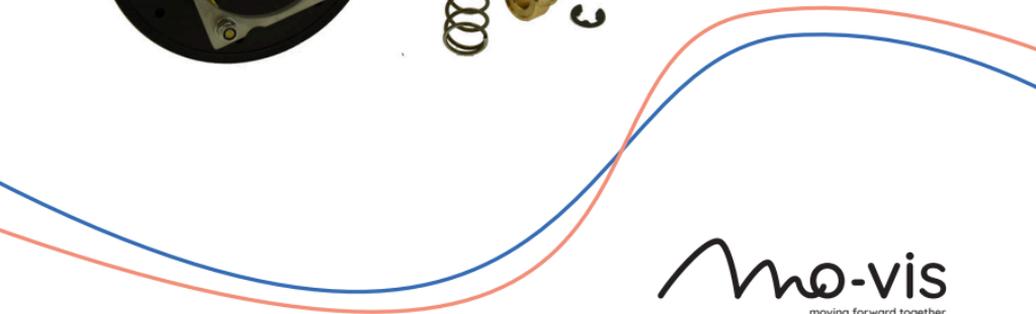


Installation Manual

Edition 5, December 2021

Heavy Duty Kit

Heavy Duty Kit for R-net Standard Joystick (M002-24) - Heavy Duty Kit for R-net CJSM2 Joystick (M002-44) - Heavy Duty Kit for Curtis Standard Joystick (M002-40)



mo-vis
moving forward together

Contents

About this manual	3
Installation manual	3
mo-vis bv	3
Important information	4
Warranty	5
Repair and replacement	5
Amendments	5
Disclaimer and limitations of remedies	6
Voiding of warranties	6
Technical support	7
Warning labels	8
Limited liability	9
Preparations	10
Different versions	10
Qualified service engineer	11
Tools	11

Component handling	11
Installation plan	12
Installation	13
Heavy Duty Kit for R-net Standard Joystick (M002-24)	13
Heavy Duty Kit for CJSM2 (M002-44)	16
Heavy Duty Kit for Curtis Standard Joystick (M002-40)	20
Calibration	23
Testing	24
Check the device for intactness	24
Operational test	24
Test drive	25
Stop test	26
First time use	27
Maintenance	29
Monthly inspection	29
Yearly inspection	29

About this manual

Installation manual

This manual contains **useful and important information** about your device.
Please read it carefully before use and store safely for future reference.

Our team will be happy to answer your questions.

mo-vis bv

Biebuyckstraat 15D . 9850 Deinze . Belgium

<http://www.mo-vis.com> . contact@mo-vis.com . +32 9 335 28 60



Important information



CAUTION: Incorrect use or installation may lead to risk of injury to the user and damage to the wheelchair or other property. In order to reduce these risks, you should carefully read this installation manual, paying particular attention to the safety instructions and warning texts.



NOTICE: Only install this product on a wheelchair where the wheelchair manufacturer allows the installation of third party parts.

Warranty

mo-vis bv warrants the product to be free from defects in material and workmanship for a period of 2 years under proper use, care and service. The dealer should never keep mo-vis products in stock for a period more than 6 months prior to delivery to the end-user. mo-vis' warranty will never exceed a period of 2 years and 6 months after shipment.

All warranties do not extend beyond the initial purchaser from an authorized mo-vis dealer or mo-vis itself.

Repair and replacement

For warranty service, contact your dealer (or us if bought directly). In the event of a defect in material or workmanship, the dealer or customer must obtain a Return Merchandise Authorization (RMA) number from us. The product must be shipped to a service centre designated by mo-vis. mo-vis will repair or, at mo-vis' option, replace any product covered by the warranty.

Amendments

No person is authorized to alter, extend or waive the warranties of mo-vis.

Disclaimer and limitations of remedies

The express warranties set forth in this agreement are in lieu of all other warranties of merchantability or fitness of purpose. In no event shall mo-vis be liable for any direct, indirect, incidental or consequential damages resulting from any defect in this product.

Warranty of parts subject to “normal wear and tear” (e.g. joystick handles, pads, ...) are not covered in the warranty except as it applies to defects in material or construction.

Voiding of warranties

The foregoing warranties are contingent upon the proper installation, use, maintenance and care of the product. The warranty will be void if the product has been installed or used improperly, or if it has been repaired or any part replaced by persons other than mo-vis or an authorized dealer. This product is considered as a non-serviceable part.

The addition of equipment or features that are not manufactured or recommended by mo-vis could affect the intended function of the mo-vis product and may invalidate the warranty.

Technical support



TROUBLE:

In case of technical problems:

- 1 Contact mo-vis at contact@mo-vis.com or +32 9 335 28 60.
- 2 Always state the device serial number when contacting us. This ensures you are provided with the correct information.

Warning labels

Please read this manual, the safety instructions and warning texts carefully, in order to reduce the risks associated to the device. Our products are safe under normal and reasonably foreseeable operating conditions.



NOTE: This symbol indicates general notes and information.



CAUTION: This symbol indicates caution for a hazardous situation that, if not avoided, could result in minor or moderate injury.



WARNING: This symbol indicates a warning for a hazardous situation that, if not avoided, could result in death or serious injury.

Limited liability

mo-vis accepts **no liability** for personal injury or damage to property that may arise from the failure of the user or other persons to follow the recommendations, warnings and instructions in this manual.



CAUTION: Carry out only the service and maintenance activities specified in this manual, as long as you comply with the demands stated in this manual for a specific action. In case of doubt, contact mo-vis.



WARNING: The device should always be tested without any person sitting in the wheelchair after every alteration of the physical installation or adjustment of the parameters.

Preparations



CAUTION: Before you start with the installation:

- Please check the packaging and verify that all items are included.
- Make sure that you have all the necessary documentation and knowledge to install this device.
- Check the condition of the device.

Different versions

There are different versions of the Heavy Duty Kit available:

- The Heavy Duty Kit for R-net Standard Joystick (M002-24) and for CJSM2 Joystick (M002-44) is intended to be fitted on an R-net joystick with sensor D51422. The sensor type can be verified on the production sticker on the bottom of the joystick.



NOTE: This type of sensor is used by PGDT since 2013. For older devices, check before installation.

- The Heavy Duty Kit for Curtis Standard Joystick (M002-40) is intended to be fitted on a Curtis standard joystick.

Qualified service engineer

Only a qualified service engineer may install the device.



CAUTION: An incorrect programming of the wheelchair electronics may cause damage to the devices, or injury to the user.

Tools

The kit contains all necessary components for a successful installation. Tools are not provided, but you will need the following ones:

- set of screwdrivers
- drill bit of 3.00 mm
- handheld drilling machine (battery-powered preferred)



CAUTION: Use proper tools to install and adjust the device. The use of improper tools may cause damage to the device.

Component handling



CAUTION:

- Always use gloves to handle the components.
- Only work on a clean table with enough protection for the

components to avoid damage and scratches to the components.

- Do not over-torque the screws.
- Lubricate well where indicated.

Installation plan

Set up an installation plan before beginning the installation. Based on the users' needs and capabilities, this plan should take into account:

- Where which part of the device should be placed.
- How the device will be operated.
- A robust and reliable positioning. Hard or sudden movements of the wheelchair may not disorganize the installation.



WARNING: Protect the device against bumps. Mind damaging the unit and wiring. Make sure that cabling is mounted in such a way that excessive wear and tear is avoided.



WARNING: Do not use the joystick as only support for hands or limbs. Movements and shocks may disrupt controls.

Installation

Heavy Duty Kit for R-net Standard Joystick (M002-24)

1 Disassemble the R-net joystick

STEP	ACTION	EXAMPLE
1	Remove the screws at the back of the joystick.	
2	Release the top half of the housing. If present, carefully release the locking system of the connector.	
3	Remove the joystick sensor.	

2 Modify the joystick sensor

STEP	ACTION	EXAMPLE
1	Remove the original spring of the joystick. If necessary, cut away the plastic	

STEP	ACTION	EXAMPLE
	retainer.	
2	Place the new spring, slide washer bush and circlips.	

3 Assemble the joystick

STEP	ACTION	EXAMPLE
1	Locate the 4 mounting tubes at the back of the joystick sensor top cover.	
2	Use a drill of 3 mm to open the mounting tubes in the top cover.	

STEP	ACTION	EXAMPLE
3	Gently remove the reinforcement plate, screws and washers of the upper part of the heavy duty kit.	
4	Assemble the joystick sensor, washer and screws. Apply ample grease to the sliding bush, spring and top of the joystick axle.	
5	Screw the parts together. Make sure all screws are evenly tightened. To tighten the screws: use a star-pattern sequence.	
6	Check the joystick movements. If the joystick is blocked or gets stuck, the 4 screws may be tightened too much. Release the screws a little and recheck.	
7	Mount the back cover. Check visually if the assembly is done correctly (for example, are the gaskets located correctly?).	

STEP	ACTION	EXAMPLE
8		

Heavy Duty Kit for CJSM2 (M002-44)

- 1 Disassemble the R-net joystick

STEP	ACTION	EXAMPLE
1	Remove the screws at the back of the joystick.	

STEP	ACTION	EXAMPLE
		
2	Release the top half of the housing. If present, carefully release the locking system of the connector.	
3	Remove the joystick sensor.	

2 Modify the joystick sensor

STEP	ACTION	EXAMPLE
1	Remove the original spring of the joystick. If necessary, cut away the plastic retainer.	

STEP	ACTION	EXAMPLE
		
2	Place the new spring, slide washer bush and circlips.	

3 Assemble the joystick

STEP	ACTION	EXAMPLE
1	Locate the 4 mounting tubes at the back of the joystick sensor top cover.	
2	Use a drill of 3 mm to open the mounting tubes in the top cover.	

STEP	ACTION	EXAMPLE
3	Gently remove the reinforcement plate, screws and washers of the upper part of the heavy duty kit.	
4	Assemble the joystick sensor, washer and screws. Apply ample grease to the sliding bush, spring and top of the joystick axle.	
5	Screw the parts together. Make sure all screws are evenly tightened. To tighten the screws: use a star-pattern sequence.	
6	Check the joystick movements. If the joystick is blocked or gets stuck, the 4 screws may be tightened too much. Release the screws a little and recheck. Mount the back cover. Check visually if the assembly is done correctly (for example, are the gaskets located correctly?).	

Heavy Duty Kit for Curtis Standard Joystick (M002-40)

1 Disassemble the Curtis joystick

STEP	ACTION	EXAMPLE
1	Remove the screws at the back of the joystick. Release the top half of the housing.	
2	If present, carefully release the locking system of the connector.	
3	Remove the joystick sensor.	

2 Modify the joystick sensor

STEP	ACTION	EXAMPLE
1	Remove the original spring of the joystick.	

STEP	ACTION	EXAMPLE
		
2	Place the spring fill ring, new spring, slide washer bush and circlips.	

3 Assemble the joystick

STEP	ACTION	EXAMPLE
1	Locate the 4 mounting holes at the back of the joystick sensor top cover.	
2	Use a drill of 3 mm to open the mounting tubes in the top cover.	
3	Gently remove the reinforcement plate, screws and washers of the upper part of	

STEP	ACTION	EXAMPLE
	the heavy duty kit.	
4	Assemble the joystick sensor, washer and screws. Apply ample grease to the sliding bush, spring and top of the joystick axle.	
5	Screw the parts together. Make sure all screws are evenly tightened. To tighten the screws: use a star-pattern sequence.	
6	Check the joystick movements. If the joystick is blocked or gets stuck, the 4 screws may be tightened too much. Release the screws a little and recheck. Mount the back cover. Check visually if the assembly is done correctly (for example, are the gaskets located correctly?).	

Calibration

During installation, throw and center point of the joystick may change slightly. Therefore, it is necessary to test the joystick after installation and execute a recalibration.

- For R-net: consult the PG Drives Technology (PGDT) manual.
- For Curtis: consult the Curtis Instruments manual.



NOTE: If the calibration fails, check the mechanics of the heavy duty kit and check symmetry. If the mechanical system is mounted out of centre it is possible the deflection values stay too low in a certain direction.

Testing

After installation of the device, execute the following tests before the wheelchair is delivered or put into service, in according order:

- 1 [Check the device for intactness on page 24](#)
- 2 [Operational test on page 24](#)
- 3 [Test drive on page 25](#)
- 4 [Stop test on page 26](#)

Check the device for intactness

Check whether:

- The device is not bent or damaged.
- Housing, cabling and all connectors are not damaged.
- The device returns to its default position when moving and releasing the joystick forward, backward, left and right.

Operational test



CAUTION: Execute this test only on a level surface, with at least one metre of free space around the wheelchair.



CAUTION: The wheelchair may start to move during the test.

- 1 Activate the wheelchair operating system.
- 2 Check for any error message.



TROUBLE: for more information on the error messages, see and

- 3 Move the joystick slowly forward until you hear the parking breaks switch off.
- 4 Immediately release the joystick. You should hear the parking break react within a few seconds.
- 5 Repeat 3 and 4 three times, while slowly moving the joystick towards you, to the left and to the right.
- 6 Check whether the power on/off (pwr) and mode (in) switch function properly.

Test drive

Do a test drive with the wheelchair.

- 1 Check whether the wheelchair and all its functionalities function correctly in all positions the user may use the joystick and switches.
- 2 Check whether cables or parts may not get damaged or hindered in any possible position of the wheelchair.

Stop test

Drive full speed ahead and shut down the wheelchair with the power on/off switch.

The wheelchair may not suddenly stop, but must slow down to a gradual stop.

First time use

During first time use by the user, it is advised that the dealer or service engineer assists and explains the different possibilities to the user and/or his attendant. If needed, the dealer can make final adjustments.



CAUTION: It is important that the customer is fully aware of the installation, how to use it and what can be adjusted to optimize his/her experience.

- 1 Explain and show the customer how you have executed the installation and explain the functionality of every (new) button.
- 2 Have the user test all positions of the device. If needed, adjust the (position of the) device.
 - Are the joystick and the switches within easy reach?
 - Can the user safely operate the power chair with the least effort?
 - Is the placement of the device in all available positions optimal for the user?
- 3 Explain the possible problems and how to address them, to the user.
- 4 Draw the user's attention to the following:



WARNING: A functional test is needed when the LED light flashes and/or after every incident with the wheelchair or the mo-vis device.



WARNING: The device should never be covered or blocked in order to avoid uncontrollable behavior of the joystick and/or the wheelchair.

Maintenance

The device is maintenance-free. Under regular circumstances of use, the device and different parts do not require additional maintenance. Please refer to the *User Manual* of the device for cleaning instructions.



WARNING: As dust and dirt could lead to reduced functionality, all parts of the device should be cleaned on a regular basis (monthly) or whenever needed.

Monthly inspection

Monthly, or whenever needed, check whether:

- All bolts and screws are still firmly tightened.
- There is no damage to any wiring.
- There is no excessive wear to any of the parts.

Yearly inspection

We advise to have at least yearly a full check of the wheelchair and its operating systems by a qualified service engineer.



mo-vis bv . Biebuyckstraat 15D . 9850 Deinze - Belgium

www.mo-vis.com . contact@mo-vis.com . +32 9 335 28 60

**Go to our website for more information on our products or share
your experience with us via email.**

