

RISK-ESTIMATE DISTANCES

Risk-estimate distances are based on the following assumptions. Any changes to the assumptions will increase the risk-estimate distances from those given in Table 6. Risk-estimate distances allow the ground forces commander or combat air commander to estimate the risk in terms of the percent of friendly casualties that may result from an air strike against an enemy threat along the forward line of own troops (FLOT). Risk-estimate distances are based on fragmentation patterns.

COMPUTATIONS

All attacks are parallel to the FLOT. Distances are computed from the intended impact point of the center of a stick of bombs or a pod of rockets. Deflection distance (from the aiming point toward the friendly troops) is built into the risk-estimate distance. The deflection distance equals the distance from the aircraft centerline to the farthest outboard station, plus the lateral distance that a weapon travels because of rack-ejection velocity.

Risk-estimate distances are for combat use and are not minimum safe distances for peacetime training use.

RELATIONSHIPS BETWEEN WEAPON IMPACT AND POINT OF INTERSECTION

For all determinations in Table 6, the position of a prone man was assumed to be on a line perpendicular to the line of flight (or line of weapon impacts) at the midpoint of the line (stick) of weapons. For all sticks of weapons, a weapon was assumed to impact at the point

of intersection of these two lines. Thus, for the weapons evaluated, the following relationships between weapon impact and the point of intersection were assumed:

- GP bombs - center bomb of stick impacts at point of intersection.
- Rockets - center rocket.
- Cluster weapons - pattern center of the center dispenser.
- Guns - center of pattern.
- Maverick - single-weapon delivery impacting at point of intersection.

WEAPON RELIABILITY AND DELIVERY PARAMETERS

A weapon reliability of 1.0 was used for all weapons evaluated. Delivery parameters and considerations for specific weapons are in (C) FM 101-50-3 I/TH 61A1-3-9/FMFM 5-2G-6/NAVAIR 00-130ASR-9²¹.

CASUALTY CRITERION

The casualty criterion is the 5-minute assault criterion for a prone soldier in winter clothing and helmet. The probability of incapacitation (PI) means a soldier is physically unable to function in an assault within a 5-minute period after an attack. The 0.1 percent PI value can be interpreted as being less than or equal to one chance in one thousand.

²¹ *Joint Munitions Effectiveness Manual/Air-to-Surface (JMEM/AS): Risk Estimates for Friendly Troops*. 19 December 1986.

TROOPS IN CONTACT

The FAC should regard friendlier within 1 kilometer of targets as a *troops-in-contact* situation and advise the ground commander accordingly. The ground commander must accept responsibility for friendly risk when targets are inside 0.1 percent PI. The passing of the ground commander's initials indicates his acceptance of the risk for intentional ordnance delivery inside the 0.1 percent PI distance.

