

AWARD/CONTRACT	1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350) ▷	RATING DO-C9	PAGE OF PAGE(S) 1 47
2. CONTRACT NO. (Proc. Inv. Ident.) NO. NAS1-97032	3. EFFECTIVE DATE 2/1/97	4. REQUISITION/PURCHASE REQUEST/PROJECT NO.	
5. ISSUED BY: National Aeronautics and Space Administration Langley Research Center Hampton, VA 23681-0001	6. ADMINISTERED BY (If other than Item 5)		CODE

7. NAME AND ADDRESS OF CONTRACTOR (No., street, city, county, State and ZIP code) Micro Craft, Inc. 207 Big Springs Avenue Tullahoma, TN 37388	8. DELIVERY See Clause F.3. <input type="checkbox"/> FOB ORIGIN <input checked="" type="checkbox"/> OTHER (See below)
	9. DISCOUNT FOR PROMPT PAYMENT NONE
	10. SUBMIT INVOICES (4 copies unless other-wise specified) TO THE ADDRESS SHOWN IN: ▷ ITEM See Clause G.1.

CODE	FACILITY CODE	12. PAYMENT WILL BE MADE BY: CODE
11. SHIP TO/MARK FOR CODE		See Clause G.1.
SHIP TO: As specified on Individual Delivery Orders (DO) Mark for: NAS1-97032 - Include DO Number		

13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION <input type="checkbox"/> 10 U.S.C. 2304(c) () <input type="checkbox"/> 41 U.S.C. 253(c) ()	14. ACCOUNTING AND APPROPRIATION DATA As specified on individual orders.
--	---

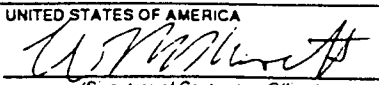
15A. ITEM NO.	15B. SUPPLIES/SERVICES	15C. QTY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT
	Reliance Consolidated Models (RECOM); Design and/or Fabrication of Aerospace Model Systems and Developmental Test Hardware			(See Clause B.2: Contract Minimum: \$200,000 Contract Maximum: NTE \$90,000,000 NTE	

15G. TOTAL AMOUNT OF CONTRACT	▷ \$90,000,000
-------------------------------	----------------

16. TABLE OF CONTENTS							
N	SEC.	DESCRIPTION	PAGE(S)	N	SEC.	DESCRIPTION	PAGE(S)
PART I - THE SCHEDULE				PART II - CONTRACT CLAUSES			
X	A	SOLICITATION/CONTRACT FORM	1	X	I	CONTRACT CLAUSES	22
X	B	SUPPLIES OR SERVICES AND PRICES/COSTS	2	PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS			
X	C	DESCRIPTIONS/SPECS./WORK STATEMENTS	3	X	J	LIST OF ATTACHMENTS	38
X	D	PACKAGING AND MARKING	4	PART IV - REPRESENTATIONS AND INSTRUCTIONS			
X	E	INSPECTION AND ACCEPTANCE	4		K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	
X	F	DELIVERIES OR PERFORMANCE	15		L	INSTRS, CONDS, AND NOTICES TO OFFERORS	
X	G	CONTRACT ADMINISTRATION DATA	15		M	EVALUATION FACTORS FOR AWARD	
X	H	SPECIAL CONTRACT REQUIREMENTS	19				

CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE

17. <input type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return _____ copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents (s) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)	18. <input checked="" type="checkbox"/> AWARD (Contractor is not required to sign this document.) Your offer on 1Solicitation Number 1-64-GH.2755, including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.
---	---

18A. NAME AND TITLE OF SIGNER (Type or print)	20A. NAME OF CONTRACTING OFFICER WILLIAM R. KIVETT
19B. NAME OF CONTRACTOR	20B. UNITED STATES OF AMERICA
BY _____ (Signature of person authorized to sign)	BY  (Signature of Contracting Officer)
19C. DATE SIGNED	20C. DATE SIGNED 12/2/96

PART I - THE SCHEDULE

SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS

B.1 SUPPLIES AND/OR SERVICES TO BE FURNISHED

The Contractor shall, to the extent specified herein, furnish all personnel, facilities, services, supplies, equipment and materials necessary to design and/or fabricate aerospace model systems and developmental test hardware as specified in delivery orders issued pursuant to Clause G.2, entitled "Procedures for Issuing Delivery Orders." The type of work to be performed under such delivery orders is limited to the types of work incorporated by Clause C.1, Statement of Work.

B.2 INDEFINITE DELIVERY CONTRACT

Pursuant to the Federal Acquisition Regulation (FAR) Parts 16.501-2 and 16.504, this contract is defined as an indefinite quantity type. The contract provides for an indefinite quantity, within stated limits, of supplies or services to be furnished during a fixed period, with deliveries or performance to be scheduled by placing orders with the Contractor. The total minimum and maximum dollar value of supplies or services to be acquired under the contract are set forth below:

Contract Minimum: The Government will issue Delivery Order(s) (DOs) under this contract which provide for a minimum of \$200,000 for the 5 year period of performance

Contract Maximum: The Government issued Delivery Order(s) under this contract shall not exceed a maximum of \$90,000,000 for the 5 year period of performance.

B.3 CONTRACT FUNDING INFORMATION

Section I, Clause 52.232-22, Limitation of Funds (APR 1984) may apply individually to Delivery Orders issued under this contract.

In accordance with the Limitation of Funds clause, each cost-type delivery order shall specify the total amount allotted by the Government for purposes of payment of cost, exclusive of fee. In addition, each cost-type delivery order which includes fee shall specify an additional amount as obligated for payment of fee.

B.4 DELIVERY ORDER TYPE

Delivery orders will be issued on either a firm fixed price (FFP) basis or on a cost reimbursable (CR) basis.

B.5 CONSIDERATION

- (a) The total fixed price will be set forth on individual delivery orders.
- (b) The total estimated cost and fixed fee will be set forth on individual delivery orders.

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

C.1 STATEMENT OF WORK--RELIANCE CONSOLIDATED MODELS (RECOM); DESIGN AND/OR FABRICATION OF AEROSPACE MODEL SYSTEMS AND DEVELOPMENTAL TEST HARDWARE USED FOR SPACEFLIGHT, FLIGHT AND GROUND-BASED TESTS

1.0 INTRODUCTION

1.1 This document describes the type of work associated with the design and/or fabrication of Aerospace Model Systems and Developmental Test Hardware used for Spaceflight, Flight and Ground-based tests. These precision experimental research models and hardware may consist of both mechanical and electrical/electronic hardware elements. The mechanical hardware elements include but are not limited to wind tunnel models (including force/pressure, propulsion simulation, dynamically scaled, and free flight, etc.), drop models, model components, model support systems, test equipment, aircraft flight test hardware, space flight hardware, and instrumentation/devices to measure force, moments, acceleration, attitude, pressure and temperature. The electrical/electronic hardware elements include but are not limited to motors, actuators, sensors, control panels, printed circuit boards, data acquisition and control systems, circuit protection, connectors and wiring as required to support the test hardware.

1.2 These research models and hardware may be utilized for various facilities such as NASA wind tunnels, aircraft, spacecraft, and other existing and future laboratory environments.

2.0 SCOPE OF WORK

2.1 GENERAL OVERVIEW

2.1.1 The Contractor shall work from Delivery Orders (DO's) which will include drawings and specifications describing in detail all work required to satisfactorily complete each order. The Contractor shall, in response to the DO, furnish personnel, equipment, materials, and facilities necessary to perform any, or all of the following: conceptual design, feasibility design studies, preliminary and detailed engineering design, stress analysis, fabrication, instrumentation and calibration, testing, inspection, assembly, installation and check-out, packaging and transportation of Aerospace Model Systems and Developmental Hardware.

2.1.2 The Contractor shall manage, monitor and integrate subcontracted work with work performed in-house.

2.1.3 The Contractor shall electronically interface with the requiring Center personnel in an automated fashion utilizing computer codes of standard file formats regarding geometry, drawings, analysis, and reports during the design and/or fabrication process.

2.2 DESIGN REQUIREMENTS OVERVIEW

The Contractor shall be required to perform the following design tasks as directed by the DO:

2.2.1 Design and integrate mechanical and electrical/electronics packages and subsystems.

2.2.2 Provide conceptual layouts, detailed drawings, engineering analyses and appropriate computer output files which shall allow for the fabrication of hardware, inspection of hardware and archival of design data.

2.2.3 Perform detailed thermal analyses for mechanical hardware.

2.2.4 Perform dynamic and vibration analyses for mechanical hardware.

2.2.5 Perform detailed stress analysis for mechanical hardware utilizing Finite Element Analysis (FEA) programs utilizing software such as NASTRAN.

2.2.6 Submit and present design developments for review at various time intervals and locations as specified in the DO.

2.2.7 Perform Engineering Design of Force Transducers, Strain Gage Balances and Strain Gauged Devices. The Contractor shall provide engineering design of strain gage type multi-component force measuring transducers, including single piece and multi-piece design. The transducers will include wind tunnel force balances, load cells, tension links, and related calibration hardware.

2.3 FABRICATION REQUIREMENTS OVERVIEW

The Contractor shall be required to perform the following fabrication tasks as directed by the DO:

2.3.1 Fabricate and assemble mechanical and electrical/electronics packages and subsystems.

2.3.2 Fabricate mechanical hardware from a variety of materials such as metals, fiberglass, carbon fibers, wood, ceramics, moldable or formable materials, or any combination of these materials.

2.3.3 Fabrication shall require a variety of functions and processes such as precision machining, welding, brazing, hand and wave soldering, riveting, heat treating, composite lay-up, vacuum bagging and wire wrapping.

2.3.4 Fabricate space flight assemblies. Fabrication of space flight hardware will impose requirements for certifications of materials, fasteners, processes and procedures. For multiple assemblies, fabricated components shall be completely interchangeable. Specific procedures required will include the use of special materials, lubricants, and cutting fluids to prevent out-gassing in space. Rigid inspection requirements will be imposed including the use of Government inspectors or designated representatives.

2.3.5 Provide printed circuit boards, electrical/electronic hardware components and subsystems.

2.3.6 Integrate electrical/electronic hardware into final assemblies using installation and operation specifications, and providing mounting, power, wiring and circuit protection.

2.3.7 The Contractor shall inspect all work prior to delivery to insure compliance with the DO. A written inspection report shall be delivered with the completed hardware.

2.4 TESTING REQUIREMENTS OVERVIEW

The Contractor shall be required to perform the following tasks as directed by the DO:

2.4.1 Test mechanical and electrical/electronics packages, components, subsystems and integrated assemblies.

2.4.2 Install, test, and calibrate instrumentation such as pressure, temperature, and flow sensing devices, force measuring equipment, strain gages, and specialized data acquisition equipment as required in the DO.

3.0 FUNCTIONAL REQUIREMENTS

3.1 MECHANICAL AND ELECTRICAL/ELECTRONIC DESIGN

3.1.1 Mechanical and Electrical/Electronic Conceptual Design

The Contractor shall develop hardware design concepts, approaches and perform trade-off studies to demonstrate the value of each design. The output may consist of sketches, layouts, diagrams, analyses and supporting written justification, comparing each design, which could form the basis for additional feasibility studies. The conceptual design shall include identification of requirements and space allocation for electrical/electronic elements and instrumentation.

3.1.2 Mechanical and Electrical/Electronic Design Feasibility Studies

The Contractor shall show the feasibility of designing and fabricating the proposed hardware along with the most probable design and fabrication approach. The output may consist of preliminary drawings using pencil and/or Computer Aided Design (CAD) programs, supporting analyses as well as cost and schedule estimates for hardware design, fabrication and installation. The feasibility study shall include functional requirements for electrical/electronic elements. Functional requirements include but are not limited to the identification and assessment of operational objectives, volume allocation, and environmental constraints such as heat, vibration and moisture.

3.1.3 Mechanical and Electrical/Electronic Preliminary Design

The Contractor shall provide hardware preliminary designs that may consist of the following: engineering layout drawings and analyses; design, fabrication and installation approaches; general specifications for subcontracted or commercially produced hardware; any special test or handling requirements; and cost and schedule estimates.

A preliminary design shall comply with the design requirements and describe the main components, configurations, limitations, characteristics and modes of operation.

The Contractor may be required to orally present the design at a Preliminary Design Review (PDR). The PDR may occur at the requesting Center, the Contractor's facility or another location.

3.1.4 Mechanical and Electrical/Electronic Detailed Design

The Contractor shall provide hardware detailed designs that may consist of the following: detailed fabrication and assembly drawings; detailed engineering analyses; hardware specifications and other documents as required; computer files generated from CAD, FEA, and Contractor written executable programs. The detailed design shall conform to Section 3.2.1 "Safe Hardware Design Analysis," unless otherwise stated in the DO.

The Contractor shall provide final, detailed drawings suitable for fabrication and assembly of hardware. All final drawings shall conform to the latest revision of MIL-STD-100 and shall have NASA borders as shown in Attachment 6. NASA drawing borders will be supplied for CAD programs by the Government in DXF file format. All final drawings and subsequent drawing revisions must be approved by the Authorized Government Representative (AGR) before hardware fabrication begins.

The Contractor shall have the ability to exchange CAD generated surfaces and solid models utilizing the Initial Graphic Exchange Specification (IGES) version 5.2 and other neutral formats. The Contractor shall utilize IGES files containing, but not limited to, Non-Uniform Rational B-Spline (NURBS) curve and surface representations, including trimmed surfaces.

The Contractor may be required to present and participate in periodic design reviews. Typically, design reviews occur at the following design stages: 50 percent complete, 90 percent complete and 100 percent complete, and will be defined in the DO. Design review locations will be specified in the DO.

The hardware design approval process prior to fabrication by the Contractor shall be as follows:

1. Submit final drawings, analysis and fabrication cost estimate;
2. AGR approves submittal package or requires modifications;
3. Submittal package is approved and drawings are signed;
4. Signed, approved drawings are returned to the Contractor and the Contractor is notified to proceed with fabrication.
5. Some DO's may require the use of concurrent design and fabrication processes. In these cases the AGR will approve incomplete design packages as required to proceed with fabrication.

3.2 ENGINEERING ANALYSIS

3.2.1 Mechanical and Electrical/Electronic Safe Design Analysis

All general requirements shall provide analysis verifying that a detailed hardware design is safe for personnel and facilities. These detailed hardware requirement standards are specified in section 5.0 Standards/Codes. Provisions for alternate hardware design codes (such as the "American Institute of Steel Construction" (AISC), or center specified standards may require the Contractor to verify that the hardware design is in compliance with those codes.

The Contractor shall calculate hardware loads, stresses, strains and fatigue values resulting from the following hardware design loads: pressure, mechanical, dynamic, aerodynamic, thermal, live and dead loads. The Contractor shall determine natural frequencies and mode shapes for rotating systems (rotors, turbines, turboprops, etc.) as integrated in the model test hardware. The Contractor shall also perform safety calculations for possible hardware failure in bearing, stability, bending, fatigue, weld strength, fastener strength, and other modes as required. External hardware design loads will be supplied in the DO. The Contractor shall submit any hardware design load changes to the AGR for approval.

The Contractor shall provide calculations and results in a written report which is specific for each center's requirements. See section 5.0 Standards/Codes. If the use of finite element analyses (FEA) are required, the Contractor shall provide FEA models in formats that are convertible to the NASTRAN bulk data form, or as specified by the DO. When required by the DO, electronic copies of Contractor written programs related to the hardware design shall be submitted to the Government and shall be executable using either C, C++, FORTRAN, or other mutually agreed to compilers.

The Contractor may be required to orally present results or relevant calculations at any of the design reviews described in Section 3.1 "Mechanical and Electrical/Electronic Design."

3.2.2 General Engineering Analysis

The Contractor shall perform analyses in some or all of the following disciplines:

- a. Machine Design
- b. Fluid Mechanics
- c. Static's and Dynamics
- d. Vibrations
- e. Materials
- f. Thermal Dynamics and Heat Transfer
- g. Automatic Control Systems
- h. Instrumentation
- i. Electrical/Electronic Systems
- j. General Computer Systems

Pursuant to the requirements of the DO, all calculations and results, shall be available to the Government.

3.3 FABRICATION

The Contractor shall provide all material, equipment, facilities, transportation, and personnel to perform the fabrication as described in the DO. The DO may contain hardware drawings, sketches, CAD geometry files, and/or written narratives along with any special fabrication operations, procedures, and techniques.

3.3.1 Fabrication Work Disciplines

Work disciplines shall include equipment expertise in, but not limited to the following: conventional and specialized machining; metalsmith fabrication; soldering, brazing, and welding; conventional and specialized wood working; lay-up, bonding, processing, and machining of composite materials; hand fairing and finishing of sculptured surfaces and contours; electrical discharge machining (wire or die sink); and tubing and instrumentation installation. Specialized services shall include heat treating, Nondestructive Testing (NDT) and Nondestructive Evaluation (NDE), plating, rapid prototyping and painting.

In addition, the Contractor shall perform electronics fabrication, processes, assembly and inspection that require the following equipment: photo plotter, automatic wave reflow solder machine, solder paste dispenser, solder paste viscosity monitor, soldering stations, thermal chamber, microscopes, video inspection stations, dynamic static neutralizer and constant monitors.

3.3.2 General Electronics

The Contractor shall provide general electronics fabrication and assembly of miscellaneous hardware such as printed circuit boards with surface mount technology and through hole assembly, cables, harnesses, and any associated special tooling or fixturing.

In performing the prescribed electronics fabrication services and quality assurance inspections, the Contractor shall comply with the quality provisions set forth in the NASA Standards Publications, NHB 5300.4 Series where applicable and/or specified in each DO.

Personnel qualifications and certifications shall be in accordance with the training and certification requirements as set forth by the NASA Standards Publications

3.3.3 General Machining

The Contractor shall perform general machining and fabrication. This work requires conventional and computerized numerical control (CNC) equipment to perform machining such as but not limited to; milling, turning, electrical discharge machining (EDM), drilling and grinding. The typical tolerances for general machining shall be ± 0.005 inch.

3.3.4 Precision Machining

The Contractor shall perform precision machining and fabrication of experimental research hardware, such as but not limited to, models and model support equipment such as wind tunnel aircraft models, nacelles, engine components, balances, combustors, nozzles, bearing seals, bellmouths, and flow straighteners while maintaining dimensional tolerances ranging from $\pm .0002$ inches to $.002$ inches.

The Contractor shall be capable of performing precision machining of space flight and flight hardware such as housings, brackets, vessels, component parts, chambers, lens and mirror mounts, positioning mechanisms, fixture plates and clamps while maintaining all flight and space flight requirements.

3.3.5 CNC Machining

The Contractor shall perform computerized numerical control (CNC) machining of sculptured and modeled surfaces while maintaining typical tolerances as accurate as $\pm .002$ inches. These models may be of various scale sizes, complex contoured shapes and have highly cambered and twisted wings with controlled shapes and finishes.

3.3.6 Surface Finish

The Contractor shall perform hand finishing, polishing and lapping on precision hardware such as highly cambered and twisted wings, sculptured surfaces and contours from CAD generated models while maintaining typical dimensional tolerances as accurate as $\pm .002$ inches and surface finishes as low as 2 rms (micro inches).

3.3.7 Instrumentation

The Contractor shall perform Instrumentation Fabrication that includes but is not limited to devices used to detect or collect such physical conditions as: temperatures, pressure, flow, force, vibration, displacement, acceleration, and strain. The work includes fabrication of thermocouples, probes, survey rakes (temperature and/or pressure), calorimeters, and transducers. This includes working with miniature tubing assemblies, micro-miniature wiring techniques, and critical dimensioning (± 0.0005 inch to ± 0.001 inch).

3.3.7.1 Strain Gage Application

The Contractor shall apply strain gages on single or multicomponent transducers, structural specimens of conventional or composite materials or research apparatus.

3.3.7.2 Force Transducer Fabrication

The Contractor shall fabricate, modify, and repair force measuring transducers such as single or multi-piece balances, load cells, and tension links. This also includes fabricating, modifying, and repairing calibration fixtures, calibration arms, adapters, stings, cooling shields, and other related calibration hardware. The machining process will frequently require the use of electrical discharge machining equipment.

3.3.7.3 Force Transducer Calibration of New Force Balances

The Contractor shall calibrate new single and multicomponent strain gage type force measuring transducers utilizing static calibration stands, semiautomatic, or automatic hydraulic/pneumatic sting balance calibration machines. Pertinent combinations of loads to determine first, second or higher order interactions on each component will be applied. Requirements shall include the proper fitting of balance fixtures and hardware and the tabulating, plotting, reviewing of calibration data and iteration of loadings if necessary to assure required accuracy is achieved.

3.3.7.4 New Force Transducer Installation and Troubleshooting

The Contractor shall install and troubleshoot strain gage force measuring transducer systems and related accessories. Requirements shall include connecting interface and wiring between force transducers and permanent wind tunnel instrumentation; performing verification checks and troubleshooting of force-transducer-system at the test site.

3.3.8 Special Processes

The Contractor shall provide processes such as but not limited to; splicing, gear cutting, gear grinding, centerless and blanchard grinding, vacuum and conventional heat treating, stress relieving, plating, metalizing, plasma spraying, sand blasting, anodizing, engraving, painting, graphics artwork layout, silk screening and decaling of instrumentation (panels, chassis, cabinets, and printed circuit boards), and any other types of surface treatments.

The Contractor shall provide electronics processes such as schematic capture, photo plotting, running design rule checks and conformal coating.

3.3.9 Sheet Metal

The Contractor shall provide sheet metal work that includes bending, forming, punching, shearing, brazing, rolling, riveting, and welding while maintaining dimensional tolerances as accurate as +/- .010 inches. Sheet metal work will fall into one of the three categories:

- (a) General fabrication with typical tolerances of .030 inches to .060 inches.
- (b) Precision fabrication with typical tolerances of .005 inches to .030 inches.
- (c) Space flight hardware tolerances shall be in accordance with the general and precision fabrication tolerances. Work in this category shall be in accordance with MSFC-STD-156.

3.3.10 Composites

The Contractor shall perform fabrication of experimental research hardware including, but not limited to, drop models, flutter models, free flight models, turbine and rotor blades utilizing composite materials. This work will include development of molds, performing hand lay-ups, vacuum bagging, autoclave curing, machining and finishing composites.

3.3.11 Materials

The following materials are expected to be utilized in this contract:

Ferrous metals, non ferrous metals (including super and high temperature alloys), ceramics, composites, plastics, wood, Teflon, foam, and honeycomb.

3.4 QUALITY ASSURANCE

3.4.1 Quality Management System

The Contractor shall utilize a quality assurance program that is in compliance with ISO 9001/ASQC Q9001 Quality Management Systems, or equivalent.

3.4.2 Configuration Control

The Contractor shall establish and utilize a configuration control program which assures that components are fabricated to the latest drawing release and that no deviations from approved drawings are permitted without notification and prior approval from AGR.

3.4.3 Inspection

The Contractor shall develop and submit a fabrication inspection plan for approval prior to fabrication. This plan shall be included in the contractor's delivery order plan as described in Section 4.1. The inspection plan shall address any unique hardware features and incorporate specific inspection instructions or requirements that may be provided in DO.

The Contractor shall furnish, as required, written certification for processes and materials such as, but not limited to: chemical and physical tests, material composition, x-ray and ultrasonic inspections, dye penetrate inspections, heat treatment, welding and welder qualifications.

Final hardware inspection, assembly and check-out of all configurations shall be performed by the Contractor at the contractor's facility prior to shipment. A Government inspector or designated representative may be present during final inspection. A final inspection report, as described in Section 4.2.4, shall be submitted at the completion of the task.

3.4.4 Nondestructive Examination

The Contractor shall perform all nondestructive examinations (NDE) and tests as required for fabrication, assembly and check-out. NDE personnel shall be qualified in accordance with the American Society for Nondestructive Testing (ASNT) Recommended Practice SNT-TC-1A, or equivalent unless otherwise specified. Procedures for NDE (visual, liquid penetrate, magnetic particle, eddy current, radiography or ultrasonic) shall as a minimum be established in accordance with the American Society for Testing Materials (ASTM), or equivalent unless otherwise specified.

3.4.5 Nonconformances

The Contractor shall notify the AGR of any nonconformances found during in-process or final inspection prior to shipping. Nonconformances shall be classified as Type I or Type II.

A Type I nonconformance is defined as "an out of tolerance condition that will affect the performance, durability, interchangeability, reliability, safety, effective use, weight or appearance of the item(s)." A Type I nonconformance will require written approval by the AGR to repair or remake the item.

A Type II nonconformance is defined as "an out of tolerance condition that will not likely materially reduce the usability of the item(s) for its intended purpose." A Type II nonconformance will require written approval by the AGR to "use as is."

No items with open NCR's are to be delivered.

3.5 CALIBRATION, TESTING, ASSEMBLY, AND INSTALLATION

The Contractor shall provide calibration, proof testing, dynamic balancing and integrated operation of rotating systems and functional checkout of fabricated systems and components as specified in DO.

The Contractor may be required to perform fit and function checks with the mating parts at NASA facilities. Specific DO's may require assembly, installation and system checkout in NASA facilities.

4.0 DOCUMENTATION AND REPORTING

The Contractor shall provide documentation and reports in accordance with the DO. The following paragraphs describe the documentation and reporting requirements.

4.1 DESIGN SUBMITTALS

For hardware design tasks, the Contractor shall provide three (3) copies of the hardware design to the AGR 12 calendar days before the Preliminary Design Review (PDR). The DO shall detail the submittal requirements and may include some or all of the following: engineering layout drawings, preliminary analyses, general specifications for subcontracted or commercially produced hardware, design, fabrication/installation and inspection approaches/plans, any special test or handling requirements, and cost and schedule estimates.

The Contractor shall provide three (3) copies of the detailed hardware design to the AGR 12 calendar days before the Critical Design Review (CDR) or other appropriate time before the authorization of fabrication. This submittal may contain: detailed fabrication and assembly drawings, detailed analyses, equipment specifications, any computer generated files, and cost and schedule estimates. The approval process for hardware fabrication shall be as described in Section 3.1.4.

4.2 ENGINEERING AND FABRICATION DELIVERABLES

The Contractor shall provide the following items, as specified in the DO.

4.2.1 Drawings

The Contractor shall provide a minimum of three (3) copies of the design drawings for review. The Contractor shall provide reproducible second originals and a minimum of three (3) copies of each approved drawing at the completion of the job. CAD work shall be transmitted and received via drawing exchange format (DXF) files on the internet. If files cannot be sent via internet, then files on disks, tapes, or other media shall be utilized.

The drawings shall contain the required border (see Attachment 6) and shall be D-size unless otherwise specified in the DO. Drawings must meet MIL-STD-100E or the most current version and MIL-T-31000.

For work that includes both design and fabrication, the final Contractor generated drawings shall exhibit all changes incurred during fabrication and reflect "as-built" designs.

4.2.2 Stress Analysis

The Contractor shall provide a minimum of three (3) copies of the stress analysis as part of the hardware design submittals.

The stress analysis report shall contain all applicable as-built drawings, sketches, design loads, stress reports, stability reports, inspection reports and test reports, deviation requests, and design review documents that were performed to ensure the hardware meets specifications described in the DO. The report shall state the results of the analysis and indicate compliance and/or deviations from the DO specifications.

4.2.3 Specifications

The Contractor shall provide to the AGR three (3) copies of maintenance manuals, manufacturer's specifications, and specifications for equipment fabricated by a subcontractor. The Contractor shall also provide three (3) copies of the hardware assembly, installation and change procedures. The change procedures shall include sequential steps, torque values, alignment criteria to assemble, install, checkout or permit model configuration changes during a test program.

4.2.4 Inspection Reports

The Contractor shall provide to the AGR three (3) copies of the final inspection reports at the end of the requested job. The final inspection report shall contain certifications of the materials, fasteners, components and processes used for the hardware. Certifications shall meet the specifications of the DO and the NASA handbook (NHB) 5300.4 (1C). The final inspection report shall also include the results from the inspection of the hardware and their tolerances, and any Nonconformance Reports (NCRs).

5.0 STANDARDS/CODES

The nature of the research work at the ARC, LaRC and LeRC is such that conformance to various standards and codes shall be specified if required. Those that are applicable will be specified in each DO. Typical standards and codes which may be required of the Contractor are the following:

- AWS
- ASME Boiler and Pressure Vessel Code
- ANSI codes as sponsored by ASME
- Department of Transportation Regulations
- Mil- Specs/ Standards
- ASTM Standards
- NASA Standards and Handbooks
- Space Flight Specifications/Standards
- MSFC-STD-156
- ASNT Standard SNT-TC-1A
- IEEE
- ISA
- NEMA
- SAE

ARC;

- Mechanical and Structural Design Manual for the Systems Engineering Division,
- Ames-Moffett Instrument Recal/Calibration Systems Handbook (AHB 5339-3)

LaRC;

- Wind Tunnel Model Systems Criteria (LHB 1710.15), (May 1992)
- Calibration and Evaluation of Multicomponent Strain Gage Balances (March 1964)
- Recommended Strain Gage Application Procedures for Langley Balances, Transducers, Composite Materials and High Temperature Test Articles, (April 1994)

- Safety Clearance Procedures (Red Tag) (LHB 1710.10)
- Engineering Drawing System (LHB 7320.1) (October 1986)
- Langley Research Center Metrology Program (LHB 5330.9) (1986)
- General Criteria for Force and Stain Measurement Instrumentation

LeRC;

- NASA Lewis Wind Tunnel Model Systems Criteria (NASA Technical Memorandum 106565)
- NASA Lewis Propulsion System Customer Guide Manual (NASA Technical Memorandum 106569)
- NASA Lewis Propulsion System Laboratory Test Article System Criteria (NASA Technical Memorandum 106589)
- NASA Lewis Research Instrumentation Standards (June 1, 1996)
- Marshall Space Flight Center Standard 156 (April 2, 1962)

The Contractor shall adhere to the latest edition or supplements when utilizing the standards or codes set forth above.

6.0 GLOSSARY

AGR	Authorized Government Representative (as identified in the DO)
AISC	American Institute of Steel Construction
ARC	Ames Research Center
ASNT	American Society for Nondestructive Testing
ASTM	American Society for Testing Material
CAD	Computer Aided Design
CDR	Critical Design Review
CNC	Computerized Numerical Control
CO	Contracting Officer
COTR	Contracting Officer's Technical Representative
DO	Delivery Order
DIR	Design Integrity Report
DOD	Department of Defense
DXF	Design Exchange Format
ESP	Electronically Scanned Pressure
FEA	Finite Element Analysis
FS	Factor of Safety
IGES	Initial Graphic Exchange Specification
LaRC	Langley Research Center
LeRC	Lewis Research Center
MSDM	Mechanical and Structural Design Manual
NASA	National Aeronautics and Space Administration
NCR	Nonconformance Report
NDE	Nondestructive Examination
NURBS	Non-Uniform Rational B-Spline
PDR	Preliminary Design Review
RFP	Request for Proposal
RMS	root mean square (Surface Height Rating)
RTD	Resistance Temperature Detector

SECTION D - PACKAGING AND MARKING

D.1 PACKING, PACKAGING AND MARKING

(a) The Contractor shall notify the AGR three work days prior to the shipment of any hardware. All hardware shall be packaged as to eliminate any possible damage that could occur during shipping. All shipments shall be conducted with a creditable firm that is capable of tracking and/or tracing the shipment in event that any hardware should become lost during shipment. The Contractor shall identify lifting points on the hardware and shall specify any special handling requirements.

(b) The Contractor shall preserve, pack, and mark for shipment all items deliverable under this contract in accordance with good commercial practices and in accordance with instructions that may be specified by the Government in authorized delivery orders. Shipments shall be preserved, packed and marked to ensure both acceptance by common carrier and safe transportation at the most economical rate(s).

Markings for reports and other documentation shall be as set forth in Exhibit A , Contract Documentation Requirements.

(c) The Contractor's markings on shipping containers shall be clearly legible from a distance of 36 inches. The Contractor may mark by stencil, rubber stamp, or lacquer over a coated gummed label.

(d) Delivery orders may be placed for items used for space flight. In these instances the following markings shall be utilized:

(1) All markings for space flight items shall be blue in color. All shipping containers, shipping documents, and purchasing documents for these items shall be marked "ITEMS FOR SPACE FLIGHT USE."

(2) The Contractor shall prominently display a NASA Critical Space Item Label on the exterior of all Class I, Class II, and Class III interim packages and exterior shipping containers to alert all shipping and handling personnel to the criticality of the item in accordance with paragraph 303 of NHB 6000.1.

(e) The Contractor shall place identical requirements in all subcontracts.

SECTION E - INSPECTION AND ACCEPTANCE

E.1 NASA QUALITY MANAGEMENT SYSTEM POLICY (ISO 9000)

The Contractor shall establish and maintain a Quality Management System (QMS) that, as a minimum complies with the requirements of the International Organization for Standardization's "ISO 9000" Standard Series or the American National Standards Institute/American Society for Quality Control's "Q9000 Series" and associated documentation. The QMS shall be capable of providing adequate assurance that the requirements of the technical system specifications (Statement of Work) can be consistently met and compliance demonstrated. The QMS requirements are complementary to the technical requirements of the product. Specific product quality assurance requirements are contained in the Quality Assurance section of the Statement of Work in Section C.

E.2 FINAL INSPECTION AND ACCEPTANCE

Final inspection and acceptance of all items specified for delivery under this contract shall be accomplished by the Contracting Officer or the AGR at destination as specified in delivery orders.

SECTION F - DELIVERIES OR PERFORMANCE

F.1 DELIVERY

The documentation hardware and reports required by each DO produced under this contract shall be delivered in accordance with the schedule specified.

The reports and documentation required by Section J. Exhibit A, Contract Documentation Requirements; shall be delivered at the times and to the places specified therein.

F.2 PERIOD OF PERFORMANCE - DELIVERY ORDERS

A. The contract period of performance is five years.

B. Pursuant to Section I Clause 52.216-18 entitled "Ordering," orders may be issued from contract award through two weeks prior to the end of the contract term.

C. Any delivery order issued prior to the expiration of the period for issuance of delivery orders shall be completed, provided that the Contractor will not be required to perform any work beyond six (6) months after the period for issuance of delivery orders.

F.3 PLACE OF DELIVERY (LaRC 52.212-92) (OCT 1992)

Delivery shall be f.o.b. destination:

As specified in delivery orders.

F.4 PLACE(S) OF PERFORMANCE (LaRC 52.212-98) (OCT 1992)

The place(s) of performance shall be:

The Contractor's and/or subcontractor's facility; and other sites as may be designated by the delivery order.

SECTION G - CONTRACT ADMINISTRATION DATA

G.1 SUBMISSION AND PAYMENT OF VOUCHERS

A. Delivery orders placed on a fixed price basis will be paid as follows:

1. Public vouchers for fixed price delivery orders shall include a reference to this Contract NAS1-97032 and the Delivery Order Number. The Contractor's taxpayer identification number shall be included on the invoice.

2. Individual Delivery Orders will provide for customary progress payments if the Contractor will not be able to bill for the first delivery of products, or other performance milestones, for four months or more and will make expenditures for contract performance during the predelivery period that have a significant impact on the Contractor's working capital.

3. Pursuant to Section I Clauses 52.232-1 Payments (APR 1984), 52.232-16 Progress Payments (JUL 1991) Alternate 1 (AUG 1987) and 18-52.232-70 NASA Progress Payment Rates (DEC 1991) (Deviation), progress payments will be based on costs for the progress payment and liquidation rate indicated.

4. Requests for progress payments shall be in accordance with Section I Clause 18-52.232-82 entitled "Submission of Requests for Progress Payments (MAR 1989).

5. Payment for fixed price delivery orders for less than \$100,000 will be made after delivery and acceptance of all deliverable items and completion of all delivery order requirements. Partial payments may be authorized.

B. Payment for Cost Reimbursable Delivery Orders

1. Public Vouchers for payment of costs and fee shall include a reference to this Contract NAS1-97032 and the Delivery Order number. The Contractor's taxpayer identification number shall be included on the invoice.

2. Cost vouchers shall be submitted for approval through the cognizant DCAA office. Fee vouchers shall be submitted for approval through the ACO at the Center which awarded the delivery order.

3. The Contractor shall prepare vouchers as follows:

(1) One original Standard Form (SF) 1034, SF 1035, or equivalent Contractor's attachment.

(2) Seven copies of SF 1034A, SF 1035A, or equivalent Contractor's attachment.

(3) The Contractor shall mark SF 1034A copies 1, 2, 3, 4, and such other copies as may be directed by the Contracting Officer by insertion in the memorandum block the names and addresses as follows:

Division of the Center awarding DO;	(i) Copy 1 (orig. plus 2) to the NASA Financial Management
	(ii) Copy 2 Auditor;
	(iii) Copy 3 Contractor;
the DO; and	(iv) Copy 4 Contract Administration Office at the Center awarding
Center awarding DO.	(v) Copy 5 Contracting Officer's Technical Representative for

C. On a monthly basis, the Contractor shall provide the Administrative Contracting Officer at each Center with a summary invoice for all issued cost and fixed price delivery orders. The invoice shall include a breakout of each delivery order being invoiced for the monthly period.

D. Invoice Address

The specific address as set forth below is the designated payment office for fixed-price, cost and fee vouchers for purposes of the Prompt Payment clause of this contract. The Administrative Contracting Officer's office of the Center awarding the DO is the designated billing office for fixed price progress payments vouchers for purposes of the Prompt Payment clause. Invoices shall be forwarded to the appropriate address as follows and marked with the Contract Number NAS1-97032 and the specific delivery order number:

For Ames Delivery Orders:

National Aeronautics and Space Administration
Ames Research Center
Attn: Cost, Financial Analysis and Payments Branch, M/S 203-18
Moffett Field, CA 94035-1000

For Langley Delivery Orders:

National Aeronautics and Space Administration
 Langley Research Center
 Attn: Financial Management Division, M/S 175
 Hampton, VA 23681-0001

For Lewis Delivery Orders:

National Aeronautics and Space Administration
 Lewis Research Center
 Attn: Financial Management Division, M/S 500-303
 21000 Brookpark Road
 Cleveland, OH 44135

G.2 PROCEDURES FOR ISSUING DELIVERY ORDERS

A. Administrative Contracting Officers (ACO's) from NASA Ames Research Center, NASA Langley Research Center and NASA Lewis Research Center will be responsible for award and administration of their respective Center's delivery orders. Each of these Centers may issue and administer orders from NASA Centers other than those set forth above or for other Government agencies.

B. Orders will be issued by the cognizant ACO.

C. Individual orders may be either fixed price or cost-reimbursable.

D. For orders issued under multiple delivery order contracts, each awardee shall be provided a fair opportunity to be considered for each order in excess of \$2,500 with the exceptions as specified in the following paragraph. In selecting the awardee with whom to place orders, the ACO will consider past performance, quality of deliverables, cost control and price, or cost.

Awardees need not be given an opportunity to be considered for a particular order in excess of \$2,500 under multiple delivery order contracts if the Contracting Officer determines that -

1. The agency need for such supplies or services is of such urgency that providing such opportunity would result in unacceptable delays;

2. Only one such Contractor is capable of providing such supplies or services required at the level of quality required because the supplies or services ordered are unique or highly specialized;

3. The order should be issued on a sole-source basis in the interest of economy and efficiency as a logical follow-on to an order already issued under the contract, provided that all awardees were given a fair opportunity to be considered for the original order; or

4. It is necessary to place an order to satisfy a minimum guarantee.

E. The ACO need not contact each of the multiple contract awardees before selecting an order awardee if the ACO has information available to ensure that each multiple awardee is provided a fair opportunity to be considered for each order.

F. For those orders which are competed among the multiple contract awardees, the ACO will provide a solicitation to each awardee and will request a bid or proposal by a common cut-off date. The solicitation will include a Statement of Work, specifications, or drawings; required delivery date, and any special instructions or provisions. The awardees will be requested to provide either a firm fixed price

or estimated cost and fixed fee for the proposed delivery order (depending on whether the order is to be fixed price or cost-type). For cost-type orders, the awardees may be required to provide breakouts of the estimated labor hours or costs to perform the order. In some cases, the awardees may be requested to provide a brief implementation plan for the order.

G. Failure to perform certain delivery orders in accordance with the delivery order terms may cause the Government to suffer damages. Conversely, early delivery on certain delivery orders may be of additional value to the Government. Such terms will be specified in the solicitation for the order.

H. In some cases, the ACO may issue delivery orders for conceptual designs to be performed by more than one awardee, with the selection for any subsequent order for the detailed design to be based on the merits of the completed conceptual designs.

I. Orders may be issued orally, by facsimile or by electronic commerce methods.

J. After contract award(s) per Solicitation No. 1-64-GH.2755, no protest under FAR 33.1 is authorized in connection with the issuance or proposed issuance of an order under this contract except for a protest on the grounds that the order increases the scope, period, or maximum value of Contract No. NAS1-97032. In accordance with FAR 16.505(b)(4), the following individuals have been designated as the Delivery Order Ombudsman responsible for reviewing complaints from Contractors on delivery order contracts:

1. Ms. Jana M. Coleman at (415) 604-5963 for DOs issued from Ames Research Center

2. Dr. Belinda Adams (Call Sandra Ray at (757) 864-2428) for DOs issued from Langley Research Center

3. Dr. Julian Earls at (216) 433-3014 for DOs issued from Lewis Research Center

G.3 CONTENTS OF DELIVERY ORDERS

A. Orders will contain, as a minimum, the following information:

1. Order Number

(a) Order numbers issued by Langley Research Center will be numbered consecutively beginning with the number 10001.

(b) Order numbers issued by Ames Research Center will be numbered consecutively beginning with the number 20001.

(c) Order numbers issued by Lewis Research Center will be numbered consecutively beginning with the number 30001.

2. Date of Order and Contract Number NAS1-97032.

3. Statement of Work, Specifications and/or Drawings

4. Deliverables

5. Completion date and delivery schedule

6. Place of delivery and delivery instructions

7. Accounting and Appropriation Data
8. Estimated Cost (for cost-type orders)
9. Fixed Fee (if applicable, for cost-type orders)
10. Incremental Funding

For Cost Type Orders

- (a) Amount allotted for cost
- (b) Additional amount obligated for payment of fee, if applicable
11. Fixed Price (for fixed-price type orders)
12. Applicable special instructions or provisions
13. Government-Furnished Items

B. Each delivery order shall require the Contractor to acknowledge receipt and acceptance of the delivery order within 10 calendar days after issuance.

SECTION H - SPECIAL CONTRACT REQUIREMENTS

H.1 CONTRACTOR SECURITY REQUIREMENTS

A. Contractor Employee's Security Clearance (June 1996)

Due to certain work assignments, Contractor employees may be required to have a security clearance granted in accordance with Department of Defense (DoD) 5220.22M, "National Industrial Security Program Operations Manual" (NISPOM). Clearances will be issued by the DoD/Cognizant Security Authority (CSA). Within 10 working days after an employee is identified by the Government and/or the Contractor as requiring a personnel clearance (PCL), the Contractor shall submit to the procuring Contracting Officer at NASA Langley Research Center proof of the submittal of a request for PCL to the CSA for such employee. If the clearance for the employee has not been issued by the CSA within 120 calendar days of submittal of request for personnel clearance, the Contractor may be required to remove the employee from the position requiring the clearance. In no case will an employee be granted access to classified information until a verification of clearance has been received by the Government and Contractor.

B. The Contractor's on-site supervisor shall comply with all applicable NASA Badge and Property Regulations. A synopsis of applicable Badge and Property Regulations are quoted below:

1. BADGES

a. All Contractor personnel having a need to enter the NASA Center, or its facilities, shall be required to be registered and badged by the Center's Employee Badging Office.

b. On the first day of work, the employee will be issued a temporary badge and directed to the Contractor work site. As soon as practical, the employee must bring the completed "Non-Government Employee Security Badging Packet" to the Employee Badging Office. Employees will be required to submit a completed badging packet for each badge issued, including renewals. Fingerprints will be taken, if necessary, and a temporary badge and/or vehicle pass will be issued. All

terminating employees must check out through the Center Employee Badging Office upon final departure from the Center.

c. It is the Contractor's responsibility to ensure that each employee or Contractor representative wear and prominently display their identification badge at all times while they are on the NASA Center or its facilities. Badges shall be worn in such a manner as to be clearly visible at all times. Contractors will be held accountable for all issued badges, and may be required to validate outstanding badges on an annual basis with the NASA Center's Security Office.

d. All employees must report lost or missing badges immediately to the Center Employee Badging Office.

e. The Contractor shall insure that all terminated employees or employees no longer connected with the work being performed under this contract are processed through the Center Employee Badging Office. All NASA keys must be returned to the Center Locksmith Office and all NASA identification badges must be returned to the Center Employee Badging Office. If a computer account has been established, the account must be closed and deactivated.

f. Upon termination of duties, each Contractor employee's badge will be collected and returned to the Center Employee Badging Office by the Contractor supervisor or foreman. Final clearance of a Contractor will depend, in part, upon accounting for all badges issued to their employees during the performance of the contract. It should be recognized that security badges are Government property and any alteration or misuse of these badges is a violation of Federal law and may be prosecuted under Section 499, Title 18, of the US Code, Crimes and Criminal Procedure.

2. EMERGENCIES

a. The Contractor shall ensure that its employees are informed that Emergency, Fire, Medical, Safety, and Security assistance can be summoned by Dialing "911" on the Center's telephone system. Emergencies are defined as an incident involving serious personal injury, incidents that cause a possible hazardous condition, or any incident that requires the immediate attention of Security or Emergency Services Personnel. All other medical treatment is the responsibility of the Contractor.

b. For incidents not classified as an emergency, Contractor personnel shall be instructed to immediately notify the appropriate office as defined by each Center (rather than dialing "911"). This includes damage to motor vehicles. Contractor employees shall cooperate fully with any Government Accident Investigator and the Center Accident Investigation Board. This cooperation shall include interviews at the accident site and/or at a Board meeting.

c. The Chairman of any Accident Investigation Board will notify the Contractor through the COTR, or other appropriate channels, as to the date, time and location of the Board meeting.

d. For Contractor duties where continuous staffing of posts is mandatory during a work shift, the Contractor shall provide substitute personnel as required for staffing these posts during the meeting of any Accident Investigation Boards.

3. TRAFFIC

a. The Contractor agrees to require all of its personnel to comply with all posted traffic signs, signals, speed limits, instructions of traffic control personnel, parking and with all other regulations deemed necessary by the Center.

b. The Government reserves the right to bar from the NASA Center any Contractor or Contractor employee that fails to comply with any traffic or driving regulation, such as signs, signals, and/or other vehicle instructions.

c. The period of the debarment shall be determined by appropriate Center Personnel subject to the provisions of the NASA Center.

d. The Contracting Officer will notify the Contractor in writing, setting forth the name(s) of the affected employee(s) and the time period(s) of the debarment(s). No action by the Government in barring any Contractor employee from the Center shall be basis for any claim whatever by the Contractor under this contract, nor shall it excuse the Contractor from complying with any provision of this contract.

4. STANDARDS OF CONDUCT

The Contractor agrees to comply, and agrees to require that all of its personnel will comply, with all applicable Federal, State and local statutes, regulations, NASA Management Instructions (NMI's), Center regulations, policies, and procedures pertaining to personal conduct while at NASA facilities. Any conduct prejudicial to the efficient operation of the Center shall be cause for removal from the Center.

5. PROHIBITION OF FIREARMS

Firearms or weapons of any kind are strictly prohibited at all NASA Centers.

6. SECURITY INCIDENTS

Theft of property, bomb threats, malicious damage and any other threat of personal harm or violent situation shall be immediately reported to the Center's Dispatch Office by dialing "911".

7. PROPERTY REGULATIONS

a. The Contractor shall require its employees to observe all rules and regulations as prescribed by the authorities at the NASA Center or other installations where access is requested for the purpose of performing work under the terms of the contract.

b. A Property Pass is required for the removal of Contractor or Government owned property or equipment from the Center. Upon exiting, the pass shall be available for presentation to the gate guard if requested. This form can be obtained from the COTR (or designee) or the employee responsible for the Contractor's presence on the Center. This form must contain a complete description of the material or equipment being removed and must be signed by an authorized Government employee. Material relating to a specific contract or purchase order must be identified by insertion of the appropriate contract or purchase order number on the pass by the COTR or designee.

8. AFTER-HOURS ACCESS

Contractor will be authorized access to the NASA facility during normal working hours. After hours access must be requested, in writing, by the Contractor. Requests will be submitted through the COTR or other appropriate personnel who will then make the request to the Center's Security Office.

H.2 TERMINATION

The FAR clauses 52.249-1, Termination for Convenience of the Government (Fixed-Price) (Short Form) (APR 1984), 52.249-2, Termination for Convenience of the Government (Fixed-Price)

(APR 1984), 52.249-6, Termination (Cost-Reimbursement) (MAY 1986) and 52.249-8, Default (Fixed-Price Supply and Services) (APR 1984) apply to the contract as a whole and to each individual delivery order issued under this contract. Thus, an individual delivery order may be terminated either for default or for the convenience of the Government.

H.3 INCORPORATION OF SECTION K OF THE PROPOSAL BY REFERENCE
(LaRC 52.215-107) (MAR 1989)

Pursuant to FAR 15.406-1(b), the completed Section K of the proposal dated _____ is hereby incorporated herein by reference.

H.4 TRANSPORTATION OF HAZARDOUS MATERIALS

Performance of work may require the use of hazardous materials. The Contractor shall comply with Department of Transportation (DOT) requirements for transporting materials.

I.1 NOTICE: THE FOLLOWING CLAUSES ARE APPLICABLE TO BOTH FIRM-FIXED PRICE DELIVERY ORDERS AND COST REIMBURSABLE DELIVERY ORDERS ISSUED UNDER THIS CONTRACT.

PART II - CONTRACT CLAUSES

SECTION I - CONTRACT CLAUSES

I.2 LISTING OF CLAUSES INCORPORATED BY REFERENCE:

NOTICE: The following solicitation provisions and/or contract clauses pertinent to this section are hereby incorporated by reference.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

<u>CLAUSE NUMBER</u>	<u>TITLE AND DATE</u>
52.202-1	Definitions (OCT 1995)
52.203-3	Gratuities (APR 1984)
52.203-5	Covenant Against Contingent Fees (APR 1984)
52.203-6	Restrictions on Subcontractor Sales to the Government (JUL 1995)
52.203-7	Anti-Kickback Procedures (JUL 1995)
52.203-10	Price or Fee Adjustment for Illegal or Improper Activity (SEP 1990)
52.203-12	Limitation on Payments to Influence Certain Federal Transactions (JAN 1990)
52.204-2	Security Requirements (APR 1984)
52.204-4	Printing/Copying Double-Sided on Recycled Paper (MAY 1995)
52.209-6	Protecting the Government's Interest when Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment (JUL 1995)
52.211-5	New Material (MAY 1995)
52.211-7	Other Than New Material, Residual Inventory and Former Government Surplus Property (MAY 1995)
52.211-15	Defense Priority and Allocation Requirements (SEP 1990)
52.215-2	Audit and Records--Negotiation (OCT 1995)
52.215-26	Integrity of Unit Prices (OCT 1995)
52.215-33	Order of Precedence (JAN 1986)
52.215-42	Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data - Modifications (OCT 1995)
52.219-6	Notice of Total Small Business Set-Aside (APR 1984)

52.219-8	Utilization of Small, Small Disadvantaged and Women-Owned Small Business Concerns (OCT 1995)
52.219-14	Limitations on Subcontracting (JAN 1991)
52.222-1	Notice to the Government of Labor Disputes (APR 1984)
52.222-20	Walsh-Healy Public Contracts Act (APR 1984)
52.222-26	Equal Opportunity (APR 1984)
52.222-28	Equal Opportunity Preaward Clearance of Subcontracts (APR 1984)
52.222-35	Affirmative Action for Special Disabled and Vietnam Era Veterans (APR 1984)
52.222-36	Affirmative Action for Handicapped Workers (APR 1984)
52.222-37	Employment Reports on Special Disabled Veterans and Veterans of the Vietnam Era (JAN 1988)
52.223-2	Clean Air and Water (APR 1984)
52.223-6	Drug-Free Workplace (JUL 1990)
52.223-14	Toxic Chemical Release Reporting (OCT 1995)
52.225-9	Buy American Act - Trade Agreements - Balance of Payments Program (JAN 1996)
52.225-11	Restrictions on Certain Foreign Purchases (MAY 1992)
52.227-1	Authorization and Consent (JUL 1995)
52.227-2	Notice and Assistance Regarding Patent and Copyright Infringement (APR 1984)
52.232-17	Interest (JAN 1996)
52.232-18	Availability of Funds (APR 1984)
52.232-23	Assignment of Claims (JAN 1986)
52.232-25	Prompt Payment (MAR 1994)
52.232-28	Electronic Funds Transfer Payment Methods (APR 1989)--as modified by NASA FAR Supplement 18-32.908
52.233-1	Disputes (OCT 1995) Alternate I (DEC 1991)
52.233-3	Protest After Award (OCT 1995)
52.237-2	Protection of Government Buildings, Equipment and Vegetation (APR 1984)
52.242-13	Bankruptcy (JUL 1995)
52.244-5	Competition in Subcontracting (JAN 1996)
52.244-6	Subcontracts for Commercial Items and Commercial Components (OCT 1995)
52.246-23	Limitation of Liability (APR 1984)
52.247-34	F.o.b. Destination (NOV 1991)
52.247-48	F.o.b. Destination--Evidence of Shipment (APR 1984)
52.248-1	Value Engineering (MAR 1989)
52.252-2	Clauses Incorporated by Reference (JUN 1988)
52.253-1	Computer Generated Forms (JAN 1991)

NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

<u>CLAUSE NUMBER</u>	<u>TITLE AND DATE</u>
18-52.212-70	Notice of Delay (DEC 1988)
18-52.219-74	Use of Rural Area Small Businesses (SEP 1990)
18-52.219-76	NASA Small Disadvantaged Business Goal (JUL 1991)
18-52.223-70	Safety and Health (FEB 1996)
18-52.227-86	Commercial Computer Software - Licensing (DEC 1987)
18-52.242-73	NASA Contractor Financial Management Reporting (APR 1994)
18-52.245-70	Acquisition of Centrally Reportable Equipment (MAR 1989)
18-52.246-73	Manned Space Flight Item (OCT 1988) [NOTE: Clause 18-52.246-73 pertains only to delivery orders for manned space flight items. . These orders will be marked accordingly.]

I.3 CLAUSES IN FULL TEXT

The clauses listed below follow in full text:

52.203-9	Requirement for Certificate of Procurement Integrity - Modification (SEP 1995)
52.216-18	Ordering (OCT 1995)
52.216-19	Order Limitations (OCT 1995)
52.216-22	Indefinite Quantity (OCT 1995)
52.223-3	Hazardous Material Identification and Material Safety Data (NOV 1991) Alternate I (JUL 1995)
52.223-11	Ozone-Depleting Substances (MAY 1995)
52.227-14	Rights in Data - General (JUN 1987) Alternate II (JUN 1987) and Alternate III (JUN 1987)--as modified by NASA FAR Supplement 18-52.227-14
52.227-23	Rights to Proposal Data (Technical) (JUN 1987)
52.246-11	Higher-Level Contract Quality Requirement (Government Specification) (APR 1984)
52.252-6	Authorized Deviations in Clauses (APR 1984)
18-52.204-75	Security Classification Requirements (SEP 1989)
18-52.215-84	Ombudsman (OCT 1995)
18-52.223-72	Potentially Hazardous Items (DEC 1988)
18-52.245-73	Financial Reporting of Government-Owned/Contractor-Held Property (JUL 1994)
18-52.245-78	Space Hardware Reporting (MAR 1989)
18-52.246-72	Material Inspection and Receiving Report (JUN 1995)
18-52.247-72	Advance Notice of Shipment (OCT 1988)

I.4 REQUIREMENT FOR CERTIFICATE OF PROCUREMENT INTEGRITY--MODIFICATION (FAR 52.203-9) (SEP 1995)

- (a) Definitions. The definitions set forth in FAR 3.104-4 are hereby incorporated in this clause.
- (b) The Contractor agrees that it will execute the certification set forth in paragraph (c) of this clause when requested by the contracting officer in connection with the execution of any modification of this contract.
- (c) Certification. As required in paragraph (b) of this clause, the officer or employee responsible for the modification proposal shall execute the following certification. The certification in paragraph (c)(2) of this clause is not required for a modification which procures commercial items.

CERTIFICATE OF PROCUREMENT INTEGRITY--MODIFICATION (SEP 1995)

(1) I, _____,
[Name of certifier]

am the officer or employee responsible for the preparation of this modification proposal and hereby certify that, to the best of my knowledge and belief, with the exception of any information described in this certification, I have no information concerning a violation or possible violation of subsections 27(a), (b), (d), or (f) of the Office of Federal Procurement Policy Act, as amended* (41 U.S.C. 423), (hereinafter referred to as "the Act"), as implemented in the FAR, occurring during the conduct of this procurement _____.

(contract and modification number).

(2) As required by subsection 27(e)(1)(B) of the Act, I further certify that, to the best of my knowledge and belief, each officer, employee, agent, representative, and consultant of

[Name of Offeror]

who has participated personally and substantially in the preparation or submission of this proposal has certified that he or she is familiar with, and will comply with, the requirements of subsection 27(a) of the Act, as implemented in the FAR, and will report immediately to me any information concerning a violation or possible violation of subsections 27(a), (b), (d), or (f) of the Act, as implemented in the FAR, pertaining to this procurement.

(3) Violations or possible violations: (Continue on plain bond paper if necessary and label Certificate of Procurement Integrity--Modification (Continuation Sheet), ENTER NONE IF NONE EXIST)

[Signature of the officer or employee responsible for the modification proposal and date]

[Typed name of the officer or employee responsible for the modification proposal]

*Subsections 27(a), (b), and (d) are effective on December 1, 1990.
Subsection 27(f) is effective on June 1, 1991.

THIS CERTIFICATION CONCERNS A MATTER WITHIN THE JURISDICTION OF AN AGENCY OF THE UNITED STATES AND THE MAKING OF A FALSE, FICTITIOUS, OR FRAUDULENT CERTIFICATION MAY RENDER THE MAKER SUBJECT TO PROSECUTION UNDER TITLE 18, UNITED STATES CODE, SECTION 1001.

(End of certification)

(d) In making the certification in paragraph (2) of the certificate, the officer or employee of the competing Contractor responsible for the offer or bid, may rely upon a one-time certification from each individual required to submit a certification to the competing Contractor, supplemented by periodic training. These certifications shall be obtained at the earliest possible date after an individual required to certify begins employment or association with the Contractor. If a Contractor decides to rely on a certification executed prior to suspension of Section 27 (i.e., prior to December 1, 1989), the Contractor shall ensure that an individual who has so certified is notified that Section 27 has been reinstated. These certifications shall be maintained by the Contractor for a period of 6 years from the date a certifying employee's employment with the company ends or, for an agency, representative, or consultant, 6 years from the date such individual ceases to act on behalf of the Contractor.

(e) The certification required by paragraph (c) of this clause is a material representation of fact upon which reliance will be placed in executing this modification.

I.5 ORDERING (FAR 52.216-18) (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders or task orders by the individuals or activities designated in the Schedule. Such orders may be issued from contract award date through two weeks prior to the end of the contract term.

(b) All delivery orders or task orders are subject to the terms and conditions of this contract. In the event of conflict between a delivery order or task order and this contract, the contract shall control.

(c) If mailed, a delivery order or task order is considered "issued" when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

I.6 ORDER LIMITATIONS (FAR 52.216-19) (OCT 1995)

(a) Minimum order. When the Government requires supplies or services covered by this contract in an amount of less than \$1,000, the Government is not obligated to purchase, nor is the Contractor obligated to furnish, those supplies or services under the contract.

(b) Maximum order. The Contractor is not obligated to honor--

- (1) Any order for a single item in excess of \$1,000,000;
- (2) Any order for a combination of items in excess of \$3,000,000; or
- (3) A series of orders from the same ordering office within 15 working days that together call for quantities exceeding the limitation in subparagraph (1) or (2) above.

(c) If this is a requirements contract (i.e., includes the Requirements clause at subsection 52.216-21 of the Federal Acquisition Regulation (FAR)), the Government is not required to order a part of any one requirement from the Contractor if that requirement exceeds the maximum-order limitations in paragraph (b) above.

(d) Notwithstanding paragraphs (b) and (c) above, the Contractor shall honor any order exceeding the maximum order limitations in paragraph (b), unless that order (or orders) is returned to the ordering office within 5 working days after issuance, with written notice stating the Contractor's intent not to ship the item (or items) called for and the reasons. Upon receiving this notice, the Government may acquire the supplies or services from another source.

I.7 INDEFINITE QUANTITY (FAR 52.216-22) (OCT 1995)

(a) This is an indefinite-quantity contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies and services specified in the Schedule are estimates only and are not purchased by this contract.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. The Contractor shall furnish to the Government, when and if ordered, the supplies or services specified in the Schedule up to and including the quantity designated in the Schedule as the "maximum." The Government shall order at least the quantity of supplies or services designated in the Schedule as the "minimum."

(c) Except for any limitations on quantities in the Order Limitations clause or in the Schedule, there is no limit on the number of orders that may be issued. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(d) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after 6 months after the period for issuance of DOs.

I.8 HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA (FAR 52.223-3) (NOV 1991)--ALTERNATE I (JUL 1995)

(a) "Hazardous material," as used in this clause, includes any material defined as hazardous under the latest version of Federal Standard No. 313 (including revisions adopted during the term of the contract).

(b) The offeror must list any hazardous material, as defined in paragraph (a) of this clause, to be delivered under this contract. The hazardous material shall be properly identified and include any applicable identification number, such as National Stock Number or Special Item Number. This information shall also be included on the Material Safety Data Sheet submitted under this contract.

Material [If none, insert None]

Identification No.

(c) The apparently successful offeror, by acceptance of the contract, certifies that the list in paragraph (b) of this clause is complete. This list must be updated during the performance of the contract whenever the Contractor determines that any other material to be delivered under this contract is hazardous.

(d) The apparently successful offeror agrees to submit, for each item as required, prior to award, a Material Safety Data Sheet, meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous material identified in paragraph (b) of this clause. Data shall be submitted in accordance with Federal Standard No. 313, whether or not the apparently successful offeror is the actual manufacturer of these items. Failure to submit the Material Safety Data Sheet prior to award may result in the apparently successful offeror being considered nonresponsible and ineligible for award.

(e) If, after award, there is a change in the composition of the item(s) or a revision to Federal Standard No. 313, which renders incomplete or inaccurate the data submitted under paragraph (d) of this clause or the certification submitted under paragraph (c) of this clause, the Contractor shall promptly notify the Contracting Officer and resubmit the data.

(f) Neither the requirements of this clause nor any act or failure to act by the Government shall relieve the Contractor of any responsibility or liability for the safety of Government, Contractor, or subcontractor personnel or property.

(g) Nothing contained in this clause shall relieve the Contractor from complying with applicable Federal, State, and local laws, codes, ordinances, and regulations (including the obtaining of licenses and permits) in connection with hazardous material.

(h) The Government's rights in data furnished under this contract with respect to hazardous material are as follows:

(1) To use, duplicate, and disclose any data to which this clause is applicable. The purposes of this right are to--

(i) Apprise personnel of the hazards to which they may be exposed in using, handling, packaging, transporting, or disposing of hazardous materials;

(ii) Obtain medical treatment for those affected by the material; and

(iii) Have others use, duplicate, and disclose the data for the Government for these purposes.

(2) To use, duplicate, and disclose data furnished under this clause, in accordance with subparagraph (h)(1) of this clause, in precedence over any other clause of this contract providing for rights in data.

(3) The Government is not precluded from using similar or identical data acquired from other sources.

(l) Except as provided in paragraph (i)(2), the Contractor shall prepare and submit a sufficient number of Material Safety Data Sheets (MSDS's), meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous materials identified in paragraph (b) of this clause.

(1) For items shipped to consignees, the Contractor shall include a copy of the MSDS's with the packing list or other suitable shipping document which accompanies each shipment. Alternatively, the Contractor is permitted to transmit MSDS's to consignees, in advance of receipt of shipments by consignees, if authorized in writing by the Contracting Officer.

(2) For items shipped to consignees identified by mailing address as agency depots, distribution centers or customer supply centers, the Contractor shall provide one copy of the MSDS's in or on each shipping container. If affixed to the outside of each container, the MSDS's must be placed in a weather resistant envelope.

I.9 OZONE-DEPLETING SUBSTANCES (FAR 52.223-11) (MAY 1995)

(a) Definitions.

"Class I substance," as used in this clause, means any substance designated as class I by the Environmental Protection Agency (EPA) (40 CFR Part 82), including but not limited to chlorofluorocarbons, halons, carbon tetrachloride, and methylchloroform.

"Class II substance," as used in this clause, means any substance designated as class II by EPA (40 CFR Part 82), including but not limited to hydrochlorofluorocarbons.

(b) As required by 42 U.S.C. 7671j(b), (c), and (d) and 40 CFR Part 82, Subpart E, the Contractor shall label products which contain a class I or class II ozone-depleting substance or are manufactured with a process that uses class I or class II ozone-depleting substances, or containers of class I or class II ozone-depleting substances, as follows:

"WARNING: Contains (or manufactured with, if applicable) _____ * _____, a substance(s) which harm(s) public health and environment by destroying ozone in the upper atmosphere."

*The Contractor shall insert the name of the substance(s).

I.10 RIGHTS IN DATA - GENERAL (FAR 52.227-14) (JUN 1987) ALTERNATE II (JUN 1987) AND ALTERNATE III (JUN 1987) AS MODIFIED BY NASA FAR SUPPLEMENT 18-52.227-14

(a) Definitions.

"Computer software," as used in this clause, means computer programs, computer data bases, and documentation thereof.

"Data," as used in this clause, means recorded information, regardless of form or the media on which it may be recorded. The term includes technical data and computer software. The term does not include information incidental to contract administration, such as financial, administrative, cost or pricing, or management information.

"Form, fit, and function data," as used in this clause, means data relating to items, components, or processes that are sufficient to enable physical and functional interchangeability, as well as data identifying source, size, configuration, mating, and attachment characteristics, functional characteristics, and performance requirements; except that for computer software it means data identifying source, functional characteristics, and performance requirements but specifically excludes the source code, algorithm, process, formulae, and flow charts of the software.

"Limited rights," as used in this clause, means the rights of the Government in limited rights data as set forth in the Limited Rights Notice of subparagraph (g)(2) if included in this clause.

"Limited rights data," as used in this clause, means data (other than computer software) that embody trade secrets or are commercial or financial and confidential or privileged, to the extent that such data pertain to items, components, or processes developed at private expense, including minor modifications thereof.

"Restricted computer software," as used in this clause, means computer software developed at private expense and that is a trade secret; is commercial or financial and is confidential or privileged; or is published copyrighted computer software; including minor modifications of such computer software.

"Restricted rights," as used in this clause, means the rights of the Government in restricted computer software, as set forth in a Restricted Rights Notice of subparagraph (g)(3) if included in this clause, or as otherwise may be provided in a collateral agreement incorporated in and made part of this contract, including minor modifications of such computer software.

"Technical data," as used in this clause, means data (other than computer software) which are of a scientific or technical nature.

"Unlimited rights," as used in this clause, means the right of the Government to use, disclose, reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, in any manner and for any purpose, and to have or permit others to do so.

(b) Allocation of rights.

(1) Except as provided in paragraph (c) of this clause regarding copyright, the Government shall have unlimited rights in -

- (i) Data first produced in the performance of this contract;
- (ii) Form, fit, and function data delivered under this contract;

(iii) Data delivered under this contract (except for restricted computer software) that constitute manuals or instructional and training material for installation, operation, or routine maintenance and repair of items, components, or processes delivered or furnished for use under this contract; and

(iv) All other data delivered under this contract unless provided otherwise for limited rights data or restricted computer software in accordance with paragraph (g) of this clause.

(2) The Contractor shall have the right to -

(i) Use, release to others, reproduce, distribute, or publish any data first produced or specifically used by the Contractor in the performance of this contract, unless provided otherwise in paragraph (d) of this clause;

(ii) Protect from unauthorized disclosure and use those data which are limited rights data or restricted computer software to the extent provided in paragraph (g) of this clause;

(iii) Substantiate use of, add or correct limited rights, restricted rights, or copyright notices and to take other appropriate action, in accordance with paragraphs (e) and (f) of this clause; and

(iv) Establish claim to copyright subsisting in data first produced in the performance of this contract to the extent provided in subparagraph (c)(1) of this clause.

(c) Copyright.

(1) Data first produced in the performance of this contract. Unless provided otherwise in paragraph (d) of this clause, the Contractor may establish, without prior approval of the Contracting Officer, claim to copyright subsisting in scientific and technical articles based on or containing data first produced in the performance of this contract and published in academic, technical or professional journals, symposia proceedings or similar works. The prior, express written permission of the Contracting Officer is required to establish claim to copyright subsisting in all other data first produced in the performance of this contract. When claim to copyright is made, the Contractor shall affix the applicable copyright notices of 17 U.S.C. 401 or 402 and acknowledgment of Government sponsorship (including contract number) to the data when such data are delivered to the Government, as well as when the data are published or deposited for registration as a published work in the U.S. Copyright Office. For data other than computer software the Contractor grants to the Government, and others acting on its behalf, a paid-up, nonexclusive, irrevocable worldwide license in such copyrighted data to reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, by or on behalf of the Government. For computer software, the Contractor grants to the Government and others acting in its behalf, a paid-up nonexclusive, irrevocable worldwide license in such copyrighted computer software to reproduce, prepare derivative works, and perform publicly and display publicly by or on behalf of the Government.

(2) Data not first produced in the performance of this contract. The Contractor shall not, without prior written permission of the Contracting Officer, incorporate in data delivered under this contract any data not first produced in the performance of this contract and which contains the copyright notice of 17 U.S.C. 401 or 402, unless the Contractor identifies such data and grants to the Government, or acquires on its behalf, a license of the same scope as set forth in subparagraph (c)(1) of this clause; provided, however, that if such data are computer software the Government shall acquire a copyright license as set forth in subparagraph (g)(3) of this clause if included in this contract or as otherwise may be provided in a collateral agreement incorporated in or made part of this contract.

(3) Removal of copyright notices. The Government agrees not to remove any copyright notices placed on data pursuant to this paragraph (c), and to include such notices on all reproductions of the data.

(d) Release, publication and use of data.

(1) The Contractor shall have the right to use, release to others, reproduce, distribute, or publish any data first produced or specifically used by the Contractor in the performance of this contract, except to the extent such data may be subject to the Federal export control or national security laws or regulations, or unless otherwise provided in this paragraph of this clause or expressly set forth in this contract.

(2) The Contractor agrees that to the extent it receives or is given access to data necessary for the performance of this contract which contain restrictive markings, the Contractor shall treat the data in accordance with such markings unless otherwise specifically authorized in writing by the Contracting Officer.

(3) The Contractor agrees not to establish claim to copyright nor to publish or release to others any computer software first produced in the performance of this contract without the prior written permission of the Contracting Officer.

(e) Unauthorized marking of data.

Notwithstanding any other provisions of this contract concerning inspection or acceptance, if any data delivered under this contract are marked with the notices specified in subparagraph (g)(2) or (g)(3) of this clause and use of such is not authorized by this clause, or if such data bears any other restrictive or limiting markings not authorized by this contract, the Contracting Officer may at any time either return the data to the Contractor, or cancel or ignore the markings. However, the following procedures shall apply prior to canceling or ignoring the markings.

(i) The Contracting Officer shall make written inquiry to the Contractor affording the Contractor 30 days from receipt of the inquiry to provide written justification to substantiate the propriety of the markings;

(ii) If the Contractor fails to respond or fails to provide written justification to substantiate the propriety of the markings within the 30-day period (or a longer time not exceeding 90 days approved in writing by the Contracting Officer for good cause shown), the Government shall have the right to cancel or ignore the markings at any time after said period and the data will no longer be made subject to any disclosure prohibitions.

(iii) If the Contractor provides written justification to substantiate the propriety of the markings within the period set in subdivision (e)(1)(i) of this clause, the Contracting Officer shall consider such written justification and determine whether or not the markings are to be cancelled or ignored. If the Contracting Officer determines that the markings are authorized, the Contractor shall be so notified in writing. If the Contracting Officer determines, with concurrence of the head of the contracting activity, that the markings are not authorized, the Contracting Officer shall furnish the Contractor a written determination, which determination shall become the final agency decision regarding the appropriateness of the markings unless the Contractor files suit in a court of competent jurisdiction within 90 days of receipt of the Contracting Officer's decision. The Government shall continue to abide by the markings under this subdivision (e)(1)(iii) until final resolution of the matter either by the Contracting Officer's determination becoming final (in which instance the Government shall thereafter have the right to cancel or ignore the markings at any time and the data will no longer be made subject to any disclosure prohibitions), or by final disposition of the matter by court decision if suit is filed.

(2) The time limits in the procedures set forth in subparagraph (e)(1) of this clause may be modified in accordance with agency regulations implementing the Freedom of Information Act (5 U.S.C. 552) if necessary to respond to a request thereunder.

(3) This paragraph (e) does not apply if this contract is for a major system or for support of a major system by a civilian agency other than NASA and the U.S. Coast Guard agency subject to the provisions of Title III of the Federal Property and Administrative Services Act of 1949.

(4) Except to the extent the Government's action occurs as the result of final disposition of the matter by a court of competent jurisdiction, the Contractor is not precluded by this paragraph (e) from bringing a claim under the Contract Disputes Act, including pursuant to the Disputes clause of this contract, as applicable, that may arise as the result of the Government removing or ignoring authorized markings on data delivered under this contract.

(f) Omitted or incorrect markings.

(1) Data delivered to the Government without either the limited rights or restricted rights notice as authorized by paragraph (g) of this clause, or the copyright notice required by paragraph (c) of this clause, shall be deemed to have been furnished with unlimited rights, and the Government assumes no liability for the disclosure, use, or reproduction of such data. However, to the extent the data has not been disclosed without restriction outside the Government, the Contractor may request, within 6 months (or a longer time approved by the Contracting Officer for good cause shown) after delivery of such data, permission to have notices placed on qualifying data at the Contractor's expense, and the Contracting Officer may agree to do so if the Contractor -

- (i) Identifies the data to which the omitted notice is to be applied;
- (ii) Demonstrates that the omission of the notice was inadvertent;
- (iii) Establishes that the use of the proposed notice is authorized; and

(iv) Acknowledges that the Government has no liability with respect to the disclosure, use, or reproduction of any such data made prior to the addition of the notice or resulting from the omission of the notice.

(2) The Contracting Officer may also (i) permit correction at the Contractor's expense of incorrect notices if the Contractor identifies the data on which correction of the notice is to be made, and demonstrates that the correct notice is authorized, or (ii) correct any incorrect notices.

(g) Protection of limited rights data and restricted computer software.

(1) When data other than that listed in subdivisions (b)(1)(i), (ii), and (iii) of this clause are specified to be delivered under this contract and qualify as either limited rights data or restricted computer software, if the Contractor desires to continue protection of such data, the Contractor shall withhold such data and not furnish them to the Government under this contract. As a condition to this withholding, the Contractor shall identify the data being withheld and furnish form, fit, and function data in lieu thereof. Limited rights data that are formatted as a computer data base for delivery to the Government are to be treated as limited rights data and not restricted computer software.

(2) Notwithstanding subparagraph (g)(1) of this clause, the contract may identify and specify the delivery of limited rights data, or the Contracting Officer may require by written request the delivery of limited rights data that has been withheld or would otherwise be withholdable. If delivery of such data is so required, the Contractor may affix the following "Limited Rights Notice" to the data and the Government will thereafter treat the data, subject to the provisions of paragraphs (e) and (f) of this clause, in accordance with such Notice:

LIMITED RIGHTS NOTICE (JUN 1987)

(a) These data are submitted with limited rights under Government Contract No. NAS1-97032, (and subcontract _____, if appropriate). These data may be reproduced and used by the Government with the express limitation that they will not, without written permission of the Contractor, be used for purposes of manufacture nor disclosed outside the Government; except that the Government may disclose these data outside the Government for the following purposes, if any, provided that the Government makes such disclosure subject to prohibition against further use and disclosure:

(b) This Notice shall be marked on any reproduction of these data, in whole or in part.

(End of notice)

(3) (i) Notwithstanding subparagraph (g)(1) of this clause, the contract may identify and specify the delivery of restricted computer software, or the Contracting Officer may require by written request the delivery of restricted computer software that has been withheld or would otherwise be withholdable. If delivery of such computer software is so required, the Contractor may affix the following "Restricted Rights Notice" to the computer software and the Government will thereafter treat the computer software, subject to paragraphs (e) and (f) of this clause, in accordance with the Notice:

RESTRICTED RIGHTS NOTICE (JUN 1987)

(a) This computer software is submitted with restricted rights under Government Contract No. NAS1-97032 (and subcontract _____, if appropriate). It may not be used, reproduced, or disclosed by the Government except as provided in paragraph (b) of this Notice or as otherwise expressly stated in the contract.

(b) This computer software may be -

(1) Used or copied for use in or with the computer or computers for which it was acquired, including use at any Government installation to which such computer or computers may be transferred;

(2) Used or copied for use in a backup computer if any computer for which it was acquired is inoperative;

(3) Reproduced for safekeeping (archives) or backup purposes;
 (4) Modified, adapted, or combined with other computer software, provided that the modified, combined, or adapted portions of the derivative software incorporating restricted computer software are made subject to the same restricted rights;

(5) Disclosed to and reproduced for use by support service Contractors in accordance with subparagraphs (b)(1) through (4) of this clause, provided the Government makes such disclosure or reproduction subject to these restricted rights; and

(6) Used or copied for use in or transferred to a replacement computer.

(c) Notwithstanding the foregoing, if this computer software is published copyrighted computer software, it is licensed to the Government, without disclosure prohibitions, with the minimum rights set forth in paragraph (b) of this clause.

(d) Any other rights or limitations regarding the use, duplication, or disclosure of this computer software are to be expressly stated in, or incorporated in, the contract.

(e) This Notice shall be marked on any reproduction of this computer software, in whole or in part.

(End of notice)

(ii) Where it is impractical to include the Restricted Rights Notice on restricted computer software, the following short-form Notice may be used in lieu thereof:

RESTRICTED RIGHTS NOTICE SHORT FORM (JUN 1987)

Use, reproduction, or disclosure is subject to restrictions set forth in Contract No. NAS1-97032 (and subcontract _____, if appropriate) with _____ (name of Contractor and subcontractor).

(End of notice)

(iii) If restricted computer software is delivered with the copyright notice of 17 U.S.C. 401, it will be presumed to be published copyrighted computer software licensed to the Government without disclosure prohibitions, with the minimum rights set forth in paragraph (b) of this clause, unless the Contractor includes the following statement with such copyright notice: "Unpublished--rights reserved under the Copyright Laws of the United States."

(h) Subcontracting. The Contractor has the responsibility to obtain from its subcontractors all data and rights therein necessary to fulfill the Contractor's obligations to the Government under this contract. If a subcontractor refuses to accept terms affording the Government such rights, the Contractor shall promptly bring such refusal to the attention of the Contracting Officer and not proceed with subcontract award without further authorization.

(i) Relationship to patents. Nothing contained in this clause shall imply a license to the Government under any patent or be construed as affecting the scope of any license or other right otherwise granted to the Government.

I.11 RIGHTS TO PROPOSAL DATA (TECHNICAL) (FAR 52.227-23) (JUN 1987)

Except for data contained on pages NONE, it is agreed that as a condition of award of this contract, and notwithstanding the conditions of any notice appearing thereon, the Government shall have unlimited rights (as defined in the "Rights in Data - General" clause contained in this contract) in and to the technical data contained in the proposal dated September 23, 1996, upon which this contract is based.

I.12 HIGHER-LEVEL CONTRACT QUALITY REQUIREMENT (GOVERNMENT SPECIFICATION)
(FAR 52.246-11) (APR 1984)

- (a) Definition. "Contract date," as used in this clause, means the date set for bid opening or, if this is a negotiated contract or a modification, the effective date of this contract or modification.
- (b) The Contractor shall comply with the specification titled Reliance Consolidated Models (RECOM); Design and/or Fabrication of Aerospace Model Systems and Developmental Hardware, in effect on the contract date, which is hereby incorporated into this contract.

I.13 AUTHORIZED DEVIATIONS IN CLAUSES (FAR 52.252-6) (APR 1984)

- (a) The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the clause.
- (b) The use in this solicitation or contract of any NASA/FAR Supplement (48 CFR Chapter 18) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

I.14 SECURITY CLASSIFICATION REQUIREMENTS (NASA 18-52.204-75) (SEP 1989)

Performance under this contract will involve access to and/or generation of classified information, work in a security area, or both, up to the level of Secret. See Federal Acquisition Regulation clause 52.204-2 in this contract and DD Form 254, Contract Security Classification Specification, Exhibit B.

I.15 OMBUDSMAN (NASA 18-52.215-84) (OCT 1995)

An ombudsman has been appointed to hear concerns from offerors, potential offerors, and contractors during the preaward and postaward phases of this acquisition. The purpose of the ombudsman is not to diminish the authority of the Contracting Officer, the Source Evaluation Board, or the selection official, but to communicate concerns, issues, disagreements, and recommendations of interested parties to the appropriate Government personnel and to work to resolve them. When requested, the ombudsman will maintain strict confidentiality as to the source of the concern. The ombudsman does not participate in the evaluation of proposals, the source selection process, or the adjudication of formal contract disputes. Interested parties are invited to call Sandra S. Ray at (757) 864-2428. The LaRC Ombudsman is Belinda Adams. Concerns, issues, disagreements, and recommendations which cannot be resolved at the installation may be referred to the NASA ombudsman, Thomas S. Luedtke at (202) 358-2090.

NOTE: Ombudsman at the delivery order level are as stated in the G clause entitled, "Procedures for Issuing Delivery Orders."

I.16 POTENTIALLY HAZARDOUS ITEMS (NASA 18-52.223-72) (DEC 1988)

- (a) The Contractor shall furnish complete design information and drawings showing all details of construction, including materials, for the following items or components:

These items or components are designated as potentially hazardous to employees and subcontractors who are to perform any work in connection with installing them in combination with other equipment, or in testing them either alone or in combination with other items or components, or in handling them. The Contractor shall inform such employees or subcontractors of the potentially hazardous nature of these items or components before requesting or directing the performance of work.

- (b) The requirement for delivery of data supersedes any terms of this contract permitting withholding of data.
- (c) The Contractor shall include this clause, including this paragraph (c), in each subcontract at any tier under the contract that calls for the manufacture or handling of the items or components designated according to paragraph (a) above as potentially hazardous.

**I.17 FINANCIAL REPORTING OF GOVERNMENT-OWNED/CONTRACTOR-HELD PROPERTY
(NASA 18-52.245-73) (JUL 1994)**

- (a) The Contractor shall prepare and submit annually a NASA Form 1018, Report of Government-Owned/Contractor-Held Property, in accordance with 18-45.505-14 and the instructions on the form and in Section 18-45.7101 of the NASA FAR Supplement, except that the reporting of space hardware shall be required only as directed in clause 18-52.245-78, Space Hardware Reporting, of this contract, if applicable.
- (b) If administration of this contract has been delegated to the Department of Defense, the original of NASA Form 1018 shall be submitted to the NASA installation Financial Management Officer and three copies shall be sent concurrently through the DOD Property Administrator to the NASA office identified below. If the contract is administered by NASA, the original of NASA Form 1018 shall be submitted to the installation Financial Management Officer and three copies shall be sent concurrently to the following NASA office:

ATTN INDUSTRIAL PROPERTY OFFICE
NASA LANGLEY RESEARCH CENTER
MAIL STOP 377
HAMPTON VA 23681-0001

- (c) The annual reporting period shall be from October 1 of each year to September 30 of the following year. The report shall be submitted by October 31.
- (d) The Contractor agrees to insert the reporting requirement in all first-tier subcontracts, except that the requirement shall provide for the submission of the subcontractors' reports to the Contractor, not to the Government. The Contractor shall require the subcontractors' reports to be submitted in sufficient time to meet the reporting date in paragraph (c) above.
- (e) The Contractor's report shall consist of a consolidation of the subcontractors' reports and the Contractor's own report.

I.18 SPACE HARDWARE REPORTING (NASA 18-52.245-78) (MAR 1989)

In accordance with the Financial Reporting of Government-Owned/Contractor-Held Property clause of this contract, the reporting of certain specified items of space hardware is required on a NASA Form 1018, Report of Government-Owned/ Contractor-Held Property. The reporting of space hardware is in addition to the requirements of other property reporting on the form. At present, the items of space hardware to be reported are the following: N/A. The Contracting Officer will update this list prior to June 1 of each year to be applicable beginning with the next reporting period.

I.19 MATERIAL INSPECTION AND RECEIVING REPORT (NASA 18-52.246-72) (JUN 1995)

- (a) At the time of each delivery to the Government under this contract, the Contractor shall furnish a Material Inspection and Receiving Report (DD Form 250 series) prepared in five copies, an original and four copies.
- (b) The Contractor shall prepare the DD Form 250 in accordance with NASA FAR Supplement 18-46.672-1. The Contractor shall enclose the copies of the DD Form 250 in the package or seal them in a waterproof envelope which shall be securely attached to the exterior of the package in the most protected location.
- (c) When more than one package is involved in a shipment, the Contractor shall list on the DD Form 250, as additional information, the quantity of packages and the package numbers. The Contractor shall forward the DD Form 250 with the lowest numbered package of the shipment and print the words "CONTAINS DD FORM 250" on the package.

I.20 ADVANCE NOTICE OF SHIPMENT (NASA 18-52.247-72) (OCT 1988)

Three work days prior to shipping item(s) as set forth in DOs, the Contractor shall furnish the anticipated shipment date, bill of lading number (if applicable), and carrier identity to AGR and to the Contracting Officer.

I.21 NOTICE: THE FOLLOWING CLAUSES ARE APPLICABLE ONLY TO THE FIRM-FIXED PRICE DELIVERY ORDERS ISSUED UNDER THIS CONTRACT.

PART II - CONTRACT CLAUSES

SECTION I - CONTRACT CLAUSES

I.22 LISTING OF CLAUSES INCORPORATED BY REFERENCE:

NOTICE: The following solicitation provisions and/or contract clauses pertinent to this section are hereby incorporated by reference.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

<u>CLAUSE NUMBER</u>	<u>TITLE AND DATE</u>
52.228-5	Insurance - Work on a Government Installation (SEP 1989)
52.229-3	Federal, State and Local Taxes (JAN 1991)
52.229-5	Taxes - Contracts Performed in U.S. Possessions or Puerto Rico (APR 1984)
52.232-1	Payments (APR 1984)
52.232-8	Discounts for Prompt Payment (APR 1989)
52.232-11	Extras (APR 1984)
52.232-16	Progress Payments (JUL 1991) Alternate I (AUG 1987)
52.242-15	Stop-Work Order (AUG 1989)
52.242-17	Government Delay Of Work (APR 1984)
52.243-1	Changes--Fixed-Price (AUG 1987)
52.244-1	Subcontracts (Fixed-Price Contracts) (FEB 1995) Alternate I (APR 1984)
52.245-2	Government Property (Fixed-Price Contracts) (DEC 1989)
52.246-2	Inspection of Supplies--Fixed-Price (JUL 1985)
52.246-4	Inspection of Services--Fixed-Price (FEB 1992)
52.246-16	Responsibility for Supplies (APR 1984)
52.249-1	Termination for Convenience of the Government (Fixed-Price)(Short Form) (APR 1984)
52.249-2	Termination for Convenience of the Government (Fixed-Price) (APR 1984)
52.249-8	Default (Fixed-Price Supply and Service) (APR 1984)

NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

<u>CLAUSE NUMBER</u>	<u>TITLE AND DATE</u>
18-52.228-75	Minimum Insurance Coverage (OCT 1988)
18-52.232-70	NASA Progress Payment Rates (DEC 1991) (Deviation)
18-52.232-82	Submission of Requests for Progress Payments (MAR 1989)

I.23 CLAUSES IN FULL TEXT

The clauses listed below follow in full text:

52.211-16 Variation in Quantity (APR 1984)

I.24 VARIATION IN QUANTITY (FAR 52.211-16) (APR 1984)

(a) A variation in the quantity of any item called for by this contract will not be accepted unless the variation has been caused by conditions of loading, shipping, or packing, or allowances in manufacturing processes, and then only to the extent, if any, specified in paragraph (b) below.

(b) The permissible variation shall be limited to:

Zero percent increase

Zero percent decrease

This increase or decrease shall apply to N/A.

I.25 NOTICE: THE FOLLOWING CLAUSES ARE APPLICABLE ONLY TO THE COST REIMBURSEMENT DELIVERY ORDERS ISSUED UNDER THIS CONTRACT.

PART II - CONTRACT CLAUSES**SECTION I - CONTRACT CLAUSES****I.26 LISTING OF CLAUSES INCORPORATED BY REFERENCE:**

NOTICE: The following solicitation provisions and/or contract clauses pertinent to this section are hereby incorporated by reference.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

<u>CLAUSE NUMBER</u>	<u>TITLE AND DATE</u>
52.216-7	Allowable Cost and Payment (JUL 1991)
52.216-8	Fixed Fee (APR 1984)
52.228-7	Insurance - Liability to Third Persons (MAR 1996)
52.232-9	Limitation on Withholding of Payments (APR 1984)
52.232-22	Limitation of Funds (APR 1984)
52.242-1	Notice of Intent to Disallow Costs (APR 1984)
52.242-3	Penalties for Unallowable Costs (OCT 1995)
52.242-4	Certification of Indirect Costs (OCT 1995)
52.242-15	Stop-Work Order (AUG 1989) Alternate I (APR 1984)
52.243-2	Changes--Cost-Reimbursement (AUG 1987)
52.244-2	Subcontracts (Cost-Reimbursement and Letter Contracts) (MAR 1996) Alternate I (APR 1984)
52.245-5	Government Property (Cost-Reimbursement, Time-and-Material, or Labor-Hour Contracts) (JAN 1986) (DEVIATION) (JUL 1995)
52.246-3	Inspection of Supplies - Cost-Reimbursement (APR 1984)
52.246-5	Inspection of Services - Cost-Reimbursement (APR 1984)
52.249-6	Termination (Cost-Reimbursement) (MAY 1986)
52.249-14	Excusable Delays (APR 1984)

NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

<u>CLAUSE NUMBER</u>	<u>TITLE AND DATE</u>
18-52.216-75	Payment of Fixed Fee (DEC 1988)
18-52.216-89	Allowable Cost and Payment (APR 1994)
18-52.242-70	Technical Direction (SEP 1993)

I.27 CLAUSES IN FULL TEXT

The clauses listed below follow in full text:

52.222-2 Payment for Overtime Premiums (JUL 1990)

I.28 PAYMENT FOR OVERTIME PREMIUMS (FAR 52.222-2) (JUL 1990)

(a) The use of overtime is authorized under this contract if the overtime premium cost does not exceed \$0 or the overtime premium is paid for work -

(1) Necessary to cope with emergencies such as those resulting from accidents, natural disasters, breakdowns of production equipment, or occasional production bottlenecks of a sporadic nature;

(2) By indirect-labor employees such as those performing duties in connection with administration, protection, transportation, maintenance, standby plant protection, operation of utilities, or accounting;

(3) To perform tests, industrial processes, laboratory procedures, loading or unloading of transportation conveyances, and operations in flight or afloat that are continuous in nature and cannot reasonably be interrupted or completed otherwise; or

(4) That will result in lower overall costs to the Government.

(b) Any request for estimated overtime premiums that exceeds the amount specified above shall include all estimated overtime for contract completion and shall -

(1) Identify the work unit; e.g., department or section in which the requested overtime will be used, together with present workload, staffing, and other data of the affected unit sufficient to permit the Contracting Officer to evaluate the necessity for the overtime;

(2) Demonstrate the effect that denial of the request will have on the contract delivery or performance schedule;

(3) Identify the extent to which approval of overtime would affect the performance or payments in connection with other Government contracts, together with identification of each affected contract; and

(4) Provide reasons why the required work cannot be performed by using multishift operations or by employing additional personnel.

PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS**SECTION J - LIST OF ATTACHMENTS**

- Exhibit A Contract Documentation Requirements, 7 pages
- Exhibit B Contract Security Classification Specification, DD Form 254, 2 pages

EXHIBIT A

CONTRACT DOCUMENTATION REQUIREMENTS

DOCUMENT REQUIREMENTS LIST

REQUIREMENTS AT THE DELIVERY ORDER LEVEL:

NOTE: ITEMS 1 THROUGH 7 SHALL BE FORWARDED ONLY TO THE CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE AT THE CENTER THAT PLACED THE DELIVERY ORDER (DO). A COPY OF THE TRANSMITTAL LETTER SHALL BE FORWARDED TO THE SPECIFIC CENTER'S ADMINISTRATIVE CONTRACTING OFFICER (ACO)

Item	Document/Report Identification	Submission date (Calendar days)	Distribution Codes/ Copies (See Note 1) Add to heading "D, E or F as appropriate"	Action (See Note 2)
1.	Hardware Design (Ref. 4.1 of SOW)	12 days before PDR	3	Information and/or approval as required by DO
2.	Detailed Hardware Design (Ref. 4.1 of SOW)	12 days before CDR or other appropriate time before authorization of fabrication	3	Information and/or approval as required by DO
3.	Design Drawings (Ref. 4.2.1 of SOW)	As required by DO	3	Information and/or approval as required by DO
4.	Final Design Drawings (Ref. 4.2.1 of SOW)	Completion of DO	1 (reprod. Orig.) 3 (Copies)	Information and/or approval as required by DO
5.	Stress Analysis (Ref. 4.2.2 of SOW)	As required by DO	3	Information
6.	Specifications (Ref. 4.2.3 of SOW)	As required by DO	3	Information and/or approval as required by DO
7.	Inspection Reports (Ref. 4.2.4 of SOW)	As required by DO and at completion of DO	3	Information

REQUIREMENTS AT THE CONTRACT LEVEL:

NOTE: ALL DOCUMENTATION REQUIRED AT THE CONTRACT LEVEL SHALL BE FORWARDED AS SPECIFIED IN NOTE 1 AND OTHER ADDRESSES AND AS MAY BE INDICATED IN SPECIFIC CLAUSES.

Item	Document/Report Identification	Submittal date (Calendar days)	Distribution Codes/ Copies (See Note 1) Add to heading "D." E or F as appropriate"	Action (See Note 2)
8.	Security Plan	Within 14 calendar days from contract award	B-3, E-3, & L-2	Approval
9.	Financial Management Reports Monthly (533M) Quarterly (533Q)	10 days after end of Contractor's Accounting Month See Reverse of Form	A thru C, 1 ea. D thru F, 3 ea. G-2 & I-1 A thru C, 1 ea. D thru F, 3 ea. G-2 & I-1	Information Information
10.	Analysis of Government-Owned/ Contractor-Held Property (NASA Form 1018 - Reporting Period October 1 to September 30)	Annually By October 31	B-1, E-1 & J-4	Information
11.	Monthly Progress Report for Socioeconomic Goals	Monthly	A thru C, 1 ea. K-1	Information
12.	Federal Contractor Veterans Employment Report	See Clause 52.222-37	M-1	Information
13.	Evidence of Insurance	Prior to Contract Performance	A thru C, 1 ea.	Information
14.	Summation of Tasks	Monthly	A thru C, 2 ea.	Information
15.	Quality Manual and Quality Plan	Within 14 calendar days after award	D thru F: 1 ea. H-1	Review

CONTRACT DOCUMENTATION REQUIREMENTS

Items 1 through 7:

The Contractor shall provide the documents/reports pursuant to the referenced section of the Statement of Work.

Item 8:

Security Plan: The Contractor shall submit a Security Plan for approval by the Langley Research Center Security Group Leader at Mail Stop 411.

The plan shall identify applicable parts of the NISPOM which will be implemented for activity under this contract. As a minimum, the plan shall discuss Security Officer(s) and duties, management security audit procedures, external security audit procedures, storage facilities and equipment, access lists, security records, reproduction of classified material, computer security procedures, document and material accountability, marking and handling, and disposition of scrap. During the contract performance, the Contractor shall submit proposed revisions to the approved plan as they become necessary.

Item 9:

Financial Management Reports:

1. The Contractor shall submit a monthly financial management report as provided by the Section I clause entitled "NASA Contractor Financial Management Reporting." This report shall be submitted utilizing NASA Form 533M, Monthly Contractor Financial Management Report, in accordance with submission instructions contained on the reverse side of the form. (Columns 8a and 8b, 533M, shall contain estimates for the following two successive months for the reporting a. and c. of paragraph 2. below.)
2. For this indefinite delivery contract a 533M shall be provided for the reporting levels identified below:
 - a. Each Authorized Cost Type DO
 - b. Contract Total (Includes the sum of all authorized cost-type DO's)
 - c. Due not later than the 10th operating day following the close of the Contractor's accounting period being reported.
 - d. Each 533M shall include a narrative explanation for variances exceeding five percent between planned hours/dollars and actual hours/dollars for each reporting category (at the total contract level only).
3. In addition, cost detail associated with the following elements shall be included in each of the above, if applicable.
 - a. Direct Labor Hours:
 - Engineering (ENG)
 - Fabrication (FAB)
 - Other Direct Labor (ODL)

- b. Direct Labor Dollars:
 - ENG:
 - FAB:
 - ODL:
- c. Premium Dollars:
 - ENG:
 - FAB:
 - ODL:
- d. Travel
- e. Computing
- f. Subcontract
- g. Material
- h. Overhead:
 - ENG:
 - FAB:
 - Other:
- i. G&A
- j. Total Estimated Cost
- k. Total Fee
- l. Total Estimated Cost Plus Fee

NOTE: The above cost details may be revised to be consistent with the selected offeror(s) accounting system.

4. Quarterly Financial Management Report--The Contractor shall submit a financial report at the contract level as well as broken down by DO detailed by categories specified in paragraph 3. above on NASA Form 533Q at times and in accordance with the instructions contained on the reverse side of the form. The initial report shall be due 10 operating days after the award of the contract.

Item 10:

Report of Government-Owned/Contractor Held Property (NASA Form 1018)--The Contractor shall submit the NASA Form 1018 no later than October 31 of each year in accordance with the Section G clause entitled "Financial Reporting of Government-Owned/Contractor-Held Property."

Item 11:

Monthly Progress Report for Socioeconomic Goals - - The Contractor shall submit a monthly report which provides the following information:

- | | | |
|----|--|----------|
| 1. | Small Business Concerns:
(include disadvantaged) | \$ _____ |
| 2. | Large Business Concerns: | \$ _____ |
| 3. | Total (sum of Sm & Lg Bus): | \$ _____ |
| 4. | Small Disadv. Bus. Concerns: | \$ _____ |
| | Woman-Owned Small Bus.:
(include as part of
3 & 4 above) | \$ _____ |

Historical Black Colleges/Univ:
and/or Minority Institutions
(include as part of 3 & 4 above)

\$ _____

Item 12:

Federal Contractor Veterans Employment Report--In compliance with Clause 52.222-37, Employment Reports on Special Disabled Veterans and Veterans of the Vietnam Era, the Contractor shall submit the Federal Contractor Veterans Employment Report (VETS-100) as required by this clause.

Item 13:

Evidence of Insurance--The Contractor shall submit evidence of the insurance coverage, required by the NASA Clause 18-52.228-75 in Section I entitled "Minimum Insurance Coverage" (i.e., a Certificate of Insurance or other confirmation), to the Contracting Officer prior to performing under this contract.

Item 14:

Summation of Delivery Orders - - The Contractor shall submit a complete list of delivery orders which shall include the following: DO title, DO number, current modification number, date authorized, and report date. The list shall also include a notation of all completed DOs/portions of DOs, and the dates completed/delivered.

Item 15:

Quality Manual and Quality Plan--Within 14 calendar days after the effective date of the contract, the Contractor shall submit a quality manual and plan which demonstrates compliance of its quality management system to the requirements of ISO 9001. The Quality Manual shall describe the company's internal quality systems and procedures. The Plan shall address how the contract quality requirements will be met. The Manual and Plan will be reviewed and approved by the Contracting Officer or the designated representative. The approved Quality Plan shall become a part of the contract.

DOCUMENT DISTRIBUTION REQUIREMENTS

NOTE 1:

A. Reports and other documentation shall be submitted f.o.b. destination. Documents shall be addressed to Ames Research Center, Langley Research Center or Lewis Research Center as specified below, or as specified in delivery orders:

National Aeronautics and Space Administration
Ames Research Center
Attn: _____, Mail Stop _____
Contract NAS1-97032, Delivery Order _____
Moffett Field, CA 94035-1000

National Aeronautics and Space Administration
Langley Research Center
Attn: _____, Mail Stop _____
Contract NAS1-97032,, Delivery Order _____
Hampton, VA 23681-0001

National Aeronautics and Space Administration
Lewis Research Center
Attn: _____, Mail Stop _____
Contract NAS1-97032, Delivery Order _____
21000 Brookpark Road
Cleveland, OH 44135

B. The following letter codes designate the recipients of reports and other documentation which are required to be delivered by the Contractor:

1. Administrative Contracting Officer (ACO)
 - A--Ames Research Center, Mail Stop 241-1
 - B--Langley Research Center, Mail Stop 126
 - C--Lewis Research Center, Mail Stop 500-309
2. Contracting Officer Technical Representative (COTR)
 - D--Ames Research Center, Mail Stop 220-1
 - E--Langley Research Center, Mail Stop 235
 - F--Lewis Research Center, Mail Stop 50-2
3. G--Cost Accounting, Mail Stop 135 (via Mail Stop 175)
4. H--Systems Assurance Branch, Mail Stop 429
5. I--Programs and Resources Division, Mail Stop 104
6. J--Industrial Property Office, Mail Stop 377
7. K--Small Business Specialist, Mail Stop 144
8. L--Security Officer, Mail Stop 411
9. M--According to instructions on form

C. When the Administrative Contracting Officer (ACO) - (A) is not designated above to receive a copy of a report or document, the Contractor shall furnish a copy of the report/document transmittal letter to the ACO. The Contractor shall also furnish a copy of the transmittal letter and a copy of each Financial Management Report to the delegated Administrative Contracting Officer of the cognizant DOD (or other agency) contract administrative services component.

D. The number of copies listed for Items 4, 5 and 6 are minimum quantities and are subject to change per instructions contained in individual delivery orders.

NOTE 2:

As used in the Document Requirements List, the NASA actions required are defined as follows:

- | | |
|------------------------|---|
| A - Information | Documents in this category are submitted to NASA; feedback may be provided as necessary |
| B - Approval | Documents in this category will be approved or disapproved in writing by the ACO or delegated representative after receipt by NASA, Langley Research Center. The document is not accepted until such approval is granted. |

EXHIBIT "B"

DEPARTMENT OF DEFENSE CONTRACT SECURITY CLASSIFICATION SPECIFICATION <i>(The requirements of the DoD Industrial Security Manual apply to all security aspects of this effort.)</i>				1. CLEARANCE AND SAFEGUARDING a. FACILITY CLEARANCE REQUIRED TOP SECRET		
				b. LEVEL OF SAFEGUARDING REQUIRED SECRET		
2. THIS SPECIFICATION IS FOR: <i>(X and complete as applicable)</i>			3. THIS SPECIFICATION IS: <i>(X and complete as applicable)</i>			
X a. PRIME CONTRACT NUMBER NAS1-97032			X a. ORIGINAL <i>(Complete date in all cases)</i>	Date (YYMMDD) 97-02-01		
b. SUBCONTRACT NUMBER			b. REVISED <i>(Supersedes all previous specs)</i>	Revision No.	Date (YYMMDD)	
c. SOLICITATION OR OTHER NUMBER		Due Date (YYMMDD)	c. FINAL <i>(Complete item 5 in all cases)</i>		Date (YYMMDD)	
4. IS THIS A FOLLOW-ON CONTRACT? <input type="checkbox"/> YES <input type="checkbox"/> NO <i>If Yes, complete the following:</i> Classified material received or generated under _____ <i>(Preceding Contract Number)</i> is transferred to the follow-on contract.						
5. IS THIS A FINAL DD FORM 254? <input type="checkbox"/> YES <input type="checkbox"/> NO <i>If Yes, complete the following:</i> In response to the contractor's request dated _____, retention of the identified classified material is authorized for the period of _____.						
6. CONTRACTOR <i>(Include Commercial and Government Entity (CAGE) Code)</i>						
a. NAME, ADDRESS, AND ZIP CODE MICRO CRAFT, Inc. 207 BIG SPRINGS AVENUE TULLAHOMA, TN 37388		b. CAGE CODE 5A517	c. COGNIZANT SECURITY OFFICE <i>(Name, Address, and Zip Code)</i> DIS SOUTHEASTERN REGION 2300 LAKEPARK DRIVE SUITE 250 SMYRNA GA. 30080-7606			
7. SUBCONTRACTOR						
a. NAME, ADDRESS, AND ZIP CODE N/A		b. CAGE CODE N/A	c. COGNIZANT SECURITY OFFICE <i>(Name, Address, and Zip Code)</i> N/A			
8. ACTUAL PERFORMANCE						
a. LOCATION N/A		b. CAGE CODE N/A	c. COGNIZANT SECURITY OFFICE <i>(Name, Address, and Zip Code)</i> N/A			
9. GENERAL IDENTIFICATION OF THIS PROCUREMENT RELIANCE CONSOLIDATION MODELS-RECOM DESIGN AND FABRICATION OF AEROSPACE MODEL SYSTEMS AND DEVELOPMENTAL TEST HARDWARE.						
10. THIS CONTRACT WILL REQUIRE ACCESS TO:						
	YES	NO	11. IN PERFORMING THIS CONTRACT, THE CONTRACTOR WILL:		YES	NO
a. COMMUNICATIONS SECURITY (COMSEC) INFORMATION		X	a. HAVE ACCESS TO CLASSIFIED INFORMATION ONLY AT ANOTHER CONTRACTOR'S FACILITY OR A GOVERNMENT ACTIVITY			X
b. RESTRICTED DATA		X	b. RECEIVE CLASSIFIED DOCUMENTS ONLY			X
c. CRITICAL NUCLEAR WEAPON DESIGN INFORMATION		X	c. RECEIVE AND GENERATE CLASSIFIED MATERIAL		X	
d. FORMERLY RESTRICTED DATA		X	d. FABRICATE, MODIFY, OR STORE CLASSIFIED HARDWARE		X	
e. INTELLIGENCE INFORMATION:			e. PERFORM SERVICES ONLY			X
(1) Sensitive Compartmented Information (SCI)		X	1. HAVE ACCESS TO U.S. CLASSIFIED INFORMATION OUTSIDE THE U.S., EXCEPT TO QUALIFY POSSESSION AND TRUST REQUIREMENTS			X
(2) Non-SCI		X	2. BE AUTHORIZED TO USE THE SERVICES OF DEFENSE TECHNICAL INFORMATION CENTER (DTIC) OR OTHER SECONDARY DISTRIBUTION CENTER			X
f. SPECIAL ACCESS INFORMATION	X		h. REQUIRE A COMSEC ACCOUNT		X	
g. NATO INFORMATION		X	i. HAVE TEMPEST REQUIREMENTS			X
h. FOREIGN GOVERNMENT INFORMATION		X	j. HAVE OPERATIONS SECURITY (OPSEC) REQUIREMENTS			X
i. LIMITED DISSEMINATION INFORMATION		X	k. BE AUTHORIZED TO USE THE DEFENSE COURIER SERVICE			X
j. FOR OFFICIAL USE ONLY INFORMATION		X	l. OTHER <i>(Specify)</i>			
k. OTHER <i>(Specify)</i>			SEE ATTACHMENT			
N/A						

EXHIBIT "B"

12. PUBLIC RELEASE. Any information (classified or unclassified) pertaining to this contract shall not be released for public dissemination except as provided by the Industrial Security Manual or unless it has been approved for public release by appropriate U. S. Government authority. Proposed public release shall be submitted for approval.

Direct Through (Specify):

NO PUBLIC RELEASE AUTHORIZED

to the Directorate for Freedom of Information and Security Review, Office of the Assistant Secretary of Defense (Public Affairs)* for review.
 *In the case of non-DOD User Agencies, requests for disclosure shall be submitted by that agency.

13. SECURITY GUIDANCE. The security classification guidance needed for the classified effort is identified below. If any difficulty is encountered in applying this guidance or if any other contributing factor indicates a need for changes in this guidance, the contractor is authorized and encouraged to provide recommended changes; to challenge the guidance of the classification assigned to any information or material furnished or generated under this contract; and to submit any questions for interpretation of this guidance to the official identified below. Pending final decision, the information involved shall be handled and protected at the highest level of classification assigned or recommended. (Fill in as appropriate for the classified effort. Attach or forward under separate correspondence, any documents/guides/extracts referenced herein. Add additional pages as needed to provide complete guidance.)

CLASSIFICATION GUIDANCE WILL BE PROVIDED FOR EACH TASK ISSUED BY THE APPROPRIATE NASA CENTER. WORK UNDER THIS CONTRACT WILL BE PERFORMED AT SITES APPROVED BY THE APPROPRIATE NASA CENTER.

14. ADDITIONAL SECURITY REQUIREMENTS. Requirements, in addition to ISM requirements, are established for this contract. (If yes, identify the pertinent contractual clauses in the contract document itself, or provide an appropriate statement which identifies additional requirements. Provide a copy of the requirements to the cognizant security office. Use item 13 if additional space is needed.)

YES NO

15. INSPECTIONS. Elements of this contract are outside the inspection responsibility of the cognizant security office. (If Yes, explain and identify specific areas or elements carved out and the activity responsible for inspections. Use item 13 if additional space is needed.)

YES NO

16. CERTIFICATION AND SIGNATURE. Security requirements stated herein are complete and adequate for safeguarding the classified information to be released or generated under this classified effort. All questions shall be referred to the official named below.

a. TYPED NAME OF CERTIFYING OFFICIAL Sam A. Harvey	b. TITLE Program Security Team Leader	c. TELEPHONE (Include Area Code) 804-864-6507												
d. ADDRESS (Include Zip Code) NASA LANGLEY RESEARCH CENTER M/S 182 HAMPTON VA. 23681-0001	17. REQUIRED DISTRIBUTION <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;"><input checked="" type="checkbox"/></td> <td>a. CONTRACTOR</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>b. SUBCONTRACTOR</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>c. COGNIZANT SECURITY OFFICE FOR PRIME AND SUBCONTRACTOR</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>d. U. S. ACTIVITY RESPONSIBLE FOR OVERSEAS SECURITY ADMINISTRATION</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>e. ADMINISTRATIVE CONTRACTING OFFICER</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>f. OTHERS AS NECESSARY</td> </tr> </table>		<input checked="" type="checkbox"/>	a. CONTRACTOR	<input type="checkbox"/>	b. SUBCONTRACTOR	<input checked="" type="checkbox"/>	c. COGNIZANT SECURITY OFFICE FOR PRIME AND SUBCONTRACTOR	<input type="checkbox"/>	d. U. S. ACTIVITY RESPONSIBLE FOR OVERSEAS SECURITY ADMINISTRATION	<input checked="" type="checkbox"/>	e. ADMINISTRATIVE CONTRACTING OFFICER	<input type="checkbox"/>	f. OTHERS AS NECESSARY
<input checked="" type="checkbox"/>	a. CONTRACTOR													
<input type="checkbox"/>	b. SUBCONTRACTOR													
<input checked="" type="checkbox"/>	c. COGNIZANT SECURITY OFFICE FOR PRIME AND SUBCONTRACTOR													
<input type="checkbox"/>	d. U. S. ACTIVITY RESPONSIBLE FOR OVERSEAS SECURITY ADMINISTRATION													
<input checked="" type="checkbox"/>	e. ADMINISTRATIVE CONTRACTING OFFICER													
<input type="checkbox"/>	f. OTHERS AS NECESSARY													
e. SIGNATURE 														