

(1828, 1918, 1940, 1958,
1967, 2017, 2162, 2176,
2286, 2461, 2486, 2536,
2616, 2619, 2650, 2739,
2780, 2805, 2806)

BIS

Department for Business
Innovation & Skills

III(5)a

SUPPLEMENT TO CERTIFICATE

Series S043

Certification No.	Supplement No	Certification No.	Supplement No.
1828/40*	62	2486/54*	75
1918/74*	93	2536	80
1940	97	2616/4*	19
1958/53*	86	2619/43*	68
1967/66*	85	2650/55*	78
2017	96	2739	6
2162/92*	113	2780	28
2176/78*	100	2805	5
2286/58*	79	2806	5
2461/26*	45		

(*) Refers to the dispenser only, the self service or other devices described in these certificates do not form part of this approval.

Submitted by: **Tokheim Holding S.A.S.**
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Authorisation is hereby given by the Secretary of State for Business, Innovation & Skills for the above Certificates of approval relating to a pattern of a liquid flowmeter to be modified as described below.

As described in the above Certificates but modified to have an automatic temperature compensation device (ATC), as detailed in the descriptive annex, and having the following characteristics:-:

DISPENSER

Dispensers described in the above certification numbers.

*AUTOMATIC TEMPERATURE
COMPENSATION DEVICE (ATC):*

TCM - ATC: software version 01.02 and 01.05.

Signatory:
for



P R Dixon
Chief Executive
National Measurement Office
Department for Business, Innovation & Skills
Stanton Avenue
Teddington
Middlesex TW11 0JZ
United Kingdom

Reference No: TS0901/0029

Date: 31 August 2012

Descriptive Annex

1 INTRODUCTION

The TCM ATC conversion module processes the volume signals from the impulse encoder. It then converts the measured volume at metering conditions to a volume at reference conditions (15 °C) and then sends out a number of impulses that represent this converted volume to the calculating device.

The volume at metering conditions, the volume at reference conditions, the product temperature and the selected reference density can be displayed on the indicating device. The indicating device can also be used for parameter setting.

2 CONSTRUCTION

2.1 Main Components

- Tokheim TCM Processor (Figure 1)
- 230 Vac Power supply Seimens LOGO!Power model 6EP11331-1SH02 or any other CE Marked equivalent – where required (Figure 1)
- Tokheim Indicating device, Type PUR-DBB1 (Figure 2)
- Tokheim temperature probe, type PT100 – TCM (Figure 3)

2.2 Software

The software version number, 01.02, checksum 037EBB18 or 01.05, checksum 0378FA0C is shown on the ATC's indicating device by use of an user access keyboard (UAK). Once attached the version number will appear briefly on the initial start up screen.

The software is not divided into two parts, i.e. Weights and Measures and non-Weights and Measures.

2.3 Temperature Probes

The probe is positioned either directly, or via a Thermal Test Well, into the inlet pipework and located as close as possible to the meter. A second Thermal Test Well is located adjacent to the probe and is for use, with another temperature sensor, in checking that the probe is operating correctly. The second Test Well has to be covered with a plug to prevent dirt entering the Test Well. The temperature probe is connected directly to the ATC module.

2.4 Metal Housing

The TCM processor and power supply (if required are contained in a metal housing (figure 4), this housing should be connected to ground.

2.5 Conversions

The ATC can perform conversion calculations according to the following methods:

- API MPMS Chapter 11;
- ASTM table D1250-04, 54B (Refined Petroleum Products)

The conversion is based on the measured volume at metering conditions, the measured product temperature and a stored product reference density value (kg/m³). The product reference density is the density at a product temperature of 15 °C.

3 CONFIGURATION

3.1 Dip Switch settings

The configuration must comply with the table below. The position of the dip switch between set up mode (setting on) and normal mode are shown in figure 5

Parameter	Setting
Impulse encoder type	The associated settings depending on pulser type. For 2 channel quadrature, 4 states: 00, 01, 11 and 110 For 3 channel pulser, 6 states: 010, 011, 001, 101, 100 and 110 For 2 channel MP1 type, 4 states: 11, 01, 11 and 10
Reset Totals	With YES Totals are reset
Temperature compensation	Active when temperature compensation is applied
Product	Choice of: Unleaded 95, with density of 745 kg/m ³ Unleaded 98, with density of 745 kg/m ³ Diesel, with density of 833 kg/m ³ Other Product, density should be inputted
Other Product Density	A value from 512 kg/m ³ to 999 kg/m ³

3.2 Selectable presentations on the display

- Volume at metering conditions.
- Volume at reference conditions
- Measured product temperature.
- Selected reference density.
- Error messages and error codes.

3.3 Securing

3.3.1 The ATC housing is secured with a seal Figure 6. After all switches have been set to their correct position, the module's enclosure shall be sealed against opening. The enclosure may vary so the figure is an example for guidance purposes.

3.3.2 The temperature probe is secured, to prevent its removal examples are shown in Figure 7.

4 Conditions

4.1 For dispensers providing temperature compensation, the primary indicator (dispenser display) shall clearly indicate that the volume dispensed is corrected to 15 °C.

5 ILLUSTRATIONS

- Figure 1** TCM and power supply
- Figure 2** Indicating Device
- Figure 3** Temperature probe
- Figure 4** TCM Metal Housing
- Figure 5** Dip-Switch Positioning
- Figure 6** Sealing of metal housing
- Figure 7** Sealing of temperature probe

6 CERTIFICATE HISTORY

ISSUE NO.	DATE	DESCRIPTION
SUPPLEMENT Series S043	31 August 2012	Certificate first issued

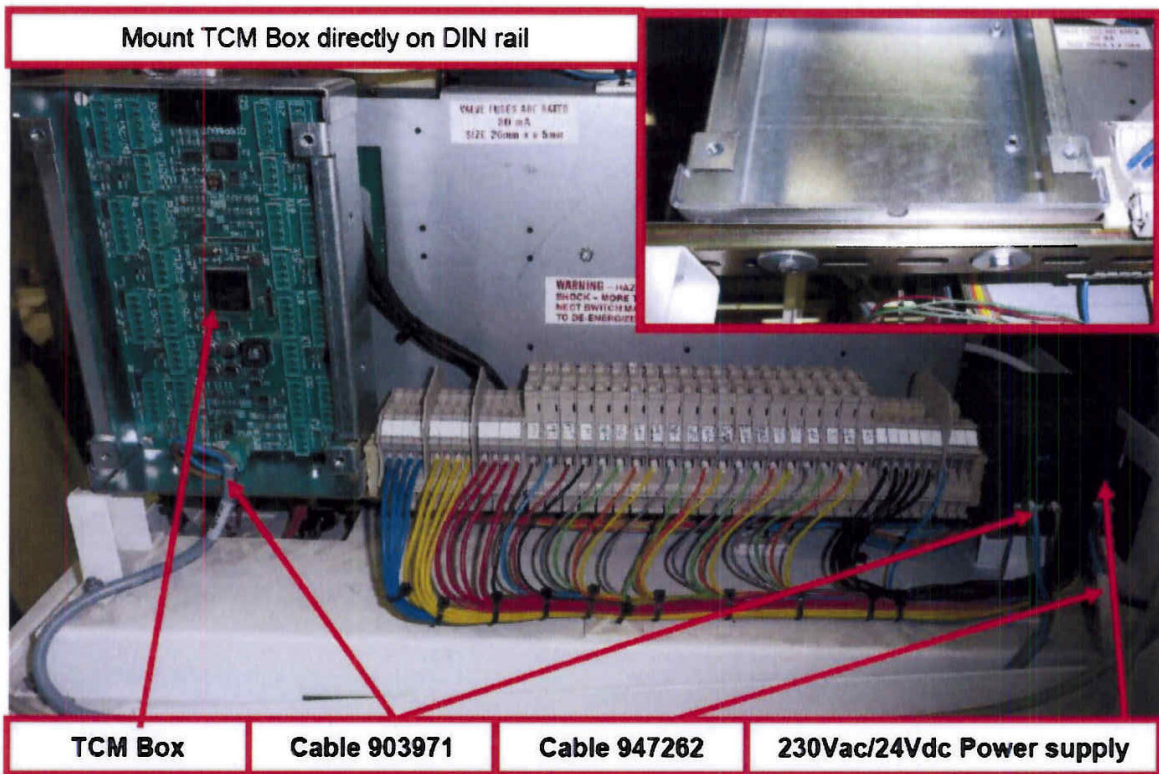


Figure 1 TCM and power supply

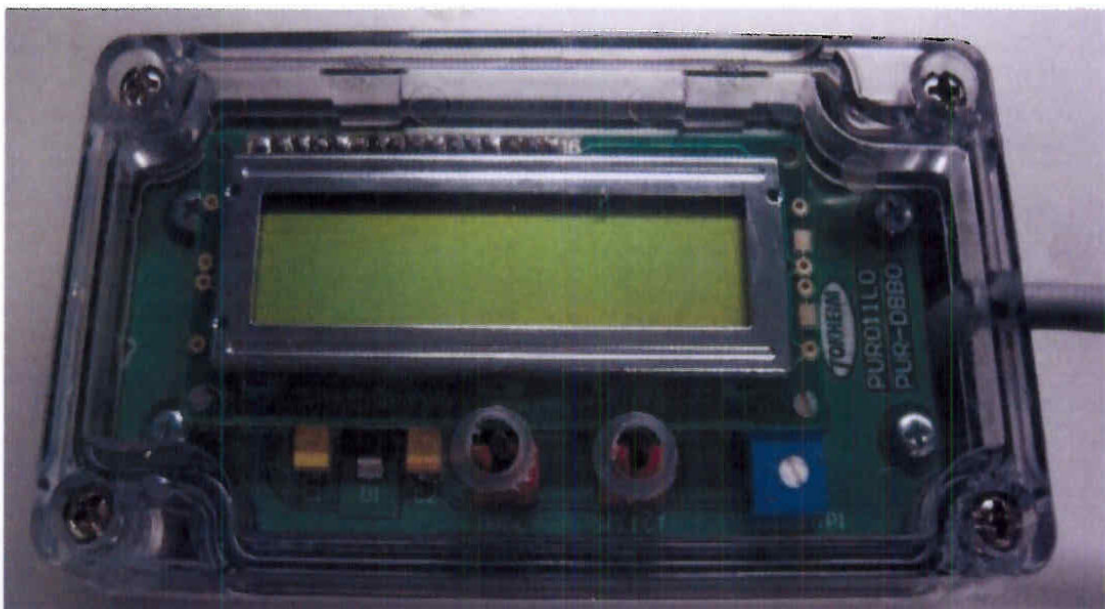
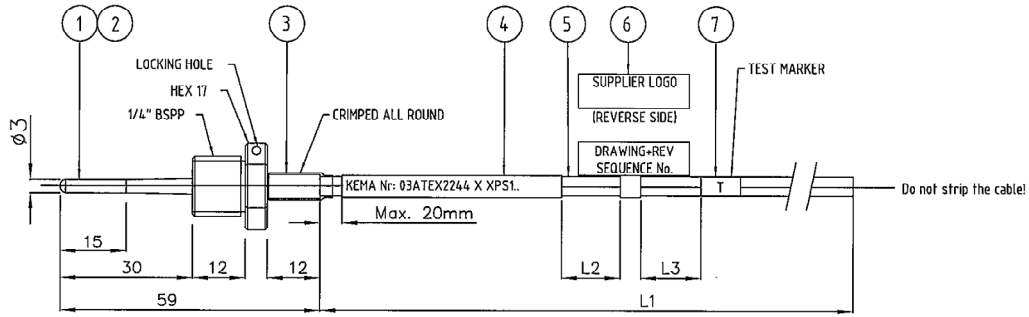


Figure 2 Indicating Device



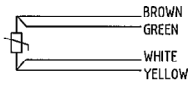
Supplier specifications:
 Thermo Electric
 Partnumber: 524723
 Certificate: 03ATEX2244 X XPS1.

General Specifications:
 PT100 resistance value and tolerances as per
 EC.751 CLASS A
 4-wire Single Range
 Temperature range: -50/105 °C

Calibration Test:
 at 0°C and at 30°C RvA (ILAC)

Certified Product/Produit Certifié
 No modifications permitted without
 the approval of authorised person/
 Aucune modification permise sans
 l'approbation de la personne
 habilitée. Ref: Drawing/Plans
 940700-003

TC7741
 page 6-1



CABLE LENGTH (MM), TOLERANCE -0/+5%			
Assy Partnumber	Length L1	Length L2	Length L3
947805-001	5000	10	10

BILL OF MATERIAL			
Item	QTY	Description	Material
1	1	Adapter	SS
2	1	PT100 Element	-
3	1	Shrinkable Tubing	PVC
4	1	Ex Marker	PVC
5	1	Cable 11YY (TP) 2x2x0.1L	PVC Insulated
6	1	Marker	-
7	1	Test marker	-



DATE D C A				REVISION / RÉVISION				ECN No DATE D C A				REVISION / RÉVISION				Europe & Africa Drawing Number: 947805 Description/Designation: Temperature probe P1 100 - TCM Temperature sonde P1100 - TCM Model/Appareil: TEMP. COMPENSATION ECN: 947805-001 Design by: 4882 Drawn by: RP Checked by: DRA Date: 29/04/10 Dim: mm sheet/total: 1 / 1 A3			
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Figure 3 Temperature probe

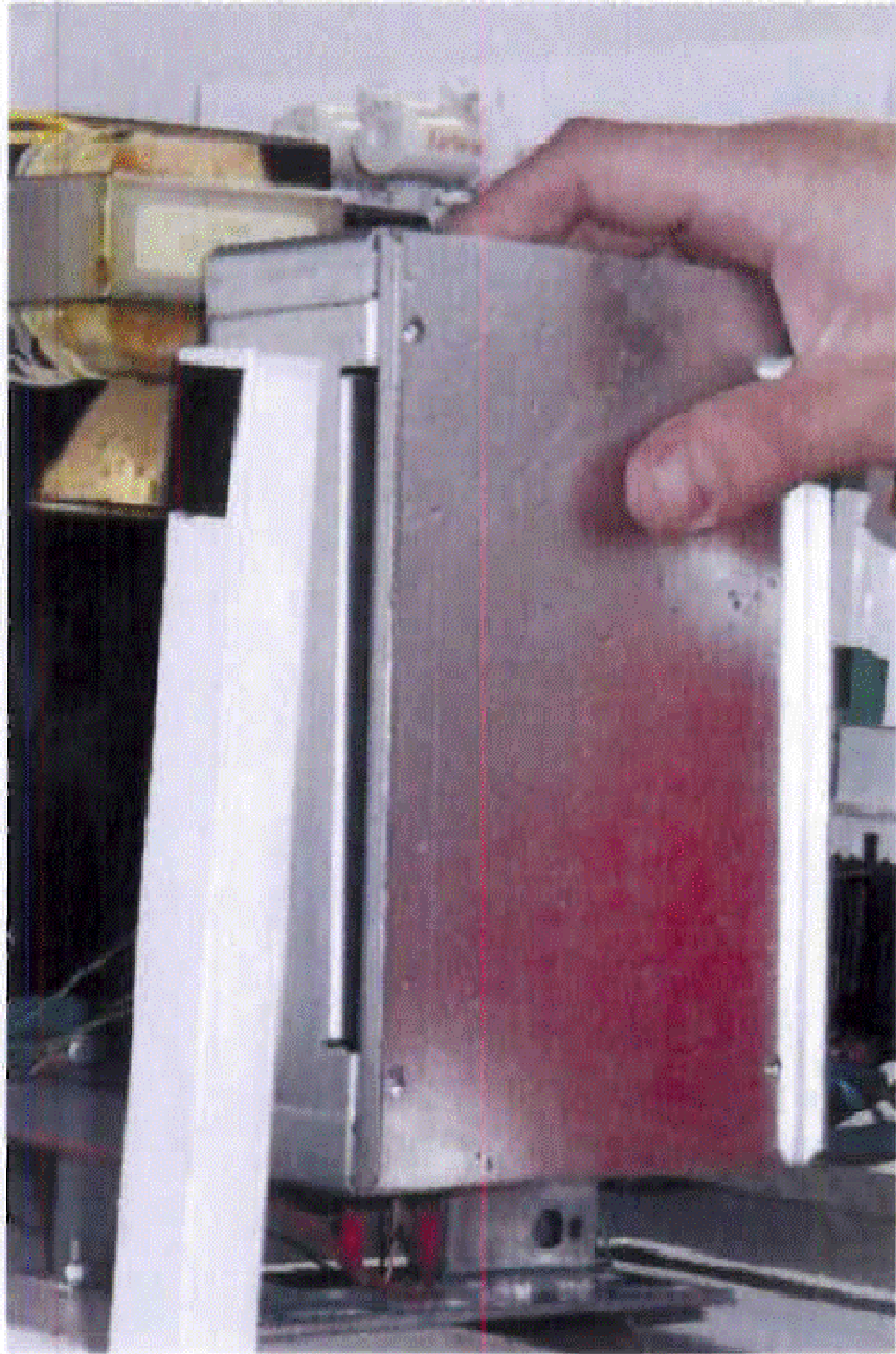


Figure 4 TCM Metal Housing

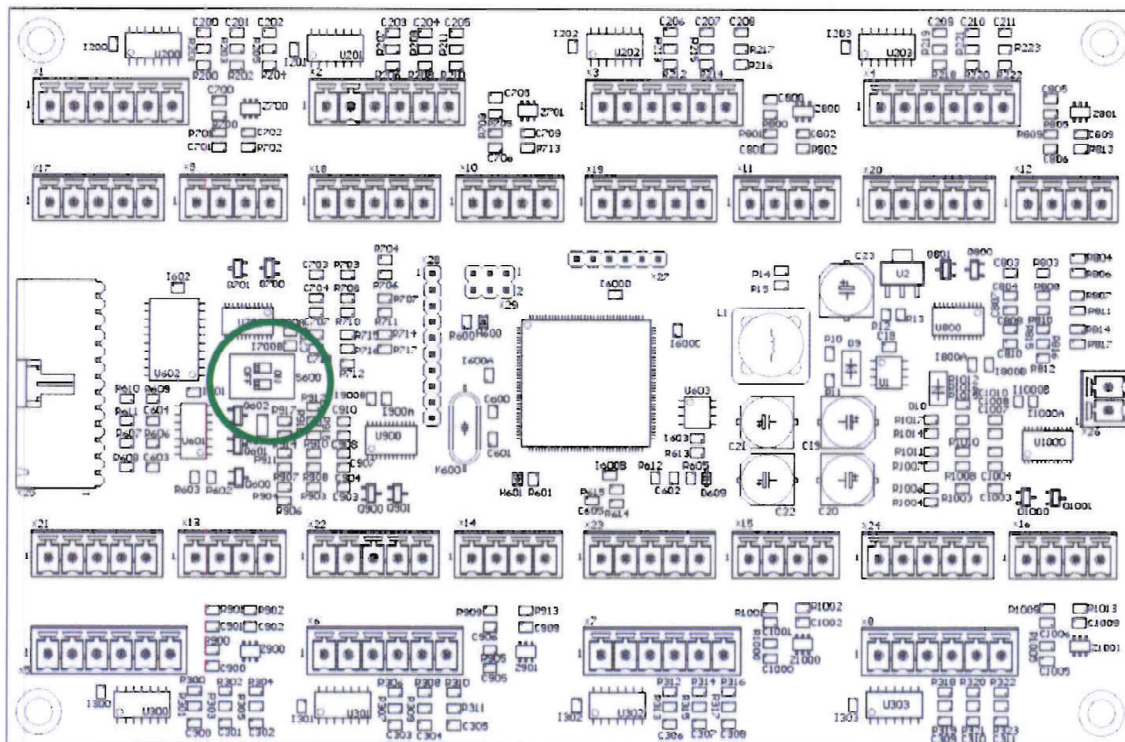


Figure 5 Dip-Switch Positioning

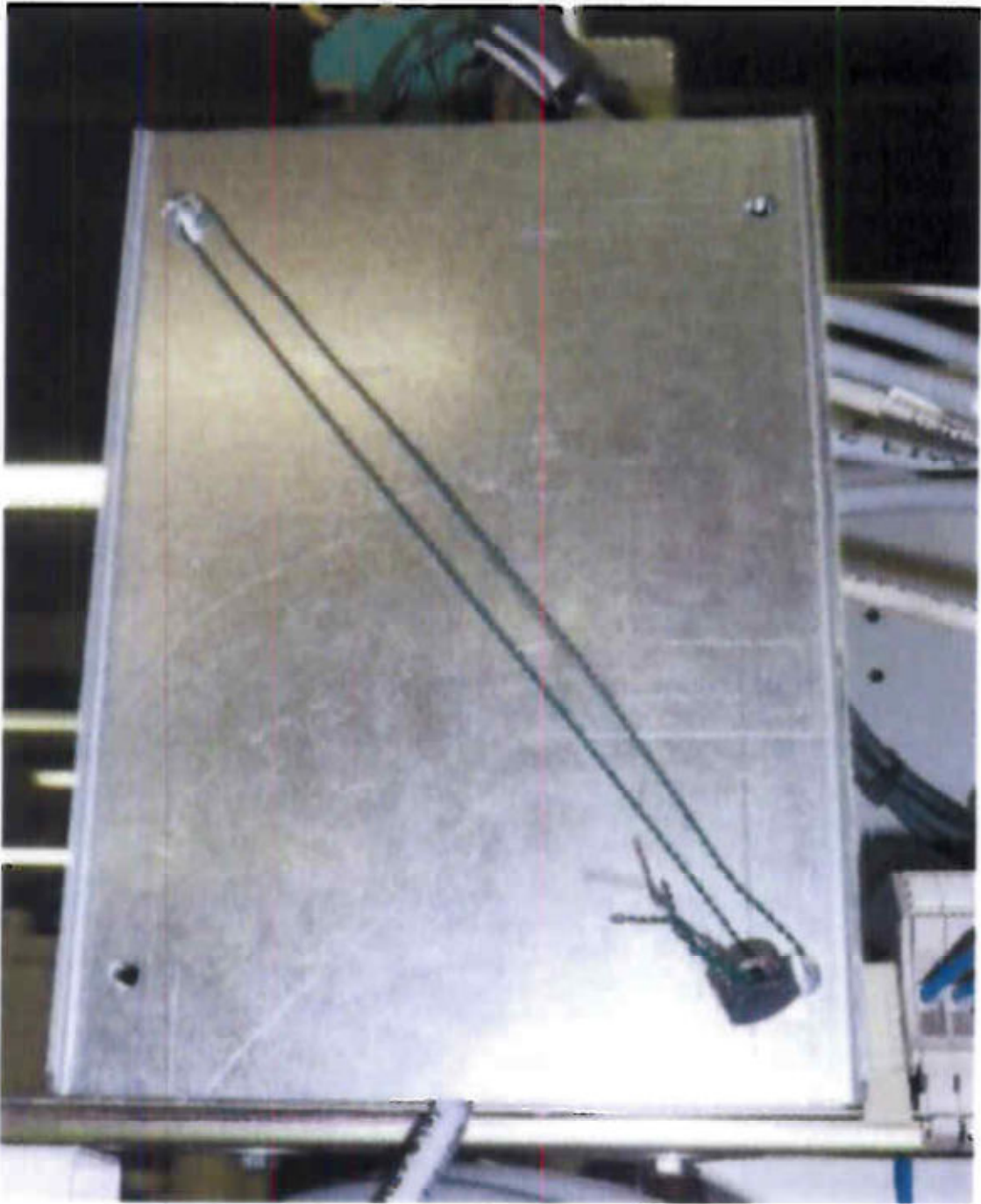


Figure 6 Sealing of metal housing



Figure 7 Sealing of temperature probe