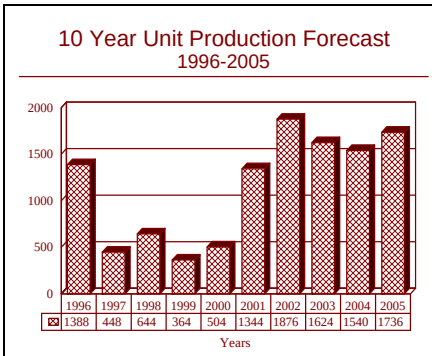
# Startbahnbombe - Archived 12/97

## Outlook

- Production of this munition for Mehrzweckwaffe-1 application winding down
- Forecast production is for the Mehrzweckwaffe-2 and Autonomous Free Flight Dispenser applications
- Integration with other dispensers ongoing




## Orientation

Description. An anti-runway submunition.

Sponsor. The development and German procurement of the Startbahnbombe has been sponsored by the Federal Republic of Germany's Ministry of Defense through the Rüstungsabteilung (Armament Department) and Bundesamt fur Wehrtechnik und Beschaffung (the Federal Defense Technology and Procurement Agency) through the Materialamt der Luftwaffe. The Italian procurement was funded by the Italian Ministry of Defense.

Contractors. The Startbahnbombe was developed and is manufactured by Raketen Technik GmbH, Unterhaching, Bavaria, Federal Republic of Germany.

Licensee. None

Status. The development of the Startbahnbombe is complete; the submunition is in service on the Mehrzweckwaffe-1 dispenser in Germany and Italy with serial production ongoing. Integration with the other dispensers derived from the Mehrzweckwaffe-1 dispenser as s other dispensers is ongoing.

Total Produced. As of January 1, 1996, a total of 188,670 Startbahnbombe munitions had been manufactured.

Application. An aerially delivered anti-runway submunition designed to crater runways.

Price Range. In equivalent 1996 United States dollars, the unit price of the Startbahnbombe submunition is $327.00 in buys of 25,000 units.

## Technical Data

Launch/Carrier Vehicle. While the Startbahnbombe was designed for the Mehrzweckwaffe-1 dispenser, it has also been integrated with the other dispensers derived from the Mehrzweckwaffe-1, specifically the Dispenser Weapon System-24 which is now being evaluated by Germany as the Mehrzweckwaffe-2, the Dispenser Weapon System-39 dispenser and the Autonomous Free Flight Dispenser. Other potential dispensers include the Low Altitude Dispenser and Tactical Munitions Dispenser SUU-64/65 and various cruise and ballistic missiles; this list is not all inclusive.

Dimensions. The following data are for the latest production standard.

| | SI units | US units |
|---|---|---|
| Length | 60.3 centimeters | 23.74 inches |
| Diameter | 13.2 centimeters | 5.2 inches |
| Weight | 16.0 kilograms | 35.20 pounds |

## Variants/Upgrades

Not applicable to this munition.

## Program Review

Background. The Startbahnbombe (sometimes called STABO) was designed to give the Mehrzweckwaffe-1 dispenser a runway-cratering ability; it is the primary submunition of the Main Target Group II submunition loading package developed for the Mehrzweckwaffe-1.

Description. Two Startbahnbombe submunitions are carried in each Mehrzweckwaffe-1 tube for a total of 224 submunitions per dispenser if the loading is 100 percent Startbahnbombe. However, the Main Target Group II mix for the Mehrzweckwaffe-1 calls for the inclusion of the Startbahnbombe, Multisplittermine mit Activem Sensor, Multisplittermine mit Activem und Passivem Sensor and Mine Flach Flach submunitions. Our research indicates that about 60 percent of the Mehrzweckwaffe-1 tubes (68 tubes) are being filled with the Startbahnbombe. Another option which may be adopted is a 100 percent Startbahnbombe filling, meaning that one or more aircraft equipped with Mehrzweckwaffe-1/Startbahnbombe would have the mission of cratering the runway while other Mehrzweckwaffe-1-equipped aircraft would dispense combined anti-vehicle/anti-personnel submunitions such as Multisplittermine mit Activem Sensor and Mine Flach Flach.

A sheath which encloses the Startbahnbombe falls off shortly after ejection; the ejection process activates this procedure. The shedding of the sheath permits the deployment of a small parachute which stabilizes and brakes the munition. Another cover over the head of the munition is pyrotechnically ejected and a spring bar pops out. This bar is essentially a stand-off probe linked to the fuze mechanism. When this probe makes contact with the ground, two charges are detonated. The first is a High Explosive Anti-Tank type warhead which blasts a hole in the runway. The follow-on High Explosive charge is then propelled at a high velocity through the hole and detonated under the runway. Even though the High Explosive charge is relatively small, the fact that it is detonated under the runway produces a large cratering effect as well as widespread cracking of the runway. These effects, when multiplied by the several hundred munitions that are dispensed in one Mehrzweckwaffe-1 pass, make repair extremely difficult and time consuming.

An airfield sown with the Startbahnbombe, Multisplittermine mit Activem Sensor, Multisplittermine mit Activem und Passivem Sensor and Mine Flach Flach (the Main Target Group II mix) would be extremely difficult to clear. The Multisplittermine mit Activem Sensor submunitions would detonate almost immediately, the Multisplittermine mit Activem und Passivem Sensor at odd intervals or by vehicles while the Mine Flach Flach would detonate when disturbed or by vehicles passing over it. This means that the repair efforts to rectify the damage caused by the Startbahnbombe would be greatly hindered; the airfield may well be out of action for some time.

Dispenser Weapon System-24/Dispenser Weapon System-39/Mehrzweckwaffe-2. Beginning in the latter eighties, the Mehrzweckwaffe-1 contractor began the development of a stand-off version of the dispenser. Partially funded by Sweden against a requirement for a delivery system of this type for the new JAS-39 aircraft, the new dispenser was designated the Dispenser Weapon System-24. Basically, this dispenser, which is described in the Mehrzweckwaffe-1 report elsewhere in this book, is a gliding or stand-off version of the Mehrzweckwaffe-1 dispenser; in point of fact, the German Ministry of Defense, which is presently evaluating a slightly modified version of the new dispenser system, calls it the Mehrzweckwaffe-2. The Mehrzweckwaffe-2 dispenses the same submunitions (including the Startbahnbombe) as the original Mehrzweckwaffe-1 dispenser. While the Swedish Dispenser Weapon System-39 is also compatible with the original Mehrzweckwaffe-1 submunitions, it is not known which (if any) of these submunitions are being procured by Sweden; indeed, Sweden has developed two indigenous submunitions for its Dispenser Weapon System-39.

Autonomous Free Flight Dispenser. This is another version of the Dispenser Weapon System-24 designed specifically for the F-16 Fighting Falcon aircraft. Again, the same submunitions as used in the original Mehrzweckwaffe-1 and its variants are used in this dispenser.

## Funding

The development and initial procurement of the Startbahnbombe was funded by the Federal Republic of Germany's Ministry of Defense through the Bundesamt fur Wehrtechnik und Beschaffung. No funding data has been released by Germany or Italy, the only users to date.

## Recent Contracts

Not available as the contractor and the customers do not release contractual information.

## Timetable

This timetable relates to the Startbahnbombe only and to no other submunition used on the Mehrzweckwaffe-1 dispenser.

| | | |
|---|---|---|
| | 1966 | Concept development initiated |
| | 1978 | First airborne tests |
| | 1983 | Serial production began |
| Oct | 1987 | First production deliveries |
| Dec | 1987 | Initial operating capability |
| Late | 1996 | Production winding down for Mehrzweckwaffe-1 requirement; integration with other dispensers ongoing |

## Worldwide Distribution

Export Potential. For some years, Italy had expressed an interest in the Mehrzweckwaffe-1 for its fleet of Tornado aircraft. In mid-1986, an agreement was signed for the procurement of 100 Mehrzweckwaffe-1 systems. Only the Startbahnbombe submunition was procured although this could change in the future. Deliveries are complete.

While the Startbahnbombe was originally designed to be compatible with the Mehrzweckwaffe-1 and its derivatives, it could be integrated with other dispensers in the future. As of late 1996, it is still not known whether Sweden is procuring the Mine Flach Flach with its Dispenser Weapon System-39 dispenser which is in production for the Swedish air force. The Mine Flach Flach is being offered with the Autonomous Free Flight Dispenser.

Countries. **Federal Republic of Germany** and **Italy**

## Forecast Rationale

Up to early 1995, the production of the Startbahnbombe was directly related to the demand for the Main Target Group II loadings of the Mehrzweckwaffe-1 dispenser. The production for this application is terminating as the production of the Mehrzweckwaffe-1, a captive type dispenser which requires the overflight of the target winds down.

The forecast for part of the production of the Startbahnbombe in 1996 is for the last of the production of the Mehrzweckwaffe-1 for the Federal Republic of Germany; the Italian deliveries were completed some time ago. Due to the fact that the Startbahnbombe is optimized for only one type of mission, its production has not been as high as the other submunitions for the Mehrzweckwaffe-1. Our forecast has been based on our research which assumes that 35 percent of all Mehrzweckwaffe-1 production is dedicated to the Main Target Group II filling, with 50 percent of that number being a 100-percent Startbahnbombe filling and the other 50 percent having a 60-percent filling. The 100 Mehrzweckwaffe-1 systems procured by Italy have a 100 percent filling.

There is still a possibility that the Startbahnbombe is or will be procured as part of the loading for the Swedish Dispenser Weapon System-39. However, until more information on the Swedish loadings of the Dispenser Weapon System-39 is made definite, we shall refrain from a forecast; this is due to the wide variety of submunitions (including at least two indigenous types) available to meet this requirement.

Our research now indicates that the Startbahnbombe is a certain filling for both the Mehrzweckwaffe-2 and the

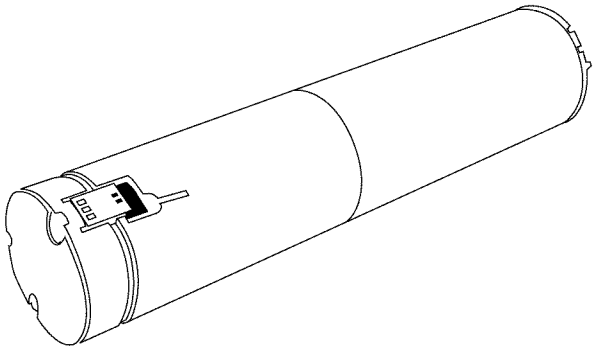
Autonomous Free Flight Dispenser; the production of both these dispensers is detailed in the pertinent report in this book. The forecast for the production of the Startbahnbombe for these applications is based on the same formula as used for the Mehrzweckwaffe-1; this production should run through the entire forecast period.

# Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

| | | High Confidence Level | | | Good Confidence Level | | | Speculative | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Munition | through 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | Total 96-05 |
| RAKETEN TECHNIK GESELLSCHAFT | | | | | | | | | | | | |
| STARTBAHNBOMBE (a) | 188670 | 1388 | 448 | 644 | 364 | 504 | 1344 | 1876 | 1624 | 1540 | 1736 | 11468 |
| Total Production | 188670 | 1388 | 448 | 644 | 364 | 504 | 1344 | 1876 | 1624 | 1540 | 1736 | 11468 |

(a)The through 1995 production figure contains several hundred research and developmental Startbahnbombe submunitions for integration, function and dispensing tests. THE PRODUCTION SHOWN IN THIS CHART IS FOR THE MEHRZWECKWAFFE-1, MEHRZWECKWAFFE-2 AND AUTONOMOUS FREE FLIGHT DISPENSER APPLICATIONS ONLY!



STARTBAHNBOMBE AS DEPLOYED

Source: Raketen Technik Gesellschaft