STATEMENT OF WORK (SOW) PERFORMANCE WORK STATEMENT

FAILURE REPORTING AND CORRECTIVE ACTION MONITORING SYSTEM FOR AMCOM G-3

1.0 MISSION OBJECTIVE

1.1 The RDECOM Aviation and Missile Research Development and Engineering Center (AMRDEC) is responsible for providing engine, missile and aircraft airworthiness and system engineering support. It is responsible for providing total aerospace engineering support for aviation weapon systems and turbine engines. This includes participation in part design reviews, life analysis, evaluation of test results, equipment condition monitoring, failure mode analysis, and failure investigations. This technical effort reflects the aeronautical engineering oversight, application, review and documentations, writing and evaluating test plans, test reports, assisting in developing tests and writing test reports, and witnessing of tests, to ensure an efficient airworthy, fully functional, qualified aviation and missile system/subsystem and the successful integration of such systems into Army helicopters.

1.2. The objective of this requirement is to provide a complete Failure Reporting and Corrective Action Monitoring System for Aviation and Missile Equipment. This includes overall project management, inspection services, data collection, database design and administration, data entry software, website hosting, data query & report generation tools, engineering and reliability assessments in support of root cause of removal analysis conducted by the RDECOM AMRDEC under the AMCOM G-3auspices.

2.0 PERFORMANCE REQUIREMENTS

The Contractor's effort will be conducted on-site at Corpus Christi, Texas for Avaiation requirements and at Letterkenny Army Depot, Pennsylvania for Missile requirements. Requirement also include off-site, with occasional visits to AMCOM, CCAD and other TDY sites for scheduled meetings, reviews, etc., or to access AMCOM databases. The contractor shall provide independent technical support and shall not serve as a formal/informal or permanent/temporary member of the AMCOM G-3 Office.

The following technical efforts or specific tasks are required in support of the AMCOM G-3 mission; they fall within the scope of the AMCOM Express, Technical Statement of Work (SOW) paragraphs: 2.0 General Technical Support Requirements (G16, G17, G19), 3.15 Product Assurance (PA1, PA9, PA10), 3.19 Systems Engineering (SE5, SE6). The contractor is required to have existing technical expertise, capability and software in place for performance of tasks described below immediately upon award.

2.1 Equipment Inspection and Data Collection:

2.1.1 The contractor shall perform inspection services and data collection activities at facilities designated by the using service. The contractor will collect failure analysis data on equipment

during teardown at maintenance facilities or in the field. The inspections will include pre-shop analysis and detailed inspections to document failure modes of failed equipment. Documentation will also include inspection reports of equipment conditions, digital photographs of component failures and conditions, and scanned paperwork. An important aspect of this program is selecting the appropriate systems and components for inspection and data collection. For each system designated to be included as part of this Failure Reporting and Corrective Action Monitoring System program, individual components will be identified as candidates for inspection by the AMRDEC. Also, for each candidate, instructions will be provided by the AMRDEC on what inspections, measurements, descriptions and photos are to be performed. The contractor shall adhere to these requirements.

2.1.2 The contractor shall provide experienced personnel to perform inspections on equipment being inducted for maintenance/overhaul. The personnel provided as inspectors must be capable of correctly determining failure modes and/or conditions that could lead to component or system failures. They must be thoroughly familiar with Army depot operations and processes. Inspection personnel must have experience and expertise in Army aviation equipment, such as AH-64, H-60, H-47, and OH-58 helicopters, and other Army systems such as; missiles, engines, drive trains, fuel, hydraulic, engine de-icing, inlet particle separators, and infrared suppressors, for all aircraft systems.

2.1.3 The contractor shall enter all inspection reports, photographs and documentation into an electronic database as defined below in 2.2. All data collected, including photographs and other media, will be input via the internet to the electronic database.

2.1.4 The contractor shall identify all anomalous hardware findings and properly mark and disposition all associated hardware for engineering analysis. The contractor shall also contact a platform specific working group lead if anomalous hardware was installed on a Digital Source Collector (DSC) equipped aircraft.

2.1.5 The contractor shall conduct special inspection projects, as tasked, to aid in engineering studies and analysis.

2.2 Database, Software and Website - Development, Maintenance and Administration:

2.2.1 The contractor shall provide and maintain a relational database for data collected in performance of task 2.1. This database will be capable of storing both text and media, such as photographs and scanned media. Database must be able to store detailed information on component failures and conditions, such as failure mode, severity, location of condition or failure on component, and measurements. The contractor shall perform Data Backups, with a rotation of backups at least monthly, in contractor format.

2.2.2 The contractor shall provide and maintain a data entry software product that enables inspectors to upload data, photos and scanned media to the central database described in paragraph 2.2.1. This product needs to be deployed with the inspection services personnel at each assigned maintenance facility. Stand alone applications for data entry must be able to achieve Army Net worthiness Certification and be deployable to DOD computer equipment on NIPRNET systems.

2.2.3 The contractor shall provide and maintain a web based decision support system that allows access to the data stored in the database. The system will allow the customer community to extract data from the database. This interface must be accessible via the internet and have the capability to do complex queries and reports on the data. The system must allow users to run queries on all database fields and allow queries to include filters on any field in the database. The interface must also have the ability to display photographs associated with failure modes or components and display other media attached to the record and to display detailed information on component failures and conditions, such as failure mode, severity, location of condition or failure on component, and measurements.

2.2.4 The website decision support and database systems, including all servers, switches and backup systems must be able to achieve DOD DIACAP accreditation. All software products described in paragraphs 2.2.1, 2.2.2 and 2.2.3 shall be ready for deployment immediately upon task award.

2.3 Engineering Support and Quality Assurance:

2.3.1 The contractor shall provide the necessary engineering expertise and experience to direct and manage the entire failure reporting system as described in previous paragraphs. The contractor engineering staff will be responsible for training and oversight of the inspection and data collection activities. The contractor shall develop and maintain inspection manuals. The contractor shall provide processes and procedures for equipment inspections, both routine and for special inspection projects.

2.3.2 The contractor shall lead, prepare and coordinate Engineering Reviews on each system inspected.

2.3.3 The contractor shall provide quality control engineering services to assure the integrity of data collected. This entails engineering review and assessment of all failure modes and conditions found during inspection of equipment.

2.3.4 The contractor shall monitor failure, analysis and corrective action information to assess progress in eliminating failure modes and mechanisms. The contractor will evaluate significant findings that are found by inspection and provide consultation on equipment conditions.

2.3.5 The contractor shall conduct reliability and statistical analyses at the component and system levels to identify and track root causes of component removal, support failure investigations, and resolve field issues. The contractor will conduct studies to determine primary and secondary causes of equipment return to depot. The contractor will conduct studies and analysis to determine optimum maintenance actions such as inspection intervals, and component removals and replacement. The contractor will perform reliability analysis and modeling on components to ensure continued flight safety.

2.4 General Customer Support:

In addition to the Aviation Engineering Directorate, other Army offices, other Government agencies and Original Equipment Manufacturers (OEM's) will need access to the data, special inspection results and analysis for support of their respective missions. The contractor shall provide resources necessary to interface with the customers and operations detailed in

Appendix A1 and A2.

2.5 CBM Support:

2.5.1 The contractor shall support the CBM program by providing personnel and resources necessary for expanded capability as described in paragraphs 2.5.2 and 2.5.3. This expanded capability will include data collection, processes, data storage and analysis as directed.

2.5.2 The contractor shall provide resources necessary to connect database to the CBM data warehouse system.

2.5.3 CCAD AIB or RTC conducts special Teardown Analyses (TDAs) and generates an electronic version of the TDA report, including photos and associated DA2410 forms. Contractor shall input these reports into their database.

3.0 TRAVEL

The contractor shall be required to travel to support the tasks outlined above. Travel will be required as described below. If traveling or meeting with government personnel, a trip report is not required, otherwise the contractor shall submit a trip report within 10 working days after travel completion IAW CDRL A006, Data Item DI-ADMN-81505. Travel shall be pre-approved by the Contracting Officers Representative.

EXPECTED TRAVEL LOCATIONS

For estimating purposes only, the contractor will travel as required in support of this task order. The travel is expected to be the following per year:

2 Trips to Phoenix, AZ	1 Person	2 Days each time.
8 Trips to Corpus Christi, TX	2 Persons	5 Days each time.
2 Trips to Lynn, MA	1 Person	2 Days each time.
2 Trips to Arkansas City, KS	1 Person	2 Days each time.
4 Trips to Letterkenny Army Depot, PA	2 Person	2 Days each time.

4.0 SECURITY

The Contractor shall provide security to a level necessary to meet the requirements of the tasks requested. Contractor's work effort shall not be above the level of SECRET. Contract personnel shall retain a SECRET level clearance for the duration of the task order.

The contractor shall get permission from any contractor who has proprietary data that access will be needed for. This effort will require the evaluation of proprietary data and contractor personnel will be required to sign a nondisclosure agreement as determined by the contracting officer's representative.

5.0 GOVERNMENT FURNISHED PROPERTY

The Contractor will be provided access to AMCOM files, data, and other information required to perform the technical effort of Section 2.0. All research material shall be returned to AMCOM prior to task order completion. Contractor personnel located on-site will have access to and the use of office space, desk/module, chair, telephone, computer, and other office equipment necessary to accomplish required on-site tasks. The Government will provide, or provide funding to purchase, all tools required for inspection of hardware (Calipers, rulers, cameras scribes, surface finish comparators, gages, etc.). The Operating Web Server, Database Server, and all software licensed to run on these servers are GFE (including the software required for development interaction with the Database and Web servers). The following expendable equipment associated with operating server hardware and certification costs are GFE – backup tapes, replacement hard drives, recordable CD's for audit logs).

6.0 DELIVERABLES

Data provided shall be delivered as follows:

6.1 A Contractor's Progress, Status and Management Report shall be submitted monthly IAW CDRL A003, Data Item Number DI-MGMT-80227.

6.2 A Trip Report shall be submitted IAW CDRL A006, Data Item Number DI-ADMN-81505.

6.3 Inspection/Instruction Manuals shall be submitted IAW CDRL A002, Data Item Number DI-MISC-80508A

6.4 End of contract delivery of all engineering support data.

7.0 ACCOUNTING FOR CONTRACTOR SUPPORT

The Office of the Assistant Secretary of the Army (Manpower & Reserve Affairs) operates and maintains a secure Army data collection site where the contractor will report ALL contractor manpower (including subcontractor manpower) required for performance of this task order. The contractor is required to completely fill in all the information in the format using the following web address: Https:///contractormanpower.army.pentagon.mil. The required information includes: (1) Contracting Office, Contracting Officer, Contracting Officer's Technical Representative; (2) Contract number, including task and delivery order number; (3) Beginning and ending dates covered by reporting period; (4) Contractor name, address, phone number, e-mail address, identity of contractor employee entering data; (5) Estimated direct labor hours (including subcontractors); (6) Estimated direct labor dollars paid for the reporting period (including subcontractors); (7) Total payments (including subcontractors); (8) Predominant Federal Service Code (FSC) reflecting services provided by contractor (and separate predominant FSC code for each subcontractor if different); (9) Estimated data collection cost; (10) Organizational title associated with the Unit Identification Code (UIC) for the Army Requiring Activity (the Army Requiring Activity is responsible for providing the contractor with its UIC for the purposes of reporting this information); (11) Locations where contractor and subcontractors perform the work (specified by zip code in the United States and nearest city, country, when in an overseas location, using standardized nomenclature provided on website) (12) Presence of deployment or

contingency contractor language; and (13) Number of contractor and subcontractor employees deployed in theater for the reporting period (by country). As part of its submission, the contractor will also provide the estimated total cost (if any) incurred to comply with this reporting requirement. Reporting period will be the period of performance not to exceed 12 months ending September 30 of each government fiscal year and must be reported by 31 October of each calendar year. Contractors may use a direct XML data transfer to the database server or fill in the fields on the website. The XML direct transfer is a format for transferring files from a contractor's systems to the secure web site without the need for separate data entries for each required data element at the web site. The specific formats for the XML direct transfer may be downloaded from the web site.

8.0 PERFORMANCE OBJECTIVES/METRICS

8.1 This performance-based service task order incorporates the following performance objectives: (1) Delivery of high quality technical performance; (2) Adherence to TO schedule, milestone, and delivery requirements; and (3) Efficient and effective control of labor resources. It is the contractor's responsibility to employ the necessary resources to ensure accomplishment of these objectives. The Government's assessment of the contractor's performance in achieving these objectives will utilize the standards, acceptable quality levels, surveillance methods, and performance incentives described in the Performance Requirements Summary matrix set forth in Appendix B. The performance incentives will be implemented via the Government's past performance assessment conducted in accordance with Part 42 of the Federal Acquisition Regulation (FAR), as applicable, and the "Task Order Performance" criteria of the annual award term evaluation, Basic BPA provision 45.

8.2 The performance objectives, standards, and acceptable quality levels shall be applied on a TO basis with performance incentives to be implemented on an annual basis. The Government will conduct informal interim counseling sessions with the contractor's Program/TO Manager to identify any active TO performance that is not meeting the acceptable quality levels. These sessions will be conducted at least on a quarterly basis in order to provide the contractor a fair opportunity to improve its performance level.

8.3 The Control of Labor Resources criteria will be reflected under the "Cost" category of the performance assessment. Although the criteria of Business Relations and Management of Key Personnel are not specifically included in the Performance Requirements Summary Matrix, the overall performance assessment will continue to include these criteria.

8.4 The contractor will be notified, in writing, of the Government's determination of its performance level for each performance objective including all instances where the contractor failed to meet the acceptable quality level.

APPENDIX A1: Engineering Review Board Processes

Contractor engineering review boards will be held semi-annually or quarterly depending on the volume of equipment inspected. These boards will meet to review all inspected equipment for a specific system and determine the main reason for return to depot for that system. Component conditions and failures will be graded to determine primary and secondary contributors to the system return. Failures will also be correlated to any condition monitoring systems that were active on the aircraft prior to removal of the equipment. Each component condition or failure will be reviewed by the board to make certain they are recorded correctly. Additional board conditions will be added when necessary.

Separate Semi-annual CBM Engineering Reviews will also be held on all CBM monitored aircraft systems that are covered by this performance work statement. These reviews will focus on monitored components to address correlation between condition indicators and hardware condition. These reviews will also mine the data for identification of True/False Positives and True/False Negatives necessary for inclusion in AED Aeromechanic Division algorithms' or ED RAM's probability of detection determination.

The following offices will be part of the engineering review process. They will be notified of the location, dates and times for each review by G3 Operations CBM Office:

- AMCOM G-3
- CBM Working Groups
- Aviation Engineering Directorate:
  - Propulsion
  - Structures & Materials
  - Sustainment
  - Maintenance Engineering
  - Aeromechanics
  - Systems Engineering (platform specific)
- Engineering Directorate
  - RAM Engineering & System Assessment
- PM Offices (platform specific)

Roles & Responsibilities

- G3 Office – Provide guidance and support on CBM component assessments and overall program objectives.
- CBM Working Groups – Provide support on CBM component assessments.
- AEP – Arrange and participate in the meetings.
- AEA – Participate in the CBM Engineering Reviews for CBM monitored aircraft systems.
- AED - Provide technical expertise on component design and maintenance. Provide input on correlation between hardware condition and aircraft condition indicators.
- ED (RAM) – Provide technical expertise on reliability assessment and trending of component failures.
- PM Offices – Provide technical expertise on equipment maintenance and operation.

APPENDIX A2: Software and Website Development and Customization Processes

In order to analyze the data collected by the inspection process, it is necessary that a report generation product be in place to retrieve, filter and sort data for analysis. To satisfy each using offices requirements for data/analysis, it will be necessary to update and customize the product periodically. Configuration Control Board (CCB) meetings will be held quarterly to determine what changes or upgrades are needed and to schedule and prioritize the efforts.

The following offices will be invited to attend the CCB meetings;

- AMCOM G-3
- CBM Working Groups
- Aviation Engineering Directorate
  - Propulsion
  - Structures & Materials
  - Sustainment
  - Maintenance Engineering
  - Aeromechanics
  - Systems Engineering (platform specific)
- Engineering Directorate
  - RAM Engineering & System Assessment
- PM Offices (platform specific)

Roles & Responsibilities

- G3 Office – Provide guidance and support on CBM initiatives and overall program objectives. Provide input on Probability of Detection (POD) and False Call Rate (FCR) analysis for CBM monitored components. Serve as Chair for the CCB (this may be delegated to the appropriate organization).
- CBM Working Groups – Provide input or suggestions on user interface improvements. Provide input on analysis capabilities needed on the website. Provide input on CBM specific requirements. Provide input on Probability of Detection (POD) and False Call Rate (FCR) analysis for CBM monitored components.
- AED – Provide input on data fields needed for analysis. Provide input or suggestions on user interface improvements. Provide input on analysis capabilities needed on the website. Provide input to any algorithms used for analysis.
- ED (RAM) –Provide input on data fields needed for analysis. Provide input or suggestions on user interface improvements. Provide input on analysis capabilities needed on the website. Provide input to any algorithms used for analysis. Provide input on Probability of Detection (POD) and False Call Rate (FCR) analysis for CBM monitored components.
- PM Offices – Provide input or suggestions on user interface improvements. Provide input on analysis capabilities needed on the website.

APPENDIX B

PERFORMANCE REQUIREMENTS SUMMARY MATRIX

PERFORMANCE OBJECTIVE	PERFORMANCE STANDARD	ACCEPTABLE QUALITY LEVEL (AQL)	METHOD OF SURVEILLANCE	PERFORMANCE INCENTIVE
High Quality Technical Performance	**TO requirements met with little rework/re-performance required and with few minor and no significant problems encountered** *Performance meets all technical and functional requirements, and is highly responsive to changes in technical direction and/or the technical support environment* *Assessments, evaluations, analyses, recommendations, and related input are thorough, reliable, highly relevant to TO requirements, and consist of substantial depth and breadth of subject matter* *Deliverable reports contain all required data and meet all applicable CDRL requirements*	**Contractor delivery of products and/or services meets all TO requirements. Performance occurs with no required re-performance/ rework at least 80% of time. Problems that are encountered are minor and resolved in a satisfactory manner.**	**Routine Inspection of Deliverable Products/Services**	**Assignment of performance rating for QUALITY criteria:** *EXCEPTIONAL* *Performance and deliverables meet all and exceed many TO requirements. Performance delivered with no required re-performance/rework at least 95% of time; problems that are encountered are minor and resolved in a highly effective manner.* *VERY GOOD* *Performance and deliverables meet all and exceed some TO requirements. Performance delivered with no required re-performance/rework at least 90% of time; problems that are encountered are minor and resolved in an effective manner.* *SATISFACTORY* *Performance and deliverables meet all TO requirements. Performance delivered with no re-performance/rework at least 80% of time; problems that are encountered are minor and resolved in a satisfactory manner.* *MARGINAL* *Some TO requirements not met and/or performance delivered with re-performance/rework required more than 20% of time. Problems encountered were resolved in a less than satisfactory manner.* *UNSATISFACTORY* *Many TO requirements not met. Numerous re-performances/rework required. Substantial problems were encountered and inadequate corrective actions employed.*

Adherence to Schedule	**TO milestones, periods of performance, and/or data submission dates are met or exceeded**	**Contractor meets TO delivery requirements at least 80% of the time (excluding gov't caused delays)**	**Routine Inspection of Deliverable Products/Services**	**Assignment of performance rating for SCHEDULE criteria:** *EXCEPTIONAL* *TO milestones/ performance dates met or exceeded at least 100% of time (excluding government caused delays)* *VERY GOOD* *TO milestones/ performance dates met or exceeded at least 90% of time (excluding government caused delays)* *SATISFACTORY* *TO milestones/ performance dates met or exceeded at least 80% of time (excluding government caused delays)* *MARGINAL* *TO milestones/ performance dates met less than 80% of time (excluding government caused delays)* *UNSATISFACTORY* *TO schedule/performance dates met less than 70% of time*
Control of Labor Resources	**Contract labor mix is controlled in efficient and effective manner**	**Actual TO labor resource mix is maintained within 20% of originally awarded TO resource mix**	**Routine Inspection of TO Performance, Performance/Cost Reports, Payment Invoices**	**Assignment of performance rating for COST CONTROL criteria:** *EXCEPTIONAL* *Actual TO resource mix maintained within 10% of originally awarded TO resource mix* *VERY GOOD* *Actual TO resource mix maintained within 15% of originally awarded TO resource mix* *SATISFACTORY* *Actual TO resource mix maintained within 20% of originally awarded TO resource mix* *MARGINAL* *Actual TO resource mix maintained within 25% of originally awarded TO resource mix* *UNSATISFACTORY* *Actual TO resource mix exceeds 25% of originally awarded TO resource mix*