

Mission-Critical Inspection of Counter-Measure Flares

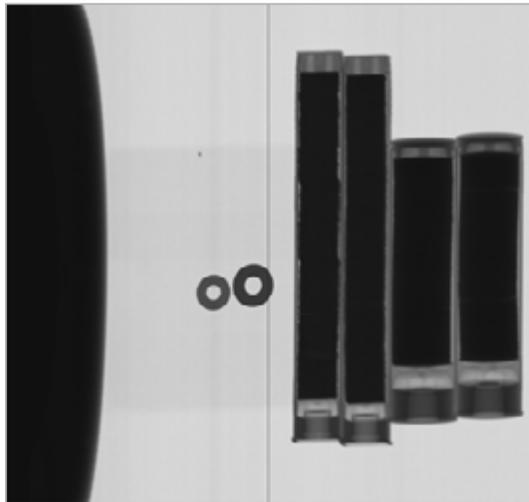
Verifying correct component placement in flares used on military aircraft as a defensive maneuver, ensuring fail-safe deployment in the event of surface-to-air or air-to-air missile attack

The Challenge

Counter-measure flares are a primary defensive component for the nation's military airplanes and helicopters—including Air Force One. In the event a surface-to-air or air-to-air missile is incoming towards an aircraft, the crew will shoot off counter-measure flares to create a heat signature in the air apart from the aircraft. Since missile guidance systems are heat-seeking (using the heat of the aircraft to do in-air directional adjustments to hit their moving

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target), the heat of the flares helps to confuse the missile's guidance system and lessen the risk of a successful hit on the aircraft. Any instance where counter-measure flares are being deployed is most likely a mission-critical and time-critical situation where lives—and national security—could be at stake. It is imperative that the flares deploy properly to serve their defensive purpose. The Customer is a defense contractor that designs and manufactures these flares for the U.S. military. They needed a fail-safe means of checking flares during the production process.



Internal components of the flares are visible in this digital X-ray image

Industry: Military / Manufacturing

Technology: Digital Radiography / Computed Tomography

Products & Services: Component placement / Material evaluation

Customer Profile: A U.S. defense contractor manufacturing counter-measure flares

Business Challenge: Counter-measure flares are a defensive tactic against incoming missiles. It is critical that they work at the moment they are needed, so all of the flare components and materials must be properly aligned during production

Solution: A digital radiography system captures X-ray images to verify the placement and attributes of components inside the flares

Benefits:

- The Customer is able to meet fault tolerance requirements for the flares it manufactures, and document test results in accordance with DICONDE standards
- U.S. military personnel can rely on the flares to help avert an imminent, life-threatening attack on an aircraft

The Adaptive Energy Solution

The solution that Adaptive Energy provided combines high-energy X-ray technology with computed tomography to offer digital imaging capabilities. The system captures images of the counter-measure flares and allows the Customer to inspect all the internal components to determine if they are in the correct place, and that the chemical compounds (that activate the flare and create heat) are incorporated in the correct quantity and in the right location.

The images captured are stored digitally, and the system allows reference information (such as part number, date, time, etc.) to be corresponded to and stored with each image. The system image parameters and data storage formats conform to DICOM standards.

Results

Using the Adaptive Energy solution, the Customer is able to perform thorough inspection of its flares following assembly. It is just as important to ascertain that the flares are safe (i.e., they will not leak or ignite on their own) as it is to ensure they will be ready to deploy in a critical situation.

By combining high-energy X-ray imaging capabilities with digital imaging and information storage, the solution allows the Customer to validate and document its production output and quality to meet government contracting requirements. And, most importantly, the nation's military forces have working counter-measure flares at their disposal at the moment they need them the most.

About Adaptive Energy

Adaptive Energy creates customized, non-destructive material evaluation solutions to address mission-critical, time-sensitive testing needs. By combining the latest digital radiography, computed tomography, and ultrasonic imaging technologies with innovative mechanical and robotic assemblies, Adaptive Energy's integrated systems offer rapid deployment, are easy to learn and maintain, and perform reliably under pressure.

Working collaboratively with organizations in the aerospace, automotive, energy, petro-chemical, defense, infrastructure, and materials industries, our experts develop optimized solutions for flaw and crack detection, composite delamination, weld inspection, hardness testing, custom radiation enclosures and overhead gantry systems, and more.

Adaptive Energy is also the exclusive distributor in the U.S. and Canada of FORCE Technology's P-Scan ultrasonic scanners, including the P-Scan Stack with Phased Array, a next generation automated inspection system.



CONTACT

+1.253.284.0825

Email info@adaptiveenergy.com

Mailing address

Adaptive Energy
1640 Marine View Drive, Suite B
Tacoma, WA 98422

www.adaptiveenergy.com