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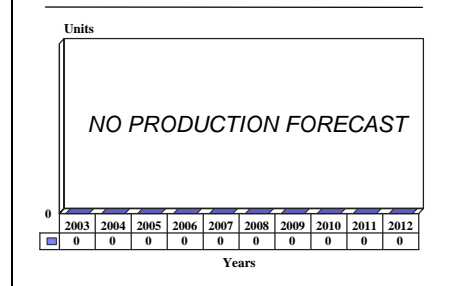
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CBU-89/B and CBU-104/B Gator and SUU-64/B Tactical Munitions Dispenser and CBU-78/B and SUU-58/B (Mark 7 Universal) Rockeye Dispenser and BLU-91/B, BLU-92/B Gator Submunitions - Archived 11/2004

Outlook

- Production concluded
- No further production orders for the CBU-78/B or CBU-89/B dispenser systems anticipated
- Lines are available to meet future orders
- CBU-89/B dispensed the BLU-91/B and BLU-92/B submunitions
- Major retrofit program for Wind Corrected Munitions Dispenser getting under way

10 Year Unit Production Forecast
2003 - 2012



Orientation

Description. Air-delivered submunitions dispenser systems.

Sponsor. The development and United States procurement of the CBU-89/B and CBU-78/B was sponsored by the United States Department of Defense through the United States Air Force, Army, and Navy. The executive agency for the tri-service development of the CBU-89/B was the Air Force Aeronautical Systems Center of the United States Air Force Air Materiel Command, located at Eglin Air Force Base in Florida. The Naval Air Systems Command oversaw the CBU-78/B program. The production contracts were awarded by the United States Army Industrial Operations Command located at Rock Island Arsenal, Illinois.

Contractors. The M74 and M75 Gator mines (or submunitions) were developed by the (then) United States Army Armament Research and Development Command, Picatinny Arsenal, Dover, New Jersey; and (as the BLU-91/B and BLU-92/B) the United States Air

Force Aeronautical Systems Center located at Eglin Air Force Base. The actual mine was developed by the United States Army Armament Research and Development Command.

The original prime contractor for the SUU-64/B tactical munitions dispenser and the BLU-91/B submunition was Alliant Techsystems of Edina, Minnesota. Later, this firm acted as the prime contractor for the complete system. The original developer of the BLU-92/B submunition and second source manufacturer of the complete system was Aerojet Ordnance, Downey, California. In 1994, this firm was purchased by Primex Technologies (Olin Ordnance), Saint Petersburg, Florida; in 2000, Primex was acquired by General Dynamics. The SUU-64/B for this application was also supplied by the Marquardt Company (now Kaiser Marquardt). The CBU-78/B (Mark 7 Universal or Rockeye) dispenser was provided by Ferranti Technologies Incorporated, with integration being undertaken by General Dynamics (then Primex). Day & Zimmermann acted as the subcontractor, loading,

assembling, and packing the submunitions at the United States Army's Lone Star Army Ammunition Plant at Texarkana, Texas, and the complete weapon at the US Army's Kansas Army Ammunition Plant located in Parsons, Kansas.

Licensees. None

Status. The BLU-91/B and BLU-92/B submunitions (which are also used as mines) are in production on an as-needed basis for a variety of applications as part of the Family of Scatterable Mines program. Production for the Tactical Munitions Dispenser SUU-64/B application is dormant but it is available for new orders. Deliveries of the SUU-64/B for the CBU-89/B commenced in 1983; production went dormant in 1997. The weapon is in service with the U.S. Air Force and several other nations. The serial production program for the CBU-78/B was completed in 1995, but the weapon is available for new production orders. The weapon remains in service with the US Navy and Marine Corps.

Total Produced. As of 2003, a total of 24,835 CBU-89/B and 4,620 CBU-78/B weapons had been

manufactured. In addition, a total of 1,996,020 BLU-91/B and 615,650 BLU-92/B Gator submunitions for the CBU-89/B and CBU-78/B applications had been manufactured.

Application. Air-delivered submunitions dispensing anti-personnel and anti-tank submunitions.

Price Range. Revised FY88/FY89 documents listed the complete CBU-89/B weapon at \$22,205 based on a buy of 3,972 weapons. The US Navy's complete CBU-78/B was listed at \$23,737. In the FY93 request, the U.S. Air Force unit price was listed at \$39,884. An individual BLU-91/B and BLU-92/B Gator submunition had a unit price of \$16 in quantities of 230,000 units.

The May 1995 contract for the BLU-92/B for the CBU-89/B application yielded a unit price of \$286.48 for 20,081 body assemblies.

The Wind Corrected Munitions Dispenser kit has a contracted unit price averaging \$11,200 over the 40,000-unit production run.

Technical Data

(CBU-89/B)

Launch/Carrier Vehicle. A-7, A-10, F-4, F-15, F-16, F-111, and B-52 aircraft; others (including the B-1B and B2) are probable.

Munitions per Dispenser. 72 BLU-91/Bs and 22 BLU-92/Bs.

Dimensions. The following data are for the BLU-91/B, with the BLU-92/B in parentheses. The span for the SUU-64/B dispenser is for the vertical axis; the horizontal axis span is 52.53 centimeters (20.68 inches).

	<u>SI units</u>	<u>U.S. units</u>
Submunition diameter:	11.9 (11.9) centimeters	4.69 (4.69) inches
Submunition height:	6.6 (6.6) centimeters	2.59 (2.59) inches
Submunition weight:	1.4 (1.68) kilograms	3.08 (3.69) pounds
SUU-64/B length:	2.38 meters	7.81 feet
SUU-64/B diameter:	39.62 centimeters	15.6 inches
SUU-64/B span:	106.68 centimeters	42.0 inches

(CBU-78/B)

Launch/carrier vehicle. A-4, A-6, A-7, AV-8, F-4, F-5, F/A-18 aircraft; others probable.

Munitions per dispenser. 45 BLU-91/Bs and 15 BLU-92/Bs.

Dimensions. The following data are for the BLU-91/B, with the BLU-92/B in parentheses. The weight is for the SUU-58/B (Mk 7 Universal) Rockeye dispensers when loaded.

	<u>SI units</u>	<u>US units</u>
Submunition diameter:	11.9 (11.9) centimeters	4.69 (4.69) inches
Submunition height:	6.6 (6.6) centimeters	2.59 (2.59) inches
Submunition weight:	1.4 (1.68) kilograms	3.08 (3.69) pounds
SUU-58/B length:	240.3 centimeters	7.88 feet
SUU-58/B diameter:	33.5 centimeters	13.18 inches
SUU-58/B weight:	222.72 kilograms	489.9 pounds

Variants/Upgrades

Variants. No specific variants of the CBU-87/B and CBU-78/B and the related submunitions have been developed.

Modernization and Retrofit Overview. This is not generally applicable to this type of munition, but various product improvements have been incorporated in the weapon and its components as production cut-ins.

The U.S. Air Force has developed an accuracy enhancement for the SUU-64/B and SUU-65/B tactical munitions dispensers, including the SUU-64/B as used in the CBU-89/B Gator. The enhancement, called the Wind Corrected Munitions Dispenser, is a kit that is retrofitted to existing dispensers. The components of the kit enable the dispenser to be able to correct itself for wind changes and ballistic errors during flight.

The actual equipment involved in the enhancement includes an inertial guidance system; pop-out, movable tailfins with the associated actuation system; and a central processor to accept targeting data from the launch aircraft before release. Some ballast is also required in the forward portion of the dispenser in order to maintain the correct center of gravity.

In January 1995, in a downselection process, Alliant Techsystems and Lockheed Martin were awarded competitive development contracts for the Wind Corrected Munitions Dispenser kit; a year later, the Lockheed Martin entrant was selected. On August 3, 1998, the U.S. Air Force approved the low-rate initial production of the Wind Corrected Munitions Dispenser. A total of around 40,000 Wind Corrected Munitions Dispenser kits are being procured. Their original unit price was between \$30,000 and \$35,000. As detailed below, these kits are being fitted as needed to portions of the CBU-87/B, CBU-89/B, and CBU-97/B weapon inventory.

The version of the Wind Corrected Munitions Dispenser that was ordered into production features a fin locking mechanism that was integrated with the weapon to keep it from spinning. The modification to the original Block A design was incorporated after it was found that the fin

mechanism could move prematurely after release from the aircraft. Spinning and other inappropriate aerodynamic movements resulted, causing the weapon's inertial measurement unit to become saturated and the weapon to become uncontrollable.

The weapon's contractor, Lockheed Martin, developed a fix that essentially consists of two squibs that lock the fin in place until the appropriate time in the flight path when the squibs are fired, releasing the fin for proper guidance.

The Air Force had planned to have the Wind Corrected Munitions Dispenser kit in service by December 1998, some five months ahead of schedule, but this was slipped around nine months. The new weapon has a contracted unit price averaging \$11,200 over the 40,000-unit production run. These kits are being fitted as needed to portions of the CBU-87/B (30,000 kits), CBU-89/B (5,000 kits) and CBU-97/B (5,000 kits) weapons. The initial platforms for the new munition are the F-16 and B-52. The B-1B, F-15E, and F-117 are now integrated or will be integrated in the near future.

When fitted with the Wind Corrected Munitions Dispenser kit, the CBU-89B is designated CBU-104/B.

In mid-1999, criticism over the CBU-104/B program surfaced when some congressional leaders questioned why the U.S. Air Force was spending money on an enhancement to a weapon that the U.S. says it will be banning in the near future. The comments were related to the BLU-92/B anti-personnel mine that is dispensed by the CBU-89/B and CBU-104/B dispensers. The Air Force replied that since the CBU-89/B conversion to the CBU-104/B is the last component of the Wind Corrected Munitions Dispenser program, the 5,000 units planned to be converted could be reduced or cut outright. The funding could be redirected to the conversion of additional CBU-87/B and CBU-97/B weapons. Nothing additional has been heard regarding this development.

Program Review

Background. Development of the M74/M75 Gator mines began in the mid-1970s to replace earlier mines in the U.S. inventory. The U.S. Army's Picatinny Arsenal did the original development work, and the M74 (anti-tank) and M75 (anti-personnel) mines entered service in 1981. The M74 and M75 are part of the U.S. Army's family of scatterable mines. In Army service, the M74 and M75 are dispensed by the M128 Ground Emplaced Mine Scattering System. This system can

either be towed or placed on a truck and can carry up to 800 mines in any mixture (usually the mix is five M74 mines to one M75). The mechanism feeds the mines out of a drum magazine, flips them through a directional tunnel, and spins them as they are dispensed toward the ground; two mines per second are dispensed. The mines come packed in crates of 40; it takes three to five men only 20 minutes to load the M128. The M74 and M75 mines are also dispensed by the M132 Volcano

Universal Mine Dispensing System, a high-capacity (960 mines) dispenser developed for the UH-60 helicopter and several vehicle applications.

In the late 1970s, the Armament Division of the old United States Air Force Systems Command, as part of the general "Assault Breaker" effort then under way, began investigating the possibility of dispensing anti-tank submunitions from stand-off submunitions dispensers. Picatinny Arsenal assisted in developing and integrating the M74 and M75 mines with the

existing submunitions dispensers as well as the then-new SUU-64/B tactical munitions dispenser. The SUU-64/B and SUU-65/B tactical munitions dispensers are essentially the same except that the SUU-65/B has curved fins that impart a spin to the dispenser. (For a complete description of these dispensers, see the reports on the CBU-97/SUU-66/B and the CBU-87/SUU-65/B in this tab.) As used with these dispensers, the M74 mine is designated the BLU-91/B, while the M75 is designated the BLU-92/B.

The following other submunitions dispensers are compatible with the BLU-91/B and BLU-92/B submunitions:

- CBU-78/B: The SUU-58/B (Mark 7 Universal or Rockeye) dispenser with BLU-91/B and BLU-92/B submunitions.
- CBU-82/B: The SUU-58/B dispenser with BLU-91/B submunitions.
- CBU-83/B: The SUU-58/B dispenser with BLU-92/B submunitions.
- CBU-84/B: The SUU-54A/B dispenser with BLU-91/B and BLU-92/B submunitions.
- CBU-85/B: The SUU-54A/B dispenser with BLU-91/B submunitions.
- CBU-86/B: The SUU-54A/B dispenser with BLU-92/B submunitions.

The Gator submunition is produced in two versions (anti-tank and anti-personnel) and is released from the non-spun version of the Tactical Munitions Dispenser, the SUU-64/B. The fixed-wing dispenser Gator program, while under the control of the Air Force, is actually a tri-service program with the Air Force furnishing the dispenser, the Navy providing modification components, and the Army providing the submunitions. The Army also loads and assembles the SUU-64/B dispensers for the CBU-89 weapon.

Dispenser usually called the Rockeye. This dispenser holds 45 BLU-91/B and 15 BLU-92/B submunitions. Ferranti Technologies Incorporated (formerly known as Ferranti International Signal Incorporated and before that, ISC Technologies) provides the dispenser, and Primex Technologies (formerly Aerojet) was the weapon system integrator.

In the CBU-89/B application, the submunitions are dispensed as a mixture of 72 BLU-91/B anti-tank and 22 BLU-92/B anti-personnel submunitions. Thus, it is difficult to clear an area sown with these munitions. The delivery speeds of these submunitions are up to 700 knots and the minimum dispensing altitude is 61 meters.

BLU-91/B and BLU-92/B Submunitions. These two submunitions were developed for the CBU-87/B and CBU-78/B weapons from the M74 and M75 mines that are used by the U.S. Army. The main difference between the two submunitions is the slightly greater weight of the BLU-91/B submunition, which is designed to attack the belly armor of tanks. The BLU-91/B employs a magnetic influence fuze, and is a fragmentation/blast submunition designed for anti-personnel use. It is actuated by four thin trip wires that are automatically deployed when the munition hits the earth. An anti-disturbance mechanism is also fitted to the submunition.

CBU-78/B. In order to meet its specialized requirements for shipboard operations, the U.S. Navy developed a separate dispenser for its Gator program. Designated CBU-78/B, it is a version of the Mark 7 Universal

Funding

These systems have been an integral part of the overall United States/NATO plans to combat the former Warsaw Pact's numerical superiority in armor. Therefore, Congress has long provided funding for these systems with little opposition. The following data represent the latest funding profile for these weapons; no request was made in the FY97 and following P1 documents.

	<u>U.S. FUNDING</u>							
	<u>Fiscal 1991</u>		<u>Fiscal 1992</u>		<u>Fiscal 1993</u>		<u>Fiscal 1994</u>	
	<u>QTY</u>	<u>COST</u>	<u>QTY</u>	<u>COST</u>	<u>QTY</u>	<u>COST</u>	<u>QTY</u>	<u>COST</u>
<u>PROCUREMENT</u>								
CBU-78/B	NL	11.4	NL	6.0	-	-	NL	9.6
CBU-89/B	-	-	1038	41.4	-	-	-	-
	<u>Fiscal 1995</u>		<u>Fiscal 1996</u>		<u>Fiscal 1997</u>		<u>Fiscal 1998</u>	
	<u>QTY</u>	<u>COST</u>	<u>QTY</u>	<u>COST</u>	<u>QTY</u>	<u>COST</u>	<u>QTY</u>	<u>COST</u>
<u>PROCUREMENT</u>								
CBU-78/B	-	-	-	-	-	-	-	-
CBU-89/B	-	-	336	9.5	-	-	-	-

Note: All funding amounts are in millions of dollars. The United States Air Force renewed its procurement of the CBU-89/B to restore inventories following the Second Gulf War.

NL = not listed

In FY98, 280 Wind Corrected Munitions Dispenser kits were procured for \$11.8 million. The FY99 procurement of the Wind Corrected Munitions Dispenser was valued at \$14.9 million for 676 kits. In FY00, \$48.4 million was provided for 2,920 kits and in FY01, \$100.3 million was provided for 5,918 kits. The FY02 funding totaled \$111.4 million for 6,917 kits and the FY03 request is \$71.2 million for 4,959 kits.

Recent Contracts

On August 21, 1991, Alliant Techsystems was awarded \$14,756,375 under contract number DAAA09-91C-0733 for the procurement of 232,677 BLU-91/B electronic components.

On August 21, 1991, Action Manufacturing Company was awarded \$5,600,298 under contract number DAAA09-91C-0657 for the procurement of 160,043 BLU-91/B and 40,828 BLU-92/B electronic components.

On December 12, 1993, Alliant Techsystems was awarded an \$18.9 million contract (unknown number) for the procurement of 1,397 CBU-89/B Gator weapons.

On December 22, 1993, Accudyne Corporation was awarded \$9,806,019 under contract number DAAA09-94C-0001 for the procurement of 70,348 magnet cuplink devices for the BLU-91/B and BLU-92/B submunitions.

On May 2, 1994, Motorola Company was awarded \$43,765,520 under contract number DAAA09-94C-0338 for the procurement of 27,770 FMU-140/B fuzes.

On May 13, 1995, Alliant Techsystems/Accudyne Division was awarded \$5,782,805 under contract number DAAA09-93C-0485 for the procurement of 20,081 BLU-92/B submunition bodies.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
July	1970	Development begun (M74/75)
	1979	Serial production of M74/75
Late	1970s	BLU-91/B - BLU-92/B development begun
October	1981	BLU-91/B and BLU-92/B type standardized
February	1982	CBU-89/B and CBU-78/B in initial production
Late	1995	Production of CBU-78/B dormant
	1997	Production of CBU-89/B, BLU-91/B, BLU-92/B dormant
	2002-2003	CBU-89/B, BLU-91/B, BLU-92/B, and CBU-78/B available for further orders

Worldwide Distribution

Countries. Known users of the CBU-89/B and the CBU-78/B weapons include **Israel**, the **Netherlands**, and the **United States**. Several other users have been reported but remain unidentified.

Forecast Rationale

The United States long since ceased procurement of the CBU-78 and CBU-89/B dispenser systems. Instead, the U.S. will meet its needs in this mission area with the AGM-154 Joint Stand-Off Weapon (JSOW).

several other nations have not signed this treaty, many have. This has reduced the potential market for the CBU-89/B filled with the BLU-92/B anti-personnel version of the Gator mine.

As with the CBU-87, sales of the CBU-87/B were hurt by the Ottawa Convention of 1997 banning anti-personnel land mines. The BLU-92/B submunition fits the treaty definition. Though the United States and

No further production of the CBU-78 or CBU-89/B is anticipated, although these weapons remain available to meet new orders.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

Munition	through 02	High Confidence Level				Good Confidence Level				Speculative			Total 03-12
		03	04	05	06	07	08	09	10	11	12		
G.D./ALLIANT/US GOVERNMENT (Co-Product)													
CBU-89/B (a)	24835	0	0	0	0	0	0	0	0	0	0	0	0
Total Production	24835	0	0	0	0	0	0	0	0	0	0	0	0

(a) Production shown is for production deliveries only of the complete CBU-89/B weapon using the SUU-64/B dispenser; each dispenser has 72 BLU-91/B and 22 BLU-92/B submunitions.

ESTIMATED CALENDAR YEAR PRODUCTION

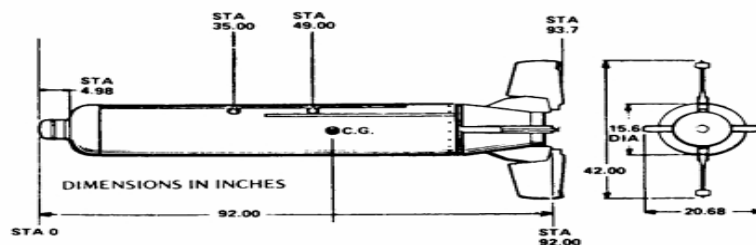
Munition	through 02	High Confidence Level				Good Confidence Level				Speculative			Total 03-12
		03	04	05	06	07	08	09	10	11	12		
GENERAL DYNAMICS/ALLIANT/FERRANTI (Coproduction)													
CBU-78/B (a)	4620	0	0	0	0	0	0	0	0	0	0	0	0
Total Production	4620	0	0	0	0	0	0	0	0	0	0	0	0

(a) Production shown is the CBU-58/B Rockeye dispenser for the CBU-78/B application ONLY; no other ROCKEYE production, including the submunitions, is included. Production shown is for service deliveries only; each CBU-78/B contains 45 BLU-91/B and 15 BLU-92/B munitions.

ESTIMATED CALENDAR YEAR PRODUCTION

Munition	through 02	High Confidence Level				Good Confidence Level				Speculative			Total 03-12
		03	04	05	06	07	08	09	10	11	12		
GENERAL DYNAMICS/ALLIANT/US GOVERNMENT (Coproduction)													
BLU-91/B (a)	1996020	0	0	0	0	0	0	0	0	0	0	0	0
BLU-92/B (b)	615650	0	0	0	0	0	0	0	0	0	0	0	0
Total Production	2611670	0	0	0	0	0	0	0	0	0	0	0	0

(a) Production shown is for service deliveries only, for the CBU-89/B and CBU-78/B applications. The forecast assumes a loading of 72 BLU-91/Bs in the CBU-89/B and 45 BLU-91/Bs in the CBU-78/B.
 (b) Production shown is for service deliveries only, for the CBU-78/B and CBU-89/B applications. The forecast assumes a loading of 22 BLU-92/Bs in the CBU-89/B and 15 BLU-92/Bs in the CBU-78/B.



SUU-64/B

Source: US Air Force