

# 'Smart' Bombs Are Guided to Targets

By RICHARD WITKEN

They are variously referred to as "smart" bombs or "guided" bombs or "hobos," short for "homing bombs."

Whatever the nomenclature, military sources in Vietnam credit this recently developed class of weapon with startling accuracies that they say have brought the destruction of key bridges and other targets in the current air campaign in Indochina.

"They are being routinely used against priority, heavily-defended point targets," an Air Force spokesman in the Pentagon said yesterday.

There are two main varieties of these bombs—those that are laser-guided and those that are television-guided. The laser system works this way:

A laser beam, an extremely intense and narrow beam of light, is directed at the intended target, either from the plane that will drop the guided bombs or from a companion craft—perhaps a forward spotter plane. This is known as the target designator.

The bomb to be dropped has a detector device, known as a seeker, and a computer. The seeker picks up laser energy reflected from the target. Data on the location of the target, relative to the bomb, are fed into the computer. And the computer sends guidance instructions to steering vanes on the tail of the bomb.

The bomb should "home" in on the target so long as the laser beam is trained on it. An attacking plane may take evasive action to avoid enemy flak so long as the crewman operating the laser beam continues to move his controls to keep the beam trained on the bridge or other objective.

If a second plane is the source of the laser beam, its pilot must keep the target in the beam until the bomb from the attack plane hits the mark.

The television system works this way:

The bomb has a TV camera in its nose. The pilot or other crewman aboard the attacking plane manipulates the camera mechanisms and finally "locks" the camera aim on the target. The bomb is then released, and it is automatically guided to the target.

### No Continued Aiming

The TV-guided bomb is completely on its own after it leaves the attacking plane. No crewman need worry about any continued aiming.

An Air Force expert said each of the two basic types of "smart" bomb had its advantages, depending on the military situation.

Both types of system, according to unclassified technical articles, are affected by bad weather. But whereas the TV system requires daylight and targets with a relatively high degree of black-white contrast,

the laser system can operate almost in the dark.

The only requirement is that the laser beam be trained on the target. And this could theoretically be done from an infantryman's ground position not too far away.

The "smart" bombs being used routinely in Vietnam are modified World War II bombs that weigh 500, 2,000 or 3,000 pounds. Special kits have been devised containing the guide vanes, and either the laser sensing or TV devices.

The Air Force spokesman said the Thanhhoa and Longbien Bridges were two examples of North Vietnamese targets against which "smart" bombs had been used.

He declined to say which type of system had been used in either case. The current issue of Aviation Week says that the Thanhhoa bridge was knocked out by a 3,000-pound laser-guided bomb dropped by an Air Force F-4 Phantom jet. It says the Longbien bridge was struck by a 2,000-pound TV-guided bomb, and that one span was taken out.

Both the Navy and the Air Force have developed guided missiles with television cameras to direct them to their target after they have been launched by aircraft. The Navy's is called Walleye, the Air Force's is called Maverick.

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