MC Standard Electric Wrist Rotator

Prosthetist Manual

Motion Control
division of
Fillauer®

MC Standard Electric Wrist Rotator

Prosthetist Manual

Introduction

The Motion Control (MC) Standard Electric Wrist Rotator (Figure 1) provides powered pronation and supination at twice the torque and twice the speed of previous electric wrist rotators, with less noise. The Standard version of the MC Electric Wrist Rotator ***does not*** contain a microprocessor, therefore a controller must be "upstream". The MC Standard Electric Wrist Rotator is used with the ProControl 2, U3, U3+ and Hybrid Elbow. This is also the wrist used in some other manufacturers' powered elbows such as the LTI Boston Elbow.
The MC Standard Electric Wrist Rotator utilizes an industry-standard quick disconnect and coaxial plug, and therefore is compatible with most manufacturers' terminal devices.

Wrist Components

Figure 1

Indications

The MC Standard Electric Wrist Rotator can be used in any case where powered wrist rotation is desired, and adequate space is available in the forearm. An "upstream" controller must be present, as in the Motion Control ProControl 2, U3, U3+, Hybrid Elbow and Boston Elbow.

Contraindications

Inadequate space in the forearm such as wrist disarticulation or long trans-radial amputations. A Motion Control In-Hand Electric Wrist Rotator should be considered in these cases.

Patients for whom the extra weight of an electric wrist rotator is intolerable.

Cases where the prosthesis is likely to be exposed to environments that may be wet, dirty, dusty and high loads (> 50 lbs/22.7 kg).

Whenever a controller is not located upstream of the Wrist Rotator, a Motion Control *ProWrist* would be indicated.

Specifications

Length: 2.75 in/70 mm

Diameter (without lamination collar): 1.85 in/47 mm

Weight: 5.03 oz/143 g

Voltage: 7.2 v

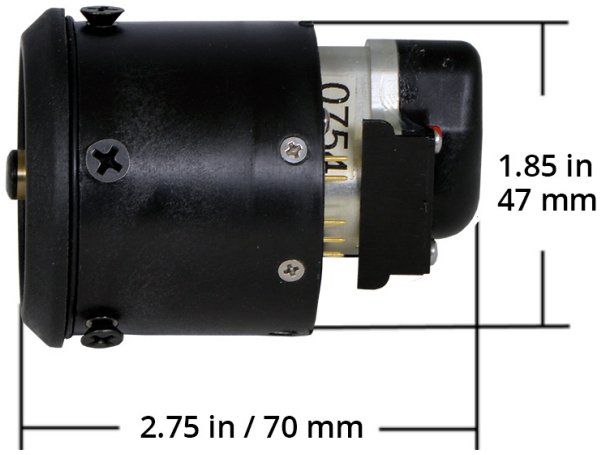
SPL at full speed: 38.5 dB maximum at 1 meter

Speed: 28 rpm @ 7.2 v

Torque: 15 in-lbs @ 7.2 v

Static Load: 50 lbs/22.7 kg

Figure 2



Special Precautions

The MC Standard Electric Wrist Rotator should not be used in situations where inadvertent movement or lack of intended motion may cause injury to the user or others, such as driving, operating heavy equipment, use of power tools or handling hot liquids.

Do not use the MC Standard Electric Wrist Rotator in environments that may be dusty, dirty, wet, or where it may be subjected to greater than 50 lbs/22.7 kg of force.

When removing the MC Standard Electric Wrist from the lamination collar, use care to not damage the wires and connectors.

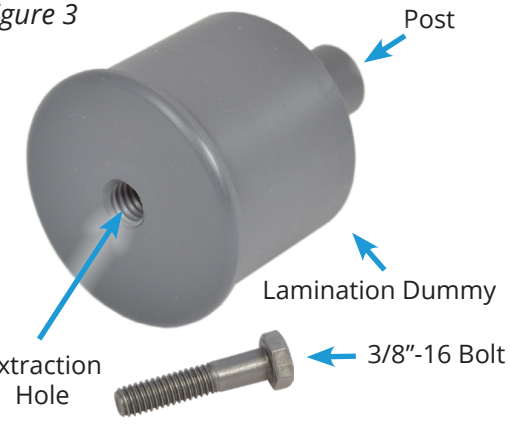
Fabrication

Once a well-fitting evaluation socket is fitted to the patient, a temporary alignment fixture made from PVC pipe can be used to determine optimal alignment of the wrist/terminal device and forearm length. Reinforced with synthetic casting material, this system can be used during trial fitting, for short-term training.

When optimal alignment is achieved, remove all electronics and replace with appropriate dummies that come with each component.

A Wrist Lamination Dummy Kit is required (Figure 3), purchased separately (p/n 3010886). This dummy has an extraction hole that accepts a 3/8”-16 bolt (included).

Figure 3



With this dummy in place of the wrist, the entire prosthesis can now be mounted in a vertical transfer fixture (Figure 4).

The prosthetic socket is now filled with Plaster of Paris, and alignment is maintained between the wrist unit and the prosthetic socket.

Remove the temporary alignment fixture.

Pay attention to the post on the proximal portion of the Lamination Dummy, indicating the length of the ProWrist. Reserve space to this length for the wrist component (see “Post”, Figure 4).

Apply adequate parting agent to the inside of the lamination collar and any surfaces not to be bonded to the outer lamination.

Use electrical tape to wrap the screw holes in the lamination collar.

Do not apply parting agent to the outer surface of the lamination collar proximal to the retention screw collar. This area provides the bonding surface to the outer forearm lamination.

Laminate the outer socket using the materials and technique of choice.

After lamination, remove the excess plastic from the distal surface of the wrist unit and thread a 3/8-16 bolt into the extraction hole (see “Extraction Hole”, Figure 4). Firmly pull to remove the Wrist Lamination Dummy.

Carefully cut the lamination proximal to the retention screw collar, and remove the lamination to expose the screw holes.

Figure 4 - Vertical Transfer Fixture with temporary alignment fixture fabricated from PVC.

Assembly

Attach appropriate connectors (Figure 5 and insets 5a and 5b).

Figure 5

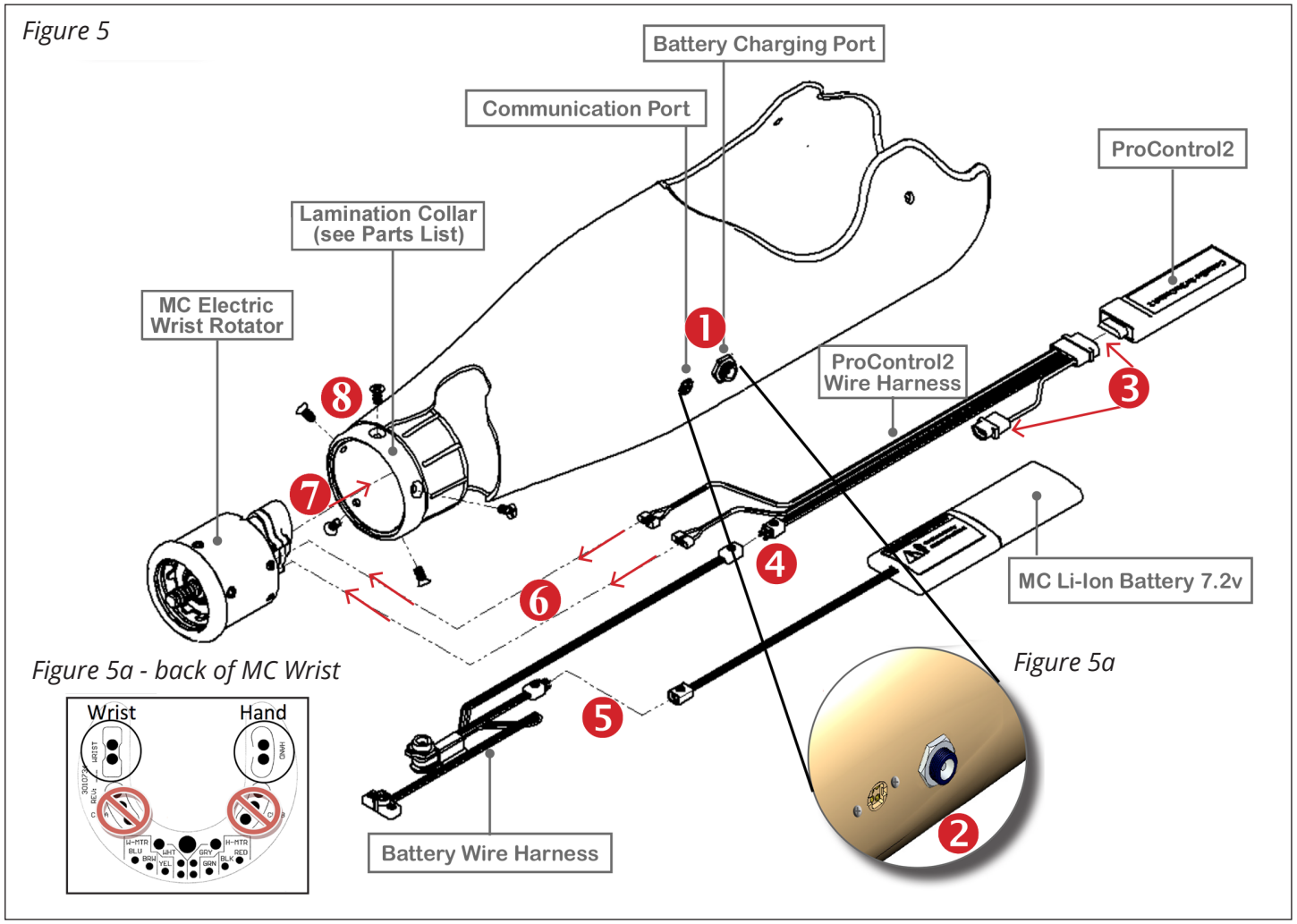


Figure 5a - back of MC Wrist

Figure 5a

1. Using the template provided with the Battery Charging Harness, locate the position of the Battery Charging and Communication Ports, and drill holes.
2. Install the Battery Charging Harness by securing the Charging Port and Communication Port into place (inset Figure 5a).
3. Connect ProControl 2 and input device (e.g. preamps) to the ProControl 2 Wire Harness.
4. Connect the ProControl 2 Wire Harness to the Battery Wire Harness.
5. Connect the MC Li-Ion 7.2 v Battery to the Battery Wire Harness.
6. Connect the Hand and Wrist output from the ProControl 2 Wire Harness to the back of the MC Wrist Rotator (inset Figure 5b).
7. Insert the entire assembly into the prosthesis, including the Wrist Rotator.
8. Align the screw holes, and fasten the screws.

Assembly (U3, U3+, and Hybrid Elbows)

Attach appropriate connectors (Figures 6 and 6a).

Figure 6

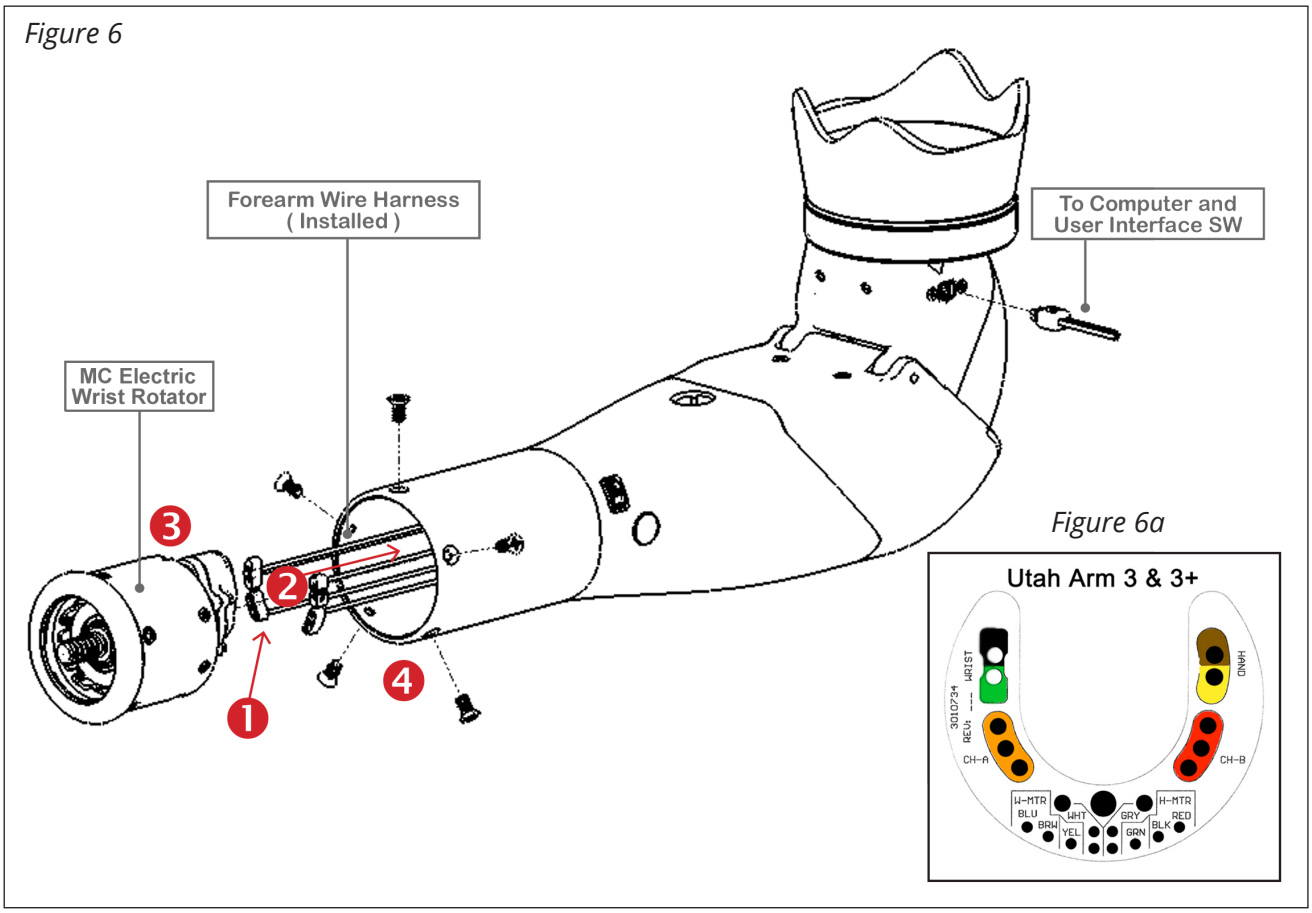


Figure 6a

Installing the Motion Control Wrist

1. Attach wires according to the diagram (inset Figure 6a).
2. Insert the Wrist into the forearm cover.
3. Orient the motor to align with the notch in the Ring Connector inside the forearm cover. Be careful to not pinch any wires between the spring clip and the motor. Twisting the wires will help coil the wires around the motor. The wires will also be easier to position with the forearm cover removed from the Arm.
4. Secure the Wrist to the forearm using the five attachment screws.

Disassembly

The MC Wrist Rotator will fit very snugly into the lamination collar or forearm. Attach a terminal device to the wrist, remove the five screws and then firmly pull on the terminal device. The MC Wrist Rotator will slide out of the lamination collar. Disconnect all the connectors.

Adjustment

Follow the User Interface instructions for the controller upstream from the wrist.

Maintenance

The MC Standard Electric Wrist Rotator does not require any routine maintenance. Avoid using any lubricants, liquids, or cleaners on any surfaces of the MC Wrist Rotator.

The coaxial plug may require cleaning periodically. This is accomplished with a Q-tip and a very small amount of rubbing alcohol.

Suggested LCodes

Description	Feature	LCode
MC Standard Electric Wrist Rotator	Electric Wrist Rotator	L7259
	Hi-Speed, Hi-Torque Motor Drive	L7499*

*Contact Motion Control for MSRP regarding L7499 code

Rental Program

Motion Control offers a rental program for trial fittings up to six months. A product is rented with Motion Control's signed rental agreement, and rent is applicable towards purchase using a sliding formula. Contact Motion Control for details.

Return Policy

In all cases, if reconditioning or repairs are required, costs for returning the product to resalable condition will be charged.

Products returned within 30 days after sale, in resalable condition, are credited the full value without a restocking fee.

Products received 31-60 days after sale will be charged a 10% restocking fee.

Products received 61-90 days after sale will be charged a 15% restocking fee.

Products returned over 90 days after sale will not be exchanged or credited.

Warranty

The MC Standard Electric Wrist Rotator is warranted for 12 months from the date of shipment from Motion Control. Items under warranty will be repaired or replaced (at Motion Control's discretion) at no charge. The warranty will be void if the MC Standard Electric Wrist Rotator has been fabricated or installed outside Motion Control's recommendations, or altered mechanically, electronically, or structurally in any way. The warranty is also void if the MC Standard Electric Wrist Rotator has been exposed to a wet, or corrosive environment, or used in any abusive activity. This warranty does not include any prosthetic fitting or clinical expenses.

Ordering Information

Description	Tan	Brown	Jet Black
MC Standard Electric Wrist Rotator	5010054	5010055	5010045
Lamination Collar for MC Wrist, 7 ¼ Hand	1100292	1100296	1100288
Lamination Collar for MC Wrist, 7 ¾ Hand	1100293	1100297	1100289
Lamination Collar for MC Wrist, 8 ¼ Hand	1100294	1100298	1100290
Lamination Collar for MC Wrist for Hosmer Prefab (Large), Boston or AFB	1100295	1100299	1100291

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