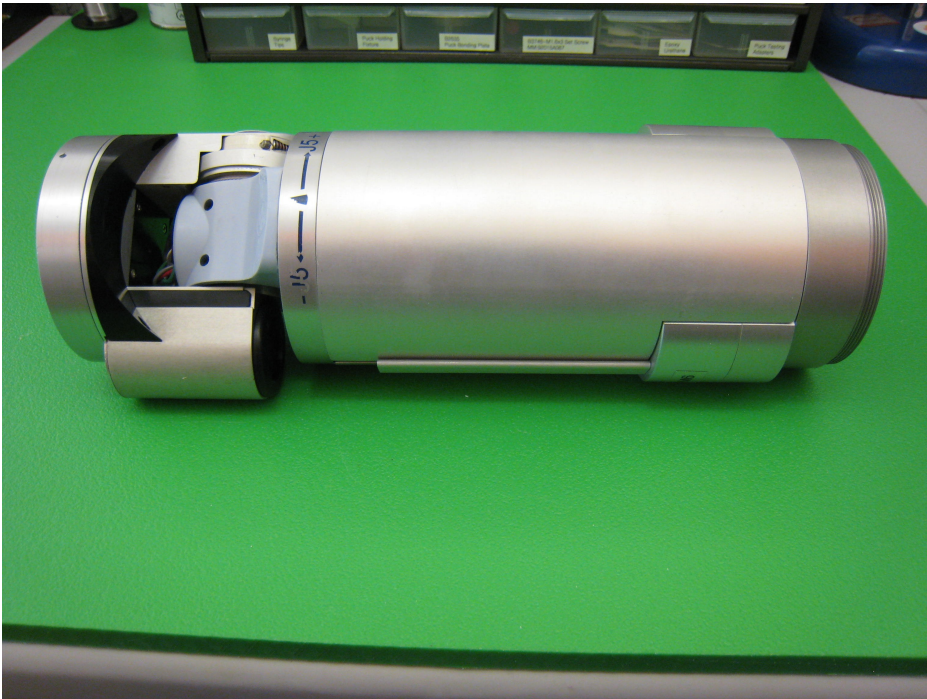


# Replacing a Wrist Differential Puck P5 or P6

Barrett Technology  
2011



Contacts:

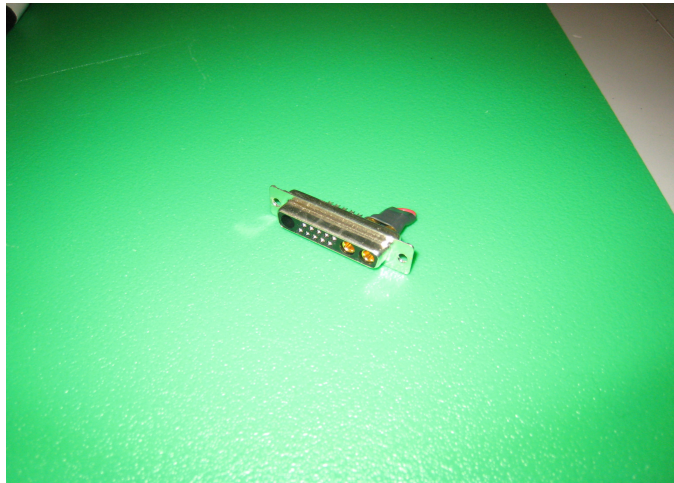
Peter A. Botticelli, [pb@barrett.com](mailto:pb@barrett.com), 617-252-9000 x39

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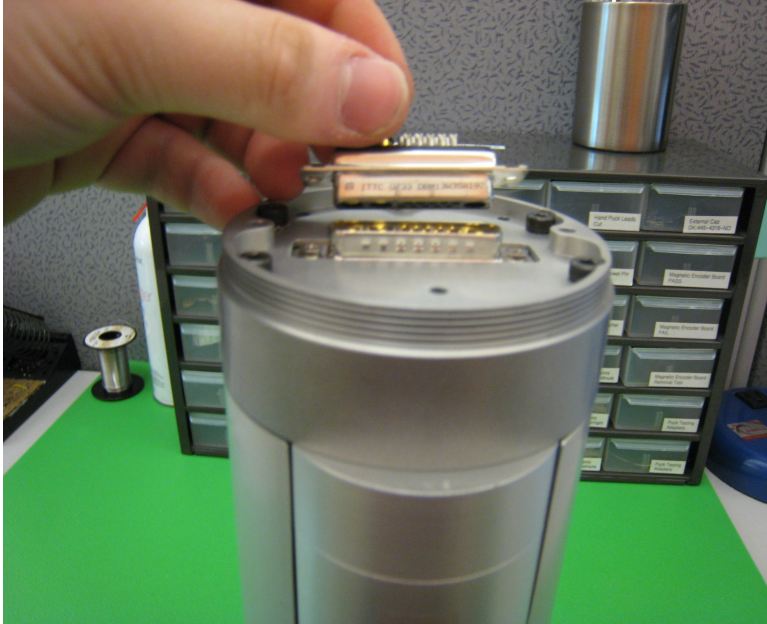
# Step 1 – Tools & Materials



- 3mm Hex driver
- 2mm Hex Driver
- Slotted screwdriver
- Wrist termination

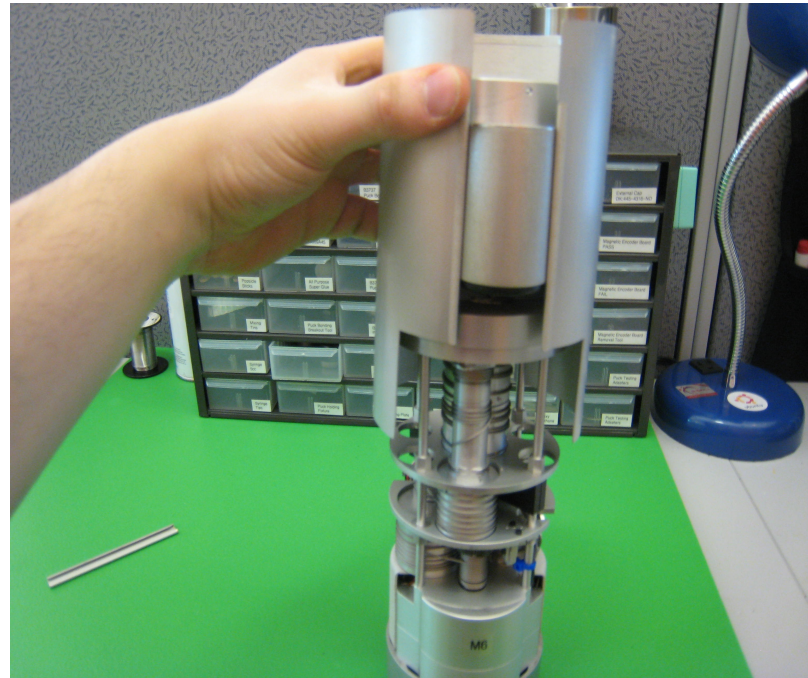
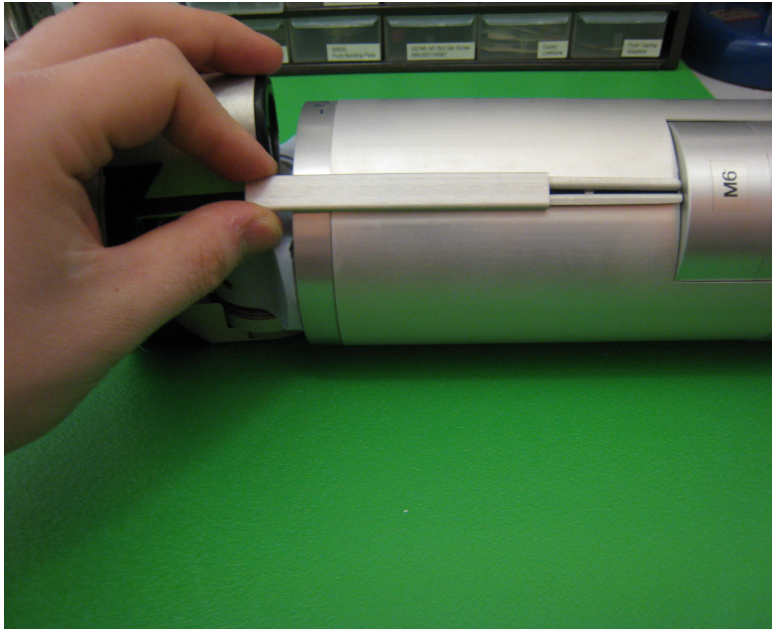


# Step 2 – Install termination



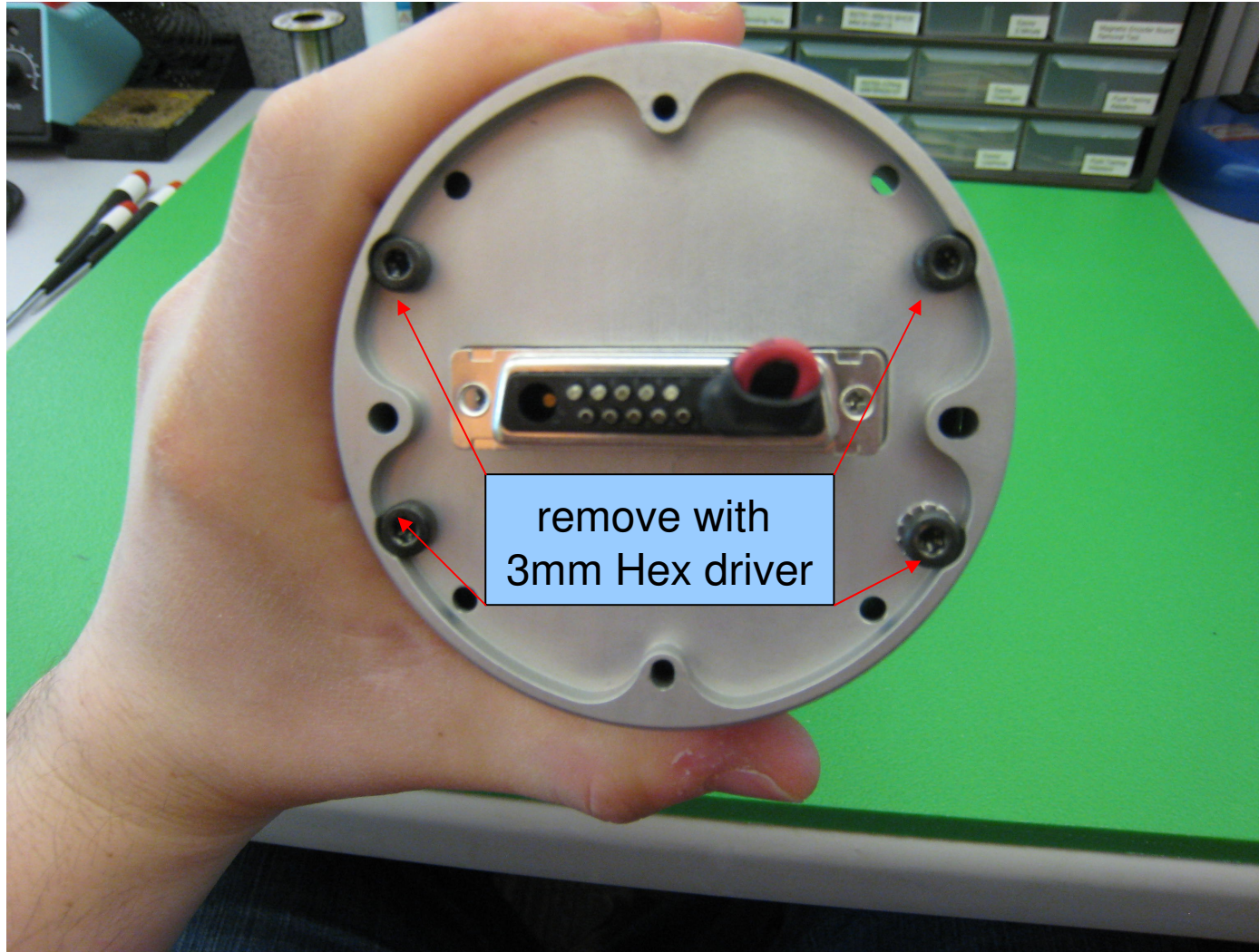


# Step 3 – Remove Covers



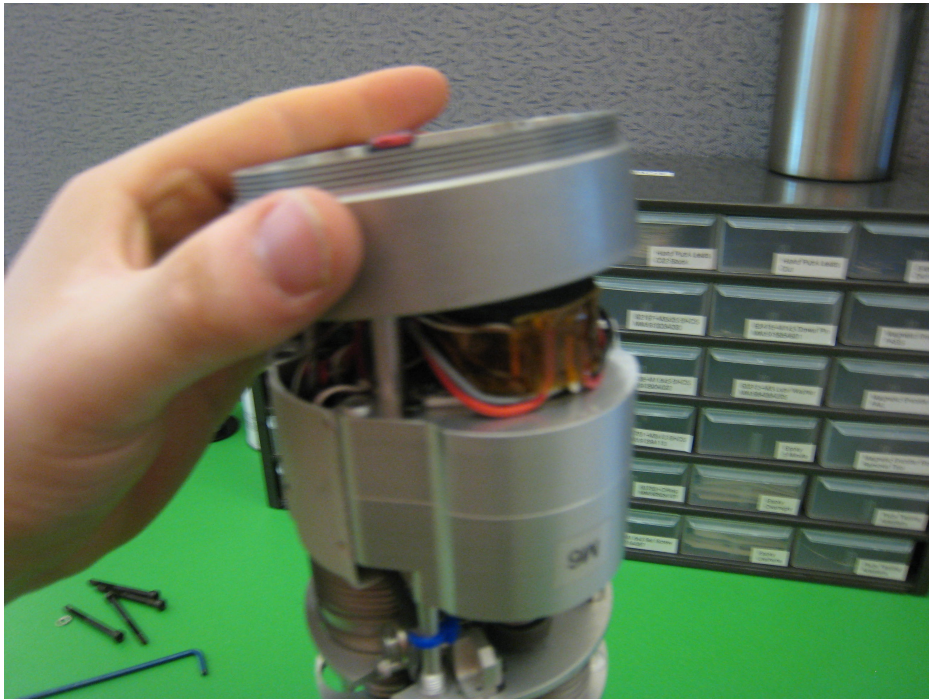


# Step 4 – Remove Bottom plate

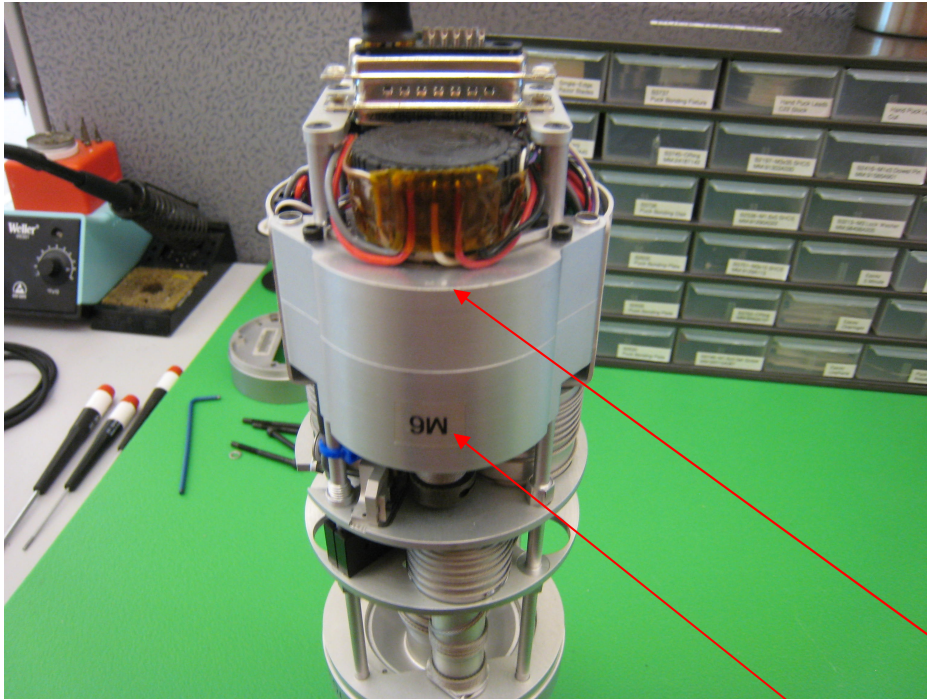


# Step 4 – Remove Bottom plate

- After removing the 4 screws with the 3mm hex driver, gently lift the bottom plate away from the wrist.



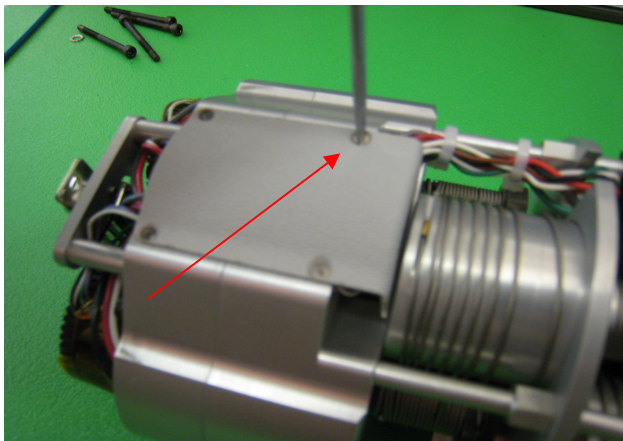
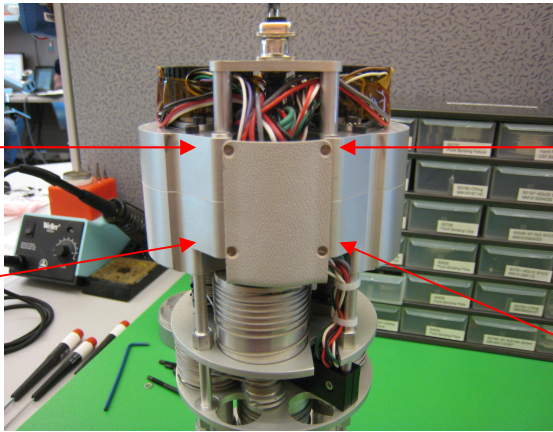
# Step 5 – Locate puck to be swapped



- Puck identification can be found in two locations per puck, as shown.
- Find the one you need to change.

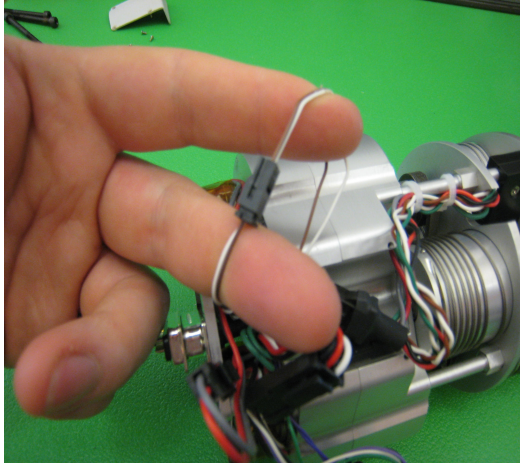


# Step 6 - Remove Wire baffle

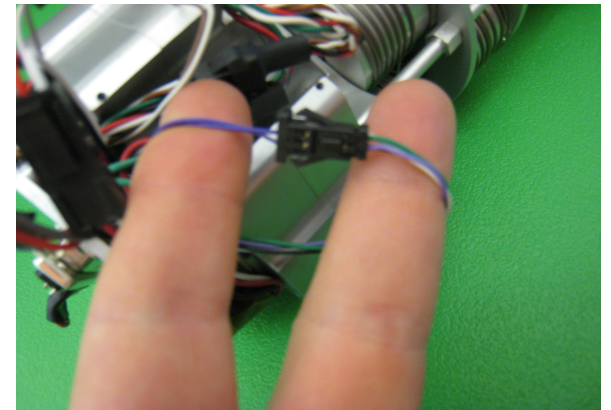
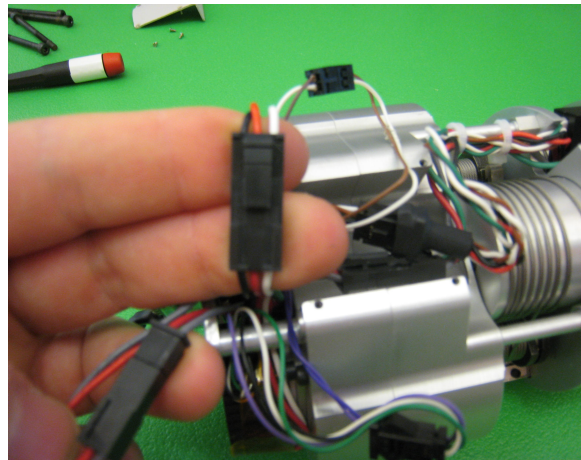
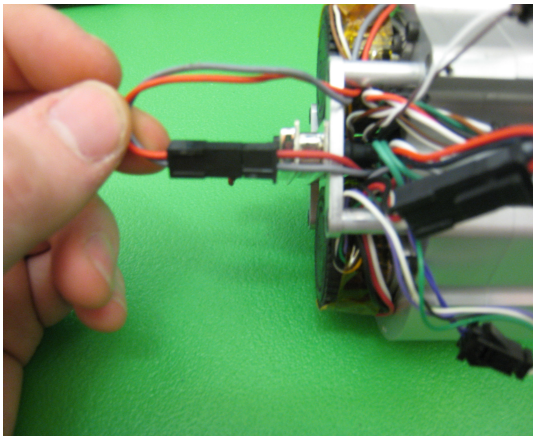


- Using a slotted screwdriver, remove the 4 flathead screws holding on the wire baffle of the puck's, to be changed, connectors. I will be changing puck 5 in this example.

# Step 7 – Disconnect puck connectors

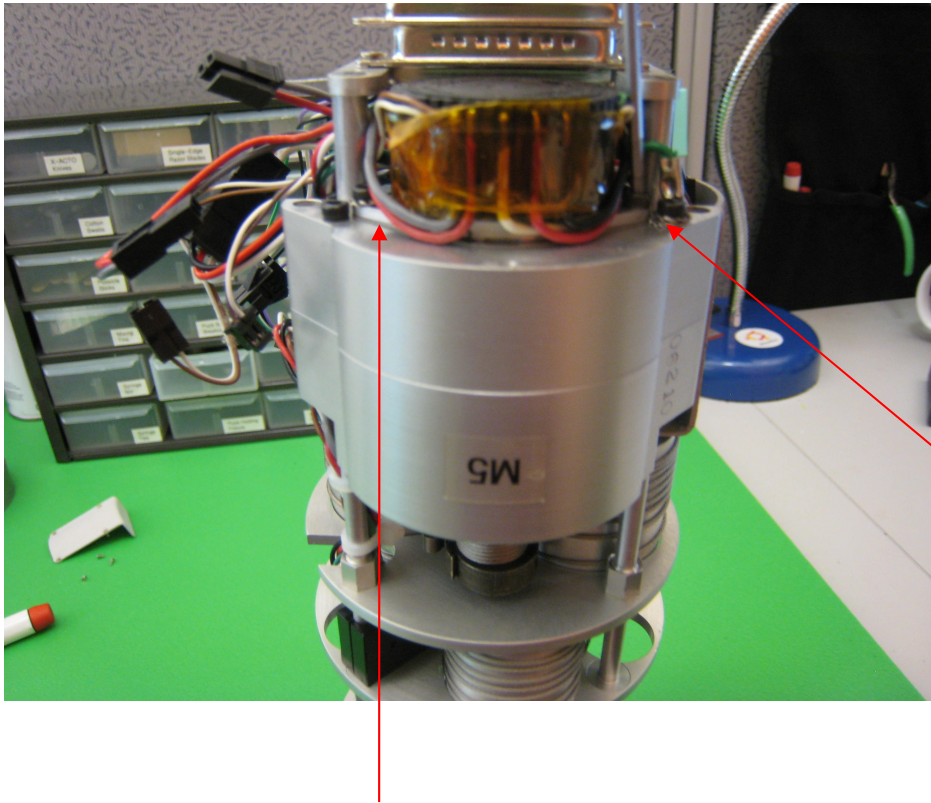


- There will be many wires behind the baffle. You will need to separate 4 connectors.
- 2 wire CAN line. This is brown and white.
- 2 wire Power line. This is gray and red.
- 3 wire phase line. This is white, red, and black.
- 2 wire motor line. Both are purple.
- This last line may have an additional black and white wire coming from one side or on both sides.



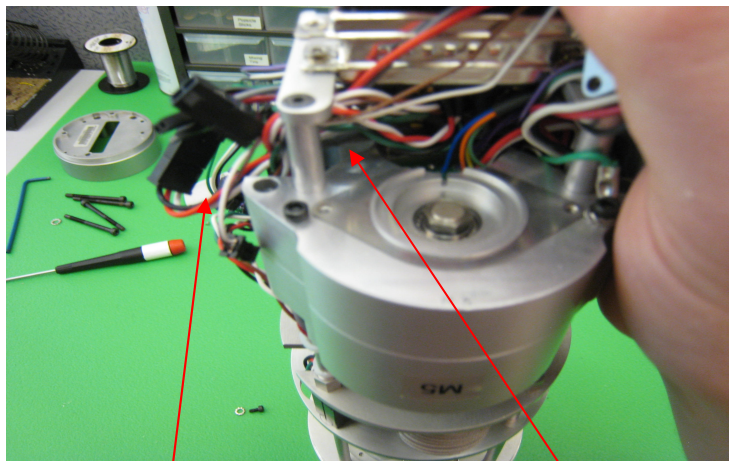
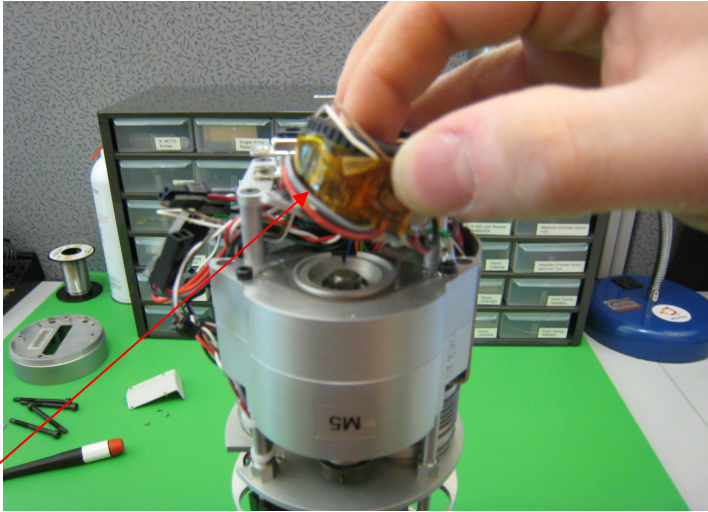
# Step 8 – Remove the Puck

- Remove the two screws that hold the puck to the wrist using a 2mm hex driver, as shown, One screw will have a lock washer on it, while the other has the ground line from the puck. Make sure you put these back in the same fashion.



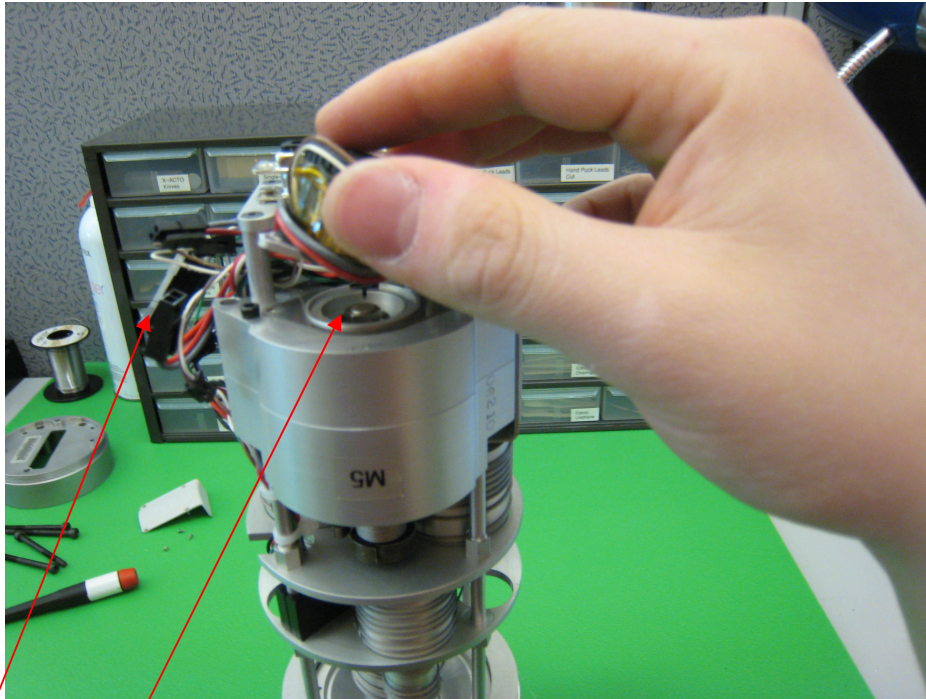


# Step 8 – Remove the Puck

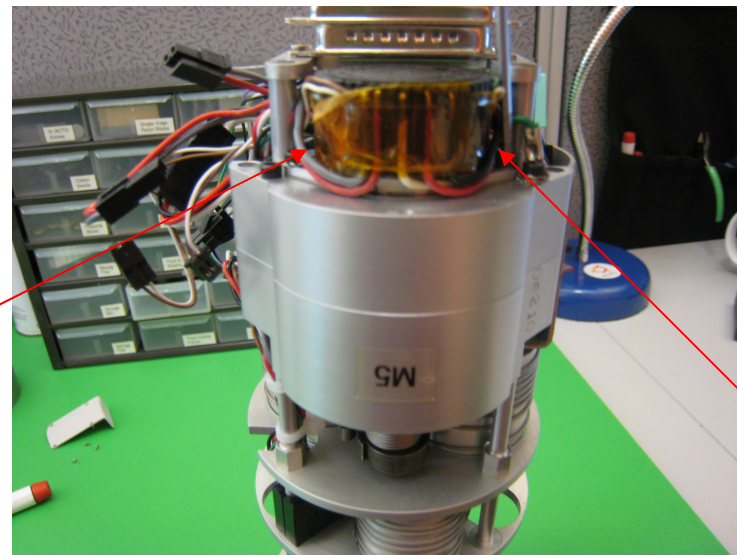


- Gently and slowly lift the puck up and away from the wrist. You will need to guide the wires and connectors coming from the puck.
- Once removed, ship the puck to Barrett.

# Step 9 – Install replacement puck

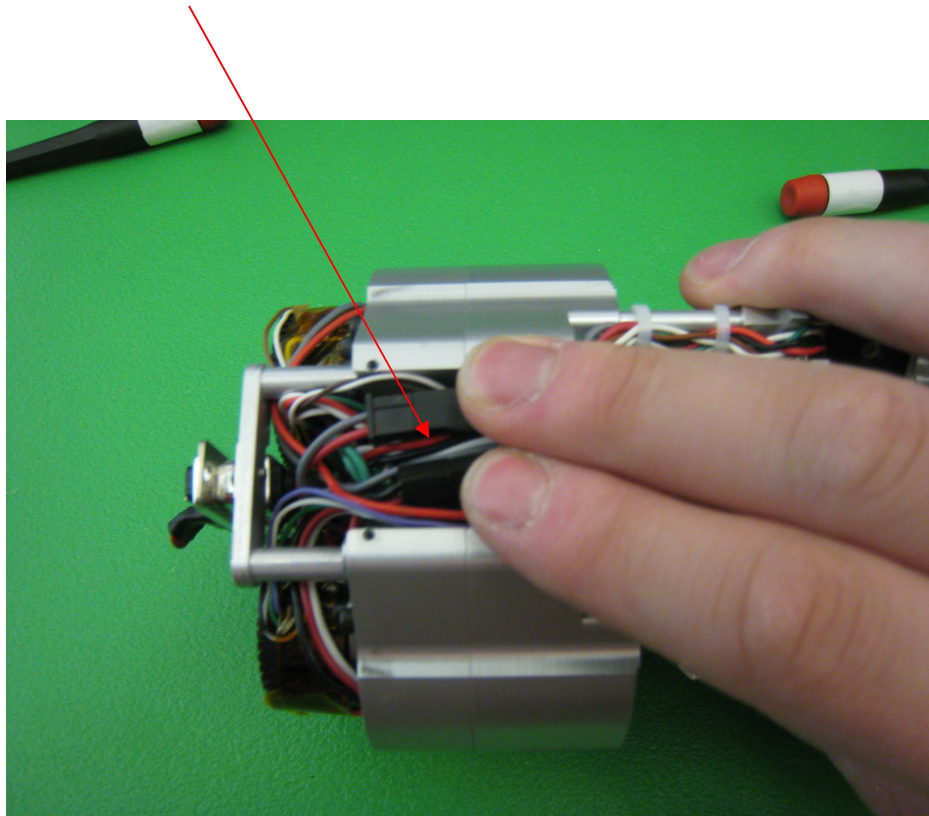


- Gently guide the 4 connectors of the replacement puck into the wire channel, while moving the puck into position over the motor. Carefully align the puck on the motor and assure that the alignment features mate. The puck should feel secure and provide resistance to a rotational force. At this point re-install the 2 screws one with the ground loop from the puck and the other with the lock washer you removed in Step 8.





# Step 10 – Reconnect Puck

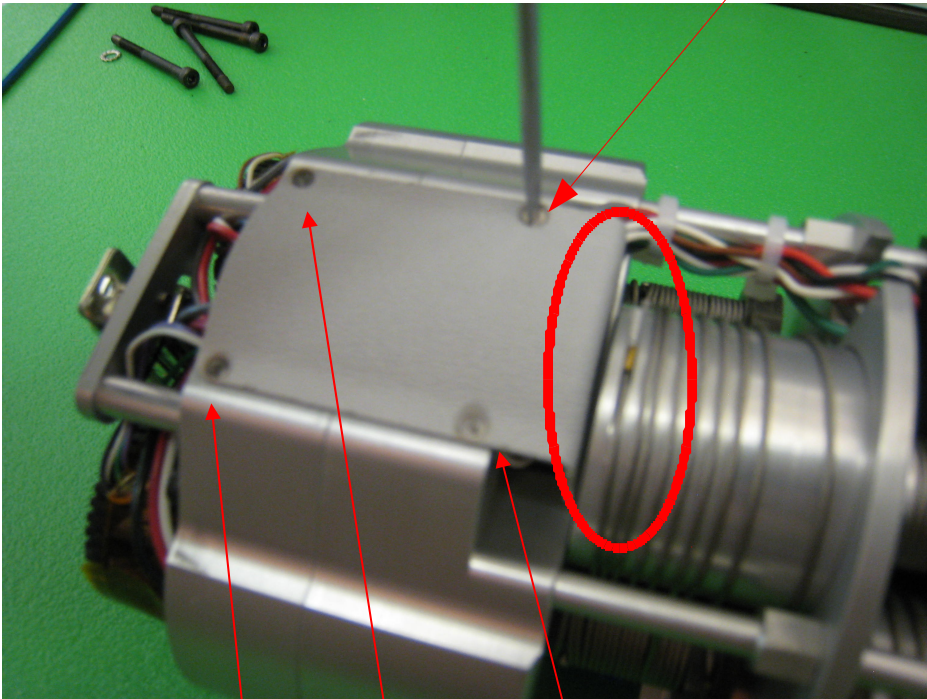


- Connect the 4 connectors from the replacement puck to the wires in the wire channel. These connectors are color coded and may only be plugged in one orientation. Once the connections are made, neatly pack all of the excess wire as well as the connectors into the wire channel, as shown.

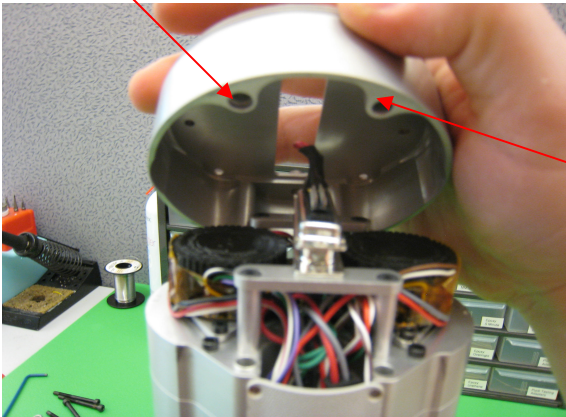


# Step 11 – Replace wire baffle

- Put the wire baffle that you removed in Step 6 back into place using the 4 flathead slotted screws. Make sure all wires are contained by the baffle. Wires cannot come into contact with the cable pulley. Ensure the gap between the baffle and the pulley stays wire free, as shown.



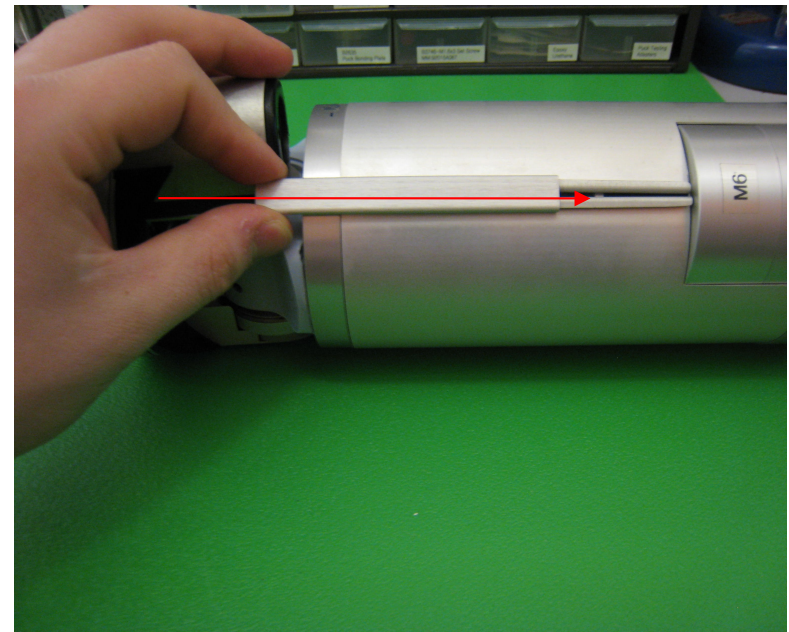
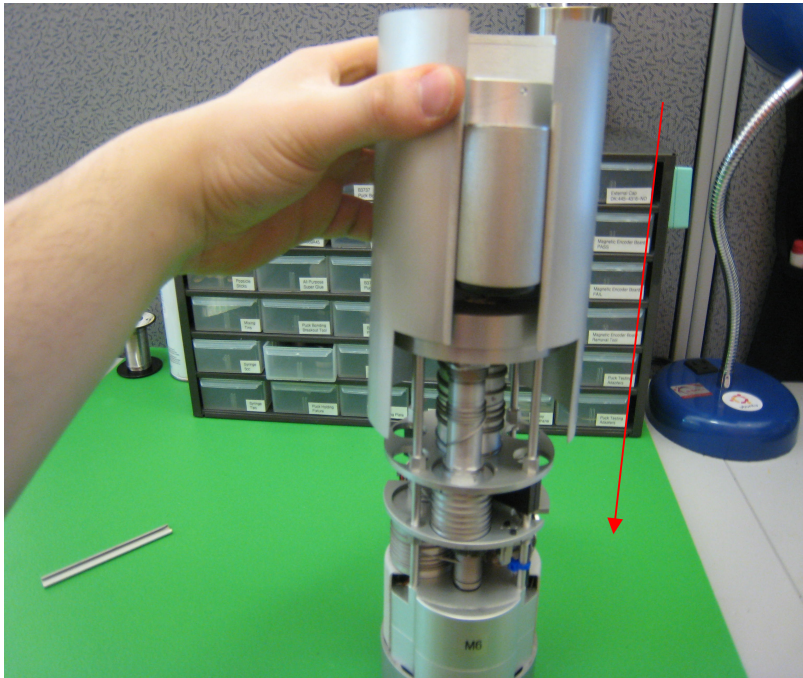
# Step 12 – Install bottom plate



- Very gently place the bottom plate back on the wrist. Guide it into position, ensuring you do not pinch any wires in the process. This plate should sit flush with the motor housing, on both sides. This plate can only be installed in one orientation, it is keyed at the screw holes, as shown. Once in position, reinstall the 4 screws with a 3mm hex driver. One of the screws will have a star washer.

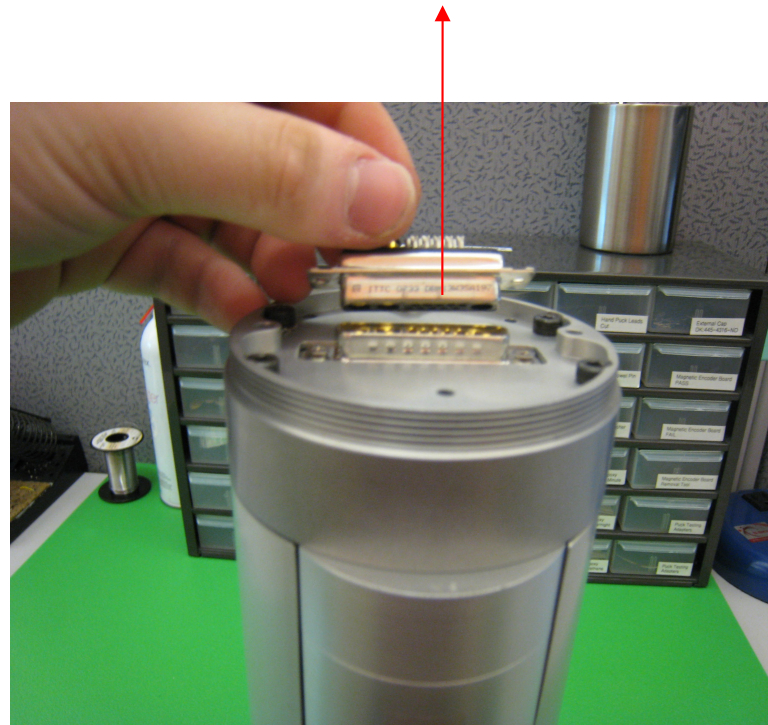


# Step 13 – Replace Covers





# Step 14 – Remove termination



# Step 15 – Using your wrist

- Before using your wrist again you will need to find a new motor offset for the recently replaced puck. This can be done with the Barrett Technology Puck Utility.
- The command for finding an offset is as follows
- `./btutil -f -#`
- Where “#” would be the numerical value of the puck that was changed.
- The command will take ~20 seconds to execute, and will alert the user upon completion.
- When finding an offset the wrist should be in the home position and in the approximate center of both J5 and J6's range of motion.
- After an offset is found the power must be cycled to the puck using the pendant E-Stop button or cycling the power to the arm.
- You have successfully changed your puck.