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Office Memorandum • UNITED STATES GOVERNMENT

TO : The Files

DATE: 7 February 1957

FROM :

[Redacted]

SUBJECT: (Contract RD-122, Task Order 1 - AS-3)

1. General - A visit was made to [Redacted] tion during the afternoon of Thursday, 31 January 1957, to monitor the subject contract. Present for a discussion of the AS-3 development were;

[Redacted]

The undersigned was asked to delay this visit until Monday, 4 February when [Redacted] could be present, however, the availability of [Redacted] on Friday was even more appreciated and senior engineering representation on this project seems to have been established.

2. Transmitter - A breadboard transmitter is being duplicated in AS-3 packaging. The units now have a pi network and it was stated that the output was not less than 27 watts over the tuning range (3 to 30 mc/s - Single band) working into 50 and 300 ohms. The hardware packaging by [Redacted] is excellent but the transmitter design is not sufficiently advanced to perform specification tests.

3. Antenna Loading - [Redacted] was considerably concerned with the requirement for loading into random length antennas especially since single band tuning into a highly reactive antenna could result in tank tuning to a harmonic of the desired operating frequency. [Redacted] said it would assist them to know the extent of antenna instruction provided the user. Solutions to the problem were discussed to include going to three band operation, providing a calibrated "Grid-dip" resonant indicator as an accessory, calibrated antennas, etc. It was suggested that the company conduct tests with their almost completed model to determine to what extent capacitive loading with less than quarter wave antennas would have on tank tuning. The extent of redesign could then be determined from such findings. The undersigned agreed to make inquiries regarding antenna data available to the user.

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4. Coder - The mechanical design of the coder is completed and a brass engineering model was available for inspection. Alnico V slugs have been procured and the tape cartridge design was said to be completed and a model being fabricated in the model shop. The company's third progress report discussed a tape manufacturers test efforts on behalf of [] for the AS-3 coder. [] is not paying for such services. The undersigned concurred that such specialized services are desirable but pointed out that such informal working agreements are not always brought to a speedy and successful conclusion. Frequent contact with the tape manufacturer was suggested.

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CHARGING RATE

5. Battery Charger - The specifications call for a two ampere charging rate. Inasmuch as the required battery capacity could not be determined at the time the specifications were prepared, a two ampere [] seemed reasonable. However, [] states that the power requirements can be exceeded with three amperehour cells. A two ampere charging rate for three amperehour cells (full charge in 1 1/2 hours) would be overworking the batteries and a 500 mA charging rate (full charge in 6 hours) was suggested.

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6. Packaging - [] presented a new packaging idea which the undersigned completely indorsed but stated that approval would have to come from the user. The plan is this: Instead of having an AC supply deliver the various high voltages, that the AC supply high voltage output be 12 volts DC for working into the transistorized battery high voltage supply. From an operational point of view, this would mean that the transistorized high voltage DC supply component would be a necessary item for AC operation, however, since this component will be no larger than a king size pack of cigarettes, the disadvantages of transporting the additional component are off-set by the following:

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- a. The need for a battery charger with a second heavy and multitap transformer is eliminated (the first transformer is in the AC supply). Battery charging would be accomplished with the AC supply which would have a voltage tap of 14 - 16 volts DC for charging 12 volt batteries.
- b. Power switching circuitry would be simplified.
- c. Total weight of equipment would be reduced a minimum of two pounds.
- d. Total volume of equipment would be reduced a minimum of 25 cubic inches.
- e. Component interconnection would be simplified for the various modes of operation.

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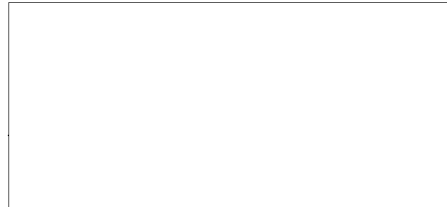
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7. Progress Reports - The undersigned was again critical of the [] progress reports, and apparently some assistance is needed in this area. One solution would be for the company to hire a technical writer, but mostly perhaps, the company needs to know what a bi-monthly progress report should contain and how such data should be presented.

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8. [] now appears to be doing better work than their progress reports indicate and although progress is slow, their thinking is better. We have never indorsed the idea of a mechanical engineer being the project engineer and are pleased that senior engineering representation is now active on the project. The contractor has corrected his work schedule to agree with contractual requirements and re-affirmed that an engineering model of the equipment would be completed by July 1957.

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