A Shift in Sustainment Strategy—When Do Vehicles Become Weapon Systems?

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On 8 July 2009, the Air Force Chief of Staff designated the mine resistant ambush protected (MRAP) vehicle as a weapon system. Security Forces, Office of Special Investigations [OSI], Explosive Ordnance Disposal [EOD] and Tactical Air Control Party [TACP] were issued MRAP vehicles to protect personnel against improvised explosive devices (IEDs). These vehicles are not only armored, but also contain mission equipment that provides positioning, communications, countermeasures, and offensive capabilities. The question now is how to classify the MRAP: Is the MRAP a vehicle or a weapon system? The following article will address this question.

The MRAPs were designed and built by several manufacturers to meet a United States Central Command (USCENTCOM) Joint Urgent Operational Need to protect forces from both under body and side impacting IED detonations. Additional mission equipment to counter IEDs before detonation was developed by the Joint IED Defeat Office. Communications equipment was selected depending on tactics employed, and an armament system was installed. All of this add-on mission equipment was configured and integrated after the vehicle was delivered to the Space and Naval Warfare Systems Command facility in Charleston, South Carolina. Once the equipment was integrated and configured to the applicable vehicle registration number, the vehicle and equipment were shipped separately to an assembly point in the USCENTCOM area of responsibility (AOR).

Upon arrival at the AOR assembly point, the applicable mission equipment was installed and functional users accepted the vehicle. At the point of acceptance, the accountability for the vehicle was established on the expeditionary logistics readiness squadron's (LRS) equipment custodian account, and the mission equipment accountability was recorded on the owning unit's equipment custodian account. Consequently, the MRAP was treated like all other vehicles. Vehicle management within LRS managed and captured scheduled and unscheduled maintenance in the On Line Vehicle Information Management System (OLVIMS) for the vehicle while other organizations performed maintenance on the installed mission equipment. For vehicles, in-commission rates are the current measure of merit. For weapon systems, mission capability is the proper measure. OLVIMS cannot document and track add-on equipment and therefore cannot track mission capability.

OLVIMS was not designed to manage weapon system configurations, so the *as delivered baseline* was captured on an excel spread sheet for each vehicle registration number. Consequently, if maintenance actions were executed against mission systems after the MRAP was placed into service, the true availability of the complete system was not captured in OLVIMS. Additionally, maintenance actions against a piece of mission equipment did not place the vehicle into a deadline for maintenance or parts status because the vehicle was operable in accordance with the OLVIMS status. Because the mission capable status of the MRAP could not be readily determined through the OLVIMS maintenance data collection process, the readiness of the fleet was unknown.

Not only was configuration management a problem (the Air Force has seven MRAP variants with multiple configurations, see Figure 1), but accountability was also a challenge. The vehicle was accounted for on the LRS's vehicle equipment account, while

Article Acronyms

ACC – Air Combat Command
AFCENT – Air Force Central Command
AFEMS – Air Force Equipment Management System
AOR – Area of Responsibility
COMSEC – Communications Security
EOD – Explosive Ordnance Disposal
IED – Improvised Explosive Device
IMDS – Integrated Maintenance Data System
LRS – Logistics Readiness Squadron
MRAP – Mine Resistant Ambush Protected
MSE – Mission Support Equipment
OLVIMS – On Line Vehicle Information Management System
OSI – Office of Special Investigations
POM – Program Objective Memorandum
REMIS – Reliability and Maintainability Information System
SBSS – Standard Base Supply System
TACP – Tactical Air Control Party
USCENTCOM – United States Central Command

the mission equipment was captured on the using organization's equipment and communications security (COMSEC) account. This was problematic for two reasons. First, many pieces of mission equipment were not catalogued and were consequently not picked up on equipment records for worldwide visibility. They were accounted for on local custodian account listings that did not interface with the Air Force Equipment Management System (AFEMS) and they were not visible to the enterprise. Second, the baseline configurations were lost because there was no way to manage a configured weapons system. Each item was managed separately at the item level and not as a complete weapons system at the configuration level (see Figure 2).

Because of the challenges mentioned up to this point, the Air Force Chief of Staff approved designating the MRAP family of vehicles as a weapon system on 8 July 2009, with a start date of 1 October 2010. To meet this direction and to ensure configuration management, accountability for mission equipment, and visibility to the fleet mission capability, the Integrated Maintenance Data System (IMDS) and the Reliability and Maintainability Information System (REMIS) were designated as the information management systems.

Numerous activities have occurred to correctly migrate from vehicle to weapon system management. Air Combat Command (ACC), designated as the lead command, established a weapon system team within the Logistics Readiness Division (A4R) to identify and POM [program objective memorandum] for life-cycle sustainment requirements. Air Force Materiel Command designated Warner Robins Air Logistics Center as the Air Force System Sustainment Manager to manage sustainment and provide configuration control over the seven MRAP variants within the Air Force. Functional managers developed their training, tactics, and procedures for employment of the weapons system and were tasked to determine their enduring requirement.

The next step was to define how to migrate from the vehicle management systems (OLVIMS and AFEMS) to the Air Force aircraft management systems (REMIS and IMDS). First, system requirement designators were assigned and defined the configurations of the seven Air Force MRAP variants by work unit code. This action enabled baseline configurations to be loaded into REMIS. Then ACC and Air Force Central Command (AFCENT) determined an IMDS maintenance data collection concept so maintenance data could be effectively collected. Next,

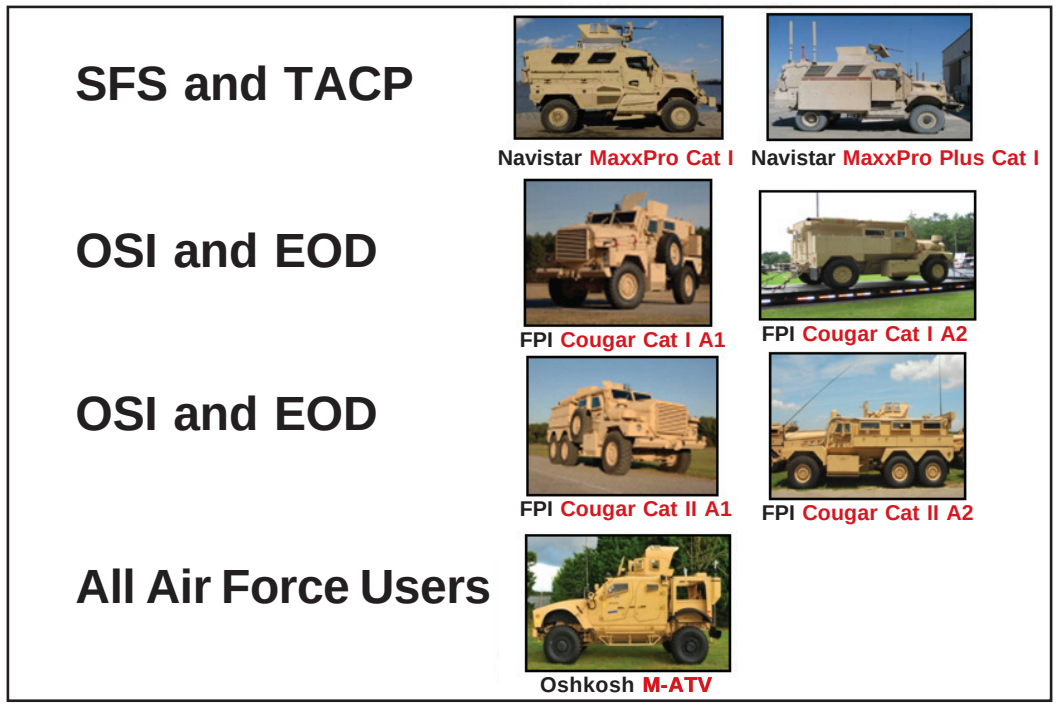
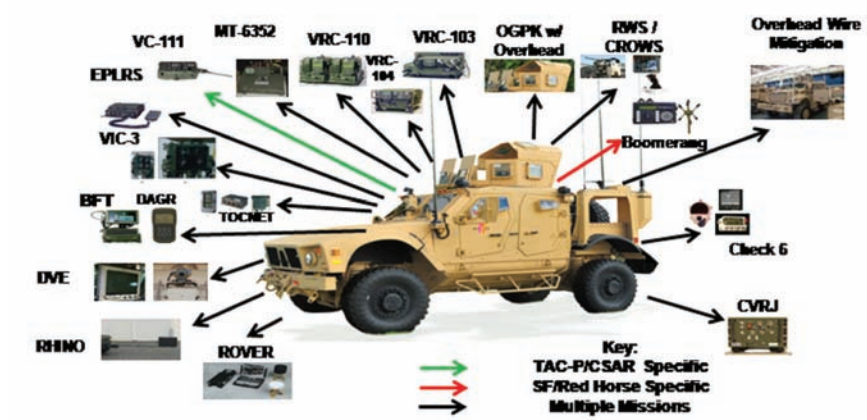


Figure 1. Air Force MRAP Inventory

Figure 2. Current Management Process—Manage the *Eaches*

an implementation schedule was developed to conduct the physical and financial migration from OLVIMS/AFEMS to IMDS/REMIS. Prior to ACC's Beta Test at Moody Air Force Base (AFB), a tabletop exercise was conducted to compare the original configurations received by the government to the current custodial accounts at the base. This exercise identified disconnects prior to the arrival of the transition team at Moody AFB. Upon arrival, Standard Base Supply System [SBSS] transactions were processed to drop the vehicle and installed equipment (not including COMSEC) out of AFEMS. Approved Air Force Form 913, *Aerospace Vehicle Project Action*, MRAPs were loaded into REMIS by registration number. The team assisted the base in gaining the MRAPs from REMIS into IMDS. Each MRAP's configuration was verified by physically inventorying each MRAP by registration number. Mission equipment shortages were identified for resolution. Finally, financial records from AFEMS and REMIS were reconciled to ensure the MRAPs and mission support equipment (MSE) dropped from AFEMS matched the total MRAP value (MRAP + MSE) gained in REMIS (see Figure 3). With lessons learned during the summer 2010 Moody AFB Beta Test, other continental US bases have now begun IMDS implementation.



- **Vehicle Platform and GFE/mission equipment managed as a configuration**
  - **Accountability maintained under work order control**
- **Utilize existing Air Force Integrated Maintenance Data System and Reliability and Maintainability Information System**

Figure 3. Future Management Process—Manage the Configuration

Shifting the sustainment strategy of the MRAP from a vehicle management concept to a weapon system management concept is no small task. In addition to the cultural paradigm shift across multiple Air Force career fields comes the challenge of defining and codifying processes at every level of the Air Force organization. The next MRAP article will drill into the maintenance data collection concept, which includes organizational responsibilities, process flows, and MRAP management responsibilities.

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One machine can do the work of 50 ordinary men. No machine can do the work of one extraordinary man.

—Elbert G. Hubbard

Our military culture must reward new thinking, innovation and experimentation.… Every dollar of defense spending must meet a single test—it must help us build the decisive power we will need to win the wars of the future.

—George H. W. Bush

Let it be admitted that the modern technological revolution has confronted us with military problems of unprecedented complexity, problems made all the more difficult because of the social and political turbulence of the age in which we live. But precisely because of these revolutionary developments, let me suggest that you had better study military history, indeed all history, as no generation of military men have studied it before.

—Frank Craven