

	CoMoveIT Smart Installation Instructions
	D-DND-12-01 CoMoveIT Smart Installation Instructions

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Document history				
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1.0	2022/03/02	Initial version	Sotirios Gakopoulos	Frederik Vervenne
1.0.1	2022/07/11	Added instructions for the self-tapping screws on the side pad covers.	Sotirios Gakopoulos	Frederik Vervenne
1.0.2	2022/10/21	Mounting of the ECU	Sotirios Gakopoulos	Frederik Vervenne
1.0.3	2024/02/27	IDC connector replacement instructions	Sotirios Gakopoulos	Frederik Vervenne
1.0.4	2024/02/28	Footpad cover sticker replacement instructions	Sotirios Gakopoulos	Frederik Vervenne

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CoMoveIT Smart installation

1. Ensure that your wheelchair is switched off.
2. Install the vertical adjuster of CoMoveIT Smart to the holder of the back of the wheelchair seat and tighten the rotary knob. CoMoveIT Smart can fit in any 16 x 16mm square holder. See Figure 1.

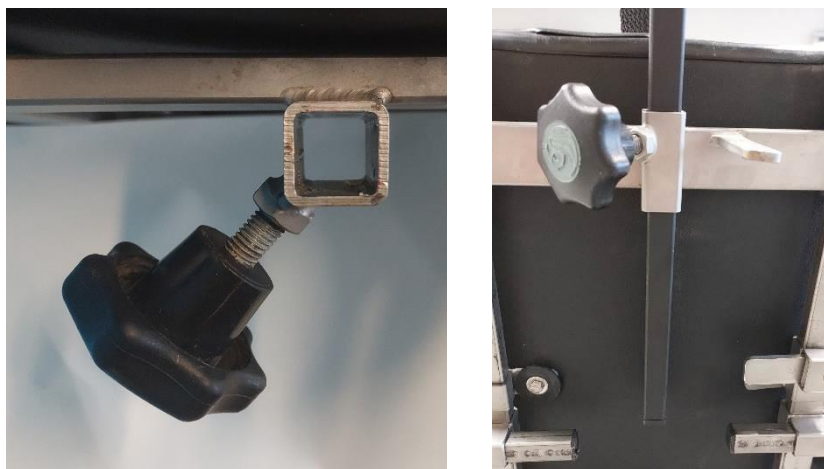


Figure 1. 16 x 16 mm square holder.

3. Fixate the cabling of the head array as close as possible the vertical adjuster and to the chassis or frame of the wheelchair or wheelchair seat. The use of tie wraps is highly recommended every 15 to 20 centimeters. See Figure 2.



Figure 2. Use of tie wraps.

4. Keep the cables of the head array away from sharp corners or objects and make sure there is enough tolerance on them when the vertical adjuster is extended.
5. Mount the Electronics Unit on the back of the seat using the four onboard M6 mounting points. It is highly recommended to keep the Electronics Control Unit within the physical limits of the wheelchair.

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6. Mount the foot pads of CoMoveIT Smart to the footrest of your wheelchair using the provided Velcro fastener. See Figure 3.



Figure 3. Velcro to attach foot pads to the wheelchair footrest.

7. Fixate the cables of the foot pads as close as possible to the chassis, frame and/or seating of the wheelchair. The use of tie wraps is highly recommended every 15 to 20 centimeters.
8. Keep the cables of the foot pads away from sharp corners or objects and make sure there is enough tolerance on them when the footrest is extended.
9. The CoMoveIT Smart Electronics Control Unit has four holes where blind nuts (included in the packaging) are placed. See Figure 4.



Figure 4. Blind nuts positioned in the four holes of the Electronics Control Unit.

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10. As every wheelchair is unique there is not a general mounting bracket available. The dimensions in Figure 5, must be respected to mount the Electronics Control Unit. Use four M6 screws through the blind nuts to fixate the Electronics Control Unit.

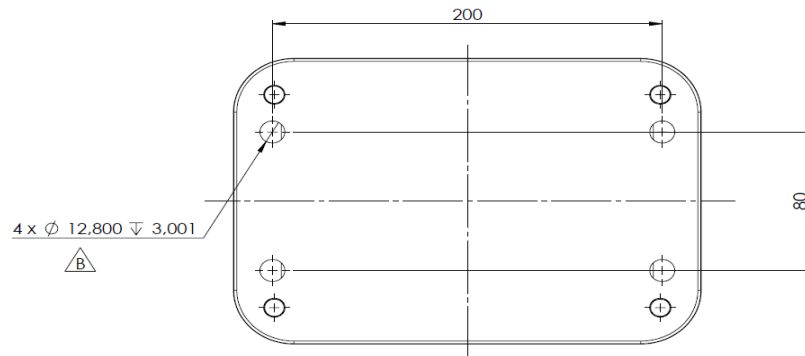


Figure 5. Mounting bracket dimensions.

11. Connect all sensor cables to CoMoveIT Smart Electronics Unit.
12. Connect and fasten the screws of CoMoveIT Smart DB9 connector to Rnet Omni2 module.

CoMoveIT Smart removal

Perform the installation steps in reverse order.

1. Ensure that the wheelchair is switched off.
2. Remove any tie wraps for the cables of the head array and foot pads.
3. Unscrew and disconnect CoMoveIT Smart DB9 connector from the Rnet Omni2 module.
4. Disconnect all sensor cables to CoMoveIT Smart Electronics Unit by pulling firmly.
5. Remove the foot pads from the Velcro fastener.
6. Remove the head array by unlocking the vertical adjuster mechanism.
7. Remove the Electronics Unit by unscrewing the four M6 screws.



CAUTION!

Installation and removal of CoMoveIT Smart should not be attempted except by individuals familiar and experienced with the process as there may be multiple attaching devices used to secure safely and properly the CoMoveIT Smart and protect the cables.

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Spare Parts

Foot pad top sticker replacement

Under long-term use the top sticker of the foot pad and the top sticker of the dummy foot pad might wear out. The following steps will guide you towards their replacement.

1. Switch off the wheelchair.
2. Disconnect the foot pad that needs maintenance from the electronics control unit of CoMoveIT Smart.
3. Remove and fasteners from the cabling of the foot pad.
4. Remove the foot pad which has damaged cover sticker (Figure 6) from the hook and loop mechanism of the footrest of the wheelchair.



Figure 6. Footpad with damaged cover sticker.

5. Slide your finger under the damaged cover sticker (Figure 7).



Figure 7. Slide your finger under the damaged cover sticker.

6. Pull carefully to remove the damaged sticker from the footpad (Figure 8).

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Figure 7. Pull carefully the damaged sticker.

7. Once the sticker is removed, observe for any adhesive residues (Figure 8).

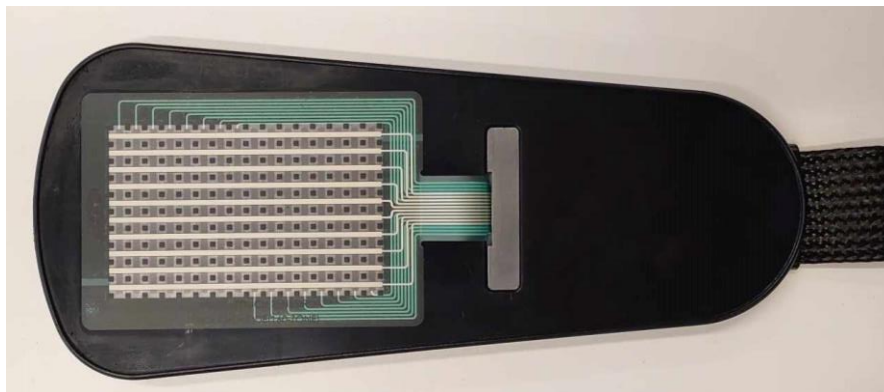


Figure 8. Observe for adhesive residues.

8. If you spot adhesive residue, please wipe them clean with alcohol.
9. Pour a small amount of alcohol on a piece of cloth and wipe the adhesive residues. Warning! Use a small amount of alcohol and prevent the alcohol from inserting the air vents of the sensor (Figure 9). If the alcohol enters the air vents of the sensor, the sensor might be irrevocably damaged.

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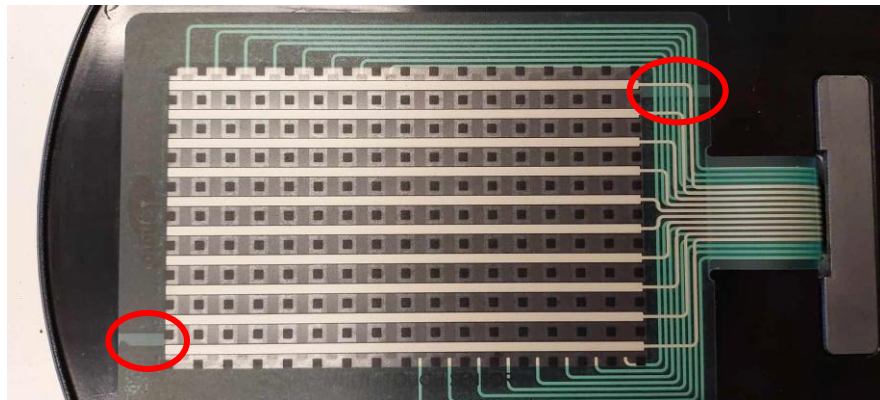


Figure 9. The sensor air vents are indicated in the red circles.

10. Take a new cover sticker (Figure 10).



Figure 10. New cover sticker.

11. Peel off the adhesive liner on the new cover sticker (Figure 11).

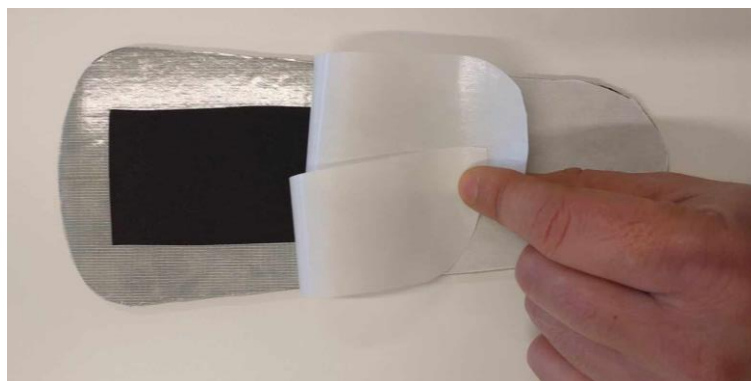


Figure 11. Peel of the adhesive.

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12. Carefully place the new cover sticker on the footpad (Figure 12).



Figure 12. Place the cover sticker on the footpad.

13. Connect the foot pad that needs maintenance from the electronics control unit of CoMoveIT Smart.
14. Switch on the powered wheelchair.
15. Observe for one minute if the footpad exhibits any abnormal behavior.
16. Use the food pad to drive the powered wheelchair and observe if the footpad exhibits any abnormal behavior
17. End of service.

The same procedure is applicable also for the replacement of the top sticker on the dummy foot pad.

Back rotary knobs

The back rotary knobs can be requested in case of loss. The back rotary knobs can be purchased in sets of 4. To install new back rotary knobs (see Figure 13), follow the steps below:

1. Unscrew the old back rotary knobs.
2. Screw the new back rotary knobs.

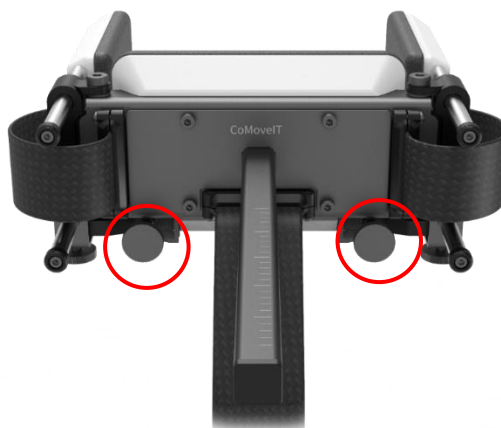


Figure 13. Replacement of back rotary knobs.

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Bottom rotary knobs

The bottom rotary knobs can be requested in case of loss. The bottom rotary knobs can be purchased in sets of 4. To install new bottom rotary knobs (see Figure 14), follow the steps below:

1. Unscrew the old bottom rotary knobs.
2. Screw the new bottom rotary knobs.

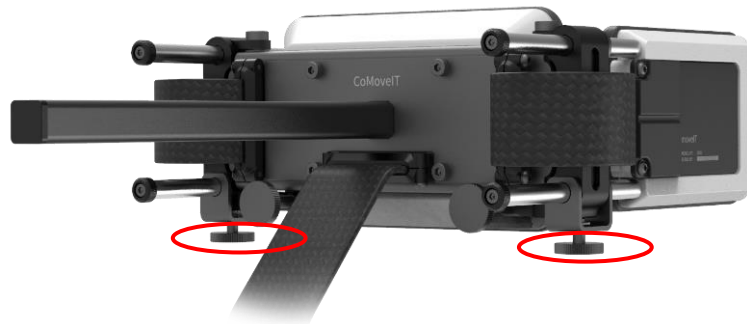


Figure 14. Replacement of bottom rotary knobs.

End sliders on the slide bars

The end sliders can be requested in case of loss or damage. The end sliders can be purchased in sets of 4. To install new bottom rotary knobs (see Figure 15), follow the steps below:

1. Unscrew the old end sliders and remove them from the sliders. .
2. Place the new end stoppers and screw them.

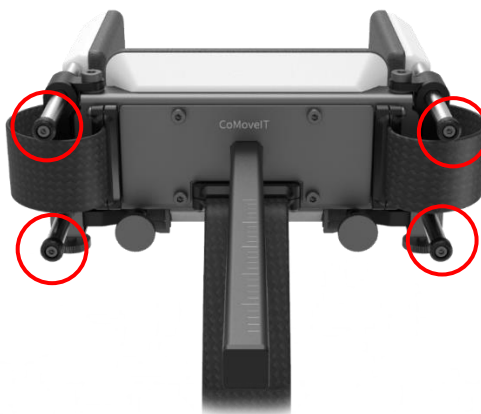


Figure 15. Replacement of end sliders.

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Replace left or right head pads

1. Switch off the wheelchair.
2. Disconnect the head pad that needs maintenance from the electronics control unit of CoMoveIT Smart.
3. Remove the two screws from the cover of the side pad (See Figure 16).



Figure 16. Remove the two screws from the cover of the side pad.



WARNING!

Please be extremely careful when screwing or unscrewing the two screws from the side pad cover. These are self-tapping screws. Use a manual handheld tool with adjustable torque and set the torque to 0.8 Nm.

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4. Firmly pull and unplug the connector (See Figures 17 and 18).

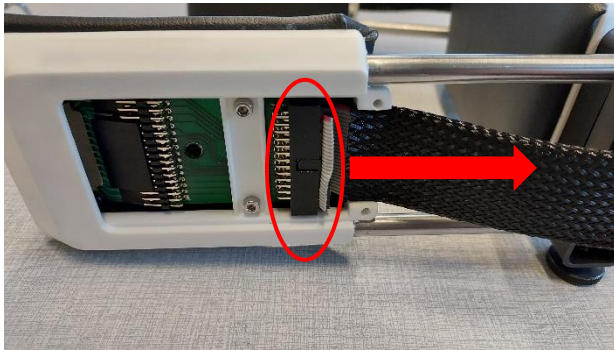


Figure 17. Pull and unplug the connector.

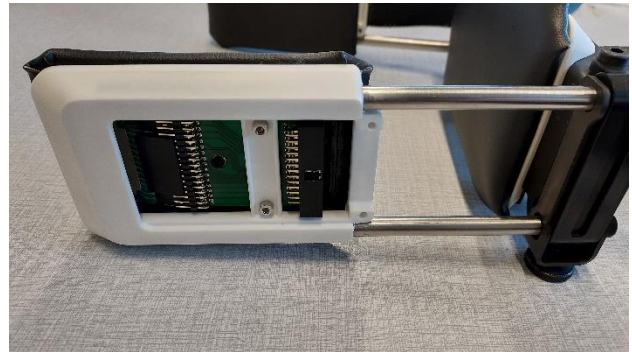


Figure 18. Connector unplugged.

5. Remove the end stoppers of the sliding bars (See Figures 19).



Figure 19. End stoppers

6. Loosen the rotary knob on the bottom of the head array.
7. Remove the side pad (Figures 20 and 21).

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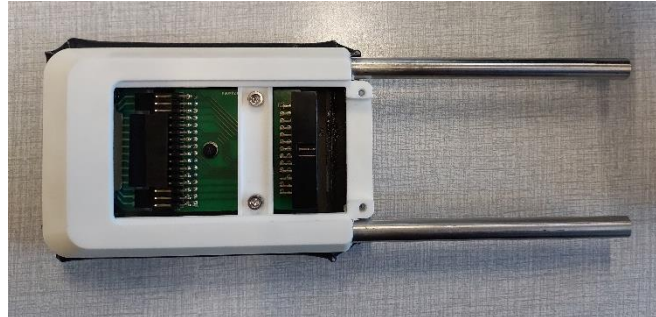


Figure 20 and Figure 21. Removed side pad.

8. Place a new side pad.
9. Tighten the rotary knob on the bottom of the head array.
10. Place back the end stoppers on the sliding bars.
11. Firmly push the connector to plug it in.
12. Place the cover on the side pad and tighten the screws.



WARNING!

Please be extremely careful when screwing or unscrewing the two screws from the side pad cover. These are self-tapping screws. Use a manual handheld tool with adjustable torque and set the torque to 0.8 Nm.

13. Connect the head pad to the electronics control unit of CoMoveIT Smart.
14. Switch on the wheelchair.
15. Drive the wheelchair using CoMoveIT Smart and observe that it functions properly, and it does not exhibit any abnormal behavior.

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Replace the back head pad

1. Switch off the wheelchair.
2. Disconnect the head pad that needs maintenance from the electronics control unit of CoMoveIT Smart.
3. Remove the four screws on the back of the head array (See Figure 22).

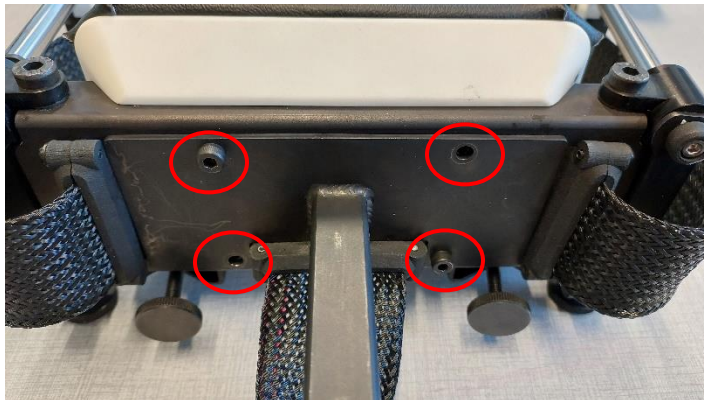


Figure 22. Remove the four screws on the back of the head array

4. Remove the back plate (See Figure 23).



Figure 23. Removed back plate.

5. Remove the cable clamps from their clamping locations (See Figure 24).

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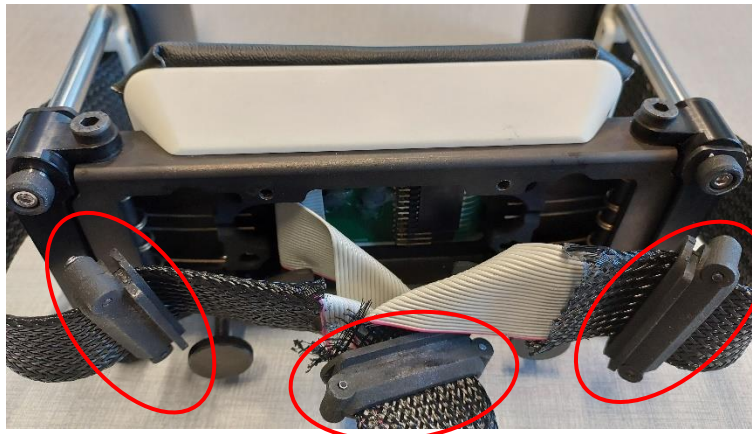


Figure 24. removed cable clamps.

6. Firmly pull and unplug the connector of the back pad inside the head array (See Figure 25).

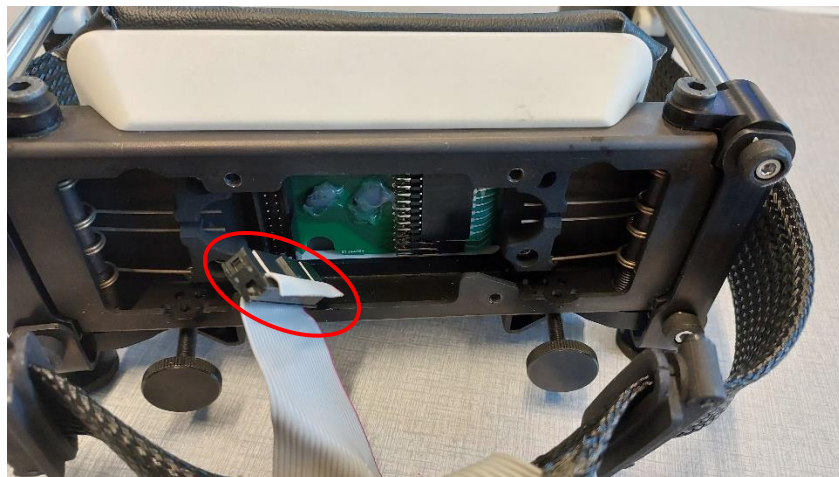


Figure 25. Unplugged connector.

7. Locate and remove the four screws inside the head array (See Figure 26).

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Figure 26. The four screws inside the head array

8. Remove the back head pad (See Figure 27).

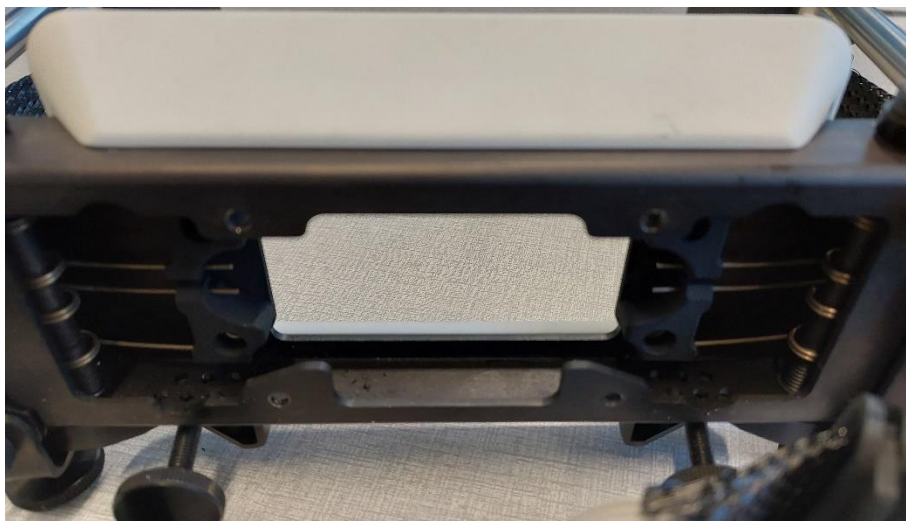


Figure 27. Removed back head pad.

9. Take the new back head pad and place it on the head array (See Figure 28).

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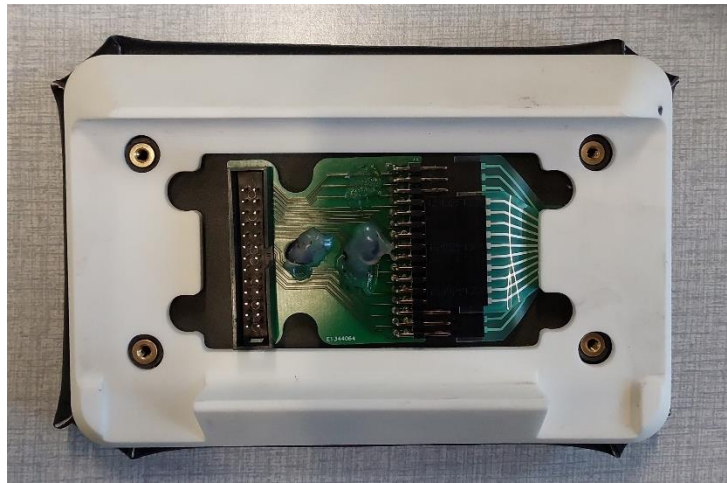


Figure 28. New back head pad.

10. Screw the four screws inside the head array.
11. Plug the connector of the back pad inside the head array.
12. Place the cable clamps in their clamping locations.
13. Place the back plate.
14. Screw the four screws on the back of the head array.
15. Connect the head pad to the electronics control unit of CoMoveIT Smart.
16. Switch on the wheelchair.
17. Drive the wheelchair using CoMoveIT Smart and observe that it functions properly, and it does not exhibit any abnormal behavior.

Replace left or right head cushions

1. Follow steps 1-4 as described in the replacement of the left and right pads.



WARNING!

Please be extremely careful when screwing or unscrewing the two screws from the side pad cover. These are self-tapping screws. Use a manual handheld tool with adjustable torque and set the torque to 0.8 Nm.

2. Locate and remove the two screws inside the side pad (See Figure 29).

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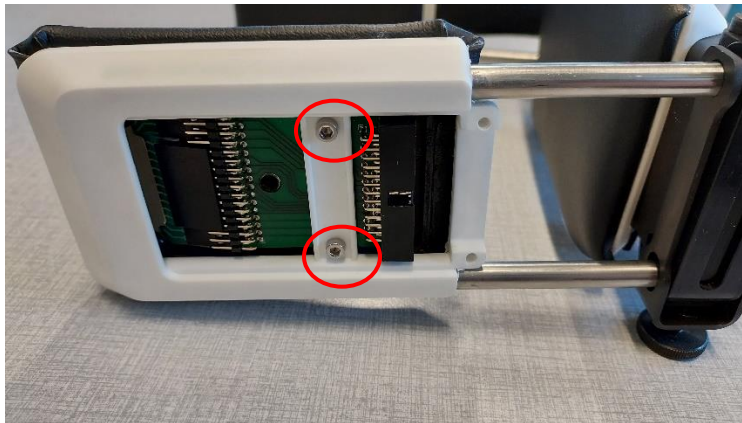


Figure 29. Two screws inside the side pad.

3. The side pad base with its cushion will be released (See Figure 30).



Figure 30. Released side pad.

4. Remove the old cushion.
5. Place the new cushion. The cushion has rubber bands around it that keeps it in place.
6. Screw the screws inside the side pad.
7. Follow steps 11-15 as described in the placement of the left and right pads.



WARNING!

Please be extremely careful when screwing or unscrewing the two screws from the side pad cover. These are self-tapping screws. Use a manual handheld tool with adjustable torque and set the torque to 0.8 Nm.

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Replace the back head cushion

1. Follow steps 1-8 as described in the replacement of the back head pad.
2. The back pad base with its cushion will be released (See Figure 31).

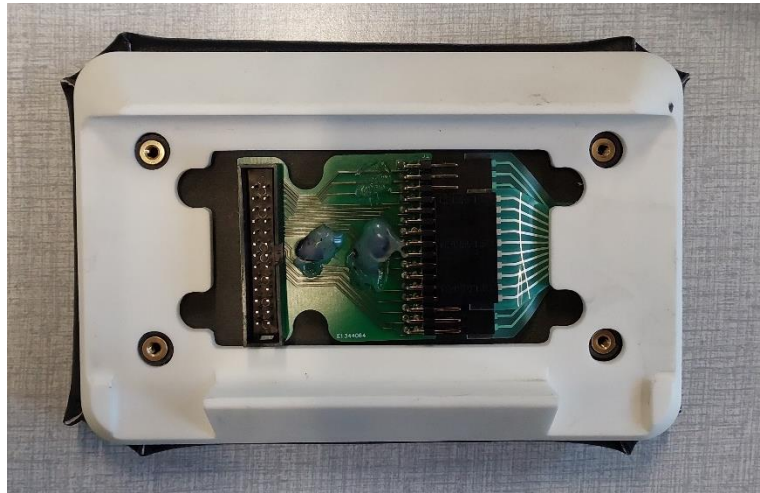


Figure 31. Released back pad.

3. Remove the old cushion.
4. Place the new cushion. The cushion has rubber bands around it that keeps it in place.
5. Follow steps 9-15 as described in the replacement of the back head pad.

Horizontal adjuster knob

The turning knob on the horizontal adjuster can be replaced (See Figure 32).

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Figure 32. Turning knob on the horizontal adjuster.

Inclination adjuster knob

The inclination adjuster turning knob can be replaced (See Figure 33).



Figure 33. The inclination adjuster turning knob.

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Cleaning

It is recommended to clean plastic and metal parts of CoMoveIT Smart head array using a damp cloth. In case of excess dirt concentration, a soap water solution can be used. Always wipe dry after cleaning.

The pads of the head array must be cleaned with a damp cloth using water or a soap water solution once a week. During hot weather conditions, it is recommended to clean them every day since sweat concentration might be increased. Gently, wipe dry after cleaning.

The pads of the feet support must be cleaned with a damp cloth using water or a soap water solution. Wipe dry after cleaning. In case excessive wear is spotted on the foot pads of CoMoveIT Smart, please contact your local authorized dealer.

Moisture might potentially affect the operation of force sensor arrays, make sure that all parts and surfaces of CoMoveIT Smart are completely dry before using it to operate the wheelchair.



WARNING!

Never spill water or use a water hose to clean CoMoveIT Smart parts as the sensory system and the electronics may be damaged.

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IDC Connector Replacement

If the IDC connector of the head array of footpads of CoMoveIT Smart is broken ((See Figure 34). The following steps will help you for the replacement.



Figure 34. An example of a broken IDC connector.

- 1) Remove the cloth tape (See figure 35).

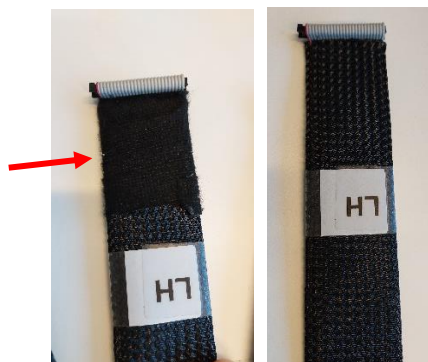


Figure 35. Cloth tape removal.

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- 2) Remove the cable label (See figure 36).

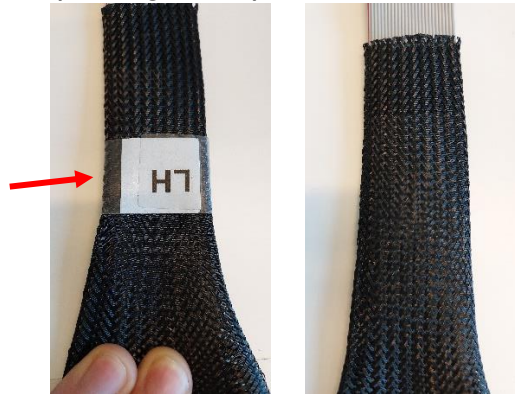


Figure 36. Label removal.

- 3) Cut approximately 4-5 cm of the braided sleeve. Burn the exposed ends of the braided sleeve to ensure that the braids are not becoming loose (See figure 37).



Figure 37. Cut braided sleeve by 4-5 cm.

- 4) Slide the braided sleeve backwards (See figure 38).

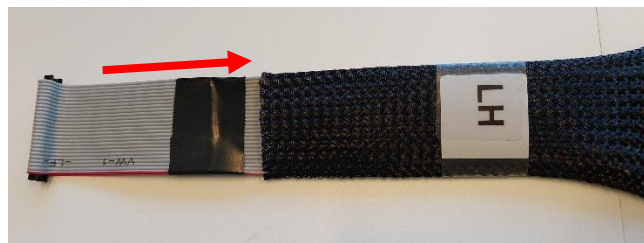


Figure 38. Slide the braided sleeve.

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5) Remove the insulation tape (See figure 39).

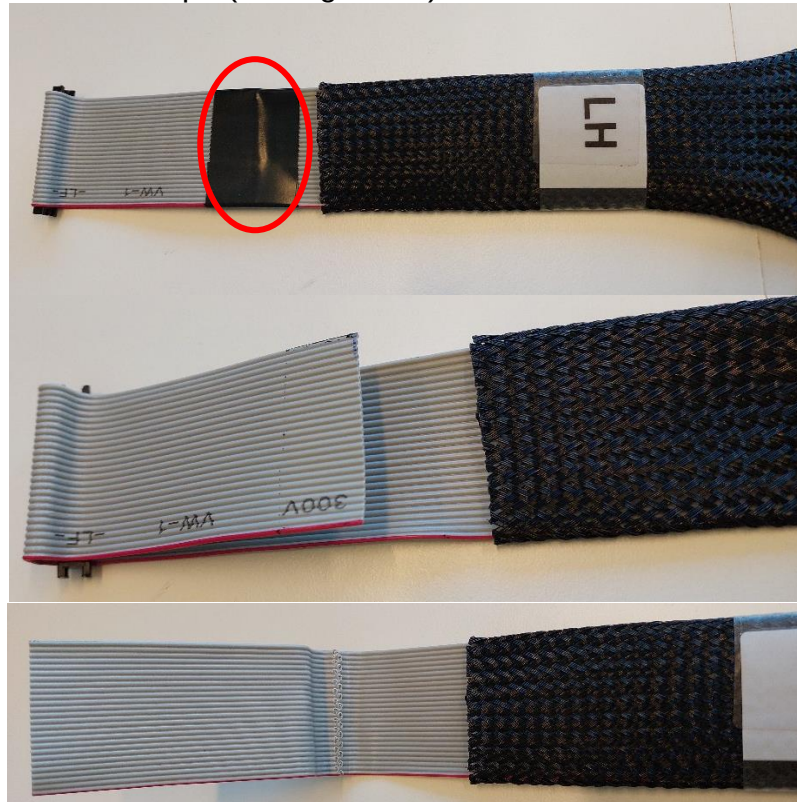


Figure 39. Insulation tape removal.

6) Cut the flat cable in the just below the marks of the old connector (See figure 40).

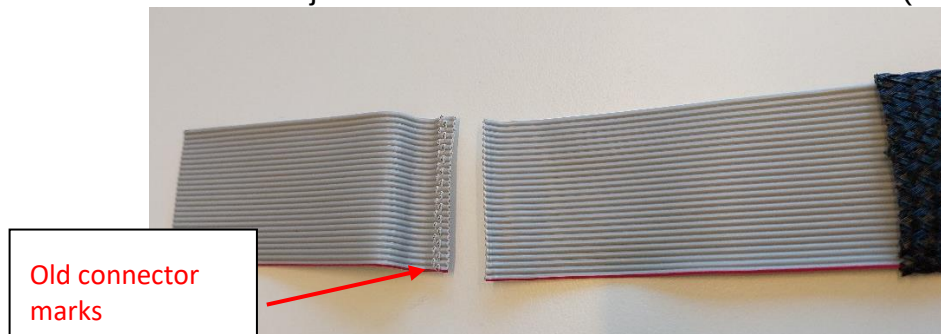


Figure 40. Cut flat cable.

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- 7) Get an IDC connector (See figure 41).



Figure 41. IDC connector.

- 8) Place the IDC connector on the flat ribbon cable (See figure 42). The central pin of the connector will help you to identify the orientation as indicated in the figures below.



WARNING!

Please be extremely careful with the orientation of the IDC connector. The orientation for left is right head connectors is the same. The orientation for the back head connector is different. The orientation for the foot pad connector is different.

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a) Orientation of the Right and Left Head IDC connector.

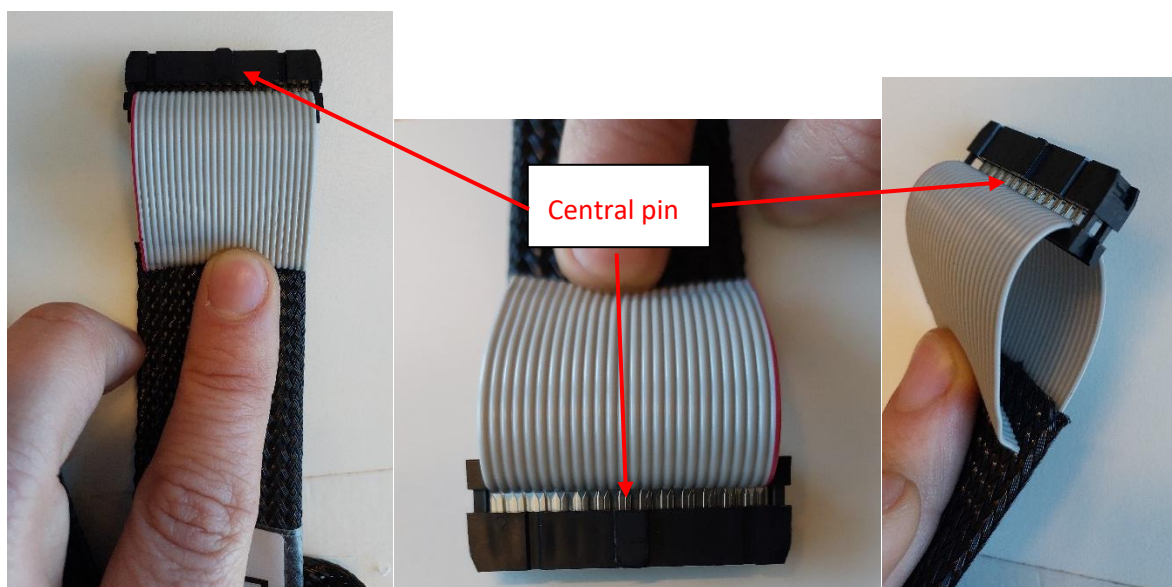


Figure 42a. Right and Left Head IDC connector orientation.

b) Orientation of the Right and Left Head IDC connector.

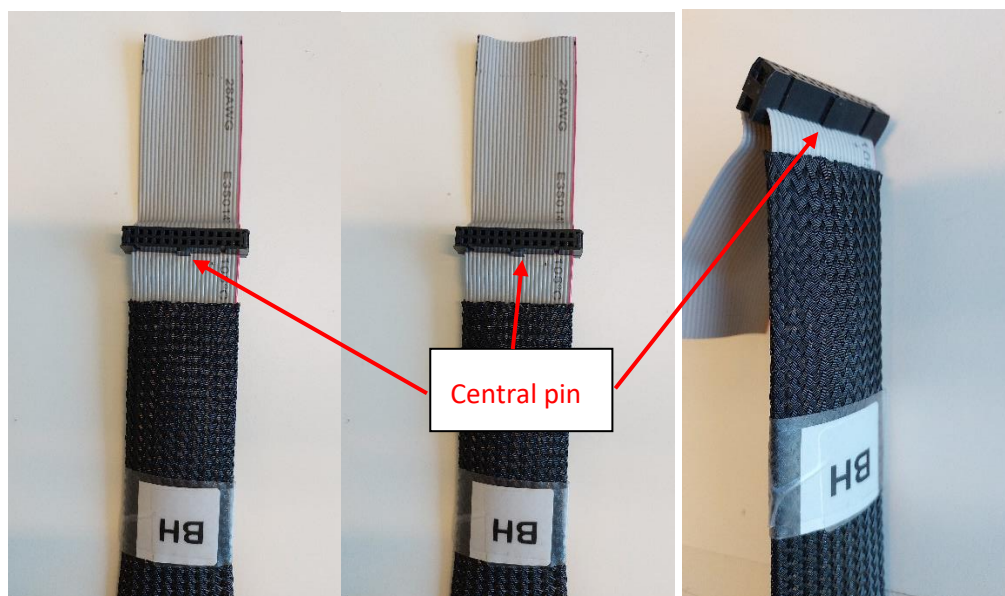


Figure 42b. Back Head IDC connector orientation.

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c) Orientation of the Right and Left Head IDC connector.

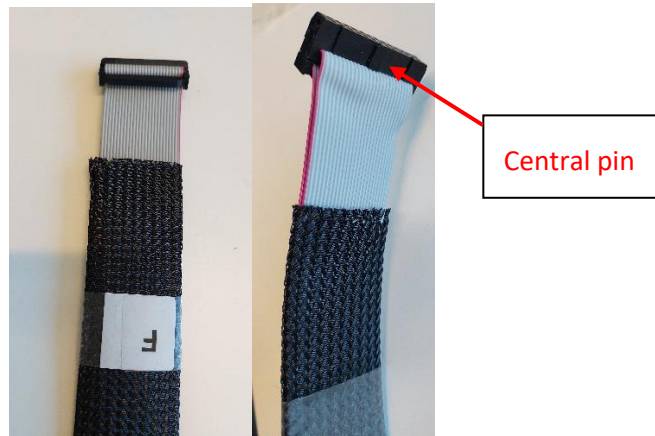


Figure 42c. Footpad IDC connector orientation.

9) Align the connector perpendicular to the flat ribbon cable. Leave an excessive 4-5 cm of cable after the connector (See Figure 43).



Figure 43. IDC connector placement.

10) Clamp/press the IDC connector using an IDC Connector crimping pliers (See Figure 44).



Figure 44. Crimping Pliers.

11) Once the IDC connector is clamped, fold the excessive cable tight and attach the strain relief bridge (See Figure 45).

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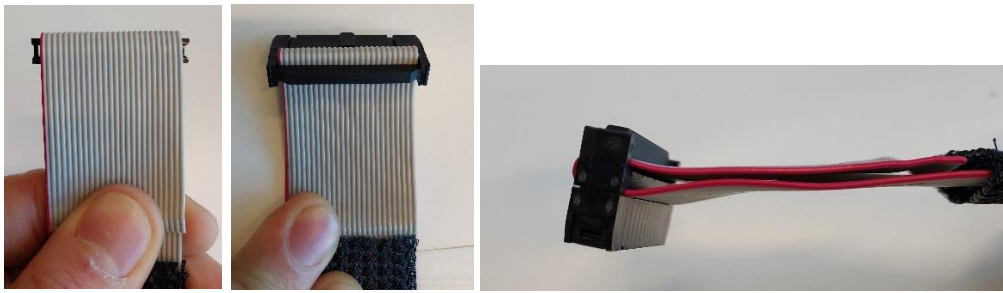


Figure 45. Strain relief bridge placement.

12) Place insulation tape at the exposed end of the flat ribbon cable (See Figure 46).

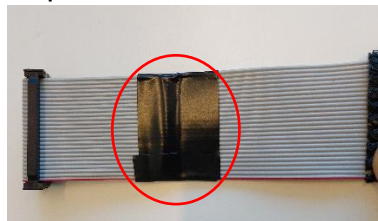


Figure 46. Insulation tape placement.

13) Slide the braided sleeve forwards (See Figure 47).



Figure 47. Slide the braided sleeve.

14) Apply cloth tape on the braided sleeve (See Figure 48).



Figure 48. Apply cloth tape.

15) Attach the label on the cable (See Figure 49).

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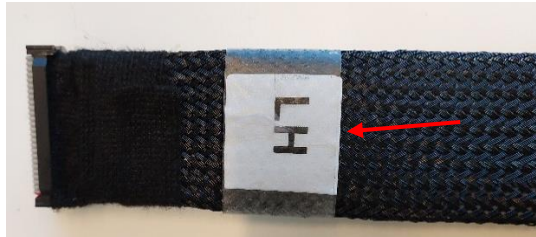


Figure 49. Attach the label.

- 16) The IDC connector replacement is done. Connect to the electronics control unit and ensure that the sensor with the replaced connector functions properly.