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[redacted] 25X1

June 20, 1960

[redacted] 25X1

T.O. # NN, D[illegible] To Juab

Dear Sir:

This letter report summarizes the work done on Task Order No. NN during the period April 21 to June 15, 1960.

During this period, final field testing of the vehicle system was conducted with you present; a side panel, damaged in a minor accident, was replaced; and the vehicle was released for delivery.

On April 28, during a radio range test, the vehicle was involved in a minor accident which damaged the left rear quarter panel, lower side panel, front quarter panel, and door. Although the actual damage was slight, it was unsightly, and it was decided that the vehicle should be repaired. The repair of the lower side panel proved to be difficult, because the space between the outer panel and the interior wall was filled with plastic foam insulation. To avoid damage to the insulation that might have occurred from the heat of normal "leading" and welding operations, the damaged panel was removed and replaced with a new panel, which was installed with an epoxy-resin structural adhesive. The other vehicle panels were repaired conventionally, and the left side of the vehicle was repainted.

On June 1, the vehicle system was demonstrated to you at night. Excellent radio communication at a range of 26 miles was obtained during this demonstration of the equipment. Tests of the IR nighttime-viewing device indicated that a human figure could be recognized as far as 70 yards from the vehicle.

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June 20, 1960

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On June 2, you conducted the final inspection on the vehicle, and the vehicle was released to you.

The summary report is under preparation. The Scotchcal adhesive film required for the vehicle has been ordered from the manufacturer and will be shipped to you as soon as it is received.

The total appropriation on this Task Order was $36,505. As of June 1, 1960, the unexpended balance was approximately $750.

Sincerely,

[redacted]

25X1

ABW:mlm

In Duplicate

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[redacted]

25X1

April 28, 1960

Dear Sir:

This letter report summarizes the work done on Task Order No. NN during the period March 21 to April 21, 1960.

During this research period, all of the minor vehicle-system tasks such as painting and cleaning have been accomplished. In addition, a defect in the electrical system has been corrected, a holder for the IR equipment and a holder for a water container have been installed, and field tests of the transceiver have been conducted.

After the evaluation and demonstrations of the air-conditioning and ventilating system were completed, cleaning and painting of the vehicle proceeded. The inside of the occupied space was painted a light green (operating-room color), and the roof of the vehicle was repainted to cover the sheet-metal work done on the IR roof port.

During a demonstration of the air-conditioning and ventilating system, an electrical-wiring failure occurred. Continuity tests on the wiring revealed that the defect was in inaccessible wiring within the conduit behind the sidewall of the vehicle. Because the exact location of the defect in the wiring could not be determined readily, all of the wiring in that particular conduit was replaced with external wiring.

A water container was purchased and installed on one sidewall of the vehicle. A mounting bracket and cover for the IR equipment were designed, prepared, and installed in the vehicle.

Field tests of the transceiver were conducted. The results indicated that a range of 12 miles can be easily obtained.

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During the next report period, a summary report will be prepared that will describe the activity on this project.

The total appropriation on this Task Order was $35,505. As of April 1, 1960, the unexpended balance was approximately $1,900.

Sincerely,

[redacted]

25X1

ABW:mlm

In Duplicate

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25X1

April 28, 1960

Dear Sir:

This letter report summarizes the work done on Task Order No. NN during the period March 21 to April 21, 1960.

During this research period, all of the minor vehicle-system tasks such as painting and cleaning have been accomplished. In addition, a defect in the electrical system has been corrected, a holder for the IR equipment and a holder for a water container have been installed, and field tests of the transceiver have been conducted.

After the evaluation and demonstrations of the air-conditioning and ventilating system were completed, cleaning and painting of the vehicle proceeded. The inside of the occupied space was painted a light green (operating-room color), and the roof of the vehicle was repainted to cover the sheet-metal work done on the IR roof port.

During a demonstration of the air-conditioning and ventilating system, an electrical-wiring failure occurred. Continuity tests on the wiring revealed that the defect was in inaccessible wiring within the conduit behind the sidewall of the vehicle. Because the exact location of the defect in the wiring could not be determined readily, all of the wiring in that particular conduit was replaced with external wiring.

A water container was purchased and installed on one sidewall of the vehicle. A mounting bracket and cover for the IR equipment were designed, prepared, and installed in the vehicle.

Field tests of the transceiver were conducted. The results indicated that a range of 12 miles can be easily obtained.

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April 28, 1960

During the next report period, a summary report will be prepared that will describe the activity on this project.

The total appropriation on this Task Order was $35,505. As of April 1, 1960, the unexpended balance was approximately $1,900.

Sincerely,

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ABW:mlm

In Duplicate

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[redacted]

Rec'd ED 4/14/60 11:10

1 copy to WLE.

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March 29, 1960

FILE: ED 175P

Dear Sir:

This letter report summarizes the work done on Task Order No. NN during the period February 10 to March 21, 1960.

During this research period, the night-viewing equipment was completed and evaluated; the ceiling was insulated; some of the "base station" components were received; the location of the communications equipment in the vehicle was determined; and the air-conditioning and ventilating equipment was tested in the vehicle evaluation chamber.

The balance of the night-viewing equipment and the associated roof mount were completed, and tests were conducted to evaluate the performance of the device. It was found that the specifications were surpassed; the range of the device is at least 25 to 50 feet more than the specified range of 50 feet.

After the night-viewing-equipment roof mount was installed, the ceiling panels were put in place, and the insulation of the ceiling was completed.

The "base station" transmitting equipment was received, and the vehicle communications equipment was completed by the supplier. This latter equipment will probably be received within the next few days.

During a visit by your technical representative on February 25, a decision was reached on the location of the communications equipment within the vehicle.

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During the latter part of this research period, the evaluation chamber was constructed, and on March 18, an 8-hour test of the vehicle air-conditioning and ventilating system was conducted. The results of this test were most gratifying; an interior-air temperature of 76 F was achieved with an average vehicle-skin temperature of 175 F and a surrounding-air temperature of 120 F. During the test, air at 97 F and 90 per cent relative humidity was fed into the vehicle cab from the Climatizer. A shorter test on March 21 yielded an interior-air condition of 68 F and 55 per cent relative humidity. These test results indicate that the air-conditioning and ventilating equipment will meet or surpass the original design specifications. Furthermore, it appears that one man can occupy the vehicle during 8 hours with only 250 pounds of ice used in the air-conditioning system. If, as expected, this continues to be the case, then, under field conditions, there will be no need for ice storage facilities beyond those available in the ice-making machine.

During the next research period, it is expected that most of the minor vehicle-system tasks such as painting and cleaning will be completed and that most of the communications system will be installed in the vehicle and tested. Also, the "base station" transmitting and receiving equipment will probably be in operation.

The total appropriation on this Task Order was $31,265. As of March 1, 1960, the unexpended balance was approximately $5,200.

Sincerely,

[redacted]

25X1

A. B. Westerman

ABW:mlm

In Duplicate

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FILE: 20-175P

ASA, Fla. [redacted] MOBILE UNIT

Rec'd EO 2/24/60 9:50

1 copy given to W&E

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February 16, 1960

Dear Sir:

This letter report summarizes the work done under Task Order No. NN during the period January 12 to February 10, 1960.

During this research period, preliminary design of night-viewing equipment was initiated, storage cabinets were constructed, the ice-water tank was insulated, the underpanels were undercoated, and additional electrical work was completed.

Preliminary design work on the night-viewing system was initiated. Filters designed to pass IR and not visible light were ordered from the Corning Glass Company, and pure gold scrap was ordered for evaporative coating of the IR reflecting mirror of the night-vision apparatus. Modification of the Metascope (Type T-5) was completed; the unit is now ready for testing when the rest of the apparatus is completed.

The interior cabinet work and enclosures for the batteries and air-conditioning equipment were completed during this month. The storage areas have hinged doors and the battery and air-conditioning equipment are enclosed with sliding panels. In addition, the insulation around the ice-water tank was poured and the underpanels of the vehicle were covered with an automotive undercoating.

A battery charger was purchased for "home base" charging of the batteries. The specifications for this charger call for operation at 50 and 60 cycles, and 120 and 240 volts; 6 and 12-volt output; an adjustable 5-hr timer; and stepped charging rates up to 50 amperes.

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February 16, 1960

As a result of a meeting with you on January 8, 1959, the following modifications have been made to the electrical system: (1) the installation of automatic cut-off switches on the front and rear viewing ports such that operation of the viewing ports will extinguish the interior light; (2) the addition of indicator lights on the control panel to signal visually that the blower or pump is operating; and (3) the addition of a hooded panel-illumination light.

During the next research period, it is expected that a major portion of the night-viewing system will be completed and evaluated, and the antenna will be tuned. Completion of this work will allow insulation of the ceiling to proceed and painting of the interior to begin. In addition, the evaluation is expected to be near completion.

The total appropriation on this Task Order was $31,265. As of February 1, 1960, the unexpended balance was approximately $11,000.

Sincerely,

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In Duplicate

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January 13, 1960

Gentlemen:

This letter report summarizes the work done under Task Order No. NN during the period from December 4, 1959, to January 12, 1960.

During this research period, the air-conditioning system and electrical control components were installed in the vehicle, the luggage rack was modified for use as an antenna and re-installed on the vehicle, design work on the day-time observation ports and the vehicle evaluation chamber was completed, and construction of the observation ports was started.

The cooler, damper, and blower sections of the air-conditioning system were installed on the side wall of the vehicle above the back shelf and the batteries. The dehumidifying coil was located on the side wall above the ice-water tank, and the water pump was installed on the floor of the vehicle next to the ice-water tank. Cooling lines and drain lines were fabricated from copper tubing, and all tube connections were made with solder-type fittings. Each connection was tested at line water pressure of about 60 psi. Insulation was applied to the cooling coils and cold-water lines to minimize "sweating" of these components. The ice-water tank was installed, the access hatch was fabricated, and the tank sides and top were framed and covered with Masonite in preparation for insulating. The a-c converter, damper motor, blower motor, pump motor, and control panel were installed and connected to the 12-volt electrical system.

Although the luggage-rack configuration was satisfactory for antenna use, some modifications were necessary in order to obtain proper operating characteristics. The metal parts of the rack were protected against corrosion

by a plating of chromium over nickel over copper over the original plain-carbon-steel tubing. The original wooden slats which formed the bottom of the rack were replaced with black lucite to prevent any change in the electrical resistance or capacitance of the antenna due to moisture absorption. The antenna lead into the vehicle was prepared with bolts placed through the rubber suction cups on the bottom of the rack and through nylon insulators in the sheet metal of the roof. The lead-in bolts also serve to attach the rack to the vehicle.

The observation-port design which is now under construction consists of a sliding door on a cover placed on both windows of the vehicle cargo chamber. Sliding the door down exposes a narrow slot in the window cover so that observation, front and back, can be conducted without detection from outside the vehicle. An interlock switch will be incorporated in this door so that the lights in the vehicle will be extinguished when the door is slid down.

The evaluation chamber which was designed during this research period consists of a Climatizer (a device which produces selected air temperature and humidity conditions), heat lamps, a plastic envelope to enclose the vehicle, and a thermostatically controlled blower. The Climatizer will be used to simulate design outside-air conditions so that the dehumidifier will be properly loaded during the system evaluation. The heat lamps will be placed around the vehicle to achieve a 150 F outside skin temperature and to heat the air in the envelope surrounding the vehicle to the design outside-air temperature of 95 F. This temperature will be regulated by the thermostatically operated blower, which will mix cool air with envelope air to obtain the design condition.

During the next research period, it is expected that the ceiling insulation, storage cabinets, and evaluation chamber will be completed and evaluation tests of the system begun.

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January 13, 1960

The original appropriation on this Task Order was $20,140. As of January 1, 1960, the unexpended balance was approximately $4,500.

Sincerely,

[redacted]

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