

Dual Mount Stinger

Designed, Produced, and Fielded in Three Years

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What happens when a potential Foreign Military Sales (FMS) customer has a requirement for military hardware that is not in the inventory of any branch of the U.S. military? In the case of the Dual Mount Stinger (DMS), the Short Range Air Defense (SHORAD) Project Office obtained necessary approvals and built the customer a Stinger Missile Launcher that ultimately met their requirements in a timely and cost-effective manner.

DMS System Description

DMS is a tripod-mounted launch platform for the Stinger Missile developed by Hughes Missile Systems Company (HMSC) for the SHORAD Project Office. (HMSC was later sold to Raytheon Corporation and is currently operating as Raytheon Missile Systems Corporation [RMSC].) Tripod-mounted missile launch devices are not a new concept. Over the years, France, England, and Sweden developed tripod-mounted launchers for their Mistral, Starstreak, and RBS-70 Missile Systems. Given the proliferation of tripod-based, short-range air defense missiles, it was a natural evolution for Stinger to develop a tripod launcher.

The Stinger missile is the premier short-range, two-color, heat-seeking, fire-and-forget weapon in the world today. The DMS launcher assembly was designed as an integrating fixture such that a single operator could fire two Stinger missiles against aerial targets. The DMS System provides not only the tactical hardware but also the training and support equipment to prepare military per-



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sonnel to operate the system proficiently and ensure equipment readiness.

Developed for FMS customers, the DMS Weapon System consists of the DMS launcher with two Stinger tactical missiles (Guided Missile, Intercept Aerial). This system provides air defense capability from a fixed ground position. A self-contained system, the DMS includes its own electrical power system, argon coolant, and sighting units. Easily disassembled into portable components

that require minimal set-up time, the DMS can be operated autonomously or in conjunction with an external early warning command and cueing/control system.

The DMS launcher has provisions to receive Forward Area Air Defense Data Link or Ground Based Data Link cueing data, which can be from either two-dimensional (2D) or three-dimensional (3D) sensors. Cueing data from a 2D system give the approach direction (az-

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imuth) and range of the target aircraft, while cueing data from a 3D system give the approach direction (azimuth), range of the target aircraft, and elevation angle.

DMS Development to Fielding

Since the United States had no requirement for this system back in 1997, its development and fielding presented a unique set of challenges. A current FMS customer approached the SHORAD Project Office with the requirement for a tripod launcher, and we immediately started the research necessary to meet the requirement. In the course of our research we found that the sale of this system, even though it technically did not exist at the time, required the same U.S. Department of State approval as any other FMS case. Raytheon had already performed some preliminary design work on a tripod-mounted Stinger launch platform cooperatively with Per Udsen, a Danish company. A modified version of the Raytheon-Per Udsen launcher resulted in the DSM System that we see today. Upon approval of an FMS case to deliver over 50 systems to the customer and to oversee the management, development, and production of the DMS, the SHORAD Project Office initiated development of the DMS.

Great challenges often have great rewards. Such was the situation with DMS. One of the biggest rewards experienced was developing, producing, and fielding the DMS system within three years after approval of the FMS case. At the beginning, the timeline seemed to be almost impossible (even with acquisition streamlining) for a typical Department of Defense system. The signing of an additional FMS case, however, has emerged as a major benefit from this effort. Another benefit is that four more countries have expressed interest by requesting price and availability data.

DMS Integrated Product Team (IPT)

Following our research, we established a joint DMS IPT between the SHORAD Project Office and RMSC. Consisting of members with cross-functional backgrounds and expertise from the government, RMSC, and major vendors, the

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DMS IPT goal was to collaborate as a team to develop, produce, and field the DMS system and associated equipment. Our efforts were focused on meeting the requirements defined by the customer, while at the same time ensuring no degradation to the overall effectiveness of the Stinger missile. To achieve our goal, we structured a team charter that laid out the most important project requirements:

- Prepare the Statement of Work.
- Review qualification/requalification requirements for vendors and consider acquisition reform when making recommendations.
- Monitor Master Integrated Program Schedule (MIPS).

- Work to achieve a proper balance between cost and schedule.
- Ensure that the DMS System is supportable.
- Ensure that the customer (U.S. or FMS) is satisfied with DMS.

The DMS IPT was key to executing this program on schedule and within cost. To work through problems or to head off potential problems, the team scheduled monthly meetings and occasionally met before the scheduled meeting. Under the joint leadership of the SHORAD Project Manager and the Raytheon Program Manager, the team executed the program flawlessly and fielded the first production units three years from the date that the FMS case was signed.

Alpha Contracting Procedures Used

In August 1997, the SHORAD Project Office began to prepare a Contract Requirements Package for procurement of DMS Launchers, test set, publications, and training for the FMS customer. The procurement would include options for the same supplies and services for five other potential customers that had FMS Letters of Offer & Acceptance in process. This would be the first procurement of the DMS launcher system by the government and the first production of this system by the contractor, RMSC, in Tucson, Ariz.

The total estimated value of the procurement was \$49.2 million, and award of the contract was required by Dec. 31, 1997, to meet the customer's fielding schedule. We considered a letter contract, but ultimately selected the Alpha contracting approach. Further, we discussed the approach with the contractor, and on Oct. 22, 1997, after joint discussions about our requirements and objectives, both parties committed to the program with a target for contract award of Dec. 17, 1997.

Alpha contracting is the term that has been given to an innovative technique that takes the contracting process and converts it from a consecutive process into a concurrent process. The approach concurrently develops a statement of

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work, prices that scope, and prepares the contract to execute the scope instead of the most commonly used procedure, which is to sequentially develop the solicitation, prepare the proposal, evaluate the proposal, negotiate the contract, and then finally, award the contract. Used in sole-source negotiated situations, Alpha contracting has allowed requirements for major systems, subsystems, and components to be under contract in a matter of days or weeks rather than months or even years.

The SHORAD Project Office, along with RMSC and the Defense Contract Audit Agency, established a procurement team that consisted of core members who would coordinate technical, audit, and pricing functions and additional key members who would support the core members in various fields. The procurement team, which functioned as part of the DMS IPT, began the process by defining its objectives, establishing ground-rules, and structuring databases to capture proposed and negotiated data as they became available. Because of time constraints, neither a traditional Request for Proposal nor proposal was developed. Between Oct. 10-21, 1997, at the RMSC facility in Tucson, the procurement team jointly generated and evaluated data to develop the probable cost. Besides the negotiation of probable cost, the team also addressed statement of work and performance specification issues, while simultaneously developing and partially evaluating a spare requirement to be procured as a follow-on to this new production contract.

When the procurement team encountered an unexpected obstacle in that the probable cost developed was beyond the budgeted funding, they functioned as a team to resolve these issues and reached final agreement on Dec. 4, 1997. The procurement team would have met its goal of contract award by Dec. 17, 1997, except that complete FMS funding was not available until Jan. 12, 1998. On that date, the contract was awarded for the basic requirement and priced options. For the basic requirement, the contractor had proposed \$30.3 million; the negotiated contract price was \$21.8 million. Price range options were established at a value of \$29.1 million.

The Alpha contracting approach worked very well for this procurement. We encountered some unexpected delays in award, but they were outside the Alpha process itself. For this action, process time was reduced significantly for the contractor and the government. The contractor estimated its savings from reduced proposal preparation time and audit, fact-finding, and negotiation support to be \$25 thousand. Further, the contractor incurred no expense for preparing formal proposal brochures, travel to the U.S. Army Aviation and Missile Acquisition Center (AMCOM) for fact-finding and negotiation, or certain internal audit processes (estimated savings \$7 thousand). AMCOM's activity, which encompassed several technical and requirements issues in addition to contracting, took less than three months (from Oct. 22, 1997, to Jan. 12, 1998).

In the traditional process, a procurement of this complexity and dollar value would take six months at a minimum, and some recent comparable actions have taken longer. In addition, the customer's spares' requirement was procured on Feb. 20, 1998, as a follow-on to the hardware contract, based primarily on data development and evaluation, which had begun during the initial Alpha process. Estimates reflect that the concurrent spares buy resulted in savings of 30 percent when compared to recent stand-alone procurements.

Fielded DMS

If there is a lesson to be learned from our experiences with the DMS, it is this: when approached to do something that on the surface appears *impossible*, it may, in fact, be *possible*. Two of the most significant factors enabling the SHORAD Project Office and RMSC to successfully provide the DMS to our customer, in such a short timeframe, were proven acquisition reform initiatives:

- We used the IPT approach for program management.
- Alpha contracting allowed us to contract in time to meet the customer's fielding schedule, which was a critical element of this requirement.

The dedicated individuals that made up our DMS IPT, including the Alpha Contracting Team, worked extremely hard and were totally committed to the project. The team's superb effort resulted in the production of a quality product (not in the U.S. inventory), that was delivered and fielded on time, resulting in a totally satisfied customer.

Editor's Note: The author welcomes questions or comments on this article. Contact him at george.vinson@redstone.army.mil.

REFERENCE

"Alpha Contracting, Applying the IPT Approach to Contract Negotiations," Thomas C. Meyer, *Army RD&A*, January-February 1997.