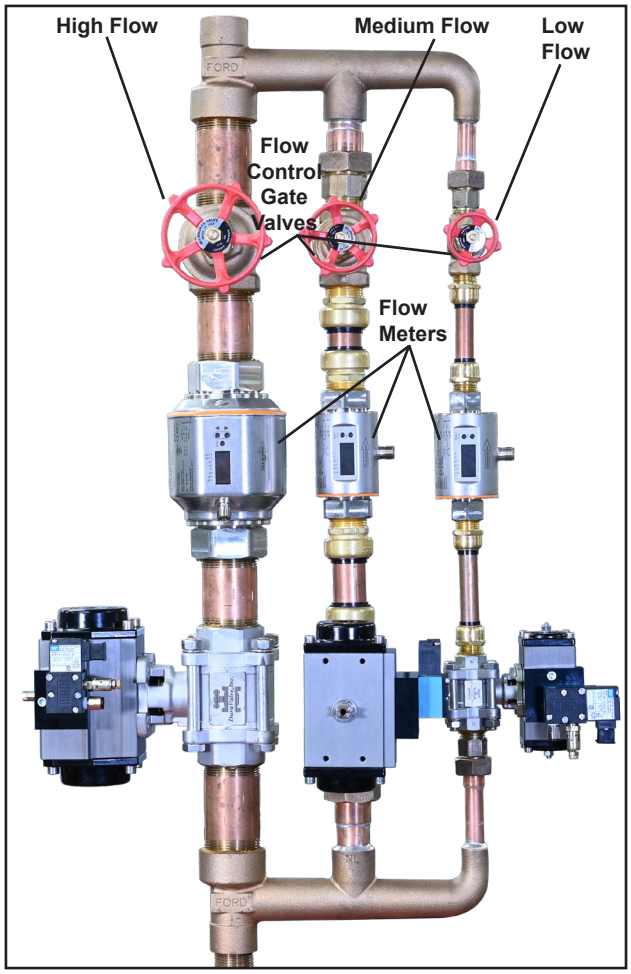

Figure 2 - Auto-Stop assembly

Installation Instructions for Test Benches with Auto-Stop

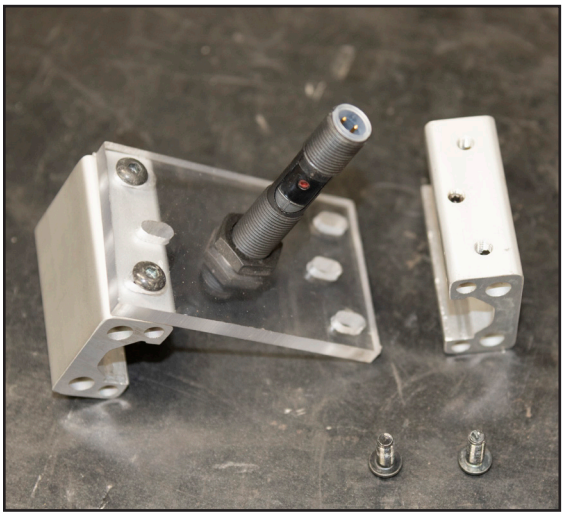

Figure 3 - Remove screws from one side of sensor bracket

1 – Equipment Setup (continued)

1.4 Secure Auto-Stop to bench outlet via flange.

1.5 Thread discharge pipe swivel into Auto-Stop assembly outlet.

1.6 Secure discharge pipe on discharge pipe swivel using swivel nut.

1.7 Remove screws from one side of sensor bracket [Fig. 3].

Installation Instructions for Test Benches with Auto-Stop

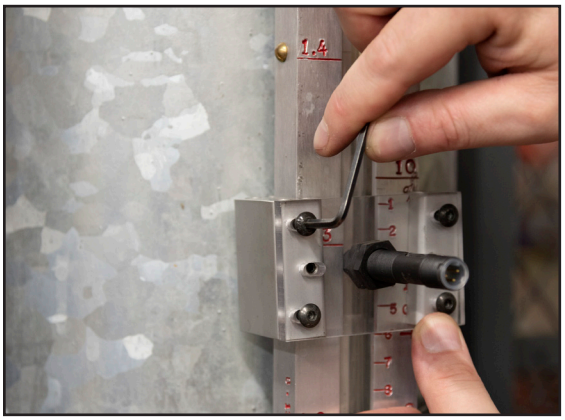

Figure 4 - Reinsert screws into sensor bracket

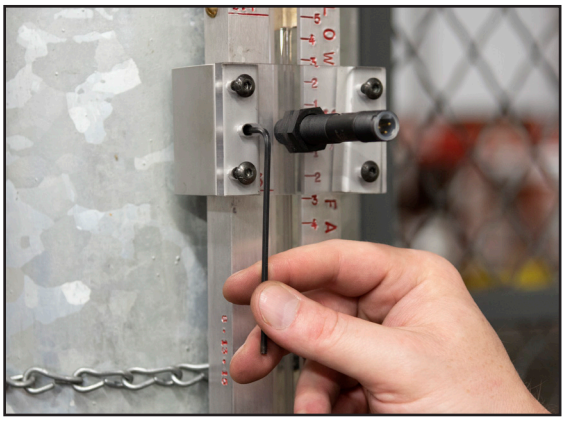

Figure 5 - Engage set screws

1 – Equipment Setup (continued)

1.8 Install sensor bracket over gauge strips on high flow tank.

1.9 Reinsert screws into sensor bracket [Fig. 4].

1.10 Position sensor bracket at desired level.

1.11 Engage set screws to secure bracket in place [Fig. 5].

1.12 Repeat steps 1.7-1.11 to install second sensor bracket on low and medium flow tank.

Note: If system only has one tank, the low and medium flow sensor will be mounted below the high flow sensor.

Installation Instructions for Test Benches with Auto-Stop

Figure 6 - Cable connections

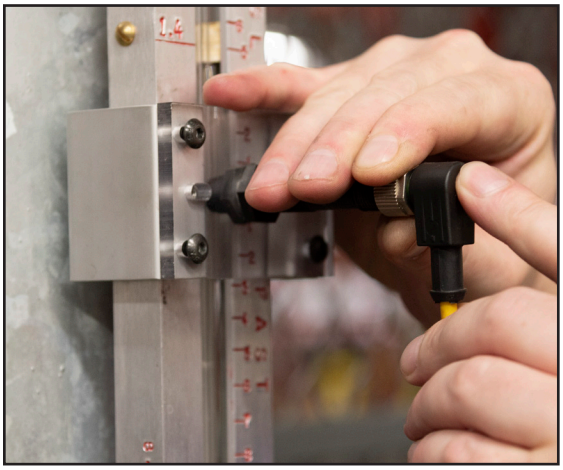

Figure 7 - Connect cable to sensor

2 – Electrical System Connections

2.1 Connect valve control cables to their respective connections on control box. Control box and all cables are clearly labeled for the valve they control ("LOW", "MED", and "HIGH") [Fig. 6].

2.2 Connect the right angle end of the “SENSE 1” M12 cable connector to the sensor [Fig. 7] with wire pointing down on high flow tank.

2.3 Connect the right angle end of the “SENSE 2” M12 cable connector to the sensor with wire pointing down on low and medium flow tank.

Note: If system only has one tank, low and medium flow sensor will be mounted below the high flow sensor.

2.4 Connect “SENSE 1” cable to control box [Fig. 6].

2.5 Connect “SENSE 2” cable to control box [Fig. 6].

2.6 Connect the pilot valve cable to “DRAIN” output on control box [Fig. 6], if equipped.

2.7 Connect provided cable to control box and customer supplied power source.

Installation Instructions for Test Benches with Auto-Stop

3 – Pneumatic System Connections

Using lengths of provided tubing, connect pneumatically operated components per Diagram 1, Diagram 2 or Diagram 3 based on system equipment.

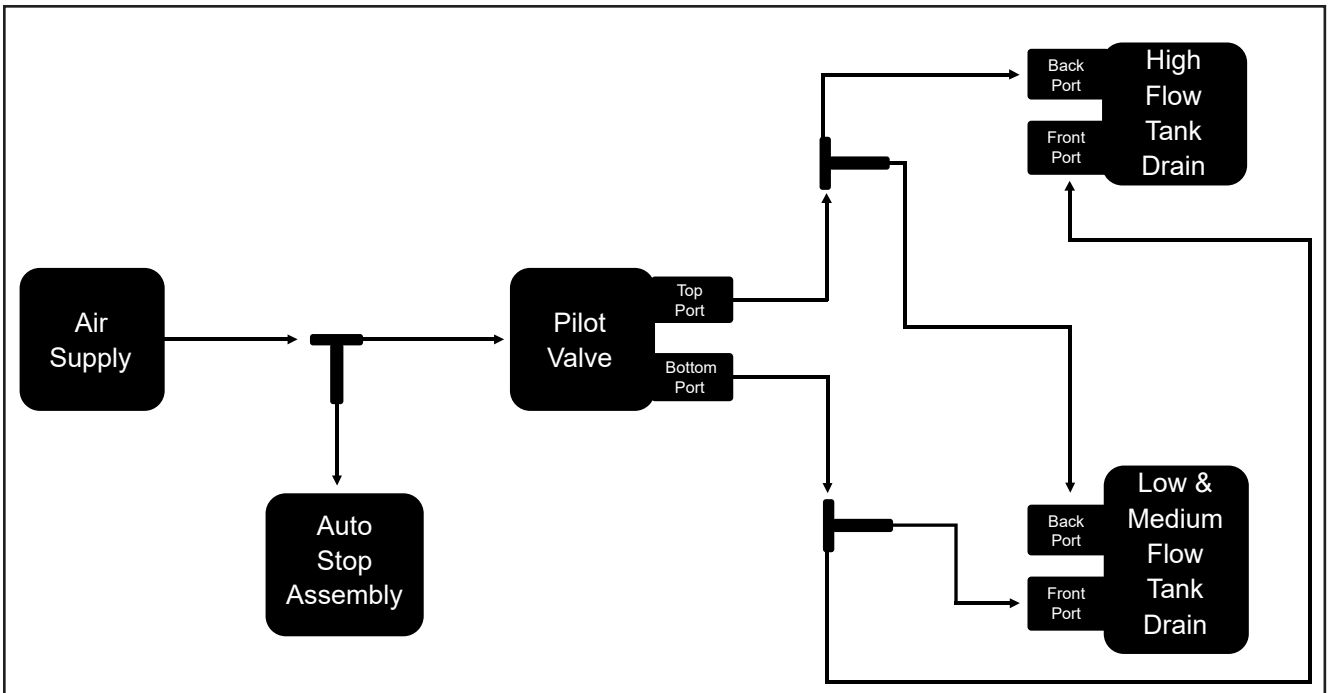

Diagram 1 - Auto Drain, Dual Tank

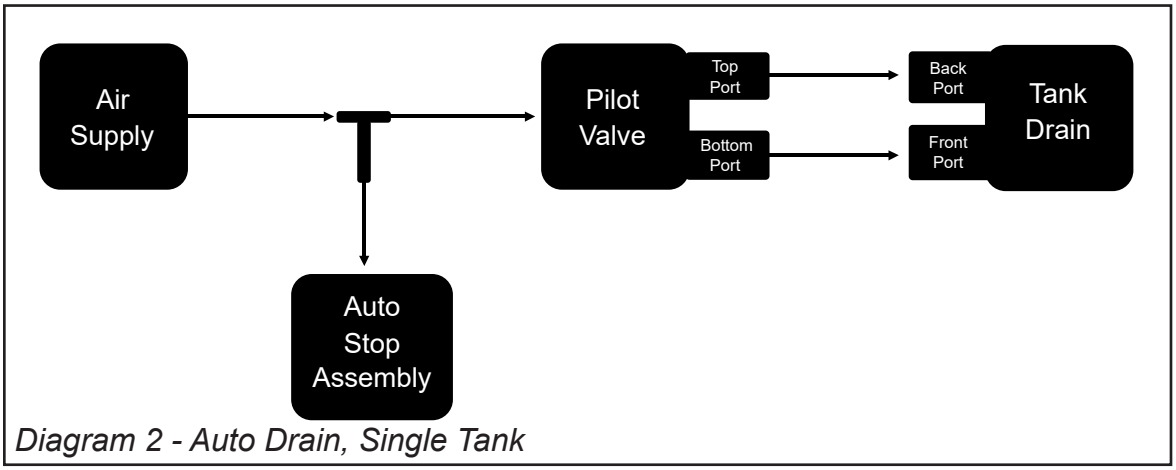

Diagram 2 - Auto Drain, Single Tank

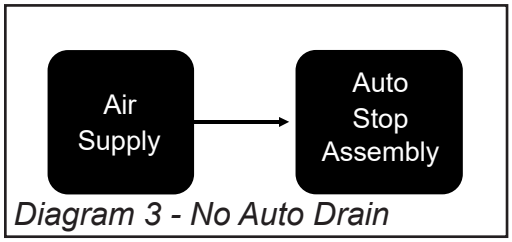

Diagram 3 - No Auto Drain

Installation Instructions for Test Benches with Auto-Stop

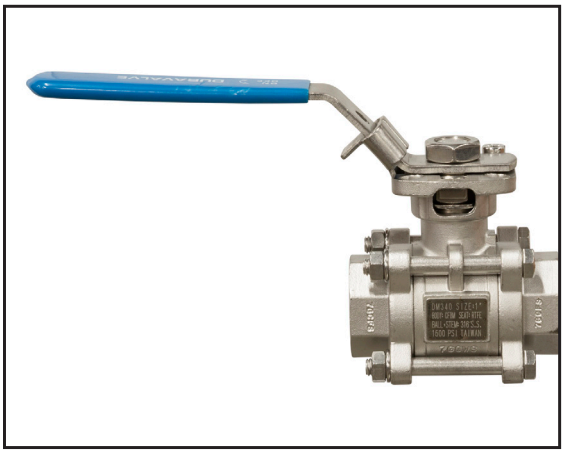

Figure 8 - Bench inlet valve

4 – Final Connections

4.1 Connect water supply to bench inlet valve [Fig. 8].

4.2 Connect the 15 amp 110 – 120 vac electrical plug [Fig. 9] to GFCI power outlet and reset GFCI breaker [Fig. 10].

Figure 9 - Connect electrical plug

Figure 10 - Reset GFCI breaker

Installation Instructions for Test Benches with Auto-Stop

Figure 11 - Main power control

5 – Sensor Calibration

5.1 Switch main power control to “ON” position [Fig. 11].

5.2 Sensor will illuminate either a green light [Fig. 12] or a green light and a yellow light [Fig. 13].

5.3a.1 If only the green light is illuminated [Fig. 12], rotate red potentiometer screw clockwise until yellow light activates [Fig. 13].

5.3a.2 Rotate red potentiometer screw counterclockwise until yellow light deactivates [Fig. 12].

5.3b.1 If both yellow and green lights are illuminated [Fig. 13], rotate red potentiometer screw counterclockwise until yellow light deactivates [Fig. 12].

Figure 12 - Green light illuminated

Figure 13 - Green and yellow lights illuminated

Installation Instructions for AMSII Test Benches

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Installation Instructions for AMSII Test Benches

Figure 1 - Install scale

1 – Scale Installation

1.1 Install scale platform [Fig. 1] in place so that the drain is located around the perimeter of the platform.

1.2. Adjust platform feet by turning the legs at each corner with a flat head screwdriver [Fig. 2] until scale is level and stable. Rotate legs clockwise to raise scale, counterclockwise to lower scale.

1.3. Use a level to ensure scale is installed correctly [Fig. 3].

1.4. Center tank on scale [Fig. 4] with outlet pointing toward the drain.

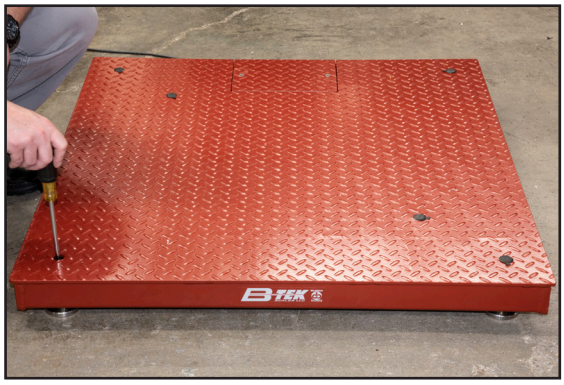

Figure 2 - Adjust feet

Figure 3 - Check installation

Figure 4 - Place tank on scale

Installation Instructions for AMSII Test Benches

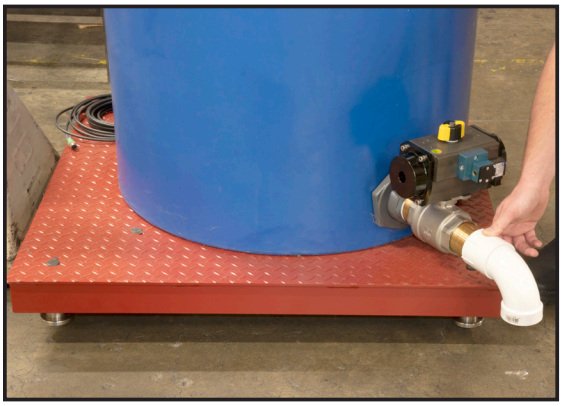

Figure 5 - Install elbow

2 – Tank Drain Installation

2.1. Install a 2" elbow (NOT supplied) on the outlet of the tank pointed down to the drain [Fig. 5].

Note: Ensure that the tank outlet has an air gap to the drain.

3 – Outlet Valve Installation

3.1. Install the outlet valve assembly by placing the supplied gasket on the outlet of bench, aligning flange and bolting them together.

Figure 6 - Outlet Valve Assembly

4 – Discharge Pipe Installation

4.1. Thread nipple into outlet valve assembly [Fig. 7].

4.2. Secure discharge pipe on nipple using swivel nut [Fig. 8].

Note: Do not over-tighten the swivel nut. It only needs ½ turn more than hand-tight to make an effective seal.

Figure 7 - Install nipple

Figure 8 - Discharge pipe swivel nut

Installation Instructions for AMSII Test Benches

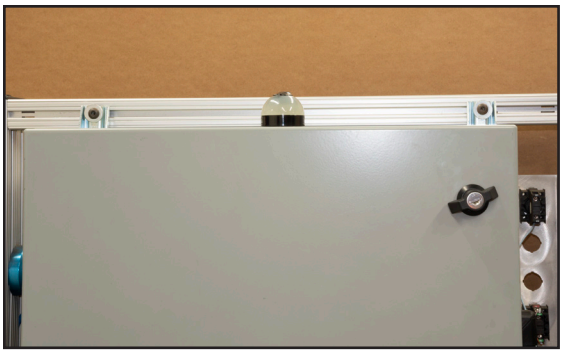

Figure 9 - Installing enclosure

5 – Electrical Enclosure Installation

5.1. The electrical enclosure mounts with a bolt at each corner [Fig. 9].

6 – Display Installation

6.1. Install sliding anchors [Fig. 10] onto display mount.

6.2. Place display mount on the rail provided.

6.3. Secure mount to rail by tightening anchors using Allen wrench [Fig. 11].

Note: Technician will deliver computer/display upon installation.

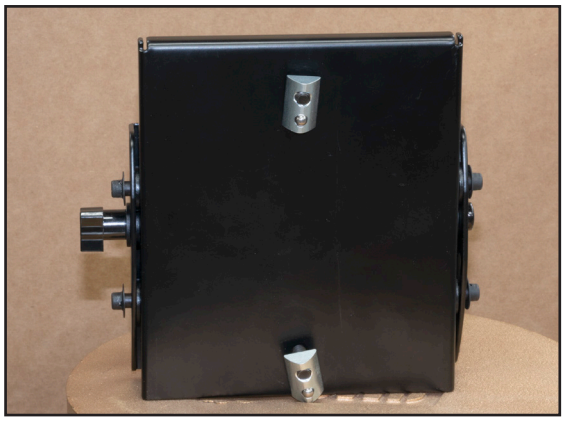

Figure 10 - Install sliding anchors

7 – Pneumatic Connection

7.1. Connect air supply tube [Fig. 12].

Note: A compressed air source providing a minimum of 80 psi is required for optimal operation. [An air tank of at least 100 gallons is recommended.]

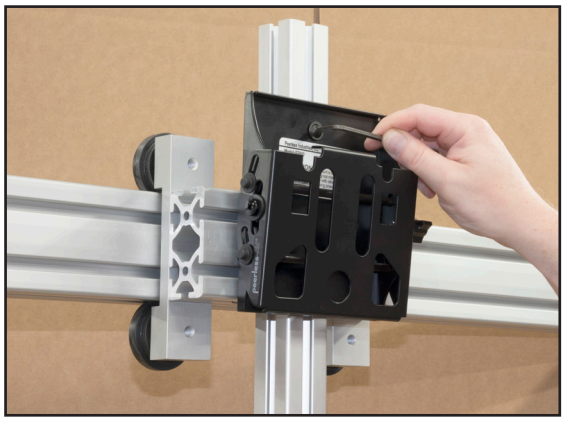

Figure 11 - Secure mount to rail

Figure 12 - Air supply

Installation Instructions for AMSII Test Benches

Figure 13 - Blue waterline

8 – Hydraulic Connection

8.1. Install the blue water hose into the waterline [Fig. 13].

Note: Pushing the hose into the fitting will lock it in place.

Note: A water supply with a minimum pressure of 50 psi and a maximum of 150 psi is required to operate the bench at optimal capacity.

9 – Inlet Water Supply

9.1. Inlet hose/plumbing (NOT supplied) should be plumbed to inlet [Fig. 14].

Note: Water supply to bench inlet should provide for large-flow tests, if required. Connect the testing equipment to a supply line at least one size larger than the inlet valve (example: 2-1/2" inlet pipe to 2" valve).

Figure 14 - Provided valve, female iron pipe thread

10 – Control Cables

10.1. All cables are labeled [Fig. 15] and plug into corresponding name on control box by lining up the pins then turning clockwise till hand-tight.

Figure 15 - Cable

Figure 16 - GFCI plug

Figure 17 - Reset breaker

11 – Electrical Connection

11.1. Connect the 15 amp 110 – 120 vac electrical plug [Fig. 16] to a GFCI power outlet and reset GFCI breaker [Fig. 17].

Ford Meter Box® Test Bench Installation Instructions

Warranty

All merchandise is warranted to be free from defects in material and factory workmanship for one year from date of shipment from our factory. We will provide, free of charge, new products in equal quantities for any that prove defective within one year from date of shipment from our factory. Manufacturer shall not be liable for any loss, damage, or injury, direct or consequential, arising out of the use of or the inability to use the product. Before using, user shall determine the suitability of the product for user's intended use and user assumes all risk and liability whatever in connection therewith. No claims for labor or consequential damage will be allowed. The foregoing may not be changed except by agreement signed by an officer of the manufacturer.

No other warranties are applicable or may be implied, including the implied warranty of merchantability and the implied warranty of fitness for particular purpose and any warranty relating to infringement or the like, all of which are disclaimed.

Please Note:
Consult the Ford Meter Box Company, Inc. website (www.fordmeterbox.com) for the most recent catalog information. The Ford Meter Box Company considers the information in this catalog to be correct at the time of publication. Items and option availability, including specifications, are subject to change without notice. Please verify that your product information is current.

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