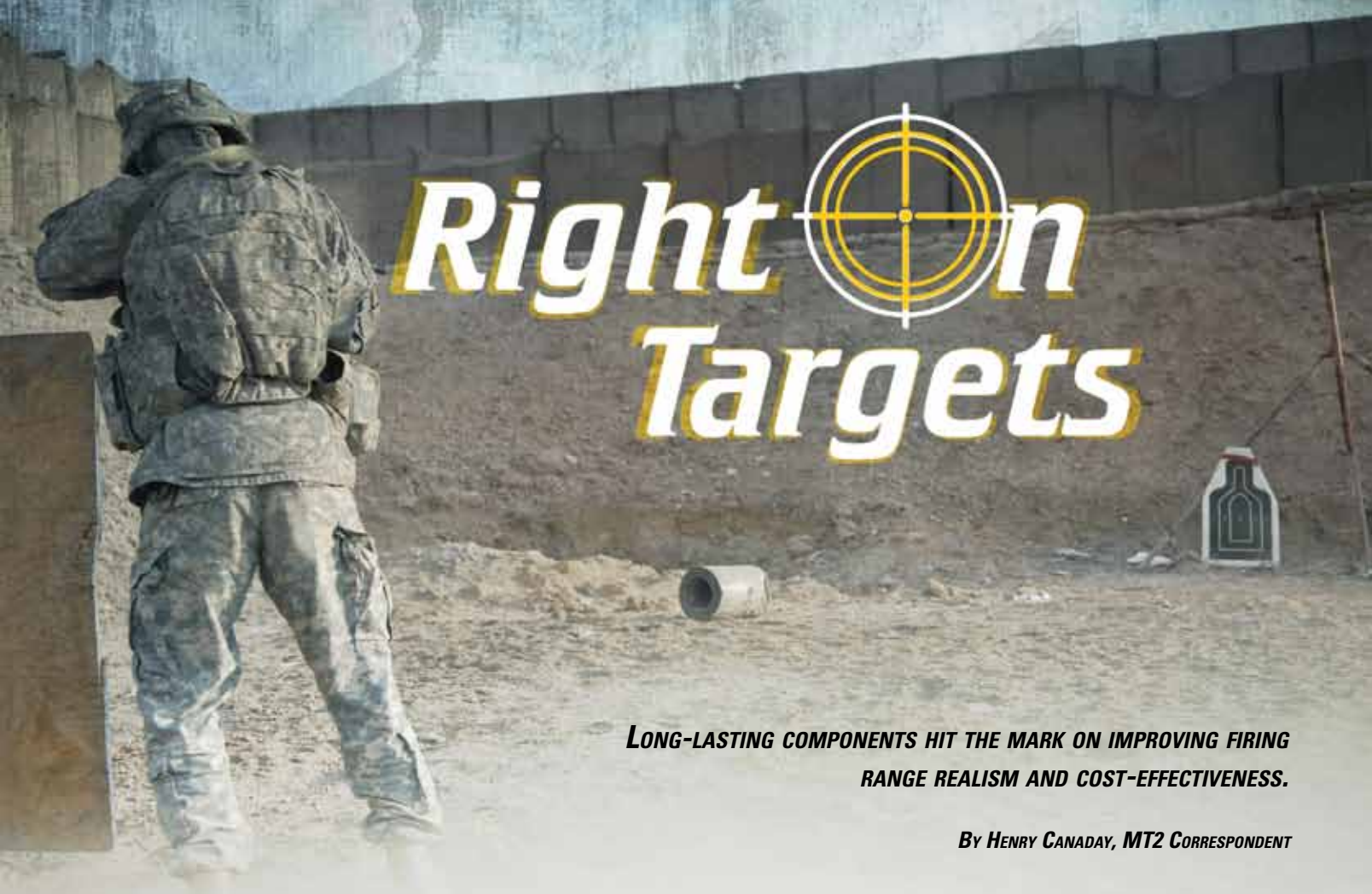

Right On Targets

Long-lasting components hit the mark on improving firing range realism and cost-effectiveness.

By Henry Canaday, MT2 Correspondent

Firing ranges are among the most basic and essential tools of military training, and the Army's current goals are to maintain range capabilities and improve instrumentation. At the same time, however, service leaders are looking to shift to systems that reduce life cycle costs and use scarce resources effectively.

"We would like industry to carefully develop and strategically choose suitable components that improve reliability and maintainability, can interface with legacy equipment and maintain concurrency," said Lieutenant Colonel Yolanda Frazier, product manager for digitized training at U.S. Army Program Executive Office for Simulation, Training and Instrumentation (PEO STRI), adding that PEO STRI wants to keep fielded systems relevant and capable of realistic training.

Contractors should adhere to the Army's Live Training Transformation (LT2) processes, and target signatures and device reactions should comply with Future Army Systems of Integrated Targets standards, Frazier urged.

New hardware should maximize use of nondevelopmental items and off-the-shelf components, re-use LT2 software and use non-proprietary software and interfaces, she continued. "Contractors need to ensure that future instrumentation upgrades are based on trade analysis that facilitates and ensures the lowest life cycle cost."

Frazier also wants solid planning for technology refreshment and obsolescence.

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Life Cycle Costs

Although there is a lot more to firing ranges, good targets are a universal requirement. Private companies have been developing better targets that are far more realistic, last longer, are environmentally friendly and reduce life cycle costs.

For night shooting, Caliente Defense makes live-fire, thermal-signature devices, including thermal blankets, vehicle combat ID, thermal targets for steel silhouettes, table thermalization and 3-D vehicles and silhouettes.

Caliente is modernizing thermal targets by optimizing thermal optics while reducing cost, according to Director of Business Development John Farfaglia.

Standard thermal blankets are costly consumables that require constant maintenance. Caliente's Table Thermalization Heaters provide thermal signatures on stationary armored targets by heating plywood targets, rather than using thermal blankets that are destroyed and replaced. The system is designed to last longer than five years, compared with several months at best for thermal blankets. Caliente estimates payback in 18 months, and even sooner if maintenance and logistic costs are recognized.

Caliente's 3-D Tech Truck and Heated Ivan use heaters to heat plastic targets, creating realistic thermal signatures of U.S. Molders' RT Tech Truck Frontals and

Fat Ivan silhouettes. Thermal blankets provide one-dimensional thermal signatures, but Caliente heats trucks and silhouettes entirely, providing three-dimensional signatures that add targets for aerial gunnery.

"Best of all, there are no consumable thermal components that require maintenance and replacement," Farfaglia said. Caliente technology is compatible with Army Targetry Range Automated Control and Recording, so operators can instantly switch from day to night shooting without downtime for attaching thermal blankets.

Caliente products are built for long-term performance. "They have to withstand harsh environments and operate as required when needed, even if that need is five years down the road," said Farfaglia, adding that the company expects to offer hit-sensing and reactive targets soon.

Caliente's Table Thermalization Heaters provide thermal signatures on stationary armored targets by heating plywood targets, rather than using thermal blankets that are destroyed and replaced. [Photo courtesy of Caliente Defense]

Sterling Global Operations helps ranges operate within budgets, meet environmental requirements and exploit technology to improve training now and for decades. "Long-term range needs demand a better and less expensive way to get the job done," said Matt Kaye, Sterling's CEO.

Sterling's RangeXchange solution gives ranges better training, as well as lower cost, faster and more efficient environmental clean-up. RangeXchange components are GreenTargets, GreenRange and GreenScrap.

More than 1,200 GreenTargets are now being used worldwide at 47 military installations. For example, SpinningMan 3-D stationary infantry targets are human silhouettes used in combined-arms training and on multipurpose ranges. Made of abrasion-resistant steel plate, the spinning action gives shooter and spotter visual recognition of a hit and minimizes the impact of small- and heavy-caliber weapons, increasing target life and reducing cost.

Sterling GreenTargets can be adapted with thermal signatures. A cold thermal signal emitted by thermal tape is detectable only by thermal targeting and surveillance sensors.

GreenTargets also eliminate use of surplus military vehicles as targets. Their 3-D vehicle profiles are easily installed for live-fire training and completely recyclable. Targets range from replicas of suicide-bomber cars to technical trucks, tanks and other military vehicles. These GreenTarget vehicles require no maintenance or disassembly at the end of operational lives. GreenTargets typically cut target life cycle costs by up to 30 percent.

Meggitt Training Systems offers the Stationary Infantry Target, Stationary Armor Target (SAT), Moving Infantry Target (MIT) and Moving Armor Target (MAT), according to Shannon Medina, director of U.S. Military Live Fire.

Meggitt's Multi-Function Stationary Infantry Target (MF-SIT) allows the target head to easily change to give different presentations. MF-SIT responds to hits, automatic triggers activated by soldiers or pre-programmed scenarios, providing realism in moving infantry targets.

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MIT is a cable-driven rail system for attack and retreat. It replicates walking at 4 to 6 kph, jogging at 8 to 10 kph and running at 12 to 14 kph. MIT executes target commands such as expose, conceal, hit and fall, hit and hold, and hit and bob. MIT's sensor detects and reports hits.

Meggitt's SAT and MAT simulate tanks or other vehicles for live-fire training. They are designed to withstand near-combat conditions under all weather conditions. MAT changes speed or direction and raises or lowers a full T-72 flank target while moving.

Smart Targets

For small-arms live fire, Marathon Targets makes smart targets, autonomous robotic human type targets (RHTTs) that look, move and behave like people. For example, if one RHTT is shot, others can automatically scatter for hiding places or charge the shooter.

"Smart targets re-invent live-fire training," said Ralph Petroff, Marathon president, North America. "They bring unprecedented levels of realism to live-fire training."

Users have achieved 100 percent or more improvements in moving marksmanship with RHTTs, he said. The Marine Corps Warfighting Lab showed shots per kill reduced from 4.7 to 2.3. If the smart targets had moved more realistically, Petroff noted, improvements would be even more dramatic.

Smart targets also introduce decision-making into live-fire training. Traditional live-fire training is repeatable and predictable. Shooters are not trained for the chaos of battlefields. "Smart targets make smart shooters by forcing them to think during live-fire training," Petroff said.

Smart targets also improve tactical thinking. "The goal is for shooters to become pre-combat veterans," Petroff said, suggesting that these targets support

Army initiatives such as Squad as Foundation of Decisive Force and Squad Level Overmatch.

Using smart targets rather than soldiers holding sticks for silhouettes also allows many more shooters to be trained in less time. And almost any range can be converted into a smart-target target range in less than a day, avoiding the cost of setting up traditional moving-target ranges.

Marathon smart targets are robust, move almost one mile in five minutes and run 12 miles before a recharge, which takes two hours. The robots' platform withstands even 7.62 mm machine-gun fire. The robots talk, shriek when shot and speak any language.

Only Marathon makes these highly realistic and mobile smart targets, now in their fourth generation, Petroff said. Only one operator is needed for 25 targets, minimizing cost. The company now offers a portable trailer that transports eight robots and does command, control and battery charging.

The Target Shop offers printed targets ranging from 12 inches to 6 feet square, noted Vice President Kraig Hall. The company makes almost any type of substrate, including paper, corrugated paper, corrugated plastic, plastic, polymer and steel. Its portable target systems mechanically deploy targets for reactive training, and it offers several types of plastic silhouettes and Ivan-style targets.

The company's targets are distinguished from competitors' by higher quality and attention to detail, Hall said. "We focus on military and law enforcement customers, rather than trying to be everything to everyone."

3-D vehicle profiles are easily installed for live-fire training and completely recyclable. [Photo courtesy of Sterling Global Operations]

Smart targets can run five-minute miles and withstand 7.62 mm machine gun fire. [Photo courtesy of Marathon Targets]

Targets are produced on high-quality stocks and packaged very carefully.

The company's target customization allows customers to fine-tune training programs. It provides samples of new targets prior to production, ensuring that customers receive exactly what they seek, whether it's a custom layout or special ink to match specific lighting. Target Shop can also apply special coatings to enhance performance, extending the life of corrugated products in inclement weather, for example.

The company is working on the next generation of realistic targets for training. It is designing a new type of fracture target that improves shooters' views of hits from down range.

A partnership with Intelligent Target Systems enables Target Shop to offer cost-effective, high-quality portable target systems. These systems include remote-controlled, pop-up and pop-out targets and trolley systems.

Miss or Hit

Action Target offers a wide variety of products from automated electro-mechanical location of miss and hit (LOMAH) systems and large-scale bullet traps to Crazy Ivan plastic targets and small-arms targets. One very popular military product is the Modular Armored Tactical Combat House, a live-fire, 360-degree safe shoot house to train close-quarter skills, according to Steve Thomas, the company's director of military sales. Action Target has built entire villages of shoot houses in Iraq, Abu Dhabi and Fort Benning, Ga.

Action Target also provides bullet traps, including the steel Total Containment Trap (TCT), which safely contains any round and allows for safe disposal of spent rounds. TCT can be used indoors or outdoors and combined with the company's moving and turning targets.

Through its subsidiary, ATA Defense Industries, Action Target offers target systems like Moving Armor Target, Fixed Infantry Target, Infantry Moving Target, Portable Infantry Target Lifter and LOMAH. It also offers plastic, paper and cardboard military targets through subsidiary Law Enforcement Targets.

Action Target is distinguished by the variety of its products and its high-quality in-house manufacturing, Thomas said. A one-stop shop, it consults, designs, manufactures, installs, services and equips ranges.

At the 2014 AUSA meeting in October, the company was planning to debut a new line of steel targets for heavy use with small arms. ✶

For more information, contact *MT2* Editor Hank Donnelly at hankd@kmimediagroup.com or search our online archives for related stories at www.mt2-kmi.com.