CE PILOT VALVE TESTER

6KSI GAS AND WATER

OPERATING MANUAL

MACHINE SERIAL NUMBER: 21001119 AND HIGHER

ORIGINAL INSTRUCTIONS

CALDER
VALVE TESTING & REPAIR SYSTEMS BY CLIMAX

P/N 96654
September 2021
Revision 0

CLIMAX | BORTECH CALDER H&S TOOL

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- Your name
- Shipping address
- Telephone number
- Machine model
- Serial number (if applicable)
- Date of purchase

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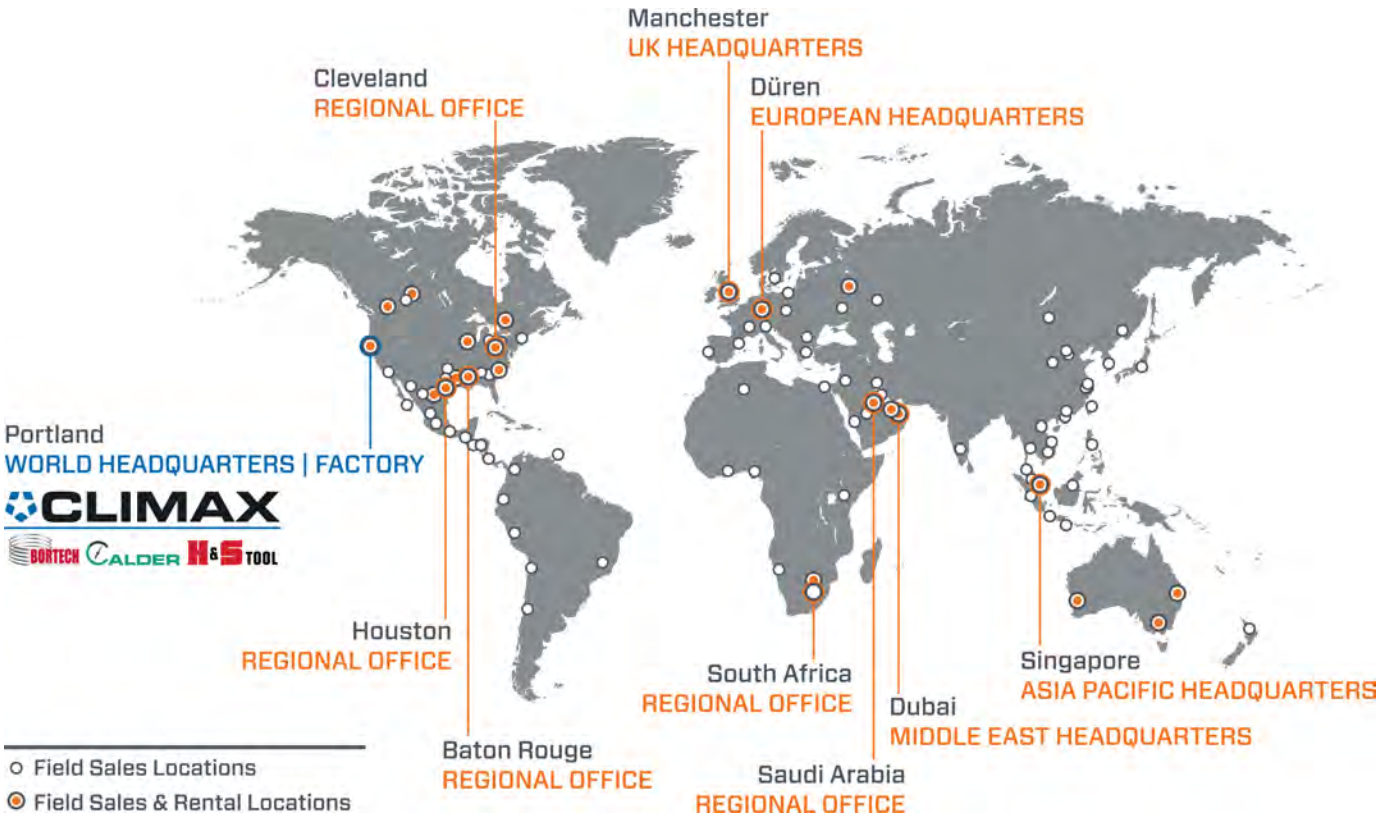
CLIMAX GLOBAL LOCATIONS



CE DOCUMENTATION

Declaration of Conformity

2006/42/EC Machinery Directive

014/68/EU Pressure Equipment Directive

Choose an item.

Name of Manufacturer:
Climax Portable Machining and Welding Systems

Full postal address including country of origin:
2712 E. Second St., Newberg, OR 97132, USA

Object(s) of the Declaration:
Valve Tester Pressure Source

Name, type or model, batch or serial number:
8098-S1 S/N Range: 21001119 to 25000000
Max working pressure 6000 psi (413.7 bar); Temperature Range 0°F to 140°F (-17.8°C to 60°C)

PED Components
Accumulator: Max Volume 2 Gallon (7.6L): assessed under module G (purchased with CE marking)
Pressure relief valves: assessed under module B+D (purchased with CE marking)
Piping: Sound Engineering Practice (designed for pressures equivalent or below working pressure)

Harmonized Standards used, including number:

EN ISO 3744:2010 - Acoustic Power	Choose an item.
EN ISO 13732-1:2008 - Temperature of Touchable Surfaces	Choose an item.
EN ISO 4414:2010 - Pneumatic Fluid Power.	Choose an item.
EN ISO 11201:2010 - Acoustics; Noise Emitted	Choose an item.
EN ISO 13732-1:2008 - Temperature of Touchable Surfaces	
EN 982:1996+A1:2008 - Safety of Machinery; Fluid Power	

PED Assessment module
EU type "B" (production type) certification # and D certification #

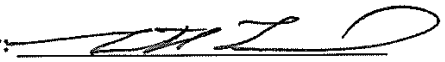
By Notified Body
HPi Verification Services Ltd. (Ireland)
Clonross, Dunshaughlin, Co. Meath, A85 XN59, Ireland
Notified Body's number: 2810

Full postal address of the authorized person in the Community:
Guido Ewers zum Rode
Climax GmbH
Am Langen Graben 8
52353 Duren, Germany

Approved as conforming to Standard ISO 9001:2015 by:
Eagle Registrations Inc.
40 N. Main Street, Suite 1880
Dayton, OH 45423

Declaration of Conformity

Declaration
I declare that the above information in relation to the supply / manufacture of this product is in conformity with the relevant provisions of the Directives and Harmonised Standards listed above in this document along with their respective amendments and other related documents. This declaration of conformity is issued under the sole responsibility of the manufacturer.

Signature of Manufacturer: 

Position Held: VP of Engineering

Date and Place: 9/23/2021 USA

CE

LIMITED WARRANTY

CLIMAX Portable Machine Tools, Inc. (hereafter referred to as “CLIMAX”) warrants that all new machines are free from defects in materials and workmanship. This warranty is available to the original purchaser for a period of two years after delivery. If the original purchaser finds any defect in materials or workmanship within the warranty period, the original purchaser should contact its factory representative and return the entire machine, shipping prepaid, to the factory. CLIMAX will, at its option, either repair or replace the defective machine at no charge and will return the machine with shipping prepaid.

CLIMAX warrants that all parts are free from defects in materials and workmanship, and that all labor has been performed properly. This warranty is available to the customer purchasing parts or labor for a period of 90 days after delivery of the part or repaired machine or 180 days on used machines and components. If the customer purchasing parts or labor finds any defect in materials or workmanship within the warranty period, the purchaser should contact its factory representative and return the part or repaired machine, shipping prepaid, to the factory. CLIMAX will, at its option, either repair or replace the defective part and/ or correct any defect in the labor performed, both at no charge, and return the part or repaired machine shipping prepaid.

These warranties do not apply to the following:

- Damage after the date of shipment not caused by defects in materials or workmanship
- Damage caused by improper or inadequate machine maintenance
- Damage caused by unauthorized machine modification or repair
- Damage caused by machine abuse
- Damage caused by using the machine beyond its rated capacity

All other warranties, express or implied, including without limitation the warranties of merchantability and fitness for a particular purpose are disclaimed and excluded.

Terms of sale

Be sure to review the terms of sale which appear on the reverse side of your invoice. These terms control and limit your rights with respect to the goods purchased from CLIMAX.

About this manual

CLIMAX provides the contents of this manual in good faith as a guideline to the operator. CLIMAX cannot guarantee that the information contained in this manual is correct for applications other than the application described in this manual. Product specifications are subject to change without notice.

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1 INTRODUCTION

IN THIS CHAPTER:

1.1 HOW TO USE THIS MANUAL

This manual describes information necessary for the setup, operation, maintenance, storage, shipping, and decommissioning of the Pilot Valve Tester.

The first page of each chapter includes a summary of the chapter contents to help you locate specific information. The appendices contain supplemental product information to aid in setup, operation, and maintenance tasks.

Read this entire manual to familiarize yourself with the Pilot Valve Tester before attempting to set it up or operate it.

1.2 SAFETY ALERTS

Pay careful attention to the safety alerts printed throughout this manual. Safety alerts will call your attention to specific hazardous situations that may be encountered when operating this machine.

Examples of safety alerts used in this manual are defined here[1]:

⚠ DANGER

indicates a hazardous situation which, if not avoided, ***WILL*** result in death or severe injury.

⚠ WARNING

indicates a hazardous situation which, if not avoided, ***COULD*** result in death or severe injury.

1. For more information on safety alerts, refer to *ANSI/NEMA Z535.6-2011, Product safety Information in Product Manuals, Instructions, and Other Collateral Materials*.

⚠ CAUTION

indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

indicates a hazardous situation which, if not avoided, could result in property damage, equipment failure, or undesired work results.

1.3 GENERAL SAFETY PRECAUTIONS

CLIMAX leads the way in promoting the safe use of portable machine tools and valve testers. Safety is a joint effort. You, the end user, must do your part by being aware of your work environment and closely following the operating procedures and safety precautions contained in this manual, as well as your employer's safety guidelines.

Observe the following safety precautions when operating or working around the machine.

Training – Before operating this or any machine tool, you should receive instruction from a qualified trainer. Contact CLIMAX for machine-specific training information.

Risk assessment – Working with and around this machine poses risks to your safety. You, the end user, are responsible for conducting a risk assessment of each job site before setting up and operating this machine.

Intended use – Use this machine in accordance with the instructions and precautions in this manual. Do not use this machine for any purpose other than its intended use as described in this manual.

Personal protective equipment – Always wear appropriate personal protective gear when operating this or any other machine tool.

Work area – Keep the work area around the machine clear of clutter. Restrain cords and hoses connected to the machine. Keep other cords and hoses away from the work area.

Lifting – Many CLIMAX machine components are very heavy. Whenever possible, lift the machine or its components using proper hoisting equipment and rigging. Always use designated lifting points on the machine.

Lock-out/tag-out – Lock-out and tag-out the machine before performing maintenance.

Moving parts – CLIMAX machines have numerous exposed moving parts and interfaces that can cause severe impact, pinching, cutting, and other injuries. Except for stationary operating controls, avoid contact with moving parts by hands or tools during machine operation. Remove gloves and

secure hair, clothing, jewelry, and pocket items to prevent them from becoming entangled in moving parts.

1.4 MACHINE-SPECIFIC SAFETY PRECAUTIONS

Eye hazard – This machine produces metal chips during operation. Always wear eye protection when operating the machine.

Sound level – This machine produces potentially harmful sound levels. Hearing protection is required when operating this machine or working around it.

Hazardous environments – Do not operate the machine in environments where potentially explosive materials, toxic chemicals, or radiation may be present.

Pressurization – Do not over-pressurize the valve test system beyond the limits described in this manual and on machine labels. Do not pressurize the system while the side panels are removed from the test console.

Test gauges – Do not use any gauge above its rating. Do not remove test gauges while the system is pressurized.

Utility service requirements – Do not exceed the pressure ratings stated in this manual and on the machine labels.

1.5 RISK ASSESSMENT AND HAZARD MITIGATION

To achieve the intended results and to promote safety, the operator must understand and follow the design intent, set-up, and operation practices that are unique to valve testers.

The operator must perform an overall review and on-site risk assessment of the intended application. Due to the unique nature of high-pressure valve testing, identifying one or more hazards that must be addressed is typical.

When performing the on-site risk assessment, it is important to consider the valve tester and the workpiece as a whole.

⚠ WARNING

High-pressure valve testing may result in the sudden, unexpected release of stored energy with the potential to cause property damage or personnel injury. Potential hazards may include the possibility of high-velocity fluid escaping and high-energy projectile impact. The end-user must assess the application and install protective barrier devices, as appropriate.

1.6 RISK ASSESSMENT CHECKLIST

The following checklist is not intended to be an all inclusive list of things to watch out for when setting up and operating this valve testing machine. However, these checklists are typical of the types of risks the assembler and operator should consider. Use these checklists as part of your risk assessment:

TABLE 1-1. RISK ASSESSMENT CHECKLIST BEFORE SET-UP

	Before set-up
☐	I took note of all the warning labels on the machine.
☐	I removed or mitigated all identified risks (such as tripping, cutting, crushing, entanglement, shearing, or falling objects).
☐	I considered the need for personnel safety guarding and installed any necessary guards.
☐	I considered the potential hazards that are inherent in high-pressure valve testing, including the possibility of high velocity fluid escape or workpiece fragmentation, and have installed appropriate protective barriers.
☐	I read the machine assembly instructions (Section 3) and took inventory of all the items required but not supplied (Section 2.3).
☐	I considered how this machine operates and identified the best placement for the controls, cabling, and the operator.
☐	I evaluated and mitigated any other potential risks specific to my work area.

TABLE 1-2. RISK ASSESSMENT CHECKLIST AFTER SET-UP

	After set-up
☐	I checked that the machine is safely installed (according to Section 3).
☐	I identified all possible pinch points, such as those caused by rotating parts, and informed the affected personnel.
☐	I followed the required maintenance checklist (Section 5).
☐	I checked that all affected personnel have the recommended personal protective equipment, as well as any site-required or regulatory equipment.
☐	I checked that all affected personnel understand and are clear of the danger zone.
☐	I evaluated and mitigated any other potential risks specific to my work area.

1.7 LABELS

The following warning and identification labels should be on your machine. If any are defaced or missing, contact CLIMAX immediately for replacements.

TABLE 1-3. LABELS

	P/N 29154 ID plate		P/N 79328 Label: read the operating manual
	P/N 81008 Warning label: wear ear and eye protection		P/N 82144 Warning label
	P/N 87258 Calder label		P/N 87593 Warning label: read the operating manual
	P/N 89229 Calder label		P/N 89548 Warning label: do not block port

TABLE 1-3. LABELS

	P/N 90160 Warning label: water release hazard		P/N 91683 Label: pressure specifications
	P/N 98052 Label: air inlet 6,000 psi (413 bar) maximum		P/N 98121 Label: water supply 70 psi (5 bar) maximum
	P/N 98842 CE label: water filter		P/N 98843 CE label: drain

For further identification of location placement, refer to the exploded views in Appendix A.

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2 OVERVIEW

IN THIS CHAPTER:

2.1 FEATURES AND COMPONENTS

The Pilot Valve Tester is a system designed to test and set pilot valves using water or air.

WARNING

This machine is for testing safety relief valves only. Using the machine to test other valves (control valves, gate valves, etc.) could cause severe damage to the machine and injure personnel.

Principal components of the Pilot Valve Tester include a test console that has a maximum pressure rating of 6,000 psi (414 bar) for water or air.

2.2 CONTROLS

The controls are all located on the control console.

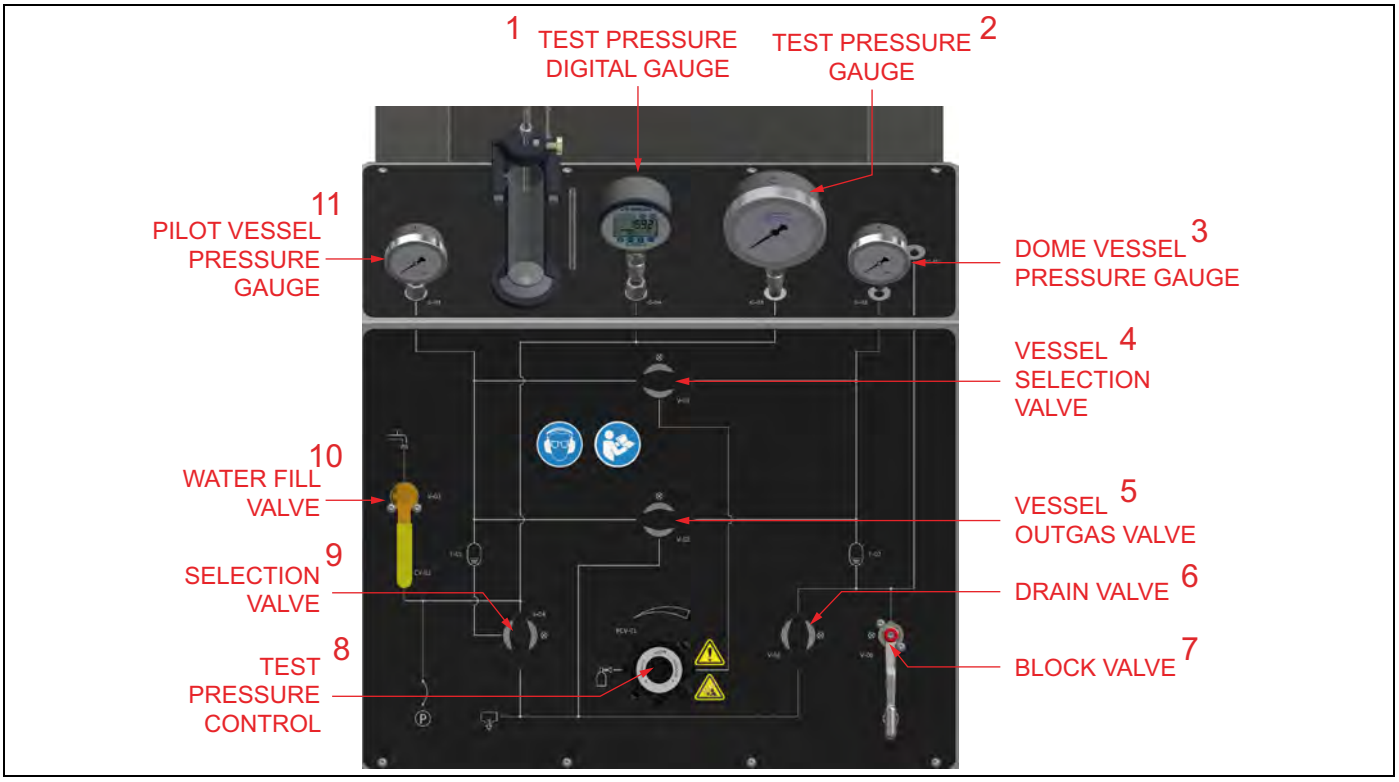

FIGURE 2-1. CONSOLE CONTROLS

TABLE 2-1. CONSOLE CONTROLS IDENTIFICATION

Number	Component ID	Component
1	G-04	Test pressure digital gauge
2	G-03	Test pressure gauge
3	G-02	Dome vessel pressure gauge
4	V-01	Vessel selection valve
5	V-02	Vessel outgas valve
6	V-05	Drain valve
7	V-06	Block valve
8	PCV-01	Test pressure control
9	V-04	Selection valve
10	V-03	Water fill valve
11	G-01	Pilot vessel pressure gauge

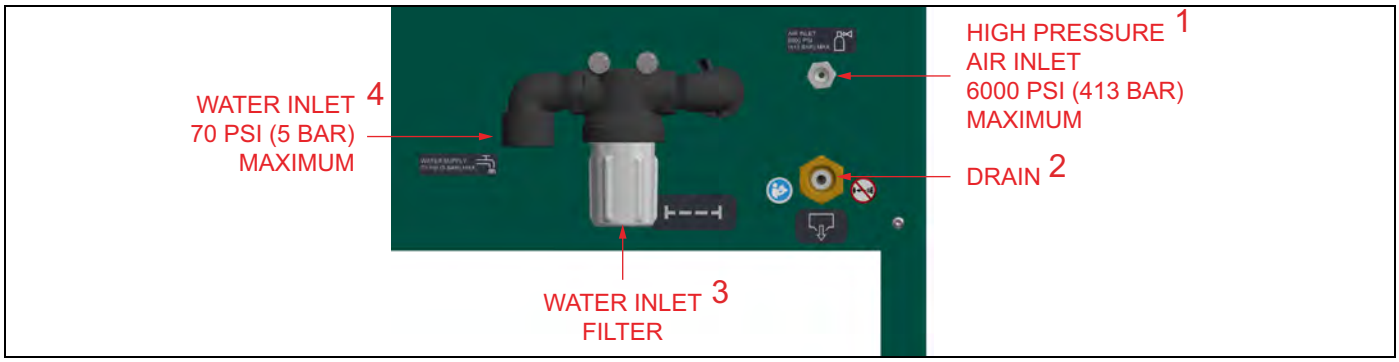

FIGURE 2-2. RIGHT SIDE CONSOLE CONTROLS

TABLE 2-2. RIGHT SIDE CONTROLS IDENTIFICATION

Number	Component ID	Component
1		High-pressure air inlet 6000 psi (413 bar) maximum
2		Drain
3	F-01	Water inlet filter
4		Walter inlet 70 psi (5 bar) maximum

FIGURE 2-3. MOUNTING RAIL LOCATION WITH 6 MM T-SLOT NUTS AND 6 MM X 16 MM BOLTS

2.3 DIMENSIONS

Figure 2-4 shows the machine dimensions.

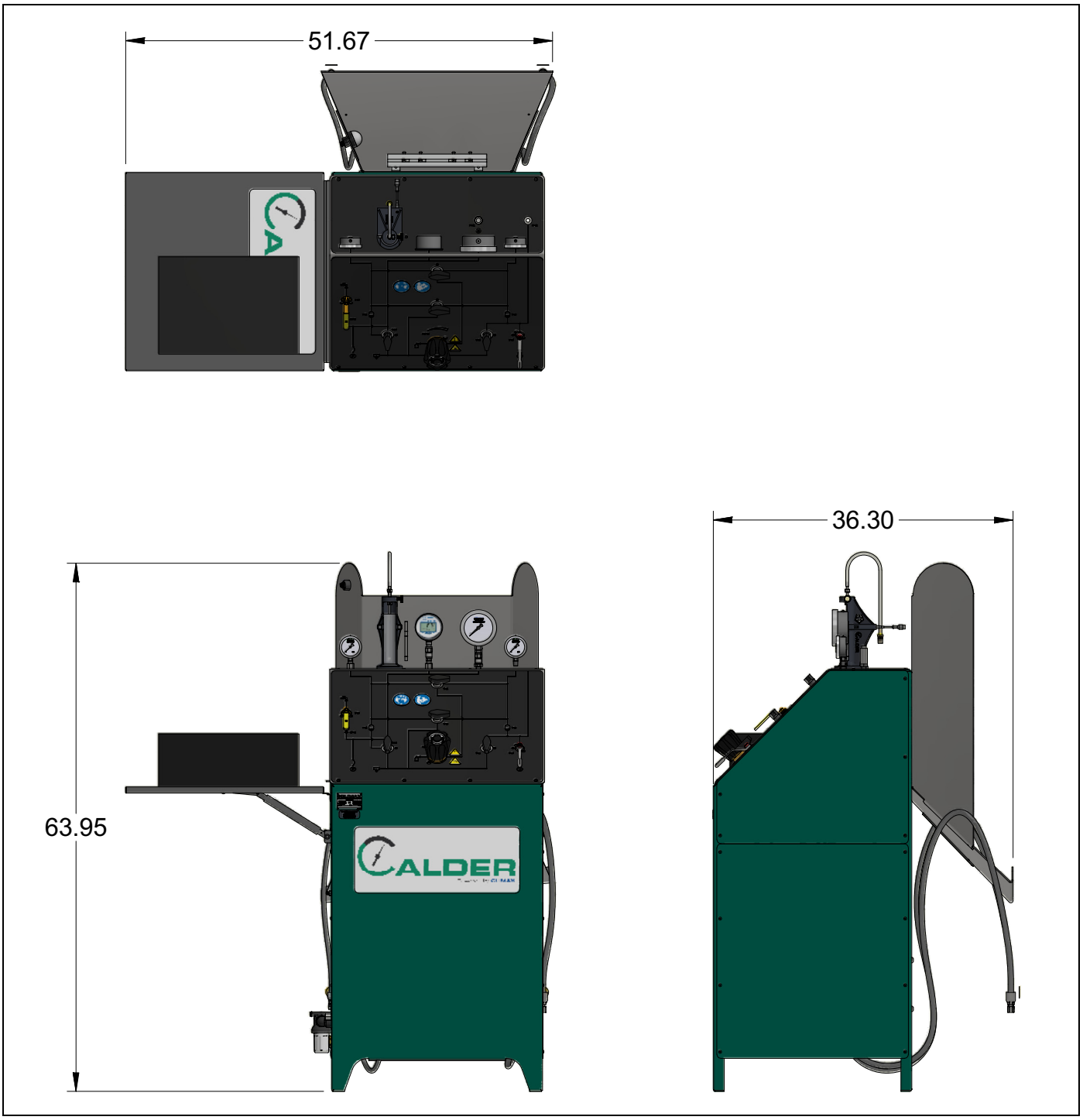

FIGURE 2-4. DIMENSIONS

2.4 SPECIFICATIONS

TABLE 2-3. SPECIFICATIONS

Test media:	Water, air
Maximum water test pressure:	6,000 psi (414 bar)
Maximum air test pressure:	6,000 psi (414 bar)
Types of valves that can be tested:	Pilot valves
Water quick fill:	3 gpm (11,4 l/min) minimum
Approximate machine weight:	400 lbs (181 kg)
Approximate shipped weight:	725 lbs (329 kg)

WARNING

Do not use the machine in any application that exceeds these operating specifications. Failure to follow these guidelines could result in personnel injury and property damage, and will void the warranty.

2.5 ITEMS REQUIRED BUT NOT SUPPLIED

High-pressure air with a maximum of 6,000 psi (413 bar) is required but not supplied by CLIMAX .

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3 SETUP

IN THIS CHAPTER:

This section describes the setup and assembly procedures for the Pilot Valve Tester Pilot ValveTester.

3.1 Receipt and inspection

Your CLIMAX product was inspected and tested prior to shipment, and packaged for normal shipment conditions. CLIMAX does not guarantee the condition of your machine upon delivery.

When you receive your CLIMAX product, perform the following receipt checks:

1. Inspect the shipping containers for damage.
2. Check the contents of the shipping containers against the included invoice to make sure that all components have been shipped.
3. Inspect all components for damage.

Contact CLIMAX immediately to report damaged or missing components.

NOTICE

Keep the shipping container and all packing materials for future storage and shipping of the machine.

3.2 Lifting and rigging

When lifting the console, lift from the bottom skids with a forklift.

3.3 Securing the test stand

The Pilot ValveTester must be anchor-bolted to the floor before operation.

WARNING

All units must be stabilized for the safety of the operator. The operator must determine what is necessary to provide a safe environment.

DANGER

Position the machine so that high-pressure venting (either from the machine or the safety relief valve under test) is not orientated towards personnel or nearby equipment. Failure to do so may result in machine damage or personnel severe injury or death.

3.3.1 Cement in place (option 1 – recommended)

Cement the anchor bolts into the floor. The exposed threads of the anchor must protrude a minimum of two threads past the nut and washer. See Figure 3-1.

3.3.2 Drill and anchor (option 2)

Drill holes into the floor for an expanding type anchor sleeve. A 0.5" (12.7 mm) lag bolt will require a minimum of 1.5" (38.1 mm) thread engagement. See Figure 3-1.

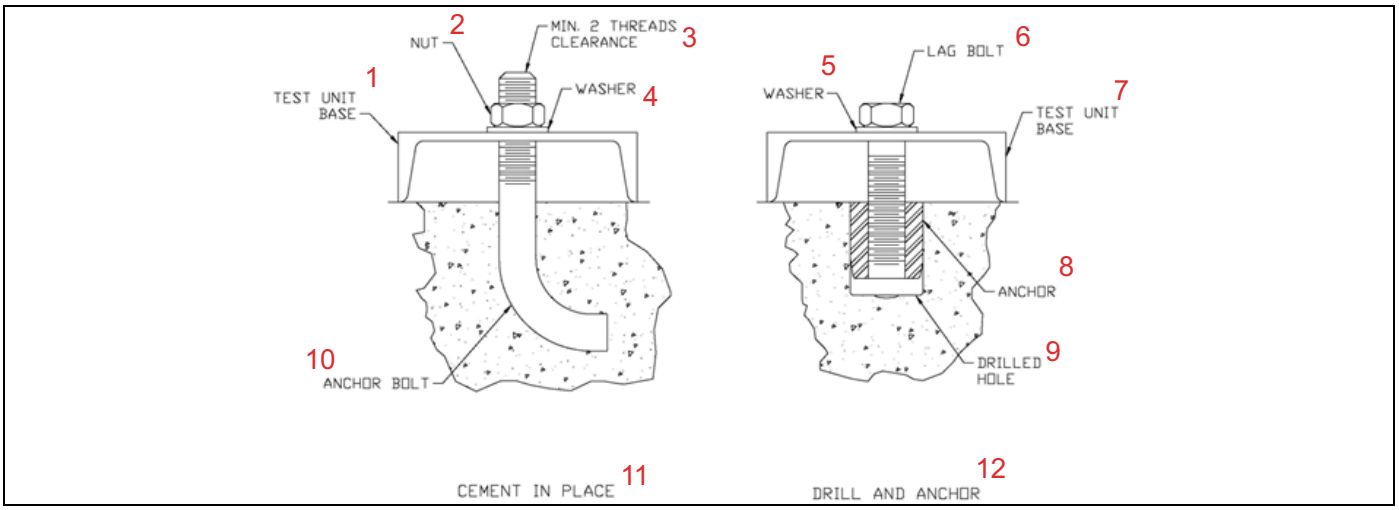

FIGURE 3-1. SECURING THE TEST STAND COMPONENTS

TABLE 3-1. COMPONENTS TO SECURE THE TEST STAND

Number	Component
1	Test unit base
2	Nut
3	Minimum 2 threads clearance

TABLE 3-1. COMPONENTS TO SECURE THE TEST STAND

Number	Component
4	Washer
5	Washer
6	Lag bolt
7	Test unit base
8	Anchor
9	Drilled hole
10	Anchor bolt
11	Cement in place
12	Drill and anchor

3.4 INSTALLING UTILITIES

3.4.1 Connecting water from the source

One 3/4" (19 mm) NPT low-pressure water (70 psi [4,8 bar] maximum) inlet connection port is located on the right side of the console (see Figure 2-2 on page 11). Connect the shop water supply at this location.

3.4.2 High-pressure sources for testing

The right side of the console has one 1/4" NPT (6,000 psi [413 bar] maximum) inlet connection port for testing. Connect the customer-supplied high-pressure air or gas at this location.

⚠ WARNING

Exceeding the rated pressure for the inlet could result in machine damage or personnel injury.

3.4.3 Connecting to pilot valves

When connecting to the Dome Port, only use fittings and components rated to or above 6,000 psi (413 bar).

When connecting to the Pilot Port only use fittings and components rated to or above 6,000 psi (414 bar).

⚠ WARNING

Failure to utilize fittings and components with adequate pressure ratings could result in machine damage or personnel injury.

3.4.4 Connecting to drain port

When connecting to the drain, use 1/2" (13 mm) hose minimum, or 3/4" (20 mm) recommended. Route the hose and tube away from areas that could pinch the hose, which would obstruct the flow.

WARNING

Failure to keep the drain hose or tube clear of obstructions could result in machine damage or personnel injury.

4 OPERATION

IN THIS CHAPTER:

4.1 PRE-OPERATION CHECKS

Refer to Figure 2-1 on page 10 as necessary.

Do the following checks before operating the machine:

1. Complete the risk assessment checklist in Table 1-2 on page 5.
2. Check that the work area is clear of non-essential personnel and equipment.
3. Check that the Test Pressure Gauges show 0 psi/bar.
4. Check that all valves, including the Block Valve, Drain Valve, Select Valve, Water Fill Valve, Vessel Outgas Valve, and Vessel Select Valve, are in the closed position and that the Test Pressure Control is turned counter-clockwise until it stops.
5. Check that the test piece is securely mounted to the test rail (see Figure 2-3 on page 11).

NOTICE

Follow any pressure ratings indicated on the hose assemblies. Exceeding the rated pressures could result in equipment damage.

⚠ WARNING

High-pressure valve testing may result in the sudden, unexpected release of stored energy with the potential to cause property damage or personnel injury. Potential hazards may include the possibility of high-velocity fluid escaping and high-energy projectile impact. The end-user must assess the application and install protective barrier devices, as appropriate.

NOTICE

The system has a relief valve that will vent high-pressure air if the inlet pressure exceeds the rated pressure.

6. Connect hose D to the dome port of the device under test.
7. Connect hose P to the pilot port of the device under test.

4.2 CONDUCTING AN AIR TEST

4.2.1 Test procedure

NOTICE

The internal vessels and system should be drained of water before conducting an air test. See Section 4.5 on page 21.

Failure to do so could result in a mixed water/air test medium that could contaminate the device under test and startle the operator during safety relief valve lift or leakage testing. See Section 4.4 for details.

Do the following for an air test:

1. Open the Inlet/Outlet Valve for the supply hose at the pressure source.
2. Open the Block Valve. (The Test Pressure Gauges should show 0 psi/bar.)
3. Check that the Drain Valve and Vessel Outgas Valve are closed at the control panel.
4. Set the Select Valve to Pilot.
5. Set the Vessel Select Valve to Pilot Vessel.
6. Turn the Test Pressure Control clockwise while monitoring the Test Pressure gauges, until it reaches the desired test pressure. Increase pressure gradually.

4.3 CONDUCTING HYDROSTATIC OR WATER TEST

4.3.1 Test procedure

Do the following for a hydrostatic or water test:

1. Open the Block Valve.
2. Set the Select Valve to Closed.
3. Open the Drain Valve.
4. Open the Water Fill Valve and allow the system and device under test to fill with water.

5. When water begins to exit the Drain without any bubbles, close the Drain Valve, then the Water Fill Valve, and turn the Vessel Selection Valve to Pilot Valve.
6. Open the Inlet/Outlet Valve for the supply hose at the pressure source.
7. Turn the Test Pressure Control clockwise while monitoring the Test Pressure Gauge, until it reaches the desired test pressure. Increase the pressure gradually.

NOTICE

If the system is overfilled with water, it is possible for water to escape by spraying under the Test Pressure Control knob when lowering the system pressure with the test pressure control. This is a normal occurrence and does not adversely affect machine performance.

4.4 PREPARING FOR THE TEST PIECE REMOVAL

⚠ DANGER

Disconnecting the hoses under pressure may result in the sudden, unexpected release of stored energy with the potential to cause property damage or personal injury. The operator must ensure that the pressure indicator light is not illuminated and the test pressure gauges show 0 psi.

When no more adjustments are necessary, do the following to remove the test piece:

1. Rotate the Test Pressure Control counter-clockwise until it stops.
2. Turn the Select Valve to Drain to release all pressure within the system and inside the valves.
3. Verify that the Vessel Pressure Gauge and both Test Pressure Gauges show 0 psi/bar.
4. Open the Drain Valve to drain any water from the system.
5. Keep the Select Valve in the Drain position.
6. Close the Block Valve.

After the tests, do the following:

1. Check that all valves are closed with two exceptions: the Select Valve (set to Drain) and the Drain Valve (set to Drain).
2. Turn the Test Pressure Control counter-clockwise until it stops.

4.5 PURGING WATER FROM THE VESSELS AND TEST SYSTEM

Do the following to purge the system of water:

1. Open the Block Valve.
2. Set the Select Valve to Drain. Some water may begin draining at point.
3. Set the Vessel Selection Valve to Pilot Vessel.
4. Open the Inlet/Outlet Valve for the supply hose at pressure source.
5. Slowly turn the Test Pressure Control until water begins draining from the Drain Port.
6. When only air is emitted from the Drain Port, set the Select Valve to Closed.
7. If Port P is not connected to anything, do the following:
    a) Set the Select Valve to Port P to purge water from it.
    b) When only air is emitted from Port P, set the Select Valve to Closed.
8. Set the Vessel Selection Valve to Dome Vessel.
9. Open the Drain Valve. Water will begin draining from the Drain Port. If water is not draining, increase the pressure at the Test Pressure Control.
10. When only air is emitted from the Drain Port, close the Drain Valve.
11. If Port D is not connected to anything, do the following:
    a) Open the Block Valve to Port P to purge water from it.
    b) When only air is emitted from the Port D, set the Select Valve to Closed.
12. Set the Vessel Selection Valve to Closed.
13. If Port P is Connected to Port D, do the following:
    a) Set the Vessel Selection Valve to Pilot Vessel.
    b) Set the Select Valve to Port P.
    c) Open the Block Valve and Drain Valve.
    d) If water is not draining, increase the pressure at the Test Pressure Control.
    e) When only air is emitted from the Drain Port, close the Block Valve and Drain Valve.
    f) Set the Select Valve and Vessel Selection Valve to Closed.

5 MAINTENANCE

5.1 MAINTENANCE CHECKLIST

Table 5-1 lists maintenance intervals and their associated tasks.

TABLE 5-1. MAINTENANCE INTERVALS AND TASKS

Interval	Task
Before each use	Inspect the testing unit, including all hose connections, inlet supply lines, and outlet lines.
After each use	Wipe the component parts clean and dry to prevent corrosion.
Once a month	Check the water filter (P/N 92305) and replace as necessary.

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6 STORAGE AND SHIPPING

6.1 STORAGE

Proper storage of the Pilot ValveTester will extend its usefulness and prevent undue damage.

Before storing, do the following:

1. Clean and dry the machine.
2. Purge any remaining water from the test circuit.

Store the Pilot ValveTester in its original shipping container. Keep all packing materials for repackaging the machine.

6.1.1 Short-term storage

Do the following for short-term storage (three months or less):

3. Cap the ports.
4. Remove the workpiece from the machine.
5. Spray all unpainted surfaces with LPS-2 to prevent corrosion.
6. Store the Pilot ValveTester in its original shipping box.

6.1.2 Long-term storage

Do the following for long-term storage (longer than three months):

1. Follow the short-term storage instructions, but use LPS-3 instead of LPS-2.
2. Add a desiccant pouch to the shipping container. Replace according to manufacturer instructions.
3. Store the shipping container in an environment out of direct sunlight with temperature < 70ºF (21ºC) and humidity < 50%.

6.2 SHIPPING

Before shipping, purge any remaining water from the test circuit.

6.3 DECOMMISSIONING

Refer to Appendix A for component assembly information.

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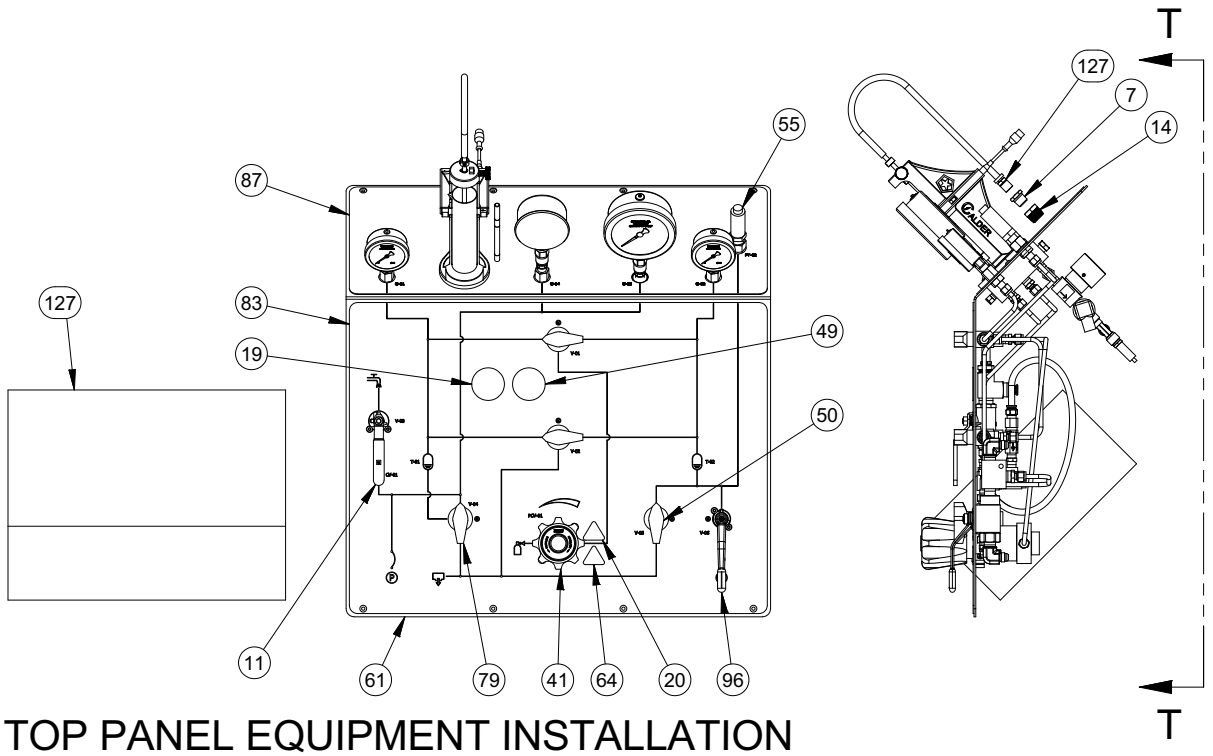
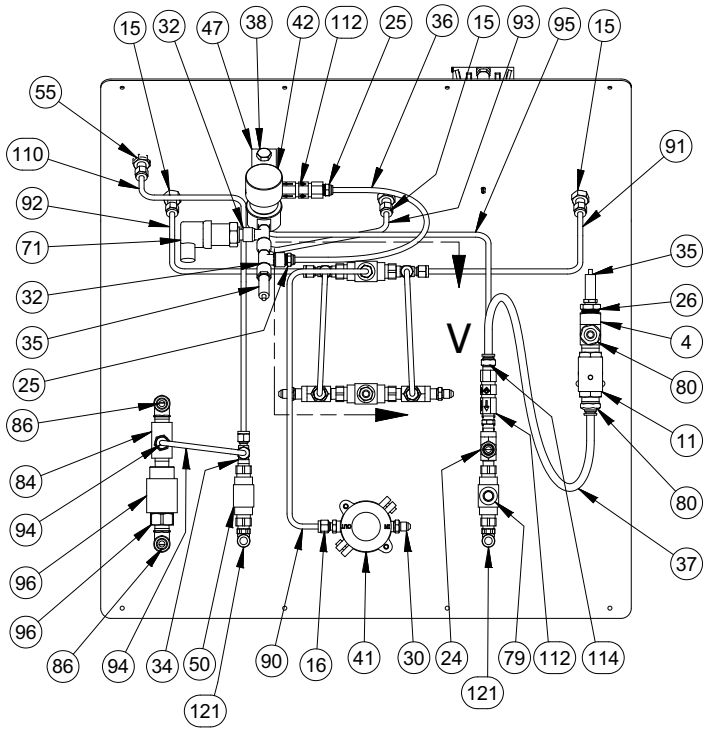
APPENDIX A ASSEMBLY DRAWINGS

Drawing list



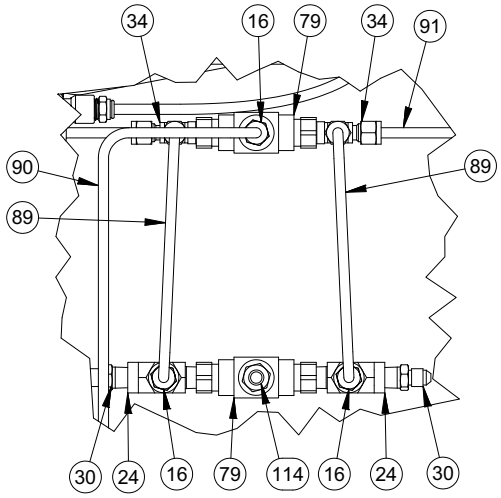
TOP PANEL EQUIPMENT INSTALLATION

SCALE 1 : 10



VIEW T-T

SCALE 1 : 8



DETAIL V

SCALE 1 : 4

FIGURE A-1. PILOT VALVE TESTER TOP PANEL ASSEMBLY

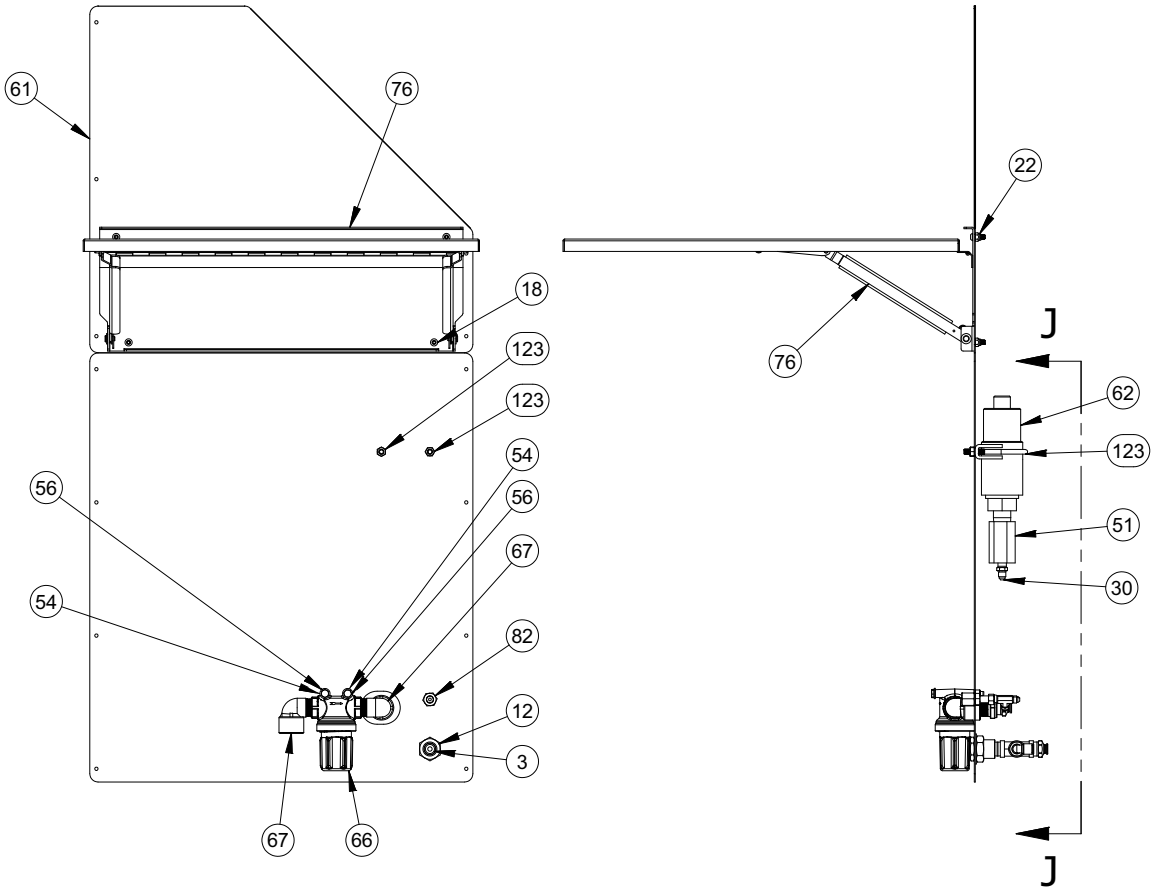
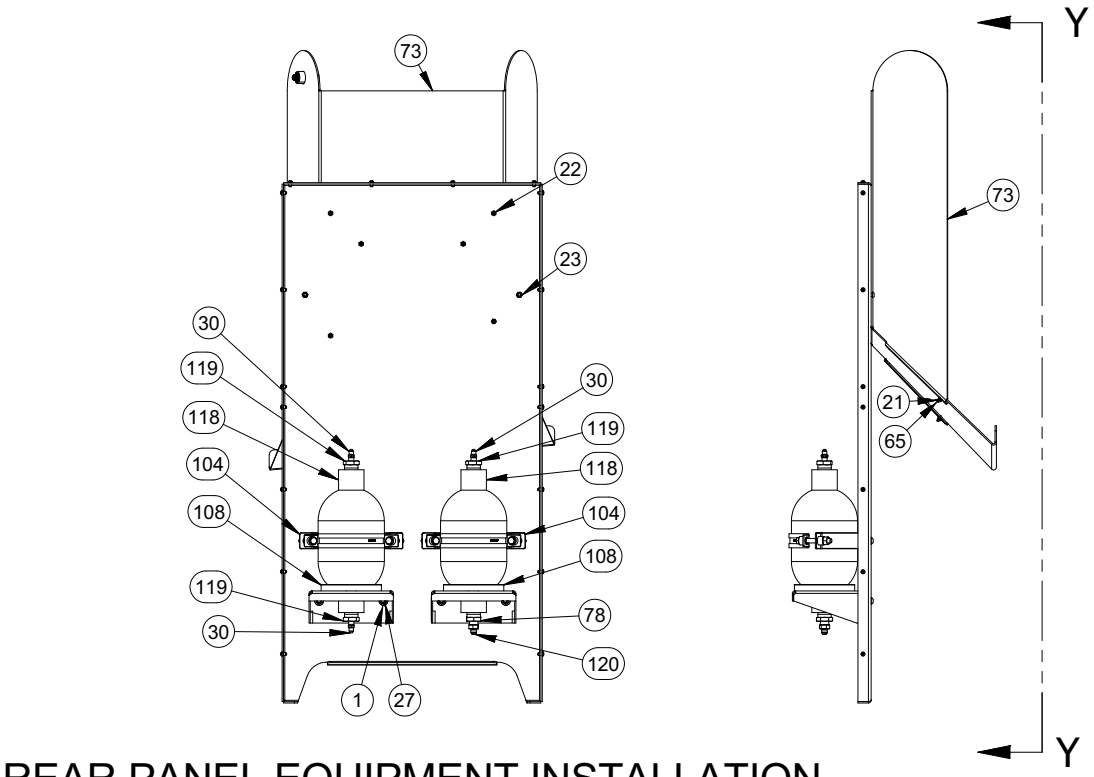
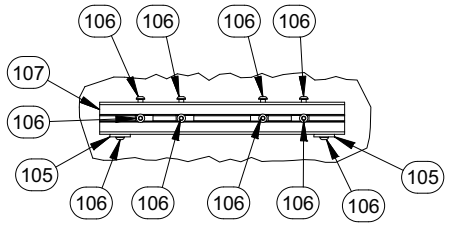


FIGURE A-2. PILOT VALVE TESTER SIDE PANEL ASSEMBLY



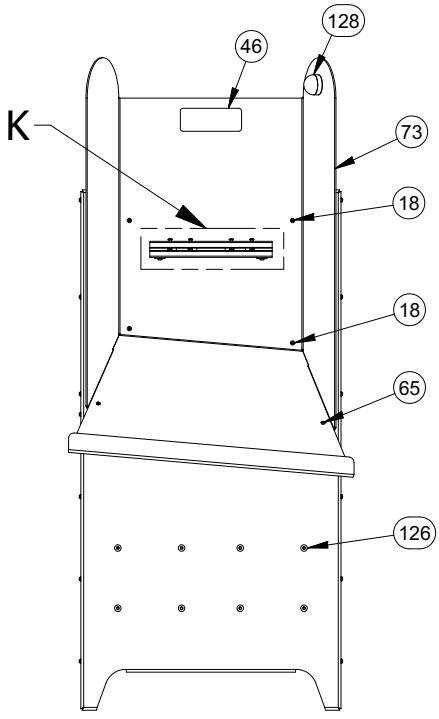
REAR PANEL EQUIPMENT INSTALLATION

SCALE 1 : 16



DETAIL K

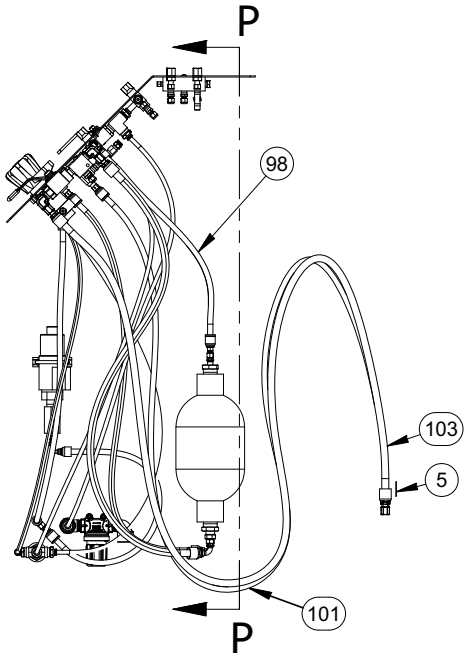
SCALE 1 / 8



VIEW Y-Y

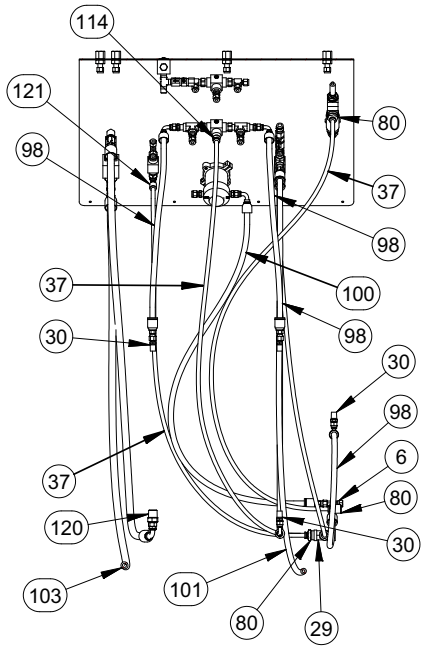
SCALE 1 : 16

FIGURE A-3. PILOT VALVE TESTER REAR PANEL ASSEMBLY



FLEXIBLE HOSE INSTALLATION

SCALE 1 : 16



SECTION P-P

SCALE 1 : 16

SOME ITEMS OMITTED FOR CLARITY

FIGURE A-4. PILOT VALVE TESTER FLEXIBLE HOSE ASSEMBLY

ITEM	QTY	P/N:	DESCRIPTION
1	4	19236	WASHER 3/8 FLTW HARDENED
2	1	29154	PLATE SERIAL YEAR MODEL CE 2.0 X 3.0
3	1	33809	FTG NIPPLE 1/2 NPT CLOSE BRASS
4	1	33975	FTG STREET TEE 1/2 NPTM X 1/2 NPTF X 1/2 NPTF BRASS
5	2	40182	TAG BRASS HEAVY DUTY BLANK 1.375 DIA X .05 TH
6	1	44330	FTG ADAPTER TEE 2 1/4 JIC MALE X 1/4 JIC FEMALE
7	1	45458	FTG BUSHING 3/8 NPTM X 1/4 NPTF BRASS
8	2	76535	FTG ADAPTER 6 JICM X 1/2 NPTM SS
9	2	76536	(NOT SHOWN) CABLE RESTRAINT HOSE WHIP .33 DIA X 11.81 LONG
10	1	76542	(NOT SHOWN) COLLAR RESTRAINT HOSE WHIP .47 TO .49 DIA
11	1	77389	BALL VALVE 1/2 NPT FEMALE 160 PSI
12	1	77421	FTG BULKHEAD 1/2 NPTF BRASS
13	2	77557	SCREW 1/4-20 X 1/2 BHCS SS
14	1	77876	FTG BUSHING 1/2 NPTM X 3/8 NPTF BRASS
15	4	77899	FTG BULKHEAD 1/4NPTF X 1/4 TUBE
16	7	77945	FTG CONNECTOR 1/4 NPTM X 1/4 TUBE
17	1	79328	LABEL WARNING - CONSULT OPERATOR'S MANUAL GRAPHIC .75 DIA
18	10	80952	SCREW 1/4-20 X 3/4 BHCS SS
19	1	81008	LABEL WEAR HEARING AND EYE PROTECTION 2.0 DIA
20	1	82144	LABEL WARNING - GENERAL DANGER GRAPHIC 1.30 X 1.13
21	2	82628	NUT LOCK #10-24 SS
22	10	82630	NUT NYLOCK 1/4-20 SS
23	2	82634	NUT 5/16-18 NYLOCK SS
24	4	82723	FTG TEE 1/4 NPTF X 1/4 NPTM X 1/4 NPTF RUN TEE SS
25	2	83133	FTG STRAIGHT 1/4 MNPT X 1/4 TUBE PRESTOLOK
26	1	83135	FTG BUSHING 1/2 NPTM x 1/4 NPTF BRASS
27	8	83557	NUT 3/8-16 HEX NYLOCK ZINC
28	1	83714	FTG HEX NIPPLE 1/4 NPTM
29	1	83981	FTG CROSS 1/2 FNPT BRASS
30	7	84367	FTG ADAPTER 4 JICM X 1/4 NPTM SS
31	1	84517	GAUGE DIGITAL PRESSURE PEEK HOLD 1/4 NPTM 10KSI
32	2	84571	FTG TEE 1/4" NPT STREET BRASS
33	1	84926	SCREW 1/4-20 X 3/8 BHSCS 18-8 SS
34	3	84962	FTG STREET TEE 1/4 NPTM X 1/4 TUBE X 1/4 TUBE SS
35	2	85240	VALVE PRESSURE RELIEF AIR 120 PSI 1/4 NPTM
36	1	85288	TUBING 1/4 OD X .170 ID POLYETHELYNE
37	5	85289	TUBING 3/8 OD X 1/4 ID POLYETHELYNE
38	1	85330	FTG PLUG 1/4 NPTM HEX HEAD 15 KSI
39	1	85399	GAUGE PRESSURE 4 IN DIA 200 PSI GLYC FILLED 1/4 MNPT BTM MNT
40	1	85400	GAUGE PRESSURE 4 IN DIA 100 PSI GLYC FILLED 1/4 MNPT BTM MNT
41	1	85478	REGULATOR SELF VENT 6 KSI BRASS 1/4 NPT
42	1	85550	REGULATOR PRE-SETTABLE 80-140 PSI 2 PORTS 1/4 NPTF
43	1	85629	(NOT SHOWN) COLLAR RESTRAINT HOSE WHIP .55 TO .59 DIA
44	2	87040	FTG TEST PT 10 KSI 1/4 NPTM - M12 X 1.5 SS W/SS COVER
45	7	87041	FTG TEST PT GAUGE ADAPTER 10 KSI 1/4 NPTF - M12 X 1.5 FEMALE SS
46	1	87258	LABEL CALDER LOGO 6 X 2.25
47	1	87422	MANIFOLD GAUGE HTC 10 KSI
48	1	87572	FTG PLUG 1/8 NPTM HEX HEAD 10KSI
49	1	87593	LABEL WARNING - CONSULT OPERATORS MANUAL 2.0 DIA
50	1	87668	VALVE BALL 2 WAY 1/4 NPTF 6000 PSI
51	1	88733	FTG ADAPTER 10000 PSI 3/4 NPTF X 1/4 NPTF

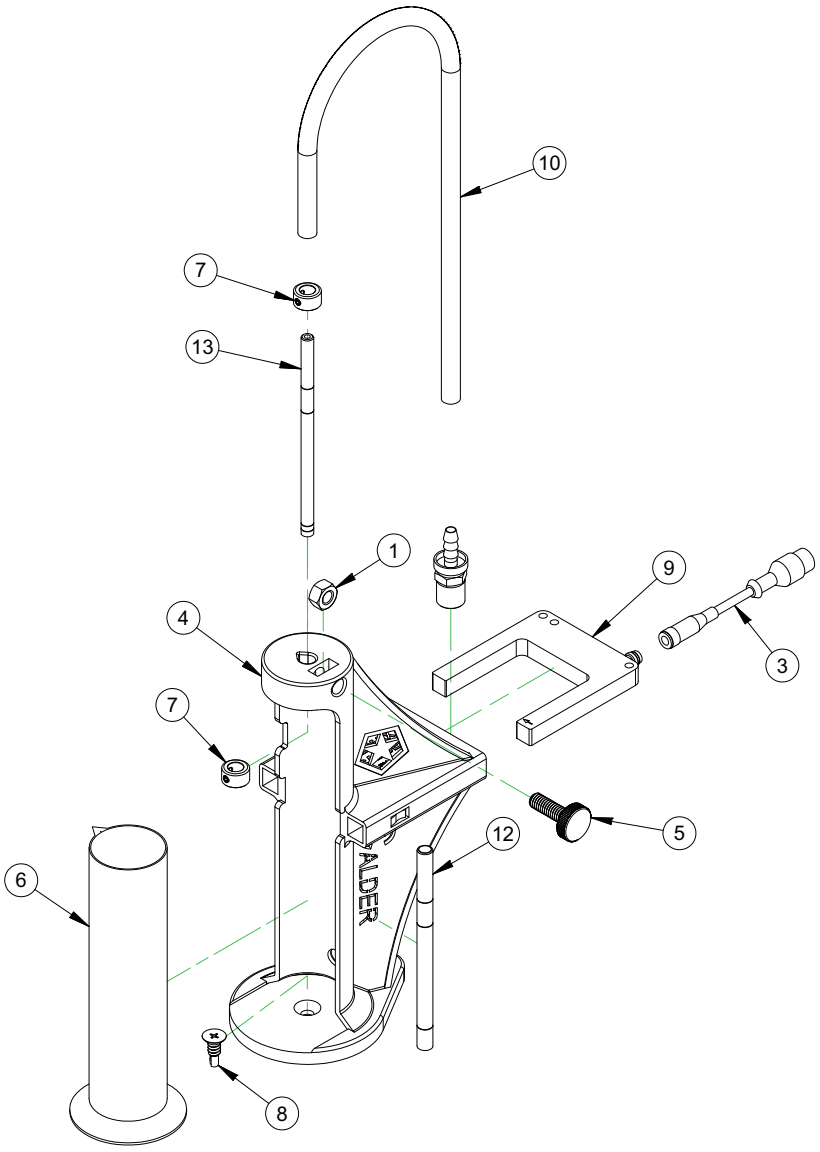
FIGURE A-5. PILOT VALVE TESTER ASSEMBLY PARTS LIST 1

PARTS LIST			
ITEM	QTY	P/N:	DESCRIPTION
52	2	88896	GAUGE PRESSURE 2-1/2 IN DIA 6 KSI GLYCERIN FILLED 1/4 MNPT
53	2	88968	NUT 1/4-20 NYLON INSERT ZINC PLATED
54	2	88969	WASHER 1/4 FLTW ZINC PLATED
55	2	88979	KIT ADDER CALDER 6K PRESSURE TRANSDUCER
56	2	89105	SCREW 1/4-20 X 3 HHCS ZINC PLATED
57	2	89125	SPACER ACCUMULATOR BRACKET 1 GALLON
58	1	89216	GAUGE PRESSURE 4 IN DIA 15 PSI 1/4" NPT BOTTOM MOUNT
59	3	89229	LABEL CALDER-CLIMAX 8 X 20
61	1	89411	PILOT VALVE TESTER CONSOLE
62	1	89460	VALVE PRESSURE RELIEF SET @ 6200 PSI CE CERTIFIED
63	1	89548	LABEL DO NOT PLUG / BLOCK PORT
64	1	90160	LABEL WARNING - EXPLOSION RELEASE OF PRESSURE
65	2	90567	SCREW 10-24 X 3/4 BHCS SS
66	1	90575	STRAINER T POLY 3/4 NPT 80 MESH CLEAR BOWL
67	2	90580	FTG POLY STREET ELBOW 90 DEG 3/4 NPT
68	1	90723	GAUGE PRESSURE 4 IN DIA 60 PSI 1/4" NPT BOTTOM MOUNT
69	1	90724	GAUGE PRESSURE 4 IN DIA 300 PSI 1/4" NPT BOTTOM MOUNT
70	1	91047	(NOT SHOWN) CRATE 44 X 38 X 70 WOODEN CRATE
71	1	91048	PRESSURE SWITCH 7-115 PSI FACTORY SET AT 40 PSI 1/4 NPTM
72	1	91057	GAUGE PRESSURE 4 IN DIA 4000 PSI 1/4" NPT BOTTOM MOUNT
73	1	91059	SPLASH GUARD PILOT VALVE TESTER
74	2	91260	FTG ADAPTER 3/8 JIC X 1/4 NPTM SS
75	2	91399	FTG STRAIGHT JIC-6 MALE X 3/8 NPTM SS
76	1	91682	SHELF FOLDAWAY 24 X 24 X 100# CAPACITY
77	1	91683	LABEL CE TESTING REQUIREMENTS QUICKSET SRV
78	1	91977	FTG ADAPTER PIPE 1 NPTM X 1/2 NPTF
79	3	92935	VALVE BALL 3-WAY 1/4 NPTF 6 KSI SS
80	5	93011	FTG ADAPTER 1/2 NPTM X 3/8 TUBE F PRESTOLOCK
81	1	94749	FTG POLY REDUCER BUSHING 3/4 NPTM X 1/2 NPTF
82	1	94751	FTG ADAPTER 1/4 NPTF X JIC-4M STEEL WITH NUT
83	1	96603	LABEL INSTRUMENT PANEL FRONT PILOT VALVE
84	1	96619	FTG STREET TEE 3/8 NPTM X 3/8 NPTF X 3/8 NPTF SS 15 KSI
85	1	96620	FTG CONNECTOR 3/8" NPTM X 1/4" TUBE SS
86	2	96629	FTG ELBOW 90 3/8 NPTM X 6 JICM SS
87	1	96653	LABEL INSTRUMENT PANEL TOP PILOT VALVE
88	1	96654	(NOT SHOWN) MANUAL INSTRUCTION CALDER PILOT VALVE
89	2	96660	TUBE 1/4" SELECTION VALVE TO OUTGAS VALVE
90	1	96698	TUBE 1/4" REGULATOR TO SELECTION VALVE
91	1	96710	TUBE 1/4" SELECTION VALVE TO DOME VESSEL GAUGE
92	1	96713	TUBE 1/4" SELECTION VALVE TO PILOT VESSEL GAUGE
93	1	96714	TUBE 1/4" ANALOG TEST GAUGE TO DIGITAL TEST GAUGE
94	1	96730	TUBE 1/4" DOME VESSEL BLOCK VALVE TO DRAIN VALVE
95	1	96731	TUBE 1/4" PILOT VESSEL SELECT VALVE TO ANALOG TEST GAUGE
96	1	96734	VALVE BALL 2-WAY 3/8 NPTF 6 KSI SS .38" BORE
97	2	96738	SCREW 10-32 X 7/16 BHSCS SS
98	3	96744	HOSE ASSY 6 KSI 1/4 ID 4 JICF SS X 4 JICF 90 DEG SS X 26 OAL
99	1	96776	HOSE ASSY 6 KSI 1/4 ID 1/4 NPTM SS X 4 JICF 90 DEG SS X 54 OAL
100	1	96780	HOSE ASSY 6 KSI 1/4 ID 4 JICF SS X 4 JICF 90 DEG SS X 43 OAL
101	1	96789	HOSE ASSY 6 KSI 1/4 ID 4 JICF SS X 6 JICF SS X 104 OAL
102	1	96801	HOSE ASSY 6 KSI 3/8 ID 6 JICF SS X 6 JICF 90 DEG SS X 43 OAL

FIGURE A-6. PILOT VALVE TESTER ASSEMBLY PARTS LIST 2

PARTS LIST			
ITEM	QTY	P/N:	DESCRIPTION
103	1	96802	HOSE ASSY 6 KSI 3/8 ID 6 JICF SS X 6 JICF SS X 106 OAL
104	2	96811	MOUNTING COLLAR 1 GAL 6000 PSI
105	2	96812	MACHINE BRACKET 1" X 1" X 2"
106	10	96846	NUT T-SLOT RAIL 6MM X 16MM BHCSC W/ BALL
107	1	96856	T-SLOT RAIL ALUM 40MM X 40MM X 12"
108	2	96898	MOUNTING BASE ACCUMULATOR 6K 1 GAL 6000 PSI
109	2	97225	SCREW 10-24 X 5/16 BHSCS SS
110	1	97310	TUBE 1/4" PILOT VESSEL SELECT VALVE TO PD-02
111	1	97325	FTG TEE 1/4 NPTM SS
112	2	97386	FTG CHECK VALVE 1/4 NPTF 6 KSI SS
113	2	97452	SCREW 5/16-18 X 3/4 BHSCS SS
114	2	97528	FTG ADAPTER 1/4 NPTM X 3/8 TUBE F PRESTOLOK
115	1	98052	LABEL AIR INLET 6000 PSI (413 BAR) MAX
116	1	98121	LABEL WATER SUPPLY
117	3	98280	(NOT SHOWN) CORDSET EXTENSION M12 (EUROFAST OR MICRO-LINK) 4 CONDUCTOR PVC JACKET 2M LONG
118	2	98516	VESSEL 6 KSI 1 GAL
119	3	98560	FTG BUSHING 1 NPTM X 1/4 NPTF SS
120	1	98574	FTG ADAPTER 6 JICM X 1/2 NPTM SS
121	2	98604	FTG ELBOW 90 DEG PRESTOLOK 1/4 NPTM X 3/8 TUBE
122	1	98633	FTG ELBOW 90 DEG PRESTOLOK 1/2 NPTM X 3/8 TUBE SWIVEL
123	1	98739	CLAMP EXHUAST 5/16-18 X 2-11/16" ID ZINC
124	1	98842	LABEL FILTER/SCREEN CE
125	1	98843	LABEL DRAIN CE
126	8	98871	SCREW 3/8-16 X 1-3/4 BHSCS ZINC PLATED
127	1	98880	ASSY PORTABLE SMARTEST DAAS W/ INDICATOR W/ DIGITAL LEAK
128	1	99248	INDICATOR LIGHT GRN/RED/YEL MULTI FUNCTION 50MM ROUND
60	1	89357	(NOT SHOWN) SCHEMATIC CALDER PILOT VALVE TESTER

FIGURE A-7. PILOT VALVE TESTER ASSEMBLY PARTS LIST 3



PARTS LIST			
ITEM	QTY	P/N:	DESCRIPTION
1	1	13904	NUT 5/16-18 STDN STAINLESS STEEL
2	1	16765	FTG BARB 1/4 NPTM X 1/4 HOSE
3	1	89810	CORDSET 3 WIRE HYBRID M8 FEMALE TO M12 MALE 6M LONG TPU JACKET
4	1	90034	HOUSING CALDER DIGITAL LEAK DETECTION SENSOR
5	1	90036	THUMB SCREW 5/16-18 NYLON LOW PROFILE 1" LONG
6	1	90038	GRADUATED CYLINDER 100 ML POLYPROPYLENE SQUAT FORM 1.5 INCH OD
7	2	90198	COLLAR SHAFT 8MM ID SET SCREW 304 STAINLESS
8	1	90199	SCREW 1/4-14 X 3/4 SELF DRILLING FLAT HEAD 410 STAINLESS
9	1	90200	SENSOR 50MM FORK INFRARED NPN OUTPUT 24VDC M8 X 1 CONNECTOR
10	96	90201	TUBING POLYURETHANE VERY FLEXIBLE 1/4 ID X 3/8 OD -40F-180F 30 PSI
11	1	90202	(NOT SHOWN) SYRINGE 60 ML CLEAR POLYPROPYLENE
12	1	90224	TUBE BUBBLE/DRIP DIGITAL LEAKAGE MEASUREMENT SYSTEM API 527
13	1	95274	TUBE BUBBLE/DRIP DIGITAL LEAKAGE MEASUREMENT SYSTEM API 598

FIGURE A-8. DIGITAL LEAKAGE MEASUREMENT SENSOR ASSEMBLY (P/N 98873)

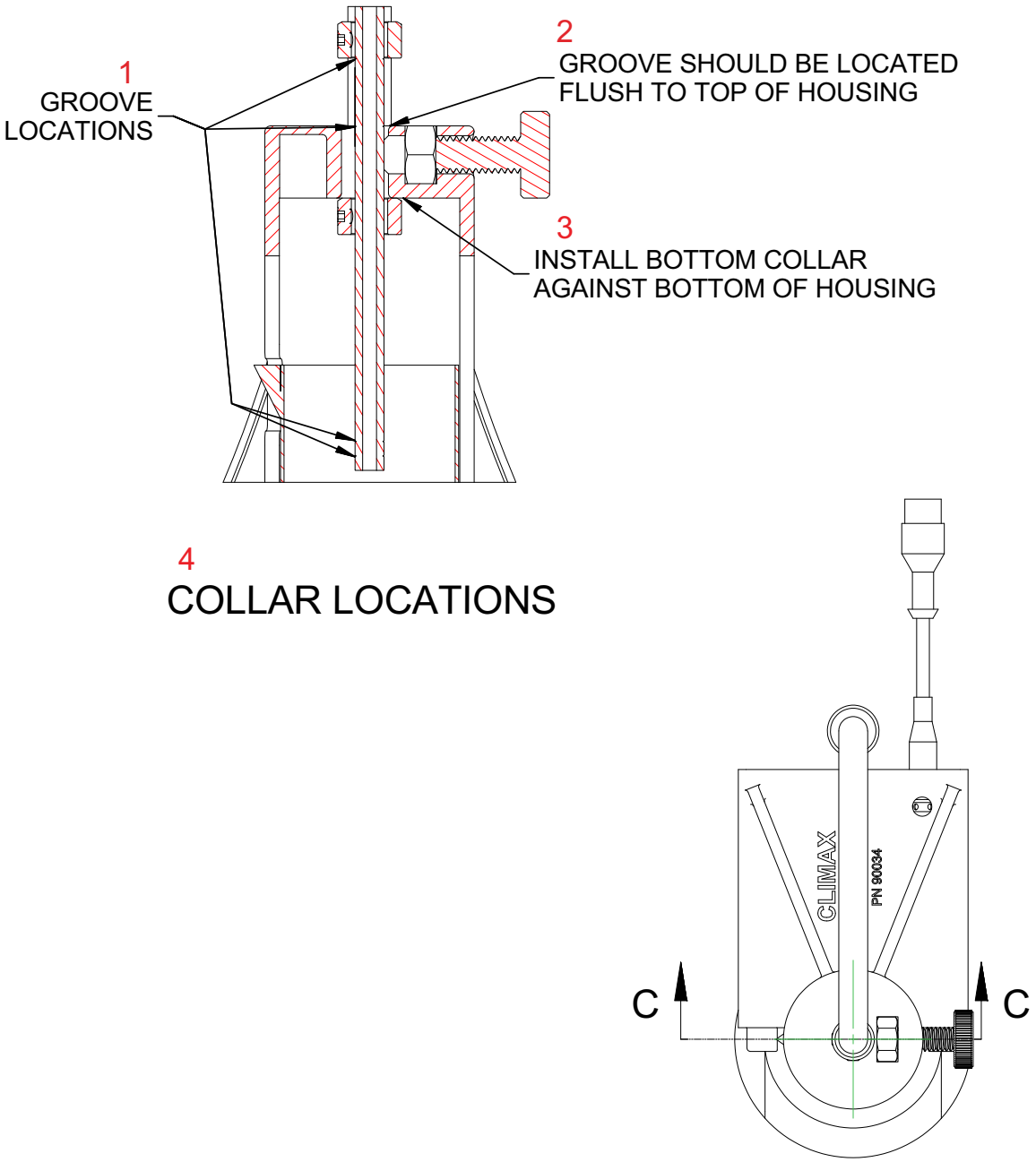


FIGURE A-9. DIGITAL LEAKAGE MEASUREMENT SENSOR ASSEMBLY (P/N 98873)

TABLE A-1. COLLAR LOCATIONS FOR P/N 98873

Number	Text
1	Groove locations
2	Groove should be located flush to the top of the housing
3	Install the bottom collar against the bottom of the housing
4	Collar locations

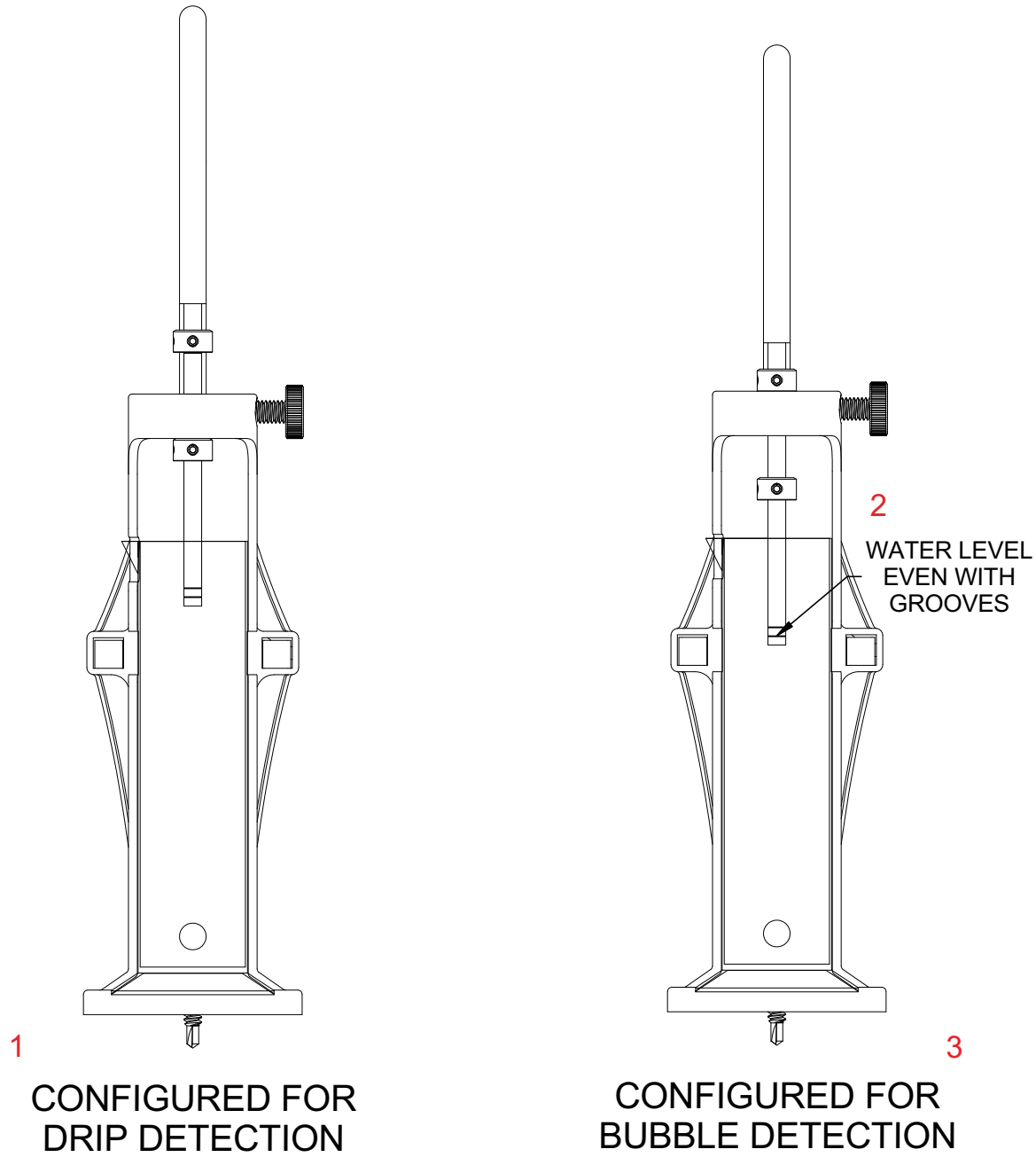


FIGURE A-10. DIGITAL LEAKAGE MEASUREMENT SENSOR ASSEMBLY (P/N 98873)

TABLE A-2. DIGITAL LEAKAGE CONFIGURATION IDENTIFICATION

Number	Text
1	Configured for drip detection
2	Water level even with grooves
3	Configured for bubble detection

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APPENDIX B SCHEMATICS

Schematics list

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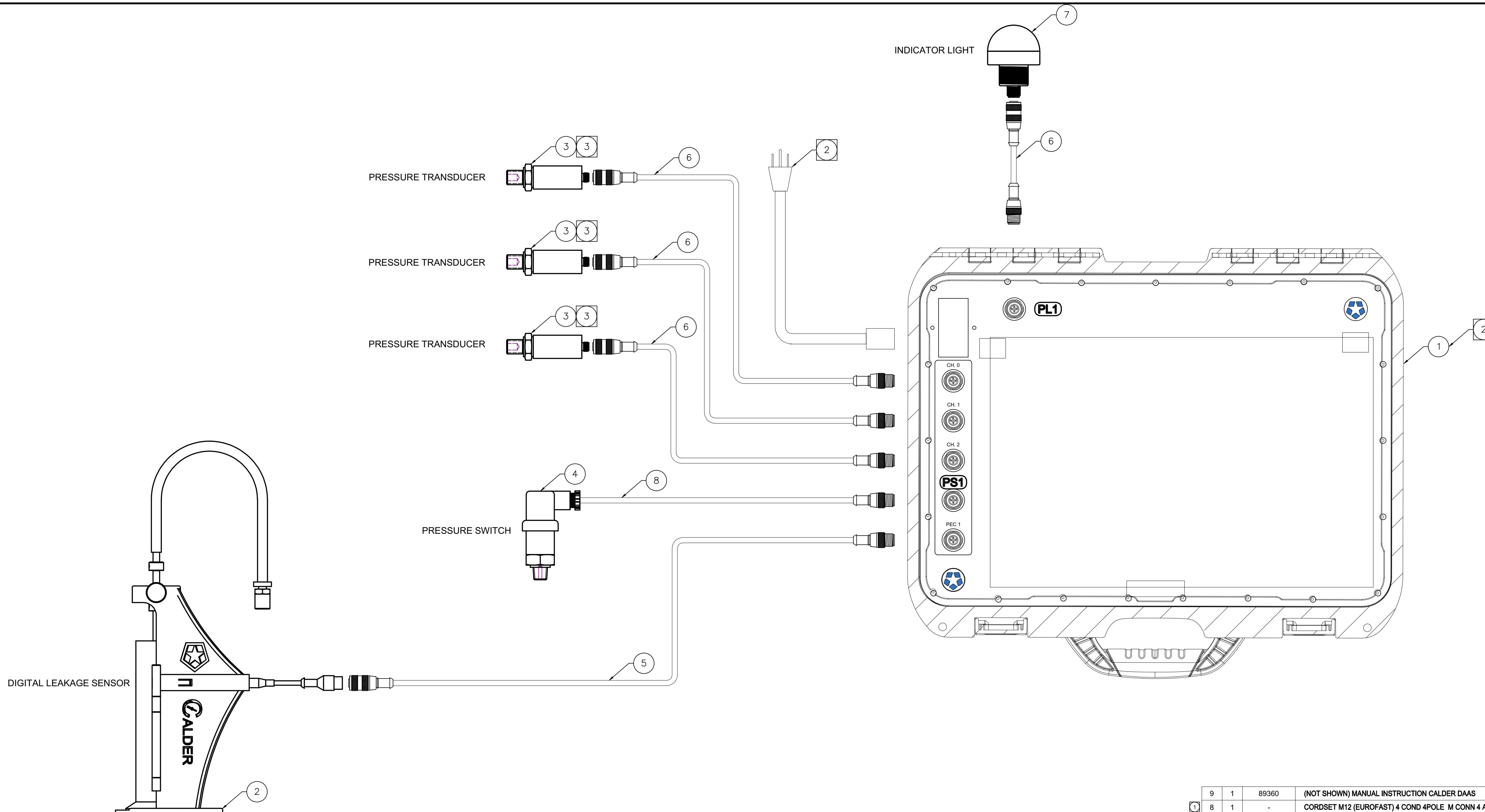


Note	ITEM	QTY	CLIMAX P/N	DESCRIPTION	MFG & P/N
	9	1	89360	(NOT SHOWN) MANUAL INSTRUCTION CALDER DAAS	
1	8	1	-	CORDSET M12 (EUROFAST) 4 COND 4POLE M CONN 4 AMP 300V 4 M	REMKE -
1	7	1	99248	INDICATOR LIGHT GRN/RED/YEL MULTI FUNCT (FLASHING) 50MM ROUND	BANNER K50LGRY2PQ
1	6	4	98280	CORDSET EXTENSION M12 4 CONDUCTOR 2M LONG	REMKE 304K0060F1
1	5	1	89810	CORDSET HYBRID M8 FEMALE TO M12 MALE 6M LONG	TURCK U2516-53
1	4	1	91048	PRESSURE SWITCH 7-115 PSI SET TO 40 PSI 1/4 NPTM DIN A	NOSHOK 300127/115840PSIR
1	3	3	-	PRESSURE TRANSDUCERS (PRESSURE RANGES AS REQUIRED)	
	2	1	98873	DIGITAL LEAKAGE MEASUREMENT SENSOR	CLIMAX PER DWG
	1	1	98933	CONTROL PANEL PORTABLE DAAS 3 CHANNEL W/CLAMP PRESS INDICATOR	CLIMAX PER DWG

BILL OF MATERIALS

1 THESE PARTS ARE FOR REFERENCE ONLY. THE PRESSURE SENSORS, INDICATOR LIGHT, PRESSURE SWITCH, AND CORDSETS ARE NOT PART OF THE CONTROLLER ASSY

2 POWER CORD AND LAPTOP COMES WITH CONTROL PANEL

3 CONTROL PANEL COMES WIRED FOR OMEGA TRANSDUCERS. MATCH WIRING OF THE CONTROL PANEL TO THE TRANDUCERS IF OTHERS ARE USED

EXCEPT AS NOTED, DIMENSIONS ARE IN INCHES PER ASME Y14.5
.X ± .030
.XX ± .010
.XXX ± .005
ANGLES ± .5°

MATERIAL

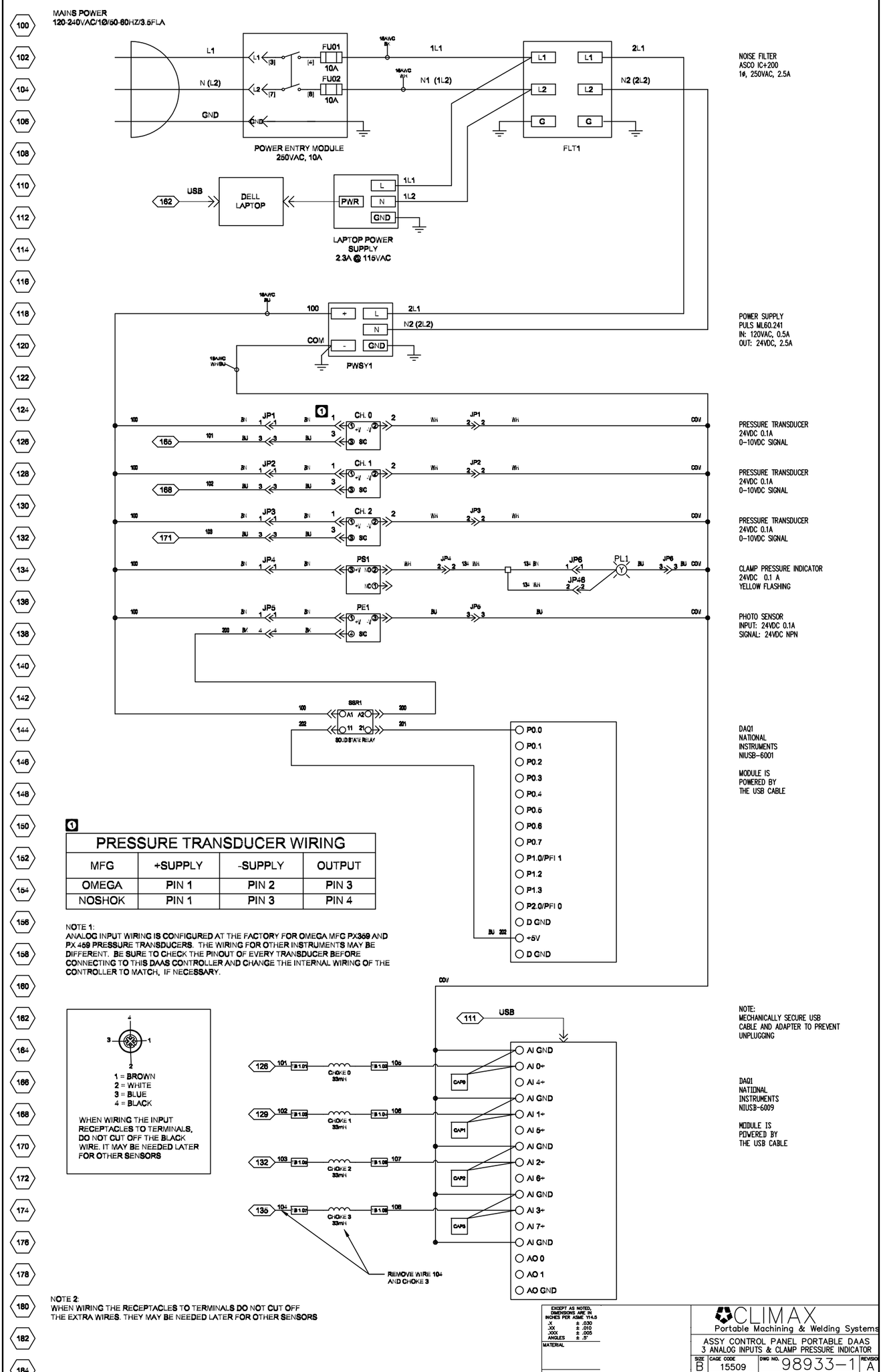
CLIMAX Portable Machining & Welding Systems

ASSY PORTABLE SMARTEST DAAS W/ TEST PRESSURE INDICATOR CIRCUIT W/ DIGITAL LEAK DETECTOR 120/230V

SIZE D | CAGE CODE 15509 | DWG NO. 98880 | REVISION B

FIGURE B-1. DAAS ASSEMBLY (P/N 98880)

FIGURE B-2. DAAS SCHEMATIC 1 (P/N 98933-1)



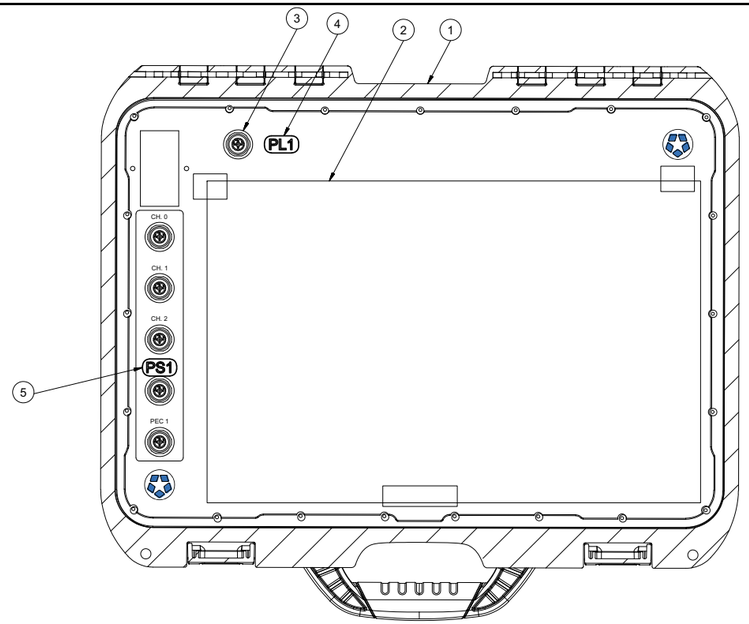
PRESSURE TRANSDUCER WIRING			
MFG	+SUPPLY	-SUPPLY	OUTPUT
OMEGA	PIN 1	PIN 2	PIN 3
NOSHOK	PIN 1	PIN 3	PIN 4

NOTE 1:
ANALOG INPUT WIRING IS CONFIGURED AT THE FACTORY FOR OMEGA MFG PX309 AND PX 409 PRESSURE TRANSDUCERS. THE WIRING FOR OTHER INSTRUMENTS MAY BE DIFFERENT. BE SURE TO CHECK THE PINOUT OF EVERY TRANSDUCER BEFORE CONNECTING TO THIS DAAS CONTROLLER AND CHANGE THE INTERNAL WIRING OF THE CONTROLLER TO MATCH, IF NECESSARY.

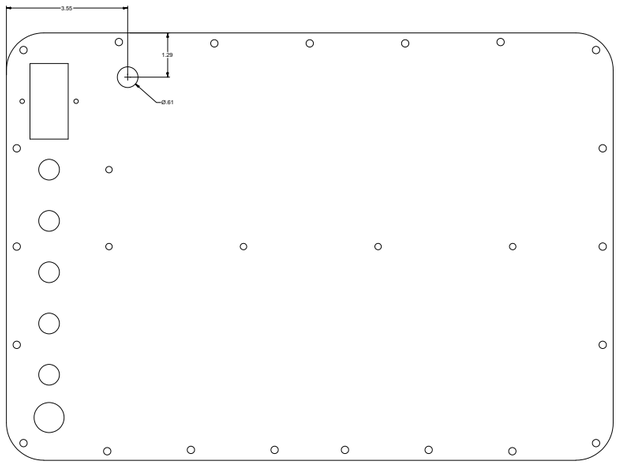
NOTE 2:
WHEN WIRING THE RECEPTACLES TO TERMINALS DO NOT CUT OFF THE EXTRA WIRES. THEY MAY BE NEEDED LATER FOR OTHER SENSORS

EXCEPT AS NOTED, DIMENSIONS ARE IN INCHES PER ASME Y14.5
.X ± .030
.XX ± .010
.XXX ± .005
ANGLES ± .5°
MATERIAL
COSMETIC CLASS EXCEPT AS NOTED A

CLIMAX
Portable Machining & Welding Systems
ASSY CONTROL PANEL PORTABLE DAAS
3 ANALOG INPUTS & CLAMP PRESSURE INDICATOR
SIZE B | CAGE CODE 15509 | DWG NO. 98933-1 | REVISION A
SCALE NONE | PART NO. | SHEET 1 OF 1

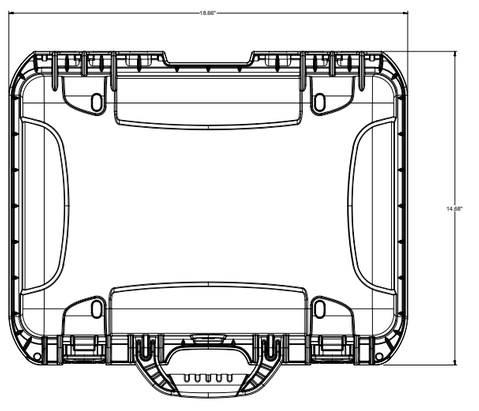


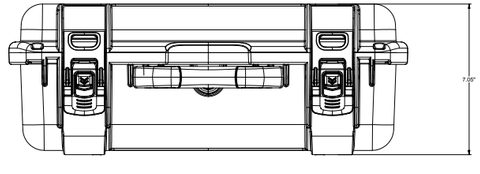
NANUK CASE WITH TOP PLATE, TOP VIEW



TOP PLATE (99-00036)

TOP PLATE, REAR VIEW





1) PULL LAPTOP COMPUTER (90148) AND SHIP TO AUTOMATION SOLUTIONS TO HAVE THEM INTEGRATE IT INTO THE CONTROL PANEL (97100)
2) STAMP NAME PLATE (47981) AS SHOWN AND ATTACHED TO THE SIDE OF THE CASE WITH THE RIVET (101362) AND BACKING WASHERS (101363)
3) DRILL THROUGH HOLE 0.61 IN DIA AND INSTALL NEW M12 RECEPTACLE (68886)
4) INSTALL LABEL "PL1" (98909) NEXT TO THE NEW RECEPTACLE
5) INSTALL LABEL "PS1" (98926) OVER THE EXISTING CH3 LABEL
6) INSTALL THE NEW TERMINAL BLOCK (88760) AND END PLATE (88761)ON THE EXISTING DIN RAIL AS SHOWN
7) WIRE THE NEW M12 CONNECTOR FOR OUTPUT TO THE INDICATOR LIGHT AND REWIRE CH 3 FOR PRESSURE SWITCH INPUT AS PER DWG 98933-1

* NOT SHOWN

	ITEM	QTY	CLIMAX P/N	DESCRIPTION	MFG & P/N
*	10	4	101363	WASHER BACKUP 1/8 IN DIA RIVET	MCMASTER 90163A213
*	9	4	101362	RIVET AL BLIND 1/8 DIA .313-.375 GRIP	MCMASTER 97447A130
*	8	1	47981	PLATE SERIAL YEAR MODEL ELECTRICAL PANELS CE	INT. GRAPHICS PER PRINT
	7	1	88761	TERMINAL BLOCK END PLATE ORANGE 2 WAY	WAGO 2002-1292
	6	1	88760	TERMINAL BLOCK, 5MM WIDE 22-12 AWG 20A 800V GRAY	WAGO 2002-1201
	5	1	98926	LABEL PS1 LAPTOP DAAS CONTROL PANEL	-
	4	1	98909	LABEL PL1 LAPTOP DAAS CONTROL PANEL	-
	3	1	68886	RECEPTACLE M12 FEMALE 4 PIN FRONT MOUNT 0.5M LEADS	TURCK FK 4.4-0.5
	2	1	90148	COMPUTER DAAS LAPTOP INTEL i7 15.6 SCREEN W/ SOFTWARE	-
	1	1	97100	ASSY PORTABLE CALDER DAAS CONTROL PANEL 1-4 AXIS	AUTO SOLUTIONS 60-03829

BILL OF MATERIALS

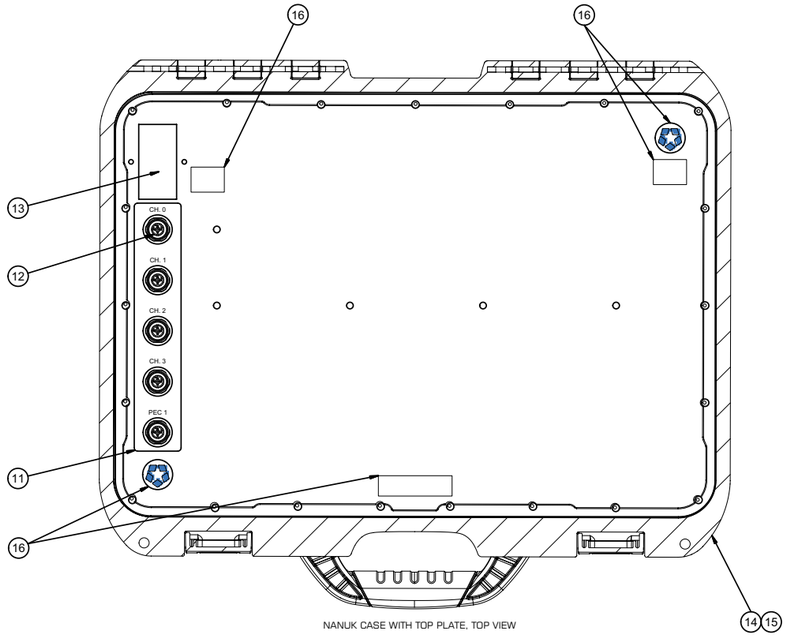
EXCEPT AS NOTED, DIMENSIONS ARE IN INCHES PER ASME Y14.5
X ± .030
XX ± .010
XXX ± .005
ANGLES ± .5°
MATERIAL
COSMETIC CLASS A

CLIMAX Portable Machining & Welding Systems

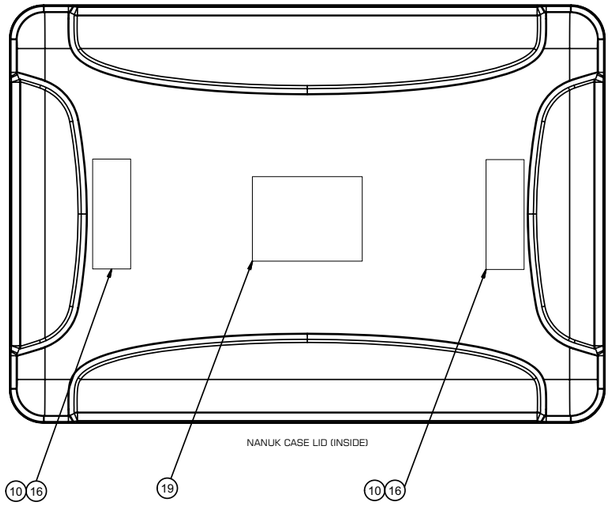
ASSY CONTROL PANEL PORTABLE DAAS
3 ANALOG INPUTS & CLAMP PRESSURE INDICATOR

SIZE	CAGE CODE	DWG NO.	REVISION
D	15509	98933-2	C

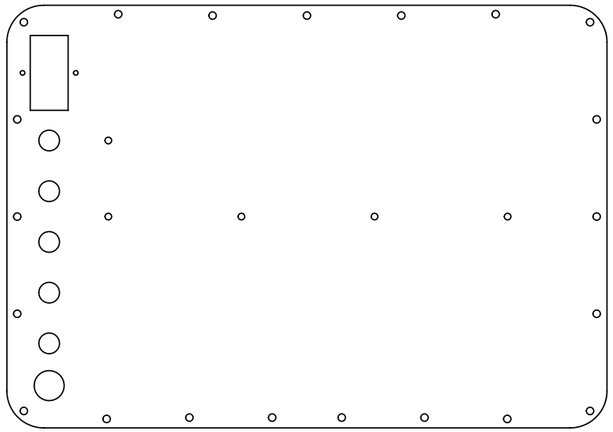
FIGURE B-3. DAAS ASSEMBLY (P/N 98933-1)



NANUK CASE WITH TOP PLATE, TOP VIEW

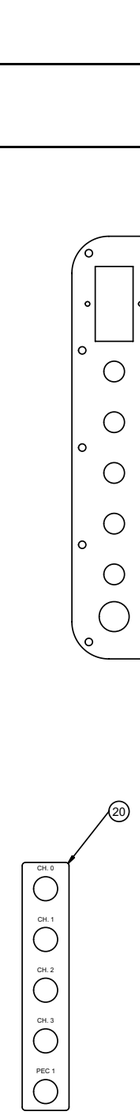


NANUK CASE LID (INSIDE)



TOP PLATE (99-00036)

TOP PLATE, REAR VIEW



TOP PLATE LEGEND (G00335)

ITEM	QTY	CLIMAX P/N	DESCRIPTION	MFG & P/N
22	1	*	USB-A TO MICRO USB ADAPTER, 90 DEGREE	AUVIPAL RMG2
22	1	*	USB-A 90 DEGREE TO USB-A STRAIGHT CABLE, 6FT	TRIPP LITE U052D-006-RA
21	21	*	TOP PLATE MOUNTING SCREWS	MCMASTER-CARR 98001A264
20	1	*	TOP PLATE LEGEND	AUTOMATION SOLUTIONS G00335
19	1	*	CLIMAX NAMEPLATE	AUTOMATION SOLUTIONS AS N00003
18	4	*	RF CHOKE, 33MH, 5%, AXIAL	DELVAN 4590-336K
17	2	*	TERMINAL BLOCK, GROUND, 3 CONDUCTOR	WAGO 2002-1307
16	1	*	3D PRINTED NANUK CASE PARTS SET	AUTOMATION SOLUTIONS K00646
15	1	*	GASKET FOR NANUK 925 CASE	NANUK 925 GASKET
14	1	*	PORTABLE CASE	NANUK 925
13	1	*	POWER ENTRY MODULE, 10A, 250VAC, FUSED	TE CONNECTIVITY PEDSXDHXO
12	5	*	M12 RECEPTACLE, FEMALE, FEMALE THREADS	TURCK FK 4.4-1
11	1	*	LEGEND PLATE	AUTOMATION SOLUTIONS G00335
10	1	*	POLYURETHANE STRIP, W/ADHESIVE, 3/8" WIDTH, 1/16" THICK	MCMASTER-CARR 9327SK112
9	1	*	TOP PLATE	AUTOMATION SOLUTIONS 99-00036
8	1	*	DIN RAIL, 11" LENGTH	MUL -
7	1	*	MULTIFUNCTION IO AND DAQMX MODULE	NATIONAL INSTRUMENTS USB-6001
6	1	*	SOLID STATE RELAY, 30VDC, 3.5A	CRYDOM DRA-CN024024
5	2	*	TERMINAL BLOCK END PLATE, ORANGE	WAGO 2002-1492
4	12	*	TERMINAL BLOCK, 4 CONDUCTOR, GRAY	WAGO 2002-1401
3	1	88748	POWER SUPPLY, 60W, 24V, 2.5A	PULS ML60.241
2	1	*	LAPTOP POWER SUPPLY	CUSTOMER SUPPLIED
1	1	*	NOISE FILTER	ASCO IC+202

BILL OF MATERIALS

EXCEPT AS NOTED, DIMENSIONS ARE IN INCHES PER ASME Y14.5
.X ± .030
.XX ± .010
.XXX ± .005
ANGLES ± .5°
MATERIAL
COSMETIC CLASS A

CLIMAX
Portable Machining & Welding Systems

CALDER DAAS CONTROL ENCLOSURE IN PORTABLE NANUK CASE

SIZE	CAGE CODE	DWG NO.	REVISION
D	15509	B00441	-

FIGURE B-4. CONTROL ENCLOSURE ASSEMBLY (P/N B00441)

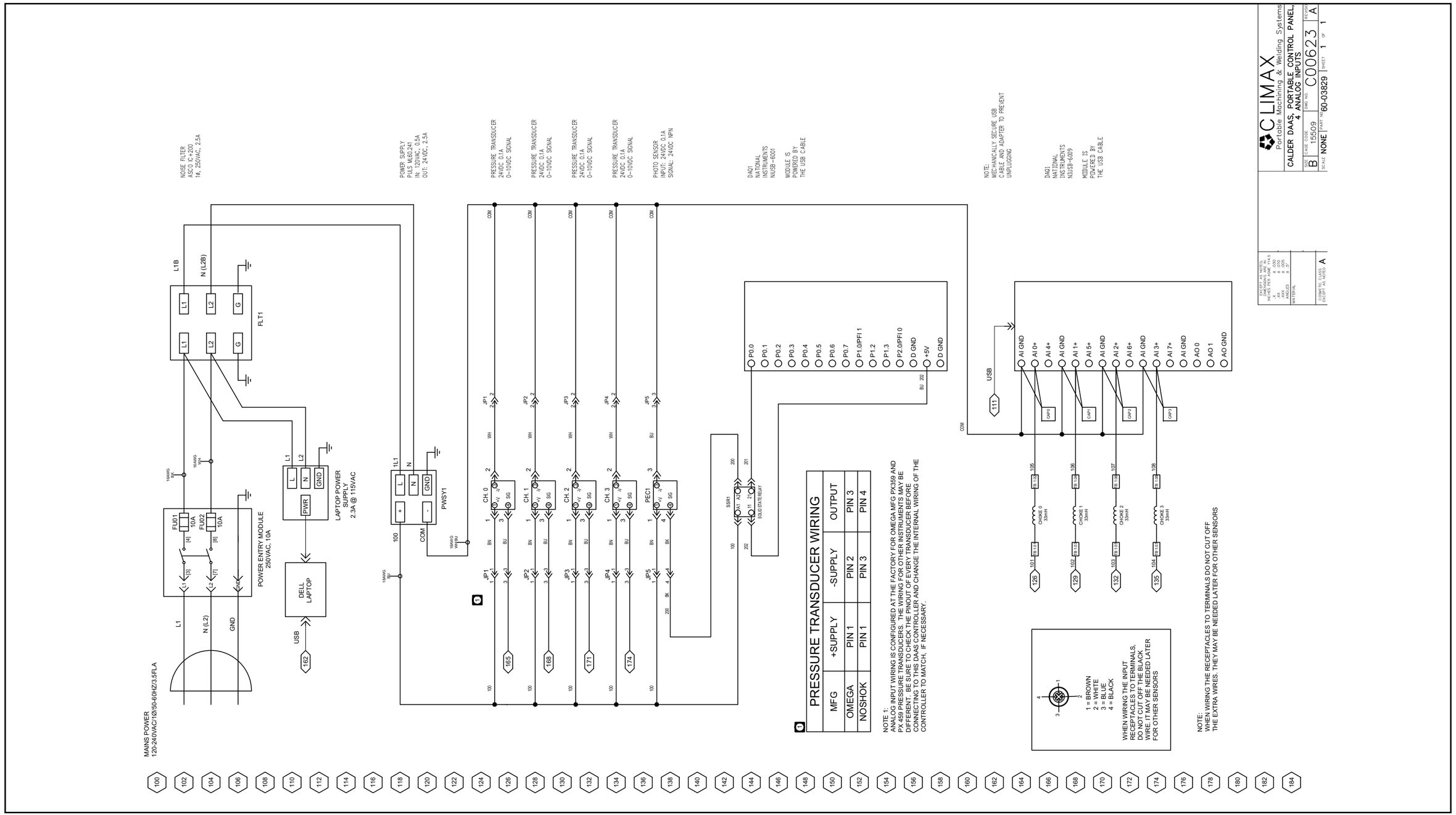


FIGURE B-5. CONTROL ENCLOSURE SCHEMATIC (P/N C00623)

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APPENDIX C SDS

Contact CLIMAX for the latest Safety Data Sheets.

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CLIMAX
BORTECH
CALDER
H&S TOOL