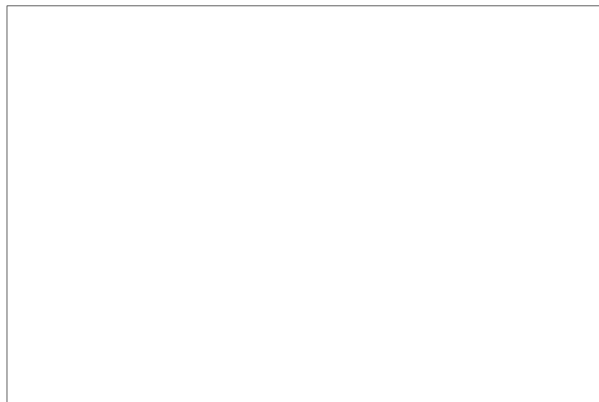
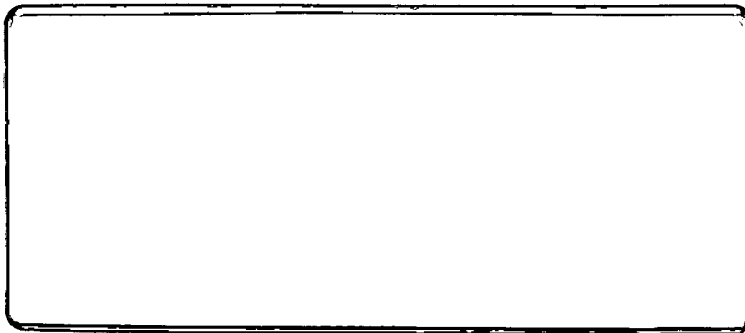


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STATUS REPORT
for Period
1 JUNE through 30 JUNE 1969
Submitted under Contract to
U. S. Government



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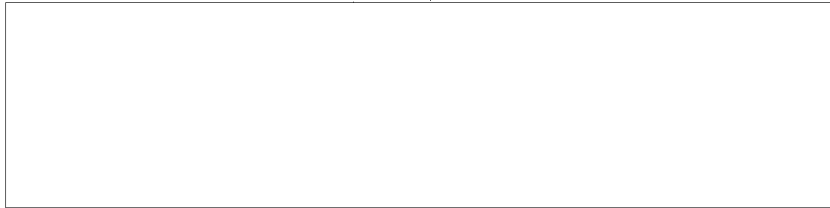
This document is presented as the Monthly
Status Report under Contract to the U. S.
Government,

STAT

The report period represented herein covers
the period 1 June through 30 June 1969.



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APPENDICES

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PROGRAM SUMMARY

Scheduled Percentage of Completion	67.2%
Actual Percentage this Date	62.2%

There have been several major accomplishments to the program during this reporting period each of which are discussed more fully under the individual task headings. In summary these achievements are:

1. Completion of the utilities cabinet.
2. Installation of inter-cabinet cabling and hook-up.
3. Air conditioning to the assembly area is in operation and provides environmental control which can be used for interferometer checkout.
4. The Optical Subcontractor has performed several preliminary tests which indicate satisfactory resolution in the system.

Task 01 Statements of Work, Specifications,
 Report Preparation

Scheduled percentage of completion 70%

Actual percentage this date 70%

 No new specifications were developed or issued
during this report period.

 Monthly reports from our subcontractors are
incorporated into this document under appropriate task headings
or in the Appendix.

Task 02 Scheduling and Planning

Scheduled percentage of completion 70%

Actual percentage this date 70%

Detailed schedules for systems checkout and tests which will be implemented when the Optical system is received are currently being worked out.

It is anticipated that these schedules will be ready in August.

Task 03 Test and Inspection Procedures

Scheduled percentage of completion 56%

Actual percentage this date 50%

Work is progressing in the development of test procedures to be implemented in the various subcontractor's plants.

It is expected that the first of these tests will be conducted at during August 1969.

STAT

Task 04 Management, Administration and Supervision

Scheduled percentage of completion 70%

Actual percentage this date 70%

Management and Administrative functions are proceeding normally with no major departures from the original Management plan.

Task 05 Meetings

Scheduled percentage of completion 70%

Actual percentage of completion 70%

The program manager met with various customer representatives at the building site on June 11th for the purpose of coordinating installation and environmental control activities.

Task 06 Facilities Requirements

Scheduled percentage of completion 98%

Actual percentage this date 88%

The assembly area air conditioning is 'on line' on a 'coarse control' basis. Room cooling, ventilating and heating is operating as planned but the system for environmental control of the electronic cabinets is not yet activated. This is due to the fact that the electronic systems are presently being tested and the electronic cabinets cannot be closed up.

We anticipate that the complete system will be in operation during the latter part of July.

Task 07 Main Frame and Structural Elements

Scheduled percentage of completion 98%

Actual percentage this date 93%

The main frame for the Stereocomparator was completed in September 1968.

No additional work will be scheduled for this Task until the return of the Optical Bridge by the optics sub-contractor.

Task 08 Skin

Scheduled percentage of completion 35%

Actual percentage this date 30%

The fabrication of the external skin sections has been completed to the point where the total assembly is needed in order to finish this Task.

No further work is anticipated until the Stereocomparator has been completely assembled.

Task 09

Granite and Ways Assembly for Stage

Scheduled percentage of completion 98%

Actual percentage this date 98%

No further work is anticipated on this Task at
this time.

Task 10 Air Bearings

Scheduled percentage of completion 98%

Actual percentage this date 90%

As previously reported, the air bearings were installed on both stages in February.

No further work will be scheduled until the utility cabinet is completed following which, the bearings will be tested with the interferometers.

Task 11 Stage Drives

Scheduled percentage of completion 89%

Actual percentage this date 65%

Installation of the stage drive assemblies on the right and left hand stages was completed during this report period.

Testing of the assemblies will be conducted after the utilities cabinet has been completed.

Task 12 Film Drive and Transport System

Scheduled percentage of completion 73%

Actual completion this date 68%

The modified film drive and transport system has been installed. Formal testing will be accomplished during the next report period.

Task 13 Film Platen and Film Clamping

Scheduled percentage of completion 98%

Actual percentage this date 85%

**The platen holders with film handling equipment
have been installed and are scheduled for testing during the next
report period.**

Task 14 Film Cooling

Scheduled percentage of completion 81%

Actual percentage this date 55%

The utilities cabinet design has been modified to provide the additional valves and tubing required for film cooling. These valves have been installed.

Tasks 16, 17
and 18

Viewing Optics, Viewing Illumination, Reticle
Projector and Illumination

Scheduled percentage of completion 87%

Actual percentage this date 79%

A visit was made to the optical subcontractor's
plant during the week of June 16th.

The subcontractor, [redacted] has
completed all parts both mechanical and optical required for the
Stereocomparator.

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The work remaining is to assemble the [redacted]
parts together with the electronic and drive components supplied
[redacted] and make the definitive optical and electromechanical
tests.

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The present [redacted] work schedule contains no
slack time, thus in the event of technical difficulties during
assembly or test delay could be anticipated.

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The [redacted] monitor's Trip Report for the [redacted] plant
visit is included in the Appendices.

STAT

Task 20

General Platen Illumination

Scheduled percentage of completion 97%

Actual percentage this date 55%

No additional work was scheduled for this task
for the month of June.

Task 21 Optical Bridge and Supports

Scheduled percentage of completion 96%

Actual percentage this date 90%

During this report period, continued to inter-
face with the Optics subcontractor on items relating to the installa-
tion of internal cabling and controls.

STAT

It is anticipated that this phase of the task will
be completed in the month of July.

Task 22 Interferometer Assembly

Scheduled percentage of completion	78%
Actual percentage this date	65%

The interferometer checkout, which was scheduled to begin during this report period, has been delayed in order to provide additional time for the Optics drives checkout and computer program integration.

Checkout has been rescheduled for the month of August.

Task 23 Optics Drive Assembly

Scheduled percentage of completion	77%
Actual percentage this date	70%

Work continued on the systems checkout of the optics servo drives using the optics servo breadboards and the D/A - A/D converters. The systems were driven by the computer and its interface circuitry. With the optics drives being simulated by the servo breadboard assembly this is, in effect, a test of the actual computer controller optics drives. Various noise and timing problems associated with the inclusion of the computer and interface into the system have been resolved.

The final checkout of this system for sensitivity, noise immunity, cross-talk and stability will be completed in the next report period. This test will be driven by a specially prepared test program.

The automatic brightness control loop is in the computer model stage. The system parameters are known and the hardware related to these sections has been specified. There is further work to do but no difficulty is expected.

Task 24 Image Analysis System

Scheduled percentage of completion 75%

Actual percentage this date 90%

Progress on this task is detailed in Progress

STAT

Report for the period ending May 31, 1969, which is included as
Appendix II to this report.

The date for acceptance testing of this system is
tentatively scheduled for the week of August 18 or August 25.

Task 26 Digitizing Logic Subassembly

Scheduled percentage of completion 98%

Actual percentage this date 90%

**This Task is now covered under the discussion in
Task 28 - Output Logic and Interfaces.**

Please refer to this Task.

Task 27 Metric Readout

Scheduled percentage of completion 98%

Actual percentage this date 95%

**This Task is now covered under the Output Logic
and Interfaces Task 28.**

Please refer to this task for progress discussion.

Task 28 Output Logic and Interface

Scheduled percentage of completion	98%
Actual percentage this date	80%

During this report period work continued in the testing of computer interface with the AD/DA converter and the resulting information utilized in the optics simulation tests (Task 23).

We anticipate that these tests will be completed during July, after which the logic checkout of film and stage drives will be started.

Task 29

Cabling

Scheduled percentage of completion 98%

Actual percentage this date 94%

Manufacture of all required cables and checkout of over 70% of installed cables has been accomplished during the month of June.

It is anticipated that checkout of the remaining cables will be completed during the next report period.

Task 30 Control Console and Chair

Scheduled percentage of completion 97%

Actual percentage of completion 83%

Work continued on checkout and tests of controls and interfaces between console and cabinets during this report period.

All functions and operational modes, which were checked, have proven to be in order.

Cable interconnection between the control console, utility distribution panel and cabinets have been completed.

Task 32

Computer

Scheduled percentage of completion 98%

Actual percentage this date 95%

**The computer system is operating as planned with
the punch/teletype interface completed.**

Task 33 Electronic Racks and Control Cabinets

Scheduled percentage of completion 98%

Percentage completed this date 90%

This task has been completed during this report period with all chassis installed, internal cabling completed and external power connected to the utilities control panel.

Task 34 Utilities, Vacuum and Air Systems

Scheduled percentage of completion	80%
Actual percentage this date	75%

The air and vacuum lines for the mechanical portions of the utilities cabinet have been installed and the valves and piping completed. We anticipate that the electrical hook-up of the valves and meters will be completed in July.

All electrical connections have been made to the main and subbreakers in the electronic portion of the utilities cabinet.

Task 35 Vibration Absorption and Leveling

Scheduled percentage of completion 90%

Actual percentage this date 85%

No further work is scheduled for this Task until the Optical Bridge is received from Sopelem. At this time, full tests of response time and stage deflection will be conducted.

This delay is necessitated by the requirement for full weight loading of the stages during these tests.

Task 36 Overall Assembly

Scheduled percentage of completion	56%
Actual percentage this date	33%

Steady progress toward the overall assembly of the Stereocomparator and related components is being made.

This report period was highlighted by the following accomplishments:

1. Completion of the utilities cabinet and putting it 'on line' as the power source of all electronic components.
2. Installation of the utilities (vacuum and air) piping to the rear of the Stereocomparator to provide the source of cooling air which is required.
3. Completion of all underfloor cabling.
4. Completion of chassis installation in the electronic cabinets.

Task 37 Radio Frequency Noise Suppression

Scheduled percentage of completion 0%

Actual percentage this date 0%

**No work was scheduled on this Task for the month
of June.**

Task 38 Environmental Control

Scheduled percentage of completion 81%

Actual percentage this date 87%

The program manager met with the customer during this report period for general discussions related to the site preparation requirements.

Task 39

Reliability Analysis

Scheduled percentage of completion 0%

Actual percentage this date 0%

No work was scheduled on this Task for the month
of June.

Task 40 Installation

Scheduled percentage of completion 0%

Actual percentage this date 15%

During the month of June, a general discussion of installation procedures was held at the customer's site. Please see Task #5 - Meetings, and Task #38 - Environmental Control.

Task 42 Breadboards and Test Devices

Scheduled percentage of completion	54%
Actual percentage this date	55%

Work is continuing on servo compensation and performance tests at this writing.

It is anticipated that the tests for compatibility of computer tracking program and the servo motors will be conducted during July.

Task 43 Computer Programming and Services

Scheduled percentage of completion 70%

Actual percentage this date 65%

progress report for the period May 1
to May 31, 1969, is included as Appendix III to this report.

STAT

It will be noted that the percentages shown for
scheduled and actual completion for the month of June are lower
than those reported in the May Status Report.

This discrepancy is due to a rescheduling of the
Informatics' effort to include certain changes in scope which have
been requested thus lengthening the expected performance
period.

STAT

This rescheduling will not have any adverse effect
on the overall program schedule.

Task 44 Preacceptance Test in Fabrication Plant

Scheduled percentage of completion 0%

Actual percentage this date 0%

**No work was scheduled for this task for the
month of June.**

Task 45 **Acceptance Test in Fabrication Plant**

Scheduled percentage of completion **0%**

Actual percentage this date **0%**

**No work was scheduled for this task for the month
of June.**

Task 46

Acceptance Test after Installation

Scheduled percentage of completion 0%

Actual percentage this date 0%

No work was scheduled on this task for the month
of June.

Task 47 Instruction Manual and Drawing Submittal

Scheduled percentage of completion 50%

Actual percentage this date 25%

The revision of the design drawings to cover the
"as built" status of the various subassemblies of the Stereocomparator
is proceeding according to schedule.

Task 48 Spare Parts List

Scheduled percentage of completion 38%

Actual percentage this date 40%

Work is continuing on the compilation of the recommended spares for the Stereocomparator, both mechanical and electronic components. The preliminary spares list with parts priced was delivered to the customer on June 11, 1969.

Task 49 Operator Training

Scheduled percentage of completion 30%

Actual percentage this date 70%

Work is continuing on the Operator Training Manual which will be used in training personnel to operate the Stereocomparator.

A transmittal of the preliminary manual (approximately 80% complete) is planned for the end of June.

APP-1

TRIP REPORT

Company Contacted:

[Redacted]

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Contacted by:

Contact dates:

Week of June 16, 1969

Purpose:

Monitoring the Sapelem Optical Contract

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Persons Contacted:

[Redacted]

STAT

Representing

[Redacted]

[Redacted]

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Zoom Potentiometer

Item 281 on drawing E4961B for the 5 cup rotatable potentiometers presents a problem in that the potentiometer is so long that it interferes with the frame of the zoom mount. It will be necessary to cut back the frame in order to provide for the 5 cup potentiometer.

[Redacted]

has undertaken to do this work. There is a further interference

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between the potentiometer and a new angle electrical plug. [Redacted] will

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have to relocate the plug receptacle so that when the plug is installed it will not interfere with any of the remainder of the assembly. They felt

that this could be done without particular difficulty. [Redacted] is attempting

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to locate a smaller potentiometer that will not require [Redacted] to modify

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the frame. A Telex has been sent to [Redacted] giving the new dimensions.

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Potentiometer Connection Error

On drawing C8052D there is an error shown on the connections for cup 1 of the potentiometer. The positive and negative connections are shown reversed. This is item 283 on drawing 4961B. In general, when finds a situation with problems in the wiring continuity, they will match the wiring throughout the cable and local internal optical bridge wiring by means of color or pin number or some other means available to them.

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Drawing E4830D

This drawing shows four micro switches at each end of the Geneva Drive. The arrangement of the four micro switches is unique in that while there are three switching positions, at the middle of the three positions there are two micro switches which must operate simultaneously. The pre-limit cam which actuates the first micro switch is 12-1/2 degrees ahead of the final position of the drive, however this cam must keep the micro switch engaged while the drive operates to its terminal point. That is, there cannot be a momentary make followed by a break; it must be a continuous make condition after actuation. The same situation applies to the two micro switches which next are actuated and again it must apply to the final micro switch which provides for a five to ten degree overrun. This switch also must not open again by a continuation of the drive action. The cam must hold the switch closed even if exceeds the five to ten degrees of the over-travel.

Drawing C8053/2-A

On drawing C8053/2-A there are various shielded wires shown. From the slip ring plug out to the main interconnecting receptacle for the optical bridge cables, the slip ring wiring is not shielded even though the mating cable contains shielded wiring elements. [] was directed to ignore the shielding requirements in the wiring that they are installing for the slip ring assemblies.

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It has been noted by [] that the slip ring friction was much greater than the five inch ounces specified on the slip ring drawing. The question was whether or not the slip rings were defective or had become defective since receipt [] It turned out that [] had not determined or checked the slip ring torque requirements and, therefore, there was no information as to the friction at the time the rings were received [] A Telex was sent to [] so that they might question the manufacture to determine what was the proper rotation torque for the slip rings. It developed that the manufacturer's specification was 85 inch ounces for a normal operating torque. The manufacturer had not determined the torque either.

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The torque was then determined at [] and approximately 35 inch ounces was the value found. Since the ultimate torque value might well be the 85 inch ounces, or greater, suggested by the manufacturer of the slip rings, it became clear that the drive as presently designed was not adequate; that the motor was too small and the gearing was not suited to the actual friction. A new gear head motor was ordered [] and

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the specifications for this were given to [] so that they might change the appropriate parts of the anamorph rotation assembly. The motor selected was from the Globe catalog, type LL-3 with the gear head planetary arrangement of catalog 5A2357 and additionally with a tachometer mounted at the rear of the motor. The gear head output shaft is 1/4 inch diameter and the gear ratio is 352.6 to 1. The motor voltage is 12 volts DC with a no load speed of 10,200 RPM. The rated torque was 1 ounce inch; this is at the motor end while the breakaway torque was 5.1 ounce inches. The no load current was .415 amps; the rated torque was 1.80 amps. The estimated stall current was 4.0 amps. The maximum continuous torque from the gear box is 145 ounce inches with a nominal efficiency of 41%. With the voltage and current rating for this new motor, it will be possible to power the system from the existing servo power amplifier. Actually, the stall amperage is slightly too high, however it merely means that the stall torque of the system may not reach the maximum design value. In any event, it should be fully adequate to operate the anamorph rotation system.

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Drawing E5387-B

A Ledex shutter light control at a 28 volt value is shown in the drawing E5387B. There was a problem here in that in the interests of rapid action, [] wished to have a 12 volt Ledex rotary solenoid installed. The 12 volt Ledex would be driven by a 24 volt system. There seemed to be considerable confusion concerning this particular situation and [] was requested to call in the Ledex distributor which was done.

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The representative had additional catalogs not available to either [] and it was learned that there were 24 volts rotary solenoids with the appropriate torque to handle the work. On this basis a unit was selected and [] was directed to order a total of four units including two spares.

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The appropriate unit is slightly larger than the original item. However, it will fit in the space and will operate satisfactorily from the 24 volt supply on the [] electronic system.

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The Ledex rotary solenoid selected for the eye piece shutter assembly is a 25 volt type 2E model 33. This provides twice the torque of the model 32 which was originally selected. [] is ordering a model 33 and [] will connect it to the 24 volt system. The allowable duty cycle, at this rating, is about 50% which is ample for the [] requirements.

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Light Level Control & Correlation Tubes

[] is required to focus and otherwise provide images for the operation of the image dissector tubes and the photo multiplier tubes. Since [] does not have available the completed items, it will be necessary to send to [] mockups containing the mounting arrangement of the real devices and equipped with small screens that would simulate the surfaces upon which the optical images would be located. [] requires these parts in their plant at the beginning of August.

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Drawing D6940C

The micro switch and cam for actuation, as shown on drawing D6940C, is not required by [] and can be left out of the assembly by []

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Drawing E5387B

Drawing E5387B shows no micro switches on the eye piece light control disc. [] has been able to modify the wiring system to take care of this situation. A marked print showing the wiring change for the [] cables has been given []

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Drawing E6970C

On drawing E6970C, all micro switches are shown arranged for momentary contact. [] requires that the micro switches maintain contact and [] does not know, at this time, if it is possible to provide for this condition. If [] is required to do this with electronic logic, it can be done but it will be quite complex, costly and taking a lot of space. The matter is presently being investigated []

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Drawing E7220C

Drawing E7220C shows that [] has removed the micro switches from the assembly. The [] cable drawing C8048A does not show this situation and, therefore, will have to be revised to be compatible with the [] assembly.

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Drawing E7470D

In drawing E7470D, the items shown as 160 and 178 indicate a plug receptacle with only 1 pin. [] requires at least 3 wires to this sub assembly and to accommodate this, the receptacle must be MS 3102A-10 SL 3S. The proper plug and socket must be procured by [] and the plug will have to be fixed to a new cable [] A new bracket must be fabricated [] to accommodate the receptacle. The drawing specifications for the cable system will be sent [] who will make up a new cable drawing.

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Drawing E7469D

Drawing E7469D shows momentary contact micro switch actuators. These will have to be changed to actuators that maintain the contact of the micro switch once the micro switch has been actuated. This is a similar situation to that described in the above earlier items.

Drawing E7539C

Drawing E7539C shows two driving motor systems and several sets of micro switches. [] will have to make a cable drawing and send the new cable and part []

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Drawing E7540C

There is a further problem of cables and plugs [redacted] must order two new plugs and sockets; this is, of course, times two for both sides of the Stereocomparator. [redacted] will hold back one of the cable end sockets and [redacted] will manufacture the cable before sending it on [redacted]. The other plugs, etc., will be send directly to [redacted].

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Drawing E7639C

The special function potentiometer for the light filter wheel is at least 3 months away. Meanwhile, [redacted] must calibrate the light filter wheel and [redacted] suggested that they can do this by the use of a linear potentiometer and plot the resulting graph for their own purposes. Linear potentiometers will, therefore, be ordered [redacted] for delivery by about the middle of July and [redacted] can install them and then [redacted] will have to exchange them later for the final potentiometers.

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Drawing E7639C

Drawing E7639C shows that there are pre-limit micro switches; that is an initial micro switch which is actuated to slow down the servo motor system prior to the final stop load micro switch actuation. In the case of the drawing in question, the pre-limit switch is not necessary because the servo system does not require it. Therefore, there will be no wiring for micro switch number one. This is ture, also,

for the green filter and the diaphragm assemblies in the objective switching modes of the assemblies. That is, the switching modes are operated by on off motors rather than controlled servo motors.

Potentiometer Shafts

All potentiometer shafts, with the exception of the 10 turn potentiometers, will be of 1/4 inch diameter instead of the 1/8 inch diameter as shown on the [] drawings. The 10 turn potentiometers will be 1/8 diameter and these are, therefore, correct as shown by the [] drawings. [] is going to change all their mating parts to accommodate to the 1/4 inch diameter potentiometer shafts.

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Drawing E7750C

Drawing E7750C shows there must be four limit switches for each side. In this case, the pre-limit, or number one micro switch which is the slowing down lead micro switch, is followed by a pair of micro switches actuated together at the normal shut off point of the assembly and then a final safety shut off micro switch actuation of this cuts off the system and manual return to the operating position is required. Note that all respective contact cams must maintain contact with the micro switches once the micro switch activation has been initiated.

Completion of Part Fabrication

[] has completed all parts of both the glass lenses and the mechanical items.

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The main zoom assemblies are fully assembled up to the [] supplied gear reducers and certain other [] supplied parts.

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[] must expedite the gear reducers, etc., so that [] can proceed.

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Main Condenser Lenses

The main condenser assemblies are in the same situation as the zooms; that is, [] has completed all parts and requires the [] supplied motor, potentiometers and gear reducers so that the assembly can continue. This equipment will be expedited []

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Main Condenser Diaphragm

The main condenser diaphragm unit also is missing the 10 turn potentiometers, the gearing and motors. [] must expedite here, also.

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Objective Lens Switching

The objective lens switching unit containing the objective lenses has been largely assembled. The key parts have been tested

including the optical system of objective lenses and it has been found that during focusing and switching the axial alignment is maintained within 1/4 micron.

Objective Lens

The objective lens optical characteristics have been checked with respect to resolution for various field sizes and positions.

[redacted] was pleased to report that the sagittal and tangential resolution obtained with a standard Air Force resolution target supplied [redacted] gave resolution well within the requirements of the system. This applies, of course, to only the resolution data obtained from the objective lenses. There was no other optical elements in the viewing system during the determination of the resolution characteristics.

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Identifying Materials

The problem of identifying materials sent to [redacted] [redacted] still presents a difficult situation [redacted] In the case of the plugs and receptacles and other material recently sent to [redacted] there were no tags on these items and Sopelem has difficulty in understanding which assembly they are for.

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Slip Ring Receptacle

The receptacle on the slip ring does not fit the anamorph drive electronic cable, drawing D6810.

The slip rings were equipped with a female flanged receptacle MS 3102 A28-12S. The cable D6810 is equipped with an MS3106E24-28P plug which does not mate with the slip ring receptacle. Note that on the drawing made by [redacted] on June 6, 1969, item 13 does not match the plug on the [redacted] cable.

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This plug on the cable must be replaced and [redacted] will have to send an appropriate plug to [redacted] will make the exchange on the cable. The receptacle end of the [redacted] cable has on it a receptacle with the mark RNK-B23-31SL.

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Note that there is no identification with respect to the individual wires of the cable and the motor potentiometers, etc., that [redacted] will be connecting to the slip rings. It will be necessary for [redacted] to check continuity through the various cables and subwiring harness so that slip rings will maintain continuity.

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Cable D7901

[redacted] cable D7901 on the [redacted] list of June 6, 1969, shows a male plug on one end, NS3106E22-30P. There is no flanged female receptacle that the plug can fit into. Some research is necessary on the part of [redacted] to determine whether there is an error in the cable or in the mating part.

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Fabrication Schedule

Many months ago, [] provided a fabrication schedule for all the mechanical and optical parts. This schedule has been completed and all mechanical and optical parts are completed and in storage awaiting assembly. There is some modification work but this is relatively minor. On the latest [] PERT chart there are certain stoppages of the assembly work due to changes in the micro switch assembly from momentary to maintained contact. In addition, there is the problem of non delivery of certain of the motors, potentiometers, gear boxes, etc.

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The assemblies at [] effected in this manner are #070, #310 and #320. In the case of assembly #230, it is the micro switches only that are effected. Assembly #080 is involved in the new larger drive motor because of the slip ring torque requirement.

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Drawing D8650

On drawing D8650, the 5 cup potentiometer cannot be supplied in time to be effectively used [] We will, therefore, send them suitable linear potentiometers so that they can perform their optical testing.

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Sopelem Schedule of Completion

There is one fundamental problem with the existing [redacted] PERT chart in that there is no slack time. Any delays in securing parts for [redacted] and any delays due to technical problems at [redacted] may well delay the job. At this moment, it appears that an additional month will be required at [redacted] that is, the equipment will be completed by [redacted] at the end of 1969 instead of by December 1, 1969.

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Component Delivery [redacted]

[redacted] requires a letter specifying the date when the individual potentiometers, motors, gear boxes, etc., will be available. This is required for proper planning by [redacted] of their assembly work.

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Receiving Record

[redacted] has processed a receiving record for materials sent from [redacted] on June 9, 1969. The receiving record has been brought back [redacted] and has been delivered to the shipping department.

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APP. II

PROGRESS REPORT FOR PERIOD ENDING 31 MAY 1969

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1.0 PROGRESS DURING REPORTING PERIOD

The last layout drawings by outside vendors were received on the video correlator and the channel selection logic sub-assemblies. The drawings were changed to the Itek format.

Assembly was completed on the remaining printed circuit boards, the meter panel, the chassis wiring, the image dissector assemblies and the test fixture. The related drawings were adjusted to show changes made during assembly.

To correct a clearance problem between the two boards, the locations of the parallax analyzer and the channel selection logic boards were interchanged. The reference designations of the assemblies were changed to A5 and A6, respectively and the interwiring diagram revised for convenience in tracing the circuit wiring.

The chassis (with all boards inserted) weighs 63 pounds. Each Image Dissector Assembly weighs 7 pounds.

Subassembly tests were completed on all boards before the end of May. However, the start of preacceptance testing was delayed by the wiring interchange of A5 and A6 mentioned above.

The work of introducing simultaneous scale and skew distortions to the quantitative test slides was started. These slides and the qualitative slides selected are expected to be ready in mid-June.

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Progress to the end of this reporting period is approximately 90%.

2.0 PLANS FOR NEXT PERIOD

Preacceptance testing begins in June. The present schedule projects the acceptance test for the last week in July. Regrettably, the delays coupled with the necessity for lengthy tests cycles, have made it difficult to accelerate that date as previously expected.

3.0 [] VISIT

On 23 May, [] visited the [] facility. Available photographic material was scanned and [] selected the representative stereoscopic pairs of slides to be used for the qualitative acceptance test.

The completed image analysis equipment and the meter panel and test fixture were examined.

A discussion of the software submissions followed. In summary, the Operating Manual was satisfactory as it was written; the Maintenance Manual should have a troubleshooting section added similar to the section of [] Report #68-0002-1 dated 4 January 1968; the test procedures related to response characteristics should be reverted to the linearity requirements and should also incorporate items in the addendum and notations. To avoid future question, the recommendations of [] were to be repeated in writing. A reminder of this was later sent by []

The drawings which were completed since the last [] visit were available for perusal and were later forwarded []

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APP. III

MONTHLY PROGRESS REPORT

June, 1969

This technical report is for the reporting period from May 1 to May 31, 1969. The report is prepared according to Nuclear Research Instrument Specification number DB1001 (as modified).

1. The computer became available on May 9, and has been working 2nd shift since then.

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At the end of the month, subroutines

- a. CVB
- b. CVF
- c. MSGIN
- d. MSGOUT and
- e. RECALL

were checked out and documented.

A number of changes in the interface logic have necessitated the recoding of subroutine RDOP and changes to subroutines

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- a. EXEC2
- b. TRK
- c. RDST and
- d. RDCR.

At month's end an effort was underway to create a self-loading tape for the real time foreground system which can be used to test the interfaces and demonstrate the servos. Problems with the D/A

converters and a spurious DRLIN pulse have caused to redirect his efforts to another part of the program temporarily.

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A bug in the Honeywell FORTRAN IV compiler had stopped work on TRK, CAMATS, and FID3. The subroutines had been checked-out on a CDC 6600 computer, however. In May the compiler bug was found and corrective action taken.

A new subroutine called ASCBIN has been designed, coded and checked-out. This subroutine decodes binary coded decimal information from the ASR-35 into floating point binary.

Subroutines CONVRT and DATAIN are being reviewed with a critical eye towards redesign. They have come under scrutiny because of the large amount of core they currently occupy. If they are redesigned then certain coding changes will doubtless propagate to their satellite subroutines NOCAM, PARMOD, SCANER and TBSRCH.

Because of this pending redesign, I feel that progress on the project has faltered, and the percent-completed figure remains at last month's 65%.

2. Next month, the review of the non-real time routines will continue. The subroutines affected and the amount of time for each follow:

	Redesign	Checkout
a. CONVRT	3 days	2 days
b. OATAIN	3 days	3 days
c. NOCAM	1 day	2 days
d. PARMOD	1 day	2 days
e. SCANER	1 day	2 days
f. TBSRCH	1 day	2 days

The total time involved is 20 working days, or one calendar month.

Also, work may be done, on an irregular basis on the real-time program to assist with [] servo and interface checkouts.

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3.3. At the end of May the problem of how to filter the crosstalk out of the correlator had not yet been resolved. This has a low priority because it is not really clear that crosstalk will even be a problem.

4. Work on the earth-curvature addition to TMAT, the logic to avoid partial derivative blowups, and the "no camera data" alternatives are being deferred during a contract renegotiation. A proposal is now being revised, and should be transmitted [] before the end of June.

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5. It has been orally agreed that [] will back-charge Informatics for any work-time lost by [] employees accompanying [] during the 2nd shift.

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6. It has not been previously mentioned, but it is clear that the contractual delivery data of June 1 is not realizable. This is partly attributable to:

- a. The computer was not available to [] for a period of approximately 6 weeks through April and early May;
- b. The impending redesign of the non-real time portion of the program;
- c. Numerous time-consuming difficulties with the compiler, assembler, high-speed punch, and high-speed reader. Difficulties of this nature are normally anticipated when a contract is bid; however, these have been extraordinary.

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is now scheduled to continue working at until
September 18, 1969.

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7. No other unresolved matters are known to exist.

ALPHABETICAL SUBPROGRAM INDEX

General Subprogram Flow Diagram Page 8

<u>D</u>	<u>C</u>	<u>Name</u>	<u>Page No.</u>	<u>D</u>	<u>C</u>	<u>Name</u>	<u>Page No.</u>
✓	✓	CAMATS	118-123	✓	✓	PTOP	105-111
✓	✓	ASCBIN					
		CONVRT	44	✓	✓	RDOP	140-142
✓	✓	CVB	130,131	✓	✓	RDST	143,144
✓	✓	CVF	132,133		✓	RECALL	66-68
		DATAIN	27-31		✓	RECIN	45,46
	✓	EXEC 1	17-19	✓	✓	REORT	83-88
	✓	EXEC 2	20-25			SCANER	39,40
		EXINA	152-154	✓	✓	STAGIN	49-55
		EXSKS	155,156			TBSRCH	36-38
✓	✓	FID 1	56-58	✓	✓	TICT	134-136
✓	✓	FID 2	59-62	✓	✓	TICX	137-139
✓	✓	FID 3					
✓	✓	FIXR	157,158	✓	✓	TMAT	89-99
✓	✓	GTP	80-82	✓	✓	TRK	69-79
	✓	LSTC/PSET	145,146	✓	✓	TTIC	63-65
✓	✓	MATMAK	127-129	✓	✓	TTIN	47,48
✓	✓	MSGIN	147,148	✓	✓	T 2 PAN	112-115
✓	✓	MSGOUT	149-151	✓	✓	T 2 STRP	
✓	✓	MTS	100-104	✓	✓	XXM I	124-126
		NOCAM	41-43		✓	XAI	
		PARMOD	32-35		✓	YMR	116,117
		PRESET			✓	RDCR/X	

C = coded
✓ = code checked
D = documented

