



OPERATION AND MAINTENANCE MANUAL

LONG TERM STATIC TEST SYSTEM

2013

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A	DRAWING LIST:	
	Drawing A-1307B Fill & Test Instructions	
	Drawing A-1703 Long Term Test Schematic	
	Drawing B-1241E Static Electrical Schematic	
B	MANUFACTURER'S LITERATURE:	
	Ashcroft Test Gauge	
	G.E. Ground Fault Circuit Breaker	
	Bladder Type Accumulator	
	MaxPro Air/Water Pump	
	Norgren Air Regulator/Filter	
	Nupro Relief Valve	
	Redington Counters	
	Power Supply	
	Swagelok Tube Fittings	
	Tescom Pressure Regulator - Series 26-1000	

The purpose of this manual is to supplement, **BUT NOT TO REPLACE** the services of qualified personnel to start up and adjust this equipment.

Persons without previous experience with this equipment should not attempt the initial adjustment and check-out procedures required until a qualified operator considers the installation ready for use.

Each cabinet carries an individual serial number on the nameplate mounted on the cabinet. Please refer to this number when ordering replacement parts or when requesting any further information.

A copy of the complete bill of material applicable to each cabinet along with a wiring and plumbing diagram are shipped with each piece of equipment.

SAFETY PRECAUTIONS

This manual contains important information that **ALL** users should know and understand before using the equipment

This information relates to **USER SAFETY** and **PREVENTING EQUIPMENT PROBLEMS**.

To help you recognize this information, we use the following terms to draw your attention to certain equipment labels and portions of this manual.

Please pay special attention to any label or information that is highlighted by one of these terms:

===== WARNING =====

or

===== CAUTION =====

Important information that tells how to **PREVENT DAMAGE** to equipment, and or how to avoid a situation that may cause **PERSONAL** injury.

===== NOTE =====

Information that you should pay special attention to whenever you are using or operating this equipment.

3.0

SET UP

3.1 Remove the shipping crate and packing material carefully from the TEST EQUIPMENT. Do not discard the packing material until all the items on the packing list items have been accounted for.

3.2 Use a forklift to remove the Test Equipment from the shipping pallet and position the cabinet in the desired location and level the cabinet. Be sure to allow adequate floor space for maintenance.

NOTE

Testing Area requires floor drains.

When transferring the Tester from the shipping pallet or from location to location, use moving blankets between the cabinet and the moving machinery and follow accepted practices to avoid damage to the equipment.

4.0

DESCRIPTION

The Hydrostatic Testing System is designed to perform long term hydrostatic testing on plastic pipe specimens in accordance with the latest ASTM D1598 standards and any similar specifications by exposing the specimens to a constant internal pressure in a controlled environment.

The hydrostatic testing cabinet has one or more manifold(s) and test stations. See the plumbing schematic for details about this cabinet's assembly.

A pressure regulator and gauge for each of the manifolds permits multiple manifold systems to perform tests at different pressure levels from a common pressure supply.

The individual test stations are equipped with an On-Off indicator light, On-Off switch, Time recorder, Differential pressure switch, station On-Off valve, and Station orifice valve.

The differential pressure switch provides automatic individual station shut off when the flow exceeds the metering valve set point due to leakage or failure.

The shut off valve permits independent test station shut off.

The test system can be used with racks, tanks, temperature-controlled baths or chambers, etc. depending upon the testing requirements.

See the Control Console Assembly Drawing

5.1 Main Power and Red Power Light - The main circuit breaker (GFCI) controls all of the electrical power to the test cabinet and the red power light indicates a power on condition. Item # 10 and 9.

5.2 Manifold Pressure Regulator (3) - Provides pressure regulation to the individual manifold for testing at the required pressure independent of the other manifolds.

5.3 Station On-Off Switch (8) - Controls the electrical power to the time recorder and pressure switch at each individual test station. This switch shuts down the power to it's individual timer, pressure switch, and light.

5.4 Station On-Off Valve (4) - Hand valve provides independent station shutoff without affecting the other test stations on the manifold. This permits selected shutdown of the individual stations for specimen changing or shut off of the unused individual test stations.

5.5 Station Orifice Valve (5) - The station orifice valve permits filling the test specimen and determines the sensitivity for leak detection.

5.6 Differential Pressure Switch - Senses a pressure difference between the set point and specimen pressure. Turns off the station light and timer should the pressure inside the specimen drop more than 10 to 15 psi. This switch is field adjustable. Please consult the FACTORY to determine if a different setting is required.

5.7 Station Indicating (Pilot) Light (7) - Indicates that the pressure on the specimen is above the pressure switch setting and that the time recorder is running. When the indicating light is out, the flow limiter has activated and the pressure has fallen below the pressure switch trip pressure.

5.8 Station Time Recorder (6) - Records the elapsed time of the test. Decimal point will flash to indicate time recorder is running. Unlock and push the reset button in (located on the time recorder) to reset the station time to zero.

5.9 System On-Off Valve (18) - Controls (On-Off operation) the high pressure water supply from the accumulator to all station Pressure Regulators.

5.10 Static Pressure Test Gauge (2) - Displays manifold static pressure.

6.0

INSTALLATION

6.2 Install the individual station hoses between the Hydrostatic Test cabinet and the test stand, oven, or bath as determined by the equipment requirements for the test being performed.

6.3 Connect the electrical power cables to the customer's 120 VAC, 60 Hz, 1Ph. Grounded electrical supply with disconnect switch in accordance with NEC and accepted wiring practices.

6.4 Provide air, water, and drainage hook-ups to the test equipment as required.

7.0

OPERATION

(Refer to Control Console Drawing)

7.1 Close the static pressure regulator, then open the system on-off valve to allow pressure from the accumulator to flow to the static pressure regulator.

=====NOTE=====

ON EACH MANIFOLD

7.2 Before pressurizing the manifold, close each of the station's on-off valves (CW) and the station's orifice valves (CW) on the manifold.

7.3 Adjust the manifold static pressure regulator to the required test pressure.

=====NOTE=====

ON EACH TEST STATION

7.4 Reset station time recorder to zero and turn on the station on-off switch.

7.5 Install a capped specimen in the test station with a purge valve in the specimen end cap. Then, open the purge valve located on the specimen to bleed the air from the specimen and line.

=====NOTE=====

To save time bleeding a specimen, it may be desirable to fill the specimen with water prior to installation in the test station.

7.6 Open (CCW) the station on-off valve and open (CCW) the station orifice valve to the full open position. =====DO NOT FORCE.=====

7.7 When all of the air has been bled out of the specimen and the line, close the specimen purge valve. Leave the station on- off valve fully open (CCW) and set the test pressure with the regulator.

7.8 Close the station orifice valve (CW). The station time recorder light is lit and the time recorder is running. (Reset the time recorder to zero by pushing

the reset button located on the unit if necessary). The test is now in progress. Repeat the above procedure for each station and continue to the next manifold until all test stations are testing their specimen.

7.9 Check the test stations daily, or more often if needed, and shut off the individual station shut off valve (CW) for the stations whose specimens have either failed or successfully completed the time requirements of your test. Record test data for the specimens completing the test.

7.10 A new specimen can be installed in a test station without interrupting the other specimen tests on the manifold by the following steps:

- A. To install a fresh specimen in the test station and to reduce the volume required to fill and purge the specimen. Prefill the specimen with the testing fluid, when possible.
- B. Open the purge valve on the specimen.
- C. Turn the station orifice valve (CW) to full closed position.
- D. Open the station on-off valve (CCW) just enough to slowly fill and bleed the new specimen without causing an excessive pressure drop in the manifold.
- E. When the air is bled off of the new specimen, close the purge valve on the test specimen.
- F. Reset the station time recorder.
- G. Fully open (CCW) the station on-off valve.

The test is now in progress on the new specimen.

=====CAUTION=====

Extreme care must be taken when changing a specimen being tested in a heated test bath. Burns or scalding could result by not wearing protective clothing and following established safety procedures.

7.16 When shutting down the test system, bleed off all pressure. If the tester will be stored in an area with below freezing temperatures, the tester must be completely drained.

All lines must be blown out with air for complete drainage.

SEE SECTION 9.0 PREPARATION FOR MOVING AND STORAGE

8.0 MAINTENANCE

8.1 To check the station's operation:

- 1) Install a needle valve in place of the specimen.
- 2) Follow the system operating instructions.
- 3) Operate the needle valve to simulate a failure.

=====CAUTION=====

Extreme care must be taken when testing the station operation when used with a heated test bath. Burns or scalding could result by not wearing protective clothing and following established safety procedures.

8.2 If it is necessary to re-adjust the pressure switches, contact the factory. Also refer to the manufacturer's literature.

8.3 TEST the Ground Fault Circuit Breaker by pushing the red "PUSH TO TEST" and insure proper disconnect status. Keep a record of these tests.

8.4 Check the system yearly for signs of wear, corrosion, leaks of air or water. This service is available from HGI. please contact the factory for current rates and service contract availability.

8.5 Lubrication of the regulator bearing needs to be performed every 6-9 months. To perform this maintenance: Turn the plug valve that allows pressure to the regulator off. Remove the 1/2" nut holding the black knob. Disconnect from regulator: drain hose, pressure in and out. Remove the two panel bolts holding the regulator and remove the regulator from the panel. Remove the black clamping ring. Unscrew the top of the regulator (where the ring was attached). Remove the components from the section of regulator that the drain fitting is located. Grease the bearing and reverse the procedure to install.

8.6 Refer to the individual components manufacturer's bulletins for additional recommended maintenance procedures.

9.0 SYSTEM DRAINAGE

To Prevent Sediment Build Up, Freezing or Moving.

A. ALWAYS SHUT OFF AND DISCONNECT THE AIR SUPPLY AND ELECTRICAL SUPPLY.

- B. SHUT OFF AND DISCONNECT THE WATER SUPPLY.
- C. BLEED OFF THE PRESSURE.
- D. CLOSE THE HIGH PRESSURE SHUT OFF VALVE ON THE PUMP SUPPLY.
- E. DISCONNECT THE TEST EQUIPMENT FROM PRESSURE SUPPLY SYSTEM.
- F. CONNECT AN AIR SUPPLY TO THE HIGH PRESSURE WATER SUPPLY PORT
- G. OPEN THE REGULATORS (CW).
- H. TURN ON THE AIR SUPPLY AND BLOW THE WATER AT EACH STATION INDIVIDUALLY BY OPENING THE STATION VALVE AND ORIFICE VALVE. CLOSE THE STATION VALVE AND MOVE ON TO THE NEXT STATION.
- I. REMOVE THE WATER FILTER ELEMENT AND DRAIN THE CANISTER.
- J. DRAIN AND BLOW OUT WITH AIR ANY OTHER WATER LINES NOT COVERED DURING THE ABOVE PROCEDURES.

10.0 =====CAUTIONS=====

- 10.1 Properly shield specimens to prevent flying debris in the event of a specimen shattering.
- 10.2 Shut off electrical power and bleed off the pressure before servicing the test system.
- 10.3 Specimen's end cap rating must be sufficient for the test pressures, temperature and the specimen.
- 10.4 Exercise extreme caution when working with heated test baths to prevent personal injury.
- 10.5 Never pressurize a specimen without bleeding out the trapped air. Use purge valve on specimen end caps (one end).
- 10.6 Shut off electrical power prior to servicing any internal components.
- 10.7 Completely drain the hydrostatic pressure tester before placing the equipment in a storage area where the system would be subjected to freezing temperatures. All lines must be blown out with compressed air for complete drainage of system.

=====CAUTION=====

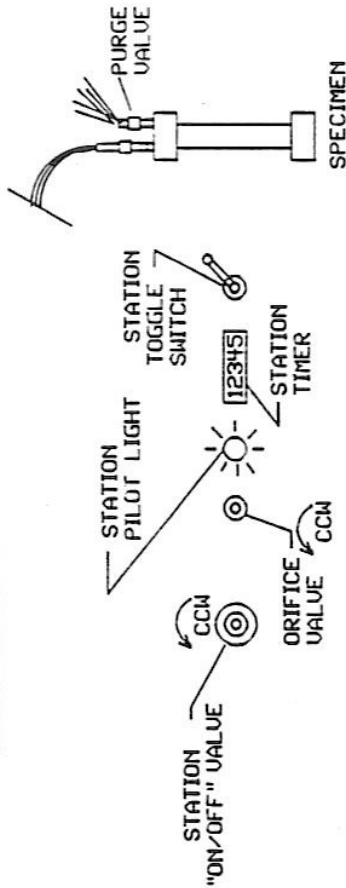
DO NOT ADJUST THE RELIEF VALVE OR AIR PRESSURE REGULATOR TO PRODUCE SYSTEM PRESSURE IN EXCESS OF THE MAXIMUM SYSTEM OPERATING PRESSURE OF 3000 PSI.

=====WARNING=====

DAMAGE TO THE SYSTEM OR INJURY TO PERSONNEL MAY RESULT IF THE HIGH PRESSURE LIMITS OF THE SYSTEM ARE EXCEEDED.

FILL POSITION

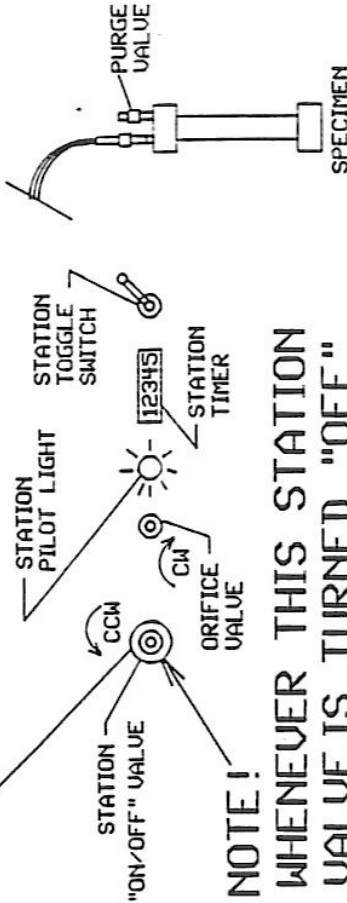
- 1 HOOK UP SPECIMEN
- 2 FULLY OPEN ORIFICE VALVE \curvearrowright CCM
- 3 FULLY OPEN STATION VALVE \curvearrowright CCM
- 4 OPEN PURGE VALVE UNTIL ALL AIR IS RELEASED
- 5 THEN SET CONTROLS TO TEST POSITION



TEST POSITION

- 1 CLOSE PURGE VALVE
- 2 LEAVE STATION VALVE FULLY OPENED \curvearrowright CCM
- 3 SET TEST PRESSURE WITH REGULATOR
- 4 TURN ORIFICE VALVE TO FULLY CLOSED POSITION \curvearrowleft CCM

NEVER CLOSE THIS VALVE DURING TEST



NOTE!
WHENEVER THIS STATION VALVE IS TURNED "OFF" THE CORRESPONDING STATION TOGGLE SWITCH MUST BE TURNED "OFF".

- 5 VERIFY STATION PILOT LIGHT IS "ON" and TIMER IS RUNNING (RESET TIMER IF NECESSARY)
- ** NOTE!** ALWAYS SET REGULATOR TO "FINAL" REGULATOR POSITION WITH A MOVEMENT \curvearrowright CCM

USE ON ORDER OR1288
AND ON FUTURE ORDERS

MAT'L:

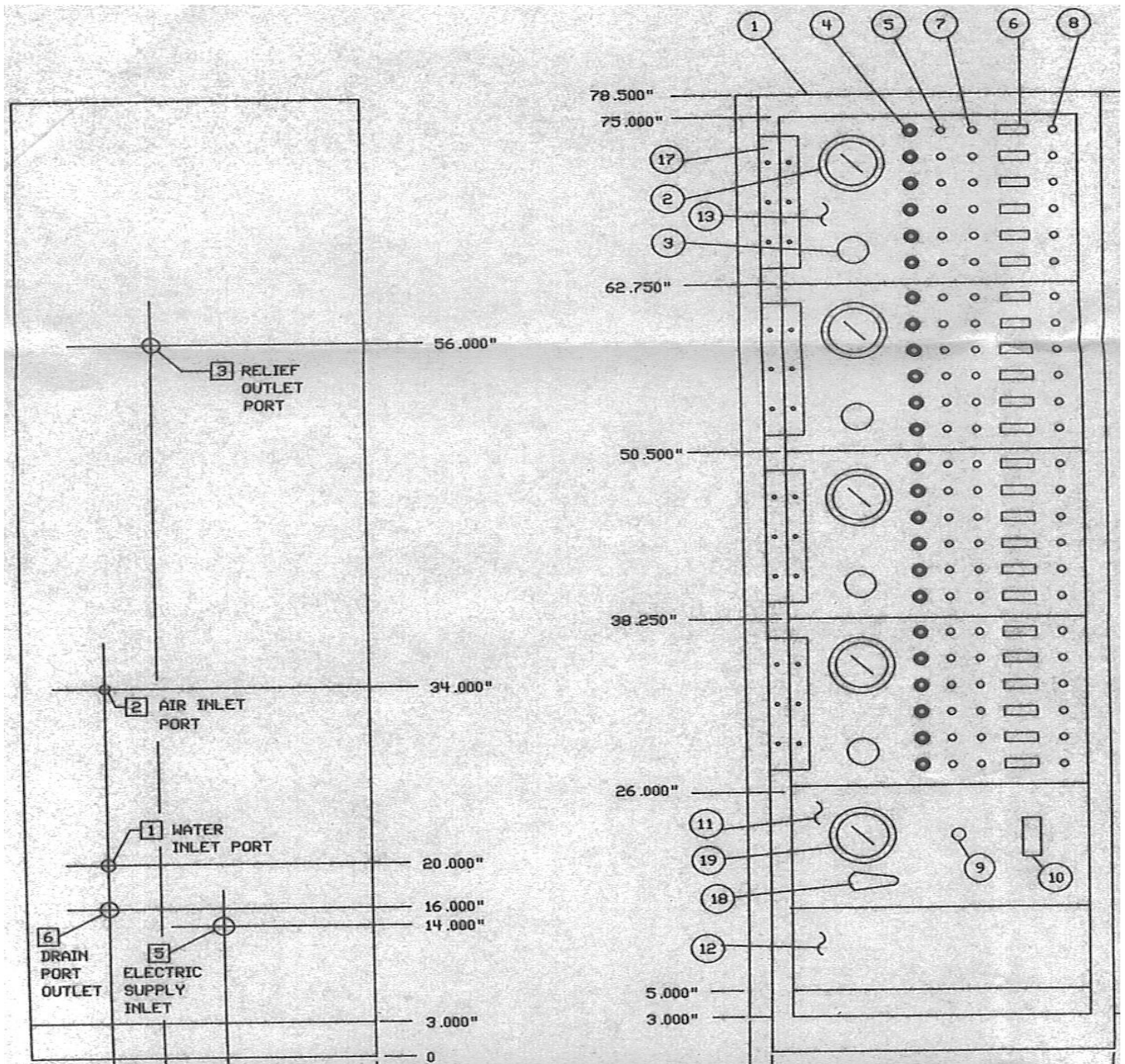
REQ'D

SCALE: NTS

TITLE
FILL & TEST INSTRUCTIONS

DISK FRED3-01

DATE 09-17-92
DRAWING NO. A1307B
REV.



- 1—Cabinet
- 2— Test Gauge
- 3— Regulator
- 4— On / Off valve
- 5— Metering valve
- 6— Timer
- 7— Test Light
- 8— On/Off Toggle Switch
- 9— Power Light

- 10—GFCI Breaker
- 11— Power Panel
- 12— Blank Panel
- 13— Static Test Panel
- 18— Supply On/Off valve
- 19— Supply pressure

