

e 3 of 3  
148/65

**CONFIDENTIAL**

9 April 1965

Please Reference :  
5W-1598

U. S. Government  
Washington, D. C.

[Redacted]

P. O. Box 6788

25X1

Attention: [Redacted]  
Subject: Request For Proposal No. RD-21-65

25X1

Gentlemen:

[Redacted]

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[Redacted] is pleased to submit its Firm Fixed Price proposal for the continuation of the research program under Contract [Redacted]. We propose to furnish 5000 hours of Engineering Labor in fulfillment of the six-month program as outlined in the enclosed technical proposal No. 5W-1598 for the total sum [Redacted]. A cost breakdown is attached.

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[Redacted]

Very truly yours,

[Redacted Signature]

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MCM/bls  
Encls.

**CONFIDENTIAL**

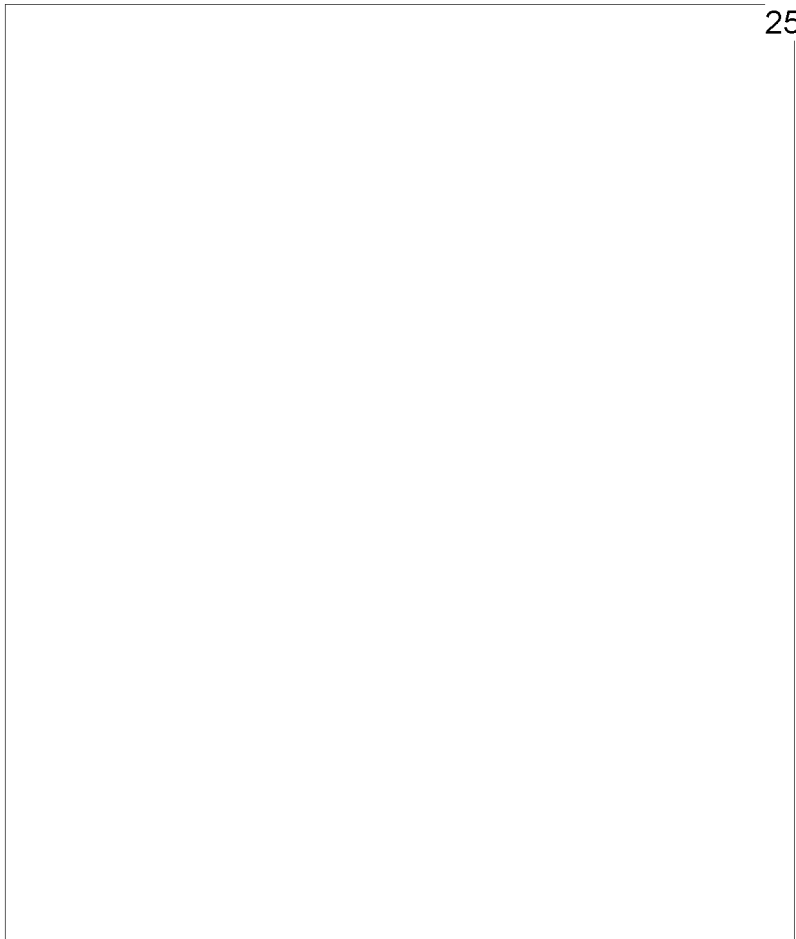
18/68

Proposal 5W-1598  
9 April 1965

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Cost Element

Engineering                    A  
"                                    B  
"                                    C  
TOTAL ENGINEERING DIRECT  
  
Engineering Overhead @ 130%  
  
Manufacturing            Dept. 11  
TOTAL MANUFACTURING DIRECT  
  
Manufacturing Overhead @ 135%  
  
Material  
  
TOTAL COST  
  
G & A Expense @ 13%  
  
Profit 10%  
  
TOTAL



148/60

Proposal SW-1598  
9 April 1965

25X1

Cost Element

Engineering	A
"	B
"	C
TOTAL ENGINEERING DIRECT	
Engineering Overhead @ 130%	
Manufacturing	Dept. 11
TOTAL MANUFACTURING DIRECT	
Manufacturing Overhead @ 135%	
Material	
TOTAL COST	
G & A Expense @ 13%	
Profit 10%	
TOTAL	

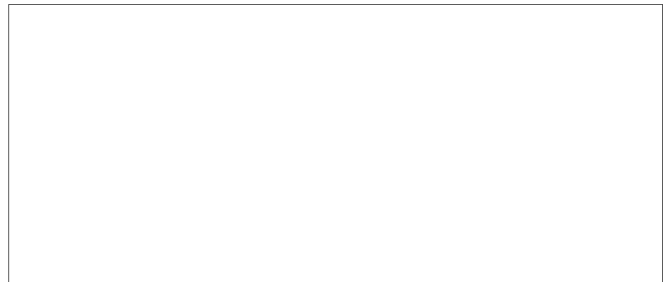
148/65

5W-1598  
TECHNICAL PROPOSAL  
CONTINUATION OF ADVANCED PROCESSOR  
DEVELOPMENT PROGRAM

Prepared for  
The United States Government

25X1

February, 1965



1. INTRODUCTION

This document is a proposal for the continuation, in fiscal 1966, of research and development work presently under contract [redacted]

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[redacted]. The proposed work involves the refinement of photographic processing equipment and techniques and the application of air/liquid bearings to processors. The work under the present contract includes the installation of a cleanroom as GFE at the [redacted] facility. The proposed work includes the use of the cleanroom and elements of the HTA-5 processor for further research.

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The data in this proposal were prepared for the U. S. Government by the technical staff of the [redacted]

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1.1 SCOPE

This proposal covers the technical details for the proposed program and a plan of accomplishment.

1.2 BACKGROUND

The research and development program presently in work under Contract 974 has the following main development objectives:

- 1) Develop a modular concept for an air/liquid bearing processor with high reliability, capable of operating in a cleanroom environment
- 2) Reevaluate component size and efficiency to reduce processor size and power consumption
- 3) Extend the modular concept to all processor sections
- 4) Investigate new designs, configurations, and concepts for liquid and air bearings, vacuum capstans, and air squeegees
- 5) Investigate power losses in plumbing and develop methods to minimize them

6) Determine operational parameters essential to the design of an air/liquid bearing processor

7) Study cleanroom operations to evaluate the effect of room environment on the film during the processing cycle, and the effect of the processor on the aerosol content of the cleanroom atmosphere

Substantial progress has been made in the meeting of these objectives and work will continue under the present contract until June 30, 1965. A modular processor concept was studied and recommendations documented. Two different types of both air and liquid bearings were studied. Experimental models of each type were built and functional performance testing started. An investigation was conducted to identify and measure pressure losses in plumbing with significant results. Work was started to develop methods of obtaining values for film tension, bearing loads, and vacuum capstan torque.

Erection of the cleanroom (Figure 1) was started November 23, 1964 and is scheduled to be ready for specification compliance testing by the end of February 1965.

## 2. PROPOSED PROGRAM

As a logical continuation of the present research, the following program is proposed. It will be carried out over a 6-month period between 1 July and 30 December 1965.

### 2.1 PARTICLE CONTAMINATION OF FILM

An analytical study will be made to determine the effect of foreign particles on the photographic interpretation of film transparencies. Particle sizes, grain structure, probability of information concealment, and similar criteria will be studied to produce a mathematical statement on which an experimental program can be based.

## 2.2 CLEANROOM PROCESSING

Based on the criteria obtained in the analysis proposed in Sub-section 2.1 above, negatives will be developed in the cleanroom for experimental evaluation of the theoretical results.

## 2.3 AIR BEARING DESIGN EVALUATION

Current development of air bearing designs will be continued. Designs will be evaluated to select the one with the best performance

## 2.4 LIQUID BEARING DESIGN EVALUATION

Current development of liquid bearing designs will be continued. Designs will be evaluated to select the one with the best performance.

## 2.5 AIR AND LIQUID BEARING TESTS

The drier and takeup section of the HTA-5 processor will be set up in the cleanroom together with a mockup tank for functional testing of air and liquid bearings over a range of loads and speeds.

## 2.6 VACUUM CAPSTAN EVALUATION

Evaluation of the vacuum capstan in comparison with two other types will be continued. A design study to assess the problems involved in a modular capstan design incorporating its own power source will be conducted.

If time and funds permit, an experimental capstan will be manufactured and mounted on the HTA-5 takeup section for functional evaluation.

## 2.7 AIR SQUEEGEE EVALUATION

Using the HTA-5 squeegee as a basic model, an evaluation of the operating criteria will be made. Varying air pressures and flows will be tested to determine the effects on water removal, film oscillation, and efficiency.

## 2.8 DOCUMENTATION

Program documentation will be provided in monthly letter reports and technical reports. The monthly letter reports will briefly describe program activities during reporting period, the anticipated activities for the following period, liaison activities between the contractor and the customer, and an accounting of funds expended. The technical reports will be furnished at the completion of each significant research phase. Technical reports will fully document the problem under study, the methods used, the results obtained, and the conclusions and recommendations reached as a result of the work.

## 3. PROGRAM SCHEDULE AND MANLOADING

The proposed program schedule and manloading for the 6-month period between 1 July and 31 December 1965 is shown in Figure 2.



# R AND D FACILITY AND CLEANROOM INSTALLATION

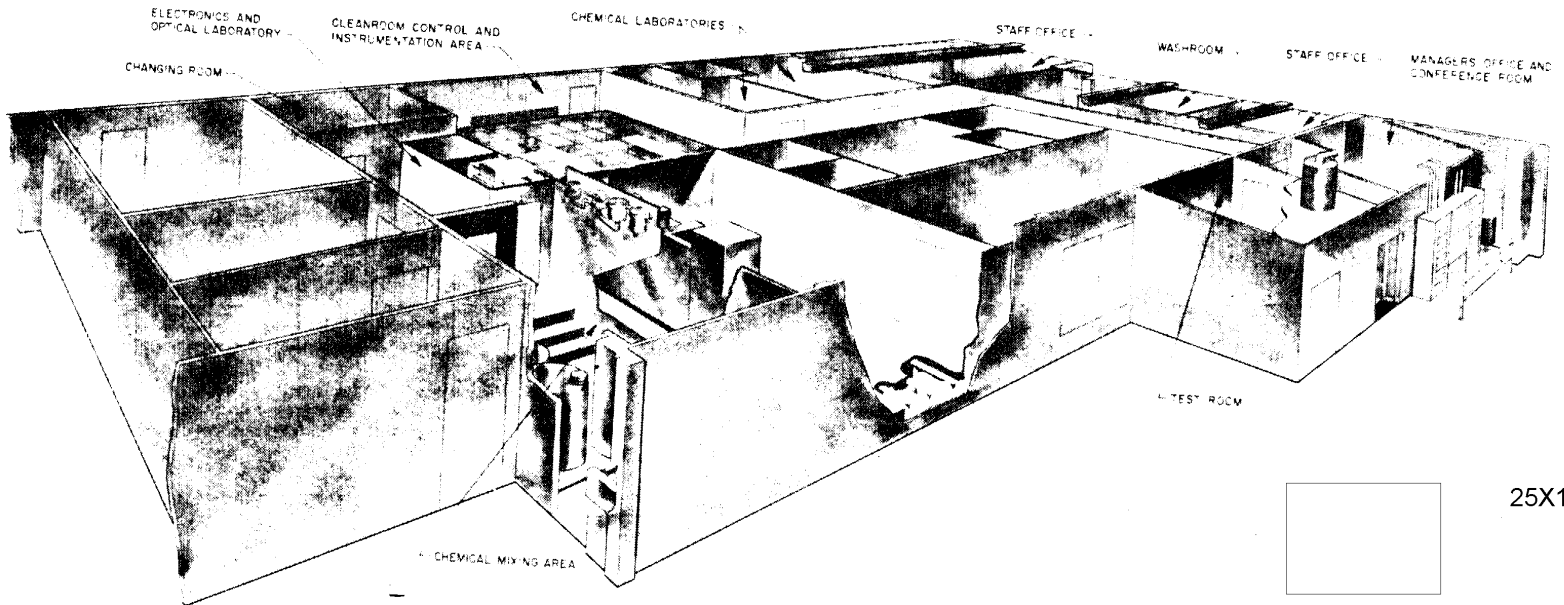


Figure 1.

	JULY	AUG	SEPT	OCT	NOV	DEC	CLASS	HRS
CONTAMINATION STUDY	████████████████████						A	520
CLEANROOM EXPERIMENTS				████████████████████			C	1040
DIRECTION AND REPORTING				████████████████████			A	347
AIR BEARING DESIGN	████████████████████						A	520
FABRICATION		████████	████████				Dept 11	173
LIQUID BEARING EVALUATION	████████████████████						B	347
FABRICATION		████					Dept 11	87
HTA-5 INSTALLATION			████████████████████				B	693
MOCKUP FABRICATION			████████████████████				Dept 11	173
VACUUM CAPSTAN DESIGN	████████████████████						B	960
STUDY								
FABRICATION			████████				Dept 11	173
AIR SQUEEGEE EVALUATION			████████████████████			████████	A	607
AND TEST								
FABRICATION				████████████████████			Dept 11	129
REPORTS		████	████	████	████	████	A	80
SUPERVISION AND	████████████████████						A	80
ADMINISTRATION								

Figure 2. Program Schedule and Manhour Loading

5W-1598

998355-21

NPIC/D-48-65  
07 APR 1965

**MEMORANDUM FOR:** Assistant Deputy Director (Intelligence)  
**SUBJECT :** Research and Development Project Approval Request for Film Processor Development Program  
**REFERENCE :** DDCI Memorandum ER 63-88121, dated 23 December 1963, Approval of Research and Development Activities

In compliance with paragraph 5.b. of the reference, it is requested that a program for the development of a Film Processor in the amount of  as outlined in attachment "A" be approved.

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ARTHUR C. LUNDAHL  
Director

National Photographic Interpretation Center

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APPROVED

Assistant Deputy Director  
(Intelligence)

9 APR 1965

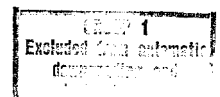
Date

Distribution

- Orig & 2 - LB/SS
- 1 - A/DDI
- 1 - O/Dir
- 1 - P&DS

LB/SS/NPIC  (25 Mar 1965)

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<b>R &amp; D CATALOG FORM</b>		DATE 15 March 1965
1. PROJECT TITLE/CODE NAME Film Processor Development Program		2. SHORT PROJECT DESCRIPTION Continuation of the Processor Development Program to achieve conceptual and engineering advancement in the art and technology of film processing.
3. CONTRACTOR NAME		
5. CLASS OF CONTRACTOR Manufacturer		6. TYPE OF CONTRACT CPFF
7. FUNDS FY 1964 FY 1965 FY 19 \$		8. REQUISITION NO. N/A
		9. BUDGET PROJECT NO. NP-S-20
		10. EFFECTIVE CONTRACT DATE (Begin - end) June 1965 - December 1965
		11. SECURITY CLASS. AA - Confidential T - Unclassified W - Unclassified
12. RESPONSIBLE DIRECTORATE/OFFICE/PROJECT OFFICER TELEPHONE EXTENSION DDI/NPIC/P&DS		
13. REQUIREMENT/AUTHORITY Effort is directed toward providing both theoretical and conclusive answers to many of the unknown factors in the design and engineering of photographic film processors.		
14. TYPE OF WORK TO BE DONE Applied Research		
15. CATEGORIES OF EFFORT		
MAJOR CATEGORY Special Techniques & Studies	SUB-CATEGORIES Reproduction Processors	
16. END ITEM OR SERVICES FROM THIS CONTRACT/IMPROVEMENT OVER CURRENT SYSTEM, EQUIPMENT, ETC. Monthly letter progress reports, technical reports at significant stages and final report covering all aspects investigated, conclusions and recommendations.		
17. SUPPORTING OR RELATED CONTRACTS (Agency & Other)/COORDINATION Coordination with [ ] DOD, USAF, SPPL, GIMRADA, and NRTSC has been effected.		
18. DESCRIPTION OF INTELLIGENCE REQUIREMENT AND DETAILED TECHNICAL DESCRIPTION OF PROJECT (Continue on additional page if required) This investigative effort is directed toward providing theoretical as well as practical results in specified areas of research pertaining to continuous roll photographic film processors. The program, as instituted in June 1964, was to perform elementary studies, based in installation of a GFE clean-room facility and utilization of a GFE HTA/5 film processor. Because of the normal acquisition and installation required for a clean-room complex, considerable investigation had to be held in abeyance and as a result, full benefit of the first year's program could		
19. APPROVED BY AND DATE		
OFFICE	DEPUTY DIRECTOR	DDCI

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R & D Catalog Form (Continued)...

18. not be realized.

The currently funded effort has resulted in completion of the clean-room facility, installation of the HTA/5 processor and a detailed report on investigations carried on that did not require clean-room operation. During this time substantial progress has been made in meeting the objectives set forth and work will continue under the present contract until 30 June 1965. A modular processor concept was studied and recommendations detailed. Two different types of both liquid and air bearings were studied. Experimental models of both were built and functional performance testing started. Results thus far are inconclusive. An investigation was conducted to identify and measure pressure losses in plumbing which produced significant results. Work was started to develop methods of obtaining values for film tension, bearing loads and vacuum capstan torque. Erection of the clean-room was started 23 November 1964 and is scheduled for specification compliance testing at the end of February 1965.

The continuation program is intended to carry to a logical conclusion those efforts that will not be completed with current year funding, together with some new investigations. For this continuation the contractor has proposed a six month, [ ] level of effort to be carried out between 1 July 1965 and 31 December 1965. The following areas will be investigated:

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1. Particle Contamination of Film -- An analytical study to determine the effect of foreign particles on the photographic interpretation of film transparencies. Particle size, grain structure, probability of information concealment and similar criteria will be studied to produce a mathematical statement on which the experimental program can be based.
2. Clean-room Experiments: Based on the criteria obtained in the Particle Contamination Analysis, controlled experimentation will be performed in the clean-room for evaluation of the theoretical results.
3. Air Bearing Design Evaluation: A continuation of the current effort. Designs will be evaluated for performance selection.
4. Liquid Bearing Design Evaluation: A continuation of the current effort. Designs will be evaluated for performance selection.
5. Testing of Air and Liquid Bearings: The HTA/5 Processor will be outfitted with mock-up tanks for functional testing of air and liquid bearings over a range of loads and speeds to determine capabilities.

SECRET

R & D Catalog Form (Continued)...

18.... 6. Vacuum Capstan Evaluation: A continuation of current effort. This will be expanded to include a design study to assess the problems involved in a modular capstan design incorporating its own power source. Time and funds permitting, an experimental capstan will be built and mounted on the HTA/5 take-up section for functional evaluation.

7. Air Squeegee Evaluation: Using the HTA/5 as a basic model, an evaluation of the operating criteria will be made. Varying air pressures and flow directions will be tested to determine the effects on water removal, film oscillation and efficiency.

Complete documentation of all effort will be submitted as monthly letter reports and final technical reports for each investigated area fully describing the study, the methods used, the conclusions and recommendations reached as a result of the work.

SECRET

497604

NPIC/TDC-A-13-65

18 Mar 65

TECHNICAL DEVELOPMENT COMMITTEE

AGENDA

Time: 1030, 3 March 1965

Place: 4N 411

1. Announcements

a. Approval of Minutes.

b. New Proposals: Twelve new proposals, listed below, have been received since the last meeting. If you have any interest in reading these proposals they are available in the Plans and Development Staff.

- 87/65 Feasibility Demonstration of an Electronic Registration Optical Stereoscope [redacted] 25X1  
[redacted] 25X1
- 88/65 Clean Room Research Programs, [redacted] 25X1  
[redacted] 25X1
- 89/65 Proposal for Phase II for Contract [redacted] 25X1  
(Non-reversible Color Recording Feasibility Study),  
[redacted] 25X1
- 90/65 Micro-Stereoscope or Stereo-Microscope, [redacted] 25X1  
[redacted] 25X1
- 91/65 Design and Fabrication of One Vacuum Easel, [redacted] 25X1  
[redacted] 25X1
- 92/65 Separatron Film Processor, [redacted] 25X1  
[redacted] 25X1
- 93/65 Parametric Study of Image Intensifier Night Aerial Reconnaissance System, [redacted] 25X1  
[redacted] 25X1

**SECRET**

GROUP 1  
Excluded from automatic  
downgrading and declassification

- 94/65 Prototype Black and White Projection Printer-Processor, [redacted] 25X1
- 95/65 Development of a Dry Processing Rapid Access Photographic Paper and Processor, [redacted] 25X1  
[redacted] 25X1
- 96/65 Development of a Dry Processing Diapositive Film for Copying from High Resolution Aerial Negatives, [redacted] 25X1

c. Increase in Estimated Cost to Complete PAR-214 and PAR-215

[redacted] 25X1

P&DS has received a letter from Eastman Kodak Company containing new cost estimates on experimental models of the 12 and 24 inch Roller Transport Film and Paper Processors. The initial estimate for these two items totaled [redacted] the new estimate is for a total of [redacted] or an increase [redacted]

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2. Discussion of New Business

a. Technical Services in Optics and Electronics, [redacted]

25X1

[redacted]

25X1

b. Ultra-Violet Rear Projection Screen Study, [redacted]

25X1

[redacted]

25X1

c. Separatron Air Bearing Film Processor, [redacted]

25X1

[redacted]

25X1

3. Evaluation of Proposals

36/64 Proposal for Continuation of Luminescent Rear Projection Screen Development, [redacted]

25X1

69/64 Feasibility Demonstration of Automatic Registration Optical Stereo Viewing, [redacted]

25X1

86/65 Proposal for Rapid Access Color Processor, [redacted]

25X1

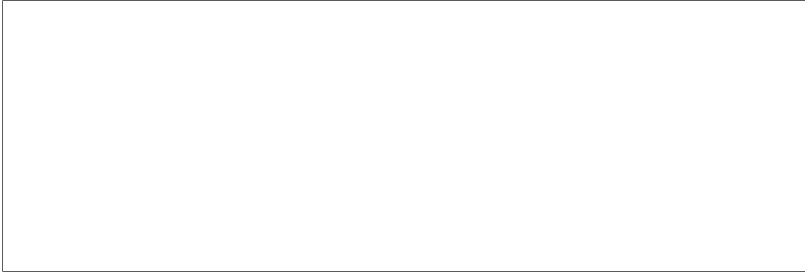
These proposals have been evaluated as of no interest at the present time. They all represent preliminary technical investigations.

SECRET



78165

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12 February 1965

Please Reference:  
5W-1598

U. S. Government  
Washington, D. C.

Subject: Clean Room Research Program

Gentlemen:

[redacted] is pleased to submit its proposal for the continuation of the research program presently being conducted under the terms of contract [redacted]. We propose to furnish 5,000 engineering hours in fulfillment of the program as outlined in the enclosed price breakdown; based on receipt of a fixed price term contract in the amount [redacted].

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If there are any questions please do not hesitate to contact either Mr.

[redacted] in Washington, D.C. [redacted]

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Very truly yours ,

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RJN:gw  
enclosure: Price Breakdown

12 February 1965

Cost Element

Engineering           A  
"                       B  
"                       C  
TOTAL ENGINEERING DIRECT

Engineering Overhead @ 130%

Manufacturing    Dept. 11  
TOTAL MANUFACTURING DIRECT

Manufacturing Overhead @ 135%

Material

TOTAL COST

G & A Expense @ 13%

Profit 10%

TOTAL

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*ref. 5*  

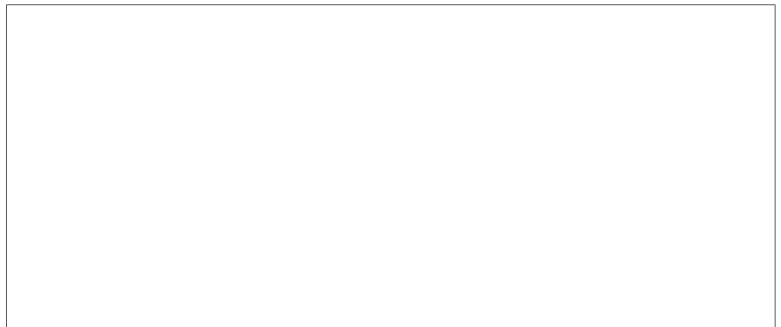
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*same as*  
*148/65*

5W-1598  
TECHNICAL PROPOSAL  
CONTINUATION OF ADVANCED PROCESSOR  
DEVELOPMENT PROGRAM

Prepared for  
The United States Government

February, 1965



25X1

1. INTRODUCTION

This document is a proposal for the continuation, in fiscal 1966, of research and development work presently under contract [redacted]

[redacted] The proposed work involves the refinement of photographic processing equipment and techniques and the application of air/liquid bearings to processors. The work under the present contract includes the installation of a cleanroom as GFE at the [redacted] facility. The proposed work includes the use of the cleanroom and elements of the HTA-5 processor for further research.

The data in this proposal were prepared for the U. S. Government by the technical staff of the [redacted]

[redacted]

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1.1 SCOPE

This proposal covers the technical details for the proposed program and a plan of accomplishment.

1.2 BACKGROUND

The research and development program presently in work under Contract [redacted] has the following main development objectives:

25X1

- 1) Develop a modular concept for an air/liquid bearing processor with high reliability, capable of operating in a cleanroom environment
- 2) Reevaluate component size and efficiency to reduce processor size and power consumption
- 3) Extend the modular concept to all processor sections
- 4) Investigate new designs, configurations, and concepts for liquid and air bearings, vacuum capstans, and air squeegees
- 5) Investigate power losses in plumbing and develop methods to minimize them

6) Determine operational parameters essential to the design of an air/liquid bearing processor

7) Study cleanroom operations to evaluate the effect of room environment on the film during the processing cycle, and the effect of the processor on the aerosol content of the cleanroom atmosphere

Substantial progress has been made in the meeting of these objectives and work will continue under the present contract until June 30, 1965. A modular processor concept was studied and recommendations documented. Two different types of both air and liquid bearings were studied. Experimental models of each type were built and functional performance testing started. An investigation was conducted to identify and measure pressure losses in plumbing with significant results. Work was started to develop methods of obtaining values for film tension, bearing loads, and vacuum capstan torque.

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As a logical continuation of the present research, the following program is proposed. It will be carried out over a 6-month period between 1 July and 30 December 1965.

### 2.1 PARTICLE CONTAMINATION OF FILM

An analytical study will be made to determine the effect of foreign particles on the photographic interpretation of film transparencies. Particle sizes, grain structure, probability of information concealment, and similar criteria will be studied to produce a mathematical statement on which an experimental program can be based.

## 2.2 CLEANROOM PROCESSING

Based on the criteria obtained in the analysis proposed in Sub-section 2.1 above, negatives will be developed in the cleanroom for experimental evaluation of the theoretical results.

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## 2.6 VACUUM CAPSTAN EVALUATION

Evaluation of the vacuum capstan in comparison with two other types will be continued. A design study to assess the problems involved in a modular capstan design incorporating its own power source will be conducted.

If time and funds permit, an experimental capstan will be manufactured and mounted on the HTA-5 takeup section for functional evaluation.

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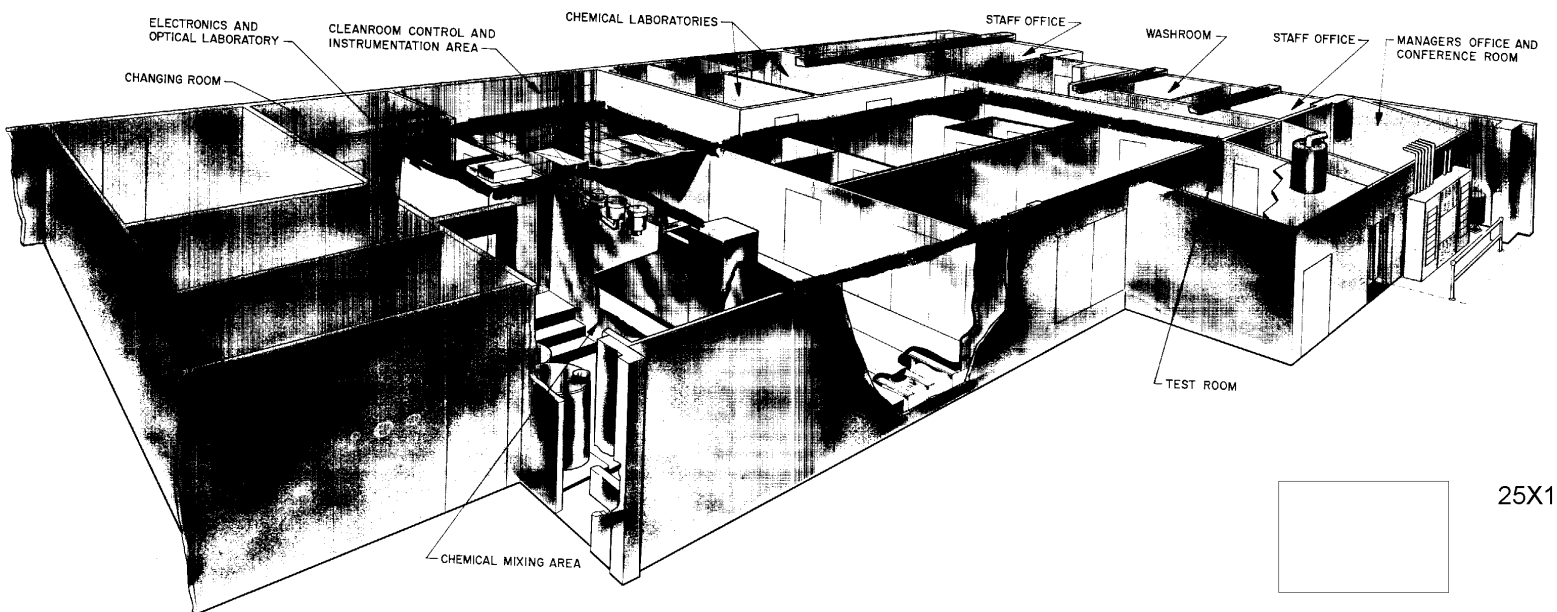
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## 3. PROGRAM SCHEDULE AND MANLOADING

The proposed program schedule and manloading for the 6-month period between 1 July and 31 December 1965 is shown in Figure 2.

# R AND D FACILITY AND CLEANROOM INSTALLATION



25X1

Figure 1.



	JULY	AUG	SEPT	OCT	NOV	DEC	CLASS	HRS
CONTAMINATION STUDY	██████████						A	520
CLEANROOM EXPERIMENTS				██████████			C	1040
DIRECTION AND REPORTING				██████████			A	347
AIR BEARING DESIGN	██████████						A	520
FABRICATION		██████████					Dept 11	173
LIQUID BEARING EVALUATION	██████████						B	347
FABRICATION		██████					Dept 11	87
HTA-5 INSTALLATION			██████████				B	693
MOCKUP FABRICATION			██████████				Dept 11	173
VACUUM CAPSTAN DESIGN	██████████						B	960
STUDY								
FABRICATION			██████				Dept 11	173
AIR SQUEEGEE EVALUATION			██████████				A	607
AND TEST								
FABRICATION				██████████			Dept 11	129
REPORTS		████	████	████	████	████	A	80
SUPERVISION AND	██████████						A	80
ADMINISTRATION								

Figure 2. Program Schedule and Manhour Loading

5W-1538

3 February 1965

DEVELOPMENT OBJECTIVES

PROCESSOR DEVELOPMENT PROGRAM

1. SCOPE. The development objectives covered herein set forth requirements for an investigative effort relating to photographic processing equipment and techniques. The program shall make use of the present HTA/5 processor on a GFE basis as a test vehicle, for specific investigative efforts in a GFE clean-room environment, adequately equipped and staffed to achieve conceptual and engineering advances in the art and technology of photographic film processing.
2. INVESTIGATIVE OBJECTIVES. The investigative objectives described below are primarily directed toward improvements in the liquid-air bearing concept because of its demonstrated significant advances in the state-of-the-art of film processing. It is not intended that these objectives restrict related efforts in other processing concepts that may be conceived as a result of this work; however, any major deviation from the objectives as set forth shall be approved by the project monitor.
3. DETAILED OBJECTIVES.
  - 3.1 Clean Room. Study the practical aspects of operating a processor in a clean-room atmosphere to establish parameters for a clean-room processor operation. This investigation should evaluate the effect of the room environment on the film during the processing cycle and should also evaluate the processor effect on the aerosol content of the clean-room when operated therein.
    - 3.1.1 Study the effects of dust particles on dry film negatives and positives being viewed and analyzed in clean-room environment. Establish the acceptable limits of particle size and concentration in spaces used for photographic viewing, interpretation and analysis.
  - 3.2 Air Squeegee. Investigate configurations and other parameters by which the efficiency of the air squeegee can be improved, with the minimum of air flow and/or power consumption.
  - 3.3 Vacuum Capstans. Investigate designs for improving the vacuum capstan drive method for all applications and conditions, including:
    - 3.3.1 Vacuum level versus volume.

3.3.2 Capstan diameters and configurations for variable film loads.

3.3.3 Determine under what conditions other materials, such as scintered metal, or teflon coatings, may be used and at what energy levels.

3.3.4 Effects of capstan configurations on tracking characteristics.

3.4 Liquid and Air Bearings. The major requirement for liquid bearings and air bearings is that they should provide stable cushions for the support of film webs "in-solution", as the film passes through the solution tanks, and "in-air" as the film web crosses over from one solution to the next. To improve these functions, the following investigations should be conducted:

3.4.1 Investigate new designs, configurations and concepts for liquid and air bearings, respectively, with the objective of achieving the optimal film support and tracking with the minimum of respective solution and air flow.

3.4.2 With the object of increasing the mechanical efficiency of liquid and air bearings, investigate the effect of variable slot openings as well as liquid and air feed arrangements.

3.4.3 Measure energy levels required to maintain firm cushions over a wide range of load conditions encountered by change of film width from 70mm to  $9\frac{1}{2}$  inches and film thicknesses varying from 1.5 mils to 7.0 mils.

3.4.4 Establish the effect on film stability of increases or decreases in the diameter of liquid and air bearings.

3.4.5 Investigate the correlation between velocity and flow rate of solutions and air with the view of optimizing the values for each.

3.5 Solution Filtration. Filtration of solutions is required to remove large particles from solution that may cause film emulsion or base damage. This requirement has varied widely in new equipment over the years, from 0.3 micron to 20 micron particle size, with little scientific basis for the judgment.

3.5.1 Investigate the effects on film surfaces, by the liquid-air-concept, with filtering at different particles size levels to establish a scientific basis for the selection of filters for solution and water.

3.6 Plumbing. The requirements for large amounts of plumbing is inherent in processing equipment and contributes significantly to power losses. Effort should be expended to minimize these losses.

3.6.1 Determine which materials and fitting designs provide the least pressure drop and give the best non-leak performance.

3.6.2 Determine which pumps and seals provide the greatest efficiency with the least temperature rise of solution.

3.7 Power Consumption.

3.7.1 Re-evaluate each electrically operated component to assure maximum electrical efficiency. Improvement of efficiency in liquid and air bearings and the air squeegee should greatly reduce the power required for pumping liquid and air.

3.8 Splicing. Investigate new splicing methods and splicing apparatus for incorporation as an integrated module of the processor.

3.9 Film Torque. An important element in modern processing is complete avoidance of any stress on the film web that may cause distortion or elongation of images by driving torque applied to the film web.

3.9.1 Devise techniques by which torque on the film web can be measured, controlled and minimized. Also establish some criteria by which the torque of the liquid-air bearing concept can be compared to that of presently standard techniques.

3.9.2 This investigation should include a measure of the torque required to draw film from the supply spool, with a view to driving the supply spool in proper synchronism with the processor drive capstan to avoid all possible stretching of the film.

3.10 Drying Air. Investigate the particle size filtration required for drying air fed to a film drying cabinet.

3.11 Film Washing. Investigate film washing methods with a view to reducing the volume of wash water required, without sacrifice of archival quality.

3.12 Elevated Processing Temperatures. Measure effect of elevated temperature on processing time and film quality to obtain basic reproducible data.

4. REPORTS. The contractor shall be required to submit monthly progress reports and periodic technical reports.

4.1 Monthly Reports. The monthly report shall be a letter type describing briefly the activities of the previous month and proposed work for the next month. This report shall include a monthly accounting of funds expended with an appropriate breakdown and documentation of verbal agreement made with the monitor.

4.2 Technical Reports. Technical reports shall be submitted on completion of each respective Research Objective, or at some significant point towards its accomplishment. These reports should describe the work performed with results, conclusions and recommendations.

5. ORGANIZATION. In order to assure development of a research environment conducive to the origination, development and testing of new concepts and techniques, the research group assigned to this program shall be organizationally separated from production personnel.

5.1 Personnel. Personnel chosen by the contractor to perform the research described herein shall be approved by the contract monitor.

5.1.1 Personnel assigned to this research program shall be assigned on a full-time basis.

6. CLEAN ROOM. The GFE clean-room provided and installed at the expense of the Government within the contractor's plant shall be used in pursuit of this program.

7. HTA/5. The GFE HTA/5 processor shall be installed in the GFE clean-room and brought to a suitable and reliable condition to properly serve as a test vehicle in any reasonable manner to accomplish the investigative objectives covered herein.

8. SECURITY. The enclosure utilized for this investigative program shall be closed to all personnel except those assigned who have proper security clearances and who have a need-to-know of work conducted therein.

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*P&DS*

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NPIC PROJECT NO.

*Responsible Component*

*P&DS*

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CLASSIFICATION

RECEIPT OCB/OS

DISSEMINATED OCB/OS

SUPPORT/SERVICE REQUIREMENT

(The following info is required when rqmts are levied by external organizations)

OFFICE \_\_\_\_\_ DATE OF RQMT \_\_\_\_\_ CONTROL NO. \_\_\_\_\_

NPIC DIV/DETACH PROCESSING RQMT \_\_\_\_\_ PROJ OFF \_\_\_\_\_ PHONE \_\_\_\_\_

SUPPORT REQUESTED OF \_\_\_\_\_ PRIORITY \_\_\_\_\_ DATE REQUIRED \_\_\_\_\_

(The following info is required when rqmts are levied for internal support)

DIV/STAFF P&DS DATE OF RQMT 1 May 1965 CONTROL NO. \_\_\_\_\_

SUPPORT REQUESTED OF P&DS PROJ OFF \_\_\_\_\_ PHONE \_\_\_\_\_

PRIORITY \_\_\_\_\_ DATE REQUIRED 28 February 1965

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1. BACKGROUND INFORMATION:

The work requested is in support of a <sup>*NPIC*</sup> departmental:  Photo interpretation proj.;  
 Non-photo interpretation project. It will result in:  Hard copy report;  
 Informal report (memo);  Basic service only.

Project Description: Film Processor Development Program II

2. SPECIFIC SUPPORT/SERVICE REQUESTED: Support from NPIC will probably consist of:  
 Photographic;  Reproduction;  Mensuration;  Graphics;  ADP;  Editing;  
 Other (explain below) -- (Include statement as to estimated amount of work required of support component(s); i.e., number of contact prints, enlargements, boards, etc.)

Monitor \_\_\_\_\_ Film Processor Development Program and prepare evaluation report upon completion.

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3. URGENCY JUSTIFICATION: (If immediate support is required a statement of justification must be made on this form.)

DATE OF COMPLETION \_\_\_\_\_

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NPIC FM 218 (4-64)



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