

Date: 01 December 09 Rev. A
--------------------------------

**Table of Content**

I. 073-05 Executive Summary.....	2
II. Decision Tree for Vibration Qualification..... <i>An aide to determine what qualification method is required and the documents that must be submitted to BIW with the request for qualification approval.</i>	3
III. Check List of Submittal Documents for Vibration Qualification..... <i>An aide to insure that the required documents are available and submitted to BIW with the request for vibration qualification approval.</i>	4

VIBRATION TYPE 1 QUALIFICATION SPECIFICATION 073-05  
- SUPPLEMENTAL DOCUMENT TO APPENDIX "G" REV. R & S -  
- DDG 1000 -

**I. 073-05 Executive Summary**

This Executive Summary outlines the necessary document submittals for the different applications for Vibration Qualification 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 vibration resistance than the previously tested item. There is no required format for this application. (Ref. 073-05, Para 2.15 and MIL-STD-167-1).

**QPL:** If the item is identical to an item that has been vibration qualified and is listed in the Navy's QPL (Qualified Product Listing) the Supplier shall submit a completed COI (Certificate of Identity) along with copies of the base test report and QPL approval information (Ref: 073-05, Section 2.10 & COI form).

**Identical:** If the item is identical to a previously qualified item, a copy of the vibration report and approval letter(s) must be submitted along with a completed COI (Certificate of Identity) form contained at the end of the Specification 073-05 document. Note, a "Certificate of Identity" form must also be submitted with any subsequent purchase orders of the same item (Ref. 073-05, Sections 2.13 and 2.14).

**Testing:** If the item does not fit under any of the noted categories, the item must pass a vibration 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 requirements of MIL-STD-167-1.

## II. Decision Tree for Vibration Qualification.

Follow the simple steps below to determine the vibration 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 Type I Vibration Qualification (4 to 15 HZ) required?

If yes: Go to next step "II".

If no: No submittal of Vibration Qualification documents is required.

ii. Is the item vibration qualified or similar / identical to a previously vibration qualified item?

If yes: Go to step A

If no: Pursue new vibration testing by developing test procedures in accordance with Specification 073-05, Section 3.0.

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 completed COI (Certificate of Identity) together with a copy of the test report and the approval letter (Ref: 073-05, Sections 2.10, 2.13 and 2.14). (See also this document section III.B.)

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 Vibration Qualification by extension. Refer to Specification 073-05, Section 2.15 for details. (See also this document section III. A)

If no: Pursue new vibration testing by developing test procedures in accordance with Specification 073-05, 3.0. (See also this document section III. D)

End of Decision Tree

VIBRATION TYPE 1 QUALIFICATION SPECIFICATION 073-05  
- SUPPLEMENTAL DOCUMENT TO APPENDIX "G" REV. R & S -  
- DDG 1000 -

**III. Check List of Submittal Documents for Vibration Qualification**

Follow the directions below to determine what documents are required to be submitted with the request for vibration 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 Vibration Qualification by similarity to a previously tested item.

1. Test references to the previously tested item:
  - a. Copy of the vibration test report **and**
2. Submit documentation of Navy approval of the test report for the previously tested item:
  - a. Copy of the Navy approval letter **or**
  - b. Copy of correspondence from the approval authority (e.g. ship yard) that approved the test report **and**
3. Detailed assembly drawings with the differences in design highlighted (or identified in a separate listing) for:
  - 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 relative to 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 vibration type 1 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 (1-3 below) is required to be submitted with the application for Vibration qualification based on qualification from the QPL:

1. Submit a completed COI (Certificate of Identity) form **and**
2. Submit a copy of the approved vibration test report **and**
3. Submit a copy of the latest QPL approval authority document.

VIBRATION TYPE 1 QUALIFICATION SPECIFICATION 073-05  
- SUPPLEMENTAL DOCUMENT TO APPENDIX "G" REV. R & S -  
- DDG 1000 -

C. Qualification by Identity to a Previously Qualified Item

Submit the following documentation (1-3 below) with the application for Vibration qualification by identity to a previously qualified item.

1. A completed COI (Certificate of Identity) form per Specification 073-05, Sections 2.13 and 2.14 **and**
2. Test references to the previously tested item:
  - a. Copy of the vibration test report **and**
3. Submit documentation of Navy approval of the test report for the previously tested item:
  - a. Copy of the Navy approval letter **or**
  - b. Copy of correspondence of the approval authority (e.g. ship yard) that approved the item.

Note: A completed COI form must be submitted with each subsequent order of the same item.

D. Qualification by Testing

Submit the following documentation with the application for Vibration qualification by testing.

1. Test Procedure must be approved by BIW prior to engaging in any testing of the item. At a minimum the procedure must include the following information:
  - a. Procedure must be in accordance with Section 3.0 of Specification 073-05 and MIL-STD-167-1.
  - b. The vibration test facility must be identified.
  - c. Detailed information about functional tests during the vibration tests.
  - d. Detailed Pre Vibration and Post Vibration functional tests, such as but not limited to: Hydro tests, electrical tests, e.g. insulation resistance tests, and others deemed necessary to demonstrate the integrity of the item during vibration.  
**NOTE:** 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 drawings and description of any non-standard test fixtures.
  - f. Test acceptance criteria.
  - g. If any qualifications by similar extension are proposed from the planned vibration testing, the test procedure must describe in detail the items to be qualified by extension. Refer to A above (Qualification by Similarity to an Item Previously Qualified by Testing) for the documents required to be submitted with the test procedure.

End of Check List