

BIORID II C4 NECK ACCELEROMETER MOUNT

Service Bulletin



January 2020

Recommendations for the C4 accelerometer location on the neck vertebrae of the BioRID dummy have been approved by the BioRID TEG with respect to GTR 7.

INTRODUCTION

BACKGROUND

The original design of the BioRID dummy allowed for accelerometer mounting at certain points along the neck and spinal column. One of these locations was on the fourth cervical vertebrae (C4) of the neck (figures 1 & 2).

OBSERVATIONS

C4 MOUNT

Over the course of years using the C4 accelerometer location in testing, observations were made showing inaccurate data recorded from this position.

After investigation, it was found that sufficient flexion is possible for the chin to hit the C4 accelerometer or mount on either side of the neck. Witness marks on multiple customer dummies were observed showing contact that occurred during testing (figure 3) causing damage to the skin, skull, and accelerometer.

RECOMMENDATION

OMIT C4 ACCELEROMETERS

Chin to C4 accelerometer contact creates a load path around the upper neck load cell which makes all recorded upper neck loads invalid.

Humanetics has previously recommended the removal of the C4 accelerometer mount from all testing beginning with the publishing of the BioRID II Design Checklist several years ago.

The GTR7 TEG has recently reviewed the issue and agreed with the recommendation to omit the C4 accelerometers and mount from the testing of the UN BioRID dummies.

! Remove the accelerometer block located at the C4 location. If not removed, the head might contact the block and produce inaccurate upper neck measurement results.

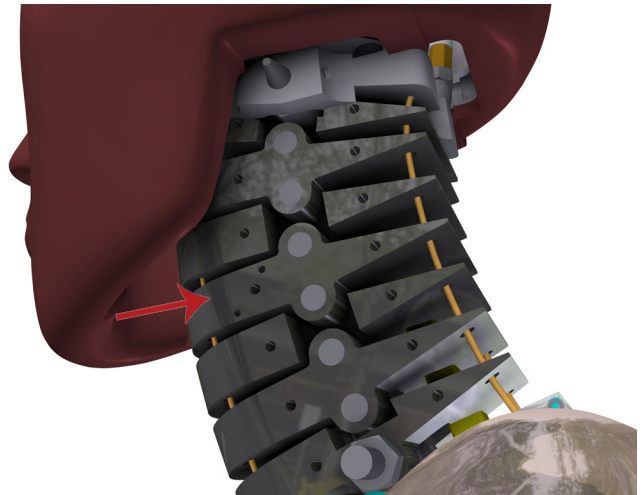


Figure 1- BioRID C4 accelerometer mount location

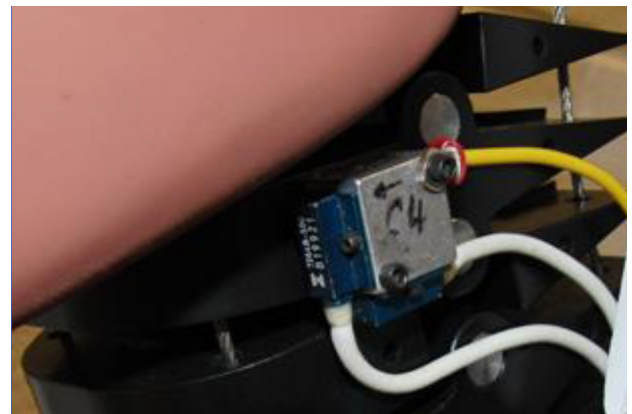


Figure 2- BioRID C4 accelerometers

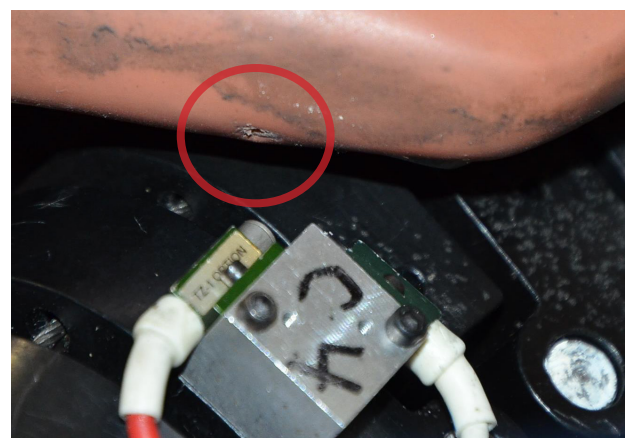


Figure 3- BioRID C4 accelerometer impact marks on the chin