

SECTION 14- JACKET AND CLOTHING ASSEMBLY

14.1 Jacket Assembly and Clothing Description and Features

The clothing commonly used in automotive testing environments is long, cotton underwear (typically pink in color). The automotive industry has adapted this clothing in testing to allow repeatable conditions of friction between the dummy and its seating environment.

The THOR jacket assembly consists of the front panel assembly, rear panel assembly, crotch strap, and rib stiffeners. Internal foam inserts have been installed throughout the jacket to closely resemble the human anthropometry in the thorax region.

Made from a flexible elastic material, the jacket assembly stretches and conforms easily to the dummy's movements. Reinforcements have been added to: 1) the entire exterior to reduce wear from belt burn and belt loading; 2) the lower section of the front panel to keep the rib stiffeners in place. The rib stiffeners play a crucial role in preventing the lap belt from intruding into the voids between the upper and lower abdomen assemblies. The crotch strap assists in keeping the jacket in place and prevents bunching of the jacket due to belt loading.

An added feature of the jacket is the strategic location of three zippers. The locations allow the jacket to be opened from either side for internal inspection of the dummy and, when required, to remove the entire jacket assembly with little movement of the dummy. The zippers have an auto-lock feature that prevents the jacket from coming unzipped during testing. A Velcro coverings is placed over the shoulder zipper to provide a smooth, continuous surface for a vehicle shoulder belt to ride on.

As an integral part of the thorax assembly, the jacket enhances the response of the thorax during testing. The design of the jacket also prevents metal-to-metal contact between THOR instrumentation and the testing environment.

14.2 Assembling the Jacket

14.2.1 Parts List

The parts list and all quantities for the Jacket assembly are listed in Appendix I - Bill of Materials under the Jacket subsection. Refer to drawing T1JKF000 in the THOR drawing set for a detailed mechanical assembly drawing. **Figure 14.1** is a photograph of the jacket assembly.



Figure 14.1- Jacket assembly (Outside view)

(Inside view)

14.2.2 Assembling Jacket Components

The following procedure is a step-by-step description of how to assemble the jacket components. The numbers provided in () refer to a specific drawing / part number of each part.

1. Locate the two Upper/Side Foams (T1JKF118), the Weighted Bib (T1JKF119), and the four Jacket Steel Stiffeners (T1JKM010). Place each piece in its appropriate pocket on the inside of the front panel as shown in **Figure 14.2** and secure the pocket flaps. (**Note:** The Weighted Bib (T1JFK119) is placed in the central pocket with the smooth surface of the Bib facing the front of the jacket.)



Figure 14.2- Front inside assembly

2. Locate the Upper Back Foam (T1JKF214) and the Lower Back Foam (T1JKF215). Place each in its appropriate pocket as shown in **Figure 14.3** and secure the pocket flaps.



Figure 14.3- Rear inside assembly

3. The jacket is assembled onto the thorax of the dummy by placing the left shoulder of the jacket over the left shoulder of the dummy. Drape the front and the back of the jacket over the front and rear of the dummy's thorax as shown in **Figure 14.4**.



Figure 14.4- Jacket draped around neck

4. Close the zipper on the right shoulder and secure the Velcro as shown in **Figure 14.5**.

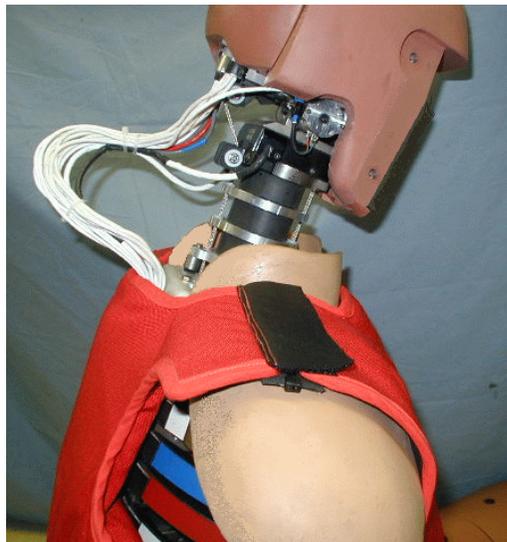


Figure 14.5- Right shoulder zipped and Velcro fastened

4. Close the zipper on the left-side of the jacket as shown in **Figure 14.6**.



Figure 14.6- Left-side zipped

5. Close the zipper on the right side of the jacket as shown in **Figure 14.7** .



Figure 14.7- Right-side zipped

6. While the dummy is sitting on a table, tilt the dummy forward and reach under the pelvis of the dummy and grab the Crotch Strap (T1JKF130) at the front of the jacket. Pull the Crotch Strap between the legs and beneath the pelvis and attach the Crotch Strap to the Velcro on the bottom of the Jacket Rear Panel (T1JKF200) as shown in **Figure 14.8**.



Figure 14.8- Jacket assembly installed

14.3 Adjusting the Jacket Assembly

The jacket assembly does not require adjustment.

14.4 Electrical Connections and Requirements

The jacket assembly does not require electrical connections.

14.5 Jacket Certification

The jacket assembly does not require certification.

14.6 Inspection and Repairs

After a test series has been performed, the jacket assembly should be inspected for wear or damage. Use good engineering judgement to determine the frequency of these inspections; however, the manufacturer recommends a thorough inspection after twenty tests have been performed. Inspection frequency should increase if the tests are particularly severe or if unusual data signals are being recorded. Disassembly of the jacket components can be performed by simply reversing the assembly procedure.

14.6.1 Mechanical Inspection

Jacket Inspection: The following checklist should be used when inspecting the jacket for post-test damage:

- C Check the rib stiffeners to ensure no permanent deformation has occurred and that the stiffeners are securely in place
- C Check fabric for tears or holes, especially in areas where lap and shoulder belts contact the fabric surface
- C Examine Velcro and zippers for broken hardware and/or stitching