

SURFACE VEHICLE RECOMMENDED PRACTICE

J577™

APR2023

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Superseding J577 SEP2015

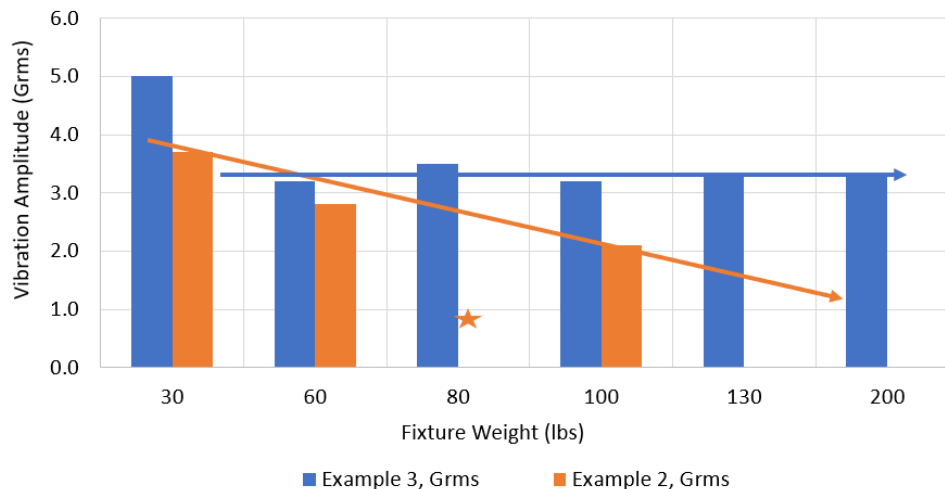
Vibration Test Machine and Operation Procedure

RATIONALE

Headlamps and headlamp fixtures are increasing in size and do not fit on the current Example 1 or Example 2 vibration machines. Requirements must be changed to accommodate the larger lamps.

All lamps must pass the FMVSS 108 vibration requirement, but technology advancements and styling progression have resulted in large lamps being used on vehicles. The larger lamp with fixture cannot be contained within the platform on the SAE J577 2005 version (Example 1). Pre re-write FMVSS requires that the fixture does not overhang the vibration machine adapter plate, which cannot be done with large lamps and the current SAE J577 machine (Example 1 and Example 2). With overhang, especially at the front of the machine, the input energy is severely reduced. This update to SAE J577, an example of an even larger vibration machine (Example 3) is given while maintaining the minimum Grms value which was added to machine performance requirements in the 2011 version of SAE J577. The Grms value sets the minimum performance of any size vibration machine. Enlarging the vibration machine is limited by the FMVSS 108 requirement that during calibration a force gauge must measure between 60 to 70 pounds when lifting the platform over the hammer and anvil area of the machine. The Example 3 machine still meets the 60 to 70 pound force requirement while maintaining the FMVSS spec intent to impart significant durability stress to the Device Under Test (DUT).

Impact Vibration Machine Fixture Weight Sensitivity



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Changes to this document include:

- Added new Figure 3 (Example 3 vibration machine).
- Renumbered Figures 3, 4, and 5.
- 3.4: Added the word “significantly.”
- 6.1: Removed, renumbered Section 6.
- 6.2: Renumbered to 6.1 and Example 3 information added. Sections 6.1 f and 6.1 h changed to clarify the vibration level requirement.
- 8.1: Changed from fixed fixture and DUT weight requirement to a machine performance requirement.
- Removed Appendix A drawings of Example 1 machine, replaced with Grms measurement methods.

1. SCOPE

This SAE Recommended Practice provides procedures and information to conduct vibration (impact) tests on lighting devices and their components as well as other safety equipment used on vehicles.

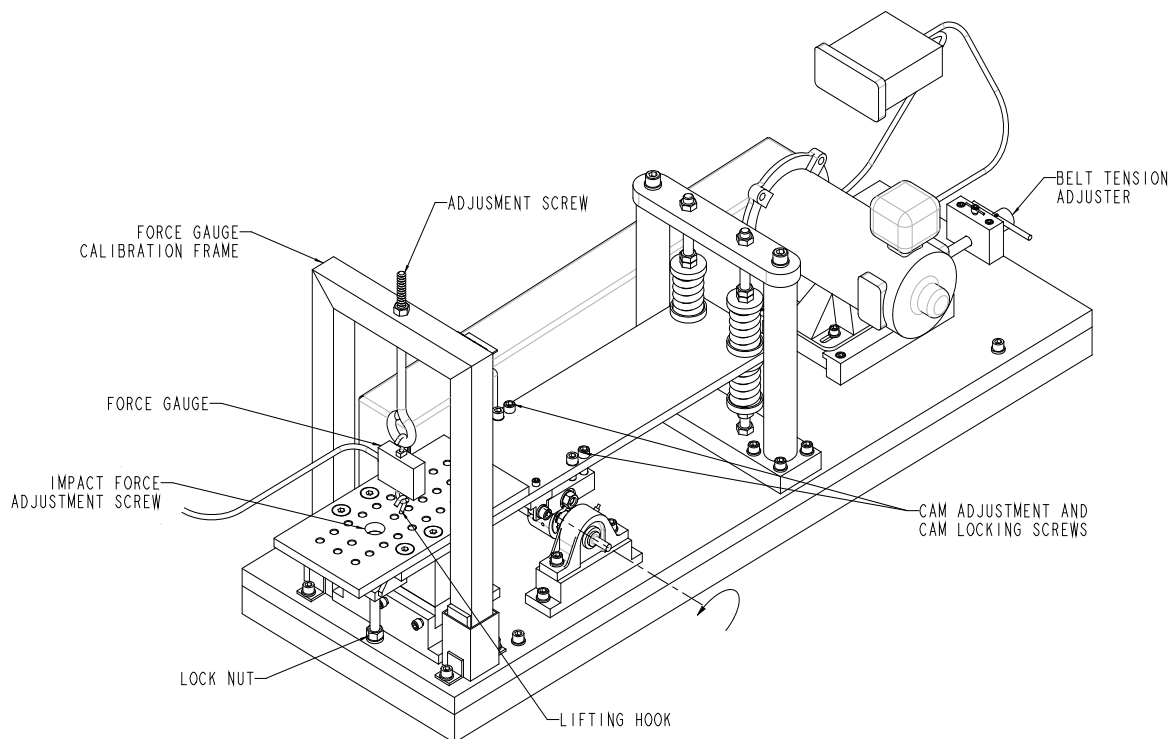


Figure 1 - Example 1 vibration test machine

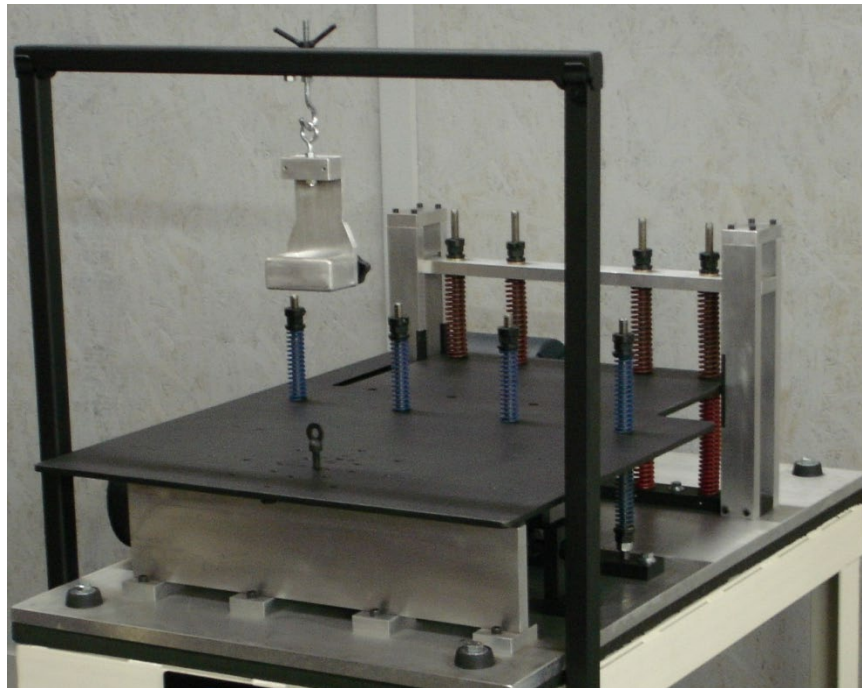


Figure 2 - Example 2 vibration test machine

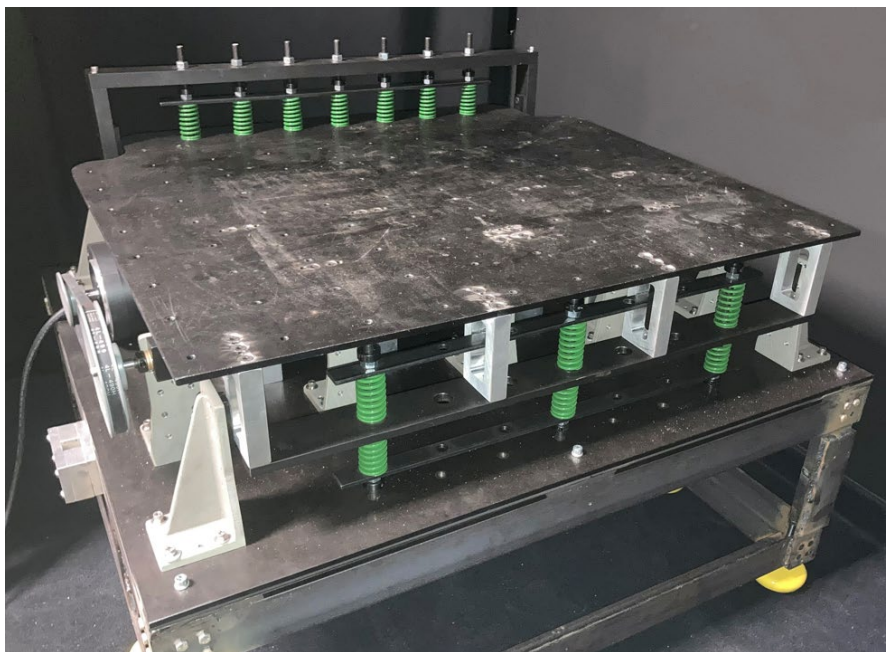


Figure 3 - Example 3 vibration test machine