



Mounting procedure TCU 1.2

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Version : A1

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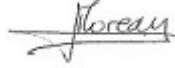
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Mounting procedure TCU 1.2

Reference : C3140690010

Version A1

Internal Approval			
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MODIFICATION LIST:

Version	Modification date	Chapter / pages	Comments	Author
A0	22/12/2016	All	Creation	D.LUCE
A1	03/05/2017	§4 §5 §6 §7 & §9	New Bracket and warranty conditions	D.LUCE

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Chapter :

1. PURPOSE.....	4
2. TCU 1.2 PRODUCT DESCRIPTION.....	4
2.1. Part Numbers.....	4
2.2. External Description.....	4
3. MAIN FEATURES.....	5
3.1. <i>Electronic Features</i>	5
3.2. Mechanical Features.....	5
3.3. <i>Connector Pin Out</i>	5
4. TCU1.2 MOUNTING INTERFACE.....	6
5. TCU 1.2 MOUNTING RECOMMENDATIONS.....	6
6. TCU 1.2 CONNECTION.....	7
7. TCU 1.2 LOCATING RECOMMENDATIONS.....	9
8. FCC/IC Regulatory notices.....	10
8.1. Modification statement.....	10
8.2. Interference statement.....	11
8.3. Radiation Exposure Statement.....	11
8.4. FCC Class B digital device notice.....	12
9. APPENDIX.....	13

1. PURPOSE

This document is the Mounting procedure of the TCU 1.2.

TCU 1.2 is a part of a Tire Pressure Monitoring System.

The Telematics Control Unit (TCU) collects information on the vehicle and transmits it over the GSM network to a back-end server. It can capture data from CAN, GPS, TPMS or other wireless sensors.

2. TCU 1.2 PRODUCT DESCRIPTION.

2.1. PART NUMBERS

TCU 1.2 Part Number	Region	Model
TBD	Europe Middle East Africa (EMEA)	TBD
TBD	Europe Middle East Africa (EMEA)	TBD
TBD	Europe Middle East Africa (EMEA)	TBD
TBD	North America (NA)	TBD
TBD	North America (NA)	TBD

2.2. EXTERNAL DESCRIPTION

Part	Material	Characteristics
TCU	all electronic parts	-
1 Housing	PP GF10	Black
1 Cover	PP GF10	Black
1 or 2 DT 06 connector	PBT GF20	Black and / or Grey
8 Screws	Stainless Steel C 1018	-
3 Silent-blocks	EPDM	Black
3 Spacers	Stainless steel A2	-
1 Nitto Vent	NA (assembly)	Black

3. MAIN FEATURES

3.1. ELECTRONIC FEATURES

Power supply (5A fuse protected)	7 to 32 VDC
Operating current	1 A
Integrated Battery Power Supply (park mode)	3,65 VDC
Temperature operating range	-40°C to 85°C
Storage temperature range	0 to 30°C
Legal Regulations	R&TTE (99/5/EC) FCC/IC PTCRB E marking
Antennas (GSM, GPS and RF)	Internal

3.2. MECHANICAL FEATURES

Total Mass	490 g
Dimensions (L x W x H)	160 x 180 x 75 mm
1 or 2 Connector(s) (8 Ways)	Deutsch DT06 serie
Tightness	IP 68 & IP69K
Mounting	LDL Brackets (see §4)
Wiring	LDL harnesses (see §6)

3.3. CONNECTOR PIN OUT

Gray Connector: WARNING / See Product Specification

Pin number	Function
1	Can Hi
2	Can Low
3	V Bat
4	Not connected or RX
5	Not connected or TX
6	GND
7	Not connected or internal Batt disable
8	Not connected

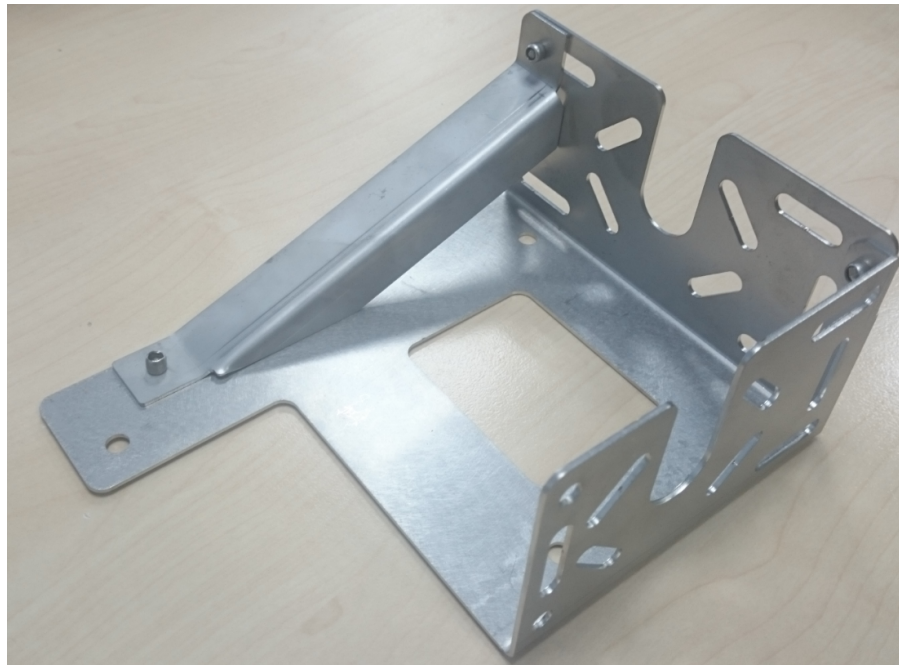
Black Connector:

Pin number	Mnemonic	Function
1	FG_IN1	Fuel gauge analogue input 1
2	FG_IN2	Fuel gauge analogue input 2
3	RM_CLK	Remote clock
4	RM_DAT	Remote data

<i>Pin number</i>	<i>Mnemonic</i>	<i>Function</i>
5	RS_RX2	Serial reception 2
6	RS_TX2	Serial transmission 2
7	FG_GND	Fuel gauge ground
8	FG_PWR	Fuel gauge power supply

4. TCU1.2 MOUNTING INTERFACE

The TCU 1.2 is mounted on a plane surface fixed on the vehicle frame. The TCU 1.2 has 3 mounting points equipped with silent blocks. The TCU 1.2 must be fixed on a support (available on demand). This support ("TCU 1.2 interface", also called "Bracket base") is defined in the appendix.



5. TCU 1.2 MOUNTING RECOMMENDATIONS

Screws (not provided by LDL) must be tightened @ 4,5 Nm +/-0,5 Nm. It's recommended to use an elastic washer (Belleville type) between screw head and silent block with spacer. Stainless steel is recommended.

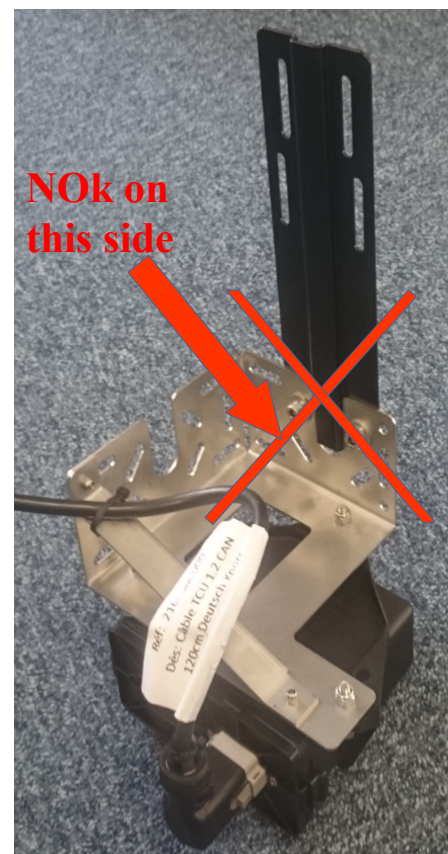
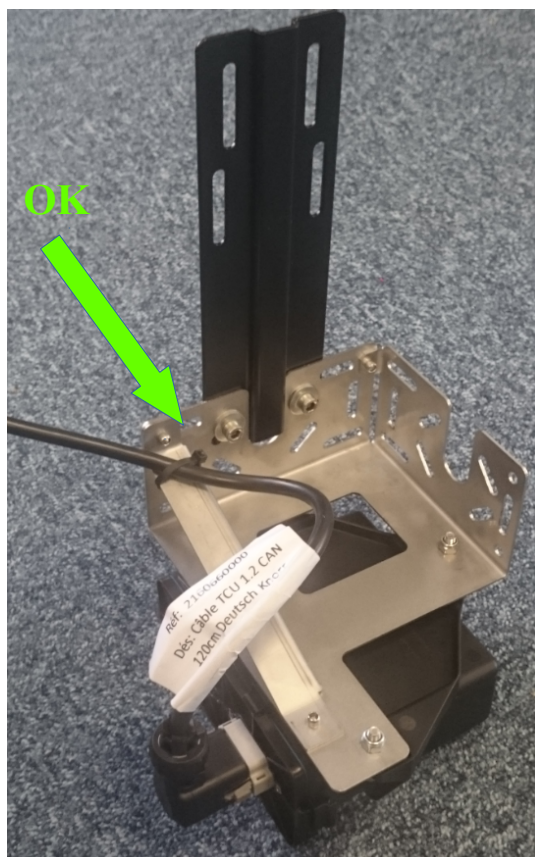
M6 bolts are recommended, the screw for a fixation on a base plate fixation in thickness 1,5mm must have a length equal or higher than 20mm.

NOTA BENE : The usage of a different bracket; without LDL written approval; would void the warranty of the TCU 1.2.

Universal fixation kit can be provided by LDL. It consists of a bracket base and a bracket extension. A combination of these parts is able to fit all vehicle types.



TCU 1.2 onto support



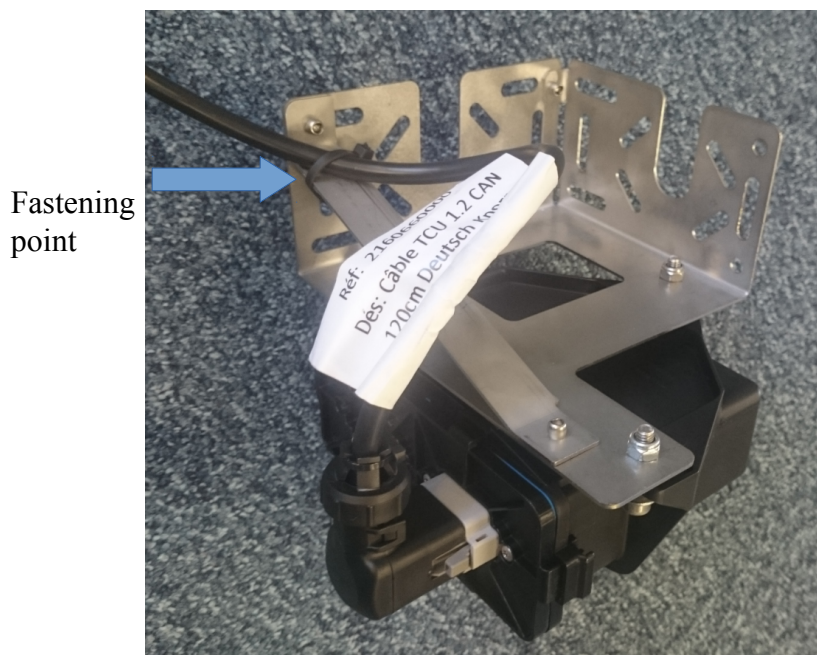
LDL TCU 1.2 bracket combinations

To link a bracket base to a bracket extension, 2 bolts are needed, type M6, length 16mm, with 2 M6 washers (1 standard type and 1 Belleville type).

6. TCU 1.2 CONNECTION

After its connection onto TCU 1.2, cable must be fastened as close as possible of its TCU 1.2 starting point (end of connector base).

This cable fastening must be done on a hole of the bracket base to minimize the effect of vibration onto the connector assembly, see picture below:



From the TCU 1.2 connector base to the fixation point on the bracket base, the cable curvature diameter must be higher than 100 mm.

Verify that no tension stress is applied onto the harness between TCU 1.2 and the fixation point onto the vehicle chassis, this check must be done **after** connection of the harness connector onto the TCU 1.2 connector and **after** the fastening of the cable onto the bracket base. Always avoid contact between cable and shape edge of the bracket.

The connector must be secured , means 2 harpoon shapes, each side of connector, must be locked.

Nota Bene : Incorrect wiring should prevent the system to operate properly.

TCU 1.2 has to be connected to +12V or +24V through 5A fuse protection.

To power supply the TCU 1.2, it has to be connected on KL31 (battery negative) and KL15 (ignition).

When TCU 1.2 and ECU or EBS are connected to a same CAN network, **they must share the same ground.**

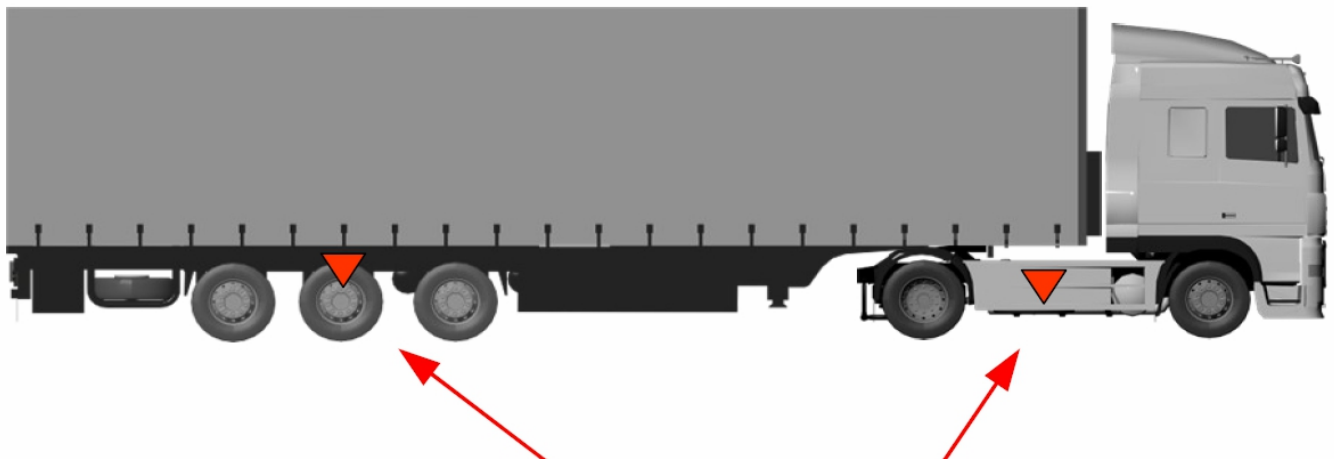
LDL Technology can provide the wiring harness ; see table below : Table is not exhaustive ,ask to LDL for details

160660000	<u>Cable TCU 1.2 CAN 120cm Deutsch – Knorr</u>
160670000	<u>Cable TCU 1,2 CAN 120cm - Wabco</u>
160680000	<u>Cable TCU 1,2 CAN 120cm – WABCO GIO5</u>
160690000	<u>Cable TCU 1,2 CAN 120cm - EB+ gen2 - Haldex</u>
160700000	<u>Cable TCU 1,2 CAN - Y - EB+ gen2 – Haldex</u>
160710000	<u>Cable TCU 1,2 CAN 120cm - EB+ gen3 – Haldex</u>
160720000	<u>Cable TCU 1,2 Haldex EB+ Gen3 + Infocenter 2</u>
160730000	<u>Cable TCU 1,2 Wabco Subsystem Blue + SmartBoard</u>
160740000	<u>Cable TCU 1,2 Wabco TEBS E + ECAS</u>
160750000	<u>Cable TCU 1,2 Y EBS Knorr Gen2 – TIM</u>
160820000	<u>Cable TCU 1,2 Alim 8m</u>

TCU 1.2 connected to LDL harness are IP69K & IP 68.

7. TCU 1.2 LOCATING RECOMMENDATIONS

The TCU 1.2 must be fixed horizontally and upside down (Vent side facing the ground):



The TCU 1.2 must be free from any metallic shield in the Z direction.
The antenna should be cleared as possible to optimize RF communication and reduce areas of non-receipt.

There must be a **free area of minimum 5cm wide around the TCU in all directions.**

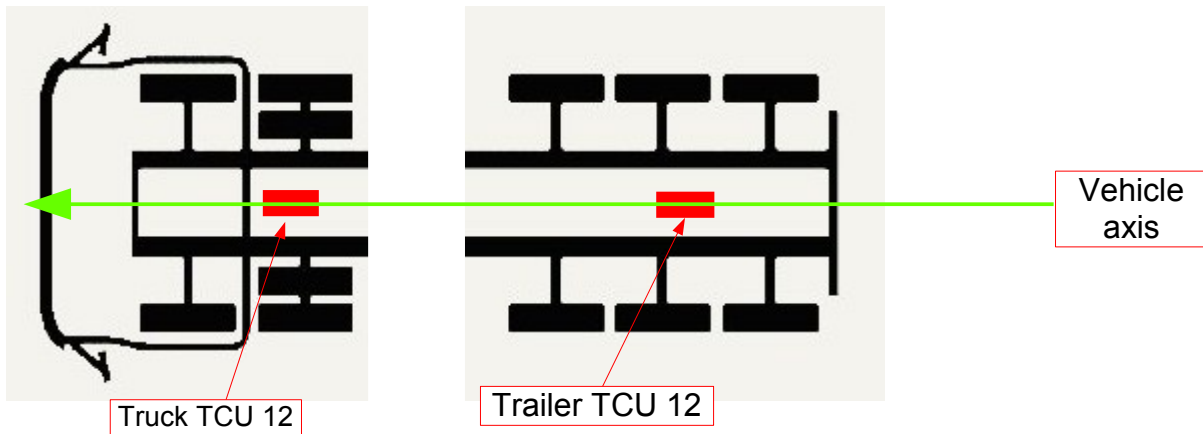
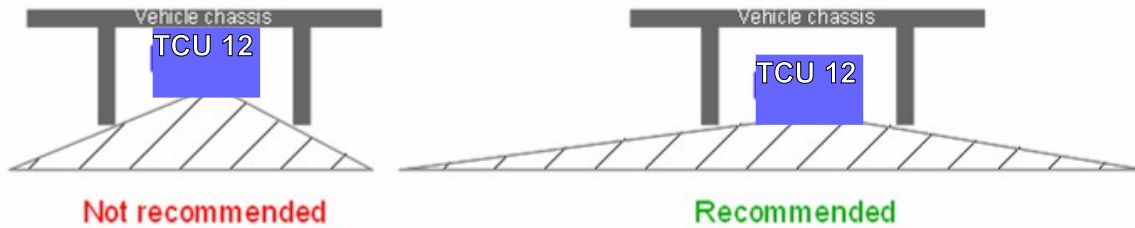
TCU 1.2 must not be exposed to direct gritting.

Each TCU 1.2 must be at a central point between the wheels that it has to receive, and aligned on the vehicle axis. ***Distance between TCU 1.2 and WUS would not exceed 3 meters.***

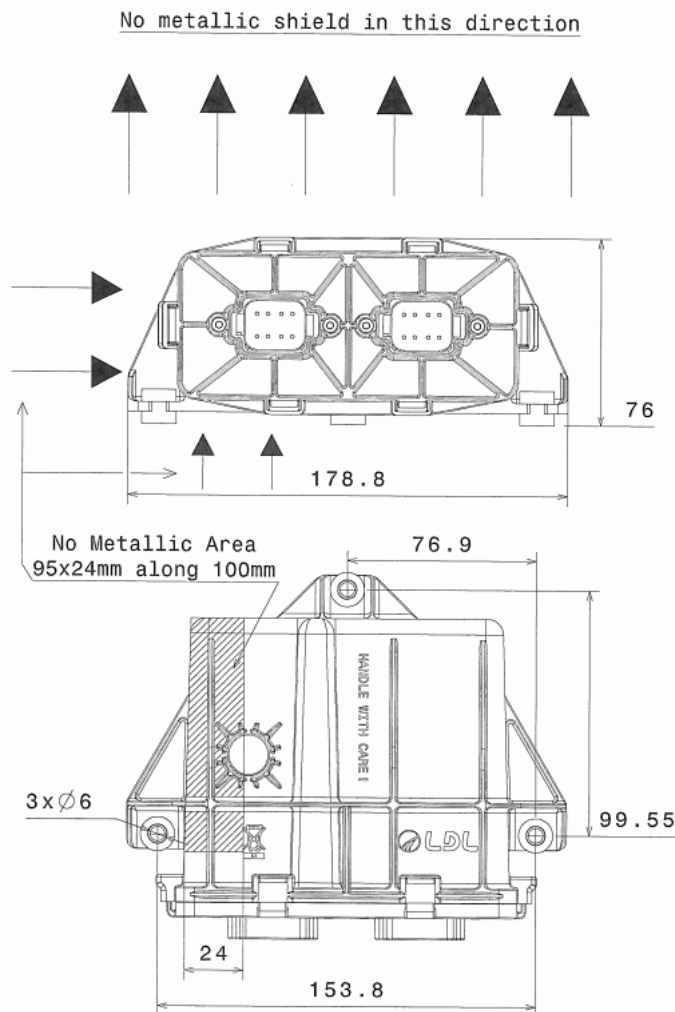
When trailer is equipped with an EBS, TCU 1.2 bracket should be fixed to EBS bracket.

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MANDATORY TCU 1.2 location:



8. FCC/IC REGULATORY NOTICES

8.1. MODIFICATION STATEMENT

LDL Technology do not approve any changes or modifications to this device by the user. Any changes or modifications could void the user's authority to operate the equipment.

LDL Technology n'approuve aucune modification apportée à l'appareil par l'utilisateur, quelle qu'en soit la nature. Tout changement ou modification peut annuler le droit d'utilisation de l'appareil par l'utilisateur.

8.2. INTERFERENCE STATEMENT

This device complies with Part 15 of the FCC Rules and Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

8.3. RADIATION EXPOSURE STATEMENT

This device complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the IC radio frequency (RF) Exposure rules. The antenna should be installed and operated with minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Le présent appareil est conforme à l'exposition aux radiations FCC / IC définies pour un environnement non contrôlé et répond aux directives d'exposition de la fréquence de la FCC radiofréquence (RF) et RSS-102 de la fréquence radio (RF) IC règles d'exposition. L'antenne doit être installée de façon à garder une distance minimale de 20 centimètres entre la source de rayonnements et votre corps. L'émetteur ne doit pas être colocalisé ni fonctionner conjointement avec une autre antenne ou un autre émetteur.

8.4. FCC CLASS B DIGITAL DEVICE NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

9. APPENDIX

TCU 1.2 interface dimension, see drawing below ref. 2160620000 C0

