

# ASM 182 TD+ / ASM 192 T2D+

## Helium Leak Detector



## User's Manual

## A very wide range of helium leak detectors

*Dear customer,*

*You have just bought an Alcatel leak detector. We would like to thank you and we are proud to count you among our customers.*

*This product is a result of the experience acquired over 35 years by Alcatel in vacuum and leak detection technology.*

The applications of helium leak testing are extremely diversified ranging from high-tech installation maintenance to high-speed testing of industrial products.

Each product of the ALCATEL detector range is designed to meet the specific needs of each application:




- portability,
- high sensitivity,
- pumping capacity,
- pumping type,
- automation and integration in an industrial process.



# General contents

## ASM 182 TD+ - ASM 192 T2D+ User's Manual

### Preliminary remarks

Throughout this User's Manual, you could find this type of message "  **To access to level**   **C 40** ": it refers to a specific chapter of the User's Manual. Please read it for further information.

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## ASM 182 TD+ - ASM 192 T2D+ User's Manual Detailed contents

### Preliminary remarks

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## ASM 182 TD+ - ASM 192 T2D+ User's Manual Detailed contents

### Preliminary remarks

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### Preliminary remarks

Throughout this User's Manual, you could find this type of message " **To access to level** **C 40**": it refers to a specific chapter of the User's Manual. Please read it for further information.

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## ASM 182 TD+ - ASM 192 T2D+ User's Manual Detailed contents

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<b>Error/information indicator and display</b>	<ul style="list-style-type: none"><li>■ Errors and information . . . . .</li><li>■ Errors<ul style="list-style-type: none"><li><input type="checkbox"/> Minor error</li><li><input type="checkbox"/> Major error</li><li><input type="checkbox"/> Critical failure</li></ul></li><li>■ Information</li><li>■ List of messages<ul style="list-style-type: none"><li><input type="checkbox"/> Error messages</li><li><input type="checkbox"/> Informations messages</li></ul></li></ul>	<b>C 170</b>
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# Maintenance - Troubleshooting

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## Maintenance - Troubleshooting

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# Maintenance sheets

## ASM 182 TD+ - 192 T2D+ User's Manual Detailed contents

### Preliminary remarks

Throughout this User's Manual, you could find this type of message " **To access to level** **C 40**": it refers to a specific chapter of the User's Manual. Please read it for further information.

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- Greasing the front bearing
- Greasing the rear bearing
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### Greasing the molecular drag pump MDP 5011/5006 HDS

- Accessing the bearings . . . . . **E 40**
- Using the grease syringe
- Greasing the front bearing
- Greasing the rear bearing
- Running in the pump after relubrication

### Greasing the ATP 100 pump

- Use of the lubrication syringe . . . . . **E 45**
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# Maintenance sheets

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<b>Partial maintenance of the ACP 20/28 pump (ASM 192 T2D+)</b>	<ul style="list-style-type: none"><li>■ Access to the pump . . . . .</li><li>■ Access to the ACP 20/28 variator</li></ul>	<b>E 51</b>
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# Maintenance sheets

ASM 182 TD+ - 192 T2D+ User's Manual

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# Components

ASM 182 TD+ - 192 T2D+ User's Manual

## Detailed contents

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# Components

ASM 182 TD+ - 192 T2D+ User's Manual

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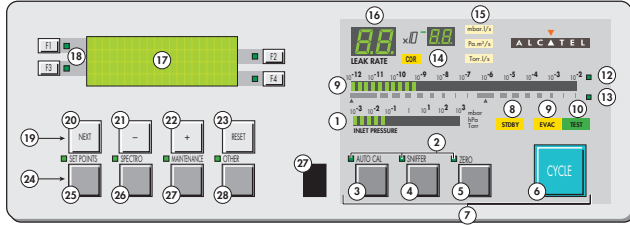
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## OPERATOR INTERFACE



- 1 Inlet port pressure analog display
- 2 Control and menu selection indicators (ON when activated)
- 3 Auto-calibration START/ABORT control key
- 4 Sniffing mode ON/OFF control key
- 5 Auto-zero ON/OFF control key
- 6 Cycle START/STOP control key
- 7 Control keys (4 keys)
- 8 Standby ON/OFF indicator
- 9 Evacuation ON/OFF indicator
- 10 Test ON/OFF indicator
- 11 Helium signal analogic display
- 12 Helium signal analogic scale ON/OFF indicator
- 13 Helium signal Zero scale ON/OFF indicator
- 14 Correction factor COR indicator (applied to digital display)
- 15 Units ON/OFF indicator
- 16 Helium signal digital display
- 17 Alphanumeric display (4 lines x 20 characters)
- 18 Parameter function keys (1 key per display line)
- 19 Modification access keys (4 keys)
- 20 NEXT : next display/parameter circular function
- 21/22 Plus or minus value adjustment, parameter selection, audio volume adjustment keys
- 23 RESET of previously displayed values (cancels temporary inputs)
- 24 Menu selection access keys (4 keys)
- 25 SET POINT menu selection key
- 26 SPECTRO calibration and analyzer cell configuration menu selection key
- 27 MAINTENANCE menu selection key
- 28 OTHER menu selection key (test mode selection, inlet VENT selection, date/time)
- 29 Remote control connection (accessory)

## HELIUM SIGNAL ANALOG DISPLAY

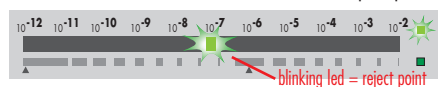
**Leak detector in hard vacuum or sniffing test mode and zero function not activated.**

How to read the He signal analog scale?

➔ Reject point is visualized by a blinking led.

➔ If the leak value exceeds the reject point, the leds will turned red (the blinking led will turn orange).

➔ If the leak value remains under the reject point, the leds will remain green.



Example:  
reject point =  $1.10^7$  mbar.l/s



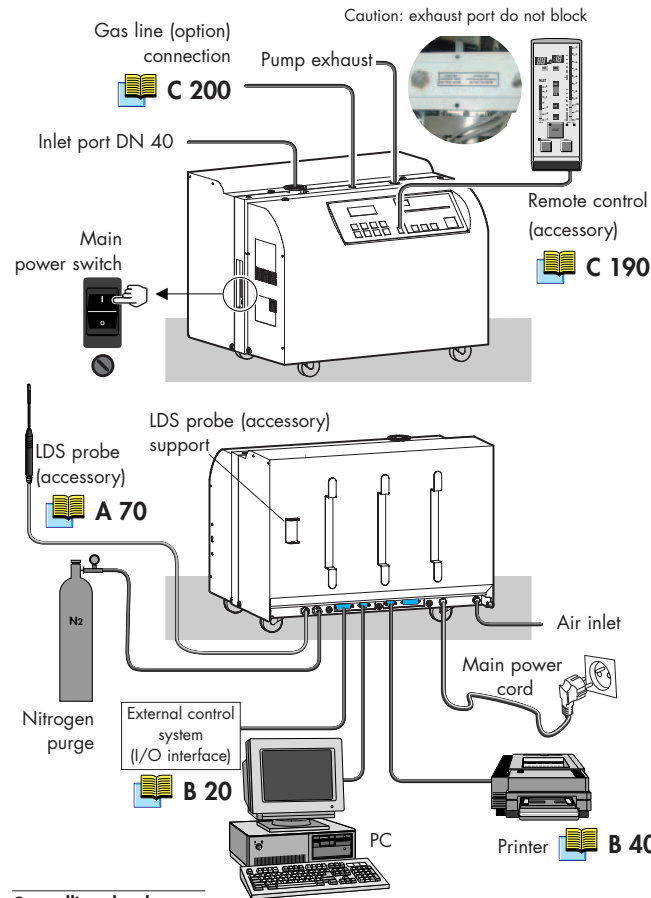
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## CONDENSED MANUAL ASM 182 TD+

References refer to a specific chapter of the User's Manual.

For further information, please refer to the User's Manual supplied with your unit.

## DETECTOR CONNECTIONS



Controlling the detector

with a PC computer through the RS 232 interface:

Refer to the RS 232 User's Manual delivered with your detector.

## TEST CYCLES

**Hard vacuum test mode**

Leak detector in stand-by mode ; connect the part or assembly to be test to the detector.



(1) As soon as the inlet pressure reaches 1 mbar, the unit goes in gross leak test mode or when the pressure has reached  $2.10^{-2}$  mbar, the unit goes in high sensitivity test mode.

**Sniffing test mode**

Leak detector in stand-by mode ; connect the long distance sniffer probe to the quick connector.



Basic operation of the leak detector C 60

## ASSISTANCE TO THE TEST

The ASM 182 TD+ leak detector offers to the user 5 interesting functions in order to improve test.

**Memo function** ..... Memorization of the latest He signal measured after depressing the CYCLE key at the end of the cycle.

Memo function C 130

**Cycle end** ..... Automatic control of the roughing and measure timers.

Cycle end C 110

**Bargraph zoom on the reject point** ..... Display a greater resolution of the He signal around the reject point.

Bargraph zoom on the reject point C 90

**Helium pollution prevention** ..... Device that prevents the unit from getting polluted with Helium.

Helium pollution prevention C 140

**Helium background suppression** ..... Automatic zero function.

Zero function C 120

## USER INTERFACE LEVEL

The ASM 182 TD+ offers 4 levels of user interface to accommodate any application requirements. All 4 levels of user interface are accessible by means of a four-digit password.

**Level 1** This level has very limited information on the alphanumeric display (LCD). This level is generally selected for production types of applications.

**Level 2** This level allows the operator to visualize some parameters without the possibility of making any changes. Some as level 1, this level is usually selected for production types of applications.

**Level 3** Some as level 2 but with the possibility to set some parameters such as test mode, vacuum and sniffing corrections status, audio alarm and air inlet. This level is generally selected for maintenance applications.

**Level 4** This level allows access to all parameters and is generally used for settings all the parameters.

**User interface level presentation** C 30

## CALIBRATION

### Internal

The internal calibration is automatically activated during the start-up process. It doesn't require any operator action.

Thanks to the initial auto-calibration, the leak detector can be immediately operational. The result of the auto-calibration process is displayed.

Internal auto-calibration on request: it can be started by the operator whenever needed (the unit has to be off-cycle).

### External

The external auto-calibration allows direct readout in cases of operation with an auxiliary pumping system.

**Calibration of the leak detector** C 70

## AIR INLET

### Purpose

At the inlet of the detector, 2 functions are proposed to the operator:

- connection to the vent air function,
- connection to the gas line option.

The indicator "inlet: vent off" indicates that the venting valve is not activated (= closed) at the end of the cycle.

The setting by default is "vent off" (= valve closed).

### Connection to the gas line option :

Refer to the User's Manual.

**Air inlet** C 80

**Gas line option** C 210

## ZERO FUNCTION

### Purpose

The zero function offers the operator the possibility to detect small leaks that are smaller than the helium background.

The zero function could be activated manually by the operator or automatically (He background suppression).

### Manual activation of the zero function

Connect the part or installation to be tested.



On the digital display, the ASM 182 TD+ He background displays.



The digital display becomes 0.0E-00. On and after this time, it will display only He variation.

### Manual deactivation of the zero function



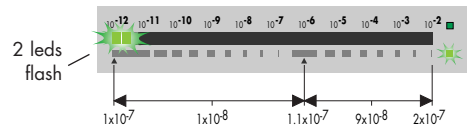
### Automatic activation/deactivation of the Helium background suppression

Refer to the User's Manual.

### Analog display

- When the zero function is activated, use the He signal zero scale.

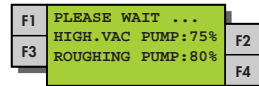
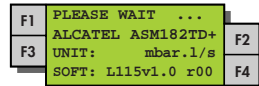
- The He signal zero scale displays 2 leds signal centered around the zero value.



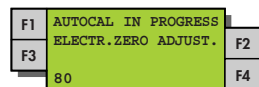
**Zero function** C 120

## START-UP

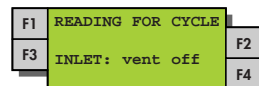
- 1 - Connect the main cable from the detector to the proper power outlet.
- 2 - Depress the main switch to position "I". On the control panel, the indicators lights flash.
- 3 - The following screens are shown on the LCD.



- 4 - When the TMP pump reaches its nominal speed, the unit auto-calibrates itself.



- 5 - When calibration is completed, the unit is ready to start a cycle.



**Starting up/Switching off the leak detector** C 50

## AUDIO ALARM

The audio alarm offers 2 modes of operation. They are both linked to the zero function.

### Zero function not activated

The audio alarm starts when the He signal exceeds a fixed set point: this set point is programmable.

### Zero function activated

The audio alarm is modulated with respect to the position of the helium background.

**Audio alarm** C 100

## INTERVAL MAINTENANCE OPERATIONS

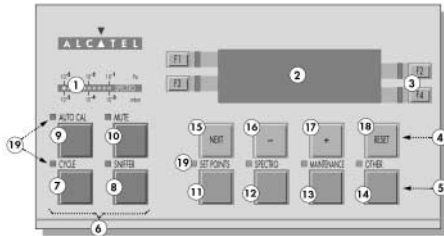
FREQUENCY*	OPERATION	SEE CHAPTER
4 000 H(1) or 6 months(2)	Clean the vacuum lines, the valves and the gauges with alcohol - Dust the electronic boards and the fans - Clean filters (inlet filters, air inlet filter)	E 30 E 85
	Partial maintenance of the analyzer cell: Replace analyzer cell filaments and collector. Clean the analyzer cell with alcohol (this cleaning may be necessary in case of general internal contamination creating insulating deposits).	E 60
8 000 H(1) or 1 year(2)	Sniffer probe filter replacement if used.	E 80
	Pirani gauge adjustment.	Contact customer service
12 000 H(1)	Regrease the molecular pump MDP 5011. Regrease the turbomolecular pump TMP 5154.	E 30 E 40
	Recalibration/exchange of the internal calibrated leak.	E 70
16 000 H(1) or 2 years(2)	Replace the ball bearings and the seals of the molecular pump and turbomolecular pump.	E 30 E 40
	Complete maintenance Dry pump (ACP 20/28).	Contact customer service
500 000 cycles	Clean the valves.	E 85

(1) running time  
(2) running time or storage  
(3) storage

\*Service intervals: The service intervals given are for applications and work rates which conform to the normal operating conditions. If the machine is operating under more difficult conditions they can be shortened.

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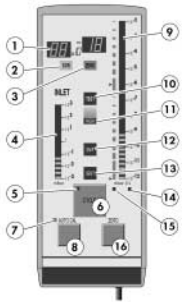
## OPERATOR INTERFACE



Control panel

- |   |   |
|---|---|
| 1 Spectro pressure status indicator                                       | 13 MAINTENANCE menu selection key   |
| 2 Alphanumeric display (4 lines x 20 characters)                          | 14 OTHER menu selection key (test mode selection, inlet VENT selection, date / time)      |
| 3 Parameter function keys (1 key per display line)                        | 15 NEXT: next display/parameter circular function   |
| 4 Modification keys (4 keys)  | 16 & 17 Plus or minus value adjustment, parameter selection, audio volume adjustment keys |
| 5 Menu selection access keys (4 keys)                                     | 18 RESET of previously displayed values (cancels temporary inputs)                        |
| 6 Control keys (4 keys)   | 19 Control and menu selection indicators (ON when activated)                              |
| 7 Cycle Start/Stop control key  |   |
| 8 Sniffing mode ON/OFF control key  |   |
| 9 Autocalibration Start/Abort control key                                 |   |
| 10 Mute: Audio signal ON/OFF control key                                  |   |
| 11 SET POINT menu selection key   |   |
| 12 SPECTRO calibration and analyzer cell configuration menu selection key |   |

### Remote control



- |   |
|---|
| 1 Helium Signal digital display   |
| 2 Correction factor COR indicator (applied to digital display)                                |
| 3 Zero function indicator (applied to analog + digital display)                               |
| 4 Inlet port pressure analog display  |
| 5 Test cycle ON indicator (ON when activated)   |
| 6 Cycle Start/stop control key  |
| 7 Calibration in progress indicator: steady = internal autocal., blinking = external autocal. |
| 8 Autocalibration start control key   |
| 9 Helium signal analogic display  |
| 10 Test ON indicator (Gross leak, Normal, High Sensitivity)                                   |
| 11 High Sensitivity test ON indicator   |
| 12 Sniffing test mode ON indicator  |
| 13 Inlet VENT ON indicator  |
| 14 Helium signal standard scale ON indicator  |
| 15 Helium signal Zero/Zoom scale ON indicator   |
| 16 Zero/Zoom ON/OFF control key   |

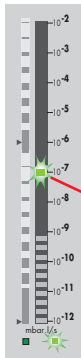
## HELIUM SIGNAL ANALOG DISPLAY

**Leak detector in hard vacuum or sniffing test mode and zero function not activated.**

How to read the He signal analog scale?

- ➔ Reject point is visualized by a blinking led.
- ➔ If the leak value exceeds the reject point, the leds will turn red (the blinking led will turn orange).
- ➔ If the leak value remains under the reject point, the leds will remain green.

Example: reject point =  $1.10^7$  mbar.l/s



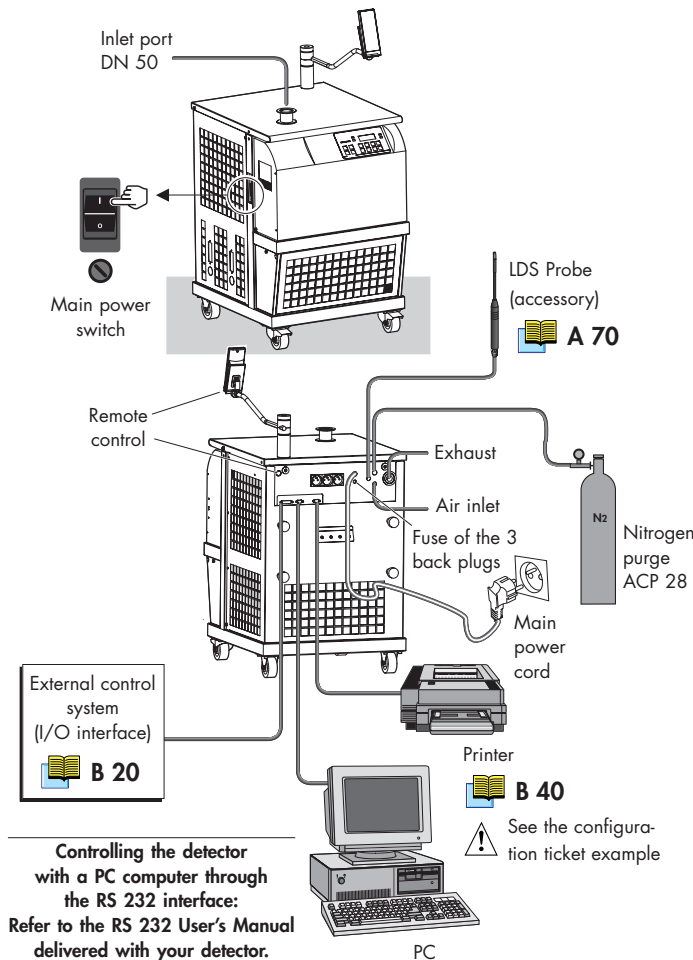
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# CONDENSED MANUAL ASM 192 T2D+

References refer to a specific chapter of the User's Manual.

For further information, please refer to the User's Manual supplied with your unit.

## DETECTOR CONNECTIONS



## TEST CYCLES

### Hard vacuum test mode

Leak detector in stand-by mode ; connect the part or assembly to be test to the detector.



(1) As soon as the inlet pressure reaches 1 mbar, the unit goes in gross leak test mode or when the pressure has reached  $2.10^2$  mbar, the unit goes in high sensitivity test mode.

### Sniffing test mode

Leak detector in stand-by mode ; connect the long distance sniffer probe to the quick connector.



Basic operation of the leak detector C 60

## ASSISTANCE TO THE TEST

The ASM 192 T2D+ leak detector offers to the user 5 interesting functions in order to improve test.

**Memo function** ..... Memorization of the latest He signal measured after depressing the CYCLE key at the end of the cycle. Memo function C 130

**Cycle end** ..... Automatic control of the roughing and measure timers. Cycle end C 110

**Bargraph zoom on the reject point** ..... Display a greater resolution of the He signal around the reject point. Bargraph zoom on the reject point C 90

**Helium pollution prevention** ..... Device that prevents the unit from getting polluted with Helium. Helium pollution prevention C 140

**Helium background suppression** ..... Automatic zero function. Zero function C 120

## USER INTERFACE LEVEL

The ASM 192 T2D+ offers 4 levels of user interface to accommodate any application requirements. All 4 levels of user interface are accessible by means of a four-digit password.

**Level 1** This level has very limited information on the alphanumeric display (LCD). This level is generally selected for production types of applications.

**Level 2** This level allows the operator to visualize some parameters without the possibility of making any changes. Some as level 1, this level is usually selected for production types of applications.

**Level 3** Some as level 2 but with the possibility to set some parameters such as test mode, vacuum and sniffing corrections status, audio alarm and air inlet. This level is generally selected for maintenance applications.

**Level 4** This level allows access to all parameters and is generally used for settings all the parameters.

**User interface level presentation** C 30

## CALIBRATION

### Internal

The internal calibration is automatically activated during the start-up process. It doesn't require any operator action.

Thanks to the initial auto-calibration, the leak detector can be immediately operational. The result of the auto-calibration process is displayed.

Internal auto-calibration on request: it can be started by the operator whenever needed (the unit has to be off-cycle).

### External

The external auto-calibration allows direct readout in cases of operation with an auxiliary pumping system.

**Calibration of the leak detector** C 70

## AIR INLET

### Purpose

The operator can connect the leak detector to the vent air function.

The indicator "inlet: vent off" indicates that the venting valve is not activated (= closed) at the end of the cycle.

The setting by default is "vent off" (= valve closed).

**Air inlet** C 80

## ZERO FUNCTION

### Purpose

The zero function offers the operator the possibility to detect small leaks that are smaller than the helium background.

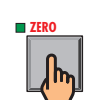
The zero function could be activated manually by the operator or automatically (He background suppression).

### Manual activation of the zero function

Connect the part or installation to be tested.



On the digital display, the ASM 192 T2D+ He background displays.



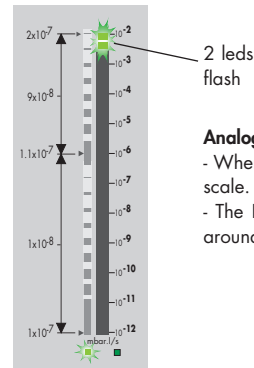
The digital display becomes 0.0E-00. On and after this time, it will display only He variation.



**Manual deactivation of the zero function**

### Automatic activation/deactivation of the Helium background suppression

Refer to the User's Manual.



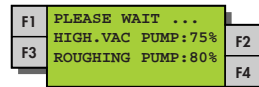
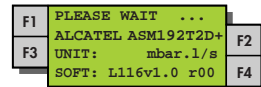
### Analog display

- When the zero function is activated, use the He signal zero scale.
- The He signal zero scale displays 2 leds signal centered around the zero value.

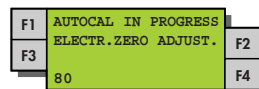
**Zero function** C 120

## START-UP

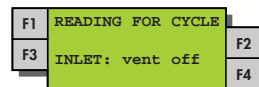
- 1 - Connect the main cable from the detector to the proper power outlet.
- 2 - Depress the main switch to position "I". On the control panel, the indicators lights flash.
- 3 - The following screens are shown on the LCD.



- 4 - When the TMP pump reaches its nominal speed, the unit auto-calibrates itself.



- 5 - When calibration is completed, the unit is ready to start a cycle.



**Starting up/Switching off the leak detector** C 50

## AUDIO ALARM

The audio alarm offers 2 modes of operation. They are both linked to the zero function.

### Zero function not activated

The audio alarm start when the He signal exceeds a fixed set point: this set point is programmable.

### Zero function activated

The audio alarm is modulated with respect to the position of the helium background.

**Audio alarm** C 100

## INTERVAL MAINTENANCE OPERATIONS

FREQUENCY*	OPERATION	SEE CHAPTER
4 000 H(1) or 6 months(2)	Clean the vacuum lines, the valves and the gauges with alcohol - Dust the electronic boards and the fans - Clean filters (inlet filters, air inlet filter)	E 30 E 85
	Partial maintenance of the analyzer cell: Replace analyzer cell filaments and collector. Clean the analyzer cell with alcohol (this cleaning may be necessary in case of general internal contamination creating insulating deposits).	E 60
8 000 H(1) or 1 year(2)	Sniffer probe filter replacement if used.	E 80
	Pirani gauge adjustment.	Contact customer service
12 000 H(1)	Regrease the molecular pump MDP 5006 HDS.	E 30
	Regrease the turbomolecular pump TMP 5154.	E 40
	Regrease ATP 100 pump.	E 45
16 000 H(1) or 2 years(2)	Recalibration/exchange of the internal calibrated leak.	E 70
	Replace the ball bearings and the seals of the molecular pump and turbomolecular pump.	E 30
22 000 H(1) or 1 year(3)	Replace the ball bearings and the seals of the ATP 100 pump.	E 40 E 45
	Complete maintenance Dry pump (ACP 20/28).	Contact customer service
	Clean the valves.	E 85

(1) running time  
(2) running time or storage  
(3) storage

\*Service intervals: The service intervals given are for applications and work rates which conform to the normal operating conditions. If the machine is operating under more difficult conditions they can be shortened.

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