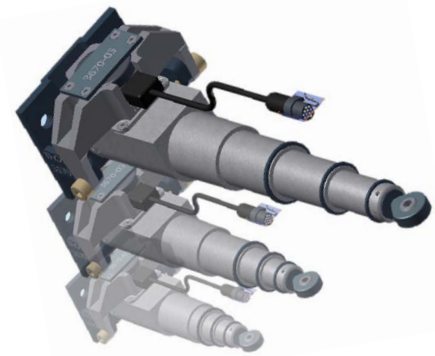


IR-TRACC Absolute Length and Angle Calibration

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Humanetics has developed an absolute length calibration procedure for the 2D IR-TRACC assembly (Infra-Red Telescoping Rod for the Assessment of Chest Compression). The 2D IR-TRACC millimeter (mm) output will now be expressed in absolute length with respect to the rotation centre. In this procedure a Reference Angle is obtained as well. Absolute Length and Reference Angle are relevant to the WorldSID 50th, but applicable to additional ATDs in the near future. The absolute length calibration procedure is developed in parallel with the standard length calibration procedure which should precede the absolute length calibration step. The absolute length calibration is available as a service from Humanetics Europe GmbH, our facility in Heidelberg, Germany, and will be implemented in other Humanetics facilities in the future.

Background

Euro NCAP will implement the WorldSID dummy with 2D-IR-TRACCs in their side impact protocols starting 2015. The injury parameters will be based on the lateral compression of the ribs. This requires calculation of the rib position in the spine box co-ordinate system. Absolute Length Calibration facilitates this calculation.

Absolute Length Calibration

The new procedure is carried out in three steps. In the first step, length calibration is carried out according to the standard IR-TRACC calibration procedure (reference Service Bulletin "IR-TRACC Harmonized Certification," publication date February, 2014.) The angle sensor needs to be calibrated according to the existing procedure.



Reference fixture part # 11220

In the next step the 2D-IR-TRACC assembly is mounted on Reference Fixture part# 11220 in an accurately defined reference position. This allows finding the 'Absolute Intercept' and the 'Reference Angle'. These parameters are required for calculating the position in x- and y- co-ordinates.

The third and final step is to validate the calibration results. The data obtained in position 1 and 2 on the reference fixture are used to check polarity of the angle sensor and to check if the calculated x- and y- co-ordinates (and also angle and length) correspond to the predefined known positions on the fixture. This last step confirms that the calibration has been executed correctly. In case of a non-correspondence, all previous steps need to be re-examined and corrected until the results are corresponding to the expected values.

Implementation of Service

The new procedure is currently offered as an additional service to customers effective immediately from Humanetics Europe GmbH and will follow in other Humanetics facilities in the near future.

Implementation into standard IR-TRACC production will be forthcoming in early 2015 and the tools needed to do this calibration will be made commercially available.

Scope of Absolute Length Calibration: only 2D-IR-TRACCs; IF-367 and IF-368 for WorldSID 50M; IF-371 for WorldSID 5th Female; IF-372 for Q10.

Equipment: Reference Fixture part # 11220

Documentation: The user manuals of WorldSID 50M, 5F and Q10 provide details and instructions on implementation of the calibration parameters in the data acquisition system, formulas to obtain results in the dummy spine co-ordinate system and how to check sensor polarities.

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