

7ul-0015

9204-SHC64-86

P 9204-1

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4 August 1964



Dear Jim,

In our proposal 9204-SHF64-69 on the "F" System Development Program, under the Task I Work Statement, we had included as a part of the final evaluation report, the results of environmental chamber tests designed to examine high speed film handling problems (such as Corona discharge) at operational gas pressures and film dynamics.

However, in a subsequent discussion with Mr. L. Dirks, he asked that the Corona discharge problem be analyzed in more detail. Mr. Dirks suggested that it might be advisable to use an outside specialized group with the appropriate background to perform this analysis.

As a result we prepared the following Task Statement on the subject analysis to present to Ion Physics Corporation (A subsidiary of High Voltage Engineering Corp.), a group which has previously done considerable investigation in this area:

TASK STATEMENT

CORONA DISCHARGE ANALYSIS

As times it becomes necessary to operate photographic equipment in a vacuum chamber and after such operations a phenomenon takes place which can badly deteriorate the photography. This phenomenon is called corona discharge. It occurs when film is transported by means of rolls covered by a resilient coating. This discharge occurs usually in the range of 5 to 30 microns pressure and is evidenced by diffuse fogged area occurring adjacent to the discharge area. It is quite distinctive from common dendritic or "Christmas Tree" static discharge which does not occur at the pressures indicated.

The purpose of this study is to attempt to establish a sound theoretical explanation for this electrical discharge and to develop possible approaches which might be used to prevent build-up of these charges or to dissipate them harmlessly.

The approaches which are indicated by the study would subsequently be the basis of experimentation to validate the findings.

The criterion for a useable cure is that it be practical from the standpoint of applicability to production hardware and not depend upon the expenditure of large amounts of electrical or mechanical energy. In other words the most acceptable remedy would be one which depended upon choice of materials or configuration rather than a cure by usage of energy.

~~SPECIAL HANDLING~~

The above statement was presented and discussed in general terms by Mr. F. Madden with these people so as to avoid any security problems. This contact was approved by the security representatives.

I.P.C. has now submitted a proposal to undertake a three month analytical study based on our task statement culminating in a final report summarizing the conclusion of the study, including literature review, review of our present problem and similar problems at other companies, with recommendations for an experimental and analytical program leading to its ultimate solution. These recommendations to include statistically designed experiments to clarify the problem as well as development of techniques (or applications of known techniques) for the solution of problems uncovered.

We feel that an undertaking of this nature is most beneficial and necessary in order to establish utmost feasibility during Phase I.

In order to pursue this study in a thorough manner it will be necessary for personnel from Ion Physics Corporation to view the "C" equipment and to study the structure in which the film moves as well as to study the structure under consideration on the "F" program. Upon your approval of this subcontract, requests for "F" clearances will be submitted for the following personnel from Ion Physics who hold clearances as indicated:

Mr. A. John Gale	AEC	Q
Dr. Alec Stuart Denholm	DOD	Secret
Dr. Alexander G. Stewart	DOD	Secret

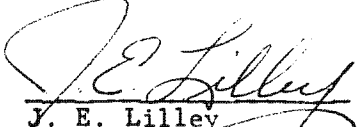
We are including a copy of the IPC Technical Proposal and associated appendices which contain the resumes of these individuals. Rapid processing and granting of these clearances will be essential in order to undertake all aspects of this study within the three month schedule.

The cost of the proposed study is indicated in the attached cost summary.

This document constitutes Addendum No. 3 to our proposal 9204-SHF64-69 and is subject to the same terms, conditions, and Contract considerations.

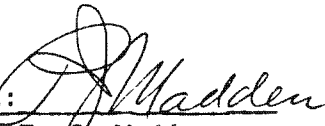
If you should require further information, please contact the undersigned.

Very truly yours,


 J. E. Lilley
 Contract Administrator

Attachs:

- Cost Summary
- ION Tech. Proposal
- Appendix 1
- Appendix 2
- Appendix 3

Approved: 
 F. J. Madden
 Project Manager

JEL/kmt

COST SUMMARY

SUB-CONTRACT	15,000
G & A (14.5%)	<u>2,175</u>
SUB-TOTAL	17,175
FEE (9%)	<u>1,546</u>
TOTAL	<u><u>18,721</u></u>

~~SPECIAL HANDLING~~