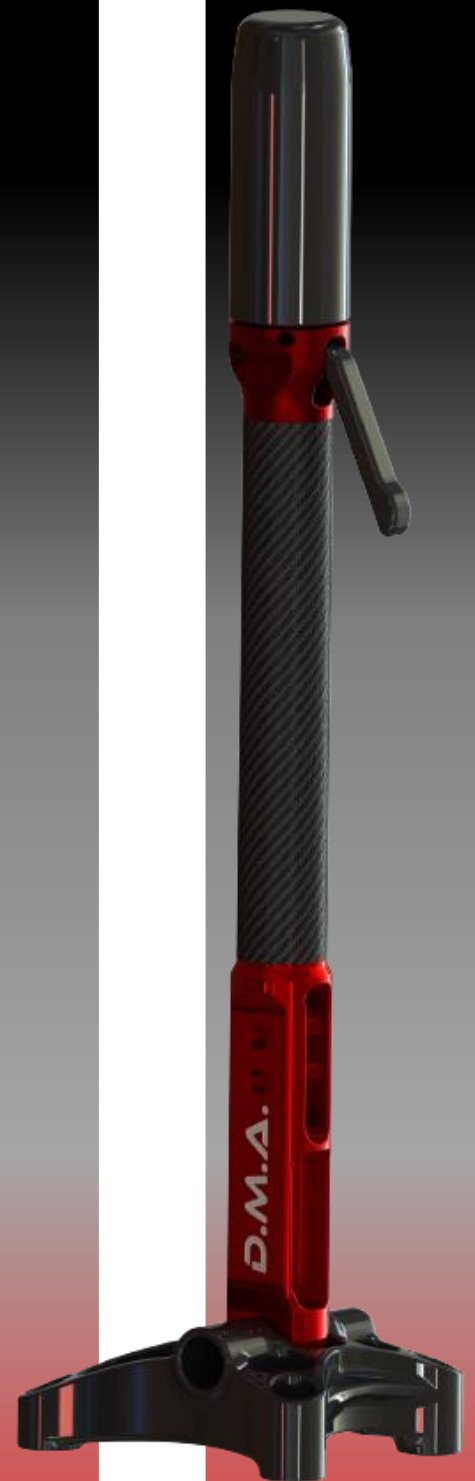


D.M.A. *TRACING*
A *GEARS*

S1_C17 - GEAR LEVER GUIDE

**S1_C17*S* - GEAR LEVER WITH
STRAIN GAUGE GUIDE**

Ver-1.1-02/04/2024



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PRODUCT INTRODUCTION

Thank you for purchasing our new gear lever. We have prepared several technical innovations compared to the previous version of this product.

Due to the new innovative technology of using a strain gauge directly in the shifter head, our gear lever offers significant advantages. Unwanted engine disengagement due to lever oscillation is now a thing of the past, the strain gauge now responds only to the force exerted by the driver's hand. In addition, the removable lever head has improved access to the electronics and strain gauge for fast & easy adjustment or maintenance.

Compared to the previous version, we have also modified the mechanism of the neutral lock lever, which is now completely hidden inside the shifter.

Last but not least, by using an extra strong carbon fiber tube connecting the head to the bottom of the shifter, we were able to create a very light, compact and timeless design.

We are convinced you will be really impressed by our product.

PACKAGE CONTENTS

1. Gear lever assembly with base and bowden cable

2. Accessories for mounting of locking cable

- Cable end cap (1x)
- Shrink wrap (1x)

3. Spare parts for replacement of bowden

- Spare bowden cable (1x)
- Cable end cap (2x)
- Shrink wrap (1x)
- Spare cable (1x)
- Spare set-screws (1x)
- Retaining clip (1x)

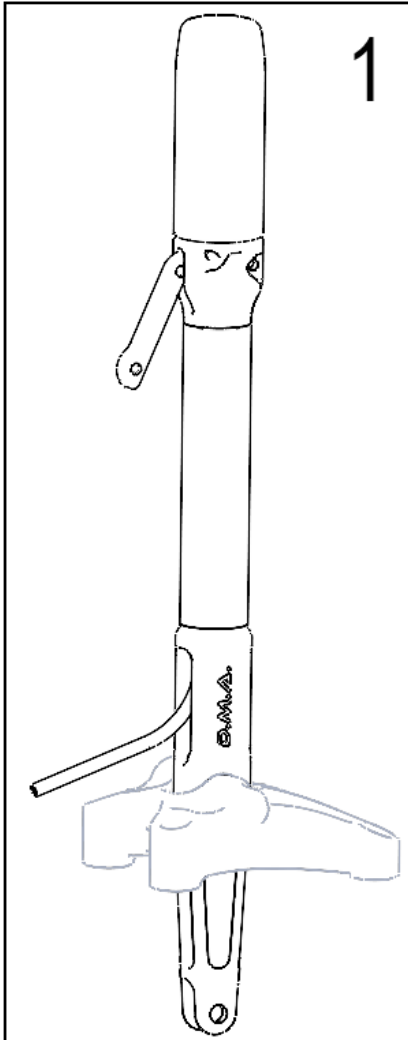
4. Installation tools

- Inbus (*Allen*) keys set (1x)

5. User manual

6. D.M.A. stickers

PACKAGE CONTENTS



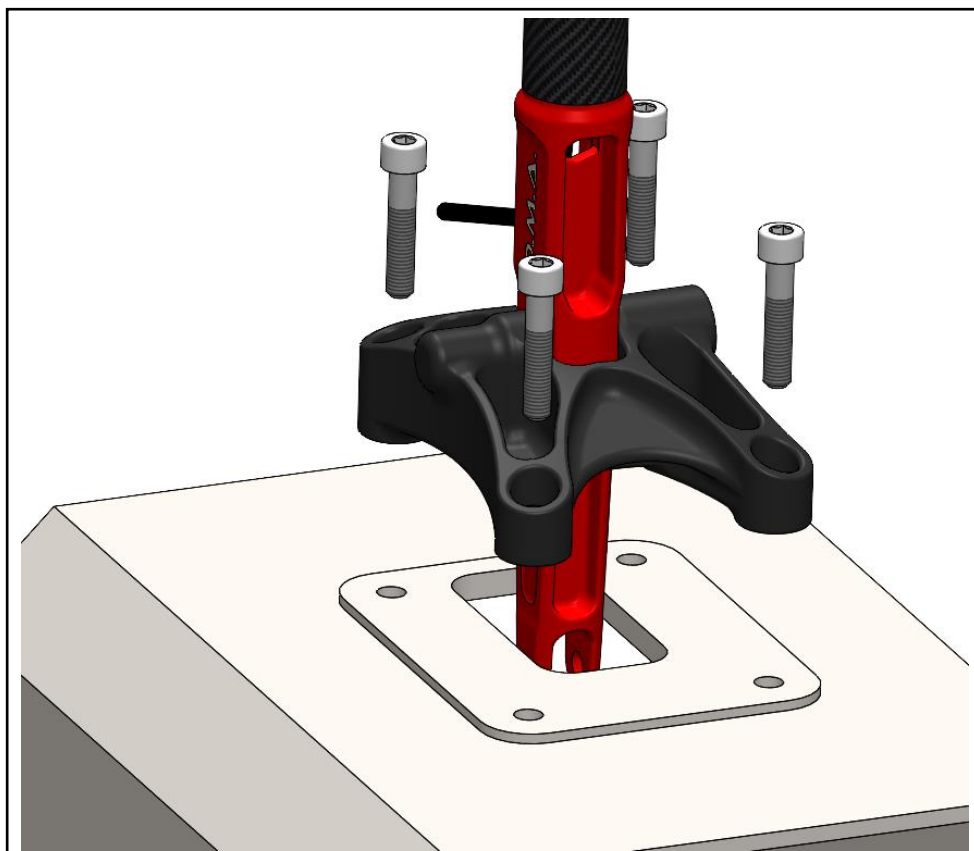
INSTALLATION MANUAL

After unpacking, the gear lever is almost ready to use.

Please do the following steps before using it:

1. Mount the gear lever base to the car chassis/ tunnel or any additional bracket.

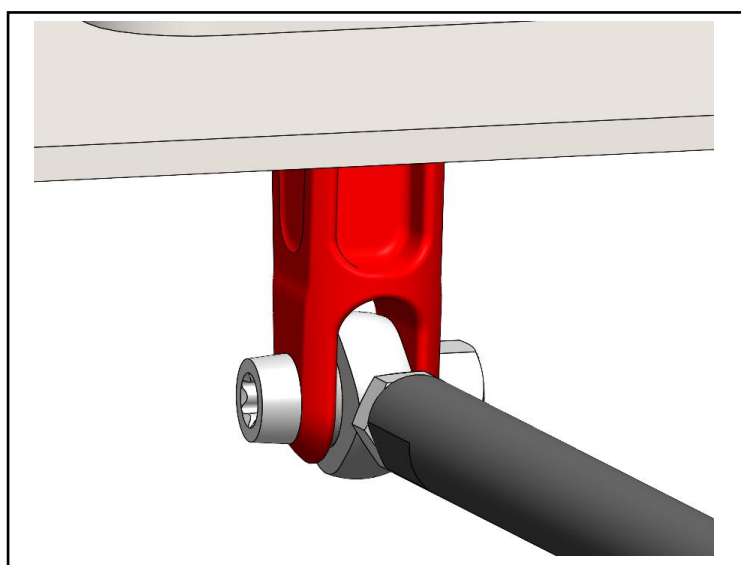
The base must be fixed firmly and there must be no flexing. To make correct mounting points please check section „ASSEMBLY DRAWING“ where to find. For mounting please use 4x M8 bolts (length according to specific usage, *bolts are not included*). Its recommended to reinforce the mounting points by weld on plate.



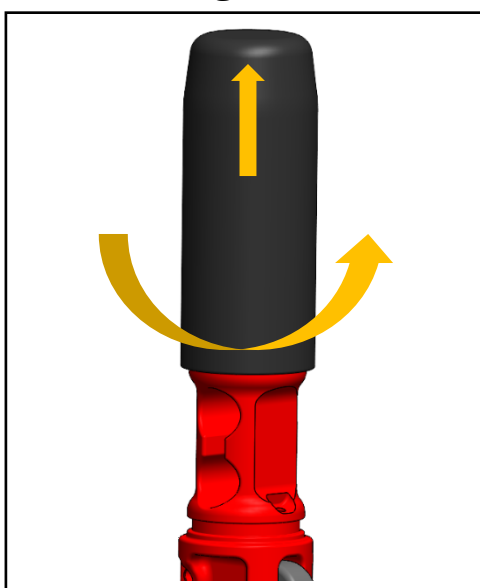
INSTALLATION MANUAL

2. Attach the shift rod to the gear lever. Fasteners for attachment are included. To choose right ball joint bearing please check section „PARTS LIST“. Use tools from zip bag **4**.

The shift rod cannot flex, use correct size and diameter to avoid it.



3. Unscrew the gear lever head (black part). Turn counterclockwise. Perform the operation by hand without any tools to prevent damage to the head.

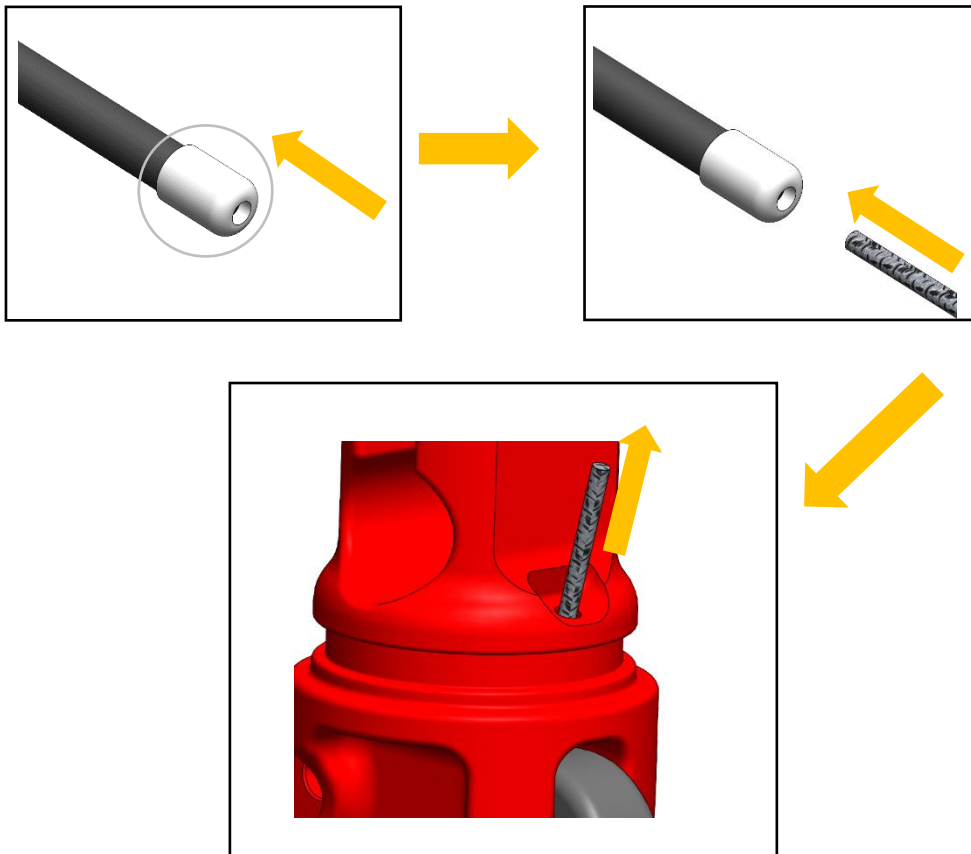


INSTALLATION MANUAL

4. Cut the bowden cable to the correct length (to reach the blocking flange support on gearbox). **The bowden cable must have a smooth line shape, avoid sharp transitions!**

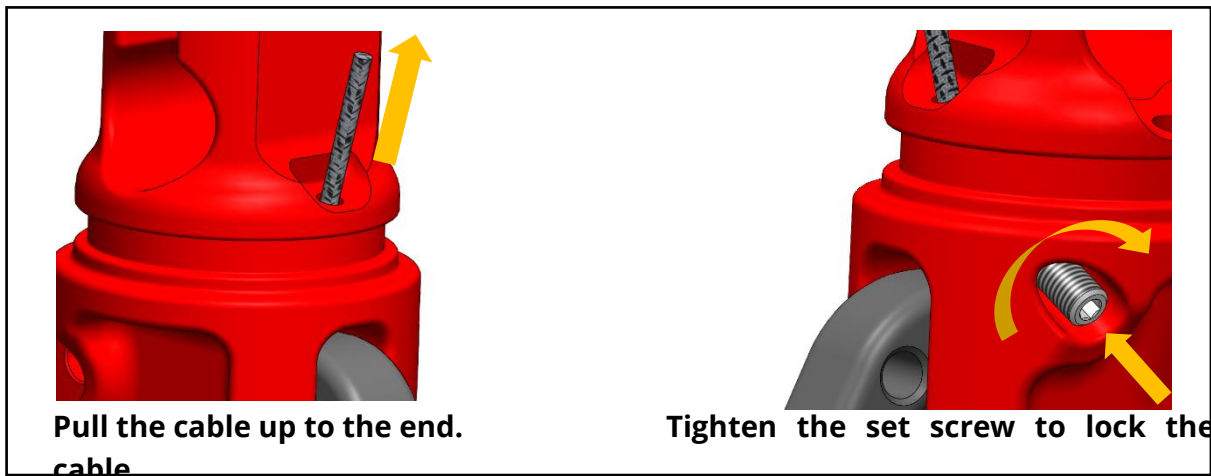
5. Unbox the zip bag **2**, use the cable end cap on the end of bowden cable (which will be fitted on gearbox blocking flange). Push the cable attached to gearbox through bowden cable up to the head of gear lever.

*In case of usage in case of using our shifter without our gearbox, you can use a new cable from the zip bag **3**.*



INSTALLATION MANUAL

6. Pull the cable as far as possible with your hand. Then tighten the set screw on the side of the gear lever. Use the tool in zip bag 4 to tighten.

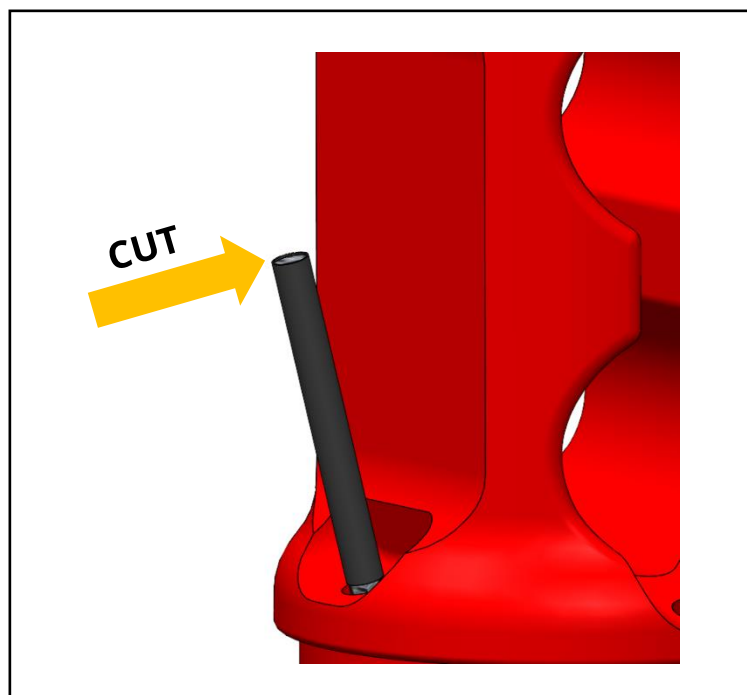
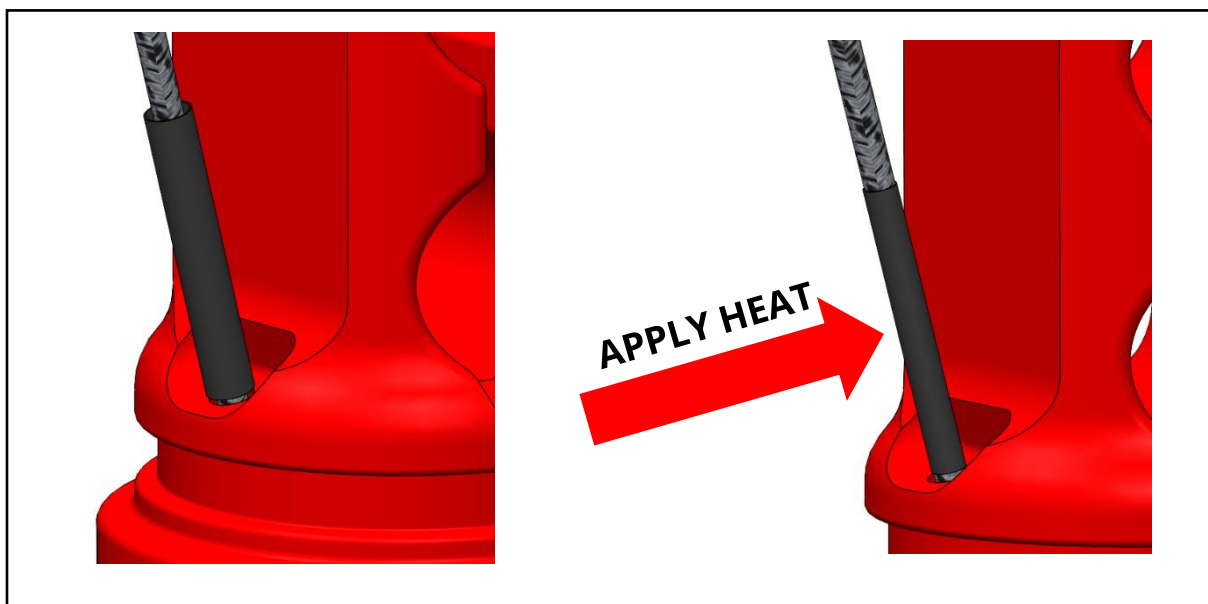


To verify proper installation, try to check that the locking lever does allow 1-2 mm free movement, as well as the end of the bowden cable on the gearbox lock flange. Repeat step 6 if any of these problems occurs (**LITTLE FREE MOVEMENT, 1-2mm is REQUIRED**).



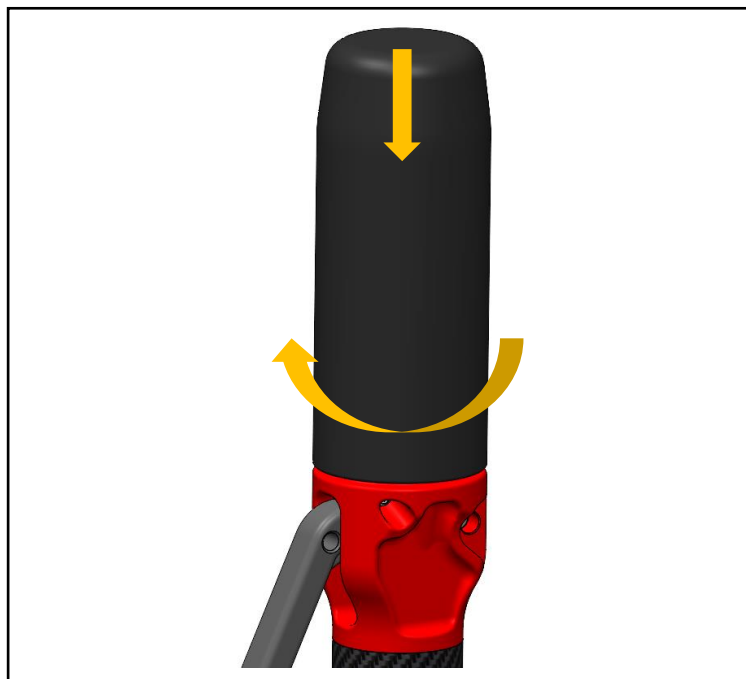
INSTALLATION MANUAL

7. Use the shrink wrap to the end of cable. Apply the heat gun on shrink wrap to tighten it. Cut off the excess cable so that approximately 20mm remains. Shrink wrap prevents fraying of the cable.



INSTALLATION MANUAL

- Put the gear lever head back on. The thread must be clean. It is advisable to apply vaseline to the thread to help prevent seizing. Tighten by hand, do not use tools to prevent damage to the lever head.



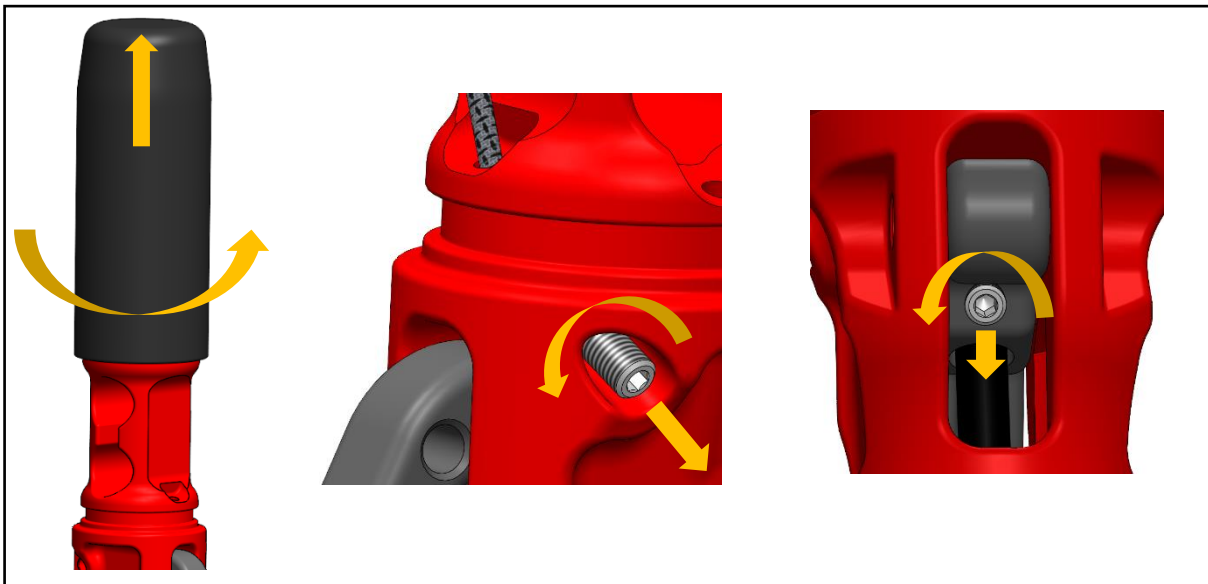
- Connect the strain gauge cable to the vehicle electronics.

Make sure that the connector wiring on your vehicle is correct to prevent a fault in the electronics. For correct connection please see section „*INSTRUCTION OF USE – STRAIN GAUGE*“.

Installation is complete! To learn about the features, please continue to the section „*INSTRUCTION OF USE*“.

INSTALLATION MANUAL – BOVDEN CABLE REPLACEMENT

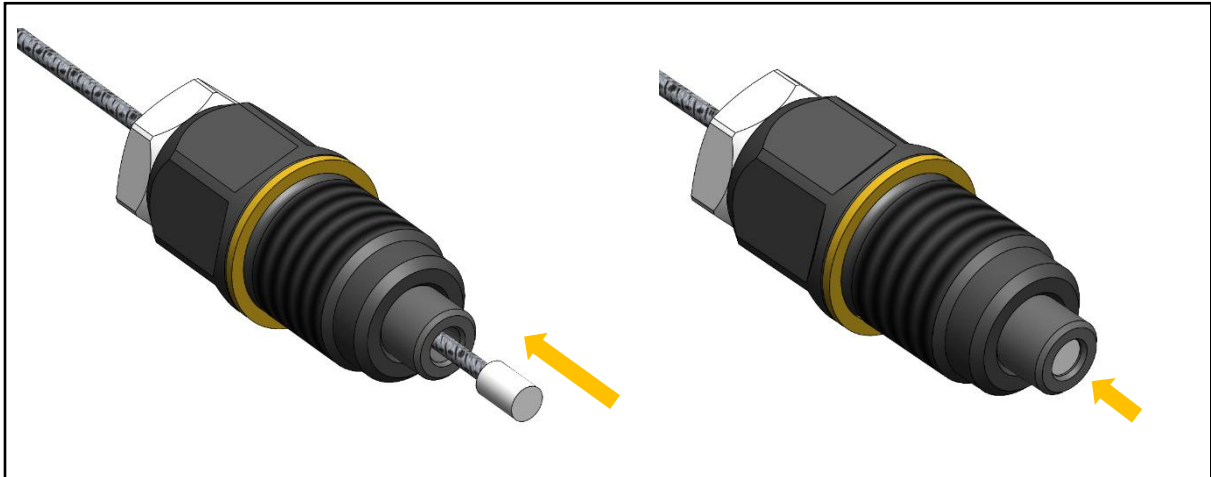
1. If the bovden cable is damaged, it is likely that the cable will also need to be replaced. The contents of the zip bag **3** are used for this task.
2. Unscrew the gear lever head (black part). Turn counterclockwise. Perform the operation by hand without any tools to prevent damage to the head. Then unscrew the set screw on the side of the gear lever. Unscrew the set screw that holds the bovden in the lever. Use the tool from zip bag **4**.



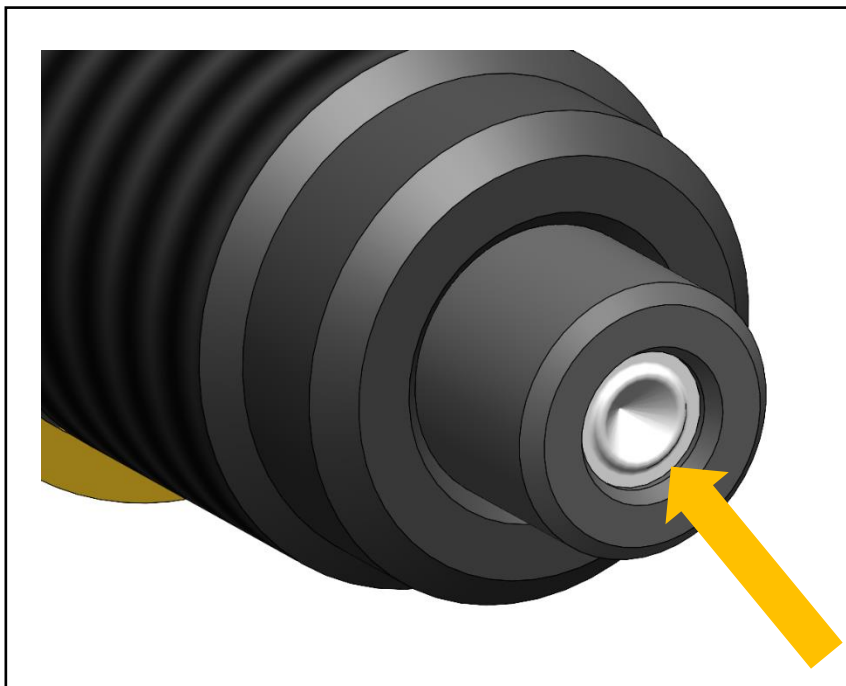
3. Remove the bovden cable as well as metal cable. Metal cable needs to be removed from the gearbox lock flange.

INSTALLATION MANUAL – BOVDEN CABLE REPLACEMENT

4. Install new metal cable to the gearbox lock flange. The cable header should be pushed all the way in.

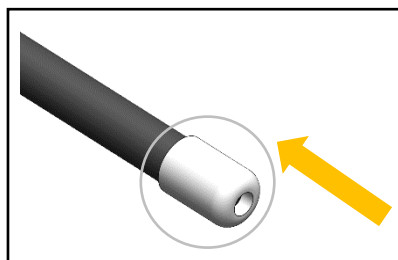


5. Then dimple the head of metal cable to prevent it from falling out.

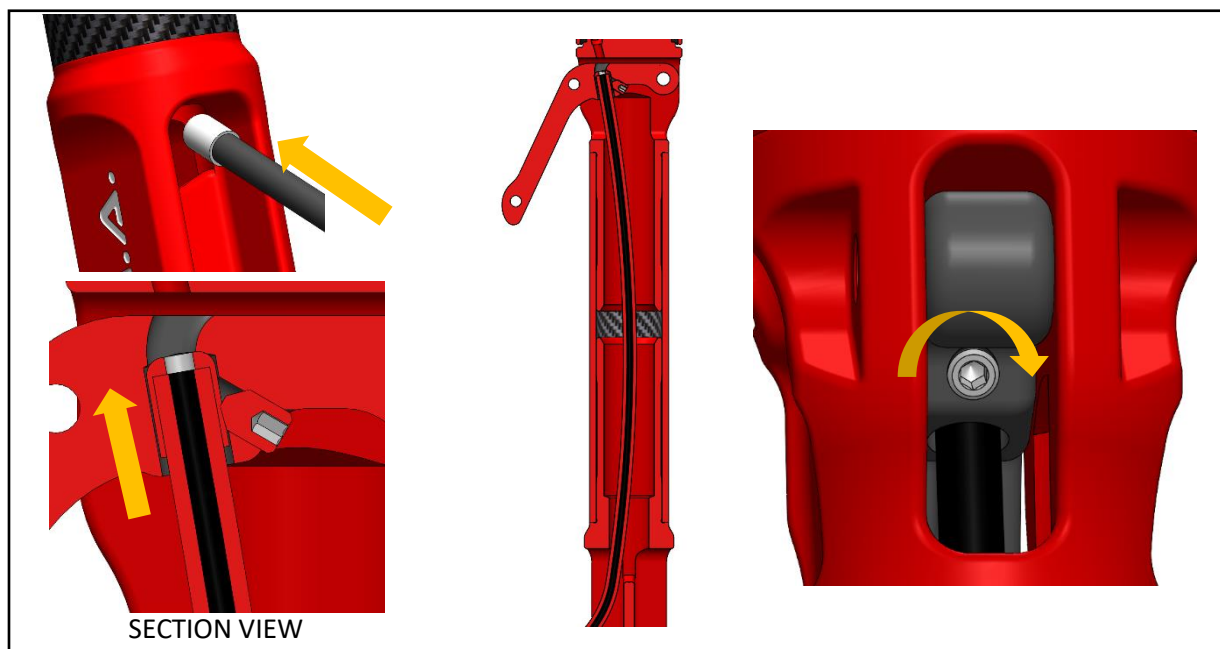


INSTALLATION MANUAL – BOVDEN CABLE REPLACEMENT

6. Use the cable end cap on the end of bovden cable (which will be fitted in the gear lever).



7. Pull the bovden cable through the gear lever. **Be careful not to let the cable end cap fall out.** Then insert the bovden cable into the hole of the locking lever. **Push forcefully on the bovden so that it is inserted as far as possible, at the same time tighten the set screw on the locking lever.** For this use tools from zip bag 4.

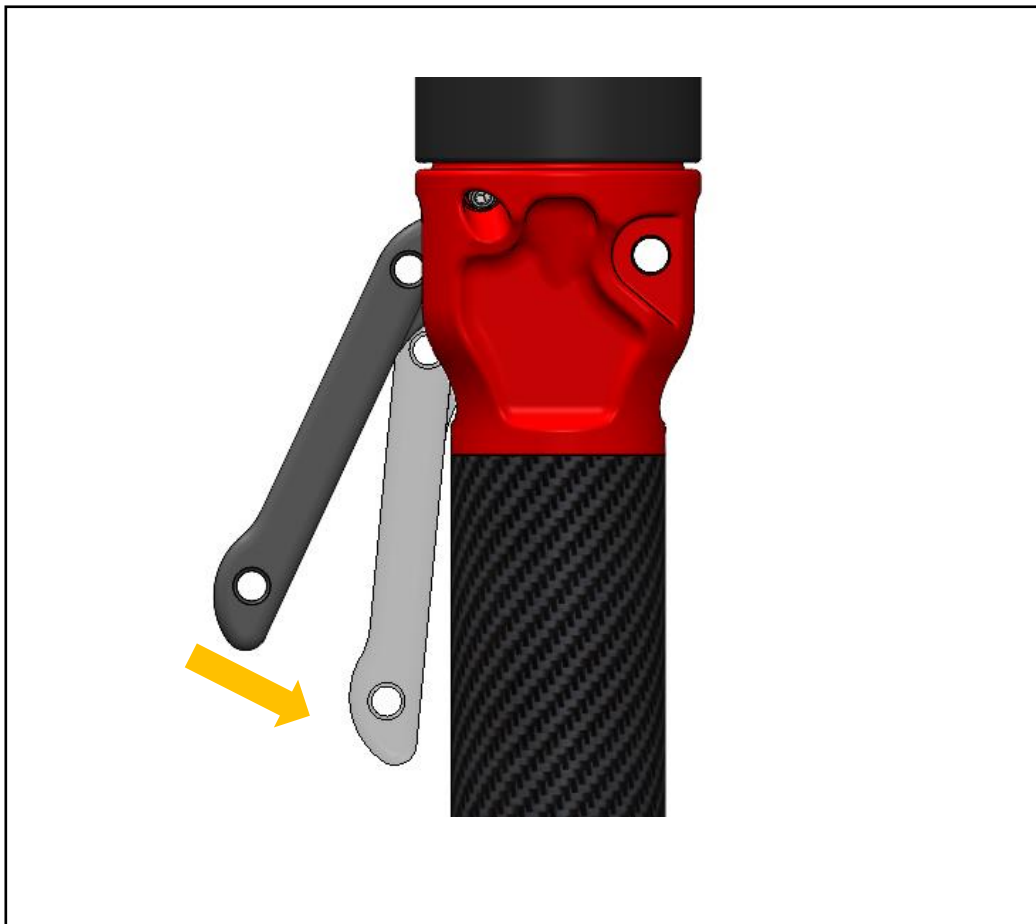


8. Then continue with point 4 in the „*installation manual*“ section.

INSTRUCTION OF USE

1. Reverse / neutral unlocking:

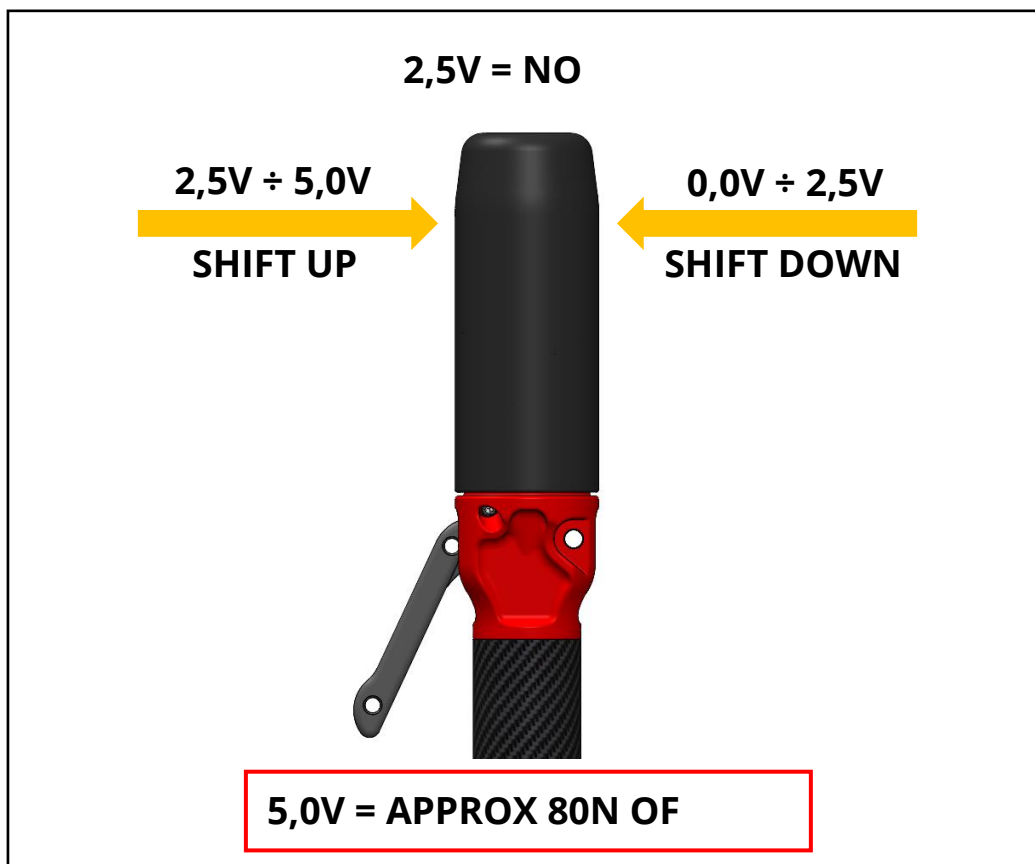
To be able to shift neutral or reverse gear, you need to apply and hold force to the locking lever, then shift required gear (N/R). After releasing force, the lever goes to its default position by itself.



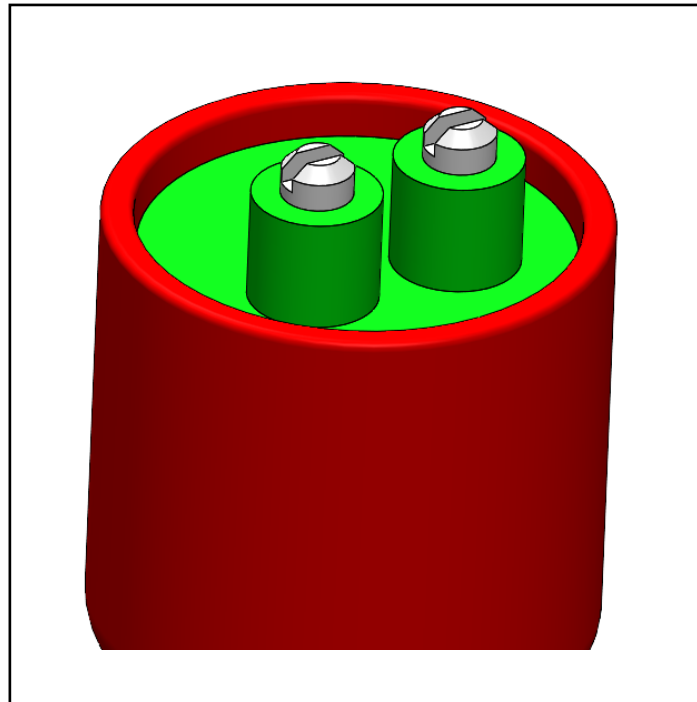
If unlocking does not work correctly, see the section „troubleshooting“.

2. Strain gauge (product variant „S“):

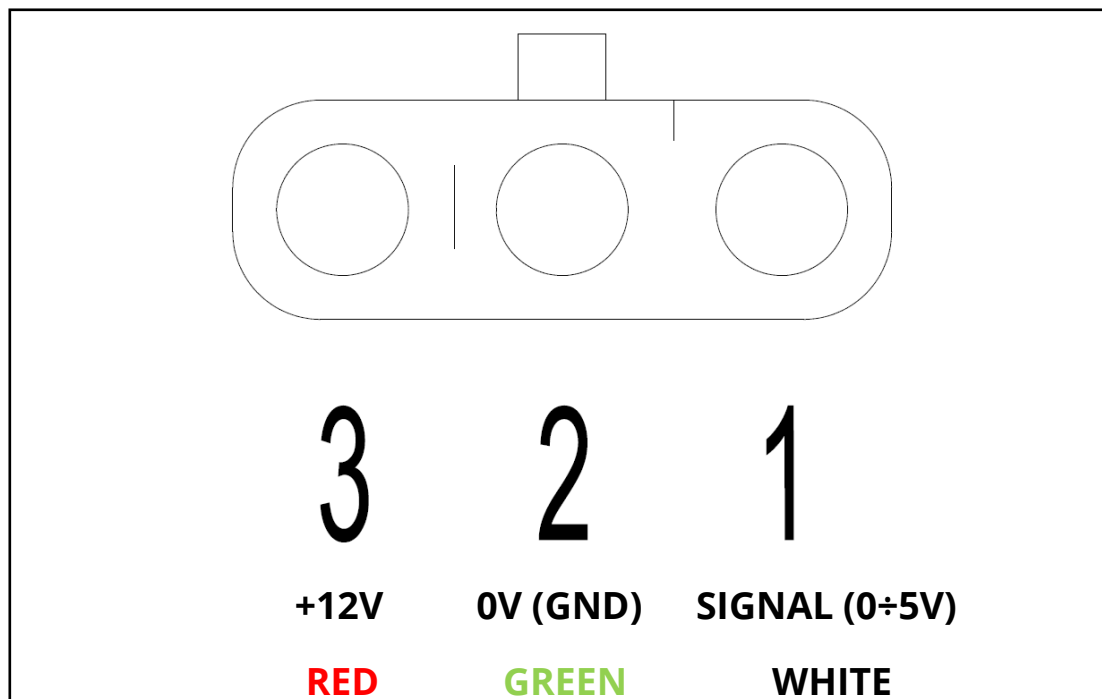
The strain gauge inside the gear lever responds to the force applied in both directions (forward and backward). This is evaluated by the electronics and a signal is sent in the form of a 0V to 5V voltage.



The middle value (2.5V) can be adjusted using the trimmers (ZERO) on top of the shifter head. To remove it, please follow point 3 of the section „*INSTALLATION MANUAL*“.



STRAIN GAUGE WIRING SCHEME:



PARTS LIST

ASSEMBLY DRAWING

TROUBLESHOOTING

Basic feature	Problem	Options
Unlocking lever	Step is too small to unlock	Check step 6 of installation manual
	Stuck lever	Check the line of bowden if is not broken or does not have too sharp corners
	The lever is sunk down	The cable is probably broken, follow the installation manual – bowden cable replacement
Strain gauge (product variant „S“)	Asymmetrical output (nominal value not 2.5V)	Nominal value has to be set thru trimmers, check page 16 of this document.
	Strain gauge does not work	Check the wiring on page 16. If the problem persists contact our technical department.
Mechanical	Detached / broken parts	Contact our technical department.
	Gearbox does not shift correctly	Check that there is no limit to lever movement. Check that there is no flexing of the shift rod.

If in doubts, do not hesitate to contact our technical department:

Tel.: +420 739 446 860

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Web Sites: www.dmaracinggears.com