



Parts (Test) Certificate GB-1461 Revision 8

Issued by	NMO
In accordance with	The Council Directive 2014/31/EU on Non-Automatic Weighing Instruments. Conformity with the essential requirements, referred to in Annex I of the Directive, is met by application of the European standard on Metrological aspects of non-automatic weighing instruments EN45501:2015.
Applicant	Dini Argeo S.r.l. Via della Fisica 20 41042 Spezzano di Fiorano Modena Italy
In respect of	The model of an Indicating Device tested as a separate part of a weighing instrument. Manufacturer: Dini Argeo S.r.l. Type: 3590E, CPWE, DFW and DGT Series
Characteristics	Characteristics are provided in the Descriptive Annex of this parts certificate.
Description and documentation	The indicating device is described in the Descriptive Annex. Documents appertaining to this parts certificate are held by NMO.
Remarks	The indicating devices have been tested and found to conform to the relevant parts of EN45501 and WELMEC Guide 2.1. A summary of the tests performed in support of this Test Certificate is provided in the Appendix to the Descriptive Annex. This revision replaces previous versions of the certificate.

Issue Date: 12 May 2016
Reference No: T1138/0015

Grégory Glas
Technical Manager
For and on behalf of the Head of Certification Body



0135

Descriptive Annex

1 INTRODUCTION

The indicating devices which are certified as weight indicators designed to be connected to a load receptor to form a Class III and IIII, Non-Automatic Weighing Instrument. These instruments may be fitted with a built-in printer and WiFi connectivity (optional). These instruments can be configured with single-interval, multi-interval, or multi-range weighing options, an external AC mains adapter, and an internal rechargeable battery.

2 FUNCTIONAL DESCRIPTION

2.1 Construction

The indicator construction is dependent on the model number; the designation follows the following format: "Family"+"suffix":

Family: 3590E, CPWE, DFW, DGT series

Suffix: being alphanumeric characters used to identify different variants.

The variants include various keypads (5 to 20 keys), functional waterproof keypad, number or weighing channels, ABS, painted steel or stainless steel case in different sizes (see figures from 1 on for different mounting cases), communication ports, devices (see section 2.2 for permitted devices) and permitted interfaces (see section 4.1 for permitted interfaces).

2.2 Devices

The Dini Argeo family of indicators may have the following devices:

- Semi-automatic zero setting ($\leq 4\%$ Max)
- Zero tracking ($\leq 4\%$ Max)
- Semi-automatic subtractive tare weighing
- Pre-set tare
- Recall of Gross indication when tare is active
- Determination of stability of equilibrium
- Indication of stability of equilibrium
- Multi-range and multi-division function
- Checking of display
- Printing
- Alibi storage device
- Gravity compensation
- Checkweighing
- Real time clock
- Counting
- Command via external device (PC)
- Accumulation
- Battery level indicator
- Remote control
- LCD or LED
- Peak Hold
- Gross, Net, Tare, Preset tare, Print, Zero, Motion, Accumulation, Over/Under weight and Network indicators

2.3 Functions

2.3.1 Power up

At switch on, the system goes through a standard check, making any defect obvious.

2.3.2 Display

The indicator shall be configured to display a weight up to a value not exceeding Max + 9 e. Any weight above or below gross zero will result in "OUT CAPACITY" being displayed.

2.3.3 Semi-automatic zero setting device

The "ZERO" key on the keypad sets zero. A successful zero can only be set if the weight value is stable. A zero weight is then displayed and the zero indicator is illuminated.

The zero-setting range must be set to 4 % of maximum capacity or less.

2.3.4 Zero tracking device

Zero tracking operates when the indication is at zero, or at a negative Net value equivalent to Gross zero, when the weight display is stable. The range of zero-setting must be set to 4 % of maximum capacity or less, and can be disabled by the user.

2.3.5 Semi-automatic tare weighing device

The Tare key on the keypad initiates the semi-automatic subtractive tare device. The indicator displays the net weight with a "Net" indication. The SELECT key can be used to toggle between Net, Gross and Tare weight values.

2.3.6 Stability of equilibrium

The "Err Mot" indicator is ON and all devices are inhibited when the weight is unstable.

2.3.7 Printing / Alibi storage

The indicator must be configured to ensure that printed and stored data meet the following requirements:

- Gross weights may be printed/stored without designation, or if designated, identified by Gross, G or B
- If only Net values are printed/stored they may be printed/stored without designation, or if designated, identified by Net or N
- If Net weights are printed/stored with corresponding Gross and/or Tare weights, the Net and Tare values must be identified
- If different tare devices are in operation, each tare value should be clearly identified
- Preset tare values shall be identified as Preset Tare or PT
- The unit associated to each value shall be printed/stored
- All weight values shall be rounded to the scale interval, and not have more than one non-significant zero
- All other values (weight values and non-weight values) should be clearly and unambiguously identified
- A unique identification number shall identify each record

2.3.8 Specific modes of operation

The Dini Argeo family of indicators may be configured to operate in the following modes in addition to the standard weighing mode. Each mode shall be clearly identified, and it shall be possible to switch back to the weighing mode at all times.

3590E and CPWE Series – See the related user manuals

- Version for totalization and simple dosages
- Version for quantity (pieces, litres, etc.) Counting systems
- Version for vehicle weighing systems with input/output function
- Version for statistical check of pre-packaged goods
- Version for industrial price computing
- Version for wheel and axle weighing*
- Version for static axle weighing with input/output function*
- Multi-component dosage systems**
- Single product dosage systems, in loading or unloading**
- Management of continuous dosages on belt**
- Static or dynamic weight control on belt**
- Continuous dosage in unloading with flow adjustment
- Indicator, repeater, transmitter of weight
- Connection to up to 4 load receptors via the 4 channels converter

DFW Series – See the related user manuals

- Indicator, repeater, transmitter of weight
- Wheel / axle weighing*

DGT Series – See the related user manuals

- Indicator, repeater, transmitter of weight
- Indicators for bench or panel applications

* use of individual wheel and/or axle loads for Article 1.2(a) purposes may be prohibited in some Member States.

** some of these functions may fall outside of the scope of Directive 2014/31/EU.

3 TECHNICAL DATA

3.1 Technical characteristics

Power supply	3590E Series: 6-12 V DC External/Internal 110-240 V AC 50/60 Hz
	CPWE Series: 8-36 V DC
	DGT Series: 12-24 V DC External/Internal 110-240 V AC 50/60 Hz
	DFW Series: 12 V DC External/Internal 110-240 V AC 50/60 Hz
Maximum number of scale intervals	10 000
Load cell excitation voltage	5 V DC
Minimum load cell impedance	20 Ω
Maximum load cell impedance	3 k Ω
Minimum input voltage per verification scale interval	0.3 μ V/div

Measuring range minimum voltage	0.3 mV
Measuring range maximum voltage	30 mV
Fraction of maximum permissible error	$P_{ind} = 0.5$ ($P_{ind} = 0$ for digital load cells) ($P_{ind} = 0$ for analogues load cells with junction box)
Operating temperature range	-10 / + 40 °C
Load cell connection	4 or 6 wire
Maximum Load cell cable length (junction box to indicator)	200 m/mm ²

3.2 Documentation/Drawings

Reference №	Drawing description
P1220-XXX	Drawings about ABS case for 3590EXP / DFVK06XP / DFVRXP series
P1390-XXX	Drawings about Stainless steel case for DFVLI,DFVLI,DFVLI
P1249-XXX	Drawings about ABS case for DFV
P1372-XXX	Drawings about Stainless steel case for 3590EGT / 3590EXT

4 INTERFACES

4.1 The instrument may be fitted with the following protected interfaces:

- 4 or 6 wire load cell connection
- DC voltage input
- RS-232
- RS-485
- Control inputs/outputs
- USB
- Ethernet
- Bluetooth
- Optoisolated inputs
- Photomosfet outputs
- SENSOR (Digital in)
- RF (radio frequency)
- WiFi
- Anologue ouput and input
- Profibus
- Profinet
- DeviceNet
- CANopen
- Ethercat

4.3 Peripheral devices

4.3.1 The following peripheral devices may be connected to the interfaces provided:

- Peripheral devices that have been issued with a Test or Parts Certificate by a Notified Body responsible for type examination under Directive 2014/31/EU; or
- Peripheral devices without a Test or Parts Certificate under the following conditions:
 - it bears the CE marking for conformity to the EMC Directive;
 - it is not capable of transmitting any data or instruction into the weighing instrument, other than to release a printout, checking for correct data transmission or validation;
 - it prints weighing results and other data as received from the weighing instrument without any modification or further processing;
 - it complies with the applicable requirements of EN:45501, i.e. 4.2, 4.4, 4.6 and 4.7.

A printing device may print additional information such as date or number to identify the printed weighing result(s) or sets of weighing results.

5 SOFTWARE

5.1 Security

The software is held on the Flash Memory and cannot be modified by the user. The calibration and legally relevant parameters are protected via physical or software means.

A jumper located on the main board prevents all access to the legally relevant parameters.

Alternatively, software sealing may be used to protect the calibration and legally relevant parameters. Two non-editable counters, designated CAL and CONFIG, are incremented each time the calibration and legally relevant parameters respectively are modified, with access to these parameters being password-protected. The counters' values and designations must be written on a tamper-evident label on or near the rating plate.

5.2 Verification information

5.2.1 Software identification

The software identification is fully described in the user manual, and can be displayed at power up or via the software menu.

The legally relevant software is identified by two parts: ***prefix/version***.

The ***prefix*** shows the instrument model and shall be:

3590E: 01, CPWE: 01, DFW: 02, DGT: 09

The ***version*** shows the legally relevant software version shall be 01 for all series.

The ***prefix/version*** may be followed by a suffix indicating the software program version and other options installed which may be freely modified and is regarded as the non-legally relevant software.

Since the code may be longer than the digits available on the display, it is shown in two parts.

5.2.2 Calibration and programming

The programming and calibration of the instrument may be done through the keyboard of the indicator module if a specific jumper inside the indicator on the CPU board has been

activated. Once the function has been enabled one accesses the general set-up menu where steps are shown on the display to help guide the operator. The calibration data is stored in a non-volatile manner in the FLASH memory and is protected by a checksum which ascertain the integrity; in case of error the instrument's functioning is blocked. If an indicator repeater is remotely connected, the programming and calibration function is only possible on the main indicator.

6 INSCRIPTIONS

The instruments shall bear the following legends:

Manufacturer's mark or name
Serial number
Test or Parts Certificate number

7 ALTERNATIVES

7.1 Having the following set of peripheral devices "printers" which can be used in conjunction with any of the approved indicators covered by this Parts Certificate.

- DP24, DP24S1N, DP190.
- LP542, LP542S, LP542Plus, LP842Plus, LP942Plus, LP1042Plus (also called LPxx).
- TDP248M, TDP643Plus, TDP245, TTP244MEPlus, TT246MPlus (also called SMTxx).
- TM295, LX300, LX350.
- TG2460H.
- CUSTOM PLUS or TPR.
- DATAMAX: DMXM4206 e EX2.
- PR80 (alternative designation PRINT!).

All general conditions set for connectable peripheral devices stated in paragraph 4.3.1 are applicable for other peripheral devices "printers".

The peripheral devices can be connected via the following interfaces; radio-frequency (RF) or through a serial port.

7.2 Having a modified instrument, designated the KS series (Figure 29).

8 ILLUSTRATIONS

Figure 1 - 3590E Indicator

Figure 2 - CPWE Indicator

Figure 3 - DFW Indicator

Figure 4 - DGT Indicator

Figure 5 - DFW series - ABS case version (example case 1)

Figure 6 - DFW series - ABS case version (example case 2)

Figure 7 - DFW series - ABS case version (example case 3)

Figure 8 - DFW series - Stainless steel case version (example case 1)

Figure 9 - DFW series - Stainless steel case version (example case 2)

Figure 10 - DFW series - Stainless steel case version (example case 3)

Figure 11 - DFW series - Stainless steel case version (example case 4)
Figure 11a – DFW series - Stainless steel case version (example case 5)
Figure 12 - DFW series - Metal case version
Figure 13 - 3590E series - ABS case version (example case 1)
Figure 14 - 3590E series - ABS case version (example case 2)
Figure 15 - 3590E/DFW series - ABS case version (example case 3)
Figure 16 - 3590E series - Stainless steel case version (example case 1)
Figure 17 - 3590E series - Stainless steel case and graphic touch (example case 2)
Figure 17a - 3590E series - ABS case version and graphic touch (example case 4)
Figure 18 - CPWE series - Aluminum case version
Figure 18a – 3590E Series – Stainless steel case and graphic touch (example case 3)
Figure 19 - CPWE series - Stainless steel case version
Figure 20 - DGT series - Plastic case version (example case 1)
Figure 21 - DGT series - Plastic case version (example case 2)
Figure 22 - DGT series - Plastic case version (example case 3)
Figure 23 - DGT series - Plastic case version (example case 4)
Figure 24 - DGT series - Metal case version (example case 1)
Figure 25 - DGT series - Metal case version (example case 2)
Figure 26 - DGT series - Stainless steel case version (example case 1)
Figure 27 - DGT series - Stainless steel case version (example case 2)
Figure 28 - Examples of connections between indicators and load cells
Figure 29 - KS series – Stainless steel case version

CERTIFICATE HISTORY

ISSUE NO.	DATE	DESCRIPTION
GB-1461	21 September 2012	Test Certificate first issued.
GB-1461 Revision 1	01 November 2013	Changes made to pages 1, 2, [multi-interval, or multi-range weighing options , section 3.1 [200 m/mm ²], DGT table on page 12 [addition of serial Nos.], and addition of figures 5 to 23.
GB-1461 Revision 2	09 May 2014	New indicators 3590EQ, DGT100 & DGT1S added to certificate. Section 7.1 created to add peripheral devices "printers". Test report SN: 1282 added to descriptive annex. Technical characteristics table amended to correct typo. Addition of Figures: 24, 25 & 26
GB-1461 Revision 3	13 November 2014	Modifications to the following sections; 1, 2.1, 4.1, 5.2.1, 8 and associated illustrations.
GB-1461 Revision 4	26 March 2015	Change of Figure 9
GB-1461 Revision 5	27 April 2015	Addition of Figures: 11a, 17a & 18a. Printer PR80 (PRINT!) added to Section 7.1
GB-1461 Revision 6	06 July 2015	Maximum load cell impedance changed to 3 k Ω in Section 3.1.
GB-1461 Revision 7	11 April 2016	Section 7.2 added. KS series test report added to Appendix.
GB-1461 Revision 8	12 May 2016	References to 2009/23/EC replaced by 2014/31/EU. Compliance to EN45501:1992 changed to EN45501:2015.

APPENDIX TO DESCRIPTIVE ANNEX

TESTS CARRIED OUT

The following tests were performed with the indicators connected to a load cell simulator or to a weighing platform.

DFW Series:

All testing conducted by CIBE Metrological Laboratory, Italy

EN45501 Ref	Test	Test Report №
A.5.3.2	Temperature effect on no load indication	0906/0907
A.5.4	Voltage variations	0906/0907
B.3.1	Short time power reductions	0906/0907
B.3.2	Electrical Bursts	0906/0907
B.3.3	Electrostatic discharges	0906/0907
B.3.4	Immunity to radiated electromagnetic fields	GSD Laboratory POLAB
A.5.3.1	Weighing performance at static temperatures	0906/0907
B.3.5	Immunity to radiated electromagnetic fields	0906/0907
B.3.3	Surge	0906/0907
B.2.2	Damp heat steady state	0906/0907
A.4.10	Repeatability	0906/0907
A.4.12	Stability of equilibrium	0906/0907
A.4.6.1	Tares	0906/0907
A.5.2	Warm-up	0906/0907

DGT Series:

All testing conducted by CIBE Metrological Laboratory, Italy

EN45501 Ref	Test	Test Report №
A.5.3.2	Temperature effect on no load indication	0501
A.5.4	Voltage variations	0501
B.3.1	Short time power reductions	0501
B.3.2	Electrical Bursts	0501
B.3.3	Electrostatic discharges	0501
B.3.4	Immunity to radiated electromagnetic fields	GSD Laboratory
A.5.3.1	Weighing performance at static temperatures	0501
B.2.2	Damp heat steady state	0501
A.4.10	Repeatability	0501
A.4.12	Stability of equilibrium	0501
A.4.6.1	Tares	0501
A.5.2	Warm-up	0501
A.4.2.1	Zero setting range	0501

3590E

All testing conducted by CIBE Metrological Laboratory, Italy

EN45501 Ref	Test	Test Report №
A.5.3.2	Temperature effect on no load indication	0306
A.5.4	Voltage variations	0306
B.3.1	Short time power reductions	0306
B.3.2	Electrical Bursts	0306
B.3.3	Electrostatic discharges	0306
B.3.4	Immunity to radiated electromagnetic fields	0306
A.5.3.1	Weighing performance at static temperatures	0306
B.2.2	Damp heat steady state	0306
A.4.10	Repeatability	0306
A.4.12	Stability of equilibrium	0306
A.4.6.1	Tares	0306
A.5.2	Warm-up	0306

3590EXP

All testing conducted by CIBE Metrological Laboratory, Italy

EN45501 Ref	Test	Test Report №
A.5.3.2	Temperature effect on no load indication	0905/1012
A.5.4	Voltage variations	0905/1012
B.3.1	Short time power reductions	0905/1012
B.3.2	Electrical Bursts	0905/1012
B.3.3	Electrostatic discharges	0905/1012
B.3.4	Immunity to radiated electromagnetic fields	0905/1012
A.5.3.1	Weighing performance at static temperatures	0905/1012
B.2.2	Damp heat steady state	0905/1012
A.4.10	Repeatability	0905/1012
A.4.12	Stability of equilibrium	0905/1012
A.4.6.1	Tares	0905/1012
A.5.2	Warm-up	0905/1012

3590E and CPWE Series

All testing conducted by NMO

EN45501 Ref	Test	Test Report №
B.3.2	Electrical Bursts (3590EXPCC)	SN:1193
B.3.4	Electrostatic discharges (3590EXPCC & 3590EXP)	SN:1193, SN: 1282
B.3.5	Immunity to radiated electromagnetic fields (3590EXT 3590EXPCC & CPWET)	SN:1193
B.3.6	Immunity to conducted electromagnetic fields (3590EXT, 3590EXPCC & CPWET)	SN:1193
B.3.3	Surge (3590EXPCC)	SN:1193
-	Cable length between indicator and load cell (3590EXPCC)	SN:1193

DFW

*All testing conducted by NMO

EN45501 Ref	Test	Test Report №
B.3.4	Electrostatic discharges (DFWK06XP, DFWL, DFWDXT & DFWB)	SN:1232
B.3.5	Immunity to radiated electromagnetic fields (DFWK06XP, DFWL, DFWDXT & DFWB)	SN:1232
B.3.1	AC mains voltage dips and short interruptions (DFWDXT)	SN:1232

DGT

*All testing conducted by NMO

EN45501 Ref	Test	Test Report №
B.3.2	Electrical Bursts (DGT1S)	SN: 1282
B.3.3	Surge (DGT1S)	SN: 1282
B.3.4	Electrostatic discharges (DGT4PB,DGTQ, DGTPK, DGT60AN & DGT100)	SN:1228, SN:1229, SN:1230, SN:1231, SN: 1282
B.3.5	Immunity to radiated electromagnetic fields (DGT4PB, DGTQ, DGTPK, DGT60AN & DGT1S)	SN:1228, SN:1229, SN:1230, SN:123, SN: 1282
B.3.1	AC mains voltage dips and short interruptions (DGTPK)	SN:1229
B.3.6	Immunity to conducted electromagnetic fields (DGT4PB)	SN:1230

*Note: EMC testing conducted at the levels required in OIML R76 (2006)

KS series

*All testing conducted by ELETTRA

EN45501 Ref	Test	Test Report №
B.3.4	Electrostatic discharges	R-EM-555-0316-05B
B.3.5	Immunity to radiated electromagnetic fields	R-EM-555-0316-05B

*Note: EMC testing conducted at the levels required in OIML R76 (2006)



Figure 1 – 3590 Indicator



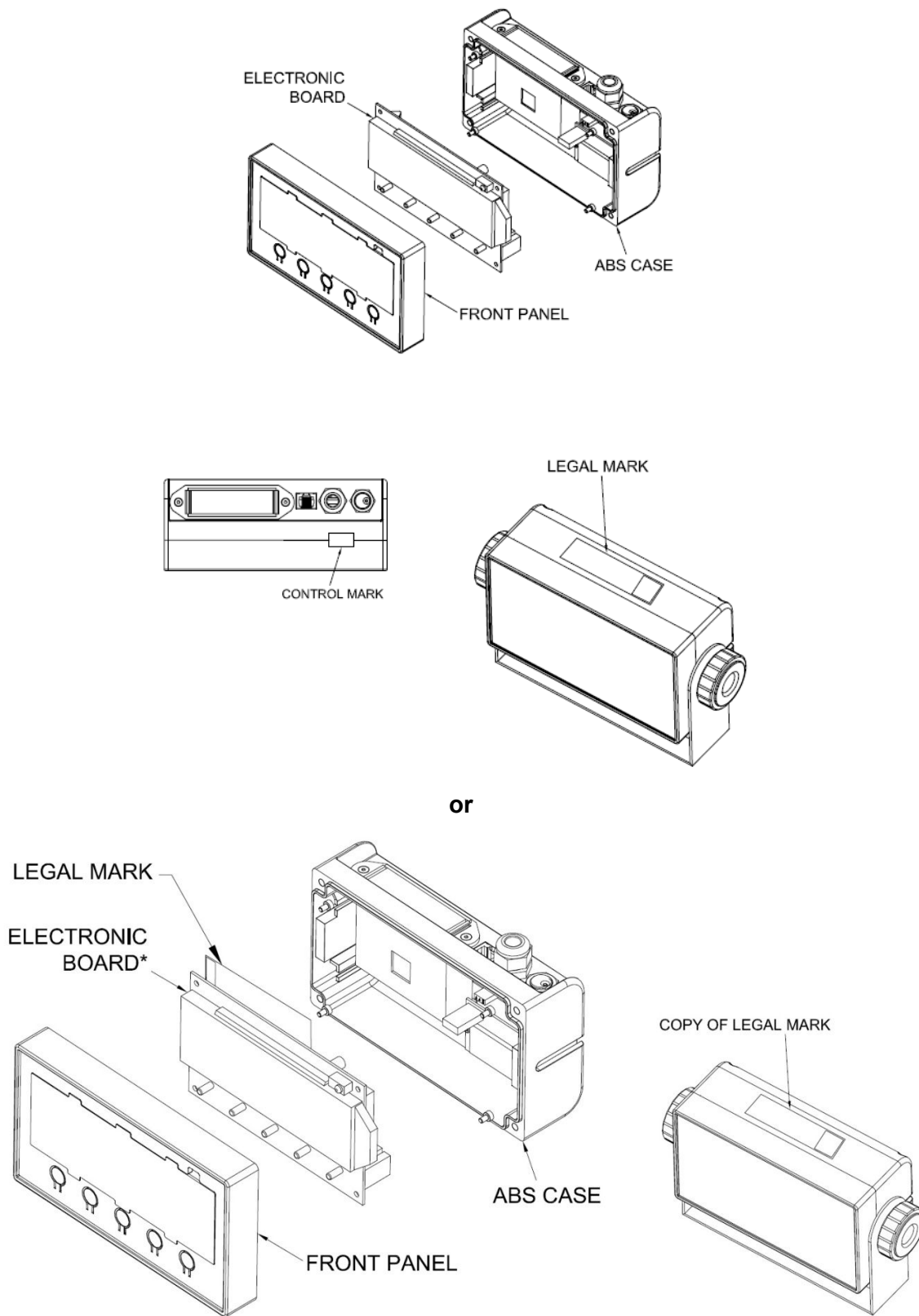
Figure 2 – CPWE Indicator



Figure 3 – DFW Indicator



Figure 4 – DGT Indicator



(*) Control and Legal Mark on electronic board

Figure 5 – DFW series - ABS case version (example case 1)

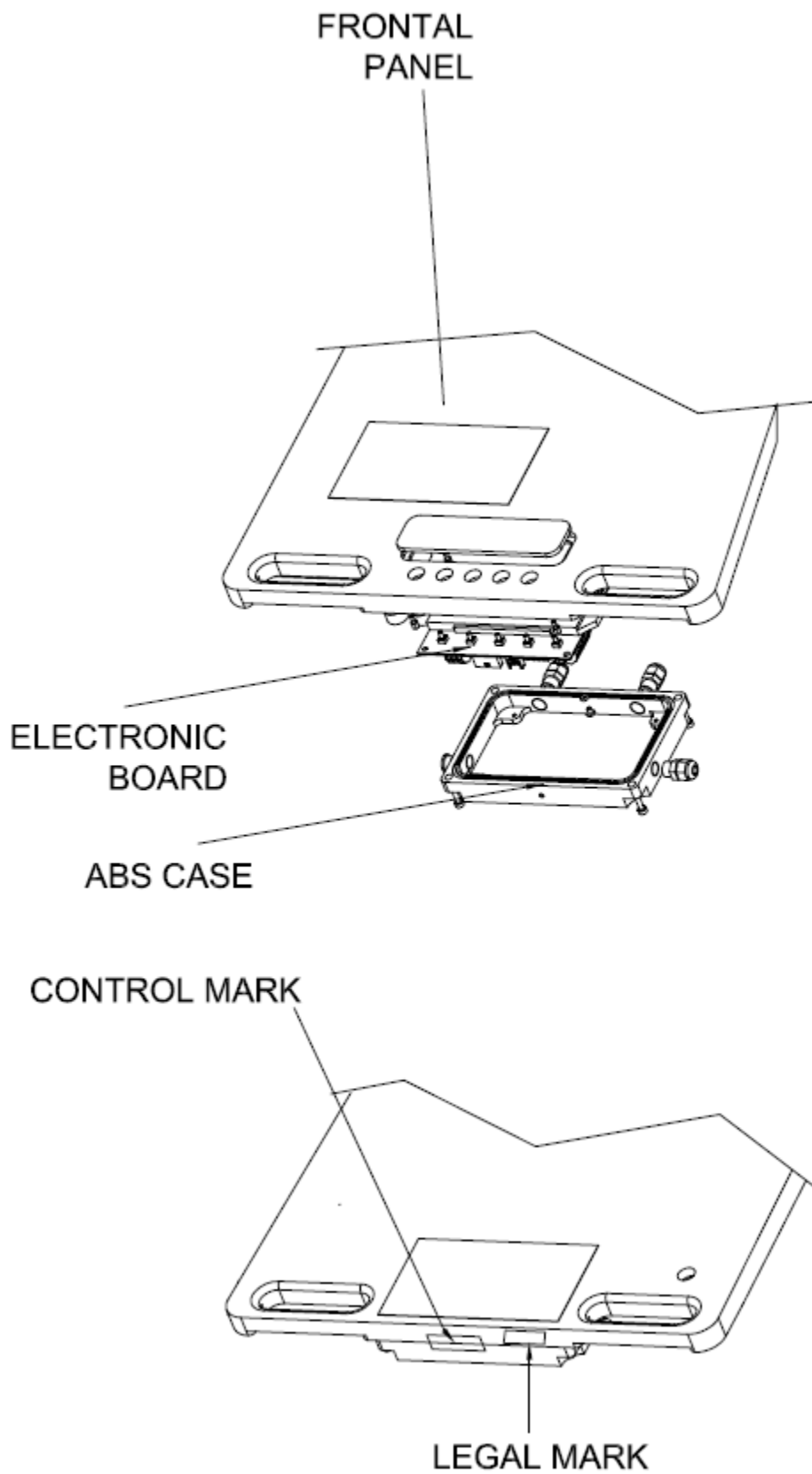


Figure 6 - DFW series - ABS case version (example case 2)

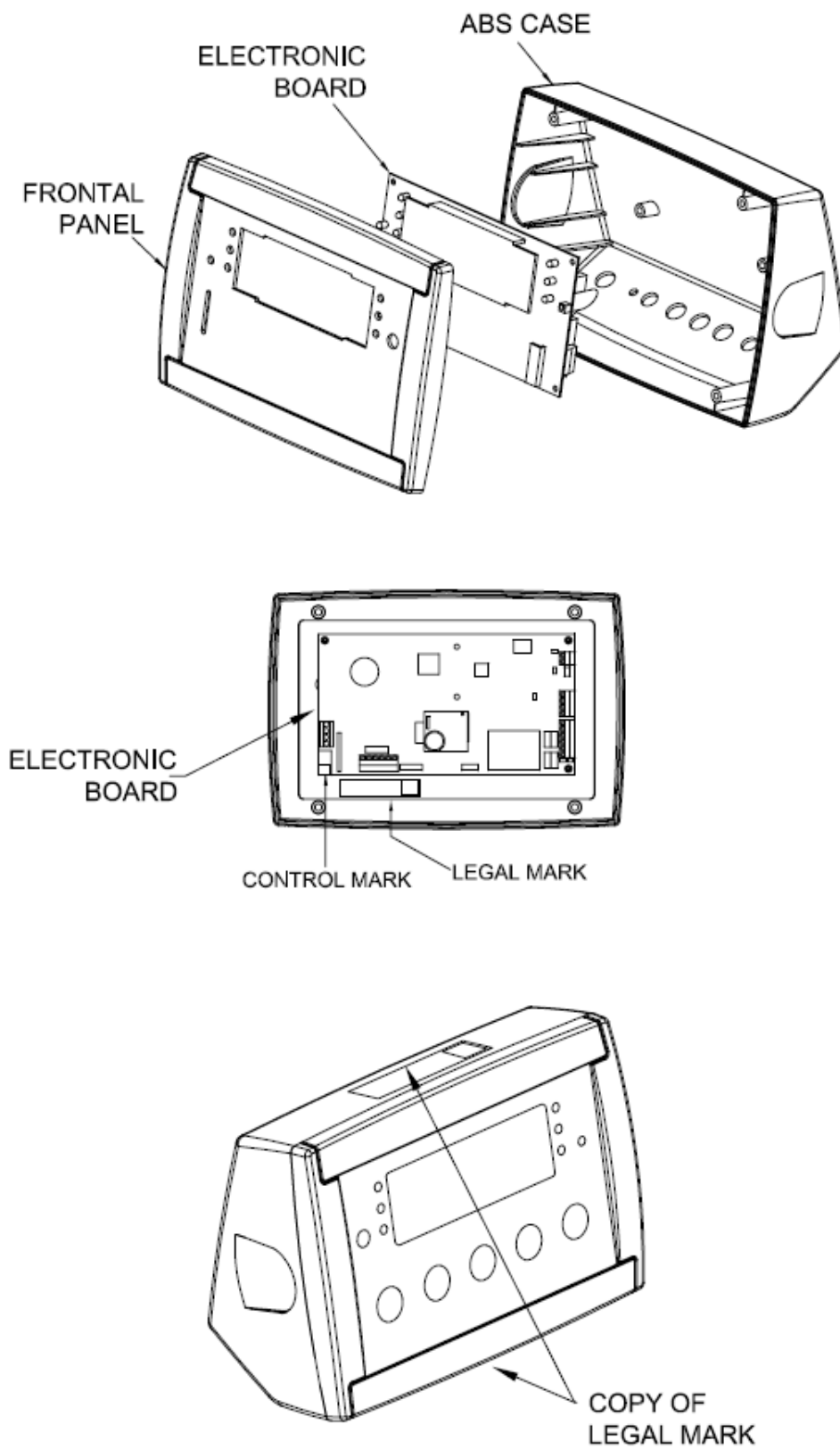
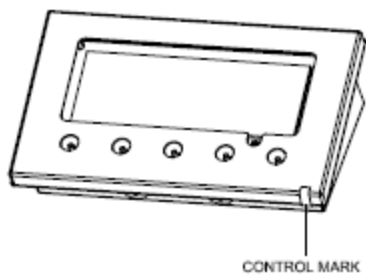
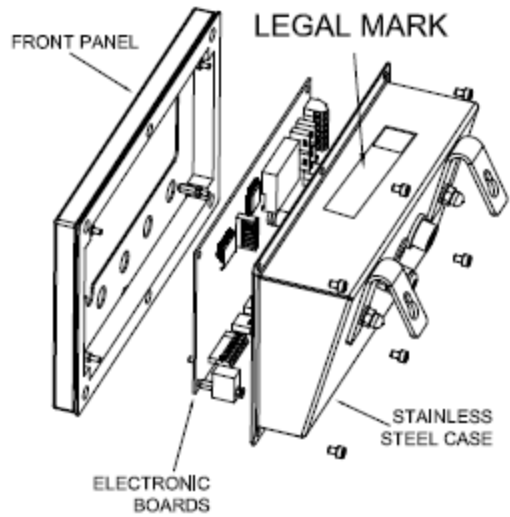
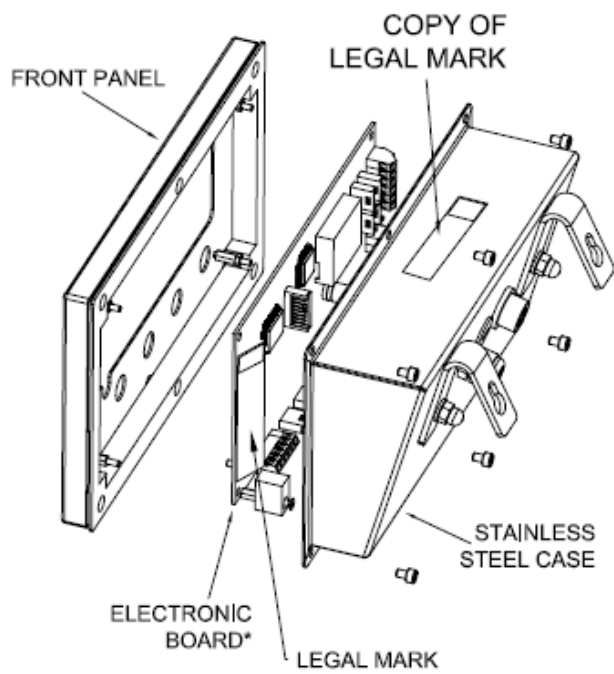


Figure 7 – DFW series - ABS case version (example case 3)

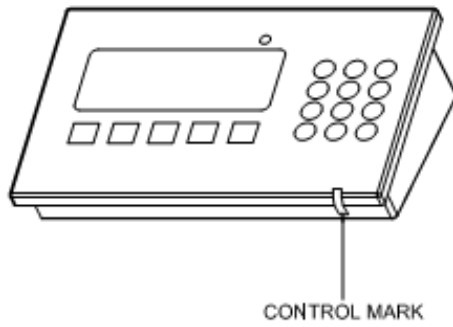
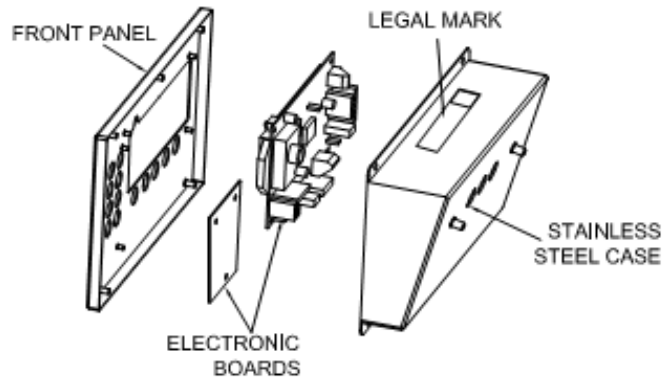


Or

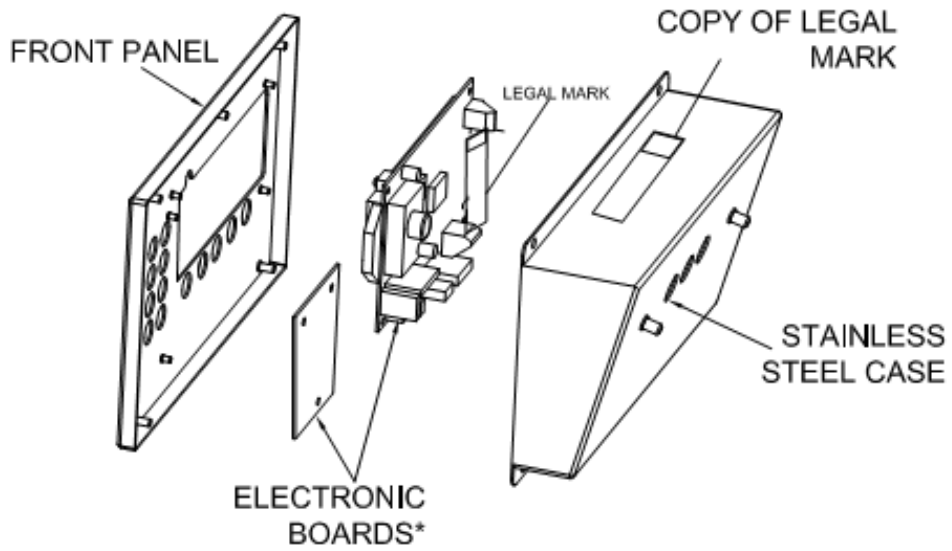


*Control mark on electronic board

Figure 8 – DFW series - Stainless steel case version (example case 1)



Or



*Control mark on electronic board

Figure 9 – DFW series - Stainless steel case version (example case 2)

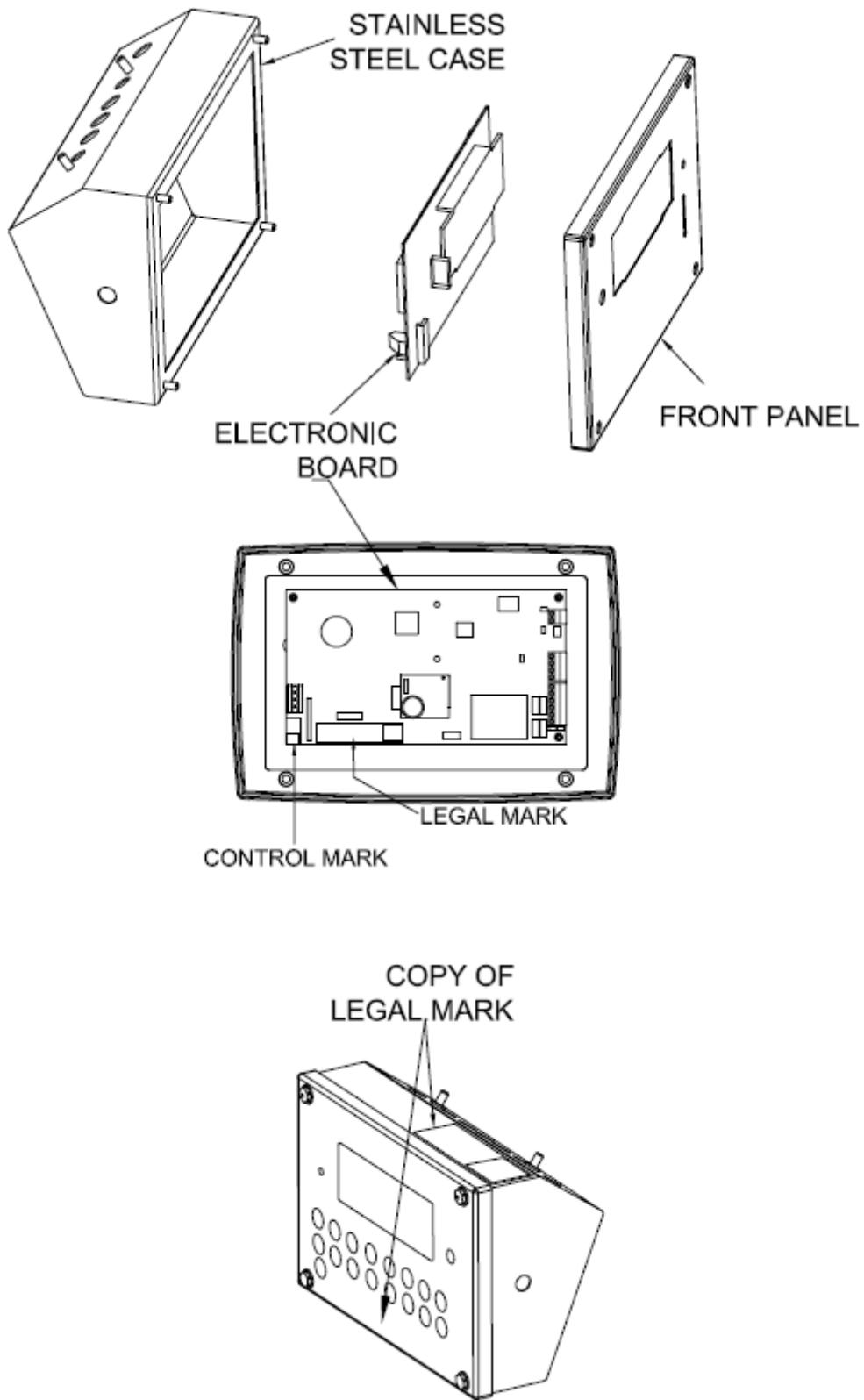


Figure 10 – DFW series - Stainless steel case version (example case 3)

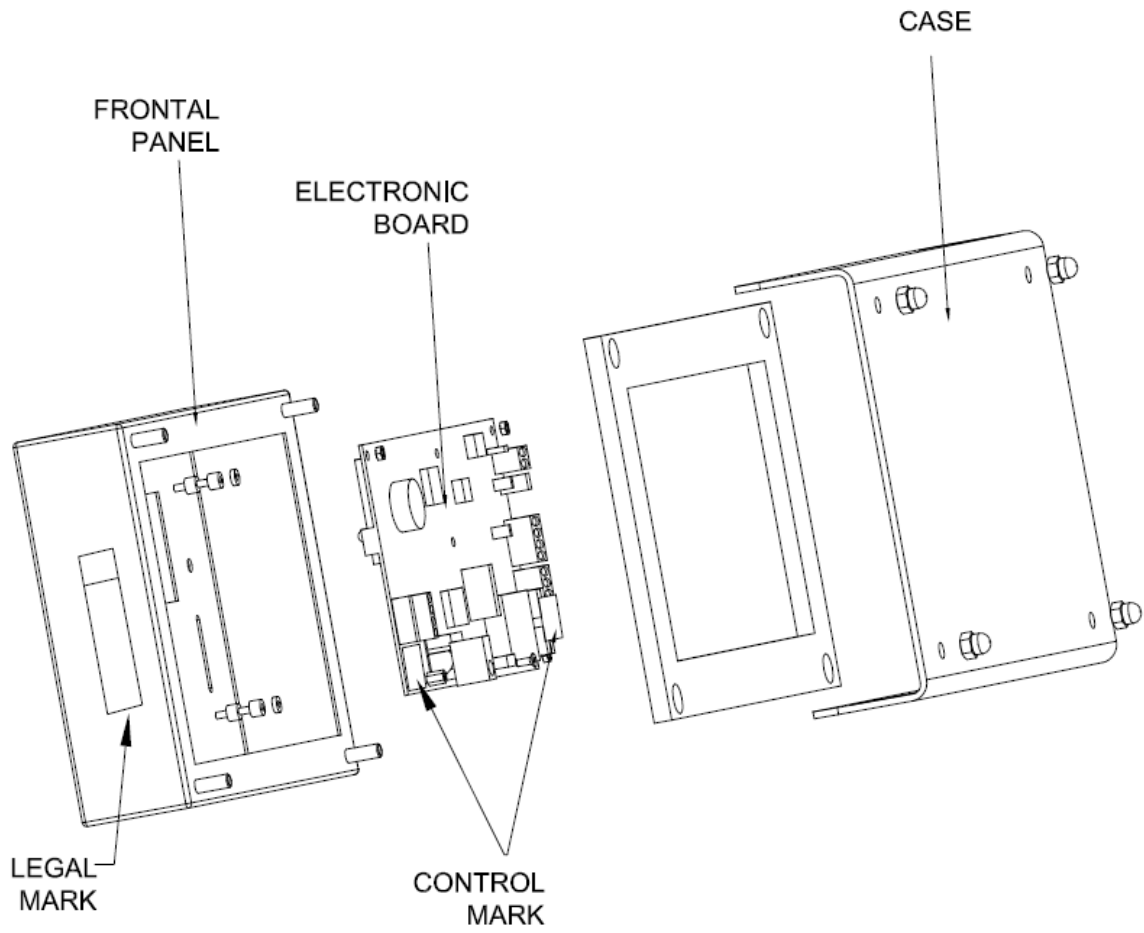


Figure 11– DFW series - Stainless steel case version (example case 4)

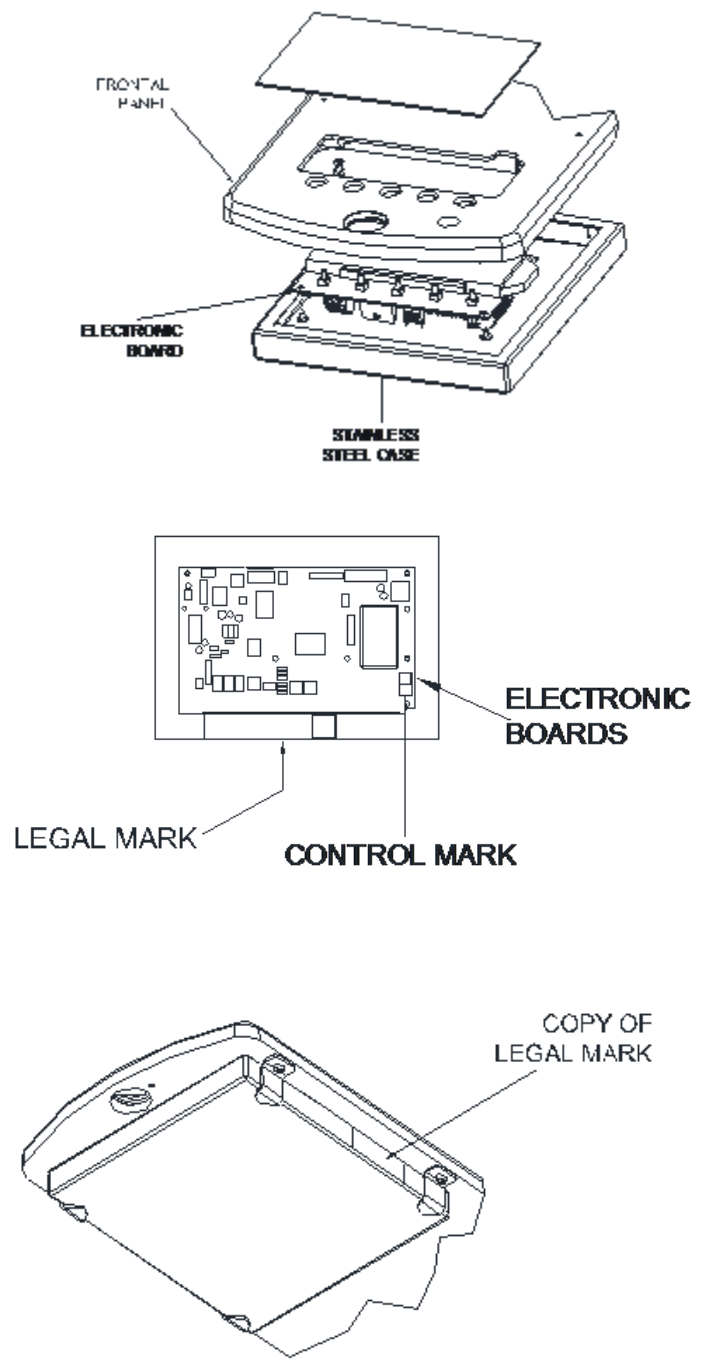


Figure 11a – DFW series - Stainless steel case version (example case 5)

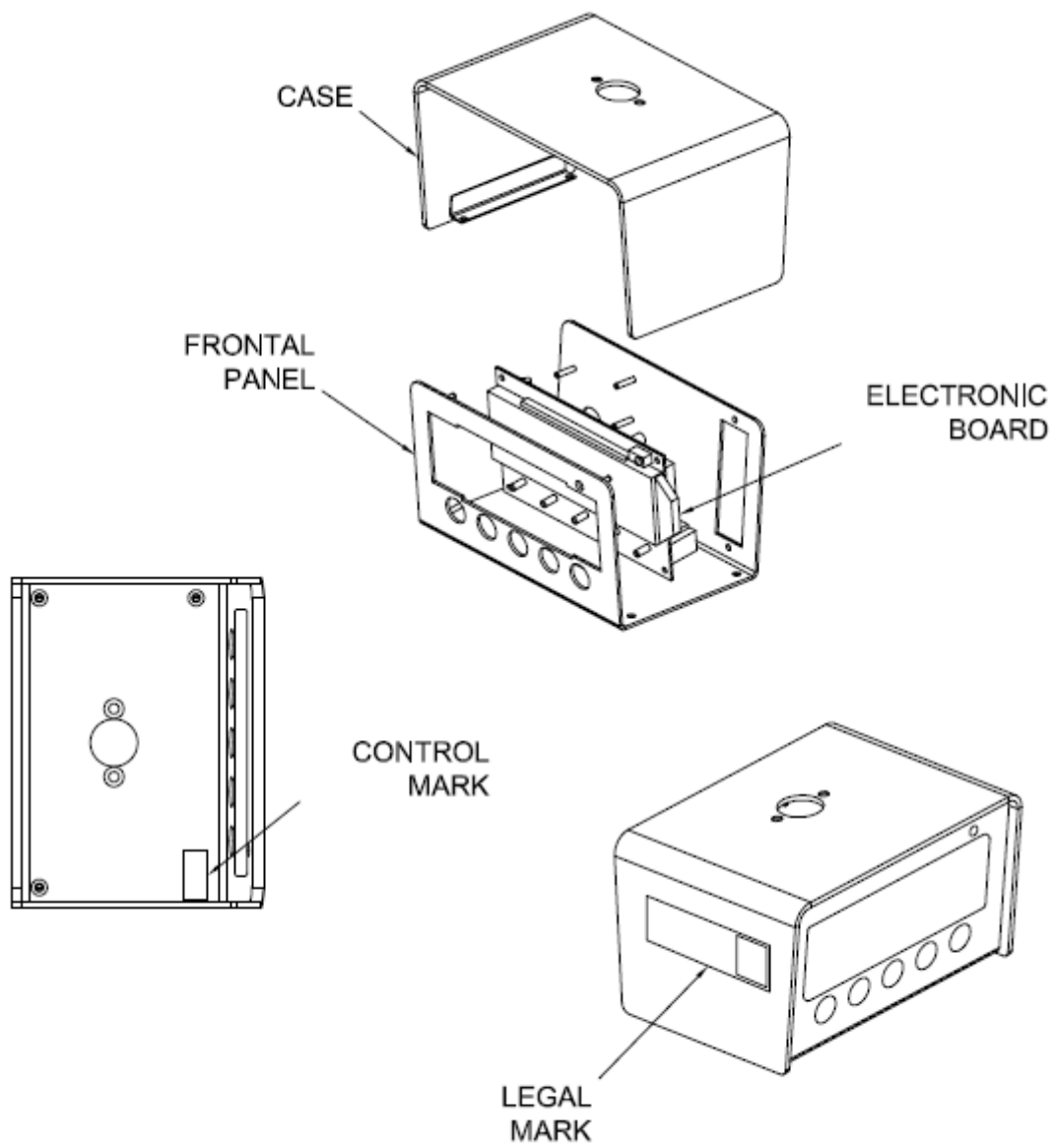


Figure 12 - DFW series - Metal case version

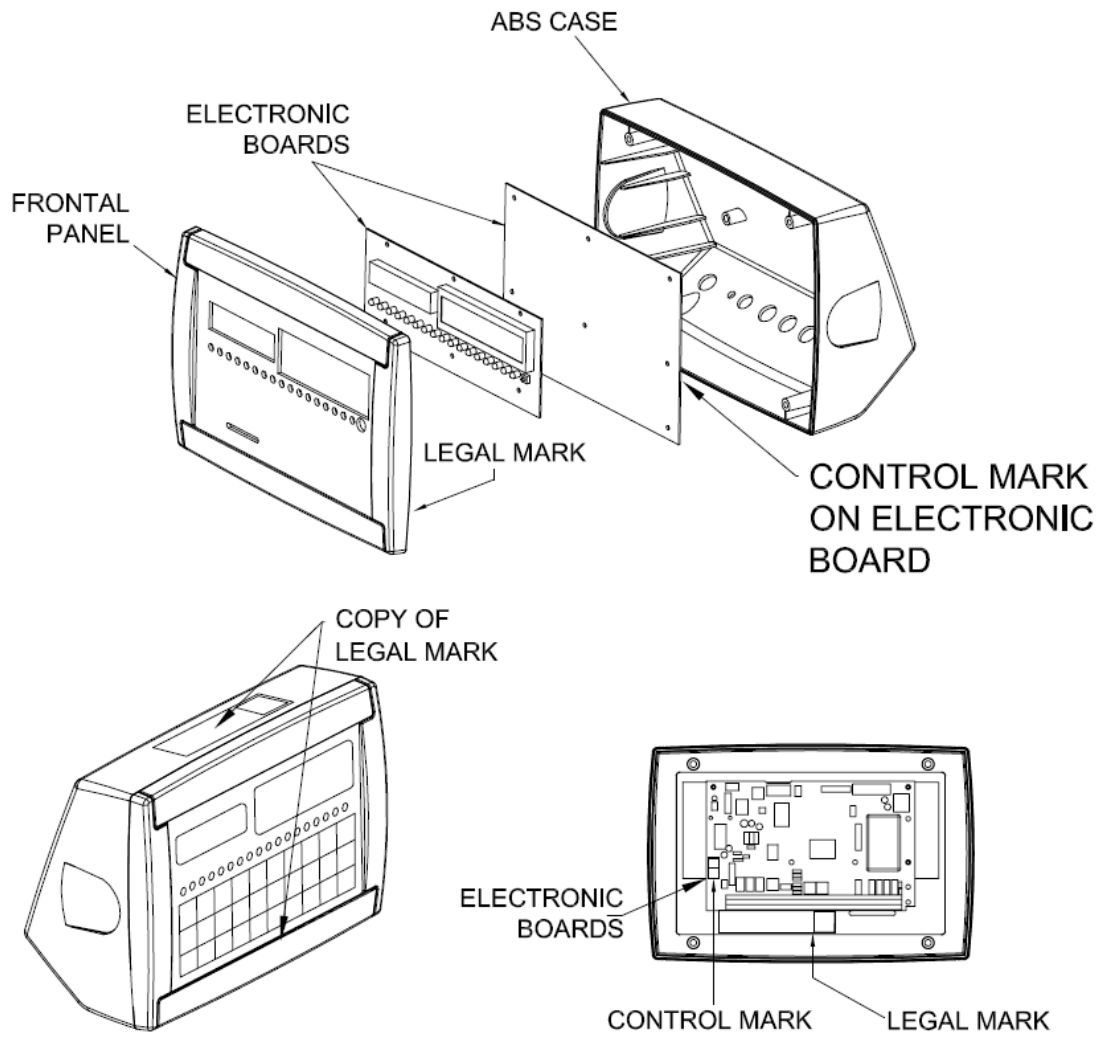


Figure 13 – 3590E series - ABS case version (example case 1)

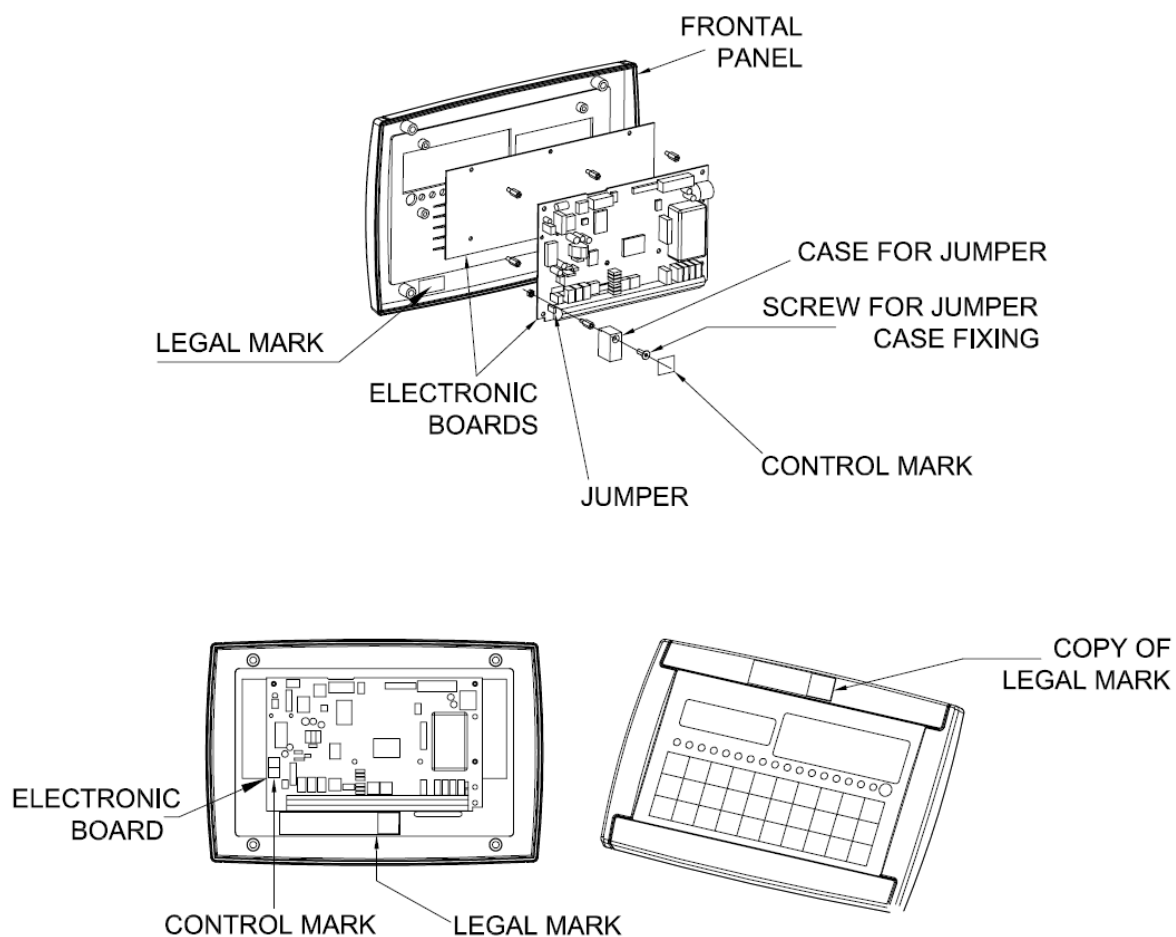


Figure 14 – 3590E series - ABS case version (example case 2)

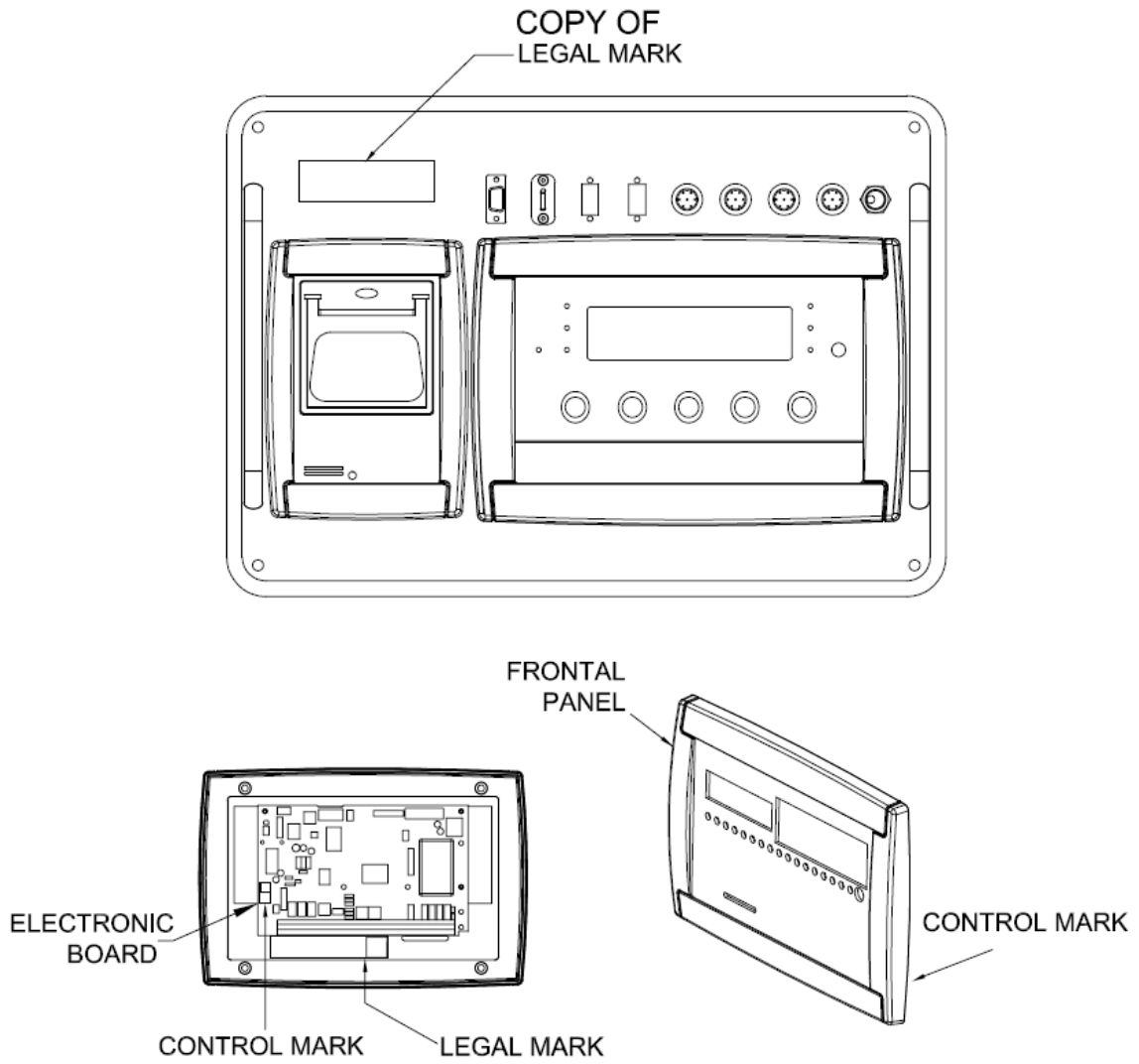


Figure 15 – 3590E/DFW series - ABS case version (example case 3)

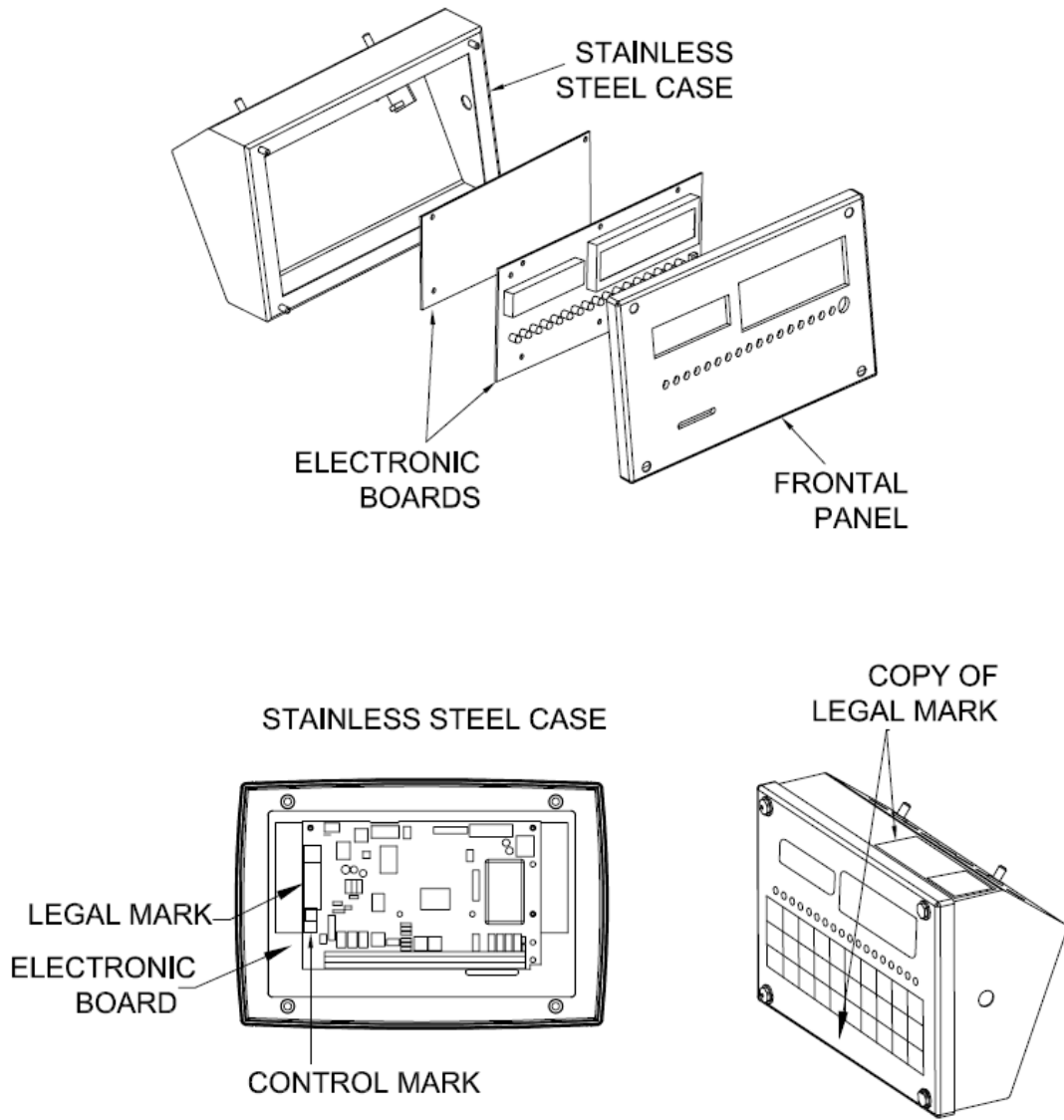


Figure 16 – 3590E series - Stainless steel case version (example case 1)

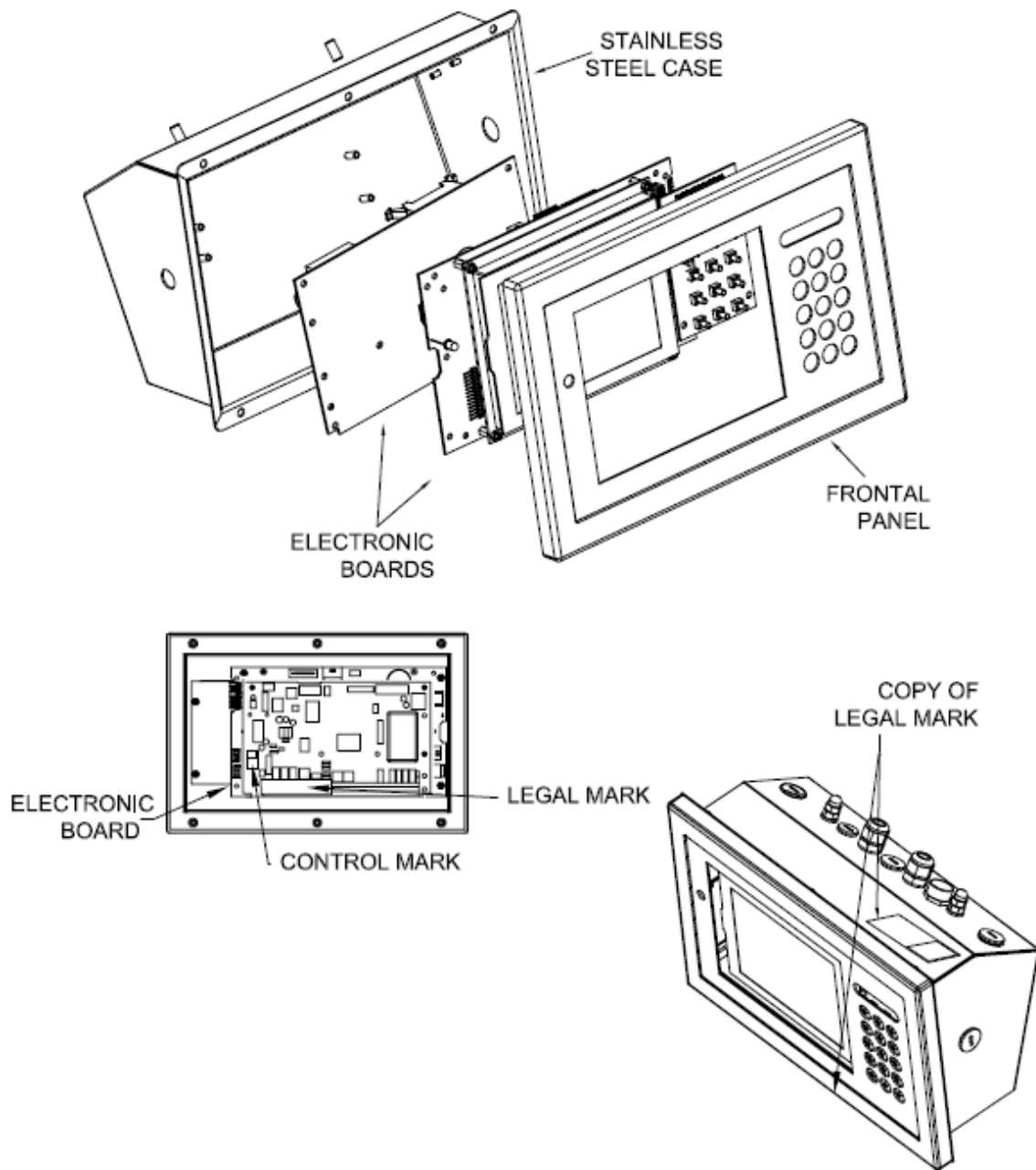


Figure 17 – 3590E series - Stainless steel case and graphic touch (example case 2)

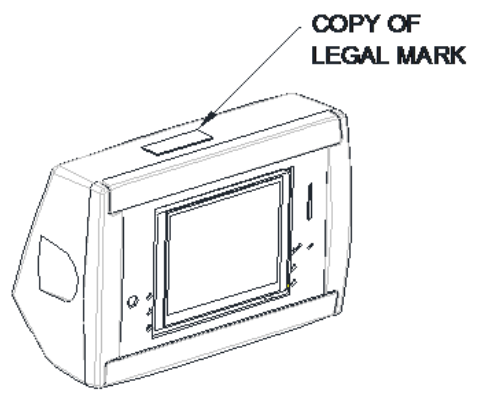
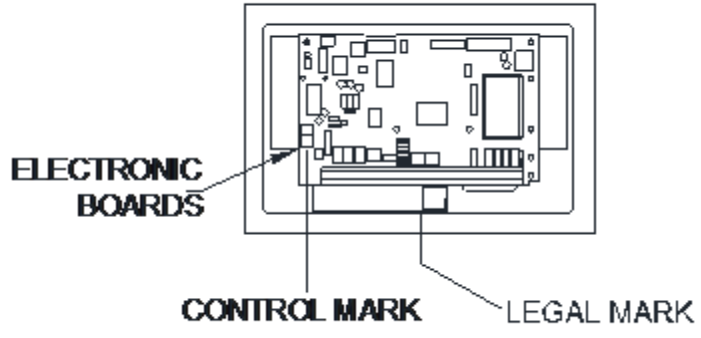
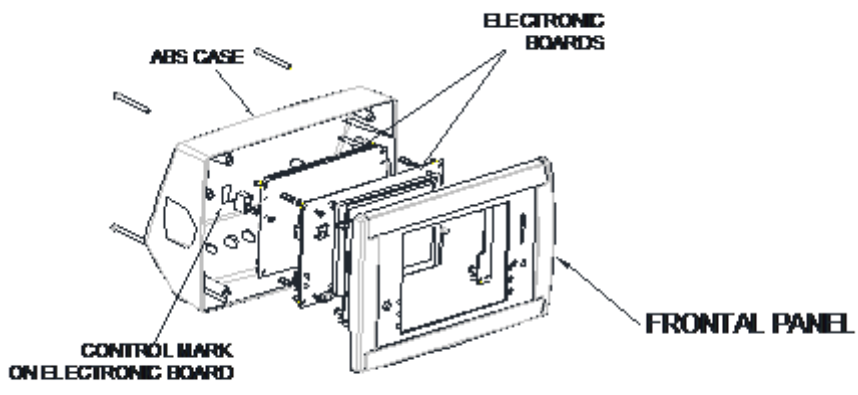


Figure 17a – 3590E series - ABS case version and graphic touch (example case 4)

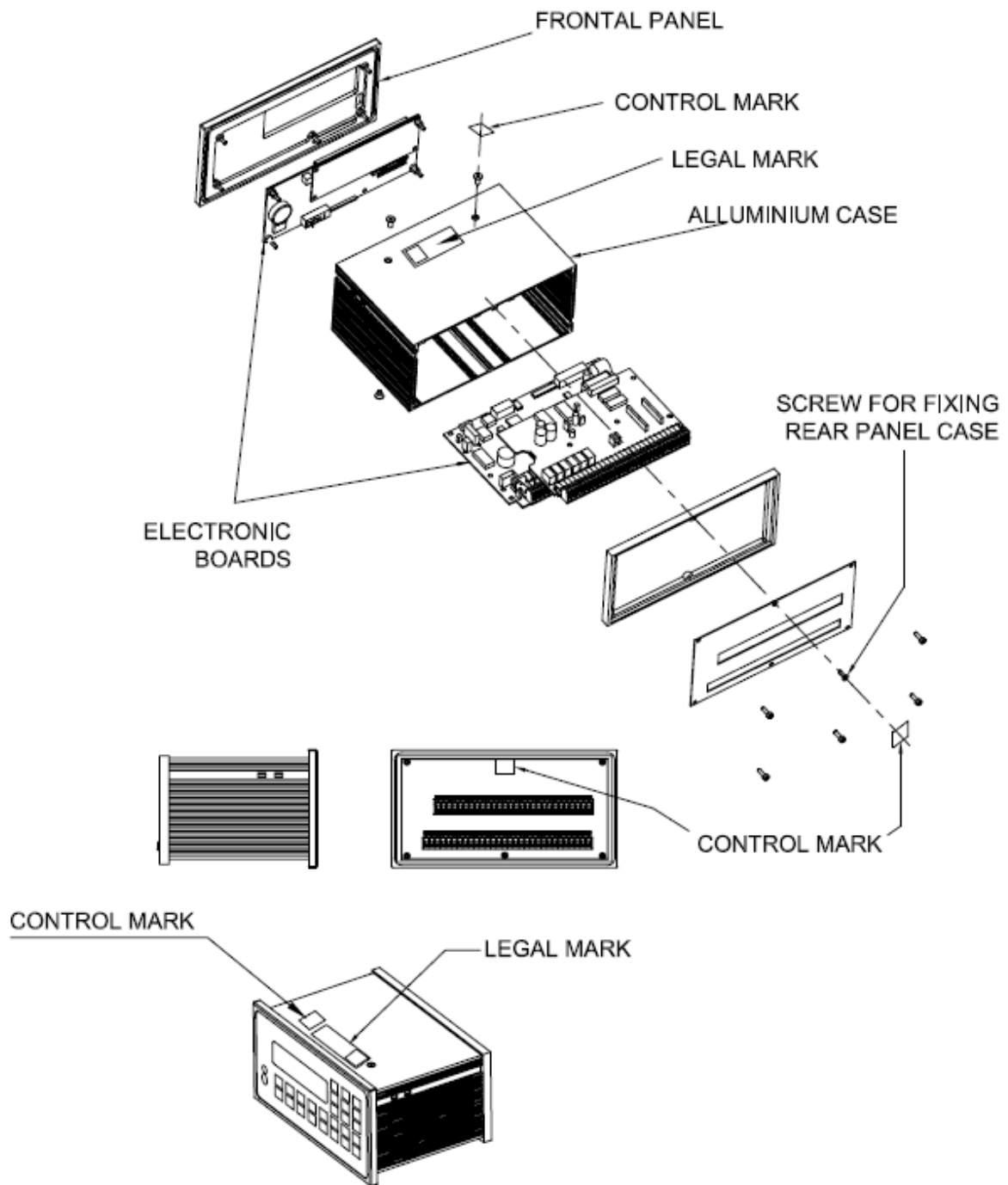


Figure 18 – CPWE series - Aluminum case version

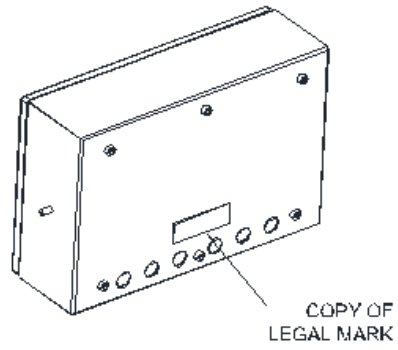
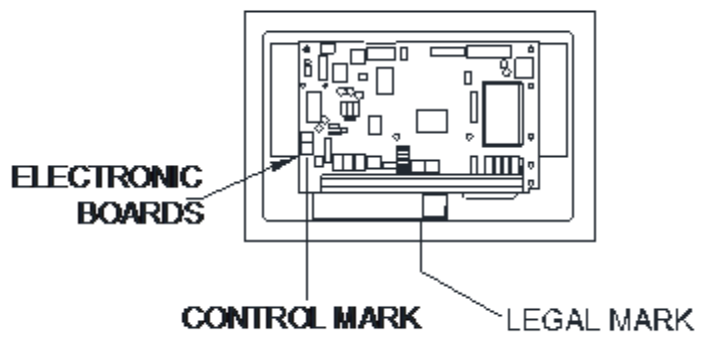
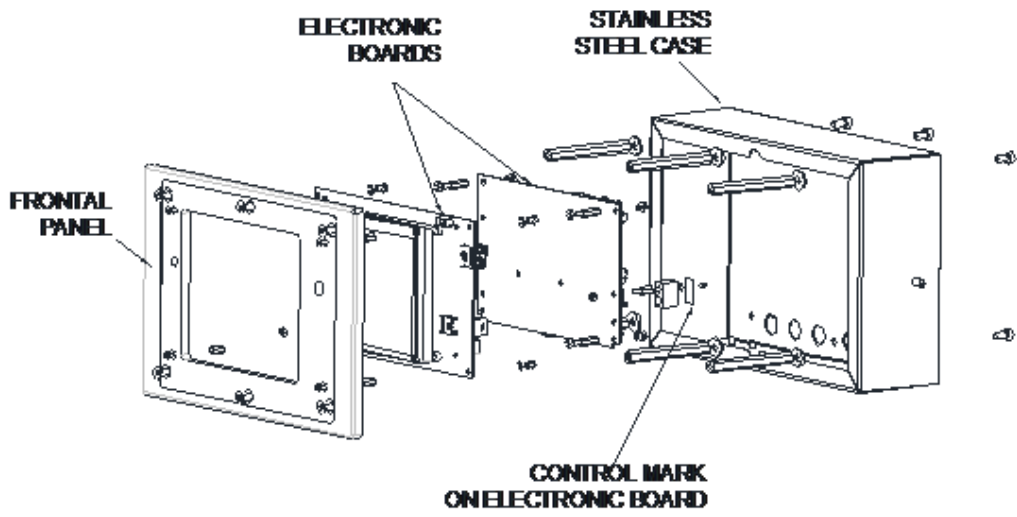


Figure 18a – 3590E Series – Stainless steel case and graphic touch (example case 3)

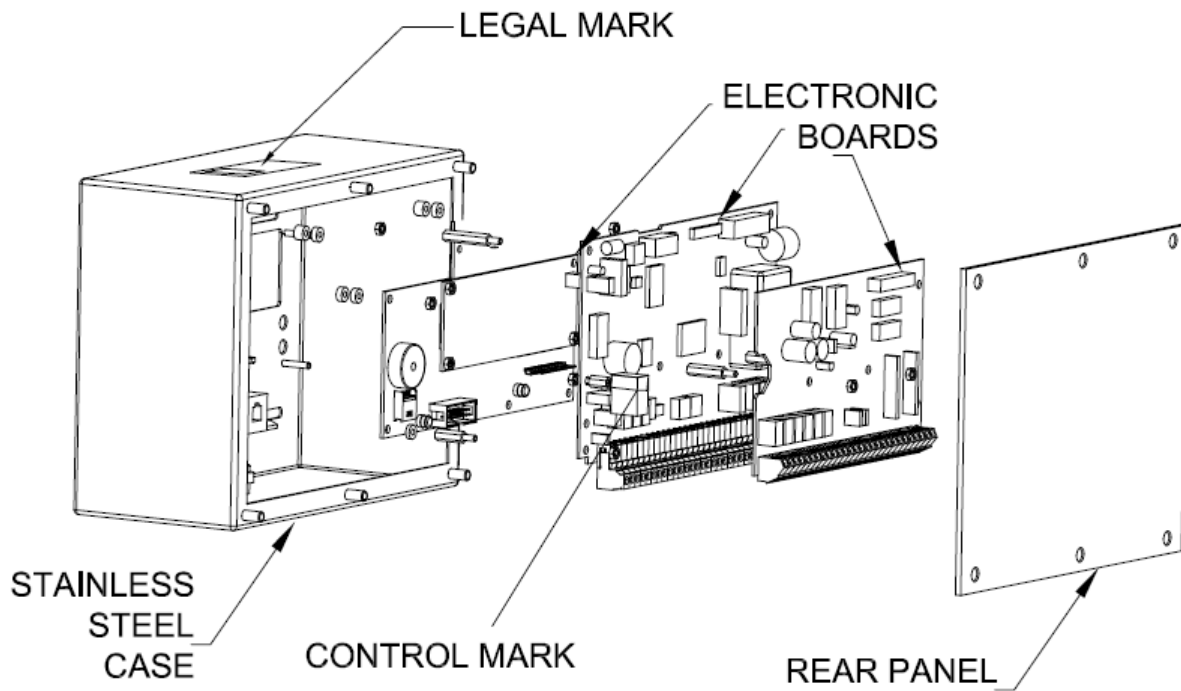


Figure 19 – CPWE series - Stainless steel case version

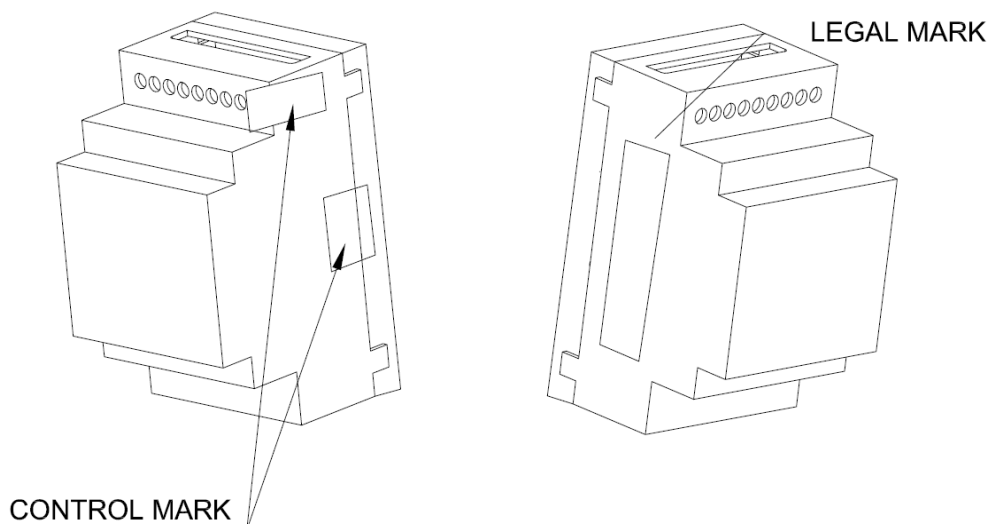


Figure 20 – DGT series - Plastic case version (example case 1)

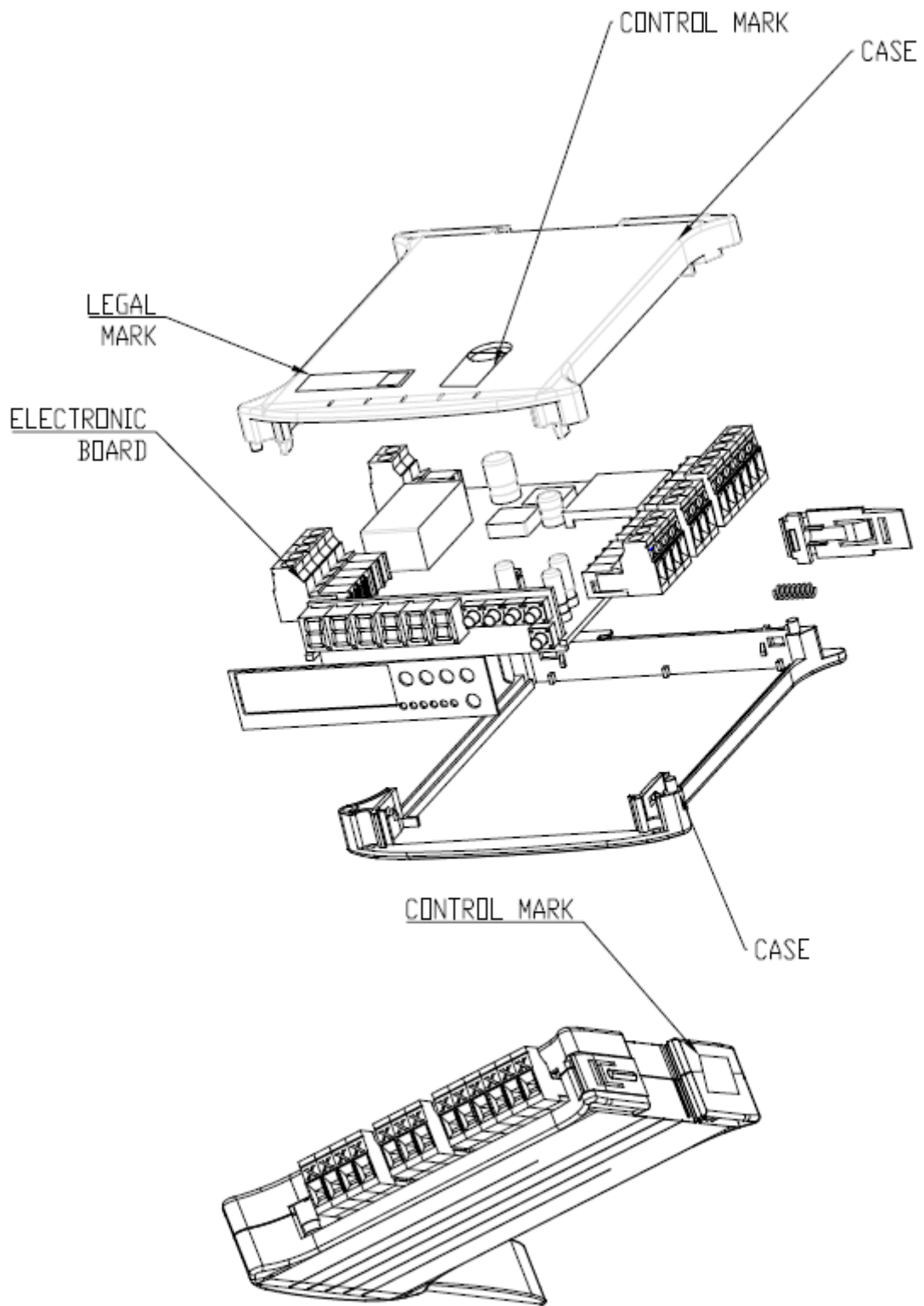
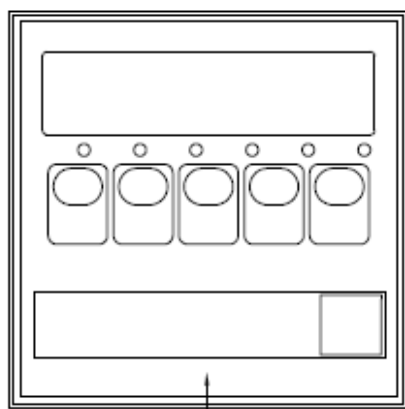
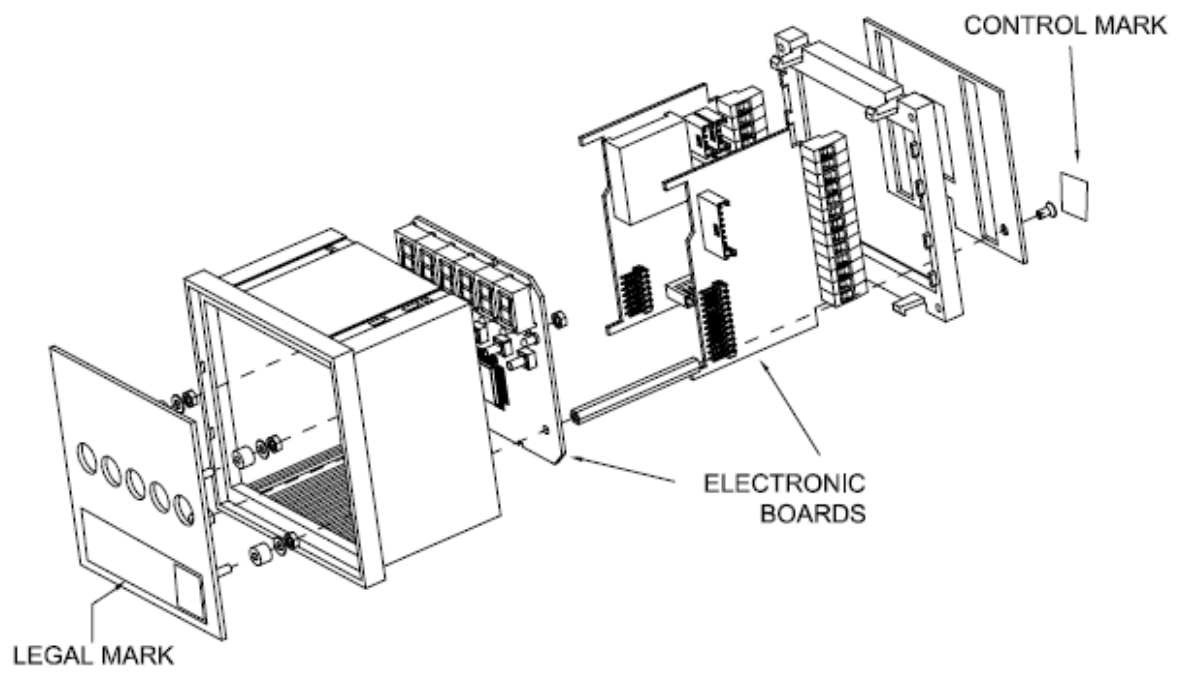
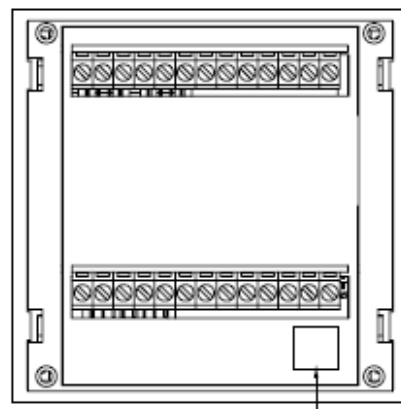


Figure 21 – DGT series - Plastic case version (example case 2)



LEGAL MARK



CONTROL MARK

Figure 22 – DGT series - Plastic case version (example case 3)

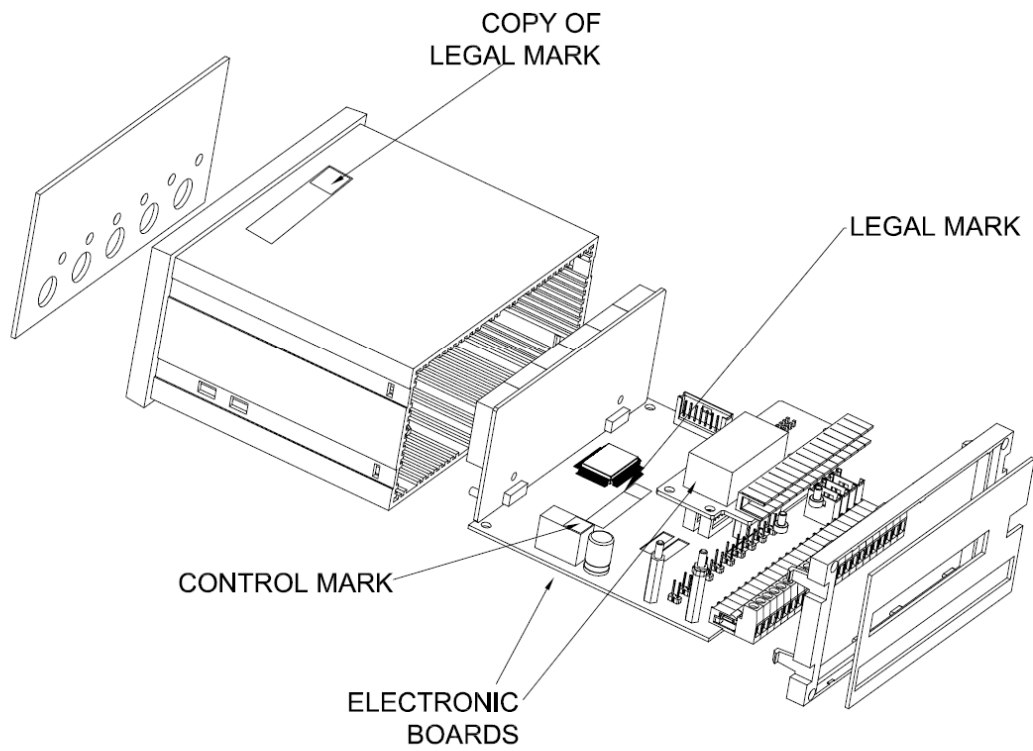


Figure 23 – DGT series - Plastic case version (example case 4)

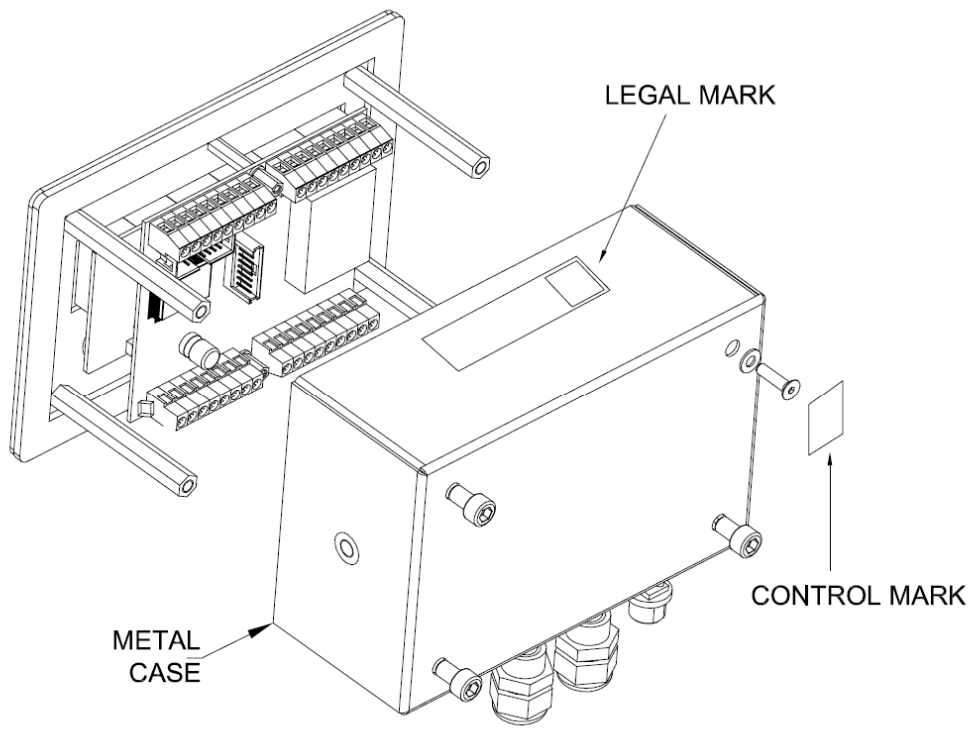


Figure 24 – DGT series – Metal case version (example case 1)

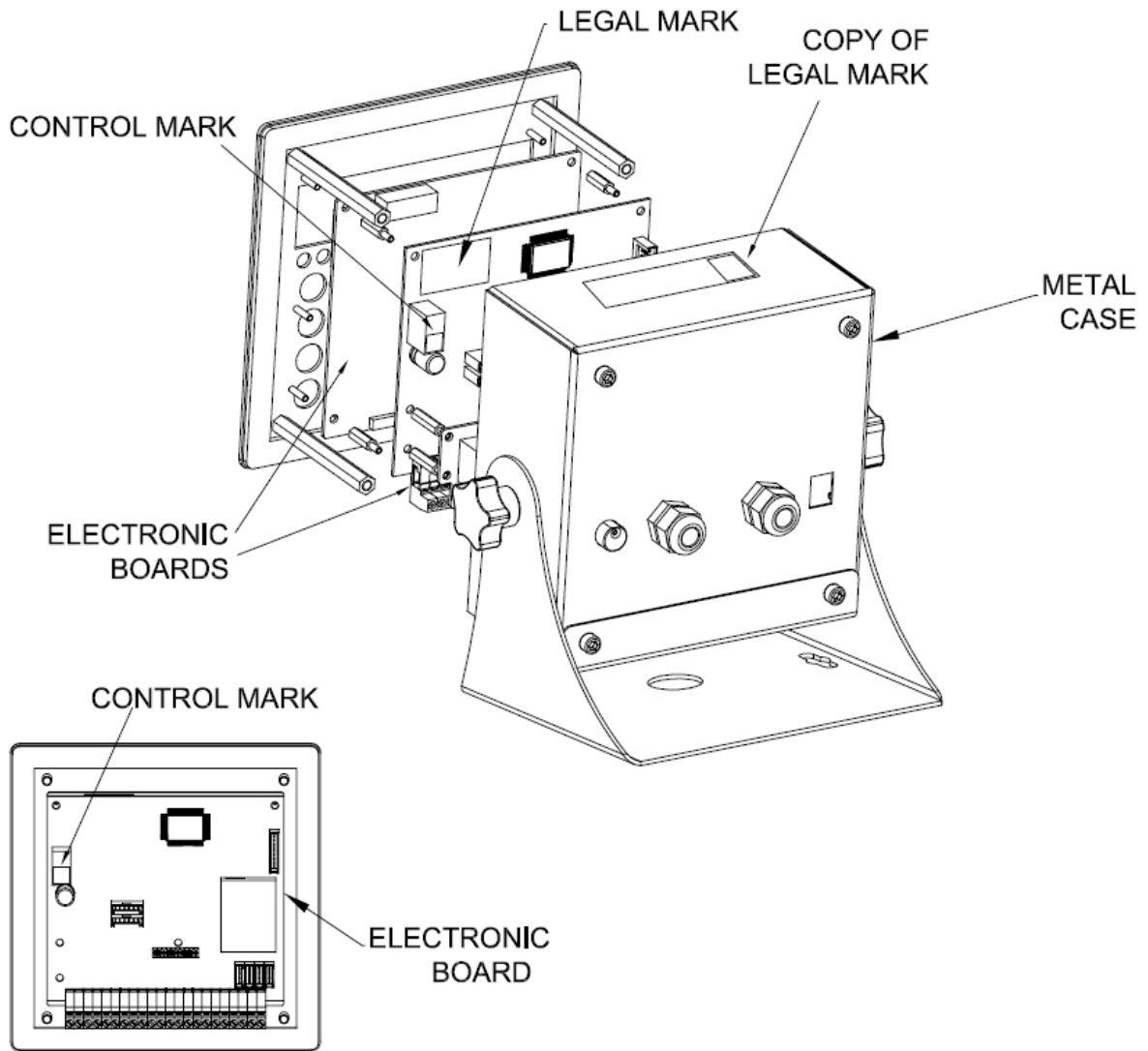


Figure 25 – DGT series – Metal case version (example case 2)

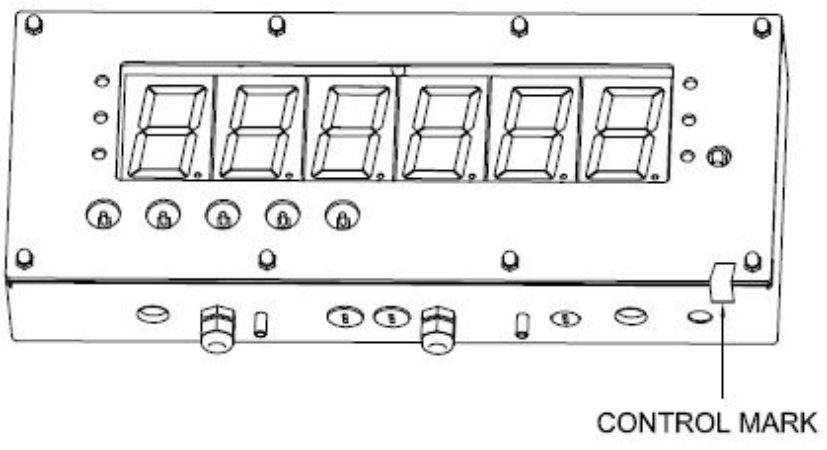
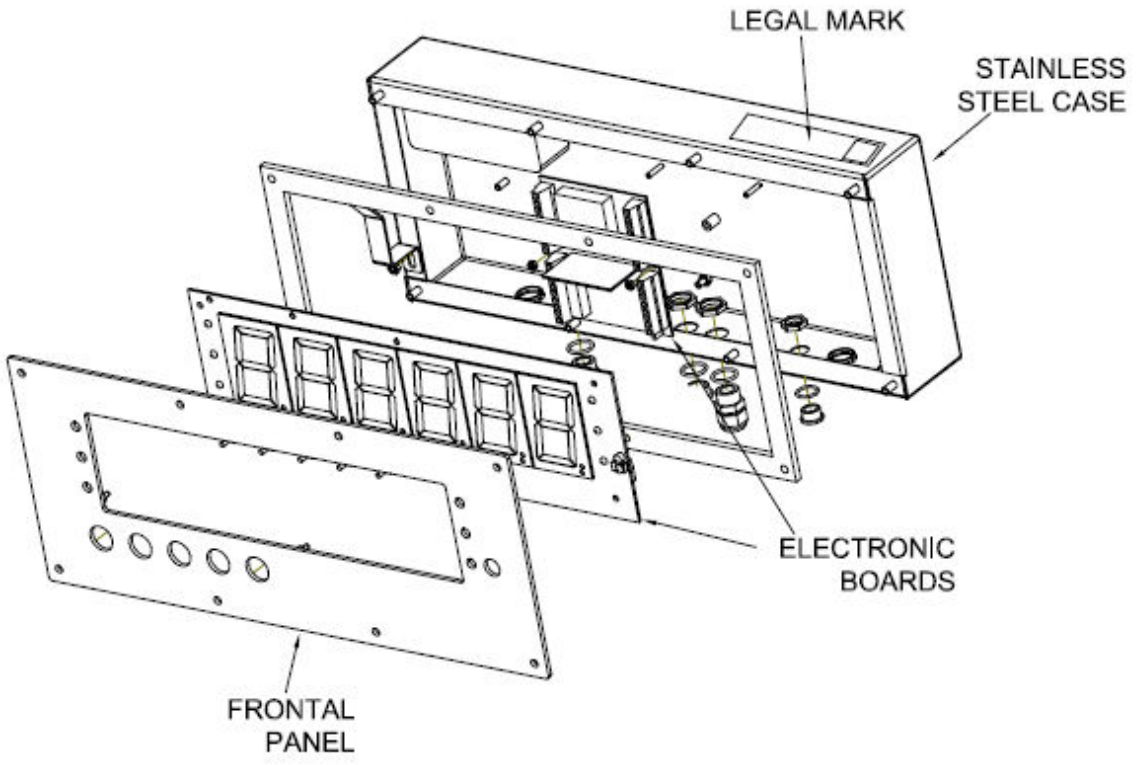


Figure 26 – DGT series - Stainless steel case version (example case 1)

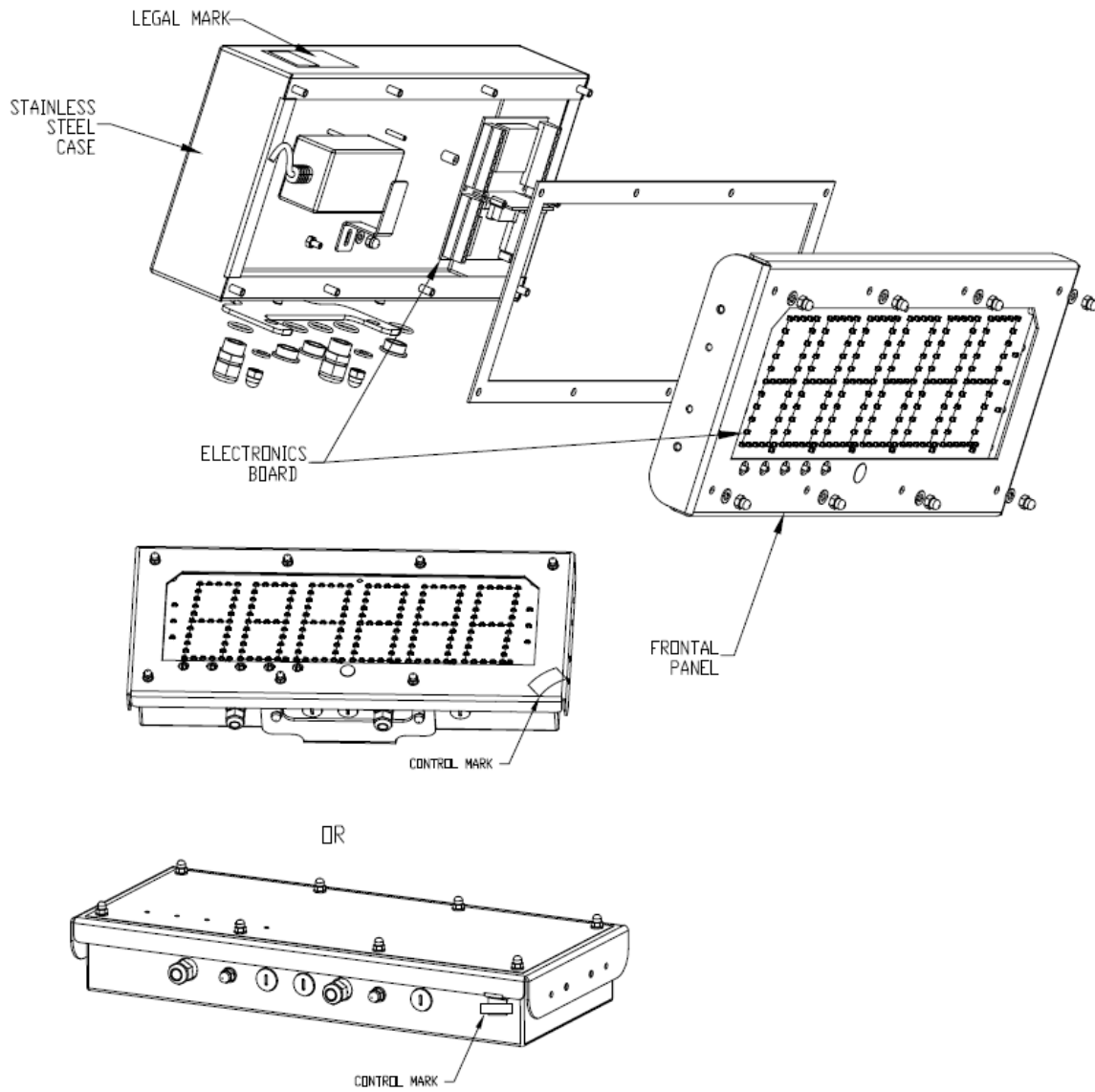
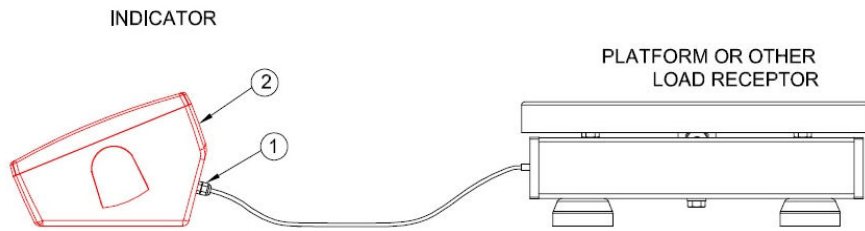


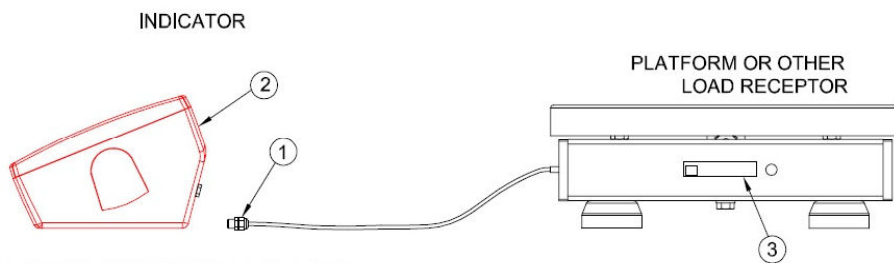
Figure 27 – DGT series - Stainless steel case version (example case 2)

A) CONSTRAINED CONNECTIONS

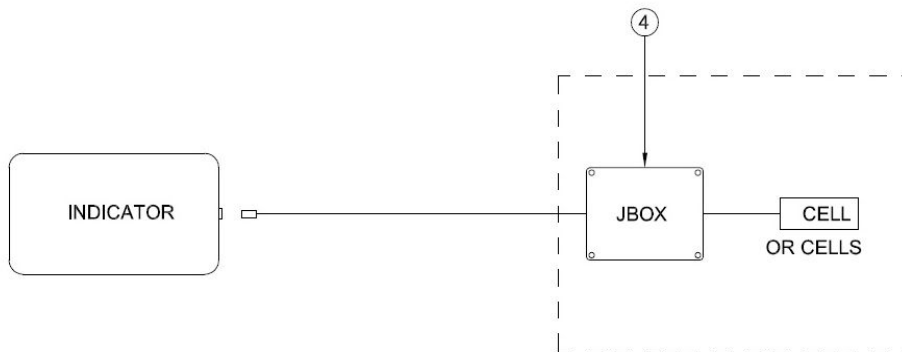


- ① CONNECTION WITH COSTRAINT
- ② LEGISLATION LABEL AND PROTECTION SEAL ON THE INDICATOR

B) UNCONSTRAINED CONNECTION

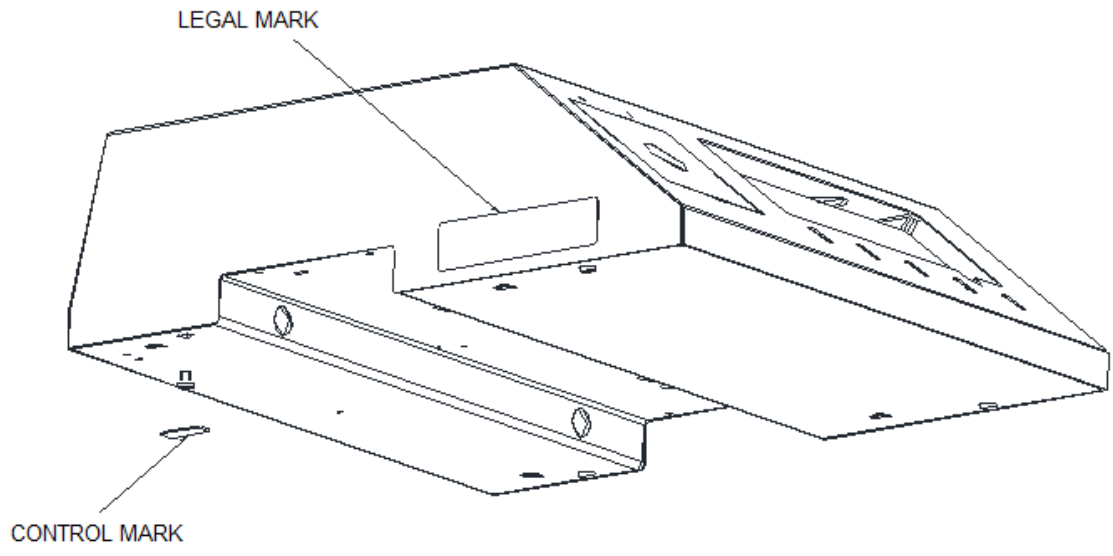


- ① CONNECTION WITHOUT COSTRAINT
- ② LEGISLATION LABEL AND PROTECTION SEAL ON THE INDICATOR
- ③ LABEL WITH IDENTIFYING MARK IF THE LINKED INDICATOR
- ④ EVENTUAL CONSTRAINED JUNCTION OR DISTRIBUTION BOX



WITHOUT JBOX THE LOAD CELL WILL BE COSTRAINED TO LOAD RECEPTOR

Figure 28 – Examples of connections between indicators and load cells



OR

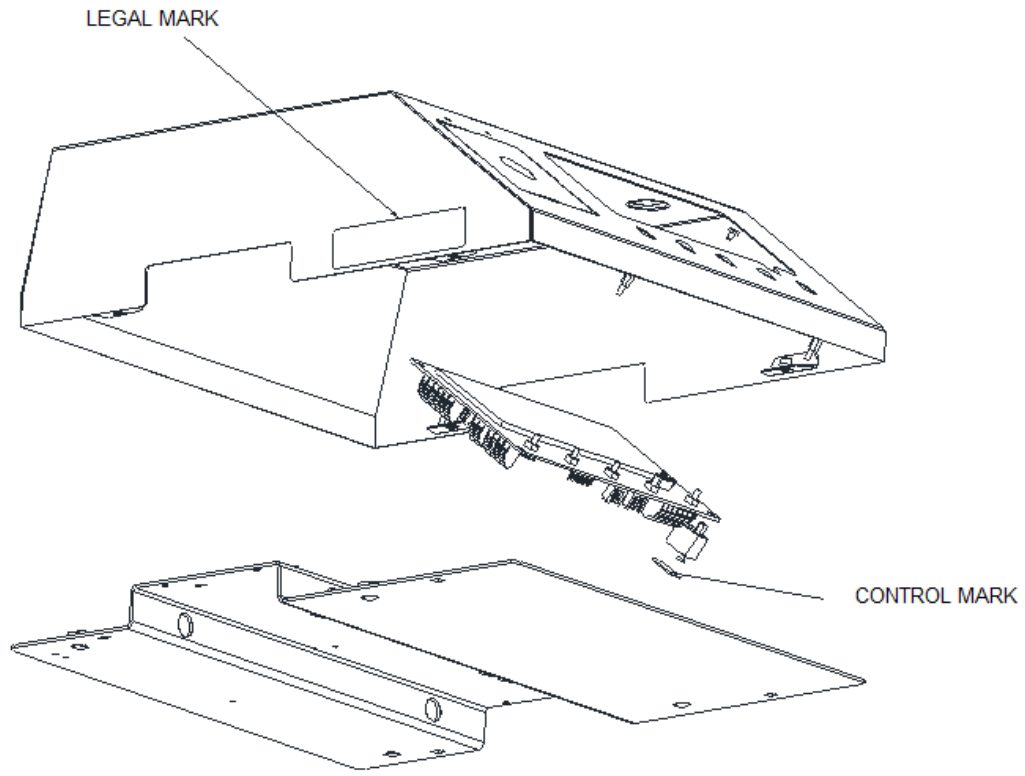


Figure 29 – KS series - Stainless steel case version

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