### INSTALLATION AND OPERATION

miqa77e1-b (1310)



# PERNICKA 700H

### Cumulative Helium Leak Detector



### Sales & Service

### WORLD HEADQUATERS

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# **Table of Contents**

1	Introduction	page 4
2	Specifications	page 5
3	Installation	page 6
4	Operation	page 10
	Starting the system Operation and control software Calibration Test chamber maintenance Leak testing Data archival Printing in Excel Cryo pump regeneration Cryo pump short regeneration Computer shut down Turning off vacuum system User windows Mini window Measure window Leak table window Configuration window Maintenance windows Mixed data window MS panel window System control window IO 220 window Calibration window Events window Errors window Tools window	page 10 page 11 page 14 page 16 page 19 page 20 page 20 page 22 page 22 page 22 page 22 page 23 page 23 page 23 page 24 page 26 page 27 page 28 page 28 page 30 page 31 page 32 page 34 page 35 page 36
5	Maintenance	page 37
6	Troubleshooting	page 38
	Options	page 39

# 1. Introduction

Congratulations on purchasing your new Pernicka 700H Cumulative Helium Leak Detector (CHLD). Soon you'll be leak testing parts with the most advanced leak detector on the market, but first, please read the following.

This manual gives step by step instructions to install and operate the Pernicka 700H.

All personnel with installation, operation, and/or service responsibilities must become familiar with the "CTI Cyro Pump Compressor Manual," to ensure safe and reliable cryo pump performance.

2. SPECIFICATIONS	
Minimum detectable leak rate for Helium (FINE mode)	> 4 x 10 <sup>-14</sup> mbar l/s
Maximum detectable leak rate for Helium (GROSS mode)	> 10 <sup>-4</sup> mbar l/s
Detectable masses	2 - 200
Mass Spectrometer	Quadrupole type
Calibrated built-in test leak in the range	10 <sup>-10</sup> mbar l/s
Test port	DN 16 CF
Vacuum pump system	turbomolecular pump oil sealed roughing pump cryo pump
Supply voltages unit	110/120 V, 50/60 Hz 15 A 220/240 V, 50/60 Hz 10 A 208 240 V, 50/60 Hz 10 A
	200-240 V, 50/00 H2 T0 A
Valve operation Purge gas	Compressed air, 100 - 110 PSI Argon, 0.5 - 1 PSI
Ambient conditions	Intended for indoor use only
Max. permissible height above sea level (during operation)	2000 m
Operational temperature	15 - 28 °C (60 - 80° F)
Max. relative humidity	80%
Overvoltage category	II
Degree of contamination	2 (EN 61010)
Weight	245 kg (540.13)
Dimensions (W x H x T)	660 x 1390 x 870 mm (26 x 54.5 x 34.25 in)

#### **ORDERING INFORMATION**

#### PART NUMBER

Pernicka 700H	
Cumulative helium leak detector system,	
110 V version	550-700
230 V version	550-701

### PART NUMBER

Options:	
Double O-ring test chamber	
Large	551-710
Medium	551-711
Small	551-712
Small metal seal test chamber	551-715
High purity gas regulator, customized for Nitrogen/Argon, pressure range 30 or 240 PSI	
US or DIN connection to gas bottle	551-700S

# 3. Installation

- 1 Remove the shipping foam from under the analyzer electronics box, leak standard, and turbo pump valve.
- 2 Place the drip pan for the mechanical pump in the lower cabinet.
- **3** Place the mechanical pump on the drip pan.
- 4 Attach the power cord to the front of the mechanical pump





- **5** Install the flex hose connecting the mechanical pump to the turbo pump using the supplied o-ring seals and quick clamps. Make sure the quick clamps are clamped properly.
- **6** Install the air filter to the mechanical pump using the supplied o-ring seal and quick clamp.





- 7 Connect the compressor to the cold head
  - a. Remove dust plugs and caps from the supply fittings and return lines, compressor, and cold head. Check all fittings.
  - b. Connect the Helium-gas return line from the gas-return connector on the rear of the compressor to the gas-return connector on the cold head. When connecting the Helium-gas return line back the nut off a 1/4 turn once it is tight.
  - c. Connect the Helium-gas supply line from the gas-supply connector on the rear of the compressor to the gas-suppy connector on the cold head. When connecting the Helium-gas supply line back the nut off a 1/4 turn once it is tight.
  - d. Verify proper helium supply static pressure by confirming that the Helium pressure gauge reads 245-250 psig (1690-1725 kPa), in an ambient temperature range of 60 to 100 degrees F (16-38 degrees C). If pressure is higher or lower than the specified range, see the Brooks Automation CTI-Cryogenics 8200 Compressor manual.
  - e. Connect the cold head power cable from the compressor to the cold head.
  - f. If the compressor is water cooled connect the supply and return water lines. For flow and pressure requirements see the Brooks Automation CTI-Cryogenics 8200 Compressor manual.
  - g. Hardwire the compressor input power cable from Pernicka 700H to compressor.





- 8 Install purge gas line (use 1/4 inch stainless steel, or copper tubing). Connector is on the right side of the back of the CHLD. Use 4.8 grade (99.998% pure) compressed Argon, or Nitrogen gas. Helium content should be less than 1 ppm if possible. Adjust the gas regulator to read 0.5-1.0 psig.
- 9 Install compressed gas line (use 1/4 inch Polypropylene tubing) to the CHLD (Connection is on the left side of the back of the CHLD). Adjust air regulator to rea 100-110 psig.

#### ATTENTION

#### High leakage current.

Operation without protection earth may cause electrical shock.

- 11 Connect the compressor input power cable to power source (208-240 Volt, 10 Amps, 50-60 Hz)
- 10 Plug the CHLD's main power cord into standard wall outlet or UPS (120 volts, 15 Amps, 60 Hz)



# 4. Operation

#### Starting the system

- 1 Leak testing is made easy by following the steps in this chapter. To start the system follow the next seven steps (the locations are displayed in the figure below):
  - 1 All operators should complete the three day CHLD instruction class before operating the system.
  - 2 Turn the circuit breaker to the on position and the start delay timer will initiate. There will be a 20 second delay before power is applied to the system. After the delay period a red power LED will turn on indicating power is present. This feature protects the system from power transients which may occur during a power failure.
  - 3 The monitor will automatically turn on, if it doesn't, manually turn it on.
  - **4** The computer will automatically turn on, if it doesn't, manually turn it on.
  - 5 Make sure the Metering valve is open.
  - 6 Make sure the calibration leak standard is in calibration.
  - 7 Plug in ESD wrist strap.





#### **Operation and control software**

Software version 2-1.1.09-03.20

2 To access the operation and control software double click the [Pernicka 700H] icon on the desktop. While the software loads three different windows appear momentarily. To use the simulation mode, or to change the analyzer IP address, in the first window that appears place the cursor in the PC banner and left click the mouse.



**3** During the next window that appears the computer automatically connects to the analyzer.

	Туре	IP Address	Name	DeviceName	1
	220	169.254.1.50	CHLD700H	PTM28611-44502622	
- ISA	PI	lease Wait!	9.11 1051201		Connect

4 The last window that appears before the software finishes loading automatically adjusts the offset for the gain ranges on the FET amplifier.



#### **NFICON**

5 When the software is finished loading the measurement window is displayed. Do not drag the window with the mouse, use the maximize button if it is necessary to enlarge the window. The status of the system is displayed in the yellow message widow. When first starting the system the message window will say, "Cooling Cyro." It usually takes around 2 hours for the cryo pump to reach an operational temperature.



- **6** The message window will read, "System Pumped and Ready" when the system has met five parameters in the system diagram window:
  - 1. Cyro pump has reached an operational temperature.
  - 2. The vacuum system has pumped down, indicated by a green check mark
  - 3. Turbo pump is at least 95% of full speed
  - 4. Air pressure line is between 100-110 psi, indicated by a green check mark
  - 5. Leak standard temperature is approximately room temperature in degrees Celsius



Installation and Operation



7 Once the system is ready to operate, select [Method] in the program dial and click [Load&Run].



In the PC method editor window select the appropriate leak testing method from the method list, or create a new method. Method creation is taught during the three day CHLD training class. The example method [He-Ar Multigas] pictured below measures both Helium and Argon during the test cycle. The method was created taking into account the package type, military testing standards, and the test chamber used.

Make sure that the [SEM Target] is set to 1.0E-12, and the [SEM Target window =/-] is set to 5.0E-14. These values are used since the Helium test leak standard is a nominal 5E-10 atm-cc/sec leak rate. Do not change these two values.

Click [Use Method].

	📓 PC Method Editor Equation.vi
Example	Method List Methods
method list	Empty Chamber Small TO LCC 1.5crCeramic He-Ar Multigas Diagnostic He-N2 Multigas Calibration File C:\Program Files\Pernicka\ParaFiles\He-Ar.rcp Calibration File C:\Program Files\Pernicka\ParaFiles\He-Ar.rcp Data File C:\Program Files\Pernicka\ParaFiles\He-Ar.rcp Data File C:\Program Files\Pernicka\ParaFiles\He-Ar.rcp Data File C:\Program Files\Pernicka\ParaFiles\He-Ar.rcp
	Gas Name 0       Helium       1.00E-9 atm cc/s         Gas Name 1       Argon       1.00E-7 atm cc/s         Gas Name 1       Argon       1.00E-7 atm cc/s         T1 (purge)       T2 (purge delay)       T3 (Evacuate Cyc)       V2 cycles       T6 (vent)         20       5       10       10       3         Gross Leak threshold       2.0E-7       SEM Target       SEM Target window +/-       Method date         1.0E-12       S.0E-14       Method version       8:32:50.156 AM       1/9/2009
	FM     4     5     40     41     0     0     0       Equations used (read only) loaded from recipe       Enable     Helium     x0= m0-m1;       Enable     Argon     x1= m2;       off

(1310)



8 When the system is pumped and ready turn on the analyzer filament and secondary electron multiplier by clicking [Init VACSys].

Calibrate	Bar	Method	
Load/Unload	MID	Recipe	
LeakCheck	Load &	Run	
Regen	Finished	_	
Service	He-N2 Multigas		
11-44502622	r 🖍	830	

**9** The analyzer filament and secondary electron multiplier symbols turn gold when they are on. The operator may need to click [Init VACSys] more than once to turn on the analyzer filament and secondary electron multiplier.

#### Calibration

**10** There are three different times when a calibration needs to be preformed: each day before parts are to be leak tested, when changing the method to one that uses a different calibration recipe, and after a cryo pump regeneration. To preform a calibration click [Calibrate].

Init VAC5ys	Scan
Calibrate	Bar Method
Load/Unload	MID Recipe
LeakCheck	Load & Run
Regen	Finished
Service	Method in use He-N2 Multigas



Below are two windows used during the calibration of the system. Viewed in the top window is a linear plot of the Helium calibration slope and Helium background. In the lower window is a logarithmic plot providing greater dynamic range of the Helium signal during calibration.



11 When the calibration is complete the message window will read, "Calibration Finished." The absolute magnitude of the ratio of the baseline to the calibration slope is calculated and should be greater than 100. If it is less than 100 the system will not leak test. This would indicate the cryo pump has excess ice build up and needs regeneration (See section on regeneration).





#### Test chamber maintenance

12 Clean the test chamber and gasket with isopropyl alcohol and a lint free cloth. Make sure the gasket and base are free of any microscopic debris. A magnifying lens is useful when inspecting the gasket.

#### Leak Testing

**13** Before leak testing parts it is important to test an empty chamber to out-gas the elastomer gasket and to verify it's seal. This may be done more than once. Make sure the chamber lid is closed. Click [LeakCheck] to test the empty chamber.





14 In the PC UserInterface window input the operator's name by selecting from the drop down menu or by adding a new user name to the list. Click [Done] when finished.

C UserInput			
	<b>P</b> ernicka Corporation	Date Tested 9:30:15 AM 12/22/2008	
	perator		
		T	
Custor	ner		
LIMS numi	ber	-	
Part Num	ber	-	
Serial Num	her	-	
Date Code	0000 Series 52		
Method Multi Ga	s He-Ar		
Measur	ed Gas LeakRate LR limit	Pass/Fail	
<u> </u>	Helium NaN 3.00E-10		
	Argon NaN 7.00E-10	0	
Note: All Leakrat	es are indicated in <b>atm cc/s</b>		
Sample Comment:	;		
Tested on Pernic	ka Corporation CHLD Serial No: 0206		Done

- **15** The leak test automatically starts after clicking [Done]. Make sure the test chamber lid is closed before starting the test cycle, or else the system will abort the test.
- **16** When the leak test is finished the PC Show Print Report window displays the leak rate.



Print	PC UserInput					Choose Printer
		Pernic	R	ration	Date Tested 1:53:01 PM 2/2/2009	Microsoft Office Document Image Wi HP Deskjet D1400 series (Copy 1) HP Deskjet D1400 series
	Onei	retor		action		
	Luk	e Jones			7	
	Cuchomor	0.0 comics	anductor			
	LTMS number	L-SE25	Shiddetor		e de la companya de la	
ple 🔶						
-	Part Number	34567			ļ	
	Serial Number	15				
	Date Code	4009	Se	ries 6	[	
M	ethod He-N2 Mult	idas				
	Measured	Gae	LeakRate	LR limit	Dacc/Fail	
rate		Helium	4.00E-14	5.00E-11	Pass	
	r					
rate	$\rightarrow$	Nitrogen	5.21E-9	1.00E-7	Pass	
as N	lote: All Leakrates	are indicate	ed in <b>atm c</b> o	:/s		
Sa	mple Comments					Cancel
Т	ested on Pernicka	Corporatio	n CHLD Serial	No: 0206		

17 Either cancel, or print the empty chamber test results.

**18** If the leak rate of the empty chamber is satisfactory, click [LeakCheck].



- 19 In the PC UserInterface window input the desired information for the first part to be leak tested. Use the tab key to jump from one box to the next. By pressing [return] you can skip this window, or click [Done] when finished. The leak test automatically starts after clicking [Done]. Make sure the part is loaded with the lid closed before starting the test cycle.
- **20** Systems equipped with an optional start switch assembly may need the start switch depressed for the leak test to start.

(1310)



#### Data archival

21 The PC Show Print Report window is displayed when the leak test is finished. The operator can either print the test results, or choose to cancel the printing. Whether the operator chooses to cancel, or print the test data, it is stored in the leak table which can be viewed and printed at a later time. The printer can also be selected.

	🖥 PC Show Print Report.vi	×	
	Print PC UserInput	Choose Printer	
	Date Tested 1:53-01 PM 2/2/2009	Microsoft Office Document: Image Writer HP Deskjet D1400 series (Copy 1) HP Deskjet D1400 series	Select printer
	Operator		
	Luke Jones		
	Customer AA semiconductor		
<b>F</b>	LIMS number L-5635		
Example	Part Number 34567		
data	Serial Number 15		
uata	John Multipla 13		
	Date Code 4009 Series 6		
	Method He-N2 Multigas		
	Managed Car LeakDate 18 limit Dave/Est		
	Helium 4.00E-14 5.00E-11 Pass		
	Nitrogen 5.21E-9 1.00E-7 Pass		
	Note: All Leakrates are indicated in <b>atm cc/s</b>		4
	Sample Comments	Cancel	<b>—</b>
	Tested on Pernicka Corporation CHLD Serial No: 0206		
	1509001: 2000 Mgmt Sys Software Version 2-1.1.09-03.20	Princ	

22 To access the leak table click the [LeakTable] Tab. The leak testing data in the leak table can be cleared, or transfered to Excel for printing and long term storage.



(1310)



#### Printing in Excel

23 If choosing to print from Excel the operator will find many options in the page setup window. For best printing results select [Landscape], [Fit to:], and [1] pages wide. Click [Print Preview] before printing. Click [OK] to print.

age Setup	?×
Page Margins Header/Footer Sheet	
Orientation	Print
Scaling	Options
● Fit to:  page(s) wide by 1 ★ tall	
Paper size: Letter	
Frinc guaity: 1600 opi	
ОК	Cancel

#### Cryo pump regeneration

24 When finished leak testing parts for the day click [Regen].

	Abort	1
	Init VACSys	Scan
	Calibrate	Bar Method
	Load/Unload	
	LeakCheck	Load & Run
$\rightarrow$	Regen	Finished
	Service	Method in use He-N2 Multigas



25 The regeneration schedule window gives options on when the regeneration cycle starts and stops. To adjust the start-tme to the current time select the calendar button. Adjust the end-time to 2 hours before the system will be operated again. Keep in mind when selecting an end-time that it takes roughly 2 hours for the system to cool to an operational temperature. Click [OK] when finished.

schedule	2:12:3 2/2/20	v 1.2 PM 09							
🖲 weekday									
🔿 weekend	Start-Time 6:00:00 PM 2/2/2009		Heater delay (s) 30 Heater time (min) 60				End-Time		
TimeLine									
2:12 PM .04:00 PM	06:00 PM 0	1 18:00 PM	10:00 PM	12:00 AM	02:00 AM	04:00 AM	06:00 AM	08:00 AI	

26 The compressor turns off and the cryo pump begins to warm up. The pressure gauges 1 and 2 are plotted in the measurement window showing the rise and fall of pressure that takes place during a regeneration. This is from condensed gases being released from the cryo pump. The turbo pump removes these gases and the pressure returns to normal operating range. The message window gives the status of the regeneration. For a full regeneration to take place the cryo pump must reach 310 degrees Kelvin. This takes about 45 minutes.



#### Short regeneration

An abbreviated regeneration may be conducted once it is clear that the gases collected on the cryo pump have been released and pumped out of the system. Typically this takes about 5-6 minutes. It should be noted that since the pump is still at low temperature the moisture will not be removed during this procedure. The regeneration cycle can be terminated at any time by simply pressing the abort button.

#### Computer shut down

We recommend that a full shut down is performed on the computer once a week to prevent Microsoft memory issues from crashing the computer. Before this can be preformed transfer all test data in the leak table to a secure location by either transferring to Excel, or printing a hard copy. Closing the Pernicka 700H program will erase any test data in the leak table. Then click the [X] in the upper right hand corner of the window to close the Pernicka 700H program.

Then shut down the computer (Cold reboot) by clicking [start] on the desktop and selecting [shutdown]. After the computer turns off restart by pressing the power button on the front of the system. If the system does not have a power button on the front of the system, restart the computer by turning the circuit breaker to the off position on the back of the CHLD system and after a few seconds turn the breaker back to the on position. There will be a 20 second delay before power is applied to the rest of the system. After the delay period a red power LED will turn on indicating power is present. This feature protects the system from power transients which may occur during a power failure. The computer will start automatically when power is applied to the system. We recommend that the Pernicka 700H software program remain running at all times except for the weekly rebooting of the computer since it controls the system.

#### Turning off vacuum system

It is recommended to leave the computer, monitor, and vacuum system running. But, if it is desirable to turn off for an extended period of time such as a month, then a full cryo pump regeneration should be done before turning off the circuit breaker to the vacuum system. When the system is turned on after an extended period of being shut down it should run for several days to regain performance before leak testing. For optimal performance leave the system running.

CHLD\_01.fm



#### **User Windows**

The Pernicka 700H has two operator windows, the measurement and mini. The measurement window gives the operator many different control and research options, while the mini window has a simplified display that is designed for mass production testing.

#### **Mini Window**



To choose the mini window select the [Mini] tab.

To start, or abort a test cycle click the [Leak Test] button. The message window gives the status of the system. The green box gives the leak rate. If the leak rate is below the pass/fail value (R1 value) the box will turn red and will say fail. If the test cycle is above the pass/fail value the box will turn green and will say pass. If it is desirable to input only the serial number for each part to be tested and to skip the PC user interface window deselect the [Use UserInput Form] box. In doing so, a box will appear to input the serial number. The operator can choose to type, or scan with a bar code scanner to enter the serial number into the box.



(1310)



#### Measurement window

In the measurement window the operator can select different programs to run by selecting the program with the program dial and then clicking the [Load & Run] button. There are five different program options on the program dial:

MID - plots helium Bar - not used Scan - scans the mass spectrum Method - allows the operator to choose different leak test methods Recipe - allows editing of the mass spectrometer parameters



The scan program gives the operator a view of the mass spectrum in the window below. To stop the program click the [STOP] button.



(1310)

CHLD\_01.fm





The measurement window displays values of importance. Below the values are defined.

He-TL Slope	8.66E-13	←1	The measured Helium slope of the leak test standard
He-Sample Slope	0.00E+0	←1	The measured Helium slope of the sample under test
He-BG Slope	5.00E-16	←1	The Helium background slope measured during the calibration
Nitrogen amplitude	8.50E-12	<b>←</b> s	Signal amplitude of second gas (optional)
S/B 100 ratio	12201.54	<b>К</b> Т	The slope/baseline ratio of Helium measured during the calibration
Net-TL Slope	8.66E-13	← Ť f(	The measured Helium slope of the leak test standard corrected or background
Measured He LR	4.00E-14	← Ť	The leak rate of Helium measured during a test cycle
Measured 2 LR	5.40E-9	←1	The computed leak rate of a second gas (optional)

#### Leak table window

The leak table window gives the operator access to the leak testing and calibration data. The data in the leak table can be cleared, or transfered to Excel for printing, or long term storage. If it is necessary to close the Pernicka 700H operation program make certain that all of the data is transfered to a secure location, since it will not be saved in the leak table window.





#### **Configure window**

Mra	Measure	LeakTable	Configuration	MindCata	MS-Facel	System-Control	10 220	Celbration	Events	Errors	Tools	Locale			
	Color Table	1000320070		1											
		UserColors	our pass pass pass (	reer pass pass pass pas	and the part land		Components	Configure (18	D. This card and an		(1) 1				
		Tab-color				8	ControlOptions	- Consigure Cric	He-TestLeak						
	Color ChartColors	ChartColor					College	Geal Ling	Lask Sco	5-320E-10 #m ml			•		
		E Legend Co	lars 📕 📜			1	-	The	Standard Ter	211 10			- <b>3</b>		
	F		hadice	and in last 1	- 0		T TP Gauge	c a new	temp coeff	icent 40 /PC					
		DeplayCol	019		- Z -		F HSC	Tedro	corrected TL	6.40%-10 mm ut	8				
		- 1 ( p				- ·	AutoStartup		ValveControl						
							Autoriane	et.	Value	Delay 2500 ==			5		
	AL configuration	0					Fatoche						- 0		
-	1.0000000000000000000000000000000000000				1 _		Enerth								
							A CONTRACTOR		1						
							Userform		-						
							F Print User	lom							
							Clear Serv	Blacker							
					<b>C</b>		LR unit								
					6-		- I contracts	_							
						,									
							In-stu formula c	hange, NOT save	to recipe filettt						
							Equitions					e)			
							Ensble	Helkum	0= =0-m1;						
							Enable	Ntrogen	1= m3-m2;						

There are several important functions in the configuration window:

1. Al configuration

Displays conversion factors for analog inputs (maintenance function).

2. Control options The [Op/Mode] function should be set to [Real Unit], other settings are for diagnostic

The [Op/Mode] function should be set to [Real Onli], other settings are for diagnostic purposes only. The [Auto-Relight] function automatically turns the analyzer filament on. The [TP gauge] is not used. The [MSC] is not used. The [hide] function hides the maintenance tabs. The [TipStrip] function gives details about the schematic diagram when the cursor is positioned on individual items.

3. Helium test leak

The leak standard parameters can be input into the [TestLeak] window. These values should be updated when ever the leak standard is changed.

4. Auto start-up

The [AutoFilament] function turns on the filament when the system is pumped and ready. This should be selected. The other functions are for other analyzer applications.

- 5. Valve control Should be set to 2500 ms.
- 6. User form

The [Print User Form] function when selected will provide the option of printing a data sheet after each test cycle. The [Clear Serial Number] function when selected will clear the serial number after

each test cycle. The [LR unit] function gives the option of displaying the leak rate in either atm cc/s,

or mbar I/s.

(1310)



#### **Maintenance Windows**

#### Mixed data window

The mixed data window plots digital outputs as a function of time (maintenance function).





#### **MS-panel window**

The MS-panel window displays the digital data values for the current completed test. The important value is the [Gross-Leak-Int] which is used to set the gross leak threshold in the methods window.





### System control window

The system control window indicates the status of current user inputs.

PERNICKA 700H								LIDI X
Mex Measure Lealifable Configuration 1	NordData MS-Panel System-Con	rol 10 220 Calbrel	tion Events	Erros .	Tools	Locale		
System Control	Display OPLY II (updated with	GetInputs)						
PC-ServicePanel	Vaciya		SequenceCantrol					
	Prouts Gauget/Al	Valves/DO	About					
Xv6	Lid-closed	V2 turbe	introlation .					
H2 purge	Arrennes de	V3 limit	Calibrata					
Xvi Xsi	2.9/L+2 Cryo-Temp	Vice Rd.	Load/Livioad					
- (1)100E-4	1005+2 futo-fee	T. Vi Charber						
		- and	Leaktheck					
Xvs Xv2		spare 2						
III T		Regen Heater ON	Regari					
(TestLeak)		Crye-on	Seven	SequircerStatus				
26.4 TL temp 4.14E-3				Coding Cry	/o to < 20.0		-	
er entremes .	J			315	00.00		04.46	
System	-	NAMES OF						
- Configure CHLD 700 parameters -		cessTimes						
ControlOptions He-TestLeak		He N2 Multiges			_			
CoMode Steal Unit Least Start S. 2021 97		T1 (purge) T2 (purge delay) T3	(Evacuate Cyc) V2 c	cles 16 (v	(train			
TR Game temp coefficient 4.0 pc		10 5	10	10	3			
THIS TRONG corrected TL 6.4096-10 am oth		Gross Linal threshold						
AutoRatUp ValveControl		SEM Target SEM Target with	terr +j-					
PAtoNavert ValveOelay 2500 ms		1.05-12 5.05-14						
P AutoOffset	Operatoritianes On	a Regen						
Галисс	D DI Perracha	chedule tane have						
Instan	3C Pernicia	9:46:12.5	AM .					
First Lawform	Self	a mediter						
Coar Serialitanber	Luke Xones							
LR unit	Your Name here	weekend StarbTime	Heater de	my (s)	End-Time			
atm cc/s		2/2/2009	Heater time	(mm) 60	2/3/2009			
1								
in process								 
220							11428611-44502622	F*1 4444 3 830



#### IO 220 window

The IO 220 window displays the status of all digital and analog inputs and outputs. The upper chart plots the raw analog output signals. The lower chart plots the analog signals after passing through a digital noise reduction filter.





#### **Calibration window**

The calibration window is not used.

PERMI	DKA 700H		-											
Mol	Neasure.	LookTable 1	Configuration	MordData	H5-Fanel	System-Control	10 220	Calbration	Events	Dros	Tools	Locale		
									())					
				READ ON Y I										
				College										
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#### **Events window**

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#### **Errors window**

Records the Prisma's emission errors.

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#### **Tools window**

The tools window is used for Maintenance functions. To exit the tools window click the [Exit Tools] button.



#### **Tune-up window**

In the [TuneUp] window the operator can choose to activate filament 1, or filament 2. After selecting a filament the operator must select [Save IS voltages] for the change to be saved.





#### Locals window

The locals window is a maintenance function.

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# 5. Maintenance

#### Annualy:

- 1 Replace the compressor absorber (8080255K001) on the 8200 compressor. If the compressor Helium lines remain intact this service interval may be extended to a three-five year period. For more information see the 8200 compressor manual.
- 2 Replace test chamber elastomer gasket (Viton-A O-ring) at least once a year. Keep seal clean and free of oil, grease, dirt, and particles.
- **3** Change oil (Leybold N 62) in rotary vane vacuum pump (Trivac D2.5E). For more information see page 18, Leybold pump operationg instructions (GA01.602/1.02).

#### Every three years:

- 1 Replace oil reservoir on Turbomolecular Drag Pump TC 600. For more information see page 38 of the TC 600 operationg instructions.
- 2 Calibrate the leak standard every three years, or according to laboratory policies.

# 6. Trouble shooting

Problem	Possible causes	Solution
The CHLD system will not turn on.	<ul> <li>Main power cord is not plugged in.</li> </ul>	<ul> <li>Plug main power cord into standard wall outlet (120 volts, 15 Amps, 60 Hz).</li> </ul>
There is a red x in the air pressure box.	<ul> <li>The compressed air line is less than 100 PSIG.</li> </ul>	<ul> <li>Adjust air regulator to read 100-110 PSIG.</li> </ul>
The test chamber will not open.	• The test chamber is under vacuum.	<ul> <li>First, Click the [Load/Un-load] button.</li> <li>Second, the purge gas regulator should read 1-2 psig.</li> <li>Third, the pneumatic air regulator should read 100-110 psig.</li> </ul>



### Additional Options

Pos.	Option	CatNo.
1.	High Purity Gas Regulator for Argon, Nitrogen with US connection	n551-701
2.	High Purity Gas Regulator for Argon, iotrogen with DIN connection	n551-702
3.	Large Double Oring Chamber	551-710
4.	Medium Double Oring Chamber	551-711
5.	Small Double Oring Chamber	551-712
6.	Small Metal Seal Chamber	551-715



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