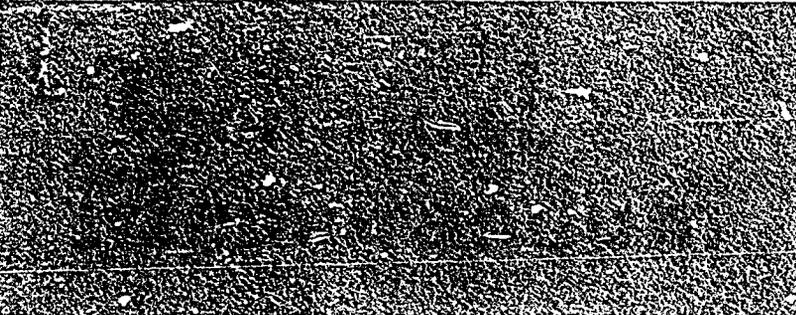


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Sc-TM.100-57-18

PROSPECTUS FOR A STUDY OF A
GENERAL PURPOSE TACTICAL AIR WEAPON

D. C. Kleinecke - 1811-1

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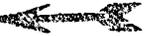


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**PROSPECTUS FOR A STUDY OF A
GENERAL PURPOSE TACTICAL AIR WEAPON**

INTRODUCTION

This study will consider a general purpose tactical air weapon designed basically for use in close support of ground forces but capable of being used against a large variety of other tactical targets. First the weapon will be "optimized" for use in an explicit operational situation outlined below and, after an "optimized" weapon is determined, the use of this weapon against other targets will be investigated.

The basic operational situation has been closely defined in several directions in order to limit the first stage of the study to workable dimensions. Many well known types of targets which have been excluded from the first stage of the study will be included in the second stage -- in particular each of the targets considered in the Tablelog report* will be studied later.

BASIC OPERATIONAL SITUATION

The general purpose tactical weapon will be the nuclear weapon capability of a group which is here called the Tactical Air support Group. The tactical air support group is complemented by at least one other air warfare group operating in the same area. The most important of these, for the purposes of this study, is called the Strategic Air Support. The fundamental distinction assumed between the tactical and strategic groups is that the missions of the strategic group are extensive preplanned attacks while the tactical missions do not involve preplanning by the group itself. The counterair war is not a concern of the tactical air support and may be assigned to the strategic air support or some third group.

The operational plan of the tactical air support is based on Army and Marine Corp operations in the Korean War modified to apply to an atomic war. The battle front is divided into segments and each segment assigned to one or more tactical air support aircraft for patrol. The patrol aircraft may attack targets in the area beyond some convenient line, called the Tactical Bomb Line, on their own responsibility (subject to general instructions). Closer to the battle front attacks can be made only with the approval of the ground forces. The Tactical Bomb Line is set by the ground forces and its position is determined by limitations of safety to the friendly forces, the range of targets which can be attacked by the ground forces themselves, recognition problems and similar considerations. It is expected that the distance from the front line to the Tactical Bomb Line will be on the order of a few miles. The Tactical Air Support group operation is used for reconnaissance and direction as well as attack missions and its nuclear delivery capability must not interfere with these routine patrol capabilities.

* Minutes of Fourth Meeting of Committee on Feasibility of a Tactical/Laydown Weapon Family Held 26 - 27 April 1956 AFSWP-Q-153.

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Besides the targets beyond the Tactical Bomb Line, which it attacks on its own responsibility, the tactical air support may be directed to attack targets by other branches. These targets need not be beyond the Tactical Bomb Line. Targets discovered by espionage, photo-reconnaissance and other intelligence efforts are assigned to the tactical air support if they are not large enough or permanent enough to be assigned to the strategic air support. The ground forces must be consulted before attacks are made within the Tactical Bomb Line.

The close support attack made with permission of or under the direction of the ground forces is perhaps the most important attack mission of the tactical air support. The target may be discovered by the ground forces or the air support, the tactical air support patrol is then called onto the target and the attack made in cooperation with the ground forces.

The tactical air support does not attack enemy aircraft or heavily defended positions. Enemy landing strips are targets only if they are small temporary installations. It is assumed that cities are heavily defended.

It will be assumed that the attack attrition of the tactical support missions is negligible. This does not exclude patrol attrition which continues at a constant rate independent of whether or not attacks are made.

The radiological policy of the tactical air support requires "complete" safety for friendly troops except in extreme emergencies, high safety for the pilots of support aircraft, no long-term contamination effects from attacks and a minimum of damage to non-target areas.

A tentative list of targets for the tactical air support missions includes:

- (a) troop concentrations
- (b) command and communication centers
- (c) groups of buildings
- (d) small fortified positions
- (e) armored vehicle concentrations
- (f) artillery pieces
- (g) missile launchers and related equipment
- (h) small temporary air strips
- (i) supply routes
- (j) supply centers

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PROCEDURE IN THE BASIC OPERATIONAL SITUATION

The targets considered will be investigated to determine the effects levels required to destroy the targets and the suitability of the target for attack by the tactical air support. The general characteristics of the preferable delivery aircraft and the general nature of the preferable patrol and delivery tactics will be estimated. The number of weapons to be carried by each aircraft will be investigated.

The preferable safety levels for friendly forces and delivery aircraft will be studied and the problem of placing the bomb line investigated. It will be assumed that the "cleanness" of the weapon can be adjusted to some extent, subject to the limitations of warhead physics. The number of yields for the tactical support weapon and the proper size for these yields will be studied.

After "optimum" answers have been obtained to the questions outlined above, the design problems will be investigated in some detail and the points where compromise is probably necessary will be studied and the effect of the compromises estimated.

The procedure just sketched will determine the characteristics of a weapon "optimized" in the basic operational situation.

STUDY OF EXTENDED USES

Use of the "optimum" weapon obtained in the first stage of the study against such targets as

- (a) runways
- (b) aircraft on ground
- (c) railroad yards
- (d) railroads
- (e) large buildings
- (f) tank farms (POL)
- (g) surface ships
- (h) bridges

will be studied. It is expected that several of these targets will require more than one "optimum" weapon. The characteristics of the weapon will not be altered to "optimize" against any or all of the additional targets; however, it is expected that nearly "optimum" results can be obtained using multiple utilization. If no clear-cut decision can be reached on some point in the basic operational situation, information from the extended usage targets may be introduced into the basic operational situation in order to make the necessary decision.

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