

~~SECRET~~ CONFIDENTIAL

Office Memorandum • UNITED STATES GOVERNMENT

TO : The Files - Contract 602, Task Order 3

DATE: 30 December 1959

FROM :



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SUBJECT: Development of a Miniature DC Motor for the TP-3 Printer

1. R+D Laboratory analysis and appraisal of the miniature DC motor developed by the [redacted] has been completed. From the attached test results it is apparent that none of the design goals have been achieved. The regulation reported, however, conflicts with the contractor's test data. The R+D Laboratory reported average speed variation of  $\pm 50$  rpm at room temperature and over a voltage range from 10.8 to 13.2 volts. The contractor reported variation no greater than  $\pm 40$  rpm over a temperature range of  $-10^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$  and a voltage range of 9.8 to 12.2 volts.

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2. The undersigned first felt that the difference in the findings was due to the tests being made over slightly different voltage ranges, however, [redacted], R+D Laboratory, orally reported that readings also had been taken over the same voltage range (9.8 to 12.2 volts) used by the contractor. Also during the laboratory tests, the motor speed became highly erratic, varying  $\pm 200$  cycles about a mean of 1900 cps. Since component failure was evident the motor was returned to the contractor for repair. On 28 December 1959 the undersigned telephoned the contractor to advise him of the shipment and to report the failure and difference in test data. The writer then asked that a technical description of work required on the motor be submitted with a cost estimate prior to incurring additional costs under the contract. Mr. Stancil agreed to the above, but indicated that repair of the motor might be simply accomplished without further charges.

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3. It is recommended that upon receipt of either the motor or a proposal for additional work, and before contract amendment, the TP-3 motor program be carefully reviewed with the laboratory, taking into consideration other DC motor designs becoming available. These are the CB-3<sub>x</sub> DC starting-AC running motor, and the semi-conductor commutated DC motor proposed by Crosby Research Institute for the CB-9 project.

*Robert I. Desourdis*  
ROBERT I. DESOURDIS

Distribution:

- R+D Subject File w/attachment
- R+D Lab w/o attachment
- Monthly (2) w/o attachment
- EP Chrono w/o attachment



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Attachment:

Memo from R+D Lab to Chief, EP dated 9 December 1959

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STANDARD FORM NO. 64

# Office Memorandum • UNITED STATES GOVERNMENT

TO : Chief, External Projects Section

DATE: 9 December 1959

ATTN : [redacted]

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FROM : Chief, R&D Laboratory

SUBJECT: [redacted] Prototype Motor, Test Results

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1. [redacted] prototype motor, submitted for evaluation for possible future use in the TP-3A, has been subjected to the tests indicated below:

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(a) Varying the voltage from 10.8 volts to 13.2 volts, and monitoring the speed by strobing, indicated an average variation of  $\pm 50$  rpm. The maximum variation was 65 rpm. The test was run at room temperature.

(b) Since the above test results were considerably outside the specification and not in accord with previous tests made by [redacted] it was decided to check the accuracy of the strobing measurement by repeating the test using an rpm adapter into a Hewlett-Packard counter. During this test the motor speed became highly erratic, varying over the range from 1700 to 2150 rpm. The motor was operated during the tests for a total of 8 hours all at room temperature.

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2. Although [redacted] has indicated that final design considerations will reduce the magnetic detent action and the strong external field now present, it is believed that these two factors should again be singled out for attention. Both factors were problems in the first Dalmotor units, and are now considerably higher in the [redacted] prototype.

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3. No attempt has been made by the Laboratory to determine the cause of the present malfunction. The motor has been forwarded to you under separate cover for return to [redacted]. If the difficulty now causing erratic operation can be cleared, additional tests at room temperature can be made. If the results of the room temperature tests justify testing the unit over the specified temperature range, then these tests can also be undertaken.

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[redacted]

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FIELD DOCUMENT ROUTING AND ACTION RECORD

INSTRUCTIONS: Routing designations, either individuals or units, are to be placed in the "TO" column. Comments are to be numbered to correspond to the number in the "TO" column. Each comment is to be underlined with a line drawn across the "COMMENTS" column. Each recipient of the attached document is to place his initials in the proper space following the corresponding numbered routing. The date the document is forwarded to the next routing is to be placed in the proper column. The last routing on this sheet shall be the unit in which the basic document is to be filed. If the holding unit is other than the central files, the central file shall be the next to the last routing to insure proper control clearances. THIS DOCUMENT ROUTING AND ACTION RECORD IS TO REMAIN ATTACHED TO THE BASIC RECORD DOCUMENT AS A PERMANENT RECORD.

FROM		DOCUMENT SYMBOL AND NUMBER	
R&D Laboratory			
		DOCUMENT DATE	ACTION SUSPENSE DATE
		9 December 1959	

TO	LOCATION	DATE FORWARDED	OFFICER INITIALS	COMMENTS
1. R&D	2815 Alcott Hall	12/12	[Signature]	<p>Vol photos returned to [redacted] [redacted] Corp for estimate on repair. 22 Dec 1959</p> <p>Note 2/2/60 no word from Staniel.</p>
2. GC-E-1 OC-E	"	12-11	[Signature]	
3. R&D/EP	"	12-14	[Signature]	
4. RID			[Signature]	
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