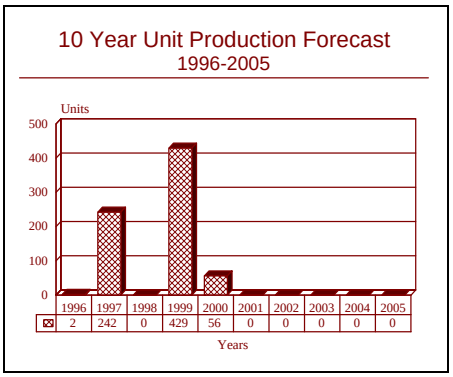
BL755 Cluster Bomb and BL755 Submunition - Archived 12/97

Outlook

- Production forecast to be on a mercurial basis
- No additional procurement by United Kingdom forecast
- Integration with the Terminally Guided Submunition ongoing with assistance of Thomson-DASA Armements
- Hunting Area Denial System program remains dormant



Orientation

Description. A cluster bomb and dual mode submunition.

Sponsor. The development and British procurement of the BL755 weapon has been sponsored by the Ministry of Defence of the United Kingdom, Ministry of Defence Procurement Executive, through the Ministry of Defence Air Staff and Royal Air Force.

Contractors. The BL755 bomb and BL755 submunition were developed and are manufactured by Hunting Engineering Limited, Ampthill, Bedford, England, United Kingdom.

Licensees. None

Status. The BL755 is in production on an as needed basis and in service in the United Kingdom and other nations. Development, in the form of integration with a new submunition, continues.

Total Produced. As of January 1, 1996, a total of 60,598 BL755 bombs and 8,925,906 of the associated submunitions had been manufactured.

Application. An air delivered submunition dispenser (cluster bomb) for the destruction of both soft and hard battlefield targets.

Price Range. In equivalent 1996 United States dollars, an all-up BL755 cluster bomb has a unit price of $21,700. The basic BL755 submunition costs approximately $31.00 in those same dollars.

Technical Data

Launch/Carrier Vehicle. Most Western tactical aircraft with standard NATO suspension and release systems.

Munitions Per Dispenser. 147

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

	SI units	US units
Bomb diameter	41.9 centimeters	16.5 inches
Bomb length	245.1 centimeters	96.5 inches
Bomb weight	277 kilograms	609.4 pounds
Submunition diameter	8.89 centimeters	3.5 inches
Submunition length	35.05 centimeters	13.8 inches
Submunition weight	1.18 kilograms	2.6 pounds

Variants/Upgrades

Variants. The Hunting Area Denial System is a privately funded variant of the BL755. In the early 1980s, Hunting Engineering began a further development of the BL755 dispenser by integrating it with the HB876 area denial submunition as used in the JP233 dispenser system. This development is also called the HADES, has yet to be ordered.

In 1992, in response to the Royal Air Force's Air Staff Requirement number 1238, Hunting Engineering proposed a new version of the BL755 bomb integrated with the Terminally Guided Submunition as is being developed for the Phase III Warhead of the M270 Multiple Launch Rocket System. For the full details of the submunition, we refer the reader to the pertinent report in this tab while the M270 Multiple Launch Rocket System is covered in tab E of this book.

Teamed with Hunting Engineering is Thorn EMI Electronics Limited, long involved in the development of the (formerly) multi-national Terminally Guided Submunition program. The weapons/submunitions portion of Thorn EMI was acquired by the Thomson-DASA Armements firm in 1995.

The contracting team offered the Smart Weapon Anti-Armor Thorn Hunting Engineering weapon, also called SWATHE. This weapon consists of the BL755 cluster bomb case filled with four Terminally Guided Submunitions. Following ejection from the bomb, the winged Terminally Guided Submunitions would climb and search for targets using their millimeter wave radar guidance systems. Once detected, the submunitions would home in on the target tanks and attack from the top; an advanced design tandem hollow (shaped) charge is the lethal mechanism. While the competition to fill the Air Staff Requirement number 1238 was won by the APACHE system, the contracting team continues to offer the Smart Weapon Anti-Armor Thorn Hunting Engineering weapon in both the original version and a modified version dispensing a powered version of the Terminally Guided Submunition. In this latter version, called the Advanced Anti-Armor Weapon, three of the powered versions of the Terminally Guided Submunition are carried.

Modernization and Retrofit Overview. In the late seventies, the Royal Air Force, as part of its effort to counter modern armor, funded the development of an improved version of the BL755 cluster bomb. The dispensing pattern was modified to accommodate higher aircraft delivery speeds and a product improved submunition was integrated with the bomb. The improved submunition incorporates a parachute-based retarding system in order to increase the submunition's angle of attack. This last improvement was incorporated due to the advances in shaped charge technology incorporated in the new submunition. Other technical features of the BL755 remain unaltered so that compatibility with existing suspension units is unaffected. In another product improvement made in 1992, a proximity fuze was added to the bomb in order to allow for release from higher altitudes.

Program Review

Background. Development of the BL755 cluster bomb system began in 1968 and it entered service in 1972 with the Royal Air Force. The entire system is optimized for close air support missions; a wide area is covered by one BL755 dispenser.

Description. The BL755 submunition is a dual mode, anti-personnel/anti-vehicle type with both a shaped charge (High Explosive Anti-Tank) and a shrapnel effect. A total of 147 submunitions is carried in seven bays of the BL755 cluster bomb. The ejection system is automatically timed to ensure an even impact pattern. Each munition is armed shortly after ejection; detonation is upon impact. The submunition can perforate approximately 25 centimeters (9.84 inches) of armor. In addition, the munition explodes into 2,500 fragments which are highly effective against light vehicles and personnel.

Production Models. Several production models of the BL755 are available to accommodate differing needs.

All these models are available for production as per d-emand.

Mark 1	Described above.
Mark 2	Shorter time delays.
Mark 3	A 25 centimeter twin lug suspension is added.
Mark 4	Differing time delays.

Funding

The initial and continued development as well as the British procurement of the BL755 and the related submunitions is supported by the British Ministry of Defence through the Royal Air Force.

Recent Contracts

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

Timetable

This timetable relates to the BL755 program (including variants) only and to no other cluster bomb program.

	1968	Development began
Oct	1972	Initial operating capability with the Royal Air Force
Sep	1982	Improved BL755 began development
	1983	Hunting Area Denial System began development
	1992	Proximity fuze integrated with BL755
	1992	Integration with Terminally Guided Submunition began
Late	1996	Production on an as needed basis, development/integration tests with Terminally Guided Submunition continue

Worldwide Distribution

Export Potential. The BL755 is a combat-proven system of high capability that has a good reputation on the market. It is known that the BL755 has been sold to at least 12 nations and additional sales on the heels of several recent major British aircraft sales are projected.

Countries. In addition to the **United Kingdom**, **Denmark**, **Federal Republic of Germany**, **France**, **Italy**, **Netherlands**, **Norway** and **Switzerland** have thus far been identified as customers of the BL755. Switzerland designates the system Fl Bb79. In addition, at least four other unidentified nations have purchased this system; one of these may be **Saudi Arabia**; another may be **Oman**.

Forecast Rationale

As of late 1996, the serial production of the BL755 is now on an as needed basis with all recent sales having been on the export market. Our research indicates that all the forecast production will be for export. This combat proven weapon is expected to remain in production out to the turn of the century to fill this projected export demand. This demand will be mercurial in nature and will taper off as newer, more effective weapons designed for the same mission area become available in the coming years.

With regards to the Hunting Area Denial System and the versions of the BL755 integrated with the Terminally Guided Submunition, our research does not support the serial production of any of these BL755 variants as there are too many other competing systems, many already funded for procurement. However, we will continue to monitor these potentially important programs (especially the ones related to the Terminally Guided Submunition) and update this report on an interim basis if warranted.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

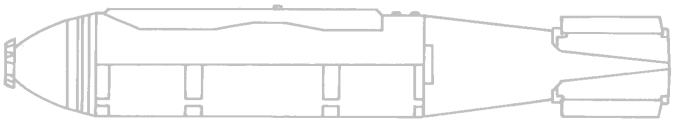
		High Confidence Level			Good Confidence Level			Speculative				
Munition	through 95	96	97	98	99	00	01	02	03	04	05	Total 96-05
HUNTING ENGINEERING LIMITED												
BL755 CLUSTER BOMB (a)	60598	2	242	0	429	56	0	0	0	0	0	729
Total Production	60598	2	242	0	429	56	0	0	0	0	0	729

(a)The through 1995 production figure includes approximately 118 developmental weapons for function, integration and dispensing tests. One or two of the through 1995 production as well as the 1996 production is for integration with the Terminally Guided Submunition.

ESTIMATED CALENDAR YEAR PRODUCTION

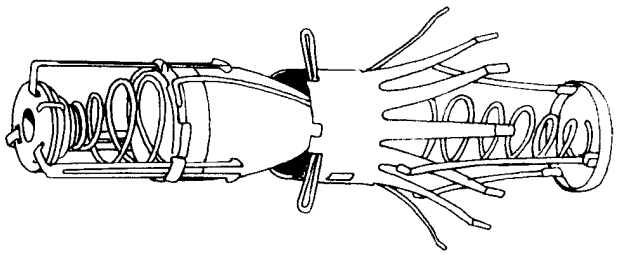
		High Confidence Level			Good Confidence Level			Speculative				
Munition	through 95	96	97	98	99	00	01	02	03	04	05	Total 96-05
HUNTING ENGINEERING LIMITED												
BL755 SUBMUNITION (a)	8907906	0	35574	0	63063	8232	0	0	0	0	0	106869
Total Production	8907906	0	35574	0	63063	8232	0	0	0	0	0	106869

(a)The through 1995 production figure includes 17,346 developmental submunitions for function, integration and dispensing tests with the BL755 cluster bomb.



BL755

Source: Hunting Engineering Limited



BL755 SUBMUNITION

Source: Hunting Engineering Limited