

The CBU-89 "Gator" Minefield

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The ability to establish hasty obstacles offers a number of advantages to a tactical commander, and the more emplacement methods he has available the better. Although commanders frequently employ artillery delivered minefields, or FASCAM (family of scatterable mines), few seem to know about air-delivered minefields, especially those created by the CBU-89 Gator munition.

The Air Force can use a variety of different munitions. One of its family of munitions is the cluster bomb unit (CBU), which dispenses multiple small bomblets to attack large area targets. The dispenser, which is called a suspension unit universal (SUU), resembles the average bomb, but its interior contains bomb live units (BLUs). Once a CBU is released from an aircraft and detonates, or "functions" at a preset time or altitude, the BLUs are scattered to the ground.

Once released, different types of

bomblets react differently. Some fire fragmentation or armor-piercing projectiles on impact, and others launch projectiles toward ground targets while suspended in the air. The CBU-89 Gator, for example, scatters small mines over a target area (Figure 1).

The CBU-89 uses an SUU-64 dispenser that ejects 72 BLU-91 antitank (AT) mines and 22 BLU-92 antipersonnel (AP) mines to the ground. The BLU-91 and BLU-92 mines are actually XM74 and XM75 ground-emplaced mine-scattering system (GEMSS) mines that have been modified for the Gator munition.

The BLU-91 antitank mine, once deployed on the ground, uses a magnetic sensor to detect a target passing over it. If it detects a vehicle, it detonates and fires a shaped charge into the target (Figure 2). The mine also contains anti-handling circuitry that causes it to detonate if it is tampered with or if it detects low battery voltage. The mine

self-destructs if it does not detect a target in a pre-set amount of time.

The BLU-92 antipersonnel mine looks much like the BLU-91, but its function is to disrupt the mine-clearing efforts of dismounted personnel. Once it reaches the ground, it deploys four tripline sensors out to a distance of 40 feet. If a tripwire is disturbed, the mine's warhead detonates and showers the area with fragments. It has the same anti-handling and self-destruct devices as the BLU-91.

When the BLUs reach the ground, they deploy in a limited pattern, whose exact shape and dimensions depend upon adjustments in the aircraft's dive angle, speed, and altitude. Figure 3 shows some sample pattern dimensions of a single munition. (Field Manual 101-50-20 shows additional possibilities.) The number of mines per square meter depends on the overall pattern size. The first entry in Figure 3 shows the data for what may be the most useful spread of mines — a field 106 x 116 meters that places the antitank mines about 13 meters apart.

A CBU-89 munition weighs 651 pounds, and a single aircraft, depending on the type, can deliver several. But,

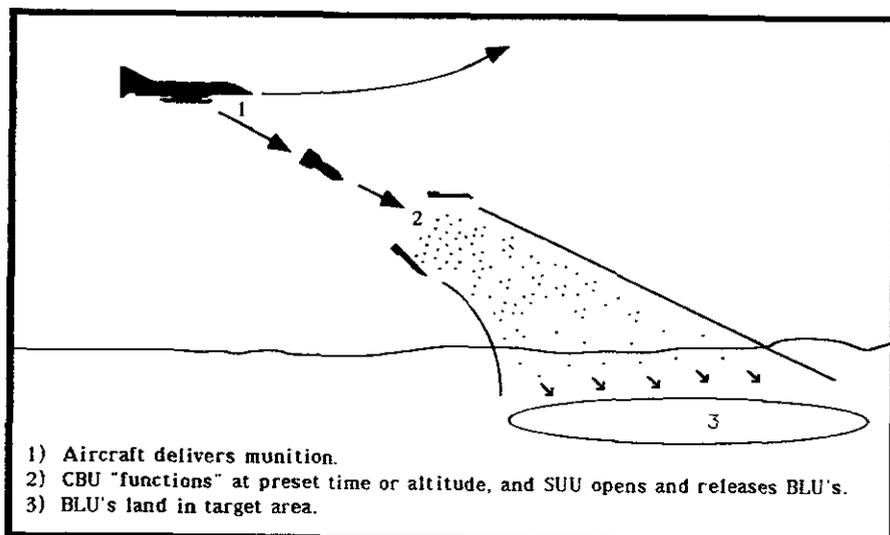


Figure 1. Cluster munition delivery

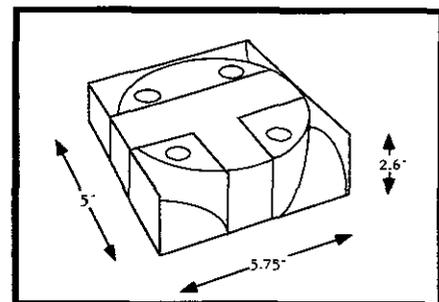


Figure 2. BLU-91

	Aircraft Dive Angle	Aircraft Altitude (feet)	Aircraft Airspeed (knots)	Function Altitude or Time	Pattern Dimensions (meters)	Avg. Distance Between Each AT Mine (meters)
1	0	600	400	4.51 sec.	106 x 116	13
2	0	5000	400	500 ft	106 x 114	13
3	0	5000	350	500 ft	97 x 108	12
4	0	5000	450	500 ft	117 x 120	14
5	0	5000	550	500 ft	135 x 129	15.5
6	20	2000	400	500 ft	155 x 144	17.5
7	20	2500	400	500 ft	141 x 134	16
8	30	3000	400	500 ft	109 x 115	13
9	30	4500	500	500 ft	107 x 113	13
10	0	600	450	4.51 sec	129 x 130	15
11	10	1200	500	4.51 sec	43 x 70	6.5

Figure 3. Sample of pattern dimensions

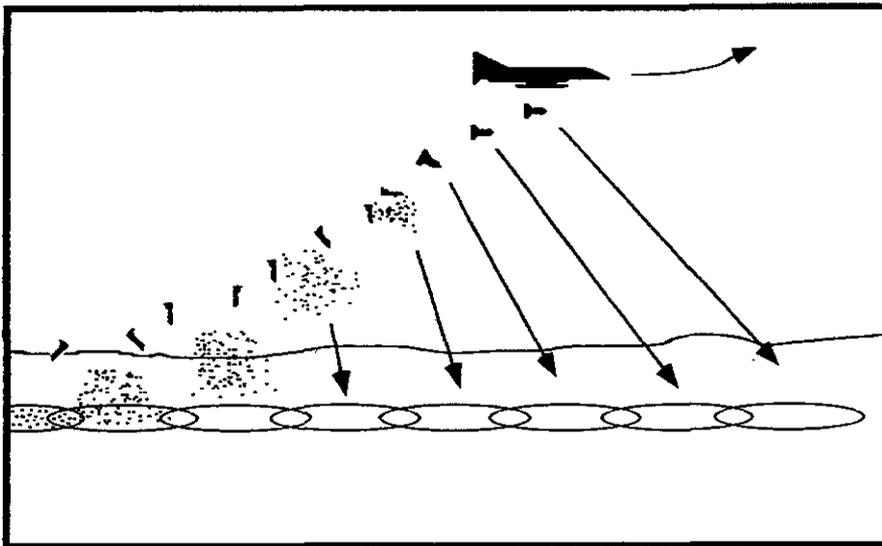


Figure 4. Stick delivery

the actual bomb load also depends upon the threat environment in which the aircraft will fly. If the plan calls for delivering a minefield behind the enemy's forward line of troops, the aircraft will have to carry a number of defensive systems on its weapon pylons. For example, if a commander wants an A-10 to deliver a minefield behind enemy lines, the aircraft will probably have to carry an ECM pod and chaff and flare dispensers, leaving less payload capacity for munitions. On the other hand, if the minefield is delivered in an area controlled by friendly forces, an A-10 can probably carry twice the number of munitions. Depending on the situation, an aircraft flying close air

support can carry 10 to 25 CBU-89s.

An aircraft can also deploy a large, linear minefield by dropping a series of bombs in what is known as a stick delivery. A stick is the overall pattern formed by the combined effects of a series of munitions. For example, a minefield 1,060 meters by 116 meters results when an aircraft drops 10 CBU-89s at the most favorable dive angle, altitude, and speed (Figure 4).

A CBU-89 minefield offers a commander several tactical options during both offensive and defensive operations. Its particular advantages are the near instant delivery and surprise appearance of a formidable obstacle. For example, during a defense in sector, a battalion

task force commander may want to coax the enemy into attacking along a specific avenue of approach by leaving it relatively unprotected. But the task force commander plans to reorient his forces to cover this avenue of approach once the enemy begins moving and also plans to fly two sorties of A-10s into the area. Because of the low threat environment (assuming the area is under friendly control), each aircraft can carry a load of 20 CBU-89s. This flight will eventually deploy 464,000 square meters of minefield to cover the previously unprotected avenue of approach.

A Gator minefield also offers other possibilities. A commander can use it as a contingency option to block enemy penetrations during defensive operations or to protect an exposed flank during offensive operations. A unit may also scatter BLU-91s over an enemy's unoccupied defensive positions or drop CBU-89s over an enemy tank reserve to keep it from counterattacking.

In conclusion, a CBU-89 Gator minefield is a valuable tool that a commander can use in a variety of tactical situations. As the emphasis on combined arms and joint operations increases, so does the importance of knowing the options available from the other services.

If an Army unit wants to use CBU-89s during wartime, it should convey its interest through the supporting Air Force liaison officer to insure that the munitions will be available when they are needed. Additionally, because the actual use of Gator minefields requires planning and coordination, it is important for a unit to simulate their deployment during peacetime exercises.

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