Directory of U.S. Military Rockets and Missiles
Appendix 1: Early Missiles and Drones

LB Series

LB Series
(LBD, LBE, LBP, LBT)

In December 1940, the concept of remotely controlled unmanned bomb-carrying gliders was proposed to the U.S. Navy, and in April 1941, the Bureau of Aeronautics (BuAer) began a program to study the feasibility of such weapons. The projected gliders were generally called *Glomb* for "Glider-Bomb". It was planned that a standard carrier-based attack aircraft would tow a *Glomb* into action, and after release the bombardier would use imagery transmitted by a TV camera in the glide bomb's nose to direct it to the target via radio commands.

The general principles of *Glomb* guidance and operation were tested during 1942/43 by converting various readily available training and transport gliders to unmanned configuration. The tested aircraft included the Taylorcraft XLNT-1 (ex USAAF TG-6), the Piper XLNP-1 (ex TG-8), the Aeronca XLNR-1 (ex TG-5), and the Waco XLRW-1 (ex CG-4A). Of these, the XLNT-1 design was judged to be best suited to the *Glomb* role. However, for the projected operational *Glomb*, the Naval Aircraft Factory designed a new airframe with structural improvements and optimized for slightly higher towing speeds. In September 1943, a contract for production of this *Glomb* design was awarded to Pratt-Read (Gould) for the **LBE-1**, which was to carry 1800 kg (4000 lb) of explosives (some sources quote 900 kg (2000 lb)).

LBP-1 LBP Piper Lockhaven Pa.

4000 lb.

only Test flown - FtDix NJ.

Photo: U.S. Navy

LBE-1

At the same time, *Glomb* production contracts were also awarded to Piper (for the **LBP-1**) and Taylorcraft (for the **LBT-1**). The LBP-1 was to carry 1800 kg (4000 lb) of explosives, while the LBT-1 would carry a warhead of only 900 kg (2000 lb). Interestingly, many available sources give contradicting information about the configuration of the LBT-1. While several sources state that the LBT-1 was identical to the LBE-1, it is also indicated that the LBT-1 was derived from the original XLNT-1 glider. Given the photo of the LBE-1, this clearly can't both be true. In fact, the photo below has now been identified as an LBT-1, which proves that the LBT-1 was indeed superficially similar (but different in most details) to the XLNT-1.

Photo: via Jos Heyman

LBT-1

The LBP-1 was generally similar to the LBE-1, but used a high wing.

Photo: Naval Aviation News

LBP-1

By 1944 the inherently low performance of the *Glomb* concept and difficulties with the TV system began to affect the program. The LBT production was terminated in October 1944, and the orders for the LBE and LBP were gradually reduced from 100 each to 35 in February 1945. In the end, the LBP and LBE production plans were also cancelled in June and August 1945, respectively. In total, only four LBE-1 and 25 LBT-1 *Glombs* were completed, and none of them were ever used operationally.

OY Tested

The LB series had one more member, the McDonnell **LBD-1** *Gargoyle*. The LBD-1 was an air-dropped glide bomb and is described under its final designation of RTV-N-2.

Specifications

I have no data about the exact physical characteristics of the LBE-1, LBP-1 and LBT-1 designs.

Main Sources

[1] Norman Friedman: "US Naval Weapons", Conway Maritime Press, 1983
[2] Frederick I. Ordway III, Ronald C. Wakeford: "International Missile and Spacecraft Guide", McGraw-Hill, 1960
[3] "Pilotless Aircraft", article in Naval Aviation News, January 1946

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However, by 1944 the inherently low performance of the *Glomb* concept and difficulties with the TV system began to affect the program. The LBT was cancelled in October 1944, and the orders for the LBE and LBP were gradually reduced from 100 each to 35 in February 1945. In the end, the LBP and LBE production plans were also cancelled in June and August 1945, respectively. In total, only four LBE-1 and 25 LBT-1 *Glombs* were built, and none of them were ever used operationally.

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