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TASK OUTLINE
FOR A
CARGO CHUTE LOCATOR SYSTEM

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TASK OUTLINE FOR A CARGO CHUTE LOCATOR SYSTEM

1. AIM

- 1.1. The aim of this program is the production of working prototype models, design information, and complete manufacturing drawings and specifications for a cargo chute locator system which will meet the requirements outlined herein as far as the state of the art will permit.

2. NOMENCLATURE

- 2.1. The assigned nomenclature of this equipment shall be RS-8. Preliminary engineering models will be assigned the nomenclature RS-8(X-1), (-2), (-3), etc., as may be necessary.

3. DISCUSSION OF THE PROGRAM

- 3.1. The program is to be conducted in three separate and distinct phases as outlined below:
 - 3.1.1. Phase One - Design feasibility and study phase.
 - 3.1.2. Phase Two - Development design phase.
 - 3.1.3. Phase Three - Equipment design phase.
- 3.2. Each phase of this program is to be completed and approved by the Government prior to the initiation of the succeeding phase.
- 3.3. Phase One will investigate the requirements of the RS-8 as stated herein as to the feasibility of producing a radio set to meet these requirements. Also a study will be made in Phase One of the following:
 - 3.3.1. Optimum frequencies for operation of the system under varying conditions.
 - 3.3.2. Type of antennas required.
 - 3.3.3. Power supply requirements.

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- 3.3.4. Means of producing distinctiveness in the signal.
- 3.4. Phase One will be concluded by the submission of a report containing the following information:
 - 3.4.1. The feasibility of producing a radio set meeting the requirements of RS-8.
 - 3.4.2. The recommended circuitry for meeting the requirements of RS-8.
- 3.5. The demonstration of the feasibility of the design to the Government will control the initiation of Phase Two. The purpose of Phase Two is to provide all necessary design data, information, drawings, material lists, specifications, tolerances, and test procedures necessary to the manufacture of a preliminary engineering model of the equipment meeting the requirements as stipulated herein. Phase Two is to be divided into two periods as follows:
 - 3.5.1. Period One - Preliminary Design.
This shall be a paper design of the equipment, based upon the results of the study of Phase One and aimed at producing a set of specifications for the construction of the engineering models. Preliminary tests of components or units of the system shall be conducted to verify their suitability for the application intended. At the conclusion of this period, the design and data will be checked and evaluated by representatives of the Government.
 - 3.5.2. Period Two - Engineering Model Construction and Tests.
During this period an engineering model shall be constructed and complete tests shall be performed in accordance with the specifications. The tests shall be viewed and/or reviewed by representatives of the Government. The satisfactory completion of the specification tests shall precede the submission of the model to the Government for preliminary operational tests at Government operated laboratories.
- 3.6. Phase Three will commence after the completion and approval of Phase Two by the Government. Upon completion of Government operational tests, estimated at thirty days, the Government may require changes or modifications in the

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equipment. The desired changes or modifications shall be transmitted in writing to the contractor who shall incorporate such changes into the design of the working prototypes. This period shall encompass all design changes necessary to producing a complete set of manufacturing drawings suitable for reproduction, a bill of material of all nonfabricated parts and components including data as to capacity, tolerances, formulae, composition or definition, as may be required for their purchase. The manufacturer or supplier shall be identified and the cost in some unit quantity shall be stated. Complete manufacturing instructions shall be included as well as test procedures for prototype tests. The submission of a report containing the above requested information, the drawings, the complete revised specification, and ten working prototype models meeting the specification as revised shall terminate this program.

3.7. A proposal from the contractor relative to this program shall include a time chart of the development program showing the estimated elapsed time and man hours and estimated cost required for Phase One, Phase Two, and Phase Three.

3.8. The following Specifications shall serve as a general guide.

4. SYSTEM DESCRIPTION

4.1. The RS-8 is to consist of two basic components:

4.1.1. Component "A" to be an omni-directional radio beacon transmitter.

4.1.2. Component "B" to be a compact radio direction finder which will give an indication of the azimuth of the beacon (Component "A") in relation to Component "B".

5. GENERAL CHARACTERISTICS

5.1. The system shall perform its function satisfactorily over a minimum distance of one quarter of a mile regardless of the terrain, weather, and time of day. It shall be as simple to operate and as foolproof as the state of the art permits. The mission shall not be detectable by persons not using special detecting devices.

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6. SPECIAL CHARACTERISTICS

6.1. Component "A" (Radio Beacon Transmitter)

- 6.1.1. Weight - The total weight of the unit will be under five pounds.
- 6.1.2. Size - The size of the unit will be reasonable for equipment of this type.
- 6.1.3. Form Factor - The form factor is not critical but the unit must be completely self-contained and consist of a single box.
- 6.1.4. Ruggedness - The unit should be capable of functioning during and after a normal parachute drop.
- 6.1.5. Service Life - Approximately thirty minutes of operation after the drop is expected.
- 6.1.6. Frequency Stability - This factor will be dependent upon the requirements of the system as formulated.
- 6.1.7. Emission - A-2 emission is suggested although the requirement is for a distinctive signal.
- 6.1.8. Channels - One preset channel will be required.
- 6.1.9. Construction - Since this will be considered a "one-shot" operation, no waterproofing, fungus proofing or tropicalization will be required. It is contemplated that the unit will be sealed in cans during storage.
- 6.1.10. Finish - The external finish will be camouflaged and nonreflecting.

6.2. Component "B" (Radio Direction Finder)

- 6.2.1. Weight - The total weight of Component "B" will be less than five pounds.
- 6.2.2. Size - The unit will not exceed thirty-six cubic inches in volume, exclusive of antenna.
- 6.2.3. Form Factor - The unit shall be designed to be carried on the person of the chutist and be operated by him while in motion.

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- 6.2.4. Controls - This unit shall have a minimum number of controls. Once placed in operation it should require no adjustments until the sensing operation begins. The chutist's hands must be free during descent but he will be able to make tuning adjustments after he is on the ground.
- 6.2.5. Ruggedness - Very rough treatment should not impair the operation of this unit.
- 6.2.6. Service Life - One set of batteries should give a minimum of two hours of continuous operation.
- 6.2.7. Frequency Stability - The stability of Component "B" should be compatible with Component "A".
- 6.2.8. Channels - Six preset channels will be required.
- 6.2.9. Construction - This unit is to be shower proof, fungus proof, tropicalized, and sterile in external appearance. A waterproof, corrosion resistant burial case is to be provided.
- 6.2.10. Finish - The external finish is to be camouflaged and nonreflecting.

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