



AMS Test Bench

09/2013

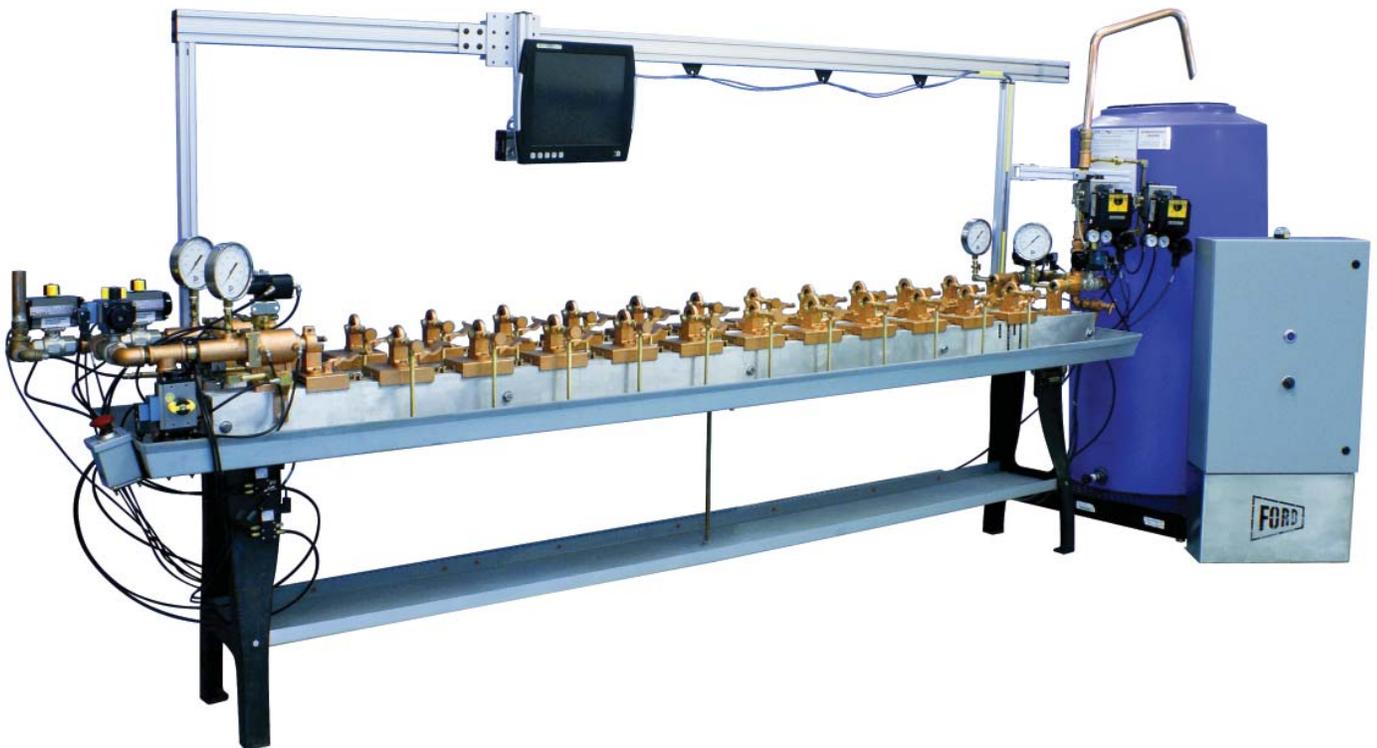


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Ford AMS Test Bench Operating Instructions



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Ford AMS Operating Instructions

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Ford AMS Operating Instructions



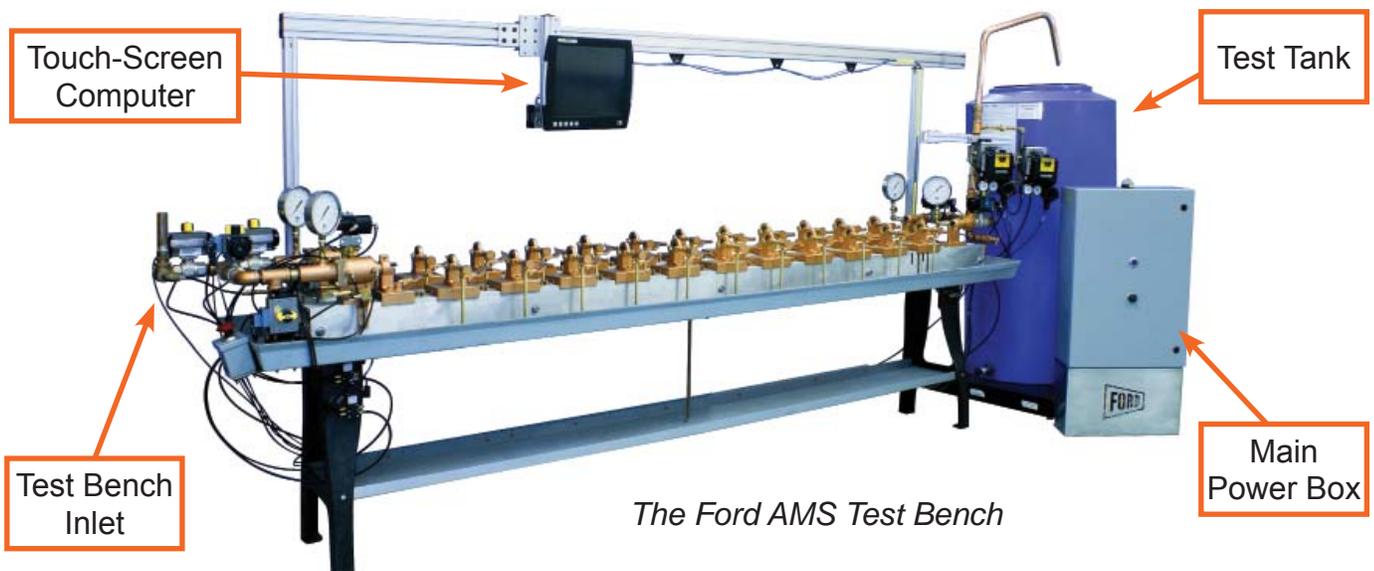
The Ford Meter Box Company would like to congratulate you on the purchase of the Ford Automated Measuring System. Being on the cutting edge of meter-testing technology is a priority for Ford. Another priority of Ford is to produce some of the best quality products on the market. With the AMS, you will have the best of both worlds. Some of the benefits of the AMS include:

- Accurate test results
- Waterproof touch-screen PC provides easy interface and step-by-step instructions
- Run pre-programmed or customized tests
- Test high, medium and low flows
- Single or double row test bench available
- Ability to easily interface meter test data with your computer network
- Perform tests without constant supervision
- Security device provides a secure internet connection with Ford Meter Box
- Optional remote operation (not supplied by Ford)

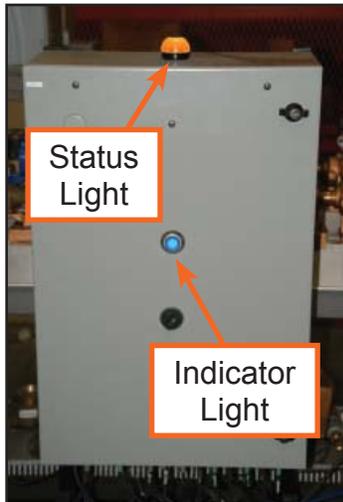
The AMS combines the trusted method of weighing metered water with computer automation to ensure accurate measurements. Weighing metered water eliminates possible problems that can occur with the use of optical, mechanical or volume measuring devices. The AMS computer compensates for the weight of the tank as well as water temperature. Calculating these factors ensures that the Ford AMS test bench is the most accurate water meter test system on the market today.

This guide is designed to provide an understanding of the AMS test bench operation.

Ford meter testing equipment is hand-built and calibrated in the U.S.A. It is important to adhere to the following instructions to ensure an accurate and long life for the AMS. After reading the instructions, please direct all questions to The Ford Meter Box Company or an authorized Ford distributor.



Ford AMS Operating Instructions



Front of main power box

1 – Startup

1.1 Initiate Main Power

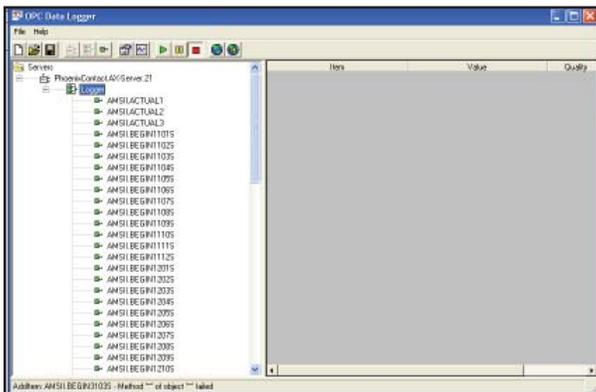
Turn main power switch clockwise to enable startup. The blue power indicator light will illuminate when the main power is on. A red status light will also illuminate during the daily startup.



Main computer - power button

1.2 Computer Power

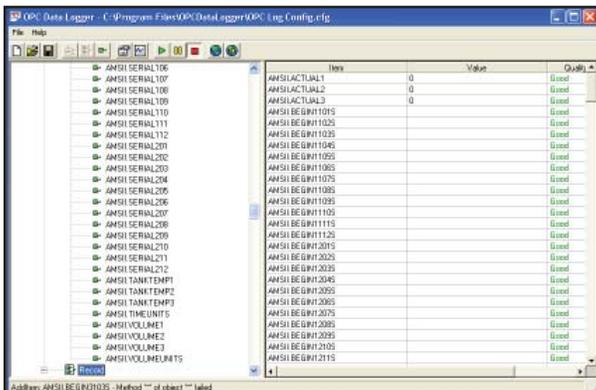
Select the power button on the bottom left corner of the AMS computer. A green power indicator light will illuminate to indicate the computer is on.



While loading

1.3 Boot Up

The computer will first load the OPC Server and the OPC Data Logger screen. This process may take several minutes for the memory tags to link. After the OPC menu is displayed, minimize window. The main AMS home screen will be displayed when the bench is ready for meter testing.



Finished loading



Main menu

Ford AMS Operating Instructions

2 – Meter Installation



Install meter adapters and gaskets

2.1 Meter Installation

The following is a brief overview on how to install a water meter in the Ford Test Bench. For detailed instructions, see the Ford Water Meter Test Manual available for download from our website.

2.2 Setup Meter Test Stations

Insert adapters and gaskets for the size of meter to be tested in each station. Note: All meters must be the same size during a test sequence.



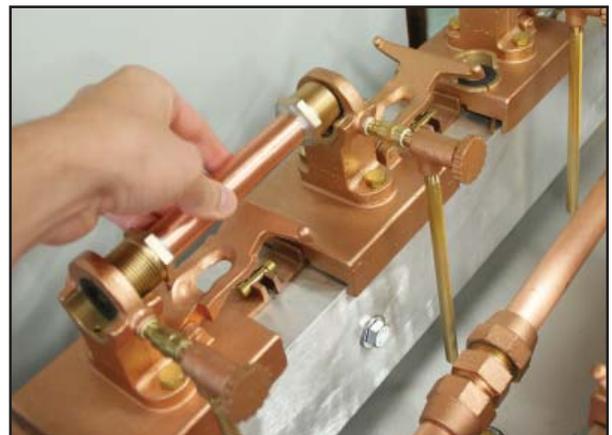
Install water meter (automatically)

2.3 Install Meter in Saddle

Install meters in each station ensuring proper flow direction with the bench. If bench is not equipped with automatic clamping mechanisms, manually clamp meters at time of installation. When testing fewer meters than the full capacity of the bench, insert test spools in the remaining stations.



Install water meter (manually)



Insert test spools in empty stations

Ford AMS Operating Instructions

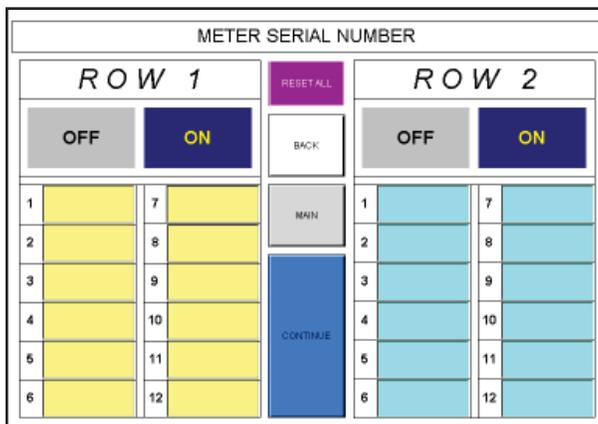
3 – Pre-Programmed Test



Tap anywhere on the logo to start

3.1 Begin Test

Touch the Ford logo on-screen to begin the test process.

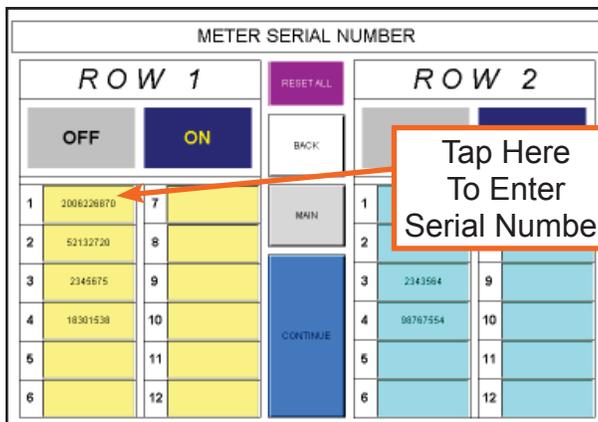


Select row(s) to be tested

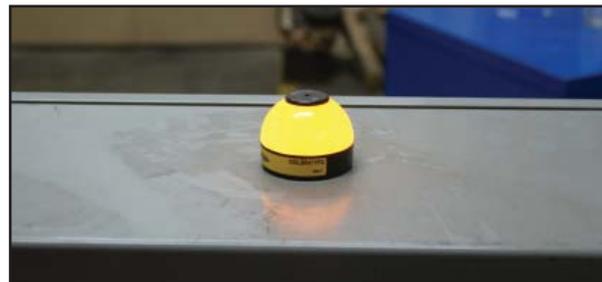
3.2 Select Row(s)

Select "ON" for each row(s) you wish to be tested. The selected rows (Indianapolis bench only) will automatically clamp the meters in place. The warning buzzer will sound, informing the user to keep hands clear. Additionally, the light on the electrical enclosure will turn yellow indicating caution.

Note: Row 1 is front row while Row 2 refers to the back row.



Select row(s) to be tested



Yellow caution light

Ford AMS Operating Instructions

3 – Pre-Programmed Test (continued)



Read bar code on meters



3.3 Record Serial Numbers (Optional)

Serial numbers are not required for testing; however, final meter accuracies will display on the Pass/Fail feature if serial numbers are entered.

Manual entry of the meter I.D. number is performed by pressing the station number of the meter location. An on-screen keypad can be used by selecting the “ABC” button located on the front panel of the computer.

The included bar code reader can also be used for recording the meter I.D. Select the station number of the meter location and scan the bar code of the meter.

Note: Any combination of keypad or bar code meter I.D. entry can be performed.

After entering desired serial numbers, press “CONTINUE” to move to the next step.

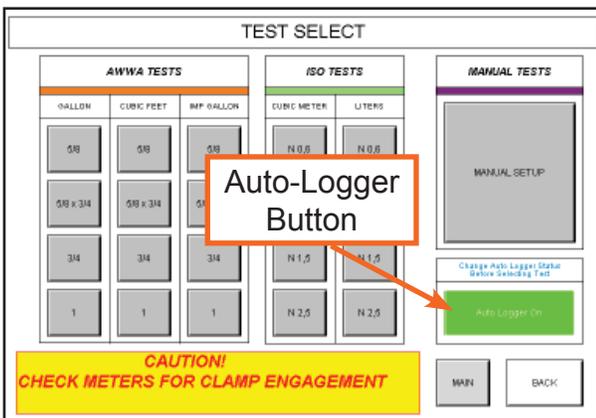
3.4 Inspect Security of Meters

Double check to ensure all meters and test spools are securely clamped in place. Close all bleeder valves and the blow-off valve

3.5 Select Test to Run

Although the AMS easily allows for custom tests, the standard AWWA and ISO tests are pre-programmed for ease of use. To run standard AWWA & ISO tests, select the combination of meter size and units of measurement that best suits the needs of the test.

The AMS has an Auto-Logger feature that automatically saves meter test data to a designated folder on the hard drive. The Auto-Logger may be activated or disabled by selecting the on-screen “Auto-Logger” button.



Select pre-programmed AWWA or ISO test

3.6 Check Meter Clamp

Ensure that all meters are securely clamped in place. For non-automated clamping benches, be sure to clamp all meters in place according to the manufacturer’s directions.

Ford AMS Operating Instructions

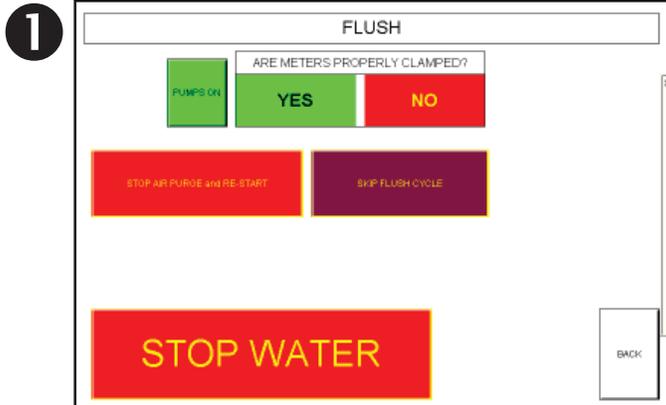
3 – Pre-Programmed Test (continued)

3.7 Perform Test Bench Air Purge Cycle

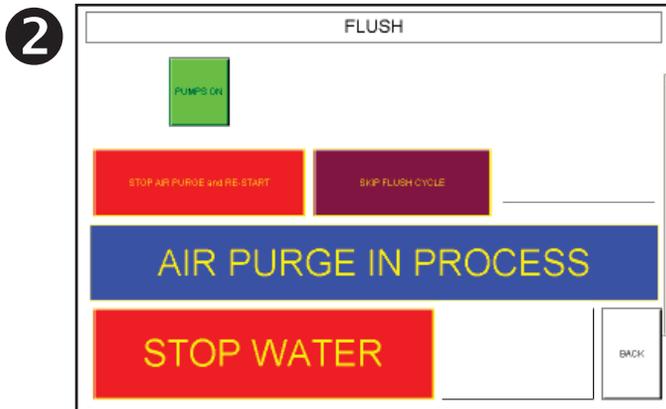
1. Once meters are securely clamped in place, select “YES” to begin the air purge cycle. If meters are insecurely clamped, select “NO” and be returned to the “Meter Serial Numbers” screen.

2. Air purge cycle will complete in approx. 90 seconds.

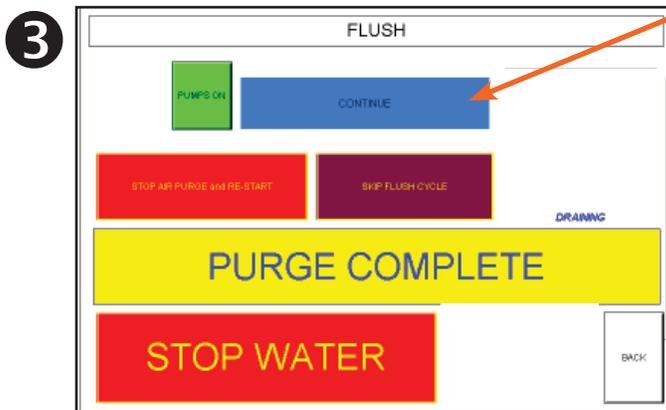
3. Press “CONTINUE” when the button appears on screen.



Meters secure? Press “YES” or “NO”



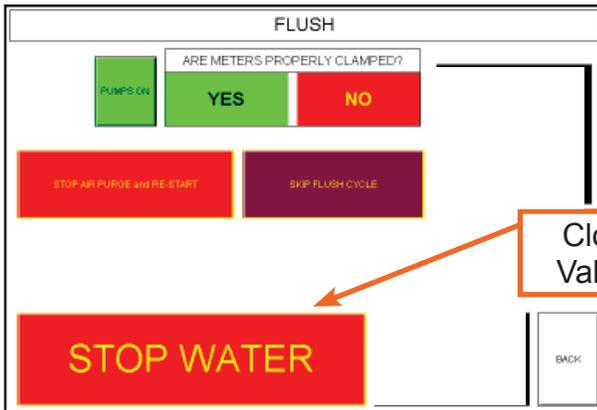
Flush cycle in progress



Flush cycle complete

Ford AMS Operating Instructions

3 – Pre-Programmed Test (continued)



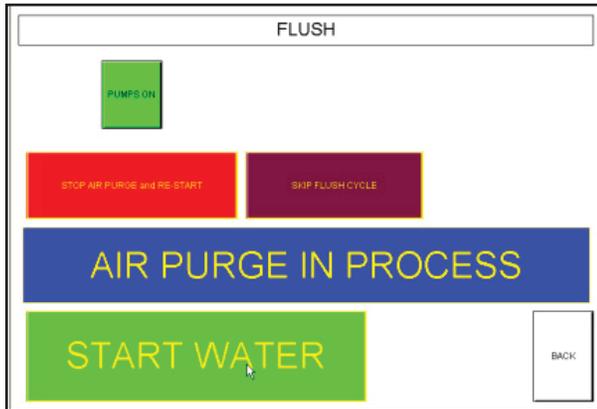
Stop purge

Close
Valves

3.8 Interrupt Air Purge Cycle

The air purge cycle may be stopped for any reason by selecting the “STOP WATER” button and restarted by pressing the green button labeled “START WATER.”

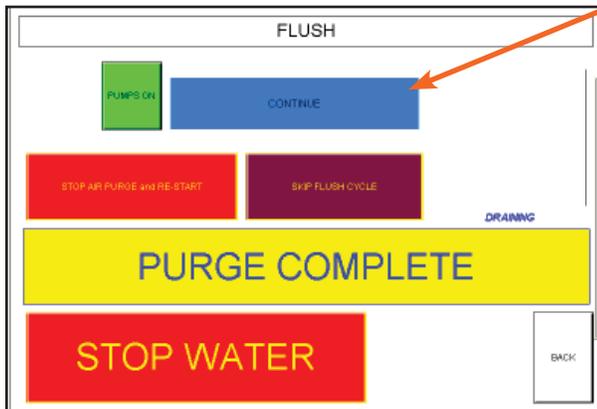
If the meter clamp requires releasing for meter change or other reasons, select the “STOP PURGE AND RESTART” on-screen button. The water will stop flowing and an information screen will appear until the timer has completed its cycle, the main screen will appear after the cycle completes allowing release of the meters.



*Press “START WATER” to proceed with
air purge*

3.9 Complete Air Purge Cycle

After air purge cycle completes, the AMS is ready to begin testing meters. Press “CONTINUE” to proceed to next step.

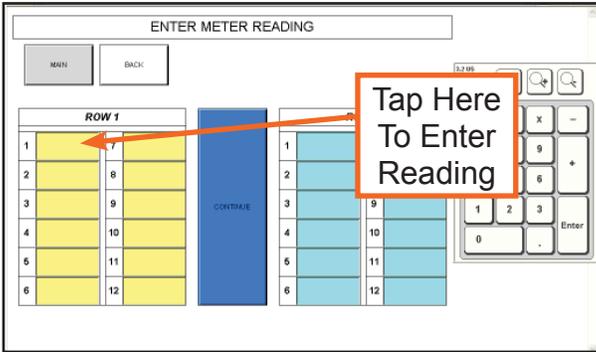


Press “CONTINUE” to complete flush

Continue

Ford AMS Operating Instructions

3 – Pre-Programmed Test (continued)



Using touch screen keypad to enter meter readings

3.10 Begin Meter Readings

Enter meter readings by selecting the station number of the meter location. (Enter by selecting the on-screen keypad button (“ABC”) located at the bottom left of the computer.)

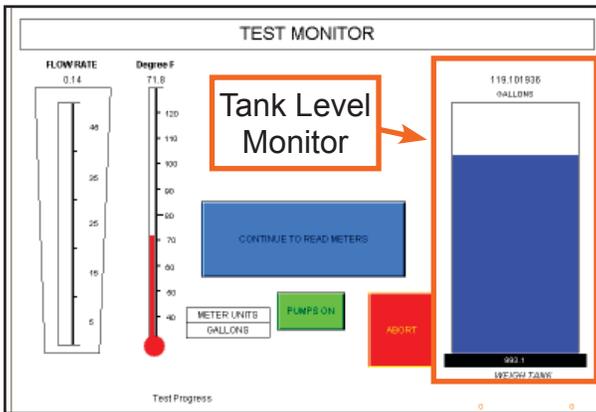
Press “CONTINUE” when complete.



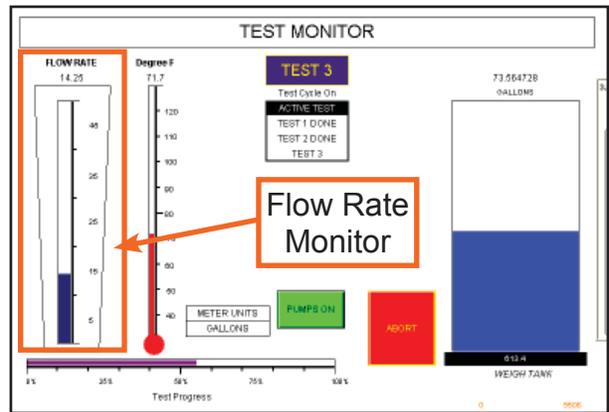
3.11 Test Monitor Screen

The Test Monitor screen appears when a test is running. When the test completes the indicator light on top of the electrical enclosure will illuminate blue indicating that attention is required. A blue “CONTINUE TO READ METERS” button will also display on the screen.

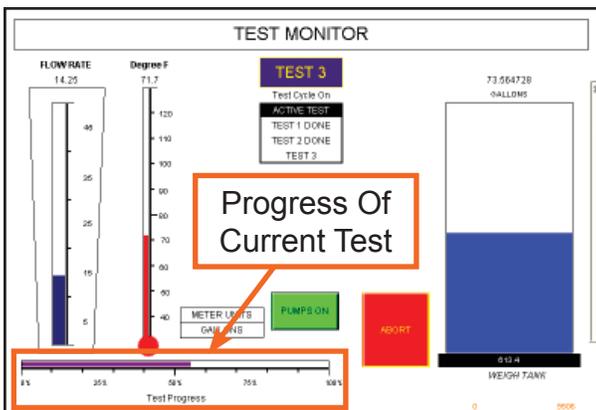
Press the on screen “CONTINUE TO READ METERS” button when test has completed.



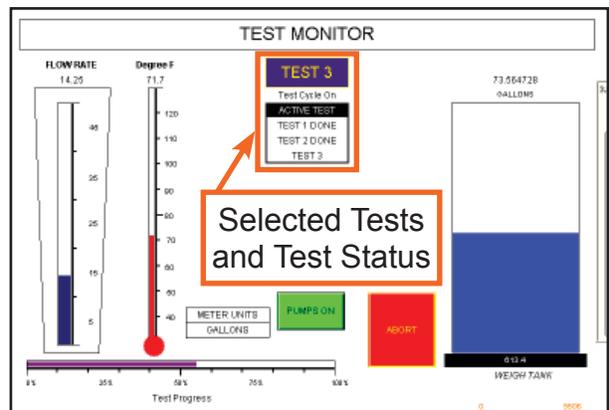
Tank monitor



Flow rate monitor



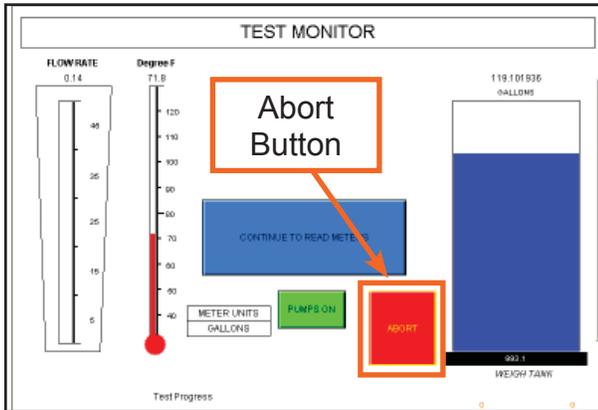
Test progress



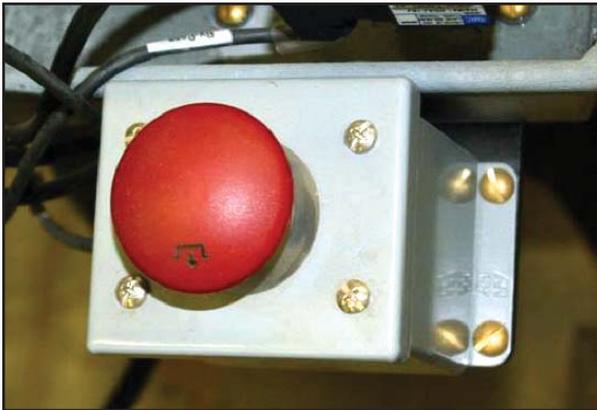
Current test

Ford AMS Operating Instructions

3 – Pre-Programmed Test (continued)



Abort button



Emergency stop



Blue end of test light

3.12 Abort Test

There are two different ways to stop a test:

- On-screen "ABORT" button
- Red mushroom button on the inlet of the bench

If a test needs stopped, select either of the two options listed above.

Note: Not for normal operations. This is used to stop all tests quickly or to release the meter. All current test data and test setup information will be lost.

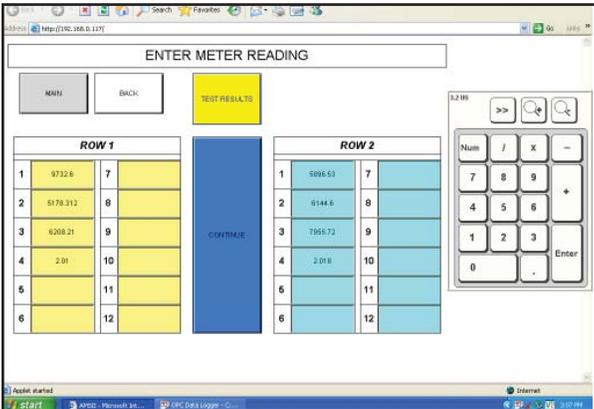
Since the abort process is interrupting the internal program flow, a complete shut down of the AMS controller is needed to reset all of the internal bits in the logic controller.

3.13 End of Test

At the end of each test, the status light will turn blue (indicating attention is needed). Press continue to move on to the next step.

Ford AMS Operating Instructions

3 – Pre-Programmed Test (continued)



Enter meter reading

3.14 Enter Ending Meter Reading

Enter ending meter readings by selecting the station number of the meter location. (Enter by selecting the on-screen keypad button located at the bottom left of the computer.)

Press “CONTINUE” to advance to the next test or “TEST RESULTS” to observe the results of the completed tests.



“ABC” Button

3.15 View Results

Test results may be viewed after the ending meter readings have been entered for each individual test by selecting the on-screen “TEST RESULTS” button. Note: After the last test selected to run (1 to 3 sequential tests) the “TEST RESULTS” button and “CONTINUE” Button form the same function advancing to the Results page.

Forced data collection can be accomplished by pressing the on screen “STORE DATA” button.

TEST RESULTS											
VIEW ROW 1						VIEW ROW 2					
ROW 1						ROW 2					
1	87.3 %	7	0.0 %	8	0.0 %	1	83.8 %	7	0.0 %	8	0.0 %
2	97.9 %	8	0.0 %	9	0.0 %	2	97.3 %	8	0.0 %	9	0.0 %
3	97.8 %	9	0.0 %	10	0.0 %	3	91.3 %	9	0.0 %	10	0.0 %
4	100.3 %	10	0.0 %	11	0.0 %	4	100.7 %	10	0.0 %	11	0.0 %
5	0.0 %	11	0.0 %	12	0.0 %	5	0.0 %	11	0.0 %	12	0.0 %
6	0.0 %	12	0.0 %			6	0.0 %	12	0.0 %		

Store Data Button

Test results

Ford AMS Operating Instructions

3 – Pre-Programmed Test (continued)

TEST RESULTS											
VIEW ROW 1						VIEW ROW 2					
ROW 1						ROW 2					
1	87.3 %	7	0.0 %	TEST 1 RESULTS		1	83.8 %	7	0.0 %	TEST 2 RESULTS	
2	97.9 %	8	0.0 %	TEST 2 RESULTS		2	97.3 %	8	0.0 %	TEST 3 RESULTS	
3	97.8 %	9	0.0 %	TEST 3 RESULTS		3	91.3 %	9	0.0 %	CONTINUE	
4	100.3 %	10	0.0 %			4	100.7 %	10	0.0 %		
5	0.0 %	11	0.0 %			5	0.0 %	11	0.0 %		
6	0.0 %	12	0.0 %			6	0.0 %	12	0.0 %		

Test results

3.16 Review Test Results

The Test Results screen allows viewing results of each individual test by pressing the on-screen button (“TEST 1 RESULTS”, etc.) for the test to view. Selecting one of the choices will display the results for that test in the sequence. “TEST 1 RESULTS” is the default test that appears when the screen is first opened.

View all test results for a row by pressing the on-screen “VIEW ROW 1” or “VIEW ROW 2” buttons. The “VIEW ROW” buttons will display a table with the test data displayed for the row selected. Pressing the on-screen table will return you to the Results page. Meters outside the min/max limits entered in the setup will display slow meters with a yellow background and fast meters with a red background. The pass/fail background is not active if meter I.D. (serial numbers) numbers were not entered, however the test results are displayed with a plain white background even if outside the limits.

ROW 2											
I.D. Number	Test 1			Test 2			Test 3				
	Temperature Deg. F 87.9			Temperature Deg. F 89.9			Temperature Deg. F 71.9				
	2.00419 GALLONS			10.04719 GALLONS			100.73402 GALLONS				
	0.250 GALLONS	MINUTE	%	2.000 GALLONS	MINUTE	%	15.00 GALLONS	MINUTE	%		
1	2006220878	5894.85	5896.53	83.8	5896.53	5906.48	99.0	5906.48	6007.32	100.1	
2	190909556	6142.55	6144.6	97.3	6144.6	6154.81	101.5	6154.81	6255.02	99.5	
3	2343594	7953.59	7955.72	91.3	7955.72	7955.9	101.3	7955.9	8056.56	99.9	
4	99767554	0.00	2.019	100.7	2.019	12.27	100.0	12.27	112.21	99.3	
5				0.0			0.0			0.0	
6				0.0			0.0			0.0	
7				0.0			0.0			0.0	
8				0.0			0.0			0.0	
9				0.0			0.0			0.0	
10				0.0			0.0			0.0	
11				0.0			0.0			0.0	
12				0.0			0.0			0.0	

Test results table

Each time a meter fails the Pass/Fail test, the color will display yellow (slow) or red (fast). When the meter passes the test, the color will remain white.

TEST RESULTS											
VIEW ROW 1						VIEW ROW 2					
ROW 1						ROW 2					
1	100.8 %	7	0.0 %	TEST 1 RESULTS		1	100.1 %	7	0.0 %	TEST 2 RESULTS	
2	101.0 %	8	0.0 %	TEST 2 RESULTS		2	99.5 %	8	0.0 %	TEST 3 RESULTS	
3	99.8 %	9	0.0 %	TEST 3 RESULTS		3	99.9 %	9	0.0 %	CONTINUE	
4	99.4 %	10	0.0 %			4	99.3 %	10	0.0 %		
5	0.0 %	11	0.0 %			5	0.0 %	11	0.0 %		
6	0.0 %	12	0.0 %			6	0.0 %	12	0.0 %		

3.17 Test Completion

After each test, select “CONTINUE” to move to next test. After the queue is exhausted, the screen will give the option of a “RE-TEST” or a “NEW TEST.”

If finished with the test, select the “NEW TEST” button to return to the main screen. If not satisfied with a test result, the “RE-TEST” button can be used to test the meters again.

Re-test Button

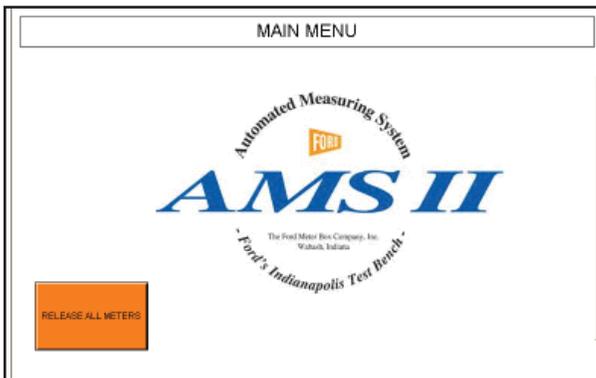
New Test Button

Ford AMS Operating Instructions

3 – Pre-Programmed Test (continued)

3.18 Repeat Steps

The AMS will automatically advance to the next test in the queue (max. 3 tests), move the ending reading from the test just completed to the beginning reading of the next test, tare the scale, adjust the flow rate and reset the valves. After the last test in the queue is completed the controller will advance to the results screen when the “CONTINUE TO READ METERS” button is pressed.



Release all meters

3.19 End Test by Releasing All Meters

Select “RELEASE ALL METERS” at the end of test. For the Indianapolis Bench the meters will automatically release.

3.20 Vent Bench

For non-automated clamping systems select the on-screen “RELEASE ALL METERS” button to vent any residual pressure in the system before releasing meters.

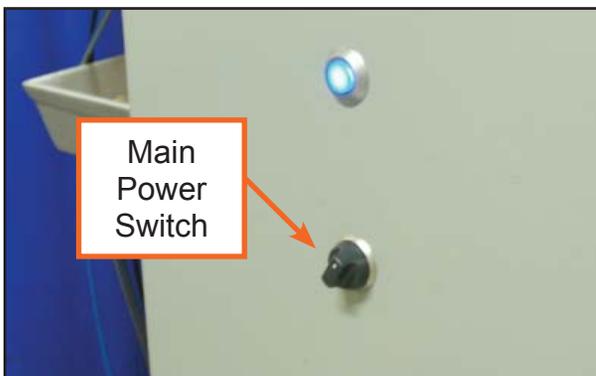


Main computer - power button

3.21 Shutdown Procedure

When finished testing for the day, close the AMS window on-screen. After all programs are closed, press the power button at the lower left of the screen.

Once the computer is turned off, proceed to turn switch counter-clockwise on the electrical enclosure to shut off power to the AMS.



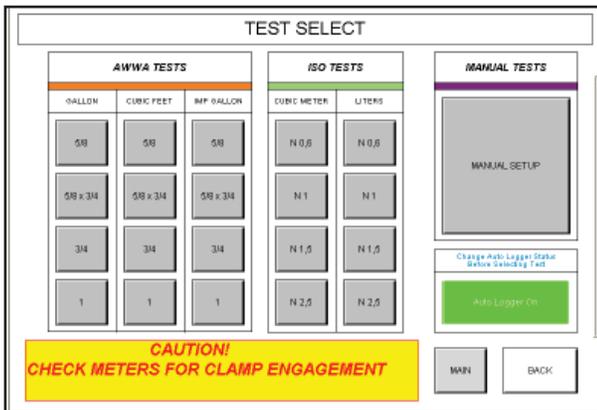
Main power switch

Ford AMS Operating Instructions

4 – Manual Test

4.1 Follow Instructions for Running Pre-Programmed Meter Test

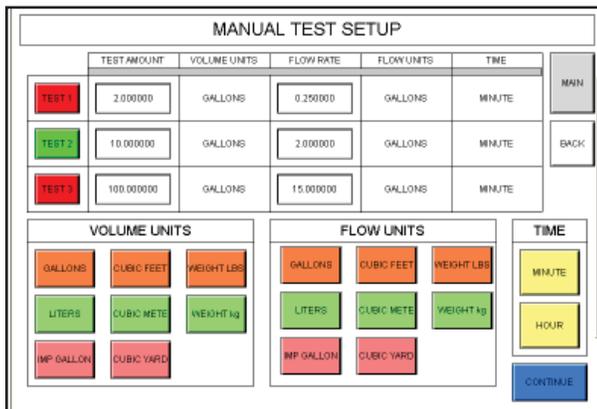
Follow the instructions for running a pre-programmed meter test up to the Test Select Screen.



Test select

4.2 Select Manual Setup

Select “MANUAL SETUP” on the Test Select screen.



Manual test setup

4.3 Set Options for Manual Test

Select the tests to be run (“TEST 1”, “TEST 2”, “TEST 3”). Buttons highlighted in green are scheduled to test. Buttons highlighted in red are not scheduled to test.

Using the touch screen keypad, enter the amount to be tested and select the units. Using the touch screen keypad, enter the flow rate to be tested and select the corresponding units.

Select “CONTINUE.”

4.4 Run Test

Refer back to Running a Pre-Programmed Test (Section 3) for further instructions.

AMS Test Bench

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Warranty

All merchandise is warranted to be free from defects in material and factory workmanship. 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 his 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.

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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