



# EU-TYPE EXAMINATION CERTIFICATE

Number: TCM 141/07 - 4492

## Addition 6

This addition replaces all previous versions of this certificate in full wording.

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**In accordance:** with Directive 2014/32/EU of the European Parliament and of the Council on the harmonisation of the Member States relating to the making available on the market of measuring instruments (implemented in Czech Republic by Government Order No. 120/2016 Coll.).

**Manufacturer:** TATSUNO EUROPE a.s.  
Pražská 2325/68  
678 01 Blansko  
Czech Republic

**For:** AdBlue dispenser  
type SHARK BMP 5xx.S/AdB, SHARK BMP 2xxx.S/AdB,  
OCEAN BMP 4xxx.S/AdB  
Accuracy class 0.5  
Mechanical environment class: M1  
Electromagnetic environment class: E1

**Valid until:** 15 January 2027

**Document No:** 0115-CS-A005-07

**Description:** Essential characteristics, approved conditions and special conditions, if any, are described in this certificate.

**Date of issue:** 16 January 2017

**Certificate approved by:**



  
RNDr. Pavel Klenovský

## 1. Measuring device description

The SHARK BMP 5xx.S/AdB, SHARK BMP 2xxx.S/AdB and OCEAN BMP 4xxx.O/AdB AdBlue dispensers are intended for measurement of AdBlue (32.5 % aqueous urea solution) volumes as a legal measuring device in the sense of the Directive of the European Parliament and of the Council no. 2004/22/EC of measuring instruments, as amended. They are used for the refuelling of a separate storage tanks of motor vehicles with reduction of NO<sub>x</sub> in exhaust gases of diesel engines SCR-technology (Selective Catalytic Reduction).

The measuring systems consist of a remote pump, non-return valve, filter, measurement transducer, electronic calculator with electronic or electromechanical totalizing indicating device, electromagnetic valve, sight glass (optional) and house with delivery nozzle. Hydraulic part of the dispenser is equipped with an internal heater in order to heating the liquid to the temperature above 0 °C. These AdBlue dispensers can be equipped with pre-setting device optionally.

These measuring systems can be installed in one AdBlue dispenser and they can be connected to one electronic calculator only.

These AdBlue dispensers are intended to be installed only in a central pumping system. The pump has to be the submersible or placed under level of the liquid in the tank. A non-return valve has to be installed between the remote pump and AdBlue dispenser.

There is SHARK MOD 2xxx.S/AdB and OCEAN MOD 4xxx.O/AdB AdBlue module. The module consists of the same hydraulic described above, without electronic calculator. The module is to be connected to the SHARK BMP 2xxx.S or OCEAN BMP 4xxx.O fuel dispensers, which was certified separately.

The BMP 5xx.S/AdB, SHARK BMP 2xxx.S/AdB and OCEAN BMP 4xxx.O/AdB AdBlue dispensers could be connected into independent Point of Sale or Paying terminal, which do not influence metrology parameters of measuring system.

These fuel dispensers are compatible with and may be connected to all self-service devices with proprietary protocols PDE, TATSUNO or other protocols notified in their evaluation certificates.

### 1.1. Measurement transducer

TATSUNO FM-1022 measurement transducer consists of a positive displacement measurement sensor with four pistons of cyclic volume 0.5 L, TATSUNO EK-1025 two-channel photoelectric transmitter (pulser) with 50 pulses / revolution and adjustment device.

TATSUNO FM-1022 measuring transducer can be adjusted by varying of the strokes of one pair of pistons by the adjustment screw. The regulation is non-continual with steps 0.08 %. Maximum range of adjustment is about  $\pm 1$  %. Location of screw is protected by pin.

### 1.2. Calculator

These electronic calculators can be used alternatively.

1.2.1. There are two different models of TATSUNO PDEX electronic calculator. Model PDEDUOX can control two measuring systems and model PDEMPDX can control ten measuring systems maximally, two simultaneously. Calculator PDEX can operate separately or can be controlled by central system of filling station. It can communicate by RS485 by PDE, PumaLAN and ER4 protocol.

Approved software version: 1.03  
W&M checksum 20260

This electronic calculator can be operated by buttons of IR module (remote control). It is necessary to change over value of number of pulses per L, which is stored in memory of calculator (parameter P 44) for electronic calibration. Access to electronic calibration is secured by DIP switch SW1-1 (location ON – up) with sealing cover.

1.2.2. There are two different models of TATSUNO TBELTx electronic calculator. Model TBELT2 can control two measuring systems and model TBELT4 can control four measuring systems at maximum, two simultaneously. Calculator TBELTx can operate separately or can be controlled by central system of filling station. It can communicate by RS485 by PDE, PumaLAN and ER4 protocol.

Approved software version: 1.01  
W&M checksum 8CA4

This electronic calculator can be operated by four buttons keyboard. It is necessary to change over value of number of pulses per  $\text{dm}^3$ , which is stored in memory of calculator (parameter P14, P15, P16 and P17) for electronic calibration. Access to electronic calibration is secured by DIP switch SW1-1 (location ON – up) with sealing cover.

1.2.3. There is UNIDATAZ CDC electronic calculator with included card system used for self-service dispensing.

This electronic calculator can handle up to two nozzles, and is able to serve to one customer at a time only.

This electronic calculator can be equipped with ATC conversion function to converse the measured data to volume at a base temperature of  $15\text{ }^{\circ}\text{C}$  for gasoline, diesel, LPG, heating oil and biofuels. There has connected certified temperature sensor Pt100.

This electronic calculator could be connected into independent Point of Sale or Paying terminal device which do not influence metrology parameters of measuring system.

Approved software version and W&M checksum: See bellow mentioned Evaluation certificate.

UNIDATAZ CDC electronic calculator was separately certified by Evaluation certificate No. ZR 141/10-0073 issued by CMI, Notified Body 1383.

### 1.3. Self-service device

Hectronic GmbH TA2331 self-service device was separately certified by Evaluation certificate No. GB-1286 issued by NWML, Notified Body 0126.

Hectronic GmbH HECSTAR and HECFLEET NT self-service devices were separately certified by Evaluation certificate No. A0445/2641/2011 issued by BEV, Notified body 0445.

Hectronic GmbH HECONOMY self-service devices were separately certified by Evaluation certificates No. A0445/4225/2012 and No. A0445/1718/2013 issued by BEV, Notified body 0445.

ALX TECHNOLOGIES, EUROPILE and EUROPOLE self-service devices were separately certified by Evaluation certificates No. LNE-17492-3 and No. LNE-28279-0 issued by LNE, Notified body 0071.

Männl Elektronik GmbH, Tankmanagementsystem ME-TMS self-service device was separately certified by Type certificate No. DE-M-PTB-0075 issued by PTB, Notified body 0102.

NPS A/S, PAY SYS payment terminal separately certified by Evaluation certificate No. SC311-12 issued by SP, Notified body 0402.

### 1.4. Hose

ELAFLEX AdBlue DN 16; maximum length 5.1 m

### 1.5. Nozzle

ELAFLEX ZVA AdBlue, ZVA AdBlue LV

## 2. Basic technical data

Measuring system type:	Standard	LV (light vehicles) *
Maximum flowrate $Q_{\max}$ [L/min]	40	10
Minimum flowrate $Q_{\min}$ [L/min]	4	2
Min. measured quantity MMQ [L]	2	2
Maximum unit price (number of digits)	9999 (4)	
Maximum price to pay (number of digits):	999999 (6)	
Type of display:	Electronic	
Type of liquids	AdBlue (32.5 % aqueous urea solution)	
Liquid temperature range	-10 to +30	
Maximum pressure [MPa]	0.4	
Accuracy class	0.5	
Ambient temperature range [ $^{\circ}\text{C}$ ]	-25 to +55 -40 to +50 with additional internal heating or with CDC electronic calculator	

Mechanical class	M1
Electromagnetic class	E1
Humidity	Condensing
Location	Open

\*Note: Measuring system for LV contains a ZVA AdBlue LV dispensing nozzle that limits a max. flow rate to 10 L/min.

### 3. Test

Technical tests of the SHARK BMP 5xx.S/AdB, SHARK BMP 2xxx.S/AdB and OCEAN BMP 4xxx.O/AdB AdBlue dispensers were performed in conformity with International Recommendation OIML R 117-1 *Dynamic measuring systems for liquids other than water*.

Test Report No. 6031-PT-P019-06 issued by CMI on 21 December 2006,  
 Test Report No. 6015-PT-P006-08 issued by CMI on 25 April 2008 (PDEX extension),  
 Test Report No. 6015-PT-P027-08 issued by CMI on 22 December 2008 (ADP/T extension),  
 Test Report No. 6015-PT-P0002-10 issued by CMI on 28 April 2010 (TBE extension),  
 Test Report No. 6015-PT-P0105-11 issued by CMI on 9 September 2011 (CDC extension) and  
 Test Report No. 6015-PT-P0019-13 issued by CMI on 20 June 2013.  
 Test Report No. 6015-PT-P0005-17 issued by CMI on 9 January 2017.

### 4. The measuring device data

There are at least a following data on the measurement sensor, pulser, and the electronic calculator:

- Manufacturer's name, mark or trademark
- Type designation
- Serial number
- Alternatively other relevant characteristics (e.g.  $Q_{\max}$ ,  $Q_{\min}$ ,  $P_{\max}$ , liquids to be measured, MMQ, temperature range etc.)

There are following data on each measuring system:

- The "CE" marking and supplementary metrology marking
- Number of EC-type examination certificate
- Manufacturer's name, mark or trademark and post address
- Type designation
- Serial number and year of manufacture
- Accuracy class
- Minimum measured quantity (MMQ)
- Maximum flowrate ( $Q_{\max}$ )
- Minimum flowrate ( $Q_{\min}$ )
- Maximum pressure ( $P_{\max}$ )
- Liquids to be measured
- Liquid temperature range
- Ambient temperature range
- Mechanical class
- Electromagnetic class

The name plate must be inseparably fixed to the construction and clearly visible in normal conditions of use.

There are following data on each face of indicating device visible to user during the operation:

- Unit of national currency (e.g. €), near price indication
- Unit of volume (ℓ or L or word Litre), near volume indication
- Unit price per litre (e.g. € / L or € / Litre), near unit price indication
- Information regarding the minimum measured quantity (MMQ)

All data are in an official language of country where the dispenser is put into operation.



## 5. Conditions for approval and sealing

Before putting into use it has to be verified that the fuel dispenser is in conformity with this certificate and meets its requirements.

It is recommended to perform the accuracy test at three flow rates:

- $Q_{\max}$  or maximum attainable,
- 25% of  $Q_{\max}$  and
- $Q_{\min}$ .

All measured errors have to be in range of tolerance  $\pm 0.5\%$ .

The DIP switch SW1-1 has to be set to position "ON" (up) and switch SW1-4 has to be set to position OFF in case of PDEX and TBELTx electronic calculators.

The switch S3 has to be set to position "OFF" (position up) in case of CDC electronic calculator.

Each measuring system has to be sealed after the conformity assessment with positive result according to following description and pictures:

On the measurement transducer:

- |  |    |
|--|----|
| a) Connection of transducer body with pistons covers                               | 1x |
| b) Connection of adjustment device pin with piston cover and type plate            | 1x |
| c) Connection of transducer body with upper cover and pulser and totalizer, if any | 1x |
| d) Connection of transducer body with bottom cover                                 | 1x |

On the PDEX, TBELTx and ADPx/T el. calculator:

- |   |    |
|---|----|
| e) Connection of calculator cover with calculator console and SW1 switch cover, if separate | 1x |
| f) Connection of cover of electromechanical totalizer with display mask                     | 1x |
| g) The type plate of calculator   | 1x |

On the dispenser:

- |   |    |
|---|----|
| h) Connection of dispenser name plate with fuel dispenser frame       | 1x |
| i) The symbol of relevant measuring system on the name plate          | 1x |
| j) The fuel dispenser data sheet (identification of data on document) | 1x |

On the UNIDATAZ CDC electronic calculator:

- |   |    |
|---|----|
| k) Connection of S3 switch cover with CPU unit            | 1x |
| l) Connection of CPU unit with calculator console         | 1x |
| m) Connection of electromechanical totalizer to the frame | 1x |
| n) The type plate of calculator                           | 1x |

On the Hectronic GmbH TA2331 self-service device:

- |   |    |
|---|----|
| - Access to the calibration switch located on the CPU board is protected by metal cover | 1x |
|---|----|

On the Hectronic GmbH HECSTAR or HECFLEET NT self-service device:

- |   |    |
|---|----|
| - Type plate of the SSD on the case of the SSD shall be sealed.                               | 1x |
| - Metal plate covering the CPU-board "PC/104" and the I/O-board "EB104"                       | 1x |
| - Metal angle bracket, which protects the compact flash card against removal                  | 1x |
| - Each (optional) interface FCI 2040 shall be sealed by sealing two screws of the metal cover | 1x |

On the Hectronic GmbH HECPUMP self-service device:

- |  |    |
|--|----|
| - Type plate of the SSD on the case of the SSD shall be sealed   | 1x |
| - Compact flash disk shall be sealed against removal   | 1x |
| - Each (optional) interface FCI 2040 shall be sealed by sealing two screws of the metal cover  | 2x |
| - In the case when the SSD is connected to the pulsers of the fuel dispensers, the ingoing pulser lines shall be sealed by screw which fixes the cover on the interface FCI-2040 | 1x |

On the ALX Technologies EUROPOLE and EUROPILE self-service device:

- |  |  |
|--|--|
| - According to Evaluation certificates No. LNE-17492-3 and No. LNE-28279-0 |  |
|--|--|

On the Männl Elektronik GmbH Tankmanagement system ME-TMS self-service device:

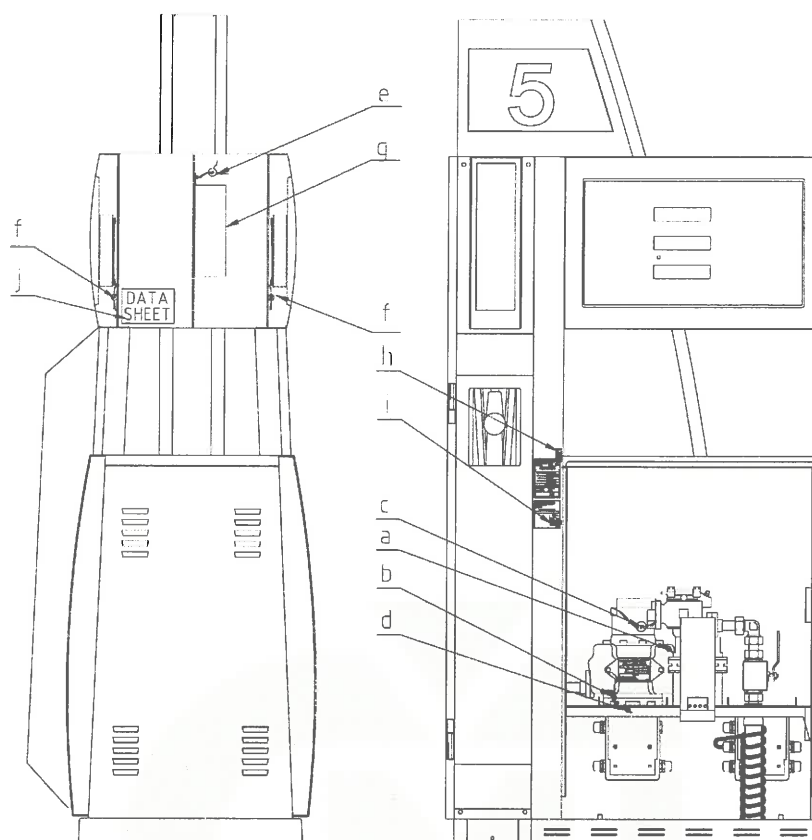
- According to Type certificate No. DE-M-PTB-0075

On the NPS A/S PAY SYS outdoor terminal:

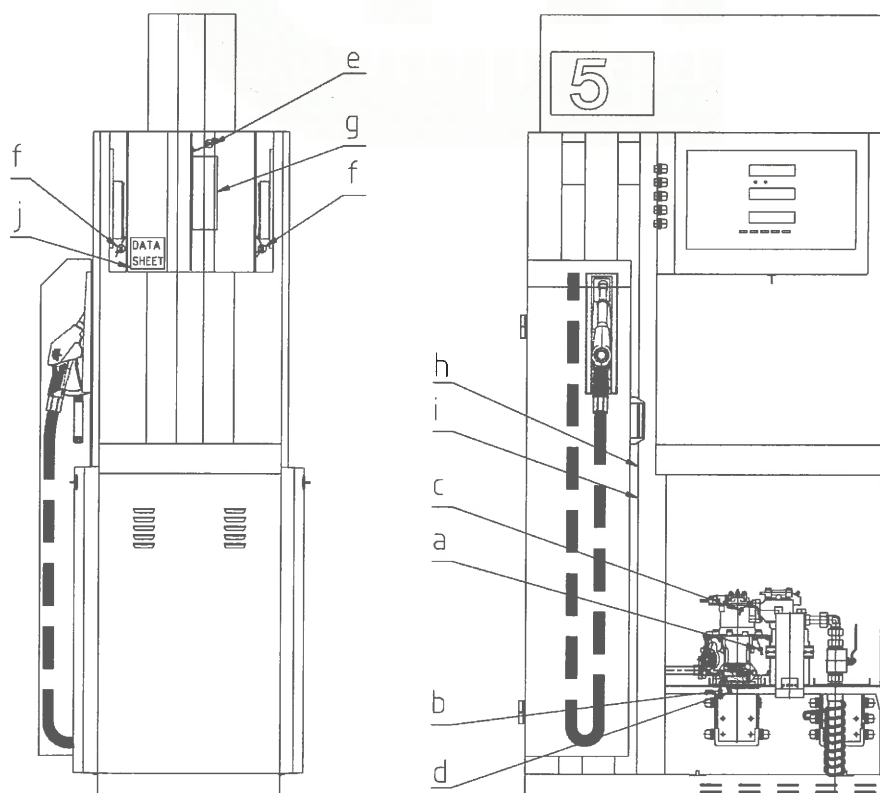
According to Evaluation certificate No. SC311-12

Additional sealing points beyond the requirements of OIML R 117-1 and WELMEC 10.6 can be used on special request of the local W&M authority.

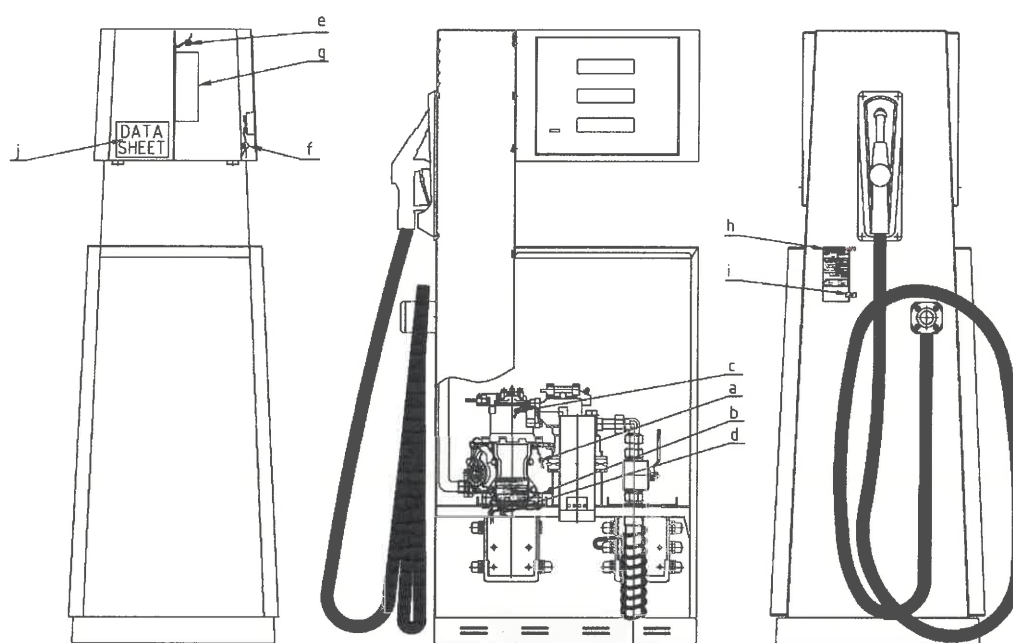
Picture No. 1: The sealing of SHARK BMP 2xxx.S/AdB AdBlue dispenser



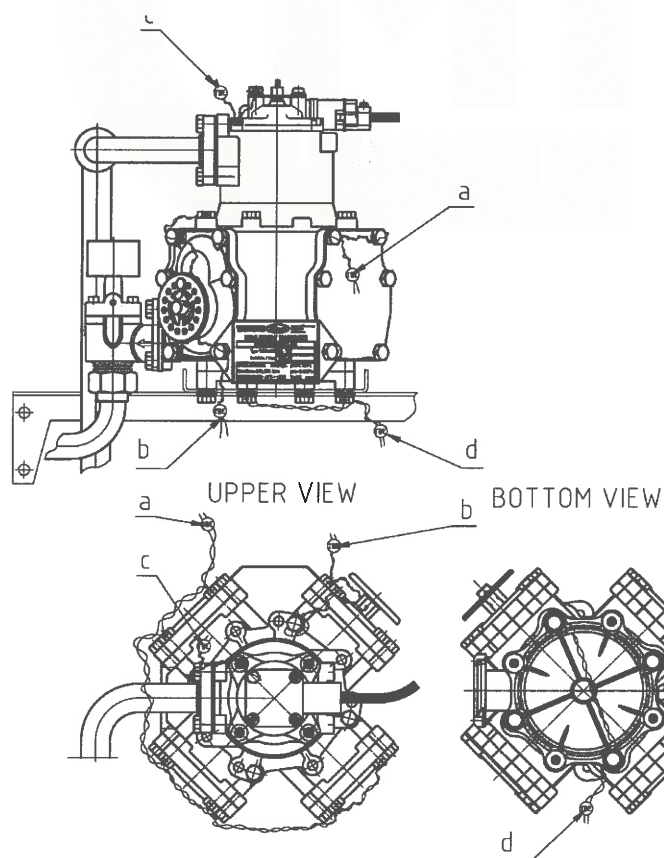
Picture No. 1a: The sealing of OCEAN BMP 4xxx.O/AdB AdBlue dispenser



Picture No. 1b: The sealing of SHARK BMP 5xx.S/AdB AdBlue dispenser

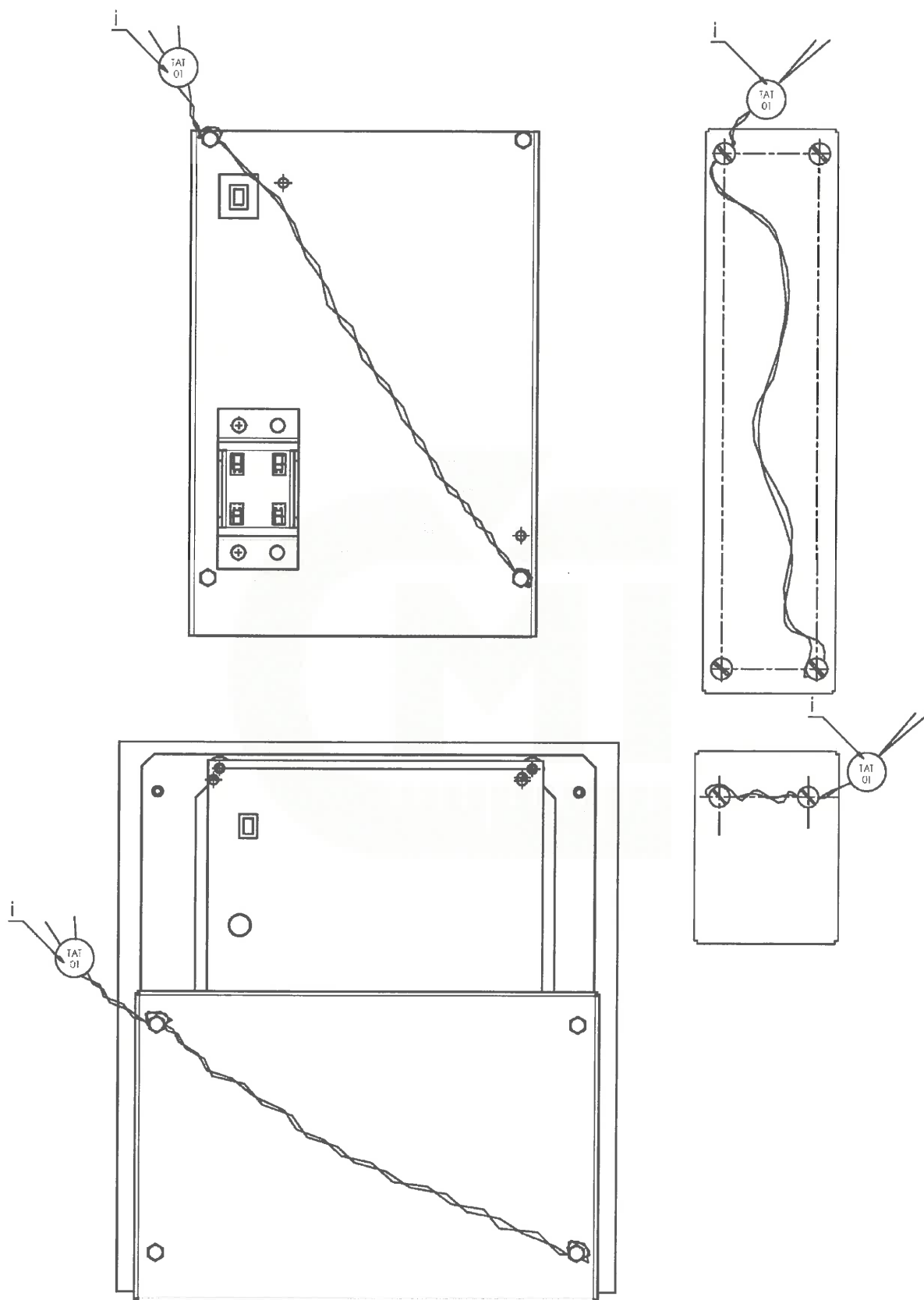


Picture No. 2: The sealing of FM-1022 measuring transducer

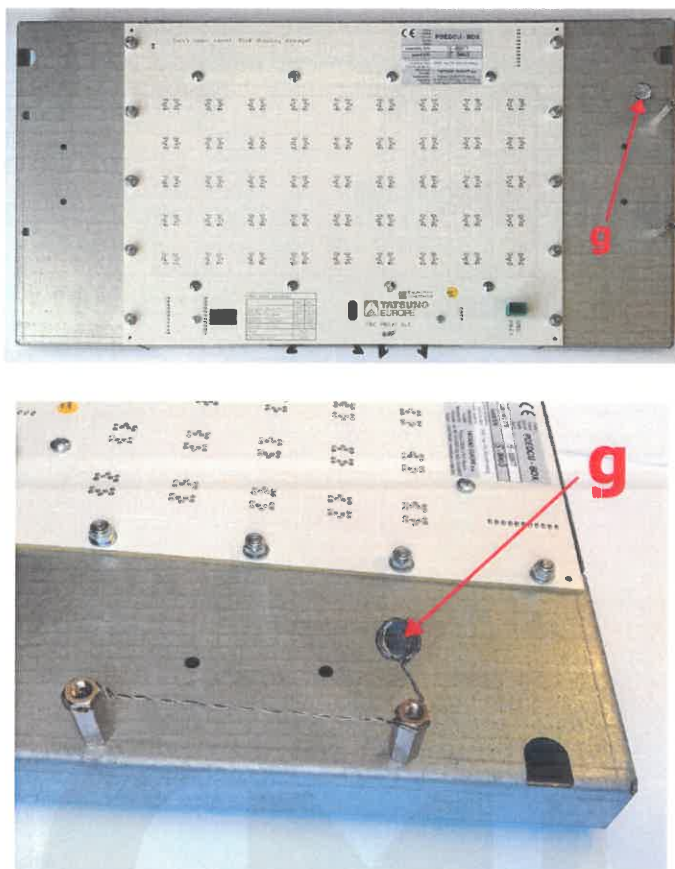




Picture No. 3: The sealing of totalizing indicating device (examples of covers)



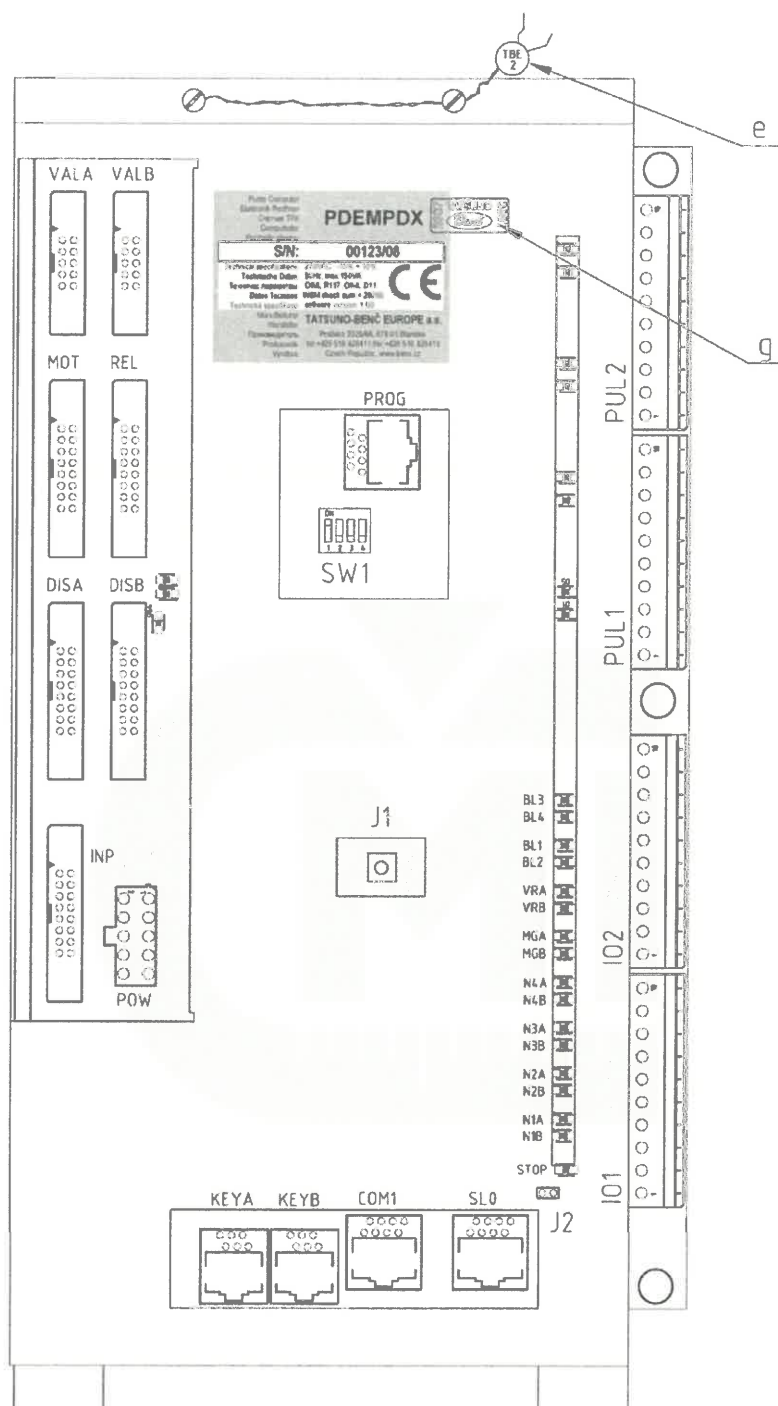
Picture No. 3a: Sealing of the totalizing indicating device with proportional display PDEDU



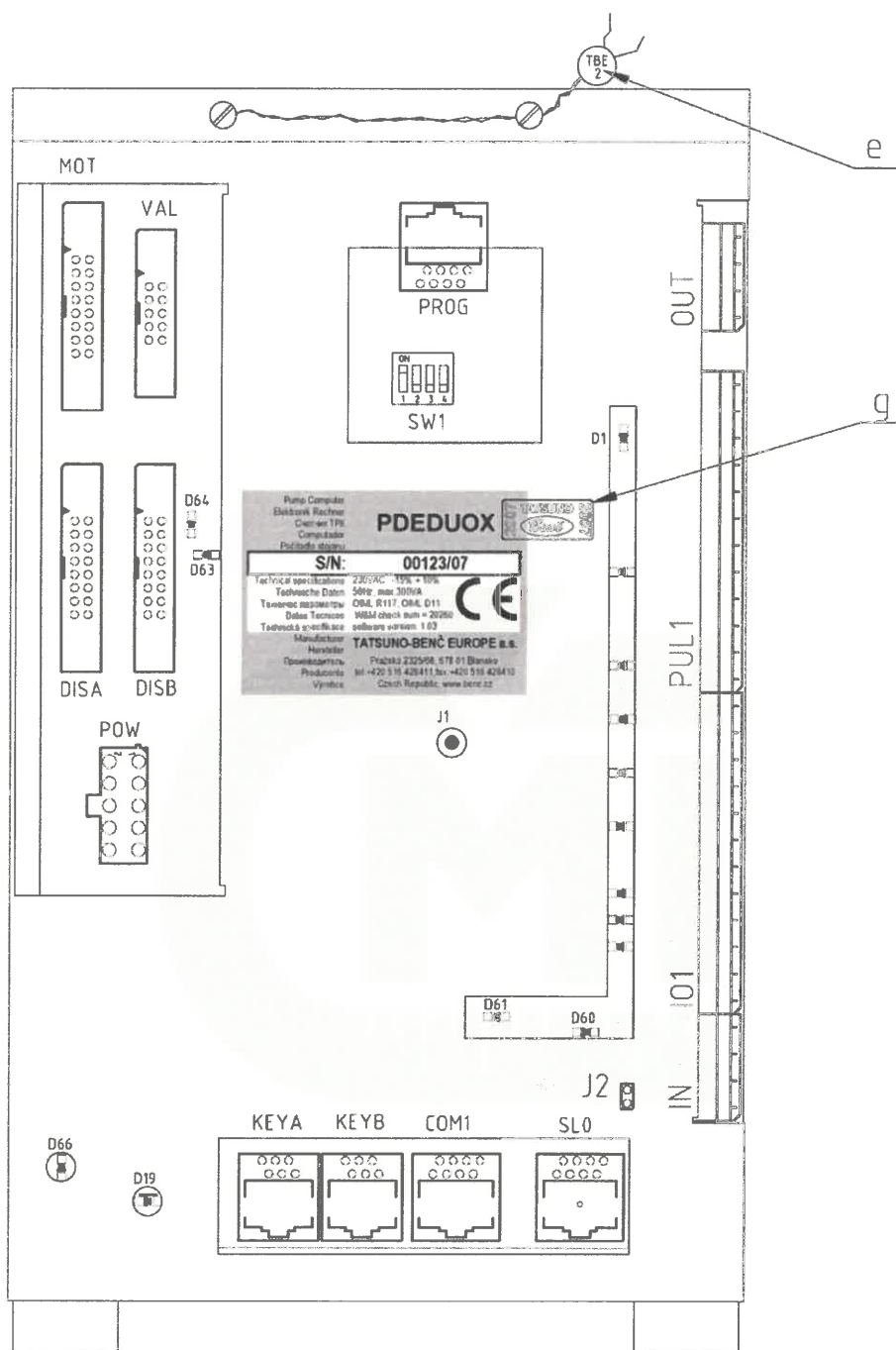
Picture No. 3b: Sealing of the totalizing indicating device with display PDEDIL V6



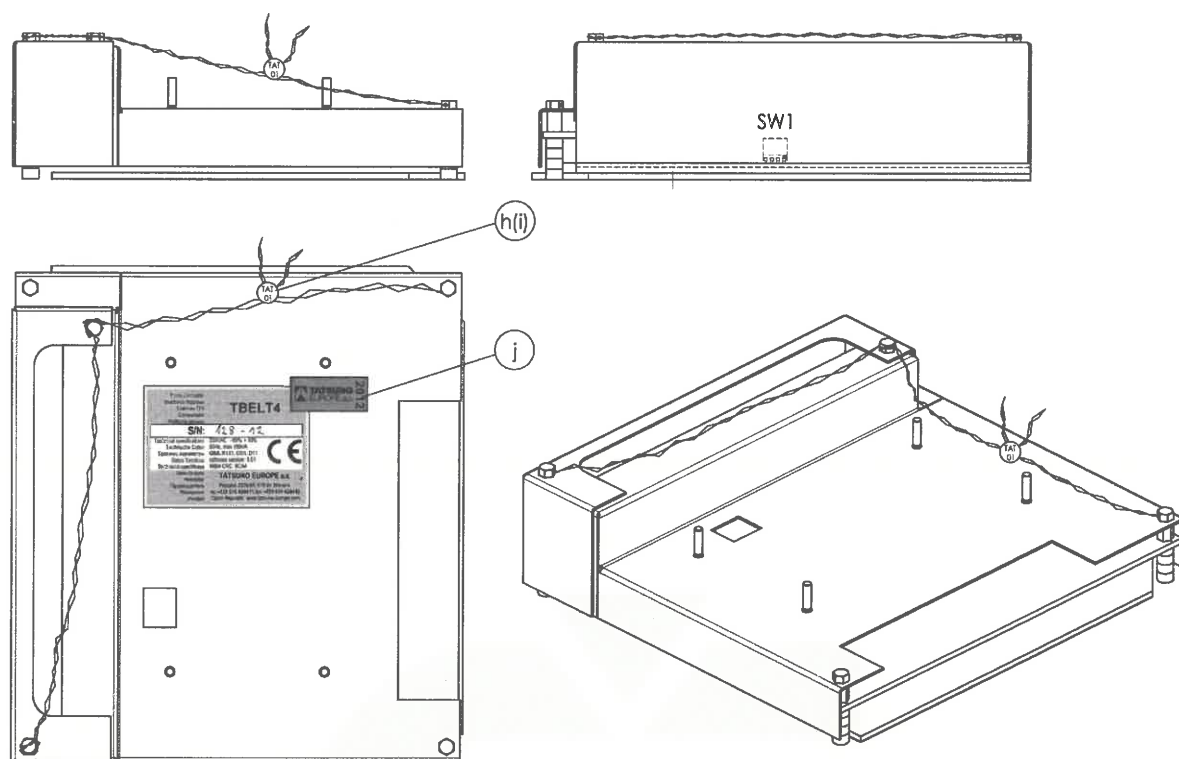
Picture No. 4: The sealing of PDEMPDX calculator



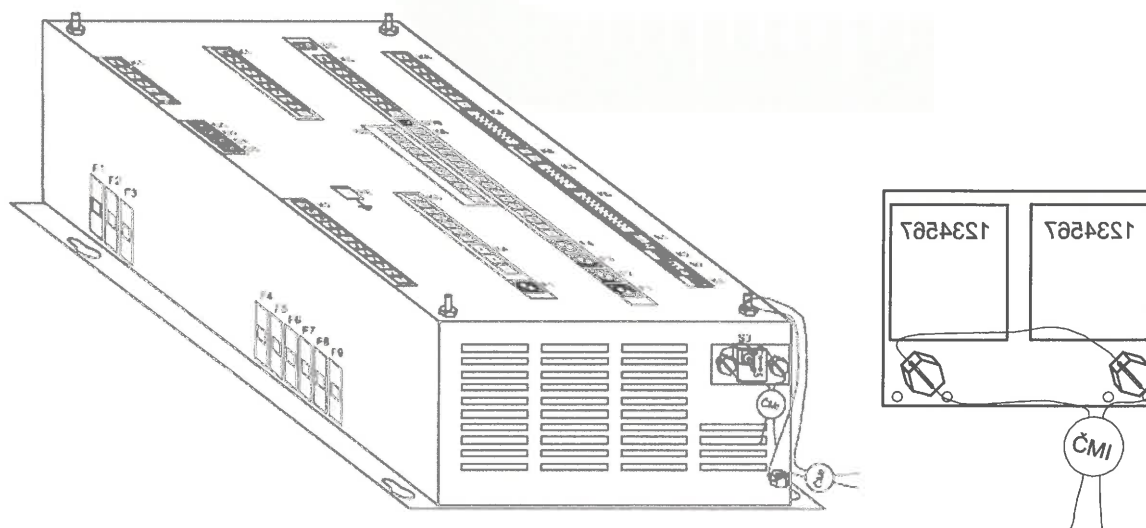
Picture No. 5: The sealing of PDEDUOX calculator



Picture No. 6: The sealing of TBELTx calculator

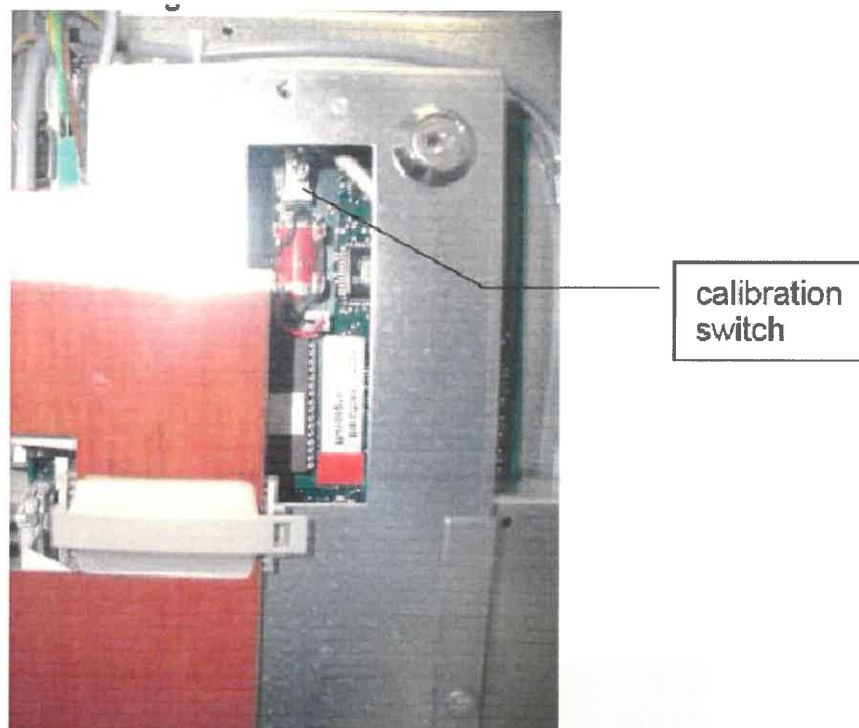


Picture No. 7: The sealing of the UNIDATAZ CDC electronic calculator with totalizer

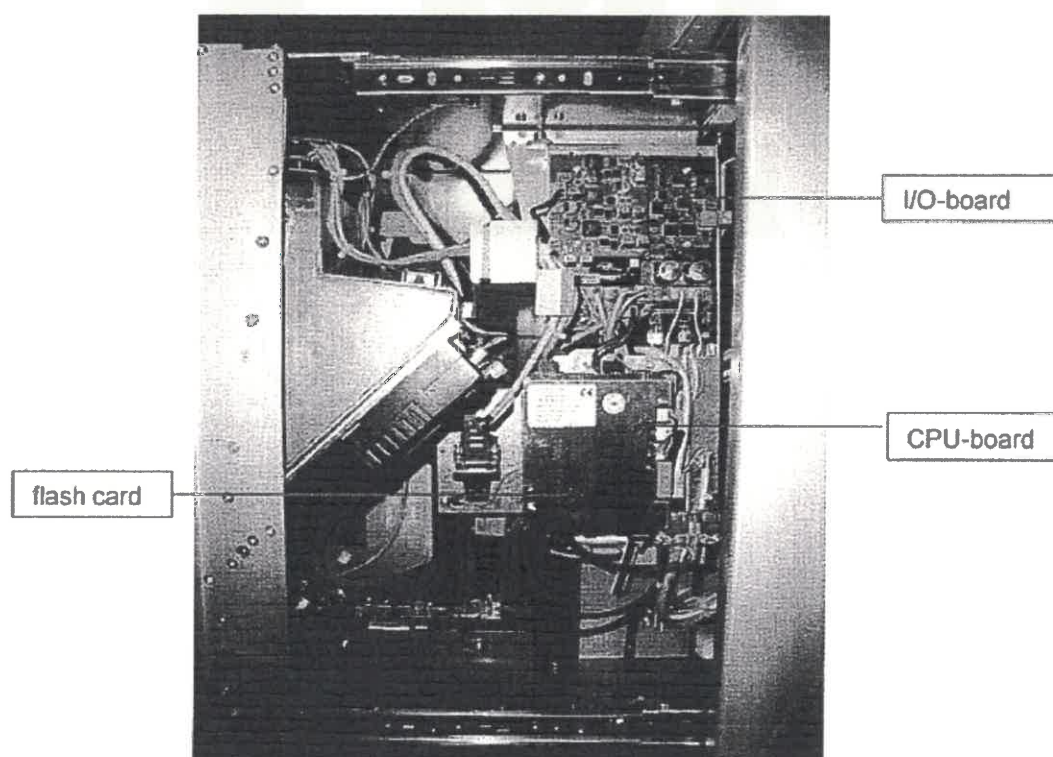




Picture No. 8: Sealing of calibration switch of Hectronic GmbH TA2331 self-service device



Picture No. 9: Sealing of CPU and flash card of Hectronic GmbH HECSTAR/ HECFLEET NT self-service device



Picture No. 10: Sealing of CPU, type label, flash disk and pulsers of Hectronic GmbH HECONOMY self-service device

