



Impact Bar Crush Can Static Load Test

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. To confirm at a component level that the impact bar crush cans meet the peak force requirement specified in the program specific Subsystem Technical Specifications (SSTS).

1.2 Applicability. All impact bar assemblies with crush cans. Figure 1 is an example of an impact bar assembly with crush cans.

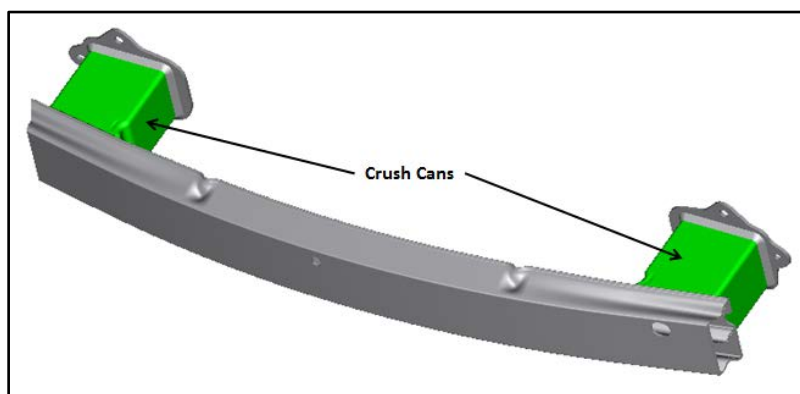


Figure 1: Example of Impact Bar Assembly with Crush Cans

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

None

3 Resources

3.1 Facilities.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment. The following items are typically required to perform this test. Other equipment may be substituted at the discretion of the testing facility as long as it provides the same data with equivalent accuracy and is approved by the requesting design engineer (DE) and validation engineer (VE).

3.2.1 Compression Testing Machine. A compression testing machine with a minimum load capacity of 250 kN and the ability to measure and record force in Newtons (N) and displacement in millimeters (mm).

3.2.2 Fixture. A fixture that is secured directly to the bed plate of the compression testing machine in order to prevent the crush can from moving in the x and y-axis directions. This fixture is to replicate the mounting attachment to the vehicle. Figure 2 is an example of the test setup, which includes a picture of a typical fixture used for this test.

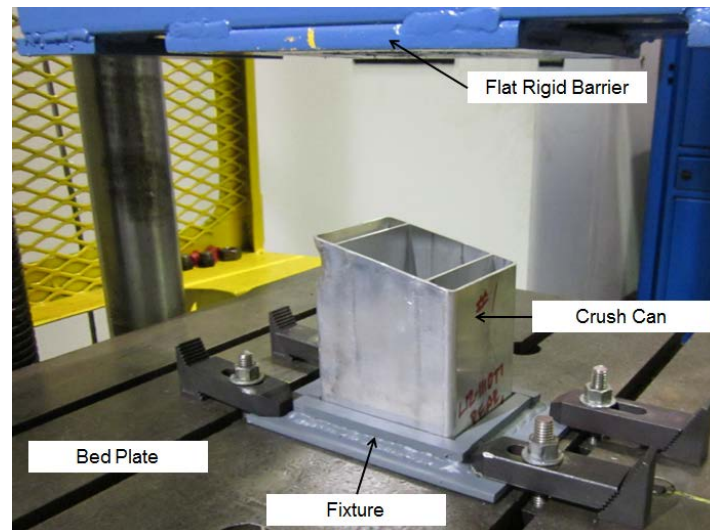


Figure 2: Test Setup Example

3.3 Test Vehicle/Test Piece. This test is required as part of design and product validation, with timing to be coordinated by the DE and VE.

3.4 Test Time. Assumption of three front and three rear crush can samples.

Calendar time: 2 d

Test time: 8 h

Coordination time: 8 h

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Prior experience in setting up and running similar tests and experience in the use of the referenced test equipment are critical to achieving the estimated times shown in 3.4.

4 Procedure

4.1 Preparation. The crush can is to be constrained to the bed plate of the test machine using a fixture per 3.2.2.

4.2 Conditions.

4.2.1 Environmental Conditions. This test is to be conducted at ambient temperature, $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$.

4.2.2 Test Conditions. Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

4.3 Instructions.

4.3.1 The crush can shall be supported per 4.1.

4.3.2 The crush can shall be compressed at a rate of 50 mm/minute until the sample has been completely crushed.