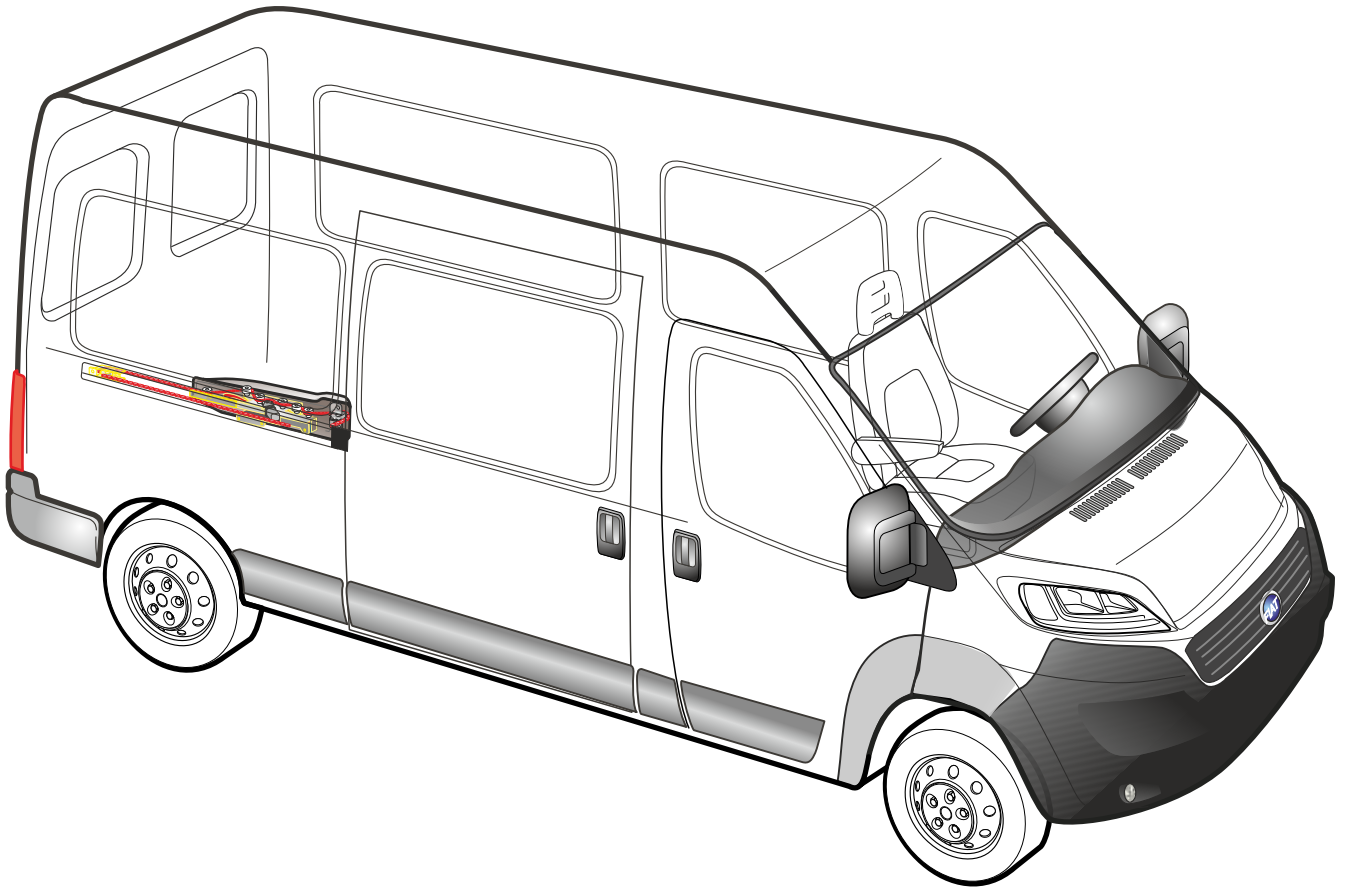


Your Cool Partner

**Auto
Cool** IND. LTD.

EX 250 X2/50

FIAT Ducato
PEUGEOT Boxer
CITROEN Jumper / Relay
OPEL MOVANO from 2022
RAM ProMaster



ASD - Automatic Sliding Door

For L2,L3,L4 Vehicles only

Right door

PN: **015-1514-02**

For **L1** Vehicles: PN: **015-0002SW**

[PRINT THE INSTRUCTIONS IN COLOR](#)

07/2023

Introduction:

- The purpose of this Installation manual is to simplify the installation of the system.
- The information presented here is guidance only and is not intended to change, eliminate or override any safety or installation requirements required in your country or the final destination to which the vehicle is intended.
- If you have any questions or need any clarifications, please contact your local distributor.
- Our manufacturer's warranty does not cover malfunctions or damage caused by incorrect installation or modifications made without the written consent of our engineering department.
- The manufacturer shall not be liable in any form or manner for any injury, accident, loss or damage caused directly or indirectly as a result of using the installation instructions listed here.

Before any installations:

- Detach the battery negative wire.
- Check O.E. door for properly opening / closing and alignment.
- Ensure that the right kit has been selected and match to the vehicle type.
- Check all part of the kit are present.
- Make sure the work area is protected against damage.
- Tight all bolts with calibrated torque wrench.
- Take extreme care with removing O.E. parts.
- After cutting / drilling, make sure to clean the metal shavings and apply anti-rust.
- Before applying Sikaflex, make sure to clean with alcohol and apply Sikaflex primer.

ASD technical data:

- System voltage - 12VDC
- Nominal current - 5A
- Operating temperature: -30°C to +80°C
- Driven by rustproof chain
- Hidden chain
- Remote control / OEM remote
- Manual and electrically operation
- Electronically controlled microprocessor
- Net weight: 7-9 kg

For any technical support please contact the AutoCool.

Fax: 972-3-9343208

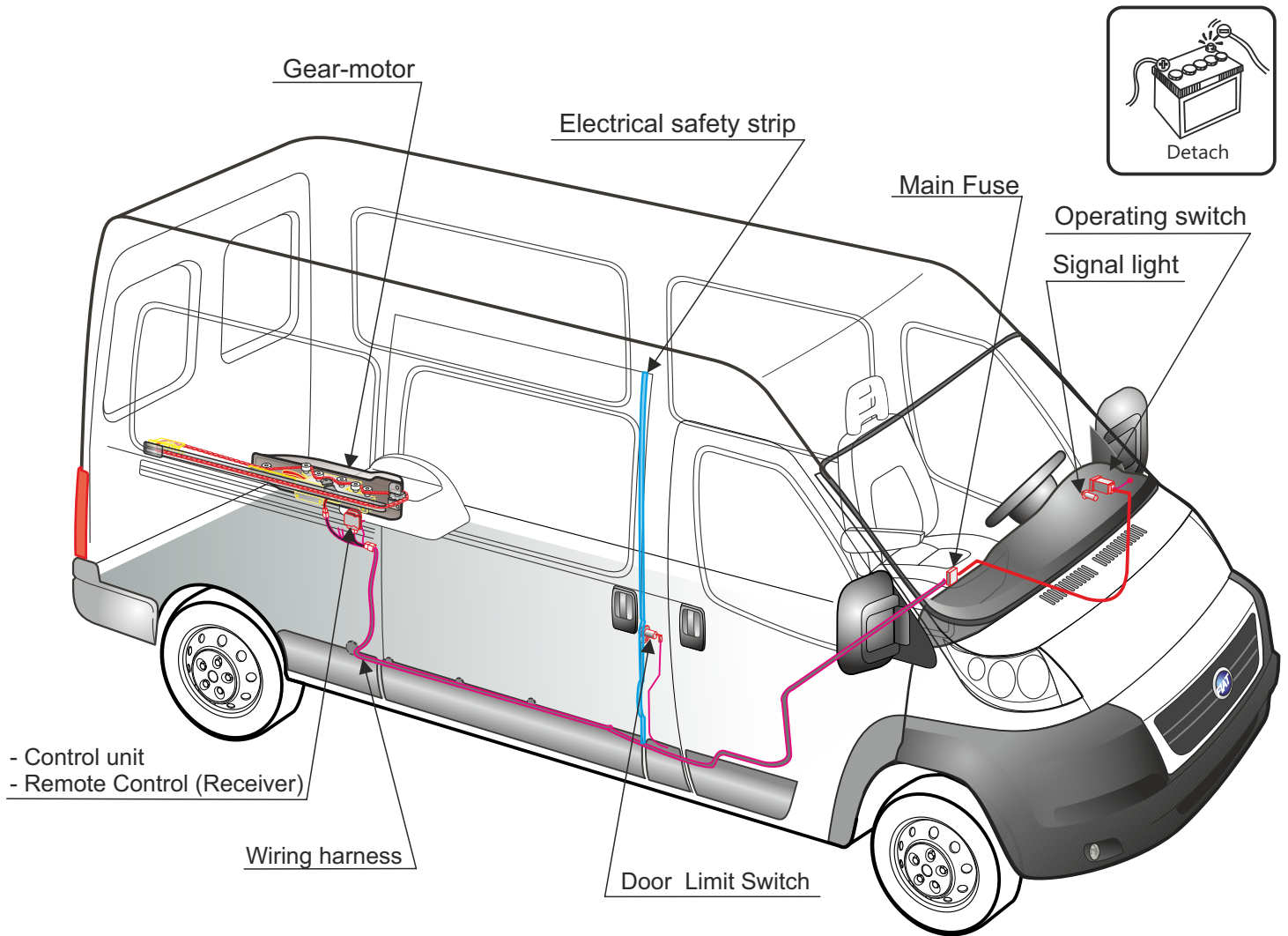
Tel: 972-3-9342080

E-Mail: info@autocool.co.il

www.autocool.co.il

General information	2
ASD System - Overview	5
Chain slide strip installation	6
Cutting & Preparation	7
Gear motor bracket - Overview	8
Gear motor installation	9
Front idler installation	10
Rear idler installation	11
Drive chain installation	12-14
Door Handle Disabling Mechanism	15-16
Electrical accessories kit	17-18
Door limit switch installation	19
Central lock connections	20-21
Electric safety strip installation	22-25
Operating switch installation	26
VSS connection	27-28
VSS optional connection	29
Wiring	30
Wiring diagram	31-32

Cover installation	33-34
Optional - external emergency door opening kit	35-41
Drilling and cutting templates	42-44
Automatic Sliding Door user's manual	45
Automatic Sliding Door troubleshooting	46-47
Tools index	48
Recommended torques	49



Remote control



Short pressing fully opens/closes the door.
The remote control does not work when the ignition switch is turned on.



Short pressing will lock all doors on the central lock.



Button on the Dashboard

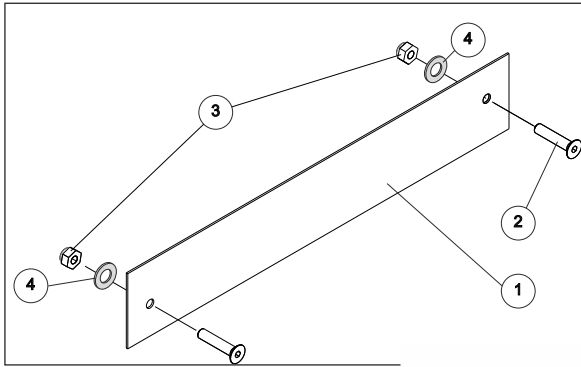
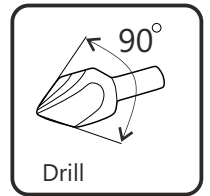
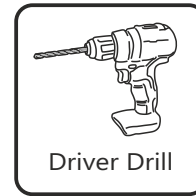
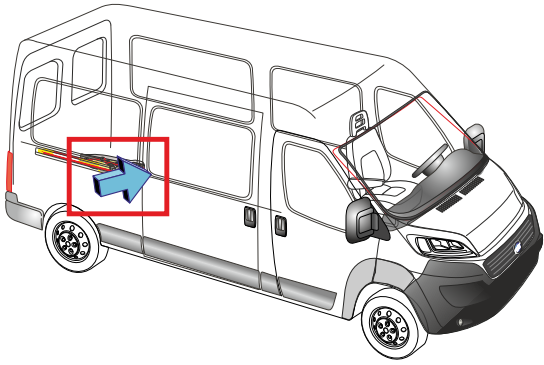
Short pressing fully opens/closes the door.

Attention!

1. While activating the system to open/close, do not force it to the opposite direction of its motion.
2. Do not connect the "Gear Motor" directly to the battery at any time!!!
It must be connected through the supplied electric system and control box.
3. Operating not as indicated, may break the gear motor, thus not covered by our warranty.
4. The system is inactivated when the vehicle exceeds 5km/h speed

**Before any installation, test the function and alignment
of the original door.**

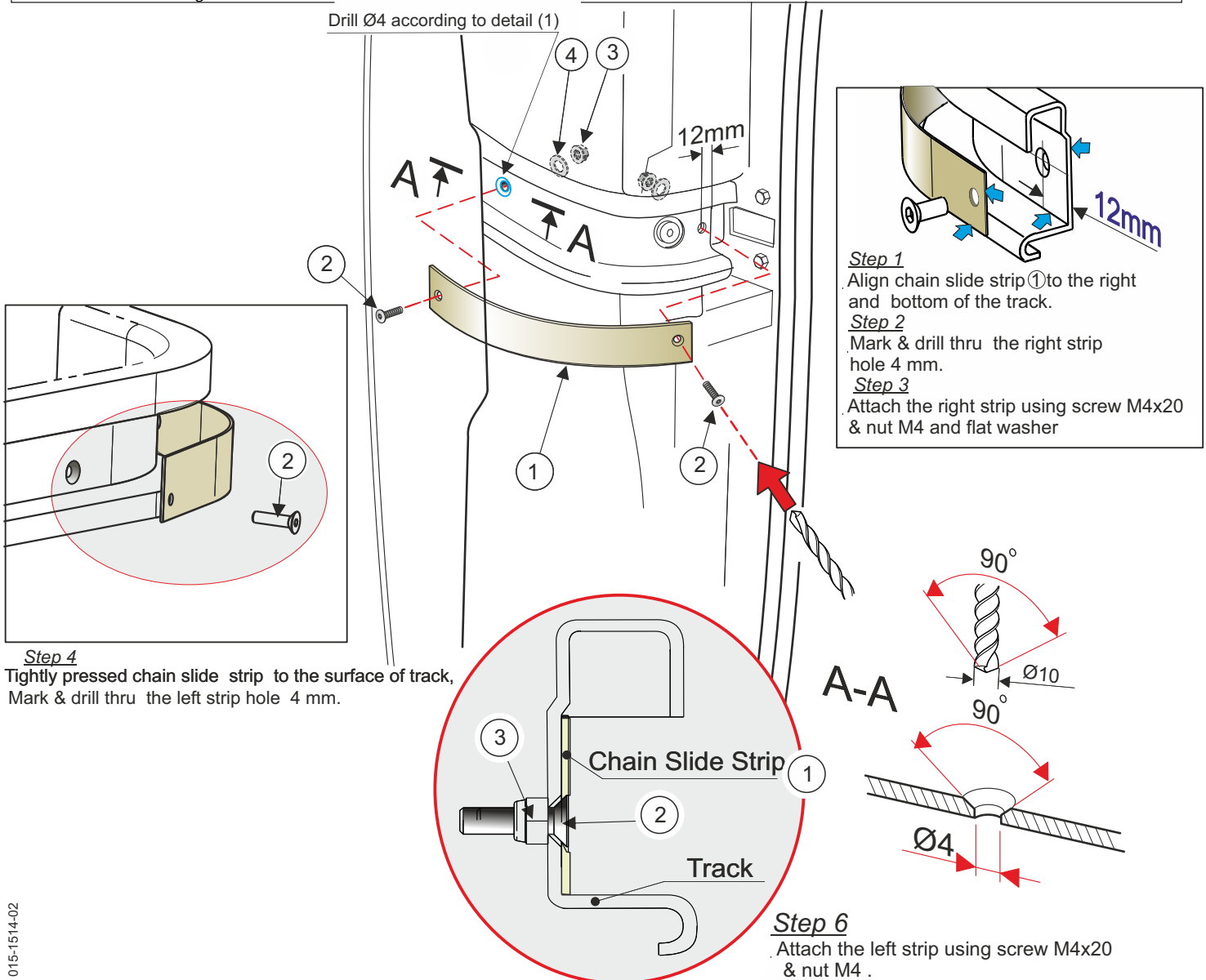
Chain slide strip installation



Chain Slide Strip Kit
PN:160-04-002

ITEM NO.	PART NUMBER	DESCRIPTION	E/QTY.
1	134-01-002	Slide Strip (Ducato2007)	1
2	613-04-020	Flat head socket screw M4X20	2
3	602-02-004	Lock nut M4 DIN985	2
4	600-12-040	Flat washer 4	2

Drill Ø4 according to detail (1)



Step 1
Align chain slide strip ① to the right and bottom of the track.

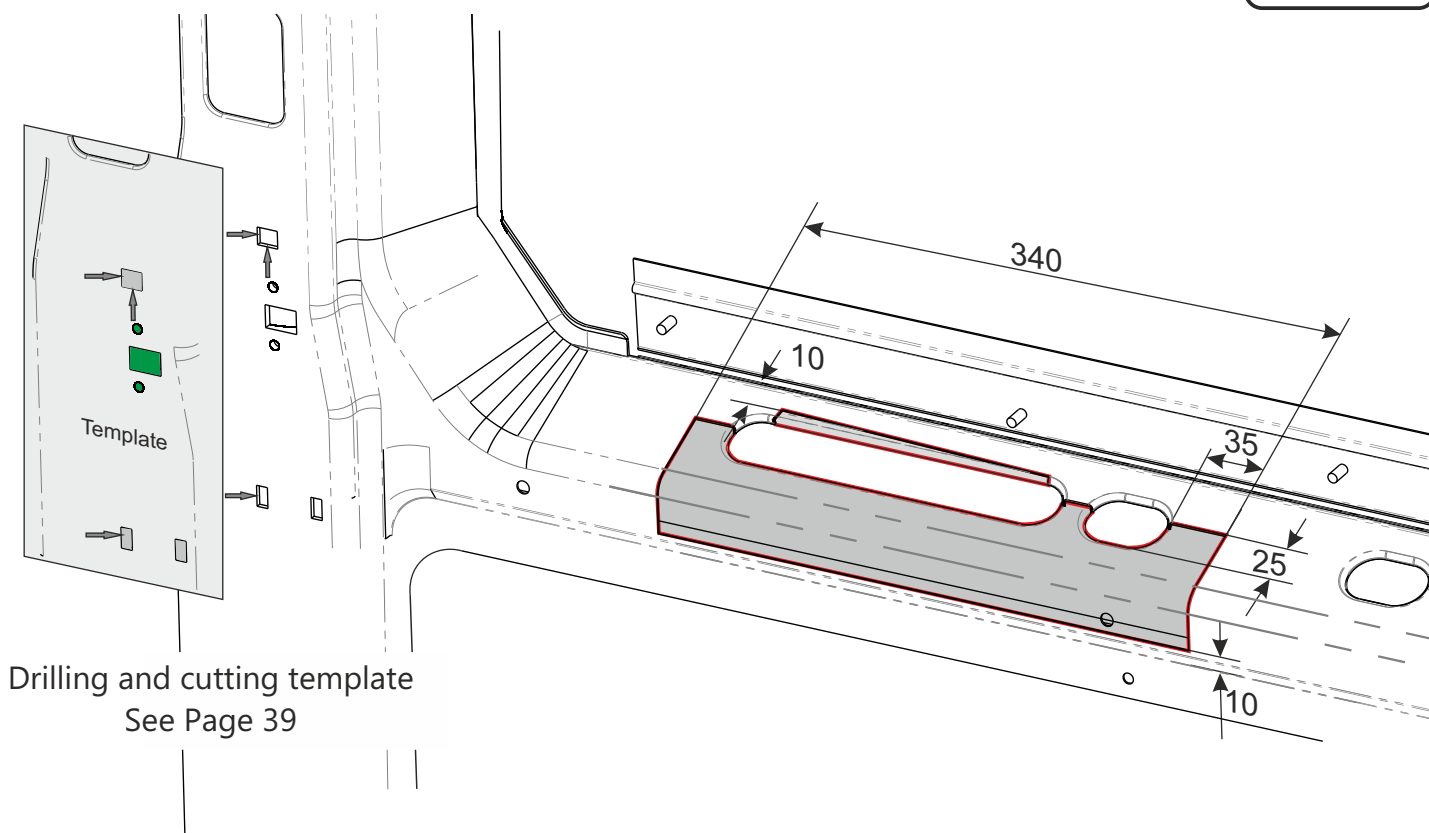
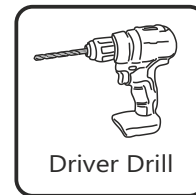
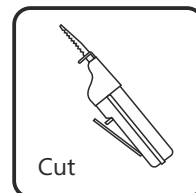
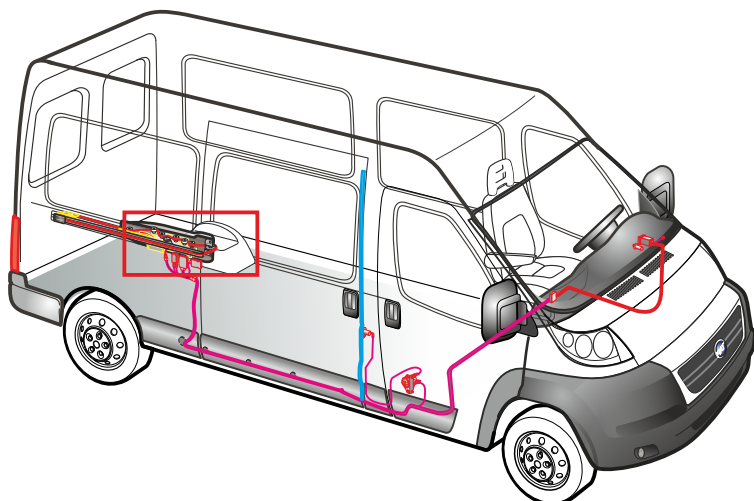
Step 2
Mark & drill thru the right strip hole 4 mm.

Step 3
Attach the right strip using screw M4x20 & nut M4 and flat washer

Step 4
Tightly pressed chain slide strip to the surface of track, Mark & drill thru the left strip hole 4 mm.

Step 6
Attach the left strip using screw M4x20 & nut M4.
*Make sure the screw is entirely inside

Section A-A



Keep all plastic parts that have been disassembled in a safe place.

After drilling/cutting, clean unit surface carefully, and paint all holes and cutting lines with top quality anti-rust.

Gear Motor Bracket Kit

PN:160-06-0021

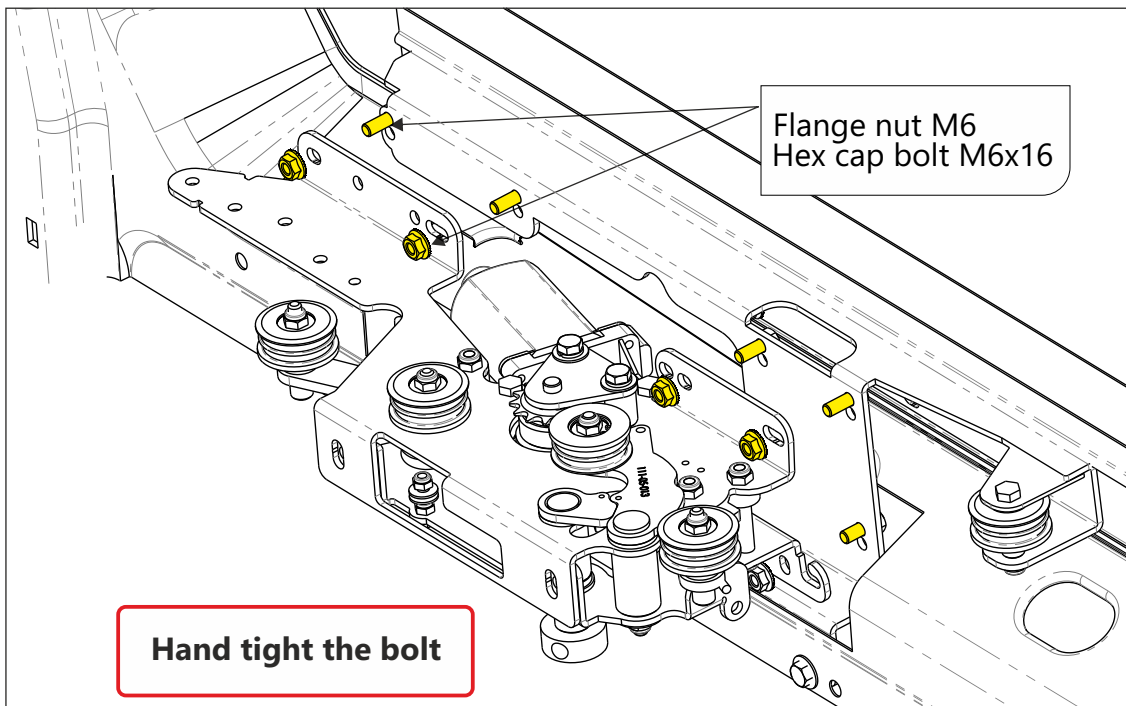
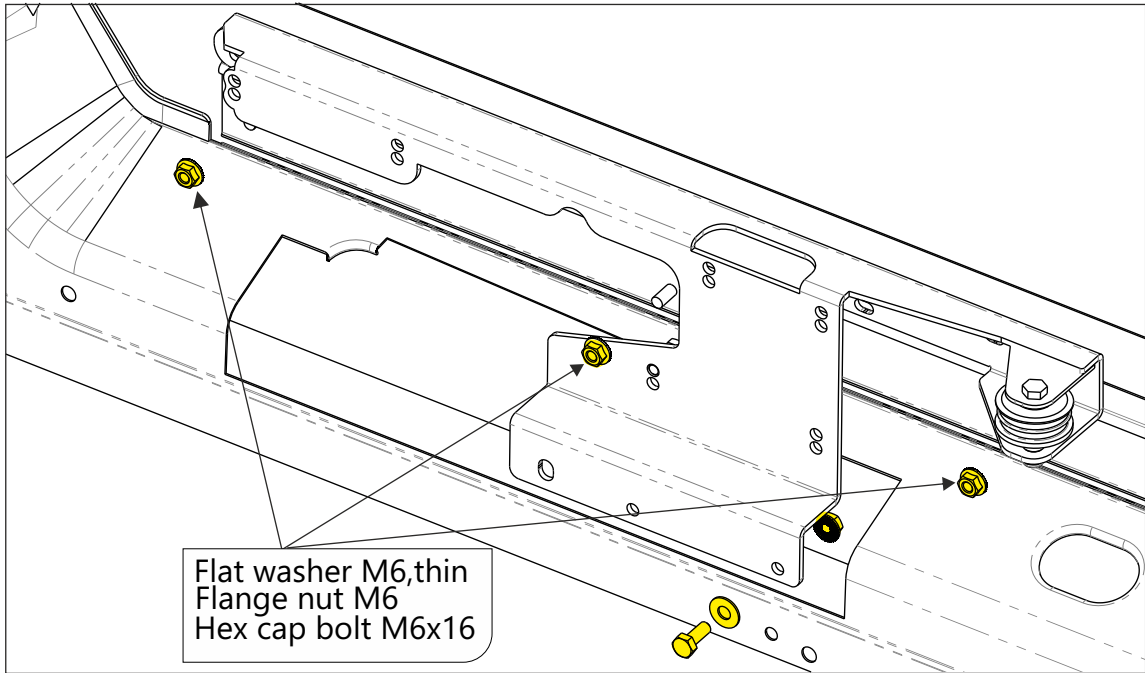
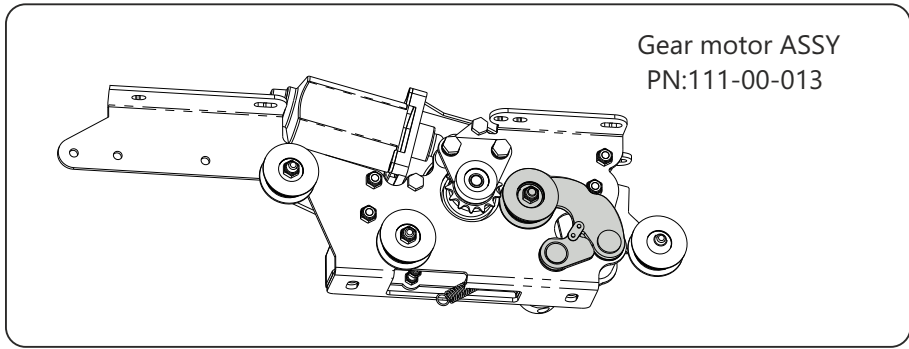
ITEM NO.	PART NUMBER	DESCRIPTION	Exploded/QTY.
1	111-00-0021	Gear Motor Bracket	1
2	600-12-080	Flat washer M6,thin DIN735	1
3	601-06-006	Hex flange nut M6 DIN 6923	7
4	632-06-016	Hex cap screw M6x15 DIN933	7

Gear Motor Bracket

PN:111-00-0021

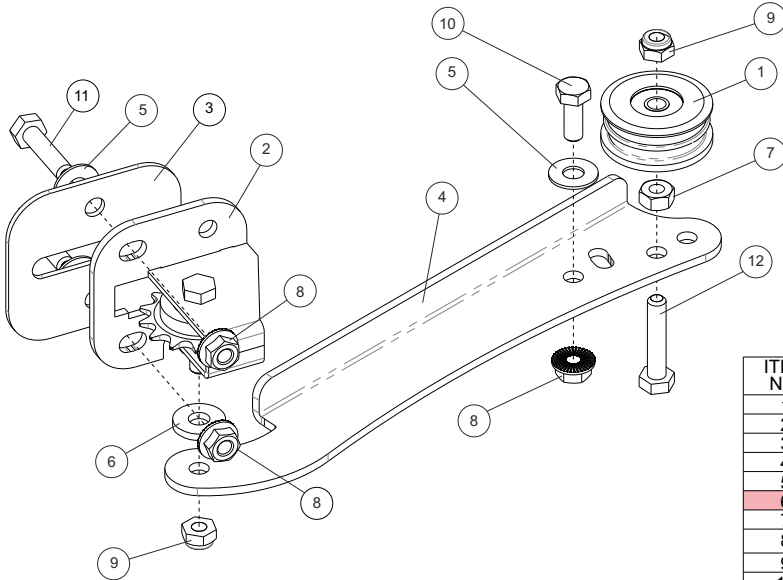
ITEM NO.	PART NUMBER	DESCRIPTION	Expl./QTY.
1	111-15-021	Gear-motor bracket WLDMNT	1
2	107-11-004-1	Idler Wheel	1
3	602-02-006	Hex lock nut M6 DIN985 C18	1
4	632-06-040	Hex head bolt M6X40	1
5	600-00-002	Washer 6x12x1.6 DIN1440	1
6	501-12-002	Spacer	1

Gear motor installation

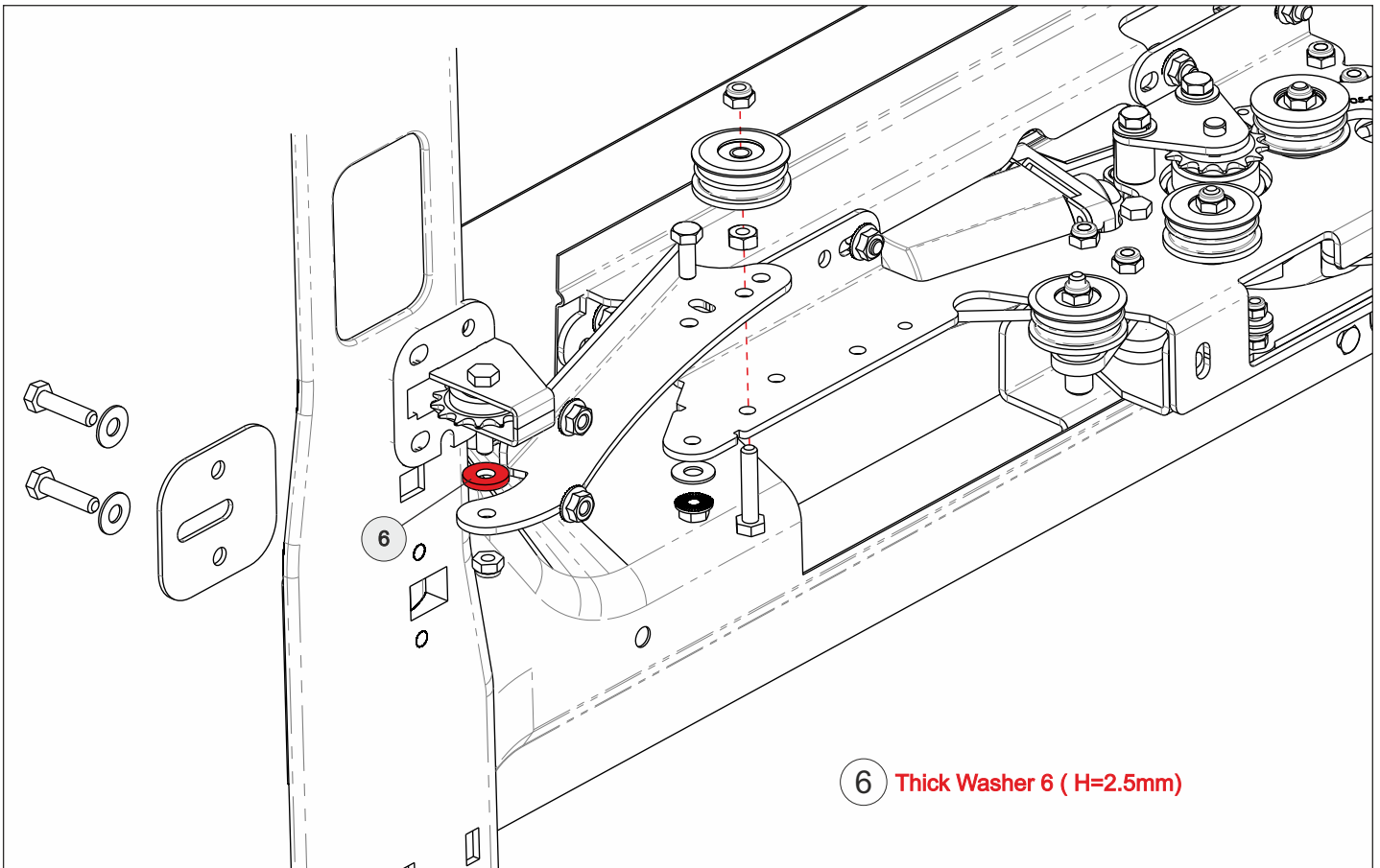


Front idler installation

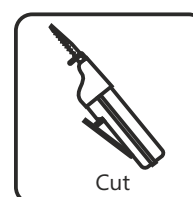
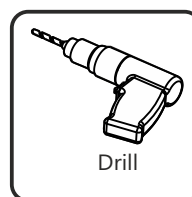
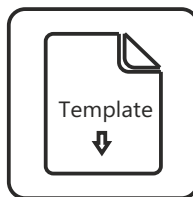
Front idler kit
PN: 160-03-0021



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	107-11-004-1	Idler Wheel	1
2	111-02-017	Front Idler	1
3	113-15-001	Gasket	1
4	128-08-018	Front Idler support	1
5	600-12-080	Flat washer M6,thin DIN735	3
6	600-32-061	Thick washer 6	1
7	601-02-006	Hex nut M6 DIN 934 Cl.6	1
8	601-06-006	Hex flange nut M6 DIN 6923	3
9	602-02-006	Hex lock nut M6 DIN985 Cl8	2
10	632-06-016	Hex cap screw M6x15 DIN933	1
11	632-06-025	Hex cap screw M6x25 DIN933 8.8	2
12	632-06-030	Hex bolt M6X30 DIN933, 8.8	1

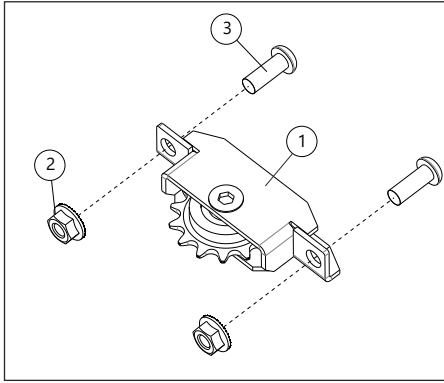


6 Thick Washer 6 (H=2.5mm)



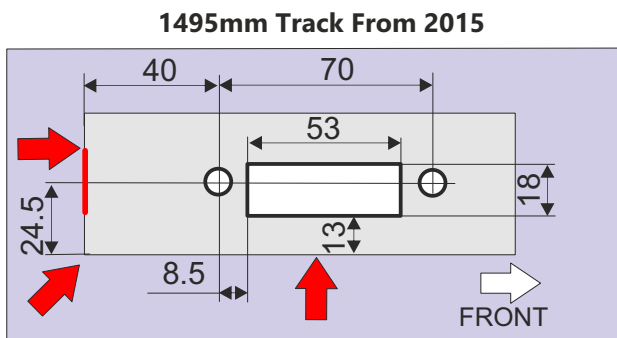
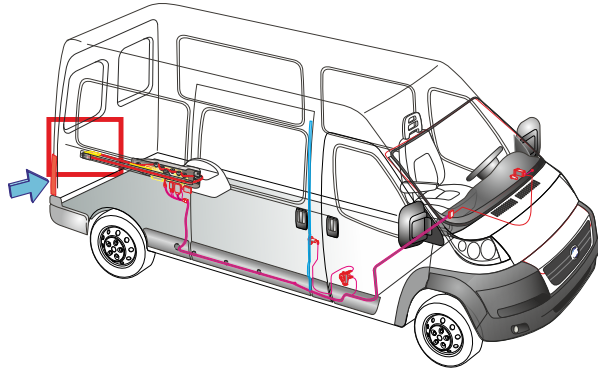
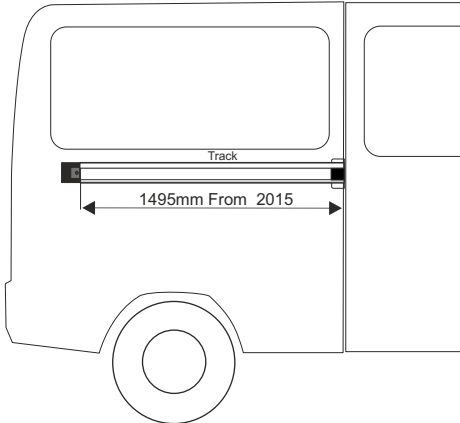
Check the front idler determine final position after the chain installation.

Rear idler installation

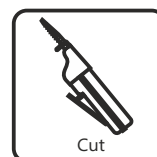
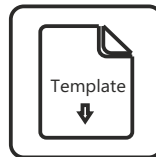
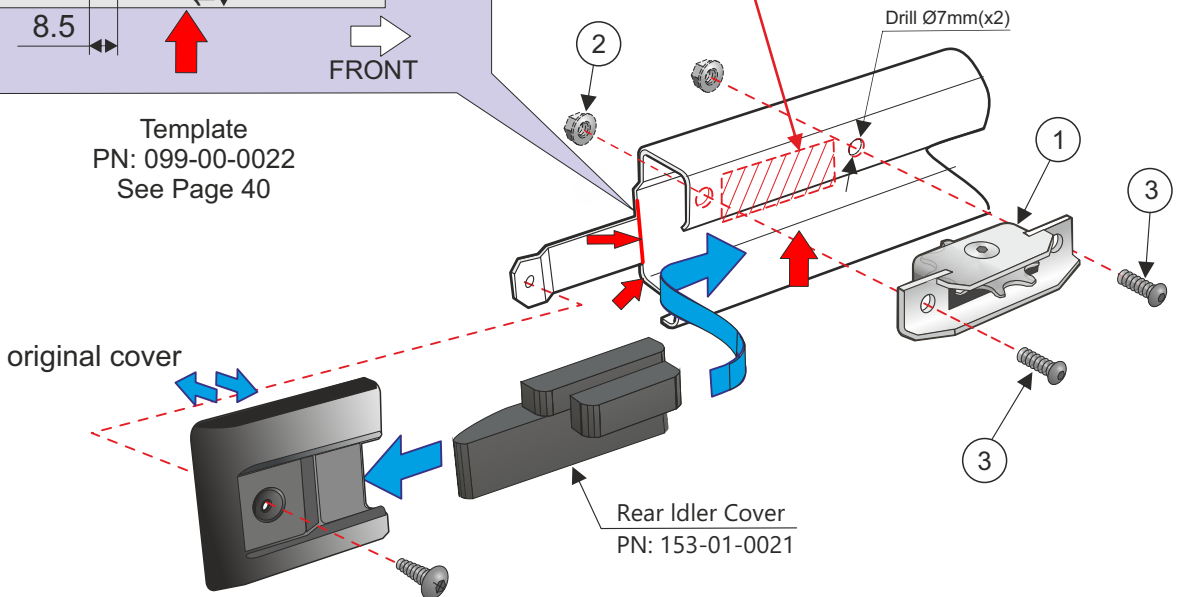
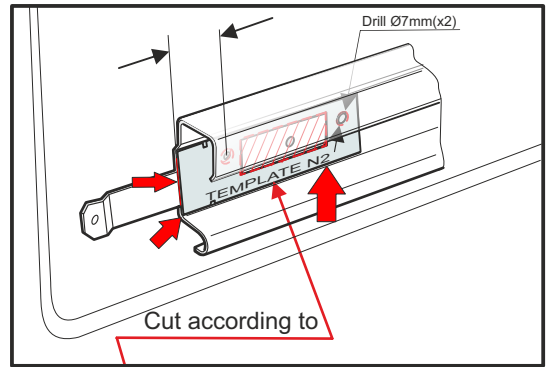


Rear Idler Kit
PN:160-01-0021

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	111-02-003	Rear Idler	1
2	601-06-006	Hex flange nut M6 DIN 6923	2
3	614-06-016	Socket button head cap screw M6x16	2

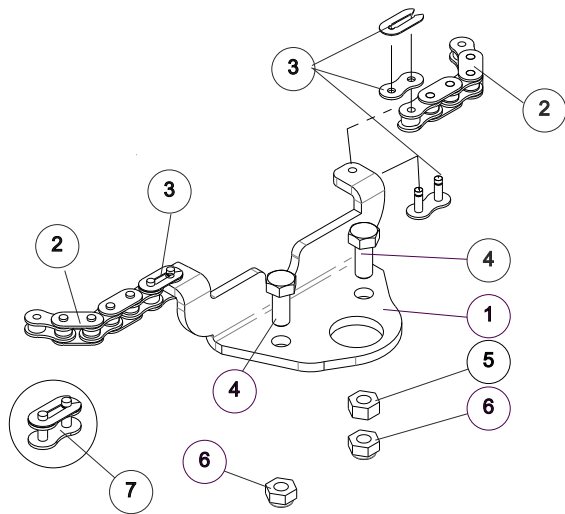


Template
PN: 099-00-0022
See Page 40

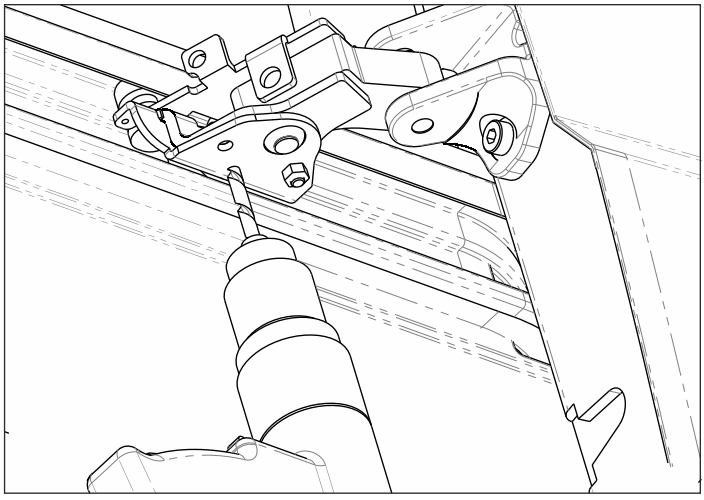
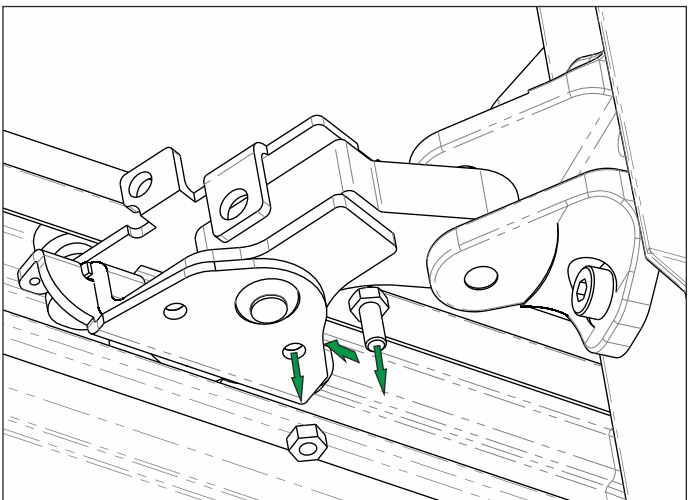
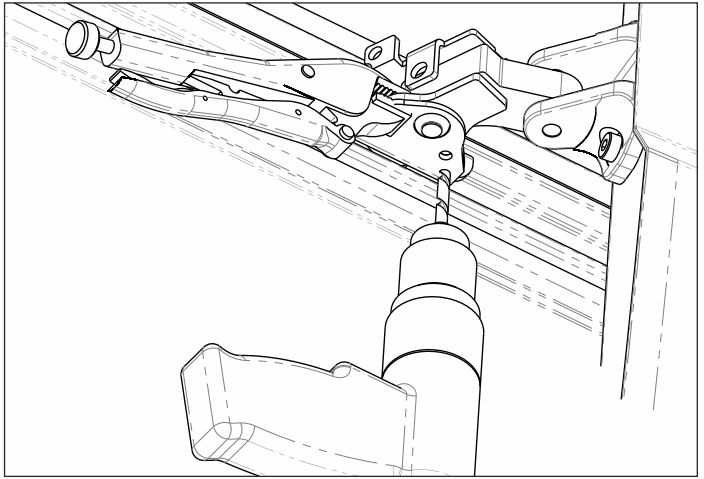
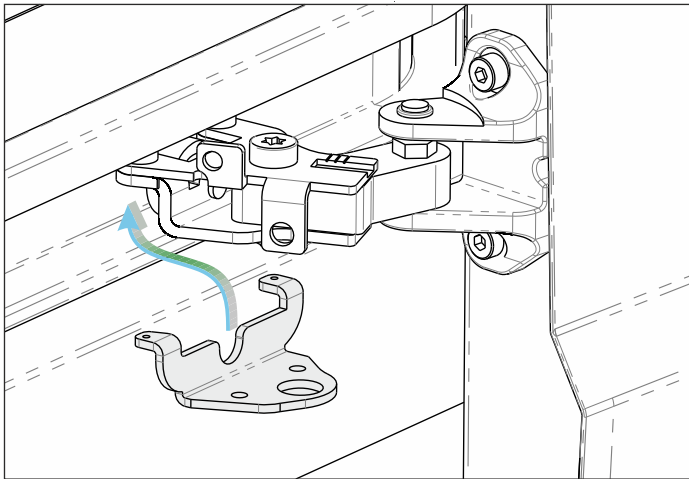


015-1514-02

Drive Chain Kit PN:178-00-002

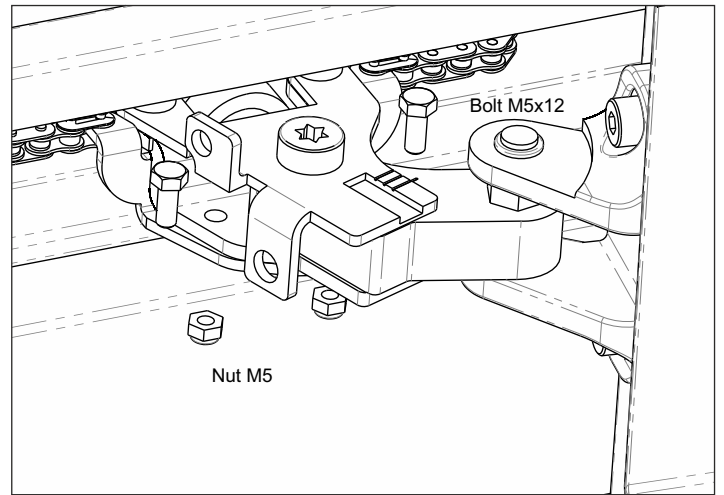
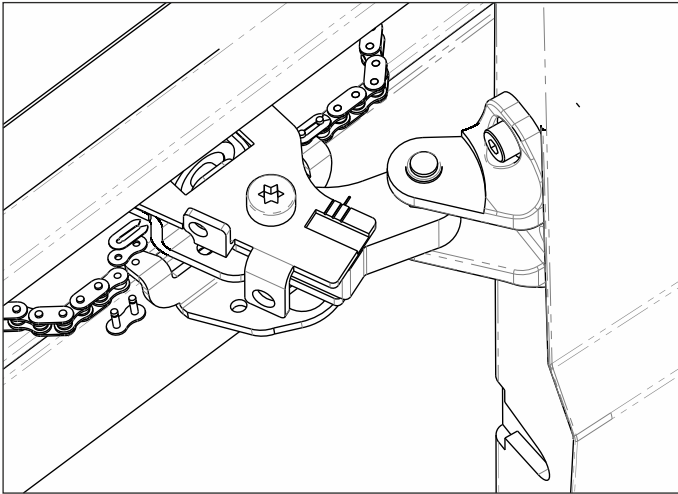


ITEM NO.	PART NUMBER	DESCRIPTION	Exploded/QTY.
1	128-15-216	Chain holder Fiat 2016	1
2	178-00-002-1	Roller chain B05 L=2936mm (183)	1
3	900-01-072	Chain connecting link B05	2
4	632-05-012	Bolt 5x12 M. ST	2
5	601-02-005	Nut M5 DIN 934	1
6	602-02-005	Hex lock nut M5 DIN 985 Cl6	2
7	150-00-000	Spare part	1

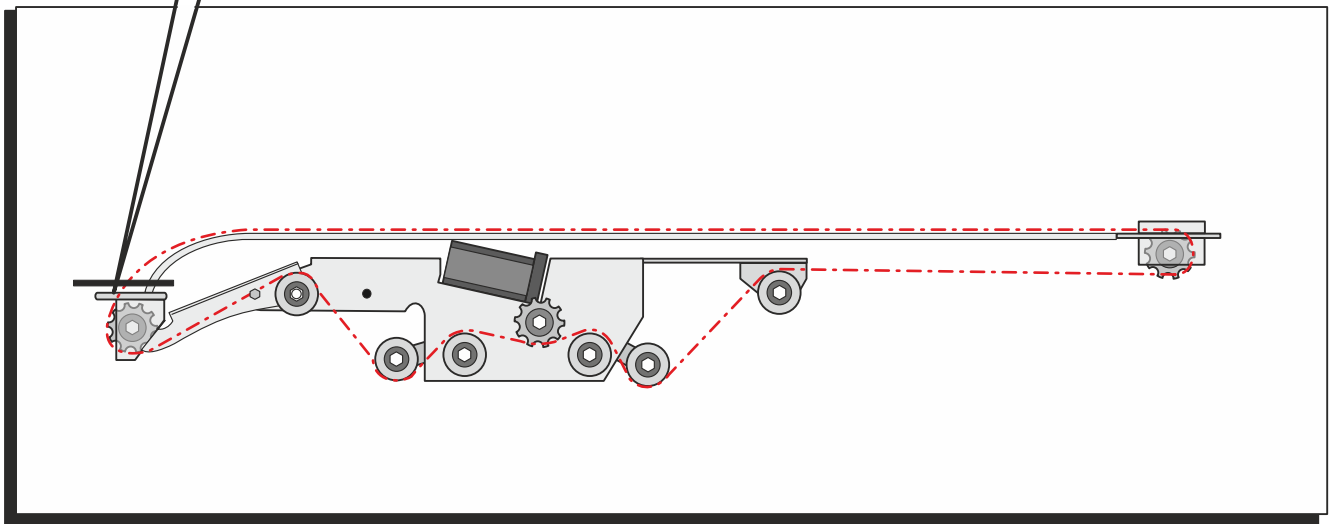
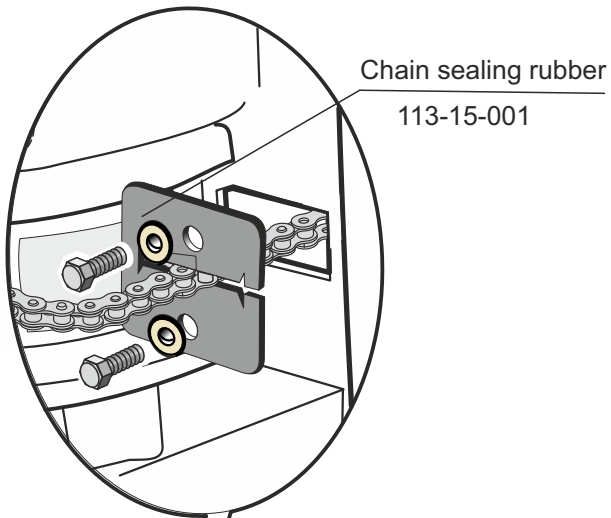


1. Put the chain holder and clamp with vise grips, drill 5mm diameter hole through holder.
2. Put the screws M5X16 through holder and central roller, secure using Nut M5
3. Drill second hole diameter 5mm

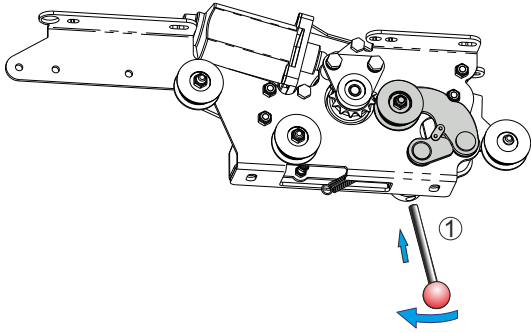
Drive chain installation



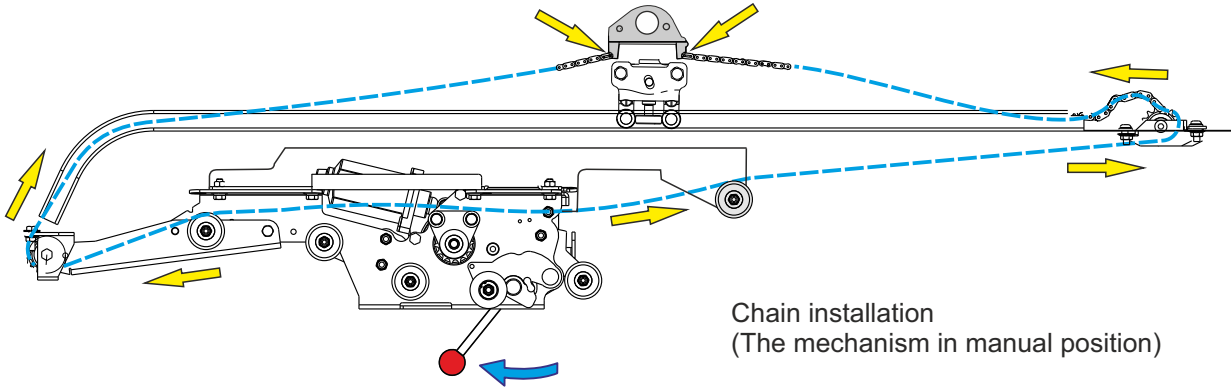
1. Connect the roller chain to the chain holder using connecting link both side.
2. Put the chain holder with chain into the place.
3. Put the screws M5X16 through holder and central roller ,secure using locknut M5.



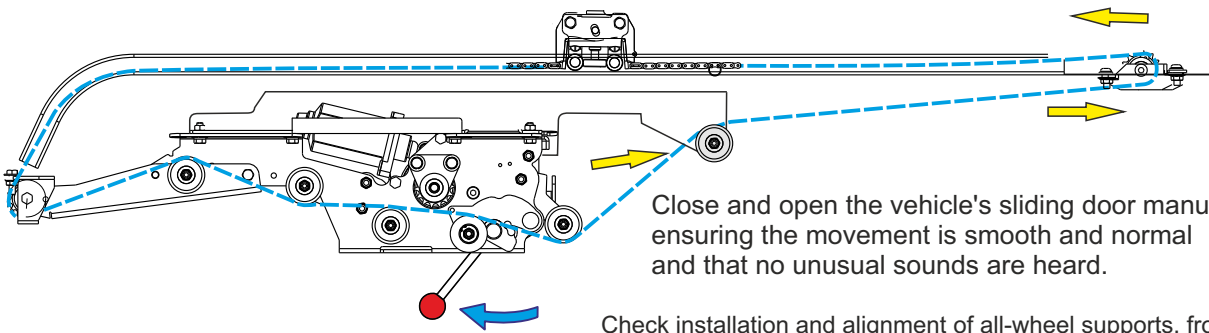
Drive chain installation



Insert the emergency manual handle ①
Move the handle to the left for manual operating

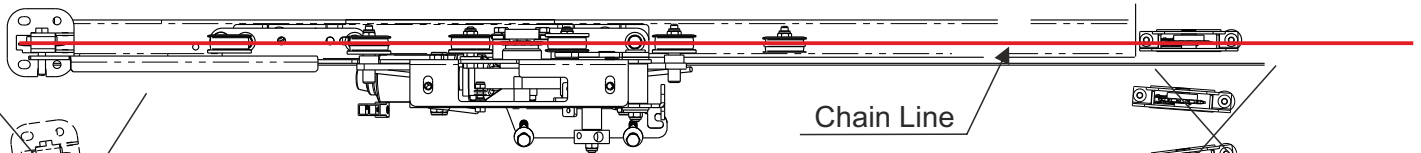


Chain installation
(The mechanism in manual position)



Close and open the vehicle's sliding door manually,
ensuring the movement is smooth and normal
and that no unusual sounds are heard.

Check installation and alignment of all-wheel supports, front, and rear,
as well as the gear motor support.

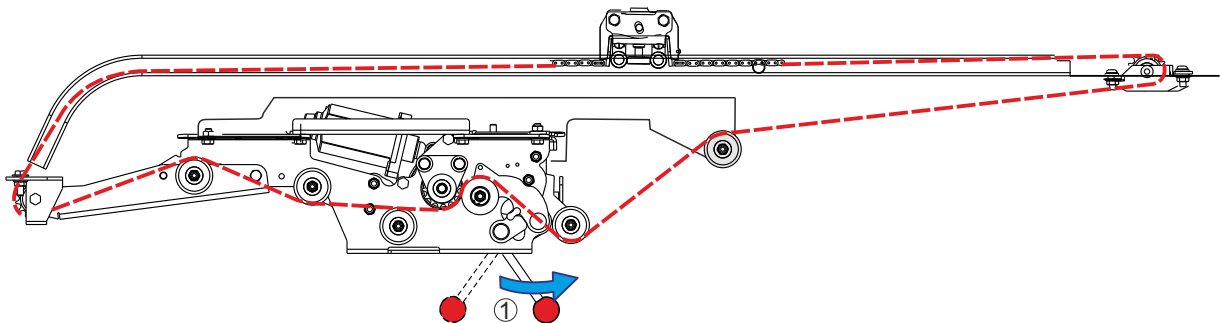


Wrong

Chain Line

Ensure install exactly horizontal

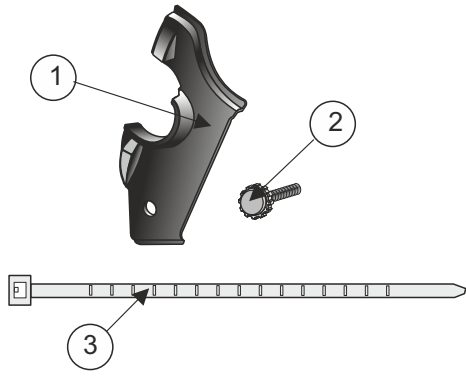
Wrong



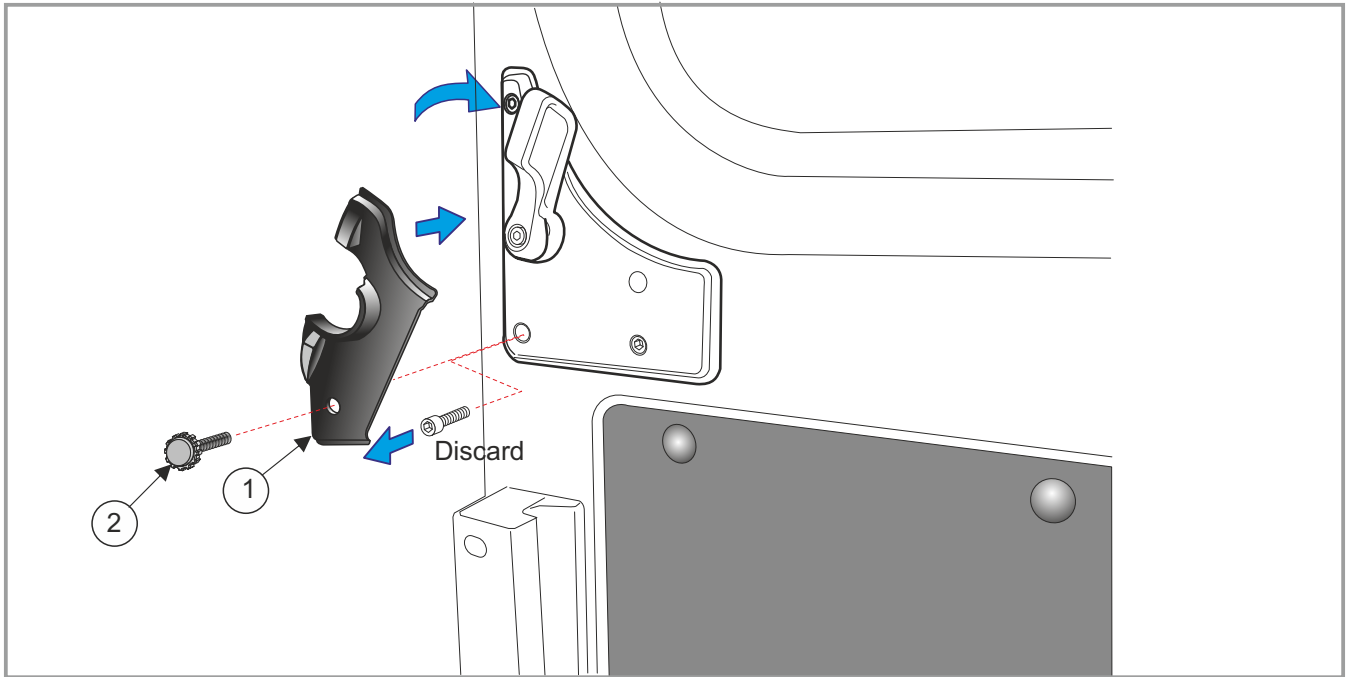
Insert the emergency handle ①
Returns the handle to the right - for the automatic mechanism positioning.

Door Handle Disabling Mechanism

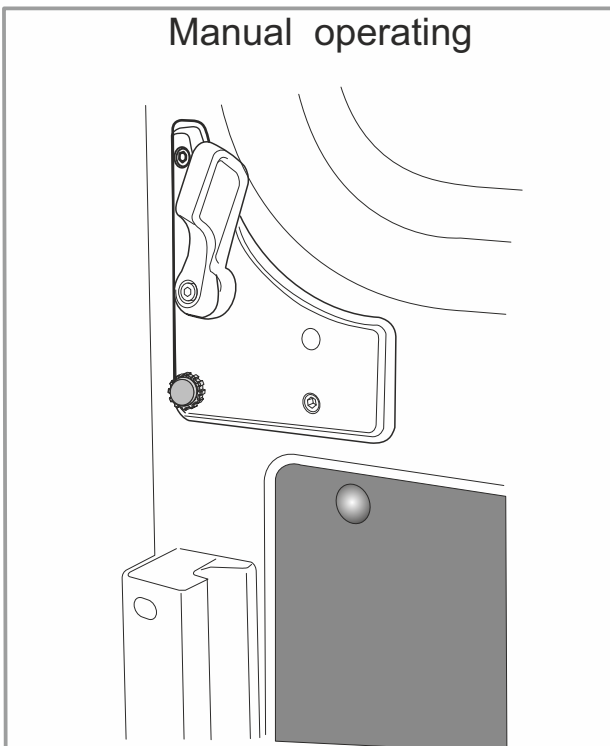
Door Handle Disabling Mechanism PN:160-07-0021



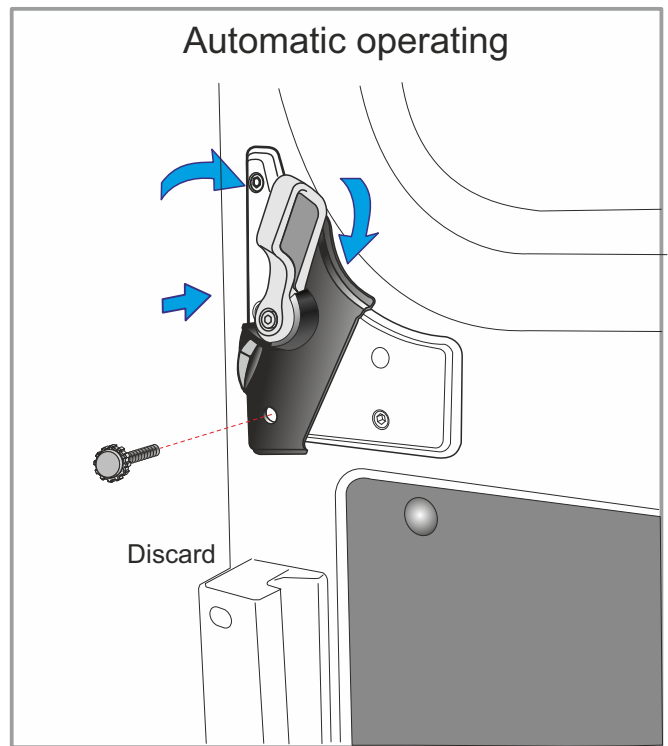
ITEM NO.	PART NUMBER	DESCRIPTION	E/QTY.
1	151-02-0021	Cover	1
2	601-06-025	Six lobe-knob or Multi star knob	1
3	125-10-015	Cable strap	1



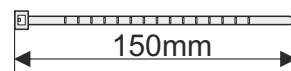
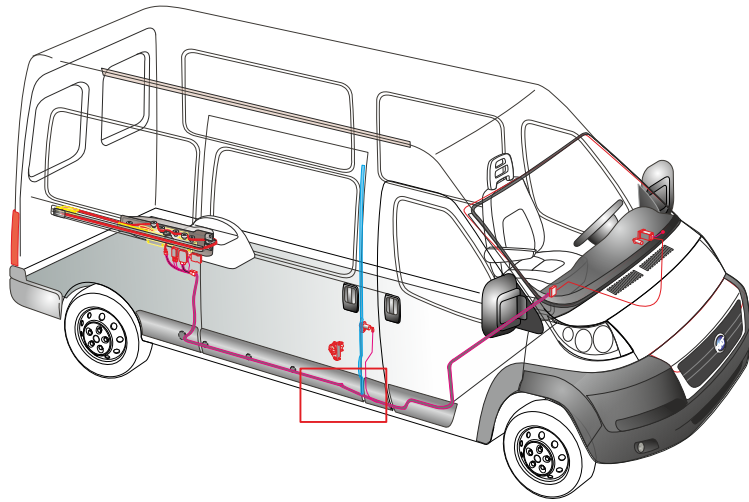
Manual operating



Automatic operating



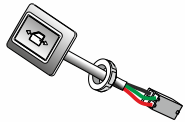
Door Handle Disabling Mechanism



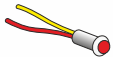
Cable strap
PN:125-10-014

Electrical accessories kit for sliding door
160-015-1502

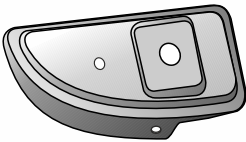
Operating switch for ASD
 111-015-1502



Dashboard Switch
 PN: 124-00-057



Signal Light
 PN: 124-10-069



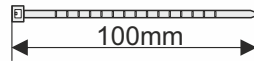
Plastic covering
 PN: 151-01-040



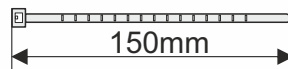
PN: 646-08-024



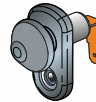
Fast Glue
 PN: 144-30-007



Cable strap
 PN: 125-10-016



Cable strap
 PN: 125-10-014



Door Limit Switch
 PN: 124-00-039



Star washer
 PN: 600-04-061



PN: 600-12-080



Phillips self drill screw 8x1/2"
 PN: 647-08-003



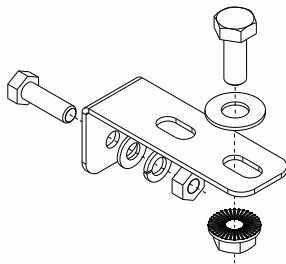
Flange nut M8
 PN: 601-08-008



Nut M6
 PN: 601-02-006



PN: 632-02-025



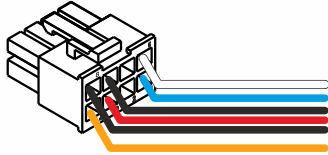
Controller Bracket
 PN: 160-15-740



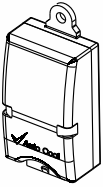
PN:123-015-1501

**Electric sliding door safety kit
160-015-0001**

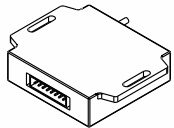
**Harness for electric safety strip
116-015-0001**



Electrical harness
PN: 116-12-008



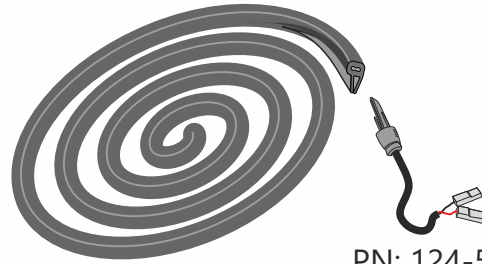
Transmitter
P.N:124-12-008-2



Receiver
PN: 124-03-006

**Electric safety strip kit
113-015-0001**

Electrical safety strip
PN: 113-55-067

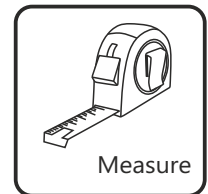
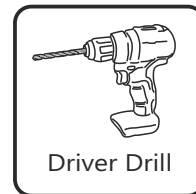
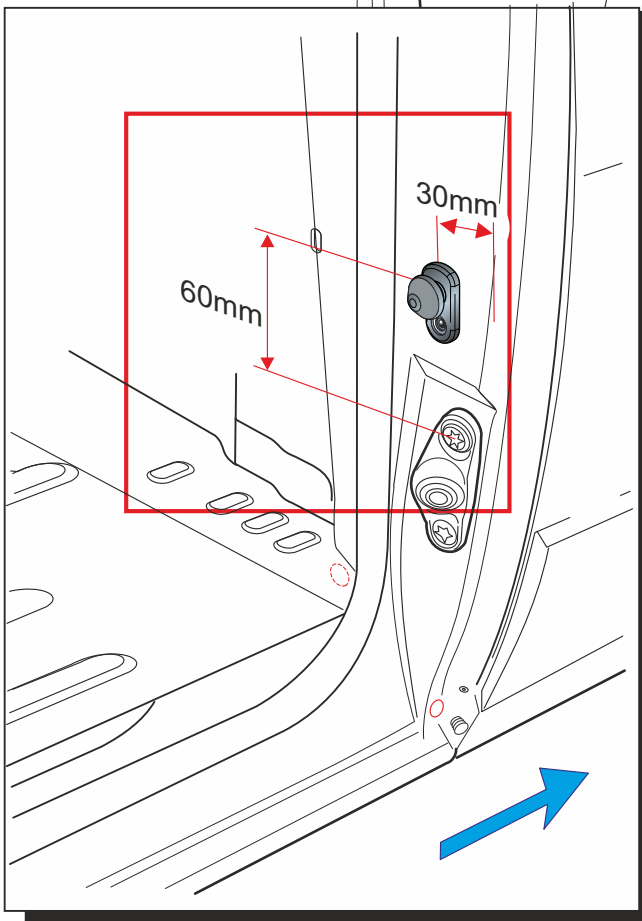
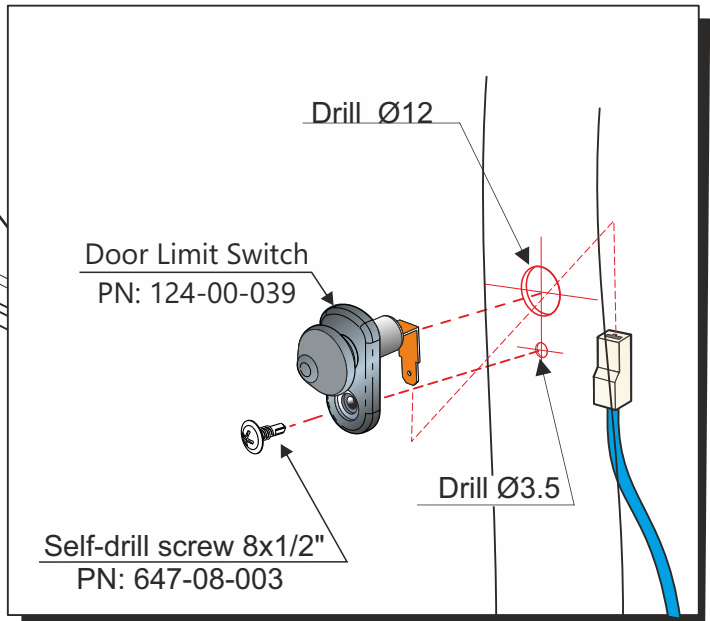
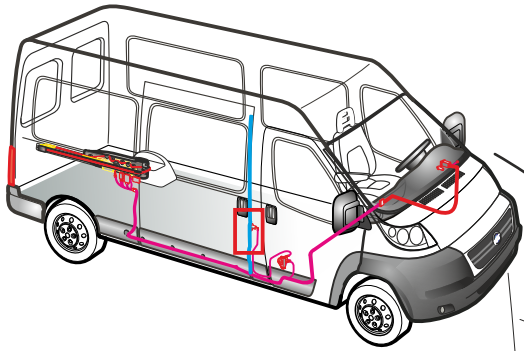


PN: 124-55-066

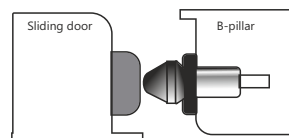


Plastic cap for safety strip 5x8mm
PN:112-05-008

Door limit switch installation



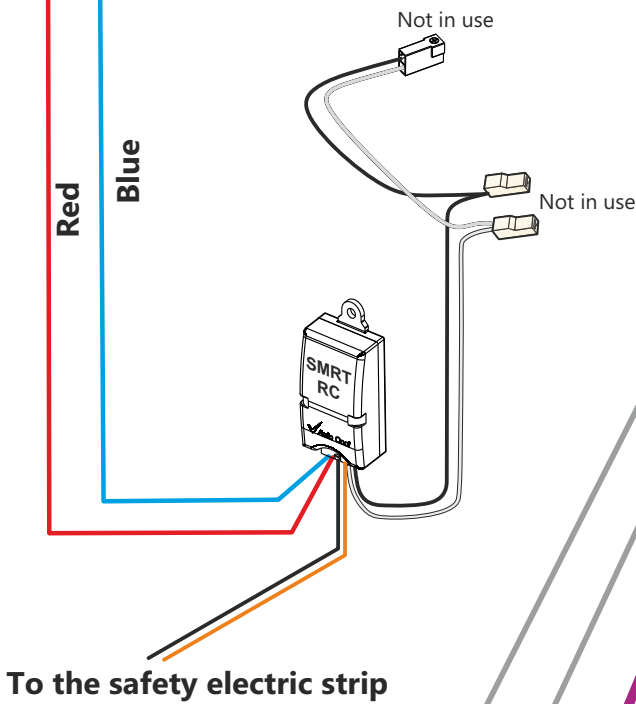
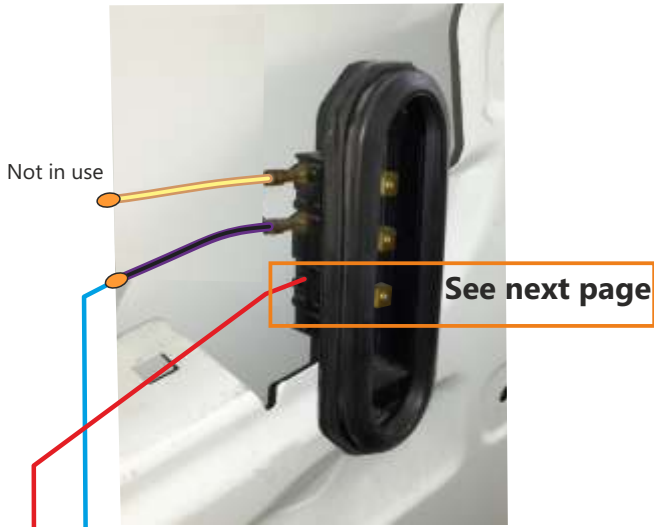
Make sure there is good press on the pillar micro switch.



Make sure there is good ensuring optimal connectivity at the ground (GND) (-) connection

For models up to 2021

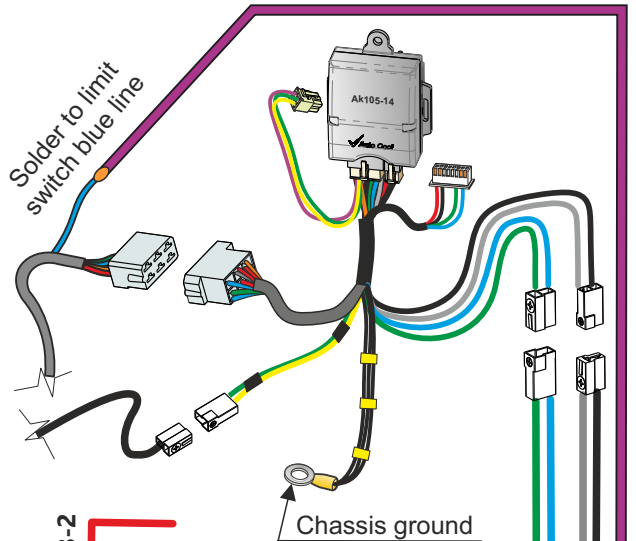
Sliding door



C-Pillar

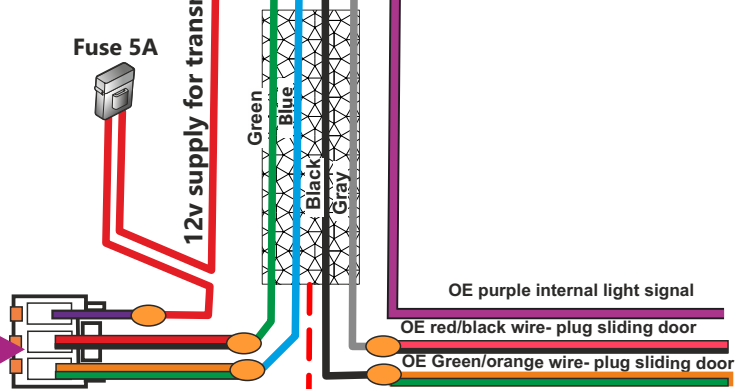


Disconnect permanently



Fuse 5A

12v supply for transmitter 124-12-008-2

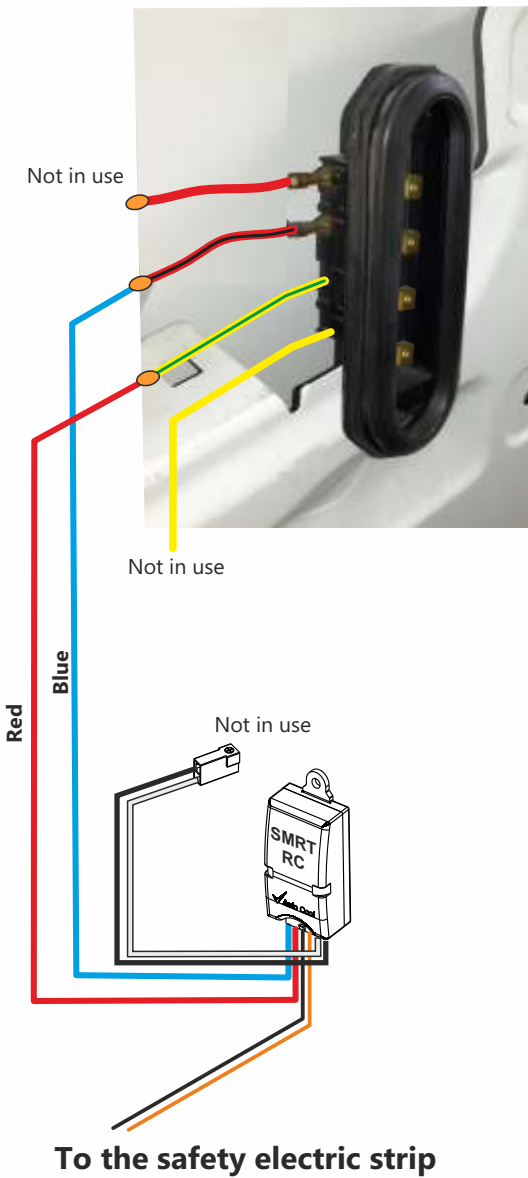


015-1514-02

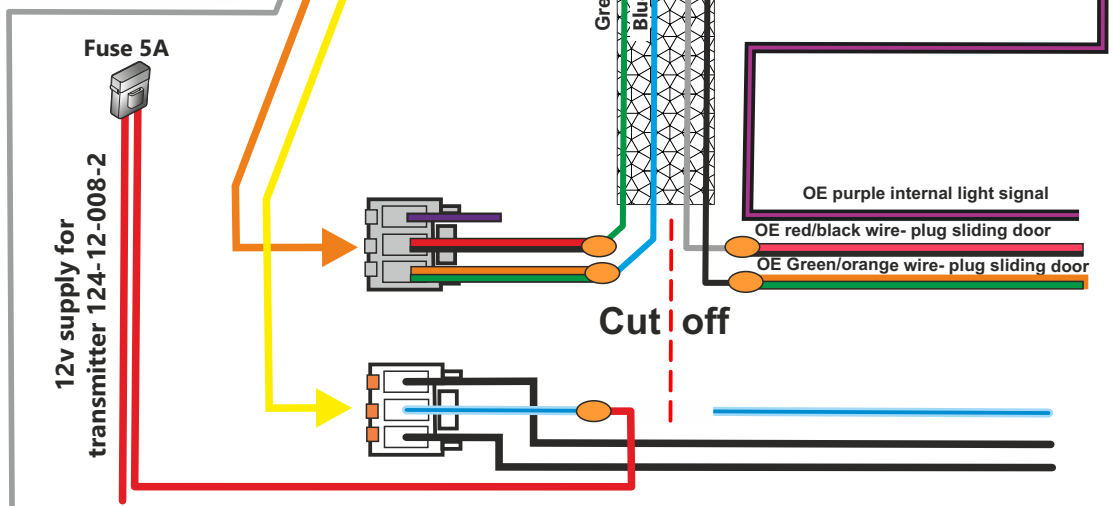
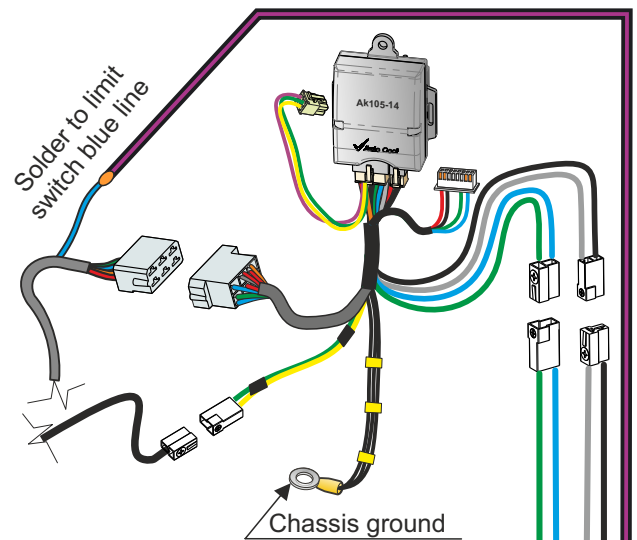
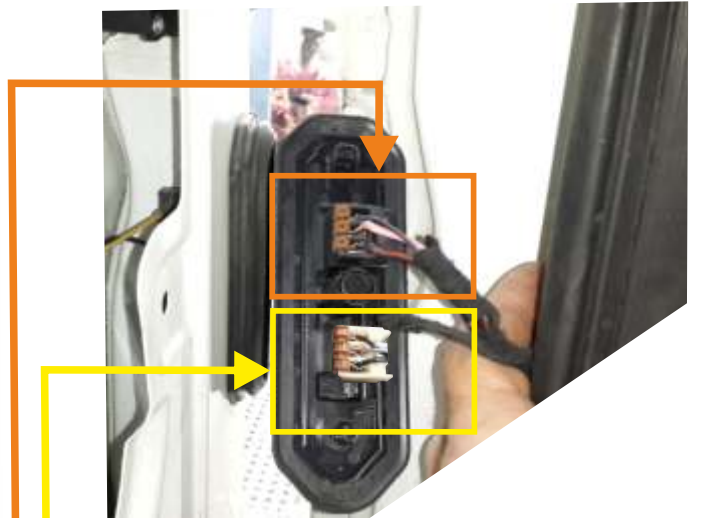
For models from 2022

- After the connection, the OE button of the external handle will be canceled.

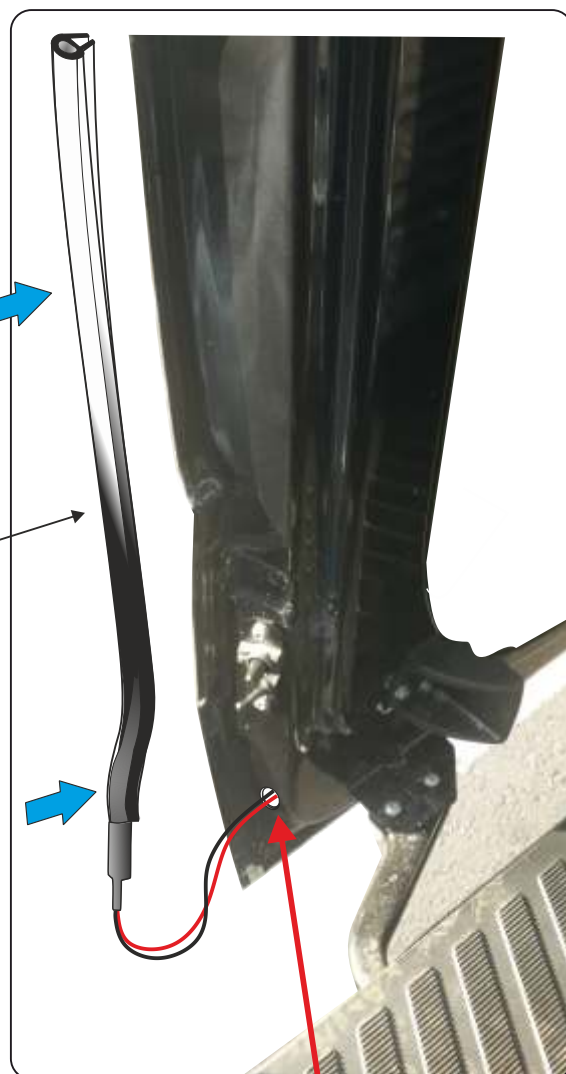
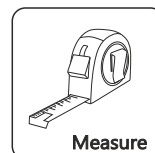
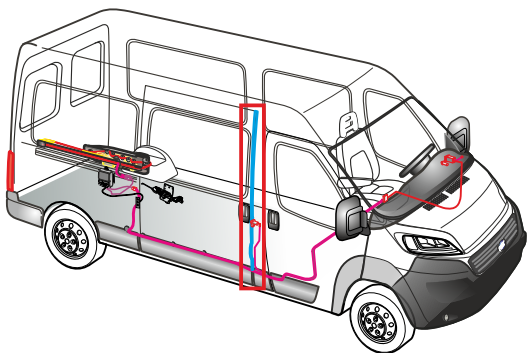
Sliding door



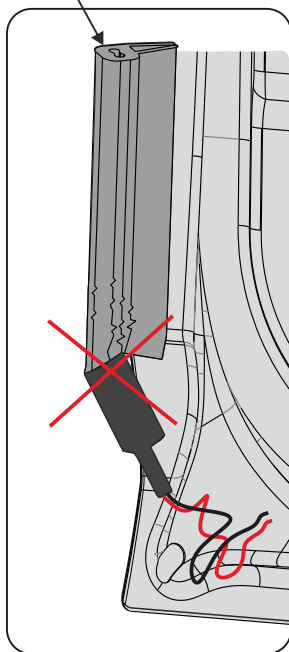
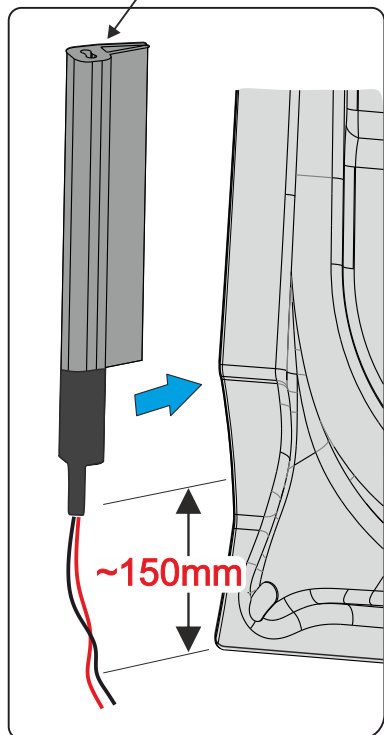
C-Pillar



Electric safety strip installation

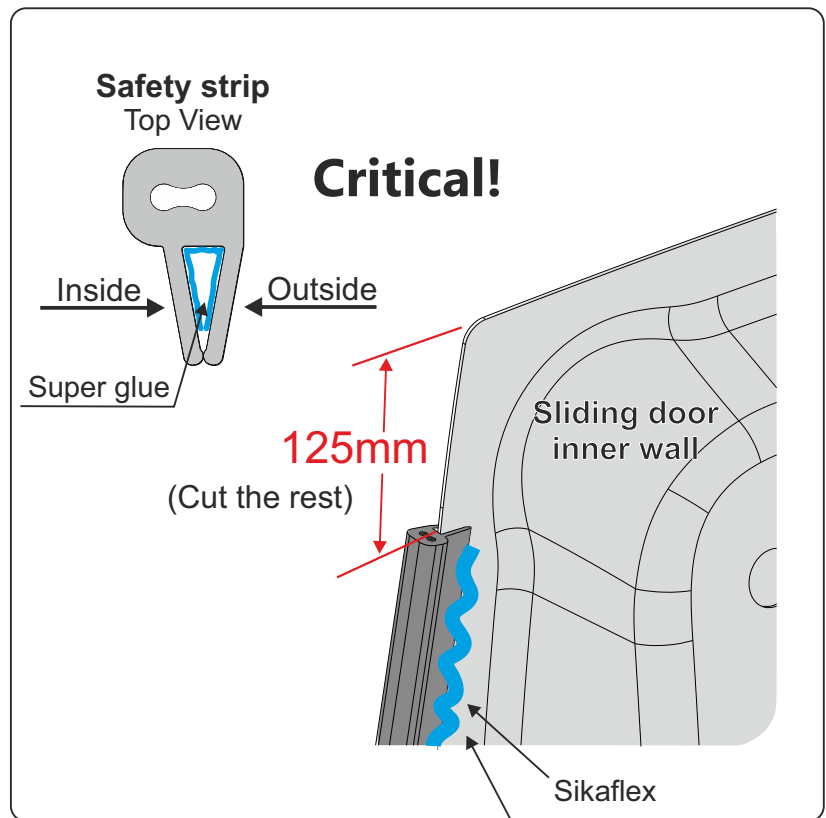
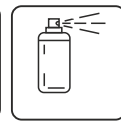
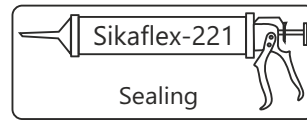
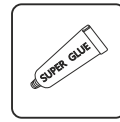


Electric Safety Strip
PN: 113-015-0001

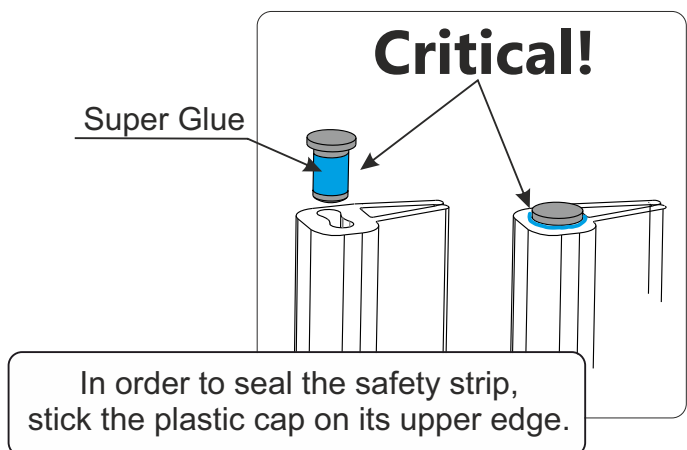


Drilled a hole for the electrical wires
of the safety strip

- Only the wires go into the vehicle.
- Make sure not to bend the rubber profile.



For better conception is advisable to add a sikaflex along the internal side of the strip



How to install the safety strip:

Cut the safety strip to the required length

Clean with alcohol the inside of the safety strip and the edge of the sliding door.

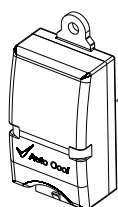
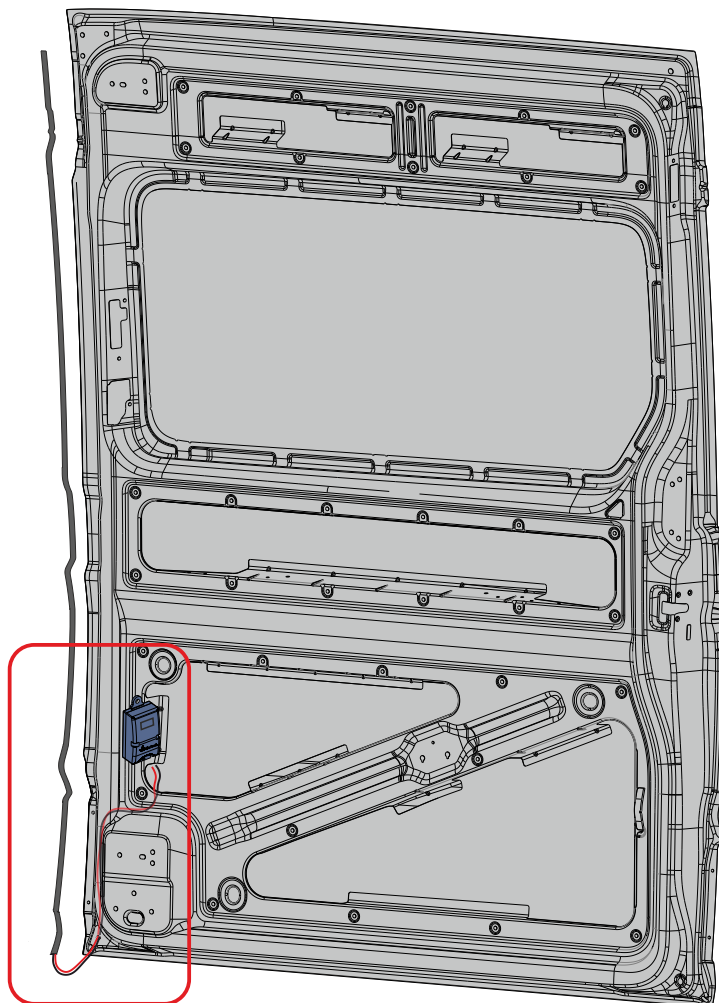
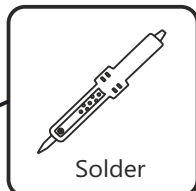
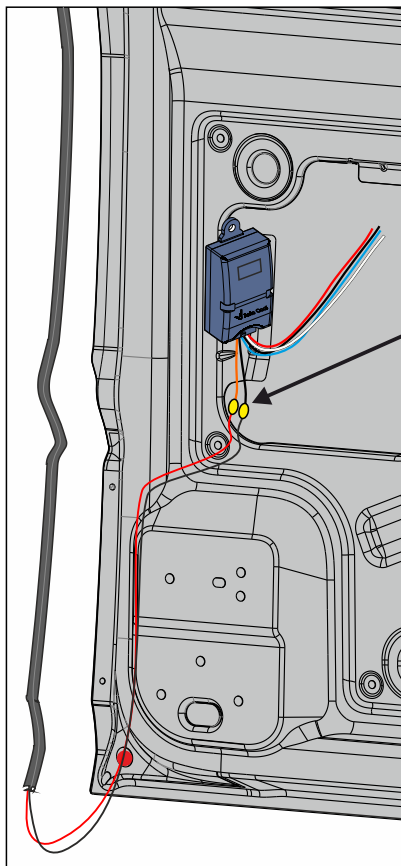
Glue the safety strip from top to bottom:

Apply Super glue inside the top of the safety strip and attach it to the top of the door edge (Approximately 25cm from the top)

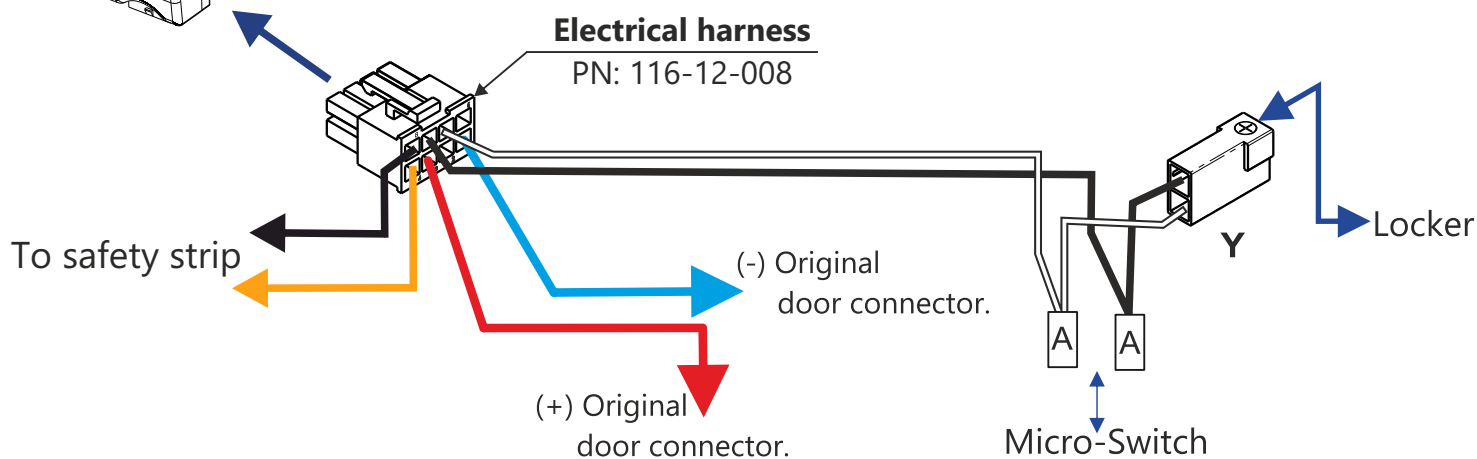
A few cm under, inside the safety strip, apply glue again and attach it to the door edge.

Repeat this action, downwards, to the end of the safety trip.

Smart remote control assembly PN: 116-015-0001



Transmitter
P.N:124-12-008-2



Check the safety rubber's function

ASD controller must be installed in vertical position (connectors down).



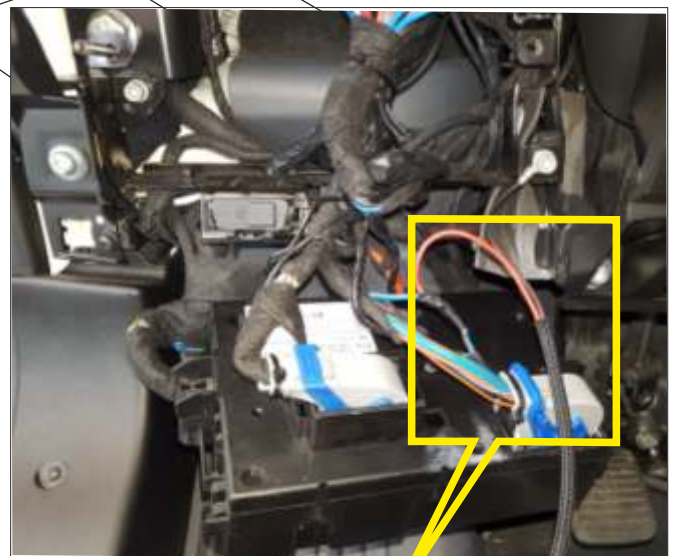
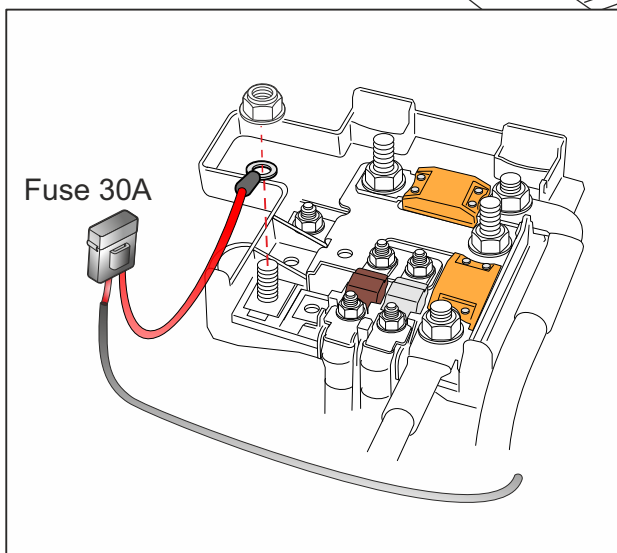
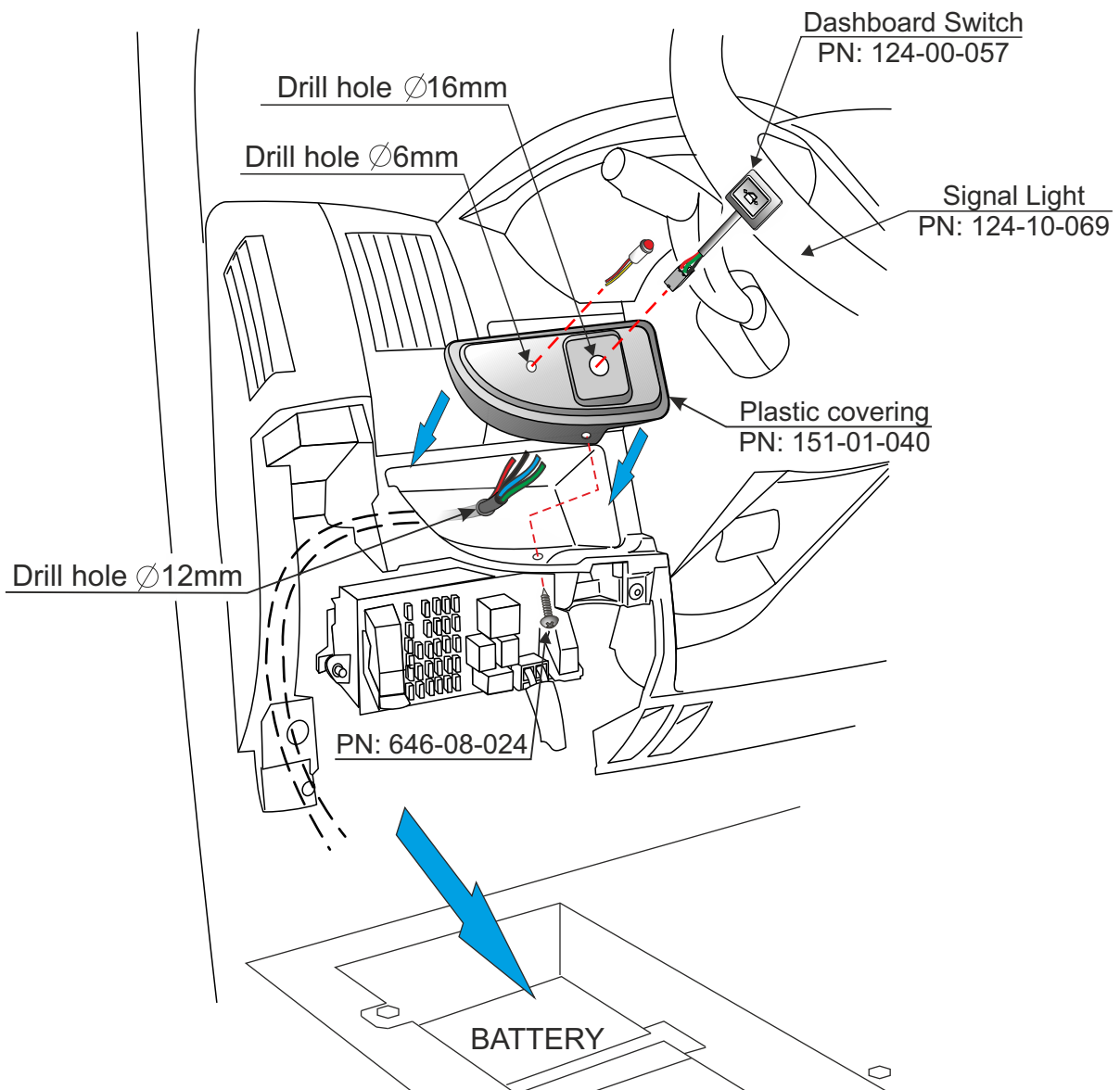
Remote control unit -

For smart transmitter \ door transmitter (P.N: 124-12-008-2):

- a. Connect all wires to the smart transmitter and B-pillar wiring.
- b. Close the door for 10 seconds (capacitors in the smart transmitter will charge, make sure that the main battery is temporarily connected).
- c. Press the receiver programming button until the red light turns on then release.
- d. Press the electrical safety rubber or handle and make sure the LED on the receiver blinks.
- e. After the receiver LED blinked - the smart transmitter is paired and ready to work.

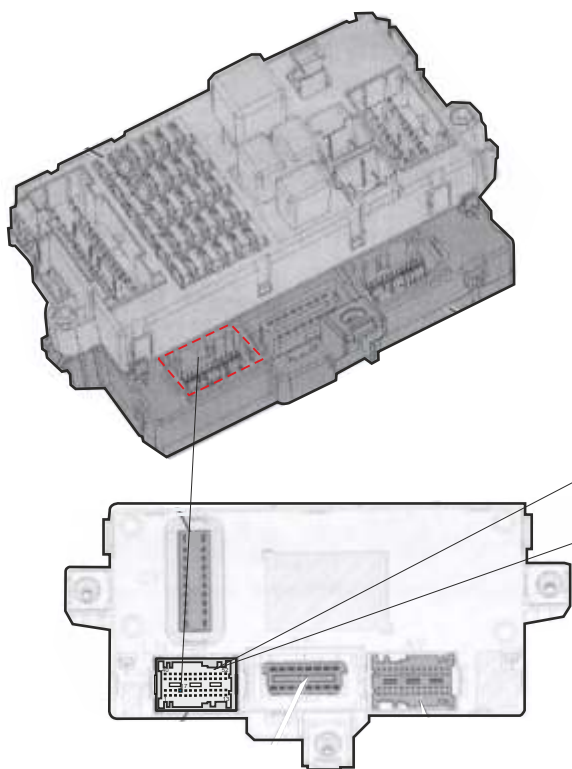
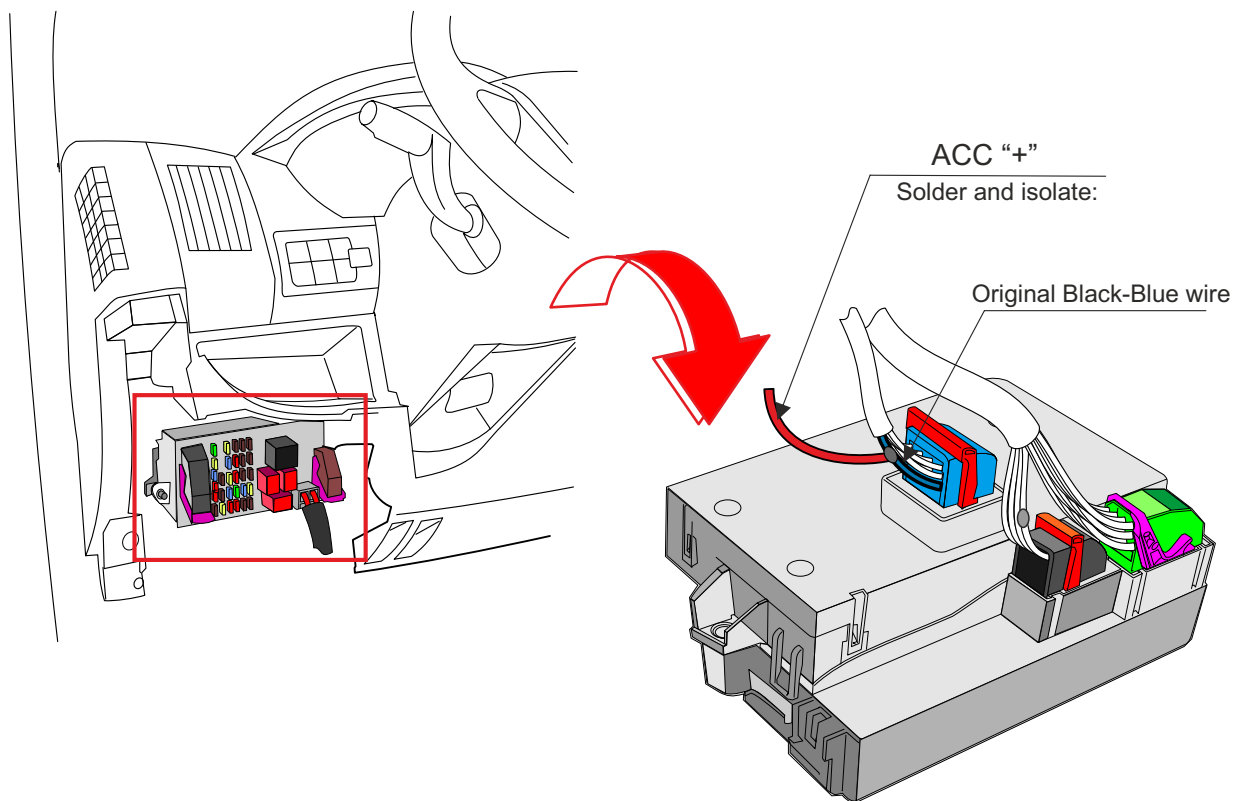


Operating switch installation

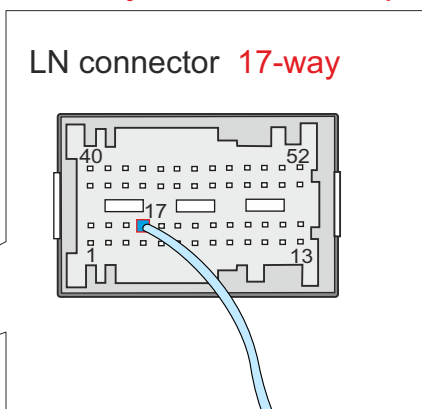


ACC+ Pin 2

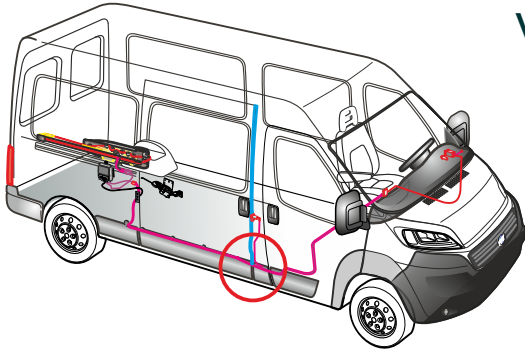
VSS Connection



On the BSI from the 52V Black connector
17-way Redundant vehicle speed signal



White/Gray wire
to VSS Detector



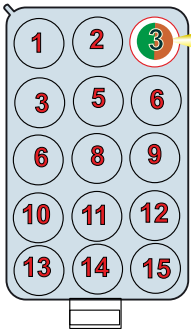
VSS Connection

(Vehicle Speed Signal)

3

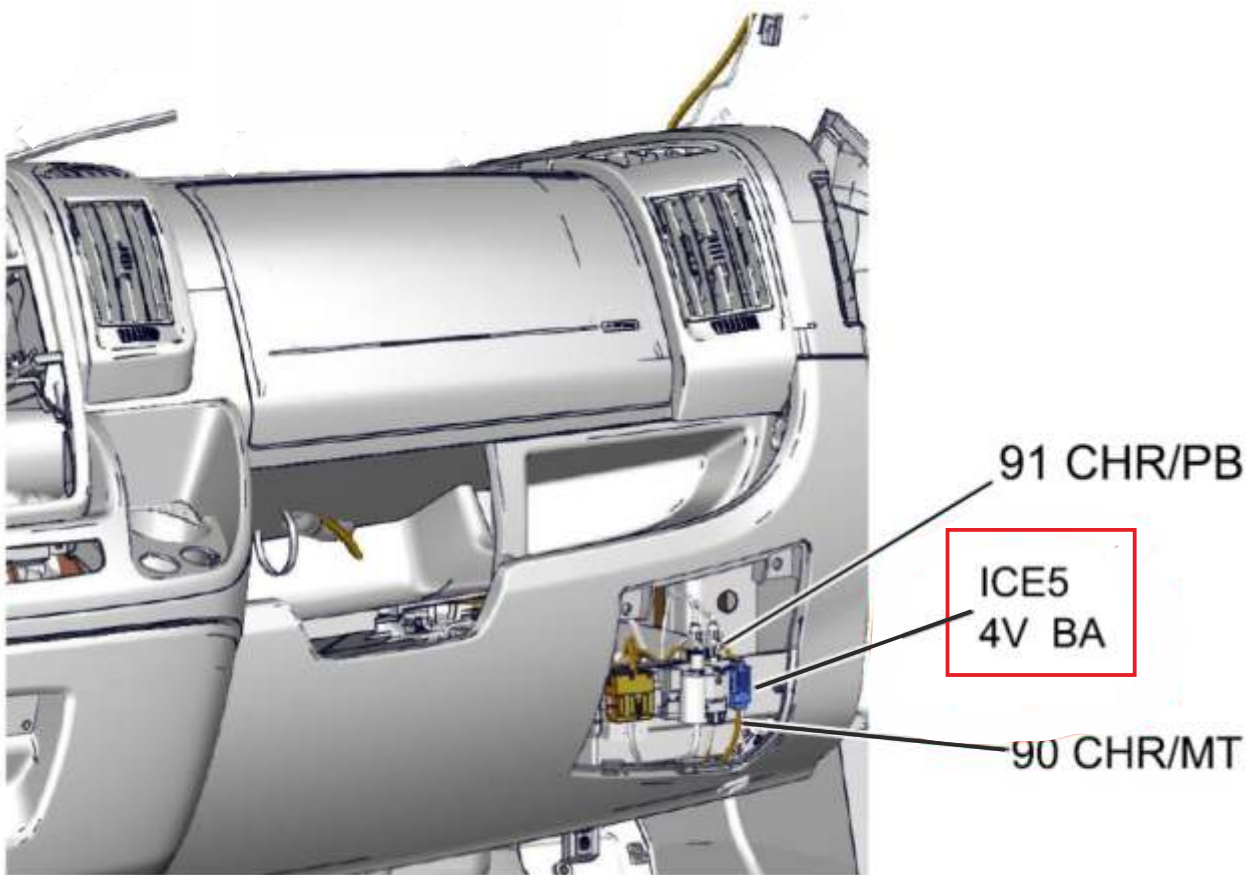


VSS Connection



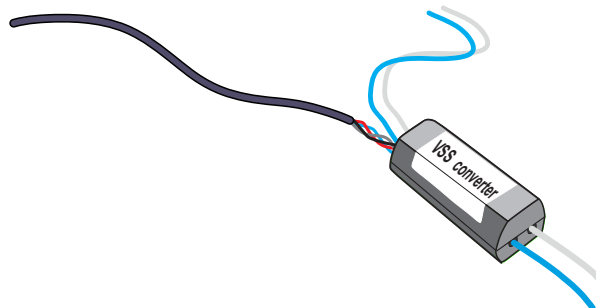
Green/brown

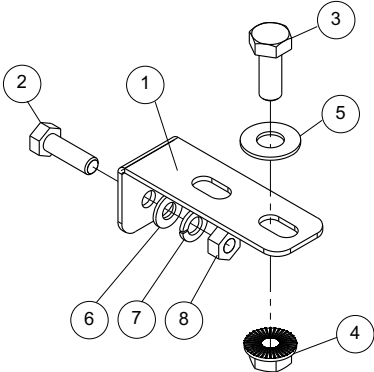
3



Its mandatory to connect and check the VSS!

If the vehicle does not have connection to the VSS source you can order a wireless VSS convertor PN 124-015-1501. Please contact us to get the instructions for this part.

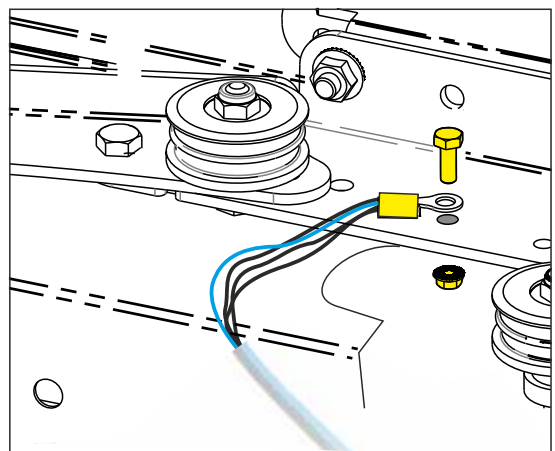
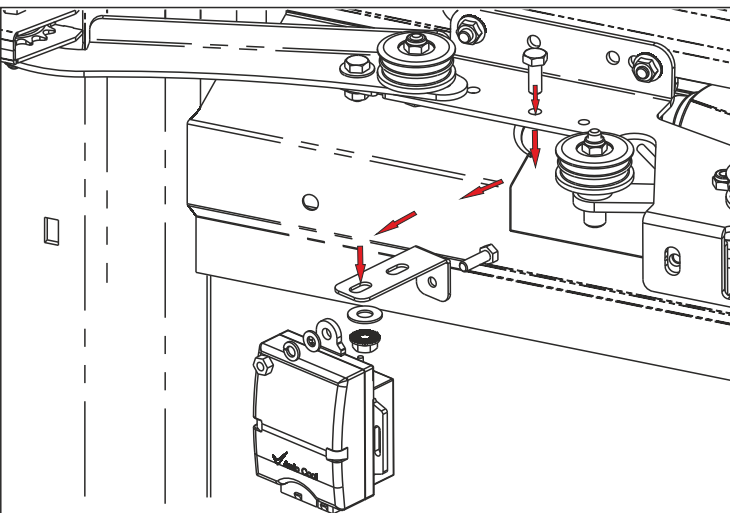
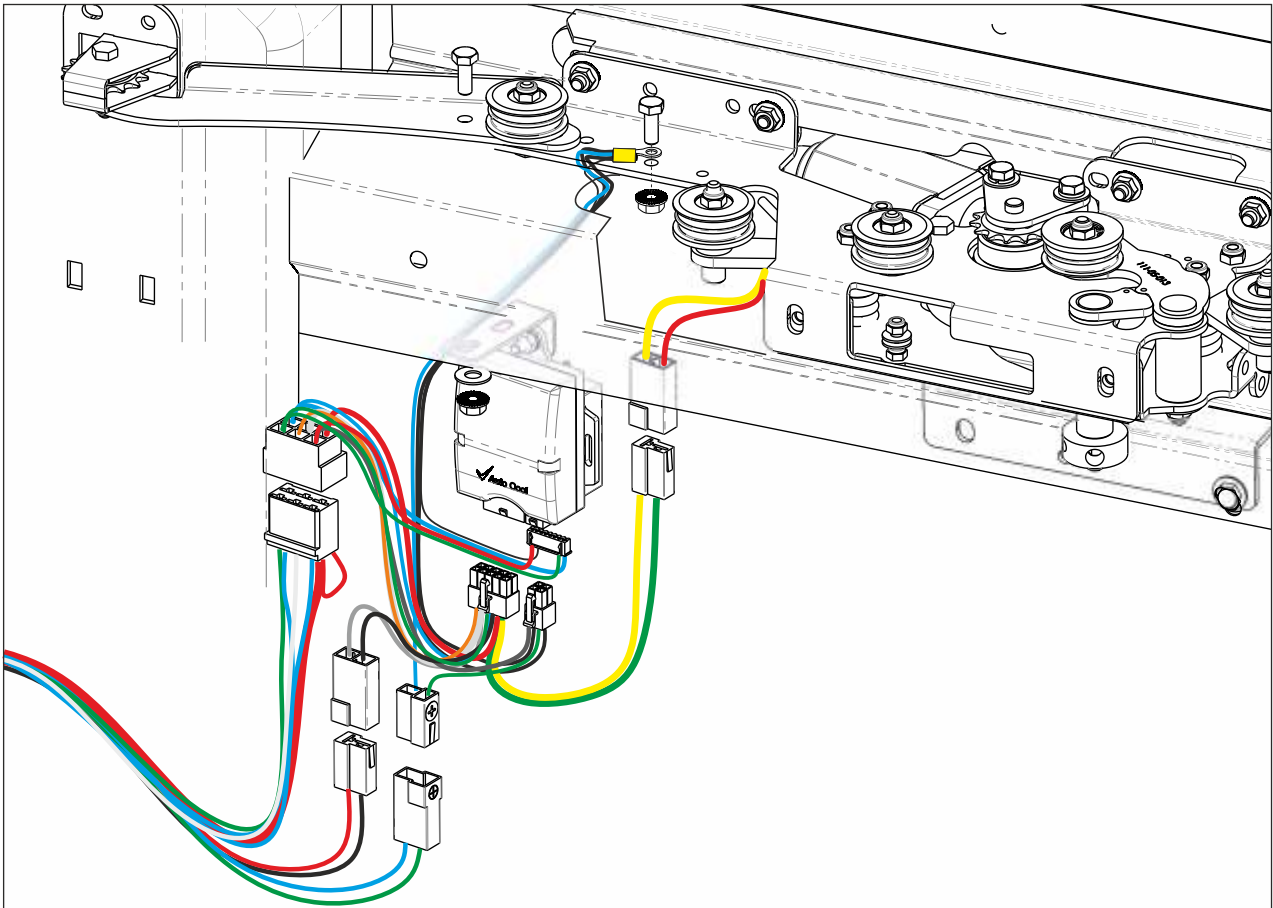




Controller Bracket

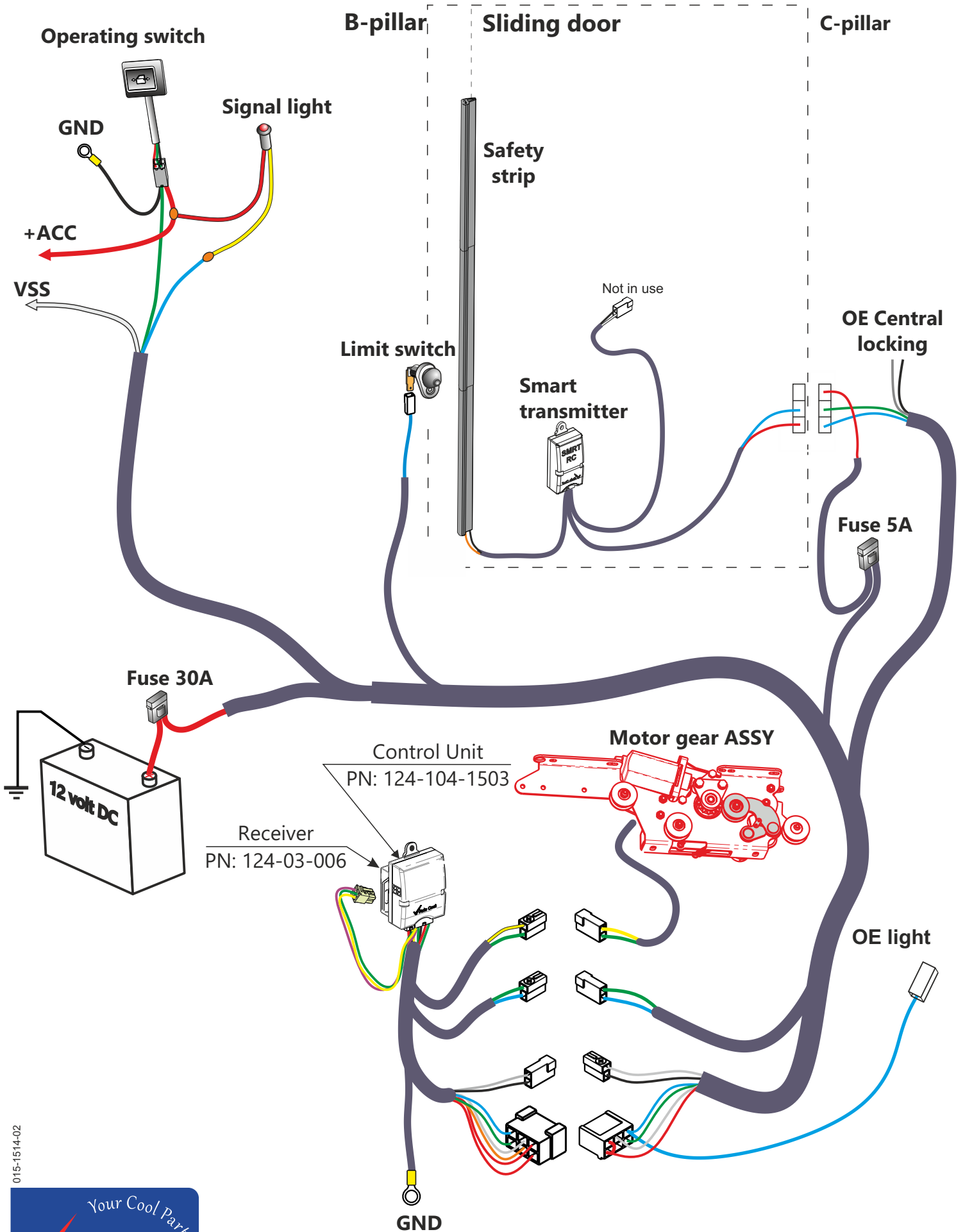
PN:160-15-740

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	128-14-116	BRACKET	1
2	632-05-016	Hex bolt M5x16 DIN933 8.8	1
3	632-06-016	Hex cap screw M6x15 DIN933	1
4	601-06-006	Hex flange nut M6 DIN 6923	1
5	600-12-061	Washer 6	1
6	600-12-042	Washer 5	1
7	600-04-051	Spring washer 5 DIN 127A	1
8	601-02-005	Nut M5 DIN 934	1



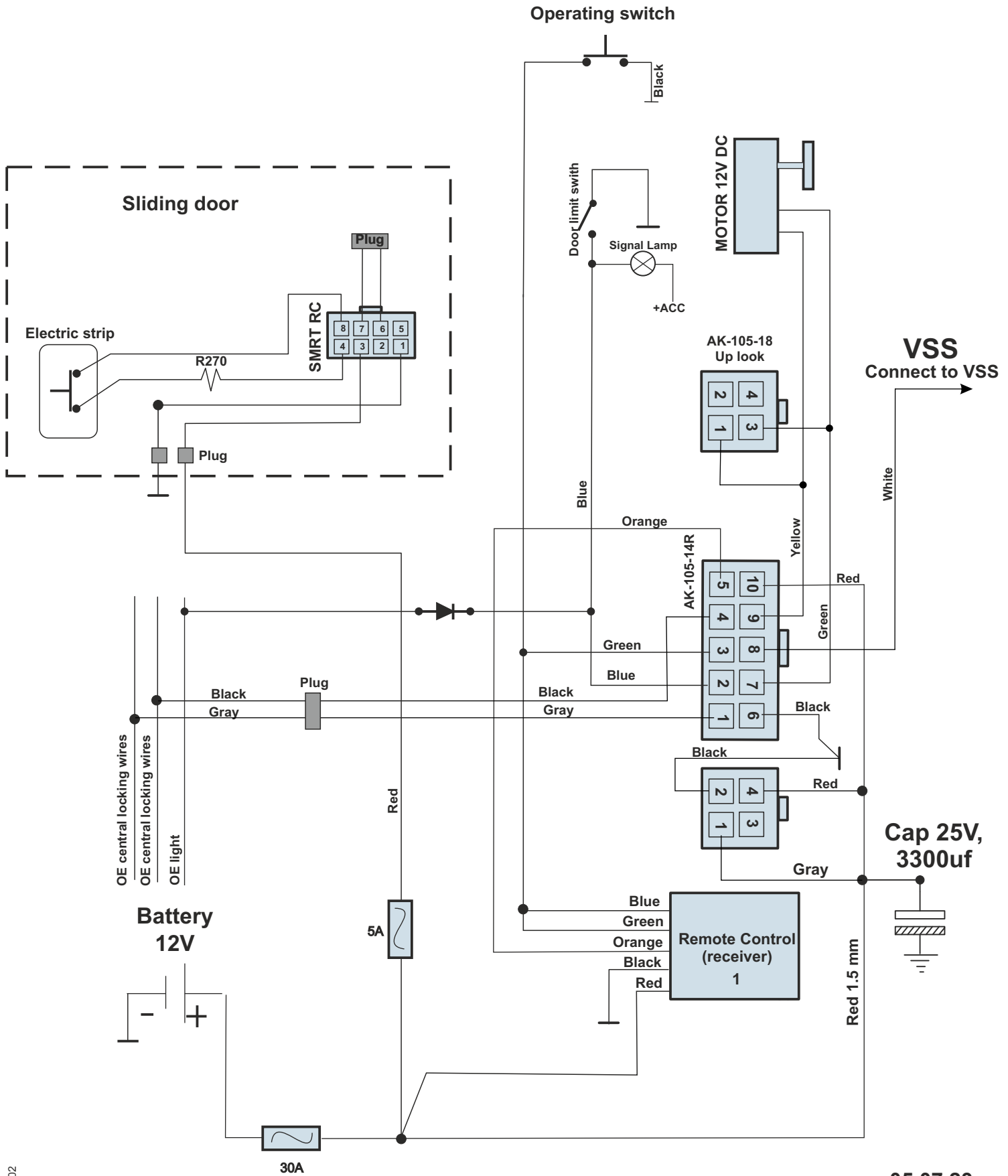
Chassis ground

Make sure there is good ensuring optimal connectivity at the ground (GND) (-) connection



015-1514-02

Its mandatory to connect and check the VSS!



VSS
Connect to VSS →

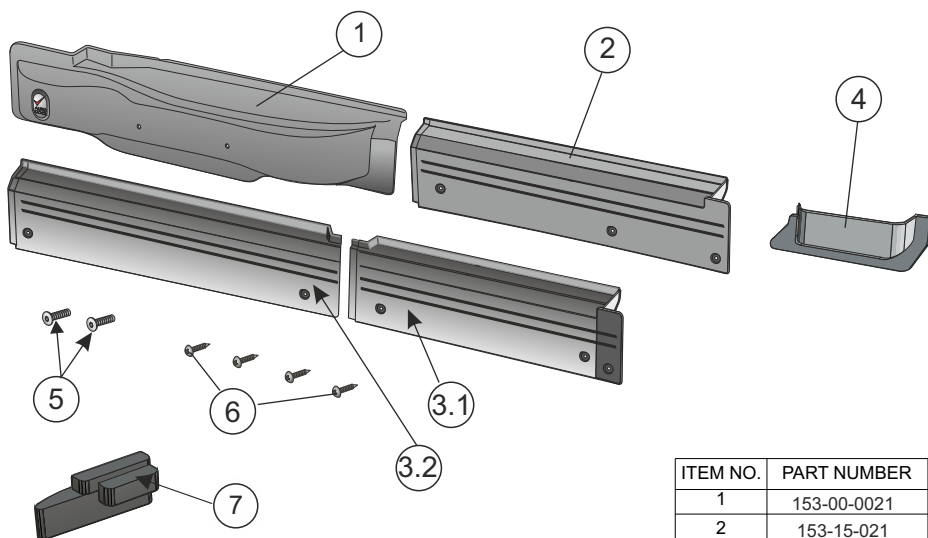
Cap 25V, 3300uf

05.07.23

015-1514-02

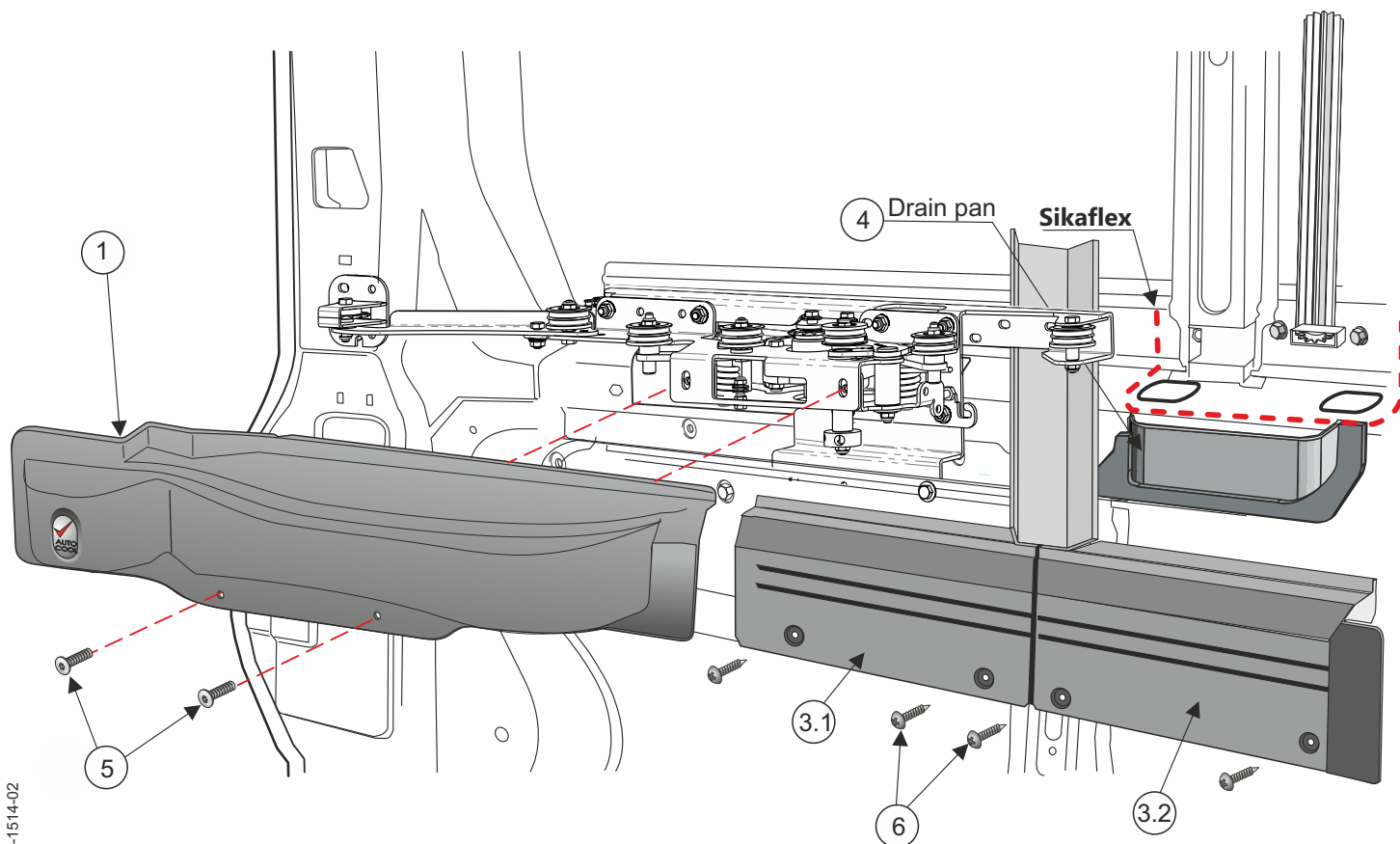
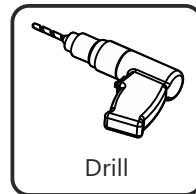
Cover installation

Covers Kit
PN:151-00-0021

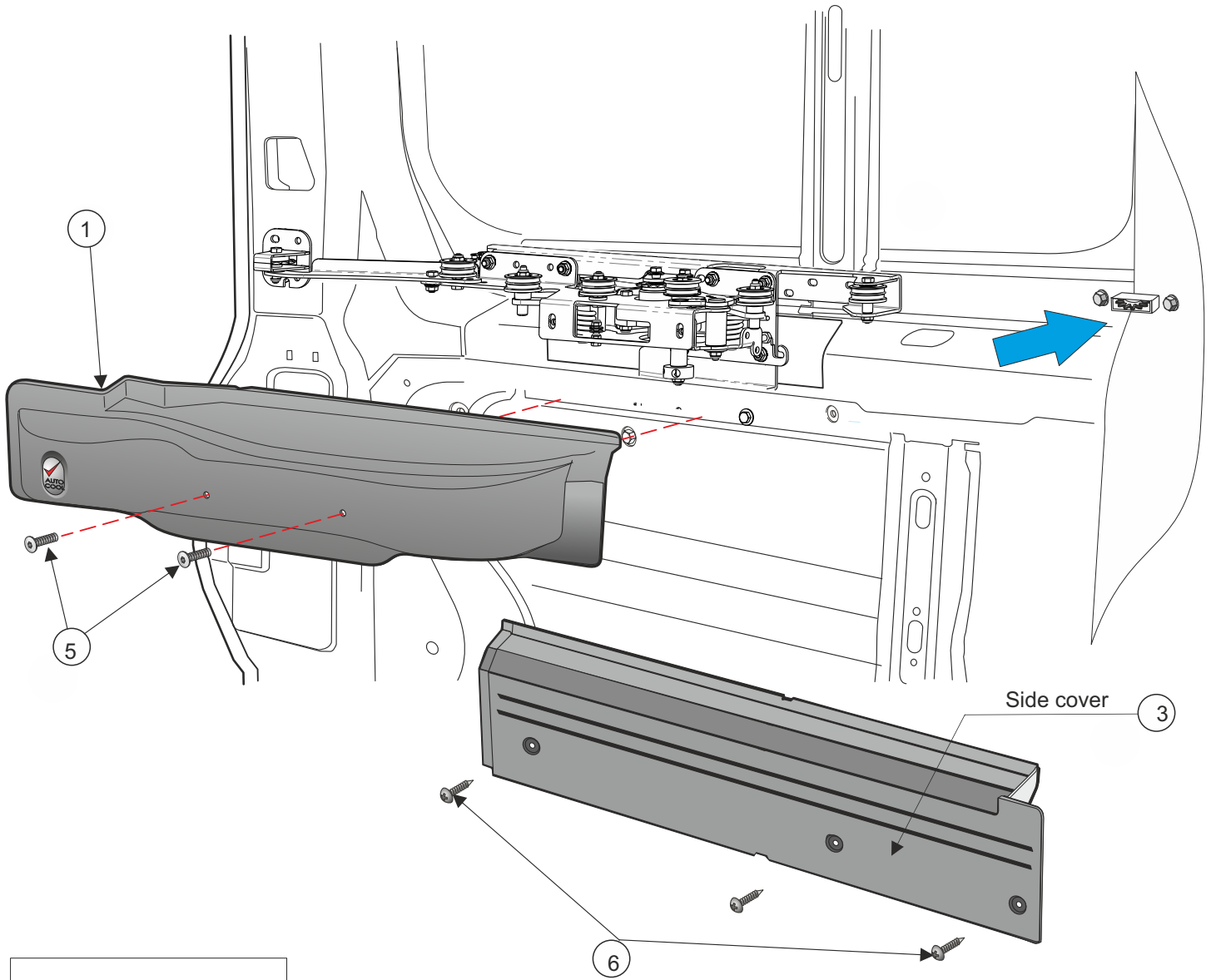


ITEM NO.	PART NUMBER	DESCRIPTION	E/QTY.
1	153-00-0021	Gear Motor Cover	1
2	153-15-021	Side Cover L2	1
3.1	153-02-0021-1	Side Cover L3 front	1
3.2	153-02-0021-2	Side Cover L3 rear	1
4	153-04-0021	Drain Pan	1
5	613-06-020	Socket Flat Head Screw M6x20	2
6	646-08-024	Phillips pan head tapping screw 8x3/4"	4
7	153-01-0021	Rear Idler Cover	1

Model L3

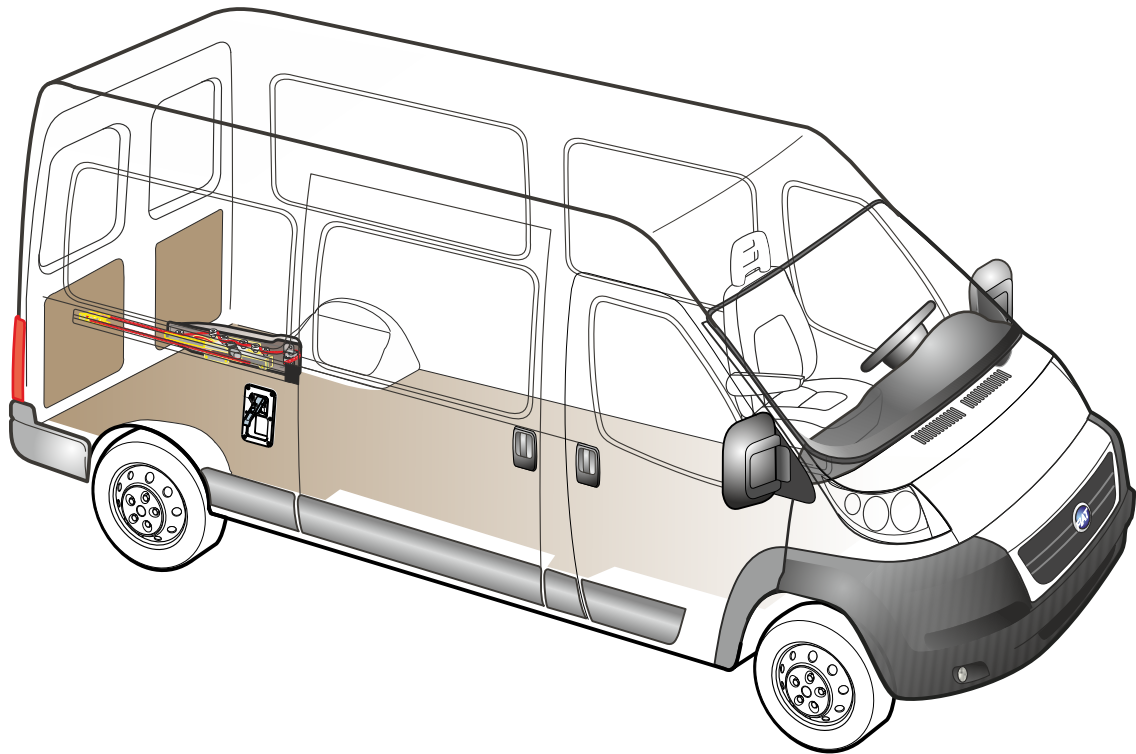


015-1514-02



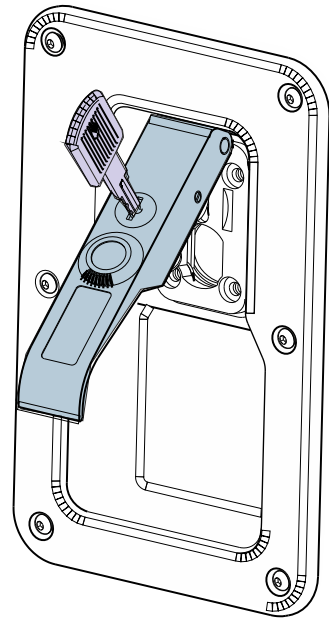
Model L-2

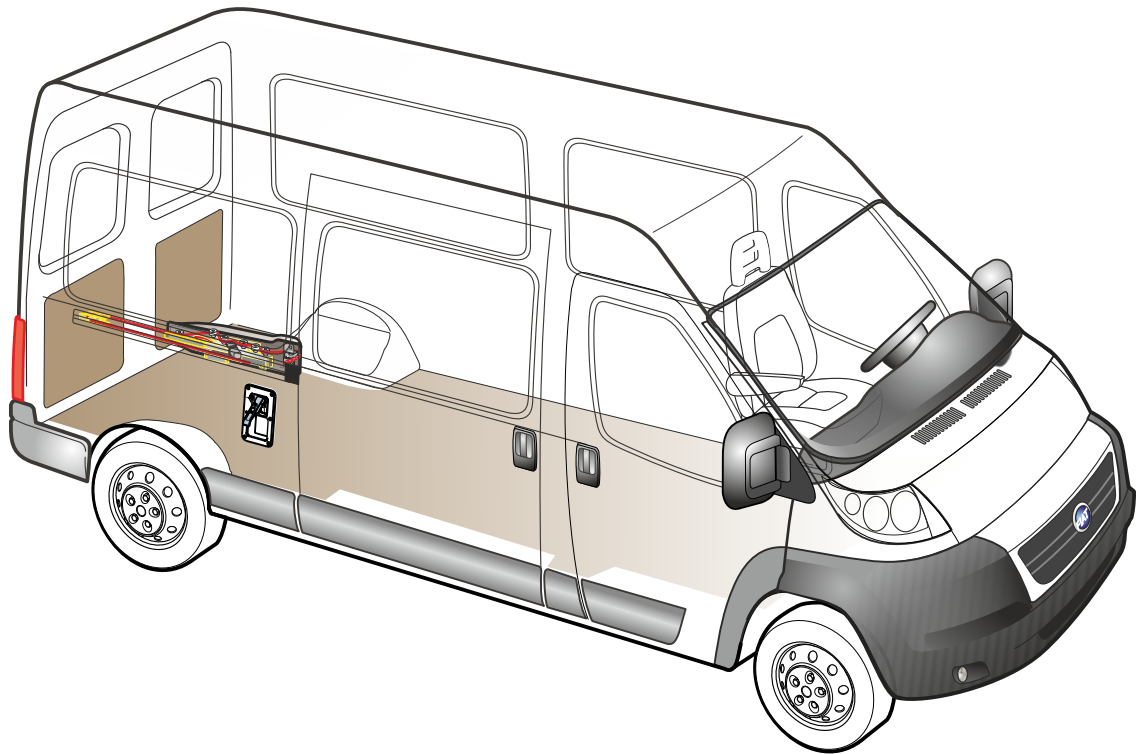




ASD
Automatic Sliding Door
External emergency door opening kit
PN: 111-03-013

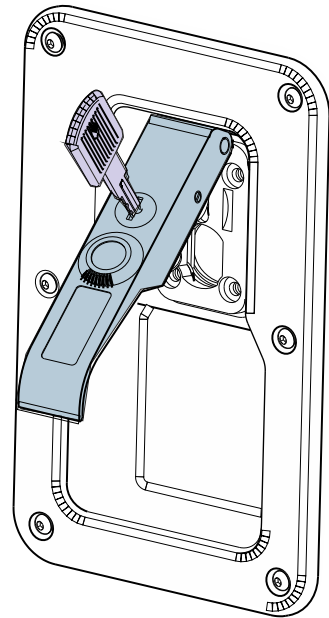
Option

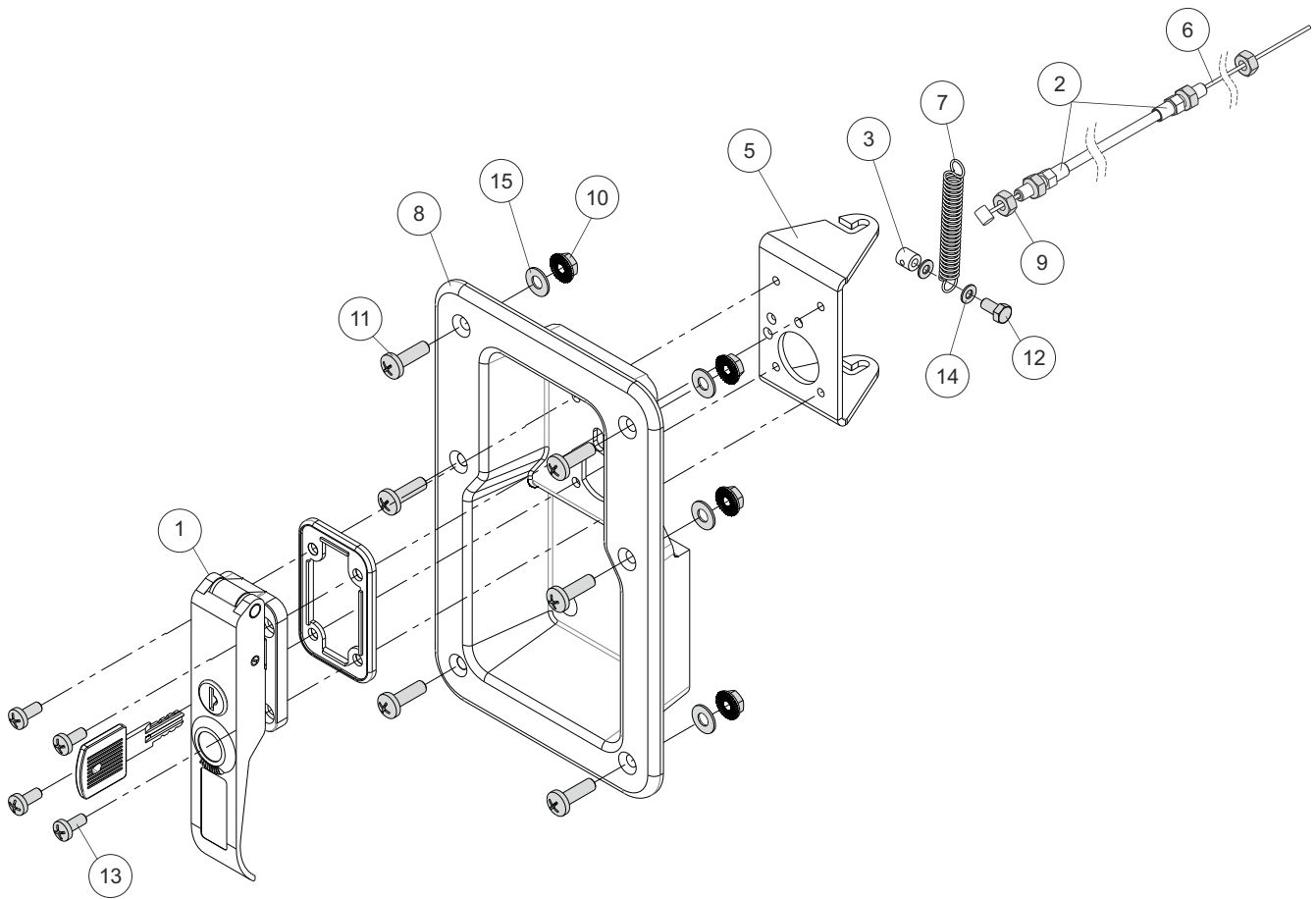




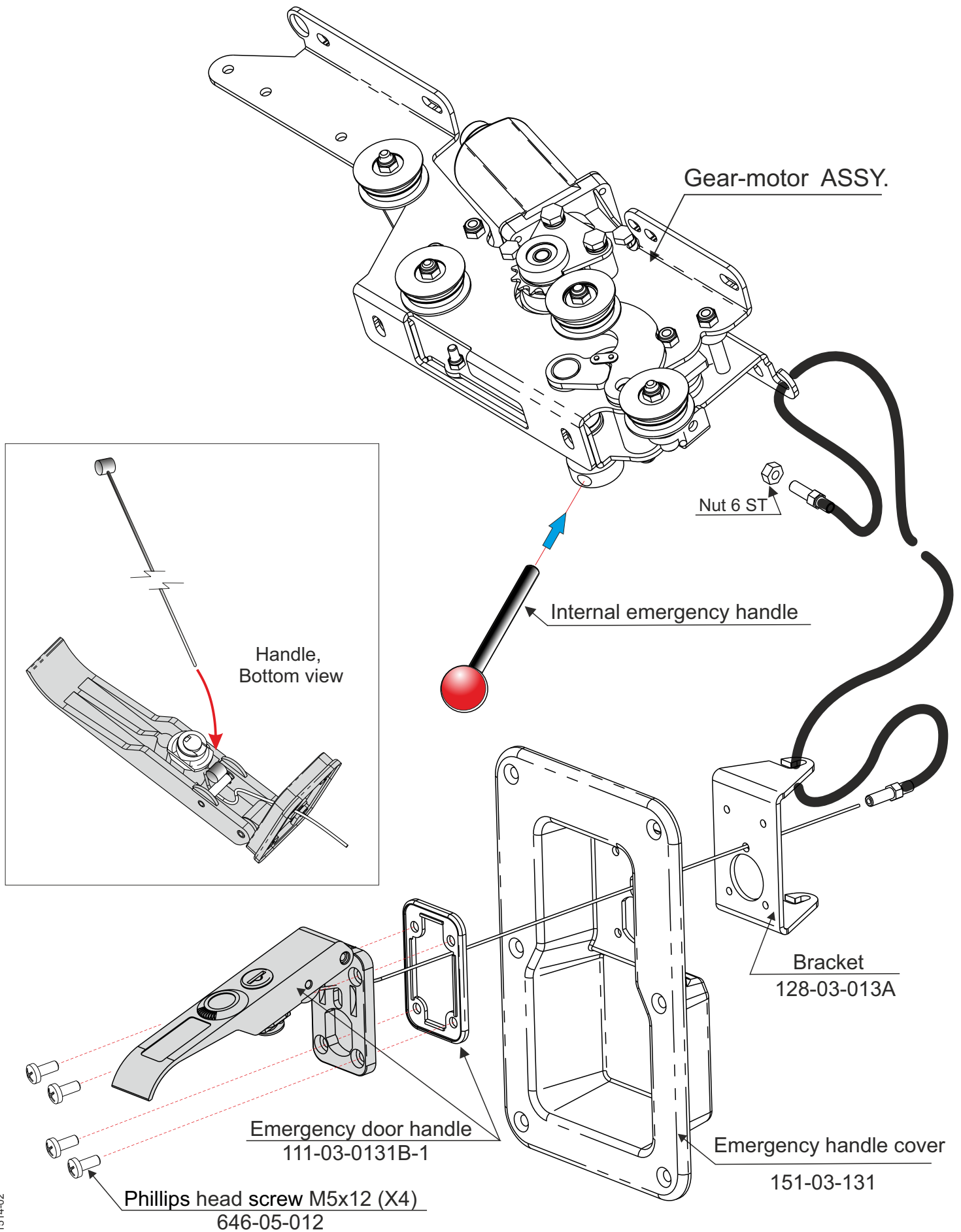
ASD
Automatic Sliding Door
External emergency door opening kit
PN: 111-03-013

Option





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	111-03-0131B-1	Exterior handle	1
2	111-15-116	Main mechanism cable ASSY	1
3	123-01-002	Short steeled clamping lugs	1
5	128-03-013A	Mounting bracket	1
6	128-11-116	Inner cable	1
7	140-03-013	Spring	1
8	151-03-131	Exterior handle cover	1
9	601-02-006	Hex Nut M6 DIN 934 - Zinc plated	4
10	601-06-006	Hex Flange Nut M6 DIN 6923 - Zinc plated	6
11	646-06-019	Cross Head Screw M6x20 - DIN 7985	6
12	632-04-010	Hex Cap Screw M4x10 DIN 933	1
13	646-05-012	Cross Head Screw M5x12	4
14	600-12-040	Flat washer 4 - DIN125	2
15	600-12-080	Flat washer M6 thin - DIN735	6



015-1514-02

Figure 1

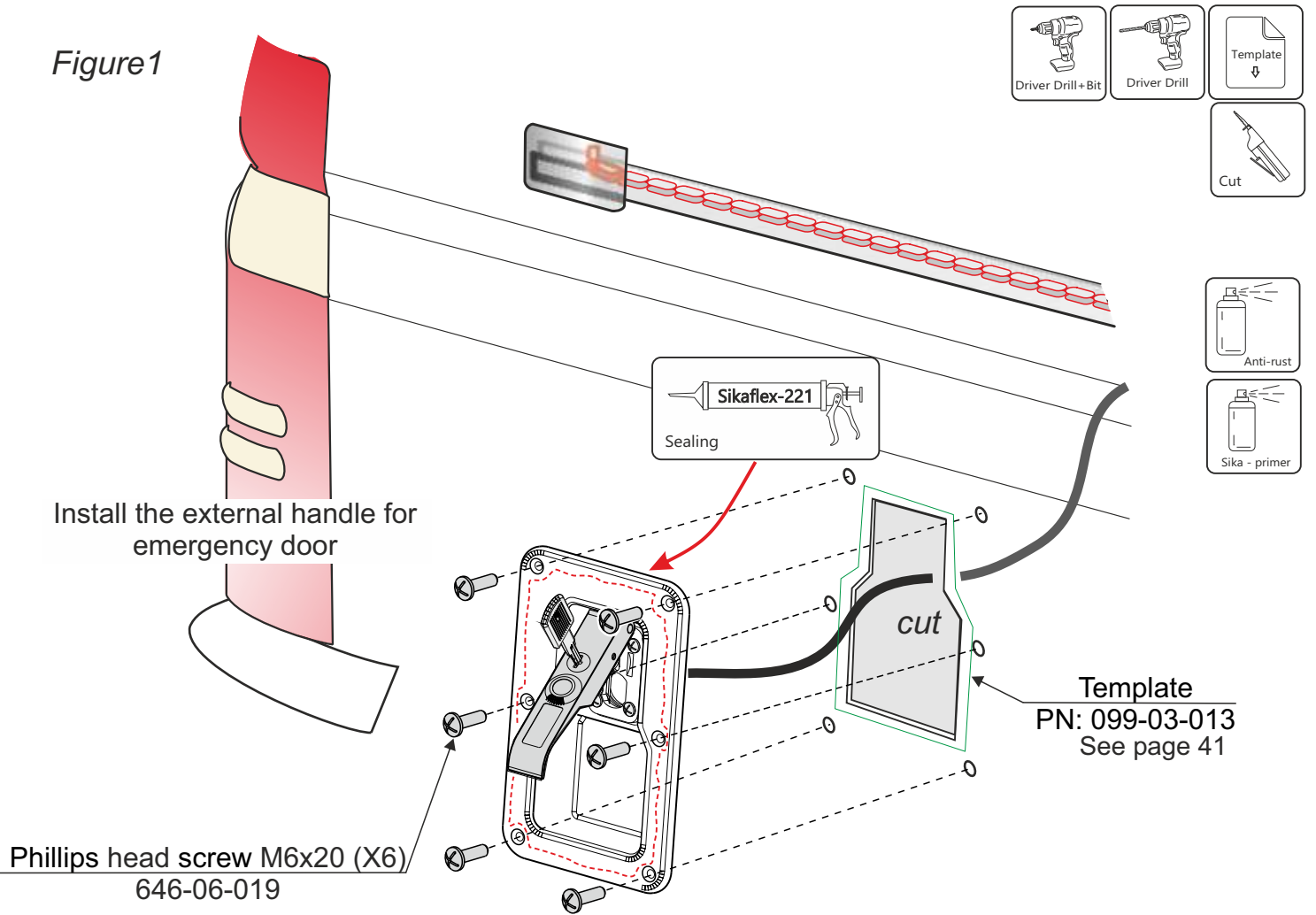
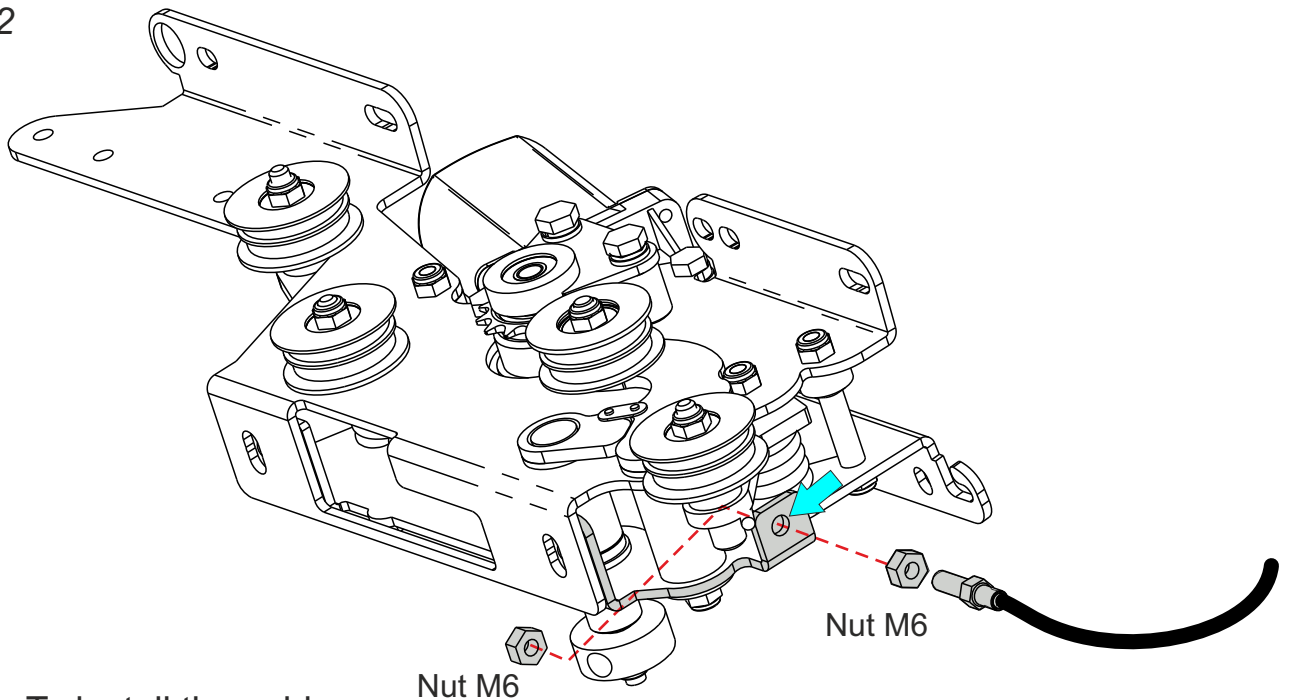
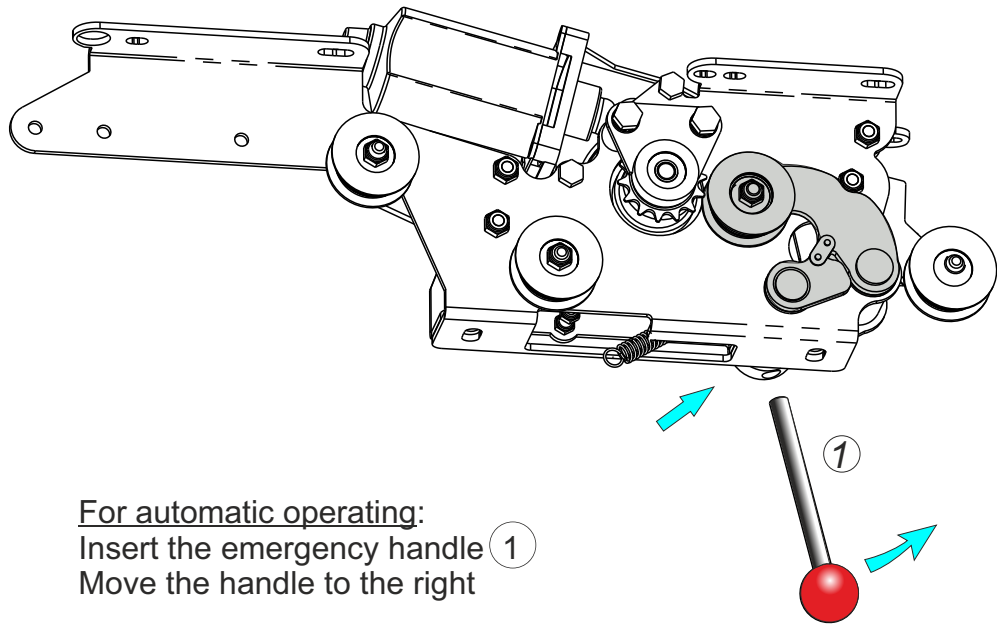


Figure 2



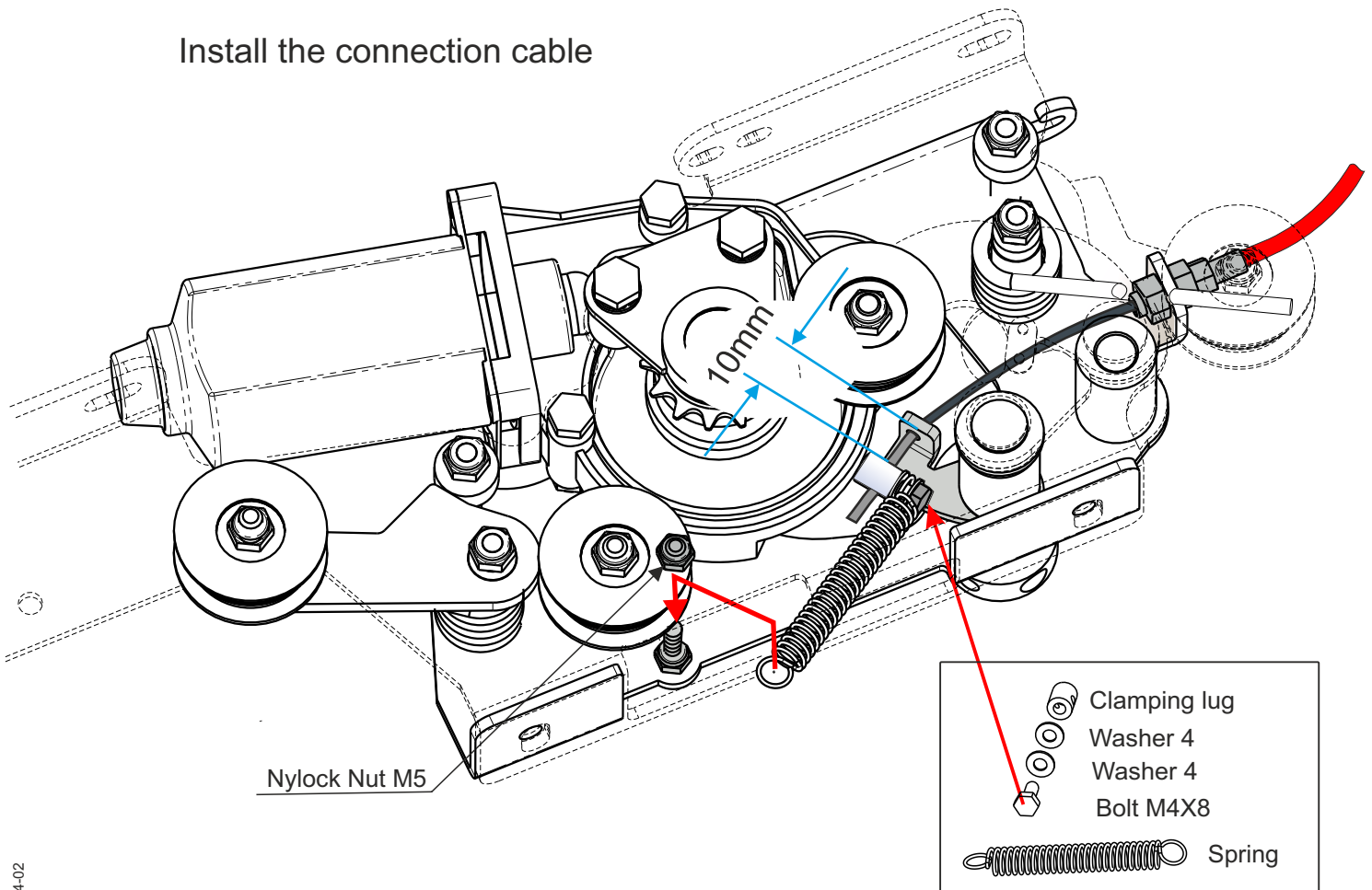
To install the cable:

- Verify that the Internal emergency handle is in a closed position.
- Insert the cable into the hole (see Figure 2) and fasten nuts M6.

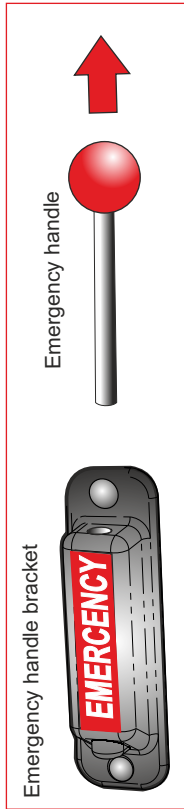
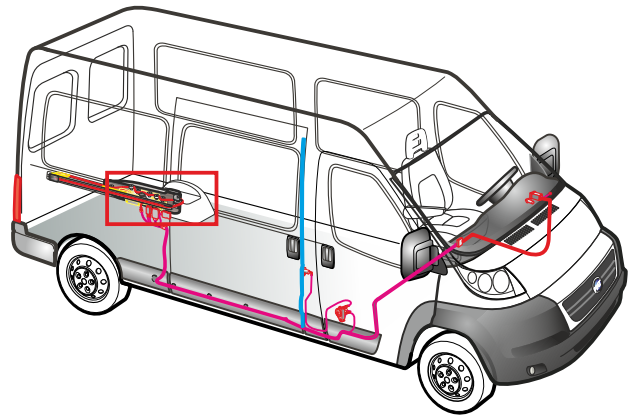
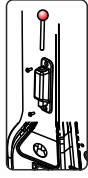


For automatic operating:
Insert the emergency handle ①
Move the handle to the right

Install the connection cable



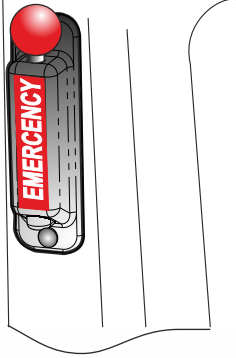
Place the internal emergency handle
in an accessible and visible place
(PN: 160-15-000)



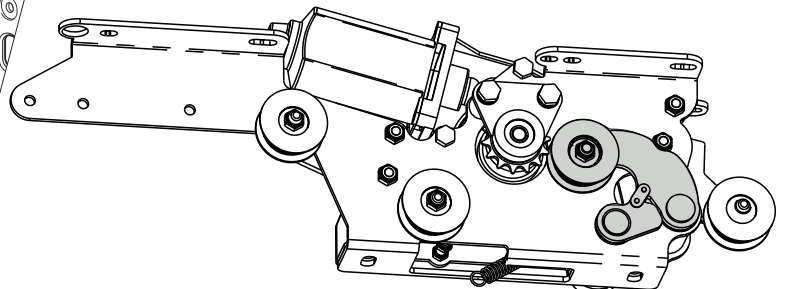
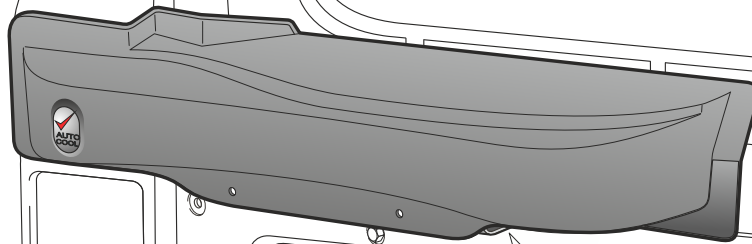
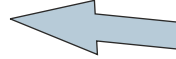
Emergency handle

Emergency handle bracket

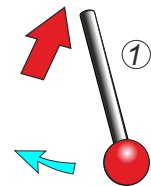
Internal emergency door kit
PN: 160-15-000



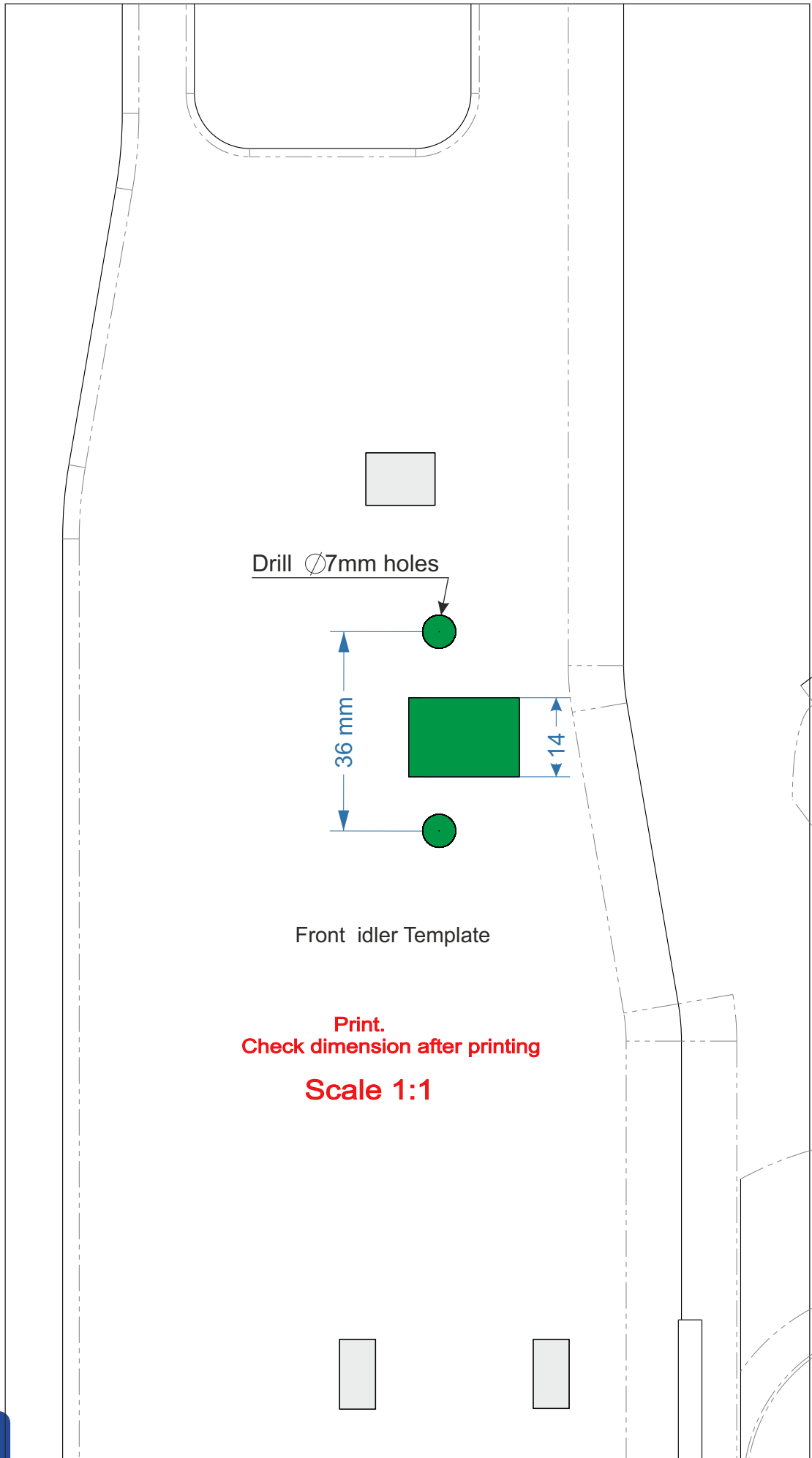
FRONT

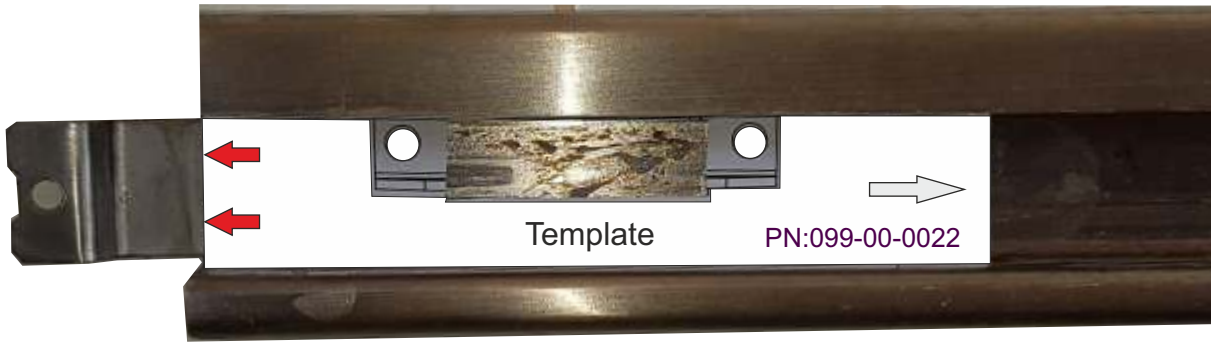


For manual operating:
Insert the emergency handle ①
Move the handle to the left

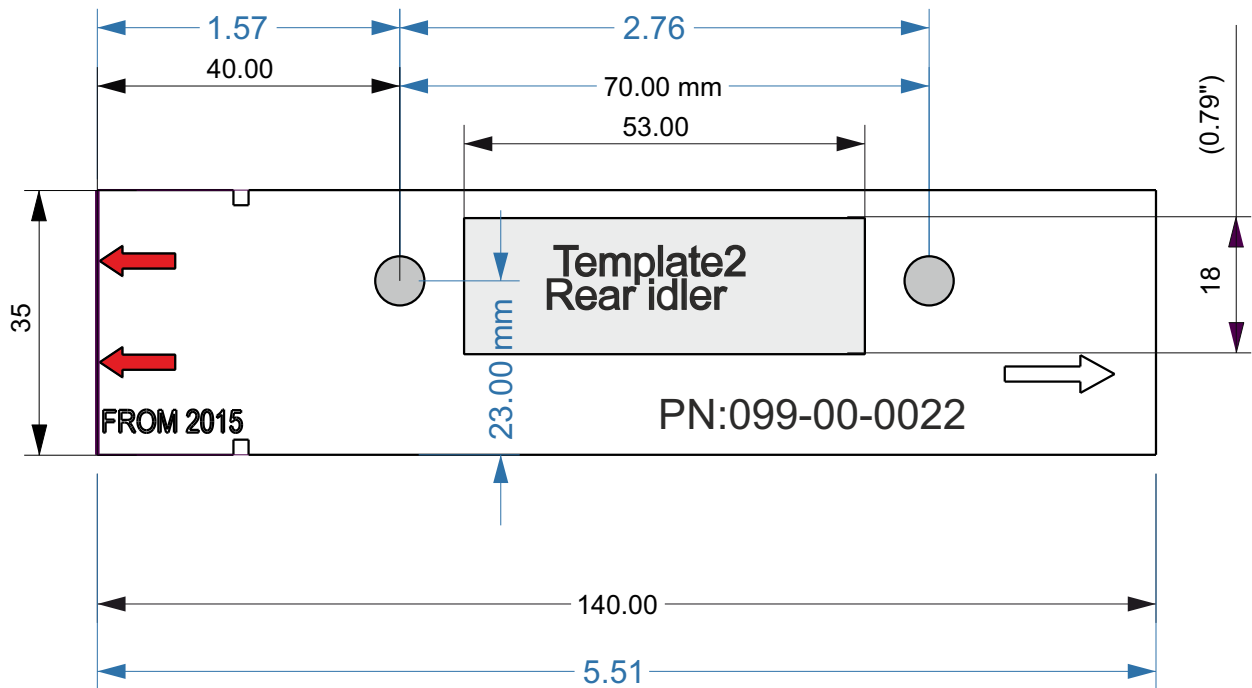


EMERGENCY OPENING



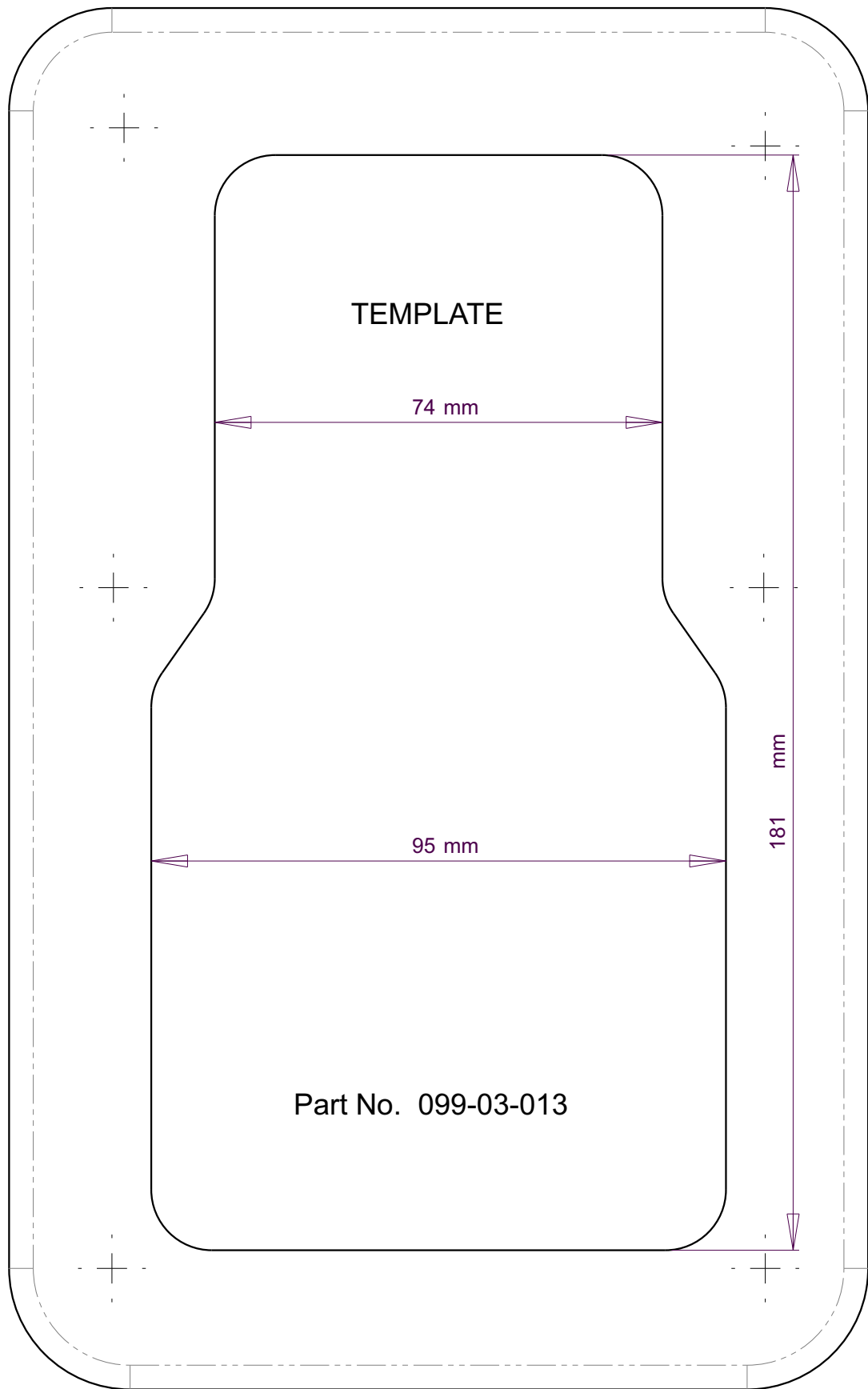


Rear idler



Scale 1:1

**Print.
Check dimension after printing**



Scale 1:1
Print.
Check dimension after printing

015-1514-02

Operation:

- The door is operated by a switch located on the dashboard or remote control:
- To open—press the switch shortly, door opens to end of its range.
- To close - press the switch shortly, door closes and locks.
- To change its direction while in motion - press the switch shortly - the door will stop; press the switch shortly again - the door will change direction.
- To control opening range – Continuous pressure on the control switch will set the door in motion upon its release, the door will stop.
- Visual status indications – When the vehicle's main ignition switch is on and the door is open, the indication light is visible.
- Audio status indicators – Independently of the vehicle's main switch – the vehicle's buzzer is always functioning whenever the door is in closing motion.

Safety measures

The system includes safety features to protect the passengers.

- Closing – When encountering an obstruction, the controller automatically reverses the door direction to open full way .
- In addition, a pneumatic switch is attached to the front side of door or B pillar, which upon sensing pressure performs the same function and retracts immediately.
- Opening - When encountering an obstruction, the controller stops the door.
- While the vehicle is in motion: the AAD will not be operational at speeds exceeding 5 km\h. If the door is open,the system close the door automatically and buzzer will operated.

Emergency facility

The system has inside and outside (optional) emergency releasing handle. Pulling one of them will result in disconnecting the ASD mechanism device and the door will function normally immediately.

Please note:

Original central lock system still work with ASD. It remains fully functioning. For open door mechanism first turn OFF central lock.

* Basic checks for any situation:

- Visual check for loosen / broken parts.
- Operate the system from different source:
Remote / driver switch / original remote/ original door handler.
- System reset:
- Disconnect the main fuse for 2 min - while waiting, check manually the system.

or

- Disconnect the control unit for 2 min - while waiting, check manually the system.

*Specific situations:

1. Door does not function:

- Check main fuse.
- Check connections of power terminals to the control unit, motor and operating switch.
- Check control units
- Check motor.

2. Door does not close properly:

(Do not move at all or when reaching the fully closed positions it reverses).

- Check the safety pneumatic pressure tube:
Disconnect the plugs of pressure switch and close the door automatically.
- Check inside the door the remote which connected to the pressure switch.
While pressing the pneumatic tube the LED indicator on the remote should light.
- Try to regulate the sensitivity of the pressure switch.
- Check limit switch on the B/C pillar for a good ground connectivity.
- Check control unit.
- Check voltage of the main battery, if under 12V start the engine.
- Check alignment of the door, tune it according to installation manual if required.

4. Door does not open:

- Check the electrical motor is engaged.
- If the ASD kit is a DL (Door Latch) ASD kit, check position of the locker unit (inside the door), which disable the OEM. locking system of the door.
- Check lock actuator (for DL model only).
- Check if OEM children lock on the door is active.

5. Door does not automatically reverse when encountering an obstruction during closing mode.

- Check safety pneumatic switch.
- Check pressure tube.
- Check control unit.
- Check remote device (inside sliding door).
- Check if door's limit switch (on B/C pillar) in place and good ground connectivity.

6. Noise from the door's chain during opening and/or closing modes.
 - Move the mechanism to hand mode. Slide the door and try to find the source of the noise.
 - Check installation and alignment of all wheels supports, front and rear idlers, and gear motor sprocket.
 - Check chain tension and if needed, shorten it by removing one or two "links" of the chain (a very loose chain may also "jump" and cause damage to the sprocket's main motor).

7. Auto Cool remote control unit does not function.
 - Check with spare remote control.
 - Check battery in the key unit transmitter.
 - Check if the LED indicator on the remote lights.
 - Check connections (plugs) of receiver and main controller.
 - If this issue still occurs, replace remote control receiver and transmitter set, with a new full set. Make sure to calibrate the existed transmitter inside the door.

8. VSS (Vehicle Speed Sensor) do not operate (the door operates although the vehicle is over 3 Km/h speed).
 - Check connections to VSS (see installation manuals).
 - Check control unit.

9. Buzzer does not operate during the closing mode.
 - Check control unit.

10. Main driver button do not work:
 - Check wires to the button.
 - Replace and check button.
 - Check control unit.



11. Original handle switch do not work:
 - Check remote inside the door (see note 7 above).
 - Check micro switch connections inside the door.
 - When pulling the original door handle, check remote inside the door.

12. OEM remote / central locking button do not work:
 - * For vehicles including OEM remote / central locking option.
 - Check control unit.
 - Check connection to the OEM central locking wires (see installation manual).

Combination wrench set metric	
1/4" Drive socket set metric	
Saw blades	
Air reciprocating saw	
13mm Pneumatic drill	
Hand holding battery powered drill	
Soldering-iron	
High speed threaded insert tool or Heavy duty hand tool for field and low volume production use or Small hand tool for prototype work and repairs.	
Rubber hammer	
Flashlight or drop light	
Soldering-iron	

Straight flute HSS step drill diameter 4-30mm	
Drill point countersinks	
Straight shank twist drill Diameter 4mm / 5mm / 6mm / 6.5mm / 7mm / 9.5mm 12mm	
T-handle set	
Hand files	
Plier set	
Wire stripper/crimper	
Heavy duty snap blade knives	
Locking plier	
Screwdriver set	
Tape 50mm	
Anti-rust primer	
Pencil or marker	

Recommended Torque (steel x steel)

Bolt  8.8	Torque (Nm)	Bolt  10.9	Torque (Nm)	A2 or A4 Stainless steel	Torque (Nm)
M5	6.0			M5	5.1
M6	10.3			M6	8.7
M8	25.5	M8	37.6	M8	21.2
M10	50.0	M10	72.0	M10	42
M12	87.0	M12	126.0	M12	73