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AFDRQ

COR NO. 161

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(U) GENERAL OPERATIONAL REQUIREMENT

SHORT RANGE BALLISTIC MISSILE WEAPON SYSTEM

I. PURPOSE

This General Operational Requirement establishes a need for a quick reaction Short Range Ballistic Missile Weapon System employing solid or stable liquid propellant. The deterrent nature and offensive potential of this weapon system dictates that particular emphasis be placed upon early availability for employment by deployed U. S. Air Forces and selected Allied nations.

II. OPERATIONAL MISSION.

The operational mission of this weapon system is the destruction of surface targets out to 700 nautical miles from launch point.

III. ENEMY EFFECTIVENESS ESTIMATES.

The Weekly Report USAF COR Intelligence Annex, dated 24 October 1955, contains applicable enemy effectiveness estimates.

IV. FRIENDLY ENVIRONMENT.

A. This missile system will operate in environmental conditions found in any part of the world.

B. The missile will be designed to operate in an overseas environment which may be restricted in land area and limited in facilities. Launch facilities will, in almost all cases, be located on foreign soil and construction of elaborate hardened sites may or may not be undertaken.

C. Random dispersal of launch sites will be required due to the vulnerability of the theater area to enemy air forces and missile systems. Natural and man-made protective areas such as caves, tunnels, and quarries may be utilized.

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V. OPERATIONAL EMPLOYMENT.

This weapon system will be employed in overseas areas by U. S. Air Forces and selected Allied nations. It is intended to provide a destructive capability against selected pre-planned fixed target systems. The missile will be maintained in a constant state of readiness to provide an almost immediate launch reaction. Emphasis is placed on an overall minimum of time from alert to impact. It should be capable of penetrating enemy defense environment in the time period with little or no attrition. This missile system may ultimately be considered the primary counter offensive weapon of theater forces and/or Allied nations in the delivery of high yield warheads.

VI. LIMITATIONS OF PRESENT SYSTEMS.

A. Manned Aircraft

1. Manned aircraft currently available are deficient for reasons of performance, vulnerable to enemy defenses and dependent upon extensive airbase facilities which are vulnerable to enemy offensive forces.

B. Missiles

1. The ATRAN guided TM-61B missile is limited in range, speed and reaction. It will become increasingly more vulnerable in the enemy environment in the post 1960 time period.

2. The present TROR missile is limited because of its complexity of design and operation. The liquid oxygen oxidizer precludes economical attainment of a constant state of readiness for rapid launch reaction and requires extensive facilities at the launch site. In addition, liquid oxygen is difficult and hazardous to handle.

VII. OPERATIONAL PERFORMANCE.

A. Simplicity of Operation and Maintenance

A weapon system which can be effectively used by military personnel of the U. S. and Allied nations is a prime requisite of this system. Design emphasis should be directed toward the attainment of utmost simplicity in all phases of the operational employment of this missile system.

B. Range of Operation

The missile will be capable of operating throughout a range of 700 nautical miles from launch point.

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C. Velocity

The missile will operate at velocities which will minimize the effect of enemy defenses.

D. Readiness and Launch Reaction

One of the most important characteristics of this weapon system is that it must be capable of being easily and economically maintained on a ready alert status for extended periods of time. It is desired that the missile have a five (5) minute reaction time from firing order to launch. A ten (10) to fifteen (15) minute reaction time will be initially acceptable in the interest of early availability of the weapon system.

E. Guidance

The guidance system must be as reliable and accurate as is realistically possible in ballistic systems. In addition, it must be capable of existing in a power on, stand-by status over extended periods without serious loss of accuracy or excessive replacement of components. Sufficient flexibility is desired to permit switching on any point within the designed range without incurring degradation of accuracy. The weapon design should be predicated upon the eventual use of self-contained guidance which is not vulnerable to ECM.

F. Yield/CEP

It is desired that this weapon system have warhead yield levels which are commensurate with a cep that will insure a 95% probability of damage (PD) against 5 psi, 15 psi and 50 psi targets. The desired cep is 1500 feet.

In order to attain an early initial capability, a 95% PD against 5 psi targets only will be acceptable.

Smaller cep's are desired as an improvement to the basic system. Selective burst height is required \_\_\_\_\_ maximum desired yield.

VIII. GENERAL CONSIDERATIONS.

A. Performance

The operational performance requirements stated in paragraph VII may be varied in the interest of early availability or increased

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simplicity of the weapon system. Any variations that seriously degrade reaction time, reliability, accuracy of the system, or increase the weight of the warhead, and accordingly, the size and weight of missile will be presented to the Hq USAF for determination as to their acceptability. The performance requested is based upon the available information concerning attainability in the time period of interest. It is anticipated that development advances will be made in the future to provide greater accuracy, smaller yields and reduction in missile size and weight.

### B. Physical Dimensions

The overall size and weight of the assembled missile should be as small as possible without degrading performance. The need for inter- and intra-theater air transportability dictates that the missile be packaged for lift by transport aircraft projected to be available in the time period. In addition, the missile should also be packaged in sections that provide for ease of handling during transit and assembly operations. The missile must be capable of sustaining road or rail travel for short distances.

### C. Assembly and Maintenance Facilities

1. The missile will be assembled at the launch site. Assembly procedure and facilities must be simple so as to permit a high launch rate.
2. Check-out facilities should be of the "go-no go" variety.
3. Component replacement type maintenance is desired to simplify maintenance techniques and to provide for rapid exchange of defective electronic or mechanical assemblies.
4. Support and handling equipment will be air transportable.
5. Solid or stable liquid type propellant is desired to provide rapid reaction, reduce the hazards of storage, handling, transportation, and launching.

## IX. AVAILABILITY

This weapon system should be available to operational units by 1962.

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