



Dimensional Management Virtual Analysis Standard Work, FESM

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. This standard establishes Virtual Analysis modeling techniques for Front End Sheet Metal (FESM) requirements including format, configuration, and content specifications. This standard covers all global regions.

1.1.1 The Front End Sheet Metal Model: The purpose of the Front End Sheet Metal (FESM) model is to provide a common method of modeling front end sheet metal in a consistent manner.

This model is intended to be global and used in all regions as applicable.

1.1.2 Globalization. The purpose of globalization is to standardize communication of modeling techniques. Regardless of the designated homeroom region, the models can be utilized at other regions to predict analysis results for similar products without having to initiate new studies. When work is shared between regions, the model will contain all of the necessary information.

1.2 Applicability. This procedure applies to all Front End Sheet Metal Variation Analysis Models.

1.3 Remarks. Not applicable.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW15403

2.3 Additional References.

Dimensional Engineering Website

EN-8.4-D-VDPM0008 Modeling/Statistical Standards Work Instruction

Variation Analysis Technical Reference Guide

Variation Analysis Training Manual

3 Resources

3.1 Facilities. Not applicable.

3.2 Equipment. Not applicable.

3.3 Test Vehicle/Test Piece. Not applicable.

3.4 Test Time. Not applicable.

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Personnel should understand the concepts and be trained in the skills described in the Variation Analysis Training Manual. Additional guidelines can be found in the Variation Analysis Technical

GM Confidential

© Copyright 2014 General Motors Company All Rights Reserved

May 2014

Page 1 of 7

Reference Guide. The supplier shall work with the GM Responsible Engineer to comprehend these requirements.

4 Procedure

4.1 Preparation.

4.1.1 Develop Analysis.

4.1.1.1 Variation Analysis. Perform the required analysis per local work instructions. This includes procuring data, developing the model, and verifying the model. Follow the appropriate standards listed in EN-8.4-D-VDPM0008 Modeling/Statistical Standards. The work instructions can be found on the Dimensional Engineering Website. The supplier shall work with the GM Responsible Engineer to comprehend these requirements.

4.1.2 Introduction. Herein are guidelines for modeling Front End Sheet Metal (FESM) in a variation analysis model. Parts included in modeling this area are the hood, hood hinges, and fenders. Process for each part can vary depending on the program direction. GM Bill of Process (BOP) was utilized when it could be applied.

4.2 Conditions.

4.2.1 Environmental Conditions. Not applicable.

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 Process.

4.3.1.1 Hinge Fixture located to Vehicle.

4.3.1.1.1 Primary: Up/Down (U/D). Hinge Fixture rests on Left Hand (LH) and Right Hand (RH) fender rails and on motor compartment tie bar (see Figure 1).

4.3.1.1.2 Secondary: Fore/Aft (F/A). Fixture pins to holes in tie bar (see Figure 1).

4.3.1.1.3 Tertiary: Cross Car (C/C). Fixture pin LH hole in tie bar hole (see Figure 1).

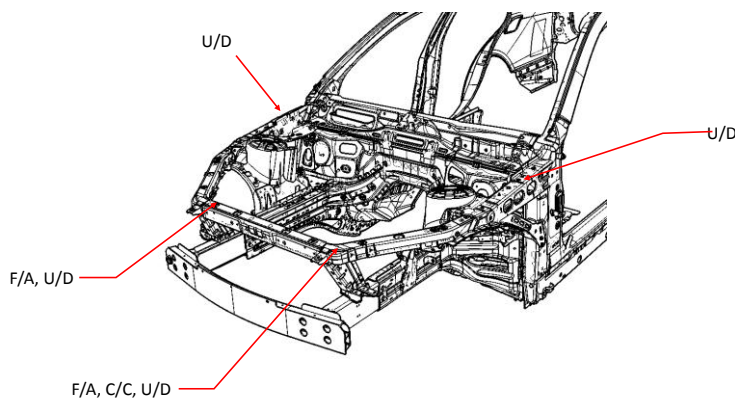


Figure 1: Hood Hinge Fixture to Body

4.3.1.2 Hinge Located to Vehicle/Hinge Fixture.

4.3.1.2.1 Primary: Cross/Car (C/C). Hinge located to hinge pillar (see Figure 2).

4.3.1.2.2 Secondary: Up/Down (U/D). Hinge located to hinge fixture (see Figure 2).

4.3.1.2.3 Tertiary: Fore/Aft (F/A). Hinge located to hinge fixture (see Figure 2).

GM Confidential

© Copyright 2014 General Motors Company All Rights Reserved

May 2014

Page 2 of 7

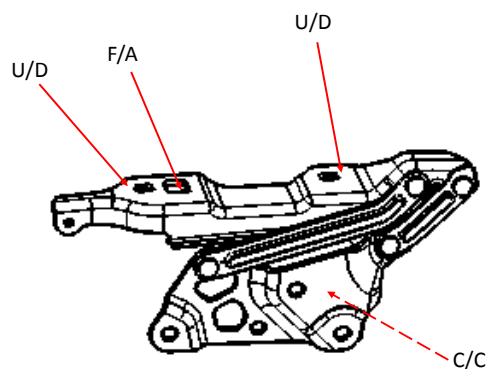


Figure 2: Hinge to Vehicle/Hinge Fixture

4.3.1.3 Locate Fender Fixture to Vehicle.

4.3.1.3.1 Primary: Up/Down (U/D). Rests on LH/RH rails and on motor compartment tie bar (see Figure 3).

4.3.1.3.2 Secondary: Fore/Aft (F/A). Fixture pins to holes in tie bar (see Figure 3).

4.3.1.3.3 Tertiary: Cross/Car (C/C). Fixture pin to LH hole in tie bar (see Figure 3).

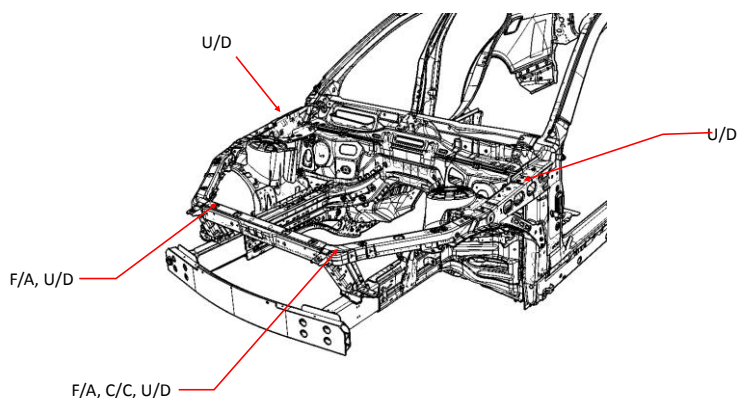


Figure 3: Fender Fixture to Body

4.3.1.4 Fender Assembly (Asm) Located to Body in White (BIW) and Fender Fixture.

4.3.1.4.1 Primary: Cross Car (C/C). Fender Asm located to fender fixture (features associated with location are usually holes) and BIW cross/car surface (see Figure 4).

4.3.1.4.2 Secondary: Up/Down (U/D). Fender Asm located to BIW (see Figure 4).

4.3.1.4.3 Tertiary: Fore/Aft (F/A). Fender Asm located to fender fixture (see Figure 4).

GM Confidential

© Copyright 2014 General Motors Company All Rights Reserved

May 2014

Page 3 of 7