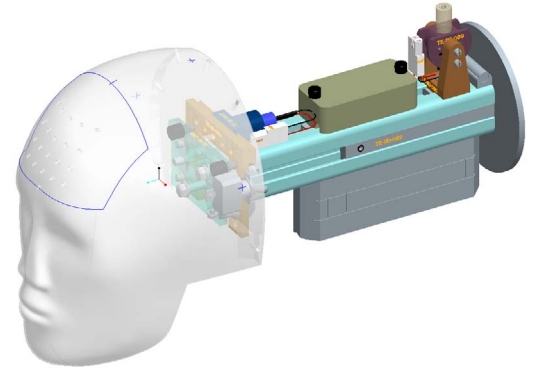


# Free Motion Headform Position Kits

## TE-110-6GG & TE-110-ADJ-6GG

Publication Date: September 2014



**TE-110-ADJ-6GG:** The adjustable positioning kit consists of a clear plastic head mounted on an extruded aluminum beam which has adjustable side plates to set the overall length for different accelerator strokes. The side plates are mounted to a back plate simulating the FMH back plate with a ¼ inch (6.35 mm) diameter pin to interface with a hole in the accelerator rod for positioning. In addition to the vertical laser the unit has a horizontal spot laser, projecting forward. It is mounted on a slide allowing vertical and horizontal motion. The forehead has the same target area scribed on it that is on TE-110-6GG. In addition twenty holes, located on a 12.5 mm square grid pattern, are drilled through the target area to allow the spot laser beam to exit the headform. A second bubble level is included.

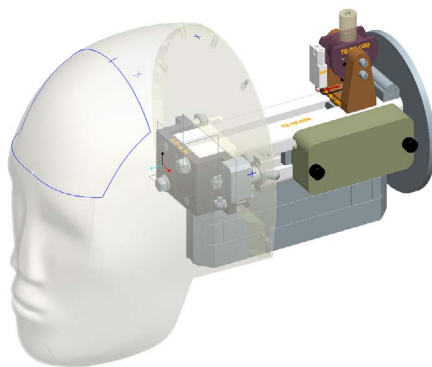
### Method of Use

**TE-110-6GG:** The positioning kit is attached to the front of the accelerator and is held in place by magnets. The extruded beam simulates the stroke. The vertical line laser is switched on and is used to align the unit with respect to the centerline of the vehicle. The head is aimed at the target in the car which must appear inside the scribed target area on the face of the clear plastic head. The test technician looks through the side or back of the head to make the alignment. The lateral impact angle is adjusted and indicated by the protractor. The accelerator is fixed in position allowing for at least 25 mm of free flight for the head. The kit is then replaced by the FMH to conduct the regulated test.

(Con't)

The Free Motion Headform Positioning Kit was developed to be used as an aiming tool for the accelerator units used to launch the Free Motion Headform (FMH, part number 92041-001) in compliance with FMVSS 201 – “Occupant protection in interior impact”<sup>1</sup>. The original version of the TE-110 was introduced to the market in 2000 and various subsequent models were produced to accommodate different accelerator stroke lengths and adjustability. In 2008, Humanetics received a request to improve the shape relationship between the TE-110 clear plastic head and the FMH. These enhancements led to the release of the current TE-110-6GG and the TE-110-ADJ-6GG.

### Description



**TE-110-6GG:** The standard positioning kit consists of a clear plastic head mounted on an extruded aluminum beam of a length equal to the accelerator stroke. The beam is mounted to a back plate simulating the FMH back plate with a ¼ inch (6.35 mm) diameter pin to interface with a hole in the accelerator rod for positioning. The unit has a vertical line laser mounted on top projecting upward. The forehead is scribed with a target pattern following the requirements of FMVSS 201. A digital protractor is mounted to the underside of the aluminum beam and there is a bubble level for cross axis angle zeroing.

# Free Motion Headform Position Kits (con't)

(con't from page 1)

**TE-110-ADJ-6GG:** The positioning kit is mounted the same as the TE-110-6GG; its overall length may be adjusted as noted above. The lasers are switched on. The vertical line laser is used to align the unit with respect to the centerline of the vehicle. The horizontal spot laser beam is adjusted to shine through a selected hole in the front of the head and the spot is aligned with the desired target in the vehicle. The rest of the procedure is the same as above.

## Application

**TE-110-6GG** is primarily for GM applications and **TE-110-ADJ-6GG** is primarily for other applications. The length of the adjustable unit may be fixed. The beam length may be set at stroke, plus free flight (~25 mm), if the clear head is to be put into contact with the target inside the car. It may be set shorter for non-contact aiming. The inclusion or exclusion of the free flight length is not as important if the accelerator unit can be retracted a calculated amount between aiming and final set up for the test.

## Specifications

	TE-110-6GG	TE-110-ADJ-6GG
<b>Headform</b>	Clear plastic. Thickness ~1.5 mm, profile matches FMH on front and sides within 2.5 mm	
<b>Headform Target</b>	Outline per FMVSS 201	
<b>Laser Targeting Holes</b>	None	20 holes for laser transmission on 12.5 mm square grid through the forehead (plus hole @ "O" below).
<b>Head Reference Holes</b>	Forward @ point "O" per FMVSS 201. Top @ ½-20 hole location. Sides @ intersection of horizontal and vertical planes through the first two holes.	
<b>Vertical Line Laser</b>	Color: Green. Output less than 1 mw <sup>2</sup> . Generates lateral line of laser light.	
<b>Vertical Laser Mounting</b>	Forward angle adjustment-continuous with 30 <sup>o</sup> detents, lockable to secure forward tilt angle. Line laser is lockable to secure transverse angle of output line.	
<b>Horizontal Laser</b>	None	Color: Green. Output less than 1 mw <sup>2</sup> . Spot laser beam.
<b>Horizontal Laser Mounting</b>	None	Vertical and lateral traverse mounting to allow laser beam to exit through hole selected in front target on face.
<b>Laser Power</b>	3 VDC-two AA cells in series-included. Manual power switch.	
<b>Digital Protractor</b>	Pro-360 reads ±90° in 0.1° increments. Power 9 VDC-battery included.	
<b>Bubble Level</b>	One at top back for cross level	One at top back and one at bottom front for cross level.
<b>Reference Beam Length-back of head to front of back plate<sup>3</sup></b>	(133 mm)	(229-330 mm)
<b>Reference Back plate to face @ CG length<sup>3</sup></b>	(292 mm)	(388-489 mm)
<b>Reference Head width<sup>3</sup></b>	(79 mm)	
<b>Reference Head Height-chin to crown<sup>3</sup></b>	(114 mm)	
<b>Acceptances</b>	Headform shape & target location accepted by GMPG. Mechanical design & features accepted.	Headform shape & target location accepted by GMPG.

### Notes

1. U.S. Code of Federal Regulations Title 49 Transportation Part 571.201.
2. Class II laser to comply with ECE safety regulations.
3. Reference dimensions rounded to nearest millimeter.