WIDDER®TOOLS

HPIINS-10000 CALIBRATION SYSTEM

PRODUCT INFORMATION AND OPERATING INSTRUCTIONS:

Description: The HPIINS-10000 Calibration System is a compact, heavy-duty digital gauge certification and calibration system. The included digital logger gauge is 0.1% full scale accurate and is capable of storing up to 21,000 individual strings of pressure data

Maximum Pressure Input: 10,000 psi

Weight: 18 lbs.

IMPORTANT: FOR YOUR SAFETY BEFORE OPERATING THIS UNIT, READ THIS OPERATOR'S MANUAL CAREFULLY AND COMPLETELY. LEARN THE OPERATION, APPLICATIONS, AND POTENTIAL HAZARDS PETICULIAR TO THIS TOOL.

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NOTE: The following instructions are written specific to the **WIDDER** HPIC Unit and its included digital gauge. However, these instuctions should apply to any similar hydrostatic test system incorporating a digital gauge (see specific gauge manual for proper calibration steps.)

System Overview

System Pressure & Data Logging Gage

Fine Adjustment

Main Outlet

A. Visual Inspection of HPIC Unit

1. Check for damage to the overall unit
2. Check all components for damage
3. Check water inlet and outlet ports for damaged/worn threads (clean out any debris)
4. Check analogue gauge for damage
5. Check digital gauge for damage
6. Turn on digital gauge and check battery life (replace batteries if needed)
7. Zero the digital gauge now

ZERO Button

Battery Level
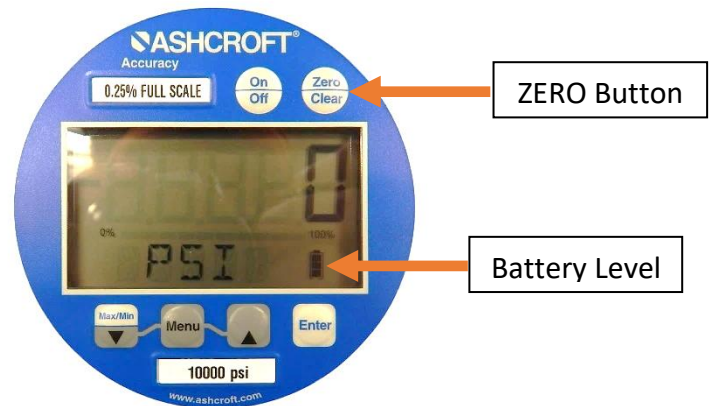
B. Connecting HPIC Unit

1. Connect water supply to **INLET** of **HPIC** unit (use PTFE tape to ensure a leak free seal)

2. Turn on water supply to flush the system until water appears clean, then shut off water supply

3. Apply 2-3 wraps of PTFE tape to NPT end of supplied adapter
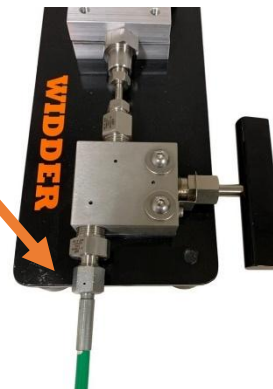
4. Thread the adapter into the **OUTLET** of **HPIC** unit until hand tight, then tighten with wrench (depending on amount of wear on the threads, more tightening may be required for a leak free seal)

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5. Connect one end of green test hose to the outlet of Calibration System

6. Connect the other end of green test hose to the adapter on **HPIC** Unit

7. Tighten both ends of green test hose firmly (these are standard "M" type hose fittings)

8. Turn on Calibration System gauge and zero (verify **HPIC** Unit digital gauge is still at zero)

ZERO Button

9. Fully back off Air Regulator on **HPIC** Unit (counter-clockwise)

10. Close Air Shut-off Valve on **HPIC** Unit (perpendicular to airline)

11. Connect air supply line to **HPIC** Unit

12. Slowly open Air Shut-off Valve on **HPIC** Unit

13. Check the air system for leaks

C. Bleeding the System

1. Open the Isolation Valve completely (counter-clockwise)

2. Open the Bleed Valve 1-2 full turns (counter-clockwise)

3. Run water through the system until no air appears
   to be coming out of the bleed tube on HPIC Unit
   (provide adequate container to catch bleed water)

4. Tightly close the Bleed Valve (clockwise)

5. Check for low pressure leaks in water system

6. **NOTE:** Both gauges should read street water pressure **DO NOT ZERO ANY GAUGES AT THIS POINT**

D. Digital Gauge Certification

1. Follow steps A-C then continue

2. **SLOWLY** increase system pressure using the
   Air Pressure Regulator on the **HPIC** Unit
   to about 2500 psi (the exact number is not critical)

3. Verify that the digital gauge in **HPIC** Unit
   is within 25 psi of the Calibration System gauge

4. If the readings are within 25 psi, continue
   (if the readings are more than 25 psi,
   stop and move to instructions for Digital Gauge Calibration)

5. Continue increasing the pressure to about 5000,
   7500 and 10000 psi, checking that the system pressure
   readings are within 25 psi at each interval

6. If at any interval the readings are more than 25 psi,
   stop and move to instructions for Digital Gauge Calibration

7. If gauge passes certification continue to directions for Disconnecting **HPIC** Unit

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E. Digital Gauge Calibration

1. Follow steps A-C then continue

2. Back off the Fine Adjustment Knob on the Calibration System all the way (counter-clockwise) then rotate 1 full turn clockwise (this allows a little pressure reduction if the pressures in the following steps are exceeded)

3. Press the **MENU** button on the **HPIC** Unit gauge

4. Press the ▲ (up arrow key) until the word *CONFG* appears

5. Press **ENTER**

6. Enter the user password if it has been programmed

7. Press the ▲ (up arrow key) until the word *RECAL* appears

8. Press **ENTER**

9. The gauge will now display *0* on the top line and flash between *INPUT* and the unit of measure on the bottom line

10. Turn off the water supply and open the Bleed Valve on the **HPIC** unit (this should allow the unit to have zero pressure, use the Calibration System gauge to verify this)

11. Once at 0 psi, press **ENTER** on the **HPIC** unit gauge (the 0 pressure point is now set)

12. The gauge will now display *10000* on the top line

13. Turn the water supply back on then close the Bleed Valve

14. **SLOWLY** increase the pressure in the system to about 9900 psi (using the Calibration System gauge) It is very important that the pressure be **SLOWLY** increased and to **NOT EXCEED** 10000 psi

15. From 9900 psi use the Fine Adjustment Knob on the Calibration System to increase the pressure to **EXACTLY** 10000 psi (give the system a few seconds to settle and perform any fine adjustments needed to get the system to **EXACTLY** 10000 psi)

16. Be sure the calibration station gauge reads **EXACTLY** 10000 psi and press **ENTER** on the **HPIC** unit gauge (the full-scale pressure point is now set)

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17. The **HPIC** unit gauge will now display *5000* on the top line

18. Back off the Air Regulator all the way (counter-clockwise)

19. Back off the Fine Adjustment Knob all the way (counter-clockwise) then rotate 1 full turn clockwise

20. Open the bleed valve on **HPIC** Unit to relieve all pressure in the system

21. Close the Bleed Valve

22. **SLOWLY** increase the system pressure to about 4900 psi
    Again, it is very important that the pressure be **SLOWLY** increased and to **NOT EXCEED** 5000 psi

23. From 4900 psi use the Fine Adjustment Knob to increase the pressure to **EXACTLY** 5000 psi (again, give the system a few seconds to settle and perform and fine adjustments needed to get the system to **EXACTLY** 5000 psi)

24. Be sure the Calibration System gauge reads **EXACTLY** 5000 psi and press **ENTER** on the **HPIC** unit gauge (the mid-scale pressure point is now set)

25. The word *SAVE* will appear on the **HPIC** Unit gauge screen

26. Press **ENTER** to finalize the calibration process

27. Continue to Disconnecting **HPIC** Unit

F. Disconnecting **HPIC** Unit

1. Back off the Air Regulator all the way (counter-clockwise)
2. Disconnect the air supply line from the **HPIC** Unit
3. Turn off the water supply and open the Bleed Valve to relieve all pressure in the system
4. Disconnect the water supply from **HPIC** Unit
5. Using two wrenches disconnect the green hose from the outlet adapter in **HPIC** Unit
6. Remove the adapter from the **OUTLET**
7. If performing tests on multiple units it is acceptable to leave green hose attached to Calibration System
8. If needed, remove the green hose from the Calibration System with two wrenches (making sure the adapter on the Calibration System does not spin)

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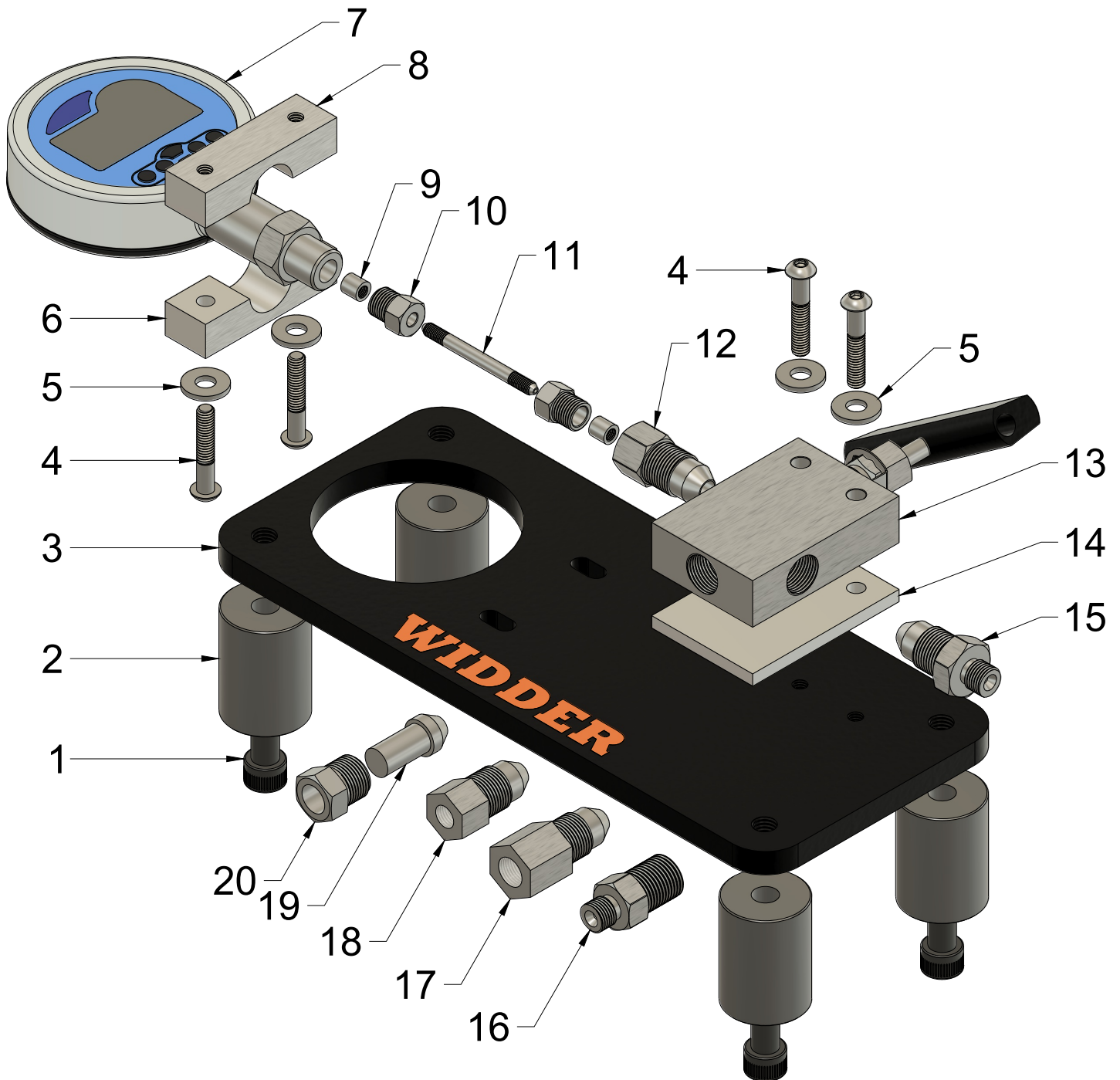
WIDDER HPIINS-10000 Calibration System

Item	Description	Part #	Qty
1	Screw, Foot	PC-2008	4
2	Foot	PC-2007	4
3	Mounting Plate	PC-2001	1
4	Mounting Screw	PC-2005	4
5	Mounting Washer	PC-2006	4
6	Gauge Bracket, Upper	PI7000-210	1
7	Digital Logger Gauge	PC-1003	1
8	Gauge Bracket, Lower	PI7000-211	1
9	Collar (HM4)	PC-1022	2
10	Gland (HM4)	PC-1023	2
11	Tube – Gage to Needle Valve	PC-1013	1
12	HP Adapter	PC-2003	1
13	Needle Valve	PC-1017	1
14	Valve Spacer	PC-2002	1
15	Adapter, "M" Fitting	PC-2004	1
16	Adapter, "M" to 1/2 NPT Male	PC-1030	1
17	Adapter, 3/8 NPT Female	PC-2011	1
18	Adapter, 1/4 NPT Female	PC-2010	1
19	Plug (LM9)	PC-1021	1
20	Gland (LM9)	PC-1028	1
Accessories (not shown)			
21	Data Cable, Gauge	PC-1003-DC	1
22	Power Adapter, Gauge	PC-1003-PA	1
23	Test Hose	PC-1019	1

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