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STATEMENT OF WORK

FOR

**T-6A/B Joint Primary Aircraft Training Systems (JPATS)
Aircrew Training Device (ATD) Modernization Program**

**Prepared by
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Statement of Work
For
T-6A/B Joint Primary Aircraft Pilot Training Systems (JPATS)
Aircrew Training Device (ATD) Modernization Program

1. SCOPE.

The Program Executive Office for Simulation Training and Instrumentation (PEO STRI) has a requirement to modernize existing JPATS ATDs consisting of Operational Flight Trainers (OFTs), Instrument Flight Trainers (IFTs), and Unit Training Devices (UTDs) at six U.S. Air Force (USAF) and three U.S. Navy (USN) sites. The JPATS ATDs support pilot and flight officer training in the T-6 Texan II aircraft.

This Statement of Work (SOW) defines the the government's requirement(s) for developing, integrating, testing, managing, documenting, and delivering the T-6A/B Joint Primary Aircraft Pilot Training Systems (JPATS) Aircrew Training Device (ATD) Electronic Control Loading /Flight Deck Input/Output System including upgrades to Windows 7 from Windows XP and 2000 , Aural Cueing System (ACS) and Image Generator System (IGS) to the current production baseline and configuration.

2. Background.

JPATS Ground Based Training System (GBTS). The GBTS was developed to support training operations for the maximum student and instructor training load at each training site. The GBTS has three major functional areas: Courseware, Aircrew Training Devices (ATDs), and the Training Integration Management System (TIMS). There are five different types of Aircrew Training Devices (ATDs) in training operations. Three of these are flight training devices used to teach students normal and emergency procedures; these devices are the Unit Training Device (UTD), Instrument Flight Trainer (IFT) and the Operational Flight Trainer (OFT). These devices are the subject of this SOW.

Due to mutiple system hardware and software obsolescence issues, new hardware and software upgrades with current operating systems must be developed to sustain ATD operations. This will include migrating systems and subsystems operating on Windows XP and Windows 2000 to Windows 7. As a part of the requirements of the SOW, it is critical to have a single ATD configuration to maintain a consistent configuration for each ATD type (UDT, IFT, or OFT). These modifications will also improve the reliability, maintainability, and availability (RM&A) of the ATDs.

3. APPLICABLE DOCUMENTS.

The following documents of issue shown on the document summary list form a part of this SOW to the extent specified herein.

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3.1 Department of Defense Specifications.

3.2 Availability of Department of Defense Specifications.

Copies are available on the WWW at URL: <https://assist.daps.dla.mil/quicksearch>

3.3 Department of Defense Standards.

MIL-STD-130N Identification Marking of U.S. Military Property

3.4 Department of Defense Directives.

DODD 8570.01 Information Assurance (IA) Training, Certification, and Workforce Management

3.5 Availability of Department of Defense Directives.

Copies are available on the WWW at URL: <http://www.dtic.mil/whs/directives/>

3.6 Department of Defense Instructions.

DODI 5000.2 Operation of the Defense Acquisition System

DODI 8500.2 Information Assurance Implementation

DODI 8510.01 DOD Information Assurance Certification and Accreditation Process (DIACAP)

3.7 Availability of Department of Instructions.

Copies are available on the WWW at URL: <http://www.dtic.mil/whs/directives/>

3.8 Other Government Documents, Drawings, and Publications.

National Security Telecommunications and Information Systems Security Policy (NSTISSP) No. 11, Subject: National Policy Governing the Acquisition of Information Assurance (IA) and IA-Enabled Information Technology (IT) Products.

3.9 Availability of Other Government Documents and Publications.

Copies of the above documents are available at PEO STRI, ATTN: KOV, 12350 Research Parkway, Orlando, FL 32826-3276

3.10 Availability of Non-Government Standards and Other Publications.

Copies are available on the WWW at URL:

http://www.dsp.dla.mil/app_util/displayPage.aspx?action=content&accounttype=displayHTML&contentid=84

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4. REQUIREMENTS.

4.1 Program Management.

The contractor shall provide the overall management and administrative effort necessary to ensure that the requirements of this contract are accomplished. The contractor shall track program progress utilizing metrics. The contractor shall plan, implement, and maintain a life cycle cost (LCC) management process to minimize the system cost and use LCC to conduct trade studies, evaluate design and support alternatives, and select the resource support requirements. The contractor shall define and monitor metrics and technical performance measures (TPMs) to evaluate the performance of each critical technical and management process and conformance of the evolving products with contract requirements and objectives including cost requirements and objectives.

4.2 Project Tasks:

The contractor shall accomplish all tasks necessary to incorporate the requirements identified in the following paragraphs.

- a. The contractor shall retrofit all Electronic Control Loading Systems and Flight Deck Input/Output Systems in the Operational Flight Trainers (OFTs), Instrument Flight Trainers (IFTs), and Unit Training Devices (UTDs) at each Air Force and Navy site. Additionally Windows XP and Windows 2000-based software shall be updated to Windows 7. Locations, types, and quantities of ATDs are shown in the following table:

ECLS/FDIOS/Windows 7				
	Location	OFT	IFT	UTD
USAF	Randolph AFB	3	4	2
	Vance AFB	5	7	5
	Columbus AFB	6	6	4
	Laughlin AFB	6	7	5
	Sheppard AFB	3	4	3
	CSO Pensacola	3	1	0
Subtotal by Type		26	29	19
Total ATD		74		
	Location	OFT	IFT	UTD
USN	NAS Pensacola	2	0	5
	NAS Whiting Field	9	0	7
	NAS Corpus Christi	6	0	5
Subtotal by Type		17		17
Total ATD		34		

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- b. The contractor shall upgrade Aural Cueing System (ACS) in the OFTs and UTDs shown in the table below:

ACS				
	Location	OFT	IFT	UTD
USN	NAS Pensacola	2	0	5
	NAS Whiting Field	9	0	7
	NAS Corpus Christi	6	0	5
Subtotal by Type		17		17
Total ATD				34

- c. The contractor shall upgrade Image Generator Systems (IGS) in the OFTs shown in the table below:

IGS				
	Location	OFT	IFT	UTD
USN	NAS Pensacola	2	0	0
	NAS Whiting Field	9	0	0
	NAS Corpus Christi	6	0	0
Subtotal by Type		17		
Total ATD				17

- d. The contractor shall update T-6A/B drawings, along with the T-6A/B Program Unique Specification Documents (PUSD).
- e. The United States Government (USG) will be responsible for any equipment disposition. The contractor shall connect and test all retrofitted/replaced fire alarms.

4.3 Spares

The contractor shall procure and deliver the Control Loading/Flight Deck/Windows 7, Aural Cueing System (ACS) and Image Generator Systems (IGS) spare equipment listed in Appendix B to each base as they are retrofitted.

4.4 Integrated Master Schedule (IMS).

The contractor shall develop, implement, manage to, update, and maintain the contract IMS. All contract schedule information delivered or presented at program reviews shall originate from the IMS, and shall contain all critical events and exit criteria, accomplishments, predecessors and successors events, and their dependencies. The IMS shall address total program activities including activities performed by major subcontractors.

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(DI-MGMT-81650) Integrated Master Schedule (IMS)

4.5 Configuration Management.

The contractor shall use an automated internal configuration management process to monitor, update, and control all configuration documentation, physical media, and physical parts representing or comprising the system configuration items (CIs). The contractor shall plan and implement an automated configuration management function to perform configuration control, configuration identification, audits, and status accounting in a system-engineering environment. The contractor shall develop, maintain, and update configuration management procedures and processes for control of all hardware and software baselines. The process shall allow simultaneous access to the common product data model coupled with the ability to coordinate and update immediate changes to the product definition data. The configuration management process must handle all levels of product and process integration to build and support the product as well as manage the sequence of significant events.

4.5.1 Configuration Change Management.

The contractor shall establish a systematic and measurable configuration change management process for managing product configuration changes and variances. Once the system requirements have been approved by an authorized management activity, The contractor shall effect changes to the baseline requirements only after the proposed change has been approved using the change process. The contractor shall:

- a. Document and uniquely identify each change.
- b. Classify requested changes to aid in determining the levels of review and approval.
- c. Clearly and completely document request for change.
- d. Consider the technical, support, schedule, and cost impacts of a requested change before making a judgment as to whether the change should be approved for implementation and incorporation in the system and its documentation.
- e. Determine potential effects of a change and coordinate impacts with the impacted areas of responsibility.
- f. Determine the affectivity for each change and identify which units of the system are to be changed, the point of production break-in, and which units will be included in a retrofit.
- g. Verify implementation of a change to ensure consistency between the system, its documentation, and its support elements.
- h. Document variances, when authorized by the appropriate level of authority.

4.5.2 Engineering Change Proposals (ECP):

The contractor shall document and the IPT shall review all changes to established baselines and all changes to the requirements (other than the functional baseline), including changes to the

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statement of work, contract data requirements list (CDRL), the contract schedule, and the general provisions of the contract. The contractor shall submit the changes as Engineering Change Proposals (ECPs) for the JPATS ATDs modifications, concurrency upgrades, and obsolescence; and shall identify any potential impacts to courseware and the TIMS. The submitted ECPs shall identify impacts to all elements of the GBTS program within the scope of this contracting action including a forecast schedule of activities leading up to accomplishment of the engineering change.

(DI-CMAN-80639C) Engineering Change Proposal (ECP)

4.5.3 Engineering and Contract Change Proposal Review.

In coordination with the government, the contractor shall hold a requirements review on all proposed changes prior to the submittal of the engineering or contract change proposal in order to clarify requirements, format and content. Depending upon the criticality of the proposed changes, this review may take the form of a teleconference, a video-teleconference, a formal meeting at PEO STRI, or a formal meeting at the contractor's facility. All appropriate parties shall be in attendance in order to conduct a thorough, effective review. Minutes shall be a historical record to allay any miscommunications.

4.5.4 Deviations and Waivers.

The contractor shall document the rationale and the potential impact of any deviation or waiver. The contractor shall obtain approval before deviating from any government controlled baseline.

4.6 Management Reviews

4.6.1 Start of Work Meeting/Post Award meeting

A start of work meeting shall be held at a mutually agreed upon location within **30** days after contract award. The start of work meeting shall be limited to the contractor's key team members identified in the proposal, and will be a one-to-two day session with emphasis on both parties understanding of the scope of work and other contract issues, top level management of the program, agreement on metrics that will be used as management indicators during the program and partnering approach to implement, introduction of key IPT participants, and identification of points of contact.

4.6.2 Program Management Reviews.

The contractor shall conduct formal program management reviews every 6 months in accordance with the integrated master plan. The review shall be held via teleconference. The program management review shall provide a program overview and a detailed discussion of pre-selected topics. Status and information at the review shall reflect currency since the previous review.

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4.7 Systems Engineering.

The contractor shall implement a system engineering process that will transform all system requirements into a set of lower level performance requirements that define the system. The process shall accomplish planning, identify and allocate functional requirements, identify participation in trade studies, provide inputs to documentation, and include design reviews. The system engineering effort shall integrate all elements of a multifunctional engineering effort to meet system requirements. The contractor shall insure the timely integration of engineering specialties such as reliability, maintainability, security engineering, logistics engineering, human factors engineering, safety, value engineering, standardization, and transportability into design and development. The contractor shall develop and complete all planned integrated master schedule (IMS) tasks for each milestone.

4.7.1 System Design.

The design concept shall include incorporate an open systems approach which shall be based on an engineering and business strategy to choose specifications and standards adopted by industry standards bodies or de facto standards (set by the market place) for selected system interfaces, products, practices and tools. Selected designs and specifications shall be based on performance, cost, IA, industry acceptance, long term availability and supportability, and upgrade potential. The upgrades shall be compatible with existing ATD subsystems and shall not degrade or adversely effect the ATD performance.

4.7.2 Fabrication, Assembly, Integration and Test Stage.

The contractor shall resolve product deficiencies when specifications for the system, product, subsystem, assembly, or component are not met, as determined by inspection, analysis, demonstration, or test. The contractor shall verify that the products designed satisfy specifications. The contractor shall integrate security engineering processes into the design to achieve an integrated secure solution. Functional configuration audits (FCAs) shall be completed to verify that products have achieved requirements; that they satisfy the characteristics as specified in specifications, interface specifications, and other baseline documentation; and that test plans and procedures were complied with. The results of the audit shall be documented.

4.7.3 Hardware Engineering.

The contractor shall integrate and assemble the system hardware that satisfies the performance requirements stated in the developed specifications. The contractor shall conduct market surveillance and market investigations in order to maximize the use of commercial and non-developmental items. The contractor shall apply the systems engineering process during each level of system development (system, subsystem, and component) to add value (additional detail) to the products defined in the prior application of the process. Through each of the following design stages, information generated shall be documented in an integrated database.

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4.7.4 Software Engineering

The contractor shall develop the system software and firmware in accordance with recognized industry standards and internal documented process. The design shall incorporate features that promote ease of operation, IA, ease of software maintenance, ease of future updates and modifications, data void work around, and also any smart designs that can justify a reduction in the amount of documentation. Computer programs and computer data system shall be fully integrated in accordance with the system specification. The contractor shall conduct market surveillance and market investigations, in order to maximize the procurement of commercial and non-developmental software. The contractor shall maintain a software Controlled Development Environment that complies with the NIST SP 800-53 Revision 4. The contractor shall employ well-defined security policy models, structured, disciplined, and rigorous hardware and software development techniques, and sound system/security engineering principles.

4.7.5 Software Requirements and Architecture Development and Review

The contractor shall develop software requirements and architecture in accordance with the contractor's software development process plan. All analysis and results shall be documented in an integrated database the contractor is encouraged to suggest revisions to government requirements where such revisions would result in cost or schedule reduction or performance improvements. The contractor shall define and record the operational concept for the system, and define and record the architectural design of the system (identifying the components of the system, their interfaces, and a concept of execution among them) and the traceability between the system components and system requirements. Based upon analysis of system requirements, system design, and other considerations, the contractor shall define and record the software requirements to be met by each software item, the methods to be used to ensure that each requirement has been met, and the traceability between the software item requirements and system requirements. The contractor shall evaluate the IA requirements to assess any impacts on developed software and provide potential solutions, if applicable. The contractor shall use modeling and simulation as appropriate for architecture validation. In addition, the contractor shall determine if existing open source software products are capable of meeting any operational capabilities, perform a detailed software reuse evaluation, and document the results of the analysis. The contractor shall conduct architecture evaluations, including stakeholders external to the contractor's organization, for each software build.

4.7.6 Software Design and Implementation.

The contractor shall design software, develop executable code, perform unit testing, and integrate software components (with each other and with hardware components) to meet system requirements. Products that perform information assurance functions are considered IA or IA-enabled IT products and shall be selected from the DoD Unified Capabilities (UC) Approved Product List (APL) and configured in accordance with DoD-approved security configuration guidelines. These include databases which must comply with the DISA database Security Technical Implementation Guide (STIG).

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(DI-IPSC-81442A) Software Version Description (SVD)
(DI-IPSC-81441A) Software Product Specification (SPS)

4.7.7 Software Development Test.

The contractor shall establish and execute a software item qualification test program consisting of program or module and cycle or system levels of testing. For each software item, the contractor shall determine if that item warrants a verification effort and the degree of organizational independence of that effort needed. If the item warrants an independent verification effort, a qualified organization responsible for conducting the verification shall be selected. The contractor shall document the life cycle activities for each software item subject to verification, the required verification tasks for each life cycle activity, and related resources, responsibilities, and schedule. The contractor shall establish test cases (in terms of inputs, expected results, and evaluation criteria) and establish traceability between the test case and the system requirements, detailed procedures for conducting the test, and test data for testing the software corresponding to each software item. The contractor shall test the software corresponding to each software item. The testing shall be in accordance with the unit test cases and procedures. The contractor shall analyze the results of item testing and shall record the test and analysis results. Prior to the start of final test, the contractor shall upgrade the COTS products to the latest versions approved by the system software configuration control board. The contractor shall conduct a software item test readiness review prior to initiating the formal qualification test.

4.7.8 Hardware and Software Integration.

The contractor shall perform all activities to integrate and assemble the hardware and software to achieve a fully functional and accreditable system, with all support systems, that performs and operates in accordance with the system specification and contractor generated specifications. The contractor shall verify the complete integration of the hardware and software of each hardware and software subsystem and the overall system through the utilization of formalized test procedures.

4.7.9 Safety Engineering.

The contractor shall develop and implement tasks and activities to identify, evaluate, and eliminate or control hazards throughout the systems life cycle. The contractor shall ensure the safety of the system's design, operation, transportation, maintenance, support, and disposal. The contractor shall conduct safety analyses, hazard identification and classification and hazards tracking integral to the system design effort. A hazard risk index including hazard severity and hazard probability levels shall be developed for all hazards.

(DI-SAFT-80102B) Safety Assessment Report

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4.7.10 Quality Engineering.

The contractor shall establish measurement points that will provide maximum visibility into new and prior processes to assure contractual requirements are being met. The contractor shall select the proper methods to analyze these processes to continuously improve the system. Metrics shall be developed to assist management visibility into an adequate process control system. The contractor shall establish and maintain a computerized discrepancy tracking system within the IDE with the ability to produce complete permanent records of all discrepancy or database listing. The contractor shall establish a suspense system to ensure timeliness of analysis and corrective action for discrepancies and risk reduction items. All discrepancy correction shall be documented and entered in an integrated database.

4.7.11 Design Reviews

The contractor shall conduct reviews, to include design reviews (system, subsystem, component, life cycle processes, test readiness, production approval) and audits (functional and physical configuration), for the purpose of assessing technical progress. The contractor shall document the results of the review, including any resulting action items. Normally, a design review shall be conducted at the completion of each application of the system-engineering phase. Each review shall accomplish the following:

- a. Assess the system requirements and allocations to ensure that requirements are unambiguous, consistent, complete, feasible, verifiable, and traceable to top-level system requirements.
- b. Assess the design maturity based on technical development goals, IMS events and accomplishments, and empirical analysis and test data supporting progress to date.
- c. Present the risks associated with a continued development effort.
- d. Assess the life cycle processes and infrastructure necessary for product sustainment throughout the system life cycle.
- e. Identify resources required for continued development;
- f. Determine whether to proceed with the next application of the systems engineering process, to discontinue development, or to take corrective actions before proceeding with the development effort.

Component, subsystem, and system design reviews shall be conducted for each level of development. Depending on the complexity of the system, lower-level reviews may be needed. Trade-off analysis and verification results should be available during design reviews in order to substantiate design decisions. Reviews may result in the need to iterate through the system engineering process to resolve identified deficiencies before progressing further into the development activity. Component, subsystem, and system functional- and design-configuration audits shall be performed to ensure that supporting documentation has been satisfactorily completed, that qualification tests for each specification requirement have been completed and all requirements satisfied or products comply with final drawings.

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At design reviews, the contractor shall present the systems security design, initial security risk assessment, security test approach, security training approach, and any other security relevant information.

4.7.12 Product Definition Data (PDD).

During the systems engineering and design, and in accordance with MIL-STD-31000, the contractor shall develop, produce, and maintain product definition data (PDD) that accurately depicts the final product. The PDD is the technical description of items adequate for supporting an acquisition strategy, production, engineering, IA and logistics support. The contractor shall produce and maintain documentation for all electrical assemblies and subassemblies in such a manner to ensure their functional integration without recourse to special test equipment (STE) or installation of the assemblies or subassemblies into a next higher assembly. Utilizing the established logistic repair procedures, the contractor shall identify the higher level components and assemblies to be repetitively procured as spare components and assemblies or which may be procured independently. For each higher level component or assembly, the contractor shall determine and document the functional requirements for the item, the environment in which it must operate, interface and interchangeability characteristics, and criteria for verifying Logistics Support criteria. The contractor shall conduct engineering analyses to establish quantitative and qualitative supportability design guidelines. The contractor shall conduct trade studies, evaluate design and support alternatives, and establish system supportability preliminary design configurations consistent with system readiness and availability and life cycle cost goals. The contractor shall coordinate with existing life cycle support contractors using associate contractor agreements, develop initial fielding plans for the system and verify that the maintenance actions and support structure are aligned with the maintenance concept.

(DI-SESS-81003D) Commercial Drawings/Models and Associated Lists
(DI-SESS-81000D) Product Drawings/Models and Associated Lists

4.7.13 Technical Publications Update.

The contractor shall revise the JPATS Operator Manual and Maintenance Manual, as required. The contractor shall describe each operation and maintenance task in detail and in logical, systematic steps for the work to be accomplished. The operation and maintenance instructions shall accurately provide the technician with all the information needed to keep the equipment operational. They shall provide system and subsystem oriented instructions for installation, operation, maintenance, and testing. All tools, test equipment and consumable items required to accomplish any maintenance or installation shall be identified just prior to, and as part of, the task. Government furnished material, government technical manuals or government-approved commercial operation and maintenance manuals shall be used as references for system and subsystem maintenance. All government technical manuals and COTS manuals shall be reviewed to ensure changes, updates, revisions, or supplementation is not required to reflect the

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components actually being installed. All publications shall reflect the configuration of fielded hardware as documented in the product baseline.

(DI-ADMN-80925) Revisions to Existing Government Documents (Operator Manual)
(DI-ADMN-80925) Revisions to Existing Government Documents (Maintenance Manual)

4.7.14 Commercial Off-the-Shelf (COTS) Manuals

The contractor shall provide manual(s) for all Commercial Off-The-Shelf equipment. MIL-PRF-32216 will be used in the evaluation of the COTS manuals. The contractor shall provide an index of the manuals and place the technical manual number on all the COTS manuals for identification and inventory purposes.

(DI-TMSS-80527C) Commercial Off-The-Shelf (COTS) Manuals and Associated Supplemental Data

4.7.15 Item Unique Identification (IUID)

The contractor shall coordinate among the IPT members to determine items requiring unique identification including embedded subassemblies, components and parts, and identify the IUID to be used for each item. The contractor shall provide IUID, or a DoD recognized unique identification equivalent, for all identified items delivered. IUID marking design for each item shall be both machine readable and human readable in accordance with MIL-STD-130, paragraph 5.2.

(DI-MISC-80711A) IUID Report

4.7.16 Life Cycle Support Transition.

The contractor shall identify the hardware, software, and other resources needed for the life cycle support of deliverable software. The contractor shall plan for the transition of support to a separate support agency and identify the items and procedures that are needed to perform life cycle software support of the deliverable application software. Using Appendix B and Appendix C of MIL-HDBK 1467 as a guide, the contractor shall describe and document the methods to be used to ensure the existence of a complete life cycle support capability. The contractor shall plan for and implement the transfer of support of the deliverable items to the life cycle support organization. This effort should be designed to ensure a phased transfer without loss or degradation of the support of the delivered application software or to other tasks currently performed. The contractor shall identify the need to use any government resources during the transfer phase. The contractor shall plan lead-time to ensure completion of the transfer prior to the planned assumption of support responsibilities by the life cycle support organization. The contractor shall ensure that the procedures for operation of the Life Cycle Support completely describe all methods necessary to evaluate, generate, install, integrate, test, modify, and operate the deliverable application software. The contractor shall make assistance available to support

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the resolution of any problems encountered by the life cycle support organization personnel during the transfer period.

(DI-IPSC-81429A) Software Transition Plan (STRP)

4.8 Integrated Testing

The contractor shall plan, coordinate, establish and implement a comprehensive test and evaluation (T&E) program to include all configurations of the system. System T&E refers to the test and evaluation activities which use the development and production hardware together with the software to validate that the system meets the operational and technical performance requirements as stated in the system specifications. System T&E includes all efforts associated with the design and production of models, specimens, fixtures and instrumentation in support of the T&E program. The contractor shall develop step-by-step testing operations to be performed on items undergoing developmental testing. The contractor shall identify items to be tested, the test equipment and support required, the test conditions to be imposed, the parameters to be measured, and the pass and fail criteria against which the test results will be measured. The test planning and test procedures shall be structured to integrate all developmental, operational, and modeling and simulation activities to concentrate upon generation of data needed to insure that a decision on the systems capability to meet the objectives identified in the systems specification is made with a minimum amount of uncertainty. The concept of continuous evaluation and simulation shall be used to integrate and reduce overall testing requirements. Statistical process control shall be used to help reduce the need for in-process inspections and end product testing.

(DI-IPSC-81439A) Software Test Description (STD)

4.8.1 Test Readiness Review (TRR).

Readiness to convene a TRR is predicated on the Program/IPT's determination that preliminary testing, functional testing, and pre-qualification testing results form a satisfactory basis for proceeding with a TRR and initiation of formal system level testing. The TRR shall assesses test objectives, test methods and procedures, scope of tests, and determines if required test resources have been properly identified and coordinated to support planned tests. The TRR shall also verifies the traceability of planned tests to program requirements. The contractor shall address the following key issues at the system engineering TRR prior to the start of formal testing (i.e., development test, IA compliance testing, operational test, logistic demonstration, product qualification test, or site acceptance to ensure that the system and all test resources are ready to begin testing):

- a. Test procedures comply with plans and descriptions, are adequate to accomplish test requirements and satisfy requirements for verification.
- b. Pre-test predictions and informal tests indicate testing will confirm performance.

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- c. New or modified test equipment and facilities and procedure manuals required to accomplish planned test and evaluation, are available and satisfy the test requirements.
- d. Data acquisition and reduction provisions are in place.

The following documentation shall be reviewed during the TRR:

- a. Evidence that the test management system as required under the contract is ready to accept the qualification tests and their results.
- b. Evidence that the requirements in the development specification have been traced to qualification tests or tests on which the qualification tests rely.
- c. A list of outstanding problem reports, both external and internal cross-referenced to the contracted deliverable end items or development hardware and software products.
- d. Test requirements.
- e. Requirements changes pending.
- f. Design changes since the last design review.
- g. Test constraints based on previous testing or test hardware limitations.
- h. Test configuration (test article and instrumentation and support equipment).
- i. Detailed test procedures.
- j. Plans for collection, reduction and analysis of the test data.
- k. Calibration plan and status .
- l. Problem areas and their resolution.

4.8.1.1 TRR Entry Criteria

- a. Configuration of system under test has been defined and agreed to. All interfaces have been placed under configuration management or have been defined in accordance with an agreed to plan and a Version Description Document has been made available to TRR participants (minimum of 7 working days prior to the review).
- b. All applicable functional, unit level, subsystem, system, and qualification testing has been conducted successfully.
- c. All TRR specific materials such as Government approved test plans, cases, and procedures have been available to all participants prior to conducting the review (minimum of 7 working days).
- d. All known system discrepancies have been identified and resolved in accordance with an agreed to plan.
- e. All previous design review exit criteria and key issues have been satisfied in accordance with an agreed to plan.
- f. All required test resources (people, facilities, test articles, test instrumentation) have been identified and are available to support required tests.

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- g. Roles and responsibilities of all test participants are defined and agreed to.

4.8.1.2 TRR Exit Criteria

- a. The TRR is considered complete when:
 - (1) all draft RFA forms have been addressed, assessed, and agreed upon, and
 - (2) an acceptable level of program risk is ascertained.
- a. Were the proper government disciplines represented at the review? If applicable were all of the required independent evaluators involved and do they concur with the planned tests, expected results?
- b. Typical Exit Criteria include:
 - (1) Adequate test plans completed and approved for the system under test.
 - (2) Adequate identification and coordination of required test resources is completed
 - (3) Previous component, subsystem, system test results form a satisfactory basis for proceeding into planned tests.
 - (4) Risk level identified and accepted by Program leadership as required.

4.8.2 Test Discrepancies.

The contractor shall document all test discrepancies for contractor conducted tests and track the failure analysis and corrective action for each test discrepancies until correction and regression test are successfully completed. The contractor shall establish a suspense system to ensure timeliness of analysis and corrective action of each test discrepancy. The contractor shall establish a process to receive test discrepancies from any IPT member and accomplish data entry. Upon correction of the test discrepancies, the contractor shall test the system to ensure that the correction of the test discrepancies did not interfere with or alter the functionality of the system. Upon closeout of a discrepancy, the contractor's process shall notify the government designated test director that an integrated database has been updated.

4.8.2.1 Discrepancy Processing.

The contractor shall document a detailed description defining the changes made to the equipment, hardware, and software to correct each discrepancy. Each discrepancy correction that modifies or changes any baseline shall be documented and entered in the configuration management system. Discrepancies ready for recheck shall normally accumulate into sufficient quantities to permit at least eight hours of continuous testing.

4.8.2.2 Test Discrepancy Priorities.

The contractor shall assign level of effort to test discrepancies based on the priority codes assigned by the test team, in accordance with the ground rules established by the IPT. The following priorities shall be assigned, with the government reserving the right to make the final determination of the priority of any test discrepancy:

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<u>Priority</u>	<u>Description</u>	<u>Schedule Impact</u>
1	Safety item or system failure	Testing halted
2	Subsystem failure	Some testing impossible
3	Training impact which affects testing milestone	Fix prior to next assessment milestone
4	Training impact which has no testing impact	Fix prior to DD Form 250
5	Any other effect (e.g., documentation error)	Fix prior to becoming operational and Prior to DD Form 250

4.8.3 Information Assurance Compliance.

The contractor shall test, verify, and document that the security architecture of the system is in compliance with the security requirements as identified in the system specification. The contractor shall use DOD approved assessment tools to assess the system prior to the Government's performance of the Certification Test and Evaluation (CT&E) or the System Test & Evaluation (ST&E). The pre-assessment shall be completed no less than two weeks prior to the government conducted CT&E/ST&E.

4.8.4 Production Qualification Test.

The contractor shall conduct a system level test using initial production assets to ensure design integrity over the specified operational and environmental range, to demonstrate the adequacy and timeliness of any corrective action indicated by previous testing, and to validate the manufacturing facilities, procedures, and processes.

4.8.5 Site Acceptance Test.

The contractor shall verify that installed configuration item operates to the specified performance requirements. Testing shall be conducted using portions of the Acceptance Test Procedures (ATP). The contractor shall document the result of the test. The contractor shall successfully accomplish control loading/flight deck system ATP on all the ATDs with the new control loading/flight deck system components prior to Government Acceptance. The Program Office will conduct an initial ATP at each base for the first ATD conversion.

(DI-NDTI-80603A) Test Procedure
(DI-NDTI-80809B) Test/Inspection Report

4.9 Site Survey. N/A

(DI-FACR-80966) Trainer Facilities Report (TRF)

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4.10 Installation Program.

Prior to the arrival of the system at each site, the contractor shall perform all installation preparatory work; including advising and assisting on-site personnel in any modifications they may be performing.

4.10.1 Installation Tools and Test Equipment.

The contractor installation team shall be equipped with all the standard tools required for the system installation. Any standard tools required and provided will be returned upon completion of the installation program. All special tools and test equipment shall remain at each site.

4.10.2 Installation Spares.

The contractor installation team shall be equipped with an installation spares package of common items. The contractor shall replace all site spares used during the installation. The installation spares packages will be returned upon completion of the installation program.

4.11 System Technical Support

The contractor shall provide support for undefined mission support requirements that include training, logistics functions, hardware and software engineering functions, software licensing, support services, spare parts, travel overtime, maintenance, supply, replacement of non-fair wear and tear parts, contractor activity and facility relocations, adding and deleting training devices, transportation of equipment, development, productions, installation of software upgrades, re-host and modifications kits as authorized by individual contract work directives. The contractor shall document the description of each task, the man-hours spent, cost of materials and services and the results of each service(s).

(DI-MGMT-80227) Contractor's Progress Status and Management Report

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APPENDIX A Technical Specifications: Not Used.

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APPENDIX B Spares Procurement

The following spares will be procured as part of this contract:

<u>Description</u>	<u>P/N</u>	<u>Qty</u>
a. USAF Control Loading Spares Package	TBD	9
b. USN Control Loading Spares Package	TBD	4
c. USAF Flight Deck Spares Package	TBD	9
d. USN Flight Deck Spares Package	TBD	4
e. USN V1100 IG Spares Package	TBD	4
f. USN ACS Spares Package	TBD	4