

Explosive Vapor Detector



PILOT-MI

USER'S MANUAL

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FOREWORD

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

WARNINGS

***PILOT-M 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***

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
- avoid insects from entering the inside of 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 off 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!

RECOMMENDATIONS

The portable Explosive Vapor Detector (EVD) «PILOT-M» is intended for detection of charges of explosives in not 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 the contents of characteristic components of explosive vapor.

The detector is capable to detect traces quantities of explosive based on nitroglycerine (NG), EGDN, trinitrotoluene (tol, trotyl, TNT), PENT (tetranitrapentaerythrit, pentaerythrittetranitrate, Pentrit, PETN), hexogen (RDX), oktogen (HMX), tetryl (Tetрил) 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 (амматол, 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.

OPERATIONAL PRINCIPLE

The proper sample collection is governing condition for any trace detector. The versatile Pilot-M 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 explosive 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-M 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 are 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

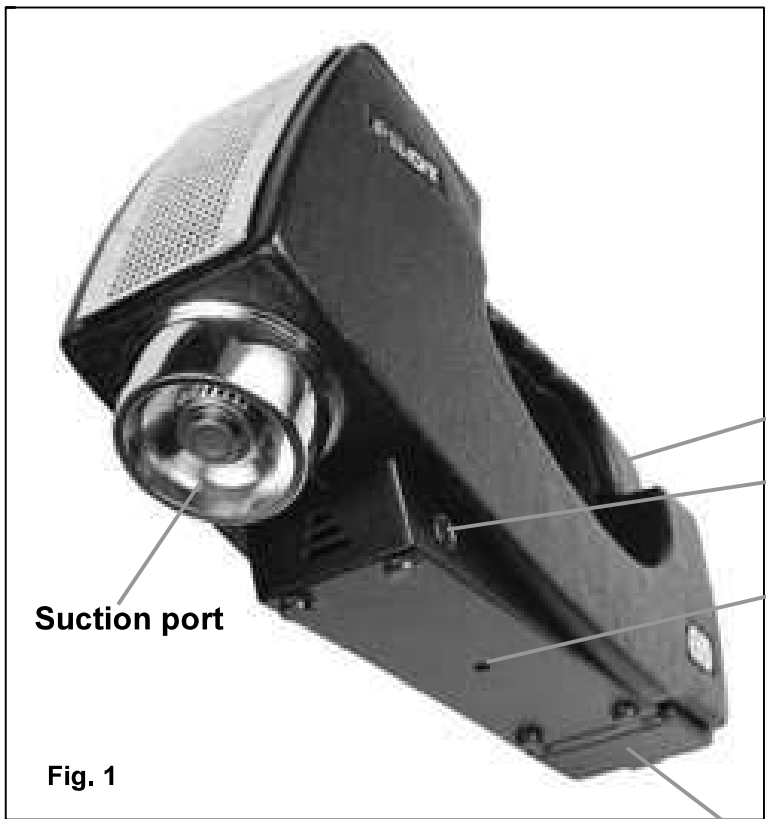
Moreover, supplementary Gauze Sampler Unit (air pump) allows operator to collect samples even in a dusty and smoky environment when a direct usage of the Pilot-M Main Unit is not recommended.

SPECIAL WARNING: Pilot M Explosive Vapor Detector is a high sensitive device.

- **don't use the Detector in a premise where explosives are stored;**
- **avoid personnel with direct contact with explosives from any operation with**

Pilot- M Detector.

PILOT-M. CONTROLS AND CONNECTORS



- ON/OFF Switch
- Mode selector
- Control buttons
- LCD
- Power Supply Socket
- Computer coupling port

Suction port

Pilot-M EVD Main Unit

Computer coupling port

**Screw socket
for coupling
with folding stand**

Battery compartment



Fig. 2

Suction port



Fig. 3

Computer coupling port

Pilot-M EVD Control Panel

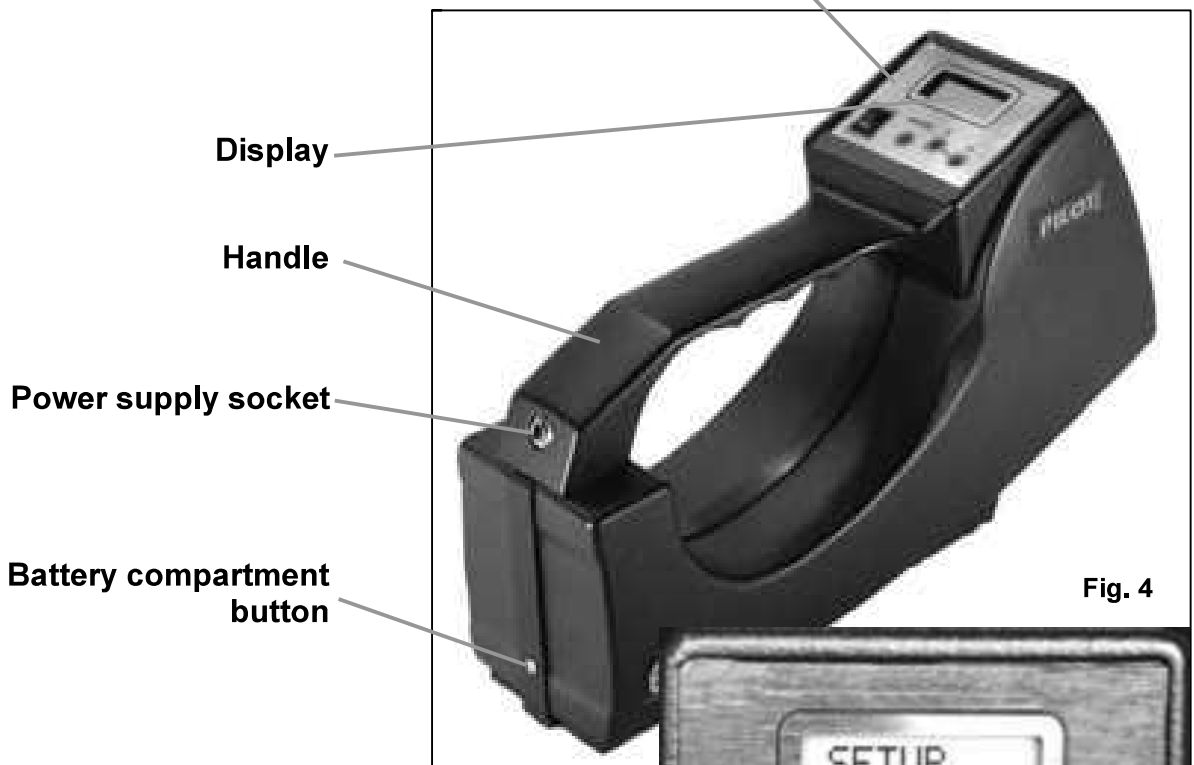


Fig. 4

Pilot-M EVD Control Panel

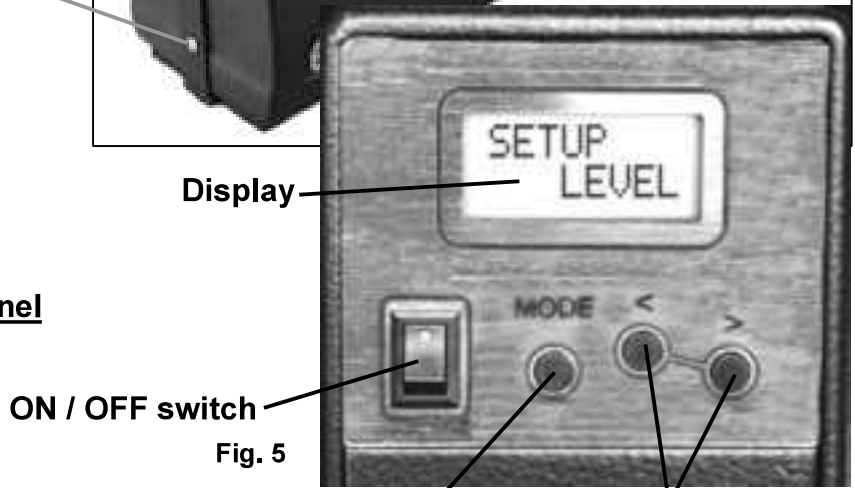


Fig. 5

Mode selector Control buttons



Fig. 6

Battery compartment shut Battery compartment button

PILOT-M. COMPLETE SET



Fig. 7

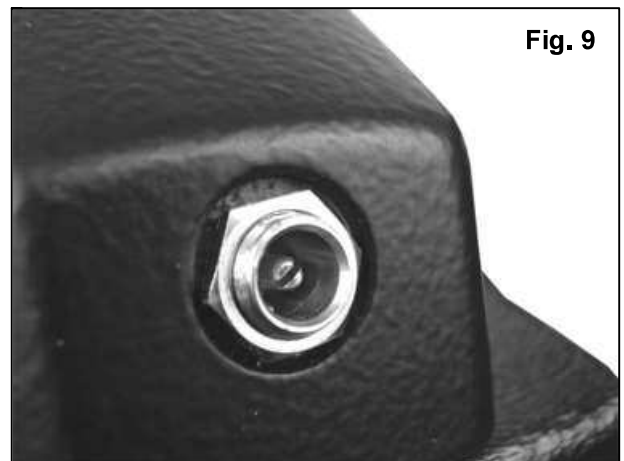
1. Explosive Vapor Detector, Main Unit	1	7. Special (swab) sampler	30
2. Test unit (Imitator of explosive)	1	8. AC / DC Adapter	2
3. Sample Heater	1	9. Charger	1
4. Folding Stand for EVD	1	10. Tweezers	1
5. Self-contained Gauze Sampler Pump	1	11. User's Manual	1
6. Metallic Gauze Sampler	3	12. Carrying case	1

PILOT-M. POWER SUPPLY

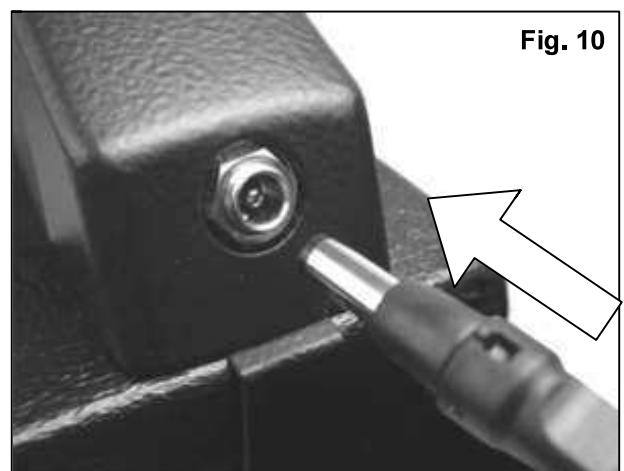
Pilot-M EVD can be supplied by rechargeable battery or from wall outlet via corresponding AC/DC adapter (supplied)

MAINS POWER SUPPLY

- Take an AC/DC Power Adapter

**Fig. 8****Fig. 9**

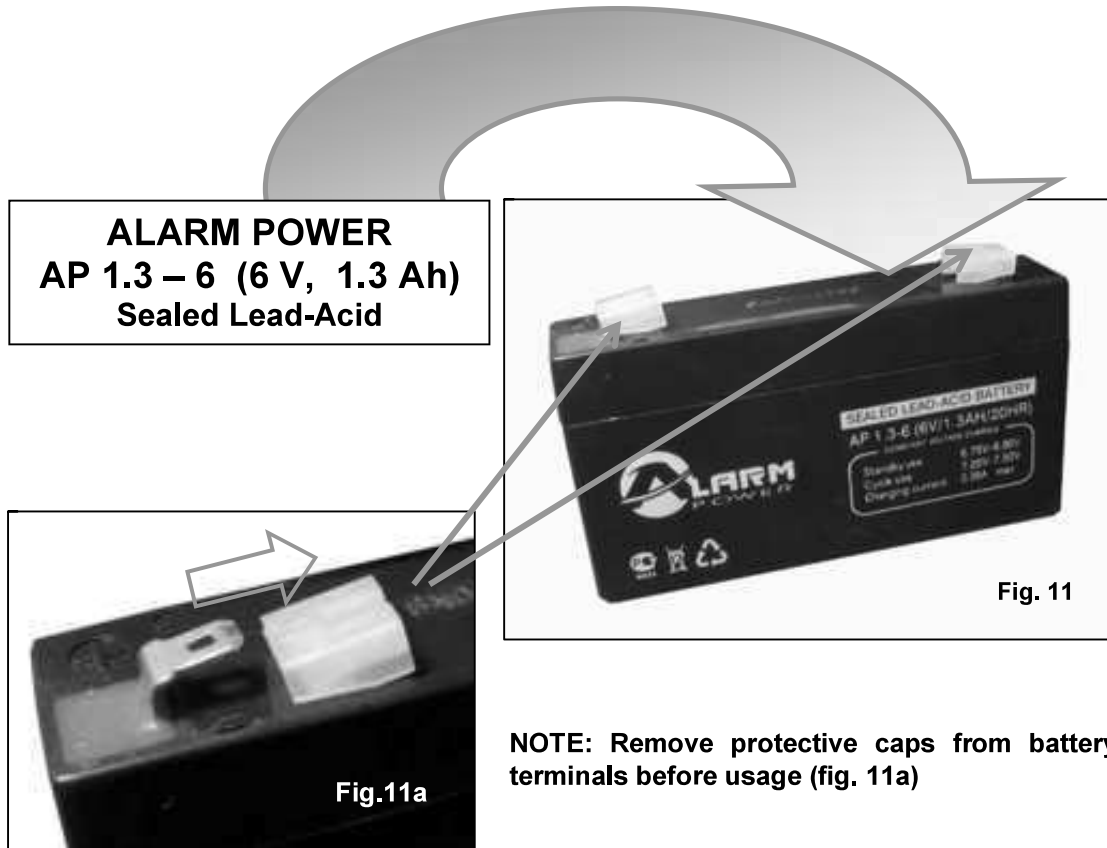
- Connect AC/DC to a corresponding socket on the back side of the Main Unit body
- Couple AC\DC Adapter plug to the wall outlet.

**Fig. 10**

Proceed to 'PILOT- M. GETTING STARTED' (page 13)

RECHARGEABLE BATTERY POWER SUPPLY

NOTE: Use only rechargeable batteries from supplied set:



1. Press the button on the back of the Main unit.



2. Open the battery compartment shut.

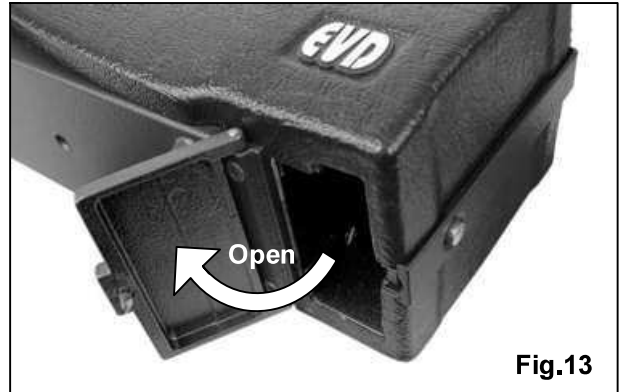


Fig.13

3. Examine visually battery compartment:

- Check the accuracy of 2 spring-loaded contact in a shaped notch in upper part of the compartment (No.1 on the Fig. 14);
- Check spring' (No. 2) accuracy on the bottom of the battery compartment.

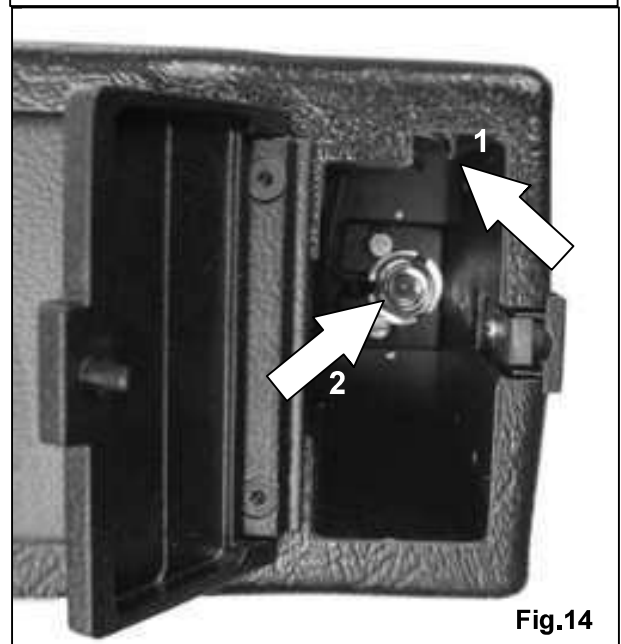


Fig.14

4. Insert a just-charged battery into the battery compartment (Fig. 15).

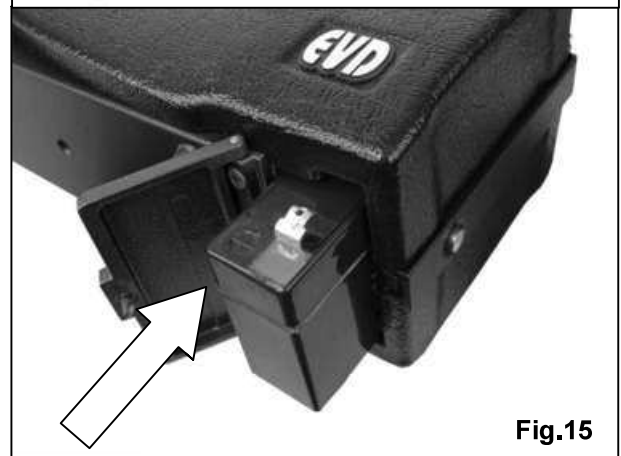


Fig.15

5. Close battery compartment shut.

Proceed to 'PILOT-M. GETTING STARTED'

BATTERY STATUS CONTROL

Operator can control the battery status in a **SEARCH** mode:



Press and release  or  button to check the battery.



Fig.16

Partly discharged battery is indicated by 'B' symbol in a upper right corner (see Fig.17).

3 seconds later Pilot-M Detector returns to the **SEARCH** mode.

Please note, in this case you have limited time of operation!



Fig.17

Flat battery is indicated by:

- **Continuous audio signal**
... and ...
- **'CHARGE BATTERY'** indication on the LCD.

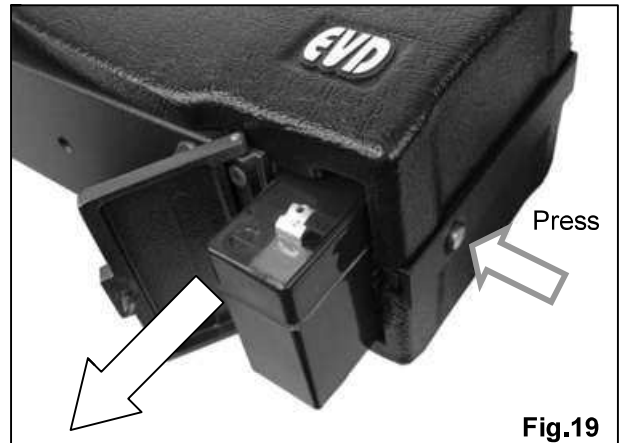


Fig.18

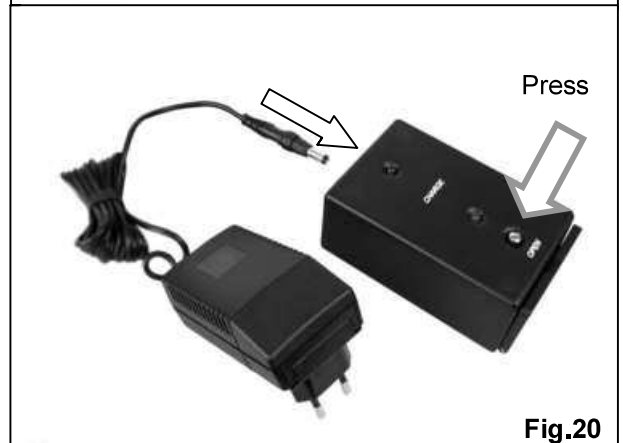
BATTERY CHARGING

1. Press the button on the back of the Main Unit.
2. Open the battery compartment shut.

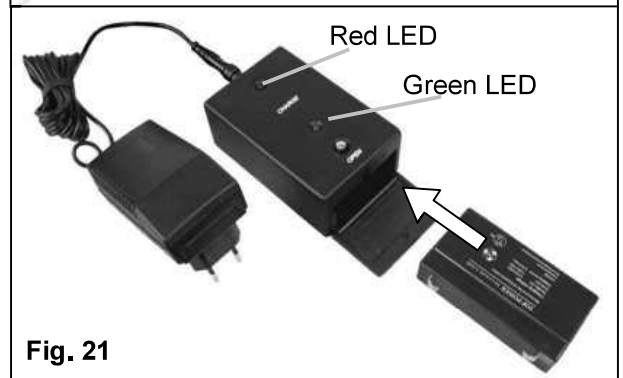
3. Draw out the battery from the Main Unit body.



4. Connect AC\DC Adapter plug to the Charger.



5. Press the button to open the battery compartment of the Charger.
6. Insert the battery into the charger
7. Close the battery compartment of the Charger.



8. Couple AC\DC adapter plug to the wall outlet
- red LED will shine in confirmation
9. After finishing the charging process green LED will fire.

PILOT-M. GETTING STARTED

1. Take the Main Unit.
2. Provide its power supply:
 - insert a fresh 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
 - press ON/Off key on a Control panel.

5. The display will show 'SYSTEM TEST'



Fig.22

6. Four seconds later the Detector will pass to an active mode confirmed by periodic audio signal (every 1 sec. approx.).

NOTE: this signal corresponds to vapor analysis period of the method employed.

The display will show 'SEARCH':



Fig.23

NOTE: After Pilot-M Detector activation the maximum sensitivity is adjusted automatically.

It corresponds to a minimum threshold detection level .

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.24

7. In a such case operator should readjust a threshold detection level

THRESHOLD DETECTION LEVEL ADJUSTMENT

1. Press the **MODE** button.

The display will show 'SETUP LEVEL':



Fig.25

2. Three seconds later the LCD indicates: 'SET <L>'

3. Press and hold  or  button to adjust the threshold detection level.

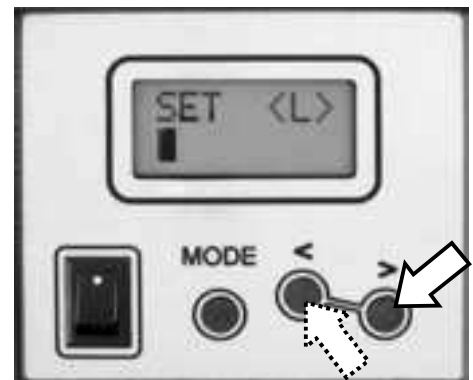



Fig.26

4. To reduce the level (sensitivity)

- press and hold the button: 

5. To increase the level (sensitivity)


- press and hold the button: 



Fig.27

6. To exit this operating mode press **MODE** button.

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

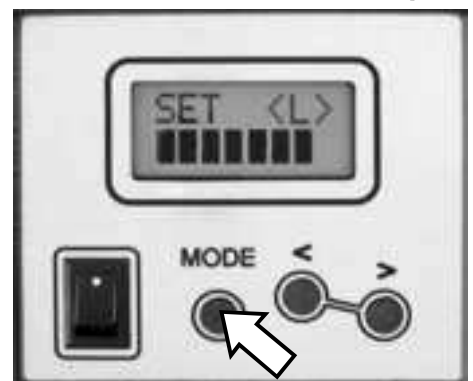


Fig.28

WORKING CAPACITY TEST

1. Take an imitator (container with TNT vapor source) – No.2 on the Fig. 7.
2. Open an imitator container.



Fig.29

3. Draw the suction port (see Fig. 2) of the Main Unit near opened imitator within 30 ... 40 mm distance.

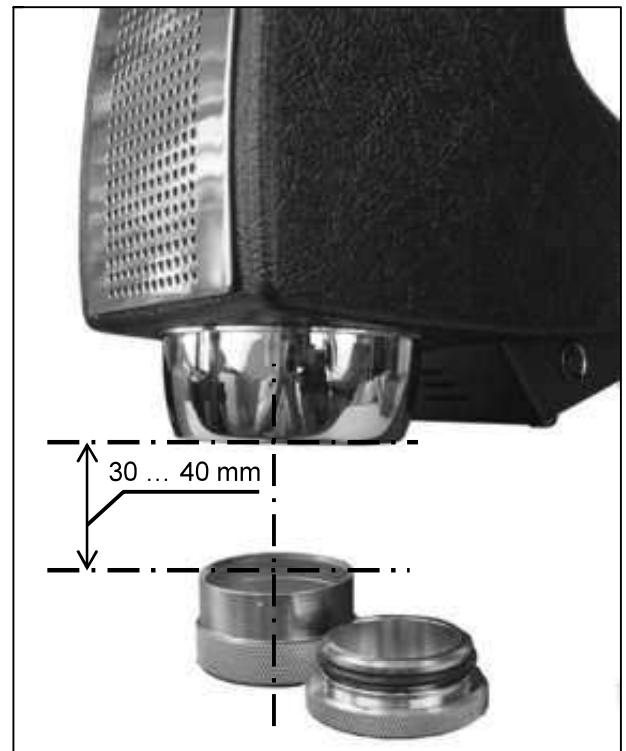


Fig.30

4. If Pilot-M Detector operates properly the Alarm sound will be present and the LCD will indicate the word 'ALARM'.

If word 'OVERLOAD' appears on LCD, immediately take away detector from imitator container!



Fig.31

5. Close the imitator' container.
6. **The Detector is ready for operation.**

SEARCH MODE

1. Draw the suction port of the Main Unit near an inspected surface within 30-40 mm distance (not more!).

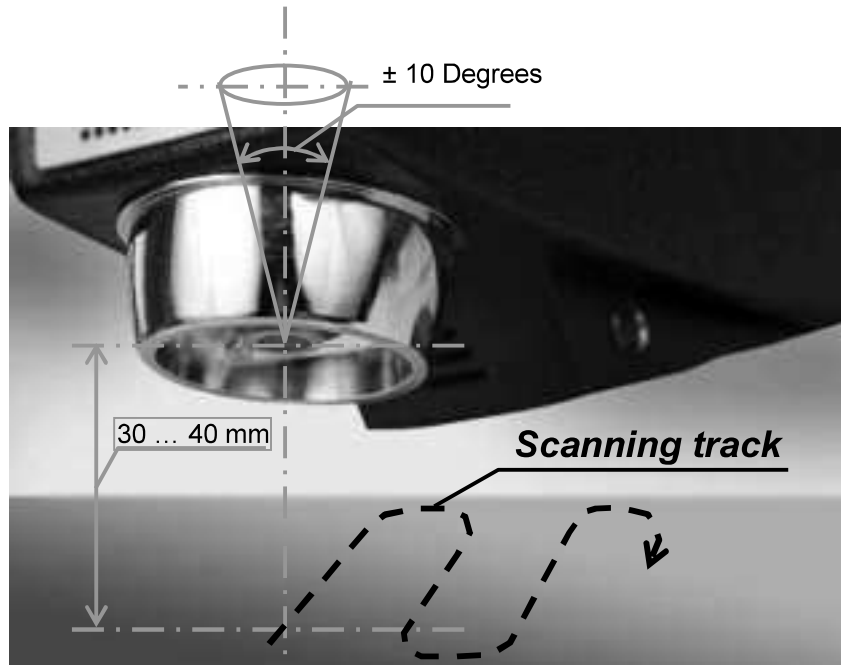


Fig.32

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.

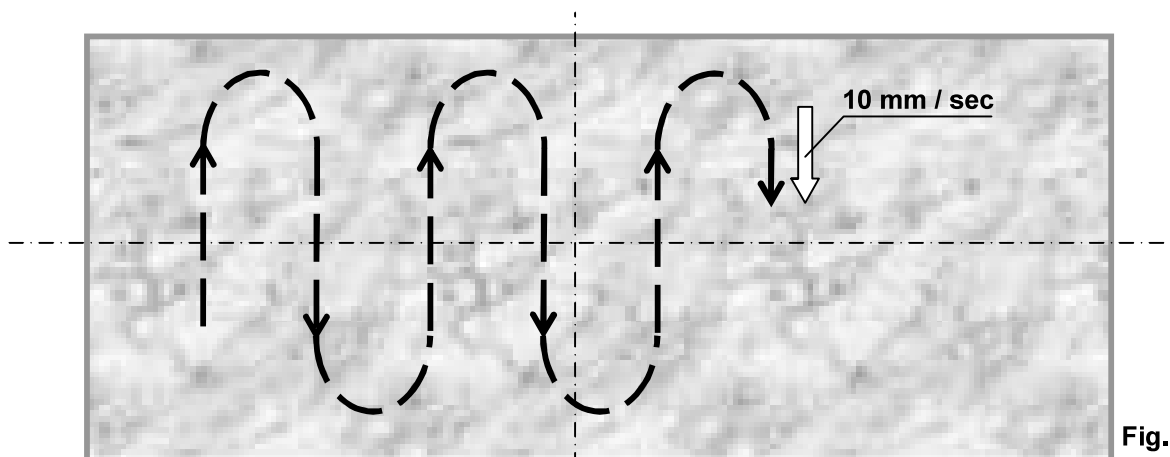


Fig.33

Questioned object surface
Curved scanning path and rate at the time of its investigation

NOTE: Shelter the place of operation from wind and draught

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



Fig.34



Fig.35

3. In case of explosives detection the repeated audio signal and the word "ALARM" on the LCD should appear (Fig. 36 - 38).

***The higher the tone –
the higher explosives vapor
concentration
is in the air!***

NOTE: Operator can control
the battery status
in **SEARCH** mode:
Just press and release



to check the battery.

See also page 11
'BATTERY STATUS CONTROL'



Fig.36



Fig.37



Fig.38

SAMPLE HEATER WITH FOLDING STAND

Special Sample Heater (Fig. 39-41) 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-M Detector can be placed in a friendlier environment with a minimum influence of high humidity, dust, smoke, low and high temperature.

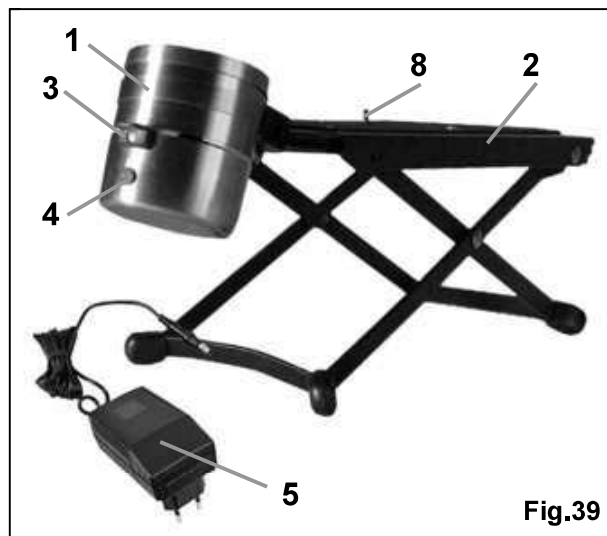


Fig.39

1. Heater module
2. Folding stand
3. Plastic knob
4. LED indicator
5. AC/DC adapter
6. Power supply socket
7. Sample hold-down spring
8. Pilot-M Main unit fixing screw
9. Heater fixing screw



Fig.40

The Heater is powered via AC/DC adapter - see No. 5 on the Fig. 39 (supplied).

Connectors and controls:

- Power supply jack (No. 6 on the Fig. 41).
- On/OFF & ready light LED (No. 4 on the Fig. 39)

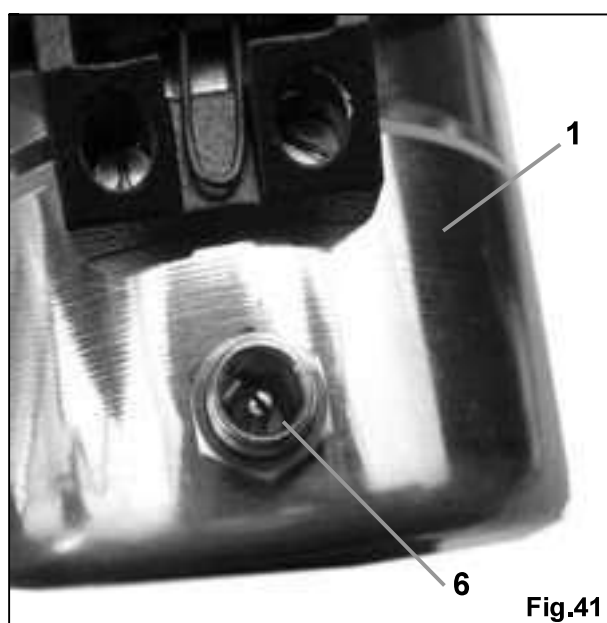


Fig.41

To reach working chamber ('1' on the Fig. 42) of the Heater turn the lower part of it downwards (shown by an arrow).

Use plastic knob for this purpose (No. 2 on the Fig. 42).

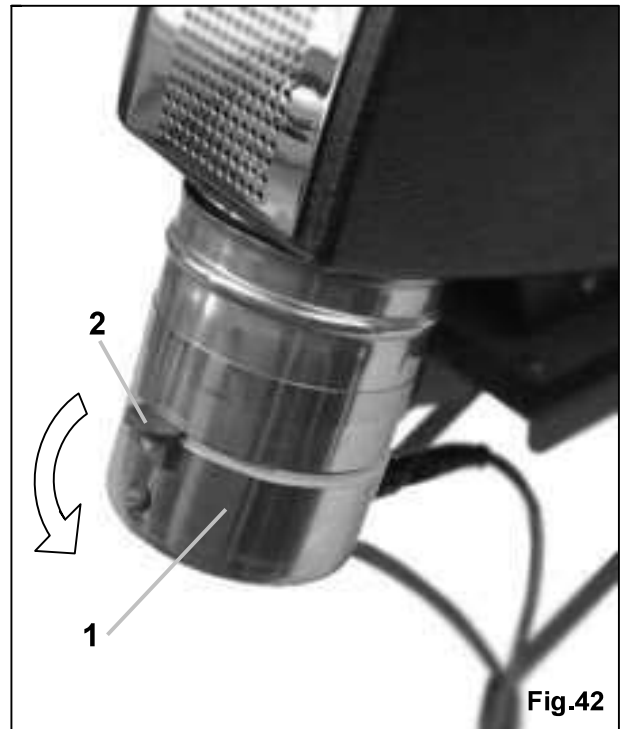


Fig.42

Working area of the heater ('3') is shown on the Fig. 43.

Various samples collected by an operator or his assistants are placed on the effective surface of the Heater for investigation and analysis.

NOTE: Heating plate (3) of the Heater is fixed by magnets. In case of contamination that plate can be easily removed for cleaning.



Fig.43

SAMPLE HEATER. GETTING STARTED

1. Place the Heater on an even steady surface.
2. Place Pilot-M Detector on the Heater stand.
3. Fix Detector by a special bolt on the bottom of the stand (Fig 44).
4. Couple AC / DC adapter to the Heater.
5. Connect the AC / DC adapter into the mains.

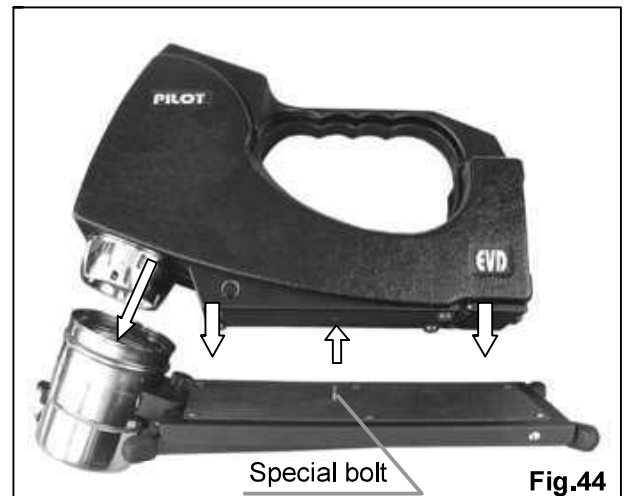


Fig.44

6. Blinking red LED indicates the Heater's warming up.
After 4...5 minutes the light changes to a continuous green
7. The GREEN light indicates that Heater is ready to use.
Normally warming up takes around 5-6 minute.



Fig.45

8. The Heater is ready for operation.

9. Switch on the Detector.

10. Select special operational mode:
'Pilot-M Detector joint action with Heater'
For that press and release **MODE** button

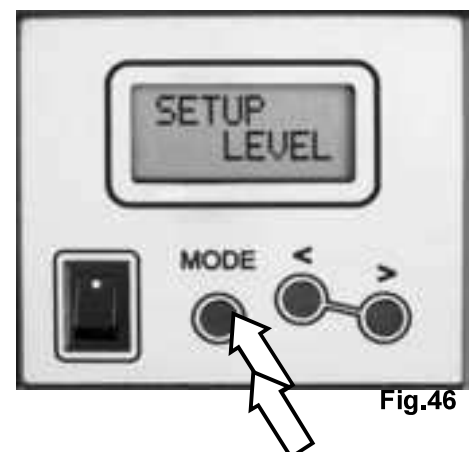


Fig.46

11. **'SETUP LEVEL'** appears on the screen (Fig. 46)

12. Press and release **MODE** button once again

13. 'HEATER IS OFF' appears on LCD

14. Press and release  or  button.



Fig.47

15. 'HEATER IS ON' appears on LCD

16. Press and release **MODE** button



Fig.48

17. Detector will pass to 'SEASRCH' MODE



Fig.49

No 'ALARM' signal indicates that Heater is clean and ready for operation.

Every time starting an investigation check the Heater purity.

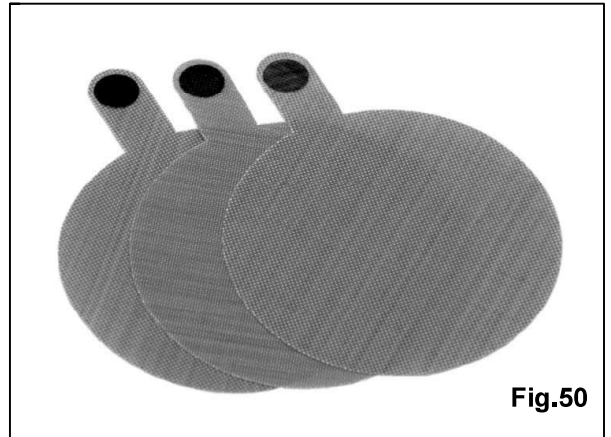
This will help to avoid a false alarm.

Carry out several null-cycle measurement (with out filter-paper swabs and other sampler units!) to confirm the device purity.

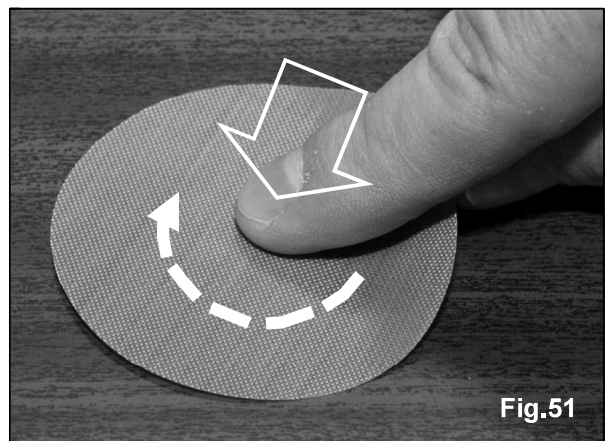
In case of strong contamination of the heating plate ('3' of fig.43) remove it from the Heater body, wash it with pure, rectified alcohol (see page 30) and blow out by hot air flow.

SAMPLE COLLECTION USING FILTER-PAPER SWABS

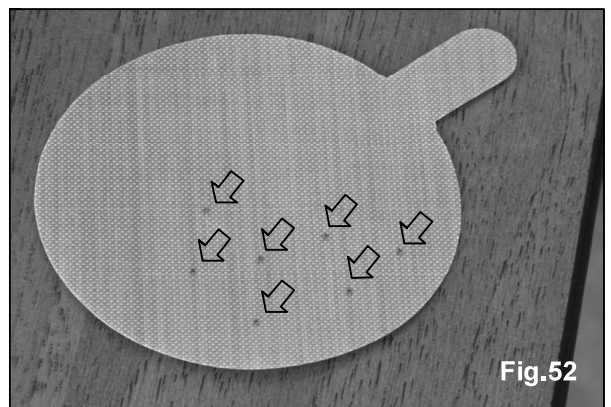
1. Take the swab (Fig. 50) from the package



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. 51)



3. Examine thoroughly the used side of the swab and remove apparent particles to prevent the Detector's contamination (Fig. 52).



4. Open the working module of the Heater and insert the swab (Fig. 53).
5. 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).



NOTE: Sample analysis is available within 1...2 hours from the moment of sample collection.

6. Close the working module (Fig. 54).



7. Within seconds Detector will show the result (Fig. 55-56).



Fig.55

8. Remove the swab and keep Heater and Detector in an active mode till no 'ALARM' signal will be indicated.

This particular procedure needs for Heater and Detector refinement and elimination of any explosives residue.

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

9. To exit this operational mode press and release **MODE** button



Fig.56



Fig.57

10. 'SETUP LEVEL' appears on the screen
11. Press and release **MODE** button once again



Fig.58

12. 'HEATER IS ON' appears on LCD

13. Press and release  or  button.

14. 'HEATER IS OFF' appears on LCD

15. Press and release **MODE** button

16. Detector will pass to '**SEARCH** MODE'

17. Switch off the Detector

18. Disconnect AC / DC adapter from the mains

19. Unplug the adapter from the Heater



Fig.59



Fig.60



Fig.61

GAUZE SAMPLER PUMP

Gauze Sampler Pump (No.1 on the Fig. 62) together with a Metallic Gauze Sampler set (No. 2) is intended for collecting samples (micro-particles) in a dusty and smoky environment.

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

Controls:

- On/Off button (No. 3).
- 'On/Off' – 'Battery Charging' LED (No. 4).

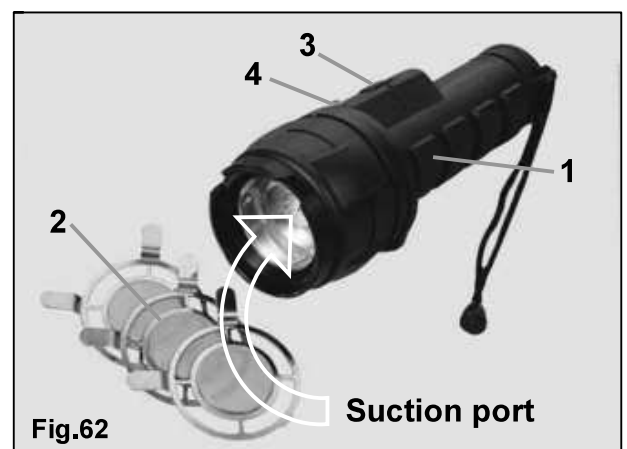


Fig.62

SAMPLE COLLECTION USING GAUZE SAMPLER PUMP

1. Take the Metallic Gauze Sampler (Fig. 63a).

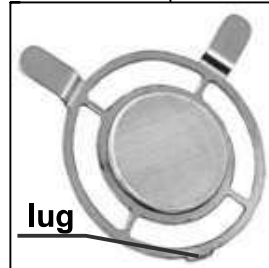


Fig.63a

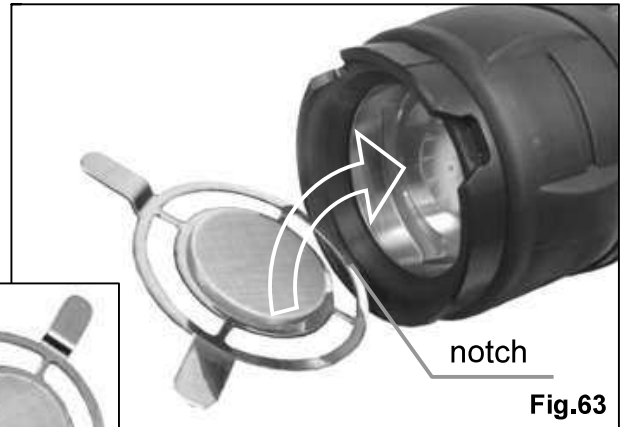


Fig.63

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. 63).

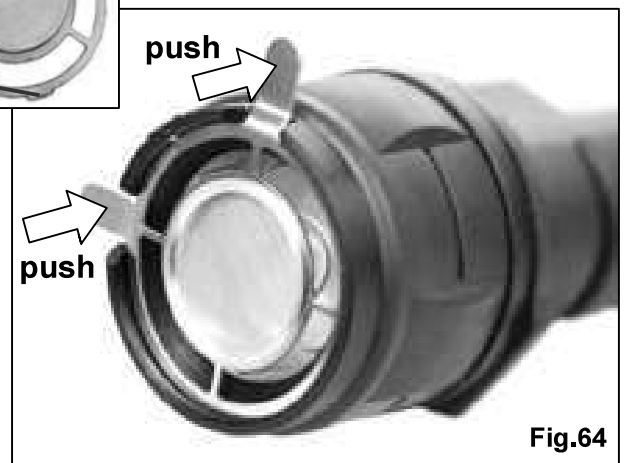


Fig.64

3. Fix the Gauze Sampler- just push it till the audible click (Fig. 64)

4. Switch on the Sampler Pump. Green LED is blinking, the noise of the pump driver can be heard.

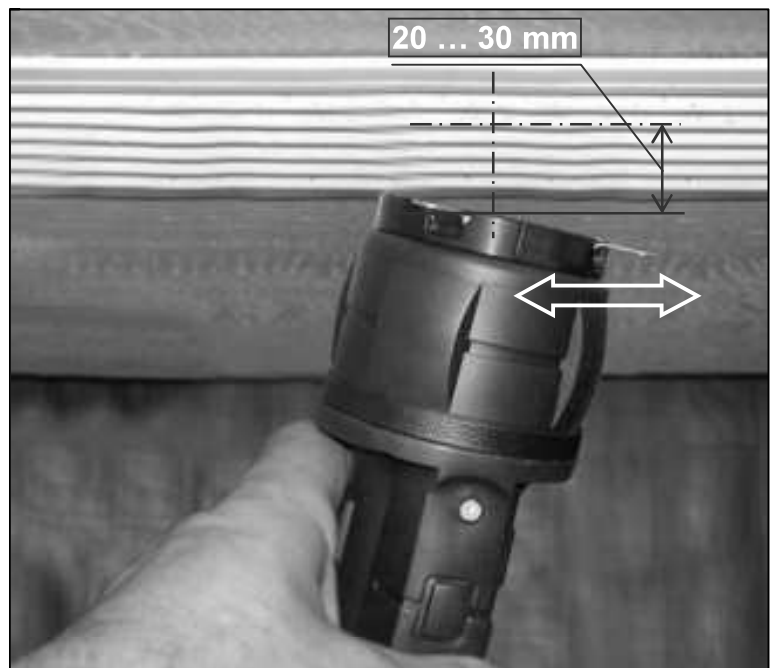


Fig.65

5. Draw the Sampler Pump near an inspected surface within 20-30 mm distance (Fig. 65-66).

Scan an inspected surface or an object sliding it smoothly without jerky motions.

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

6. Remove Gauze Sample from the Sampler Pump.

7. Examine the Gauze Sampler with Pilot-M Detector in a **SEARCH** mode (refer to 'PILOT-M. GETTING STARTED', page 13).

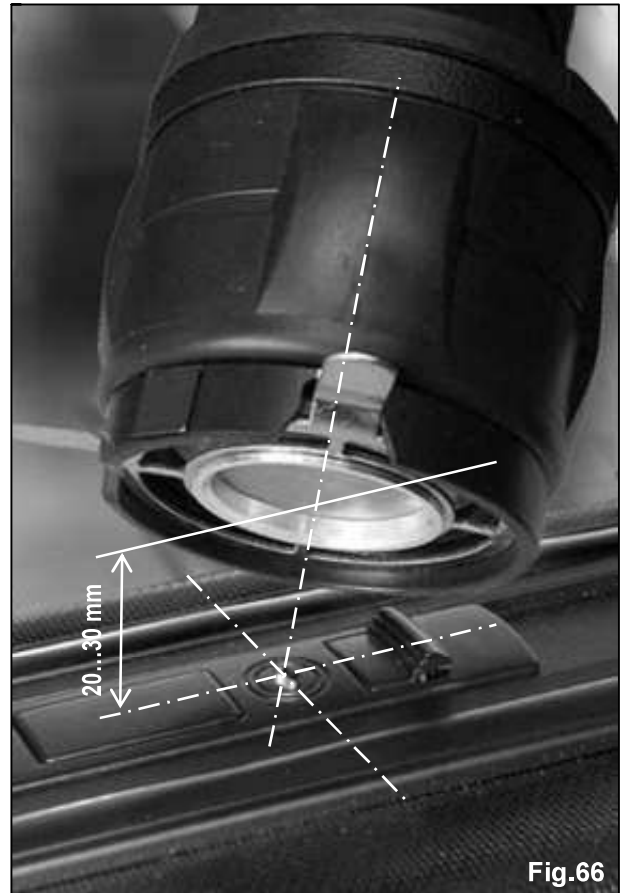


Fig.66



Fig.67



8. If no 'ALARM' signal was received in this mode, put the Gauze Sampler into the Heater (refer to 'SAMPLE HEATER. GETTING STARTED', page 20).



9. Examine the used Gauze Sampler by means of Detector adjusting its operating mode 'HEATER is ON' (refer to 'SAMPLE HEATER. GETTING STARTED', page 20).

10. 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-M Detector.

11. Repeat this procedure till the 'ALARM' signal disappears completely.

NOTE: LED indicator on the Sampler Pump blinks red if its build-in battery is flat.

SAMPLER PUMP BATTERY CHARGING

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

Switch off the Sampler Pump.

Couple the AC\DC Adapter plug to the corresponding jack of the Pump on the bottom of the Pump.

Couple the AC\DC Adapter plug to the wall outlet.

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

After 3-hours charging the green LED confirms the charging completion.

NOTE: Fully charged battery provides at least 2-hours of uninterrupted operation.

'ON/OFF' – 'Battery Charging'
LED indicator

ON/OFF switch



Fig.70

To Sampler Pump
battery charging
socket



Fig.71

Battery
charging
socket

From
AC/DC
adapter

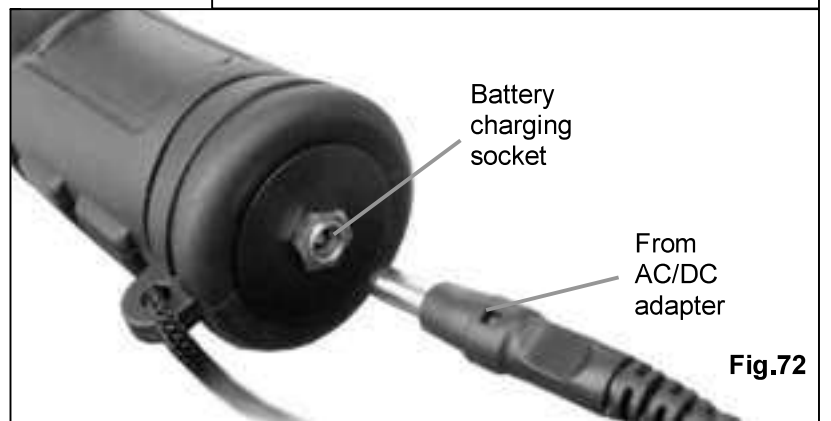


Fig.72

CONTAMINATED ELEMENTS CLEANING

Use medical alcohol for cleaning contaminated elements (metallic gauze sampler, special (swab) sampler, heating plate).

Utilize clean cotton wool and napkins as a wiper tissue.

Wet the cotton swabs or napkins with medical alcohol, wipe gently contaminated elements (metallic gauze sampler, special (swab) sampler, heating plate) as shown by an arrow (fig. 73-75) and blow out by hot air flow with temperature 150°C ... 160°C.

Remove heating plate by tweezers from the Heater module for cleaning working area. (fig.76).

Clean the inner surface of the heater's cylinder by same way (see two arrows on the Fig. 77).

Switch on the Detector and the Heater and check the result of cleaning procedure.

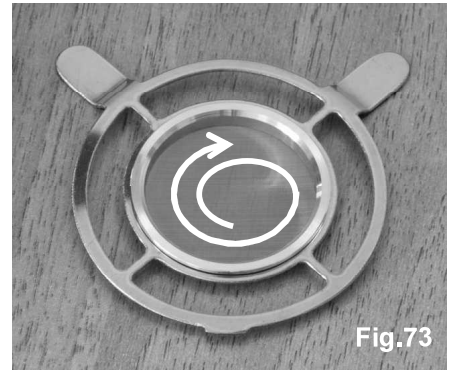


Fig.73

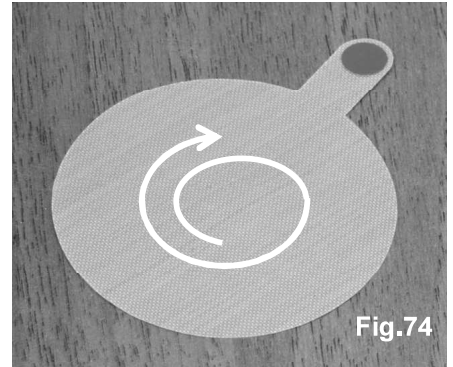


Fig.74

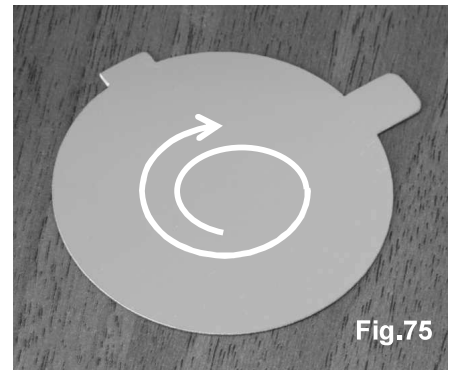


Fig.75



Fig.76



Fig.77

STORAGE

Pilot-M Detector should be stored in a dry premise under the temperature +5°...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.

TRANSPORTATION

Pilot-M 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

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)	100...240V / 47...63 Hz
	DC (2 rechargeable batteries - supplied)	6V
One battery pack continuous operation time		up to 4 h
Operation conditions	Temperature	+5°C...+40°C
	Relative humidity	up to 90 % (under +25°)
Survive after strong environment effect	Temperature	-50°C...+50°C
	Relative humidity	98% (under +25°C)
Storage conditions *	Temperature	+5°C...+35°C
	Relative humidity	80% (under +25°C)
Main Unit	Dimensions	300x180x90 mm
	Weight (with battery)	2 кг
Total weight in carrying case		no more 7 kg

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

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.

Factory number

The Delivery date

POSSIBLE MALFUNCTIONS AND METHODS OF THEIR REMOVAL

Malfunction	Probable reason	Method of removal
Detector		
The detector does not work (no information on the LCD, noise of the working pumps is not audible) after switching on.	<ol style="list-style-type: none"> 1. Very low or no mains voltage. 2. AC/DC adapter is faulty. <ol style="list-style-type: none"> 2.1. AC/DC adapter is not coupled to the detector and a wall outlet; 2.2. The rechargeable battery is discharged. 3. The detector is faulty. 	<ol style="list-style-type: none"> 1. Check up the mains voltage. 2. Replace AC/DC adapter <ol style="list-style-type: none"> 2.1. Check up contact in sockets of AC/DC adapter plug and the detector; 2.2. Replace or charge the discharged rechargeable battery. 3. Refer to "Guarantee certificates", page 33.
The detector works and displays an error message: <ol style="list-style-type: none"> 1. "Error 01" 2. "Error 02/1" "Error 02/2" 	<ol style="list-style-type: none"> 1. The detector is contaminated by explosives. 2. The detector is faulty. 	<ol style="list-style-type: none"> 1. Wipe the suction port of the detector with alcohol or acetone. 2. Refer to "Guarantee certificates", page 33.
The detector works and continuously or from time to time displays an alarm message with corresponding audio signal.	The detector is contaminated by explosives.	<ol style="list-style-type: none"> 1. Wipe the suction port of the detector with alcohol or acetone. 2. Place the detector on an even steady surface (for example, on very brink of a table). Connect the detector into a wall outlet via AC/DC adapter. Switch on the detector at least an hour. If at the expiration of this time interval the alarm signal is still present, it means the necessity of non-warranty repair of the detector.
Sample heater		
LED indicator is not alight after powering on.	<ol style="list-style-type: none"> 1. Very low or no mains voltage. 2. AC/DC adapter is faulty. <ol style="list-style-type: none"> 2.1. AC/DC adapter isn't coupled to Sample heater and a wall outlet. 3. The Sample Heater is faulty. 	<ol style="list-style-type: none"> 1. Check up the mains voltage. 2. Replace AC/DC adapter <ol style="list-style-type: none"> 2.1. Check up contact in sockets of AC/DC adapter plug and the Sample heater. 3. Refer to "Guarantee certificates", page 33.
There is no sample in the Sample heater, but the detector displays an alarm message with corresponding audio signal.	The Sampler heater is contaminated by explosives.	Refer to "Contaminated elements cleaning", page 30.

Malfunction	Probable reason	Method of removal
Gauze sampler pump		
Gauze sampler pump does not work (LED indicator is not alight, vane does not rotate, noise of the working motor is not audible) after switching on.	<ol style="list-style-type: none"> 1. The rechargeable battery is discharged. 2. The Gauze sampler pump is faulty. 	<ol style="list-style-type: none"> 1. Charge the discharged rechargeable battery. 2. Refer to "Guarantee certificates", page 33.
LED indicator does not light red after coupling AC/DC adapter.	<ol style="list-style-type: none"> 1. Very low or no mains voltage. 2. AC/DC adapter is faulty. <ol style="list-style-type: none"> 2.1. AC/DC adapter is not coupled to the Sample heater and a wall outlet; 2.2. The rechargeable battery is bad. 3. The Gauze sampler pump is faulty. 	<ol style="list-style-type: none"> 1. Check up the mains voltage. 2. Replace AC/DC adapter <ol style="list-style-type: none"> 2.1. Check up contact in sockets of AC/DC adapter plug and the Gauze sampler pump; 2.2. Refer to "Guarantee certificates", page 33. 3. Refer to "Guarantee certificates", page 33.
Charger		
LED indicators are not alight after powering on.	<ol style="list-style-type: none"> 1. Very low or no mains voltage. 2. AC/DC adapter is faulty. <ol style="list-style-type: none"> 2.1. AC/DC adapter is not coupled to the Charger and a wall outlet. 3. The Charger is faulty. 	<ol style="list-style-type: none"> 1. Check up the mains voltage. 2. Replace AC/DC adapter <ol style="list-style-type: none"> 2.1. Check up contact in sockets of AC/DC adapter plug and the Charger. 3. Refer to "Guarantee certificates", page 33.
Red LED indicator is not alight after rechargeable battery insertion.	<ol style="list-style-type: none"> 1. The rechargeable battery is bad. 2. The Charger is faulty. 	<ol style="list-style-type: none"> 1. Replace the rechargeable battery. 2. Refer to "Guarantee certificates", page 33.
Red and green LED indicators lights alternately after the rechargeable battery insertion.	<ol style="list-style-type: none"> 1. The rechargeable battery is bad. 	<ol style="list-style-type: none"> 1. Replace the rechargeable battery.

