

Explosive Vapor Detector



PILOT-M1 **PREMIUM** **USER'S MANUAL**

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1. FOREWORD

This Manual should be studied before any manipulation is made with the Detector.

WARNINGS

PILOT®-M1 represents a functionally complete device – thus needs no maintenance from the User.

Don't try to disassemble it.

Ask qualified personnel for service and repair.

2. PRECAUTIONS

The following precautions should be taken when operating the equipment.

Entering the premise from the cold, keep the Detector in a carrying case for at least 2 hours before opening.

When setting the equipment ensure that:

- the ventilation holes are not covered;
- air is allowed to circulate freely around the body;
- it is on a vibration free surface;
- it will not be exposed to strong interference from an external source;
- it will not be exposed to electrostatic discharges;
- it will not be exposed to excessive heat (higher than 70°C even when it's switched off) or to direct sunlight;
- avoid condensate, splashes or water from entering the inside of the Main Unit body. If a foreign body or water does enter the equipment contact your nearest dealer or service center;
- don't use the Main Unit in a dusty and smoky environment;
- Do not remove the cover from the body!
- Do not handle the cables with wet hands!
- Do not pull out the plugs by pulling on the cables - hold the plug!
- In addition, never place heavy objects on the equipment!

3. RECOMMENDATIONS

The portable Explosive Vapor Detector (EVD) «PILOT®-M1» is intended for detection of charges of explosives in non-tight volumes and traces of explosives on a surface of surveyed objects. Detection is carried out by sampling air from internal volumes of surveyed objects or from their surfaces and the analysis of tests on contents of characteristic components of explosive vapor.

The detector is capable to detect traces of explosives based on nitroglycerine (NG), EGDN, trinitrotoluene (tol, trotyl, TNT), PENT (tetranitrapentaerythrit, pentaerythrittetranitrate, Pentrit, PENT), hexogen (RDX), oktogen (HMX), tetryl (Tetril) and nitrocellulose powders, engaging mixing explosives on their ground: Semtex and other plastic and elastic explosives on the basis of RDX, PENT or their mixture, B-type compositions (ТГ-20, ТГ-40, ТГ-60, ТГ-80, МС, ТГАФ)*, C-type (C1, C2, C3, C4, ПБВ-4*, ПБВ-5А*, ПБВ-7*, ПБВ-12М*, ЭВВ-11*, ЭВВ-32*, and etc.), H-6, HBX, Minol-2, Amatol (amatol, аммонит № 6-ЖВ*), Primacord, Primasheet, Tetritol, Tritonal, Cordit N, A-IX-1, A-IX-2, A-IX-20, octols*, ocfols* and etc.

* - explosives of Russian origin.

4. OPERATIONAL PRINCIPLE

The proper sample collection is governing condition for any trace detector. The versatile Pilot®-M1 Detector is capable of analyzing either trace particle or vapor samples, allowing the operator to apply an adequate sampling technique for the substance suspected.

For example, most explosives do not have a strong vapor presence and in the real world are very difficult to detect by vapor. Therefore, the most reliable collection and analysis method for those substances is particle collection.

The Pilot®-M1 operational principle is based on Drift Spectrometry method - free ions mobility in an alternating electric field. Explosives vapor detection is realized by assay collection from the suspect object surface or its inner space and subsequent analysis of these samples for the presence of typical components. Sample collection is accomplished by means of air suction from object's surface or through the holes, chinks and slots in its body. It can be done directly or by means of additional pump. Assay for analysis can be obtained by wiping the inspected surface with sampling swabs as well.

Explosives particles collected by swab or its adsorbed vapor are ionized and directed into a drift-box with alternating electric field. Then distinctive ions typical to explosives are separated and registered.

The obtained analysis data is processed by build-in CPU and displayed on LCD.

Special sample Heater (supplied) provides ultimate possibilities:

- Explosives detection not only from a gaseous but also solid phase (microparticles).
- Less volatile matters detection like RDX, PENT and compositions on their base (plastic explosives).
- Minimization of environment influence (humidity, low & high temperature) on detection facility.
- Simultaneous sample collection in various places by means of dedicated Sampler Unit or swabs

Moreover, supplementary Gauze Sampler Unit (air pump) allows operator to collect samples even in a dusty and smoky environment when a direct usage of the Pilot[®]-M1 Main Unit is not recommended.

SPECIAL WARNING: *«Pilot[®]-M1» Explosive Vapor Detector is a high sensitive device.*

- ***don't use the Detector in a premise where explosives are stored;***
- ***do not allow personnel with direct contact with explosives from any operation with Pilot[®]-M1 Detector.***

5. PILOT®-M1. COMPLETE SET

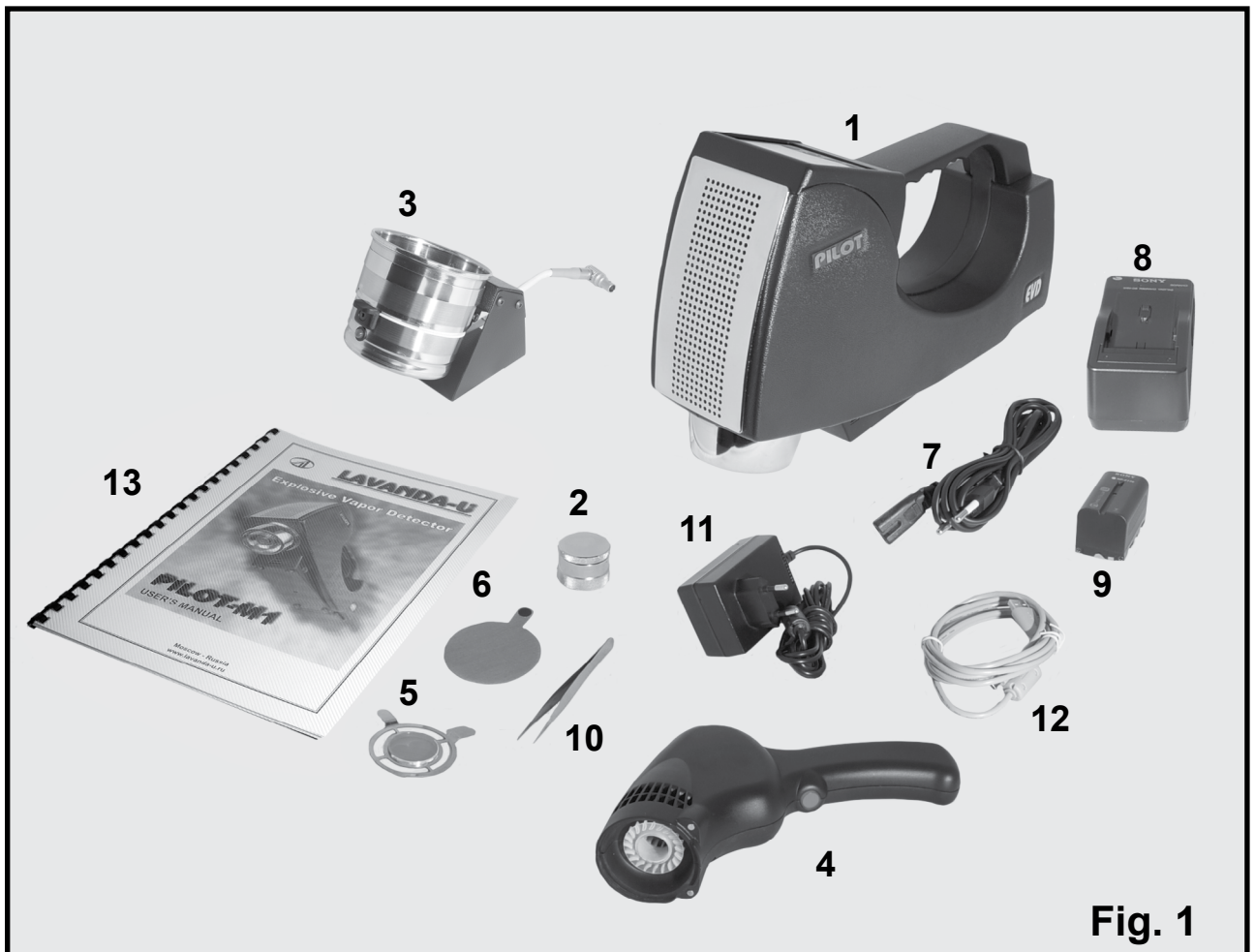
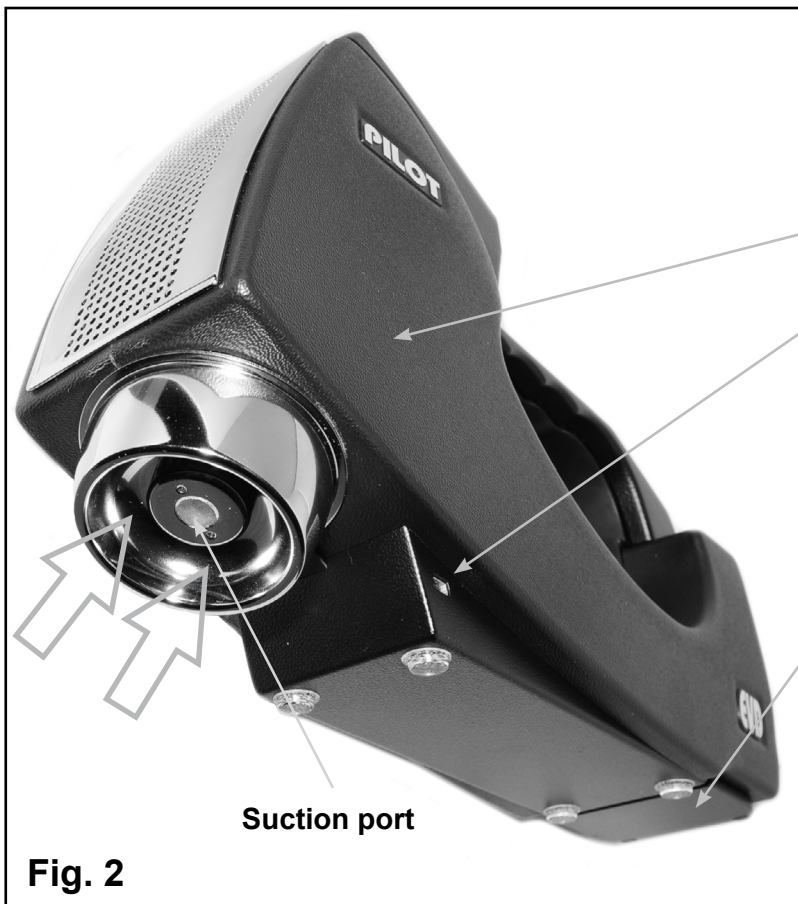


Fig. 1

1. Pilot®-M1, Main Unit	1	10. Tweezers	1
2. Test unit (Imitator)	1	11. AC / DC Adapter	1
3. Sample Heater	1	12. USB cable	1
4. Self-contained Gauze Sampler Pump	1	13. User's Manual	1
5. Metallic Gauze Sampler	3	14. Carrying case*	1
6. Special Swab Sampler	30	15. Software*	1
7. Power cable for the Charger	1		
8. Charger	1		
9. Rechargeable Battery	2		

* - not shown on Fig. 1.

6. PILOT®-M1. CONTROLS AND CONNECTORS



Pilot®-M1 EVD Main Unit
Computer coupling port
Battery compartment

Suction port

Fig. 2



Sample heater coupling port

Fig. 3



7. PILOT®-M1. POWER SUPPLY

Pilot®-M1 EVD can be powered both by rechargeable battery and wall outlet.

7.1. MAINS POWER SUPPLY



1. Take an AC/DC Power Adapter (Fig. 8).



2. Connect AC/DC to a corresponding socket on the back side of the Main Unit body (Fig. 9).
3. Couple AC/DC Adapter plug to the wall outlet.

NOTE: The battery is charging while Pilot®-M1 is supplied from wall outlet via corresponding AC/DC adapter.

While Pilot®-M1 is off battery charging progress is shown on the display.

7.2. RECHARGEABLE BATTERY POWER SUPPLY

NOTE: Use only rechargeable batteries from supplied set. Pilot®-M1 is compatible with Sony NP-F770 battery (7.2 V, 31.7 W*h). Please contact manufacturer for details.



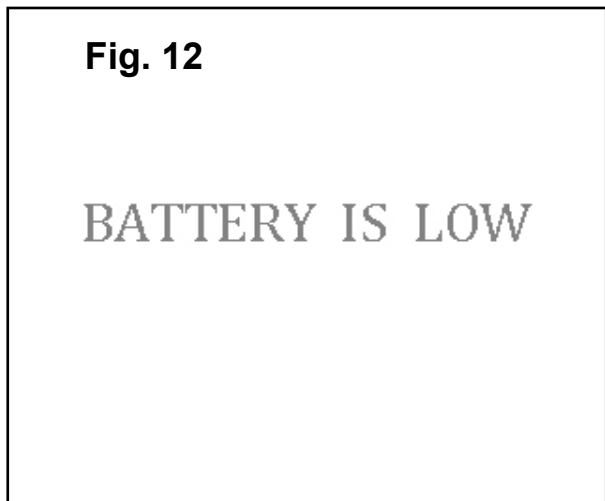
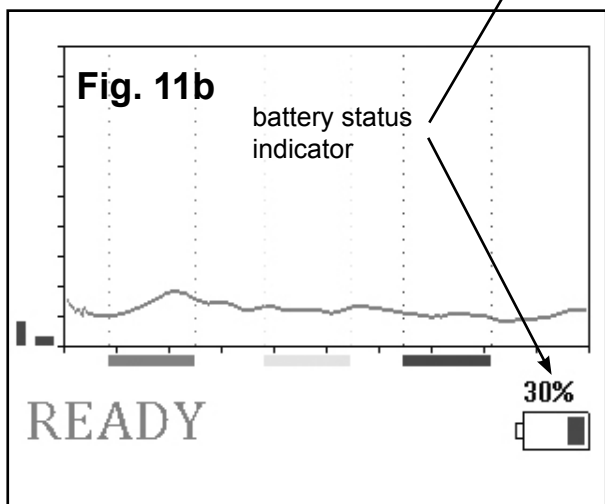
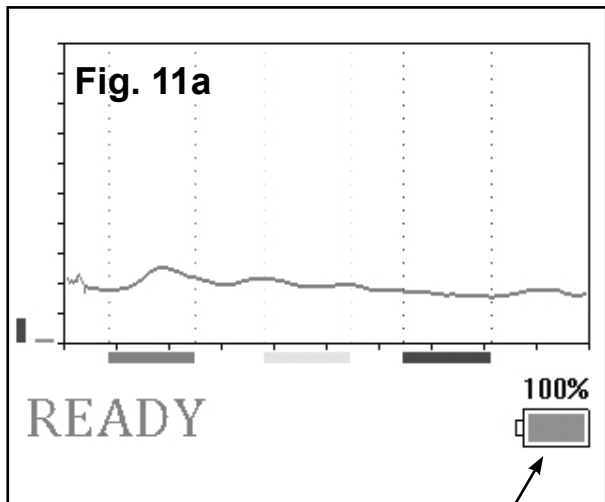
Battery replacement:

1. Make sure the Pilot®-M1 Main Unit is off and AC/DC adapter isn't connected.
2. Open the battery compartment shut (Fig. 10a)
3. Remove discharged battery from the battery compartment (Fig. 10b-10d).
4. Place charged battery into the battery compartment.
5. Close the battery compartment shut.



7.3. BATTERY STATUS CONTROL

The battery status is shown in lower right corner of the screen. (Fig. 11a,b).



Discharged battery is indicated by audio signal and «BATTERY IS LOW» message on the screen. (Fig. 12)

7.4. BATTERY CHARGING

1. Connect AC/DC Adapter plug to the charger (Fig. 13).

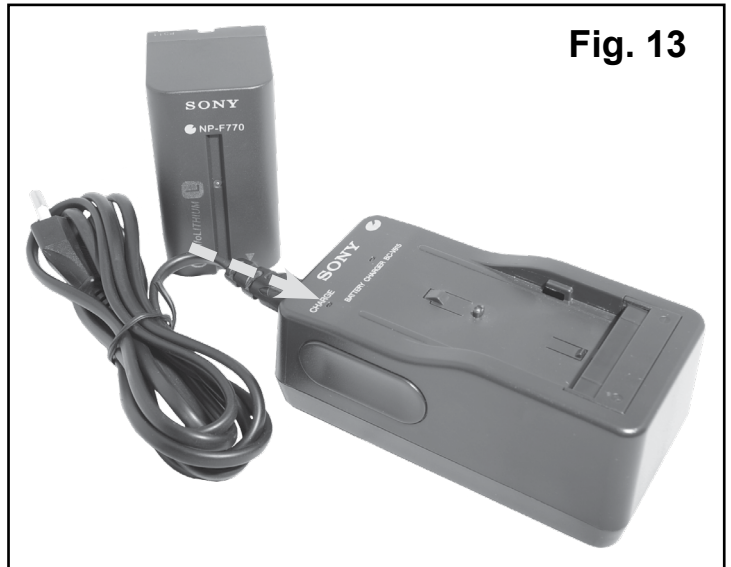


Fig. 13

2. Insert discharged battery into the charger (Fig. 14,15).

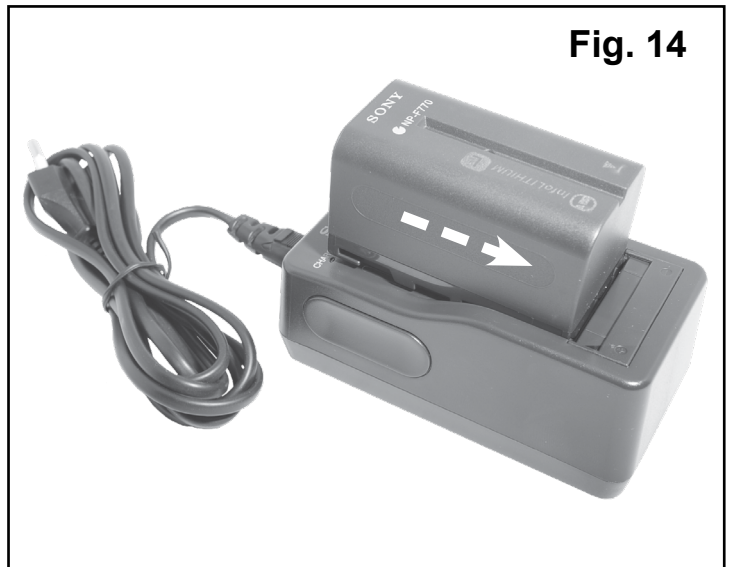


Fig. 14

3. Couple AC/DC adapter plug to the wall outlet - red LED will light in confirmation.
4. After finishing the charging process green LED will light.

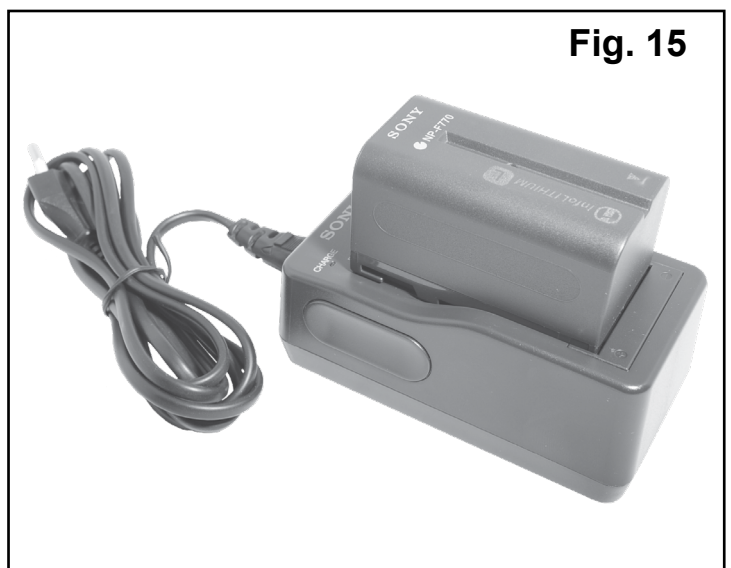
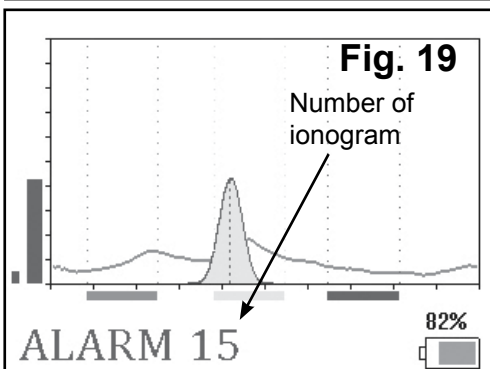
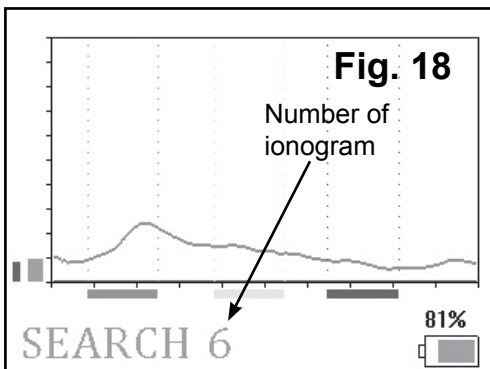
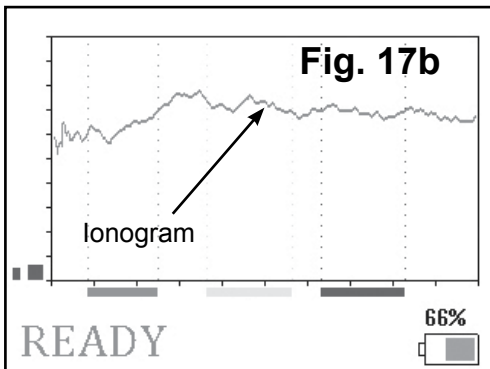
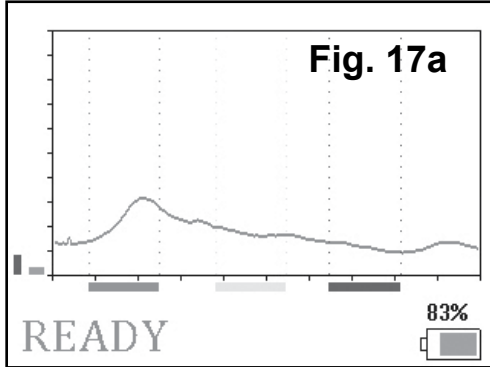
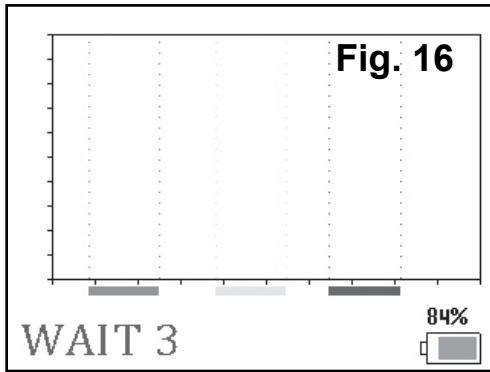



Fig. 15




8. DETECTOR OPERATION

8.1. GETTING STARTED

1. Take the Main Unit.
2. Provide its power supply: insert a charged battery (see page 9) or couple AC/DC adapter (see page 8).
3. Place the Detector at least 50 cm far from surroundings.
4. Switch on the Detector by pressing ON/OFF  button on a Control panel.
5. After the system test the Detector will pass to a «READY» mode (Fig. 18).

If the ionogram appears in upper part of a screen (Fig. 17b) Detector cleaning is recommended (see «Contaminated elements cleaning», page 28).


6. To enter «SEARCH» mode press  button (Fig. 18).



Periodic audio signal corresponds to vapor analysis period of the method employed.

NOTE: In a complicated environment condition might be a situation when the air in that place, i.e. the gaseous background of the environment, causes a false alarm.

The system reacts by a corresponding audio signal and the LCD indication «ALARM» (Fig. 19). In such case operator should readjust a threshold detection level.

8.2. THRESHOLD DETECTION LEVEL ADJUSTMENT

1. Press  button to enter Settings Menu.

2. Select «THRESHOLD» by pressing  button. Press  to enter the «THRESHOLD» settings (Fig. 20).

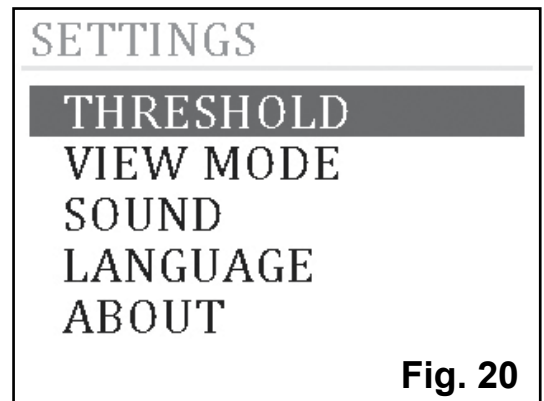




Fig. 20

3. Adjust threshold detection level by pressing  button (Fig 21). Press  button to apply settings.

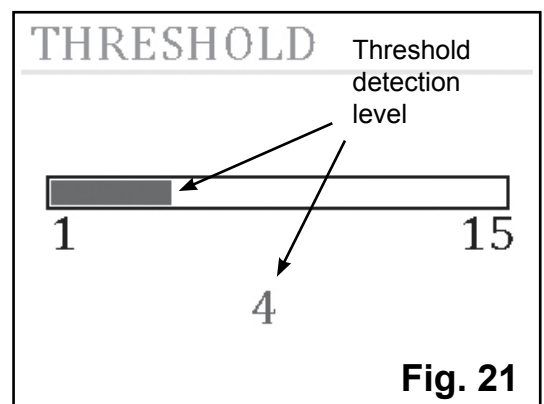



Fig. 21

4. To enter «READY» mode press  button (Fig 22).

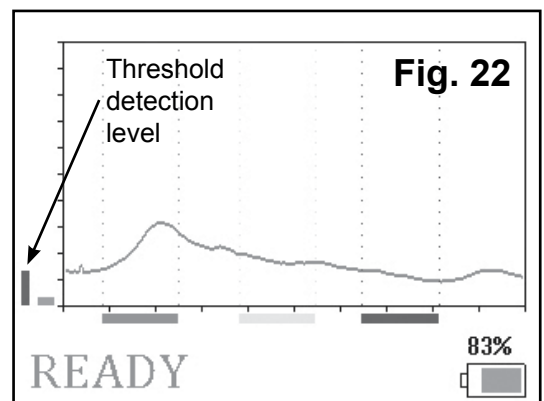
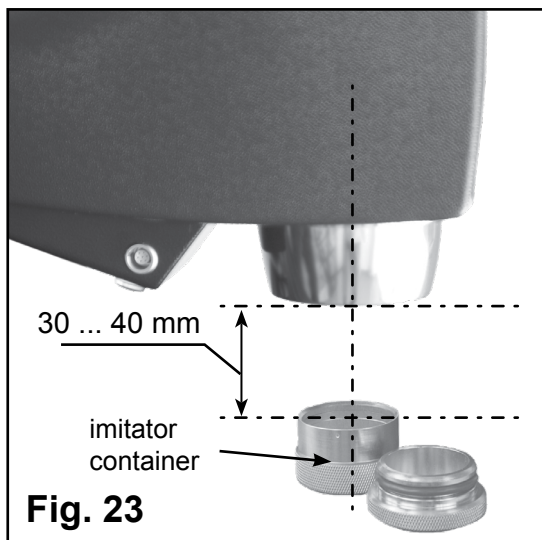



Fig. 22

NOTE: The Detector working capacity should be checked after threshold level adjustment!



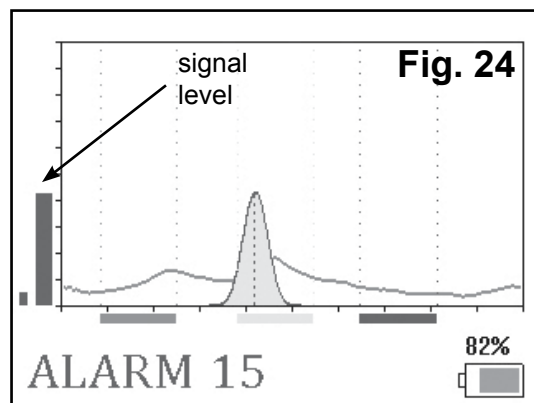
8.3. WORKING CAPACITY TEST

1. Take an imitator (container with TNT vapor source) – No.2 on the Fig. 1.
2. Place charged battery into the battery compartment.
3. Open an imitator's container (Fig. 23).

4. Press  button to enter «SEARCH» mode.

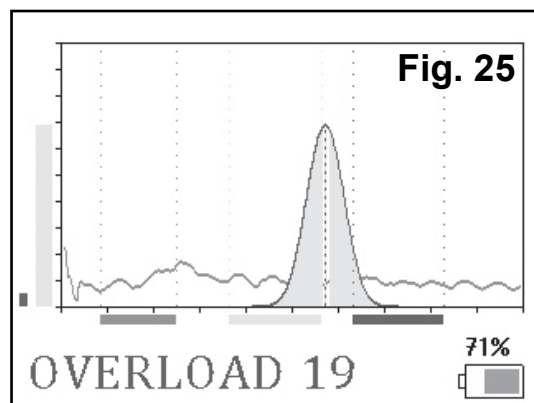
5. Draw the suction port of the Main Unit near opened imitator within 30...40 mm distance (Fig. 23).

6. If Pilot®-M1 Detector operates properly the Alarm sound will be present and the LCD will indicate the word «ALARM» (Fig. 24).




Sound alarm and «OVERLOAD» (Fig. 25) or «CONTAMINATION HAZARD» (Fig. 26) message indicates high explosive concentration. In this case immediately take away detector from the object.

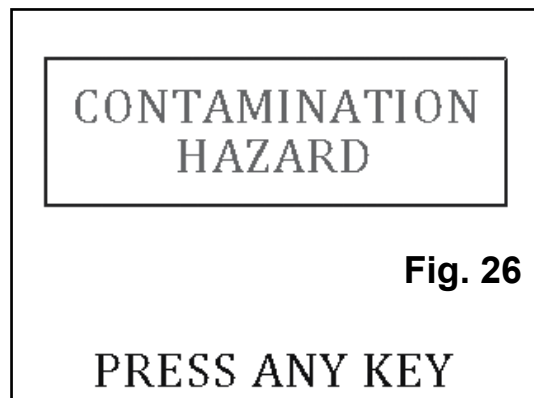
Pilot®-M1 Detector will stop analysis procedure. Press any button to check last analysis results.




7. Close the imitator's container.

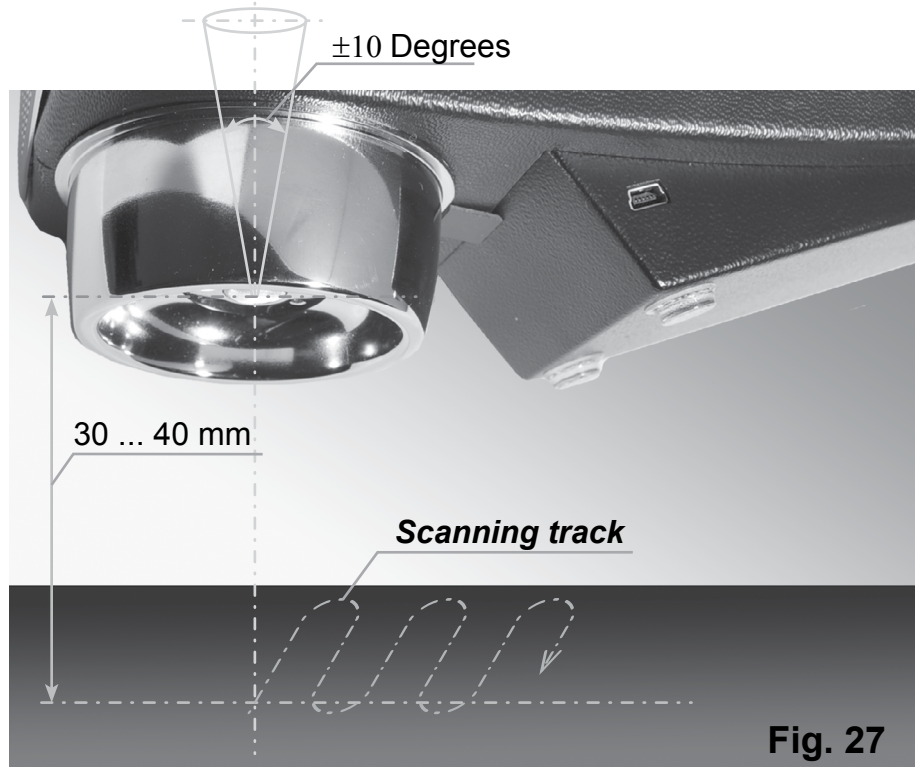
8. To enter «READY» mode press  button.

9. The Detector is ready for operation.

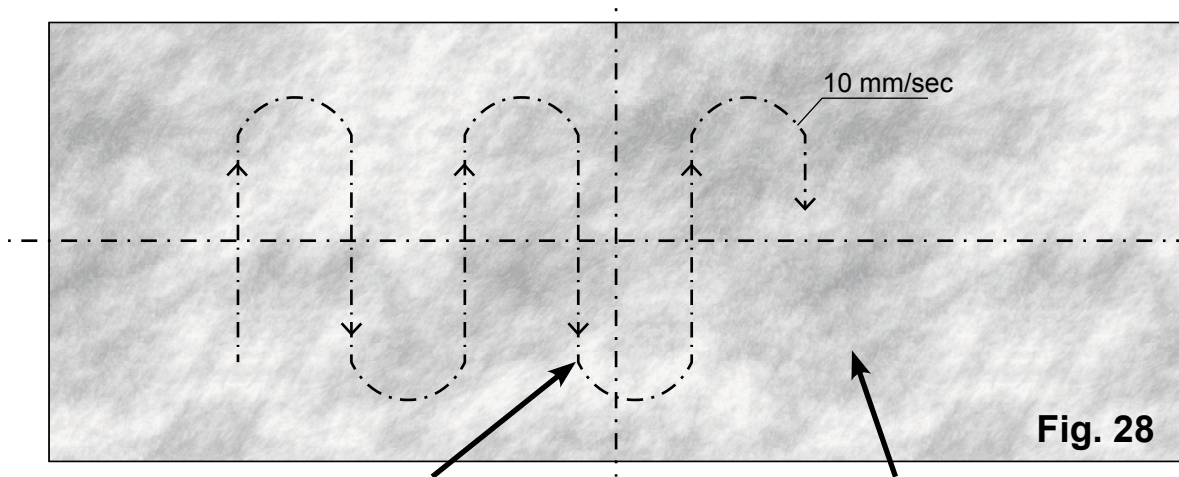


8.4. SEARCH MODE

1. Press  button to enter «SEARCH» mode. Draw the suction port of the Main Unit near an inspected surface (Fig. 27) within 30-40 mm distance (not more!).



2. Scan an inspected surface or an object sliding Detector smoothly without jerky motions approx. 10 mm/sec (no faster!). Hold the Detector at a right angle to the surface. The maximum deflection should be no more then ± 10 degrees (Fig. 28).



Curved scanning path and rate at the time of its investigation

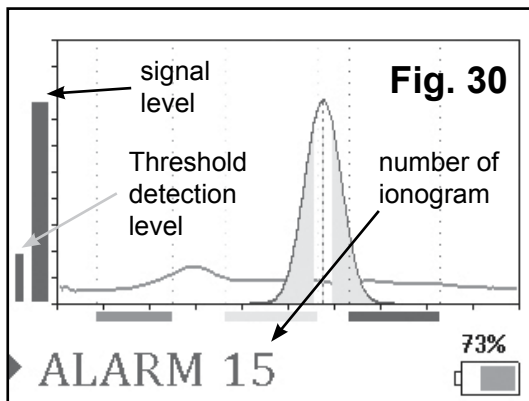
Questioned object surface

NOTE: Shelter the place of operation from wind and draught.



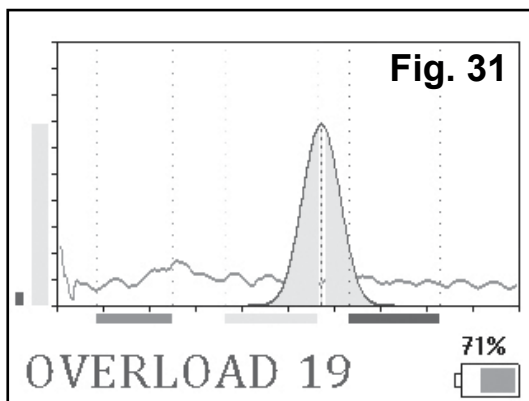
Fig. 29

Pay special attention to locks, handles, slots and cracks of an object where the explosive residue or its vapor are more probable.





3. In case of explosives detection the repeated audio signal and the word «ALARM» on the LCD should appear (Fig. 30).


4. Sound alarm and «OVERLOAD» (Fig. 31) or «CONTAMINATION HAZARD» (Fig. 32) message indicates high explosive concentration. In this case immediately take away detector from the object.

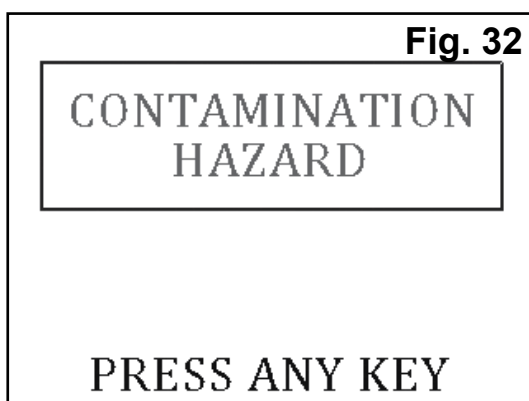


Pilot®-M1 Detector will stop analysis procedure. Press any button to check last analysis results.


5. Press  button to exit «SEARCH» mode and to check last analysis results.



Press  button for ionograms switching.


Press  button to return to «READY» mode.





8.5. VIEW MODE SETTINGS

1. Press  button to enter Settings Menu.

2. Select «VIEW MODE» by pressing  button (Fig. 33). Press  to enter the view mode settings.

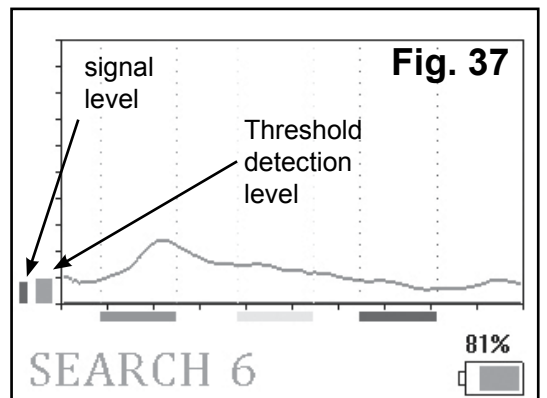
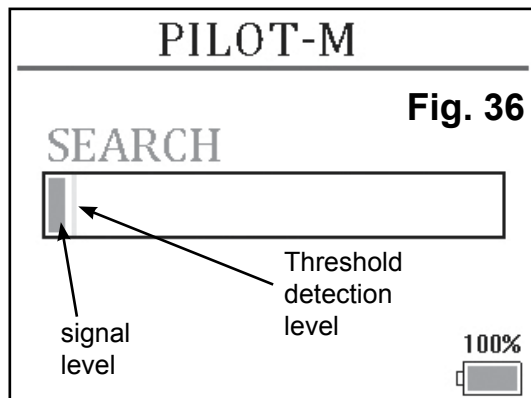
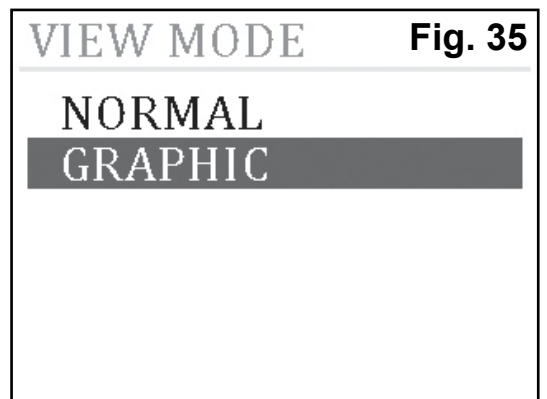
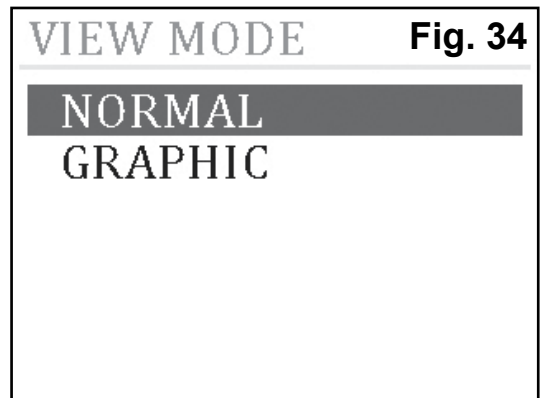
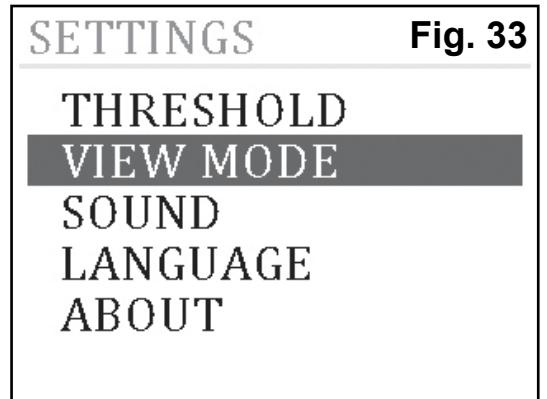
3. Select «NORMAL» (Fig. 34) or «GRAPHIC» (Fig. 35) by pressing  button.

Press  button to apply settings and to return to Settings Menu.

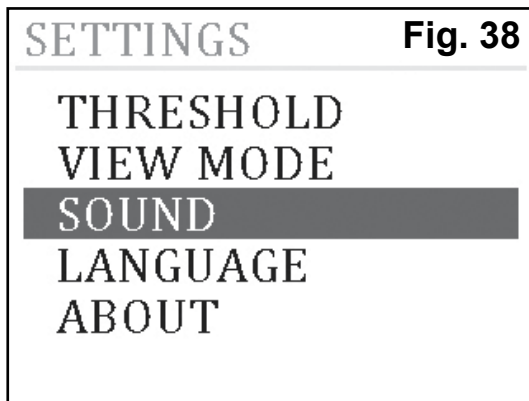
4. Press  to enter «READY» mode.




5. Display «SEARCH» mode in «NORMAL» view: Fig. 36

Display «SEARCH» mode in «GRAPHIC» view: Fig. 37




8.6. SOUND SETTINGS




1. Press  button to enter Settings Menu.
2. Select «SOUND» by pressing  button (Fig. 38). Press  to enter the sound settings.

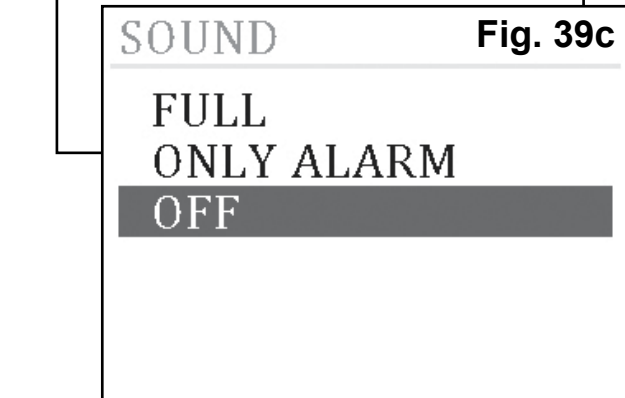



3. Select «FULL» (Fig. 39a), «ONLY ALARM» (Fig. 39b) or «OFF» (Fig. 39c) by pressing  button.



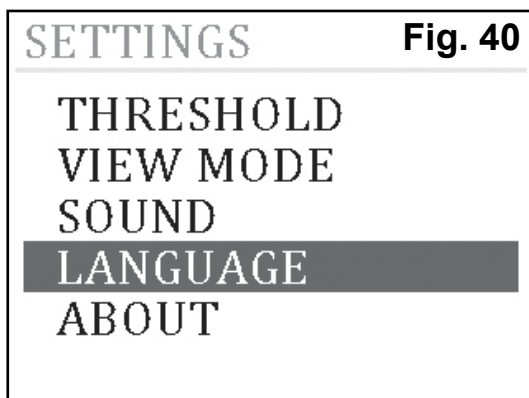
Press  button to apply settings and to return to Settings Menu.




- set «FULL» if the sound is turned on;
- set «ONLY ALARM» if alarm audio signal only;
- set «OFF» if the sound is turned off.



4. Press  to enter «READY» mode.

8.7. LANGUAGE SETTINGS





1. Press  button to enter Settings Menu.
2. Select «LANGUAGE» by pressing  button (Fig. 40). Press  to enter the sound settings.

3. Select language (Fig. 41 a,b) by pressing




button.



Press  button to apply settings and to return to Settings Menu.

4. Press  to enter «READY» mode.




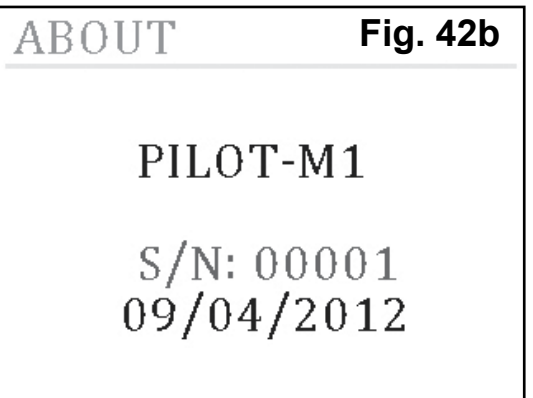
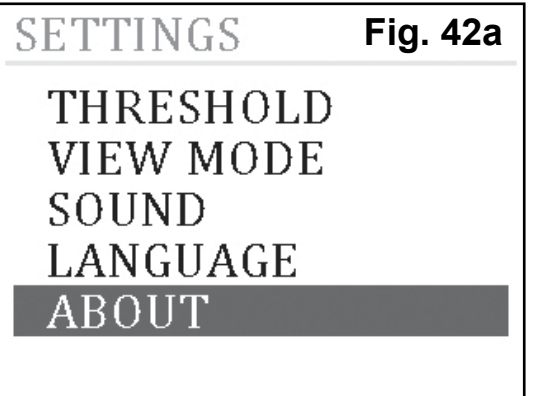
8.8. DETAILED INFORMATION

1. Press  button to enter Settings Menu.

2. Select «ABOUT» by pressing  button (Fig. 42a). Press  to enter the «ABOUT» screen.

3. «ABOUT» screen contains information about serial number and manufacturing date (Fig. 42b).

4. Press  to enter «READY» mode.



9. SAMPLE HEATER

Special Sample Heater (Fig. 43) supplies an operator with a unique chance to detect less volatile explosive matters right on spot.

Moreover, it permits to reveal explosives from liquid and solid (i. e. micro-particles) phases.

In that case the Pilot®-M1 Detector can be placed in a friendlier environment with a minimum influence of high humidity, dust, smoke, low and high temperature.

9.1. SAMPLE HEATER OPERATIONS

1. Place on stable plane surface.
2. Make sure detector is off.
3. Place Pilot®-M1 Detector on the sample heater (Fig. 44).
4. Couple connection cable to the Sample heater coupling port (Fig. 45).
5. Switch on the Detector (see page 12).

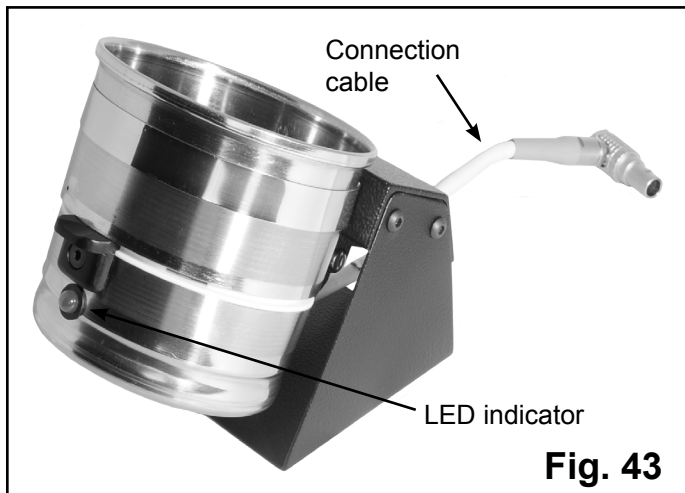


Fig. 43



Fig. 44

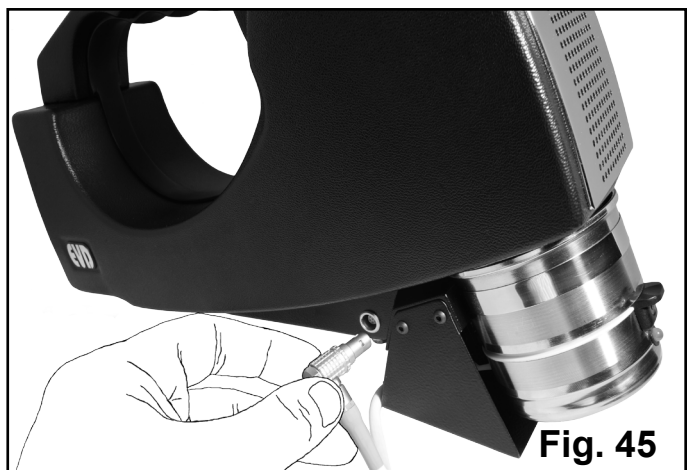




Fig. 45

- After turning on the detector checking background signal. Icon in the bottom right corner of LCD  and Heater's LED indicates connected sample heater (Fig. 46).

NOTE: In case of high signal amplitude (Fig. 47), cleaning of the Sample Heater is recommended (see «Contaminated elements cleaning», page 28).

- After checking background signal the Detector will pass to an «READY» mode (Fig. 48).

NOTE: Every time starting an investigation check the Heater purity. This will help to avoid a false alarm. Carry out several null-cycle measurements (with out special swabs and other sampler units!) to confirm the device purity. In case of long-term usage sample heater contamination may occur. It leads to false alarms. In such cases recommended periodically update threshold detection level: In «READY» mode press  button to update the background signal. Detector will update the background signal. After this the detector returns to the «READY» mode.

- To reach working chamber of the Heater turn the lower part of it downwards (shown by an arrow) (Fig. 49). Use plastic knob for this purpose.

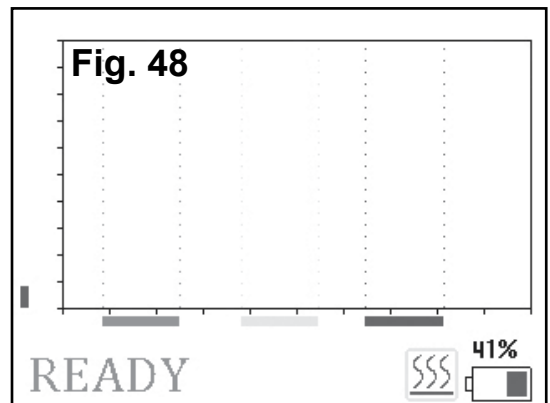
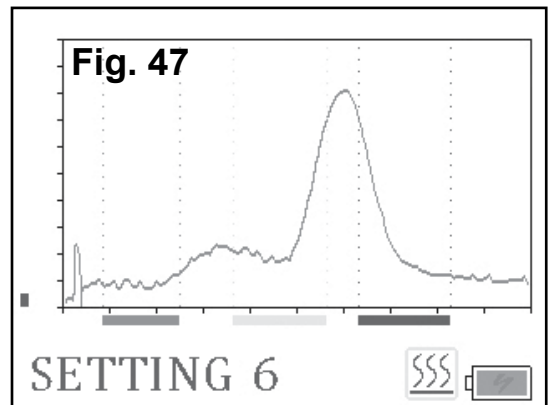
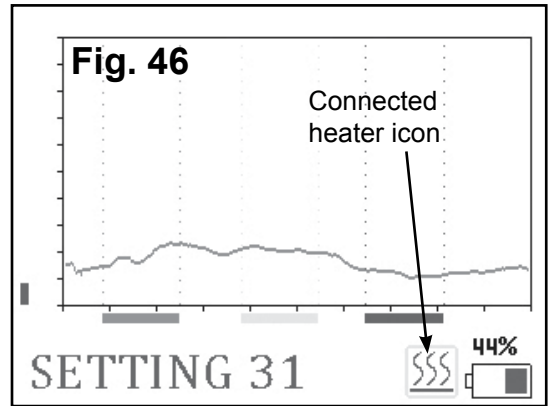


Fig. 49

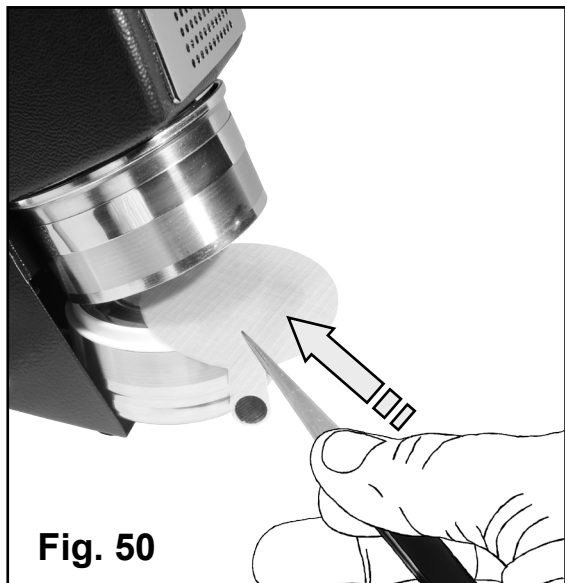


Fig. 50

9. Open the working module of the Heater and insert the swab (Fig. 50) or the Metallic Gauze Sampler (Fig. 51).

NOTES:

- *Place the swab in the middle of the working area with the used side UPWARDS - towards Detector's suction port.*
- *Don't touch heating element of the Heater barehanded. Use tweezers (supplied).*
- *Sample analysis is available within 1...2 hours from the moment of sample collection.*




Fig. 51




Fig. 52

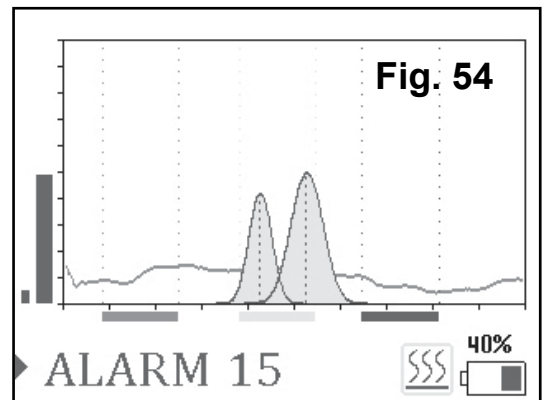
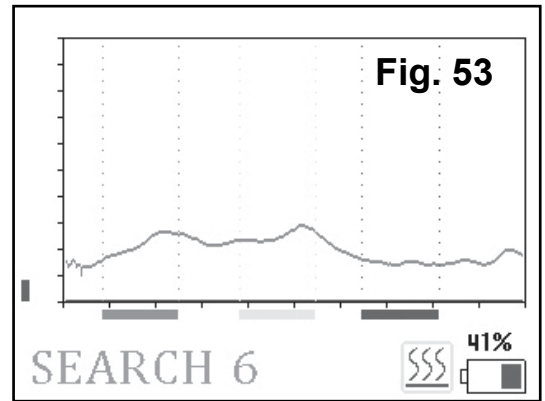
10. Close the working module (Fig. 52).

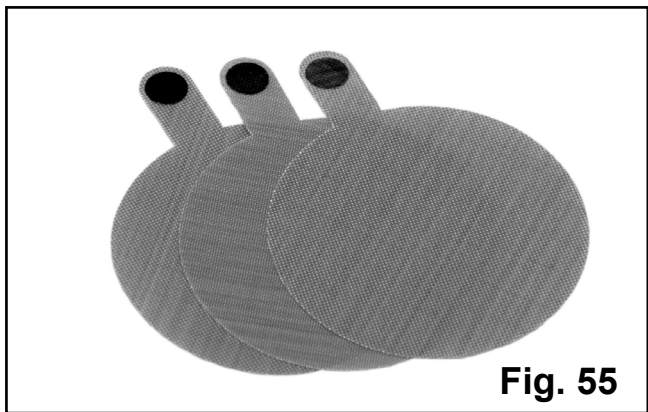
11. Press  to enter «SEARCH» mode (Fig. 53). In case of explosive detection ALARM signal should appear (Fig. 54).

NOTE: If word «OVERLOAD» or «CONTAMINATION HAZARD» (see Fig 35, 36 page 16) warning appears immediately remove Metallic Gauze Sampler or swab sampler from sample heater!

12. After sample analysis Detector keeps operating in result viewing mode.
13. Remove the swab or Metallic Gauze Sampler from sample heater
14. Press  button to enter «READY» mode.

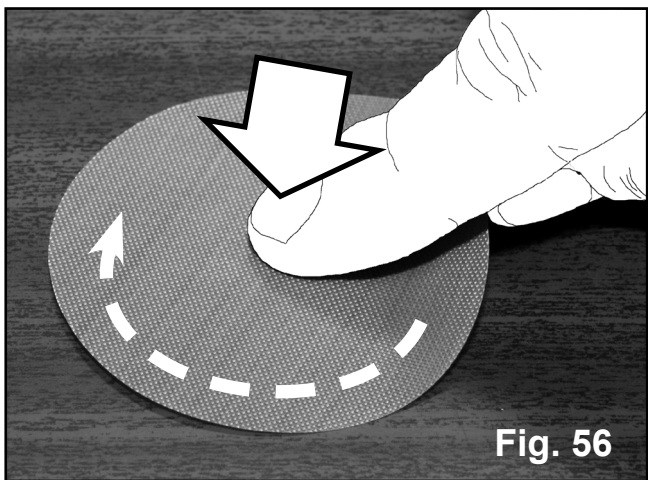
15. Turn off the detector. Unplug AC/DC adapter if it is necessary.





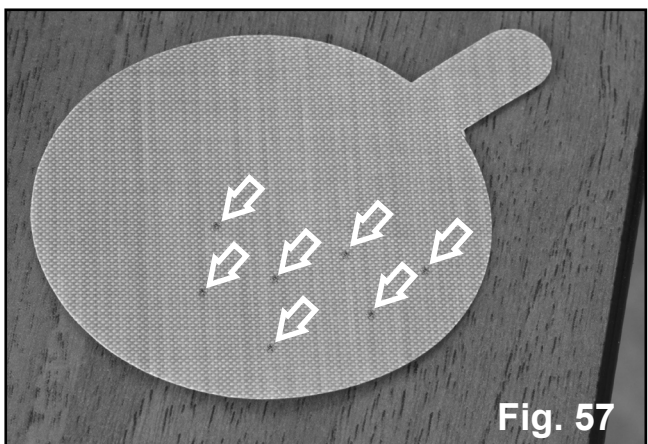
9.2. SAMPLE COLLECTION USING SPECIAL SWABS

1. Take the swab from the package (Fig. 55). Use tweezers (supplied) for better accuracy.



2. Wipe smoothly the questioned surface: Press the swab slightly with your index finger to the surface to be examined and carry out several circular motions (Fig. 56).

3. Examine thoroughly the used side of the swab and remove apparent particles to prevent the Detector's contamination (Fig. 57).



4. Examine the swab with Pilot-M1 Detector in a «SEARCH» mode (refer to «8.1. Detector operation. Getting started», page 12).

5. If no «ALARM» signal was received in this mode, put the swab into the Heater (refer to «9.1. Sample Heater operations», page 20).

NOTE: to avoid system contamination keep used swabs separatly from pure (non-used) ones!

10. GAUZE SAMPLER PUMP

Gauze Sampler Pump together with a Metallic Gauze Sampler set (Fig. 58) is intended for collecting samples (micro-particles) in a **dusty and smoky environment**.

The Sampler Pump is powered by build-in rechargeable battery.

10.1. SAMPLE COLLECTION USING GAUZE SAMPLER PUMP

1. Take the Metallic Gauze Sampler (Fig. 60).
2. Insert the lug of the Sampler into the notch of the Gauze Sampler Pump. Then turn it to the suction port of the Pump (Fig. 59) and fix the Gauze Sampler (Fig. 61).
3. Switch on the Sampler Pump. Green LED is blinking, the noise of the impeller can be heard.

NOTE: LED indicator (Fig. 62) on the Sampler Pump blinks red if its build-in battery is discharged (see page 27).

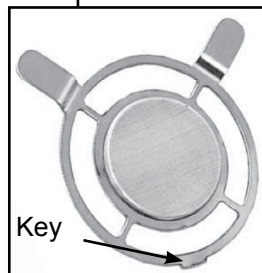
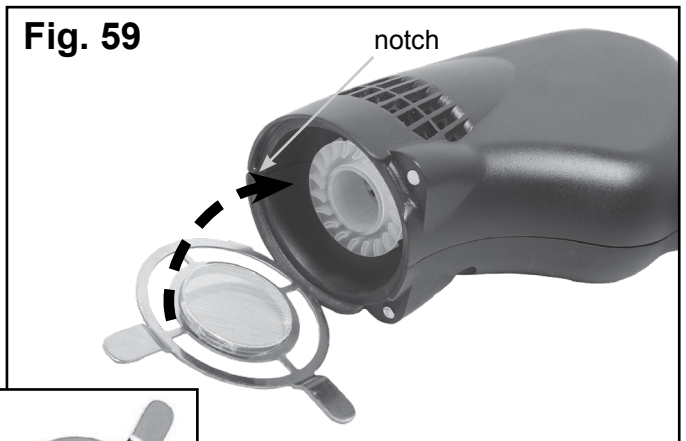
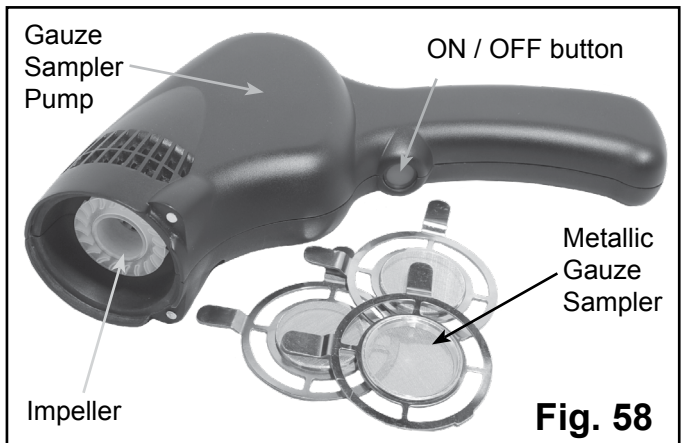


Fig. 60

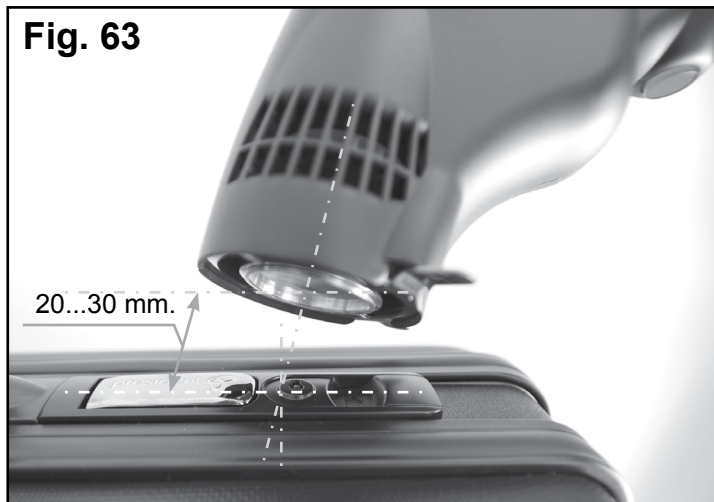


Fig. 61



Fig. 62

Fig. 63



4. Draw the Sampler Pump near an inspected surface within 20-30 mm distance (Fig. 63). Scan an inspected surface or an object sliding it smoothly without jerky motions.

NOTE: Sample collection time should be not less then 20 sec.

5. After inspection switch off the Sampler Pump by pressing «On/Off button».

6. Remove Gauze Sample from the Sampler Pump.

7. Examine the Gauze Sampler with Pilot®-M1 Detector (Fig. 64) in a «SEARCH» mode (refer to «8.1. Detector operation. Getting started», page 12).



Fig. 64

8. If no «ALARM» signal was received in this mode, put the Gauze Sampler into the Heater (refer to «9.1. Sample Heater operations», page 20).

9. In case of explosives detection wash out the Gauze Sampler with rectified alcohol and blast it with hot air. Check its purity by means of Pilot®-M1 Detector. In case of explosives detection Gauze Sampler should be cleaned. (refer to «11. Contaminated elements cleaning», page 28).

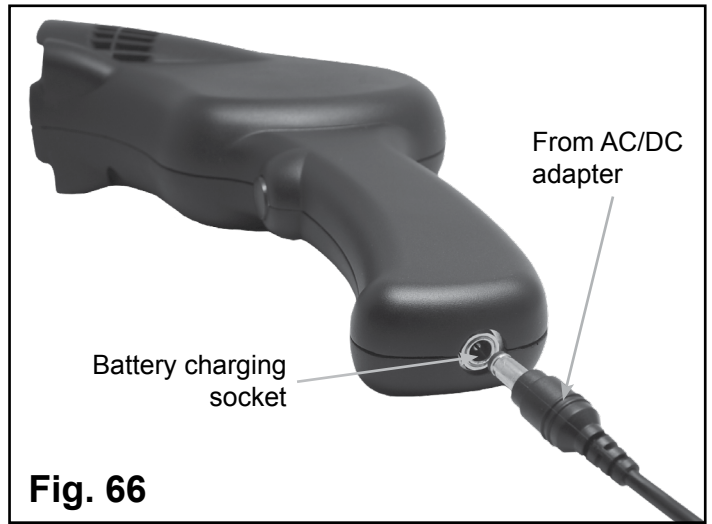
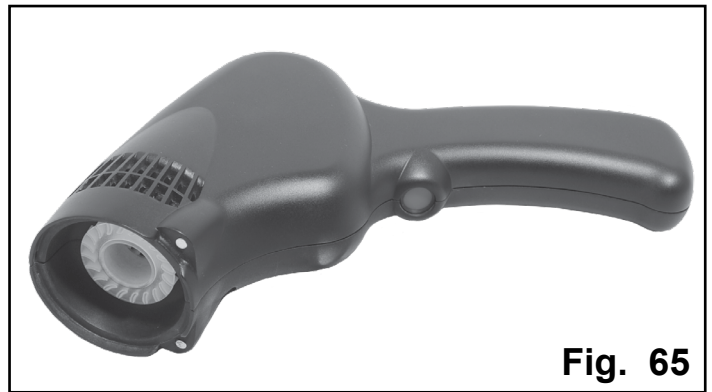
10.2. SAMPLER PUMP BATTERY CHARGING

Use AC/DC Adapter (supplied) for charging Sampler Pump build-in battery.

1. Switch off the Sampler Pump (Fig. 65).
2. Couple the AC/DC Adapter plug to the corresponding jack of the Pump on the bottom of the Pump (Fig. 66).
3. Couple the AC/DC Adapter plug to the wall outlet.

The LED on the Pump body blinks red twice then lights red continuously.

4. After 4-hours charging the green LED confirms the charging completion.



NOTE: Fully charged battery provides at least 8-hours of continuous operation.

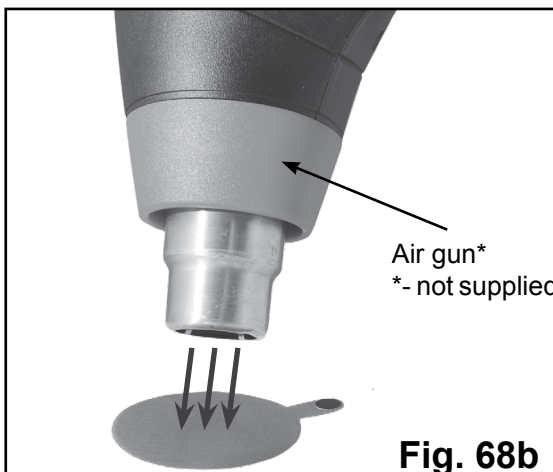
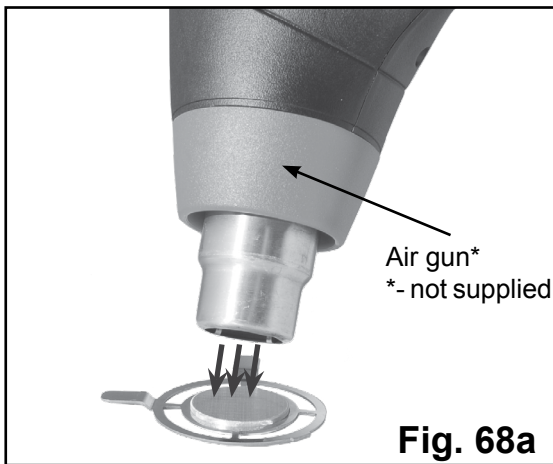
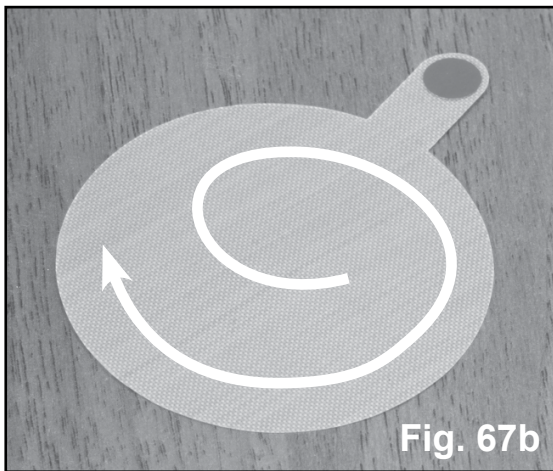
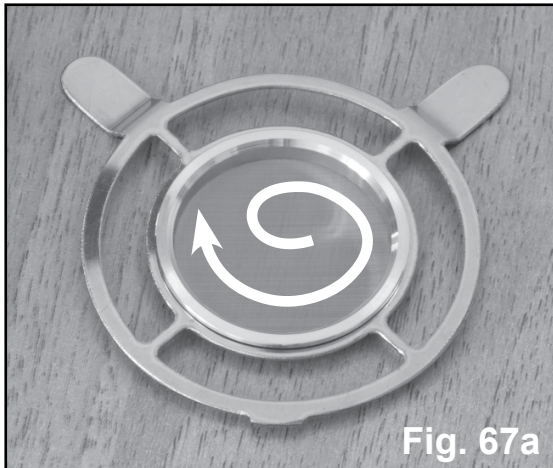
11. CONTAMINATED ELEMENTS CLEANING

Use medical or isopropyl alcohol (isopropanol) for cleaning contaminated elements (metallic gauze sampler, special (swab) sampler, working area of the Heater).

Utilize clean cotton wool and napkins (not supplied) as a wiper tissue. Use tweezers (supplied) as a tissue holder.

Wet the cotton swabs or napkins with medical or isopropyl alcohol, wipe gently contaminated elements (metallic gauze sampler, special (swab) sampler, working area of the Heater) as shown by an arrow (Fig. 67a,b, 69) and blow out by hot air flow with temperature 150°...160°C (Fig. 68a,b).

Switch on the Detector and the Heater and check the result of cleaning procedure (see page 20).



In case of strong contamination of the Detector is recommended:

1. Use syringe (not supplied) for 1 minute to clean the center of suction port (Fig. 70).


Turn on Detector to check its functionality (see page 14).



2. Hoover the suction port for 5-10 seconds. (vacuum cleaner isn't supplied) (Fig. 71)

Turn on Detector to check its functionality (see page 14).



For simultaneous **Detector and sample heater cleaning procedure** (Fig. 44) in «READY» mode press and hold  button for 3 sec (the Sample Heater must be connected). Audio signal indicates enter to the «selfcleaning» mode. Cleaning procedure takes 2 minutes. After this the detector returns to the «READY» mode.

It is possible to run cleaning procedure several times if necessary.

12. PILOT-M1 SOFTWARE

Pilot®-M1 software is intended for saving and reviewing data transferred from Pilot®-M1 Detector to PC.

Pilot®-M1 software is supplied on a CD.

Supplied set:

1. Pilot®-M1 software.
2. User`s Manual.

12.1. MINIMAL SYSTEM REQUIREMENTS

For optimum program operation:

- Processor: 1.8 GHz or faster;
- Operational system: Windows XP/7;
- RAM: 2 GB;
- Free USB 2.0 (or higher) port;
- Monitor;
- Mouse;
- Keyboard.

12.2 PROGRAM SETUP

NOTE: Accomplish and close all active applications before Pilot®-M1 software setup on your PC.

- insert storage drive with Pilot®-M1 Software into PC.
- select executive command in Main menu.
- type command line **D:\Setup.exe** in opened window, (here **D:** - symbol for storage drive in that particular PC) (Fig. 72).
- press OK button and follow Setup program instructions.

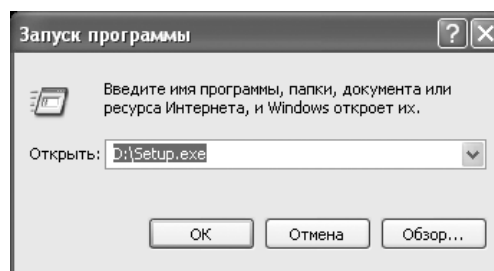


Fig. 72

12.3. DETECTOR CONNECTION

1. Turn off your Pilot®-M1.
2. Connect Pilot®-M1 to PC via USB cable (supplied).
3. Switch on Pilot®-M1 Detector.
4. Operational system will install Pilot®-M1 driver automatically.

12.4. PROGRAM OPERATION

To run program select **PilotM1.exe** file in a corresponding folder (on default – **C:\Program Files\PilotM1**) or select **PilotM1** in main menu **START/Program**

Program main window elements (Fig 73):

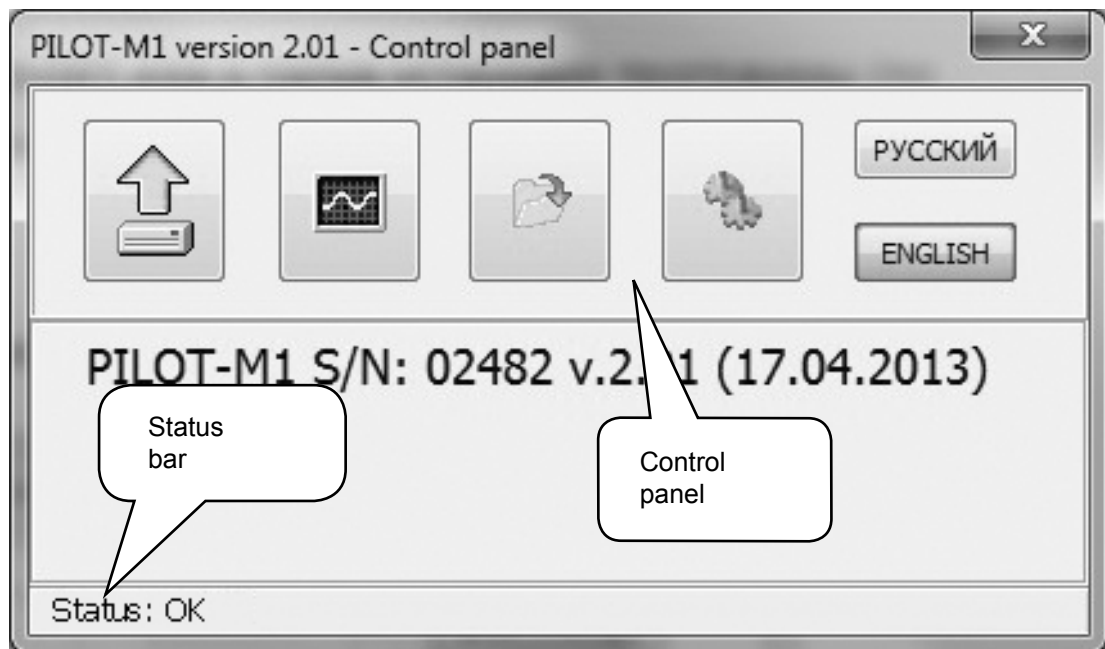







Fig.73. Program main window


The program is controlled by buttons on the control panel.

Buttons on control panel might be on two states: allowed or denied. «Denied» buttons are colored in grey and do not respond to mouse click.

Buttons functions:

-  - browse files on detector;
-  - View current ionogram;
-  - browse files on PC;
-  - Settings;
-  - Language options.

12.5. CURRENT IONOGRAM MODE

Press button  to view current ionogram (Fig. 74).

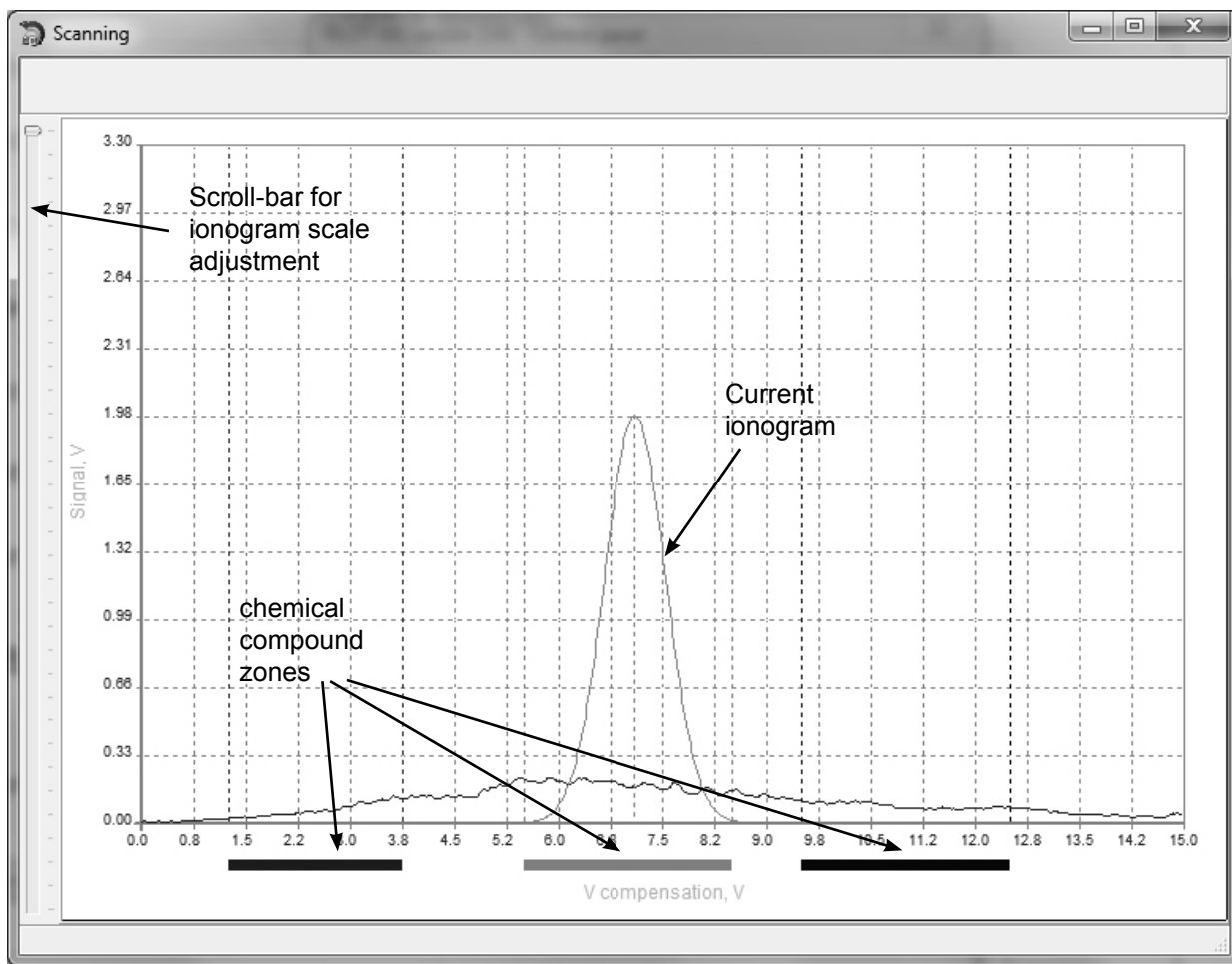



Fig. 74. Current ionogram window

For chemical compound zones axial displacement move the zone with a mouse.

12.6. BROWSE FILES ON DETECTOR

Press button  to browse files on detector (Fig. 75).

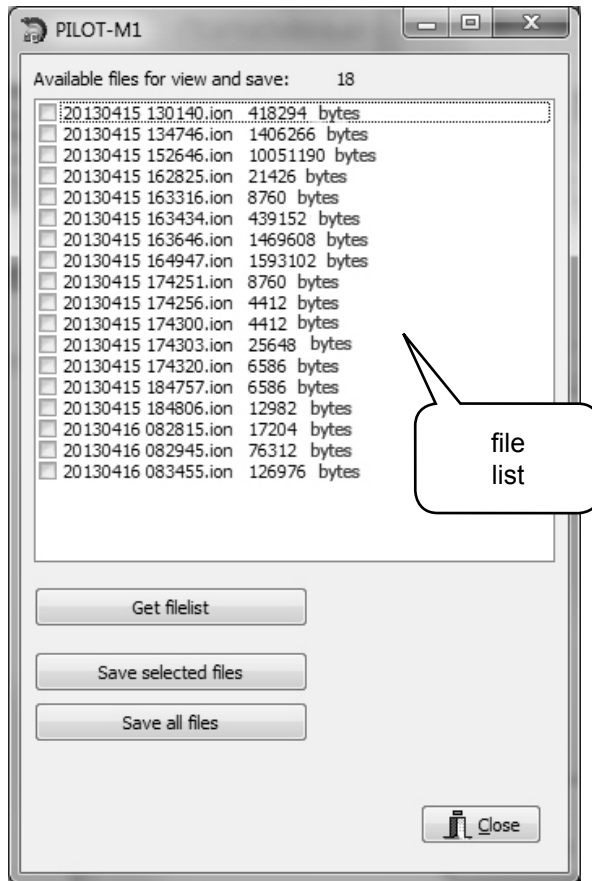


Fig. 75. Browse file on detector

Select ionogram to view in file list. Click OK for confirmation in the opened dialog window (Fig. 76).

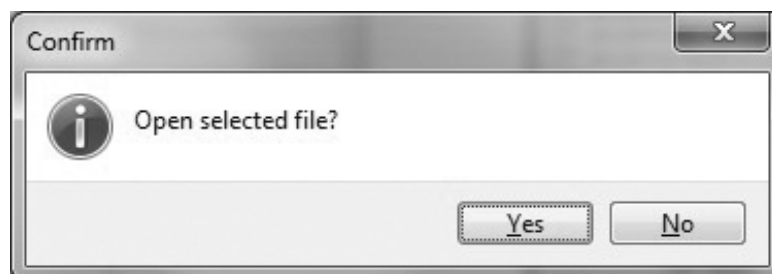


Fig. 76

Saved ionogram window (Fig. 77):

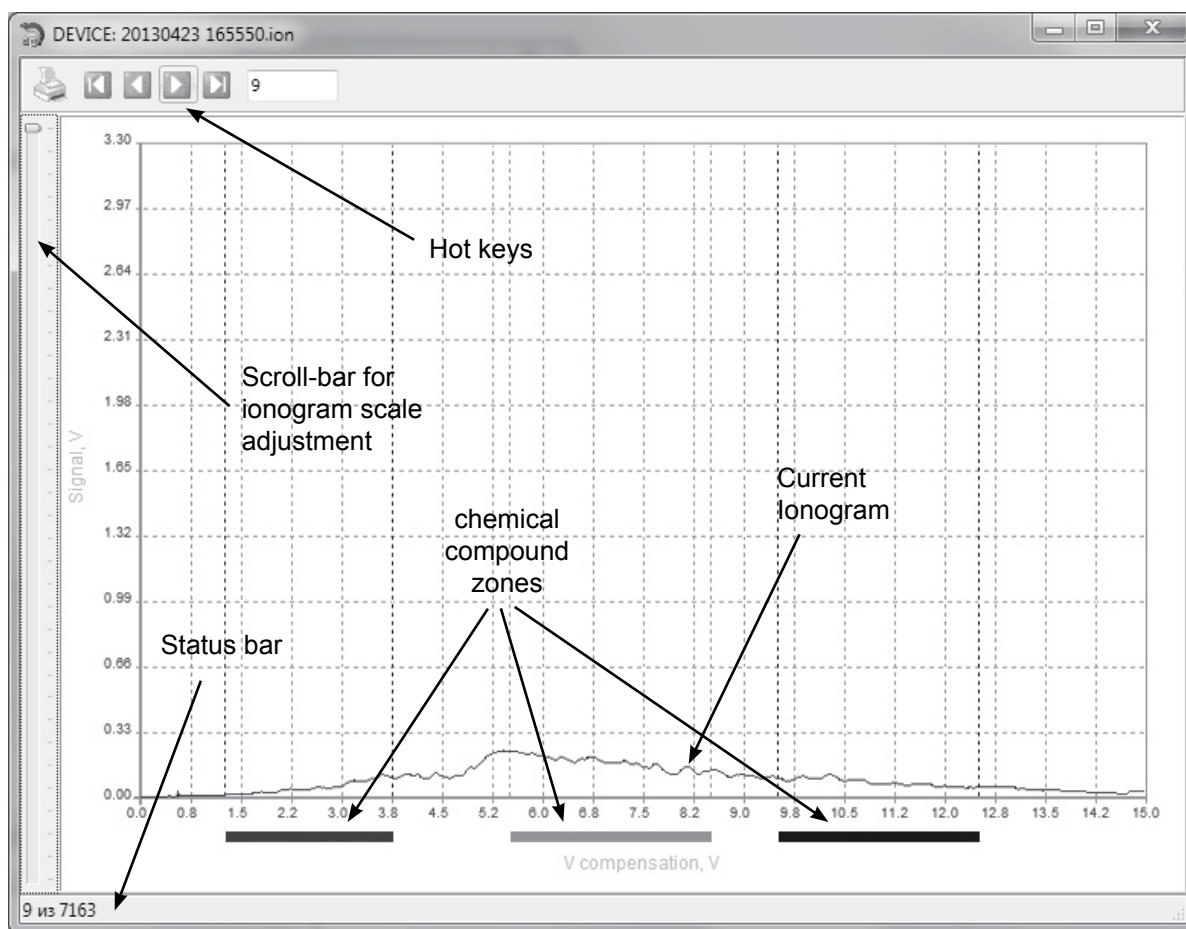


Fig. 77

Hot keys function:

- jump to the first ionogram in file;
- jump to the previous ionogram in file;
- jump to the next ionogram in file;
- jump to the last ionogram in file;
- ionogram preview and print;
- ionogram number.

Press button to open ionogram preview and print settings (Fig. 78).

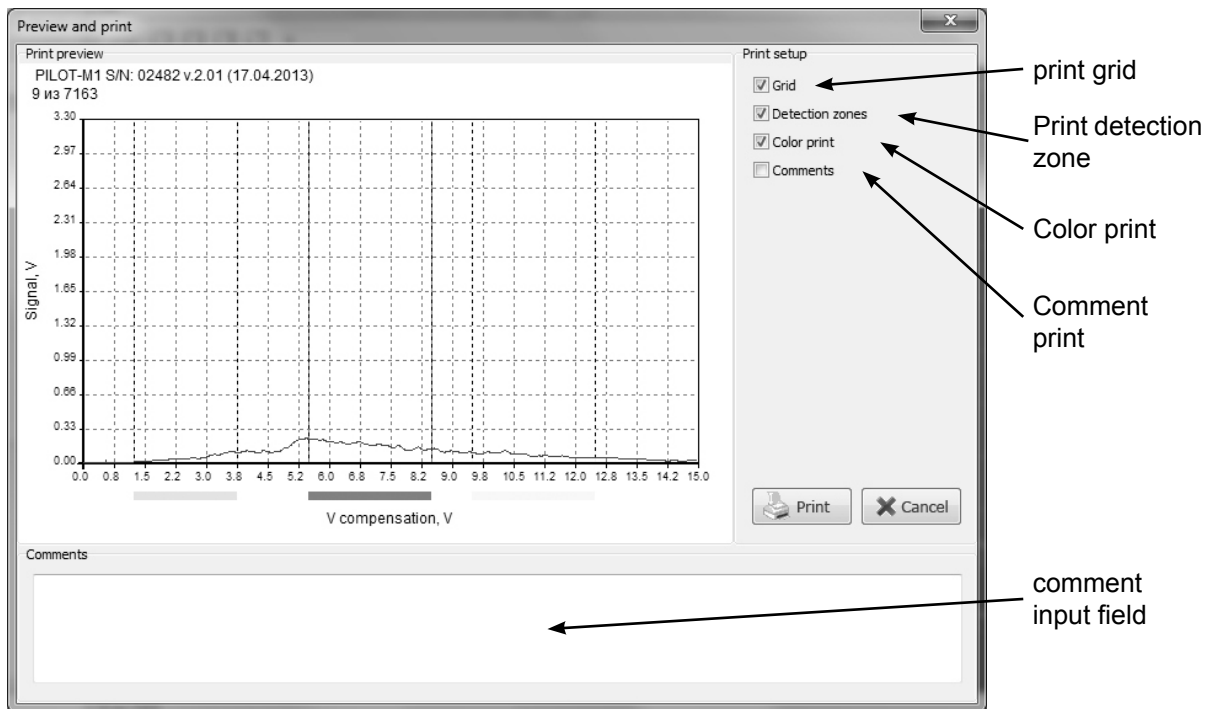


Fig. 78. Ionogram preview and printer settings window

To open next ionogram close preview and print window and select another ionogram from file list.

To save several ionograms select them by clicking on checkboxes (Fig. 79) and press «Save selected files».

To save all ionogram files press «Save all files».

Click OK for confirmation in the opened dialog window (Fig. 80).

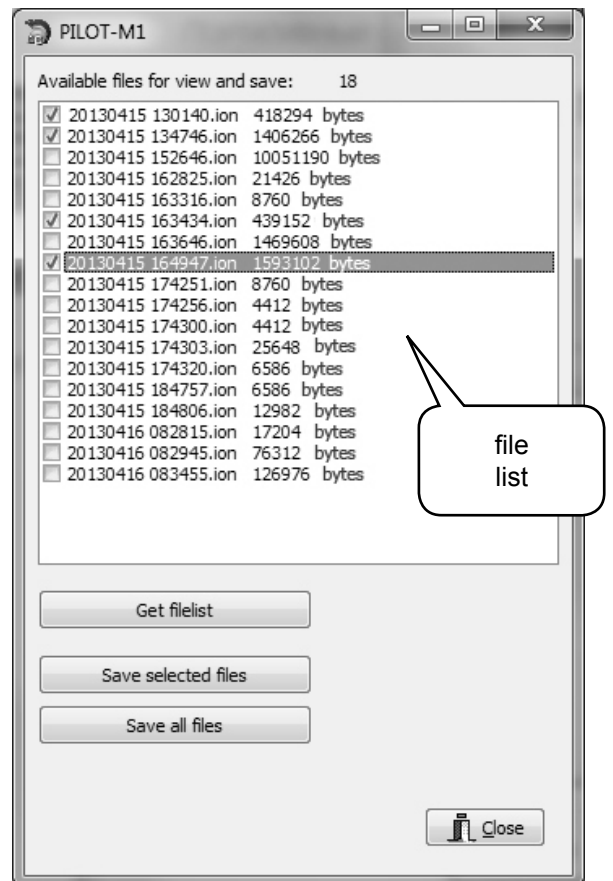


Fig. 79

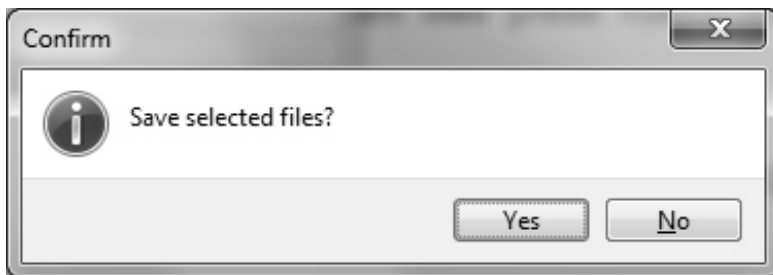


Fig. 80

Files will be saved in **Data** folder. (C:\Program Files\PilotM1 on default).

Saving progress window:

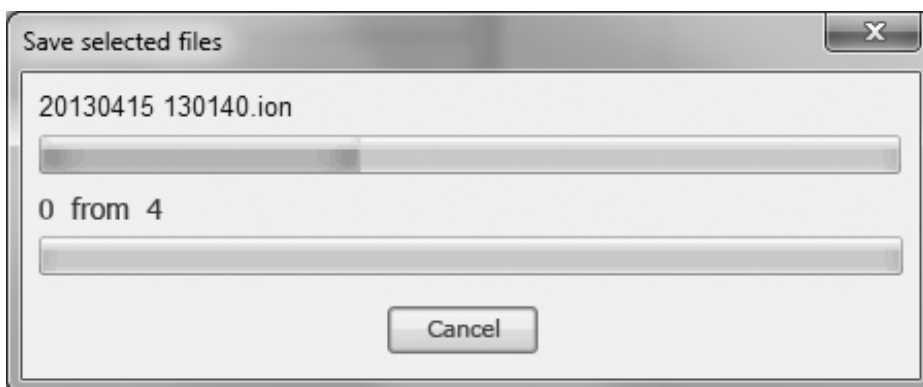



Fig. 81

12.7. BROWSE FILES ON PC

Press button  to browse files on PC (Fig. 82).

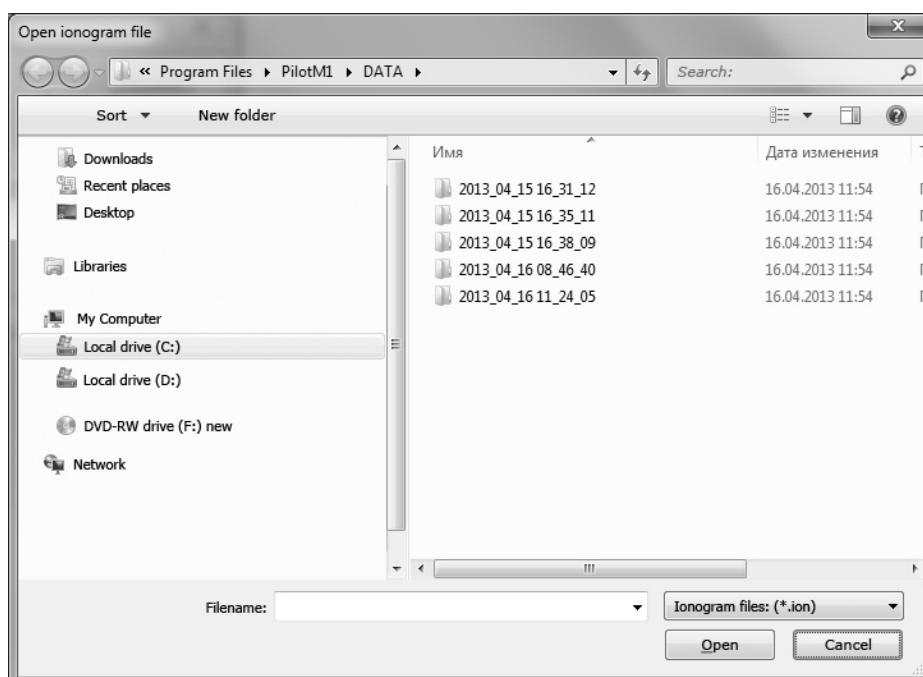




Fig. 82

Select ionogram file in open dialog window (Fig. 82) and press «Open» button.

Interface of opened window is similar to Saved ionogram window: Fig. 77 (see page 34 browse files on detector).

To open next ionogram close saved ionogram window and press button  to select next file on PC.

12.8. DETECTION ZONE ADJUSTMENT

Press button  to enter Settings Menu. Settings Menu allows to adjust color zones size and position on horizontal axis of the display.

Color zones are intended for preliminary explosive type (chemical compound) identification.

Press «Set» to save changes.

Press «Set time / date» to synchronize Detector clock with your computer time and date settings.

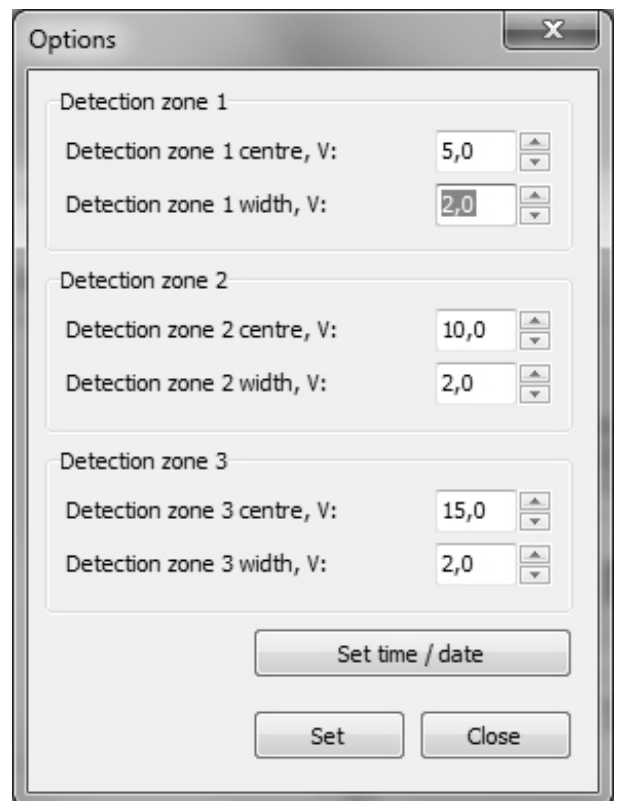




Fig. 83

12.9. SELECT LANGUAGE

Press one of the   buttons to set preferred language.

13. STORAGE

Pilot®-M1 Detector should be stored in a dry premise under the temperature +5°C...35°C and relative humidity 80% (under +25°C).

The pollution content for corrosive chemical agents should not be higher then is allowed for sanitary approved `pure atmosphere`.

The explosives storage is not allowed in the same premise.

14. TRANSPORTATION

Pilot®-M1 Detector can be transported in the following way in a standard packing:

- In a pressurized cabin by air;
- Luggage van by rail;
- In a luggage compartment by car.

The package with an instrument should be firmly fixed at the time of transportation to avoid relocation, dropping and shocks

15. TECHNICAL SPECIFICATIONS

Explosives substances under identification	NG, TNT, EGDN, RDX, PENT and etc.
TNT Threshold Sensitivity (under +20°C, 80% humidity)	not less 10 ⁻¹³ g/cm ³
Warm-up time	no more 10 sec.
Analysis time	no more 1 sec.
Indication:	Audio & LCD
Power Supply: - AC (via 12 V adapter - supplied) - DC (1 rechargeable batteries - supplied)	100...240 V / 50...60 Hz 7.2V 31.7 Wh
One battery pack continuous operation time - in «SEARCH» mode - using sample heater	not less 5 h not less 3 h
Operation conditions: - Temperature - Relative humidity	+5°C...+40°C up to 90% (under +25°C)
Survive after strong environment effect: - Temperature - Relative humidity	-50°C...+50°C 98% (under +25°C)
Storage conditions*: - Temperature - Relative humidity	+5°C...+35°C 80% (under +25°C)
Main Unit: - Dimensions - Weight (with battery)	300x180x90 mm. 1.8 kg.
Total weight in carrying case	no more 7.5 kg.

***NOTE: Don't store the Detector in interiors with an aggressive atmosphere or near the explosives storage.**


16. GUARANTEE CERTIFICATES

The manufacturer guarantees conformity of a product to all characteristics specified in the maintenance instruction under condition of observance by the consumer of all stated instructions and recommendations on service, operation, to transportation and storage.

A warranty period of operation makes 12 months from the date of delivery.

The product is certificated. The certificate of conformity in system of certification of civil aircraft.

17. TROUBLESHOOTING GUIDE

Malfunction	Probable cause	Malfunction repair
Detector		
Detector does not operate after switching on (LCD is blank - no info on the screen)	<ol style="list-style-type: none"> No line voltage in the mains. AC/DC adapter is not connected to Detector and/or a wall outlet; AC/DC adapter is defective. The rechargeable battery is discharged. The detector is defective. 	<ol style="list-style-type: none"> Verify the mains voltage.. Check up connection of the AC/DC adapter plug to Detector's power supply socket. Replace AC/DC adapter. Replace or charge the battery. Refer to Warranty section, page 40.
The detector does operate but an ALARM message on LCD (together with a corresponding audio signal) is presented or arises periodically	<ol style="list-style-type: none"> The detector is contaminated by explosive substance. 	<ol style="list-style-type: none"> Wipe suction port of Detector with alcohol or isopropanol. See «11. Contaminated elements cleaning» page 28. Place Sample Heater on a steady surface. Place Detector on sample heater. Connect sample heater via communication cable to the Detector. Switch on Detector and run SELFCLEANING procedure (page 29). It is possible to run this procedure several times. If ALARM message is still presented after 5 self-cleaning procedures - call your nearest dealer for Detector support manning.
Sample heater		
LED indicator is not alight and no pictogram  on LCD after connecting communication cable.	<ol style="list-style-type: none"> Communication cable is not connected to Detector. 	<ol style="list-style-type: none"> Check up connection of the communication cable plug to Sample Heater coupling port.
	<ol style="list-style-type: none"> The Sample Heater is defective. 	<ol style="list-style-type: none"> Refer to Warranty section, page 40.
Gauze sampler pump		
Gauze sampler pump does not operate after switching on (LED indicator is not alight, the impeller does not rotate.	<ol style="list-style-type: none"> The rechargeable battery is discharged. 	<ol style="list-style-type: none"> Charge the battery.(see «10.2. Sampler pump battery charging»).
	<ol style="list-style-type: none"> The Gauze sampler pump is defective. 	<ol style="list-style-type: none"> Refer to Warranty section, page 40.

Malfunction	Probable cause	Malfunction repair
Gauze sampler pump		
After connecting the Gauze Sampler Pump to the mains via AC/DC adapter no red LED confirmation of battery charging	<ol style="list-style-type: none"> 1. No line voltage in the mains. 2. AC/DC adapter is defective. 3. AC/DC adapter is not connected to Gauze Sampler Pump and/or a wall outlet. 2. The Gauze sampler pump is defective. 	<ol style="list-style-type: none"> 1. Verify the mains voltage. 2. Replace AC/DC adapter. 3. Check up connection of the AC/DC adapter plug to Gauze Sampler Pump's power supply socket. 2. Refer to Warranty section, page 40.
Charger		
Charger does not operate after connecting power supply (LED indicators is off).	<ol style="list-style-type: none"> 1. No line voltage in the mains. 2. AC/DC adapter is not connected to Charger and/or a wall outlet. 3. The Charger is defective. 	<ol style="list-style-type: none"> 1. Verify the mains voltage. 2. Check up connection of the AC/DC adapter plug to Charger's power supply socket; 3. Refer to Warranty section, page 40.

