



# Forearm Roll EtherCAT Cable Remove and Replace

Jun 28, 2011

## **General Safety Instructions**

- Always wear an ESD wrist strap when reaching into the robot.
- Shutdown Computers and power off robot (red switch in back) before working on robot.
- If you have any questions about using this document, contact Willow Garage Support before proceeding.

## **Pre-Start Checklist**

- Unplug robot from wall electrical power.
- Power down robot and turn off DC breaker (red rocker switch on rear panel)

## **Required Tools and Materials:**

- ESD strap

# Forearm Cover Removal : Part 1

Forearm is strongly retained with Velcro.  
Peel the Cover off starting from the back edge on a single side.



# Forearm Cover Removal : Part 2

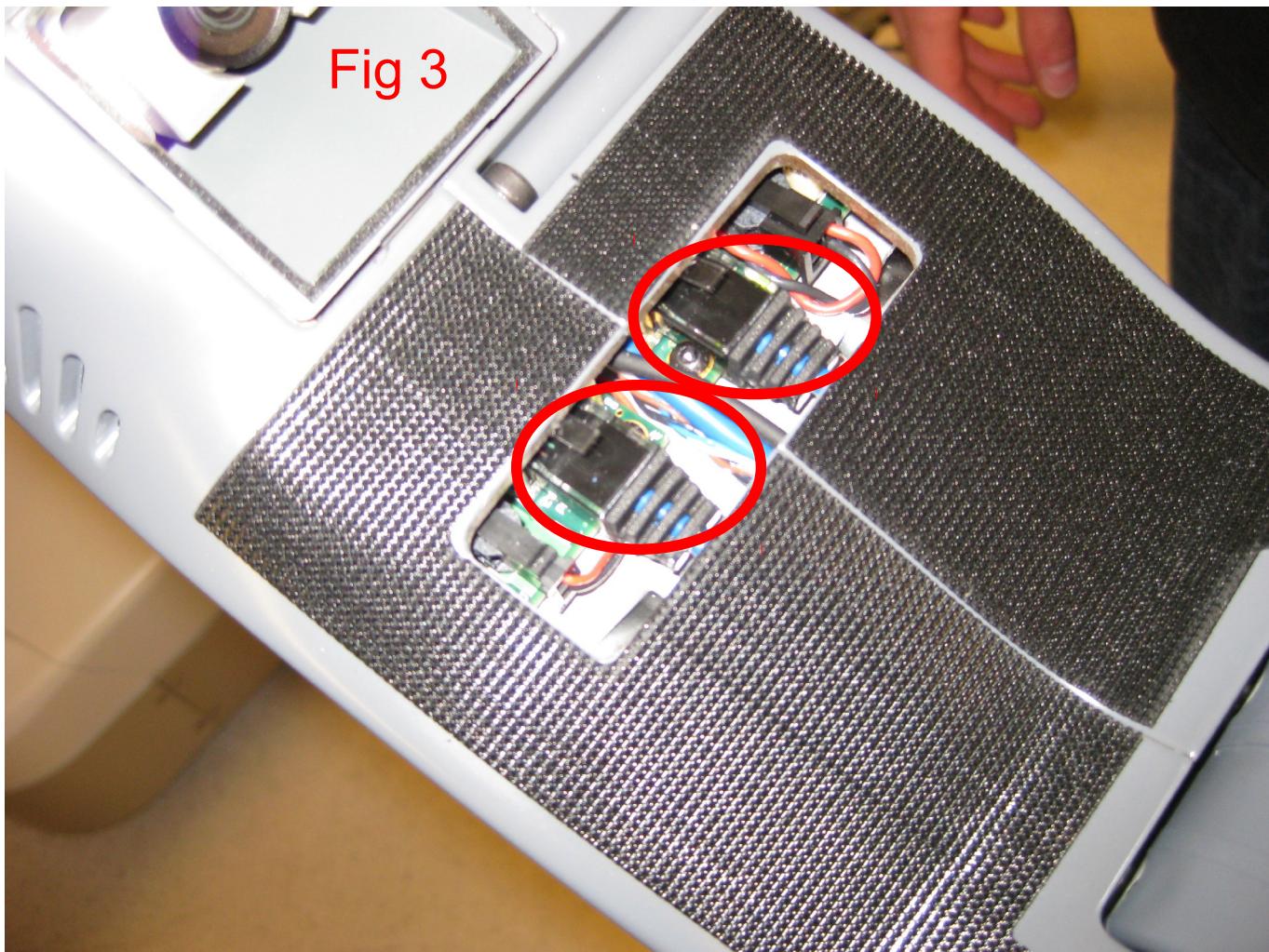
Next pull off front part of same side (Fig 2).



Finally unwrap and pull cover from remaining side.

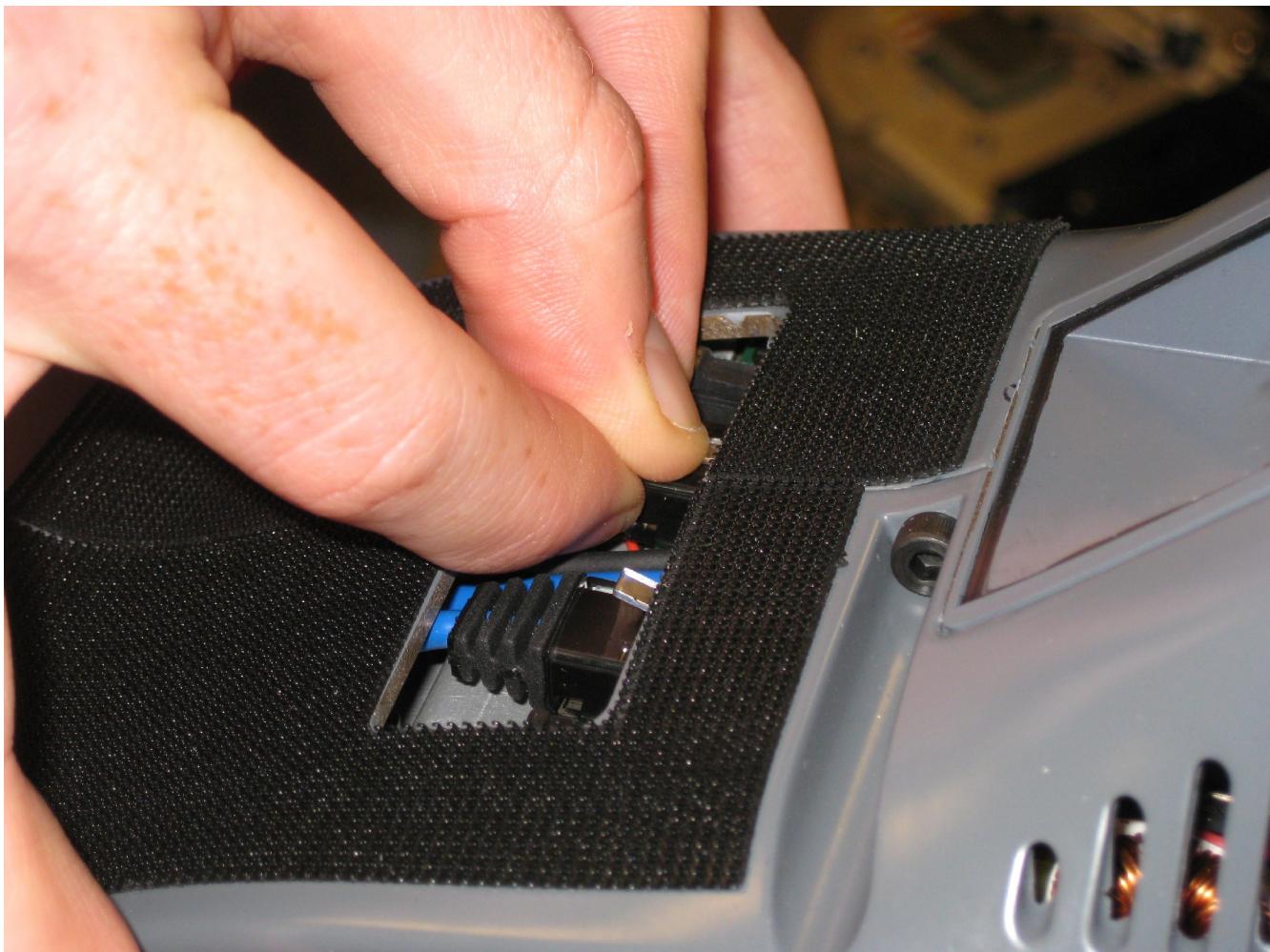
# Forearm EtherCAT Plug Closeup

The plugs for both forearm\_r\_motor and forearm\_l\_motor are visible in Fig 3.



# EtherCAT Plug Removal : Part 1

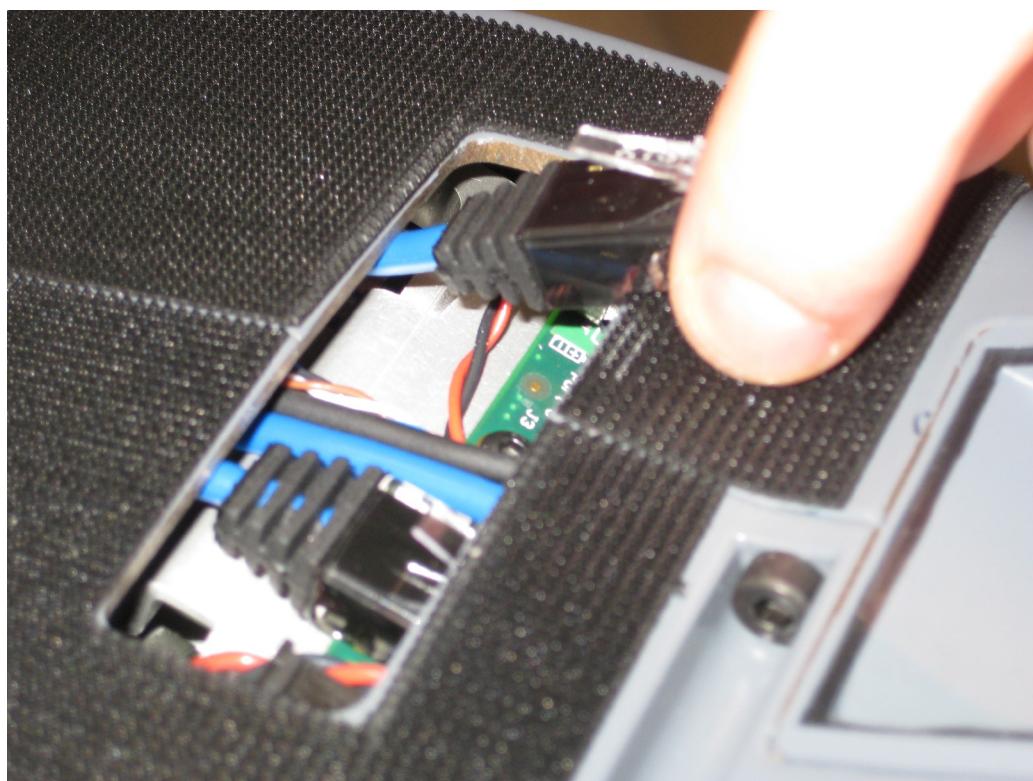
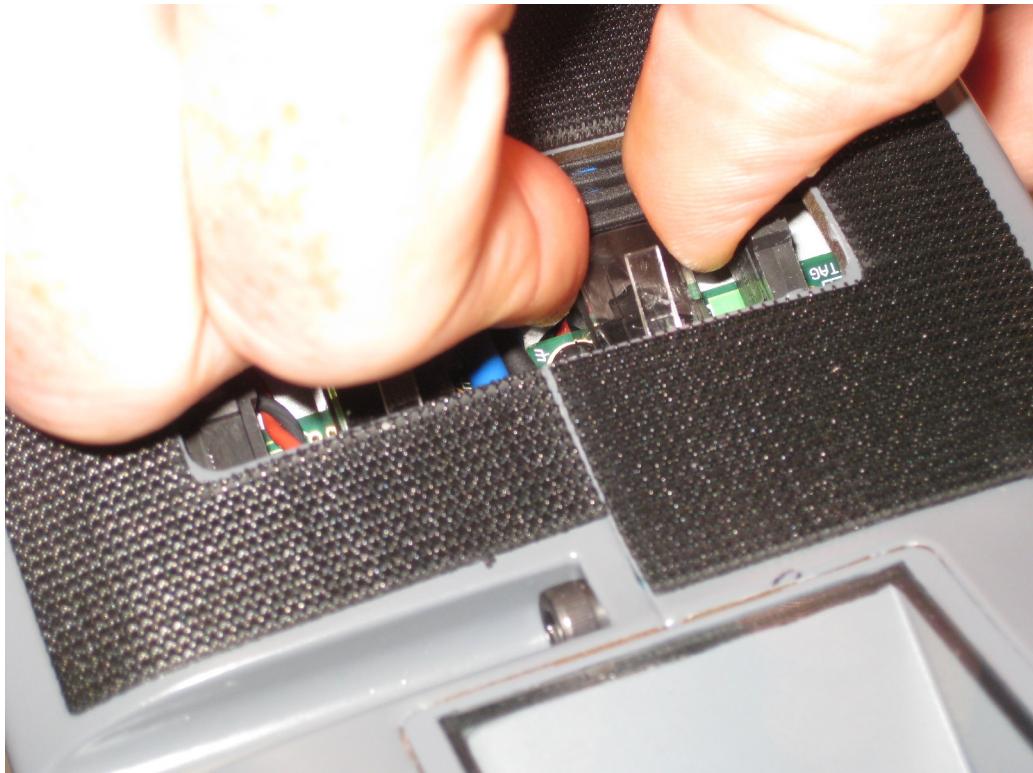
The plug is constrained and is difficult to remove.  
The trick to removing the plug is to push down on latch  
and pull the plug back just enough so that the latch will  
not pop back up.



Do NOT use pliers to do this. It takes finesse to remove plug not brute force.

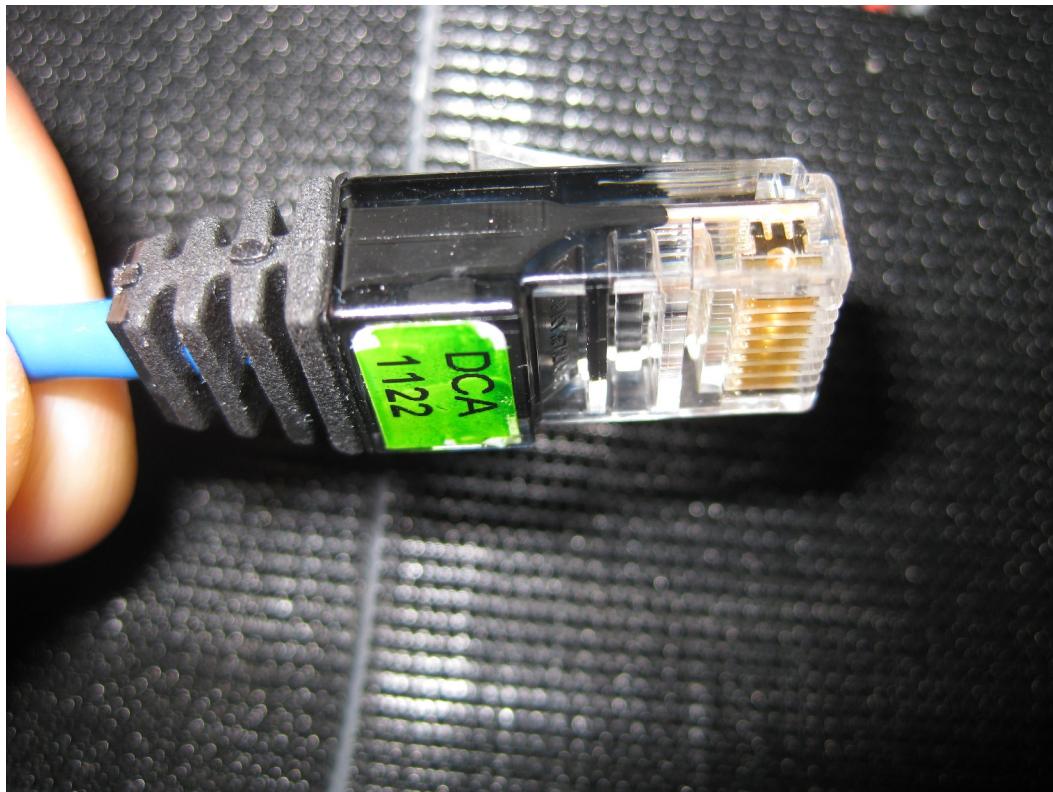
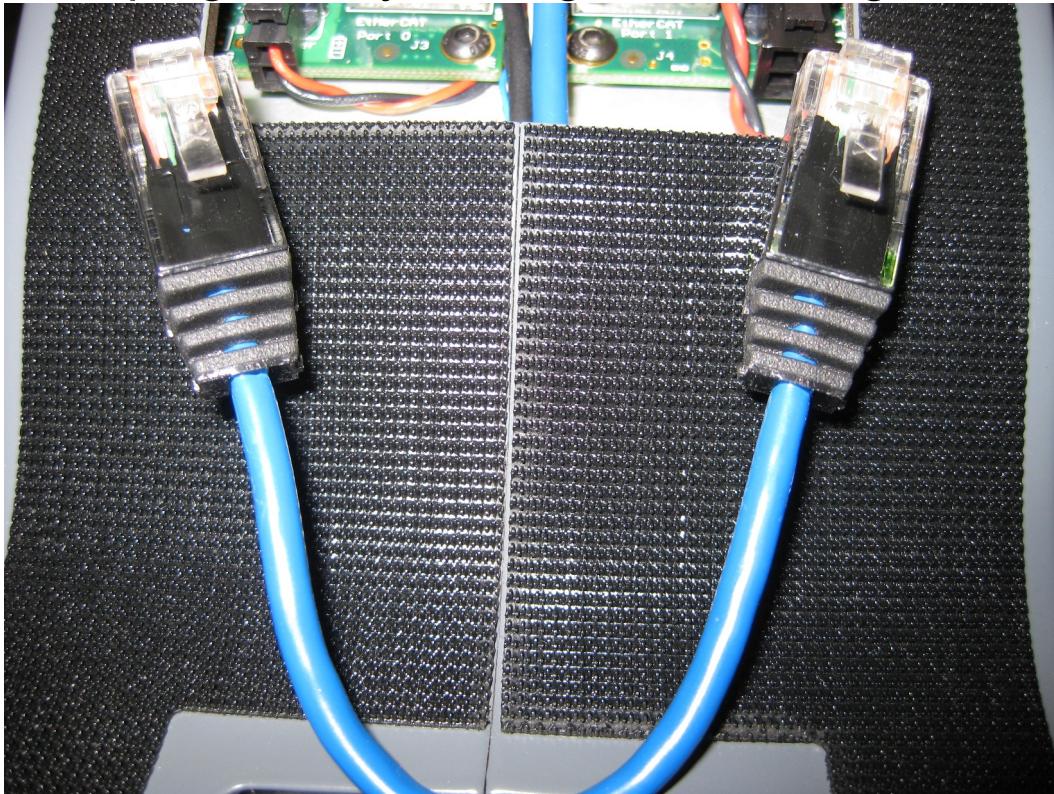
# EtherCAT Plug Removal : Part 2

Once the latch is released, it is easier to pull the plug farther back and then move it out.



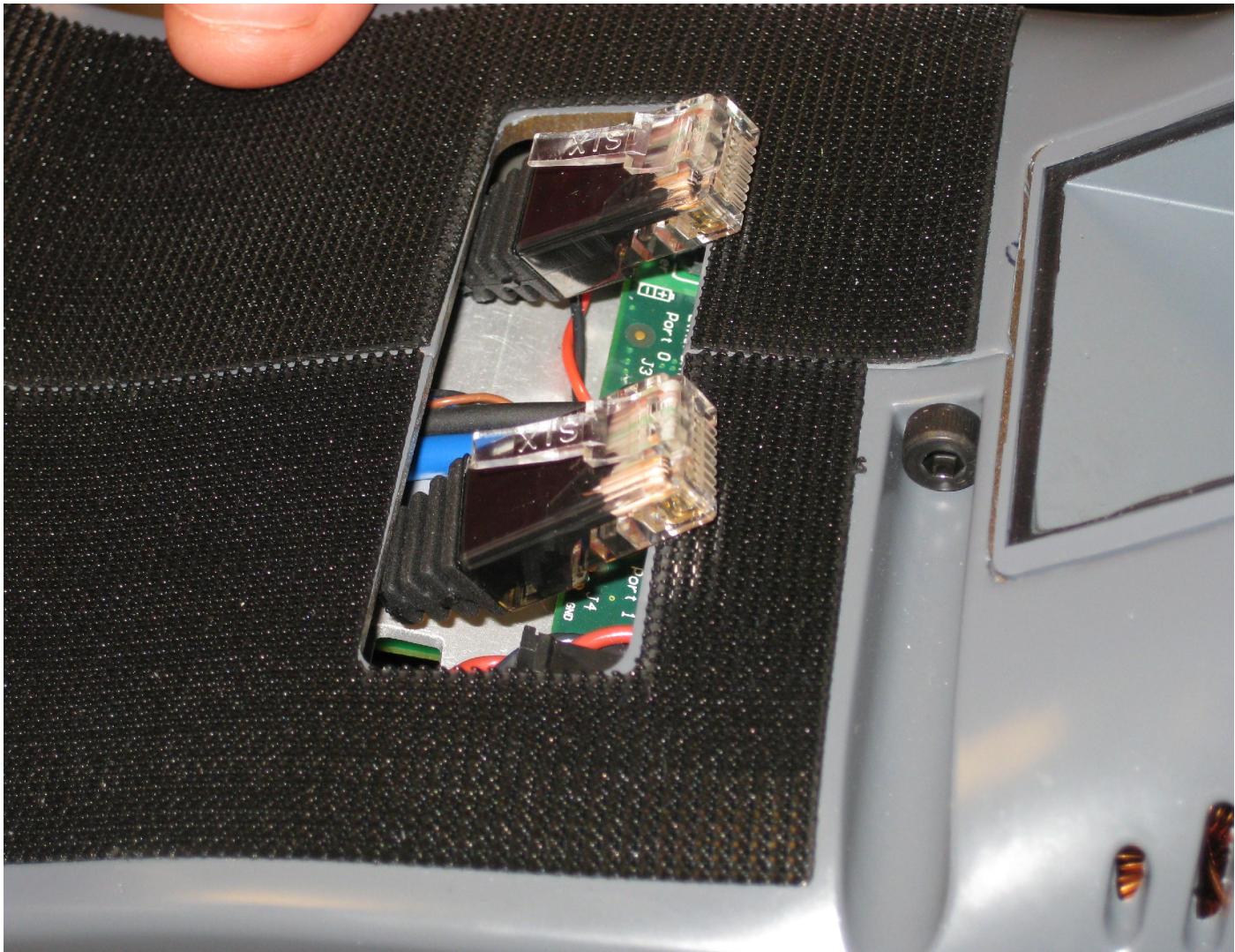
# EtherCAT Cable Inspection

Once the cable has been removed, take a look at the cable and plug for any damage or cracking.



# EtherCAT Plug Replace

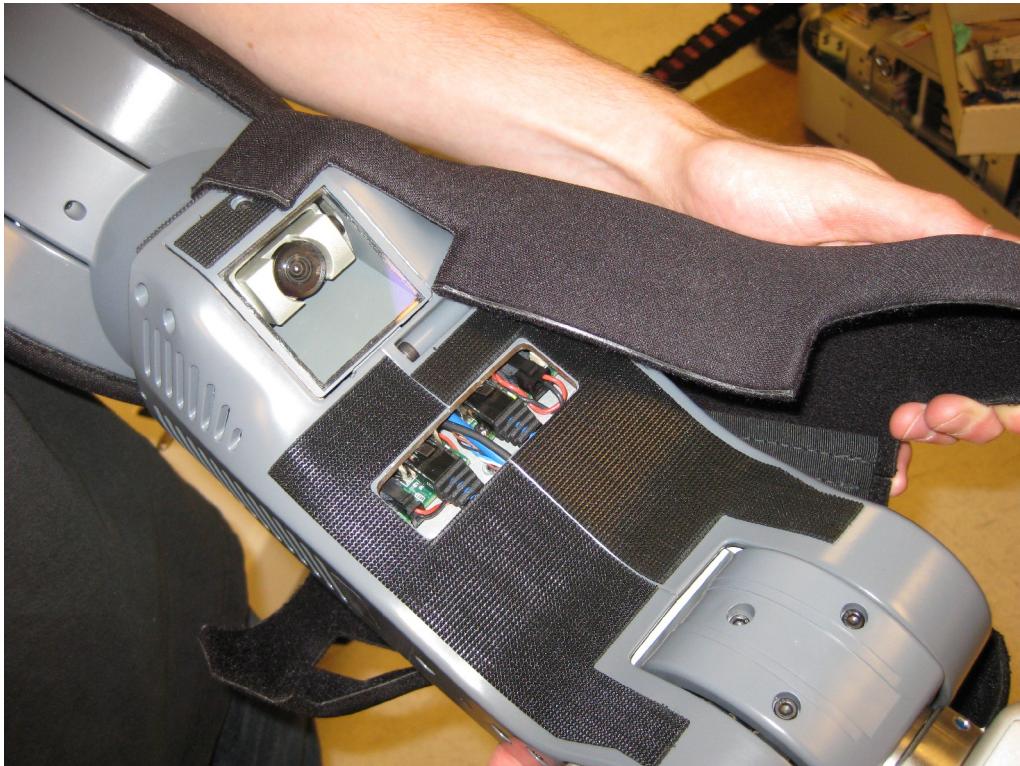
Push the EtherCAT cable back into the forearm opening.



Then push each plug back into to connector. When plug latches, it should make a 'click'. The 'click' is made by latch engaging in the jack. If you don't hear the 'click' the plug is most likely not latched and may fall out over time. If you don't hear a 'click', pull the plug out and try reinserting it.

# Forearm Cover Replace : Part 1

Replace the forearm cover starting from the back on one side. Then move toward gripper.



# Forearm Cover Replace : Part 2

Then pull cover tight around back side of forearm and attach to Velcro on other side of forearm.



# Post Install verification

After replacing cable. Power on the PR2 and then run:

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sudo pr2-systemcheck
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If the “check\_ethercat.sh” script displays an error, then you may not have properly connected the EtherCAT ports.