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(U) Purchase Request, Massachusetts Institute of Technology

MCPTS
Mr. Gene Silberman

WDTR

DEC 10 1956
J. C. Harther/1s/1343

1. Exhibit "A" of the Statement of Work on Purchase Request #57-DD-214 dated 27 November 1956 will be changed in accordance with the following instructions:

a. Item I and II will be deleted and the attached inclosure #1 will be substituted in lieu thereof.

b. The title of the inclosure of Item I.A., "Specifications for an Inertial Guidance and Orbital Attitude Control System for MS 117L", will be changed to "MS 117L Guidance and Control Subsystem Development Plan (TECHNICAL APPROACH)".

c. Item III: Reports, will be changed as follows:

(1) On page 2, the number of copies of reports shall be broken down in three columns; total number of copies, total number of copies for the Air Force, and the total to Lockheed Aircraft Corporation. The total number of copies shall remain the same. The number of copies to the Air Force shall be, in order listed on page 2 where a total number is shown, I. 5, 3, II. 5, 3, III. 3, 3, 3, 5. The number of copies to Lockheed Aircraft Corporation shall be I. 5, 2, II. 5, 2, III. 2, 2, 2, 5.

(2) On page 2, under III Film Report, delete "As required" and "As stated" and substitute "Not applicable".

(3) On page 2, delete "and Film Reports" and add the following address for the reports to be sent to Lockheed: Missile System Division, Lockheed Aircraft Corporation, ATTN: J. H. Carter, P. O. Box 504, Sunnyvale, California.

(4) On page 3, delete the paragraph on film reports.

(5) On page 3, I.A.1., change to read: "As of Date: Unless otherwise specified, close of the 15th day of each month".

(6) On page 3, I.A.2, delete "15th" and substitute "1st".

(7) On page 4, I.A.4.b, delete "Last working" and substitute "the 15th".

(8) On page 6, I.B.1 & 2, use instructions 5 & 6 above.

(9) On page 11, II.A.1, delete "last working" and substitute the "15th".

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(10) On page 12, II.B.1., delete "30 June and 31 December" and substitute "15 June and 15 December".

(11) On page 12, II.B.2., delete "15th" and substitute "1st".

(12) On page 13, II.B.4.b.(2)(a), delete "end" and substitute "15th".

(13) On page 13, II.B.4.b.(2)(b), add "or other launch site".

(14) On page 16, III.C.1, delete "30th" and substitute "15th".

(15) On page 16, III.C.2., delete "15th" and substitute "1st".

(16) Delete all information in Item III.F., as it is not applicable on pages 13, 19, 20 and 21, down to III.G.

d. On page 31, IV A., delete "at a minimum" in the last sentence of this paragraph.

2. Please furnish WDR with 10 copies of the final contractual document.

SIGNED

FREDERIC C. E. ODER
Lt Colonel, USAF
Assistant for US 117L
Technical Operations

1 Incl
WDR "A", Statement of Work
3 pgs, WDR 56-235 (Rev 7 Dec 56)
3 c/s

copy furnished to:
WFO, Captain Johnston
w/ 1 Incl-EX "A", Statement of Work
WDR 56-235 (Rev 7 Dec 56) 1 cy, 3 pg

When inclosures are withdrawn the classification of this correspondence will be down graded to CONFIDENTIAL in accordance with AFR 288-1.

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J C Harther

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EXHIBIT "A"

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STATEMENT OF WORK

I. The Contractor shall conduct studies, research, development, furnish necessary personnel, facilities and materials as required to accomplish the task set forth below:

A. Program Objective

The objective of this program is the successful application of "all-inertial" navigation techniques and instrumentation to the guidance and control system of SS 117L, the Advanced Reconnaissance System. The Instrumentation Laboratory of the Massachusetts Institute of Technology shall develop and test a guidance and orbital attitude control subsystem which shall provide guidance and control signals for a satellite vehicle during all phases of flight, and shall become an integral part of the Hesperon System. In carrying out the development of this system, maximum possible use will be made of existing hardware evolved by previously sponsored Government research and development programs and currently in production. The development shall be accomplished in accordance with inclosure 1, "SS 117L Guidance and Control Subsystem Development Plan (TECHNICAL APPROACH)".

B. Tasks

1. Perform over-all guidance and control system analysis to insure compatibility with the rest of the SS 117L System.

2. Study, investigate, develop and test equipment and techniques for the guidance and control of SS 117L. Develop, design, fabricate, assemble, bench-test and participate in the early SS 117L flight-test program, and evaluate experimental and developmental components and systems to achieve the above objective.

C. The tasks, as described in paragraph (B) above, shall be performed on the Ascent Guidance System, consisting of three phases:

1. Booster Powered Phase
2. Coast Phase
3. Orbital Powered Phase

and the Orbital Attitude Stabilization System, as described in the attached "SS 117L Guidance and Control Subsystem Development Plan (TECHNICAL APPROACH)".

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[REDACTED]

D. In order to provide suitable equipment to meet the WS 117L flight test requirements, the work on the Ascent Guidance System and the Orbital Attitude Control System will be divided in the following manner:

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1. Systems for meeting minimum requirement

a. Ascent Guidance - Modification and augmentation of an AC Spark Plug Division WS 315A Guidance System for use in early WS 117L vehicles. It is planned that one AC unit will be furnished to the contractor by the Government not later than December 1957. AC technical information will be furnished to the contractor by the Government.

b. Orbital Attitude Control - A complete system compatible with other WS 117L Subsystems based on design and mechanization accomplished under the previous Study Contract AF 33(616)-2039, Supplement 10.

2. Advanced Systems

a. Ascent Guidance - A light-weight, more accurate, WS 117L System designed around the WS 107A-1 Guidance System being developed by the contractor for the Government on another contract.

b. Orbital Attitude Control - Development of new components and system configuration capable of maintaining adequate attitude control while operating in the radiation environment of the nuclear reactor auxiliary power unit for a period of one year as a design goal.

II. DELIVERY

A. The work called for in paragraph I.B.1. above, shall be performed in a time schedule and technical data and results delivered by technical reporting in such a way as to be incorporated into related WS 117L subsystem design.

B. The work called for in paragraph I.B.2. above, shall be performed, and delivery of one (1) engineering model (suitable for flight test in a WS 117L vehicle) of each of the systems described in paragraph I.D. shall be accomplished according to the following schedule:

- Item D.1.a. Ascent Guidance System - June 1958
- Item D.1.b. Orbital Attitude Control System - August 1958
- Item D.2.a. Ascent Guidance - September 1959
- Item D.2.b. Orbital Attitude Control - January 1960


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C. Complete specifications and drawings of all systems shall also be furnished with the engineering models, to permit fabrication of subsequent like items of equipment by a qualified manufacturing source, according to the time schedule listed in paragraph II.B. above.

D. Parts lists, specifications and drawings of components and sub-assemblies shall be furnished at the same time that they are furnished to the producer of the test and engineering models to minimize the transition time required from the engineering model delivery to delivery of subsequently produced units by a manufacturing source.

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