A PROPOSAL FOR A PRECISION-GUIDED SALVO

PREMISE

The B-52 was initially designed to carry strategic weapons but it has proven to be very effective when carrying a salvo of 107 inexpensive 500 pound gravity bombs, often called ‘carpet-bombing’. Precision-guided weapons have, to a degree, lessened the need for this type of bombing. Before their development it usually took such area bombing to increase the odds of striking the desired target. However, there are still significant instances where carpet-bombing can be effective, troop emplacements for one.

THE PROBLEM

The B-52 was designed to operate at very high altitudes. Since it is not a stealth aircraft this affords a significant degree of protection. High altitude flight also lessens the friction on the aircraft and thus reduces cooling needs. The problem is that the higher the altitude from which a gravity bomb is dropped the greater is the chance that it will stray considerably from its intended target. When a salvo of gravity bombs falls ten or twelve miles the slight change in the azimuth of the fall greatly affects the target point. A small gust of wind while the salvo is still several miles above the target is sufficient to drive the bombs significantly off the intended course.

A classic example of this was the siege of Khe Sanh in 1968 during the Vietnam War. The Vietcong were able to avoid the carpet-bombing of the B-52s by merely moving close the Marine perimeter. The B-52s could not bomb close to this perimeter for fear of the salvos straying into the Marine compound.

A PROPSED SOLUTION

It would be expensive and impractical to make every bomb in a 107-bomb salvo precision guided. Only one bomb in the salvo should use a GPS guidance system. This bomb would be located in the middle and front of the first group of bombs dropped. It would change its direction by moving control plates on a set of guidance fins. The same information that controls the fins of the ‘Alpha’ would be transmitted to every other bomb in the salvo. These bombs would need only movable fins and simple escapements to operate them. The bombs would need a small redesign. The permanent fins that the bombs are now fitted with would be removed and a universal joint is placed there. A new fin set would consist of horizontal and vertical fins. This mechanism would allow the bombs to rotate 360°.

A simple set of gyroscopes would keep the fins aligned to the vertical and the horizontal. A small battery would drive the gyroscopes and would be started when the bombs are dropped. Since these gyroscopes would run for only the time it took the bombs to reach the target the power requirements would be minimal. It may be possible to use the movement of the air as the bomb falls to power the gyroscopes, simplifying the design still further.

The movement of the control fins would have to be sufficient to alter the azimuth of the bomb but the gyroscopes need only affect the fins themselves.

Very little redesign of the mechanism within the bomber that drops the bombs would be needed. The control fins would need to be properly aligned at the time of drop and the gyroscopes started. It may be desirable to insure that all the bombs fall at the same initial azimuth. It may be of value to induce a spin on each bomb to increase stability.

Sub groups of the salvo could be dropped and several bombers in formation could align their bombs to the alpha of one bomber creating a precisely guided pattern of any size desired.

CONCLUSION

B-52s have been dropping salvos of gravity bombs for half a century so the pattern of the bombs when they strike the target is well known. With this method a precisely determined area could be selected and the salvo delivered to just that area. It would be, in effect, a ‘smart salvo’.

Thomas Wagner
Norwalk Connecticut
June 2002