UNITED STATES GOVERNMENT

# *Memorandum*

EP 65-286

25X1A TO : The Files: [redacted]

DATE: 20 September 1965

FROM : [redacted] 25X1A9a

25X1A SUBJECT: Inspection Report No. 5 - HG-100 with [redacted] 25X1A5a1

1. Project Description:

The HG-100 is a tactical handcranked generator to be used in the operation of field portable electronic equipment and the charging of batteries. The unit is to supply 75 watts of average and 150 watts of peak power at 12 volts. The design goal is for a 10 pound package of 230 cubic inches.

2. Contractual Information: 25X1A1a

a. Initial Cost: [redacted]
b. Request for Procurement Action: 27 July 1964
c. Initiation Date: 2 January 1965
d. Completion Date: 2 September 1965 Time Extension: 25 October 1965
e. Deliverable Items: Twenty service models, monthly reports, and final report. One prototype.

3. Date of Meeting: 8 September 1965

25X1A 4. Place of Meeting: [redacted]

5. Persons Attending: 25X1A9a

| Agency | Non-Agency |
|---|---|
| [redacted] | [redacted] 25X1A5a1 |

6. Contractor's Performance:

a. On schedule and expected to remain so: Yes
b. Within obligated funds and expected to remain so: Yes
c. Satisfactory technical progress: Yes

7. Project Status. . .

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7. Project Status:

On a test stand with dummy loads, the HG-100 prototype has successfully met all of its electrical specifications. My purpose on this visit was to test the HG-100 with its intended load, the RS-100 radio set. I operated the HG-100 both on the ground and on a tree. Either technique is suitable but the tree adds much stability and eases the cranking effort considerably. There appears to be no loads or duty cycles demanded by the RS-100 that the HG-100 cannot provide. Unfortunately, before the cranking dynamics could be experimented with in greater detail, we had a catastrophic failure in the RS-100. The failure is believed to be in one of the transmitter output stages since it occurred after the antenna was accidentally shorted. Testing was continued with dummy loads. Efficiencies as high as 63 percent are possible with the HG-100 making it one of the most efficient hand generators ever constructed.

25X1C The GN-54 [redacted] was also available for inspection so I had a chance to compare it with our unit. The HG-100 was originally a modified GN-54. The following is a comparison of a few of the major design features:

| | GN-54 | HG-100 |
|---|---|---|
| Outputs | 12 VDC for radio operation or 2 amps constant current for battery charging | 12 VDC for radio operation or 0.2 - 2 amps constant current for battery charging |
| Maximum output power (continuous) | 50 watts | 150 watts |
| Weight | 8.4 pounds | 10 pounds |
| Maximum Efficiency | 50 percent | 63 percent |
| Volume | Approximately 240 $in.^3$ | 310 $in.^3$ |
| Speed Increaser | Harmonic Drive | Spur Gears |

Both units are. . .

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Both units are designed for tactical field use and are capable of meeting the necessary environmental specifications.

The first HG-100 units are scheduled for delivery during the first week of October. The project is approximately 85 percent complete.

[redacted] 25X1A9a

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