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Office Memorandum ~~SECRET~~ UNITED STATES GOVERNMENT

TO : The Files - RD-76, Task Order I

DATE: 29 September 1959

FROM :

[Redacted]

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SUBJECT: (Trip Report - Time Event Marker, IN-7, 24 SEP 59)

1. On 24 September 1959 the writer, accompanied by [Redacted]

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[Redacted] OC-SPS/EA, visited the [Redacted]

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The purpose of this visit was to monitor the progress on this task. The progress was discussed with the following cognizant personnel:

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2. The subject task provides for the fabrication of 15 IN-7 time event markers (TEM) and the development of one ruggedized IN-7 prototype (TEM-A). Initial development of the IN-7 was accomplished under RD-76, Task Order C. The TEM and TEM-A are miniature time code generators controlled by a watch movement. In the TEM the watch is driven by a manual wind negator spring which when fully wound will provide operation for a 60-day period. In the TEM-A the watch is driven by an electrically operated solenoid which pulses the watch winding mechanism once per minute. In this manner, operation of the unit will continue for a period determined by the life of the external battery source. When TEM or TEM-A is electrically interrogated, a series of pulses is presented at the output terminal. This is a binary coded time group representing the number of lapse minutes from the time of activation. The TEM and TEM-A will be used with ELINT systems to denote the time that sample signals are recorded.

3. The present status of the fabrication of 15 IN-7's is:

- a. Two units delivered prior to this visit.
- b. One unit was delivered during this visit.
- c. Eight units assembled and in the process of testing.
- d. One unit is in final assembly stages.
- e. Three units are in the sub-assembly stage ready for final assembly.

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The contractor explained that several of the units in the testing stage are being retained in a sort of life-test status. The project engineers on this task believe that the spring contacts on the calendar discs and the sweep readout, after final adjustment, tend to return to their original position after a period of time, thus causing the unit to be out of adjustment. Another condition which they believe may be giving them trouble, or result in later trouble, is the cleaning agent used on the calendar disc. They have used triethylchlorine which develops a deposit of film causing high contact resistance. Presently they are trying different cleaning agents to find a suitable replacement. To facilitate testing of all IN-7 equipments, the contractor has developed a breadboard device which will conduct a complete test of all IN-7 functions in ten minutes with direct numerical readout on an adding machine. Also, they have built an amplifier for the Brush ink recorder to measure contact resistance.

4. A demonstration of the engineering model of the TEM-A ruggedized time event marker, IN-7, was presented by the contractor. Operation of the unit during this demonstration was very good. The unit was put through several ten-minute tests on the test setup mentioned above. The present status of the unit was discussed. All tests have been completed on the unit except those relating to sealing of the unit. These tests have not been accomplished to date because of the contractor's fruitless search for the proper desiccant package and container which will effect the size and design of the case for this unit. We have requested a replaceable desiccant package with an external indication of its condition. The only desiccant packages which the contractor has been able to locate have all been too large and would require an increase in size of the IN-7. The contractor has three proposals for this problem; they are:

- a. Increase the size of the IN-7 to allow for the larger desiccant package and fill the case with nitrogen.
- b. Place the desiccant package inside the case, the condition of which could not be determined without opening the IN-7, and fill the case with nitrogen.
- c. Leave out the desiccant package and fill the case with nitrogen.

In all cases, the nitrogen gas is recommended as a prevention of corrosion to mechanical parts in the unit. The problem was reviewed and it was concluded that we would attempt to provide the contractor with information on a small desiccant package, the condition of which could be determined without opening the unit, from sources within our organization. If we are unable to obtain a unit of the right size and configuration, we will suggest an alternate solution to the problem. In any case we expressed the desire not to increase the size of the TEM-A. The present size of the TEM is 5-1/2 x 2-5/16 x 1-3/4 inches, and the size of the TEM-A is 5-1/2 x 2-3/8 x 1-3/8 inches.

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5. The results of the tests conducted to date on the unit have been very good. Temperature, -45°C to 75°C; shock, 35 G for 11 millisecond duration; and vibration, 40 G's, 5 to 55 cycles per second. The specifications called for on this task are: -40°C to 70°C; 15 G's, and 10 G's respectively. At no time during this environmental testing did the contractor subject the TEM-A to its environmental limits.

6. The remainder of our discussion concerned the final report, drawings, and the assemble and test specification. In the final report the contractor was instructed to refrain from referring back to the bi-monthly reports as much as possible, and when this method was used, to give a brief resume of the content of the reference. The contractor was informed that the assemble and test specification and the drawings should be of sufficient detail and accuracy to allow the manufacture of the TEM-A by a group of uninitiated but competent personnel.

7. The last item discussed with the contractor was a program of on-the-job training for two or three Agency employees to start in approximately one month. This program would be on the time event marker, IN-7, and the signal actuate device, CU-3, for a period of 4 to 6 weeks. This course would consist of actual assembly, testing, and trouble-shooting of the units along with the personnel. The contractor was agreeable with this request, but had some reservation on the method of funding because of previous troubles encountered on training funds. He requested that better or improved arrangements should be worked out. 25X1



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cc: R+D Subject File
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