



# EU-TYPE EXAMINATION CERTIFICATE

**Number: TCM 141/07 - 4492**

## **Addition 7**

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 laws 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, OCEAN BMS xx/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:** 28 July 2017

**Certificate approved by:**



  
RNDr. Pavel Klenovský

## 1. Measuring device description

The SHARK BMP 5xx.S/AdB, SHARK BMP 2xxx.S/AdB, OCEAN BMP 4xxx.O/AdB and OCEAN BMS xx/AdB AdBlue dispensers are intended for measurement of AdBlue (32.5 % aqueous urea solution according to ISO22241 and DIN 70070) volumes as a legal measuring device in the sense of the Directive of the European Parliament and of the Council no. 2014/32/EU 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 pump (remote or installed inside dispenser), 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 optionally 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.

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 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 OCEAN BMSxx/AdB AdBlue dispenser (metrological part identical with OCEAN BMP 4xxx.O/AdB) could be installed into dispensing systems e.g. container dispensing system.

The BMP 5xx.S/AdB, SHARK BMP 2xxx.S/AdB, OCEAN BMP 4xxx.O/AdB and OCEAN BMS xx/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

1.1.1. 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 ± 1 %. Location of screw is protected by pin.

1.1.2 TATSUNO FF-1141 measuring transducer consists of a Lobe type positive displacement measuring sensor with cyclic volume 0.05 L and the ZE-1945 magnetic pulse transmitter with 5 pulses per revolution. Measuring transducer was separately certified by Evaluation certificate No. ZR 141/17-0145 issued by CMI, Notified body 1383.

### 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 ° 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.

1.2.4. Hectronic GmbH TA2331 electronic calculating and indicating device / self-service device was separately certified by Evaluation certificate No. GB-1286 issued by NWML, Notified Body 0126.

Approved Software version: Release II: „SW2331.75.110.xxx“; Release III: „SW2331.75.130.xxx“

Other information in the related Evaluation certificate.

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

Approved Software version: 1.0.3.x; 1.0.4.x ; 1.0.5.x; 1.0.6.x; 2.0.0.x; 1.1.7.x; 2.1.0.x

W&M checksum: FC DLL = 28D9; CON DLL = 946B

Other information in the related Evaluation certificate.

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

Approved Software version: 03.00

W&M checksum: (1D63)hex or (07523)dec

Other information in the related Evaluation certificate.

### 1.3. Self-service device

1.3.1 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.

1.3.2 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.

1.3.3 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 9 m (MMQ = 2 L)
- IVG Colbachini Spa, IVGBLUE – 20 bar WP 16 x 26, max. length 9 m (MMQ = 5 L)

### 1.5. Nozzle

- ELAFLEX ZVA AdBlue, ZVA AdBlue LV
- PIUSI A60 AdBlue, SB325

## 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 / 5 **	2 / 5 **
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 [°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.

\*\* Note: When installed Elaflex hose, MMQ = 2 L. When installed IVGBUE hose, MMQ = 5 L

## 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.

Test Report No. 6015-PT-P0049-17 issued by CMI on 20 June 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 ( $\ell$  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 TATSUNO FM-1022:

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

On the measurement transducer TATSUNO FF-1141:

- |                                       |    |
|---------------------------------------|----|
| a) Cover of the pulse transmitter     | 1× |
| b) Body of the sensor against opening | 1× |

On the PDEX, TBELTx 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:

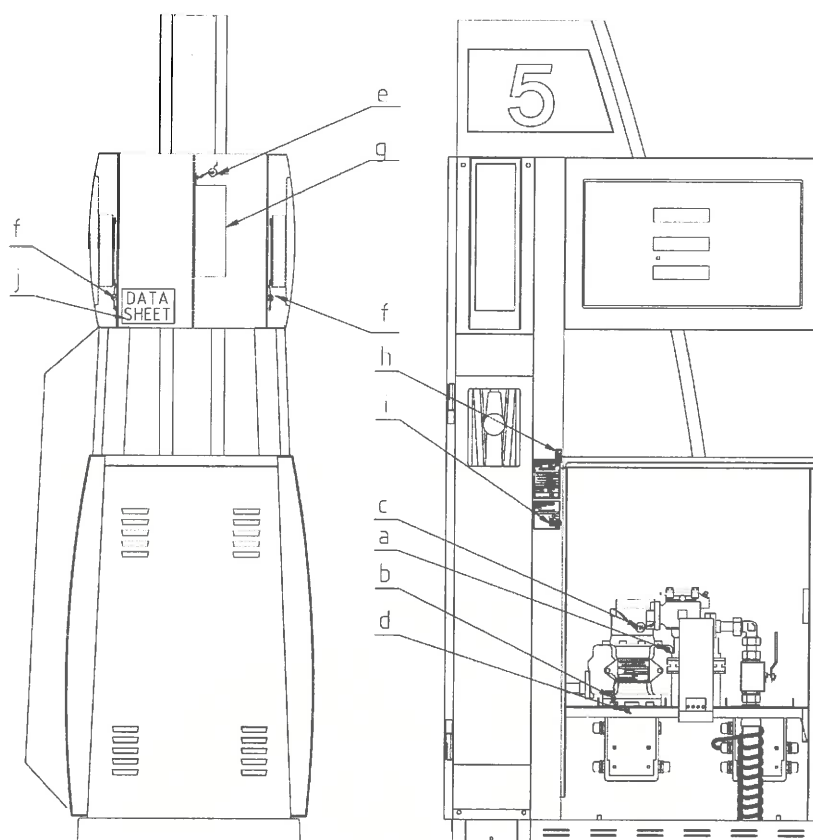
- According to Type certificate No. DE-M-PTB-0075

On the NPS A/S PAY SYS outdoor terminal:

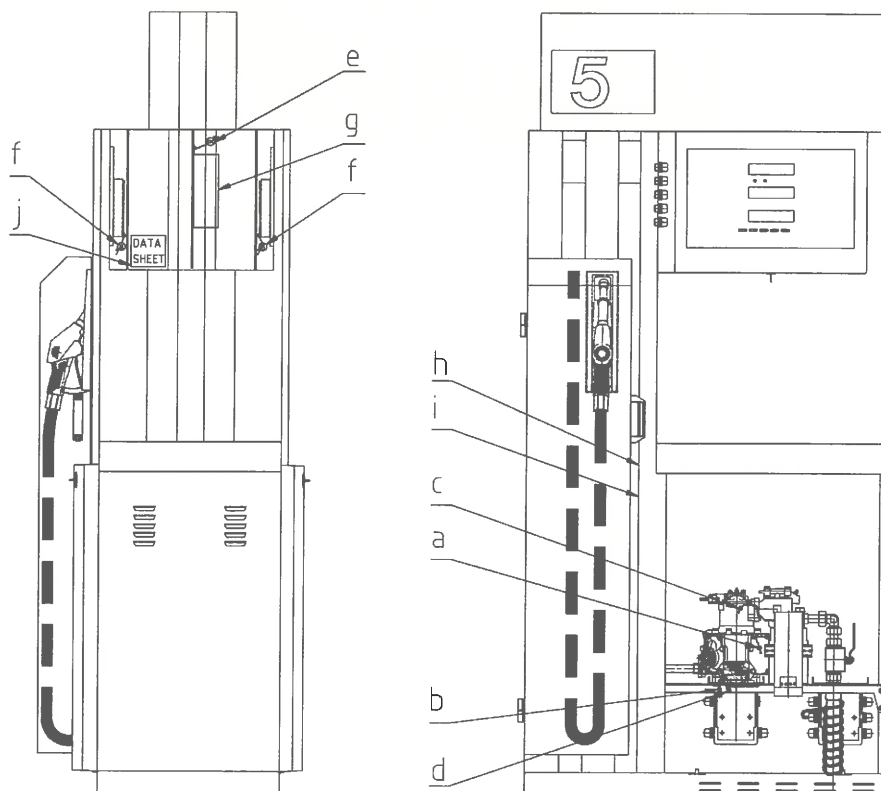
According to Evaluation certificate No. SC311-12

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.

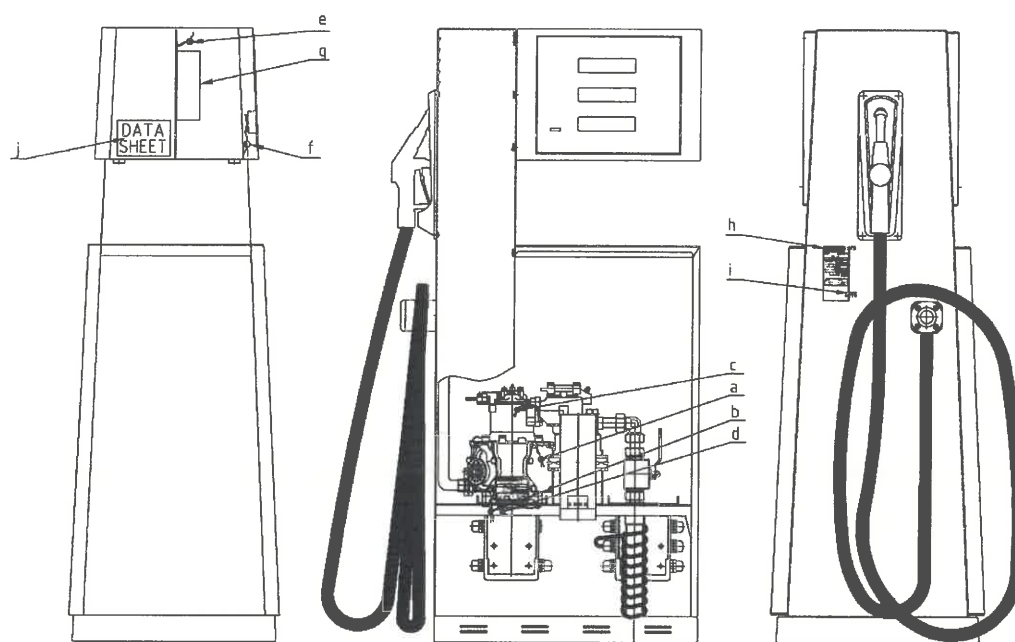
Picture No. 1: The sealing of SHARK BMP 2xxx.S/AdB AdBlue dispenser



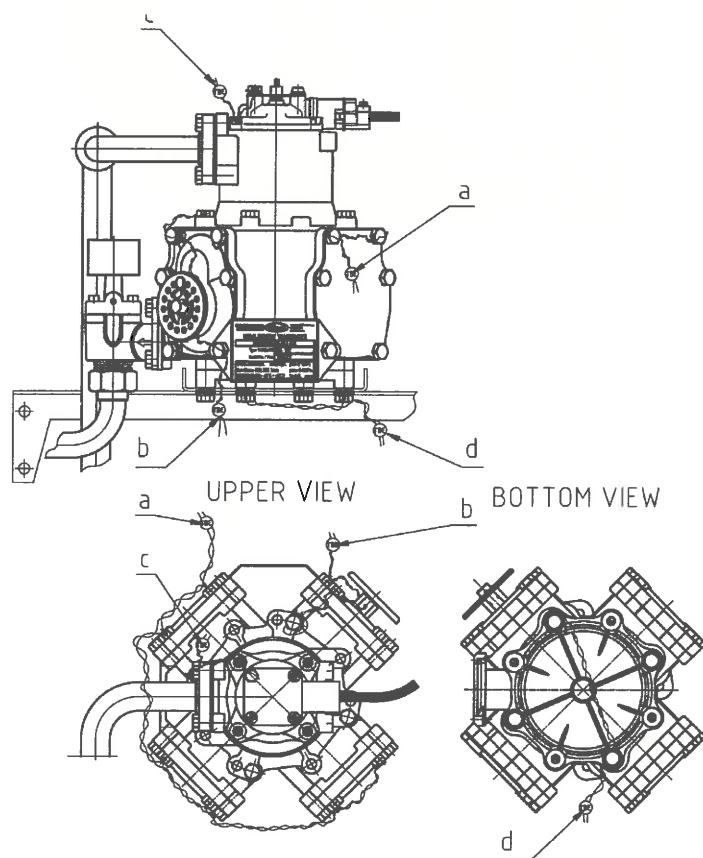
Picture No. 1a: The sealing of OCEAN BMP 4xxx.O/AdB AdBlue dispenser



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



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

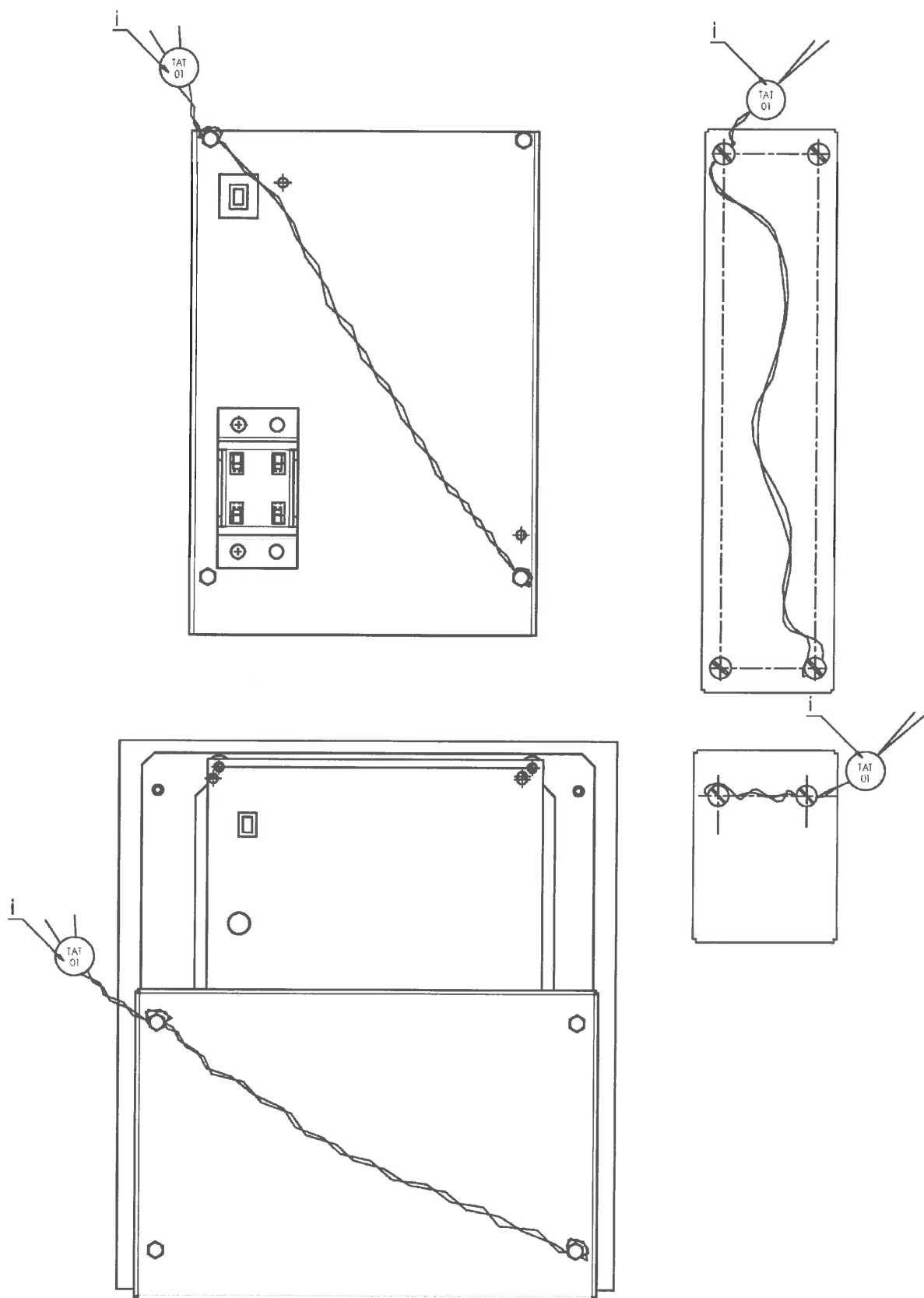




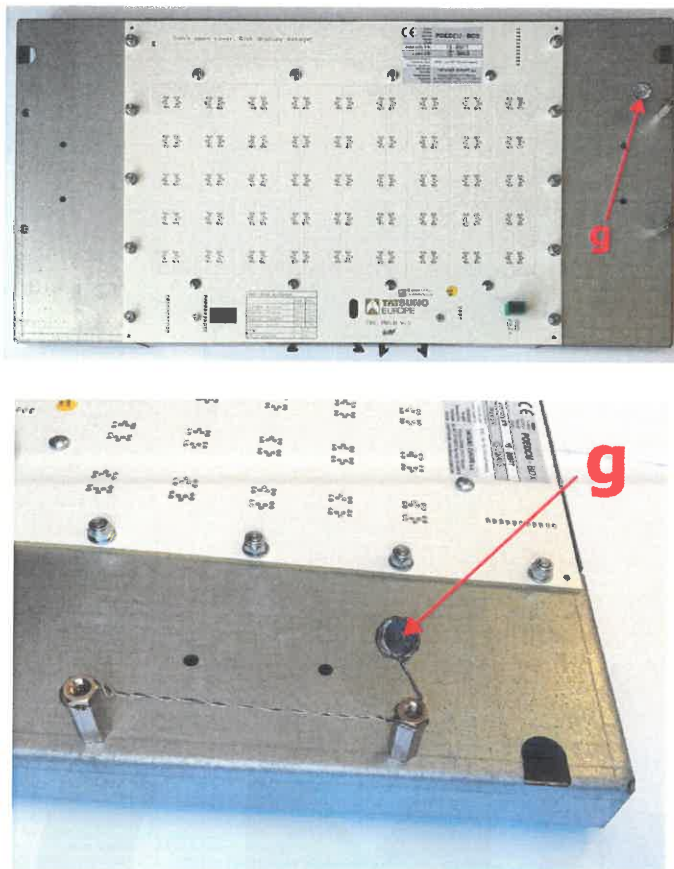
Picture No. 2a: The sealing of FF-1141 measuring transducer



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



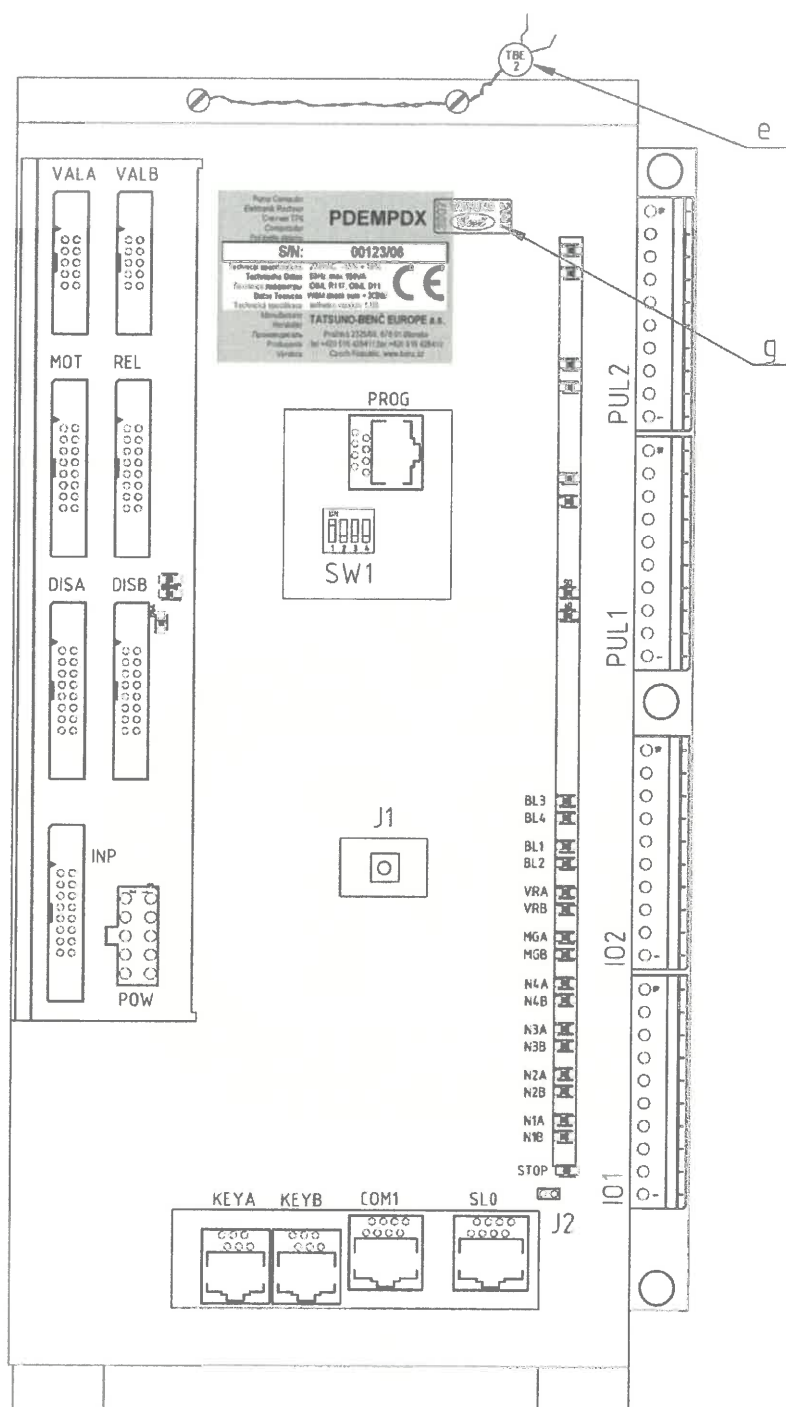
Picture No. 3a: Sealing of the totalizing indicating device with proportional display PDEDCU



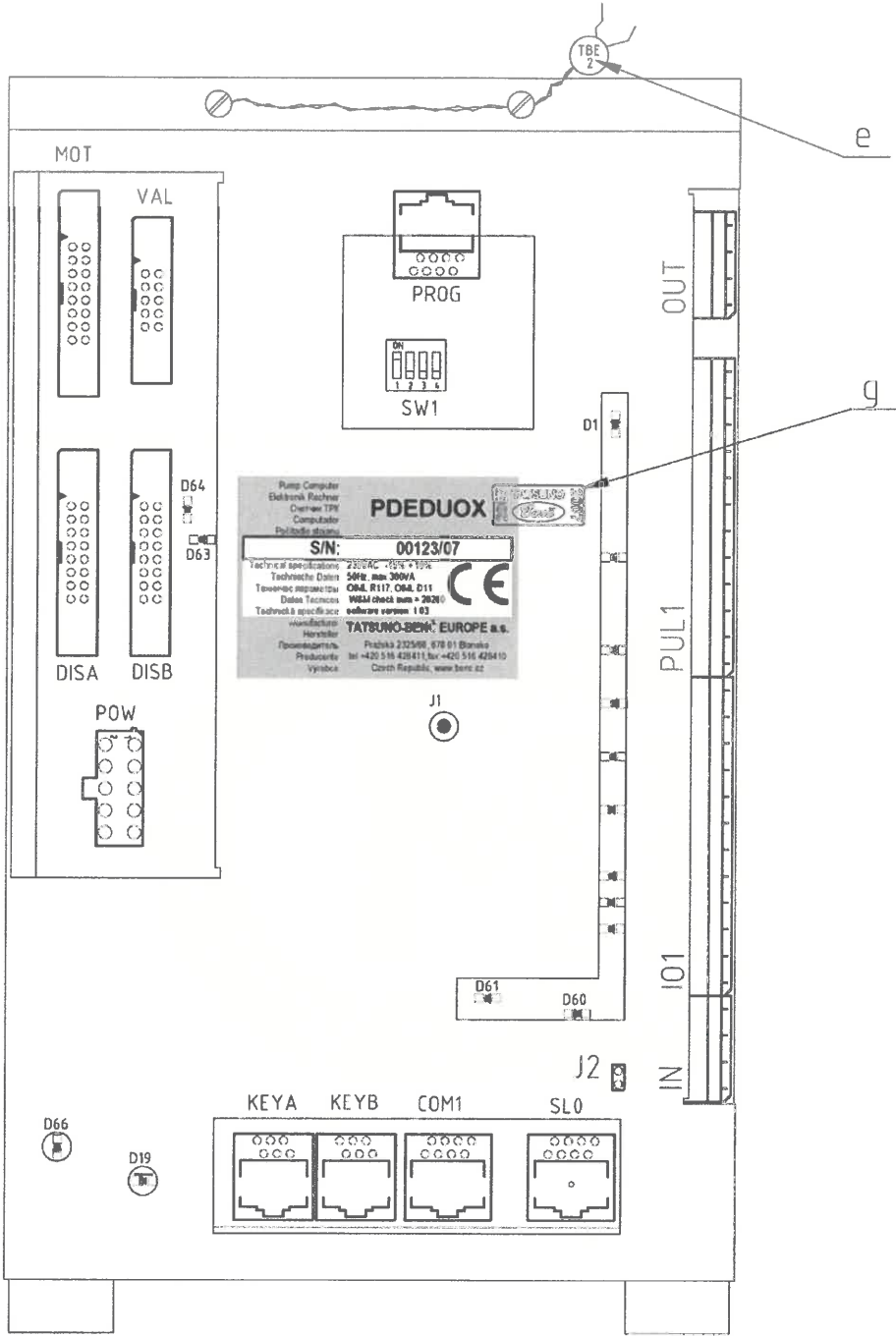
Picture No. 3b: Sealing of the totalizing indicating device with display PDEDIL V6



Picture No. 4: The sealing of PDEMPDX calculator

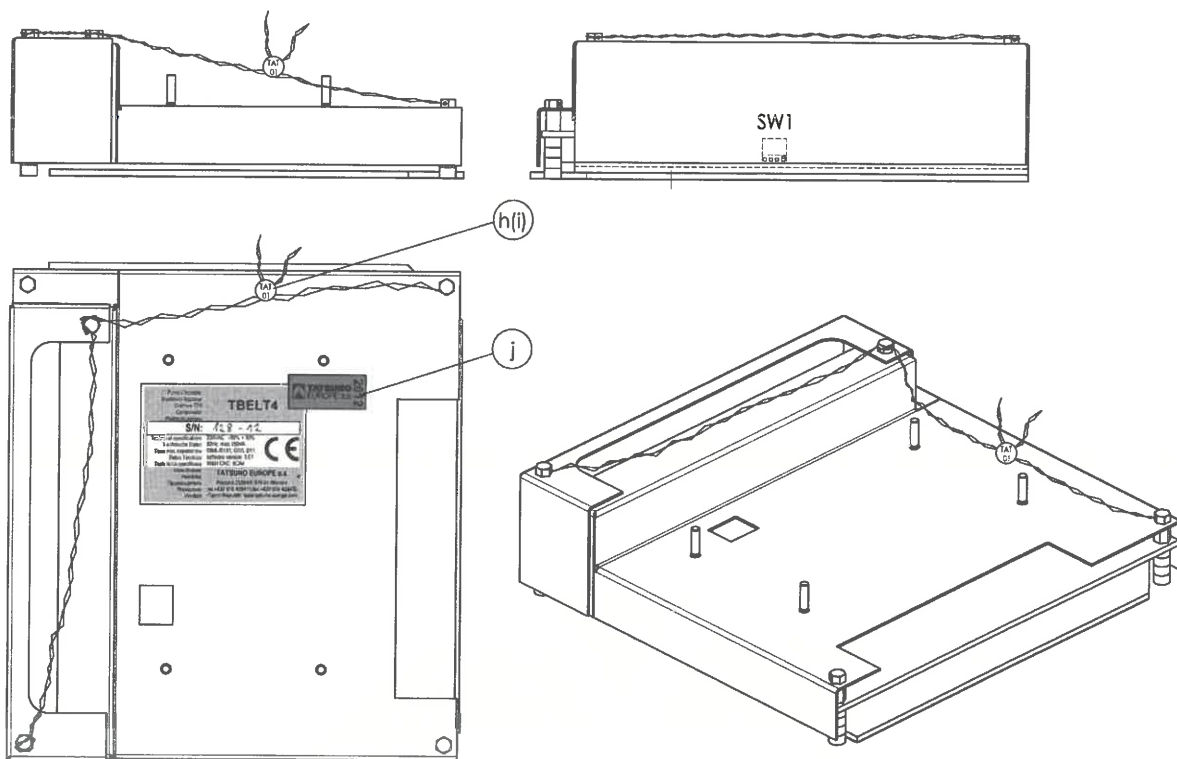


Picture No. 5: The sealing of PDEDUOX calculator

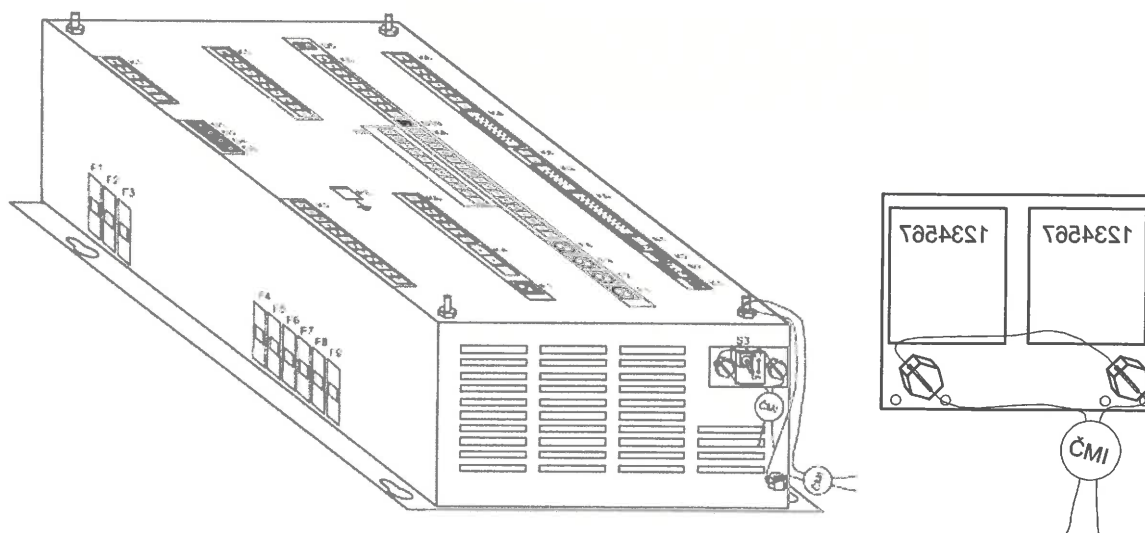




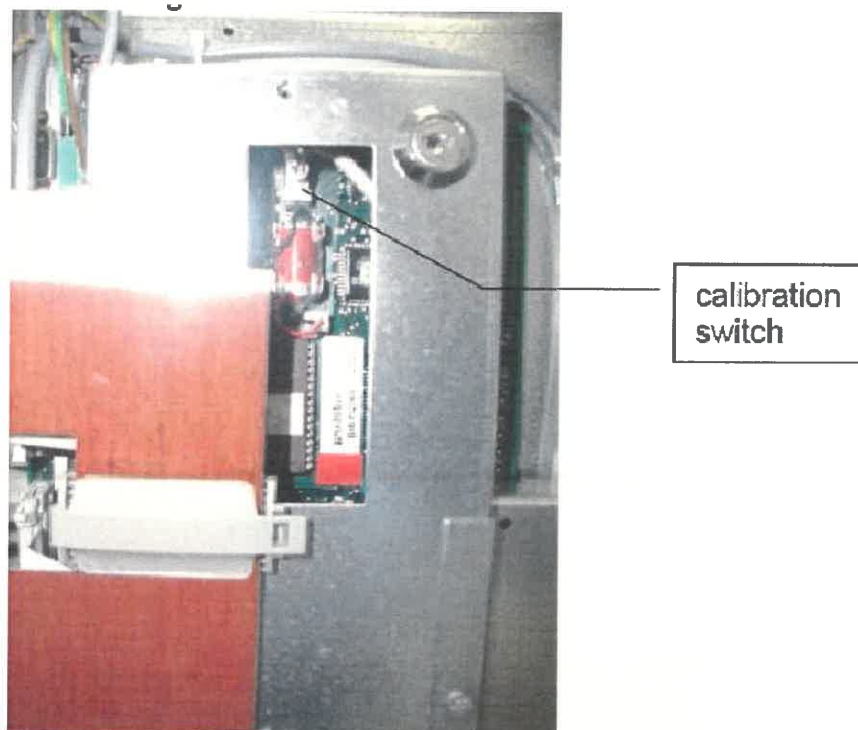
Picture No. 6: The sealing of TBELTx calculator



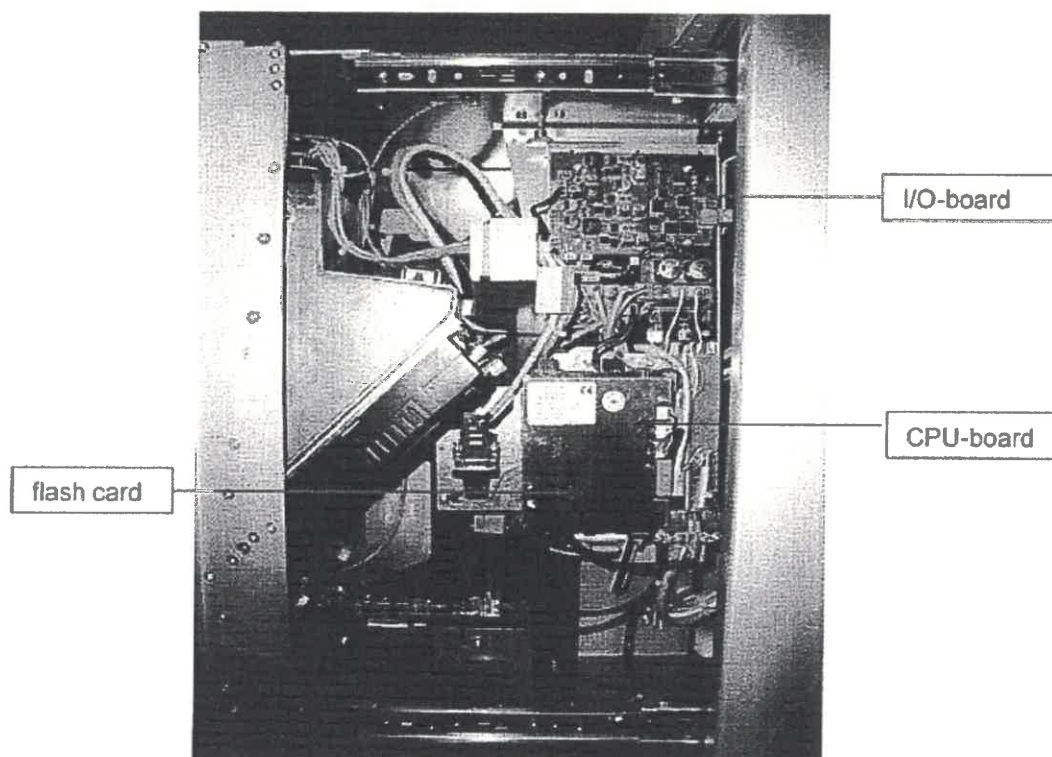
Picture No. 7: The sealing of the UNIDATAZ CDC electronic calculator with totalizer



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

