



# Czech Metrology Institute

Notified Body No. 1383, Okružní 31  
638 00 Brno

## EC-TYPE EXAMINATION CERTIFICATE

Number: TCM 141/07 - 4492

### Addition 5

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

Issued by: **Český metrologický institut**  
**Okružní 31**  
**638 00 Brno**  
**Czech Republic**

**Notified Body No. 1383**

In accordance with: point 3 of annex 2 to Government Order No. 464/2005 Coll. (annex B of the Directive 2004/22/EC) from 19 October 2005 that lays down technical requirements on measuring instruments and implements in Czech Republic Directive 2004/22/EC of the European Parliament and of the Council.

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

In respect of: **AdBlue dispenser**  
type: **SHARK BMP 2xxx.S/AdB**  
**OCEAN BMP 4xxx.S/AdB**

Type of liquids	AdBlue (32.5 % aqueous urea solution)
Accuracy class	0.5

Valid until: **16 January 2017**

Document number: **0115-CS-A005-07**

Description: Essential characteristics, approved conditions and special conditions, if any, are described in this certificate. This certificate contains 14 pages.

Date of issue: 8 July 2013



  
RNDr. Pavel Klenovský

Notified Body No.1383

## 1. Measuring device description

The 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 hose 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 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.

### 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 are three different models of Beta Control ADPx/T electronic calculator. Model ADP1/T can control one measuring system only, model ADP2/T can control two measuring systems and model ADPMPDx/T can control ten measuring systems at maximum (e.g.  $2 \times 5$  products). There is version SMX which can control parallel mounting of two meters; fuel is dispensed via one nozzle.

This calculator can be operated by communication line or KL-SERINF remote controller. Electronic calibration is realized by automatic procedure “Electronic calibration of the meters and ATC“, (manual chapter 2.2.7). Access to electronic calibration is secured by DIP switch No. 2 (location OFF). Access to ATC conversion function setting is secured by DIP switch No. 3 (location OFF). DIP switches are protected by sealing cover.

This electronic calculator can operate separately or can be controlled by central system of filling station. It communicate by RS485 (EASY-CALL), or by IFSF standard (LON FTT-10 or TCP/IP-Ethernet).

Approved software versions: 20.62 (ADP1/T and ADP2/T)

10.62 (ADPMPDx/T)

W&M checksum: 2633 (ADP1/T and ADP2/T)

FA02 (ADPMPDx/T)

Electronic calculator family ADPx/T was certified separately in EC - type examination certificate No. TCM 141/07 – 4505 issued by CMI, Notified Body No. 1383.

1.2.4. 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  $15^\circ\text{C}$  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.

### 1.4. Hose

ELAFLEX AdBlue DN 16; maximum length 5.1 m

### 1.5. Nozzle

ELAFLEX ZVA AdBlue



## 2. Basic technical data

Maximum flowrate $Q_{\max}$ [L/min]	40
Minimum flowrate $Q_{\min}$ [L/min]	4
Min. measured quantity MMQ [L]	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 [°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

## 3. Test

Technical tests of the 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.

## 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
- 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 DIP switches No. 2 and 3 have to be set to position "OFF" in case of ADPxxx electronic calculator.

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:

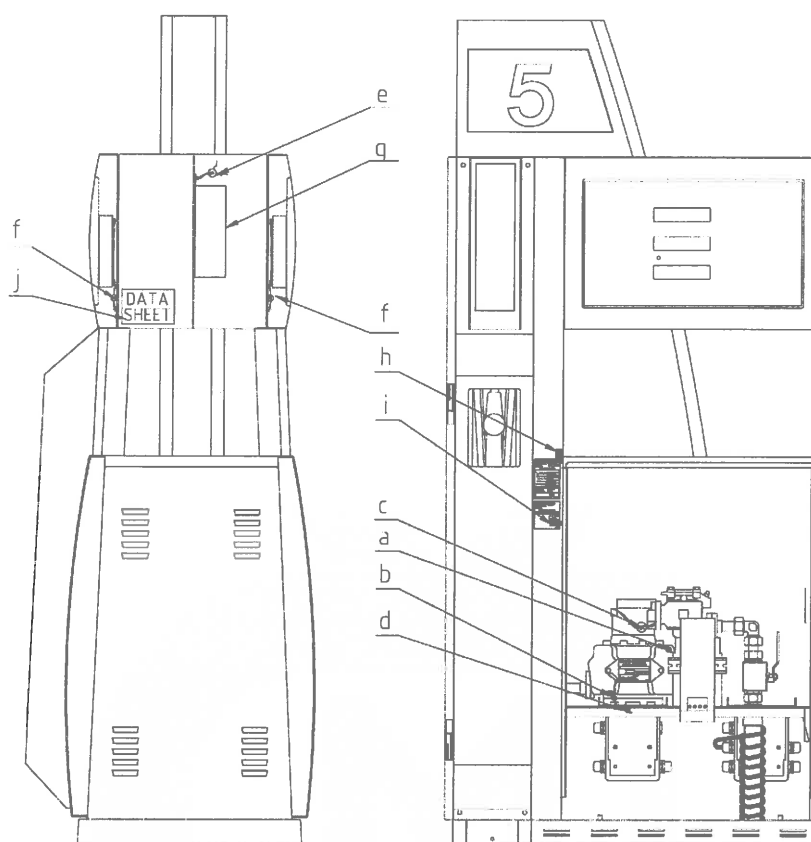
- |   |    |
|---|----|
| - Access to the calibration switch located on the CPU board is protected by metal cover | 1x |
|---|----|

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

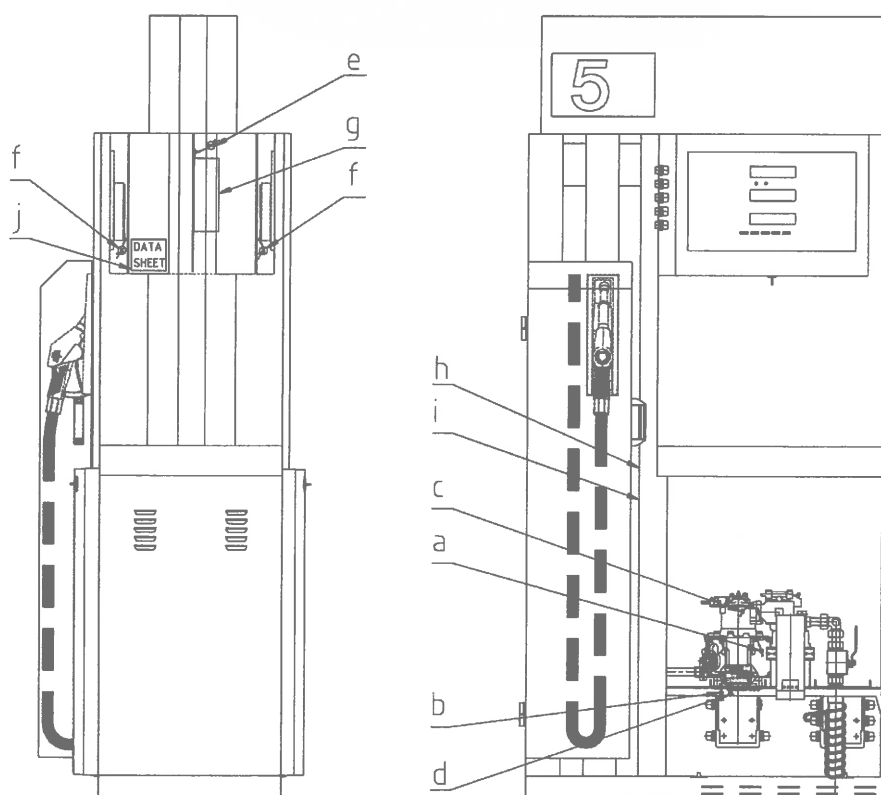
- |   |    |
|---|----|
| - Type plate of the SSD on the case of the SSD shall be sealed.                               | 1x |
| - Metal plate covering the CPU-board "PC/104" and the I/O-board "EB104"                       | 1x |
| - Metal angle bracket, which protects the compact flash card against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



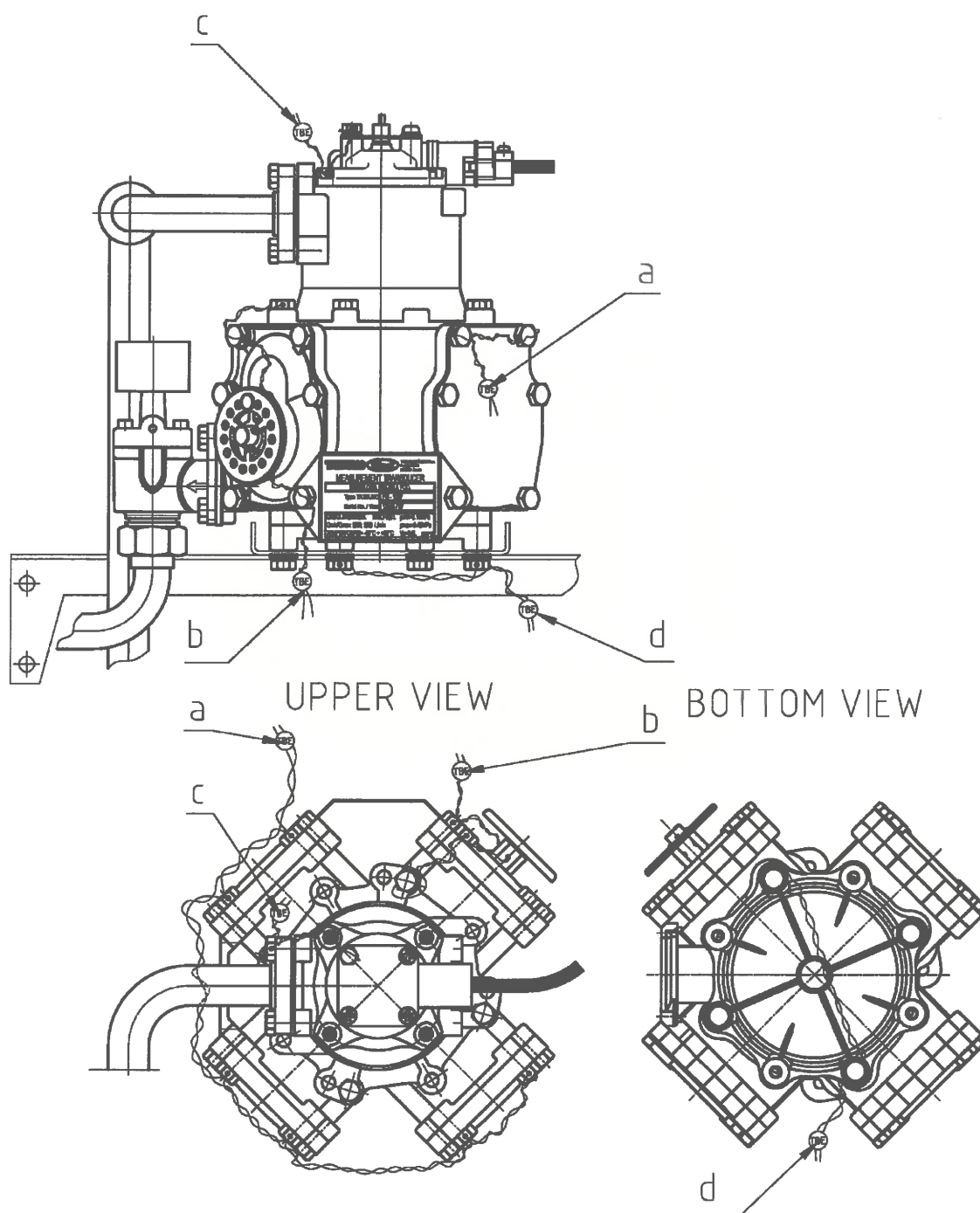
Picture No. 1: The sealing of SHARK BMP 2xxx.S/AdB AdBlue dispenser



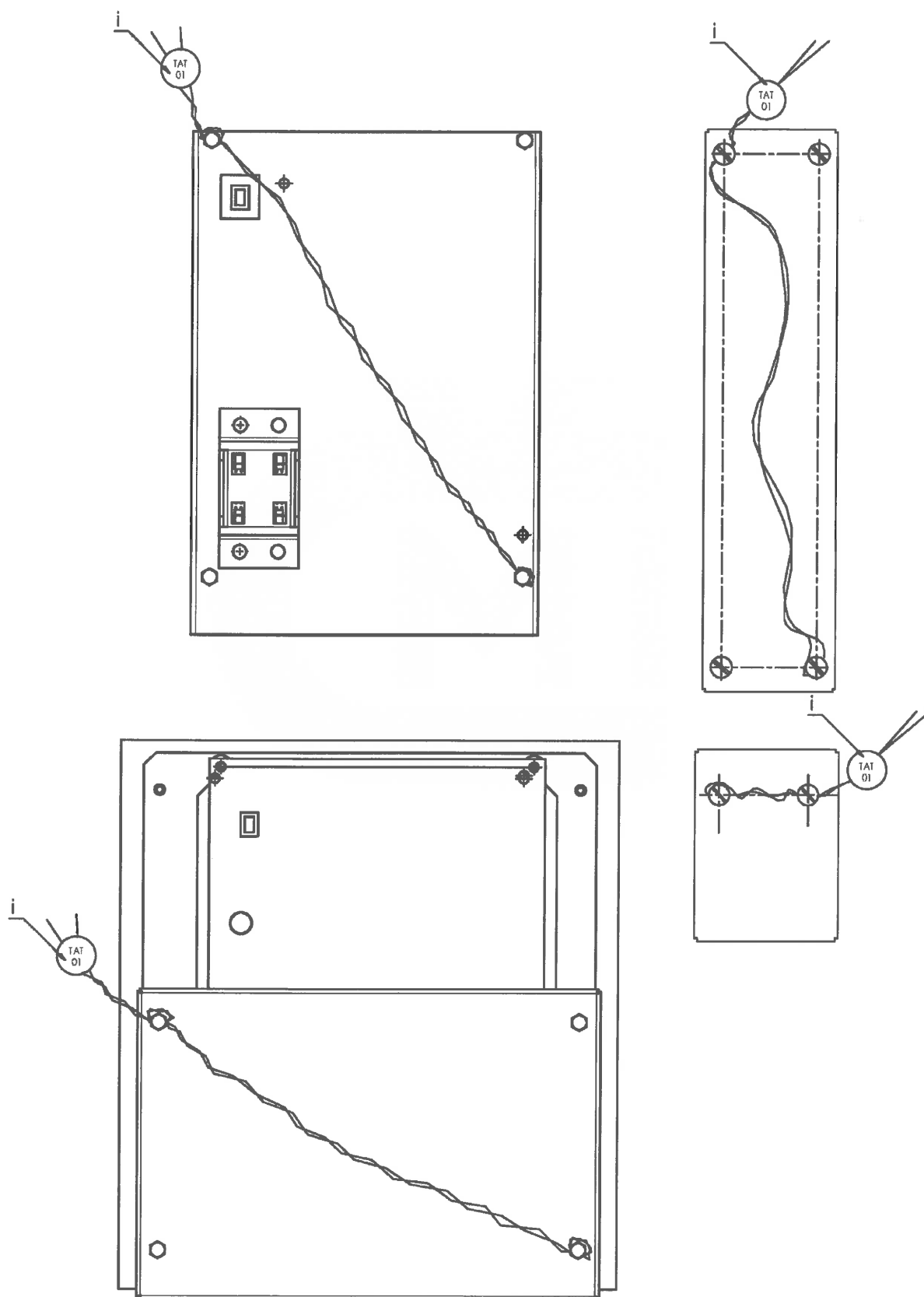
Picture No. 1a: The sealing of OCEAN BMP 4xxx.O/AdB AdBlue dispenser



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

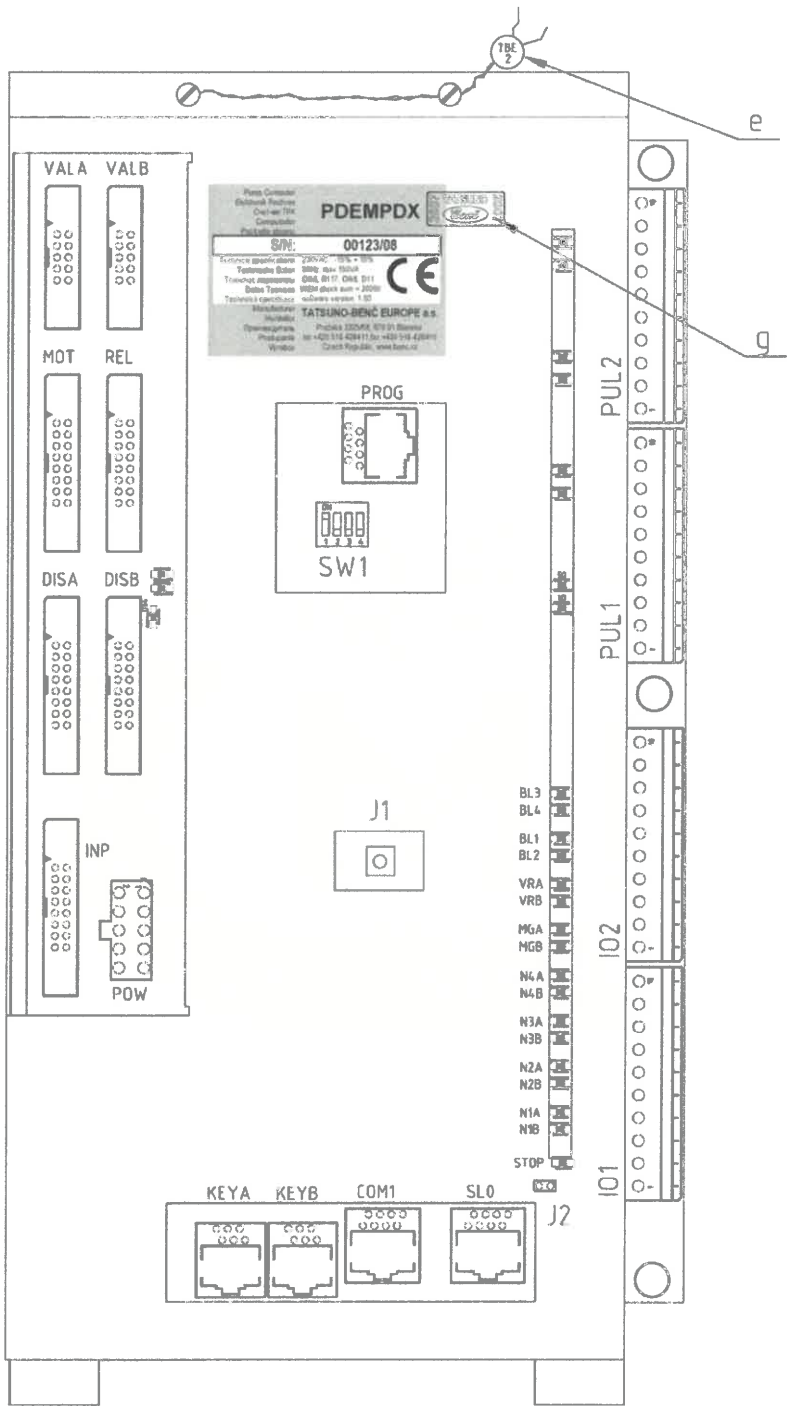


Picture No. 3: The sealing of totalizing indicating device (examples of covers)

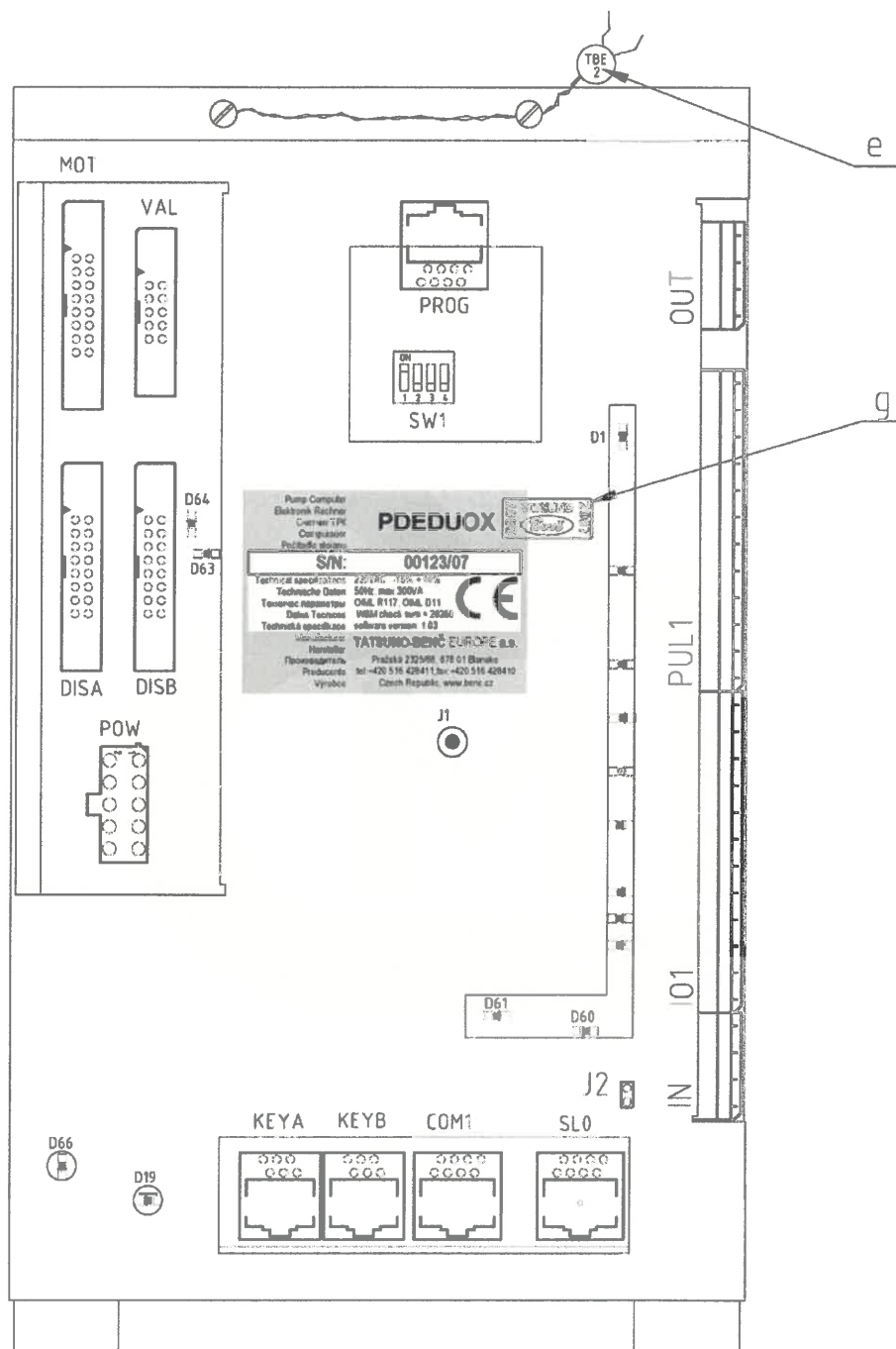




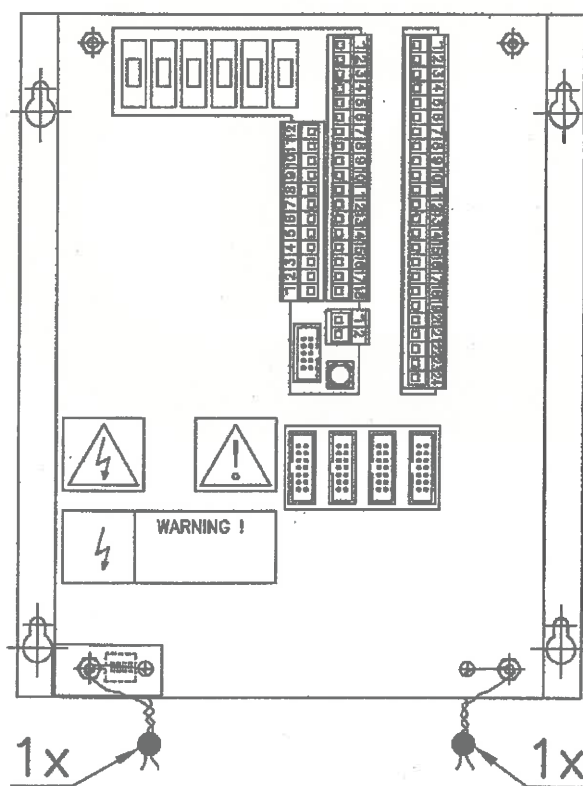
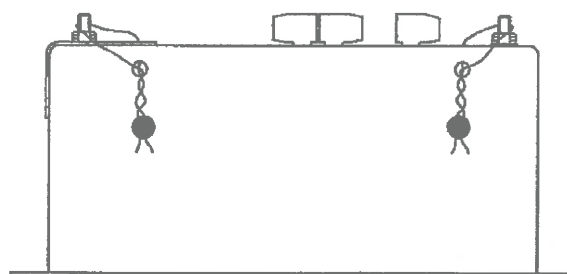
Picture No. 4: The sealing of PDEMPDX calculator



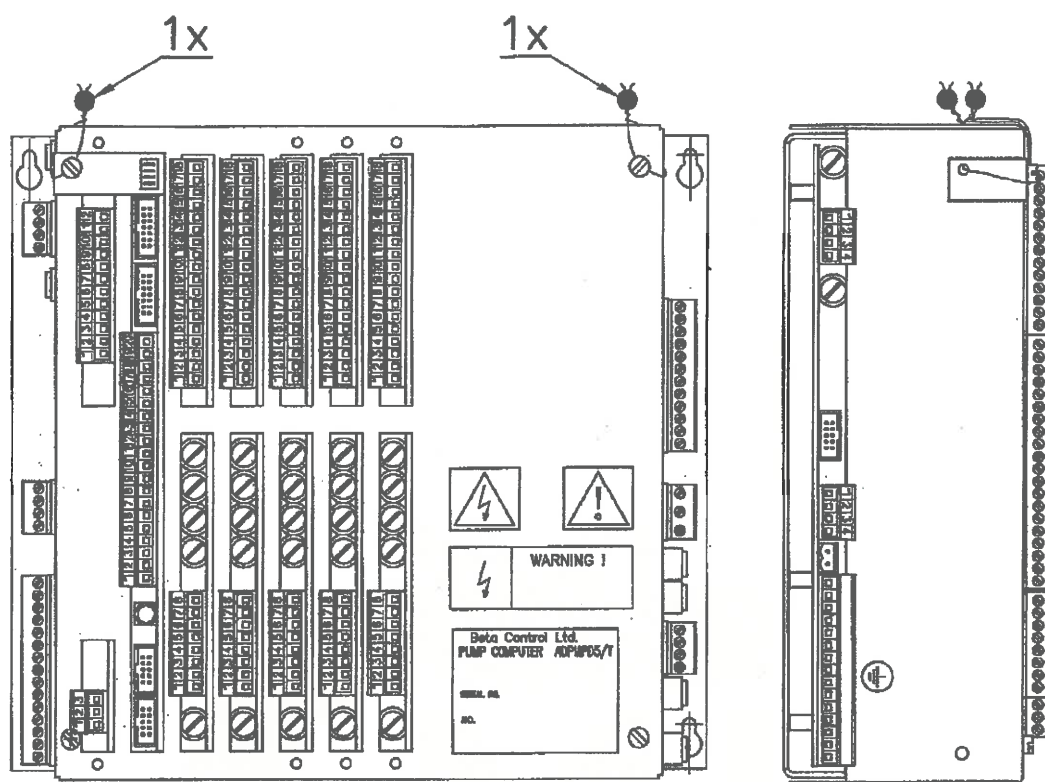
Picture No. 5: The sealing of PDEDUOX calculator



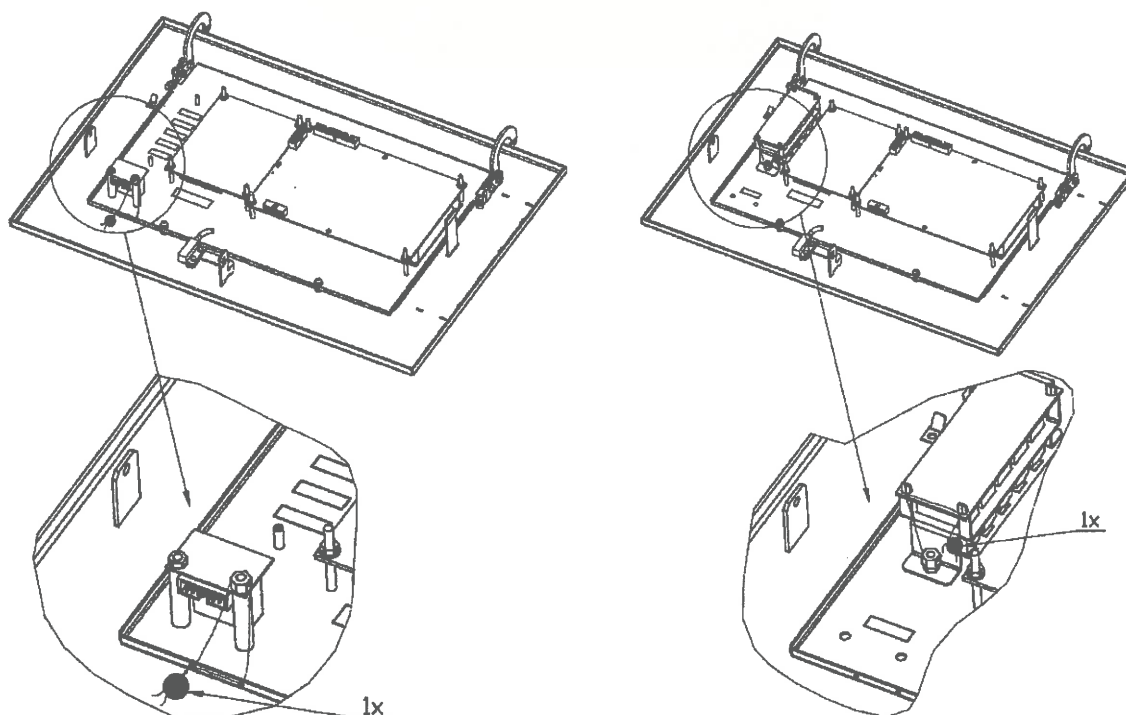
Picture No. 6: The sealing of ADP1/T and ADP2/T calculator



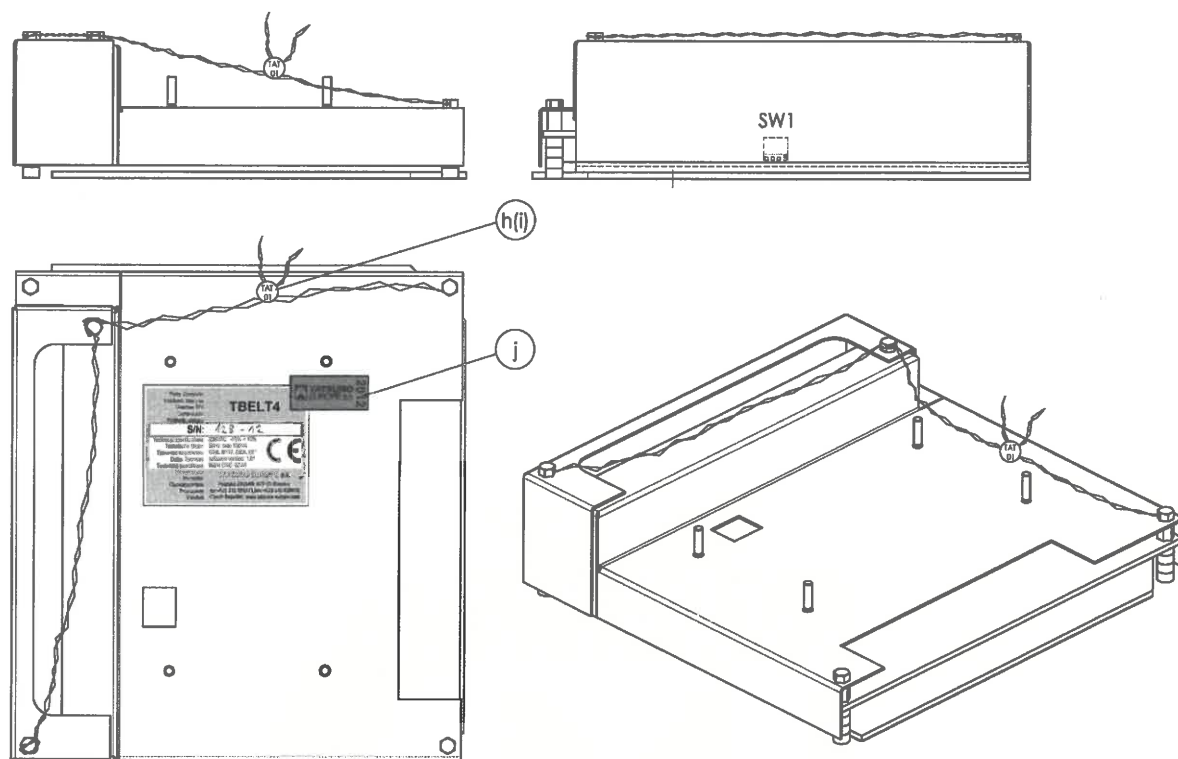
Picture No. 7: The sealing of ADPMPDx/T calculator



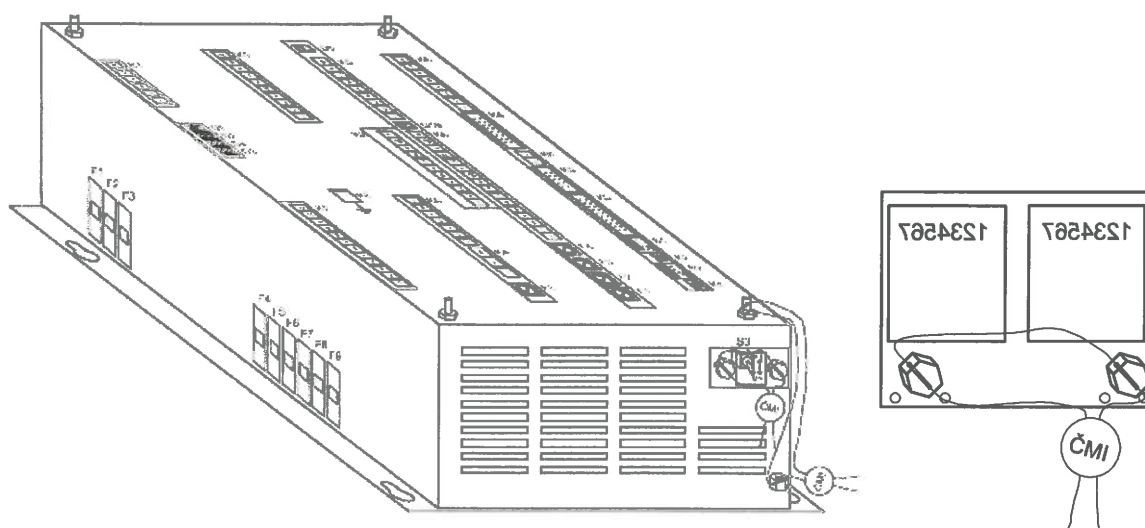
Picture No. 8: The sealing of totalizing indicating device (ADPx/T, ADTMPDx/T)



Picture No. 9: The sealing of TBELTx calculator

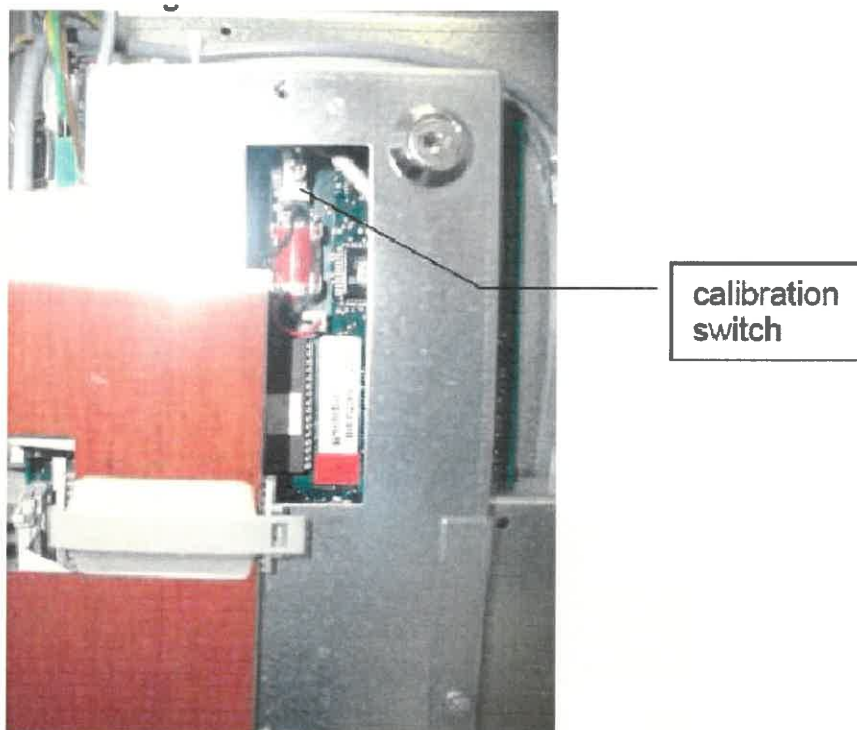


Picture No. 10: The sealing of the UNIDATAZ CDC electronic calculator with totalizer





Picture No. 11: Sealing of calibration switch of Hectronic GmbH TA2331 self-service device



Picture No. 12: Sealing of CPU and flash card of Hectronic GmbH HECSTAR/ HECFLEET NT self-service device

