

APPENDIX B
 POSITIONING PROCEDURE FOR SIDE IMPACT DUMMY (SID)

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SID POSITIONING PROCEDURE

Position a correctly configured Part 572F Side Impact Dummy (SID) in the front outboard seating position on the side of the test vehicle to be struck by the moving deformable barrier (MDB). Position another conforming side impact dummy in the rear outboard position on the same side of the vehicle, as specified in Sections 1 through 4. Each side impact dummy is restrained using all available belt systems in all seating positions where such belt restraints are provided. In addition, any folding armrest is retracted.

In order to ensure that the thoracic shock absorber (damper piston) is fully extended in each test dummy, hold the dummy's head in place and push laterally on the non-impacted side of the upper torso in a single stroke with a force of 66.72 N - 88.96 N towards the impacted side.

1. TORSO

A. For a SID in the Driver Position

(1) For a BENCH SEAT

The upper torso of the SID rests against the seat back. The midsagittal plane of the SID is vertical and parallel to the vehicle's longitudinal centerline and passes through the center of the steering wheel.

(2) For a BUCKET OR CONTOURED SEAT

The upper torso of the SID rests against the seat back. The midsagittal plane of the SID is vertical and parallel to the vehicle's longitudinal centerline, and coincides with the longitudinal centerline of the bucket seat.

B. For a SID in the Front Outboard Passenger Position

(1) For a BENCH SEAT

The upper torso of the SID rests against the seat back. The midsagittal plane of the SID is vertical and parallel to the vehicle's longitudinal centerline, and the same distance from the vehicle's longitudinal centerline as would be the midsagittal plane of a test dummy positioned in the driver position under item A.

1. TORSO....Continued

(2) For a BUCKET or CONTOURED SEAT

The upper torso of the SID rests against the seat back. The midsagittal plane of the SID is vertical and parallel to the vehicle's longitudinal centerline, and coincides with the longitudinal centerline of the bucket seat.

NOTE: The midsagittal plane of the SID should have a tolerance of (0 mm, - 15 mm) about the longitudinal centerline of the seat. If there is an question in placement of the SID, the SID should be placed further away from the impacted door side.

C. For a SID in Either of the Rear Outboard Passenger Positions

(1) For a BENCH SEAT

The upper torso of the SID rests against the seat back. The midsagittal plane of the SID is vertical and parallel to the vehicle's longitudinal centerline, and, if possible, the same distance from the vehicle's longitudinal centerline as the midsagittal plane of a SID positioned in the driver position under item A. If it is not possible to position the SID so that its midsagittal plane is parallel to the vehicle longitudinal centerline and is at this distance from the vehicle's longitudinal centerline, the SID is positioned so that some portion of the SID just touches, at or above the seat level, the side surface of the vehicle, such as the upper quarter panel, an armrest, or any interior trim (i.e., either the broad trim panel surface or a smaller, localized trim feature).

(2) For a BUCKET OR CONTOURED SEAT

The upper torso of the SID rests against the seat back. The midsagittal plane of the SID is vertical and parallel to the vehicle's longitudinal centerline, and coincides with the longitudinal centerline of the bucket or contoured seat.

NOTE: If the seatback contour and seat bottom contour do not line up with one another, the dummy shall be located in the center of the seat bottom contour.

2. PELVIS

A. H-Point

The H-points of each SID coincide within 13 mm (0.5") in the vertical dimension and 13 mm (0.5") in the horizontal dimension of a point 6 mm below the position of the H-point determined by using the equipment for the 50th percentile and procedures specified in SAE J826 (1980), except that Table 1 of SAE J826 is not applicable. The length of the lower leg and thigh segments of the H-point machine are adjusted to 414 mm (16.3") and 401 mm (15.8"), respectively.

B. Pelvic Angle

As determined using the pelvic angle gauge (GM drawing 78051-532) which is inserted into the H-point gauging hole of the dummy, the angle of the plane of the surface on the lumbar-pelvic adaptor on which the lumbar spine attaches is 23E to 25E from the horizontal, sloping upward toward the front of the vehicle.

3. LEGS

A. For a SID in the DRIVER POSITION

The upper legs of each SID rest against the seat cushion to the extent permitted by placement of the feet. The left knee of the SID is positioned such that the distance from the outer surface of the knee pivot bolt to the dummy's midsagittal plane is $152 \text{ mm} \pm 2.5 \text{ mm}$ ($6.0" \pm 0.1"$). To the extent practicable, the left leg of the SID is in a vertical longitudinal plane.

B. For a SID in the OUTBOARD PASSENGER POSITIONS

The upper legs of each SID rest against the seat cushion to the extent permitted by placement of the feet. The initial distance between the outboard knee clevis flange surfaces is $292 \text{ mm} \pm 2.5 \text{ mm}$ ($11.5" \pm 0.1"$). To the extent practicable, both legs of the SIDs in outboard passenger positions are in vertical longitudinal planes. Final adjustment to accommodate placement of feet in accordance with Section 4 for various passenger compartment configurations is permitted.

3. LEGS....Continued

C. Femur Alignment

Orient both the left and right femurs by making the centerlines of the ½-13 Shoulder Bolt attaching the upper leg bone to the femur assembly horizontal and perpendicular to the midsagittal plane within 1E.

Suggested Procedure for Adjusting Centerlines of Bolts

Place a Femur Alignment Tool (shown on next two pages) through the hole on each side of the pelvis into the socket of the ½-13 Shoulder Bolt (Reference Figure 44 or Figure 56 of the SID User's Manual - July 1990). To account for the looseness of fit of the wrench in the socket head, determine the average of the angles of the wrench from horizontal when it is lifted upward with a minimum force and resting in a downward position. Adjust the femur by moving the allen wrench so that the average angle is set to zero for the horizontal angle and parallel to a transverse plane.

NOTE: If another tool can be used to more easily align the femur, then it may be used after final approval by the COTR.

For reference, the centerlines of the 3/8-16 bolts connecting the upper knee post to the upper knee bone should be in planes parallel to the vertical longitudinal plane of the test vehicle and 188 mm (7.4") apart.

3. LEGS...Continued

SID FEMUR ALIGNMENT TOOL

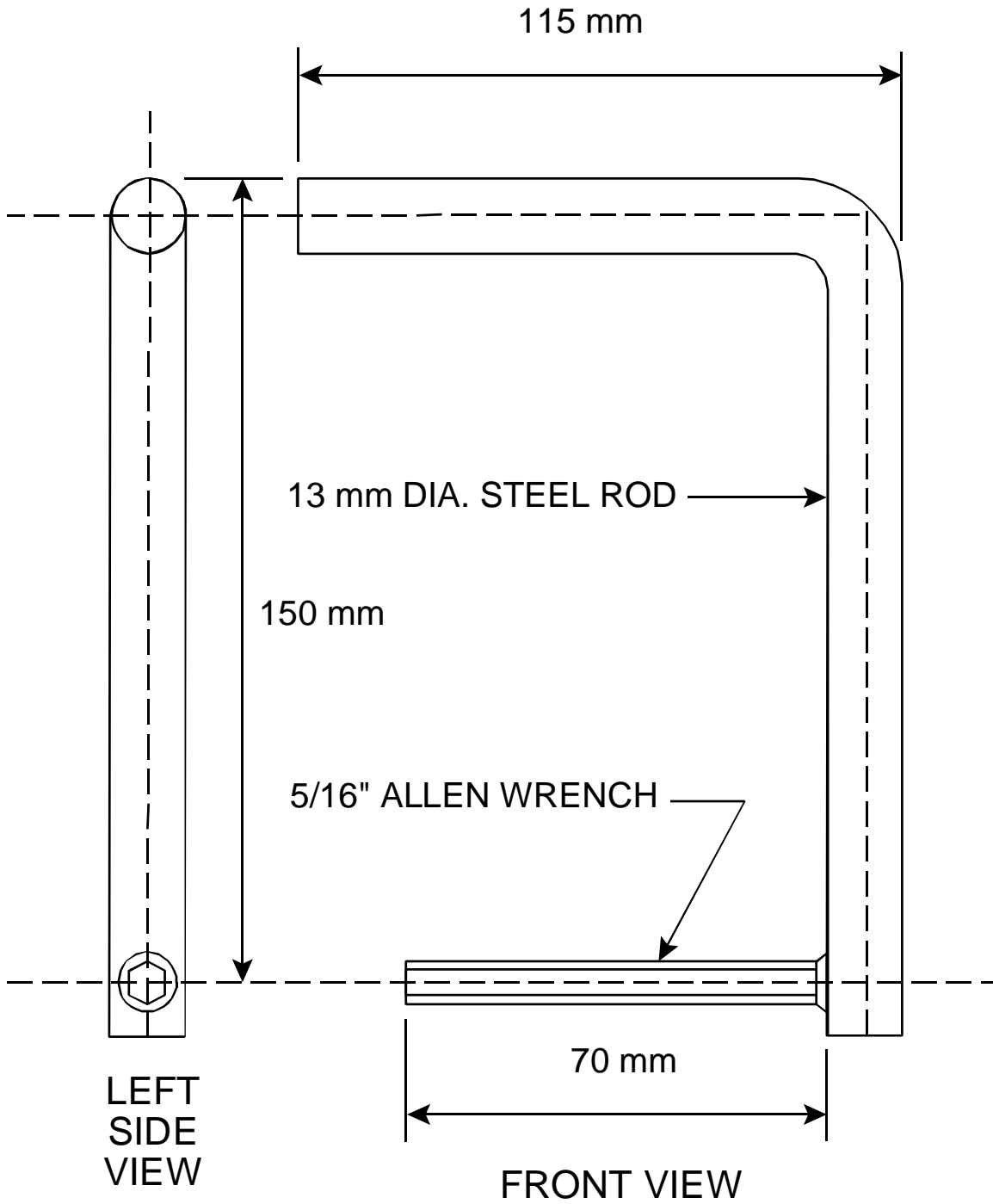


FIGURE 1

3. LEGS....Continued

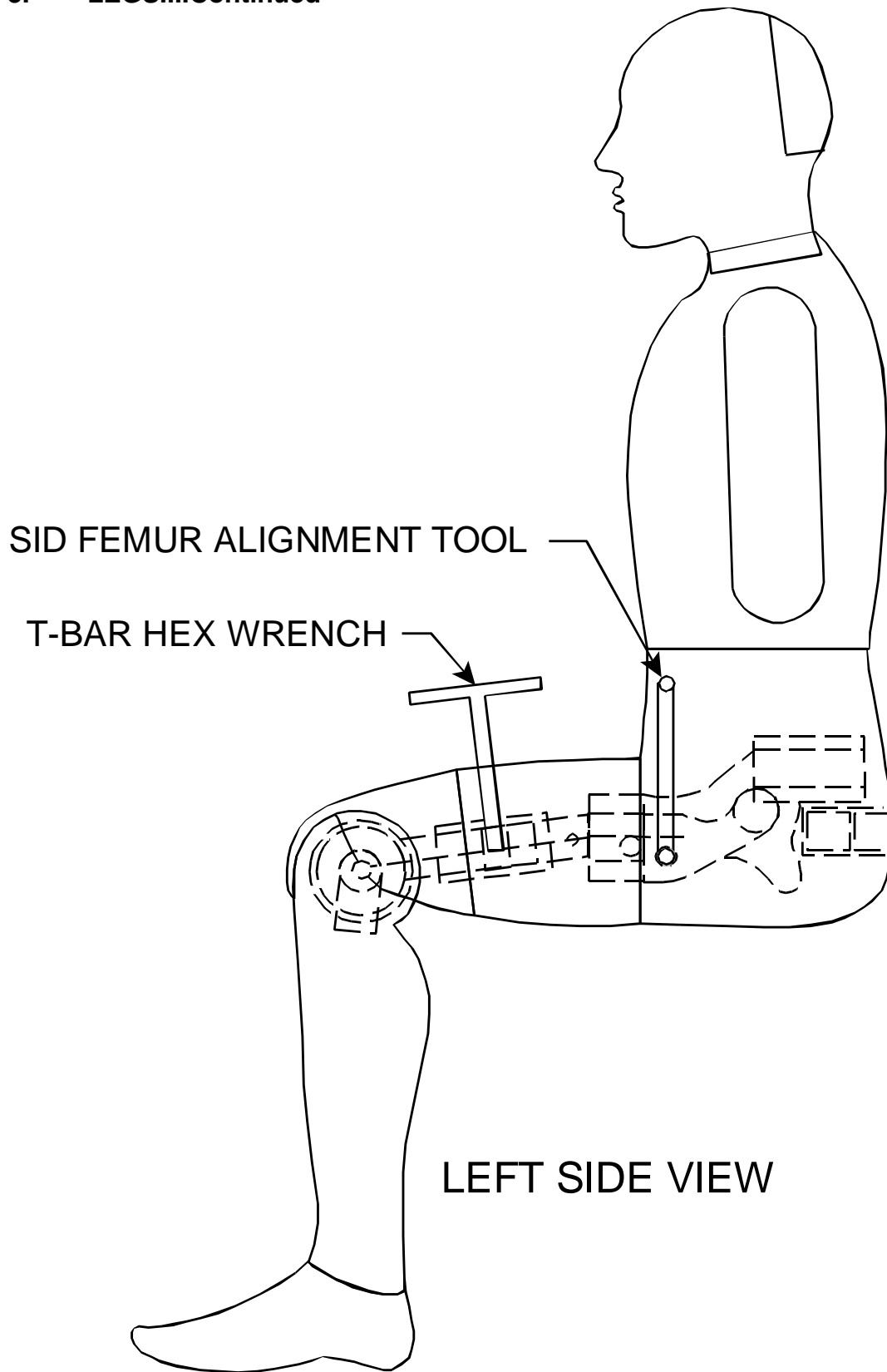


FIGURE 2

4. FEET

A. For a SID in the DRIVER POSITION

The right foot of the SID rests on the undepressed accelerator with the heel resting as far forward as possible on the floorpan. The left foot is set perpendicular to the lower leg with the heel resting on the floorpan in the same lateral line as the right heel.

B. For a SID in the FRONT OUTBOARD PASSENGER POSITION

The feet of the SID are placed on the vehicle's toeboard with the heels resting on the floorpan as close as possible to the intersection of the toeboard and floorpan. If the feet cannot be placed flat on the toeboard, they are set perpendicular to the lower legs and placed as far forward as possible so that the heels rest on the floorpan.

C. For a SID in Either of the REAR OUTBOARD PASSENGER POSITIONS

The feet of the SID are placed flat on the floorpan and beneath the front seat as far as possible without front seat interference. If necessary, the distance between the knees can be changed in order to place the feet beneath the seat.