Germany Tests Airborne TOW

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SPRING CAME slowly last year to northern Germany. When our four-man American support team arrived at Bückeberg in early March, we were assured by the natives that the cold winds and snow we were experiencing were "the last blast of winter." From the Army Missile Command, Hughes Aircraft Company and Bell Helicopter Company, we had come to help the German Army Aviation School in its evaluation of the suitability of the TOW missile for use in an airborne role. Being from Alabama, California and Texas, we were eager to believe the weather assessment.

TOW (Tube launched, Optically tracked, Wire guided) is a 50-pound antitank missile which has recently been deployed with U. S. infantry forces. In 1967 five prototype airborne launching systems were built for testing on the UH-1B. These systems called XM-26 used three of the same missiles developed for the infantry, mounted in each of two launch pods on either side of the helicopter. The left nose of the ship was modified to accommodate an inertially stabilized telescope sight which was operated by the copilot/gunner in the left

seat. With these systems the gunner acquires the target in his sight and fires the missile. The missile then flies into the field of view of the sight, which senses the position of the missile, and is automatically guided down the line of sight to the target. The gunner positions and holds the cross hairs of his sight on the target and the missile hits whatever he is aiming at.

Although these prototypes had undergone considerable engineering testing, they were never given to the Army for service tests since the main developmental effort was shifted to the more advanced AH-56 Cheyenne weapons system. The Germans then were to be the first military people to test the XM-26.

As we unloaded the U. S. Air Force C-141 which had transported the UH-1B and some 7 tons of support equipment from California, we were informed that the base of operations for the first phase of the test would be moved *north* to Itzehoe, 30 miles northwest of Hamburg, with the firing missions being flown against targets at the Meldorf range located on the North Sea.

But first the helicopter had to be reassembled, the electronic equipment checked and the crews trained. The reassembly and checkout went smoothly, but winter's last blast presented a severe challenge to crew training. Contending with high winds, rain and snow it was difficult to achieve the required proficiency in the time available. Using a target with an infrared source mounted at the center, together with measuring and scoring equipment on the helicopter, it was possible to measure a gunner's proficiency and progress. In spite of the bad weather which resulted in the postponement of the first scheduled firings, the Germans got the first two shots off 3 weeks after our arrival. The purpose of these two shots was to confirm that the system was functioning normally and this they did.

With this milestone behind us, we proceeded to Itzehoe and prepared for the firings to be conducted at the Meldorf range. Because of the shortage of real estate for test ranges in Europe, the Meldorf range utilizes tidal flats extending into the North Sea. These tidal flats are similar to the areas later reclaimed from the sea in Holland and are, together with the targets, underwater at high tide. The dry end of

UH-1B cockpit modification for TOW include:
(1) sight unit stabilized telescope
(2) Sight unit hand control
(3) Arm rest, unit hand control
(4) Control armament - TOW

the range is shared with the hundreds of sheep which graze the forward rim of the dike.

Unfortunately though at this moment the last surge of winter was moving across the North Sea area. For the first week our sole occupation was waiting—waiting for the weather to improve enough to see the target. Occasionally the weather would improve enough for a few hours to shoot, but invariably that would be when the tide was high and the target was underwater. But bad luck never lasts forever and finally, though the weather was still marginal, we could at least see the target. At Meldorf we fired 15 missiles, not in the planned 2 weeks but in 3 days.

With the conclusion of this first phase of the firings the operations returned to Bückeburg, and the nearby ranges at Bergen Hohne and Munster Lager. The firings at Meldorf were conducted under the auspices of the Ministry of Defense test agency, but the responsibility now shifted to the German Army.

Based at the Heeresfliegerwaffenschule (Army Aviation School), the Ft. Rucker of Germany, the tests were under the leadership of Lieutenant Colonel Bender, the project officer. LTC Bender is an erstwhile Stuka pilot (more than 500 missions on the eastern front) and had a penchant for early operations. Typically our team would arise at 0430 and report to the airfield at 0600 for a 0615 takeoff (assuming no more than moderate rain, sleet or snow) for the range. The ranges were shared with tankers doing their practice firings and with other weapons firings. Because of the heavy use, the scheduling was tight and we seemed to consistently draw the early slot.

During the Army portion of the tests a total of 40 missiles were fired and they were usually interesting to observe. The tests conducted in the U. S. had shown that the XM-26 was an extremely accurate and effective weapon system when employed in a conventional manner. The Germans, however, were not content to test merely the known capabilities of the system, but soon made known their intentions to push forward the state-of-the-art in tactical employment as well.

The XM-26 has always been considered a broad daylight system but the Germans tested it at sunset and well after. One of their favorite tests was to require the gunner to fire the missile toward a certain target and, after the missile was on its way, "change his mind" and shift to a new target. This is particularly challenging when the new target is outside the field of view of the original target and the gunner must hunt for and find it before the missile reaches the target. For members of the U. S. team, accustomed as we were to a more conservative test philosophy prevalent at home, such test conditions were decidedly hair-raising.

But the Germans showed that

Test helicopter for TOW . . . a three missile capacity pad on either side . . . note the telescope protruding from the left nose of the ship—the copilot's side

Evidence of the final day . . . live warheads used against tank hulks positioned on the range . . . qualitative summary . . . if the crew can see the target they can usually destroy it

it could be done. With air speeds from zero to cruise, at altitudes from near the ground to well out-of-ground effect, and in conjunction with a variety of post-launch evasive maneuvers, they consistently hit both fixed and moving targets from minimum to maximum range. As a concise qualitative summary of the German tests it can be said that if the crew can see the target they can generally be expected to destroy it.

Apart from the technical success of the tests, the American team found the project highly educational. Most Americans on duty in Germany are stationed within a small American community, but not so with us. We were set down square in the midst of the natives. In such circumstances a usually simple matter such as placing a long-distance phone call becomes a frightening experience. Learning the German words for the numbers was a high-priority task in order to overcome this obstacle.

Another small task usually considered mundane by us, but which proved to be somewhat more ceremonious in Bückeburg, involved reproduction of data. In the habit of sending the girl downstairs to the Xerox machine to get the needed copies, we handed over a sheaf of papers to our German colleagues with a request that we be provided copies. Two days later two men in long, white coats appeared and with characteristic great courtesy submitted the proofs for our inspection. We selected those which seemed best and we were shortly given our copies—in very high quality.

Most of the missiles used in our program had dummy warheads, but for the final day VIPs and visitors from several countries were onhand to observe the firing of six missiles with live warheads which had been saved for the occasion. These were fired from various ranges and flight conditions against actual tank hulks positioned on the range. With their fireball finale at the end of each missile's flight, they made an impressive climax to a very successful program and provided an effective demonstration of the potency of airborne TOW.

When the last shot had been fired on that day in late May we mounted our helicopters and flew back to home base at Bückeburg for the last time. As we walked from the ramp to the hangar we had to hurry. A chill wind was stirring and on the horizon we could see, moving toward the field, "the last blast of winter."