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SHOCK QUALIFICATION SPECIFICATION 072-04  
- SUPPLEMENTAL DOCUMENT TO APPENDIX "G" REV. R&S -  
- DDG 51 -

**072-04 Executive Summary**

This Executive Summary outlines the necessary document submittals for the different applications for Shock Qualification methods of a General Material part or assembly. The qualification methods must be approved by BIW prior to delivery of the material.

**Similar:** In many cases a new part or assembly can be qualified by comparing it to another like item that was previously qualified by testing which was accepted by the Navy. Such like items will have a test report from a testing facility and a Navy approval letter with which to verify the qualification. A copy of those must be submitted along with marked drawings for both items that highlights the differences between them. A supporting narrative must also be submitted that explains why the untested item has equal or greater shock resistance than the previously tested item. There is no required format for this application (Ref. 072-04, Section 3.0 and MIL-S-901D, Section 3.2).

**QPL:** If the item is identical to an item that has been shock qualified and is listed in the Navy's QPL (Qualified Product Listing) the request for identical extension must be submitted in accordance with 072-04, Section 3.0 of MIL-S-901D, Section 3.2.

**Identical:** If the item is identical to a previously qualified item a copy of the shock report and approval letter must be submitted along with a completed Certificate of Identicality (Ref: Attachment to 072-04) for the first order. This "Certificate of Identicality" must be submitted with each subsequent order of the same item.

**Testing:** If the item does not fit under any of the noted categories, the item must pass a shock test in order to be qualified. The Vendor must submit a Test Procedure to be approved by BIW (and the Navy if necessary). There is no required format for the Test Procedure except the content must follow the standards of MIL-S-901D. Note that any non-standard test fixtures must be qualified with supporting analysis or separate testing (Ref. MIL-S-901D, Section 3.1.6.1 and 3.1.6.2 and 6.5(h) and (i)).

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**Decision Tree for Shock Qualification.**

Follow the simple steps below to determine the shock qualification method required for the item. Once the method has been defined, please use the ensuing Check List to ensure that the submittal includes the required documents.

- I. Is shock qualification to shock Grade A or B required?  
If yes: Go to next step "II".  
If no: No submittal of Shock Qualification documents is required.
- II. Is the item shock qualified to Shock Grade A or B or similar or identical to such a previously shock qualified item?  
If yes: Go to step A  
If no: Pursue new shock testing by developing test procedures in accordance with Specification 072-04, Section 4.0.
- A. Is the item identical to an item previously qualified by one of the following methods?  
1. Testing **or**  
2. By similar extension from a tested item **or**  
3. By Qualified Products List (QPL) **or**  
4. Identical, as noted above, with few minor exceptions as identified by the Vendor. Note that this qualification method is subject to BIW concurrence.
- If yes: Submit a "Certificate of Identicality" (attachment to 072-04).  
If no: Go to step B.
- B. Is the item similar to a previously qualified item?  
*Definition of similar:*  
*Differences in equipment that are more significant than those listed for identical in A4 above (size, weight, dimensions, significant material and construction differences, configuration, CG, etc.)*
- If Yes: Apply for Shock Qualification by extension. Refer to specification 072-04 section 3.0 for details.  
If no: Pursue new shock testing by developing test procedures in accordance with Specification 072-04, Section 4.0.

End of Decision Tree

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**Check List of Submittal Documents for Shock Qualification**

Follow the directions below to determine what documents are required to be submitted with the request for shock qualification by the methods listed.

**A. Qualification by Similarity to an Item Previously Qualified by Testing**

Submit the following documentation (1-5 below for a total of 5 to 6 document items to be included) with the application for Shock Qualification by similarity to a previously tested item.

1. Test references to the previously tested item:
  - a. Copy of the test report **and**
  - b. If test report is not available: Name of the test lab, test report number, and date of test.
2. Submit documentation of Navy approval of the test report for the previously tested item:
  - a. Copy of the Navy approval letter **and**
  - b. If approval letter is not available: Name of the Navy approval authority **and** serial number of the approval letter **and** Date of Issue.
3. Detailed assembly drawings with the differences in design highlighted (or identified in a separate listing) of:
  - a. The previously qualified item **and**
  - b. The new item to be qualified by extension **and**
4. A narrative that describes the differences between the two items in materials of construction and design, along with engineering rationale to show that the untested item (item to be qualified by extension) has equal or greater resistance to shock than the tested item **and**
5. Any calculations / analyses to support item #4 above.

**B. Qualification Based on Qualified Product Listing (QPL)**

The following documentation (1 & 2 below) is required to be submitted with the application for Shock qualification based on qualification from the QPL:

1. Submit completed "Certificate of Identicality" (attachment to 072-04). All the lines on the Certificate must be filled out by the vendor or it will be returned as non responsive to the specifications **and**
2. If available: Submit copies of the original shock test report, the "Post Shock Test" test report, and the Government approval letter.

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C. Qualification by Identicality to a Previously Qualified Item

The following documentation (1-3 below) is required to be submitted with the application for Shock Qualification by identicality to a previously qualified item.

1. "Certification of Identicality" (attachment to 072-04) **and**
2. Test references to the previously tested item:
  - a. Copy of the test report **and**
    - i. If test report is not available: Name of the test lab, test report number, and date of test.
3. Submit documentation of Navy approval of the test report for the previously tested item:
  - a. Copy of the Navy approval letter.
    - i. If Navy approval letter is not available: Name of the Navy approval authority **and** serial number of the approval letter **and** Date of Issue.

Note: A COI (Certificate of Identicality) per 072-04 must be submitted with each subsequent order of the same item.

D. Qualification by Testing

The following documentation is required to be submitted with the application for Shock qualification by testing.

1. Shock Test Procedure and the "Post Shock Test" test procedure must be approved by BIW / Navy prior to engaging in any testing of the item. As a minimum the procedure must include the following information:
  - a. Procedure must be in accordance with Section 4.0 of 072-04 and 6.2 of MIL-S-901D.
  - b. The shock test facility must be identified and be Navy approved and listed in NAVSEA INST 9491.1
  - c. Detailed information about functional tests during the shock tests.
  - d. Detailed Pre Shock and Post Shock functional tests, such as but not limited to: Hydro tests, electrical tests, e.g. insulation resistance tests, and others deemed necessary to demonstrate the durability of the item during shock.  
NOTE for Valves Only: It is required that dimensional checks be performed before and after the hydro test to verify if dimensional changes took place during the hydro test.
  - e. Detailed procedures for visual and dimensional inspections before and after the shock event
  - f. Detailed drawings and description of non-standard test fixtures and if any testing of the fixture(s) is planned prior to shock testing the item
  - g. Test acceptance criteria
  - h. If any qualifications by similar extension are proposed from the planned shock testing, the test procedure must describe in detail the items to be qualified by extension. Refer to A above for the documents required to be submitted with the test procedure.
  - i. All Post Shock Test testing must include government witness.

End of Check List