



ASC ENGINEERING FACT SHEET

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MJU-50/B and MJU-51/B Covert Flares



MJU-51/B Cutaway Model

DESCRIPTION

Beginning in the year 2000, Air Force pilots will be able to depend on a new class of flares to protect them against IR missiles. The MJU-50/B and MJU-51/B infrared countermeasure flares are the first full-scale production special materials (SM) flares to be acquired by the Air Force.

What makes these SM flares so special? Covertness and safety do. SM flares produce so little light that, unless you know right where to look, it is extremely difficult to see a flare when it is fired. This means pilots can fly without the fear of illuminating their aircraft

SUMMARY

PROBLEM:

- During nighttime operations, pilots who dispense current inventory magnesium flares illuminate their aircraft against the dark sky, thereby exposing themselves to further enemy ground fire.
- Current inventory flares have safety and operational limitations that prohibit their use in certain scenarios.

SOLUTION:

- The MJU-50 & MJU-51 flares were developed to provide protection against infrared (IR) missiles using a special material that emits minimal visible energy.
- While not intended to completely replace current inventory flares, the MJU-50 & MJU-51 have shown to be a valuable addition to the USAF flare inventory.

and exposing themselves to further enemy ground attack. In addition, SM flares won't blind a pilot who is wearing night vision goggles.

By using SM, the safety and operational concerns regarding the use of magnesium based flares has been minimized. Dispensing of magnesium based flares at low altitudes poses a fire haz-

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ard, whereas SM flares do not. Magnesium based flares are classified as an explosive (hazard classification 3.1), while the SM flares are classified as a spontaneous combustible (hazard classification 4.2), thereby making munitions handling much safer.

The MJU-50 and MJU-51 flares are manufactured by Alloy Surfaces Company of Philadelphia. Alloy Surfaces holds the patent on the SM fabrication process. This process involves the special treatment of thin metal foils to promote rapid oxidation of the foils when exposed to the air. The oxidation reaction produces heat, and in mass quantities, these thin metal foils produce a virtual "cloud of heat" to decoy IR missiles.

The MJU-50 is a 1x1x8-inch flare filled with a stack of SM. It was developed for the C-130, which was the primary platform for developmental and operational testing. The MJU-50 has also been investigated as a countermeasure for Air Force helicopters and by the Air National Guard on F-16 and A-10 aircraft.



MJU-50/B Inert Model

The MJU-51 is a 1x1x2-inch flare filled with a stack of SM. It was developed for Air Force and Navy fighter aircraft. This flare has already been

flown off of the F-16 and F-15 and will soon be tested by the Navy on the F-18. In addition, the MJU-51 has been investigated as a countermeasure flare for the C-17 and other transport aircraft.



MJU-51/B Inert Model

The MJU-50/B and MJU-51/B covert flares have been procured by the Advanced Strategic and Tactical Infrared Expendables (ASTE) program office, a joint Air Force and Navy program located at Wright-Patterson AFB.

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