

THE UNIVERSITY OF MICHIGAN
COLLEGE OF ENGINEERING
Department of Electrical Engineering
Space Physics Research Laboratory

Quarterly Status Report No. MQ-7
for the period
1 June to 31 August 1962

RESEARCH ON THE USE OF ELECTRONIC AND MECHANICAL APPARATUS
AND INSTRUMENTATION FOR ROCKETS AND SATELLITES

This report, not necessarily in final scientific form,
is intended for internal management uses
of the contractor and NASA.

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ORA Project 04304

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INTRODUCTION

This report describes the research effort toward the completion of six tasks set forth in UMRI Proposal 61-425-D1, November 1960, and ORA Proposal 62-361-RBL, November 1961, and a new task described in ORA Proposal 62-952-PB1. The status of these tasks will be reviewed separately.

ACTIVITIES DURING THE REPORTING PERIOD

Task I - Split Ejectable X-248 Nose Cone:

The obligations under this task, specified in the original contract and Modification No. 2, were the modification of three Aerolab X-248 nose cones for lateral ejection, one to be test fired, the remaining two to be delivered, and the furnishing of one extra set of the nose cone castings. The modifications have been completed, the extra castings fabricated and the test firing was conducted in May 1961

One of the two flight units was delivered to GSFC Test and Evaluation Division during the last report period. The information gained during the test has been used as a basis for minor modifications, accomplished during this period, and a follow-up test will be conducted sometime in October. Delivery of all units will be made following satisfactory completion of this test, and a final report will be submitted

Task II - Electrostatic Probes:

The contract and modifications call for delivery of 15 probe units for rocket and satellite applications and for reduction of the data resulting. The following tabulation itemizes the disposition of the units delivered:

1 Eng. Test Model	S-6	April 1961
2 Prototypes	S-6	June 1961
2 Flight Units	S-6	September 1961
1 Flight Unit	NASA 8.23	October 1961
1 Flight Unit	NASA 6.05	December 1961
1 Flight Unit	NASA 4.18	March 1962
2 Flight Units	S-6	May 1962
2 Flight Units (spares)	S-6	August 1962
1 Prototype	Tiros	August 1962
2 Flight Units	Tiros	August 1962

Of the 15 units delivered, two have been returned for corrections indicated by test and integration. These two are presently being prepared for redelivery.

For the past quarter principal data reduction activity has been writing and checking out a computer program for the S-6 ETP1. This program was essentially finished in July of 1962 and is waiting for the final check-out with the completed data system. A similar program for ETP2 is being coded and checked out now and is expected to be finished early this fall. The data resulting from flight 8.23 is being finalized for publication.

Task III - Radioactive Density Measurement System:

This task calls for delivery of one radioactive ionization gauge and control box. Delivery has not been made because of a radioactive material storage problem at GSFC. Delivery can be made, however, within four weeks of request.

Task IV - Exclusion of Free Ions from Neutral Gas Pressure Gages:

As reported previously, this task has been completed. There is, however, a comprehensive report on the subject being prepared for publication during the next reporting period.

Task V - Bayard-Alpert Electronic System:

This task calls for delivery of two Bayard-Alpert gage electronic systems. The first system is being prepared for delivery in December. The second system will be delivered approximately 60 days later.

Task VI - SiO Coating Study:

Completed.

Task VII - Research and Development of a Thermosphere Probe:

The principal activity under the contract during this period has been on this task. The probe is now scheduled for firing on 6 November, preceded by T & E at GSFC starting about 10 October.

Nose cone design was completed during this period and fabrication initiated. The probe sub systems are complete, and integration of the system is now under way. Theoretical studies of the measuring system, including error analysis, are continuing.

FUNDS REMAINING

As of 31 August 1962, \$41,250 of the allotted funds remains.

MONTHLY COST BREAKDOWN

Month	Wages		Overhead	Expendable Materials	Equip- ment	Travel
	Student	Non-student				
June	\$1,090	\$ 7,670	\$ 4,380	\$ 4,230	\$1,050	\$ 720
July	2,330	8,280	5,300	3,520	2,450	660
August	2,716	6,333	4,500	7,680	690	1,200
Totals	\$6,136	\$22,283	\$14,180	\$15,430	\$4,190	\$2,580

GRAND TOTAL \$64,799

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