

**PERFORMANCE-BASED  
STATEMENT OF WORK (SOW)  
PERFORMANCE AND RELIABILITY TESTING  
OF THE  
F-22 ELECTRO-EXPLOSIVE DEVICE, CARTRIDGE ASSEMBLY  
DODIC JM81, B-2 BUTTERFLY VALVE ACUTATOR ASSEMBLY DODIC SS08**

**1.0 General**

**1.1 Introduction**

The Naval Surface Warfare Center Indian Head Division (NSWC IHD) specializes in life cycle support for cartridge- and propellant-actuated devices (CAD/PADs). This includes exploratory development, qualification, acquisition, and comprehensive product and logistics support. The CAD/PAD Division administers, manages, and conducts development, engineering, procurement, and logistics support functions for CADs and PADs and Aircrew Escape Propulsion Systems (AEPS) for the DoD.

**1.2 Scope**

NSWC IHD requires test support in order to evaluate the performance and reliability level of the items listed in Table I. This will entail performing non-destructive tests and ballistic/functional tests in accordance with specifications listed in Section 2.0 and providing data sheets in addition to testing summaries to the Government. The provided results will be compared directly with lot acceptance test (LAT) data to ascertain the effects of age and service exposure on performance and reliability. Quantities listed are approximate and could change, however; the Government reserves the right to test less than the number listed in Table I if desired.

Table I.			
DODIC	NSN	PART NUMBER	QUANTITY
<b>JM81</b>	<b>1377-01-488-1068</b>	<b>103377-371</b>	<b>45</b>
<b>SS08</b>	<b>1377-01-444-3631</b>	<b>15602-03</b>	<b>16</b>

**2.0 Applicable Documents**

Document	Title
<b>ATP 103377-371 Rev. H</b>	<b>Acceptance Test Procedure Cartridge Assembly (JM81)</b>
<b>TP-360 Rev. J</b>	<b>Acceptance test Procedure Cartridge Assembly (SS08)</b>

**3.0 JM81 Requirements**

The Contractor shall conduct and document ordnance assessment test and analysis associated with the item given in Table I. All tests will be conducted in accordance with the documents listed in Section 2.0. In the event that any of the documents listed has changed, the Government shall be notified of the change and be provided a copy for concurrence. The Contractor shall provide the instrumentation, test equipment, gauges or any other equipment needed to support this effort. The testing is to be completed within one-hundred and twenty (120) days after receipt of GFM, including delivery of data. The Contractor shall provide a report of all non-destructive and Ballistic/Functional test results in accordance with sections 3.1 through 3.4 and as outlined in **CDRL A001 and A003**.

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**3.1 Non-Destructive Testing (NDT)**

NDT shall occur in the order it is listed. All NDT shall be conducted on the items listed in Table I in accordance with the applicable documents listed in Section 2.0. This shall be done to provide a record of pre-fire condition in the event of a performance anomaly or failure during performance testing. All NDT results shall be made available to the Government including radiographic film. This also should include identifying any damage that could affect function or installation. Any damage identified shall be documented and photographed. Inspection data shall include a record of the lot number, serial number, and date of manufacture.

**3.1.1 Visual Inspection**

The Contractor shall perform a visual inspection of the items listed in Table I to identify any physical anomalies. This will include identifying any damage that could affect function or installation. Any damage identified shall be documented and photographed. Inspection data shall include a record of the lot number, serial number, and date of manufacture.

**3.1.2 Radiographic Inspection**

The Contractor shall perform a radiographic examination on the items listed in Table I in accordance with the applicable documents listed in Section 2.0 to identify any internal anomalies. Radiographic film will be provided if requested by the Government. This shall be done to provide a record of pre-fire condition in the event of a performance anomaly or failure during performance testing.

**3.1.3 Resistance**

The Contractor shall perform a resistance test on the items listed in Table I in accordance with the applicable documents listed in Section 2.0 to verify applicable specification requirements. The Contractor shall also provide a summary of the resistance test results (data sheets) also listing the acceptance criteria.

**3.2 Ballistic/Functional Examination**

The Contractor shall perform Ballistic/Functional tests on the items listed in Table I in accordance with the applicable documents listed in Section 2.0 to verify that they meet the applicable specification requirements. The Contractor shall also provide a summary of the ballistic test results (data sheets) after data reduction, also listing the acceptance criteria.

**3.2.1 Performance Testing**

Prior to performance testing, all the items listed in Table I shall have completed the NDT listed in section 2.0 in accordance with the applicable documents listed in Section 2.0. Also prior to performance testing, temperature condition the specified test sample at the temperatures identified in the Government supplied sample identification/temperature breakdown. Government concurrence is required before conditioning the sample. Performance test fire each unit within the time frame of removal from the conditioning chamber in accordance with the documents listed in Section 2.0.

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### **3.2.2 Performance Testing Failures**

In the event of a failure, the Contractor shall be limited to verifying the test setup and taking a post-fire x-ray of the unit(s) with a failure alongside a successfully functioned unit. If possible, an unfired unit should also be included in the x-ray. The Contractor must retain any failed units for at least 90 days after testing or until released for disposal by a Government representative, whichever occurs first. Contractor shall ship failed unit(s) back to the Government upon request.

Unless otherwise stated in the ATP, or at the discretion of the Government witness(es), testing shall continue after a failure is observed.

### **3.3 Deliverables**

- a. Ballistic traces for each performance test, with one trace being clearly marked as to where the specification parameters are being taken from (if applicable). **(A001)**
- b. Summary of the ballistic results (data sheets) after data reduction that also lists acceptance criteria. **(A001)**
- c. Non-destructive inspection results including x-ray reports and radiographic film. **(A001)**
- d. Description of the item listed in Table I including its make-up and functioning. **(A001)**
- e. Description of the test procedures. **(A001)**
- f. Pictures and block diagram of the test setup with call outs. **(A001)**
- g. Pictures and block diagram of the item listed in Table I with call outs. **(A001)**
- h. Inspection records of the associated test fixture and data acquisition equipment including details of the setup such as sample rates, filtering (in-line or post), smoothing/averaging, etc. **(A001)**
- i. Failure results as described in Section 3.2.2 (if applicable). **(A001)**
- j. LAT data for the lots represented in the test samples. **(A001)**
- k. Monthly Status Report. **(A002)**

### **3.4 Other**

The Contractor shall be responsible for disposing of all remaining test samples and any related hardware upon completion of the test unless directed by the TPOC. **(A003)**

## **4.0 SS08 Requirements**

The Contractor shall conduct and document ordnance assessment test and analysis associated with the item given in Table I. All tests will be conducted in accordance with the documents listed in Section 2.0. In the event that any of the documents listed has changed, the Government shall be notified of the change and be provided a copy for concurrence. The Contractor shall provide the instrumentation, test equipment, gauges or any other equipment needed to support this effort. The testing is to be completed within one-hundred and twenty (120) days after receipt of GFM, including delivery of data. The Contractor shall provide a report of all non-destructive and Ballistic/Functional test results in accordance with sections 3.1 through 3.4 and as outlined in **CDRLs A001 and A003**.

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#### **4.1 Non-Destructive Testing (NDT)**

NDT shall occur in the order it is listed. All NDT shall be conducted on the items listed in Table I in accordance with the applicable documents listed in Section 2.0. This shall be done to provide a record of pre-fire condition in the event of a performance anomaly or failure during performance testing. All NDT results shall be made available to the Government including radiographic film. This also should include identifying any damage that could affect function or installation. Any damage identified shall be documented and photographed. Inspection data shall include a record of the lot number, serial number, and date of manufacture.

##### **4.1.1 Visual Inspection**

The Contractor shall perform a visual inspection of the items listed in Table I to identify any physical anomalies. This will include identifying any damage that could affect function or installation. Any damage identified shall be documented and photographed. Inspection data shall include a record of the lot number, serial number, and date of manufacture.

##### **4.1.2 Radiographic Inspection**

The Contractor shall perform a radiographic examination on the items listed in Table I in accordance with the applicable documents listed in Section 2.0 to identify any internal anomalies. Radiographic film will be provided if requested by the Government. This shall be done to provide a record of pre-fire condition in the event of a performance anomaly or failure during performance testing.

##### **4.1.3. Leak Test**

The Contractor shall perform a leak test of the items listed in Table I to evaluate/ensure the integrity of the seal by meeting of applicable specification requirements. The Contractor shall also provide a summary of the leak test results (data sheets), also listing the acceptance criteria.

##### **4.1.4. Bridgewire Resistance Test**

The Contractor shall perform a leak test of the items listed in Table I to verify that the electrical characteristics of the units indicated no damage or degradation by comparing the resistance values to the applicable specification requirements. The Contractor shall also provide a summary of the Bridgewire Resistance Test results (data sheets), also listing the acceptance criteria.

#### **4.2 Ballistic/Functional Examination**

The Contractor shall perform Ballistic/Functional tests on the items listed in Table I in accordance with the applicable documents listed in Section 2.0 to verify that they meet the applicable specification requirements. The Contractor shall also provide a summary of the Ballistic Test results (data sheets) after data reduction, also listing the acceptance criteria.

##### **4.2.1 Performance Testing**

Prior to performance testing, all the items listed in Table I shall have completed the NDT listed in section 2.1.1 in accordance with the applicable documents listed in Section 2.0. Also prior to performance testing,

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Temperature condition the specified test sample at the temperatures identified in the Government supplied sample identification/temperature breakdown. Government concurrence is required before conditioning the sample. Performance test fire each unit within the time frame of removal from the conditioning chamber in accordance with the documents listed in Section 2.0.

#### **4.2.2 Performance Testing Failures**

In the event of a failure, the Contractor shall be limited to verifying the test setup and taking a post-fire x-ray of the unit(s) with a failure alongside a successfully functioned unit. If possible, an unfired unit should also be included in the x-ray. The Contractor must retain any failed units for at least 90 days after testing or until released for disposal by a Government representative, whichever occurs first. Contractor shall ship failed unit(s) back to the Government upon request.

Unless otherwise stated in the ATP, or at the discretion of the Government witness(es), testing shall continue after a failure is observed.

#### **4.3 Deliverables**

- a. Ballistic traces for each performance test, with one trace being clearly marked as to where the specification parameters are being taken from (if applicable). **(A001)**
- b. Summary of the ballistic results (data sheets) after data reduction that also lists acceptance criteria. **(A001)**
- c. Non-destructive inspection results including x-ray reports and radiographic film. **(A001)**
- d. Description of the item listed in Table I including its make-up and functioning. **(A001)**
- e. Description of the test procedures. **(A001)**
- f. Pictures and block diagram of the test setup with call outs. **(A001)**
- g. Pictures and block diagram of the item listed in Table I with call outs. **(A001)**
- h. Inspection records of the associated test fixture and data acquisition equipment including details of the setup such as sample rates, filtering (in-line or post), smoothing/averaging, etc. **(A001)**
- i. Failure results as described in Section 3.2.2 (if applicable). **(A001)**
- j. LAT data for the lots represented in the test samples. **(A001)**
- k. Monthly Status Report. **(A002)**

#### **4.4 Other**

The Contractor shall be responsible for disposing of all remaining test samples and any related hardware upon completion of the test. **(A003)**

#### **5.0 Test Witnessing**

The Indian Head Division, Naval Surface Warfare Center Indian Head Division (NSWC IHD), Ordnance Assessment/Logistics Branch, shall be responsible for monitoring/witnessing all requirements imposed under this SOW to ensure compliance. The NSWC IHD point of contact (POC) shall be notified of all programmed testing at least 20 working days prior to commencement of the test.

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**6.0 Period of Performance (POP)**

Period of performance: for test program (section 3.1), the items listed in the corresponding deliverables section (section 3.3) shall be delivered to NSWC IHD no more than 120 days after receipt of the GFM required for the test program, and no more than 30 days after the completion of the testing included in that test program.

**7.0 Disclaimer Statement**

All reports resulting from this contract shall contain the following disclaimer statement on the cover of such reports:

“The views, opinions, and findings contained in this report are those of the author(s) and should not be construed as an official Department of Defense position, policy, or decision, unless so designated by other official documentation.”

**8.0 Data Delivery and Points of Contact (POC)**

Data shall be presented at the end of testing, emailed, or mailed to the NSWC IHD POC. Digital files shall be in the form of Microsoft Office documents (2010 editions or later), .pdf, .jpg, or .png.

NSWC IHD POCs:

Emily Vandevender  
301-744-2323  
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NSWC IHD Deliverable Address:

NSWC IHD CAD/PAD Division  
4393 Benson Rd. Suite 103  
Attn: Emily Vandevender (E22EV) and Indigo Green (E22IG)